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# **Cycles on real estate markets – the reflections of an analyst**

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The opinions expressed in this presentation are those of the author and do not represent the opinions of the Narodowy Bank Polski.

# Why didn't economists deal with real estate?

- The economists' classical approach was that residential real estate is a social, technical and construction problem. Commercial real estate was not of great economic importance.
- This approach was favored by the "sect" nature of the real estate environment. Strong influence of normative economics, urban planning, sociology and housing politics. Commercial real estate was influenced by business interests, often a specially generated lack of transparency can be found. Under restricted access to data, various strange theories were created ad hoc.
- These problems were reflected in the approach of central banks, which have „not noticed” the mortgage banking and OOH boom since the 90s. Central banks have also not noticed that the development of the modern economy relies on services. Those serve the beginning and the end of the global production chain, and are generated in different types of commercial real estate.
- Economic development concentrates nowadays in large, modern agglomerations, which are a well-connected collection of residential and commercial properties providing work for highly qualified people, servicing these processes and providing the necessary capital.
- Competition on the domestic and international real estate market is, to a large extent, competition of agglomerations for those resources that allow to obtain high productivity of labor and capital, and as a consequence pay for services provided by residential and commercial real estate. There is also competition between these subsectors.
- As a consequence, real estate becomes an important element of assets, investments, banking assets and the services they generate, provides an indirect and direct contribution to GDP growth.

# What do we like to forget when there is a boom? 3

- There is also a dark side to this process - cyclical development, and especially crises caused by real estate.
- For an economist, real estate is an extremely imperfect market for services and capital. Demand fluctuates, while supply is restricted by the basic factors of production, i.e. land and materials. It is strongly connected with the capital market, non-transparent, asymmetrical, strongly political. And has a strong impact on the financial sector.
- Not only the real estate market is intransparent. Often related institutions, products and financial structures are constructed in a way that makes it difficult to assess the risk and to follow the financial flows.
- Cycles on this market cannot be avoided for structural reasons. There is a rigid supply in the short term, long delays in supply responses, strong changes in demand. The income elasticity of demand exceeds 1.
- The classical accelerator works between the services and capital market, there is a multiplier effect of demand for real estate capital in relation to market turnover. Consequently, an acceleration of demand starts the cycle.
- An accelerator or financial super accelerator appears on developed markets. It is usually an accumulation of phenomena on the financial market associated with the subsequent reevaluation of real estate assets. This has an impact on the real estate market and then again on the financial markets.

# There is a lot of bad experience

- This sector (land, residential and commercial real estate) generated historically a wide spectrum of problems: from social ones related to market malfunctions, through national crises to regional and global financial crises. Contemporary crises, despite affecting richer societies are not simpler - it is usually a politically difficult conflict between savers and owners of apartments.
- What is really dangerous is a real estate crisis. It should not be confused with cycles. Crises are more and more menacing and more painful because real estate assets and financial sector involvement are increasing. The reason is the build-up of tensions, usually on the market, in the whole stock and in the financial sector, but the crisis patterns vary widely. A low turnover of the stock, as well as a low share of credit production to the real estate stock is a factor stimulating cycles.
- Monetary and supervisory policies have a major impact on demand volatility, and this is the domain of central banks. Interest rates affect both housing consumption and investment demand, and supervisory policy affects demand by limiting credit availability.
- Fiscal policy also had a significant negative impact, especially created for political purposes by creating strong demand impulses, which fuel cycles.
- Because this threat is growing naturally (development of the financial sector, development of real estate) central banks are quickly trying to close the information and data gap, hence their interest in the sector.

# Without modern real estate, there is no knowledge-based economy

- Without the development of modern agglomerations, i.e. without the development of housing and commercial real estate that will attract human capital and innovation-oriented business, we will not build a modern knowledge-based economy. This takes time and is very capital intensive.
- Polish agglomerations have made significant progress in this area, but the challenges are still great.
- This development is not linear, too much development acceleration leads to a cycle and can even generate a crisis.
- Real estate crises are on average twice as long and deeper than business crises. Commercial market crises are more frequent but milder than housing crises.
- Therefore, the development of the real estate sector should be monitored, especially during the recovery or boom phase

## What to monitor?

- Unlike in case of business cycles, in real estate it is more difficult to quantify the output, which is the production of goods and services. We have several categories for apartments, for example. Completed flats are a historical indicator, started flats are an indicator of the economic situation. But this data does not help to understand the market situation when pre-sale contracts for the construction of flats are traded.
- Similar problems occur with prices, which are a good measure of tensions. First, what prices to analyse? How to aggregate them? Indicators based on averages are prone to changes in the sample structure, we can also have different processes on the primary, secondary and rental market. The best prices and rents are hedonic, but hedonic models require additional data.

## How to monitor?

- Should we use indicator analysis or econometric models? The models can be unreliable due to structural and impossible to quantify factors. The indicators leave a lot of room for expert judgment but are more flexible and can take into account many factors.
- The next problem is the economic model. Is a flat a consumer good or an investment good? Can we use the Cobweb or the Wheaton DiPasquale model?
- Poland's experience shows that when analyzing cycles, it is necessary to monitor a wide spectrum of variables, combined with the analysis of economic events on these markets. This is a challenge for analysts and supervisory authorities, as it requires the construction of appropriate infrastructure.

