

Extended investment cycle with stable prices: supply and demand in the German housing market from a longer-term perspective

The German housing market occupies a special position compared with other countries. While housing construction and house prices in a number of industrial countries have gone through sharp ups and downs in recent years, investment in the German housing market has remained weak throughout and prices have shown hardly any change. In the first few years after German reunification, migration movements led to a housing supply shortage, particularly in western Germany. This triggered a sharp rise in property prices which, with the support of generous government assistance, was followed by a boom in residential investment. Thereafter, the cyclical counter-movement combined with structurally weak demand for housing and the withdrawal of fiscal policy incentives led to a sustained period of correction. The recovery in housing construction since 2005 has been extremely subdued in terms of its underlying pace, but has so far shown itself to be robust in the economic crisis. In the short term, the outlook for a further cyclical improvement in residential investment is quite favourable. In the longer term, however, demographic factors will be significant, although their dampening impact should not be overestimated.

Housing market affected by structural changes and withdrawal of fiscal policy incentives

German housing market occupies special position compared with other countries

For some time now, the German housing market has been developing at quite a subdued pace. This applies not only to house prices, which, in stark contrast to the United States and some countries in western and southern Europe, have been subject to only marginal fluctuations in the past decade. Housing construction has not shown any rapid growth in recent years either and has persisted largely at a low level. Compared with other countries, Germany thus occupies a special position. This is mainly the result of special factors during the past two decades. The fall of the Iron Curtain and German reunification presented the German economy and housing market with major challenges in the first half of the 1990s. Furthermore, owing to persistent differentials in real interest rates, European monetary integration had asymmetric effects in the economies of the countries participating in monetary union, which also had an impact on the demand for housing. An additional factor which should not be underestimated is that, under *status quo* conditions, the consequences of demographic change and population ageing are likely to be felt earlier and more profoundly in Germany than in other industrial countries. Owing to the long-term nature of residential property investment, expectation effects mean that these phenomena are probably already making themselves felt in the German housing market.

Such structural changes have a direct and indirect influence on housing markets and, owing to the economic importance of the property segment and numerous interactions, also have an impact on other markets. Experience shows that effects which spread within or via housing markets are very persistent and shape the development of economies for a comparatively long period of time. One factor in this context is that, owing to the fixed location of traded properties, regional adjustment mechanisms are less pronounced than in markets for moveable goods and services. Furthermore, it is also relevant that housing markets have a range of country-specific characteristics. This concerns not only the habits of buyers and sellers and the financing practice of banks, but also institutional factors such as the relative significance of the rental segment or the legal framework for property ownership and transactions, including their tax treatment.

In the early 1990s, internal migration from eastern to western Germany, a wave of immigration (especially from eastern Europe), and a sharp influx of asylum seekers resulted in a housing shortage in western Germany.¹ Furthermore, the baby-boomer generation reached the age to start a family. This imbalance in the housing market was clearly evident in the perceptible increase in property prices up to the mid-1990s. Within the space of five years, the prices of new properties in western Germany went up by more than one-tenth on average, while the price of second-hand properties increased by just

Housing markets influenced by structural changes

Construction boom after reunification, ...

¹ See Deutsche Bundesbank, The housing market during the nineties, Monthly Report, January 2002, pp 27-37.

under one-quarter. Furthermore, in eastern Germany, the housing stock, which was in a desolate state, had to be renovated. With the support of massive government assistance in the form of tax benefits and subsidies for both homebuyers and investors, there was soon a noticeable increase in the housing supply. At the peak of the construction boom in 1995, almost 90% more dwellings were completed than in 1991. At first, the construction of apartments, in particular, flourished, but with the depreciation conditions for tenant-occupied housing being tightened with effect from 1 January 1996, demand in this segment tended to decline. Given continued increasing demand for single-family houses and two-family houses, activity in the housing construction sector remained favourable well into the year 2000, however.

