Financial Stability Report

November 2025

BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

The Federal Reserve System is the central bank of the United States. It performs five key functions to promote the effective operation of the U.S. economy and, more generally, the public interest.

The Federal Reserve

- **conducts the nation's monetary policy** to promote maximum employment and stable prices in the U.S. economy;
- **promotes the stability of the financial system** and seeks to minimize and contain systemic risks through active monitoring and engagement in the U.S. and abroad;
- **promotes the safety and soundness of individual financial institutions** and monitors their impact on the financial system as a whole;
- **fosters payment and settlement system safety and efficiency** through services to the banking industry and U.S. government that facilitate U.S.-dollar transactions and payments; and
- **promotes consumer protection and community development** through consumer-focused supervision and examination, research and analysis of emerging consumer issues and trends, community economic development activities, and administration of consumer laws and regulations.

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Contents

Note: This report generally reflects information that was available as of October 23, 2025.

Purpose and Framework

This report presents the Federal Reserve Board's current assessment of the stability of the U.S. financial system. By publishing this report, the Board intends to promote public understanding by increasing transparency around, and creating accountability for, the Federal Reserve's views on this topic. Financial stability supports the objectives assigned to the Federal Reserve, including full employment and stable prices, a safe and sound banking system, and an efficient payments system.

A financial system is considered stable when banks, other lenders, and financial markets are able to provide households, communities, and businesses with the financing they need to invest, grow, and participate in a well-functioning economy—and can do so even when hit by adverse events, or "shocks."

Consistent with this view of financial stability, the Federal Reserve Board's monitoring framework distinguishes between shocks to, and vulnerabilities of, the financial system. Shocks are inherently difficult to predict, while vulnerabilities, which are the aspects of the financial system that would exacerbate stress, can be monitored as they build up or recede over time. As a result, the framework focuses primarily on assessing vulnerabilities, with an emphasis on four broad categories and how those categories might interact to amplify stress in the financial system.[1]

More on the Federal Reserve's Monitoring Efforts

See the Financial Stability section of the Federal Reserve Board's website for more information on how the Federal Reserve monitors the stability of the U.S. and world financial systems.

The website includes:

- a more detailed look at our monitoring framework for assessing risk in each category;
- more data and research on related topics;
- information on how we coordinate, cooperate, and otherwise take action on financial system issues; and
- public education resources describing the importance of our efforts.

1. **Valuation pressures** arise when asset prices are high relative to economic fundamentals or historical norms. These developments are often driven by an increased willingness of investors to take on risk. As such, elevated valuation pressures may increase the possibility of outsized drops in asset prices (see Section 1, Asset Valuations).

[1] For a review of the research literature in this area, see Tobias Adrian, Daniel Covitz, and Nellie Liang (2015), "Financial Stability Monitoring," *Annual Review of Financial Economics*, vol. 7 (December), pp. 357–95.

2. Excessive **borrowing by businesses and households** exposes the borrowers to distress if their incomes decline or the assets they own fall in value. In these cases, businesses and households with high debt burdens may need to cut back spending, affecting economic activity and causing losses for investors (see Section 2, Borrowing by Businesses and Households).

3. Excessive **leverage within the financial sector** increases the risk that financial institutions will not have the ability to absorb losses without disruptions to their normal business operations when hit by adverse shocks. In those situations, institutions will be forced to cut back lending, sell their assets, or even shut down. Such responses can impair credit access for households and businesses, further weakening economic activity (see Section 3, Leverage in the Financial Sector).

4. **Funding risks** expose the financial system to the possibility that investors will rapidly withdraw their funds from a particular institution or sector, creating strains across markets or institutions. Many financial institutions raise funds from the public with a commitment to return their investors' money on short notice, but those institutions then invest much of those funds in assets that are hard to sell quickly or have a long maturity. This liquidity and maturity transformation can create an incentive for investors to withdraw funds quickly in adverse situations. Facing such withdrawals, financial institutions may need to sell assets quickly at "fire sale" prices, thereby incurring losses and potentially becoming insolvent, as well as causing additional price declines that can create stress across markets and at other institutions (see Section 4, Funding Risks).

The Federal Reserve's monitoring framework also tracks domestic and international developments to identify near-term risks—that is, plausible adverse developments or shocks that could stress the U.S. financial system. The analysis of these risks focuses on assessing how such potential shocks may spread through the U.S. financial system, given our current assessment of vulnerabilities.

While this framework provides a systematic way to assess financial stability, some potential risks may be novel or difficult to quantify and therefore are not captured by the current approach. Given these complications, we rely on ongoing research by the Federal Reserve staff, academics, and other experts to improve our measurement of existing vulnerabilities and to keep pace with changes in the financial system that could create new forms of vulnerabilities or add to existing ones.

Federal Reserve actions to promote the resilience of the financial system

The assessment of financial vulnerabilities informs Federal Reserve actions to promote the resilience of the financial system. The Federal Reserve works with other domestic agencies directly and through the Financial Stability Oversight Council to monitor risks to financial stability and to undertake supervisory and regulatory efforts to mitigate the risks and consequences of financial instability.

Actions taken by the Federal Reserve to promote the resilience of the financial system include its supervision and regulation of financial institutions. In the aftermath of the 2007–09 financial crisis, these actions have included requirements for more and higher-quality capital, an innovative stress-testing regime, and new liquidity regulations applied to the largest banks in the U.S. In addition, the Federal Reserve's assessment of financial vulnerabilities informs decisions regarding the countercyclical capital buffer (CCyB). The CCyB is designed to increase the resilience of large banking organizations when there is an elevated risk of above-normal losses and to promote a more sustainable supply of credit over the economic cycle.

Overview

This report reviews vulnerabilities affecting the stability of the U.S. financial system related to valuation pressures, borrowing by businesses and households, financial-sector leverage, and funding risks. It also highlights several near-term risks that, if realized, could interact with these vulnerabilities. This report reflects market conditions and data as of October 23, 2025.

Overview of financial system vulnerabilities

Asset valuations

- Demand for a broad range of higher-risk assets bounced back after the market declines in April 2025; prices for these assets remained elevated relative to their historical relationships with cash flows.
- Liquidity in Treasury and equity markets recovered from the April declines.
- Transcription-based prices for commercial properties showed signs of stabilization. Vacancy rates and rent growth in the office sector also appeared to be stabilizing.

Borrowing by businesses and households

- Total business and household debt relative to GDP was stable at 20-year lows.
- Gross leverage of publicly traded firms remained high and credit to privately held firms continued to grow. The ability of most publicly traded firms to service their debt was robust, although capacity for some small businesses and risky privately held firms continued to decline.
- Household debt was mostly owed by borrowers with strong credit scores. Mortgage delinquency rates remained subdued due to large home equity cushions and strong underwriting standards.
- Auto and credit card loan delinquencies were little changed and remained somewhat above their average levels over the past decade.

Leverage in the financial sector

- Hedge fund leverage remained high, having increased across a range of trading strategies. This increased leverage has supported significant positions in key markets.
- Leverage at life insurers was in the top quartile of its historical distribution.
- The banking system remained sound and resilient, with historically high regulatory capital ratios, though fair value losses on fixed-rate assets were still sizable for some banks.
- Dealer leverage remained low, while their intermediation activity increased to high levels.

Funding risks

- Assets in cash-management vehicles continued to grow, primarily driven by government money market funds, which historically have been the least fragile category.
- As a share of general account assets, life insurers' use of nontraditional liabilities remained small.
- Most domestic banks maintained high levels of liquid assets and stable funding, and their reliance on uninsured deposits remained well below recent peaks.

A summary of the developments in the four broad categories of vulnerabilities since the April 2025 *Financial Stability Report* is as follows:

1. **Asset valuations.** Asset valuations were elevated. Since the market volatility of early April subsided, the ratio of equity prices to earnings has returned to near the high end of its historical range. An estimate of the equity premium—the compensation for risk in equity markets—remained well below average. Spreads between yields on corporate bonds and those on comparable-maturity Treasury securities also settled to pre-April levels, which were low compared to their longer-term history. Liquidity in Treasury markets recovered from April's trough. In U.S. property markets, home price increases slowed, but the ratio of house prices to rents continued to be near the highest levels on record. Transaction-based price indexes (adjusted for inflation) for commercial real estate (CRE) properties showed some signs of stabilization following significant declines, though vulnerabilities due to upcoming refinancing needs remained (see Section 1, Asset Valuations).

2. **Borrowing by businesses and households.** Vulnerabilities from business and household debt remained moderate. Total debt of businesses and households as a fraction of gross domestic product (GDP) continued to trend slightly down to its lowest level in the past two decades. Measures of the leverage of publicly traded firms remained somewhat above the medians of their historical distributions, and debt owed by privately held firms continued to grow. While publicly traded firms' ability to service their debt remained solid in aggregate, the debt-servicing capacity of small businesses and risky privately held firms declined in recent years. Household debt relative to GDP has been subdued in recent history. Most household debt was owed by borrowers with strong credit histories. Mortgage delinquency rates remained low due to large home equity cushions and strong underwriting standards. Delinquencies on credit cards and auto loans remained above pre-pandemic levels (see Section 2, Borrowing by Businesses and Households).

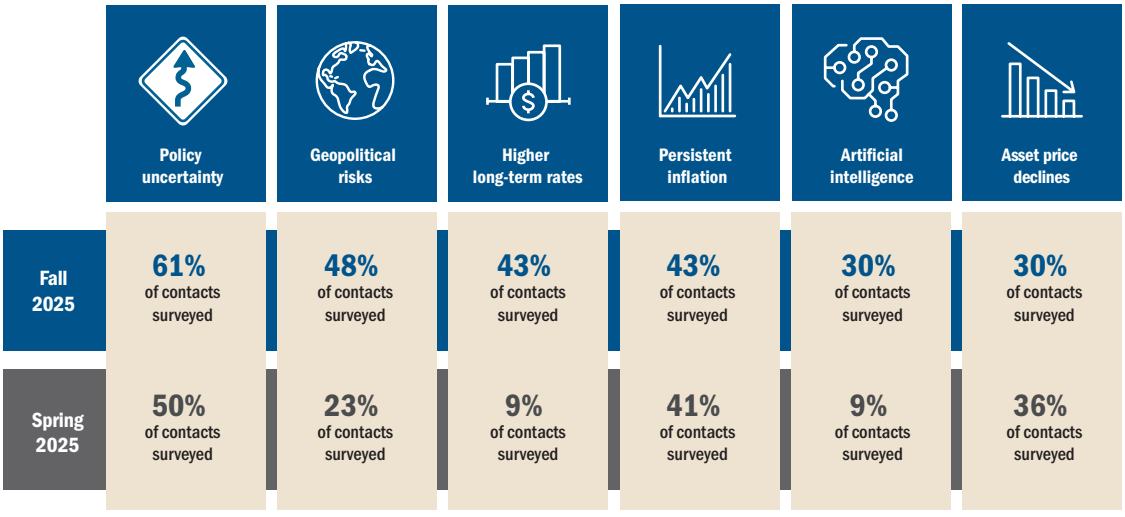
3. **Leverage in the financial sector.** Vulnerabilities associated with financial leverage remained notable. Over the past few years, hedge funds' leverage has steadily increased across a broad range of strategies, including those involving Treasury securities, interest rate derivatives, and equities. Leverage at life insurers was in the top quartile of its historical distribution. The banking sector remained sound and resilient overall, and most banks continued to report capital levels well above regulatory requirements. Fair value losses on fixed-rate assets declined but were still sizable and continued to be sensitive to changes in long-term interest rates. Bank credit to other financial entities continued to increase, and growth was most notable in the category of special purpose entities, collateralized loan obligations (CLOs), and asset-backed securities. Broker-dealer leverage remained near historical lows, and intermediation activity was historically high across a range of markets, including Treasury markets (see Section 3, Leverage in the Financial Sector).

4. **Funding risks.** Funding risks have remained moderate. Assets in cash-management vehicles continued to grow; the main contributor to this growth was government money market funds (MMFs), which historically have been the least susceptible to large-scale investor redemptions. Assets in more fragile investment vehicles, expressed as a share of GDP, remained near the median of the historical distribution (discussed in the box "A More Targeted Assessment of Short-Term Funding Risk"). Banks' reliance on uninsured deposits, an important component of their funding risk, was well below the peaks in 2022 and early 2023. Life insurers' nontraditional liabilities grew further, although they represent only a small share of general account assets (see Section 4, Funding Risks).

This report also discusses potential near-term risks, based in part on topics cited in market outreach (reported in the box "Survey of Salient Risks to Financial Stability"). Box 5.1 shows the most frequently cited risks to U.S. financial stability by a wide range of market contacts who participated in the Survey of Salient Risks during September and October. The most frequently cited topics from survey respondents were policy uncertainty, geopolitical risks, higher long-term rates, persistent inflation, and a sharp decline in asset prices, potentially connected to a turn in artificial intelligence (AI) sentiment.

Survey of salient risks to the financial system

Survey respondents cited several risks to the U.S. financial system and the broader global economy. For more information, see the box "Survey of Salient Risks to Financial Stability."



1 | Asset Valuations

Asset valuations were elevated, with some markets setting new highs after recovering from April's declines

Since April, price declines across multiple markets have largely reversed and volatility has receded. Prices remained high relative to their historical relationship with fundamentals across a range of markets.

Treasury market liquidity recovered to levels well above the lows seen in April. During that episode, yields on Treasury securities exhibited considerable volatility, which, in turn, contributed to April's deterioration in market liquidity.

Equity markets rebounded from April's volatility and declines. Corporate bond spreads have narrowed over that same period and stayed well below their historical medians.

Prices and fundamentals in CRE markets showed continued signs of stabilizing, although the potential for distressed commercial property sales remains if CRE borrowers who need to refinance their mortgages are unable to do so. In residential real estate markets, prices continued to rise well above their historical relationship with fundamentals but at a lower rate. In the year ending July 2025, nominal house prices grew between 0.3 and 1.7 percent depending on the index used.

Table 1.1 shows the sizes of the asset markets discussed in this section. The two largest asset markets are those for public equities and residential real estate, which are substantially larger than the next two markets, Treasury securities and CRE. The table also shows recent and historical growth rates for each asset class. The remainder of this section presents the status of vulnerabilities across these markets.

Treasury yields declined amid normalizing volatility

Treasury yields across 2- and 10-year maturities declined since the April report and continued to be well above their average levels over the past 15 years (figure 1.1). Over the same period, the longer end of the Treasury yield curve has steepened. A model-based estimate of the nominal Treasury term premium—a measure of the compensation that investors require to hold longer-term Treasury securities rather than shorter-term ones—fell a bit to its historical median, albeit near the top of its range since 2010 (figure 1.2). Moves in Treasury yields were sizable in early April. Since the April episode, interest rate volatility implied by interest rate swaps decreased to just below its long-term median (figure 1.3).

Table 1.1. Size of selected asset markets

Item	Outstanding (billions of dollars)	Growth, 2024:Q2–2025:Q2 (percent)	Average annual growth, 1997–2025:Q2 (percent)
Public equities	74,410	15.6	8.9
Residential real estate	61,101	1.4	6.2
Treasury securities	28,518	6.0	8.3
Commercial real estate	20,524	−5.6	5.4
Investment-grade corporate bonds	8,156	4.3	7.8
Farmland	3,558	4.2	5.6
High-yield and unrated corporate bonds	1,724	5.2	6.1
Leveraged loans[1]	1,494	7.3	12.2
Price growth (real)			
Commercial real estate[2]		−2.2	2.8
Residential real estate[3]		−1.0	2.6

Note: The data extend through 2025:Q2. Outstanding amounts are in nominal terms. Growth rates are nominal and are measured from Q2 of the year immediately preceding the period through Q2 of the final year of the period. Equities, real estate, and farmland are at nominal market value; bonds and loans are at nominal book value.

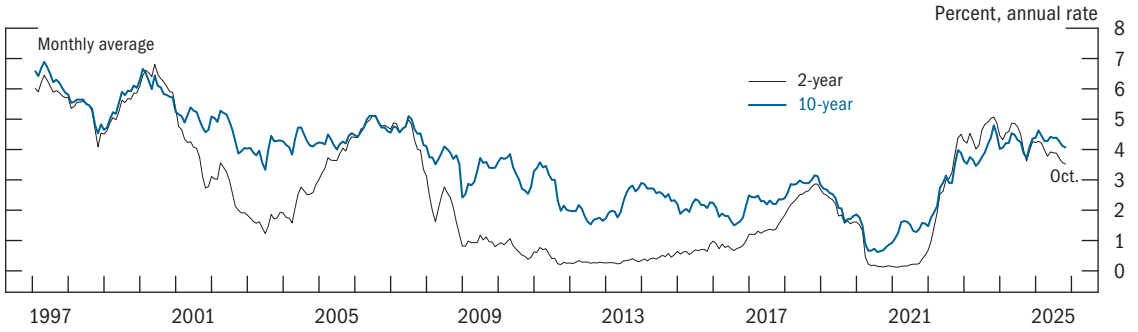
[1] The amount outstanding shows institutional leveraged loans and generally excludes loan commitments held by banks. For example, lines of credit are generally excluded from this measure. Average annual growth of leveraged loans is from 2001 to 2025:Q2, as this market was fairly small before then.

[2] One-year growth of commercial real estate prices is from June 2024 to June 2025, and average annual growth is from June 1999 to June 2025. Both growth rates are calculated from equal-weighted nominal prices deflated using the consumer price index (CPI).

[3] One-year growth of residential real estate prices is from June 2024 to June 2025, and average annual growth is from June 1998 to June 2025. Nominal prices are deflated using the CPI.

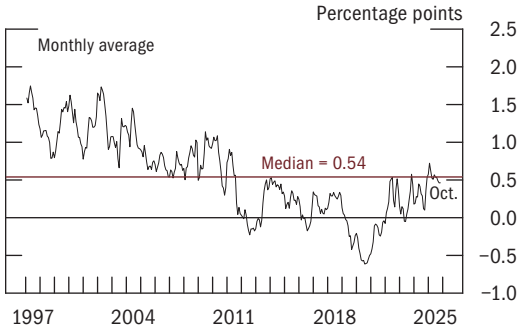
Source: For leveraged loans, PitchBook Data, Leveraged Commentary & Data; for corporate bonds, Mergent, Inc., Fixed Income Securities Database; for farmland, Department of Agriculture; for residential real estate price growth, Cotality; for commercial real estate price growth, CoStar Group, Inc., CoStar Commercial Repeat Sale Indices; for all other items, Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States."

Figure 1.1. Nominal Treasury yields declined and remained above their average levels over the past 15 years



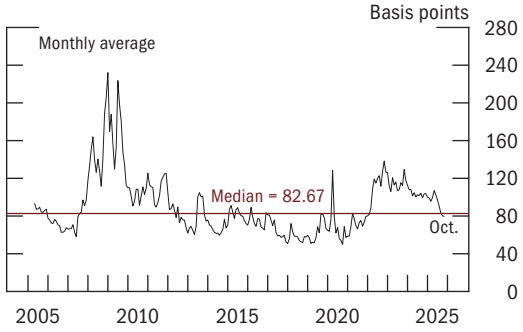
Source: Federal Reserve Board, Statistical Release H.15, "Selected Interest Rates."

Figure 1.2. An estimate of the nominal Treasury term premium remained near its historical median



Source: Department of the Treasury; Wolters Kluwer, Blue Chip Financial Forecasts; Federal Reserve Bank of New York; Federal Reserve Board staff estimates.

Figure 1.3. Interest rate volatility returned to its median since 2005

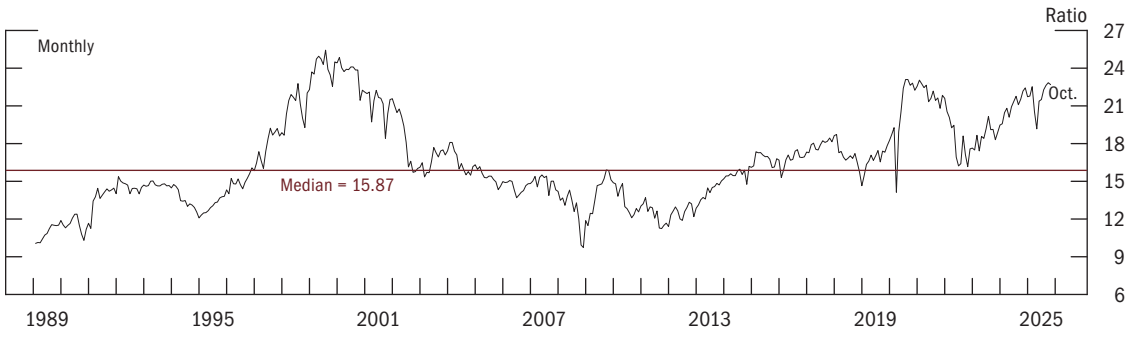


Source: For data through July 13, 2022, Barclays and S&P Global; for data from July 14, 2022, onward, ICAP, Swaptions and Interest Rate Caps and Floors Data.

Equity valuations continued to increase, while volatility declined

Measures of equity valuations rebounded after April's market episode. The forward price-to-earnings (P/E) ratio, defined as the ratio of equity prices to expected 12-month earnings, remained well above its historical median (figure 1.4). The difference between the forward P/E ratio and the real 10-year Treasury yield—a crude measure of the additional return that investors require for holding stocks relative to risk-free bonds (the equity premium)—remained well below its historical median (figure 1.5).[2] Two measures of equity market volatility—option-implied and realized—rose dramatically in April but have since declined to below their historical medians (figure 1.6).

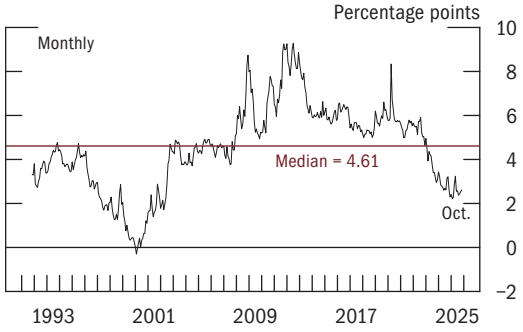
Figure 1.4. The price-to-earnings ratio of S&P 500 firms was once again close to the upper end of its historical range



Source: LSEG, Institutional Brokers' Estimate System, North American Summary & Detail Estimates, Level 2, Current & History Data, Adjusted and Unadjusted, https://www.lseg.com/en/data-analytics/financial-data/company-data/ibes-estimates.

