HOUSE PRICE BUBBLES AND THE ADVANTAGES OF STABILISING HOUSING TAXATION

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INTRODUCTION AND SUMMARY

The housing market has been growing over the last three or four years after the strong downturn in the wake of the housing bubble in the mid-2000s. The price increases are supported by historically low interest rates and rising incomes. Thus, home buyers today spend roughly the same percentage of their income on housing as home buyers did in 2012. Moreover, homeowners have seen their home equity rise and their debt-to-home-value ratio decline. At the national level, house price developments appear sustainable, i.e. house prices are reflecting underlying economic fundamentals, especially incomes and interest rate levels. However, interest rates are exceptionally low, and both households and banks should factor in higher interest rates for new loans in the longer term. It is important that loans are not granted based on over-optimistic assumptions, and a continued reduction of the debt ratio will make both the individual homeowner's finances and the economy more robust.

There is wide regional variation. Developments in the Copenhagen housing market, in particular, give cause for concern. Prices of single-family houses as well as owner-occupied flats have increased substantially more in Copenhagen than in the rest of the country. It cannot be ruled out entirely that the price growth is the result of higher incomes and lower interest rates. However, prices may be pushed up by speculative purchases, entailing that prices do not exclusively reflect underlying economic fundamentals. Price increases alone indicate that house price growth in Copenhagen is unsustainable, which was also the case when the house price bubble was building in the mid-2000s. The Copenhagen housing market is also more vulnerable to sudden interest rate rises than the rest of the country. The combination of high interest rate sensitivity and house price growth that is already on the verge of becoming unsustainable, increases the risk that even small, sudden interest rate increases could trigger price falls.

Fluctuations in house prices and regional disparities in house price growth can be reduced by efficient housing taxation. At the same time, housing taxes are less distorting than other taxes, and thus less inhibiting to economic growth. Housing taxation in Denmark consists of two separate taxes: property value tax and property tax (land tax). Until the introduction of the tax freeze in 2001, taxes paid followed the value of the entire home and the isolated land value, respectively, whereby housing taxes dampened house price fluctuations. The nominal freeze on property value taxes and, to a lesser extent, the cap on the increase in land tax have eliminated the stabilising effect of housing taxation. This causes greater fluctuations in house prices – leading to stronger macroeconomic volatility and less financial stability – and means that a larger share of the total tax revenue must be collected through other, more distorting, taxes. Moreover, the freeze on property value taxes has resulted in large regional differences in the effective tax rate to the effect that areas with expensive housing now benefit from the lowest rate.

It is important that housing taxes regain their position as economic stabilisers by ensuring that taxes reflect the value of house prices. That will reduce the risk of a recurrence of the strong fluctuations in the economy seen in the 2000s.

ARE HOUSE PRICES TOO HIGH?

Since 2012, house prices in Denmark have grown strongly, both for single-family houses and owner-occupied flats. Nominal prices of single-family houses are approximately 6 per cent below the 2007 peak, cf. Chart 1 (left), and, at the same time, sales have increased, albeit from a low level, cf. Chart 1 (right). For owner-occupied flats, which are widely concentrated in the large towns and cities, prices are currently somewhat above their 2006 peak, sales are nearing the 2006 level, and price growth has been consistently very high for the past three or four years. This raises the question of whether house prices, or possibly prices in some segments of the housing market, are currently too high in the sense that they do not reflect fundamental drivers or that there is a risk of a future sharp drop in prices.

WHAT DETERMINES HOUSE PRICES?

To assess whether house prices are too high, it is necessary to look at the underlying factors. The housing supply is fixed in the short term, but may gradually adjust in the longer term. Thus, in the short term, demand is a key determinant of house prices.

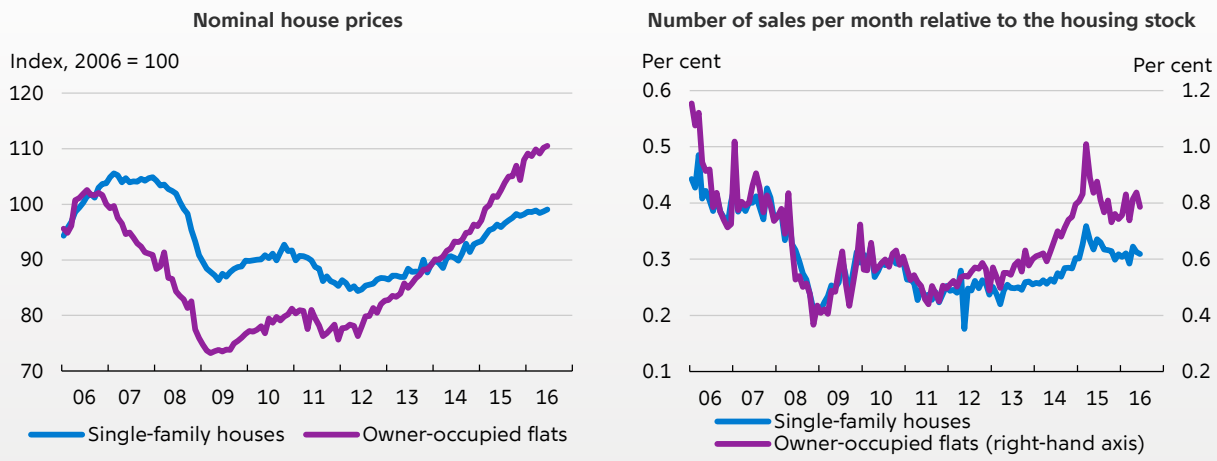
Demand

Household demand for housing is determined by a number of factors. Household income is a key determinant. The house price-to-income ratio can be used as a simple measure of whether house prices are high or low. In the 1990s, prices of owner-occupied flats as well as single-family houses grew faster than household disposable incomes. Subsequently, the ratio has been stable, except during the years of the housing bubble, cf. Chart 2 (left). Over the last couple of years, the ratio between house prices and household disposable income has picked up for owner-occupied flats, located mainly in large towns and cities. Currently, the ratio is 33 and 27 per cent, respectively, lower than at the peak in 2006-07.

Household housing demand is also impacted by current expenses of homeownership. Interest rates are key determinants of these expenses. Lower interest rates mean that, for a given income, home buyers can afford a more expensive home. Thus, the price-income ratio may increase when interest rates decrease. Both long-term and short-term mortgage interest rates have dropped further since 2011 after the interest rate falls of the

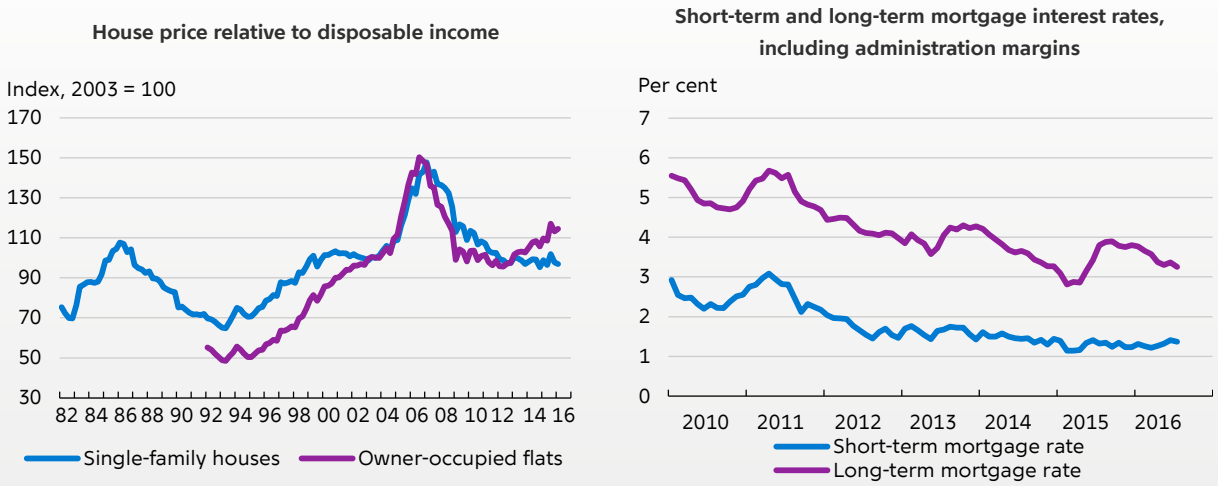
House prices are rising, and more homes are sold

Chart 1



Note: Left-hand chart: Data is seasonally adjusted. The most recent observations are from June 2016. Right-hand chart: Data is seasonally adjusted. The observations from recent months have been adjusted due to delays in the registration of sales in the land register. The most recent observations are from June 2016. The housing stock has been projected after 2015.
Source: Left-hand chart: Statistics Denmark and own seasonal adjustment. Right-hand chart: Statistics Denmark and own calculations.

