
Report on the situation in the Polish residential and commercial real estate market in 2014

The Report has been prepared at the Financial Stability Department for the purposes of NBP authorities. Opinions expressed in this report are opinions of the authors and do not present the point of view of the authorities of Narodowy Bank Polski.

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1. Summary

The results of analyzes of developments in real estate markets in 2014, including in the local markets of 16 voivodship cities and Gdynia confirm that the housing situation of these cities has improved. In the largest cities, a significant increase in demand and supply in the primary market was observed, which was the result of both fundamental factors, as well as interest rate cuts. The development of the real estate sector in the local markets in the analyzed cities was supported by changes in economic factors, primarily due to higher wages, falling unemployment and stronger than in the previous year GDP growth.

Demographic indicators i.e. birth rate, net migration and the number of new marriages slightly increased in some cities, boosting housing demand. Demographic burden indicators, and the number of population decreased, which could have curbed demand. The supply of new housing was on the rise and real estate developers were flexible in adjusting investment projects to clients' preferences and their purchasing power. This allowed real estate developers to maintain high margins on housing construction and high rates of return on their projects. The increase in supply was also driven by regulatory environment (draft amendments to the Developer Act). Some cities reported slight increases in offer prices per one square meter of housing in the primary market. Neither the primary nor the secondary market reported an major changes in transaction prices per one square meter of housing.

The Report presents the developments observed in Poland in 2014 in the residential and commercial real estate sectors. Detailed analysis leads to the following conclusions:

- As regards the primary and secondary markets of the six largest voivodship cities and Warsaw, the highest prices per square meter of housing were recorded in the case of small dwellings (with an area of 40 square meters and consisting of 1 room) and large dwellings (with an area of 80 square meters or more and consisting of 4 of rooms or more). On the other hand, in the market of the remaining 10 cities the highest prices per square meter of housing were recorded in the case of small housing with a small number of rooms.
- There was an increase in demand and supply in the primary housing market. There was an increase in the number of investment projects and apartments put on the market by real estate developers. High demand for housing was driven by growth in household wages, the persistence of historically low interest rates and the launch of government-subsidized housing scheme MDM. As a result, growth was noted in the number of developer dwellings purchased for own housing needs and for investment purposes, financed both with loans and own funds of buyers, whose share in the structure of the financing was rising.

- Lending in 2014 was relatively stable, despite historically low interest rates. This may be due to the fact that housing needs have been partly met as well as the prudential behavior of both borrowers and lenders. This is confirmed by the findings of senior loan officer opinion surveys. The balance of household liabilities resulting from mortgage loans increased in 2014 by PLN 19.9 billion as compared with 2013 to reach PLN 350.7 billion.
- Home selling time got longer both in the primary market (as a result of the launch of a large number of new contracts for housing construction) and in the secondary market, as a result of strong competition of new housing. The exception was Warsaw - the most developed housing market in Poland. New residential projects are modern from the technical point of view, better suited to the buyers' needs, have a garage and increasingly more attractive location, yet require financial contribution and time for adjustment from the shell and core construction to suit buyers' own needs.
- Slight fluctuations in average rents (both offer and transaction rents) were observed. After stabilization observed at the beginning of 2014, increases in rent rates were recorded in the six largest cities from the second half of 2014. A slight increase in rent rates was observed in Warsaw and in 10 other cities their level was stable. This may encourage wealthier households to purchase rental housing.
- At the current level of rents, entities investing in rental housing have earned rates of return exceeding yields on bonds or bank deposits and similar to rate of return on investments in commercial real estate. It should be noted, however, that there is significant difference in liquidity and transaction costs between bank deposits and investment in rental housing.
- A marked increase in demand in the housing market had a positive impact on the financial condition of real estate developers. The developers' situation was adversely affected by growing stock of unsold housing projects and the uncertainty about the announced amendments to the Act on the protection of real estate developers' clients.
- The estimated share of developers' profit in the price of new housing continued at a high level. The factors enabling developers to earn high rate of return on equity were the following: good adjustment of the structure of offered housing to the preferences and financial possibilities of buyers (smaller dwellings), slight declines in the prices of construction and assembly works and persistently high number of sold dwellings.
- The debt of real estate developers struggling with financial problems started to decrease. In the structure of developers' liabilities in 2014 the share of loans fell and the share of equity increased.
- In January 2014 the government was launched the subsidized housing scheme MDM aimed to improve housing situation of households. The scheme was intended to finance only real estate purchased in the primary market and meeting the conditions for support. This scheme has had so far a slight boosting effect on housing demand.
- In the commercial real estate market growing imbalances were observed, especially as concerns office space. Growing supply of commercial real estate brought about rent

adjustments which will impact owners' income and may make it difficult for them to repay the debt. Yet, this did not pose any problem for the stability of the banking system in Poland as foreign investors dominated the real estate market.

- In 2014 transaction rents in A class office buildings (quoted in EUR/square meter/ month) in all the analyzed markets showed a stagnation or decline and increased slightly in B class office buildings (quoted in EUR/square meter/ month) in Warsaw.

2. Introduction

The residential real estate sector encompasses construction of new housing (real estate developers), trade in the existing housing stock, demand for housing (households) as well as the financial sector (lenders) and regulatory sector (e.g. home buyers support schemes). On the other hand, transactions take place in the real estate market, which is strongly linked with other sectors of the economy (especially the financial, real estate development and construction sectors). These correlations are crucial for macroeconomic and financial stability. Therefore, monitoring and analysis of developments in the real estate market are essential for NBP's analyses of financial stability and macroeconomic imbalances. The aim of the Report is to present the results of these analyses, as well as to provide interested parties, including participants in the real estate market, with complete, reliable and objective information on the situation in the residential and commercial property market in Poland in 2014. The Report focuses on the developments observed in 2014. However, when the data have important implications for the current processes, information may go beyond this period.

Both the domestic experience (especially from the 2005-2008 period dominated by low-interest foreign currency loans), as well as the abundant international experience shows that prolonged periods of persistently low interest rates may lead to the build-up of tensions in the real estate market by creating excessive housing demand. Imbalances can lead to property crises when they are not properly diagnosed and offset by the economic policy. Excessive demand coupled with speculation can cause a rapid increase in home prices and increase the size of housing and lead to strong growth in lending. A collapse usually occurs when central banks hike interest rates due to rising inflation. This translates into a further decline in housing demand and problems with the portfolio of low-interest mortgage loans financing expensive housing whose value has then rapidly declined.

If banks did not require appropriate income buffers from borrowers, they may have difficulty in servicing the loan. Declining demand for housing, as a result more expensive credit, makes it difficult for real estate developers to sell new homes. The next factor is rising unemployment, both in construction companies, as well as in related industries. Declining demand and foreclosures result in further decline in home prices. In view of the above mentioned developments threatening the stability of the financial system and the economy, the key measure is ongoing monitoring of prices in the major housing markets, bank lending, banks' prudential indicators and selected macroeconomic indicators measuring the level of tensions.

Due to the local nature of housing markets, similarly as in the previous editions of the Report, the Report provides an in-depth analysis of sixteen markets of voivodship cities broken down into: Warsaw, 6 cities (6M: Gdańsk, Gdynia, Kraków, Łódź, Poznań, Wrocław) and 10 cities (10M: Białystok, Bydgoszcz, Katowice, Kielce, Lublin, Olsztyn, Opole, Rzeszów, Szczecin, Zielona Góra). Such a break-down is justified by the comparable size and degree of development of the real estate markets.

The analysis of offer, transaction and hedonic prices per square meter of average housing in the primary and secondary market and the analysis of the commercial real estate market are based on the data obtained by analysts from the Regional Branches of Narodowy Bank Polski under the survey of the housing market Real Estate Market Database (BaRN) and the commercial real estate market (Commercial Real Estate Database (BaNK))¹.

As the survey covered a variety of agents operating in the market (agents, developers, housing co-operatives, municipal offices, consulting companies), it allowed the authors to obtain extensive information. The study also relied on the database by PONT Info Nieruchomości (PONT) containing data on offer home prices, the SARFIN database of the Polish Bank Association containing data on housing market financing and its AMRON database containing data on housing appraisal and transaction prices of mortgage-financed housing as well as data on the primary residential market of company REAS.

The authors drew on the reports issued by the Polish Financial Supervision Authority (KNF) as well as aggregate credit data released the Credit Information Bureau (BIK). The statistical data published by the Central Statistical Office (GUS) and analyses including sectorial data have been used in the structural analysis. The authors also made use of the findings of the "Social Diagnosis" survey conducted by the Social Monitoring Council and the results of the surveys by the Public Opinion Research Centre (CBOS) and TSN Polska. The data concerning transactions in the commercial real estate market are drawn from the Comparables.pl. database. The information about the commercial real estate market is also based on the data provided on a voluntary basis by commercial real estate brokers, as well as real estate management and consulting companies. The analysis was supported with knowledge of experts of particular agencies².

Although many sources of information were explored, missing data or insufficient quality of data have proved a significant barrier. In such situations, the authors relied on estimates verified on the basis of expert and specialist opinions.

The Report presents the developments observed in Poland in 2014 in the residential and commercial property sector. It highlights the main directions of changes in the real estate markets and identifies the factors behind these changes. The Report also draws attention to the financial capacities of home buyers and discusses the impact of the absence of

1 See: „Programme of statistical surveys of public statistics for 2014. Annex to the Decree of the Council of Ministers of 9 August 2013 concerning the programme of statistical surveys of public statistics for 2014 (Journal of Laws of 2013, item 1159)”. The survey of residential property prices in Poland’s selected cities, survey reference number 1.26.09 (078) is conducted by the President of Narodowy Bank Polski. Detailed information about BaRN database is presented in chapter 3.1.3 *Convergence and differentiation processes of local markets and structural changes (comparison of 16 property markets in Poland)*.

2 The authors relied on data and information provided by the following agencies: CBRE, Colliers International, Cushman & Wakefield, DTZ, JLL, Knight Frank and the following associations: Retail Research Forum of the Polish Council of Shopping Centres, Warsaw Research Forum.

government-subsidized housing scheme MDM in 2013 on housing demand. The authors described the phenomenon of increased developer housing production and stabilization of offer and transaction prices in the primary and secondary markets in the analysed cities. They presented the results of surveys of rents in the home rental market being an alternative to homeownership. The authors also analysed selected stability indicators for the residential market which, if exceeded, may cause tensions in this market. They discussed the most important developments in the commercial real estate market, drawing attention to a significant increase in the supply of properties which fails to be met by demand, leading to growing vacancy ratios and a decline in rents. The analyses included factors affecting transaction prices per one square meter of commercial space for rent. The last issues discussed in the Report are convergence and differentiation processes and structural changes in the 16 local real estate markets in Poland.

The final part of the Report contains technical terms, defined in the glossary of terms and abbreviations.

The Annex to the Report presents detailed information on the residential and commercial property markets in each of the 16 analyzed cities, capitals of Poland's voivodships, including the Tri-City agglomeration of Gdańsk, Sopot and Gdynia.

3. Real estate market in Poland

In the analyzed period, the housing situation # in Poland was improving. This was due to the large number of newly completed dwellings and small scale of depletion of the housing stock . The value of residential real estate assets at the end of 2014 is estimated at approx. PLN 3.1 billion (see: Figure 1), and commercial real estate at approx. PLN 0.2 billion (Figure 3). In Poland since the transition period, there has been a steady increase in the housing stock, which due to the commercialization of the sector already has great economic importance.

Figure 1 Estimated value of the housing stock in Poland, in PLN billion

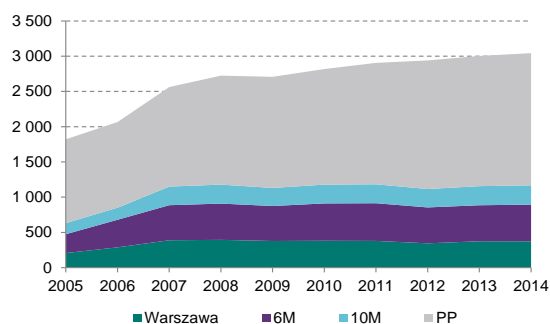
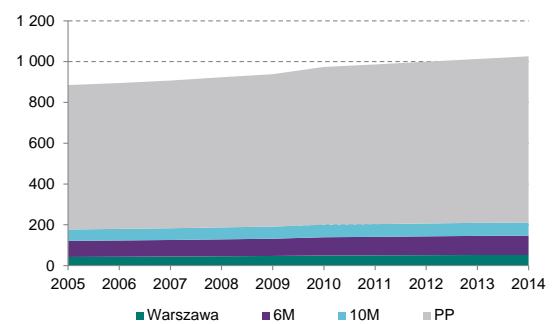


Figure 2 Area of the housing stock in Poland in millions of square metres

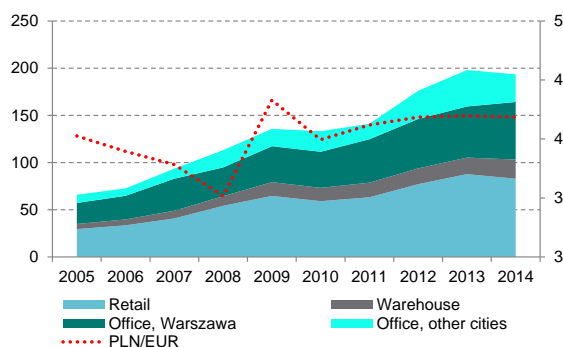


Note: 6M – Gdańsk, Gdynia, Kraków, Łódź, Poznań, Wrocław; 10M – Białystok, Bydgoszcz, Katowice, Kielce, Lublin, Olsztyn, Opole, Rzeszów, Szczecin, Zielona Góra; PP – remaining part of Poland. The estimate is based on GUS data on usable area of the housing stock in the analyzed cities. The housing stock was multiplied by transaction prices of housing (average prices from the primary and secondary market) in 16 cities (NBP database), and in other Polish cities by replacement prices.

Source: NBP estimates based on GUS, PONT Info.

Source: NBP estimated based on GUS.

Figure 3 Estimated value of the commercial stock in Poland in PLN billion (left-hand axis) and PLN/EUR exchange rate (right-hand axis)



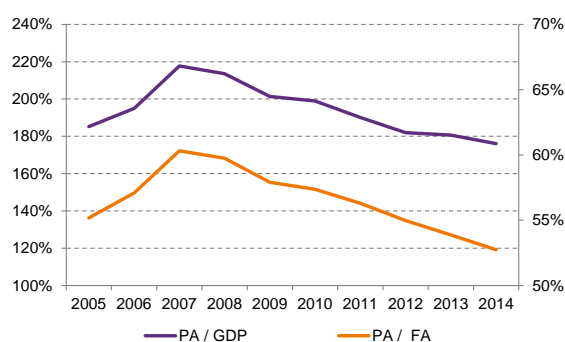
Note to Figure 3: The estimate is based on publicly available data on commercial real estate stock. Offices are modern office buildings, retail premises are shopping malls, and warehouses are modern, large-format stores. The resource was multiplied by hedonic transaction price of commercial real estate #. Prices given in EUR are translated in PLN. The graph shows the aggregate values.

Source: NBP's estimates based on NBP BaNK and advisory companies; transaction prices from Comparables.pl.

The estimated value of residential and commercial property in Poland at the end of 2014 accounted for approx. 187% of GDP and approx. 55% of fixed assets in the economy, with the residential real estate accounting for 176% and the commercial real estate for 11% of GDP (see Figure 4 and 5) . Despite the increase in the area of the housing stock, its current value to GDP

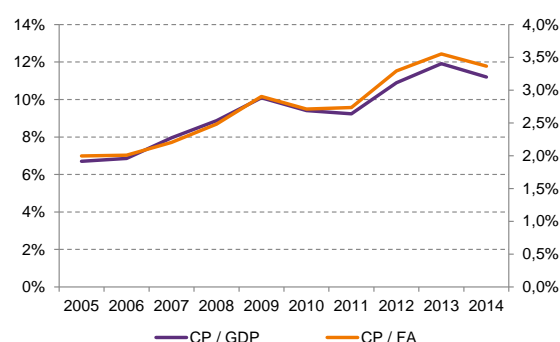
ratio decreased slightly in the analyze period, which results from a 3.5% GDP growth combined with approx. 1.3% increase in the value of the housing stock. In the short term, housing supply adjusts to demand growth with approx. 8-quarter delay resulting from the lengthy construction process, introduced regulations, missing or inadequate infrastructure or problems with the availability of materials and transportation. The increase in the number of dwellings in the housing stock, amidst rapid GDP growth and growth in housing demand, usually lasts several years and is driven by price increases and subsequent excessive number of new, unsold homes.

Figure 4 Ratio of the estimated current value of residential property assets (PA, left-hand axis) to GDP and fixed assets (FA, right-hand axis) in Poland



Source: NBP estimates based on GUS, PONT Info.

Figure 5 Ratio of the estimated current value of commercial property asset (CP, left-hand axis) to GDP and fixed assets (FA, right-hand axis) in Poland



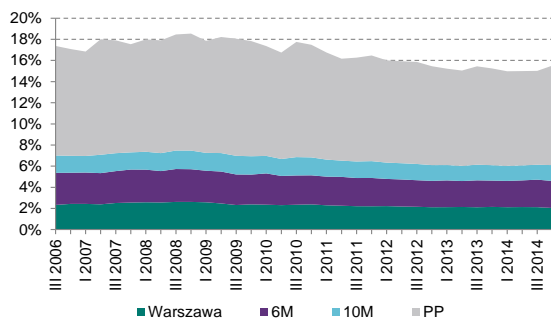
Note: see note to Figure 3.

Source: NBP estimates based on the databases of NBP and other consulting companies, transaction prices from Comparables.pl.

Although for statistical purposes, dwellings are often classified as consumer goods, due to their durability, it would be more appropriate to classify them as fixed assets generating housing services. In the majority of cases, the value of housing services is calculated by multiplying the average area of housing by rent rates in the local market. The value of housing services in Poland in 2014, estimated in this way, accounted for approx. 11% of GDP³ (see Figure 6). The value of the services generated by commercial real estate (rent income) for their owners is estimated at nearly 0.8% of GDP (see Figure 7).

³ This 11% of GDP concerns imputed rents not included in GDP. This is the hypothetical value of the rental cost which the owner would pay if he leased his dwelling. Approx. 5.4% of GDP are material costs connected with the use of the housing stock, i.e. repairs and costs of day-to-day use which are included in GDP. Thus, the full value of the housing service in 2014 would be around 16.4% of GDP.

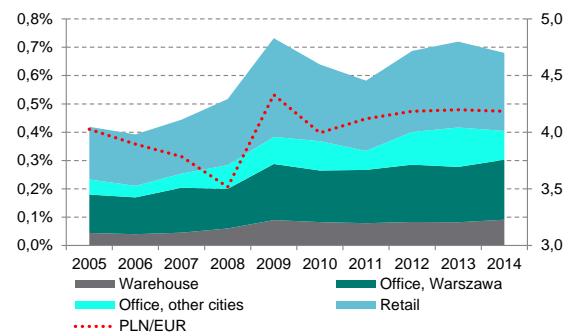
Figure 6 Estimated value of housing services (imputed rent) in Poland in relation to GDP



Note: The usable area of housing real estate was multiplied by rent rates (average offer and transaction rents) in particular 15 markets according to the NBP database. For the remaining Poland the rent rate was estimated at 50% of the average rent rate calculated for 10M.

Source: NBP estimates based on GUS.

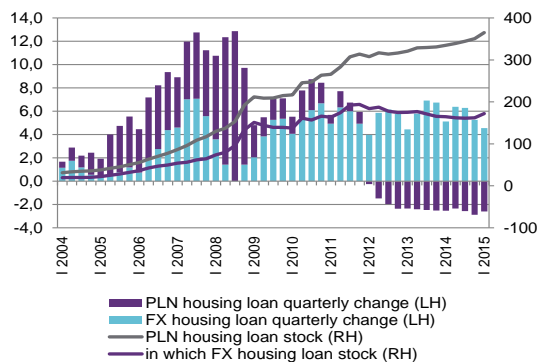
Figure 7 Estimated value of commercial services in Poland in relations to GDP



Note: The value of commercial real estate was multiplied by capitalization rates given by consulting companies

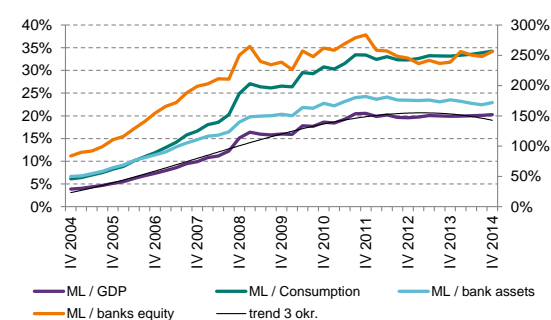
Source: NBP estimates based on the databases of NBP and other consulting companies, transaction prices based on Comparables.pl data.

Figure 8 Mortgage loans in Poland, quarter-on-quarter changes in PLN billion (left-hand axis) and value in PLN billion (right-hand axis)



Source: NBP.

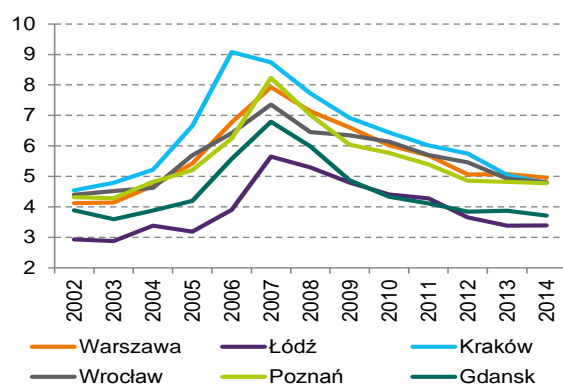
Figure 9 Relations of mortgage loans in Poland



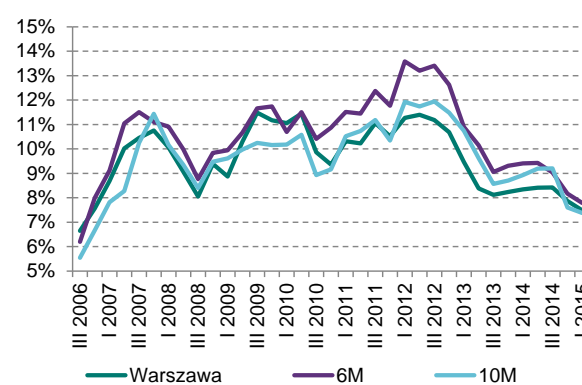
Source: NBP, GUS.

In 2014, despite significant interest rate cuts, lending was stable and there were no signs of a credit boom. This may be due to the housing needs being partly satisfied and the prudential behaviour of borrowers and lenders amidst economic uncertainty, including the risk of interest rate hikes. Growing number of transactions may suggest that a significant part of funds for home purchases came from households' deposits and other forms of saving. Therefore, higher demand in the primary market in this period, did not generate excessive tensions likely to threaten the banking sector.

It may take years for imbalances to arise in the real estate market, when long-term growth in home prices exceeds growth in consumer prices (CPI) and income. They are measured with the use of the ratio of housing prices to household income in the local markets (see Figure 10) or to the cost of financing owner-occupied dwellings and home rentals, as the case may be (see Figure 11).

Figure 10 Ratio of housing prices to income (P/I#), in years

Source: NBP, GUS.

Figure 11 Ratio of cost of purchase of one square meter of housing to the annual rent rate (P/R#)

Source: NBP.

Since 2013 the ratio of housing prices to income ($P / I \#$) has been returning to the level recorded before 2006, which confirms that the situation in the housing market has stabilized. The home rental market in Poland is still weak as there are many legal barriers hindering its development. Thus, the use of rent rates as the basis for calculating the scale of tensions is burdened with a greater mistake than the use of home prices. However, the cost of credit to rent ratio ($P / R \#$) for the year 2014 may also indicate that the market did not see any imbalances.

3.1 Real estate market in Poland in 2014

In 2014, after six years of stabilization, the residential market recorded an increase in both demand and supply. The sales of dwellings already built increased and the number of homes put on the market by real estate developers rose, yet their prices remained stable. Also the number of new investment projects increased.

Similarly to the previous years, growing imbalances were seen in the commercial real estate market, encompassing the retail and service space, office space and warehousing space. The market observed a very rapid increase in fixed assets, financed mainly by foreign capital. Increasing supply began to cause price adjustments, which may have an adverse effect on the condition of lenders and investors in this market.

3.1.1 Residential real estate market

Transactions in the primary residential market in Poland do not exceed 1% of the housing stock per year, and in the whole residential market amount to approx. 2-3%. Although changes in home prices and rents, and consequently changes in the value of housing assets, do not change the housing situation of their owners, yet, they significantly influence their behavior as economic agents affecting the financial sector and the economy as a whole, bringing important

macroeconomic consequences. This is due to the fact that owner-occupied dwellings, in addition to consumption function, are also a form of property, investments or savings deposits for clients.

