Banking on Inattention

Xu Lu — UW Foster
Lingxuan Sean Wu — NYU Stern

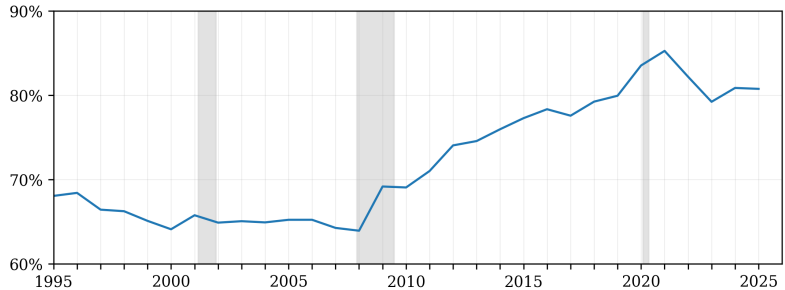
NBER SI 2026 (Macro, Money and Financial Frictions; Monetary Economics)

Bank deposits: massive, important, yet puzzling

Deposits are the dominant component of broad monetary aggregates & bank funding source.

- **Massive**: over $13tn bank deposits, 80%+ of total bank liabilities in 2025Q4;
- **Important**: crucial role in monetary transmission (Drechsler-Savov-Schnabl '17) and financial stability (DeMarzo-Krishnamurthy-Nagel '25, Blickle-Li-Lu-Ma '26).

Deposits / Total Liabilities, All Private Depository Institutions



Bank deposits: massive, important, yet puzzling

Deposits are the dominant component of broad monetary aggregates & bank funding source.

- **Massive**: over $13tn bank deposits, 80%+ of total bank liabilities in 2025Q4;
- **Important**: crucial role in monetary transmission (Drechsler-Savov-Schnabl '17) and financial stability (DeMarzo-Krishnamurthy-Nagel '25, Blickle-Li-Lu-Ma '26).

Yet key facts about deposits remain **puzzling**:

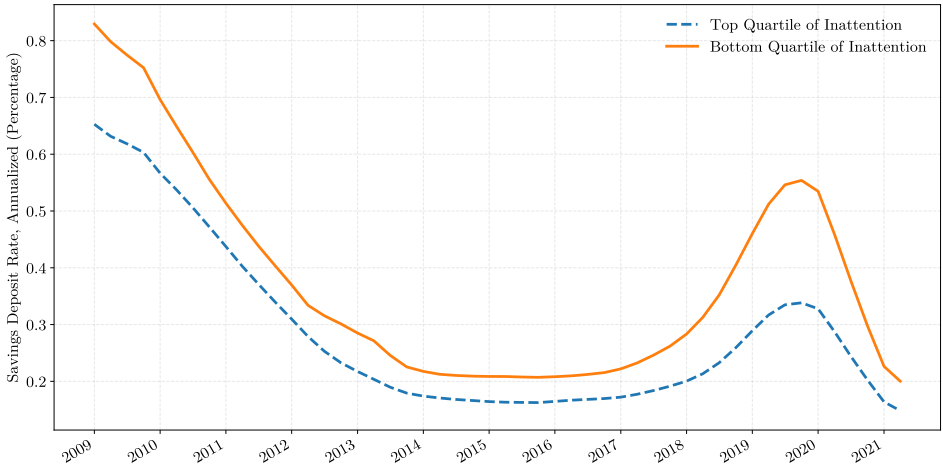
1. What makes the trillion-dollar, low-cost deposit base sustainable?
2. Why is monetary policy pass-through to deposit rates incomplete?
3. How does interest rate risk in deposits vary over the monetary cycle?

Banking on inattention offers a common explanation.

- Document new evidence on depositor inattention
- Build & test a new theory of deposit pricing

$\Longrightarrow$ Aggregate implications on monetary pass-through & interest rate risk.

Preview: banks price depositor inattention



Banks serving more inattentive depositors set lower deposit rates.

