The Monetary Policy Implications of Repo Markets

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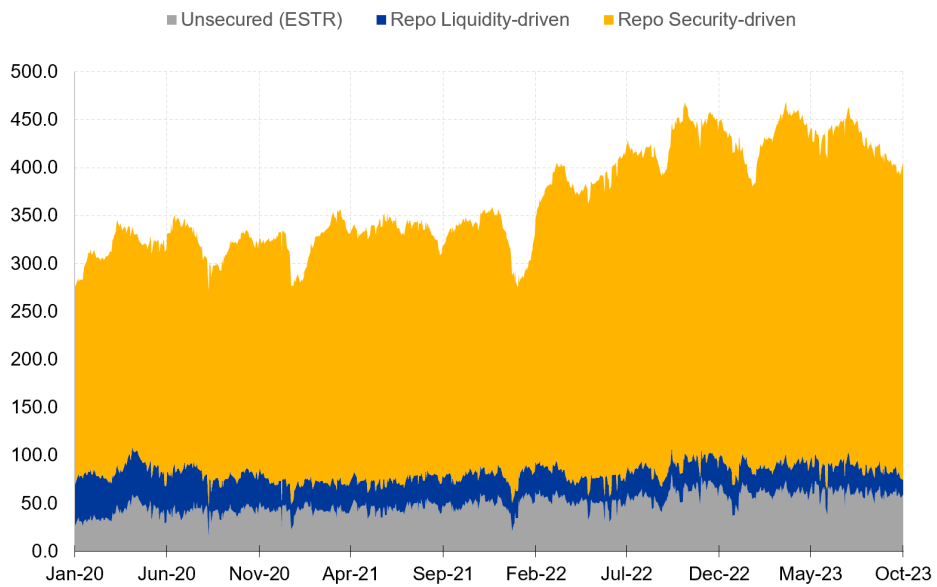
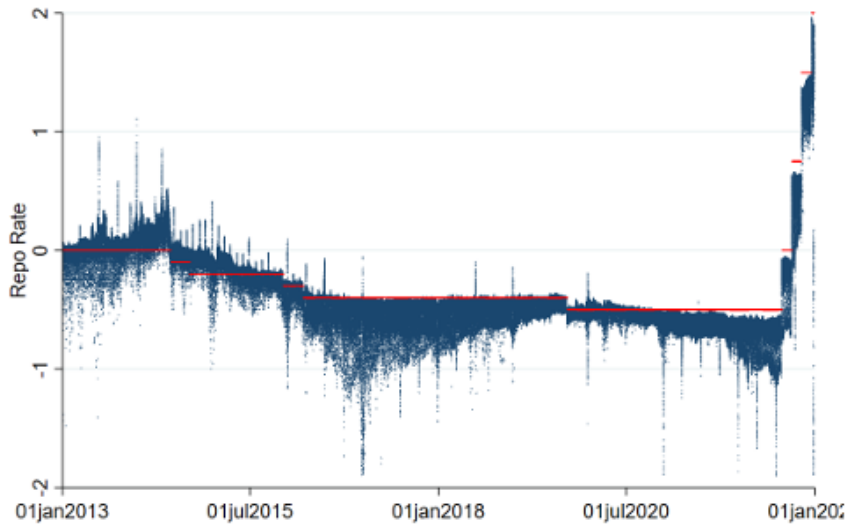
Introduction

- Repo market central for funding and securities financing. Both a secured rate for placing cash ('liquidity-driven' repo) and the price of collateral ('security-driven' repo).
- Imbalance between excess liquidity and collateral availability distort repo rates away from the policy rates: "specialness premium"





Source: Brokertec, ECB (lhs) and Nguyen at al. (2023) (rhs).

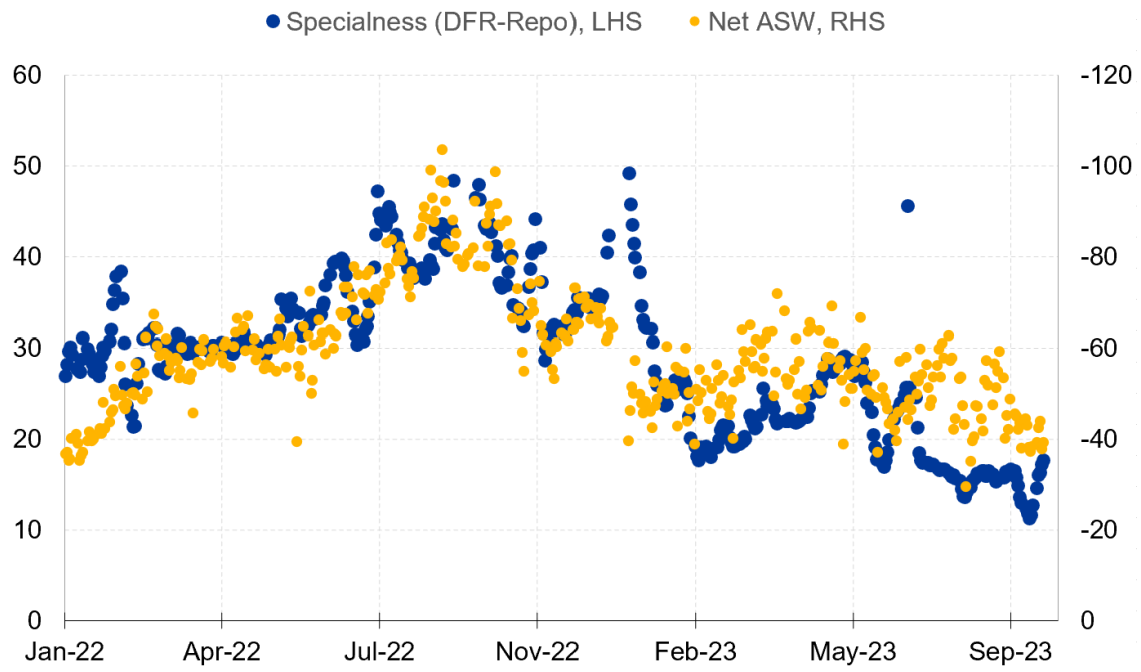
Introduction

Monetary policy transmission implications:

- Repo specialness and bond prices (Duffie (1996), Vayanos and Weill (2008), Jordan and Jordan (2012), Fontaine and Garcia (2012), D'Amico and Pancost (2022), Jappelli et al. (2024))
- Reduced pass-through of rate hikes in a context of large excess liquidity/safe asset scarcity Nguyen et al. (2023)
- Heterogeneity in financial institutions' exposure to rate hike depending on their holdings of scarce assets (Tischer (2021), Nguyen et al. (2023))
- This paper: Impact of repo specialness on the yield curve, asset swap spreads. Participation frictions to the repo market: "preferred habitat" in the cash bond market *and* in the repo market affect this relationship.

