

# Consumer Confidence and UK House Price Inflation

Dean Garratt, Economist, Council of Mortgage Lenders

- *Consumer confidence alone can explain up to two-thirds of the variation in the annual growth of house prices.*
- *Consumer confidence balances can be used to compile forecasts of house price inflation for up to three quarters ahead.*
- *While consumer confidence is not a significant factor in driving household consumption, it does have a role to play in influencing the willingness of households to undertake secured borrowing.*
- *The current high levels of confidence are consistent with annual house price inflation of 12% for the remaining quarters of 2000.*

## Background

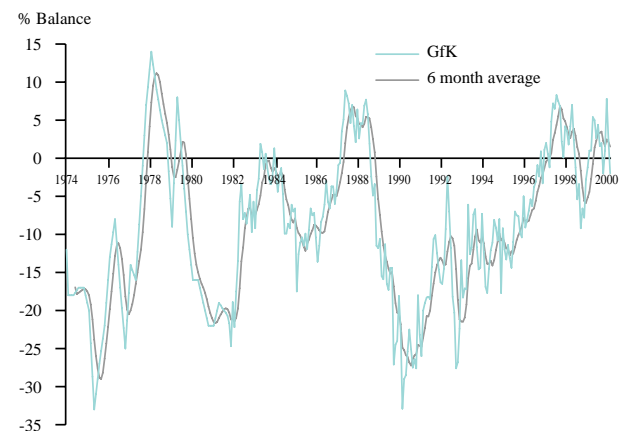
In analysing the ingredients that have contributed towards the recent strong growth in house prices analysts have consistently made reference to the strength of consumer confidence. The implication is that consumer confidence positively impacts upon house price growth. It is not immediately clear what is meant by a confident consumer, let alone how one should go about measuring this confidence. However, there are surveys designed to capture consumer confidence. The longest running and best known of these is commissioned monthly by the European Commission (EC) and is currently conducted by the GfK organisation. This article begins by examining this survey and what it reveals about recent movements in consumer confidence. It then considers what, if anything, the current levels of confidence tell us about future house price inflation. Finally, the determinants of confidence itself are sought.

## EC/GfK Consumer Confidence

The best known measure of confidence is commissioned by the EC and is conducted by the GfK organisation (previously Gallup). The questions posed are identical in other European countries. The headline figure is in fact an average balance over five questions. Two questions relate to household

finances, two to the general economic situation and one to the perceptions of respondents as to the current desirability of making major purchases (the exact wording of the questions is set out in the appendix). One of each of the household and general economic questions is backward-looking, asking respondents to review developments over the past 12 months, and one is forward-looking requiring respondents to forecast likely developments over the next 12 months. The replies available allow respondents some expression of the strength of their opinions.

CHART 1: EC/GfK CONSUMER CONFIDENCE, 1974 to 2000

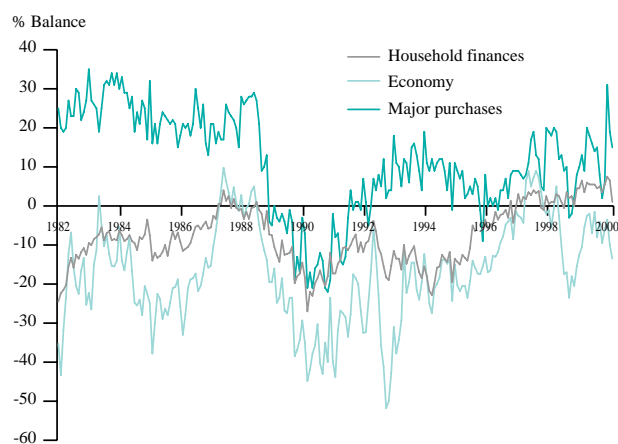


Source: EC/GfK

Chart 1, shows the EC/GfK measure, the average balance of which has been -9.2 since 1974. A six month rolling average is also shown to better indicate the underlying paths in confidence. By historic standards, confidence in recent times has been high. Despite fears of a global slowdown at the end of 1998 adversely affecting headline confidence, the 1990s is best characterised as a tale of two halves so far as confidence goes. Up to the end of 1995, the EC/GfK measure was above its long-run average on only ten occasions. However, from this period the measure was never below its long-run average and, furthermore, since the last election it has averaged +1.8%. Confidence appears to have levelled off through the second half of 1999 but it has done so at a very high level.

