Mortgage Origination Pipeline Risk

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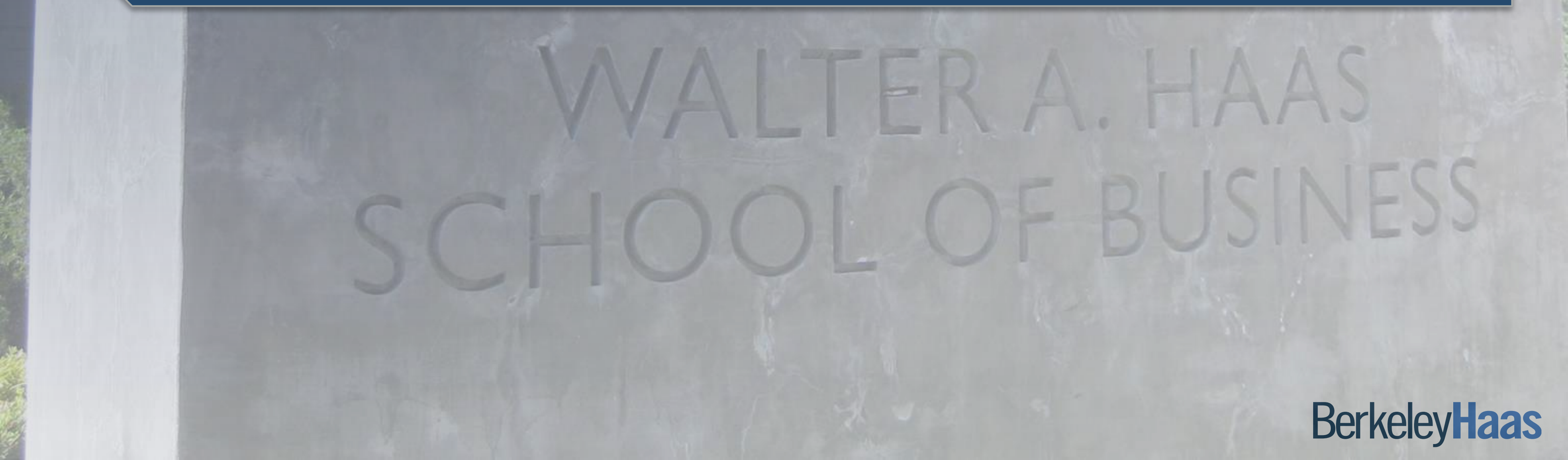

