Dynamics of housing affordability in Slovakia and its regions on the background of macroeconomic development

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The current financial and economic crisis has confirmed the general importance of the housing markets developments to the overall macroeconomic and financial trends. The relative importance of the housing market in Slovakia is one of the highest within the euro area. Housing loans in Slovakia account for more than 70% of the total household debt, while private ownership of homes is the highest from all euro area countries. Moreover, housing loans are the fastest growing item is the banks' balance sheets. Finally, in Slovakia, there is no other market with similar depth and liquidity that could provide reasonable information about the development of asset prices. Consequently, the housing market in Slovakia is not only crucial to households and banks, but it also gives unique signals about macroeconomic developments. Therefore, a deeper analysis of this market is of a great importance and the calculation of the housing affordability index could be one of the analytical channels.

Methodology

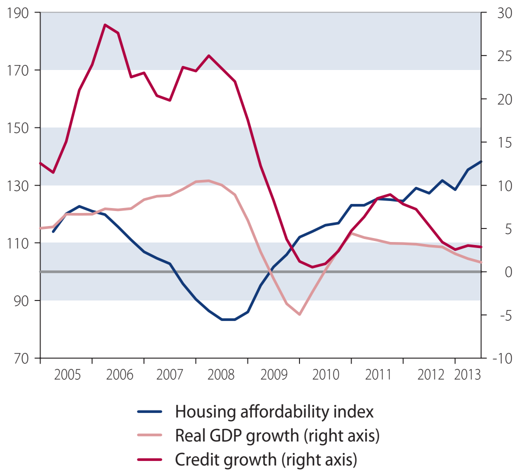
In our approach, we have associated housing affordability with the ratio between the disposable income of a family and the expense on a mortgage loan necessary to access the housing. The details behind are, however, much more complex. The first component of our methodology, i.e. disposable income of a family is calculated as the sum of the average incomes of a man and of a woman, net of taxes, social charges and necessary expenses (cost of food, housing, health, transportation and telecommunication). Compared to existing research in this field, we do not include property tax in our calculation. Although property tax is indisputably a necessary cost from a homeowner point of view, it is currently very small and thus does not affect housing affordability in a substantial way. The second factor affecting the housing affordability is the expense on a mortgage loan necessary to access housing. The monthly mortgage instalment is typically a function of the interest rate (average interest rate on new housing loans), the loan maturity (average maturity on new mortgage loans) and the nominal amount of the mortgage loan. The mortgage loan volume is derived from the average price of an average housing according to supply information multiplied by a constant loan-to-value ratio. Nevertheless, the average housing price is not calculated as a simple average of prices of all offered houses and apartments. It is first calculated by regions and than aggregated as an average weighted by the number of employed individuals in a particular region. Obviously, the level of the loan-to-value ratio has a major influence on monthly mortgage payments. However, also the treatment of loan-to-value ratio in housing affordability is very delicate. On the one hand, an increase in loan-to-value increases the affordability of housing as a lower degree of personal equity (i.e. savings) is necessary. Technically, if the loan-to-value ratio is equal to 100%, housing becomes affordable also for individuals with no savings. On the other hand, an increase in loan-to-value ratio inflates the volume of the mortgage loan and thus also the monthly mortgage payments. Higher monthly payments raise the pressure on household's finance and brings the affordability down. This means that without reliable data on households' savings, changes in loan-to-value ratio have no strict interpretation. Use of dynamic loan-to-value ratios might be rational in a stress-testing exercise but seems to be biased in housing affordability. Therefore, in our exercise, the loan-to-value ratio is constant over time. Some other factors, such as loan maturity are also dynamic over time, but have only little impact on final calculation. All in all, the above-mentioned principles and definitions are included in the calculation of disposable income and mortgage instalment.

As a result, in a situation where a family earning an average income can just afford to pay a mortgage loan (with average interest rate and maturity) to finance an average housing with a constant loan-to-value ratio, the housing affordability index will have a value of 100. Periods during which the index falls below 100 indicate a market situation in which an average family cannot afford to buy an average housing.

