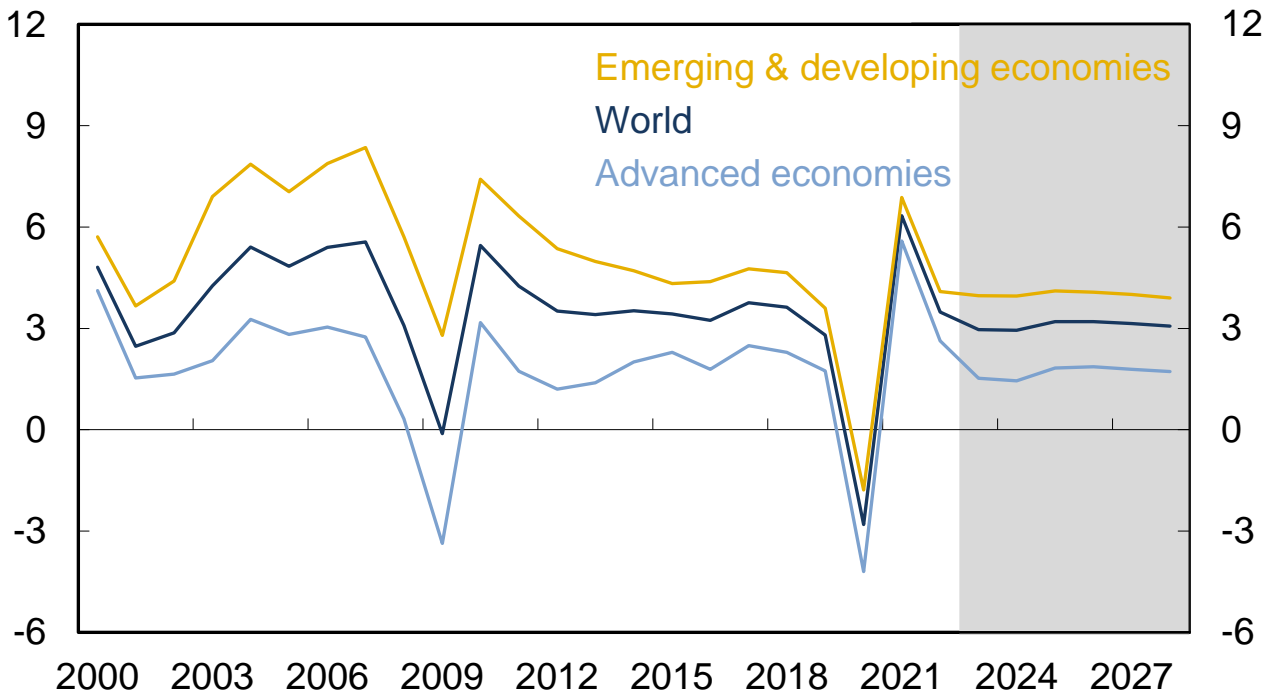


A.1 Global Economic Outlook

Percent

As Of: Oct-2023

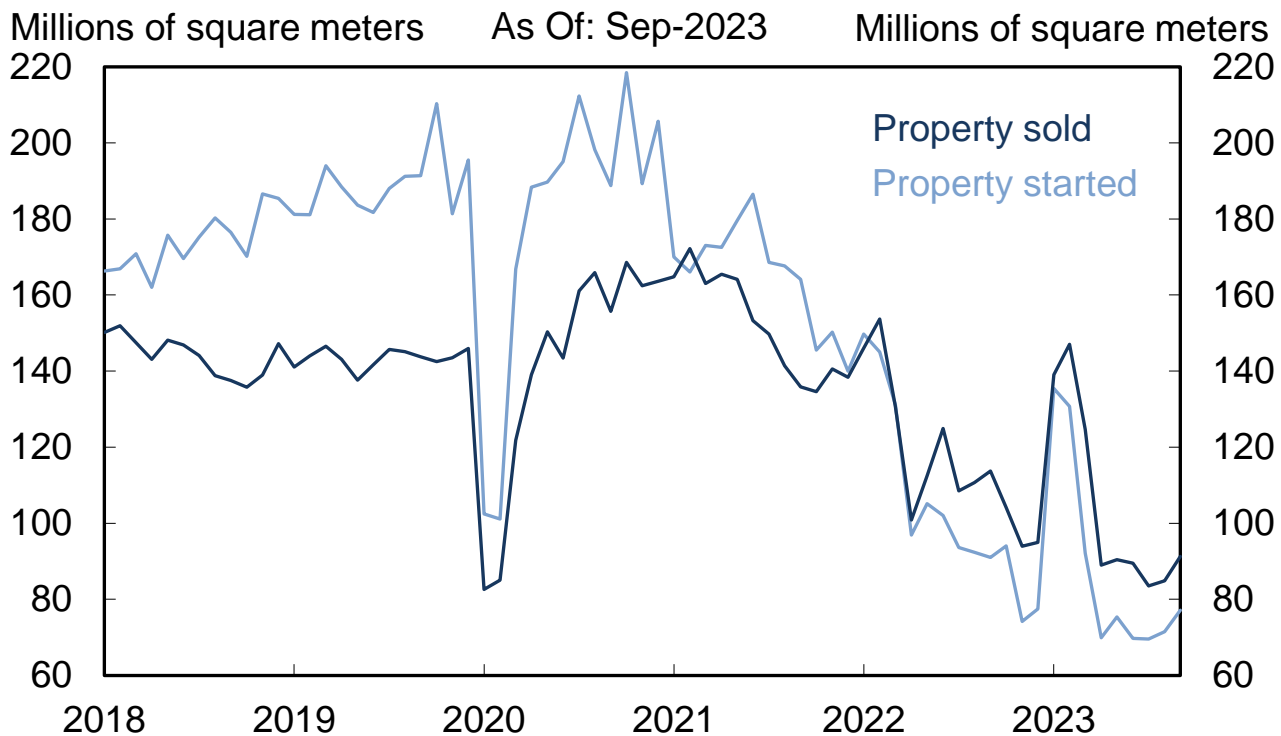
Percent



Notes: Real gross domestic product. Gray bars signify IMF forecasts.

Sources: IMF World Economic Outlook, Haver Analytics

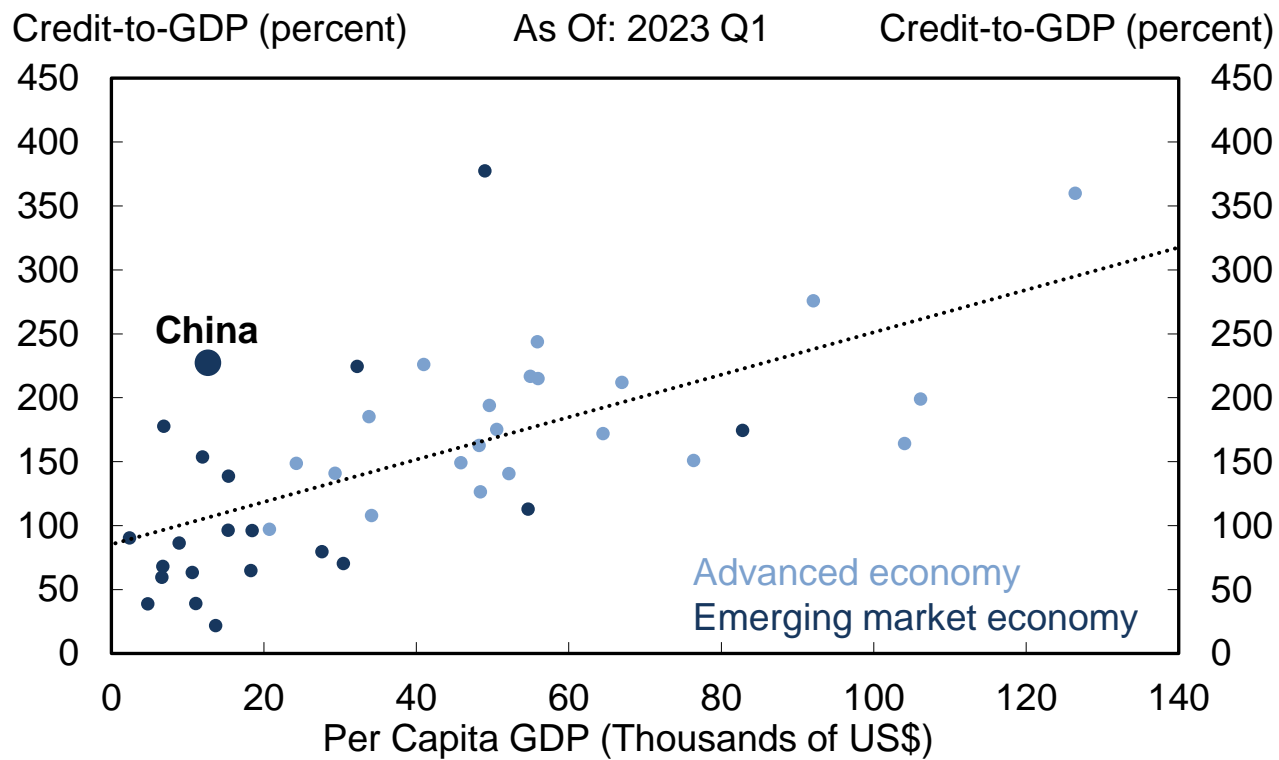
A.2 Chinese Real Estate Indicators



Note: Data are seasonally adjusted.

Sources: National Bureau of Statistics of China, Haver Analytics

A.3 Credit-to-GDP, Relative to Income



Note: Credit-to-GDP data are as of Q1 2023. Per capita GDP data are as of 2022. The dotted line represents the best linear fit.

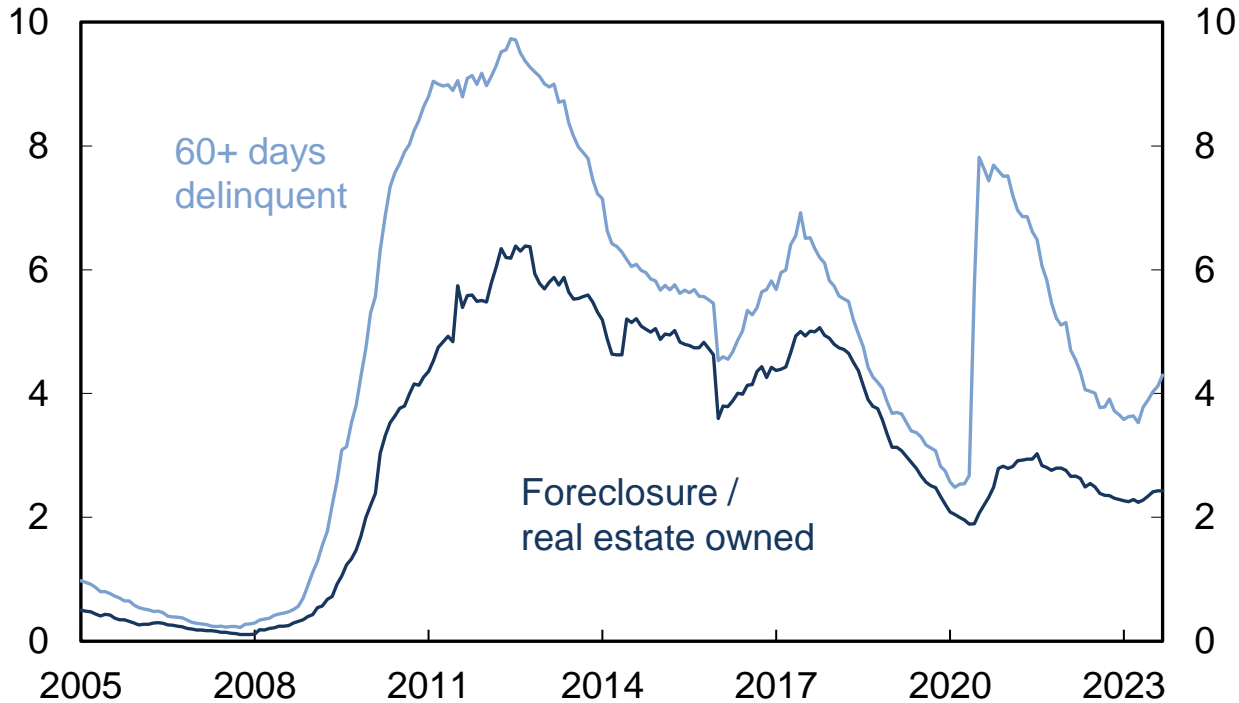
Sources: Bank for International Settlements, World Bank

3.1.1.1 Conduit CMBS Delinquency and Foreclosure Rates

Percent

As Of: Sep-2023

Percent



Note: 60+ Days Delinquent includes Foreclosure/Real Estate Owned.

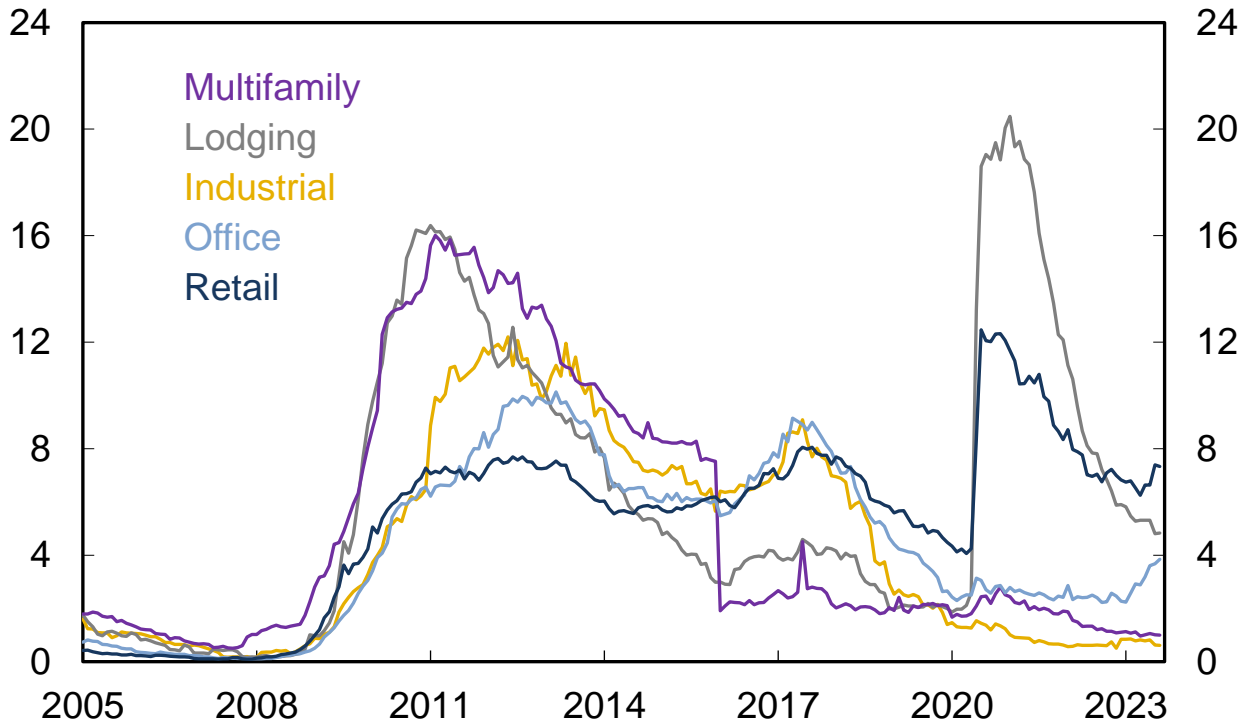
Sources: JPMorgan, Trepp

3.1.1.2 Conduit CMBS Delinquency Rates by Property Type

Percent

As Of: Sep-2023

Percent



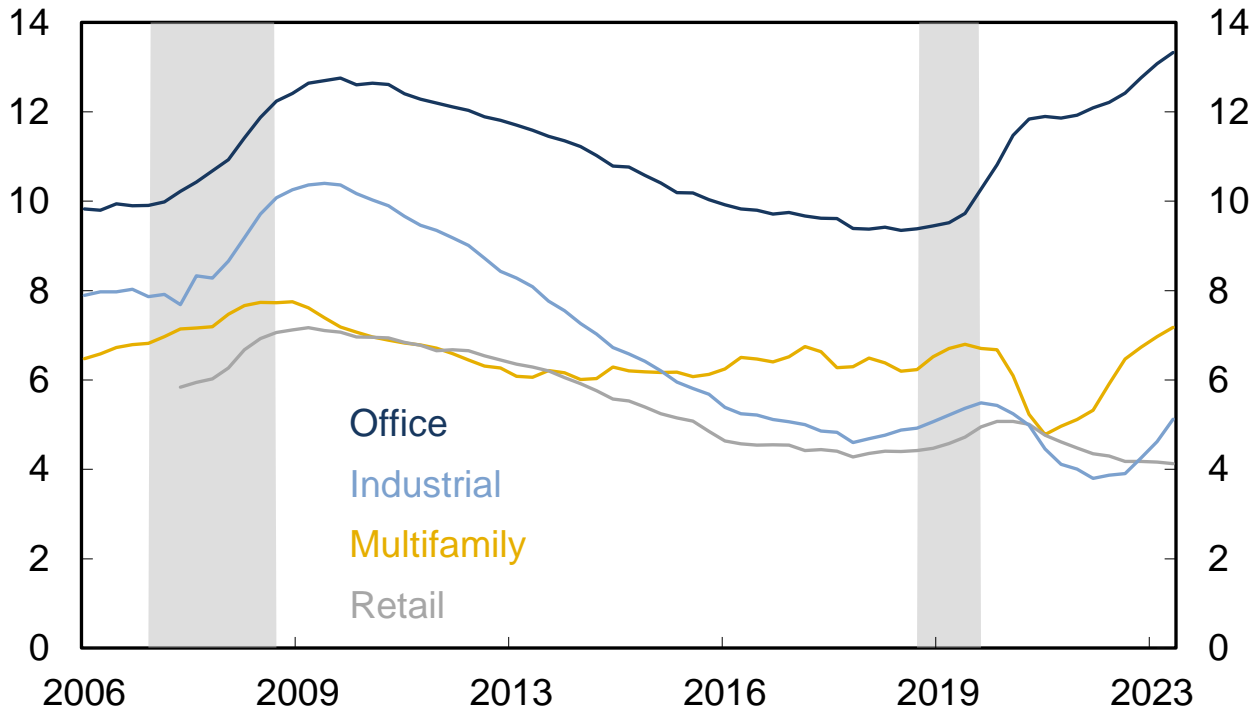
Sources: JPMorgan, Trepp

3.1.1.3 Vacancy Rate by Property Type

Percent

As Of: 2023 Q3

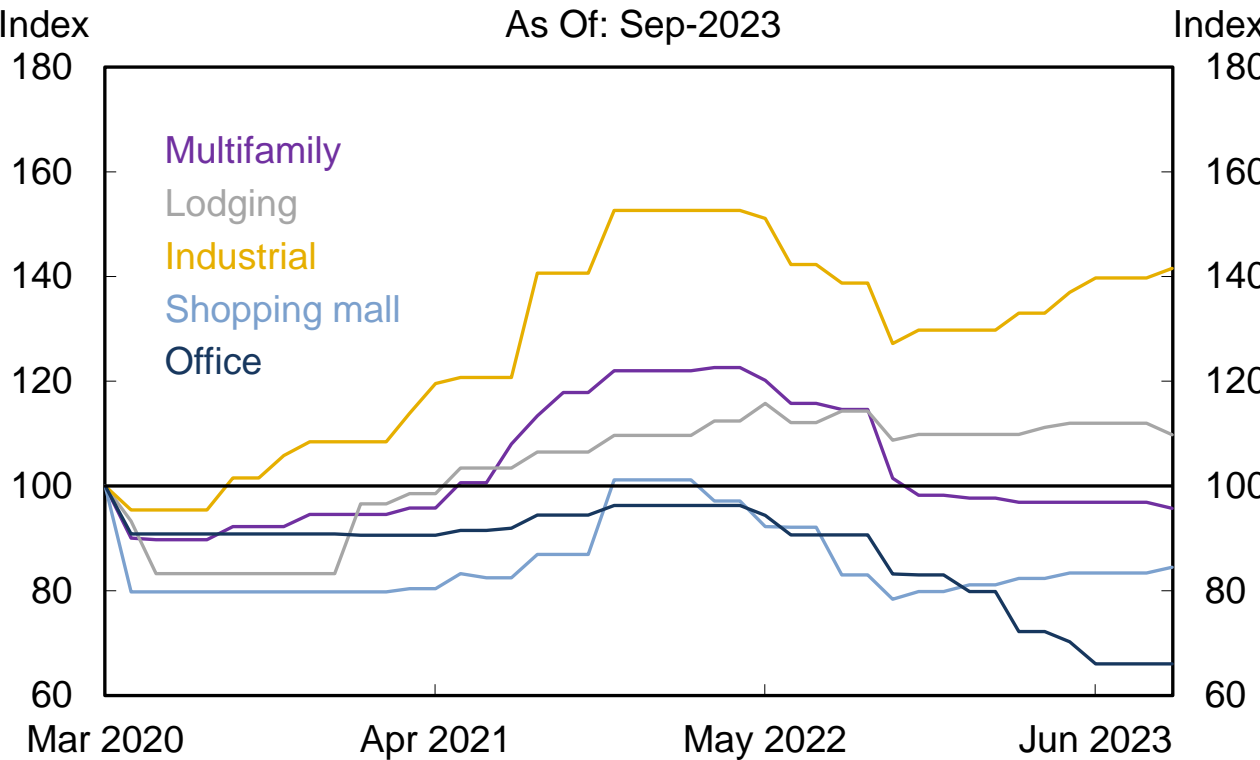
Percent



Note: Gray bars signify NBER recessions.

Sources: CoStar, Haver Analytics

3.1.1.4 Commercial Property Price Indexes

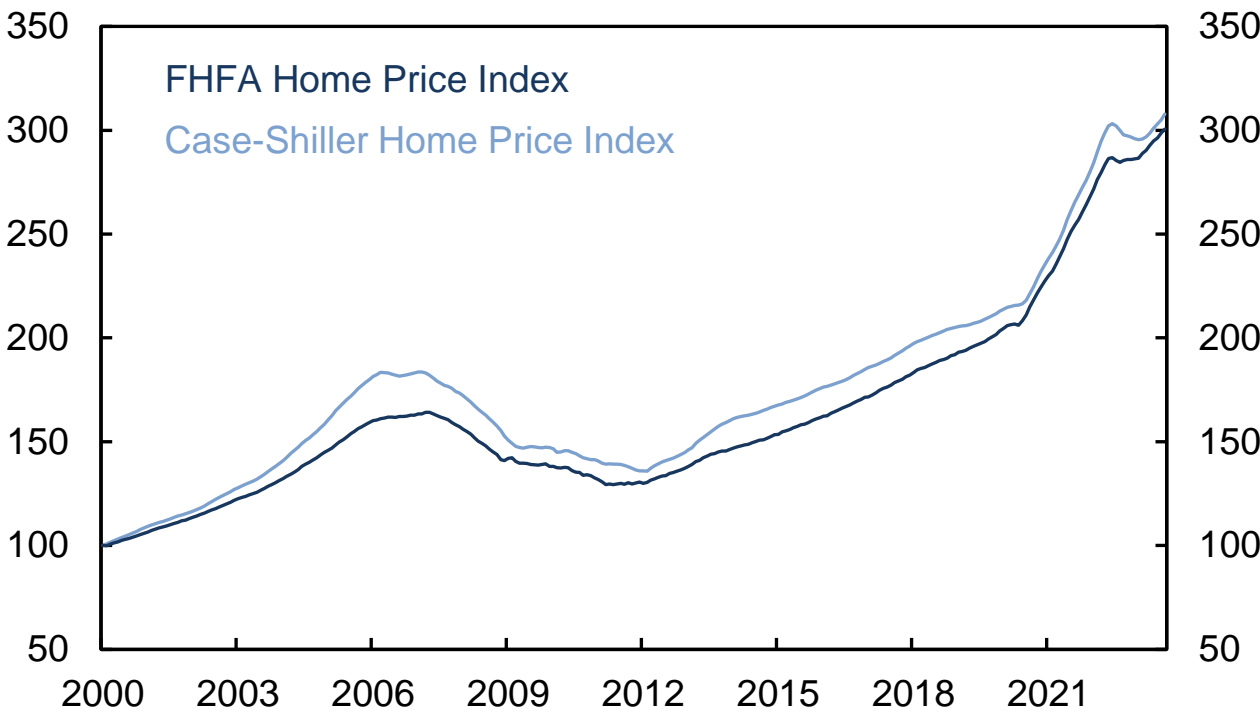


Note: Data are monthly indexed to 100 as of March 2020.

Source: Green Street Advisors, LLC

3.1.2.1 House Price Indexes

Index As of: Aug-2023 Index



Note: Seasonally adjusted. Indexed to 100 as of Jan-2000.

