What Do $40 Trillion of Portfolio Holdings Say about the Transmission of Monetary Policy?

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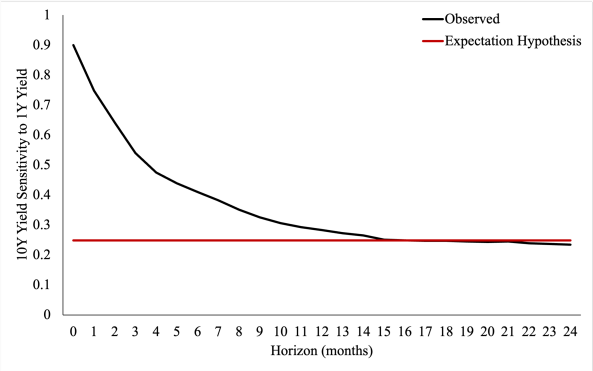
Conference on Challenges for the Transmission of Monetary Policy in a Changing World

Introduction

The twin puzzle: excess sensitivity, then decoupling

- Expectation hypothesis: 10Y loads on 1Y by a **constant** $\approx$**0.2** at all horizons
- Daily: sensitivity $\approx$**4**$\times$ benchmark $\Rightarrow$ **excess sensitivity**
- By $\sim$2 years: back to benchmark $\Rightarrow$ **decoupling**
- US data; same in UK, Canada, Germany; sharper since 2000



Two policy puzzles, two famous worries

- **Excess sensitivity** (high frequency)

  "*How, in a world of eventually flexible goods prices, is monetary policy able to exert such a powerful influence on long-term real rates?*" – Stein (2013)

  $\Rightarrow$ monetary policy is **far more potent** than predictions of standard models

- **Decoupling** (low frequency)

  "*...the recruitment channel may not be as strong as Stein (2013) speculates since a portion of the resulting shifts in term premia are transitory...*" – Hanson, Lucca, Wright (2021)

  $\Rightarrow$ if the yield imprint fades, is the **real impact small?**

One price pattern, three mechanisms – only data can referee

- The same yield pattern is consistent with **three** stories:

(1) Demand rises, then **reverts** – small real effect

(2) Demand rises, absorbed by **arbitrageurs** – small real effect

(3) Demand rises, absorbed by **new issuance** – **large** real effect

- They differ in *whose quantities move* $\Rightarrow$ **holdings data can tell them apart**
- Our tool: an **asset demand system** on \$40T of granular holdings – maps quantities to market-clearing yields

Overview of findings

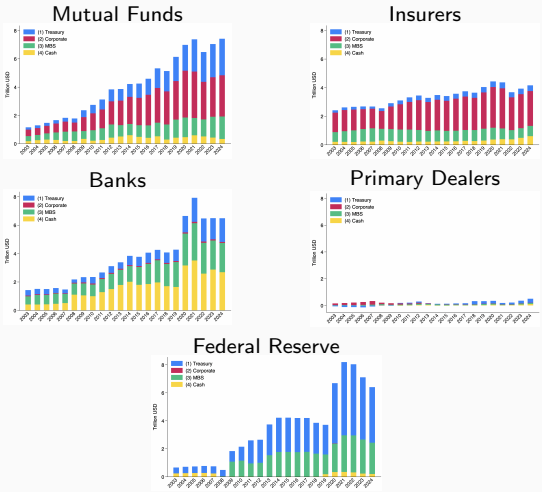
- **Finding 1 – investors amplify** short-to-long rate transmission
  - 100 bps cut $\rightarrow$ mutual funds and banks buy **0.73%** of the market ($\approx$1.2% of GDP)
  - this "**helping hand**" explains much of the short-run **excess sensitivity**

- **Finding 2 – issuance absorbs** the demand, gradually
  - explains most of the long-run **decoupling**
  - decoupling = **stronger**, not weaker, real impact – *quantity* moves, not price
  - helping hand is **4**$\times$ the risk-free rate in driving issuance

