

A4. MONEY MARKETS



- WHY DO MONEY MARKETS EXIST?
- WHO IS ACTIVE ON MM AND WHY?
- WHAT IS TRADED IN MM?

NATURE AND PURPOSE

Aims:

- Provide **lowcost** and **quick** funds for short-term liquidity shortages
- Allowing **returns** and **safety** for short-term funds' availability
- **Reserve** requirements of depository institutions

How?

- Trading quasi-money instruments (**not money!**)
 - mostly OTC but very liquid (active secondary market)
 - short-term (less than 1 y, mostly within 3m)
- Large denomination: millions €/ \$ per deal (wholesale)
- Low risk of default:
 - CBs/banks are the main operators, gov. bonds used extensively
 - safety-nets



But why so important?

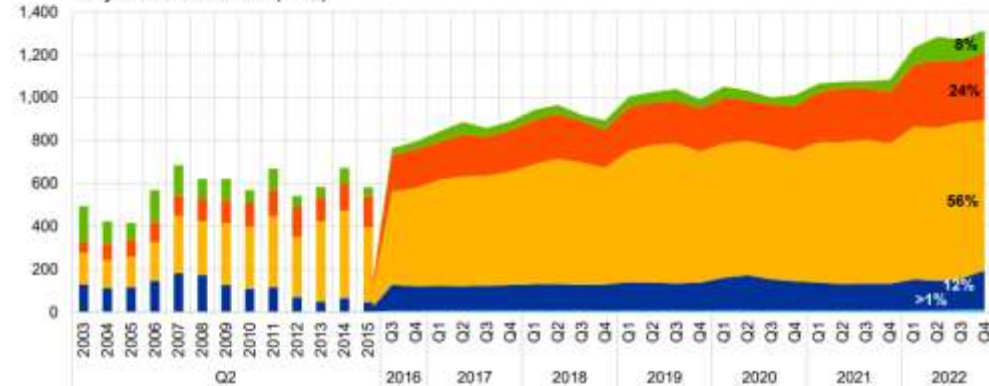
- Markets not perfectly efficient and regulated
- **Banks** have short-term excesses/deficits:
 - reserve requirements (bank runs)
 - limited competition (financial stability)
- **Treasuries of governments, firms** (investment corporations, securities' industry, non-financial entities)
- **Central banks** and monetary policy

Overview of the size of the euro money market (daily turnover)

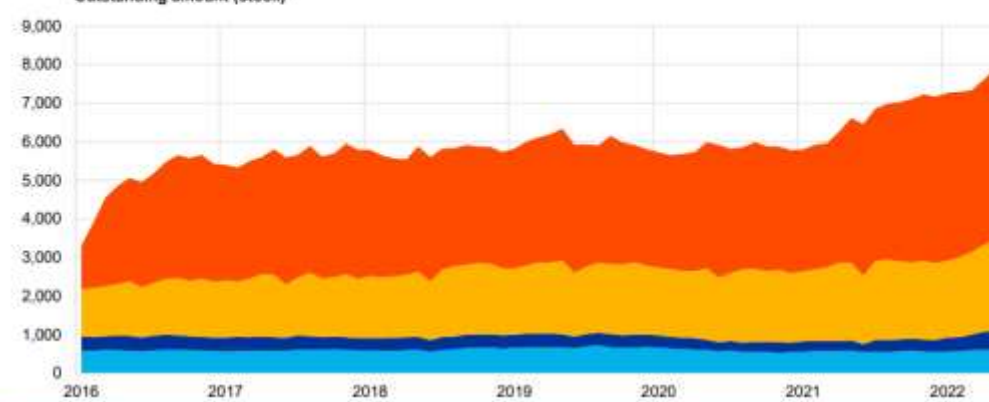
(EUR billions)

- STS
- Unsecured
- Secured
- FX
- OIS

Daily transaction volumes (flows)



Outstanding amount (stock)