In 2009-2013, after a period of tensions observed in the years 2006-2008, the housing markets stabilized gradually. This stabilization was supported by a temporary downturn in economic activity and discontinuation of foreign currency lending. This situation changed in 2014 when Poland's largest cities recorded a growth in both home sales and the number of offered home construction projects. Supply dynamically responded to high demand, additionally fuelled by low interest rates on mortgage loans, wage growth and government-subsidized housing scheme MDM Housing for the Young (*Mieszkanie dla Młodych* MDM #). Despite a rise in both demand and supply, home prices remained stable.

Interest rate cuts by the Monetary Policy Council translated into lower interest rates on residential mortgage loans and lower interest rates on bank deposits, strongly affecting the demand side. In 2014 lending posted a positive growth and real estate development companies heavily competed for the client, which curbed price increases. It may be estimated that the developer housing market is in the phase of recovery, without any signs of a credit boom so far. On the demand side an important phenomenon was a rise in the number of transactions involving dwellings largely financed with byers' own funds.

On the supply side, the real estate development sector was affected by home producers' concerns about the announced amendment to the Act on the Protection of the real estate developer's client, which encouraged them to build a portfolio of investments which would not be subject to this regulation in the future. The uncertainty associated with the proposed regulatory change boosted the supply of home construction contracts which slightly exceeded growth in housing demand. As a result, the unsold housing stock, after the declines observed in the first half of 2014, started to increase again in the second half of the year. The combination of individual elements of the housing market is shown in the scheme of correlations observed in Warsaw (see Figures 12-17), which also concerns the other 6 major cities. The correlations are explained above.

The supply of home construction contracts is affected by the expected rate of return on projects and anticipated demand (see Figure 16). For several years, the estimated rate of return on development projects remains at a high level as compared to other sectors (approx. 18%). Despite a slight decline in this indicator in the second half of 2014, the increasing number of transactions meant stable earnings for real estate developers. The increase in demand (Figures 14 and 15) and a high, stable return on real estate development projects (Figure 16) resulted in an increase in the number of new home building permits (Figure 12 and 13) and new developer dwellings put on the market (Figure 15).

Growing developers' demand for production factors slightly boosted in their total costs (Figure 16). However, price increases concerned mainly construction sites, which was not effectively translated into the situation of developers, as they had already gathered significant stock of building land. In turn, the cost of construction and assembly production were stable with slight

declines noted in certain areas. Yet, the increase in construction and assembly production was too small to push up costs of materials and construction services.

Despite a significant increase in the volume of sold housing, home prices, usually responding to demand, showed only minor changes. This was driven by growing surplus of housing offered for sale and the resulting competition for the buyer (Figure 17). In 2015 the number of completed dwellings may be expected to pick up (Figure 12). However, this has only minor impact on the market, as most of the contracts for these dwelling had been sold in the past.

Figure 12 Completed dwellings and dwellings under construction

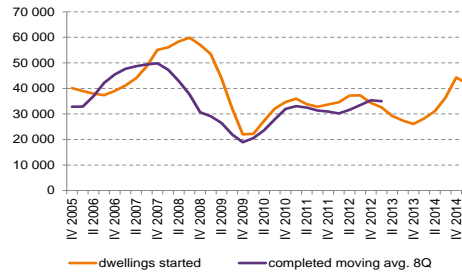


Figure 13 Long-term cost

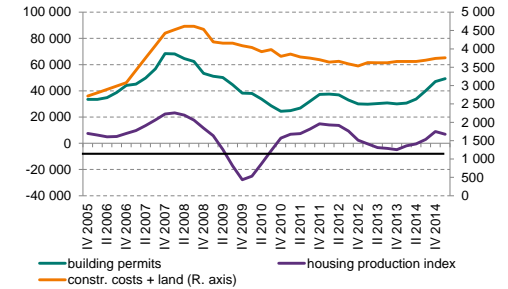


Figure 14 Demand for housing

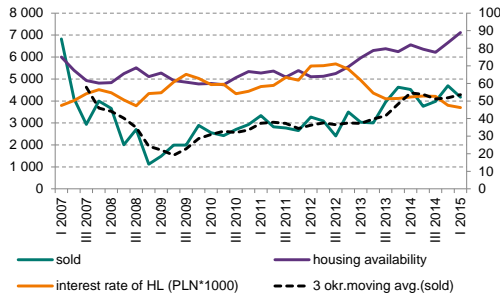


Figure 15 Housing market

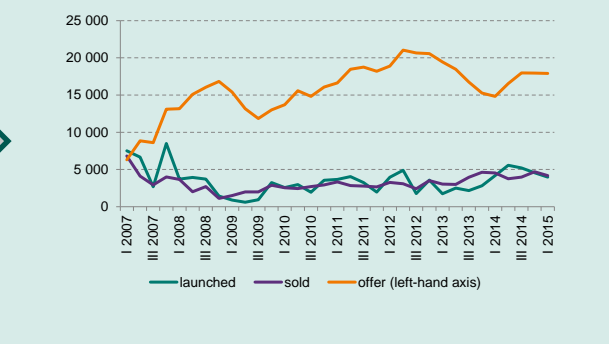


Figure 16 Housing supply

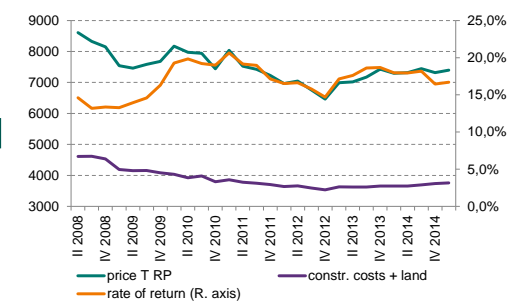
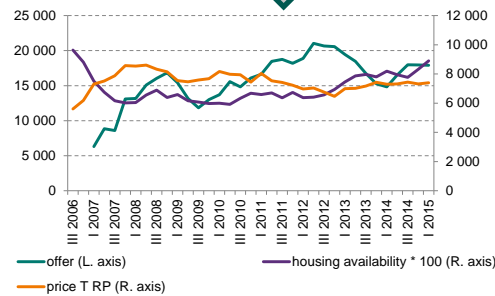


Figure 17 Housing prices



Sources: 12 – GUS.

13 – GUS NBP, PAB, Sekocenbud.

14 – REAS, NBP, GUS.

15 – REAS.

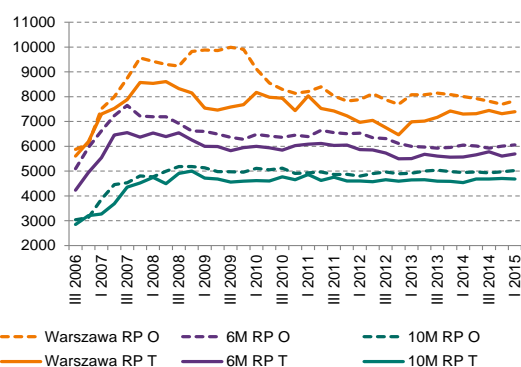
16 – NBP, Sekocenbud.

17 – NBP, REAS.

3.1.1.1 Home prices

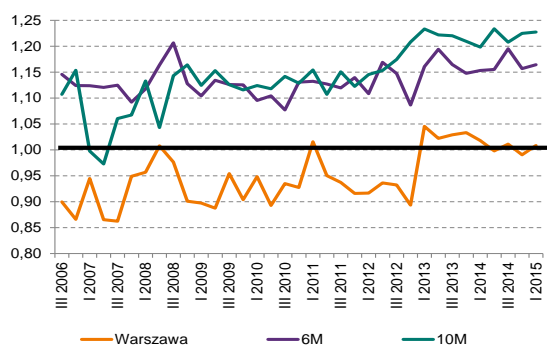
In 2014, the average offer and transaction prices per square meter of housing ⁴, in the primary and secondary markets in Poland, were stable (Figure 18-21). Warsaw was the only market to record a minor drop in transaction prices per square meter of housing in the secondary market, but the price adjusted with hedonic index# points to price stabilization. Average hedonic prices are adjusted for quality differences in the analyzed goods and changing structure of the housing sample to be analyzed in the coming quarters. In the analyzed sample in the secondary market in Warsaw poorer location and quality dwellings were sold.

Figure 18 Average offer and transaction prices of housing in Poland (PLN/1 square meter) in the primary market



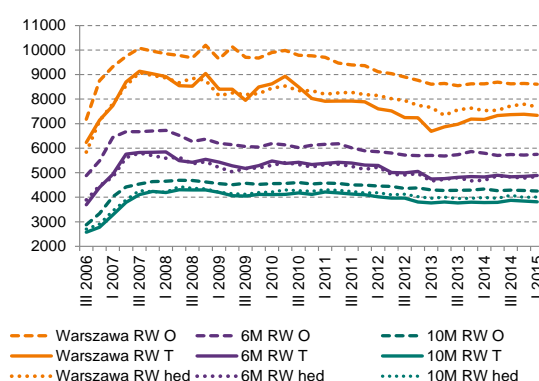
Source: NBP.

Figure 20 Ratio of transaction prices of housing in the primary market to the secondary market



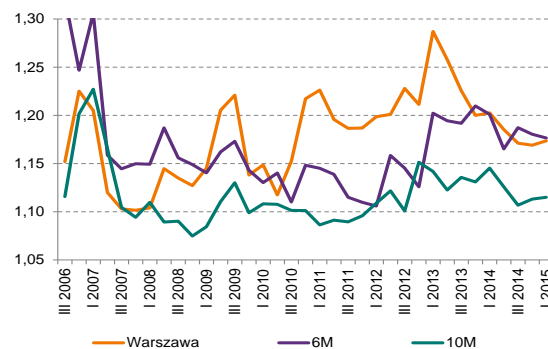
Source: NBP.

Figure 19 Average offer, transaction and hedonic prices of housing in Poland (PLN/1 square meter) in the secondary market



Source: NBP.

Figure 21 Ratio of offer prices of housing to transaction prices in the secondary market



Source: NBP.

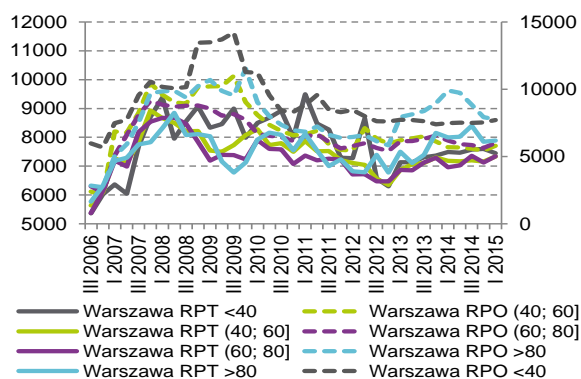
⁴ Data on home prices in the primary and secondary market come from the Residential Real Estate Market Database BaRN and Commercial Real Estate Database BaNK kept by Narodowy Bank Polski. More information about the survey is available at NBP's website: http://www.nbp.pl/home.aspx?f=/publikacje/rynek_nieruchomosci/ankieta.html.

In all the analyzed cities, prices per square meter of housing in the primary market exceeded prices in the secondary market, which was driven by their better quality and the fact that new dwellings were better tailored to buyers' needs ⁵ (see Figures 20-33).

The highest prices per square meter of housing in the major markets (Warszawa, Gdańsk, Gdynia, Kraków, Łódź, Poznań, Wrocław) were recorded in the case of small properties (one-room dwellings with an area of 40 square meters) and large ones (4-room dwellings or large with an area exceeding 80 square meters). In other cities the most expensive dwellings were those with small number of rooms and small area.

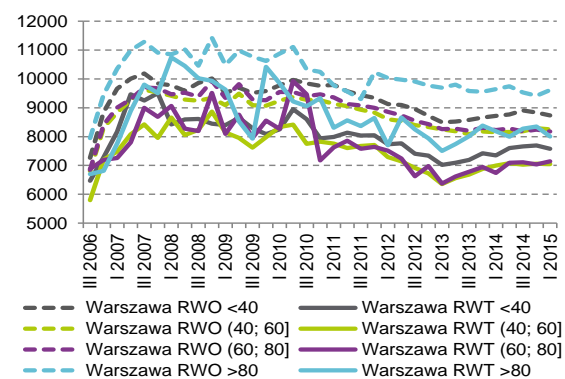
High price of small housing results from the fact that many potential buyers with meagre funds can afford to buy small housing only. Yet, the supply of such housing is limited. On the other hand, the high overall price of large dwellings, despite low price per square meter, limits the number of interested buyers. However, wealthier buyers express considerable interest in large dwellings. In the case of very large dwellings, most markets offer alternative forms of residential property, including terraced houses or detached- and semi-detached houses.

Figure 22 Average offer and transaction prices of housing in Warsaw (PLN/1 square meter) in the primary market; Warsaw primary market < 40 sq. m right-hand axis



Source: NBP.

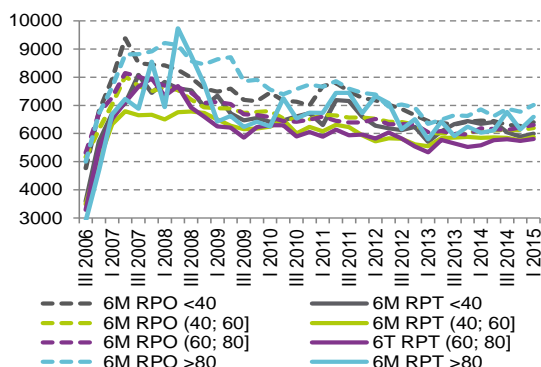
Figure 23 Average offer and transaction prices of housing in Warsaw (PLN/1 square meter of housing) in the secondary market according to the area of housing



Source: NBP.

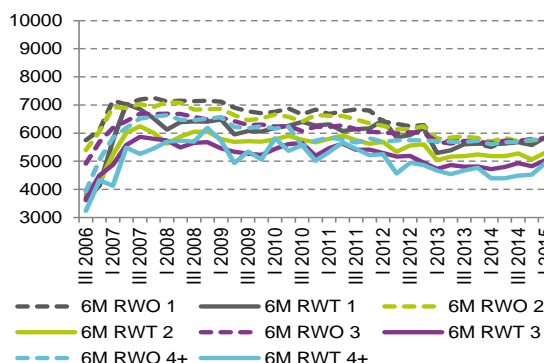
⁵ Total additional costs of the transaction (notary's fees, cost of registration in the Land and Mortgage Register, tax on civil law transactions, real estate broker's fees) are higher in the secondary market, but the time it takes to occupy the housing is shorter. Dwellings in the secondary market are generally better located, are cheaper as a whole, do not require investing any considerable resources to occupy them, do not have garages, but they are readily available. When purchasing a new dwelling from real estate developer the buyer must reckon with the costs of PLN 500-1000 per square meter necessary to finish the housing, depending on the materials used. Additionally, it may take up to two years to occupy the dwelling.

Figure 24 Average home prices in 6M in the primary market, offer and transaction prices according to the area (PLN/square meter)



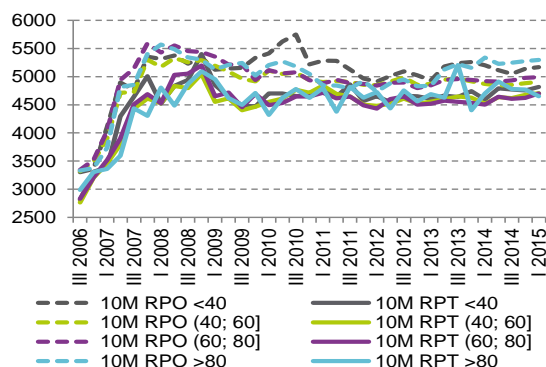
Source: NBP.

Figure 25 Average home prices in 6M in the secondary market, offer and transaction prices according to the area (PLN/square meter)



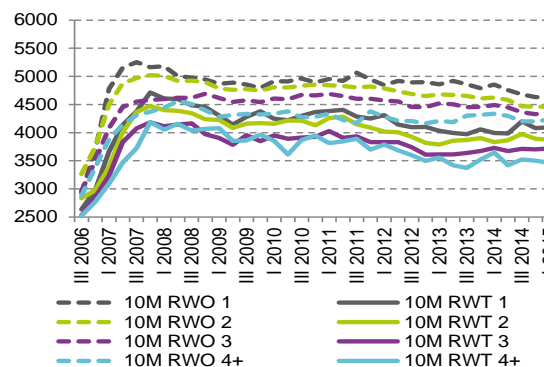
Source: NBP.

Figure 26 Average home prices in 10M in the primary market, offer and transaction prices according to the area (PLN/square meter)



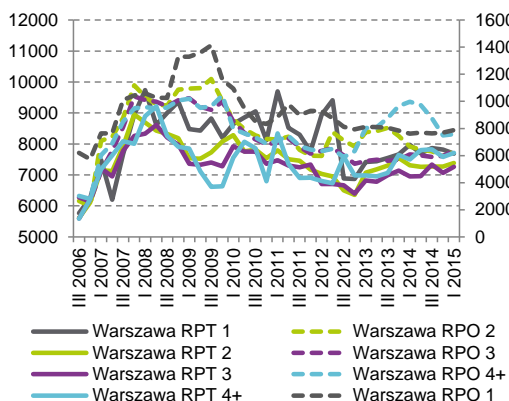
Source: NBP.

Figure 27 Average home prices in 10M in the secondary market, offer and transaction prices according to the area (PLN/square meter)



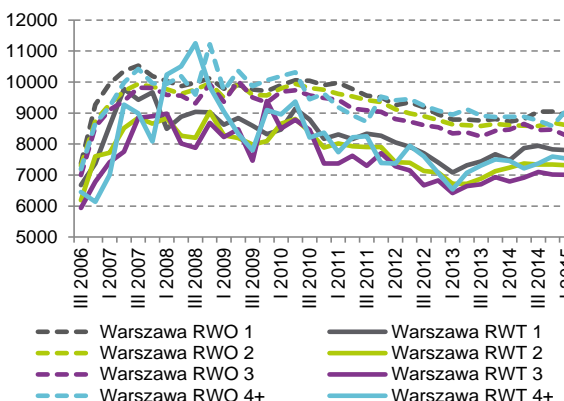
Source: NBP.

Figure 28 Average home prices in Warsaw in the primary market, offer and transaction prices according to the number of rooms (PLN/square meter), Warsaw primary market < 40 sq. m right-hand axis



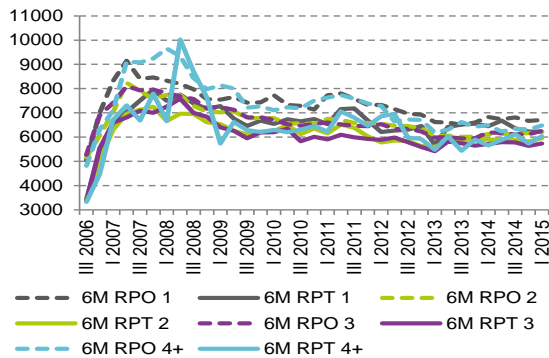
Source: NBP.

Figure 29 Average home prices in Warsaw in the secondary market, offer and transaction prices according to the number of rooms (PLN/square meter)



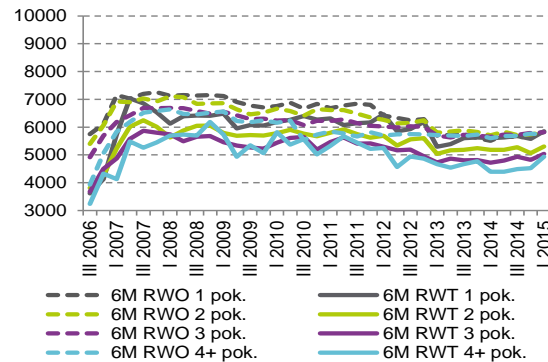
Source: NBP.

Figure 30 Average offer and transaction prices of housing in 6M in the primary market (PLN /1 square meter) according to the number of rooms



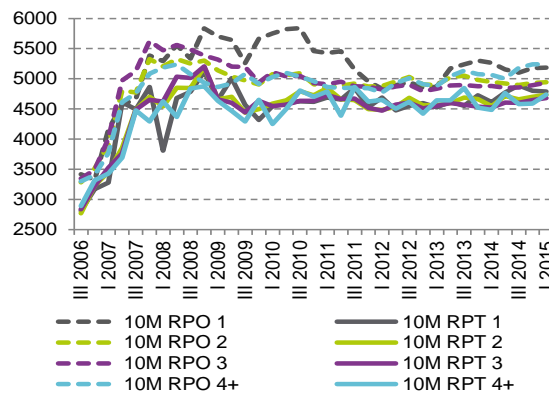
Source: NBP.

Figure 31 Average offer and transaction prices of housing in 6M in the secondary market (PLN/1 square meter)



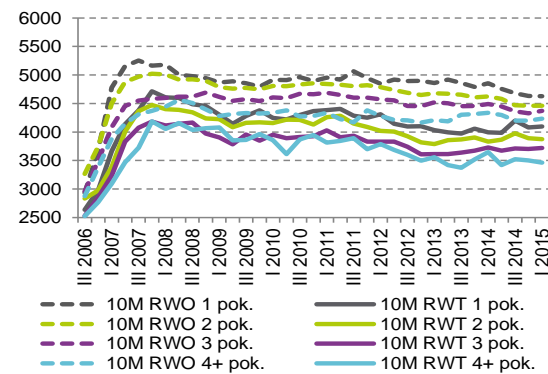
Source: NBP.

Figure 32 Average offer and transaction prices of housing in 10M in the primary market (PLN/1 square meter), according to the number of rooms



Source: NBP.

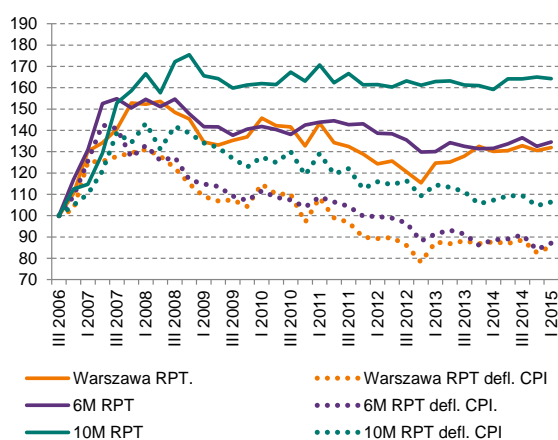
Figure 33 Average offer and transaction prices of housing in 10M in the secondary market (PLN/1 square meter), according to the number of rooms



Source: NBP.

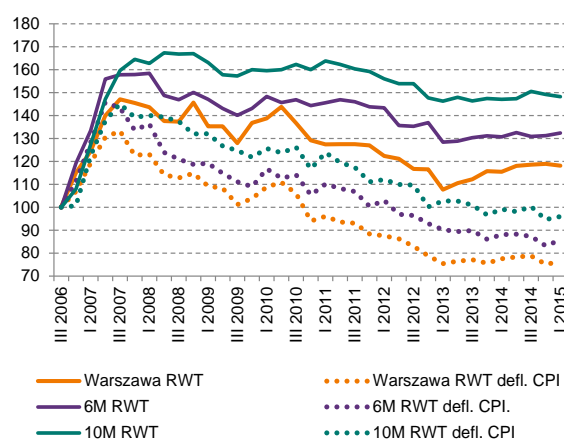
The analysis of home prices in real terms (CIP-deflated prices) in the primary market shows that in Warsaw and in the six cities these prices were lower than those recorded in the period of tensions observed in 2006-2008, while in the ten cities they continued to be slightly higher (see Figure 34). On the other hand, indices of weighted average transaction price for the secondary market, CPI deflated, indicate lower prices in all cities as compared with the prices recorded in the boom period (see Figure 35).

Figure 34 Index of the average weighted transaction price of 1 square meter of housing in the primary market and the real price to CPI (2006 Q3=100)



Source: NBP, GUS.

Figure 35 Index of the average weighted transaction price of 1 square meter of housing in the secondary market and the real price to CPI (2006 Q3=100)



Source: NBP, GUS.

In 2014, the average home rent rates (offer and transaction prices), despite minor fluctuations, showed a stabilization in the ten cities and a slight increase in Warsaw. Higher growth was recorded in the six cities in the second half of the analysed year, mainly due to growing offer prices (see Figure 36). Rent levels in Poland show long-term stability.

