



SIFMA Research Quarterly – 4Q19

US Fixed Income Markets

March 2020



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Associated Reports

Please also see SIFMA Research Quarterly Report: US Cash Equities, ETFs, Multi-Listed Options and Capital Formation, which can be found at: <https://www.sifma.org/research>

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Executive Summary

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

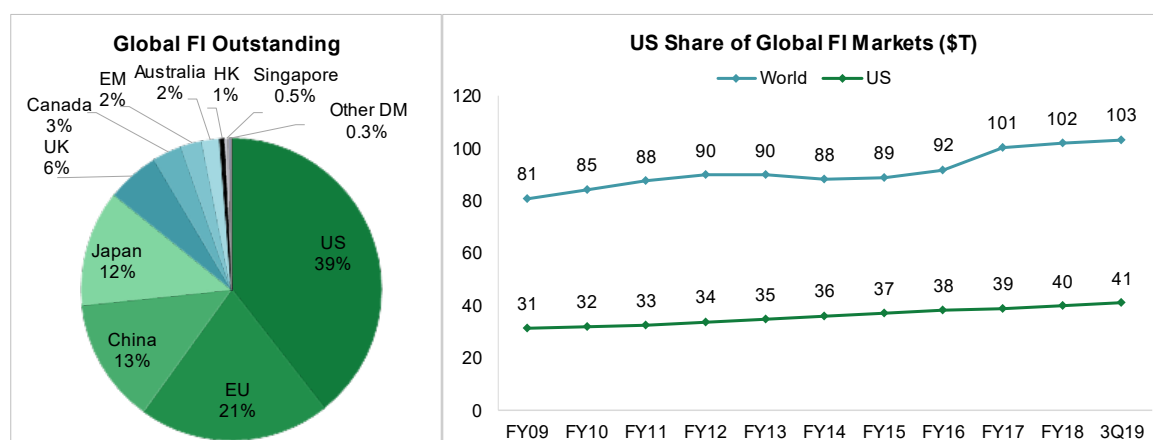
day) or term (duration up to one year, albeit some are up to two years and the majority are three months or less). The repo market enables market participants to provide collateralized loans to one another, and financial institutions predominantly use repos to manage short-term fluctuations in cash holdings, 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 of 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.

US Fixed Income Markets vs. Rest of World

The U.S. fixed income markets are the largest in the world, comprising 39.4% of the \$103 trillion securities outstanding across the globe, or \$41 trillion (as of 3Q19). This is 1.9x the next largest market, the EU. U.S. market share has averaged 39.4% over the last 10 years, troughing at 37.4% in 2011 and peaking at 41.8% in 2015.

US Market Share



Source: Bank for International Settlements (3Q19, data for all countries has a one quarter lag).

Quarterly Performance

In this report, we utilized SIFMA Research's comprehensive fixed income and securitized products databases (www.sifma.org/research) to recap statistics for total U.S. fixed income markets, U.S. Treasuries (UST), mortgage-backed securities (MBS), corporate bonds (corporates), municipal securities (munis), federal agency securities (agency), asset-backed securities (ABS), money markets (MM), repurchase agreements (repos) and the secured overnight financing rate (SOFR).

Quarterly Highlights

	4Q19	3Q19	4Q18	Q/Q	Y/Y	2019	2018	Y/Y
Issuance (\$B)	2,173	2,358	1,824	-7.9%	19.1%	8,186	7,440	10.0%
UST	756	876	787	-13.8%	-4.0%	2,935	2,685	9.3%
MBS	677	611	460	10.9%	47.3%	2,110	1,906	10.7%
Corporates	273	406	222	-32.8%	23.0%	1,415	1,333	6.2%
Muni	146	107	93	35.9%	56.8%	426	346	23.1%
Agency	261	284	155	-8.1%	68.4%	989	654	51.4%
ABS	61	75	108	-18.3%	-43.5%	310	517	-40.0%

	4Q19	3Q19	4Q18	Q/Q	Y/Y	2019	2018	Y/Y
Trading (ADV, \$B)								
UST	561	604	588	-7.1%	-4.6%	594	548	8.4%
MBS - Agency	237	254	214	-6.4%	10.9%	248	218	13.5%
MBS - Non Agency	3	2	2	8.3%	13.9%	3	2	13.0%
Corporates	32	32	31	-1.2%	3.9%	35	33	8.3%
Muni	11	11	12	-1.2%	-9.3%	12	12	-0.6%
Agency	3.9	4.2	3.6	-7.0%	7.7%	4.1	3.5	17.5%
ABS	1.5	1.3	1.5	9.7%	-3.2%	1.5	1.4	7.5%

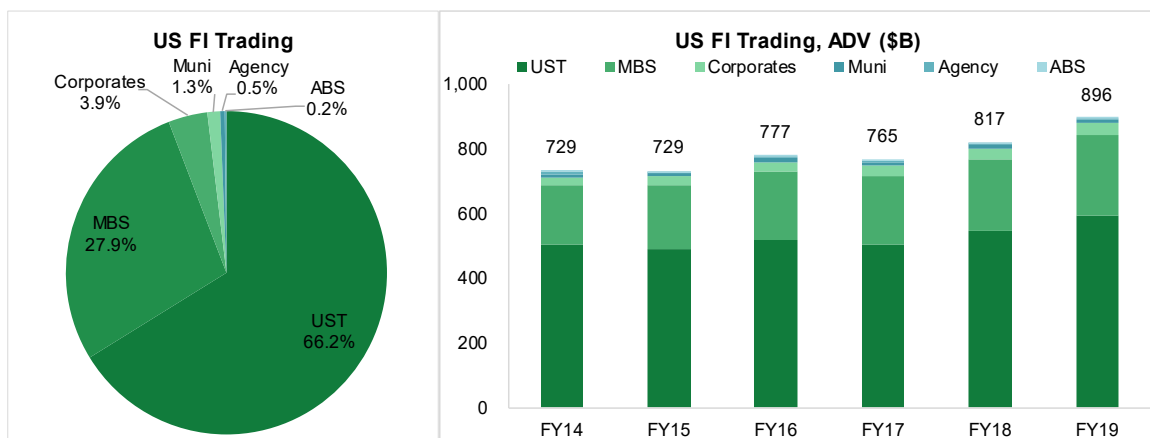
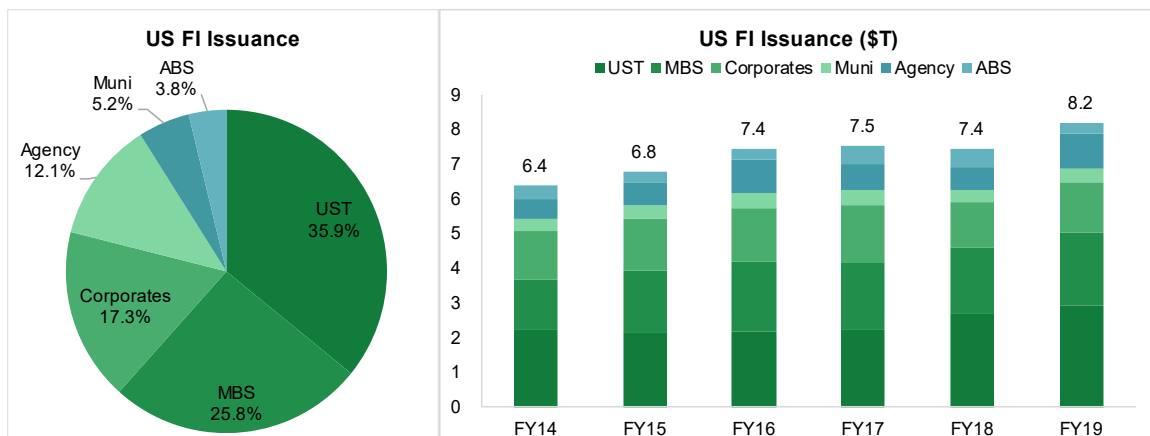
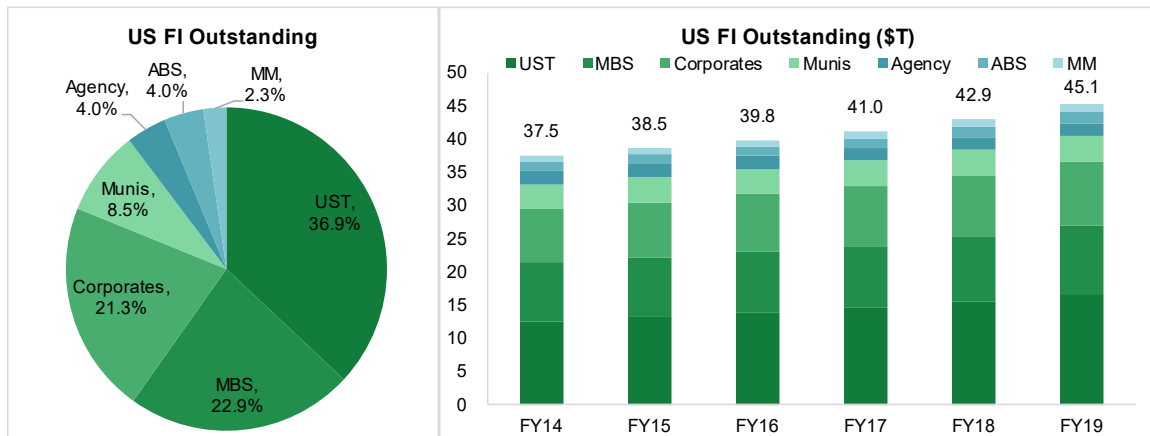
	4Q19	3Q19	4Q18	Q/Q	Y/Y	2019	2018	Y/Y
Outstanding (\$B)	45,129	44,191	42,862	2.1%	5.3%	45,129	42,862	5.3%
UST	16,673	16,339	15,608	2.0%	6.8%	16,673	15,608	6.8%
MBS*	10,334	9,881	9,732	4.6%	6.2%	10,334	9,732	6.2%
Corporates	9,598	9,608	9,233	-0.1%	3.9%	9,598	9,233	3.9%
Muni	3,854	3,815	3,835	1.0%	0.5%	3,854	3,835	0.5%
Agency	1,826	1,830	1,842	-0.2%	-0.9%	1,826	1,842	-0.9%
ABS*	1,799	1,644	1,616	9.4%	11.4%	1,799	1,616	11.4%
MM	1,045	1,075	996	-2.8%	4.9%	1,045	996	4.9%

