



Assessing the accuracy and dispersion of real estate investment forecasts[☆]



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ARTICLE INFO

Article history:

Received 18 March 2014

Received in revised form 18 January 2015

Accepted 23 January 2015

Available online 2 February 2015

Keywords:

Property forecasts

Forecast errors

Bias

ABSTRACT

Existing empirical evidence has frequently observed that professional forecasters are conservative and display herding behaviour. Whilst a large number of papers have considered equities as well as macroeconomic series, few have considered the accuracy of forecasts in alternative asset classes such as real estate. We consider the accuracy of forecasts for the UK commercial real estate market over the period 1999–2011. The results illustrate that forecasters display a tendency to under-estimate growth rates during strong market conditions and over-estimate when the market is performing poorly. This conservatism not only results in smoothed estimates but also implies that forecasters display herding behaviour. There is also a marked difference in the relative accuracy of capital and total returns versus rental figures. Whilst rental growth forecasts are relatively accurate, considerable inaccuracy is observed with respect to capital value and total returns.

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1. Introduction

Over the course of the last two decades real estate has become a more mainstream asset class and in turn sophistication in the investment process has increased. In today's environment the majority of major investors utilise forecasts in some form in their asset allocation decision making. Not only do many institutions have their own in-house forecasters, but a large number of advisory firms and dedicated research organizations add to this intellectual capital and expertise within the real estate industry. The increased use, and importance, of forecasts have been mirrored by the expansion of quantitative modelling research in the academic literature. However, despite the increased awareness of the potential role of forecasting, in both a professional and academic context, very few papers have examined the accuracy of professional forecasts in real estate.

This lack of empirical examination is in contrast to the large literature concerned with the accuracy and characteristics of forecasts in the equity markets.¹ However, real estate provides an interesting and quite different context in which to consider the accuracy of forecasts.

[☆] The authors would like to extend their thanks to the Investment Property Forum (IPF) for their support of this research and for the provision of the forecast data. Comments by the anonymous referee, editor and participants at the American Real Estate Society annual meeting are much appreciated.

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¹ A small number of the papers to have considered forecasts in the equity sector include: Barber, Lehavy, and Trueman (2007); Clarke and Subramanian (2006); Clarke, Ferris, Jayaraman, and Lee (2006); Clement, Hales, and Xue (2011); Cooper, Day, and Lewis (2001); Cowen, Groyberg, and Healy (2006); Dechow, Hutton, and Sloan (2000); Hong and Kubik (2003); Jung, Shane, and Yang (2012); Kim, Lobo, and Song (2011); Welch (2000).

The nature of both its pricing and trading as a privately traded asset is in marked contrast to the equity markets. Specifically, as both a real and investment asset, real estate combines elements from the macro-economy and the capital markets. In many respects, real estate has more behavioural characteristics in common with macroeconomic series than equities. In particular, real estate data has long been recognized to display smoothing (e.g. Geltner, 1991, 1993) which contributes to reduced volatility in comparison with exchange traded assets such as stocks. The nature of the forecasting process also differs with emphasis on overall market conditions and trends in contrast to estimates of individual company. Therefore, in many respects a greater parallel exists with the literature to have considered the accuracy of macro-economic forecasting rather than the literature concerning stocks.² This is especially so as we are primarily concerned with econometric forecasting of the variables in question.

The analysis in this paper is based upon both consensus and individual forecasts collected by the Investment Property Forum (IPF), a UK based industry body. The results highlight that forecasters tend to display conservatism in their published forecasts, with the result that they under-estimated the growth rates observed during the strong market conditions up to 2007, and under-estimated the extent of the subsequent fall in values. These findings may be possibly linked to herding and a reluctance to provide extreme forecasts. It is also

² A selection of the literature to have empirically considered the accuracy of macroeconomic series includes: Diebold and Mariano (1995); Ehrbeck and Waldmann (1996); Granger and Pesaran (1999); Laster, Bennett, and Geom (1999); White (2000); Lamont (2002); Pons-Novell (2003); Ottaviani and Sorensen (2006); Batchelor (2007); Stekler (2007); Elliot, Komunjer, and Timmermann (2008); Lahiri and Sheng (2008, 2010); Ager, Kappler, and Osterloh (2009); Patton and Timmermann (2010); Dovern and Weisser (2011); Tillman (2011); Dovern, Fritsche, and Slacalek (2012).

noticeable that greater accuracy is observed in the case of the rental (income) return forecasts in comparison to those for capital and total returns. This is possibly due to difficulty in accurately gauging and incorporating factors such as investment behaviour and flow of funds and their consequent impact on yields and capital values. This impact is shown by the low frequency in which the IPF Consensus Forecasts for capital and total returns outperform simple naive forecasts. In addition, when the underlying individual forecasts are considered, the forecast ranges are much larger than with the corresponding rental growth figures.

The paper is structured as follows. Section 2 discusses some of the pertinent issues in both the broad forecasting literature as well as those limited number of papers to have specifically considered real estate. Section 3 describes the data analysed in the paper. The empirical analysis is broken into two primary components. The first provides an initial examination of the accuracy of both the IPF Consensus as well as the dispersion and variation of the individual forecasts. The second element compares the performance of the consensus versus simple naive forecasts. Section 6 discusses in more depth some of the broader implications that arise from the empirical findings, and in particular possible causes behind the heightened inaccuracy displayed with respect to capital and total return forecasts. The final section provides concluding comments.

