Discussion of “Risky Mortgages in a DSGE Model” by Chiara Forlati and Luisa Lambertini

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30th September 2010
What this paper does

- Explanation of current crisis based on increase in idiosyncratic default risk
- Risk shock in the housing market in a financial accelerator model of housing sector
Related Literature: credit frictions model

- Foundations: Kiyotaki & Moore ('97), Bernanke, Gertler & Gilchrist ('99)
- Application of BGG to the housing sector: Aoki, Proudman & Vliehge ('04)
- Application of KM to the housing sector: Iacoviello ('05)
- This paper: *time-varying* idiosyncratic risk in housing investment
Related Literature: risks and business cycles

- Cyclical idiosyncratic risk: Campbell & Taksler (’03), Storesletten, Telmer & Yaron (’04)
- Risk and economic fluctuations (irreversible investment): Bernanke (’83), Dixit and Pindyck (’94), Bloom Floetotto and Jaimovich (’09)
- Risk and economic fluctuations (credit frictions): Christiano, Motto & Rostagno (’09), Gilchrist, Sim and Zakrajsek (’10)
- This paper: time-varying idiosyncratic risk in housing investment under credit frictions. More plausible than irreversibility in housing investment.
Main mechanism

- Risk $\uparrow \implies$ external finance premium $\uparrow \implies$ credit crunch and recession (Christiano et al (’09))
Implications for RMBS?

- Price of RMBS is robust against increase in idiosyncratic risk
- Idiosyncratic risk \( \uparrow \) pe se may not be sufficient to generate large decline in the price of RMBS
- But the paper may be able to generate decline
Simple example of RMBS

- Typically divided into several tranches according to seniority of dividends payment
- Equity tranches usually held by original lenders (to mitigate adverse selection and moral hazard)
- Senior tranches sold to hedge funds, banks and insurance companies
Simple example of RMBS

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<th>both pay</th>
<th>one pays</th>
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<tbody>
<tr>
<td>senior</td>
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<td>equity</td>
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- Two mortgage borrowers. If default, pays 0. If not, pays 100.
- Two tranches: senior tranche and equity tranche
RMBS and idiosyncratic risk

- Case A: default uncorrelated, $\Pr(\text{default}) = 10\%$
  - $\Pr(\text{senior gets 0}) = 0.1 \times 0.1 = 1\%$
  - Its price = 99.
  - $\Pr(\text{equity gets 100}) = 0.9 \times 0.9 = 81\%$
  - Its price = 81

- Case B: default uncorrelated, $\Pr(\text{default}) = 20\%$
  - price of senior tranche = 96
  - price of equity tranche = 64
  - Default risk largely borne by equity tranche
  - Senior tranche not largely affected by risk
Effects of aggregate risk

- Case C: perfect correlation, \( \text{Pr}(\text{default}) = 20\% \)
  - For both tranches, \( \text{Pr}(\text{get 100}) = 80\% \)
  - Their prices = 80. Value of senior tranche drops.
  - Risk cannot be shifted to equity tranche

- One possible hypothesis
  - During boom, defaults were idiosyncratic
  - When house prices started falling, defaults became more correlated.
Delinquency and house prices

- Delinquency increased as house prices stopped increasing.

Notes: 1. Adjustable/fixed rate mortgages delinquent for 60+ days. 2. S&P/Case-Shiller index (10-city composite).
Prices of RMBS declined as house prices declined.
Implications for RMBS?

- RMBS robust against idiosyncratic risk but not aggregate risk
- FA mechanism can generate aggregate fluctuations from increase in idiosyncratic risk
- Can FA mechanism turn idiosyncratic risk $\uparrow$ into aggregate risk $\uparrow$?
- Or, can FA generate make default more correlated?
- Can the model replicate large decline in the price of RMBS as well as decline of house prices in response to idiosyncratic risk $\uparrow$?
- If not, how to modify the model?
Empirical evidence for countercyclical risk in housing?

- Countercyclical risks
  - labour income risk (Storesletten, Telmer and Yaron ’04)
  - firms (Campbell & Taksler ’03, Eisfeldt and Rampini ’06, Bloom, Floetotto & Jaimovich ’09, Gilchrist, Sim and Zakrajsek ’10)

- How about return on housing?
- Which is important for mortgage bankruptcy, risks on labour income or on housing? Do they have different implications?
Paper assumes perfect risk sharing within household members. Then why not insure with each other against $\omega$? Then they do not have to pay premium.
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