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AI disruption in private credit:
exposure to software firms in BDCs

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AI disruption in private credit: exposure to software firms in BDCs

Key takeaways

- *Business development companies (BDCs) have lent around \$115 billion to software firms, which represents about a fifth of all their lending and over 80% of their fast-growing technology portfolios.*
- *Borrowers' revenue uncertainty posed by generative artificial intelligence has not affected these loans yet, and neither BDCs nor their equity investors have priced software exposure differently.*
- *Recently, credit spreads have narrowed, reducing the buffers to absorb losses, and a few large BDCs are exposed to a shared pool of borrowers, though low leverage and secured lending may limit spillovers.*

In recent years, direct lenders, such as private credit firms, have built up large exposures to the software sector which could now pose risks due to generative artificial intelligence (AI) disruption. Software has been among the most reliable cash flow businesses of the past decade, with recurring subscription revenues, high margins and low capital needs, which made it attractive to direct lenders. Yet software firms' revenues are now highly vulnerable to AI, which can both substitute for existing products and lower development costs, reducing barriers to entry and intensifying competition. This also raises questions about the pricing of AI disruption risk by lenders and their investors, as well as the future performance of the affected lending portfolios if this risk materialised.

Business development companies (BDCs) offer an unusually clear view into the private credit ecosystem and its exposures. BDCs are a type of private credit intermediary in the United States that typically lends to small or mid-sized firms (Davydiuk et al (2024)). BDCs originate one fifth of all US direct loans, and thus are broadly representative of direct lenders (Doerr et al (2026)). They have lent around \$115 billion to software firms, which represents about a fifth of all their lending and over 80% of their technology portfolios. As of end-2025, there are about 170 BDCs, which are required to report their holdings loan by loan on a quarterly basis to the US Securities and Exchange Commission (SEC), covering some \$550 billion in assets.¹ The rest of the private credit ecosystem is comprised of a variety of funds operating under different legal provisions and remains highly opaque regarding their exposures. This makes BDCs a useful case study of the vulnerabilities which may be building up in the unobservable segments of private credit.

While current pricing and performance indicators do not point to stress, they may understate the vulnerabilities lying beneath the surface. Spreads within software loans and across different sectors do not show systematic differences. Similarly, valuations of publicly listed BDCs do not differ depending on the

¹ BDCs were created by the US Congress through the Small Business Investment Act of 1980, which brings them under the perimeter of the Investment Company Act of 1940, requiring SEC registration. Therefore, they face a number of statutory provisions and restrictions, including leverage caps and quarterly financial reporting. Listed BDCs – mainly structured as closed-end funds – are funded by equity and allow no investor redemptions; non-traded BDCs frequently offer semi-liquid structures that allow only periodic, pre-scheduled and capped redemptions. Other private credit funds operate under exemptions of the Investment Company Act of 1940, do not require SEC registration and have much lighter reporting and regulatory touchpoints.

respective weight of software loans in their overall portfolio. Limited leverage and a high incidence of secured lending may have in part alleviated concerns about elevated cash flow uncertainty due to AI disruption. But narrowing spreads in recent years have reduced lenders' cushions to absorb potential losses. Moreover, each borrower usually draws on many lenders at once, so a shock might surface across many BDCs simultaneously. Since the lending side of the market is also concentrated, a handful of major BDCs would bear a larger part of the losses in the case of a sizeable credit event. Funding fragilities in non-traded BDCs might add to these strains. Opaque exposures beyond BDCs could amplify the impact of any disruption from generative AI, leaving the sector more vulnerable than its credit metrics suggest.

Software is now a large exposure for direct lenders

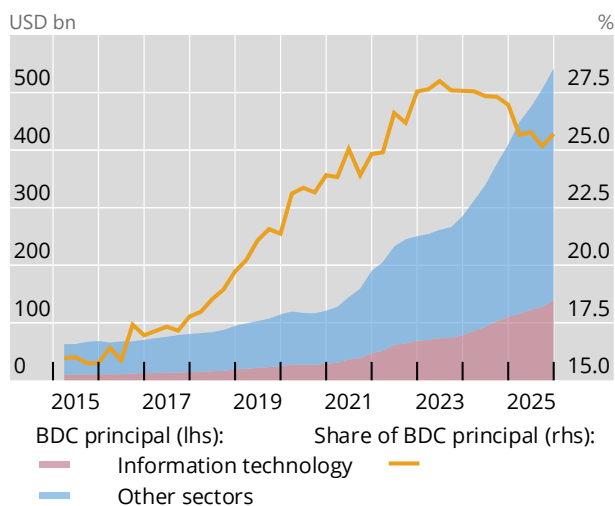
BDC lending to software has grown into one of the sector's largest exposures.² Over the past decade, these funds tilted heavily towards technology: lending to the information technology (IT) sector climbed to nearly \$140 billion, about a quarter of all BDC loans and now its second largest sector after business services, which might also be impacted by generative AI (Graph 1.A).³ Almost all of that growth was in software, which now accounts for more than 80% of the IT portfolios, or around \$115 billion (Graph 1.B). This trend contrasts with the sectoral composition of the broader US economy, where IT accounts for a smaller and more stable share of output.⁴