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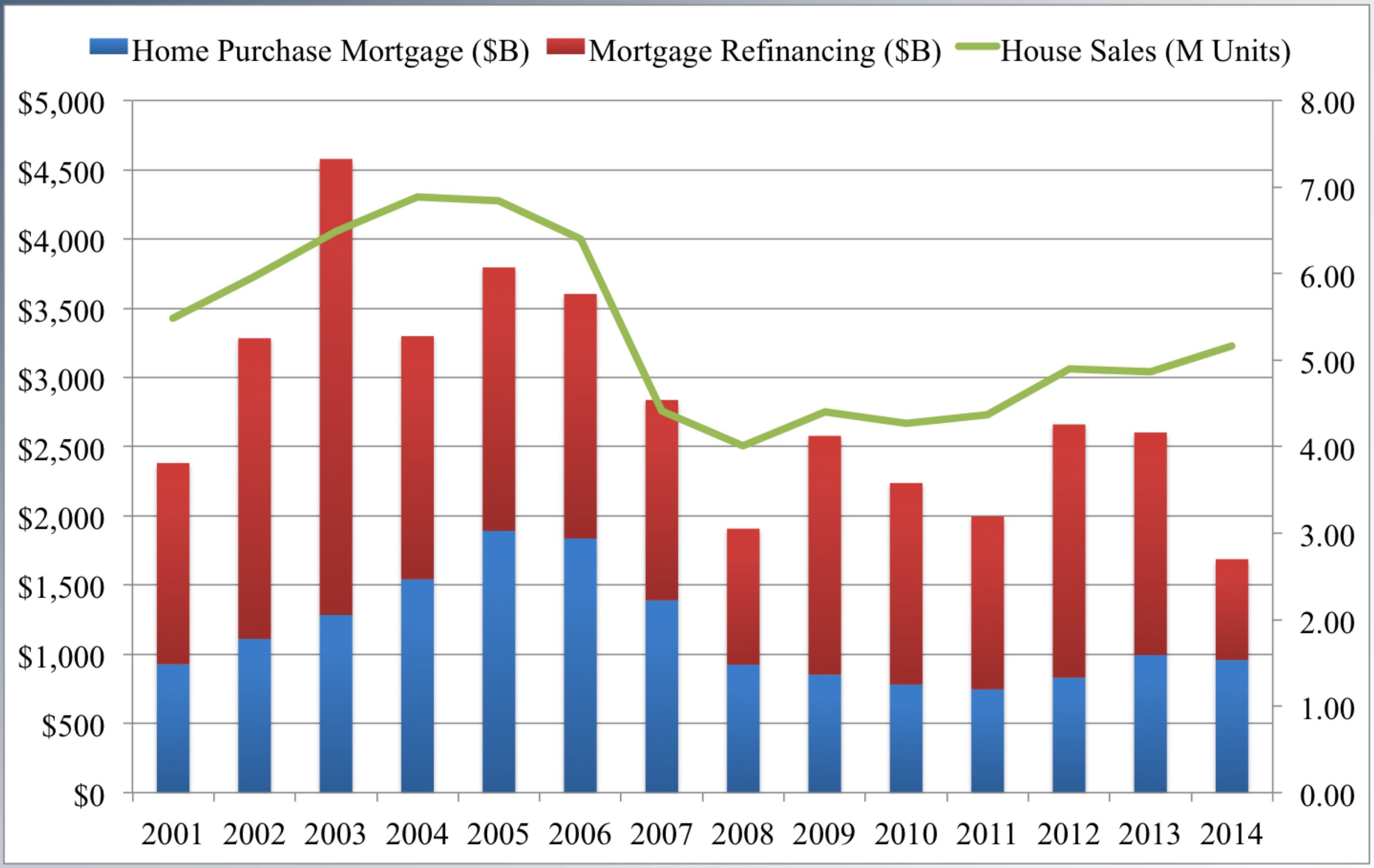
Mortgage Origination and Home Sales, 2001-14



