Mortgage Refinance Decisions: Discussion

Hu et al. and Gerardi et al.

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Any opinions expressed in this presentation are those of the author and do not necessarily reflect the views of the Consumer Financial Protection Bureau or the United States of America.

Refinancing is good!

Demand:

- House already bought
- Good decision driven by terms, not preferences

If refinancing is good $\implies$ not refinancing is a "mistake"

Mistakes matter:

- Rents to creditors vs consumers
- Racial disparities

Basic challenge: How do you **measure** a "mistake?"

Can only measure refinances, not mistakes

Big mistakes vs. small mistakes vs. non-mistakes?

Three latent components:

1. When (are refinances "good")?
2. For whom (are refinances "good")?
3. How "good" are refinances?

Two interesting papers

Hu et al.: *Financial Media as a Money Doctor*

- **Measuring mistake**: *when* refinances are good for everyone
- **Toward solutions**: financial literacy and consumer education

Gerardi et al.: *Mortgage Prepayment, Race, and Monetary Policy*

- **Measuring mistake**: depends on rate at origination
- **Larger Implications**: racial disparities in financing costs

(Partial) Summary

Hu et al.: *Money Doctor*

Basic idea:

$$\frac{\partial Mistake_i}{\partial Fin\_Ed_i} \downarrow$$

Heuristic argument:

$$Mistake_i = (1 - Refinance_i) \times Benefit_i$$

$$\frac{\partial Mistake_i}{\partial Fin\_Ed_i} = -\frac{\partial Refinance_i}{\partial Fin\_Ed_i} \times Benefit_i$$

Hypotheses and Proxy Variables:

- $Benefit_i$: refinancing good for more people between 2009–2011
- Fin_Ed_i: availability of Fox Business Channel

Empirical Implication:

$$\frac{\partial Refinance_i \times \mathbf{1}\left[t(i) \in [2009, 2011]\right]}{\partial FBN_i} \uparrow$$

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Assumptions

Hu et al.: *Money Doctor*

Stipulation 1: Refinancing better between 2009–2011
Stipulation 2: FBN entry is financial education, not confounders

Main specification:

$$Y_{it} = \alpha_i + \delta_{c(i)t} + \beta_1 D_{it} + \beta_2 D_{it} \times W_t + \Gamma \boldsymbol{X}_{it} + \varepsilon_{it}$$

- D_{it}: indicator for after FBN enters a zip code i
- W_t: indicator for being between 2009–2011

Reinterpretation through lens of event study moments

Hu et al.: *Money Doctor*

Basic Event Study for average effect of FBN entry:

$$Y_{it} = \alpha_i + \delta_{c(i)t} + \sum_{\tau \neq -1} b_\tau D_{it}^{\tau(s(i),t)} + \Gamma \boldsymbol{X}_{it} + \varepsilon_{it}$$

- $D_{it}^{\tau(s(i),t)}$: dummies for event time τ by entry cohorts $s(i)$

Usual over-identifying restrictions:

- Parallel trends
  $b_\tau = 0 \quad \forall \tau < -1$

Is FBN Financial Education?

Hu et al.: *Money Doctor*

Event Study w/ Heterogenous Effects:

$$Y_{it} = \alpha_i + \delta_{c(i)t} + \sum_{\tau \neq -1} b_\tau^s D_{it}^{\tau(s(i),t)} + \Gamma \boldsymbol{X}_{it} + \varepsilon_{it}$$

Main Test

- Perfect storm of two "whens"
- Roughly equivalent to test in current paper:
  $b_\tau^s > 0 \quad \forall s, \tau : \tau \geq 0, s + \tau \in [2009, 2011]$

Q: Do FBN effects go away when rates go up? Should they?:

- Effect of late FBN entry?
  $b_\tau^s = 0 \quad \forall s > 2011$
- Longer term effects of early FBN entry?:
  $b_\tau^s = 0 \quad \forall s, \tau : \tau \geq 0, s + \tau > 2011$
- Rather than just 2009–2011, relate cohort-effects to rates directly

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Does FBN improve consumer education or just increase refinances?