The rise of generative AI heightens uncertainty about the revenue streams of software firms through direct product substitution and margin pressures. For some products, AI tools can now do the same job at lower cost, taking revenue away from the borrower by substituting software directly. For other products,

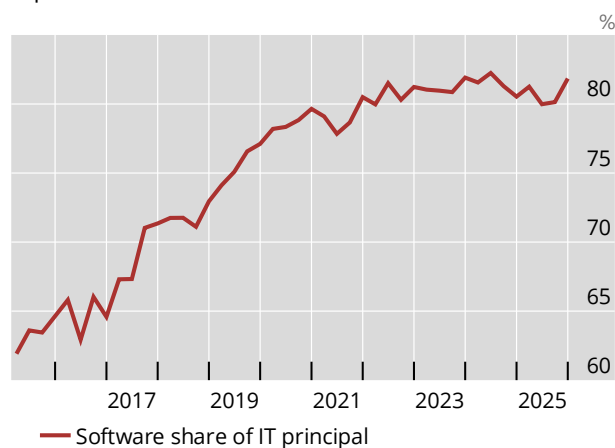
Software is a large and growing exposure for direct lenders

Graph 1

A. BDC lending to IT firms increased substantially



B. Software is the main driver of BDCs' higher IT exposure¹



¹ Software lending as a share of BDC IT lending.

Sources: PitchBook Data Inc | LCD; authors' calculations.

² We use BDC holding-level data from PitchBook Data Inc. Around one quarter of the BDCs in our sample are publicly listed. Our sample includes 18,097 borrowers over the period Q1 2015–Q4 2025. Sector classifications follow PitchBook's proprietary industry system – shaped by commonly used systems such as the North American Industrial Classification System (NAICS), Standard Industrial Classification (SIC) and Global Industrial Classification Standard (GICS) – and are structurally most comparable in granularity to the GICS. These data are available with a reporting lag.

³ The rising share reflects new lending rather than higher valuations, as portfolio weights computed on cost and on fair value move together.

⁴ For more information, see US Bureau of Economic Analysis, *Gross Output by Industry*.

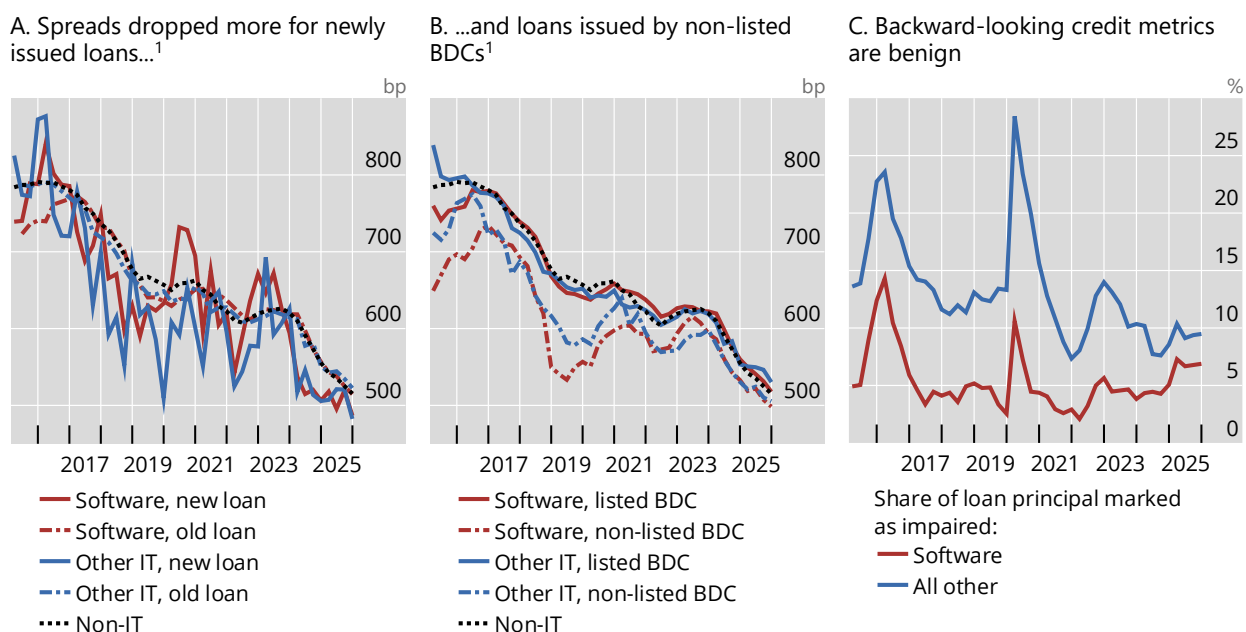
incumbents can fold AI into their own offering and keep their customers, but at thinner margins, as AI tools enhance competition by reducing barriers to entry.⁵ Either way, the cash flows that service these loans have become subject to greater uncertainty than in the past, even if reported earnings do not show it yet. And because these loans typically run for several years, the impact of fast-paced AI improvements could surface before their eventual maturity date.

