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10 December 2012

Information on home prices and the situation in the residential and commercial real estate market¹ in Poland² in 2012 Q3

Summary

The analysis of the situation in the Polish real estate market in 2012 Q3 leads to the following conclusions:

- the analysed period was marked by a further slight fall in housing prices in the largest markets (both offer and transaction prices in the primary and secondary market); amidst a diminishing availability of mortgage loans, this allowed the demand and sale of housing in the primary market to be maintained at the current level;
- for the first time since 2009, there was a decline in the number of new housing units put onto the market by real estate developers and in the number of building permits; it is the consequence of real estate developers' decisions (driven by concerns about the entry into force of the Real Estate Development Act) to shift this year's construction to the first half of the year; nevertheless, the stock of unsold new housing is estimated to have at least exceeded twice the level considered as balanced;
- the model analysis indicates a drop in cumulated profit margins on newly commenced real estate development projects; the real estate development sector begins to be affected by falling home prices;
- the situation of the majority of real estate development companies seems stable due to the diversification of their activities and a relatively low level of debt burden; however, the sector's current situation and the general economic downturn are likely to generate problems, such as lower profitability, or even losses and bankruptcies of the weakest market players;
- quarter-on-quarter growth in housing loan receivables from households hit its lowest level over the past seven years; the value of newly signed mortgage contracts hit its record low over the past three years; since the beginning of 2012, banks have not granted mortgages in foreign currencies; the amount of loan receivables from households in FX adjusted terms is gradually decreasing, which may be a sign that loans denominated in foreign currencies are being either repaid or converted into zloty;
- real estate loans for enterprises have been on the rise, whereas the loan quality has been deteriorating, which is due to the situation in the market; a slight drop has been observed in lending to real estate developers for housing construction projects.

1 Due to the data update frequency, information on the market of commercial real estate shall be published on a 6-month

2 The information was prepared by the Economic Institute for the needs of the authorities of NBP and it presents the authors' opinions. This document should not be read as an advisory material, nor should it be the basis for any investment decisions.

The study provides a synthetic description of key developments affecting the housing market in Poland's largest cities in 2012 Q3 and contains an appendix with charts and figures presenting: 1/ home prices (Figures 1-12), 2/ housing availability, loan availability, availability of loan-financed housing, loan limits and loan disbursements under the government-subsidized housing scheme *Family on their own* (Rodzina na Swoim - RnS) (Figures 13-18) 3/loan disbursements and real interest rates (Figures 19-28), 4/ operating profitability of real estate development projects, costs of construction and assembly output and economic situation of real estate developers in Poland (Figures 29-54), 5/ residential construction and housing market in Poland (Figures 55-64).

The description of the charts and figures is in English, the translation of the content of the majority of graphs and figures can be found in the 2012 Q1 report.

This study was based on the data from the Real Estate Market Database BaRN³, the database of offer prices of housing provided by PONT Info Nieruchomości, databases SARFIN and AMRON of the Polish Banks' Association (ZBP), collective data of the Credit Information Bureau (Biuro Informacji Kredytowej), data presented by Sekocenbud, the Central Statistical Office (GUS) and the National Bank of Poland (NBP). Offer prices of housing put on sale and information concerning profitability of real estate development projects were based on the data furnished by the Real Estate Advisory Service (REAS) and information supplied by the GUS (F01 and F02).

The situation of the housing sector in 2012 Q3 was affected primarily by two factors, namely the condition and behaviour of real estate development companies in Poland's largest cities and the banks' tightened lending policy with respect to both real estate developers and house buyers. As a result of their previously observed production activity and price policy, the former have led to a significant oversupply in the housing market, whereas the latter, given the credit risk due to the current situation, have curbed lending to households, thus further aggravating real estate developers' difficulties in selling newly completed housing and housing construction contracts. Another important problem was the anxiety triggered by the observed economic slowdown combined with prospective buyers' decision to wait for a further drop in housing prices as a result of real estate developers' growing financial problems. This was particularly the case of purchases for investment purposes. The current situation is the consequence of the real estate development sector's low transparency and difficulties in assessing its actual situation, which has so far been better than commonly believed.

The analysis of the indices of real estate development companies listed on the Warsaw Stock Exchange provides an outlook on the sector's situation from the point of view of the stock exchange in relation to the related construction sector and other sectors of the economy. Since mid-2009, the stock exchange indices of real estate development companies grew faster than those of the rest of the economy. Even though the WIG20 index has been on the rise since the beginning of 2012, the WIG index of real estate development companies has remained stagnant; on the other hand, in the first half of 2012, the WIG index of construction companies dropped to stabilise in Q3 (see Figure 29). Problems in the construction sector are also reflected in the growing number of bankruptcies in the industry, which rose by 37% in the period between January and September 2012, as compared to the

3 The BaRN database of the National Bank of Poland is created thanks to voluntary provision of data by the real estate agents and real estate developers with the participation of regional branches of the NBP; the study analyses both home sale offers and transactions as well as home rentals within city limits of sixteen voivodship cities, where the majority of real estate deals are closed. In 2012 Q3, district branches of the NBP collected in 16 capitals of voivodships a total of 43 007 records on home sales (including 36 874 offers and 6 133 transactions), and a total of 19 904 records on home rentals (including 19 206 offers and 698 transactions).

corresponding period of the previous year⁴ (see Figure 30). It should be noted that bankruptcies hit infrastructure construction companies hardest, and, in particular, road and motorway construction companies⁵. The situation of companies involved in the real estate market operations, especially real estate agencies⁶, was also adversely impacted due to the general economic slowdown, whereas the situation of real estate management companies, especially those managing housing associations⁷ has was hardly affected. It can be assumed that the market assessment of the situation of housing developers relies on information about problems faced by individual companies, especially the most severely indebted ones and willing to take risks, rather than on an objective examination of the situation in the residential real estate development sector.

The behaviour of real estate developers in the housing market is determined by the overall economic situation, problems faced by the construction industry and recently also by the government's housing policy. On the basis of their past experience, residential developers may expect housing demand to increase in 2012 Q4, due to the expiration of the government-subsidized housing scheme *Family on their own* (RnS) at the end of the year. The experience with subsidy programs in Poland allows to expect that the closing of such a scheme will boost clients' interest, who hasten their decision to participate in the scheme and focus less on rational decisions. Legislators are working on the launch of a new scheme - *Housing for Youth* (Mieszkanie dla młodych, MDM) in the second half of 2013; the new programme is to benefit families with children most. Under these conditions, real estate developers in major markets could anticipate an increased housing demand, but at the expense of price adjustment that would need to be introduced in order to meet the requirements of the program.

Apart from a still acceptable price level, developers' concerns about the operation of escrow accounts⁸ were the main reason for embarking upon new development projects in 2012. This is confirmed by a significant slowdown in the launch and marketing of new projects, following the entry into force of the Act on 29 April 2012. The number of unsold contracts in the market decreased slightly, although it remained at the sector's record high. We believe that in order to evade the requirements of the above-mentioned act, real estate developers, especially the largest companies, deliberately increased supply despite the already high risk of market price decline. The RnS scheme coming to an end was yet another factor that contributed to this decision. So far, developers have accomplished their plans, which means that they have a portfolio of orders for several years to come, housing stock is being gradually sold and housing prices, as yet, have not dropped dramatically.

The slowdown in real estate development activity in 2012 Q3 was reflected in the historically low number of permits issued for housing construction (the lowest in the corresponding quarter since 2006 - see Figure 58). The same holds for the decreasing number of housing units under construction (see Figure 57). The number of completed housing units in Poland in 2012 Q3 was similar to the number recorded in the corresponding period of the previous year, which means that the upward trend observed in the first two quarters of 2012 was halted (see Figure 56). Yet, we must take into account that this is only a consequence of decisions taken in the previous years and does not reflect the current situation in the sector or in the entire economy. Also the rate of housing construction in progress, established on the basis of the above data, confirms the reversal of the trend, which means that a

4 614 bankruptcies have been recorded in all the sectors, a 18% increase as compared to the corresponding period of 2011.

5 PKD 42, in particular road construction, PKD 4211.

6 PKD 681 and rental of commercial real estate, PKD 682.

7 PKD 683.

8 Obligatory escrow accounts were introduced by the provisions of the Act on the Protection of Home Buyers' Rights. Investment activity of real estate developers in 2011 Q4 - 2012 Q2 involved the creation of a portfolio of legally advantageous contracts for the coming years.

gradual reduction in the number of real estate development projects has been observed since 2011 Q4. In our opinion, we may expect a further decline of these indicators.

The profitability analysis of the housing construction sector shows that aggregate profit margins on recently commenced development projects in 6 cities⁹ during the analysed period did not exceed an average of PLN 1 000 per square meter and approximately 10-15% of the total project expenses. In the case of projects carried out in the major cities, rates of return approached 15% per year. This meant that the projects could still be profitably financed with loans (the cost of credit was approximately 8%), yet, not leaving too much room for further price declines – PLN 500-600 at most - in case normal financial leverage is used¹⁰. Given the increasing business risk, it means verging on the border of housing construction profitability and may hinder new activities. Nevertheless, this limit may prove quite flexible if demand growth is accompanied by falling prices of production factors.

The falling number of new contracts put on the market and, consequently, a smaller number of housing units under construction translate into excessive housing stock to a small extent only. As suggested by REAS data, in 2012 Q3, approx. 55 000 real estate development contracts, including 13 000 completed housing units, were put on the market in the six largest cities (see Figure 60). This still amounts to more than a double of the total annual home sales¹¹ in those cities. So far, the situation forced real estate developers to cut transaction prices of housing in all local markets (see Figure 1). Offer prices of newly completed contracts (real estate developers' expectations) and offer prices of housing in the primary market decreased further (see Figure 11 and Figure 12). A long-term downward trend in transaction and offer prices still persists in major markets. Price declines in the primary market also translated into lower prices in the secondary market (see Figure 2) due to their strong correlation¹².