The price-income ratio for flats is increasing, but mortgage rates are decreasing Chart 2



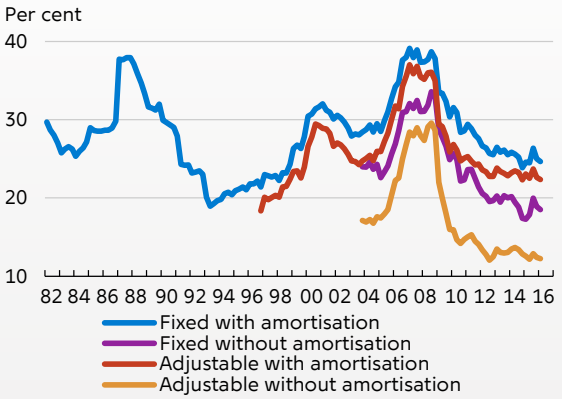
Note: Data is seasonally adjusted. The most recent observation for the price-income ratio is from the 1st quarter of 2016. Household disposable income has been used and adjusted for restructuring of capital pensions and LD savings (Lønmodtagernes Dyrtidsfond), in 2013-15. For mortgage rates, the most recent observations are from July 2016. Mortgage rates include administration margins and cover loans to the household sector in Denmark. The short-term mortgage rate covers loans with maturity of up to 10 years and the long-term mortgage rate covers loans with maturity of more than 10 years.
Source: Statistics Denmark, Danmarks Nationalbank and own calculations.

previous decades, cf. Chart 2 (right). Since early 2015, short-term mortgage rate, calculated excluding administration margins, have been negative. At the same time, administration margins, especially for housing loans with short fixed-interest periods, have increased, entailing that the actual effective interest rates paid by homeowners have decreased less than the yields on mortgage bonds.

In addition to interest rates, other costs are also associated with homeownership, for instance property taxes. The housing burden is a measure of the total first-year payment for buying a home relative to average household disposable income, see Dam et al. (2011). Thus, it provides a better measure of whether house prices are high or low than the simple price-income ratio. The housing burden for single-family houses, based on a fixed-rate loan with amortisation, is currently below the average of the last 20 years, due, inter alia, to low interest rates, cf. Chart 3. If amortisation is not included in the calculation of the housing burden, the level is lower still. Note, however, that the credit rating of households is based on the premise that they must have the ability to amortise the loan.

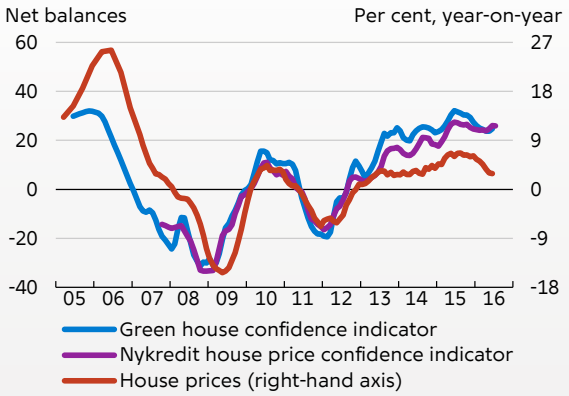
The level of the housing burden indicates that there is potential for a further increase in the demand pressure on house prices. Relative to the 2007 peak, the housing burden is currently 14 percentage points lower for a fixed-rate loan with amortisation.

Housing burden for single-family houses is relatively low Chart 3



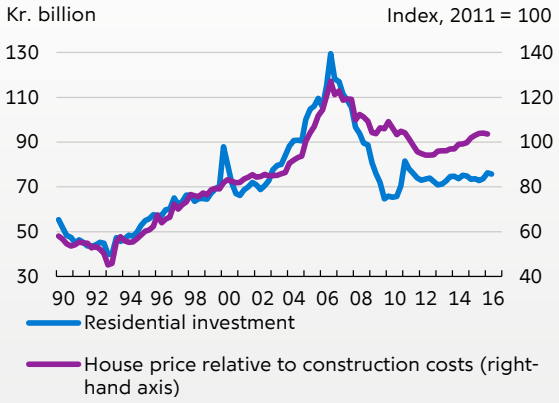
Note: The most recent observations are from the 1st quarter of 2016. The housing burden indicates the stylised financing costs, including administration margins, brokerage fees and housing taxes when buying a 140 sq.m single-family house as a percentage of the average disposable household income. The financing costs are based on the loan type stated plus a bank loan for the share of the purchase price that cannot be financed by a mortgage loan. See Dam et al. (2011) for a more detailed description.
Source: Statistics Denmark, Housing market statistics, Realkredit Danmark, Skat (Danish tax authorities) and own calculations.

Households expect house prices to rise Chart 4



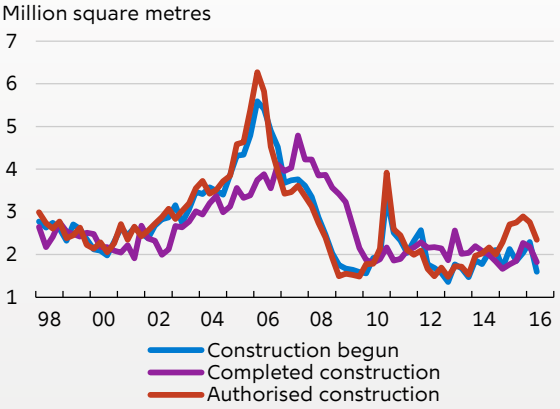
Note: The most recent observations for Nykredits Huspristillid (Nykredit house price confidence indicator) are from July 2016, while the most recent observations for Greens hustillidsindikator (Green house confidence indicator) are from June 2016. The Green house confidence indicator is scaled by a factor of 0.5, and 3-month moving averages are used. House prices are Statistics Denmark's price index for single-family houses.
Source: Nykredit, Greens Analyseinstitut, Statistics Denmark and own calculations.

Construction costs and investment Chart 5



Note: Data is seasonally adjusted. The most recent observations are from the 2nd quarter of 2016 for residential investment and the 1st quarter of 2016 for house price relative to construction costs.
Source: Statistics Denmark and own calculations.

Residential construction at the national level, annualised Chart 6



Note: The most recent observations are from the 2nd quarter of 2016. Quarterly figures have been scaled up to an annual level (multiplied by four). The most recently published observations are typically subject to considerable uncertainty.
Source: Statistics Denmark and own seasonal adjustment.

A home is a consumer durable which provides a current return and, at the same time, represents the largest investment that most households ever make. Therefore, expectations of housing market developments affect households' willingness to pay and thus price developments. Both Greens huspristillidsindikator (Green's house price confidence indicator) and Nykredits Huspristillid (Nykredit house price confidence indicator) are at high levels, cf. Chart 4. This indicates that home buyers expect prices to continue rising.

Supply

Residential investment, and thus an expansion of the housing supply, is determined, among other factors, by the relationship between the costs of building a home and the price at which the home can later be sold. The house-price-to-construction-cost ratio has grown since 2012, cf. Chart 5. The rise seen in recent years indicates that residential investment will increase, given that house prices have risen more than construction costs.

Until 2006, the scope of construction expanded sharply, both construction for which a building permit had been issued and construction starts, cf. Chart 6. Some time elapses from start to completion of a construction project. In 2007-09, this meant that although house prices were decreasing, many construction projects were completed, which caused house prices to drop even further. This impact was strongest in and around the cities where most new construction took place. At the national level, the construction activity indicators remain low relative to the boom in 2005-07. New construction employment has been growing since 2014, but remains at a relatively low level compared with the years before the housing bubble.

Are house prices too high for Denmark overall?

