Adverse or maybe not-so-adverse Selection in the CMBS Market

11.03.2011

FTC Microeconomics Conference

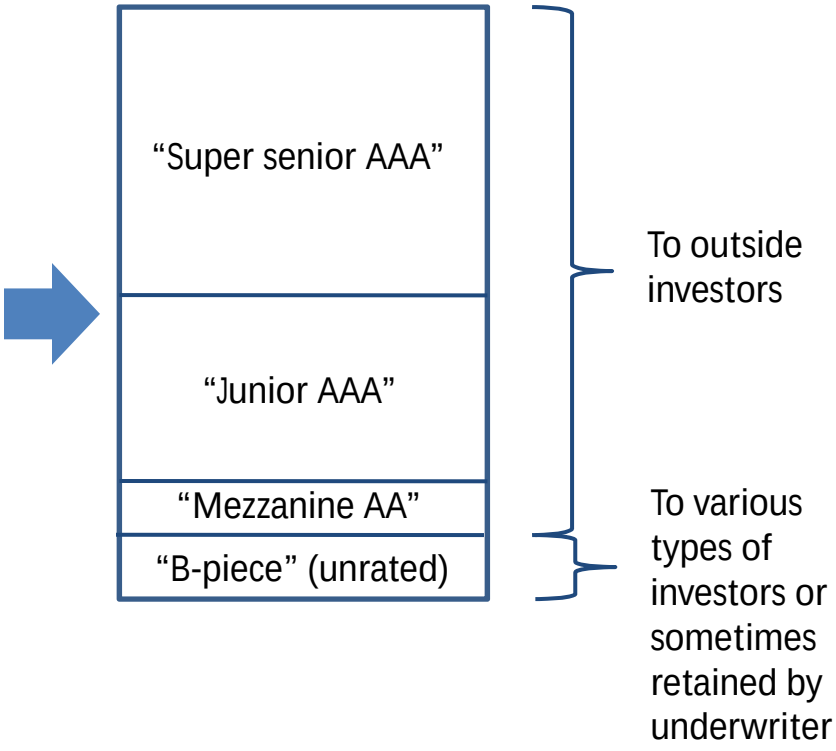
Sean Chu

* Views expressed here do not necessarily reflect the views of the Federal Reserve System or its staff.

Introduction

- Commercial mortgages: “2nd wave” of financial crisis
  - Many loans are securitized as CMBS
  - Unprecedented delinquency levels (9.5% for securitized)
- Observers blame distorted incentives associated with securitization:
  - Loan origination
  - When CMBS deals put together ( )
- CMBS underwriters also originate loans: choose whether to securitize - or sell to competitors.
- Opportunities for adverse selection.

CMBS Securitization



Stylized Fact

- Loans in CMBS deals that are originated by the underwriter (in-house loans) are less likely to default:
  - 9% lower hazard, controlling for observable loan characteristics.
  - Better performance of in-house loans mainly arises in deals containing a large share of in-house loans.

Potential Drivers of In-House Effect

- Nonrandom selection:
  - A. In-house vs non-in-house, conditional on securitization
    1. Underwriter has private info about loan quality: adverse selection
    2. Compensation for correlation in returns on in-house loans
  - B. What's securitized

    Demand for loans by competing deals correlated with overall quality of loans that originator securitizes vs. keeps on balance sheet.

    E.g., shift in demand → proportion securitized → degree of adv. selection
- Causal effect

  More effort by

Potential Drivers of In-House Effect

- Nonrandom selection:
  A. In-house vs non-in-house, conditional on securitization
     1. Underwriter has private info about loan quality:

Reduced Form Analysis

- Empirical distribution of default

Reduced form estimates

- Distribution of unobserved heterogeneity shifted downward for in-house loans.
  - Mean hazard ratio for in-house: 0.95
- Hazard ratio for select control variables:
  - Loan-to-value: 12.0
  - Rental income / monthly payments: 0.76
  - Occupancy rate: 0.22
- Joint distribution: high degree of correlation within geographic regions and property types.

Structural Model

- Matching of loans 1, ..., to deals 1, ..., I
- : portfolio for deal
- Underwriters maximize profits statically for each deal
- Determination of gross profits from :
  1. Return distribution, implied by default time distribution:
     { }: exogenous loan characteristics
     effects from reduced-form model
     { }: in-house status of loans endogenously determined
     non-selection effect parameter $_0$
  2. Tranching rule (exogenous function of return distribution)
  3. Demand function for tranches (exogenous).
  4. { }: private signals about quality of each loan
- Dependence of on { } captures the adverse selection.

Structural Model

Model: trades

Shaded segment = time interval containing other firms with which firm 3 may transact for loan 108.

Identification

- Key parameter of interest: non-selection effect of in-house, $_0$.
- Selection effect = (reduced-form effect) – $_0$
- Identifying $_0$: exogenous variation in propensity of loans originated by to go outside .