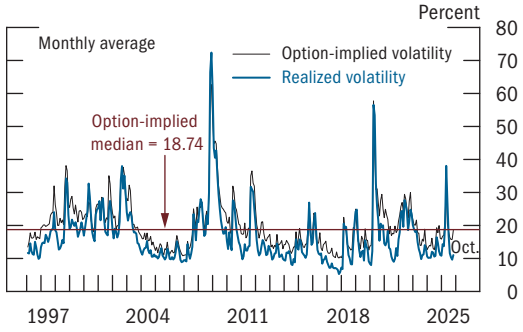
[2] This estimate is constructed based on expected corporate earnings for 12 months ahead.

Figure 1.5. As of October, an estimate of the equity premium was near a 20-year low



Source: LSEG, Institutional Brokers' Estimate System, North American Summary & Detail Estimates, Level 2, Current & History Data, Adjusted and Unadjusted, https://www.lseg.com/en/data-analytics/financial-data/company-data/ibes-estimates.

Figure 1.6. Volatility in equity markets declined to below the historical median

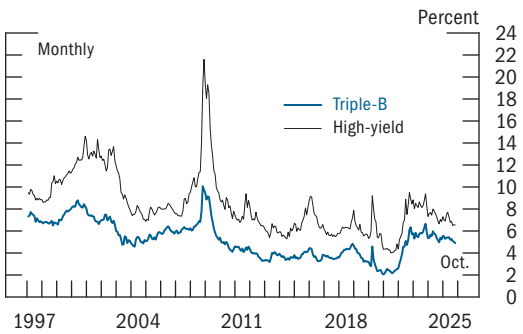


Source: Cboe Volatility Index® (VIX®) accessed via Bloomberg Finance L.P.; Federal Reserve Board staff estimates.

Corporate bond markets have been resilient; spreads in corporate debt markets narrowed and remained tight

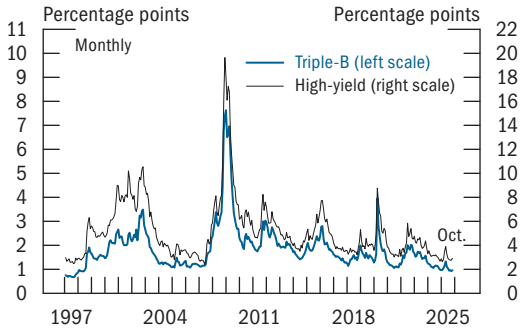
Yields on triple-B-rated and high-yield corporate bonds were lower than the levels observed in the April report and below the long-term median (figure 1.7). Spreads relative to comparable-maturity Treasury securities settled at historically tight levels below those observed before the April market events—about 0.7 percentage points below the historical median for triple-B rated and about 1.6 percentage points below the median for high-yield (figure 1.8). The excess bond premium for all nonfinancial corporate bonds—a measure of the risk premium required by bond investors after controlling for bond characteristics and credit quality—was below the median of its historical distribution (figure 1.9).

Figure 1.7. Corporate bond yields fell slightly but remained near their median for the past 30 years



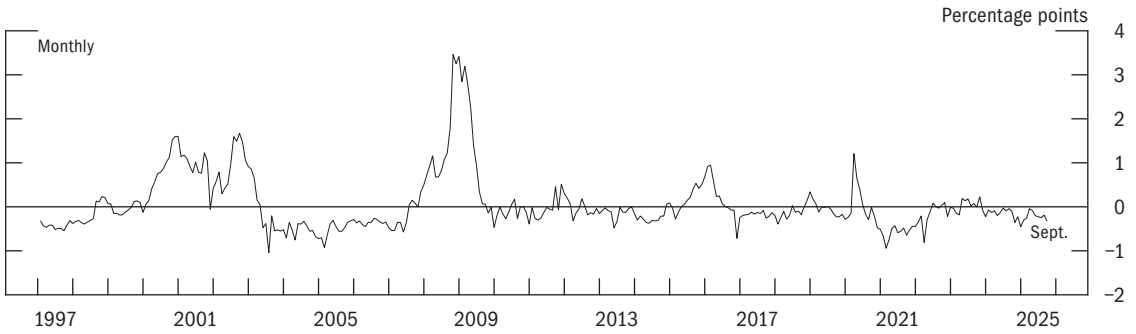
Source: ICE Data Indices, LLC, used with permission.

Figure 1.8. Corporate bond spreads fell and remained at tight levels



Source: ICE Data Indices, LLC, used with permission.

Figure 1.9. The excess bond premium was below its long-run average

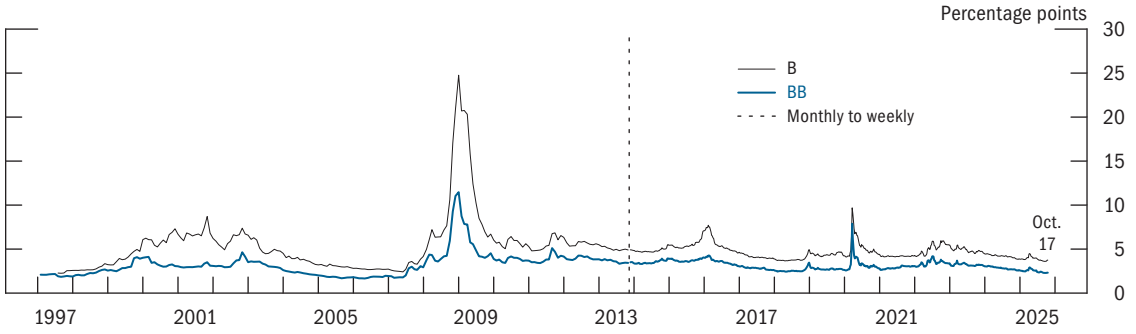


Source: Federal Reserve Board staff calculations based on Lehman Brothers Fixed Income Database (Warga); Intercontinental Exchange, Inc., ICE Data Services; Center for Research in Security Prices, CRSP/Compustat Merged Database, Wharton Research Data Services; S&P Global, Compustat.

Issuance in the corporate bond market picked up to a solid pace in August and September, on par with the average over the past 10 years. Market-based forecasts of one-year-ahead default probabilities of nonfinancial firms (a forward-looking indicator of credit quality) settled to levels last seen before April's market events.

Since the previous report, the average spread on leveraged loans in the secondary market decreased moderately and remained at the low end of its historical distribution since 2009 (figure 1.10).

Figure 1.10. Spreads on leveraged loans decreased moderately to the low end of their distribution since 2009



Source: PitchBook Data, Leveraged Commentary & Data.

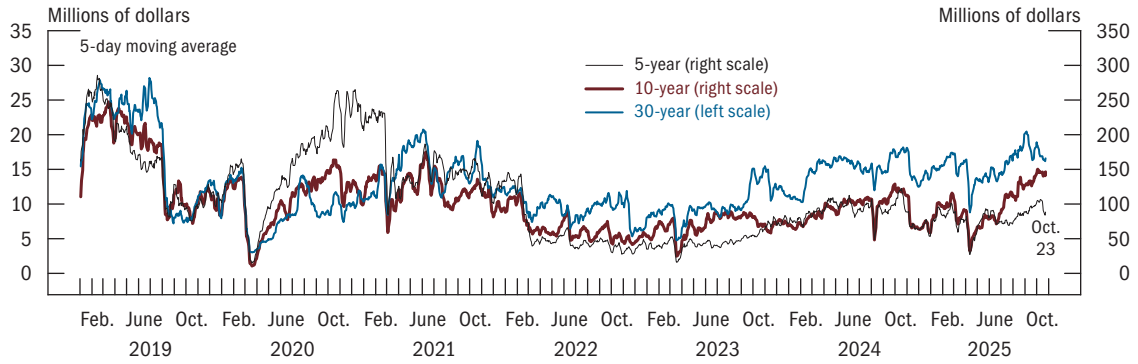
Treasury and equity market liquidity was strained in April and has since recovered

Market liquidity refers to the ease of buying and selling an asset. Low liquidity can amplify the volatility of asset prices and result in larger price moves in response to shocks. Similarly, increased

volatility can reduce market liquidity because liquidity providers may become more cautious in providing quotes. In extreme cases, low liquidity can threaten continued market functioning, leading to a situation in which participants are unable to trade without incurring a significant cost.

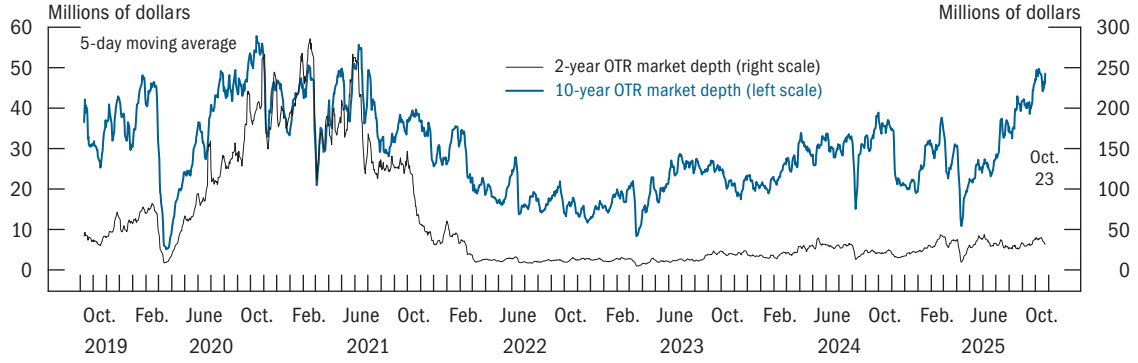
Treasury market liquidity is particularly important because of the key role these securities play in the financial system. Amid the April volatility, Treasury market liquidity hit historically low levels. Since then, various measures of Treasury market liquidity, including two different measures of market depth in the most liquid on-the-run segment, indicated that liquidity increased back to or above previous levels across all maturities (figures 1.11 and 1.12).

Figure 1.11. Treasury market depth recovered from April's low levels



Source: Inter Dealer Broker Community.

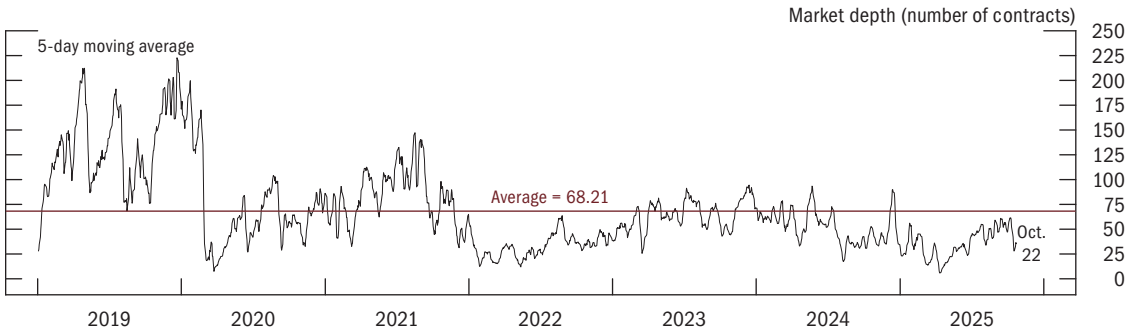
Figure 1.12. While 2-year on-the-run Treasury market depth remained close to historical lows, 10-year market depth rose to levels last seen in 2021



Source: BrokerTec; Federal Reserve Board staff calculations.

A measure of market liquidity in equity markets stayed below the historical average since 2019 but improved on net compared to April as volatility subsided (figure 1.13). Through September, liquidity in corporate bond markets remained robust and in line with the average level observed in recent years. The box "Artificial Intelligence and Algorithmic Trading" explores how the adoption of AI in algorithmic trading could bring new opportunities and challenges to financial markets.

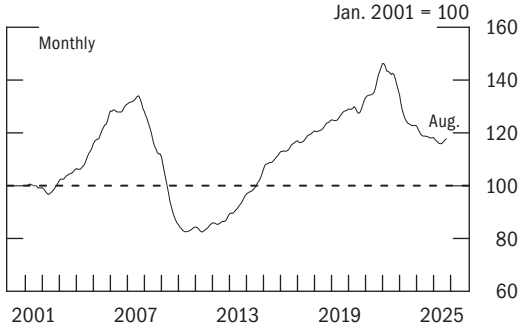
Figure 1.13. A measure of liquidity in equity markets stayed below average



Source: LSEG, Tick History; Federal Reserve Board staff calculations.

Commercial real estate prices showed signs of further stabilization

Figure 1.14. Inflation-adjusted commercial real estate prices were little changed



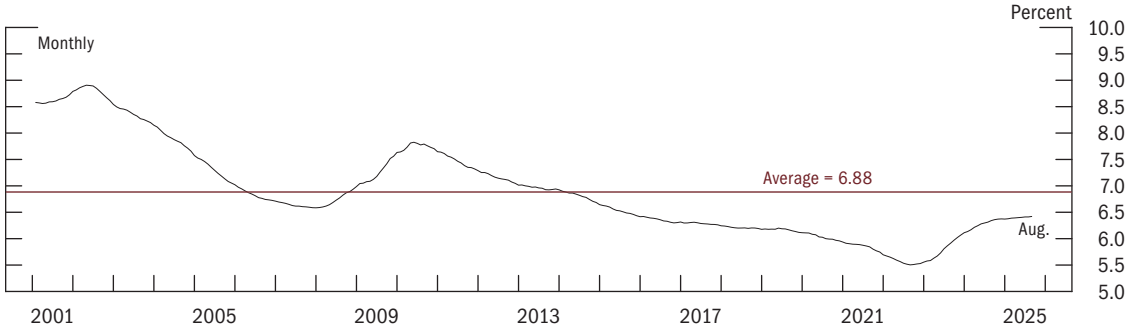
Source: MSCI—Real Capital Analytics; consumer price index, Bureau of Labor Statistics via Haver Analytics.

Aggregate CRE prices measured in inflation-adjusted terms showed signs of further stabilization, following significant declines between mid-2022 and early 2024 (figure 1.14). Vacancy rates and rent growth—fundamental determinants of prices—also appeared to be stabilizing for office properties. Capitalization rates at the time of property purchase, which measure the annual income of commercial properties relative to their prices, were unchanged in aggregate since the April report but remained below the average of the historical distribution (figure 1.15). After a period of tightening from 2022 to 2024, most banks have left standards on CRE loans unchanged over the past two quarters (figure 1.16).[3] In the July survey, banks reported, on net, that the level of credit standards for several types of CRE loans was still somewhat or significantly tighter than longer-run norms.

A large volume of CRE debt is scheduled to mature over the coming year, and forced sales, were they to occur, would put downward pressure on CRE prices. However, continued willingness by lenders to mitigate losses via loan modification would alleviate some of that downside risk.

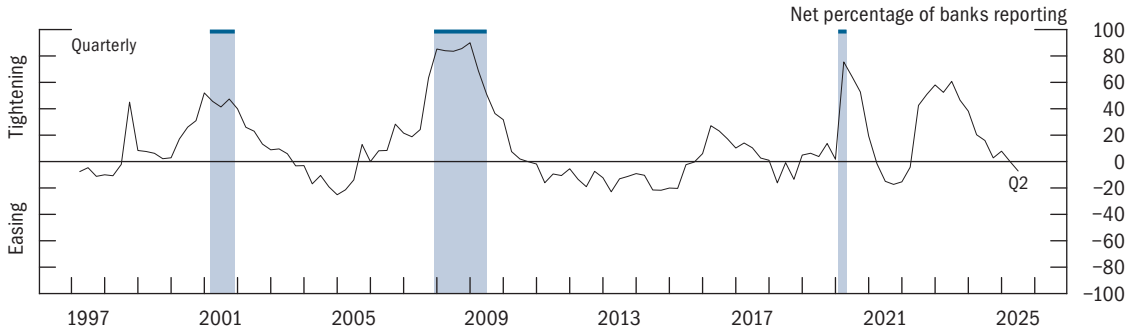
[3] The Senior Loan Officer Opinion Survey on Bank Lending Practices (SLOOS) results reported are based on banks' responses weighted by each bank's outstanding loans in the respective loan category and might therefore differ from the results reported in the published SLOOS, which are based on banks' unweighted responses; SLOOS results are available on the Board's website at https://www.federalreserve.gov/data/sloos.htm.

Figure 1.15. Income of commercial properties relative to prices leveled off but remained below the historical average



Source: MSCI—Real Capital Analytics; Andrew C. Florance, Norm G. Miller, Ruijue Peng, and Jay Spivey (2010), "Slicing, Dicing, and Scoping the Size of the U.S. Commercial Real Estate Market," *Journal of Real Estate Portfolio Management*, vol. 16 (May–August), pp. 101–18.

Figure 1.16. Banks reported that lending standards for commercial real estate loans were little changed in the first half of 2025

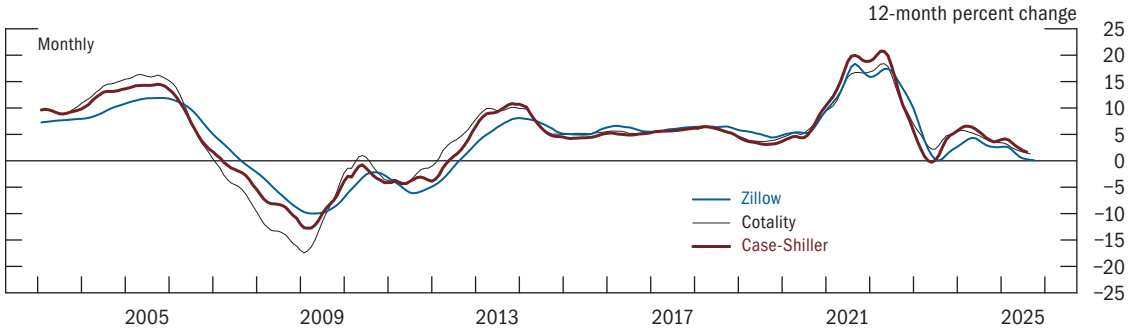


Source: Federal Reserve Board, Senior Loan Officer Opinion Survey on Bank Lending Practices; Federal Reserve Board staff calculations.

Residential real estate prices remained high relative to their historical relationship with fundamentals

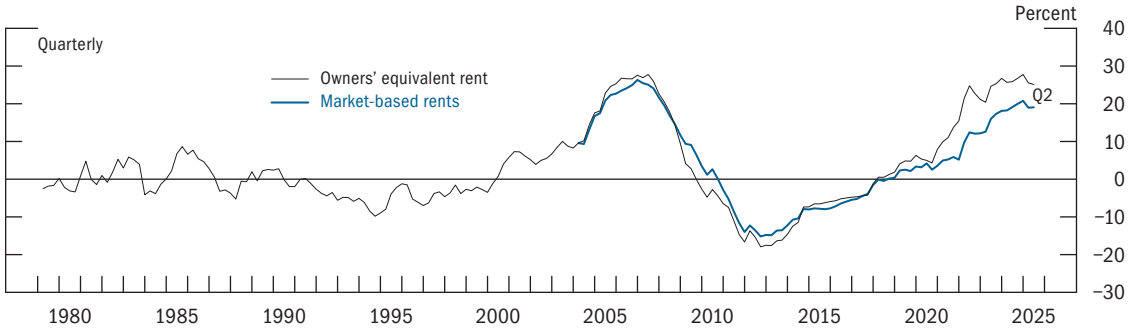
After posting double-digit gains in 2021 and 2022, house price increases have slowed (figure 1.17). Model-based measures of housing valuations, which assess their historical relationships with fundamentals, remained high (figure 1.18). Price-to-rent ratios fell in the geographic areas where they had been the highest, suggesting some cooling in those markets (figure 1.19). Credit standards for borrowers remained tight relative to the early 2000s, suggesting that weak credit standards are not driving house price growth.

Figure 1.17. House prices continued to increase in recent months but at a lower rate



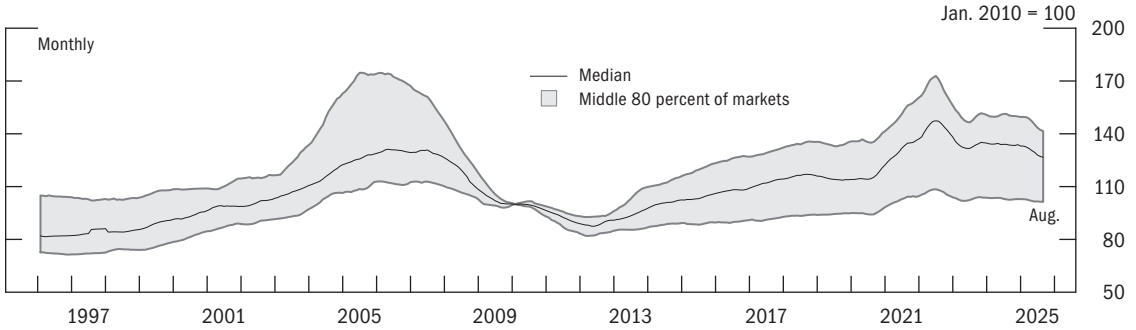
Source: Zillow, Inc., Real Estate Data; Cotality Real Estate Data; S&P Cotality Case-Shiller Home Price Indices.

Figure 1.18. Model-based measures of house price valuations cooled from near historically high levels



Source: For house prices, Zillow, Inc., Real Estate Data; for rent data, Bureau of Labor Statistics.

Figure 1.19. House price-to-rent ratios dropped slightly yet remained elevated across geographic areas

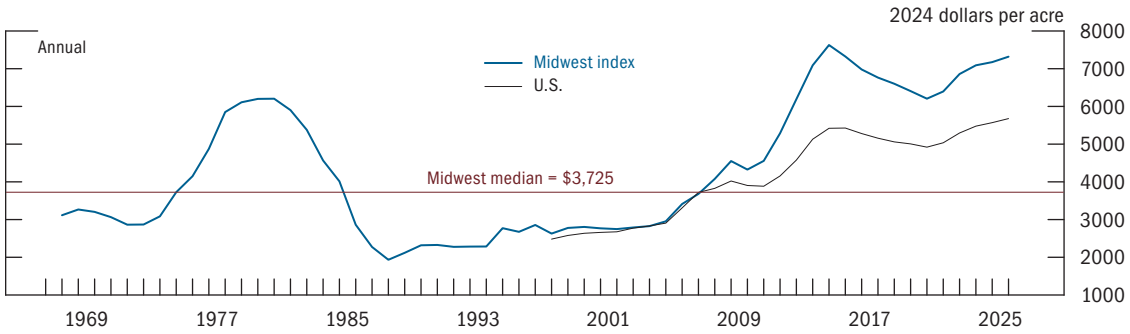


Source: For house prices, Zillow, Inc., Real Estate Data; for rent data, Bureau of Labor Statistics.

