

III - Outlook for UK house prices and implications for the wider economy

House prices have been on a rollercoaster ride in recent years. As shown in Figure 2.8 above, they rose strongly up to their peak in mid-2007, but then fell back by around 20-25% (depending on the index used) to their trough in March 2009. After that, however, house prices mounted a surprisingly strong recovery during the rest of 2009. Progress so far in 2010 has been more mixed, but the trend in prices still seems to be upward.

Despite the recovery in house prices since March 2009, mortgage lending and housing transaction levels remain subdued by historic standards and, with the general economic recovery still relatively fragile as discussed in Section 2 above, questions remain as to whether the house price recovery will be sustained and what implications any setback in the housing market might have for the wider economy.

This article discusses these issues as follows:

- Section 3.1 presents updated projections from our probabilistic model of UK house prices;

- Section 3.2 reviews the various mechanisms whereby house price changes can impact on the wider UK economy; and
- Section 3.3 summarises and draws conclusions from the analysis.

3.1 – UK house price projections

To explore the outlook for house prices more rigorously, while recognising the large uncertainties that surround any such projections, we have updated our stochastic model of UK house prices¹. As discussed in detail in the November 2006 and November 2007 issues of UK Economic Outlook, this models the annual change in the house price to earnings ratio as a function of:

- the change in the house price to earnings ratio in the previous year;
- the house price to earnings ratio two years before;
- mortgage interest rates over the previous two years;

- the change in the (natural log of the) housing stock to households ratio (as an indicator of possible supply constraints);
- a constant term, which acts as a proxy for the 'equilibrium' house price to earnings ratio; and
- an 'error term' that captures the degree of uncertainty.

The parameters of the model were estimated using standard ordinary least squares (OLS) econometric methods based on annual data for 1975-2009². We identified the most appropriate model specification (e.g. which lag terms and interest rate variables to include) using standard diagnostic tests. In summary, this model has the following key features:

- the actual house price to earnings ratio was about 25% above the estimated historic equilibrium house price to earnings ratio at its peak in mid-2007; this overvaluation fell to around zero in Q2 2009, but has now increased to around 5-10% again according to our model;

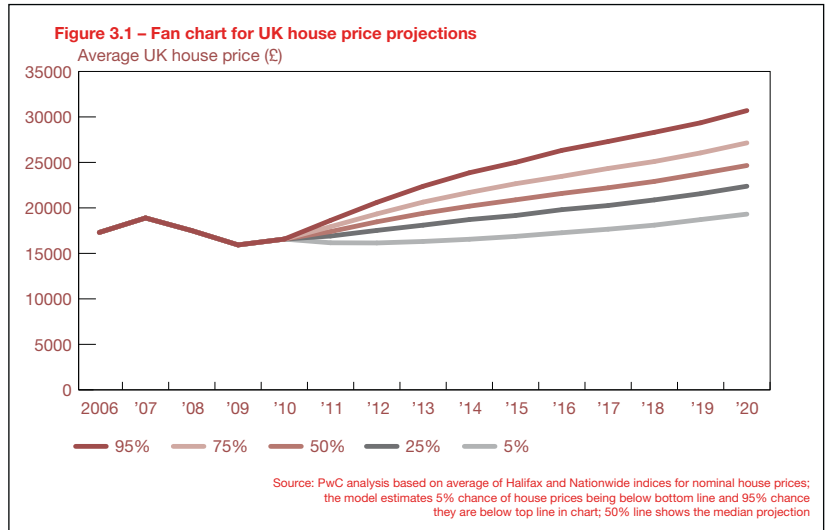


Table 3.1 – UK house price projections and probabilities

	2007 to 2015		2007 to 2020	
	Cash terms	Real terms	Cash terms	Real terms
Median projection for house price change in period	+11%	-6%	+30%	0
% estimated probability of house price fall during period	c.15%	c.70%	c.3%	c.50%

Source: PwC analysis (real house prices deflated by CPI inflation)

- this does not mean that house prices will immediately start falling, but it does indicate that the market could be potentially vulnerable to setbacks over the next couple of years if

buyer confidence declines for any reason (e.g. a renewed rise in unemployment, fear of large tax increases and, in particular, future mortgage interest rate rises);

¹ The results of this model were last published in the July 2009 issue of UK Economic Outlook.

² We constructed a house price index based on a simple average of the Nationwide and Halifax house price indices.

- a permanent increase in the interest rate variable by one percentage point would, eventually, reduce house prices by about 15%; the full impact of this change would take up to a decade to become apparent, however, due to the considerable inertia in this market; and
- the stochastic model creates housing market cycles of around ten years in length, which is broadly in line with past experience.

