

# The British property market

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## Historical price evolution

According to Halifax, “over the last five decades [1959–2009] UK house prices have risen by 2.7% a year, allowing

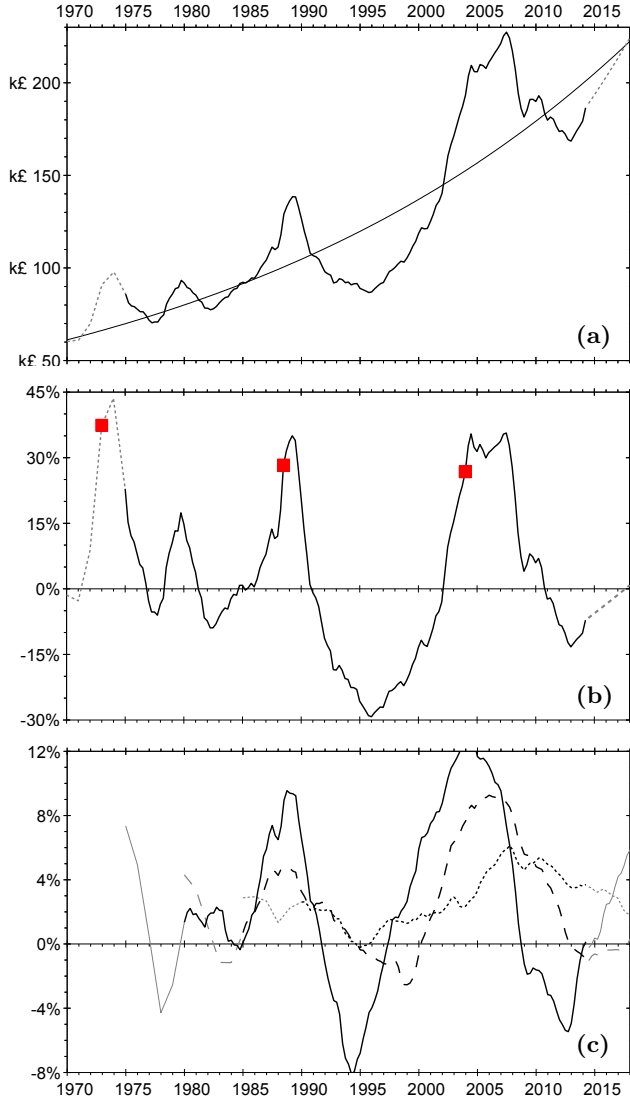


FIG. 1: (a): Average property price in the UK in today's pounds and exponential fit. Data: Nationwide. (b): Discrepancy between the prices and their exponential fit. (c): Annualized real increases over rolling 5-, 10- and 15-year periods (respectively solid, dashed and dotted lines). Extrapolations after 2014 are based on a price change of +5% p.a.

	discrep. w/ trend	annual. 5-year	annual. 10-year	afford- ability	price- to-pay	price- to-rent
1973	$\approx 45\%$	$\approx 10\%$	—	—	—	$> 10\%$
1977	$-4\%$	$\approx -4\%$	—	—	—	$-7\%$
1979	$20\%$	$2\%$	$\approx 4\%$	—	—	$30\%$
1982	$-7\%$	$0\%$	$\approx -1\%$	—	—	$-25\%$
88–89	$36\%$	$10\%$	$4.8\%$	148	3.9	$25\%$
94–96	$-30\%$	$-8\%$	$-2.5\%$	46	2.1	$-40\%$
04–07	$33\%$	$13\%$	$9.3\%$	136	5.4	$55\%$
09–13	$-13\%$	$-5\%$	$-1\%$	86	4.1	$+21\%$
expect.	$< -4\%$	$< -5\%$	$< -4\%$	$< 60$	$< 2.5$	$< -25\%$

TABLE I: Peak value and subsequent trough of the discrepancy with the historical trend, the annualized price variations over 5 and 10 years, the affordability, the price-to-pay ratio and the price-to-rent ratio.

for inflation.”<sup>1</sup> According to Nationwide data, Fig. 1(a), property prices have increased annually since 1952 by 9% nominally, and by 2.7% in real terms since 1975.