Source: HMDA and NAR

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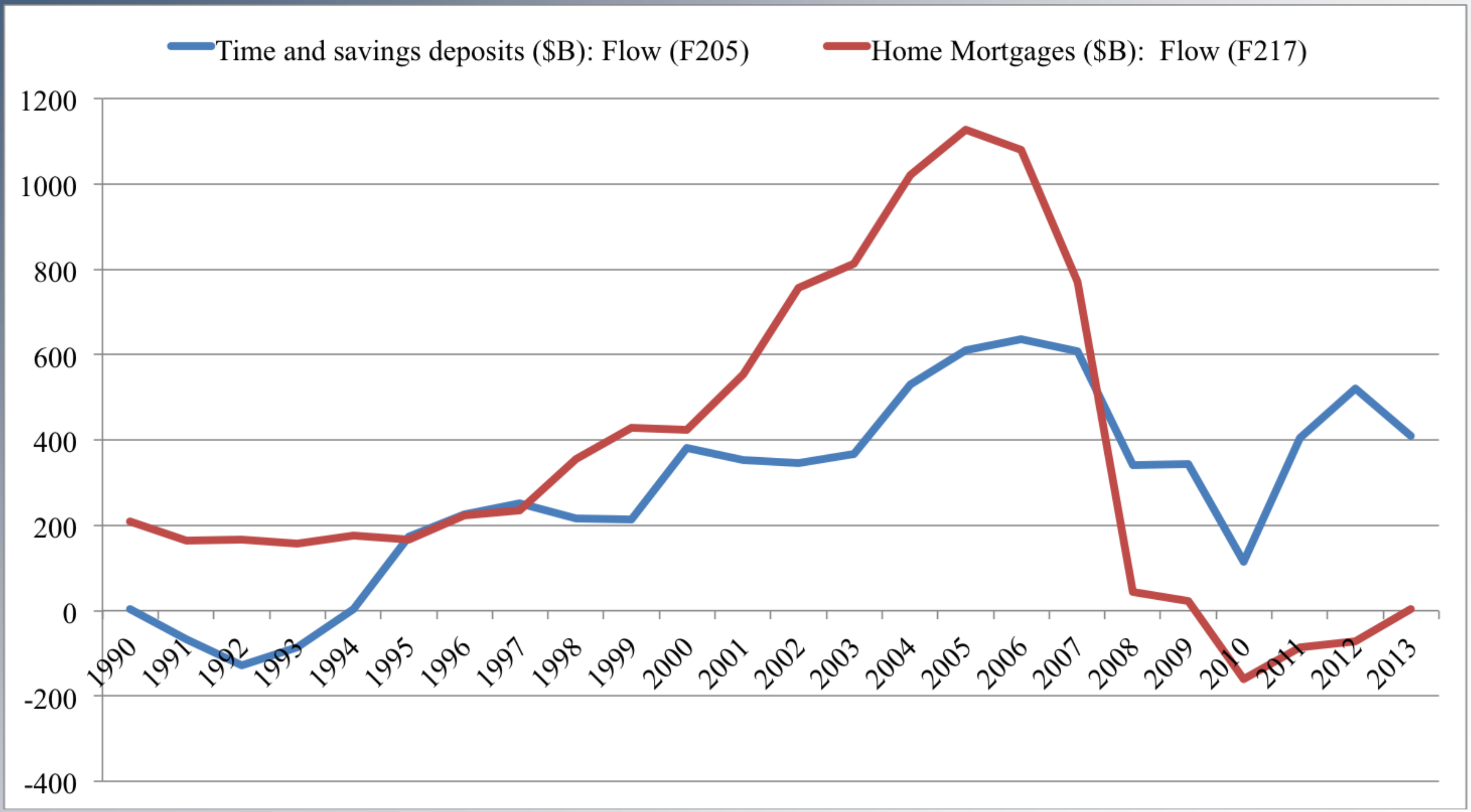
