Expectations-driven cycles in the housing market

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ABSTRACT

This paper explores the transmission of "news shocks" in a model of the housing market and shows that anticipated signals or beliefs of future macroeconomic developments can generate boom-bust cycles in the housing market and lead to business cycle fluctuations. Anticipated monetary policy and inflationary shocks that turn out to be wrong can also lead to subsequent macroeconomic recessions. Credit frictions also play an important role in generating boom-bust cycle dynamics in the housing market. In particular, favorable credit conditions that are expected to be reversed in the near future generate an housing boom. The active use of the loan-to-value ratio as a policy tool aimed at dampening the severity of expectations-driven cycles effectively reduces the volatility of household debt, aggregate consumption and GDP.

1. Introduction

Boom-bust cycles in asset prices and economic activity are a central issue in policy and academic debates. Following the recent bursting of the housing bubble in the U.S. and the ensuing financial crisis, particular attention has been given to the behavior of housing prices and housing investment. This paper suggests a mechanism for modeling housing-market boom-bust cycles in accordance with the empirical pattern.

Over the period 1965:1–2009:2 real house prices in the United States display a number of boom-bust episodes, namely periods of faster-than-trend growth followed by sharp reversals.[1] See Fig. 1. Leamer (2015) documents that housing is the most critical part of the business cycle because, over 9 of 11 episodes' recessions since 1985, housing investment has declined three or four quarters before recessions.[2] Indeed, over the last three decades, housing price boom-bust cycles in the United States have been characterized on average by hump-shaped co-movement in GDP, consumption, investment, hours worked, real wages and housing investment. More precisely, these macroeconomic variables generally grow during the boom phase of

housing prices and fall during the bust phase. Fig. 2 illustrates the behavior of a set of key macroeconomic variables during boom-bust episodes.[3] Interestingly, as also highlighted by Leamer (2015), house prices and real residential investments peak several quarters before recessions, meaning that the housing market lead the business cycle. In particular, on average, the peak in house prices is anticipated by the peak in housing investment and followed by macroeconomic recessions.[4] One possible interpretation is that the run-up in house prices and residential investments encourages household expenditure and households' loans. Once the demand for housing slow down, house prices start declining pushing towards an economic downturn. As a result a decline in house prices and worsened economic conditions, credit conditions also become tighter with further negative implications for housing and macroeconomic developments.

Modeling endogenous boom-bust cycles in macroeconomics, however, is a major challenge. In business cycle models, it is difficult to generate extended periods of sustained house price growth followed by reversals through unanticipated shocks, which generate the strongest responses in the short run and eventually die out. An often-heard explanation of housing booms is households' optimism about future

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[1] We define a peak as the centered maximum in real house prices in a twenty-one-quarter window. Using this definition we identify four boom-bust episodes that peaked in 1973:3; 1979:4; 1989:2; and 2006:2.

[2] Leamer (2015) also documents the special case of housing downturn in 2006 in which housing peaked 2 years before the start of the recession in 2008. Moreover, the recovery has been much delayed, relative to previous episodes.

[3] All variables are an average of log-transformed, real, per capita around the four house price peaks. Appendix A describes the data in detail. Our results are robust to de-trending, either with a linear trend or with an Hodrick–Prescott filter.

[4] Every housing peak as defined above has been followed by an economic downturn. Even the housing price high of 1969:4, which does not qualify as a peak according to our definition because real house prices rebounded too quickly, was followed by a recession.
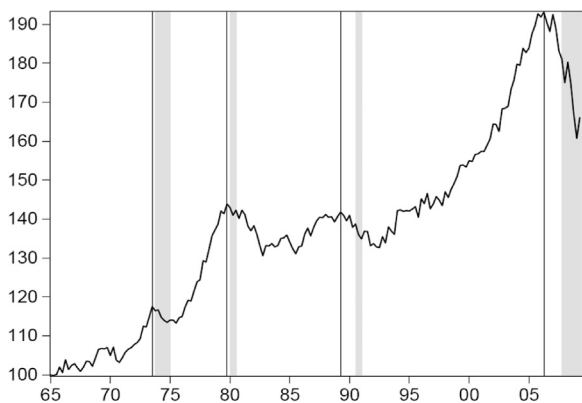
Fig. 1. Real House Prices in the United States 1965:1–2009:2 (Data refers to new one-family houses sold deflated with the implicit price deflator for the nonfarm business sector). The gray shaded areas indicate recession dates according to the National Bureau of Economic Research; the vertical line indicates the peaks in real house prices.

house price appreciation. Same authors document that beliefs of rising prices increased during the last housing boom (eg. Piazzesi and Schneider, 2009) and that changes in expectations of future house prices appreciation are important in predicting dynamics in house prices and other macroeconomic variables (eg. Lambertini et al., 2013; Huang, 2014). Using data from the Michigan Survey we document that news heard of recent changes in business conditions are significantly

related to consumers' belief of favorable buying conditions in the housing market both when the opinion is based on the perception of the current state of the economy and when it is driven by expectations of rising house prices or tighter future credit. Further, news heard of changes in business conditions contain statistically significant information for house price growth. These findings suggest a potential role for expectations-driven cycles in the housing market.

