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

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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.

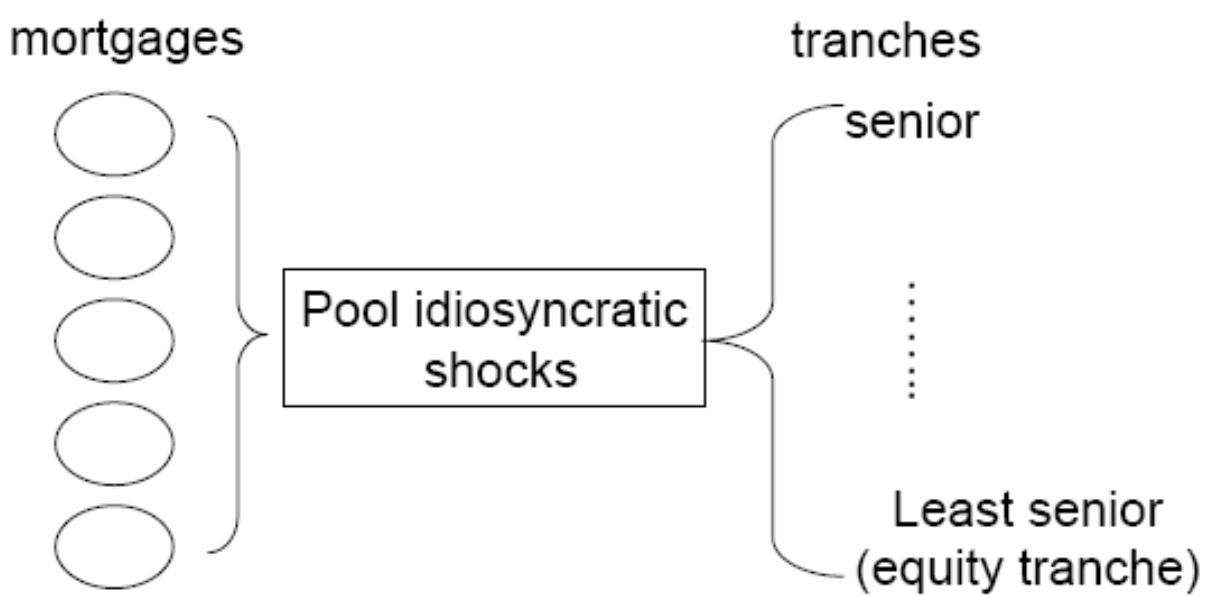
Main mechanism

- Risk $\uparrow \Longrightarrow$ external finance premium $\uparrow \Longrightarrow$ 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

	both pay	one pays	both default
senior	100	100	0
equity	100	0	0

- Two mortgage borrowers. If default, pays 0. If not, pays 100.
- Two tranches: senior tranche and equity tranche

