Distant Speculators and Asset Bubbles in the Housing Market

NBER Housing Crisis Executive Summary

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How do bubbles form? Beginning with the work of Black (1986) and De Long et al. (1991), many authors have conjectured that the trading behavior of overconfident or uninformed speculators can destabilize financial markets and create bubbles. According to these models, other traders may not be able to restore equilibrium because of limits to arbitrage such as capital constraints, informational frictions, or a limited supply of tradable shares.[1] Real estate researchers have also long puzzled over the inefficiency of housing prices,[2] and several papers specifically point to the possible role of second house buyers in inflating house prices during the recent boom.[3]

In order to test whether or not some combination of speculative trading and arbitrageur constraints generates a bubble, an economist must confront three key challenges: first, identify a group of overconfident or uninformed speculators; second, show that an increase in the trading volume of these speculators predicts future mispricing; and third, demonstrate that

[1]See Shleifer and Vishny (1997), Scheinkman and Xiong (2003), and Ofek and Richardson (2003) respectively.

[2]See the seminal paper by Case and Shiller (1989) as well as a recent survey Mayer (2010) for a discussion of the literature on housing bubbles.

[3]See Bayer et al. (2011), Haughwout et al. (2011), and Li and Gao (2012).

these speculators are not simply responding to unobserved variation in asset values—i.e., address the question of reverse causality.

With regards to the first challenge, identifying a group of misinformed speculators in the stock market is difficult because, for the most part, traders are anonymous. Turning to the second challenge, we note that where it is possible to identify particular types of traders in the data, it is not obvious there is a linear relationship between the trading volume of misinformed speculators and future price increases. For instance, Brunnermeier and Nagel (2004) document that a group of hedge funds bought technology stocks during the Dot-Com boom and strategically sold them just prior to the crash. Finally, with respect to the third challenge, even if a large number of misinformed speculators can be shown to trade in a specific company's stock, it is difficult to sort out whether the speculative trading caused any particular price increase or whether they were attracted to a stock by the perception that it was undervalued.[4] Looking at a time series of a single stock or multiple stocks whose share prices are highly correlated limits the identification strategies available to an econometrician.

Like the stock market, the US residential housing market exhibits strong boom and bust cycles that resemble bubbles. However, unlike the stock market, the housing market offers researchers detailed microdata on traders (i.e., house buyers). As well, the housing market is geographically segmented into metropolitan statistical areas (henceforth, MSAs) making it an attractive laboratory to study bubble formation because house prices do not follow the same time series pattern[5] and home buyers in different MSAs may use somewhat different information when making their purchases. We make use of these features to test for speculative bubbles due to an increase in demand from out of town second house buyers in 21 MSAs from Jan. 2000 to Dec. 2007.

Our project utilizes data on sales and mortgages transactions for every single family

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[4]This argument involving reverse causality is commonly referred to as the Friedman Critique and dates to Friedman (1953). See Abreu and Brunnermeier (2003) for an example of a model where traders arrive in a market in order to earn profits by riding excess price appreciation.

[5]As documented in Ferreira and Gyourko (2011) the recent boom began at different times in different MSAs, and house prices exhibited different appreciation rates across these markets. Even the start dates of the subsequent decline in prices differed by a year or more.

housing unit in in our sample period for the 21 MSAa as well as monthly indexes for real house prices (henceforth, HPI) and implied-to-actual rent ratios (henceforth, IARs) for each of these locations. The IAR data uses the methodology from Himmelberg et al. (2005) to compute a measure of mispricing in the housing market that compares the cost of renting a house and the imputed rent to an owner occupant (the annual after-tax cost of owning a house).

To address the first of the three key challenges, we show that out of town second house buyers, i.e. traders that buy a second house in a different MSA from which they live, behave much like overconfident or uninformed speculators. Out of town second house buyers (so-called "distant speculators"[6]) appear less informed about local market conditions. These buyers entered markets such as Phoenix, Las Vegas, Miami and Tampa in much larger numbers just prior to the peak in house price levels and earned lower capital gains on their investment relative to local speculators. However, capital gains are only part of a return computation. We suggest that out of town second house buyers were likely less able to consume the dividend stream from their housing purchase as compared to local second house buyers or owner occupants. After all, out of town second house buyers can only live in their houses for a fraction of the year, face higher property taxes and have difficulties monitoring agents who maintain their property.

We address the second key challenge by estimating a set of panel vector auto-regressions, showing that an increase in the fraction of all sales made by out of town second house buyers in an MSA in a given month predicts increases in the house price and IAR appreciation rates in the next month. We estimate that the 3 standard deviation increase in distant speculator demand observed in Phoenix in 2004 explains around one sixth of the 30%/yr increase in house price and IAR appreciation rates in that market. By contrast, the lagged share of local second house buyers has little impact on either house price or IAR appreciation rates.

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[6]We refer to all traders who purchase a house they do not reside in as "second house buyers" or "speculators." Such a house might in fact represent a second, third, fourth (etc. . .) house in addition to their primary residence, or even just a first house if they do not own their primary residence.

To address the third and final challenge, the issue of reverse causation, we exploit geographic segmentation of information across metropolitan areas as well limits to arbitrage in the housing market. We examine the null hypothesis that distant speculators are responding to a common set of shocks about the value of housing in a target market. The key insight is that, if out of town second house buyers are responding to common shocks, then buyers living in each other MSA should purchase houses in the target market in roughly equal proportions after controlling for factors such as distance and ease of information transmission. These common shocks could be information that impacts the fundamental value of housing (e.g., the Friedman Critique) or a common behavioral factor. Yet, we find that the size of the MSA that out of town second house buyers come from is positively related to the impact of these distant speculators on house price and IAR appreciation rates in the target MSA. These regressions control for both MSA pair specific factors and macroeconomic factors with ordered MSA pair and time fixed effects. This violation of symmetry allows us to reject the null hypothesis of a common information shock and is thus consistent with the alternative hypothesis that distant speculators themselves helped push up house prices.

We conclude by pointing out similarities between the US housing bubble and housing bubbles in other countries such as Spain, where commentators have pointed to a large influx of distant speculators from Germany and Britain as an important contributor to the large increase in prices. Purchases by distant speculators represented as much as 5% of local output in Las Vegas—a similar estimate to the share of foreign direct investment in Spain during the housing bubble of 2007 and 2008. A similar phenomenon occurred in the US commercial real estate market in the late 1980s when a 1986 tax code change made purchases of commercial real estate less attractive for US companies and invited a host of foreign investors from countries like Japan to large scale purchases of commercial office buildings.Thus, distant speculators may be an important class of traders playing a role in bubble formation more generally and an interesting topic of future research.

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