The GfK survey allows us to breakdown the confidence measure. The forward and backward-looking replies tend to follow similar paths so Chart 2 averages these to derive a single household and a single general economy balance. It also shows the balance from the remaining question relating to the timing of major purchases.

CHART 2: INDIVIDUAL GfK BALANCES, 1982 to 2000



Source: EC/GfK

While the headline GfK balance fell sharply in autumn 1998, the household financial confidence balance continued to rise reaching historic highs in 1999. Indeed, the most notable aspect of the recent high level of confidence has been the high degree of financial confidence that has underpinned it. In contrast, the general economy confidence balance fell quite sharply in autumn 1998. Moreover, while financial confidence appears to have stepped up to a higher level in recent times, the current level of

general economic confidence is quite consistent with the average levels seen in both the first and second halves of the 1990s. However, this hides the fact that general economic confidence appears to have stepped up considerably earlier when the UK entered a period of low inflation at the start of the 1990s. By further cementing the low inflation environment with central bank independence and the introduction of rules for what governments should spend and borrow, the public now seem to perceive advantages to both the general economy and their own finances.

Chart 2 shows how households' confidence in the desirability of making purchases fell sharply in the late 1980s and remained low in the first half of the 1990s. This series recovered during the second half of the 1990s as did the actual financial position of the household sector. The value of the household sector's financial wealth in 1999 was three and a half times its income, which compares favourably to between two and two and a quarter in the early 1990s. However, households' confidence to make major purchases has yet to rest consistently at the level seen throughout much of the 1980s. Therefore, it remains to be seen whether the very high levels of major purchase confidence seen in the first quarter of 2000 will persist.

TABLE 1: CONSUMER CONFIDENCE TRENDS

Year	1980-84	1985-89	1990-94	1995-99	2000 Q1
Headline GfK	-11.5	-10.2	-16.6	-2.1	+2.7
Households' financial confidence	-11.5	-6.7	-14.6	-1.0	+5.0
General economy confidence	-15.4	-27.5	-8.4	-9.0	-9.0
Major purchase confidence	+25.8	+15.1	+0.9	+8.2	+21.7

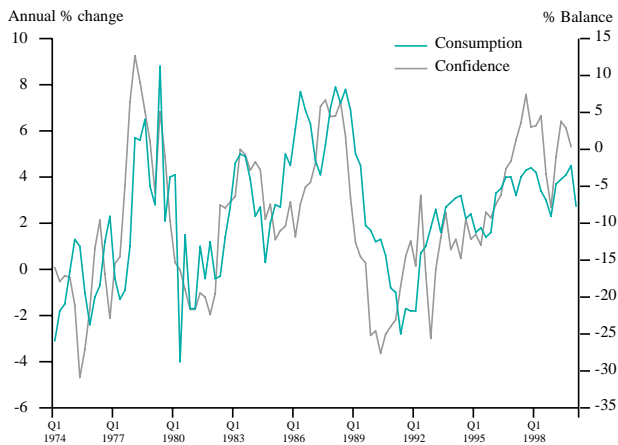
Source: EC/GfK

## Confidence and households' consumption

Although the idea of consumer confidence affecting households' decisions is intuitively appealing, there is in fact little work to justify this on economic grounds. What work has been done has focused on consumer spending. Charts 3 shows why this might be the case. The headline EC/GfK measure (aggregated to form a quarterly profile) tracks annual growth in consumption quite well.

