

Assessing the accuracy of UK commercial property forecasts

George Matysiak, Dimitrios Papastamos and Simon Stevenson of Henley Business School, University of Reading have updated the research, published by the IPF Research Programme in 2006¹, into the accuracy of property forecasts that are provided to the IPF UK Consensus Forecast. While the earlier report covered the period 1999–2004, this update extends the period of analysis to 2011.

The new study adopts broadly the same methodological framework as used in the previous work, in order to facilitate comparison, and provides some additional analysis, particularly forecast accuracy on two-year-ahead forecasts. The earlier analysis found there was strong evidence of consensus amongst forecasters. It is therefore of particular interest as to whether this degree of agreement was maintained during the far more volatile market conditions observed after 2004.

Data

The data used in this report consists of forecasts for rental growth, capital growth and total returns for the UK commercial property sector. The data, provided by the IPF, is quarterly in nature, with up to two-year out forecast horizons, covering the period 1999–2011. In total, 69 forecasters are included in the dataset, comprising 22 property advisors, 26 fund managers and 21 property equity brokers. However, continuous data for all 69 firms is not available from each firm in every period and for each of the forecast variables. Therefore, the samples adopted in the report can vary considerably from period-to-period. For example, for one-year ahead rental forecasts the number of forecasts in any individual year ranges from 18 to 29. In particular, it should be noted that the sample for equity brokers is particularly small, especially towards the end of the sample period. Whilst brokerage firms total 21, the sample size in any one year ranges from seven to one.

For the quarterly IPF UK Consensus Forecast, contributors are asked to provide forecasts of rental growth, capital growth and total returns in respect of seven 'sectors' and for All Property. The forecasts include the current year, two years out and an average figure over the next five years. The benchmark reference in each case is the respective IPD annual index. In this study, both the one- and the two-year-ahead forecasts for All Property were considered. This expands upon the analysis in the McAllister et al. (2008) study, which looked at the accuracy of one-year-ahead forecasts.

The descriptive analysis was conducted on the entire sample (i.e. 69 forecasters). However, for the regression analyses that were undertaken only 30 out of 69 forecasters were used. The criterion employed was that firms should provide a minimum of four forecasts over the entire 12-year sample period. As a consequence, the sample was constrained to 14 property advisors, 13 fund managers and 3 equity brokers.

Methodology

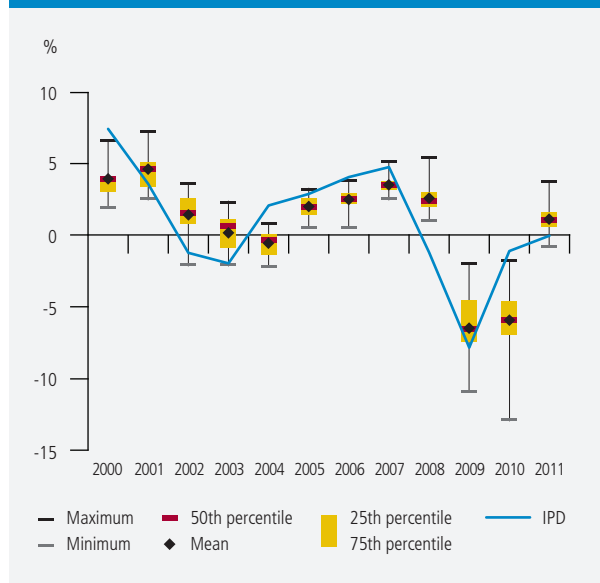
The researchers used a Theil's U2 statistic to assess the relative performance of the actual forecasts compared with two alternative naïve forecasts: forecast 1 assumes no change in the previous year's value, at the time the forecast was made; and forecast 2 was based on the long-term average of the respective IPD values, up to the point at which the forecast was made. For example, for forecasts made in 2002, the long-term average growth rates of the appropriate IPD index up to and including 2001 were used. This approach avoids the potential bias that subsequent data is incorporated into the average figures utilised. As the naïve forecasts are used as the respective divisors, a Theil U2 in excess of one implies underperformance of the consensus, whilst a statistic less than one indicates outperformance of the consensus.

The study also sought to evaluate the forecasting accuracy of the different categories of forecasters (i.e. property advisors, equity brokers and fund managers) by applying the Diebold & Mariano (1995) test.