## How to interact

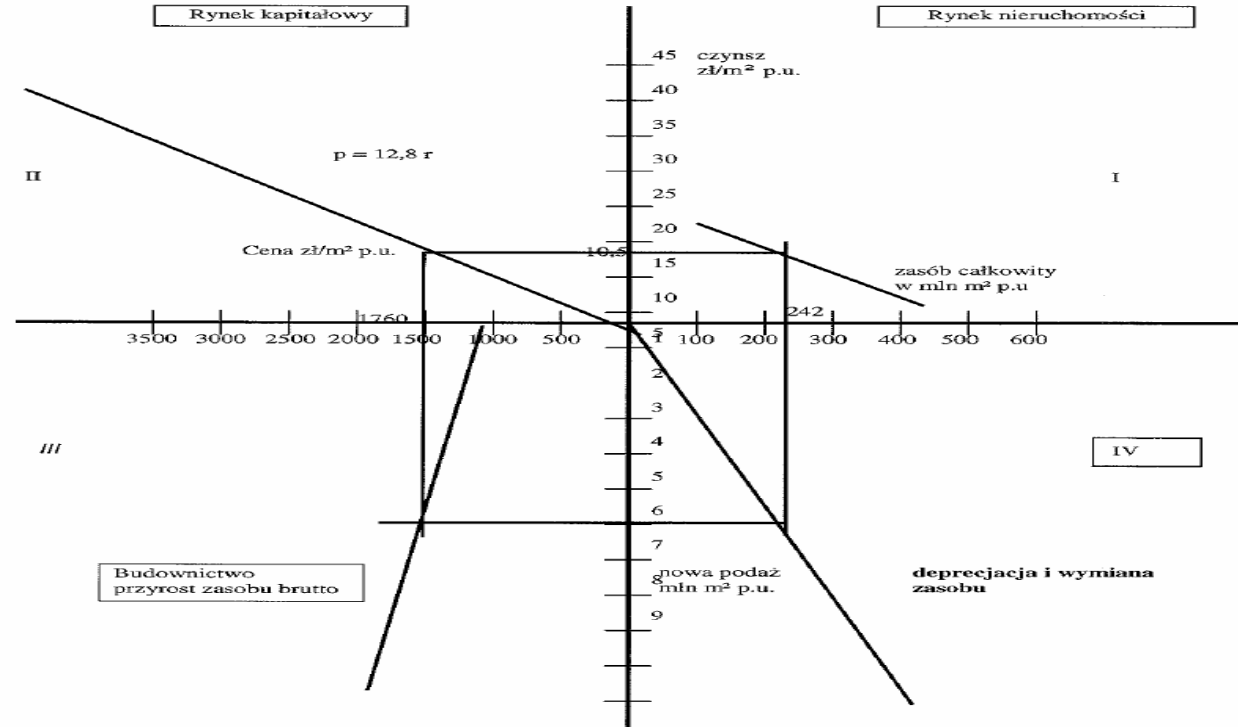
- The problem for economists, politicians and supervisors is not the lack of tools, but the difficulty to quantify their impact and the high political costs. Typically, depending on the scale and phase of the cycle, tools affecting credit supply (banks), credit demand (consumers) or strengthening financial intermediaries can be identified.
- However, each of them is politically painful because it violates someone's interests. A successful intervention raises the question of the sense of costs incurred when nothing happened.
- Even the price increase has a special character because people enjoy being wealthier.
- Practical experience also shows that the problem may be, either economic reasoning that meets a political assumption, or a convenient escape into theories or formal models without their practical verification.



## 1. The Fisher-DiPasquale-Wheaton model.

- Space and capital market. Rents, imputed rents, interest rate and the stock are the main variables.
- The stock and demand for space determines rents
- The house price is equal to stream of discounted rents.
- Higher prices lead to more new housing production
- Shift in stock affects rents and prices

**RYS 4.**  
**MODEL RYNKU NIERUCHOMOŚCI**

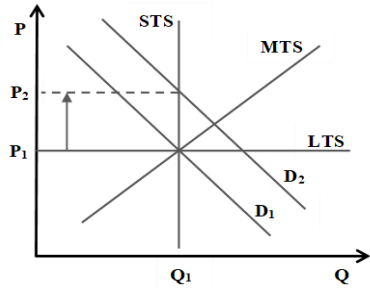


## 2. Classical market equilibrium model

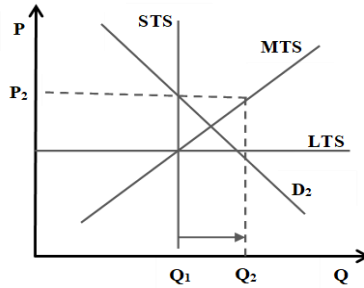
OOH as a consumption good and a simple cycle model.