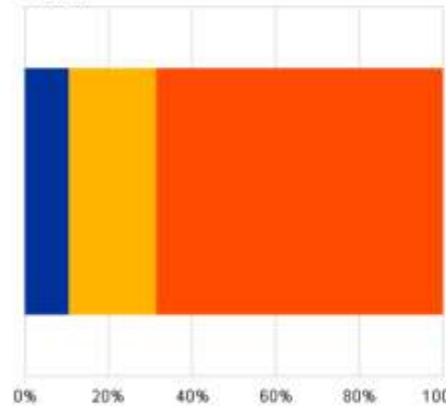


Breakdown of daily average amounts (flows) per counterparty type

(percentages)

- Bank
- Non-bank
- CCP

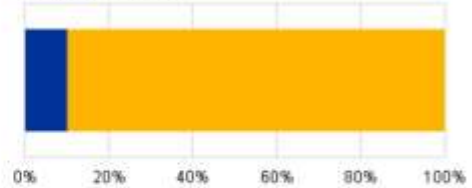
Secured



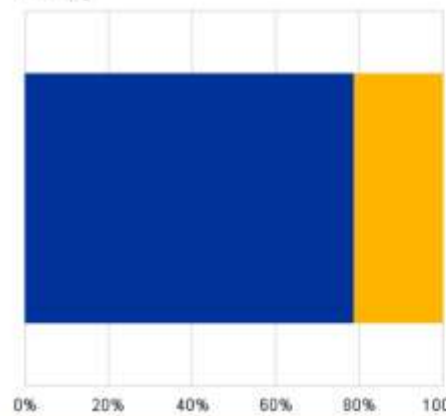
Unsecured



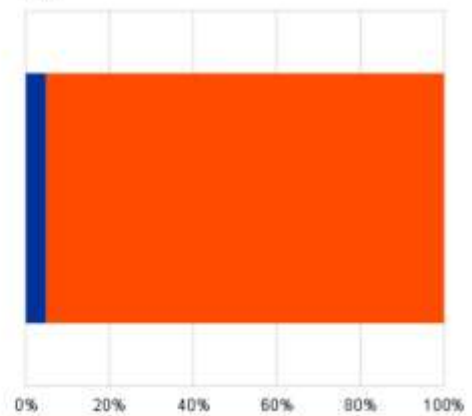
Short-term securities



FX swap



OIS

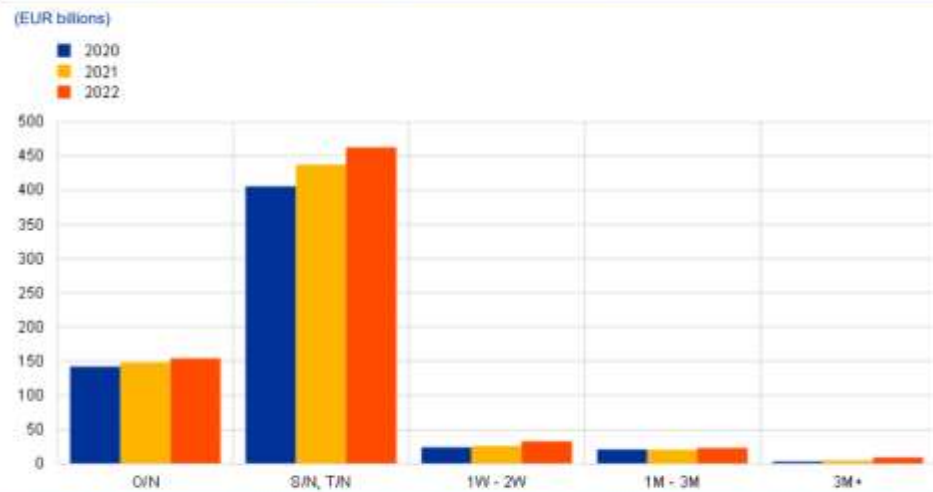


EXAMPLES

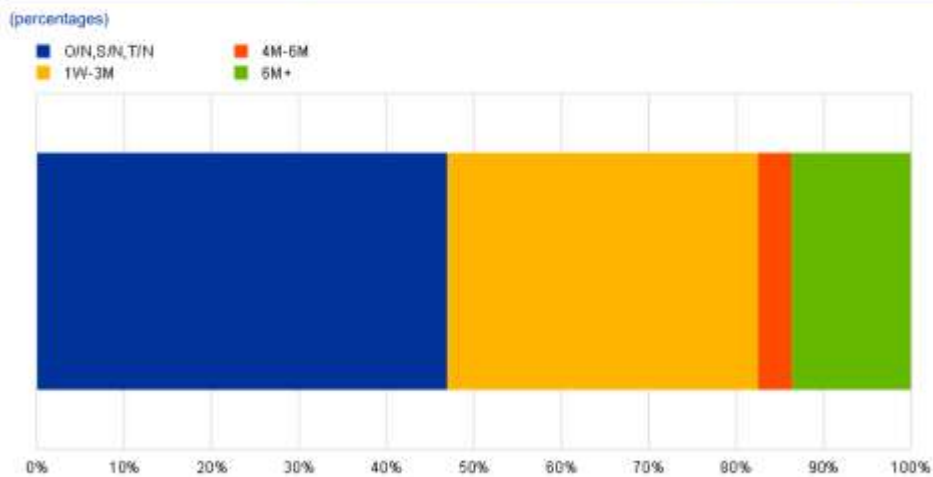
FX swap: foreign exchange swap
 STS: short term securities
 OIS: overnight index swap
 CCP: central clearing counterparty

