

International Financial Research Forum Parallel Session 15: Mortgage Risk Discussion

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Vocabulary

ABS Asset Backed Securities

Large class: amortizing asset paid off over a specific period of time (regular payment of principal and interest)

Example: Residential mortgage. Various forms

Risk: default and prepayment (= embedded options)

CDO Collateralized Debt Obligation

Tranches: Junior (first called/last paid) to

Senior (last called/first paid)

(in fact a whole hierarchy)

A few remarks

- 1st paper on Pricing, using approximations
- 2nd paper on Risk Modeling, backtesting on data
- 1st paper on plain ABS (or tranches taken independently)
- 2nd paper on CDOs on ABS (correlations across tranches)

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Model-independent ABS duration approximation formulas

- Default is perhaps **not voluntary**
Is it systemic (or at least correlated across ABS)?
- In principle, a convenient approximation could free modellers to develop **other dimensions**
- Behavioral model of prepayment? Matters for product design as prepayment will depend on **incentives**
- Does the method help **updating** books at market value?

→ How to model default? → How to model prepayment? → How to model the impact of the market on the value of the underlying assets? → How to model the impact of the market on the value of the underlying assets?

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Correlation hypotheses and contagion in the subprime crisis

- Adding parameters increases performance. . .
 - . . . Closed-form expression !
 - Back-testing: GMM approach
 - Which moments should be target?
Which conditional or marginal distributions, or correlations?
 - Relationship with systemic risk
- Statistical performance comparison
- Are other cross effect in particular time speaking time line?

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Statistical performance comparison: χ^2 test

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● Conditional periods (contagion) vs unconditional periods (contagion)
● Forward bias effect in particular (contagion time line)

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 - Statistical performance across tranches in given products
 - Statistical performance across products
 - How does correlation hypothesis help explaining these facts?

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