Initial analysis

Figures 1–3 show the extent to which there was disagreement between individual forecasters in each November prior to the indicated year by showing the range between the minimum and the maximum forecasts, the mean and median forecasts for each period. The box surrounding the mean denotes the interquartile range from the 25th to 75th percentile. The actual outcome (IPD index) is also shown.

Figure 1: Distribution of rental growth one-year ahead forecasts



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¹ Analysing UK Real Estate Market Forecast Disagreement', McAllister, Newell and Matysiak (2006)

Figure 2: Distribution of capital growth one-year ahead forecasts

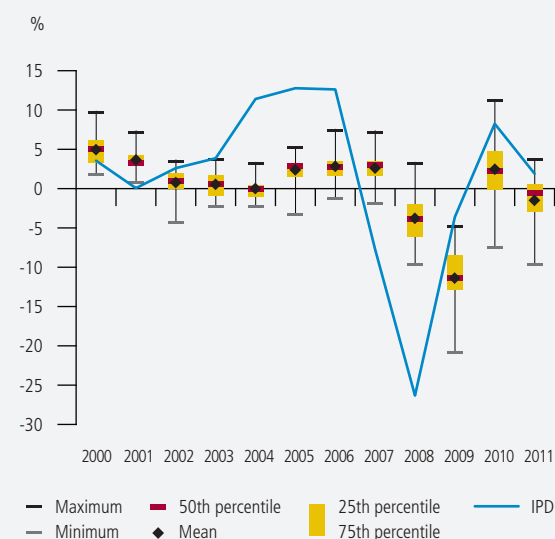
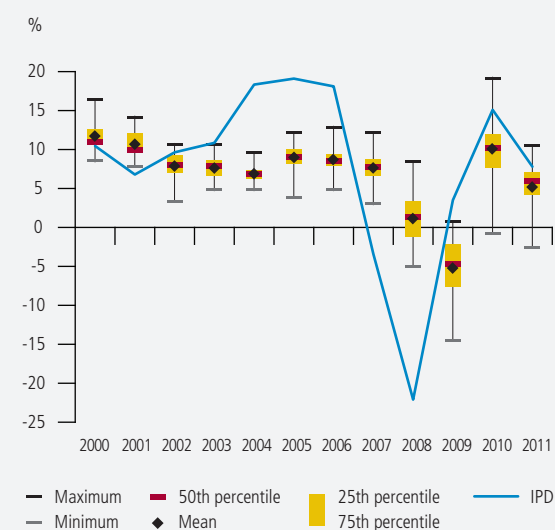


Figure 3: Distribution total returns one-year ahead forecasts



As can be seen from Figures 1-3, broadly, rental growth forecasts more closely track the rental growth outcome than do either the capital value growth or total return forecasts for each of these. To some degree, this is not particularly surprising, given the strength in capital value growth predominantly driven by the downward movement in yields in the latter half of 2006 and the first half of 2007. This period of 'yield compression' saw the IPD Monthly All Property initial yield series reach a low of 4.6% in both December 2006 and in the summer of 2007. Initial yields

had 'compressed' from over 7.0% in 2002. In contrast, rental growth during this period had been generally quite sluggish.

Furthermore, if one considers the monthly IPD series, it will be seen that, whereas capital values increased by 49.0% from December 2002 to August 2007, the corresponding increase in the All Property rental value index was only 9.3%. The importance of increased funds entering the UK market during this period is well known and established. However, it is often forgotten that the non-linear nature of the relationship between yield and present value means that as the yields come down to low levels, the percentage increase in capital values accelerates. The non-linear characteristic also works in reverse; when yields rose from very low levels in 2007 and 2008, the extent of the falls in capital values and, therefore, total returns, was extremely high.

The research found distinct patterns in the forecasts of capital value growth. In the 2004 to 2006 period, capital values rose by more than the highest individual forecast provided. This is true for both one- and two-year-ahead forecasts. By contrast, as capital values fell following the market reversal, capital value growth fell by more than the most pessimistic forecaster anticipated for both 2007 and 2008. Therefore, it would appear that some behavioural aspects do come to the fore, in that forecasts tended to provide more conservative forecasts in the case of capital, and therefore, total returns during the extremes of the last cycle.