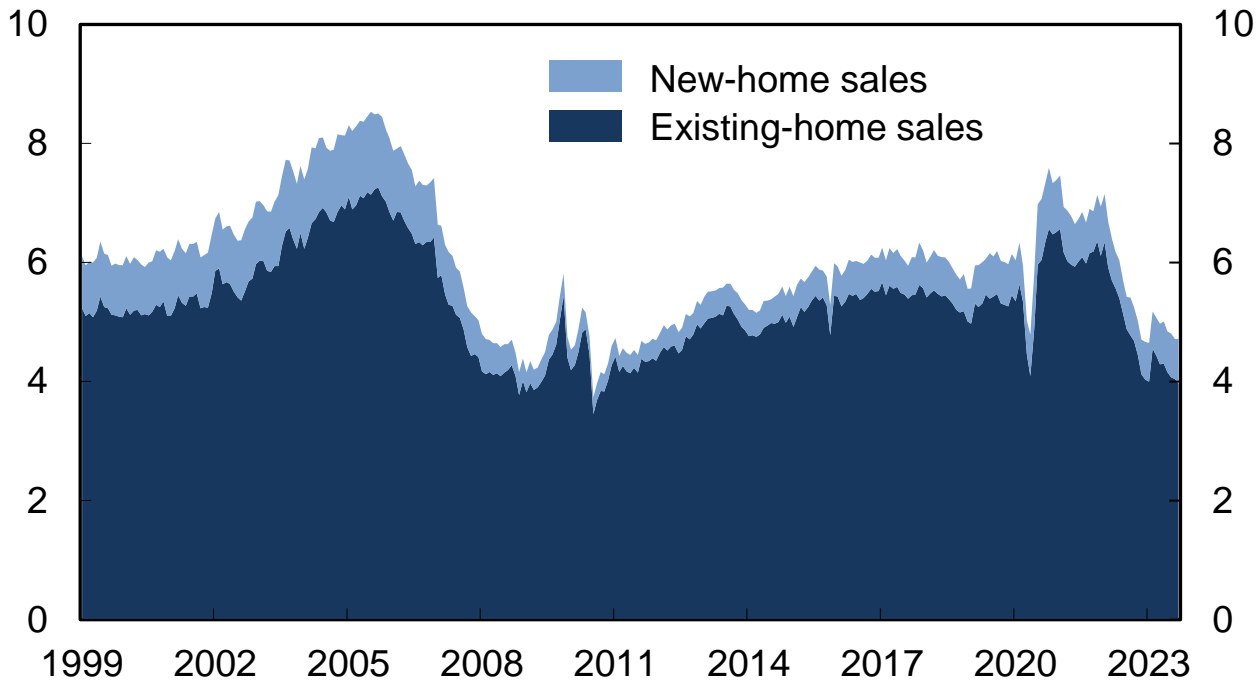
Sources: S&P CoreLogic Real Estate Data, FHFA, Haver Analytics

3.1.2.2 New- and Existing-Home Sales

Millions of Sales

As of: Sep-2023

Millions of Sales



Note: Seasonally adjusted annual rate

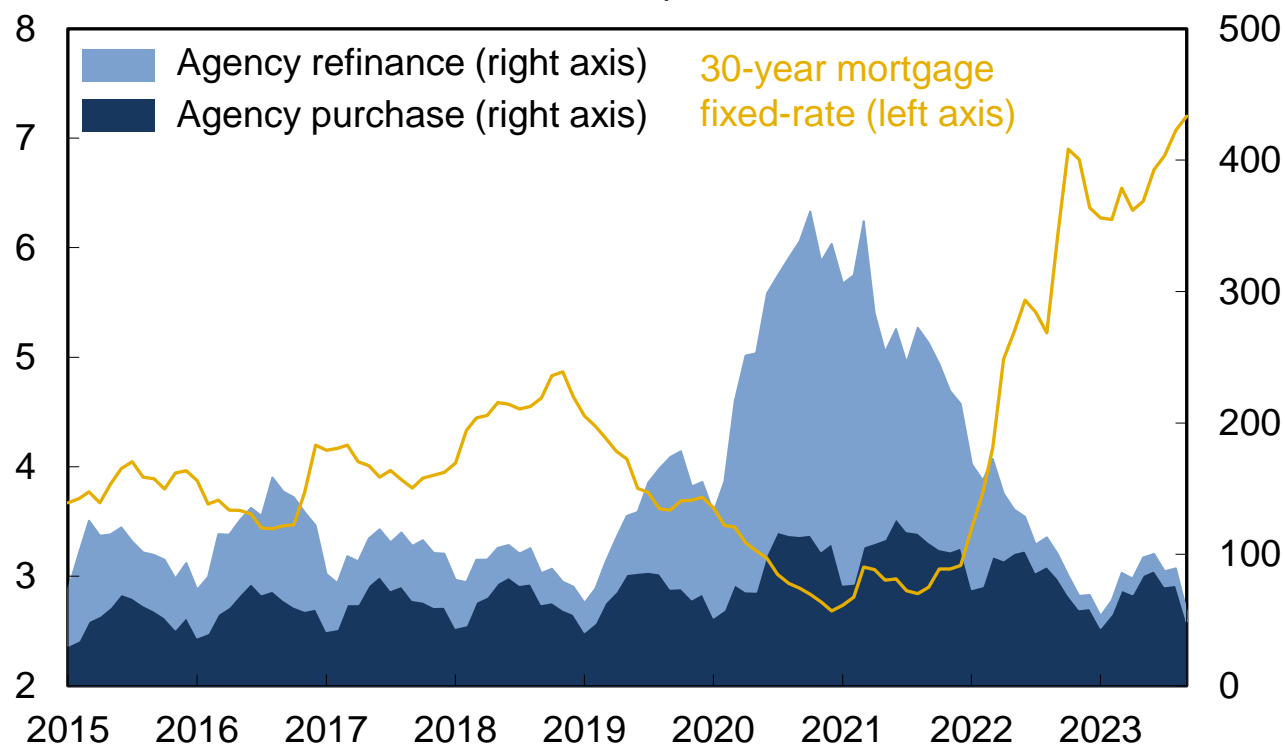
Sources: U.S. Census Bureau, National Association of Realtors, Haver Analytics

3.1.2.3 Residential Purchase and Refinance Levels

Percent

As Of: Sep-2023

Billions of US\$



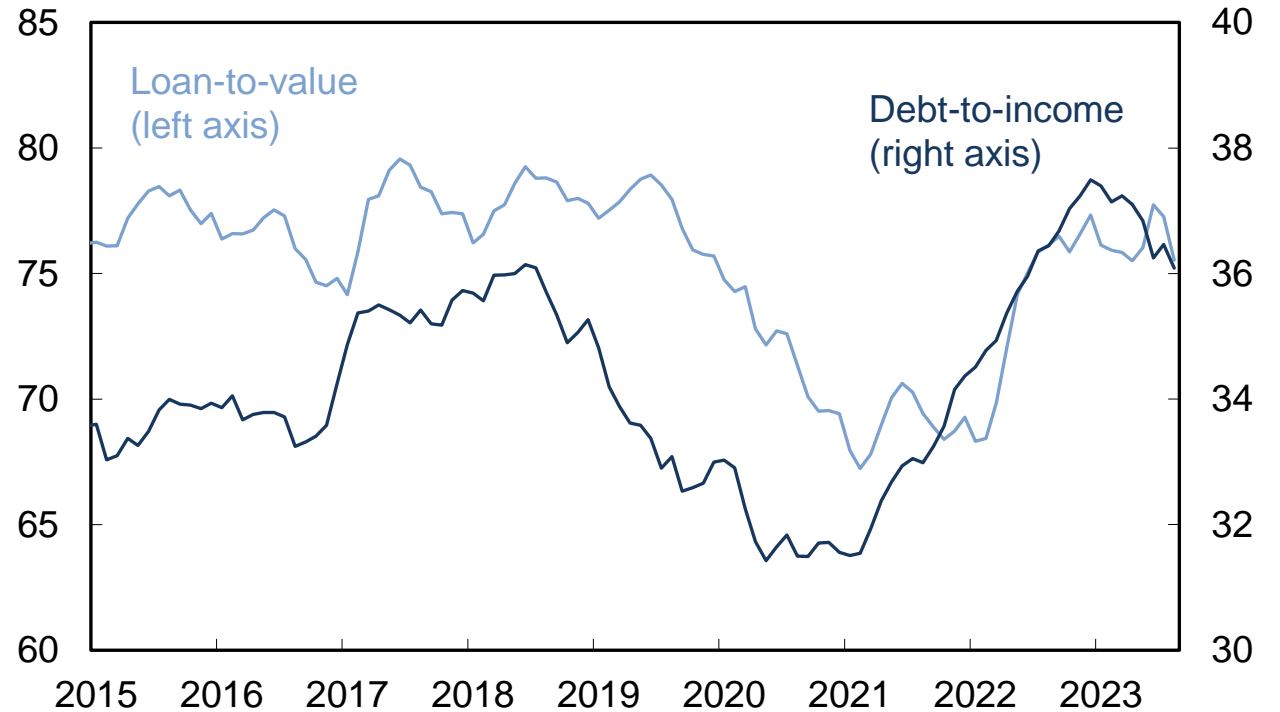
Sources: Fannie Mae, Freddie Mac, Ginnie Mae, Recursion

3.1.2.4 Average DTI and LTV Ratios at Origination

Percent

As Of: Aug-2023

Percent



Note: Weekly averages.

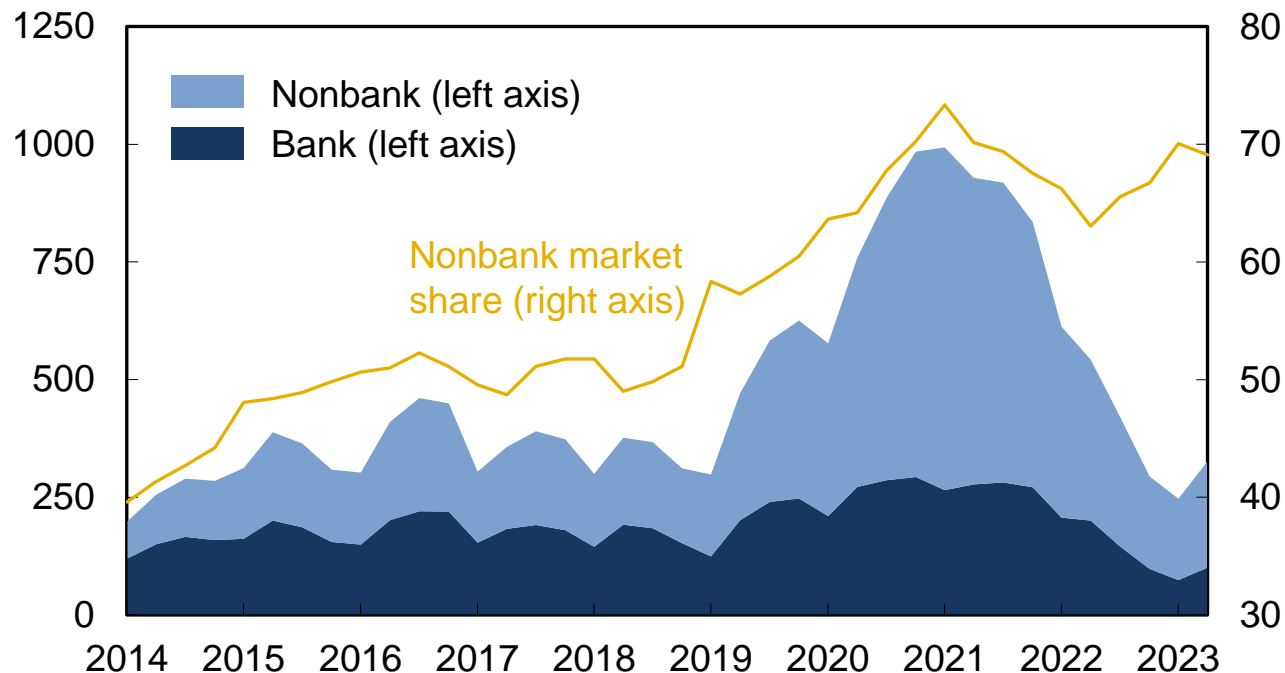
Source: Black Knight

3.1.2.5 Mortgage Origination Volumes

Billions of US\$

As Of: 2023 Q2

Percent



Note: Includes top 100 originators.

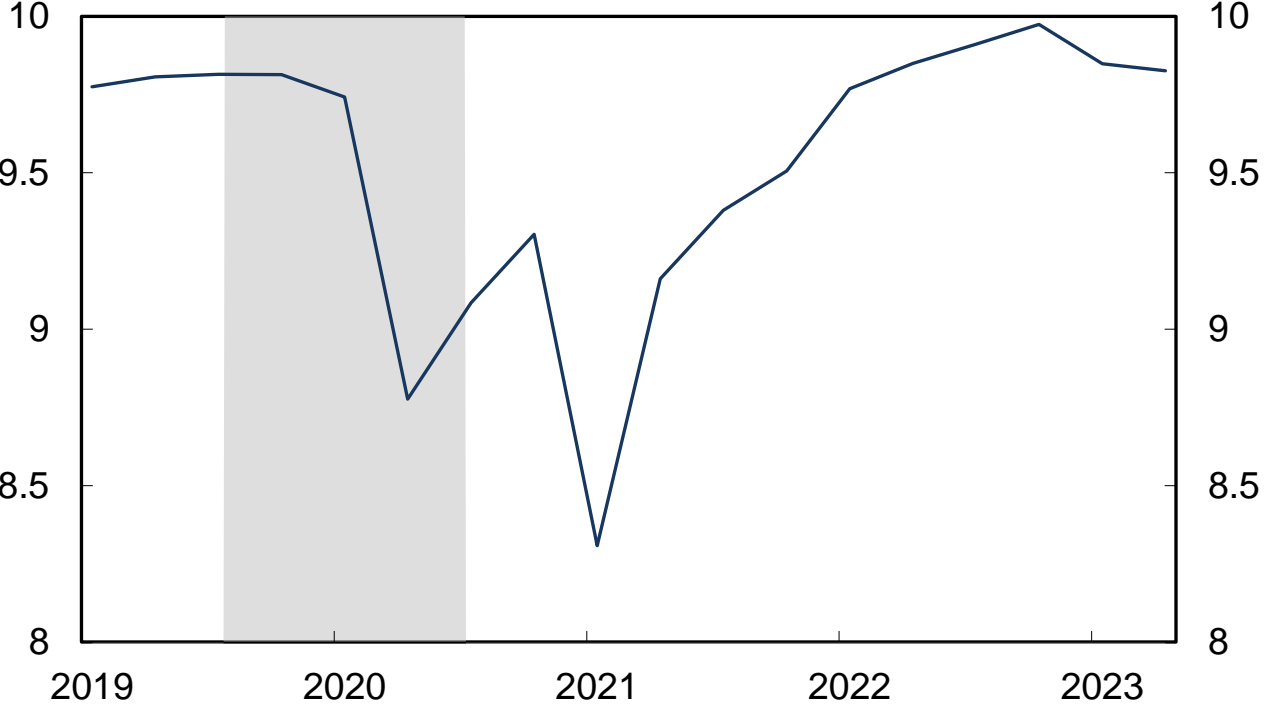
Source: Inside Mortgage Finance

B.1 Household Debt Servicing to Disposable Income Ratio

Percent

As Of: 2023 Q2

Percent



Note: Gray bars signify NBER recessions.

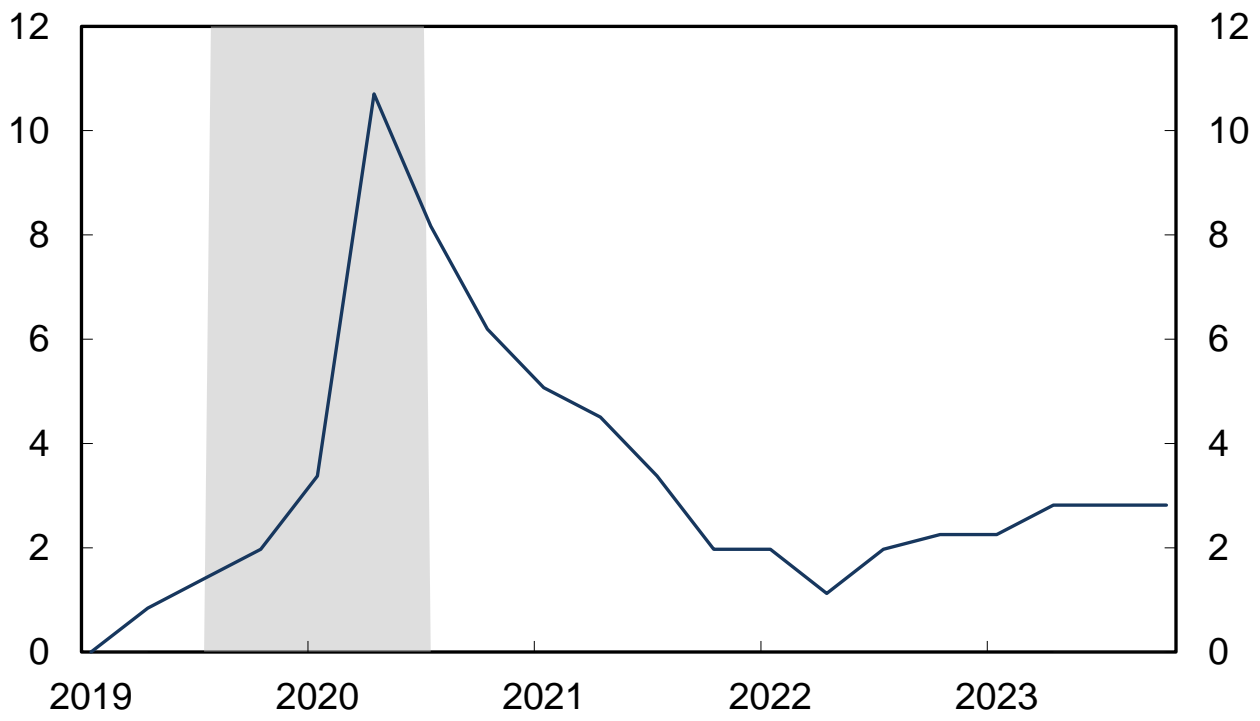
Sources: Federal Reserve Board, Haver Analytics

B.2 Change in Median Weekly Real Earnings

Percent

As Of: 2023 Q3

Percent



Notes: CPI-adjusted dollars (1982-1984), seasonally adjusted. Gray bars signify NBER recessions.

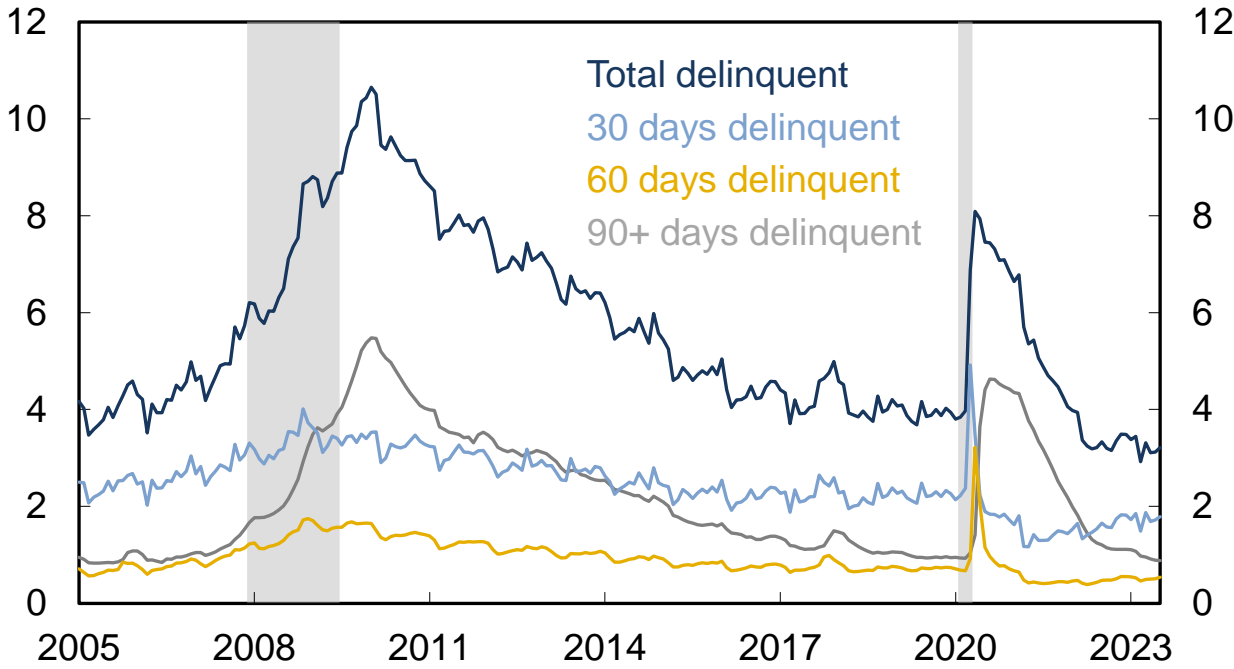
Sources: Bureau of Labor Statistics, Haver Analytics

B.3 National Mortgage Delinquency Rates

Percent

As Of: Jul-2023

Percent

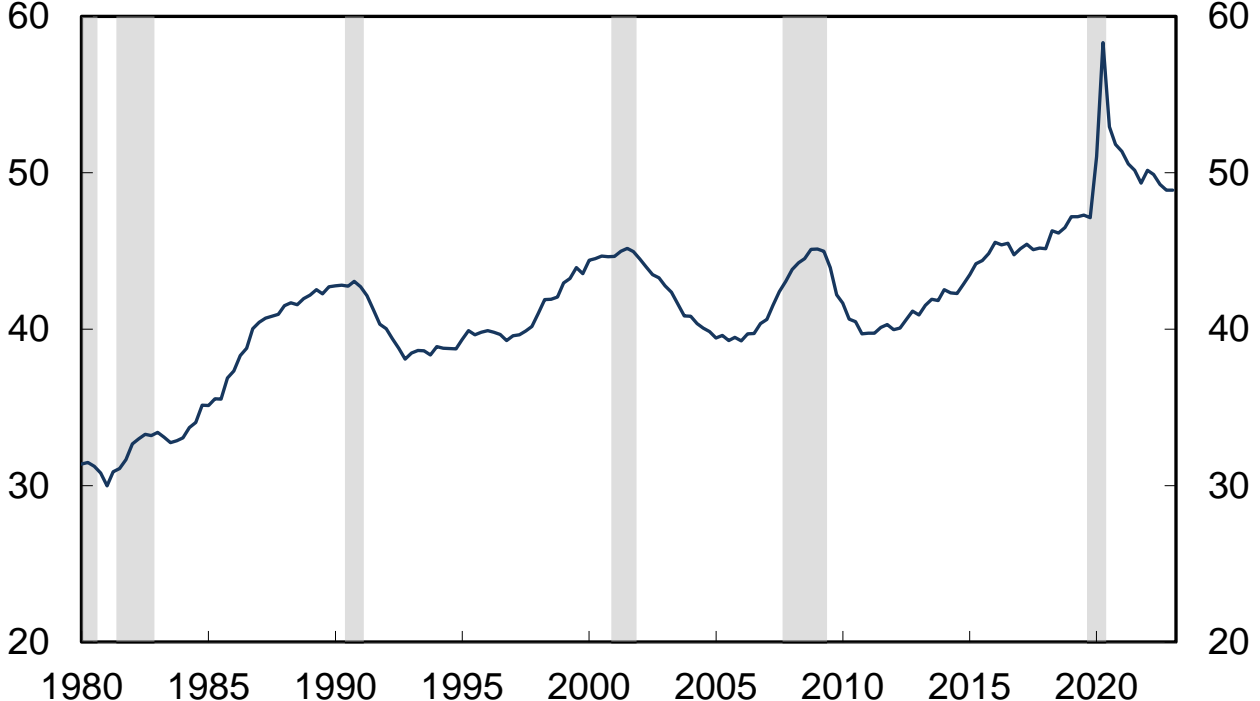


Note: Gray bars signify NBER recessions.

Sources: Black Knight, Haver Analytics

3.1.3.1 Nonfinancial Corporate Debt as a Percentage of GDP

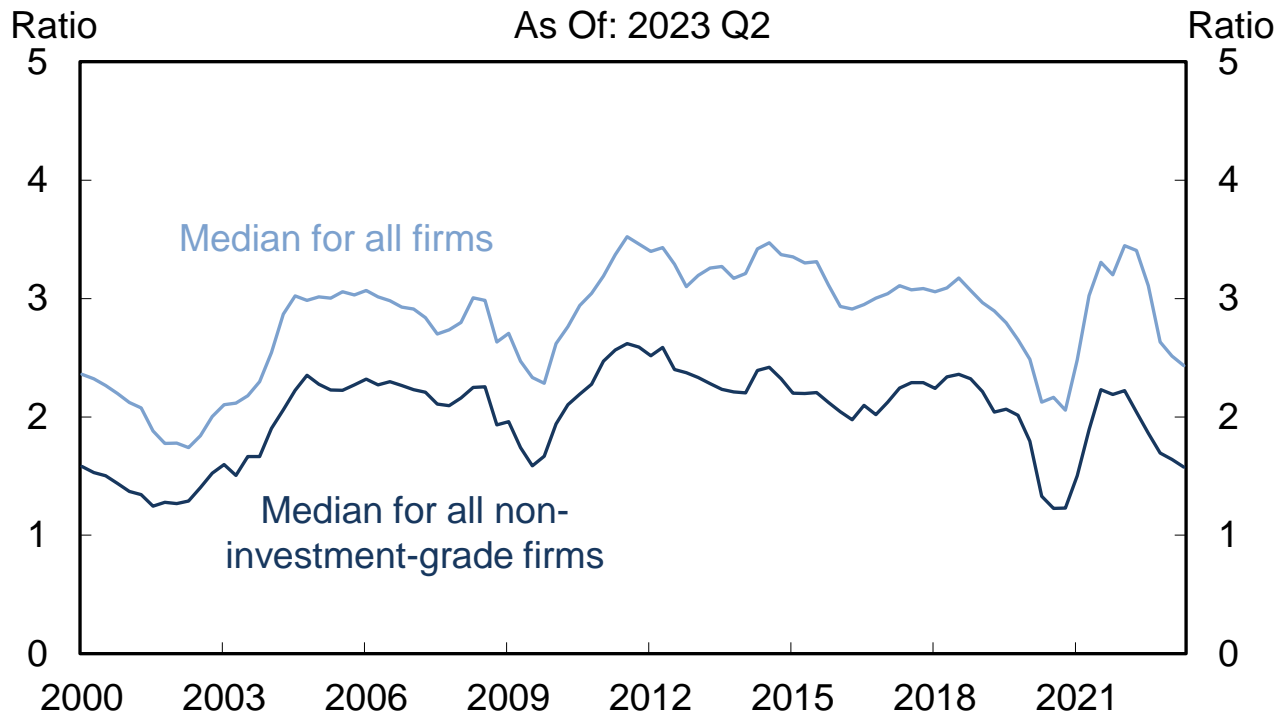
Percent As Of: 2023 Q2 Percent



Note: Gray bars signify NBER recessions.

