



RESEARCH

Statistics

Quarterly Report: US Fixed Income, 2Q23

Outstanding Statistics for US Treasuries, Corporate Bonds, Agency Securities, Municipal Bonds, Money Markets, and Repo

October 2023

Key Takeaways from the Quarter

- **Total:** \$42.8T, +5.6% Y/Y, +1.0% Q/Q
- **UST:** \$24.9T, +6.8% Y/Y, +2.1% Q/Q
- **Corporates:** \$10.6T, +2.2% Y/Y, +0.3% Q/Q
- **Munis:** \$4.0T, -0.5% Y/Y, +0.4% Q/Q
- **Agency:** \$2.1T, +30.8% Y/Y, -6.2% Q/Q
- **MMs:** \$1.1T, +0.3% Y/Y, +0.8% Q/Q
- **Repos:** \$2.9T, +18.7% Y/Y, +7.5% Q/Q

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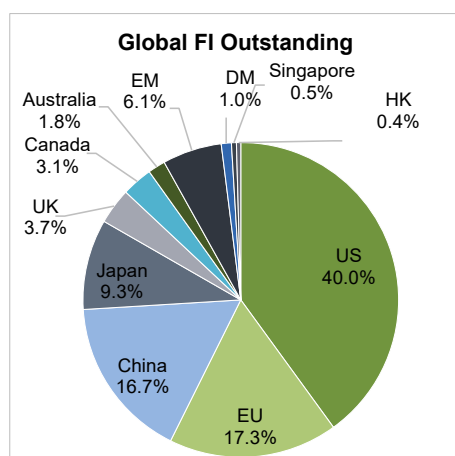
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Executive Summary

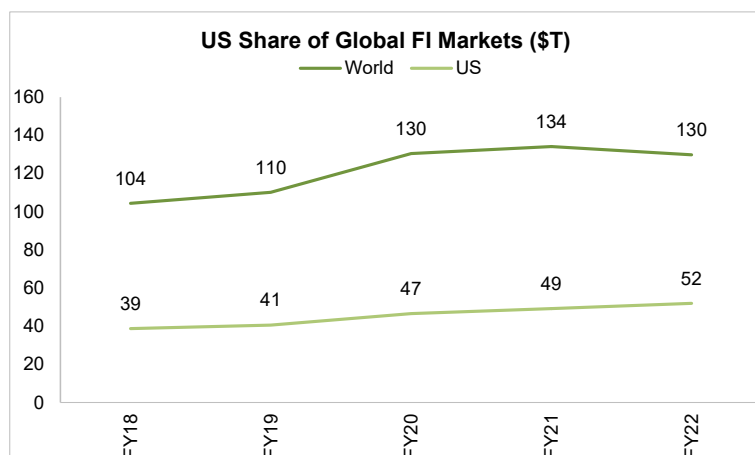
US Fixed Income Markets Are the Largest in the World

The U.S. fixed income markets are the largest in the world, comprising 40.0% of the \$130 trillion securities outstanding across the globe, or \$52 trillion (as of FY22). This is 2.3x the next largest market, the EU. U.S. market share has averaged 38.1% over the last 10 years, troughing at 35.7% in 2020 and at the peak in 2022 at 40.0%.

US Fixed Income Market Share – Year End



US Fixed Income Market Share – Historical Trends



Source: Bank for International Settlements (4Q22, BIS data for all countries has a lag), SIFMA estimates

Note: Country classification based on World Bank list of economies, DM = developed markets, EM = emerging markets, EU = 27 member states, HK = Hong Kong, UK = United Kingdom

Quarter & Annual Highlights

In this report, we utilized SIFMA Research's comprehensive fixed income and securitized products databases (www.sifma.org/statistics) to recap statistics for total U.S. fixed income markets, U.S. Treasuries (UST), corporate bonds (corporates), municipal securities (munis), federal agency securities (agency), money markets (MM), repurchase agreements (repos) and the secured overnight financing rate (SOFR). We also analyze trends in ESG issuance for green, social, and sustainability bonds.

We highlight the following for quarterly and annual metrics:

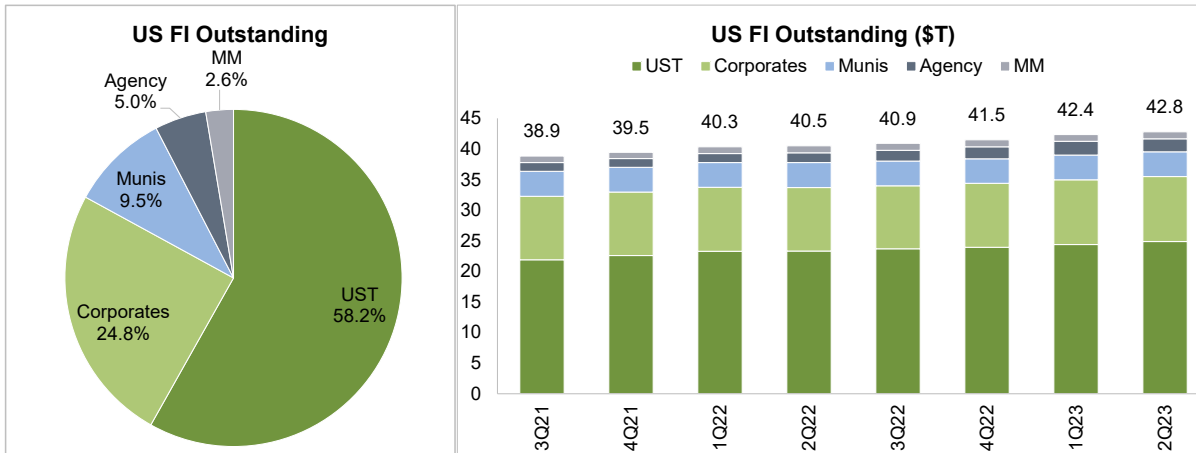
Outstanding (\$B)	2Q23	1Q23	2Q22	Q/Q	Y/Y	FY22	FY21	Y/Y
Total Market*	42,781	42,361	40,499	1.0%	5.6%	41,499	39,459	5.2%
UST	24,881	24,377	23,307	2.1%	6.8%	23,934	22,584	6.0%
Corporates	10,609	10,578	10,383	0.3%	2.2%	10,439	10,350	0.9%
Munis	4,043	4,028	4,064	0.4%	-0.5%	4,024	4,077	-1.3%
Agency	2,118	2,257	1,619	-6.2%	30.8%	1,936	1,433	35.1%
MM	1,130	1,121	1,126	0.8%	0.3%	1,166	1,014	15.0%

Source: The Federal Reserve, The Federal Reserve Bank of New York, US Agencies, US Treasury, SIFMA estimates

Note: UST = US Treasury securities, Corporates = corporate bonds, Agency = federal agency securities, Munis = municipal bonds, MM = money market

Total US Fixed Income

Outstanding: \$42.8T; +1.0% Q/Q, +5.6% Y/Y

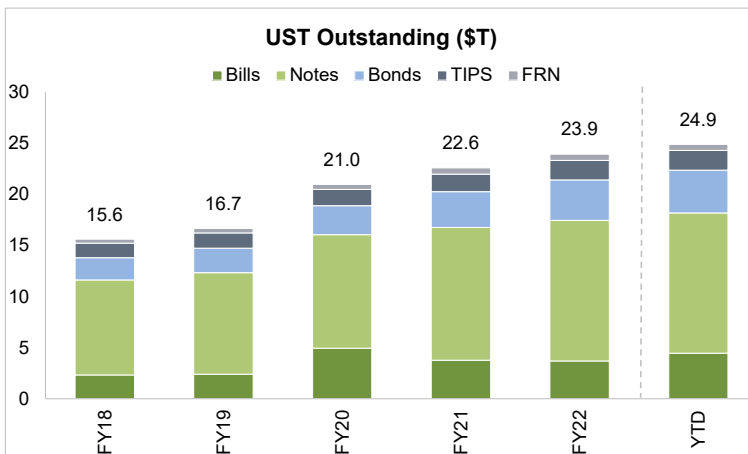
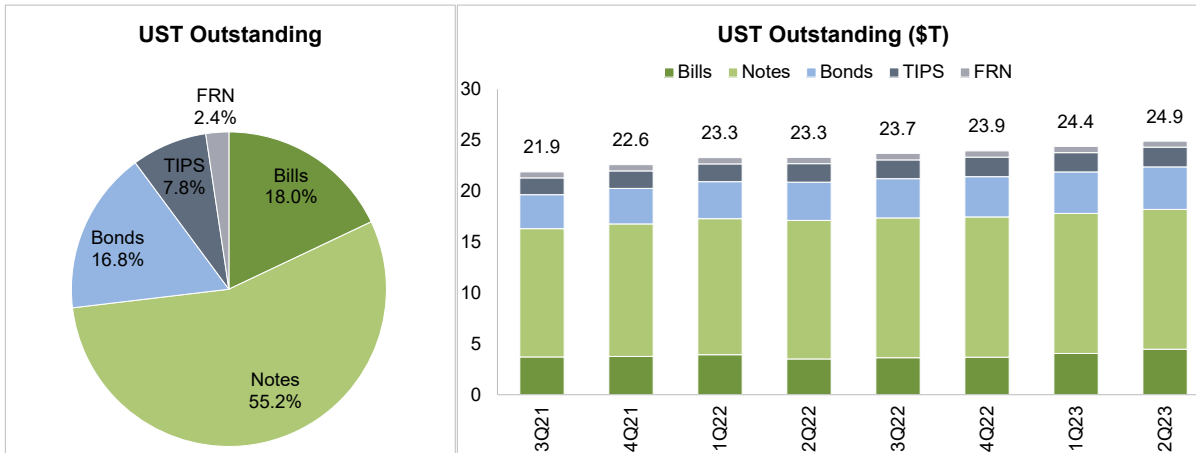


Source: The Federal Reserve, The Federal Reserve Bank of New York, US Agencies, US Treasury, SIFMA estimates

Note: YTD as of June 2023. UST = US Treasury securities, Corporates = corporate bonds, Agency = federal agency securities, Munis = municipal bonds, MM = money market.

US Treasury Securities (UST)

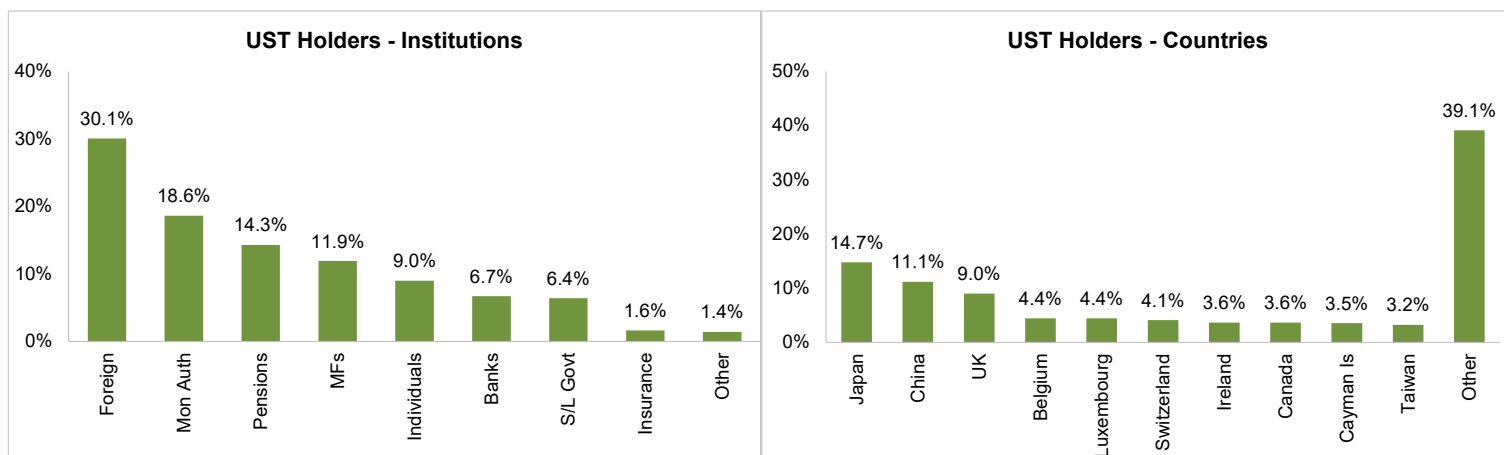
UST Outstanding: \$24.9T; +2.1% Q/Q, +6.8% Y/Y



Source: US Treasury, SIFMA estimates

Note: YTD as of June 2023. FRN = floating rate note, TIPS = Treasury inflation-protected securities.

