The SIFMA Research Quarterlies contain data and statistics on U.S. markets. The fixed income reports are split into two – (1) issuance and trading, (2) outstanding – given a delay in the reporting of outstanding data. The reports cover data on total U.S. fixed income markets, as captured in the SIFMA Research databases: U.S. Treasuries, mortgage-backed securities, corporate bonds, municipal securities, federal agency securities, asset-backed securities, money markets (outstanding only), repurchase agreements (outstanding only) and secured overnight financing rate. This report also contains statistics on fixed income ESG issuance for green, social, and sustainability bonds.

All reports, including the equity quarterly, and corresponding databases can be found at:
www.sifma.org/research
Executive Summary

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Chart Book: Corporate Bonds (Corporates)

Chart Book: Municipal Securities (Munis)

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SIFMA Insights Primers: The SIFMA Insights primer series is a reference tool that goes beyond a typical 101 series. By illustrating important technical and regulatory nuances, SIFMA Insights primers provide a fundamental understanding of the marketplace and set the scene to address complex issues arising in today’s markets. The SIFMA Insights market structure primer series includes: Global Capital Markets & Financial Institutions; Primary, Secondary & Post-Trade Markets; Electronic Trading; U.S. Fixed Income; SOFR, the Transition from LIBOR; U.S. Equity; U.S. Multi-Listed Options; U.S. ETFs; U.S. Capital Formation and Listings Exchanges; and Evolution of the Fintech Narrative. The primers and other Insights reports can be found at: www.sifma.org/primers
US Fixed Income Markets vs. Rest of World

The U.S. fixed income markets are the largest in the world, comprising 38.7% of the $127 trillion securities outstanding across the globe, or $49 trillion (as of 4Q21). This is 2.0x the next largest market, the EU. U.S. market share has averaged 38.6% over the last 10 years, troughing at 36.3% in 2012 and peaking at 40.4% in 2016.

US Market Share – Current

![Global FI Outstanding Pie Chart]

- US: 38.7%
- EU: 19.4%
- China: 17.2%
- Japan: 10.5%
- Australia: 3.2%
- Canada: 1.9%
- UK: 5.7%
- Singapore: 0.5%
- HK: 0.5%
- EM: 1.4%
- DM: 1.1%
- Others: 2.5%

Source: Bank for International Settlements (4Q21, BIS data for all countries has a lag)
Note: Country classification based on World Bank list of economies

US Market Share – Historical Trends

![US Share of Global FI Markets Line Chart]

- FY12: 32
- FY13: 33
- FY14: 34
- FY15: 35
- FY16: 36
- FY17: 37
- FY18: 39
- FY19: 41
- FY20: 46
- FY21: 49

Source: Bank for International Settlements (4Q21, BIS data for all countries has a lag)
Note: Country classification based on World Bank list of economies
Quarterly Performance

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), 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). We also analyze trends in ESG issuance for green, social, and sustainability bonds.

Quarterly & YTD Highlights

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<tr>
<th>Issuance ($B)</th>
<th>2Q22</th>
<th>1Q22</th>
<th>2Q21</th>
<th>Q/Q</th>
<th>Y/Y</th>
<th>YTD 2022</th>
<th>YTD 2021</th>
<th>Y/Y</th>
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<td>2,253</td>
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<td>3,477</td>
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<td>Munis</td>
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<td>102</td>
<td>123</td>
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<td>163</td>
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<th>1Q22</th>
<th>2Q21</th>
<th>Q/Q</th>
<th>Y/Y</th>
<th>YTD 2022</th>
<th>YTD 2021</th>
<th>Y/Y</th>
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<td>255</td>
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<td>MBS - Non Agency</td>
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<td>1.4</td>
<td>-7.4%</td>
<td>21.5%</td>
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<td>1.5</td>
<td>13.1%</td>
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<th>1Q22</th>
<th>2Q21</th>
<th>Q/Q</th>
<th>Y/Y</th>
<th>YTD 2022</th>
<th>YTD 2021</th>
<th>Y/Y</th>
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<td>200</td>
<td>227</td>
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<td>375</td>
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<td>Green</td>
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<td>251</td>
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<td>Social</td>
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<td>Sustainability</td>
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<td>47</td>
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<td>75</td>
<td>105</td>
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<td>US</td>
<td>14</td>
<td>36</td>
<td>41</td>
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<td>50</td>
<td>78</td>
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<tr>
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<td>16</td>
<td>31</td>
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<td>4</td>
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<td>22</td>
<td>-53.4%</td>
<td>-58.1%</td>
<td>29</td>
<td>43</td>
<td>-33.3%</td>
</tr>
</tbody>
</table>