Repo-Yields-ASW relationship

- 'Repo dividend' should be priced in bonds' price, as an extra income
- Should be reflected in the asset swap ASW (Bond Yield-OIS)



- This paper: how much repo specialness affect the yield curve
- Understanding how repo participation affects the repo-ASW relationship

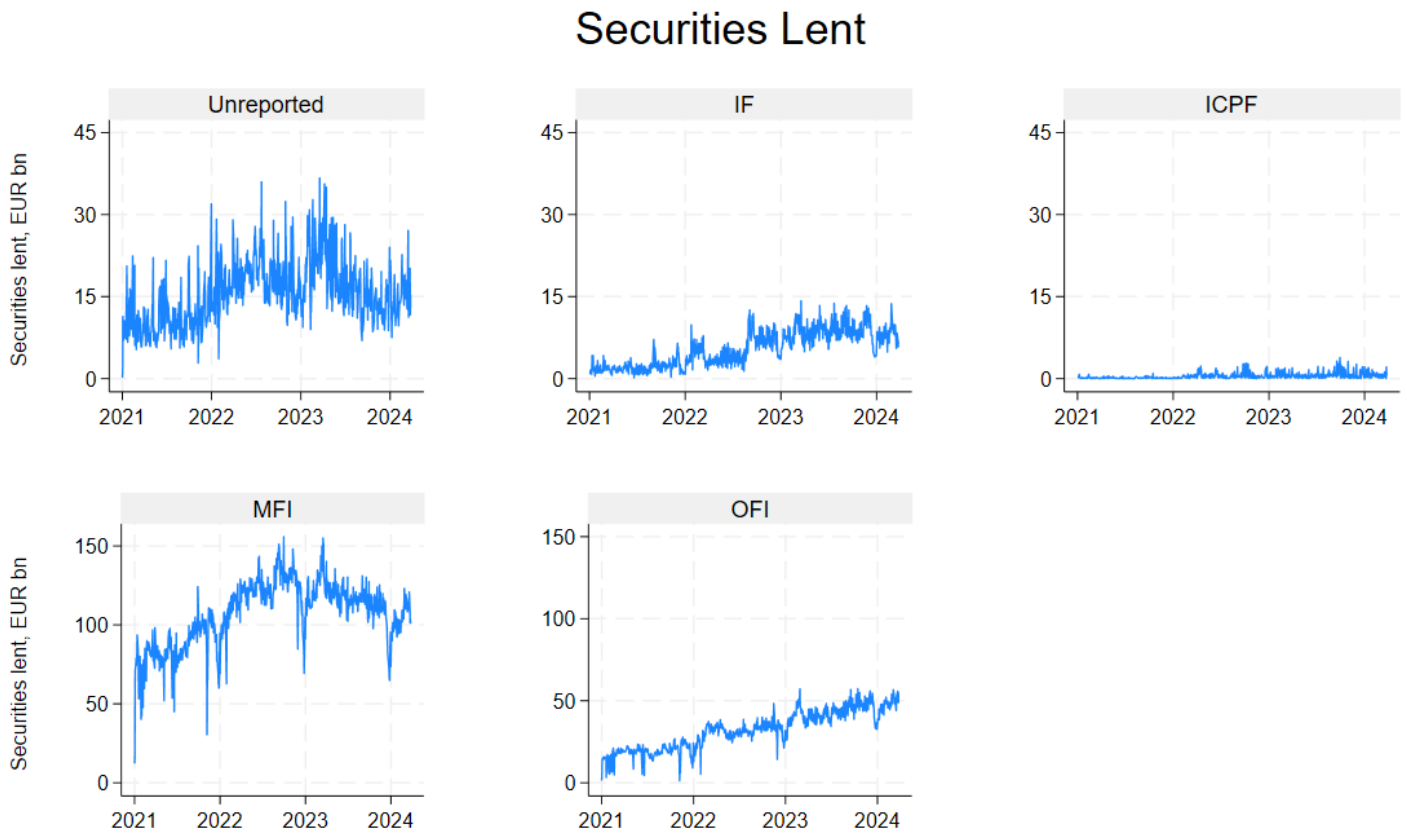
Data: Securities Financing Transactions Data Store

- SFTDS
  - Look-through CCPs (80-90% of repo is cleared)
  - All EEA counterparties report (excl. ESCB and DMOs). Reporting from 1600+ EA entities incl. NBFI (vs 49 MMSR banks)
  - Every transactions in the repo market, fully identified with collateral, price, quantities, and individual counterparties
- Own de-duplication algorithm:
  - De-duplication based on similarity between transactions' characteristics
  - Cross-checked with external sources: MMSR and Eurex volumes and rates ⏩ to slide
- Our paper...
  - Sample: German central govt bonds | Jan-2021 to Mar-2024
  - Merged with bond information from CSDB, MTS, holdings from SHS
  - Bond-level yields and computation of asset swaps

Repo Market Participation

Repo Market Participation: Sectoral Decomposition I

- MFI (banks), OFI (securities dealers), IF (investment funds, eg. hedge funds) are largest participants in the repo market
- ICPF (insurance companies, pension funds) barely active holdings



Note: Sample of German government bonds. IF is for investment funds, ICPF is for insurance corporations and pension funds, MFI is for banks and OFI is for securities dealers.

