Challenges to Effective Renegotiation of Residential Mortgages

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July 2012
Current foreclosure crisis
- More than 5 million homes in foreclosure process since 2008
- More than 20% of borrowers owe more than their house is worth

Foreclosure prevention one of the key goals of the administration
- Calls for lenders/servicers to modify mortgages
- Subsidizing modification efforts ($75 billion HAMP)

In times of adverse shocks, loan modification can create value
- For borrowers and lenders (e.g., Shiller 2008, Piskorski and Tchistyi 2011)
  - Foreclosures have deadweight costs
- For society, due to positive externalities of foreclosure prevention
A Simple Example

- **Underwater borrower:**
  - Loan balance 200K, current home value 150K
  - Foreclosure cost: 1/3 of home value

- **Lender forecloses:**
  - Borrower loses home
  - Lender repossesses home and gets \( \frac{2}{3} \times 150K = 100K \)

- **Lender modifies loan:** Reduce principal by 40% to 120K
  - Borrower has positive equity and repays the loan
  - Lender gets 120K

- Everybody is better off (society may benefit as well)

- Yet so far relatively slow progress in mortgage modifications
Key Question

If loan renegotiations are such a win-win for borrowers and lenders, why do we not see more of them happening?

- More broadly, current crisis a laboratory to understand important margins affecting loan renegotiations
- Useful evidence for the potential re-design of lending markets and loan contracts
Outline

- **Challenge 1:** Institutional Frictions
  - Securitization
  - Servicer organizational capital

- **Challenge 2:** Borrower’s Strategic Behavior (Asymmetric Info)

- Policy and Industry Responses
  - Home Affordable Modification Program (HAMP)
  - Association of Mortgage Investors (AMI)
Challenge 1: Institutional Barriers due to Securitization

- Non-agency securitized loans at the epicenter of the crisis
  - Have constituted only about 15% of all mortgages...
  - But have accounted for more than 50% of foreclosures

- Servicers make a key decision what to do with delinquent loans

- Incentives can matter
  - Separation of ownership and control
  - Servicer’s compensation (Pooling and Servicing Agreement)
    - Reimbursed for foreclosure costs
    - Not reimbursed for renegotiation costs ($750-$1000)
    - Low servicing fee (e.g., annual fee of 20 basis points of balance)
  - Conflicting incentives (servicers own a lot of second mortgages)
  - Legal constraints and uncertainty

- Coordination failure among dispersed, heterogenous investors
LPS data on non-agency bank-held (portfolio) and securitized loans
- Originated in 2005-2006 period
- Focus on delinquent loans (330K such loans)

What is the probability that a mortgage will be foreclosed?
- Conditional on first instance of serious delinquency
- Controlling for observables (FICO, LTV, location, etc...)
- Estimation period till March 2008
- **Key control:** ownership status of the loan (portfolio or securitized)
Strong evidence that securitization affects servicing decisions

- **Foreclosure rate** of delinquent bank-held loans 3% to 7% lower than for comparable securitized loans
  - 13% to 32% lower in relative terms

- **Cure rate** of delinquent bank-held loans is 6% to 8% higher than for comparable securitized loans
  - 13% to 20% higher in relative terms
Piskorski et al. (2010): Relative Difference in Foreclosure Rate Between Securitized and Bank-Held Loans
Empirical Complications

- Separating out ex-ante screening vs. ex-post servicing
- Lenders might decide which loans to securitize (also on unobservables)
  - Unobservable characteristics at origination
  - Higher foreclosure rate on securitized loans could reflect their lower quality on unobservables and not differential servicing
  - If so, could overestimate foreclosure bias due to securitization
We focus on foreclosure rates of delinquent loans
  Ex-ante signals at time of screening are short-term

Focus on loans that are ex-ante of higher quality
  Higher quality = High FICO and Full Doc
  Unobservable differences might be less critical

Condition on credit score and LTV at the time of delinquency
  Collected information during screening reflected to some degree in updated score and LTV

Quasi-experiment with early pay default (EPD) loans
  Plausible instrument for securitization status
Piskorski et al. (2010): Quasi-experiment with EPD loans

- Based on the repurchase clauses
- Originators obligated to purchase back securitized loans that default early (typical repurchase cutoff: up to 3 months after securitization)
- Compare defaulted loans that just cross the cutoff (stay securitized) to those that do not and are repurchased (become bank-held)
  - All loans are initially securitized

- Confirms securitization induces foreclosure bias in a causal sense
Foreclosures around the Threshold

Residuals

Months After Securitization Loan Becomes 30+ Days Delinquent
Further Evidence from Treasury Data

“Much higher” proportion of loan modifications for bank loans!