Sources: Federal Reserve, Haver Analytics

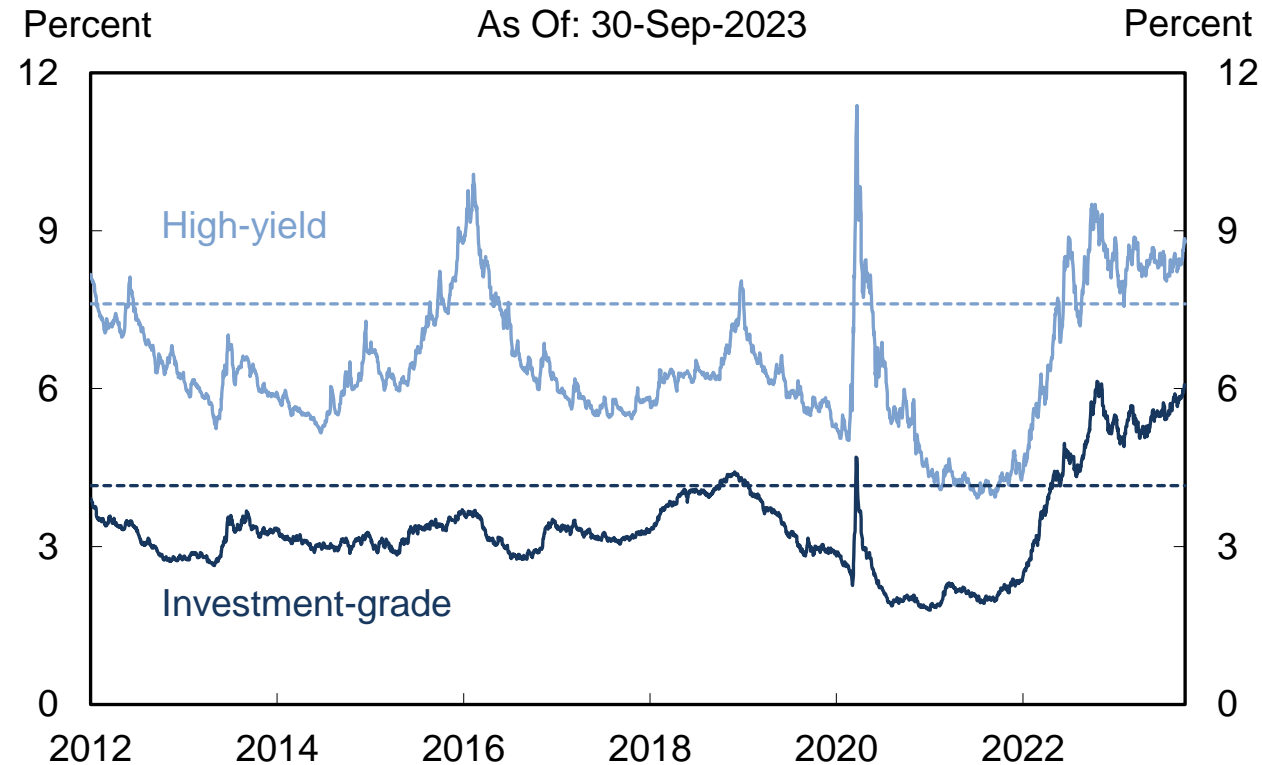
3.1.3.2 Interest Coverage Ratios



Notes: Federal Reserve Board staff calculations; the interest coverage ratio is calculated as earnings before interest and taxes divided by interest payments of nonfinancial publicly-traded firms. Firms with leverage less than 5 percent and interest payments less than \$500,000 are excluded.

Sources: S&P Global, Compustat, Federal Reserve Board of Governors

3.1.3.3 Corporate Bond Yields



Note: Dotted lines represent 20-year average.

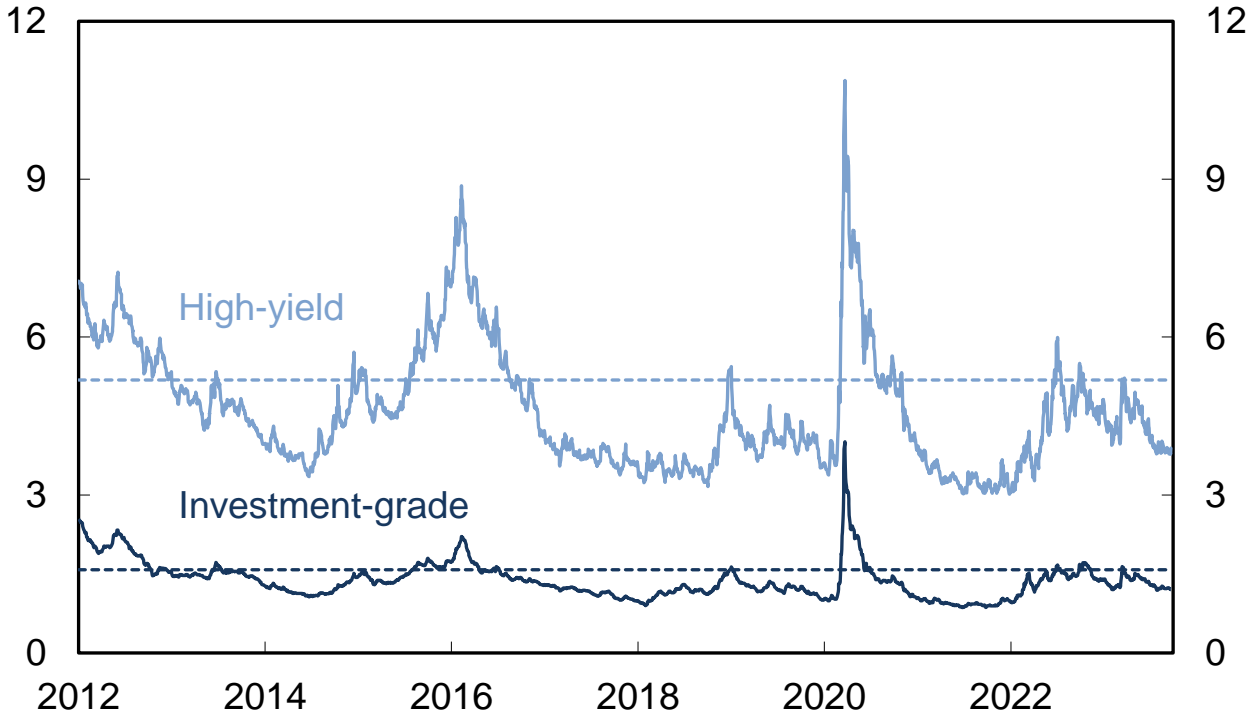
Sources: ICE Data Indices, LLC, FRED

3.1.3.4 Corporate Bond Spreads

Percent

As Of: 30-Sep-2023

Percent



Note: Dotted lines represent 20-year average.

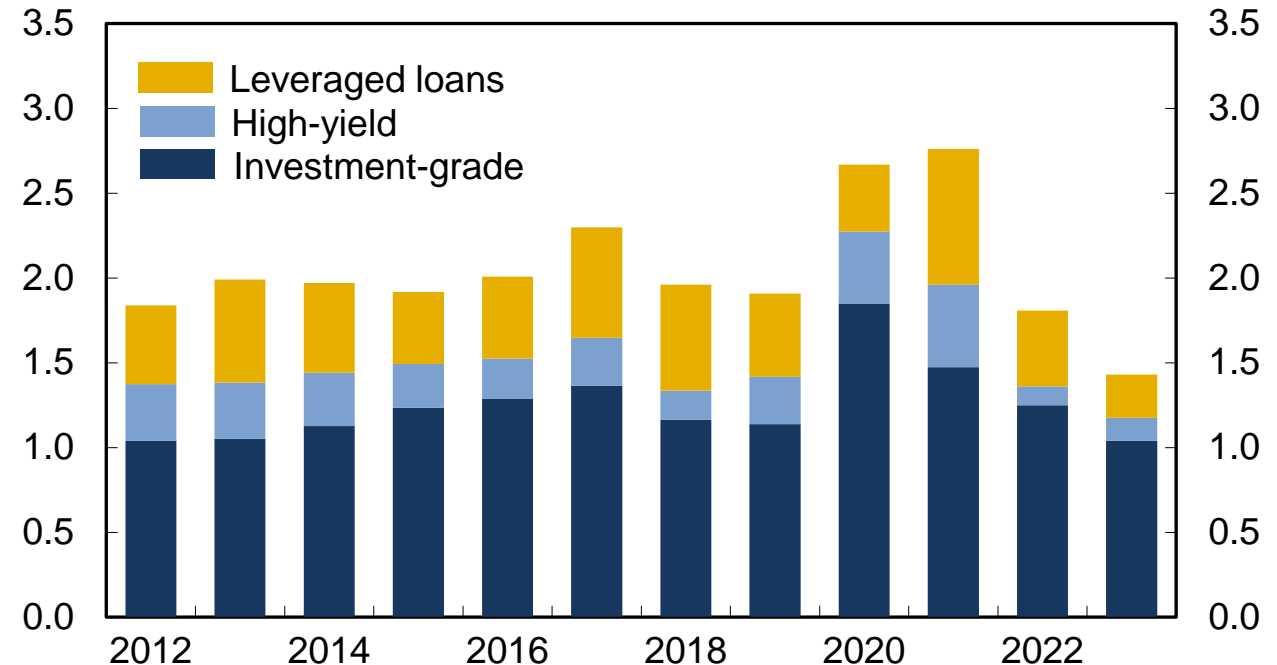
Sources: ICE Data Indices, LLC, FRED

3.1.3.5 Gross Issuance of Corporate Debt

Trillions of US\$

As Of: Sep-2023

Trillions of US\$



Notes: Investment-grade and high-yield include all nonconvertible corporate debt, MTNs, and Yankee bonds, but they exclude all issues with maturities of one year or less and CDs. Leveraged loans include institutional and pro rata loans. 2023 figures are through September.

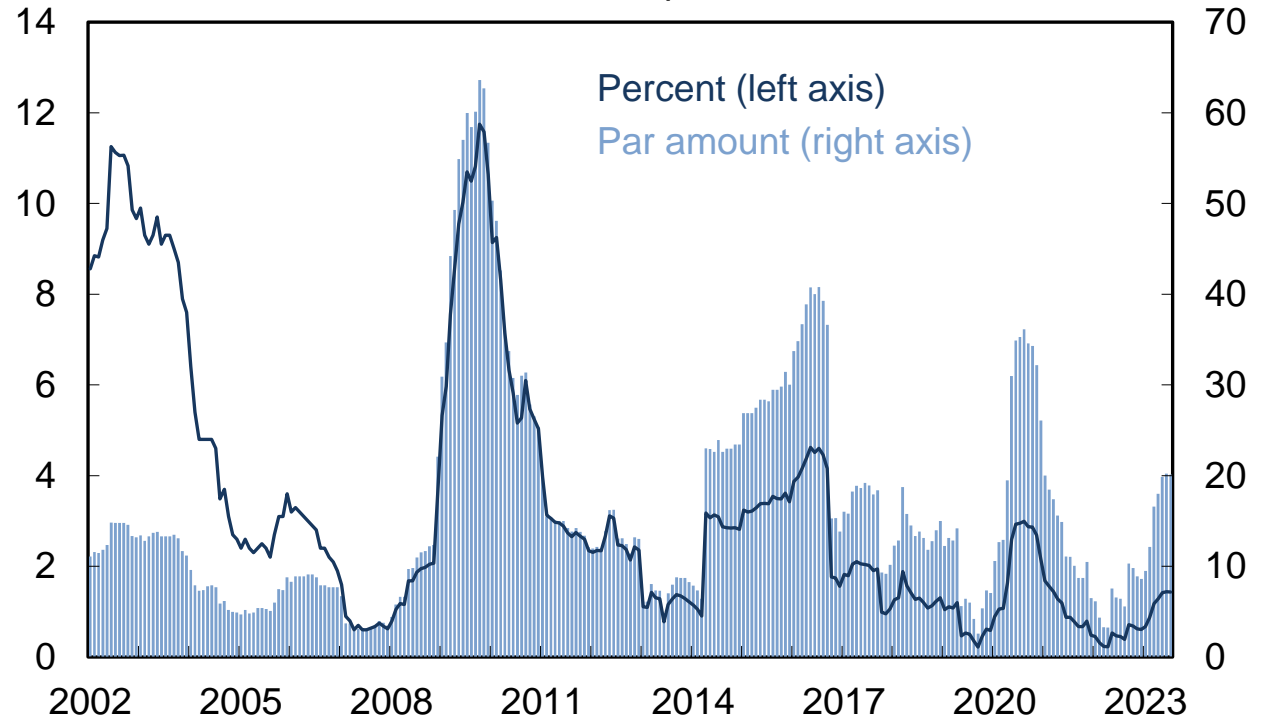
Sources: Refinitiv, SIFMA, LCD Pitchbook

3.1.3.6 Leveraged Loan Default Rates

Percent

As Of: Sep-2023

Billions of US\$



Note: Par amount and percent of Morningstar LSTA Index Loans in payment default or bankruptcy.

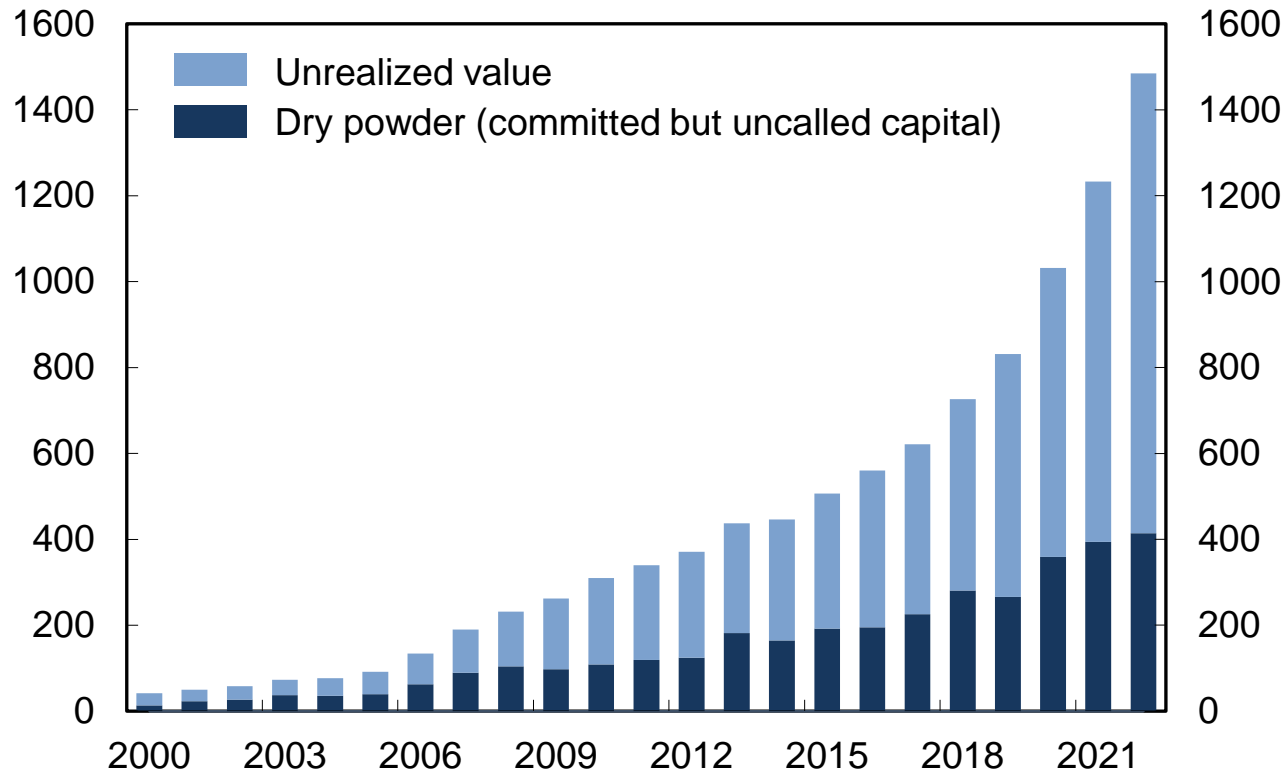
Source: LCD PitchBook

3.1.3.7 Global Private Debt AUM

Billions of US\$

As Of: 2022

Billions of US\$



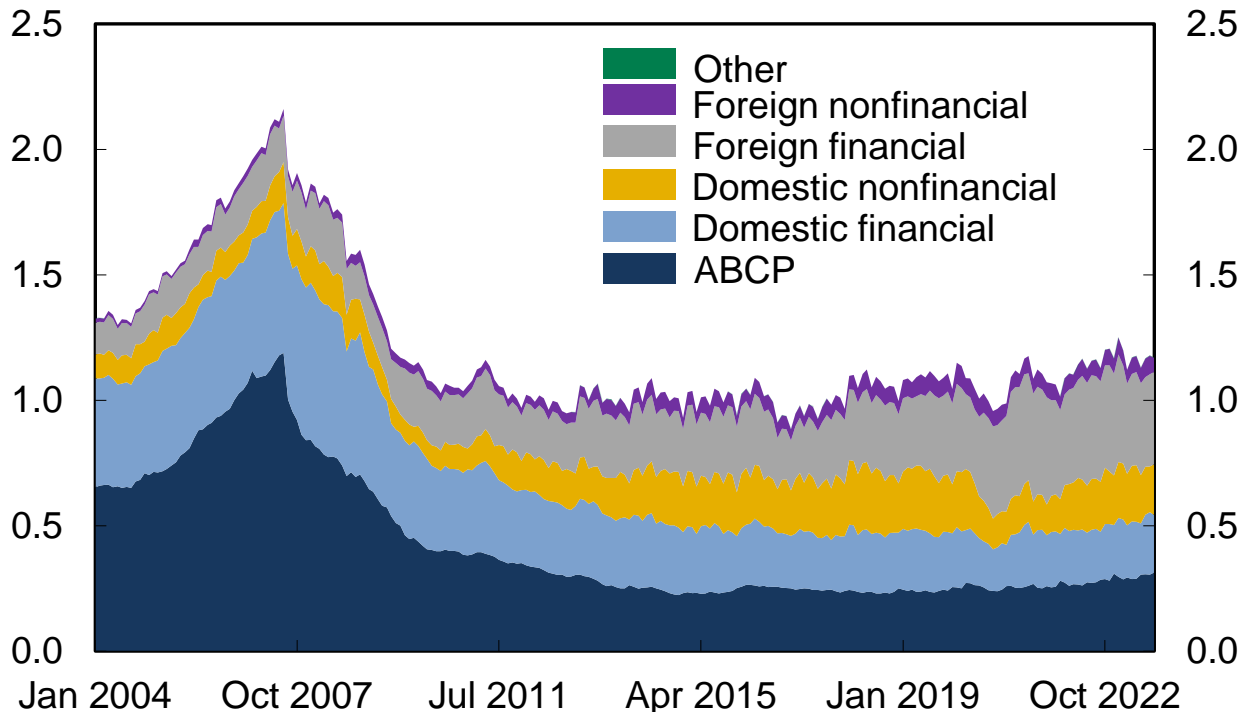
Source: Preqin

3.1.4.1 CP Outstanding by Issuer Type

Trillions of US\$

As Of: Sep-2023

Trillions of US\$



Notes: Not seasonally adjusted. Domestic includes CP issued in the U.S. by entities with foreign parents. ABCP represents Asset-Backed Commercial Paper.

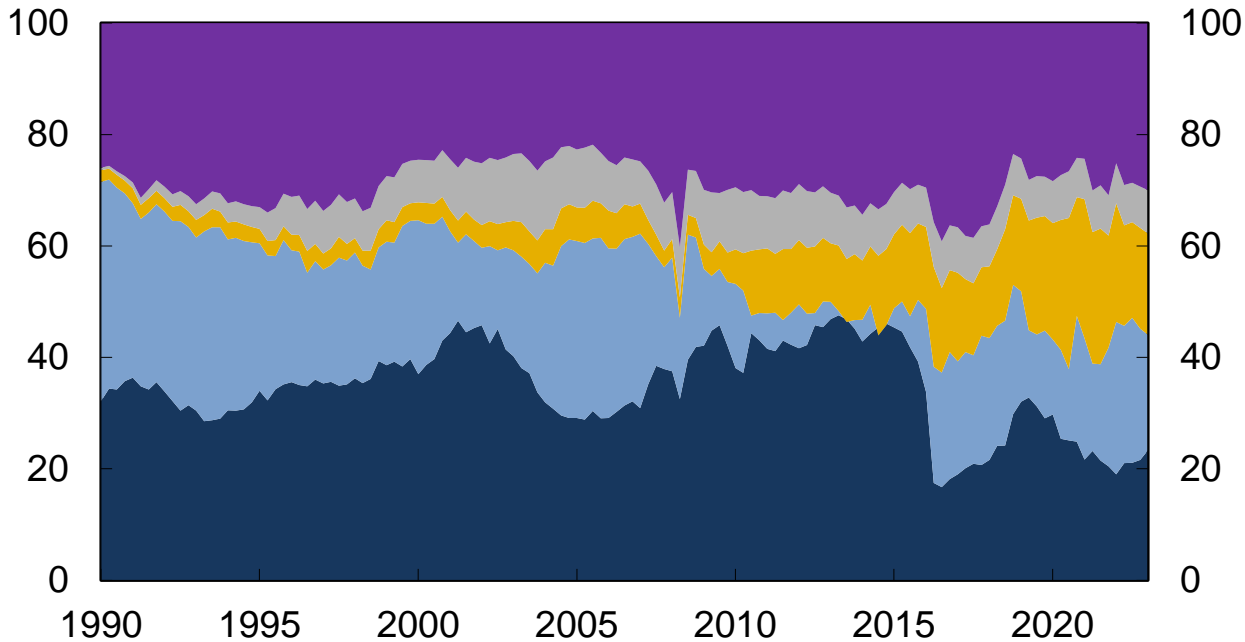
Sources: Federal Reserve, Haver Analytics

3.1.4.2 CP Investors

Percent

As Of: 2023 Q2

Percent



Funding corporations

State & local governments

Money market funds

Nonfinancial corporates

Other

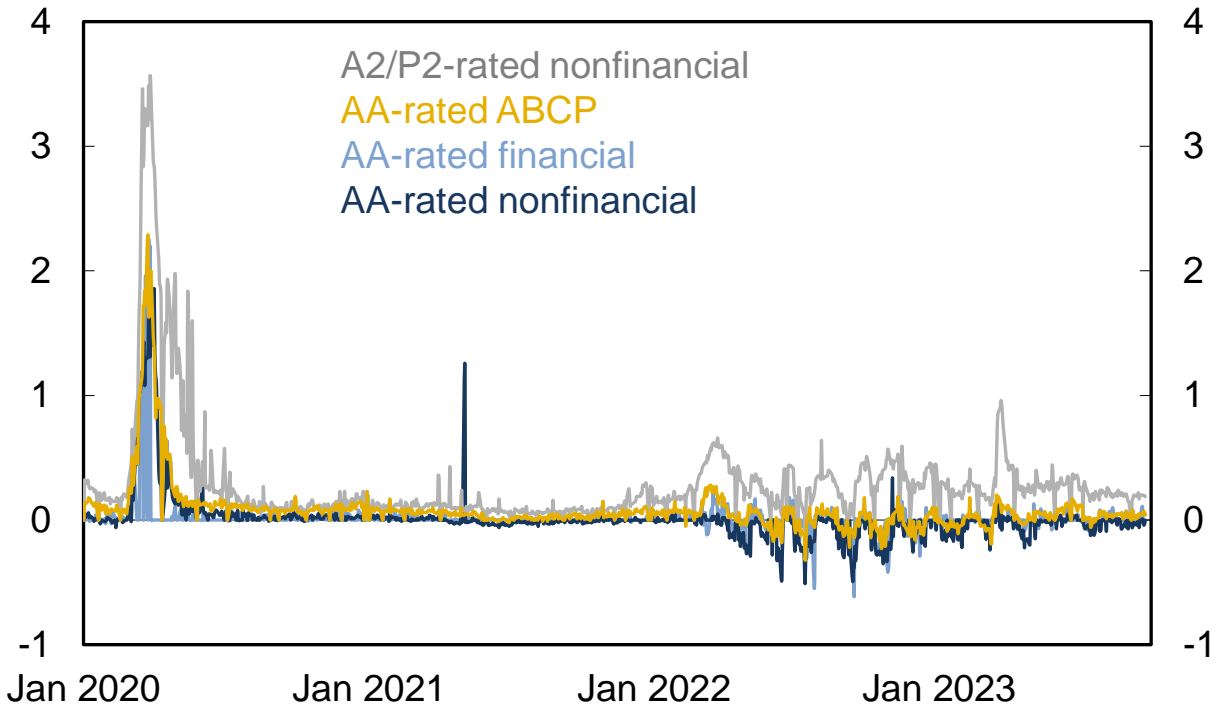
Sources: Federal Reserve, Haver Analytics

3.1.4.3 One-Month CP Interest Rate Spreads

Percent

As Of: 29-Sep-2023

Percent



Note: Spread to 1-Month Overnight Index Swap (OIS) rate.