Software risk pricing remains undifferentiated for lenders and equity investors

Over the past few quarters, despite the gradual increase in the risk of AI disruption, lenders did not charge a higher spread to software borrowers. Instead, credit spreads have fallen both within and across sectors and largely converged. By late 2025 software, other-IT and non-IT borrowers paid broadly similar spreads on their loans (Graph 2.A).⁶ The compression has been steepest for newly issued loans, the spreads on which fell faster than those on outstanding loans. Spreads were also lower for loans originated by non-listed BDCs, arguably the segment under the least market scrutiny (Graph 2.B).

These loans are performing well so far, and generative AI has yet to leave a visible mark on realised credit quality. Less than 1% of software loans are behind on payments, a smaller share than for the rest of the BDC portfolios. Other measures – eg the share written down as impaired and signs of cash-flow strain⁷ – tell the same story (Graph 2.C). These measures look backward and are computed by managers

Credit spreads do not differentiate software, and loans are performing well so far Graph 2



¹ Value-weighted spread over the base rate on BDC loans.

Sources: PitchBook Data Inc | LCD; Bloomberg; authors' calculations.

⁵ These are mostly middle market software firms rather than large, listed software groups. About three quarters of BDC software exposure is in horizontal and workflow categories such as productivity, application and automation tools, where AI substitution is most direct.

⁶ A panel regression on 152,116 observations of IT and software spreads for the period Q1 2015–Q4 2025 yields similar results. The sample includes 208 BDCs and 2,302 borrowers. The analysis also suggests that spreads between software and other IT loans do not differ over the sample period, even after removing heterogeneity (by introducing fixed effects) related to time period, BDC identity and investment type, while controlling for the tenor of the loan, its accrual status and principal size.

⁷ The proxy for cash flow distress is the payment-in-kind rate. Payment-in-kind is a common arrangement in private markets or structured financing deals where interest or dividends owed on a debt or equity instrument are not paid in cash but instead by issuing additional securities, such as more debt or equity.

based on their own assessments, but they point consistently in one direction, and the loans face no nearer-term wall of maturities than other sectors. Credit metrics may also be delayed in reflecting current risks for structural reasons: a revenue shock takes time to translate into a missed payment, and payment-in-kind arrangements – which allow borrowers to defer the cash outlays of debt servicing – can postpone the point at which strains become visible.

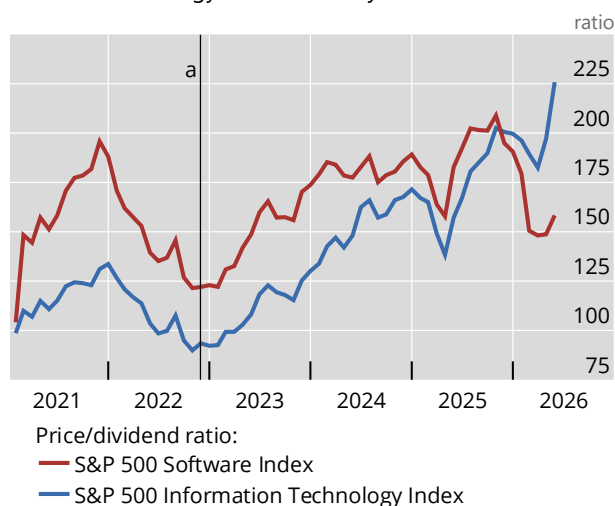
Equity investors, too, have drawn little distinction in pricing BDCs by software sector exposure. This is despite valuations of equity indices of software firms having underperformed the broader technology sector for several months. Coming out of the pandemic, software-related stocks saw a rally that, by end-2021, had created a significant valuation premium over the broader IT sector. Since December 2022, after the release of ChatGPT, software's valuation premium narrowed and ultimately turned into a discount by end-2025 (Graph 3.A). Conversely, BDC valuations tell a different story: BDCs with high and low software exposure trade at similar price/dividend ratios, with no discount for software concentration (Graph 3.B).⁸ This may partly reflect that BDCs are held for their distributions, and so long as dividends hold up and distance to default does not fall below some threshold, a slow-building credit risk does not show in prices.