2. Literature review

The macroeconomic forecasting literature has highlighted a variety of factors that may contribute to, and explain, variations in forecast accuracy. There will inevitably be variations across empirical approaches and model choice; however, Oller and Barot (2000), Hendry and Clements (2003) and Stekler (2007) note several possible reasons as to why models may fail to provide accurate forecasts, including model mis-specification and issues such as the use of inaccurate data. In addition, the presence of structural breaks may affect the deterministic trend. For example, both Stock and Watson (1993) and Fintzen and Stekler (1999) note that models that had previously managed to capture anticipated economic downturns failed to do so for the 1990 recession in the United States.

The characteristics and the behaviour of individual forecasters is a further key element that may affect forecasting performance and is subject to a large number of empirical papers. Gjaltema (2001) argues that forecasters are distinctive entities with individual characteristics that can influence forecast outcomes. Furthermore, Fintzen and Stekler (1999) argue that the manner in which individuals prepare their forecasts can affect their accuracy. Gallimore and McAllister (2005) pinpoint five key areas where judgemental, or behavioural elements may come into play in the forecasting process. These are i) during model formation, ii) during model evaluation, iii) in the evaluation of provisional forecasts, iv) in the production of pure judgemental forecasts and v) by users implementing the forecasts.³ One key behavioural element is that forecasters may deliberately bias their forecasts. There are a number of studies that have argued that forecasters may not necessarily attempt to maximize forecast accuracy and may be motivated by factors such as their reputation when they release forecasts.⁴ A recent paper by Tillman (2011) shows how forecasts produced by members of the Federal Open Market Committee (FOMC) of the Federal Reserve may bias their own individual forecasts for policy reasons. Whilst Hong and Kubik (2003) consider equity analysts forecasts, their findings are consistent with the above. They argue that the prospects of promotion inside a firm guide analysts towards optimistic forecasts. A factor that

possibly contributes to this is that optimistic forecasts may help generate trading activity. Dechow, Hutton, and Sloan (2000) provide supporting evidence in the context of forecasts from banks. The results illustrate that forecasts tend to be more optimistic when concerned with firms with whom the bank has a business relationship in comparison to forecasts produced by 'de-motivated' forecasters.

Laster, Bennett, and Geoum (1999) note that the publicity that occurs on the release of a forecast may affect the outcome, leading possibly to deliberately biased forecasts. Gallimore and McAllister (2005) provide qualitative evidence, based on structured interviews, to support such behaviour occurring in a real estate context. Some participants expressed a reluctance to provide downbeat negative forecasts due to the anticipated response of end-users. Such findings are supportive of the incentive concavity theory which would suggest that the rewards from making an accurate but bold forecast are smaller than the penalties of an inaccurate bold forecast (Batchelor, 2007). This often therefore leads to herding and a clustering of forecasts around the consensus.⁵ The rationale behind forecasters herding around the consensus may also vary depending on market conditions. Inaccurate forecasts possibly avoid undue attention when conditions are strong as market participants may be concentrating on the good news of 'better than expected results'. In poor investment market conditions, worse than forecast figures may be blamed upon 'the market'. These behavioural characteristics may lead to forecasters under-estimating growth rates when the market out-performs and vice-versa (Zarnowitz & Braun, 1993).

The resulting smoothing that may occur in forecasts also arises due to the statistical properties of optimal forecasts which state that the variance of the forecasts must be less than the variance of the actual values (Mincer & Zarnowitz, 1969; Samuelson, 1976). However, Smyth and Ash (1981) show that this relationship (i.e. greater variance in the actual values than in forecasts) exists for the longer forecasting horizons and not for the shorter ones. This is because for shorter horizons, forecasters knowing the actual data, use their judgement to adjust estimates appropriately. Thus, as forecasts are a dynamic procedure, forecasters have to use their judgement during the entire process. However, such an effect does not necessarily mean that the dispersion or variation of forecasts follows the same pattern. Papers such as Lahiri and Sheng (2008) and Patton and Timmermann (2010) illustrate how dispersion is greater at longer forecast horizons. More generally, both McNees (1990) and Donihue (1993) highlight the importance of judgmental adjustments on the predictive accuracy of econometric models. Lahiri and Sheng (2010) show how individual judgement can determine forecast uncertainty and in turn forecast accuracy.

There is also evidence that forecasters try to avoid large adjustments in their released forecasts (Scotese, 1994). Batchelor and Dua (1991) observe that forecasters not only display conservatism in order to be closer to the consensus but that, more generally, they revise their estimates by less than warranted by new information. Instead, they prefer to wait until later revisions of data are available before adjusting their models. The findings of Isiklar, Lahiri, and Loungani (2006) support this, reporting that it takes forecasters more than five months to incorporate 90% of new information. Batchelor (2007) notes three possible reasons as to why forecasters may publish persistently biased forecasts. One is a lack of appropriate skills and the inability to efficiently incorporate new information. Forecasters may also fail to learn from past forecast errors and as a result they produce biased forecasts on an ongoing basis. The second reason is that forecasters may fail to differentiate between the changes in the target variable that are permanent and those which are transitory. Effectively, they may assign an equal weight to each component, resulting in biased forecasts. The third possible reason, as has already been noted, is the financial or reputational incentives that may lead to overly optimistic or pessimistic forecasts.

³ For a general overview on judgemental forecasting see Lawrence, Goodwin, O'Connor, and Onkal (2006).

⁴ e.g. Ehrbeck and Waldmann (1996); Laster et al. (1999); Lamont (2002); Pons-Novell (2003); Ottaviani and Sorensen (2006); Elliot et al. (2008); Patton and Timmermann (2010).

⁵ There are also a number of papers to have specifically looked at herding across equity analysts', e.g. Welch (2000), Bernhardt, Campello, and Kustoati (2006) and Mensah and Yang (2008).

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