To calculate proportions note that there is about 1 delinquent bank held loan for every 3 securitized delinquent loans

Number of Loan Modifications Q1 2009

<table>
<thead>
<tr>
<th></th>
<th>Bank Held (Portfolio)</th>
<th>Securitized</th>
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<td>Total</td>
<td>57,733</td>
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<tr>
<td>Unknown</td>
<td>6,281</td>
<td>2,421</td>
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Source: OCC and OTS, 2009
Further Evidence from Treasury Data

Banks do almost all aggressive modifications (in red), virtually none performed by servicers of securitized loans!!

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Source: OCC and OTS, 2009
Evidence from Piskorski, Seru, and Vig (2010)
- Much higher foreclosure rate on securitized delinquent loans
- Up to 30% higher in relative terms compared to bank-held loans

Evidence from Treasury (OCC) data on servicers actions
- Much more renegotiations of bank held-loans

Agarwal et al. (2011), Zhang (2011) confirms this with risk controls
- Much higher modification rates on bank-held loans (30% higher)
MBS investors might benefit if their loans were serviced similarly to the bank-held ones!!!
Even setting securitization aside, there is another challenge to mortgage renegotiation
Challenge 2: Borrower’s Strategic Behavior

- **Problem:** Difficult to identify which borrowers might default
  - Most borrowers that owe more than their house are current
- **Solution:** Condition eligibility on being seriously delinquent
- **Risk:** It can induce *strategic behavior*, miss payments to qualify

Yet lenders and policymakers often target delinquent borrowers
- Delinquency is costly: eg., more expensive current and future borrowing
- Moral considerations, bounded rationality may limit strategic behavior

Little is known about the extent of strategic behavior due to mods
Provide empirical evidence on the extent of strategic behavior generated by modification programs targeted at delinquent borrowers

- Important factor in determining the efficiency trade-off between modification programs relying on costly screening versus programs with a simple delinquency eligibility requirement
Focus on the settlement between Countrywide and 11 state attorneys

- October 2008: Countrywide agreed to modify some types of loans
- Borrower’s eligibility: 60 days past due on payments

**Objective:** Investigate the extent of *strategic behavior*

- *Strategic behavior:* the borrower defaults as a result of the program announcement and would not have otherwise, at least in the near term

It may provide insight into other programs

- Widespread scope of the Countrywide program
- Requirement for the borrower to be seriously delinquent
  - Similar to IndyMac/FDIC, JP Chase Enhanced, Citi Homeownership Preservation, and GSE Streamline Modification programs
Countrywide Settlement

- Started in June 2008 by the attorneys general in California and Illinois
- Followed by nine other states
- "Countrywide implemented deceptive scheme through misleading marketing practices designed to sell risky and costly loans..."
- Settled on October 6, 2008 (the announcement date)
- Countrywide agreed to modify mortgage terms, national applicability
Countrywide Settlement

Borrower’s eligibility

- Loans originated before 2008 with LTV > 75%
- At least 60 days past due on payments

Countrywide agreed to modify terms of

- *Subprime Hybrid ARMs*
  - Unsolicited restoration of introductory rate if a borrower was current prior to reset and became delinquent immediately after
  - All seriously delinquent borrowers considered for some modification

- *Subprime FRMs*
  - All seriously delinquent borrowers considered for interest rate reduction
Empirical Methodology

- **Objective:** Measure the "Settlement effect" on the borrower’s behavior
  - Focus on transition from current to 60 days past due
  - Hybrid ARMs as well as subprime FRMs

- **Diff-in-Diff:** Compare delinquencies on Countrywide eligible loans with Control Group of loans from other servicers around the Settlement

- **Control Group:** Same type of loans, but serviced by other servicers
  - Except servicers with active modification programs
    - Such as IndyMac with FDIC mod program

- Did Countrywide delinquencies increase immediately after the Settlement announcement relative to Control Group?
Goggle Searches Index for "Countrywide Modification"