Farmland valuations remained high relative to farm income

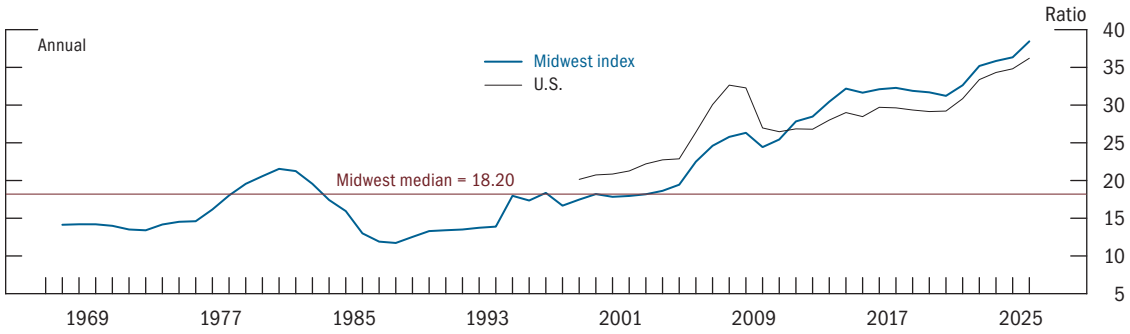
U.S. farmland values remained elevated based on annual data as of August 2025, continuing to rise from historically high levels (figure 1.20), as did price-to-rent ratios (figure 1.21). Prices continued to be sustained by limited farmland inventory, despite elevated interest rates and higher operating costs.

Figure 1.20. Inflation-adjusted farmland prices rose further in 2025 from already elevated levels



Source: Department of Agriculture; Federal Reserve Bank of Minneapolis staff calculations.

Figure 1.21. Farmland prices relative to rents increased to historical highs in 2025



Source: Department of Agriculture; Federal Reserve Bank of Minneapolis staff calculations.

Box 1.1. Artificial Intelligence and Algorithmic Trading

Algorithmic trading refers to automated, computer-driven trading based on predefined trading strategies. Algorithms have long been used by various market participants for market making, optimal execution, statistical arbitrage, and speculative trading.[1] Traditional algorithms are fast, simple rules operating at nanosecond frequencies, but they are relatively rigid and hard-coded. Generative AI and machine learning add self-learning based on historical experience, adaptation based on current market conditions, and analysis of unstructured data, such as text. The greater model complexity and the use of additional information by AI currently come at the cost of reduced speed, and thus the suitability of the latest AI models for trading decisions depends on the application. This box examines the adoption of AI in algorithmic trading and discusses its financial stability implications. The box leans on academic research, institutional market outreach, and conversations with key market participants.

The majority of AI applications in trading today seem to be building upon established practices in machine learning and sophisticated data analysis techniques, rather than representing a significant departure from existing methods.[2] Therefore, AI is reportedly viewed as providing efficiency gains, without a fundamental change in the trading process itself, at least for now. Nonetheless, some policymakers and academics have noted that AI-driven algorithmic trading may generate financial stability risks such as correlated trading, collusion, market manipulation, and market concentration. As we discuss in this box, while the adoption of AI could potentially increase these risks, other factors often mitigate the potential impact of its use by market participants.

A long-standing concern is that widespread use of trading algorithms with common reaction to market events has the potential to exacerbate market volatility and lead to rapid price swings, flash crashes, and market dislocations. That said, the use of AI may also help reduce the likelihood of correlated trade execution, as it facilitates the use of richer information and more complex logic, potentially leading to a less uniform response to news and to a greater diversity of trading signals among market participants.[3] This could, in turn, improve price discovery and market efficiency, leading to more accurate and timely reflection of information in market prices.

The self-learning nature of generative AI-driven trading algorithms also raises concerns about the potential for these algorithms to engage in sophisticated market manipulation.[4] Manipulative uses of AI may be inherently harder to detect than currently known methods such as spoofing and quote stuffing—submitting a large number of orders to create a false impression of supply or demand—due to greater design complexity and increased ability to obfuscate manipulative intent. At the same time, however, AI has the potential to significantly enhance market surveillance techniques for investigators and supervisors. Major electronic market operators are already utilizing advanced machine learning techniques to detect market manipulation and collusive behaviors.[5] Generative AI could

(continued)

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1 See Andrei Kirilenko and Andrew W. Lo (2013), "Moore's Law versus Murphy's Law: Algorithmic Trading and Its Discontents," *Journal of Economic Perspectives*, vol. 27 (Spring), pp. 51–72.

2 See International Monetary Fund (2024), "Advances in Artificial Intelligence: Implications for Capital Market Activities," chapter 3 in *Financial Stability Report* (Washington: IMF, October), pp. 77–105, https://www.imf.org/en/Publications/GFSR/Issues/2024/10/22/global-financial-stability-report-october-2024; International Organization of Securities Commissions (2025), *Artificial Intelligence in Capital Markets: Use Cases, Risks, and Challenges* (Madrid: IOSCO, March), https://www.iosco.org/library/pubdocs/pdf/IOSCOPD788.pdf.

3 See Anne Lundgaard Hansen and Seung Jung Lee (2025), "Financial Stability Implications of Generative AI: Taming the Animal Spirits," Finance and Economics Discussion Series 2025-090 (Washington: Board of Governors of the Federal Reserve System, September), https://doi.org/10.17016/FEDS.2025.090.

4 See Álvaro Cartea, Patrick Chang, and Gabriel García-Arenas (2025), "Spoofing and Manipulating Order Books with Learning Algorithms," available at SSRN: https://ssrn.com/abstract=4639959 or http://dx.doi.org/10.2139/ssrn.4639959.

5 See Pedro Gurrola-Perez and Kaitao Lin (2024), "An Analysis of Market Manipulation Definitions around the World," working paper (London: World Federation of Exchanges, June).

Box 1.1—*continued*

further improve this process by identifying suspicious behavior and providing rapid textual descriptions and interpretations of the detected issues. Improved market surveillance capabilities could then strengthen market integrity and enhance market liquidity.

Academic literature has also identified the potential for self-learning AI-powered trading algorithms to autonomously develop collusive behavior, potentially impairing competition and market efficiency, leading to reduced market liquidity and less informative pricing.[6] However, others observe that the likelihood of collusion is small if traders' learning processes differ. Furthermore, algorithmic traders have strong incentives to differentiate their strategies, as non-collusion can be highly profitable when others collude, suggesting that algorithmic heterogeneity is a more likely equilibrium outcome.[7]

Finally, some observers have expressed concerns about barriers to entry and increasing concentration associated with the adoption of AI. The costs of developing and running generative AI models can be large, discouraging companies from developing proprietary models, potentially leading them to rely on third-party solutions and thus increasing dependence on common AI models. Common AI models could also lead to more similar processes through which traders learn, which, as noted previously, could increase the likelihood of collusion. At the same time, however, market participants observe that access to technology is being democratized with the development of AI, and wider access to sophisticated AI-driven trading technology could lower barriers to entry for smaller firms and individual investors. Increased access and competition could then also contribute to a more diverse range of market participants and strategies, fostering greater market heterogeneity and, hence, more resilient market functioning.

In summary, as with many new technologies, AI seems to bring both new dangers and new opportunities for improvements to financial markets. While the potential for AI to increase correlated trading and impact market competition cannot be dismissed, historical evidence from algorithmic trading suggests that correlated trading has not necessarily been detrimental to market quality. Moreover, strong incentives for algorithmic traders to have differentiated strategies may mitigate the risk of autonomous collusion, reduce correlated trading, and improve competition. Many exchanges have also implemented safeguards, such as circuit breakers, which, if deployed simultaneously across related markets, can help prevent excessive price fluctuations. The ability of AI to assist enforcement of securities laws could also strengthen market integrity. That said, continued monitoring of developments and further empirical research are warranted to ensure a comprehensive understanding of the fast-evolving landscape of AI in financial markets.

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[6] See Winston Wei Dou, Itay Goldstein, and Yan Ji (2025), "AI-Powered Trading, Algorithmic Collusion, and Price Efficiency," NBER Working Paper Series 34054 (Cambridge, Mass.: National Bureau of Economic Research, July), https://www.nber.org/papers/w34054.

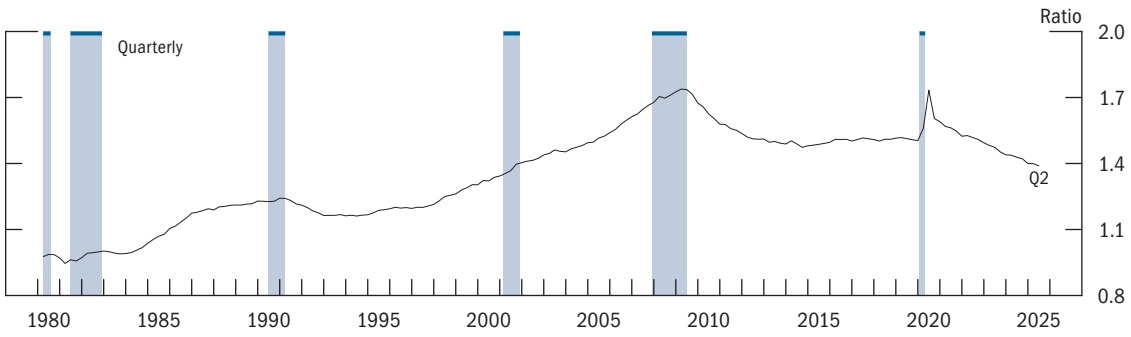
[7] See Laura Veldkamp (2024), Discussion of "AI-Powered Trading, Algorithmic Collusion, and Price Efficiency" by Winston Wei Dou, Itay Goldstein, Jan Ji, NBER Summer Institute, July.

2 | Borrowing by Businesses and Households

Vulnerabilities from business and household debt remained moderate

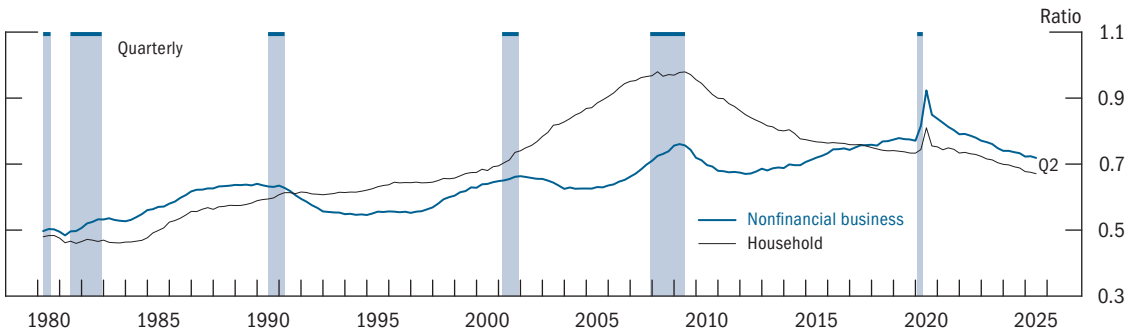
The balance sheet conditions of businesses and households remained stable in aggregate since the previous report. The level of total private nonfinancial-sector debt continued its moderate decline relative to GDP, with the debt-to-GDP ratio at its lowest level in two decades (figure 2.1). Trends in both the business and household sectors contributed to the decline in that overall ratio (figure 2.2). Business debt-to-GDP (blue line) edged down but remained near the 75th percentile of its historical range. The household debt-to-GDP ratio (black line) continued to tick downward and remained at more than 20-year lows.

Figure 2.1. The total debt of businesses and households relative to GDP remained at its lowest level in over 20 years



Source: Federal Reserve Board staff calculations based on Bureau of Economic Analysis, national income and product accounts, and Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States."

Figure 2.2. Both business and household debt-to-GDP ratios continued to fall



Source: Federal Reserve Board staff calculations based on Bureau of Economic Analysis, national income and product accounts, and Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States."

For additional context, table 2.1 shows the amounts outstanding and recent historical growth rates of different forms of debt owed by nonfinancial businesses and households as of the second quarter of 2025.

Table 2.1. Outstanding amounts of nonfinancial business and household credit

Item	Outstanding (billions of dollars)	Growth, 2024:Q2–2025:Q2 (percent)	Average annual growth, 1997–2025:Q2 (percent)
Total private nonfinancial credit	42,235	1.8	5.3
Total nonfinancial business credit	21,863	2.1	5.7
Corporate business credit	13,965	1.7	5.2
Bonds and commercial paper	8,654	2.7	5.5
Bank lending	1,875	−7.8	3.4
Leveraged loans[1]	1,441	6.4	12.3
Noncorporate business credit	7,897	2.8	6.7
Commercial real estate credit	3,396	2.0	6.0
Total household credit	20,372	1.4	4.9
Mortgages	13,533	2.8	5.0
Consumer credit	4,998	.3	5.0
Student loans	1,814	4.2	7.3
Auto loans	1,563	.3	5.1
Credit cards	1,257	−2.3	3.4
Nominal GDP	30,354	4.6	4.7

Note: The data extend through 2025:Q2. Outstanding amounts are in nominal terms. Growth rates are nominal and are measured from Q2 of the year immediately preceding the period through Q2 of the final year of the period. The table reports the main components of corporate business credit, total household credit, and consumer credit. Other, smaller components are not reported. The commercial real estate (CRE) row shows CRE debt owed by both nonfinancial corporate and noncorporate businesses as defined in Table L.220: Commercial Mortgages in the "Financial Accounts of the United States." Total household-sector credit includes debt owed by other entities, such as nonprofit organizations. GDP is gross domestic product.

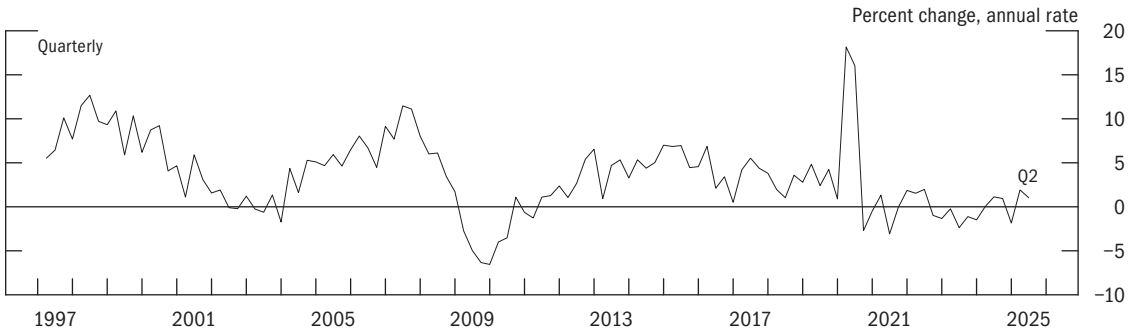
[1] Leveraged loans included in this table are an estimate of the leveraged loans that are made to nonfinancial businesses only and do not include the small amount of leveraged loans outstanding for financial businesses. The amount outstanding shows institutional leveraged loans and generally excludes loan commitments held by banks. For example, lines of credit are generally excluded from this measure. Average annual growth of leveraged loans is from 2001 to 2025:Q2, as this market was fairly small before then.

Source: For leveraged loans, PitchBook Data, Leveraged Commentary & Data; for GDP, Bureau of Economic Analysis, national income and product accounts; for all other items, Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States."

Business debt increased slightly; the debt-servicing capacity of publicly traded firms was generally solid

The growth rate of nonfinancial business debt adjusted for inflation turned slightly positive to around 1 percent in the first half of 2025 (figure 2.3). Net issuance of risky debt—defined as issuance of high-yield bonds, unrated bonds, and leveraged loans minus retirements and repayments—was negative in the second and third quarters of 2025, driven by increased

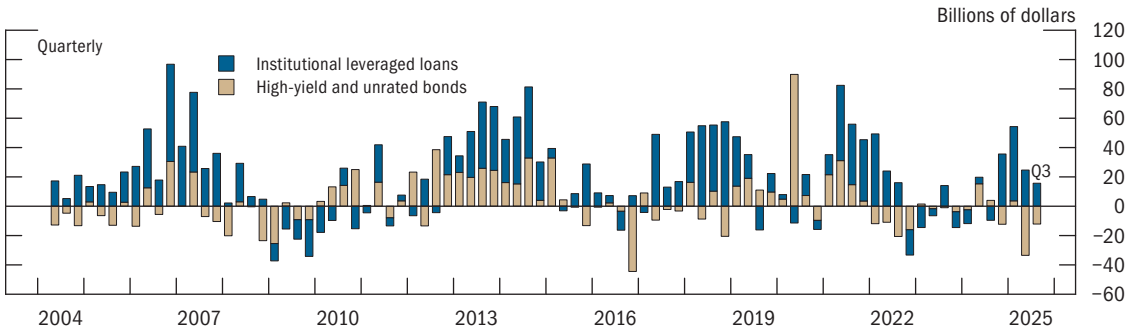
Figure 2.3. Business debt adjusted for inflation turned slightly positive



Source: Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States."

retirements of high-yield and unrated bonds (figure 2.4). Privately held firms account for roughly 60 percent of the total outstanding debt of U.S. nonfinancial firms. These firms tend to have less access to capital markets and primarily borrow from banks, private credit funds, and other institutional investors.

Figure 2.4. Net issuance of risky debt fell in the middle of 2025

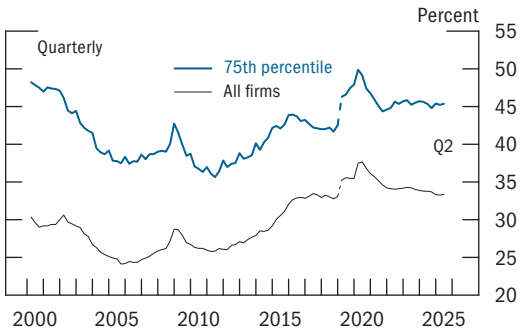


Source: Mergent, Inc., Fixed Income Securities Database; PitchBook Data, Leveraged Commentary & Data.

Gross leverage—the ratio of debt to assets—of all publicly traded nonfinancial firms was flat through the second quarter of 2025 (figure 2.5). Net leverage—the ratio of debt less cash to total assets—increased slightly in recent quarters. While both gross and net leverage remained high relative to history, so did the debt-servicing capacity of publicly traded firms. For publicly traded firms, where credit quality has been generally sound, interest coverage ratios (ICRs) were little changed since the April report (figure 2.6).

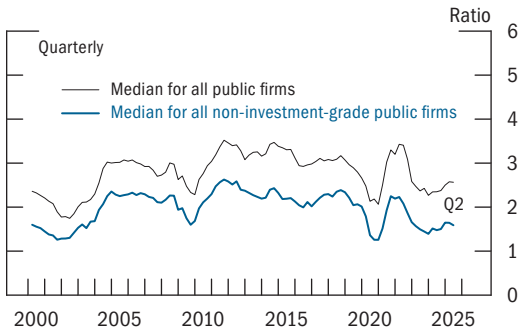
Debt-to-asset ratios increased on bank commercial and industrial loans but remained below pre-pandemic levels. This was true for both privately held and publicly traded firms (figure 2.7).

Figure 2.5. Gross leverage of publicly traded nonfinancial firms leveled off but was still high by historical standards



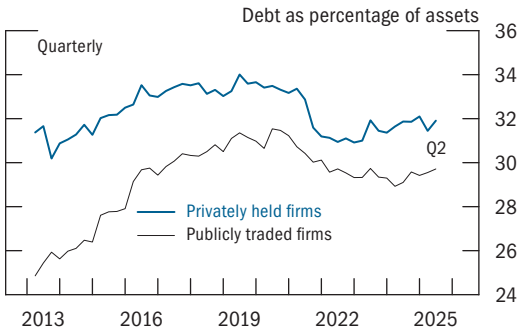
Source: Federal Reserve Board staff calculations based on S&P Global, Compustat.

Figure 2.6. Interest coverage ratios, which indicate firms' ability to service their debt, were largely unchanged



Source: Federal Reserve Board staff calculations based on S&P Global, Compustat.

Figure 2.7. Firms with commercial and industrial bank loans increased their leverage slightly

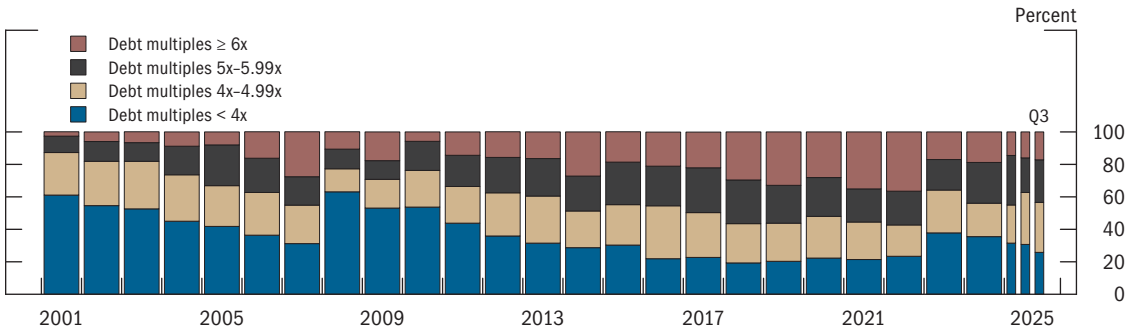


Source: Federal Reserve Board, Form FR Y-14Q (Schedule H.1), Capital Assessments and Stress Testing.

In leveraged loans, the share of newly issued loans to large corporations with debt multiples—defined as the ratio of debt to earnings before interest, taxes, depreciation, and amortization—greater than 4 increased moderately to above the historical median (figure 2.8).

For leveraged loan borrowers, which are mostly, but not exclusively, privately held firms, gross and net leverage ratios declined modestly but remained above their historical medians since 2016. The median ICR for

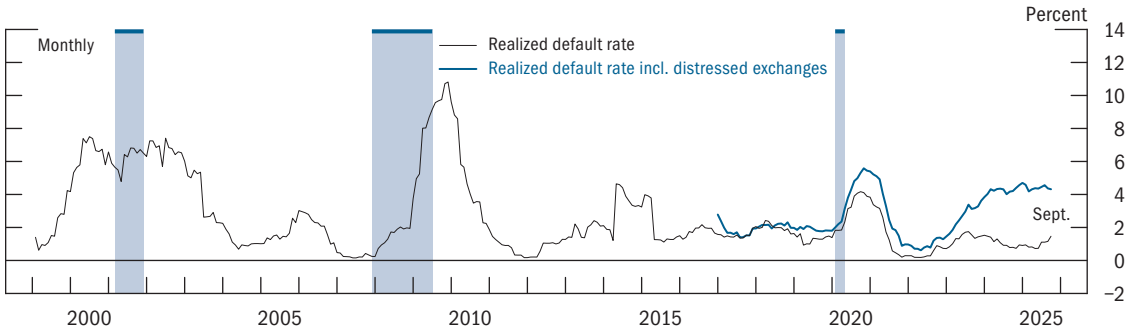
Figure 2.8. Newly issued leveraged loans with debt multiples greater than 4 increased moderately to above the historical median



Source: Mergent, Inc., Fixed Income Securities Database; PitchBook Data, Leveraged Commentary & Data.

leveraged loan borrowers stayed near its historical lows. ICRs of smaller and riskier firms, including leveraged loan borrowers, are sensitive to interest rate changes due to their high leverage, high use of floating-rate loans, and short-term debt maturity structure. The volume-weighted default rate on leveraged loans stayed well below its historical median (figure 2.9, black line). However, defaults including distressed exchanges, which reflect the number of defaults and distressed loans that have been renegotiated between the borrower and the lender, continued to be elevated relative to history (figure 2.9, blue line).