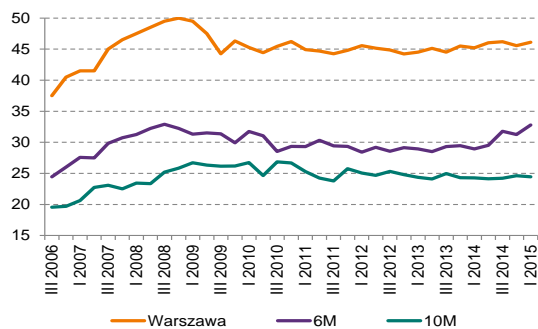
In 2014, the ratio of rates of return on rental to rates of return on 10-year government bonds increased significantly mainly due to declining average government bond yields (Figure 37). The ratio of profitability of investment in rental housing to debt servicing costs has also picked up. This could encourage households to buy homes and finance loan repayments with rent. Declines in interest rates on deposits, amidst stable level of rental rates for leasing residential property boosted the profitability of rental housing purchases, being an alternative to savings in a bank account and for investment purposes.

The deteriorating situation in the commercial real estate market (oversupply of properties, falling rents, growing vacancy rates) and consequently bearish trading of securities issued by those funds caused that profitability of home rental exceeded the rate of return achieved in this market only slightly. The analysis does not take into account, however, the cost of maintenance of the housing stock, the risks associated with renting the premises to unfair tenants and low liquidity of the assets, as well as hindered opportunities for individual consumer's participation in a particular commercial real estate investment project.

The rental market becomes more transparent and moves out of the shadow economy, as evidenced by the growing number of tax returns filed by persons leasing residential property⁶.

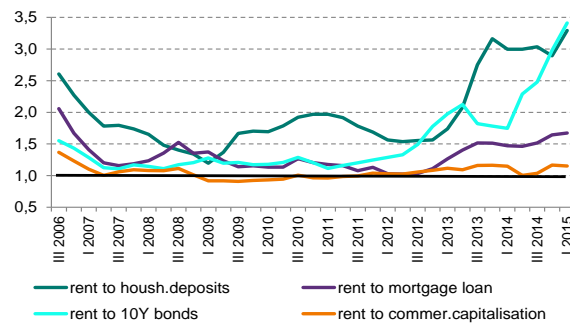
⁶ „According to the „*Information on lump-sum tax on registered revenue for 2014*” published by the Ministry of Finance in 2003 there were 39 thousand, in 2006 108 thousand, in 2012 334 thousand and in 2014 thousand taxpayers.

Figure 36 Average monthly (offer and transaction) home rental rates in Poland (PLN/1 square meter of housing)



Source: NBP.

Figure 37 Ratio of profitability of home rental as compared to other forms of investment



Source: NBP.

Box 1. Analysis of real estate pricing by developers

Compared to construction companies, real estate developers achieve financial results above average, working under very similar conditions. It is confirmed by the analysis of financial statements of large publicly traded companies operating in this sector in various countries (see Łaszek and Olszewski, 2014)⁷. Developers in Poland also report good financial performance, which is confirmed by the analysis of home prices and costs of construction and assembly production. It is estimated that the profitability of developer housing construction projects, measured by internal rate of return (IRR[#]) amounted to approx. 17-18% last year (see Figure 41). It constitutes quite a high value as compared to other sectors of the economy.

The result of a real estate developer company is the effect of costs (the construction process and the company's operations), the leverage effect (relation of equity to external funding, e.g. a loan, contributions of future purchasers, bonds) and the price for which dwellings are sold. Theoretically, the developer market should be competitive, which is fostered by the considerable number of small real estate development companies. However, the relatively high ratio of production concentration in the largest cities (i.e. high share of the largest companies in final production) indicates oligopolistic behaviour. Developers also show the tendency of excessive production of dwellings, which is not compliant with behaviours typical for the monopolized market⁸.

The goods offered by real estate developers, due to the individual character of transactions, the heterogeneous nature of those goods as well as the geographical differentiation of prices, costs, demand and supply, are specific goods, consequently, the residential real estate market is governed by specific rules. Prices of residential real estate are, to a large extent, driven by buyers' preferences. Moreover, dwellings represent goods sold as a result of individual negotiations with the developer. Home seller tries to find out what is the maximum price a client would be ready to pay (the so-called *reservation price*) and offers dwellings at a price adjusted to the purchasing power of the buyer. Due to costs and asymmetry in information, it is difficult for a buyer to verify this price. Real estate developers apply a range of tactics, examine clients' response to various strategies and select those aimed at maximizing the profit. In 1998 Raymond described behaviors of developers selling homes in small batches in order to make an impression of home shortages and distort the

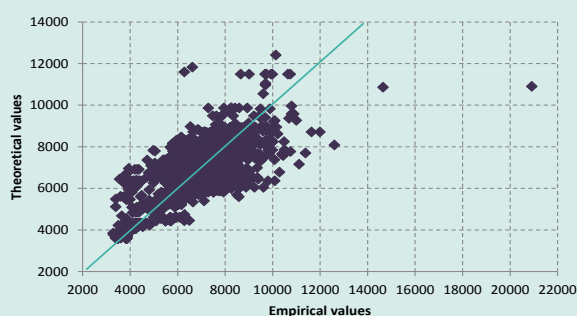
⁷ Łaszek, J. and Olszewski, K. (2014), *Behavior of a real estate development company in the residential market and the aggregated supply*, *Kwartalnik Nauk o Przedsiębiorstwie*(3), pp. 71-87.

⁸ Op. cit.

information concerning market supply. In connection with the analyzed features of residential real estate, there are no arbitrary mechanisms balancing the prices of similar goods in the primary market.

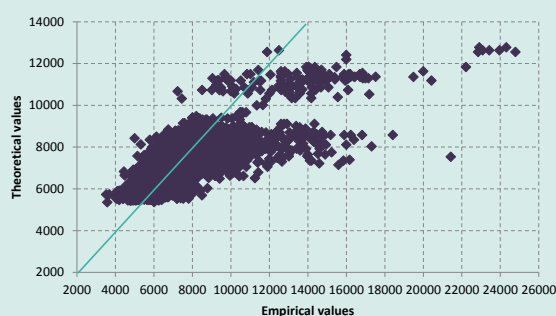
The discussed features of this market show that, to a certain extent, we face the so-called monopoly with product differentiation, i.e. a situation when everyone will pay a price set individually. The monopoly with product differentiation ensures high production and high profits. In the case of housing it is difficult to prove the argument of high profits earned by entities operating in the market since dwellings are heterogeneous, which may be the reason for price diversity. Using the BaRN base, by means of hedonic regression, the value of dwellings was determined based on their prices. Appraisal of dwellings was performed taking into account the set of characteristic features, e.g. location, size, building type, construction year, floor and others. Knowing the price and the appraised value of each dwelling, it is possible to compare them and find out whether there are significant deviations of prices as compared with their value, confirming their differentiation. The graphs below present the appraisal based on the hedonic model (theoretical value) and the empirical value observed on the market, are shown⁹.

Figure 38 Theoretical and real price of sq. m of a dwelling in 2006-2007



Source: own calculations based on the BaRN database

Figure 39 Theoretical and real price of sq. m of a dwelling in 2014



Source: own calculations based on the BaRN database

If the developers did not differentiate prices, the points should be arranged along the $y = x$ line (the market price is equal to the dwelling's appraised value). Points on the right-hand side of this line show dwellings sold at a price higher than their appraised value whereas points on the left-hand side - those sold at a lower price. Points in the graphs create a cloud occurring on both sides of the line, which means that developers sell similar dwellings at various prices. Moreover, in Figure 39, the cloud of points shifts to the right, which means differentiation in prices of more expensive housing, increasing over time.

The empirical survey has shown that the spread between the empirical and the theoretical price occurs, and those differences grow in subsequent periods, confirming the existence of the price differentiation mechanism. The differentiation techniques are more often applied in relation to more expensive housing. Thus, prices are more flexible upwards, i.e. the specific client is offered a more expensive dwelling than it would result from the internal appraisal, whereas the prices are quite sticky down. The understanding of mechanisms of the developer sector requires further observation and practical insight into the sector's functioning.

⁹ Results of the survey were presented at the WIEM 2015 conference (Warsaw International Economic Meeting), organised by the University of Warsaw (*Monopolistic competition, price discrimination and its measurement in explicit markets*, Jacek Łaszek, Krzysztof Olszewski, Joanna Waszczuk).

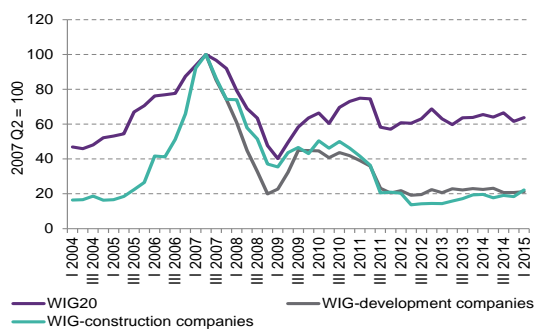
3.1.1.2. Housing supply

In 2014 housing supply dynamically responded to the high demand and plans to introduce additional regulations to protect the developer's client.¹⁰ The high supply in the primary market simultaneously limited the turnover in the secondary market, offering older and poorer quality housing, even if in a better location.

The structure of supply of real estate satisfying housing needs in Poland has been almost stable since the end of the sector transformation at the end of the 1990s. In big cities, developer construction is predominant, whereas investment projects of housing cooperatives are of marginal importance. In medium-sized and small towns and in rural areas, single-family houses dominate, partly self-built. Developer housing is offered both on the primary and on the secondary market¹¹. It is estimated that approximately 50% of transactions are loan-financed which, given the extensive scale of transactions, translates into growing mortgage loan portfolio. Single-family housing development is, to a larger extent, based on own funds and family transfers (houses demonstrate low market liquidity and the loan is only supplementary).

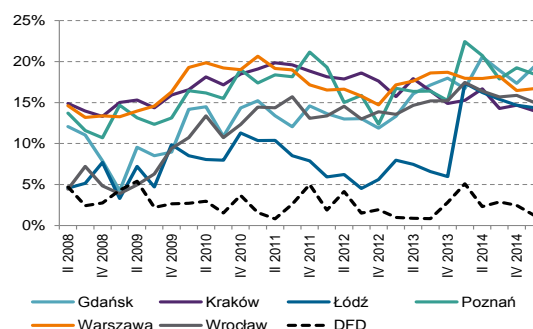
In 2014, the positive demand shock in the housing market had a significant and favourable impact on the situation of real estate developer companies. The uncertainty related to the amendments to the Act on the protection of real estate developers' clients¹² and the persisting considerable stock of unsold housing, had a negative impact. The consequence are the low stock exchange listings of real estate developers which, similar to the previous years, followed stock exchange listings of construction companies (see Figure 40).

Figure 40 Rescaled stock exchange indices: WIG20, and for real estate developer and construction companies (2007 Q2=100)



Source: GPW.

Figure 41 Estimated ROE from housing projects and the reported rate of return (DFD)[#]



Source: NBP, Sekocenbud, GUS.

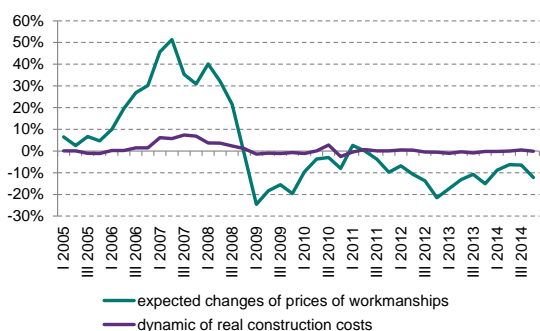
¹⁰ The planned amendment to the Act of 16 September 2011 Act on the protection of home buyers' rights (Journal of Laws 2011 No. 232, item 1377).

¹¹ This refers both to dwellings purchased in the primary market for investment purposes, and later resold, and homes whose sale is enforced. Such dwellings are usually sold in a shell and core standard. Those dwellings are sold in the secondary market since the developer is no more the seller.

¹² The amendments proposed include the removal of the open escrow account from the catalogue of housing escrow accounts and the right granted to purchaser to refuse the acceptance of a real estate due to its material defects.

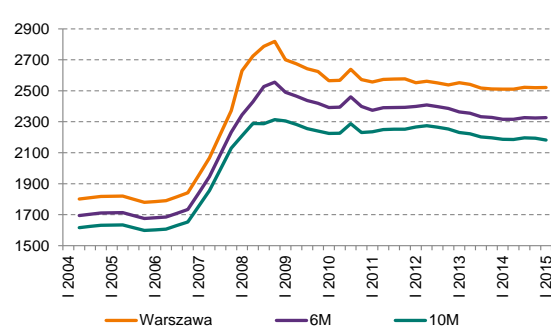
In 2014 the estimated share of profit in the price of developer housing remained at a very favourable, high level, particularly in Warsaw, Wrocław and Gdańsk (see Figure 41), which enabled real estate developers to achieve high return on equity. Stable prices of construction and assembly works, with a minor downward trend, followed the same direction (see Figures 42–43). It was the effect of declining construction and assembly production in the construction of civil engineering structures, driven by the EU financial framework 2007-2013 having come to an end.

Figure 42 Predicted changes in prices of construction and assembly works (+3M[#]) and growth in construction costs of usable area of a residential building (type 1121[#])



Source: NBP based on GUS, Sekocenbud.

Figure 43 Average construction price of sq. m of usable area of a residential building (type 1121[#])



Source: Sekocenbud.

Moreover, a very good adjustment of the structure of offered housing to the demand structure had a positive impact on the condition of real estate developer companies. Demand for small, 1-2 room dwellings dominates the market. Due to their size and low overall price, they are affordable for clients and developers sell them quickly. They may serve both as housing for rental, a family residence for a young family, and as the last home for the retiring generation. This type of dwellings dominated the offer of developers (see Figures 44-45). Developers were also skillfully using the technique of home price differentiation, offering similar dwellings to various clients at different prices (cf. Box 1).

Figure 44 Supply and demand mismatch*; dwellings with an area ≤ 50 sq. m - primary market in selected cities of Poland

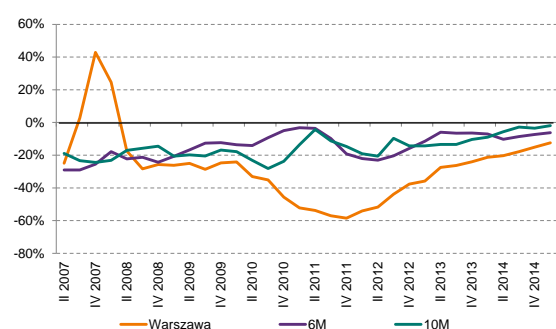
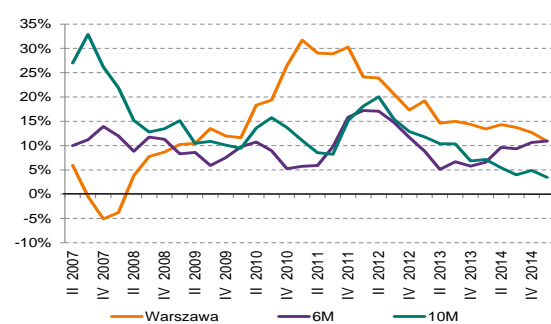


Figure 45 Supply and demand mismatch*; dwellings with an area > 50 sq. m - primary market in selected cities of Poland



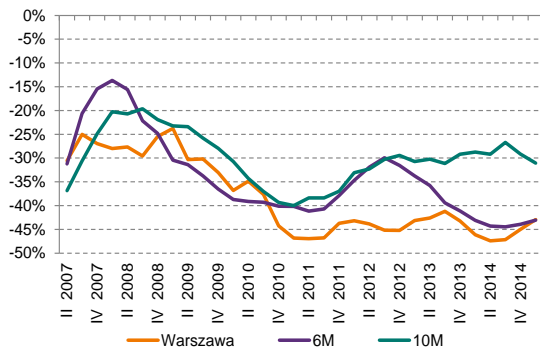
Note: Figure 44 shows the percentage, short-term mismatch between supply (housing offers by real estate developers) and estimated demand (transactions) with regard to the housing unit area in the primary market, according to the data from the BaRN database. The mismatch is measured as the ratio of the share of housing units with a usable area of up to 50 square meters, included in the offer, to the share of the number of

transactions related to housing units with a usable area of up to 50 square meters (average for the last four quarters).

A positive result (above the black line) indicates the surplus of housing units up to 50 square meters, a negative result - their deficit. The method used for creating Figures 45-47 is analogical to the method described above.

Source: NBP.

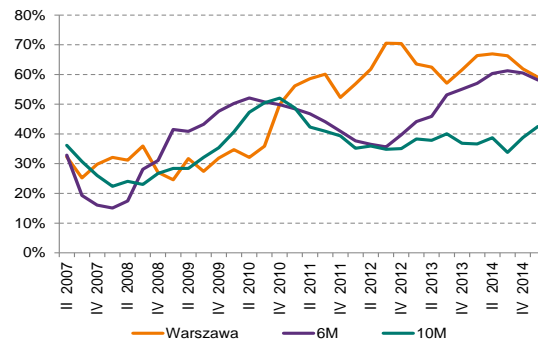
Figure 46 Supply and demand mismatch*; dwellings with an area ≤ 50 sq. m - secondary market in selected cities of Poland



Source: NBP.

Source: NBP.

Figure 47 Supply and demand mismatch*; dwellings with an area > 50 sq. m - secondary market in selected cities of Poland



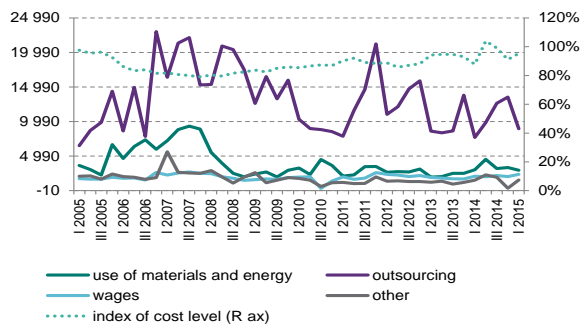
Source: NBP.

Real estate development companies were increasing their involvement in new investment projects and the temporary decline in financial performance recorded at the beginning of 2014 was certainly associated with the costs of launching projects. Both own costs of those companies and costs of third party construction and assembly services remained stable (see Figure 48).

In 2014 approx. 143 thousand housing units were completed, i.e. by approx. 1.8 thousand housing units less than in 2013, however, historically, this number was still high (cf. Figure 12). On the other hand, the number of newly commenced housing projects was higher by 20.7 thousand as compared to the previous year (growth by 16.3% year-on-year). If this upward trend continues, in two years more dwellings will appear on the market. In 2014 the number of issued building permits for housing construction was higher by 18.0 thousand than the number recorded in the previous year (growth by 13% year-on-year, see Figure 13).

As a consequence of the improving condition of companies, the share of non-performing loans started to fall (see Figure 49). The level of lending remained stable whereas the growth in housing production was financed by increasing, high share of equity (see Figure 51). The share of debt securities (developer bonds) common in the capital market is also significant.

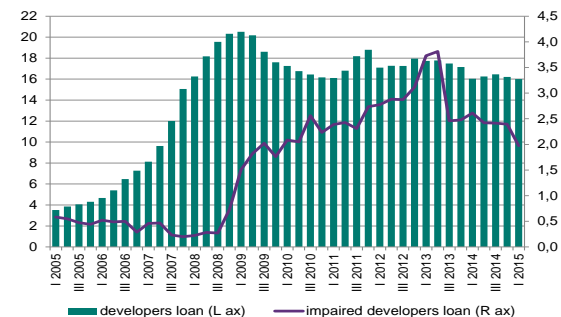
Figure 48 Costs of the average DFD#



Note to Figure 49: companies whose receivables were classified by banks as impaired loans (it refers only to large exposures, i.e. over PLN 500 thousand); starting from 2013 Q3, besides the minor decrease in the share of indebted companies the data may differ from the previous data due to changes in the reporting of large exposures. Exclusive of BGK.

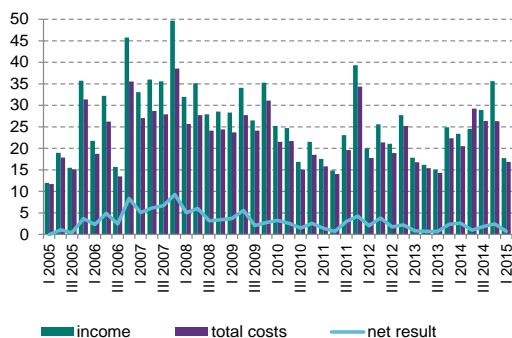
Source: NBP based on GUS (F01).

Figure 49 Value of developers' debt (in PLN billion, left-hand axis) and debt of real estate developer companies with financial problems (in PLN billion, right-hand axis)



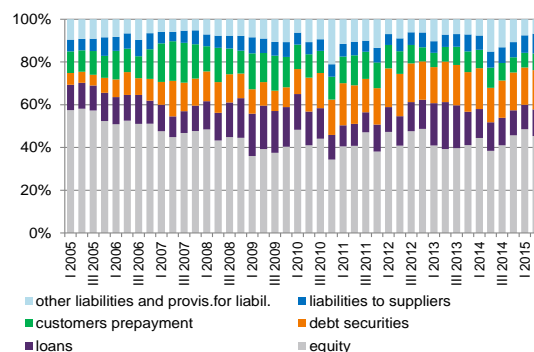
Source: NBP.

Figure 50 Economic indicators of DFD# (in PLN billion)



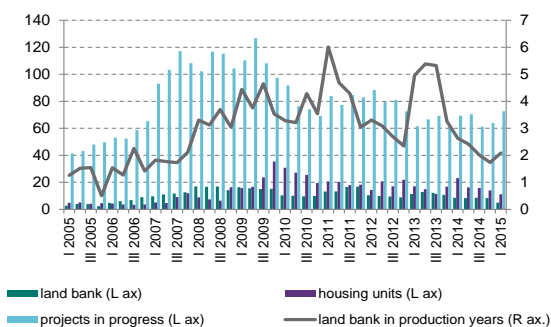
Source: NBP based on GUS (F01).

Figure 51 Liabilities of DFD (in %)



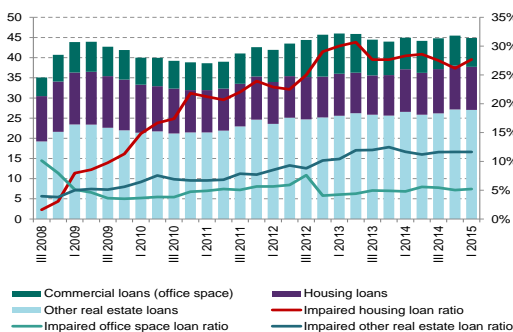
Source: NBP based on GUS (F01).

Figure 52 Situation of DFD# (in PLN million, left-hand axis; production years, right-hand axis)



Source: NBP based on GUS (F01).

Figure 53 Real estate loans for enterprises (in PLN billion, left-hand axis) and impaired loan ratio (in %, right-hand axis)



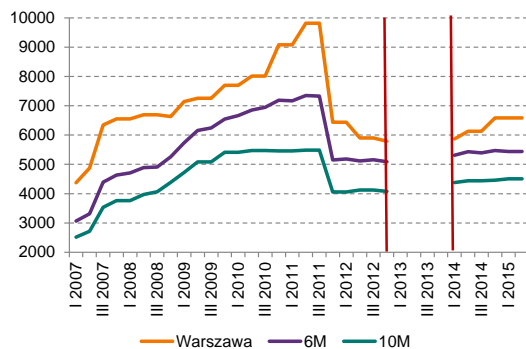
Note: Exclusive of BGK. The impaired loan ratios are calculated on the basis of gross loans.

Source: NBP.

The government-subsidized housing scheme MDM[#] (Housing for the Young) had a positive impact on the financial situation of the developer sector. In 2014, under this support programme, over 13.6 thousand of loans were granted for the total amount of PLN 316.6 million, whereas loan applications referred to four consecutive years. According to the information provided by BGK out of PLN 600.0 million being the maximum limit of funds planned to be granted as financial support, in 2014 the amount of PLN 200.7 million, i.e. 34.5% was effectively used.

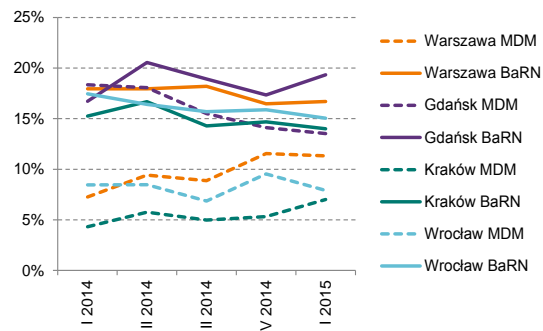
In the analysed period, the MDM programme supported only borrowers buying developer housing, i.e. exclusive of the secondary market. Originally, the programme was targeted at less expensive dwellings for households that cannot afford home ownership under market conditions. It was initially successful, which is confirmed by lower than average rates of return achieved for such dwellings (see Figure 55). Yet, already during the programme implementation the prices of eligible housing were systematically increased. As a result, at the beginning of 2015 price caps were set (see Figure 54) that were comparable to the average prices in the largest cities. As the programme did not include the income criterion which would the access to subsidies by more affluent families that could afford to buy a house without the state's aid, the social programme changed into the programme supporting developer construction.