... followed by sustained period of correction and subdued recovery since 2005

Over the past decade, growth in residential construction has been decidedly weak. Between 2000 and 2009, the number of dwellings completed fell by 63%. Along this downward trend, there were strong short-term fluctuations in the construction of new single-family houses and two-family houses. The ongoing political debate on the grant to homebuyers led to very volatile developments in construction permits and substantial anticipatory effects in the years before the grant was completely abolished for new cases from 2006 onwards. Furthermore, the increase in the standard rate of VAT from 16% to 19% with effect from 1 January 2007 prompted many homebuilders to bring forward, in particular, costly projects to 2006. Compared with weak activity in new buildings, construction measures on the existing housing stock

gained in importance. This is probably due in part to the fact that the Federal Government has, for some time, been paying interest-rate subsidies, in particular, to the KfW Banking Group for loans at favourable interest rates for energy-saving measures. This is attested by the fact that turnover in the interior and finishing construction sector increased again in real terms after 2005, while business in the main construction sector continued to be on a downward trend.

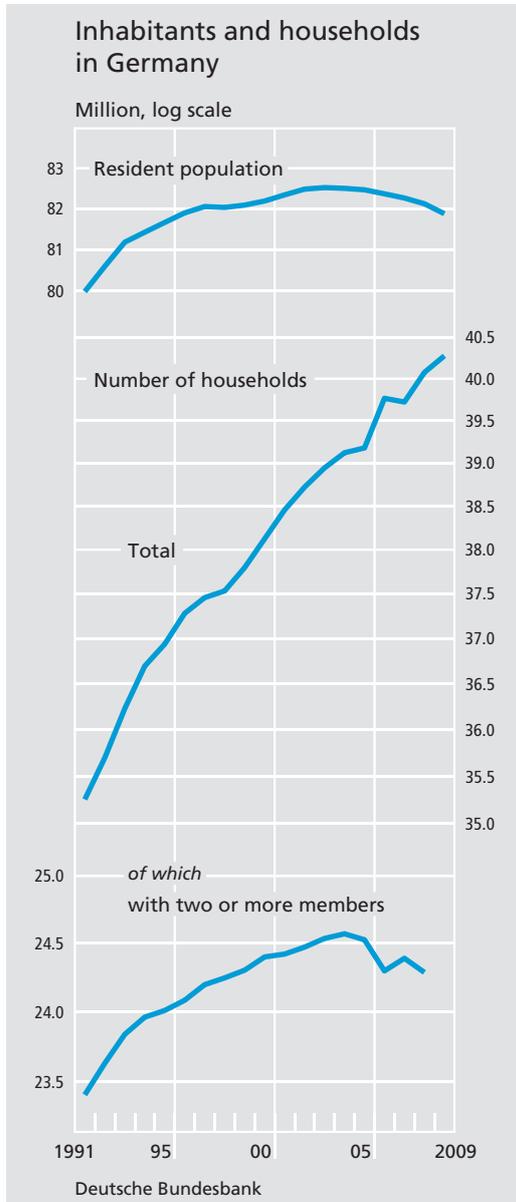
Demand for housing over the past two decades

With the exception of the first half of the 1990s, demand for housing in Germany has been influenced by rather weak fundamentals. Demographic change, in particular, has left visible marks. After rising by two million to around 82 million between 1991 and 1997, Germany's population has subsequently changed only slightly. According to estimates by the Federal Statistical Office, a further subdued population growth of just over half a million up to 2003 was followed by a similar-sized decline in the population by 2009.

After perceptible rise up to 1997, resident population has changed only slightly, ...

Given this development, the demand for additional dwellings since the mid-1990s has arisen from the tendency towards smaller-sized households. In particular, the number of single-person households has grown significantly over the past two decades. While the percentage of two-person households has also risen slightly, the relative importance of traditional family households has continued

... but increase in number of households ...



dwelling. The space per dwelling is generally likely to decrease at a below-average rate in relation to the number of household members because each dwelling possesses communally used rooms. Furthermore, the ageing of the population means that persons of an advanced age, who often stay in their present houses or apartments once their children have moved out, as they are used to living there, account for an ever greater share of the overall population. According to surveys conducted by the Socio-Economic Panel, in western Germany the average living space per household member rose by one-fifth to 55 m² between 1990 and 2008. In eastern Germany, the increase was twice as large, although, at 46 m² on average according to the latest figures, *per capita* living space was still well below the west German level.²