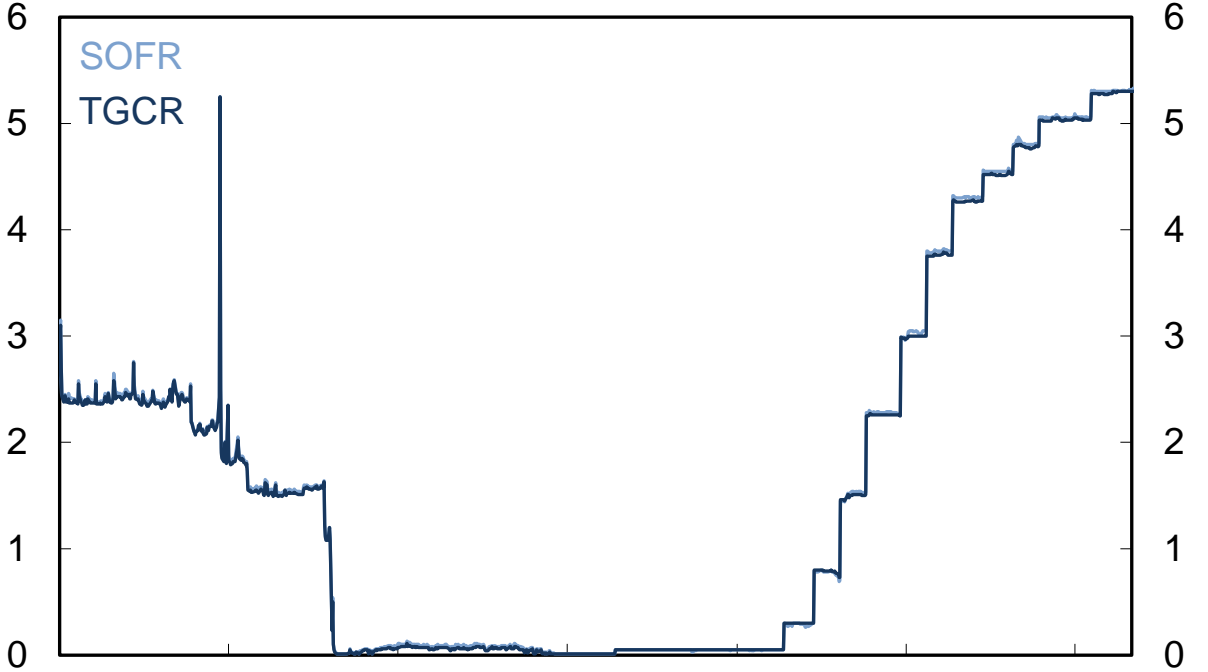
Sources: Federal Reserve, Refinitiv, Haver Analytics

3.1.4.4 Repo Rates

Percent

As Of: 30-Sep-2023

Percent



Jan 2019 Oct 2019 Jul 2020 Apr 2021 Jan 2022 Oct 2022 Jul 2023

Notes: TGCR = Tri-party General Collateral Rate; SOFR = Secured Overnight Financing Rate

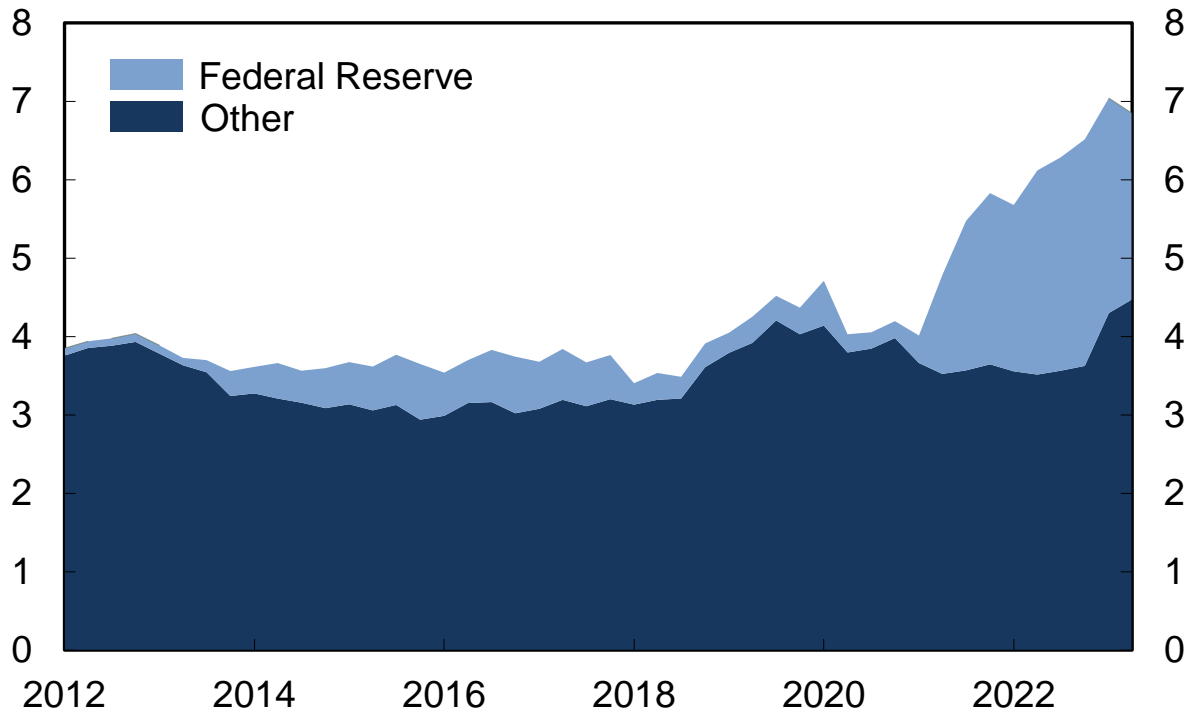
Source: Federal Reserve Bank of New York

3.1.4.5 Repo Borrowing Outstanding

Trillions of US\$

As Of: 2023 Q2

Trillions of US\$



Note: Federal Reserve repo borrowing primarily consists of ON-RRP facility.

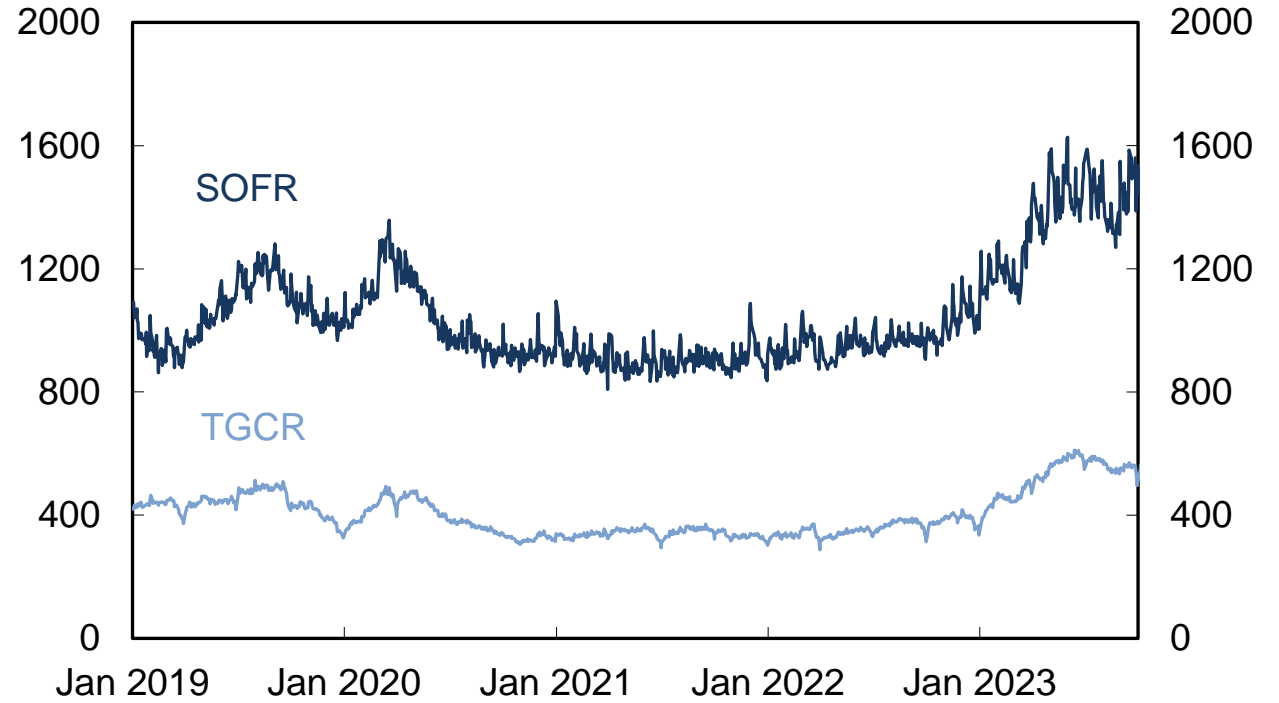
Sources: Federal Reserve, Haver Analytics

3.1.4.6 Repo Volumes

Billions of US\$

As Of: 30-Sep-2023

Billions of US\$



Notes: TGCR = Tri-Party General Collateral Rate; SOFR = Secured Overnight Financing Rate

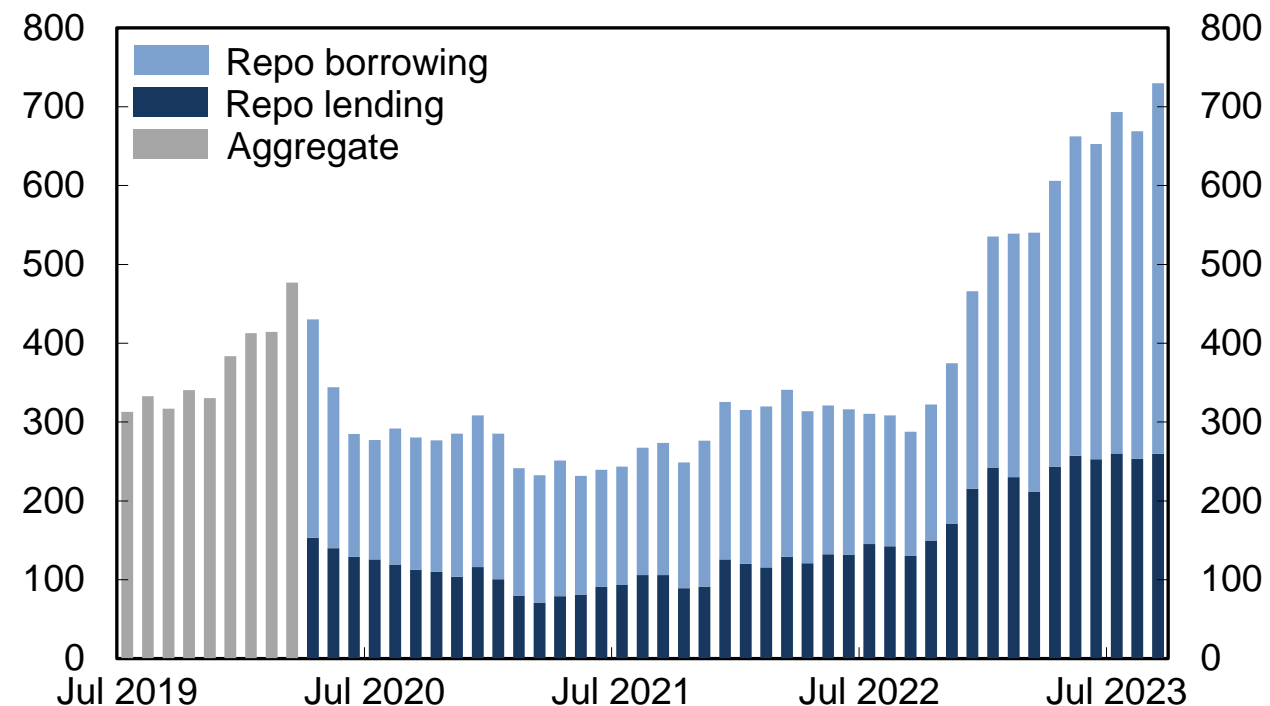
Source: Federal Reserve Bank of New York

3.1.4.7 Sponsored Repo Activity

Billions of US\$

As Of: Sep-2023

Billions of US\$



Notes: Average daily volume of sponsoring members. Breakdown of repo lending and repo borrowing unavailable prior to April 2020.

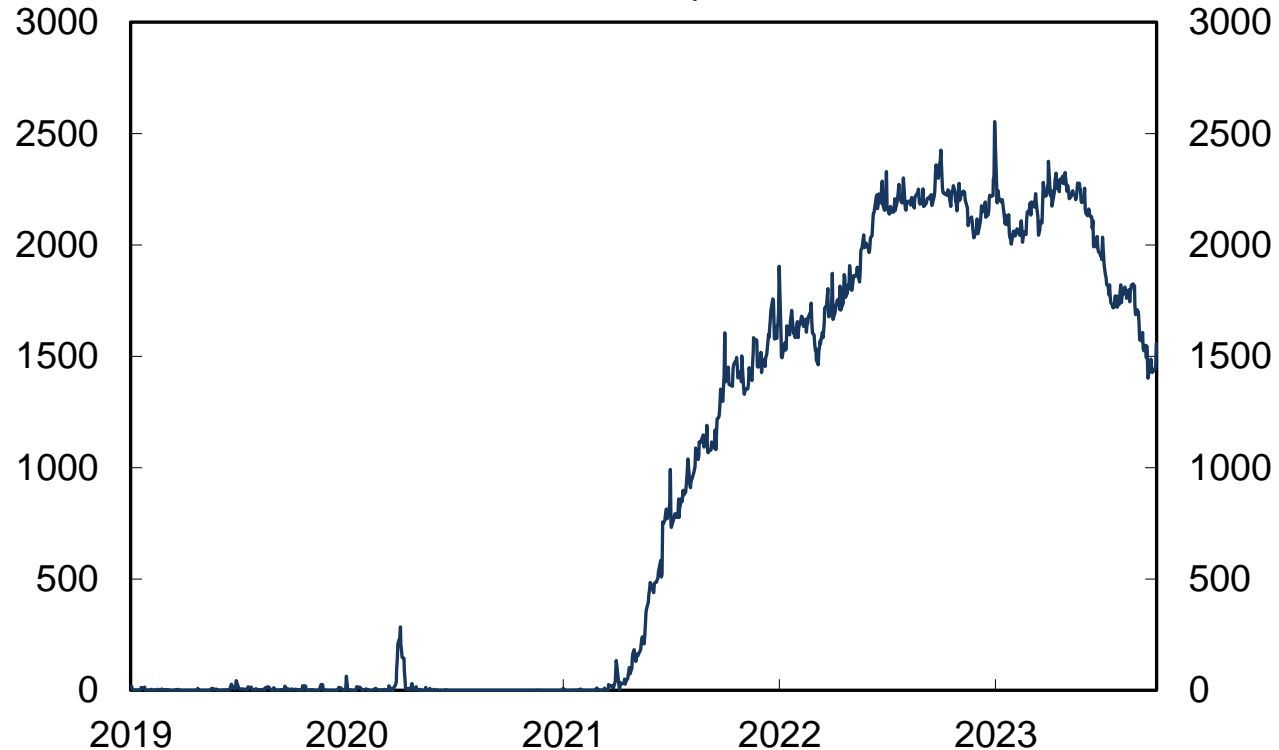
Source: DTCC

3.1.4.8 ON RRP Balance

Billions of US\$

As Of: 29-Sep-2023

Billions of US\$



Sources: Federal Reserve Bank of New York, Haver Analytics

3.1.5.1 Thirty-Day Volatility for Selected Digital Assets

Percent

As Of: 29-Sep-2023

Percent

200

200

160

160

120

120

80

80

40

40

0

0

2018

2019

2020

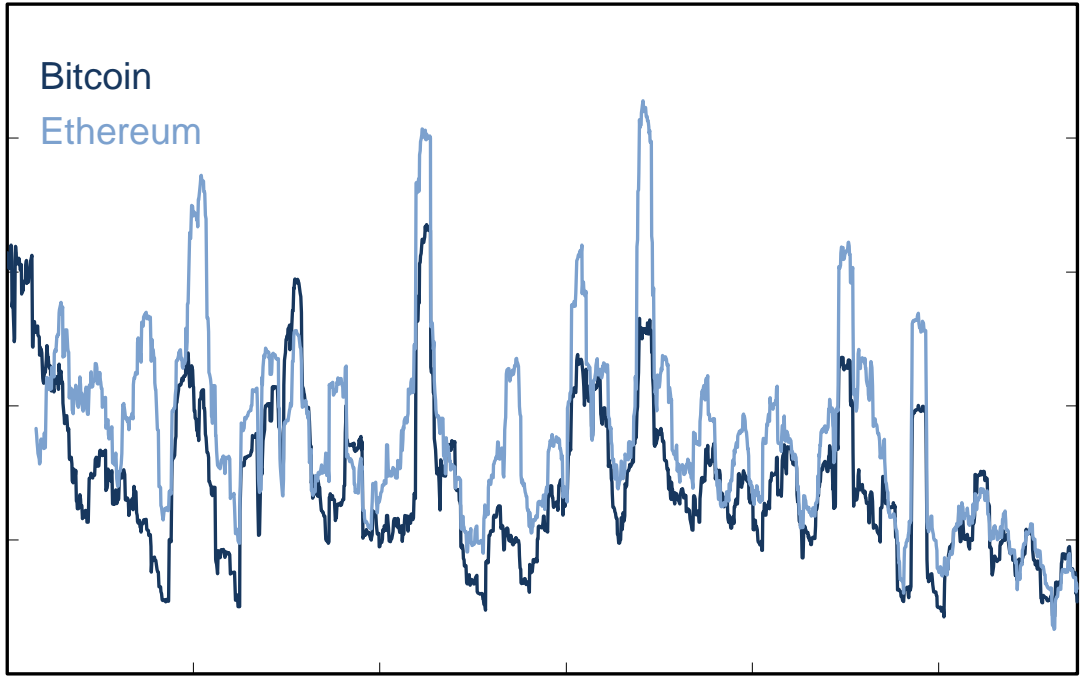
2021

2022

2023

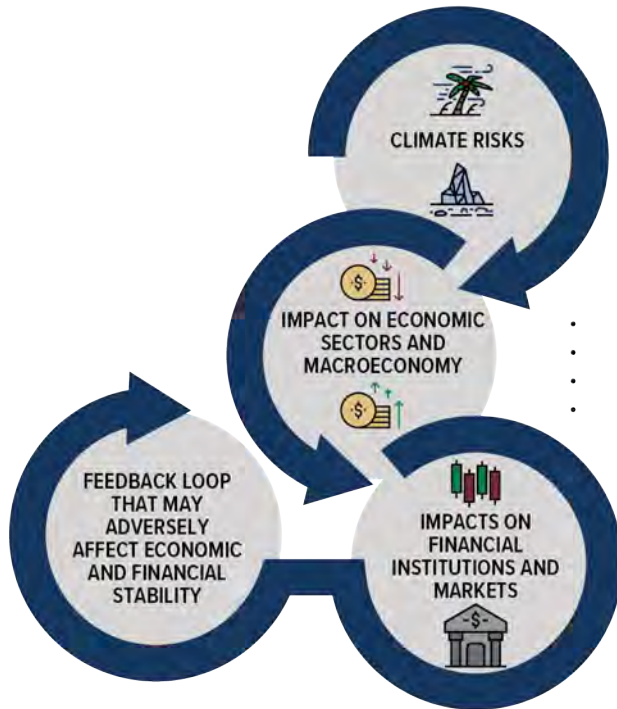
Bitcoin

Ethereum



Source: Bloomberg, L.P.

3.1.6.1 Transmission Channels Linking Climate Risks to Financial Stability



Transition risks

- Technological changes
- Policy shifts
- Changes in consumer preference

Physical risks

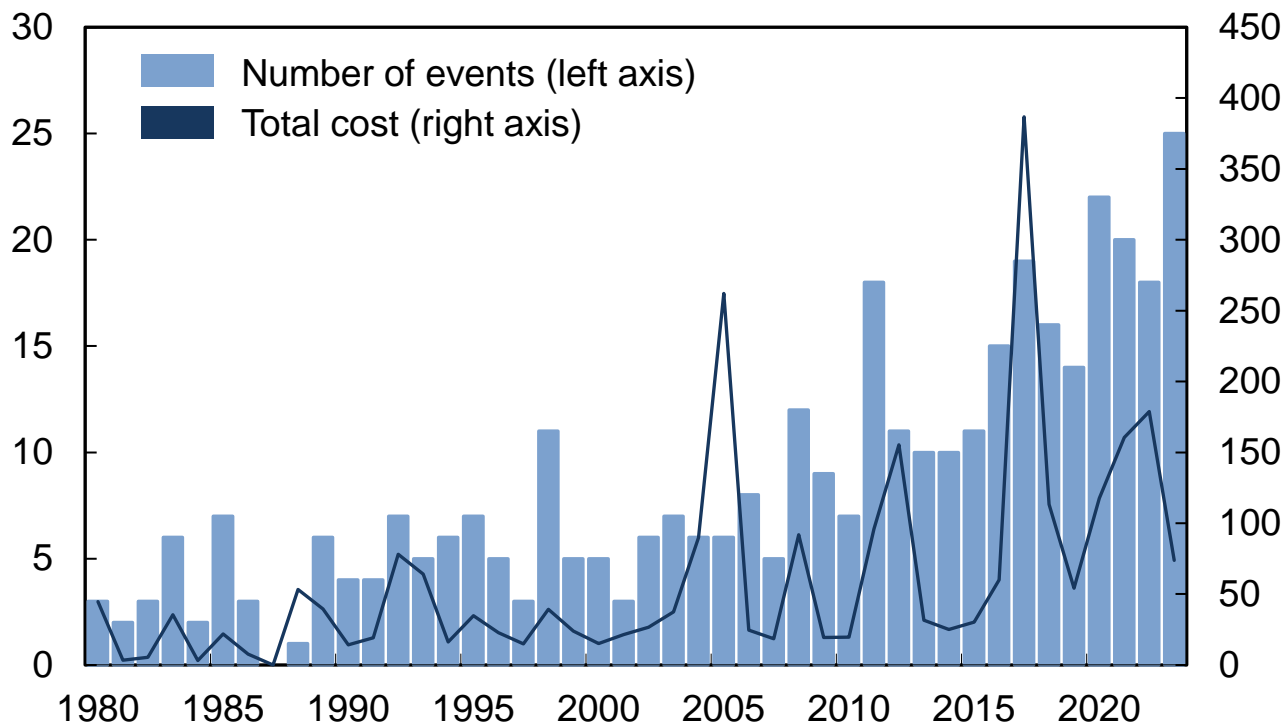
- Chronic (e.g., sea level rise)
- Acute (e.g., hurricanes)
- Damages to property
- Business interruption
- Effects on household and business income
- Feedback across economy through product and labor markets
- Credit and market risks
- Liquidity risks
- Operational risks
- Legal risks
- Amplification through interconnections and correlated exposures

3.1.6.2 Billion-Dollar Weather and Climate Events

Number of Events

As Of: 8-Nov-2023

Billions of US\$



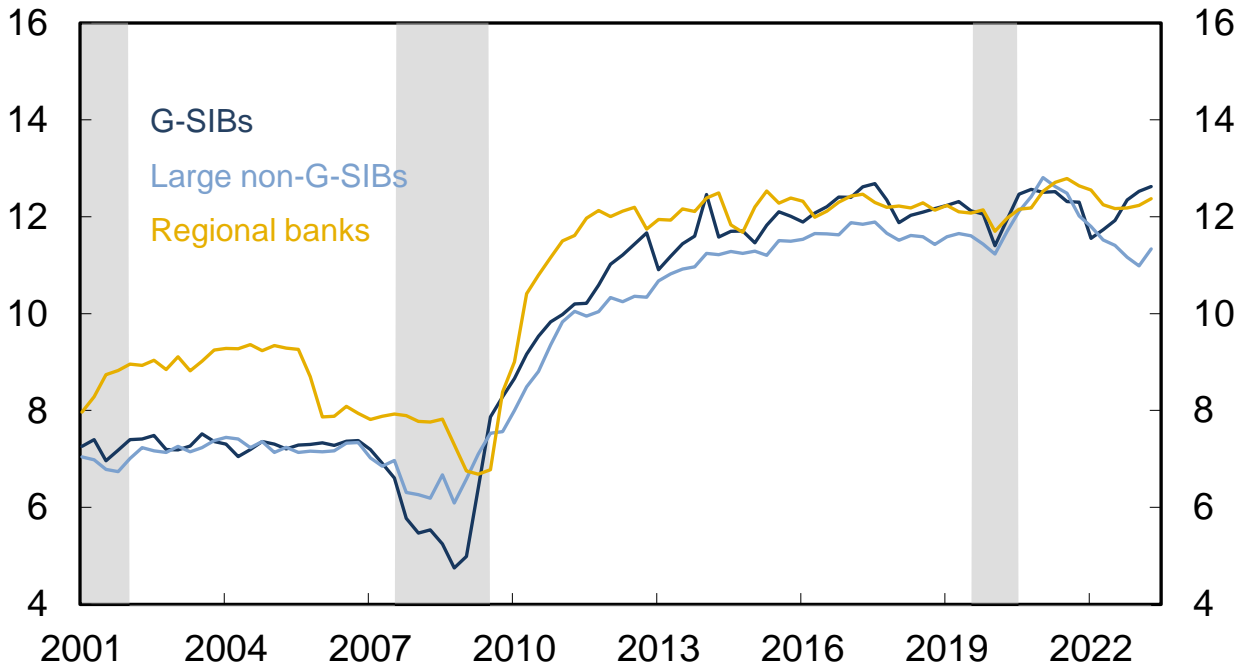
Source: NOAA National Centers for Environmental Information (NCEI)

3.2.1.1 Common Equity Tier 1 Ratios

Percent of RWA

As Of: 2023 Q2

Percent of RWA



Notes: Tier 1 common capital is used as the numerator of the CET1 ratio prior to 2014:Q1 for G-SIBs and large complex BHCs, and prior to 2015:Q1 for large noncomplex and other BHCs. The denominator is risk-weighted assets (RWA). Shaded areas indicate NBER recessions.