Housing affordability with respect to an economic and financial cycle

A first analysis of housing affordability can be done on the background of economic and financial cycle. Even if the time series for Slovakia are too short to conduct a robust analysis of such long-term phenomena, the available data do suggest a positive correlation between the changes in the real GDP and the flow of loans. On this background housing affordability appears to move against the cycle. In the booming times of 2007 until the first half of 2008, when the GDP growth as well as the lending market reached its historical maxima, average housing became unaffordable for average families. This can be explained by soaring property prices that outperformed growing disposable incomes of households. As the growth of income levels could not keep the pace of the one of the housing market, the lending activity accelerated even more to counterbalance the lack of savings generally needed for house purchases. A different situation is observed after 2010, when a combination of stable development on property market and a modest growth of disposable income, accompanied by falling interest rates, led to constant improvements in the affordability of housing.

Chart 1 Housing affordability in economic and financial cycle



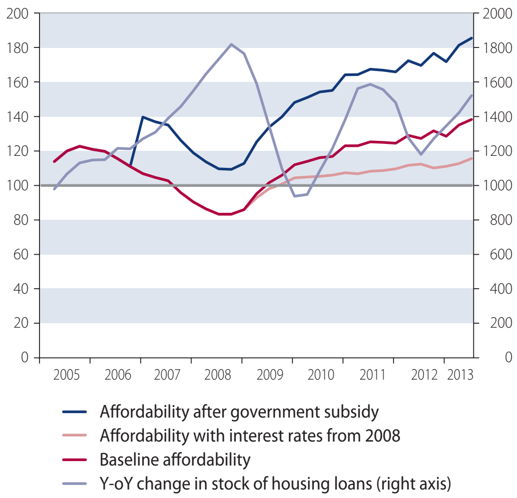
Source: NBS, ŠÚSR, CMN.

Role of interest rates

Although the housing affordability index is primarily driven by changes in disposable income and housing prices, interest rate dynamics plays considerable role as well. There are two reasons why the effect of interest rates on the housing affordability index should be analysed separately. Firstly, according to legislative changes at the end of 2006, young families with incomes below a given threshold are entitled to benefit from a government subsidy on interest rate for the first 5 years. Therefore it is interesting to assess the impact of this government policy. Secondly, Housing loans are currently driven by stable real estate prices and low interest rates. This implies a positive impact of a low interest rate environment on lending activity. However, a possible increase in interest rate would not only affect lending market but would also bring down the affordability of housing.

Stylised analysis of the role of interest rates offers two conclusions. First, monetary policy reaction in 2008 and early 2009 (sharp cut in interest rates) seem to have had a positive effect on the housing affordability. It is important to notice, that it came in stress times. It was accompanied by deteriorating lending activity, falling property prices and soaring unemployment. Therefore, from a Slovak housing and lending market point of view, decisions on interest rates in 2008 and 2009 had a strong counter-cyclical nature. Just the opposite can be concluded about the introduction of government subsidy of interest rates at the beginning of 2007, which also improved affordability of housing. The combination of very strong lending activity and booming property prices carried all symptoms of excessiveness in growing

Chart 2 Impact of interest rates on housing affordability



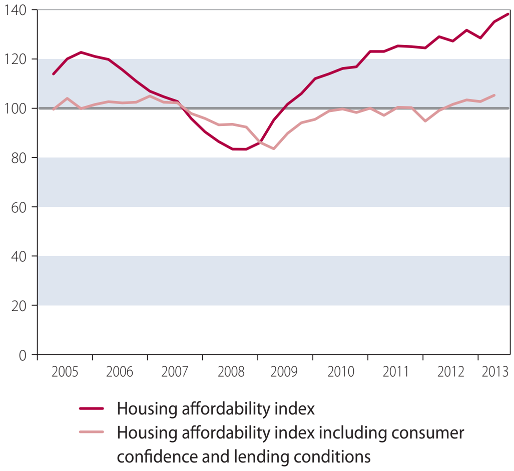
Source: NBS, ŠÚSR, CMN.

debt of households as well as formation of a real estate bubble. From a systemic risk point of view, this was the worse timing to introduce any incentives to increase household debt in order to buy a real estate. Such government measures are usually fuelling real estate bubbles and contribute to higher fragility of both households and banks after the prices bubble bursts (Chart 2).