Level of forecasting accuracy – key findings

a) Below average and above average growth periods

Forecasters tend to overestimate growth in rental levels, capital values and total returns in underperforming periods of the property market and vice versa. They also have a tendency to avoid the 'big numbers' in their forecasts. In the broader forecasting literature, it has been suggested that forecasters seek to avoid sudden and large adjustments in order to try and maintain their reputation and credibility. The result of such behaviour is the phenomenon of so-called 'forecast smoothing'.

With respect to the one-year-ahead forecasts, the largest deviation from the actual outcome is observed in 2007 (i.e. 2008 target year) for capital growth and total returns. The mean forecast for capital growth in 2007 was -3.8% with a standard deviation 2.9% and a maximum of value of 3.0%. The extent of the deviation was -26.3%. Additionally, the mean for the one-year-ahead total returns' forecasts in 2007 (i.e. 2008 target year) was 1.15% with a standard deviation of 3.1% and a maximum of 8.0%. This results in a high deviation in comparison with the actual value for 2008 which was -22.1%.

It should be noted that given the substantial fall in capital values and total returns in 2008, forecasters continued to forecast a downward trend for 2009, missing the turning point in that year. Clearly, the recent year's experience had an influential impact on

Figure 4: Correlations between forecasts and actual values

Variables	Forecast	Correlation coefficient	t-stat	Conclusion
Rental growth	1-year ahead	0.74	3.48	Significant
	2-year ahead	0.09	0.28	Insignificant
Capital growth	1-year ahead	0.42	1.47	Insignificant
	2-year ahead	0.24	0.75	Insignificant
Total return	1-year ahead	0.50	1.81	Insignificant
	2-year ahead	0.50	1.73	Insignificant

Note: t-stat greater than 2 indicates significance of the coefficient

the forecast for the following year. For rental growth, the largest consensus one-year-ahead forecast deviation is observed for the target year 2010. The mean forecast was -6.1% with a standard deviation 2.3% and maximum of -1.9%, whereas the actual value recorded was -0.5%. Again, the worst recorded annual rental growth over the 12-year period, in 2009, had a significant influence on the forecast for 2010, thereby missing the 2010 turning point.

Another characteristic noted from the one-year-ahead analysis is that the forecasts of rental growth seem to have less 'uncertainty' in comparison with the corresponding estimates for capital growth and total returns. As shown in Figure 4, there is a strong correlation (0.74) between the one-year-ahead forecast and actual rental growth. In contrast, there is no significant correlation reported with respect to either capital growth or total returns, with the corresponding coefficients being 0.4 and 0.5 respectively. In no instance was there a significant correlation found in the two-year-ahead forecasts.

Looking at the one-year-ahead capital growth and total return figures, it appears that the distribution of under- and over-forecasts seem to follow a systematic pattern. Four years of under-forecasts, 2003-06, were followed by two years of over-forecasts, 2007-08. In fact, over the period 2003-09 all of the forecasts for any given year did not encompass the outcome for that year. The forecasts were wide of the mark in anticipating the exceptionally good performance years of 2004 to 2006. The average under-forecasts for one-year-ahead capital growth and total return for 2011 were higher in value than the over-forecasts, which were very close to the mark: the pessimists were more wrong than the optimists. The largest recorded absolute forecast errors for capital growth and total returns were made in 2008, where property total return was the lowest recorded value in 30 years, being -22.1%. Given the severity of the downturn in the market in 2008, it is not surprising that the forecast errors were of this magnitude.

In summary, it is clear that forecasters, on average, are unable to anticipate particularly good or particularly bad years.

b) Comparison of the consensus forecasts against the two naïve forecasts

The results of the comparison are summarised in Figures 5 and 6. The main conclusions from this analysis are:

On balance, consensus rental growth forecasts tend to be more accurate than naïve rental growth forecasts. Conversely, for one-year-ahead capital growth and total return forecasts, naïve 2 forecasts do a better job than consensus forecasts 80% of the time, and in the case of two-year-ahead forecasts, almost 75% of the time.