  Propensity

Inequality moments

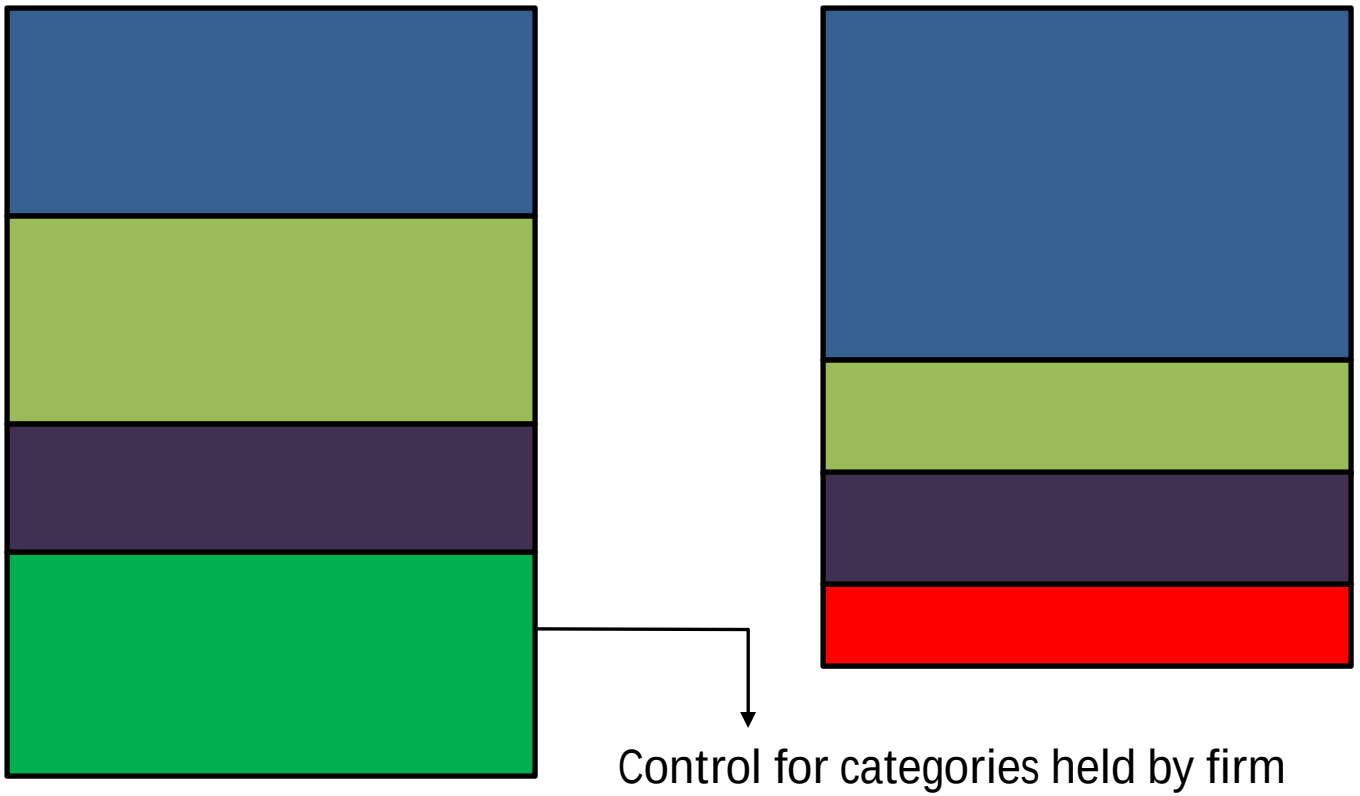
- Necessary conditions: perturb observed portfolios by having firm i buy/sell a single loan from/to .

  ( ) - (\ ) = *r*( ) - *r*(\ ) + – $^{ii}_{j}$ 0

  ( ) - ($_{i}$U) = *r*(J

(1) Moments based on a loan

(2) Moments based on a loan



Control for categories held by firm but not by (expands the identified set).

(3) Moments based on total gains to trade

- Exploit symmetry of transfer payments:

  What pays = what receives.

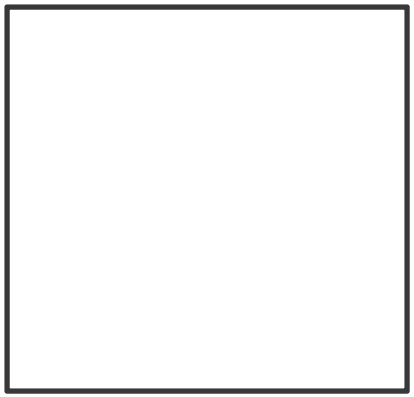
  Unobserved component of transfer payments

  ($_{j}^{ii}$) drop out.

StructuralEstimates

> 0 meansincrease in hazardof default.

Implieshazardratio of 0.46,more than accountingfor the reducedform effect.



Conclusion

- Incentive distortions in securitization markets a major concern.
- Hard to quantify selection effects w/o some structure.
- Estimate most parameters directly from data in first stage.
- Estimation using moment inequalities: don’t have to solve for full equilibrium.
- Evidence does not support better performance of in-house loans being due to selection at margin in-house versus non-in-house.