

Chapter 2 at a Glance

- The chapter assesses vulnerabilities and potential risks to financial stability in corporate private credit, a rapidly growing asset class—traditionally focused on providing loans to midsize firms outside the realms of either commercial banks or public debt markets—that now rivals other major credit markets in size.
- Private credit creates significant economic benefits by providing long-term financing to firms too large or risky for banks and too small for public markets. However, credit migrating from regulated banks and relatively transparent public markets to the more opaque world of private credit creates potential risks.
- Firms borrowing private credit tend to be smaller and riskier than their public market counterparts, and the sector has never experienced a severe economic downturn at its current size and scope. Such an adverse scenario could see a delayed realization of losses followed by a spike in defaults and large valuation markdowns.
- The chapter identifies vulnerabilities arising from relatively fragile borrowers, increased exposure of pensions and insurers to the asset class, a growing share of semiliquid investment vehicles, multiple layers of leverage, stale valuations, and unclear interconnections between participants.
- Assessing overall financial stability risks of this asset class is challenging because the data needed to fully analyze these risks are unavailable. Despite these limitations, such risks appear contained at present.
- However, given private credit's size and role in credit creation—now large enough to compete directly with public markets—it may become macro-critical and amplify negative shocks to the economy.
- The rapid growth of private credit, coupled with increasing competition from banks on large deals and pressure to deploy capital, may lead to a deterioration in pricing and nonpricing terms, including lower underwriting standards and weakened covenants, raising the risk of credit losses in the future.
- If the asset class remains opaque and continues to grow exponentially under limited prudential oversight, the vulnerabilities of the private credit industry could become systemic.

Policy Recommendations

- Encourage authorities to consider a more intrusive supervisory and regulatory approach to private credit funds, their institutional investors, and leverage providers.
- Close data gaps so that supervisors and regulators may more comprehensively assess risks, including leverage, interconnectedness, and the buildup of investor concentration. Enhance reporting requirements for private credit funds and their investors, and leverage providers to allow for improved monitoring and risk management.
- Closely monitor and address liquidity and conduct risks in funds—especially retail—that may be faced with higher redemption risks. Implement relevant product design and liquidity management recommendations from the Financial Stability Board and the International Organization of Securities Commissions.
- Strengthen cross-sectoral and cross-border regulatory cooperation and make asset risk assessments more consistent across financial sectors.

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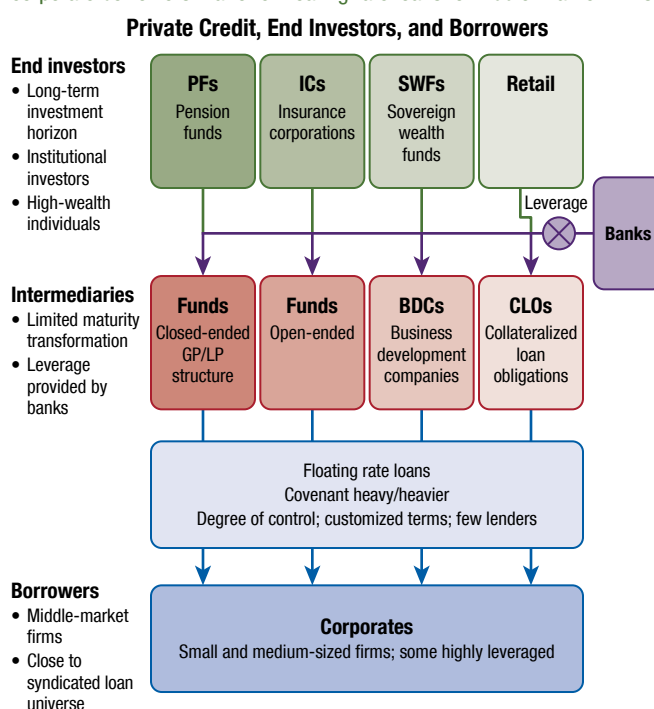
How Private Credit Started and Has Grown

This chapter evaluates how financial stability is affected by the recent evolution of private credit into a major asset class. Private credit (see Table 2.1 for definitions) has grown exponentially and is becoming an increasingly important and interconnected part of the financial system. The sector predominantly involves alternative asset managers who raise capital from institutional investors using closed-end funds and lend directly to predominantly middle-market firms (Figure 2.1). This chapter focuses on performing corporate credit rather than distressed assets, infrastructure, and real estate.

Private credit has provided significant economic benefits during its approximately 30-year existence. It developed as a lending solution for middle-market companies deemed too risky or large for commercial banks and too small for public markets. Loans are typically negotiated directly between borrowers and one or more alternative asset managers. Although usually more expensive than bank loans, private credit

Figure 2.1. Private Credit Structure

Private credit funds are intermediaries between end investors and corporate borrowers that offer floating rate loans to middle-market firms.



Source: IMF staff.
Note: GP = general partners; LP = limited partners.

offers borrowers a value proposition through strong relationships and customized lending terms designed to provide flexibility in times of stress.¹ In contrast with most broadly syndicated loans, private credit offers terms that include enhanced covenants providing lenders with downside protection.² Private credit managers also claim to have much greater resources to deal with problem loans than either banks or public markets, thereby enabling fewer sudden defaults, smoother restructurings, and lower costs of financial distress. Because private credit deals are idiosyncratic and difficult for outside parties to value or trade, lenders typically rely on long-term pools of locked-up capital for financing.

Private credit has grown rapidly since the global financial crisis, taking market share from bank lending

¹Customized lending terms can include, for example, the option to capitalize interest payments (that is, pay in kind) in times of poor liquidity.

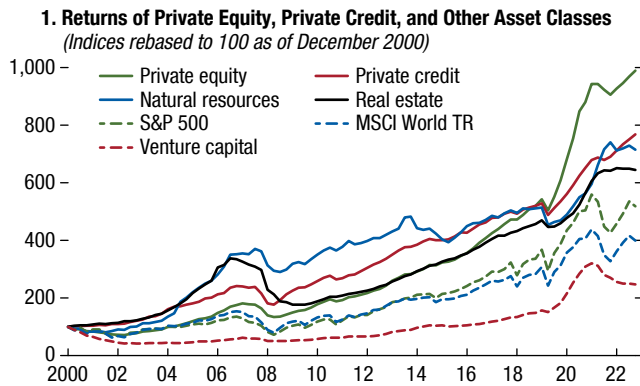
²Covenants can vary depending on the transaction and can include, for example, limits for leverage and interest coverage ratios, restrictions on capital expenditures and dividend distributions, restrictions on additional debt, and limitations on asset sales.

Table 2.1. Key Concepts and Definitions

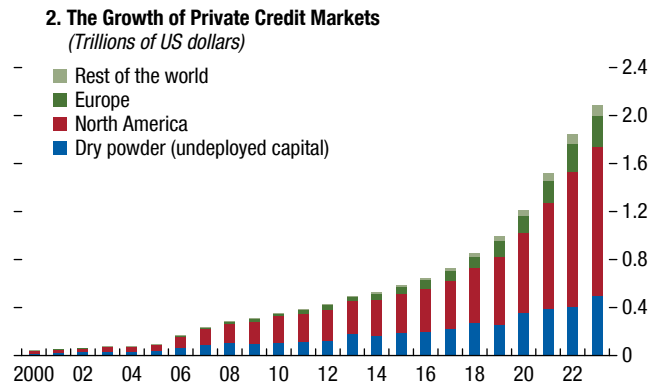
Key Concept	Definition
Private credit	Nonbank corporate credit provided through bilateral agreements or small “club deals” outside the realm of public securities or commercial banks. This definition excludes bank loans, broadly syndicated loans, and funding provided through publicly traded assets such as corporate bonds.
Broadly syndicated loan	A form of financing provided by a group of lenders, often banks and other financial institutions, to a single borrower. Loans are syndicated when too large or risky for a single lender. Such loans are structured and arranged by one or more lending agents—typically investment banks—that underwrite and facilitate the transaction. Given the broad investor base, larger syndicated loans typically have a relatively deep secondary trading market.
Leveraged loan	A broadly syndicated loan with a high level of corporate leverage. Such a loan is usually rated below investment grade and has a high credit spread.
Middle-market firm	A firm that is typically too small to issue public debt and requires financing amounts too large for a single bank because of its size and risk profile. The size of middle-market firms varies widely. In the United States, they are sometimes defined as businesses with between \$100 million and \$1 billion in annual revenue. In contrast to syndicated loans, loans to middle-market firms are typically unrated, even when multiple lenders are involved.

Figure 2.2. Overview of Private Credit and Other Traditional Markets and Assets

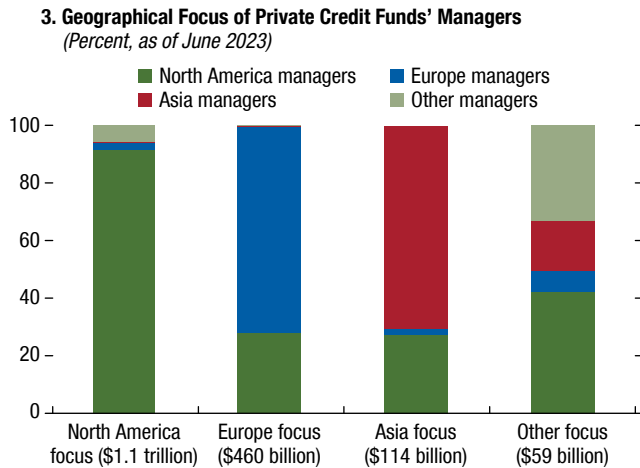
Private credit funds have delivered comparatively higher gross returns ...



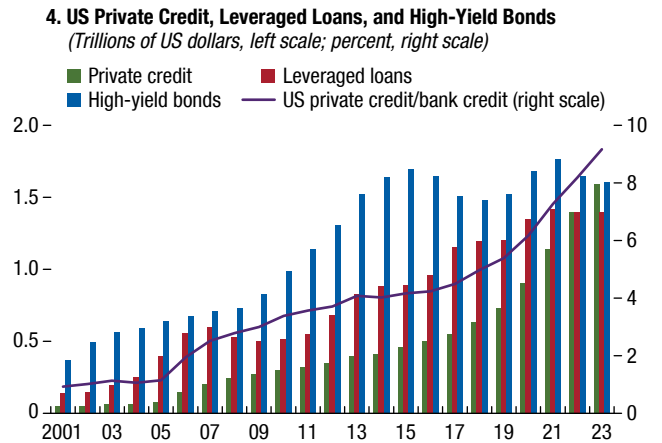
... and grown exponentially over the past two decades.



Private credit fund managers based in North America manage a material part of the market in other regions.



In the United States, private credit size is comparable to leveraged loans and high-yield bond markets.



Sources: Bank of America Global Research; Bloomberg Finance L.P.; PitchBook LCD; Preqin; S&P Capital IQ; and IMF staff calculations.

Note: In panel 1, the private capital indices are rebased to 100 as of December 31, 2000, and are available until June 2023. In panel 2, the measure of assets under management includes those from private credit funds, business development companies, and middle-market collateralized debt obligations, with the last two being mostly US focused, from 2000 to June 2023. In panel 4, bank credit includes both securities, and loans and leases for US commercial banks.

and public markets. Private credit benefitted from the long period of low interest rates that saw a huge expansion of attention to alternative investment strategies. In this context, private credit has appeared attractive, with some of the highest historical returns across debt markets and appears to be relatively low volatility (Figure 2.2, panel 1). At the same time, postcrisis regulatory reforms raised capital requirements for banks and made regulation more risk sensitive, incentivizing banks to hold safer assets. Some end investors (notably insurance companies) were also incentivized to move into private credit because the capital charges are lower and less risk-sensitive than the charges applicable to commercial banks (Cortes, Diaby, and Windsor 2023). There is a concern that tighter bank regulation will

continue to encourage the migration of credit from banks to private credit lenders (Cai and Haque 2024).

As banks appear to have become less willing to lend to middle-market firms with riskier profiles in the United States and Europe, private credit has emerged as a key lender. Private credit assets grew to approximately \$2.1 trillion globally in combined assets and undeclared capital commitments in 2023, with a focus on North America and Europe (Figure 2.2, panel 2).³

³This estimate of the growth in private credit assets includes the assets of private credit funds (\$1.7 trillion globally, as of 2023), business development companies, and private collateralized loan obligations, and therefore underestimates the overall size of private credit globally. This is because some end investors also lend directly to middle-market firms.

For context, such assets are comparable to about three-quarters of the global high-yield market, a more mature but similarly risky market.

Although still focused on middle-market lending, private credit has expanded its remit significantly over the last 20 years, particularly over the last 5. As a result, private credit firms in the United States and Europe can now provide loans to much larger corporate borrowers that would previously fund themselves through broadly syndicated loans or even corporate bonds. Such borrowers may now prefer the customized arrangement of private credit that avoids the disclosures and costs associated with public markets.