The real increase from the peak of 1989 to Q1 2013 was 22% — buying at the top of a bubble and selling in a depressed market over 20 years later did not result in a loss (even taking inflation into account). In fact, the dotted line in Fig. 1(c) shows that no 15-year period resulted in a real loss. Today's prices are back to those of ten years ago (checking for inflation).

“There were regular building cycles in the UK throughout the eighteenth century, which were measured by historians as having an average of sixteen years from peak to peak [...] a contemporary analyst, Fred Harrison, looking at the twentieth century has come up with a figure of nineteen years.”<sup>2</sup> This is consistent with 1973–1989–2007,<sup>3</sup> and would place the next peak around 2023–2026.

Figure 1(b) shows that when prices are 25% above their long-term trend, prices soon fall (red squares). Based on this criterion, you would have sold at the end of the third quarter of 1988 for k£130 (in today's money). Prices would have reached this value again only 13 years later; in-between they were as low as k£87, a third off. There

<sup>1</sup> <http://newsvote.bbc.co.uk/1/hi/business/8468605.stm>.

<sup>2</sup> V. Cable, “The Storm” (Atlantic Books, 2009), p. 5.

<sup>3</sup> Based on Figs. 1(b) and 1(c), the 1977–1980 increase was on a smaller scale (bear-market rally?).

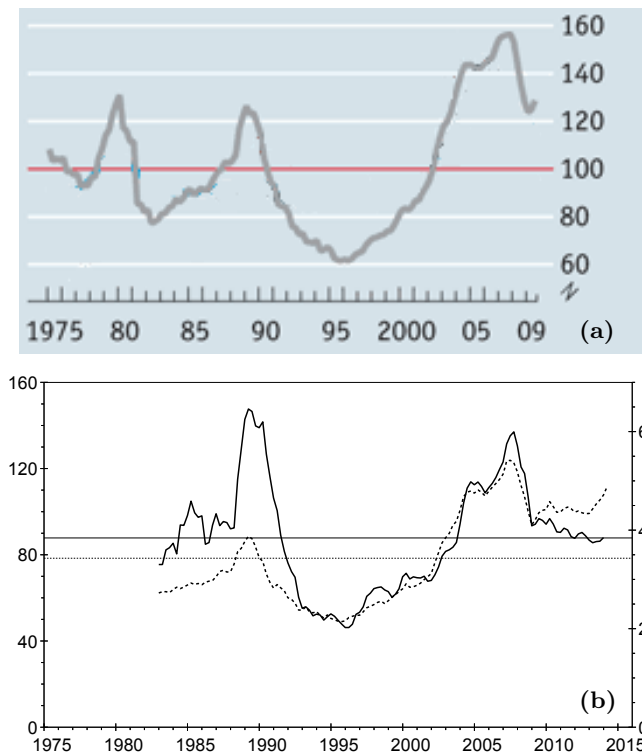


FIG. 2: (a): The ratio of house prices to rents (long-term average = 100). Source: The Economist. (b): Affordability index (solid line, left axis) and price-to-income ratio (dotted line, right) for first-time buyers. Data: Nationwide.

was another sell signal in 1972 (prices would need 11 years to recover) and mid-2004 (based on an extrapolation, it will take a dozen years to get back to 2004 prices).

### Searching for fundamental valuation

Figure 2(a) shows “a fair-value measure for property based on the ratio of house prices to rents. The gauge is much like the price/earnings ratio used by stockmarket analysts. Just as the worth of a share is determined by the present value of future earnings, house prices should reflect the expected value of benefits that come from home ownership. [...] In Britain, where prices are increasing again, housing still looks expensive [overvalued by 29% based on data available in December 2009.]”<sup>4</sup> This makes the market after the fall as overpriced as it was at the top of the bubbles in 1980 and 1989.

