Global Sustainable Leadership

The Role of Banks

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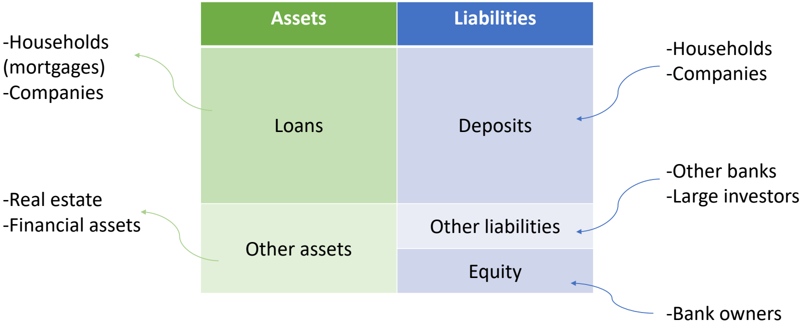
What is a bank?

- Banks collect deposits from households/companies that have savings and distribute loans to households/companies
  $\rightarrow$ Banks are the main lenders of households and small firms
- A typical bank balance sheet



What is special about banks?

- Bank pays an interest rate to its depositors (r_{dep}) and charges an interest rate to its borrowers (r_{loan})
  $\rightarrow$ Typically, $r_{loan} > r_{dep}$, and the difference is bank's profits
- Why don't depositors reach out to the borrowers directly and capture the difference? Why do we have banks?
- Because banks provide important services to the economy. They
  $\rightarrow$ bring together the creditors and debtors
  $\rightarrow$ provide payment services
  $\rightarrow$ diversify away the risk for depositors
  $\rightarrow$ produce information via screening and monitoring

Banks and Green Innovation

- Do banks finance green technology?
  $\rightarrow$ Depends!
- Two reasons why banks do not want to finance green technology
  1. Banks create an advantage for themselves by collecting information (Minetti, 2011)
     $\rightarrow$ By creating a green tech, firms reduce banks' relative advantage
     $\rightarrow$ Banks may not prefer their borrowers to make radical changes
  2. Green innovation may hurt banks' existing brown borrowers (Degryse, Roukny, Tielens, 2022)
     $\rightarrow$ Thus, banks may be less willing to finance green technology to protect their existing borrowers
- If firms manage to get credit, then bank credit can facilitate green technology
  1. Higher loan supply enables firms to undertake a green investment (Accetturo et al., 2022)
  2. Even though banks are conservative about the new technology, they may decide to respond to firms' loan demand for green technology (Apicella Fabiani, 2023)

Banks and Firms' ESG Profiles

Do banks finance care about their borrowers' ESG profiles?

- Banks charge higher rates to firms that produce pollutants (Chava, 2014)
- Banks' commitment to green financing matters
  $\rightarrow$ Committed banks charge higher rates to brown firms (Gao 2023)
  $\rightarrow$ Therefore, brown firms stop their lending relationship with committed banks (Degryse et al., 2023)
- Banks may influence their borrowers' ESG profiles (Houston&Shan, 2022)
  $\rightarrow$ Borrowers improve their ESG profiles when the bank has a better ESG profile
- The Paris Agreement reduced banks' willingness to lend to carbon-intensive firms. After the Paris Agreement,
  $\rightarrow$ banks charge higher interest rates to fossil firms (Delis et al., 2023)
  $\rightarrow$ banks lend less to carbon-intensive firms (Reghezza et al., 2022)

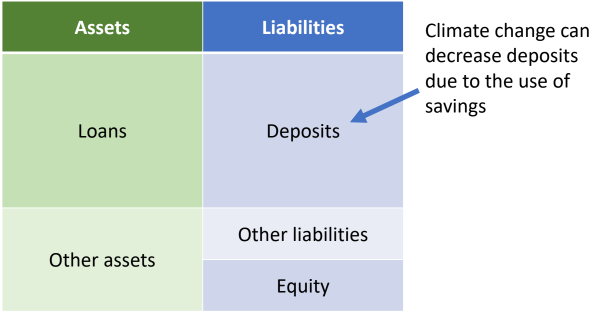
How does climate change affect banks?

