The evolution of mortgage credit

Global Crossroads 2015: Financial Market Adaptation to Regulation and Monetary Policy

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Passion to Perform

DISCLOSURES AND ANALYST CERTIFICATIONS ARE LOCATED IN APPENDIX 1. MCI(P) 148/04/2014
With each crisis in US mortgage credit, government has played a growing role

Four major crises in US mortgage credit

<table>
<thead>
<tr>
<th>The Great Depression</th>
<th>The 1960s funding crisis</th>
<th>The 1980s S&amp;L crisis</th>
<th>The 2008 financial crisis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit</td>
<td>Funding</td>
<td>Interest rates</td>
<td>Credit</td>
</tr>
</tbody>
</table>

- The Great Depression
- The 1960s funding crisis
- The 1980s S&L crisis
- The 2008 financial crisis

![Share of US mtg in securitization](chart.png)

Source: Federal Reserve
The latest crisis has spurred a long list of regulatory and policy changes

### Major post-2008 regulatory and policy changes

<table>
<thead>
<tr>
<th>FHFA</th>
<th>Fed policy</th>
<th>FHA policy</th>
<th>Dodd-Frank</th>
<th>Basel III</th>
<th>FDIC and SEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-present</td>
<td>2008-present</td>
<td>2008-present</td>
<td>2010-present</td>
<td>2010-present</td>
<td>2010-present</td>
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<tr>
<td>● PSPA</td>
<td>● Rates</td>
<td>● Loan limits</td>
<td>● Risk retention</td>
<td>● Capital and balance sheet</td>
<td>● FDIC</td>
</tr>
<tr>
<td>● Loan limits</td>
<td>● SOMA</td>
<td>● MIP pricing</td>
<td>● QM/QRM</td>
<td>● Risky asset charges</td>
<td></td>
</tr>
<tr>
<td>● Put-backs</td>
<td>● Exit principles</td>
<td>● False Claims Act litigation</td>
<td>● CFPB</td>
<td>● Wholesale funding charges</td>
<td></td>
</tr>
<tr>
<td>● FN, FH, FHLB lawsuits</td>
<td>● ON RRP</td>
<td></td>
<td>● Volcker</td>
<td></td>
<td></td>
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<tr>
<td>● HAMP, HARP</td>
<td></td>
<td></td>
<td>● FSOC</td>
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<tr>
<td>● Guarantee fees, LLPAs</td>
<td></td>
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<tr>
<td>● Credit risk transfers</td>
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<td></td>
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<tr>
<td>● Higher LTV lending</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>● REITs</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● FHLBs</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

As investor:
- ● Rates
- ● SOMA
- ● Exit principles
- ● ON RRP

As regulator:
- ● CCAR
- ● FBO enhanced prudential standards

As regulator:
- ● Risk retention
- ● QM/QRM
- ● CFPB
- ● Volcker
- ● FSOC

Others: Whistleblowers, FIRREA, eminent domain

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All eventually work through best execution

Best execution maximizes the value of a mortgage loan to the lender

Pricing feeds back to origination

- Price to bear rate risk
- Price to bear credit risk
- Price to bear liquidity risk
- Other costs and benefits*

* Diversification, borrower relationship and others

Originator only
Originator’s loan portfolio

Originators
Other bank loan portfolios, loan conduits

Originators and conduits
Investors in credit and rates +

FNMA
Investigators in rates +

FHLMC
Investors in rates +

GNMA
Investors in rates +

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Example: conforming conventional loan limits

Lower rates on conforming loans pull borrowers into that market

Source: DeFusco, Anthony A. and Andrew Paciorek (2014), “The Interest Rate Elasticity of Mortgage Demand: Evidence From Bunching at the Conforming Loan Limit,” FEDS, 2014-11. Differences in rates could come from implicit US guarantee, differences in prepayment characteristics and liquidity or exemption from state and local taxes. Interest rate plot (Fig 2) shows all fixed-rate loans originated in 2006. Each dot is the average rate within a $5,000 size bin. Bunching at zero suggests more equity, second liens or both. Loan size (Fig 3) shows DataQuick data from 1997-2007 in California MSAs.
Single most important regulatory and policy decision: FHFA conservatorship

Conservatorship has left agency MBS as the best execution for most mortgage lending

<table>
<thead>
<tr>
<th>FHFA action</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pref’d Stock Purch Agree</td>
<td>Ensured government backing for Fannie Mae, Freddie Mac</td>
</tr>
<tr>
<td>Loan limits</td>
<td>Expanded availability of agency credit</td>
</tr>
<tr>
<td>Put-backs</td>
<td>Increased the risk of agency lending</td>
</tr>
<tr>
<td>FN, FH, FHLB PLS suits</td>
<td>Increased the risk of non-agency securitization</td>
</tr>
<tr>
<td>HAMP, HARP</td>
<td>Changed the prepayment risk of agency MBS</td>
</tr>
<tr>
<td>Guarantee fees, LLPAs</td>
<td>Raised the cost of agency credit</td>
</tr>
<tr>
<td>Credit risk transfers</td>
<td>Provided a market price for elements of agency credit</td>
</tr>
<tr>
<td>Higher LTV lending</td>
<td>Expanded availability of agency credit</td>
</tr>
</tbody>
</table>
Influence: a high post-crisis Fannie Mae, Freddie Mac share of residential originations

Volume and agency share of new lending

Source: Inside Mortgage Finance. FN=Fannie Mae, FH=Freddie Mac, GN=Ginnie Mae, WL=Whole Loans, PLS=Private-Label Securities (MBS)
Influence: a high post-crisis agency share of new CMBS

Agency share of CMBS has gone from 4% before 2008 to 46% since

Source: Deutsche Bank
Influence: tighter effective Fannie Mae, Freddie Mac underwriting

FICO scores on loans backing new Fannie Mae 30-year MBS

Source: Deutsche Bank
Runners-up: Basel III and QM/QRM

The impact of Basel III and QM/QRM

<table>
<thead>
<tr>
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<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BASEL III</strong></td>
<td></td>
</tr>
<tr>
<td>MSR capital</td>
<td>Raised the cost of holding large portfolios of MSR</td>
</tr>
<tr>
<td>AOCI filter</td>
<td>Increased the risk of holding MBS in AFS accounts</td>
</tr>
<tr>
<td>LCR</td>
<td>Increased the value of agency MBS held in HTM accounts</td>
</tr>
<tr>
<td><strong>QM/QRM</strong></td>
<td></td>
</tr>
<tr>
<td>GSE exclusion</td>
<td>Reduced the relative risk of agency lending</td>
</tr>
<tr>
<td>QM/ATR</td>
<td>Created new categories of legal risk and cost in lending</td>
</tr>
<tr>
<td>Risk retention</td>
<td>Created balance sheet risk in non-QM lending</td>
</tr>
</tbody>
</table>
Influence: lending and MSRs move away from Basel III institutions

Lending and MSRs have moved toward nonbank servicers

Source: Inside Mortgage Finance
Influence: MBS move toward HTM

Share of bank MBS in available-for-sale and held-to-maturity accounts

Source: SNL, Deutsche Bank
Emerging change: private credit support of government MBS

Private capital, raised through securities that act like insurance reserves, will likely stand in front of most government credit risk

— Fannie Mae’s Connecticut Avenue Securities (CAS)
— Freddie Mac’s Structured Agency Credit Risk (STACR)
— FHA program possible
— The government becomes the guarantor of last resort

A more efficient market for agency credit reinforces agency execution
Appendix 1

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