Monitoring 15 years of residential house price development in Hungary with the help of the FHB House Price Index

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1. Introduction

Since the outbreak of the latest financial crisis, the exact measurement of house prices - that are the main collaterals behind mortgage loans - has become of primary importance. It is not an easy task to get exact figures of the residential housing transactions that occurred recently on the market and it is even more difficult to prepare the accurate time series for a longer period from these data.

The most popular housing indexes are already existing for several decades, they can be used as a benchmark for the residential housing market of the relevant country, as e.g. the Nationwide Home Price Index\(^2\), that is published in the UK on a monthly basis and the commencement of the data collection goes back to as far as the year 1952. or the Case Shiller Index\(^3\) of S & P in the US, that is the most widely quoted housing market indicator in the world.

The FHB House Price Index measures the development of Hungarian residential real estate prices. It shows how the value of Hungarian residential properties has changed since 1998. FHB House Price Index is already covering 15 years of house price development and is already an established benchmark for monitoring the house price changes on the Hungarian market.

The index is published quarterly, and starts from the first quarter of 1998. The value of the index is normalised with the average of year 2000, i.e. the average index value in year 2000 is 100. During the development of the Index, we regarded such long-standing, internationally well-known indices as in the EU the house price index of Halifax\(^4\) Nationwide or Hypoport Index\(^5\).

Being a mortgage bank, FHB tries to analyse together with development of the housing market, the main drivers of the mortgage business, the most important economic indices that may positively or negatively influence the housing trends and the acting and motivations of the market players (developers, financing institutions, customers etc).

2. Source of transaction data and methodology

The index is based on purchase-and-sell transaction data of residential real estate, and was prepared by processing purchase-and-sell data of more than 1 million residential properties from around 3200 settlements from 1998 until 2013 in Hungary. All observations were gathered during the property valuations made for FHB Bank and a further database purchased from NAV\(^6\) (from Stamp Duty offices before 2008) served as

\(^{2}\)\hspace{1cm} http://www.lloydsbankinggroup.com/media1/research/halifax_hpi.asp
\(^{3}\)\hspace{1cm} http://www.hypoport.com/hpx_mean_en.html
\(^{4}\)\hspace{1cm} NAV – National Tax Administration Office (APEH before 2010)
sources of data. When providing credit for the purchase of real estate, FHB Bank devotes special attention to the registration of features of the properties. During valuation for the assessment of mortgage lending value (MLV, collateral value), several attributes of a property are investigated:

- Address, location
- Area (gross, net, useful)
- Lot size
- Year of construction
- Distance from and access to public transportation (train, local- and distance bus)
- Condition of the property
- Technical features of the construction
- Heating system etc.

Another – although less detailed - part of the database was collected by the Stamp Duty Offices. Every single Hungarian residential property transaction must find its way to this database, which comprise the following:

- Date of purchase
- Address (settlement, district if in Budapest)
- Purchase price documented through transaction
- Sum of valuation by the Stamp Duty Office
- Type of building (detached house, terraced house, condominium and flat in a block of flats etc.)
- Area

The Act XXX. on Mortgage Banks and Mortgage Bond introduced the so called “special bank principle” in Hungary and FHB Bank was the first mortgage bank in Hungary to enter into this business field in 1998. Being a mortgage bank engaged mostly in residential mortgage lending FHB put special emphasis on collecting data of house price valuations for the exact measurement of the mortgage value of properties that serves as collaterals for the mortgage loans. The law also made it possible to provide property valuation and related services to third parties. (Section 3 § 5 says Apart from the financial, investment and non-core investment services mentioned in subsection (2), mortgage banks may only engage in the business of providing appraisal services to determine the mortgage lending value of real properties.) The prevailing legal regulations prescribed very strict valuation criteria for the mortgage banks. Among other methods they prescribe the use of comparative valuation methods, and the application of the principle of carefulness in the valuation process. To comply with these criteria FHB started the collection of the transaction data followings its establishment.

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7 -Decree of the Minister of Finance No. 25/1997. on the Calculation Methods of the Mortgage Lending Value of Real Estate
- Decree of the Minister of Agriculture No. 54/1997 on the Calculation Methods of the Mortgage Lending Value of Real Estate Qualifying as Agricultural Land.
Methodology

For computing the index, FHB applied the process based on the hedonic method, which is usual in the profession, and the classic reference of which is the study of Kain and Quigley\(^8\). The method serves to filter out the composition effect appearing in observations of simple indicators (mean price, median price). The composition effect itself arises, because not every single property is sold in every quarter, thus our observations – even if the transaction data are complete - are accordingly a restricted sample of the real estate stock, and the sample is not representative. The hedonic method is the most widespread statistical way to measure aggregate property price change, and is based on the theoretical consideration that the value of houses/flats can be divided into the values of their attributes.