Despite the adaptation process between the primary and the secondary markets (due to the non-arbitrage condition), a certain price variation in both of those markets is a normal phenomenon. In most cities, transaction prices in the primary market are higher than those in the secondary market, but the opposite is true for the Warsaw market (see Figure 5). This is due to the structural differences between these two types of markets (ownership structure, stock quality and its location, clients' preferences, etc.) and different behaviour of owners and real estate developers. Home owners who put their housing on the secondary market are more patient than real estate developers, because housing is regarded by them as a consumer good¹³, satisfying residential needs, ensuring housing security and additionally constituting a relatively safe and long-term investment. Moreover, proceeds on the sale of housing does not constitute the main source of income for its owner, which is true in the case of real estate developers. The owner can also rent out housing to generate additional income. It should be noted that the purchase of some of the best housings could be financed through FX loans. Given the weakening of the zloty and the decline in real estate prices, the value of a housing loan may exceed the mortgage value. Owners of such housing will only decide to sell their dwellings when forced to do so.

9 Estimates of the aggregate real estate developer's profit margin are based on the construction investment project as defined in Article 3 of the „Report on the situation in the residential and commercial real estate market in Poland in 2010”.

10 In a favourable market situation, the ratio of the real estate developer's equity to total project costs amounts to approx. 20%, whereas at present, banks require an equity of at least 30%.

11 The analysis of standard business plans of real estate development companies shows that the average number of housing construction contracts put in the market should not exceed half of the annual sale figures. See Article 2 of *“Report on the situation in the residential and commercial real estate market in Poland in 2011”* and the analysis outlined in *“Information on housing prices and the situation in the residential and commercial real estate market in Poland in 2012 Q2”*.

12 Detailed analysis of the prices in the primary and secondary market ratio was outlined in *“Report on the situation in the residential and commercial real estate market in Poland in 2011”*, pp. 15-16.

13 See Article 2 in *“Report on the situation in the residential and commercial real estate market in Poland in 2011”*.

As a result of the above factors offer prices in the secondary market exceed by far transaction prices, particularly in major cities (see Figure 6).

The comparison of housing available in the primary market with housing demand indicates a shortage of smaller dwelling, namely those with an usable area of up to 50 square meters and, at the same time, a surplus of larger dwellings (see Figure 63 and Figure 64). As a result, smaller housing units are higher priced per square meter. On the other hand, in the case of larger apartments, which are more difficult to sell, potential buyers expect discounts. The greater demand for smaller housing is due not only to prospective buyers' limited funds, but also to lower investment risk involved in the purchase of smaller housing, which is generally easier to rent out or sell. The supply and demand match is, however, conditional on the duration of the investment cycle, which is usually 4-5 years long. It should be noted that in the case of offered construction contracts since the beginning of 2012 the mismatch between supply of housing usable area and demand for it has been decreasing. This indicates that, in the times of economic crisis, real estate developers would adapt their products to the buyers' needs, as their decisions were made several years before. It should also be taken into account that economic recovery will boost demand for larger apartments.

At present, the market is slowly coming close to the equilibrium level, that is the situation when there are 30,000 housing construction contracts in the six major cities of Poland, a number not exceeding the annual sales figure. Home sales in the primary market in Poland's six largest cities, after the 2008-2009 slowdown, returned to a stable long-term level of about 8,000 per quarter (see Figure 60). When speaking of the reversal of the previous trend and restoration of market equilibrating mechanisms, it should be noted that the exit from a high imbalance carries an increased risk for future cycles. Thus, from the point of view of the economy's macro-stability, it is important to ensure that corporate investment policy accounts for the market's demand potential and does not lead to devastating competition among real estate developers.

Despite a reduction in housing prices, 2012 Q3 did not see an increase in home sales. As indicated by the results of the Senior Loan Officer Opinion Survey of the NBP, this is most probably due to the tightening of the mortgage lending criteria. In 2012 Q3, banks increased both mortgage loan margins and equity requirements. 2012 Q4 is expected to bring further tightening of banks' lending policy together with increased demand for housing loans.

The value of average affordable loan has been on a constant decline since the end of 2010. The decline in the first half of 2012 is essentially due to banks' decision to withdraw from FX loans with lower interest rates¹⁴, which have practically not been granted since the beginning of 2012. The lower loan availability in the analysed period is the consequence of rising interest rates following an increase in bank margins, which, in turn, are due to higher risk assessment (see Figure 25 and Figure 26). Lower loan availability has a negative impact on the housing sector, as it curbs short-term demand. Under these conditions, the sole factor compensating for lower loan availability are falling home prices in real terms, a trend observed since the beginning of 2011 (see Figure 7 and Figure 8). Consequently, since 2007, availability of loan-financed housing has remained rather stable, or has even increased slightly (see Figure 16). This leads to demand stabilization, which is subject to slight fluctuations together with the discussed above housing policy changes (for instance, changes to the RNS scheme), the impact of the Polish Financial Supervision Authority and changes in banks' lending policy.

Another factor affecting the market, in addition to loan and housing availability, is the above discussed banks' prudential policy and other related prudential requirements affecting bank lending. The quarterly increase in households' receivables from mortgage loans in the analysed period fell to

14 Withdrawal from foreign currency lending should be assessed as a positive phenomenon in the context of the country's systemic risk.

the lowest level over the past seven years. The value of newly signed contracts hit its record low over the past three years (see Figure 19 –Figure 24). In addition to the shortage of new FX housing loans, increasing quarterly declines in household receivables resulting from these loans have been observed. This can be attributed to FX loan repayment and/ or their conversion into zloty-denominated loans as a result of the banking procedures involving doubtful loans and debt recovery, as indicated by the analysts of the Polish Financial Supervision Authority¹⁵. We continue to observe a slight decline in the quality of housing loans contracted by households - the share of impaired loans is on the rise (see Figure 54). This is not, however, the result of the current economic conditions, but the natural consequence of the ageing of the loan portfolio¹⁶.

Banks' return on PLN loans to households has remained stable since 2010 Q3 (see Figure 28). However, the currently stable situation in the banking sector does not mean a decline in banks' credit risk, which may increase following a weakening of the country's economic growth. According to the analysis of the Polish Financial Supervision Authority¹⁷, the value and the share of household impaired loans whose repayment is in arrears by more than 30 days are on a steady rise. The structure of mortgage loan portfolio in terms of currency LTV ratio (loan-to-value ratio), the DTI ratio (debt-to-income ratio) and the long crediting periods continues to be unfavourable.

The value of real estate loans to enterprises¹⁸ remains low as compared to mortgage loans to households; yet, it has been rising and loan quality has been deteriorating (see Figure 53 and Figure 54). The share of impaired loans granted to residential developers amounted to approximately 25% in the analysed quarter. However, despite their historically high level, they do not pose a threat to the banking system stability, as the share of these loans in banks' total assets was lower than 4%. Since 2010 Q4, the level of real estate developers' debt resulting from loans incurred for housing projects has remained stable, while the level of corporate debt from loans contracted for the purchase of office space and other real estate has followed a slight upward trend. This might be indicative of investors' increased interest in the commercial real estate market, which may be due to uncertain situation in other sectors of the economy.

15 "Report on banks' situation in 2011" Office of the Polish Financial Supervision Authority, 2012.

16 Rise in the residential real estate indicator to portfolio ageing ratio is discussed in the *Financial Stability Report* of the NBP.

17 "Report on banks situation in 2011" Polish Financial Supervision Authority, 2012.

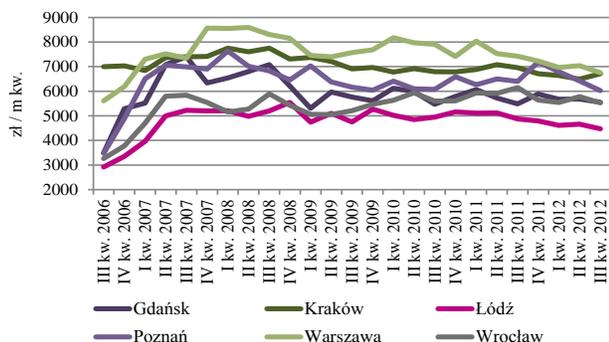
18 Among loans granted to different sectors of the economy, the share of the construction sector is 13%. High risk exposure of the construction sector accounted for 22.5% of the total high-risk exposure in June 2012, among which 17% relates to engineering construction. The servicing of real estate constituted the next largest share (16.5%) of high-risk expositions.

While the largest number of loans contracted by households are those below PLN 30 million (80% of debt), loans of the most indebted companies amount to approx. PLN 100 million. In 2012 Q3, 50% of real estate development companies' receivables were concentrated in three large banks. These receivables constitute in general no more than 15% of the banks' assets, and in the case of the above three banks it is even less than 7%.

Appendix

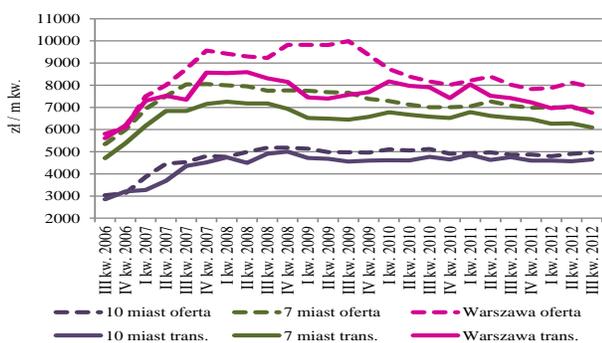
1. Transaction, hedonic¹⁹ and offer prices, primary market and secondary market

Figure 1 Transaction prices per square meter of housing – primary market



Source: NBP.

