

“Are Lemons Sold First? Dynamic Signaling in the Mortgage Market”

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AFA Meetings

Motivation

- Decades of observational evidence that economic agents *do* make costly signals.
- Recent (theoretical) lit in asymmetric info argues that delaying sale can be one such costly signaling mechanism to get separating eq.
 - Prominent examples: IPOs, dividend-paying assets
- But hard to test!
 1. Asymmetric info never easy empirically
 2. How to rule out other reasons for delay

Aiello (2016 WP)

- Quick concrete example of unobservable information the servicer could collect after mortgage origination
- Borrowers who pay their mortgage 1+ days earlier than due date are 15% less likely to become delinquent over the life of the loan
- Unobserved by prospective buyers of that mortgage

Research Design

- Document several reduced-form facts using cross-sectional regressions of loan-level outcomes on age of loan at time of sale
- For example,

$$\text{Spread}_i = a + b * \text{Age at Sale}_i + X_i g + e_i$$

Identification Challenge

- Not enough to show that the reason the spread was higher was because of loan age and not some other correlated variable.
- Need to rule out other reasons for firms to delay sale besides signaling quality
- i.e. need to have positive evidence that firms did this with the intent to signal unobservable quality
- Intent is unobservable. Instead try to isolate whether market made inference about unobserved quality from delay of sale
 - As distinct from loan seasoning!