Figure 2.9. The realized default rate on leveraged loans remained well below its previous peaks



Source: PitchBook Data, Leveraged Commentary & Data.

Private credit remains a small fraction of outstanding nonfinancial business debt, and growth seemed to have slowed somewhat this year. Based on available data for privately held firms that have borrowing activities from large banks, the ICR for the median firm continued its downward trend over the previous few years, as higher interest rates have contributed to reduced earnings and increased the cost of debt servicing. The average ICR at issuance for private credit borrowers increased but remained low at a value of around 2. Aggregate leverage of privately held firms was similar to the previous report and remained near its historical median. The recent bankruptcies of two privately held firms, an auto parts supplier and a subprime auto lender, so far appear to be isolated events. However, these examples highlight that unexpected losses could arise from opaque off-balance-sheet funding arrangements that may be used by certain privately held firms.

Credit availability to small businesses tightened, and delinquencies remained above pre-pandemic levels

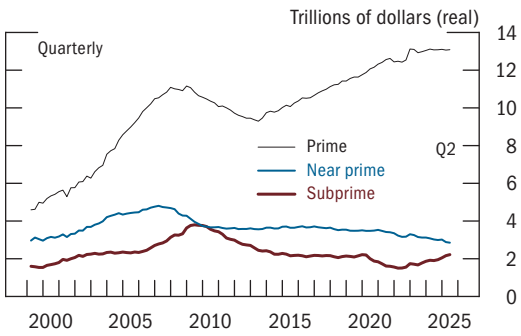
According to the August 2025 National Federation of Independent Business's Small Business Economic Trends Survey, the share of firms that borrow regularly has trended down since November 2021.[4] Measures of small business loan originations were level through the first half of 2025. Data from the Small Business Lending Survey showed that banks continued to tighten

[4] This survey's data are available on the National Federation of Independent Business's website at https://www.nfib.com/surveys/small-business-economic-trends.

credit standards.[5] Interest rates on small business loans have been largely stable in recent months and remained near the top of the range observed since 2008. Short-term (up to 90 days) delinquency rates ticked up but were still substantially lower than during the pandemic or the Great Recession. Long-term (more than 90 days) delinquency rates have levelled off recently but remained above their pre-pandemic levels.

Outstanding household debt adjusted for inflation was little changed

Figure 2.10. Inflation-adjusted household debt was largely unchanged



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax; consumer price index, Bureau of Labor Statistics via Haver Analytics.

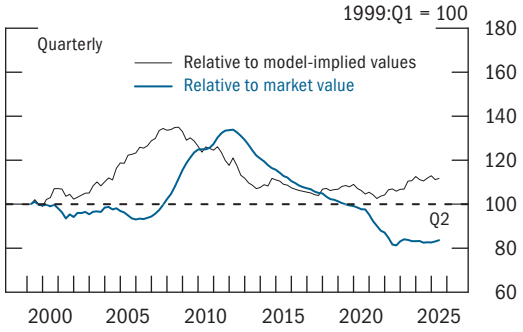
Outstanding household debt adjusted for inflation has been little changed over the past two years. The share of that debt that is currently owed by households with a subprime credit rating has risen somewhat, reflecting in part the rise in consumer delinquencies and a related deterioration of those borrowers' credit scores (figure 2.10). The ratio of total required household debt payments to total disposable income (the household debt service ratio) was little changed since the last report. Most household debt has fixed interest rates, and the higher interest rate environment of the past few years has only partially passed through to household interest expenses.

Mortgage credit risk remained low

Mortgage debt accounted for roughly three-fourths of total household debt. Housing leverage—measured as outstanding mortgage loan balances relative to home values—remained subdued (figure 2.11). When measured relative to market prices (blue line), outstanding mortgage balances continued to sit well below previous peaks. Outstanding mortgage loan balances relative to an estimate of home values from a model using rents and other market fundamentals were somewhat higher but remained far below earlier peaks (black line). The overall mortgage delinquency rate remained at the lower end of its historical distribution in the first half of 2025 (figure 2.12). Delinquency rates remained subdued due to large home equity cushions (figure 2.13) and strong underwriting standards.

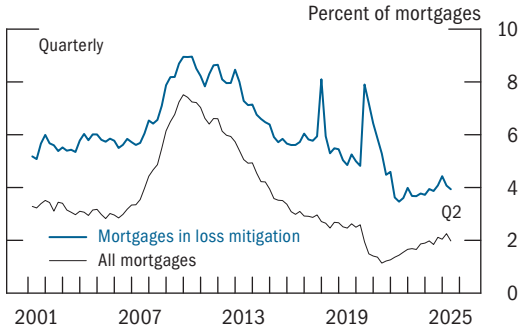
[5] This survey's data are available on the Federal Reserve Bank of Kansas City's website at https://www.kansascityfed.org/surveys/small-business-lending-survey/.

Figure 2.11. Measures of housing leverage stayed significantly below their peak levels



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax; Zillow, Inc., Real Estate Data; Bureau of Labor Statistics via Haver Analytics.

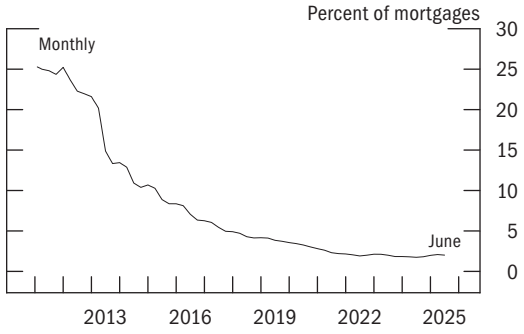
Figure 2.12. Mortgage delinquency rates edged down and remained close to the low end of their historical distribution



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax.

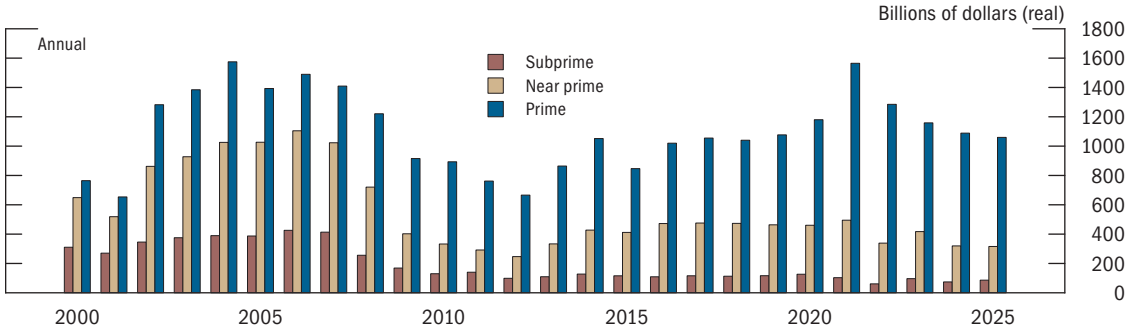
New mortgage extensions declined slightly for borrowers with a prime credit score (the group with the largest share) and for borrowers with near-prime credit scores but increased slightly for borrowers with subprime credit scores over the past year (figure 2.14). As of the fourth quarter of 2024, the early payment delinquency rate—the share of balances becoming delinquent within one year of mortgage origination—remained somewhat above the median of its historical distribution.

Figure 2.13. Very few homeowners had negative equity in their homes



Source: Cotality Real Estate Data.

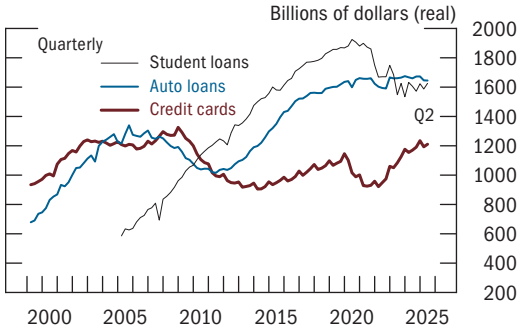
Figure 2.14. New mortgage extensions increased for subprime borrowers



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax; consumer price index, Bureau of Labor Statistics via Haver Analytics.

Consumer delinquencies remained high by historical standards

Figure 2.15. Consumer debt balances were largely unchanged for student and auto loans and for credit cards

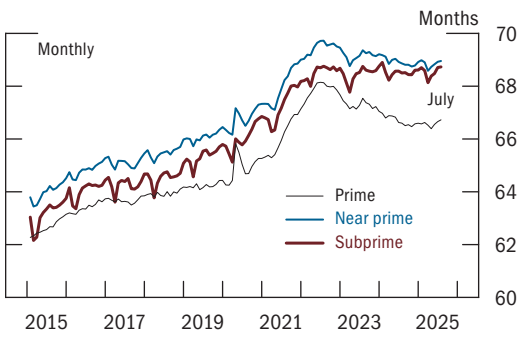


Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax; consumer price index, Bureau of Labor Statistics via Haver Analytics.

Consumer debt accounted for the remaining one-fourth of household debt and consisted primarily of student, auto, and credit card loans. Balances were broadly unchanged in inflation-adjusted terms relative to the previous report (figure 2.15).

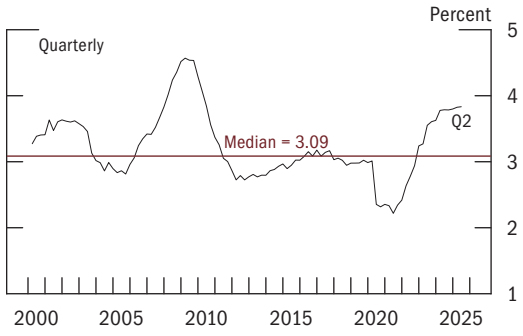
The average maturity of auto loans at origination for used cars was near historical highs for borrowers with a nonprime credit score (figure 2.16). On balance, longer-maturity loans tend to have higher default risks, partly because such loans have a higher risk of falling deep into a negative equity position, which can lead to consumer defaults. The share of auto loans in delinquent status was largely unchanged from the previous report and stood at a level somewhat above its historical median (figure 2.17).

Figure 2.16. The average maturity of loans at origination for used cars remained elevated for nonprime borrowers



Source: Experian Velocity.

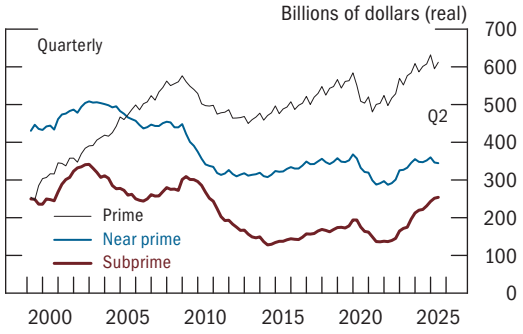
Figure 2.17. Auto loan delinquencies remained above the historical median



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax.

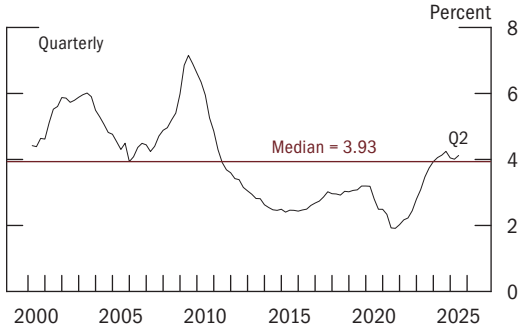
The stock of outstanding credit card debt shifted slightly to subprime borrowers over the first half of 2025 (figure 2.18). Credit card delinquency rates remained flat in the first half of 2025 after reaching their highest level since 2010 in the previous year (figure 2.19). The stabilization of credit performance has been broad based, with delinquency rates leveling off across credit

Figure 2.18. Inflation-adjusted credit card balances for subprime borrowers were up slightly



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax; consumer price index, Bureau of Labor Statistics via Haver Analytics.

Figure 2.19. Credit card delinquencies remained slightly above their long-term median



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax.

score and income groups.[6] The overall increase in credit card delinquencies since early 2022 was attributable primarily to elevated delinquencies among borrowers with a nonprime credit score and reflected in large part looser underwriting standards and large growth in inflation-adjusted revolving credit over the pandemic period.

Delinquencies on student loan debt increased significantly in the first half of 2025, reflecting the resumption of student loan repayments and reporting of delinquent loans to credit bureaus. However, student loan borrowers have not yet shown much greater difficulty in meeting their non-student loan debt payments relative to the overall population.

[6] Income and credit score are not strongly correlated; see Rachael Beer, Felicia Ionescu, and Geng Li (2018), "Are Income and Credit Scores Highly Correlated?" FEDS Notes (Washington: Board of Governors of the Federal Reserve System, August 13), https://doi.org/10.17016/2380-7172.2235.

3 | Leverage in the Financial Sector

Vulnerabilities associated with financial leverage remained notable

While banks and broker-dealers have maintained solid capital positions, leverage for some other types of financial entities—such as hedge funds and life insurers—was elevated relative to historical standards. When taken together, the overall level of vulnerability due to financial-sector leverage was notable.

In the first quarter of 2025, hedge fund leverage was as high as it has been since comprehensive data have been collected. Hedge funds' use of leverage increased across a range of trading strategies supporting large positions in Treasury securities, interest-rate derivatives, and equities. Life insurers' leverage was in the upper quartile of its historical distribution.

The banking system remained sound and resilient, but many banks continued to carry fair value losses that are not reflected in their regulatory capital ratios. Leverage at broker-dealers stayed near historically low levels. However, the potential for strains on the willingness of dealers to intermediate during periods of market stress remained a vulnerability to Treasury markets.

Table 3.1 shows the sizes and growth rates of assets of financial institutions discussed in this section.

Banks maintained historically high levels of regulatory capital, but their fair value losses and exposure to interest rate risk remained sizable

Robust capital positions allow banks to pursue growth opportunities while providing a cushion against unexpected losses. The common equity Tier 1 (CET1) ratio, a regulatory risk-based measure of bank capital adequacy, remained at historically high levels across bank types (figure 3.1). The income-generating capacity of banks is an additional potential source of resiliency, as banks can accrete capital to buffer against future losses by retaining a portion of their current earnings. Banks' return on equity—a measure of profitability—remained within recent historical ranges through the second quarter of 2025 (figure 3.2).[7]

A decline in interest rates caused the fair value of banks' fixed-rate assets to increase over the first half of 2025, but fair value losses remained sizable. As of June 30, 2025, the fair values

[7] The return on equity for large non–G-SIBs (global systemically important banks) as a group fluctuated in the first half of 2025 due to one-off effects stemming from acquisitions involving two banks. Third-quarter earnings calls through the data close showed a sizable increase in the return on equity for large banks relative to the third quarter of 2024.

Table 3.1. Size of selected sectors of the financial system, by types of institutions and vehicles

Item	Total assets (billions of dollars)	Growth, 2024:Q2–2025:Q2 (percent)	Average annual growth, 1997–2025:Q2 (percent)
Banks and credit unions	28,576	3.7	5.5
Mutual funds	22,686	8.1	8.3
Insurance companies	14,388	7.6	5.5
Life	10,719	7.2	5.5
Property and casualty	3,669	8.9	5.7
Hedge funds[1]	12,465	13.8	8.7
Broker-dealers[2]	6,843	15.4	5.2
	Outstanding (billions of dollars)		
Securitization	14,122	4.0	5.3
Agency	12,418	3.2	5.7
Non-agency[3]	1,704	10.7	3.9

Note: The data extend through 2025:Q2 unless otherwise noted. Outstanding amounts are in nominal terms. Growth rates are nominal and are measured from Q2 of the year immediately preceding the period through Q2 of the final year of the period. Life insurance companies' assets include both general and separate account assets.

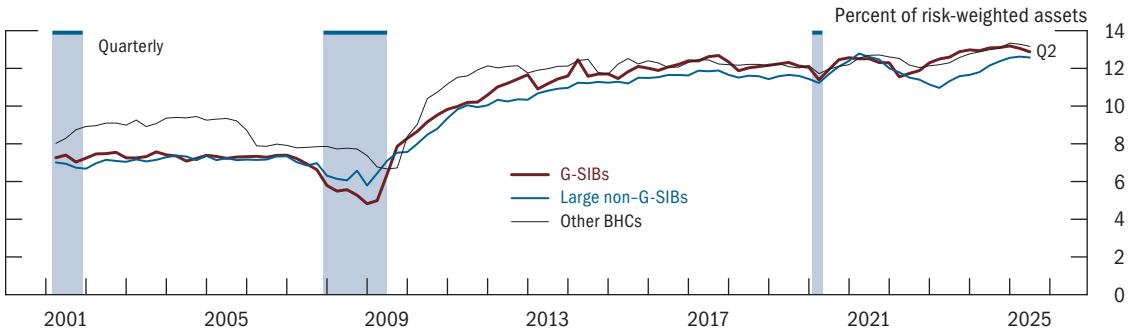
[1] Hedge fund data start in 2012:Q4 and are updated through 2025:Q1. Growth rates for the hedge fund data are measured from Q1 of the year immediately preceding the period through Q1 of the final year of the period.

[2] Broker-dealer assets are calculated as unnetted values.

[3] Non-agency securitization excludes securitized credit held on balance sheets of banks and finance companies.

Source: Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States"; Federal Reserve Board, "Enhanced Financial Accounts of the United States."

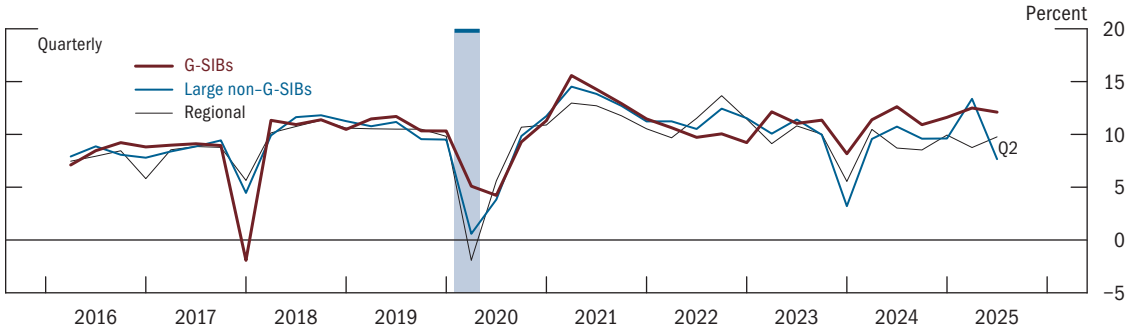
Figure 3.1. Banks' average risk-based capital ratios remained near previous peaks



Source: Federal Reserve Board, Form FR Y-9C, Consolidated Financial Statements for Holding Companies.

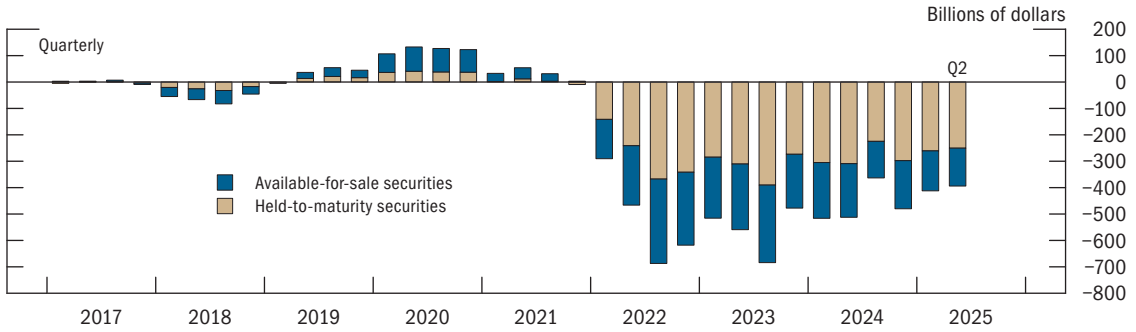
of banks' available-for-sale (AFS) and held-to-maturity (HTM) portfolios were below their book values by $143 billion and $251 billion, respectively (figure 3.3). The duration of banks' securities portfolios—a measure of the sensitivity of the market value of assets to changes in interest rates—remained elevated, although it has decreased significantly from its peak level in 2022.

Figure 3.2. Returns on equity for banks were at typical levels



Source: Federal Financial Institutions Examination Council, Consolidated Reports of Condition and Income (Call Report) Form FFIEC 031; Federal Reserve Board, Form FR Y-9C, Consolidated Financial Statements for Holding Companies.

Figure 3.3. The fair value losses of banks' securities portfolios decreased but remained sizable



Source: Federal Financial Institutions Examination Council, Consolidated Reports of Condition and Income (Call Report) Form FFIEC 031; Federal Reserve Board, Form FR Y-9C, Consolidated Financial Statements for Holding Companies.

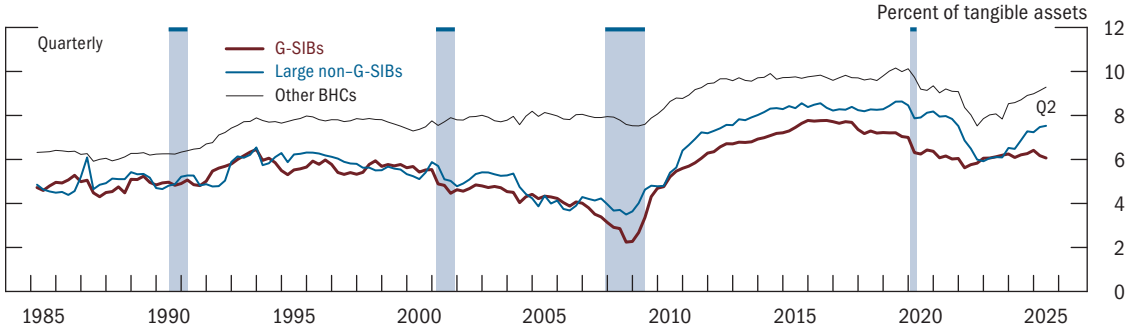
An alternative measure of bank capital—the ratio of tangible common equity to total tangible assets, which, unlike the CET1 ratio, does not factor in the riskiness of assets but does include fair value declines on AFS securities for all banks—increased for large non–G-SIBs and regional banks but remained below its median level over the past decade for all bank categories (figure 3.4).