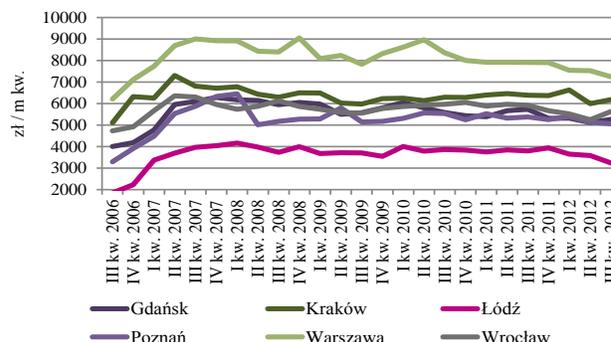
Figure 3 Weighted average price per square meter of housing, offers and transactions - primary market



Note to Figures 3-9: The price weighted with the share of housing in the market stock, the average price for Warsaw; Prices collected from developers and intermediaries and included in the BaRN database; description of the database in the 2011 annual report.

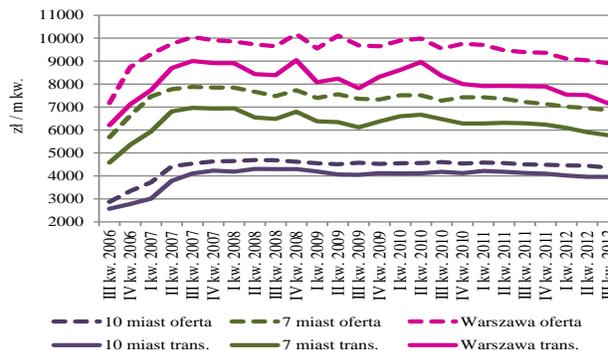
Source: NBP.

Figure 2 Transaction prices per square meter of housing – secondary market



Source: NBP.

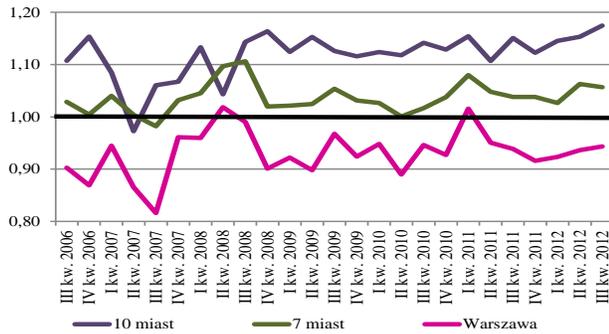
Figure 4 Weighted average price per square meter of housing, offers and transactions - secondary market



Source: NBP.

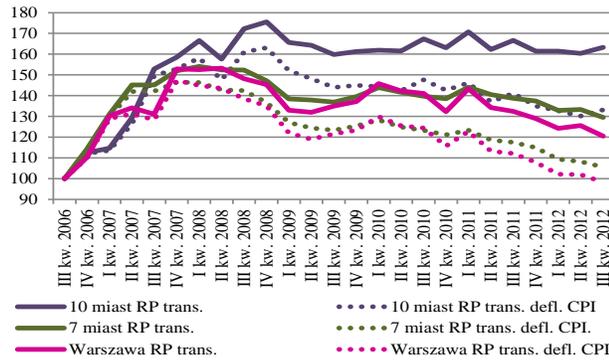
19 The hedonic price of housing reflects the "pure" price, that is the price that results from other factors than the quality of housing. The analysis always pertains to the price of a standardized apartment constructed on the basis of the econometric model. It adjusts the average price stemming from the sample taking into account change in the quality of housing from a given sample in each quarter. It is different from the average or the median price growth, which would react strongly to any change in the sample's composition, for instance a larger number of small apartments with a higher price per square meter. For more information, see M. Widłak's (2012) article entitled "Metody wyznaczania hedonicznych indeksów cen jako sposób kontroli zmian jakości dóbr" in Wiadomości Statystyczne no. 9.

Figure 5 Ratio of the average weighted transaction price per square meter of residential housing, - primary market to secondary market



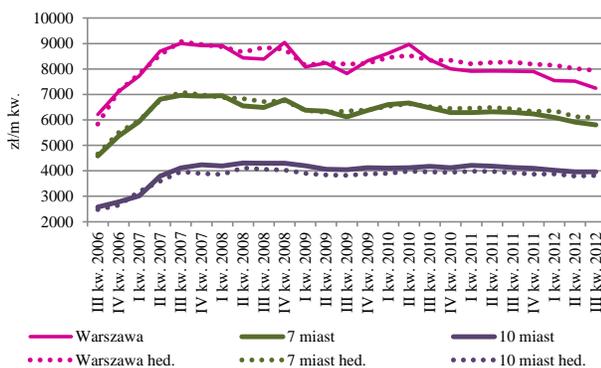
Source: NBP.

Figure 7 Weighted average price per square meter of housing and CPI-deflated price (2006 Q3 =100) – primary market, transactions



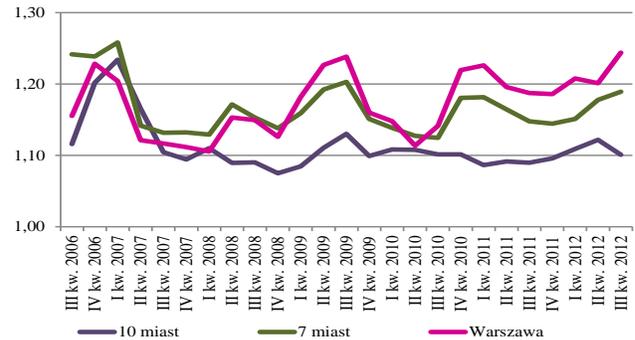
Source: NBP.

Figure 9 Average weighted price per square meter of housing and the hedonic price - secondary market, transactions



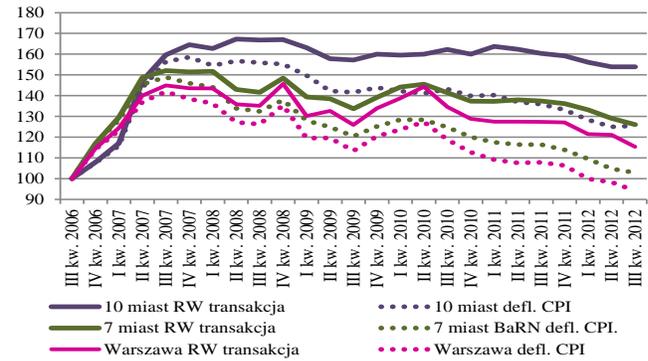
Note: 7 cities: Warsaw, Cracow, Poznań, Wrocław, Łódź, Gdańsk, Gdynia;
10 cities: Białystok, Bydgoszcz, Kielce, Katowice, Lublin, Olsztyn, Opole, Rzeszów, Szczecin, Zielona Góra;
 Source: NBP.

Figure 6 Ratio of average weighted price per square meter of residential housing, transaction price – secondary market



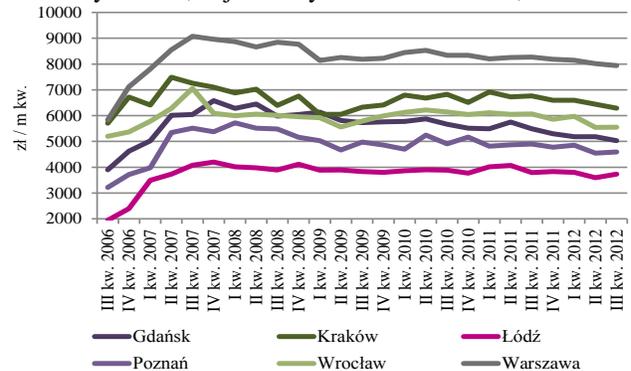
Source: NBP.

Figure 8 Weighted average price per square meter of housing and CPI-deflated price (2006 Q3 =100) – secondary market, transactions



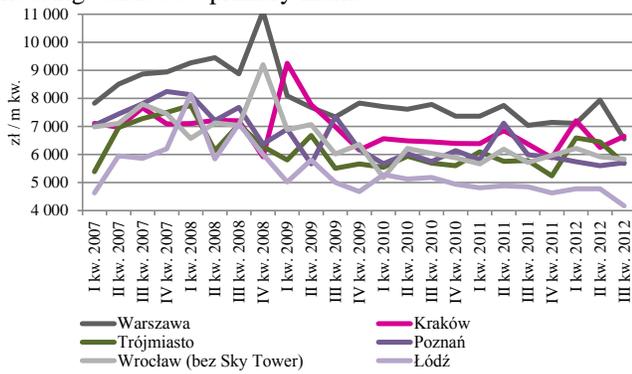
Source: NBP.

Figure 10 Housing transaction price per square meter in the secondary market, adjusted by the hedonic index, in 6 cities



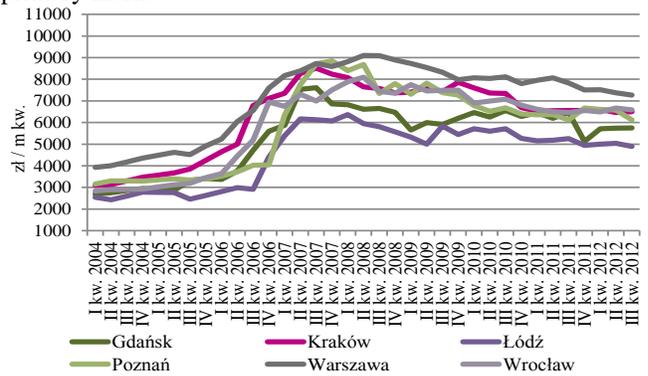
Source: NBP.

Figure 11 Average offer prices per square meter, new housing contracts - primary market



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

Figure 12 Average offer prices per square meter of housing - primary market



Note: prices are collected from all available sources.
Source: PONT Info Nieruchomości.