The filtering conditions concern that

- the transaction should be between private persons.
- The whole ownership should be transferred.
- An existing date should be connected to the purchase price.
- An area should be belong to the purchase price.
- The price should be reasonable.
- The price of one area unit should be reasonable.

Fig.1.

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The development of the methodology and the quarterly refreshment of the Index happens through a cooperation between FHB Mortgage Bank, FHB Real Estate Co. and ELTINGA\(^9\), a university based real estate research co. To assure the reliable data and to verify the outcome of the research, there are also regular consultations with the Central Statistical Office (KSH) concerning methodology and data filtering issues.

3. The development of house prices in Hungary in the past 15 years

At the time of presenting this paper the FHB Index covers already 15 years of the housing price history in Hungary. This period can be divided into 4 significantly different eras. At the beginning of this period prices have been radically increasing both nominally and in real term. During the so called “fiscal expansion” and “credit boom” periods, prices have been increasing in nominal terms, but the stagnation in real term was already apparent. Since 2008, the trend has been clear: nominal housing prices in Hungary were declining, thus, we have been experiencing a downward trend for the last five years. Thanks to this, Hungary now has one of the lowest average prices in the European Union (an average less than EUR 1,000/square meter, sqm) as well as the lowest number of newly built homes. Hungarian house prices are considered low even for the CEE region.


The first phase, lasting from 1998 to the end of 2000, saw a steep rise in both nominal and real prices. Real estate prices increased by 132% over the three-year period and almost doubled in real terms. Although continually growing demand at the end of the 1990s had not yet met with a corresponding level of supply, the expectations concerning the coming growth of the housing market and the preparation of a new housing subsidy system fostered price increases. The macroeconomic situation also evolved favourably during these years as the economy embarked on a steady growth trajectory. Disposable incomes of private individuals increased by 46% over this period.

It is interesting to mention however that the amount of housing credit taken out at the time was negligible, as a total of only HUF 53 billion in home loans migrated to the household sector over the entirety of the period concerned, while interest rates on loans were also relatively high at around 20%. In spite of this, improving income for households and favourable future economic outlook stimulated the demand on the housing market, faced with a supply that was waning in volume and becoming increasingly outdated in quality. In the mid-1990s, in the few years following budgetary stabilization, the effects of declining demand were also felt on the housing market and the renascent inclination to invest initially appeared mainly on the equities markets. The turning point came with the Russian crisis of 1998 and the stock market crash, in the wake of which many investors sought opportunities on the housing market rather than on the stock exchange. According to data of the National Bank of Hungary (MNB), private individuals invested a total of HUF 108 billion in the stock market in the two years prior to

\(^9\) www.elinga.hu
the crash, while some HUF 160 billion was withdrawn from the value of equities in the five quarters following the crash. It is important to note that prior to the crisis, the macroeconomic environment had been developing favourably, with growing incomes and employment levels paving the way for an explosion in demand on the housing market. At the same time, however, supply was outdated and still fell well short of the standard required by demand. The steep rise in housing prices is also partly explained by the still comparatively high, double-digit inflation that characterized Hungary at the end of the 1990s, as consumer prices rose more than 30% over the examined three-year period. At the start of the decade, citizens continued to favour putting their savings into tangible assets in a period of relatively high inflation.

Fig.2.

Phase 2. The period of fiscal expansion 2001-2003

In the period from the beginning of 2001 to the end of 2003, housing prices continued to rise significantly, although more modestly than before, by a total of 60% over the period, representing an annual average increase in real value of 11%. The introduction of the housing subsidy system in 2001 provided fresh impetus to the development of the Hungarian housing market, following the temporary stalling of price increases at the end of 2000. Impacted by the introduction of subsidies, rates of interest on home loans fell substantially lower than market interest rates, thus making this new form of financing attainable to a broad swathe of the population. The launch of subsidies may also have influenced expectations on the supply side in the long run, as it was from this point on that a discernible expansion in supply occurred.
Parallel with the introduction of subsidies, a significant revitalization of the budget occurred from 2002, resulting in a combined 36% increase in household incomes over the three-year period, representing 15% growth in real terms. In addition to rising incomes, a large amount of external resources appeared in the sector on the credit side, in an amount of approximately HUF 430 billion annually. It is also worth noting that credit growth in these years was driven exclusively by forint loans with subsidized interest rates.

