



NARODOWY  
BANK POLSKI

March 2022

---

# **Information on home prices and the situation in housing and commercial real estate market in Poland in 2021 Q4**

---

**Approved by:**

Olga Szczepańska, Director of the Financial Stability Department

Team of authors:

Hanna Augustyniak

Arkadiusz Derkacz, NBP Regional Branch in Łódź

Krystyna Gałaszewska NBP Regional Branch in Gdańsk

**Jacek Łaszek**

Krzysztof Olszewski

Łukasz Mikołajczyk NBP Regional Branch in Opole

Anna Stolecka NBP Regional Branch in Rzeszów

Joanna Waszczuk

Marzena Zaczek

The information was prepared in the Financial Stability Department for the needs of the NBP governing bodies. The opinions expressed in this publication are authors' opinions and they do not present the position of the governing bodies of Narodowy Bank Polski.

## The analysis of the situation in the real estate market in Poland in 2021 Q4<sup>1</sup> leads to the following remarks:

- In 2021 Q4, activity in the housing real estate market remained high.** This period was an increase in the average transaction prices per square metre of housing, both in the primary and in the secondary markets and an increase in rental transaction rates. Housing construction costs, especially costs of materials, labour and lease of equipment, have increased significantly. A total of 70,400 dwellings were completed, i.e. the highest number in quarter since 2005, which was the result of developers' activity in the previous years. However, the number of housing construction contracts sold in the largest primary markets remained below the record highs recorded in the first two quarters of 2021. Lower sales of dwellings in the largest cities than the historic highs, is a consequence of the decrease in the market offer of housing developers and a shift in the demand to cheaper flats in smaller cities.
- In 2021 Q4, further increases in home prices were recorded in the majority of the cities analysed and in the growth rates of prices (cf. Table 1). Offer prices (Primary market, offer - PMO) and transaction prices (Primary offers, transactions PMT) in the primary market increased,** while the year-on-year growth rate was double-digit. Rising prices of housing in primary markets (mainly in the developer's standard, i.e. to be finished by buyers on their own and purchased with delayed delivery), amid high demand boost buyers' interest in cheaper secondary market housing. **The secondary market also observed an increase in offer prices (Secondary market, offers - SMO) and transaction prices (Secondary market, transactions SMT) in all groups of cities.** Transaction prices in the secondary market also increased at a double-digit rate, although at a slower pace than in the primary market. **Hedonic index-adjusted prices rose in all groups of cities,** which means that similar dwellings were more expensive than a in the previous quarter.

**Table 1 Price growth of a square metre of housing in the analysed cities in 2021 Q4**

	q/q				y/y			
	PMO	PMT	SMO	SMT	PMO	PMT	SMO	SMT
Gdańsk	5.3%	7.5%	2.6%	5.8%	12.0%	14.9%	8.8%	12.8%
Gdynia	-2.2%	9.3%	2.5%	2.3%	12.1%	34.9%	6.2%	12.6%
Kraków	2.3%	5.8%	7.5%	4.4%	12.8%	17.9%	16.3%	20.5%
Łódź	1.4%	1.0%	-0.2%	1.4%	20.1%	13.6%	16.5%	11.5%
Poznań	4.7%	7.0%	7.6%	0.9%	15.2%	12.5%	14.6%	1.3%
Wrocław	2.2%	6.9%	1.8%	4.6%	18.1%	15.5%	8.5%	12.3%
<b>Warsaw</b>	<b>3.6%</b>	<b>5.8%</b>	<b>2.7%</b>	<b>3.3%</b>	<b>9.9%</b>	<b>13.6%</b>	<b>11.9%</b>	<b>5.8%</b>
<b>6 cities</b>	<b>3.3%</b>	<b>6.1%</b>	<b>4.8%</b>	<b>3.5%</b>	<b>15.7%</b>	<b>17.0%</b>	<b>13.6%</b>	<b>13.1%</b>
<b>10 cities</b>	<b>3.6%</b>	<b>6.7%</b>	<b>5.2%</b>	<b>3.5%</b>	<b>15.1%</b>	<b>19.0%</b>	<b>14.8%</b>	<b>12.5%</b>

Source: NBP

Note to Table 1: the growth rates resulting from the average transaction price are underestimated due to the limited number of transactions with RCiWN (smaller number of more expensive flats). The revision will take place in the next quarter.

<sup>1</sup> The analysis carried out in this issue of the *Information* is based on data available as at the end of 2021 Q4. Data collected in the NBP database during the listings include offers valid as at 1 December 2021 and transactions concluded in the period from September to November 2021. Due to delays in access to some data, some charts include information until 2021 Q3. 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 housing prices survey (BaRN basis) concerning 2021 Q4, approx. 118.6 thousand records were collected, including approx. 34.9% records concerning transactions and 65.1% records concerning offers. Altogether, approx. 4.4 million records were collected in the base, including 25.2% records concerning transactions and 74.8% records concerning offers.

- **The growth rate of the average transaction rental rates per sq.m. of housing** (excluding service charges and utility fees) **increased in quarter-on-quarter terms** both in **Warsaw and in 6. and 10. cities** (cf. Figure 15). Investors continued to look for safe investment in real estate rather than expect attractive rates of return. Despite the increased interest in rental, large cities continue to see a high supply of housing offers on long-term rental markets, including those purchased as an investment, which may put a downward pressure on rent rates in the future. The recent years has seen an increased interest in the purchase of dwellings for rent by investment funds, including foreign funds<sup>2</sup>. Up to date, the domestic Housing for Rent Fund operated by The Bank Gospodarstwa Krajowego (BGK), has played a major role in this market.
- **The increase in the level of rent rates in the long-term rental in Warsaw and in the 6. large cities resulted in a slightly higher level of the housing profitability indicator** (cf. Figure 23)<sup>3</sup>. Still, housing investment (excluding transaction costs) was competitive compared with interest rates on bank deposits or yields on 10-year Treasury bonds.
- **The index of the estimated availability of housing in Warsaw and 6. large cities** (based on average wages in the enterprise sector) **decreased slightly in quarter-to-quarter terms**, nevertheless, it was still approx. 0.3 sq.m higher than the record low registered in 2007 Q3 (cf. Figure 16). The estimated maximum available housing loan<sup>4</sup> has also decreased slightly for the average household, similar to the estimated affordability of loan-financed housing<sup>5</sup>. Rising home prices and a growth of interest rates were the main factors contributing to the ongoing increases in the availability indicators.
- **Quarterly sales of residential construction contracts in the six largest primary markets in Poland**<sup>6</sup> (cf. Figure 56) **was approx. 0.3% higher compared to the previous quarter and reached approx. 15.0 thousand at the end of 2021. At the same time, approx. 14.7 thousand contracts for housing construction, i.e. approx. 6.6% more q/q, were concluded. The supply of unsold contracts for the construction of dwellings put on the market increased** from the previous quarter by approx. 0.7 thousand and amounted to approx. 37.4 thousand at the end of the period. The number of contracts with dwellings commonly referred to as “completed dwellings” in the sale offer in the six markets remained at the level of the previous quarter and amounted to approx. 3.2 thousand. The home selling time for housing construction in the primary market of the 6. largest markets also remained at a level of 2.2 quarters (cf. Figure 63). These figures indicate that supply is getting less elastic against demand in the largest cities.

---

<sup>2</sup> The most active group of investors comprises specialised German funds, private equity funds from the USA and the United Kingdom and other investment institutions from the Central and Eastern Europe region.

<sup>3</sup> For more information on the rental market, see “Analysis of profitability of investment in housing in selected cities in Poland in 2021 Q4”.

<sup>4</sup> 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.

<sup>5</sup> Affordability of loan-financed housing – a measure specifying how many square metres of housing may be purchased with a residential mortgage loan obtained with the average monthly wage in the enterprise sector in a particular market (Statistics Poland), in view of a given bank’s lending requirements and loan parameters (interest rate, amortisation period, minimum subsistence level understood as the minimum income after payment of loan instalments) at an average transaction price of housing (40% in the PM and 60% in the SM) in a particular market (BaRN). The pace of changes of the index and differences between particular markets provide important information.

<sup>6</sup> Based on JLL (former REAS) data.

- In 2021 Q4, the value of new housing loan disbursements in Poland was higher than in the same period of 2020.** The value of new PLN-denominated contracts for residential mortgage loans for households<sup>7, 8</sup> (excluding renegotiated contracts) according to NBP data<sup>9</sup>, amounted to PLN 23.1 bn in 2021 Q4, i.e. it was by approx. PLN 0.5 bn (2.3%) lower than in the previous quarter and by approx. PLN 6.9 bn (42.6%) higher than in 2020 Q4. For the whole period of 2021, the value of new residential mortgage loans amounted to PLN 86.3 bn, which means that it was higher by 49% y/y. The results of the NBP survey on the situation in the credit market in 2022 Q1<sup>10</sup> indicate that in the last quarter of 2021, the majority of banks once again tightened their criteria for granting residential mortgage loans, on account of interest rate hikes and a downturn in the economic outlook. In 2022 Q1, the banks surveyed anticipate further tightening of residential mortgage loan granting criteria and a deepening decline in demand for these loans.
- The estimated rate of return on equity (ROE) on development projects for housing developers remained at a level of approx. 22%.** This was the result of an increase in transaction prices, which exceeded the increase in the costs of home producers. According to the Coface report<sup>11</sup>, the number of bankruptcies in the construction sector increased from 137 to 205 while the number of real estate businesses increased from 28 to 69 respectively (cf. Figure 36). Payment arrears in the construction sector rose from 79 to 84 days at the end of 2021, against an average of 57 days for other sectors. The stock indices of construction and development companies showed declines (cf. Figure 35).
- In 2021 Q4, a historically high number of dwellings were completed in Poland (70,4 thousand)<sup>12</sup>, i.e. 7.2% more than in 2020 Q4** (cf. Figure 52). Mainly housing units for sale and rental (60.4%) and dwellings

<sup>7</sup> According to the BIK data, in 2021 Q4, banks and credit unions granted approximately 63.2 thousand residential mortgage loans to individual clients for the amount of approx. PLN 21.6 bn (in 2020 Q4, 56.6 thousand in the amount of PLN 17.0 bn, respectively). Throughout 2021, approximately 268.5 thousand residential mortgage loans were taken (a 23.7% increase y/y) for the amount of PLN 87.4 bn (a 38.1% growth y/y). The negative y/y growth in sales of residential mortgage loans recorded in 2021 Q4 concerned almost a group of loans up to PLN 200 thousand, whereas higher value loans increased (in particular, loans in excess of PLN 350 thousand increased y/y by 63% in terms of their value and 56% in terms of their number).

<sup>8</sup> According to the AMRON report, in 2021 Q4, the number of granted residential mortgage loans amounted to 63.9 thousand (compared to 68.4 thousand in the previous quarter), the value of newly granted mortgage loans amounted to PLN 22.5 billion (compared to 23.2 thousand in the previous quarter), and the average amount of a residential mortgage loan granted was approx. PLN 350.5 thousand (compared to 339.6 thousand in the previous quarter). Loans ranging from PLN 200 to PLN 300 thousand continued to be granted most frequently (24.1% compared to 24.3% in the previous quarter), however, the share of loans exceeding PLN 300 thousand is on the rise (52.3% compared to 50.7% in the previous quarter). In total new loans, the share of loans with the LtV up to 30% and above 80% increased, reaching 13.2% and 31.3% respectively, while loans with LtV 30-50% and 50-80% decreased to 6.4% and 49.1%, respectively. Compared to the previous quarter, there was a slight increase in the share of residential mortgage loans with a maturity above 35 years (0.9%), while a similar decrease was recorded in the case of loans with a maturity of up to 15 years (7.2%), 15 to 25 years (6.4%), and 25 to 35 years (24.8%). As at the end of 2021 Q4, the number of active loan agreements (during repayment) amounted to approx. 2.55 million (compared to 2.54 million in 2021 Q3), while their value at the end of the period under discussion amounted to PLN 511.3 billion (compared to 500.1 in the previous quarter).

<sup>9</sup> Data concerning the interest rate and the value of new residential mortgage loans based on the NBP data available in the "4 OPN2PLN" tab published on the NBP site: <https://www.nbp.pl/homen.aspx?f=/en/statystyka/oproc/oproc.html>. According to NBP data, at the end of December 2021 the value of residential mortgage loans stood at PLN 511.8 bn, i.e. PLN 10.9 bn higher than in the previous quarter and PLN 35.2 bn higher than the end of December 2020 figure (a 7.4% y/y increase, against 7.5% in 2020 Q4).

<sup>10</sup> "Situation in the credit market - results of the senior loan officer opinion survey, 2022 Q1" NBP, January 2022 [https://www.nbp.pl/en/systemfinansowy/kredytowy1\\_2022\\_en.pdf](https://www.nbp.pl/en/systemfinansowy/kredytowy1_2022_en.pdf).

<sup>11</sup> According to Coface experts (*Annual COFACE Report – insolvency of enterprises in Poland in 2021*), despite the fact that the number of insolvencies in the construction industry increased in 2021, the industry's financial condition is stable compared to the entire economy. The construction sector continues to develop rapidly, but it also faces major challenges from rising prices of construction materials and labour costs. The observed price increases in the economy creates upward pressure, which is difficult in the case of public contracts.

<sup>12</sup> According to the Statistics Poland data, in 2021 Q4 over 70.4 thousand homes were completed and made ready for occupancy, i.e. approx. 4.7 thousand more compared to 2020 Q4 and approx. 11.7 thousand more than in the previous quarter. A total of 234.7

for buyers' own needs (37.6%) were delivered, whereas the number of dwellings for buyers' own needs completed in 2021 increased in y/y terms and the number of housing units offered by developers decreased. The share of housing units completed in urban districts in the total number of housing units completed decreased (from 48% in 2020 to 43% in 2021), which means construction was shifted outside large cities. **The number of approx. 61.1 thousand dwellings started<sup>13</sup> was also high, i.e. 8.1% higher than that recorded in 2020 Q4** (cf. Figure 53). Dwellings for sale and rental accounted for 59.9% and dwellings for buyers' own needs - for 38.2%. It should be added that the share of new investment projects started in large cities (23% share vs. 24% in 2020) and in Warsaw (10% share vs. over 11% in 2020) decreased while the number of new construction projects in the rest of Poland (52% share vs. 51% in 2020) and in the 10 cities (15% share vs. 14% in 2020) increased. It should be kept in mind that these figures refer to the administrative boundaries of cities, thus city agglomeration is recognised as part of the so-called rest of Poland.

- **The estimated high rates of return on housing development projects and persistent investment and consumer demand contributed to a significant growth in the number of new home building permits<sup>14</sup>.** Permits were granted mainly for the construction of housing for sale and rental (built by housing developers, 63% share in the total number of permits) and homes for buyers' own needs (self-build, 36% share in the total number of permits). In the period discussed, the share of building permits granted for cooperative house construction was close to zero. The share of housing permits increased slightly in Warsaw (to 9%) and to 59% in the rest of Poland, while it decreased in the 6 and 10 cities (to 21% and 12%, respectively). It means that given the problems in purchasing construction areas in some large cities, residential housing is built outside their administrative boundaries. The high number of issued building permits was to a large extent the result of making up home shortages as a consequence of COVID-19 constraints, delayed processing of permit applications submitted before the end of 2020, including before the change in regulations concerning energy efficiency requirements for buildings, and the high demand.
- 2021 Q4 closes the period during which rising home prices and construction costs were the main sectoral risks. In the subsequent periods, the sector will be affected by rising interest rates and factors related to the war between Russia and Ukraine.
- **The commercial real estate market has been severely affected by the Covid-19 pandemic, and the resulting limited trade and business activity have affected rents and real estate sale transactions and will be noticeable in a longer perspective.**
- **In 2021 Q4, in the office real estate market imbalances resulting from oversupply of space for rent as compared to demand for such space have decreased.** The supply of new space and space under construction remains high, while tenant activity has improved slightly compared to the end of 2020. According to the data released by consulting companies, at the end of the period under discussion, the

---

thousand dwellings were completed and made ready for occupancy over the last 4 quarters, i.e. approx. 12.7 thousand more than in the corresponding period of 2020 (a rise of 5.7% y/y).

<sup>13</sup> According to the Statistics Poland data, in 2021 Q4 the construction of approx. 61.1 thousand homes was started, which is approx. 4.6 thousand more compared to 2020 Q4, however, approx. 10.6 thousand less than in the previous quarter. Altogether, the last 4 quarters saw the launch of construction of approx. 277.4 thousand dwellings, i.e. approx. 53.4 thousand less than in the same period of 2020 (a decrease of 23.9% y/y).

<sup>14</sup> According to the Statistics Poland data, in 2021 Q4 approx. 85.2 thousand home building permits were issued in Poland, i.e. approx. 1.0 thousand more than in 2020 Q4 and approx. 1.7 thousand more than in the previous quarter. In the last four quarters a total of approx. 340.6 thousand permits were issued, i.e. 64.7 thousand more than in the corresponding period of 2020 (a 23.4% y/y increase).

total stock of office space in the largest office markets<sup>15</sup> stood at approx. 12.2 million square metres, with approx. 1.2 million square metres under construction. The vacancy rate in the nine largest markets stood at 13.4% (compared to 13.5% in Q3) while in Warsaw alone it amounted to 12.7%<sup>16</sup>, which means a 0.2 pp increase compared to the previous quarter. The vacancy rate of office space depends on the age<sup>17</sup> and mainly on the location of the office building<sup>18</sup>. Construction of almost 10% of additional space does not mean an automatic increase in vacancy rates, however, it will generate significant competition for tenants, especially as regards older buildings or those in poorer locations. Consequently, we will see the withdrawal of this space from the market or its conversion into modern and marketable residential space.

- **In 2021 Q4, the retail sector was slowly recovering from the initial impact of the COVID-19 pandemic.** According to the data released by consulting companies, customers continue to return to stationary shopping while e-commerce started to stabilise<sup>19</sup>. This is largely due to the return to stationary work and the easing of restrictions. Projects to convert retail space into multi-function projects continue to be developed. The stock of modern retail space at the end of 2021 Q4 amounted to over 12.3 million sq. m, which translates into a saturation of 320 sq. m/1000 inhabitants.<sup>20</sup> On the other hand, there were approximately 370,000 sq. m<sup>21</sup> of modern retail space under construction. It can be concluded that investors consider the retail market in the largest cities to be saturated. A considerable part of the new space is built in the form of retail parks in smaller towns with up to 100,000 inhabitants<sup>22</sup>.
- **The market for modern warehouse space in Poland was in the expansion phase for another quarter while the supply and demand also remained high.** The market for modern warehouse space benefits from the continued development of e-commerce. Developers respond to the rapidly growing demand while the supply is increasing at a record pace. The segment of warehouses located in urban areas continues to develop very rapidly in order to reduce the time necessary to deliver products to the customer. As at the end of 2021 Q4, the total stock of the warehouse space market increased to 23.8 million sq. m<sup>23</sup>, with over 4.2 million sq. m. of modern warehouse space under construction. The vacancy rate across the country recorded a further decline to the level of 3.7% compared to 4.9% in 2021 Q3.
- **At the end of 2021 Q4, the estimated value of commercial real estate purchased for investment purposes<sup>24</sup>, i.e. for rental, amounted to nearly EUR 5 billion.** Approximately 44.7% of the transaction value concerned warehouse space, 33.9% office space and only 16.3% retail space.
- **The exposure of the financial sector to commercial real estate (loans to housing developers, loans for office, retail, warehouse real estate and other loans) comes in two main forms. The first is related to loan financing of a particular property.** Usually, in this case, the loan is secured on this particular property, but alternative forms of security are also possible. At the end of 2021 Q4, the value of those loans

---

<sup>15</sup> The nine office space markets include: Warsaw, Kraków, Wrocław, Tri City, Katowice, Łódź, Poznań, Szczecin, Lublin.

<sup>16</sup> See: Colliers International Report: Market Insights, 2022 Annual Report, Poland.

<sup>17</sup> Cushman & Wakefield, Marketing as one of the key factors supporting the modernisation process of older office buildings, 2018.

<sup>18</sup> See: Knight Frank, Report: Poland, Commercial Market, 1st half of 2018.

<sup>19</sup> See CBRE report, Real Estate Market Outlook 2022, Poland.

<sup>20</sup> It is estimated that this value is 15% lower than the average for the entire European Union.

<sup>21</sup> See: Colliers International Report: Market Insights, 2022 Annual Report, Poland.

<sup>22</sup> See CBRE report, Real Estate Market Outlook 2022, Poland.

<sup>23</sup> See: Colliers International Report: Market Insights, 2022 Annual Report, Poland.

<sup>24</sup> On the basis of Comparables. pl data the above investments concern the sale of the entire operating company which rents the building and derives income from it. Such transactions take place between: 1/ the real estate developer who has commercialised the property and sells it to the investor, or 2 / two investors.



granted by banks in Poland<sup>25</sup> amounted to PLN 60 billion<sup>26</sup>, including 55% of loans denominated in EUR. The value of corporate debt resulting from residential real estate at the end of 2021 Q4 increased slightly to PLN 4.2 billion. The value of loans for office real estate fell to PLN 14.4 billion against PLN 15.3 billion in 2021 Q3. The value of loans granted for retail real estate stood at PLN 16 billion while for warehouse and industrial real estate it decreased to PLN 9.2 billion against PLN 9.3 billion in 2021 Q3. On the other hand, the value of loans granted for other real estate stood at PLN 15.4 billion.

- **The second form of banks' exposure are loans taken by enterprises for various purposes, secured on real estate.** The value of corporate loans secured by mortgage on commercial real estate at the end of 2021 Q4 amounted to PLN 132 billion<sup>27</sup>, i.e. it has not changed compared to the previous quarter. Of these loans, 36% were denominated in EUR.
- **The quality of loans granted to enterprises for real estate has not changed significantly in relation to the previous quarter.** The ratio of non-performing loans granted for office real estate stood at 6.7%, in the case of loans extended for retail space, it decreased to 14.5% compared to 15.3% in 2021 Q3. This ratio in the case of warehouse and industrial space fell to 6.3% compared to 6.9% in 2021 Q3, in the case of other real estate it increased to 8.5% from 7.7%. The non-performing loan ratio among loans granted for housing developer real estate decreased slightly to 14.7% against the level of 15.3 % in 2021 Q3. The relatively high value of this ratio is mainly due to banks holding in their loan portfolio non-performing loans from previous years.<sup>28</sup>
- **In the market of small office real estate, the median of asking prices all over Poland and in the majority of the largest cities saw a slight increase.** Also in the case of small retail premises, in the majority of large cities there was a slight increase in the median of asking prices.

The figures below describe the key developments in the housing market in Poland's major cities in 2021 Q4. The charts and figures present:

- 1) home prices (Figures 1– 15),
- 2) availability of loan-financed housing, loan availability, profitability of housing investment (Figures 16– 24),
- 3) mortgage loan disbursements and interest rates (Figures 25– 34),

---

<sup>25</sup> The value of loans intended for commercial real estate construction extended by foreign banks as at the end of 2020 is estimated by experts to have stood at PLN 97 bn. The estimate has been arrived at as follows: The value of the stock of commercial real estate in Poland (office, retail and warehouse) as at the end of 2020 has been estimated at PLN 314 bn. This estimate has been calculated by multiplying the volume of real estate stock in square metres (published by consulting companies) by the hedonic valuation of relevant properties estimated by NBP. In line with the international experience, it can be assumed that the LTV in the total stock is 50%, thus the total value of loans for real estate is estimated at PLN 157 bn. By deducting loans granted by banks operating in Poland, (PLN 60.4 bn), we obtain the estimated amount of loans granted by banks operating abroad (PLN 97 bn). These loans comprise loans granted by the financial sector and the non-financial sector (which in turn usually incurs debt in the financial sector).

In line with S Recommendation, since June 2013, the maximum LTV for commercial real estate in Poland has been 75% or 80% if the part of the exposure exceeding 75% LTV is adequately hedged, or if the borrower has submitted additional collateral in the form of the freezing of funds in a bank account or in the form of a pledge on debt securities of the State Treasury or of NBP, denominated in PLN.

<sup>26</sup> FINREP data.

<sup>27</sup> The fall in debt by PLN 4.6 billion in comparison with Q3 was mainly due to the repayment of loans denominated in PLN.

<sup>28</sup> See Financial Stability Report, NBP, December 2018.



- 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 35– 50),
- 5) housing construction and the residential market in selected cities in Poland (Figures 51– 64),
- 6) rents and transaction prices of commercial real estate and estimated rate of return (Figures 65- 75),
- 7) analysis of profitability of investment in housing for rent in selected cities in Poland in 2021 Q4 (Figures 76- 82),
- 8) analysis of changes in average asking rates for home rental according to new advertisements posted on the OTODOM.PL website in 2021 Q4 (Figures 83-87),
- 9) financial standing of development companies with elements of demand and supply analysis in the primary housing market based on the NBP surveys (Figures 88-108),
- 10) financial standing and production capacity of construction companies engaged in the construction of buildings based on the NBP surveys (Figures 109-124).

The analysis of housing prices (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 (former REAS), 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 the Central Statistical Office and many studies containing sector data were used<sup>29</sup>.

---

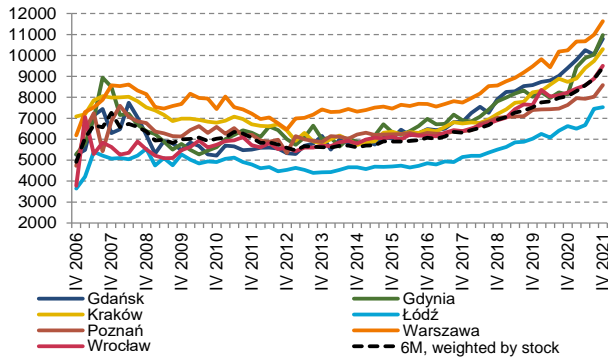
<sup>29</sup> Data and studies were used, among others, Sekocenbud, Spectis, PAB, OLX Group.

### List of abbreviations:

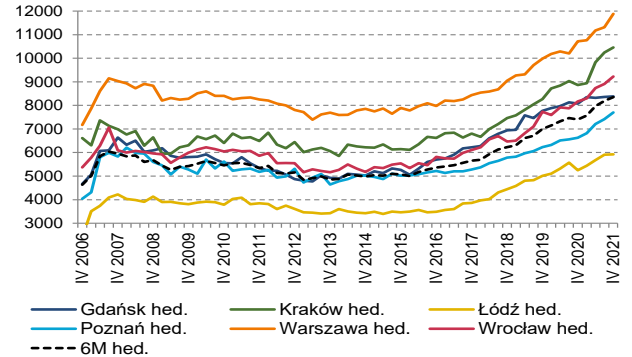
<b>5M</b>	5 biggest cities: Gdańsk, Kraków, Łódź, Poznań, Wrocław
<b>6M</b>	6 biggest cities: Gdańsk, Gdynia, Kraków, Łódź, Poznań, Wrocław
<b>7M</b>	7 biggest cities: Gdańsk, Gdynia, Kraków, Łódź, Poznań, Warszawa, Wrocław
<b>10M</b>	10 biggest cities: Białystok, Bydgoszcz, Katowice, Kielce, Lublin,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

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

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



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

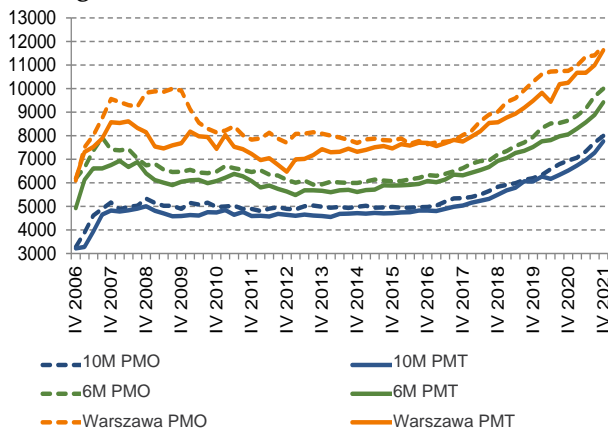


Note: the home price database of NBP (BaRN) has existed since 2006 Q3; description of the database is available on the bank's website [https://www.nbp.pl/home.aspx?f=/publikacje/rynek\\_nieruchomosci/ankieta.html](https://www.nbp.pl/home.aspx?f=/publikacje/rynek_nieruchomosci/ankieta.html) . \*/The price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

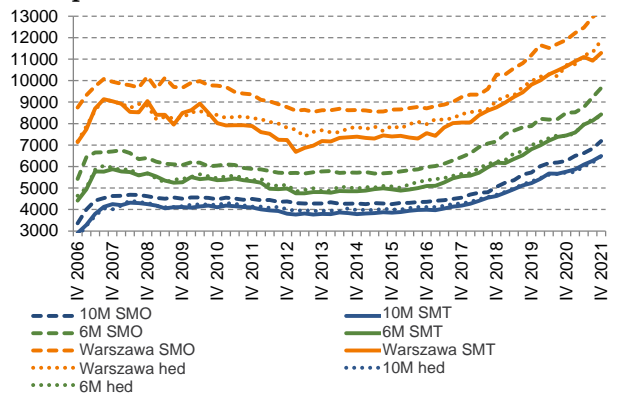
Source: NBP

Source: NBP

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



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

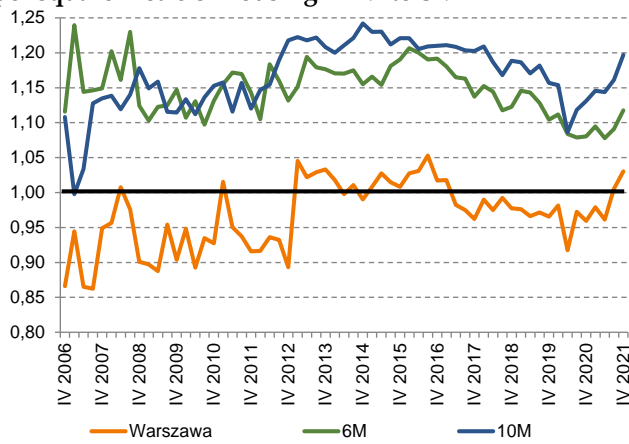


Note to Figures 3-10 and 14-15: prices and rents weighted in 6M and 10M with the share of the housing stock, the average price for Warsaw.