2. Housing availability, loan availability, availability of loan-financed housing

Figure 13 Housing availability in terms of a square meter of housing for an average wage in the enterprise sector

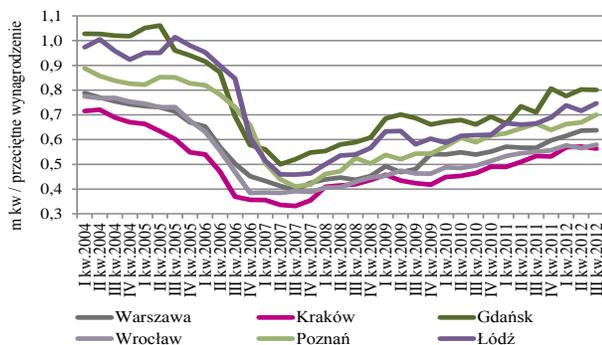
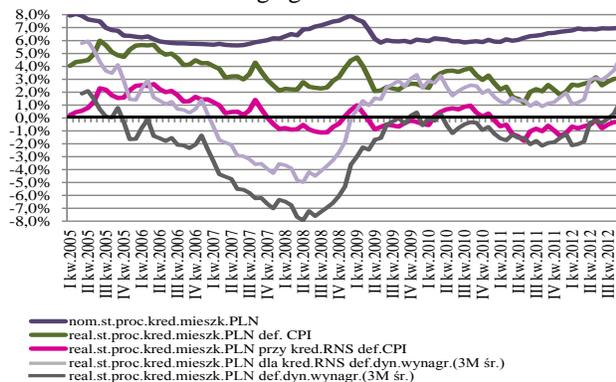


Figure 14 Costs of PLN housing loans for consumer as deflated with CPI or wage growth



Housing availability – a measure of the potential ability to purchase housing space; it expresses the number of square meters of housing at an average offer price in a particular market (PONT Info), that can be purchased for an average wage in the enterprise sector in a particular city (GUS);

Source: NBP, GUS, PONT Info Nieruchomości.

Source: NBP, GUS, PONT Info Nieruchomości.

Figure 15 Available mortgage loans in PLN (expressed as multiplication of an average monthly wage in a particular market)

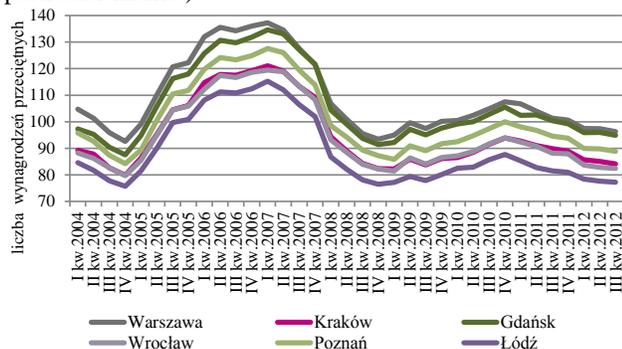
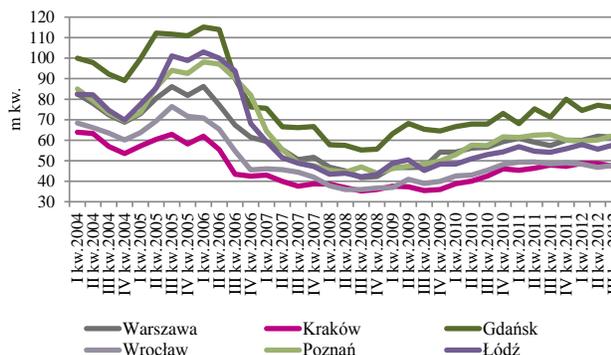


Figure 16 Availability of loan-financed housing per square meter of housing (in the case of PLN loan)



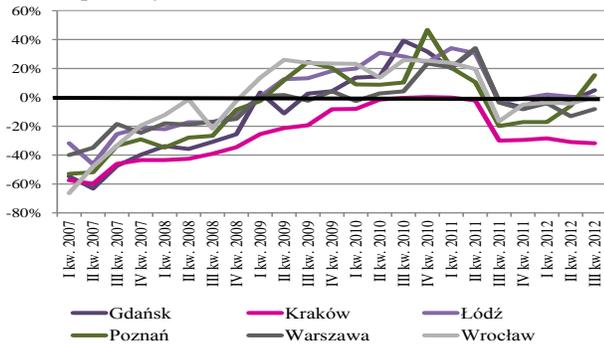
Available housing loan – a measure, specifying multiplication of the monthly wage in the enterprise sector in a particular market, taking into account bank's lending requirements and loan parameters (interest rate, amortization period, minimum wage as the minimum income after payment of loan instalments);

Availability of loan-financed housing – a measure, specifying how many square meters of housing may be purchased at an average offer price in a particular market (PONT Info), with a mortgage loan obtained basing on an average monthly wage in the enterprises sector in a particular market (GUS), in view of bank's lending requirements and loan parameters (interest rate, depreciation period, social minimum understood as the minimum income after payment of loan instalments). The pace of changes of the index and differences between particular markets provide important information.

Source: NBP, GUS, PONT Info Nieruchomości.

Source: NBP, GUS, PONT Info Nieruchomości.

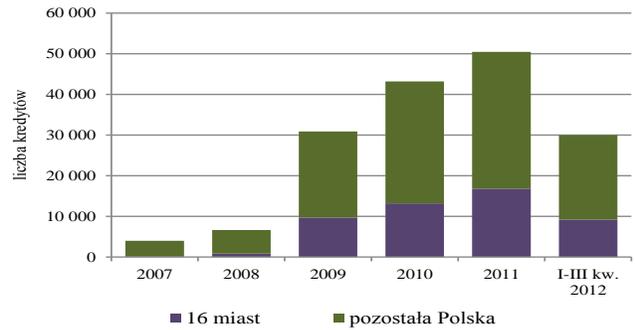
Figure 17 The gap between the limit under the RSN scheme in relation to the median transaction price in 6 cities - primary market



Note: The gap is calculated as the difference between the maximum (limit) of the RSN scheme and the median transaction price in the primary market in relation the median transaction price. A positive difference means that the scheme finances housing with prices higher than the median, whereas a negative difference means the opposite situation.

Source: NBP, BGK.

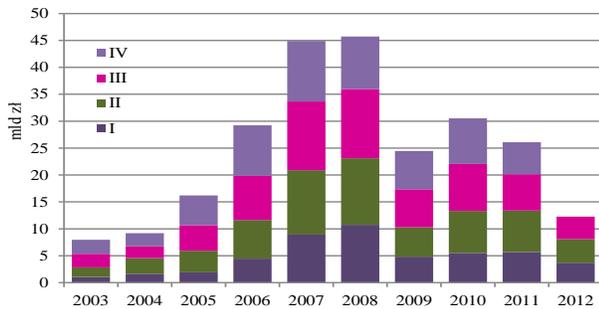
Figure 18 The number of loan disbursements under the RSN scheme in a given period



Source: BGK.

3. Disbursement of housing loans, interest rates

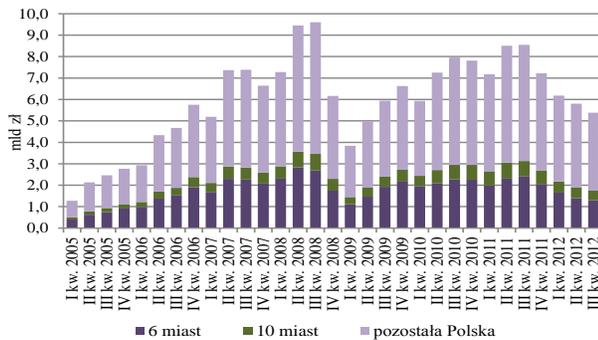
Figure 19 Quarter-on-quarter increases in housing loan receivables from households in FX adjusted terms (in PLN billion)



Note: The increase in liabilities means the actual change in the amount of household debt, as it takes into account the actual disbursement of housing loans and their repayment.

Source: NBP.

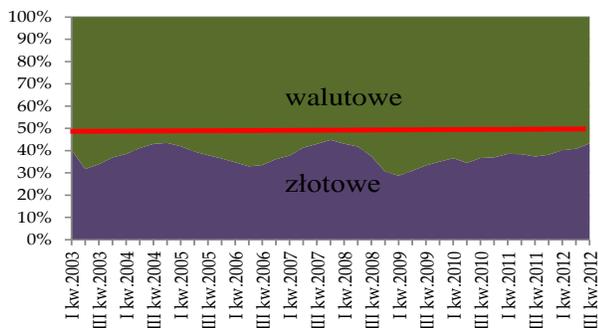
Figure 21 Geographical breakdown of new housing loans in Poland



Note: BIK data do not cover the total of housing loans

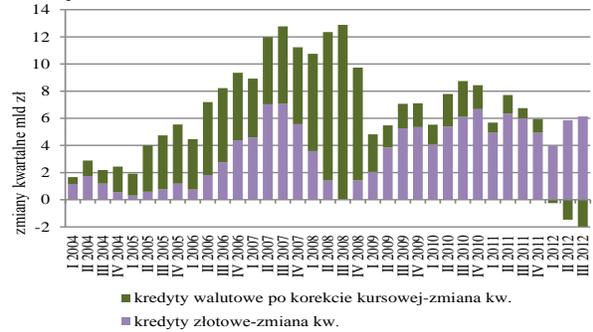
Source: NBP on the basis of BIK data.

Figure 23 Structure of housing loan receivables from households (in %)



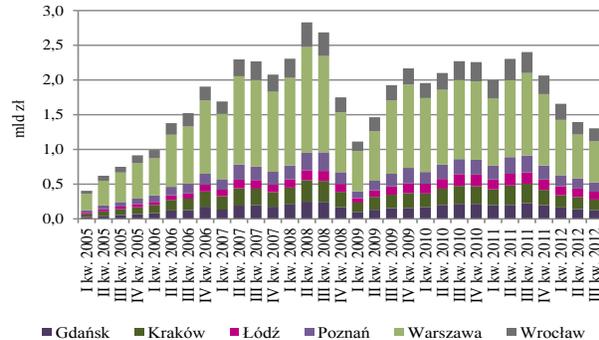
Source: NBP.