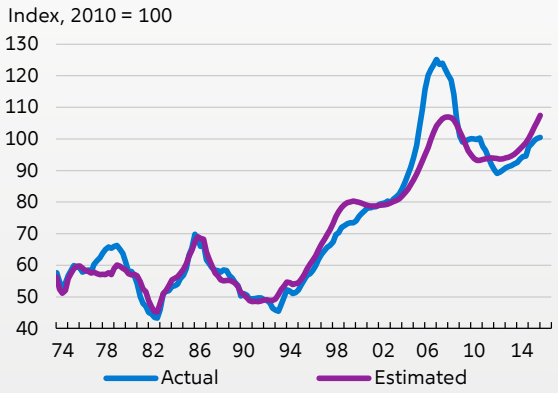
The short answer is "no". At the national level, rising house prices since 2012 reflect higher incomes, both as a result of higher incomes for the individual, but also because more people are in employment. Moreover, interest rates have decreased, which has supported price growth, while higher administration margins and increasing land tax payments have had a dampening impact. Thus, the housing burden with amortisation for single-family houses is below the historical average since 1992, which indicates that, given the level of interest rates, house prices are below their equilibrium. This is underpinned by the house price relation in MONA, Danmarks Nationalbank's macroeconomic model, cf. Chart 7.[1]

The build-up of the house price bubble in the mid-2000s was characterised by steep price increases and subsequent credit expansion, combined with high private spending. Moreover, residential investment rose, leading to bottlenecks in the building and construction sector with high wage increases. Currently, these indicators are not present or present only to a limited extent. The private consumption ratio is low, and household housing debt is growing slowly – albeit from a high level, cf. Chart 8 (left). The slow growth in housing debt means that the average loan-to-value, LTV, ratio and the housing-debt-to-disposable-income ratio have both fallen, cf. Chart 8 (right).

On the supply side, residential construction activity is rising, reflected in employment growth in the building and construction trades, which are showing signs of labour shortages. However,

House prices at the national level are slightly below the level indicated by Danmarks Nationalbank's macroeconomic model

Chart 7

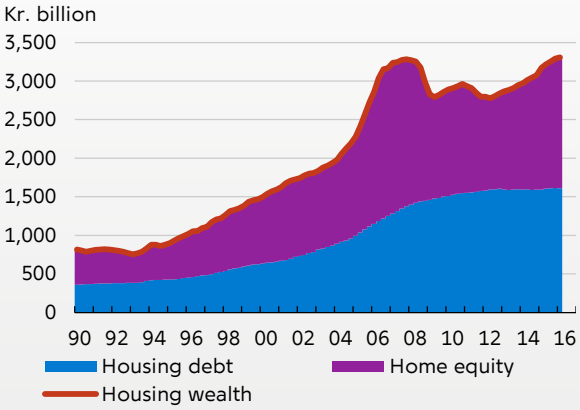


Note: The house price relation is estimated for the period from the 2nd quarter of 1973 to the 4th quarter of 2015.
Source: The MONA data bank and own calculations.

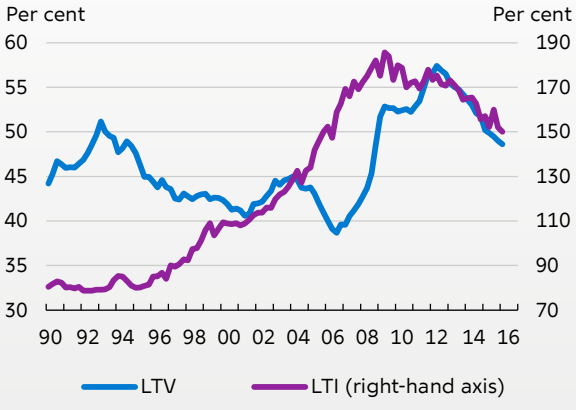
Households are consolidating

Chart 8

Housing debt and wealth



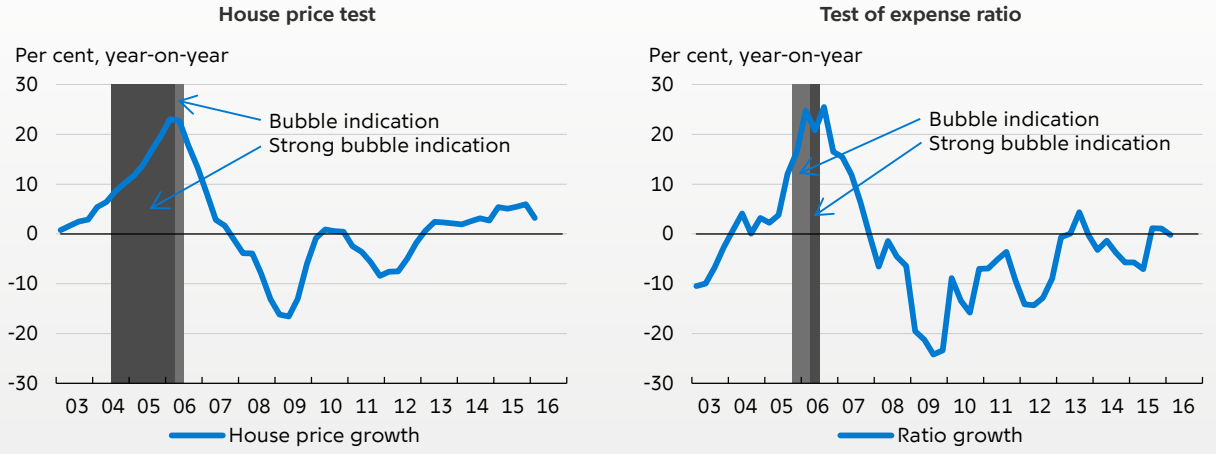
Relative size of housing loans



Note: Data is seasonally adjusted. The most recent observations are from the 1st quarter of 2016. Right-hand chart: The LTV is the loan-to-value ratio and the LTI is household debt relative to household disposable income.
Source: Statistics Denmark, Danmarks Nationalbank and own calculations.

1 See Dam et al. (2011) for a more detailed description of the house price relation in MONA.

No signs of a house price bubble at the national level Chart 9



Note: The Phillips et al. (2015) test was conducted using an estimation with a 28-quarter rolling window. The grey shaded areas indicate periods in which the test with 95 per cent and 99 per cent probability, respectively, cannot rule out that house price developments are compatible with a self-fulfilling house price bubble. The lag length is 2 for house price developments and 3 for the expense ratio. The critical values do not follow a standard distribution, they are simulated and determined at 5,000 simulations.
Source: Statistics Denmark, Danmarks Nationalbank and own calculations.

this is due mainly to activity other than residential construction.

Long periods of rising house prices increase the risk of over-optimism in terms of future price gains. This may boost the current willingness to pay, i.e. expectations of higher prices in the future result in price increases today. Thus, expectations of house price increases may be self-fulfilling. However, a statistical test based on a prevalent method shows no indications that house price growth at the national level since 2012 has been driven by such self-fulfilling expectations, cf. Chart 9 and Box 1. The shaded areas of the charts indicate periods in which the test has identified house price growth that is compatible with a self-fulfilling house price bubble. At the national level, a house price bubble was identified for single-family houses from the 3rd quarter of 2004, looking only

Indications of bubbles in house price rises Box 1

The literature has a long tradition of using quantitative methods for identifying periods in which price developments in a wide range of financial assets may be characterised by a price bubble. The underlying model for most of the literature's bubble tests is a financial asset pricing model.

In these models, the current price is the sum of future discounted dividends until a given time and the expected price at that specific time. In the housing market, the dividend of a home could be defined as the current value of being able to live in the home or the rent that the home could generate if rented out. In addition, expectations of future price rises will increase the willingness to pay, which is capitalised into the current prices, i.e. expectations of future price rises are reflected in current price rises. Under certain conditions, such self-fulfilling expectations of house price rises could trigger a house price bubble.