Sources: Bloomberg, Dealogic, Federal Reserve, Refinitiv, US Treasury, US Agencies, SIFMA estimates

Note: Issuance = LT securities only; corporates ex- convertible bonds. *MBS/ABS outstanding data has a one quarter lag.

Chart Book: Total Fixed Income

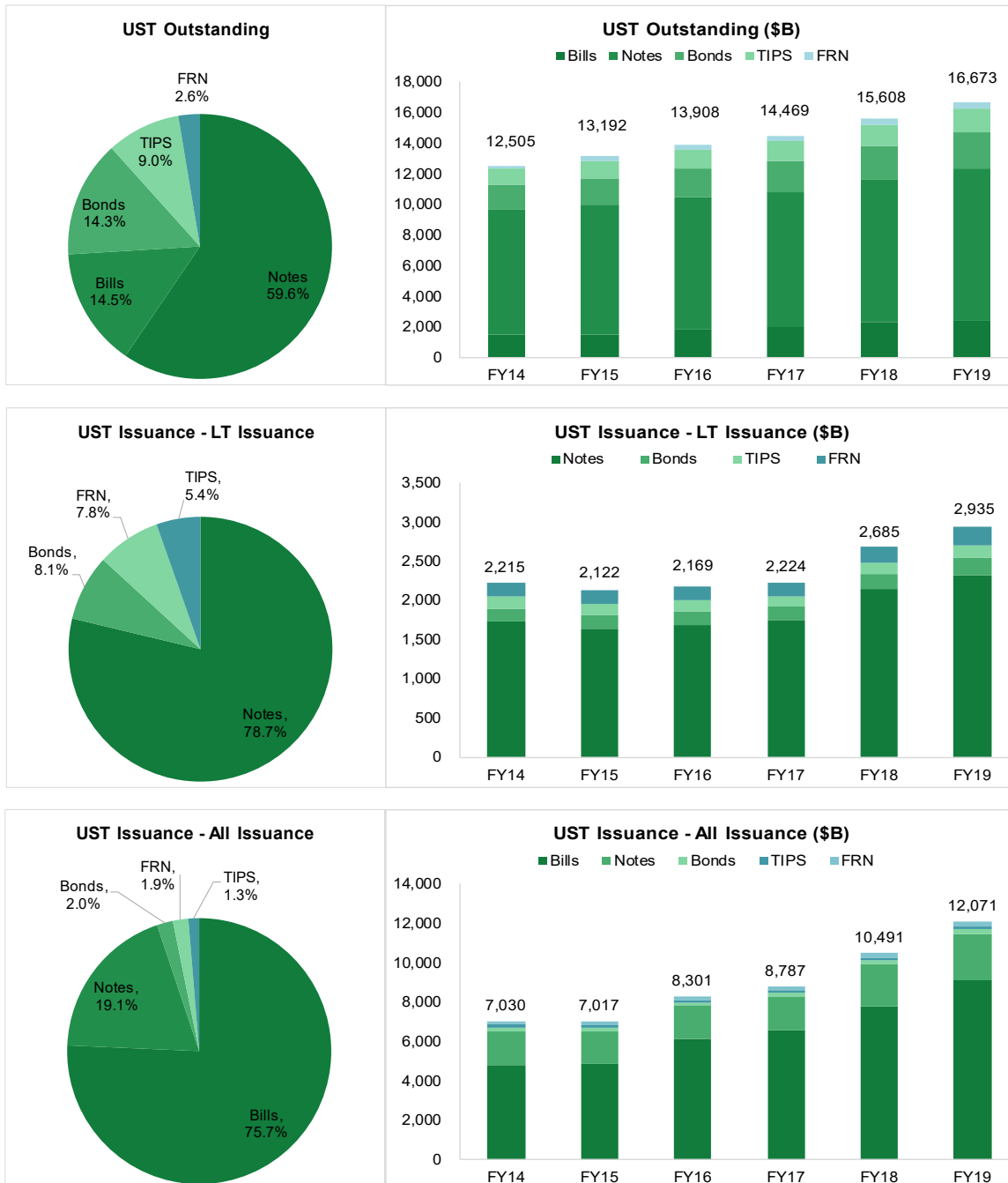
- Outstanding: FY19 \$45.1T, +5.3% Y/Y; 4Q19 \$45.1T, +5.3% Y/Y, +2.1% Q/Q
- Issuance: FY19 \$8.2T, +10.0% Y/Y; 4Q19 \$2.2T, +19.1% Y/Y, -7.9% Q/Q