US Treasury Securities (UST)

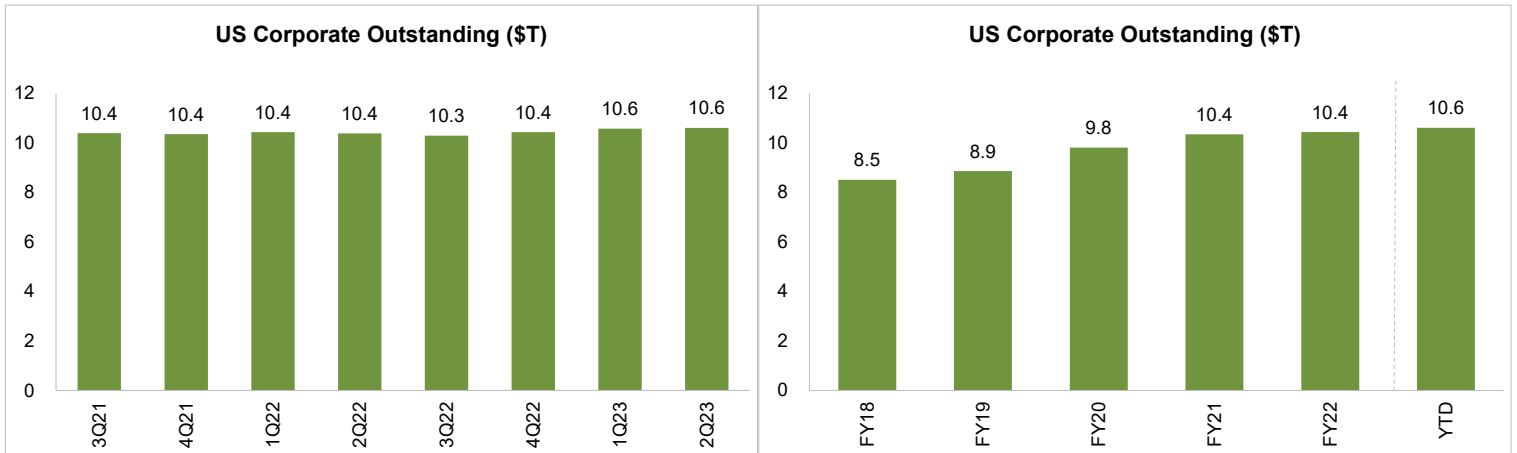


Source: The Federal Reserve, US Treasury, SIFMA estimates

Note: YTD as of June 2023.

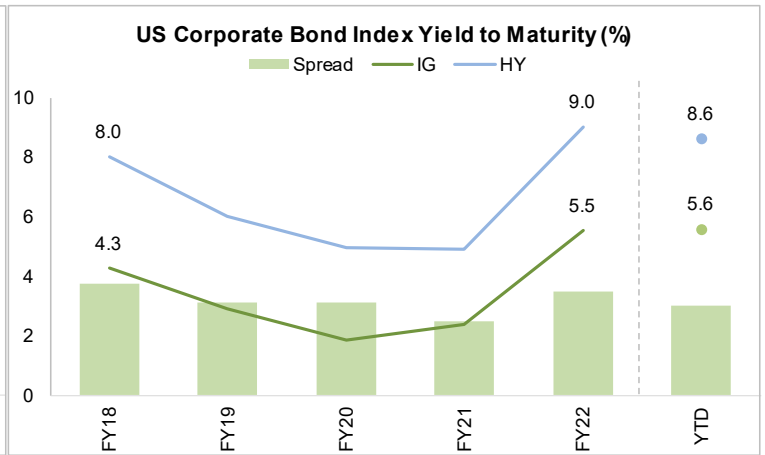
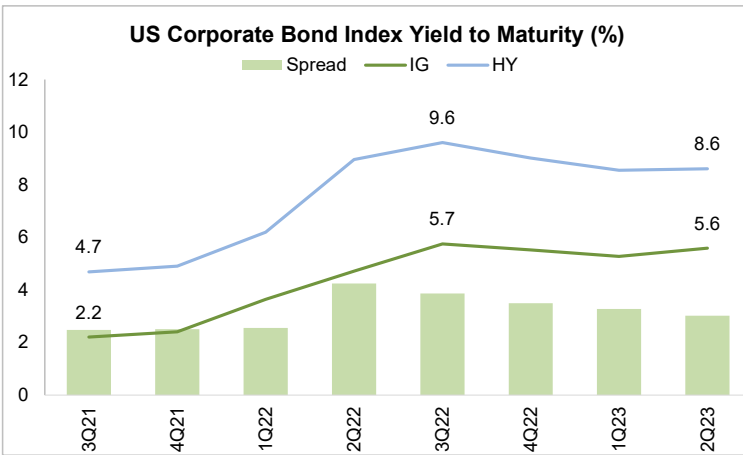
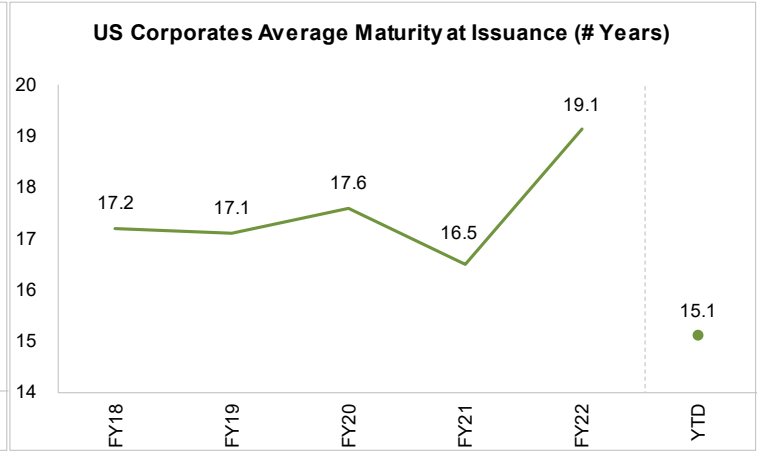
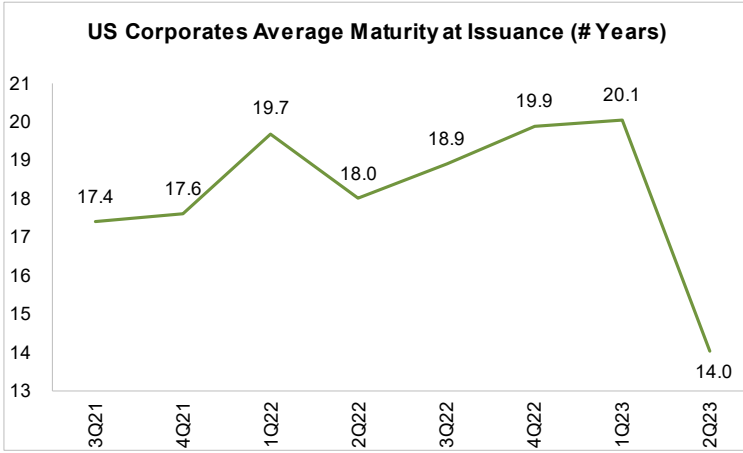
Corporate Bonds (Corporates)

Corporate Outstanding: \$10.6T, +0.3% Q/Q, +2.2% Y/Y



Source: The Federal Reserve, SIFMA estimates

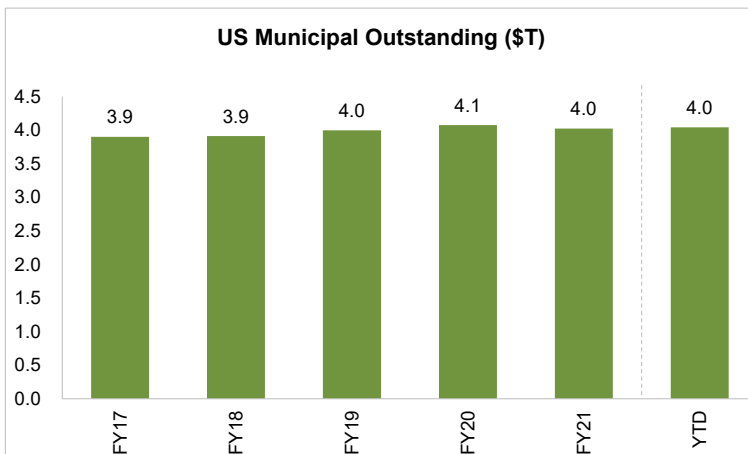
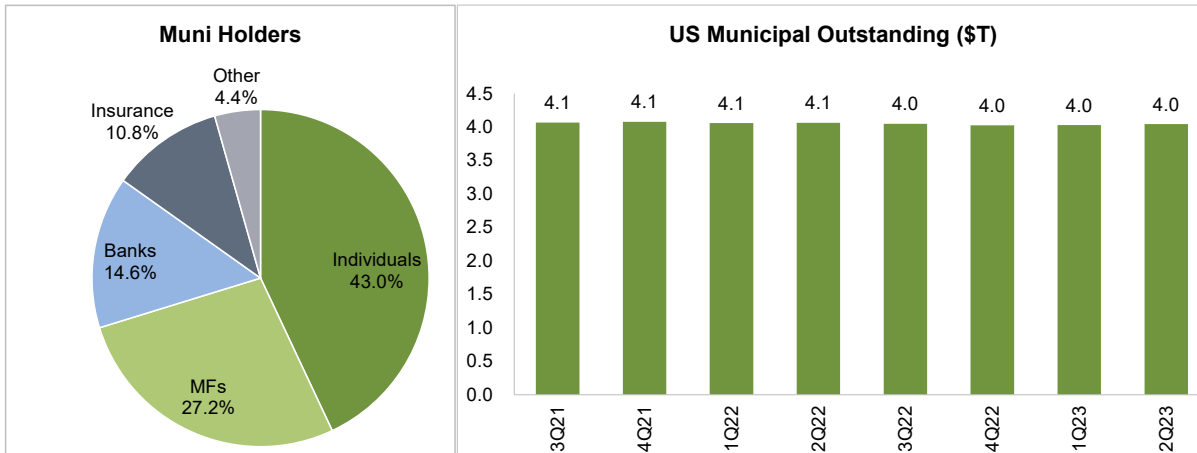
Note: YTD as of June 2023.



Source: ICE Data Indices, Refinitiv, SIFMA estimates
 Note: YTD as of June 2023. IG = investment grade, HY = high yield.