Figure 20 Currency structure of quarter-on-quarter increases in housing loan receivables from households in FX adjusted terms (in PLN billion)



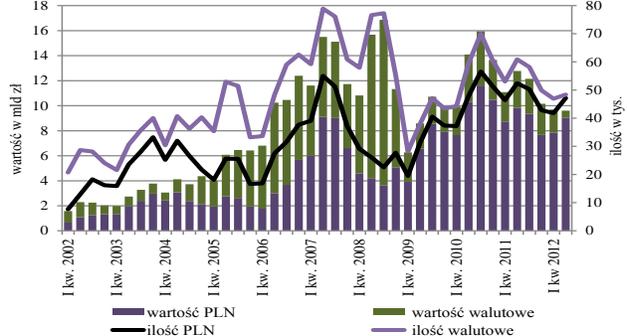
Source: NBP.

Figure 22 New housing loans in Poland's six largest cities



Source: NBP on the basis of BIK data.

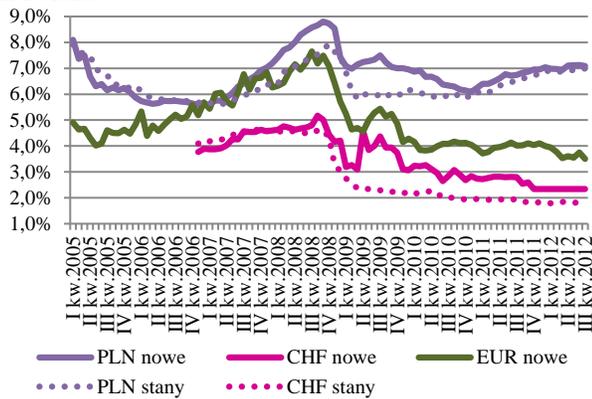
Figure 24 New housing loans in terms of values and figures, quarter-on-quarter changes (aggregate data)



Note: data provides information on the concluded loan agreements and not the actual loan disbursements.

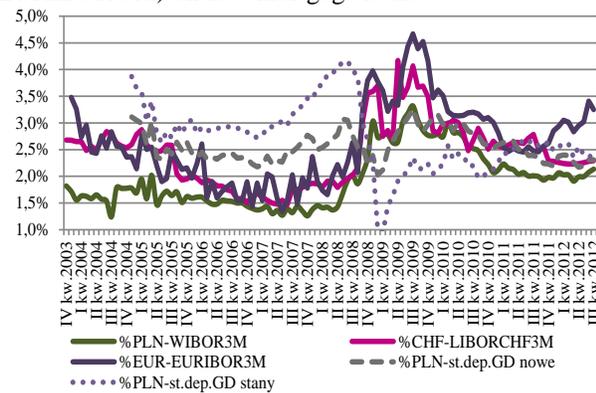
Source: ZBP.

Figure 25 Interest rates on mortgage loans to households in Poland



Source: NBP.

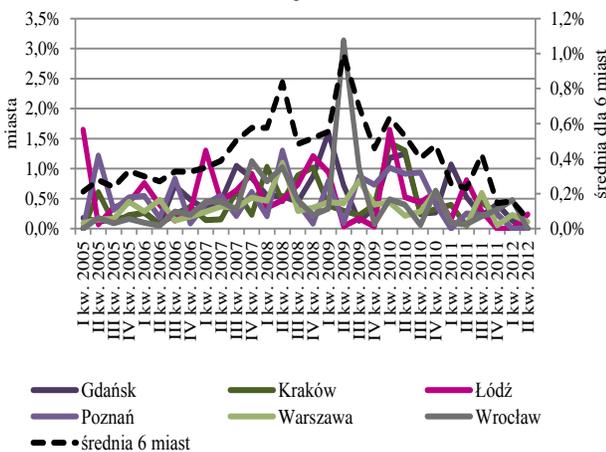
Figure 26 Bank margins (to WIBOR, LIBOR, EURIBOR 3M) on new mortgage loans



Note: Bank margin is the difference between mortgage loan rate (NBP) and the LIBOR3MCHF rate, the LIBOR3MEUR rate or the WIBOR3M rate;

Source: NBP

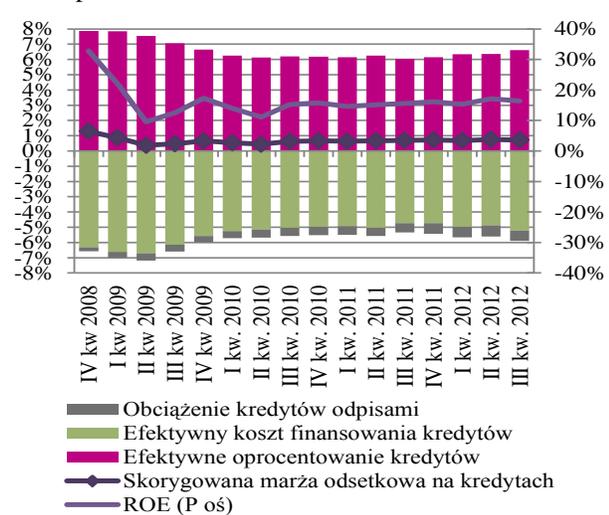
Figure 27 Quality of the mortgage loan portfolio in Poland's six cities in 2012 Q3



Note: Quality is defined as a percentage share of non-performing mortgage loans (i.e. in arrears for 91-180 days) in the total of mortgage loans in a particular period for a particular city and the average level for the six cities; average weighted with the city's share in loan increase;

Source: NBP based on BIK.

Figure 28 Estimated banks' return on FX loans granted and repaid in Poland

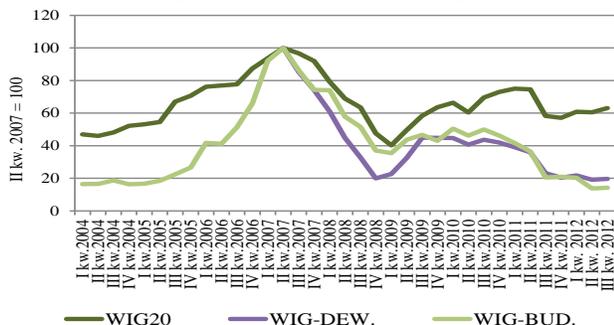


Note: Income and costs related to mortgage loan portfolio. Estimated ROE (Return on Equity) is calculated as the adjusted interest margin on mortgage loans with respect to the minimum required equity. The minimum equity requirement is assessed on the basis on the LTV estimate derived from the AMRON data and capital requirement for mortgage loans as set by the Polish Financial Supervisory Authority (KNF). The adjusted interest margin is the result of all income being added and all costs being deducted. The effective cost of financing was computed based on the WIBOR and LIBOR rates by adding estimative costs of this operation.

Source: NBP, AMRON.

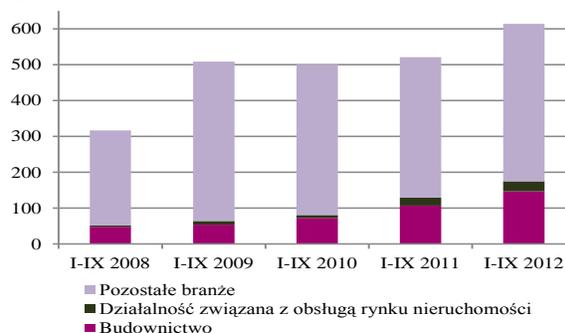
4. Operating rate of return on housing and real estate development projects, costs of construction and assembly production and economic situation of real estate developers in Poland

Figure 29 Growth in stock exchange indices: WIG20 and for real estate developers and construction companies



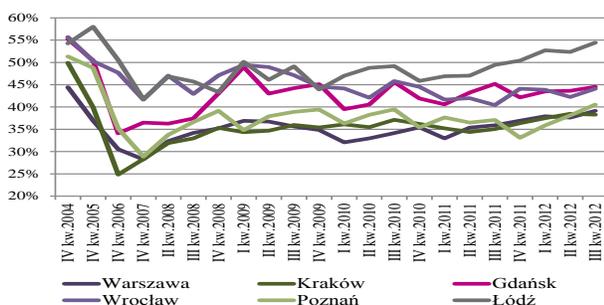
Note: harmonized data 2007 Q2 = 100.
 Developers' WIG has been recorded since 2007 Q2;
 Source: Warsaw Stock Exchange.

Figure 30 Number of bankruptcies in the sectors in three quarters



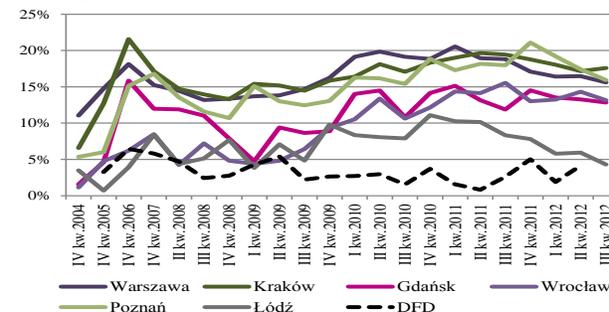
Source: Coface Poland.

Figure 31 Share of direct construction costs per square meter of the residential building's usable area (type 1121 building²⁰) in the transaction price – primary market



Source: NBP based on Sekocenbud.

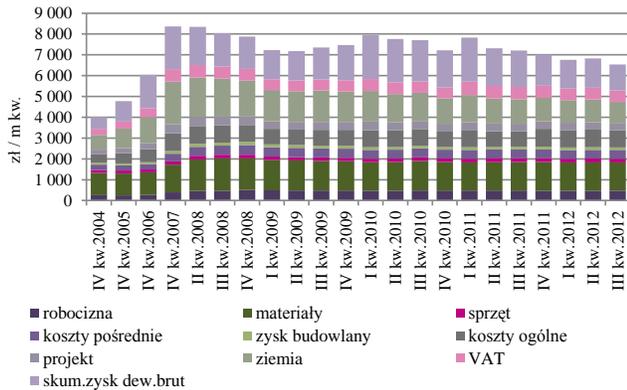
Figure 32 Rate of return on equity in investment projects in 6 cities and the actual rate of return of real estate developers (DFD)



Note: The rate of return on equity in new investment projects assuming the currently applicable interest rates, banks' requirements and production costs; calculated on the basis of the diagram included in Annex 3 of the "Report on the situation of the Polish market of residential and commercial real estate in 2011".
 Source: NBP based on Sekocenbud, GUS.