Role of lending standards and consumer confidence

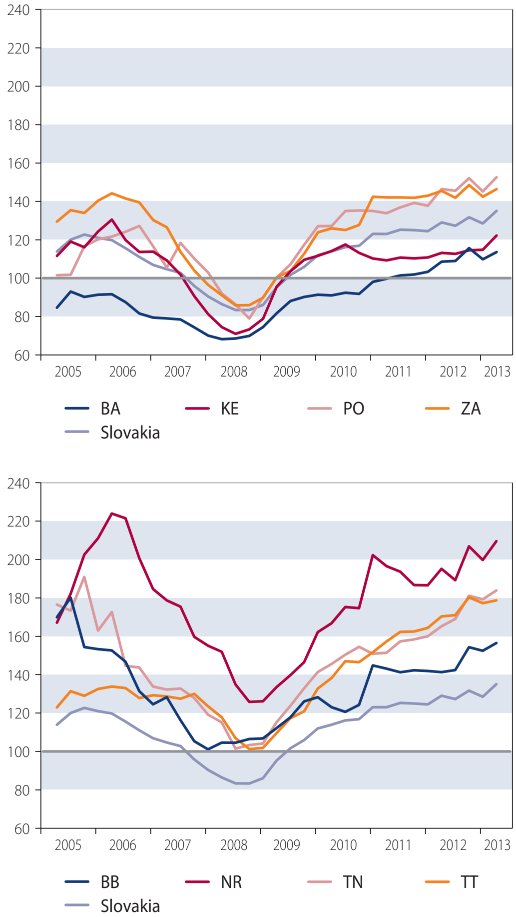
The housing affordability index is a quantitative measure giving some insight in the degree of equilibrium between property prices, disposable incomes, interest rates and some other variables. But it does not include any soft information, such as banks' lending standards or consumer confidence. These parameters can be, however, of a very high significance. They can enhance the

Chart 3 Housing affordability index modified by lending standards and consumer confidence



Source: NBS, ŠÚSR, CMN.

Chart 5 Housing affordability index in Slovakia regions



Source: NBS, ŠÚSR, CMN.

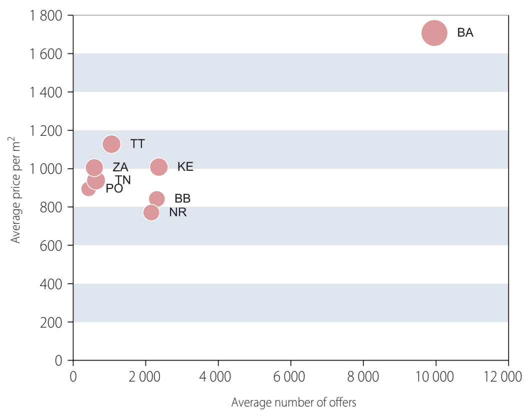
affordability of housing as well as decrease it. This phenomenon can be observed in both the good times and the times of crises. In the period until the middle of 2008, loosening lending policies and growing consumer confidence largely offset the excessive growth of real estate prices. More importantly, even if the abrupt fall in housing prices in 2009 technically increased housing affordability index, difficult access to the bank credit and negative outlook on labour market did not make house purchases any easier. Consequently the first half of 2009 was the period of the most rapid increase in the housing affordability index, while the modified affordability has reached it historical low. This is a good example how a solely quantitative approach to the housing affordability can only disclose a part of the picture.