Contributions to literature

- **Depositor behavior:** e.g., Lu-Song-Zeng '25; Argyle-Iverson-Kotter-Nadauld-Palmer '25; Cirelli-Ólafsson '25; Egan-Hortaçsu-Kaplan-Sunderam-Yao '25; Benetton-Hébert-McQuade '26
  → *Novel evidence of depositor inattention inferred from real-stake field data.*
- **Liability-side theories of banking:** e.g., Diamond-Dybvig '83; Gorton-Pennacchi '90; Calomiris-Kahn '91; Diamond-Rajan '01; Kashyap-Rajan-Stein '02; Goldstein-Pauzner '05
  → *A new deposit-pricing model linking depositor behavior to financial stability.*
- **Bank deposit pricing puzzles:** e.g., Diebold-Sharpe '90; Hannan-Berger '91; Neumark-Sharpe '92; Driscoll-Judson '13; Duffie-Krishnamurthy '16; d'Avernas-Eisfeldt-Huang-Stanton-Wallace '26
  → *Rationalizing banks' incomplete pass-through and sluggish & asymmetric rate adjustments.*
- **Aggregate implications on interest rate risk and monetary transmission** e.g., Drechsler-Savov-Schnabl '17, '21; Begenau-Stafford '19; DeMarzo-Krishnamurthy-Nagel '25; Drechsler-Savov-Schnabl-Wang '25; Eichenbaum-Puglisi-Rebelo-Trabandt '25
  → *Generating state-dependent monetary pass-through and sign-switching interest rate risk.*

Model of banking on inattention: setup

- $t \in [0, \infty)$. Deposit demand M_t decays from M_0 as

$$\dot{M}_t / M_t = - \underbrace{\tau^{-1}}_{\text{(inverse of) inattention}} \cdot P(\underbrace{\overbrace{\rho_t}^{\text{policy rate}} - \overbrace{r_t}^{\text{deposit rate}}}_{\text{deposit spread}})$$

  Decay $\uparrow$ in deposit spread and $\downarrow$ in inattention.

  - Poisson rate of managing account τ^{-1}; convex withdrawal fraction $P(\rho_t - r_t) = a + \left(\frac{\rho_t - r_t}{b}\right)^{\gamma}$.

- With $\rho_t = \rho$, **bank** sets $r \geq 0$ to maximize deposit franchise value (DFV)

$$V_0(r; \rho, \tau, M_0) = \int_0^{\infty} e^{-\rho t} \cdot \overbrace{(\rho - r)}^{\text{profit margin}} \cdot \overbrace{M_t}^{\text{demand}} \, \mathrm{d}t = \frac{\overbrace{\rho - r}^{\text{profit margin}}}{\underbrace{\tau^{-1} P(\rho - r)}_{\text{decay rate}} + \underbrace{\rho}_{\substack{\text{discount rate} \\ = \text{policy rate}}}} M_0.$$

▸ Deposit acquisition ▸ Time-varying policy rate

Bank's optimal rate setting

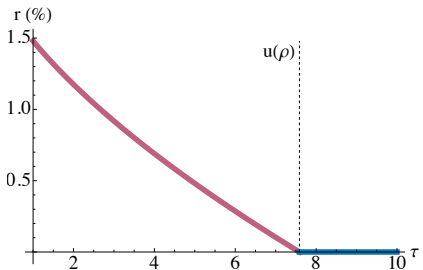
Bank chooses *deposit spread* $x \equiv \rho - r \in [0, \rho]$ to maximize

$$V_0(x; \rho, \tau, M_0) = \frac{\overbrace{x}^{\text{current profit margin}}}{\underbrace{\tau^{-1} P(x)}_{\text{future quantity (decay rate)}} + \rho} M_0.$$

▸ Flow sensitivity

Two cases:

1. Corner pricing ($\tau \geq u(\rho)$): bank sets $r = 0$.
2. Interior pricing ($\tau < u(\rho)$): bank sets $r \in (0, \rho)$, with
   - Deposit rate ↓ w/ inattention, $\frac{\partial r}{\partial \tau} < 0$,



Bank's optimal rate setting

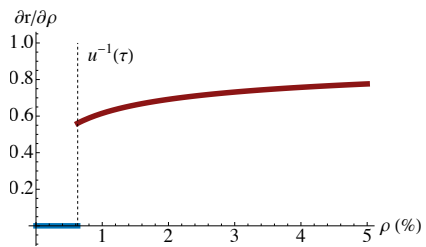
Bank chooses *deposit spread* $x \equiv \rho - r \in [0, \rho]$ to maximize

$$V_0(x; \rho, \tau, M_0) = \frac{\overbrace{x}^{\text{current profit margin}}}{\underbrace{\tau^{-1} P(x)}_{\text{future quantity (decay rate)}} + \underbrace{\rho}_{\text{discount rate}}} M_0.$$

