



FEDERAL RESERVE BANK *of* NEW YORK

# Stigma in Financial Markets: Evidence from Liquidity Auctions and Discount Window borrowing during the Crisis

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*Internal FR*

# August 2007 episode

- In August 2007, Fed thought banks should borrow from DW
  - Cut penalty rate from 100 to 50bp
  - Extended term of DW loans from overnight to 30 days
  - Tried to send messages to encourage DW borrowing
- Success was very limited
- DW stigma was perceived to be one of the problems
  - Bernanke (2009): “In August 2007, ... banks were reluctant to rely on discount window credit to address their funding needs. The banks’ concern was that their recourse to the discount window, if it became known, might lead market participants to infer weakness — the so-called stigma problem.”



# What is meant by DW stigma?

- Symptom: All else equal, banks are willing to pay a premium to avoid the DW
- Two possible types of stigma:
  - Wrt market participants
    - Market participants may interpret DW access as sign of weakness
  - Wrt the Fed
    - May trigger regulatory action (e.g. change Camel rating)
    - May limit access to primary credit in the future



# Lack of formal evidence of DW stigma

- DW Stigma is often mentioned within Fed and in the financial press
- Suggestive empirical evidence for pre-2007 DW mechanism:
  - Peristiani (1998): banks in the 1980's may have become reluctant to borrow from Fed
  - Furfine (2001, 2003): banks are willing to borrow Fed Funds at rates above the DW rate
    - Fed funds and DW borrowings are not directly comparable
    - Recent evidence that Furfine's "data" may be highly inaccurate
- Ennis and Weinberg (2009) propose a theoretical model in which stigma emerges endogenously



