An assessment of housing price developments against various measures

This article discusses the development of housing prices in Finland, with a special focus on the relationship between rents and housing purchase prices (rent-to-price ratio), which is analysed against a constructed benchmark of the user costs of investors or homeowners. A comparison of the rent-to-price ratio and time series of user costs indicates that the development of housing prices relative to rents has been broadly consistent with the fall in housing user costs. The key determinants of user cost dynamics are house price expectations and level of interest rates. The interest rate fall, in particular, has had a significant impact on the reduction in user costs and, hence, housing prices. However, the increase in housing prices relative to developments in household income has been fairly moderate.

Housing price developments in Finland

Before the financial crisis, housing prices were rising rapidly in several countries. During the crisis, many – but not all – of these countries have witnessed a steep fall in housing prices. Finland has been among those countries where the fall was only moderate, and prices have already moved back to pre-crisis levels and beyond. The household debt ratio has at the same time hit an all time high. The growth in household indebtedness has been fuelled by historically low interest rates and the stability of the banking system, which has provided scope for a growth in lending. In this article, various indicators are employed to explore whether the level of housing prices in Finland is sustainable.

In Finland, owner occupation is by far the most widespread form of housing, and it has once again begun to gain in popularity since the turn of the millennium: in 2009, 66% of Finnish housing units were owner occupied. The rate of rental occupation has dropped from 32% to 30% in the 2000s, while the proportion of right-of-occupancy dwellings has hovered around 1%. The owner-occupation rate for Finland is close to the Western Europe average, and occupation density (occupant per m2) has also reached a good European standard, although homes are still more densely occupied in Finland than in the other Nordic countries.[1]
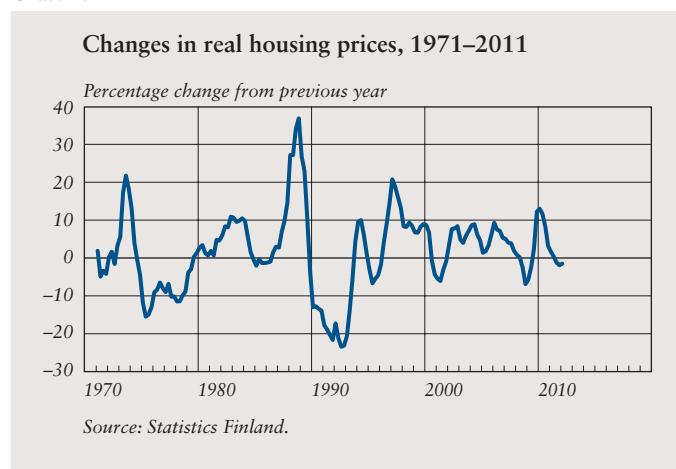
The development of housing prices in Finland from the 1970s to the present has featured some major upturns and downturns (Chart 1). With the baby-boom generation in the early 1970s, the demand for housing increased, while the supply of private

Jarkko Kivistö
Economist
Monetary Policy and Research

[1] Schauman (2012).

Chart 1.

Changes in real housing prices, 1971–2011

Percentage change from previous year

Source: Statistics Finland.

rented housing declined in response to rent regulation. During the construction frenzy of the boom years in 1972–1974, real housing prices surged and the rate of housing construction climbed to more than 70,000 dwellings per year, at its height. In the aftermath of the oil crisis, inflation gathered pace and real housing prices took a protracted downturn. A fall in nominal housing prices has occurred only rarely.

The most striking feature of housing price developments over the past 40 years or so is the housing bubble that emerged in 1987–1989, pushing up real prices by more than 60% in a little over two years. The bursting of the bubble forced prices onto a steep downward trend that continued for almost four years. One explanation offered for the housing bubble has been the structural change in housing demand following the deregulation of financial markets. The availability of mortgages improved and the
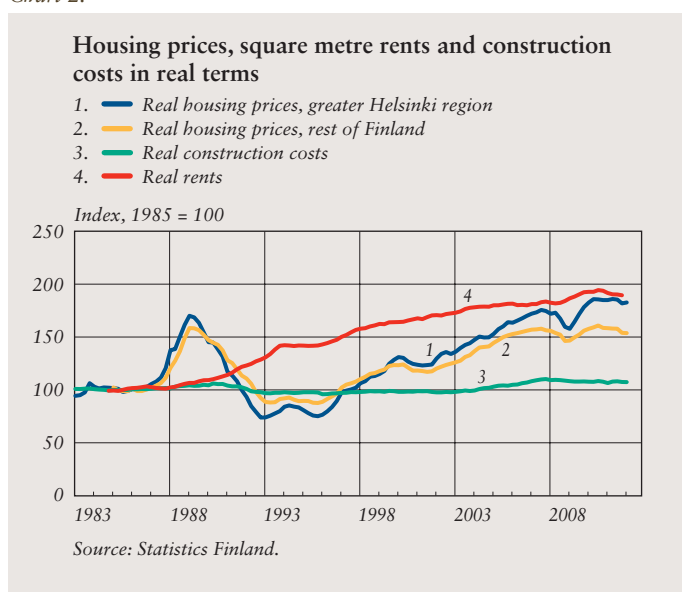
required down payment was reduced. Housing market developments were also an expression of the general overheating of the economy.