Source: NBP

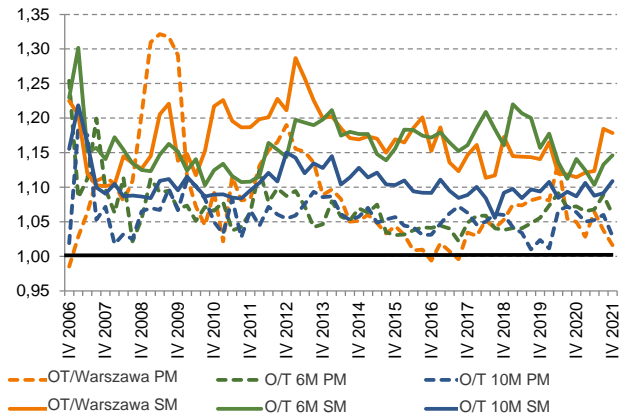
Source: NBP

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



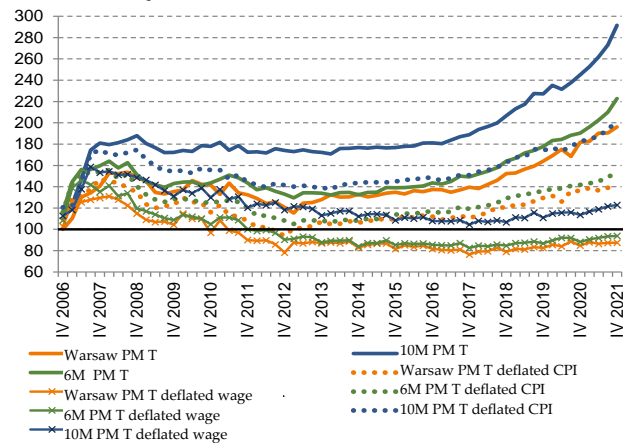
Source: NBP

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



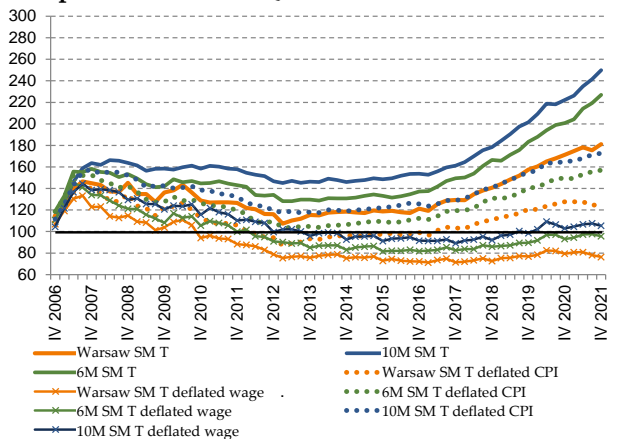
Source: NBP

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



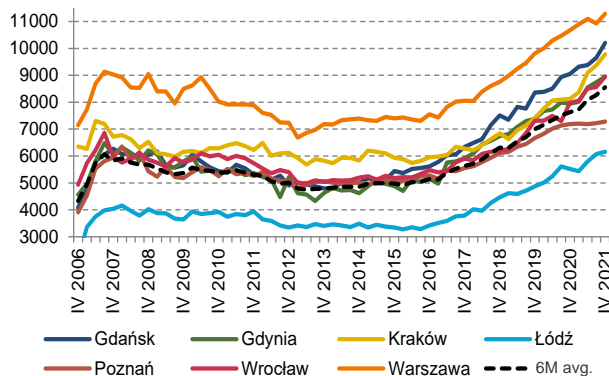
Source: NBP, ZBP (AMRON), Statistics Poland

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



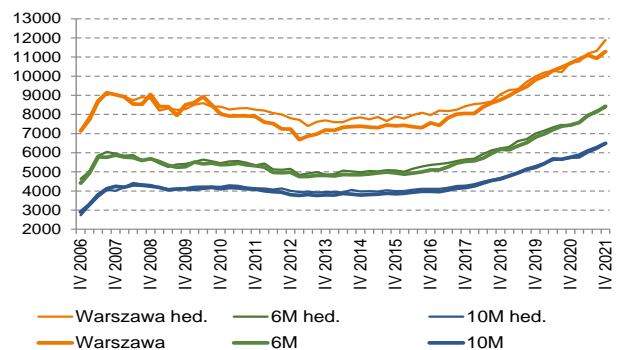
Source: NBP, ZBP (AMRON), Statistics Poland

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



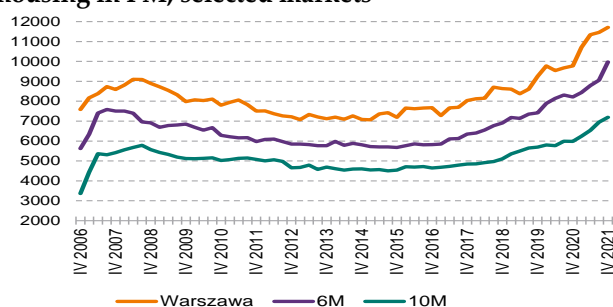
Source: NBP

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

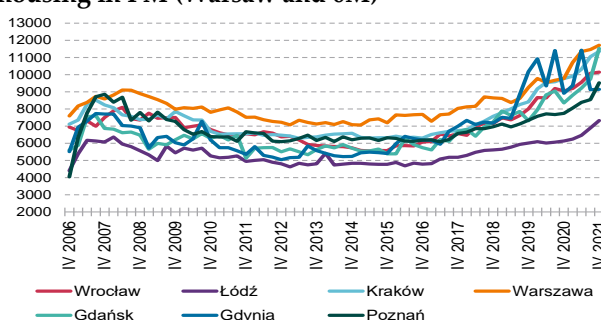


Source: NBP

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



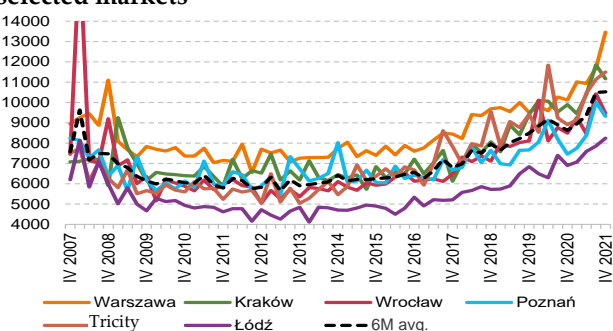
**Figure 12 Average offer prices per square metre of housing in PM (Warsaw and 6M)**



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

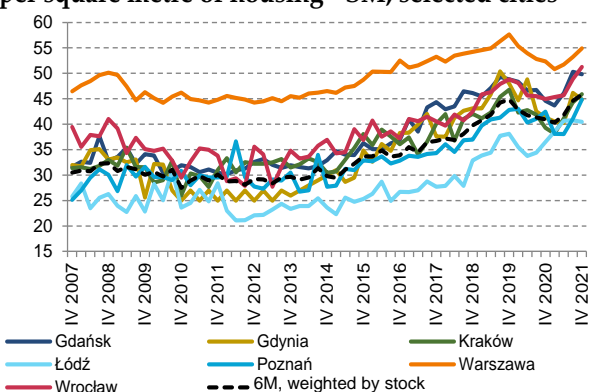
Source: PONT Info Nieruchomości

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



Source: PONT Info Nieruchomości

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

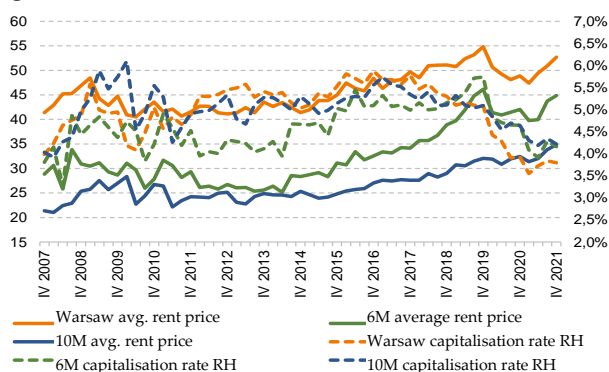


Note: prices refer only to new contracts put on the market for the first time. Source: JLL/d.REAS

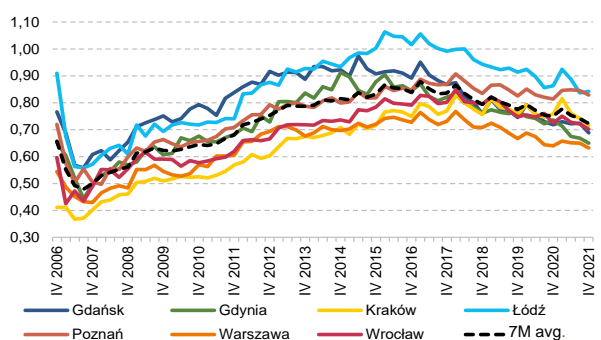
Note: in 2020 the change in the sample was observed.

Source: NBP, OLX Group

**Figure 15 Average rent rates (transactions) in PLN per square metre of housing in the SM (left-hand scale) and the estimated profitability of housing rental (right-hand scale) in selected cities**



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



Note to Figure 15: 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 and 1.5% amortisation; the analysis does not take into account the high transaction costs in the housing market and the potentially long period of disinvestment.

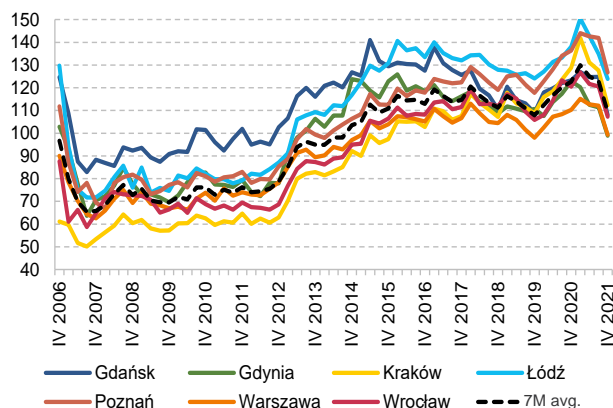
Source: NBP, OLX Group

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

Source: NBP, Statistics Poland

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

**Figure 17** Estimated availability of loan-financed housing (7M)



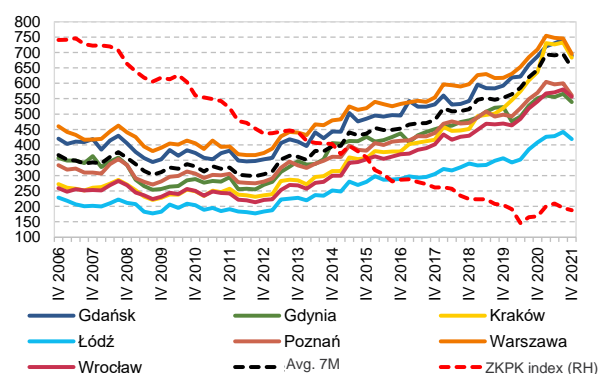
Source: NBP, Statistics Poland

**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.

**ZPK 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. Computing methods of the index are described in the *Financial Stability Report, December 2012*, NBP.

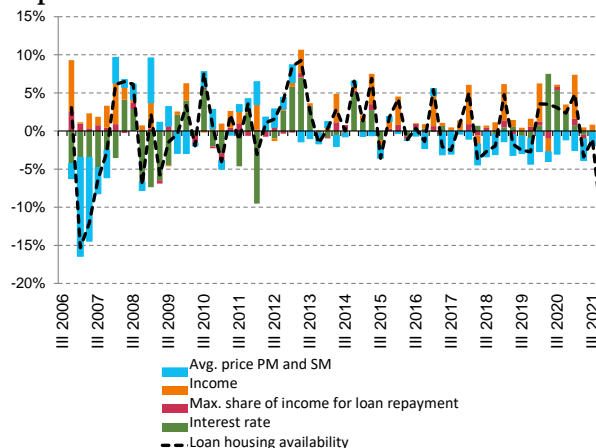
**Figure 19** Estimated affordability of loan-financed housing and accumulated index of banks' mortgage lending policy (ZPKK, right-hand scale)



Note: positive values of ZPKK mean easing and negative values - tightening of the banks' lending policy in relation to the initial period, i.e. 2003 Q4. ZPKK data have been updated.

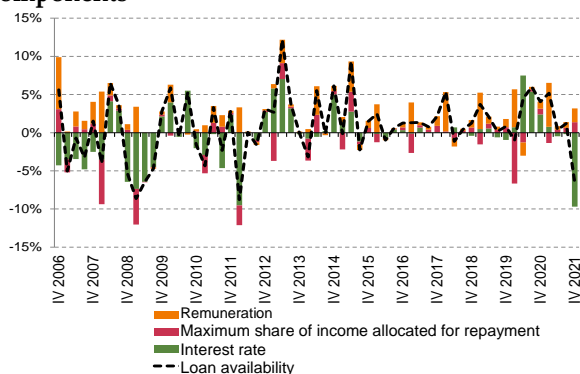
Source: NBP, Statistics Poland

**Figure 18** Quarterly changes in the estimated availability 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 availability of loan-financed housing in 7M and the force and directions of the impact of individual components

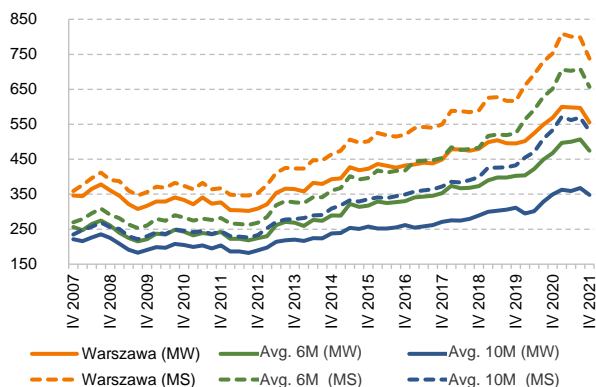


Note: the interest on mortgage loan weighted with the share of PLN-denominated and FX loan.

Source: NBP, Statistics Poland



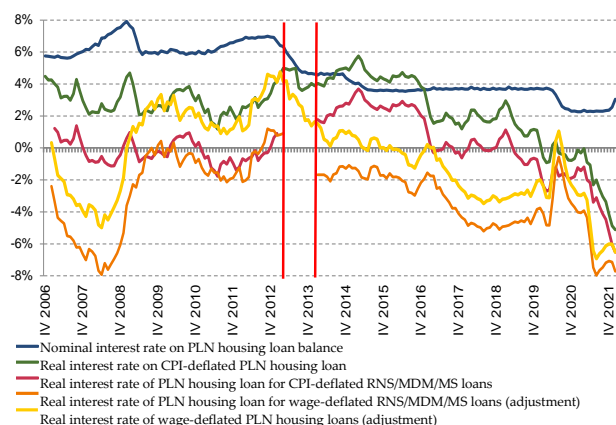
**Figure 21 Estimated available mortgage loan for an average gross wage in the enterprise sector in selected cities**



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

Source: NBP, Statistics Poland, BGK

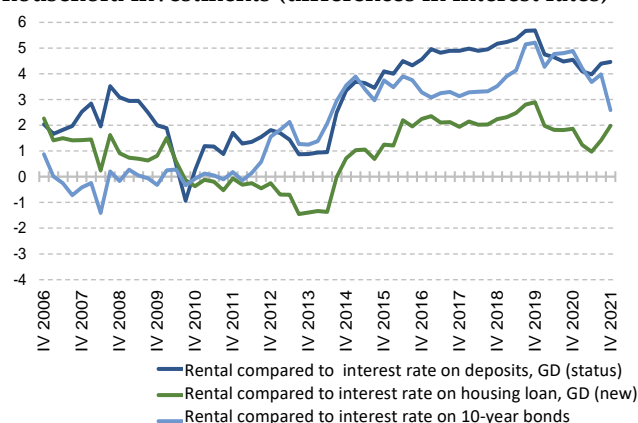
**Figure 22 Residential mortgage loan burden for consumer deflated with CPI or wage growth in the enterprise sector**



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

Source: NBP, Statistics Poland, BGK

**Figure 23 Profitability of home rental (average in Warsaw and 6M) as compared with alternative household investments (differences in interest rates)**

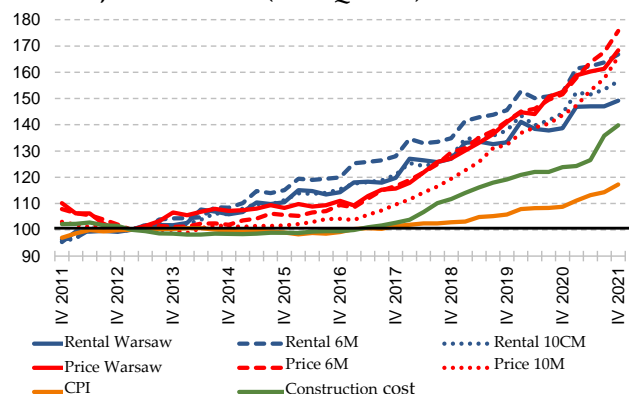


Note to Figure 23: values exceeding 0 denote higher profitability of purchasing property for rental to third persons than other GD investment. This analysis does not take into account high transaction costs in the residential market and the potentially long time of disinvestment.

Note to Figure 24: Transaction price of sq. m of a dwelling 50% SM and 50%PM (including costs of finishing; detailed description of Table 7). Cost of construction of half a 1121-302 building (details in footnote 31).

Source: NBP, Statistics Poland

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

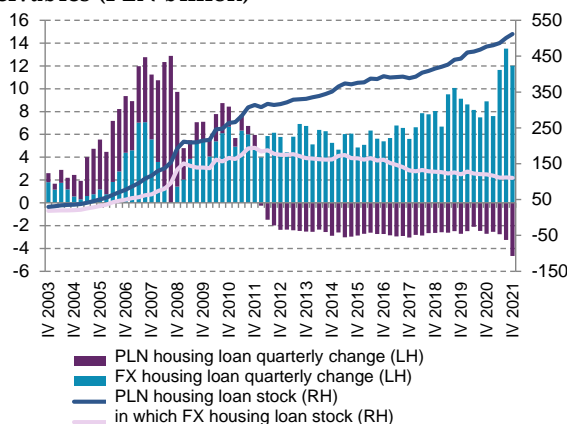


Source: NBP, Statistics Poland



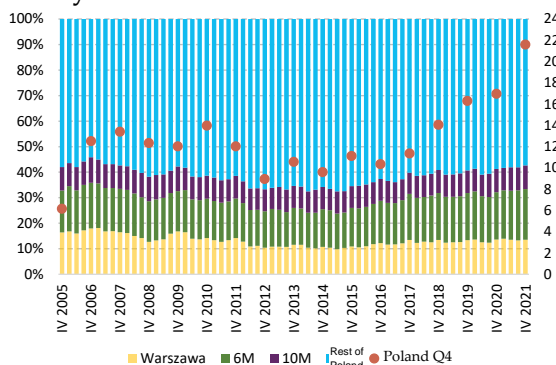
### 3. Disbursement of housing loans, interest rates

**Figure 25 Balance and quarter-on-quarter changes in housing loan receivables from households after adjustments and the currency structure of quarter-on-quarter changes in residential mortgage loan receivables (PLN billion)**



Source: NBP

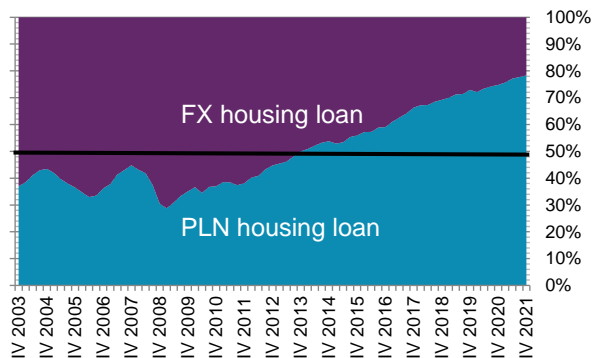
**Figure 27 Geographical structure of the value of new PLN-denominated residential mortgage loan contracts in Poland's selected cities (left-hand scale) and the value of contracts in Poland (right-hand scale), quarterly data**



Note to Figures 27 and 28: the data inform about signed residential mortgage loan contracts rather than about the actual disbursement of loans. Only fourth quarters are marked by red points in Figure 27.

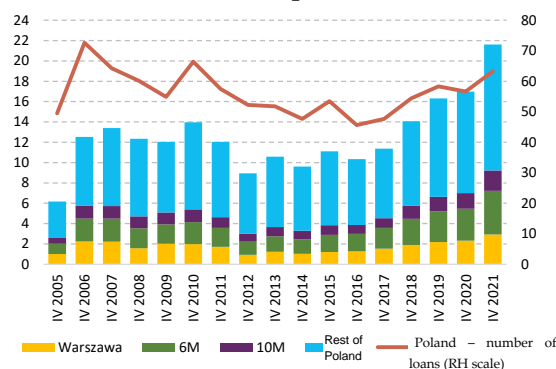
Source: BIK

**Figure 26 Currency structure of housing loan receivables from households (%)**



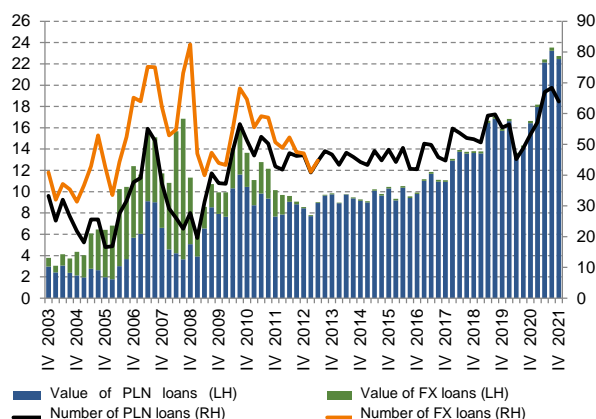
Source: NBP

**Figure 28 Value in PLN bn (left-hand scale) and number (right-hand scale) of new PLN-denominated residential mortgage loan contracts in Poland's selected cities in the fourth quarters of 2005-2021**



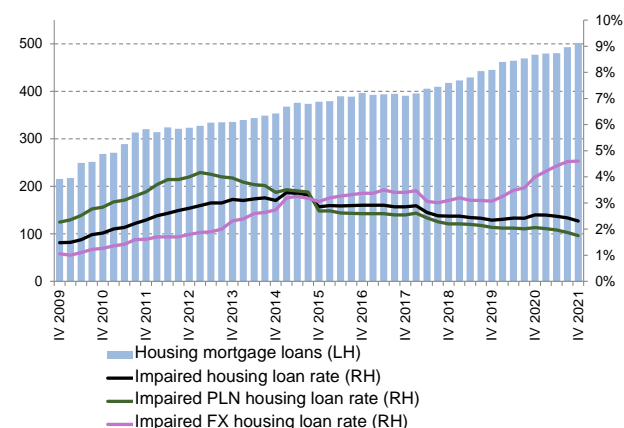
Source: BIK

**Figure 29 New residential mortgage loan contracts: value and number, cumulated quarterly values**



Source: ZBP (AMRON)

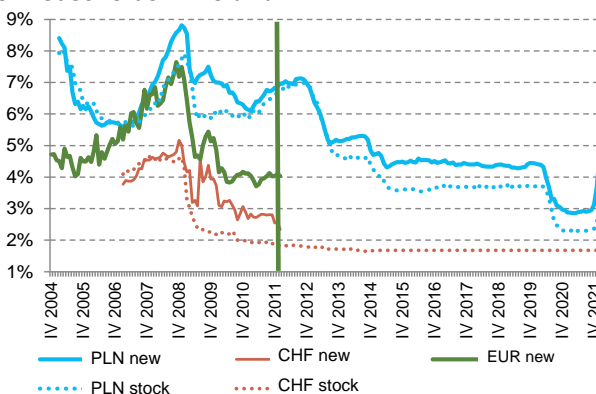
**Figure 30 GD loans for housing real estate and indicator of loans recognised as non-performing loans**



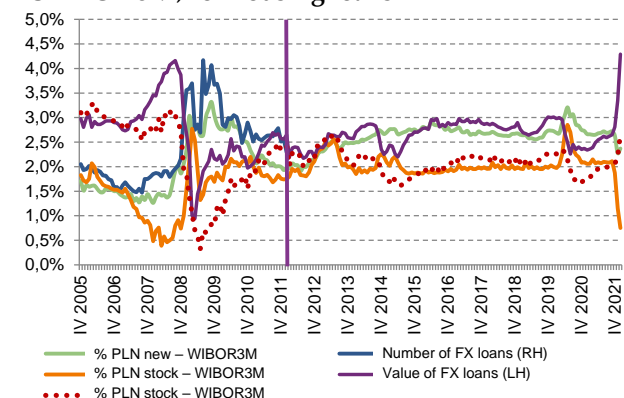
Note: receivables (loans) with determined loss of value – receivables from portfolio B, in relation to which objective premises of loss in value were observed and a decrease in the expected value of future cash flows (in banks using the IFRS) or which were recognized as non-performing loan receivables in accordance with the Ordinance of the Minister of Finance on establishing provisions against the risk associated with banking activities (in banks using the PAS).

Source: NBP

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



**Figure 32 Bank margins (for WIBOR, LIBOR, EURIBOR 3M) for housing loans**



Note to Figure 31 and 32: the violet vertical line separates a period with no FX loans which have not been practically granted since 2012. Note to Figure 31: bank margin is the difference between the housing loan rate (NBP data) and the WIBOR3M rate or the LIBORCHF3M rate.

Source: NBP

Source: NBP

**Table 2 Estimated gross residential mortgage loan disbursements to households in Poland and the estimated value of cash-financed and loan-financed\*/ purchases of developer housing in 7 cities (7M; in PLN million)**

Date	Disbursement of housing loans in Poland	Estimated value of housing transactions in the PM in 7M	Loan demand including client's down payment in the PM in 7M	Client's down payment to loans in the PM in 7M	Cash demand (without down payment) in the PM in 7M	Estimated share of cash home purchases in the PM in 7M
2012 Q1	5385	3135	1228	307	1907	71%
2012 Q2	7325	3079	1670	418	1409	59%
2012 Q3	7661	2773	1747	437	1026	53%
2012 Q4	7441	3164	1697	424	1467	60%
2017 Q1	10945	6851	2495	624	4356	73%
2017 Q2	12139	6480	2768	692	3712	68%
2017 Q3	11794	6676	2689	672	3987	70%
2017 Q4	10652	7152	2429	607	4724	75%
2018 Q1	11914	7015	2716	679	4299	71%
2018 Q2	12807	6072	2920	730	3152	64%
2018 Q3	13024	5697	2969	742	2727	61%
2018 Q4	12584	6759	2869	717	3890	68%
2019 Q1	11865	7156	2705	676	4450	72%
2019 Q2	14653	6713	3341	835	3372	63%
2019 Q3	14554	7282	3318	830	3964	66%
2019 Q4	12770	8147	2912	728	5235	73%
2020 Q1	14871	9059	3391	848	5669	72%
2020 Q2	13009	3260	2966	742	294	32%
2020 Q3	13859	6565	3160	790	3405	64%
2020 Q4	16185	6834	3690	923	3144	60%
2021 Q1	17392	9875	3965	991	5909	70%
2021 Q2	22244	10072	5072	1268	5000	62%
2021 Q3	23607	8009	5382	1346	2626	50%
2021 Q4	23074	8509	5261	1315	3249	54%

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

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

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

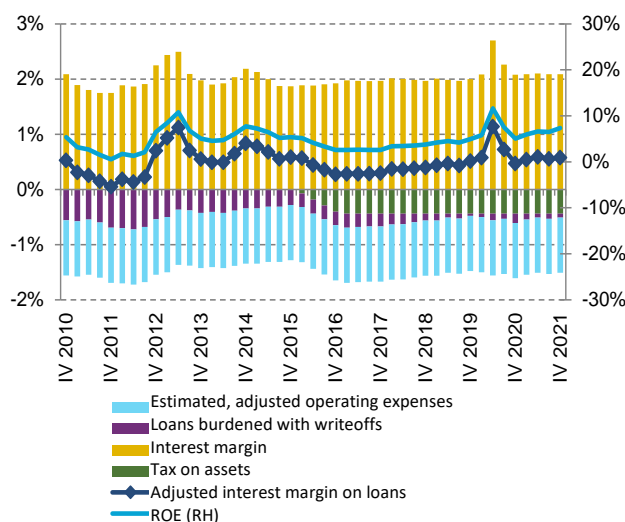
In order to calculate the estimated value of PM transactions in 7M (Gdańsk, Gdynia, Kraków, Łódź, Poznań, Warszawa, Wrocław), the average home price 7M (NBP) was multiplied by the average home size in square metres (Statistics Poland data) and the number of housing units sold (JLL/former REAS). On the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

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

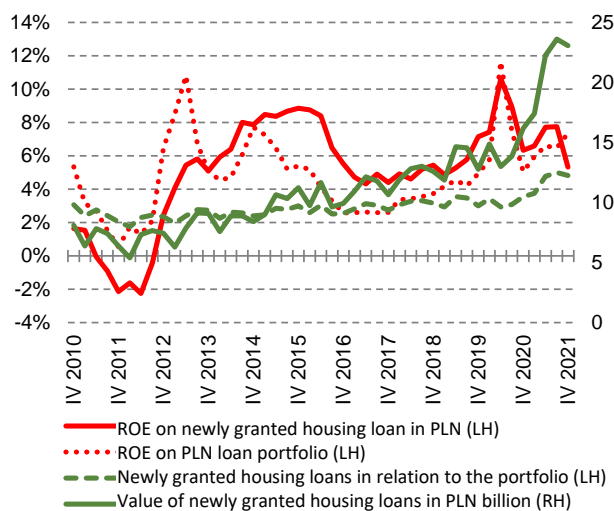
\*\*\*/ The decline in estimated share of home purchases with down payment on the PM in 7M, recorded in 2020 Q2 is related to very low sale of dwellings in this period associated with the pandemic restrictions on movement.