Probabilistic house price projections

In order to understand the distribution of possible future outcomes for house prices, we produced 2,000 randomly-generated simulations using a well-established statistical modelling technique known as ‘Monte Carlo simulation’. The key results of this exercise are presented in Figure 3.1 and Table 3.1.

In Figure 3.1, we present the distribution of outcomes as a ‘fan diagram’, which is derived in a similar way to the Bank of England’s well known inflation fan chart. The chart presents five lines, outlining the probability distribution lying between 5% and 95%. So, for instance, there is

a 5% chance of prices lying below the bottom line in the chart and a 95% chance of prices being above it. The central 50% line represents the median estimate using this modelling approach.

Because we already have data for the first part of 2010, we decided to make a deterministic projection for this year based on extrapolating forward from the data for the year to date on a monthly basis and then translating this into an average annual house price inflation rate for 2010 relative to 2009. The annual probabilistic model was used from 2011 onwards.

Figure 3.1 suggests that average UK house prices are likely to be around 5% higher on average in 2010 than in 2009, even with relatively flat prices over the second half of this year. House prices are also projected to rise by around 4% in 2011 in this median scenario. Thereafter, a continued slow rise in house prices is the most likely scenario, but there is a very wide margin of error around any such median projection.

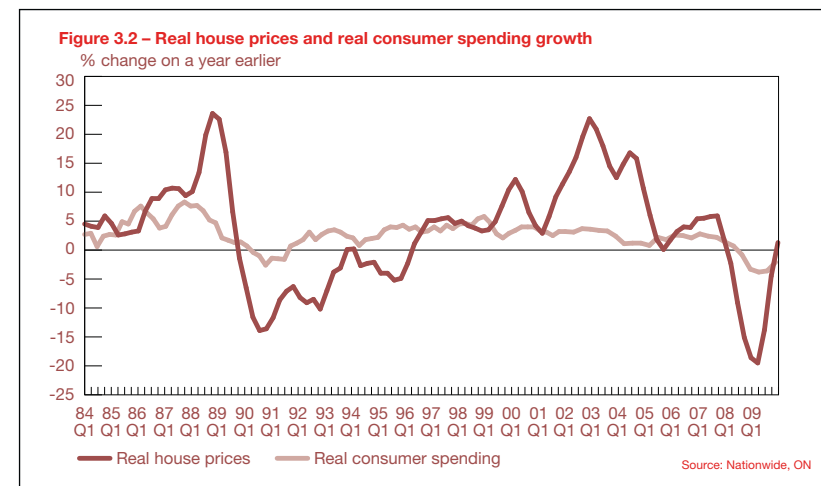
Table 3.1 presents these results in a different way by looking at the change in both nominal house prices (in cash terms) and real house prices (adjusted for CPI inflation) over the period from the peak of the market in 2007 to

2015. We can see that, over this period, the probability that cumulative house prices changes will be negative is only around 15% in cash terms, but rises to around 70% in real terms. The median projected change in average annual UK house prices over this 8 year period is around 11% in cash terms, but -6% in real terms.

Even in 2020, after five years of further relatively strong growth, real house prices are projected in our median scenario to be only at the 2007 market peak in real inflation-adjusted terms (which is a better way to assess longer term trends than looking at cash figures). There is therefore a 50% chance that real house prices in 2020 could be below 2007 levels, although this is very unlikely to be the case in cash terms given normal levels of CPI inflation over this period.

3.2 – Implications of house price trends for the wider economy

House prices have a high degree of prominence in the media but some economists, notably at the Bank of England, have sometimes expressed doubts as to how much independent significance they have for the economy. As Figure 3.2 shows, there has



generally been a fairly close correlation between real house price growth and real consumer spending growth over the past 25 years³, but the question is whether this is a causal relationship or just an indication that both are determined by other more fundamental factors such as real disposable income growth and interest rates.

This issue is difficult to resolve definitively, and there is clearly some truth in the Bank of England position, but our own view is that it is difficult to understand UK economic history in recent decades without giving house prices an important role in the economic transmission mechanism. This is particular true in relation to the boom-bust cycle of the late 1980s

and early 1990s and the more recent boom-bust cycle over the past ten years in both the UK and other countries such as the US and Spain.

This owes as much to behavioural economics as to the traditional paradigm of rational economic man since, as discussed by authors such as Akerlof and Shiller (2010)⁴, ‘animal spirits’ play a key role in economies. The typical story goes something like this:

- there is some real development, such as financial liberalisation in the early 1980s or low global real interest rates for most of the past decade, that justifies an initial increase in housing demand and house prices;

³ Aside from a period between 2002 and 2004 when a strong house price boom was not associated with a strong consumer spending boom, in sharp contrast to the second half of the 1980s. Even during this period, however, consumer spending tended to grow faster than household disposable income and the relationship with house prices reasserted itself later in the decade as can be seen from Figure 3.2.

