



DISSERTATION ABSTRACT

HOUSING MARKET DYNAMICS: FINANCIAL RISK AND HOUSING PRICE BUBBLES

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Investment in the Risky Technology Stocks and Housing Price Bubbles (job market paper)

In this paper we investigate the inter-dependence between financial and housing markets and analyze how uncorrelated financial risk may promote an increase in housing demand and induce bubble-like behavior of residential real estate prices. We show that endogenous relative wealth concerns may play an important role in explaining the emergence and dynamics of housing price bubbles in times of technological innovation that has high level of uncertainty. We present a general equilibrium model in which house-buyers' exposure to financial risk together with concerns about relative wealth translates into housing price volatility. Unlike other models with endogenous relative wealth concerns, our model suggests a non-monotonic relation between the technological risk and the housing price risk. Our main result is that housing price bubbles are most likely to emerge as a result of house-buyer's financial risk exposure when this exposure is low.

Most of the literature studies the recent boom in residential real estate prices as a consequence of structural changes in the market for mortgage financing. Rather than looking at the housing market in isolation, in this paper we look at the interrelation between the technology stocks bubble and the housing bubble. Our paper builds on DeMarzo, Kaniel, and Kremer (2007), henceforth DKK. The authors develop a general equilibrium model showing that rational, risk-averse agents may overinvest in risky technologies, even when the investment is predictably unprofitable. The model is based on the idea that, if future scarce resources are not available in the market today, then competition over future consumption leads to relative wealth concerns that arise endogenously in equilibrium. The authors show that in the presence of relative wealth concerns, when the financial asset in the house-buyer's portfolio is risky enough and the expected return of the asset is fixed, an increase in the risk of the asset encourages more investment in this asset.

We extend the DKK model by adding a housing market. In the real estate market, the main source of risk is induced by the changes in the housing prices. In our model the investment in uncertain technology reverberates on housing prices, so that the price of housing over time is influenced by the realization of the risky investment. Thus, agents end up being exposed to both types of risk, the technological risk and the housing price risk. We show that the presence of aggregate risk can induce a price bubble, even when agents are fully rational.

The housing price movements generated by relative wealth concerns show that house-buyers' exposure to uncorrelated financial risk leads to substantial increase in housing demand and housing prices. To understand this increase, we need to consider the impact of house-buyer's portfolio choice on the future wealth. When house-buyers allocate a significant part of their financial portfolio to the risky assets, uncertainty in realization of these investments generates volatility in house-buyer's future income. Successful realization of risky investments induces significant increase in the wealth of the community and drives housing demand and housing prices up.

Importantly, compared to the benchmark case with complete markets, the housing price volatility in the model is greater for all levels of risk. This finding supports our claim that in the presence of the relative wealth concerns, emergence of uncorrelated financial risks results in greater housing price volatility that can lead to the housing price bubbles.

Mortgage Market and Housing Market Dynamics

In this paper we investigate a recent growth of the subprime mortgage market in the United States and its effect on the housing market dynamics. We examine the mechanics of the subprime mortgage market and explore the possible origins of an extensive investment that caused a substantial growth in home ownership in the last two decades followed by a dramatic rise in levels of borrower default and foreclosure.

The transition of residential mortgage lending from a system where credit was feasible only for prime quality borrowers to a system where credit options were extended to include offers for subprime borrowers has led to a remarkable expansion of subprime credit. The ability of lenders to offer loans using risk-based pricing options induced major structural changes in the market for mortgage financing. These changes included development of private-label securitization of mortgage loans that allowed the private investors to provide capital to subprime mortgage loan originators. In this paper we examine the possible origins of capital market excessive investment in the mortgage-backed securities and the impact this intensive investment had on the housing prices.

In our paper "Investment in the risky technology stocks and housing price bubbles" we presented a stylized finite-horizon stochastic model that demonstrated that increase in demand for housing may result from financial risk exposure, when house-buyers are subject to relative wealth concerns and competition over future consumption. Analysis of the recent situation in the subprime mortgage market leads us to believe that a modified version of this model can be employed to investigate the recent expansion of the subprime mortgage credit and its effect on the real estate prices. In this paper we modify our original model by introducing a mortgage mechanism. We examine patterns in the borrowing/lending market in the presence of relative wealth concerns and analyze the effects of mortgage market expansion on the housing price dynamics.