

# **Discussion: Bolton, Li, Wang, Yang**

## **Dynamic Banking and the Value of Deposits**

---

Juliane Begenau (Stanford & NBER & CEPR)

Fourth Annual Short Term Funding Markets Conference, April 2021

# Research Question

- What drives the value of banks' transaction deposits?
  - Deposit rates and market conditions
  - Noninterest deposit expense
  - **Quantity**
- **How does the uncontrollable nature of deposit flow affect bank value?**

# Summary of the paper

## Elegant continuous-time set-up

- A single bank max risk-neutral shareholder value (net payouts)
  - Asset value exposed to random shocks
  - Deposit stock has random maturity
  - Banks control deposit rate and through it potentially deposit growth
  - Convex cost of servicing deposits
  - Deposit alternative is market rate debt
- Frictions
  - Bank capital requirements (RWA/ Equity) of 7% + SLR
  - Key: equity issuance costs  $\Rightarrow$  costly to be undercapitalized
  - Lower bound on deposit rates  $\Rightarrow$  asymmetry in deposit flow control

## Results

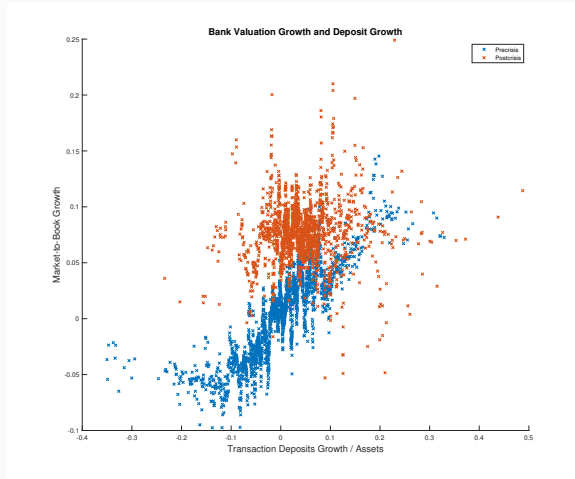
- Equity issuance costs and uncontrolled deposit flow  $\Rightarrow$   
Too many deposits lower bank value as banks may issue “costly” equity
- Tightening reg constraints on banks increases prob. of costly issuance  $\Rightarrow$   
Unintended consequence banks reach for yield to compensate

# Contribution

- Important: what drives deposit value and value changes
- Insight (1):
  - Cheap deposit funding not always valuable because banks do not fully control the quantity of deposits
  - Reminder that quantity also matters for value
    - Literature typically emphasizes low and sluggish deposit rate
- Insight (2):
  - Deposit rate floor constraints banks (several exceptions in Europe)
    - Relevant for current low rate environment

# Market Valuation and Deposit Growth

Data: FR-Y-9C and CRSP



- Pre-crisis: higher deposit growth associated with increasing valuations
  - Transaction deposit / asset  $\approx 40\%$
- Post-crisis: not so clear
  - Transaction deposit / asset  $\approx 60\%$

1. Alternative explanations for why bank valuations are low
  - Noninterest deposit expenses (akin to pay fixed interest rate swap)
2. Empirical strength of “equity issuance costs induced risk-management” mechanism?
  - Low bank valuation and equity issuance costs + reg
  - Reaching for yield mechanism and equity issuance costs
3. Literature

# Comment 1: Alternative view for low bank valuations

Alternative view (not driven by leverage requirements):

- Bank deposit rent per period

$$\text{per period deposit rent} = r_t^f - r_t^{\text{dep}} - \text{costs}_t$$

Deposit business valuable when  $r_t^f$  sufficiently high to warrant costs

- Deposit rate is roughly  $1/3 r_t^f$  (ignoring fee income)
- Costs:
  - Non-interest expense / assets  $\approx 3\%$
  - Discontinued Fed cost survey: “Functional cost analysis” allocates 1/2 of expense to deposits
  - Cost then roughly 1.6% per dollar of deposits

$$\text{per period deposit rent} = 2/3 r_t^f - 1.6\%$$

→ breakeven  $r_t^f$  is 2.4% → past 13 yrs  $r_t^f$  has hardly come close

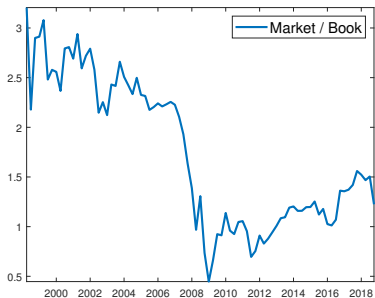
# Comment 1: Alternative views for low bank valuations ctd

## In addition

- Reduction in government guarantees post-crisis
  - (e.g., Atkenson, D'Avernas, Eisfeldt & Weill, 2018; Berndt, Duffie & Zhu, 2020)
- Increased competition on lending and payment sides and relative lack of competitiveness
  - (e.g., Buchak, Matvos, Piskorski & Seru, 2018; Fuster, Plosser, Schnabl & Vickery, 2019)
- Banks levered fixed income portfolio whose value increases with low rates
  - at zero lower bound negative outlook for bank valuations going forward
    - (Begenau and Stafford 2019)