Source: NBP, JLL (former REAS), ZBP, Statistics Poland

**Figure 33 Estimated ROE on residential mortgage loans denominated in PLN for banks in Poland, taking into account interest income and non-interest profit, as well as operating costs and bank tax**



**Figure 34 Estimated ROE on residential mortgage loans denominated in PLN for banks in Poland, taking into account interest income and non-interest profit and operating costs and bank tax**



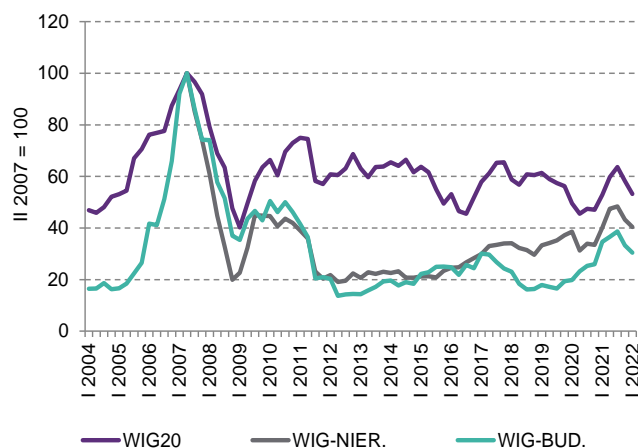
Note to Figures 33 and 34: for calculation, interest income, non-interest income and operating costs were taken into account. The estimated ROE (return on equity) is calculated as the adjusted interest margin in relation to equity. The adjusted interest margin is the interest margin less write-offs, less the estimated operating expenses (adjusted for the non-interest result on residential mortgage loans), less bank tax. Operating expenses less non-interest income were estimated at 1% of the value of the credit portfolio and at 1.5% of the value of new loans. Data concerning equity calculated on the basis of KNF publications. Interest margin based on NBP data.

Source: NBP, KNF

Source: NBP, KNF

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

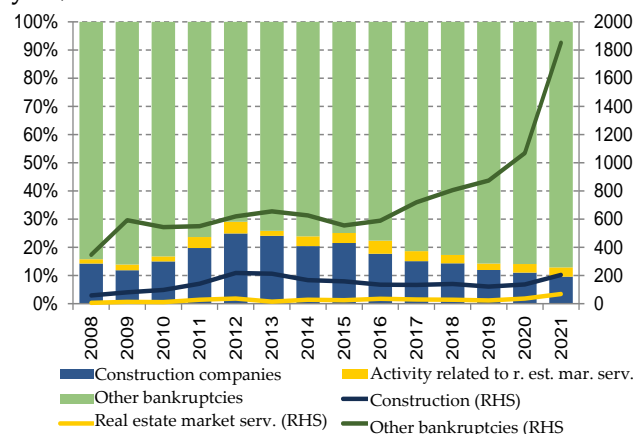
**Figure 35 Rescaled exchange indices: WIG20 and for real estate developers (WIG-NIER) and construction companies (WIG-BUD) (2007 Q2=100)**



Note: data standardised, 2007 Q2 = 100 (developers' WIG has been listed since 2007 Q2); 2021 Q2, status as at 28 February 2022.

Source: Warsaw Stock Exchange

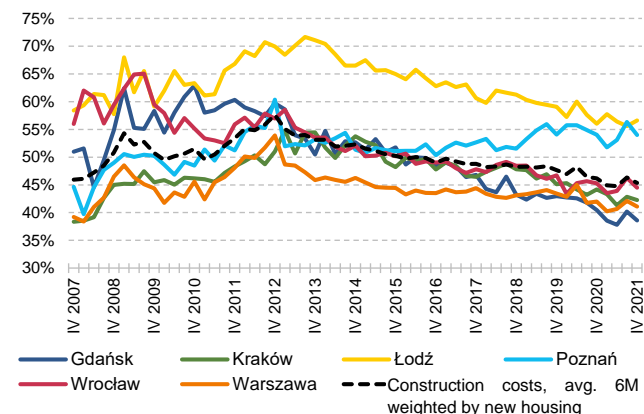
**Figure 36 Structure (left-hand scale) and number (right-hand scale) of bankruptcies of enterprises, including construction industry (as at the end of the year)**



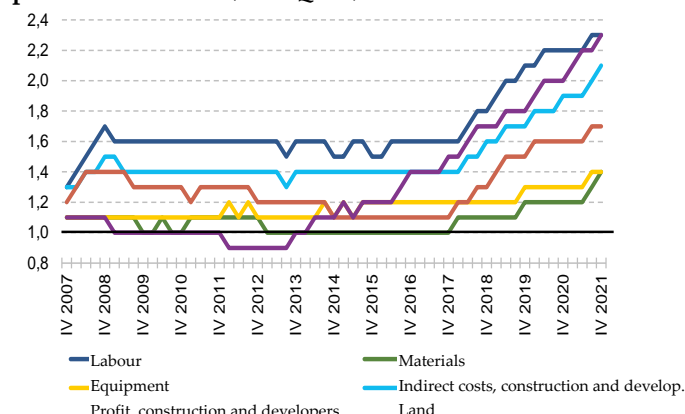
Note: breakdown according to the first entry into the KRS.

Source: Coface Poland

**Figure 37 Estimated share of direct construction costs per square metre of the residential building's usable floor area (type 1122-302<sup>30</sup>) in net transaction price in PM 6M**



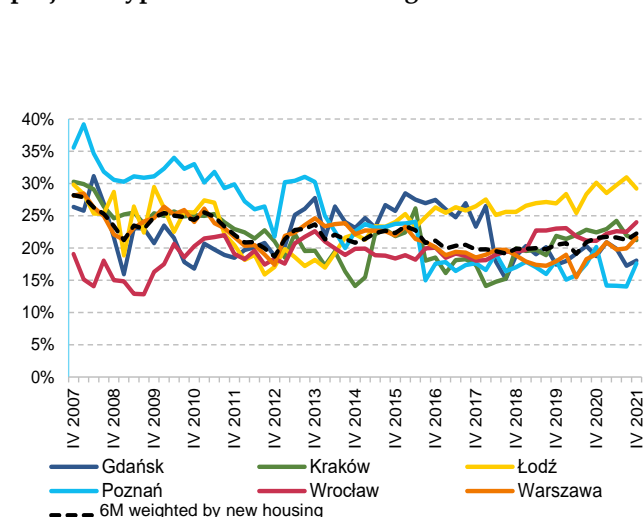
**Figure 38 Estimated share of various construction costs per square metre of the residential building's usable floor area (type 1122-302<sup>30</sup>) in net transaction price in PM of 6M (2007 Q1=1)**



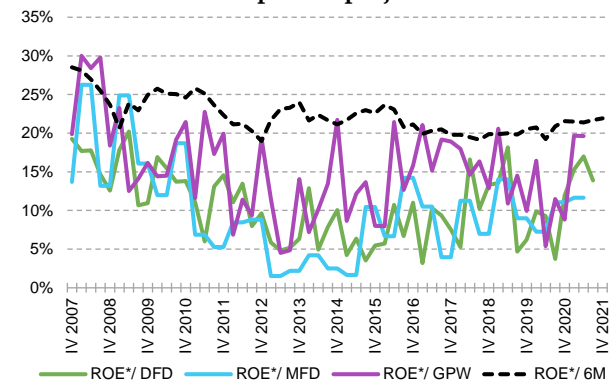
Note to Figures 37 and 38: Since 2014 NBP has used its own appraisal of land for residential multifamily construction.  
 Source: NBP based on Sekocenbud

Source: NBP based on Sekocenbud

**Figure 39 Estimated rate of return o development projects (type 1122-302<sup>30</sup>) in the largest cities**



**Figure 40 Estimated profitability indicators of development projects ROE\* for real estate developers listed on the Stock Exchange, for large real estate developers (DFD)\*\*, small real estate developers (MFD)\*\*\* and development projects in 6 cities (6M)**



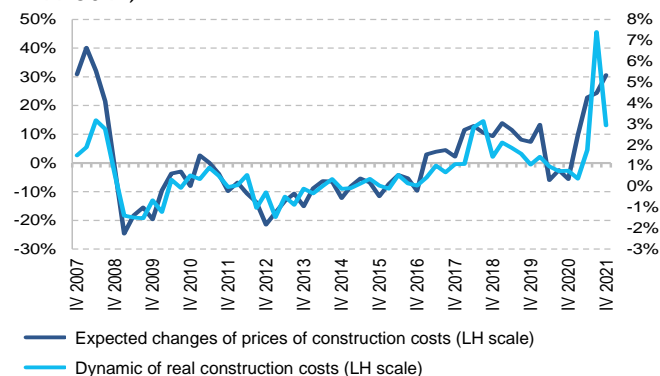
\* /ROE modified = net financial result/ (income from sale – net result from sale); \*\* / DFD – average large real estate developer (according to the Statistics Poland employment =>50 employees), MFD – average small real estate developer (employment 949 employees).

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

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

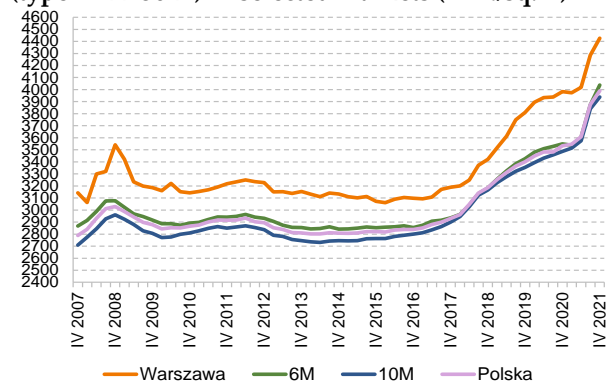
<sup>30</sup> Half of the building (type 1122-302) monitored by NBP since 2016 Q2 based on Sekocenbud data. An average residential multifamily building, with an underground garage, constructed in the following technology: foundation footings, construction walls and ceilings - monolithic reinforced concrete, curtain walling - bricked walls of hollow MAX blocks. Change of the type of the analysed building in 2017 is related to closing of the cost estimation of the building 1121. Analytical assumptions related to building 1121 have been maintained.

**Figure 41 Predicted changes in prices of construction and assembly works (+3C) and growth in construction costs of usable floor area of a residential building (type 1122- 302<sup>30</sup>)**



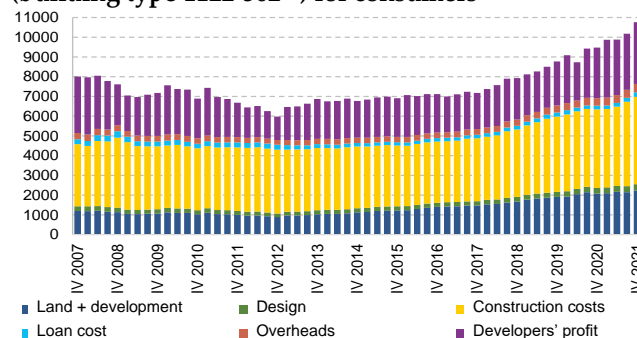
Source: NBP based on CSO data (business conditions survey), Sekocenbud

**Figure 42 Average cost of construction of square metre of the residential building's usable floor area (type 1122- 302<sup>30</sup>) in selected markets (PLN/sq.m)**



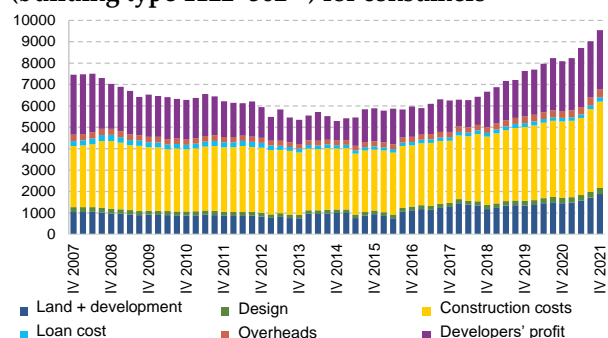
Source: NBP based on Sekocenbud

**Figure 43 Warsaw – estimated structure of price per square metre of housing usable floor area in the PM (building type 1122-302<sup>30</sup>) for consumers**



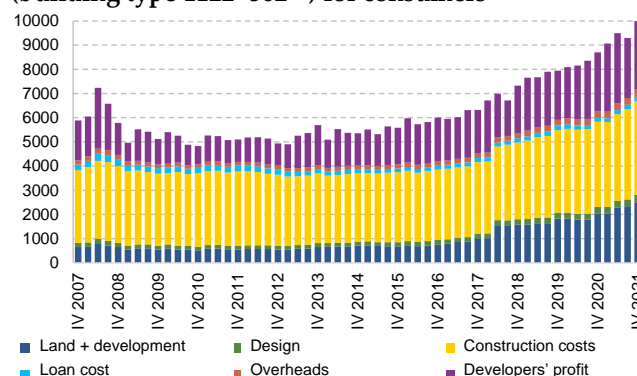
Source: NBP based on Sekocenbud, JLL (former REAS)

**Figure 44 Kraków – estimated structure of price per square metre of housing usable floor area in the PM (building type 1122- 302<sup>30</sup>) for consumers**



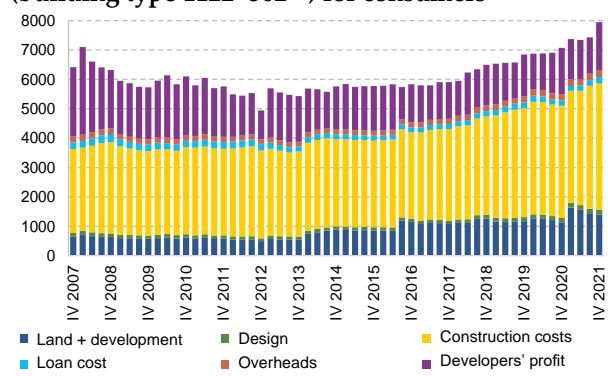
Source: NBP based on Sekocenbud, JLL (former REAS)

**Figure 45 Gdańsk – estimated structure of price per square metre of housing usable floor area in the PM (building type 1122- 302<sup>30</sup>) for consumers**



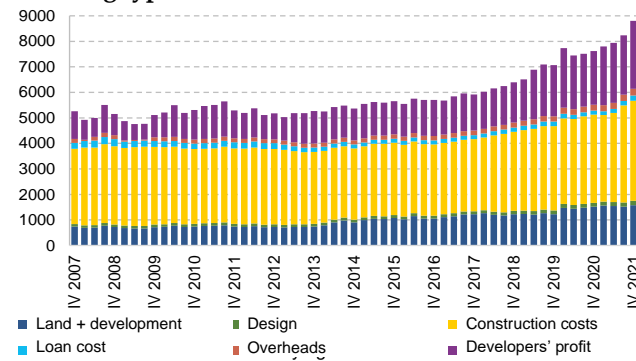
Source: NBP based on Sekocenbud, JLL (former REAS)

**Figure 46 Poznań – estimated structure of price per square metre of housing usable floor area in the PM (building type 1122- 302<sup>30</sup>) for consumers**



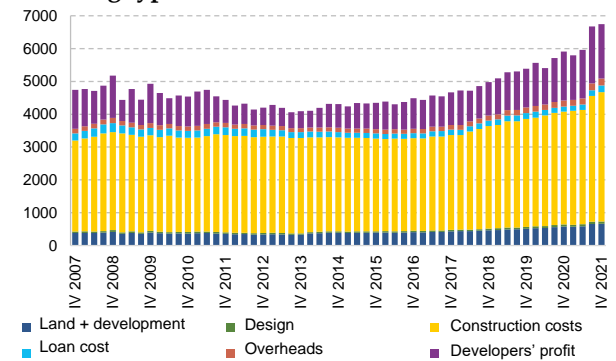
Source: NBP based on Sekocenbud, JLL (former REAS)

**Figure 47 Wrocław – estimated structure of price per square metre of housing usable floor area in the PM (building type 1122- 302<sup>30</sup>) for consumers**



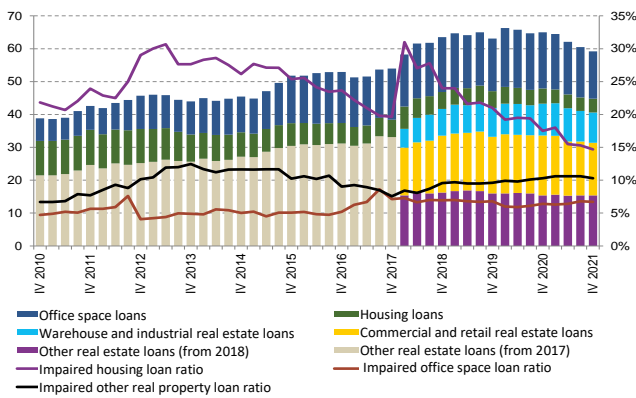
Source: NBP based on Sekocenbud, JLL (former REAS)

**Figure 48 Łódź – estimated structure of net price per square metre of housing usable floor area in PM (building type 1122- 302<sup>30</sup>) for consumers**



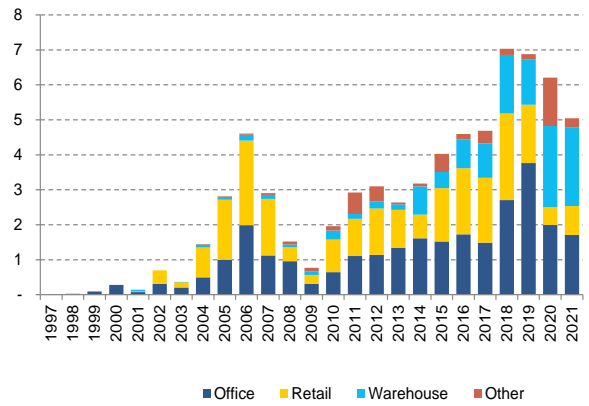
Source: NBP based on Sekocenbud, JLL (former REAS)

**Figure 49 Loans to corporations for real estate purchases (in PLN billion, left-hand scale) and the share of loans recognised as non-performing loans (in %, right-hand scale)**



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

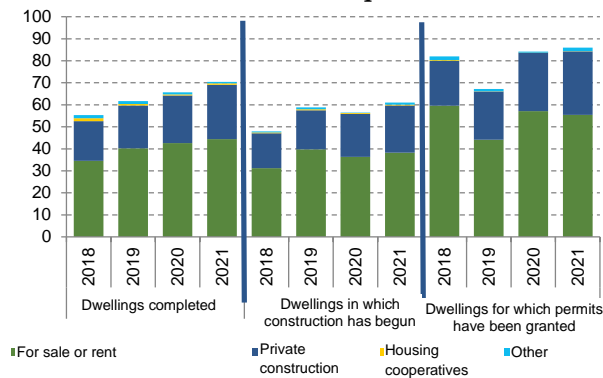
**Figure 50 Value of investment transactions in the commercial real estate market (EUR billion)**



Source: Comparables.pl

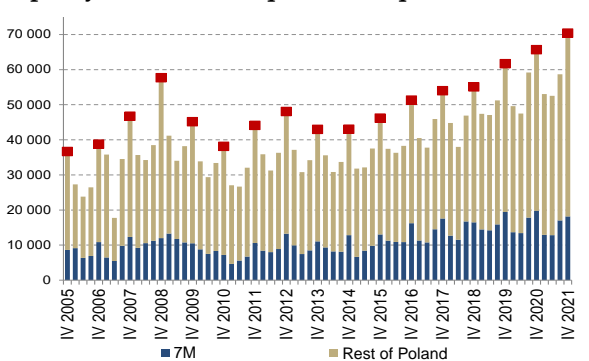
## 5. Residential construction and the housing market in Poland's selected cities

**Figure 51 Structure of residential construction investors in Poland in the fourth quarters in 2018–2021**



Source: Statistics Poland

**Figure 52 Dwellings completed and made ready for occupancy in Poland, in quarter-on-quarter terms**

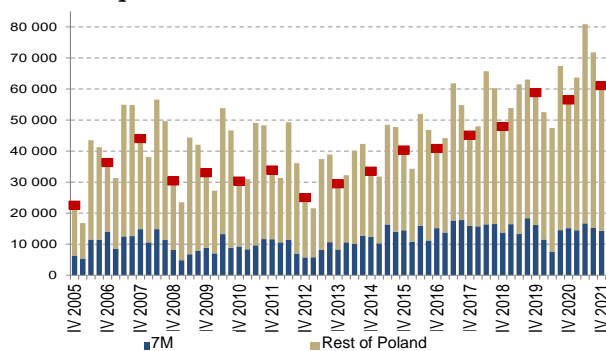


Note: only fourth quarters have been marked in red.

Source: Statistics Poland

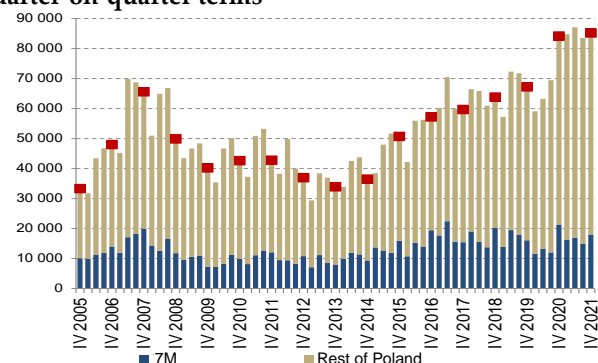


**Figure 53 Dwellings under construction in Poland, in quarter-on-quarter terms**



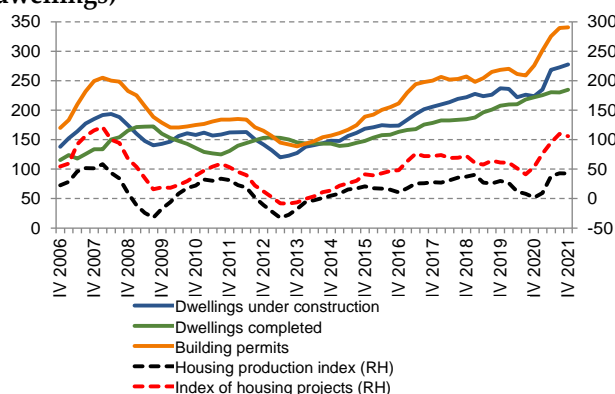
Note: only fourth quarters have been marked in red.  
Source: Statistics Poland

**Figure 54 Issued home building permits in Poland, in quarter-on-quarter terms**



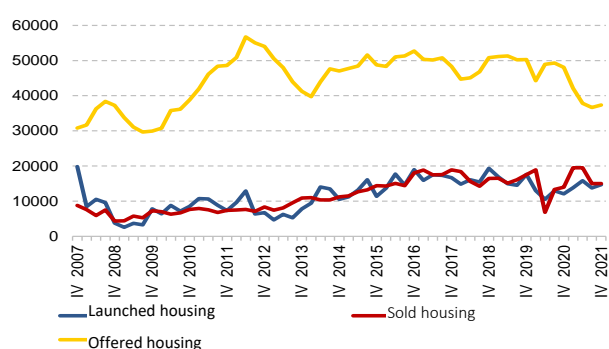
Note: only fourth quarters have been marked in red.  
Source: Statistics Poland

**Figure 55 Housing construction in Poland (in thousands of dwellings), home construction in progress (dwellings under construction minus completed dwellings) and investment projects in progress (home construction permits minus completed dwellings)**



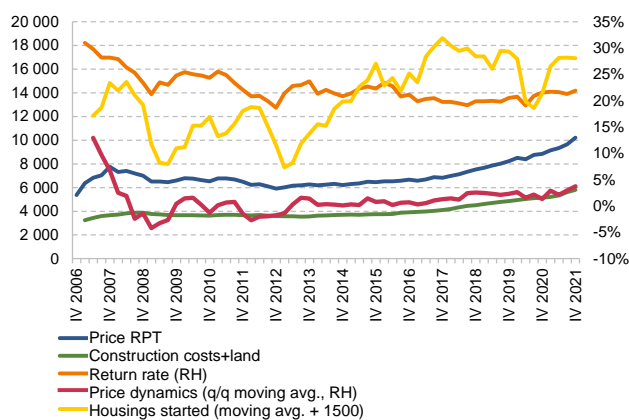
Note: rolling averages for four subsequent quarters.  
Source: NBP based on PABB and Statistics Poland

**Figure 56 Number of contracts for the construction of dwellings put on the market, both sold and offered for sale in Poland's 6 largest markets.\* /**



\*Warsaw, Kraków, Tricity, Wrocław, Poznań, Łódź.  
Source: JLL/d.REAS

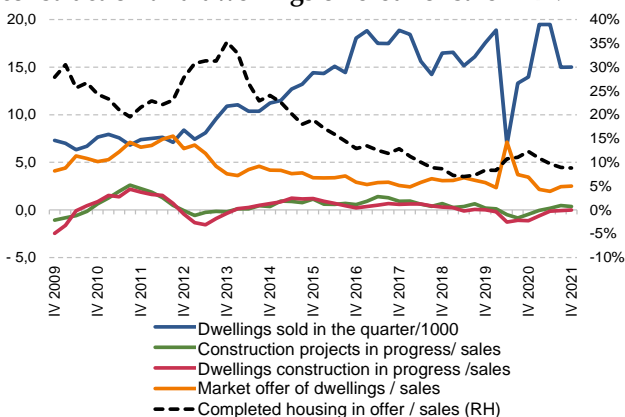
**Figure 57 Housing supply and the estimated rate of return on housing development projects in PM in 7M**



Note to Figure 58: Housing projects under construction = building permits for dwellings minus completed dwellings; Dwellings under construction = dwellings whose construction has begun minus completed dwellings. Cumulative values of the last 4 quarters, divided by sales in the given period.

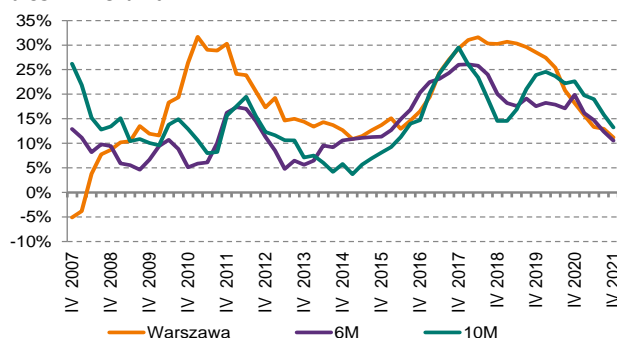
Source: NBP, Statistics Poland, JLL (former REAS), Sekocenbud

**Figure 58 Housing projects, dwellings under construction and dwellings offered for sale in 7M**

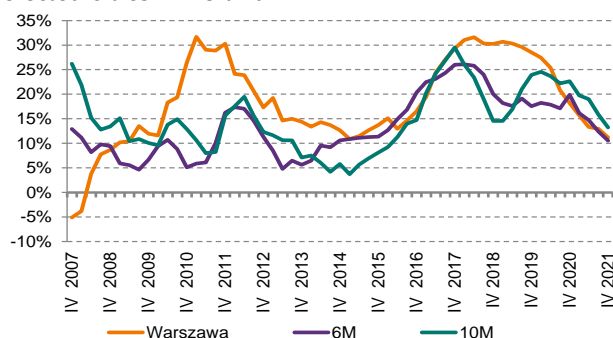


Source: NBP based on the Statistics Poland, JLL (former REAS)

**Figure 59 Measure of adjustment of dwellings on offer to demand in terms of area ≤ 50 sq. m., PM in selected cities in Poland**



**Figure 60 Measure of adjustment of dwellings on offer to demand in terms of area > 50 sq. m., PM in selected cities in Poland**

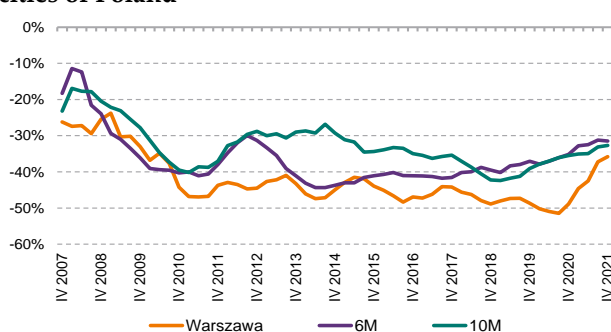


Note: Figure 59 presents, in percentage terms, a short-term mismatch in the primary market between supply (developers' housing offer) and the estimated demand (housing transactions) in terms of the dwelling's size, according to the data from the BaRN database. The mismatch is calculated as the ratio of the share of 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). The positive result (above the black line) indicates a surplus of housing of this particular size, whereas the negative result indicates a shortage thereof. Figure 60 is parallel for the space above 50 sq.m. Figures 61-62 are parallel, but they concern the SM only.

