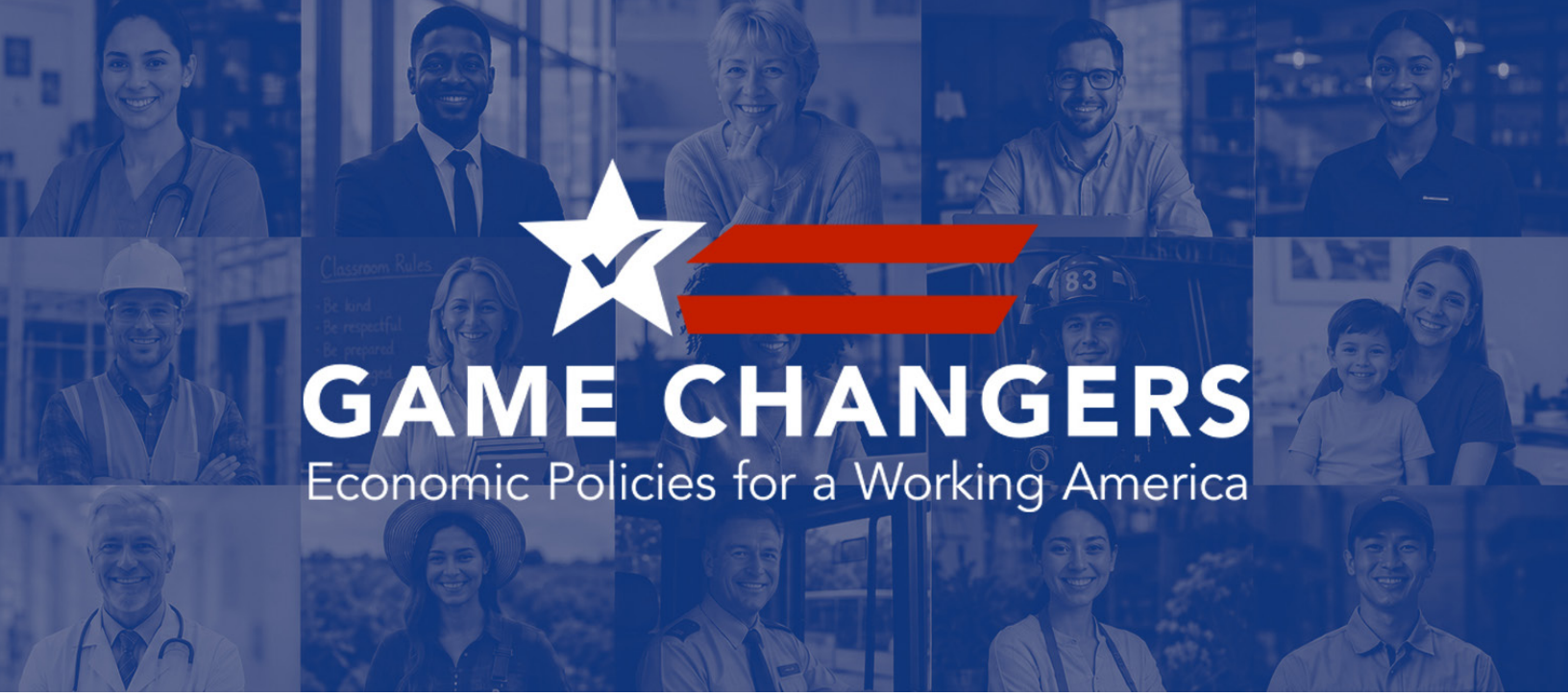

BACKGROUND PAPER / JULY 2026

End Financial Instability to Protect Household Income and Wealth

BY MARC JARSULIC

POLITICAL ECONOMY RESEARCH INSTITUTE
PERI
University of Massachusetts Amherst

End Financial Instability to Protect Household Income and Wealth

By Marc Jarsulic

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Executive Summary

The Great Financial Crisis of 2008 caused large and long-lasting damage to household income and wealth, disproportionately harming working-class households. The Dodd Frank Act, the law enacted to strengthen the financial system, did not resolve the problems of financial stability that triggered the crisis and the resulting recession. Bank equity requirements, which are self-insurance against insolvency, were not raised sufficiently. Moreover, the stability risks posed by nonbank financial institutions, such as hedge funds and life insurance companies, went unaddressed and have increased over time. As a consequence, the overall financial system remains fragile.

Reasonable policy change, however, can change things for the better. Current sources of potential financial instability can be reduced significantly by:

- Requiring banks to put substantially more of their own funds at risk when they operate their business, reducing their reliance on the Federal Reserve as lender of last resort when inevitable financial market shocks cause losses.
- Limiting hedge fund use of runnable short-term debt to fuel speculative trading that has destabilized the market for Treasury securities, creating huge risks for the financial system at large.
- Authorizing the Federal Insurance Office to regulate life insurers, with a mandate to limit the risks to insurer stability caused by asset manager takeovers and regulatory arbitrage.

Introduction

Increased financial fragility across banks and nonbank financial institutions is a threat to the real economy. The 2008 Great Financial Crisis (GFC) demonstrated how large a threat it can become. That crisis precipitated prolonged recession, with high and persistent loss of income and wealth.

The framework of the Dodd Frank Act (DFA), the federal regulatory response to the GFC, rests on three pillars – making banks self-insure against runs, asset fire sales, and insolvency, by raising minimum levels of bank equity; restricting access to general purpose lender of last resort facilities to solvent banks experiencing contagion-induced runs; and resolving failed banks through either standard Federal Deposit Insurance Corporation procedures, or, when stability would otherwise be compromised, through the orderly liquidation authority. The aim of this structure is to force banks to internalize the costs created by their high-risk behavior, and to recover the costs of stabilization from those banks that remain upright post-crisis.

Unfortunately, the framework was weakly implemented because of regulator decisions and resistance by banks. Bank equity levels remain inadequate because of bad decisions by regulators. This vulnerability was brought home in 2023 after the Federal Reserve (Fed) raised interest rates sharply, beginning in 2022. The effect on bank asset values left many banks insolvent. Fed intervention stopped a run on mid-sized banks and likely prevented a more extensive and damaging run.

Moreover, the DFA did not address threats to financial stability created by loosely regulated nonbank financial institutions. This is a significant failure because nonbank financials are closely interconnected with banks.

In 2020, hedge funds provided a clear example of the destabilizing shocks that can be created by nonbank financials. When they were forced to unwind their large and highly leveraged arbitrage trades in Treasury securities, they contributed to a sell-off that forced the Fed to intervene and buy $1 trillion in Treasury securities to stabilize the market.

Developments in the life insurance industry also have created increased risk of destabilizing shocks. The primary business of the U.S. life insurance industry is the sale of annuities, which are a big part of retirement savings. Beginning around 2014, as asset managers that engaged in private equity and private credit took over insurance companies, the nature of this annuities-centered business has been significantly transformed. These managers now use life insurer income and assets as a source of funding for opaque, high-risk private credit lending. An increased share of annuity liabilities has been shifted to lightly regulated offshore reinsurers. At the same time, insurer equity-to-asset ratios have declined markedly, reducing their ability to absorb loss on the investments that back the annuities they sell. These changes have increased the fragility of life insurers generally.

