How Resilient is Mortgage Credit Supply? Evidence from the COVID-19 Pandemic

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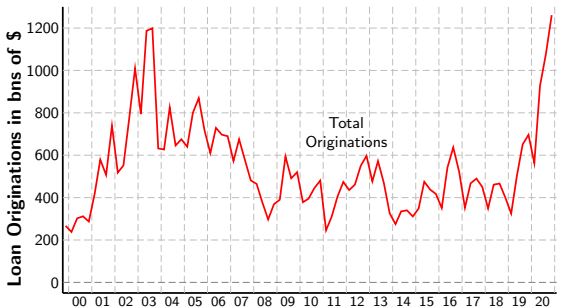
FDIC Consumer Research Symposium
March 11, 2022

The mortgage market has been booming

- 2020 was an extraordinary year for the US mortgage market:
  - $\approx$ \$4tr of mortgage originations, a new record
  - 30-year fixed rate fell below **3%** for first time
  - Surge in profits for lenders (e.g., Rocket: \$9.4bn; up 950%)

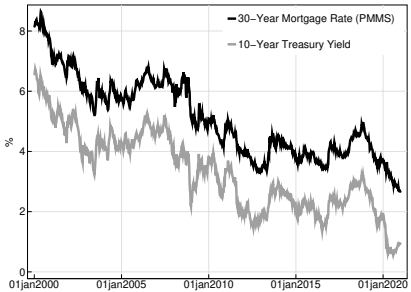


2000-2020 Quarterly Originations, Source: Mortgage Bankers Association

Despite good news, signs of market not functioning normally

- Spread of mortgage rates over Treasury yields spiked by 50-100bp, to levels not seen since 2008 financial crisis
- Reports from industry participants of tightening in credit standards
- **Our research question:** Has the pandemic led to tighter mortgage credit supply? If so, *how* has that manifested itself, and *why*?

(a) Interest Rates



(b) Mortgage-Treasury Spread

[1.] High mortgage spread due to markup in primary market

Conforming market: Decomposition of mortgage-Treasury spread

$$FRM_{30yr} - UST_{10yr} = \underbrace{FRM_{30yr} - \text{MBS yield}}_{\text{primary-secondary spread}} + \underbrace{\text{MBS yield} - UST_{10yr}}_{\text{MBS yield spread}}$$

where *MBS yield* is the yield corresponding to new production MBS

Takeaway: High Mortgage-Treasury spread in 2020 due to larger intermediation markups (primary-secondary spread), except for volatility in mid-March.

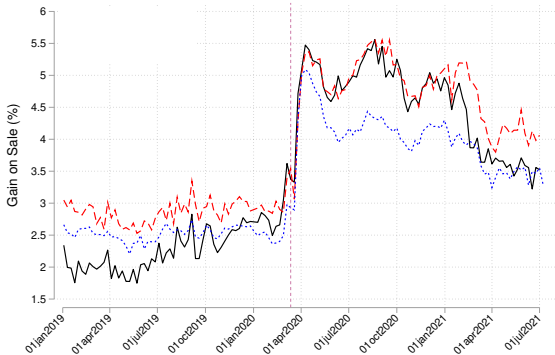
- Rise in primary-secondary spread $\approx$ 120bp (peak); 50bp (November).
- In 2007-09 crisis, elevated mortgage rates driven by large MBS yields.

Alternative to primary-secondary spread: gain-on-sale

Net gain from originating mortgage, then securitizing it and selling the servicing rights

- Direct intermediation markup (or "price of intermediation"; Fuster et al. 2017).
- Reflects *present value* of primary-secondary spread.
- Uses data on MBS prices, servicing multiples, and mortgage rates (see paper)

Evolution of gain-on-sale



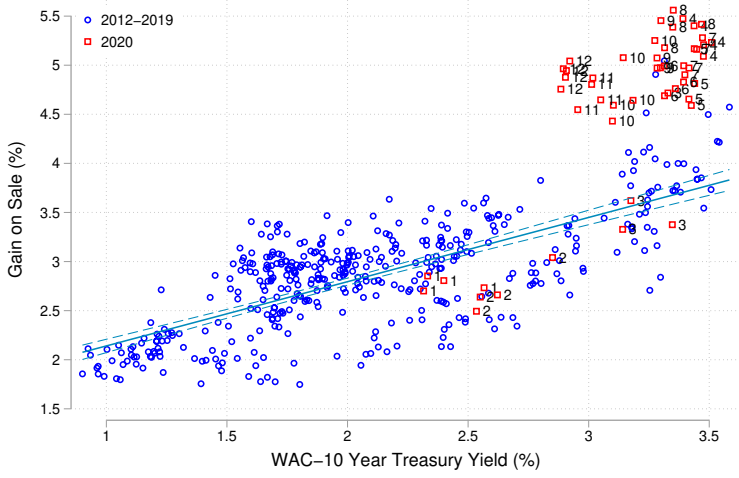
- Sharp rise in gain-on-sale ($\approx$ 150-250bp).
  - In line with industry data (e.g., Rocket/Quicken 10-Q: $\approx$ 200bp rise in 2020:Q2)
  - Given >\$3tr originations in Q2-Q4, estimate total gain-on-sale of \$162bn, or \$80bn additional income for lenders relative to gain-on-sale at 2.5%

[2.] Intermediation markups increased disproportionate to demand

- Intermediation markups typically increase in response to spikes in mortgage demand (Fuster, Lo, and Willen, 2017)
  - Rate-driven refinancing generates large periodic demand shocks, leading to higher markups & processing times
- Historical relationship can explain only part of the pandemic increase in markups.
  - Interpretation: mortgage supply was particularly inelastic

Capacity constraints: evidence

Gain on sale vs refinancing incentive [Mortgage WAC - 10 yr Tsy]



Notes: numbers next to red squares denote the calendar month in 2020. Trend line based on data from 2012-2019.