- Consider again the balance sheet of a bank
  $\rightarrow$ First, let's think about the liabilities side

Assets	Liabilities
Loans	Deposits
Other assets	Other liabilities
	Equity

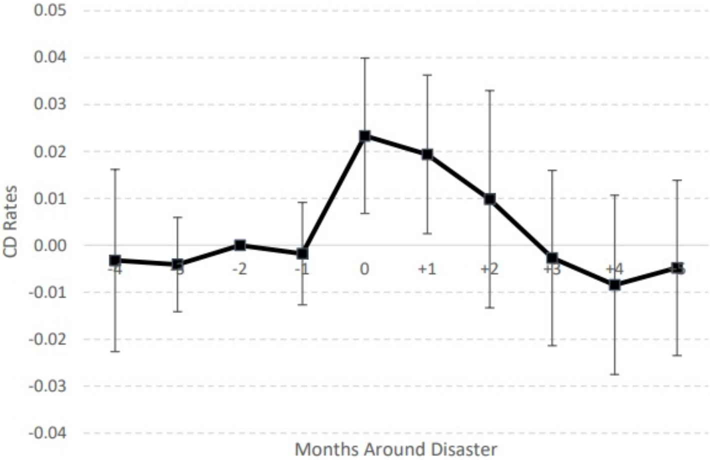
How does climate change affect banks?

- After a climate-related disaster, households and firms may want to use their savings
  $\rightarrow$ This would reduce deposits



How does climate change affect banks?

- Due to the increase in deposit demand by depositors, banks offer higher deposit rates (Dlugosz et al., 2023)



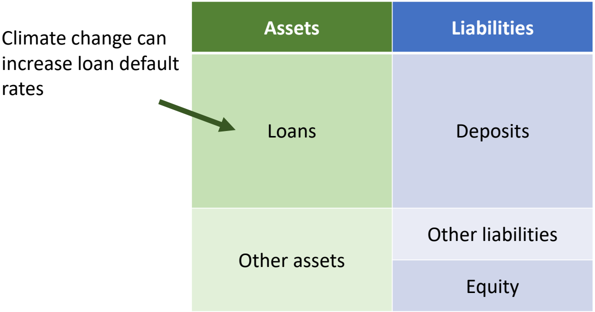
How does climate change affect banks?

- Now, let's think about the assets side

Assets	Liabilities
Loans	Deposits
Other assets	Other liabilities
	Equity

How does climate change affect banks?

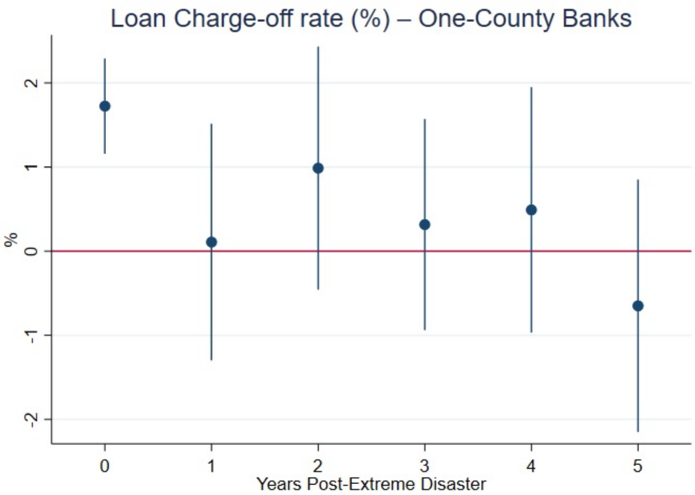
- A climate-related disaster can increase loan default rates



How does climate change affect banks?

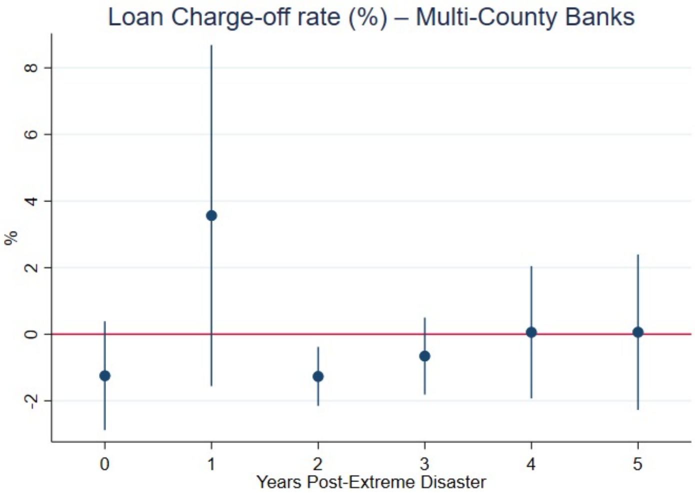
- Blickle et al. (2021) find higher loan charge-off rates after a disaster

