

3 – UK housing market outlook¹

Key points

- UK house price growth remained relatively resilient in 2017 despite a weakening economic backdrop, but has shown signs of moderating during the first half of 2018, particularly in London.
- In our main scenario, we project a further softening of house price growth to around 3% in 2018 and we expect this to continue at a similar average rate in the medium term to 2025. This implies that the average UK house price would rise from £221,000 in 2017 to around £285,000 by 2025. Price growth at this pace would mean that the ratio of house prices to earnings would remain broadly stable, but still at high levels by historical standards.
- We expect that most regions will experience moderate house price growth in 2018 broadly similar to the UK average, except for London, where we project that house prices could drop by nearly 2% compared to 2017. Elsewhere in the UK, slightly above average price growth is projected in the East of England, the West Midlands and Northern Ireland, while the North East and Wales are expected to lag slightly behind the UK average price growth.
- We also consider the effect of the recent marked trend towards fixed rate mortgages, which in 2017 accounted for 94% of new mortgages compared to only around 50% in 2010. At the same time, only around 28% of UK households now have a mortgage. Combining these factors, we estimate that only 11% of all UK households would now be immediately affected if mortgage interest rates rose, compared to around 24% in 2012.
- Persistently rising house prices can be driven by a number of factors, but one of these has been a lack of new housing supply. To further investigate this we have carried out new analysis at the local authority level, which suggests a clear link between lack of new housing supply, relative to population growth, and local house price growth since 2011. This has been particularly marked in London, where we estimate that around 110,000 additional homes would need to have been built between 2011 and 2016 to keep up with population growth.
- Looking forward, if the government can achieve its target of building 300,000 new homes a year in England, then this should exceed the increase in housing demand from projected population growth and start to make up the backlog from past under-supply. But our local analysis suggests that these homes need to be built where demand is highest in London and the South East and East of England to prevent a further worsening of affordability in those regions. Local targets are therefore needed for housebuilding, as well as national targets.

Introduction

In this section, we explore how the UK housing market has been performing recently (Section 3.1) and also look at the implications of the rising share of fixed rate mortgages (Box 3.1). We then present our projections for national and regional house price inflation to 2025 (Section 3.2). To shine fresh light on the housing supply challenge we also present new analysis of supply and demand trends at the local authority level across England (Section 3.3). Section 3.4 then summarises and concludes. Technical details of our house price modelling methodology are presented in an annex.

¹ This article was written by Richard Snook, Tom Fisher and Jamie Durham of the PwC economics practice.

3.1 – Recent housing market developments

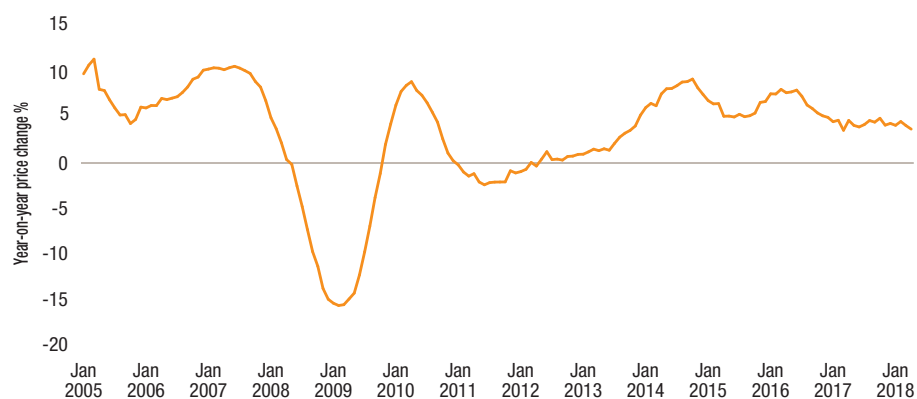
UK house price inflation softened from mid-2016 through to early 2017. The introduction of the Stamp Duty surcharge on second homes in April 2016 – equivalent to an additional 3% tax on the purchase price – and uncertainty following the EU referendum are both likely to have contributed to this trend. During 2017, average UK house price inflation remained fairly steady, hovering between 4.5% and 5%. More recently, however, a further weakening in price growth has occurred, with annual house price inflation dropping to 3.9% in the year to April 2018².

There are signals that house price growth will continue to soften in the short term.

The recent weakening in house price growth is in line with broader market data on transactions and mortgage lending. At the UK level, the most recent data shows that total transactions have fallen from around 75,000 in February last year to around 64,000 in February this year. As shown in Table 3.1, sales volume declines were experienced across all UK regions in the year to February. The falls in sales from the year before are most stark in London and the South East.

Looking ahead to the remainder of 2018, we anticipate that this lacklustre housing market activity could begin to weigh further on house price growth.

Figure 3.1 – UK house price inflation since 2005



Source: ONS, Land Registry

Regionally, London house prices have experienced the largest downturn to date.

London house price growth is now the weakest of any region. The capital consistently had the fastest growing house prices over the period from May 2012 to April 2015 but, since then, London house price growth has fallen sharply. For example, annual price growth to March 2016 was around 15% in London, but for March 2018 the equivalent figure was -0.5%. Elsewhere, however, regional house price growth has been more resilient. Our regional house price projections for 2018 onwards are set out in detail in Section 3.2 below.

Table 3.1: Regional housing sales volume change in year to February 2018

Region	Year-on-year change in sales volumes
Wales	-8.6%
Scotland	-9.1%
Northern Ireland	-12.4%
London	-23.9%
South East	-19.7%
South West	-11.9%
North East	-16.2%
North West	-12.0%
West Midlands	-6.9%
East Midlands	-10.1%
East of England	-17.4%
Yorkshire and the Humber	-12.9%
UK	-14.3%

Source: ONS, Land Registry

² April 2018 is the most recent data point available at the time of publication.

³ Complete sales data typically lags two months behind the initial house price estimates. The most recently available sales data is therefore for February 2018 at the time of writing.