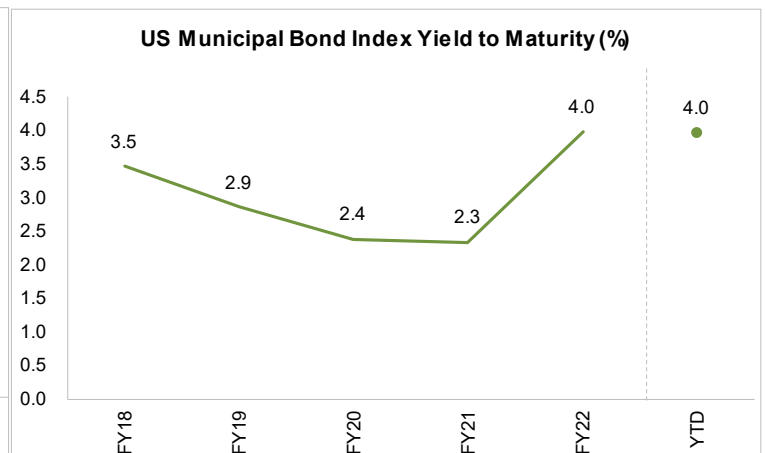
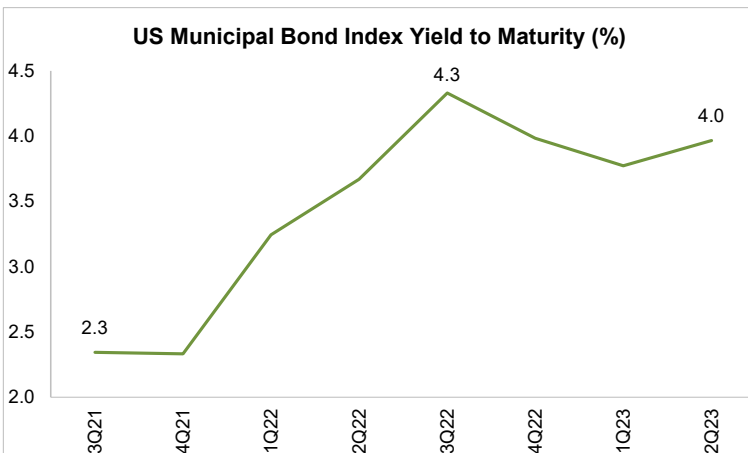
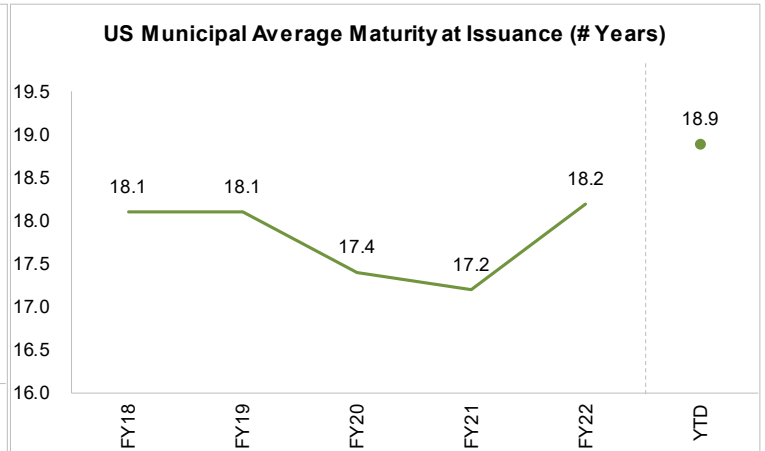
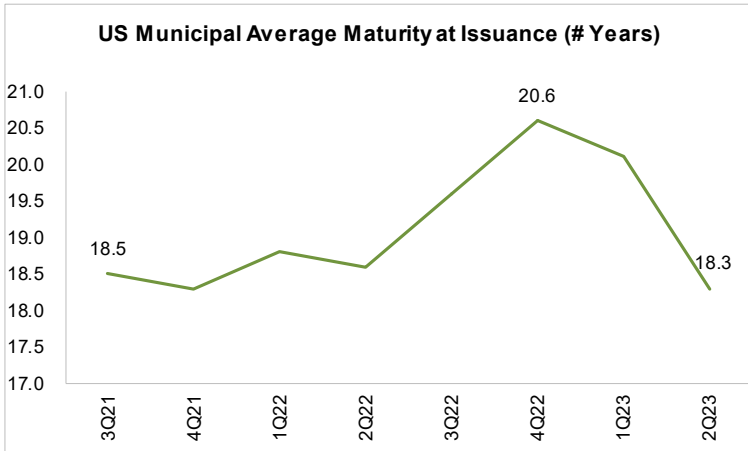
Municipal Bonds (Munis)

Municipal Bonds Outstanding: \$4.0T; +0.4% Q/Q, -0.5% Y/Y



Source: Municipal Securities Rulemaking Board, Refinitiv, SIFMA estimates

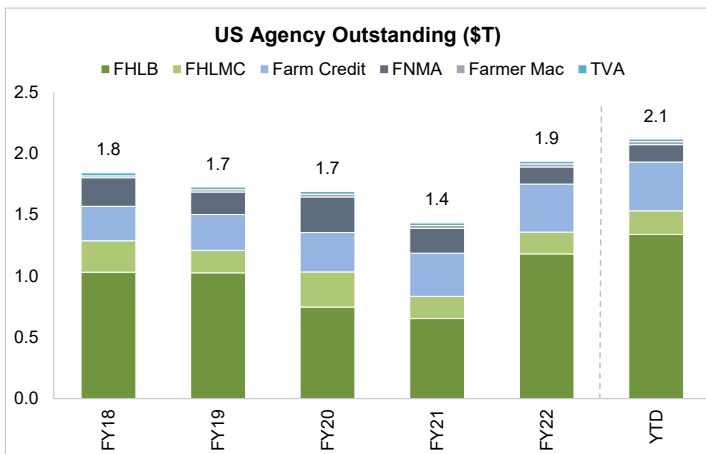
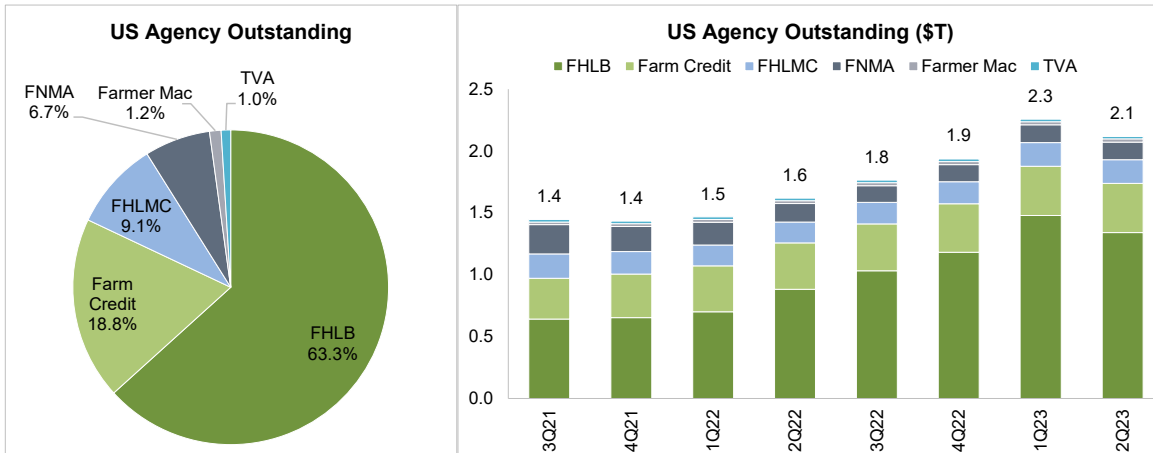
Note: YTD as of June 2023. MFs = Mutual Funds.



Source: ICE Data Indices, Refinitiv, SIFMA estimates
 Note: YTD as of June 2023.

Federal Agency Securities (Agency)

Agency Outstanding: \$2.1T; -6.2% Q/Q, +30.8% Y/Y

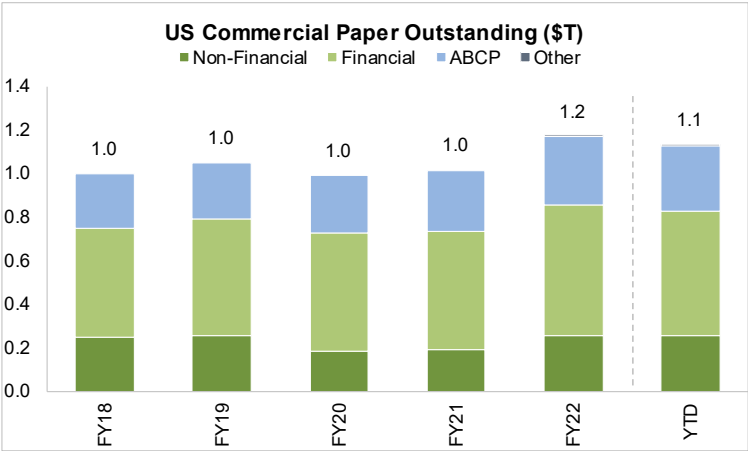
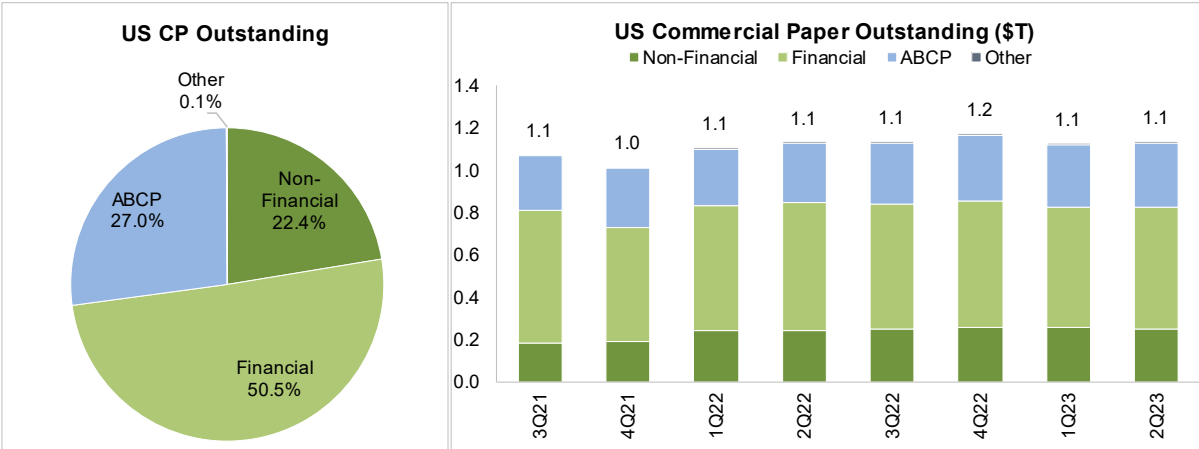


Source: US Agencies, SIFMA estimates

Note: YTD as of June 2023. FHLB = The Federal Home Loan Banks, FHLMC = The Federal Home Loan Mortgage Corporation (Freddie Mac), FNMA = The Federal National Mortgage Association (Fannie Mae), TVA = The Tennessee Valley Authority.

Money Markets (MM)

Commercial Paper Outstanding: \$1.1T, +0.8% Q/Q, +0.3% Y/Y

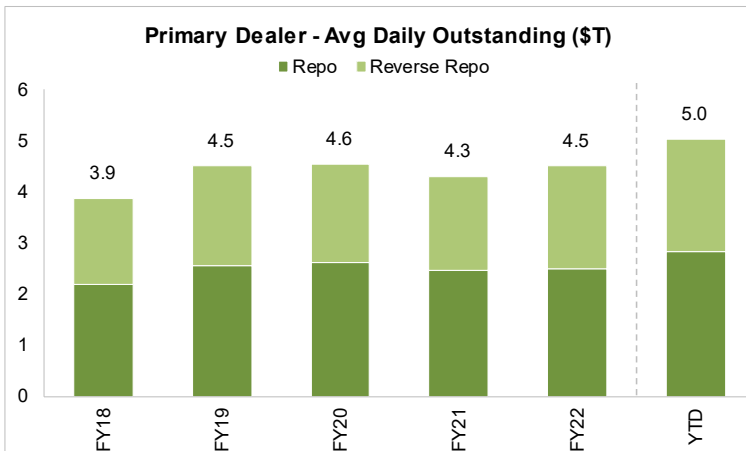
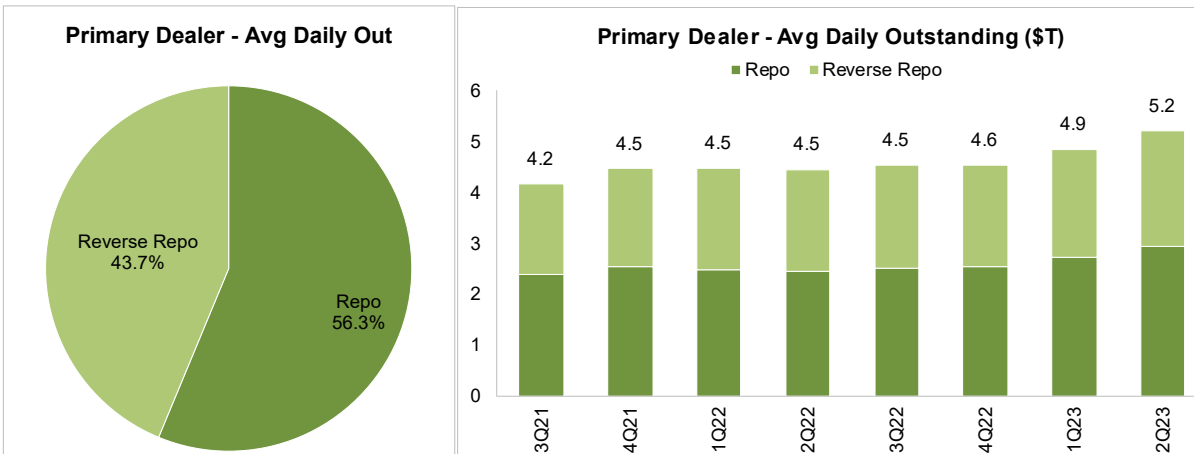


Source: The Federal Reserve Bank of New York, SIFMA estimates
 Note: YTD as of June 2023. ABCP = asset-backed commercial paper.