Figure 5: Number of years (out of 12) naïve forecasts were more accurate than the consensus for one-year-ahead

Variable	Naïve forecast 1	Naïve forecast 2
Rental growth	5	6
Capital growth	7	10
Total return	6	10

Figure 6: Number of years (out of 11) naïve forecasts were more accurate than the consensus for two-year-ahead

Variable	Naïve forecast 1	Naïve forecast 2
Rental growth	2	5
Capital growth	5	8
Total return	4	8

However, for the two-year-ahead forecast period, there is an improvement in consensus forecasts, in that the naïve forecasts do less well compared to the one-year-ahead forecasts, particularly in the case of rental growth. It may be that for a two-year rental growth forecast horizon, (conditional) information on the outlook for the property market is more accurately captured.

In the majority of cases, the naïve 2 specification, the long-term average figure, tends to do a better job than naïve 1, last year's value.

These findings are based on the 'average', that is, the consensus. This does not necessarily mean that individual forecasters may not be doing a better job than the consensus.

c) Comparative accuracy of different forecasters

Equity brokers outperformed both property advisors and fund managers in the case of one-year forecasts (at a significance level of 10%). On the basis of a mean absolute errors analysis, the accuracy of property advisor forecasts are significantly better than those of fund managers, although equity brokers significantly outperform both. For the two-year periods, equity brokers outperform in each case, except when based on the mean square error criterion.

It should be noted, however, that individual forecasters move between organisations and new forecasters replace previous forecasters and, so, the interpretation of these findings needs to be viewed in this context. Furthermore, as noted previously, the sample size of equity brokers was considerably smaller than for the other categories. Additionally, the majority of property advisors and fund managers contributed to the whole sample period (i.e. 1999-2011), whereas there are few cases of equity brokers producing one- and two-year-ahead forecasts for the whole period. This means that the results obtained may purely reflect forecasting accuracy relating to a small number of organisations. Despite these caveats, it is of interest that, in marked contrast to the rental growth findings, no single significant result was found with respect to either capital growth or total return forecasts with no group dominating in terms of accuracy.

d) Analysis of bias in the one- and the two-year-ahead forecasts

The study looked at whether there was bias in the forecasts of 30 forecasters for whom there was a minimum of five observations over the course of the sample period. In the case of rental growth, the majority of the forecasters tended to make unbiased one-year-ahead forecasts (i.e. November forecasts), with only seven exceptions. This finding is broadly similar for

capital growth and total return, with significant evidence of bias in only five and seven cases respectively. However, of interest is that when the two-year forecasts are considered, a higher number of significant findings are reported, especially in the case of rental growth. In this case, there is evidence that 15 forecasters produce significantly biased rental growth forecasts. This does not, however, carry through to the capital growth and total return forecasts, where only six and seven significant results emerge respectively.

In the case of the one-year-ahead rental growth forecasts, variation in the beta coefficients is in a range of 0.13% to 2.76%. In comparison, the corresponding values for the capital growth and total returns lie within the ranges -1.66% to 5.62% and -1.86% to 5.19% respectively. The range of the beta coefficients also helps explain the lack of accuracy in predicting the variation in capital growth and total returns, which can be implied from the significance or otherwise of the beta. This supports the previous evidence that forecasters tend to predict more accurately the trend in rent than capital value and total returns.

Overall, the analysis found that forecasters tended to make unbiased one- and two-year-ahead forecasts for rental growth, capital growth and total returns during the period 1999-2011.

Conclusions

The study found that forecasters tend to exhibit optimistic behaviour, leading to over-estimation of growth rates during periods of market underperformance. However, this finding needs to be placed in the context of the severity of the 2008 downturn. Forecasters tend to make unbiased one- and two-year forecasts for the three property variables but the rental growth forecasts are more accurate in comparison with the corresponding capital growth and total returns forecasts, exhibiting smaller forecasting errors for all periods.

However, whilst models attempt to capture the broad systematic influences driving the property variables analysed in the research, a host of other (model-omitted) factors will at any point be impacting on rental growth, capital growth and total returns. The authors of the report suspect that many 'pure' model-generated property forecasts are adjusted, as is the case with macroeconomic forecasts, but information as to which individual forecasts were purely model-generated and which were subject to adjustments is not available. Judgemental adjustments do not necessarily result in value-added by way of more accurate forecasts and, indeed, biases can be (are) introduced, thus rendering the forecasts less accurate than may otherwise have been the case. Looking to identify the market environments and conditions where property forecasts are biased is an area for further research.