Economic performance influences the demand for housing in two ways. First, advances in productivity make it easier to safeguard a high level of employment and form a basis for sustained growth in real *per capita* income. For households, this not only means a permanent increase in the financial scope for housing expenditures, it also helps to stabilise future flows of income and thus contributes to planning certainty, which plays an important role in the acquisition of owner-occupied housing. Furthermore, economic prosperity facilitates the general social task of providing adequate housing for those persons whose income and asset situation does

Economic performance fosters real income growth and migration gains, ...

to decline. In the early 1990s, there was a more or less equal distribution among these three types of household, but in 2008 only just over one-quarter of households had three or more members, while almost two-fifths of households comprised only one person.

The number of members of a household, its composition, as well as the age structure of the persons in it, influence the size of the

² See J R Frick and S Grimm (2009), Wohnen in Deutschland nach dem Mauerfall: Eine Analyse für die Jahre 1990 bis 2008 auf Basis der Daten des Sozio-oekonomischen Panels (SOEP), SOEPpapers on Multidisciplinary Panel Data Research 236 (in German only).

not allow them to do this for themselves. Second, a location with productive enterprises that are well placed to compete internationally generally attracts workers from other countries and regions, which, *per se*, also results in an increased demand for housing.

... but was weak in Germany in the 1990s

In Germany, the economic burdens of reunification and the failure to adapt at an early stage to the challenges brought about by the progressive globalisation of economic activity and the opening of the markets in central and eastern Europe resulted in a need for structural adjustment building up over the course of the 1990s. As a consequence, with a low propensity to invest and a growing burden of social security contributions, growth was comparatively weak, unemployment became more and more entrenched and both general government and the statutory social security systems were financially overstretched. As a response to this, there were years of wage moderation, moves to create flexibility in wage agreements, structural reforms in the labour market and statutory social security funds as well as consolidation efforts in the public sector. For households, these measures meant that their earnings and transfers increased only moderately. Income effects impacted on the demand for housing. Moreover, during this period it became noticeable that, compared with other countries, Germany had become less attractive as a migration destination for persons seeking temporary or permanent work opportunities in another country.

The demand for housing is expressed in the search for an appropriate dwelling, which is either to be purchased or rented. In Germany the rental segment is relatively large compared with other countries. Only just over two-fifths of households live in owner-occupied housing. Within the euro area, Germany has thus by far the smallest ratio of owner-occupier housing.³ The rental market for apartments in multiple-family dwellings is particularly broad. The acquisition of such properties is therefore not to be seen solely in the context of owner occupation, but can also be a pure capital investment decision, in which returns are considered in comparison with alternative forms of investment. However, since the mid-1990s, there has been a significant decline in investment in new apartments for the purpose of renting in relation to the construction of new owner-occupied houses. Measured in terms of the estimated costs of the completed dwellings, the level fell by 50% during this period and amounted to only just over 10% in 2009.

Owner-occupied housing versus renting

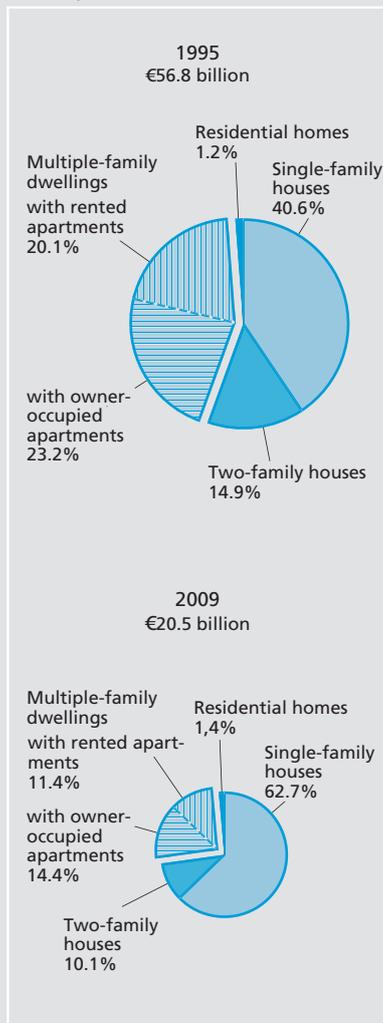
In the context of property acquisition, the demand for housing is closely linked to credit financing issues. The acquisition of a property for self-occupancy is taken into consideration especially in the period when establishing a household and starting a family, as there is typically a suddenly increased need for a larger dwelling, particularly as this is generally also the stage of life when there is an improvement in the income situation and thus also in creditworthiness. While less than 5% of households with a main wage earner