  →



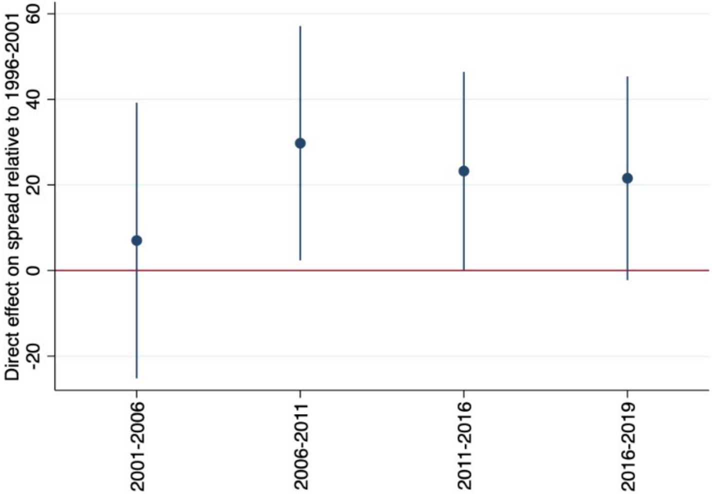
How does climate change affect banks?

- Blickle et al. (2021) find higher loan charge-off rates after a disaster
  → However, the effect is smaller for banks that operate in many locations



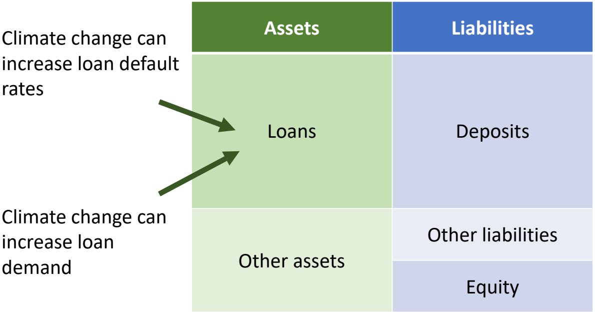
How does climate change affect banks?

- Because of the climate risks, banks charge higher rates



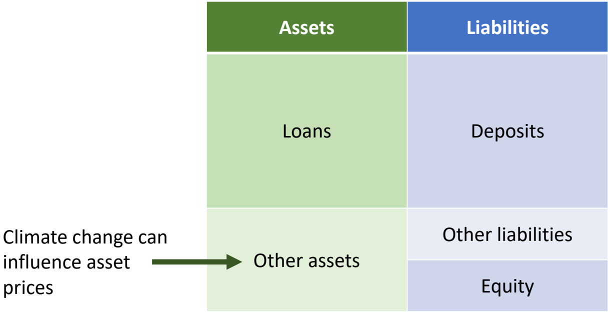
How does climate change affect banks?

- A climate-related disaster can increase loan demand



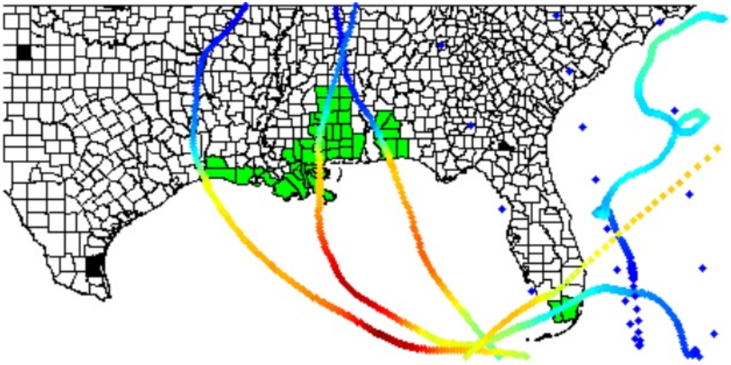
How does climate change affect banks?

- A climate-related disaster can influence asset prices



How does climate change affect banks?

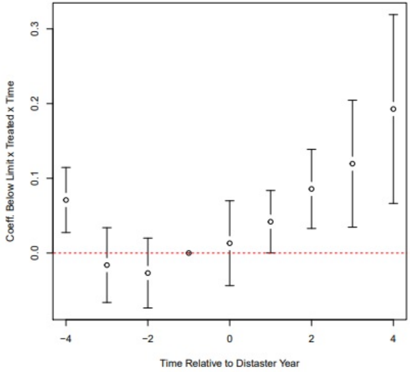
- Do banks play a role in the recovery after a natural disaster?
  → Banks can support the recovery by providing loans
- The disasters are mostly sudden and relatively unexpected
  → Banks need to have enough lending capacity
- Ex: Katrina Hurricane



How does climate change affect banks?