Data

Who holds the $40 trillion

- Granular holdings 2003–2024: funds, insurers, banks, dealers, Fed
- **Mutual funds**, **banks**, and **insurers** are the largest holders
- **Dealers** – textbook arbitrageurs – hold **$<1\%$**
- Each investor spans *multiple* bond classes $\Rightarrow$ study jointly



Stylized Facts

Measuring quantity sensitivity to the short rate

- Hanson–Lucca–Wright (2021), on *yields* at horizon h:

$$\Delta_h y_t^{10Y} = \alpha_h + \beta_h \, \Delta_h y_t^{1Y} + \epsilon_t$$

- The *same* regression on *holdings* of each investor group i:

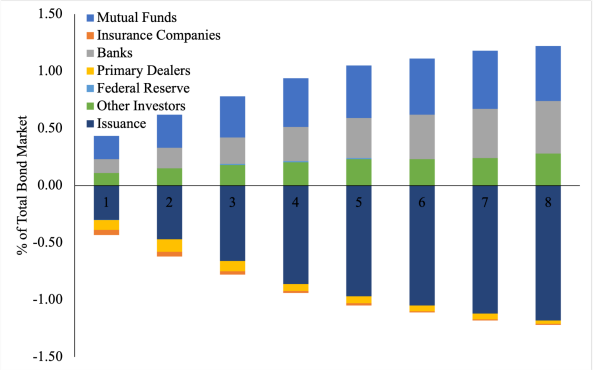
$$\Delta_h q_{i,t} = \alpha_{h,i} + \beta_{h,i} \, \Delta_h y_t^{1Y} + \gamma X_t + \epsilon_t$$

  $\Delta_h q_{i,t}$: net purchases scaled by outstanding; X_t = GDP, inflation, VIX $\Rightarrow$ $\Delta_h y_t^{1Y}$ reads as a Taylor-rule residual

- Robustness: Bauer–Swanson (2023) high-frequency surprises as IV
- Yield sensitivity β_h and quantity sensitivity $\beta_{h,i}$ come off the *same* design.

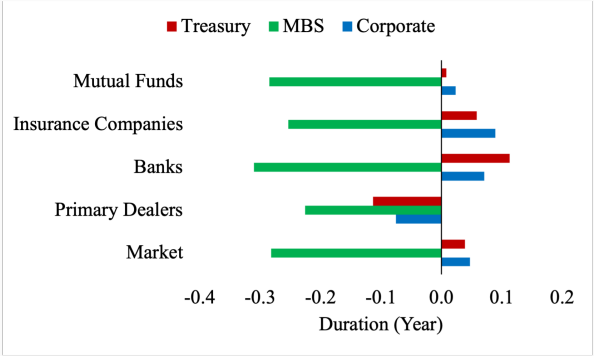
Fact 1 – quantities: the "helping hand"

- Per 100 bps **cut**, over the following year:
- Funds + banks buy **0.73%** of the market = **1.2% of GDP**
- Demand **does not reverse**; dealers are small
- The other side: mostly **new issuance**
- Private demand arrives exactly when the Fed cuts – a "helping hand."



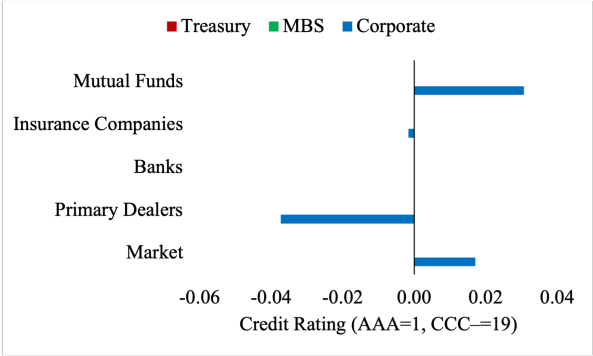
Fact 2 – duration: portfolios twist, not just grow

- Same 100 bps cut, *within* portfolios:
- MBS & callables: duration **shortens** – faster refinancing
- MBS holders (e.g. banks): **extend** duration elsewhere (Hanson 2014)
- Insurers: **extend** duration – liability convexity
- Demand shifts *across maturities*, not proportionally across all bonds.