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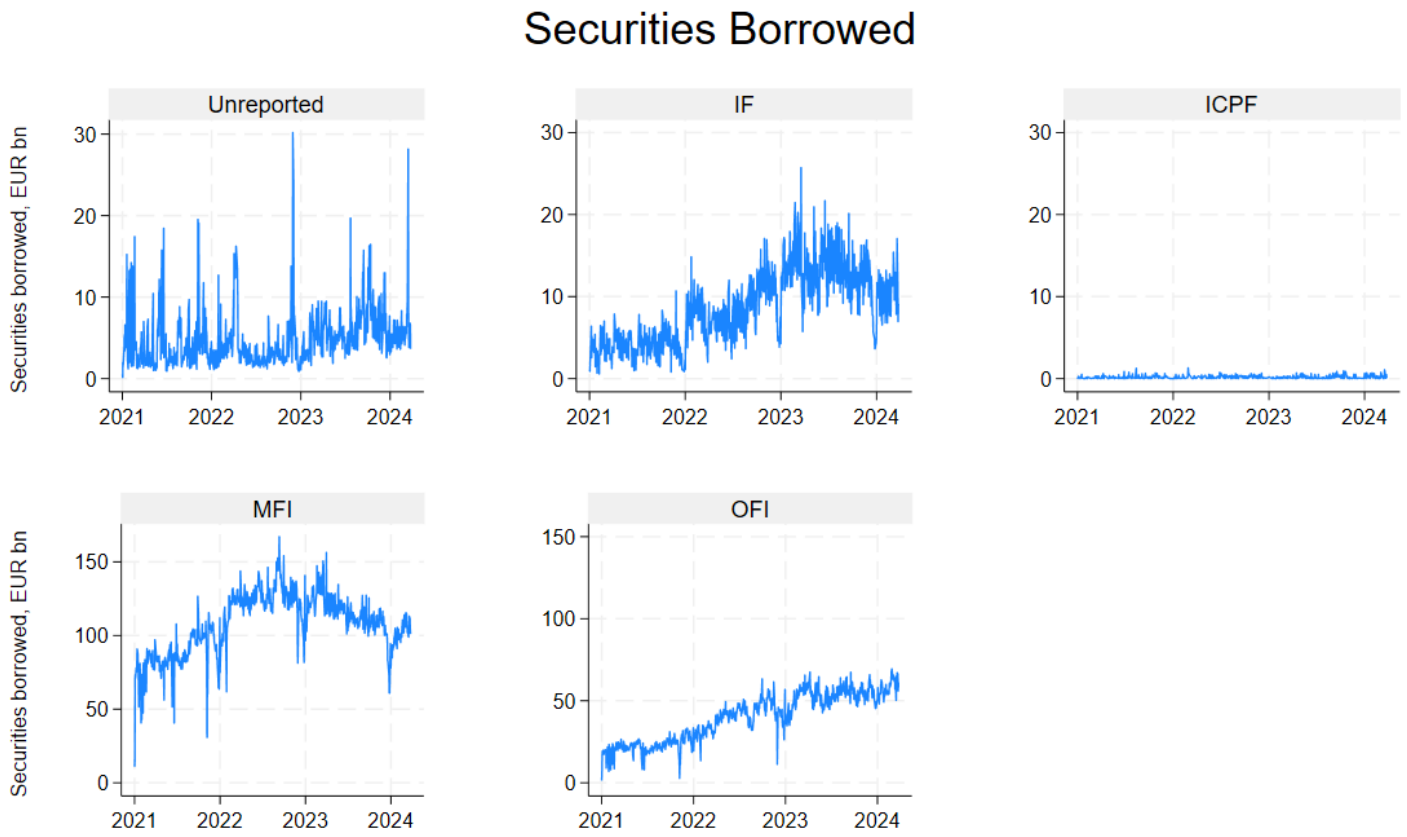

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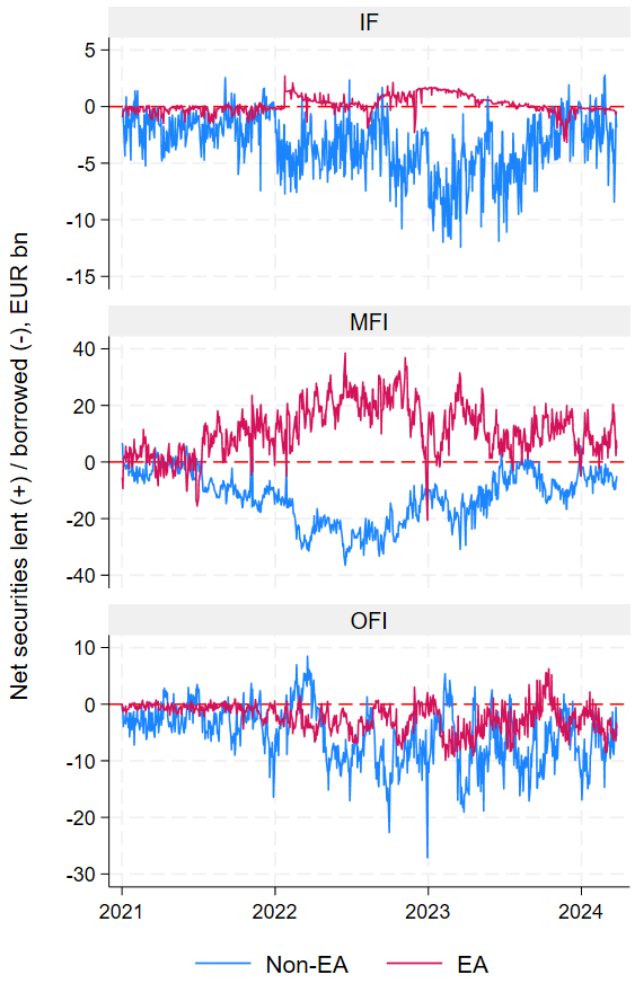
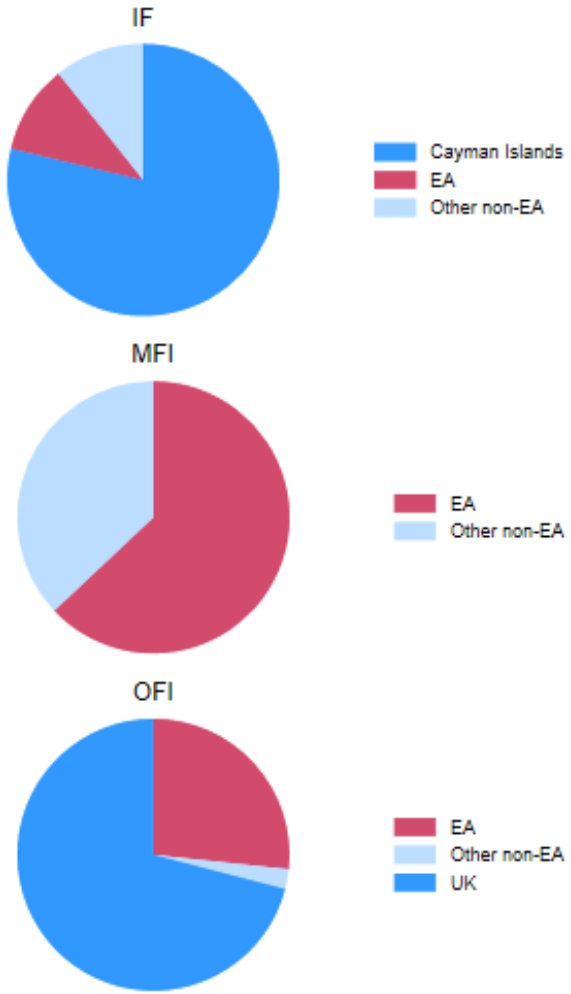
Repo Market Participation: Sectoral Decomposition II