Repurchase Agreement (Repo)

Primary Dealer Repo:

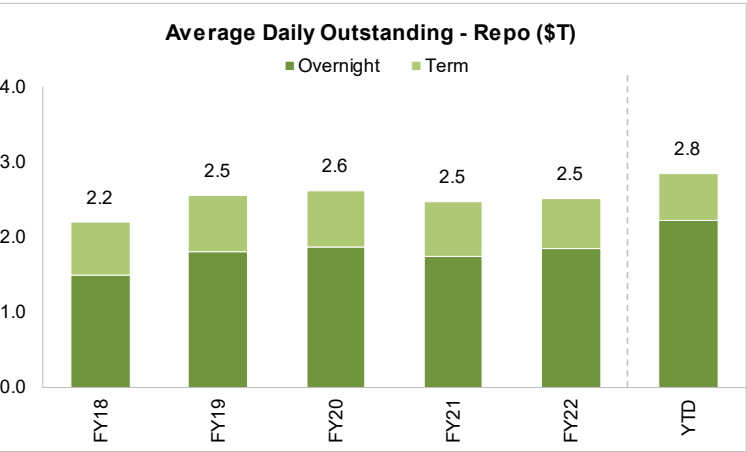
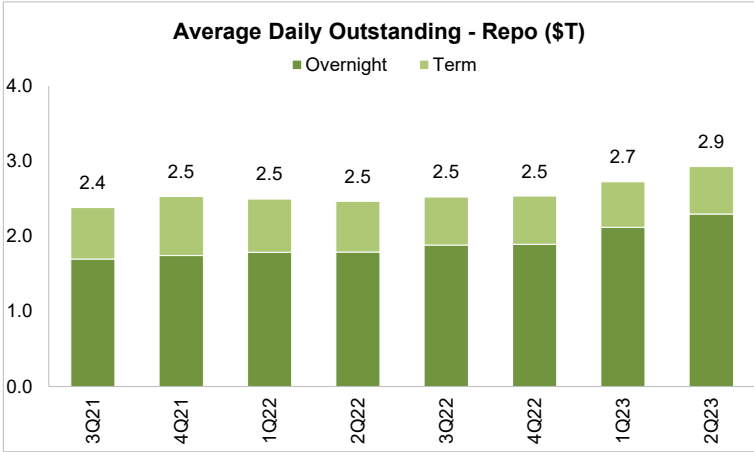
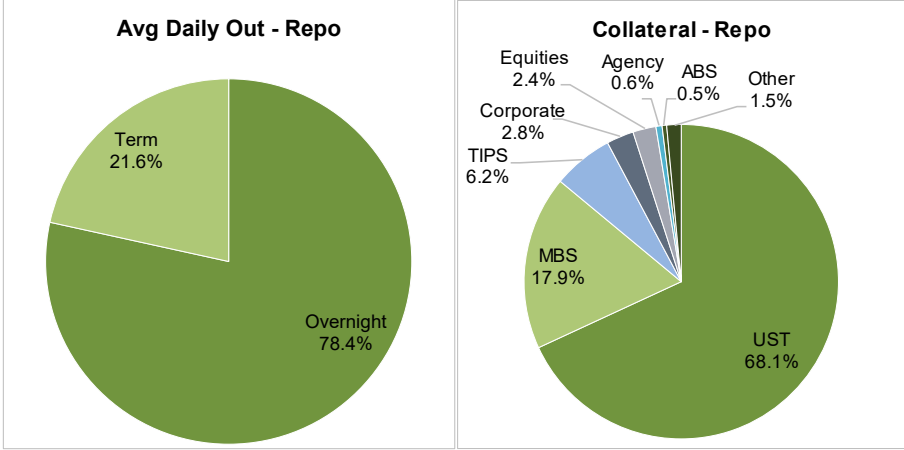
- Quarter: \$5.2T, +7.1% Q/Q, +15.8% Y/Y
- YTD: \$5.0T, +12.8% Y/Y



Source: The Federal Reserve Bank of New York, SIFMA estimates

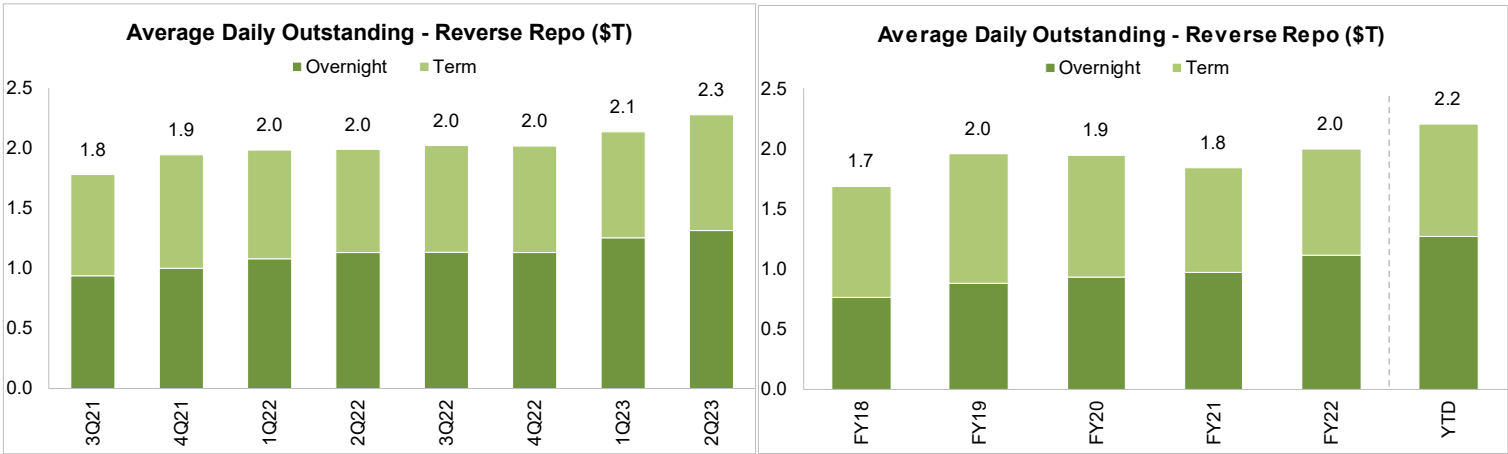
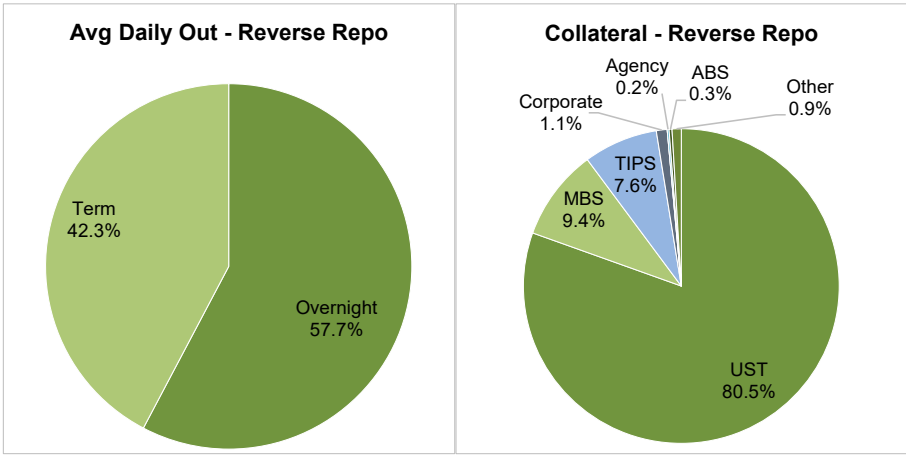
Note: YTD as of June 2023.

Repo



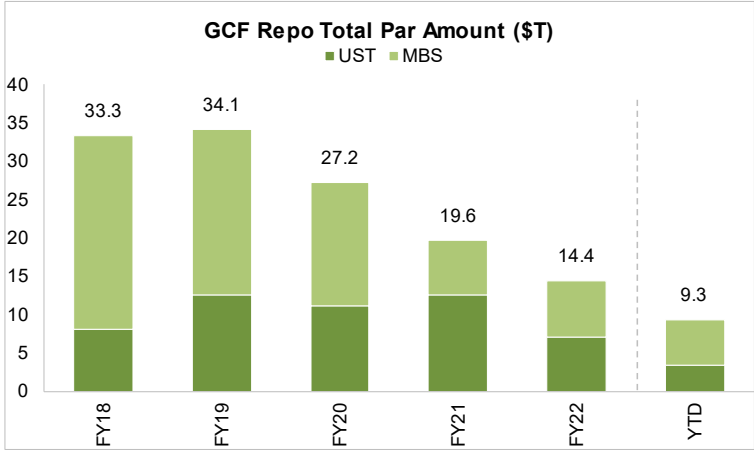
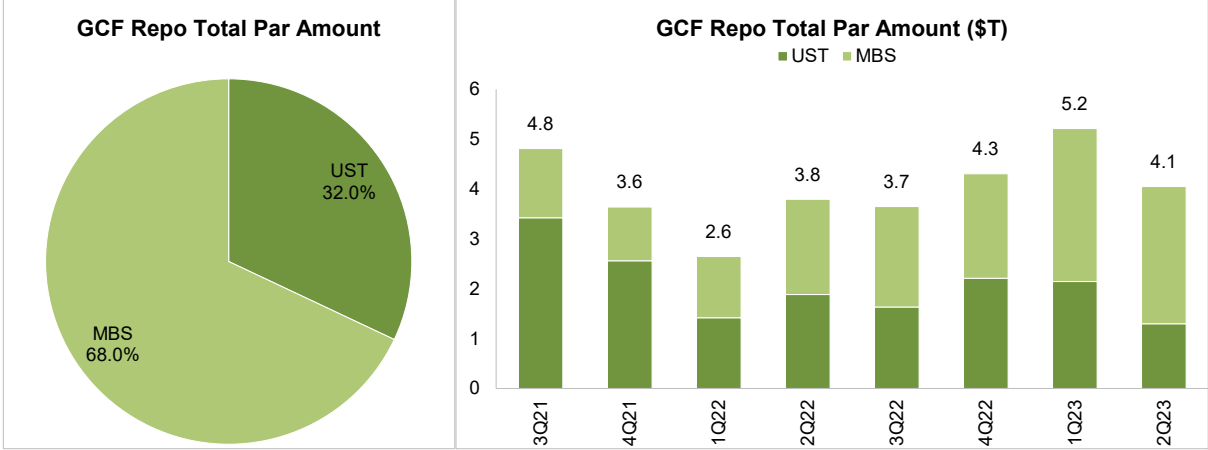
Source: The Federal Reserve Bank of New York, SIFMA estimates
 Note: YTD as of June 2023.