Property acquisition predominantly at the time of setting up a household and family

³ See European Central Bank (2009) "Housing finance in the euro area", Occasional Paper No 109.

Completed new housing projects by type of building

According to estimated construction costs



Deutsche Bundesbank

below 25 years of age live in an owner-occupied single-family house, the figure rises to just over 30% if the head of the household has reached 45 years of age and then hardly changes as age increases. In addition, the percentage of households living in an owner-occupied apartment also rises significantly in this age group. The demand for housing can therefore be negatively affected by debt financing conditions, as, particularly in the

case of young households, lending can be limited owing to household income being too low or the capital base being insufficient, thus preventing, or at least delaying, the realisation of the living arrangement that is actually preferred.

Owning a home generally becomes affordable when a household is able to ensure that it can make the interest and redemption payments on the mortgage loan over the long term after having taken account of its (expected) income flow, its living and consumption habits, other financial obligations and an interest rate risk. An affordability index – defined as the ratio between the maximum sustainable regular loan repayment amount, which is a function of household income and the credit conditions (ie interest rate and maturity), and the property price – can thus indicate whether the demand for housing is fostered or hampered by financing conditions. Since German reunification, the affordability restriction for households whose main wage earner is between 25 and 40 years of age has tended to become less critical, despite the comparatively subdued income growth. This is due to a trend decline in interest costs on mortgage loans and the fact that house prices have increased very moderately.

Increasingly loose affordability restriction

When granting a home loan, banks additionally require sufficient own funds, which, in addition to financial assets, can also comprise personal contributions to home improvements. However, banks do at least vary the interest rate depending on the loan-to-value ratio, which, in turn, can have an effect on affordability. Close to the time of the acquisi-

Rise in loan-to-value ratios on average

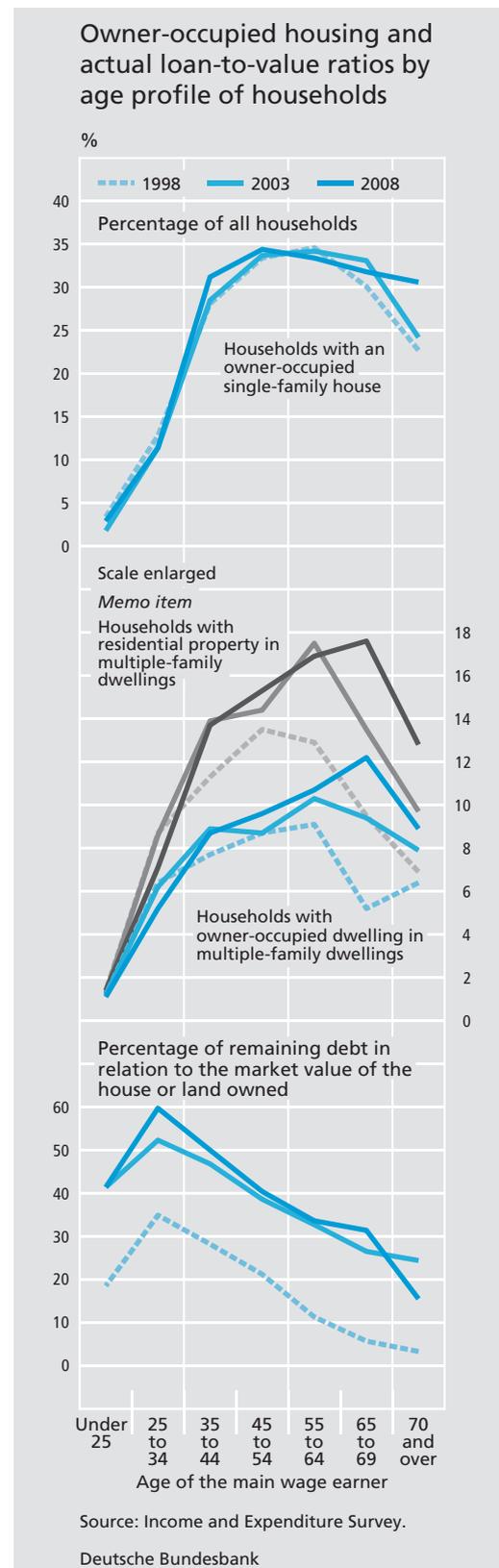
tion of the property, the use of borrowed funds as a percentage of the purchase price can be approximated by the relationship between remaining debt and the market value of the property. According to data from the Income and Expenditure Survey, for households whose main wage earner is between 25 and 35 years of age, this ratio was around 60% in 2008, which was still at the lower end of the range of usual loan-to-value ratios. However, this value has risen in recent years, from just over 50% in 2003 and no more than 35% in 1998.⁴