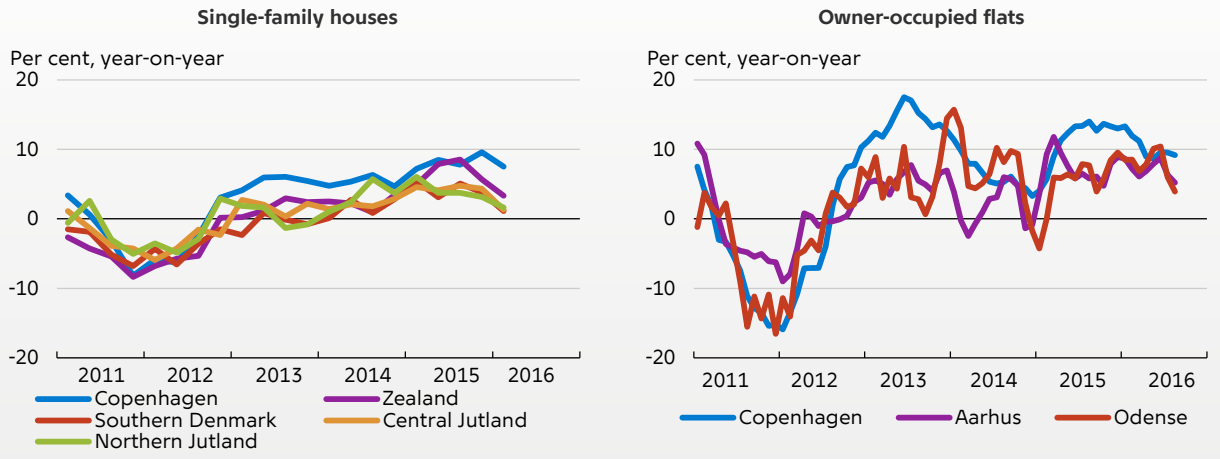
Phillips et al. (2015) provide a test for identifying whether house price developments can be characterised by a self-fulfilling house price bubble. The test for a given time, t, used on a series, x_t, is estimated using the following regression model,

$$x_t = \alpha + \delta x_{t-1} + \sum_{j=1}^{p} \rho_j \Delta x_{t-j} + \varepsilon_t$$

Here, α is a constant and δ and all ρ_j are regression coefficients. p represents the model's lag length and ε_t is an error term, capturing noise that cannot be explained by the model.

Rather than testing whether $\delta = 1$ against the alternative $\delta < 1$, which means that, in the long term, prices will adjust to a stable level, testing is conducted against the explosive alternative, $\delta > 1$. This means that if prices increased yesterday, they are expected to increase even more tomorrow. In other words, it is tested whether the series develops into a self-fulfilling price bubble.

Considerable geographical differences in house price developments Chart 10



Note: Data is seasonally adjusted. Note that the City of Copenhagen has considerably more owner-occupied flats than the two other municipalities shown. Consequently, there are wider fluctuations in these two series, since they are based on fewer sales. The most recent observations are from the 1st quarter of 2016 for single-family houses and July for owner-occupied flats.
Source: Left-hand chart: Statistics Denmark. Right-hand chart: Boligsiden.dk and own seasonal adjustment.

at price developments. Currently, there are no indications of a bubble-like development at the national level.

Looking at an expense ratio where prices are adjusted for developments in disposable income and in interest rates and administration margins, there are no signs of a bubble either. During the bubble in the mid-2000s, the test based on the expense ratio responds slightly later than the test based only on price developments. Until the 4th quarter of 2005, house price growth was supported particularly by developments in the long-term mortgage rate, after which time house prices were decoupled from economic fundamentals.

Are house prices in Copenhagen too high?

Unlike house price growth at the national level, developments in the Copenhagen housing market give cause for concern. Developments in the overall Danish housing market mask large regional differences. Prices of single-family houses in the Capital Region of Denmark have grown more than 5 per cent each year since 2013, while growth has been far more subdued in e.g. the Region of Southern Denmark, cf. Chart 10 (left). For owner-occupied flats, regional differences have been even more pronounced. Since 2012, price rises for flats in Copenhagen, where about one-third of all owner-occupied flats in Denmark are located, have been far above 10 per cent year-on-year for extended periods, cf. Chart 10 (right).

Regional differences reflect, inter alia, that for an extended period of time more and more households have tended to move to the largest Danish cities, especially Copenhagen. This urban migration has pushed up prices in the cities, cf. Chart 11 (left). At the same time, the nominal freeze on property value taxes means that there has been no automatic dampener on price rises, cf. below. Thus, the freeze has contributed to the very large differences in house prices across the country.[2]

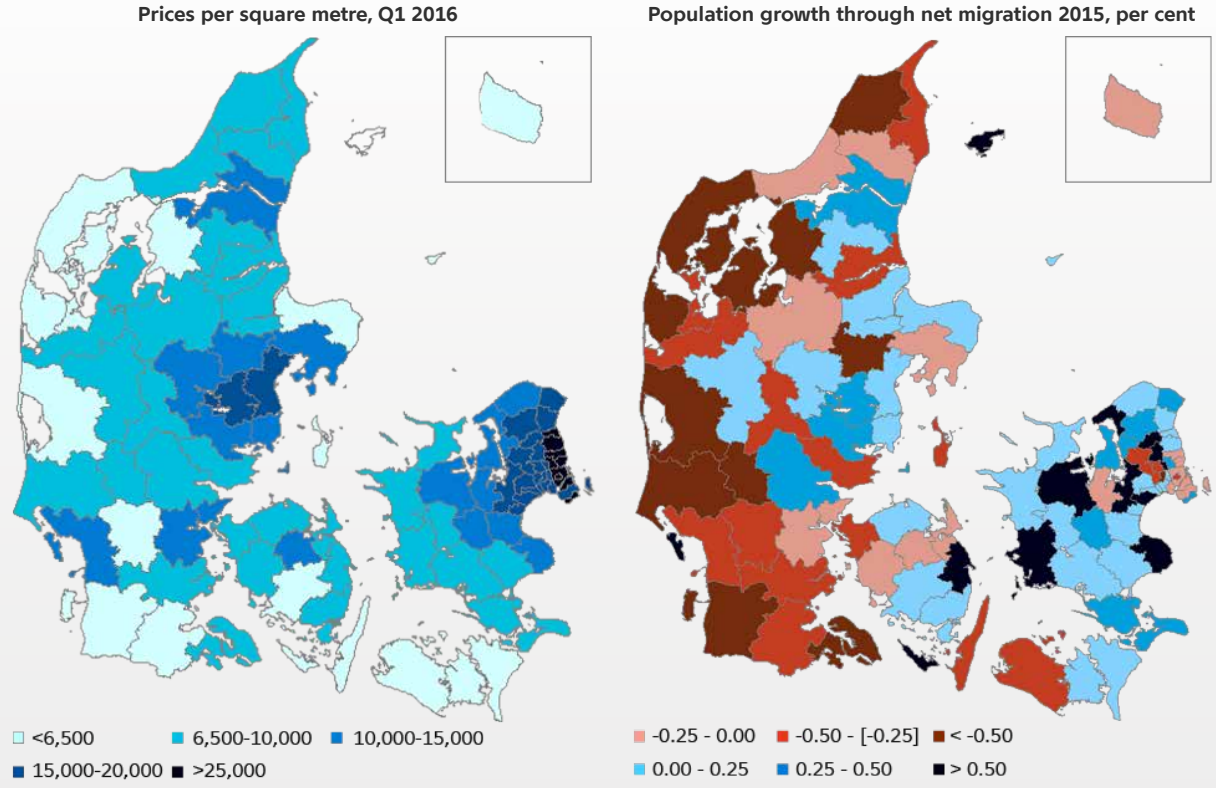
It appears that prices in Copenhagen have reached a level where several families are choosing to move to areas outside of Copenhagen to be able to afford a larger home. 2015 saw net migration out of the municipalities with the highest house prices, cf. Chart 11 (right), while eastern Jutland and Zealand municipalities, which are at a slightly longer distance from the cities, but have lower house prices, saw considerable net migration into the municipalities.[3] The same movement took place in 2006-07. Rural municipal-

2 Large regional price differences could cause labour market mobility to decrease, given that financing a home purchase in Copenhagen by the sale of a home in a small provincial town may be difficult.

3 Net migration is less the excess of births and net immigration from abroad.

Geographical differences in house prices affect net migration

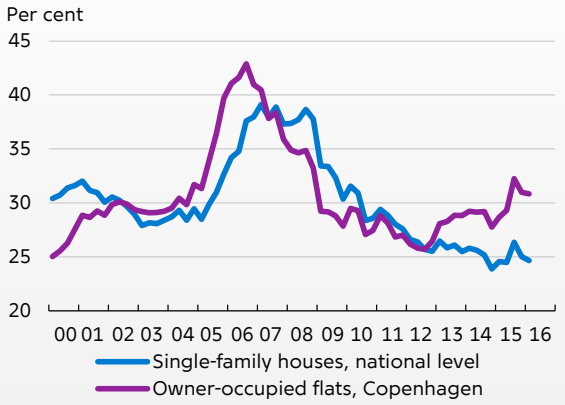
Chart 11



Source: Association of Danish Mortgage Banks' Housing Market Statistics, Statistics Denmark and own calculations.

The housing burden has increased in Copenhagen

Chart 12



Note: The most recent observations are from the 1st quarter of 2016. The housing burden for the purchase of a single-family house of 140 square metres and an owner-occupied flat of 72 square metres. The financing costs are based on a fixed-rate mortgage loan with amortisation plus a bank loan for the share of the purchase price that cannot be financed by a mortgage loan. The average Danish disposable household income has been applied.

