# PANEL - “DEPOSITORS: RELIABLE OR FLIGHTY?”

**DALLAS-ATLANTA-CLEVELAND FED CONFERENCE:**
**“THE EVOLVING LANDSCAPE OF BANK FUNDING”**

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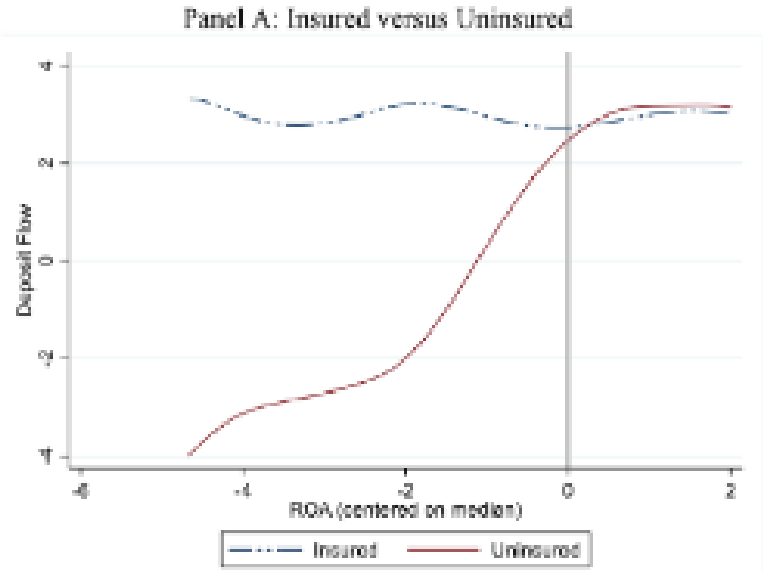
# ARE DEPOSITORS WITHDRAWING IN RESPONSE TO PROBLEMS IN THE BANK?

- Chen, Goldstein, Huang, and Vashishtha (2024) analyze recent bank data in the US
- As the figure shows:
  - Uninsured depositors respond strongly to bad bank performance and withdraw their money
  - Insured depositors do not behave in that way
- Results are consistent with various theories of banks and rational depositors
  - But is it pure fundamentals-based or is there panic involved?



# FUNDAMENTAL-BASED VS. PANIC-BASED WITHDRAWALS

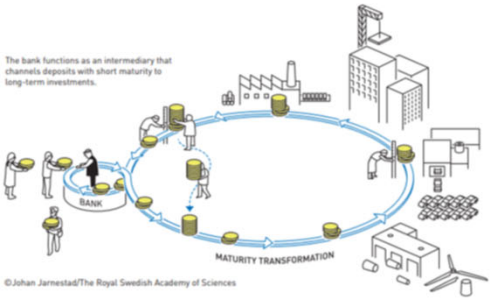
- Fundamental-based runs happen when depositors withdraw just because of unfavorable news about banks' fundamentals
  - Chari and Jagannathan, 1988; Jacklin and Bhattacharya, 1988; Allen and Gale, 1998
- Panic-based runs happen when depositors withdraw because they believe others will withdraw
  - The belief can be self-fulfilling because banks do not hold enough liquid assets to cover liquid liabilities which create strategic complementarity among depositors (Diamond and Dybvig, 1983)
- Separating panic-based run from fundamental based run is important from a policy perspective
  - Many policies, such as deposit insurance, lender of last resort, suspension of convertibility, are premised on the idea that some bank runs are driven by panics
  - Many believe these policies distort banks' incentives and create more problems than they solve

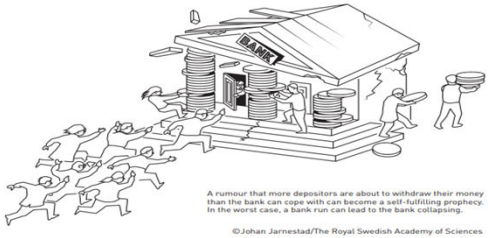
# PANIC ACROSS EPISODES OVER TIME


A run on American Union Bank, 1931

It's A Wonderful Life, 1946


Silicon Valley Bank, 2023



# EMPIRICALLY TESTING FOR PANIC-BASED RUNS

- Long-standing evidence, going back to Gorton (1988), find strong association between bank runs and bank fundamentals
  - Such evidence was sometimes interpreted as supporting fundamental based runs and against panic-based runs
- However, this interpretation is incorrect (e.g., Goldstein, 2013):
  - Diamond and Dybvig's (1983) approach of multiple equilibria is essentially untestable
  - Global-games approach of Goldstein and Pauzner (2005) and Rochet and Vives (2004) can provide a framework for empirical testing:
    - Association between runs and bad fundamental does not rule out the existence of panic-based behaviors
    - Alternative tests can be designed to identify panic
    - This was recently applied for recent data of the universe of US banks by Chen, Goldstein, Huang, Vashishtha (2024)