Figure 2(b) shows the ratio of property prices to average income and the affordability index. The latter cor-

responds to the mortgage payments as a percentage of take home pay (taking 1985 as 100 index), it thus accounts for both price compared to income and for interest rates. For example, the Bank rate reached 15% in 1990, making mortgage borrowing very expensive regardless of prices. Conversely current rates are historically low, which explains why the affordability index was far above the price-to-income ratio then but is now at the same level in Fig. 2(b). One should bear in mind that affordability will deteriorate when interest rates increase.

One should note the great similarity between the price-to-income ratio and the price-to-rent ratio, dotted line in Fig. 2(a). Unlike the affordability index and Figs. 1(b) and 1(c), these consider that the market was far more overvalued in 2004–2007 than in 1980 and 1989 (other criteria make these three episodes about equally overvalued) and still is overvalued. Figure 1(a) shows a similar trend: this may hint that price-to-income and price-to-rent ratios need detrending. On the other hand this is also reminiscent of S&P 500 CAPE and q-ratio in 2000 that were worse than in 1929 and still nearly as bad as 1929 in the mid-2000s: they were right, the market really was still overpriced. A key question is why property prices increase so much faster than earnings: is this an artifact (a drop is yet to come) or is it a long-term evolution in spending (e.g. one spends less and less on food)? On the other hand, this cannot explain the price-to-rent ratio [Fig. 2(a)]: if housing is becoming a bigger and bigger part of our budgets, then rents should increase as well.

### Prospects

Figure 1(b) shows that whenever the real price was more than 15% over the historical trend (1975, 1980, 1989 and 2002–2007) it then fell to 5% below it (if not further). In 1989 when the discrepancy reached 30% it then fell to –30%. Today, the value is –13% (see Table I).

Figure 3(a) shows Bollinger bands (the choice of 5 years was not optimized, whereas the number of standard deviations was chosen for its retrospective predictive power; note the asymmetry of the coefficients). The data are above the top curve during rising markets (1985–1989 and 1996–2005); when they let go (red squares) a fall is to be expected (even though in 2005 it took a few years). And the data are below the bottom curve during falling markets (1990–1996 and nowadays). The blue diamonds indicate buying opportunities. There was a buy signal at the end of 2013. While this seems to indicate that now is a good time to buy, the uptrend might be short-lived (as between 1978 and 1980). Table I indeed shows that indicators fell less than expected.

<sup>4</sup> [http://www.economist.com/businessfinance/displayStory.cfm?story\\_id=15179388](http://www.economist.com/businessfinance/displayStory.cfm?story_id=15179388).