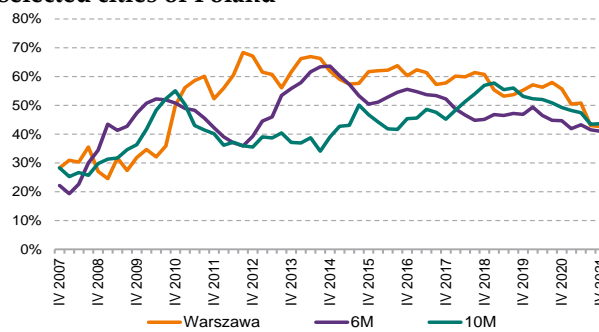
Source: NBP

Source: NBP

**Figure 61 Measure of adjustment of dwellings on offer to demand in terms of area ≤ 50 sq. m., SM in selected cities of Poland**



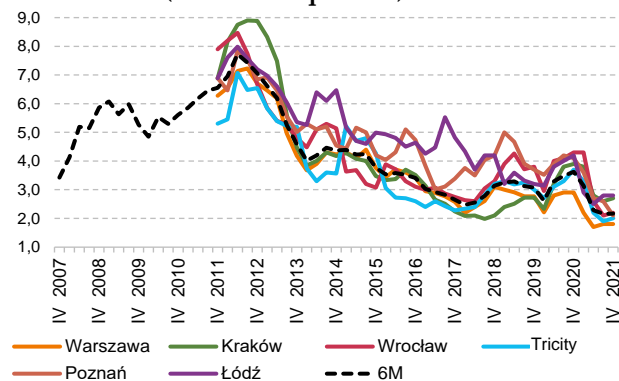
**Figure 62 Measure of adjustment of dwellings on offer to demand in terms of area > 50 sq. m., SM in selected cities of Poland**



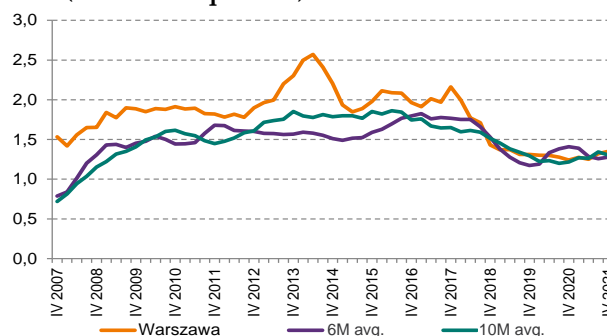
Source: NBP

Source: NBP

**Figure 63 Selling time of dwellings on offer in PM in selected cities (number of quarters)**



**Figure 64 Selling time of dwellings in SM in selected cities (number of quarters)**



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

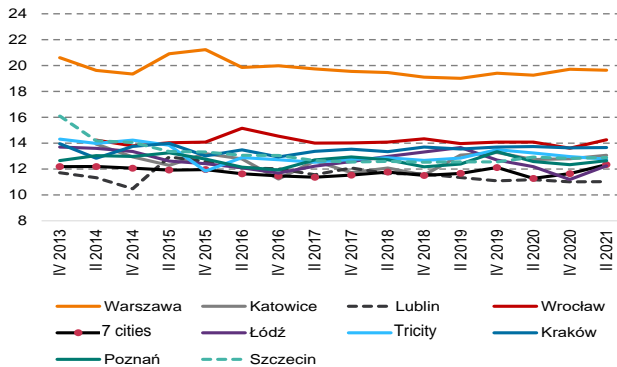
Note: real selling time, average of the last four quarters; data are not comparable with Figure 63. Home selling time in the secondary real estate market takes into account only transactions concluded with a sales deal. The data are underestimated since they do not contain offers listed but not sold yet.

Source: NBP based on JLL (former REAS)

Source: NBP

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

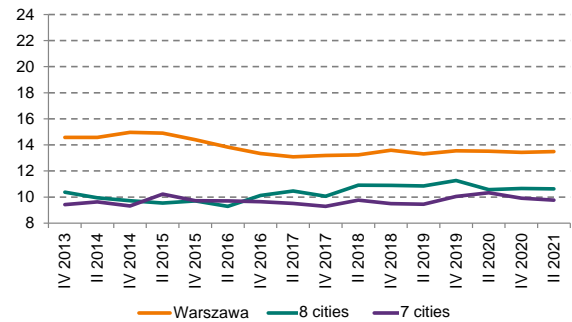
**Figure 65 Transaction rents for A class office space (average prices in EUR/sq.m./month)**



Notes: 7 cities include: Białystok, Bydgoszcz, Kielce, Olsztyn, Opole, Rzeszów, Zielona Góra.

Source: NBP

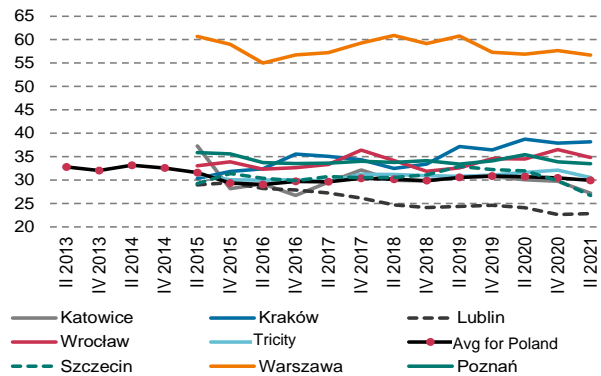
**Figure 66 Transaction rents for B class office space (average prices in EUR/sq.m./month)**



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

Source: NBP

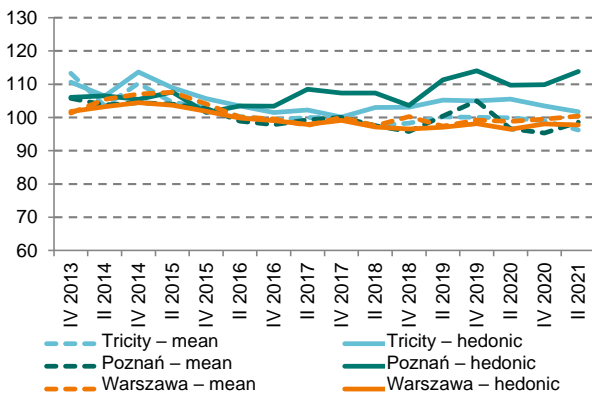
**Figure 67 Transaction rents for retail space in shopping centres (shopping malls) with an area of 100-500 sq. m. (EUR/sq.m./month)**



Source: NBP

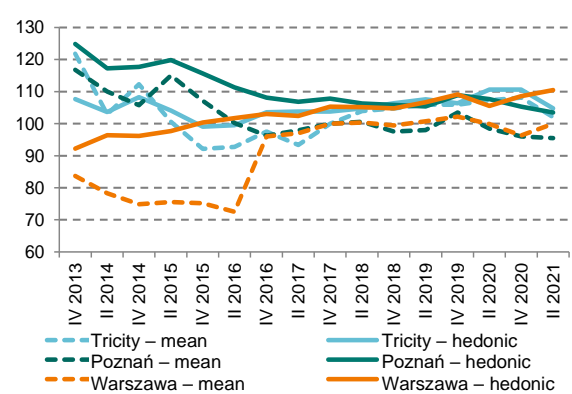
Note to Figure 67: as of the beginning of 2015 Q4, the number of records in the base, including respondents, has increased significantly, consequently changing the analysed sample.

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



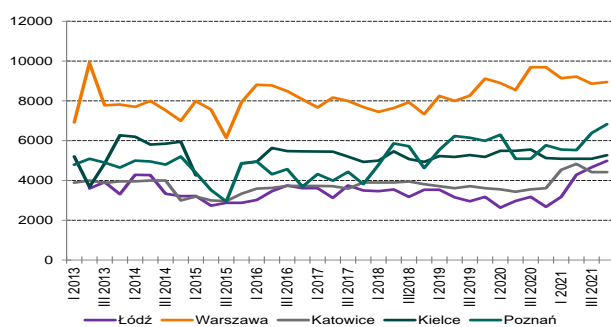
Source: NBP

**Figure 69 Index of rents for shopping centres, average and hedonic (2017 Q4 = 100)**



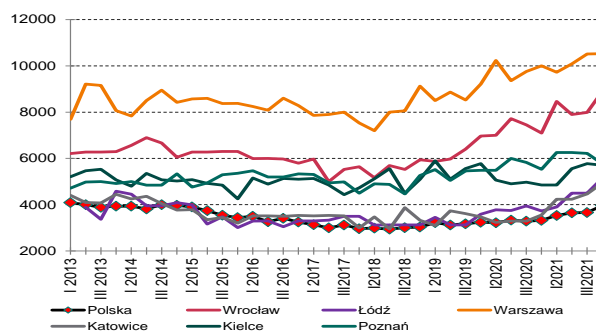
Source: NBP

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



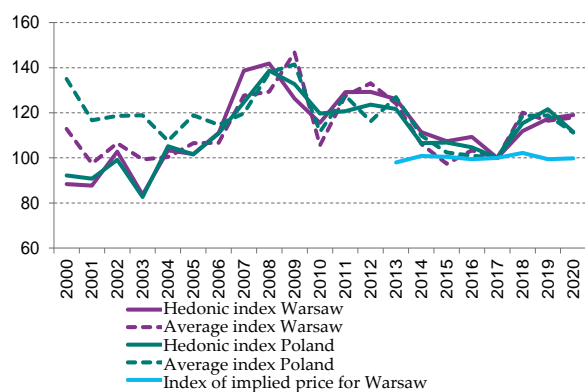
Source: PONT, NBP report

**Figure 71 Median of offer selling price of small retail premises in SM (PLN/sq.m.)**



Source: PONT, NBP report

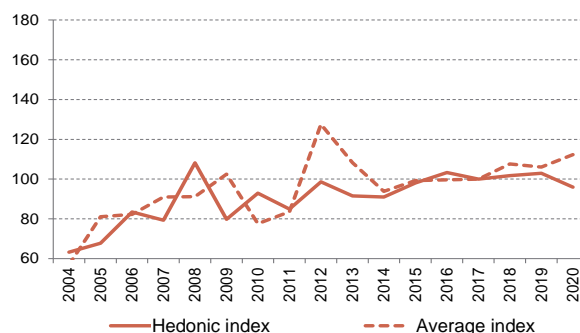
**Figure 72 Growth of average and hedonic prices of office real estate in Warsaw and the entire Poland (2017=100) and the index of implied price for Warsaw**



Note: The analysis comprises transaction prices and bank appraisals of commercial properties. The implied price was calculated by discounting the hedonic rent for Warsaw with a discount rate of 6%.

Source: NBP, Comparables.pl, AMRON

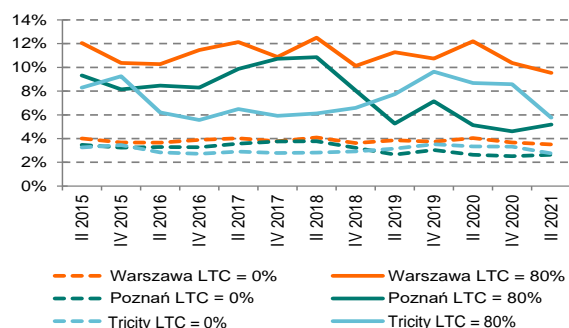
**Figure 73 Growth of average and hedonic prices of retail real estate in the entire Poland (2017=100)**



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

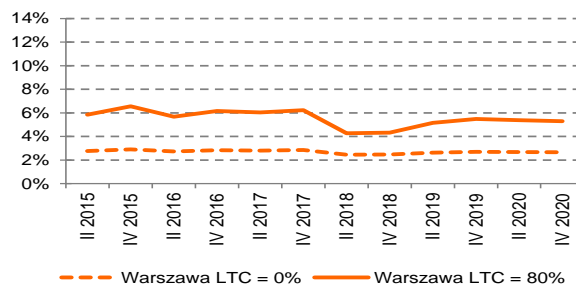
Source: NBP, Comparables.pl, AMRON

**Figure 74 Estimated rate of return on equity (ROE) on investment in the building and putting to commercial use of A class office building**



Note: A description of the ROE calculation method can be found under Tables 3 to 5. Differences in 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, Sockenbud, NBP report

**Figure 75 Estimated rate of return on equity (ROE) on investment in B class office space from the existing stock in Warsaw**



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

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

**Table 3 Estimated rate of return on equity from investment in the building and commercialisation of A class office building in Warsaw**

Date	Average rent per sq.m. of space in EUR - A class	Cost of constructed usable floor area of offices including land, per sq.m. in EUR	ROE at LTC = 0%	ROE at LTC = 50%	ROE at LTC = 80%	Average market yields on 10-year Treasury bonds
2015 Q4	21.23	2774	3.7%	5.3%	10.4%	2.8%
2016 Q4	19.96	2714	3.9%	5.8%	11.5%	3.3%
2017 Q4	19.53	2846	3.8%	5.5%	10.9%	3.4%
2018 Q4	18.95	2949	3.6%	5.2%	10.1%	3.1%
2019 Q2	18.93	3041	3.8%	5.7%	11.3%	2.7%
2019 Q4	19.34	3123	3.7%	5.5%	10.7%	2.0%
2020 Q2	19.15	3028	4.0%	6.1%	12.2%	1.4%
2020 Q4	19.71	3052	3.7%	5.3%	10.4%	1.3%
2021 Q2	19.63	3065	3.5%	5.0%	9.5%	1.3%

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

Source: NBP (rents and calculations), MF (yields on 10-year bonds), estimation of construction costs based on Sekocenbud data, BCO Bulletin of the prices of buildings, part I - buildings, facility 1220-102

**Table 4 Estimated rate of return on equity from investment in the building and commercialisation of A class office building in Poznań**

Date	Average rent per sq.m. of space in EUR - A class	Cost of constructed usable floor area of offices including land, per sq.m. in EUR	ROE at LTC = 0%	ROE at LTC = 50%	ROE at LTC = 80%	Average market yields on 10-year Treasury bonds
2015 Q4	12.8	1645	3.2%	4.5%	8.1%	2.8%
2016 Q4	11.9	1594	3.3%	4.5%	8.3%	3.3%
2017 Q4	12.9	1732	3.7%	5.5%	10.7%	3.4%
2018 Q4	12.2	1825	3.2%	4.4%	8.0%	3.1%
2019 Q2	12.4	1928	2.7%	3.3%	5.3%	2.7%
2019 Q4	13.3	1984	3.0%	4.1%	7.1%	2.0%
2020 Q2	12.6	1940	2.6%	3.3%	5.1%	1.4%
2020 Q4	12.3	1952	2.5%	3.0%	4.6%	1.3%
2021 Q2	12.7	1975	2.6%	3.3%	5.2%	1.3%

Assumptions: cf. Table 3

Source: NBP (rents and calculations), MF (yields on 10-year bonds), estimation of construction costs based on Sekocenbud data, BCO Bulletin of the prices of buildings, part I - buildings, facility 1220-102

**Table 5 Estimated rate of return on equity from investment in the building and putting to commercial use of A class office building in the Tri-city Agglomeration**

Assumptions: The costs of construction of the office building (Sekocenbud data) were increased by 15% of the developer's costs related to organisation of the investment and commercialisation of the building, as well as expert estimation of the cost of land (based on public information).

Date	Average rent per sq.m. of space in EUR - A class	Cost of constructed usable area of offices including land, per sq.m. in EUR	ROE at LTC = 0%	ROE at LTC = 50%	ROE at LTC = 80%	Average market rates of 10-year Treasury bonds
2015 Q4	12.7	1728	3.5%	4.9%	9.2%	2.8%
2016 Q4	12.1	1697	2.7%	3.4%	5.6%	3.3%
2017 Q4	12.1	1778	2.8%	3.6%	5.9%	3.4%
2018 Q4	12.7	1830	2.9%	3.8%	6.6%	3.1%
2019 Q2	12.8	1925	3.2%	4.3%	7.7%	2.7%
2019 Q4	13.5	1972	3.5%	5.1%	9.6%	2.0%
2020 Q2	13.0	1911	3.3%	4.7%	8.7%	1.4%
2020 Q4	13.2	1936	3.3%	4.6%	8.6%	1.3%
2021 Q2	13.0	1997	2.8%	3.5%	5.8%	1.3%

Assumptions: cf. Table 3

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

**Table 6 Estimated rate of return on equity from investment in the purchase of B class office building from the existing stock in Warsaw**

Date	Average rent per sq.m. of space in EUR	Smoothed price per sq.m. of space in EUR	Calculated capitalisation rate (yield)	ROE at LTC = 0%	ROE at LTC = 50%	ROE at LTC = 80%	Average market yields on 10-year Treasury bonds
2014 Q2	14.6	2312	7.6%	3.0%	3.9%	6.8%	3.4%
2014 Q4	15.0	2289	7.8%	3.1%	4.3%	7.8%	2.6%
2015 Q2	14.9	2319	7.7%	3.1%	4.1%	7.3%	2.8%
2015 Q4	14.4	2222	7.8%	3.1%	4.2%	7.4%	2.8%
2016 Q2	13.8	2162	7.7%	3.0%	4.0%	7.0%	3.0%
2016 Q4	13.3	2080	7.7%	3.0%	4.0%	6.9%	3.3%
2017 Q2	13.1	2104	7.5%	2.8%	3.7%	6.2%	3.3%
2017 Q4	13.2	2117	7.5%	2.8%	3.7%	6.2%	3.4%
2018 Q4	13.2	2268	7.0%	2.6%	3.1%	4.8%	3.2%
2018 Q4	13.6	2284	7.1%	2.7%	3.3%	5.3%	3.1%
2019 Q2	13.3	2194	7.3%	2.7%	3.5%	5.7%	2.7%
2019 Q4	13.5	2144	7.6%	2.9%	3.8%	6.6%	2.0%
2020 Q2	13.5	2102	7.7%	3.0%	4.0%	7.0%	1.4%
2020 Q4	13.4	2143	7.5%	2.9%	3.8%	6.4%	1.3%
2021 Q2	13.5	2085	7.8%	3.0%	4.1%	7.2%	1.3%

Assumptions: The analysis takes into account contractual rents for B class office space, and transaction prices and appraisals of B class office real estate. As there are relatively few transaction prices and appraisals of class B office real estate in a given six-month period, a moving average has been applied, calculated on the basis of the price in a given six-month period and the previous and the next half-year period, with equal weights. Data on rents and prices and appraisals have been revised. Loans in euro for 25 years have been assumed, equal instalments, payable four times a year. Building depreciation of 2.5%, standard for commercial real estate. It was assumed that the cost of land accounts to 20% of the cost of investment project. The calculated capitalisation rate includes the depreciation cost of the building. CIT is included. ROE means net profit/equity contributed.

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

**Table 7 Average prices of a square metre of housing in the PM in Gdańsk**

specification	IV Q 2020		I Q 2021		II Q 2021		III Q 2021		IV Q 2021	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	9 691	9 400	10 068	9 795	9 714	10 257	10 310	10 043	10 856	10 798
growth (q-o-q)	100,7	104,2	103,9	104,2	96,5	104,7	106,1	97,9	105,3	107,5
growth (y-o-y)	98,8	109,5	101,7	112,1	99,3	116,5	107,2	111,3	112,0	114,9
dwellings price range	3 946	1 407	4 047	1 603	4 194	2 199	4 079	1 635	4 050	1 566
<=4 000 PLN/sq.m	7	1	3	4	1	0	0	1	0	0
( 4 001; 6 000] PLN/sq.m	15	31	17	20	11	8	16	3	10	1
( 6 001; 8 000] PLN/sq.m	1 281	501	872	436	1 161	547	767	378	391	239
(8 001; 10 000] PLN/sq.m	1 099	320	1 562	478	1 721	650	1 659	634	1 719	608
>10 001 PLN/sq.m	1 544	554	1 593	665	1 300	994	1 637	619	1 930	718
dwellings space range	3 946	1 407	4 047	1 603	4 194	2 199	4 079	1 635	4 050	1 566
<= 40 sq.m	515	304	475	334	799	526	807	328	739	325
(40,1; 60] sq.m	1776	630	1861	731	1820	1008	1730	755	1751	736
(60,1; 80] sq.m	1175	334	1222	373	1180	461	1138	421	1160	344
> 80,1 sq.m	480	139	489	165	395	204	404	131	400	161
average price of 1 sq.m. of dwelling	9 691	9 400	10 068	9 795	9 714	10 257	10 310	10 043	10 856	10 798
<=4 000 sq.m	10357	9573	11168	10133	10424	11164	10622	10356	11109	11059
(40,1; 60] sq.m	9492	9282	9943	9859	9446	9905	10183	9710	10710	10759
(60,1; 80] sq.m	9246	9015	9555	9159	9372	9625	9953	10166	10548	10479
> 80,1 sq.m	10801	10484	10754	10264	10533	11083	11230	10786	11920	11129
average offer price deviation	3,1%	x	2,8%	x	-5,3%	x	2,7%	x	0,5%	x
<= 40 sq.m	8,2%	x	10,2%	x	-6,6%	x	2,6%	x	0,4%	x
(40,1; 60] sq.m	2,3%	x	0,9%	x	-4,6%	x	4,9%	x	-0,5%	x
(60,1; 80] sq.m	2,6%	x	4,3%	x	-2,6%	x	-2,1%	x	0,7%	x
> 80,1 sq.m	3,0%	x	4,8%	x	-5,0%	x	4,1%	x	7,1%	x

Source: NBP

**Table 8 Average prices of a square metre of housing in the SM in Gdańsk**

specification	IV Q 2020		I Q 2021		II Q 2021		III Q 2021		IV Q 2021	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	10 523	9 053	10 529	9 319	10 819	9 383	11 156	9 649	11 444	10 208
growth (q-o-q)	102,5	101,3	100,1	102,9	102,8	100,7	103,1	102,8	102,6	105,8
growth (y-o-y)	106,4	108,2	99,6	111,1	104,7	110,3	108,7	108,0	108,8	112,8
dwellings price range	825	1 116	574	1 092	2 223	1 346	1 776	1 170	1 539	503
<=4 000 PLN/sq.m	0	2	0	1	0	0	3	1	1	2
( 4 001; 6 000] PLN/sq.m	26	42	11	43	18	52	20	26	13	10
( 6 001; 8 000] PLN/sq.m	110	366	81	305	256	350	186	246	99	81
(8 001; 10 000] PLN/sq.m	298	402	217	403	828	514	575	493	467	188
>10 001 PLN/sq.m	391	304	265	340	1 121	430	992	404	959	222
dwellings space range	825	1 116	574	1 092	2 223	1 346	1 776	1 170	1 539	503
<= 40 sq.m	123	270	88	253	375	334	284	305	198	129
(40,1; 60] sq.m	328	525	214	527	931	601	696	521	624	231
(60,1; 80] sq.m	220	246	181	239	619	322	521	273	483	102
> 80,1 sq.m	154	75	91	73	298	89	275	71	234	41
average price of 1 sq.m. of dwelling	10 523	9 053	10 529	9 319	10 819	9 383	11 156	9 649	11 444	10 208
<=4 000 sq.m	11857	10009	11865	9899	12001	10182	12535	10386	12806	11270
(40,1; 60] sq.m	10819	8902	10797	9280	10840	9355	11060	9610	11489	10208
(60,1; 80] sq.m	9731	8342	9828	8843	10357	8868	10850	9130	11155	9438
> 80,1 sq.m	9957	8996	10001	9156	10226	8428	10557	8774	10769	8783
average offer price deviation	16,2%	x	13,0%	x	15,3%	x	15,6%	x	12,1%	x
<= 40 sq.m	18,5%	x	19,9%	x	17,9%	x	20,7%	x	13,6%	x
(40,1; 60] sq.m	21,5%	x	16,3%	x	15,9%	x	15,1%	x	12,5%	x
(60,1; 80] sq.m	16,6%	x	11,1%	x	16,8%	x	18,8%	x	18,2%	x
> 80,1 sq.m	10,7%	x	9,2%	x	21,3%	x	20,3%	x	22,6%	x

Source: NBP



**Table 9 Average prices of a square metre of housing in the PM in Kraków**

specification	IV Q 2020		I Q 2021		II Q 2021		III Q 2021		IV Q 2021	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	9 615	8 735	9 741	8 896	10 140	9 403	10 605	9 736	10 848	10 301
growth (q-o-q)	101,6	98,2	101,3	101,8	104,1	105,7	104,6	103,5	102,3	105,8
growth (y-o-y)	112,7	106,0	105,7	107,1	103,9	109,2	112,0	109,5	112,8	117,9
dwelling price range	6 928	1 714	6 671	1 671	6 491	2 607	5 802	1 732	6 570	1 638
<=4 000 PLN/sq.m	0	0	0	0	0	0	0	0	0	0
( 4 001; 6 000] PLN/sq.m	63	44	78	45	27	47	17	21	8	12
( 6 001; 8 000] PLN/sq.m	1 436	542	1 212	471	678	550	319	311	238	139
(8 001; 10 000] PLN/sq.m	2 941	800	2 818	782	2 815	1 218	2 129	790	2 133	652
>10 001 PLN/sq.m	2 488	328	2 563	373	2 971	792	3 337	610	4 191	835
dwelling space range	6 928	1 714	6 671	1 671	6 491	2 607	5 802	1 732	6 570	1 638
<= 40 sq.m	1478	369	1493	380	1493	613	1346	380	1484	451
(40,1; 60] sq.m	3021	895	2874	751	2776	1171	2501	791	2991	688
(60,1; 80] sq.m	1913	353	1766	454	1739	633	1562	409	1655	359
> 80,1 sq.m	516	97	538	86	483	190	393	152	440	140
average price of 1 sq.m. of dwelling	9 615	8 735	9 741	8 896	10 140	9 403	10 605	9 736	10 848	10 301
<=4 000 sq.m	10703	9151	10871	9597	10819	10251	11419	10494	11759	10864
(40,1; 60] sq.m	9477	8694	9621	8788	10141	9286	10608	9776	10761	10272
(60,1; 80] sq.m	8963	8313	9032	8377	9570	8808	9995	8980	10242	9785
> 80,1 sq.m	9720	9071	9578	9479	10078	9366	10215	9673	10654	9957
average offer price deviation	10,1%	x	9,5%	x	7,8%	x	8,9%	x	5,3%	x
<= 40 sq.m	17,0%	x	13,3%	x	5,5%	x	8,8%	x	8,2%	x
(40,1; 60] sq.m	9,0%	x	9,5%	x	9,2%	x	8,5%	x	4,8%	x
(60,1; 80] sq.m	7,8%	x	7,8%	x	8,7%	x	11,3%	x	4,7%	x
> 80,1 sq.m	7,2%	x	1,0%	x	7,6%	x	5,6%	x	7,0%	x

Source: NBP

**Table 10 Average prices of a square metre of housing in the SM in Kraków**

specification	IV Q 2020		I Q 2021		II Q 2021		III Q 2021		IV Q 2021	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	9 820	8 118	9 899	8 366	10 231	9 103	10 614	9 372	11 416	9 785
growth (q-o-q)	102,9	100,2	100,8	103,1	103,4	108,8	103,7	103,0	107,5	104,4
growth (y-o-y)	107,8	109,5	104,0	107,7	105,8	112,9	111,2	115,7	116,3	120,5
dwelling price range	614	243	728	302	697	505	865	510	1 210	609
<=4 000 PLN/sq.m	0	0	0	0	0	0	0	0	0	0
( 4 001; 6 000] PLN/sq.m	2	13	3	18	1	14	4	8	3	8
( 6 001; 8 000] PLN/sq.m	130	109	128	107	81	138	77	120	74	108
(8 001; 10 000] PLN/sq.m	259	99	324	137	304	213	332	233	340	253
>10 001 PLN/sq.m	223	22	273	40	311	140	452	149	793	240
dwelling space range	614	243	728	302	697	505	865	510	1 210	609
<= 40 sq.m	164	103	186	126	159	208	217	193	290	223
(40,1; 60] sq.m	284	106	331	132	332	198	380	227	479	296
(60,1; 80] sq.m	117	31	149	40	155	79	192	67	285	80
> 80,1 sq.m	49	3	62	4	51	20	76	23	156	10
average price of 1 sq.m. of dwelling	9 820	8 118	9 899	8 366	10 231	9 103	10 614	9 372	11 416	9 785
<=4 000 sq.m	10939	8455	10606	8789	11182	9464	11554	9792	12427	10300
(40,1; 60] sq.m	9500	7973	9753	8210	9965	8756	10200	9147	11206	9435
(60,1; 80] sq.m	9080	7409	9274	7546	9678	8810	10346	9119	10971	9568
> 80,1 sq.m	9693	9017	10062	8405	10681	9940	10679	8809	10993	10363
average offer price deviation	21,0%	x	18,3%	x	12,4%	x	13,3%	x	16,7%	x
<= 40 sq.m	29,4%	x	20,7%	x	18,2%	x	18,0%	x	20,6%	x
(40,1; 60] sq.m	19,2%	x	18,8%	x	13,8%	x	11,5%	x	18,8%	x
(60,1; 80] sq.m	22,6%	x	22,9%	x	9,8%	x	13,5%	x	14,7%	x
> 80,1 sq.m	7,5%	x	19,7%	x	7,5%	x	21,2%	x	6,1%	x

