Reaching for Duration

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The paper in brief

- **Puzzling secular trends:**
  - U.S. banks' maturity gaps have more than tripled since the mid-1980s, increasing from about 1.6 years (1986) to 5.7 years (2022).
  - Interest rates and term premia have declined over the same period.
- **Mechanism:** Current or anticipated profitability pressures can induce banks to reach for duration as term premia decline.
- **Implication:** Quantitative easing (QE) may inadvertently increase banks' vulnerability to interest-rate reversals and runs.

#1. Strengths of the Paper

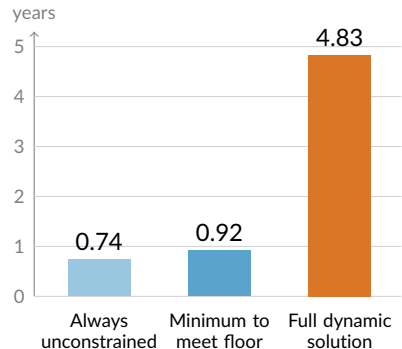
- **Remarkable historical pattern of bank maturity mismatch.** Reconstructs maturity gaps from Call Reports since the mid-1970s.
- **Intuitive but striking mechanism.** Profitability constraints can lead banks to extend duration when term premia decline.
- **Rich theoretical analysis.** Anticipation of future constraints, risky lending, endogenous term premia, and self-fulfilling bank runs.
- **Substantial empirical work.** Several exercises aimed at testing a hard-to-identify mechanism.
- **Important policy implications.** Potential consequences for QE, financial stability, and the prudential regulation of interest-rate risk.

#2. Testing the mechanism: current vs. future constraints

The quantitative mechanism is forward-looking

- **Static model:** Binding profitability constraints can lead banks to extend duration when term premia fall.
- **Dynamic model:** Banks may reach for duration before the constraint binds, anticipating future profitability pressures.
- The full dynamic solution implies a much larger maturity gap than either static-model benchmark.

Implied maturity gap: low-rate environment



Adapted from authors' Appendix H, Figure 21.

The forward-looking mechanism is central to the quantitative results, but is not directly tested in the empirical analysis.

#2. Testing the mechanism: current vs. future constraints (cont.)

Does low ROA test the model's distinctive predictions?

$$MG_{it} = \phi_0 + \beta\, ROA_{i,t-1} + \theta MG_{i,t-1} + u_{it}, \qquad \widehat{\beta} < 0$$

- **Estimated relationship:** Lower profitability predicts greater subsequent maturity mismatch.
- **Limitations:**
  - **Link to the mechanism:** ROA does not measure distance to a bank-specific profitability threshold or the likelihood of future constraints.
  - **Ommitted variables:** Lending opportunities, credit losses, previous interest-rate exposures.
- **More direct, but challenging tests:**
  - **Static model:** Opposite responses to identified term-premium/rate shocks by predetermined constraint status.
  - **Dynamic model:** Responses to the same shocks interacted with ex-ante indicators of future profitability pressure, even when current constraints are slack.
- **Key question:** What **observable evidence** could reject the forward-looking mechanism, or distinguish it from the static model's mechanism or other explanations?

#3. Measured maturity mismatch

Does maturity mismatch capture interest-rate risk?

Earnings exposure in the static model

$$\alpha^{hedge} = \lambda = 1 - \beta(1 - e),$$

$$\underbrace{\mathrm{Var}(\Pi_2)}_{\text{Payout risk}} = (\alpha - \alpha^{hedge})^2 \sigma^2.$$

Maturity gap in the data

$$MG_i = M_i^A - M_i^L$$

Average maturity/repricing of assets minus liabilities.

- **In the model:** Earnings-based IRR depends on net exposure to rate shocks ($\lambda - \alpha$) and the volatility of these shocks (σ^2).
- **In the data:** The maturity gap ($M_i^A - M_i^L$) measures maturity/repricing horizons, but does not directly measure the corresponding earnings sensitivity to rate shocks.