Private credit remains focused on North America, but other regions, including Europe and Asia, are experiencing similar growth dynamics. As of June 2023, assets under the management (deployed and committed) of private credit managers located in the United States reached \$1.6 trillion, growing at an average annual rate of 20 percent over the last five years. Private credit now accounts for 7 percent of the credit to nonfinancial corporations in North America, comparable with the shares of broadly syndicated loans and high-yield corporate bonds (Figure 2.2, panel 4). In Europe, private credit also increased rapidly at an average rate of 17 percent per year over the same period, although it has a smaller footprint of 1.6 percent of corporate credit. There is evidence of cross-regional investments, with North American managers financing a significant portion of the private credit funds focused on Europe and Asia (Figure 2.2, panel 3). Asian private credit accounts for about 0.2 percent of credit to nonfinancial corporations, although it has grown at 20 percent annually over the last five years. Private credit in Asia finances mostly smaller deals, targeting high-yield and distressed segments that have limited financing options in emerging market economies (Box 2.1).

Given the low liquidity, higher credit risk, and lack of transparency of private credit, the space is dominated by institutional investors. The most common private credit investment vehicle, accounting for approximately 81 percent of the total market, is a closed-end fund with a capital call structure and limited life cycle, similar to funds used for private equity. An additional 5 percent of the market consists of specialized collateralized loan obligations (CLOs) that invest in middle-market private credit.⁴ Typical investors in these two vehicles are pension funds, insurance companies, sovereign wealth

funds, and family offices. A rapidly growing segment in the United States is known as business development companies (BDCs), which account for 14 percent of the market. BDCs (covered in greater detail later in the chapter) are often public and open to retail investors. In Europe, some funds have adopted more frequent redemption periods (for instance, monthly or even more often) to appeal to a wider investment base.

The growth in private credit has followed the rise in private equity, with which it is closely linked. Managers whose umbrella firm is also active in private equity hold more than three-quarters of private credit assets. For about 70 percent of private credit deals, the borrowing company is sponsored by a private equity firm.

How Private Credit Could Threaten Financial Stability

This chapter assesses private credit vulnerabilities and risks to financial stability and focuses on macrofinancial imbalances that might amplify negative shocks to the real economy (Adrian and others 2019). Specifically, this chapter analyzes the risks from borrowers, liquidity mismatches, leverage, asset valuations, and interconnectedness.

The migration of credit provision from regulated banks and relatively transparent public markets to more opaque private credit firms raises several potential vulnerabilities. Whereas bank loans are subject to strong prudential regulation and supervisory oversight, and bond markets and broadly syndicated loans to comprehensive disclosure requirements that foster market discipline and price discovery, private markets are comparatively lightly regulated and more opaque. Private credit loans, furthermore, are unrated, rarely traded, typically “marked to model” by third-party pricing services, and without standardized terms for contracts. Rising risks and their potential implications may therefore be difficult to detect in advance.

Severe data gaps prevent a comprehensive assessment of how private credit affects financial stability. The interconnections and potential contagion risks many large financial institutions face from exposures to the asset class are poorly understood and highly opaque. Because the private credit sector has rapidly grown, it has never experienced a severe downturn at its current size and scope, and many features designed to mitigate risks have not yet been tested.

At present, the financial stability risks posed by private credit appear contained. Private credit loans

⁴Sources: Preqin, S&P Capital IQ, and PitchBook LCD.

are funded largely with long-term capital, mitigating maturity transformation risks. The use of leverage appears modest, as do liquidity and interconnectivity risks.

The rapid growth of the asset class requires careful monitoring. As private credit assets under management grow rapidly, and competition with investment banks on larger deals intensifies, supply-and-demand dynamics may shift, thereby lowering underwriting standards, raising the chance of credit losses in the asset class, and rendering risk management models obsolete. The private credit sector may also eventually experience falling risk premiums and weakening covenants as assets under management rise rapidly and the pressure to deploy capital increases.

Immediate risks may seem contained, but the sector has meaningful vulnerabilities, is opaque to stakeholders, and is growing rapidly under limited prudential oversight. If these trends continue, private credit vulnerabilities may become systemic:

- *Borrowers' vulnerabilities could generate large, unexpected losses in a downturn.* Private credit is typically floating rate and caters to relatively small borrowers with high leverage. Such borrowers could face rising financing costs and perform poorly in a downturn, particularly in a stagflation scenario, which could generate a surge in defaults and a corresponding spike in financing costs.
- *These credit losses could create significant capital losses for some end investors.* Some insurance and pension companies have significantly expanded their investments in private credit and other illiquid investments. Without better insight into the performance of underlying credits, these firms and their regulators could be caught unaware by a dramatic rerating of credit risks across the asset class.
- *Although currently low, liquidity risks could rise with the growth of retail funds.* The great majority of private credit funds poses little maturity transformation risk, yet the growth of semiliquid funds could increase first-mover advantages and run risks.
- *Multiple layers of leverage create interconnectedness concerns.* Leverage deployed by private credit funds is typically limited, but the private credit value chain is a complex network that includes leveraged players ranging from borrowers to funds to end investors. Funds that use only modest amounts of leverage may still face significant capital calls in a downside scenario, with potential transmission to their leverage providers. Such a scenario could also force the

entire network to simultaneously reduce exposures, triggering spillovers to other markets and the broad economy.

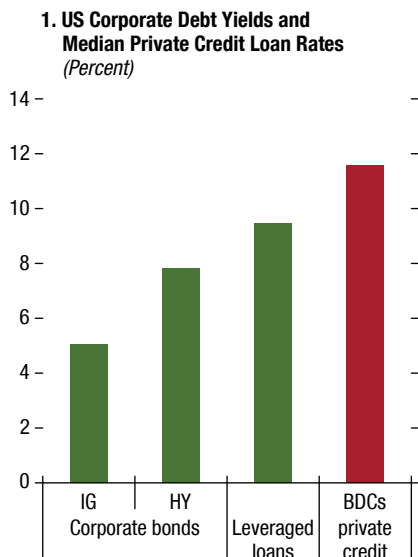
- *Uncertainty about valuations could lead to a loss of confidence in the asset class.* The private credit sector has neither price discovery nor supervisory oversight to facilitate asset performance monitoring, and the opacity of borrowing firms makes prompt assessment of potential losses challenging for outsiders. Fund managers may be incentivized to delay the realization of losses as they raise new funds and collect performance fees based on their existing track records. In a downside scenario, the lack of transparency of the asset class could lead to a deferred realization of losses followed by a spike in defaults. Resulting changes to the modeling assumptions that drive valuations could also cause dramatic markdowns.
- *Risks to financial stability may also stem from interconnections with other segments of the financial sector.* Prime candidates for risk are entities with particularly high exposure to private credit markets, such as insurers influenced by private equity firms and certain groups of pension funds. The assets of private-equity-influenced insurers have grown significantly in recent years, with these entities owning significantly more exposure to less-liquid investments than other insurers. Data constraints make it challenging for supervisors to evaluate exposures across segments of the financial sector and assess potential spillovers.
- *Increasing retail participation in private credit markets raises conduct concerns.* Given the specialized nature of the asset class, the risks involved may be misrepresented. Retail investors may not fully understand the investment risks or the restrictions on redemptions from an illiquid asset class.

Characteristics of Private Credit Borrowers

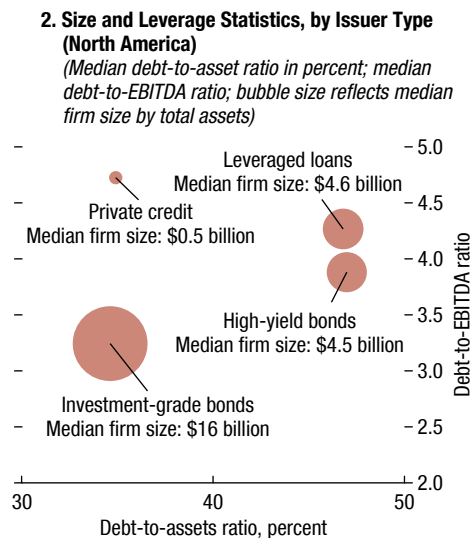
Private credit borrowers tend to be riskier than their traded counterparts, such as high-yield bond and leveraged-loan issuers. Borrowers in private credit are also relatively vulnerable to interest rates, as loans have floating rates. However, the support of private equity sponsors and the relatively close and flexible relationship between lender and borrower partially mitigate liquidity and solvency risks. Collateralization and the greater use of covenants provide additional protection for investors.

Figure 2.3. Private Credit Firms Are Medium Sized, Technology Sector Heavy, and Relatively Highly Leveraged Compared to Earnings

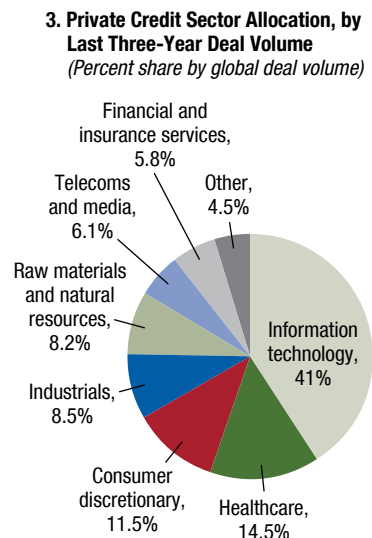
The interest rates on private credit loans are typically higher than the yields on market-based debt instruments.



Private credit borrowers are smaller than the typical leveraged loan or bond issuer, and they are more highly leveraged as compared to their earnings.



A breakdown of private credit borrowers by sector shows a greater weight of technology and health care sectors.



Sources: Bloomberg Finance L.P.; Prequin; S&P Capital IQ; and IMF staff calculations.

Note: In panel 1, bond yields are based on the aggregate Barclays Bloomberg US corporate bond indices. Leveraged loan yields originate from the LSTA US Leveraged Loan Index. Private credit loan interest rates are based on BDC filings and reflect the median among a sample of loans. The bond and leveraged loan yields reflect the marginal cost of funding, whereas private credit loan interest rates reflect the BDC portfolio. The reference date is year-end 2023. In panel 2, private credit firm fundamentals are based on a sample of private credit transactions from Prequin that have matching data in Capital IQ Pro. This matched sample may therefore be subject to a selection bias given that most private firms do not publicly release financial statements. BDCs = business development companies; EBITDA = earnings before interest, tax, depreciation, and amortization; HY = high yield; IG = investment grade.

Reasons Firms Finance in Private Credit Markets

A key reason driving firms to private credit markets is challenges in accessing traditional funding sources. Evidence suggests that weaker firms with low or negative earnings and high leverage are less likely to secure bank loans and are more inclined to borrow from nonbank sources (Chernenko, Erel, and Prilmeier 2022). Private debt fund managers also believe that they finance companies and leverage levels that banks would not fund (Block and others 2023). In addition, borrowers in the private credit market may be excluded from the syndicated loan market because of their size or their lack of high-quality collateral for bank lenders.

Private credit can also offer benefits in flexibility, speed of execution, and confidentiality. Aspects of each transaction, such as the repayment schedule and collateral requirements, can be tailored to the parties involved. Compared with traditional bank loans and public debt offerings, private credit transactions are often executed more quickly and provide

confidentiality. More recently, these characteristics have attracted larger borrowers that have traditionally accessed other sources of funding. This alternative and flexible funding source for riskier borrowers involves a higher cost; as a result, interest rates on private credit loans tend to exceed yields for market-based alternatives (Figure 2.3, panel 1).

Characteristics and Vulnerabilities of Private Credit Borrowers

Tracking the financial characteristics of private credit borrowers is challenging because of their private nature, resulting in limited availability of their financial statements. To address this challenge, a sample of private credit borrowers was constructed by cross-referencing data from Prequin with corporate fundamentals sourced from S&P Capital IQ.