SECURED

Daily average volumes by maturity bucket over time

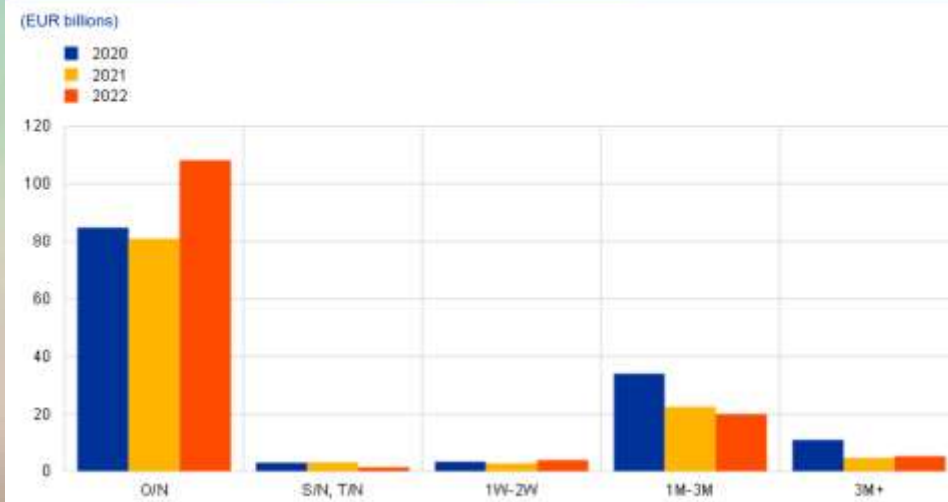


Share of total outstanding amount at 15 September 2022 by original maturity

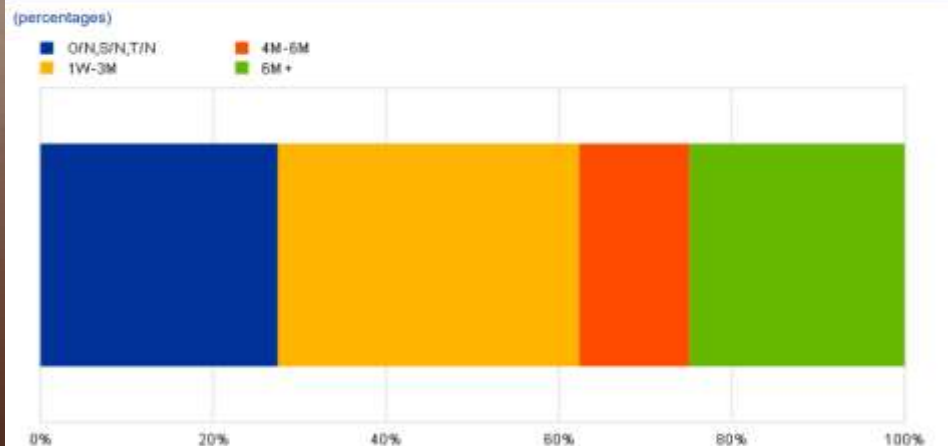