# IDENTIFYING PANIC

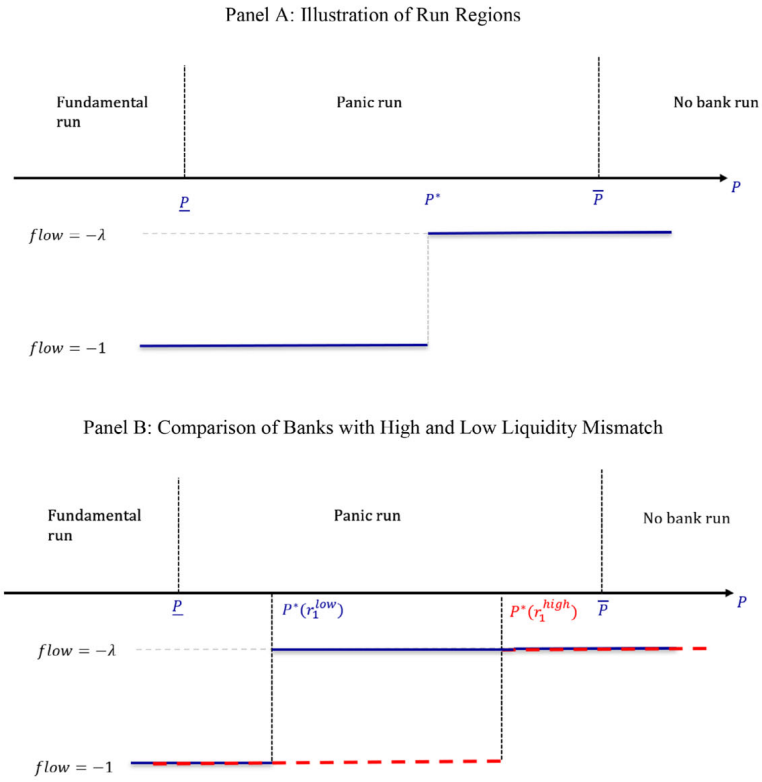



**Figure 1. Illustration of the theoretical underpinning**. This figure summarizes the main result from Goldstein and Pauzner (2005) on the withdrawal decisions of depositors in equilibrium. Panel A shows that impatient depositors always withdraw to meet their liquidity needs regardless of bank performance, resulting in an outflow of deposits at the level of $-\lambda$. Patient depositors, contributing portion $1-\lambda$ of bank funding, withdraw when they observe a (noisy) signal that indicates the bank's performance is below a threshold of $P^*$. Panel B shows that the threshold for withdrawal is higher for banks with a greater degree of liquidity mismatch ($r_1$). (Color figure can be viewed at wileyonlinelibrary.com)

- This figure from Chen, Goldstein, Huang, and Vashishtha (2024) illustrates the theoretical underpinnings
  - Depositors withdraw when their information falls below a threshold
  - Threshold is higher for banks with a greater degree of liquidity mismatch
  - This leads to two predictions:
    - Conditional on low fundamentals, banks with a greater degree of liquidity mismatch will have more outflows
    - Banks with a greater degree of liquidity mismatch will have stronger sensitivity of outflow to bad performance

# MEASURING LIQUIDITY MISMATCH

- Chen, Goldstein, Huang, and Vashishtha (2024) use two measures for the degree of liquidity mismatch:
  - The reliance on uninsured deposits
  - The illiquidity of the assets on the balance sheet (based on Berger and Bouwman, 2009)
- These measures capture liquidity mismatch from both sides of the balance sheet
- They both strengthen depositors' incentive to run even when bank is solvent, and just because of the fear that others will run
- Hence, when they amplify the response of depositors to fundamentals, this is evidence of panic at work
  - The balance sheets in the next slide illustrate this point

# LIQUIDITY MISMATCH AND PANIC: SIMPLE BALANCE-SHEET ILLUSTRATION

Assume that haircut on loans is 40%

No reason to run since liquidation value of assets is higher than value of uninsured deposits

| Assets | | Liabilities and Equity | |
|---|---|---|---|
| Cash | 50 | Uninsured Deposits | 75 |
| | | Insured Deposits | 15 |
| Loans | 50 | Equity | 10 |
| Total | 100 | Total | 100 |

| Assets | | Liabilities and Equity | |
|---|---|---|---|
| Cash | 20 | Uninsured Dep | 75 |
| | | Insured Dep | 15 |
| Loans | 80 | Equity | 10 |
| Total | 100 | Total | 100 |