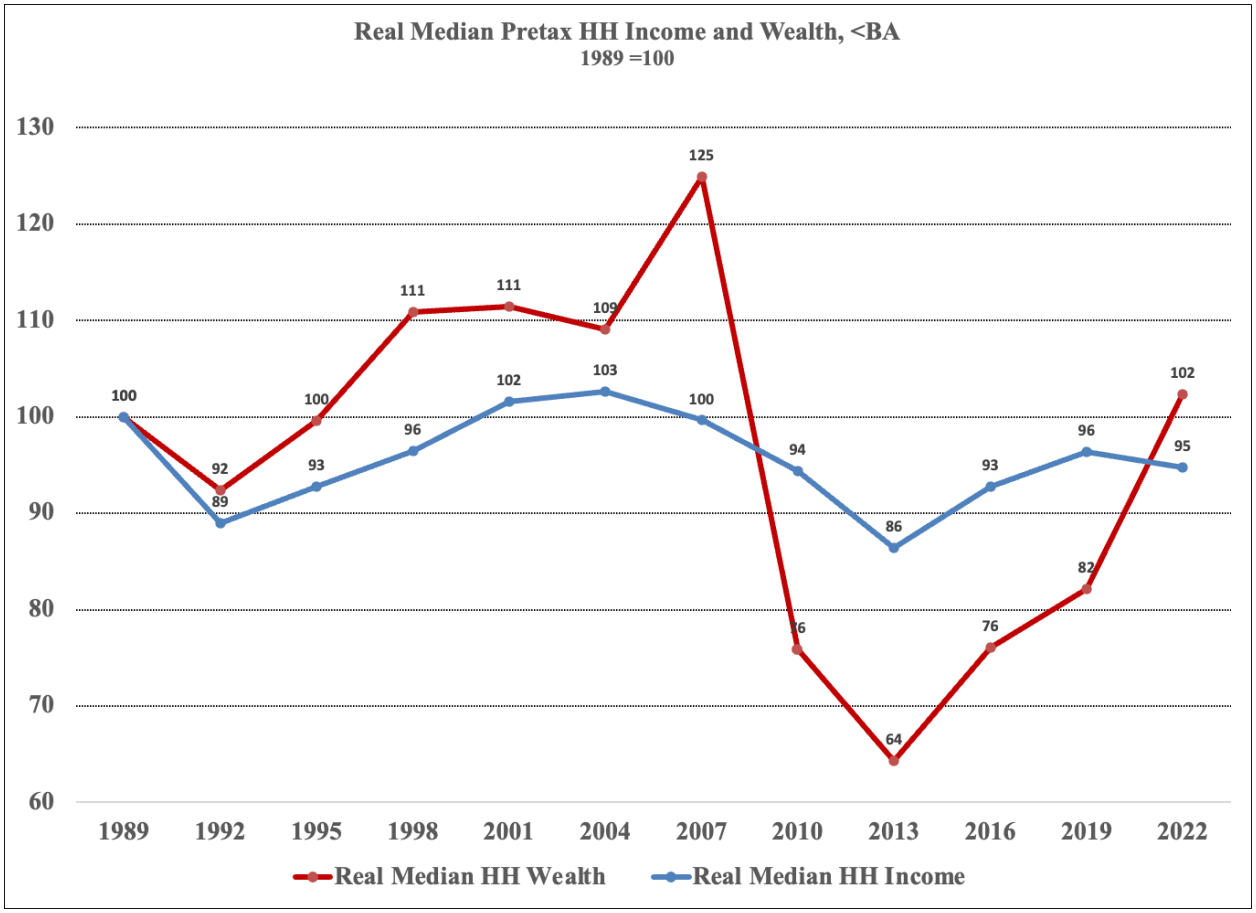
Fortunately, reasonable policy changes, outlined below, can dramatically reduce the risk of financial instability and make the economy more resilient to financial market shocks.

Financial instability severely harms ordinary households

Increased financial fragility across banks and nonbank financial institutions is a threat to the entire economy. The 2008 GFC demonstrated how large a threat it can become. That crisis precipitated a prolonged recession, with high and persistent loss of income and wealth.

The severity and duration of loss was distributed very unequally across households. As can be seen in Figure 1, median real incomes for households headed by someone with less than a bachelor's degree fell by 13.5 percent after 2007 and remained below the pre-2007 peak through 2022. These households also endured a large reduction in median real wealth, which declined by 48 percent from the 2007 peak, remaining below 2007 levels through 2022.

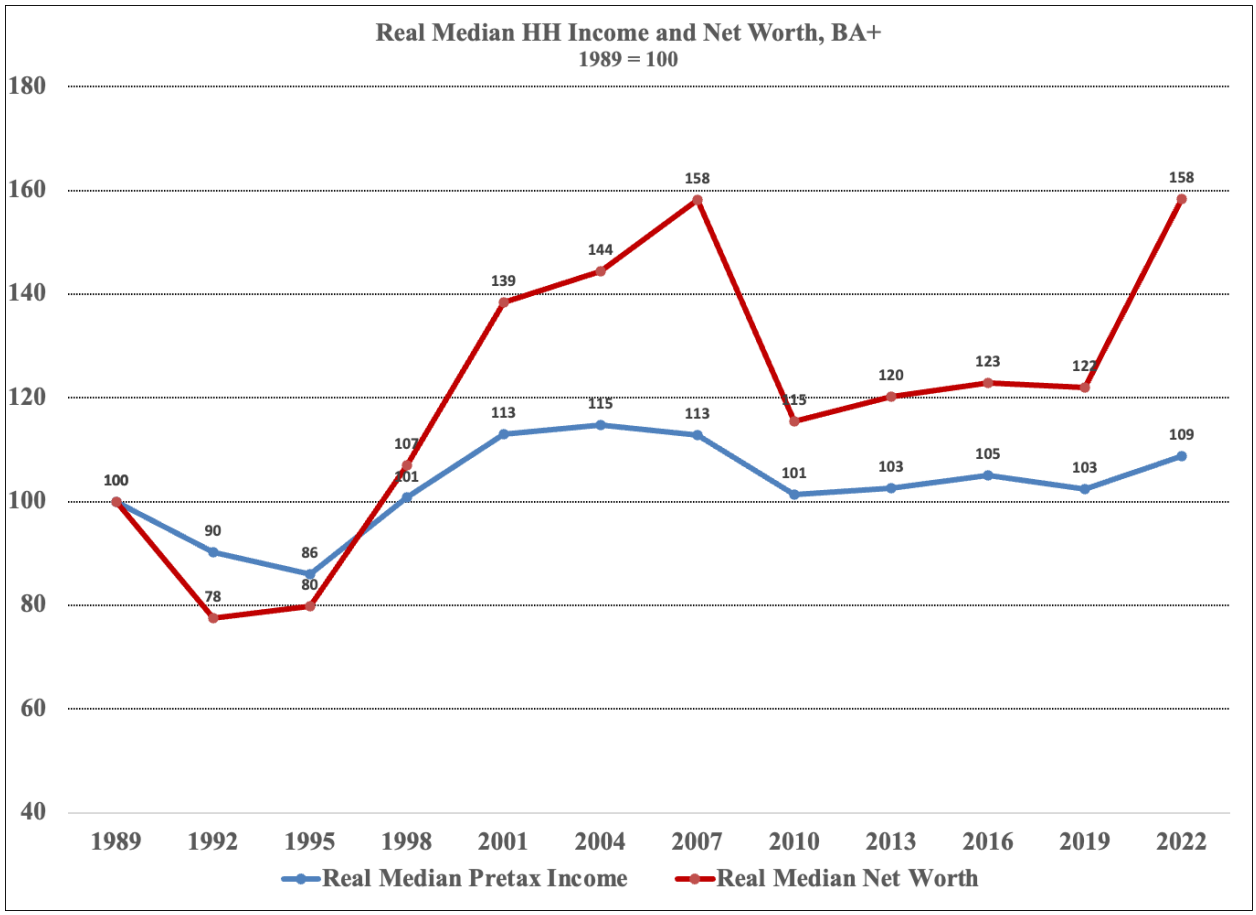
FIGURE 1. Post-GFC Income and Wealth Losses, Working Class Households



Source: Federal Reserve Survey of Consumer Finances

Median real incomes for households headed by someone with a bachelor's degree or better fell by 10.6 percent from 2007 levels, remaining below 2007 levels through 2022. Their real wealth, on the other hand, fell by 27 percent, but recovered to 2007 levels by 2022 (see Figure 2).

FIGURE 2. Post-GFC Income and Wealth Losses, Households with College Degrees



Source: Federal Reserve Survey of Consumer Finances

These losses, disproportionately hitting working class households, have contributed to the perverse political period through which we are living.