▸ Flow sensitivity

Two cases:

1. Corner pricing ($\tau \geq u(\rho)$): bank sets $r = 0$.
2. Interior pricing ($\tau < u(\rho)$): bank sets $r \in (0, \rho)$, with
   - Deposit rate ↓ w/ inattention, $\frac{\partial r}{\partial \tau} < 0$,
   - Pass-through $\varepsilon = \frac{\partial r}{\partial \rho}$ ↑ w/ policy rate, incompletely: $\varepsilon < 1$,



Bank's optimal rate setting

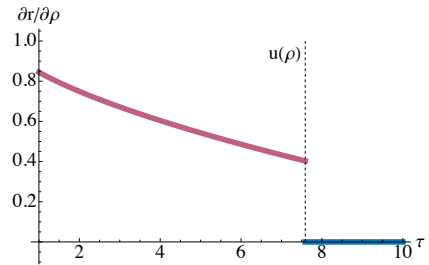
Bank chooses *deposit spread* $x \equiv \rho - r \in [0, \rho]$ to maximize

$$V_0(x; \rho, \tau, M_0) = \frac{\overbrace{x}^{\text{current profit margin}}}{\underbrace{\tau^{-1} P(x)}_{\text{future quantity (decay rate)}} + \underbrace{\rho}_{\text{discount rate}}} M_0.$$

▸ Flow sensitivity

Two cases:

1. Corner pricing ($\tau \geq u(\rho)$): bank sets $r = 0$.
2. Interior pricing ($\tau < u(\rho)$): bank sets $r \in (0, \rho)$, with
   - Deposit rate $\downarrow$ w/ inattention, $\frac{\partial r}{\partial \tau} < 0$,
   - Pass-through $\varepsilon = \frac{\partial r}{\partial \rho} \uparrow$ w/ policy rate, incompletely: $\varepsilon < 1$,
   - Pass-through $\downarrow$ w/ inattention, $\frac{\partial \varepsilon}{\partial \tau} < 0$.



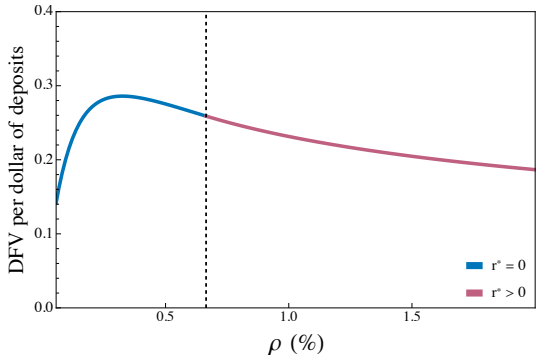
Deposit franchise value: inattention, monetary policy and interest rate risk

Deposit franchise value (DFV) depends on three terms

$$V_0 = \frac{\overbrace{x}^{\text{profit margin}}}{\underbrace{\tau^{-1}P(x)}_{\text{decay rate}} + \underbrace{\rho}_{\text{policy rate}}} M_0.$$

- DFV increases with higher inattention.
- DFV $\uparrow$ in ρ when $\rho \in [0, u^{-1}(0)]$, and $\downarrow$ in ρ when $\rho \in (u^{-1}(0), \infty)$.

1. low ρ: $r^* = 0,\ V_0 = \frac{\rho}{\tau^{-1}P(\rho)+\rho} M_0 \uparrow$ in ρ
   $\rightarrow$ Deposits **hedge** interest rate risk (Drechler-Savov-Schnabl-Wang '26);
2. high ρ: $\frac{\mathrm{d}V_0(x^*(\rho),\rho)}{\mathrm{d}\rho} = \frac{-x^* M_0}{(\tau^{-1}P(x^*)+\rho)^2} < 0$
   $\rightarrow$ Deposits **heighten** interest rate risk (DeMarzo-Krishnamurthy-Nagel '26).



Empirical implications

I. Inattention dampens deposit decay.

Inattentive depositors do not manage accounts frequently;
Inattention dampens rate-sensitive deposit demand.