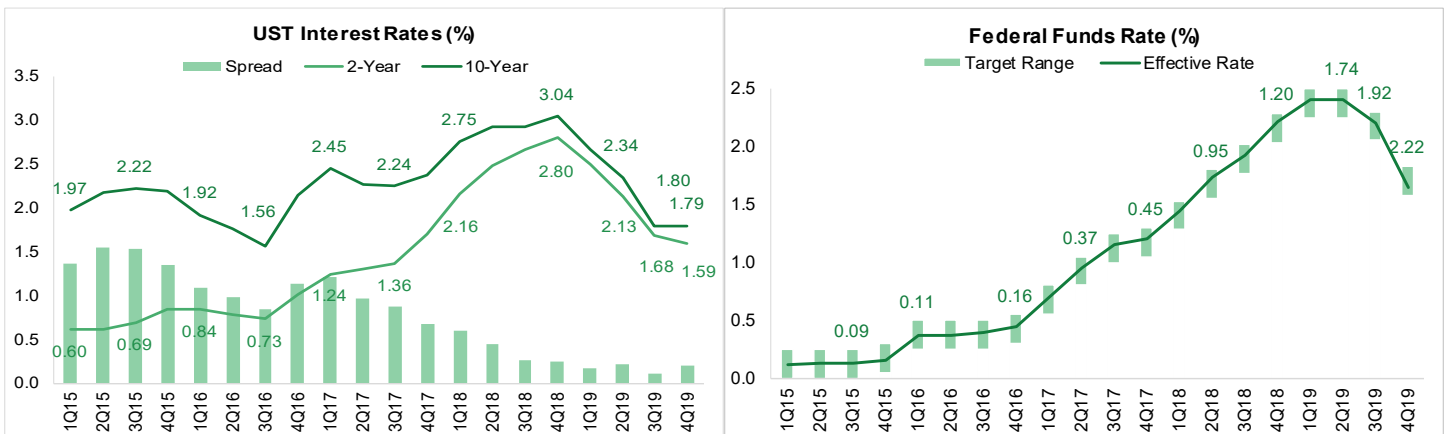
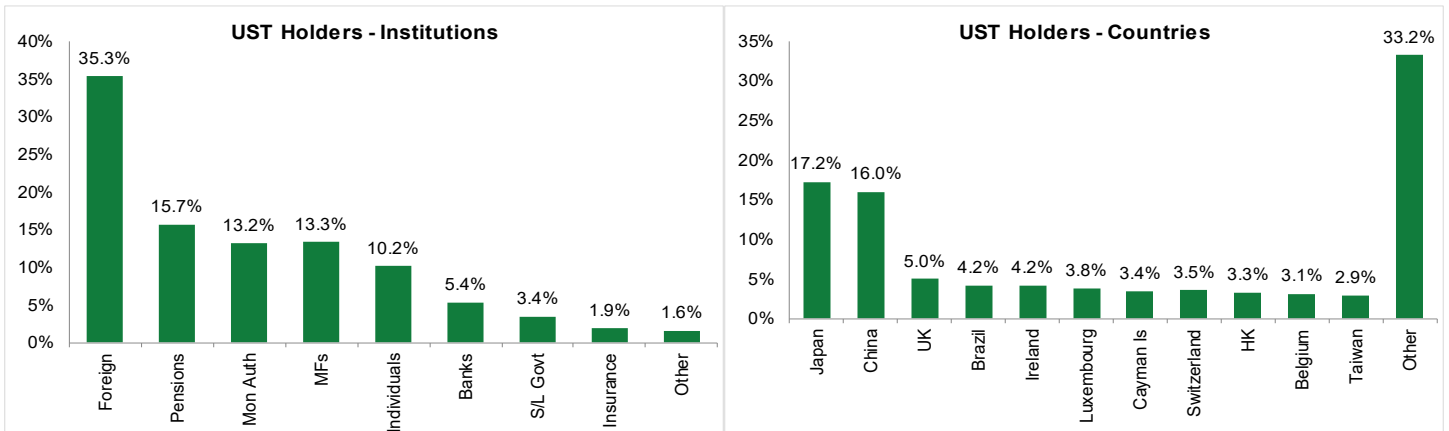
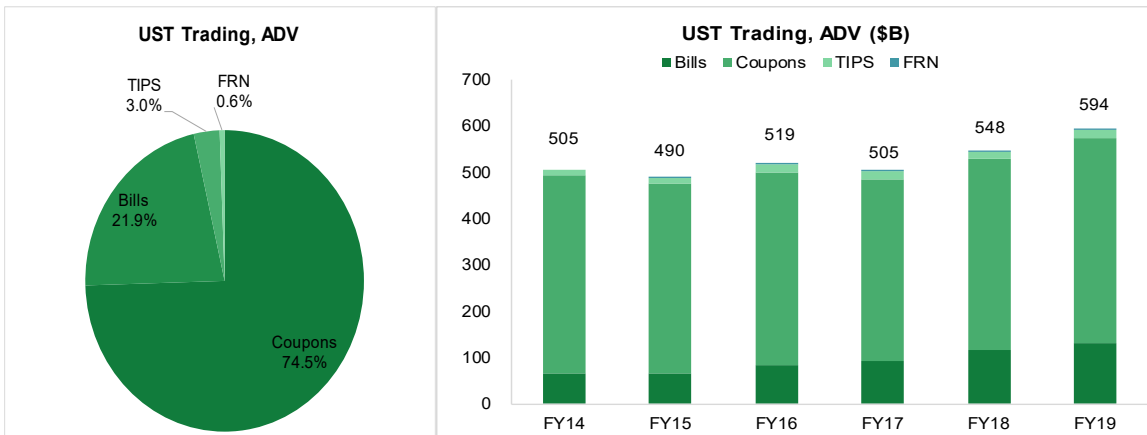
Sources: Bloomberg, Dealogic, Federal Reserve, Refinitiv, US Treasury, US Agencies, SIFMA estimates (outstanding 3Q19).

Chart Book: US Treasuries (UST)

- Outstanding: FY19 \$16.7T, +6.8% Y/Y; 4Q19 \$16.7T, +6.8% Y/Y, +2.0% Q/Q
- Issuance (LT only): FY19 \$2.9T, +9.3% Y/Y; 4Q19 \$756B, -4.0% Y/Y, -13.8% Q/Q
- ADV: FY19 \$594B, +8.4%; 4Q19 \$561B, -4.6% Y/Y, -7.1% Q/Q



Sources: US Treasury, New York Federal Reserve, Federal Reserve, SIFMA estimates.



Sources: US Treasury, New York Federal Reserve, Federal Reserve, SIFMA estimates.

Chart Book: Mortgage-Backed Securities (MBS)

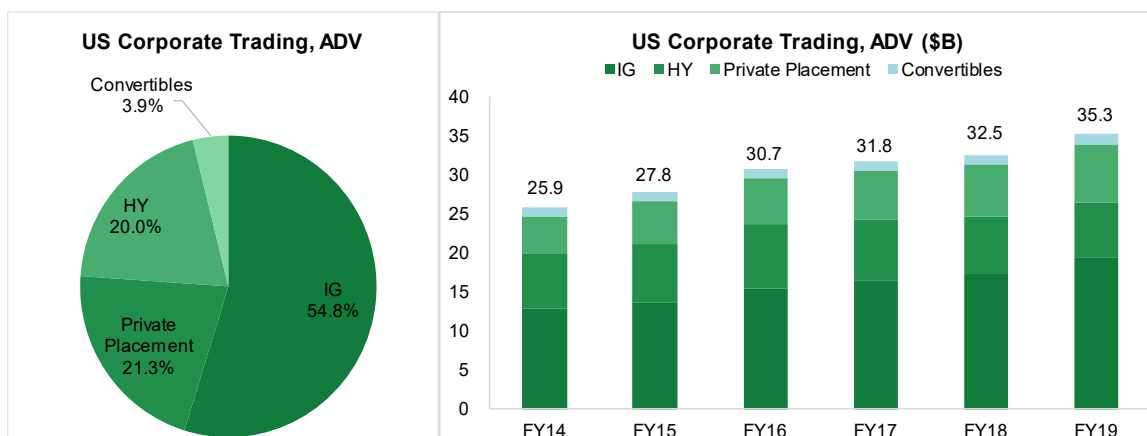
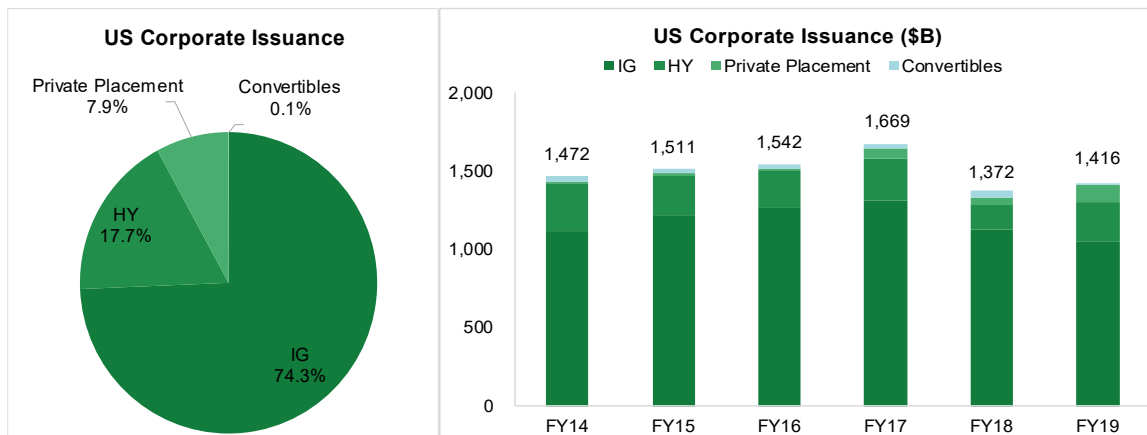
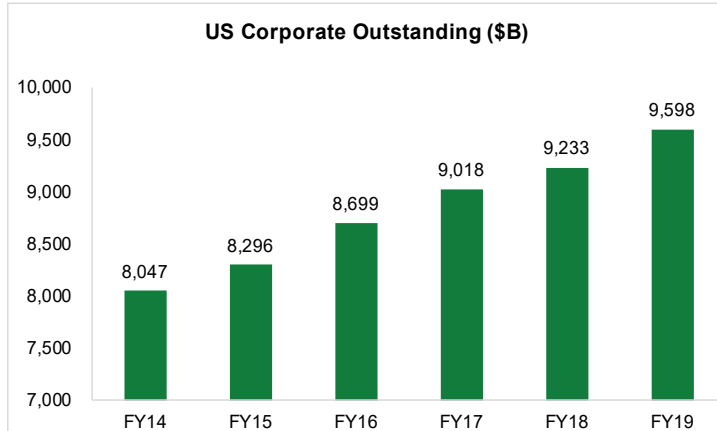
- Outstanding: FY19 (as of 3Q19) \$10.3T, +6.2% Y/Y; 3Q19 \$10.3T, +6.2% Y/Y, +4.6% Q/Q
- Issuance: FY19 \$2.1T, +10.7% Y/Y; 4Q19 \$677B, +47.3% Y/Y, +10.9% Q/Q
- ADV: Agency FY19 \$248B, +13.5% Y/Y; 4Q19 \$237B, +10.9% Y/Y, -6.4% Q/Q // Non Agency FY19 \$2.7B, +13.0% Y/Y; 4Q19 \$2.6B, +13.9% Y/Y, +8.3% Q/Q



Sources: Bloomberg, US Agencies, FINRA, SIFMA estimates.