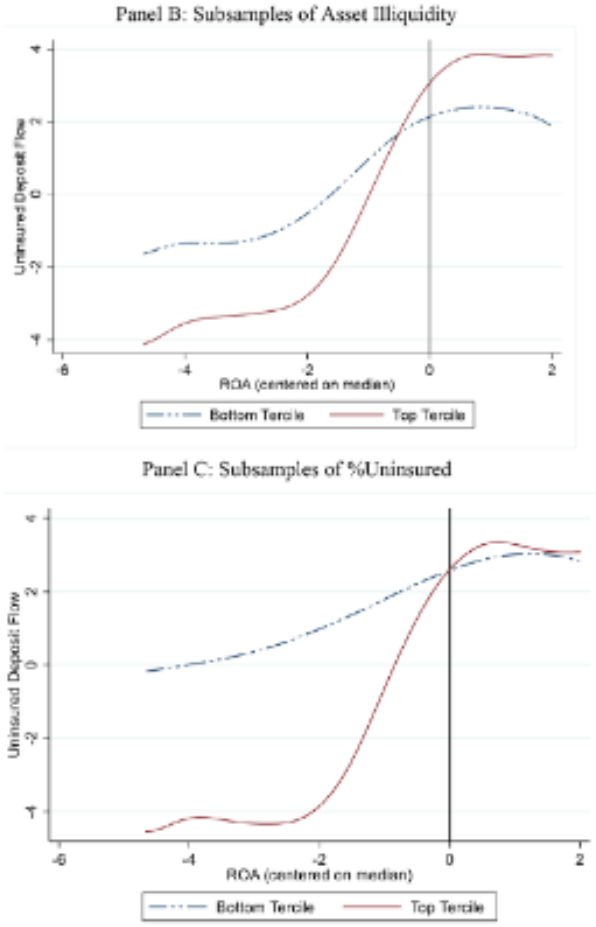
Here, illiquid assets create a reason to run even though bank is solvent

| Assets | | Liabilities and Equity | |
|---|---|---|---|
| Cash | 50 | Uninsured Dep | 90 |
| | | Insured Dep | 0 |
| Loans | 50 | Equity | 10 |
| Total | 100 | Total | 100 |

Here, uninsured dep create a reason to run even though bank is solvent

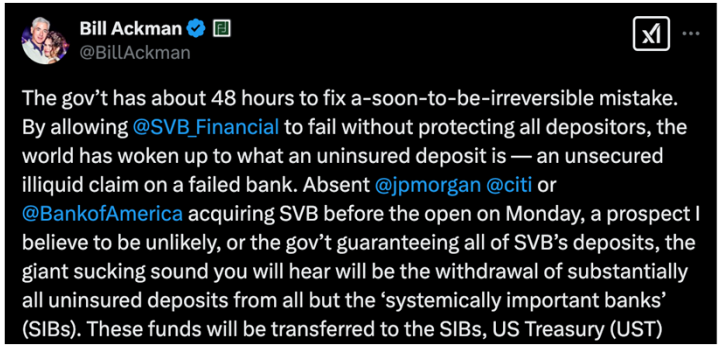
# EVIDENCE OF PANIC

- Results from Chen, Goldstein, Huang, and Vashishtha (2024) provide support for the presence of panic in withdrawals
- Among the uninsured, the response to negative performance is stronger when
  - There is greater reliance on uninsured deposits
  - The assets are less liquid
- Aside from the graphic non-parametric illustration here, the paper provides many regression analyses digging into the mechanism and exploring various tests as robustness and extensions



# EXTENDING RESEARCH TO CONTAGION

- In current work (Chen, Goldstein, Vashishtha, and Yin, 2025), we extend the research to study contagion
- Spillovers across financial institutions have been crucial for understanding crises and responding to them
  - The 2008 Global Financial Crisis led to major introspection, as part of the regulatory effort that followed the crisis, about the role of interbank connections
  - The failure of Silicon Valley Bank in 2023 generated fears of a market-wide loss of depositor confidence leading regulators to respond with unusual force

# PANIC AND CONTAGION

- Extending the empirical framework in Chen, Goldstein, Huang, and Vashishtha (2024) to a cross-bank setting, we show
  - Contagion exists in that depositors in one bank respond to negative performance in peer banks
  - Panic works in a richer setting
    - Amplifying not only own-bank shock but also contagion
  - Multi-dimensional liquidity mismatch matters
    - Amplification happens due to focal bank mismatch, peer bank mismatch, and interaction of the two
  - Panic interacts with other channels for contagion
    - Asset correlation and fire-sale pressure

# CONCLUSION

- Uninsured depositors withdraw in response to bad performance
- Pattern is stronger when the degree of liquidity mismatch is higher, indicating that withdrawals are not purely fundamental-based but also reflect panic
- Spillovers across banks interact with liquidity mismatch and create further amplification
- These negative externalities justify various measures such as deposit insurance, liquidity injections, and bank regulation