



Analysis of the real estate market in Las Vegas: Bubble, seasonal patterns, and prediction of the CSW indices

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Abstract

We analyze 27 house price indices of Las Vegas from June 1983 to March 2005, corresponding to 27 different zip codes. These analyses confirm the existence of a real estate bubble, defined as a price acceleration faster than exponential, which is found, however, to be confined to a rather limited time interval in the recent past from approximately 2003 to mid-2004 and has progressively transformed into a more normal growth rate comparable to pre-bubble levels in 2005. There has been no bubble till 2002 except for a medium-sized surge in 1990. In addition, we have identified a strong yearly periodicity which provides a good potential for fine-tuned prediction from month to month. A monthly monitoring using a model that we have developed could confirm, by testing the intra-year structure, if indeed the market has returned to “normal” or if more turbulence is expected ahead. We predict the evolution of the indices one year ahead, which is validated with new data up to September 2006. The present analysis demonstrates the existence of very significant variations at the local scale, in the sense that the bubble in Las Vegas seems to have preceded the more global USA bubble and has ended approximately two years earlier (mid-2004 for Las Vegas compared with mid-2006 for the whole of the USA).

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1. Introduction

We analyzed the deflated quarterly average sales prices $p(t)$ from December 1992 to December 2002 of new houses sold in all the states in the USA and by regions (northeast, midwest, south and west) and found that, while there was undoubtedly a strong growth rate, there was no evidence of a bubble in the latest six years (as qualified by a super-exponential growth) [1]. Then, we analyzed the quarterly average sale prices of new houses sold in the USA as a whole, in the northeast, midwest, south, and west of the USA, in each of the 50 states and the District of Columbia (DC) of the USA up to the first quarter of 2005, to determine whether they have grown faster-than-exponential (which is taken as the diagnostic of a bubble) [2]. We found that 22 states

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(mostly Northeast and West) exhibit clear-cut signatures of a fast growing bubble. From the analysis of the S&P 500 Home Index, we concluded that the turning point of the bubble would probably occur around mid-2006. The specific statement found at the bottom of page 306 of Ref. [2] is: “We observe a good stability of the predicted $t_c \approx$ mid-2006 for the two LPPL models (2) and (3). The spread of t_c is larger for the second-order LPPL fits but brackets mid-2006. As mentioned before, the power-law fits are not reliable. We conclude that the turning point of the bubble will probably occur around mid-2006.” It should be stressed that these studies departed from most other reports by analysts and consulting firms on real estate prices in that we did *not* characterize the housing market as overpriced in 2003 [1,2]. It is only in 2004–2005 that we confirmed that the signatures of an unsustainable bubble path has been revealed.

Let us briefly analyze how this prediction has fared. The upper panel of Fig. 1 shows the quarterly house price indices (HPIs) in the 21 states and in the DC from 1994 to the fourth quarter of 2006 released by the OFHEO. It is evident that the growth in most of these 22 HPIs has slowed down or even stopped during the year of 2006. When we look at the S&P Case–Shiller Home Indices of the 20 major US cities, as illustrated in the lower panel of Fig. 1, we observe that the majority of the S&P/CSIs had a maximum denoted by a solid dot in the middle of 2006, validating our prediction [2]. Specifically, the times of the maxima are, respectively, 2006/06/01, 2006/09/01, 2005/11/01, 2006/05/01, 2006/08/01, 2006/05/01, 2006/12/01, 2006/07/01, 2006/08/01,

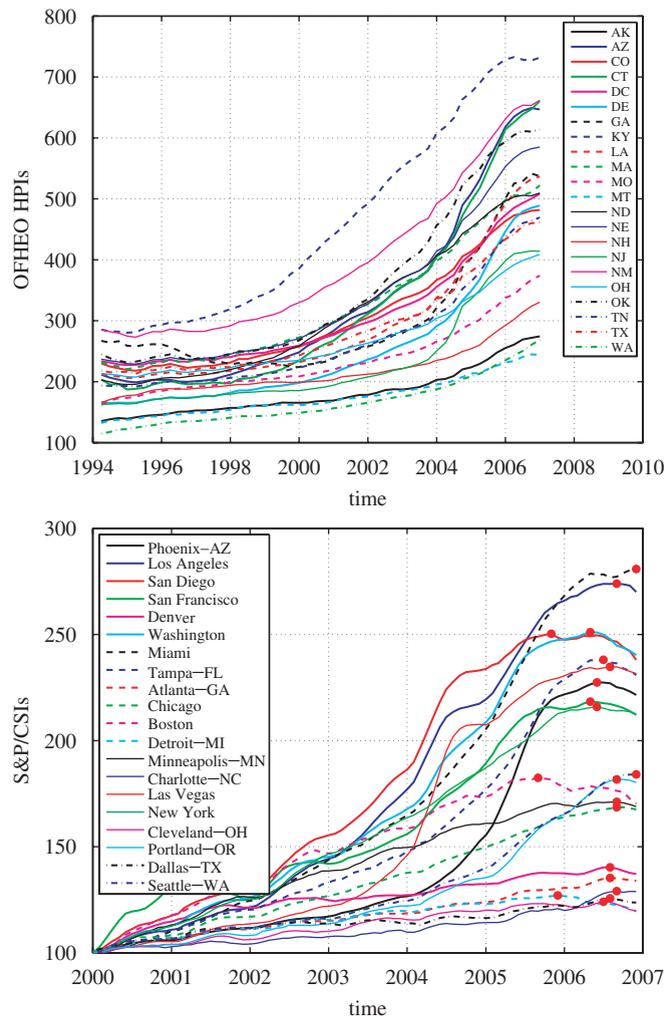


Fig. 1. (Color online). Evaluation of the prediction of Ref. [2] that “the turning point of the bubble will probably occur around mid-2006” using the OFHEO HPI data (upper panel) and the S&P CSI data (lower panel).

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