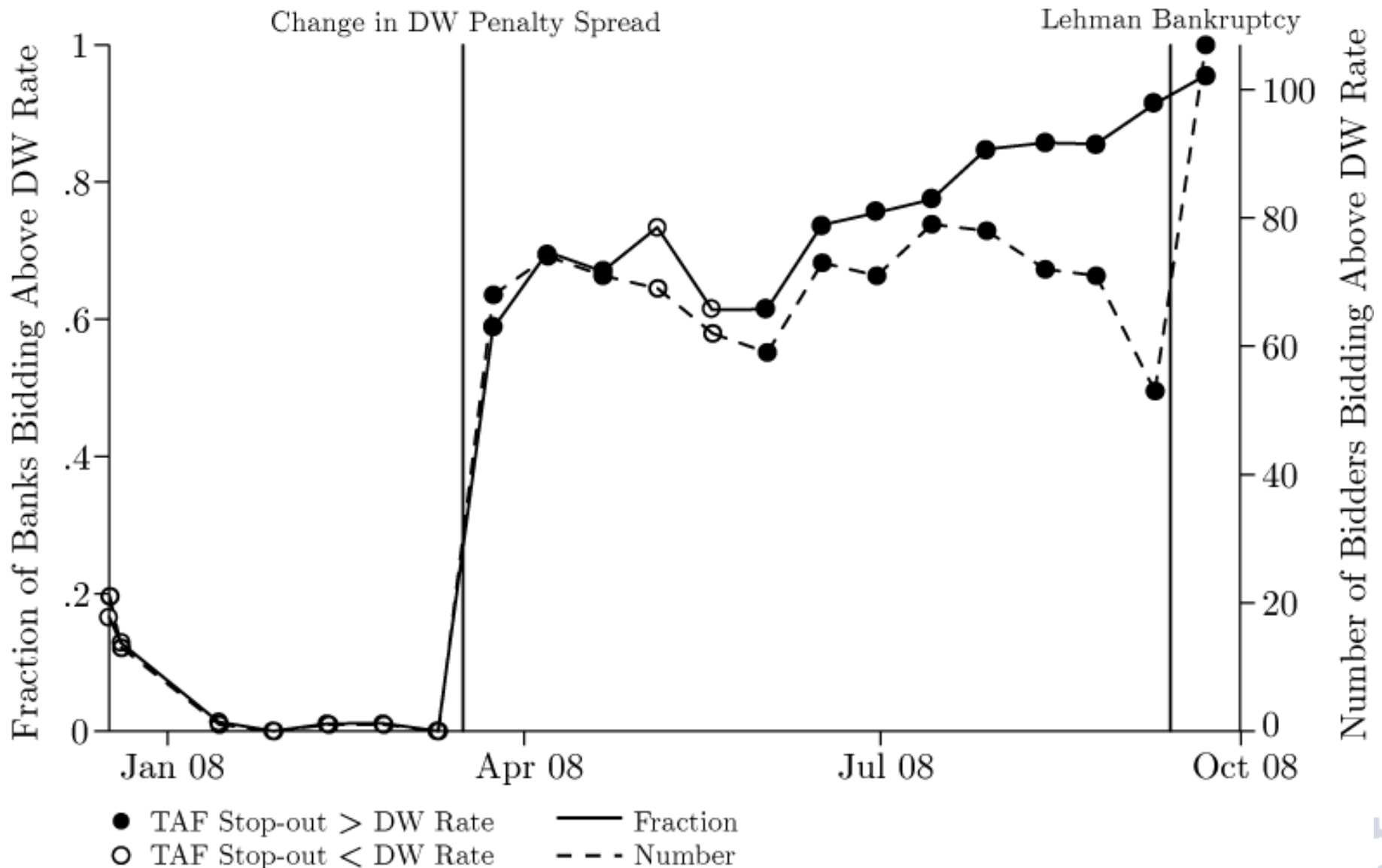
**Is there DW stigma?**



# Methodology:

- Basic idea: compare banks' TAF bids with DW rate
- Assumptions:
  - TAF and DW are close substitute
    - Same eligibility criteria (until October 2008)
    - Same collateral requirement
    - DW more flexible (prepayment)
  - No TAF stigma
- Under mild assumptions, we can show that, absent of stigma, a (rational) TAF bidder should never bid above DW rate
- A bid above DW rate is interpreted as evidence of DW stigma

# Do banks bid above DW rate?



# Conclusion 1

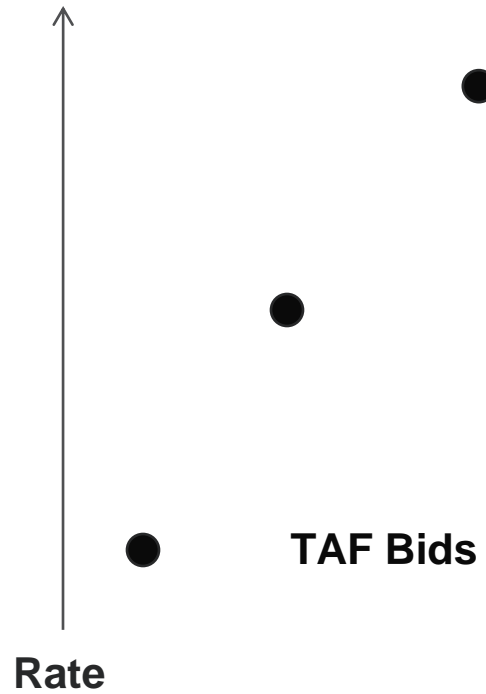
- We find strong evidence of DW Stigma
- Several banks consistently exhibit signs of stigma
- Banks showing DW stigma have specific characteristics
- In particular, smaller, non US banks with more collateral and no recent history of DW borrowing are more likely to exhibit DW stigma