UNSECURED

Volume (average daily transaction) per maturity bucket



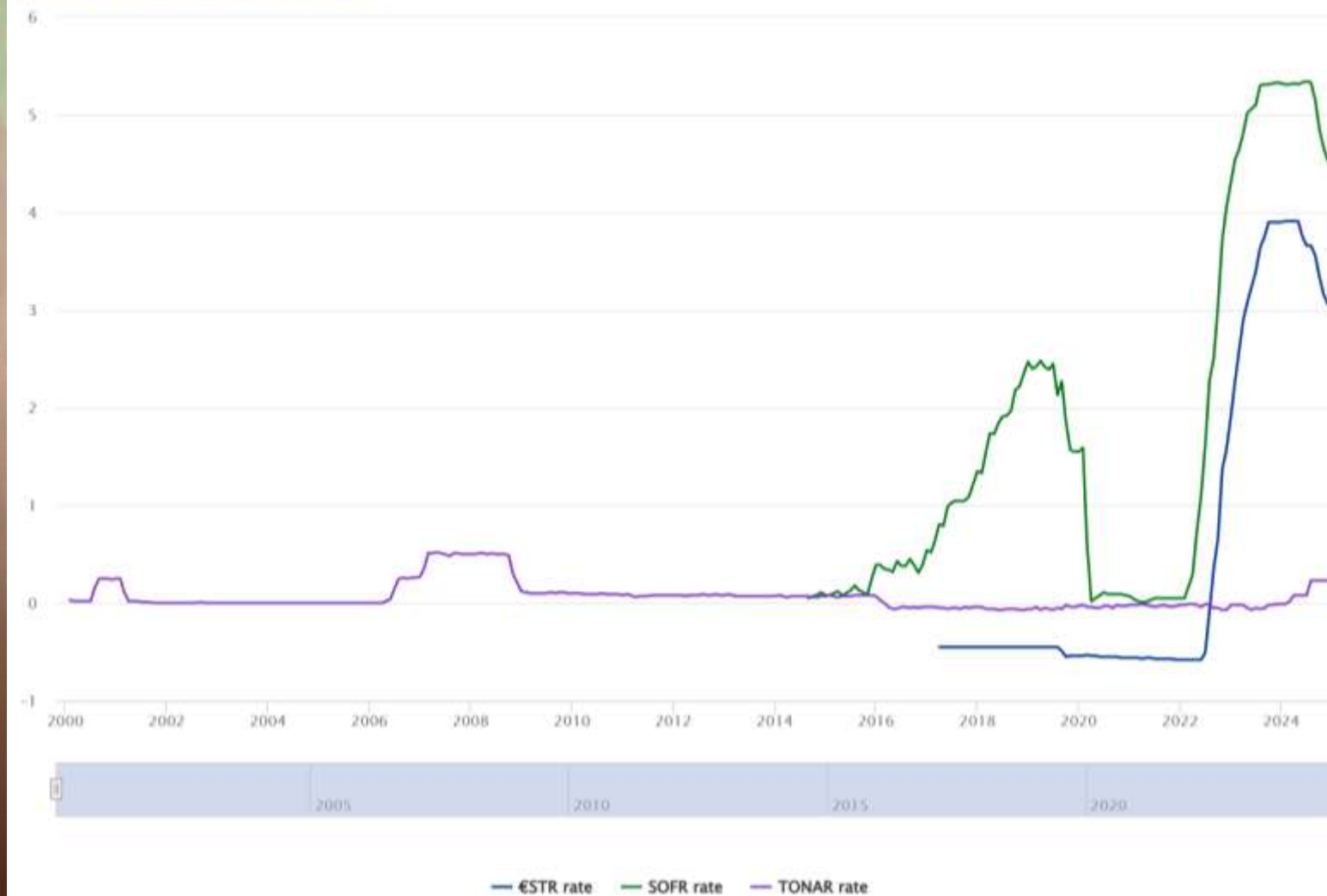
Borrowing and lending volumes (outstanding at period end) per maturity bucket at 15 September