Source: NBP

**Table 11 Average prices of a square metre of housing in the PM in Łódź**

specification	IV Q 2020		I Q 2021		II Q 2021		III Q 2021		IV Q 2021	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	6 761	6 624	6 854	6 500	7 409	6 676	8 006	7 451	8 117	7 528
growth (q-o-q)	100,4	103,4	101,4	98,1	108,1	102,7	108,1	111,6	101,4	101,0
growth (y-o-y)	107,8	109,9	103,7	104,0	113,8	109,8	118,9	116,3	120,1	113,6
dwelling price range	1 431	437	1 463	501	1 642	624	1 693	458	1 847	471
<=4 000 PLN/sq.m	0	1	0	0	0	0	0	0	0	0
( 4 001; 6 000] PLN/sq.m	284	96	212	126	74	126	57	22	43	24
(6 001; 8 000] PLN/sq.m	1 032	316	1 111	364	1 147	473	754	283	683	317
(8 001; 10 000] PLN/sq.m	115	24	133	11	415	25	840	148	1 066	126
>10 000 PLN/sq.m	0	0	7	0	6	0	42	5	55	4
dwelling space range	1 431	437	1 463	501	1 642	624	1 693	458	1 847	471
<= 40 sq.m	307	120	280	91	374	106	503	152	537	139
(40,1; 60] sq.m	646	221	724	267	742	323	623	204	702	181
(60,1; 80] sq.m	370	80	345	112	410	143	475	70	500	124
> 80,1 sq.m	108	16	114	31	116	52	92	32	108	27
average price of 1 sq.m. of dwelling	6 761	6 624	6 854	6 500	7 409	6 676	8 006	7 451	8 117	7 528
<=4 000 sq.m	7547	7220	7554	7223	8022	7035	8873	8023	8977	8195
(40,1; 60] sq.m	6691	6517	6835	6464	7350	6764	7757	7293	7892	7474
(60,1; 80] sq.m	6286	6073	6394	6027	7039	6339	7519	6866	7630	6863
> 80,1 sq.m	6566	6388	6648	6399	7110	6322	7457	7016	7561	7499
average offer price deviation	2,1%	x	5,4%	x	11,0%	x	7,4%	x	7,8%	x
<= 40 sq.m	4,5%	x	4,6%	x	14,0%	x	10,6%	x	9,5%	x
(40,1; 60] sq.m	2,7%	x	5,7%	x	8,7%	x	6,4%	x	5,6%	x
(60,1; 80] sq.m	3,5%	x	6,1%	x	11,0%	x	9,5%	x	11,2%	x
> 80,1 sq.m	2,8%	x	3,9%	x	12,5%	x	6,3%	x	0,8%	x

Source: NBP

**Table 12 Average prices of a square metre of housing in the SM in Łódź**

specification	IV Q 2020		I Q 2021		II Q 2021		III Q 2021		VI Q 2021	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	5 721	5 522	5 905	5 433	6 012	5 800	6 683	6 075	6 667	6 158
growth (q-o-q)	104,7	98,4	103,2	98,4	101,8	106,7	111,2	104,7	99,8	101,4
growth (y-o-y)	106,1	113,4	108,1	108,4	110,7	110,6	122,3	108,2	116,5	111,5
dwelling price range	342	63	740	75	318	81	1 226	90	751	93
<= 4 000 PLN/sq.m	25	4	43	7	19	5	14	2	15	2
(4 001; 6 000] PLN/sq.m	191	38	400	49	150	44	417	43	239	43
(6 001; 8 000] PLN/sq.m	110	21	254	17	129	29	590	44	381	41
(8 001; 10 000] PLN/sq.m	16	0	40	2	18	3	172	1	104	7
>10 001 PLN/sq.m	0	0	3	0	2	0	33	0	12	0
dwelling space range	342	63	740	75	318	81	1 226	90	751	93
<= 40 sq.m	73	24	148	22	51	27	324	30	190	33
(40,1; 60] sq.m	128	29	292	36	130	32	523	45	284	36
(60,1; 80] sq.m	81	5	167	9	78	18	217	9	153	16
> 80,1 sq.m	60	5	133	8	59	4	162	6	124	8
average price of 1 sq.m. of dwelling	5 721	5 522	5 905	5 433	6 012	5 800	6 683	6 075	6 667	6 158
<=4 000 sq.m	6 290	6 097	6 478	6 097	6 697	6 215	7 089	6 593	7 079	6 433
(40,1; 60] sq.m	5 804	5 366	5 903	5 357	6 110	5 903	6 625	5 971	6 748	6 002
(60,1; 80] sq.m	5 639	4 808	5 718	5 143	5 755	5 233	6 530	5 304	6 482	6 107
> 80,1 sq.m	4 962	4 378	5 504	4 278	5 543	4 730	6 264	5 416	6 074	5 833
average offer price deviation	3,6%	x	8,7%	x	3,7%	x	10,0%	x	8,3%	x
<= 40 sq.m	3,2%	x	6,2%	x	7,7%	x	7,5%	x	10,1%	x
(40,1; 60] sq.m	8,2%	x	10,2%	x	3,5%	x	10,9%	x	12,4%	x
(60,1; 80] sq.m	17,3%	x	11,2%	x	10,0%	x	23,1%	x	6,2%	x
> 80,1 sq.m	13,3%	x	28,7%	x	17,2%	x	15,7%	x	4,1%	x

Source: NBP

**Table 13 Average prices of a square metre of housing in the PM in Poznań**

specification	IV Q 2020		I Q 2021		II Q 2021		III Q 2021		IV Q 2021	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	7 980	7 636	7 990	7 958	8 256	7 928	8 779	8 025	9 193	8 587
growth (q-o-q)	100,7	102,4	100,1	104,2	103,3	99,6	106,3	101,2	104,7	107,0
growth (y-o-y)	107,9	103,3	105,9	107,2	106,3	106,7	110,8	107,6	115,2	112,5
dwelling price range	5 284	1 485	6 224	1 570	5 331	2 306	5 330	1 491	4 787	1 669
<=4 000 PLN/sq.m	0	0	0	0	0	0	0	0	0	0
( 4 001; 6 000] PLN/sq.m	122	94	75	70	22	42	20	7	9	3
( 6 001; 8 000] PLN/sq.m	3 168	903	3 690	871	2 609	1 321	2 016	909	1 070	698
(8 001; 10 000] PLN/sq.m	1 701	426	2 193	545	2 352	860	2 592	502	2 766	740
>10 001 PLN/sq.m	293	62	266	84	348	83	702	73	942	228
dwelling space range	5 284	1 485	6 224	1 570	5 331	2 306	5 330	1 491	4 787	1 669
<= 40 sq.m	895	363	1 189	364	995	674	1 039	333	929	420
(40,1; 60] sq.m	2 157	688	2 509	718	2 243	970	2 253	634	2 174	696
(60,1; 80] sq.m	1 747	342	1 987	364	1 615	515	1 579	394	1 313	422
> 80,1 sq.m	485	92	539	124	478	147	459	130	371	131
average price of 1 sq.m. of dwelling	7 980	7 636	7 990	7 958	8 256	7 928	8 779	8 025	9 193	8 587
<=4 000 sq.m	8 768	7 869	8 560	8 668	9 081	8 384	9 429	8 537	9 842	9 444
(40,1; 60] sq.m	7 935	7 624	8 064	7 844	8 313	7 932	8 785	8 096	9 129	8 526
(60,1; 80] sq.m	7 569	7 361	7 531	7 570	7 686	7 354	8 143	7 560	8 631	7 826
> 80,1 sq.m	8 204	7 840	8 078	7 676	8 198	7 827	9 460	7 777	9 931	8 617
average offer price deviation	4,5%	x	0,4%	x	4,1%	x	9,4%	x	7,1%	x
<= 40 sq.m	11,4%	x	-1,3%	x	8,3%	x	10,5%	x	4,2%	x
(40,1; 60] sq.m	4,1%	x	2,8%	x	4,8%	x	8,5%	x	7,1%	x
(60,1; 80] sq.m	2,8%	x	-0,5%	x	4,5%	x	7,7%	x	10,3%	x
> 80,1 sq.m	4,6%	x	5,2%	x	4,7%	x	21,6%	x	15,2%	x

Source: NBP

**Table 14 Average prices of a square metre of housing in the SM in Poznań**

specification	IV Q 2020		I Q 2021		II Q 2021		III Q 2021		IV Q 2021	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	7 808	7 145	7 943	7 101	8 137	6 980	8 322	7 091	8 952	7 281
growth (q-o-q)	99,5	100,7	101,7	99,4	102,4	98,3	102,3	101,6	107,6	100,9
growth (y-o-y)	102,2	107,2	101,7	103,9	104,0	99,5	106,0	100,0	114,6	101,3
dwelling price range	860	859	923	544	865	467	935	468	885	472
<=4 000 PLN/sq.m	0	11	0	6	1	2	0	5	1	2
( 4 001; 6 000] PLN/sq.m	80	154	81	114	45	85	43	65	18	57
( 6 001; 8 000] PLN/sq.m	450	498	473	299	423	306	417	314	296	298
(8 001; 10 000] PLN/sq.m	256	162	275	105	302	69	347	80	373	107
>10 001 PLN/sq.m	74	34	94	20	94	5	128	4	197	8
dwelling space range	860	859	923	544	865	467	935	468	885	472
<= 40 sq.m	194	271	196	171	186	131	173	141	176	139
(40,1; 60] sq.m	372	405	373	255	385	227	420	212	383	210
(60,1; 80] sq.m	209	132	265	88	221	90	262	103	229	110
> 80,1 sq.m	85	51	89	30	73	19	80	12	97	13
average price of 1 sq.m. of dwelling	7 808	7 145	7 943	7 101	8 137	6 980	8 322	7 091	8 952	7 281
<=4 000 sq.m	8 736	7 742	8 901	7 821	9 063	7 558	9 363	7 820	9 901	8 121
(40,1; 60] sq.m	7 806	7 089	8 014	7 044	8 224	6 950	8 369	7 008	8 885	7 225
(60,1; 80] sq.m	7 258	6 514	7 369	6 250	7 316	6 377	7 716	6 367	8 347	6 421
> 80,1 sq.m	7 053	6 054	7 242	5 974	7 803	6 218	7 806	6 192	8 920	6 456
average offer price deviation	8,6%	x	10,3%	x	13,2%	x	15,3%	x	23,0%	x
<= 40 sq.m	11,6%	x	12,1%	x	16,9%	x	18,2%	x	21,9%	x
(40,1; 60] sq.m	9,0%	x	11,9%	x	15,0%	x	16,9%	x	23,0%	x
(60,1; 80] sq.m	10,4%	x	14,5%	x	13,1%	x	20,0%	x	30,0%	x
> 80,1 sq.m	17,9%	x	20,7%	x	20,7%	x	31,0%	x	38,2%	x

Source: NBP

**Table 15 Average prices of a square metre of housing in the PM in Warsaw**

specification	IV Q 2020		I Q 2021		II Q 2021		III Q 2021		IV Q 2021	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	10 750	10 240	10 969	10 666	11 359	10 671	11 406	10 992	11 820	11 630
growth (q-o-q)	100,1	100,6	102,0	104,2	103,6	100,1	100,4	103,0	103,6	105,8
growth (y-o-y)	104,6	108,1	103,4	108,6	106,0	113,1	106,2	107,9	109,9	113,6
dwelling price range	11 757	3 917	9 780	4 951	8 429	4 699	9 042	3 757	8 140	3 873
<=4 000 PLN/sq.m	0	0	0	0	0	0	0	0	0	0
( 4 001; 6 000] PLN/sq.m	13	8	9	1	6	3	11	19	1	0
( 6 001; 8 000] PLN/sq.m	1 608	609	889	514	785	419	573	173	341	112
(8 001; 10 000] PLN/sq.m	3 747	1 568	3 195	1 698	2 163	1 656	2 559	1 236	2 060	1 054
>10 001 PLN/sq.m	6 389	1 732	5 687	2 738	5 475	2 621	5 899	2 329	5 738	2 707
dwelling space range	11 757	3 917	9 780	4 951	8 429	4 699	9 042	3 757	8 140	3 873
<= 40 sq.m	1 801	864	1 524	1 154	1 359	851	1 771	894	1 714	962
(40,1; 60] sq.m	4 858	1 645	4 087	2 062	3 549	2 101	3 803	1 518	3 328	1 588
(60,1; 80] sq.m	3 588	1 001	2 864	1 286	2 397	1 239	2 465	965	2 197	898
> 80,1 sq.m	1 510	407	1 305	449	1 124	508	1 003	380	901	425
average price of 1 sq.m. of dwelling	10 750	10 240	10 969	10 666	11 359	10 671	11 406	10 992	11 820	11 630
<=4 000 sq.m	12 346	10 722	12 267	11 432	12 819	11 286	12 548	11 405	13 232	12 225
(40,1; 60] sq.m	10 603	10 099	10 845	10 623	11 212	10 738	11 241	11 007	11 556	11 509
(60,1; 80] sq.m	9 919	9 424	10 269	9 928	10 608	9 989	10 664	10 505	10 960	11 095
> 80,1 sq.m	11 299	11 789	11 380	11 010	11 663	11 031	11 834	11 196	12 204	11 870
average offer price deviation	5,0%	x	2,8%	x	6,4%	x	3,8%	x	1,6%	x
<= 40 sq.m	15,1%	x	7,3%	x	13,6%	x	10,0%	x	8,2%	x
(40,1; 60] sq.m	5,0%	x	2,1%	x	4,4%	x	2,1%	x	0,4%	x
(60,1; 80] sq.m	5,3%	x	3,4%	x	6,2%	x	1,5%	x	-1,2%	x
> 80,1 sq.m	-4,2%	x	3,4%	x	5,7%	x	5,7%	x	2,8%	x

Source: NBP

**Table 16 Average prices of a square metre of housing in the SM in Warsaw**

specification	IV Q 2020		I Q 2021		II Q 2021		III Q 2021		IV Q 2021	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	11 893	10 671	12 217	10 895	12 473	11 103	12 950	10 931	13 302	11 288
growth (q-o-q)	101,5	101,9	102,7	102,1	102,1	101,9	103,8	98,5	102,7	103,3
growth (y-o-y)	106,3	108,8	104,8	108,9	108,3	107,9	110,6	104,4	111,9	105,8
dwelling price range	2 640	3 715	2 186	3 441	2 373	3 601	2 409	1 375	1 995	1 465
<=4 000 PLN/sq.m	0	0	0	0	0	0	0	0	0	0
( 4 001; 6 000] PLN/sq.m	12	8	3	3	3	3	1	1	0	0
( 6 001; 8 000] PLN/sq.m	172	409	115	351	79	274	63	93	27	72
(8 001; 10 000] PLN/sq.m	657	1 236	497	1 073	490	1 096	388	469	297	396
>10 001 PLN/sq.m	1 799	2 062	1 571	2 014	1 801	2 228	1 957	812	1 671	997
dwelling space range	2 640	3 715	2 186	3 441	2 373	3 601	2 409	1 375	1 995	1 465
<= 40 sq.m	425	1 125	357	972	432	1 074	480	414	360	498
(40,1; 60] sq.m	950	1 641	795	1 509	893	1 578	871	603	805	641
(60,1; 80] sq.m	651	629	538	591	554	619	576	237	489	207
> 80,1 sq.m	614	320	496	369	494	330	482	121	341	119
average price of 1 sq.m. of dwelling	11 893	10 671	12 217	10 895	12 473	11 103	12 950	10 931	13 302	11 288
<=4 000 sq.m	13 250	11 136	13 706	11 316	13 961	11 594	14 433	11 738	14 826	12 147
(40,1; 60] sq.m	11 610	10 305	11 857	10 525	12 012	10 753	12 483	10 470	12 863	10 720
(60,1; 80] sq.m	11 292	10 338	11 387	10 560	11 698	10 849	12 156	10 282	12 579	10 537
> 80,1 sq.m	12 028	11 573	12 622	11 841	12 876	11 652	13 263	11 743	13 768	12 062
average offer price deviation	11,4%	x	12,1%	x	12,3%	x	18,5%	x	17,8%	x
<= 40 sq.m	19,0%	x	21,1%	x	20,4%	x	23,0%	x	22,0%	x
(40,1; 60] sq.m	12,7%	x	12,7%	x	11,7%	x	19,2%	x	20,0%	x
(60,1; 80] sq.m	9,2%	x	7,8%	x	7,8%	x	18,2%	x	19,4%	x
> 80,1 sq.m	3,9%	x	6,6%	x	10,5%	x	12,9%	x	14,1%	x

Source: NBP

**Table 17 Average prices of a square metre of housing in the PM in Wrocław**

specification	IV Q 2020		I Q 2021		II Q 2021		III Q 2021		IV Q 2021	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	8 630	8 233	9 062	8 423	9 387	8 578	9 965	8 891	10 189	9 507
growth (q-o-q)	99,5	101,5	105,0	102,3	103,6	101,8	106,2	103,7	102,2	106,9
growth (y-o-y)	108,2	107,8	106,8	100,8	108,5	106,7	114,9	109,6	118,1	115,5
dwelling price range	6 411	1 362	5 936	1 690	4 827	2 030	4 441	1 618	4 514	1 556
<=4 000 PLN/sq.m	0	0	0	5	0	0	0	0	0	0
( 4 001; 6 000] PLN/sq.m	267	80	143	106	27	113	8	21	5	4
( 6 001; 8 000] PLN/sq.m	2 478	623	1 996	721	1 347	743	929	550	652	355
(8 001; 10 000] PLN/sq.m	2 343	437	2 236	528	1 879	775	1 581	685	1 874	643
>10 001 PLN/sq.m	1 323	222	1 561	330	1 574	399	1 923	362	1 983	554
dwelling space range	6 411	1 362	5 936	1 690	4 827	2 030	4 441	1 618	4 514	1 556
<= 40 sq.m	1248	323	1155	362	959	397	797	356	883	369
(40,1; 60] sq.m	3085	648	2777	837	2244	982	2035	767	2102	707
(60,1; 80] sq.m	1630	295	1540	380	1241	511	1242	371	1177	359
> 80,1 sq.m	448	96	464	111	383	140	367	124	352	121
average price of 1 sq.m. of dwelling	8 630	8 233	9 062	8 423	9 387	8 578	9 965	8 891	10 189	9 507
<=4 000 sq.m	9691	9389	10138	9748	10207	9587	11185	9398	11362	10171
(40,1; 60] sq.m	8562	7931	8926	8188	9340	8515	9840	8841	10033	9380
(60,1; 80] sq.m	7862	7626	8385	7651	8794	7819	9322	8328	9578	8980
> 80,1 sq.m	8946	8244	9446	8518	9536	8926	10182	9426	10215	9785
average offer price deviation	4,8%	x	7,6%	x	9,4%	x	12,1%	x	7,2%	x
<= 40 sq.m	3,2%	x	4,0%	x	6,5%	x	19,0%	x	11,7%	x
(40,1; 60] sq.m	7,9%	x	9,0%	x	9,7%	x	11,3%	x	7,0%	x
(60,1; 80] sq.m	3,1%	x	9,6%	x	12,5%	x	11,9%	x	6,7%	x
> 80,1 sq.m	8,5%	x	10,9%	x	6,8%	x	8,0%	x	4,4%	x

Source: NBP

**Table 18 Average prices of a square metre of housing in the SM in Wrocław**

specification	IV Q 2020		I Q 2021		II Q 2021		III Q 2021		IV Q 2021	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	8 597	7 973	8 715	8 057	8 982	8 510	9 160	8 563	9 327	8 953
growth (q-o-q)	103,5	109,2	101,4	101,0	103,1	105,6	102,0	100,6	101,8	104,6
growth (y-o-y)	111,4	109,0	106,8	110,1	111,9	113,5	110,3	117,3	108,5	112,3
dwelling price range	1 920	449	2 038	421	2 623	796	2 071	827	2 007	1 085
<=4 000 PLN/sq.m	1	2	1	4	2	1	0	3	1	0
( 4 001; 6 000] PLN/sq.m	58	47	62	38	49	51	23	48	35	40
( 6 001; 8 000] PLN/sq.m	754	191	755	190	839	297	576	315	462	324
(8 001; 10 000] PLN/sq.m	779	159	836	141	1 144	291	948	290	953	452
>10 001 PLN/sq.m	328	50	384	48	589	156	524	171	556	269
dwelling space range	1 920	449	2 038	421	2 623	796	2 071	827	2 007	1 085
<= 40 sq.m	285	124	308	94	367	201	264	218	252	270
(40,1; 60] sq.m	799	203	856	217	1075	395	852	386	793	540
(60,1; 80] sq.m	559	95	578	82	797	142	621	163	631	217
> 80,1 sq.m	277	27	296	28	384	58	334	60	331	58
average price of 1 sq.m. of dwelling	8 597	7 973	8 715	8 057	8 982	8 510	9 160	8 563	9 327	8 953
<=4 000 sq.m	10 038	8 994	10 141	9 241	10 660	9 314	10 622	9 672	10 673	9 829
(40,1; 60] sq.m	8 610	7 886	8 747	7 746	9 022	8 307	9 357	8 432	9 407	8 827
(60,1; 80] sq.m	8 087	7 225	8 244	7 742	8 448	7 852	8 684	7 826	9 043	8 361
> 80,1 sq.m	8 104	6 577	8 062	7 420	8 373	8 714	8 386	7 380	8 651	8 266
average offer price deviation	7,8%	x	8,2%	x	5,5%	x	7,0%	x	4,2%	x
<= 40 sq.m	11,6%	x	9,7%	x	14,4%	x	9,8%	x	8,6%	x
(40,1; 60] sq.m	9,2%	x	12,9%	x	8,6%	x	11,0%	x	6,6%	x
(60,1; 80] sq.m	11,9%	x	6,5%	x	7,6%	x	11,0%	x	8,1%	x
> 80,1 sq.m	23,2%	x	8,6%	x	-3,9%	x	13,6%	x	4,7%	x

Source: NBP

## 7. Analysis of profitability of investment in housing in selected cities in Poland in 2021 Q4<sup>31</sup>

The purchase of housing for rental is a form of capital investment in Poland. In the second half of 2021, the level of profitability of such investment changed - on the one hand, profitability of such investment declined ; on the other hand, the first symptoms of recovery from pre-pandemic situation have appeared.

Significant determinants affecting this type of investment include changes in rental rates, housing prices (or, in fact, the mutual relationship between their changes) and the level of housing loan costs. At the end of 2021 H2, the estimated prices of average dwellings rebounded to the upward trend observed before the COVID-19 pandemic .

The estimated transaction prices of dwellings increased in the group of 7 cities by 8.4% y/y on average (to PLN 10274/sq.m.), and by 9.1% in the group of the remaining cities analysed (to PLN 7691/sq.m.). The growth of rental transaction rates also accelerated. In the group of 7 largest cities, in 2021 Q4 they increased 8.0% (PLN 48.1/sq.m/month) while in the remaining cities analysed they increased by 7.6% (PLN 36.0/sq.m) as compared to the end of 2021. The observed acceleration in rental rate growth at the end of 2021, however, has not resulted in a full rebound from levels at the time of marked declines observed during the economic downturn triggered by the pandemic.

The capitalisation rate is one of the indicators which illustrates the level of profitability of investment in rental housing. In 2021 Q4, in the group of the 7 largest cities in Poland, the average capitalisation rate amounted to 5.7%, while in the group of the remaining cities analysed - to 5.6%. Compared to the end of the first half of 2021, in the group of the 7 largest cities in Poland the average estimated capitalisation rate decreased slightly by 0.05 p.p., while in the group of the remaining cities analysed, by 0.09 p.p. The level of the capitalisation rate on investment in rental housing directly affects the period of return on such investment. In 2021 Q4 the shortest period of return was recorded in Łódź (15.1 years), Wrocław (15.8 years) and Szczecin (16.4 years), while the longest period was observed in Gdynia (19.4 years) Rzeszów (19.3 years) and Kraków (19.2 years). However, this period shortened the most, as compared to the previous six months, in Wrocław, Bydgoszcz, Gdynia, Kraków and Olsztyn.

The profitability of investment in rental housing can be evaluated using the ROE indicator. In 2021 Q4, the average level of ROE for fully cash-funded investment (LTV 0%) in all cities reached 2.8%. In the group of the 7 largest cities in Poland, the average level of the indicator amounted to 3.2%, while in the group of the

---

<sup>31</sup> A simplified analysis of investment in housing for rent conducted by a private individual, taxed with a flat-rate tax on home rental , is presented. The profitability of this type of investment was analysed in a group of 7 cities (Gdańsk, Gdynia, Kraków, Łódź, Poznań, Warsaw and Wrocław) and in a group of other cities (Białystok, Bydgoszcz, Katowice, Lublin, Olsztyn, Rzeszów and Szczecin). Three voivodship capitals (Opole, Kielce and Zielona Góra) were omitted due to the small sample size of recorded home rental transactions. The profitability of investing in rental housing was determined by calculating the capitalisation rate and the ROE (return on equity). The capitalisation rate is calculated as a ratio of the annual rental income to the price of one square metre of housing. On the other hand, the ROE was calculated as net profit relative to equity engaged. In this case, different possible levels of leverage were adopted: a fully cash-funded investment (with LTV of 0%) and a loan-financed investment with LTV of 50% as well as a highly leveraged investment with LTV of 80%. In order to calculate the financial profit, we took into account rental income and deducted a flat-rate tax of 8.5%, repayment of interest on the loan as well as depreciation of the building in the amount of 1.5% of its value was included (we assumed two general overhauls in the period of 100 years). The tax is paid on all rental income, before cost deduction. The transaction price per sq.m. of an average dwelling was determined by summing up 50% of the average transaction price in the primary and secondary markets. The price in the primary market was increased by the cost of finishing (in 2021 Q4 +1050 PLN/sq.m in Warsaw, +950 PLN/sq.m in 6 cities (Gdańsk, Gdynia, Kraków, Łódź, Poznań and Wrocław) and + 850 PLN/sq.m in a group of 10 cities (Białystok, Bydgoszcz, Katowice, Kielce, Lublin, Olsztyn, Opole, Rzeszów, Szczecin and Zielona Góra), three of which were omitted from the analysis, as mentioned above. A PLN-denominated loan granted for 25 years, with equal instalments, payable four times a year was adopted. The occupancy rate of 95% was assumed.

remaining cities analysed, to 3.1%. As at the end of 2021 Q4 it was observed that in the group of the 7 largest cities the average ROE decreased slightly by 0.03 p.p. while in the group of the remaining cities analysed, it fell by 0.06 pp. relative to the end of the first half of 2021. An increase in profitability was recorded in Bydgoszcz (by 6.2%), Wrocław (by 5.8%), Gdynia (by 5.3%), Kraków (by 3.5%), Rzeszów (by 3.1%), Olsztyn (by 2.6%) and Szczecin (by 1.9%). In the remaining cities - voivodship capitals - profitability declined compared to the previous six-month period were recorded.

As at the end of 2021 Q4, the ROE ratios for investment leveraged at a level of LTV=50% 2021 amounted to 2.6% in the group of 7 cities and 2.4% in the group of other cities analysed. What is important here, however, are the observations of profitability changes that took place in the rental market. In all cities analysed, the level of ROE at LTV 50% fell by 28.5% on average compared to the end of 2021 Q2 - in the group of 7 largest cities, ROE decreased by 27.4%, while in the group of the remaining cities analysed, it decreased by 30.4%.

In 2021 Q4, the ROE at LTV of 80% in the group of 7 cities amounted to 0.8%, while in the group of the remaining cities analysed, it reached 0.2%. The highest returns on such investment were recorded in Łódź (4.5%), Wrocław (3.6%) and Szczecin (2.4%). Substantial declines in ROE were observed in relation to the end of the 2021 H1. The growth of the index for the group of 7 largest cities reached 16.9%, while for the group of the remaining cities analysed, it amounted to 5.5%. This shows very strong declines in profitability of investment in rental housing in 2021 Q4, which use a high level of leverage.

On the basis of the above simplified analysis, it can be assessed that the structure of changes in rental rates and estimated home prices resulted in inhibiting the downward trend in the capitalisation rate. In some cities, the capitalisation rate increased slightly compared to the end of the first half of 2021. This may be mainly the result of the fact that changes in rental rates and purchase prices of dwellings at the end of 2021 equalized. The second conclusion concerns changes in profitability of these investments. The downward trend at 0% LTV being halted could be caused by the relationship of changes in net profit (largely dependent on rental rates) to the level of capital engaged. However, substantial decreases in the profitability of investment with LTVs of 50% and 80% could be justified by changes in lending terms. An increase in the cost of housing loans could have caused the observed changes in ROE ratios. Despite this, the average capitalisation rate in 2021 Q4 was higher than the average interest rate on new deposits (0.7%) and the average market yield on 10-year government bonds (3.1%). Summing up, it can be stated that the rental market underwent quite significant changes in the period under analysis. Some of them are connected with the relative alignment of the pace of changes in rental rates with changes in transaction prices of home purchases, which contributed to changes in the capitalisation rate. Others relate mainly to lending terms for the purchase of rental housing.

The increase in the cost of residential mortgage loans triggered a drop in profitability as revealed in the ROE, especially for highly leveraged dwellings.

It can be seen by comparing quarterly changes of ROE ratios (LTV of 50% and 80%) with the impact of quarterly changes in interest rates of new residential mortgage loans, transaction prices and home rental rates.