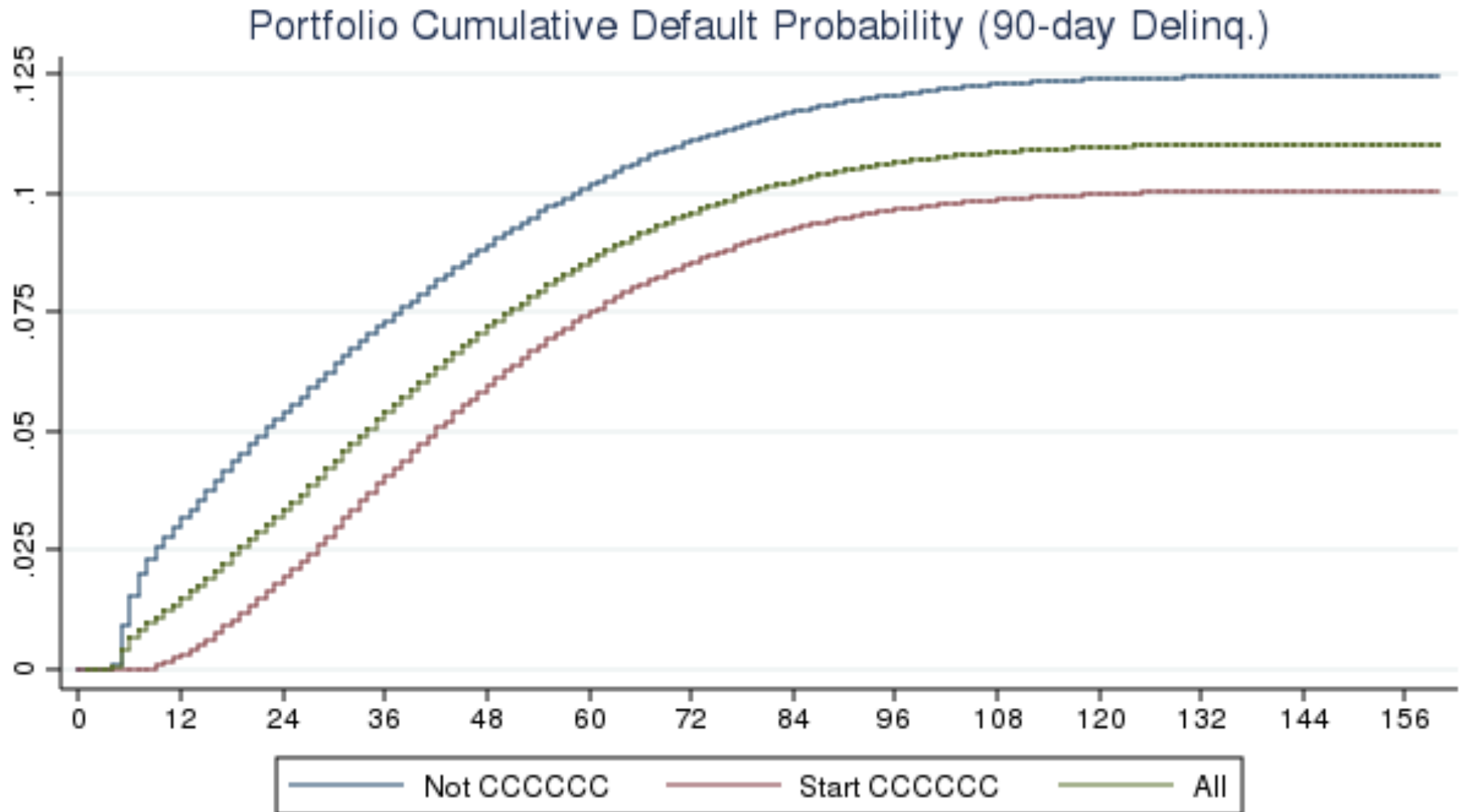
Reduced-form Facts

Reduced-form Fact	Consistent with Skimming?
Seasoned loans default less	✓
Seasoned loans more valuable	✓
Ex-ante default risk uncorrelated w/ seasoning	✓
Delay-at-sale relationships nonexistent for GSEs	✓
Age-at-sale relationships weaker for affiliates	✓
Seasoning relationship holds within originator	✓
Rare for delinquent loans to be sold	✓

Main Alternative Hypothesis

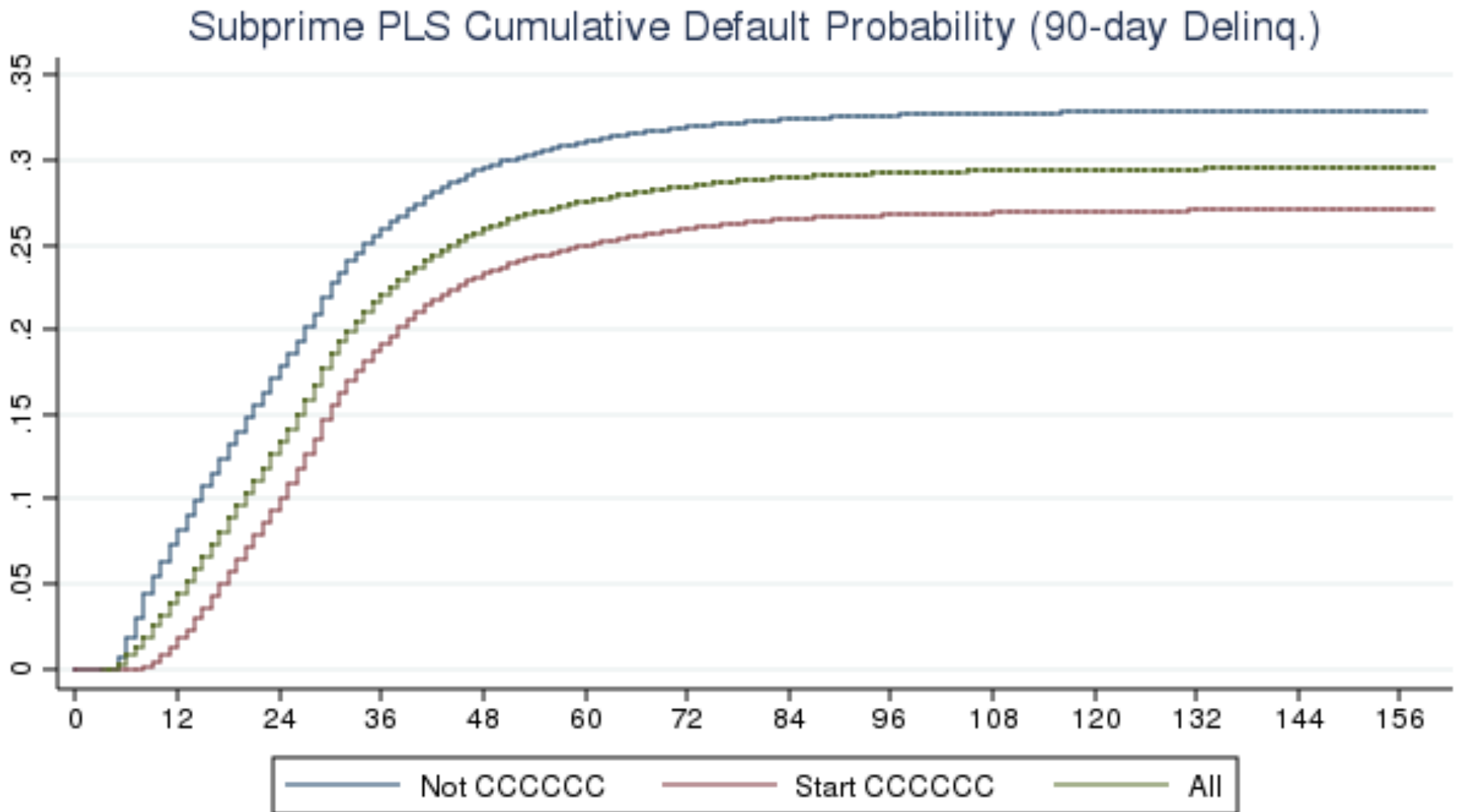
- What's to say this isn't just a seasoning effect? Lemons default faster, the fact that a given loan still exists later is evidence it's not a juvenile delinquency
- If I know that a loan started out with payment status CCCCCC, that makes it more valuable because I Bayesian update about its (future) riskiness. Market would reward this.
- Reason for delay of sale could be random and not costly signaling