Supply situation and equilibrium reactions in the housing market

Segmented housing markets

In geographical terms, housing markets are strongly segmented. The ratio of supply and demand can therefore vary quite considerably from one regional market to another. Owing to comparatively weak arbitrage mechanisms, there may be differences over an extended period of time with regard to the market situations in the rental and purchase segments, too, as well as in types of housing. Notwithstanding certain discrepancies, it may, however, be assumed that, in the early 1990s, the German housing market was characterised by a considerable supply shortage. In western Germany this essentially re-

⁴ The result for 1998 is exceptionally low and appears to be a downward outlier. In 1993, the percentage of borrowed funds for the age group in which the owner of the house or land is under 35 years of age was 40%. For the group of households with main wage earners between 25 and 35 years of age under consideration here, this implies that the loan-to-value ratio in 1993 is likely to have stood at just under 50%, thus coming very close to the 2003 value.



sulted from the high level of immigration, while, in eastern Germany, part of the existing housing supply was not marketable after the change in system of government. By contrast, the overall picture at the current end is characterised by a greater heterogeneity. In some urban and economically prosperous areas, the housing supply is at present likely to match demand by and large, while in more rural regions, especially in eastern Germany, there is sometimes an obvious supply overhang. According to the "Techem-empirica-Leerstandsindex" (Techem empirica vacancy index), between 5% and 10% of apartments on the market in the east German federal states (excluding Berlin) stood vacant in 2008, for example, while the corresponding ratios for Hamburg, Bavaria and Baden-Württemberg were merely below 2%.

Positive correlation of residential construction and house prices

Tensions in the housing markets are often triggered by marked changes on the demand side. As a rule, there are initially price movements because supply adjusts only gradually to demand. In the case of housing investment, not only the planning phase and construction work but also administrative processes, such as the permit procedure, take quite a long time. When supply adjusts to demand, the price progressively returns to the level justified by the fundamentals. This response pattern is reflected empirically in a positive correlation of housing investment and house prices.⁵ It can generally be assumed that the price will fluctuate all the more strongly, the greater the imbalance is initially and the more lethargically the supply side responds.

Compared with other countries, house prices in Germany are characterised by low volatility. Only in the wake of the massive demand shock after reunification did prices rise sharply. This could be interpreted to mean that the supply of housing in Germany is rather elastic. However, fluctuations are also reduced by the existence of institutional arrangements to prevent expectation-driven, self-reinforcing price-formation processes. Key to this is that homebuyers and investors have a sufficient long-term orientation and that banks pursue risk-appropriate lending practices. The prudent calculation of loan-to-value ratios when granting mortgage loans plays a particular part in this. However, the comparatively stable property prices in western Germany over the past decade could also be an indication that the housing stock is largely in equilibrium. The fact that the creeping decline in demand for housing in eastern Germany, caused by low birth rates and emigration, has not depressed property prices more strongly in recent years is also likely to be due to demolition programmes, which have reduced the housing supply in the low-quality segment.⁶

Low price volatility

The demand and supply-side factors in the German property market described above

⁵ See, for example, evidence for Germany, France, Italy and Spain in L J Álvarez, G Bulligan, A Cabrero, L Ferrara and H Stahl (2009), Housing cycles in the major euro area countries, Banque de France, Document de Travail 269.