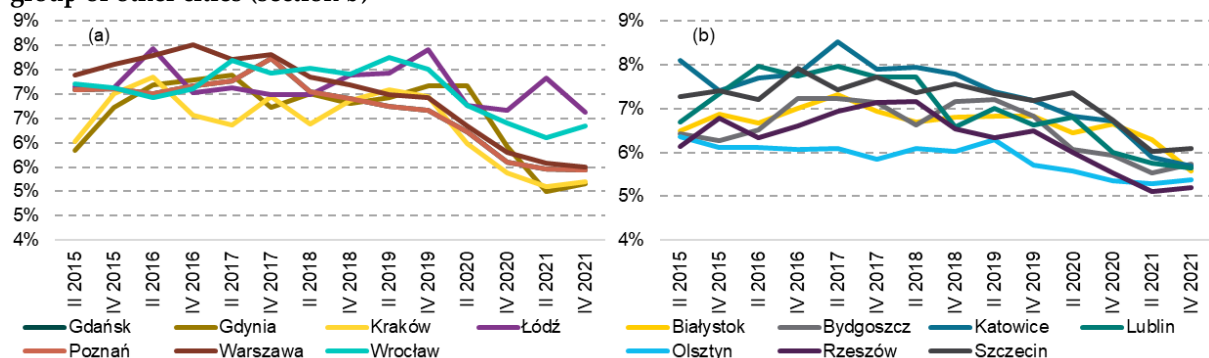


**Table 19 Estimated capitalisation rate (return expected by a real estate buyer, expressed as a percentage of the purchase price of the real estate paid fully with cash) in selected cities (in %)**

Period	Białystok	Bydgoszcz	Gdańsk	Gdynia	Katowice	Kraków	Lublin	Łódź	Olsztyn	Poznań	Rzeszów	Szczecin	Warszawa	Wrocław	7 miast	Other
II 2015	6.5%	6.4%	7.1%	5.8%	8.1%	6.0%	6.7%	7.1%	6.4%	7.1%	6.1%	7.3%	7.4%	7.2%	6.8%	6.8%
IV 2015	6.9%	6.3%	7.1%	6.7%	7.4%	7.0%	7.3%	7.1%	6.1%	7.1%	6.8%	7.4%	7.6%	7.1%	7.1%	6.9%
II 2016	6.7%	6.5%	7.0%	7.2%	7.7%	7.3%	8.0%	7.9%	6.1%	7.0%	6.3%	7.2%	7.8%	6.9%	7.3%	6.9%
IV 2016	7.0%	7.2%	7.2%	7.3%	7.8%	6.6%	7.7%	7.0%	6.1%	7.2%	6.6%	7.9%	8.0%	7.1%	7.2%	7.2%
II 2017	7.3%	7.2%	7.3%	7.4%	8.5%	6.4%	8.0%	7.1%	6.1%	7.3%	6.9%	7.4%	7.7%	7.7%	7.3%	7.4%
IV 2017	6.9%	7.1%	7.7%	6.7%	7.9%	7.0%	7.7%	7.0%	5.8%	7.7%	7.1%	7.7%	7.8%	7.4%	7.3%	7.2%
II 2018	6.7%	6.6%	7.1%	7.0%	7.9%	6.4%	7.7%	7.0%	6.1%	7.1%	7.2%	7.4%	7.3%	7.5%	7.0%	7.1%
IV 2018	6.8%	7.2%	6.9%	6.8%	7.8%	6.9%	6.6%	7.4%	6.0%	6.9%	6.5%	7.6%	7.2%	7.4%	7.1%	6.9%
II 2019	6.8%	7.2%	6.7%	6.9%	7.4%	7.1%	7.0%	7.4%	6.3%	6.7%	6.3%	7.3%	7.0%	7.8%	7.1%	6.9%
IV 2019	6.8%	6.8%	6.7%	7.2%	7.2%	6.9%	6.6%	7.9%	5.7%	6.7%	6.5%	7.2%	6.9%	7.5%	7.1%	6.7%
II 2020	6.4%	6.1%	6.2%	7.2%	6.8%	6.0%	6.8%	6.8%	5.6%	6.2%	6.0%	7.4%	6.3%	6.8%	6.5%	6.4%
IV 2020	6.7%	5.9%	5.6%	5.9%	6.7%	5.4%	6.0%	6.7%	5.4%	5.6%	5.5%	6.7%	5.8%	6.4%	5.9%	6.1%
II 2021	6.3%	5.5%	5.5%	5.0%	5.9%	5.1%	5.8%	7.3%	5.3%	5.5%	5.1%	6.0%	5.6%	6.1%	5.7%	5.7%
IV 2021	5.6%	5.7%	5.4%	5.2%	5.7%	5.2%	5.6%	6.6%	5.4%	5.4%	5.2%	6.1%	5.5%	6.3%	5.7%	5.6%

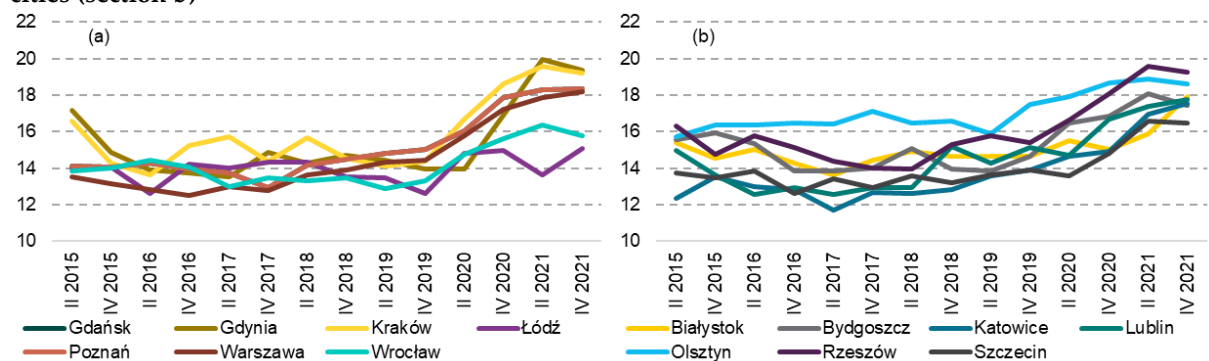
Source: NBP

**Figure 76 Estimated capitalisation rate (return expected by a real estate buyer, expressed as a percentage of the purchase price of the real estate paid fully with cash - in %) in seven large cities (section a) and in the group of other cities (section b)**



Source: NBP

**Figure 77 Estimated time of return on investment in the group of 7 cities (section a) and in the group of other cities (section b)**

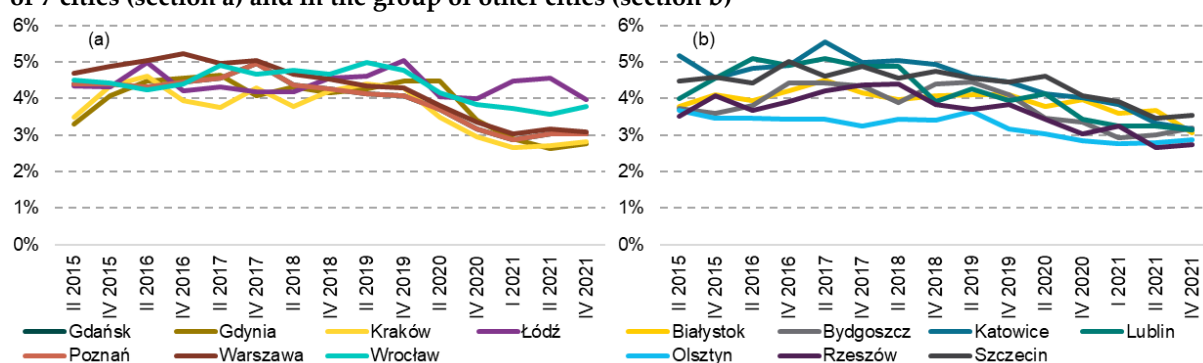


Source: NBP

**Table 20 Return on equity (ROE, in %) on a fully cash-funded housing investment (LTV = 0%) in selected cities**

Period	Białystok	Bydgoszcz	Gdańsk	Gdynia	Katowice	Kraków	Lublin	Łódź	Olsztyn	Poznań	Rzeszów	Szczecin	Warszawa	Wrocław	7 miast	Other
II 2015	3.8%	3.7%	4.4%	3.3%	5.2%	3.5%	4.0%	4.3%	3.7%	4.4%	3.5%	4.5%	4.7%	4.5%	4.2%	4.1%
IV 2015	4.1%	3.6%	4.4%	4.1%	4.6%	4.3%	4.6%	4.3%	3.5%	4.4%	4.1%	4.6%	4.9%	4.4%	4.4%	4.1%
II 2016	3.9%	3.8%	4.3%	4.5%	4.8%	4.6%	5.1%	5.0%	3.5%	4.3%	3.7%	4.4%	5.0%	4.2%	4.6%	4.2%
IV 2016	4.2%	4.4%	4.5%	4.6%	4.9%	3.9%	4.9%	4.2%	3.4%	4.5%	3.9%	5.0%	5.2%	4.4%	4.5%	4.4%
II 2017	4.5%	4.4%	4.6%	4.6%	5.5%	3.8%	5.1%	4.3%	3.4%	4.6%	4.2%	4.6%	5.0%	4.9%	4.5%	4.5%
IV 2017	4.2%	4.4%	5.0%	4.1%	5.0%	4.3%	4.9%	4.2%	3.2%	5.0%	4.4%	4.9%	5.1%	4.7%	4.6%	4.4%
II 2018	4.0%	3.9%	4.4%	4.3%	5.0%	3.8%	4.9%	4.2%	3.4%	4.4%	4.4%	4.6%	4.7%	4.8%	4.4%	4.3%
IV 2018	4.1%	4.4%	4.3%	4.2%	4.9%	4.2%	3.9%	4.6%	3.4%	4.3%	3.8%	4.7%	4.5%	4.7%	4.4%	4.2%
II 2019	4.1%	4.4%	4.1%	4.3%	4.6%	4.4%	4.3%	4.6%	3.6%	4.1%	3.7%	4.6%	4.3%	5.0%	4.4%	4.2%
IV 2019	4.1%	4.1%	4.1%	4.5%	4.4%	4.3%	3.9%	5.0%	3.2%	4.1%	3.8%	4.5%	4.3%	4.8%	4.4%	4.0%
II 2020	3.8%	3.5%	3.7%	4.5%	4.1%	3.5%	4.1%	4.0%	3.0%	3.7%	3.4%	4.6%	3.8%	4.1%	3.9%	3.8%
IV 2020	4.0%	3.4%	3.2%	4.4%	4.0%	2.9%	3.4%	4.0%	2.9%	3.2%	3.0%	4.1%	3.3%	3.8%	3.4%	3.5%
II 2021	3.7%	3.0%	3.0%	2.6%	3.3%	2.7%	3.2%	4.6%	2.8%	3.0%	2.7%	3.5%	3.2%	3.6%	3.2%	3.2%
IV 2021	3.1%	3.2%	3.0%	2.8%	3.2%	2.8%	3.1%	4.0%	2.9%	3.0%	2.7%	3.5%	3.1%	3.8%	3.2%	3.1%

Source: NBP

**Figure 78 Return on equity (ROE, in %) on a fully cash-funded housing investment (LTV = 0%) in the group of 7 cities (section a) and in the group of other cities (section b)**


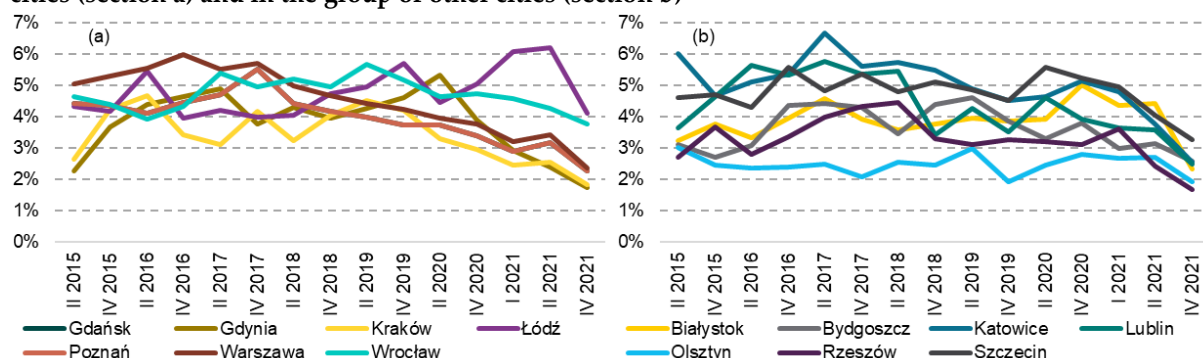
Source: NBP

**Table 21 Return on equity (ROE, in %) in the case of leveraged housing investment (LTV = 50%) in selected cities**

Period	Białystok	Bydgoszcz	Gdańsk	Gdynia	Katowice	Kraków	Lublin	Łódź	Olsztyn	Poznań	Rzeszów	Szczecin	Warszawa	Wrocław	7 miast	Other
II 2015	3.2%	3.1%	4.4%	2.2%	6.0%	2.6%	3.6%	4.3%	3.0%	4.4%	2.7%	4.6%	5.0%	4.6%	4.0%	3.8%
IV 2015	3.8%	2.7%	4.3%	3.7%	4.7%	4.2%	4.6%	4.2%	2.5%	4.3%	3.7%	4.7%	5.3%	4.4%	4.3%	3.8%
II 2016	3.3%	3.1%	4.1%	4.4%	5.1%	4.7%	5.6%	5.4%	2.4%	4.1%	2.8%	4.3%	5.5%	3.9%	4.6%	3.8%
IV 2016	4.0%	4.3%	4.4%	4.6%	5.3%	3.4%	5.3%	4.0%	2.4%	4.4%	3.4%	5.6%	6.0%	4.3%	4.4%	4.3%
II 2017	4.6%	4.4%	4.7%	4.9%	6.7%	3.1%	5.8%	4.2%	2.5%	4.7%	4.0%	4.8%	5.5%	5.4%	4.6%	4.7%
IV 2017	3.9%	4.3%	5.5%	3.7%	5.6%	4.2%	5.4%	4.0%	2.1%	5.5%	4.3%	5.3%	5.7%	4.9%	4.8%	4.4%
II 2018	3.6%	3.5%	4.4%	4.3%	5.7%	3.2%	5.4%	4.0%	2.5%	4.4%	4.5%	4.8%	5.0%	5.2%	4.4%	4.3%
IV 2018	3.8%	4.4%	4.1%	3.9%	5.5%	4.0%	3.4%	4.7%	2.4%	4.1%	3.3%	5.1%	4.7%	4.9%	4.4%	4.0%
II 2019	3.9%	4.6%	4.0%	4.3%	4.9%	4.5%	4.3%	4.9%	3.0%	4.0%	3.1%	4.8%	4.4%	5.7%	4.5%	4.1%
IV 2019	3.8%	3.8%	3.7%	4.6%	4.5%	4.2%	3.5%	5.7%	1.9%	3.7%	3.3%	4.5%	4.2%	5.2%	4.5%	3.6%
II 2020	3.9%	3.3%	3.7%	5.3%	4.6%	3.3%	4.6%	4.4%	2.4%	3.7%	3.2%	5.6%	3.9%	4.6%	4.2%	3.9%
IV 2020	5.0%	3.8%	3.4%	3.9%	5.1%	3.0%	3.9%	5.0%	2.8%	3.4%	3.1%	5.2%	3.8%	4.7%	3.9%	4.1%
II 2021	4.4%	3.1%	3.2%	2.4%	3.8%	2.5%	3.6%	6.2%	2.7%	3.2%	2.4%	4.0%	3.4%	4.3%	3.6%	3.4%
IV 2021	2.3%	2.6%	2.2%	1.7%	2.5%	1.8%	2.5%	4.1%	1.9%	2.2%	1.7%	3.2%	2.3%	3.7%	2.6%	2.4%

Source: NBP

**Figure 79 Return on equity (ROE, in %) on leveraged housing investment (LTV = 50%) in the group of 7 cities (section a) and in the group of other cities (section b)**



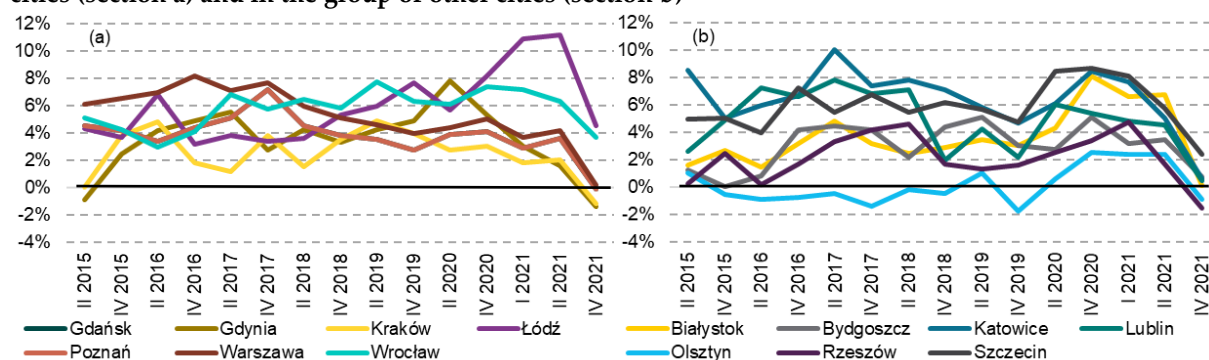
Source: NBP

**Table 22 Return on equity (ROE, in %) in the case of leveraged housing investment (LTV = 80%) in selected cities**

Period	Białystok	Bydgoszcz	Gdańsk	Gdynia	Katowice	Kraków	Lublin	Łódź	Olsztyn	Poznań	Rzeszów	Szczecin	Warszawa	Wrocław	7 miast	Other
II 2015	1.6%	1.2%	4.5%	-0.9%	8.5%	0.0%	2.6%	4.3%	1.0%	4.5%	0.2%	5.0%	6.1%	5.1%	3.4%	2.9%
IV 2015	2.7%	0.0%	4.1%	2.5%	5.0%	3.8%	4.9%	3.7%	-0.6%	4.1%	2.5%	5.0%	6.5%	4.3%	4.1%	2.8%
II 2016	1.4%	0.8%	3.4%	4.1%	5.9%	4.8%	7.2%	6.8%	-0.9%	3.4%	0.2%	3.9%	7.0%	3.0%	4.6%	2.7%
IV 2016	3.2%	4.2%	4.4%	4.9%	6.6%	1.8%	6.6%	3.2%	-0.8%	4.4%	1.7%	7.2%	8.2%	4.1%	4.4%	4.1%
II 2017	4.8%	4.4%	5.1%	5.5%	10.0%	1.1%	7.8%	3.8%	-0.5%	5.1%	3.3%	5.4%	7.1%	6.8%	4.9%	5.0%
IV 2017	3.2%	4.1%	7.2%	2.8%	7.4%	3.8%	6.8%	3.3%	-1.4%	7.2%	4.2%	6.8%	7.6%	5.8%	5.4%	4.4%
II 2018	2.4%	2.1%	4.5%	4.2%	7.8%	1.5%	7.1%	3.6%	-0.2%	4.5%	4.6%	5.4%	5.9%	6.4%	4.4%	4.2%
IV 2018	2.8%	4.4%	3.8%	3.3%	7.1%	3.5%	2.0%	5.3%	-0.5%	3.8%	1.6%	6.2%	5.1%	5.8%	4.4%	3.4%
II 2019	3.4%	5.1%	3.5%	4.2%	5.8%	4.9%	4.2%	5.9%	1.0%	3.5%	1.3%	5.7%	4.6%	7.8%	4.9%	3.8%
IV 2019	3.0%	3.0%	2.8%	4.9%	4.7%	3.9%	2.2%	7.7%	-1.8%	2.8%	1.6%	4.7%	4.0%	6.3%	4.6%	2.5%
II 2020	4.3%	2.7%	3.8%	7.8%	6.1%	2.8%	6.0%	5.6%	0.6%	3.8%	2.5%	8.4%	4.4%	6.1%	4.9%	4.4%
IV 2020	8.1%	5.1%	4.1%	5.3%	8.4%	3.0%	5.4%	8.2%	2.5%	4.1%	3.4%	8.7%	5.0%	7.4%	5.3%	5.9%
II 2021	6.7%	3.5%	3.6%	1.6%	5.0%	2.0%	4.5%	11.2%	2.4%	3.6%	1.7%	5.7%	4.2%	6.3%	4.6%	4.2%
IV 2021	0.1%	0.7%	-0.1%	-1.4%	0.6%	-1.2%	0.4%	4.5%	-0.9%	-0.1%	-1.6%	2.4%	0.1%	3.6%	0.8%	0.2%

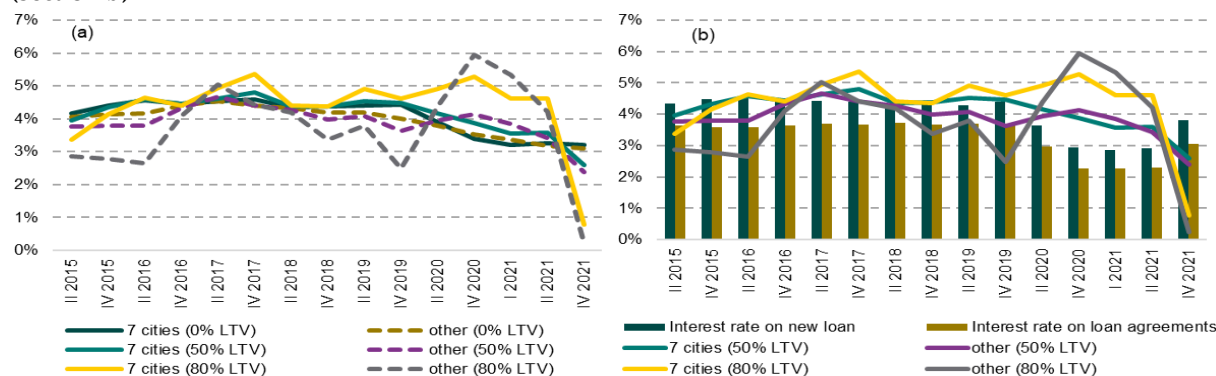
Source: NBP

**Figure 80 Return on equity (ROE, in %) on leveraged housing investment (LTV = 80%) in the group of 7 cities (section a) and in the group of other cities (section b)**



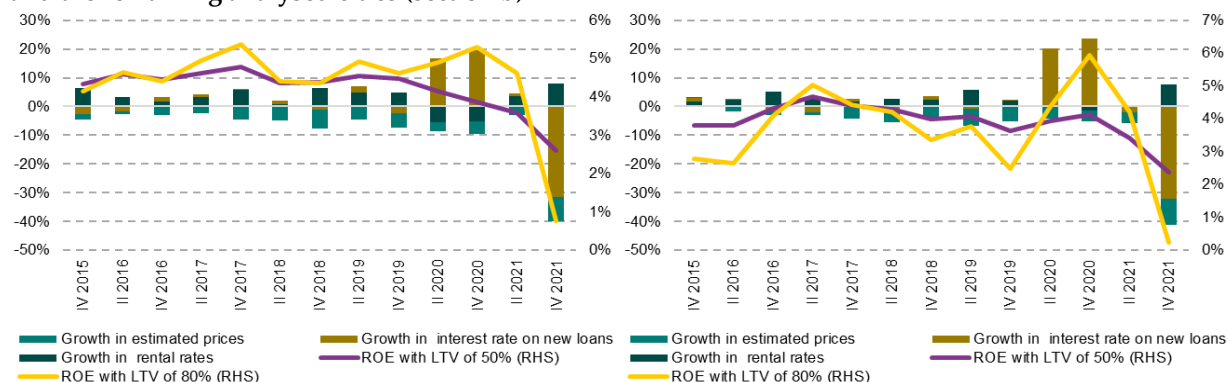
Source: NBP

**Figure 81 Comparison of the return on equity (ROE, in %) on housing investment for groups of 7 cities and a group of other cities at selected levels of the LTV ratio (section a) and in comparison to loan interest rate (section b)**



Source: NBP

**Figure 82. 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 a group of 7 cities (section a) and the remaining analysed cities (section b)**



Source: NBP

## 8. Analysis of changes in average offer home rental rates according to new offers posted on the OTODOM.PL website in 2021 Q2<sup>32</sup>

An abbreviated analysis of new housing rental listings shows that in 2021 Q4, the decline in the number of new home rental offers posted on *otodom.pl* became more significant. From the perspective of Poland as a whole, the number of newly posted offers fell by 27.3% q/q. However, it is worth stressing that they can include offers posted both by developers and by individuals. The nature of the data available does not make it possible to determine whether the offers refer to short- or long-term rental.

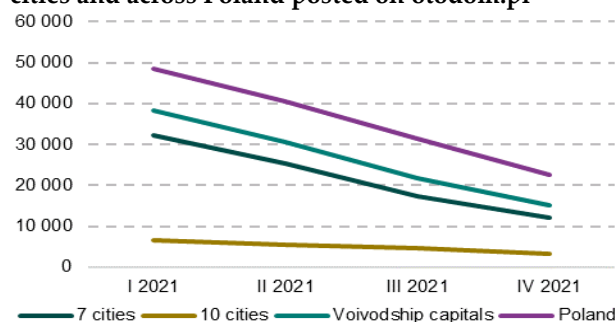
Minor changes were observed in the level of offer rates quoted in PLN/sq.m. Across Poland, in 2021 Q4 these rates increased by 1.3% q/q, while at the same time some slowdown in their growth was seen in this period.

<sup>32</sup> The analysis is based on data collected since 2021 by NBP in cooperation with the OLX sp. z o.o. Group. However, only the data from new rental offers listed on the OTODOM.PL advertising service in individual months were used. This resulted in the rejection of offers that were duplicated in consecutive months (offers seen in the advertising service for more than a month). It is impossible to verify whether this is due to a lack of transactions or a bidder's failure to remove an offer. In addition, those offers with prices lower than PLN 100 and higher than PLN 5,000 were rejected. The areas of dwellings were divided into 6 usable floor area groups: below 20 sq.m., 21-40 sq.m., 41-60 sq.m., 61-80 sq.m., 81-120 sq.m. and over 120 sq.m. The two extreme categories were excluded from the analysis. In terms of location, the offers were divided into voivodship capitals and groups of seven cities (Gdańsk, Gdynia, Kraków, Poznań, Warsaw and Wrocław) and ten cities (Białystok, Bydgoszcz, Katowice, Kielce, Lublin, Olsztyn, Opole, Rzeszów, Szczecin and Zielona Góra). The location of district capitals was used to create the cartodiagrams.

Only in the group of 10 cities the upward trend of 3.5% continued. The situation differed in particular voivodship capitals.

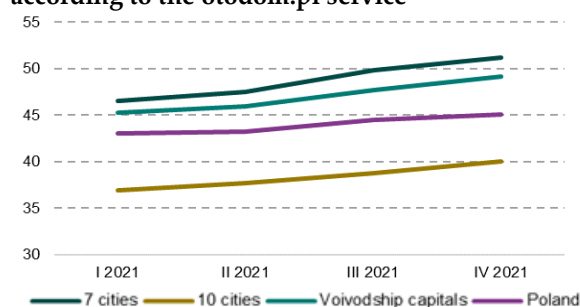
In 2021 Q4, rental rates increased to the greatest extent for dwellings of 21-40 sq.m and 61-80 sq.m. The highest increases were recorded in the group of 7 cities, by 5.6% and 4.7%, respectively and in the group of 16 voivodship capitals, by 5.1% and 4.3%, respectively. At the same time, the relationship of market rental rates with the surface area of dwellings continued. The smallest dwellings have relatively highest rent rates. We have been observing an upward trend in rental rates for flats with an area of 61-80 sq.m - in fact, this trend continued throughout 2021.