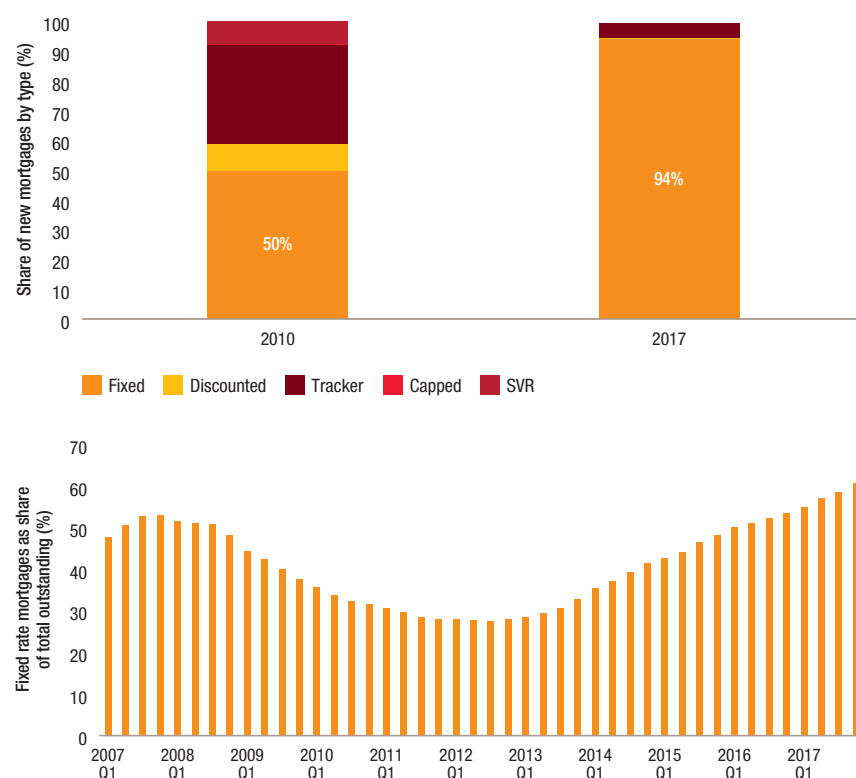
Box 3.1 – The impact of fixed rate mortgages on household budgets

In recent years there has been substantial shifts in the UK mortgage market. First, the cost of borrowing has continued to fall. Homebuyers and those seeking re-mortgage can now access rates of around 1.5% on 2-year fixed mortgages. The cost of borrowing on longer-term mortgages has also continued to decline: for example, the typical interest rate on a 5-year fixed rate mortgage has nearly halved from around 3.75% in mid-2014 to around 2% now⁴.

Second, there has been a surge in the popularity of fixed-rate mortgages. As shown below, the share of new mortgages that are fixed-rate has increased from 50% in 2010 to 94% in 2017 (see left hand chart in Figure 3.1.1). This recent upward trend has helped to boost the share of all mortgages that are fixed-rate to over 60% from under 30% in 2012 (see right hand chart in Figure 3.1.1). As we head into 2018, that share of outstanding fixed rate mortgages looks likely to increase even further.

This trend means that fewer households will feel an immediate squeeze on their budgets from any future interest rate rise. For many, the impact may not be felt until some years later⁵. Extrapolating data on home ownership from the English housing survey to the whole of the UK, we estimate that only around 28% of all UK households now have a mortgage (others will own outright or rent).

Figure 3.1.1 – Share of fixed rate mortgages for new mortgages and as a % of the overall stock of mortgages



Source: Council of mortgage lenders

Therefore, assuming only around 40% of these mortgaged households now have a variable rate mortgage based on the data in Figure 3.1.2, we estimate that only around 11% of total households will immediately

feel the impact of rate rises on their budgets. The equivalent figure in 2012 was more than twice as high at around 24%.

4 Source: Council of mortgage lenders, table IR3, figures for March 2018.

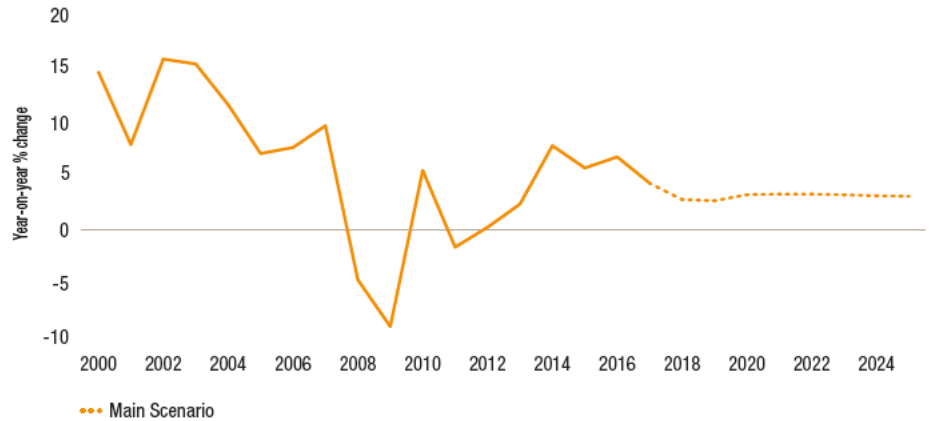
5 The FCA's December 2017 Data Bulletin noted that most popular length of fixed rate mortgage was 2 years, but that 5-year and 10-year fixed rate mortgages were increasing in popularity.

3.2 – UK and regional house price projections

In this section, we present our projections for house price inflation in the UK and regional markets. We use econometric time-series models to make our projections, as described in more detail in the technical annex to this article. These models link house prices to underlying drivers of the housing market and the economy more generally, such as earnings growth, housing supply and credit conditions. We then use these relationships to project how prices may evolve going forward.

In our main scenario we assume that real earnings growth is marginally positive in 2018, and that positive real earnings growth is then sustained out to 2025. In terms of credit conditions, we assume that mortgage lending flattens until 2020 as the UK economy goes through a period of Brexit-related uncertainty. We then assume mortgage lending resumes steady growth from 2021 onwards. Housing stock growth is assumed to remain at a broadly similar level to recent years over the projection period.