### The demand and supply cycle in the market

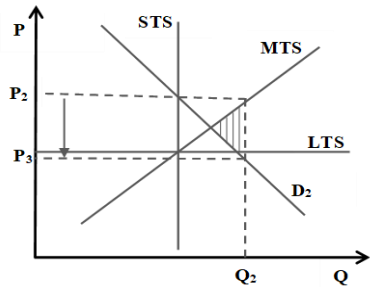
I.



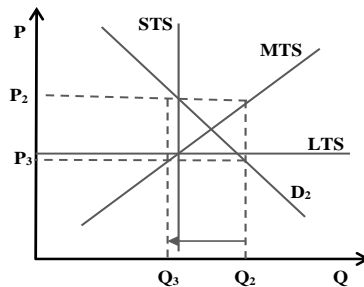
II.



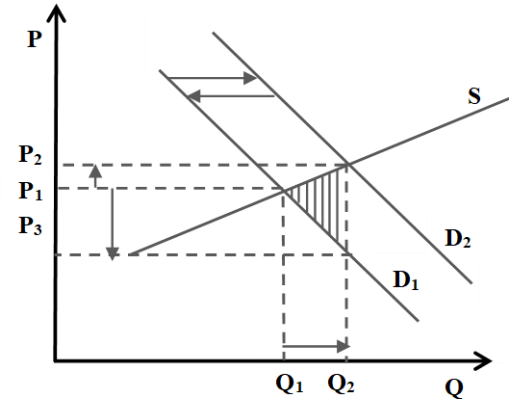
III.



IV.

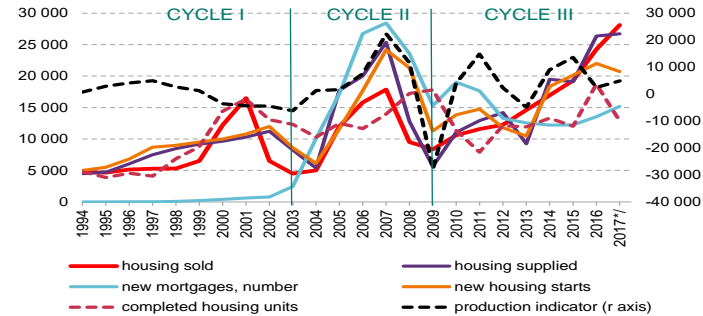


### The cycle in the real estate market

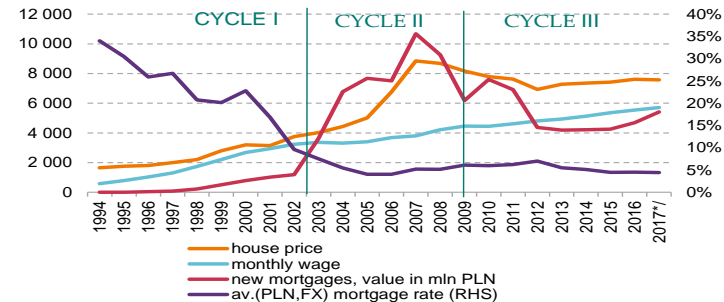


# Cycles in the Polish housing market – practical test

Cycles in the housing market in Warsaw in 1994-2017



Determinants of the housing cycles in Warsaw during 1994-2017

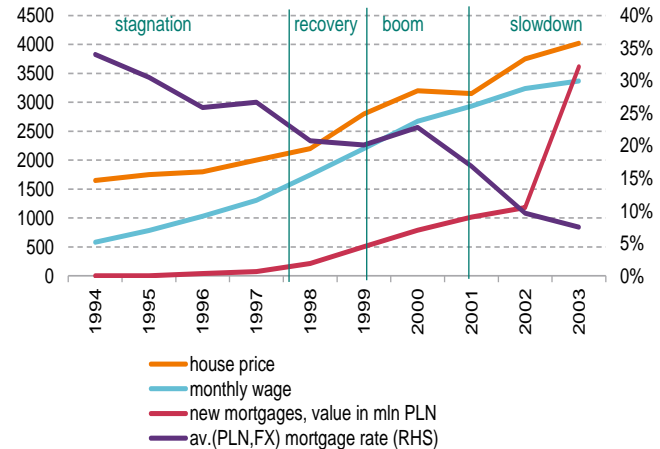
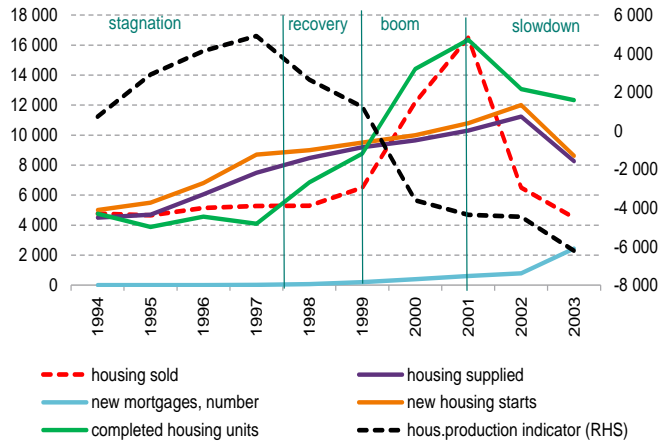