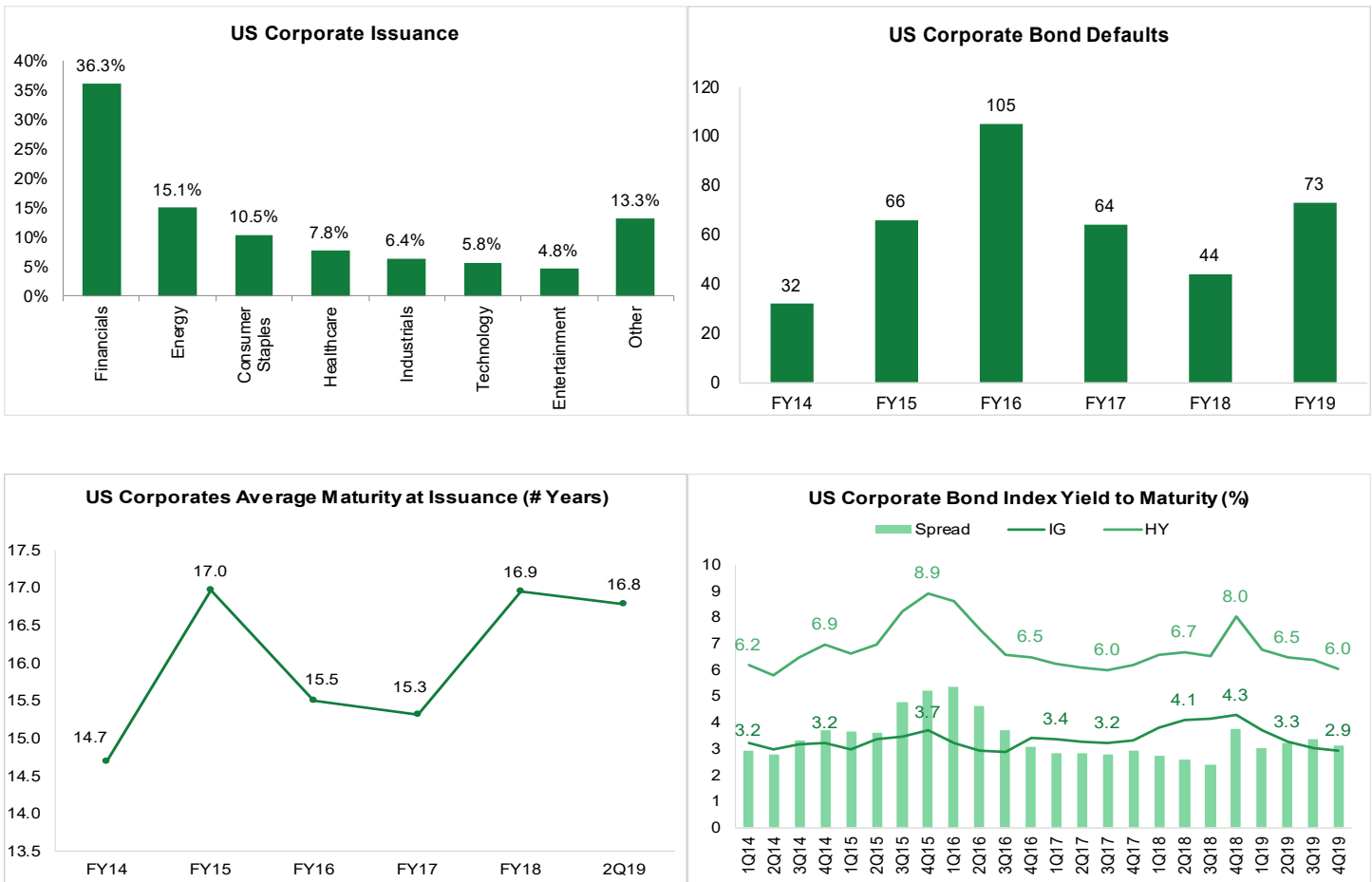
Chart Book: Corporate Bonds (Corporates)

- Outstanding: FY19 \$9.6T, +3.9% Y/Y; 4Q19 \$9.6T, +3.9% Y/Y, -0.1% Q/Q
- Issuance (non-convertible bonds): FY19 \$1.4T, +6.2% Y/Y; 4Q19 \$273B, +23.0% Y/Y, -32.8% Q/Q
- ADV: FY19 \$35B, +8.3% Y/Y; 4Q19 \$32B, +3.9% Y/Y, -1.2% Q/Q



Sources: Refinitiv, Federal Reserve, SIFMA estimates.

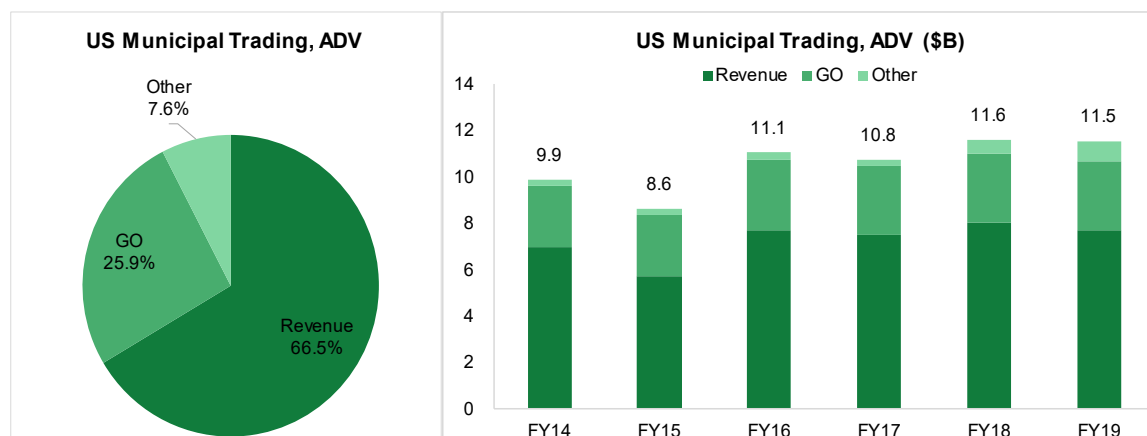
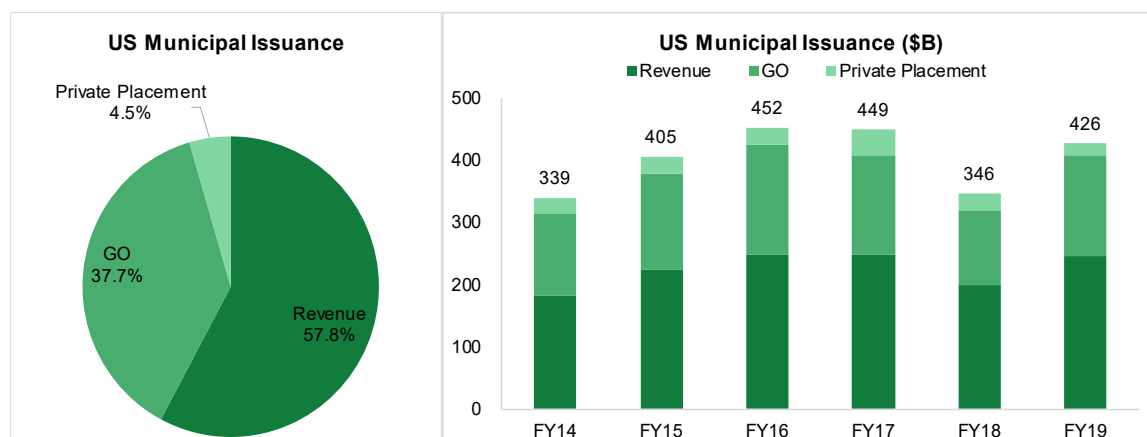
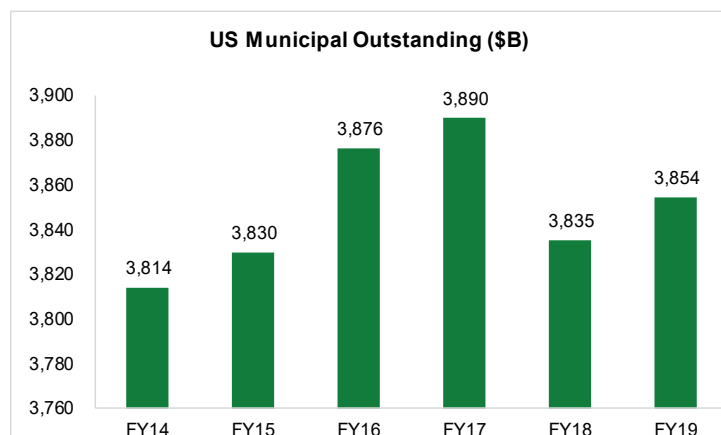
Chart Book: Corporate Bonds (Corporates)