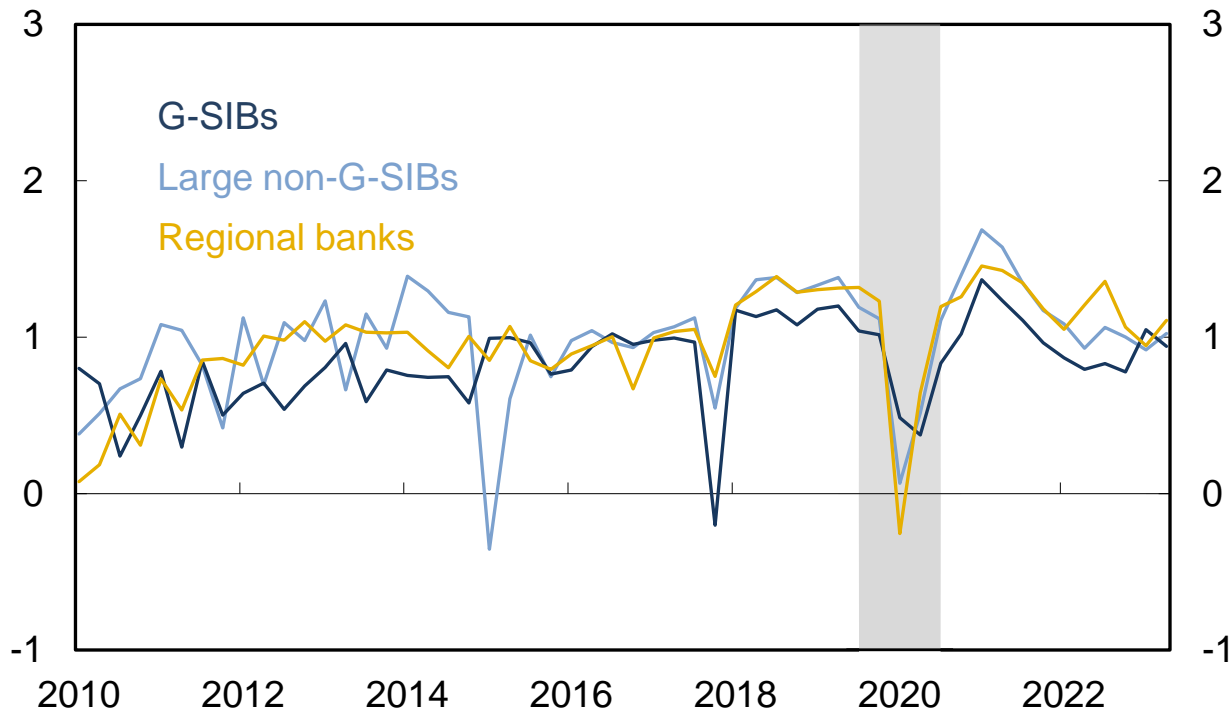
Sources: FR Y-9C, Haver Analytics

3.2.1.1.2 Return on Assets

Percent

As Of: 2023 Q2

Percent



Note: Gray bars signify NBER recessions.

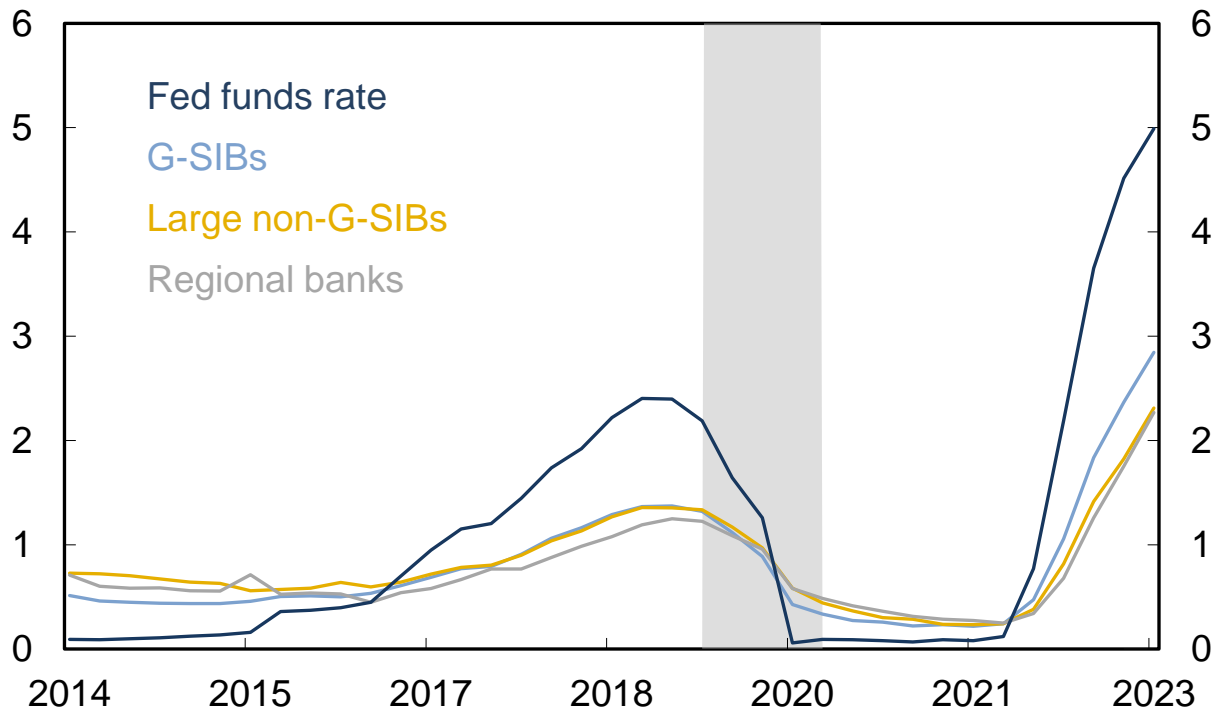
Sources: FR Y-9C, Haver Analytics

3.2.1.1.3 Bank Funding Rates

Percent

As Of: 2023 Q2

Percent

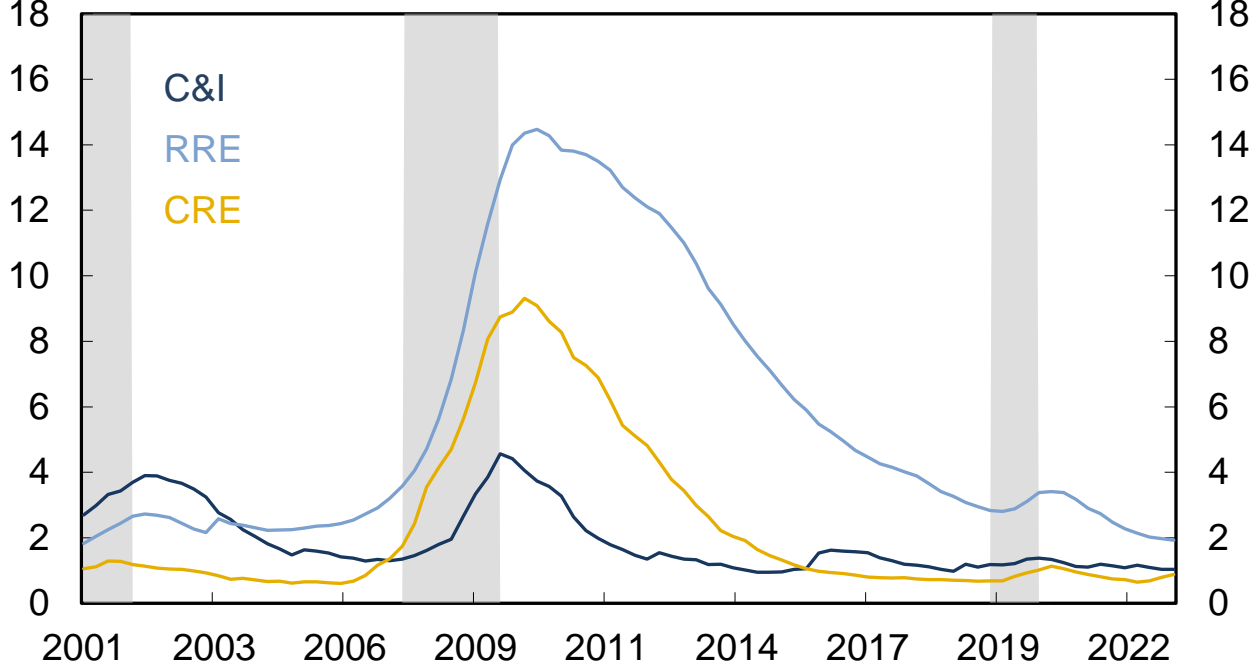


Note: Gray bars signify NBER recessions.

Sources: FR Y-9C, Haver Analytics

3.2.1.1.4 Delinquency Rates on Selected Loans

Percent As Of: 2023 Q2 Percent



Notes: Includes all loans in foreign and domestic offices. Gray bars signify NBER recessions.

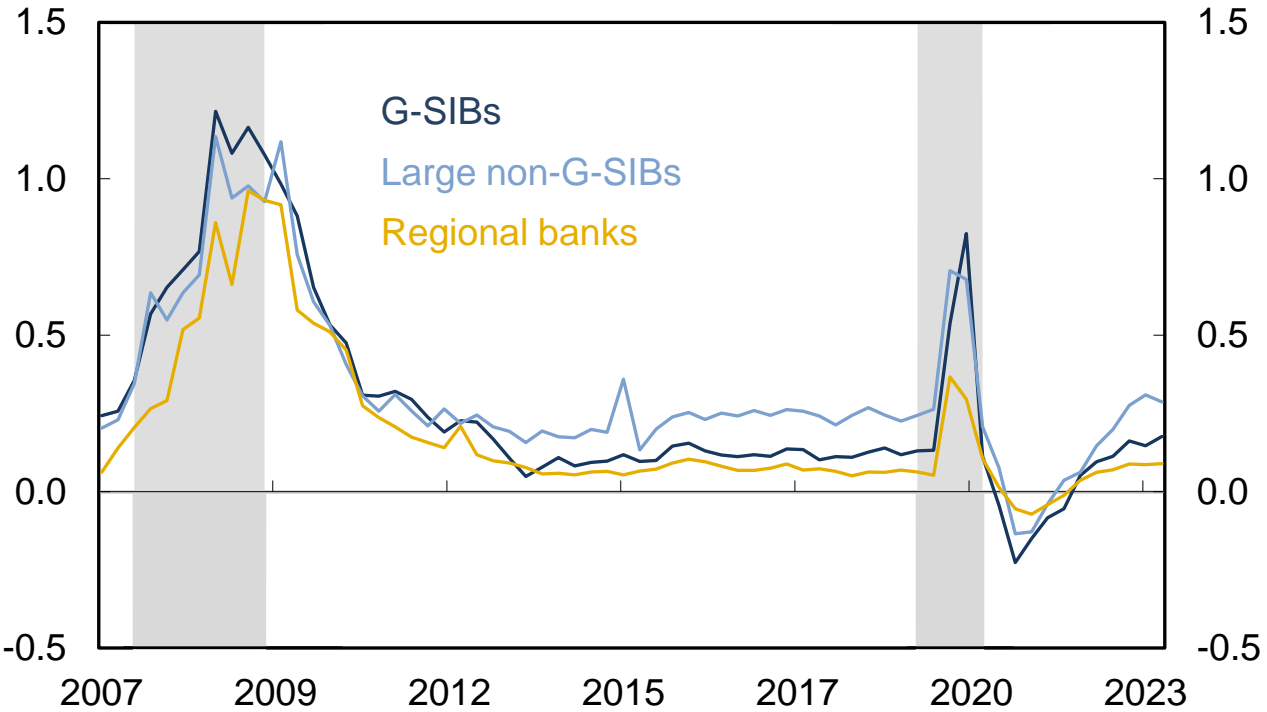
Sources: FR Y-9C, Haver Analytics

3.2.1.1.5 Ratios of Provisions to Total Loans

Percent

As Of: 2023 Q2

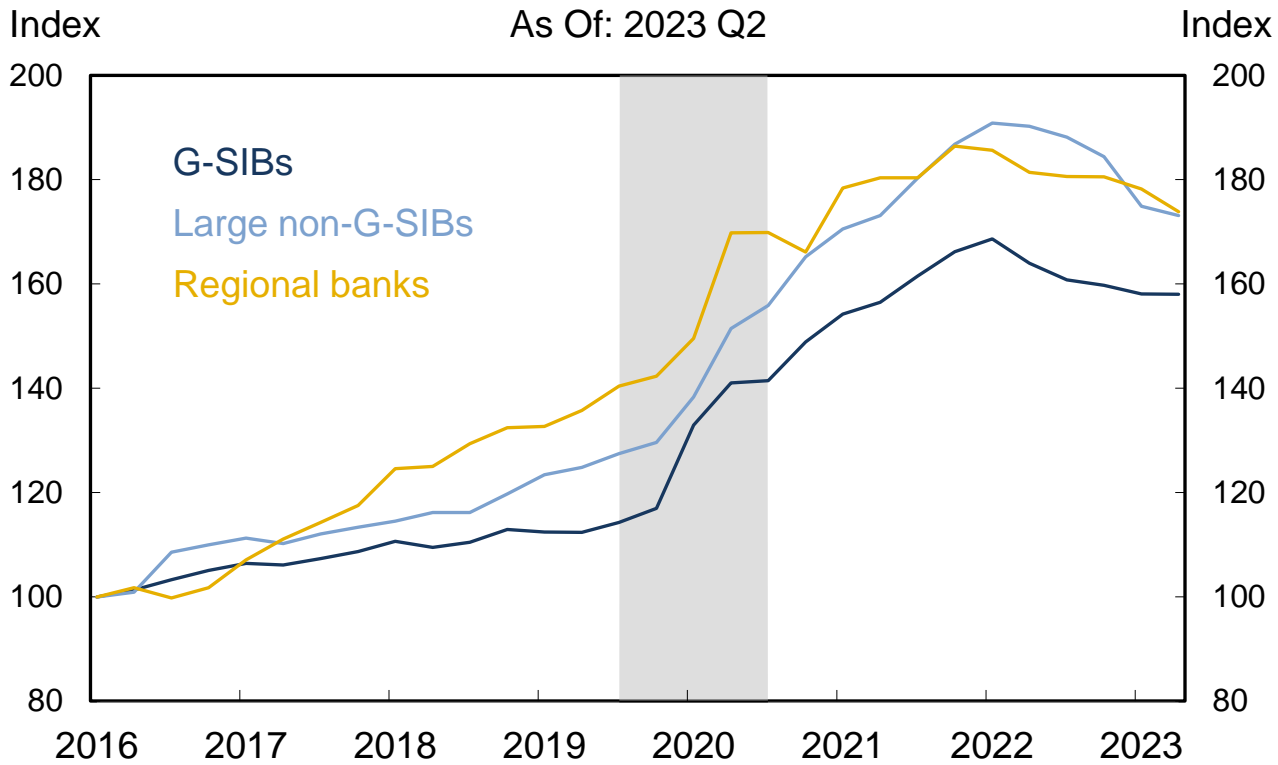
Percent



Note: Gray bars signify NBER recessions.

Sources: FR Y-9C, Haver Analytics

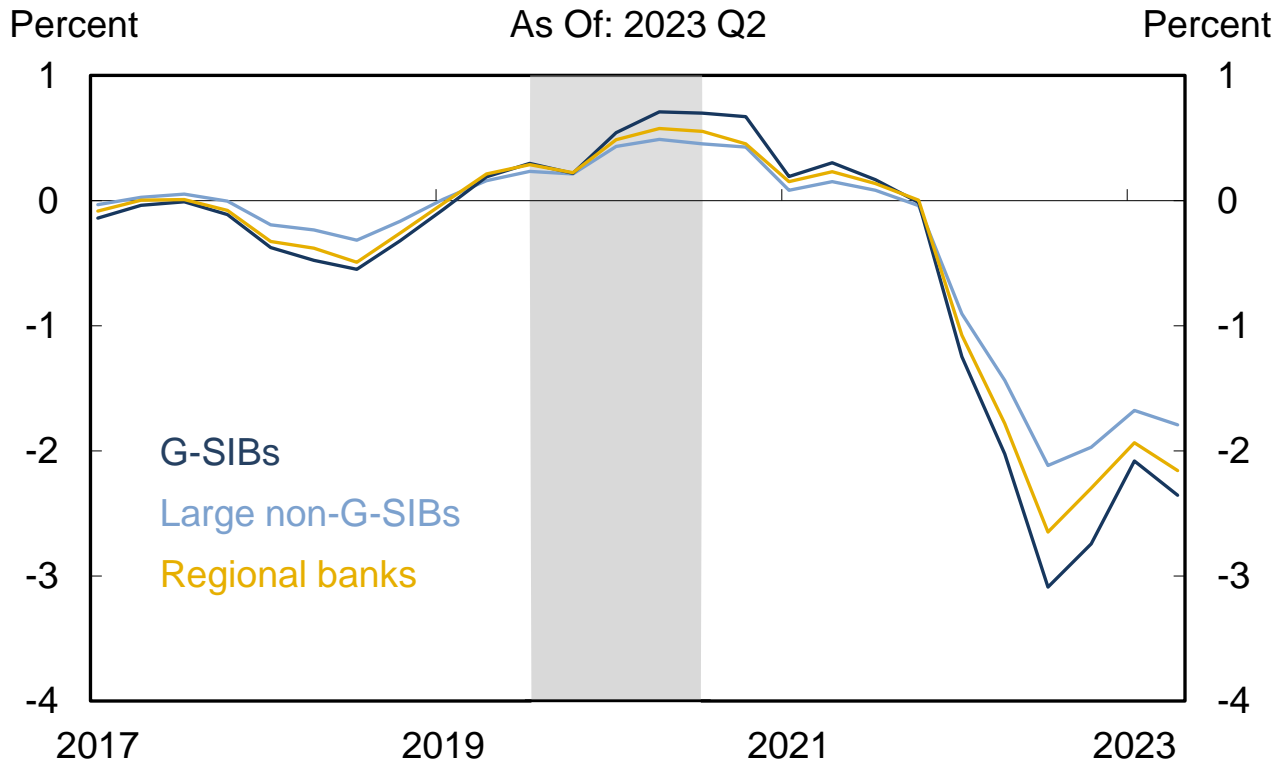
3.2.1.1.6 Total Deposit Growth



Notes: Domestic deposits; indexed to 100 as of Q2 2016. Gray bars signify NBER recessions.

Sources: Call Report, Haver Analytics

3.2.1.2.1 Unrealized Gains (Losses) on AFS and HTM Securities

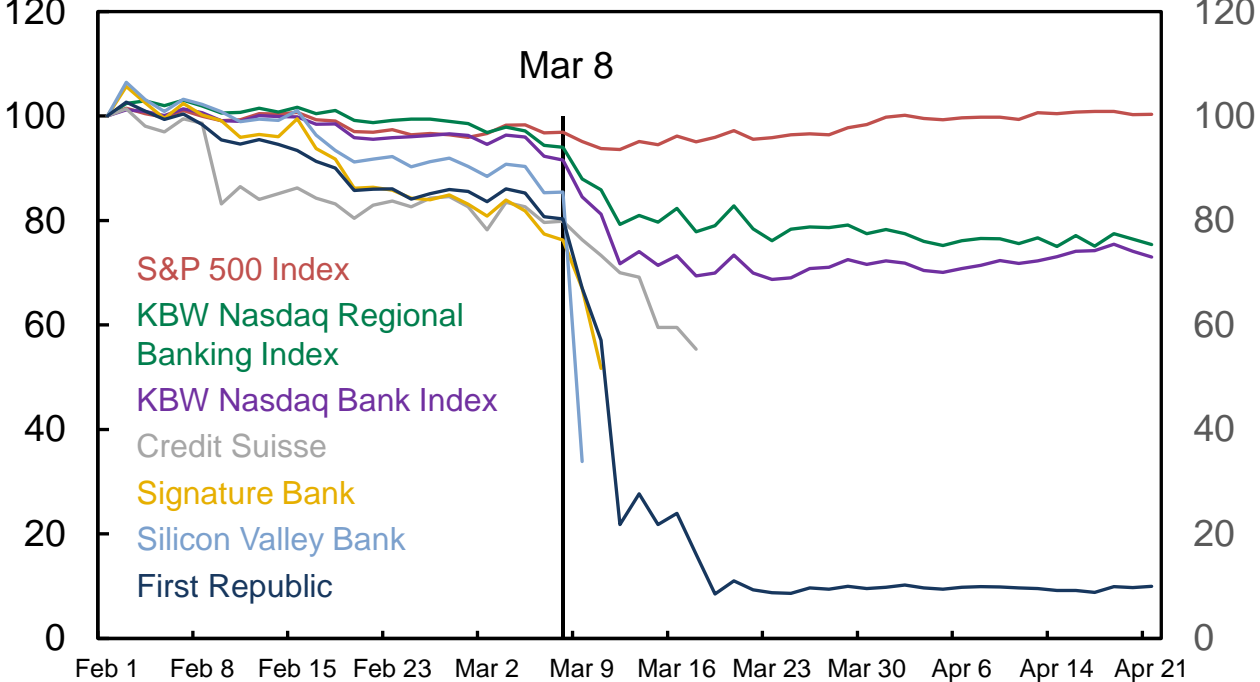


Notes: AFS and HTM are securities designated as available for sale or held to maturity, respectively; values shown as a percent of total assets. Gray bars indicate NBER recessions.

Sources: FR Y-9C, Haver Analytics

C.1 Bank Stock Prices and Stock Indexes

As Of: 21-Apr-2023



Note: Data are indexed daily to 100 as of Feb 1, 2023.

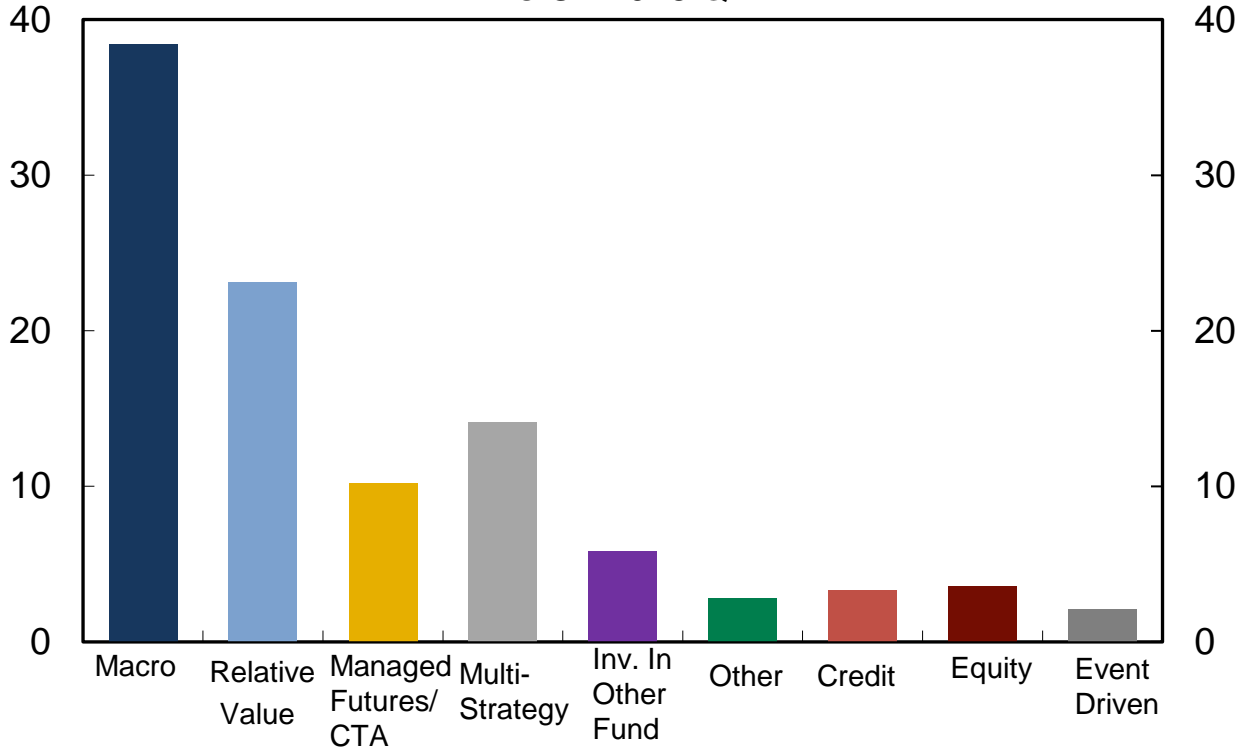
Source: Bloomberg, L.P.