EXAMPLES

Money market rates for the euro area, the United States and Japan

(percentages per annum; period averages)



EXAMPLES

INSTRUMENTS: SHORT TERM GOV. BONDS



- Short-term liquidity (f.i. gap between tax inflows and public spending)
- Frequently ZC, dematerialised
- Low IR: low default-risk, liquidity risk (varying across time/countries)
- Placement usually through biddings

Competitive bidding:

- Maturity, amount and features are announced in advance
- Operators make P/Q bids that are classified by the offered price (H to L) or, equivalently, required yield (L to H)
- Bids accepted up to offered amount, priced as bidded

Noncompetitive bidding:

- Bidders communicate only amounts (not prices)
- All offers are accepted and priced through a linked competitive bidding

Regulation is needed to avoid **market cornering**: admitted bidders, size/number of orders, maximum and minimum prices/returns, ...



Upcoming Issues

Capital market instruments		Money market instruments		
DATE	ISSUANCE	VOLUME	COUPON	MATURITY
^ Quarter I 2025				
27.01.2025	Bubill (N) DE000BU0E253	2.0 € bn	-	10.12.2025
03.02.2025	Bubill (R) DE000BU0E204	2.0 € bn	-	20.08.2025
17.02.2025	Bubill (N) DE000BU0E261	3.0 € bn	-	18.02.2026
24.02.2025	Bubill (R) DE000BU0E170	2.0 € bn	-	14.05.2025
24.02.2025	Bubill (R) DE000BU0E238	2.0 € bn	-	19.11.2025
03.03.2025	Bubill (R) DE000BU0E212	2.0 € bn	-	17.09.2025
17.03.2025	Bubill (N) DE000BU0E279	3.0 € bn	-	18.03.2026
24.03.2025	Bubill (R) DE000BU0E188	2.0 € bn	-	18.06.2025
24.03.2025	Bubill (R) DE000BU0E253	2.0 € bn	-	10.12.2025

The Latest 10 Issuance Results

DATE	BOND	COUPON	MATURITY SEGMENT	LOWEST ACCEPTED PRICE	AVERAGE PRICE	AVERAGE YIELD
22.01.2025	Bund (R) DE000BU2F009	2.60%	15 Y	98.15	98.16	2.74%
Competitive bids Non-competitive bids:				590 € mn	2,141 € mn	
Overall bids:				2,731 € mn		
Issuance volume:				1,500 € mn		
Allotted volume Retention quote:				1,128.58 € mn	371.42 € mn	
Bid-to-Cover ratio:				2.4		
Bid-to-Offer ratio:				1.8		
^ Details						
22.01.2025	Bund (N) DE0001135481	2.50%	30 Y	96.45	96.47	2.74%
v Details						
22.01.2025	Bund (N) DE0001135481	2.50%	30 Y	96.45	96.47	2.74%
v Details						
21.01.2025	Bobl/g (R) DE000BU35025	2.10%	5 Y	99.36	99.37	2.26%
v Details						

EXAMPLES

Auction Results: 12 MONTH BOTS
Date: January 12, 2022 - January 13, 2022

ISIN Code	IT0005480345
Tranche	1st - 2nd
Days to Maturity	364
Issue date	January 14, 2022
Maturity Date	January 13, 2023
Auction Date	January 12, 2022
Settlement Date	January 14, 2022
Amount Offered	6,500.000
Amount Bid	9,128.000
Amount Allotted	6,500.000
Weighted Average Price	100.451
Weighted Average Yield	-0.444%
Maximum Accepted Yield	-0.437%
Minimum Accepted Yield	-0.450%
Bid To Cover Ratio	1.40
Cut-off Yield	0.555%
Gross Compound Yield	-0.444%
Price for fiscal purpose	100.000
Amount Offered to Specialists	650.000
Amount Bid to Specialists	697.675
Amount Allotted to Specialists	650.000