Reverse Repo

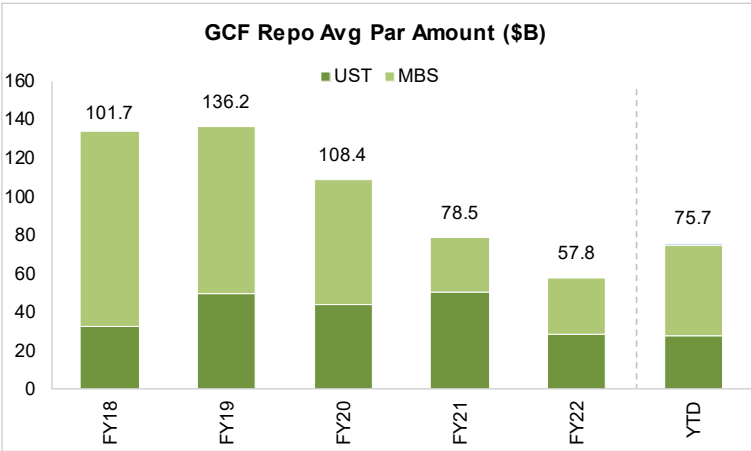
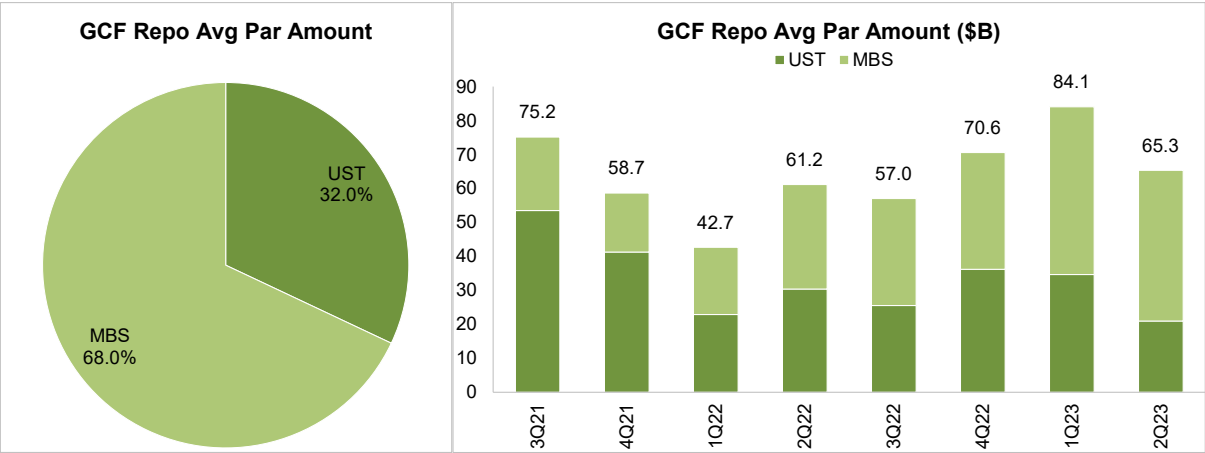


Source: The Federal Reserve Bank of New York, SIFMA estimates
 Note: YTD as of June 2023.

GCF Repo Markets



Source: The Federal Reserve Bank of New York, SIFMA estimates
 Note: YTD as of June 2023. UST = US Treasury securities, MBS = mortgage-backed securities.

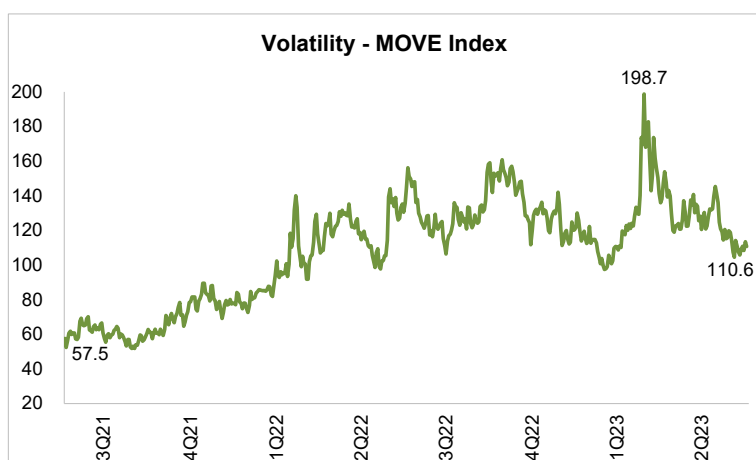


Source: The Federal Reserve Bank of New York, SIFMA estimates
 Note: YTD as of June 2023. UST = US Treasury securities, MBS = mortgage-backed securities.

Quarterly Rates Review

Volatility (MOVE Index)

- Quarter end: 110.64
- Quarter average: 125.08
- Quarter peak: 153.90 on 4/5/23
- Total peak: 198.71 on 3/15/23

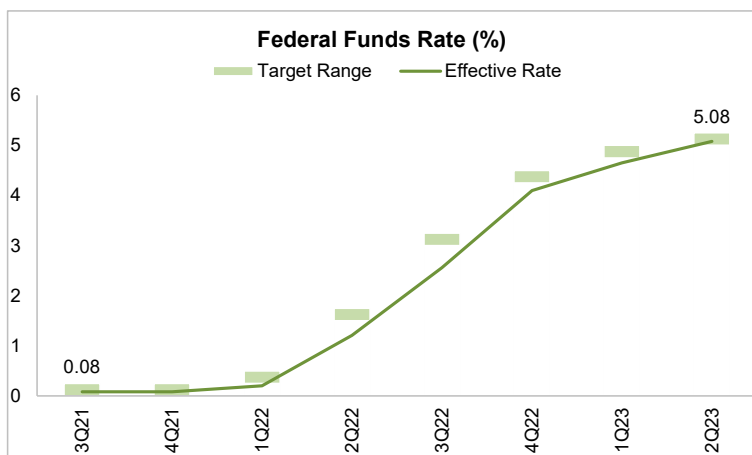


Source: Bloomberg, SIFMA estimates

UST Rates

Federal Funds Rate (Fed Funds)

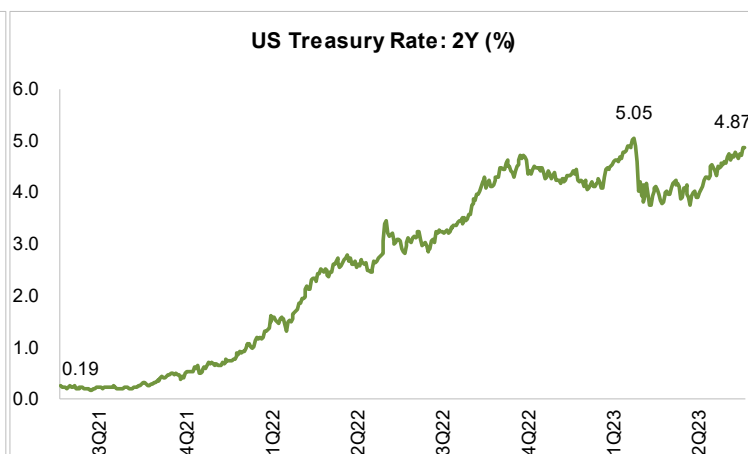
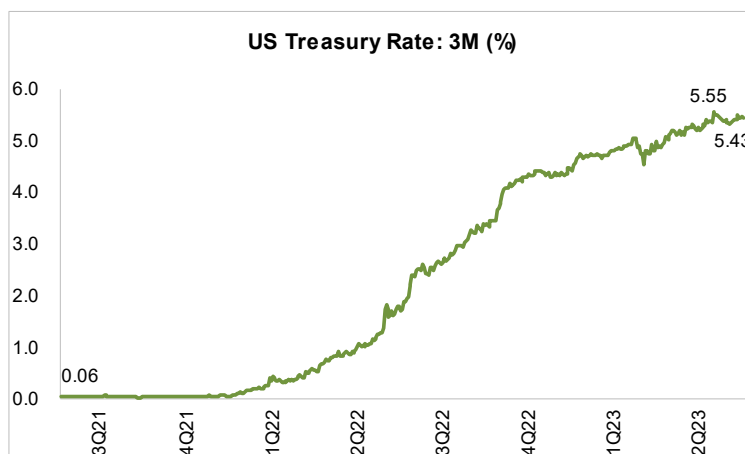
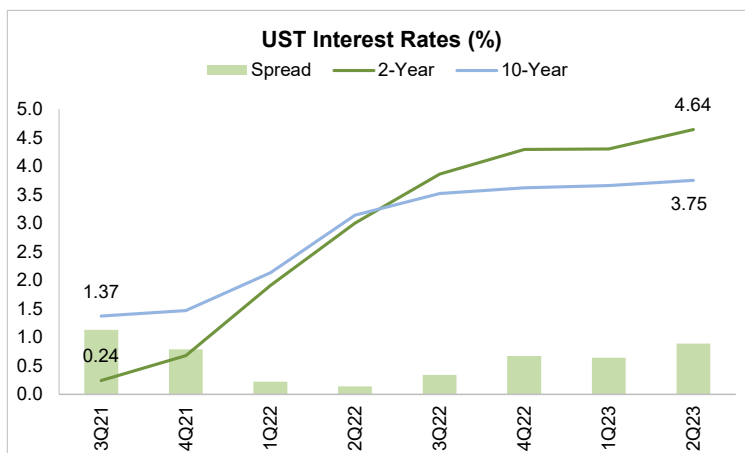
- At the quarter end: 5.00% (Lower Bound) - 5.25% (Upper Bound)
- Current: After the September FOMC meeting, the range stands at 5.25%-5.50%



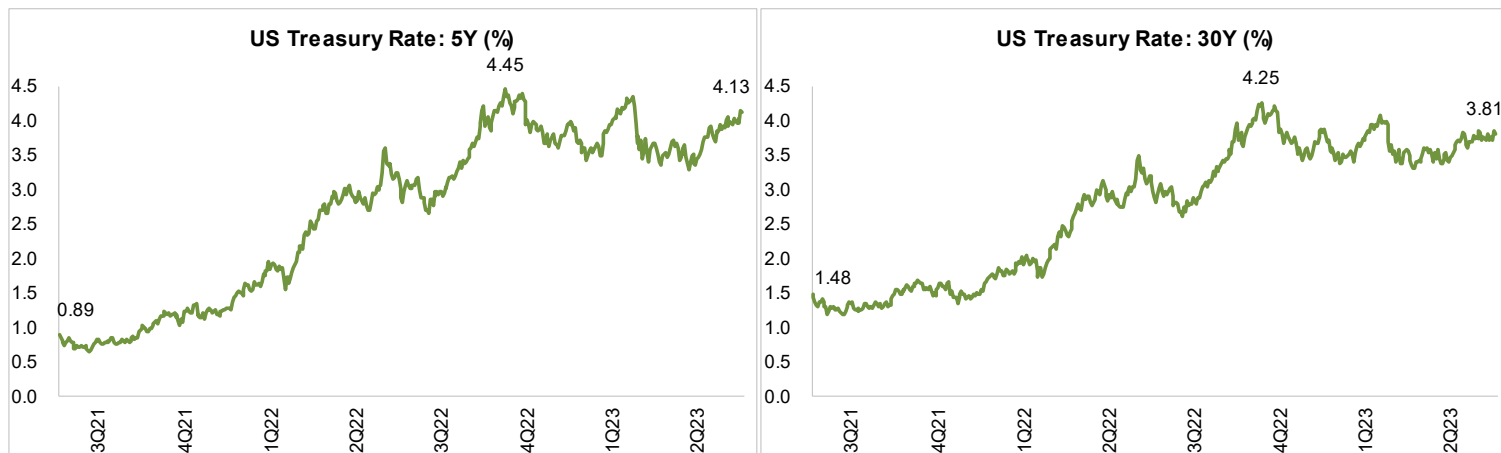
Source: Bloomberg, SIFMA estimates

UST by Tenor

- 10 Year Benchmark
 - Quarter end: 3.81%
 - Quarter average: 3.60%
 - Quarter peak: 3.85% on 6/29/23
 - Total peak: 4.25% on 10/24/22