- OFI, IF are net securities borrowers → mostly located outside EA
- MFI are net securities lenders → mostly located in the EA





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Who holds, lend and borrow securities ?

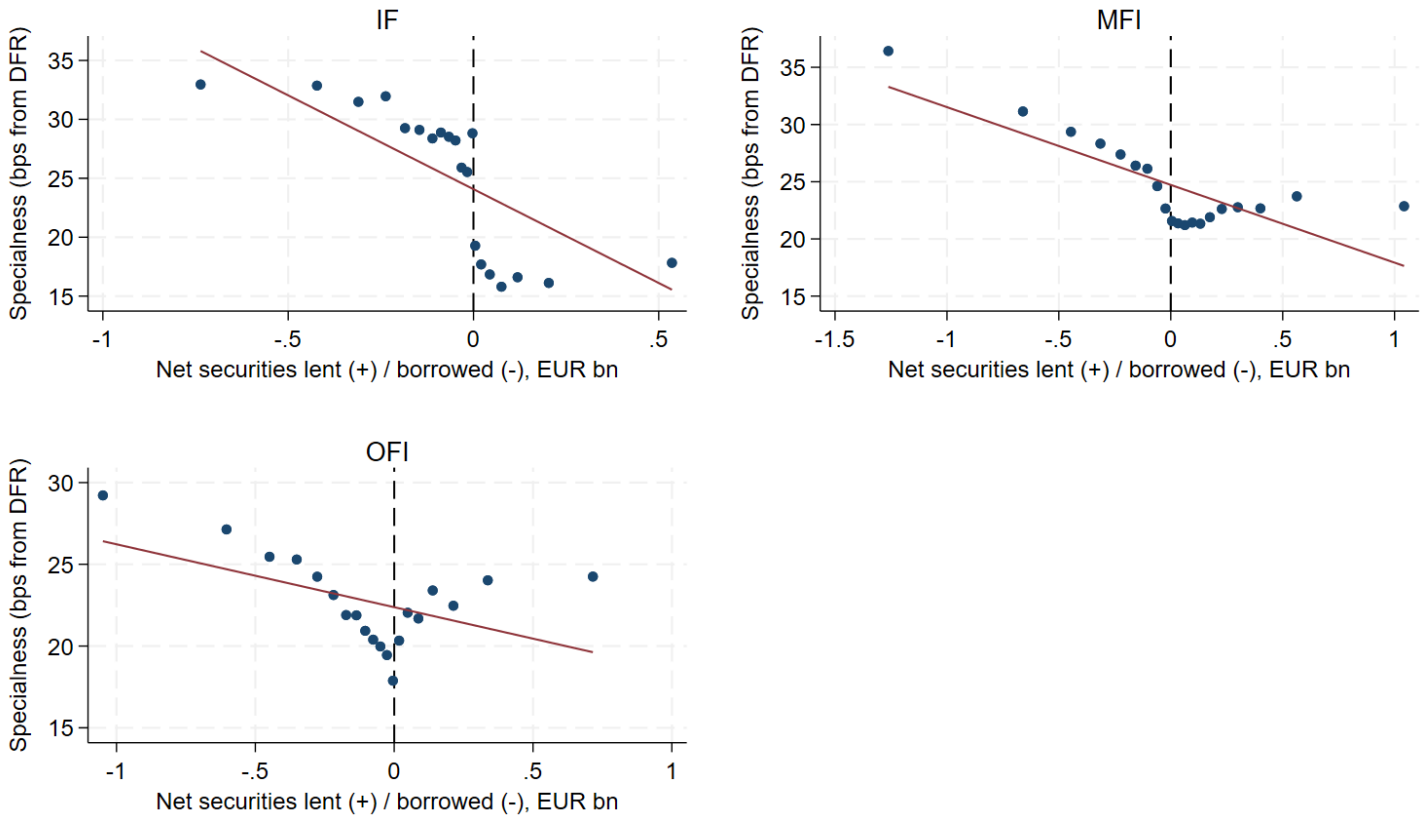
Sector	... who holds	... who lends	... who lends (disag. Foreign)	... who borrows	... who borrows (disag. Foreign)
ECB	30.0				
Foreign	29.2	27.3	–	41.9	–
ICPF	14.1	0.1	0.2	0.1	0.1
Banks	12.6	59.5	73.5	44.8	66.1
Investment funds	7.4	2.0	5.4	2.9	7.5
Other	5.6	0.2	0.3	0.3	0.3
Sec.Broker-Dealers	0.5	6.2	16.0	7.0	22.9
MMF	0.3	0.0	0.0	0.4	0.4
OFI	0.3	0.0	0.0	0.0	0.0
CCP	–	4.6	4.6	2.6	2.7
Total	100.0	100.0	100.0	100.0	100.0

Source: SFTDS as of 2022Q3, DE, FR, IT, ES Central Government securities - 2022Q3. Other: (HH, NFC, GOV)

Repo Market Participation: Sectoral Decomposition III

- When repo specialness is high...
  - ... IF, OFI, MFI are borrowing more securities

→ However, observed equilibrium quantities!