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1. Challenges in originating and closing loans:
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   - Property appraisals, notarized closing, etc.
   - Recording mortgages at local registries of deeds

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   - Preference for experienced employees (often poached from competitors)
3. Licensing:
   - New loan officers, or those moving across states or from banks to nonbanks must legally be licensed through NMLS
   - Most testing and fingerprinting locations closed in first phase of pandemic

Figure: **Mortgage Loan Officer Job Postings and Employment Growth**

Sources: BLS Establishment Survey and Burning Glass Technologies.

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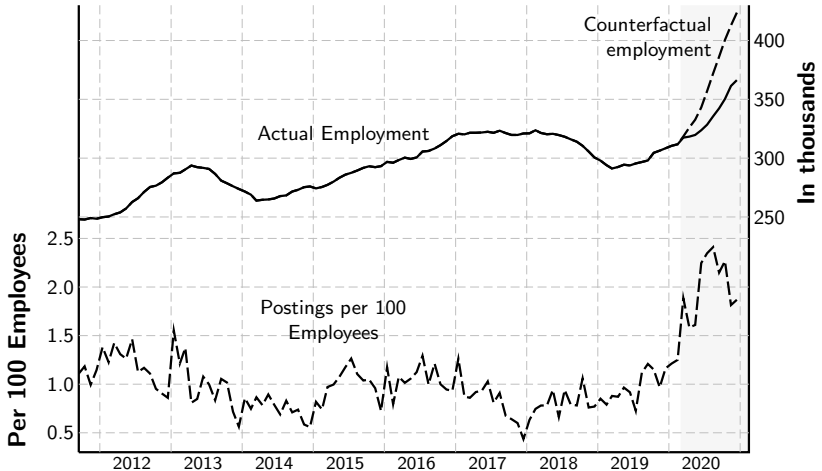

Sources: BLS Establishment Survey and Burning Glass Technologies. Counterfactual based on regression $\log MLO_{t+1} - \log MLO_t = \quad + \ {}_1p_t + \ {}_2p_{t-1} + \ {}_2p_{t-2} + \varepsilon_t$ over 3/2012-12/2020.

Growth in fintech lending

Implication of operational issues: Shift towards technology-based lenders with greater use of automation + online tools?

[Rocket CEO] *"Farner also said Rocket was able to scale more aggressively than competitors due to its tech stack and business model, which he said is far more efficient because it doesn't require disproportionately high headcounts."* – HousingWire (2020)

Examine using eMBS loan-level data + classification in Fuster et al. (2019)

- **Finding:** significant growth in fintech share during the pandemic
  - More pronounced for mortgages which are labor intensive to underwrite and close – purchase mortgages, low FICO loans (cf. Sharpe and Sherlund, 2016)

[3.] Alternative explanations: did forbearance & default risk drive up rates?

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Default risk may still matter for intermediaries despite government guarantee

- **Strategy:** Examine interest rates on conforming mortgages with high vs. low credit risk (measured by credit score).
  - Increase in COVID delinquency/forbearance much larger for low-FICO mortgages.

- **Test:** Higher rate premium on riskier mortgages as pandemic unfolds and delinquencies rise?
  - Conventional conforming loans: No:
  - FHA: Yes (temporarily):

Jumbo market

- Jumbos = large mortgages ineligible for agency securitization (no gov. guarantee)
  - Banks dominate originations; most loans held in portfolio. Not directly influenced by Fed QE (agency MBS purchases).
  - "Super-conforming" loans in high-cost counties can appear in agency MBS, but those are less likely to be purchased by Fed.

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Findings:

- Significant rise in jumbo-conforming rate spread (40bp+)
- Large drop in number of lenders willing to provide credit to lower credit-score jumbo borrowers (Optimal Blue Insight)
- In high-cost counties, origination volume falls both above county limit and above national limit, suggesting that both QE and credit guarantees bolstered supply in conforming market
  - E ect around local limit larger, suggesting that guarantees were more important

Other explanations

- **Macro and health shock?**

  $\Rightarrow$ Across MSAs, essentially no link between mortgage rates and (i) measures of "COVID intensity," and (ii) local unemployment rate changes

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- **Market power & shopping?**

  $\Rightarrow$ No variation in rate decrease across MSAs with more vs. less market concentration;

  $\Rightarrow$ Concentration actually seems to have *decreased* over 2020;

  $\Rightarrow$ Online activity suggests that people were shopping *more* than usual

Conclusions

- US mortgage market has boomed during the pandemic: record origination volumes & lender margins
- Intermediation frictions have limited pass-through of low rates to borrowers
- Capacity constraints provide a partial explanation
  - ... but elasticity lower than historical experience, consistent with operational frictions
  - Some substitution to technology-based lenders
- Government credit guarantees have supported mortgage supply in "plain vanilla" conforming market
  - ... but not enough to fully insulate riskier lending in FHA market
  - Highlights benefits of mortgage designs that adjust automatically to downside shocks (e.g. ARMs; automatic stabilizer mortgages)