Fact 2 – credit: reach for yield vs. de-risk

- Mutual funds: take **more credit risk** to attract retail flows (Choi–Kronlund 2017)
- Insurers: tilt to **safer** corporates – tighter regulatory capital (Li 2025)
- Portfolios also twist *across ratings* – and in *opposite* directions.



Stylized facts, in one place

- A rate cut **amplifies** demand, investor by investor:
  - Mutual funds – buy more, chasing retail **inflows**
  - Insurers – **extend duration** against liability convexity
  - Banks – both: deposit inflows + **MBS-duration** hedging
- On the **other side**: mostly **new issuance**; dealers are small
- Substitution is *localized* in duration and rating – a plain logit cannot capture it.
- $\rightarrow$ a random-coefficient logit demand system (Berry, Levinsohn, and Pakes, 1995) to capture heterogeneous cross-elasticity

Demand System

An asset demand system: from quantities to prices

- Reduced form shows *quantities* rise after a cut – but in equilibrium **supply = demand**
- Need structure to separate **demand** shifts from **supply** shifts
- Demand: each investor's holdings depend on yields, characteristics (duration, credit, liquidity), and **size** (grows with flows)
- Heterogeneity: preferences differ by **mandate / regulation** – insurers favor duration, high-yield funds favor credit
- Supply: issuance responds to yields and characteristics
- Together they pin down clearing yields – a **map from quantities to prices** that decomposes each channel.

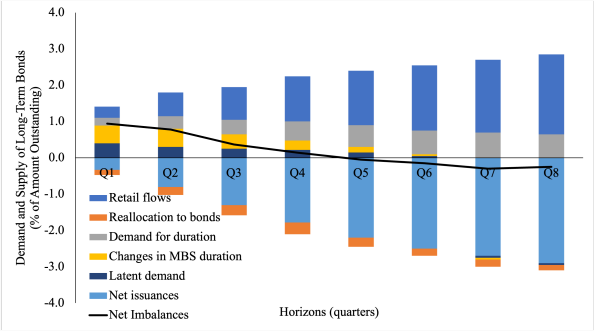
Dissecting Transmission

Question 1

Does the short rate shift the **demand** or the **supply** of long-term bonds?

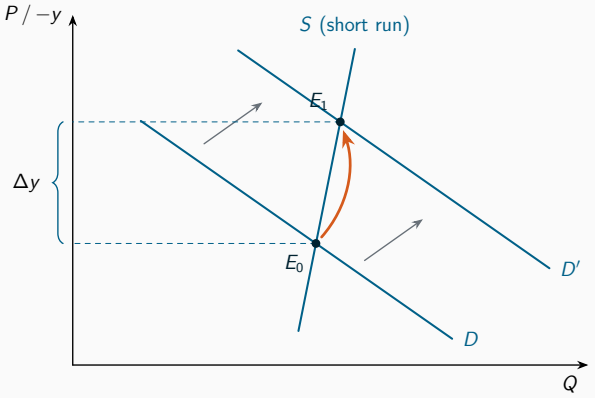
With yields fixed: demand leads, supply lags

- Hold yields fixed, trace the supply-demand **imbalance**:
- A cut **shifts demand out** first: demand for duration responds immediately, then retail flows
- **Supply adjusts slowly** $\Rightarrow$ imbalance builds, then unwinds