Cycle 1: optimism of the developers and fiscal regulations

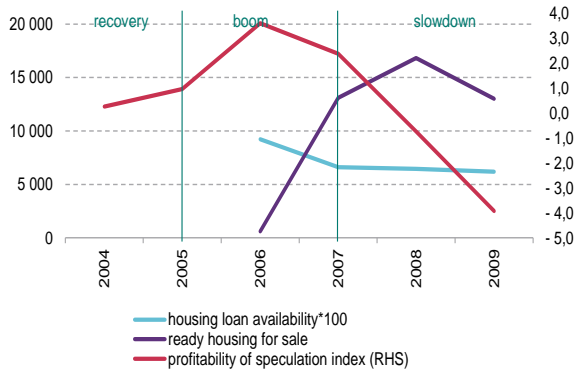
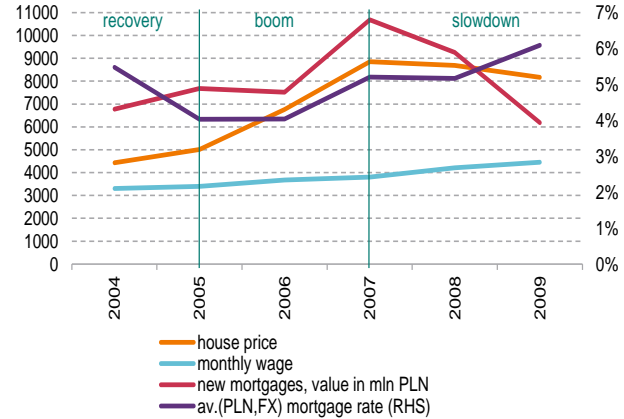
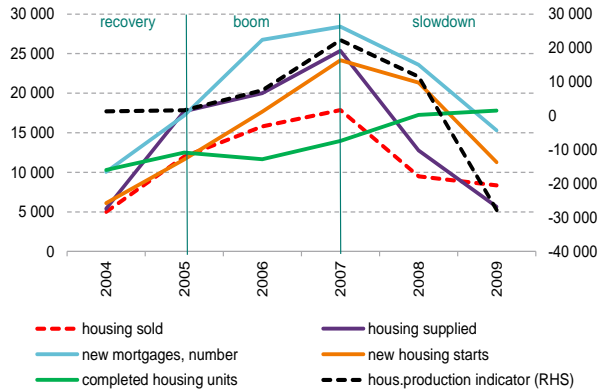
Cycle 2: credit boom and speculation

Cycle 3: low interest rates and investment motives

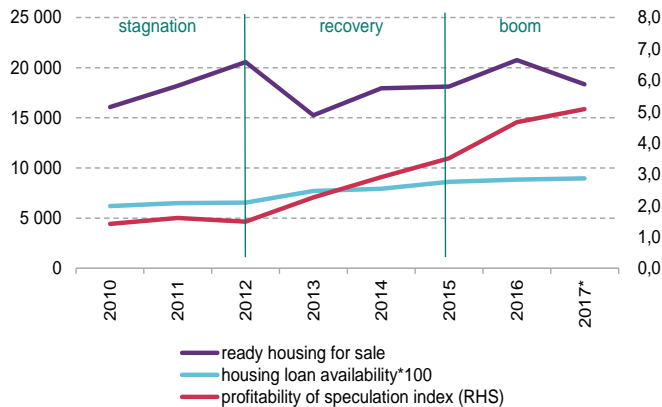
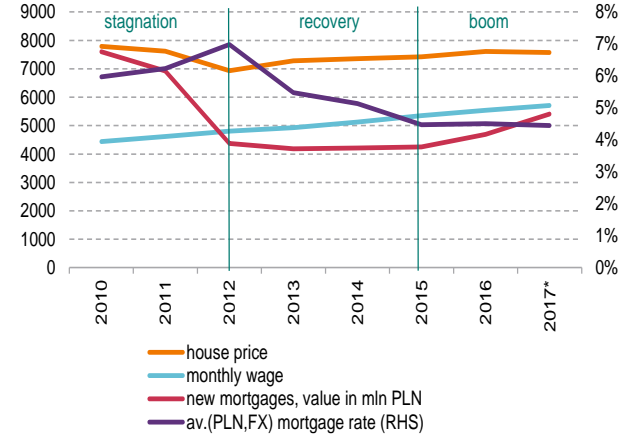
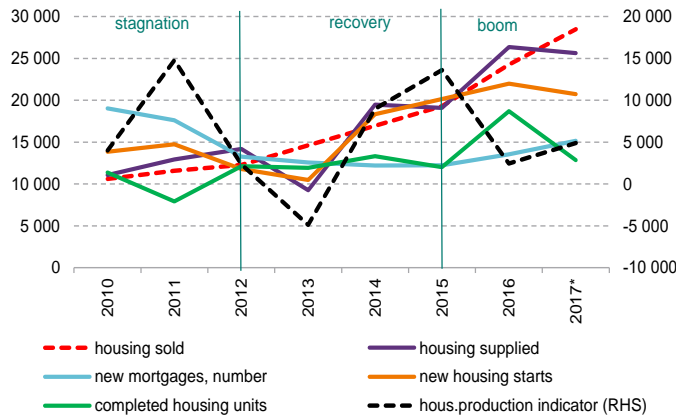
# Cycle in the housing market in Warsaw in 1994-2003