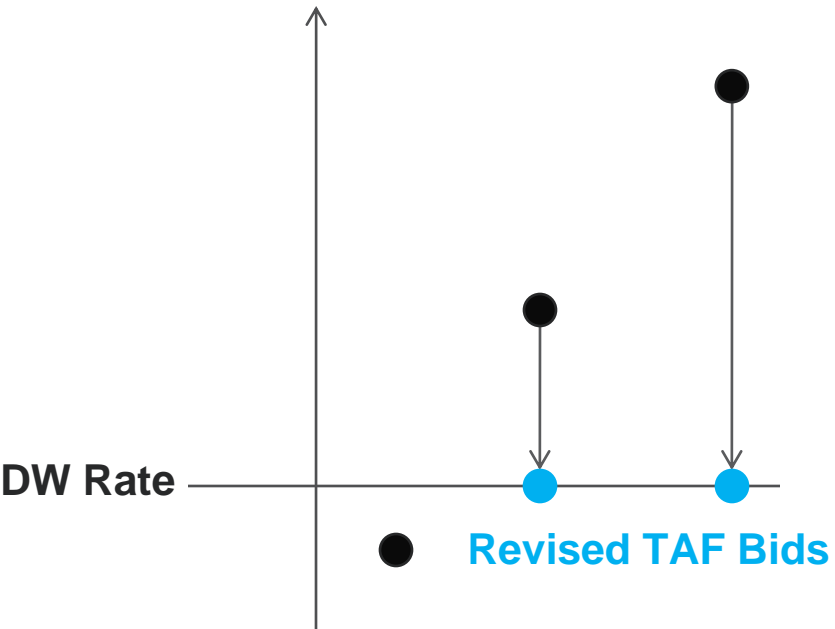


**Can we measure the magnitude of DW stigma?**

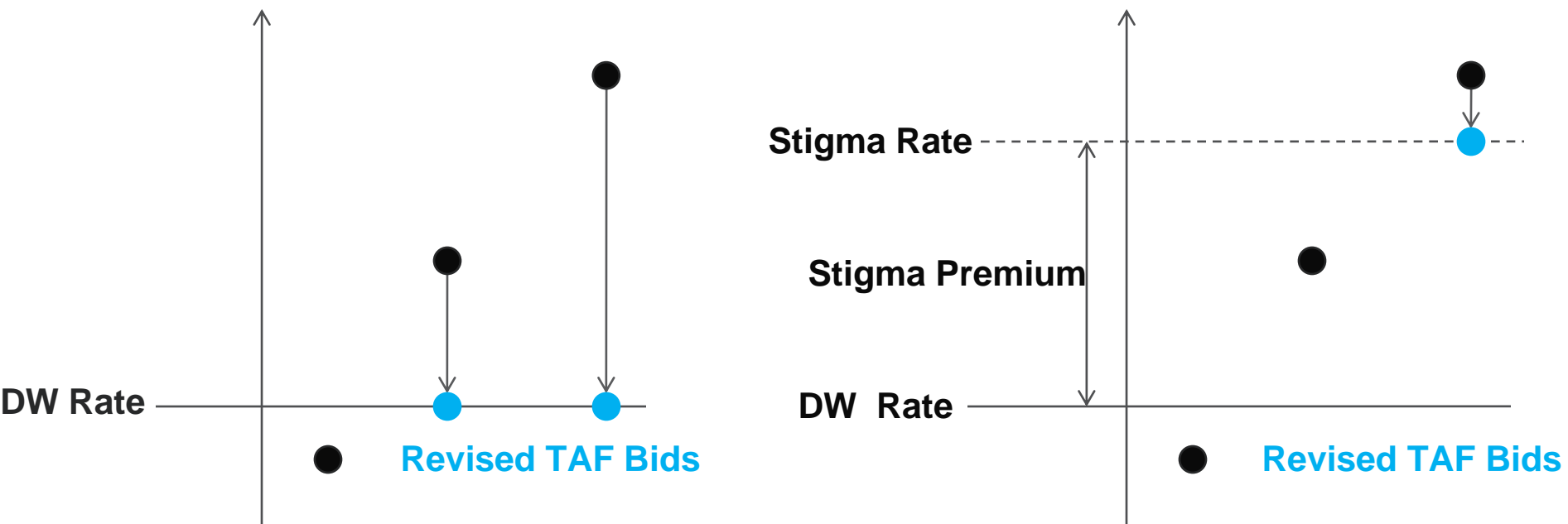
# TAF bidding without DW



# TAF bidding in the absence of stigma



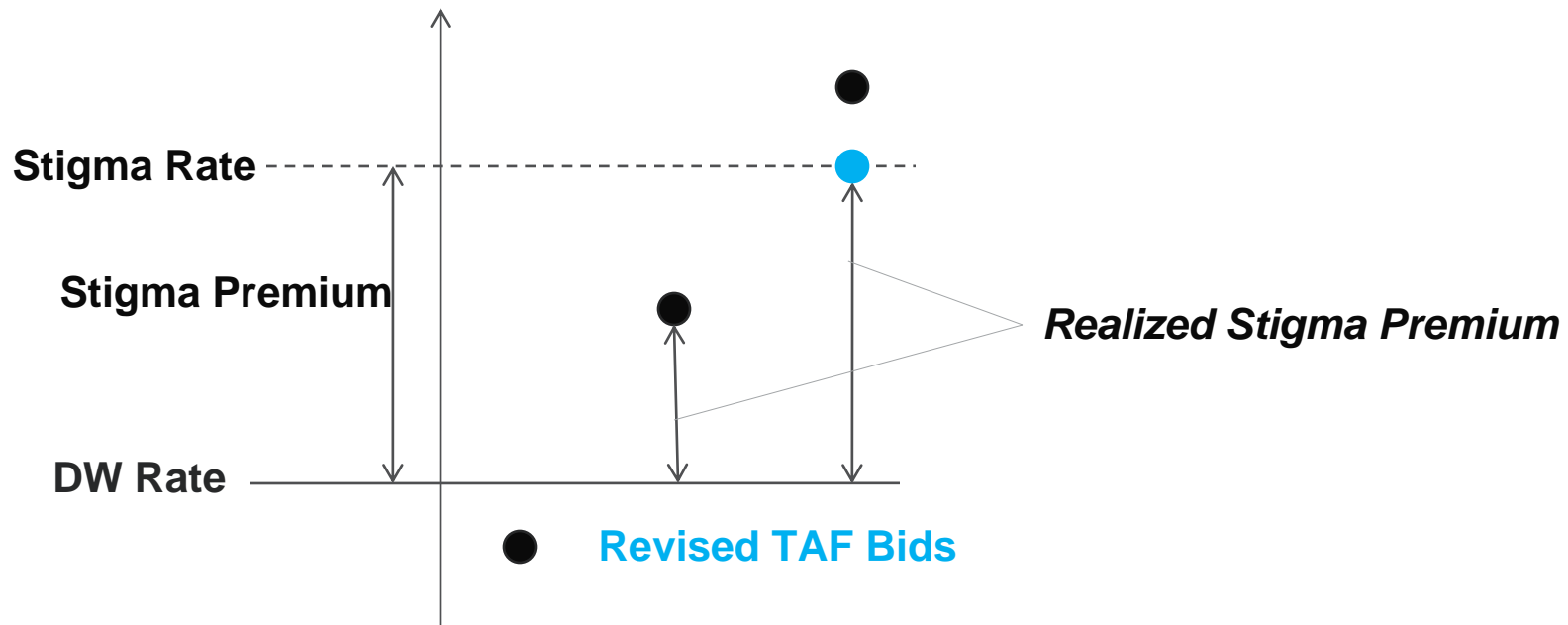
# TAF bidding in the presence of stigma



**Stigma Rate = Highest rate a bank is willing to pay to avoid DW**

**Stigma premium = Stigma rate – DW rate**

# Can we measure Stigma Rate?



$$\text{Realized Stigma Premium} = (\text{TAF bid} - \text{DW rate}) I_{\{\text{TAF bid} > \text{DW rate}\}}$$