II. Banks price depositor inattention.

Banks with more inattentive deposit base set lower rates and pass through less;
Banks with more inattentive deposit base face less rate-sensitive flows.

III. Banking on inattention explains time-varying monetary pass-through.

Calibrated monetary pass-through varies with the policy rate and matches data moments;
Aggregate deposit franchise value amounts to 2.6tn by the end of 2022.

Empirics: data

I. Inattentive depositors

(i) Bank data for >26mn U.S. depositors ('14–'22).

- Linked accounts across depository institutions with balances;
- Transaction-level details: date, amount, location, and *text description*.

II. Price and quantity predictions across banks

(ii) Call reports;

(iii) FDIC summary of deposits;

(iv) Census;

(v) IRS zipcode-level tax filings;

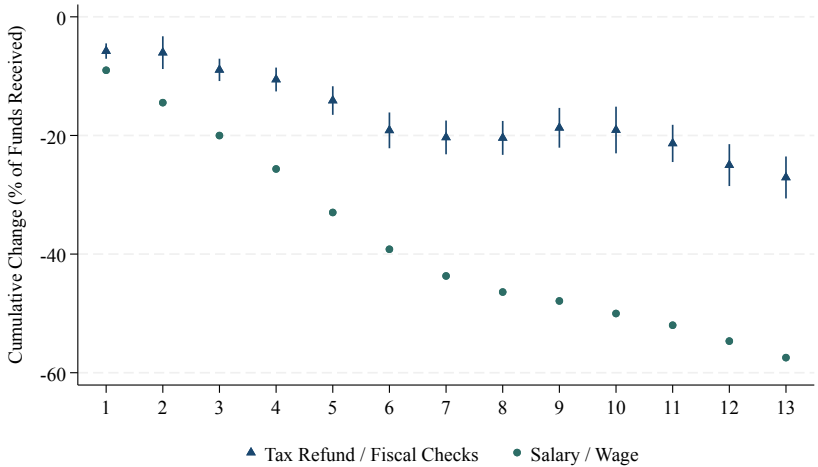
(vi) RateWatch.

Inferring inattention from transaction data

▸ details

- Deposit decay is modulated by τ, the frequency at which depositors manage their accounts.
- How do we back out inattention from large scale observational data?
- Kahneman '03 & '11: reactions to routine tasks are fast, whereas reactions to non-routine tasks require time & effort $\rightarrow$ attention.
- **Empirical design**: compare depositors' reactions to scheduled income (salary and social security) vs. unscheduled (tax refunds and fiscal checks).
  - **Full-attention frictionless benchmark**: once funds arrive in a low-interest transaction account, scheduled and unscheduled inflows should generate similar responses.
- **Inattentive depositors**: unscheduled income remain longer than scheduled income.
  - Possible mechanisms include adjustment costs (Duffie-Sun '90, Abel-Eberly-Panageas '07, '13), procratination (Maxted-Laibson-Moll '25), uncertainty about optimal action (Enke et al. '24).

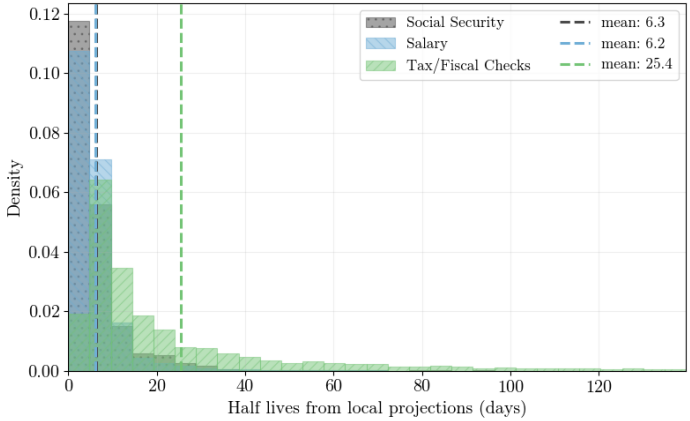
Unscheduled income stays longer in bank accounts