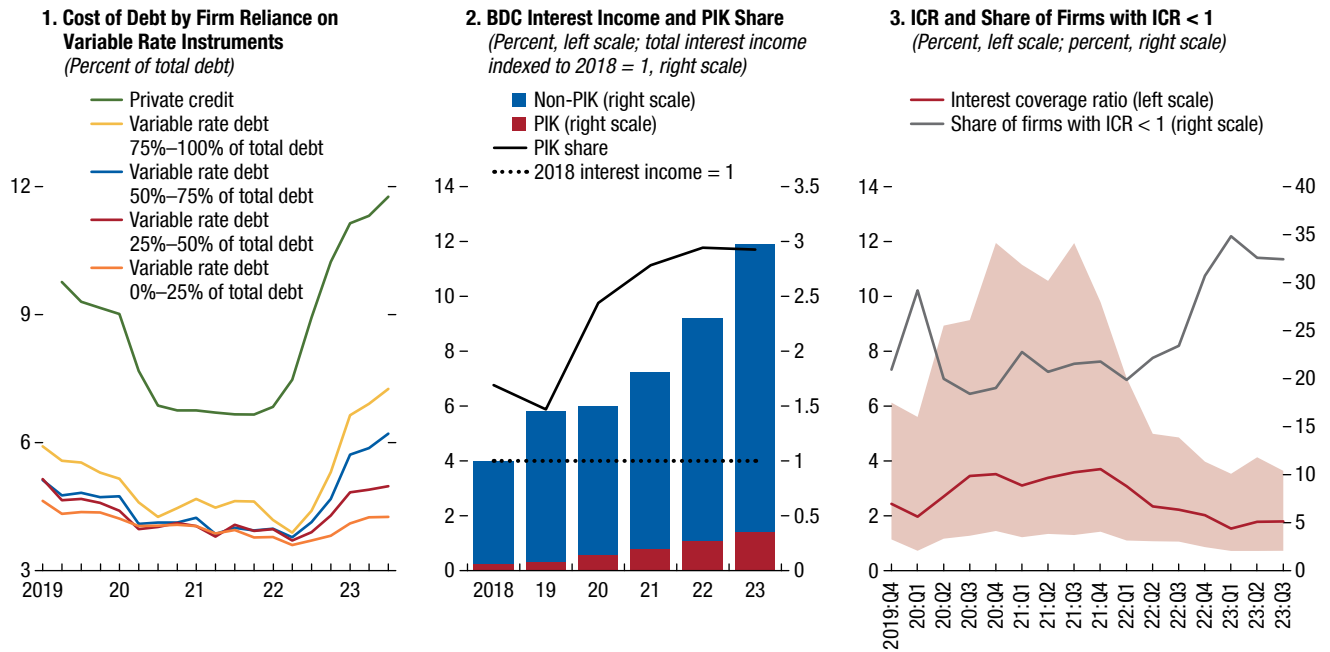
Private credit borrowers are typically highly leveraged middle-market companies. These firms are

Figure 2.4. Private Credit Firms Face a Steep Increase in the Cost of Their Variable Rate Debt

The transmission of higher rates into firms' cost of debt has been more swift for firms with variable rate debt.

Payment-in-kind interest payments have surged for BDC portfolios.

Public firms with size and leverage characteristics similar to private credit firm have shown a deterioration in their ability to pay interest.



Sources: BDC 10-K and 10-Q filings; S&P Capital IQ; and IMF staff calculations.

Note: Panel 1 shows the cost of debt, calculated as interest expense divided by total debt. Medians are taken for each bucket of variable rate debt reliance, whereby this reliance is expressed as the ratio of variable rate debt over total debt. The cost of debt within each bucket varies based on credit fundamentals. Private credit rates are based on a sample of BDC portfolios. In panel 2, when interest is paid in kind, no cash flow occurs. Instead, the interest coupon is added—usually at an extra cost—to the loan's principal. Statistics in panel 3 are based on a sample of public firms located in North America with size and leverage characteristics similar to those of borrowers in the private credit universe. It should be noted that interest coverage and debt/EBITDA ratios are usually not reflected in firm-level databases when earnings are negative. This means that the true number of firms with unsustainable interest expense level is (even) higher than indicated by the ICR = 1 threshold. BDC = business development company; EBITDA = earnings before interest, taxes, depreciation, and amortization; ICR = interest coverage ratio; PIK = payment in kind.

significantly smaller than broadly syndicated loan or high-yield bond-issuing firms. Private credit borrowers have higher debt-to-earnings ratios but better asset coverage than their syndicated loan counterparts. (Figure 2.3, panel 2) For all these asset classes, high debt levels are often driven by private equity sponsors that enhance returns for their investors by increasing debt on the balance sheets of the firms they acquire (Haque 2023). Private credit borrowers operate across various economic sectors and are overrepresented in the information technology and health care sectors (Figure 2.3, panel 3).⁵

Private credit borrowers are vulnerable to interest rate shocks. Private credit borrowers almost exclu-

sively use floating rate loans. By contrast, only about 29 percent of high-yield corporate bond issuers' total debt is variable rate.⁶ Panel 1 of Figure 2.4 highlights the swifter transmission of interest rates to the cost of debt for firms with a higher share of variable rate debt.

Rising interest rates could ultimately lead to a deterioration in credit quality. The rise in benchmark rates has increased the interest burden for private credit borrowers, prompting some firms to resort to payment-in-kind interest. This flexibility may help borrowers withstand temporary stress, but it can lead to compounding losses if a firm's underperformance cannot be reversed.

⁵For comparison, the weights of the technology and health care sectors in the S&P 500 Index are 30 percent and 12 percent, respectively, whereas these shares are 24 percent and 11 percent for the Bloomberg World Large and Mid Cap Index.

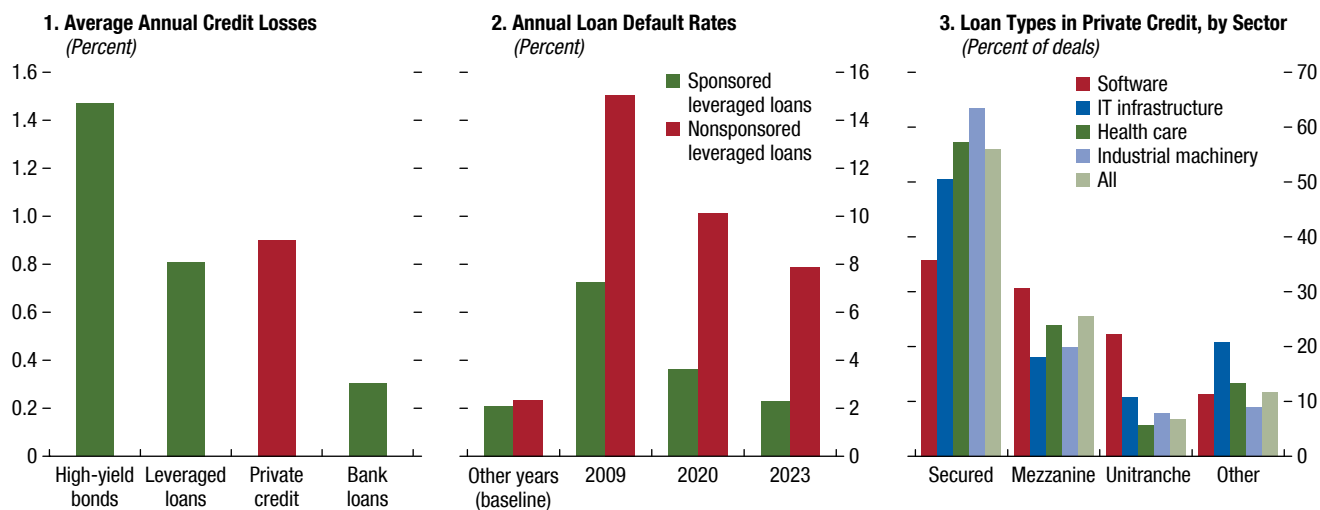
⁶For a sample of 518 North American and 157 European high-yield corporate bond issuers, the average share of variable rate debt is 29.4 percent, at the end of 2022. Sources: S&P Capital IQ; and IMF staff calculations.

Figure 2.5. Private-Equity-Sponsored Firms Show Lower Default Rates during Times of Stress, and Overall Credit Losses in Private Credit Have Historically Not Been Outsized because of Risk Mitigants

Private debt credit losses fall below high-yield bond and bank loan credit losses.

Private-equity-sponsored leveraged loans have shown significantly lower default rates during periods of stress compared with nonsponsored firms.

In some sectors and industries, secured loans are less common. This is likely related to the amount of available collateral.



Sources: Cliffwater; Federal Reserve; Fitch Ratings; Preqin; and IMF staff calculations.
 Note: In panel 1, “bank loans” refers to US banks’ commercial and industrial business loans. Average annual credit losses are computed for a 10-year window between 2013 and 2022. In panel 2, “other years” refers to the 2007–22 period, with the exception of 2009 and 2020. IT = information technology.

The share of payment-in-kind interest in BDC interest income has doubled since 2019 (Figure 2.4, panel 2). In addition, the proportion of firms with unsustainable interest coverage ratios has increased to over one-third among firms with size and leverage characteristics similar to those of private credit borrowers (Figure 2.4, panel 3).

Mitigating Factors of Credit Risk

Despite the risky profile of private credit borrowers, their credit losses have not historically exceeded losses in high-yield bonds and are comparable to leveraged loans (Figure 2.5, panel 1). Headline default rates for private credit indices tend to be relatively high, but these include covenant defaults, which often lead to renegotiated terms rather than a true payment default.

Sponsorship by private equity firms also mitigates private credit risks. Private equity sponsors want to preserve the long-term value of their investments and may inject additional capital in their portfolio firms if they believe that stress will be transient. Evidence from the leveraged-loan market illustrates that firms sponsored by private equity have lower default rates

during periods of stress than other firms (Figure 2.5, panel 2). This strategy may lessen defaults in a short-lived downturn. To help boost recovery rates in case of liquidation, most private credit loans are secured, which mitigates credit losses. Collateralization can be lower in some sectors, such as the software industry, where unitranche and mezzanine loans are more common (Figure 2.5, panel 3).

Private Credit Cyclicalities

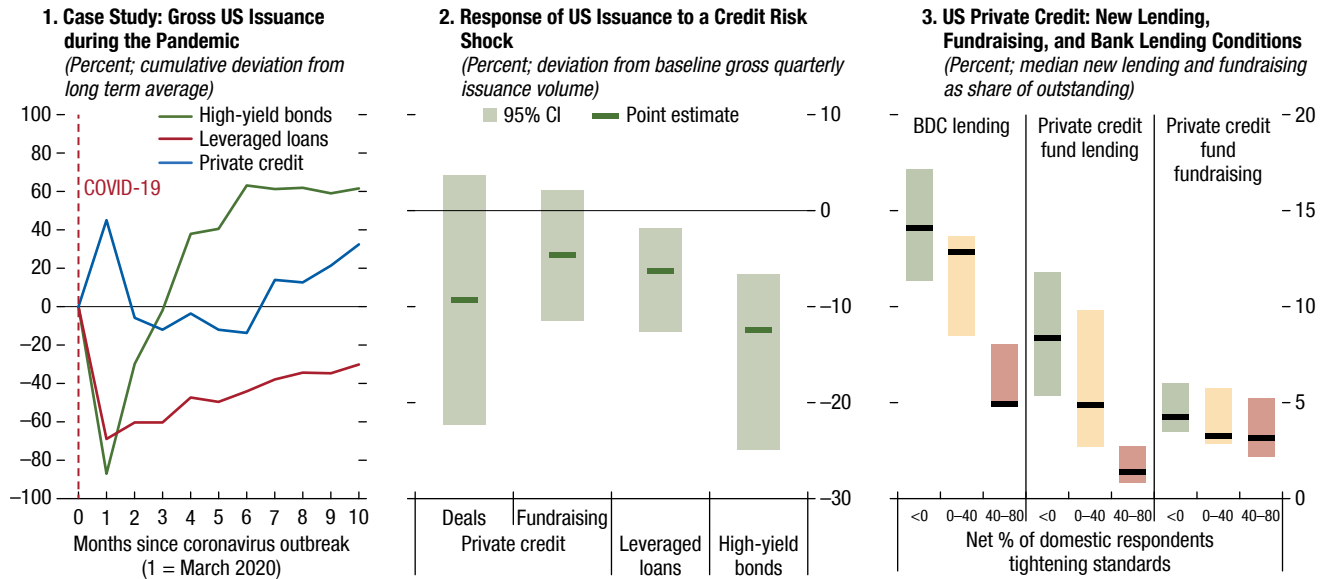
Evidence is mixed regarding the cyclicalities of private credit lending. Private credit managers argue that private credit remains accessible during economic downturns, whereas traditional funding sources often contract. There is evidence suggesting that private credit’s relationship with private equity sponsors facilitated lending during the COVID-19 pandemic (Jang 2024). In March 2020, private credit lending did not “dry up,” while high-yield bond and leveraged-loan issuance contracted strongly (Figure 2.6, panel 1). Private credit lending subsequently proved more stable than similarly floating rate leveraged loans. A structural analysis shows private credit market activity is less

Figure 2.6. Private Credit and Procyclicality

New private credit lending did not show the same drop as high-yield bond and leveraged-loan issuance in March 2020, and also remained more stable in subsequent months.

The response of new private credit deals and fundraising to a credit shock is not as consistently negative as the response of leveraged-loan and high-yield bond issuance.

New BDC lending seems to be more correlated with bank lending conditions than private credit, where fundraising in particular shows a weaker relationship to bank lending conditions.



Sources: Bloomberg Finance L.P.; Federal Reserve; PitchBook LCD; Preqin; S&P Capital IQ; and IMF staff calculations.