Credit quality at banks remained sound

Recent responses from the Senior Loan Officer Opinion Survey on Bank Lending Practices indicated that overall bank lending standards showed some signs of easing (figure 3.5). At the same time, delinquency rates on bank loans declined across key categories (figure 3.6).

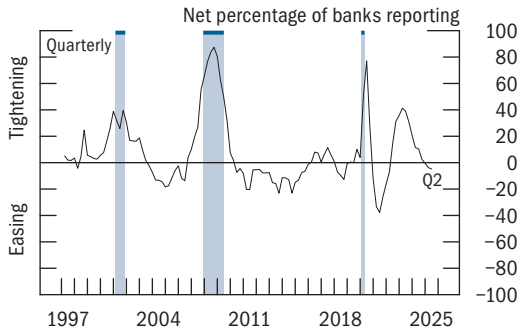
Delinquencies of loans backed by commercial properties were stable or decreased over the first half of 2025. Larger banks, where these delinquencies are concentrated, tend to have more

Figure 3.4. The ratio of tangible common equity to tangible assets remained below its median over the past decade



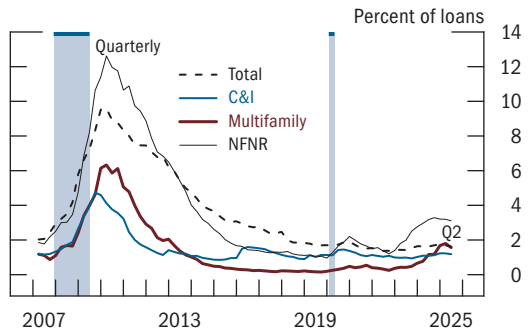
Source: For data through 1996, Federal Financial Institutions Examination Council, Consolidated Reports of Condition and Income (Call Report) Form FFIEC 031. For data from 1997 onward, Federal Reserve Board, Form FR Y-9C, Consolidated Financial Statements for Holding Companies; Federal Financial Institutions Examination Council, Consolidated Reports of Condition and Income (Call Report) Form FFIEC 031.

Figure 3.5. Bank lending standards showed some signs of easing



Source: Federal Reserve Board, Senior Loan Officer Opinion Survey on Bank Lending Practices; Federal Reserve Board staff calculations.

Figure 3.6. Delinquencies on bank loans declined



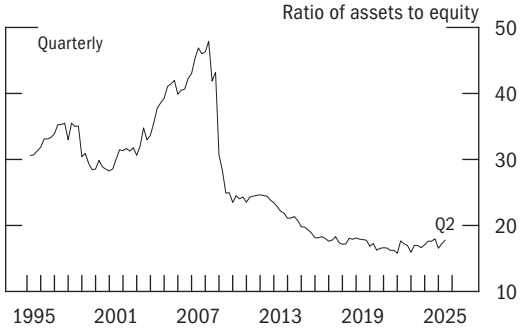
Source: Federal Reserve Board, Form FR Y-9C, Consolidated Financial Statements for Holding Companies; Federal Financial Institutions Examination Council, Consolidated Reports of Condition and Income (Call Report) Form FFIEC 031.

substantial loan loss allowances and appear to be positioned to manage potential portfolio losses. Banks also continued to actively manage their CRE exposures by modifying loan terms, such as by requiring additional collateral from some borrowers.

Broker-dealers' leverage remained low

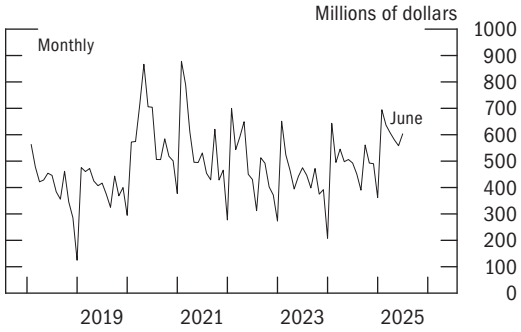
The ratio of broker-dealers' assets to equity was at the lower end of its historical distribution through the first half of 2025 (figure 3.7). Smoothing through seasonal factors, trading profits continued to increase, and the distribution of trading profits remained balanced across equities; fixed income, rates, and credit; and other business lines (figures 3.8 and 3.9).

Figure 3.7. Leverage at broker-dealers remained low



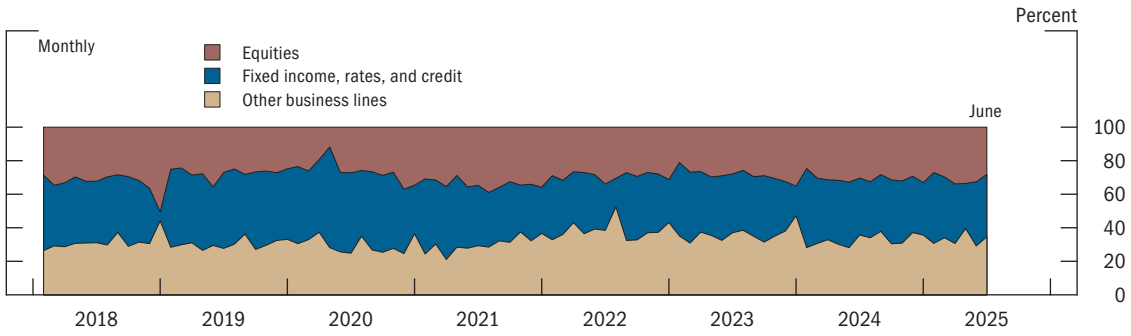
Source: Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States."

Figure 3.8. Broker-dealers' trading profits were within their seasonally adjusted range of the past 5 years



Source: Federal Reserve Board, Reporting, Recordkeeping, and Disclosure Requirements Associated with Regulation VV (Proprietary Trading and Certain Interests in and Relationships with Covered Funds, 12 C.F.R. pt. 248).

Figure 3.9. The distribution of the sources of broker-dealers' trading profits was in line with recent averages



Source: Federal Reserve Board, Reporting, Recordkeeping, and Disclosure Requirements Associated with Regulation VV (Proprietary Trading and Certain Interests in and Relationships with Covered Funds, 12 C.F.R. pt. 248).

Dealers are important intermediaries in Treasury markets, serving in key roles that support orderly market functioning. Measures of dealer intermediation activity in Treasury markets increased further due to growth in secured lending, particularly repurchase agreement (repo) lending to hedge fund clients. While dealers' intermediation capacity remains adequate for market functioning in normal times, their willingness and ability to intermediate can be tested during periods of market stress due to internal risk limits as well as regulatory requirements. The Federal Reserve, the Office of the Comptroller of the Currency, and the Federal Deposit Insurance Corporation issued proposed rules in June to recalibrate G-SIBs' enhanced supplemental leverage ratio. Among other things, the proposed rules are intended to reduce regulatory disincentives for U.S. G-SIBs'

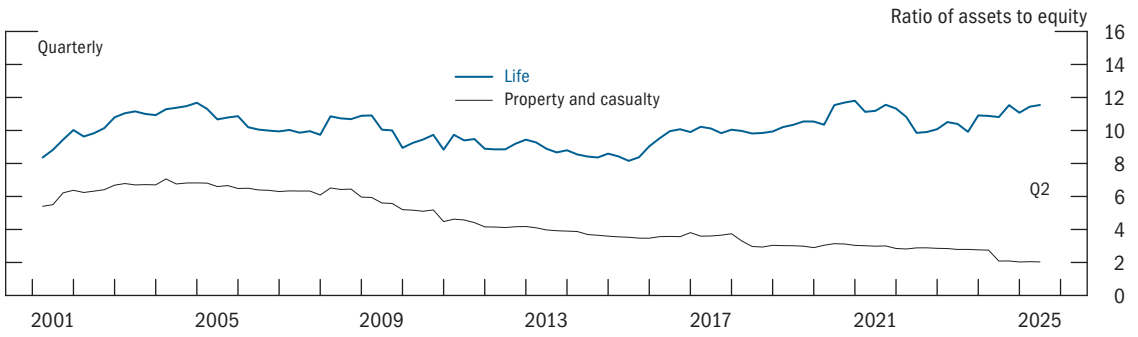
broker-dealer subsidiaries to engage in certain low-risk activities such as intermediating in Treasury markets.[8]

The September 2025 Senior Credit Officer Opinion Survey on Dealer Financing Terms (SCOOS) focused on recent trends in dealers accepting securities in lieu of cash as collateral to satisfy variation margin (VM) obligations for over-the-counter derivatives transactions.[9] While allowing clients to post securities as collateral instead of cash for margin payments can help counterparties avoid selling securities in order to raise cash during periods of stress, it exposes dealers to the interest rate and credit risk of the securities. One-third of SCOOS respondents reported an increase since January 2023 in the share of VM taking the form of securities, primarily in response to client demand coupled with more aggressive competition from other dealers. One-third of respondents expect the share of the volume of securities delivered as VM to increase somewhat over the next 12 months.

Leverage at life insurance companies was in the upper quartile of its historical distribution

Leverage at life insurers remained in the upper quartile of its historical distribution over the first half of 2025, while leverage at property and casualty insurers remained at historically low levels (figure 3.10).

Figure 3.10. Leverage at life insurance companies was in the upper quartile of its historical distribution



Source: Generally accepted accounting principles data from 10-Q and 10-K filings accessed via S&P Global, Capital IQ Pro.

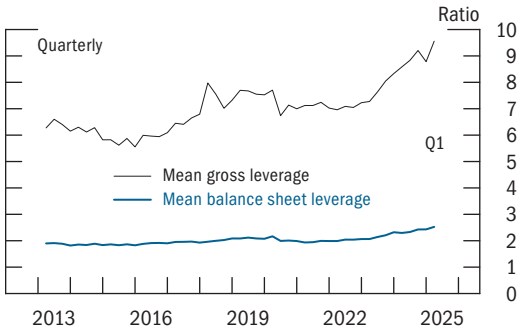
[8] See Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, and Office of the Comptroller of the Currency (2025), "Agencies Request Comment on Proposal to Modify Certain Regulatory Capital Standards," joint press release, June 27, https://www.federalreserve.gov/newsevents/pressreleases/bcreg20250627a.htm.

[9] The SCOOS is available on the Federal Reserve Board's website at https://www.federalreserve.gov/data/scoos.htm.

Hedge funds' leverage was elevated and continued to grow

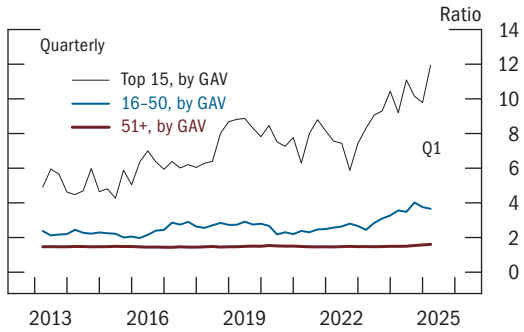
In the first quarter of 2025, the most recent quarter for which comprehensive data from the Securities and Exchange Commission's Form PF data are available, measures of hedge funds' leverage were at their highest levels since the adoption of Form PF in 2013 (figure 3.11). The use of leverage over the past couple of years has increased across a range of strategies and supported significant positions in key markets, such as Treasury securities, interest rate derivatives, and equities. Looking across strategies, the largest funds generally continued to be the most leveraged (figure 3.12). According to data from the SCOOS, dealers reported that hedge funds' use of financial leverage pulled back a bit in April, possibly because some hedge funds unwound leveraged positions during that period (figure 3.13).

Figure 3.11. As of the first quarter of 2025, hedge funds' leverage was at its highest level since data became available



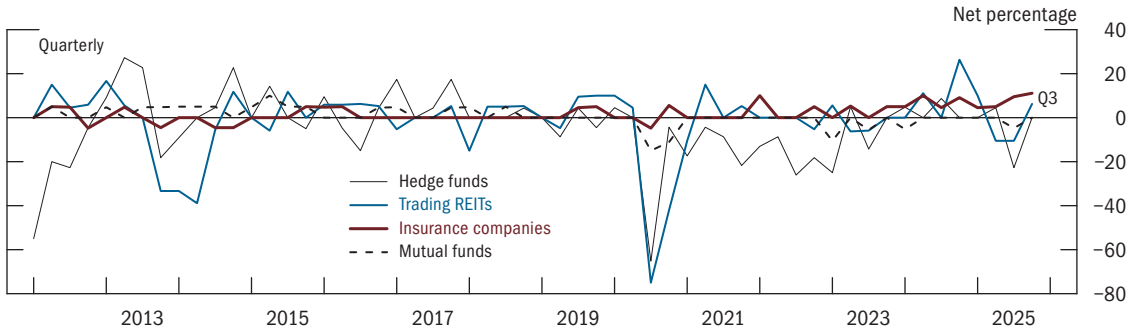
Source: Securities and Exchange Commission, Form PF, Reporting Form for Investment Advisers to Private Funds and Certain Commodity Pool Operators and Commodity Trading Advisors.

Figure 3.12. Balance sheet leverage at the 15 largest hedge funds increased further through the first quarter of 2025



Source: Securities and Exchange Commission, Form PF, Reporting Form for Investment Advisers to Private Funds and Certain Commodity Pool Operators and Commodity Trading Advisors.

Figure 3.13. Dealers indicated that the use of leverage by hedge funds declined around April

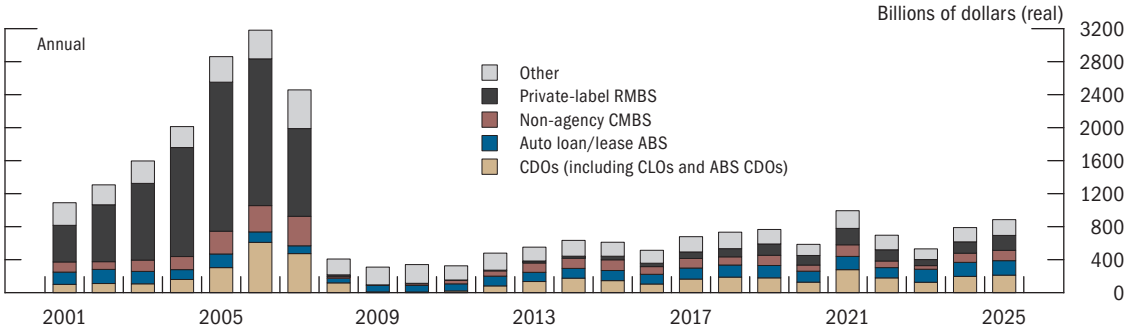


Source: Federal Reserve Board, Senior Credit Officer Opinion Survey on Dealer Financing Terms.

Issuance of non-agency securities remained strong

Issuance of non-agency securities remained robust through June (figure 3.14).[10] Credit spreads on most major securitized products have narrowed notably after widening in April. Credit performance across a range of securitized products was stable or modestly improved since the last report.

Figure 3.14. The pace of issuance of securitized products remained robust through June



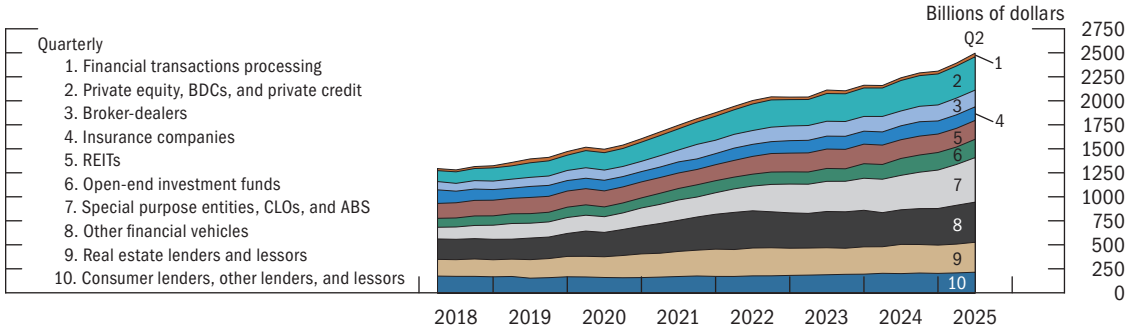
Source: Green Street, Commercial Mortgage Alert's CMBS Database and Asset-Backed Alert's ABS Database; consumer price index, Bureau of Labor Statistics via Haver Analytics.

Bank lending to other financial entities continued to grow at a robust pace

Bank credit commitments to other financial entities grew appreciably in the first half of 2025 to $2.5 trillion, reflecting the growth in market-based finance and other forms of private nonbank lending (figure 3.15). Bank lending to other financial entities is not significantly concentrated in any one sector, but recent growth has been notably robust for the category of special purpose entities, CLOs, and asset-backed securities, followed by the category of other financial vehicles and the category of private equity, business development companies (BDCs), and private credit (figure 3.16).

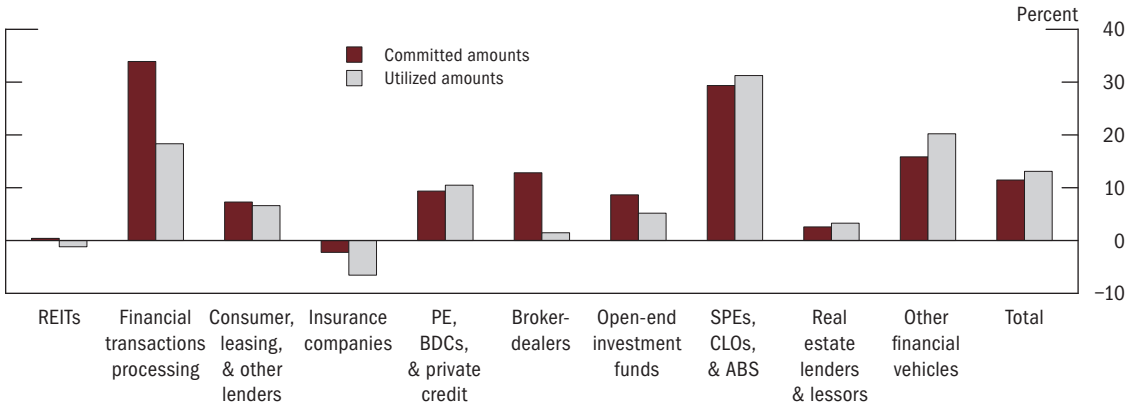
[10] Securitization allows financial institutions to bundle loans or other financial assets and sell claims on the cash flows generated by these assets as tradable securities, much like bonds. By funding assets with debt issued by investment funds known as special purpose entities (SPEs), securitization can add leverage to the financial system, in part because SPEs are generally subject to regulatory regimes, such as risk retention rules, that are less stringent than banks' regulatory capital requirements. Examples of the resulting securities include CLOs (predominantly backed by leveraged loans), asset-backed securities (often backed by credit card and auto debt), commercial mortgage-backed securities, and residential mortgage-backed securities.

Figure 3.15. Bank credit commitments to other financial entities continued to grow



Source: Federal Reserve Board, Form FR Y-14Q (Schedule H.1), Capital Assessments and Stress Testing.

Figure 3.16. Bank credit growth was strongest for special purpose entities, collateralized loan obligations, and asset-backed securities between 2024:Q2 and 2025:Q2



Source: Federal Reserve Board, Form FR Y-14Q (Schedule H.1), Capital Assessments and Stress Testing.

4 | Funding Risks

Vulnerabilities from funding risks were at levels roughly in line with historical norms

Funding risks for most banks remained near historical norms. As a share of assets, uninsured deposits, an important component of most banks' funding risk, stabilized at levels significantly below their 2022 peaks. Large banks also maintained sound levels of high quality liquid assets (HQLA).

Assets in cash-management vehicles continued to grow, primarily driven by government MMFs, which have historically proved the least susceptible to large-scale investor redemptions among cash-management vehicles.

Some open-end bond and loan mutual funds remained exposed to liquidity transformation risks that could cause asset fire sales in market downturns, as they allow daily redemptions while holding assets that might become illiquid in times of stress. Meanwhile, life insurers' use of non-traditional liabilities increased at a greater rate than their assets.

Table 4.1 gives the outstanding amounts of runnable money-like liabilities, and figure 4.1 shows the total relative to GDP. The box "A More Targeted Assessment of Short-Term Funding Risk" shows how accounting for the varying degrees of susceptibility of money-like liabilities, such as government MMFs, uninsured deposits, and repo, can provide additional insights regarding aggregate funding risk.

Most banks maintained high levels of liquidity, and their funding sources stabilized further over the past year

Aggregate liquidity in the banking system measured by the ratio of HQLA to total assets ticked down somewhat since the last report but has remained at the higher end of the historical distribution for all bank groups (figure 4.2). Many U.S. G-SIBs continued to hold a significant portion of their HQLA in HTM securities, primarily long-duration agency mortgage-backed securities, whose market values continued to be well below their book values. Any need to monetize these assets would likely rely on repo market access rather than asset sales.[11]

[11] Securities held in HTM accounts are accounted at fair value for liquidity coverage ratio (LCR) purposes but at book value for regulatory capital purposes. Selling HTM securities (rather than holding them to maturity) could "taint" the entire HTM investment portfolio, requiring it to be marked to market. This could result in the selling bank recognizing a significant mark-to-market loss and reduction in regulatory capital. Banks with access to repo markets can raise cash by pledging securities in a repo transaction without tainting their HTM portfolio.

Table 4.1. Size of selected instruments and institutions

Item	Outstanding/total assets (billions of dollars)	Growth, 2024:Q2–2025:Q2 (percent)	Average annual growth, 1997–2025:Q2 (percent)
Total runnable money-like liabilities[1]	25,049	12.6	5.2
Uninsured deposits	7,314	8.8	10.7
Domestic money market funds[2]	7,024	15.3	6.6
Government	5,723	16.4	15.2
Prime	1,163	11.3	3.5
Tax exempt	138	6.9	–.6
Repurchase agreements	5,813	12.6	6.0
Commercial paper	1,390	14.1	2.7
Securities lending[3]	1,164	13.5	7.4
Bond mutual funds	5,032	7.7	8.0

Note: The data extend through 2025:Q2 unless otherwise noted. Outstanding amounts are in nominal terms. Growth rates are nominal and are measured from Q2 of the year immediately preceding the period through Q2 of the final year of the period. Total runnable money-like liabilities exceed the sum of listed components. Unlisted components of runnable money-like liabilities include variable-rate demand obligations, federal funds, funding-agreement-backed securities, private liquidity funds, offshore money market funds, short-term investment funds, local government investment pools, and stablecoins. Bond mutual funds are not part of the total runnable money-like liabilities.