Figure 3.2 – UK house price projection in main scenario



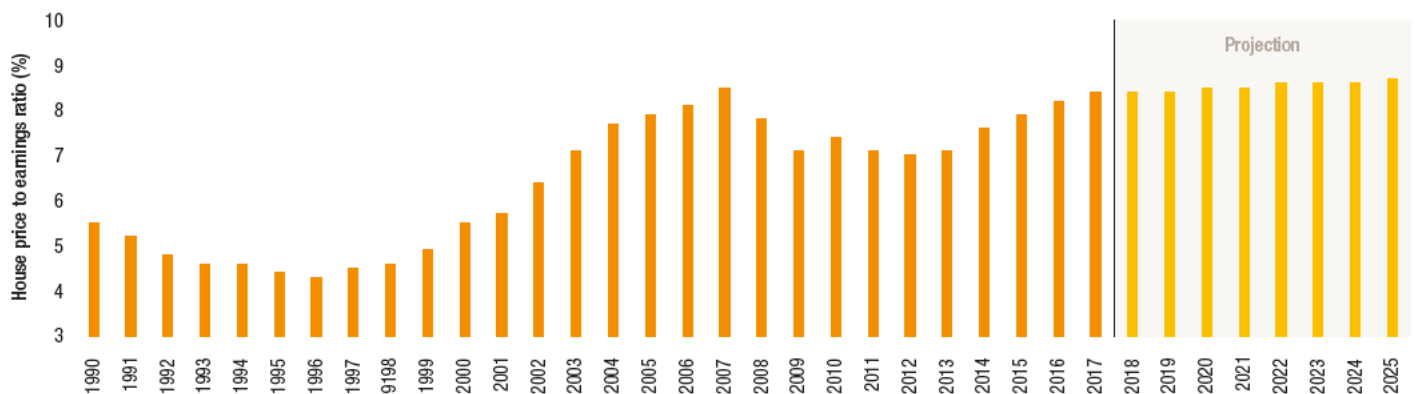
Source: ONS, PwC analysis

UK house prices are projected to grow steadily at around 3% per annum

In our main scenario, we project that house prices in the UK will grow at an average of around 3% this year. This represents a cooling from recent years where UK house price growth has typically been greater than 5%. Looking beyond 2018 we project average annual UK house price inflation to remain close to the 3% mark in our main scenario as shown in Figure 3.2.

This main scenario projection implies that the average UK house price to earnings ratio would remain high, but relatively stable. This is captured in Figure 3.3 which shows that the average house price to earnings ratio in 2017 was 8.4, and that this is projected to rise only slightly to 8.7 by 2025 in our main scenario⁶.

Figure 3.3 – House price-to-earnings ratio, 1990-2025



Source: ONS, PwC analysis

Note: Earnings are annualised average weekly earnings for the whole UK economy

⁶ Earnings here represents the average annualised earnings for an individual in the economy – meaning that average earnings reflects a mix of full-time and part-time work. Earnings would be higher if presented at the household level, rather than the individual level, or if they were just for full-time workers.

Figure 3.4 – Projected house price inflation by UK region in 2018-19



Source: PwC analysis

In our main scenario, the average price of a UK house in 2018 is around £227,000. This represents a £6,000 increase on the average 2017 price. Looking to the longer-term, our main scenario projects the average house will cost approximately £285,000 in 2025. As shown in Table 3.2 even after adjusting house prices for projected general consumer price inflation, there is still an upward trend. Specifically, in real terms at 2017 prices, we project that house prices could be around 9% more expensive by 2025 than in 2017.

Regionally, the average house price differs significantly, ranging from £480,000 in 2017 in London to just £127,000 in the North East of England.

In our main scenario we project that 2018 house price growth will be positive at moderate levels for most regions (see Figure 3.4). We project the strongest house price growth in the West Midlands this year and in the East of England next year, with the weakest house price trends being projected in London and the North East.

Table 3.2: UK house prices - main scenario projections

Year	Main scenario (% growth)	Main scenario (in cash terms)	Main scenario (real terms at 2017 prices)	Price to earnings ratio
2017 (actual)	4.5%	£221,000	£221,000	8.4
2018	2.9%	£227,000	£222,000	8.4
2019	2.8%	£234,000	£223,000	8.4
2020	3.4%	£242,000	£226,000	8.5
2021-2025	3.3% (average growth)	£285,000 (in 2025)	£241,000 (in 2025)	8.7 (in 2025)

Source: PwC analysis based on ONS house price index

In London, where affordability has been most stretched, we project negative average annual house price growth both this year and next. This reflects the downward pressure on property prices from:

- a very high deposit saving hurdle, particularly where Help to Buy (or the “bank of mum and dad”) is unavailable;
- increased economic uncertainty related to Brexit acting as a drag on international capital flows into London property; and
- reduced numbers of housing transactions in the capital, which may be partly associated with the increased transaction costs imposed by the introduction of the stamp duty surcharge on second homes in 2016⁷.

Our house price growth and average house price level projections by region are set out in more detail in Table 3.3. However, it should be noted that even greater uncertainty exists at the regional house price level compared to the UK level, and in particular, longer term projections should be treated with caution so we do not try to extend our regional analysis here beyond 2022⁸.

Table 3.3: Projected regional house price growth and house price values (£000's) in our main scenario

Region	Average house price growth			Average house price values (£'000s in cash terms)	
	2018	2019	2020-2022 (average)	2017	2022
East of England	4.0%	4.5%	3.4%	283	340
East Midlands	4.4%	3.7%	3.4%	180	216
South West	4.3%	3.7%	3.6%	245	295
West Midlands	4.8%	4.3%	3.6%	185	225
South East	2.3%	3.1%	3.3%	318	369
North West	3.2%	2.7%	3.5%	155	182
London	-1.7%	-0.2%	2.6%	480	509
Wales	3.0%	2.1%	3.4%	150	175
Scotland	4.8%	3.4%	3.6%	143	172
Yorkshire & the Humber	3.5%	2.7%	3.4%	155	182
Northern Ireland	3.4%	3.9%	4.0%	128	154
North East	1.2%	0.7%	3.1%	127	141
UK	2.9%	2.8%	3.4%	221	259

Source: ONS, PwC analysis

⁷ Based on the average price of a London house as at April 2017 (£485,000), the Stamp duty surcharge would increase the overall stamp duty to be paid from £14,250 to £28,800, a greater than 100% increase.

⁸ This is because some unpredictable factors causing regional house price projection errors will be area-specific factors that are not correlated across regions, and so will tend to cancel out when looking at aggregate national house prices. The latter will therefore tend to have lower forecasting errors on average than projections for individual regions (whether for house prices or other economic variables).

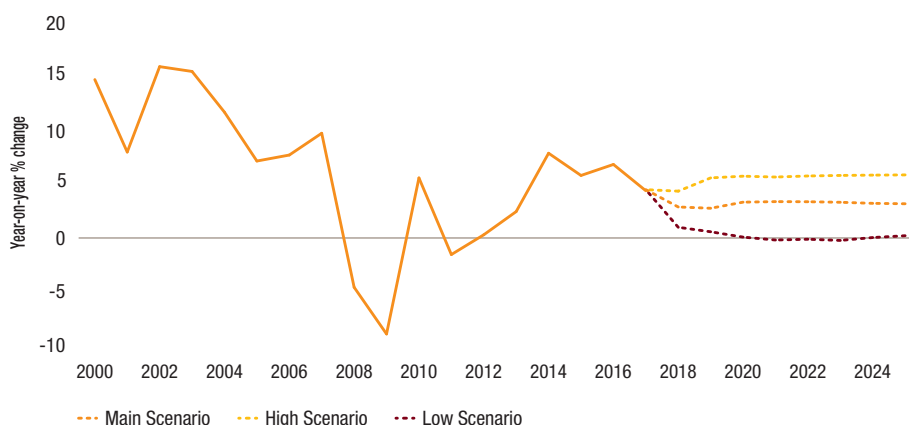
Alternative UK house price scenarios

Projecting house prices involves many uncertainties both about economic drivers like earnings and interest rates and about more intangible factors like buyer or lender confidence. To reflect these uncertainties, we therefore always develop two alternative house price inflation scenarios based on different inputs for the key model drivers (see Figure 3.5).