It was only in 1996 that housing prices entered a more permanent growth path. This coincided with a drop in inflation following Finland's accession to EU membership. This upward trend in prices was broken only for one year by the deflation of the IT bubble in the stock market in 2001, after which the brisk growth in real housing prices was resumed and sustained until 2008. The recession triggered by the financial crisis turned prices down, but the downturn did not last even one year. Since then, housing prices have risen above pre-crisis levels, but the rate of rise has clearly moderated. In the long term (1971–2011), the appreciation of real housing prices stood at 1.9%, on average, while the increase in real wages saveraged 2.3%.[2]

Assessment of housing market prices

Housing prices are influenced by changes in the supply and demand for residential services, but housing may also be conceived of as an investment, the value of which depends on the discounted present value of the net income stream it provides. The income from housing represents either the rent received from it or the benefit of owner occupation over rental occupation. Changes in the discount rate may, therefore, also be reflected in housing

Chart 2.

Housing prices, square metre rents and construction costs in real terms
1. ■ *Real housing prices, greater Helsinki region*
2. ■ *Real housing prices, rest of Finland*
3. ■ *Real construction costs*
4. ■ *Real rents*

Index, 1985 = 100

Source: Statistics Finland.

[2] This is based on data from the manufacturing industry. Available data on the general earnings index refers to a shorter historical period, and points to an annual increase in real earnings by 1.6%, on average, over 1976–2011. Housing prices increased by 2.1% over the same period.

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prices. With equilibrium interest rate, demand and supply unchanged, housing prices can be expected to move in line with construction input costs. In the long term, housing price developments may be consistent with changes in income, assuming that households are always willing to devote a certain share of their income to housing.[3] The fall in occupation density indicates that part of the earnings growth has been channelled into quality improvement.

Construction costs have moved more or less in step with consumer price inflation, whereas the increase in the price of construction land has been well above the rate of inflation. Movements in lot prices have been broadly in line with changes in housing prices. We will now take a closer look at the rent-to-price and price-to-income ratios.

Housing prices have increased more than rents in recent years

Households make their choice between owner occupation and rental occupation at least partly on economic grounds. If rents rise relative to housing prices, the demand for owner-occupied housing will increase, which tends to exert upward pressure on housing prices. Similarly, if housing prices increase, demand for rental housing will grow stronger, pushing up rents. This illustrates the close correlation which typically exists between housing prices and rents.[4] Deviations of the rent-

to-price ratio from its long-term average may be an indication of a pricing anomaly and the existence of a price bubble.
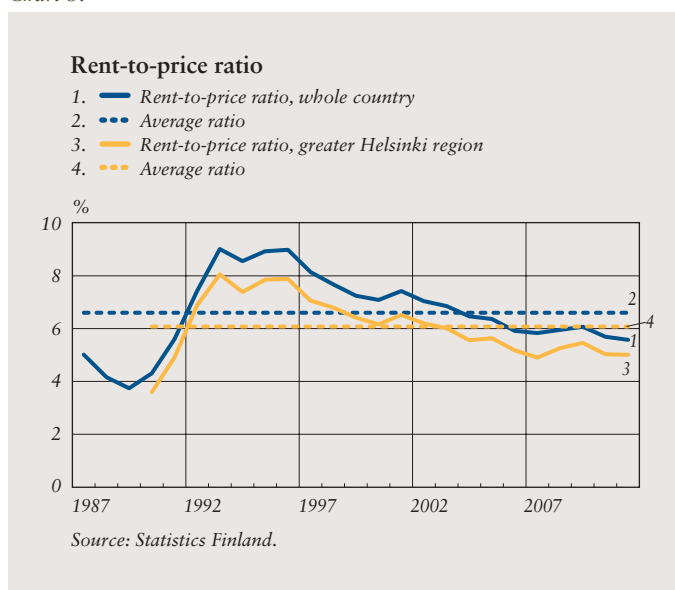
In the Finnish housing market, the rent-to-price ratio[5] (Chart 3) has shown a declining trend ever since 1997, as housing prices have increased more rapidly than rents. The rent-to-price ratio for the greater Helsinki area is smaller than for the country overall, but largely follows the same pattern, which partly reflects the high statistical weight of this area. In recent years, both ratios have fallen below the average for the past 20 odd years.

