What Treasury Auctions Reveal About Investor Demand

Somogyi, Wallen & Xu (2026)

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May 5, 2026

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Treasury auctions and investor demand

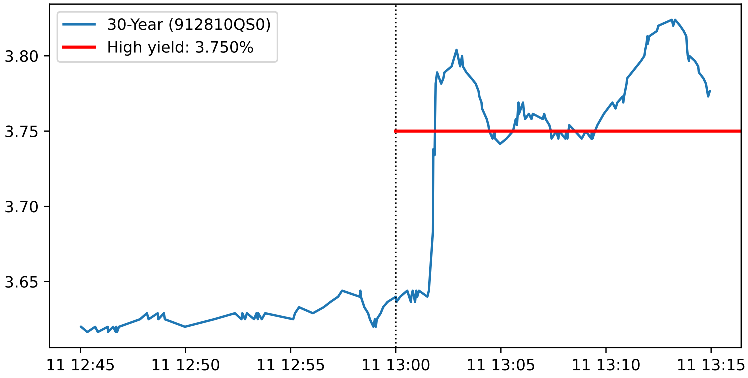
- Rising debt levels raise concerns about demand for government bonds.
  $\Longrightarrow$ *Implications for fiscal sustainability, safe asset status, financial stability.*
  $\Longrightarrow$ *Estimates of investors' demand key to several economic questions, e.g. monetary policy, large scale asset purchases, quantitative tightening, . . .*

- Growing DSAP literature estimates Treasury demand using holdings data.
  $\Longrightarrow$ *Chaudhary, Fu & Zhou (2024), Jansen, W. Li & Schmid (2024), Eren, Schrimpf & Xia (2026), Koijen et al. (2017), Jiang, Richmond & Zhang (2024) . . .*

- **This paper** looks instead at the primary market: two main advantages.
  $\Longrightarrow$ *Supply known in advance, so auction results convey information about* **demand**.
  $\Longrightarrow$ *Construct a time series of elasticities because there are several auctions every year.*

Why look at Treasury auctions?

- Yields move with demand **news** (Ray, Droste & Gorodnichenko (2024)).
  $\Longrightarrow$ *Assumption: only information about demand is released around auction results.*



What information does the Treasury release?

PUBLIC DEBT NEWS

Department of the Treasury • Bureau of the Public Debt • Washington, DC 20239

For Immediate Release
August 11, 2011

CONTACT: Office of Financing
202-504-3550

TREASURY AUCTION RESULTS

Term and Type of Security	30-Year Bond
CUSIP Number	912810QS0
Series	Bonds of August 2041
Interest Rate	3-3/4%
High Yield[1]	3.750%
Allotted at High	41.74%
Price	100.000000
Accrued Interest per $1,000	None
Median Yield[2]	3.629%
Low Yield[3]	3.537%
Issue Date	August 15, 2011
Maturity Date	August 15, 2041
Original Issue Date	August 15, 2011
Dated Date	August 15, 2011

	Tendered	Accepted
Competitive	$33,305,800,000	$15,985,160,000
Noncompetitive	$14,855,600	$14,855,600
FIMA (Noncompetitive)	$0	$0
Subtotal[4]	**$33,320,655,600**	**$16,000,015,600**[5]
SOMA	$489,928,400	$489,928,400
Total	**$33,810,584,000**	**$16,489,944,000**

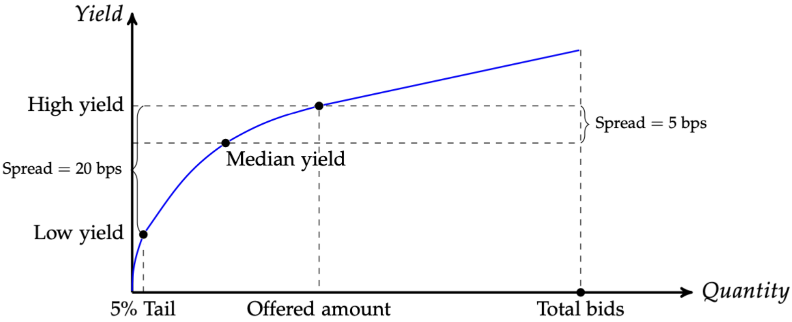
- The **bid-to-cover** ratio captures **level** of demand.
- The US Treasury provides data on the **slope** of the bid function as well.
  $\Longrightarrow$ *High, median, and low yield all are different points on the bid function.*

Measuring demand elasticities with auction data

- Given high and median yield, compute the (semi-)elasticity of demand

$$\epsilon_{a,t} = -\frac{\Delta q_{a,\tau}/Q_{a,\tau}}{\Delta y_{a,\tau}}$$

where the yield spread is $\Delta y_{a,\tau} = y^{\text{high}}_{a,\tau} - y^{\text{median}}_{a,\tau}$ from the release.



Paper summary

Treasury demand has deteriorated in the last decade

- Measure demand elasticity at auction and present two facts.
  $\Longrightarrow$ *Fact 1: Since 2010, Treasury demand has become increasingly* **inelastic***.*
  $\Longrightarrow$ *Fact 2: After 2010, long-term yields no longer* **decline** *around auctions.*
- Explanations? Foreign investors' weak demand and liquidity deterioration.