Our high price scenario assumes real earnings growth reverts relatively quickly to long-run historical trends, which provides a boost to housing demand. This scenario also assumes that credit conditions are more favourable with relatively strong mortgage lending growth to 2025. In this scenario annual house price growth is projected to average 4.4% in 2018, but then reverts to around 6% from 2019 onwards. This would represent a continued stretching of house price to earnings ratios at the UK level. In terms of price implications, the average house price could be over £340,000 by 2025 in this scenario.

Our low price scenario assumes that negative real wage growth reasserts itself and persists into the longer term, dampening housing demand. It also assumes that more challenging economic conditions (linked perhaps to a less smooth Brexit and/or rising global trade restrictions) are associated with a retrenchment in mortgage lending back towards 2014 levels. In this scenario, UK house price growth weakens substantially this year to around 1% and then remains subdued from 2019 onwards, with close to zero average house price growth. In this case, house prices would remain close to 2017 levels, and are estimated to be around £224,000 in 2025.

Figure 3.5 – Alternative UK house price inflation scenarios



Source: ONS, PwC analysis

3.3 – Assessing the local housing supply challenge

The general consensus of housing market analysts, which was also accepted by the government in its housing white paper last year, is that there is a serious shortage of affordable housing in the UK. The fact the UK average house price to earnings ratio has gone back to its pre-crisis peak (see Figure 3.4 above) is one indication of this problem and, in areas like London, Oxford and Cambridge, the affordability challenge is clearly even more severe.

Coupled with higher deposit requirements set by lenders, this poses particular challenges for potential first time buyers. In 2016, we estimated that potential buyers without any parental or other help might have to save for 19 years to buy their first home⁹, up from just 3 years in the early 1990s (although mortgage rates were also much higher then, offsetting the benefits of lower initial deposits).

In an attempt to mitigate these affordability issues, the government has launched a number of first time buyer support schemes, including Help to Buy equity loans and ISAs and stamp duty discounts. However, while these schemes make housing more affordable in the short term, they also compound the underlying structural problem by further increasing housing demand. The government's focus more recently has therefore shifted towards longer term solutions to affordability aimed primarily at boosting housing supply.

In particular, in his Autumn 2017 Budget, Phillip Hammond announced plans to increase net housebuilding in England to an average of 300,000 homes a year by the mid-2020s¹⁰, up from around 220,000 in 2016. This builds upon a White Paper published by the government in February 2017, "Fixing our broken housing market," which sets out a range of policies that the government should introduce to reform the planning regime and other measures to boost the supply of new homes.

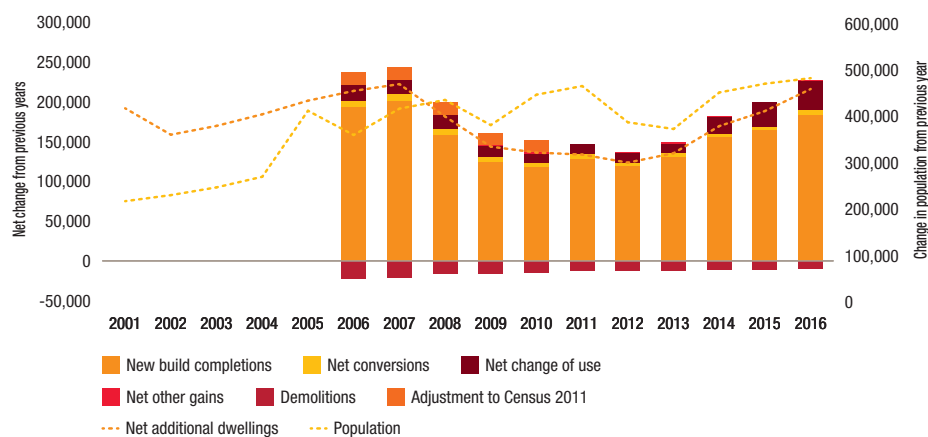
9 Assuming the deposit has to be raised entirely from their own savings without family assistance. See the July 2016 edition of UK Economic Outlook for full details of this analysis.

10 Source: Philip Hammond (2017). Autumn Budget 2017 – Philip Hammond Speech. Source: <https://www.gov.uk/government/speeches/autumn-budget-2017-philip-hammonds-speech>

Ultimately though housing market conditions vary widely across the country so it is not enough to set national targets; you also need to build the extra homes where demand is highest and the affordability challenges are most severe. We have therefore explored this issue at a local level in England¹¹ to understand in more detail the extent to which local housing shortage is linked to higher house price growth and where shortages are occurring. We do this by combining housing stock data with population¹² estimates to compare housing supply and demand trends at a local authority level across England.

To set the scene, we first look at the picture for England as whole. Figure 3.6 compares the net change in the dwelling stock in England with the net annual change in population, scaled to match given we are looking at absolute numbers. Table 3.4 then looks at percentage changes in these variables and calculates an ‘excess housing demand growth’ measure defined as population growth minus net housing stock growth.

Figure 3.6 – Net change in dwellings and population in England (2001-16)¹³



Source: ONS, DCLG, PwC analysis

From Figure 3.6 we can see that, by 2016, growth in the number of dwellings had returned to a similar level as prior to the financial crisis, following several years of subdued housebuilding growth. The number of dwellings made available through a change of use (in which industrial properties may be converted to residential) has also increased year-on-year since 2013, following a relaxation of regulatory restrictions on such conversions.

Nonetheless, the rate of population growth in England was consistently above housing stock growth from 2010-16 as Table 3.4 shows. This is in contrast to the period prior to 2010, where the percentage of net additional dwellings consistently outpaced population growth. At a high level, this supports the hypothesis that excess demand (linked to inadequate supply) has helped to stoke house price growth since the financial crisis, although we also recognise that other factors will have been in play here, including exceptionally low mortgage rates since late 2008.