Why are CNBC and Bloomberg *not* consumer education?

- If about viewership, estimate entry models w/ viewers as Y_{it}?
- If it's about content, can you qualify that?
  - In appendix, not clear why FBN content "better" than CNBC

Refinancing is good **for whom**?

- Use auxiliary data to assess stock of mortgages (by zip code) that would benefit from refinancing?
- *Where* is a refinance boom waiting to happen?

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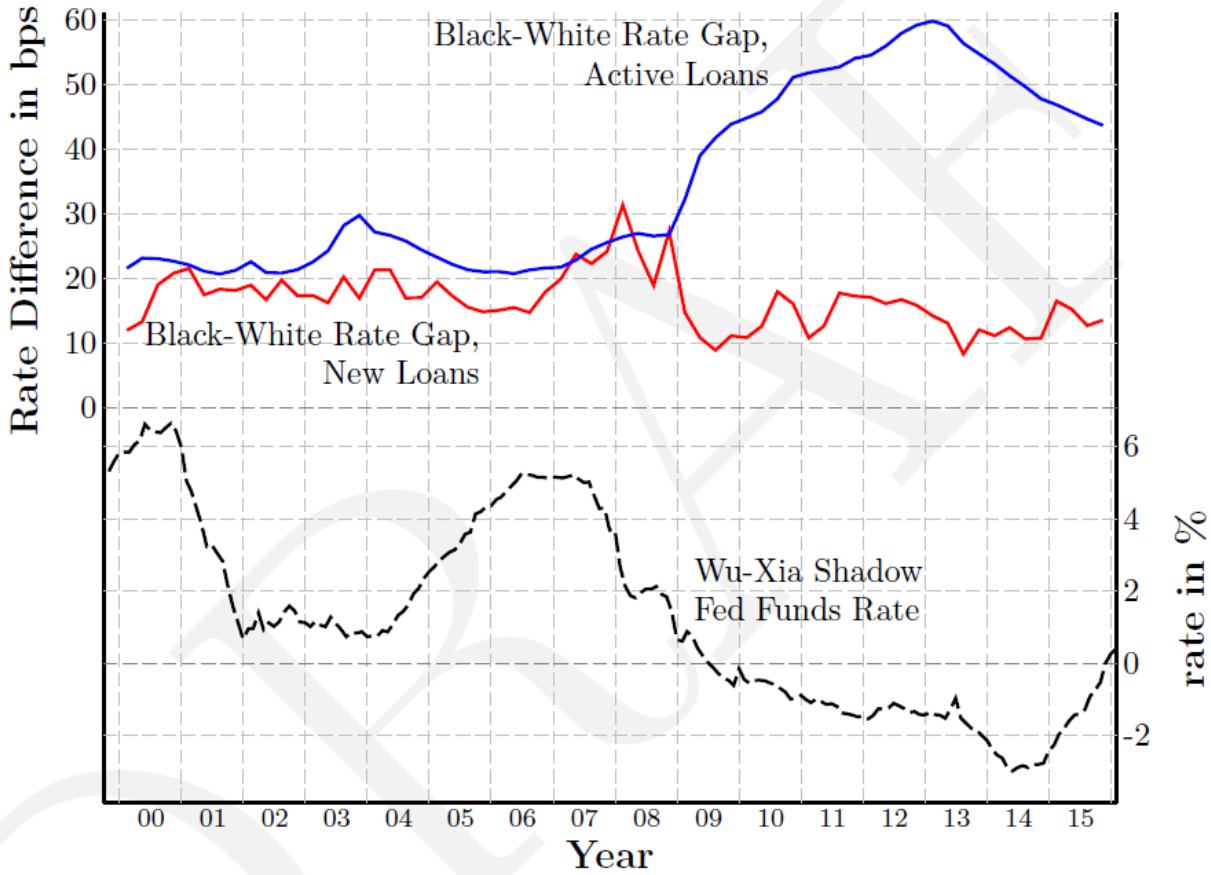
(Backward) Summary

