Housing prices and investment in the business cycle with credit constraints

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1. what is the question?

Recent studies envisage the role of residential houses in two-sector models. However, these papers give a negative correlation between housing prices and business investment.

The intuition behind this is that shocks raise housing prices on impact reduce the demand for residential investment goods then it will crowd out capital investment goods. This is inconsistent with the subprime crisis wherein a slump in business investment was in tandem with a sharp decline in house prices.

Therefore, this paper tries to solve the comovement problem by allowing for collateral constraint on business loans.

2. Why should we care about it?

Existing empirical studies show that shock to real estate prices have important effects on business investment. These authors showed that the impact of real estate shocks on investment is stronger when estimated on a group of firms that is more likely to be credit constrained.

Since collateralized loans are an important form of borrowing in business, this paper emphasizes collateral constraints on products then it can explain procycle and comovement between house prices and business investment.

3. What is the answer?

This paper resolves such inconsistency by introducing credit constraints on entrepreneurs into the model. In this model, firms finance investment spending by using housing as a collateral asset(collateral constraint on business loans).

Thus, shocks that boost up housing prices raise firms' borrowing capacity and then facilitate an expansion in business investment and production. The intuition is that collateral constraints on firms play a key role in the propagation of housing prices.

As a result, housing prices comove with business investment to match with empirical evidence. Therefore, the comovement problem is resolved in our

model.

4. How did you get there?

Two identical two sector models are analyzed. One model includes collateral constraints on entrepreneurs and the other model dose not.

The economy has three sectors of intermediate goods(hosing, manufacturing, services which are produced by capital and labor) and two sectors of final goods(consumption/investment goods which are produced by intermediates). Final goods that are used for consumption and business investment in order to accumulate capital and residential investment goods that are combined with land to produce new houses.

There are two types of agents including household and entrepreneurs. Both types of agents consume consumption and residential houses and agents with different time preference rates trade private debts, with borrowers being subject to collateral constraints. Moreover, while entrepreneurs are producers of intermediates, households are suppliers of labor. All market are competitive.

Parameter	description
β	Household's discount factor
γ	Entrepreneur's discount factor
m_b	Entrepreneur's loan-to-value ratio in the construction sector
m_m	Entrepreneur's loan-to-value ratio in the manufactures sector
m_s	Entrepreneur's loan-to-value ratio in the services sector
δ_k	Depreciation rate of capital
δ_h	Depreciation rate of housing
ϕ	Share of land in the production of new houses
η	Coefficient of entrepreneur's risk aversion
σ	Coefficient of household's risk aversion
μ_c	Share of consumption in household's utility

μ_h	Share of housing in household's utility
ν_c	Share of consumption in entrepreneur's utility
ν_h	Share of housing in entrepreneur's utility
θ_b	Capital share in the construction sector
θ_m	Capital share in the manufactures sector
θ_s	Capital share in the services sector
α_{bc}	Share of construction in consumption sector
α_{mc}	Share of manufactures in consumption sector
α_{bd}	Share of construction in residential investment sector
α_{md}	Share of manufactures in residential investment sector