Table 3.4: Population growth, net housing stock change and estimated excess housing demand growth for England

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Population growth	0.5%	0.5%	0.5%	0.8%	0.7%	0.8%	0.8%	0.7%	0.9%	0.9%	0.7%	0.7%	0.8%	0.9%	0.9%
Housing stock growth	0.6%	0.7%	0.5%	1.0%	0.7%	1.2%	1.0%	1.0%	0.5%	0.4%	0.4%	0.3%	0.3%	0.4%	0.4%
Excess demand	-0.1%	-0.2%	0.0%	-0.2%	0.1%	-0.3%	-0.2%	-0.2%	0.4%	0.4%	0.4%	0.4%	0.5%	0.5%	0.5%

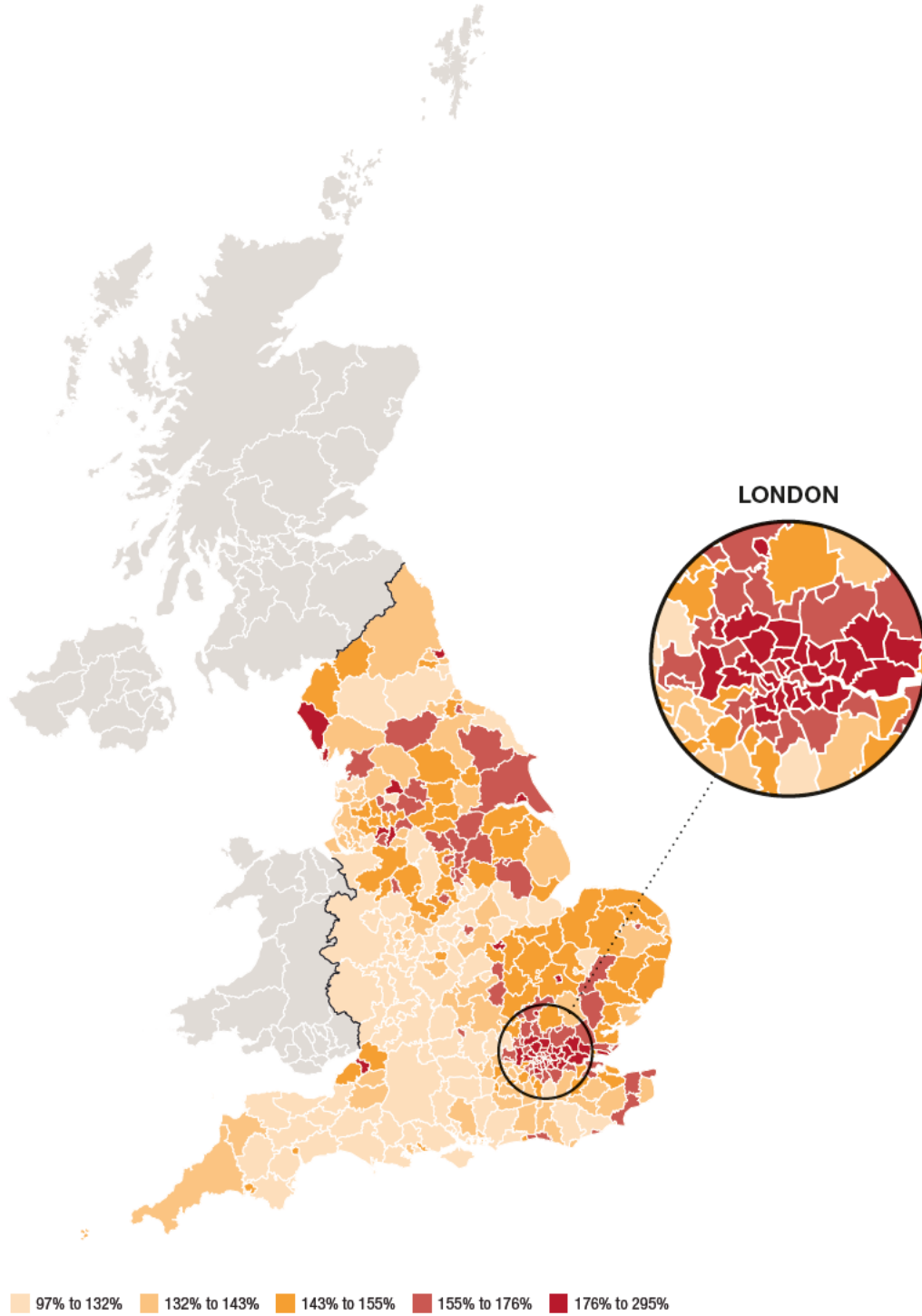
Source: ONS, DCLG, PwC analysis

¹¹ We could only carry out the analysis for England as data for all countries within the United Kingdom were not consistently available at local authority level.

¹² We also commissioned local authority level data on household numbers from the ONS but found that there was high volatility of these estimates from year to year at local level, perhaps due to small sample sizes. For the final version of this analysis, we therefore chose to focus on local data on population, which was less volatile over time than that for household numbers. We implicitly assume here that average household size is broadly stable over time. Additionally, we tested the conclusions against previous versions of the household dataset at a local authority level published by the DCLG and found a similar relationship between excess demand and price growth, and a similar regional picture.

¹³ Data for change in dwellings by component is only available from 2006.

Figure 3.7 – Distribution of cumulative house price growth rates in England, 2001-2016



Sources: ONS/Land Registry, PwC Analysis

While population growth has exceeded housing stock growth nationally across England recently, house price growth varies considerably as Figure 3.7 shows (for the longer period from 2001-16).