²⁰ Building (type 1121) monitored by the NBP since the second half of 2004 as an average residential multi-family five-storey building with an underground parking space and retail premises on the ground-floor; traditional construction (over-ground part made from ceramic bricks); for the sake of convenience, it has been assumed that construction costs of 1 square meter of parking space and retail space are close to the costs of housing sold in shell condition; real price of 1 square meter of housing, based on construction costs, depends on the share of outer space [building's common area], different for various buildings; when calculating the price of 1 square meter of usable housing area to be paid by consumer, we have assumed 20% share of outer space [building's common area] with respect to housing area and by this figure we have adjusted upward the price of 1 square meter of housing. Data adapted to the new developer's model of the construction process described further in Article 3 of the "Report on the situation of the Polish market of residential and commercial real estate in 2011".

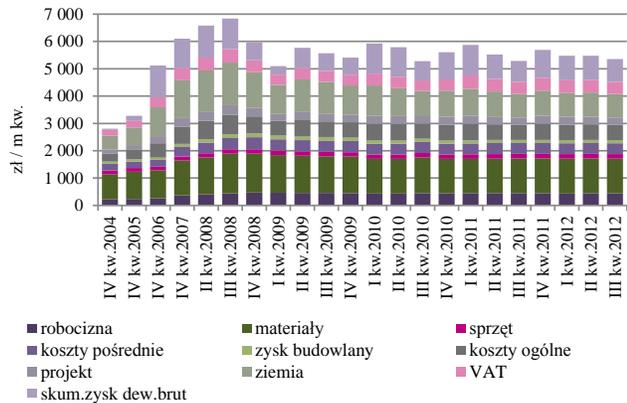
Figure 33 Warsaw - structure of price per square meter of housing usable area (type 1121 building^{22/}) to be paid by consumer



Note: data in Figures 34-39 presented in quarter-on-quarter terms since 2008 Q2; previously, data published in year-on-year terms;

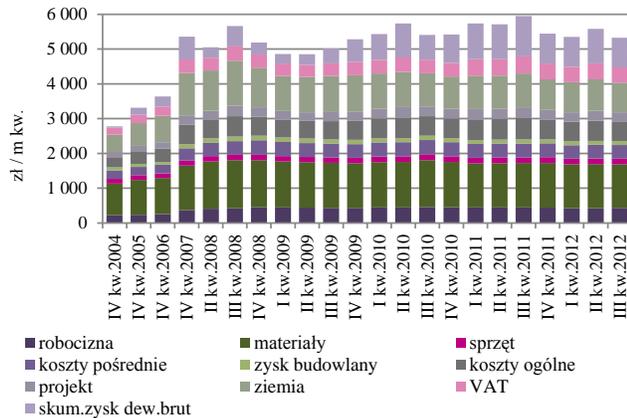
Source: NBP based on Sekocenbud, REAS.

Figure 35 Gdańsk - structure of price per square meter of housing usable area (type 1121 building^{22/}) to be paid by consumer



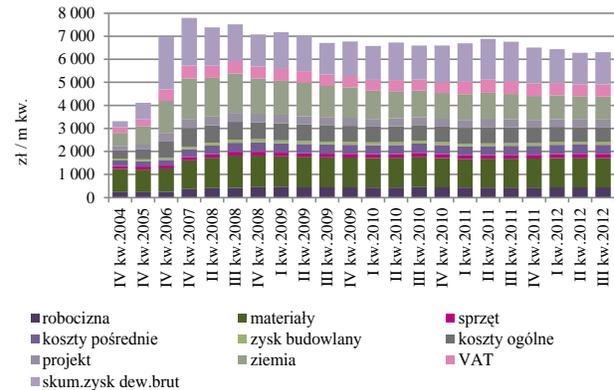
Source: NBP based on Sekocenbud, REAS.

Figure 37 Wrocław - structure of price per square meter of housing usable area (type 1121 building^{22/}) to be paid by consumer



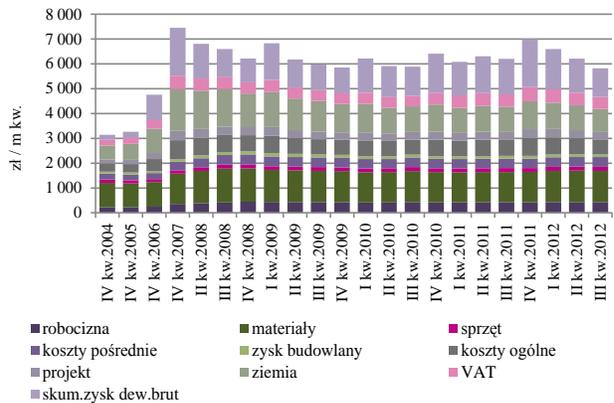
Source: NBP based on Sekocenbud, REAS.

Figure 34 Cracow- structure of price per square meter of housing usable area (type 1121 building^{22/}) to be paid by consumer



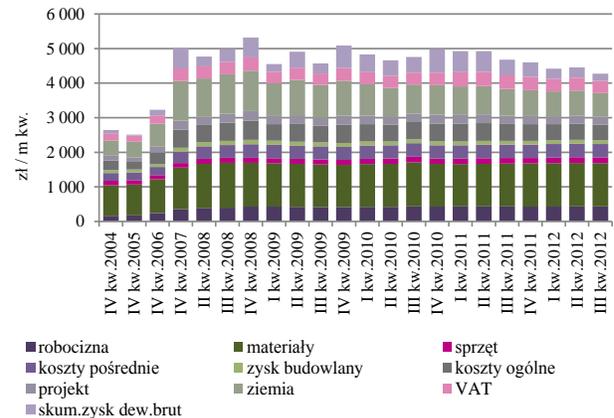
Source: NBP based on Sekocenbud, REAS.

Figure 36 Poznań - structure of price per square meter of housing usable area (type 1121 building^{22/}) to be paid by consumer



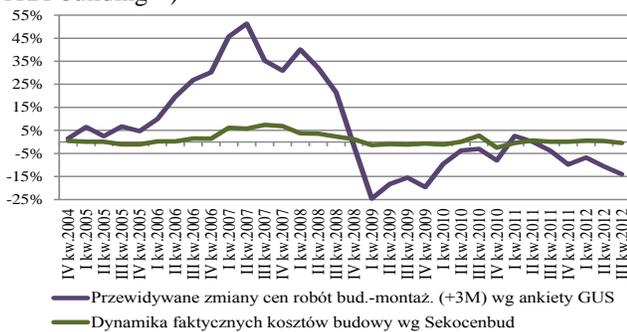
Source: NBP based on Sekocenbud, REAS.

Figure 38 Łódź - structure of price per square meter of housing usable area (type 1121 building^{22/}) to be paid by consumer



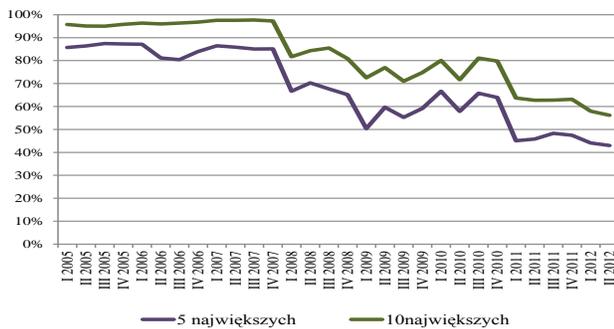
Source: NBP based on Sekocenbud, REAS.

Figure 39 Anticipated changes in the price of construction and assembly production and growth in the costs of construction of the residential building's usable area (type 1121 building^{22/})



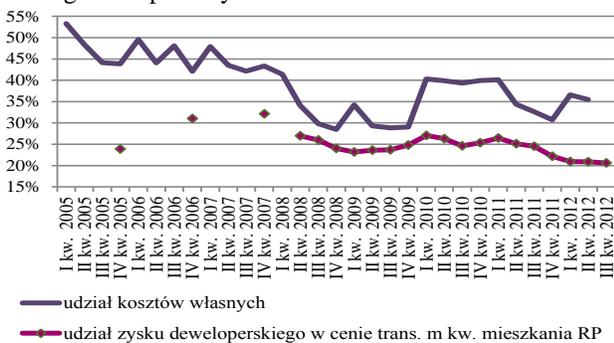
Source: NBP based on data published by the GUS (business conditions survey), Sekocenbud.

Figure 41 Share of sale of 5 and 10 largest real estate development companies in total sale (calculations based on financial reports)



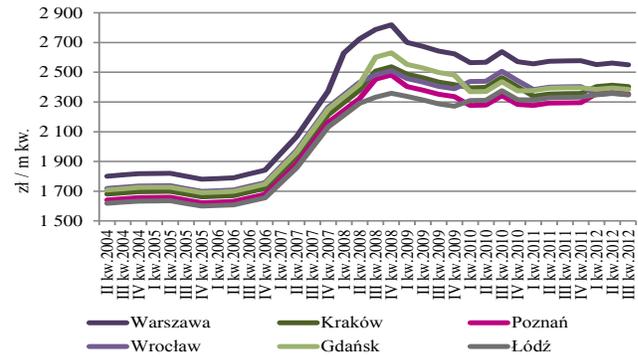
Source: NBP.