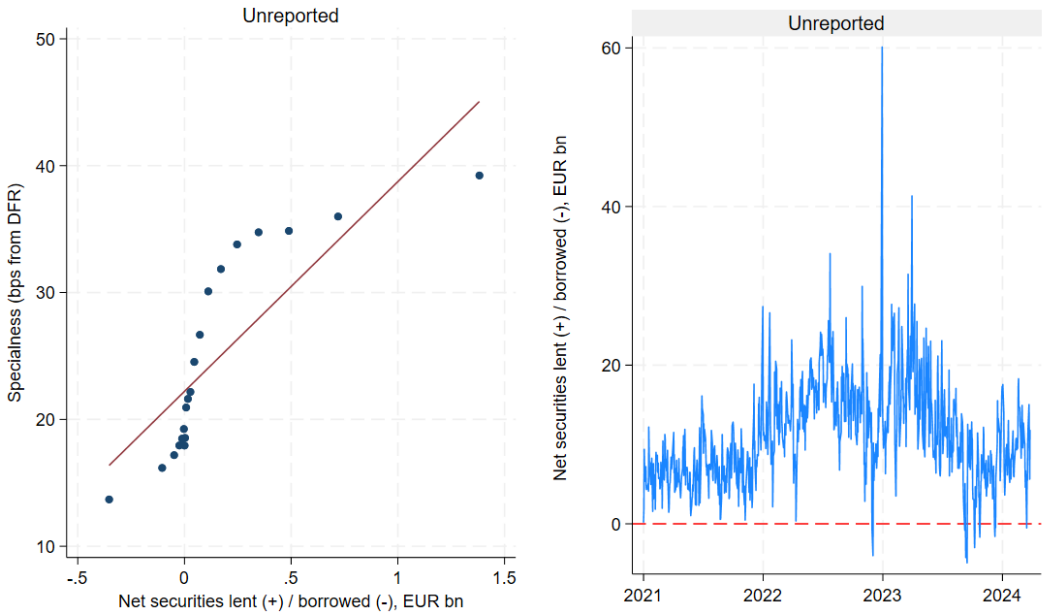


Note: Sample of German government bonds. IF is for investment funds, MFI is for banks and OFI is for securities dealers.

Repo Market Participation: Sectoral Decomposition IV

Who is lending sec when specialness is high? "Unreported" sector: no non-CCP final securities lender matched with the transaction, but we know:

- ESCB and DMOs are exempted from reporting
- Unreported sector is a net securities lender
- Unreported sector lends when specialness is high
- Unreported sector trades entirely via Eurex ▸ Link



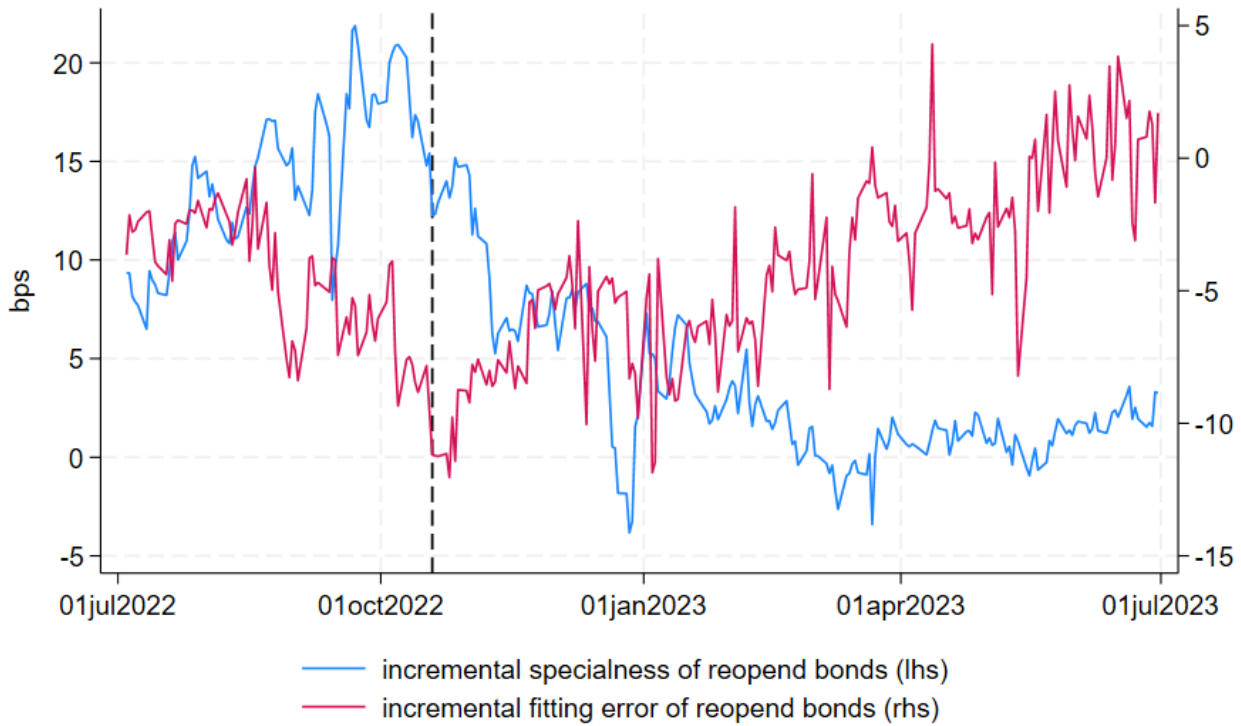
Note: DMOs volumes identified via unreported sector and Eurex-cleared trades.