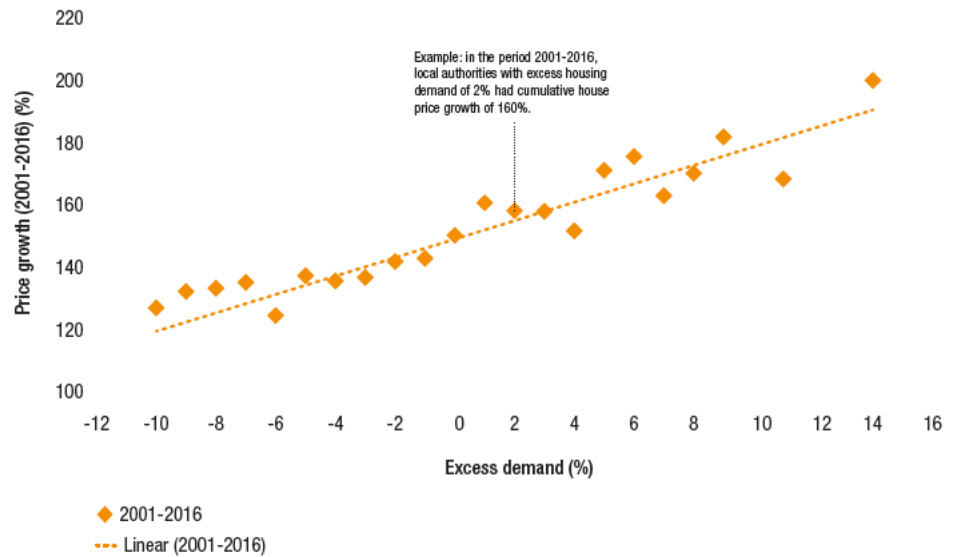
Local authorities with the highest house price growth over the period 2001-2016 are concentrated in London, with cumulative growth of 195% on average in the capital. This contrasts with other parts of the country, though even in the local authority with the lowest cumulative house price growth, Wyre Forest, this was still 97% over this period, about half the London average.

Local house price growth is correlated with excess housing demand growth

So what is causing house price growth to vary between areas? To explore this, we look at the relationship between excess housing demand growth and house price growth at local authority (LA) level. We then group LAs together by rounding excess housing demand growth in each LA to the nearest whole percentage point, and then plot the average house price growth for each group as shown in Figure 3.8. We define excess housing demand growth as the cumulative population growth less the cumulative housing stock growth over the specified period (for example, an excess demand of 2% could mean population has increased by 5% and housing stock by 3%).

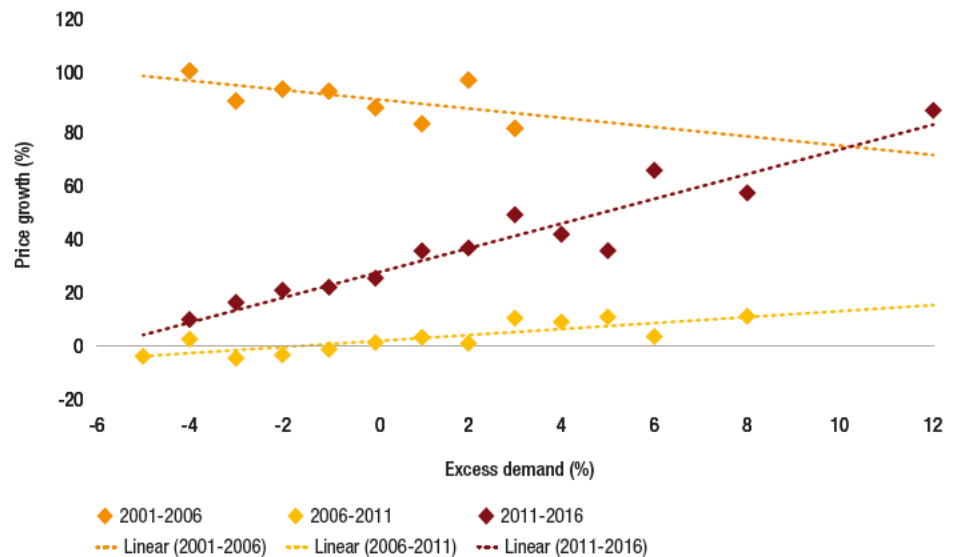
The upward sloping trend line in Figure 3.8 shows that local authorities with excess housing demand growth over this period have, as you would expect, also tended to experience greater house price growth. However, there have been significant ups and downs in the economic and housing market cycle over this period. As such, we also break down this analysis into three 5-year periods to understand how the relationship evolved before, during and after the financial crisis (Figure 3.9).

Figure 3.8 – Excess housing demand growth and house price growth, 2001-2016¹⁴



Source: ONS, DCLG, PwC analysis

Figure 3.9 – Excess housing demand and price growth by 5-year period, 2001-2016



Source: ONS, DCLG, PwC analysis

¹⁴ Earnings here represents the average annualised earnings for an individual in the economy – meaning that average earnings reflects a mix of full-time and part-time work. Earnings would be higher if presented at the household level, rather than the individual level, or if they were just for full-time workers.

Figure 3.9 shows that the relationship between excess housing demand and house price growth was negative in the five years to 2006. At first sight, this is surprising but probably just indicates that, over this period, other factors had more influence on house price growth.

Since 2006, however, the relationship has been positive as expected, particularly since 2011. The dispersion of the excess demand variable has also increased over time, particularly in 2011-16 when the positive relationship has been strongest. Of course, there have been a range of demand and supply factors influencing house prices over this period, as summarised in Table 3.5, so we should not focus only on our excess housing demand measure, but this nonetheless does seem to have been a significant part of the story over this period.

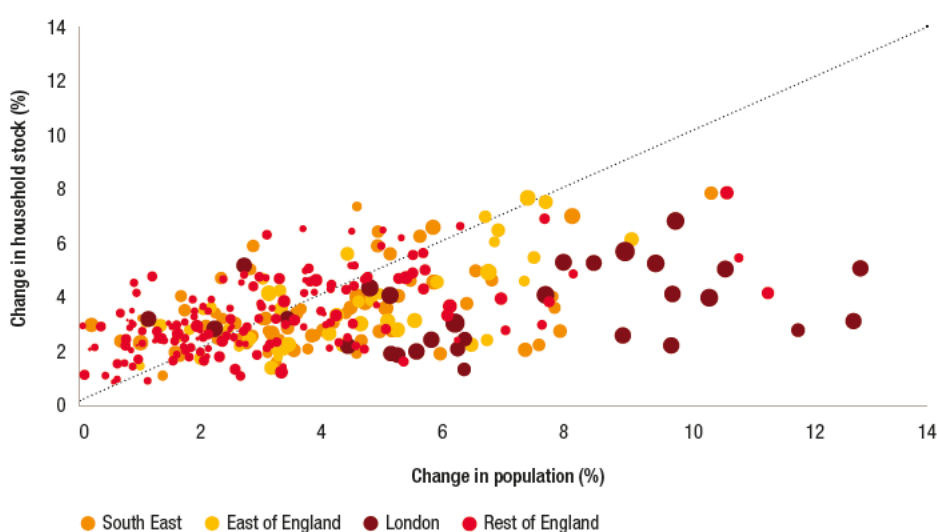
We delve a bit further into the local data in Figure 3.10, which compares housing stock growth and population growth in every local authority in England since 2011. The bubble size is proportional to house price growth over this period. The 45 degree line shows where supply and demand growth are balanced in percentage terms.