Figure 54 Price caps of 1 sq. m of housing in the primary market in the governmental subsidies scheme in Poland's largest cities



Source: NBP.

Figure 55 Estimated rates of return achieved for housing under the MDM scheme

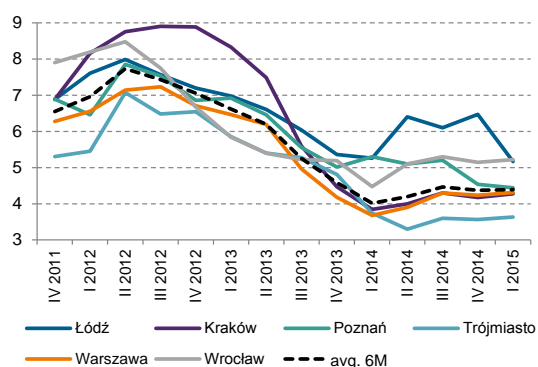


Source: NBP.

Although the MDM scheme did not follow-up the previously implemented *Family on their own* (RNS) scheme, the same method was used in calculating eligible housing prices. In formal terms, they were based on the so-called replacement value¹³, i.e. production costs. In practice, this category was based on costs combined with the market value, without indicating the prevailing formula. This meant considerable discretion in determining the indicator in individual cities and, as a consequence, various scale of subsidizing real estate developers (see Figure 54). Besides the MDM programme, BGK launched home purchases under the Fund of Rental Housing scheme¹⁴, which generated additional demand, yet quite insignificant.

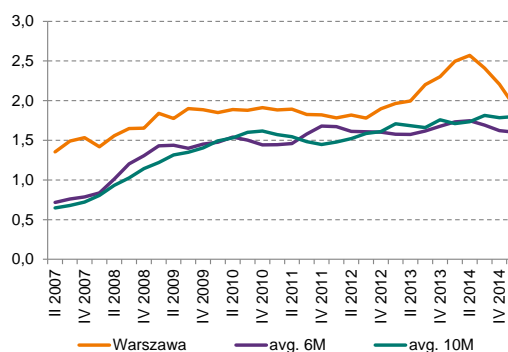
As a result of the cumulative effect of the analyzed factors, despite the significant stock of unsold dwellings, the average home selling time in the primary market slightly extended (see Figure 56),

Figure 56 Selling time of dwellings on offer in the primary market in selected cities (number of quarters)



Source: REAS.

Figure 57 Selling time of dwellings on offer in the secondary market in selected cities (number of quarters)



Note: real data, 4-quarter average. Data non-comparable with Figure 56.

Source: NBP.

whereas the secondary market has seen for many years a minor, although systematic growth in home selling time (see Figure 57). In the Warsaw market, home sellers in the period 2012 Q2-2014 Q2 expected to gain prices recorded in the period of tensions, and in the second half of 2014 the number of purchasers increased, consequently shortening the selling time slightly.

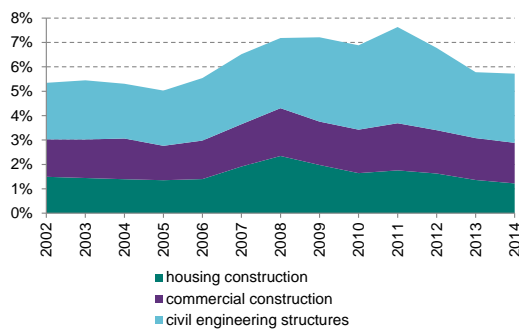
13 The aforementioned indicator is determined by means of a voivode's communication, published every 6 months in the Official Journal of a given voivodship, separately for individual districts, based on the current data of the statistical office, broken down into districts, and based on own analyses.

14 The Fund of Rental Housing (FMnW) is a commercial project of Bank Gospodarstwa Krajowego (BGK). This initiative is fully implemented under market rules, pursuant to the Act on investment funds. BGK established two companies: BGK Nieruchomości (BGK Real Estate) and TFI BGK (BGK Investment Fund Company) for the purpose of implementation of goals under this project. At present, BGK Nieruchomości S.A. is working on further projects related to the purchase of real estate located in the largest agglomerations: Warsaw, Tri-City Agglomeration of Gdańsk, Sopot and Gdynia, Kraków, Wrocław, Łódź, Poznań and Silesia. The projects are concern the purchase of buildings to be completed in 2015-2017. According to the information of the Fund of Rental Housing, so far two housing investment projects have been introduced under the scheme: in Poznań (approx. 100 housing units) and in Piaseczno (approx. 122 housing units).

In some European countries (e.g. Ireland, Spain) the share of housing construction in GDP and the related share in employment exceeded 12%, generating considerable economic problems during the slowdown in this sector. In Poland, the share of production of the overall construction recognized as gross capital expenditure remained stable and amounted to approx. 5.7% of GDP (see Figure 58), whereas gross housing investment decreased by 0.2 percentage points, as compared to 2013, amounting to approx. 1.2% of GDP. Developer investment accounted for approx. 50% of this value. As a result of long life of the housing stock, the actual depletion of the housing stock in Poland accounts for 0.02% of the housing stock (average for 2005-2013), whereas its actual long-term depreciation rate may be estimated at approx. 0.3 - 0.5% per year. Considering the above data, we estimate that net housing investment constitutes less than 1% of GDP and developer investment 0.2 – 0.3% of GDP.

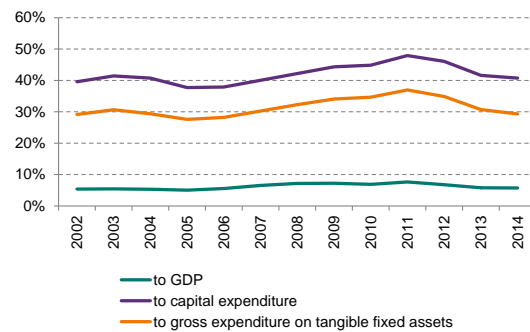
The share of this sector in employment is close to its share in GDP. In 2014 investment in construction made approximately 40% of gross capital expenditure whereas housing investment - only 8.5%, including developer investment at a level of slightly over 4%.

Figure 58 Structure of housing production in Poland against GDP



Source: NBP estimates based on GUS.

Figure 59 Ratios of investment in housing construction in Poland



Source: NBP estimates based on GUS.

The analysed developments can be synthetically demonstrated in the form of a flow model in the housing market. In this model, a real estate development enterprise responds to the level of demand and profit growth. Prices result from the supply-demand relationship as well as from historical prices. The demand is a function of changes in household income and interest rates whereas costs respond to changes in production size (see Box 2).

Box 2. Updated model of disequilibrium analysis in the primary housing market¹⁵

For the analysis of behaviours in the housing market, NBP analysts applied the model based on four equations describing supply, demand, transaction prices and costs of construction in the primary market. The model is the extension of the original model, taking into account the delays observed on the market and it contains a more expanded supply part.

15 The updated and abridged version of the article "Housing market cycles – a disequilibrium model and its calibration to the Warsaw housing market" presented in the Annual Report for 2012.

The analytical record of the four-equation model is presented below:

$$LHD_t = \alpha_1 + \alpha_2 * LP_t + \alpha_3 * D(LP_t) + \alpha_4 * Intrate_t + \alpha_5 * LIncome_t + \epsilon_t \quad (1)$$

$$LHS_t = \beta_1 + \beta_2 * D(LP_{t-4}) + \beta_3 * D(LPC_{t-4}) + \beta_4 * Intrate_{t-4} + \beta_5 * LHD_{t-4} + \epsilon_t \quad (2)$$

$$D(LP_t) = \vartheta_1 + \vartheta_2 * D(LP_{t-1}) + \vartheta_3 * (LHS_{t-1} - LHD_{t-1}) + PS + \epsilon_t \quad (3)$$

$$D(LPC_t) = \rho_1 + \rho_2 * D(LPC_{t-1}) + \rho_3 * D(LHS_{t-1}) + \epsilon_t \quad (4)$$

The models were estimated based on quarterly data describing the situation in the Warsaw residential real estate market, by estimating all equations simultaneously. Home prices (P_t) are derived from the NBP database (BaRN). The number of dwellings sold and offered (HD_t , HS_t) on the market is derived from REAS# statistics. Sekocenbud# was the source of information on production costs (PC_t). Data describing the level of wages in the enterprise sector come from GUS ($Income_t$), whereas the interest rate ($Intrate_t$) was derived from NBP data. The PS zero-one variable means a price shock; this variable takes a value of 1 in the period 2005-2006, for the remaining periods - 0 value. The natural logarithm of numbers is designated as L , D means increases whereas $t-i$ means the delay in time by i quarters.

Figure R1 Demand, empirical and theoretical value (caret).

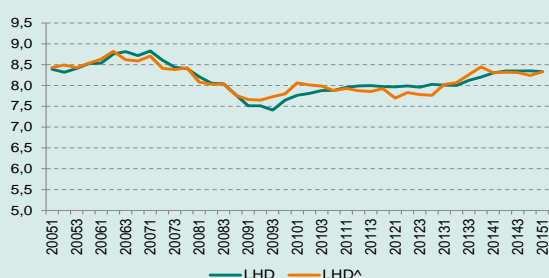


Figure R2 Supply, empirical and theoretical value (caret).

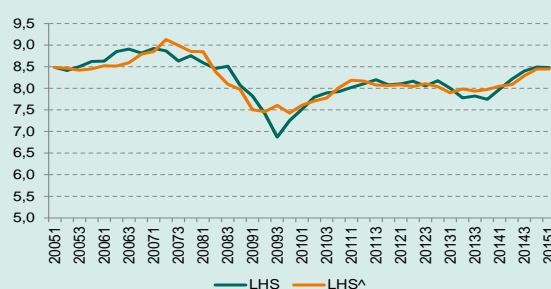


Figure R3 Price growth, empirical and theoretical value (caret).

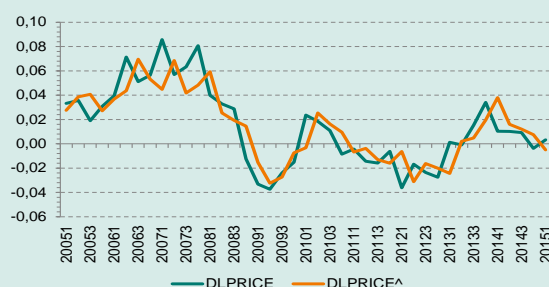
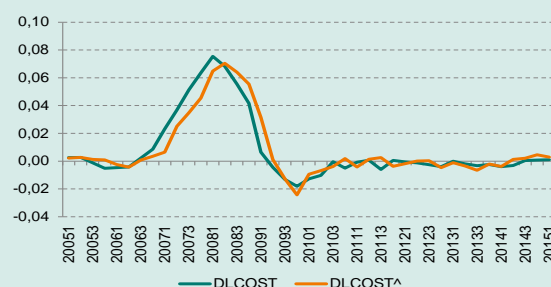


Figure R1 Growth of production costs, empirical and theoretical value (caret).



Source: NBP.

Table 1. Results of regression models of aggregated supply, demand, prices and production costs.

	LHD _t	LHS _t	D(LP _t)	D(LPC _t)
LP _t	-0.908*** (0.162)			
D(LP _t)	7.690*** (0,984)			
D(LP _{t-1})			0.811*** 0.088	

D(LP _{t-4})		4.340 ** (2.057)		
Intrate _t	-14.641*** (4.035)			
Intrate _{t-4}		-7.390 (5.384)		
LIncome _t	1.268*** (0.260)			
D(LPC _{t-1})				0.978*** (0.053)
D(LPC _{t-4})		-12.585*** (1.639)		
D(LHS _{t-1})				0.021*** (0.006)
LHS _{t-1} – LHD _{t-1}			-0.021* (0.012)	
LHD _{t-4}		0.663*** (0.168)		
PS			0.013* (0.007)	
C	6.926*** (1.859)	3.237 ** (1.457)	0.001 (0.003)	0.0001 (0.001)
Adjusted R ²	0.82	0.78	0.71	0.89

Standard errors in brackets, symbols ***, **, * mean statistical significance at a level of: 1%, 5% and 10%.

In particular, supply reacts not only to price increases but also to sales increases in the preceding period. Currently, stable prices are observed in the market and the supply is growing, which means that developers extrapolate not only prices but also sales based on their past market observations. Supply also depends on delayed production costs and interest rates. The model shows that demand is, to a large extent, determined by wages, interest rates as well as prices and their increases. Production costs are determined by their past realization and the delayed supply, whereas prices depend on their past values and the mismatch between supply and demand.

The results of the model allow for concluding that the market which observed strong turbulences in 2008 and 2009, is now very stable. The supply meets the expectations of the demand which enables the closing of a large number of transactions under stable prices and construction costs.

3.1.1.3. Housing demand

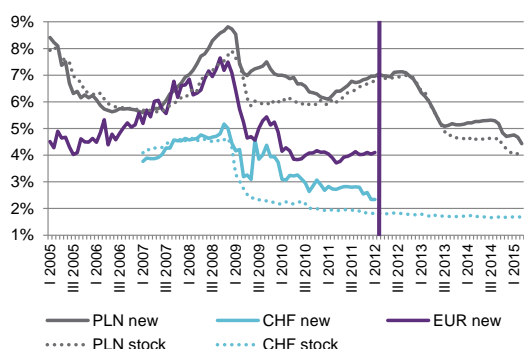
The continuing high level of housing demand (measured by the number of transactions) in 2014 was the consequence of the historically low interest rates being maintained and growth in household income. The government's housing policy, including the launch of the MDM[#] scheme¹⁶ also had a positive, although minor impact. Under this scheme, grant-type subsidies were launched¹⁷ for persons aged up to 35 purchasing their first dwelling in the primary market.

¹⁶ The provisions of the Act of 27 September 2013 on state aid in the purchase of the first housing by the young (Journal of Laws of 2013 item 1304) entered into force on 1 January 2014.

¹⁷ Partial amortisation of the loan.

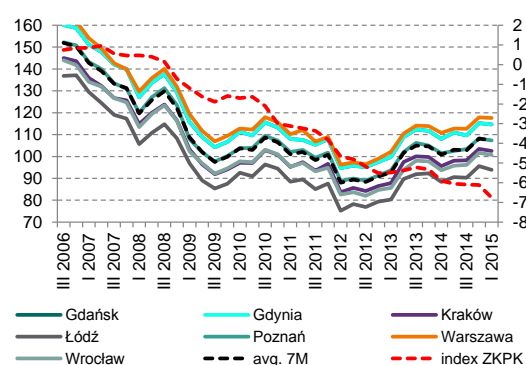
Interest rates on mortgage loans in 2014 and in 2015 Q1 reached historic lows, exerting a positive impact on creditworthiness of households. The growth of household real income, higher than the real interest rate paid on loans, led to a reduction of the share of loan repayments in the average household budget. These phenomena were favourable for borrowers and encouraged them to use bank financing (see Figure 60). As a consequence, at the end of 2014 a marked increase in loan availability (see Figure 61) and availability of loan-financed housing was observed (see Figure 62).

Figure 60 Nominal interest rate on mortgage loans



Source: NBP.

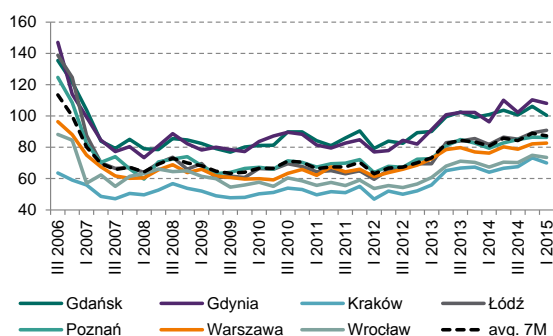
Figure 61 Available weighted mortgage loan# (left-hand axis) + ZKPK (right-hand axis)



Note: weighting the increase in housing loan to households with the currency structure (since the beginning of 2012 practically only PLN denominated loans were extended); ZKPK - accumulated index of changes in banks' lending policy criteria.

Source: NBP.

Figure 62 Availability of loan-financed housing#



Source: NBP.

As a result of the impact of the factors discussed above, housing markets of the biggest cities in Poland saw a significant acceleration in developer housing purchases (see Figure 15) financed both with loans and with purchasers' own funds (see Table 2). However, the scale of disbursements from bank deposits for this purpose cannot be captured statistically in the aggregated financial flows in the national economy and it can be only estimated based on the data derived from the housing market.

Table 2 Estimated gross housing loan disbursements to households in Poland and estimated purchase of developer housing financed both with cash and with loans in the seven largest markets (in PLN million)

Date	Estimated housing loan disbursements in Poland	Estimated value of housing transactions in the primary market in 7 cities	Estimated disbursements of loans with own contribution for housing purchase in the primary market in 7 cities	Estimated housing purchases financed by cash in the primary market in 7 cities	Estimated share of housing purchases financed by cash in the primary market in 7 cities
2012	5,385	2,726	922	1,804	0.66
2012	7,325	2,783	1,254	1,529	0.55
2012	7,661	2,510	1,312	1,198	0.48
2012	7,441	2,839	1,274	1,565	0.55
2013	6,295	2,610	1,121	1,489	0.57
2013	7,867	2,899	1,428	1,471	0.51
2013	9,140	3,438	1,690	1,747	0.51
2013	9,084	3,947	1,773	2,173	0.55
2014	7,571	3,971	1,478	2,494	0.63
2014	8,899	3,779	1,737	2,042	0.54
2014	8,894	3,838	1,736	2,102	0.55
2014	8,029	4,052	1,567	2,485	0.61
2015	7,451	4,199	1,454	2,745	0.65

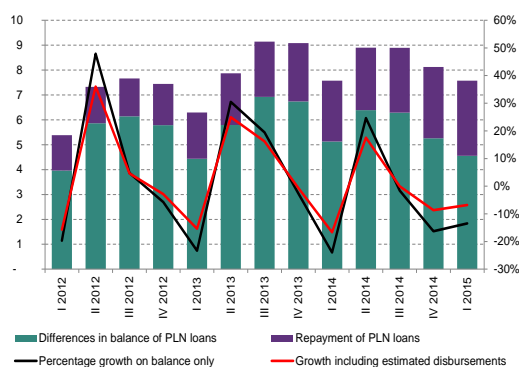
Note: the estimates are based on the following assumptions: the estimate of newly granted loans in Poland in individual quarters was based on the increases in the balance of loans for households, adjusted with loan amortization and flows between the foreign currency and PLN portfolio, available in NBP reporting. The whole banking system and credit unions were taken into account. The estimated value of the primary market of 7 cities (Gdańsk, Gdynia, Kraków, Łódź, Poznań, Warsaw, Wrocław) was calculated by multiplying the average dwelling price by its average size in sq. m and the number of dwellings sold (based on the REAS company data). On the basis of ZBP data it was assumed that the value of newly granted loans for home purchases in the primary markets of 7 cities in 2012 accounted for 50% of the value of housing loans in those cities, whereas at the end of 2013 this share amounted to approx. 57%. The estimated value of cash transactions constitutes the difference in the value of transactions in the market of 7 cities and loan disbursements, including own contribution. 7 cities: Gdańsk, Gdynia, Kraków, Łódź, Poznań, Warsaw, Wrocław.

Source: NBP based on REAS, GUS, ZBP data.

In Poland, similarly to developed countries, the residential real estate sector is closely related with the financial sector which, to a large extent, funds the purchase and construction of dwellings. Mortgage loan debt in Poland is lower than the European average, yet, it continues to grow steadily, becoming a significant risk element for the stability of the banking sector.

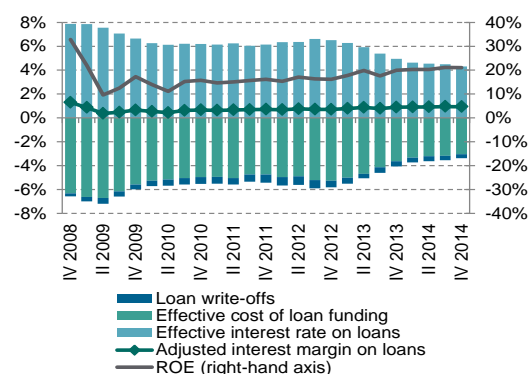
The analysis shows that the proportions in the financing of growing housing residential construction have changed (housing loan vs. own funds). The balance of housing loans continued to show increases due to their long-term nature and low principal instalment, although lending in foreign currency practically ceased. Growth in lending was positive and stable (see Figure 63). Similar conclusions can be drawn after the analysis of the statistical value of newly signed loan agreements in the banking sector (see Figure 69).

Figure 63 Estimated loan disbursements (in PLN billion, left-hand axis) and lending growth in 2012 – 2015 (right-hand axis)



Source: NBP.

Figure 64 Estimated profitability of PLN denominated housing loans for banks in Poland



Source: NBP.

We estimate that lending in PLN continues to be profitable for banks (see Figure 64). Banks compensated declining interest rates on housing loans with higher margins on newly granted loans which, however, constituted only a fraction of the whole loan portfolio. The stable size of lending probably results from tightened lending policy¹⁸ and the experience with Swiss franc denominated loans, especially in January 2015.

The situation of banks crediting housing in Swiss francs and the conditions of many borrowers from this group changed significantly in 2015 Q1. On 15 January 2015 the Swiss National Bank decided to discontinue the minimum exchange rate of CHF 1.20 per euro. The decision resulted in the rapid growth of the CHF/EUR exchange rate as well as the PLN/CHF exchange rate which reached as much as PLN 5 on 16 January. Consequently, the value of CHF denominated housing loans increased significantly and growth in loan servicing costs for borrowers was observed. Household debt resulting from housing loans increased as a consequence of disbursements of PLN denominated loans and, primarily, the increase in the value of FX housing loans due to the significant growth of PLN/CHF exchange rate. Numerous ideas concerning the aid to borrowers of CHF denominated loans were considered.

In 2014 banks tightened their prudential policy which had the opposite effect to interest rate cuts.

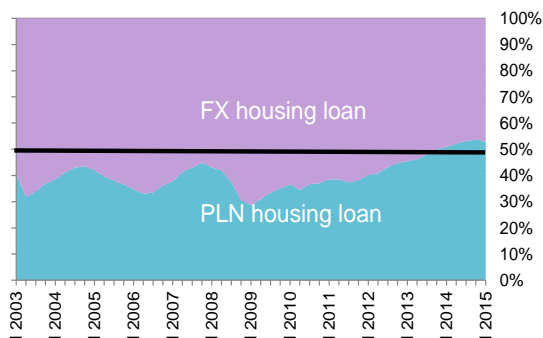
This is confirmed both by the aggregate index of changes in banks' lending policy recorded by NBP, empirical observations as well as banking regulations already introduced and those scheduled for adoption. The major problem of the Polish banking sector, associated with residential real estate, is the high share of foreign currency loans. Since 2012 banks have extended practically no new FX denominated loans. In accordance with the provisions of S Recommendation, since June 2013 the range of potential borrowers has been limited to persons receiving permanent remuneration in a given currency and the share of borrower's own

¹⁸ Tightening of LTV requirements in consecutive years (S Recommendation).

contribution is systematically increased¹⁹. As a consequence, the balance of FX housing loan portfolio, in particular, its share in the total housing loan portfolio started to decrease systematically (see Figure 65). Although the implementation of the EU directive on credit agreements for consumers relating to residential immovable property will strengthen the borrower's position towards the bank, it will simultaneously increase credit costs and increase lending restrictions. This process should be seen as a positive one as the introduction of good standards and practices of lending. It means, however, that it will not be possible to substitute the social function of providing housing with cheap and easily available loans, and this function will become principally the state's obligation.

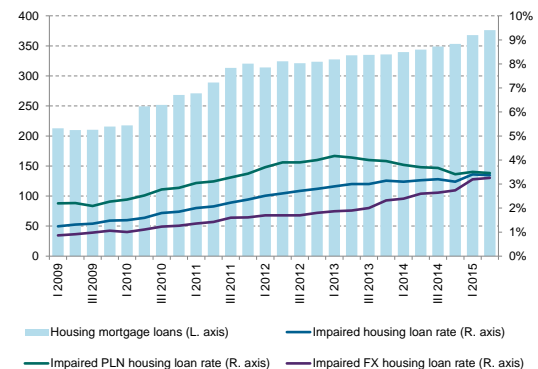
Low interest rate means smaller repayments of the interest portion of the loan, which is especially important in the case of long-term loan with low principal instalments. In 2014 the quality of loan portfolio was stable (see Figure 66), and the share of non-performing loans slightly exceeded 3%.