Note: Issuance = Long-term securities only
• Issuance: 2Q22 $2.3T, -35.2% Y/Y, -19.8% Q/Q; YTD $5.1T, -29.3% Y/Y
• ADV: 2Q22 $0.9T, -1.7% Y/Y, -12.5% Q/Q; YTD $1.0T, +0.1% Y/Y

• Issuance:
  o LT 2Q22 $1.0T, -22.1% Y/Y, -9.5% Q/Q; YTD $2.2T, -16.5% Y/Y
  o All 2Q22 $3.8T, -25.5% Y/Y, -15.5% Q/Q; YTD $8.4T, -16.7% Y/Y
• ADV: 2Q22 $610.4, +2.6% Y/Y, -12.4% Q/Q; YTD $653.5B, +2.5% Y/Y

Source: US Treasury, SIFMA estimates
Note: All issuance includes T-Bills
Source: Federal Reserve Bank of New York, US Treasury, SIFMA estimates
Chart Book: Mortgage-Backed Securities (MBS)

- Issuance: 2Q22 $576.8B, -51.3% Y/Y, -25.3% Q/Q; YTD $1.3T, -46.0% Y/Y
- ADV:
  - Agency 2Q22 $232.7B, -14.6% Y/Y, -16.3% Q/Q; YTD $255.4B, -6.3% Y/Y
  - Non-Agency 2Q22 $1.5B, +4.6% Y/Y, +2.2% Q/Q; YTD $1.5B, -4.5% Y/Y
  - Total 2Q22 $234.2B, -14.5% Y/Y, -16.2% Q/Q; YTD $256.9B, -6.3% Y/Y

Source: Bloomberg, US Agencies, FINRA, SIFMA estimates
Chart Book: Corporate Bonds (Corporates)

- Issuance: 2Q22 $308.4B, -41.8% Y/Y, -41.9% Q/Q; YTD $839.6B, -26.3% Y/Y
- ADV: 2Q22 $41.2B, +3.1% Y/Y, -4.6% Q/Q; YTD $43.5B, -3.3% Y/Y

Source: Refinitiv, FINRA, SIFMA estimates
US Corporate Issuance

Source: ICE Data Indices, Refinitiv, S&P Global Ratings, SIFMA estimates

US Corporate Bond Defaults

US Corporates Average Maturity at Issuance (# Years)

US Corporate Bond Index Yield to Maturity (%)

Source: ICE Data Indices, Refinitiv, S&P Global Ratings, SIFMA estimates
Chart Book: Municipal Securities (Munis)

- Issuance: 2Q22 $106.5B, -13.3% Y/Y, +4.7% Q/Q; YTD $208.2B, -11.7% Y/Y
- ADV: 2Q22 $15.8B, +75.0% Y/Y, +29.8% Q/Q; YTD $14.0B, +50.0% Y/Y

Source: Municipal Securities Rulemaking Board, Refinitiv, SIFMA estimates
Source: ICE Data Indices, Refinitiv, SIFMA estimates
### Chart Book: Federal Agency Securities (Agency)