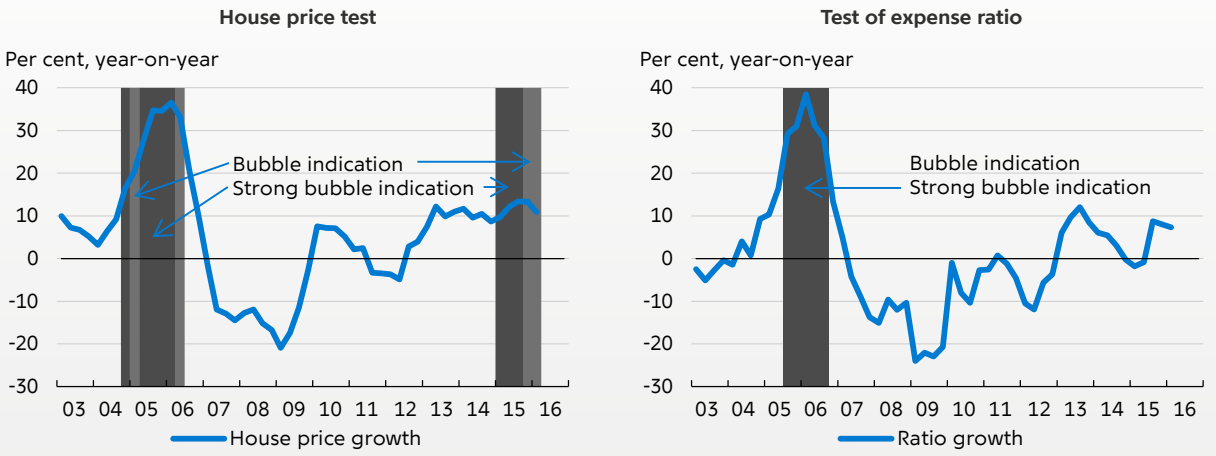
Source: Statistics Denmark, Association of Danish Mortgage Banks' Housing Market Statistics, Realkredit Danmark, Skat (Danish tax authorities), Danmarks Nationalbank and own calculations.

ities, for instance along the west coast of Jutland, also experienced net migration out of the municipalities. This development was part of a general urbanisation trend. In 2014, net migration to municipalities was concentrated on the municipalities in the immediate vicinity of Copenhagen. Thus, housing demand is gradually spreading across the country. Despite negative net migration to Copenhagen, the population of Copenhagen is growing due to net immigration from abroad and an excess of births.

Due to the large price rises for homes in Copenhagen, the housing burden based on prices of owner-occupied flats in Copenhagen since 2012 has increased far more than the housing burden at the national level. Prices have also risen above the level in the years before the housing bubble, cf. Chart 12.

Actually, house price growth alone has been so strong that a bubble test indicates that the price rises are driven, in part, by expectations of higher future prices. This was also the case during the

Some signs of a house price bubble in the market for owner-occupied flats in Copenhagen Chart 13



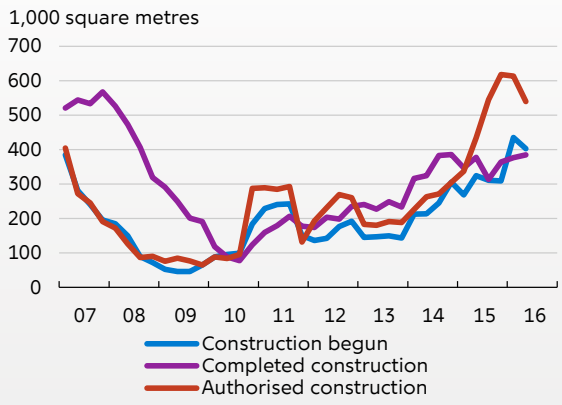
Note: The Phillips et al. (2015) test was conducted using an estimation with a 28-quarter rolling window. The grey shaded areas indicate periods in which the test with 95 per cent and 99 per cent probability, respectively, cannot rule out that house price developments are compatible with a self-fulfilling house price bubble. The lag length is 2 for both house price developments and the expense ratio. The critical values do not follow the standard distribution, they are simulated and determined at 5,000 simulations. In the ratio, household disposable income at the national level has been used as the income measure. The reason for this choice is that home buyers often live in a different geographical area prior to the purchase, e.g. in case of 'parent purchases' (i.e. parents are buying flats for their student and adult children.

Source: Own calculations.

build-up of the house price bubble of the 2000s, cf. Chart 13 (left). If both income and interest rate developments are taken into account, it cannot be ruled out, however, that the price rises seen so far may be sustainable, cf. Chart 13 (right). This should be seen in the context of the exceptionally low mortgage rates.[4] Prior to the latest house price bubble, the test based only on price increases responded first, in the 4th quarter of 2004, while the test responded somewhat later when controlled for economic fundamentals.

At the same time, construction activity in and around Copenhagen is high, cf. Chart 14. This is necessary to meet the housing demand from a growing population, and, viewed in isolation, it helps to dampen price increases. If price developments reverse over the next couple of years, for instance if interest rates rise, this could coincide with the completion of a substantial number of new houses. This could amplify a drop in prices as the one seen in 2007-09.

Residential construction in the city of Copenhagen Chart 14



Note: The most recent observations are from the 2nd quarter of 2016. The series are calculated as the sum over the past year. The most recently published observations are typically subject to considerable uncertainty.

Source: Statistics Denmark and own seasonal adjustment.

4 With the exceptionally low mortgage rates, the test in Phillips et al. (2015) is not close to indicating a house price bubble in the making.

What will happen to house prices if interest rates rise?

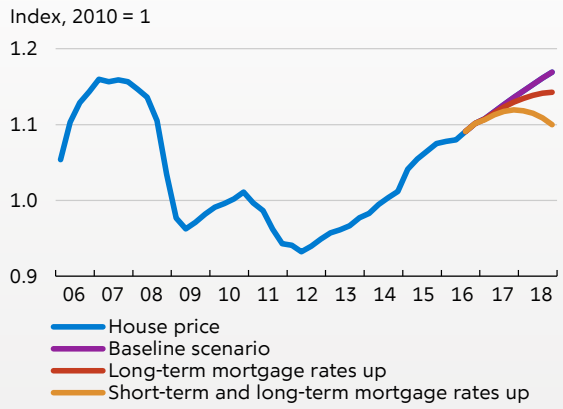
On several occasions over recent decades, housing interest rates have risen by 1 percentage point or more over a short space of time. Therefore, it is relevant to look at house price developments in the coming years, using various interest rate scenarios. For Denmark overall, the assessment is that interest rates would have to rise quite substantially in order for house prices to start declining. The Copenhagen housing market is probably more vulnerable to sudden interest rate rises than the rest of the country.

In Danmarks Nationalbank's most recent projection from this Monetary Review, house prices at the national level are expected to continue to rise by approximately 3 per cent annually in the coming years, driven by higher incomes and only slightly higher interest rates. The projection is based on Danmarks Nationalbank's macroeconomic model, MONA. If expected developments in house prices and the expense ratio are tested for signs of price bubbles, cf. Box 1, there are no indications that developments are unsustainable.

In an alternative scenario, long-term interest rates gradually increase to 5 per cent by the end of 2018, i.e. the level seen in 2011. This is about 2 percentage points above the level of the baseline scenario, i.e. the projection. This could, for instance, be the result of the European Central Bank, ECB, ending its asset purchase programmes before raising monetary policy rates. Short-term interest rates are assumed to follow the baseline scenario. Under the alternative interest rate development, house prices at the national level will grow less than otherwise, cf. Chart 15. If short-term interest rates are also assumed to rise more than in the baseline scenario, house prices at the national level will start decreasing at the end of 2017.

The International Monetary Fund, IMF, has shown that house prices in Copenhagen, among other places, are far more vulnerable to interest rate changes than house prices at the national level, cf. IMF (2016). According to the IMF, one reason could be that it is more difficult to adjust the housing supply in densely populated areas, and thus there will be a higher interest rate pass-through to prices. Moreover, the price of land is probably more interest rate sensitive than the price of buildings. The price of land is determined by the present value of the future return. Consequently, interest rate changes are fully capitalised. The price of buildings, on the other hand, is determined by construction costs, and financing costs account for only a small share of construction costs. Thus, in areas in which land accounts for a large share of the total property value, which is the case in Copenhagen, interest rate changes will affect property prices more than in other areas. Finally, financing costs are higher for the purchase of expensive homes, and therefore interest rate changes will cause greater nominal fluctuations for expensive homes than for cheaper ones. The combination of high interest rate sensitivity and house price growth that is already on the verge of becoming unsustainable, leads to increased risk that even small, sudden interest rate increases could trigger price falls.