Movements in housing user costs consistent with housing price developments

The average rent-to-price ratio for a given period is a somewhat arbitrary

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[3] Kajanoja (2012).

[4] The same correlation may also be derived from the residential investor's perspective. Rent may be conceived as a return on housing assets in a similar manner to dividends being a return on stock market assets. In the same way as share prices can be analysed by the P/E ratio, the price of housing can be analysed in relation to rents.

[5] Annual average rent/m² of freely financed housing divided by the average square metre price of a block of flats. In actual fact, most rental housing is in old blocks of flats, which makes this comparison feasible.

Chart 3.

Rent-to-price ratio
1. *Rent-to-price ratio, whole country*
2. *Average ratio*
3. *Rent-to-price ratio, greater Helsinki region*
4. *Average ratio*

Source: Statistics Finland.

benchmark. Parallel to the analysis of investment yield, a better benchmark for the rent-to-price ratio is the user cost of housing (capital).

Investors' presence in the housing market is motivated by the pursuit of a rental yield once expenses have been deducted comparable to the yield on competing assets. Consumers are in the market to purchase residential services either through rental or owner occupation. From the consumer perspective, in a housing market equilibrium, the costs of owning a house should equal the costs of renting. On the basis of these premises, a condition[6] of market equilibrium may be inferred, where rental yield must cover ownership expenses:

$$R = ((1-t)i + t_k + d + \alpha - \pi)P \qquad (1)$$

Here R is the rent or, in the case of owner occupation, the net worth of the residential service provided by home ownership. t is the capital gains tax rate and i is the nominal interest rate on the capital employed, which gives $(1-t)i$ as the after-tax interest expense. The variable d is the maintenance cost, which may include the housing service charge and depreciation costs. t_k is the effective property tax rate, ie the ratio of the taxable value of the property times the property tax rate to the market value of the property. α is the residential investor's required risk premium relative to the return on risk-free assets. π is the expected house price appreciation and P is the housing price.

Rearranging equation 1 gives the following expression of the correlation between the rent-to-price ratio and user costs:

$$\frac{R}{P} = i_t + t_k + d + \alpha - \pi \qquad (2)$$

Here i_t is the after-tax interest expense. Assuming that the rental market is fully functional and rental occupation makes a feasible alternative (close substitute) to owner occupation, the values of rents and homeowners' residential services should move closely in parallel.[7]

In the following analysis, we will apply equation 2 to Finnish data for 1989–2011.[8] The tax variable used is the capital gains tax rate from 1993 onwards, while the annual housing loan rate derived from Bank of Finland's statistical data is used as the nominal interest rate. The property tax rate for permanent housing varies between 0.22% and 0.5% over the reference period.[9] The effective property tax rate depends on the ratio of the taxable value of the property to its market value. The taxable value is set at the target of 73.5% of market value, but the taxable value, in practice, varies across municipalities. The assessment of housing maintenance costs is based on data from Statistics Finland on annual property maintenance expenses.

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[7] Englund (2011).

[8] Results for 1989–1992 have been obtained by assuming that the tax rates were the same as in 1993. The assumptions incorporate a slight increase in the property tax rate after 2007.

[9] The time series ranging from 1993, when the tax was introduced, to 2007 used in this calculation is taken from Helin (2007). Data for 2008–2011 have been obtained from the Finnish tax administration.

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[6] Poterba (1984).

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In the analysis of user costs, the variable of expected house price appreciation is difficult to measure. It is not directly observable, and indirect methods must be relied upon to impute the estimates. Methods employed in similar analyses include average inflation over the past five years and consumer expectations of future inflation. This study is based on the five-year average inflation approach. Expectations of house price appreciation have a relatively large impact on developments in user costs. These calculations should therefore be complemented with an analysis of user costs which does not control for price appreciation expectations (Chart 4).