Note: In panel 1, issuance is benchmarked versus the average cumulative issuance over the same months in the five preceding years. In panel 2, the response of issuance volumes is based on Structural Vector Autoregression models containing quarterly high-yield corporate bond spreads and issuance volumes, whereby the identification is based on the Cholesky ordering spreads (first) and issuance (second). The number of lags included is based on the Akaike information criterion. One lag is included for leveraged loan, high-yield bond issuance and private credit deal volume, two for fundraising. In panels 3 and 4, bank lending conditions are based on the Net Percent of Domestic Respondents Tightening Standards for Commercial & Industrial Loans for Large/Medium Firms, as reported in the Senior Loan Officer Opinion Survey on Bank Lending Practices. BDC = business development company; CI = confidence interval.

responsive to a sudden credit shock than the high-yield bond and leveraged-loan markets (Figure 2.6, panel 2). Yet there is also evidence of procyclical behavior. The Bank for International Settlements found that capital deployment in private equity and private credit is positively correlated with stock market returns (Aramonte and Avalos 2021). In addition, data from the BDC markets indicate that new private credit loans contract when banks tighten their lending standards (Figure 2.6, panel 3). New lending by private credit funds seems to be less procyclical than BDC lending.

Liquidity Risks of Private Credit Funds

Although private credit funds hold highly illiquid underlying assets, their structure is designed to minimize liquidity and maturity transformation risk through long-term lockups and other constraints

for investors to redeem their capital. Most private credit fund investors, such as insurance companies and pension funds, lock in a certain portion of their investments for a period compatible with the life cycle of closed-end funds. However, liquidity stress could arise from the credit facilities offered by private credit funds to borrowers. In addition, the recent shift toward semiliquid evergreen structures could increase liquidity risks over time.

Limited Redemptions

Private credit funds invest primarily in private corporate loans, assets characterized by their illiquidity, and an incipient secondary market. Asset managers mitigate the risk of holding these assets by setting structures with low maturity transformation. Private credit CLOs and closed-end funds do not

typically allow redemptions during their life span. This significantly reduces the liquidity risks arising from such funds.

Redemptions are more common for semiliquid structures that aim to provide liquidity to investors while investing in illiquid assets. Unlike traditional closed-end funds, semiliquid funds provide investors with limited windows during which they can redeem their shares. BDCs, for instance, often use semiliquid structures to appeal to a wider investor base, especially individual investors. Even in semiliquid structures, however, redemptions are often constrained by gates, fixed redemption periods, and suspension clauses. Although these liquidity management tools may seem adequate in principle, they have not been tested in a severe runoff scenario, and redemption pressures have sometimes forced certain large private credit fund managers to allow redemptions above the established limits. In addition, certain funds, particularly in Europe, have adopted more frequent redemption periods (for instance, monthly or even more often), which may exacerbate liquidity risks.

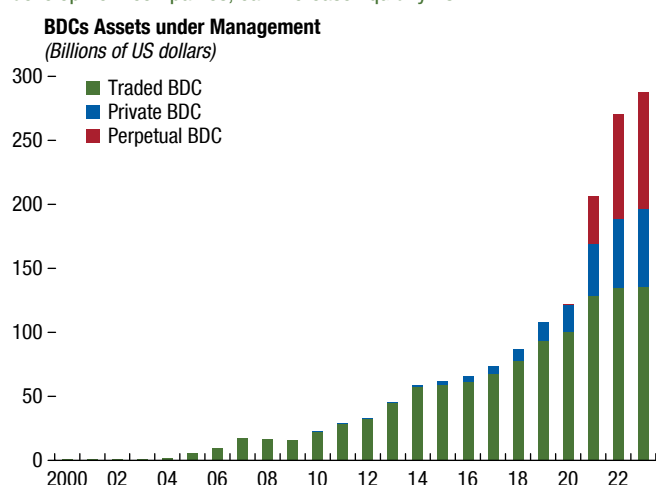
Potential liquidity pressures could also arise from credit and liquidity facilities offered to portfolio companies. Private credit funds often combine loans with revolving facilities. There is a risk that, like the “dash for cash” in 2020, firms simultaneously and unexpectedly withdraw their credit balances, suddenly increasing private credit funds’ need for cash. Private credit funds might also transfer the liquidity stress to end investors through their committed capital (see the “Interconnectedness” section later in this chapter).

Risks from the Increasing Share of Retail Investors and Semiliquid Funds

The recent trend toward the use of semiliquid structures has the potential to increase maturity transformation within the private credit industry. This trend is exemplified by the active creation of semiliquid funds, such as perpetual nontraded BDCs (Figure 2.7). One primary motivation behind this trend is to access a broader investor pool, particularly individual investors. As institutional investors reach their limits on investment in private capital, funds seek to broaden their capital sources. Recent legislation in Europe on the European long-term investment funds (ELTIFs) and in the United

Figure 2.7. Private Credit Liquidity

An increase in semiliquid products, such as perpetual business development companies, can increase liquidity risk.



Sources: S&P Capital IQ; and IMF staff calculations.
 Note: The data comes from the aggregation of 143 business development companies, 50 of them being traded. BDCs = business development companies.

Kingdom on the long-term asset funds (LTAFs) may further support this trend.

Although designed to enable access for individual investors, the operational efficiencies and liquidity potential of semiliquid structures may also appeal to institutional investors. Insurance companies and pension funds have transformed their business models over the years, prompted by the prolonged low interest rate environment. They have shifted from traditional, capital-intensive, long-term guaranteed products to unit-linked insurance products⁷ and from defined-benefit to defined-contribution pension plans. By transferring the performance and loss of investments to end investors (that is, clients), insurers and pension funds enable clients to switch between available investment plans. This flexibility reduces the effective duration of the liabilities of insurers and pension funds, potentially increasing their demand for liquidity in underlying investments and further

⁷Unit-linked insurance products provide both insurance coverage and investment exposures—typically through investment funds—and the insurance benefits are linked to the investment returns. Policyholders are often subject to a minimum lock-in period, additional fees, and taxes for early surrender, which discourage the policyholders from early surrender and redemption. Despite these constraints, insurers often allow policyholders to change their investment allocations among the selected investment funds.

pushing the trend toward semiliquid structures in private credit.

Leverage in Private Credit

Leverage deployed by private credit funds appears to be low compared with other lenders such as banks, but the presence of multiple layers of hidden leverage within the broader private credit system raises concerns. Leverage may not always be at the fund level, and the entire private credit system can form a complex network involving several potentially leveraged participants, including borrowers. Assessing the financial stability implications of these multiple layers of leverage is challenging because of data limitations.

Multiple Layers of Leverage

Private credit investors, funds, and borrowers deploy leverage extensively, forming a complex multilayered structure. Investors such as insurance firms and pension funds may use leverage (Figure 2.8, channel 1), making them vulnerable to the deterioration of the credit outlook and an increase in credit downgrades and defaults. These investors are also subject to margin and collateral calls during periods of high market volatility, which, given their large footprint, may exacerbate stress in financial markets (see the “Interconnectedness” section).

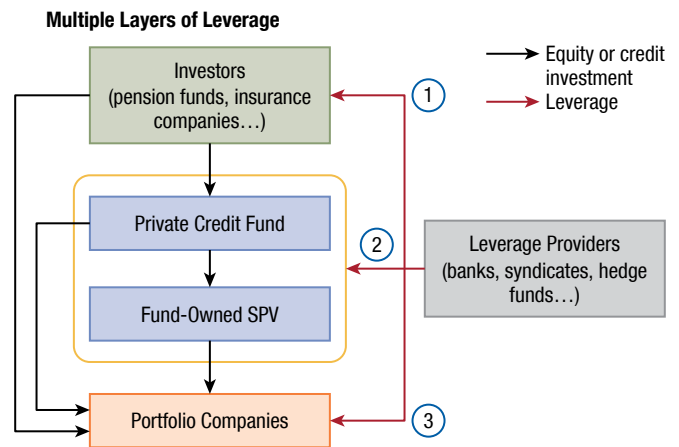
Private credit investment vehicles may employ leverage directly within a fund, through special-purpose vehicles or holding companies (Figure 2.8, channel 2). Leverage can also be increased through more complex strategies such as collateralized fund obligations, in which the interests of the fund’s limited partners are transferred to a special-purpose vehicle to loosen cash flows and access a wider investor base (IOSCO 2023). These opaque structures can also include cross-border entities, which are often used for regulatory and tax purposes.

In addition, private credit borrowers extensively deploy leverage (Figure 2.8, channel 3). As discussed earlier in the “Mitigating Factors of Credit Risk” section, most firms borrowing from private credit funds are backed by private equity sponsors, leading to higher debt for the firms or leverage ratios deemed excessive by banks.

These multiple layers of leverage throughout the value chain, often hidden by gaps in reporting, could magnify losses and trigger spillovers to other markets during

Figure 2.8. Leverage in Private Credit

Investors, funds, and borrowers extensively deploy leverage, forming a complex multilayers structure.



Sources: IOSCO 2023; and IMF staff.
Note: SPV = special purpose vehicle.

a downside scenario of forced deleveraging. In such scenarios, vulnerabilities among borrowers may lead to large, unexpected losses for funds and end investors. Even funds that deploy modest amounts of leverage may still face significant capital calls, potentially affecting their leverage providers. This situation could compel the entire network to simultaneously reduce exposures, spilling over to other markets and the broader economy. Evaluation of leverage in private credit markets from a network perspective by prudential authorities is therefore critical but is currently impeded by data constraints.

Leverage of Private Credit Funds

Private credit funds deploy leverage to enhance returns for equity investors. The specific debt structure varies by type of investment vehicle (Table 2.2). As for most nontraded private credit products, information on the deployment of leverage by closed-end funds is scarce. One of the few in-depth studies of closed-end funds was recently conducted by the US Federal Reserve using confidential regulatory data.

According to this study, most closed-end private credit funds are unleveraged but some use financial and synthetic leverage (Federal Reserve 2023). Those funds at the 95th percentile have borrowing-to-assets ratios of about 1.27 and derivatives-to-assets ratios of about 0.66.

Table 2.2. Characteristics of Leverage in Private Credit Vehicles*Private credit investment vehicles deploy leverage in different forms.*

	Closed-End Funds	BDCs	Middle-Market CLOs
Debt-to-equity ratios	~0 to 1.3×	~0.8 to 1.2×	All debt-to-equity: ~6× AAA to other classes: ~1×
Leverage sources	Portfolio financing, NAV loans, subscription lines, derivatives	Secured bank lines of credit and secured/unsecured bonds	Term leverage through structured notes
Rollover risk	Yes	Yes	No
Collateral call frequency	Varies (typically quarterly)	Varies (typically quarterly)	None (cash-flow structure)
Main lenders	Banks, insurers, pension funds	Banks, insurers, pension funds	Insurers, pension funds, hedge funds, banks
Total AUM (United States)	~\$1.2 trillion	~\$300 billion	~\$100 billion

Sources: IOSCO 2023; and IMF staff.

Note: AUM = assets under management; BDCs = business development companies; CLOs = collateralized loan obligations; NAV = net asset value.

Sources of debt for BDCs seem more diversified, as they issue unsecured bonds and notes (Figure 2.9, panel 1). BDCs are subject to a regulatory limit on leverage and often establish internal limits that are more conservative than the regulatory ones.⁸ Nevertheless, BDCs' leverage has steadily increased over the past 20 years (Figure 2.9, panel 2). Anecdotal evidence suggests that closed-end funds exhibit the same behavior.

Private credit CLOs use securitization structures that enable investors to acquire different tranches based on their risk appetite.⁹ Insurance companies, pension funds, hedge funds, and banks are the main investors in CLO securities. The ratio of CLO non-equity tranches over the equity tranches varies but is often about 6 to 1.

Although leverage at the fund level appears limited, private credit funds may still be subject to rollover risks, particularly in a sharp downturn. Leverage provided by commercial banks often has loan-to-value triggers, and thus, private credit funds may face large collateral calls on leveraged portfolios during times of stress. Leverage providers may decide to mark assets down significantly, given the riskiness of borrowers and the lack of comparable public pricing data. In addition, private credit funds often provide their borrowing firms with revolvers or other credit lines. Sudden and significant correlated drawdowns of these credit lines

⁸The regulation of BDCs caps their debt-to-equity ratio at 2, which was increased from 1 in 2018. Under the framework for loan origination funds in the European Union, leverage caps may apply to private credit fund managers irrespective of whether the underlying investors are retail.