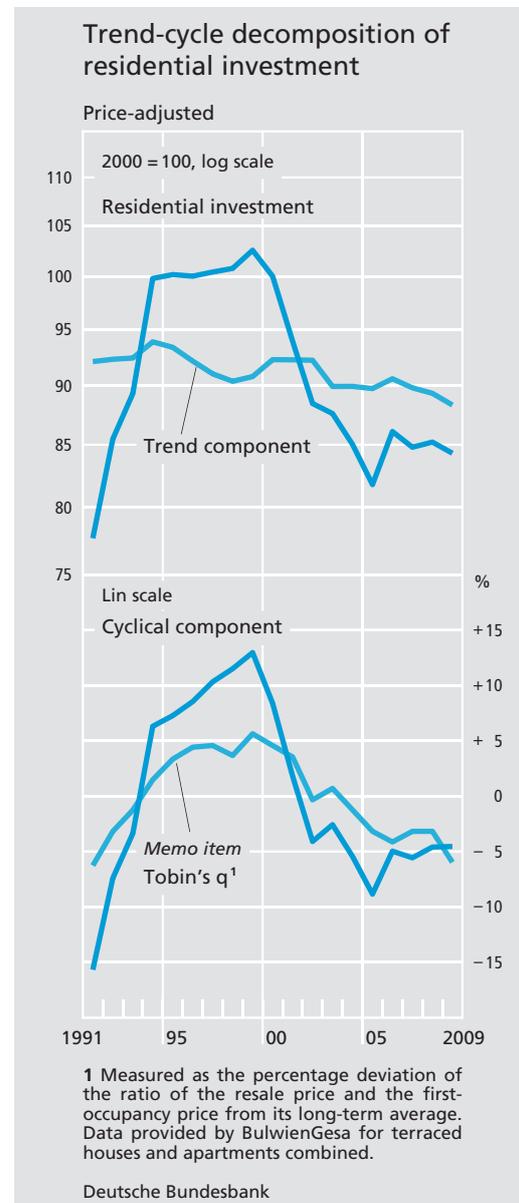
⁶ Between 2000 and 2008, as part of the programme "Stadtumbau Ost" (urban renewal in eastern Germany) and other programmes launched by the federal states of Brandenburg, Saxony and Thuringia, approximately 3% of the total housing stock in eastern Germany was demolished or dismantled. See the annual statistics of the Federal Association of German Housing and Real Estate Enterprises (GdW Bundesverband deutscher Wohnungs- und Immobilienunternehmen), November 2009.

Trend-cycle decomposition in residential investment

can make a significant explanatory contribution in statistical analyses, too. For example, econometric results indicate that investment in housing construction forms a stable equilibrium relationship in the long term with the resident population and *per capita* income (adjusted for price and terms of trade effects) as demand-side trend factors, and the real house price.⁷ Just like investment activities, price fluctuations are to be classified theoretically as endogenous equilibrium reactions which are relevant from a longer-term perspective insofar as they reflect persistent tensions between housing supply and demand. A trend component for residential investment can be derived from such a model. During the period from 1991 to 2009, this trend component followed a very smooth path with a slight downward tendency. Accordingly, the time series after German reunification was characterised by a very long cycle spanning a decade and a half. As a result of the construction boom at the start of the 1990s, it was possible in a matter of a few years to offset substantial supply shortages that had arisen after reunification. However, this process created capacities in the housing construction sector which, measured in terms of the long-term fundamentals, were obviously too large. Subsequently, there was a sharp correction during the first half of the past decade, which was followed by a moderate recovery from 2005 onwards.