For policy analysts the correlation between consumption growth and confidence is useful. Confidence data is available monthly and is not subject to revision. Consumption data from the Office for National Statistics is available only quarterly and even then is subject to revision. Therefore, the more timely confidence data allows analysts to make inferences as to the likely strength of consumption

CHART 3: CONSUMER CONFIDENCE AND CONSUMPTION GROWTH, 1974 to 2000



Source: ONS, EC/GfK

growth. Perhaps we should not be surprised that such a correlation exists. After all, it seems plausible to believe that when economic prospects are bleak, households curtail their spending and at the same time give gloomy responses to surveys of consumer sentiment. But, is consumer confidence a driving force of consumption? The tiny amount of econometric modelling performed in this area suggests that confidence adds only a small amount of additional explanatory power to a model of consumption over and above that from the inclusion of traditional economic factors. Carroll, Fuhrer and Wilcox (1994) in their study of quarterly US consumption growth for the period 1955 to 1992, found the additional explanatory power of consumer confidence amounted to just 3%.

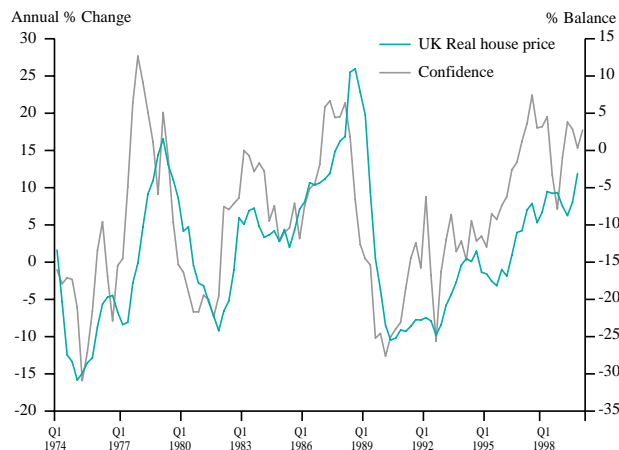
While Garratt (1999) found that the current GfK consumer confidence value can explain up to a quarter of the variation in UK consumption growth in the next quarter, when confidence measures are added to the Treasury model of consumption they cease to be significant factors. This means that some other combination of macroeconomic variables does a better job of explaining short-term movements in consumption than does confidence. However, the timeliness of confidence data means that information on consumer confidence remains useful.

### Consumer confidence and house price inflation

Further analysis of the role of confidence in the Treasury model of consumption shows that the current level of confidence is a significant factor until the inclusion of a variable measuring the growth in

housing wealth. The growth in housing wealth is predominantly determined by the growth in house prices. This suggests some sort of relationship between house prices and consumer confidence.

CHART 4: CONSUMER CONFIDENCE AND REAL HOUSE PRICE INFLATION, 1974 to 2000



Source: DETR and EC/GfK

Economists are, more often than not, interested in real rather than current values. Hence, to allow for the effects of rising prices generally, the DETR average house price series is deflated by the consumer expenditure deflator (1995=100). The resultant index is the real average house price measured at 1995 prices. Chart 4 shows that there is a pretty close relationship between consumer confidence and the annual growth in the average real house price. This is formalised in Table A1 in the Appendix, which demonstrates that confidence alone is able to affect around two-thirds of the variation in year-on-year real house price growth. There is some evidence that confidence leads annual real house price inflation, particularly around major turning points. The formalised analysis confirms this with a lead of three quarters (nine months) maximising the power of the model.

This very simple model allows us to read-off an annual real house price inflation rate for any level of consumer confidence. In effect, it offers a house price inflation ready-reckoner. It tells us that if the confidence measure was its long-run average (-9.2), then the implied year-on-year growth in real house prices would be 1.7%. Furthermore, for each percentage point increase in confidence in the current quarter, annual real house price inflation will be an additional  $\frac{3}{4}$  percentage points higher three quarters from now. To put this into context, confidence in the very first quarter of the 1990s was historically low at -24.6%. Meanwhile, in the first quarter of 1999

confidence stood at -1. The equation forecasts that the difference between real house price inflation in the fourth quarters of 1990 and 1999 should be some 26 percentage points. It was in fact 22½ percentage points.

