Discussion: "Flood Risk Exposures and Mortgage-Backed Security Asset Performance and Risk Sharing" by Dice, Hossain, and Rodziewicz

Discussant: Yanjun (Penny) Liao

Resources for the Future

November 12, 2024
FHFA Economic Summit

Overview

Research questions

- How does flood risk affect mortgage default and, in response, lender behaviors?
- How does flood risk affect MBS performance and, in response, deal structure?

Data: 1992-2019 mortgage and MBS deal-level data

- Non-agency MBS are about 50% of the mortgage market during that period

Main findings

- **Default risk:** Higher flood risk is associated with default rate $\uparrow$ at both the mortgage and MBS deal level
- **Lender response:** small rate spread $\uparrow$ and large origination LTV $\downarrow$
- **Financial market response:** credit protection $\uparrow$, especially for highly rated tranches

Big Picture Observations

- Unique dataset: non-agency MBS is a small share of the current market but the results illustrate market participant behaviors that are highly relevant
  - Growing literature on how lenders and investors are responding to climate risk (e.g. Ouazad and Kahn, 2021; Sastry, 2022; Gete et al., 2023)

Big Picture Observations

- Unique dataset: non-agency MBS is a small share of the current market but the results illustrate market participant behaviors that are highly relevant
  - Growing literature on how lenders and investors are responding to climate risk (e.g. Ouazad and Kahn, 2021; Sastry, 2022; Gete et al., 2023)
- During the sample period, awareness of climate risk among market participants are much lower than today
  - There might not be an explicit response to flood risk (especially at the deal level)
  - Yet the authors show evidence of risk mitigating behaviors (interesting!)

Big Picture Observations

- Unique dataset: non-agency MBS is a small share of the current market but the results illustrate market participant behaviors that are highly relevant
  - Growing literature on how lenders and investors are responding to climate risk (e.g. Ouazad and Kahn, 2021; Sastry, 2022; Gete et al., 2023)
- During the sample period, awareness of climate risk among market participants are much lower than today
  - There might not be an explicit response to flood risk (especially at the deal level)
  - Yet the authors show evidence of risk mitigating behaviors (interesting!)
- Contribution can be further strengthened by having a clear interpretation of the nature of these behaviors

Comment 1: What drives the relationship between flood risk and mortgage default in this study?

This regression essentially relies on cross-sectional variation:

$$Y_{ist} = \beta_0 + \beta_1 Flood_i + \beta X_i + \lambda_t + \lambda_s + \epsilon_{ist}$$

- This differs from the existing literature looking at disaster **occurrences** and delinquencies (e.g. Gallagher and Hartley, 2017; Kousky et al, 2020; Billings et al, 2022)
  - Most defaults are driven by negative life events (Ganong and Noel, 2020)

Comment 1: What drives the relationship between flood risk and mortgage default in this study?

This regression essentially relies on cross-sectional variation:

$$Y_{ist} = \beta_0 + \beta_1 Flood_i + \beta X_i + \lambda_t + \lambda_s + \epsilon_{ist}$$

- This differs from the existing literature looking at disaster **occurrences** and delinquencies (e.g. Gallagher and Hartley, 2017; Kousky et al, 2020; Billings et al, 2022)
  - Most defaults are driven by negative life events (Ganong and Noel, 2020)
- Is the increase in 12-month default rate driven by flood events or some other channels/correlations?
- Are we interpreting the coefficient as a causal relationship or correlation?

Comment 1: What drives the relationship between flood risk and mortgage default in this study?

Suggestion: Provide more evidence and interpretation on the nature and mechanism of this relationship

Comment 1: What drives the relationship between flood risk and mortgage default in this study?

Suggestion: Provide more evidence and interpretation on the nature and mechanism of this relationship

- Test whether the relationship is driven by flood/hurricane events
- For **causal** interpretation, need to think about unobserved differences of homes/buyers that are correlated with flood risk
  - Control for SFHAs – flood insurance requirement will mitigate default
  - Control for property characteristics and environmental features (e.g. dist. to water)
  - Control for county-year fixed effects (housing boom and bust)

Comment 1: What drives the relationship between flood risk and mortgage default in this study?

Suggestion: Provide more evidence and interpretation on the nature and mechanism of this relationship

- Test whether the relationship is driven by flood/hurricane events
- For **causal** interpretation, need to think about unobserved differences of homes/buyers that are correlated with flood risk
  - Control for SFHAs – flood insurance requirement will mitigate default
  - Control for property characteristics and environmental features (e.g. dist. to water)
  - Control for county-year fixed effects (housing boom and bust)
- If interpreted as **correlation**: are market participants responding to flood risk or unobserved factors driving the correlation between default and flood risk?

Comment 2: It is important to understanding lender incentives in this context

What motivates lenders' mitigating behaviors (limiting own exposure vs. favorable MBS deal terms)?

- Potential policy implications when compared to muted incentives from GSEs

Suggestions:

$\Rightarrow$ Compare with lender behaviors toward unsecuritized mortgages

$\Rightarrow$ Analyze the effect of lenders' mitigating behavior on deal structure

Comment 2: It is important to understanding lender incentives in this context

What motivates lenders' mitigating behaviors (limiting own exposure vs. favorable MBS deal terms)?

- Potential policy implications when compared to muted incentives from GSEs

Suggestions:

⇒ Compare with lender behaviors toward unsecuritized mortgages

⇒ Analyze the effect of lenders' mitigating behavior on deal structure

How large are the risk mitigating effects?

⇒ Calculation of how much the decrease in LTV (or other adjustments) associated with flood risk offset the increase in default risk

Minor points

- Do lenders lend to safer borrowers when there is flood risk?
  - Examine FICO/DTI as outcomes at the mortgage level
- A graphical illustration of why subordination represents credit protection will help non-finance audience

Minor points

- Do lenders lend to safer borrowers when there is flood risk?
  - Examine FICO/DTI as outcomes at the mortgage level
- A graphical illustration of why subordination represents credit protection will help non-finance audience

Thank you!

Contact: yliao@rff.org