A shock on the repo market: the DFA Experiment

- Deutsche Finanzagentur (DFA) reopening of Bunds in Oct-22 is plausible exogenous shock to collateral availability
  - DFA taps and contemporaneously increases its own holdings to run its Sec Lending facility: more supply in the repo market, but unchanged supply in the cash bond market
  - In Oct 2022 Reopening of 18 Bunds, approx 60 EUR bn of reopening
    ▸ Link
  - Announcement: 19 Oct $\rightarrow$ Implementation: 21 Oct
- DFA does not report transactions in SFTDS, but...
  1. DFA lends Bunds via Eurex
  2. Bunds borrowers from DFA will report missing LEI for their (lending) counterparties

$\rightarrow$ Transactions with unreported sector sizeable for Germany: we assume unreported sector is a good proxy for DFA activity

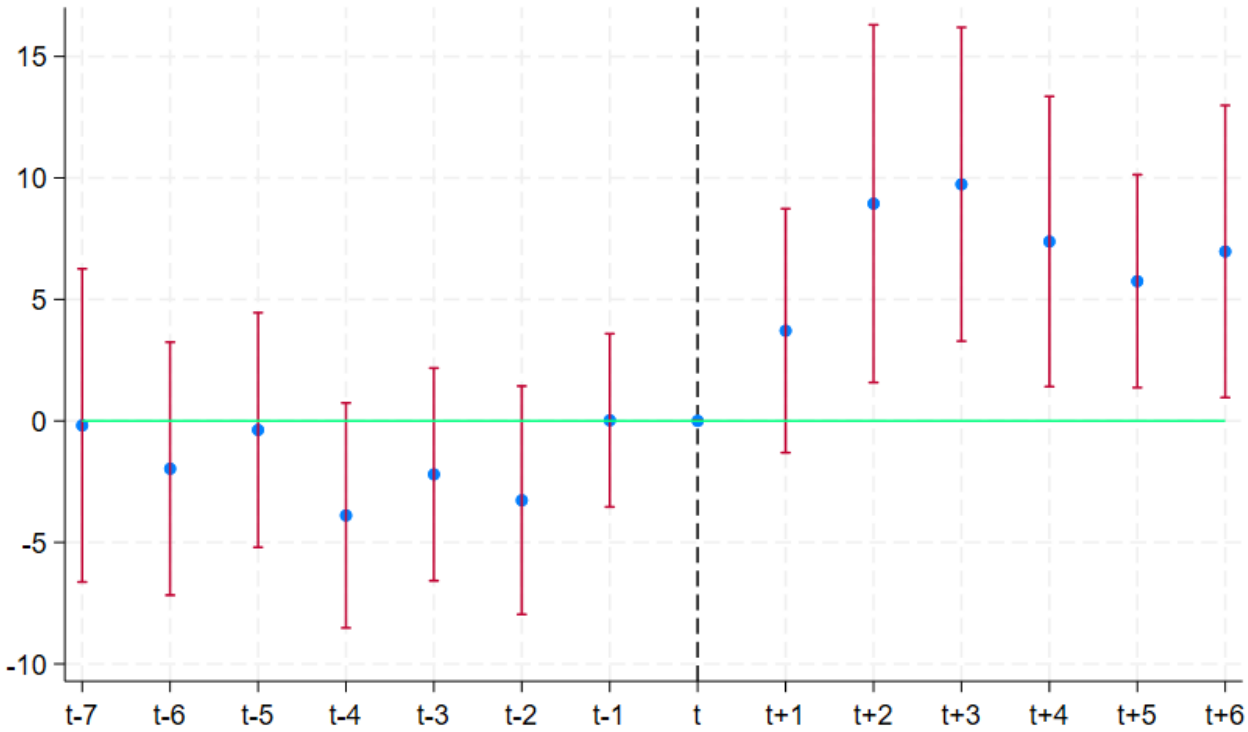
DFA Reopening: Impact on cash market



- Increase in scarce collateral availability by 12% of the outstanding: closing fitting errors by 10bps

DFA Reopening: impact on repo market

- Reopened bonds see their repo rates increase after reopening (=their specialness decrease) compared to non-reopened bonds



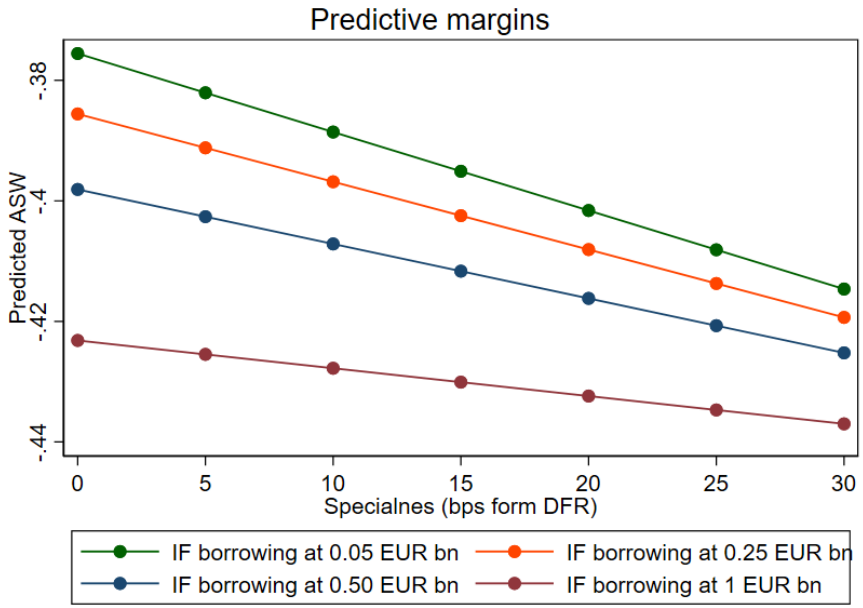
Note: Dashed line for repos traded on the week after tapping (i.e. week 43 of 2022). All values in basis points, weekly averages. $rr_{i,t} = \sum_{\tau \neq 2022w43} \beta_\tau \, treat_i x 1[\tau = t] + \alpha_i + \chi_t + \epsilon_i$ *where* $1[\tau = t]$ *is dummy equals 1 in week t and 0 otherwise.*