Given the scale of the explanatory power of a simple confidence model it is of little surprise that when confidence is added to an economic model of underlying house price growth, including variables such as household income growth and the rate of unemployment which are found to be significant factors, confidence itself continues to be a highly significant factor. Therefore, confidence does have predictive power in forecasting house price growth over and above that which can be captured by economic variables. Furthermore, while the addition of such economic variables does help to further increase the power of our model and its forecasting accuracy, the additional explanatory power is inevitably quite small given the power of confidence alone. The addition of household income growth, for instance, which appears to be the most significant economic factor, does not increase the explanatory power much beyond the 70% mark. Given the poor level of timeliness of income data and its tendency to revision, the power of confidence alone makes the consumer confidence measure an especially useful tool for those forecasting house price inflation.

An analysis of the replies to the five component questions that comprise consumer confidence reveals that perceptions of how household finances and the economy have developed are more significant in explaining house price growth than expectations of how these will develop. These explain around half of the variation as does major purchase confidence. The least useful confidence measure was found to be expectations of how the economy was likely to develop over the next 12 months. Table A2 in the Appendix shows the explanatory power of each confidence measures to explain the annual growth in real house prices three quarters ahead since 1982, when data on each measure becomes available.

## Future house price inflation

Table A2 shows that the headline measure of consumer confidence is quite adequate in examining future house price inflation. Using the results from Table A1, it is straightforward to calculate estimates for real annual house price inflation for each quarter of 2000 (see Table 2 ).

TABLE 2: FORECAST FOR REAL ANNUAL HOUSE PRICE INFLATION IN 2000

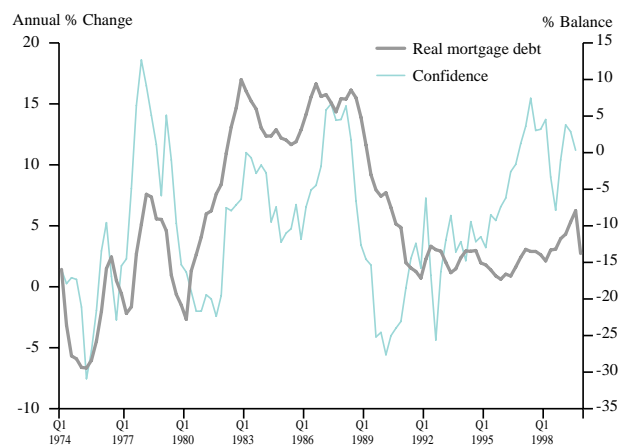
Year	Estimate, %
Q1	11.5
Q2	10.8
Q3	8.9
Q4	10.7

The model predicts that as a result of the still high levels of consumer confidence real house price inflation will be around the 10% mark over the course of the year. In effect, with the current rate of growth in prices generally, this translates into nominal house price inflation of around 12%.

## Why is confidence important?

Although confidence has the potential to predict house price inflation we have not considered why confidence might be important. Underpinning house prices is housing demand and supply. One possibility is that confidence affects the propensity of households to borrow in order to finance housing. Supporting this idea is Chart 5 which shows that confidence tracks the annual growth in real mortgage debt.

CHART 5: CONSUMER CONFIDENCE AND REAL MORTGAGE DEBT



Source: EC/GfK and Bank of England

Formal modelling of the above relationship shows that past values of confidence can help in predicting the growth in real mortgage debt. However, it is major purchase confidence which appears to be most important and which retains explanatory power over and above that of other economic variables. Therefore, consumer sentiment appears to have a role to play in influencing the propensity to engage in secured borrowing. The continuing significance of confidence in the presence of economic variables is in contrast to the formal modelling of total

consumption referred to earlier where confidence ceases to be a significant factor.