At the national level, interest rates need to rise sharply in order for house prices to fall Chart 15



Note: In the "Long-term mortgage rates up" scenario, long-term mortgage rates are assumed to rise by around 2 percentage points to 5 per cent at end-2018, while short-term mortgage rates follow the baseline scenario. Thus, the yield curve will steepen. In the "Short-term and long-term mortgage rates up" scenario, all mortgage rates rise by about 2 percentage points more than in the baseline scenario.
Source: MONA and own calculations.

Why are house price fluctuations a problem?

House prices developing in line with economic fundamentals, for instance incomes and interest rates, are part of a well-functioning market economy. However, a steady and measured pace is essential, given that fluctuations in house prices impact the general economy.

Higher house prices make existing homeowners feel and become wealthier. When house prices increase, more home equity is generated in the house or the owner-occupied flat. Home equity can, to a certain extent, be used as collateral or realised when the home is sold. As a result, demand for other goods and services also rises, and construction of new homes is boosted as are repairs and maintenance of existing homes, thus increasing demand for labour.

On several occasions over recent decades, housing market developments have contributed to overheating of the economy, most recently with the housing bubble in the mid-2000s when house prices at the national level increased by about 20 per cent annually. This was, to some extent, a case of self-fulfilling expectations: many buyers expected the strong price growth to continue and were prepared to pay a higher price for the home, which then appreciated in price. As a result, new homeowners paid a higher price and accumulated more debt. Thus, higher house prices lead to some intergenerational redistribution of wealth, cf. Bang-Andersen et al. (2013). Another result of the development was a surge in the construction of new homes and renovation of old ones and a surge in private consumption. Employment rose, putting upward pressure on wages, which outpaced the wage growth of our competitors abroad, thereby eroding competitiveness. Thus, large imbalances accumulated in the Danish economy, causing the downturn to be reinforced when the financial crisis struck in 2008 and economies across the western world ground to a simultaneous halt.

The bursting of the housing bubble in 2007 contributed to a prolonged period of low economic growth and rising unemployment from which the Danish economy started recovering just a few years ago. The overheating of the housing market has been expensive for the Danish economy, for instance in the form of loss of growth in prosperity.

At the same time, declines in house prices may have considerable implications for the individual homeowner. If the increased home equity has been used as collateral, possibly even to raise a deferred amortisation loan, the homeowner may become insolvent in the sense that the debt exceeds the value of the home. Therefore, it is also in the best interests of the individual homeowner that house price growth is stable. However, homeowners cannot entirely avoid the risk associated with house price fluctuations. Initially, these issues constitute a problem for the individual homeowner, but if many homeowners are affected at the same time, the result could be a problem for the general economy, which could threaten the health of lenders – i.e. initially banks and mortgage banks. A healthy and solid financial sector is a key element of a robust economy.

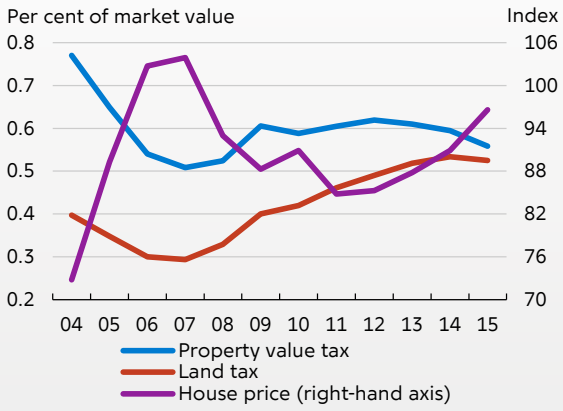
Large house price fluctuations also mean that entering and leaving the housing market becomes somewhat of a lottery. If prices are high when the home buyer purchases the home, a subsequent fall in house prices will result in a loss which could affect his or her life situation for a long time, especially if he or she has to sell the home and incur the loss, for instance in case of divorce or job change. Conversely, a surge in prices will give existing homeowners a wealth gain – a windfall to which they did not contribute for instance by working more. First-time buyers, on the other hand, will find it more expensive to enter the housing market. All in all, widely fluctuating house prices introduce an element of randomness into the financial position of the individual homeowner. Also for this reason, steady house price growth is preferable.

HOUSING TAXES

Housing taxes act as automatic stabilisers for the housing market and the general economy if the current tax reflects the value of the home. At the same time, housing taxes are less distorting than other taxes, and thus less inhibiting to economic growth, and they can generate relatively stable revenue to the central government. Until the introduction of the tax freeze in 2001, taxes paid were based on official valuations of the value of the entire home and the isolated land value, respectively, whereby housing taxes dampened house price fluctuations.

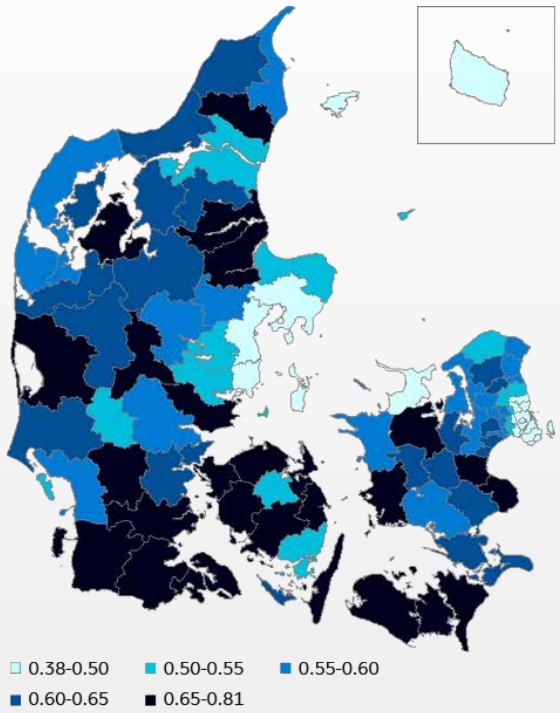
The nominal freeze on property value taxes and, to a slightly lesser extent, the cap on the increase in land tax have eliminated the stabilising effect of housing taxation. This causes greater fluctuations in house prices – leading to wider macroeconomic fluctuations and less financial stability – and means that a larger share of the

Effective housing taxes move opposite to house price fluctuations Chart 16



Kilde: Own calculations based on real estate register data from Statistics Denmark.

Lowest effective property value tax rates are found in and around large cities Chart 17



Note: Total property value taxes paid relative to housing wealth calculated at market value at the municipal level in 2015 in per cent.
Source: Own calculations based on real estate register data from Statistics Denmark.

total tax revenue is collected through other, more distorting, taxes. Since 2001, the housing taxes paid have followed neither the market price nor the public valuations. Thus, the effective tax rate has decreased when house prices have increased and decreased when house prices have increased, cf. Chart 16. In other words, housing taxes do not help to stabilise house prices.

Property value tax

Property value tax is a tax on the return of the home, or the rent the homeowner saves by owning rather than renting the home. This tax should be seen in relation to interest deductibility and taxation of capital income in general. Interest expenses, i.e. negative capital income, on housing debt are, for instance, tax deductible, whether the home is rented out or used by the homeowner. Property value tax ensures that both positive and negative capital income from homeownership is taxed, and, more generally, that the tax system does not favour one type of investment over others, for instance residential investment over investment in a business.[5]

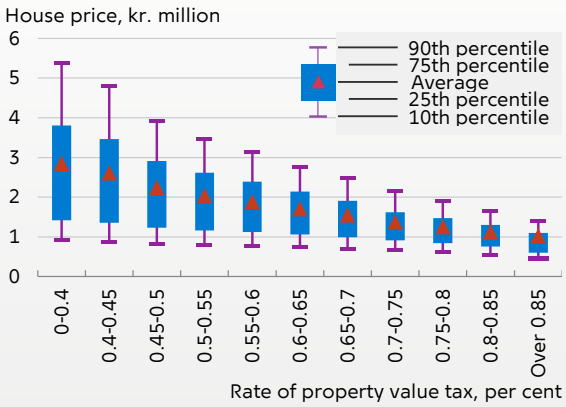
Since 2001, nominal property value taxes have been frozen. As a result, the effective tax rate, i.e. the tax paid relative to the market value of the home, has fallen. In 2001, homeowners paid 1 per cent of the public property valuation up to just over kr. 3 million and 3 per cent on higher valuations.[6] In 2015, the average effective rate at the national level had dropped to about 0.55 per cent of the market values, but with large variations across municipalities. In municipalities around large towns and cities, which have seen the strongest price increases, the effective rates are lowest, cf. Chart 17.