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International evidence from G10 countries

- US auctions are **special**: unique information about global bond demand.
- Plausibly exogenous variation in participation: **overlapping auctions**.

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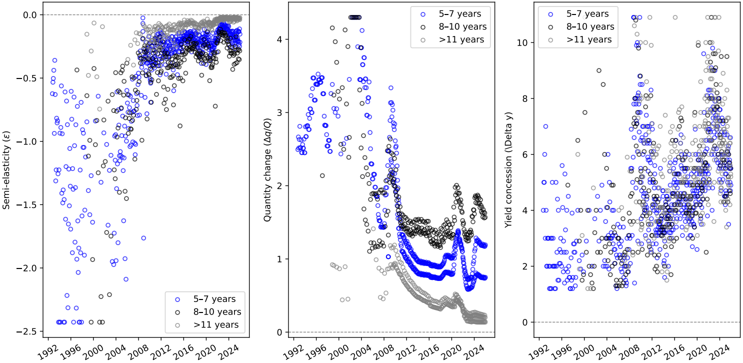
Plan of discussion

- What drives variation in investors' Treasury demand over time?
  $\Longrightarrow$ *Did investors' behavior change or did fiscal/debt management policy change?*
- Interpreting demand elasticity and comparison with literature.
  $\Longrightarrow$ *Reconciling micro and macro elasticities and their interpretation.*

Elasticity decomposition and replication



- Time series variation of elasticity, and also across maturity buckets.
  $\Longrightarrow$ *Change in elasticities explained by larger issuance and higher price concessions.*

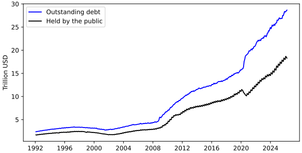
- *Is this about shift in fiscal policy/QE, or is it about investors' behavior?*

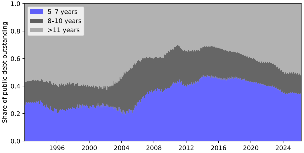
Higher government debt reduces elasticity

- Rewrite demand elasticity as

$$\epsilon_{a,t} = -\frac{\Delta q_{a,\tau}/Q_{a,\tau}}{\Delta y_{a,\tau}} = - \underbrace{\frac{\Delta q_{a,\tau}}{\Delta y_{a,\tau}}}_{\text{slope of bid function}} \times \underbrace{\frac{1}{Q_{a,\tau}}}_{\text{debt quantity}}$$

- Give a constant slope of the bid function, $\epsilon_{a,t}$ declines with higher debt.
  $\Longrightarrow$ *Demand elasticities across maturities line up with Treasury portfolio composition.*





Auction theory: what and who should drive the slope?

Suggestion: What drives variation in the slope of the bid function over time?

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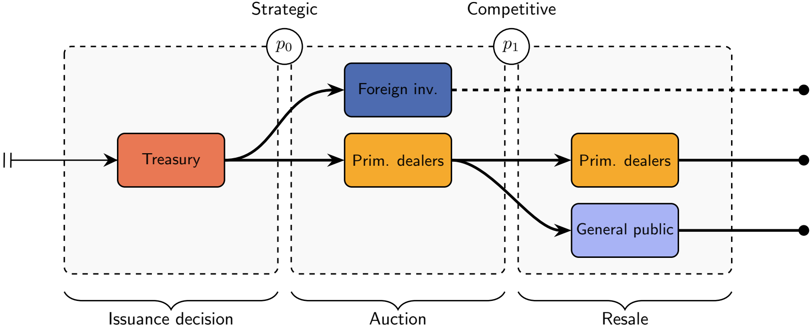
- **Bidders' composition**: foreign investors versus primary dealers.
  $\Longrightarrow$ *Slope depends on (i)* ***who*** *is bidding and (ii) how elastic those bidders are.*



Some candidates for empirical analysis

Predictions

- **Primary dealers'** elasticity should depend on: bond returns volatility, liquidity of secondary market, leverage, disagreement, and market power.
  $\Longrightarrow$ *Typically, outstanding government debt also affects the slope of the bid function.*
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- High foreign participation implies elasticity less sensitive to bond volatility.
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Suggestion: Determinants of elasticity from variation in investors' behavior.

- Broader point that investor base in the (primary) market matters.
- Implications for regulating/promoting investors' access to primary market?

Interpreting measures of demand elasticity

Approach 1: Primary market data and strategic behavior

- Infer investors' demand by (i) inverting auction equilibrium or (ii) mapping the slope of the bid function into structural parameters.
  $\Longrightarrow$ *Albuquerque, Cardoso-Costa & Faias (2024); Cavaleri, Ranaldo & Rossi (2025); Allen, Kastl & Wittwer (2026).*
- The parameter of interest is the **micro**-elasticity $\eta_{a,t} = \frac{\Delta q_{a,t}}{\Delta p_{a,t}} \cdot \frac{p_{a,t}}{q_{a,t}}$.
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Approach 2: Secondary market data and bond holdings (DSAP)

- Estimate structural models of investors' demand from secondary markets.
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- Higher level of aggregation: estimate **macro**-elasticity $\eta_t = \frac{\Delta q_t}{\Delta p_t} \cdot \frac{p_t}{q_t}$.
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Typically in the Treasury literature, micro elasticities $\gg$ macro elasticities.
$\Longrightarrow$ *Multipliers also increase with the level of aggregation: Chaudhary, Fu & J. Li (2025).*

Reconciling and comparing estimates

- This paper follows **Approach 1**, but estimates in the range of **Approach 2**.

