Too Much Skin-in-the-Game?

By Deeksha Gupta

Discussion: Daniel Greenwald (MIT Sloan)

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Introduction

Summary:

- Setup: GE model of mortgage market, where lender market power creates incentive to manipulate prices.
- Main theoretical finding: high lender concentration leads to riskier lending due to **propping-up effect**.
- Main quantitative finding: increase in concentration can explain key features of the boom/bust (esp. risky lending).

Evaluation:

- Intuitive and potentially powerful mechanism.
- My take: likely mattered more in bust than boom.

Model in a Nutshell

- Bank's problem, where $F(m_{i,t-1}, P_t)$ are proceeds from loans at time t:

$$V_0 = \max_{\{m_{i,t}\}} \mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t \Big(F(m_{i,t-1}, P_t) - m_{i,t} \Big)$$

- FOC ($m_{i,t}$):

$$0 = \underbrace{\beta \mathbb{E}_t \left[\frac{\partial F(m_{i,t}, P_{t+1})}{\partial m_{i,t}} \right] - 1}_{\text{standard channel}} + \underbrace{\frac{\partial F(m_{i,t-1}, P_t)}{\partial P_t} \frac{\partial P_t}{\partial m_{i,t}}}_{\text{propping-up effect}}$$

- Propping-up effect is strong when:

  1. F is sensitive to prices, e.g., when P_t is low relative to m_{t-1}.
     - Example: $F = \min(R m_{t-1}, P_t)$.
  2. P is sensitive to credit, e.g., when concentration is high.

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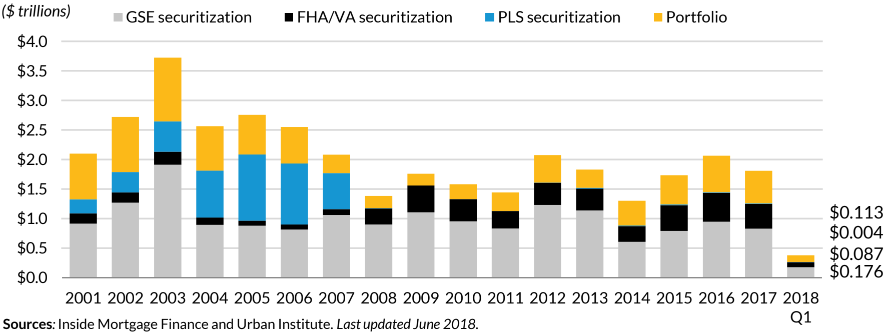
Application #1: 1998-2006 Housing Boom

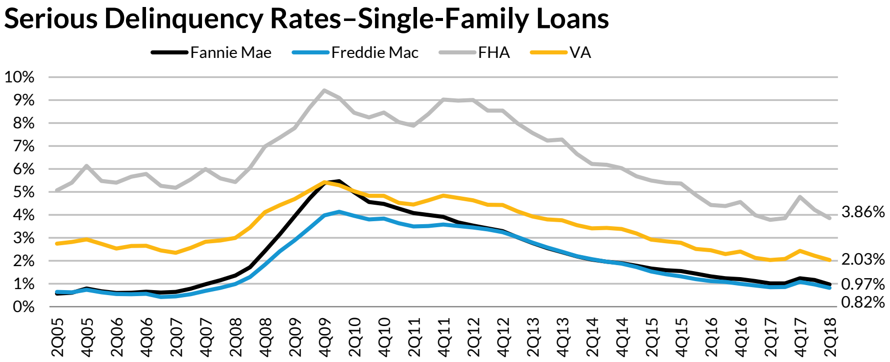
- Challenge #1: notably **dispersed** concentration of default risk.
  - Unique period of decentralized private-label securitization (PLS).
- Implies low sensitivity of prices to credit $(\partial P_t / \partial m_{i,t})$.



Source: Urban Institute, "Housing Finance at a Glance"

Application #1: 1998-2006 Housing Boom

- Challenge #2: defaults very low, not much to "prop up" ($\partial F_t / \partial P_t$)
  - My prior: still would have been low under just moderate growth.
- Limited benefit of reducing defaults vs. high cost of new risky lending.