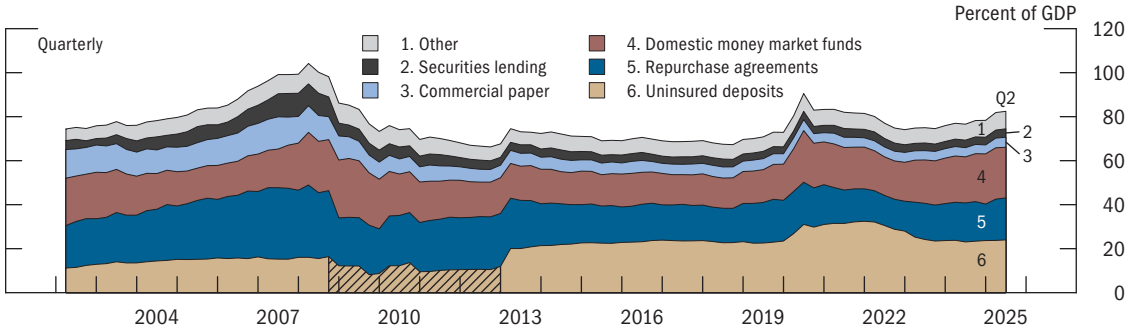
[1] Average annual growth is from 2003:Q1 to 2025:Q2.

[2] Average annual growth is from 2001:Q1 to 2025:Q2.

[3] Average annual growth is from 2000:Q1 to 2025:Q1. Securities lending includes only lending collateralized by cash.

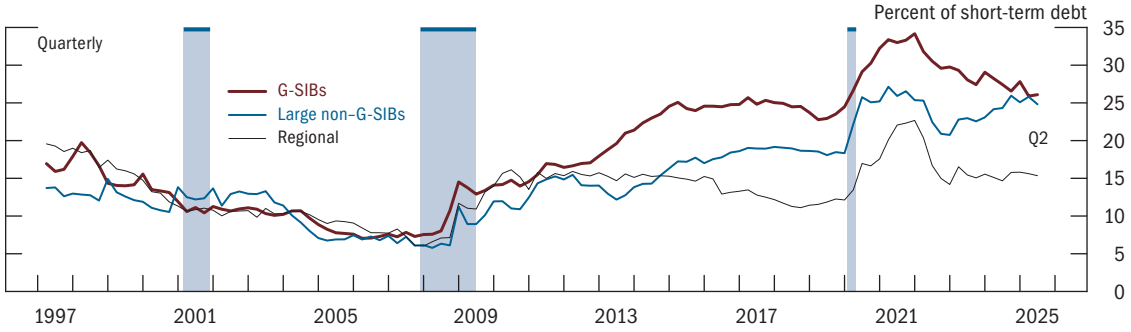
Source: Securities and Exchange Commission, Private Fund Statistics; iMoneyNet, Inc., Offshore Money Fund Analyzer; Bloomberg Finance L.P.; Securities Industry and Financial Markets Association: U.S. Municipal Variable-Rate Demand Obligation Update; DTCC Solutions LLC, an affiliate of the Depository Trust & Clearing Corporation: commercial paper and negotiable certificates of deposit data; Federal Reserve Board staff calculations based on Risk Management Association, Securities Lending Report; S&P Securities Finance; Investment Company Institute; Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States"; Federal Financial Institutions Examination Council, Consolidated Reports of Condition and Income (Call Report) Form FFIEC 031; Morningstar, Inc., Morningstar Direct; Llama Corp, DeFiLlama.

Figure 4.1. The ratio of runnable money-like liabilities to GDP was around 80 percent



Source: Securities and Exchange Commission, Private Fund Statistics; iMoneyNet, Inc., Offshore Money Fund Analyzer; Bloomberg Finance L.P.; Securities Industry and Financial Markets Association: U.S. Municipal Variable-Rate Demand Obligation Update; DTCC Solutions LLC, an affiliate of the Depository Trust & Clearing Corporation: commercial paper and negotiable certificates of deposit data; Federal Reserve Board staff calculations based on Risk Management Association, Securities Lending Report; S&P Securities Finance; Investment Company Institute; Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States"; Federal Financial Institutions Examination Council, Consolidated Reports of Condition and Income (Call Report) Form FFIEC 031; gross domestic product, Bureau of Economic Analysis via Haver Analytics; Llama Corp, DeFiLlama.

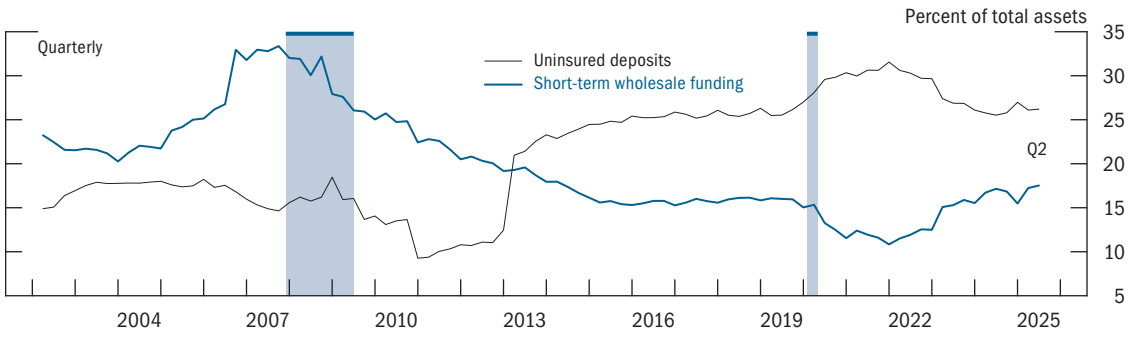
Figure 4.2. The share of high-quality liquid assets to short-term debt ticked down in the first half of 2025 but remained at the higher end of the historical distribution



Source: Federal Reserve Board, Form FR Y-9C, Consolidated Financial Statements for Holding Companies; Federal Financial Institutions Examination Council, Consolidated Reports of Condition and Income (Call Report) Form FFIEC 031.

Banks' funding structures were little changed in the aggregate through the first half of 2025 (figure 4.3). The share of uninsured deposits relative to total bank assets remained well below the elevated levels seen in 2022 and early 2023 and near the levels seen in the latter half of the 2010s. Large banks, in lowering their uninsured deposits, increased their reliance on short-term nondeposit wholesale funding sources, such as repos. Regional and community banks, by contrast, generally relied more on brokered and reciprocal deposits. While a majority of brokered deposits and all reciprocal deposits are fully insured, they are more expensive than traditional core insured deposits and may not be as stable during times of stress.

Figure 4.3. Banks' reliance on uninsured deposits and short-term wholesale funding stabilized to levels more typical of the longer history

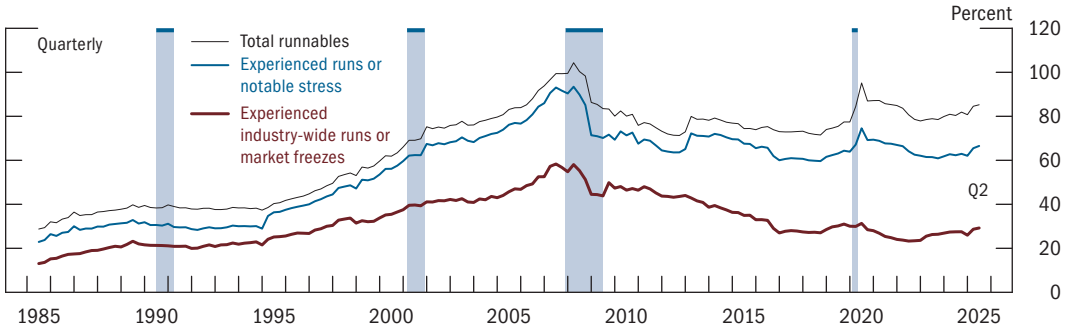


Source: Federal Reserve Board, Form FR Y-9C, Consolidated Financial Statements for Holding Companies; Federal Financial Institutions Examination Council, Consolidated Reports of Condition and Income (Call Report) Form FFIEC 031.

Box 4.1. A More Targeted Assessment of Short-Term Funding Risk

The volume and composition of short-term uninsured financial liabilities that are potentially susceptible to disruptive withdrawals or redemptions, referred to as "runnables" for short, are key indicators of the aggregate level of funding risk in the financial system.[1] Runnables can be either short-term investment vehicles, like MMFs, or short-term funding instruments, like repos. The total outstanding volume of runnables is now equivalent in size to 85 percent of GDP, which exceeds the pre-pandemic level of this ratio and is approaching levels reached just before the 2007–09 financial crisis (figure 4.1 and figure A). Yet not all components of the aggregate are equally susceptible, and since 2007 some of the riskiest components have shrunk substantially. This box provides more targeted assessments of run-related funding risk in the financial system by sorting runnables according to their historical run propensity.

Figure A. Runnable vehicles and instruments, by historical run propensity



Source: Securities and Exchange Commission, Private Fund Statistics; iMoneyNet, Inc., Offshore Money Fund Analyzer; Bloomberg Finance L.P.; Investment Company Institute; DTCC Solutions LLC, an affiliate of the Depository Trust & Clearing Corporation: commercial paper and negotiable certificates of deposit data; Federal Reserve Bank of New York; Securities Industry and Financial Markets Association; J.P. Morgan Chase & Co.; Llama Corp, DeFiLlama; Federal Financial Institutions Examination Council, Consolidated Reports of Condition and Income (Call Report) Form FFIEC 031; Securities and Exchange Commission, Form N-PORT, Monthly Portfolio Investments Report; Morningstar, Inc., Morningstar Direct; Risk Management Association, Securities Lending Report; Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States"; Federal Reserve Board staff calculations.

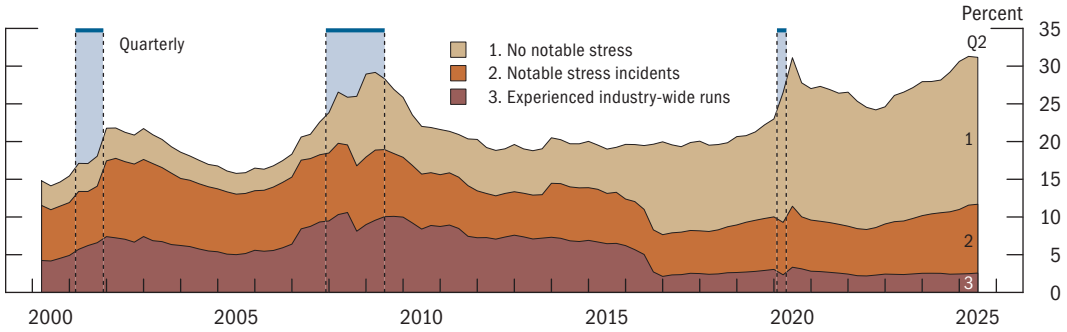
With this approach, the riskiest group of runnables, defined as short-term investment vehicles and funding instruments that have experienced either industry-wide runs or market freezes, have trended down since 2007. Figure A shows that the GDP-scaled volume of this group stands at about half its level just before the 2007–09 financial crisis and slightly below its pre-pandemic level. A broader set of runnables, which also includes vehicles and instruments that have experienced notable stress events—such as sizable redemptions or more acute but isolated strains—is also well below its level before the financial crisis. The widening gaps over the past decade between aggregate runnables and these two categories of risky runnables highlight that components that historically have been more stable account for much of the recent growth in the aggregate measure. Hence, a simple sorting of the runnables sharpens the assessment of funding risk and suggests lower vulnerabilities than the aggregate indicator on its own.

(continued)

[1] For a broader introduction to runnables, see the box "Runnables: An Indicator of Aggregate Run-Related Vulnerabilities in the Economy" in Board of Governors of the Federal Reserve System (2025), *Financial Stability Report* (Washington: Board of Governors, April), pp. 39–40, https://www.federalreserve.gov/publications/files/financial-stability-report-20250425.pdf.

Box 4.1—*continued*

Figure B. Runnable vehicles, by risk category, as a percentage of nominal GDP



Source: iMoneyNet, Inc., Offshore Money Fund Analyzer; Investment Company Institute; Bloomberg Finance L.P.; Federal Financial Institutions Examination Council, Consolidated Reports of Condition and Income (Call Report) Form FFIEC 031; Securities and Exchange Commission, Private Fund Statistics; Securities and Exchange Commission, Form N-PORT, Monthly Portfolio Investments Report; Morningstar, Inc., Morningstar Direct; Llama Corp, DeFiLlama; Federal Reserve Board staff calculations.

Figure B focuses on short-term investment vehicles and sorts them by their historical fragility. The riskiest category, those that have experienced industry-wide runs (dark red area, currently equivalent to 2.6 percent of GDP), consists of domestic institutional prime MMFs and dollar-denominated offshore prime MMFs. These vehicles' susceptibility to runs arises from a confluence of structural vulnerabilities—such as substantial liquidity transformation—and highly risk-averse institutional investors. Both types of MMFs experienced severe and widespread runs during the 2007–09 financial crisis and the pandemic.

A broader category of vehicles have experienced notable stress incidents (orange area, equivalent to 9 percent of GDP). For instance, retail prime MMFs faced notable redemptions during the 2007–09 financial crisis and the pandemic, but those redemptions were less severe than the runs on their institutional counterparts. Ultrashort bond funds with significant exposures to credit risk experienced heavy redemptions during both the 2007–09 financial crisis and the pandemic. Some local government investment pools, including those used by Orange County, California, in 1994 and by the state of Florida in 2007, have encountered notable but localized stress. A few private liquidity funds suffered losses and serious stress during the 2007–09 financial crisis that led some to freeze redemptions. Some bank-sponsored short-term investment funds (STIFs) came under stress during the 2007–09 financial crisis, with one bank abruptly liquidating a STIF in September 2008 and several other banks providing support for their funds. Some stablecoins have also experienced notable stress in the past.

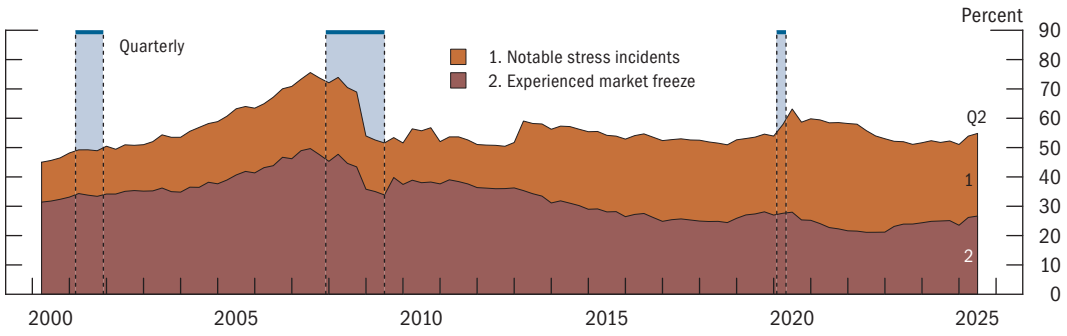
The final category, investment vehicles that have not experienced notable stress (beige area, equivalent to about 20 percent of GDP), includes domestic and offshore government MMFs. They account for about 60 percent of the total assets of runnable vehicles and for much of their growth over the past decade.

Figure C focuses on short-term funding instruments and sorts them by historical fragility. The instruments that have experienced market-wide freezes (dark red area, equivalent to 27 percent of GDP) include commercial paper (CP), negotiable certificates of deposit (NCDs), variable-rate demand obligations (VRDOs), and repo. During both the 2007–09 financial crisis and the pandemic, issuance of CP almost froze, particularly at maturities beyond overnight, and NCD issuance also plummeted in

(continued)

Box 4.1—*continued*

Figure C. Runnable instruments, by risk category, as a percentage of nominal GDP



Source: Federal Financial Institutions Examination Council, Consolidated Reports of Condition and Income (Call Report) Form FFIEC 031; DTCC Solutions LLC, an affiliate of the Depository Trust & Clearing Corporation: commercial paper and negotiable certificates of deposit data; Risk Management Association, Securities Lending Report; Federal Reserve Bank of New York; Bloomberg Finance L.P.; Securities Industry and Financial Markets Association; J.P. Morgan Chase & Co.; Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States"; Federal Reserve Board staff calculations.

March 2020. Amid the 2007–09 financial crisis, the market for VRDOs, variable-rate municipal bonds that typically can be sold to a bank at par on short notice, effectively froze as investors rushed to sell, and the VRDO market has never fully recovered.[2] The repo market also came under severe stress during the 2007–09 financial crisis, as concerns over counterparty and collateral risks prompted lenders to suddenly curtail funding and caused freezes in certain market segments.

The instruments that have experienced notable stress incidents (orange area, equivalent to 28 percent of GDP) include uninsured deposits, federal funds, securities lending, and funding-agreement-backed securities (FABS). Uninsured deposits, the largest of these components, have been susceptible to rapid withdrawals during multiple periods of stress. The federal funds market, an overnight unsecured interbank lending market, came under notable stress during the 2007–09 financial crisis as liquidity dried up in the banking system. Firms that engage in securities lending typically reinvest the cash collateral they receive, and some of these reinvestments soured during the 2007–09 financial crisis and left lenders unable to return collateral promptly. FABS, which are wholesale funding instruments issued by insurance companies, experienced severe stress during the 2007–09 financial crisis as investors pulled back from opaque credit exposures.

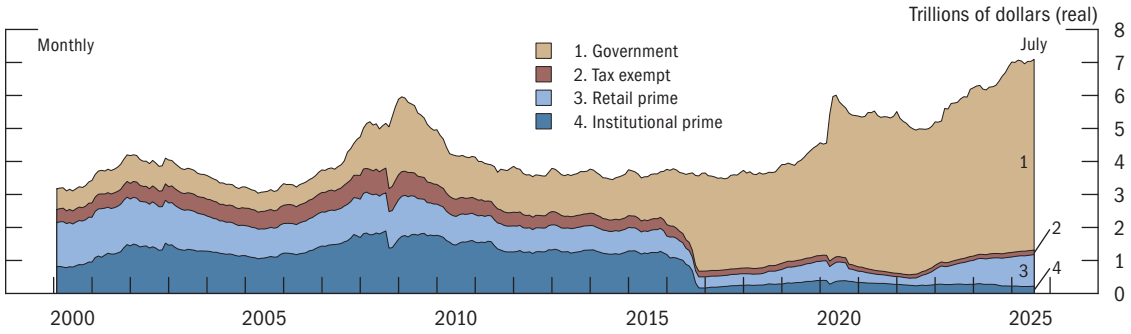
To be sure, sorting runnables based on historical stress events may not fully capture current resilience. For example, Securities and Exchange Commission reforms for MMFs implemented in 2023 likely reduced the run susceptibility of institutional prime MMFs relative to their past, and a requirement for expanded central clearing of Treasury repo could also mitigate vulnerabilities. On the other hand, some emerging vehicles may have no record of stress events or serious runs simply because they are new. The methodology also does not fully account for heterogeneity within components. For instance, vulnerabilities of stablecoins likely depend substantially on their pegging mechanisms and reserve compositions, and the GENIUS Act's requirements will mitigate vulnerabilities in payment stablecoins. Nonetheless, historical experience provides a systematic means of sorting runnables that offers new insights into the fragilities of funding markets and enhances assessments of funding risk.

[2] VRDOs are long-term municipal bonds with short-term interest rate resets. Investors typically can "put" (sell the bonds at par) on short notice, such as weekly, to a bank. In early 2008, investors began exercising their put options en masse. Banks were forced to repurchase VRDOs they could not resell, and rates on VRDOs rose significantly.

Assets in cash-management vehicles continued to grow, primarily driven by government MMFs

As of July 2025, total MMF assets had risen to $7.1 trillion from $6.3 trillion in July 2024, likely because MMFs continued to provide more attractive yields relative to most bank deposits (figure 4.4). The main contributor to this growth was government funds, which account for more than 80 percent of MMF assets and are less susceptible to runs because they only hold U.S. government and agency securities as well as repos backed by them. Assets under management (AUM) in institutional prime MMFs—historically, the most vulnerable segment—shrank by almost 18 percent over that period.

Figure 4.4. Assets under management at money market funds remained high



Source: Federal Reserve Board staff calculations based on Investment Company Institute data; consumer price index, Bureau of Labor Statistics via Haver Analytics.

Other cash-management vehicles, such as dollar-denominated offshore MMFs and STIFs, also invest in money market instruments and engage in liquidity transformation. Estimated aggregate AUM of these vehicles has remained around $2.2 trillion for the past year. Many of these vehicles have portfolios similar to prime MMFs. Estimates of the size of these vehicles that are most like prime MMFs are limited by information gaps and range from $1 trillion to $2 trillion.[12]

The GENIUS Act provided a regulatory framework for payment stablecoins

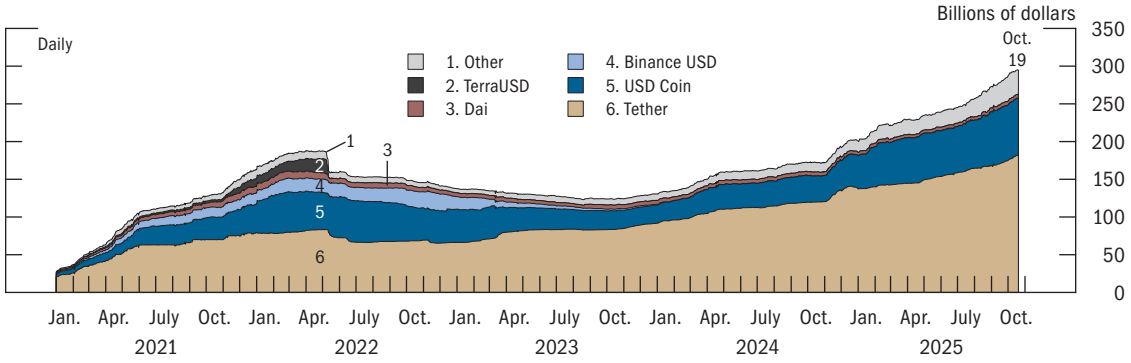
Stablecoin assets—digital assets designed to maintain a stable value relative to a national currency or another reference asset—have grown more than 70 percent in the past 12 months.[13] In mid-October, the total market capitalization of stablecoins reached an all-time high around

[12] Cash-management vehicles included in this total are dollar-denominated offshore MMFs, STIFs, private liquidity funds, ultrashort bond mutual funds, and local government investment pools.

[13] Stablecoins are typically backed by a pool of "reserve" assets that include Treasury bills and other short-term instruments, but some stablecoin reserve assets also include loans and other digital assets.