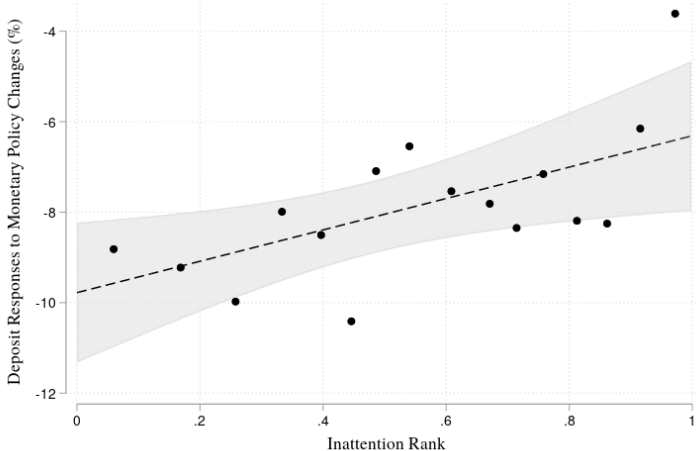
▸ Consumption responses ▸ Adjustment costs ▸ Prearranged transfers

Measuring inattention at the depositor level

- Substantial heterogeneity in the half-lives of unscheduled income. ▸ Local projections
- Inattention: the difference in half-lives between unscheduled and scheduled income.



Inattentive depositors withdraw less with rate hikes

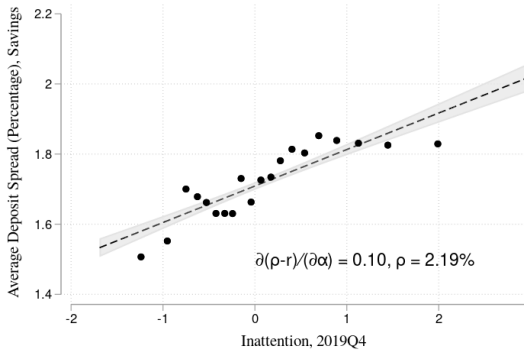


Inattentive depositors respond less during the two weeks around FOMC announcements w/ hikes.

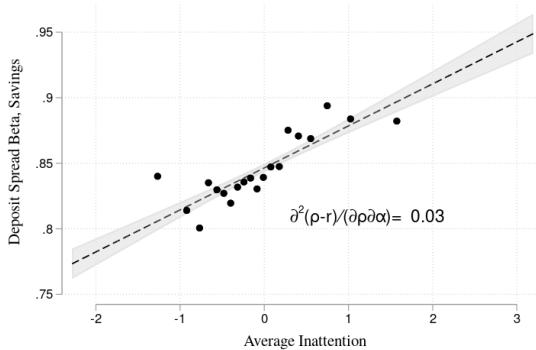
... and they are also less likely to cancel subscriptions when prices increase (DellaVigna-Malmendier '06, Einav-Klopack-Mahoney '25) ▸ Subscription inertia

Inattention is priced by banks: deposit rates and pass-through

(a) Spread v. inattention



(b) Spread beta v. inattention



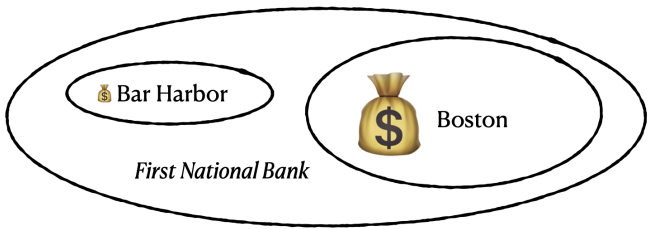
- More inattentive banks have larger spreads and higher spread betas.
  - Relationships plateau at high inattention.

Estimating the spread sensitivity for inattentive deposit outflows

▸ details

OLS is biased: unobserved demand shocks shift both demand and rates.

The leave-one-out (LOO) instrument: the deposit rate in a small county can be instrumented using inattention in other counties, if bank sets a uniform rate using deposit-weighted inattention.