Similarly to other competing assets, housing assets are also subject to risks related to future (rental) yields and capital gains or losses. The calculation may also capture the required risk premium on residential investment relative to risk-free investment assets. However, finding the correct value for the risk premium on residential investment is a challenging exercise. In similar analyses, a 2% risk premium has been commonly used.[10] In this respect, the perspectives of investors and homeowners diverge. To homeowners, owning their house may be taken as protection against insecurity for which they are willing to pay, and, hence, the risk premium could even be negative. To investors, in turn, housing is generally a less liquid asset than for example equities and deposits, which sets the required risk premium well
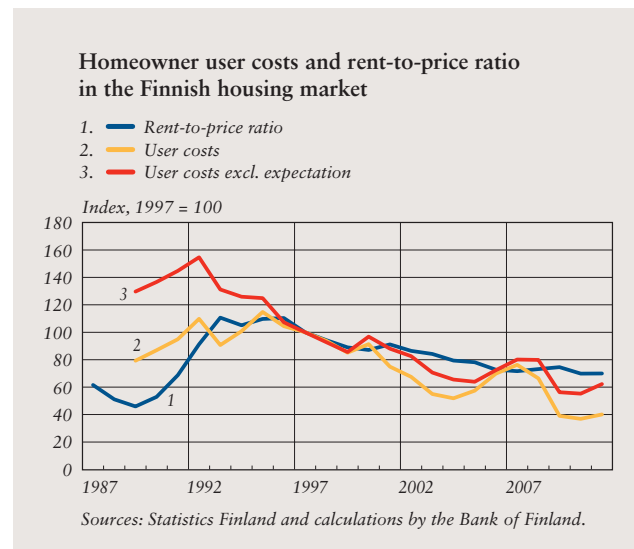
above zero. The risk premium may also vary over time. In this analysis, the risk premium is first set at zero, as a constant-value risk premium does not interfere with user cost dynamics.

First, the development of user costs and the rent-to-price ratio is analysed in comparison to the base year 1997.[11] The analysis (Chart 4) suggests that housing prices were overvalued relative to rents before 1993.[12] Over 1995–2000, housing prices (rent-to-price ratio) seem to have developed in line with user costs, whereas user costs

[11] Deciding on the fixture point for the comparison of user costs and the rent-to-price ratio is a complex exercise, as it is very difficult to assess when the rental market is in equilibrium. In addition, the underlying assumption of a fully functional rental market in practice provides a challenge. When the correct level of housing prices is analysed on the basis of the comparison, it is assumed that rents provide an accurate reflection of future return expectations at any given moment in the absence of any supply constraints. In practice, rental occupation is not always a feasible alternative to owner occupation in the Finnish housing market due to the regional and qualitative restrictions present in the market.

[12] It should be mentioned that rent controls were completely abolished only in 1995. Rents may have been below the 'correct' level due to the controls.

Chart 4.

Homeowner user costs and rent-to-price ratio in the Finnish housing market

1. ■ *Rent-to-price ratio*
2. ■ *User costs*
3. ■ *User costs excl. expectation*

Index, 1997 = 100

Sources: Statistics Finland and calculations by the Bank of Finland.

[10] Oikarinen (2010).

declined much more rapidly than the rent-to-price ratio over 2000–2003, when housing prices were undervalued relative to rents. In 2005–2007, user costs surged and developments in the rent-to-price ratio stabilised, albeit after a small lag (rents continued to rise, while housing prices turned down). The steep decline in the level of interest rates in the wake of the financial crisis reduced user costs until 2009. Data for 2010 and preliminary data for 2011 suggest that the fall in user costs has come to a halt. The level of the rent-to-price ratio has again remained unchanged since 2006.

Irrespective of the approach taken to measuring user costs, we may draw the conclusion that the decline in the rent-to-price ratio from 1997 onwards (the stronger increase in housing prices) is largely consistent with the reduction in user costs. User cost developments would actually have justified a higher increase in housing prices in Finland in

recent years. However, the assumption of market equilibrium for rented housing must be borne in mind. The deregulation of rental markets, together with stiff competition for rented accommodation in growth centres, may also have boosted a stronger increase in rents, which means that the rent-to-price ratio may not reflect developments adequately.