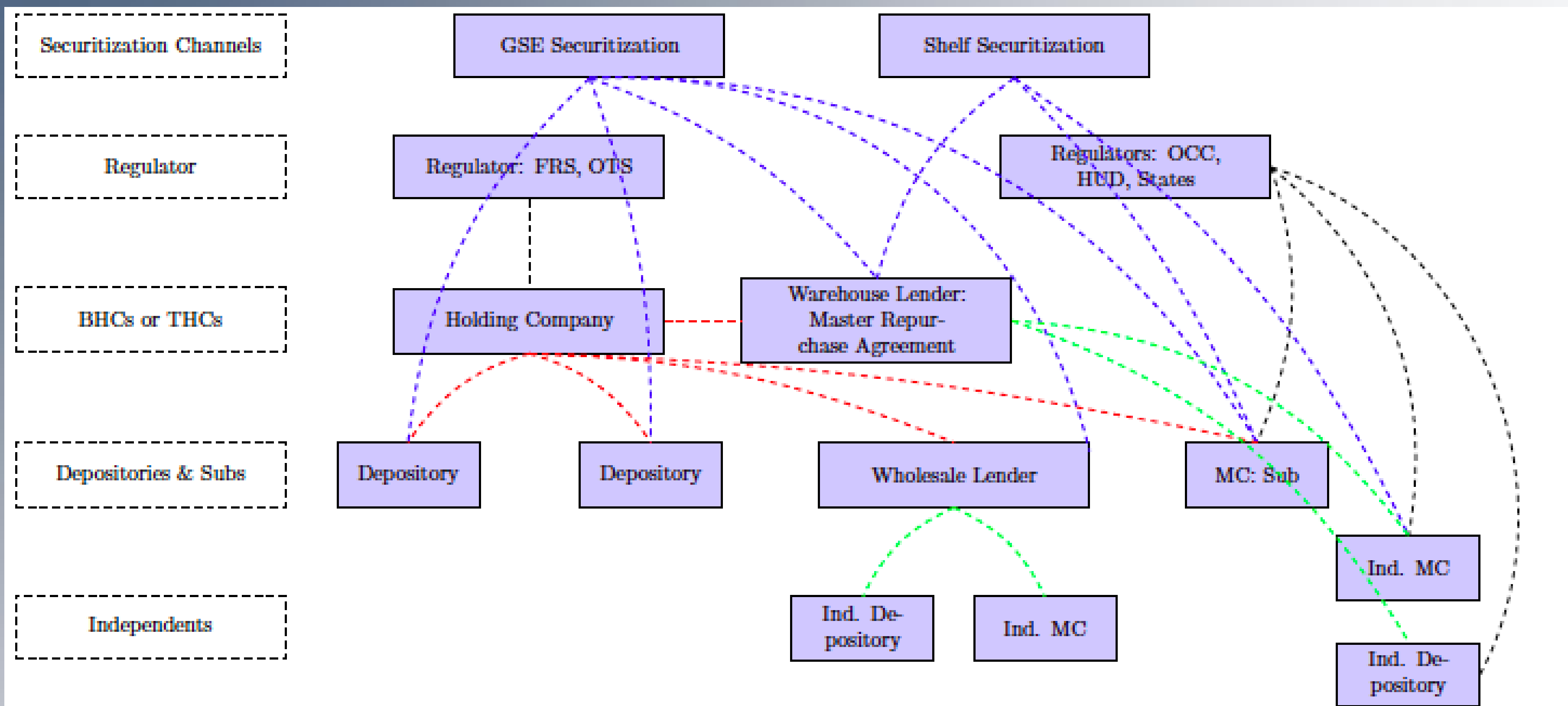
Insufficient Deposits for Mortgage Originations