Moreover, house prices in and around large towns and cities are higher than in the rest of the country, entailing that the effective rates tend to be lowest for the most expensive homes, cf. Chart 18. Thus, the group of homes with an effective property value tax rate below 0.4 per cent on average cost just under kr. 3 million, and the 10 per cent most expensive homes in the group

5 The tax freeze is not symmetrical in its design. Housing taxes were frozen nominally, while the interest deductibility (tax on negative capital income) and other capital taxes were not frozen.

6 Home owners who bought their homes before 1998, and pensioners get a discount, and thus the actual property value taxes paid were slightly below 1 per cent, also before the nominal freeze.

Expensive homes are subject to a lower rate of property value tax Chart 18



Note: 10 per cent of the homes in a given group are cheaper than the 10th percentile. 90 per cent of the homes are cheaper than the 90th percentile, while 10 per cent are more expensive.
Source: Own calculations based on real estate register data from Statistics Denmark.

cost over kr. 5.3 million. However, homes with an effective rate of more than 0.85 per cent, cost only about kr. 1 million on average.

Land tax

Land tax is tax on land areas, i.e. the taxation base is the value of the land without the building. Taxation of land has a number of macroeconomic advantages over most other tax objects such as income or interest and equity income. Basically, this is because land is a tax object that cannot be moved to avoid taxation, i.e. tax on land is a non-distorting tax.[7] Income tax can, to some extent, be avoided by working less, which is to the detriment of value creation in the economy. Unlike most other taxes, land tax thus does not constitute an efficiency loss to the economy which inhibits economic growth. From an economic point of view, tax on land is thus one of the best forms of taxation. However, separate land tax and property value tax are not essential for stability in the housing market, cf. Box 2.

Because land cannot be moved, changes in the tax rate are very important determinants of the price of land. Actually, if the land tax rate is reduced or if land tax is abolished altogether, the price of land will increase as much as the present value of the lower land tax in perpetuity. That way, the entire gain will go to the existing land

Two separate housing taxes reduce the distortion loss, but are not essential for stability in the housing market Box 2

Two different housing taxes may seem complex, and, moreover, land value taxation requires a specific assessment of the market value. This may be difficult, since only few undeveloped plots are sold, cf. the Engberg Committee, among others, and there have been a number of examples of two approximately identical neighbouring plots having been valued differently. The Danish Ministry of Taxation is working to develop a new valuation system, which, using a number of statistical methods, will be able to estimate a market price both for the entire home and for the land value separately far more accurately than today.

If the two housing taxes were consolidated into one, this would not immediately affect housing market stability, provided the total tax tracks house prices. Thus, separate land tax and property value tax are not essential for stabilising house price fluctuations.

However, land tax is less inhibiting to economic growth than, for instance, income taxes, given that the distortion loss is very small. Moreover, land appreciation often tends to be a socially-generated value, for example as a result of public infrastructure investment or amendments to the planning act, and land tax ensures that the government takes its share of the gains. Finally, land tax helps to ensure that land is used efficiently, since land tax makes it expensive to own land that is not used, but held for speculation.

If the two taxes are consolidated into one, this may also have major implications on the distribution of wealth, depending on whether land makes up a large or a small share of total property valuation. For homes where the land value accounts for a relatively small share, for instance flats and homes far away from large towns and cities, the total tax rate will presumably be much higher than it is today.

Consolidation of the two taxes could also mean that taxation of the value of the property becomes high relative to the costs of new construction and improvements. This implies a decrease in these costs.

1. Non-distorting taxes affect neither supply nor demand. Thus, the tax will not constitute an efficiency loss to the economy which inhibits growth. From a purely economic point of view, tax on land is thus one of the best forms of taxation.

7 The land area is not completely fixed, since new land can be reclaimed. Land tax could make it less attractive to reclaim new land, thus having a distorting impact, but the significance is small.

owner. But future land owners will not realise any savings, as the purchase price of the land has increased to a level where the current financing costs, i.e. interest expenses, offset the lower tax. An overall decline in the revenue from land tax will also require an increase in taxation in other areas, for instance higher income taxes. Consequently, changes in the rate of land tax – up or down – have substantial implications in terms of intergenerational redistribution.

Land tax is a municipal tax and varies across municipalities. Unlike property value tax, it is not frozen, but follows public valuations of land values, albeit with a lag, since the collection of land tax is based on valuations dating back two or three years.[8] Moreover, there is a cap on the year-on-year increase in land tax.[9] As a result of the collection lag and the cap on increases, the effective land tax rate in a number of municipalities is currently lower than the tax rate set by the municipality.

HOUSING TAXES AND PRICE FLUCTUATIONS

The freeze on property value taxes and the cap on the increase in land tax lead to greater fluctuations in house prices.

What are the implications of the nominal freeze?

The nominal freeze on property value taxes has eliminated their stabilising effect on house prices, i.e. it has removed an important automatic dampener on price fluctuations. The reason is that, due to the freeze, a higher house price will not lead to an increase in the taxes payable by a home buyer. Without the freeze, home buyers would be paying higher housing taxes if house prices increased. That would reduce their willingness to pay. And vice versa if house prices fell.

Without an automatic dampener on house price fluctuations, the risk of house price bubbles increases. A number of surveys show that household expectations of house price developments are widely affected by the most recent price developments, cf. Dam et al. (2011). Thus, if prices are surging, households will typically expect price growth to continue. This increases the risk that house price growth becomes a self-fulfilling prophecy, i.e. that expectations of higher prices tomorrow drive up prices today. This emphasises the importance of having housing taxes act as an automatic dampener on house price fluctuations.

The size of the automatic stabilisation from housing taxes can be illustrated by an example. Given the freeze, the average homeowner pays around 0.55 per cent of the market value of the home in property value tax, i.e. on a home worth kr. 2 million, about kr. 11,000 is paid in property value tax each year. Based on the size of fluctuations since the freeze on property value taxes after 2001, the value of such home will fluctuate by about kr. 325,000 in either direction as long as property value taxes are frozen. If potential buyers of the home were subject to housing tax that fluctuated with the house price, i.e. that buyers were to pay 0.55 per cent of the purchase price in property value tax, the house price fluctuations could be reduced to about kr. 255,000 in either direction, cf. Chart 19. This corresponds to a reduction in fluctuations of some 22 per cent.

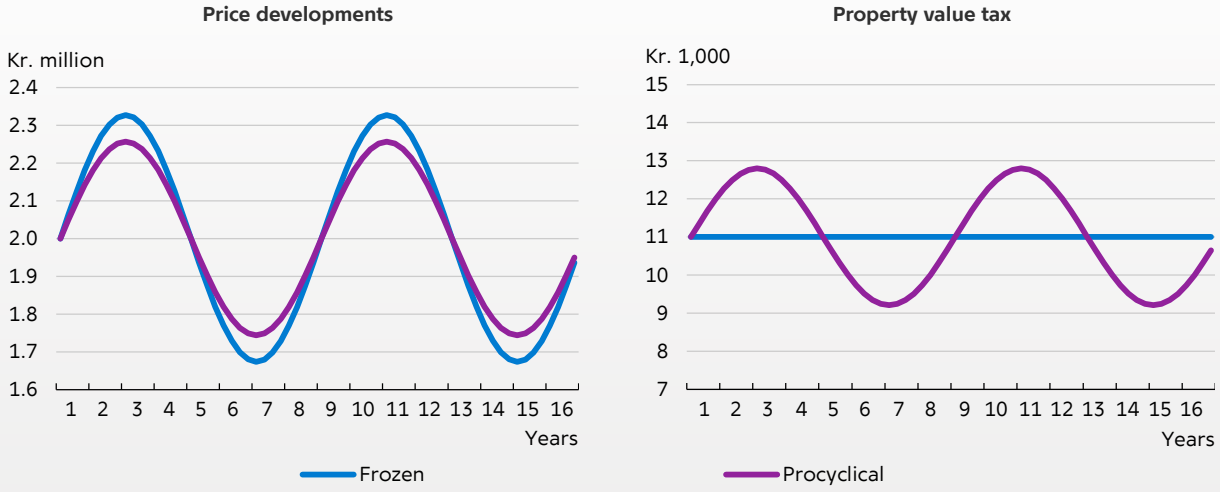
In addition to eliminating an important automatic dampener on house price fluctuations, the freeze has increased house prices, thereby inflating household balance sheets. As the level of prices rises, the real value of property value taxes declines. This increases house prices relative to income (the price-income ratio), given that property value tax savings can be used to service higher debt. Thus, the freeze contributed to the housing bubble in the mid-2000s and amplified the subsequent macroeconomic downturn, cf. Andersen et al. (2014). Finally, the central government's revenue base will gradually be eroded, meaning that other, more distorting, taxes must be raised.