The OECD[13] user cost analysis for 1995–2004 produced a similar result for Finland. In his regional analysis of Finnish housing prices until 2008, Oikarinen (2010), in turn, did not find any evidence in support of a significant overvaluation of housing prices. A similar analysis of housing prices in Sweden conducted at the Swedish Riksbank[14] also established that housing price developments have been consistent with the reduction in user costs.
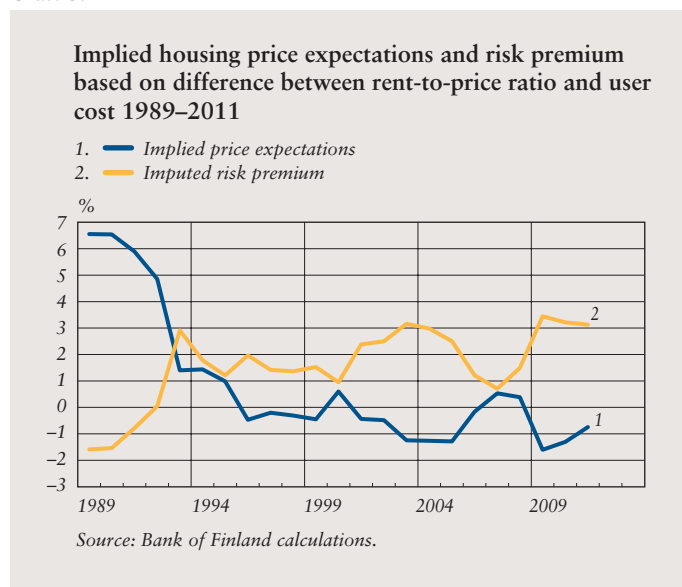
What do user costs tell us about house price expectations?

User cost analysis also offers another approach to analysing the determinants of housing market behaviour. Assuming that rents and housing prices are in equilibrium, the difference between user costs and the rent-to-price ratio may be found to indicate price expectations.[15]

$$\pi = (i_t + t_k + d + \alpha) - \frac{R}{P} \qquad (3)$$

This analysis shows that expectations of nominal housing prices have been moderate, even slightly negative over several years since 2001 (Chart 5, blue

Chart 5.

Implied housing price expectations and risk premium based on difference between rent-to-price ratio and user cost 1989–2011

1. ■ *Implied price expectations*
2. ■ *Imputed risk premium*

Source: Bank of Finland calculations.

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[13] Girouard et al. (2006).

[14] Englund (2011).

[15] McCarthy – Peach (2004).

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line). In other words, at this point there are no signs of a price bubble fuelled by expectations.

However, assuming again, as in the earlier analysis, that the expected price appreciation is equal to the average rate of consumer price inflation over the past five years and that the difference between rent-to-price ratio and user costs reflects the required risk premium on residential investment, the observation is made that the risk premium has reached its peak for the reference period during the past three years (Chart 5, yellow line).

Interest rate fall the key influence behind the decline in user costs

The strong decline in user costs witnessed in the early 2000s is above all related to the fall in nominal housing loan interest rates (Chart 6). The average rate on outstanding housing loans has fallen markedly since 1992, when it was over 12%, hitting the lowest value of 1.9% in mid-2010. The average rate on outstanding housing loans again turned down in early 2012. In real terms, the rate on outstanding housing loans has been negative for several months in a row.

The stock of outstanding housing loans began to expand only in the early part of 1996, after which it has been growing at an average pace of 11% per year. During the financial crisis the growth rate slowed but still remained in the region of 6% annually.

A decomposition of the user costs shows that the decline in housing loan interest rates and the fall in house price expectations exerted an almost equal