Table 3.5: Factors affecting house prices in England, 2011-2016

	Downward pressures on prices	Upward pressures on prices
Demand	<ul style="list-style-type: none"> • Macro-prudential policy has tightened since the financial crisis • Regulation of buy-to-let properties has been tightened over recent years, and tax treatment has become less favourable • Real wage growth has been weaker • Stamp duty has been increased on properties costing more than £937,000 	<ul style="list-style-type: none"> • Interest rates have remained consistently low • Stamp duty has been abolished for first time buyers on properties up to £300,000, and is lower for everyone on properties up to £937,000 • Foreign investment has increased, particularly into London before 2016 • Help to Buy schemes introduced
Supply	<ul style="list-style-type: none"> • A National Planning Policy Framework has been introduced, making the planning system less complex and more accessible • Organisations such as London Land Commission has been established, which identify public sector brownfield land for development 	<ul style="list-style-type: none"> • Housebuilding slowed following the financial crisis due to weaker economic climate • Fewer people are moving house, and choosing to improve them instead

Sources: PwC

Figure 3.10 – Change in population and housing stock in English local authorities, 2011-2016



Source: ONS, DCLG, PwC analysis

Figure 3.10 shows that high growth in population and high excess housing demand were particularly acute in London, illustrated by 85% of London local authorities being to the right of the 45 degree line. Local Authorities in the South East and East of England also experienced relatively high price growth and tended to be to the right of the 45 degree line, but the trend is less pronounced than for London. In England as a whole, half of local authorities had excess demand (i.e. were right of the line) and half did not. This suggests that the supply problems are very much about not building houses in the right place and less so about an overall supply shortage.

Whilst the result that too few homes have been built in London to keep up with population growth is not a surprise, it does enable us to estimate how large the shortfall has been and where it has been most apparent. In Table 3.6 we present figures for the five London local authorities with the greatest excess demand growth and their cumulative housing shortfall from 2011-2106. Overall in London we estimate that an additional 110,000 new homes between 2011 and 2016 would have been needed to match the population growth that was experienced.

Table 3.7 repeats this analysis for the five English local authorities outside London with the highest percentage excess housing demand growth.

In other English local authorities, housing stock growth does not appear to have been a constraint. Demand side factors, such as very low interest rates, rising employment since 2012 and Help to Buy schemes, may be the primary cause of house price increases.

However, it is possible that the housing being built in these areas is not of an appropriate mix (e.g. too many small properties or premium properties), which would make the effective growth in the housing stock smaller. If this is the case, local house building targets may still be beneficial to these areas as well as hot spots like London or Oxford and Manchester.

Table 3.6: Excess housing demand growth and estimated housebuilding shortage for local authorities in London, 2011-2016¹⁵

Local Authority	Excess demand	Price Growth	Shortfall
Tower Hamlets	12%	60%	12,000
City of Westminster	10%	63%	11,000
Camden	9%	38%	9,000
Islington	8%	56%	8,000
Kingston upon Thames	8%	60%	5,000
London (including all boroughs)	3%	61%	110,000

Source: PwC analysis of ONS and DCLG data (numbers rounded to nearest percent or thousand)

Table 3.7: Excess housing demand growth and estimated housebuilding shortage for selected local authorities in England (excluding London), 2011-2016

Local Authority	Excess demand	Price Growth	Shortfall
Exeter	5%	18%	3,000
Guildford	5%	37%	3,000
Oxford	5%	45%	3,000
Runnymede	5%	42%	2,000
Manchester	5%	23%	10,000

Source: PwC analysis of ONS and DCLG data (numbers rounded to nearest percent or thousand)

¹⁵ We exclude City of London from this table as it is an extreme outlier.

Future declines in population growth may help alleviate supply pressures, but housing supply needs to expand to cover past backlogs

Looking ahead, population growth rates in England are projected by the ONS to fall to below 250,000 a year by 2030 from recent rates of around 400,000 to 500,000 per annum (see Figure 3.11).

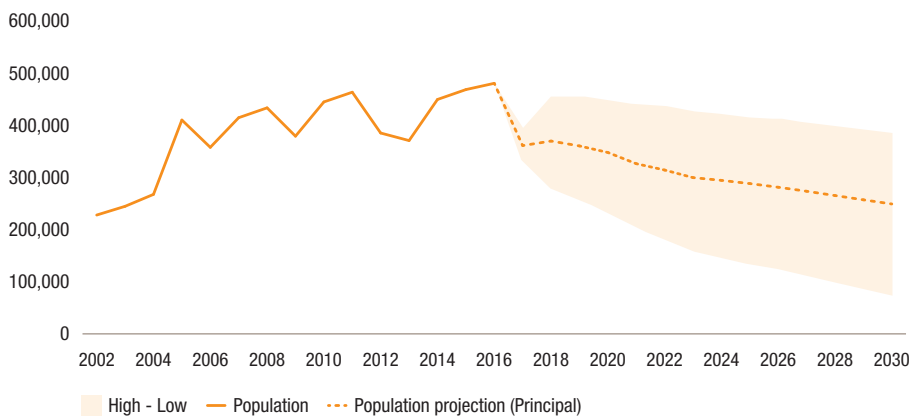
We would expect a reduction in the population growth rate to put downward pressure on the number of households and in turn on house prices. DCLG assume that a 1% increase in the population pushes house prices up by 2%, other things being equal, so affordability could improve as a result of declining population growth¹⁶.

If we assume that demand for houses will increase proportionally¹⁷ with the population between 2017 and 2030, then the government’s target of building 300,000 new homes per year in England by the mid-2020s would be more than enough to match projected population growth.

However, this ignores the fact that there is a backlog of under-supply to be made up and that, even after that, current affordability levels need to be reduced if the government’s long-term objective to get home ownership rates back on an upward trend is to be achieved.

We should also note that, by international standards, UK housing stock growth has been relatively slow for many decades, as the analysis in Box 3.2 shows. All of this suggests that it is reasonable to aim for 300,000 new homes per year as a target for England as a whole, but it is important to target these new homes on locations where past under-supply has been most evident, as our local analysis above indicates.

Figure 3.11 – Population projections for England to 2030



Source: ONS, PwC analysis

¹⁶ Source: Ministry of Housing, Communities & Local Government (2018). *Analysis of the determinants of house price changes*

¹⁷ This assumes a constant average household size, which ONS data suggests has been broadly the case over the past two decades, remaining around 2.4 since 1996.