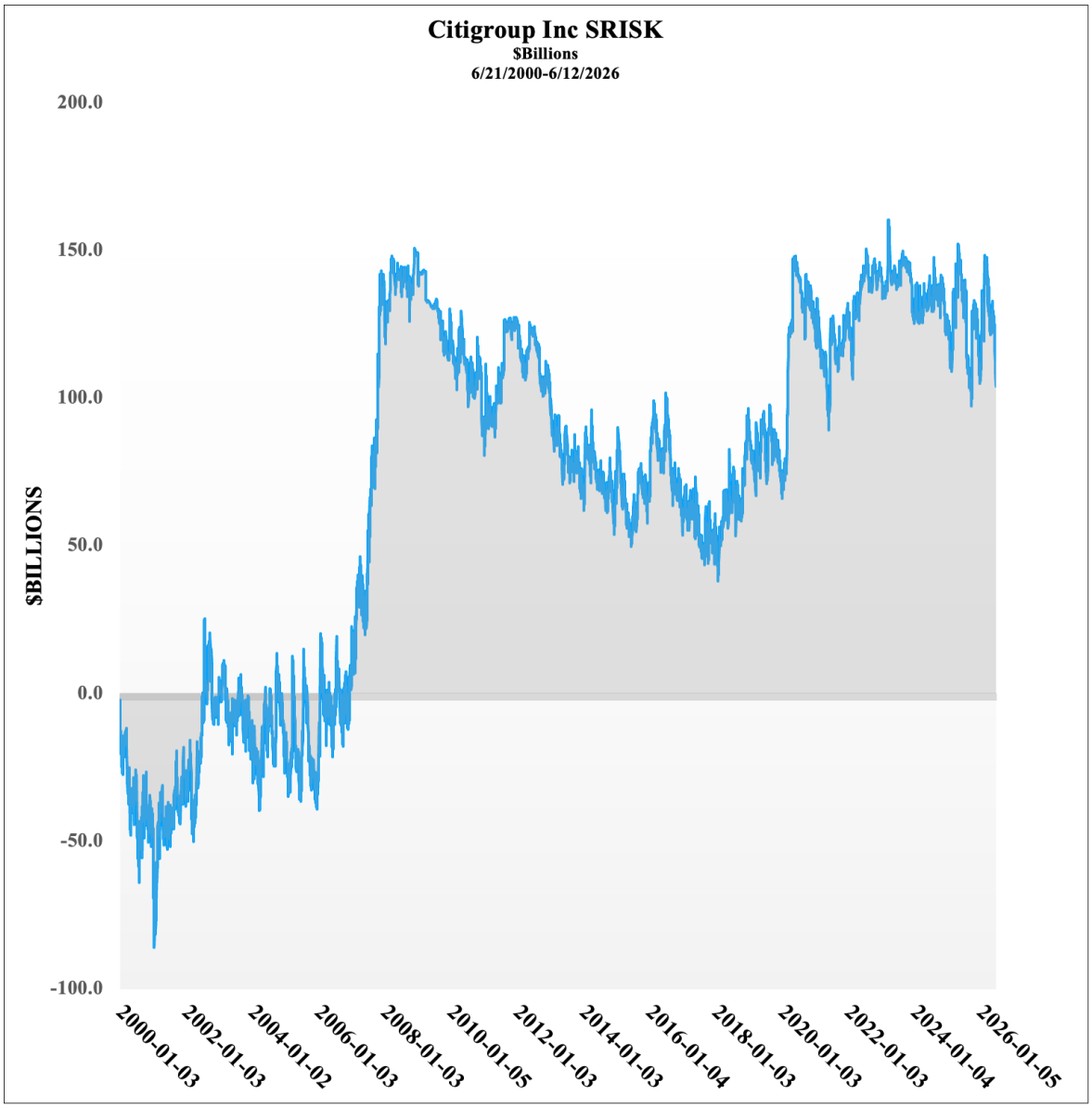
Post-GFC banks remain fragile, and interconnected with nonbank financials

Established risk metrics indicate bank fragility

The U.S. banking system remains fragile. Well-established measures show that some "too big to fail" banks are now riskier than they were prior to the 2008 GFC.

For example, the NYU VLab measure of SRISK – the expected equity shortfall relative to capital requirements in the event of a large (but historically plausible) stock market decline – is currently $110 billion for Citigroup. In the early 2000s the equity cushion was far stronger (see Figure 3). [1]

FIGURE 3. SRISK of Citigroup, Before and After the GFC



Source: NYU VLab

[1] For an explanation of the SRISK measure *see* New York University Volatility Lab, "Systemic Risk Modeling Documentation", available at https://vlab.stern.nyu.edu/docs/srisk. The SRISK profile for the U.S. financial system as whole is qualitatively similar to that of Citibank.

Risk like this exists because banks remain highly leveraged, i.e., they fund most of their business with debt rather than equity. For example, the very largest globally significant banks currently finance only 6 percent of those assets with their own funds.[2] When prices of the assets on bank balance sheets decline enough that their solvency is questionable, creditors may decide to run and demand cash. Unless a bank can borrow against its assets, or raise equity from investors, it will be forced into asset fire sales to meet demands for cash. Widespread fire sales, which further reduce asset prices, can morph into a systemic crisis.

A real-world "stress test" in 2023 made banking fragility abundantly clear

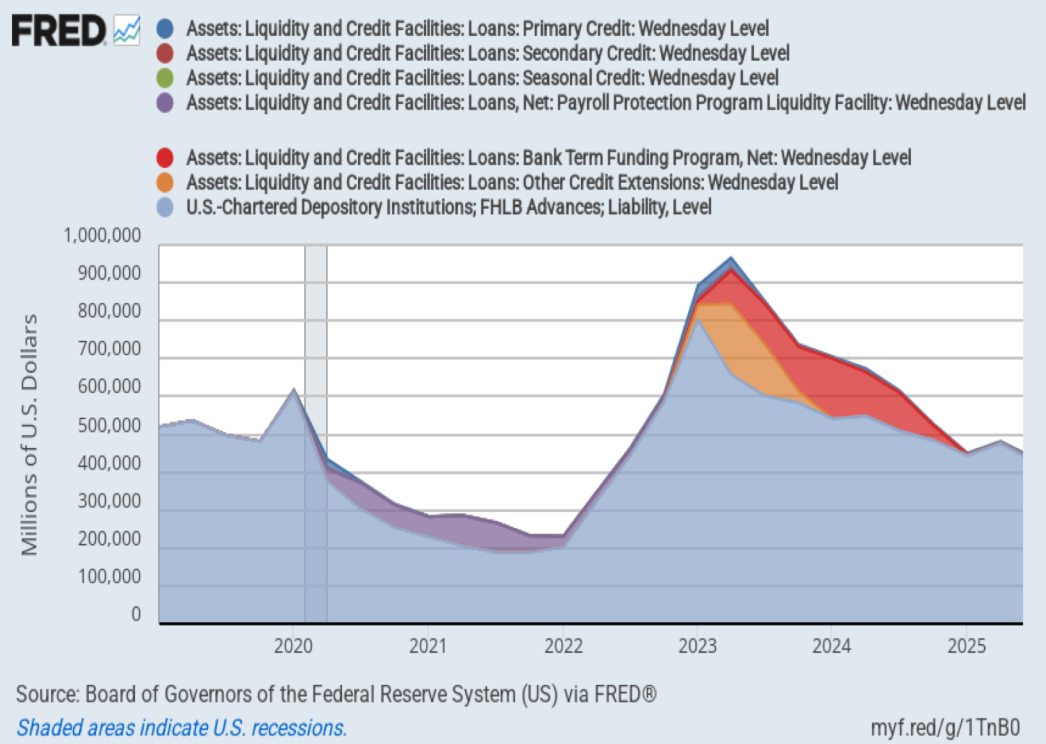
This vulnerability was brought home in 2023 after the Fed raised interest rates sharply, beginning in 2022Q2. In March 2023 Silicon Valley Bank (SVB) experienced losses, relative to accounting values, on the sale of securities. This provoked a run by uninsured depositors at SVB, which spread to other regional banks including Signature Bank in New York. Financial regulators were forced to invoke the systemic risk exception to normal resolution procedures, and guarantee uninsured deposits at SVB and Signature to prevent a run on mid-sized banks. [3]

To provide banks with access to cash, while allowing them to avoid recognizing losses, the Fed also created a Term Lending Facility (TLF), where banks could borrow against Open Market Collateral valued at par.[4] Since the interest rate increases had reduced the value of collateral such as Treasury bonds well below par value, the TLF allowed banks to obtain cash loans from the Fed using overvalued collateral. Banks also borrowed from standing Fed lending facilities, and from Federal Home Loan Banks (FHLBs) to meet needs for cash.

Between 2022Q2, when the Fed began to raise the Fed Funds rate, and 2023Q2, combined borrowing increased by $630 billion -- clear indication of sustained demands for cash in the banking system (see Figure 4).

[2] U.S. Federal Reserve, *Financial Stability Report*, May 2026, Figure 3.4, available at https://www.federalreserve.gov/publications/2026-may-financial-stability-report-leverage.htm.
[3] Congressional Research Service, "Bank Failures: the FDIC's Systemic Risk Exception", available at https://www.congress.gov/crs-product/IF12378
[4] David M. Arseneau et al., "The Federal Reserve's Response to the 2023 Banking Turmoil: The Bank Term Funding Program", Federal Reserve Finance and Economics Discussion Series, No. 2025-099, November 4, 2025, available at https://www.federalreserve.gov/econres/feds/the-federal-reserves-response-to-the-2023-banking-turmoil-the-bank-term-funding-program.htm.

FIGURE 4. Bank Reliance on Federal Support During the 2023 Banking Crisis



Banks were borrowing to avoid selling assets, which would have made equity shortfalls obvious. By one estimate, 2,315 banks, including at least one global systematically important bank, with $11 trillion in aggregate assets, were insolvent when their assets were marked-to-market in 2023Q1.[5] The potential for widespread runs and asset fire sales was there.

Banks are vulnerable to nonbank instability

Risks to bank stability can come from nonbank financial institutions (NFBIs), which collectively hold twice as many assets as the banking sector. Bank holdings of NBFI liabilities – including loans, credit lines, debt, and equity – was nearly $1.7 trillion in 2024.[6] Loans to NBFI's were more than 25% of total bank lending.[7]

Banks are also exposed to nonbank financials via common asset holdings. Simulations by Fed economists have shown that asset fire sales by NBFIs, which would force them to realize losses on the assets they are selling, would also reduce bank equity. For example, a fire sale of 1 percent of the assets

[5] E. Jiang et al., "Monetary Tightening and U.S. Bank Fragility in 2023: Mark to Market Losses and Uninsured Depositor Runs," Stanford GSB Working Paper No. 4080, April 2023, available at https://www.gsb.stanford.edu/faculty-research/working-papers/monetary-tightening-us-bank-fragility-2023-mark-market-losses.