Source: Refinitiv, Federal Reserve, FINRA, S&P Global Ratings, SIFMA estimates.

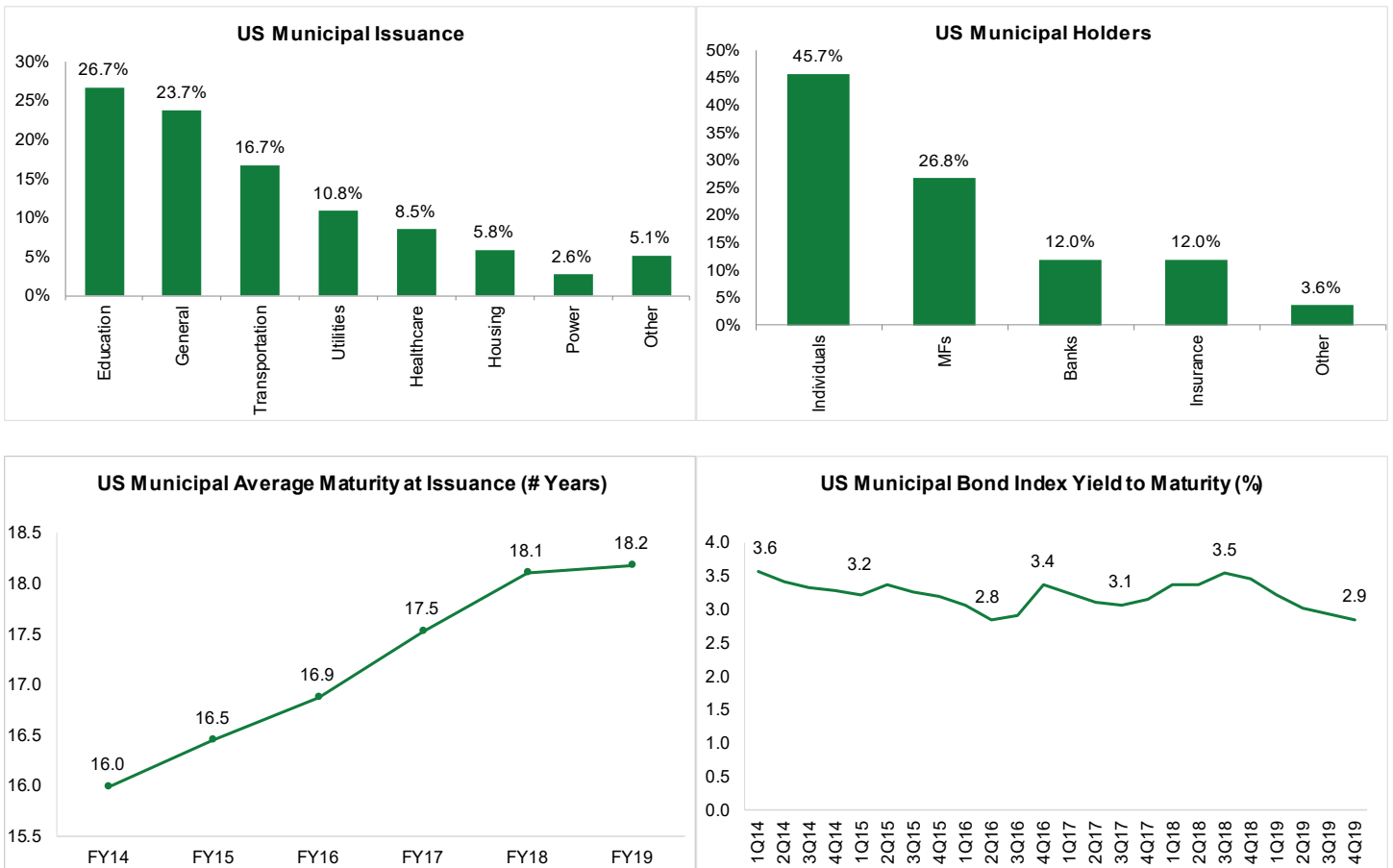
Chart Book: Municipal Securities (Munis)

- Outstanding: FY19 \$3.9T, +0.5% Y/Y; 4Q19 \$3.9T, +0.5% Y/Y, +1.0% Q/Q
- Issuance: FY19 \$426B, +23.1% Y/Y; 4Q19 \$146B, +56.8% Y/Y, +35.9% Q/Q
- ADV: FY19 \$12B, -0.6% Y/Y; 4Q19 \$11B, -9.3% Y/Y, -1.2% Q/Q



Source: Refinitiv, Federal Reserve, SIFMA estimates.

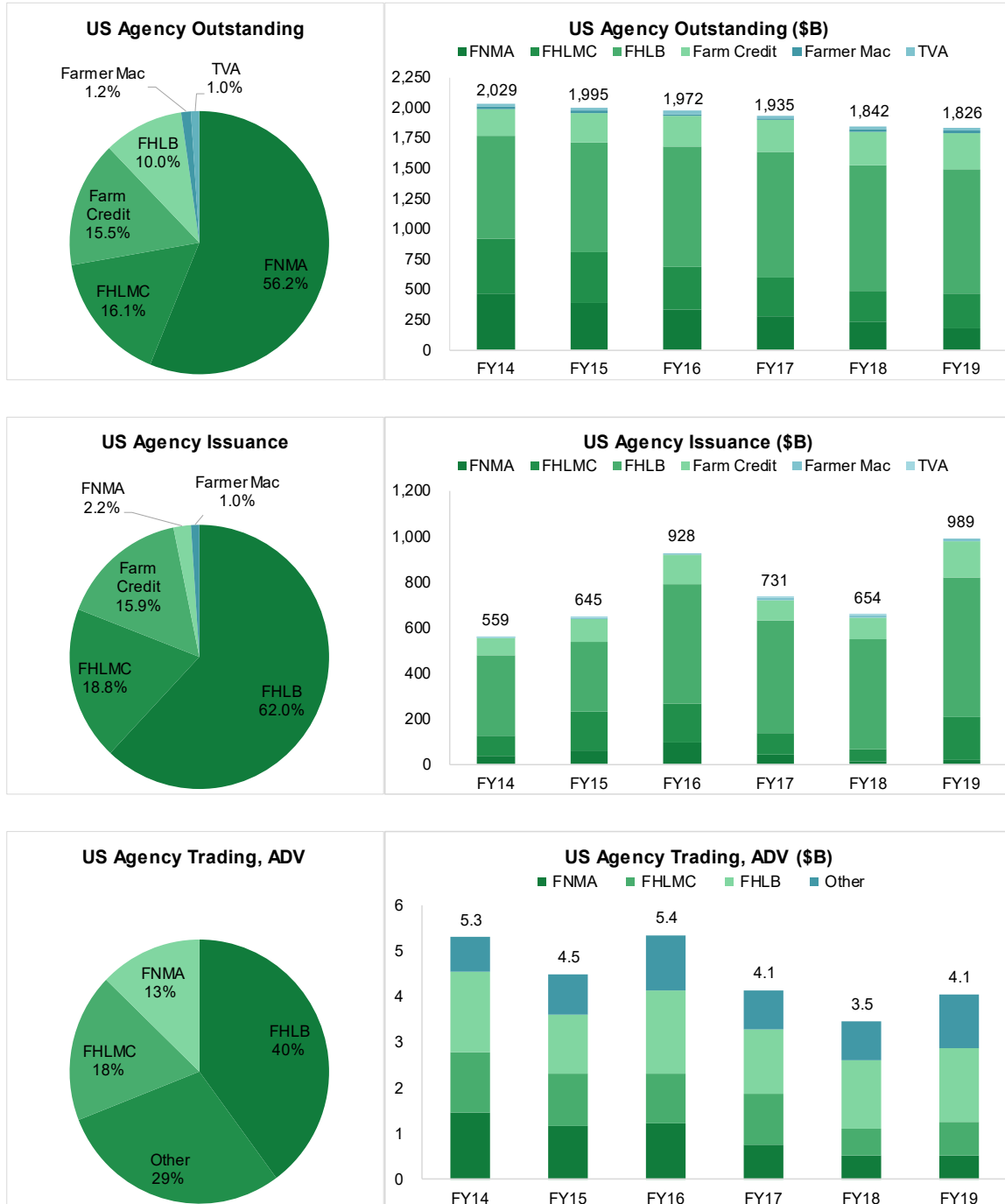
Chart Book: Municipal Securities (Munis)