Sector-level Regressions

	(1)	(2)	(3)
Specialness	-0.006***	-0.002***	-0.002***
	(-21.22)	(-4.45)	(-4.00)
Participation IF		-0.018***	-0.045***
		(-2.65)	(-4.53)
Participation DFA		0.005	0.007
		(0.82)	(0.68)
Participation MFI		0.001	0.001
		(0.35)	(0.23)
Participation OFI		-0.010**	-0.011
		(-2.40)	(-1.64)
Participation Other		-0.010	-0.048*
		(-0.68)	(-1.69)
Specialness x participation IF			0.001***
			(3.15)
Specialness x participation DFA			-0.000
			(-0.17)
Specialness x participation MFI			-0.000
			(-0.13)
Specialness x participation OFI			0.000
			(0.24)
Specialness x participation OTHER			0.002
			(1.50)
Bond FE	No	Yes	Yes
Time FE	No	Yes	Yes
R-squared	0.25	0.79	0.79
Observations	52,340	52,340	52,340

Note: Sector participation proxied by daily amount of securities borrowed (EUR bn). All values in percent. Equation: $asw_{i,t} = \beta_0 + \beta_1 specialness_{i,t} * ParticipationSector_{i,t} + \chi_t + \alpha_i + \epsilon_i$

→ Higher participation of hedge funds magnifies the impact of specialness o asw



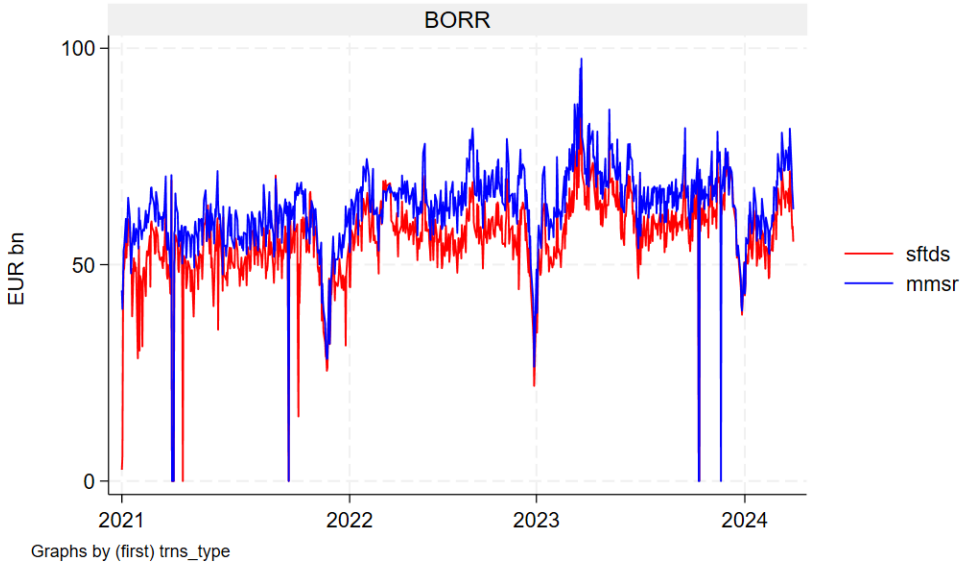
Conclusion

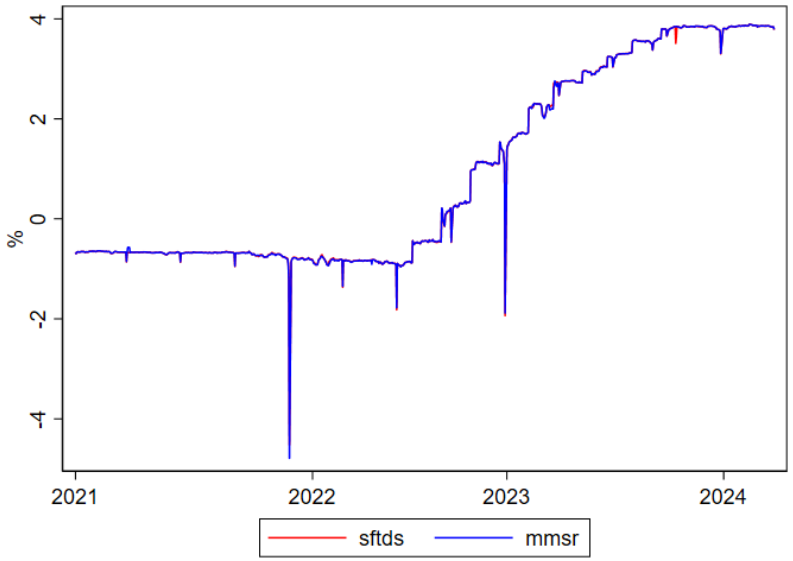
- In periods of high excess liquidity/low collateral availability, repo specialness has material impact on the yield curve: holding the 2022 peak in specialness constant over the life of the bonds, German yield curve would be 50bps lower
- Plausibly exogenous shock to collateral availability translates into reduced specialness and reduced fitting error: the DFA experiment confirms the causal relation between repo and yield curve
- Repo dividend is a key component of the yield curve and determined by a limited set of market participants