[6] Ricardo Duque Gabriel and Julianna Sterling, "Shifting Dynamics in Bank Funding of NBFIs: The Rise of Credit Lines", FEDS Notes, July 14, 2025, available at https://www.federalreserve.gov/econres/notes/feds-notes/shifting-dynamics-in-bank-funding-of-nbis-the-rise-of-credit-lines-20250714.html.

[7] Nicola Cetorelli, "Banks and the Rise of Nonbanks in Credit Markets", speech at 2025 Financial Markets Conference, May 19, 2025. Available at: https://www.newyorkfed.org/medialibrary/media/newsevents/speeches/2025/Cetorelli-Atlanta-Fed-Conference-May-2025

held by hedge funds would reduce bank equity by 1.5 percent. A 1 percent fire sale by life insurance company assets would reduce bank equity by 3.5 percent.[8]

Hence even though there is an apparent shift of risk from banks to nonbanks – e.g. when private credit does the direct lending to higher risk borrowers -- banks directly and indirectly remain exposed to much of it.

Hedge funds have destabilized the Treasury securities market

Hedge funds provide a clear example the how NBFIs can affect financial stability. Their large and highly leveraged arbitrage trades recently contributed to a Treasury market shock that required Fed intervention.

Hedge funds routinely engage in the cash-futures Treasury "basis trade." This trade involves buying large quantities of Treasuries, using short-term borrowing to finance the acquisitions. At the same time, the hedge funds sell Treasury futures. They profit from the difference between cost of the cash assets and return on futures positions. Since the price difference between the cash and futures markets is small, positions need to be large to produce significant returns.

Low cost borrowing to accumulate significant amounts of Treasury securities is key to this trading strategy. Short-term sale and repurchase (repo) agreements serve this purpose. 9 Under a repo agreement, a Treasury security is sold to a counterparty, such as a bank or securities dealer, with a commitment to buy it back in a short period of time at a higher price. This is effectively a short-term collateralized loan. The price difference, the "haircut," is the return to the lender. These borrowed funds are then used to buy additional Treasuries, which can be used as collateral for additional short-term repo borrowing. Since haircuts can be very small or even negative, this process allows hedge funds to hold Treasury assets many times the value of the equity they commit to the trade. Hedge funds also borrow from "prime brokers," located in large globally systemic international banks, to finance positions in equity markets, adding to their overall leverage.

Aside from borrowing to support their bond holdings, hedge funds require collateral to meet margin requirements on their futures positions. Changes in market volatility or other factors can cause future exchanges to demand additional variation margin to maintain futures positions. If collateral calls are large enough, the profit from the basis trade can turn into a loss. This will cause the hedge funds to sell their Treasuries and unwind their futures positions. This self-reinforcing process is called a "margin spiral," in which highly leveraged positions are rapidly unwound to avoid loss.

Such a margin spiral played out in 2020.[10] Futures market volatility and the subsequent margin calls forced hedge funds to sell about $200 billion in Treasuries in a short period.[11] This sell-off, combined

[8] Nicola Cetorelli et al., "Non-Bank Financial Institutions and Banks' Fire-Sale Vulnerabilities", Federal Reserve Bank of New York Staff Report No. 1057, March 2023, available at https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr1057.pdf?sc_lang=en.

[9] Ayelen Banegas and Phillip Monin, "Hedge Fund Treasury Exposures, Repo and Margining", *FEDS Notes*, September 8, 2023, available at https://www.federalreserve.gov/econres/notes/feds-notes/hedge-fund-treasury-exposures-repo-and-margining-20230908.html.

[10] Andreas Schrimpf et al., "Leverage and margin spirals in fixed income markets during the Covid-19 crisis", Bank For International Settlements Bulletin, No. 2, April 2, 2020, available at https://www.bis.org/publ/bisbull02.pdf.

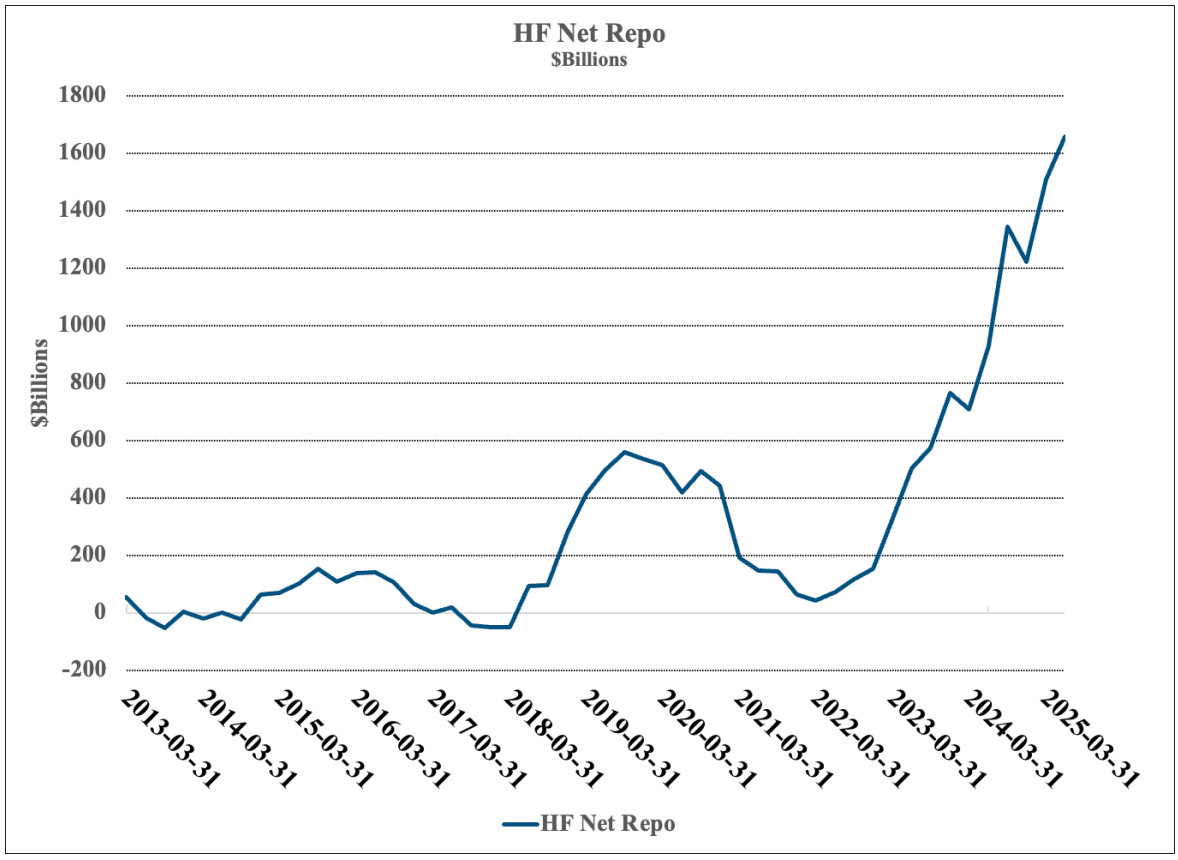
[11] Ayelen Banegas et al., "Sizing hedge funds' Treasury market activities and holdings", *FEDS Notes*, October 6, 2021, available at https://www.federalreserve.gov/econres/notes/feds-notes/sizing-hedge-funds-treasury-market-activities-and-holdings-

with sales by bond funds and central banks, caused significant price declines. The Fed was forced to buy $1 trillion in Treasuries to stabilize the market.

Data on hedge fund net repo – defined as [repo (secured borrowing)] minus [reverse repo (secured lending)] – is a proxy for the hedge fund basis trade.[12] The 2020 Treasuries sell-off can be seen in the Figure 5.

The figure also shows that the current basis trade is more than two and one half times larger than the level in 2020. There is nothing to prevent another margin spiral and Treasury market shock if market forces go against this multi-trillion-dollar trade.

FIGURE 5. Post-2020 Growth of Hedge Fund Repo Borrowing



Source: U. S. Treasury, Office of Financial Research, Hedge Fund Monitor

20211006.html#:~:text=Here's%20some%20information%20about%20hedge%20funds'%20Treasury,all%20qualifying%20hedge%20funds%20in%20early%20202.

[12] Jonathan Glicoes et al., "Quantifying Treasury Cash-Futures Basis Trades", *FEDS Notes*, March 8, 2024 available at https://www.federalreserve.gov/econres/notes/feds-notes/quantifying-treasury-cash-futures-basis-trades-20240308.html?OR=Word.