⁹Private credit CLOs are structured finance vehicles that pool a portfolio of privately originated loans and securitize them into debt securities. They differ from traditional middle-market CLOs that include underlying loans not originated in private markets.

could create considerable funding needs for the private credit funds. Anecdotal evidence suggests that private credit funds maintain significant cushions to mitigate this risk, yet industry commentary suggests that such pressures were seen during the height of COVID-19 stress in 2020. Unlike banks, private credit providers did not have access to central bank lending facilities, nor were central banks able to buy private credit assets to support asset prices (see the April 2023 *Global Financial Stability Report*). Evaluating the potential extent of these risks is challenging given the lack of publicly available information on maturity profiles and often even on the composition and amount of debt.

Private Credit Valuations

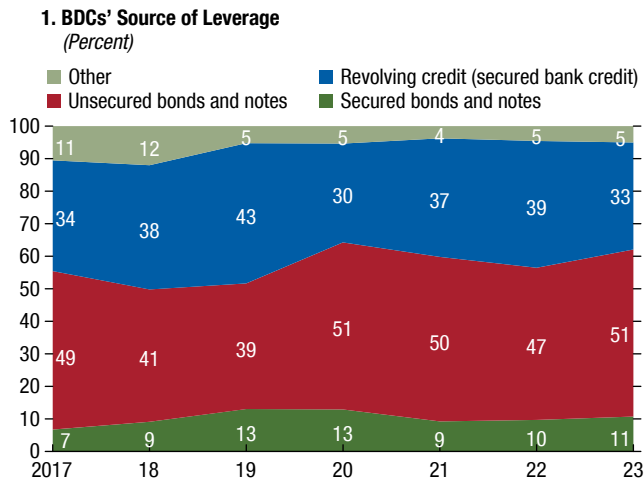
Private credit loans tend to suffer from stale valuations because of the absence of secondary markets, limited comparable transactions, and irregular appraisals. In a downside scenario, stale valuations could create a first-mover advantage and increase the risk of runs for private credit funds. This risk, however, can be significantly mitigated by restrictions on investors redeeming their investments (see the “Limited Redemptions” section earlier in the chapter). The lack of information about vulnerable borrowers, as discussed in the previous section, combined with stale valuations, nevertheless makes it challenging for outsiders to assess potential losses promptly and could fuel a loss of confidence in the segment.

Valuation Practices and Requirements

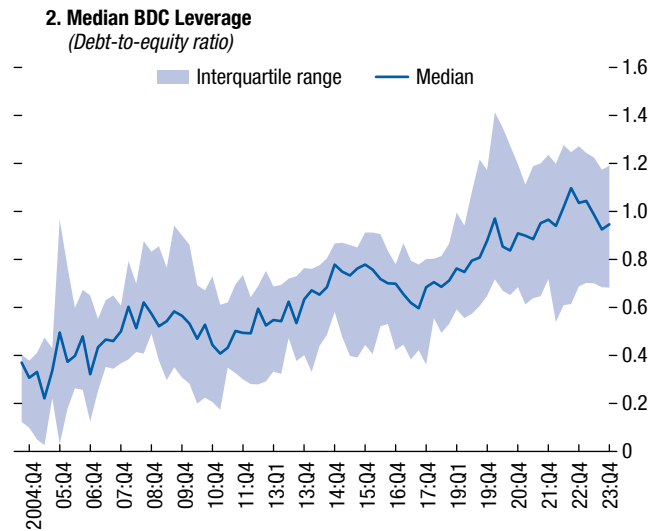
Valuing private credit assets is inherently challenging because of their illiquid nature. Private credit loans

Figure 2.9. Leverage of Business Development Companies

BDCs have a relatively diversified source of financial leverage that includes secured and unsecured bonds and notes.



The debt-to-equity ratio of BDCs has increased steadily, although still substantially below the regulatory cap of 2.



Sources: S&P Capital IQ; and IMF staff calculations.
Note: BDCs = business development companies.

can be tailored to the financing needs of borrowers and lenders, making it difficult to identify comparable transactions. In the absence of observable price inputs, the firms must resort to mark-to-model approaches to estimate market prices that are inherently subjective and can increase the potential for managerial manipulation (Ball 2006; Dudycz and Prażników 2020). To address these concerns and mitigate risks, asset managers frequently seek third-party pricing services.¹⁰

Private credit fund managers must adhere to accounting principles outlined in relevant standards, such as generally accepted accounting principles in North America or the International Financial Reporting Standards. These accounting standards offer guidance but do not mandate any specific technique for asset valuation, granting managers significant discretion. The current regulatory framework, similarly, does not specify asset valuation methodologies, focusing on policy documentation, governance frameworks, and investor disclosures. Evidence from disclosure forms of traded private credit funds suggests that markdowns often result from impairments of a borrower's financial position.

¹⁰Third-party valuation may not fully address the risks, as evidence suggests that profit-driven service providers, appointed and compensated by clients, may prioritize client retention over impartiality (Efing and Hau 2015; Short and Toffel 2016).

Private Credit Stale Valuations

To assess private credit valuation practices, the analysis conducted for this chapter benchmarked them against the prices of similar publicly traded assets, focusing on BDCs. BDCs are specific investment funds created in the United States to encourage the flow of capital to smaller companies. BDCs' granular reporting of their investment portfolios—consisting of loans, common and preferred equity investments, various tranches of CLOs, and asset-backed securities—along with the quarterly position-by-position accounting fair-value marks, provides a valuable window into the normally opaque world of private credit.¹¹

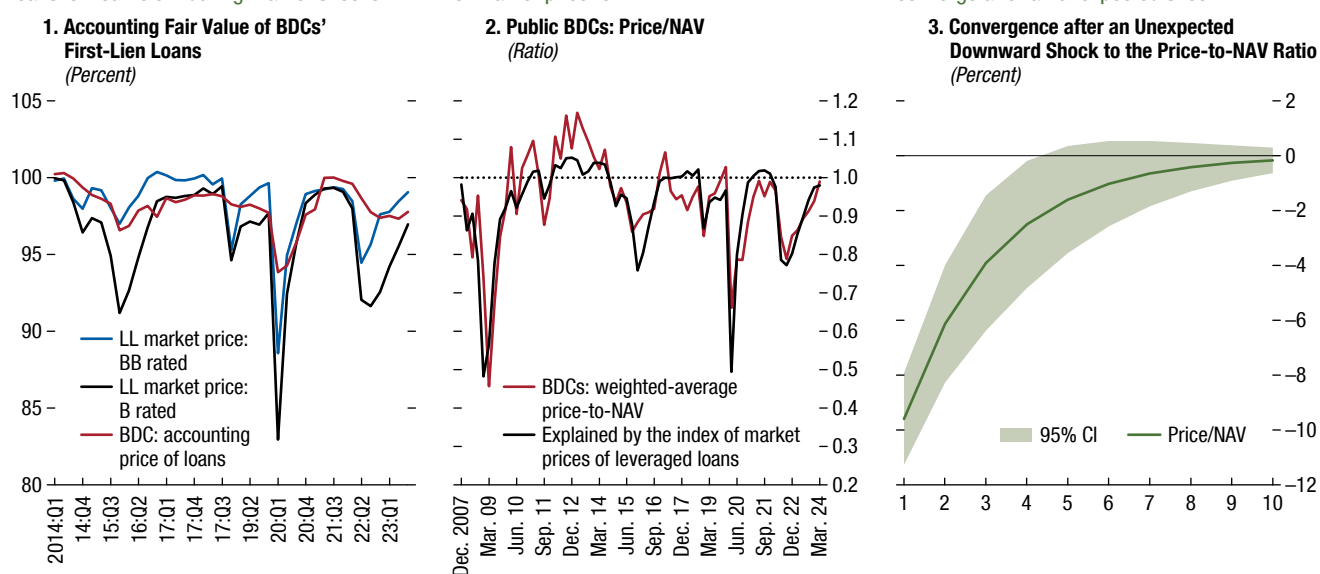
¹¹Most BDCs have portfolios concentrated in first- and second-lien senior secured loans, which typically represent 70 to 90 percent of their investment portfolios. These loans are distributed across multiple industries and borrowers, often ranging from 100 to 200. In addition to private credit loans, BDC portfolios often contain equities and bonds of varying liquidity. To focus on credit valuations, the analysis excludes price changes arising from other types of assets. The US Securities and Exchange Commission requires all BDCs to disclose Forms 10-Q and 10-K. Public BDCs provide additional transparency, as they cater to a broad range of equity and bond investors. The disclosure reports of BDCs are prepared in accordance with the US generally accepted accounting principles, following accounting and reporting guidance ASC 946, and fair value of level 3 assets is determined in line with ASC 820–10.

Figure 2.10. Valuation of Private Credit Assets

Adjustment of the valuation of private credit loans is insufficient during market shocks ...

... which is offset by the additional discount of market price to NAV.

Price and NAV take at least four quarters to converge after an unexpected shock.



Sources: 10-Q/10-K disclosures of BDCs; Bloomberg Finance L.P.; S&P Capital IQ; and IMF staff calculations.
 Note: Panel 3 shows the impulse response function to a sudden deviation of the price-to-NAV ratio. The impulse response function is based on an AR(1) model using quarterly data. The panel shows that—based on the historical price-to-NAV ratio patterns—it takes at least four quarters for the price and the NAV to converge after a shock. The shock is sized to one standard deviation. BDC = business development company; CI = confidence interval; LL = leveraged loan; NAV = net asset value.

The analysis shows that private credit prices move less than in high-yield and leveraged-loan markets, even though private credit borrowers are riskier. In Figure 2.10, panel 1 shows that the reaction of BDC loans to credit shocks is much smaller than that of B-rated leveraged loans, despite the lower credit quality of BDCs' loan portfolios. The smaller valuation adjustment is offset by an additional discount applied to market prices of BDC shares (Figure 2.10, panel 2). The discount widens during stress periods, and the widening is proxied by the general market repricing of credit risk (proxied by the LSTA US Leveraged Loan 100 Index).

Evidence suggests that adjustments to the values of private credit loans are smaller and slower than those observed in public markets. Panel 3 of Figure 2.10 shows that such deviations tend to persist for several quarters, after which share prices and net asset value per share converge. Markets differentiate BDCs on the basis of their qualitative and quantitative characteristics, such as the sector to which each BDC is exposed, its ability to grow organically, and its transparency. For other nontraded private credit investment funds,

evidence suggests that the discounts are even larger because of the lack of transparency.

Potential Risks and Benefits from Infrequent Valuations

Stale valuations could offer a first-mover advantage and increase runoff risks for private credit funds, but this risk appears significantly mitigated at present. In a downside scenario, stale valuations might overvalue a fund's assets, potentially prompting investors to exit before asset values are marked down. As outlined in the "Vulnerabilities to Liquidity Stress and Spillovers to Public Markets" section, however, private credit funds impose substantial obstacles for investors seeking to redeem their investments, thus mitigating this risk.

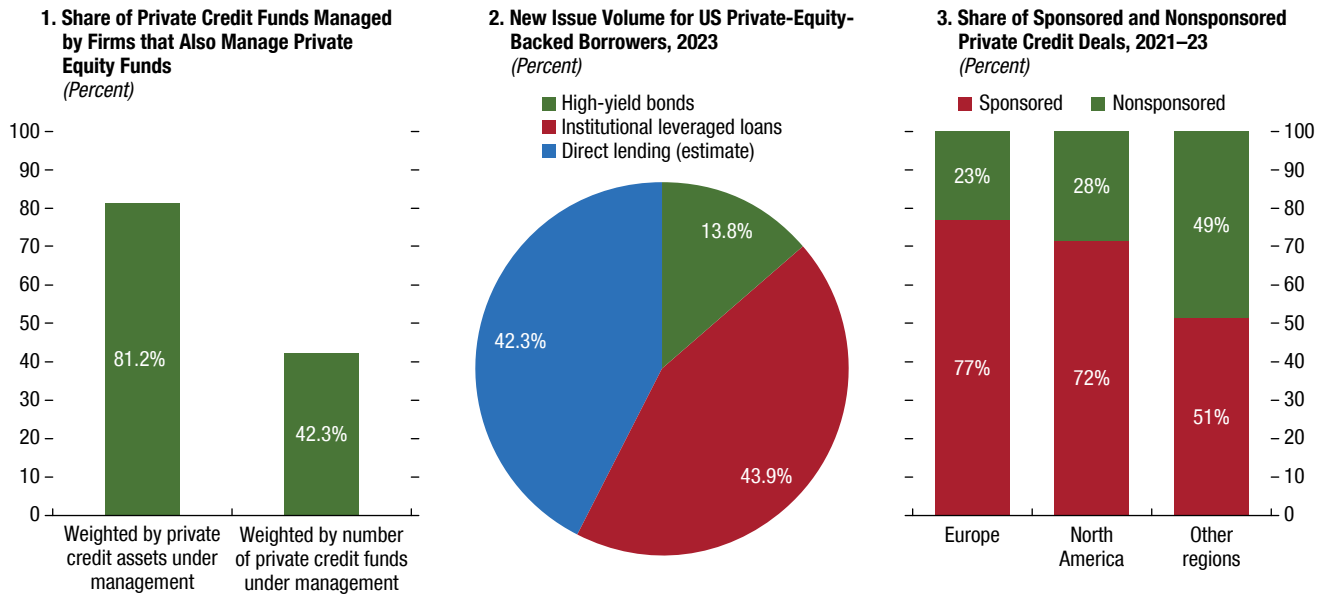
Industry commentary suggests that in illiquid asset classes such as private credit, valuations are inherently uncertain and subjective, potentially diminishing the advantages of more frequent mark-to-market practices. Beyond the associated costs and risk of mispricing, frequent mark-to-market assessments could exacerbate procyclical tendencies and increase

Figure 2.11. Links between Private Credit and Private Equity

Many firms that manage private credit funds also manages private equity funds.