- **Issuance:** 2Q22 $141.7B, -16.2% Y/Y, -14.5% Q/Q; YTD $307.5, -19.9% Y/Y
- **ADV:** 2Q22 $2.6B, -7.4% Y/Y, +3.4% Q/Q; YTD $2.6B, -22.6% Y/Y

#### US Agency Issuance

- **FHLB:** 59.5%
- **Farm Credit:** 25.7%
- **Farmer Mac:** 8.8%
- **FHLMC:** 6.0%

#### US Agency Issuance ($B)

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<tr>
<th>FY</th>
<th>FHLB</th>
<th>Farm Credit</th>
<th>Farmer Mac</th>
<th>FHLMC</th>
<th>FNMA</th>
<th>TVA</th>
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<td>FY17</td>
<td>731</td>
<td>645</td>
<td>989</td>
<td>1,251</td>
<td>693</td>
<td>308</td>
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</table>

#### US Agency Trading, ADV

- **FHLB:** 44.8%
- **FHLMC:** 34.4%
- **FNMA:** 9.4%
- **Other:** 11.4%

#### US Agency Trading, ADV ($B)

<table>
<thead>
<tr>
<th>FY</th>
<th>FHLB</th>
<th>FHLMC</th>
<th>FNMA</th>
<th>Other</th>
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<tbody>
<tr>
<td>FY17</td>
<td>4.1</td>
<td>3.5</td>
<td>4.1</td>
<td>5.1</td>
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<tr>
<td>FY18</td>
<td>2.8</td>
<td>2.6</td>
<td>2.6</td>
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</table>

Source: FINRA, US Agencies, SIFMA estimates
Chart Book: Asset-Backed Securities (ABS)

- Issuance: 2Q22 $77.5B, -42.6% Y/Y, -9.8% Q/Q; YTD $163.5B, -41.3% Y/Y
- ADV: 2Q22 $1.7B, +21.5% Y/Y, -7.4% Q/Q; YTD $1.7B, +13.1% Y/Y

Source: Bloomberg, FINRA, Refinitiv, SIFMA estimates
- SOFR Rate (90 day rolling average): As of 3/31/22 = 8.59 bps
- Fed Volumes: As of 3/31/22 = $979B

Source: Federal Reserve Bank of New York, SIFMA estimates
Chart Book: Environmental, Social, and Governance (ESG) Issuance

- Global issuance: YTD $374.8B, -24.3% Y/Y
- U.S. issuance: YTD $49.8B, -36.2% Y/Y
- Category Breakout (% total global, YTD): green 65.3%, sustainability 19.9%, social 14.9%
- Regional Breakout (% total global, YTD): EMEA 52.9%, AsiaPac 28.5%, Americas 18.5% (U.S. 13.3%)

<table>
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<th>Global ESG Issuance ($B)</th>
<th>Green</th>
<th>Social</th>
<th>Sustainability</th>
<th>Total</th>
<th>Y/Y Change</th>
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<th>Social</th>
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<th>Green</th>
<th>Social</th>
<th>Sustainability</th>
<th>Total</th>
<th>Y/Y Change</th>
<th>Green</th>
<th>Social</th>
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<td>2.4%</td>
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<td>4.1%</td>
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<td>1.1</td>
<td>21.9</td>
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<td>2020</td>
<td>-10.6%</td>
<td>724.7%</td>
<td>232.2%</td>
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<td>1.2</td>
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<td>-14.2%</td>
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<td>9.6</td>
<td>40.5</td>
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<td>-49.0%</td>
<td>26.7%</td>
<td>-33.3%</td>
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<td>62.2</td>
<td>8.2</td>
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<td>55.7</td>
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<td>Cumulative</td>
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<td>26.8</td>
<td>251.0</td>
<td>478.4</td>
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Source: Dealogic, SIFMA estimates
Source: Dealogic, SIFMA estimates
Note: MTN = Medium Term Note
Appendix: Fixed Income Securities 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 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.