Source: Bloomberg, SIFMA estimates

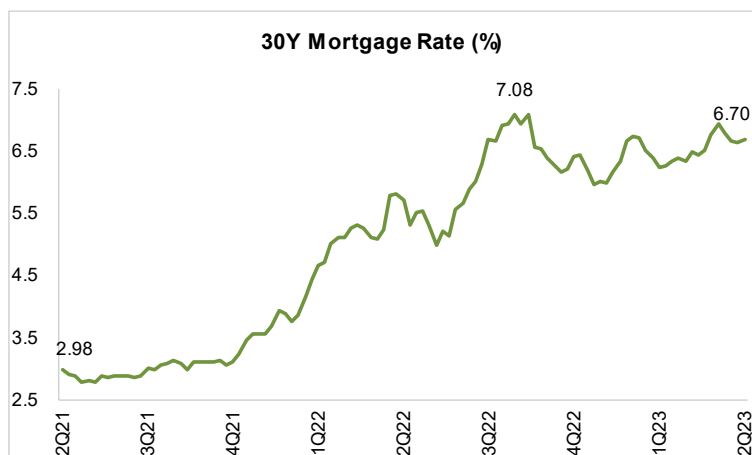


Source: Bloomberg, SIFMA estimates

Other Rates

30-Year Mortgage Rate

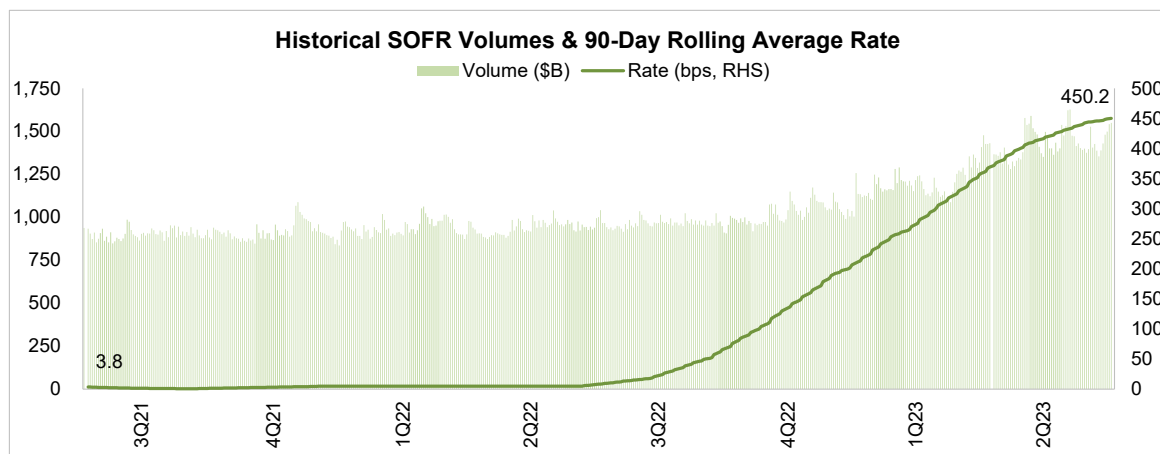
- Quarter end: 6.70%
- Quarter average: 6.56%
- Quarter peak: 6.93% week of 6/1/23
- Total peak: 7.08% week of 10/27/22



Source: Bloomberg, SIFMA estimates

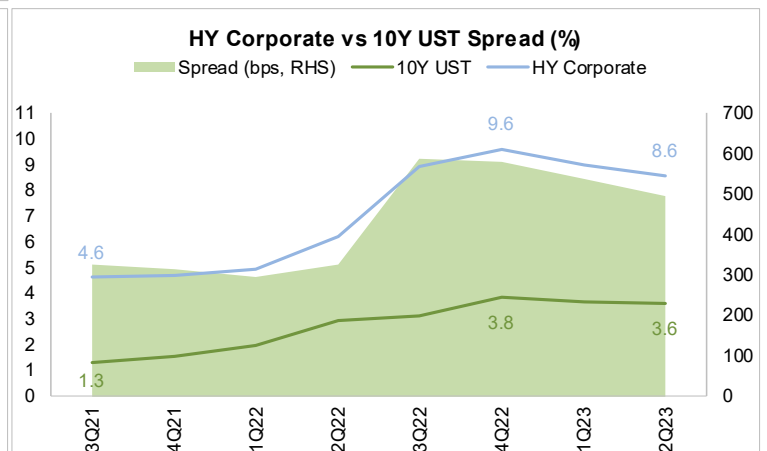
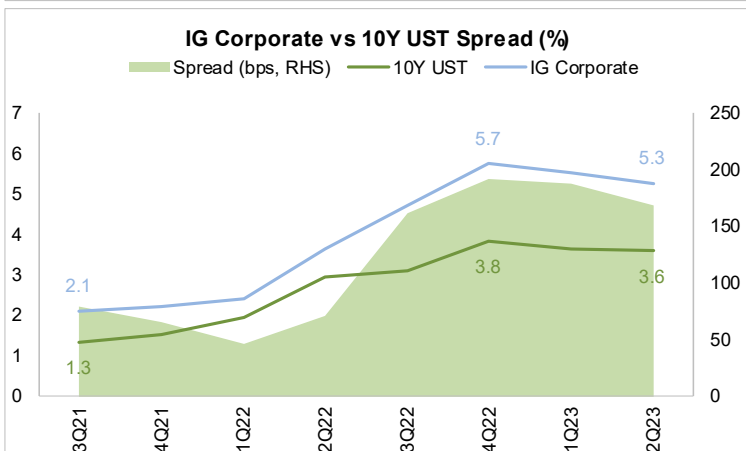
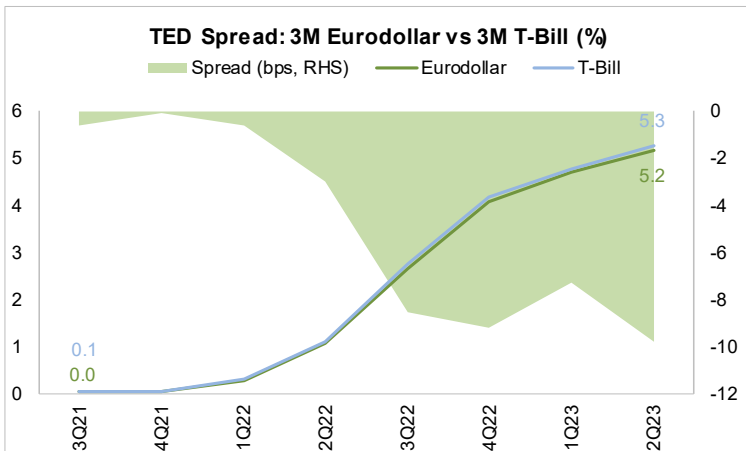
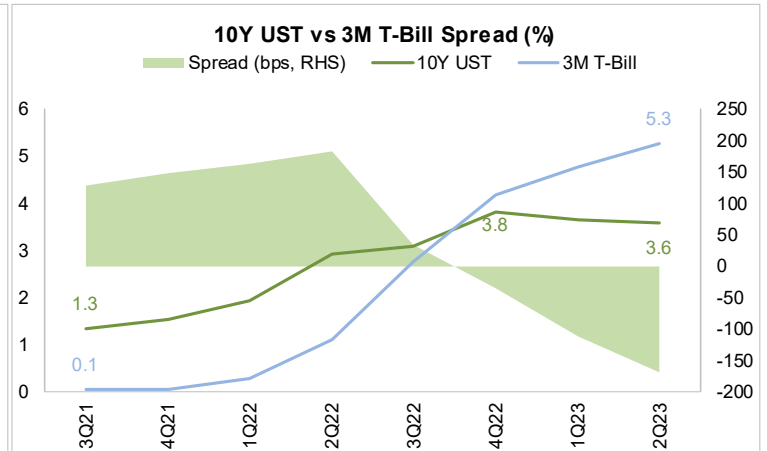
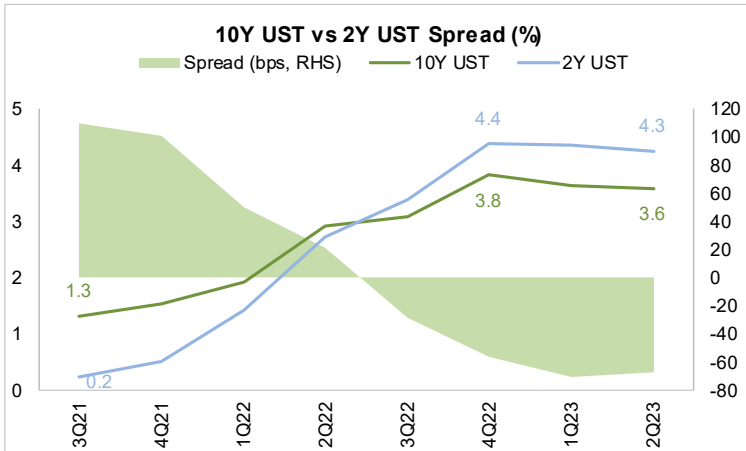
Secured Overnight Financing Rate (SOFR)

- Quarter end (90 day rolling average): 450.2 bps
- Fed Volumes: \$1,549B



Source: Federal Reserve Bank of New York, SIFMA estimates

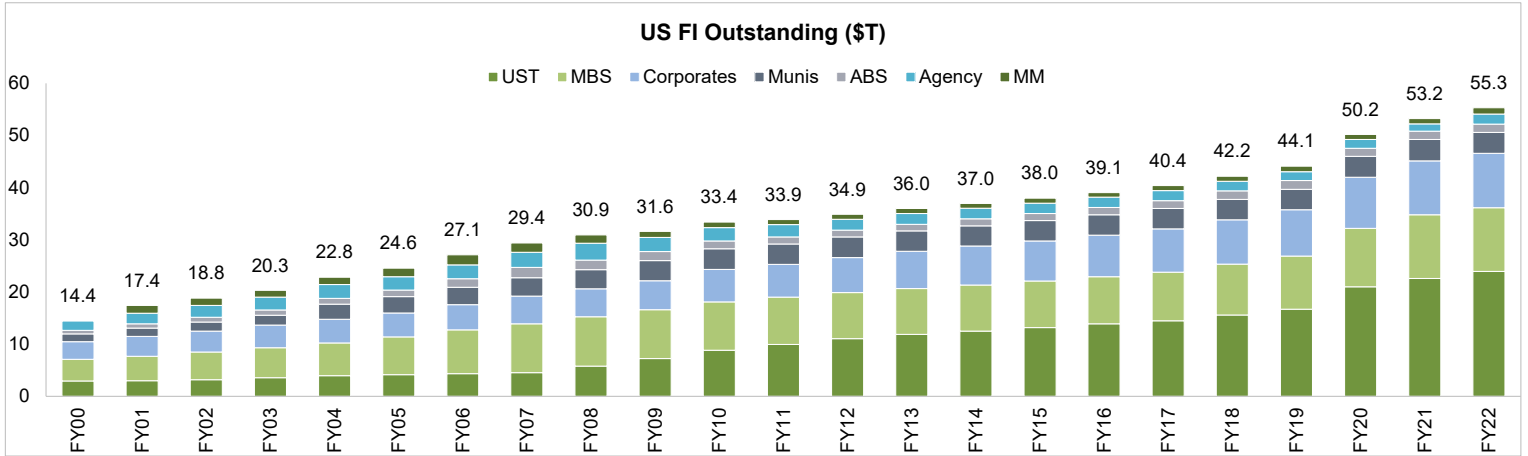
Curves & Spreads



Source: Bloomberg, SIFMA estimates

Appendix: Historical Trends

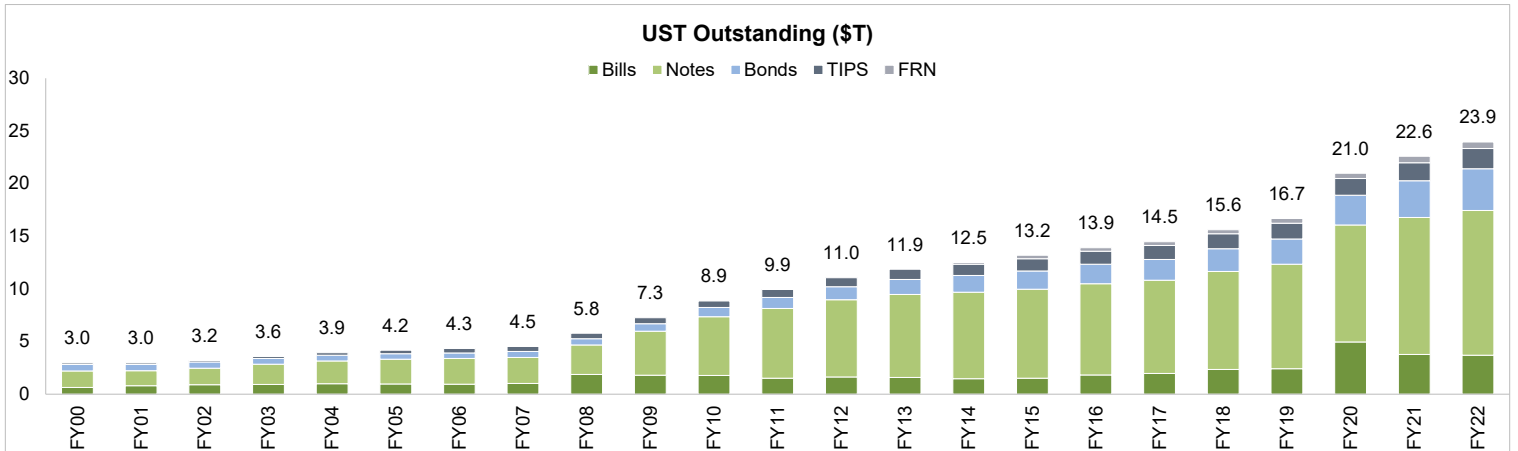
Total Fixed Income Securities



Source: The Federal Reserve, The Federal Reserve Bank of New York, US Agencies, US Treasury, SIFMA estimates