⁴ George Akerlof and Robert Shiller, ‘Animal Spirits: How human psychology drives the economy and why it matters’, Princeton University Press, 2010.

- but this gets out of hand as mortgage salesmen have incentives to boost lending volumes at all costs to meet their targets (particularly when paid by commission), while buyers rush to get on the property ladder, or move up it, before prices rise even further;

- market participants are persuaded to put aside tried and tested valuation metrics (e.g. house price to earnings and maximum loan to value ratios) in favour of the view that a 'new paradigm' has allowed values to rise permanently above the levels suggested by such metrics;

- analysts who attempt to 'cry wolf' using traditional valuation metrics may lose their jobs or their reputations if asset prices (whether for houses or other assets such as equities in the dot.com boom of the late 1990s) continue to rise for some time after these traditional metrics are signalling a potential crash, driven by rising leverage levels and speculative buying;

- at some point, however, there is an event (such as the sub-prime crisis in the US that emerged during the first half of 2007 and spread to banks across the developed world) that

triggers a wider loss of confidence among lenders and/or buyers, resulting in a rapid retrenchment of credit and a sharp fall in house prices that feeds on itself; and

- households see their apparent housing wealth fall sharply and respond by increasing precautionary savings and cutting back on spending, which in turn reduces company revenues and causes them to shed jobs; banks with bad debt problems relating to property markets rein in their other lending to companies, so reinforcing the downward spiral in business investment and employment.

Collateral effects and mortgage equity withdrawal

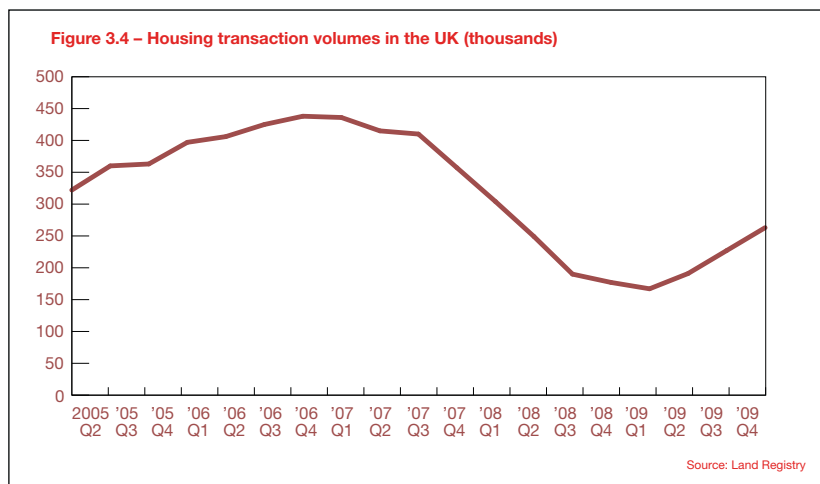
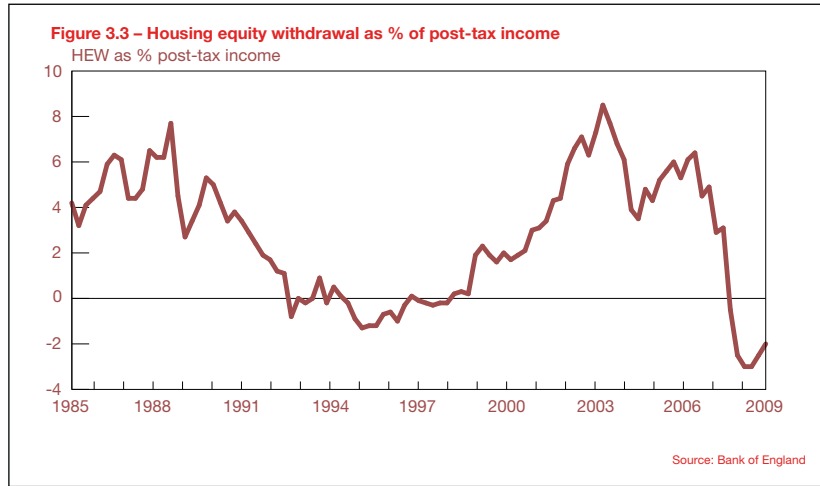
The role of housing in providing collateral for mortgage loans plays a key role here, bearing in mind also that a significant part of remortgaging may be used to finance non-housing spending in practice. This kind of housing equity withdrawal has followed the same kind of rollercoaster ride as the housing market, as illustrated in Figure 3.3. Recently it has stabilised, but remains in negative territory.