• **Environmental, Social, and Governance (ESG)** – Dealogic classifies ESG bonds by:
  - Green – Any type of bond instrument where the proceeds will be exclusively applied to finance or refinance, in part or in full, new and/or existing eligible Green Projects and which are aligned with the four core components of the Green Bond Principles (GBP)
  - Social – Any type of bond instrument where the proceeds will be exclusively applied to finance or refinance in part or in full new and/or existing eligible Social Projects and which are aligned with the four core components of the Social Bond Principles (SBP)
  - Sustainability – Bonds where the proceeds are exclusively applied to finance or refinance a combination of both Green and Social Projects
  - Region – Deal nationality is a calculated nationality that looks at the business nationality of the issuing entity with the exception of securitizations that are categorized using the nationality of business of the originator or if undisclosed the nationality of risk
## Appendix: Terms to Know

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>Y/Y</td>
<td>Year-over-Year</td>
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<tr>
<td>Q/Q</td>
<td>Quarter-over-Quarter</td>
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<tr>
<td>YTD</td>
<td>Year-to-Date</td>
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<tr>
<td>BPS</td>
<td>Basis Points</td>
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<td>PPS</td>
<td>Percentage Points</td>
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<tr>
<td>CAGR</td>
<td>Compound Annual Growth Rate</td>
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<td>CUSIP</td>
<td>Committee on Uniform Securities Identification Procedures</td>
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<td>UST</td>
<td>U.S. Treasury Securities</td>
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<tr>
<td>MBS</td>
<td>Mortgage-Backed Security</td>
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<td>Corporates</td>
<td>Corporate Bonds</td>
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<td>Munis</td>
<td>Municipal Securities</td>
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<td>Agency</td>
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<td>ABS</td>
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<td>MM</td>
<td>Money Markets</td>
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<td>FRN</td>
<td>Floating Rate Note</td>
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<td>FRA</td>
<td>Forward Rate Agreement</td>
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<td>T-Bill</td>
<td>U.S. Treasury Bill</td>
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<td>T-Note</td>
<td>U.S. Treasury Note</td>
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<td>T-Bond</td>
<td>U.S. Treasury Bond</td>
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<td>TIPS</td>
<td>Treasury Inflation Protected Securities</td>
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<td>ABS</td>
<td>Asset-Backed Security</td>
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<tr>
<td>CMO</td>
<td>Collateralized Mortgage Obligation</td>
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<tr>
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<td>Commercial MBS</td>
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<td>RMBS</td>
<td>Residential MBS</td>
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<tr>
<td>HY</td>
<td>High Yield Bond</td>
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<td>Investment Grade Bond</td>
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<tr>
<td>GO</td>
<td>General Obligation Bond</td>
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<tr>
<td>Revenue</td>
<td>Revenue Bond</td>
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<td>CD</td>
<td>Certificate of Deposit</td>
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<td>CDO</td>
<td>Collateralized Debt Obligation</td>
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<tr>
<td>CLO</td>
<td>Collateralized Loan Obligation</td>
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<tr>
<td>CP</td>
<td>Commercial Paper</td>
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<td>Asset-Backed Commercial Paper</td>
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<td>Money Market Mutual Funds</td>
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<td>FAMC</td>
<td>Farmer Mac/Federal Agricultural Mortgage Corporation</td>
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<td>FCS</td>
<td>Farm Credit System</td>
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<td>FHLB</td>
<td>Federal Home Loan Banks</td>
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<td>FHLMC</td>
<td>Freddie Mac/Federal Home Loan Mortgage Corporation</td>
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<td>Fannie Mae/Federal National Mortgage Association</td>
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<td>GNMA</td>
<td>Ginnie Mae/Government National Mortgage Association</td>
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<td>Tennessee Valley Authority</td>
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<td>IR</td>
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<td>Interest Rate Swap</td>
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<td>Total Return Swap</td>
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