**Figure 83** Number of new rental offers in groups of cities and across Poland posted on otodom.pl



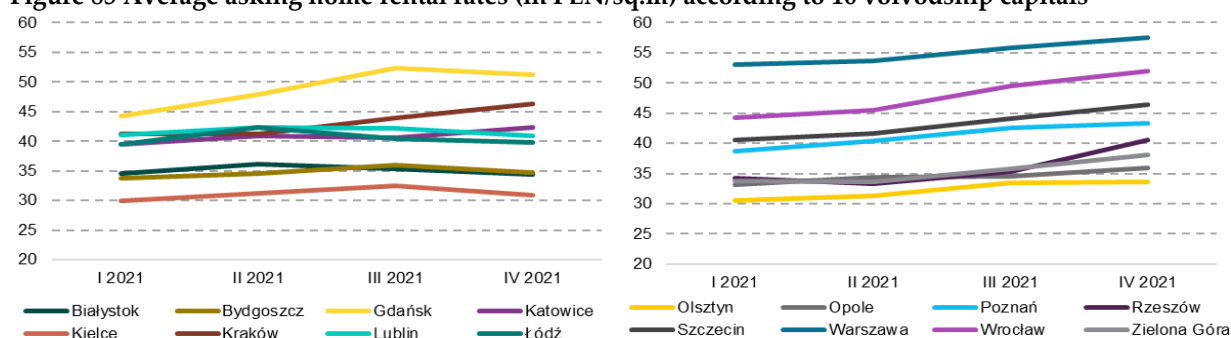
Source: Own estimates based on OLX Group

**Figure 84** Average asking home rental rates (in PLN/sq.m) in groups of cities and across Poland, according to the otodom.pl service



Source: Own estimates based on OLX Group

**Figure 85** Average asking home rental rates (in PLN/sq.m) according to 16 voivodship capitals



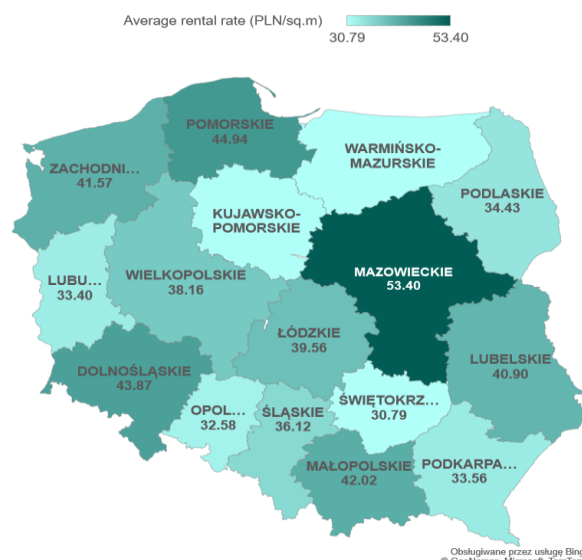
Source: Own estimates based on of the OLX Group

**Table 23** Average asking home rental rates (in PLN/sq.m) in groups of cities and across Poland.

Whole Poland					16 voivodship capitals				
period	21-40 sq.m	41-60 sq.m	61-80 sq.m	81-120 sq.m	period	21-40 sq.m	41-60 sq.m	61-80 sq.m	81-120 sq.m
2021 Q1	47.9	40.5	37.5	34.1	2021 Q1	50.3	42.6	39.6	36.2
2021 Q2	47.6	40.6	37.7	34.2	2021 Q2	50.5	43.2	40.1	36.6
2021 Q3	49.7	41.8	38.1	35.0	2021 Q3	53.4	44.7	40.6	37.6
2021 Q4	51.2	42.5	39.0	35.1	2021 Q4	56.1	46.4	42.4	38.2
7 cities					10 cities				
period	21-40 sq.m	41-60 sq.m	61-80 sq.m	81-120 sq.m	period	21-40 sq.m	41-60 sq.m	61-80 sq.m	81-120 sq.m
2021 Q1	51.6	43.9	41.0	37.4	2021 Q1	42.0	34.0	31.3	28.9
2021 Q2	52.3	44.6	41.4	37.7	2021 Q2	41.7	34.7	33.4	30.6
2021 Q3	55.6	46.9	42.3	38.5	2021 Q3	43.8	36.1	33.5	33.7
2021 Q4	58.7	48.5	44.3	39.5	2021 Q4	45.1	36.7	34.1	33.0

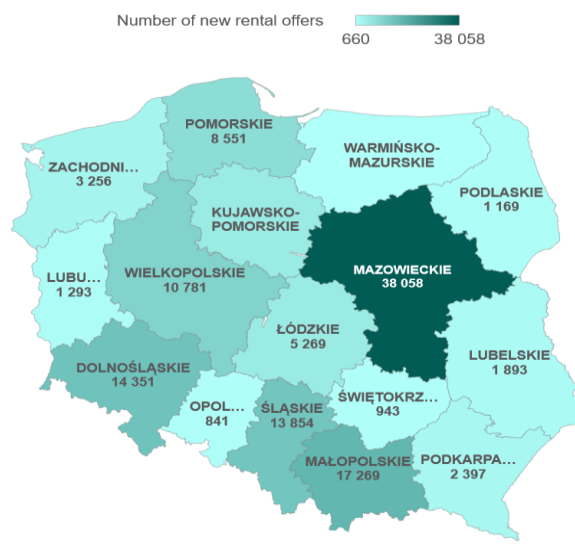
Source: Own estimates based on of the OLX Group

**Figure 86 Average asking home rental rates according to voivodships in 2021**



Source: Own estimates based on of the OLX Group

**Figure 87 Number of new home rental advertisements according to voivodships in 2021**



Source: Own estimates based on of the OLX Group

## 9. Analysis of financial standing of real estate developers with elements of demand and supply analysis in the primary housing market based on the NBP surveys<sup>33</sup>

The good standing of the real estate development sector in 2020 and the high demand for housing at the end of 2020 and throughout 2021 made real estate developers to quickly adapt their operations to new market conditions. At the end of 2021, the financial standing of the vast majority of housing developers was better than before the turmoil caused by the COVID-19 pandemic. The percentage of entities that did not face any financial liquidity problems, despite dynamically rising production costs, has increased. The share of entities in a very poor condition but with real chances of survival and improvement of their financial standing was negligible. The majority of developers (80%) expected a similar economic situation in 2022, while 16% saw a chance for improvement. The high concentration of the largest developers in terms of the annual home sales, as recorded in previous years, decreased - the share of medium-sized and small developers increased, while the share of the largest developers decreased. Occasional liquidity problems in 2021 were indicated only by the smallest entities.

<sup>33</sup> Developers who participated in the “Survey of supply levels with demand elements in the primary market in multifamily housing” conducted by Narodowy Bank Polski in December 2021 accounted for an estimated 27% of real estate developers investing in multifamily housing projects in the country. The structure of construction companies which took part in the “Survey of the financial standing and production capacity of construction companies providing, among others, residential construction services” at the same time, comprised approx. 19% micro companies, 50% small entities, 25% medium-sized companies and 6% large volume construction entities. Approximately 90% of the surveyed developers and more than 80% of the surveyed construction companies also took part in the previous issues of the surveys (in November and February 2020 and in February 2019), which ensured a high comparability of the results and conclusions of the previous surveys. The analysis of the data derived from the questionnaire surveys was supplemented by interviews with representatives of selected developers and construction companies as well as by calculations and conclusions resulting from F01 reports submitted to the Statistics Poland, with the breakdown into two groups of companies: small companies - employing from 9 to 49 persons (data available until the first half of 2021 in semi-annual periods) and larger-sized companies employing above 49 persons (data available until 2021 Q3 in quarterly periods) engaged in the development of building projects (PKD 41.10) and providing construction works associated with the erection of residential and non-residential buildings (PKD 41.20). The information on the change in prices of building materials originates from the report on “Change in prices of materials for construction and home and garden - PSB analysis” in January 2022 and 2021 and in February 2022, PSB Handel S.A. Group.



The downward trend in the share of bank loan debt among larger developers continued (5% share in the liability structure in 2021 compared to 10% in 2020). The past two years have seen a lower share of developers applying for a loan (36% in 2021 and 34% in 2020 compared to 43% in 2019). In 2021, banks refused to grant a loan to only 4% of applying developers, mainly in the last quarter of 2021 as a result of tightening of financing terms for development projects and increasingly prudential approach of banks. This prudential approach was driven by rapidly rising contractor costs, the risk of underestimating the planned budget and the fear of a slowdown of buyer demand and falling developer revenues. A slight increase was noted in the share of developers who did not apply for a bank loan (in total to 59% from 55%), and over 26% of respondents had no bank loan debt at the end of December 2021.

The increase in the share of equity (to nearly 45% on average) improved the creditworthiness and credit rating of the entities analysed.

Down payments from home buyers remain a significant external source of financing for real estate development activity, whose share in the structure of liabilities increased during the year from 18% to 23% in the group of WSE-listed companies, from 14% to 16% in the group of small entities and remained at a level of 21% in the group of larger developers. This confirms high sales of residential construction contracts. The boom in the housing market has encouraged the largest developers, with stable foundations, to expand their business and increase their leverage by issuing bonds (9% in the structure of liabilities at the end of 2021 against a 5% share at the end of 2020).

In 2021 Q3, in the structure of liabilities, the share of developers' liabilities towards contractors decreased to over 20%, compared to the high levels observed in the previous two quarters (to over 33% in 2021 Q2), which indicates an improvement in timely settlements of liabilities towards project subcontractors. The shortage of contractors and an increased competition in acquiring reduced payment bottlenecks in the investor - project contractor relations. More than half of the surveyed developers (54% in 2021 and 56% in 2020), including significantly small (63%) rather than medium-sized (36%) and large (33%) developers, run projects traditionally and control investment financing themselves. Smaller entities, carrying out small projects, manage project financing themselves. Only small entities reported that they limited their development activities or were unable to develop them due to insufficient funds, which indicates their weaker financial standing and justifies banks' prudential approach to lending to such entities. According to December 2021 expectations, the majority of developers intend to raise additional funding in 2022, including 54% of entities intending to apply for a development loan. Approx. 35% of entities do not intend to apply for additional funding. According to almost one of four developers, there is a high risk that project developers may experience difficulties in obtaining financing in 2022.

The second consecutive year ended with higher sales of flats in the primary market than expected. The first half of 2021 saw a historically high sales results, accelerating offer turnover and further increases in prices of materials. Slight weakening of the demand in 2021 Q3 and Q4 resulted from the reduction in supply (entering the second half of the year with a lower offer and commencement of construction of a lower number of housing units) and tightening of residential loan granting criteria to home buyers. According to developers, the lack of possibility to adjust the supply to the demand resulted most frequently from administrative delays, which hindered the smooth introduction of new offers to the market. In 2021, for the first time ever, the largest development firms recorded high annual sales in excess of 4,000 housing units. Finally, at the end of 2021, developers' opinions on the ratio of demand to supply in the primary market were split, with 51% of developers in the six major markets indicating that demand outweighed supply, and 53% of respondents in the ten other cities indicating a similar level of demand to supply. The record demand for primary market housing in 2021 is confirmed by data submitted to NBP, according to which home sales in the 17 largest markets were in total 27% higher than the number of home construction constructs concluded in 2020 and 10% higher than in 2019.



A higher growth in demand was recorded in the 6 larger markets rather than in the 10 other markets. A predominant percentage of developers were close to achieve or exceeded their sales target for 2021. Despite increasing factors hampering demand in the primary market, mainly rising interest rates, developers - when expressing their expectations for the next two years - anticipated a higher sales target than the one achieved in 2021. They also expected an increase in new construction starts and more than 20% higher supply and demand levels, confirming the good standing and capacity of developers.

However, the higher forecasts of sales results and offer availability consist mainly of the expectations of the largest developers.

More than a half of the smallest developers (55%) expected that sales in 2022 would be similar to the figures in 2021.

The lower level in demand for housing for home buyers' own needs is caused by rising inflation, interest rates and the tightening of banks' lending policies, which increases the cost and reduces the availability of housing loans as well as the purchasing capacity of buyers with the use of bank funds. At the same time, according to the surveyed developers, rising inflation, including rising home prices, is a factor that significantly supports demand from buyers who invest their savings in real estate.

The NBP analyses show a slump in housing affordability in the second half of 2021 H2, which deepened in all major local markets in 2021 Q4, in both the primary and the secondary market, as a result of the increased stratification between wage levels and the accelerated growth in home prices. Over a broader time horizon, affordability of housing remains at levels recorded in 2012-2013 and clearly above the historic lows of 2007-2008. The slow-down in lending observed at the end of 2021 may prevent imbalances to build up in the real estate sector.

January and February 2022, saw signs of a downturn in the housing market.

According to data published by the Credit Information Bureau, in February 2022, compared to February 2021, the number of enquiries for housing loans submitted to banks and credit unions SKOKs decreased by 29.2% and the number of people applying for a housing loan decreased by 36.3%.

On the other hand, compared with January 2022, there were 8.5% more people applying for a loan. The number of residential mortgage loan applicants in February 2022 is the fourth lowest figure since the beginning of the pandemic. A significant factor contributing to the decline in the number of residential mortgage loan applicants could be interest rate hikes and the announcement of their further rises. According to the data of the Statistics Poland for January, the number of building permits for the construction of housing units and houses fell by 5% y/y (by 21% in the segment of individual investors, with a 5% increase among developers), while the number of housing units whose construction had already started fell by as much as 23% (by 8% in the segment of individual investors and a 41% drop among developers). The significant revision in real estate development project launches results partly from the high January 2021 comparative base. Developers' lower propensity to invest may be reinforced by Russia's military aggression against Ukraine and the uncertainty of the overall domestic and global situation.

The outflow of workers may slow down construction projects and complicate cost calculations. The influx of refugees from Ukraine may increase the role of available rental housing, if some people decide to live for a longer period with their families in Poland. Home rental allows people to change their place of residence more quickly and does not require a major investment.

The last four years have seen a similar structure of home buyers in terms of the purpose of their purchase. In 2021, the share of buyers purchasing housing for their own use decreased slightly ( a decrease by 8 p.p. to 62%) and the share of buyers purchasing housing both for resale at a profit in a favourable period and for rent as well as for own use increased ( a rise by 7 p.p. to 19%).

This included a low level of purchases of dwellings solely for the purpose of resale at a profit in a favourable period (5%). For the second consecutive year, the share of first home buyers decreased slightly ( a decline by 3 p.p. to 31%). A slight downward trend was also recorded among people purchasing housing to improve their living conditions ( a decrease by 4 p.p. to 31%). The share of those buying exclusively for rental (18% of total buyers) was maintained.

The structure of home purchasers has remained stable for three years (93% of domestic private individuals, 4% of foreign private individuals, 3% of companies, less than 1% of domestic and foreign investment funds). In 2021 a considerable part of developers (20%) saw an increased interest in home purchasing from investment funds, including 26% of developers in six major cities and 11% from ten other markets. Increased interest in the purchase of dwellings by investment funds was recorded by more than half of the largest developers (56%). According to market analysts, funds from the PRS sector (private rented sector, i.e. institutional long-term rental) are increasingly present on the Polish market. In 2021, equity developers concluded contracts with them to sell nearly 6,000 dwelling, accounting for 17% of their total sales. In 2020, those entities purchased 900 dwellings (approximately 4% of their total sales). The alternative of selling entire projects to the funds is attractive to developers from the point of view of liquidity management, risk reduction and use of own capital. On the other hand, from the point of view of an individual purchaser, it may significantly reduce the availability of offers and lead to price increases.

Given the purpose for which dwellings were purchased in 2021, little change was observed as regards the mix of individual funds over the past three years. As regards home purchases for both buyers' own needs and for investment purposes, the predominance of own funds increased slightly and the share of bank lending decreased. The main source of financing home purchases for buyers' own use was bank lending (62% of transactions; an increase of 2 p.p. compared to 2020), followed by the prevalence of own funds (20% of transactions; an increase of 2 p.p.) and own funds only (18% of transactions; a decrease of 4 p.p.). In 2021, more than half of dwellings purchased for rent (51% of transactions; an increase of 1 p.p.) were financed exclusively with buyers' own funds. The share of dwellings purchased with the prevalence of own funds remained at a level of 28%. A smaller part of transactions was financed by bank loan (21%; an increase of 1 p.p.). A minor part of dwellings (5%) which, in the developers' view, were purchased with the intention of later resale in a favourable period was 82% financed with own funds (an increase of 1 p.p.) or with a significant prevalence of own funds, while the remaining small part was financed with bank funds.

In 2021, the increase in transaction prices in the primary market in Warsaw was similar to the growth rate of construction costs of a multi-family residential building (an increase of 13% in 2021 compared to 4% in 2020 and 7% in 2019). In other cities, growth in home transaction prices was several per cent higher than the growth in construction costs. Developers are raising prices to make the most efficient use of their offer in order to maximise the profitability of their projects.

According to the Statistics Poland data, in 2021, 234,718 dwellings were completed in, i.e. 6.3% more than in 2020. The record number of housing units made ready for occupancy was the result of completion of some of the dwellings started nearly two years earlier, which indicates that construction works in the pandemic period were carried out without major disruptions, despite difficulties on the contractor's part (delays in deliveries, shortage of sufficient labour force). The vast majority of these dwellings were sold at the production stage and do not have a major impact on the developments in the supply of housing at the beginning of the 2022 analysed.

According to the majority of developers, the decline in the number of dwellings completed in 2021 Q4 in as many as 12 voivodeship capitals was the result, among others, of administrative delays in obtaining occupancy permits and thus in the issuance of premises.

One of the most important factors indicating the improvement in developers' production capacity is the number of issued home construction permits (340,613 housing units in 2021), which was more than 23% higher than in 2020 and has followed an upward trend since 2013, with historic highs recorded since 2017. The shortage of land in some major cities has increased interest in adjacent districts from both developers and buyers. Examples of such a phenomenon analysed on the basis of the growth rate of issued building permits of housing include Warsaw, Wrocław, Tricity and Kraków. The significantly higher number of dwellings to be put on the market, as expected by developers in 2022 (a y/y increase of 37%) confirms developers' considerable production capacity. As in previous years, the share of dwellings planned for development with the building permit obtained amounts to approx. 45% of all dwellings planned for development by the respondents.

According to the Statistics Poland data, a slight slowdown in the production of started dwellings was recorded in the second half of 2021. The year 2021 saw an increase in supply-side tensions, whereby the availability of offers struggled to match the high demand. The high rate of housing production with the direction of pandemic, economic and geopolitical turmoil still difficult to determine and the uncertain purchasing capacity of potential borrowers, could significantly reduce buyers' activity and result in a deterioration of developers' financial standing.

In 2021, developers passed on rising construction costs through to buyers, including often with a surplus, reporting a 10%-15% y/y increase in sales margins, which was particularly evident among the largest developers.

Some developers introduced offers for sale at an advanced stage of construction work, which allowed them to adjust home prices to rising construction costs. Nearly half of the surveyed developers reported an improvement in their sales revenues, including the prevailing share of the largest companies (78%) and mainly in the group of 6 cities (49% of companies). A satisfactory level of profitability in 2021 was reported by 89% of large developers, 77% of medium-sized and 55% of small entities, compared to similar ratings in 2020 (83%, 77% and 62%, respectively). The percentage of larger profitable developers was higher than in the previous five years. The share of profitable smaller entities remained at a similar level. In 2021, approx. 21% of developers, mainly small and those developing projects in 10 other cities, indicated a decline in the profitability of investing in housing projects. Several factors contributed to the good profitability of developers in 2021, including i.e. their entry in a good overall condition in the pandemic period in, continuing high demand for housing apart from a short slowdown in 2020 Q2, allowing for effective management of home prices amid rising construction costs. A slowdown of activity in other construction of buildings in 2020 increased the availability of subcontractors and translated into lower pressure on contractor prices. Some developers assumed a 10%-15% increase in construction costs when making cost estimates for new projects. Almost 90% of the developers surveyed expected to maintain a similar level of sales profit in 2022.

In 2021, the challenge for residential developers was to build up the book in order to match supply and demand. According to the data collected during the survey, at the end of 2021 a decrease in the availability of sales offers (by 19%) was recorded compared to the levels recorded at the end of 2020. The share of dwellings in ready-to-occupy buildings represented 11% and was slightly lower than the share recorded at the end of 2020 (12%) and 2019 (13%). The majority of the available housing stock was located on territory of 6 large cities (61% of the stock on offer at the end of 2021), with the remaining 54% located in 10 cities. A small part of the largest enterprises (5%) produced almost half of the housing output (42%). Given the growing interest of

investment funds in block purchase of offers from dominant developers, a scenario of a sharp drop in the availability of offers is possible. Data collected from the development firms surveyed showed a 6% increase in the number of dwellings put on the market in 2021 relative to launches in 2020. The same developers said they could increase the number of dwellings to be put on the market in 2022, compared to 2021 by an average of as much as 29%, confirming the significant production capacity in the housing market.

The difference between the number of dwellings put on the market and sold, which has been observed for three years, is unfavourable for home buyers.

The number of new launches in 2021 was only 5% higher than the number of home construction contracts signed, compared to an 8% difference in 2020 and as much as 20% in 2019.

Higher sales of residential construction contracts in 2021 (an increase of 9% y/y) compared to new launches (an increase of 6% y/y) and a decrease in the availability of offers at the end of the year (by 19% y/y), with significant production capacity declared ( a 29% increase in 2022), indicate that developers are effectively coping with supply constraints. On the other hand, taking into account the stock of land held in December 2021, developers declared the possibility of building only 8% more dwellings on their land bank in 2022 than in the previous year. 72% of the declared possibility of building dwellings on the owned land bank was related to 6 cities and 28% - to the group of 10 cities. Only 6% of developers, mainly the largest ones, owned land allowing them to deliver more than a half of the dwellings planned (54%), which may confirm problems of smaller entities in replenishing their "land bank" and production.

The significant decrease in the availability of sales offers in the primary market at the end of 2021, as compared to the figures at the end of 2020, resulting from the surveys, is confirmed by the NBP data (a decrease of 21% in total in 17 larger local markets, mainly in the group of six large cities). In Warsaw, the availability of offers was 27% lower compared to the stock at the end of 2020 and 30% lower compared to the number of offers at the end of 2019. This market recorded a lower stock of offers at the end of four quarters of 2021, with the number of ongoing investment projects similar to the figure recorded in previous two years. The lower readings on the stock of offers were largely due to the significant turnover of offers (the short selling time of the housing units listed). Dwellings were put on the market at an advanced stage of construction in order to achieve a sales price that would cover the rising costs of construction and ensure a satisfactory level of profits margin. . In the group of 6 cities, the availability of offers at the end of 2021 was 10% lower than at the end of 2020 and 13% lower than just before the pandemic (at the end of 2019). On the other hand, in the group of 10 voivodship capitals, the number of dwellings available on offer at the end of 2021 was 5% higher than at the end of both 2020 and 2019.

In 2021, the prevailing majority of developers (69%) delivered their projects in accordance with the schedule, despite the obstacles encountered and growing demand. The investment process is staggered and does not allow supply to respond quickly to rising demand. Only 3% of respondents, mainly larger developers, were able to increase production in line with the recorded increase in sales. The implementation of a smaller number of dwellings than planned was started by 17% of developers, mainly small entities.

According to the survey data and information provided during the interviews, the most noticeable challenge for the development sector were administrative issues (delays in issuing approvals and decisions).

According to developers, uncertainty concerning administrative procedures translated directly into the level of developers' offer, into costs of conducting investments and into the ability to smoothly launch new investment and made dwellings ready for occupancy. Another equally important factor that has significantly intensified in 2021 were rising prices of construction materials and delays in their supply. Less important were

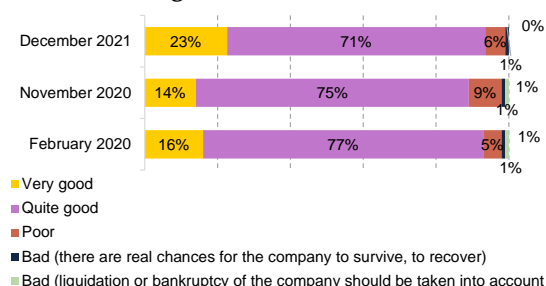
the restrictions to purchase construction land and the shortage of workers, mainly skilled workers as well as rising payroll expenses.

In 2021, compared to 2020, less severe factors in the housing production process included difficulties in finding project contractors, fiscal burdens and difficulties in obtaining external financing.

Nearly half of the entities were not affected by the aforementioned factors to the extent that they could jeopardise project delivery, and more than 77% of developers did not indicate any other significant impediments beyond those mentioned.

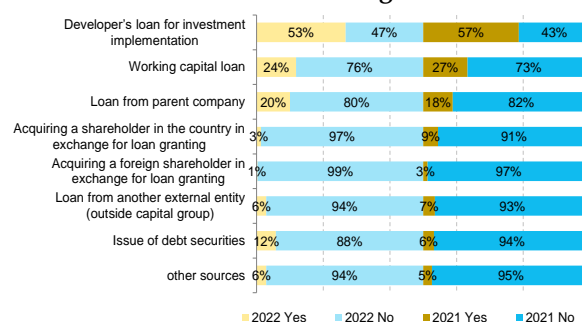
In 2021, the percentage of developers who acquired land for multifamily housing increased, despite high impediments in its purchase and a higher growth in land prices. According to developers, net land prices in average locations increased by 27% on average in 2021, compared to 13% in 2020 and 17% in 2019. Significantly higher price increases were observed for land for multifamily housing in very good locations (an increase of 42% in 2021 vs. 22% in 2020 and 29% in 2019).

**Figure 88 Developers' assessment of their current financial standing (in %)**



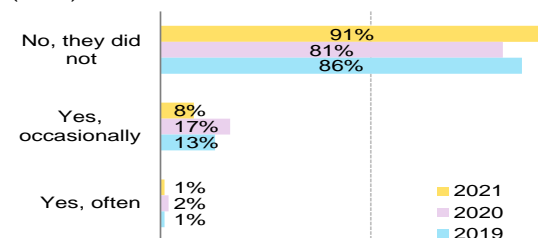
Source: NBP survey

**Figure 90 Structure of responses to the question whether the company sought in 2021 or intends to seek in 2022 additional financing (in %)**



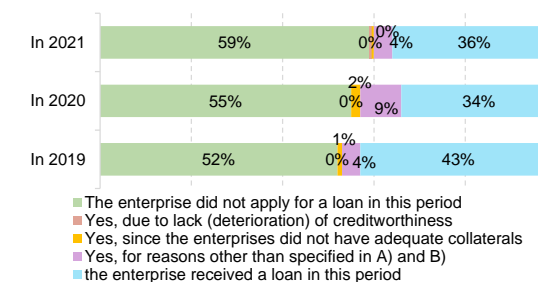
Source: NBP survey

**Figure 89 Structure of responses to the question on whether developers faced liquidity problems (in %)**



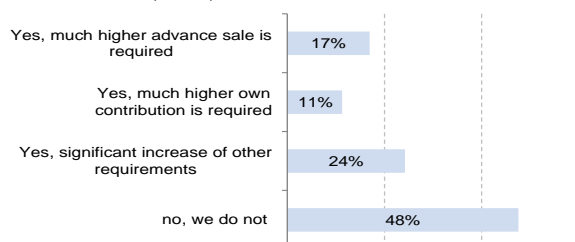
Source: NBP survey

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



Source: NBP survey

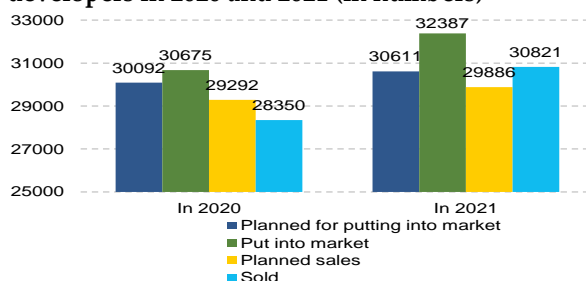
**Figure 92 Structure of overall respondents' answer to the question whether the company currently (December 2021) perceives a significant tightening of financing conditions for development investments (in %)\***



Source: NBP survey

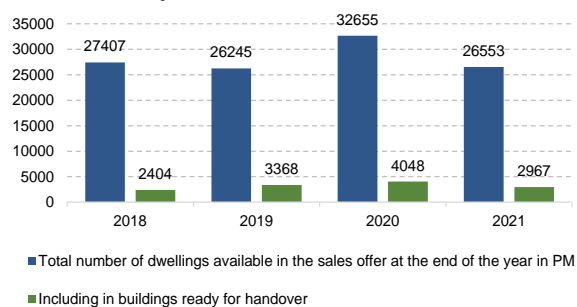
\*Companies that have not applied for a loan are not included in the figure.