3.2.2.1 Hedge Fund Leverage Ratios: GNE/NAV

Leverage

As Of: 2023 Q1

Leverage



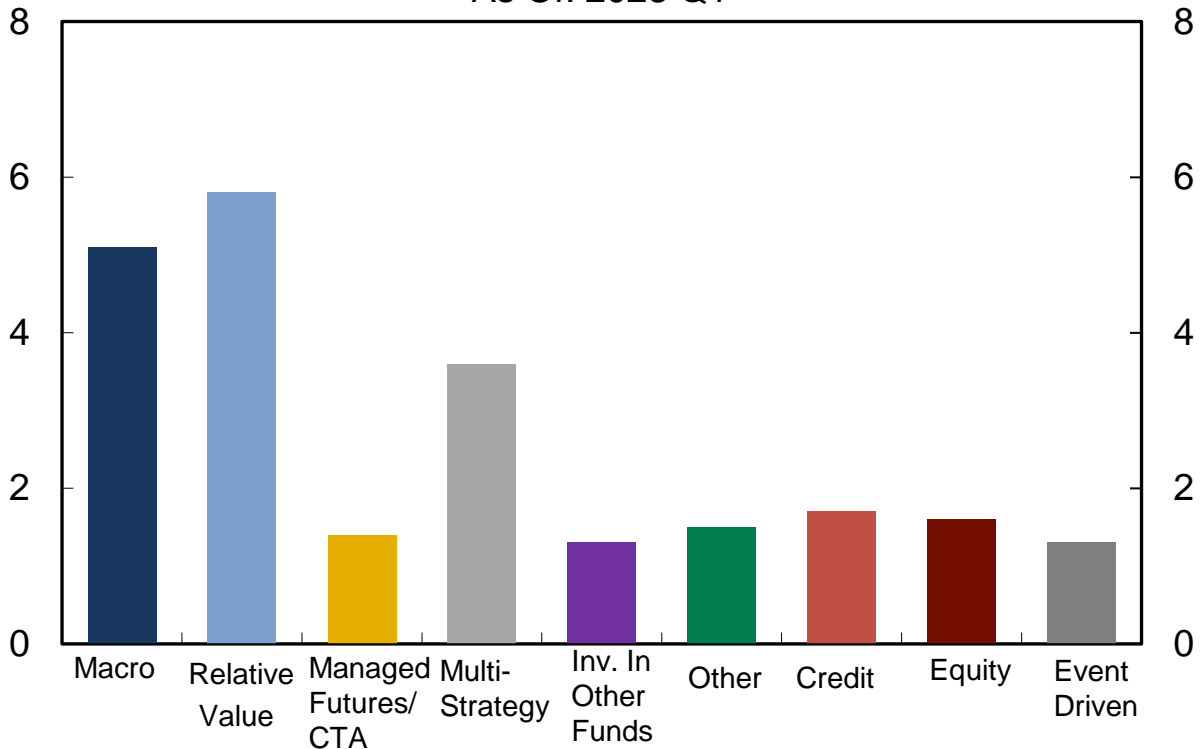
Source: SEC Private Fund Statistics Report

3.2.2.2 Hedge Fund Leverage Ratios: GAV/NAV

Leverage

As Of: 2023 Q1

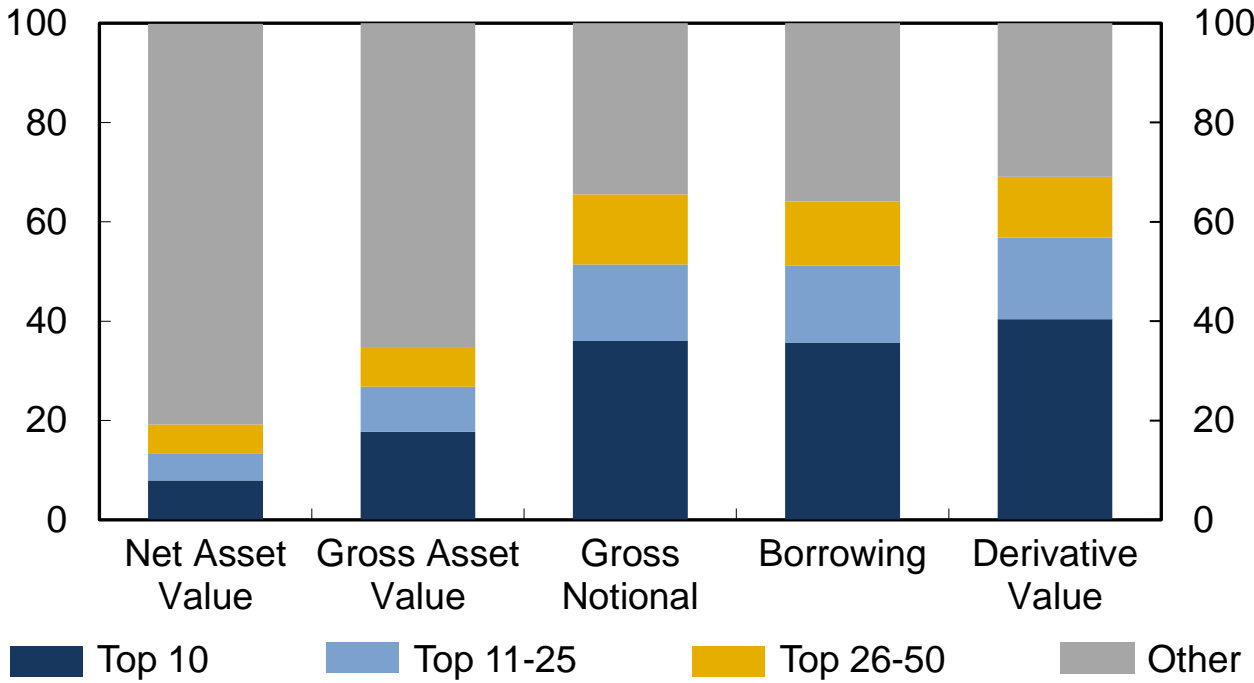
Leverage



Source: SEC Private Fund Statistics Report

3.2.2.3 Hedge Fund Industry Concentration

Percent As Of: 2023 Q1 Percent



Note: Values represent the aggregate industry concentration of top hedge funds sorted by each category.

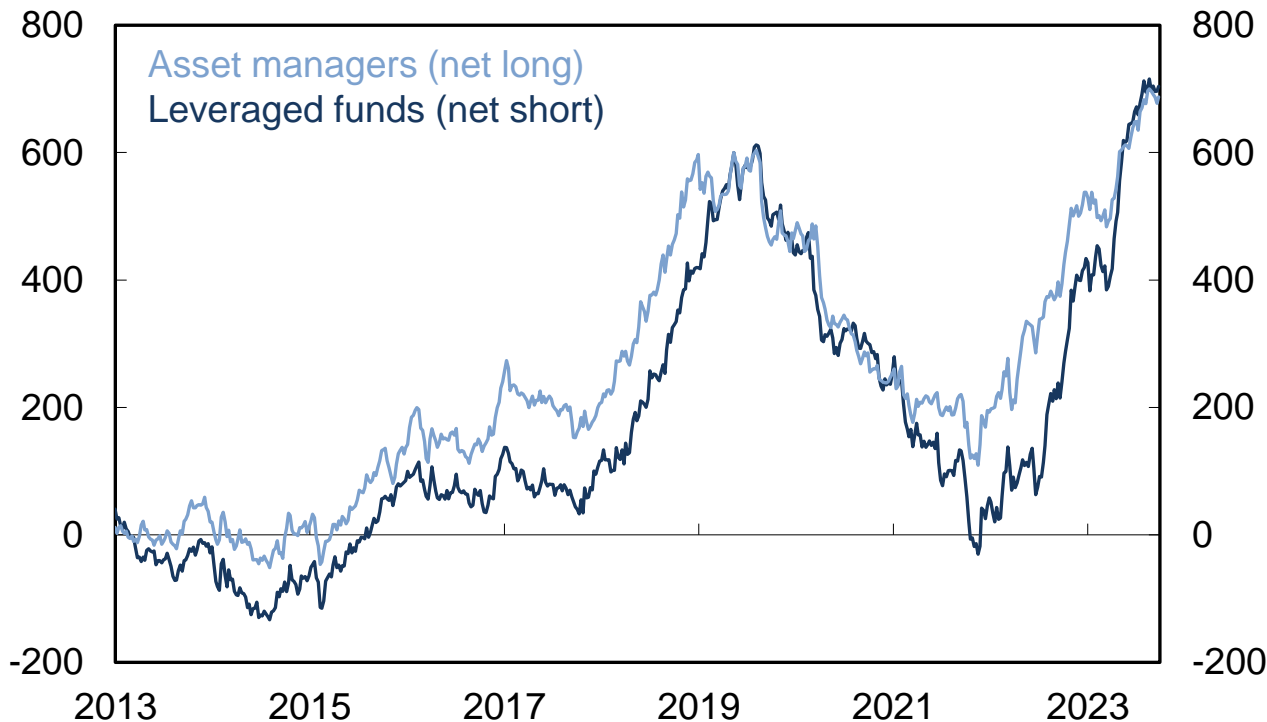
Source: SEC Private Fund Statistics Report

3.2.2.4 Treasury Futures Positioning

Billions of US\$

As Of: 26-Sep-2023

Billions of US\$



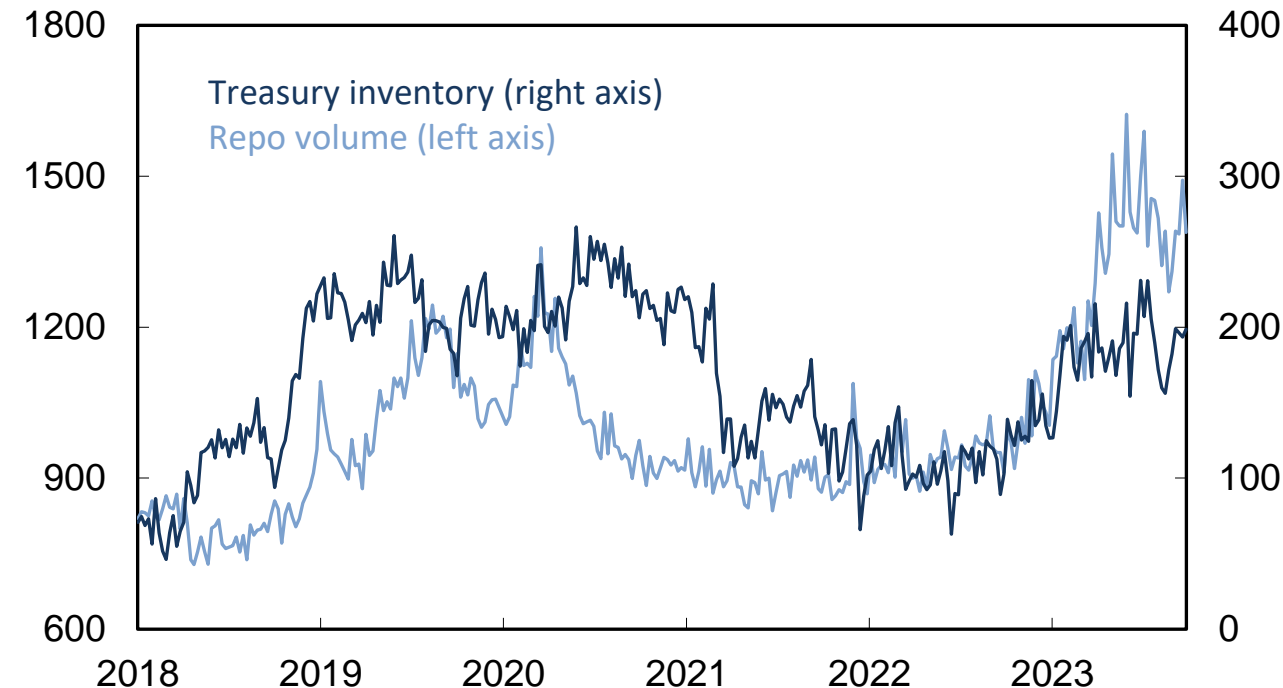
Sources: CFTC, Haver Analytics

3.2.2.5 Repo Volumes & Primary Dealer Treasury Inventory

Billions of US\$

As Of: 27-Sep-2023

Billions of US\$



Notes: Overnight Treasury repo volume includes published volumes for SOFR; Treasury inventory excludes FRNs and TIPs.

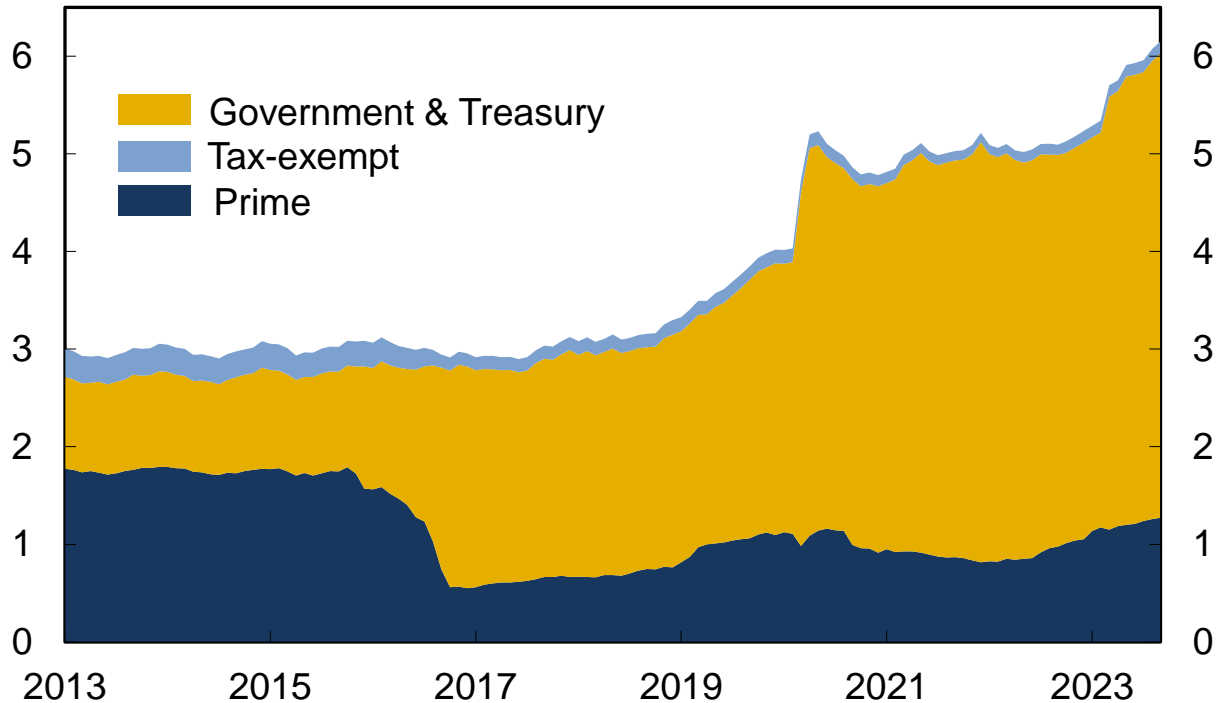
Sources: Federal Reserve Bank of New York, Haver Analytics

3.2.2.6 MMFs Total Net Assets by Fund Type

Trillions of US\$

As Of: Sep-2023

Trillions of US\$



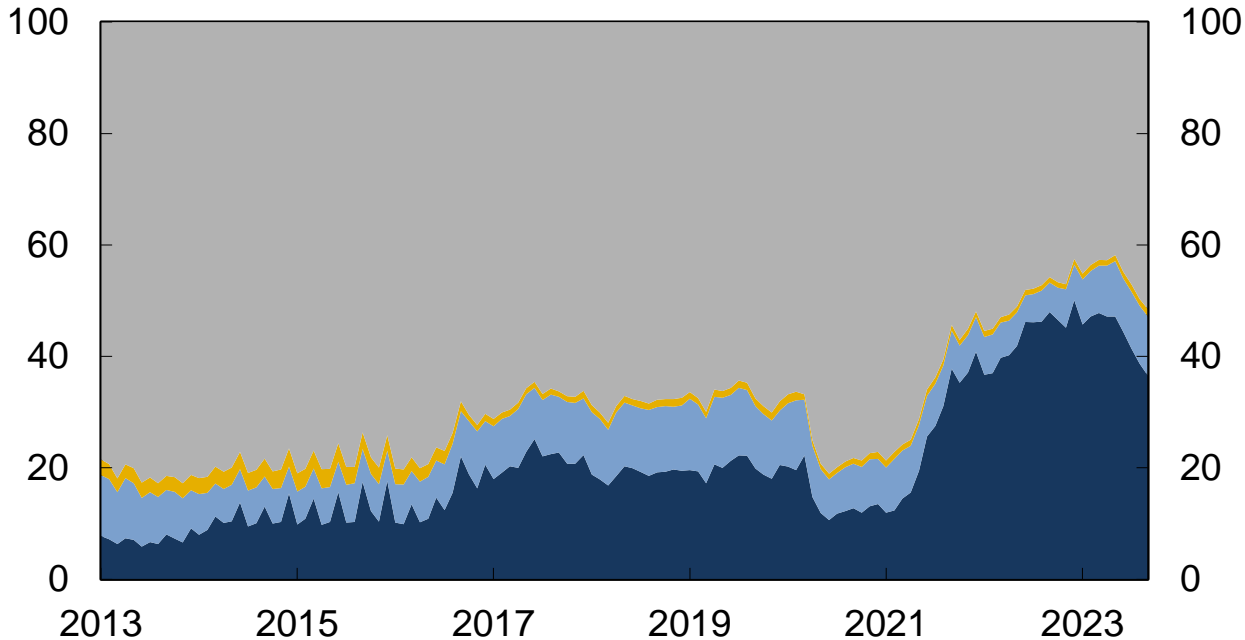
Sources: SEC Form N-MFP, OFR Analysis

3.2.2.7 MMF Asset Composition

Percent

As Of: Sep-2023

Percent



Government & Agency repo

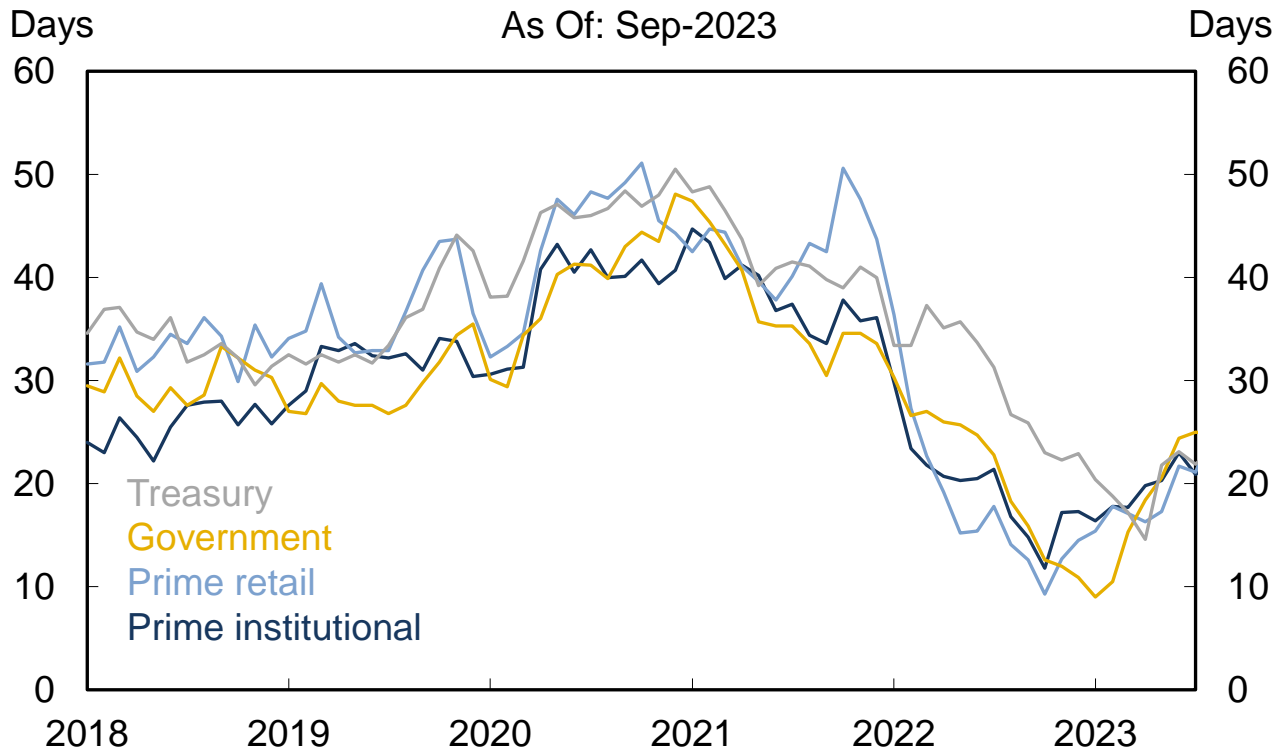
Other non-repo investments

Treasury repo

Other repo

Sources: SEC Form N-MFP, OFR Analysis

3.2.2.8 MMF Weighted Average Maturity



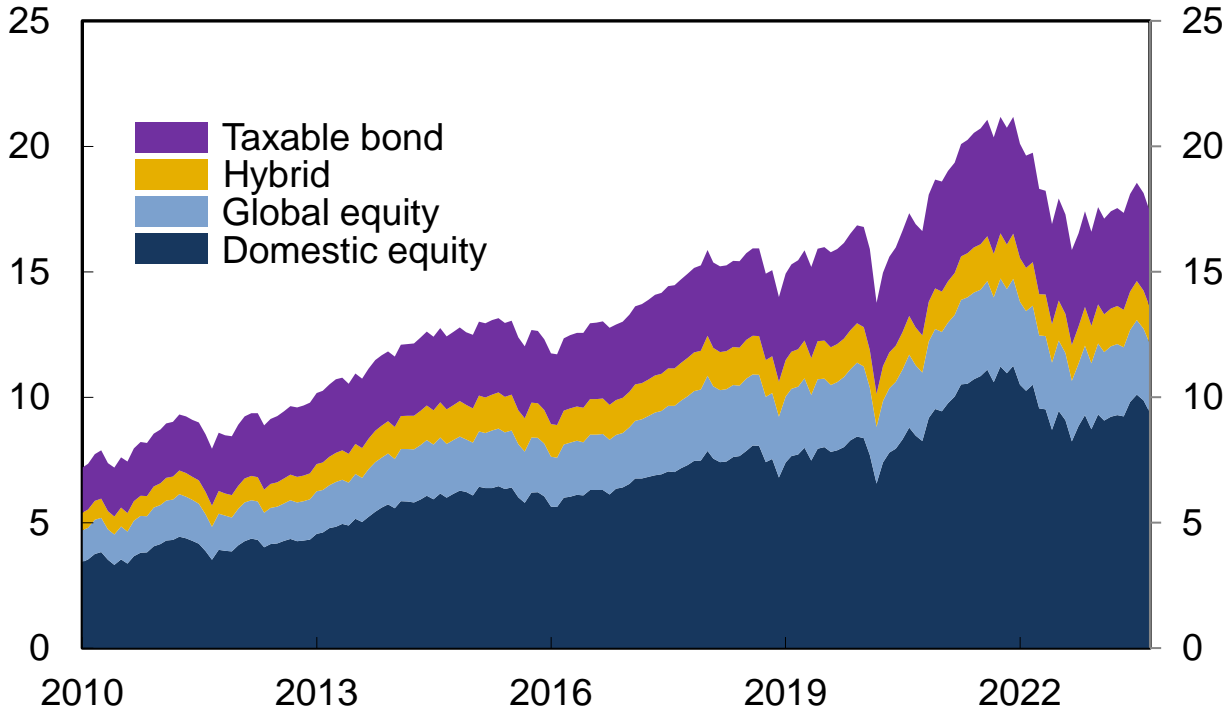
Sources: SEC Form N-MFP, OFR Analysis

3.2.2.9 Mutual Fund AUM

Trillions of US\$

As Of: Sep-2023

Trillions of US\$



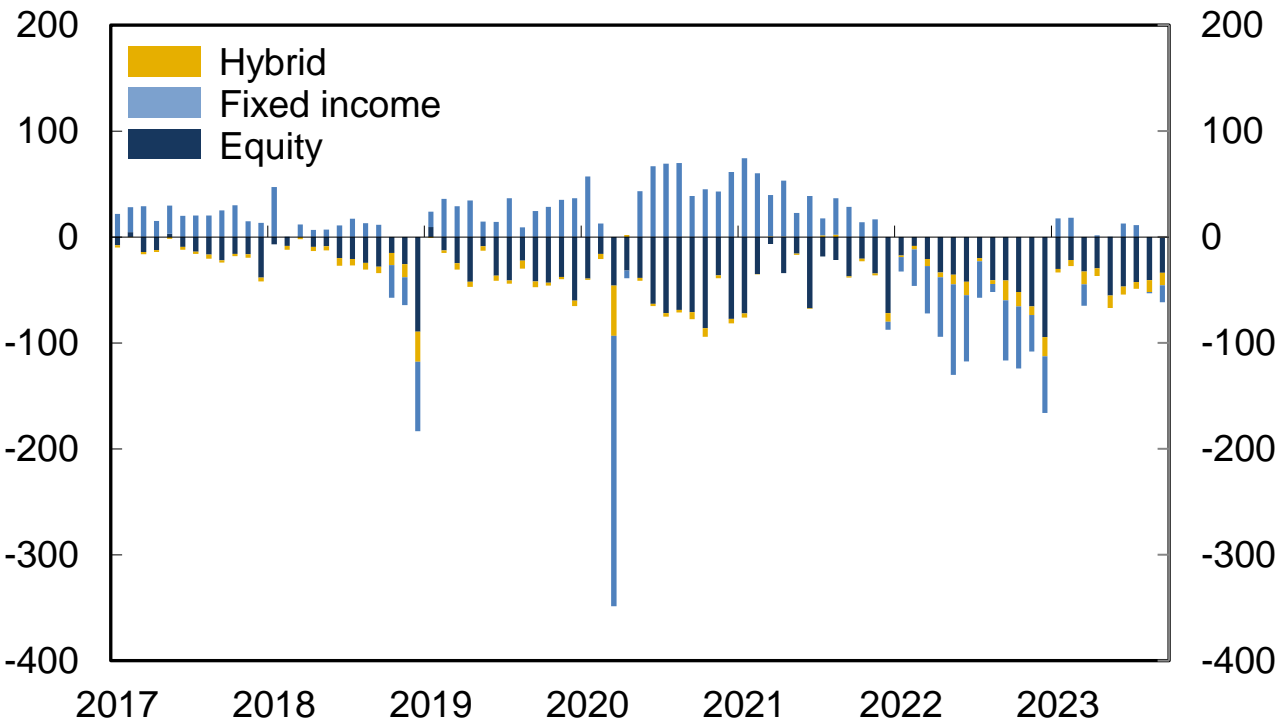
Sources: ICI, Haver Analytics

3.2.2.10 Monthly Mutual Fund Flows

Billions of US\$

As Of: Sep-2023

Billions of US\$



Note: Net fund flows.