$300 billion (figure 4.5). On July 18, 2025, the Guiding and Establishing National Innovation for U.S. Stablecoins Act (GENIUS Act) was signed into law. The GENIUS Act established a new regulatory framework for the issuance and transaction of "payment stablecoins." Among its provisions are requirements that federal regulators issue rules regarding reserve requirements and redemptions, which will help mitigate run risks and likely encourage further growth of this asset class.[14]

Figure 4.5. Market capitalization of major stablecoins experienced accelerated growth



Source: Llama Corp, DeFiLlama.

Bond and loan mutual funds weathered short-lived outflows in April without amplifying market disruptions

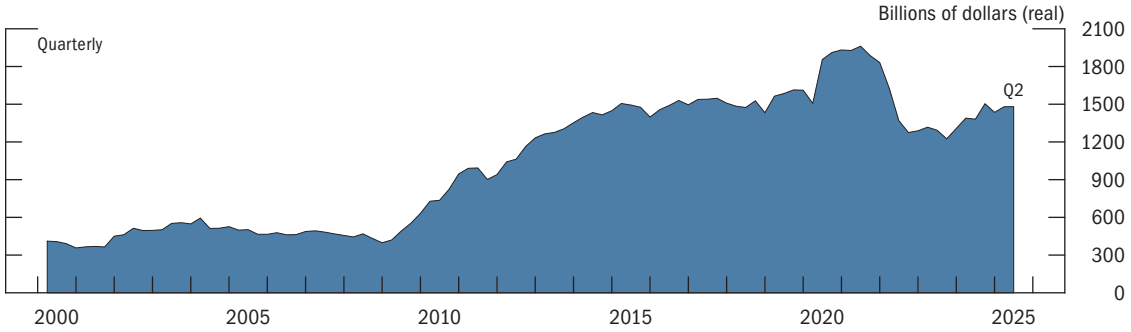
As of the second quarter of 2025, mutual funds held approximately $1.5 trillion in U.S. corporate bonds—accounting for around 13 percent of U.S. corporate bonds outstanding (figure 4.6). AUM in mutual funds with holdings that are concentrated in high-yield bonds and bank loans—which are riskier and less liquid forms of debt—were around $366 billion in August 2025, about 20 percent below levels in 2021 (figure 4.7). During the period of volatility in April, corporate bond and bank loan mutual funds all experienced appreciable outflows, but the outflows were short lived and orderly (figure 4.8).

Central counterparties' initial margin levels and other prefunded resources remained high

Central counterparties' (CCPs) initial margin levels remained high through the first half of 2025. Initial margin requirements for some products were increased further due to the April volatility, during which CCPs operated normally as transaction volumes increased. CCPs as a group also

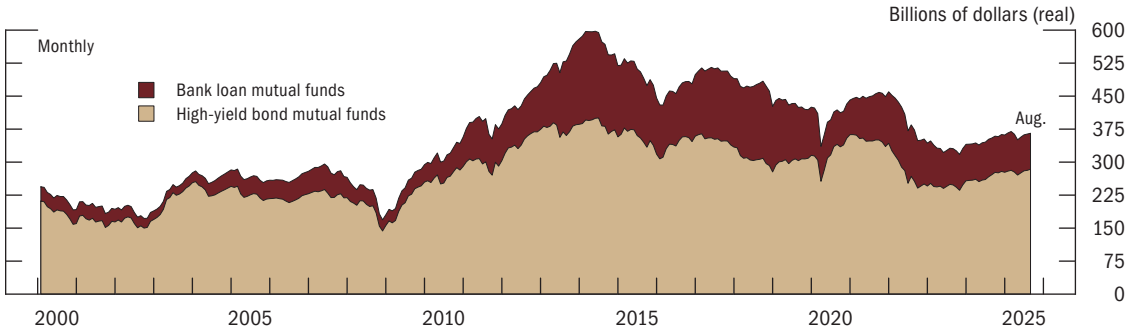
[14] The regulatory framework specified in the GENIUS Act also includes provisions regarding capital and risk management as well as illicit finance, among other areas. The act takes effect on the earlier of 18 months following enactment or 120 days after federal regulators issue final regulations implementing the act.

Figure 4.6. Corporate bond holdings of mutual funds were stable in the first half of 2025



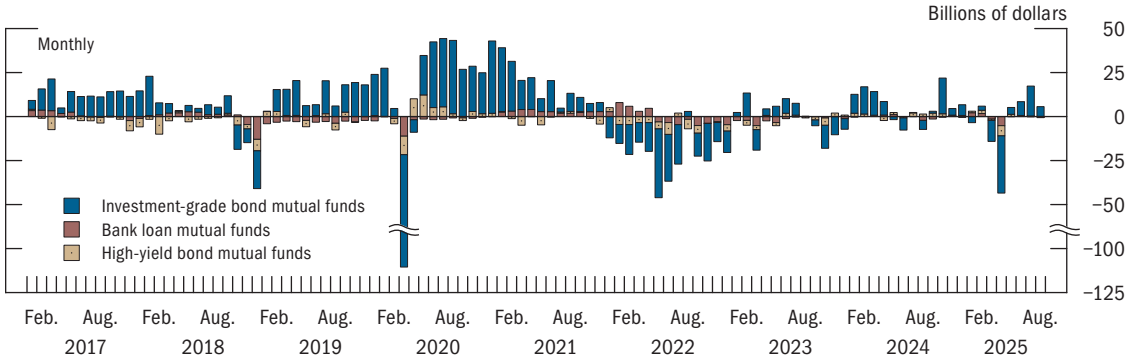
Source: Federal Reserve Board staff estimates based on Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States"; consumer price index, Bureau of Labor Statistics via Haver Analytics.

Figure 4.7. Bank loan and high-yield mutual fund assets remained steady at levels far below their 2021 peaks



Source: Investment Company Institute; consumer price index, Bureau of Labor Statistics via Haver Analytics.

Figure 4.8. April's outflows stabilized



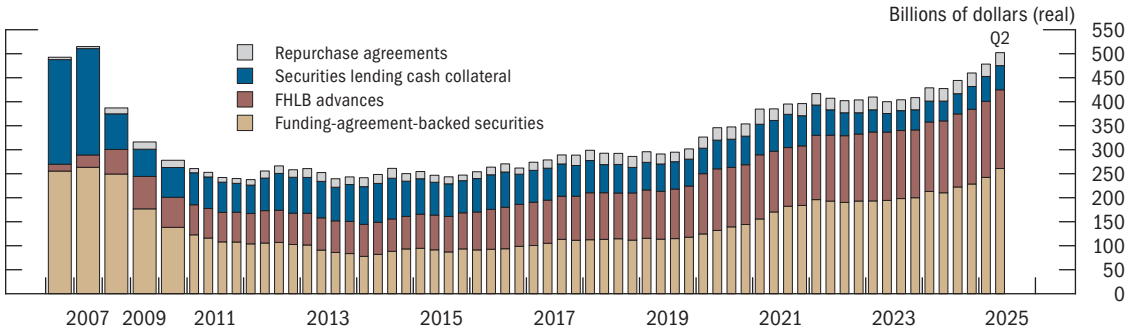
Source: Investment Company Institute.

continued to increase prefunded mutualized resources from already high levels.[15] Elevated initial margins and ample overall prefunded resources lower the risk faced by CCPs to the potential default by a clearing member or market participant. This, in turn, reduces the possibility of large liquidity demands from a CCP to its clearing members (usually banks). However, client collateral is heavily concentrated at the largest clearing members, presenting challenges in transferring client positions to other clearing members if it were ever necessary.

Life insurers' nontraditional liabilities increased further

Life insurers continued to increase their reliance on nontraditional liabilities, including FABS, Federal Home Loan Bank advances, and cash received through securities lending and repo transactions (figure 4.9). The total amount of these liabilities grew by around 20 percent from 2024:Q2 to 2025:Q2, although they remain small relative to general account assets. Measures of the share of illiquid assets to total assets for life insurers and for property and casualty insurers were around 37 percent and 14 percent, respectively, in 2024 (figure 4.10).

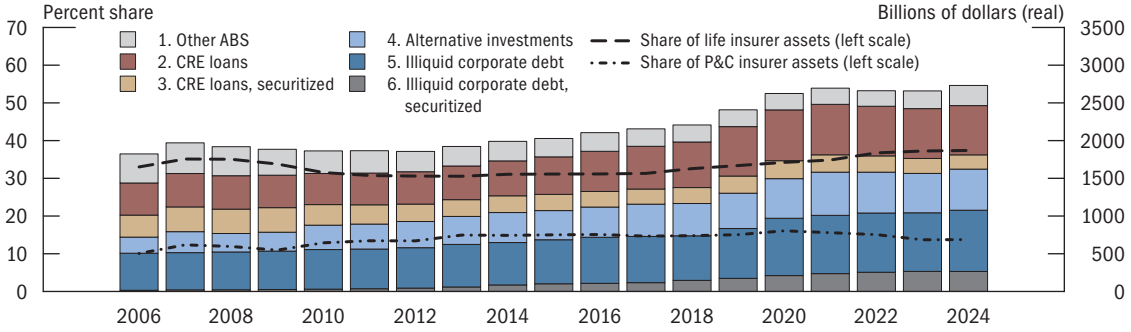
Figure 4.9. Life insurers' use of nontraditional liabilities increased further



Source: Consumer price index, Bureau of Labor Statistics via Haver Analytics; Moody's Analytics, Inc., CreditView, Asset-Backed Commercial Paper Program Index; Securities and Exchange Commission, Forms 10-Q and 10-K; National Association of Insurance Commissioners, quarterly and annual statutory filings accessed via S&P Global, Capital IQ Pro; Bloomberg Finance L.P.

[15] Prefunded resources represent financial assets, including cash and securities, transferred by the clearing members to the CCP to cover that CCP's potential credit exposure in case of default by one or more clearing members. These prefunded resources are held as initial margin and prefunded mutualized resources, which builds the resilience of CCPs to the possible default of a clearing member or market participant.

Figure 4.10. Life insurers continued to hold a significant share of illiquid assets on their balance sheets



Source: Consumer price index, Bureau of Labor Statistics via Haver Analytics; Federal Reserve Board staff estimates based on data from Bloomberg Finance L.P. and National Association of Insurance Commissioners Annual Statutory Filings.

5 | Near-Term Risks to the Financial System

The Federal Reserve routinely engages in discussions with domestic and international policymakers, academics, community groups, and others to gauge the set of risk events that, should they occur, would be of greatest concern to these groups. As captured in the box "Survey of Salient Risks to Financial Stability," fewer respondents in recent outreach noted risks associated with fiscal sustainability than had done so in the spring survey, while more participants cited risks related to high interest rates or geopolitical developments.

The following discussion considers possible interactions of existing domestic vulnerabilities with three potential near-term risks.

A further increase in term premiums leading to higher-than-anticipated long-term interest rates, particularly if accompanied by persistent inflation, could pose risks for both borrowers and lenders

Higher interest rates and inflation could have significant financial and economic effects, including declines in asset prices. In the near term, higher interest rates, as well as weaker balance sheets resulting from asset price declines, could raise consumer borrowing costs and, along with inflation, strain household budgets, increasing the potential for delinquencies. Debt-servicing costs for governments and businesses would similarly increase, which, for businesses, could amplify existing vulnerabilities linked to high leverage and upcoming refinancing needs. In this context, reduced spending likely would lead to slower economic growth. Collectively, these factors could lead to fair value losses on fixed-rate securities among financial intermediaries, which, in turn, could reduce the supply of credit to the economy and further weigh on economic activity.

A marked slowdown in global economic growth could exacerbate existing financial vulnerabilities

A pronounced economic slowdown in the U.S. and other economies could weigh on investor, business, and consumer sentiment and prompt a broader pullback from riskier assets or those with elevated valuations, increasing volatility in financial markets and raising the potential for market dislocations. Tighter funding market conditions could also result from weaker investor sentiment, leading to reduced dollar credit from non-U.S. banks and sales of dollar debt securities by international investors that rely on less stable wholesale sources for dollar funding or for hedging

exchange rate risk.[16] Weaker-than-expected economic activity could also erode the fundamentals of some businesses and households by broadly reducing the outlook for revenue and income growth, impairing their ability to service debt and raising the potential for defaults and delinquencies. These increased credit risks could strain the balance sheets of financial intermediaries, which may restrict the supply of credit as a result. In addition, concerns about elevated public debt levels and fiscal sustainability in many advanced economies may limit governments' ability to respond to weaker growth.

Cyberattacks and other cyber events could disrupt market functioning and the provision of financial services

Over recent years, cyber events, and the risks they pose to the financial system, have been a recurring concern for participants in the Federal Reserve's market outreach surveys. In other venues, industry experts have suggested that new technologies like AI could introduce new possibilities for cyber events. In addition to malicious cyberattacks and costly heists, non-malicious cyber events, such as software malfunctions, have caused disruptions to the provision of financial services. Shocks caused by cyber events may propagate through complex interdependencies among financial institutions and market infrastructures as well as service providers and can be further amplified by existing financial vulnerabilities. For example, a cyber event at a financial market utility may disrupt core infrastructure that supports clearing and settlement, degrading market liquidity. An attack on a large financial institution could impair its ability to access or verify data, complete transactions, or meet obligations, posing risks for funding and depositor runs as well as fire sales. Attacks on critical third-party providers could affect multiple institutions, with the effects of such disruptions likely to be further amplified when there is limited substitutability for the affected services. Through continued interagency coordination and information sharing, U.S. government agencies and financial regulators are advancing efforts to further protect the financial system and financial infrastructure from cyber risks.

[16] Non-U.S. banks' large role in dollar-denominated financial intermediation and their dollar funding vulnerabilities are documented in the box "Vulnerabilities in Global U.S. Dollar Funding Markets" in Board of Governors of the Federal Reserve System (2021), *Financial Stability Report* (Washington: Board of Governors, May), pp. 55–58, https://www.federalreserve.gov/publications/files/financial-stability-report-20210506.pdf. The sale of dollar securities by international investors during a period of strained liquidity is documented in the box "The Role of Foreign Investors in the March 2020 Turmoil in the U.S. Treasury Market" in Board of Governors of the Federal Reserve System (2021), *Financial Stability Report* (Washington: Board of Governors, November), pp. 22–25, https://www.federalreserve.gov/publications/files/financial-stability-report-20211108.pdf.

Box 5.1. Survey of Salient Risks to Financial Stability

As part of its market intelligence gathering, staff from the Federal Reserve Bank of New York solicited views from a wide range of contacts on risks to U.S. financial stability. During September and October, the staff surveyed 23 contacts, including professionals at broker-dealers, banks, investment funds, and advisory firms. This section is a summary of the views provided by survey respondents and should not be interpreted as representing the views of the Federal Reserve Board or the Federal Reserve Bank of New York.

Policy uncertainty was the most cited risk in this survey (figure A), similar to the previous survey (figure B). A number of geopolitical risks and the prospect of higher long-term interest rates were also frequently cited this cycle. Persistent inflation was again one of the most cited risks, along with concerns over private credit. Concerns about AI, a depreciating U.S. dollar, and a sharp decline in asset prices were also frequently cited this round. The prospect of a successful cyberattack continued to be flagged as having the most severe potential consequences.

Policy uncertainty

Respondents continued to highlight concerns about policy uncertainty, including trade policy, central bank independence, and the availability of economic data.

Geopolitical risks

Contacts cited a range of geopolitical risks and are monitoring for the potential broadening of existing tensions. Respondents also noted that financial market indicators may not currently be reflecting geopolitical risks.

Persistent inflation

Respondents continued to note the risk of persistent inflation, though not as frequently as some surveys over the past several years. One difference from many of those previous surveys is that respondents noted the risk of high inflation alongside a weakening labor market.

Higher long-term rates

Respondents highlighted the potential for higher long-term interest rates, which could be driven by rising term premia, elevated inflation expectations, or weak demand for U.S. Treasury securities. Some noted that higher rates would likely increase unrealized losses in the banking sector and could force fixed-income investors to take mark-to-market losses.

Artificial intelligence

Respondents noted that a turn in the prevailing sentiment toward AI, which has been viewed as a main driver of recent U.S. equity performance, could lead to a correction in risk assets. Participants noted that such a turn could lead to large losses in private and public markets and, if the declines were large enough, drive a further slowdown in the labor market and tighten financial conditions.

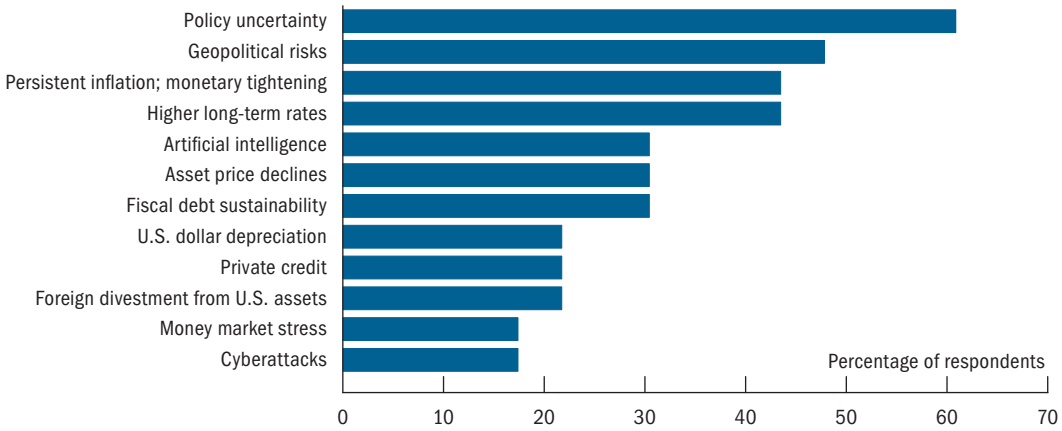
(continued)

Box 5.1—*continued*

Private credit

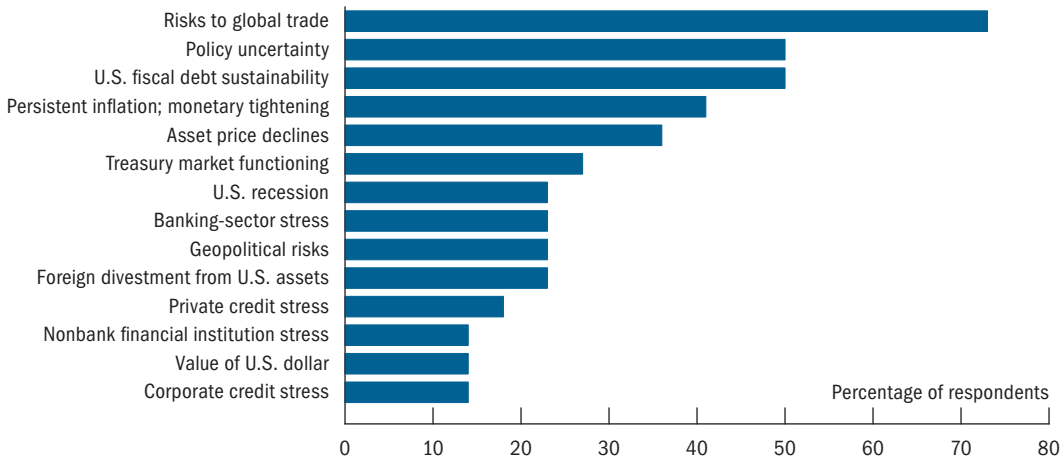
Private credit markets were cited as a concern more frequently than in the previous survey. Respondents noted the opacity of private credit as contributing to uncertainties over potential negative spillovers, which could include impacts on banks in the event of credit stress or the failure of a nonbank financial institution.

Figure A. Fall 2025: Most cited potential shocks over the next 12 to 18 months



Source: Federal Reserve Bank of New York survey of 23 market contacts from September through October.

Figure B. Spring 2025: Most cited potential shocks over the next 12 to 18 months



Source: Federal Reserve Bank of New York survey of 22 market contacts from February through April.

Appendix | Figure Notes

Figure 1.1. Nominal Treasury yields declined and remained above their average levels over the past 15 years

Treasury rates are the 2-year and 10-year constant-maturity yields based on the most actively traded securities. Values are averaged within a calendar month, except for the value of the last month of the series, which is averaged through the data close date.

Figure 1.2. An estimate of the nominal Treasury term premium remained near its historical median

Term premiums are estimated from a 3-factor term structure model using Treasury yields and Blue Chip interest rate forecasts. Values are averaged within a calendar month, except for the value of the last month of the series, which is averaged through the data close date.

Figure 1.3. Interest rate volatility returned to its median since 2005

The data begin in April 2005. Implied volatility on the 10-year swap rate, 1 month ahead, is derived from swaptions. Values are averaged within a calendar month, except for the value of the last month of the series, which is averaged through the data close date.

Figure 1.4. The price-to-earnings ratio of S&P 500 firms was once again close to the upper end of its historical range

The figure shows the aggregate forward price-to-earnings ratio of Standard & Poor's (S&P) 500 firms, based on expected earnings for 12 months ahead. Values are reported as of month-end, except for the value of the last month of the series, which is reported as of the data close date.

Figure 1.5. As of October, an estimate of the equity premium was near a 20-year low

The data begin in October 1991. The figure shows the difference between the aggregate forward earnings-to-price ratio of Standard & Poor's 500 firms and the expected real Treasury yields, based on expected earnings for 12 months ahead. Expected real Treasury yields are calculated from the 10-year consumer price index inflation forecast, and the smoothed nominal yield curve is estimated from off-the-run securities. Values are reported as of month-end, except for the value of the last month of the series, which is reported as of the data close date.

Figure 1.6. Volatility in equity markets declined to below the historical median

Realized volatility is computed from an exponentially weighted moving average of 5-minute daily realized variances with 75 percent of the weight distributed over the past 20 business days. Values are averaged within a calendar month, except for the value of the last month of the series, which is averaged through the data close date.

Figure 1.7. Corporate bond yields fell slightly but remained near their median for the past 30 years

The triple-B series reflects the effective yield of the ICE Bank of America Merrill Lynch (BofAML) triple-B U.S. Corporate Index (C0A4), and the high-yield series reflects the effective yield of the

ICE BofAML U.S. High Yield Index (H0A0). Values are reported as of month-end, except for the value of the last month of the series, which is reported as of the data close date.

Figure 1.8. Corporate bond spreads fell and remained at tight levels

The triple-B series reflects the option-adjusted spread of the ICE Bank of America Merrill Lynch (BofAML) triple-B U.S. Corporate Index (C0A4), and the high-yield series reflects the option-adjusted spread of the ICE BofAML U.S. High Yield Index (H0A0). Values are reported as of month-end, except for the value of the last month of the series, which is reported as of the data close date.

Figure 1.9. The excess bond premium was below its long-run average

The excess bond premium (EBP) is a measure of bond market investors' risk sentiment. It is derived as the residual of a regression that models corporate bond spreads after controlling for expected default losses. By construction, its historical mean is 0. Positive (negative) EBP values indicate that investors' risk appetite is below (above) its historical mean.