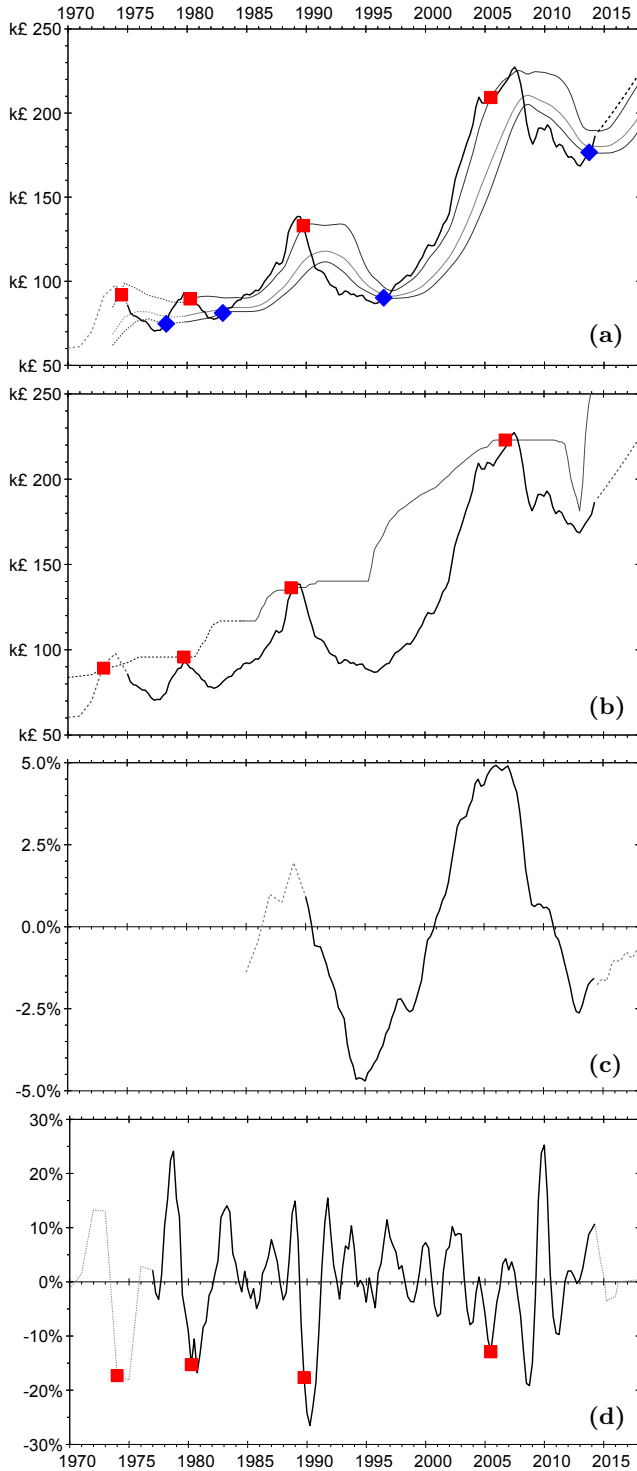


FIG. 3: (a): Bollinger bands for the real UK property prices (5 year simple moving average,  $SMA + 1.2\sigma$  and  $SMA - 0.5\sigma$ ). (b): Maximum of the maxima of the discrepancy with the long-term trend. (c): Weighted average of the 3 curves of Fig. 1(c) minus the long-term average, 2.8%. (d): Curvature. Extrapolations are based on price changes of +5% p.a.

	Fig. 1(b)	Fig. 3(a)	Fig. 3(b)	Fig. 3(d)	at least 3
1973–74	Q1 1973 k£91	Q1 1975 k£86	Q1 1973 k£91	Q1 1974 k£98	Q1 1974 k£98
1979–80	—	Q3 1980 k£89	Q4 1979 k£93	Q2 1980 k£90	Q3 1980 k£89
1988–89	Q4 1988 k£133	Q1 1990 k£127	Q4 1988 k£133	Q4 1989 k£133	Q4 1989 k£133
2004–06	Q2 2004 k£204	Q4 2005 k£208	Q4 2006 k£218	Q3 2005 k£209	Q4 2005 k£208

TABLE II: Summary of when criteria say selling should have occurred (and when at least 3 out of 4 do), and prices at the time (in today's money).

One would be interested in knowing ‘what is the highest property price 5 to 10 years after the discrepancy of prices with their long-term trend reached some value?’, thus allowing for a variation of durations of cycles. For instance in Q1 1990 we look at the maximum property value between Q1 1995 and Q4 1999 and in Q4 1994 at the maximum between Q4 1999 and Q3 2004. We then use as threshold for Q4 1999 the maximum of the maxima obtained for Q1 1990 to Q4 1994 (so that extrapolation can be done only 5 years in advance). The result is shown in Fig. 3(b). While it is definitely not a precise prediction (after all it is based on the maximum of the maxima), it has the advantage of near certainty: when the curve touches the upper bound (red squares of 1973, 1980, 1989, 2007) the market is due for a sharp drop.

Figure 3(c) shows that the price increase over 5, 10 and 15 years is above the historical average when markets overheat. Peaks are reached in 1988 and 2006, and bottom are in 1994 and early 2014; this is slightly before price extremes.

Figure 3(d) shows the curvature (second derivative). A large negative value shows a sharp maximum, corresponding to the end of an uptrend. Three such maxima are identified: 1974, 1980, 1989 and 2005.

Table II sums up the sell points from the difference between the prices and their long-term average, Fig. 1(b); Bollinger bands, Fig. 3(a); the maximum of the maxima, Fig. 3(b); and the curvature, Fig. 3(d). The various criteria are in good agreement and give sell signals at nearly the same time.