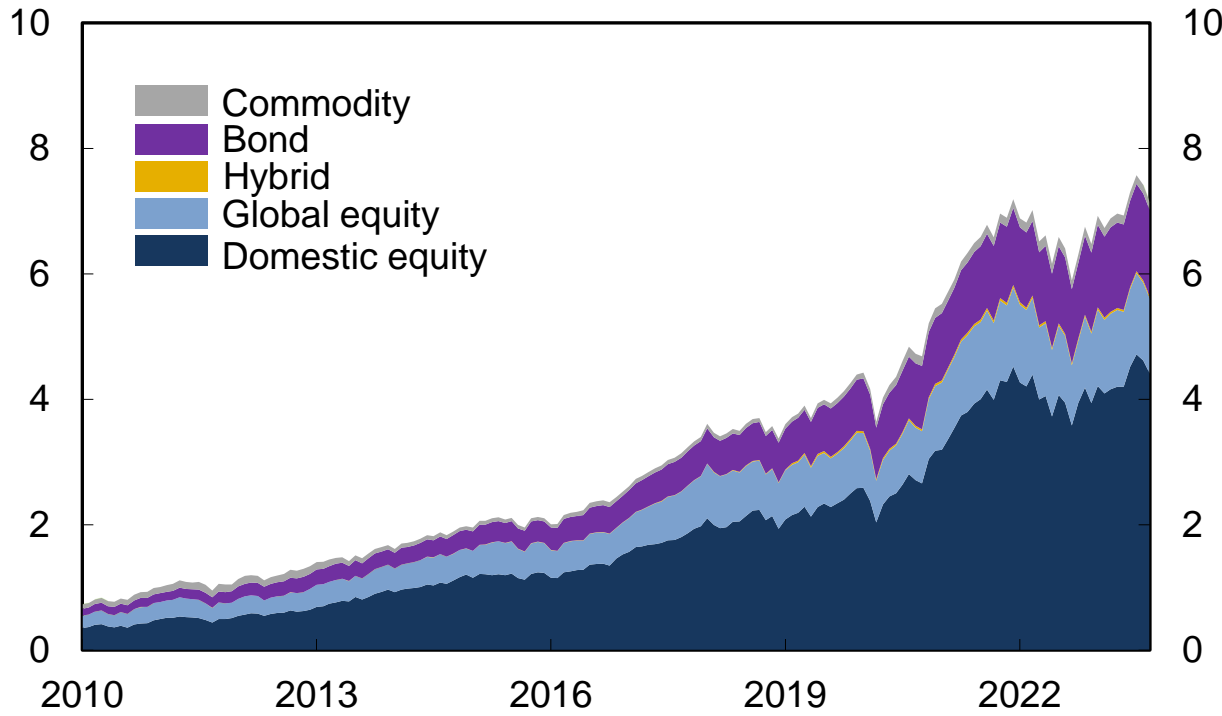
Sources: ICI, Haver Analytics

3.2.2.11 ETF AUM

Trillions of US\$

As Of: Sep-2023

Trillions of US\$



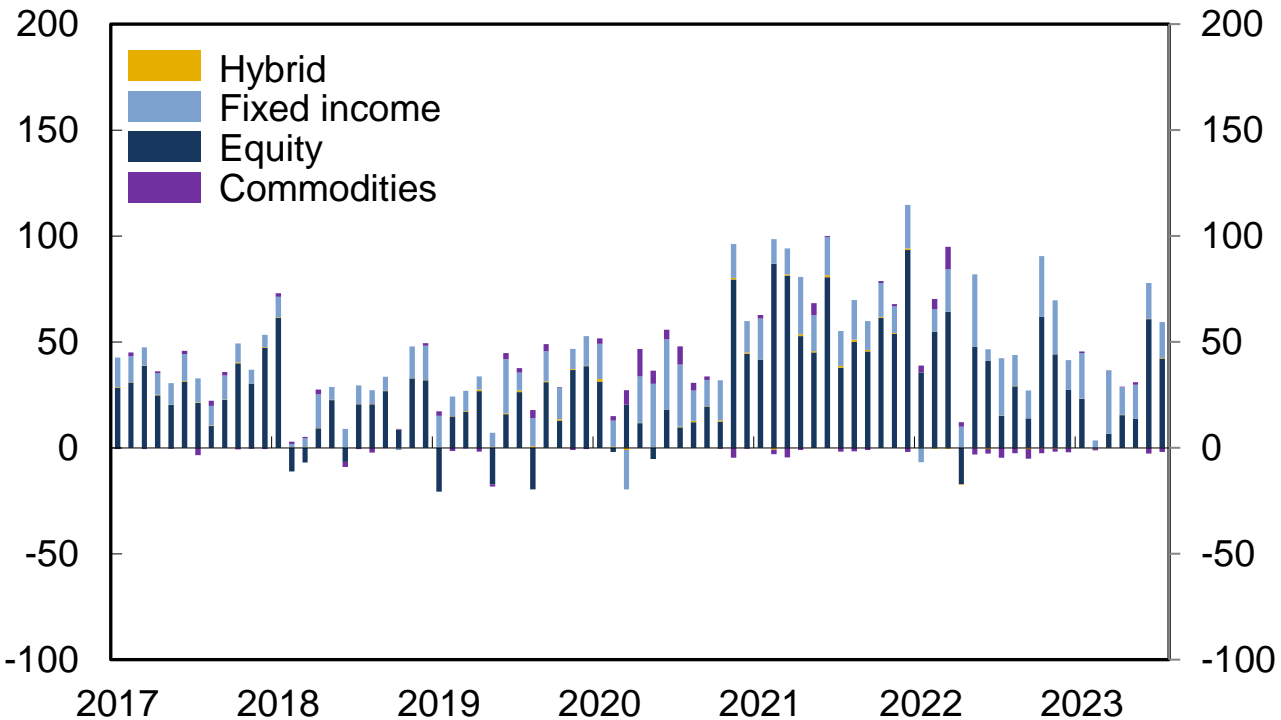
Sources: ICI, Haver Analytics

3.2.2.12 Monthly ETF Fund Flows

Billions of US\$

As Of: Sep-2023

Billions of US\$



Note: Net fund flows

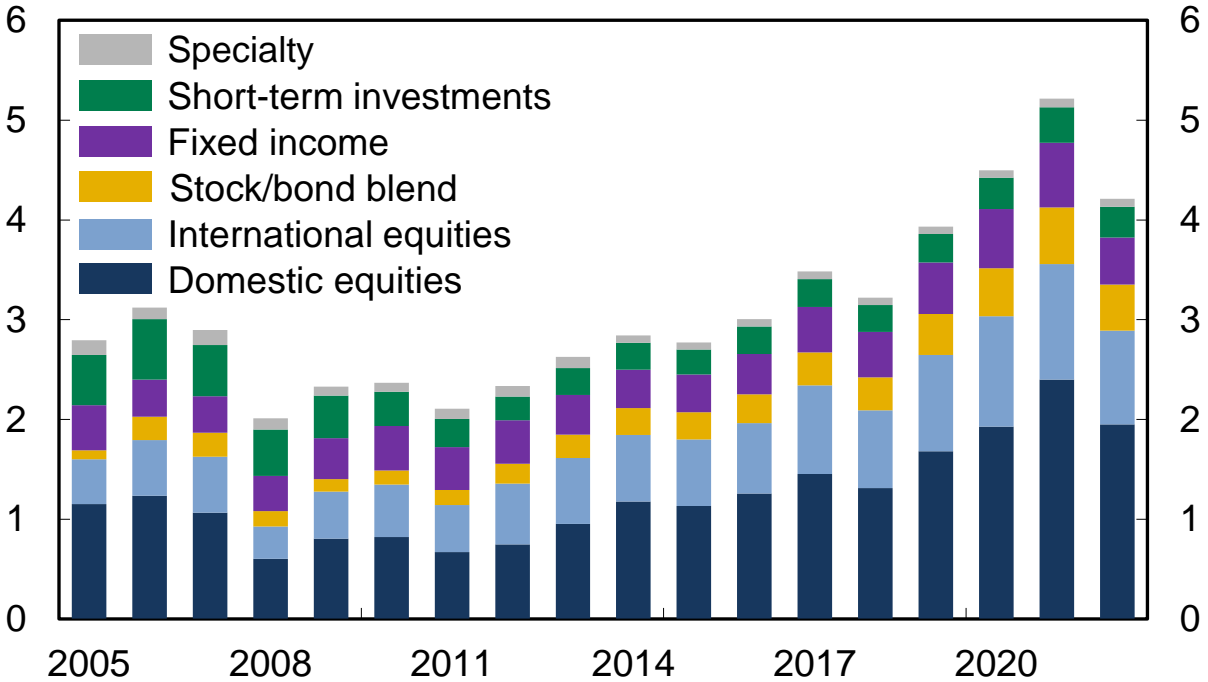
Sources: ICI, Haver Analytics

3.2.2.13 Collective Investment Funds AUM: by Sector

Trillions of US\$

As Of: 2022

Trillions of US\$



Note: Limited to funds managed by institutions reporting CIF and CIT assets on Call Report Form RC-T.

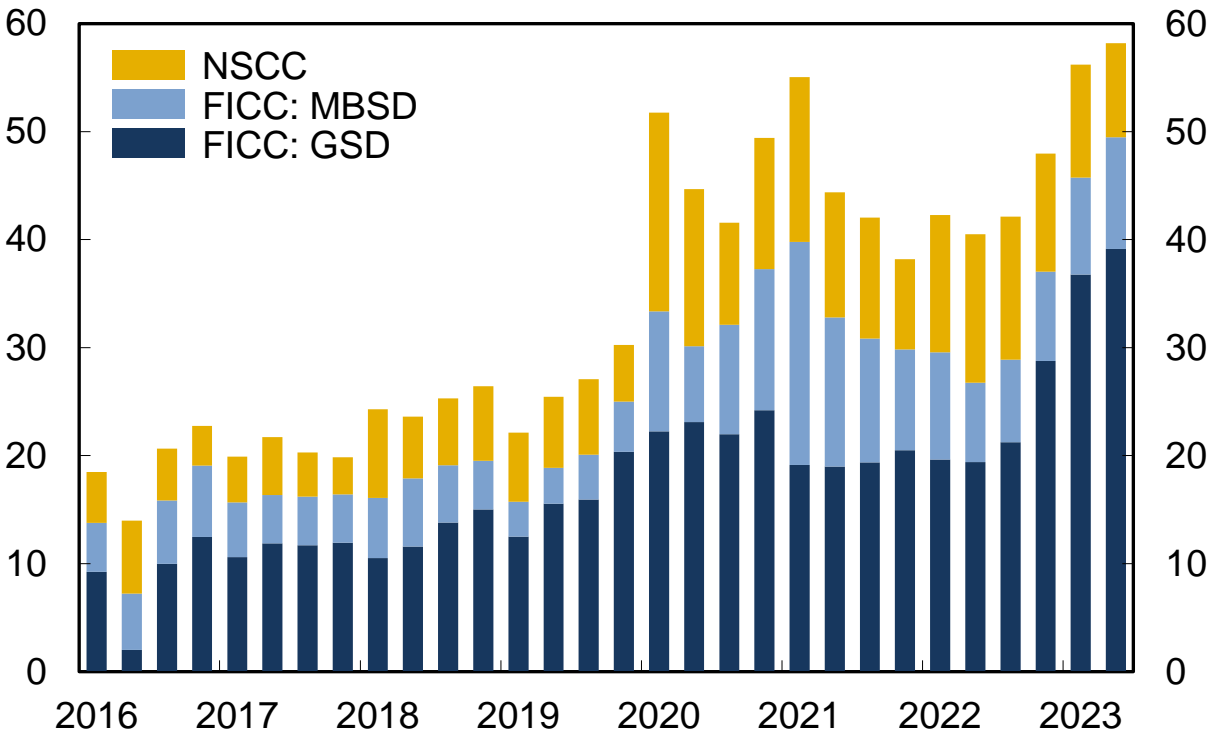
Source: FFIEC Call Report

3.2.3.1 DTCC Clearing Fund Requirements

Billions of US\$

As Of: 2023 Q2

Billions of US\$



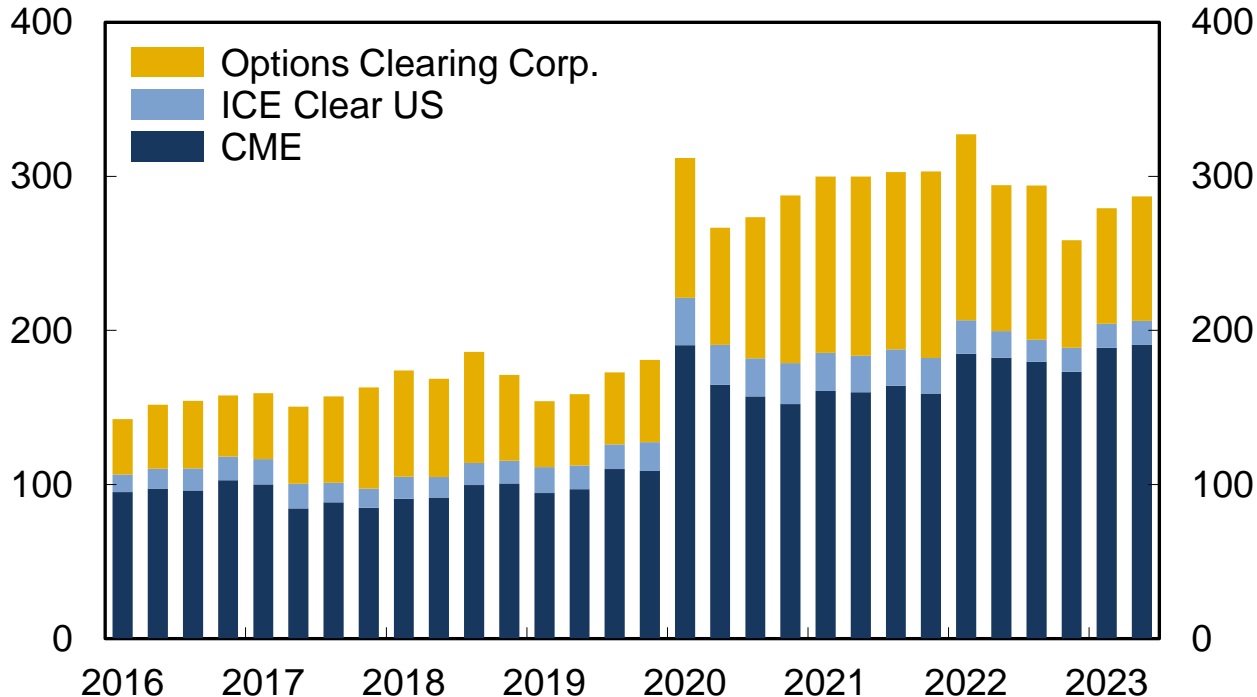
Sources: PFMI Quantitative Disclosures, Clarus Financial Technology

3.2.3.2 Initial Margin: U.S. Exchange-Traded Derivatives

Billions of US\$

As Of: 2023 Q2

Billions of US\$



Notes: Initial margin required as reported in quantitative disclosures; includes house and client accounts.

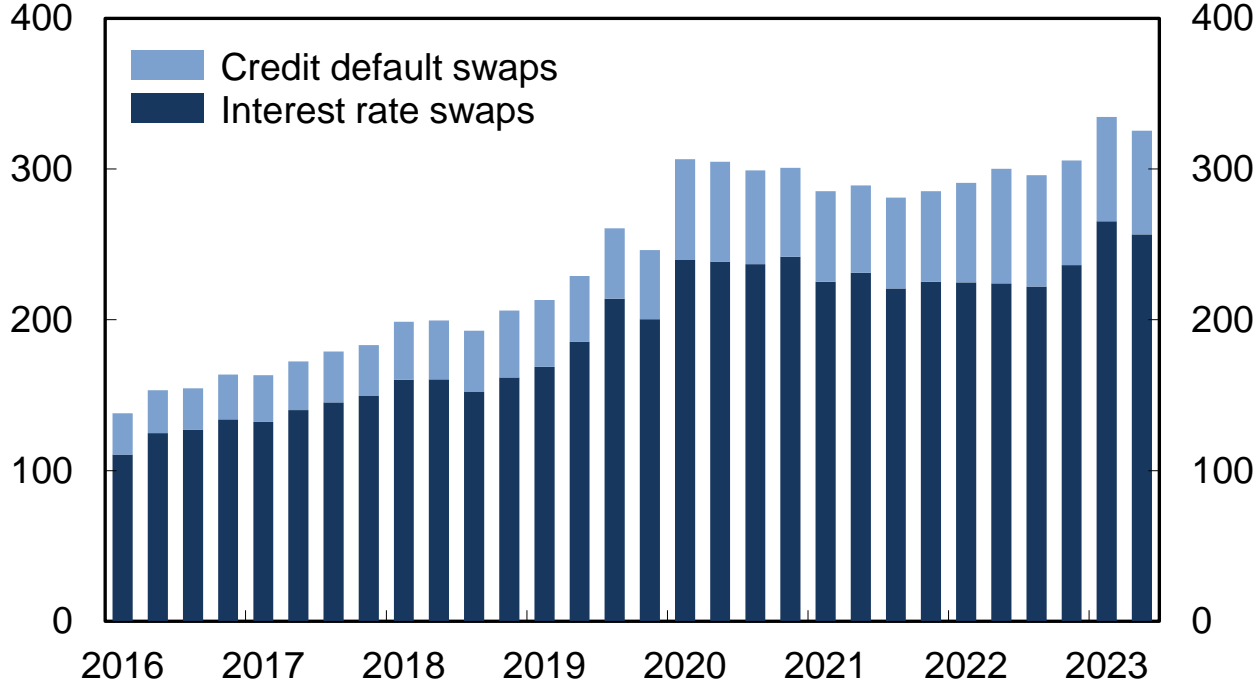
Sources: PFMI Quantitative Disclosures, Clarus Financial Technology

3.2.3.3 Initial Margin: Centrally Cleared OTC Derivatives

Billions of US\$

As Of: 2023 Q2

Billions of US\$



Notes: Initial margin required as reported in quantitative disclosures; includes house and client accounts. Interest rate swaps margin includes LCH Ltd. and CME. CDS margin includes CME, ICC, ICEU, and LCH SA. CME and ICEU ceased clearing CDS in March 2018 and October 2023, respectively.

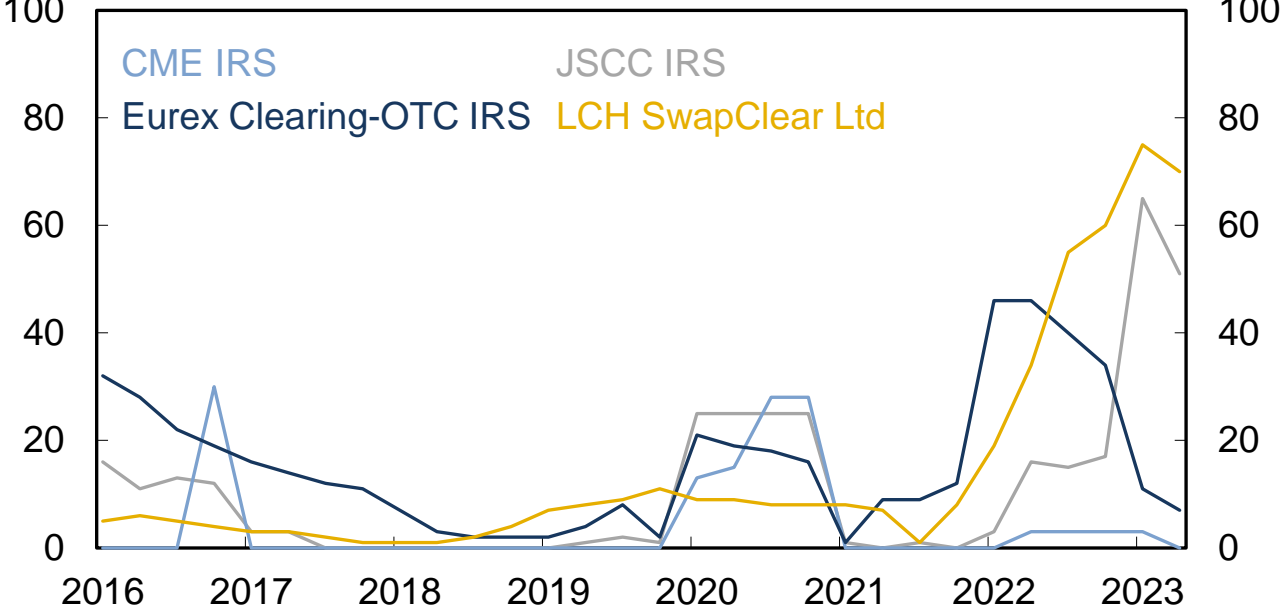
Sources: PFMI Quantitative Disclosures, Clarus Financial Technology

3.2.3.4 Initial Margin Account Daily Breach Likelihood at IRS Central Counterparties

Percent
100

As Of: 2023 Q2

Percent
100



Notes: Eurex is a Germany-based derivatives clearing organization registered with the CFTC. JSCC is a Japan-based clearinghouse exempt from registration with the CFTC as a derivatives clearing organization.

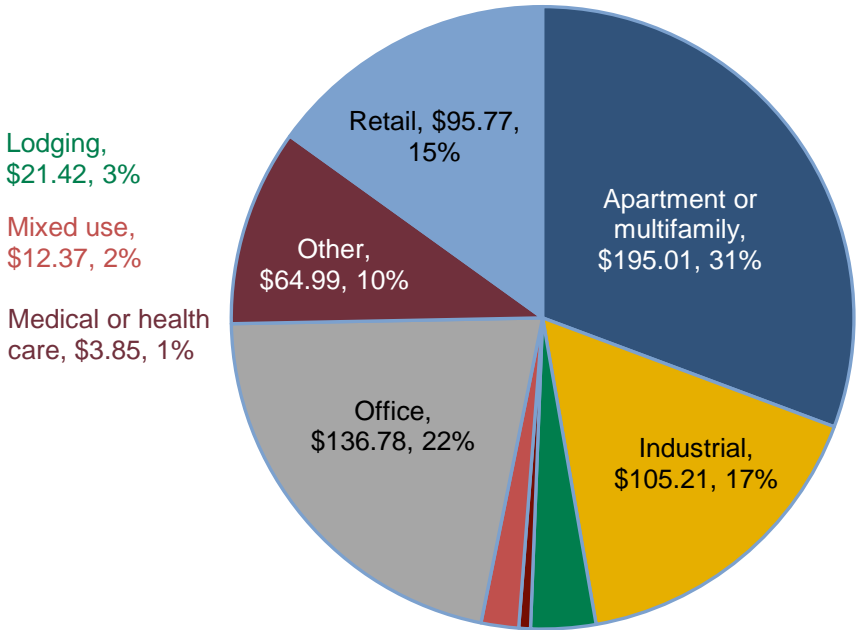
Sources: PFMI Quantitative Disclosures, Clarus Financial Technology