Figure 65 Foreign currency structure of the housing loan portfolio in Poland



Source: NBP.

Figure 66 Quality of the housing loan portfolio in Poland



Source: NBP.

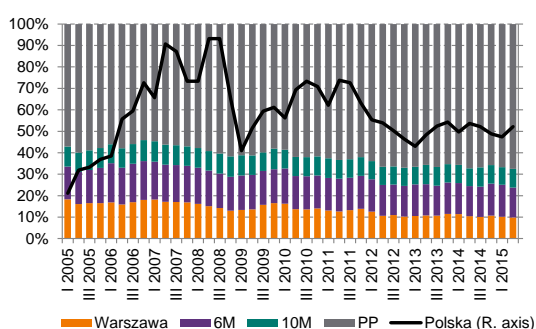
In Poland, the development of the housing market and the financial sector was accompanied by growing long-term household debt resulting from mortgage loans. In 2014 mortgage debt of households, reached the level of approx. PLN 350.6 billion in 2014. It accounts for approx. 22.9% of financial sector assets and approx. 1.5% of the estimated value of the housing stock. This growth may be defined as the phenomenon of addressing structural disproportions. The indebtedness of the housing stock in Poland continues to grow, however, it is still relatively low, in particular, in relation to household consumption (approx. 34.3% of GDP). Debt servicing costs, in relation to the income of all households, are also rather insignificant (approx. 1.7%) and the changes in interest rates have a limited impact on the remaining consumption (see Figure 68)²⁰.

¹⁹ As of 1 June 2015 the minimum own contribution required under the S Recommendation is 10%, whereas as of 1 January 2016 - it will amount to 15%.

²⁰ However, the lack of detailed data on borrowers makes it impossible to conduct of an in-depth analysis. As a result, we use approximate data, including the reference to Consumption in the national economy.

In 2014, long-term changes in the geographical distribution structure of new loan agreements continued. Consequently, the share of Warsaw was on the decline in favour of the remaining part of Poland (suburban zones, smaller towns and rural areas). Typical housing loans with a high LTV ratio (i.e. above 80%), are concentrated in the area of big cities, constituting approx. 50% of the portfolio of such loans²¹. Housing loans in the remaining part of the country are usually smaller loans supplementing own funds for the purchase of building materials or dwellings in the secondary market (cf. Figure 67).

Figure 67 Structure of the new housing loan value Poland (right-hand axis in billions)



Source: NBP based on BIK.

Figure 68 Repayments of housing loans



Source: NBP, GUS.

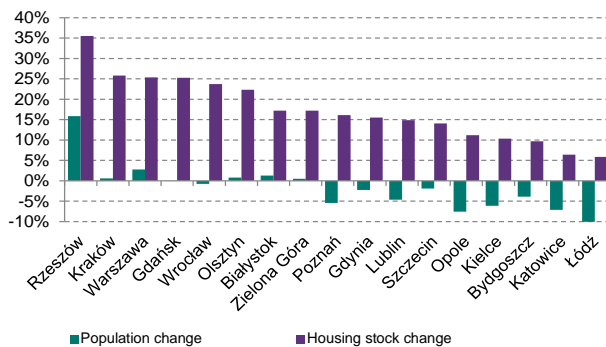
At present, housing loans in Poland constitute 250% of banks' equity, and the quality of these loans and changing situation in the housing sector are significant factors affecting the safety of the banking sector.

In the period under discussion, the housing situation in Poland's 16 largest cities analysed in the BaRN survey²² was improving. This was supported by a large number of newly constructed dwellings, insignificant scale of demolitions of old dwellings and diminishing population in some cities due to emigration abroad. However, growth in the housing stock was definitely more important than migrations (cf. Figure 69).

²¹ In accordance with the *National report on housing loans and transaction prices of real estate; AMRON-SARFIN 4/2014* (report no. 22 of Polish Bank Association).

²² The detailed analysis of the housing situation in Poland's 16 cities is presented in the chapter on *"Convergence and differentiation processes in local markets and structural changes - comparison of 16 property markets in Poland"* as well as in the analyses of individual cities.

Figure 69 Changes in the housing stock and population figures in Poland in 2002–2014



Note: The administrative boundaries of the city of Rzeszów were expanded.

Source: GUS.

Box 3. Analysis of the relationship between the housing stock and the condition of the economy in the EU

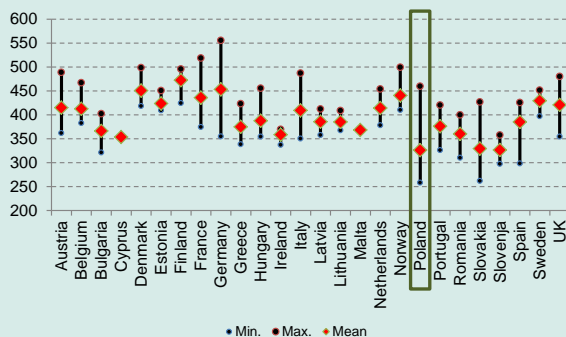
In order to examine the relationship between the housing stock with the basic macroeconomic variables, an empirical analysis was conducted, comprising the total of 1421 European regions²³, compliant with the NUTS 3 classification²⁴. It shows that, on average, there are 340 inhabited housing units per 1000 inhabitants in Europe. The number of housing units grows when a region is wealthier than the EU average (measured by GDP per capita), it also grows with the urbanisation ratio. In Southern European countries there are on average 10 housing units less, and the countries of Central and Eastern Europe report even 51 housing units less per 1000 inhabitants than the average in the sample. The unemployment rate has an adverse impact on the number of housing units per 1000 inhabitants.

It should be emphasized that the number of housing units changes very slowly (due to new construction and demolition of old units), as compared to changes in GDP or unemployment, yet, this analysis does show certain long-term correlations. It also demonstrates that even if the current GDP level in countries of Central and Eastern Europe is taken into account, practically one sixth of housing units is missing. This explains why in Poland, or, e.g. in Hungary, purchasers reported high demand for own flats, incurring risky loans denominated in foreign currency. The survey also shows that differences within a country are also significant. For example, in Poland the housing situation in some big cities is better than it would result from GDP, and Warsaw is among the EU leaders.

²³ The survey of the number of dwellings and homes per 1000 inhabitants was conducted on the 2011 Eurostat data concerning European regions. In the analysis, regional factors were taken into account, i.e. income of the region measured as the region's GDP per capita ratio to the EU average and factors related to the overall economy. Such factors include the share of urban population, the unemployment rate and two zero-one variables describing whether a country belongs to the Central and Eastern Europe or Southern Europe.

²⁴ Nomenclature of the Territorial Units for Statistics, whereas a NUTS3 unit has from 150 to 800 thousand inhabitants.

Figure 70 Number of housing units per 1000 inhabitants in European countries, average, minimum and maximum of individual NUTS3 regions of those states



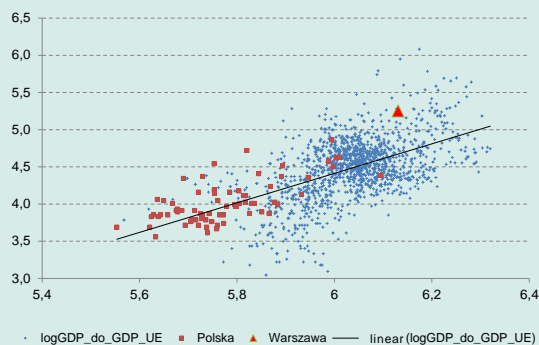
Note: Differentiation in regions of individual countries is related to income diversification in such regions. In Cyprus and Malta there is only one region. Source: Eurostat.

Figure 72 Estimation result of dwelling number factors per 1000 inhabitants in NUTS3 regions in Europe

Variable	Coefficient	Standard error
Region's GDP to EU average	0.33	0.02
Unemployment rate	-2.09	0.31
Share of urban population	0.94	0.11
Central and Eastern Europe	-51.23	3.78
Southern Europe	-9.529	3.50
Constant	339.87	8.89
R ² =0.49		

Source: NBP.

Figure 71 Number of housing units per 1000 inhabitants in NUTS3 regions in Europe (horizontal axis), in relation to GDP of a region to EU average, (data in logarithms; vertical axis)



Source: NBP.

3.1.2. The commercial real estate market

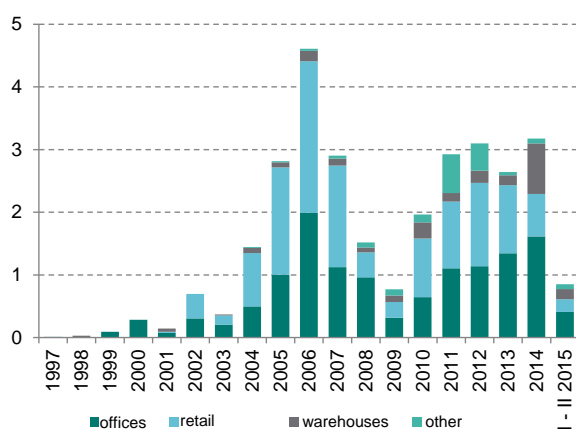
Similarly to the previous years, the commercial real estate markets see mounting imbalances²⁵. This is particularly visible in the office and retail real estate markets. The situation in the commercial real estate market seems to continue to be stable, however, considering the negative and costly experience of other countries in this segment, the central bank constantly monitors this market. At the end of 2015 Q1, the value of loans for office space granted by banks operating in Poland reached approx. PLN 7 billion, which is an insignificant amount as compared to residential real estate loans. Foreign investors dominate the market, therefore, domestic banks will be practically unaffected by potential problems in the market. However, considering the current situation in this market, in the *Financial Stability Report, July 2015*, NBP issued its next recommendation concerning lending policy to be conducted by banks as regards granting loans for commercial real estate²⁶.

Due to low interest rates in the markets of developed countries and considerable saturation of those markets with commercial properties, investors continue to search for new markets. The inflow of investment to Poland results in the rapid growth of fixed assets. Whereas investment in 2002-2011 was, to a major extent, intended to eliminate historical disproportions in the commercial real estate sector, the signs of growing imbalances have been observed since 2012. Despite stable demand, the supply of office space continues to grow, which is translated into growing vacancy rates and declining rent levels. Consequently, investors' income decreases, which translates directly into their debt servicing capacity, and in the case of investment funds - into dividend distribution. This phenomenon is confirmed by the declining values of participation units in closed-end investment funds (see Figure 74).

25 Detailed analysis of local commercial markets is included in the Analysis of 16 cities.

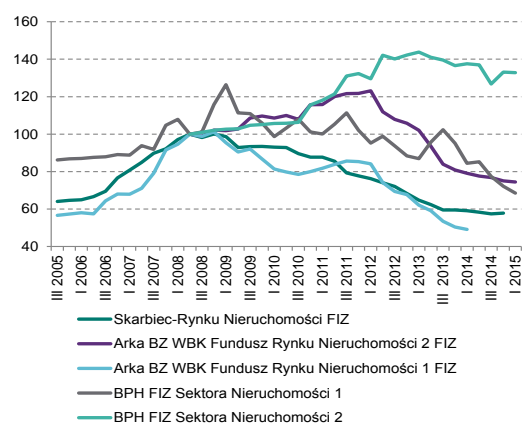
26 Recommendation no. 10 contained in the *Financial Stability Report, July 2015* reads as follows: "Banks should pursue a particularly prudent lending policy in the segment of commercial property loans. The situation in the major segments of the commercial property market (office and retail property) shows that imbalances have been growing, which amidst continually rising supply may boost credit risk. Banks should exercise utmost caution in examining the quality of loan collateral, verifying how realistic are the assumptions concerning cash flows generated by the property and assessing the borrower's loan repayment capacity."

Figure 73 Value of investment transactions in the commercial real estate market (EUR billion)



Note: Data for 2015 refer to the first half of the year only. Source: NBP.
Source: Comparables.pl.

Figure 74 Valuation rates of closed investment funds in the commercial real estate market (2008 Q2 = 100)



While taking the decision on granting a loan, banks require the investor to demonstrate a significant share of signed preliminary agreements and the investor's considerable own contribution. However, international experience shows that such prudential policy may not be sufficient to protect banks against potential credit risk. Low market liquidity, in particular, in the period of economic turmoil, may significantly hamper the sale of a property or prevent the owner from obtaining the expected price. Therefore, banks must apply a very conservative appraisal of the property and assessment of the investor's loan repayment capacity.

3.1.2.1. Transactions in the commercial real estate market, the analysis of supply and demand

The highest value of investment transactions in the commercial real estate market was recorded in 2014, besides the record-breaking year of 2006. The Comparables.pl data show investment transactions worth EUR 3.2 billion, which indicates a growth of approx. 20% as compared to 2013 (see Figure 73). Transactions involving office space dominated the market (approx. 50%). For the first time, the share of the value of warehouse real estate transactions reached 25%, exceeding even the share of investments in commercial real estate. It resulted from the change of owners of large warehouse real estate portfolios. Similarly to the previous years, the major part of transactions involved the change of the owner of an already operating and leased commercial property. In the office space market capitalization rates ranged from 6-7%, whereas in the retail market – around 7%.

In the analysed period the value of loans granted by banks in Poland to enterprises for office real estate declined from PLN 8 billion in 2014 Q1 to PLN 7 billion at the end of 2015 Q1 (see Figure 53). Since the end of 2012 the share of loans considered as impaired has not exceeded 6%, therefore, loans for that type of real estate may be recognized as safe. For the sake of comparison, at the end of 2015 Q1 the share of impaired loans granted to entrepreneurs for other real estate

reached 11.6%, and those granted to developers for residential real estate - almost 28%. It should be emphasized that developer loans have a minor share in the assets of loan granting banks and, therefore, do not pose a significant credit risk. Based on the international experience it can be expected that along with rising affluence of the society, investment in the real estate sector may increase. Also the Polish investors' debt at banks resulting from commercial property investment may be expected to increase.

At the end of 2014, 4.4 million sq. m of office space was available in Warsaw, reaching 6.9 million sq. m all over Poland. The vacancy rate for the most important office space markets showed a slight growth to 12.4% as against 11.9% at the end of 2013²⁷. Approximately 1.3 million of sq. m of office space is under construction, including approx. 600 thousand sq. m in Warsaw. The permanently high level of new space construction and a fairly stable demand for office space implies that the vacancy rate will continue to grow, in particular, in old buildings or in poorer locations. Developers seem to be aware of considerable competition in the Warsaw office space market, since in the first half of 2015 they embarked on the construction of merely 23 thousand sq. m, as compared to 113 thousand sq. m in the corresponding period of the previous year²⁸. Continued growth in the supply of office space in Warsaw and in other cities will result in a downward pressure on rents all over the country.

At the end of 2014, the total supply of space in the retail real estate market amounted to 10.4 million sq. m. In the analyzed period 451 thousand sq. m of new space was completed, i.e. almost 30% less than in the previous year²⁹. Almost 50% of the newly completed commercial space was located in cities below 100 thousand inhabitants.

The transaction prices of office real estate measured in EUR per sq. m (the predominant number of transactions is performed in this currency) showed slight increases in Warsaw and declines in other cities (see Figure 75). The hedonic price growth for office real estate in Warsaw was close to the average price growth (see Figure 76). The growth of hedonic prices for office space in other cities significantly considerably decelerated in 2014, following its sharp increase in 2013.

The retail real estate market across Poland saw average prices decline, following their strong growth in 2013 (see Figure 77). However, the analysis of hedonic price growth shows that price changes were insignificant, arising rather from the change in the quality of properties in the sample (see Figure 78). In 2013 transactions involved very expensive shopping centres in Warsaw whereas in 2014 transactions involving properties located all over Poland, including in smaller towns, were predominant. It should be stressed that both in the office market and in the retail market transactions involving large properties, taking place rather rarely, are analyzed. Due to this fact, a hedonic analysis is necessary, which solves the problem of the changing sample of properties being the object of the transaction.

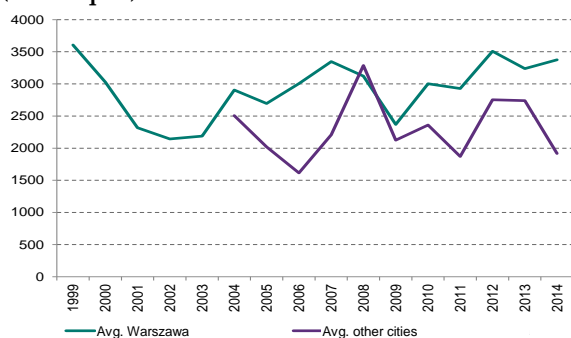
27 Cf. Colliers International Report on *"Review of the Real Estate Market – Summary of 2014"*.

28 Cf. Knight Frank - Report on *"Poland, the commercial market – 1st half of 2015"*.

29 Cf. Colliers International Report on *"Review of the Real Estate Market – Summary of 2014"*.

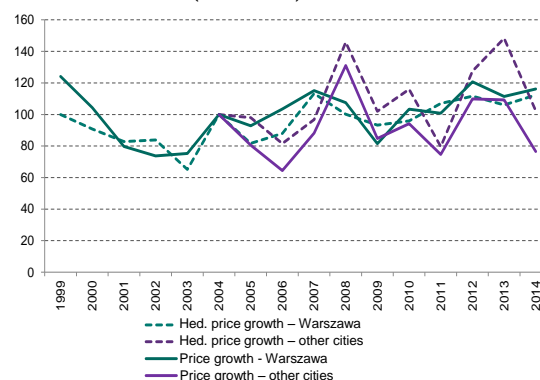
The analysis of transactions in commercial and retail space in voivodship cities and other cities indicates a minor decline in prices observed since 2013 Q2 (since that moment the data have been analyzed, see Figure 79). Only in Warsaw slightly growing prices of commercial and retail premises were recorded, which confirms the continuing demand for this type of real estate in that market.

Figure 75 Transaction prices of office real estate (euro /sq. m)



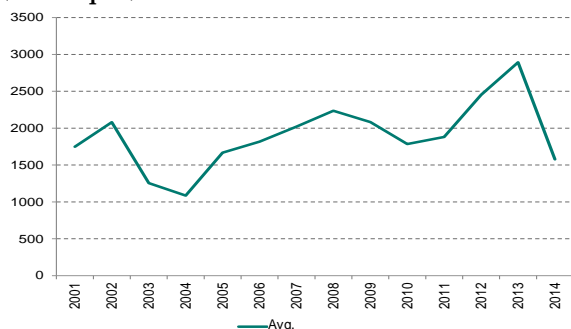
Source: NBP.

Figure 76 Growth of average and hedonic prices for office real estate (2004=100)



Source: NBP.

Figure 77 Transaction prices of retail real estate (euro /sq. m)



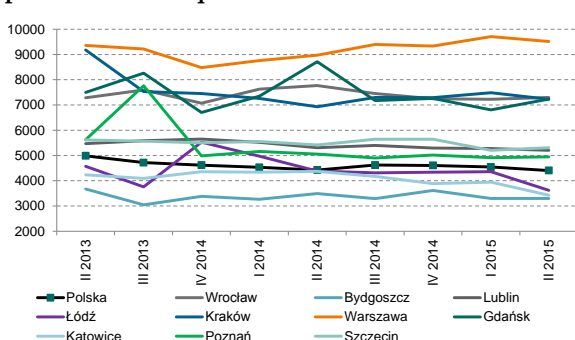
Source: NBP.

Figure 78 Growth of average and hedonic prices for retail real estate (2004=100)



Source: NBP.

Figure 79 Transaction prices of commercial and retail premises (PLN /sq. m)

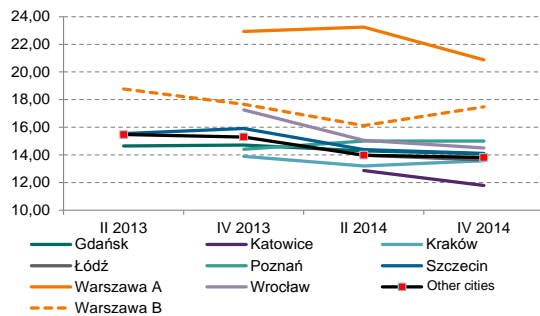


Source: PONT, NBP report.

3.1.2.2. Transaction rents of commercial real estate³⁰

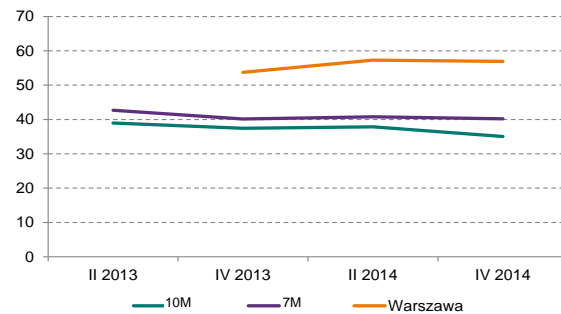
Transaction rents in the commercial real estate market play an important role, since typically a significantly higher number of commercial space rental transactions are concluded, as compared to the number of transactions involving the sale of commercial buildings. In 2014, rents in A class office buildings, usually expressed in EUR, showed stagnation or declines in all the analyzed markets. Only rents in B class office buildings in Warsaw, quoted in EUR, have slightly increased. Rents for A class office space in Warsaw exceeded EUR 20 /sq. m /month, whereas in other big cities - they fluctuated around EUR 15 /sq. m /month. Rents in B class office buildings, usually quoted in PLN, indicated stagnation in Warsaw and in 7 biggest cities, and declined slightly in the remaining 10 cities. The declines or stagnation of rents are driven by considerable competition of available office space, whereby the market is currently perceived as the tenant's market. Transaction rents in shopping centres measured in EUR /sq. m /month indicated minor declines. It resulted from a high supply of modern retail space all over Poland, as a result of which owners of shopping centre were fighting for a tenant.

Figure 80 Transaction rents in A class office space (EUR/ sq. m /month)



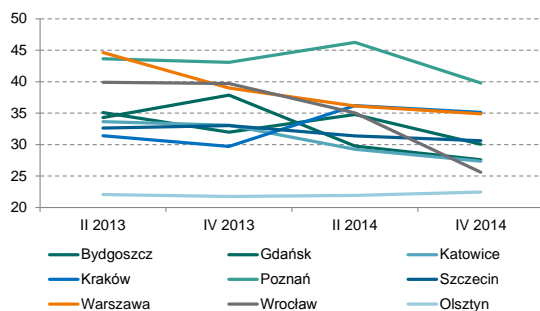
Source: NBP.

Figure 81 Transaction rents in B class office space (EUR/ sq. m /month)



Source: NBP.

Figure 82 Transaction rents for space in shopping centres, size approx. 100 sq. m (EUR/sq. m / month)



Source: NBP.

³⁰ The analysis of rents is based on BaNK database maintained by NBP, quotations take place on a semi-annual basis.

3.1.3. Convergence and differentiation processes in local markets and structural changes - comparison of 16 markets in Poland

The specific nature of housing markets (including mainly their non-transferability) makes it extremely difficult to draw any conclusions as to the development trends of particular markets, based on the overall data for the whole country. In particular, small markets may develop differently than the country's largest cities. The largest markets usually develop in a similar way, and trends observed in those markets are similar.

A large number of new dwellings completed and put on the market as well as only marginal depletion in the housing stock contribute to the improvement of the housing situation. In the majority of cities real estate developers adapted to the changes better and faster, successfully implementing new investment projects. The development of the real estate market, mainly the primary market, was fostered by changes in the demographic ratios per 1000 inhabitants (i.e. the positive population growth, improving net migration and a higher number of marriages), which have changed their direction after several years despite the visible ageing of the society. Economic factors also proved favourable due to the decline in unemployment, stronger GDP growth than in the previous year as well as monetary policy easing (interest rate cuts).

The increased demand, in particular for new dwellings, translated into the launch of a bigger number of developer investment projects as compared to the previous years. No significant changes in home prices were recorded and the majority of markets saw stabilization and consolidation of local trends observed in the previous years. The average home selling time in the secondary market was close to that recorded in 2013.