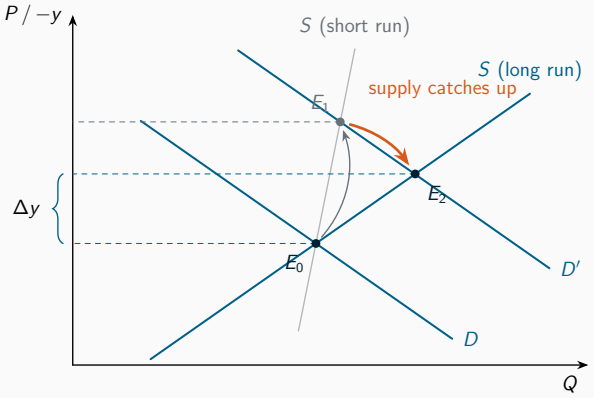
Short run: demand outpaces supply $\Rightarrow$ excess sensitivity

- Demand shifts out first, **outpacing** supply
- Term spread **falls** $\Rightarrow$ **excess sensitivity**
- High frequency: the helping hand *overshoots* the benchmark.



Long run: supply catches up ⇒ decoupling

- Supply rises, term spread **reverts ⇒ decoupling**
- Fading yield imprint ≠ small real impact
- It reflects a **large supply response**
- Low frequency: the imprint fades because *quantities* moved – not because policy was weak.

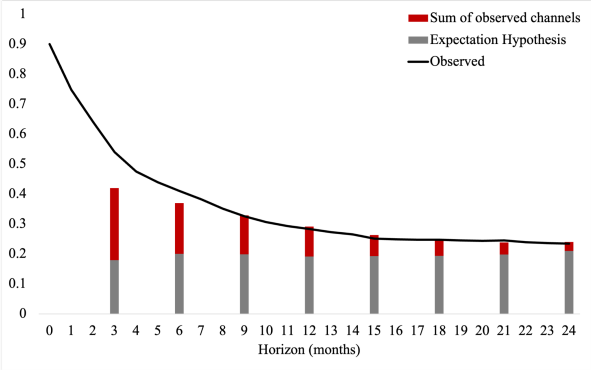


Question 2

Does bond supply and demand explain yield sensitivity **across horizons** – quantitatively?

Long-term yield sensitivity: data vs. model

- Observed β_h across horizons vs the **expectations-hypothesis** benchmark (flat)
- Add the short-rate induced **demand & supply** shifts $\Rightarrow$ model tracks the data
- Consistent with **both** the high-frequency overshoot and the low-frequency reversion

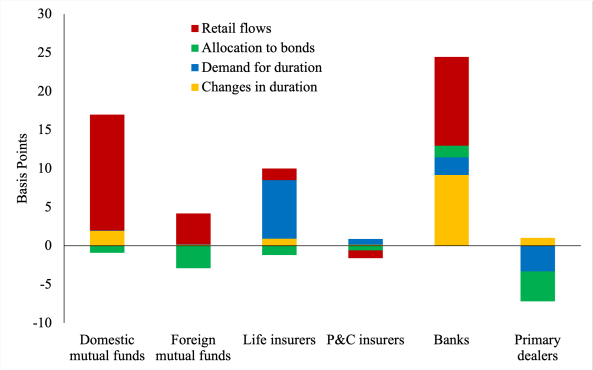


Question 3

Which transmission **channels** matter most?

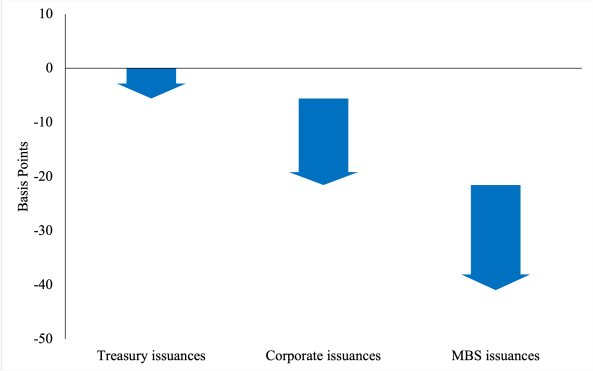
Which channels matter? By investor type

- Mutual funds: retail **flows**
- Life insurers: demand for **duration**
- Banks: flows + response to **MBS convexity**
- Dealers: **opposite** allocation – and small
- Different investors amplify through *different* channels