# Cycle in the housing market in Warsaw in 2004-2009

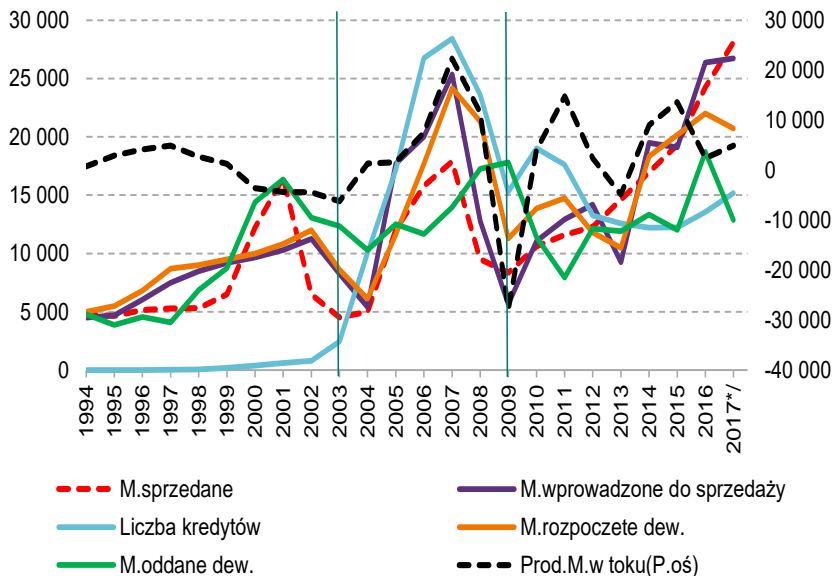


# Cycle in the housing market in Warsaw in 2010-2017

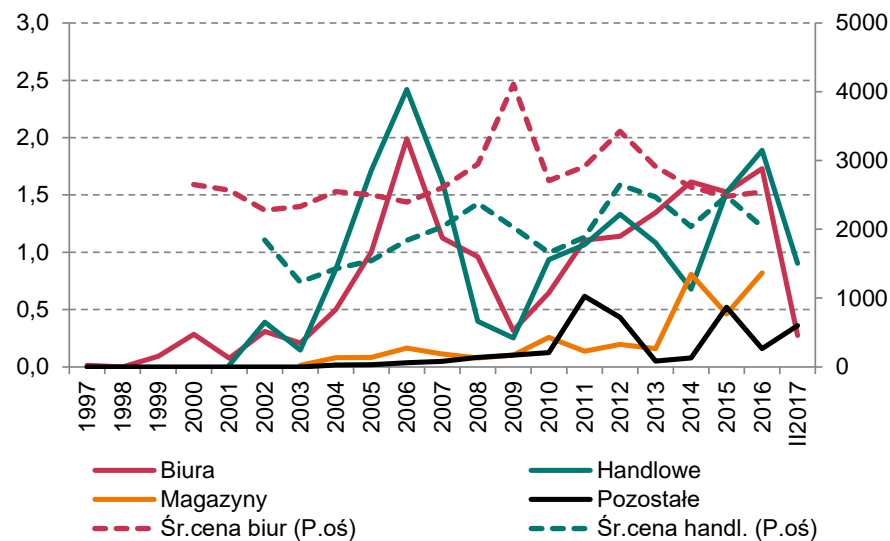


## Residential and commercial cycles usually differ significantly (commercial and residential cycles at different times)

Cycles on the housing markets in Poland in the years 1994-2017

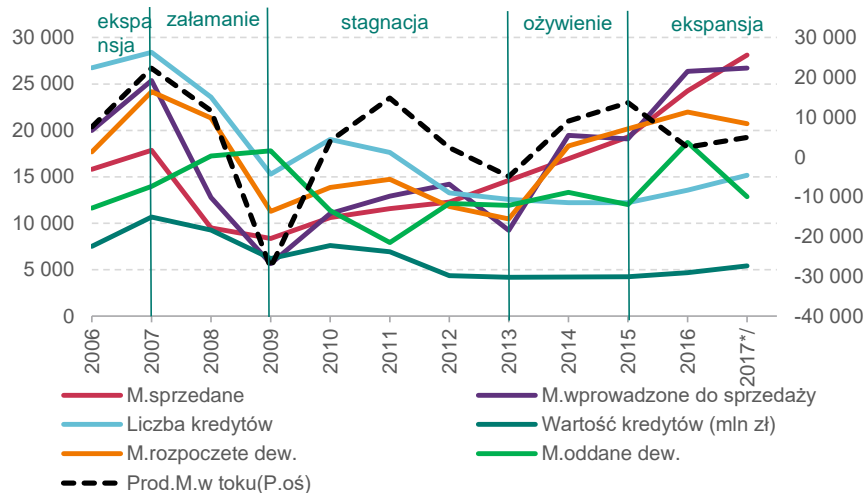


Cycles on commercial markets in Poland in 1997-2017



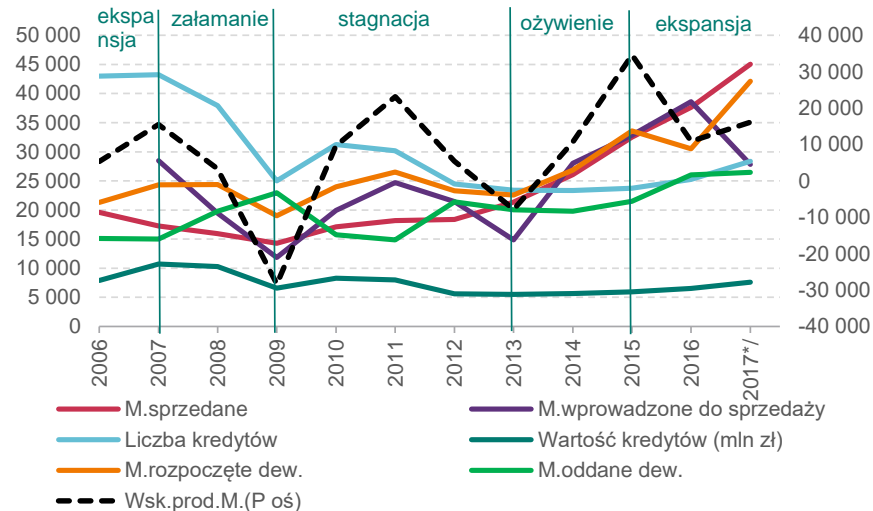