Oct 6 2008
Identification Issues

- **Settlement Exogenous Shock?**
  - State attorneys selected the largest subprime originator still solvent
    - Purchased by the "deep pocket" Bank of America
  - Settlement largely about disclosure
    - Legal Liability
    - Borrowers may not pay much attention to terms anyway
      (e.g., Lacko and Pappalardo, 2007; Bucks and Pence, 2008)
  - We control for mortgage terms and allow for Countrywide fixed effect

- **Comparability of Countrywide and Control Group**
  - Market for subprime loans competitive
    - Brokers used databases with many lenders
  - Borrowers heterogeneity
    - We control for updated credit scores, credit utilization, second liens
    - Updated CLTVs (using ZIP code level price indexes)
Identification Issues

**Selection Due to Treatment Eligibility?**
- Widespread eligibility based on simple criteria
- Legislated "across the board"

**Measuring the Effects of Settlement Announcement**
- Focus on a close vicinity within the program announcement date
  - Oct 2008-Dec 2008 (avoids capturing HAMP effects)
- Focus on borrowers least likely to default otherwise
  - Low CLTVs, low credit utilization (less liquidity constrained)
- Focus on non-targeted debts
  - Credit cards
  - Second liens
- Focus on "placebo" loans not eligible for the program
  - "Non-subprime" FRMs
Merged Data

- Loan level data from BlackBox (similar to LP)
  - Monthly data on individual loan performance
  - Non-agency securitized loans

- Equifax credit report data
  - Individual specific monthly data on the current credit score
  - Payment and balances on all mortgages (including second liens)
  - Balances and credit utilization for all revolving debt (credit cards etc...)

- Zillow data
  - Zip code level price indexes, used to compute proxy for loan CLTV

- We have more than 350K hybrid ARMs, 450K FRMs
Empirical Specification: Rollover Rate Regression

Transition probability from current to 60 days past due:

\[ P( Y_{it}=1 | \text{Current}_{t-60} ) = \alpha + \beta CW_{it} + \mu \text{Oct-Dec} + \delta CW_{it} \times \text{Oct-Dec} + \gamma X_{it} + \epsilon_{it} \]

- \( Y_{it}=1 \): Loan \( i \) at time \( t \) is 60 days delinquent
- \( CW_{it} \): Countrywide indicator
- Oct-Dec: dummy for Oct 2008 - Dec 2008 ("program period")
- \( CW_{it} \times \text{Oct-Dec} \): Interaction of Countrywide with Oct-Dec
- \( \delta \): Estimate of the program effect
- \( X_{it} \): Origination and current credit score, CLTV, loan characteristics, credit utilization, other time fixed dummies including post program effect (also interacted with Countrywide), cohort fixed effects, etc...

Estimation period: January 2008 - February 2009
Evidence from Hybrid 2/28 ARMs
Hybrid 2/28 ARMs: Current CLTV

- 2005Q4
- 2006Q1
- 2006Q2
- 2006Q3
- 2006Q4
- 2007Q1

(Countrywide) (Control)
### Hybrid 2/28 ARMs Current to 60 Day Delinquent Rollover Regressions: All Sample

<table>
<thead>
<tr>
<th></th>
<th>All BlackBox Sample</th>
<th>Matched Sample</th>
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<tbody>
<tr>
<td>Countrywide x Jan-Mar</td>
<td>-0.00086</td>
<td>-0.00059</td>
</tr>
<tr>
<td>Countrywide x Apr-Jun</td>
<td>-0.0026**</td>
<td>-0.0025**</td>
</tr>
<tr>
<td><strong>Countrywide x Oct-Dec</strong></td>
<td><strong>0.0072</strong>**</td>
<td><strong>0.0062</strong>**</td>
</tr>
<tr>
<td>Countrywide x Jan-Feb</td>
<td>0.00087</td>
<td>0.00067</td>
</tr>
<tr>
<td>Percentage Change</td>
<td>+ 14.69%</td>
<td>+ 12.92%</td>
</tr>
<tr>
<td>Relative to Jul-Sep</td>
<td></td>
<td></td>
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* $p < 0.05$, ** $p < 0.01$
This figure reports the monthly transition rate from current to 60-day delinquency. Countrywide (blue), other servicers (red).
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Hybrid 2/28 ARMs Rollover Regressions: Low Credit Utilization, Low CLTV Cuts