Source: Flow of Funds

Pre-Crisis Mortgage Market Inter-firm Linkages



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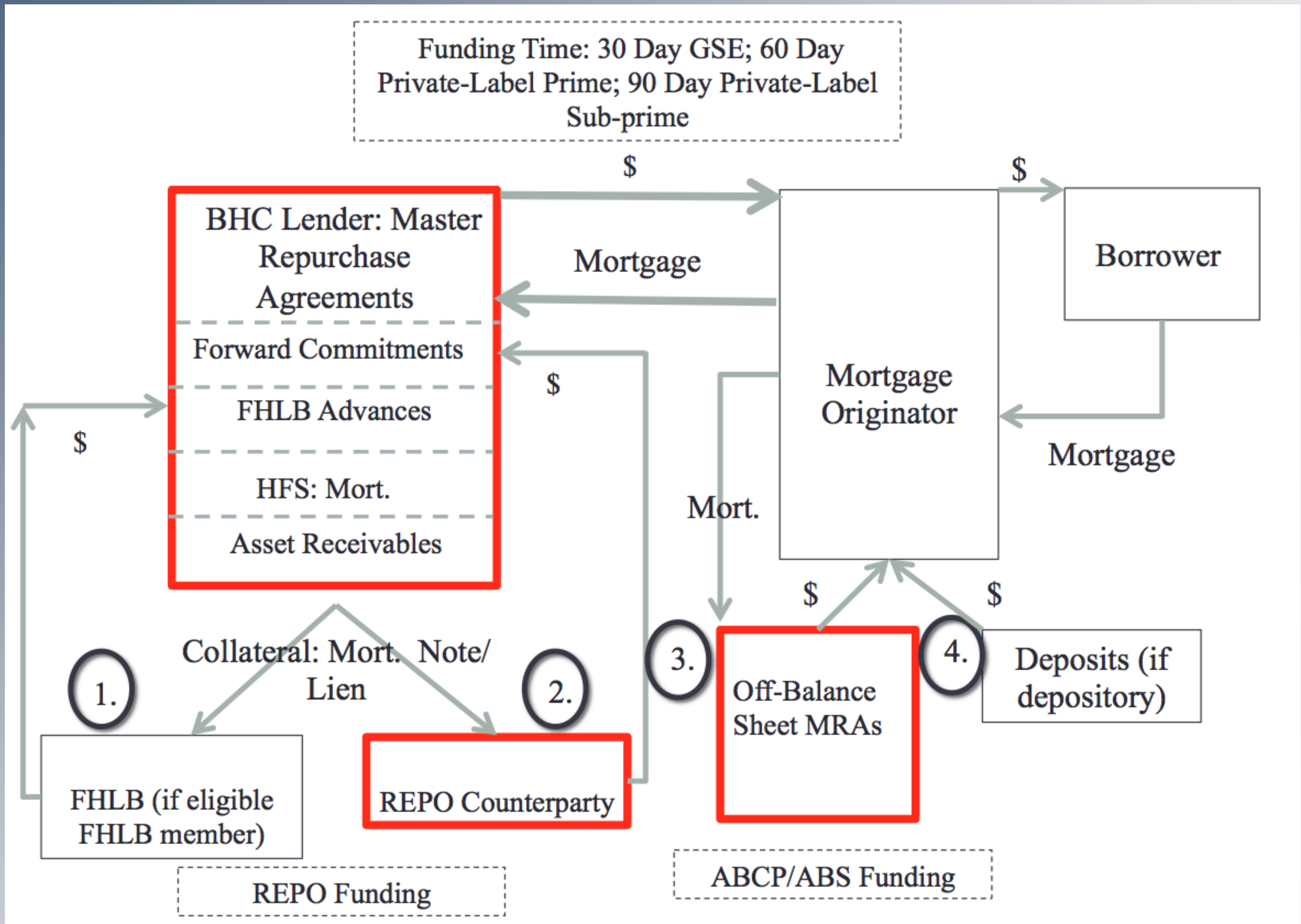
Current and Pre-Crisis Mortgage Origination Funding Structures