Transformation of the life insurance industry is making it more vulnerable to financial market shocks

The primary business of the U.S. life insurance industry is the sale of annuity contracts. In 2024 annuities accounted for sixty-six percent of total life insurance reserves.[13] The absolute value of these reserves was $4.3 billion, which is a substantial share of household retirement savings.

Beginning around 2014, as asset managers engaged in private credit began to take over several insurance companies, the nature of this annuities-centered business has been transformed.[14] The riskiness of life insurer investment portfolios has risen, an increased share of annuity liability risk has been shifted to captive and lightly regulated offshore reinsurers, and the insurer equity-to-asset ratio has declined markedly.

Insurer income and assets are used to fund asset manager private credit lending

In the past decade many life insurers have been acquired by asset managers. These acquisitions give the managers control of insurer revenue and borrowing capacity. That capacity is substantial, given the large income from annuity sales and billions in assets on the balance sheets of the insurers they control.

Insurers have been used to finance the private credit business of asset managers/owners. Asset managers such as Apollo and Kohlberg Kravis Roberts have used them to extend higher interest loans to middle market corporations and other higher risk borrowers. The loans are then packaged into structured vehicles, such as Business Development Companies (BDCs) or Collateralized Loan Obligations (CLOs), which create and sell securities promising relatively high rates of return because of the rates borrowers must pay.[15] Of course those returns may not materialize if defaults in the underlying assets are high enough.

Large quantities of private credit securities have been purchased by the insurance companies controlled by asset managers. Ten insurers affiliated with asset managers held a total of $665 billion of affiliated private credit securities at the end of 2024.[16] This is approximately equal to the $685 billion in unrated, private rated, and other difficult to value assets that Moody's estimated were held by all insurers at the end of 2024. These holdings amounted to 18 percent of the $3.8 trillion in fixed asset holdings of all life insurers.

These placements have worked to the immediate benefit of the asset managers. They earn money from loan origination fees charged to borrowers, and from the management and performance fees they charge. These financial incentives cause some private credit vehicles to operate in a procyclical manner,

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[13] American Council of Life Insurers, *2025 Life Insurers Fact Book*, November 17, 2025, Chapter 3, available at https://www.acli.com/about-the-industry/life-insurers-fact-book/2025-life-insurers-fact-book.
Reserves are accounting values, estimates of future liabilities.

[14] Alexander Cheema-Fox et al., "Permanent Capital Meets Private Markets: The Transformation of Alternative Asset Mangers", Harvard Business School Working Paper, No. 25-008, 29 August 2025, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5401871.

[15] Asset manager use of life insurer income and assets to fund high-risk private credit lending is very well described in S. Carlino et al., "Life Insurers' Role in the Intermediation Chain of Public and Private Credit to Risky Firms," *FEDS Notes*, March 21, 2025, available at https://www.federalreserve.gov/econres/notes/feds-notes/life-insurers-role-in-the-intermediation-chain-of-public-and-private-credit-to-risky-firms-20250321.html.

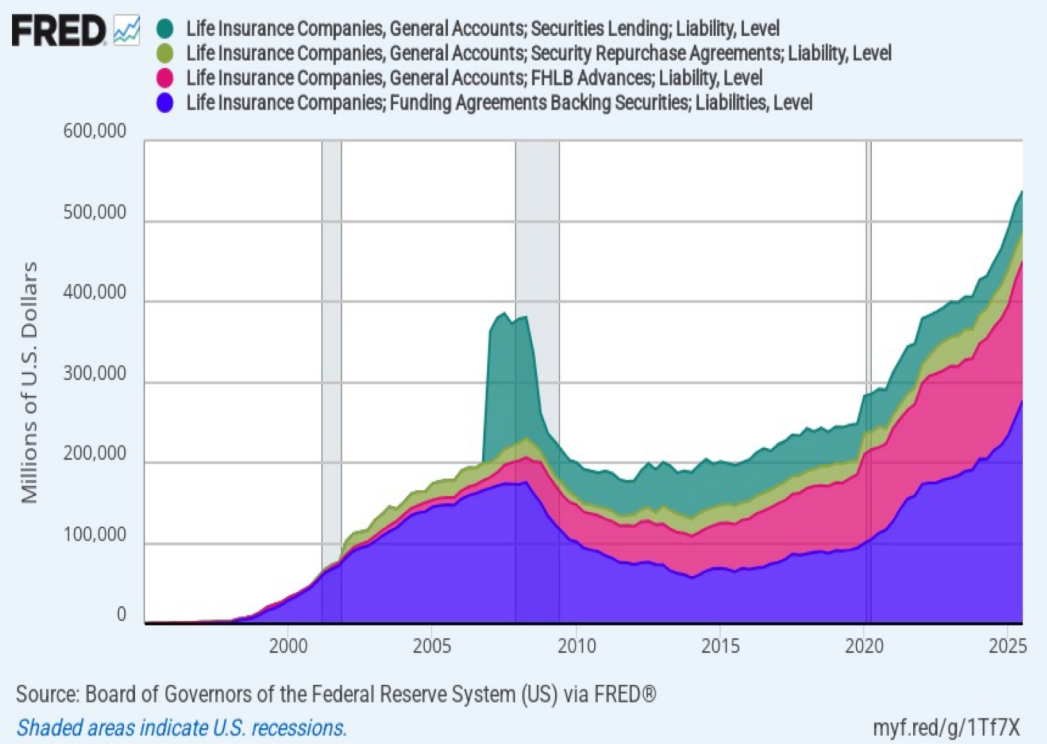
[16] Lee Harris, "How Insurance Became the Lifeblood of Private Credit," *Financial Times*, February 24, 2026, available at https://www.ft.com/content/b6be87a9-0abf-4950-9060-2159aa547f3d.

increasing their risk taking as the net asset value of their portfolios increase.[17] BDCs, for example, which have a debt to net asset value limit of two, increase their borrowing and asset purchases when they are doing well. This can lead to forced sales when net asset values decline.

Asset managers also have used the borrowing capacity of the insurers they control as a source of finance for their private credit. The principal sources of borrowing are loans from Federal Home Loan Banks (FHLB), sale of Funding Agreement Backed Securities (FABS), security repurchase agreements, and securities lending.[18] Because FHLB loans and FABS are treated as equivalent to insurance liabilities, the rates paid on these credits are relatively low.

Aggregate borrowing from these sources declined markedly following the GFC but began to rise rapidly after the mid-2010's, when asset managers acquisitions of insurers increased. In 2025Q3 insurers aggregate outstanding debt from these sources was $537 billion (see Figure 6).

FIGURE 6. Post- 2015 Growth of Life Insurer Borrowing



It is difficult to accurately value private credit securities. There are no liquid markets for most of them, and the underlying assets are themselves illiquid and therefore hard to value. Credit ratings, to the extent they exist, are so-called "private letter ratings," provided by small, specialist rating firms. The

[17] Sirio Aramonte and Fernando Avalos, "The Rise of Private Markets", *BIS Quarterly Review*, December 6, 2021, available at https://www.bis.org/publ/qtrpdf/r_qt2112e.htm.

[18] *See* "Funding Agreement-Backed Securities", Board of Governors of the Federal Reserve, available at https://www.federalreserve.gov/releases/efa/efa-project-funding-agreement-backed-securities.htm.

Bank for International Settlements has noted that smaller agencies may have commercial incentives to provide higher ratings.[19]

Valuation uncertainty has contributed to a recent surge in withdrawals from Blue Owl, Bcred and other funds that allow retail investors to buy exposure to private credit assets.[20] The potential effect of AI on the future of software companies has raised doubts about the value of private credit loans to these companies. Retail investors, reacting to these developments, have requested withdrawals in excess of limits set by the funds. Blue Owl and Bcred have accommodated the excess withdrawals, although others have not.

