

# Dynamic Banking with Non-Maturing Deposits

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# Overview

- ▶ Macro-finance: banks create liquidity through short-term deposits  $\Rightarrow$  **default + runs**
- ▶ Corporate finance: long-term debt + new issuance  $\Rightarrow$  **debt dilution**

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What does the paper do?

1. Dynamic model with endogenous maturity
2. Effect of debt dilution on transmission of monetary policy
3. Bank capital regulation: time-inconsistency + different degrees of commitment

## Model

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  - ▶ redemption cost  $\kappa$

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  - ▶ redemption cost  $\kappa$
- ▶ All bargaining power to banks: deposit price  $q$  such that depositors break even
- ▶ Exogenous interest rate  $r$

# Equilibrium

- ▶ Withdrawal decision: withdraw if

$$(1 + \nu - \kappa) b_i > q b_i$$

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$$z + v^e(r, b) = z + \max_{b'} \left\{ R - \overbrace{\lambda^* b}^{\text{withdrawals}} + q(r, b') \overbrace{\{b' - [1 - \lambda^*] b\}}^{\text{new deposits}} \right\} \\ + \frac{1}{r} \underbrace{\mathbb{E} [\max \{z' + v^e(r', b'), 0\}]}_{\text{continuation no default}}$$

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- ▶ Deposit price: zero profits for depositors  $\Rightarrow q(r, b')$ 
  - ▶ future dilution is priced since effective maturity is longer than one period.
- ▶ Key feature:  $\lambda^* = \lambda(q(r, b'))$

# Dilution

- ▶ Banks' leverage decision

$$q(r, b') + \frac{\partial q(r, b')}{\partial b'} (b' - [1 - \lambda^*] b) + \Delta_{\text{continuation}} = 0$$

- ▶  $\Delta_{\text{continuation}} = \Delta_{\text{default probability}} + \Delta_{\text{additional liquidity}}$
- ▶  $\frac{\partial q(r, b')}{\partial b'} < 0 \Rightarrow$  higher default probability

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- ▶  $\frac{\partial q(r, b')}{\partial b'} < 0 \Rightarrow$  higher default probability
- ▶ Banks only internalize the effect of the decrease in price on new deposits

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- ▶ Response to interest rate shocks
  - ▶ Boom bust dynamics that we cannot get with fixed
- ▶ Capital requirements can partially address dilution
  - ▶ time-inconsistency with endogenous maturity
  - ▶ Commitment technology is important



# Comments/Suggestions

1. Very nice framework to think about dilution in a macro model
  - ▶ smart numerical solution: nice technical contribution
  - ▶ well suited for quantitative assessment (calibration?)
  - ▶ Clarify timing
  - ▶ ...There is a lot going on!

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  - ▶ It's not just dilution.
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2. Endogenous maturity matters!
  - ▶ It's not just dilution.
  - ▶ How does it matter? Welfare? Quantities? Real effects?
3. Going forward: Optimal monetary policy, production