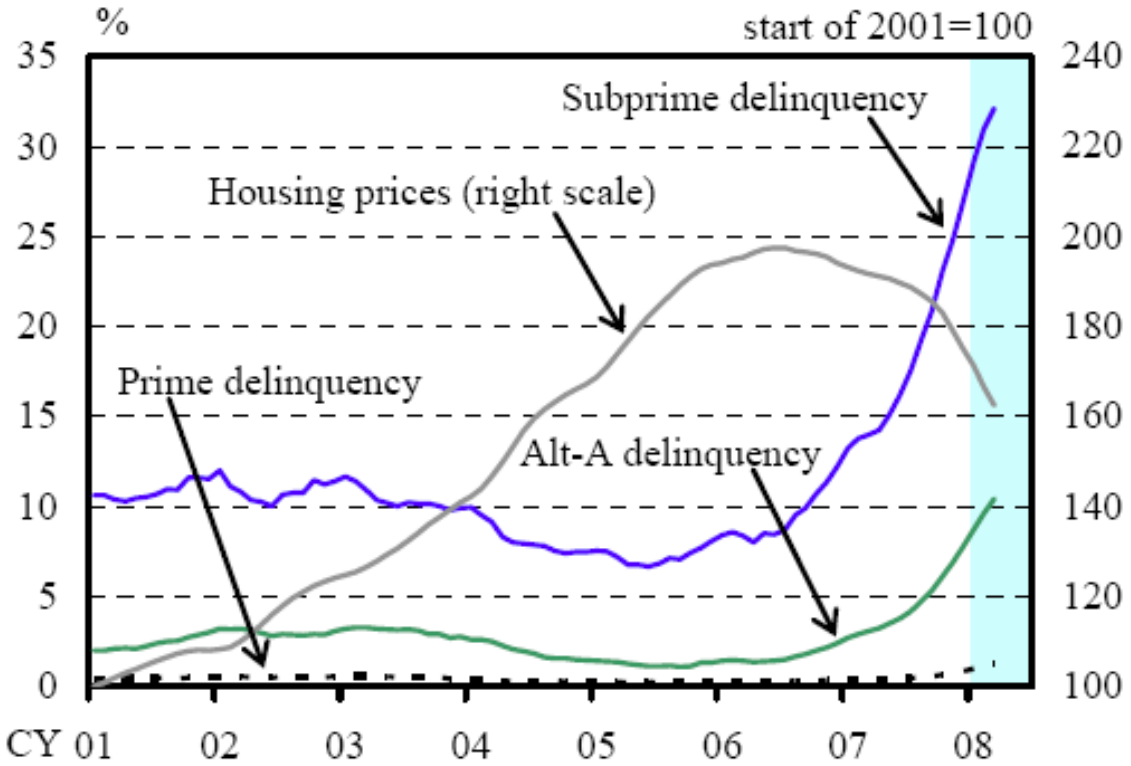
RMBS and idiosyncratic risk

- Case A: default uncorrelated, Pr(default) =10 %
  - Pr(senior gets 0) = 0.1 * 0.1 = 1 %
  - Its price = 99.
  - Pr(equity gets 100) = 0.9 * 0.9 = 81 %
  - Its price = 81
- Case B: default uncorrelated, Pr(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, Pr(default) = 20%
  - For both tranches, Pr(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.

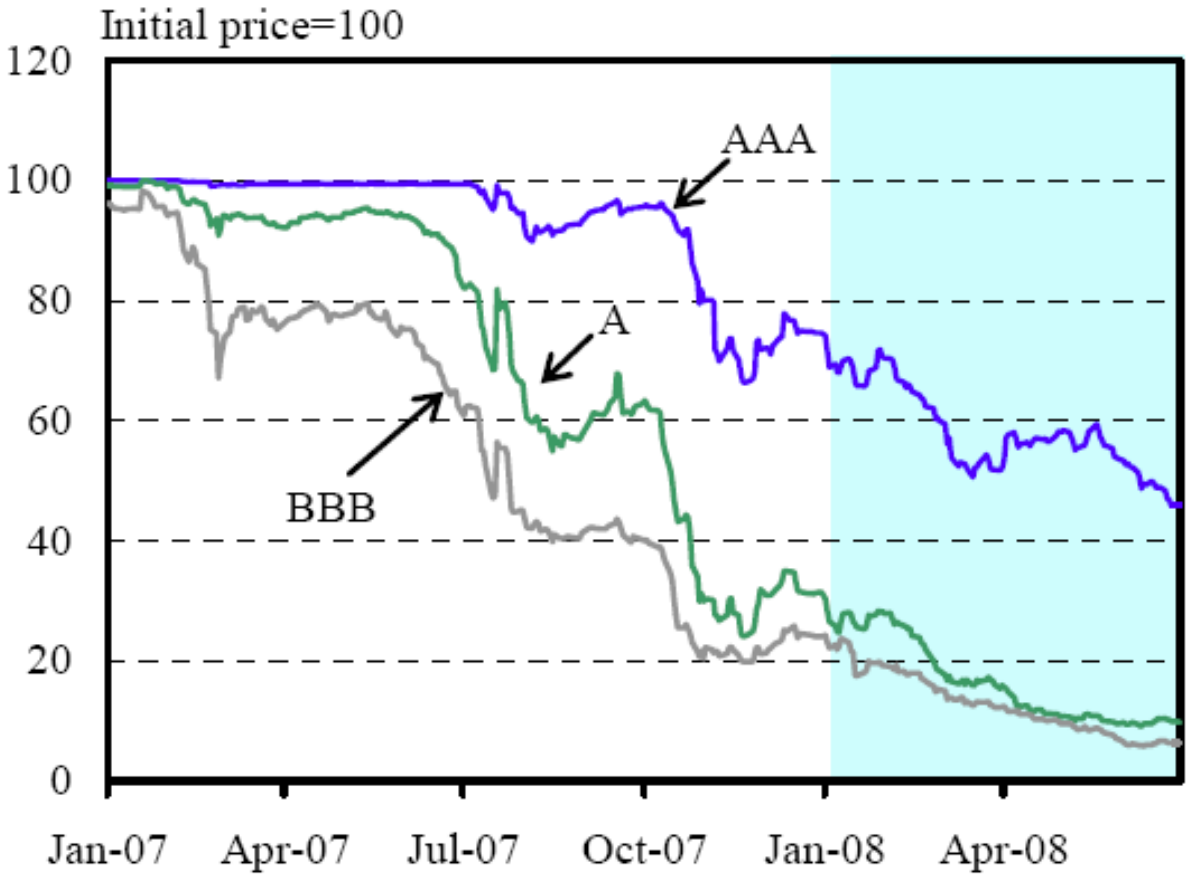
Delinquency and house prices



Notes: 1. Adjustable/fixed rate mortgages delinquent for 60+ days.
2. S&P/Case-Shiller index (10-city composite).

- Delinquency increased as house prices stopped increasing

Prices of RMBS



- 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?

- Counteryclical 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?

Minor technical comment

- Paper assumes perfect risk sharing within household members. Then why not insure with each other against ω? Then they do not have to pay premium.

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