Appendix

Appendix: MMSR vs SFTDS checks

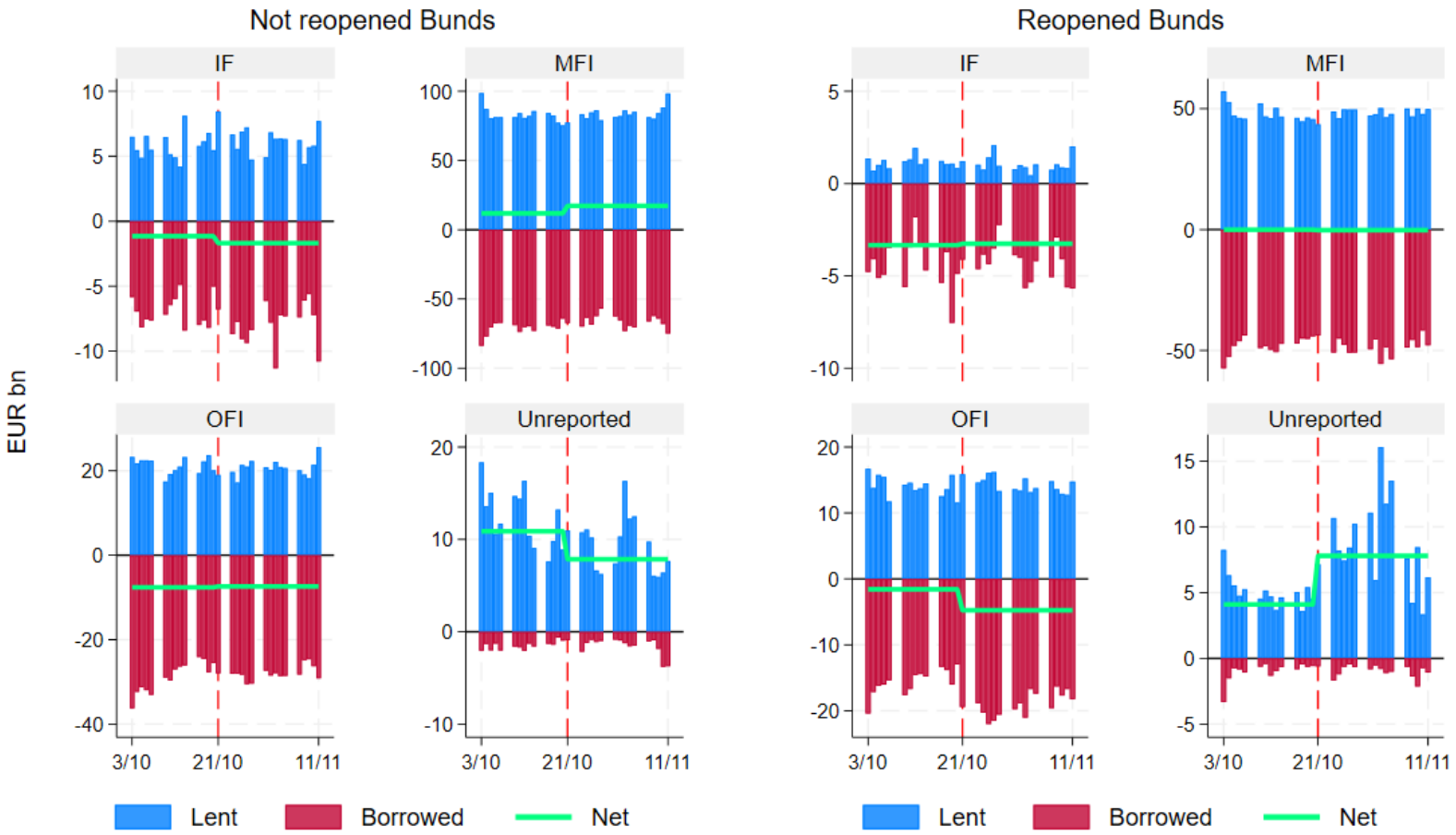
- Cross-check valid also at aggregate but also MMSR bank level





DFA Activity in SFTDS III

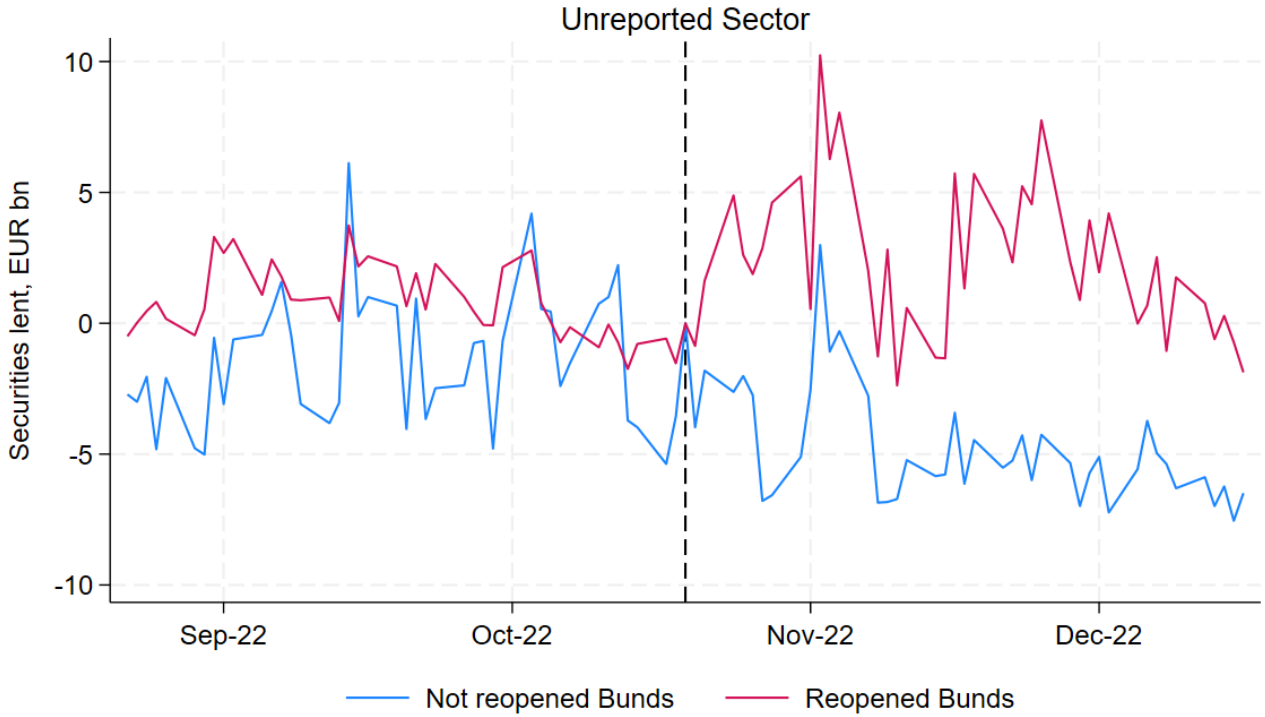
- Reopened bonds seem to be borrowed mostly by OFI → balance sheet constraints of primary dealers?



Note: Red line is for reopening implementation.

DFA Activty in SFTDS II

- Lending of reopened bonds by unreported sector picks up in Oct-2022



Note: Lent volumes identification via unreported sector and Eurex-cleared trades. Black line is for reopening implementation. Volumes rescaled at implementation date.