It has been suggested by Carroll, Fuhrer and Wilcox (1994) that confidence might be a measure of uncertainty with a higher confidence reading indicating greater certainty. An increase in confidence allows consumers to reduce their precautionary saving and increase their propensity to borrow.

## What affects confidence?

Although confidence can never be the whole story, it offers housing market analysts a fair crystal ball on events to come. Therefore, it is worth considering the determinants of confidence itself. Econometric modelling can be used to identify factors that explain the level of confidence. Table A3 in the Appendix provides the results from a more detailed statistical analysis of the determinants of consumer confidence for a period spanning from the first quarter of 1974 to the last quarter of 1999. This shows that rising interest rates and an increasing level of mortgage debt relative to household income both depress consumer confidence as expected. Growth in real household disposable income and real house prices both boost confidence. Analysis shows that some of the very large movements in confidence cannot be captured by economics alone and more work is clearly needed to fully understand the determination of confidence measures. Some of the larger movements are the result of one-off events, the most notable of these being the Falkland's conflict and sterling's exit from the Exchange Rate Mechanism.

The results indicate the importance of housing related variables for confidence. In particular, there appears to be some feedback from house prices to confidence. A one percentage point increase in the quarterly growth rate of real house prices can increase confidence by two percentage points. Further analysis found that future values of house price growth are a significant influence on current levels of consumer confidence, whereas past rates of growth were insignificant. The impact of forward-looking house price growth upon consumer confidence is likely to reflect the importance of house price expectations. What the analysis suggests is that both current house price growth and the expectation of further growth over the next six months or so leads to households feeling more confident. In focusing on the individual questions that comprise confidence, one finds that the expectation of stronger house price growth impacts most heavily on general economic confidence rather than households financial confidence.

A one percentage point fall in interest rates is seen to increase consumer confidence by around 1.4 percentage points. To put this into context, in September 1998, the UK's base rate was 7½%, but by June 1999 had fallen to 5%. Such a fall is enough on its own to increase consumer confidence by three and a half percentage points. Interest rates, however, can be seen to have their largest impact on major purchase confidence (see Table A4 in the Appendix). A one percentage point fall in rates typically increases this form of confidence by one and three quarter percentage points. This will in turn influence the propensity to undertake secured lending.

Confidence is constrained by the level of mortgage debt relative to income, which suggests something of an inbuilt automatic stabiliser at work. This works most strongly by denting the level of confidence associated with making major purchases. A one percentage point increase in the size of mortgage debt to income is enough to reduce major purchase confidence by one percentage point.

## Concluding remarks

The EC/GfK consumer confidence measure has power both on its own to forecast future changes in real house prices and in addition to other information, most notably from economic variables. Strong confidence today is seen to indicate strong annual growth in house prices for some quarters to come. The fact that confidence has yet to be significantly hit by recent monetary tightening, therefore, offers little comfort for those wanting to see a significant easing in house price inflation. Confidence plays a major role in the housing market by affecting households' propensity to take on mortgage debt. In contrast, confidence does not affect households' total consumption.

Modelling of confidence shows that consumer sentiment is positively affected by growth in household income. The Budget forecast was for household disposable income to grow by up to 4% in 2000, an increase on the 3.1% growth experienced in 1999. Confidence is negatively affected by the interest rates and the level of mortgage debt that the household sector has accumulated relative to its income. Although we have witnessed a tightening of monetary policy of late, interest rates remain historically low by UK standards. This is also the case if one considers the effective net rate of interest that has faced borrowers despite the abolition of mortgage tax interest relief as of April. In terms of mortgage debt to income, the outstanding stock of mortgage debt at the end of 1999 was close to £500

billion, while the income of the household sector was £600 billion. A ratio of 0.8 is only slightly higher than the 0.75 recorded in 1998, suggesting that households have not increased their level of gearing unduly in 1999.