Source: Refinitiv, Bloomberg, Municipal Securities Rulemaking Board, SIFMA estimates.

Chart Book: Federal Agency Securities (Agency)

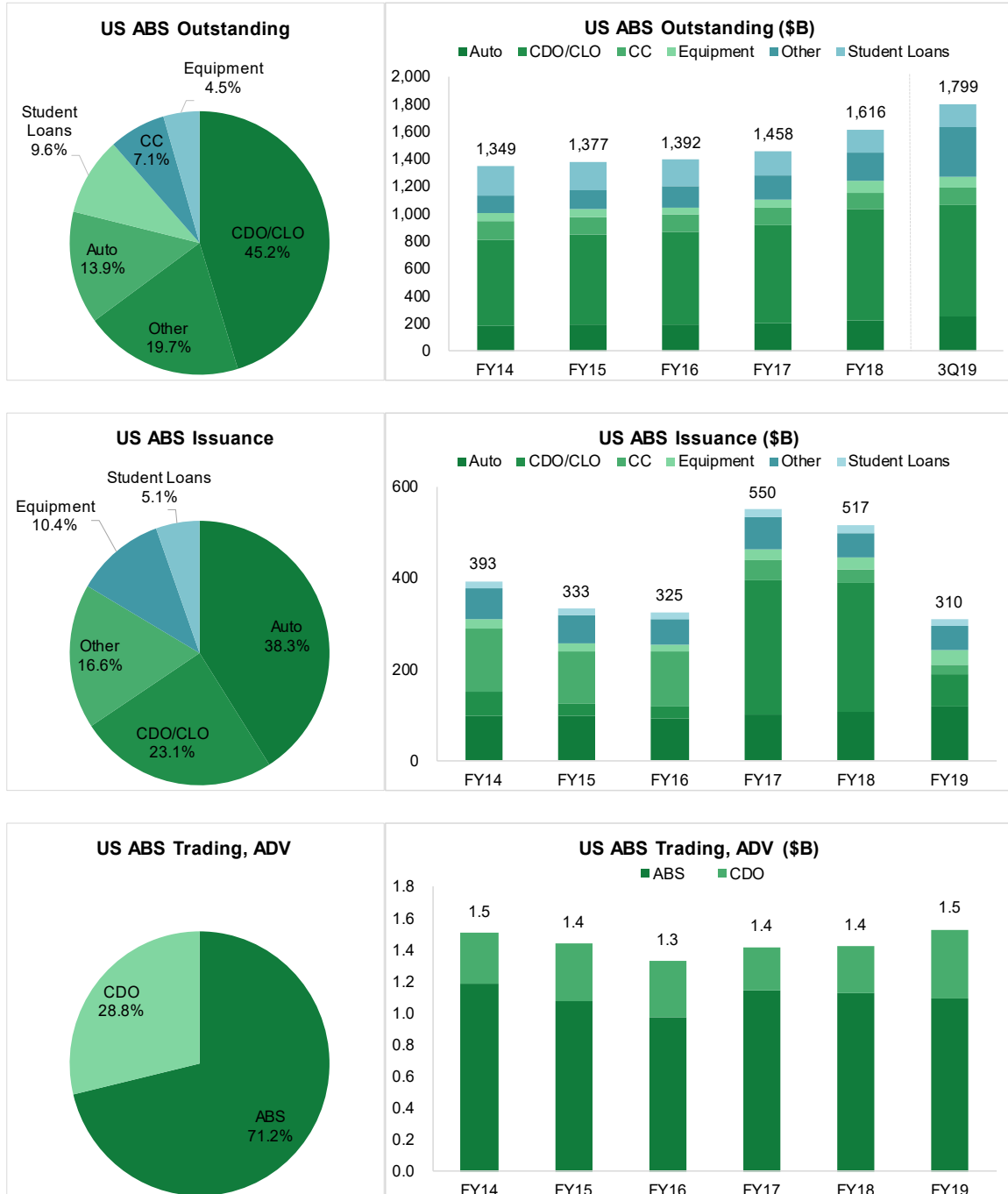
- Outstanding: FY19 \$1.8T, -0.9% Y/Y; 4Q19 \$1.8T, -0.9% Y/Y, -0.2% Q/Q
- Issuance: FY19 \$989B, +51.4% Y/Y; 4Q19 \$261B, +68.4% Y/Y, -8.1% Q/Q
- ADV: FY19 \$4.1B, 17.5% Y/Y; 4Q19 \$3.9B, +7.7% Y/Y, -7.0% Q/Q



Source: US Agencies, FINRA, SIFMA estimates.

Chart Book: Asset-Backed Securities (ABS)

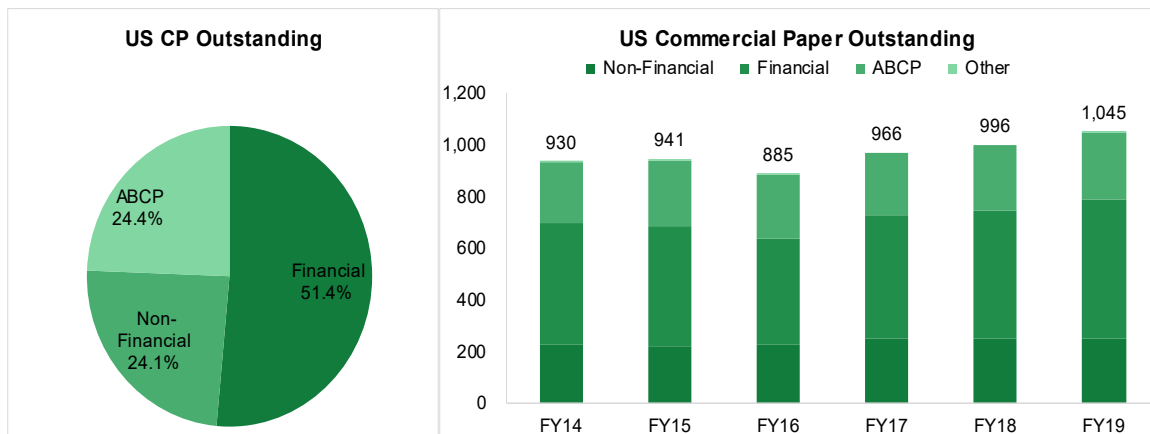
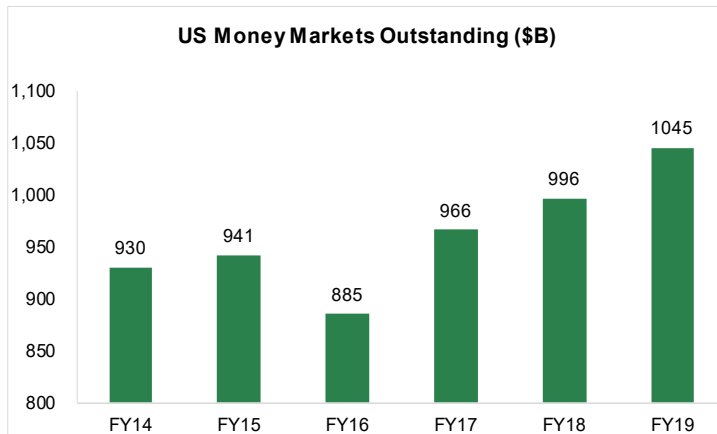
- Outstanding: FY19 (as of 3Q19) \$1.8T, 11.4% Y/Y; 3Q19 \$1.8T, +11.4 Y/Y, +9.4% Q/Q
- Issuance: FY19 \$310B, -40.0% Y/Y; 4Q19 \$61B, -43.5% Y/Y, -18.3% Q/Q
- ADV: FY19 \$1.5B, +7.5% Y/Y; 4Q19 \$1.5B, -3.2% Y/Y, +9.7% Q/Q



Source: Refinitiv, Bloomberg, FINRA, SIFMA estimates.