FNB set a uniform rate based on deposit-weighted inattention α:

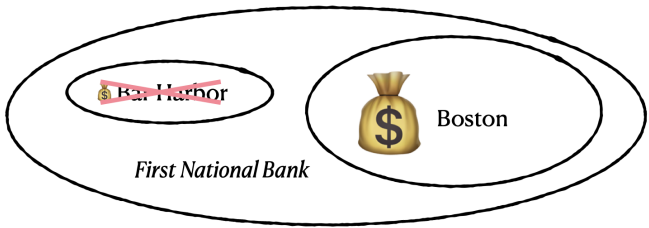
$$r_{FNB,BarHarbor} = r_{FNB} = f\left[\left(\text{💰} \times \alpha_{BarHarbor} + \text{💰} \times \alpha_{Boston}\right) \Big/ \left(\text{💰} + \text{💰}\right)\right].$$

Estimating the spread sensitivity for inattentive deposit outflows

▸ details

OLS is biased: unobserved demand shocks shift both demand and rates.

The leave-one-out (LOO) instrument: the deposit rate in a small county can be instrumented using inattention in other counties, if bank sets a uniform rate using deposit-weighted inattention.



FNB set a uniform rate based on deposit-weighted inattention α:

$$r_{FNB,BarHarbor} = r_{FNB} = f\left[\left(\$ \times \alpha_{BarHarbor} + \$ \times \alpha_{Boston}\right) \Big/ \left(\$ + \$\right)\right].$$

Deposit flow sensitivity: the leave-one-out instrument

With the instrumented spread changes plausibly unrelated to local demand shocks:

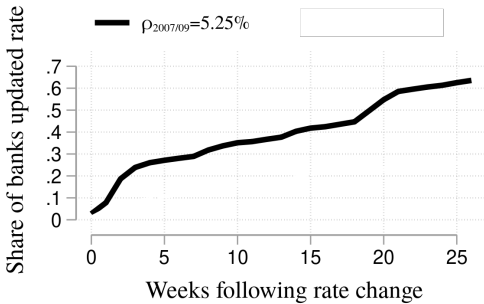
$$\Delta \log m_{jbt} = \zeta_1 \widehat{\Delta x_{jbt}} + \zeta_2 \widehat{\alpha_{bt} \Delta x_{jbt}} + \zeta_3 \alpha_{bt} + \zeta_4 \widehat{\text{HHI}_{jt} \Delta x_{jbt}} + \zeta_5 \text{HHI}_{jt} + \delta_j + \delta_b + \delta_t + \varepsilon_{jbt}.$$

	Deposit spread	**First stage (IV)**	**2SLS**
Policy rate ρ_t	0.761***	–	–
Bank inattention α_{bt}	0.058***	–	–
$\alpha_{bt} \times \rho_t$	0.003*	–	–
LOO of $\alpha \times \Delta x$	–	1.023***	–
First-stage F	–	281.1	–
$\widehat{\alpha \times \Delta x}$	–	–	**0.560*** **
$\widehat{\text{HHI} \times \Delta x}$	–	–	0.515**
Observations	95,296	146,753	146,753
Fixed effects	–	bank,county,year	

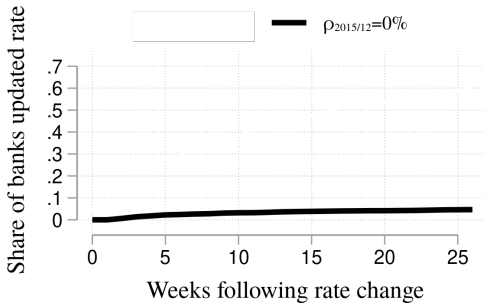
(SE bootstrapped by bank clusters)

$x \uparrow 1\%$: +1 SD in inattention reduces outflow by $\approx 0.56\%$.

“Asymmetry” in short-run adjustments

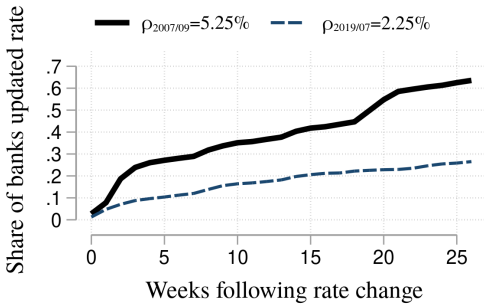


(a) Rate cuts

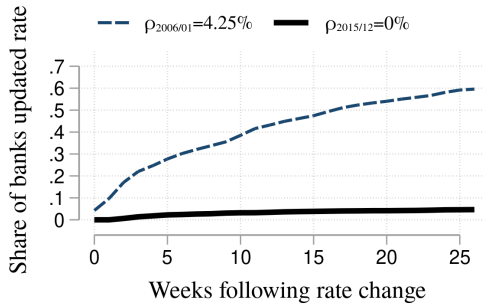


(b) Rate hikes

"Asymmetry" in short-run adjustments



(a) Rate cuts



(b) Rate hikes

- When the level of the policy rate is higher, banks adjust more quickly.
- ... It appears like as asymmetry, since rate cuts tend to happen when rate is high!