Gerardi et al.: *Mortgage Prepayment, Race, and Monetary Policy*

Figure 1



There are three types of transitions...:

1. No mortgage-Mortgage: inflows
2. Mortgage-No mortgage: outflows
3. **Mortgage-Mortgage**

$$\Delta \boldsymbol{E}\left[M_{it} r_{it} | \min\left[M_{i0}, M_{i1}\right] = 1\right] =$$

$$\boldsymbol{E}\left[r_{i1} | M_{i0} = 0, M_{i1} = 1\right] \underbrace{\Pr\left[M_{i0} = 0, M_{i1} = 1\right]}_{\text{inflow share}} \tag{1}$$

$$- \boldsymbol{E}\left[r_{i0} | M_{i0} = 1, M_{i1} = 0\right] \underbrace{\Pr\left[M_{i0} = 1, M_{i1} = 0\right]}_{\text{outflow share}} \tag{2}$$

$$+ \boldsymbol{E}\left[\Delta r_i | M_{i0} = M_{i1} = 1\right] \Pr\left[M_{i0} = M_{i1} = 1\right] \tag{3}$$

There are ~~three~~ five types of transitions...:

3 **Mortgage-Mortgage**

- 3a Same mortgage: same rate
- 3b Refinance: new rate
- 3c Moving to new house/mortgage: new rate

$$\boldsymbol{E}\left[\Delta r_i\right] =$$

$$\boldsymbol{E}\left[\Delta r_i \times refi\right] \quad (3b)$$

$$+ \boldsymbol{E}\left[\Delta r_i \times new\_house\right] \quad (3c)$$

Implications for racial rate gaps in stocks

Gerardi et al.: *Mortgage Prepayment, Race, and Monetary Policy*

Mobility vs. Mistakes:

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Two issues:

1. Policy
2. Measurement

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Two bullet summary

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1. Unique data! (can measure when refinances come from!)
   - (equivalently, which prepayments are refinances, not moves)

2. Models adjust gap in refinance hazards w/ covariates

"Mistakes" and the racial gap:

$$\boldsymbol{E}\left[\Delta r_i \times refi | black\right] - \boldsymbol{E}\left[\Delta r_i \times refi | white\right] =$$

$$\begin{aligned}&\left(\boldsymbol{E}\left[\Delta r_i | black, refi\right] - \boldsymbol{E}\left[\Delta r_i | white, refi\right]\right) \Pr\left[refi || black\right] \\ &+ \boldsymbol{E}\left[\Delta r_i | white, refi\right] \left(\Pr\left[refi | black\right] - \Pr\left[refi | white\right]\right)\end{aligned}$$

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\end{aligned}$$

Comments

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1. Scale (of the mistake) matters

$$\ldots + \boldsymbol{E}\left[\Delta r_i | white, refi\right](\Pr\left[refi|black\right] - \Pr\left[refi|white\right])$$

2. Overall gap is the sum of many changes

$$\boldsymbol{E}\left[M_{it} r_{it}\right] = \boldsymbol{E}\left[M_{i0} r_{i0}\right] + \sum_{\tau=1}^{t} \Delta \boldsymbol{E}\left[M_{i\tau} r_{i\tau}\right]$$

- Racial gap in cumulative hazard vs. instant hazard
- Paper estimates partial effect on instant hazard (LPM)
  - An average over periods when refinancing is more/less good
- Integrated hazard
  - Can multiply instantaneous hazards w/ e.g. logit (Efron 1988)

To do this, you actually need $\widehat{\Pr}[Refi|X] \in [0, 1]$:(

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- Lessons from Bureau's TRID assessment
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  - Decisions are contextual
  - Consumer education on navigating institutional barriers?
- Policy complimentarities
  - Understanding as an end in itself
  - But we may need to raise the bar

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