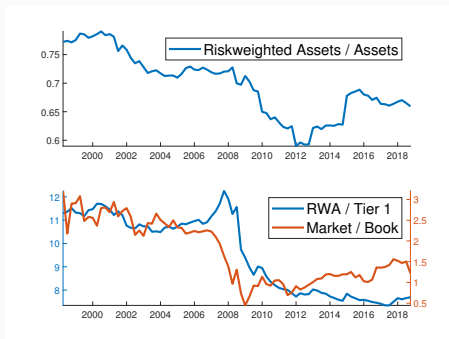
## Comment 2a: Low bank val. & equity issuance costs + reg.



- Bank valuations have tanked since fin crisis: tighter reg. & issue costs?
- Theoretically: why level of as opposed to distance to constraint matters?
- Capital IQ data (WIP by Jonathan Wallen and Wenhao Li)
  - frequency of equity issuance of non-banks slightly lower
  - bank equity issue costs  $\approx$  non-banks (0.7% and 1.5%)
  - bank stockprice response to issue news  $\approx$  non-banks
- Deposit inflows  $\nRightarrow$  issues w/ capital ratio or LCR compliance
- Basel III leverage ratio 4% strong effect? SLR implemented much later

## Comment 2b: Reaching for yield result

Data: FR-Y-9C and CRSP



- Tighter reg. constraints post fin. crisis  $\Rightarrow$  more risk-taking in model
- Tighter reg. constraints (see also reduction in capital ratios)  $\Rightarrow$  Modest effects on risky asset ratio (not consistent with model)

## Comment 3: Literature

- Hutchinson and Pennacchi (1996):  
“Measuring rents and interest rate risk in imperfect financial markets: The case of retail bank deposits”
  - Models value of deposits as a function of deposit rate spread vis-a-vis the stochastic market rate, noninterest costs, and the quantity of deposits
  - Rents are increasing in the growth rates of deposits
  - Rents can become negative
- Jarrow and Van Deventer (1998):  
“The arbitrage-free valuation and hedging of demand deposits and credit card loans”
  - Method to value deposits as an exotic interest rate swap
  - Rents depend on quantity, market conditions, and relative competitiveness (costs and rate setting power)
- Jarrow, Van Deventer, and Zullo (1999):  
“An empirical analysis of the Jarrow-van Deventer model for valuing non-maturity demand deposits”
  - Apply method to a large bank and find that deposit value can be negative
- English, Van Den Heuvel, and Zakrajsek (2018):  
Interest rate risk and bank equity valuations: bank valuation decline more for banks with “strong” deposit base (replacement of funding at market rates)

# Conclusion

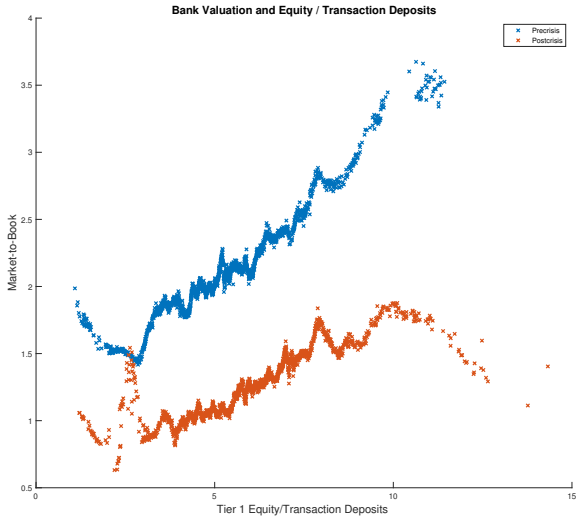
- This paper makes an important point!
  - Imperfect control over deposit quantity affects bank value
- Wonder about quantitative strength of issue cost mechanism
- Promising future direction
  - Considering noninterest cost of transaction deposits
  - Strengthening the connection to the evidence
- I look forward to the next iteration.

## Smaller comments

- Really enjoyed the paper!!
- The abstract is not very clear - but the introduction is great.
- Buybacks can also be explained by lack of investment opportunities and low bank valuation (see Begenau and Stafford 2019) - shareholders want their cash bank
- Calculating the deposits is more subtle as in Drechsler, Schnabl and Savov 2020 - you allude to this and your results have important implications also for the duration of deposits. It should be about the change in the value of deposits in response to rate changes (as in Hutchinson and Pennacchi 1998).
- Your equity issuance costs assumption (footnote 8 and Table 1) appears very high. Based on Capital IQ data, issuance fees for seasoned equity offers are more between 0.7-1.3% per dollar of issuance. The fixed cost part seems fine.

# Your state variable: Market valuation as a function of capital/transaction deposits

Data: FR-Y-9C and CRSP



# Savings and demand deposits are perceived to be valuable - time deposits not

Data: FR-Y-9C and CRSP