Housing transaction effects

Weaker house prices also tend to be associated with fewer housing transactions and the latter did weaken significantly between mid-2007 and early 2009 (see Figure 3.4).

The volume of UK housing transactions has, however, so far only increased relatively modestly despite a reasonably strong rebound in house prices since Q2 2009. This supports the view that the house price recovery may have been driven by lack of properties being put up for sale in a thin market. This could make the house price recovery potentially fragile as and when sellers come back to the market, which there have been some tentative signs of this year based on survey data from the Royal Institute of Chartered Surveyors (RICS).

Another point to note here is that, if house prices recover further but housing transaction volumes remain relatively subdued, then there will be less boost to demand for household furnishings (carpets, curtains etc) and other purchases of household goods and services associated with moving home (estate agents, removals companies etc). On the other hand,



if people delay moving up the housing ladder, they may instead seek to improve or extend their existing

homes, so there could be a boost to sectors of the economy like DIY stores.

Housing wealth effects

While collateral and housing transaction effects are fairly well accepted, more debate surrounds the effect of housing wealth on consumer spending. Many economists⁵ are quick to point out here that a rise in house prices (or more specifically land prices) does not create any new wealth but just redistributes it between generations. Older home-owners tend to gain and younger people tend to lose out either because they are not yet on the housing ladder or because they are still at a low point on this ladder, so that a rise in house prices makes their next step up this ladder more expensive and so increases their lifetime housing consumption costs in discounted present value terms.

An empirical demonstration of this effect for the US was given in research by Wenli Lu and Rui Yao ('The Life Cycle Effects of House Price Changes, Journal of Money, Credit and Banking, 2006). In general, the authors found that those aged over 40 tend on average to gain from house price rises, while those aged under 40 tend on average to be net losers from house price rises in terms of their lifetime welfare. Broadly similar results might be expected to apply to the UK.

This issue has been explored further in some recent Bank of England research⁶, which uses a calibrated overlapping generations model (similar to that used by Lu and Yao in the US research mentioned above) to explore the extent to which the rise in UK house prices and household debt between 1987 and 2006 can be explained by fundamental factors such as changes in demographics, lower inflation and a lower long-run real interest rate.

This model suggested that lower long-term real interest rates were the most significant factor behind the build up of debt and house prices since the late 1990s. The key question is whether this lower level of real interest rates, which has been a global phenomenon, will persist, particularly given the large build up of government debt around the world due to the global recession and financial crisis in recent years. Unfortunately there is no easy answer to that question, but it is a clear risk factor for house prices and the economy more generally.

Our own earlier econometric research⁷ threw some additional light on these issues by highlighting the difference between the effects of anticipated and unanticipated house price changes, with only the latter having a statistically significant impact on consumer

spending. Specifically, our analysis suggested that the largely unanticipated falls in house prices between mid-2007 and late 2008 of around 20% could result in consumer spending in 2009 being around 1.25% lower than would otherwise be the case (bearing in mind that our modelling suggested that these effects operated with a lag as people adjusted gradually to the new reality of their housing wealth position).

Since late 2008, however, house prices have rallied by around 10-15% depending on the index used and this was certainly also largely unanticipated at the time we published that earlier research in November 2008. This might therefore translate to an impact on consumer spending over the next year of the order of 0.6-0.9% higher than would have been the case without this housing market rally. But such effects could go into reverse again quickly if there are signs that house prices are faltering again, which is not our main scenario but certainly remains a risk as the probabilistic analysis in Figure 3.1 illustrates.

3.3 – Summary

In summary, although the average UK house price overvaluation of around 25% in mid-2007 estimated by our model is now down to around 5-10% despite the market rally since March 2009, our analysis suggests that house prices remain vulnerable to setbacks. Our median projection is that they will continue to rise gradually, but there still appears to be a 70% chance that real house prices in 2015 could still be lower than their 2007 market peak and, even in 2020, the chances are only around 50:50 that real house prices could have risen back above their 2007 peak.

Given these uncertainties, the possibility of a renewed fall in house prices over the next few years, particularly in real terms, cannot be ruled out. Particularly if this is unanticipated, this could have a material impact in dampening the speed of the recovery in consumer spending in the medium term, relative to what would otherwise be the case. While traditional economic theory may suggest that house prices have little effect on net UK wealth, the reality of people's behaviour over the past 30 years tells a different story.

⁵ See, for example, the discussion of these issues by Martin Weale, 'Commentary: the housing market and government policy', National Institute Economic Review.

⁶ Matt Waldron and Fabrizio Zampolli, 'Household debt, house prices and consumption in the UK: a quantitative theoretical analysis', Bank of England Working Paper No. 379, 2010.

⁷ 'How much do house prices affect consumer spending', PricewaterhouseCoopers UK Economic Outlook, November 2008.