Embedding Call Options in Mortgages
by
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Mortgage Contract Design:
Implications for Households, Monetary Policy, and Financial Stability
The Federal Reserve Bank of New York
May 21, 2015
<table>
<thead>
<tr>
<th>Comparison</th>
<th>HOLC(^2)</th>
<th>TARP (via HAMP)(^3)</th>
<th>Add’l Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Size of Problem</strong></td>
<td></td>
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<tr>
<td>Aggregate Size of Mtg. Mkt.</td>
<td>35.5B(^4) (595B inflation adj.)</td>
<td>13.4T(^5)</td>
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<tr>
<td>Home Ownership Rate</td>
<td>47.8% 1930</td>
<td>67.3% 2009</td>
<td></td>
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<tr>
<td></td>
<td>43.6% 1940</td>
<td>64.0% 2014(^6)</td>
<td></td>
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<tr>
<td>Unemployment Rate</td>
<td>25%</td>
<td>10%</td>
<td></td>
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<tr>
<td>Avg. Housing Value Loss</td>
<td>30-40% b/w 1929-1933</td>
<td>33% b/w 2006-2011</td>
<td></td>
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<tr>
<td>Foreclosure Rate</td>
<td>1.3%</td>
<td>2-3%, constantly shifting</td>
<td></td>
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<tr>
<td>Peak Daily Foreclosures</td>
<td>1k per day</td>
<td>2.9k per day</td>
<td></td>
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<tr>
<td><strong>Scope of Intervention</strong></td>
<td></td>
<td></td>
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<tr>
<td># Homes Assisted</td>
<td>1M h/o’s</td>
<td>1.7M h/o’s</td>
<td>3M h/o’s via HARP</td>
</tr>
<tr>
<td>Duration</td>
<td>3 years (1933-1936)</td>
<td>&gt;5 years (2009-Present)</td>
<td>2012-2013</td>
</tr>
<tr>
<td>Size of Program</td>
<td>3.1B (52B inflation adj.)</td>
<td>30B – 75B</td>
<td></td>
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<tr>
<td>% Mtgs. Assisted</td>
<td>10% total residential</td>
<td>1.5% total residential</td>
<td></td>
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<tr>
<td></td>
<td>20% mtgs. outstanding</td>
<td>3% mtgs. outstanding</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.7% total residential</td>
<td></td>
</tr>
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<td></td>
<td></td>
<td>5.8% mtgs. outstanding</td>
<td></td>
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<td><strong>Resulting Influence</strong></td>
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<tr>
<td>Foreclosure Rate of Modified Mtgs.</td>
<td>17-20%</td>
<td>20-50%, depending on vintage</td>
<td>25B fraud settlement assessed against banks in litigation</td>
</tr>
<tr>
<td>Total Cost</td>
<td>14M profit or 100M loss(^7)</td>
<td>Unknown</td>
<td></td>
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</tbody>
</table>
Traditional Structure of Housing Finance

Borrower → Bank
The Fragmentation of Modern Housing Finance

Bank

Borrower

Securitization Pool with Trustee

Investors
The Fragmentation of Modern Housing Finance

Bank

Second Mortgage

Borrower

Securitization Pool with Trustee

Investors
Reform Efforts in Financial Crisis and Beyond

• Various TARP Programs (incentives & standards)
• Dodd-Frank Act Reforms of Originate to Distribute Model
  – Skin-in-the-Game Requirements
  – Reform of Credit Rating Agencies
  – SEC Pool Disclosure Requirements
  – CFPB Regulations:
    • ATR/QM Rule; Mortgage Originator Compensation; Servicer Regulations; Appraisal Regulations;
    • Debt Collection & Consumer Credit Reporting
Combined Reforms Unlikely to Preclude Future Housing Bubbles & Market Adjustments (Bubb & Krishnamurthy 2015)
Reform Efforts in Financial Crisis and Beyond

• **Various TARP Programs** (incentives & standards)
• **Dodd-Frank Act Reforms of Originate to Distribute Model**
  – Skin-in-the-Game Requirements
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  – SEC Pool Disclosure Requirements
  – CFPB Regulations:
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• **Eminent Domain Proposals**
  – Federal Level Proposals in Fall of 2008 (Jackson 2008)
  – Municipal/Private Sector Partnerships (Hockett/NYFRB 2013)
Proposed Use of Eminent Domain Powers

- **Bank**
- **Borrower**
- **Securitization Pool with Trustee**
- **Investors**

- **Government Purchase for “Just Compensation”**
- **Second Mortgage**
Basics of an Embedded Call Option

• Create an *Ex Ante* Contractual Capacity to Consolidate Home Financing
  – In a Party With A Good Incentives to Make Adjustments in Loan Terms,
  – During Defined Periods of Financial Stress,
  – At a Predetermined Price,
  – That Will Be Reflected in the Interest Rate Charged on the Affected Loan at the Time of Origination

• Two Mechanisms for Propagation
  – Voluntary Contractual Terms
  – Imposed as a Regulatory Requirement for Certain Classes of Loans Likely to Require Modification in a Significant Downturn in Housing Prices
Two Potential Applications

Bank

Securitization Pool with Trustee

Investors

Borrower

Second Mortgage

Option for First Mortgage Holder to Purchase Second

Option for Government (or Private Party) to Purchase First Mortgage
Further Design Points

• Options will be designed to be deeply out of the money when created.
• Impact on mortgage pricing should be minimal, especially in periods of irrational exuberance.
• Existence of options can encourage loan modification in falling housing markets even if not exercised.
• This is a macro-prudential proposal, not an effort to protect consumers in ordinary times.
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