Figure 1.10. Spreads on leveraged loans decreased moderately to the low end of their distribution since 2009

The data show secondary-market discounted spreads to maturity. Spreads are the constant spread used to equate discounted loan cash flows to the current market price. B-rated spreads begin in July 1997. The black dashed line represents the data transitioning from monthly to weekly in November 2013.

Figure 1.11. Treasury market depth recovered from April's low levels

Market depth is defined as the average top 3 bid and ask quote sizes for on-the-run Treasury securities.

Figure 1.12. While 2-year on-the-run Treasury market depth remained close to historical lows, 10-year market depth rose to levels last seen in 2021

The data show the time-weighted average market depth at the best quoted prices to buy and sell, for 2-year and 10-year Treasury notes. OTR is on-the-run.

Figure 1.13. A measure of liquidity in equity markets stayed below average

The data show the depth at the best quoted prices to buy and sell, defined as the ask size plus the bid size divided by 2, for E-mini Standard & Poor's 500 futures.

Figure 1.14. Inflation-adjusted commercial real estate prices were little changed

The data are deflated using the consumer price index. The dashed line at 100 indicates the index to January 2001 values.

Figure 1.15. Income of commercial properties relative to prices leveled off but remained below the historical average

The data are a 12-month moving average of weighted capitalization rates in the industrial, retail, office, and multifamily sectors, based on national square footage in 2009.

Figure 1.16. Banks reported that lending standards for commercial real estate loans were little changed in the first half of 2025

Banks' responses are weighted by their commercial real estate loan market shares. Survey respondents to the Senior Loan Officer Opinion Survey on Bank Lending Practices are asked about the changes over the quarter. The shaded bars with top caps indicate periods of business recession as defined by the National Bureau of Economic Research: March 2001–November 2001, December 2007–June 2009, and February 2020–April 2020.

Figure 1.17. House prices continued to increase in recent months but at a lower rate

The data extend through September 2025 for Zillow, August 2025 for Cotality, and July 2025 for Case-Shiller.

Figure 1.18. Model-based measures of house price valuations cooled from near historically high levels

The owners' equivalent rent value for 2025:Q2 is based on monthly data through August 2025. The data for the market-based rents model begin in 2004:Q1. Valuation is measured as the deviation from the long-run relationship between the price-to-rent ratio and the real 10-year Treasury yield.

Figure 1.19. House price-to-rent ratios dropped slightly yet remained elevated across geographic areas

The data are seasonally adjusted. Percentiles are based on 19 large metropolitan statistical areas.

Figure 1.20. Inflation-adjusted farmland prices rose further in 2025 from already elevated levels

The data for the U.S. begin in 1997. Midwest index is a weighted average of Corn Belt and Great Plains states derived from staff calculations. Values are given in real terms. The value for 2025 is based on monthly data through July 2025.

Figure 1.21. Farmland prices relative to rents increased to historical highs in 2025

The data for the U.S. begin in 1998. Midwest index is a weighted average of Corn Belt and Great Plains states derived from staff calculations. The value for 2025 is based on monthly data through July 2025.

Figure 2.1. The total debt of businesses and households relative to GDP remained at its lowest level in over 20 years

The shaded bars with top caps indicate periods of business recession as defined by the National Bureau of Economic Research: January 1980–July 1980, July 1981–November 1982, July 1990–March 1991, March 2001–November 2001, December 2007–June 2009, and February 2020–April 2020. GDP is gross domestic product.

Figure 2.2. Both business and household debt-to-GDP ratios continued to fall

The shaded bars with top caps indicate periods of business recession as defined by the National Bureau of Economic Research: January 1980–July 1980, July 1981–November 1982, July 1990–

March 1991, March 2001–November 2001, December 2007–June 2009, and February 2020–April 2020. GDP is gross domestic product.

Figure 2.3. Business debt adjusted for inflation turned slightly positive

Nominal debt growth is seasonally adjusted and is translated into real terms after subtracting the growth rate of the price deflator for the core personal consumption expenditures price index.

Figure 2.4. Net issuance of risky debt fell in the middle of 2025

The data begin in 2004:Q2. Institutional leveraged loans generally exclude loan commitments held by banks. The key identifies bars in order from top to bottom (except for some bars with at least one negative value). For 2025:Q3, the value corresponds to preliminary data.

Figure 2.5. Gross leverage of publicly traded nonfinancial firms leveled off but was still high by historical standards

Gross leverage is an asset-weighted average of the ratio of firms' book value of total debt to book value of total assets. The 75th percentile is calculated from a sample of the 2,500 largest firms by assets. The dashed sections of the lines in 2019:Q1 reflect the structural break in the series due to the 2019 compliance deadline for Financial Accounting Standards Board rule Accounting Standards Update 2016-02. The accounting standard requires operating leases, previously considered off-balance-sheet activities, to be included in measures of debt and assets.

Figure 2.6. Interest coverage ratios, which indicate firms' ability to service their debt, were largely unchanged

The interest coverage ratio is earnings before interest and taxes divided by interest payments. Firms with leverage less than 5 percent and interest payments less than $500,000 are excluded.

Figure 2.7. Firms with commercial and industrial bank loans increased their leverage slightly

The figure shows the weighted median leverage of nonfinancial firms that borrow using commercial and industrial loans from the 23 banks that have filed in every quarter since 2013:Q1. Leverage is measured as the ratio of the book value of total debt to the book value of total assets of the borrower, as reported by the lender, and the median is weighted by committed amounts.

Figure 2.8. Newly issued leveraged loans with debt multiples greater than 4 increased moderately to above the historical median

Volumes are for large corporations with earnings before interest, taxes, depreciation, and amortization greater than $50 million and exclude existing tranches of add-ons and amendments as well as restatements with no new money. The key identifies bars in order from top to bottom.

Figure 2.9. The realized default rate on leveraged loans remained well below its previous peaks

The data begin in December 1998 for the realized default rate and in December 2016 for the default rate including distressed exchanges. The default rate is calculated as the amount in default over the past 12 months divided by the total outstanding volume of loans that are not in default at the beginning of the 12-month period. The default rate including distressed exchanges is calculated as the number of issuers in default or distressed exchange over the past 12 months

divided by the total number of issuers that are not in default at the beginning of the 12-month period. The shaded bars with top caps indicate periods of business recession as defined by the National Bureau of Economic Research: March 2001–November 2001, December 2007–June 2009, and February 2020–April 2020.

Figure 2.10. Inflation-adjusted household debt was largely unchanged

Subprime are borrowers with an Equifax Risk Score less than 620; near prime are from 620 to 719; prime are greater than 719. Scores are measured contemporaneously. Student loan balances before 2004 are estimated using average growth from 2004 to 2007, by risk score. The data are converted to constant 2025 dollars using the consumer price index.

Figure 2.11. Measures of housing leverage stayed significantly below their peak levels

Housing leverage is estimated as the ratio of the average outstanding mortgage loan balance for owner-occupied homes with a mortgage to (1) current home values using the Zillow national house price index and (2) model-implied house prices estimated by a staff model based on rents, interest rates, and a time trend.

Figure 2.12. Mortgage delinquency rates edged down and remained close to the low end of their historical distribution

Loss mitigation includes tradelines that have a narrative code of forbearance, natural disaster, payment deferral (including partial), loan modification (including federal government plans), or loans with no scheduled payment and a nonzero balance. Delinquent loans in both series are loans reported to the credit bureau as at least 30 days past due.

Figure 2.14. New mortgage extensions increased for subprime borrowers

The figure plots the year-over-year change in balances for the second quarter of each year among those households whose balance increased over this window. Subprime are those with an Equifax Risk Score less than 620; near prime are from 620 to 719; prime are greater than 719. Scores were measured 1 year ago. The data are converted to constant 2025 dollars using the consumer price index. The key identifies bars in order from left to right.

Figure 2.15. Consumer debt balances were largely unchanged for student and auto loans and for credit cards

The data are converted to constant 2025 dollars using the consumer price index. Student loan data begin in 2005:Q1.

Figure 2.16. The average maturity of loans at origination for used cars remained elevated for non-prime borrowers

The data are seasonally adjusted. Loans are for used auto vehicles only. Subprime are those with a VantageScore less than 601; near prime are from 601 to 660; prime are greater than 660.

Figure 2.17. Auto loan delinquencies remained above the historical median

Delinquent includes loans reported to the credit bureau as at least 30 days past due. The data for auto loans are reported semiannually by the Risk Assessment, Data Analysis, and Research

Data Warehouse until 2017, after which they are reported quarterly. The data are seasonally adjusted.

Figure 2.18. Inflation-adjusted credit card balances for subprime borrowers were up slightly

Subprime are borrowers with an Equifax Risk Score less than 620; near prime are from 620 to 719; prime are greater than 719. Scores are measured contemporaneously. The data are converted to constant 2025 dollars using the consumer price index.

Figure 2.19. Credit card delinquencies remained slightly above their long-term median

Delinquency measures the fraction of balances that are at least 30 days past due, excluding severe derogatory loans, which are delinquent and have been charged off, foreclosed, or repossessed by the lender. The data are seasonally adjusted.

Figure 3.1. Banks' average risk-based capital ratios remained near previous peaks

The sample consists of domestic bank holding companies (BHCs) and intermediate holding companies (IHCs) with a substantial U.S. commercial banking presence. G-SIBs are global systemically important banks. Large non–G-SIBs are BHCs and IHCs with greater than $100 billion in total assets that are not G-SIBs. Before 2014:Q1 (advanced-approaches BHCs, for additional information see https://www.federalreserve.gov/supervisionreg/basel/advanced-approaches-capital-framework-implementation.htm) or before 2015:Q1 (non-advanced-approaches BHCs), the numerator of the common equity Tier 1 ratio is Tier 1 common capital. Afterward, the numerator is common equity Tier 1 capital. The denominator is risk-weighted assets. The shaded bars with top caps indicate periods of business recession as defined by the National Bureau of Economic Research: March 2001–November 2001, December 2007–June 2009, and February 2020–April 2020. The data are seasonally adjusted by Federal Reserve Board staff.

Figure 3.2. Returns on equity for banks were at typical levels

Return on equity is equal to net income divided by average equity. The net income of banks that acquired failed banks was adjusted for the one-off gains from the acquisitions. Calculations for 2023:Q4 exclude Federal Deposit Insurance Corporation special assessment costs. G-SIBs are global systemically important banks. Large non–G-SIBs are bank holding companies and intermediate holding companies with greater than $100 billion in total assets that are not G-SIBs. The shaded bar with top cap indicates a period of business recession as defined by the National Bureau of Economic Research: February 2020–April 2020.

Figure 3.3. The fair value losses of banks' securities portfolios decreased but remained sizable

The figure plots the difference between the fair and amortized cost values of the securities. The sample consists of all bank holding companies and commercial banks.

Figure 3.4. The ratio of tangible common equity to tangible assets remained below its median over the past decade

The sample consists of domestic bank holding companies (BHCs), intermediate holding companies (IHCs) with a substantial U.S. commercial banking presence, and commercial banks. G-SIBs

are global systemically important banks. Large non–G-SIBs are BHCs and IHCs with greater than $100 billion in total assets that are not G-SIBs. Bank equity is total equity capital net of preferred equity and intangible assets. Bank assets are total assets net of intangible assets. The shaded bars with top caps indicate periods of business recession as defined by the National Bureau of Economic Research: July 1990–March 1991, March 2001–November 2001, December 2007–June 2009, and February 2020–April 2020. The data are seasonally adjusted by Federal Reserve Board staff.

Figure 3.5. Bank lending standards showed some signs of easing

Banks' responses are weighted by their loans. Survey respondents to the Senior Loan Officer Opinion Survey on Bank Lending Practices are asked about the changes over the quarter. The shaded bars with top caps indicate periods of business recession as defined by the National Bureau of Economic Research: March 2001–November 2001, December 2007–June 2009, and February 2020–April 2020.

Figure 3.6. Delinquencies on bank loans declined

The figure shows banks with total assets greater than or equal to $10 billion. C&I is commercial and industrial; NFNR is nonfarm nonresidential. The shaded bars with top caps indicate periods of business recession as defined by the National Bureau of Economic Research: December 2007–June 2009 and February 2020–April 2020.

Figure 3.7. Leverage at broker-dealers remained low

Leverage is calculated by dividing total assets by equity.

Figure 3.8. Broker-dealers' trading profits were within their seasonally adjusted range of the past 5 years

The sample includes all trading desks of bank holding companies subject to the Volcker Rule reporting requirement.

Figure 3.9. The distribution of the sources of broker-dealers' trading profits was in line with recent averages

The sample includes all trading desks of bank holding companies subject to the Volcker Rule reporting requirement. The "other business lines" category comprises desks trading in municipal securities, foreign exchange, and commodities, as well as any unclassified desks. The key identifies series in order from top to bottom.

Figure 3.10. Leverage at life insurance companies was in the upper quartile of its historical distribution

Ratio is calculated as (total assets – separate account assets)/(total capital – accumulated other comprehensive income) using generally accepted accounting principles. The largest 10 publicly traded life and property and casualty insurers are represented.

Figure 3.11. As of the first quarter of 2025, hedge funds' leverage was at its highest level since data became available

Means are weighted by net asset value (NAV). On-balance-sheet leverage is the ratio of gross asset value to NAV. Gross leverage is the ratio of gross notional exposure to NAV. Gross notional exposure includes both on-balance-sheet exposures and off-balance-sheet derivative notional exposures. Options are delta adjusted, and interest rate derivatives are reported at 10-year bond equivalent values. The data are reported on a 2-quarter lag beginning in 2013:Q1.

Figure 3.12. Balance sheet leverage at the 15 largest hedge funds increased further through the first quarter of 2025

Leverage is measured by gross asset value (GAV) divided by net asset value (NAV). Funds are sorted into cohorts based on GAV. Average leverage is computed as the NAV-weighted mean. The data are reported on a 2-quarter lag beginning in 2013:Q1.

Figure 3.13. Dealers indicated that the use of leverage by hedge funds declined around April

Net percentage equals the percentage of institutions that reported increased use of financial leverage over the past 3 months minus the percentage of institutions that reported decreased use of financial leverage over the past 3 months. REIT is real estate investment trust.

Figure 3.14. The pace of issuance of securitized products remained robust through June

The data from the first and second quarters of 2025 are annualized to create the 2025 bar. RMBS is residential mortgage-backed securities; CMBS is commercial mortgage-backed securities; CDO is collateralized debt obligation; CLO is collateralized loan obligation. The "other" category consists of other asset-backed securities (ABS) backed by credit card debt, student loans, equipment, floor plans, and miscellaneous receivables; resecuritized real estate mortgage investment conduit (Re-REMIC) RMBS; and Re-REMIC CMBS. The data are converted to constant 2025 dollars using the consumer price index. The key identifies bars in order from top to bottom.

Figure 3.15. Bank credit commitments to other financial entities continued to grow

Committed amounts on credit lines and term loans extended to nonbank financial institutions. Nonbank financial institutions are identified based on reported North American Industry Classification System (NAICS) codes. In addition to NAICS codes, a name-matching algorithm is applied to identify specific entities such as real estate investment trusts (REITs), special purpose entities, collateralized loan obligations (CLOs), asset-backed securities (ABS), private equity, business development companies (BDCs), and private credit. REITs incorporate both mortgage (trading) REITs and equity REITs. Broker-dealers also include commodity contracts dealers and brokerages and other securities and commodity exchanges. Other financial vehicles include closed-end investment and mutual funds.

Figure 3.16. Bank credit growth was strongest for special purpose entities, collateralized loan obligations, and asset-backed securities between 2024:Q2 and 2025:Q2

The figure shows 2025:Q2-over-2024:Q2 growth rates as of the end of the second quarter of 2025. REIT is real estate investment trust; PE is private equity; BDC is business development

company; SPE is special purpose entity; CLO is collateralized loan obligation; ABS is asset-backed securities. The key identifies bars in order from left to right.

Figure 4.1. The ratio of runnable money-like liabilities to GDP was around 80 percent

The black striped area denotes the period from 2008:Q4 to 2012:Q4, when insured deposits increased because of the Transaction Account Guarantee program. The "other" category consists of variable-rate demand obligations (VRDOs), federal funds, funding-agreement-backed securities, private liquidity funds, offshore money market funds, short-term investment funds, local government investment pools, and stablecoins. Securities lending includes only lending collateralized by cash. GDP is gross domestic product. Values for VRDOs come from Bloomberg beginning in 2019:Q1. See Jack Bao, Josh David, and Song Han (2015), "The Runnables," FEDS Notes (Washington: Board of Governors of the Federal Reserve System, September 3), https://www.federalreserve.gov/econresdata/notes/feds-notes/2015/the-runnables-20150903.html.

Figure 4.2. The share of high-quality liquid assets to short-term debt ticked down in the first half of 2025 but remained at the higher end of the historical distribution

The figure shows banks with total assets greater than or equal to $10 billion. The sample consists of domestic bank holding companies (BHCs), intermediate holding companies (IHCs) with a substantial U.S. commercial banking presence, and commercial banks. G-SIBs are global systemically important banks. Large non–G-SIBs are BHCs and IHCs with greater than $100 billion in total assets that are not G-SIBs. Short-term debt is total liabilities minus long-term debt. The shaded bars with top caps indicate periods of business recession as defined by the National Bureau of Economic Research: March 2001–November 2001, December 2007–June 2009, and February 2020–April 2020.

Figure 4.3. Banks' reliance on uninsured deposits and short-term wholesale funding stabilized to levels more typical of the longer history

Short-term wholesale funding is defined as the sum of large time deposits with maturity less than 1 year, federal funds purchased and securities sold under agreements to repurchase, deposits in foreign offices with maturity less than 1 year, trading liabilities (excluding revaluation losses on derivatives), and other borrowed money with maturity less than 1 year. The shaded bars with top caps indicate periods of business recession as defined by the National Bureau of Economic Research: December 2007–June 2009 and February 2020–April 2020.

Box 4.1. A More Targeted Assessment of Short-Term Funding Risk

Figure A. Runnable vehicles and instruments, by historical run propensity

The "experienced industry-wide runs or market freezes" category includes domestic prime institutional money market funds (MMFs), offshore prime MMFs, commercial paper, negotiable certificates of deposit, variable-rate demand obligations, and repurchase agreements. The "experienced runs or notable stress" category includes all components in "experienced industry-wide runs or market freezes" plus domestic prime retail MMFs, local government investment pools, short-term investment funds, ultrashort bond funds, private liquidity funds, stable-

coins, uninsured deposits, securities lending, federal funds, and funding-agreement-backed securities. The "total runnables" category includes all components in "experienced runs or notable stress" plus domestic and offshore government MMFs. GDP is gross domestic product. The shaded bars with top caps indicate periods of business recession as defined by the National Bureau of Economic Research: July 1990–March 1991, March 2001–November 2001, December 2007–June 2009, and February 2020–April 2020.

Figure B. Runnable vehicles, by risk category, as a percentage of nominal GDP

The "no notable stress" category includes domestic government money market funds (MMFs) and offshore government MMFs. The "notable stress incidents" category includes domestic prime retail MMFs, local government investment pools, short-term investment funds, ultrashort bond funds, private liquidity funds, and stablecoins. The "experienced industry-wide runs" category includes domestic prime institutional MMFs and offshore prime MMFs. GDP is gross domestic product. The shaded bars with top caps indicate periods of business recession as defined by the National Bureau of Economic Research: March 2001–November 2001, December 2007–June 2009, and February 2020–April 2020.

Figure C. Runnable instruments, by risk category, as a percentage of nominal GDP

The "notable stress incidents" category includes uninsured deposits, securities lending, federal funds, and funding-agreement-backed securities. The "experienced market freeze" category includes commercial paper, negotiable certificates of deposit, variable-rate demand obligations, and repurchase agreements. None of the runnable instruments are classified as having experienced "no notable stress." GDP is gross domestic product. The shaded bars with top caps indicate periods of business recession as defined by the National Bureau of Economic Research: March 2001–November 2001, December 2007–June 2009, and February 2020–April 2020.

Figure 4.4. Assets under management at money market funds remained high

The data are converted to constant 2025 dollars using the consumer price index.

Figure 4.5. Market capitalization of major stablecoins experienced accelerated growth

The key identifies series in order from top to bottom. USD is U.S. dollar.

Figure 4.6. Corporate bond holdings of mutual funds were stable in the first half of 2025

The data show holdings of all U.S. corporate bonds by all U.S.-domiciled mutual funds (holdings of foreign bonds are excluded). The data are converted to constant 2025 dollars using the consumer price index.

Figure 4.7. Bank loan and high-yield mutual fund assets remained steady at levels far below their 2021 peaks

The data are converted to constant 2025 dollars using the consumer price index. The key identifies series in order from top to bottom.

Figure 4.8. April's outflows stabilized

Mutual fund assets under management as of August 2025 included $2,450 billion in investment-grade bond mutual funds, $280 billion in high-yield bond mutual funds, and $82 billion in bank loan mutual funds. Bank loan mutual funds, also known as floating-rate bond funds, are excluded from high-yield bond mutual funds. Curved line segments on the y-axis and bar indicate a scale break to accommodate high values observed in March 2020.

Figure 4.9. Life insurers' use of nontraditional liabilities increased further

The data are converted to constant 2025 dollars using the consumer price index. FHLB is Federal Home Loan Bank. The data are annual from 2006 to 2010 and quarterly thereafter. The key identifies bars in order from top to bottom.

Figure 4.10. Life insurers continued to hold a significant share of illiquid assets on their balance sheets

The data are converted to constant 2024 dollars using the consumer price index. Securitized products include collateralized loan obligations for corporate debt, private-label commercial mortgage-backed securities for commercial real estate (CRE), and private-label residential mortgage-backed securities and asset-backed securities (ABS) backed by autos, credit cards, consumer loans, and student loans for other ABS. Illiquid corporate debt includes private placements, bank and syndicated loans, and high-yield bonds. Alternative investments include assets filed under Schedule BA. P&C is property and casualty. The key identifies bars in order from top to bottom.

Box 5.1. Survey of Salient Risks to Financial Stability

Figure A. Fall 2025: Most cited potential shocks over the next 12 to 18 months

Responses are to the following question: "Over the next 12–18 months, which shocks, if realized, do you think would have the greatest negative impact on the functioning of the U.S. financial system?"

Figure B. Spring 2025: Most cited potential shocks over the next 12 to 18 months

Responses are to the following question: "Over the next 12–18 months, which shocks, if realized, do you think would have the greatest negative impact on the functioning of the U.S. financial system?"

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1125