A larger maturity gap need not imply a proportional increase in effective IRR.

- **Suggestion:** Complement evidence on maturity gap with earnings-based measure of IRR.

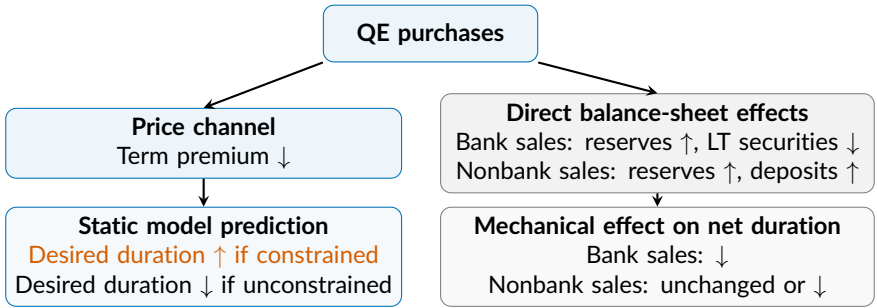
#3. Measured maturity mismatch (cont.)

The baseline maturity gap may overstate effective duration mismatch.

- **Liability side: Non-maturity deposits (NMDs)**
  - NMDs are assigned zero maturity because they can be withdrawn on demand. Yet stable balances and sticky deposit rates imply positive effective duration (Drechsler et al., 2021).
  - Given NMDs' growing importance (Abdymomunov et al., 2026), assigning zero maturity may overstate not only the level but also the upward trend in the measured gap.
- **Asset side: Maturity versus duration**
  - Coupon payments and mortgage prepayments shorten effective duration relative to contractual maturity.
  - Appendix B shows that these adjustments reduce the level and the absolute increase in the gap, especially after accounting for prepayments. The upward trend nevertheless survives.
- **Suggestion:** Use an effective gap measure—incorporating behavioral assumptions for NMDs and coupon and prepayment adjustments for assets—to reassess the stylized facts, model's quantitative fit, and bank-level regressions.

▸ Fig. 9

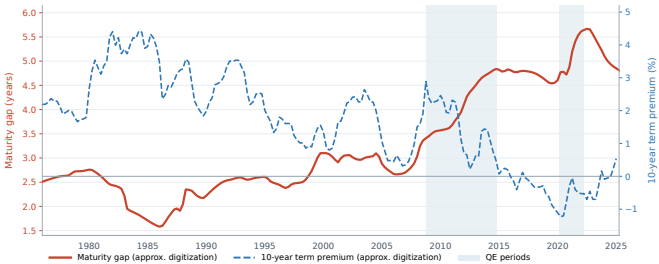
#4. Does QE increase banks' net IRR exposure?



- **Open empirical question:** Do constrained banks actively seek more duration in response to QE, potentially offsetting its direct effects? Does their net IRR exposure increase?
- **Evidence does not exploit QE shocks:** The profitability–maturity relationship strengthens when Fed securities holdings are high (App. Fig. 25), but holdings $\neq$ QE shocks. ▸ Fig. 25
- **Suggestion:** Identified QE shocks $\times$ ex-ante profitability pressure; distinguish active LT-asset purchases and reinvestment from mechanical duration changes, and measure net IRR exposure.

#5. Understanding Post-GFC Maturity Extension

What explains differences in the timing of maturity extension?



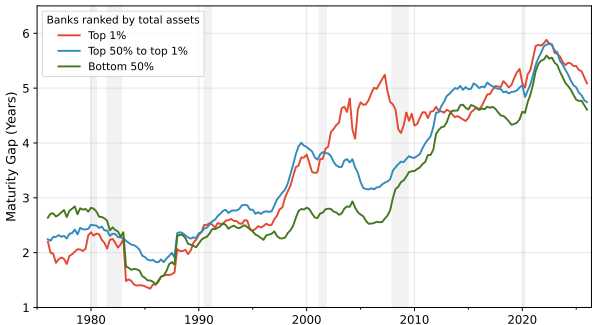
Maturity gap and term premium approximately digitized from authors' Figures 1–2.