Private-equity-backed firms borrow on the leveraged-loan, high-yield bond, and private credit markets.

About 70 percent of private credit deals are sponsored by private equity firms.



Sources: PitchBook LCD; Preqin; and IMF staff calculations.

market volatility. Moreover, the emphasis on frequent valuations might incentivize investors and managers to prioritize short-term performance, undermining the long-term advantage offered by the buy-and-hold nature of private credit. Institutional investors are also incentivized to avoid balance sheet volatility and demand more frequent and rigorous valuations from investment managers.

However, stale valuations could also distort capital allocation, exacerbate conflicts of interest, and undermine confidence in private credit markets. Inaccurate or infrequent mark-to-market practices hinder investors from making informed decisions and managing risks effectively. Stale valuations could also affect market integrity when incentives are not aligned. For example, managers may have incentives to maintain high valuations during fundraising periods to reference historically higher returns. Conflicts of interest also arise from managers' fees based on valuation. Stale valuations make it difficult for stakeholders to assess potential losses in a timely manner and, in a downturn scenario, could fuel a loss of confidence in the segment.

Interconnectedness

Private credit funds have ties with various financial institutions. These institutions include private equity firms, which sponsor most private credit deals; banks, which are the primary providers of leverage; and institutional investors, which invest capital in the form of equity and debt investments in private credit funds.

Interconnections between Private Credit and Private Equity Firms

The private credit and private equity industries are closely intertwined through two primary channels. First, many managers of private credit funds are also managers of private equity funds (Figure 2.11, panel 1). This interconnectedness becomes even more pronounced when considering the size of private credit funds, given that managers of the largest private credit funds are more likely to be involved in the private equity segment. Second, private credit is a key funding source for firms sponsored by private equity (Figure 2.11, panel 2), with a large share of

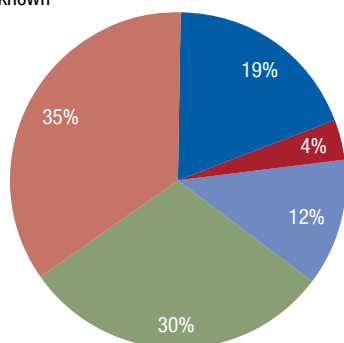
Figure 2.12. Exposures of Traditional Financial Institutions to Private Credit Funds

Pension funds and insurers are the main investors in private credit funds globally ...

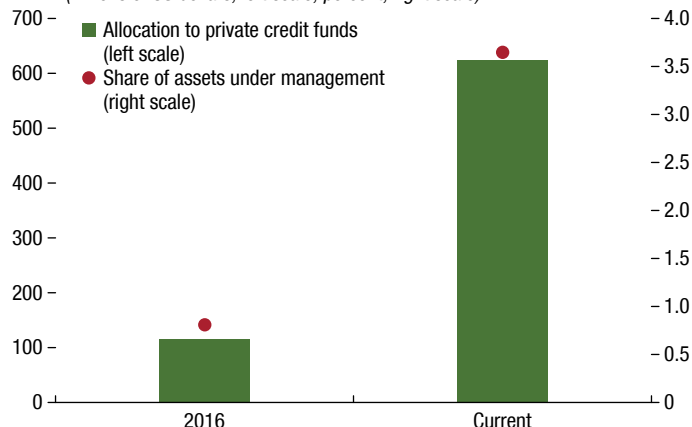
... and they are rapidly increasing their exposure.

1. Share of Private Credit Fund Investment (Percent)

- Public pension fund
- Private sector pension fund
- Insurance company
- Other
- Unknown



2. Investment in Private Credit Funds by Pension Funds and Insurance Firms (Billions of US dollars, left scale; percent, right scale)



Sources: Preqin; and IMF staff calculations.

Note: In panel 1, “Unknown” is related to those investors not disclosing the amount of their allocation to private credit funds publicly. This includes pension funds and insurers that are known to have an allocation to private credit but do not disclose the exact amount. It also includes other investors, family offices, and sovereign wealth funds, in particular, that do not disclose data on their holdings. In addition to private credit funds, insurers have substantial exposures to private credit through their investments in structured credit and their participation in direct lending. The share labeled “Other” includes asset managers investment banks, private equity firms, endowment plans, and more.

the borrowing firms in private credit deals having a private equity sponsor (Figure 2.11, panel 3). This is an important connection because, as discussed in the “Characteristics of Private Credit Borrowers” section, private equity sponsors greatly mitigate credit risk. Overall, these connections suggest that vulnerabilities in one segment of the private financing industry could spill over to the other. Close ties between the two industries also raise questions about possible conflicts of interest, given that managers may have multiple connections through portfolio firms and investors (that is, limited partners).

Exposure of Traditional Financial Institutions to Private Credit

Potential risks to financial stability arising from direct exposures of banks to private credit currently appear to be contained. Banks are one of the primary providers of leverage to private credit firms, yet their aggregate exposure remains low. In aggregate, private credit funds in the United States borrowed about \$200 billion from US banks at the end of 2021, representing less than 1 percent of the banks’ assets (Federal Reserve 2023).

Credit risks to banks are also mitigated by the secured nature of the loans. However, the lack of data does not allow ruling out the possibility that some banks exhibit concentrated exposure to the sector.

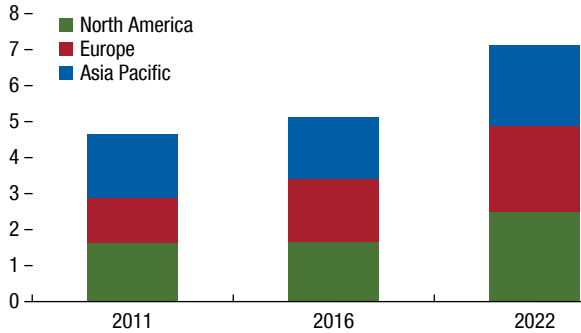
In their search for yield, pension funds and insurance companies have emerged as important end investors in private credit, with significant investment growth in recent years (Figure 2.12, panels 1 and 2). Although private credit exposures are expanding rapidly, they remain relatively small for most institutions, accounting for only a low single-digit percentage of total assets under management (Figure 2.12, panel 2). Certain segments exhibit substantially higher exposure. Specifically, some large pension funds and selected private-equity-influenced insurers in advanced economies have increased their exposures significantly in recent years, as investors in not only private credit funds but also structured credit, participation in direct lending, and the leverage providers to private credit investment vehicles.¹²

¹²For example, such segments have increased their exposure by investing in collateralized loan obligations and buying bonds and notes issued by BDCs and other private credit investment vehicles.

Figure 2.13. Pension Funds with Financial Leverage and Illiquid Investments

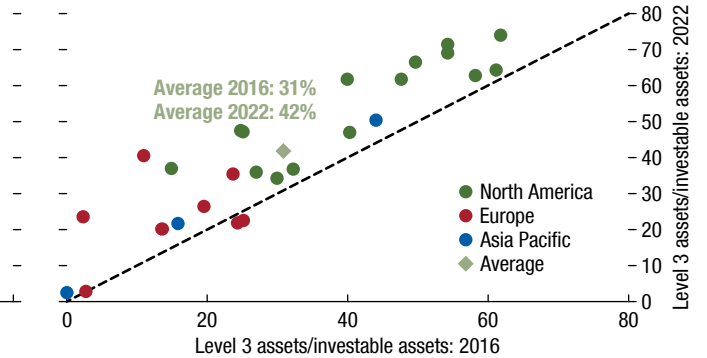
The assets of a sample of pension funds with derivatives embedded leverage have risen to more than \$7 trillion ...

1. Assets Under Management of Pension Funds with Derivatives Embedded Leverage
(Trillions of US dollars)



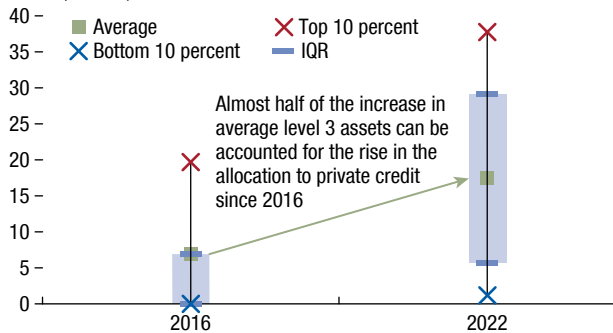
... and have significantly increased their share of illiquid investments ...

2. Share of Level 3 Assets
(Percent)



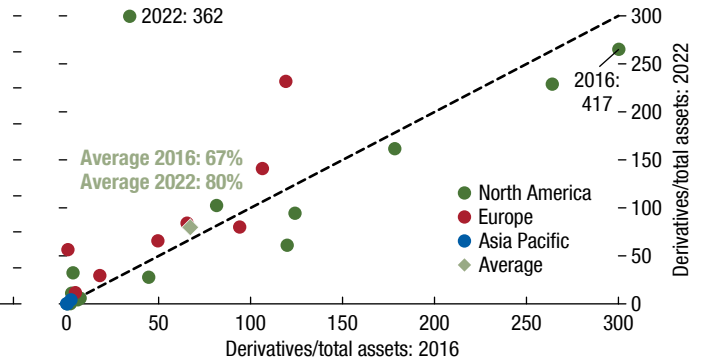
... with private debt accounting for a significant share of the increase since 2016 ...

3. Private Credit Share of Level 3 Assets for Selected Pension Funds with Embedded Derivatives Leverage
(Percent)



... while their financial leverage also increased during the same period.

4. Financial Leverage of Selected Pension Funds
(Percent)



Sources: Bloomberg Finance L.P.; individual annual reports of selected pension funds; Preqin; and IMF staff calculations.

Note: The calculation in panel 1 is based on a sample of 26 large pension funds in 10 jurisdictions that disclose data on the gross notional exposure of derivatives in their annual reports. These 26 funds are among the largest 150 pension funds worldwide and have combined assets under management of more than \$7 trillion, which is about 17.5 percent of global pension fund assets. Note that the calculation in panel 3 is based on 21 of the pension funds in the sample for which data on allocation to private credit funds was found in Preqin. This calculation excludes other types of private credit investment, including direct lending or investment in structured private credit vehicles such as collateralized loan obligations. Panel 4 uses the gross notional exposure of derivatives as a proxy for the financial leverage of pension funds. These funds can be also active users of repurchase agreements, which can further increase their financial leverage. IQR = interquartile range.

Vulnerabilities to Liquidity Stress and Spillovers to Public Markets

Private credit is increasing the share of illiquid assets held by pension funds and insurers, giving rise to concerns about potential market disruptions. Some of the world’s largest pension funds, with assets exceeding \$7 trillion, have significantly increased their allocation to illiquid investments while actively using derivatives and other forms of leverage

(Figure 2.13, panels 1 and 2).¹³ Rising allocations to private credit are estimated to account for almost half of the increase in level 3 assets, reflecting

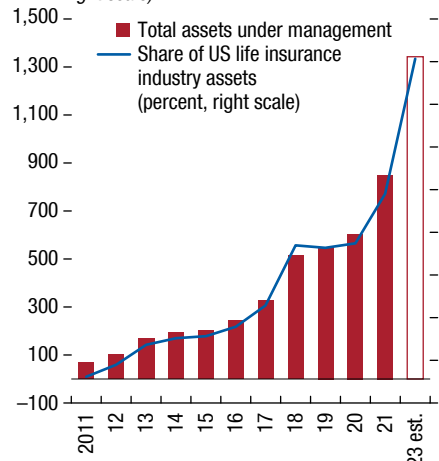
¹³The sample consists of 26 large pension funds—ranked among the largest 150 pension funds in assets globally—that disclose data on the gross notional exposure of derivatives in their annual reports. These funds have combined assets under management of more than \$7 trillion, which is about 17.5 percent of global pension fund assets.

Figure 2.14. Private-Equity-Influenced Life Insurers

The assets of private-equity-influenced insurers have grown sharply ...