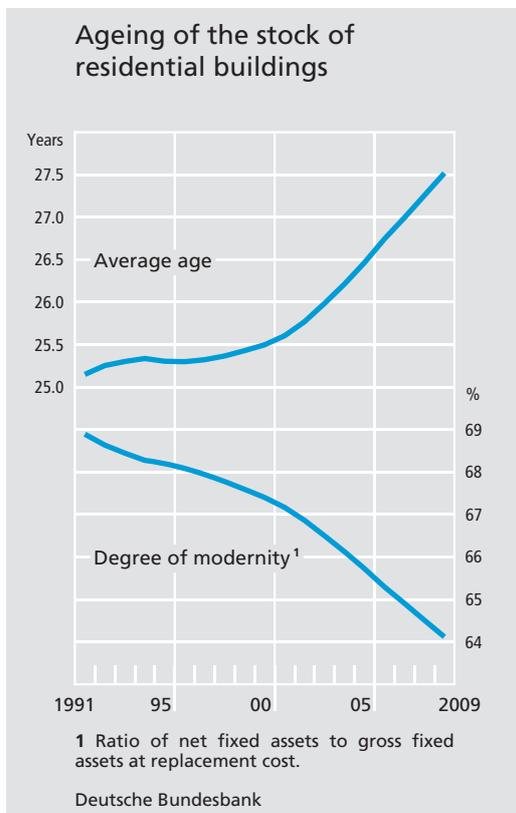
Relationship between the resale price and the first-occupancy price ...

The underlying cyclical pattern of investment activity is consistent with the aggregate market valuations regarding the relative advantages of new and second-hand properties. If the properties are of identical quality (this



also includes the age of the existing properties), their sale prices should be in a state of equilibrium. If houses up for resale are temporarily more expensive than comparable properties for first occupancy, households and investors increasingly opt for the new

⁷ See T A Knetsch (2010), Trend and cycle features in German residential investment before and after reunification, Deutsche Bundesbank Research Centre, Discussion Paper, Series 1, No 10/2010.



property. This entails a larger-scale housing investment than the opposite situation in which, in response to overpriced new properties, there is greater demand for existing properties, where investment costs are usually limited to modernisation and, possibly, also extension work.

If the resale price is interpreted as the current market value and the corresponding price of the new property as the replacement costs, the price ratio as defined in Tobin's q theory may be regarded as a cyclical determinant of housing construction.⁸ Tobin's q is generally considered to be an overall statistic of the propensity to invest, which combines demand conditions and production-side cost structures, including installation costs, and, ideally, tax aspects in a single variable.⁹ Using market

valuations for measurements is consistent with the core concept of the q theory. The implementation chosen here, using price data provided by BulwienGesa AG relating fundamentally to the same standardised properties in both new construction and resale, ensures a high degree of homogeneity with regard to price-relevant characteristics. By contrast, age is a relevant quality feature in which new and second-hand properties naturally differ.

As long as the average age and other price-relevant quality characteristics of the available second-hand properties – provided no adjustment is made for them – remain unchanged over time,¹⁰ an analysis of Tobin's q in relation to its longer-term average is sufficient for the cyclical interpretation. On the basis of the below-average values directly after German reunification, the q statistic indicates favourable conditions overall for the formation of new housing capital in the period from the mid-1990s to the economic downturn at the start of the past decade. Since then, Tobin's q has again been in contractionary territory.

... can be interpreted as a cyclical determinant of housing investment

⁸ See G D Jud and D T Winkler (2003), The Q theory of housing investment, *Journal of Real Estate Finance and Economics* 27, 3, pp 379-392.

⁹ In line with the usual empirical implementation, in this application too, Tobin's (marginal) q, which, according to the theory, relates to the marginal investment, is approximated by the corresponding average value. In the interpretation, it should also be noted that the current q statistic alone provides an adequate overall measurement of investment propensity only if the short-term supply curve coincides with the long-term supply curve. However, adjustment lags can be expected in housing construction, meaning that the supply is rather inelastic in the short-term and the assessment of the investment conditions requires a forecast of the q statistic. See, for example, R Topel and S Rosen (1988), Housing investment in the United States, *Journal of Political Economy* 96, 4, pp 718-740.

¹⁰ For further information on the quality adjustment of the price data provided by BulwienGesa, see Deutsche Bundesbank, Price indicators for the housing market, Monthly Report, September 2003, pp 45-58.

... in the context of Tobin's q theory...