Chart Book: Money Markets (MM)

- Outstanding: FY19 \$1.0T, +4.9% Y/Y; 4Q19 \$1.0T, +4.9% Y/Y, -2.8% Q/Q

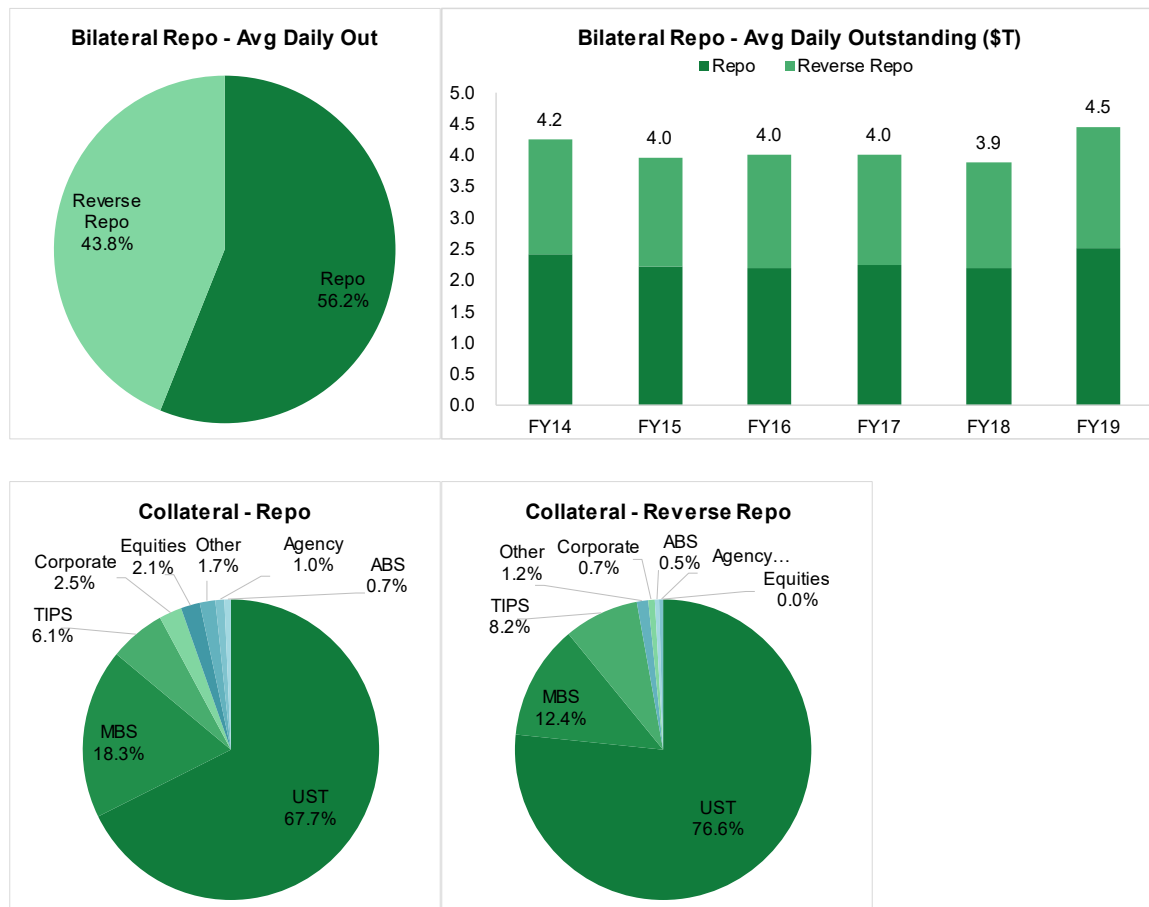


Source: Federal Reserve, SIFMA estimates.

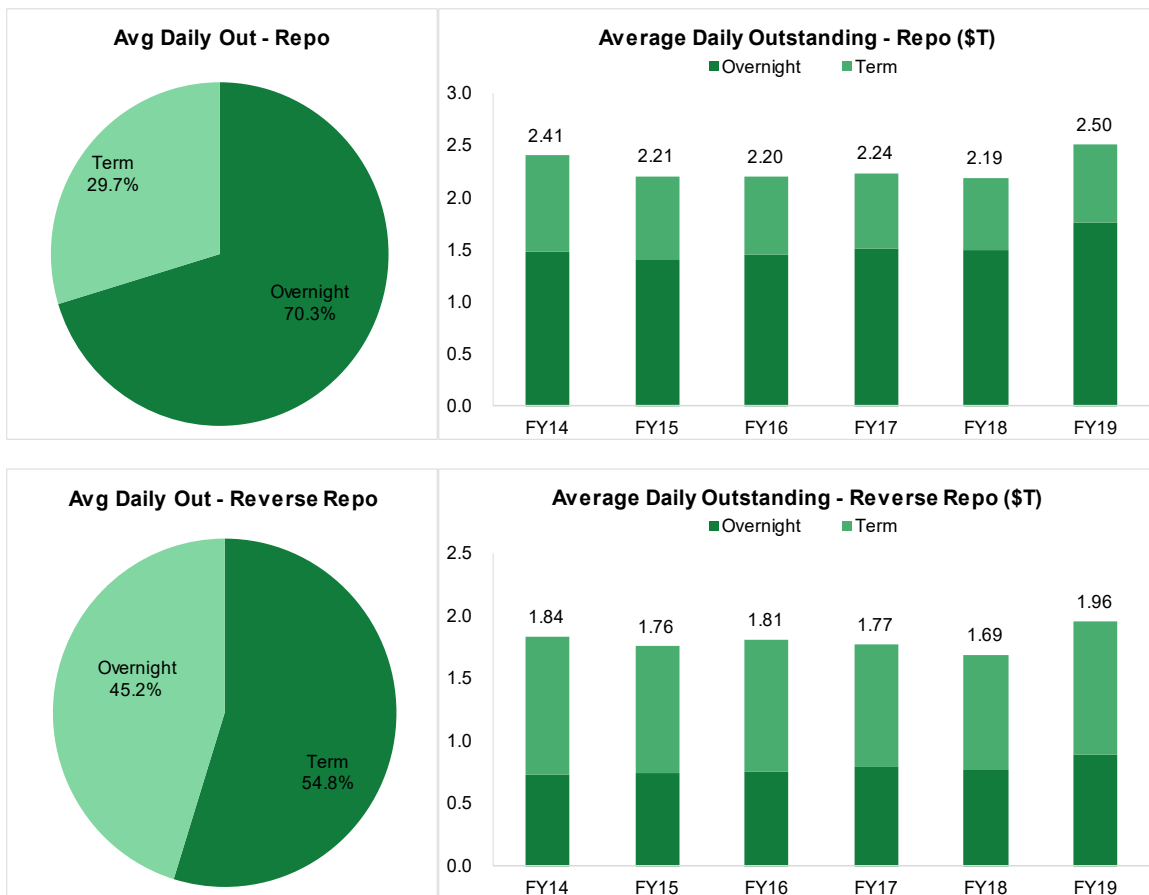
Chart Book: Repurchase Agreements (Repo)

- Outstanding, Bilateral: FY19 \$4.5T, +15.4% Y/Y
- Outstanding, GCF: FY19 \$34.1T, +2.4% Y/Y