The continued boosting of demand through preferential lending then met with a revival on the supply side from 2001 onwards, with a substantial increase in the number of new homes built. This period saw developers launch the first large-scale residential projects in all major cities in the country. On average over the period, a 50% increase in new homes was added to the housing market annually, amounting to an annual average of 31,703. The number of newly built homes first exceeded the 40th annual units with 43,913 pcs in 2004, while building permits peaked in 2003 with almost 60th permits. Issued building permits then gradually decreased from 2004 and onwards and housing permits followed the trend with the usual 9-12 months delay.

The expansion of supply necessarily occurred only gradually, and for this reason, prices continued to rise until the end of the period. Other amendments to the system of subsidies occurring between 2001 and June 2003 continually eased the conditions for drawing on subsidies, expanding the options for utilizing credit and increasing the size of subsidies available. Among these changes, the most significant step was taken in March 2002, when subsidies were extended to include used homes. The effect that the introduction and expansion of subsidies had on driving prices up can be easily traced in the evolution of the FHB House Price Index. However, the generous subsidy system had already placed an unsustainable burden on the budget by 2003, when the first tightening measures were taken, the effect of which began to be felt on the development of housing prices.

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10 KSH = Hungarian National Statistical Office
Phase 3. The credit boom period 2004-2007

The tightening of the subsidy system made its effects felt immediately on housing prices as a one-time steep rise in prices was checked at the end of 2003. The next few years would be characterized by a considerably more modest annual rate of nominal growth of around 4%, as price increases merely kept pace with – and subsequently fell short of – the rate of inflation.

In many respects, this was to prove to be a period of contradictions, replete with inconsistencies and impacts that cancelled one another out. It is true that housing prices across the nation increased by a further 18% over this period, and that it was really due to the accumulation of the budget deficit that the value of homes decreased annually by 1% in real terms on average over this four-year period, alongside spikes in inflation on two occasions (at the beginning of 2004 and the end of 2006). The decline in real values began in smaller fluctuations from the beginning of 2005; however, the majority of households, suffering the “money illusion” of being unable to distinguish nominal from real values, scarcely perceived this depreciation at the time, and even if they did, then presumably they did not believe it to be a long-term effect. Despite the tightening of conditions for subsidies, competition for lending was still able to sustain demand for a number of years, with a similar amount of loans disbursed annually compared to the preceding period. Once subsidies were terminated, lower-interest forex loans (mainly CHF) became popular and households began to build up debts in foreign currency. From 2004, an increasing proportion of mortgage loans were originally denominated in foreign currencies. At the same time, towards the end of this period a growing proportion - more than 50% of mortgage loans in 2007 - were freely usable mortgage equity loans. This clearly demonstrates that private individuals were using a decreasing portion of their borrowed financial resources for the purchase of homes, and an increasing portion for spending on consumer goods or redeeming more expensive loans taken out earlier, which in turn also tended to indirectly stimulate consumption.

The tightening of the subsidy system naturally had its effect on the supply side as well, as the number of issued building permits began to decline from 2004 (Fig. 3).

Certain delayed effects, however, meant that the supply of new homes still continued to expand, by an annual average of 38,755 units over this period. While incomes increased by barely 1% annually over the period, the abundant supply of credit sustained demand, and consequently housing prices did not begin to fall until the beginning of 2008. Classic macroeconomic factors seemingly no longer supported a further rise in housing prices at this time, but the copious supply of credit at the global level concealed these effects. Partly as a result of this, and as a consequence of the concomitant global boom on the housing, massive foreign demand appeared in Hungary, and particularly in Budapest.

In addition to the mainly German and Austrian investors who had already arrived in earlier years, this period saw the appearance of British, Irish, Spanish, and finally, Russian investors. The foreign demand that emerged on the Hungarian market for the most part took the form of purchases for investment purposes, and a proportion of the profits previously realized on other markets (Ireland, the UK, Spain, Portugal) now made their way to Hungary.

The crisis has seriously affected the Hungarian economy, GDP contraction was significant following the outburst of the financial crisis.

Fig 4. The growth of the total mortgage loan portfolio 2005-2013

Source: National Bank of Hungary

Fig 5.

Source KSH
A long period of rising prices looked set to be broken at the end of 2007, when the factors regarded as the most important from the point of view of the housing market suddenly began to align in the same direction: supply became saturated, demand fell, disposable incomes levelled out and then declined, and more and more news arrived indicating that the great real estate boom abroad had come to a standstill.

Fig.6.