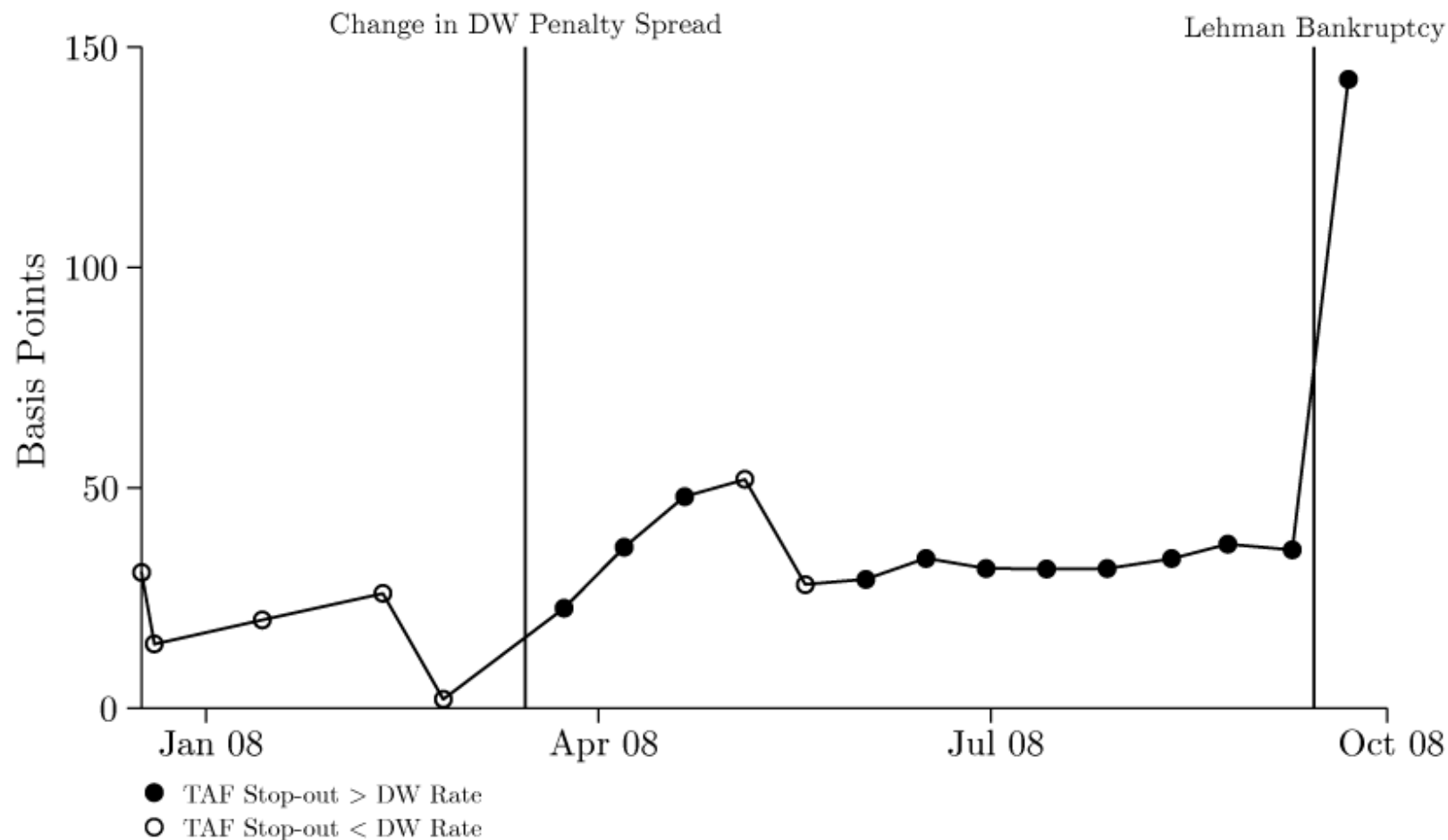
# Can we measure DW stigma rate?

- NO.
- DW stigma rate is a latent variable, an unobservable frontier.
- We can only provide a lower bound for DW stigma rate using the *realized stigma rate*





# Realized DW Stigma Premium



	Full Sample	Summer 2008	Lehman
Mean Realized Stigma	40.8	36.9	142.7

Note: Summer 2008 is all auctions between Mar 24, 2008 and Sep 8, 2008.



## Conclusion 2

- Median DW stigma premium is at least 37bp
- Realized DW stigma premium varies across banks
- In particular, it seems to be larger for small banks with more collateral
- Cost of DW is economically relevant.
- Find mixed evidence supporting bank's beliefs about DW stigma.

# Lessons

- DW stigma exists, but we cannot estimate its magnitude precisely
- Managing DW borrowing by adjusting DW rate becomes an art more than a science.
- Instead, we may try to design new “stigma proof” facilities
- E.g. TAF design features introduced to remove stigma:
  - Banks approach Fed collectively
  - At least 10 banks are awarded funds
  - Funds are allocated with a 3 day delay
  - Low minimum bid rate
  - Rate is determined competitively
  - Uniform price mechanism