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Pre-crisis New Century Committed MRAs (December 2005)

- **Warehouse Lenders (MRAs) -- TOTAL $14.35B**
  - Bank of America, N.A. - $3B
  - Barclays Bank, PLC - $1B
  - Bear Stearns Mortgage Capital - $800M
  - Citigroup Global Markets Reality Corporation -$1.2B
  - Credit Suisse First Boston Capital, LLC - $1.5B
  - Deutsche Bank - $1B
  - IXIS Real Estate Capital, Inc - $850M
  - Morgan Stanley Mortgage Capital Inc. - $3B
  - UBS Real Estate Securities Inc. - $2B
- **Off-Balance Sheet Borrowing -- TOTAL $2B**
  - Von Karman Funding Trust - $2B

Source: New Century 10K filing.

Pre-crisis Countrywide Mortgage Funding (December 2007)

- **Deposits -- $60B**
- **MRAs -- $12.5B**
- **Off Balance Sheet Lines -- $11.5B**
- **FHLB Advances – $47.675B**
- **TOTAL -- $131.675B**

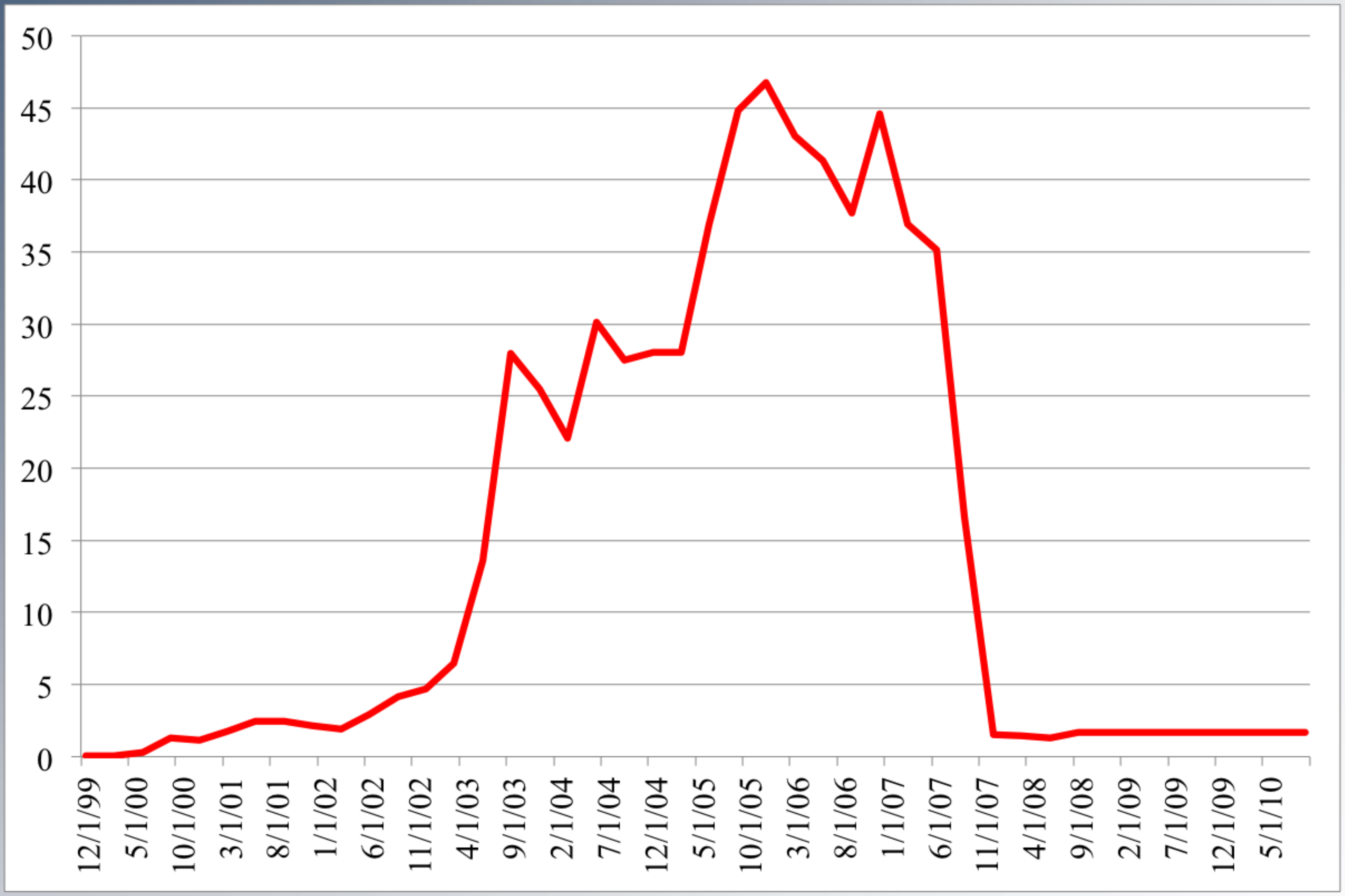
Source: Countrywide 10K filing.

Current Mortgage Origination Funding by PHH Mortgage (December 2015)

- **Fifth largest purchase mortgage originator**
- **Sixth largest refinance mortgage originator**
- **Committed MRA Facilities -- $1.95B**
  - **Credit Suisse First Boston Mortgage Capital, LLC -- $575M**
  - **Fannie Mae -- $500M**
  - **Bank of America, N.A. -- $400M**
  - **Wells Fargo Bank, N.A. -- $350M**
  - **Royal Bank of Scotland -- $150M**
- **Uncommitted facilities -- $2.5B**
  - **Fannie Mae – $2.5B**
- **Off Balance Sheet Lines -- $250M**
- **TOTAL -- $4.725B**

Source: PHH Mortgage 10K filing.

Collapse of Off-Balance Sheet Funding (MRA/ABCP)



Source: Moody's Investment Services

Conclusions: Origination Funding Structure is Unrelated to Contract Types

- U.S. Mortgage pipeline funding structure is **fragile:**
  - Pre-crisis mortgage origination funding structures are still dominant – especially master repurchase agreements (MRAs) with 30 day maturities.
  - MRA funding structures are vulnerable to: 1) securitization speeds; 2) roll-over risk; 3) many other debt covenants (especially accounting triggers) -- this was a very important pre-crisis problem leading to the collapse of lending infrastructure and many firm bankruptcies.
  - MRAs have repo status so they are exempt from automatic stay -- lenders will rush to be first to cancel.
  - Pipeline "borrowers" have no capital, but they bear the put-back risk – not a sensible set-up.
  - Put back exposure has led all lenders to add risk "overlays" to underwriting criteria – recent GSE limits on future seasoned put-backs may reduce problem.
  - Currently, 30 day securitization speeds from the pipeline is assured by the dominance of GSE securitization and the liquidity provision of the conservatorship – without GSEs we are back to pre-crisis runs.

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