**Figure 94 Construction effects of surveyed developers in 2020 and 2021 (in numbers)**



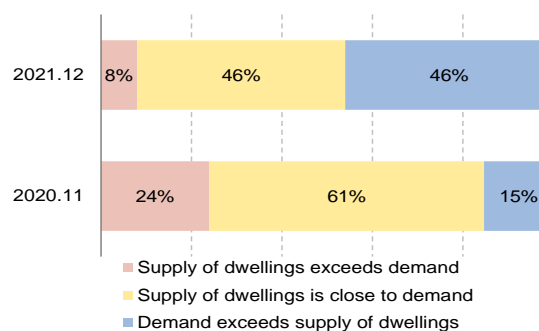
Source: NBP survey

**Figure 96 Number of dwellings available in the sales offer of the surveyed developers as at the end of individual years (number)**



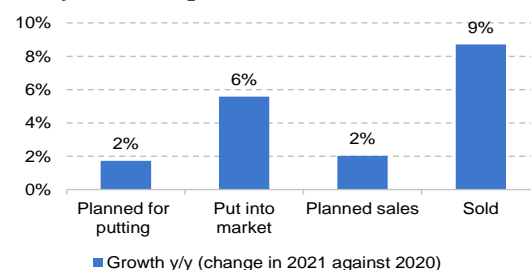
Source: NBP survey

**Figure 93 Supply to demand ratio in 2021 and 2020 as assessed by surveyed developers (%)**



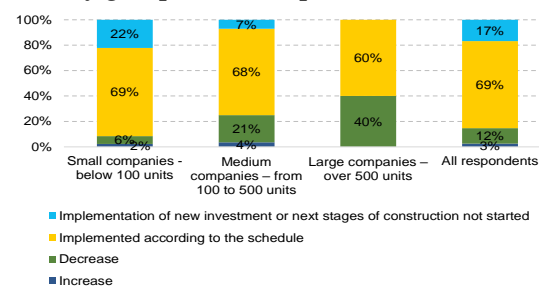
Source: NBP survey

**Figure 95 Change in construction effects of surveyed developers in 2021 (in %)**



Source: NBP survey

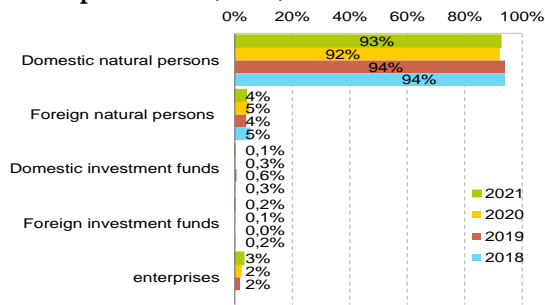
**Figure 97 Responses of surveyed developers to the question of whether the actual number of dwellings started versus the number of dwellings planned to be started has changed in 2021, by groups of developers (in %)**



Source: NBP survey

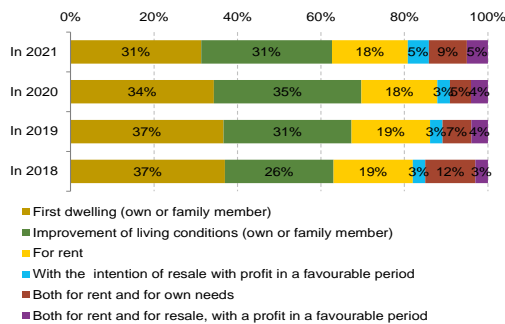


**Figure 98 Structure of purchasers of dwellings sold by developers in 2021, 2020, 2019 and 2018 (in %)**



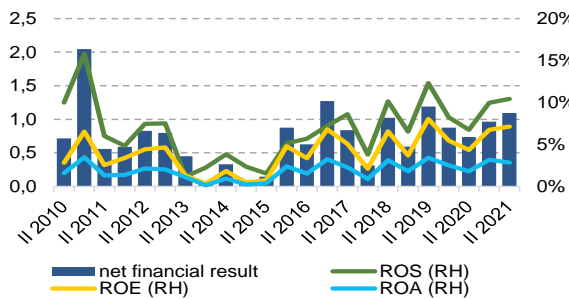
Source: NBP survey

**Figure 100 Structure of developers' responses to the question about the purpose of purchasing housing in the primary market in 2021, 2020, 2019 and 2018 (in %)**



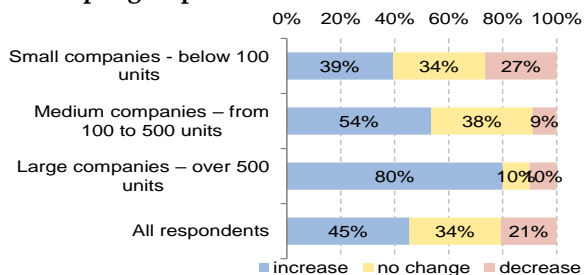
Source: NBP survey

**Figure 102 Profitability of activities of real estate developers employing from 9 to 49 employees**



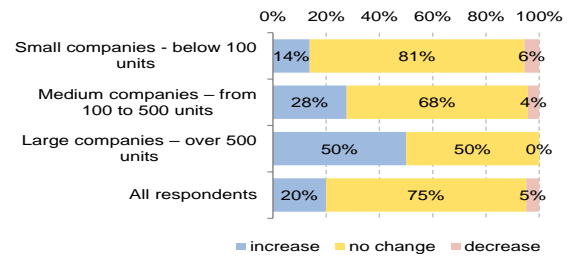
Source: NBP based on Statistics Poland (F01)

**Figure 104 Assessment of the change in profitability of sales in 2021 compared to 2020 by developer group (in %)**



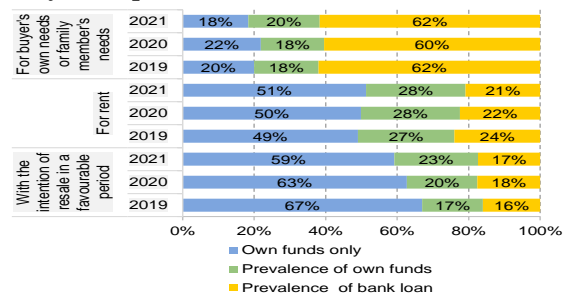
Source: NBP survey

**Figure 99 Developers' assessment of the change in the level of interest in purchasing homes from funds in 2021 by developer group (%)**



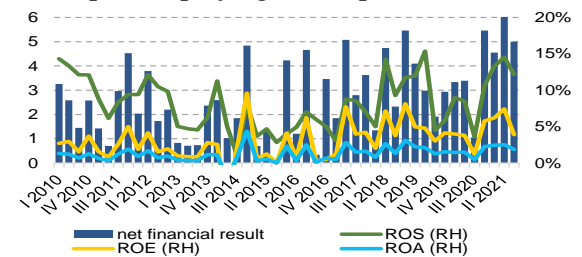
Source: NBP survey

**Figure 101 Structure of developers' responses to the question what was the share of different sources of financing for the purchase of dwellings depending on the purpose for which they were purchased in 2020 (in %)**



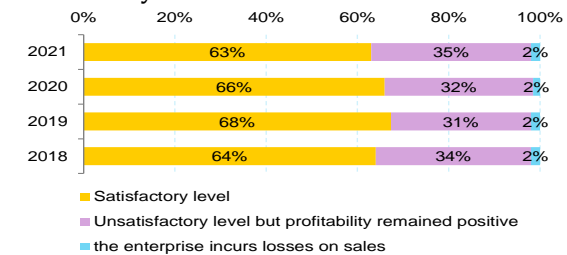
Source: NBP survey

**Figure 103 Profitability of activities of real estate developers employing over 49 persons**



Source: NBP based on Statistics Poland (F01)

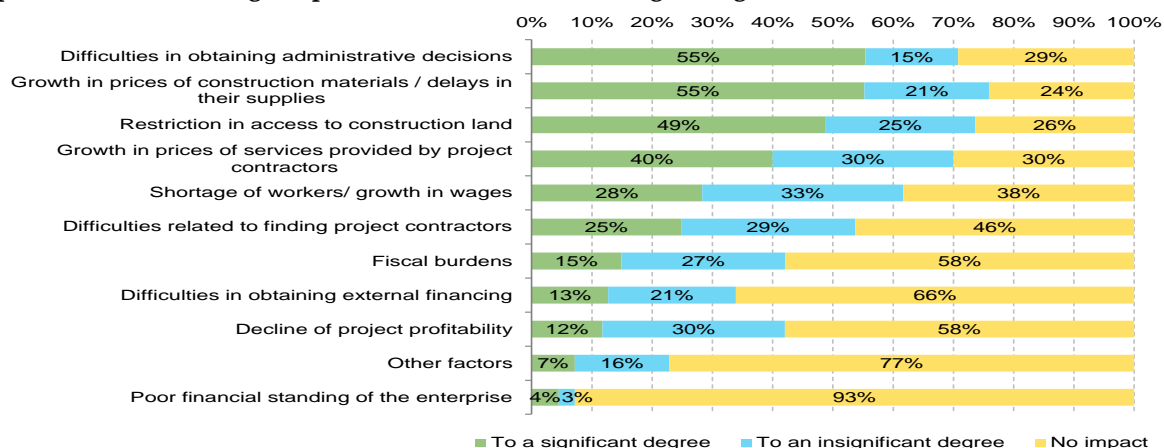
**Figure 105 Assessment of sales profitability (net result) achieved by real estate developers in individual years (in %)**



Source: NBP survey

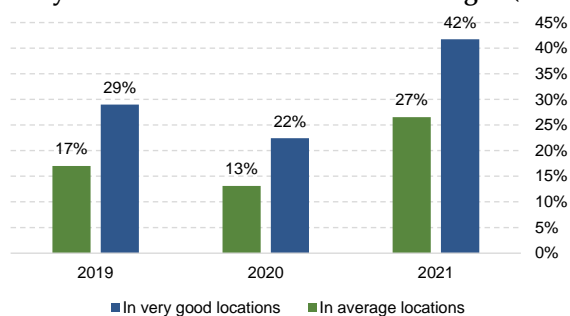


**Figure 106 Impact of individual factors, as estimated by the surveyed developers, on the level of housing production in 2021 (reasons for reduction of housing production in relation to previous plans or problems in increasing the production level in line with growing market needs) - (in %)**



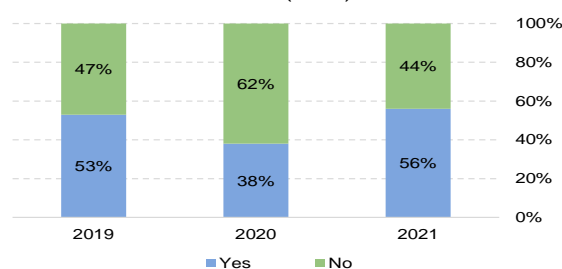
Source: NBP survey

**Figure 107 Structure of answers to the question on how much (y/y average) net prices of land for multi-family residential construction have changed (in %)**



Source: NBP survey

**Figure 108 Structure of responses to the question whether developers purchased land for residential construction (in %)**



Source: NBP survey

## 10. Financial standing and production capacity of construction companies implementing volume projects based on the NBP surveys

According to the analysis of financial data reported in F01 reports by construction companies and a survey conducted in December 2021, the financial standing of construction companies and their basic economic indicators in 2021 were better than in 2020, however, still slightly weaker than before the COVID-19 pandemic. Despite high demand for construction services, the lack of competitiveness in building the order book, growing prices of own services and improved timeliness of the collection of receivables, an additionally dynamic and unpredictable growth in prices of construction materials, delays in their delivery, rising prices of third party services and a marked staff shortages were observed. Another consecutive year saw a slight improvement in the condition and profitability of the larger construction companies, whose profitability indicators caught up with the slightly weakening profitability of smaller construction companies in recent years. Both in the group of larger and smaller construction companies, the timeliness of receivables collection improved, while delays in payment to contractors deteriorated in the group of larger entities.

In December 2021, the majority of construction companies involved in the construction of buildings (73%) rated their current financial standing as fairly good, 6% as very good, 17% as poor and 4% as bad. In relation to assessments submitted a year ago, the share of entities assessing their economic situation as poor decreased by 9%. On the other hand, compared to the situation recorded two years ago (before the pandemic-driven

downturn), still 5% more construction companies provided an unfavourable assessment of their financial standing. At the end of 2021, more micro and small enterprises than large construction companies assessed their financial standing as poor, including a considerable part of those in the insulation and elevation and installation industry. These entities faced more delays in the collection of receivables and in the delivery of construction materials and a high increase in steel prices. In 2022, an overwhelming share of respondents (70%) expected that their condition would remain at a similar level. Slightly more large companies (14%) than other entities saw an opportunity to improve their financial standing, which partly resulted from increased bargaining power when determining the budget for order execution.

At the end of 2021, construction companies, similar to real estate developers, pointed to rising prices of construction materials, shortages of skilled workers, delays in deliveries of materials and rising prices of subcontractor services as well as difficulties in recruiting them as the greatest impediments to doing business.

They also indicated the extended time consumption in arranging administrative matters, including the employment of foreigners.

Strong investment demand for housing and the considerable production potential of developers indicated that construction companies involved in the construction of building could maintain high turnover in 2022. An increase in demand for their services was expected by 33% of entities, including a few percent more companies from the 6 cities area than from 10 other cities. Analysing forecasts by industry, higher demand for their services was expected by more than half of general contractors (52%), as well as by 40% of general construction service providers and 40% of entities dealing with finishing.

Price drivers in the construction industry, in addition to rising operating costs, included strong demand for services, lack of competition due to insufficient number of contractors, shortage of workforce and limited availability of construction materials. The growth in prices of own construction services in 2021 compared to 2020 was estimated at 17%.

Small construction companies increased prices for their services to a greater extent (by 18%) than large companies (by 10%) and respondents engaged in general contracting (by 19%) and finishing (by 18%). Difficulties in accurate estimation of prices for in-house services, due to volatility on operating expenses, created risks of underestimated budgets, unprofitable contracts and loss of liquidity.

In 2021, compared to 2020, the increase in prices of services provided by subcontractors was estimated at a level several percent higher (by 21%), however these estimates were rather diversified. Micro and small construction companies indicated a 23% increase, while large operators reported more than a half lower increase in prices of third-party services (by 10%), confirming increased bargaining power of large construction companies.

Service providers responded by increasing prices of their services mainly in 2021 Q4 by raising them faster than in recent years. However, this is not a significant increase in relation to that recorded in 2018 (by 11%) and in 2014 (by 11%). Construction companies involved in the construction of buildings expected a high but slightly lower growth in prices of third-party services (by 19%) in 2022.

A similar structure of operating expenses was maintained in 2021, while the value of individual operating expenses increased following rising demand for construction services and contractor costs.

The financial data provided in the F01 reports confirmed a slightly higher increase in sales revenue compared

to operating expenses with a much higher growth in demand for construction works in 2021 than in the previous two years, confirming the large scope of works with little room for improvement in the profitability of the contracts performed. Smaller entities estimated growth in the prices of construction materials in 2021 to be higher than larger companies (growth at a level of 33% for micro companies, 31% for small companies, 29% for medium-sized companies and 20% for large companies). In order to meet the available orders and ensure liquidity, a significant number of large companies, allocated their accumulated financial resources to the advance purchase of construction materials for future works which, alongside the dynamic increase in their prices, allowed them to incur lower costs in relation to revenues. A serious problem in the market of construction materials is the shortage of raw materials, inefficiency in the production lines of cement and concrete producers and delays in their supply, contributing to a significant increase in prices of materials. Price increases across the sector were also affected by increases in electricity, gas and fuel prices and limited labour resources. According to the data of the Polskie Składy Budowlane Group, prices of materials in the period from January to December 2021 increased by an average of 12% y/y in all surveyed commodity groups, which indicates an acceleration of their growth rate. The growth in prices of construction materials in January 2022 compared to January 2021 was higher (28%). A year ago, i.e. in the period from January to December 2020, compared to the corresponding period in 2019, the growth in prices of materials was significantly lower (1.4%).

The energy transition also poses a number of challenges, as energy costs directly affect the cost of products and profitability of enterprises. The surveyed construction companies estimated a 18% increase in electricity costs in 2021 and were concerned about a higher increase in 2022 (by 24%).

A lower increase was seen payroll expenses which rose by an average of 9% in 2021 and were predicted to rise by a similar amount (8%) in 2022.

Until September 2021, minimum wages grew almost exclusively and it was only in 2021 Q4 when wages were raised for most workers, which translated into wage rates of skilled workers.

Almost all year round, labour shortages were experienced by 70% of construction companies. Production capacity in enterprises at the end of 2021 was utilised in 90% compared to 86% at the end of 2020. It indicates a growing shortage of workers at construction sites. The outflow of workers from Ukraine is detrimental to this situation. According to PZFD estimates, approx. 20%-30% of Ukrainian workers have left Polish construction sites since the beginning of the Russia's military aggression against Ukraine.

In 2021, a higher level of costs than previously assumed was incurred by the overwhelming majority of companies surveyed (90%), including 77% of large, 91% of medium-size, 93% of small and 85% of micro companies. Exceeding the level of individual cost components in relation to the original 2021 targets was estimated as follows: by 29% of the value of construction materials, by 16% of electricity, by 16% of third-party services, by 11% of wages, by 10% of financial expenses and by 11% of other operating expenses.

According to the survey data, in 2021 compared to 2020, profitability of sales for 36% of construction companies remained at a similar level, 25% of entities improved and 39% recorded a decline of profitability. A slight increase in average margins in 2021 was experienced by most construction industries, which was a consequence of high demand, lack of competition, fragmentation of construction companies and raising service prices in advance, explained by hedging against dynamic price growths. The group of larger construction companies involved in the construction of buildings (employing more than 49 people) has seen a steady, minor improvement in profitability ratios for the past four years (on average, 6.1% ROS, 4.4% ROE and 1.7% ROA was recorded from January to September 2021, compared to lower ratios achieved in the same period in 2018, i.e. 4.1% ROS, 2.9% ROE and 1.3% ROA). Smaller construction companies tend to be more profitable than larger firms (7.9% ROS, 5.9% ROE and 3.1% ROA in the second half of 2021), but their profitability has declined over

the past two years (11.5% ROS, 8.6% ROE and 4.7% ROA in the second half of 2019).

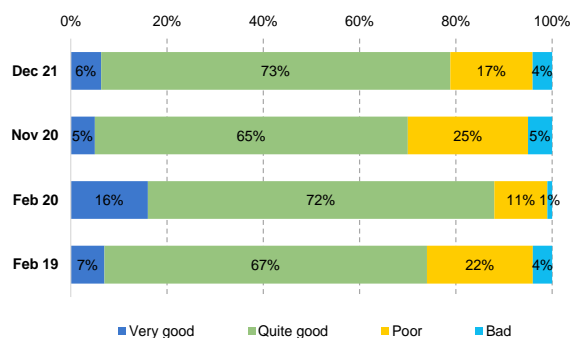
According to the survey data, the majority of construction companies (68% of entities) did not experience any liquidity problems in 2021, 27% had occasional problems and 4% of entities had frequent problems. The share of entities facing frequent or occasional liquidity problems in 2021 was in total 5 p.p. lower than in 2020 and slightly higher compared to 2019 (by 4 p.p.). In 2021, more small (39%) and micro (33%) companies were facing occasional or frequent liquidity problems more often than medium (27%) and large (21%) companies. Liquidity ratios in both groups of companies remained at a safe level, despite their slight weakening in 2021 versus 2020 as a result of an increase in short-term liabilities.

Both in the group of larger and small companies, the structure of liabilities remained similar, with a slight decrease in the share of equity and bank debt in the group of larger companies as a result of an increase in the value and share of liabilities to contractors. The main source of financing in both groups is equity, which ensures safe coverage of assets and security of financial liabilities.

According to the financial data reported in the F01 reports, in 2021, among external sources of financing, both in the group of larger and smaller construction companies, the share of debt in the structure of liabilities remained at a constant low level (9% share in the group of larger entities at the end of September 2021 and 11% share in the group of small companies at the end of June 2021, compared to an average of 11% - 12% share respectively in the previous analysed years 2020 - 2017). Banks are very cautious about financing contracts ensuring low profitability. At the end of 2021, bank loans were not used mainly by smaller construction companies (60% of micro, 43% of small, 30% of medium and 36% of large companies). In 2021, a total of 34% of construction companies received a bank loan, while 57% did not apply for bank funds. On the other hand, 9% of entities were denied credit for various reasons, of which small entities and those in the finishing industry and general contractors were more likely to be denied bank funds. In 2022, nearly 47% of industry players did not intend to seek additional sources of financing, while more than half (53%) declared that they needed to increase their external financial resources, mainly with working capital credit (28% of units) and investment credit (20% of companies).

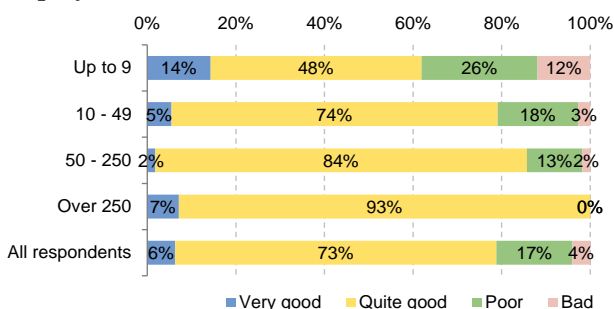
Since the end of 2019, a steady increase in the share and value of larger construction companies' liabilities to contractors has been recorded (up to 46% share in the structure of liabilities at the end of September 2021 compared to 37% at the end of September 2019). In this group of entities, for more than two years, a simultaneous increase in cash and lower portfolio of receivables than liabilities indicate increasing delays in the settlement of liabilities. However, in the group of smaller construction companies, the decrease in the share of receivables observed for over a year, amid an increase in the work in progress, indicates an improvement in the time collection of receivables. According to the survey data, in 2021, more construction companies had overdue non-bank liabilities (62%) than overdue receivables (52% of companies). They usually accounted for up to 10% of total receivables or liabilities and most often affected small entities.

**Figure 109 Assessment of the current financial standing of construction companies (in %)**



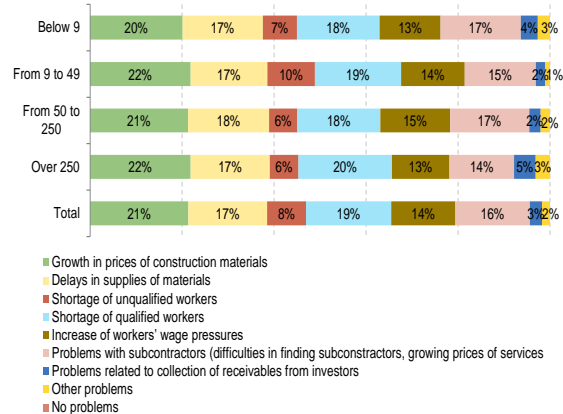
Source: NBP survey

**Figure 110 Assessment of the current financial standing of construction companies by number of employees at the end of 2021 (w %)**



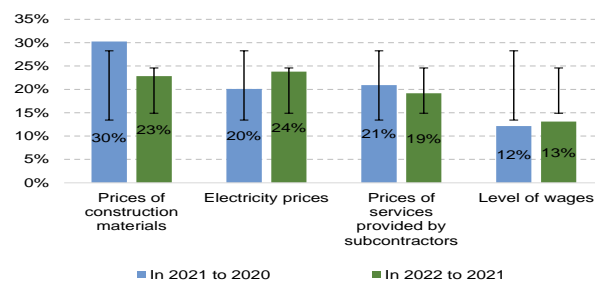
Source: NBP survey

**Figure 111 Most important problems in operating business by size of employment at the end of 2021 (w %)**



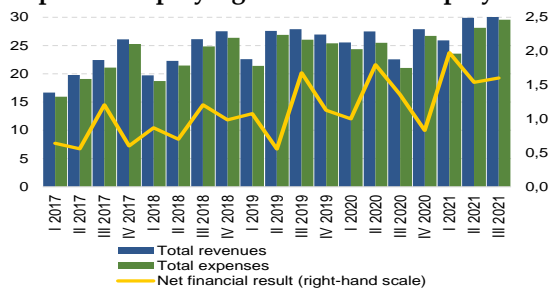
Source: NBP survey

**Figure 112 Construction companies' assessment about the extent of changes in 2021 and forecasted changes for 2022 in the price of subcontracting services and individual costs (in %)**



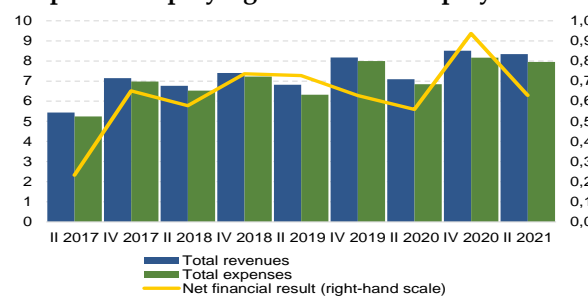
Source: NBP survey

**Figure 113 Economic indicators of construction companies employing more than 49 employees**



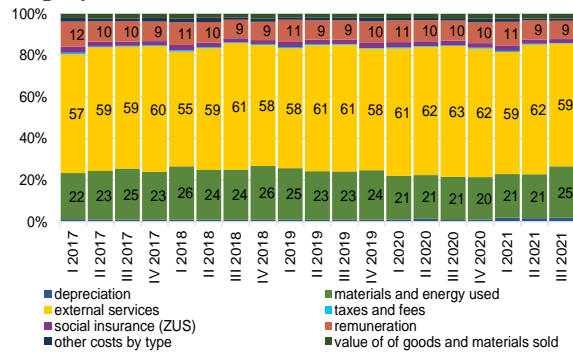
Source: NBP based on Statistics Poland (F01)

**Figure 114 Economic indicators of construction companies employing from 9 to 49 employees**



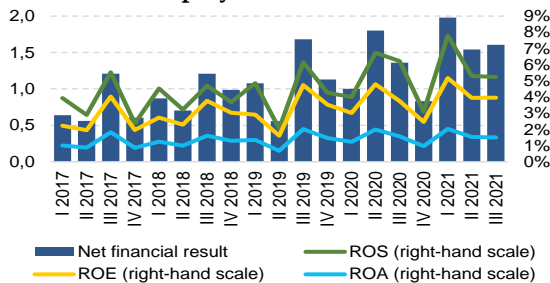
Source: NBP based on Statistics Poland (F01)

**Figure 115 Structure of operating expenses of construction companies employing more than 49 employees (in %)**



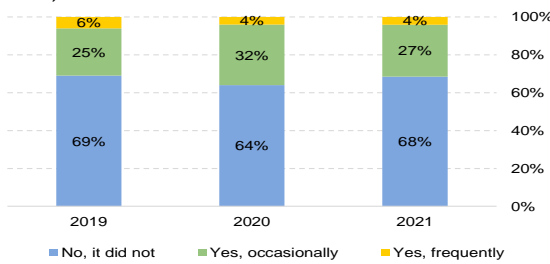
Source: NBP based on Statistics Poland (F01)

**Figure 117 Profitability ratios and financial results of construction companies employing more than 49 employees**



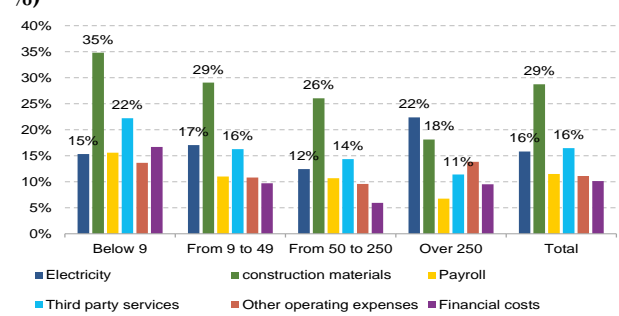
Source: NBP based on Statistics Poland (F01)

**Figure 119 Structure of construction companies according to the frequency of liquidity problems (in %)**



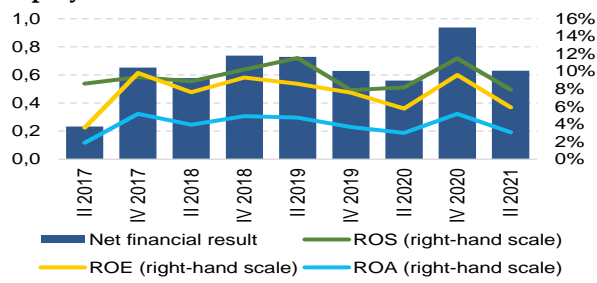
Source: NBP survey

**Figure 116 Construction companies' estimate of the percentage by which individual cost components were exceeded in relation to the original estimates (in %)**



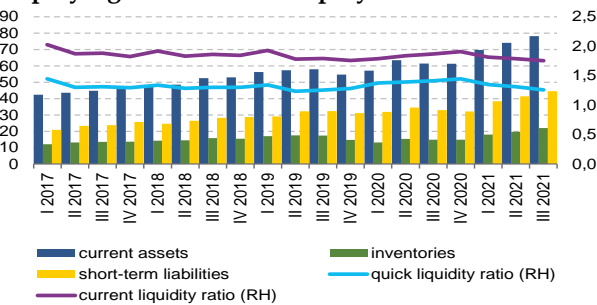
Source: NBP survey

**Figure 118 Profitability ratios and financial results of construction companies employing from 10 to 49 employees**



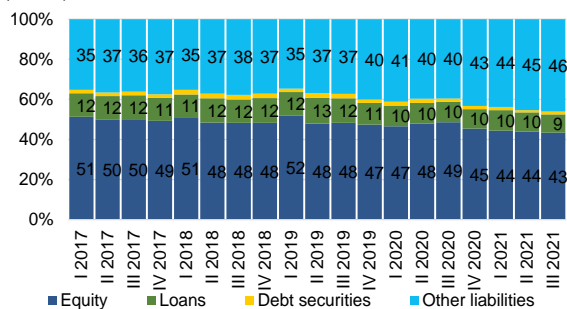
Source: NBP based on Statistics Poland (F01)

**Figure 120 Liquidity ratios of construction companies employing more than 49 employees**



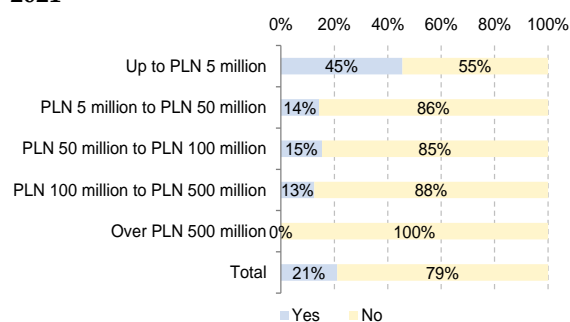
Source: NBP based on Statistics Poland (F01)

**Figure 121 Structure of liabilities of construction companies employing more than 49 employees (in %)**



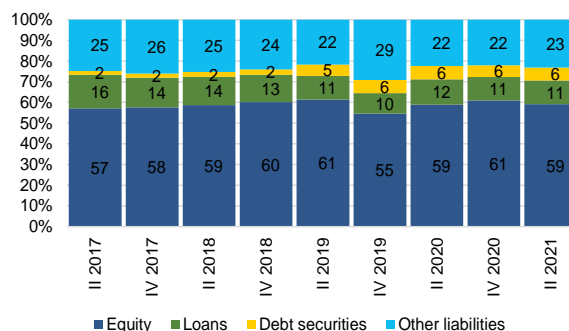
Source: NBP based on the Statistics Poland (F01)

**Figure 123 Structure of construction companies' responses (entities by revenue) to the question whether the company was denied a bank loan in 2021**



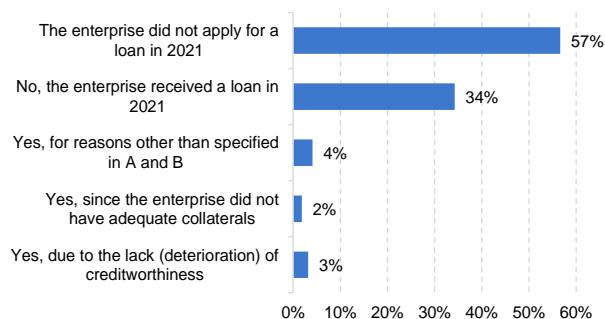
Source: NBP survey

**Figure 122 Structure of liabilities of construction companies employing from 9 to 49 employees (in %)**



Source: NBP based on the Statistics Poland (F01)

**Figure 124 Structure of construction companies' answers about the reasons for being denied a bank loan in 2021 (w %)**



Source: NBP survey



---

[www.nbp.pl](http://www.nbp.pl)