3.2.4.1 Insurance Sector CRE Portfolio By Property Type

Billions of US\$

As Of: 2022

Billions of US\$



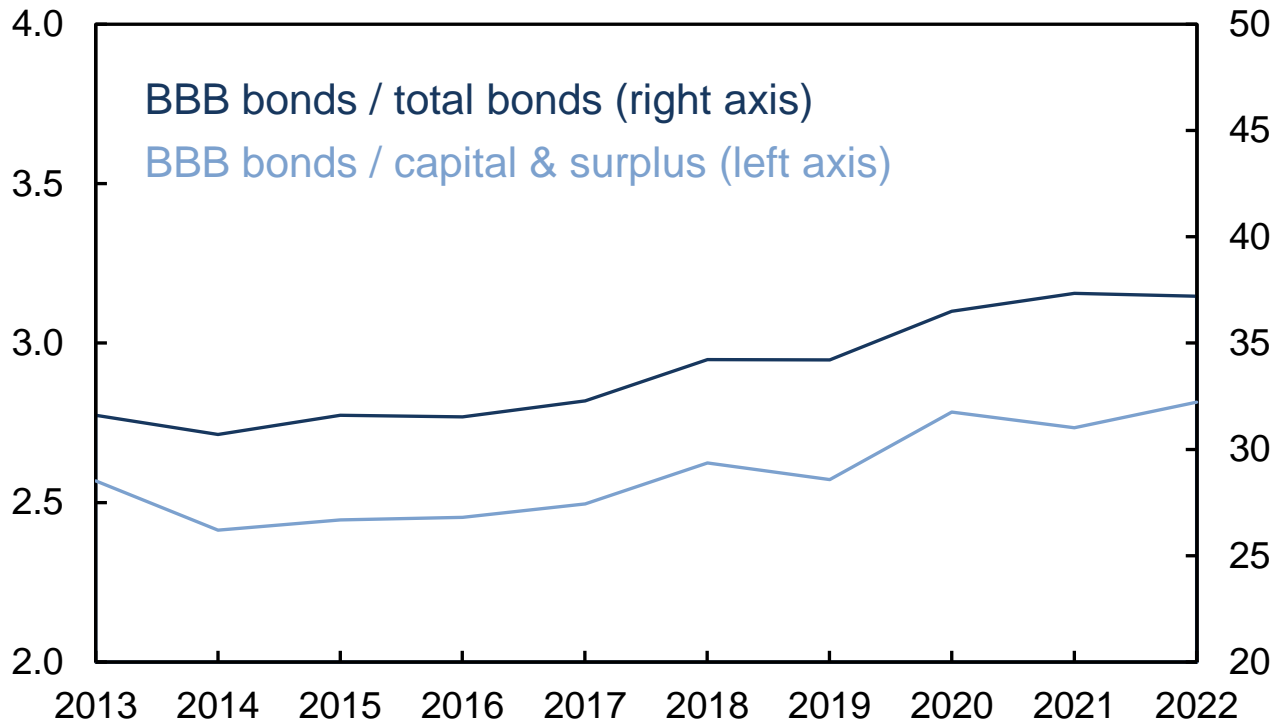
Source: S&P Capital IQ

3.2.4.2 L&H Insurance Sector BBB-Rated Bond Exposure

Multiple

As Of: 2022

Percent



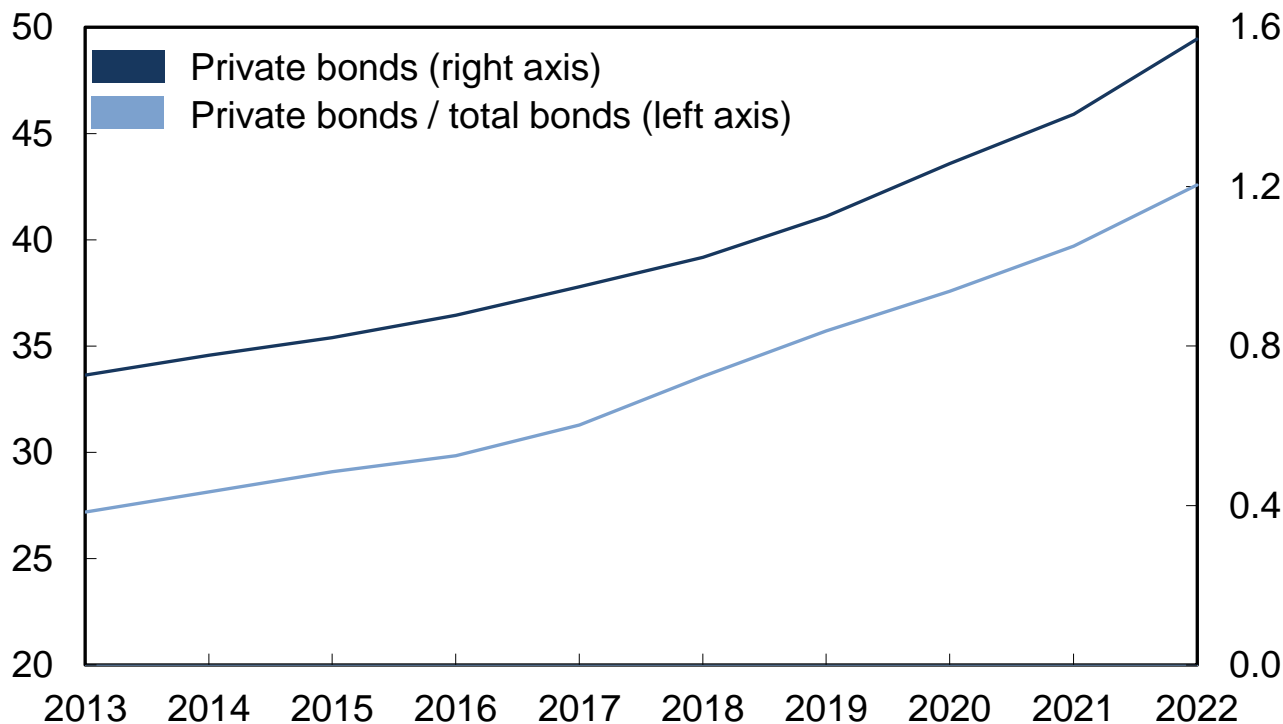
Source: S&P Capital IQ

3.2.4.3 L&H Insurance Sector Private Credit Exposure

Percent

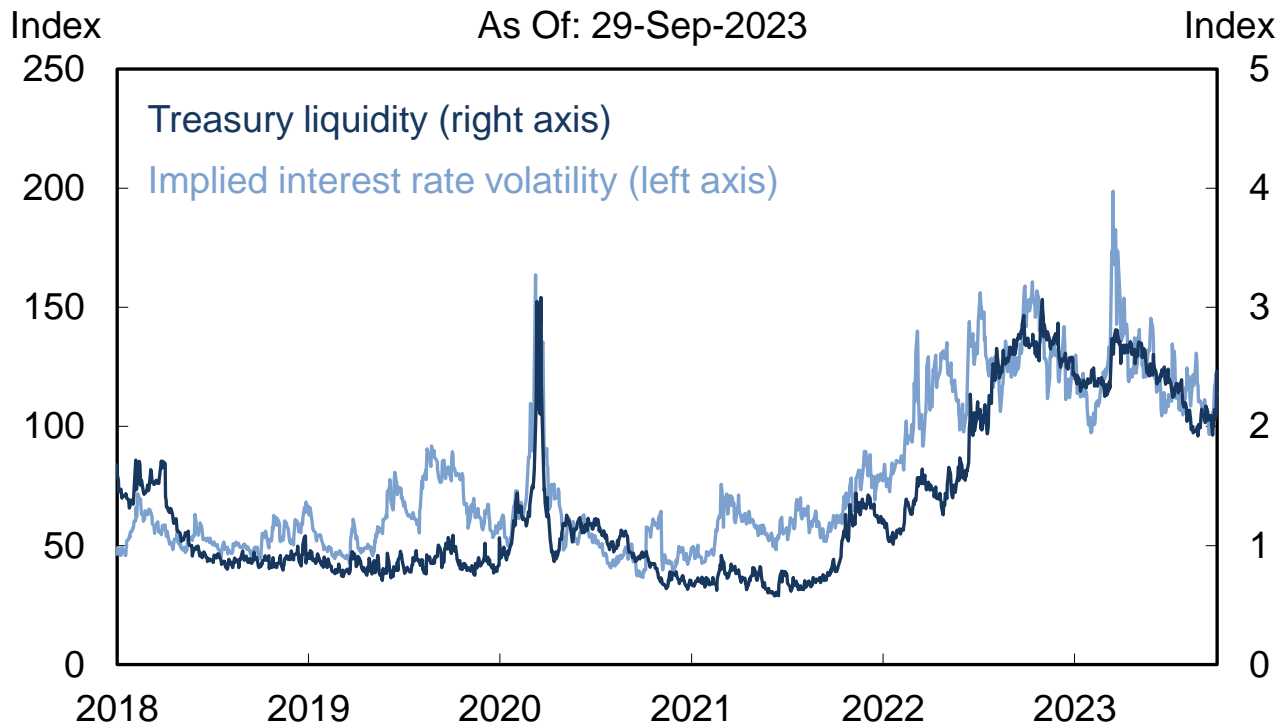
As Of: 2022

Billions of US\$



Sources: S&P Capital IQ

3.3.1.1 Interest Rate Volatility & Treasury Liquidity Indexes



Notes: Implied interest rate volatility = MOVE Index; Treasury liquidity = Bloomberg US Govt Securities Liquidity Index.

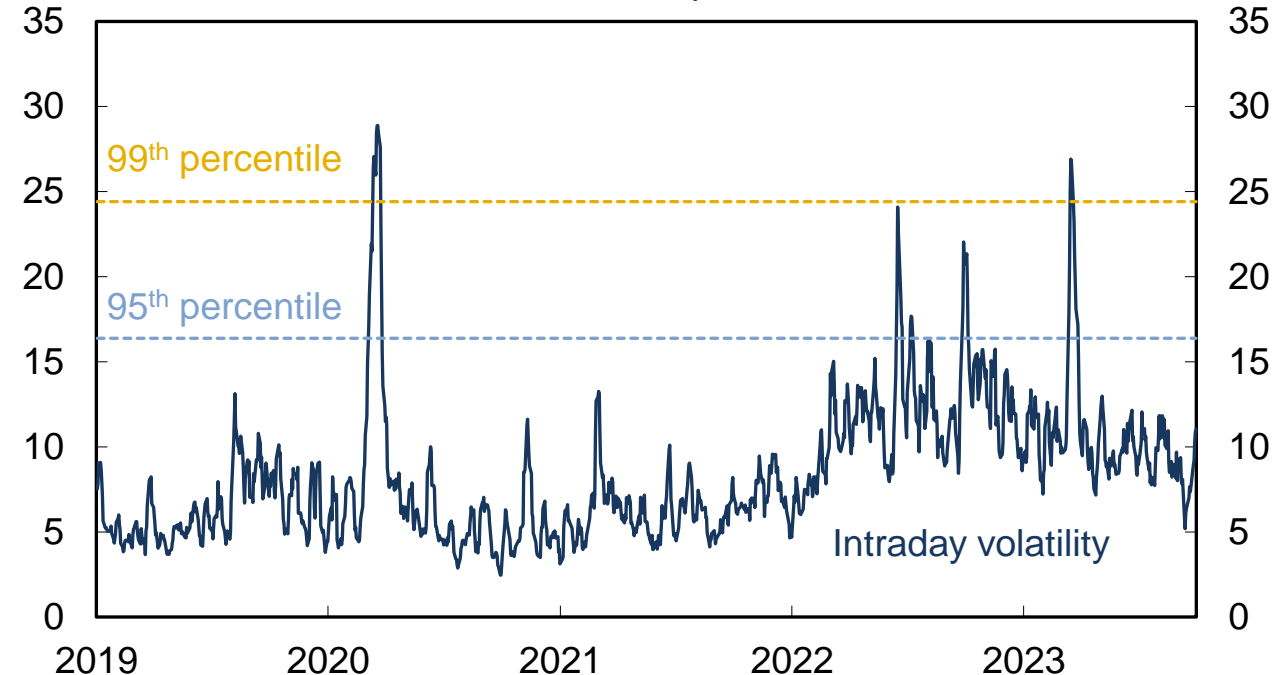
Source: Bloomberg, L.P.

3.3.1.2 Intraday Volatility for 10-Year Treasury Yields

Basis Points

As Of: 29-Sep-2023

Basis Points



Notes: 5-day moving average. Intraday volatility calculated as daily high yield minus daily low yield on 10-year Treasury notes. Percentiles based on January 2005–September 2023.

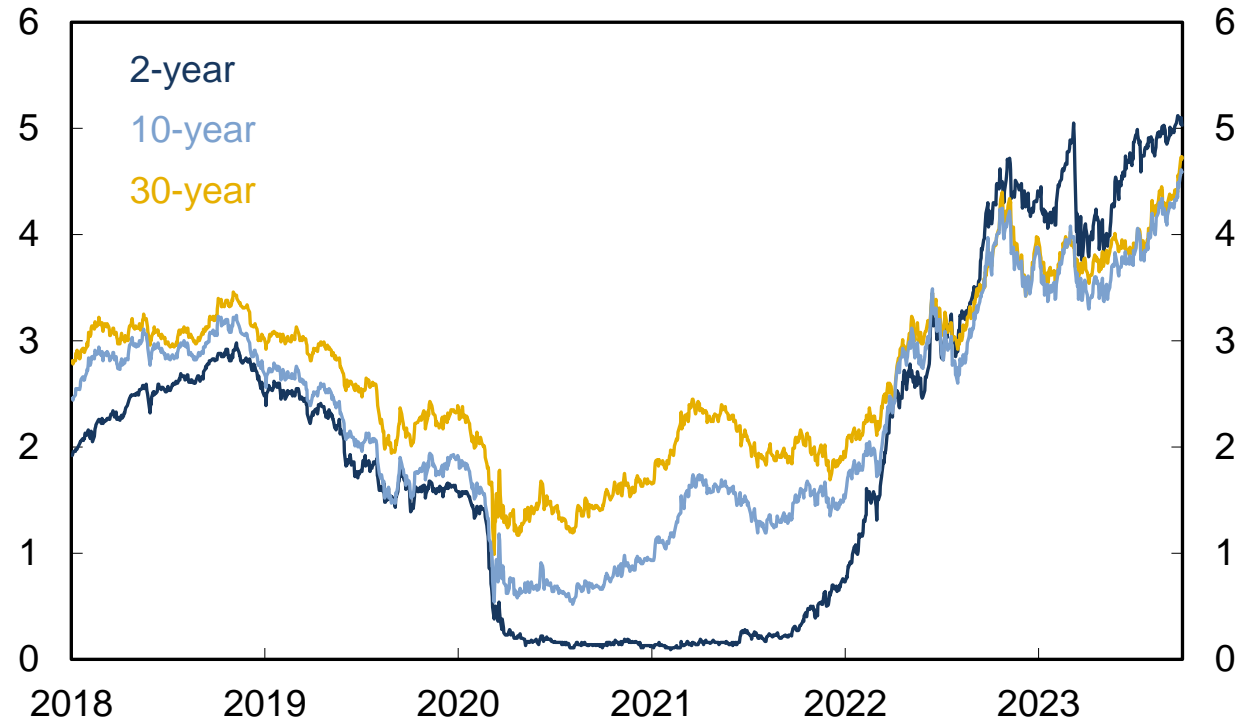
Source: Bloomberg, L.P.

3.3.1.3 U.S. Treasury Yields

Percent

As Of: 29-Sep-2023

Percent



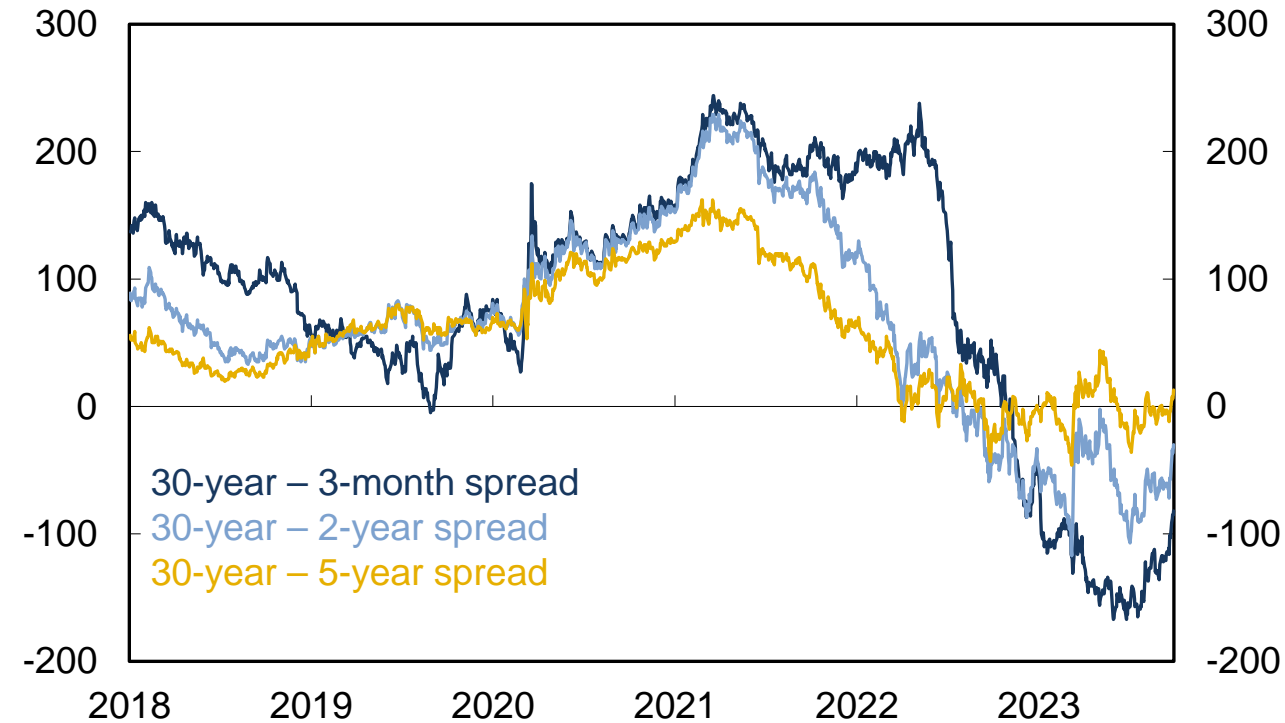
Source: U.S. Department of the Treasury

3.3.1.4 U.S. Treasury Yield Curve Spreads

Basis Points

As Of: 29-Sep-2023

Basis Points

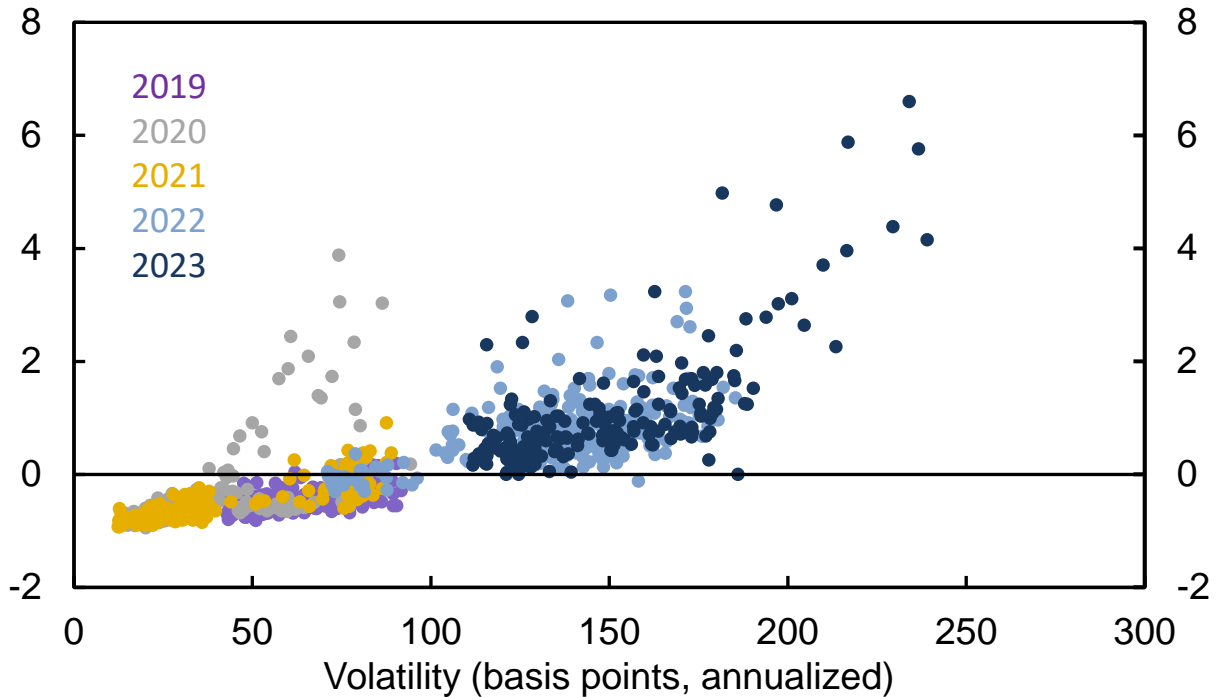


30-year - 3-month spread
30-year - 2-year spread
30-year - 5-year spread

Source: U.S. Department of the Treasury

D.1 U.S. Treasury (UST) Liquidity Index vs. Implied Volatility: 2-Year Tenor

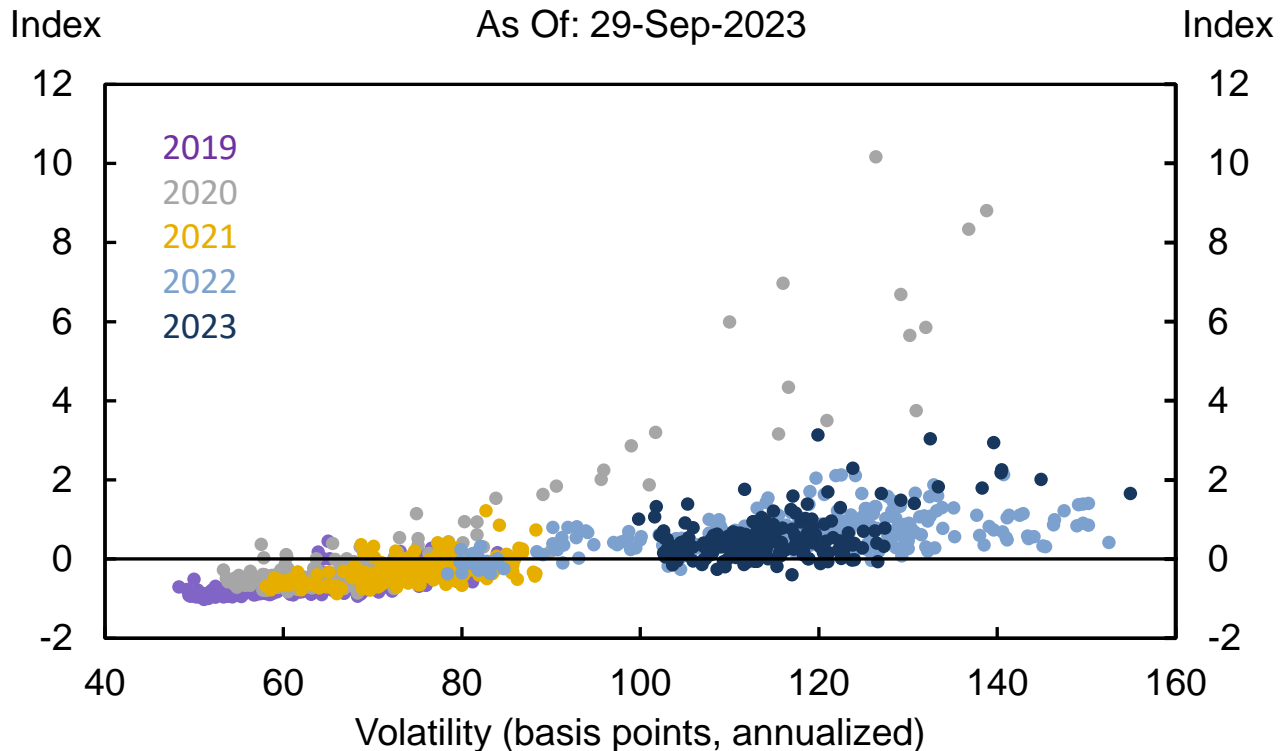
Index As Of: 29-Sep-2023 Index



Notes: UST Liquidity Index is based on the average of 3-year rolling z-scores for bid-ask spreads, depth, and price impact; volatility is implied by 3-month into 2-year swaptions.

Sources: U.S. Department of Treasury, Bloomberg L.P.

D.2 U.S. Treasury (UST) Liquidity Index vs. Implied Volatility: 10-Year Tenor

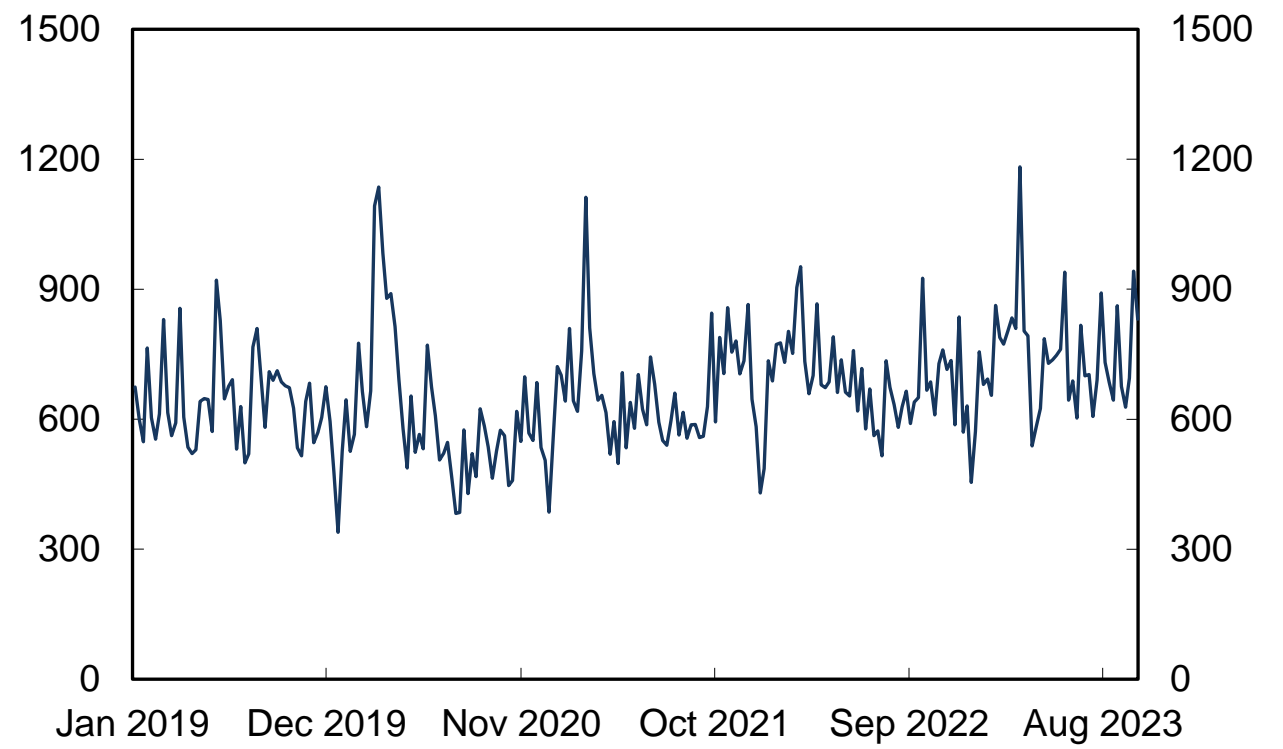


Notes: UST Liquidity Index is based on the average of 3-year rolling z-scores for bid-ask spreads, depth, and price impact; volatility is implied by 3-month into 10-year swaptions.

Sources: U.S. Department of Treasury, Bloomberg L.P.

D.3 Total TRACE U.S. Treasury Average Daily Volume by Week

Billions of US\$ As Of: 30-Sep-2023 Billions of US\$



Source: FINRA

D.4 Share of Participant Activity in the Interdealer Electronic Market

Percent

As Of: 29-Sep-2023

Percent

100

100

80

80

60

60

40

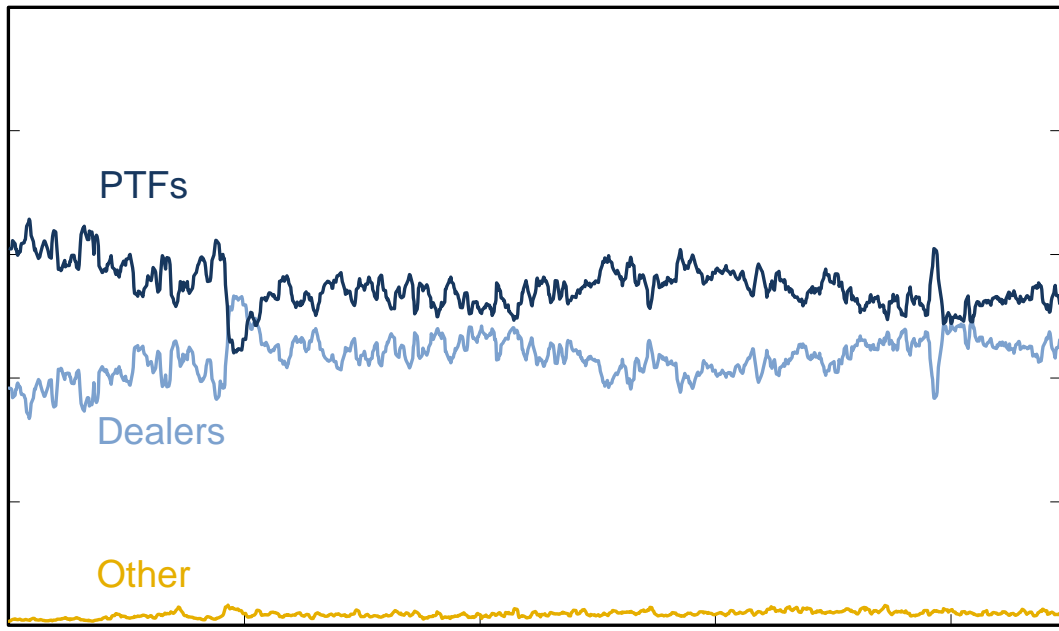
40

20

20

0

0



Apr 2019

Apr 2020

Apr 2021

Apr 2022

Apr 2023

PTFs

Dealers

Other

Note: Activity based on TRACE U.S. Treasury interdealer electronic market volume over the last five days.

Source: FINRA

Slides and Excel file should include DTCC disclaimer

'Source: DTCC Solutions LLC, an affiliate of The Depository Trust & Clearing Corporation.'

'This publication includes data licensed from DTCC Solutions LLC, an affiliate of The Depository Trust & Clearing Corporation.'

Disclaimer:

'Neither DTCC Solutions LLC nor any of its affiliates shall be responsible for any errors or omissions in any DTCC data included in this publication, regardless of the cause and, in no event, shall DTCC or any of its affiliates be liable for any direct, indirect, special or consequential damages, costs, expenses, legal fees, or losses (including lost income or lost profit, trading losses and opportunity costs) in connection with this publication.' "