A future dent in confidence appears to be most dependent upon further monetary tightening alongside the cumulative effect of past tightening. This tightening has yet to impact greatly on consumer sentiment generally and major purchase confidence in particular. Some easing of major purchase confidence is required before any clear sign is apparent that the propensity to borrow will fall. In addition, recent monetary tightening is unlikely to have dampened expectations of future house price growth to any great extent. The same goes for the Stamp Duty increases announced in the Budget which were less than some had feared. Any significant over-stretching financially by the household sector may offer hope of some sort of automatic stabiliser at work and this may 'kick in' more quickly as a result of the experiences of this sector in the early 1990s. Nonetheless, the short-term looks likely to be characterised by continuing strong growth in house prices.

## References

Carroll D., Fuhrer, J. C. and Wilcox, D. W. (1994) "Does Consumer Sentiment Forecast Household Spending? If so, why?", *The American Economic Review*, 84(5), pp.1397 - 1408.

Garratt, D. (1998) "Consumer Confidence: What Does it Tell Us?", *HM Treasury Economic Spotlight*, 24.

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## Appendix

### EC/GfK questions

1. How does the financial situation of your household now compare with what it was 12 months ago?
2. How do you think the financial position of your household will change over the next 12 months?
3. How do you think the general economic situation has changed over the last 12 months?
4. How do you think the general economic situation will develop over the next 12 months?

5. Do you think there are benefits in people making major purchases such as furniture, washing machines, TV sets at the present time?

The responses to questions 1 to 4 are weighted:

(a) a lot better (+1); (b) a little better (+0.5); (c) the same (0); (d) a little worse (-0.5); (e) a lot worse (-1)

The responses to question 5 are weighted:

(a) yes, now is the right time; (b) neither right nor wrong time; (c) no, wrong time, purchases should be postponed

## Statistical results

TABLE A1: SIMPLE EQUATION FOR ANNUAL REAL HOUSE PRICE INFLATION (REAL YEAR-ON-YEAR % CHANGE)

Dependent variable: DETR annual real house price inflation (sample 1974q1-1999q4)		
Year	Coefficient	T-ratio
Constant	0.08617	12.50
GfK(-3)	0.00746	14.70
<i>Rbar</i> <sup>2</sup>		0.68
Standard error of regression		0.05
Mean value of dependent variable		0.02

TABLE A2: POWER OF CONFIDENCE MEASURES IN EXPLAINING ANNUAL REAL HOUSE PRICE INFLATION

Dependent variable: DETR annual real house price inflation (sample 1982q1-1999q4)	
Confidence Measure	Explanatory Power
Headline GfK	0.67
Household financial confidence:	
backward-looking	0.52
forward-looking	0.31
General economic confidence:	
backward-looking	0.59
forward-looking	0.17
Major purchase confidence	0.47

TABLE A3: CONSUMER CONFIDENCE EQUATION

Dependent variable: EC/GfK consumer confidence (sample 1974q1-1999q4)		
Year	Coefficient	T-ratio
Constant	10.44	2.72
LIBOR	-1.36	-6.82
ΔRHP	2.10	10.30
ΔRHDI	0.44	1.63
MDEBT/INCOME	-0.11	-2.91
<i>Rbar</i> <sup>2</sup>		0.66
Standard error of regression		5.68
Mean value of dependent variable		9.24

TABLE A4: MAJOR PURCHASE CONSUMER CONFIDENCE EQUATION

Dependent variable: major purchase consumer confidence (sample 1982q1-1999q4)		
Year	Coefficient	T-ratio
Constant	98.17	15.90
LIBOR	-1.76	-7.52
ΔRHP	1.52	6.44
MDEBT/INCOME	-1.01	-14.67
<i>Rbar</i> <sup>2</sup>		0.82
Standard error of regression		5.38
Mean value of dependent variable		11.10

Notes: LIBOR = London 3 month interbank offer rate (%); ΔRHP = quarterly growth in real house prices (%); ΔRHDI = quarterly growth in real household income (%); MDEBT/INCOME = mortgage debt to income ratio (%).