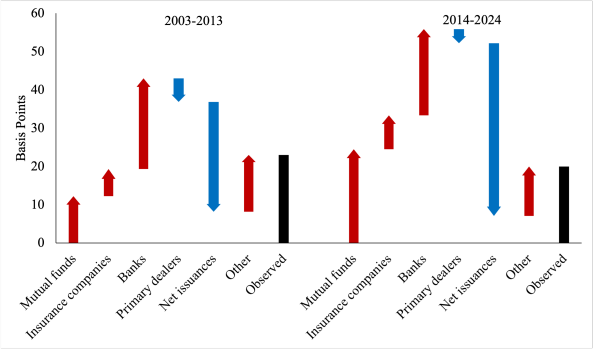
Which channels matter? By issuer

- Corporate and MBS issuance **dampen** Treasury yield sensitivity
- Effects are greater than Treasury issuance itself
- Cross-market absorption $\Rightarrow$ bond classes must be studied *jointly*.



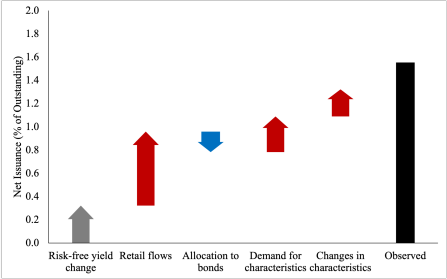
Excess sensitivity over time

- HLW (2021): excess sensitivity and decoupling **more pronounced** over time
- Why: larger **bond-fund** sector, more **elastic issuance**
- Market structure is a **monetary-policy parameter** – transmission strengthened as funds grew.

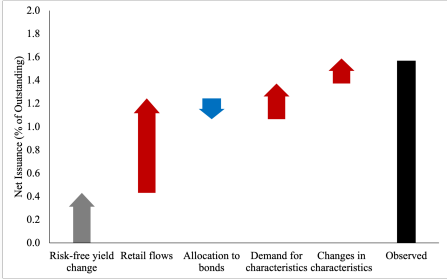


Issuance sensitivity: the real-side payoff

Corporate Issuance



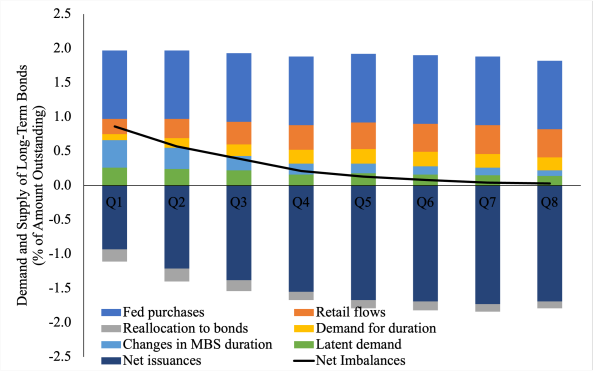
MBS Issuance



- Decompose issuance response to a 100 bps cut: **risk-free** vs **risk-premium** components
- Investor **helping hand** (through risk premium) is **4**$\times$ the risk-free-rate effect
- Monetary transmission to issuance works mainly through **investors' portfolios**, not the risk-free rate.

The same demand system applies to quantitative easing

- Feed Fed purchases through the *same* estimated system – no new machinery
- **Investors' helping hand** amplifies central-bank purchases
- **Slow supply** adjustment ⇒ yields revert
- Rate policy and balance-sheet policy run through the **same** elasticities.



Conclusion

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- *"...how is monetary policy able to exert such a powerful influence on long-term real rates?"* – Stein (2013)

  $\Rightarrow$ policy gets a **helping hand** from investors: retail flows and duration hedging

- *"...the recruitment channel may not be as strong...since a portion of the shifts in term premia are transitory..."* – HLW (2021)

  $\Rightarrow$ **elastic issuance** drives the reversal – the channel is **more** effective in *real* terms, not less

- Watch **quantities**, not just yields: decoupling is absorption, not impotence.