3.1.3.1. Housing situation in 16 voivodship cities

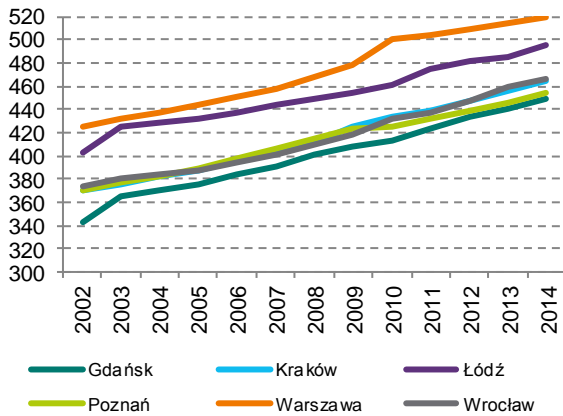
In 2014, the housing stock in 16 voivodship cities comprised approx. 3.4 million housing units and accounted for approx. 0.25 of Poland's housing stock. As compared with 2013, the housing stock increased by approx. 1.5%. As in the previous years, the rate of growth in the number of dwellings varied across cities and was dependent on the situation in the local markets.

The decline in population figures officially recorded in some cities, combined with continuous production of new dwellings and small scale of depletion of the housing stock, improved the housing situation. Higher standard of housing, as measured by saturation and population density, was seen in the group of most populated cities. These were absorptive and attractive markets for investors and ensured high levels of returns. These markets were dominated by real estate developers producing multi-family housing. In smaller markets, where the scale of real estate developer investments was smaller, single-family housing, including owner-built houses, was booming. Most cities saw further marginalization of home construction by housing

cooperatives. The only exception was Rzeszow and Kielce, where in 2014 the share of home construction by housing cooperatives stood at 20% and 14%, respectively.

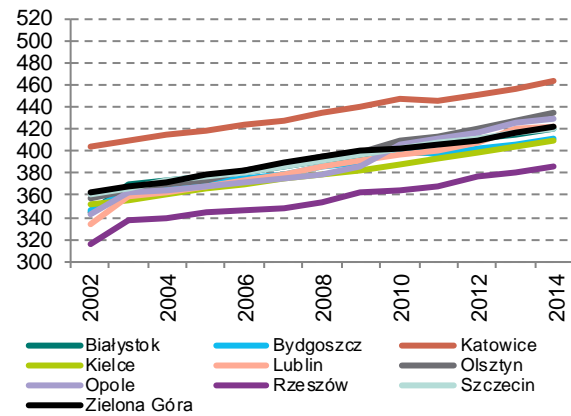
In most voivodship cities the trend of investors adapting their supply to buyers' preferences, observed more than two years, stabilized. Smaller housing units were built which slowed down the improvement in the indicators presenting housing situation, namely the indicator of the average usable area of housing.

Figure 83. Housing stock per 1000 inhabitants in 6M



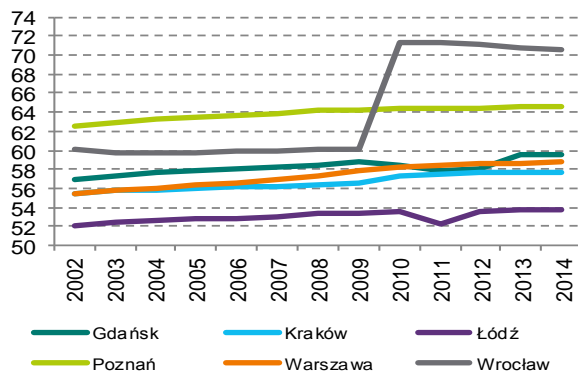
Source: GUS

Figure 84. Housing stock per 1000 inhabitants in 10M



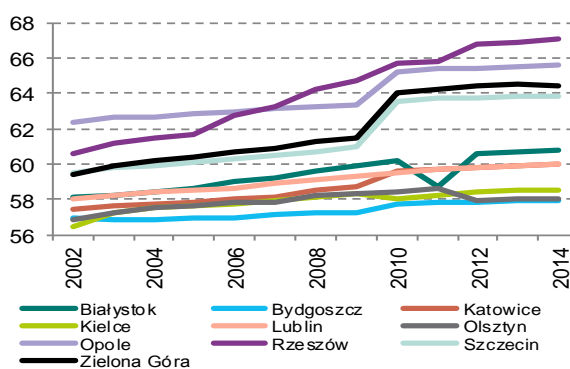
Source: GUS

Figure 85. Average usable area of housing in the housing stock (in sq. m) in 6M.



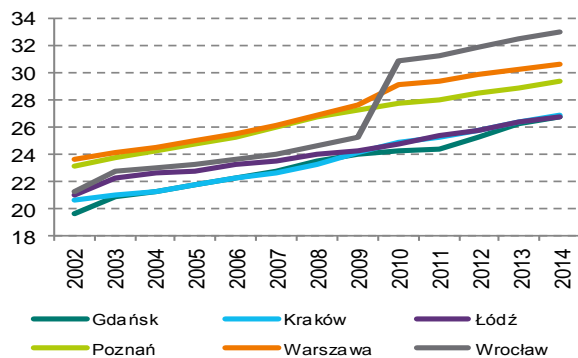
Source: GUS

Figure 86. Average usable area of housing in the housing stock (in sq. m) in 10M.



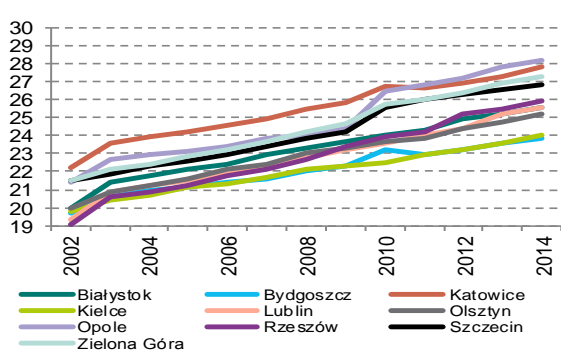
Source: GUS

Figure 87. Average usable area of housing in the housing stock per person (in sq. m) in 6M.



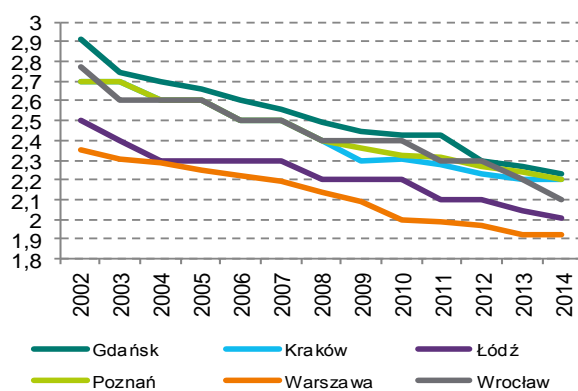
Source: GUS

Figure 88. Average usable area of housing in the housing stock per person (in sq. m) in 10M.



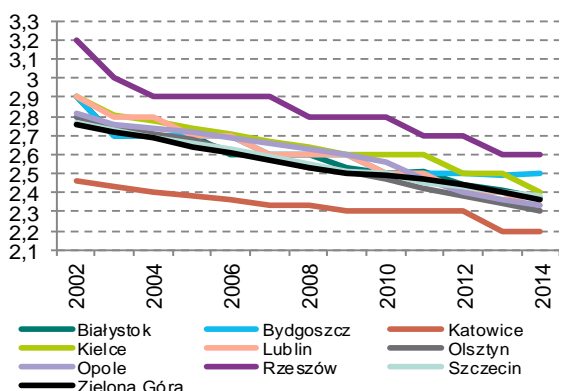
Source: GUS

Figure 89. Average number of persons in a dwelling in 6M.



Source: GUS

Figure 90. Average number of persons in a dwelling in 10M.



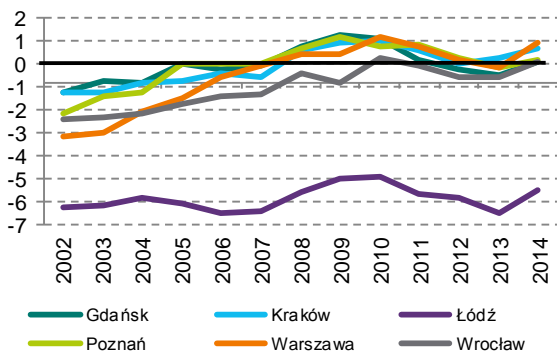
Source: GUS

3.1.3.2. Demographic factors in 16 voivodship cities

For the first time in several years, there was a slight improvement in demographic indicators in some voivodship cities. The fundamental demographic factors affecting the housing sector were more favorable, which may mean that the process of the second post-war baby boomers becoming independent is not yet completed (see Figure 91 - Figure 94). In most regional markets marriage and birth rates improved. Although in the six local markets the birth rate was still negative, yet, its decline, as compared to the previous years, was smaller. Positive changes occurred also in the case of the net migration rate. In most cities, this ratio improved, and positive values were recorded in the half of the voivodship cities (as compared with seven in the previous year).

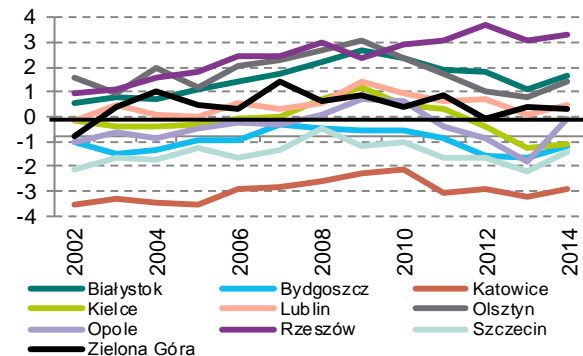
In 2014, the trend of population decline in the majority of voivodship cities continued. In some of them it was driven by the fact that inhabitants of large cities moved to neighbouring locations forming agglomerations. As all over Poland, voivodship cities recorded further ageing of the population. The demographic burden ratio in voivodship cities, deteriorating year by year, was reflected in further declines in productive age population as well as faster increase in the percentage of post-production age population as compared with population at pre-production age (see Figure 97 and Figure 98).

Figure 91 Birth rate per 1000 inhabitants in 6M



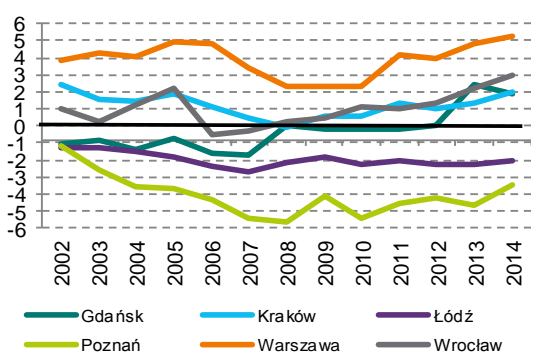
Source: GUS

Figure 92. Birth rate per 1000 inhabitants in 10M



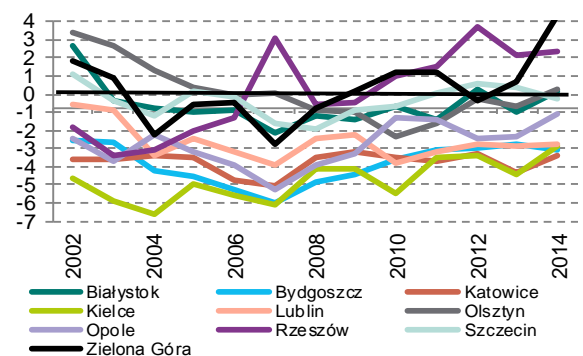
Source: GUS

Figure 93. Migration per 1 000 inhabitants in 6M



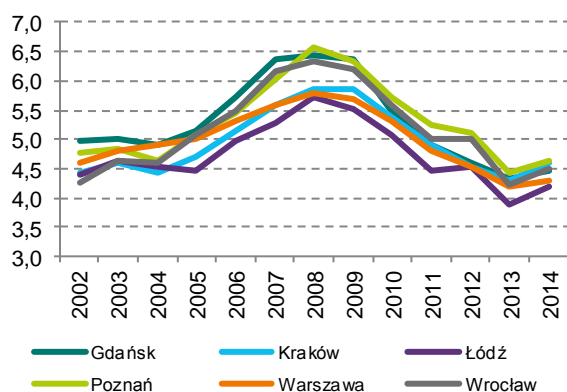
Source: GUS

Figure 94. Migration per 1 000 inhabitants in 10M



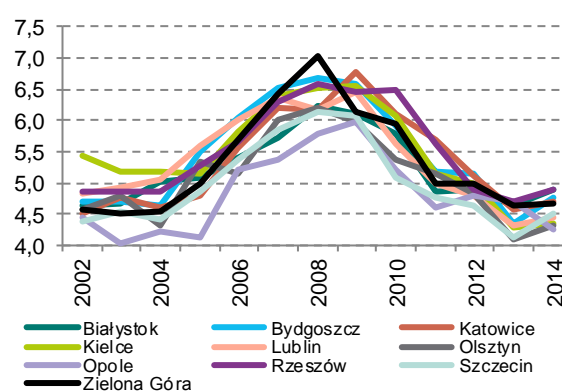
Source: GUS

Figure 95. Marriages per 1000 inhabitants in 6M



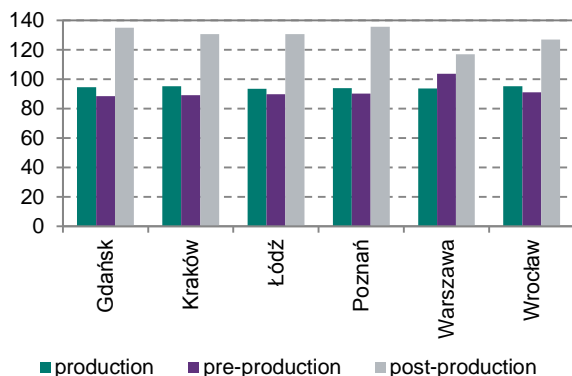
Source: GUS

Figure 96. Marriages per 1000 inhabitants in 10M



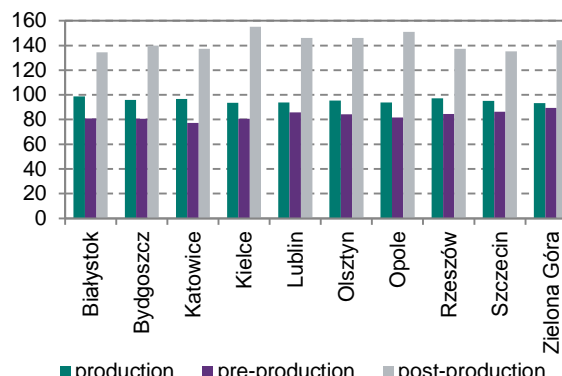
Source: GUS

Figure 97. Growth rate of age indicators 2014/2002 in 6M



Source: GUS

Figure 98. Growth rate of age indicators 2014/2002 in 10M



Source: GUS

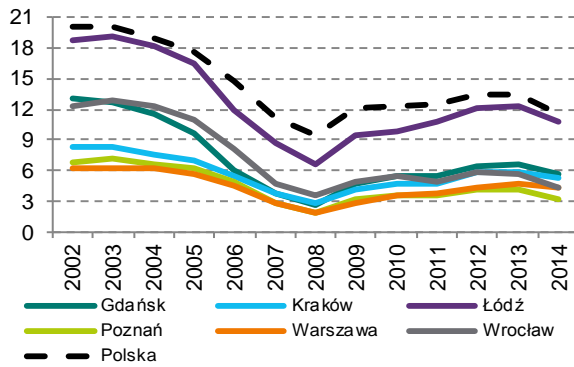
3.1.3.3. Economic factors in 16 voivodship cities

2014 was another consecutive year in which economic factors favorably affected the situation of the regional housing markets. Economic growth exceeding the 2013 level, improvement of the situation in the labour market, the regulatory environment of the housing sector, easing of the NBP monetary policy boosted households' optimism, which, in turn, translated into higher housing demand.

In comparison to 2013, in 2014 unemployment declined in 16 cities. The trend, started in 2010, of The gradual decline in the share of young people, under the age of 34, who should constitute the largest group of home buyers has continued since 2010 (see Figure 99 - Figure 102). Most cities observed a real growth in household income (taking into account the CPI) which, amidst a slight upward adjustment in transaction prices and low interest rates on PLN denominated mortgage loans, improved potential availability of loans and loan-financed availability of housing (see Figure 195 - Figure 112). In 2014, as in the previous years, in terms of availability of housing, including loan-financed housing, Katowice distinguished itself among voivodship cities. The city continued to see the highest level of average wages in the corporate sector with simultaneously low housing prices.

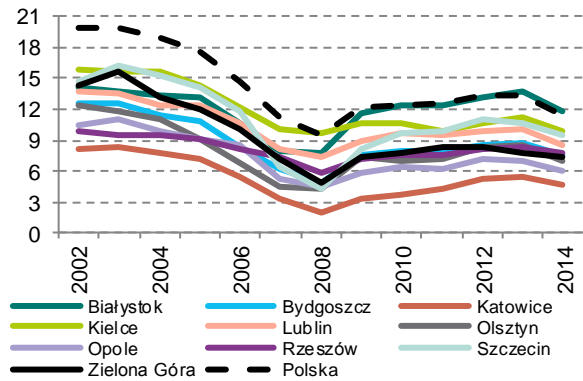
In 2014, the government launched a new scheme to support home purchases MDM #. The level of its utilization in voivodship cities varied and was determined by the level of price limits fixed under the scheme and the degree of availability, in particular markets, of housing meeting price criteria set by the housing scheme. Most cities reported a mismatch between maximum price limits adopted in the scheme and the prices in the regional markets. The largest mismatch was observed in larger cities, namely Kraków, Warsaw and Wrocław, where the fixed limits were too low as compared to market prices. The opposite situation was observed in three cities, namely Łódź, Olsztyn and Zielona Góra, where limits set under the MDM scheme were higher than average prices quoted in these markets (see Figure 115 - Figure 116).

Figure 99. Unemployment level in 6M



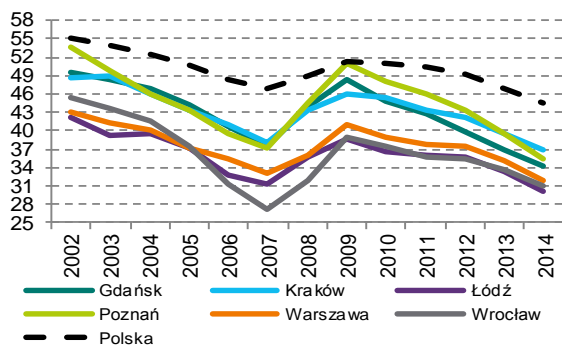
Source: GUS

Figure 100. Unemployment level in 10M



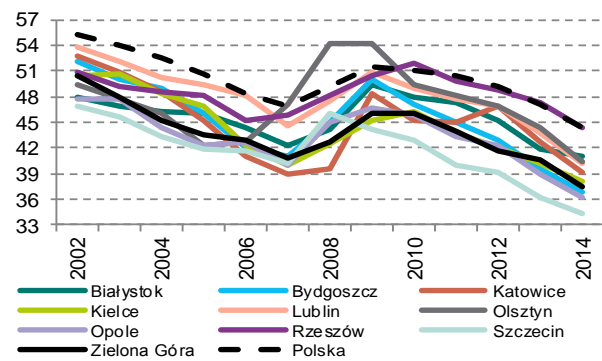
Source: GUS

Figure 101. Share of the unemployed under the age of 34 in 6M



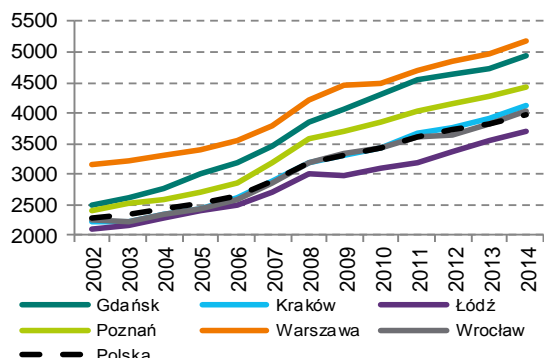
Source: GUS.

Figure 102. Share of the unemployed under the age of 34 in 10M



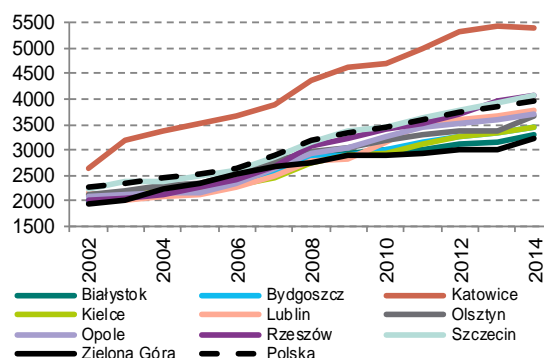
Source: GUS.

Figure 103. Average wages in the enterprise sector 6M (PLN/monthly)



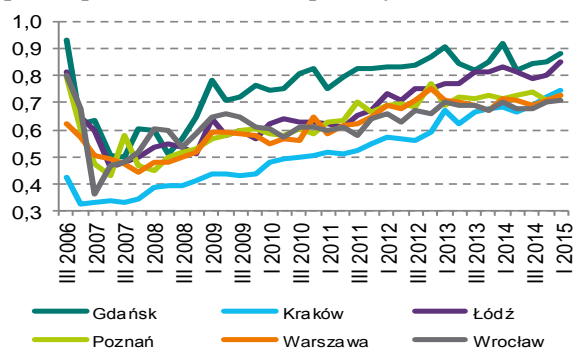
Source: GUS.

Figure 104. Average wages in the enterprise sector 10M (PLN/monthly)



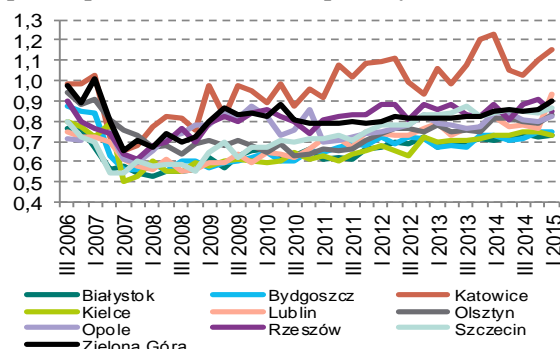
Source: GUS.

Figure 105. Housing affordability per average wage (per 1 square meter) in 6M – primary market



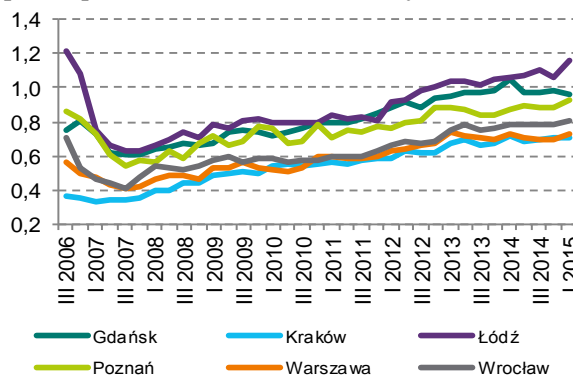
Source: NBP, GUS.