# Cycles 2006 - 2018 on the real estate markets of the largest cities

## Warsaw



Źródło: NBP, REAS, GUS.

## 6 cities

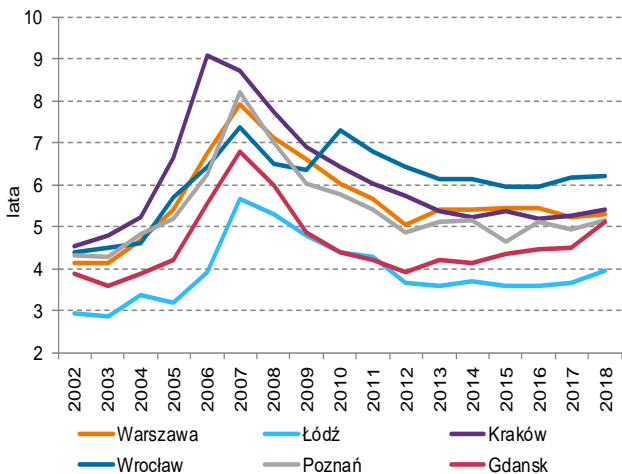


Źródło: NBP, REAS, GUS.

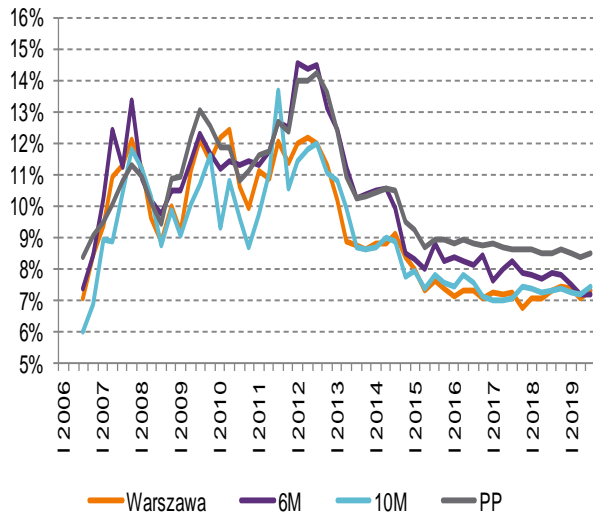


**How to measure tensions? Traditional measures may fail when used selectively and without a broad context, for some sufficient information may not be available.**

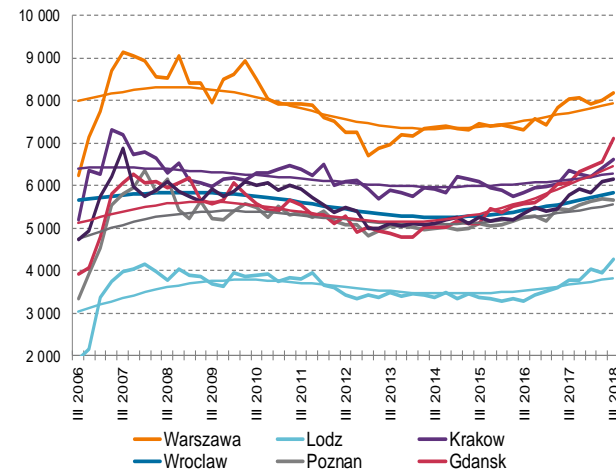
**PI estimate  
(price of flat to income)  
on selected markets in Poland**