The market valuations therefore confirm the outcome of the trend-cycle decomposition, according to which housing construction has remained weak in cyclical terms since 2003.

*Creeping
ageing of
housing stock*

In terms of its basic conclusions, the finding of the q theory is not relativised by the fact that the housing stock has aged noticeably over the past decade. This development is not only due to the low propensity for investing in new properties for a number of years. An additional special factor is that around four-fifths of the demolition programmes that were launched in eastern Germany after the turn of the millennium relate to dwellings built as recently as the 1970s and 1980s that are no longer marketable located in predominantly large housing estates on the outskirts of cities or towns. This means that, compared with the normal service life of residential buildings, relatively new properties are being removed from the housing stock. According to data from the Federal Statistical Office, the average age of housing assets rose by two years to 27½ years between 2000 and 2009, compared with an increase of only just under half a year between 1991 and 2000.

Short and longer-term outlook for the housing market

*Good
foundation
for the
continuation
of the cyclical
recovery in
housing
construction*

According to econometric estimates, housing investment – disregarding weather-related effects – is currently still somewhat below its trend path. From a cyclical perspective, there is therefore still scope for a certain amount of recovery. Looking at a series of individual indicators also points to stimuli for housing con-

struction. To date, interest rates for mortgage loans have more or less returned to their all-time low of mid-2005. Consequently, owner-occupied houses have *per se* become more affordable. However, this has to be countered by a possible reduction in potential output growth and, thus, longer-term income prospects as a result of the economic crisis.¹¹ Furthermore, according to the results of the Bank Lending Survey, since the start of the turbulence in the international financial markets, banks have been steadily tightening their (hitherto more relaxed) housing loan allocation practice, even though there has been a tendency to do this less recently. Nevertheless, a key criterion when granting housing loans is the job security of the home-buyer. Owing to the remarkably robust state of the labour market, the risk of being laid off is still considered to be relatively low. Finally, households' net asset position improved again considerably in 2009. Besides their own savings efforts, this is also accounted for by the fact that the losses suffered by financial assets in 2008 were recouped during 2009.¹²

The cyclical recovery in new housing construction could also be bolstered by the fact that there has been no further rise in the cost of construction work recently following sharp increases in the period from 2006 to 2008 due to higher prices for raw materials and the

*Improvement
in new
construction
alongside
continued
expansion of
renovation
measures*

11 For more details, see "To what extent has the potential output of the German economy been impaired by the economic and financial crisis? An interim assessment", Deutsche Bundesbank, Monthly Report, December 2009, pp 24-25.

12 For more details, see "The impact of the financial and economic crisis on the 2009 financial accounts", Deutsche Bundesbank, Monthly Report, May 2009, pp 40-41.

sharp increase in the standard rate of VAT. There is likely to be a tendency for renovation measures on the existing housing stocks to increase. This is corroborated by the widespread willingness, given the expectation of permanently higher energy prices, to extend the thermal insulation of properties and to modernise the heating and hot-water supply, especially as this is being promoted by low-interest loans and investment grants from the KfW Banking Group.

Housing construction in the long-term not only affected by demographic change

In the medium to long term, housing construction will chiefly be influenced by the trend factors of the demand for housing. Demographic change will play a major role as a dampening factor in this context, but should not be overemphasised. Given increasing labour mobility, which, particularly in Europe, is being limited less and less by institutional, linguistic and cultural obstacles, (relative) economic performance is a key determinant for the resident population of a region or country. The resulting migration movements influence the demand for housing, just

like the productivity gains that can be achieved at a competitive and innovative location and which can permanently increase the level of prosperity. Stimuli for housing construction are generated when, in line with individual preferences, the living space per person increases further or greater value is placed on the constructional features and facilities of the buildings.

Homeowners and investors are interested in properties maintaining their value in the long term. High market volatility reduces the ability to forecast important factors underlying property investment decisions. Excessive price fluctuations are particularly disruptive to this process. Following the end of the price surge resulting from shortages in the housing market during the first half of the 1990s, it has been possible during the last 15 years to maintain a stable price environment in the German housing market. In order to ensure that this is the case in the future too, there is, above all, a need for prudent market players who can adequately assess risks.

Safeguarding stable price environment