Figure 43 Share of own costs in the costs incurred by a large real estate development company (LD) and the share of real estate developer's return in the price per square meter of housing in the primary market



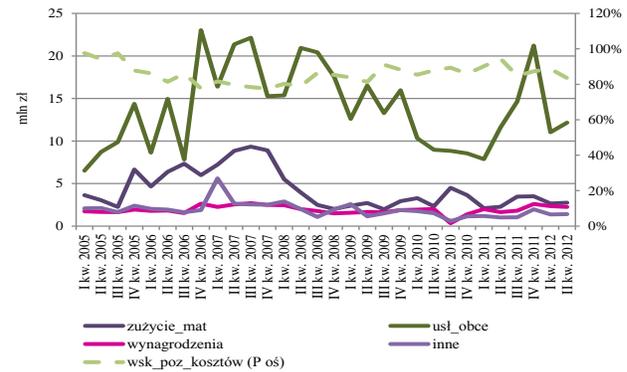
Note: share of the real estate developer's return until 2007, in relation to the fourth quarters only;
Source: NBP based on GUS (F01) and Sekocenbud.

Figure 40 Cost of construction of one square meter of the residential building's usable area (type 1121 building^{22/})



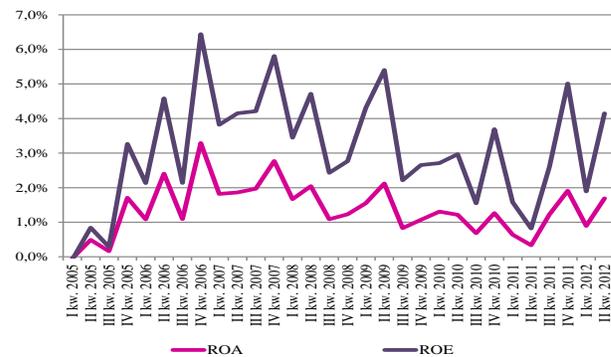
Source: NBP based on Sekocenbud.

Figure 42 Costs incurred by a standard large real estate development company (LD)



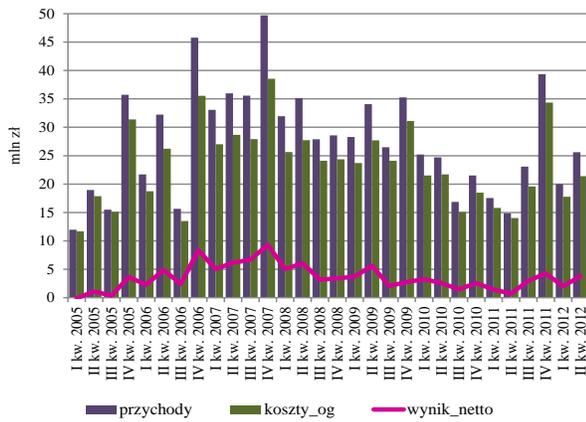
Note: according to the GUS, a large company employs on average more than 50 persons; relates to Figures 43-49;
Source: NBP based on GUS (F01).

Figure 44 ROE and ROA of large real estate developers



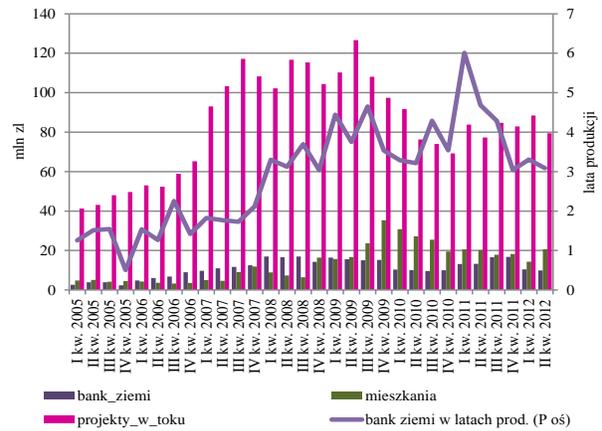
Note: net result in a given quarter as compared to assets (equity) at the end of a given quarter;
Source: NBP based on GUS (F01).

Figure 45 Economic indicators of LD



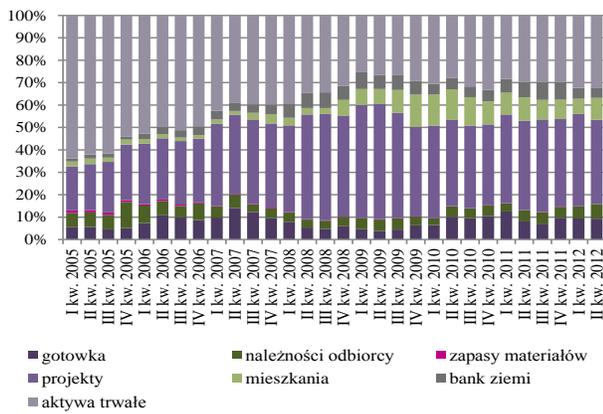
Source: NBP based on GUS (F01).

Figure 46 Situation of LD



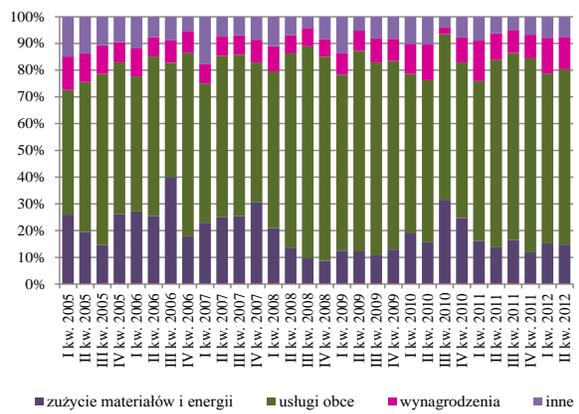
Source: NBP based on GUS (F01).

Figure 47 Structure of LD assets



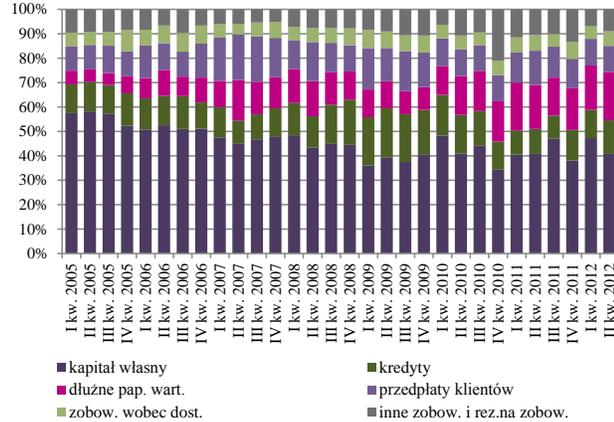
Source: NBP based on GUS (F01).

Figure 48 Structure of LD costs



Source: NBP based on GUS (F01).

Figure 49 Structure of LD financing



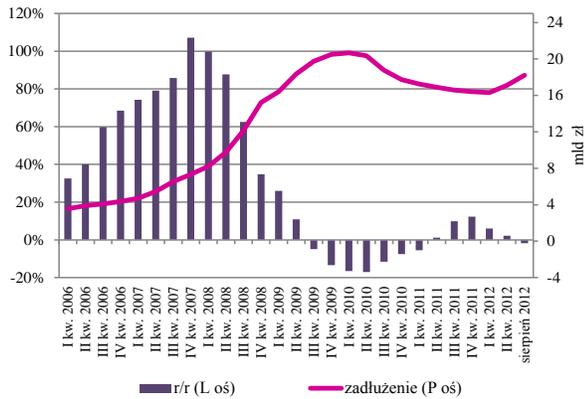
Source: NBP based on GUS (F01).

Figure 50 Real estate development companies facing financial problems^{*/}



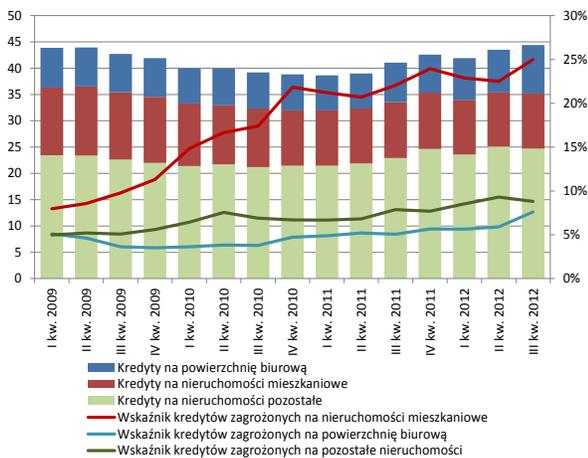
Note: */ companies whose liabilities have been classified by banks as non-performing (this refers to large-scale liabilities, exceeding the value of PLN 500 thousand);
Source: NBP.

Figure 51 Value and growth of loans to real estate developers (commercial banks)



Source: B300; only large loans with the value exceeding PLN 500,000

Figure 53 Structure (in billions of PLN) and the value of companies' loans for commercial real estate



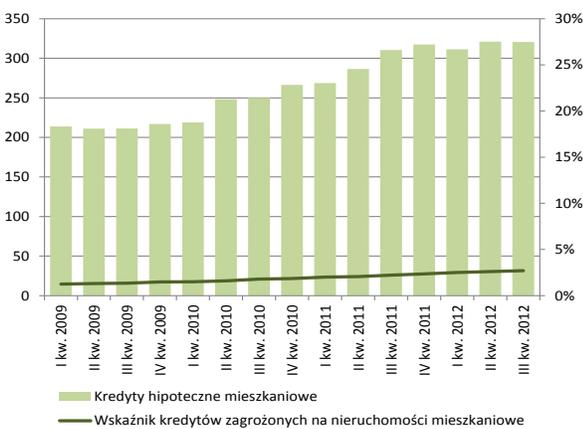
Note: without BGK.
Source: NBP.