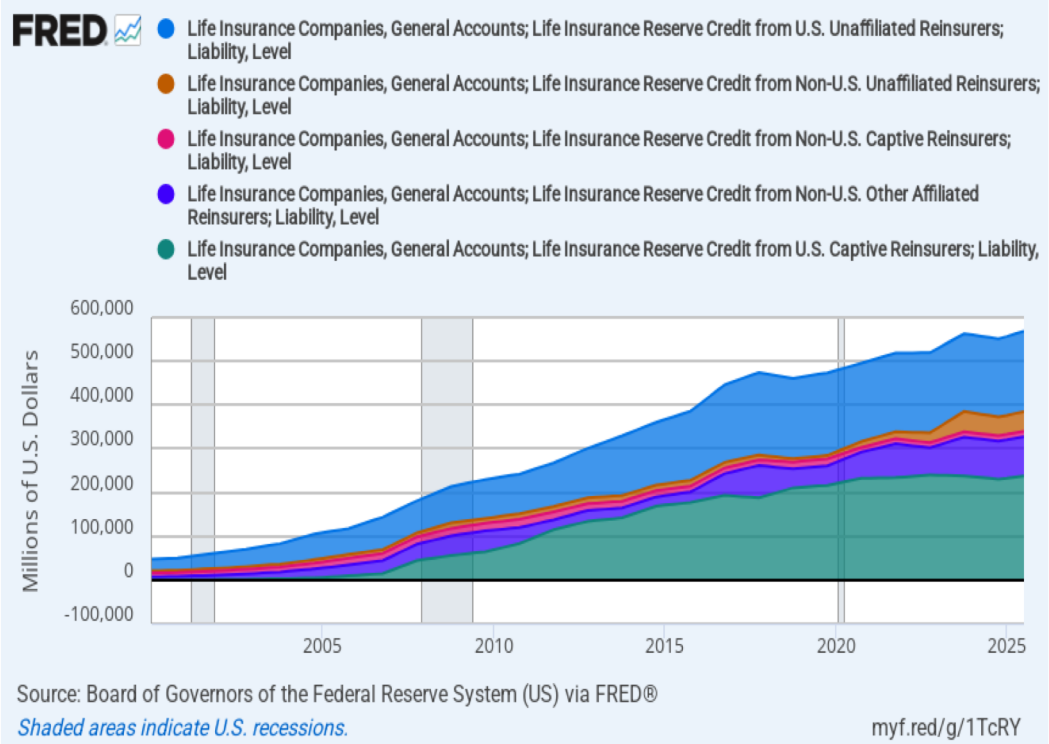
Although most private credit securities are held by institutional investors, which have longer term investment horizons, runs on retail funds could reduce the perceived value of private credit securities held by insurers.

Use of offshore reinsurance has increased

An increasing share of life insurer liabilities has been transferred to reinsurers. Reinsurers assume responsibility for liabilities in exchange for payments from the insurer. Data from the Financial Accounts of the United States show that an increasing share of insurer general account liabilities, amounting to $568 billion in 2025Q3, have been assumed by reinsurers (see Figure 7). Of this total, $184 billion have been ceded to U.S. public reinsurers, which are overseen by state regulators. The National Association of Insurance Commissioners develops standards and provides support for the state commissions, but enforcement relies on state law and actions.[21]

[19] Matteo Aquilina et al., "The transformation of the life insurance industry: systemic risks and policy changes", BIS papers No. 161, October 2025, available at https://www.bis.org/publ/bppdf/bispap161.pdf.
[20] Alexander Davis, "Private Credit's Liquidity Squeeze Puts Lenders in a Tight Spot", Morningstar, March 12, 2026, available at https://www.morningstar.com/markets/private-credits-liquidity-squeeze-puts-lenders-tight-spot.
[21] National Association of Insurance Commissioners, "State Insurance Regulators Lead Global Conversation at 2026 NAIC International Insurance Forum," May 8, 2026, available at https://content.naic.org/article/updated-state-insurance-regulators-lead-global-conversation-2026-naic-international-insurance-forum.

FIGURE 7. Increased Life Insurer Reliance on Offshore and U.S. Captive Reinsurance



The other $384 billion in reinsurance is provided by firms operating with weaker regulation. Offshore reinsurers, usually located in Bermuda or the Caymans, are overseen by insurance authorities in those locations. Bermuda and the Caymans have lower disclosure and equity requirements and fewer asset restrictions than domestic public reinsurers.[22] Some of the offshore reinsurers are insurer affiliates. U.S. "captive" reinsurers, which only serve the insurance company that owns them, report to an individual state insurance commission, and do not have public disclosure requirements. These forms of reinsurance pose greater risk to the insurer counterparty than transactions with unaffiliated, publicly traded U.S. reinsurers. They do, however, reduce immediate costs.

It should be noted that the Financial Accounts data likely understate the utilization of offshored reinsurance. The Financial Accounts omit "modified coinsurance", which is frequently used by offshore firms. [23]

[22] U.S. Financial Stability Oversight Council, 2024 Annual Report, pp. 73-74, available at https://home.treasury.gov/system/files/261/FSOC2024AnnualReport.pdf.

[23] As explained in Michael Batty, "Accounting for Reinsurance Transactions in the Financial Accounts of the United States," *FEDS Notes*, October 12, 2018, available at https://www.federalreserve.gov/econres/notes/feds-notes/accounting-for-reinsurance-transactions-in-the-financial-accounts-of-the-united-states-20181012.html, the accounts do not adjust reserves reinsured using "modified coinsurance." In this arrangement, "[r]ather than transferring the liability from the direct insurer to the reinsurer, the reinsurer funds the insurance reserve that is held on the balance sheet of the direct insurer. This is often combined with funds withheld in order to minimize the payments between the parties. In this case, only periodic net payment will be made in either direction to reflect the degree to which investment returns and policy experience differed from that assumed in reinsurance pricing."

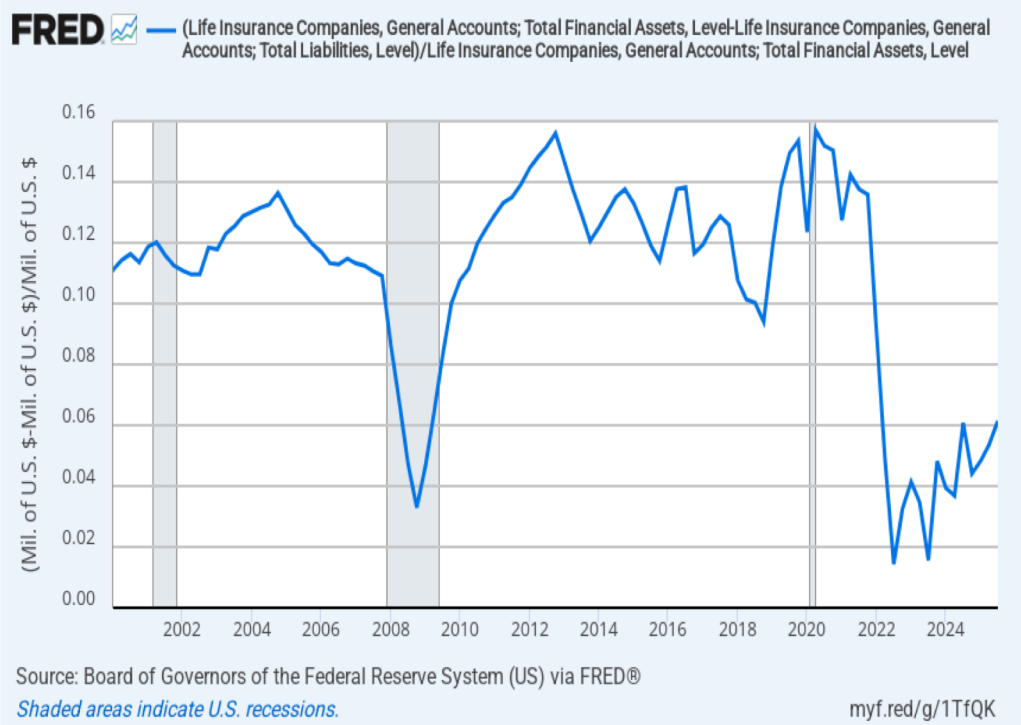
Other data sources indicate that the understatement is significant. Moody's, for example, has estimated that in 2025 total liabilities assumed by offshore reinsurers totaled $800 billion, while the Financial Accounts value is $146.8 billion.[24] Assuming the Moody's data are approximately correct, the amount of offshore reinsurance is more than five times greater than indicated in the Financial Accounts, and the total amount of reinsured liabilities is more than double.

Affiliated offshore reinsurers also set up so-called "sidecars," which borrow in capital markets to fund higher-yield private credit investments. At the end of 2024 total U.S. life insurance sidecars totaled $298 billion, although not all these sidecars were dedicated to annuity reinsurance.[25] Sidecars are used to acquire higher return assets, which of course come with higher risk.

Life insurer equity-to-asset ratios have trended down since the mid- 2010's

As asset managers have increased their share of life insurer assets, the equity-to-asset ratio for life insurers have trended downward from the mid-2010's. As is shown in Figure 8, it reached six percent in 2025Q3. The industry equity cushion is about half that which prevailed for the previous 25 years. This equity cushion could be reduced or eliminated by a market shock well within recent historical experience, causing insurers to fall below statutory equity requirements and calling their solvency into question.

FIGURE 8. Post-2015 Decline in Life Insurer Equity-Asset Ratio



[24] *See* https://www.moodys.com/web/en/us/insights/data-stories/private-credit-transforms-life-insurance-industry.html.
[25] Moody's Ratings, "Offshore reinsurance goes mainstream, raising counterparty risk," February 24, 2025, available at https://rgb-prod-public-pdfs.s3.us-east-2.amazonaws.com/TlbgpoLBMQaM2eCNaR9IRkZ205s.pdf. *See also* Craig Buck, "Economics of Bermuda Captives and Sidecars", September 12, 2022, available at https://www.sifm.org/wp/wp-content/uploads/2022/09/M-2.-Buck.-Economics-of-Bermuda-Captives-and-Sidecars.pdf.