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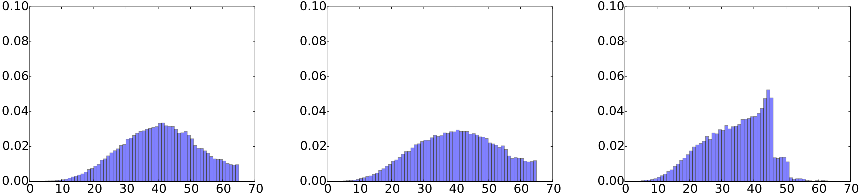
Application #2: 2007-2008 Transition

- In 2007, private label securitization dries up, mortgage market dominated by GSEs and Ginnie Mae ($\partial P_t / \partial m_{i,t}$).
- Household leverage, delinquencies on the rise ($\partial F_t / \partial P_t$).
- GSEs don't begin to scale back high-risk lending until placed in conservatorship (Sep 2008), don't fully tighten until 2010.
  - Below: Fannie Mae payment-to-income ratios on new cash-out refis.
  - Propping-up effect in action?



(a) PTI: 2006 Q2 (b) PTI: 2008 Q2 (c) PTI: 2010 Q2

Application #2: 2007-2008 Transition

- Still, potential questions to address about size of propping-up's role.

1. If lenders did try to prop up, it didn't work.
   - In the model, propping up is a rational behavior to limit losses.
   - Model HPs fall by 6% in the bust, seeming to justify lender behavior.
   - In reality, Fannie, Freddie, private mortgage insurers fail.

2. Under long-term loans, propping-up in bust seems difficult.
   - Model uses 1-year loans. Propping-up for one period determines total repayment on all existing debt.
   - With 30-year loans, propping up "kicks the can" forward. For deep, persistent bust, keeping prices elevated seems very challenging.

Application #2: 2007-2008 Transition

- Alternative hypothesis: GSEs used limited liability, bet everything on sustained boom. May as well double down?
  - Already on the hook for years of risky lending.
  - Held large amounts of private-label MBS in portfolio.
  - Existing exposure may have already implied bankruptcy in case of bust.
- Update original FOC, where $\mathbf{1}_{i,t}$ is indicator for survival:

$$0 = \underbrace{\beta \mathbb{E}_t \left[\mathbf{1}_{i,t+1} \frac{\partial F(m_{i,t}, P_{t+1})}{\partial m_{i,t}} \right] - 1}_{\text{standard channel}} + \underbrace{\frac{\partial F(m_{i,t-1}, P_t)}{\partial P_t} \frac{\partial P_t}{\partial m_{i,t}}}_{\text{propping-up effect}}$$

- Lenders could have (effectively) believed that prices would not fall.
- Interaction with propping-up could be key here! Attempt to sustain prices through perceived (or hoped-for) **temporary downturn**.

Application #3: 2009-Present GSE Conservatorship

- With GSEs under government conservatorship, mortgage securitization is essentially a **monopoly**. Highest possible market power ($\partial P_t / \partial m_{i,t}$).
  - Key player no longer able to gamble using limited liability.
  - Deep pockets could let government fight persistent HP drop.
- Post-bust environment had $\sim$ 25% of borrowers underwater, high defaults ($\partial F_t / \partial P_t$).
- Seems like ideal environment for propping up.
  - HARP, other policies, may fit this pattern.
  - GSE price insensitivity (Hurst, Keys, Seru, Vavra, 2016) is a local version.
- What would the planner do?

Suggestions and Conclusion

- Empirics:
  - Areas by levels of GSE concentration (HMDA).
  - Areas by price sensitivity (supply elasticity, regional cyclicality).
- Model:
  - Extension with limited liability for the lenders.
  - Solve the planner's problem.
- Overall conclusion: great mechanism, let's pin down its role!
  - Need more convincing as a driver of the boom.
  - Contribution in '07-'08 alongside lender gambling could be compelling.
  - Seems highly important in (ongoing) post-conservatorship era.