Figure 106. Housing affordability per average wage (per 1 square meter) in 10M – primary market



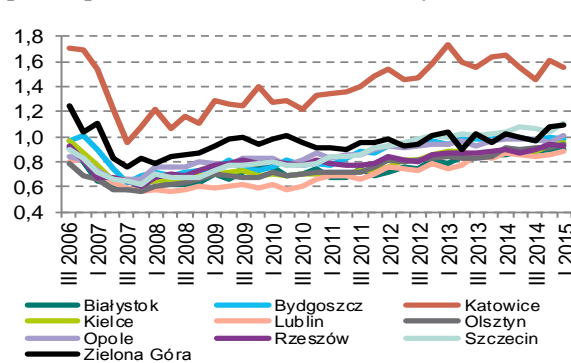
Source: NBP, GUS

Figure 107. Housing affordability per average wage (per 1 square meter) in 6M – secondary market



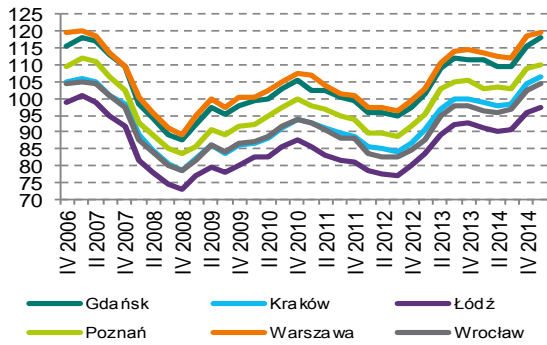
Source: NBP, GUS

Figure 108. Housing affordability per average wage (per 1 square meter) in 10M – secondary market



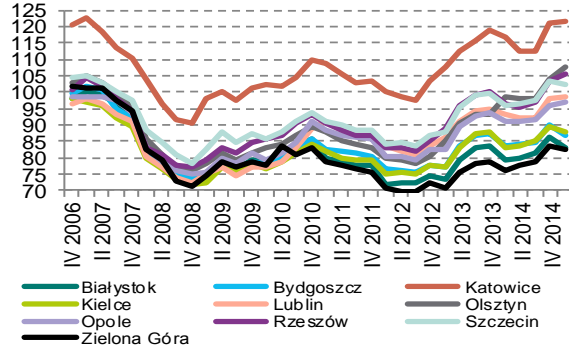
Source: NBP, GUS

Figure 109. Availability of PLN-denominated loans in 6M



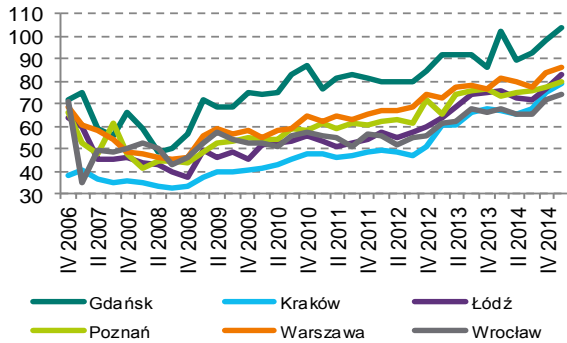
Source: NBP, GUS

Figure 110. Availability of PLN-denominated loans in 10M



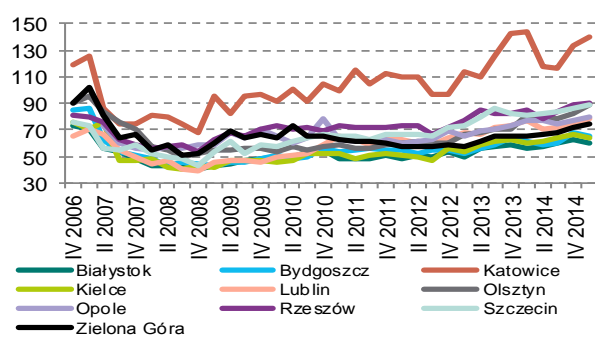
Source: NBP, GUS

Figure 111. Availability of loan-financed housing (PLN-denominated loans) in 6M – primary market



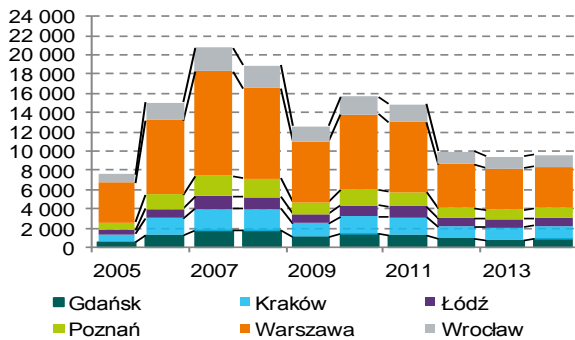
Source: NBP, GUS

Figure 112. Availability of loan-financed housing (PLN-denominated loans) in 10M – primary market



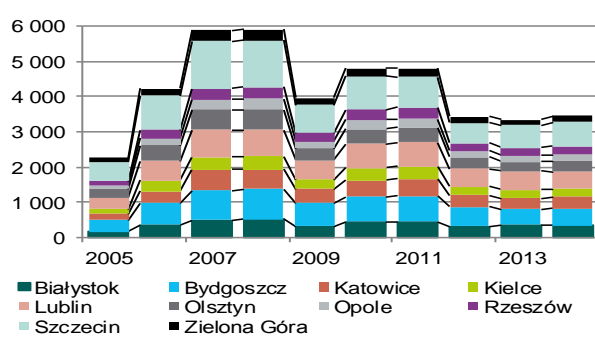
Source: NBP, GUS

Figure 113. Value of loans in new concluded loan contracts (in PLN million) in 6M (according to the borrower's domicile)



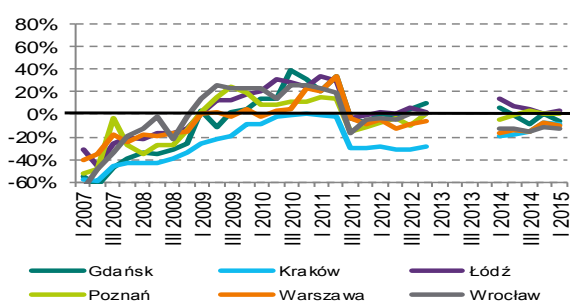
Source: BIK

Figure 114. Value of loans in new concluded loan contracts (in PLN million) in 10M (according to the borrower's domicile)



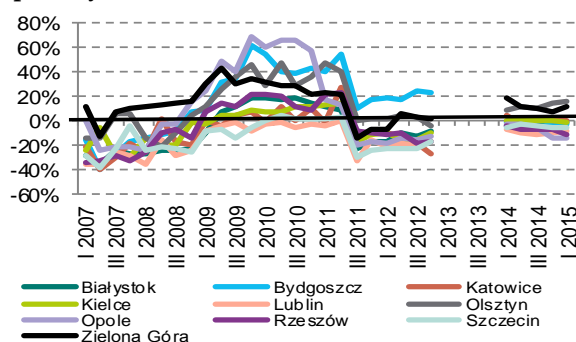
Source: BIK

Figure 115. Gap/surplus between RNS/MDM threshold prices and median transaction prices in 6M – primary market



Source: NBP, BGK

Figure 116. Gap/surplus between RNS/MDM threshold prices and median transaction prices in 10M – primary market



Source: NBP, BGK

3.1.3.4. Housing construction in 16 voivodship cities

In 2013 the housing sector in Poland's voivodship cities, as in the previous years, developed with varied intensity. Apart from local conditions prevailing in particular markets, fundamental demographic and economic factors, the behavior of economic agents representing the demand and supply side was also largely affected by previously adopted legal regulations.

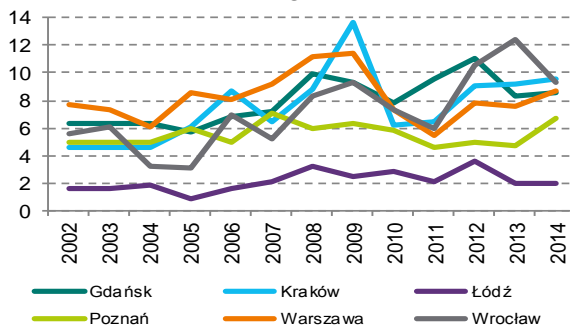
As of 1 January 2014, after one year's functioning of the housing market without government subsidies, a government-subsidized housing scheme MDM was launched. It was addressed to young first-time home buyers. The fact that only housing offered in the primary market was included in the scheme amidst rich offer tailored to potential home buyers' needs as well as reasonable banks' lending policy boosted demand in this market. Strong demand was also driven by cash home buyers who, given the low level of interest rates on bank deposits, sought alternative ways of investing their capital. Very good sales performance of investors, especially real estate developers, and reduced oversupply of housing observed at the end of 2013, boosted investor activity. Most regional markets in 2014, as compared to 2013, saw an increase in housing investment and growing number of new home construction contracts (see: Figure 123 - Figure 124). The situation was similar in 2015 Q1.

The effects of housing construction, measured by the number of dwellings completed in the majority of voivodship cities (excluding Lublin, Olsztyn, Szczecin and Wrocław), were higher in 2014 than in 2013 (See Figure 117 - Figure 118). Apart from low scale of reference (in relation to 2013), this might have been driven by the completion of dwellings whose construction started in the period from 2011 to April 2012, namely before the entry into force of the Law on the Protection of home buyers' rights as of 16 September 2011. In the majority of local markets thanks to flexible adjustment of supply to demand structure, smaller dwellings were constructed and put on the market. This confirms the downward trend in terms of the average usable area of completed housing, observed for more than two years (see Figure 121 - Figure 122).

In 2015 investors involved in construction projects intended for sale and rent, as in the previous years, are also likely to act reasonably, depending on the situation in the local markets. Increased

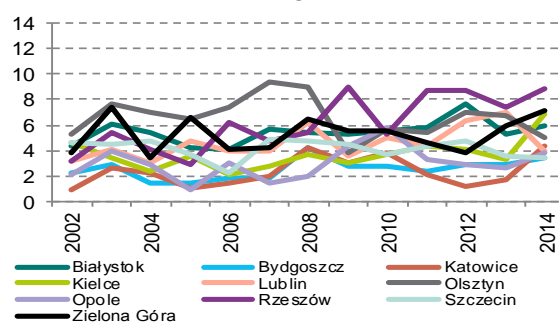
activity of real estate developers in gaining new contracts and starting new constructions, observed in the recent years in the majority of markets, confirms the forecasts of high levels of demand. Purchases should be supported by the expected economic recovery, low interest rates, which on the one hand, should provide cheaper loans, and, on the other, low profitability of bank deposits and the desire to earn higher yields, including in the housing market. The MDM housing scheme will affect the regional markets, yet, its importance will vary and will depend on the amount of home price limits under the scheme, housing availability in the market and changes introduced to the scheme. The housing sector may also be influenced by the changes in the S recommendation of the Polish Financial Supervision Authority (including the successive reduction of the LTV ratio # in mortgage), and the planned amendment to the Act on Home Buyers' Protection.

Figure 117. Number of completions per 1000 inhabitants in 6M (dwellings/1000 inhabitants)



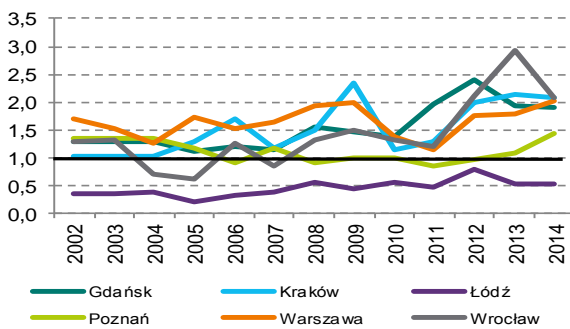
Source: GUS

Figure 118. Number of completions per 1000 inhabitants in 6M (dwellings/1000 inhabitants)



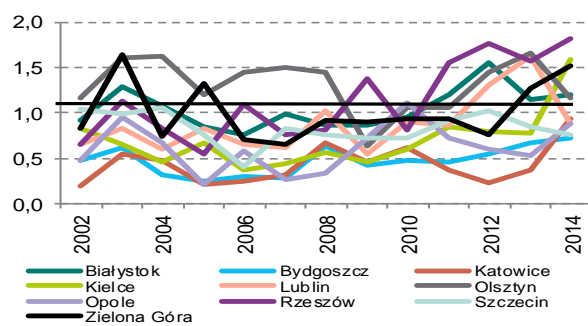
Source: GUS

Figure 119. Number of completions per 1000 marriages in 6M (dwellings/1000 marriages)



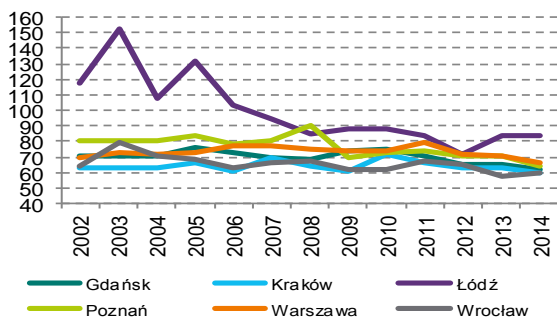
Source: GUS

Figure 120. Number of completions per 1000 marriages in 10M (dwellings/1000 marriages)



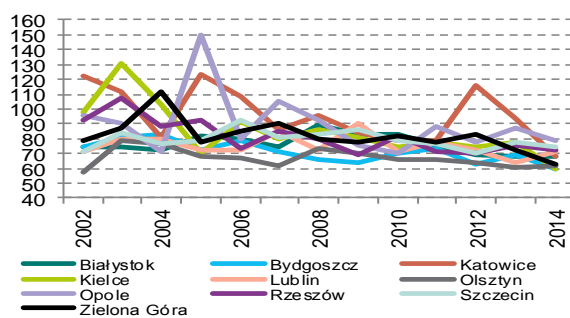
Source: GUS

Figure 121. Average usable area of completed housing in 6M (in square meter/dwelling)



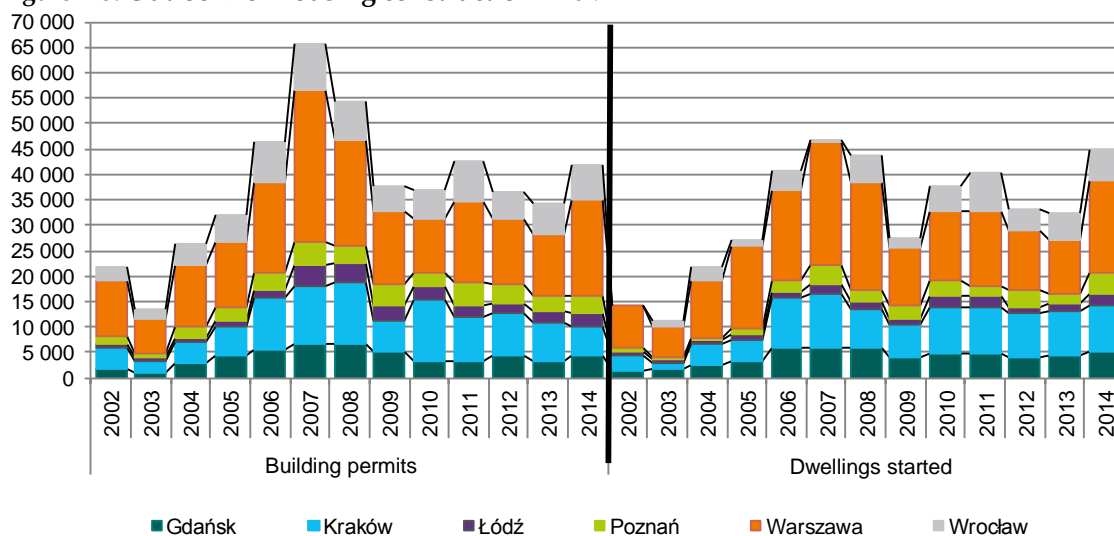
Source: GUS

Figure 122. Average usable area of completed housing in 10M (in square meter/dwelling)



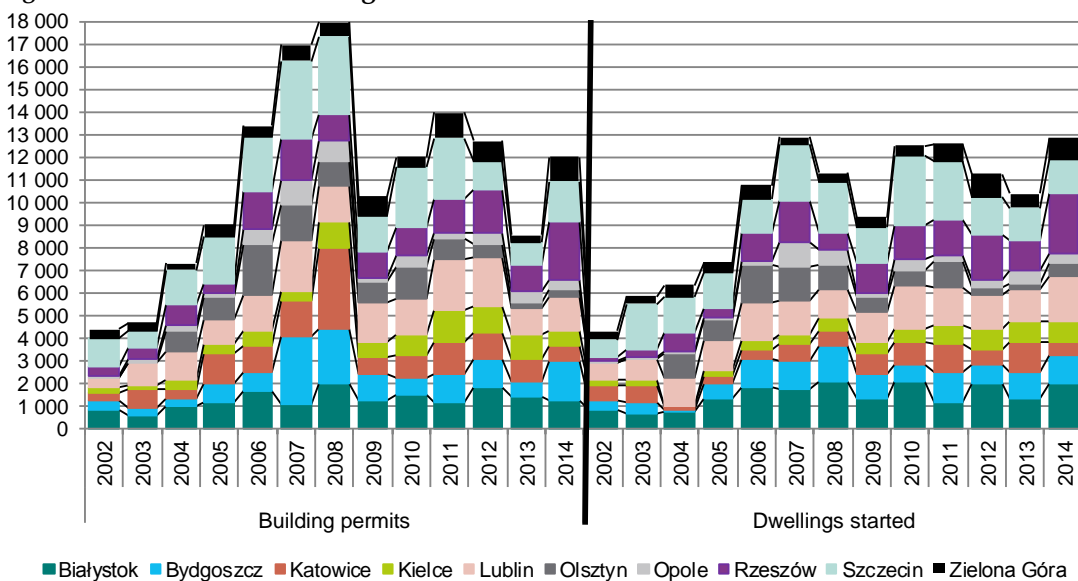
Source: GUS

Figure 123. Outlook for housing construction in 6M



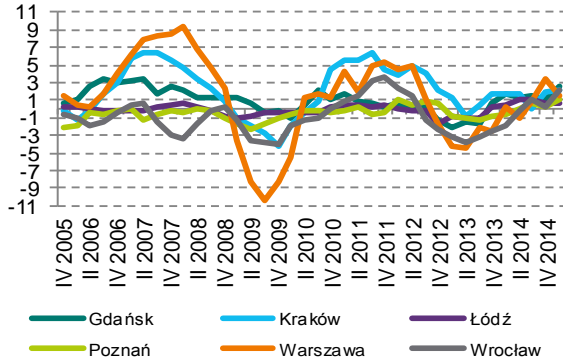
Source: GUS

Figure 124. Outlook for housing construction in 10M



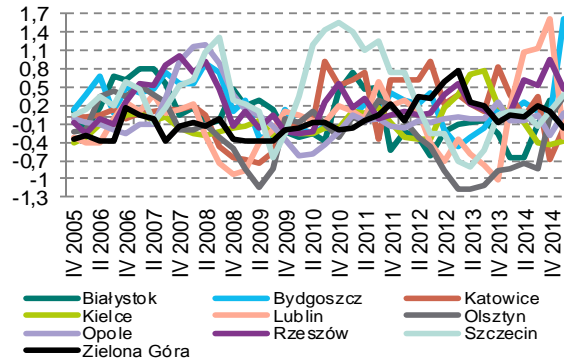
Source: GUS

Figure 125. Indicator of trends in housing production in 6M (in thousands, number of dwellings commenced less number of dwellings completed)



Source: GUS

Figure 126. Indicator of trends in housing production in 10M (in thousands, number of dwellings commenced less number of dwellings completed)

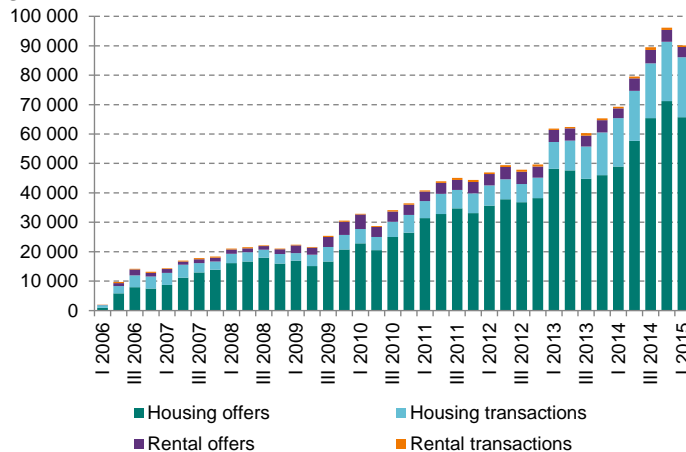


Source: GUS

3.1.3.5. Analysis of the BaRN database

Since the launch of the surveys conducted by Narodowy Bank Polski, the number of registered records has been growing. In 2014 in the primary market approx. 154 thousand offers were recorded (by 40% more than in the previous year) and almost 40 thousand transactions took place (by almost 70% more than in 2013). Increases were also recorded in the secondary market. The number of offers reached almost 90 thousand records and the number of transactions amounted to 33 thousand (an increase by 17% and 55% respectively as compared to the previous year). The observed increase in the number of records is mainly driven by bigger number of respondents in the survey i.e. over 30% more real estate developers and 44% more real estate agents (an average number of real estate developers participating in each survey in 2014 was 400). According to local experts, in 2014 voivodship cities recorded a decline exceeding 10% in the total number of transactions in the secondary market .

Figure 127. Number of records in the BaRN database



Source: NBP

In the 16 analyzed voivodship cities, average transaction prices at the end of 2014 in the primary market stabilized at a level similar to that recorded at the end of the previous year. Eleven markets recorded price increases and five price declines. The highest price increases were recorded in Katowice (8%), Poznań (approx. 6%) and Łódź (approx. 5%). The sharpest decline was observed in Gdańsk (6%), Rzeszów (2%) and, in Poland's biggest market - in Warsaw (1.5%).

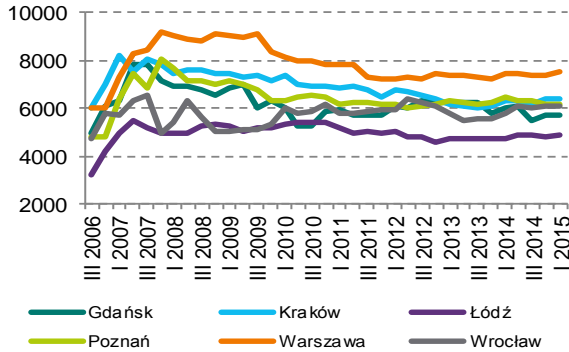
Also the secondary market saw the average price of one square meter of housing stabilize. At the end of 2014, as compared to the previous year-end, prices rose in 12 markets. The highest increases were recorded in Opole (5%), Gdańsk (4%) and Wrocław (3%). Four markets posted price declines, with Kielce and Zielona Góra (by 5%) and Poznań (by 1%) recording the sharpest declines.

Transaction prices both in the primary and secondary markets have strongly positive correlation with the size of the market. The highest prices of real estate developers at the end of 2014 were recorded in Warsaw (7315 PLN/ sq. m.) Poznań (6226 PLN/sq.m.), Wrocław (5788 PLN / sq.m.) and Gdańsk (5785 PLN/sq. m.). In the secondary market, the highest prices were observed in Warsaw (7387 PLN / m sq.), Kraków (5834 PLN/ m sq.) and Wrocław (5194 PLN / m sq.).

The average home selling time in the secondary market in 2014 remained almost unchanged in relation to the previous years and stood at the level of 158 days. For Poland's six largest cities and so for the most liquid markets average home selling time was only a few days shorter.

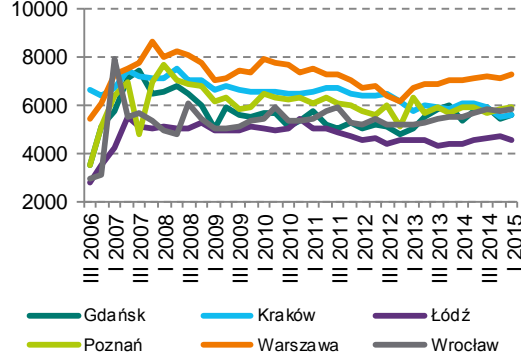
3.1.3.6. Primary housing market according to the BaRN database

Figure 128. Median selling offer price (PLN/sq. m) in 6M – primary market



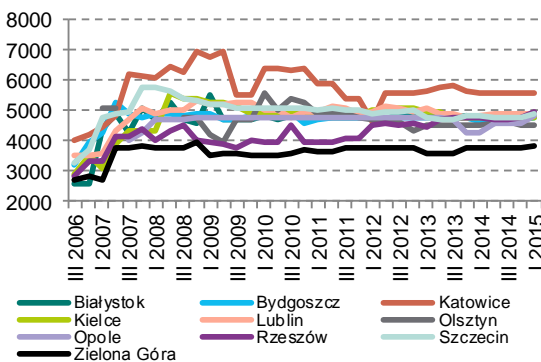
Source: NBP

Figure 129. Median selling transaction price (PLN/sq. m) in 6M – primary market



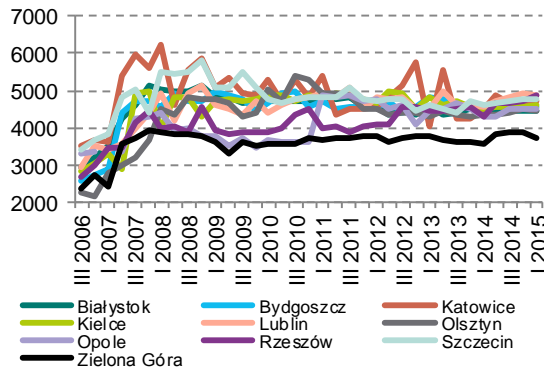
Source: NBP

Figure 130. Median selling offer price (PLN/sq. m) in 10M – primary market



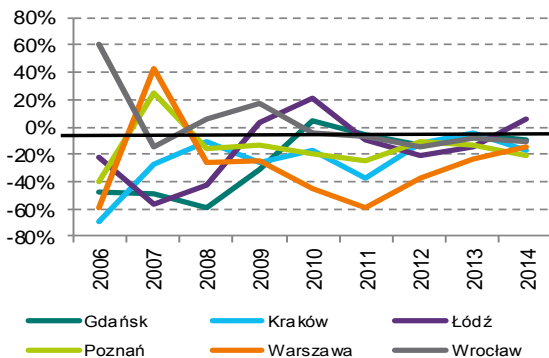
Source: NBP

Figure 131. Median selling transaction price (PLN/sq. m) in 10M – primary market



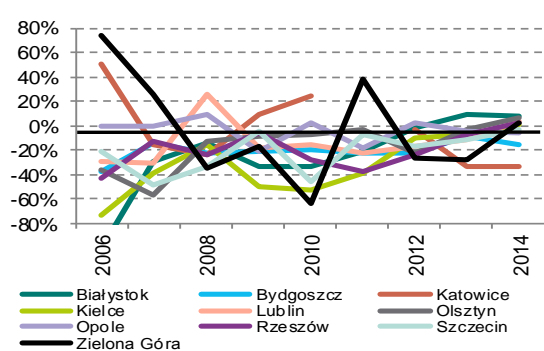
Source: NBP

Figure 132. Supply and demand mismatch; units with area <= 50 sq. m in 6M - primary market



Source: NBP

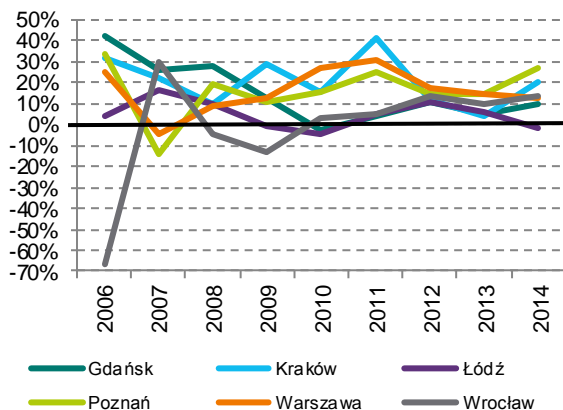
Figure 133. Supply and demand mismatch; units with area <= 50 sq. m in 10M - primary market



Source: NBP

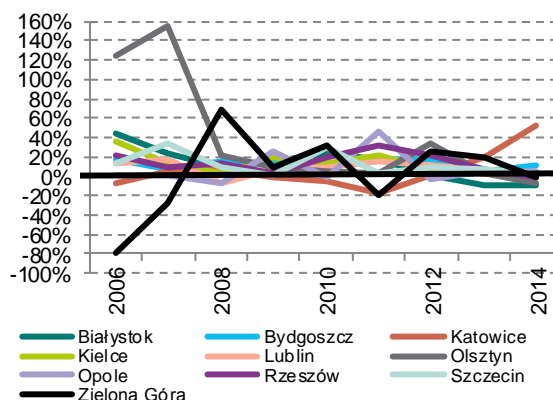
Note to Figure 130: The percentage mismatch between supply (housing offers by real estate developers) and estimated demand (housing transactions) with regard to the housing unit area, according to the data from the BaRN database; the mismatch is measured as the share of housing units with usable area of up to 50 square meters (average for the last four quarters). A positive result (above the black line) indicates the surplus of housing units up to 50 square meters, a negative result - their deficit. The same applies to Figures 131 to 133 and 138 to 142. (for the secondary market).