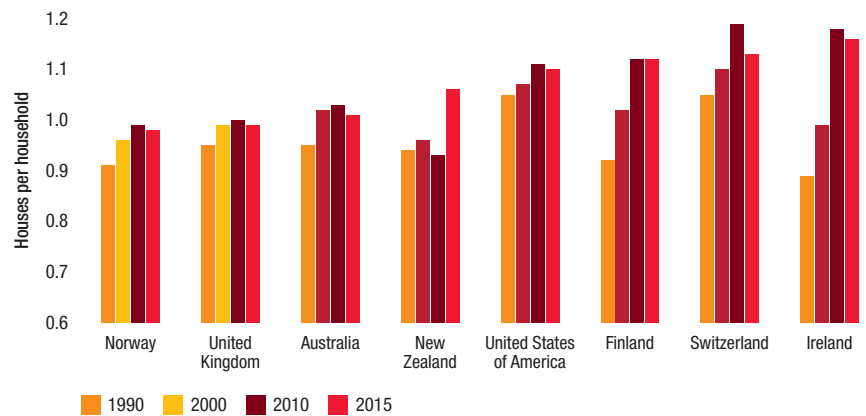
Box 3.2 – UK housing stock growth per household has been slower than other similar countries

We review data for the number of houses per household to understand how the market has changed in the UK and other comparable countries, as shown in Figure 3.2.1.

From Figure 3.2.1, we can see that the UK has experienced the lowest growth in the number of houses per household of similar international economies. While it had one of the highest rates of housing per household in 1990, it had one of the lowest rates in 2015, with around 1 house per household.

It is important to note that this analysis is only illustrative. It does not consider the average size of dwellings: while housing stock may have increased considerably in some countries, this is not to say that living standards (i.e. the quality of their homes) have been maintained. Further, other factors may be influencing the housing stock per household in some countries, such as holiday homes and cultural differences. Nonetheless, it is suggestive of the UK lagging behind in housing supply growth relative to population growth relative to other advanced economies since 1990.

Figure 3.2.1 – International comparison of housing stock per household, 1990-2015¹⁸



Source: UN, PwC analysis

¹⁸ We have assumed a constant household size to derive the number of households, using the latest household size figures from the UN. Over a longer period of time, average household size can change, though generally not by that much for mature advanced economies. ONS data shows, for example, that average household size in the UK has remained at around 2.4 since 1996.

3.4 – Summary and conclusions

UK house price growth remained relatively resilient in 2017 despite a weakening economic backdrop, but has shown signs of moderating during the first half of 2018, particularly in London.

In our main scenario, we project a further softening of UK house price growth to around 3% on average in 2018 and we expect this to continue at a similar average rate in the medium term to 2025. This implies that the average UK house price would rise from £221,000 in 2017 to around £285,000 by 2025. Price growth at this pace would mean that the ratio of house prices to earnings would remain broadly stable, but still at high levels by historical standards.

We expect that most regions will experience house price growth in 2018 broadly similar to that of the UK average except for London, where we project that house prices could drop by nearly 2% compared to 2017. In the medium term, however, London house price growth should pick up again, and a large affordability gap will remain between the capital and other UK regions.

We also considered the effect of the recent marked trend towards fixed rate mortgages, which in 2017 accounted for 94% of new mortgages compared to only around 50% in 2010. At the same time, only around 28% of UK households now have a mortgage, as opposed renting or owning their home outright. Combining these two factors, we estimate that only 11% of all UK households would now be immediately affected if mortgage interest rates rose, compared to around 24% in 2012. This would be a reason for the MPC not to be overly concerned about small rate rises causing significant economic damage.

Persistently rising house prices can be driven by a number of factors, but one of these has been a lack of new housing supply. To further investigate this we have carried out new analysis at local authority level across England, which suggests a clear link between lack of new housing supply, relative to population growth, and local house price growth since 2011. This has been particularly marked in London, where we estimated around 110,000 additional homes would need to have been built between 2011 and 2016 to keep up with population growth.

Looking ahead, if the government can achieve its target of building 300,000 new homes a year in England, then this should exceed the increase in housing demand from projected population growth and should therefore start to make up the backlog from past under-supply. But our local analysis suggests that these homes need to be built where demand is highest in London and the South East and East of England to prevent a further worsening of affordability in those regions. Local targets need to be set and met for housebuilding, linked to supporting infrastructure development, as well as national targets.

Technical annex:

Modelling methodologies

UK house price projections

Our analysis focuses on the new ONS and Land Registry house price indices. Data from the ONS vary from those provided by Nationwide and Halifax, though broad trends tend to be similar over time. We focus on the ONS data as they cover a larger sample size, given that Nationwide and Halifax base their indices only on their own mortgage approvals.

The PwC house price model consists of two parts: a long run equilibrium equation and a short run error correction model that indicates how house prices adjust back towards this equilibrium level.

In the long run, we found that real house prices were driven by three key variables: real annual earnings, the ratio of the housing stock to the population ('supply') and a variable which reflects general credit conditions. Monetary values are deflated into real (inflation adjusted) terms using CPI.

In the short run, we found that changes in real house prices were driven by: deviations from the long run equilibrium; changes in real annual earnings; changes in credit conditions; and the previous period's mortgage interest rate (cost of borrowing). The coefficients for these model variables and other summary statistics for both models are shown in the tables below.

The parameters of the model were estimated using the standard ordinary least squares (OLS) econometric technique based on annual data for 1975-2017.

Regional house price projections

The regional house price projections relate to the main scenario only, but it should be borne in mind that uncertainties are even greater at the regional than the national level, so these projections can only be considered illustrative. Our regional projections are based on a regression between house price to earnings ratios and mortgage rates. The results are then adjusted so as to aggregate to the UK average estimates.

Long run model (Cointegrating equation)

R-squared = 0.93

Dependent variable:
Real house prices

No. of observations=43

	Coefficient	t-statistics
Earnings	17.3	11.1
Supply	-1611.3	-4.9
Credit	11728.5	1.7
Constant	357893.4	3.5

Short run model

R-squared = 0.63

Dependent variable:
Change in Real house prices

No. of observations=42

	Coefficient	t-statistics
L. co-integrating equation residual	-0.10	-1.6
D.Credit	24646.2	4.6
D.Earnings	7.3	3.7
L.Mortgage rate	-604.3	-2.5
Constant	6375.6	2.8

Note: 'D' refers to the first difference of a variable (i.e. change on previous year). 'L' refers to the lagged value of a variable in the previous year.

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