Cross-sectional evidence: summary

I. Inattentive depositors

Inattentive depositors do not manage accounts frequently;
Inattention dampens rate-sensitive deposit demand.

II. Deposit price and quantity across banks

Banks with more inattentive deposit base (i) set lower rates,
(ii) have less monetary pass-through & (iii) experience less rate-sensitive deposit outflows.

Aggregate implications: monetary pass-through and DFV comparative statics

I. Inattentive depositors

Inattentive depositors do not manage accounts frequently;
Inattention dampens rate-sensitive deposit demand.

II. Deposit price and quantity across banks

Banks with more inattentive deposit base (i) set lower rates,
(ii) pass through less & (iii) experience less rate-sensitive deposit outflows.

III. Aggregate monetary pass-through and funding stability

Calibrating the model with the bank-level estimates (i)-(iii), we analyze how DFV and monetary pass-through change over the monetary cycle.

Calibrating the model

$$\text{Per-dollar DFV} = \frac{x}{\tau^{-1}P(x) + \rho}, \quad \text{with } P(x) = a + \left(\frac{x}{b}\right)^{\gamma}.$$

- Deposit spread x and policy rate ρ are from data.
- Inattention to income informs the inattention to balance τ.
- Three **cross-sectional estimates** pin down a, b, γ:
  - spread level w.r.t. inattention, $d_1 \equiv \partial x / \partial \tau$;
  - spread beta w.r.t. inattention, $d_2 \equiv \partial^2 x / (\partial \rho \, \partial \tau)$;
  - flow sensitivity w.r.t. inattention, $d_3 \equiv (\Delta t)^{-1} \partial^2 (\Delta \log M) / (\partial x \, \partial \tau)$.

▸ Robustness

Untargeted aggregate data moments

$\tau = 2.60$, $\rho = 2.2\%$ (2019Q4), calibrated $P(x) = 0.0068 + \left(\frac{x}{0.048}\right)^{1.61}$.

Untargeted moments, savings deposits	Data	Model
Annual deposit decay rate	$5 \sim 10\%$	5.9%
Average deposit spread	1.62%	1.29%
Average pass-through	0.42	0.61
OLS coef., pass-through on policy rate	4.6^{***}	7.5^{***}
	(1.6)	(2.1)

- *Calibration of per-dollar DFV only uses cross-sectional moments, and matches aggregate levels of decay rate, deposit spread and pass-through in data.*
- Additionally: new results on state-dependent effects of monetary policy (Eichenbaum-Puglisi-Rebelo-Trabandt '25).

Deposit franchise value

- Savings deposits:
  1. DFV: $\approx$ 18¢/\$ $\rightarrow$ \$1.8tn (end of 2022);
  2. Interest rate risk: $\rho \uparrow$ by 1% in level, DFV $\downarrow$ by 2.8¢/\$;
- Non-interest-bearing deposits: DFV $\approx$ 16¢/\$ $\rightarrow$ \$0.8tn;
- **Total:** $\approx$ **\$2.6 trillion** in aggregate deposit franchise value. More in the paper:

  ▸ **Cross section of banks;**

  ▸ **Impact of digital banking;**

  ▸ **Fixed operating costs and the sign of DFV duration;**

  ▸ **Redistribution across demographic segments;**

  ▸ **Banks' willingness-to-pay for new deposits.**

Depositor behavior: implications for banking and monetary economics

I. Depositors are inattentive.

A novel measure of inattention from the reaction-time gap between scheduled and unscheduled income; inattentive depositors respond less to FOMC announcements.

II. Banks price depositor inattention.

A dynamic model of deposit pricing with inattention, explaining low rates, incomplete pass-through, weak flow sensitivity, and "asymmetric" sluggishness in short-run rate adjustments.

III. Aggregate implications on monetary transmission and financial stability.

A calibration to illustrate how inattention creates state dependent deposits channel and sign-switching interest rate exposure.