Figure 134. Supply and demand mismatch; units with area > 50 sq. m in 6M - primary market



Source: NBP

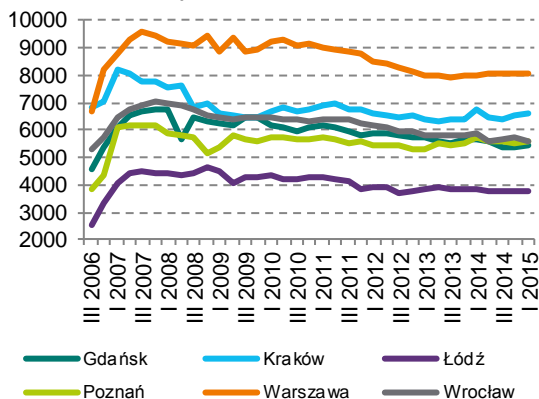
Figure 135. Supply and demand mismatch; units with area > 50 sq. m in 10M - primary market



Source: NBP

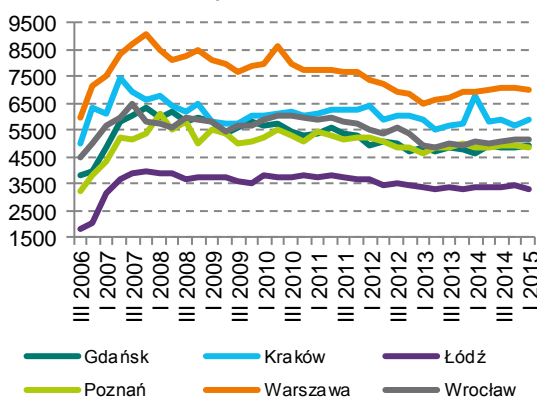
3.1.3.7. Secondary housing market according to the BaRN database

Figure 136. Median selling offer price (PLN/sq. m) in 6M – secondary market



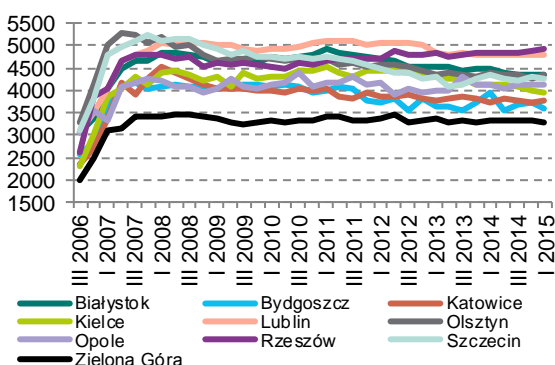
Source: NBP

Figure 137. Median selling transaction price (PLN/sq. m) in 6M – secondary market



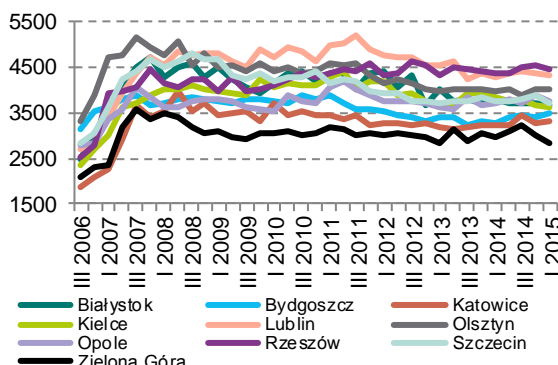
Source: NBP

Figure 138. Median selling offer price (PLN/sq. m) in 10M – secondary market



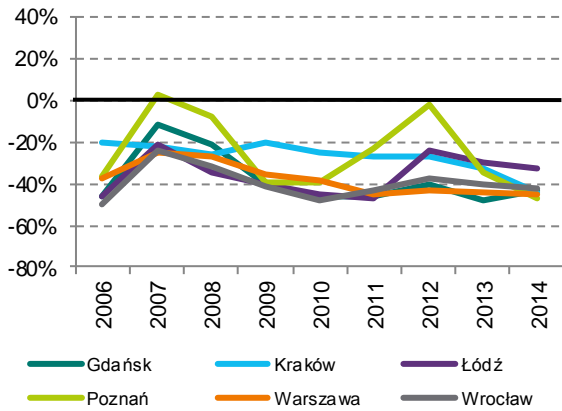
Source: NBP

Figure 139. Median selling transaction price (PLN/sq. m) in 10M – secondary market



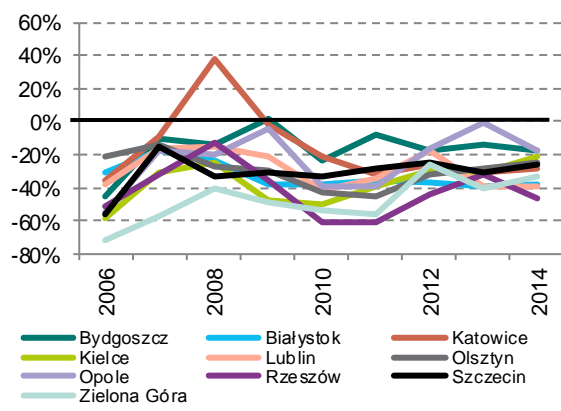
Source: NBP

Figure 140. Supply and demand mismatch; dwellings with area <= 50 sq. m in 6M – secondary market



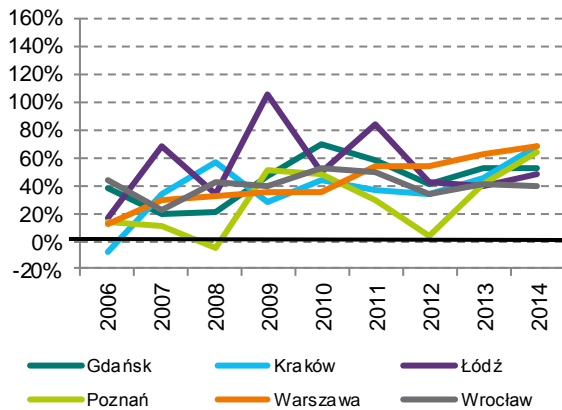
Source: NBP

Figure 141. Supply and demand mismatch; dwellings with area <= 50 sq. m in 10M – secondary market



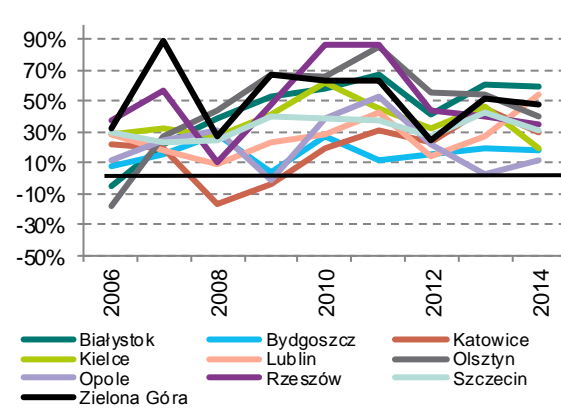
Source: NBP

Figure 142. Supply and demand mismatch; dwellings with area. > 50 sq. m in 6M – secondary market



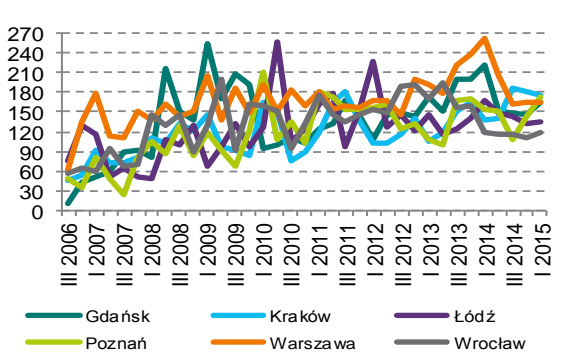
Source: NBP

Figure 143. Supply and demand mismatch; dwellings with area. > 50 sq. m in 10M – secondary market



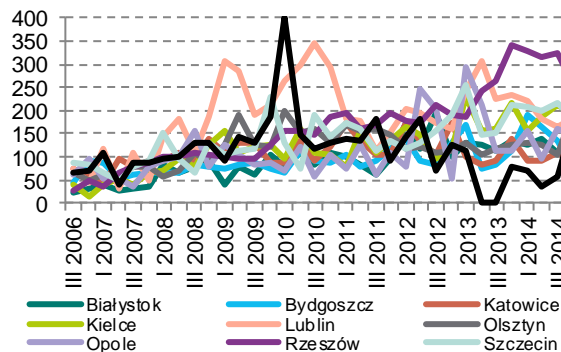
Source: NBP

Figure 144. Average selling time in 6M – secondary market



Source: NBP

Figure 145. Average selling time in 10M – secondary market



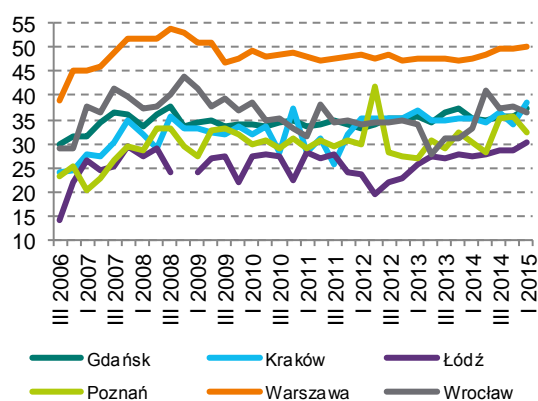
Source: NBP

3.1.3.6. Home rental market according to the BaRN database

Average rents (offer and transaction) for the whole country increased in 2014 Q4 as compared to the previous year. Offer rents recorded an average growth of 3% whereas in the case of transaction rents growth exceeded 5%. By far the highest rents were recorded in Warsaw (49.7 PLN/ sq. m), Wrocław (37.9 PLN/ sq. m) and Gdańsk and Poznań (35.6 PLN/sq. m). The highest transaction prices were recorded in Warsaw (41.4 PLN /sq. m), Kraków (30.9 PLN/sq. m) and Gdańsk (30.3 PLN /sq. m).

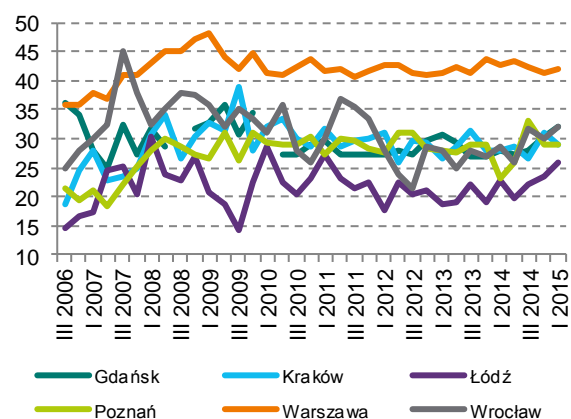
For many years the highest rents have continued to be observed primarily in academic and business centers, being Poland's largest housing markets. Rent themselves also vary considerably among cities. The most highly appraised are usually dwellings located in the city center, with good communication links and access to infrastructure. Rents for dwellings in these locations are even several times higher than for those in more distant locations, mainly in post-industrial areas. In the group of the smallest cities due to the small number of transactions recorded in the database BaRN the results of the rents analysis is subject to a greater error, and their credibility and the possibility do draw further conclusions considerably smaller.

Figure 146. Average offer rents (PLN/sq. m) in 6M



Source: NBP

Figure 147. Average transaction rents (PLN/sq. m) in 6M



Source: NBP

Glossary of terms and acronyms

Arbitrage – A sale/purchase transaction of all tradable goods (e.g. merchandise, securities, housing), making it possible to gain profits without any risk. The essence of Arbitrage is the balancing of price differences of the same product in various markets or in the same market. In case such a difference is higher than transaction costs, the investor will gain profit by purchasing the product in a cheaper market and selling it in a more expensive market.

BaRN – Real Estate Market Database. The database containing offer and transaction prices of housing in the primary and secondary markets and data on rent rates in 16 voivodship cities. The data come from real estate brokers, housing cooperatives and real estate developers who volunteered for the study and partially also from the Registers of Prices and Values of Real Estate kept by particular counties. The data are gathered and verified by the Regional Branches of NBP.

Building type 1121 – 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 of ceramic bricks), monitored by NBP since 2004 based on the data of Sekocenbud. For the sake of convenience, it has been assumed that construction costs of one square meter of parking space and retail space are close to the costs of housing sold in a shell condition; The real price of 1 square meter of housing, based on construction costs, depends on the share of the 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 that the building's common area constitutes 20% of the housing area and using this figure we made an upward adjustment of the price of 1 square meter of housing. The data were 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 residential and commercial real estate market in 2011", NBP 2012.

Shopping centre – retail real estate that has been planned, constructed and managed as a single retail entity. It consists of common areas, with a minimum gross leasable area (GLA) of 5,000 sq. m, and a minimum of 10 shops.

DI – Disposable Income, households' gross disposable income.

Loan availability – measure defining the amount of the average monthly wage in the enterprise sector in a given market, considering the bank's lending requirements and loan parameters (interest rate, depreciation period, social minimum understood as the minimum income after the payment of loan instalments). Important information is provided by the pace of changes and regional differentiation rather than the value of the indicator alone.

Housing affordability – measure of potential ability to purchase housing at the offer price for the average monthly wage. It indicates the number of square metres of housing that can be purchased for an average wage in the enterprise sector in a particular city (GUS).

DTI - Debt to Income, indicator defining the level of loan service costs (repayment) to the average gross income available to households.

Financial leverage –ratio of liabilities and provisions for liabilities to equity.

PONT – database holding data on housing real estate offer prices, gathered by the company of PONT Info Nieruchomości.

Global creditworthiness – measure indicating overall creditworthiness (mortgage loans) of all households in Polish cities. It is calculated based on individual income available to households (household budgets according to GUS) as well as bank lending requirements and loan parameters.

Hedonic housing price index – reflects the ‘pure’ price, i.e. resulting from factors other than home quality differences. We also analyse the price of a standardized dwelling, common in a given market, based on an econometric model. The index adjusts the average price from the sample to the change in quality of housing in the sample in each period. This distinguishes it from the average price growth, or the median in the sample, which would strongly react to a change in the sample composition, e.g. by increasing the price given a higher number of small dwellings with a higher price per square metre. More information in the article by M. Widłak (2010) „Metody wyznaczania hedonicznych indeksów cen jako sposób kontroli zmian jakości dóbr” [“Methods of computing hedonic price indices as the way to control changes in goods quality”], Wiadomości Statystyczne no. 9.

IRR – Internal Rate of Return, internal rate of return – method of economic assessment of effectiveness of investment projects. An investment project is profitable when the internal rate of return is higher than the terminal capitalization rate being the lowest rate of return acceptable to the investor.

Affordability of loan-financed housing – measure specifying how many square metres of housing at an average offer price in a particular market (PONT Info) may be purchased for a mortgage loan obtained based on the average monthly wage in the enterprises sector in a particular market (GUS), in view of loan parameters (interest rate, depreciation period, social minimum understood as the minimum income after payment of loan instalments) and the bank’s lending parameters. Index growth rate and spreads between particular markets also provide important information.

LTV – (Loan to Value) – ratio of the value of the loan granted to the value of the loan collateral.

DFD – an average large real estate development company, selected on the basis of economic activity classification number PKD2007. A large real estate development company employs more than 50 people.

MDM – Housing for the Young – a new government-subsidized scheme intended to support housing construction through subsidies to mortgage loans granted to households meeting the following requirements: age below 35 years, no homeownership, housing usable area not

exceeding 75 square meters for a housing unit and 100 square meters for a single-family house. The scheme entered into force at the beginning of 2014.

MDR - (Mortgage Debt Ratio) – percentage share of mortgage loans repayment in the borrower's budget.

Cities 200-500 –all cities in Poland with 200 to 500 thousand inhabitants.

MLS – (Multiple Listing System) a system which enables the real estate brokers to exchange information concerning offers of homes for sale.

OOH – (Owner Occupied Housing) dwellings inhabited by the owner.

P/I – (Price to Income), ratio determining the relationship, expressed in years, of the price of an average dwelling in a particular market to the average available income.

P/R – (Price to Rent), ratio determining the relationship of the price of an average dwelling in a particular market to the cost of rental of a similar dwelling.

Sub-let –the process of a temporary lease by home owner of the whole or part of their property against a specific fee.

Pre-let – lease of commercial real estate during its construction period. Its level is determined by the bank financing the investment in order to secure the income from investment.

Credit rationing - restricted lending resulting from banks' own assessment of growing risk. In specific situations this may diminish the value of newly granted loans, despite the absence of major changes in the current creditworthiness of the borrower, which may lead to self-fulfilling forecast.

Recommendation S - collection of good practices regarding mortgage-secured credit exposures. It was introduced in 2006 by the Polish Financial Supervision Authority, issued pursuant to Article 137 item 5 of the Banking Law Act (Journal of Laws No. 72/2002, item 665, as amended).

Recommendation T- collection of good practices in managing the risk of retail loan exposures. It was introduced in 2010 by the Polish Financial Supervision Authority, issued pursuant to Article 137 item 5 of the Banking Law Act (Journal of Laws No. 72/2002, item 665, as amended).

Re-commercialisation of commercial properties - re-lease of properties which were leased before.

Rodzina na Swoim (RnS) (Family on their own) – the governmental scheme intended to support housing construction through subsidies to interest rates on housing loans. The scheme was ended at the end of 2012.

Sekocenbud –publishing house issuing quarterly data on construction costs. The team relies on quarterly Bulletins of Prices of Buildings (BCO), Part I, large buildings.

Shell and core construction of new housing - it may be housing with concrete topping on the floor and plaster on the walls and front door, to be finally finished by the buyer. The actual standard of the shell and core construction may vary depending on the real estate developer. This standard should be described in the home purchase contract.

Standard of office real estate– office space is classified according to the offered standard. The classification depends on the age of the building, its location, possibility to customize the space, technical specification (e.g. raised floors or suspended ceilings), underground and over-ground parking lots and other factors important from the tenant's point of view.

Capitalization rate – quotient of the net operating income that may be earned in the market and the market price of real estate (in accordance with the Generally Applicable Domestic Principles of Appraisal).

Housing situation - understood as an indicator of the degree to which housing needs of the society are satisfied. Most often it is measured as the relation expressed in natural numbers between the housing stock and the population. It is described by such indicators as the number of dwellings per 1 000 inhabitants, the size of the average dwelling, the technical condition of housing, access to public transport, measured by the average commute time.

TBS (Social Building Society) – a company operating under the Act of 26 October 1995 on certain forms of subsidizing housing construction (consolidated text of the Journal of Laws No. 98/2000, item 1070, as amended). IBS is engaged in the construction and administration of multi-family buildings under rental, provision of management and administration services and conduct of business related to housing construction and accompanying infrastructure. Initially, TBS offer was meant to be addressed to non-affluent families eligible for loan subsidy from the National Housing Fund (KFM). Tenants pay rent, which is usually higher than in municipal housing (as the loan is repaid from the rent) but lower than the market rent.

TDR - (Total Debt Ratio) – ratio determining the percentage share of mortgage loan repayment in the borrower's budget.

Vacancy Rate – relation of non-rented space to the accumulated (total) supply of commercial space in a particular location, e.g. town or district.

Profitability ratios – **ROA** (return on assets) – relation of net income to assets at the end of the period, **ROE** (return on equity) – relation of net income to equity at the end of the period, profitability of net sales – net profit in relation to income on sales.

Professional rental – the process of leasing residential space especially constructed for housing purposes; the owner of the home rental stock may be both a legal entity (municipality, local government, real estate fund) as well as a natural person; in Poland this market is limited and decapitalised.

List of abbreviations

+3M	3-month changes
5M	5 cities: Gdańsk, Kraków, Łódź, Poznań, Wrocław
6M	6 cities: Gdańsk, Gdynia, Kraków, Łódź, Poznań, Wrocław
7M	7 cities: Gdańsk, Gdynia, Kraków, Łódź, Poznań, Warszawa, Wrocław
10M	10 cities: Białystok, Bydgoszcz, Katowice, Kielce, Lublin, Olsztyn, Opole, Rzeszów, Szczecin, Zielona Góra
AMRON	System for the Analysis and Monitoring of Real Estate Market Transactions
BaNK	Commercial Real Estate Market Database
BaRN	Real Estate Market Database
BIK	Credit Information Bureau
CPI	Consumer Price Index
DFD	Large real estate development company
DI	Disposable income
DTI	Debt to Income
FMnW	Rental Housing Fund
GD	Households
GUS	Central Statistical Office
IRR	Internal Rate of Return
EURIBOR	Euro Interbank Offer Rate
KNF	Polish Financial Supervision Authority
KRS	National Court Register
LIBOR	London Interbank Offered Rate
LTV	Loan-to-Value
MDM	Government-subsidized housing scheme Mieszkanie dla Młodych [Housing for the Young]
MDR	Mortgage to Debt Ratio
MLS	Multiple Listing System
IRFS	International Financial Reporting Standards
NBP	Narodowy Bank Polski
OOH	Owner Occupied Housing
PAB	Polish Construction Research and Forecasting
P/I	Price to Income
PP	Rest of Poland

RNS	Government-subsidized housing scheme Rodzina na Swoim [Family on their own]
RP	Primary housing market
RPO	Offer in the primary market
RPT	Transaction in the primary market
PAS	Polish Accounting Standards
RW	Secondary housing market
RWO	Offer in the secondary market
RWT	Transaction in the secondary market
ROA	Return on Assets
ROE	Return on Equity
SARFIN	Analytical System for the Real Estate Financing Market
TBS	Social Building Society
TDR	Total Debt Ratio
WIBOR	Warsaw Interbank Offered Rate
WIG20	Index including top 20 companies listed on the Warsaw Stock Exchange with the highest value of publicly traded shares
ZBP	Polish Bank Association
ZKPK	Accumulated index of changes in banks' credit policy criteria