Bilateral Repo

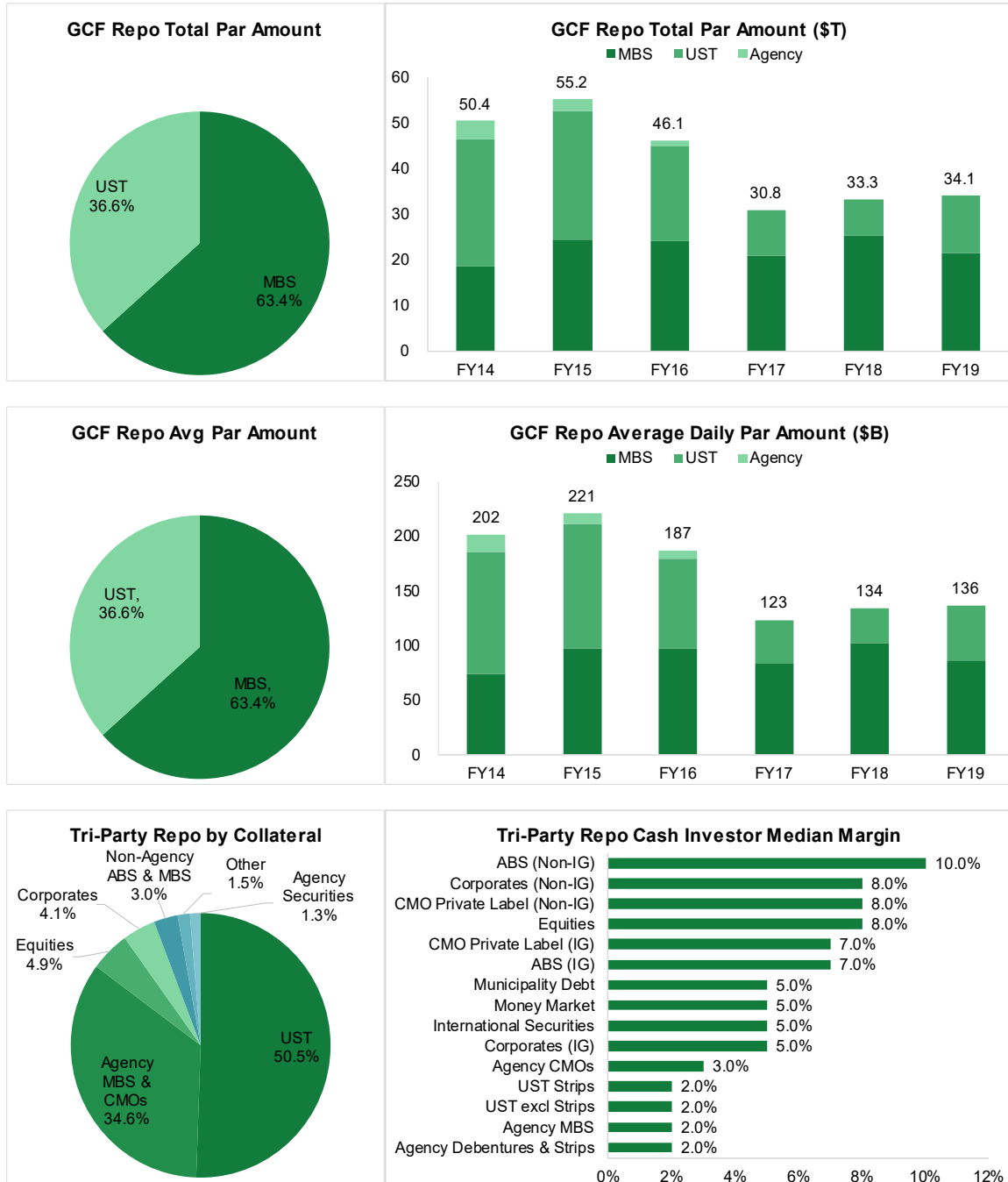


Source: As of FY19. Federal Reserve Bank of New York, SIFMA estimates.



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

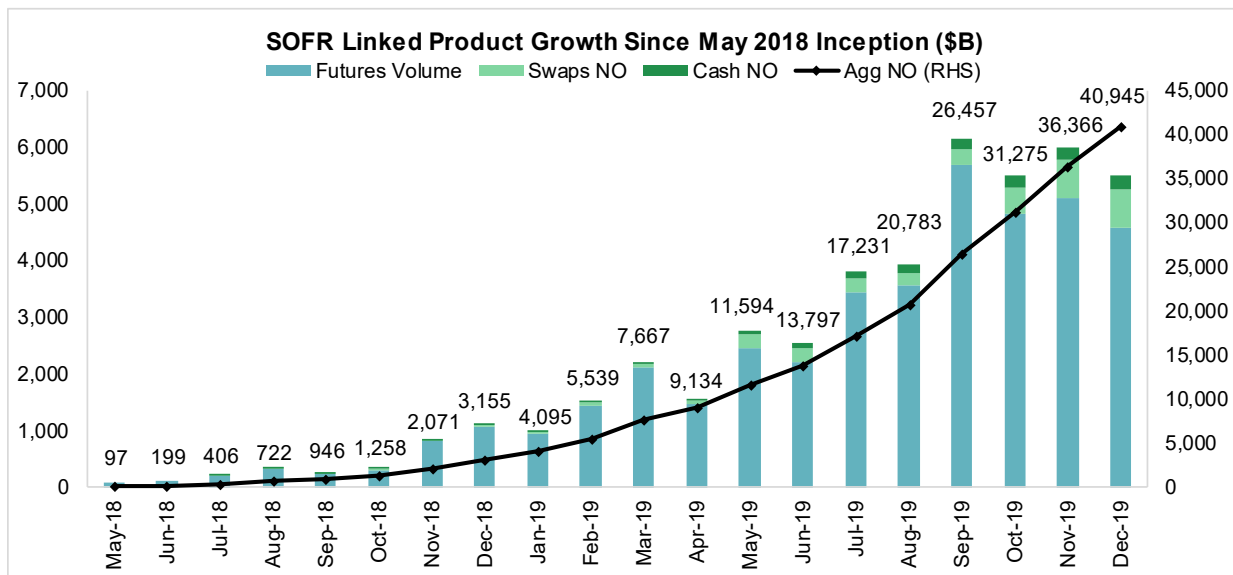
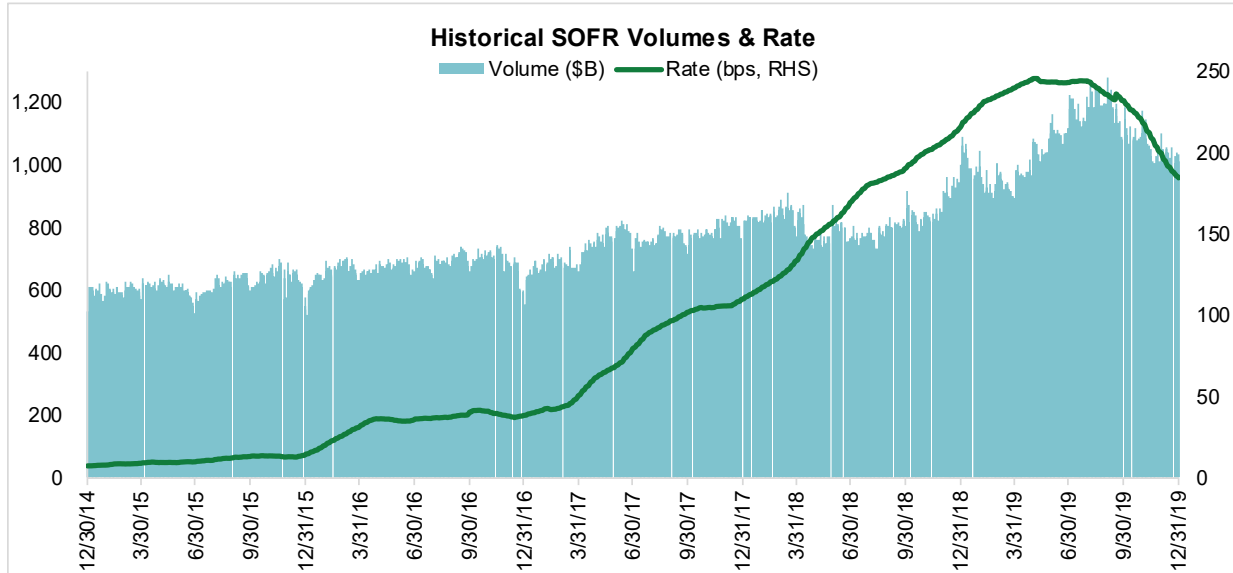
GCF Repo



Source: As of FY19. Federal Reserve Bank of New York, The Depository Trust & Clearing Corporation, SIFMA estimates.

Chart Book: Secured Overnight Financing Rate (SOFR)

- SOFR Rate: As of 12/31/19 = 184 bps, 90 day rolling average
- Fed Volumes: As of 12/31/19 = \$1.0T
- Market Volumes: As of 12/31/19 = futures \$4.6T, aggregate notional outstanding \$40.9T



Source: The Alternative Reference Rates Committee, Federal Reserve Bank of New York, SIFMA estimates.

Note: SOFR rate = 90 day rolling average

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

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