Land tax is not frozen, but due to the cap on increase, the land tax paid does not necessarily fluctuate with house prices. Actually, the land tax paid rose in the period 2008-10 amid plunging house prices. The explanation was that taxable land valuations in the years 2005-08 increased at a much slower pace than the actual valuations due to the cap on increases, cf. Chart 20. Therefore, there was a backlog to be made up. The increasing land tax payments amplified the decline in house prices in the period 2008-10. The process would have been more expedient if the increases had occurred in the previous period when prices were surging.

8 No new valuations have been made since 2011, as the Ministry of Taxation is working to develop a new valuation system.

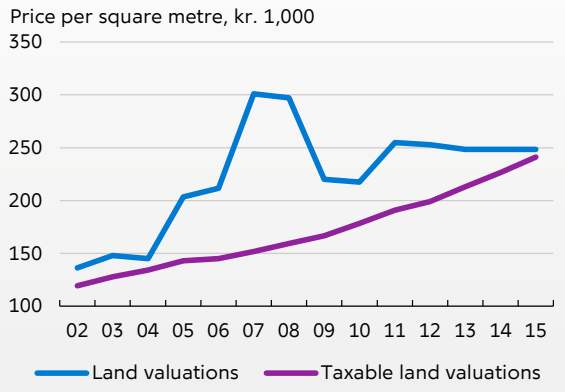
9 The regulation ratio cannot exceed 7 per cent. For 2016, the regulation ratio for owner-occupied housing has been set at 0 per cent.

Procyclical housing taxes for home buyers dampen house price fluctuations Chart 19



Note: The calculations are based on a cycle matching the standard deviation in the rate of price increases for single-family houses over the period 2002-15. The cycle has a period of 32 quarters. The calculations assume that changes in the property value are capitalised fully into prices, entailing that there is no adjustment of the housing stock.
Source: Own calculations.

Land valuations and taxable land valuations, average at national level Chart 20



Note: The taxable land valuations are based on valuations dating back approximately two years. Since 2003, the taxable land value has been allowed to rise only with the regulation ratio for property taxes.
Source: SKAT's valuation statistics and own calculations.

House price fluctuations are dampened when current housing taxes are in relation to the value of the home. Thus, to reduce house price fluctuations, housing taxes paid must fluctuate. For the individual homeowner, there are advantages to stability in both house prices and housing tax payments, but the two considerations are not easy to integrate. However, there is a way to achieve stability in payments without destabilising the housing market, cf. the Danish Economic Councils (2016). This stability could be achieved e.g. by allowing increases in current housing taxes in excess of, for instance, wage growth to be frozen, i.e. to postpone payment until the home is sold, cf. Box 3.

At first glance, the same advantage could be achieved by abolishing current housing taxes for a property gains tax, i.e. a tax on the gain made by the homeowner if the selling price exceeds the purchase price. Such tax is payable only when the homeowner realises a gain. However, property gains tax does not dampen fluctuations in house prices, which are also a disadvantage to households, especially first-time buyers entering the housing market. Moreover, property gains tax has a number of other problems. Replacing current housing taxes with property gains tax is clearly inadvisable, cf. Box 4.

Fluctuations in housing taxes paid can be dampened

Box 3

Higher current housing taxes are the result of higher house prices, entailing that homeowners have experienced a capital gain. If current income is not sufficient to pay housing taxes, loans can be raised against home equity, and the loan can be used to pay the higher current taxes.[1] Instead of borrowing at the bank, the Danish Economic Councils, among others, have suggested that increases in housing taxes in excess of, for instance, wage growth could be postponed by granting a mortgage on the home, cf. Danish Economic Councils (2016). This is equivalent to a loan from the public sector to homeowners. Postponed housing tax payments will bear interest at a market rate and be paid when the home is sold.[2] If a homeowner has postponed housing tax payments, the home has appreciated in value, entailing that a capital gain is realised on the sale of the home, which can be used, inter alia, to pay postponed housing taxes. For home buyers, the size of current housing taxes will be determined based on the most recent property valuation or possibly the market price. Thus, increasing house prices will reduce home buyers' willingness to pay, which will dampen house prices. It should be emphasised that stability in total (nominal) housing costs for the individual homeowner also requires that the home is financed with fixed-rate loans. Interest payments on variable-rate loans may fluctuate considerably more than housing tax payments.

1. Under reasonable assumptions, the capital gain will always be higher than the present value of higher current taxes. Thus, overall, the homeowner is not worse off.
2. Given that the postponed housing taxes bear interest at a market rate, there will be negligible, if any, lock-in effects.

Replacing current housing taxation with capital gains tax is a bad idea

Box 4

A capital gains tax is a tax on the gain made by the homeowner if the sales price exceeds the purchase price after adjustment for home improvements. The tax may be postponed until the homeowner withdraws entirely from the market for owner-occupied housing. However, such taxation has substantial disadvantages.

- Capital gains taxation will not dampen fluctuations in house prices. The tax is payable by the existing homeowner on the sale of the home. This does not reduce home buyers' willingness to pay, and thus, unlike taxation that tracks the home value on an ongoing basis, a capital gains tax will not dampen fluctuations in house prices. As a matter of fact, capital gains tax implies greater fluctuations in the housing market. Homeowners whose homes have appreciated since their purchase do not wish to sell, because by holding on to the home they can postpone the tax payment, free of interest.[1] Thus fewer homes will be put on the market when house prices are rising, which will put further upward pressure on prices, while the opposite is true when house prices are falling.[2]
- Capital gains taxation generates lock-in effects. The possibility of postponing tax payments free of interest also means that a capital gains tax will generate large lock-in effects, i.e. homeowners' incentive to move house is reduced. The lock-in effect will be particularly strong if homeowners speculate that the taxation could be abolished again. This translates into less labour market mobility and exerts upward pressure on house prices.
- Capital gains taxation weakens public finances. The tax is payable only at a future time of sale, which results in a substantial postponement of tax payments and weakens public finances in the short and medium term, but probably also in the long term. If the current revenue from property taxation is to be maintained in the long term, this will require very high tax rates on future capital gains.[3] Moreover, the size of the annual revenue will be more uncertain. Moreover, unless the postponement of tax payments takes the form of a mortgage on the home, there is no certainty that the homeowner will actually eventually be able to pay the tax, which may grow to a very large amount as nominal house prices increase over time.
- Capital gains taxation presents administrative challenges. A capital gains tax will provide an incentive for home buyers to pay "money under the table" to bring down the registered sales price, and thus tax payments. Moreover, a system is needed to keep tabs on deductions for home improvement costs. If deductions for improvements are not granted, homeowners will have an incentive to let the property fall into disrepair.
- Capital gains taxation is difficult to introduce initially. A capital gains tax is based on a purchase and a sales price, but historical purchase prices cannot be used, since up until now homeowners have already been paying current housing taxation. Therefore, a purchase price needs to be estimated. This makes the capital gains tax for existing homeowners highly dependent on the public valuation in the initial year.

All things considered, the problems involved in capital gains taxation are so severe that this form of taxation cannot be recommended. The most appropriate form of taxation of owner-occupied housing is current property value tax and land tax, the form of taxation used prior to 2002, possibly supplemented by the possibility of a tax postponement scheme to ensure that current tax payments do not fluctuate excessively. This will ensure that housing tax increases when property prices rise and vice versa. This is essential for ensuring that housing taxes help to stabilise house prices.

1. In principle, non-paid capital gains tax could bear interest, but in reality a system of that nature would be very difficult.
2. This line of argumentation is described in more detail in the Tax Commission's report, Lavere skat på arbejde (Lower tax on work – in Danish only), from February 2009, page 271.
3. According to a calculation made by the Ministry of Taxation, the tax rate on capital gains must be approximately 70 per cent to maintain revenue unchanged in the long term, cf. a response to a question posed to the Finance Committee – question no. 6 to Legal Document 77 of 15 April 2016.

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