Auction Results: 12 MONTH BOTS
Date: February 10, 2023 - February 13, 2023

ISIN Code	IT0005532988
Tranche	1st - 2nd
Days to Maturity	365
Issue date	February 14, 2023
Maturity Date	February 14, 2024
Auction Date	February 10, 2023
Settlement Date	February 14, 2023
Amount Offered	7,000.000
Amount Bid	9,628.000
Amount Allotted	7,000.000
Weighted Average Price	96.877
Weighted Average Yield	3.179%
Maximum Accepted Yield	3.186%
Minimum Accepted Yield	3.141%
Bid To Cover Ratio	1.38
Cut-off Yield	4.175%
Gross Compound Yield	3.178%
Price for fiscal purpose	96.877
Amount Offered to Specialists	700.000
Amount Bid to Specialists	0.000
Amount Allotted to Specialists	0.000

Auction Results: 12 MONTH BOTS
Date: February 09, 2024 - February 12, 2024

ISIN Code	IT0005582868
Tranche	1st - 2nd
Days to Maturity	366
Issue date	February 14, 2024
Maturity Date	February 14, 2025
Auction Date	February 09, 2024
Settlement Date	February 14, 2024
Amount Offered	9,000.000
Amount Bid	12,329.000
Amount Allotted	9,000.000
Weighted Average Price	96.543
Weighted Average Yield	3.522%
Maximum Accepted Yield	3.526%
Minimum Accepted Yield	3.488%
Bid To Cover Ratio	1.37
Cut-off Yield	4.520%
Gross Compound Yield	3.521%
Price for fiscal purpose	96.543
Amount Offered to Specialists	900.000
Amount Bid to Specialists	1,273.844
Amount Allotted to Specialists	900.000

EXAMPLES

INSTRUMENTS: INTERBANKING DEPOSITS

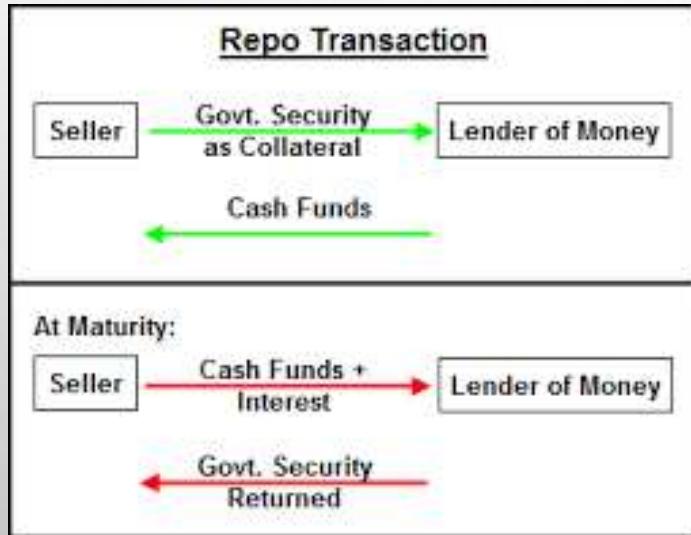


Interbanking deposits

- Funds mostly **extremely short-term (1d)** between banks
- **Vast volumes:** EZ ON averaging around 20 billions € daily only
- Both **unsecured** and **secured**
- For **reserve requirements and temporary liquidity gaps**
- Typical maturities are **overnight** ($t, t+1$), **tomorrow next** ($t+1, t+2$), **spot next** ($t+2, t+3$), but also **on-sight** (t, n) and **broken date** (k, n) are available
- IR developed here (Euribor, €STR, Libor) influence other IR (and financial products)
- CBs **influence** these rates by acting on reserves or by producing/absorbing liquidity