The economic crisis in the so called “setback” period radically affected the demand mainly through two different channels: layoffs and salary corrections resulted in a significant reduction in the real income of the population, while corrective actions taken in the financial industry increased the price of offered loans. The construction of new housing began to fall in 2009, concurrently with the increase in the number of unsold new housing units experienced by the developers.

Changes in regulations caused a turn toward Forint loans (Fig.7). Average percentage rates of new HUF loans were more favourable partly because lenders were offering products with lower initial interest rates. In 2010 the granting of FX denominated loans was forbidden. As a result, new FX mortgage loans disappeared from the market, although the existing FX stock had an increasing burden for the debtors (appreciation of the CHF versus HUF)
The amount of the newly issued mortgage loans has fallen to 1/5th of the amount issued before the crisis. (Fig. 8.) Following the introduction of the „early repayment scheme” and temporary increase of „remortgage” activity the amount of newly issued mortgage loans has decreased even further.

11 In the frame of the „early repayment scheme” mortgage debtors were entitled for a preferential full repayment of EUR, CHF and JPY mortgages according to Section 200/B. of Act CXII of 1996. on Credit Institutions and Financial Enterprises. Following fixed exchange rates were defined: 180HUF/CHF, 250 HUF/EUR, 200 HUF/100 JPY.
8. Mortgage markets in the EU and in CEE since 2008

It can be seen that for the whole period between 2008 and 2012 already in several countries an increase can be observed, so the price declines caused by the crisis are no longer felt. In case of Hungary, however, the decrease is continuous.

*Fig 9. The impact of the crisis on new-build homes: average of 2008-2012 period compared to the average of 2003-2007 period*

![Map showing the impact of the crisis on new-build homes](image)

The crisis still affects the housing markets. Fig 9. shows that the exceptions are those countries where the number of new-build housing units increased in the past five years compared to the period before the crisis. Turkey is developing fast, while Poland survived the crisis in a good condition. Several countries’ mortgage markets are still characterized by the deleveraging process of households. Fig 10. shows that in the more indebted countries the mortgage loan stock compared to the GDP has rather decreased since 2010. In Hungary as a consequence of the early repayment scheme and the low take out of new mortgage loans the stock dropped in a large extent, while in other countries in the Central and Eastern European region mortgage loan portfolio even increased compared to the GDP.
Mortgage loans in proportion to the GDP in 2012 and changes happened between 2010 and 2012

Fig10.

End of the setback period in Hungary?

As far as the supply side is concerned in 2013 the number of new-build houses continued to decrease. Until June 2013 altogether 2680 new-build units were handed over, which is a further decline even if we compare it to the previous year. The number of building permits anticipates the number of future housing completions quite well. Fig.11 shows the development of housing completions and building permits from 2009 (building permits are shifted 3 quarters forward). Based on this figure we can say that building permits do not give any reason to optimism, their number is still decreasing and in the first half of the year only 3401 permits were issued.

Fig 11. Building and occupation permits in Hungary

Source: KSH
However there are also positive signs on the market. Currently available housing subsidies are much more favorable than the possibilities of the recent years. According to our calculations, in which we summarized the value of the potential subsidies available in case of a housing loan for a typical house, we may state that one has to go back to year 2004 to find better conditions than the presently available ones. The net monthly earnings of employees increased by 2.6% in the first quarter of the year, which altogether may increase the demand for houses: In 2013 one had to work less for a square metre of a housing-unit than at any time in the past 13 years. (Fig. 12)

Development of housing-unit prices in relation to net wages (Sources: Hungarian Central Statistical Office data and FHB estimate)

![Graph showing development of housing-unit prices in relation to net wages](Fig 12)

As far as the Central Bank base rate is concerned, at 3.6% it is at its lowest value in the last 25 years. According to the National Bank of Hungary forecast, economic growth will also pick up in 2014 in Hungary. (Table 1.)

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Consumer Price Index</strong></td>
<td>5.7%</td>
<td>2%</td>
<td>2.4%</td>
</tr>
<tr>
<td><strong>Economic growth</strong></td>
<td>-1.8%</td>
<td>0.7%</td>
<td>2.1%</td>
</tr>
</tbody>
</table>

Source: MNB.
In parallel with the declining inflation rate, interest rates on deposits and loans are continuously decreasing as well. Subsidized credit products are available with an up to 6-7% initial interest rate (first 5 years period). After several years of downward trend lending has increased slightly and is expected to continue to rise throughout the rest of the year. The above economic indices may positively stimulate the demand side on the mortgage market. This may lead to a turning point in 2014, although it is too early to draw final conclusions, as the positive signs are still weak and we need a longer period of positive changes to have lasting effect on the housing and mortgage market.
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