Explosive rents: The real estate market dynamics in exuberance

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1 Introduction


However, one important issue that has not been sufficiently discussed in the literature is that rents should not be equally treated like dividends. Although rents and dividends are very similar in that they are the cash flows generated from asset ownership, they should be considered in different ways. There is a significant difference between the two types of cash flows: a stock dividend is determined by the company’s board while rent is determined by the supply and demand in the rental market. There is an extensive literature on the rental market behavior. For example, Chau and Wong (2015) studied rent dynamics in the Hong Kong office market and found that high-end office rents adjust faster than that of low-end offices when information asymmetry exists, Crosby, Devaney, and Nanda (2016) studied the key factors that result in rental value depreciation based on samples from UK office and industrial assets. Finding that urban rents have risen faster than urban wages, Glaseer, Kolko, and Saiz (2001) explained this as “the demand for living in cities has risen beyond rising wages”. In this work, we focus

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on residential properties and study the explosive behavior of a rent series. In particular, we demonstrate one important factor driving the increasing demand in the rental market by showing how housing prices and rents interact and jointly determine the equilibrium in the real estate market.

To study the connection between housing prices and rents, DiPasquale and Wheaton (1992) developed a four-quadrant framework (DW framework) that separates the real estate market into the asset market and the space market. Based on the DW framework, rents are determined by the supply and demand in the space market, and prices are determined by the valuation process in the asset market. On the other hand, prices can affect the construction cost and implicitly move the supply of houses in the space market and result in new rent equilibriums. Much research on real estate finance is based on the DW framework or from a similar long-term view of the real estate market. For example, Lieser and Groh (2014) studied the impact of economic growth, rapid urbanization, as well as compelling demographics on real estate investments based on a worldwide data sample covering 47 countries. Dieci and Westerhoff (2016) proposed a model that can generate endogenous boom-bust housing market dynamics based on historical information of overvaluation and overbuilding. However, some short-term behaviors in prices and rents and their interactions have not been carefully discussed in the literature, especially when housing bubbles exist.

Our paper differs in two ways from previous research on the market behavior in the real estate market. First, based on the rent determination model we develop in this paper, we show the conditions under which explosive rents may appear. To the best of our knowledge, this is the first work that studies the existence of explosive rents and its origination. Second, unlike the DW framework, we discuss the connection between housing prices and rents by considering the interaction between the housing and rental markets, and we study the explicit impacts of price movements on the behavior of rents. Moreover, we empirically study the behavior in the real estate market by considering characteristics of the rental market and its connections to the housing market. Based on U.S. aggregate data and city-level data, we test the explosiveness of a well-known real estate price index, and a rent index in order to verify the existence of explosive rents in our urban areas samples in the U.S.

The paper is organized as following. In Section 2 we discuss our demand and supply model for the rental market, and the techniques of testing for explosive behavior. After describing in Section 3 the data for our empirical study, we report and analyze the estimation and test results in Section 4. Section 5 summarizes our findings.

2. The model

In this section, we discuss the methodology employed to estimate the timelines of asset bubbles, the characteristics of rental markets, and the effects of rental markets on the investigation of real estate bubbles.

2.1. Rental market equilibrium

To discuss the equilibrium of rent, we consider the interaction between the housing market and the rental market. DiPasquale and Wheaton (1992) suggested the following mechanism in the real estate market. In equilibrium, the demand for space, $d$, matches the supply of space, $s$. Suppose that the demand for space is a function of rent and some other conditions regarding the local economy. We then have

$$d_t(R, Economy) = s_t$$  \hspace{1cm} (1)
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