Note: UST = US Treasury securities, Corporates = corporate bonds, Agency = federal agency securities, Munis = municipal bonds, MM = money market

US Treasury Securities



Source: US Treasury, SIFMA estimates

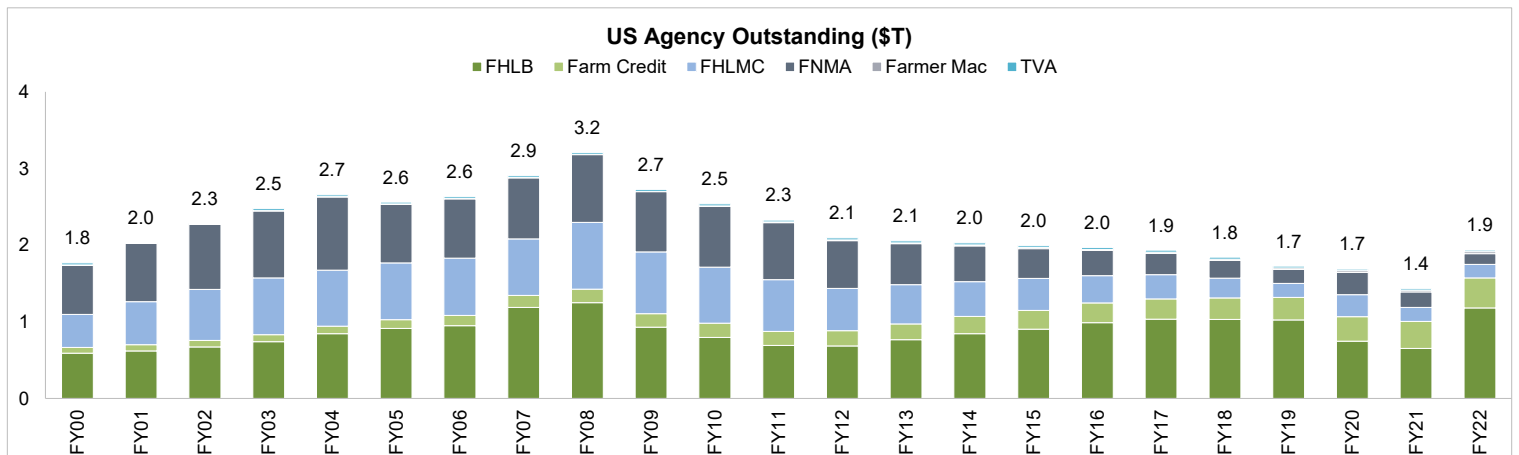
Note: FRN = floating rate note, TIPS = Treasury inflation-protected securities

Corporate Bonds



Source: The Federal Reserve, SIFMA estimates

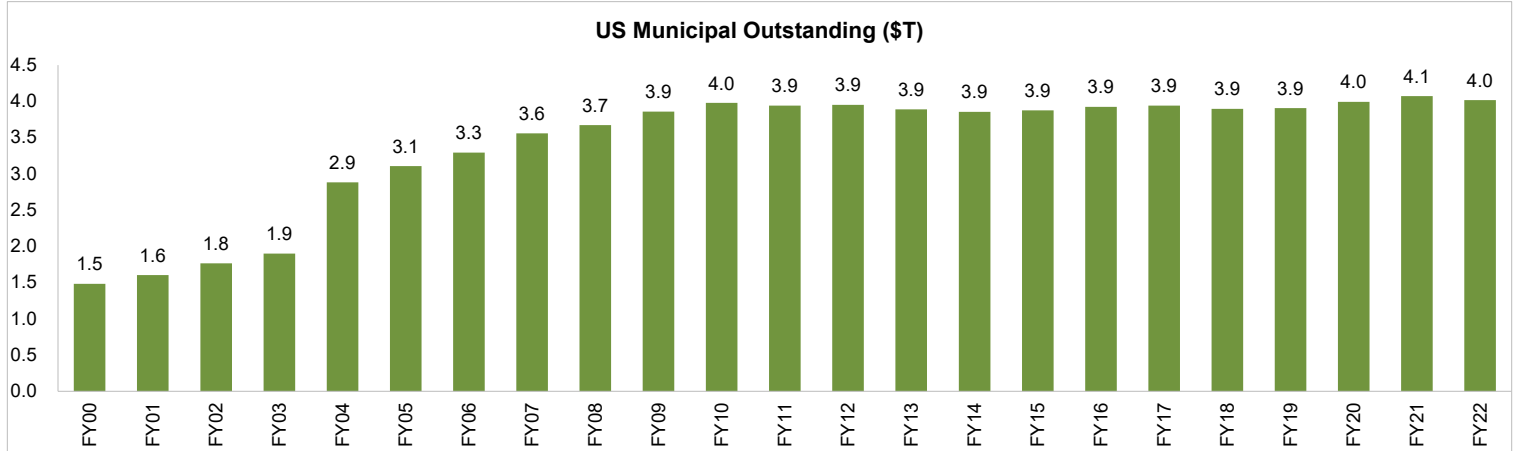
Federal Agency Securities



Source: US Agencies, SIFMA estimates

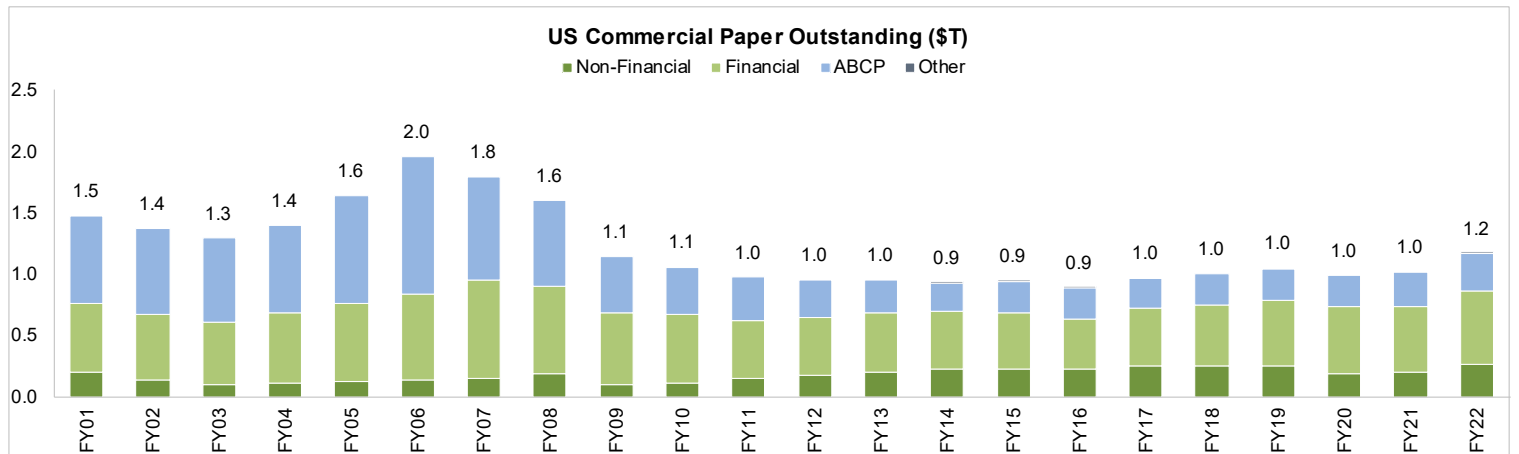
Note: FHLB = The Federal Home Loan Banks, FHLMC = The Federal Home Loan Mortgage Corporation (Freddie Mac), FNMA = The Federal National Mortgage Association (Fannie Mae), TVA = The Tennessee Valley Authority

Municipal Bonds



Source: The Federal Reserve, SIFMA estimates

Money Markets



Source: The Federal Reserve, SIFMA estimates

Note: ABCP = asset-backed commercial paper

Appendix: Definitions & Purpose

In general, fixed income securities are borrowed capital for the issuer to fund government operations, public projects or corporate investments, thereby fueling economic growth. The diversity of fixed income products both increases the amount of funds available to borrow and spreads credit risk across multiple market participants.

- **U.S. Treasury Securities (UST)** – UST are debt obligations of the federal government used to fund its operations. Since UST are backed by the full faith and credit of the U.S. government, these securities are considered by market participants as the benchmark credit. The U.S. government has a AAA rating, meaning it has essentially no credit risk and can easily meet its financial obligations on time and in full. In light of this, UST show a diversity of holders, in both institutional type and foreign holders.
- **Mortgage-Backed Securities (MBS)** – Since mortgages (a debt instrument collateralized by a specified real estate property) are less liquid than other investment vehicles, they can be securitized into MBS, whether in pass-throughs or collateralized mortgage obligations (CMOs).
- **Corporate Bonds (Corporates)** – Corporates are debt securities issued by public and private corporations. They are issued to raise money to fund investments or expansion plans. Corporates are considered riskier than UST, and receive ratings by credit ratings agencies to determine creditworthiness, i.e. probability of repayment of debt in a timely manner.
- **Municipal Bonds (Munis)** – Munis are debt securities issued by state/local governments or government agencies and public entities (utilities, school districts) to fund public projects, predominantly infrastructure related. Efficient muni markets enable states and municipalities to borrow at low rates and finance capital expenditures over a longer time period.
- **Federal Agency Securities (Agency)** – Agency securities are issued by quasi-governmental agencies (federal government, government sponsored enterprises) to fund operations. Unlike UST or munis, these securities are not always fully guaranteed by the U.S. or a municipal government. As such, they can hold credit and default risk.
- **Asset-Backed Securities (ABS)** – ABS are financial securities collateralized by a pool of typically illiquid assets such as auto loans, student loans, credit cards, etc. Pooling these assets creates a more liquid investment vehicle, with a valuation based on the cash flows of the underlying and the structure of the transaction.
- **Money Markets (MM)** – MMs involve highly liquid, short maturity (typically overnight to less than one year) financial instruments (certificates of deposit/CDs, bankers' acceptances, commercial paper/CP, etc.), used by investors to borrow and lend in the short term. Transactions in the money markets are wholesale, taking place only between institutional investors (no individual investors) and for large denominations.

- **Repurchase Agreements (Repos)** – Repos are financial transactions in which one party sells an asset to another party with a promise to repurchase the asset at a pre-specified later date (a reverse repo is the same transaction seen from the perspective of the security buyer). Repos can be overnight (duration one day) or term (duration up to one year, albeit some are up to two years and the majority are three months or less). The repo market enables market participants to provide collateralized loans to one another, and financial institutions predominantly use repos to manage short-term fluctuations in cash holdings, rather than general balance sheet funding. Repos aid secondary market liquidity for the cash markets (ex: UST), allowing dealers to act as market makers in a very efficient manner.
- **Secured Overnight Financing Rate (SOFR)** – In the U.S., the transition away from London Interbank Offered Rate (LIBOR) to its chosen alternative reference rate, SOFR, is underway. While LIBOR is not fully transaction based, SOFR is based on the overnight repo markets with ~ \$1 trillion transactions per day. Publication of the SOFR rate began in April 2018. Trading and clearing of SOFR based swaps and futures began in May 2018.