Starting CCCCCC is a strong signal



Source: Discussant's calculations using LPS

Non-prime Securitized Loans



Hard to sell delinquent loans

- Some defaulted loans sell, but most don't
- US v. Barclays 12/2016 accuses Barclays of misrepresenting:

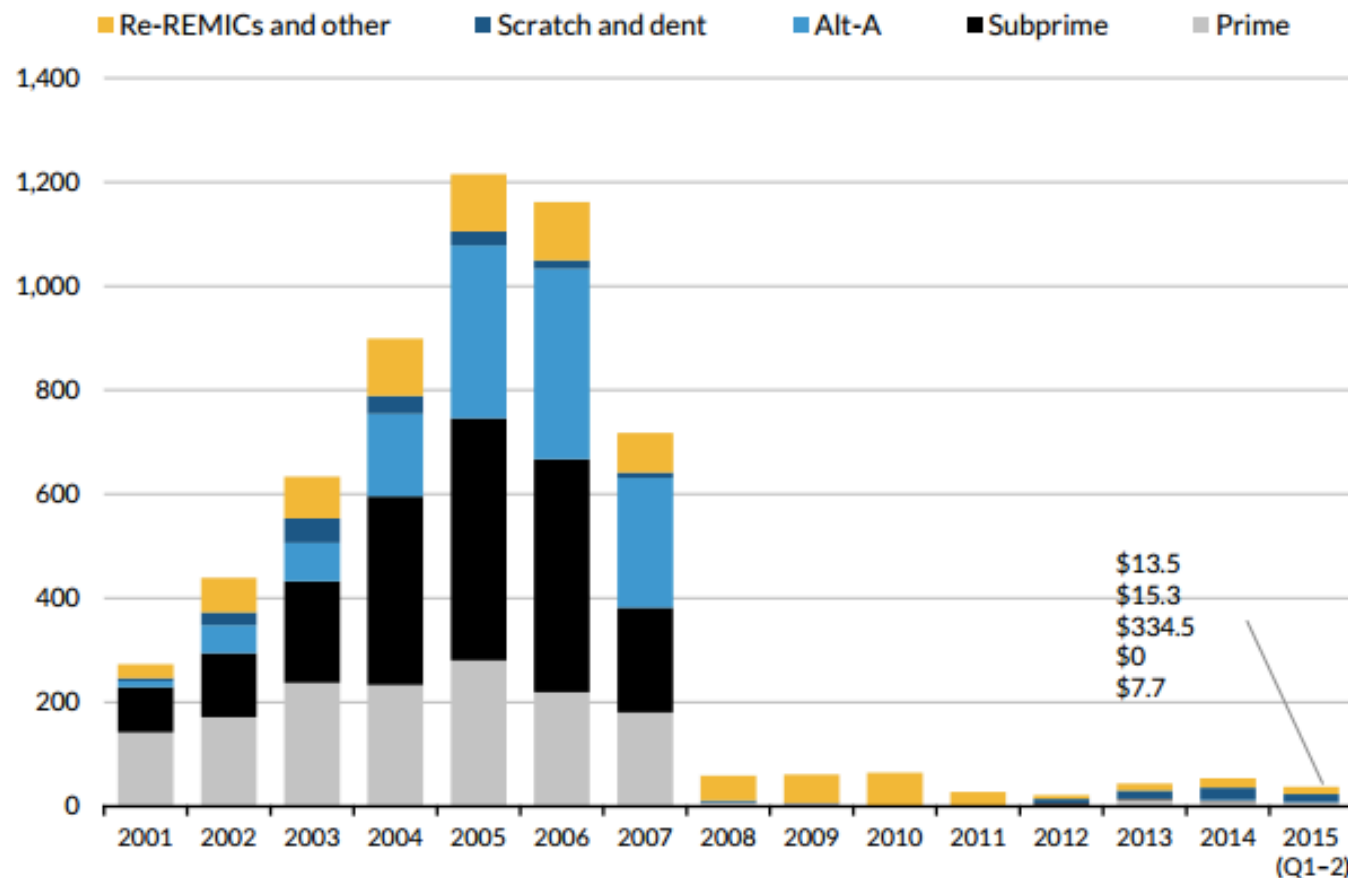
...the loans they securitized were not contractually delinquent, had not going into “first pay” or other “early pay” default, and would not otherwise be considered “scratch and dent”;