Excess optimism about the housing market increases the demand for housing, leading to higher housing prices and to an excessively expansion of borrowing capacity. Mortgage financing builds up liquidity, which further encourages demand and residential investment, thereby contributing to the strong run-up in house prices, which in turn increases the collateral value that further releases more mortgage financing. This magnifies the housing boom phase and the co-movements with macroeconomic variables. In contrast, excess pessimism about the housing market generates sharp declines in housing and macroeconomic variables, leading to a deep recession. This is in line with the prospect theory (eg. Ahmad and Xiao, 2007) which states that possible gain and losses in wealth affect investment decisions of economic agents. Relative to gains, economic agents are much more hurt by losses in their wealth. Therefore business cycle fluctuations are a main concern because during recession, agents occur into losses of consumption. If investors are optimistic about the prospect of the economy, they would be willing to invest more and the asset prices would start to rise. On the other hand, pessimism about the economy will drag asset prices down.
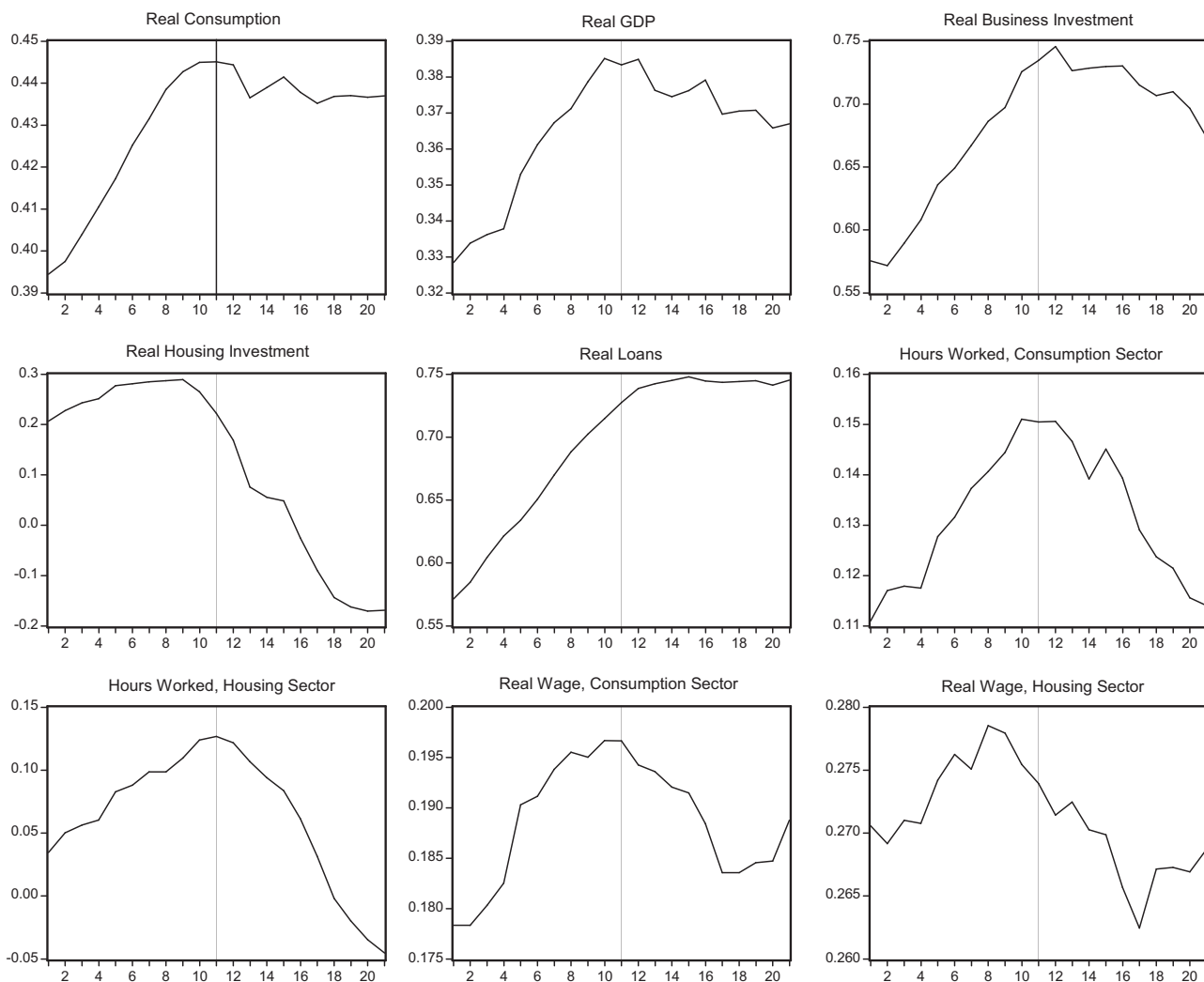
Fig. 2. Macroeconomic variables average behavior during house-price boom-bust. The vertical line indicates the peaks in real house prices.