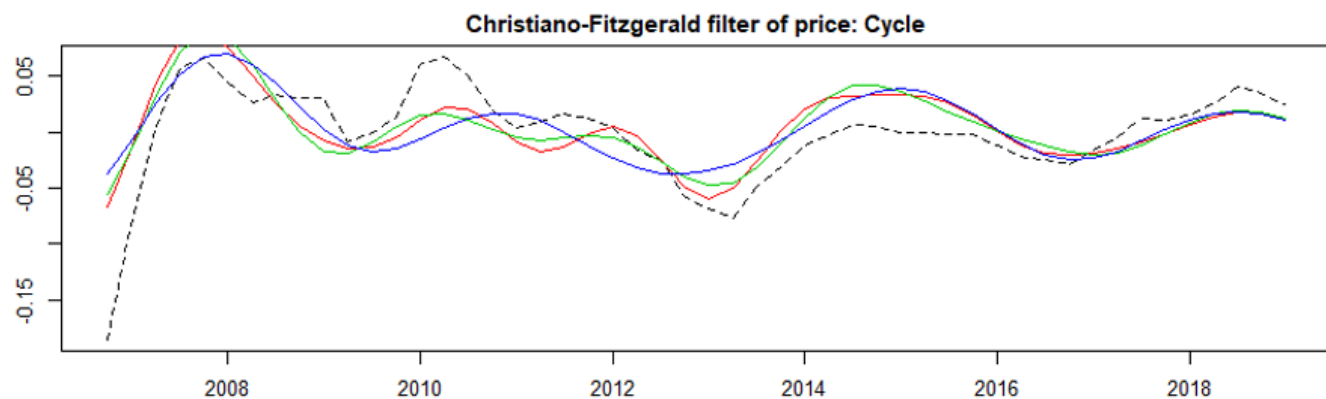
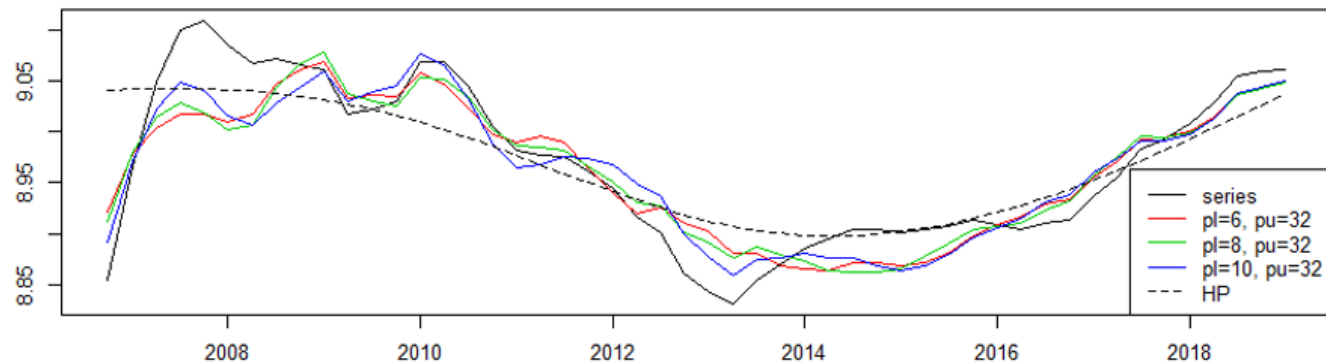
**PR estimate  
(flat rental rate to income)  
on selected markets in Poland**



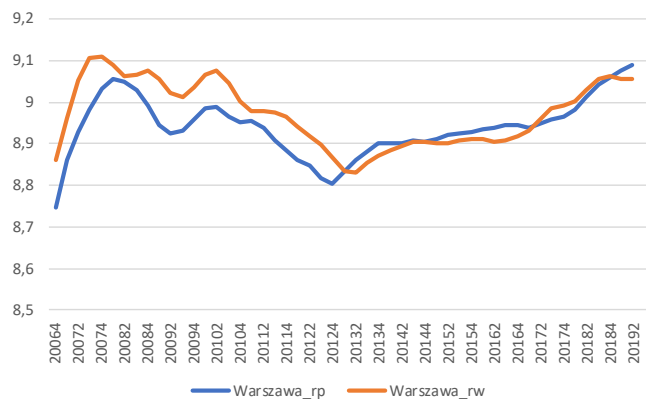
**Secondary market transaction price in selected  
markets and the HP trend**