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<th>5+ Months of Utilization</th>
<th>CLTV &lt; 100</th>
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<tr>
<td>Countrywide x Jan-Mar</td>
<td>0.00054</td>
<td>0.00074</td>
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<tr>
<td>Countrywide x Apr-Jun</td>
<td>-0.00033</td>
<td>-0.0018</td>
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<td><strong>0.0062</strong>**</td>
<td><strong>0.0047</strong>**</td>
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<td>0.00026</td>
<td>0.0043**</td>
</tr>
<tr>
<td>Percentage Change Relative to Jul-Sep</td>
<td>+ 20.67%</td>
<td>+ 15.16%</td>
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- Strong effect among the borrowers the least likely to default otherwise
- Low credit utilization, lower CLTV
Further Evidence: FRMs, Second Liens, Credit Cards

- Focus on **non-subprime FRM** (FICO$\geq$620)
  - Not eligible for the program
  - No increase in delinquencies for Countrywide relative to Control

- Focus on payments on **second lien loans**
  - Not targeted by the program
  - No increase in delinquencies for Countrywide relative to Control

- Focus on payments on **credit cards**
  - Not targeted by the program
  - No increase in delinquencies for Countrywide relative to Control
“To get help we had to go from having an excellent pay history to completely tarnishing our record by missing 2 months of payments.”

“We received a loan modification agreement in December, but this was after we were told not to make a mortgage payment”

“We started the process in Oct of 2008. We have to be delinquent to qualify. So, we are behind now”

“We can not help until you are behind you guys know that song and dance”

“We would not be behind if they did not advise us not send any payments!”

“I was not behind in my mortgage payments yet. I am now two months behind!”
Summary: Evidence of Sizeable Borrower’s Strategic Behavior

- Borrowers suspend payments to qualify for a mod program
- Up to a 20% increase in default rates due to the modification program
- Effects present among eligible, most affected borrowers
- Strong effects among borrowers least likely to default otherwise
  - Those with lower debt levels and less financially constrained

The effects of strategic behavior likely to be larger in a major, well advertised, national modification program

Costly screening more effective?
Government and Industry Response to Barriers to Mortgage Renegotiation
Mayer, Morrison and Piskorski (2009) Loan Modification Proposal
- Align incentives of servicers with those of investors
- Increase servicing fees using TARP funds (10% of loan payments)
- Provide safe harbor to servicers

Some elements incorporated into the HAMP
HAMP passed in March 2009

- Significant funds allocated (up to $75 billion USD)
- Direct subsides for mortgage modification efforts
- Legal safe harbor for servicers of securitized loans
- Trial modifications and screening required before permanent modification (to limit borrowers’ strategic behavior)
HAMP: Incentives

**Borrowers**
- Reduce payments to no greater than 38% DTI
- Treasury matches to a 31% DTI
- Incentives for successful payment $1,000/yr for up to five years

**Servicers/Lenders**
- Receive up-front $1,000/mod
- Also incentives for success: $1,000/yr for three years
- One-time incentive payments: $1,500 to lender and $500 to servicers for current loans

**Investors**
- One-time bonus incentive payments of $1,500 to investors for current loans
HAMP’s overall effectiveness significantly hampered by low take up rates by few large servicers

- These "Low Experience" servicers control 75% of loans in the country

Lower renegotiation activity of these servicers is also observed prior to the program (unexplained by differences in loan quality)

Differences in renegotiations varies with differences in the organizational design of servicers

Organizational capital of servicers can significantly hamper the effectiveness of such policies
Servicers’ incentives matter, can create conflicts of interest

- Need to think how to anticipate these conflicts and provision for them
- In the future, investors need to have more control over the servicing
  
  - Not easy thing (historically passive market)

- Key to the revival of the private securitization market going forward

Increased coordination efforts among MBS investors

- Took couple of years (need 25% of holdings in a pool to voice concern)
- Private syndicate with hundreds of billions of dollars in holdings formed
  
  - Association of Mortgage Investors with +$ 300 billion in MBS

- Wave of lawsuits coming (e.g., recent lawsuits with B of A)
Organizational Capital Matters

Renegotiation makes sense only in times of significant adverse shocks

- Housing crises relatively infrequent
- Requires significant up-front investment and expertise
- Servicers may have no incentive to invest ex-ante
- Even less so if they service mostly securitized loans

Need to build and maintain this infrastructure?

- Role for government (negative externalities of foreclosures)?
- Rely more on special servicers?
Borrowers’ Incentives Matter (Strategic Behavior)

- Quantitatively important
- Costly verification procedures might be more cost-effective
  - Need more research
- May also partly explain slow progress of HAMP