INTERPRETATION OF REGIONAL DIFFERENCES IN HOUSING AFFORDABILITY

Although Slovakia is a small country with a relatively small housing market, the situation in individual regions tends to be very heterogeneous. Differences remain very deep in many aspects, such as income levels, property prices, size and depth of the real estate market or unemployment rates. Dominance of the Bratislava region can be observed in most of these parameters. The size of the Bratislava real estate market (the number of offers) plays an important role in the value of the housing affordability index. Taking into account the concentration of the property market, average housing prices for Slovakia are not calculated as a simple average of all supply information, because this would be determined by Bratislava market as the largest market by the number of offers. Unlike in other existing research, we use a weighted average where housing prices of different regions are weighted by the size of respective labour market. This makes the methodology of housing prices more consistent with the methodology of average income of households.

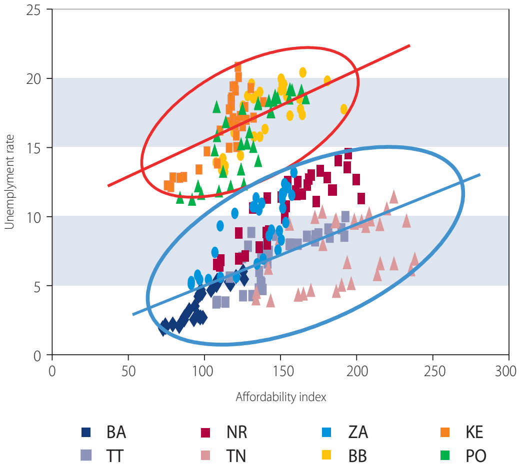
In accordance with the above-mentioned heterogeneity of many important economic variables, the housing affordability index in individual regions shows very different results. Several observations can be made in this case. Firstly, the region with the lowest affordability of housing is Bratislava. This might seem as a paradox as the re-

Chart 4 Selected differences in the Slovakia regions



Source: NBS, ŠÚSR, CMN.

Chart 6 Housing affordability index and unemployment rate



Source: NBS, ŠÚSR, CMN.

gion is known as being attractive for many young people from other regions. So why would people prefer to move to a region where the average income can buy by far less square metres of housing than in any other region? A similar situation can be observed in Košice, which also is a region with relatively higher prosperity compared to most of the other regions. The answer is not clear but it is surely related to the labour market conditions. People seem to prefer to buy a smaller apartment in exchange of a more stable job.

This logic could largely explain why more prosperous regions would have lower affordability of housing. This explanation would, however, not fit to the region of Presov. Its housing affordability tends to be relatively low, even if the unemployment rate is well above the Slovak average. Although the average income level is the lowest among all regions, the real estate prices are higher than in other four regions. The explanation lies in the heterogeneity within the region. The concentration of the real estate market in Vysoké Tatry and the city of Prešov drives the average housing prices up, while the income levels reflect the average economic performance of this region.

This leads us to the third conclusion. Over time and across the regions some correlation between housing affordability index and unemployment rate can be observed. Improvements in labour market (either over time or across the regions) are generally associated with worsening of the housing affordability, usually as a result of growing housing prices. But this pattern seems to have a different level in two clusters (Chart 4). Even if the nature of this relation seems to be relatively homogenous, for the regions of Prešov, Košice and Banská Bystrica, the level of unemployment is higher without any implication on the housing affordability, which remains similar to regions with much lower unemployment rates. There are several factors behind this paradox. One is related to long-term structural unemployment in some regions. This type of unemployment increases the average figure but does not affect the housing market. A second factor is migration. It cannot be ruled out that housing markets in some regions are affected by earnings coming from other regions in Slovakia as well as from a work abroad. Other factors might include the existence of a shadow economy, concentrations within the regions (as explained above), or even cultural differences including patterns in savings rates and preferences in types of housing.

Conclusions

The proposed housing affordability index seems to give useful information about economic and financial cycle. Furthermore, the stylised equilibrium inherent to the methodology provides a unique interpretation about the possible excessiveness of lending activity related to the housing market. From a systemic risk point of view the housing affordability index proved to be an indispensable indicator in the macro-prudential policy toolkit. However, its analysis should not be limited to basic macroeconomic variables. Some soft indicators, such as lending standards and consumer confidence play an important role, too. Finally, first analysis of differences in housing affordability across Slovakia clearly call for more research to be done in this filed.

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