- Overlaying maturity gaps and term premia (Figs. 1–2) suggests stronger inverse comovement after 2008 than during 1997–2007.
- This could reflect nonlinear profitability-driven responses, but changing lending opportunities and regulation may also matter.
- Appendix E models lending frictions, but their contribution to the historical acceleration is not quantified.

#5. Understanding Post-GFC Maturity Extension

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Figure 11: Maturity Gap by Bank Asset Size



- **Heterogeneity:** Post-GFC acceleration is clearest among smaller banks; the largest banks extended maturities earlier.
- **Interpretation:** Banks face common movements in term premia, but differ in profitability pressures, lending opportunities, and regulatory constraints.

Can profitability pressures explain differences in the timing of maturity extension, or did changes in lending opportunities and regulation also matter?

Concluding Remarks

1. **Test the mechanism more directly:** Test the distinct predictions of current and anticipated future profitability constraints using rate and term-premium shocks.

2. **Measure effective IRR:** Connect maturity gaps to net interest-rate exposure, accounting for deposit behavior and asset duration.

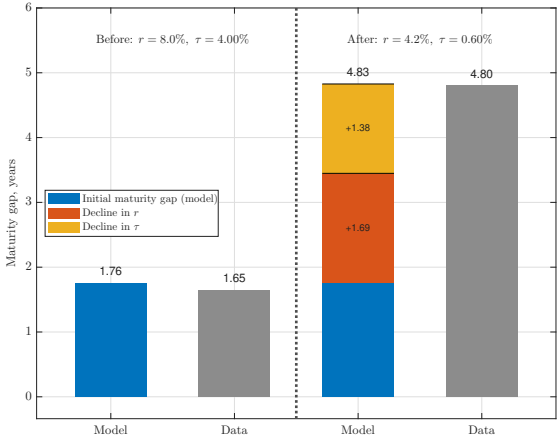
3. **Assess QE's effects:** Test for active duration-taking among banks facing profitability pressure and estimate QE's net effect on interest-rate exposure.

The theoretical mechanism is compelling.

Documenting its empirical relevance is the next step.

Best of luck!

Model Fit: Baseline Maturity Gap

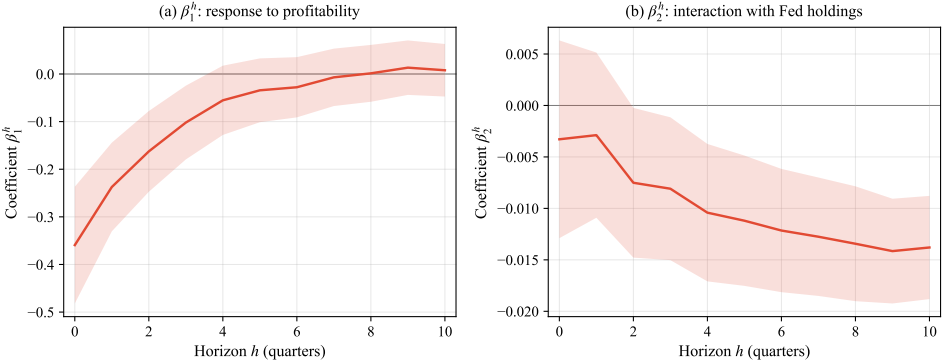


Authors' Figure 9. Model fit based on the baseline maturity gap.

Interaction with Fed Securities Holdings

$$MG_{i,t+h} = \phi_t^h + \beta_1^h ROA_{i,t-1} + \beta_2^h (ROA_{i,t-1} \times S_{t-1}) + \theta_1^h MG_{i,t-1} + \theta_2^h ROA_{i,t-2} + u_{i,t}^h$$

$$S_{t-1} = \text{Fed securities holdings/GDP}$$



Authors' Appendix Figure 25. Local projections interacted with Federal Reserve securities holdings relative to GDP.

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