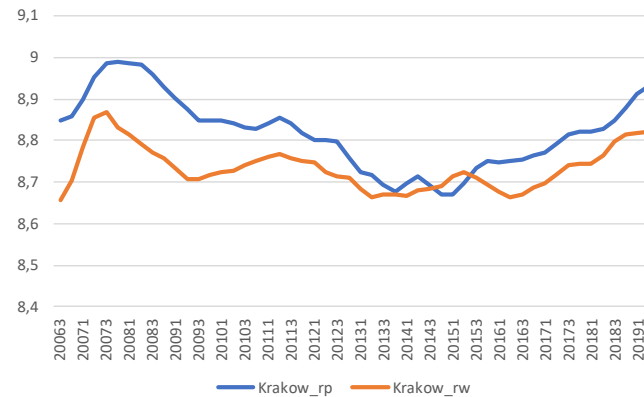
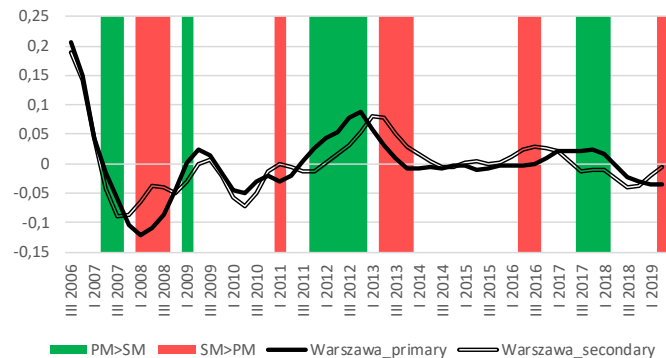
## A deeper look into the cyclical component of house prices – application of the Christiano-Fitzgerald filter for house prices in Warsaw



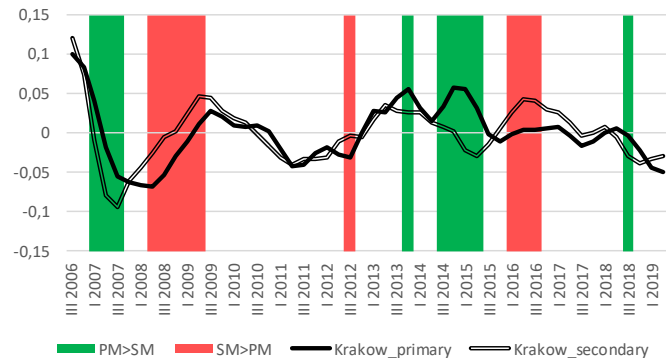
## A deeper look into the cyclical component of house prices – differences of the cyclical component of the primary and secondary market (HP-filter) (1)



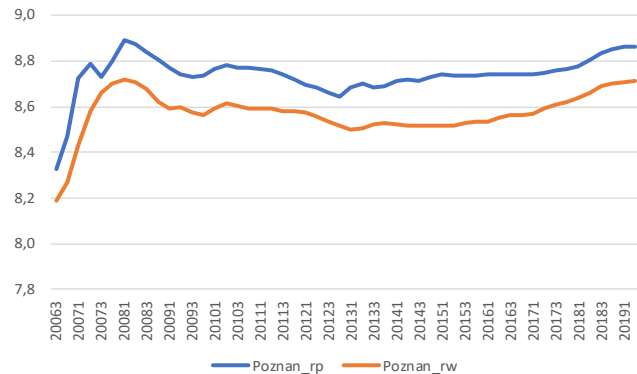
Warszawa



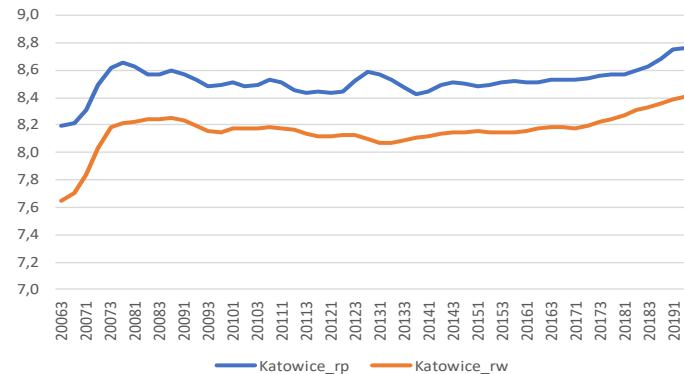
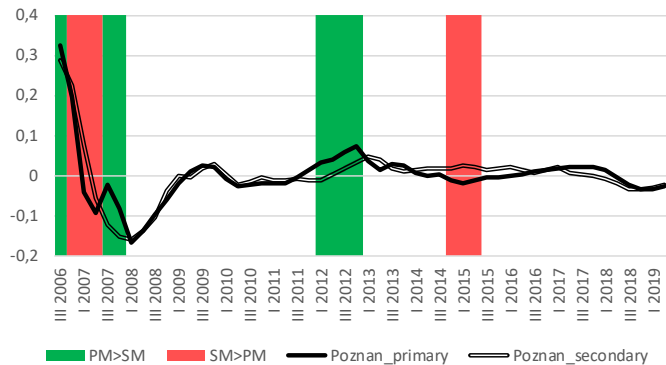
Krakow



## A deeper look into the cyclical component of house prices – differences of the cyclical component of the primary and secondary market (HP-filter) (2)



Poznan



Katowice