but opposite influence on changes in user costs over 1989–1996, as measured by average consumer price inflation (Chart 7). As inflation slowed, expectations lost their importance. Therefore, the proportional influence of the housing loan interest rate on changes in user costs has grown since the turn of the millennium.
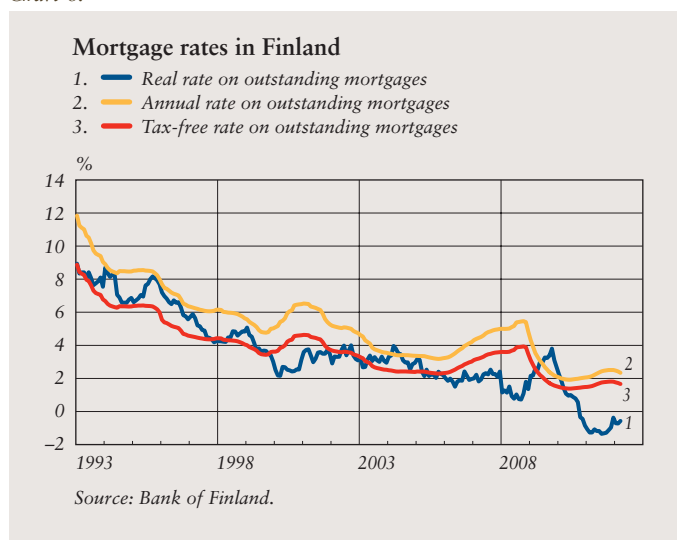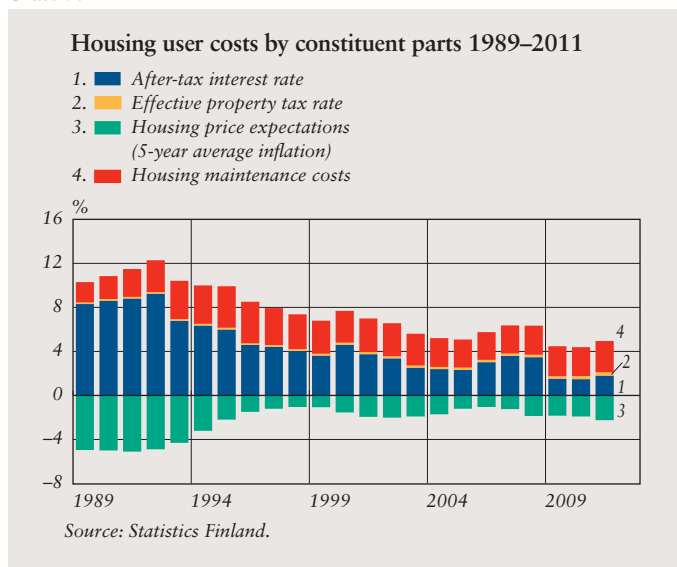
Chart 6.

Mortgage rates in Finland
1. ── Real rate on outstanding mortgages
2. ── Annual rate on outstanding mortgages
3. ── Tax-free rate on outstanding mortgages

Source: Bank of Finland.

Chart 7.

Housing user costs by constituent parts 1989–2011
1. ■ After-tax interest rate
2. ■ Effective property tax rate
3. ■ Housing price expectations (5-year average inflation)
4. ■ Housing maintenance costs

Source: Statistics Finland.

Housing prices relative to household solvency

Alongside with the fall in the level of interest rates, housing loan maturities have been extended, which reduces the monthly debt service burden of the borrower, provided that the loan interest rate remains unchanged. In

Chart 8.

Housing prices per m² relative to per capita annual disposable income

1. ▬ *Price-to-income ratio, whole country*
2. ▬ ▬ *Average price-to-income ratio*
3. ▬ *Price-to-income ratio, greater Helsinki region*
4. ▬ *Price-to-income ratio, rest of Finland*

Sources: Statistics Finland and Bank of Finland's calculations.

Chart 9.

Housing prices relative to earnings growth

1. ▬ *Housing price index, whole country*
2. ▬ *Earnings index, wage earners*
3. ▬ *Price-to-earnings ratio*

Index, 1985 = 100

Source: Statistics Finland.

1998, the average maturity of outstanding housing loans was 11 years, against 18 years today. The record level of 19 years was reached in 2008–2009. This trend has, nevertheless, paved the way for larger housing loans. Whereas in 1999 the average size of loan, as calculated on the outstanding stock, was roughly EUR 20,000 per borrower, by 2011 it had climbed to EUR 82,000 (EUR 102,000 in the greater Helsinki area).[16] The size has increased 2.7-fold in real terms and 2.3-fold relative to housing prices. The ratio of the size of the housing loan relative to per capita household disposable income has risen from 1.7 to 4.5.

Housing price developments should also be analysed against income developments, as the price-to-income ratio illustrates the solvency of households. This analysis is based on the ratio of the square metre price of old blocks of flats to disposable income per capita (Chart 8). The nationwide ratio peaked in 1989, after which it has declined in step with the fall in housing prices until the mid-1990s. Thereafter, the price-to-income ratio has risen, however only slightly above the average for the period under review. The price-to-income ratio for the greater Helsinki area is higher than for the country as a whole, and the growth rate is also slightly stronger.