“Scratch and Dent” Market is small

FIGURE 2

Private-Label Residential Mortgage-Backed Securities Issuance, 2001–15

Billions of dollars



Sources: Inside Mortgage Finance and Urban Institute.

Note: REMIC = real estate mortgage investment conduit.

Most Predictions Fit Random Delay, too

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Seasoned loans more valuable	✓	✓
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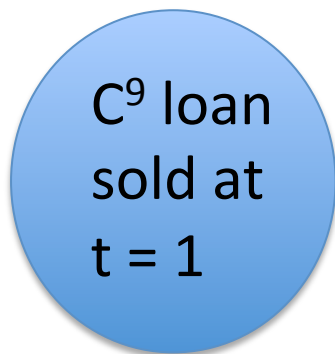
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Rare for delinquent loans to be sold	✓	✓
Results hold among loans 9+ mo. current	✓	✗

Conditioning on C^9

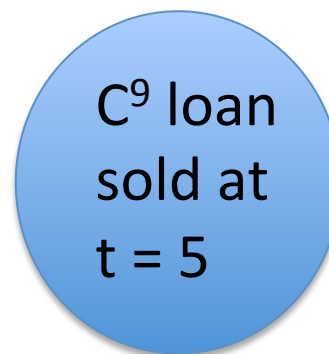
- In C^9 sample, the fact that a loan C^5 at time of sale shouldn't matter for future performance
- ...*unless* delayed-sale loans had better unobservables
- Authors find that among loans that were still current after 9 months, loans that were sold later *still* outperform (default less subsequently)
- In my mind, whole paper hinges on this fact.

Intuition of C⁹ Test

Loan A



Loan B



- Obviously, Loan B should be more valuable at sale than Loan A
- But after 9 months, why should Loan B outperform Loan A?
 - n.b. can't be due to originator because of their FEs

Bolstering Ruling Out Random Delay

- Obviously price at time of sale isn't informative.
- But subsequent trading price should incorporate this.
 - Most PL MBS doesn't trade after issuance, but perhaps enough of a sample to show this cross-sectional point.
- Resale test: loans that were sold immediately, last 5 months, then are on market at the same time as loans that also lasted five months but were held by issuer

Context in Literature

- Curious sentence in first paragraph: “There is, however, remarkably little empirical evidence that agents actually engage in costly signaling to overcome informational asymmetries.”
- Do people actually engage in costly signaling? Yes.
 - Professional certifications, occupational licensing, diplomas, Carfax, advertising, skin-in-the-game, Rolex watches, ...
- Does costly signaling overcome informational asymmetries? Yes.
 - It provides information! Empirical work showing it increases trade.
- Is one reason for costly signaling desire to overcome info asymmetries?
 - This doesn’t need causal analysis, just people stating that the **reason** they engage in costly signaling is to overcome informational asymmetries. ✓
- Maybe these people that **think** they’re engaging in costly signaling to overcome informational asymmetries are wrong?
- In some sense, asymmetric costs of sending a signal make the signal effectual whether or not it was *intended* as a signal or not.

Conclusion

- Example of where mortgage literature is going:
- Use as a laboratory to document reduced-form facts that make more positive points
- This paper: delay of trade as a costly signal
- I am convinced because of C⁹ sample results
 - (and really, only because of C⁹ sample results)
- Can't think of an alternative story, but would love additional tests along the lines of C⁹ sample.