  $\Longrightarrow$ *Result: demand at auction is* **very** *inelastic; significantly more than* **Approach 1**.

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- New approach to estimate **macro**-elasticities, but several assumptions:

$$\epsilon_{a,t} = -\frac{\Delta q_{a,\tau}/Q_{a,\tau}}{\Delta y_{a,\tau}} \overset{?}{\approx} -\frac{\Delta q_{\tau}/Q_{a,\tau}}{\Delta y_{\tau}}$$

  and Δy_{τ} is the yield of Treasury portfolio (Chaudhary, Fu & Zhou (2024)).

Suggestion: how does $\varepsilon_{a,\tau}$ map into standard definitions of macro-elasticity?

- Is $\Delta y_{\tau} \approx \Delta y_{a,\tau}$ true? When does $\epsilon_{a,t}$ understate **macro**-elasticity?

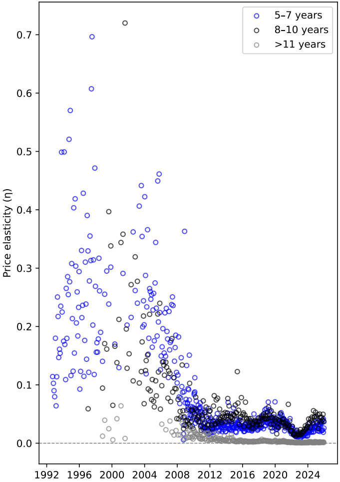
Do yields decline when demand is more elastic?

- Validation using demand shocks from Ray, Droste & Gorodnichenko (2024).
  $\Longrightarrow$ *High-frequency yield changes around auction releases within a 10 minute window.*
- Regress changes in yield around auctions on changes in level and slope.

	Δy_t^{hf}	Δy_t^{hf}
ΔBTC	-3.468^{***}	
	(0.428)	
$\Delta\epsilon_{a,t}$		-2.195^{***}
		(0.442)
const	-0.015	-0.016
	(0.062)	(0.063)
N	738	738
R2	0.191	0.039
R2 Adj.	0.190	0.038

- **Reassuring**: Higher elasticity associated with lower post-auction yields.
  $\Longrightarrow$ *Caveat: correlation between $\Delta\epsilon_{a,t}$ and changes in bid to cover is 0.65.*

Term structure of elasticities and clienteles



- **Price elasticities** non-monotonic in maturity: **more puzzling**.
  $\Longrightarrow$ *Duration risk implies that elasticities decline with maturity: Jansen, W. Li & Schmid (2024).*
  $\Longrightarrow$ *Typically the case also with* **Approach 1***: Cavaleri, Ranaldo & Rossi (2025); Albuquerque, Cardoso-Costa & Faias (2024).*
- Yield semi-elasticity and price elasticity linked by duration $\mathcal{D}_{a,\tau}$

$$\epsilon_{a,\tau} \approx -\mathcal{D}_{a,\tau} \cdot \eta_{a,\tau}$$

- Perhaps evidence for bond clienteles?

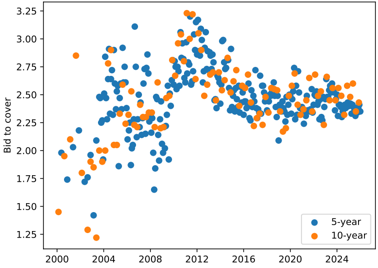
Some caution in interpreting bid to cover ratios

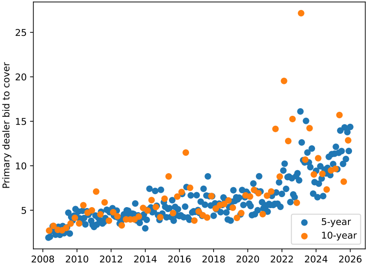
- Evidence in the paper points toward **weaker** demand.

  $\Longrightarrow$ *Less elastic primary dealers absorb more debt, foreign investors tilt away.*

- Bid to cover ratio **stable** over time, no differences in tenor.
- Primary dealers seem willing to absorb higher quantities.

  $\Longrightarrow$ *Bid to cover is silent about the price at which primary dealers are bidding.*





Conclusion

- Overall very interesting and novel paper on Treasury demand.

- Two novel empirical facts indicate deteriorating Treasury demand.
  $\Longrightarrow$ *Deteriorating liquidity and weaker foreign demand as potential explanations.*
- Special status of US Treasury **auctions** as an indicator of global demand.
- Novel international evidence about yield changes around auctions.

- **Comment 1**: What drives variation in demand elasticities?
- **Comment 2**: Interpretation of elasticity measure and validation.

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