Figure 52 Value of loans to real estate developers (share of loans considered by banks as doubtful loans in the total of loans)



Source: B300; only large loans with the value exceeding PLN 500,000

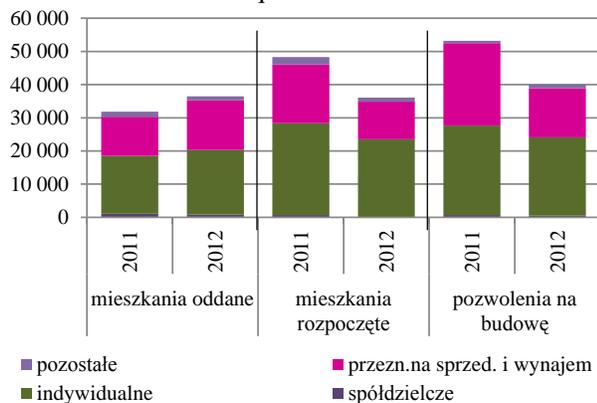
Figure 54 Loans of households for residential real estate (in billions of PLN)



Source: NBP.

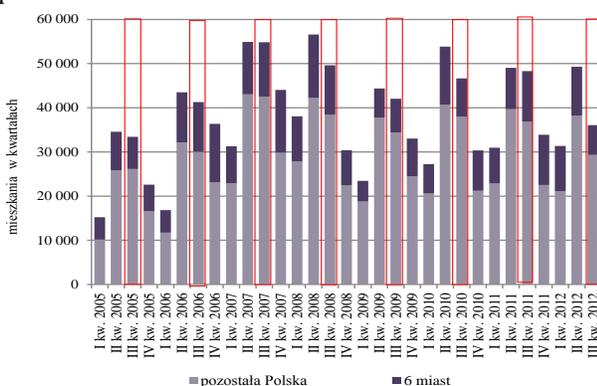
5. Residential construction and housing market in Poland in selected cities

Figure 55 Poland – structure of investors in residential construction in the third quarters of 2011 and 2012



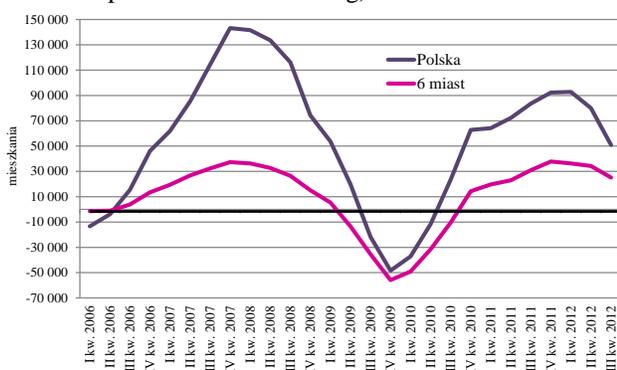
Source: GUS.

Figure 57 Poland – housing units under construction, per quarter



Source: GUS.

Figure 59 Housing market indicator in Poland and in Poland's six largest cities* (housing under construction minus completed and sold housing)

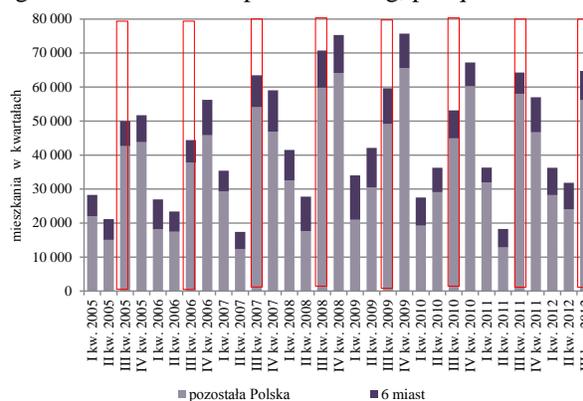


The index is a 12-month rolling figure;

*/Warsaw, Cracow, Gdańsk, Łódź, Poznań, Wrocław;

Source: NBP based on PABB and GUS.

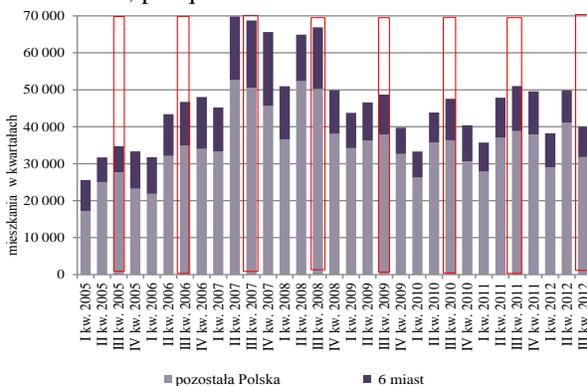
Figure 56 Poland - completed housing, per quarter



Note to Figures 56-58: marked Q3;

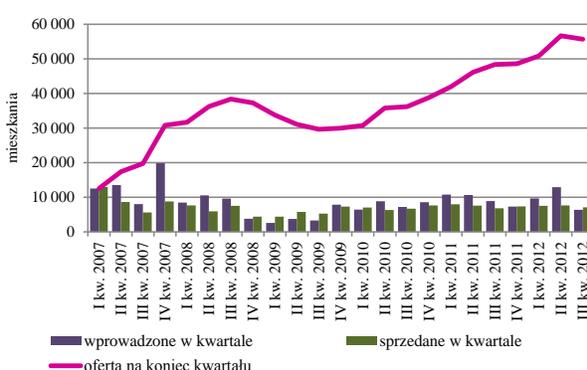
Source: GUS.

Figure 58 Poland – permits issued for housing construction, per quarter



Source: GUS.

Figure 60 Number of housing units put on the market, both sold and offered for sale in Poland's six largest markets*/

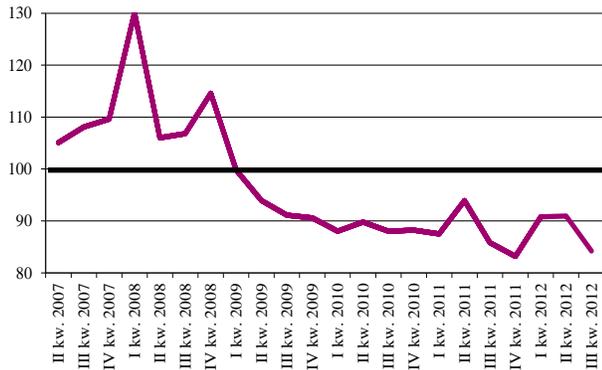


*/Warsaw, Cracow, Gdańsk-Sopot-Gdynia

agglomeration, Wrocław, Poznań, Łódź;

Source: REAS.

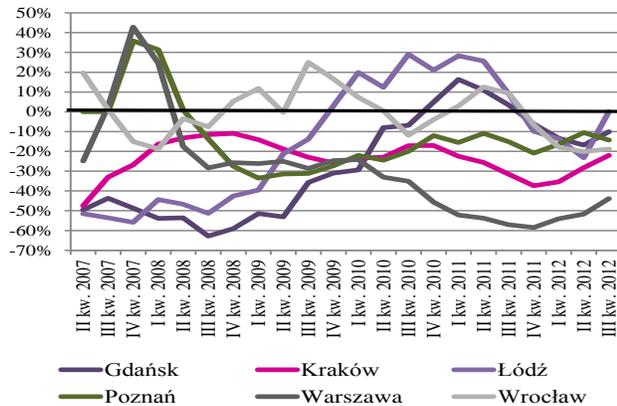
Figure 61 Growth in the average price per square meter of housing put on sale in the primary market in Poland's six largest cities^{*/} (2007 Q1=100)



^{*/} Warsaw, Cracow, Gdańsk-Sopot-Gdynia agglomeration, Wrocław, Poznań, Łódź;

Source: REAS.

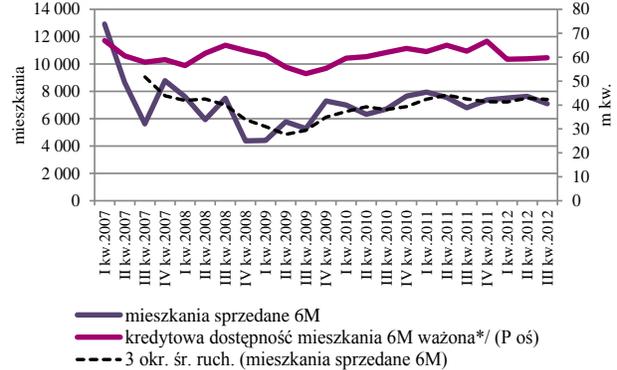
Figure 63 Structure of supply and demand^{*/} for housing with an area ≤ 50 square meters in the primary market in selected cities in Poland



Note: Figure 60 presents a mismatch (in %) between supply (developers' housing offer) and the estimated demand (housing transactions) in terms of the housing unit's size, according to data from the BaRN database; the mismatch is calculated as the ratio of the share of housing units with a usable area of up to 50 square meters offered for sale to the number of transactions involving housing units with a total area of up to 50 square meters (the average figure for the last four quarters). The positive result (above the line) indicates a surplus of housing of this particular size, whereas the negative result indicates a shortage thereof. Figure 61 is parallel.

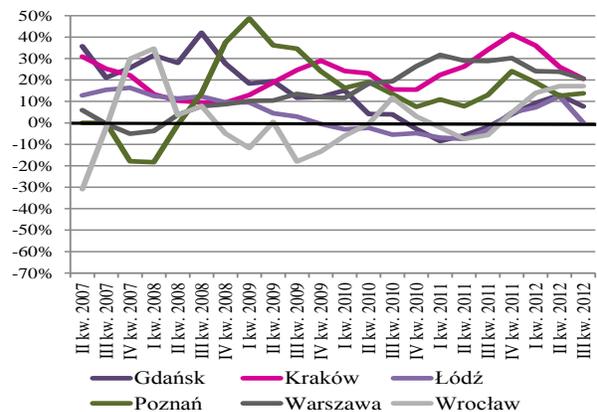
Source: NBP.

Figure 62 Availability of loan-financed housing versus housing units sold in Poland's six largest cities^{*/} (demand and supply estimates)



^{*/}Warsaw, Cracow, Gdańsk, Poznań, Wrocław, Łódź;
Source: NBP based on REAS.

Figure 64 Structure of supply and demand^{*/} for housing with an area ≤ 50 square meters in the primary market in selected cities in Poland



Source: NBP.