1. Assets of US Private-Equity-Influenced Life Insurers

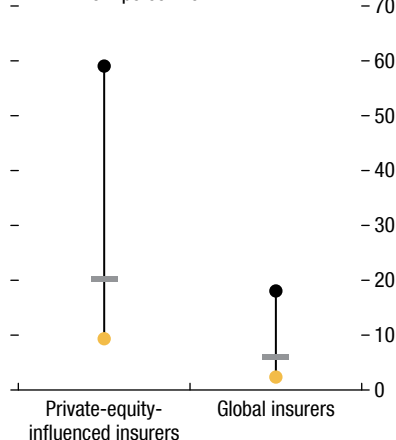
(Billions of US dollars, left scale; percent, right scale)



... have much larger illiquid exposures than the median large insurer globally ...

2. Share of Level 3 Assets (Percent)

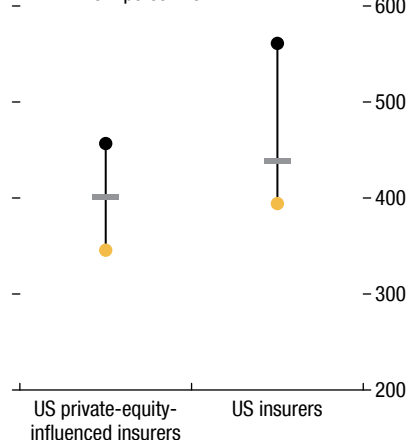
● 90th percentile — Median ● 10th percentile



... and their capital adequacy is weaker than the median US insurance firm.

3. Risk-Based Capital Ratios (Percent)

● 90th percentile — Median ● 10th percentile



Sources: A.M. Best; individual annual reports of selected private-equity-influenced life insurers; S&P Capital IQ; websites of individual private-equity-influenced life insurers; and IMF staff calculations.

Note: The 2023 estimate in panel 1 is calculated using information from the websites of 28 individual US private-equity-influenced life insurers. The global insurers estimate in panel 2 is calculated from a sample of 50 selected large insurance groups from 19 jurisdictions across Europe, North America, Asia, and Australia. The sample of large insurers has assets of more than \$15 trillion, or about 40 percent of all insurance assets globally. The calculation for private-equity-influenced life insurers is based on a sample of 15 entities for which Level 3 asset information was found in their annual reports. Panel 3 includes 16 US private-equity-influenced life insurers for which risk-based capital ratios were found. The US insurers' risk-capital ratio is based on a sample of the largest 20 US insurers. This calculation was possible only for the United States, as its risk-based capital ratios are not directly comparable with other jurisdictions. est. = estimation.

the growing popularity of this asset class among institutional investors (Figure 2.13, panel 3). Pension funds, moreover, have sizeable investments in private equity, which are also illiquid and can be related to the same private credit investments the funds hold (see the previous section). This change in asset composition heightens pension funds' vulnerability to margin and collateral calls that could arise from their derivative exposures. These calls may exacerbate stress in global financial markets, particularly markets in which pension funds have a large footprint, such as government bonds, equities, and corporate bonds. The financial leverage of those pension funds rose to 80 percent of assets in 2022 from 67 percent in 2016. Panel 4 of Figure 2.13 shows outliers with significantly higher-than-average metrics. Pension funds can also actively engage in repurchase agreements, further increasing their financial leverage.

Private-equity-influenced life insurers, which constitute a fast-growing sector, have also elevated their

illiquid exposures.¹⁴ Their assets have risen sharply in recent years, with US private-equity-influenced life insurers managing well more than \$1 trillion, over 15 percent of all US life insurance assets (Figure 2.14, panel 1). Insurance companies can provide private equity firms with a stable supply of premiums that can be invested in private credit, structured credit, real estate, and infrastructure funds arranged and controlled by the private equity firms themselves (Cortes, Diaby, and Windsor 2023). Private-equity-influenced life insurers appear to have more exposure to less-liquid investments than other insurers (Figure 2.14, panel 2). Their median exposure to level 3 assets is currently 20 percent of assets, compared with 6 percent for a sample of the largest 50 insurers globally. Most of their illiquid exposure is invested in structured credit

¹⁴Private-equity-influenced life insurers are those that were acquired (fully or partly) by private equity firms, with the latter exercising decisive influence in the management of their assets and liabilities. See Cortes, Diaby, and Windsor (2023) for further details.

(36 percent) and direct credit lending (23 percent).¹⁵ Despite greater exposure to illiquid investments, their solvency capital ratios appear to be weaker than the average (Figure 2.14, panel 3). This means that their regulatory capital could be eroded much faster in a scenario of rapid increases in corporate defaults; the severity of such a scenario potentially aggravated by the embedded leverage in structured credit investments, such as CLOs and other asset-backed securities, which constitute a significant part of their illiquid exposures.

Different regulatory frameworks in the insurance sector have incentivized life insurers to reinsure their portfolios with offshore reinsurers, which often invest in more illiquid assets. Life insurers influenced by private equity have established offshore reinsurers, primarily in Bermuda. A significant regulatory difference between Bermuda and the life insurers' home jurisdictions lies in the discount rates applied when valuing reinsurance liabilities. The discount rates tend to be higher than international best practices would dictate, thereby resulting in potentially higher solvency ratios. These private-equity-influenced reinsurers have expanded their assets to over a \$1 trillion, constituting about 4 percent of total life insurance assets globally (Cortes, Diaby, and Windsor 2023).

Pension funds and insurance companies can also face liquidity pressures arising from capital calls by private credit funds. These funds may require investors to provide capital within days, and investors have limited control over the timing of these calls. The Federal Reserve (2023) estimates that, as of the end of 2021, US pension funds had \$69 billion in uncalled capital commitments, and insurers had \$23 billion. The total amount of uncalled capital (or “dry powder”) suggests that insurers and pension funds might have commitments even higher than their existing allocations to private credit funds.

The increased share of investment in private credit might also create tensions related to the shift of insurers and pension funds toward defined-contribution products.¹⁶ Because final clients bear the performance and loss of the investments, insurers and pension

funds allow clients to switch frequently between available investment funds. For example, Australian superannuation funds are required to allow clients to switch between different investment options, generally within three business days. Private credit investments are widely available among superannuation members, and even default funds include a small percentage of private credit investment. Recent pension reforms in the United Kingdom follow a similar pattern,¹⁷ encouraging defined-contribution pension funds and unit-linked products to allocate their investments into illiquid assets, including private credit loans. This change will require fund managers to consider the interaction between the long-term commitment necessary for investments in private credit funds and the ability of their clients to switch between available investment funds. This could create redemption pressures in the private credit industry.

Competition with Banks and Deterioration of Underwriting Standards

Private credit has expanded rapidly in recent years, intensifying competition with banks in the syndicated loan markets. While most deals still focus on middle-market firms, private credit funds in the United States and Europe now provide loans to much larger corporate borrowers, previously funded in the broadly syndicated loan market or corporate bond market. Recently against a backdrop of easy financial conditions and increased risk appetite as investors anticipate central banks to lower rates, private credit funds have both faced renewed competition from banks for larger deals. In some cases, private credit funds have also partnered up with banks and other institutional investors to finance such deals. Industry commentary suggests that underwriting standards and covenants have already deteriorated in this segment of the market.

This deterioration in pricing and nonpricing terms requires careful monitoring. In the event of an

¹⁵The composition of investment is estimated from a reduced sample of selected private-equity-influenced life insurers that report a breakdown of their level 3 assets in their annual reports.

¹⁶For example, the share of unit-linked products of European insurers rose to 24 percent in June 2023 from 18 percent at the end of 2017. Sources: European Insurance and Occupational Pensions Authority and IMF staff calculations.

¹⁷See Chancellor of the UK Exchequer Jeremy Hunt's Mansion House speech in July 2023, when he stated, “Defined contribution pension schemes [DC] in the UK now invest under 1 percent in unlisted equity, compared to between 5 and 6 percent in Australia . . . The [Mansion House] Compact—which is a great personal triumph for the Lord Mayor—commits these DC funds, which represent around two-thirds of the UK's entire DC workplace market, to the objective of allocating at least 5 percent of their default funds to unlisted equities by 2030” (Hunt 2023).

economic downturn, a sharp rise of defaults could result in significant losses for bank and nonbank lenders, especially if credit risk is not properly priced when credit is extended.

Policy Recommendations

Given the potential risk private credit poses to financial stability, authorities could consider a more proactive supervisory and regulatory approach to this fast-growing, interconnected asset class. Regulation and supervision of private funds was strengthened significantly after the global financial crisis. Yet, the rapid growth and structural shift of borrowing to private credit requires that countries undertake a further comprehensive review of the regulatory requirements and supervisory practices where the private credit market or exposures to private credit are becoming material.

Several jurisdictions have already undertaken initiatives to enhance their regulatory framework in order to more comprehensively address potential systemic risks and challenges related to investor protection. The US Securities and Exchange Commission (SEC) is making substantial efforts to enhance regulatory requirements for private funds, including enhancing their reporting requirements. The European Union has recently amended the Alternative Investment Fund Managers Directive—commonly referred to as AIFMD II—to include enhanced reporting, risk management, and liquidity risk management. AIFMD II has additional specific requirements for managers of loan origination funds with respect to leverage caps (175 percent for open-end and 300 percent for closed-end funds) and design (a preference for closed-end structures and additional requirements for open-end funds), among others. Regulatory authorities in other countries (such as China, India, and the United Kingdom) have also enhanced the regulation and supervision of private funds. With the growth of the private funds sector in general, supervisors have also increased scrutiny over various aspects of private funds, particularly on conflicts, conduct, valuation, and disclosures.

To address data gaps and enable the accurate, comprehensive, and timely monitoring of emerging risks, the relevant authorities should enhance their reporting requirements and supervisory cooperation on both cross-sectoral and cross-border bases. Although the private nature of private credit remains crucial to market functioning, regulators need access to appropriate data

to understand potential vulnerabilities and spillovers to other asset classes or systemic institutions. As later described, there are cross-border and cross-sectoral risks. Relevant regulators and supervisors should coordinate to address data gaps and enhance their reporting requirements to monitor emerging risks.

Credit Risks

The current regulatory requirements for insurers and pension funds do not consider the credit performance of underlying loans. Prudential requirements are often determined by the legal form and rating of the instrument, without considering the performance of the underlying loan portfolio. These limited regulatory requirements, coupled with limited supervisory scrutiny, allow insurers and pension funds to rely heavily on valuations by investment managers and ratings by rating agencies. Moreover, the multiple layers of leverage make it harder for end investors to monitor underlying loan performance and the quality of collateral.

Supervisors of insurers and pension funds with high exposure to private credit should enhance their monitoring of aggregate portfolio risks in private credit. Given that loan portfolio supervision is central to bank oversight, insurance and pension supervisors should adopt some banking supervisory practices regarding credit risk. These supervisors should strengthen their assessments and corresponding prudential requirements of the credit exposures through both structured products and direct lending. In addition, supervisors of private credit funds should also closely monitor their underwriting practices and credit risks, particularly from their potential to exacerbate systemic risks through transformation into liquidity, leverage, and interconnectedness risks.

Liquidity Risks

Liquidity mismatch risks in most private credit funds appear minimal, yet the growth of semiliquid structures raises concerns. Although securities regulators have introduced requirements for liquidity management tools to reduce liquidity mismatch risks, many countries still permit open-end structures and frequent redemptions (sometimes even daily) for private credit funds that invest in highly illiquid assets. This permits existence of structures with a high potential of liquidity mismatch, and the mitigating tools used by semiliquid funds have not been tested by a sys-

temic event. The “retailization” trend, moreover, means that individual investors new to the sector who do not fully understand the liquidity features may become significant investors, potentially creating herd behavior toward redemption during stress episodes.

Securities regulators should adopt the recent recommendations of the Financial Stability Board and International Organization of Securities Commissions (IOSCO), particularly regarding product design and liquidity management tools. In line with Financial Stability Board recommendations, private credit funds should create and redeem shares at lower frequency than daily or require long notice or settlement periods, and the relevant authorities should consider requiring that such funds be closed-end. Regulators should also consider stringent requirements to ensure private credit firms use liquidity management tools and stress testing when product design permits significant liquidity mismatch. Securities market regulators should also ensure that, in funds that permit retail participation, regulatory requirements include comprehensive and clear disclosures on potential risks and redemption limitations.

Leverage Risks

Current reporting requirements are insufficient and prevent a comprehensive assessment of the leverage used in private credit. At present, the potential transmission of funding shortfalls from leverage providers cannot be fully evaluated. Fund-level reporting requirements to securities, insurance, or pension fund supervisors may not capture the complex and multi-layered sources of leverage, including the subscription lines and leverages special-purpose vehicles or feeder funds deploy. Reporting is also fragmented across borders and sectors. These data gaps, along with the lack of a comprehensive overview, prevent supervisors from monitoring leverage at the macro level.