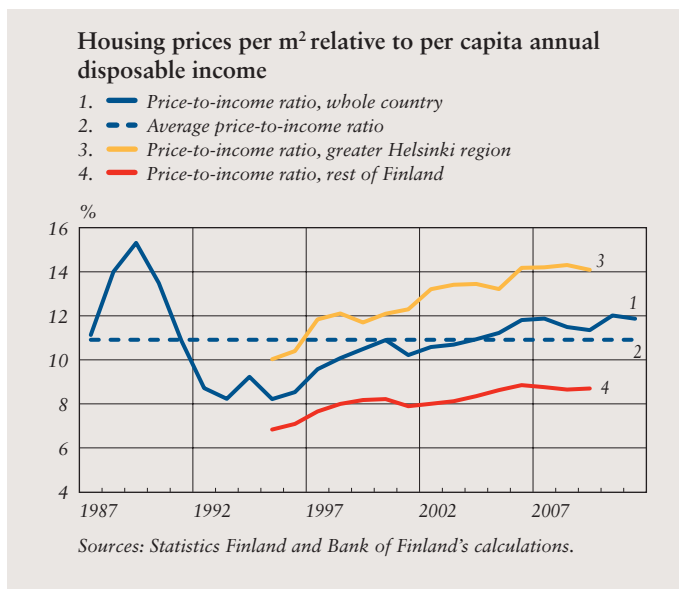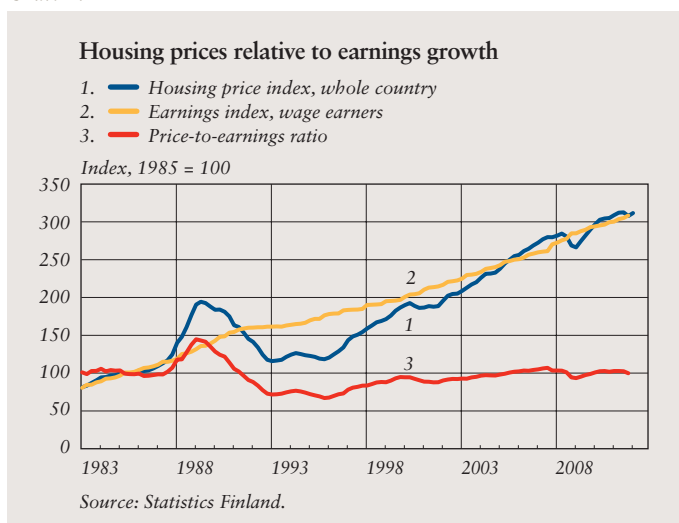The increase in housing prices relative to the earnings index has been constant since 1985 (Chart 9). The

[16] Federation of Finnish Financial Services (spring 2011) Säästäminen, luotonkäyttö ja maksaminen ('Savings, credit and payments'; in Finnish only). Research report.

earnings index does not account for the effect of unemployment, taxes, income transfers and capital gains on disposable income, but captures the changes in the income of working households.

Other supply and demand factors also behind the housing price increase

During the housing price boom witnessed in both the 1970s and the 1980s, there was a strong expansion in the construction of housing. In spite of this responsiveness of supply, housing prices rose rapidly. During the past few years, the rate of housing construction has remained in the region of 30,000 dwellings annually. The supply of new housing has not increased since the turn of the millennium, which may have contributed to housing price developments.

Demand for housing has, however, increased both in response to population growth and in response to growth in the number of housing units due to a reduction in their average size. Migration has also contributed to the increased demand in growth centres. In Helsinki, the construction of new housing has not kept pace with the increase in the number of households, which has resulted in a tightening of the housing market. In these ways, housing demand and supply trends have fed the increase in housing prices.

A reduction in the user costs of housing explains the rise in housing prices in relation to rents in the new millennium. The decline in housing loan interest rates, in particular, has reduced the costs of owner occupation. At the same time, factors external to the user cost analysis, such as the extension of housing loan maturities, have left some scope for an increase in the size of housing loans. Furthermore, the rise in housing prices relative to income developments has been moderate. Consequently, the house price increase relative to economic fundamentals cannot be considered excessive. The downside risk is that economic developments will turn out to be much weaker than expected.

The gradual cutback in tax subsidies for owner occupation over the next few years, together with an expected increase in the level of interest rates, will push up the user costs of housing. With other factors unchanged, this trend will contain the increase in housing prices.

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