Potential vulnerability to financial shocks is growing

The combination of large exposure to illiquid and higher-risk private assets, the shift of annuity liabilities to opaque and lightly regulated captive and offshore reinsurers, and sharply reduced equity-to-asset ratios have increased the fragility of life insurers generally. In the event of a general asset market shock, or a big decline in private credit asset values, the hit to an already low equity cushion could prompt lenders to run from short term FABS and repo lending, and refuse to roll over longer term loans. Public awareness of losses on private credit assets, or overall equity declines, could reduce revenue from annuity contract sales, and increase annuity withdrawals. So, while insurers do not rely on short-term borrowing to the extent of commercial banks, their business model is increasingly exposed to potential runs and forced asset sales.

Stability risk from banks, hedge funds and insurers can be reduced

Policy can be changed to make banks self-insure against loss, prevent hedge funds from making system-destabilizing bets, and protect retirement savings that are managed by life insurers.

Banks

Require banks to put more of their own funds at risk when they operate their business. A greater level of self-funding will act as self-insurance against insolvency and make banks less likely to take bets that can threaten overall financial stability.

We know from experience in the Great Financial Crisis that large financial market shocks can reduce the value of bank assets dramatically. Quantitative estimates, based on data for the nine largest banks, show that, had interventions by federal regulators not been successful, the potential loss of asset value from runs was 22 percent.[26] In addition, we know that when Washington Mutual failed in September 2008, its losses amounted to 13 percent of its $310 billion in assets.[27]

Recent events demonstrate that existing bank equity levels are inadequate to get the banks through even less dramatic market events. As pointed out above, literally thousands of additional banks were insolvent in 2023 when interest rate increases caused asset losses. Those banks that did fail, before the Federal Reserve intervened to prevent a widespread run, had double digit losses. When Silicon Valley Bank failed in 2023, its losses amounted to at least 17 percent of its assets. In the case of the closure of Signature Bank, also in spring 2023, losses were at least 11 percent of assets. [28]

Empirically, it is clear that single digit bank equity ratios are too low to deal with either large or run-of-the-mill shocks in financial markets. They do not provide the self-insurance needed to prevent insolvency and potentially destabilizing bank runs. On available evidence, a rational regulatory system

[26] Pietro Veronisi and Luigi Zingales, “Paulson’s Gift”, NBER working paper No.15458,October, 2009, available at https://www.nber.org/papers/w15458

[27] Washington Mutal Inc., U.S. Securities and Exchange Commission Form 10-Q, June 30, 2008, available at https://www.sec.gov/Archives/edgar/data/933136/000104746908009146/a2187197z10-q.htm

[28] Martin J. Gruenberg, "The Federal Regulators’ Response to Recent Bank Failures," Testimony, Committee on Financial Services, United States House of Representatives, March 29, 2023, available at https://docs.house.gov/meetings/BA/BA00/20230329/115605/HHRG-118-BA00-Wstate-GruenbergM-20230329.pdf.

requires double digit equity ratios, closer to 20 percent. This would better protect financial stability and reduce the need for repeated public bank bailouts.

This creates a classic public goods problem. Individual banks have no incentive to internalize the costs of the spillover effects of high leverage. When shocks to asset values create financial distress for banks, they can be forced to sell assets to raise cash and pay off creditors. If enough banks are in distress, this leads to asset fire sales, further asset value declines, and potentially systemic instability. But these external effects are not taken into account by banks, because markets do not reward them for taking action that benefits the financial system as a whole. Nor do bank creditors take the spillover effects of the bank indebtedness into account when determining the interest rates they demand since they are lending to a single entity and have no way to account for how its debt will affect the risk of financial instability.

Moreover, as Anat Admati and her collaborators have pointed out, bank use of debt financing is incentivized by subsidies. Interest costs are deductible from bank income, reducing corporate taxes. Government guarantees of bank solvency – explicit in deposit insurance, and implicit because of the history of government "lender of last resort" bailouts of failing banks – further reduce borrowing costs by reducing bankruptcy risk. These are efficiency reducing market distortions, shifting risk to the public and increasing social costs.[29]

Both the public goods problem and the existence of significant subsidies to banks mean that the existing cost of bank credit does not reflect the actual cost of providing it. This leads to inefficiency in the allocation of resources and is socially harmful. Nonetheless, bankers usually respond to proposals to increase equity funding with the claim that lending and the economy would suffer. They argue that because equity cost more than debt, more equity would increase their costs and therefore the cost of lending, harming economic performance. [30]

Some basic results in financial economics run counter to this simple argument, even if equity costs are currently higher. If financial markets are competitive, we would expect the overall cost of bank finance to be unaffected by the mix of debt and equity. Since the return on both compensates for the riskiness of the bank assets that are financed, the shifting the mix should be cost neutral.[31]

Of course, we know that funding costs are not competitively determined for banks. Debt finance is subsidized. So increased equity finance could raise funding costs, although it is hard to say *a priori* what the reduction of subsidies will do to the cost or the supply of credit. Empirical evidence is needed.

In fact, there is some compelling evidence that requiring banks to internalize the social costs they ignore can be done without a severe disruption to the supply or cost of credit. For example, a recent study compared U.S. mortgage banks to commercial banks following a similar originate to distribute model, relying primarily on short term financing.[32] For loans sold to GSEs, the two sets of lenders had very

[29] Anat Admati and Martin Helliwig, *The Bankers New Clothes*, 2nd Edition. Princeton: Princeton University Press, 2024, pp. 129-147.

[30] Anat Admati et al., "Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity is Not Expensive", Stanford Graduate School of Business, Working Paper No. 2065, October 22, 2013, available at https://www.gsb.stanford.edu/faculty-research/working-papers/fallacies-irrelevant-facts-myths-discussion-capital-regulation-why.

[31] *See* Admati and Helliwig, *op.cit*., pp. 109-112, for the Modigliani-Miller result showing that the funding mix for a business does not affect overall funding cost.

[32] Mortgage banks originate mortgages not to retain them but to sell (distribute) them on to other financial institutions.

similar borrowers and offered very similar terms. Their borrowers had very similar credit scores and debt to income ratios; and their loan to value ratios, loan amounts, and interest rates charged were virtually identical. Yet the mortgage banks operate with average equity ratios of 25 percent, more than twice as high as comparable commercial banks, and have on average higher borrowing costs.[33] Having greater equity at risk may incentivize more efficient operation.

In the case of large banks, a cross-country study by the Bank for International Settlements shows that higher equity ratios have small to negligible effects on the average cost of funds. A one percentage point increase in the equity to asset ratio is estimated to increase average funding costs by .03 percentage points.[34] The analysis also shows that these banks increased their lending as equity finance increased. Thus, there are positive externalities that need to be taken into account when bank equity requirements are evaluated. Another recent study of U.S. banks estimated similar-sized cost increases under hypothetical increases in the equity to asset ratio.[35]

Considering what we know about the causes of excess leverage, the huge and unevenly distributed social costs of the financial instability it produces, and the effect of reducing it in practice, it is clear that significantly higher bank equity levels are in order.

Hedge Funds

Limit the ability of hedge funds to use extraordinary amounts of runnable short-term debt by requiring all Treasury repurchase transactions be conducted on supervised central exchanges, with strict limits on the leverage of the counterparties.

The Federal Reserve should limit hedge fund repo-based leverage

There is, however, a way to reduce the likelihood of fires sales of Treasuries by highly leveraged NFBI's like hedge funds. It can be achieved through a combination of existing Securities and Exchange Commission and Federal Reserve authorities that would limit the leverage hedge funds achieve through repo finance.

Some of the groundwork has been done by a recent SEC rule.[36] Among other things, the rule requires that members of clearinghouses clear all their (secondary) trades in Treasuries through those clearinghouses. Many broker-dealers currently clear at least some of their Treasury trades through the

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[33] Erica Jiang et al., "Which banks are (over)levered? Insights from shadow banks and unisured leverage.", NBER working paper No. 26903, June 2024, available at https://www.nber.org/system/files/working_papers/w26903/w26903.pdf.

[34] Leonardo Gambacorta and Hyun Song Shin, "Why bank capital matters for monetary policy", Bank for International Settlements, Working Paper No. 558, April 2016, available at https://www.bis.org/publ/work558.pdf. For a panel of 105 banks covering 70 percent of worldwide banking assets, and at least 80 percent of the banking system in each country, over the 19-year period 1994-2012, the study found that a one percentage point increase in the equity to asset ratio would increase in the average cost of bank capital by .03 percentage points.