- Do banks play a role in the recovery after a natural disaster? **Yes!**
  → Three important channels

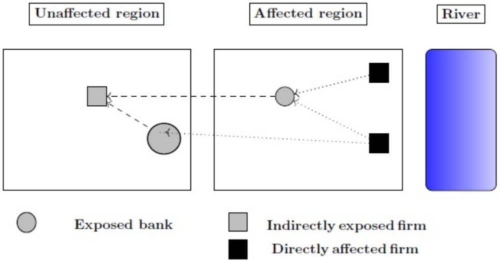
1. Local knowledge
   → Banks that have local knowledge (obtained via branches) extend credit after disasters
2. Securitization: Assets are pooled and sold to investors



How does climate change affect banks?

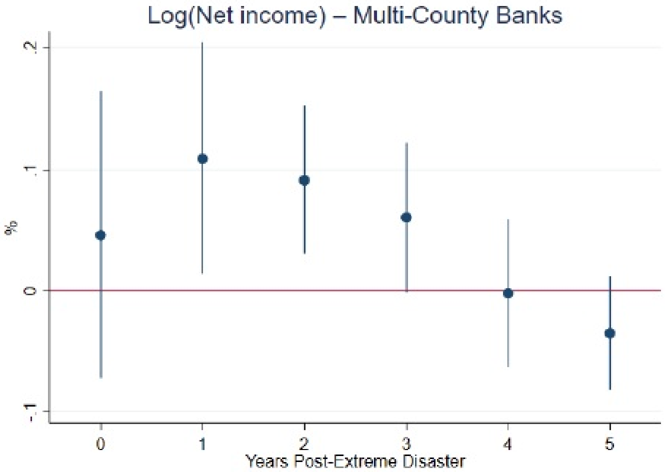
- Do banks play a role in the recovery after a natural disaster? **Yes!**
  → Three important channels

3. Internal capital markets
   → Yet, with a negative spillover to unaffected areas



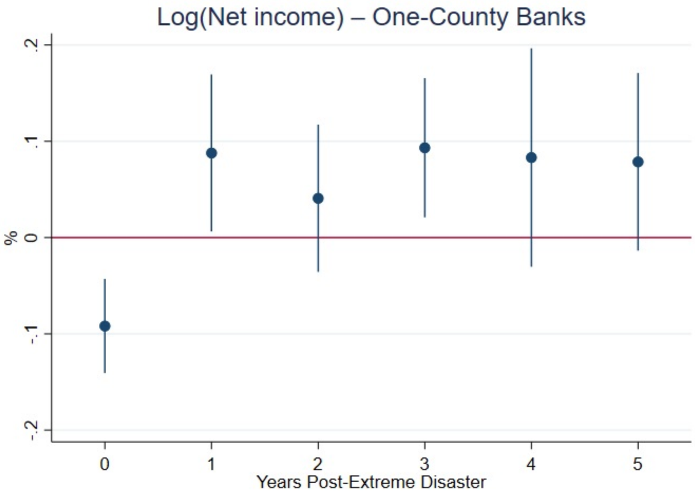
How does climate change affect banks?

- These moving parts suggest that
  → Banks that have the capacity to satisfy the demand may increase their profits



How does climate change affect banks?

- These moving parts suggest that
  → Yet, the others may suffer from a loss



How does climate regulation affect banks?

- How do banks react to a regulation that affects their borrowers?
- Ivanov et al (2023) study two cap-and-trade systems in the US
  → Cap-and-trade system: Firms trade the emission permits, and a market for carbon emission emerges
  → Banks reduce loan maturity and charge higher interest rates, which are in line with a more conservative loan supply
- Benincasa et al (2024) investigate how banks adjust their cross-border loan supply when their home country increases climate policy stringency
  → Banks decrease their domestic lending and increase cross-border lending, especially to brown borrowers in countries with more lenient climate policies
  → Banks may take actions to protect their loan portfolios, which can undermine the effectiveness of climate policies

Regulating Banks

- Heated discussion about whether/how to regulate banks regarding climate change
  $\rightarrow$ Asking for less capital if the borrower is green or asking for more capital if the borrower is brown
  $\rightarrow$ Introducing green lending guidelines
- Challenges:
  1. It is not easy to tell which borrower is brown due to greenwashing
     $\rightarrow$ Giannetti et al (2024) document that green banks are more likely to give loans to brown borrowers and these loans are not observable to outsiders
  2. Even if the borrower is green, the loan could still be used in carbon-intensive activities
  3. Other lenders (i.e., nonbanks) can step in, decreasing the effectiveness of the regulation