When banks or other supervised institutions provide private credit firms with leverage, regulators should enhance risk management practices regarding potential funding needs. This will likely require that the private credit funds borrowing from supervised institutions engage in some thematic reviews of liquidity management practices. Such exercises should incorporate stress scenarios featuring tightening of funding availability, markdowns of levered portfolios, and sudden and significant drawdowns of credit facilities by private credit funds’ corporate borrowers.

Regulators should fill data gaps by enhancing comprehensive reporting of leverage across the value chain, with close cooperation domestically and internationally. Insurance and pension supervisors should address excessive risk taking by adjusting prudential requirements under the principle of “same activity, same risk, same regulation.” In the event that such monitoring finds excessive leverage that may have systemic implications, securities regulators should consider suitable regulatory tools such as leverage caps.

Asset Valuation Risks

Regulatory requirements for private credit funds currently focus on policy documentation, governance, and investor disclosures but do not specify how assets should be valued. The overall regulatory framework for private funds tends to have a light touch, including on valuation, because the institutional investors are sophisticated, the primary expectation being that investors have the capacity and incentive to seek relevant information from asset managers and adjust their own valuations. Unlike other aspects of a private credit fund, however, the main investors (insurance companies and pension funds) may not have incentive to challenge fund managers’ valuations because they desire to maintain the stability of their investments. The managers’ significant discretion also results in wide variation in valuation for the same asset across funds and entities. An IOSCO survey also found that the approach to valuation varies significantly by country. IOSCO’s agreement with the International Valuation Standards Council to identify potential approaches to enhance the quality of valuations is welcome in this context.¹⁸

Supervisors should closely monitor the valuation approaches and procedures of private credit funds, insurers, and pension funds and in case of heightened valuation risks, strengthen regulation on valuation independency, governance, and frequency. To address these concerns, some regulators have already strengthened regulation concerning independent audits (for example, the US SEC) and intensified supervision (for example, US SEC, UK Financial Conduct Authority, European Securities and Markets Authority) relating to valuation of private funds. Supervisors

¹⁸See the recent statement of cooperation between the IOSCO and the International Valuation Standards Council (“IOSCO IVSC Statement of Cooperation,” October 18, 2022, <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD716.pdf>).

should continue to thoroughly assess valuation governance and controls through intrusive supervision, including on-site inspection, on the valuation practices of private credit funds.¹⁹ Improper or fraudulent valuation should be followed by timely and strict actions, including enforcement. Proper and timely loss recognition will become even more important for private credit funds with semiliquid structures and funds after expiration of lock-up periods. If such supervisory efforts indicate heightened valuation risks, regulators should consider mandating independent external valuations and audits while strengthening the managers' internal governance mechanisms on valuation procedures. Regulators may also consider increasing the frequency of external valuations and audits, if necessary.

Interconnectedness Risks

Risk taking is concentrated in some jurisdictions and subsectors (Cortes, Diaby, and Windsor 2023). Differences in regulatory requirements across sectors might have encouraged insurance companies, in particular those influenced by private equities, and pension funds to hold excessive exposure to private credit. Banks continue to provide leverage to the private funds and their affiliates. If the trend continues, excessive concentration in private credits and interconnectedness among private equity firms, insurance companies, and pension funds could exacerbate systemic risks. Data gaps often hinder the monitoring of concentration and interconnectedness risks.

Supervisors should fill data gaps and cooperate with each other, including across borders, to ensure effective monitoring of interconnectedness risks. The authority in charge of systemic risk monitoring should lead in analyzing overall trends in private credit markets and assessing potential contagion risks to the financial system. All sector regulators should actively coordinate to address data gaps and gain a better understanding of interconnectedness risks. Cross-border cooperation assumes importance where cross-border interconnections are significant and concentrated. International bodies, such as the Financial Stability Board and IOSCO, can aid in improving data gaps globally.

¹⁹US SEC (2024) and the UK Financial Conduct Authority (2023) are reviewing valuations in private markets.

If regulatory arbitrage across sectors and borders persists, and if it leads to excessive concentration, relevant regulators should coordinate efforts to address such arbitrage by ensuring more consistent risk assessments and corresponding prudential treatments.²⁰

Conduct Risks

Increasing retail participation in private credit markets raises concerns about conduct risks that requires close supervision by conduct supervisors. The regulatory framework has so far assumed that investors are sophisticated and has applied a light touch to investor protection safeguards.²¹ Although existing regulatory requirements cover conflicts of interest in detail, conduct risks will increase if the investor mix moves toward more retail participation, considering that more frequent redemptions may exacerbate conduct concerns regarding valuations and follow-on investments.²²

Conduct supervisors should closely monitor conduct risks and enhance disclosure requirements, particularly relating to conflicts of interest. Regulatory requirements for conduct with retail investors should be stringent. Supervisors should monitor private credit funds' distribution channels and marketing practices, and tailor suitability tests to prevent mis-selling.²³ Conduct supervisors should ensure that retail investors (including holders of unit-linked products and defined-benefit plans) fully understand the higher credit and liquidity risk of private credit investments and their limitations on redemptions. Supervisors should also continue to monitor potential conflicts of interest in sponsored deals involving affiliated private debt and private equity managers, particularly given that privately negotiated transactions lack market pricing.

²⁰Consistent risk assessment does not necessarily mean applying identical capital requirements but rather undertaking holistic assessment of the various risks end investors face on a subject exposure.

²¹Separate regulatory frameworks for certain types of retail-oriented private credit vehicles (for example, BDCs) provide stringent requirements for leverage caps, redemption and liquidity risk requirements, investor disclosures, and reporting, among others.

²²IOSCO (2023) discusses manager-led secondary markets and continuous funds as examples where conflicts of interest could arise.

²³According to IOSCO (2023, p. 37), "Wealth barriers to accredited investor status . . . have also lessened as a mechanical function of inflation. . . . Some funds are also experimenting with innovative ways to reduce distribution costs."

Box 2.1. Small But Growing Private Credit Funds in Asia

Private credit is experiencing robust growth in Asia (Figure 2.1.1, panel 1). An increasing number of mature companies are seeking funding for acquisitions and diversification of their creditor base, while long-term investors, such as pension funds and wealth managers, are drawn to potentially attractive yields. In recent years, several international alternative asset managers have launched Asia-focused funds. A recent industry survey showed that many institutional investors in the region intend to increase allocations to private credit.¹

Despite growth, Asia’s private credit market remains relatively small, totaling about \$93 billion and accounting for about 5 percent of the global total. Most investors are local and focus on smaller deals. Global allocation to private credit in Asia remains limited (0 to 5 percent of assets under management) and is relatively less appealing because of tighter spreads and high foreign exchange hedging costs. Regions with highly liquid banking systems or those

experiencing modest growth tend to have small or nonexistent private credit markets. China, India, and Indonesia are emerging as key examples, whereas Australia and New Zealand have more mature markets with active participation from superannuation funds. Many credit funds have investment teams based in Hong Kong SAR and Singapore. Private credit in Korea has also grown steadily.

Unlike in the United States, where the private credit market acquired the ability to finance relatively large transactions, Asia’s market primarily fills the gaps banks leave. In this context, private credit funds focus on acquisition financing, asset-light businesses, and distressed debt, providing financing to the high-yield segment, which remains underdeveloped in many emerging markets and developing economies in the region (Figure 2.1.1, panel 2). The Asian market remains fragmented, as the regional portfolios are complicated by differences in currencies, regulatory environments, and investor protection regimes.

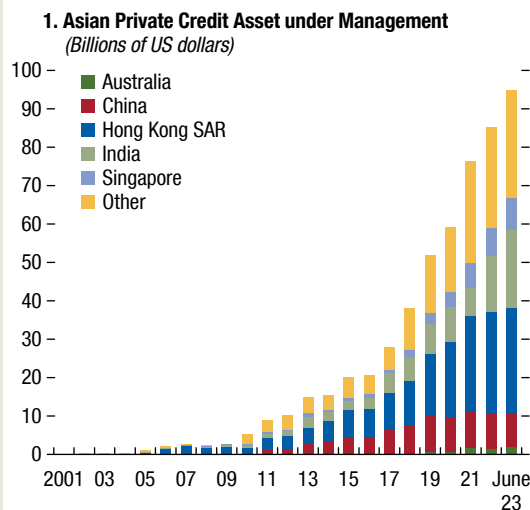
Most funds are closed-end structures of 6 to 8 years for performing credit and up to 10 years for distressed assets. Covenants tend to be tighter in emerging market Asia, given weaknesses in investor protection.

This box was prepared by Natalia Novikova.

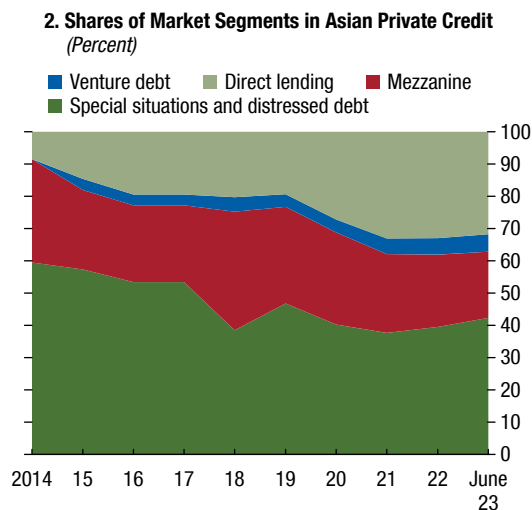
¹BlackRock’s 2023 Global Private Markets Survey (<https://www.blackrock.com/hk/en/institutional-investors/insights/global-private-markets-survey>).

Figure 2.1.1. Private Credit in Asia

Asia’s private credit market is growing rapidly ...



... with about half of the capital raised for special situations, although direct lending is gaining share.



Sources: Preqin; and IMF staff calculations.

References

- Adrian, Tobias, Dong He, Nellie Liang, and Fabio Natalucci. 2019. “A Monitoring Framework for Global Financial Stability.” IMF Staff Discussion Note 2019/006, International Monetary Fund, Washington, DC.
- Aramonte, Sirio, and Fernando Avalos. 2021. “The Rise of Private Markets.” *BIS Quarterly Review*, December.
- Ball, Ray. 2006. “International Financial Reporting Standards (IFRS): Pros and Cons for Investors.” *Accounting and Business Research* 36: 5–27.
- Block, Joern, Young Soo Jang, Steven N. Kaplan, and Anna Schulze. 2023. “A Survey of Private Debt Funds.” NBER Working Paper 30868, National Bureau of Economic Research, Cambridge, MA.
- Cai, Fang, and Sharjil Haque. 2024. “Private Credit: Characteristics and Risks.” FEDS Notes, Board of Governors of the Federal Reserve System, Washington, DC.
- Chernenko, Sergey, Isil Erel, and Robert Prilmeier. 2022. “Why Do Firms Borrow Directly from Nonbanks?” *Review of Financial Studies* 35 (11): 4902–947.
- Cortes, Fabio, Mohamed Diaby, and Peter Windsor. 2023. “Private Equity and Life Insurers.” IMF Global Financial Stability Note 2023/001, International Monetary Fund, Washington, DC.
- Dudycz, Tadeusz, and Jadwiga Prażników. 2020. “Does the Mark-to-Model Fair Value Measure Make Assets Impairment Noisy? A Literature Review.” *Sustainability* 12 (4): 1504.
- Efing, Matthias, and Harald Hau. 2015. “Structured Debt Ratings: Evidence on Conflicts of Interest.” *Journal of Financial Economics* 116 (1): 46–60.
- Financial Conduct Authority (FCA). 2023. “Annual Public Meeting.” Speech. London, October 4. <https://www.fca.org.uk/publication/transcripts/transcript-apm-2023.pdf>.
- Federal Reserve. 2023. “Financial Stability Report.” Board of Governors of the Federal Reserve System, Washington, DC.
- Haque, Sharjil M. 2023. “Does Private Equity Over-Lever Portfolio Companies?” Finance and Economics Discussion Series 2023–009, Board of Governors of the Federal Reserve System, Washington, DC.
- Hunt, Jeremy. 2023. “Chancellor Jeremy Hunt’s Mansion House Speech.” London, July 10.
- International Organization of Securities Commissions (IOSCO). 2023. “Thematic Analysis: Emerging Risks in Private Finance.” Final Report FR10–23, IOSCO, Madrid, Spain.
- Jang, Young Soo. 2024. “Are Direct Lenders More Like Banks or Arm’s-Length Investors?” SSRN, January 24.
- Short, Jodi L., and Michael W. Toffel. 2016. “The Integrity of Private Third-Party Compliance Monitoring.” *Administrative and Regulatory Law News* 41 (1): 22–25.
- US Securities and Exchange Commission (US SEC). 2024. “Examination Priorities: Division of Examinations.” SEC, Washington, DC. <https://www.sec.gov/files/2024-exam-priorities.pdf>.