[35] Brian Clarke at al., "Leverage and the cost of capital for U.S. banks", *Journal of Banking and Finance*, September, 2023, pp.1 – 15. Using a model that relates explains funding costs as a function of leverage and other variables, the authors estimate that for banks over $250 billion in assets, a percentage point increase in the equity to asset ratio increases the weighted average cost of capital by .07 percentage points. As the authors point out this result is sensitive to assumed values of the risk-free rate of interest, the effective tax rate, and the market risk premium.

[36] U.S. Securities and Exchange Commission, "Standards for Covered Clearing Agencies for U.S. Treasury Securities and Application of the Broker-Dealer Customer Protection Rule With Respect to U.S. Treasury Securities", Final Rule, available at https://www.sec.gov/rules/proposed/2022/34-95763.pdf.

Fixed Income Clearing Corporation (FICC). [37] Under the rule all broker-dealer and interdealer brokers who use FICC would clear all their Treasury trades through FICC.

Requiring central clearing for Treasury trades can help limit fire sales by increasing the capacity of market participants to buy Treasuries. Use of a central counterparty (CCP) allows for "netting" of repo borrowing and lending, since the CCP becomes the counterparty for all trades. When, as is the case of bank broker-dealers, lending counts against leverage requirements, netting can allow for greater ability to buy.

An effect of clearing requirements is that CCP risk requirements must be met by all users. These include both capital requirements for members and margin rules for trades. These conditions are designed to protect the clearinghouse in the event that a member defaults on obligations to a counterparty. This kind of risk mitigation is important, since problems at an important CCP can interfere with market functioning.

However, while these risk management conditions help to preserve the functioning of FICC, they do not reach the financial instability risk created by NBFI's such as hedge funds. Many hedge funds have access to central clearing via their relationships with prime brokerages located in banks. Members of FICC "sponsor" clearing by clients, and this gives sponsored hedge funds access to other FICC members as repo counterparties. The FICC is protected from direct loss by the "sponsoring member guarantees".[38] But the Treasury market, which is central to the operation of the world financial system, is not protected from fire sales by hedge funds.

CCP risk management standards that take account of the stability risks of funding highly leveraged NBFI's could help prevent such events. The SEC does not appear to have the independent authority to require FICC or other CCP's to adopt such standards. However, FICC is a subsidiary of Depository Trust and Clearing Corporation, which has been designated as a systemically important financial market utility by Financial Stability Oversight Council. Under Sections 805 (a) and (b) of the Dodd Frank Act, the Federal Reserve may prescribe risk management standards for such utilities in order to promote financial stability.[39] An obvious application of that authority would be a limitation on the leverage of hedge fund users of FICC, which could be achieved via capital requirements.

Therefore, in exercising its Section 805 authority, the Federal Reserve might determine that any hedge fund taking positions in the Treasury market via FICC (or other approved CCP), whether as a member or sponsored member, must meet stricter leverage requirements than those which apply to banks. For banks, broker-dealers and other entities covered by federal financial regulation, CCP risk management standards default to primary regulator capital requirements. [40] But this clearly does not address the financial stability risks created by regulator-free hedge funds.

Imposing leverage limits on hedge funds would reduce their ability of hedge funds to take large, leveraged, risky positions in Treasuries. Unless these funds raised substantially more equity, this also would reduce the role of hedge funds as buyers of Treasuries in normal market conditions. But since

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[37] Currently FICC is the sole approved CCP for Treasuries. Other clearing houses such as Intercontinental Exchange are applying for clearing approval. *See*, J.P. Morgan, "U.S. Treasury Clearing Mandate", December 19, 2025, available at https://www.jpmorgan.com/insights/markets-and-economy/markets/us-treasury-clearing-mandate - section-header.

[38] *See* FICC, "Government Securities Division Rulebook", effective as of October 24, 2022, available at https://www.dtcc.com/~/media/Files/Downloads/legal/rules/ficc_gov_rules.pdf.

[39] See https://www.govinfo.gov/content/pkg/PLAW-111publ203/pdf/PLAW-111publ203.pdf.

[40] *See* FICC, *op. cit.*, p. 79 et seq.

hedge funds have proven to be a source of large-scale market disruption, and could do so again, this seems like a reasonable trade-off.

Section 805 requires that any such standards be determined in consultation with the Commission and the Oversight Council, since stability regulation needs careful design.

If, after these measures are put in place, a substantial amount of hedge fund Treasury repo transactions remains outside the approved CCP's, other regulatory steps would be necessary.

The Federal Reserve should limit nonbank access to the standing repo facility

Because of the centrality of the Treasury market, the Federal Reserve has taken steps compensate for limits on private sector trading capacity, establishing a standing repo facility (SRF) in July 2021. The SRF is a variant of the Primary Dealer Credit Facility, set up by the Federal Reserve during the GFC and revived during 2020 financial shock, which provided primary dealers with loans collateralized by a variety of securities. The SRF will offer Treasury repo loans at a rate determined by the New York Federal Reserve Bank. The SRF significantly expands the capacity of eligible market participants – currently primary dealers and certain depositories – to sell Treasuries should fire sale conditions develop.[41] This is a big change, making the Federal Reserve the dealer of last resort during Treasury market dislocations.

However, the fact that some primary dealers with access to the SRF are not subject to bank-like regulation raises an important policy issue.[42] Where regulation to contain stability risk is absent, access to the SRF invites greater leverage and risk taking. It amounts to giving these NBFI's access to something like the Federal Reserve discount window – but without the leverage and other regulatory limits designed to make use of the window a rare occurrence. This encourages regulatory arbitrage and creates moral hazard. While it is important to preserve primary dealers as Treasury auction participants and as transmission mechanisms for monetary policy participation in the SRF should require safeguards equivalent to those imposed by bank regulation.[43]

Life Insurers

Authorize the Federal Insurance Office (FIO) to regulate life insurers, with a mandate to limit the risks to insurer stability caused by takeovers by asset managers engaged in private equity and private credit, and by regulatory arbitrage.

The primary business of the U.S. life insurance industry is now the sale of annuity contracts. These companies are now central to the retirement investment and incomes of a substantial share of households. Unfortunately, the industry has undergone a transformation that is making these retirement investments riskier, in ways that not obvious to the households relying on them.

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[41] Primary dealers participate in Treasury auctions and act as trading counterparties with the New York Fed as it executes monetary policy. A list of primary dealers is available at https://www.newyorkfed.org/markets/primarydealers, and a list of currently eligible bank counterparties is available at https://www.newyorkfed.org/markets/srflist-220930.

[42] Some primary dealers with access to the SFR, such as Amherst Pierpont Securities, ASL Capital Markets, Cantor Fitzgerald, and Jeffries LLC are not depositories.

[43] *See* Andrew Metrick and Daniel Tarullo, "Congruent Financial Regulation'', BPEA Conference Drafts, March 25, 2021, available at https://www.brookings.edu/articles/congruent-financial-regulation/.

Asset managers engaged in private equity and private credit are moving at speed to increase their control over life insurance companies. They are doing so in order to use insurer income and assets as sources of funding for their private equity and credit business. They use insurer income and assets to obtain low-cost funding and then sell large amounts of the private credit securities created to the insurance companies they operate.

The behavior of insurers affiliated with asset managers influences other insurers. The currently higher rates of return they earn by adding higher-risk assets to their balance sheets force other insurers to follow their lead.

Life insurers also have opted to reduce their costs by relying more heavily on offshore reinsurance to guarantee their annuity promises. These reinsurers operate in jurisdictions with lighter oversight, including lower capital requirements, weaker constraints on investments, and lower reporting requirements. In addition, many offshore reinsurers are actually affiliates of insurance companies, which means there is no real risk transfer. All of this reduces insurer costs but raises risks to their business and the customers that rely on them.

The share of liabilities backed by life insurer equity has also declined measurably. This reduces the ability of an insurer to remain solvent when there is a negative market shock to asset values. It also changes the risk-taking decisions of owners, since less is at stake if there are negative shocks.

All of these changes have taken place while life insurers are regulated by state insurance commissions. These regulators have failed to address the negative trends outlined above.

The weakness in insurance oversight was recognized by Congress in the Dodd-Frank Act, which created the FIO.[44] Unfortunately, the FIO only has authority to gather data and make reports. It has no regulatory authority.

There is a clear need to revamp the FIO, giving it the authority to set regulatory standards that protect consumers of insurance products of all kinds. In particular, those regulations should

- Prevent asset manager engaged in private equity or private credit from owning or affiliating with life insurance companies, since their control of life insurers has increased the fragility of the sector and raised risks for a significant share of household retirement savings.
- Create standards for reinsurance, ending the use of opaque and lightly regulated offshore and captive domestic reinsurance.
- Require increased equity funding, sufficient to protect insurer stability and limit excessive risk taking.

*For more information on this topic, including the **Policy Brief**, please visit our policy page.*

Contact: Marc Jarsulic: mjarsulic@icloud.com

[44] https://home.treasury.gov/policy-issues/financial-markets-financial-institutions-and-fiscal-service/federal-insurance-office