Appendix: Description and Purpose of Repo Markets

Defining Repo Markets

A repurchase agreement (repo) is a financial transaction in which one party sells an asset to another party with a promise to repurchase the asset at a pre-specified later date (a reverse repo is the same transaction seen from the perspective of the security buyer). Repos can be overnight (duration one day) or term (duration up to one year, albeit some are up to two years and the majority are three months or less). The repo market enables market participants to provide collateralized loans to one another, and financial institutions predominantly use repos to manage short-term fluctuations in cash holdings, rather than general balance sheet funding.

In general, repos aid secondary market liquidity for the cash markets (for example, U.S. Treasuries/UST), allowing dealers to act as market makers in a very efficient manner. Market makers stand ready to buy and sell securities, providing liquidity to markets. These firms must take the other side of trades when there are short-term buy and sell imbalances in customer orders. Healthy repo markets provide them the necessary cash and access to securities to perform these actions and keep secondary cash markets running effectively. The ability to finance and efficiently source securities contributes to lower interest rates paid by the issuers, most notably the U.S. Treasury, which lowers debt servicing costs borne by taxpayers.

The repo markets allow investors to manage excess cash balances safely and efficiently. Dealers also benefit from significantly reduced funding costs, the capacity to finance long positions in securities and the ability to borrow securities to cover short positions to satisfy client needs. Long holders of securities can also gain incremental returns by engaging in repo transactions with cash investors for securities they own but have no immediate need to sell.

Types of Repo Markets

While a broad array of assets may be financed in the repo market, the most commonly used instruments include UST, federal agency securities (agency), high quality mortgage-backed securities (MBS), corporate bonds (corporates) and money market instruments (MM).

The repo market can be split into two main segments:

- **Bilateral Repo** – The bilateral repo market has investors and collateral providers directly exchange money and securities, absent a clearing bank. Bilateral repo transactions can either allow for general collateral or impose restrictions on eligible securities for collateral. Bilateral repo is preferred when market participants want to interact directly with each other or if specific collateral is requested.
- **Tri-Party Repo** – The tri-party repo market is named as such given the role played by clearing banks in facilitating settlement. Clearing banks act as an intermediary, handling the administrative details between the two parties in the repo transaction. Tri-party repo is used to finance general collateral, with investors accepting any security within a broad class of securities. According to the Federal Reserve Bank of New York (New York Fed), market participants view tri-party repo as more cost efficient.

There is also the general collateral finance (GCF) repo market, which is offered by the Fixed Income Clearing Corporation (FICC), a central clearing counterparty. GCF repo is predominantly used by securities dealers, who negotiate the trade on an anonymous basis and then submit it to FICC. FICC then interposes itself as the legal counterparty to both sides of the repo transaction.

Repo Market Participants

Securities dealers are at the heart of the repo market, operating in all repo market segments. The diagram on the following page shows the interaction of market participants in both repo market segments described above.

Additional participants in the repo market include:

- **Financial institutions** – Primary dealers (see appendix for a current list), banks, insurance companies, mutual funds, pension funds, hedge funds
- **Governments** – The New York Fed (used in its implementation of monetary policy), other central banks, municipalities
- **Corporations**

These entities all benefit from the security, operational efficiency and low funding costs available in the repo market. Repos offer cash providers collateralization (with additional margin requirements in most cases) marked-to-market daily to ensure continuing protection. The operational efficiencies developed through tri-party repo and the largely centralized settlement mechanism for repos further minimize risks. Standardized documentation, broadly accepted by market participants, provides further certainty for market participants.

Repo Regulation

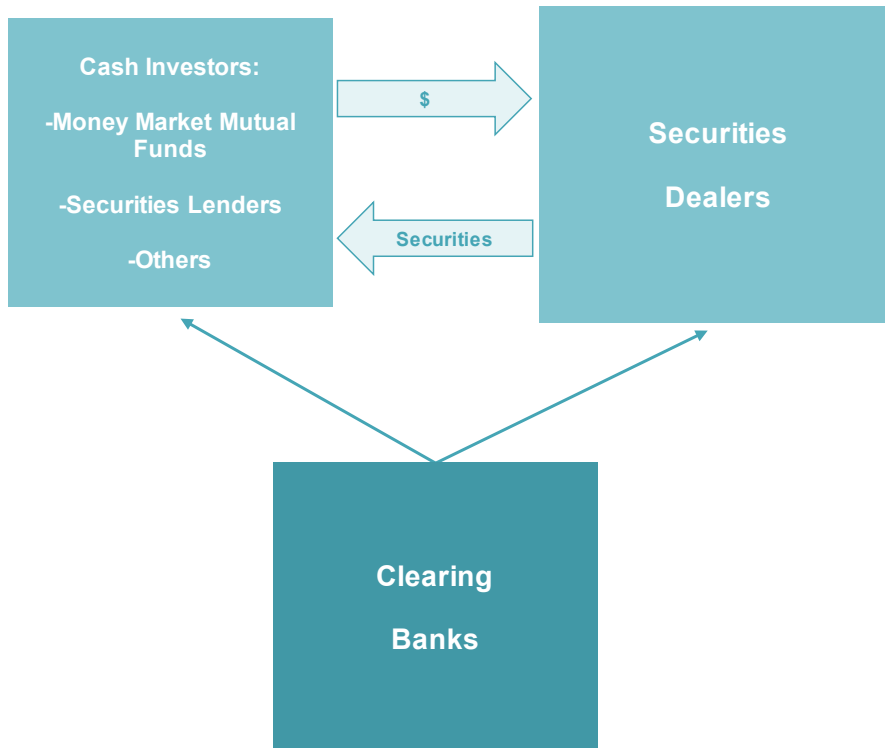
Prior to the financial crisis, some financial institutions used repos to fund leveraged position taking in securities. As asset prices declined during the crisis, repo lenders increased the amount of collateral required, limiting the level of repo activity for some investors holding leveraged portfolios. This created a funding shortfall and forced investors to decrease leverage by selling assets, leading to even lower asset valuations. This fed back into additional asset sales, and the circle went round and round. Repos backed by government securities also faced stress. Flight to safety tendencies drove increased demand for these standalone assets, leading to shortages of available collateral in the repo market.

In light of this, the New York Fed works continuously with market participants to monitor repo infrastructure and recommend reforms as necessary, to ensure these markets remain stable sources of funding during periods of market stress. The New York Fed also provides data for market participants on the repo markets. While comprehensive data for all segments of repo markets are not available, data is provided for certain segments of and specific firms operating in this market.

Bilateral Repo



Tri-Party Repo



Sources: Federal Reserve Bank of New York, SIFMA

Appendix: Terms to Know

Y/Y	Year-over-Year
Q/Q	Quarter-over-Quarter
YTD	Year-to-Date
BPS	Basis Points
PPS	Percentage Points
CAGR	Compound Annual Growth Rate
CUSIP	Committee on Uniform Securities Identification Procedures
CFTC	Commodity Futures Trading Commission
SEC	Securities and Exchange Commission
Fed	Federal Reserve System
FRB	Federal Reserve Bank
NY Fed	Federal Reserve Bank of New York
ARRC	Alternative Reference Rates Committee
ADV	Average Daily Trading Volume
Algo	Algorithm (algorithmic trading)
AT	Automated Trading
ATS	Alternative Trading System
AUM	Assets Under Management
Best Ex	Best Execution
CLOB	Central Limit Order Book
D2C	Dealer-to-Client
D2D	Dealer-to-Dealer
ECN	Electronic Communications Network
ETP	Electronic Trading Platforms
ETD	Exchange Traded Derivative
FI	Fixed Income
FICC	Fixed Income, Currencies and Commodities
GCF	General Collateral Financing
IDB	Inter-Dealer Broker
IIV	Intraday Indicative Value
IOI	Indication of Interest
MM	Market Maker
OI	Open Interest
OTC	Over-the-Counter
VWAP	Volume Weighted Average Price
IBOR	Interbank Offered Rate
LIBOR	London Inter-bank Offered Rate
RFR	Risk Free Rate
SOFR	Secured Overnight Financing Rate
DV01	Dollar Value of Basis Point
DVP	Delivery-versus-Payment
EFFR	Effective Fed Funds Rate
PAI	Price Alignment Interest
Repo	Repurchase Agreement

UST	U.S. Treasury Securities
MBS	Mortgage-Backed Security
Corporates	Corporate Bonds
Munis	Municipal Securities
Agency	Federal Agency Securities
ABS	Asset-Backed Securities
MM	Money Markets
FRN	Floating Rate Note
FRA	Forward Rate Agreement
T-Bill	U.S. Treasury Bill
T-Note	U.S. Treasury Note
T-Bond	U.S. Treasury Bond
TIPS	Treasury Inflation Protected Securities
ABS	Asset-Backed Security
CMO	Collateralized Mortgage Obligation
MBS	Mortgage-Backed Security
CMBS	Commercial MBS
RMBS	Residential MBS
HY	High Yield Bond
IG	Investment Grade Bond
GO	General Obligation Bond
Revenue	Revenue Bond
CD	Certificate of Deposit
CDO	Collateralized Debt Obligation
CLO	Collateralized Loan Obligation
CP	Commercial Paper
ABCP	Asset-Backed Commercial Paper
MMF	Money Market Mutual Funds
FAMC	Farmer Mac/Federal Agricultural Mortgage Corporation
FCS	Farm Credit System
FHLB	Federal Home Loan Banks
FHLMC	Freddie Mac/Federal Home Loan Mortgage Corporation
FNMA	Fannie Mae/Federal National Mortgage Association
GNMA	Ginnie Mae/Government National Mortgage Association
TVA	Tennessee Valley Authority
IR	Interest Rate
IRS	Interest Rate Swap
OIS	Overnight Index Swap
TRS	Total Return Swap
STIR	Short-Term Interest Rate

Appendix: SIFMA Research Reports

SIFMA Research: www.sifma.org/research

- **Quarterly Reports**
 - Equity and related: capital formation (IPOs, other issuance statistics); market performance (index prices); volatility (VIX); cash equities, ETFs, and multi-listed options volumes; exchange market shares and landscapes; equity market cap and number of listed companies
 - Fixed Income – Issuance & Trading: issuance and trading metrics for U.S. Treasuries, mortgage-backed securities, corporate bonds, municipal securities, federal agency securities, asset-backed securities, and secured overnight financing rate (SOFR), as well as statistics on fixed income ESG issuance for green, social, and sustainability bonds
 - Fixed Income – Outstanding: outstanding balances for U.S. Treasuries, mortgage-backed securities, corporate bonds, municipal securities, federal agency securities, asset-backed securities, money markets, repurchase agreements, and secured overnight financing rate (SOFR)
 - Financial Institutions: financial (income statement and balance sheet metrics) and regulatory (ratios such as capital levels) data for CCAR firms, essentially a proxy for the financial services industry

- **Capital Markets Fact Book:** a comprehensive look at capital markets, including
 - Global equity and fixed income markets (outstanding, issuance, volumes); investment banking landscape; international securities transactions
 - U.S. equity, fixed income, derivatives and private placement markets (outstanding, issuance, volumes, index prices); investment banking landscape; mutual fund and ETF statistics
 - U.S. investor participation showing household liquid financial asset breakout; household equity ownership; and holders of equities
 - U.S. savings & investment metrics on retirement asset breakout and mix across asset classes; savings rates and other economic indicators; and federal balance sheet overview
 - U.S. securities industry statistics on number of broker-dealers, registered representatives, registered investment advisors, and branch offices; industry financial overview; and state maps showing number firms/ reps

- **U.S. Repo Market Chart Book:** a detailed description of the U.S. repurchase agreement (repo) markets and outstanding and collateral statistics for repo and reverse repo securities in the bilateral, general collateral finance (GCF), and tri-party repo markets

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Disclaimer: This document is intended for general informational purposes only and is not intended to serve as investment advice to any individual or entity. The views in this report and interpretation of the data are that of SIFMA, not necessarily its member firms.

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