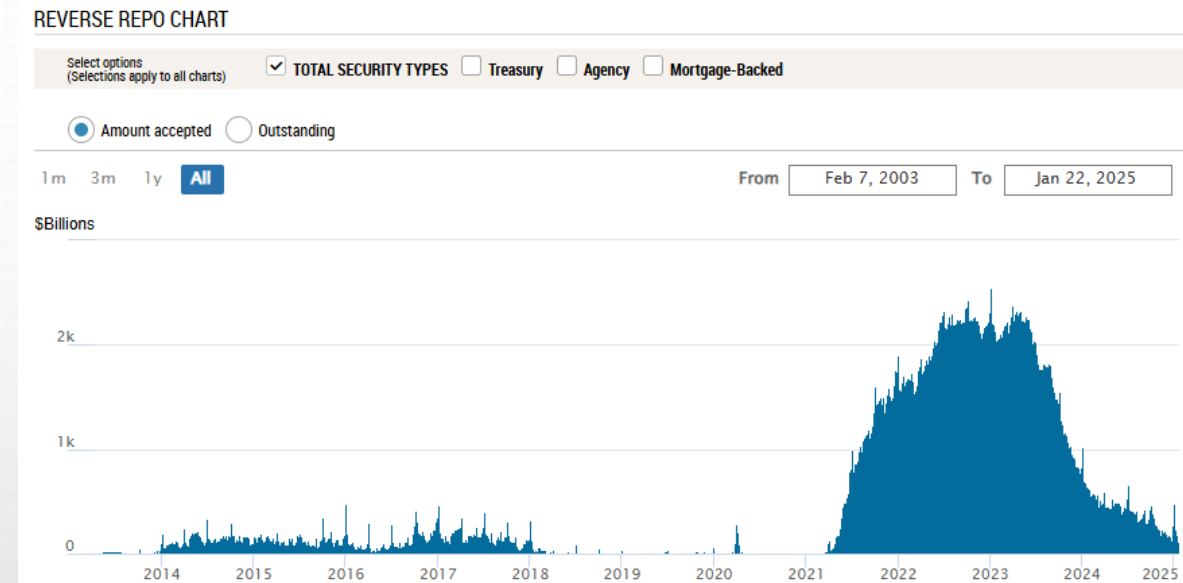
INSTRUMENTS: REPOS

- Very short term but longer than typical interbanking funds
- Loan is **collateralised by securities** traded in an active market (mostly, gov. bonds)



- Specified maturity, current market price, specific future price
- CBs are also active in the repo market, injecting or absorbing liquidity

FED_NY



INSTRUMENTS: OTHERS

CDs:



- Securities issued by banks documenting a deposit and bearing a **maturity date** and **interest rate** (fixed or variable), usually closely tracking **inflation** or **short-term gov. bonds with a premium**
- **Could be bearer instruments**, allowing an easier negotiability (yet AML applies)
- Maturities are generally **between 1m and 4m**, concentrated in shorter maturities
- **High face values**: mostly greater than 1 million \$

Commercial paper:



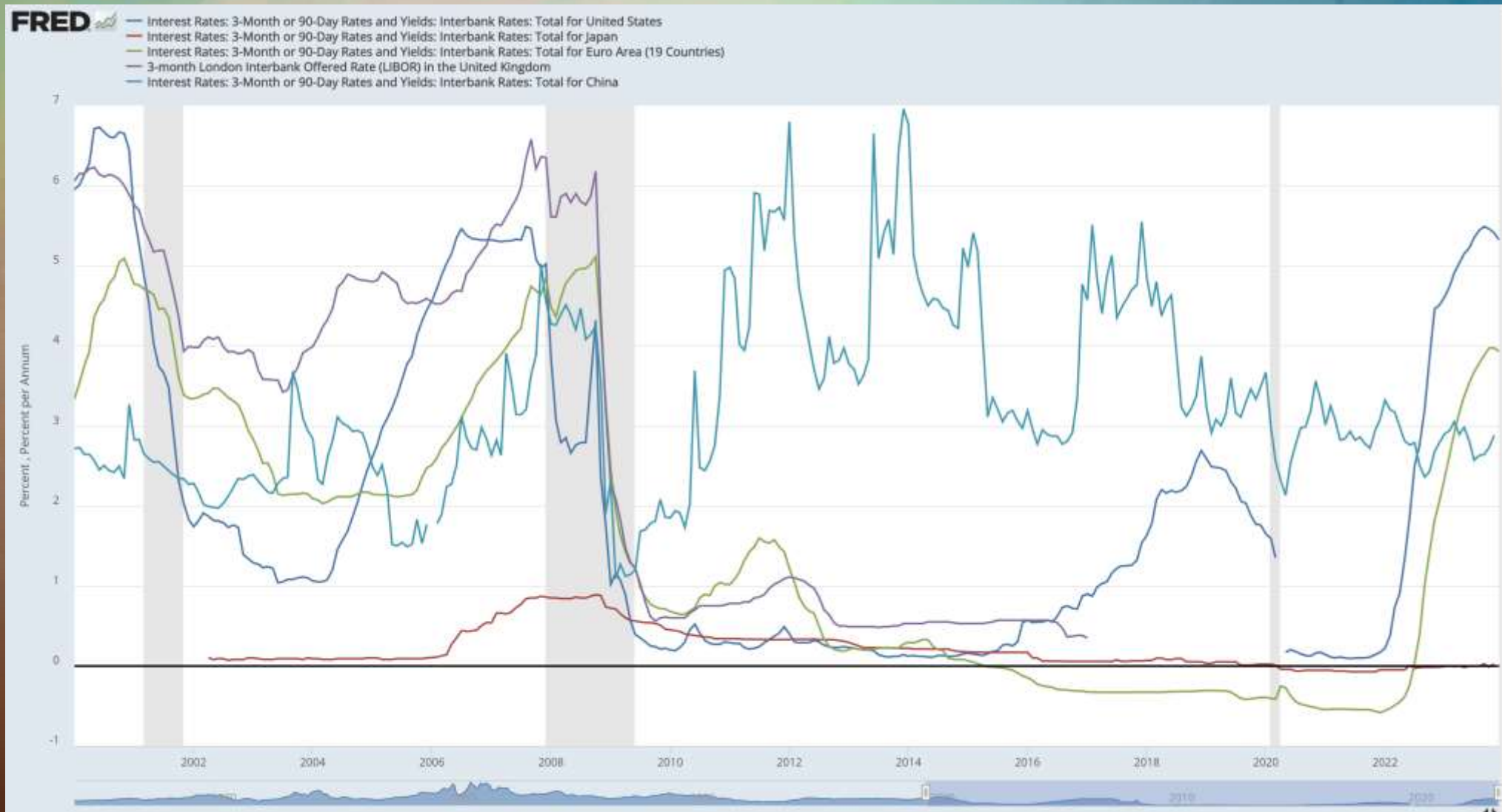
- **Unsecured** promissory notes, mostly within 20-45 days and ZC
- **Only major and secure corporations as issuers** (liquidity/safety concerns)
- **Secondary markets are not deep and liquid**
- **Could be indirectly secured by a banking line of credit**
- **Asset-backed commercial paper (ABCP)**: secured by a specified asset (f.i. mortgages), quality of security depends on pledged assets (as happened for RMBS)

Banker's acceptances and other instruments are less relevant (except **derivatives**!)

INSTRUMENTS: EUROCURRENCIES



- Deposits in domestic currency in countries with another currency
- F.i.: Eurodollars are USD outside the US, originated since WWII also due to internal regulation
- Created the London interbank market, developing reference IR such as **LIBOR** (London Interbank Offer Rate) and **LIBID** (London Interbank Bid Rate)
- Deep and highly competitive market
- Otherwise similar to interbanking funds
- Also Eurocurrencies, Eurodollar CDs, ... (thin markets)



EXAMPLES

From the Bank of Italy's website, I downloaded the data on short-term government bond issuances from 2002 to 2025 (find it on Moodle). A little cleaning and a few translations later, try experimenting on Excel and produce 3 graphs that can answer to the following questions:

- 1) Is there a relationship between the demand/supply ratio and each bond's yield?
- 2) Is there a relationship between how long is the maturity of each bond and its yield?
- 3) Is there a relationship between the maturity date of each bond and the demand/supply ratio?

Why do you think this happened?



TO DO BY NEXT LECTURE