Undifferentiated risk pricing can be read in two ways. A benign view is that BDCs target a consistent borrower risk profile regardless of the sector. Thus, BDCs extend credit only to software firms whose fundamentals match those of their other borrowers, and similar spreads are warranted. Similarly benign would be the case in which risks posed by generative AI to the software sector are overstated. A less reassuring view could be that lending standards have been loosened by competition in credit origination during a prolonged private credit boom. In the latter case, if risk is underpriced, a shock is more likely to bring correlated losses and abrupt repricing.

Equity markets attach little discount to BDC software exposure

Graph 3

A. Valuations of software firms have underperformed the broader technology sector recently

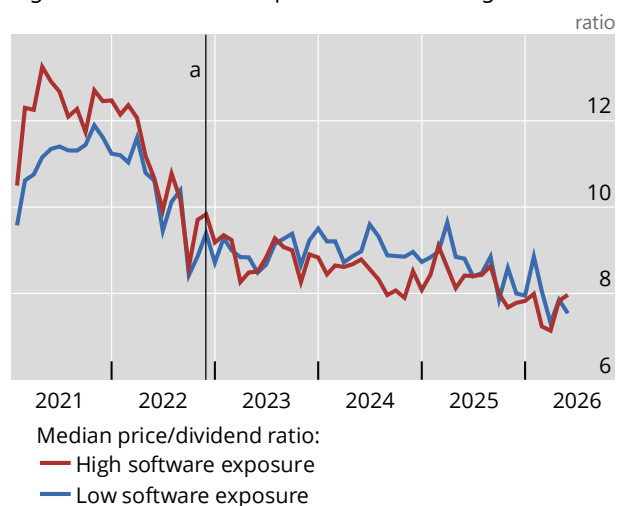


^a ChatGPT released to the public (November 2022).

¹ Based on listed BDCs which are split into the top tercile (high) and bottom tercile (low) by software exposure over the period Q1 2020–Q4 2020. Each group contains 17 BDCs.

Sources: PitchBook Data Inc | LCD; Bloomberg; authors' calculations.

B. From the second half of 2025, valuations of BDCs with high and low software exposure have converged ¹



⁸ The dispersion of valuation ratios is broadly similar across groups, with interquartile ranges overlapping throughout the period. A few low-exposure BDCs introduce a temporary and highly variable upward skew in the 75th percentile of the group, largely vanished by mid-2025.

Declining spreads, concentrated exposures and opaque interconnections

While current loan pricing and performance indicators do not point to imminent stress, there may be vulnerabilities hidden beneath the surface.

Spread compression has eroded the cushion against potential losses in BDC loan portfolios. That is particularly surprising in the case of software loans, as the sector faces the immediate challenge from AI competition. Because software credit spreads did not rise to reflect the higher cash flow uncertainty from AI disruption risk, and have in fact narrowed, the interest earned on software loans leaves little room to absorb losses if credit quality weakens. Thus, lenders are being paid less to carry a risk that has grown.

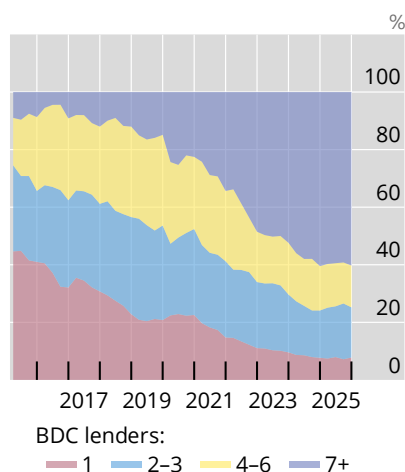
The exposure is also concentrated in two ways that could compound each other. First, software borrowers increasingly rely on many lenders: about 60% of software lending now goes to firms that borrow from seven or more BDCs, up from under 10% in 2015 (Graph 4.A). While from a single borrower's point of view this represents diversified funding, from the BDC's perspective it also means that a software-specific shock would surface across many balance sheets at once. Second, the lending itself is dominated by a few large BDCs, with the five largest accounting for around 37% of all software loans and the 10 largest accounting for more than half (Graph 4.B). A shock to software credit would therefore reach many portfolios, while the largest losses would fall on a small number of lenders.⁹

Several features of BDCs in principle serve to reduce the risk of wider spillovers, but the extent to which they effectively do so is hard to gauge. Listed BDCs, which hold most of the exposure, are funded by equity investors cannot withdraw. They can also tap term funding and committed facilities to meet liquidity needs. BDC leverage is low, capped by statute and well below that of banks, and loans are mostly senior and secured, with covenants that let lenders act early. These features would work to support recoveries in default (Graph 4.C). However, it is hard to assess in aggregate the quality of the structural protections or the degree of interconnections with other financial intermediaries.

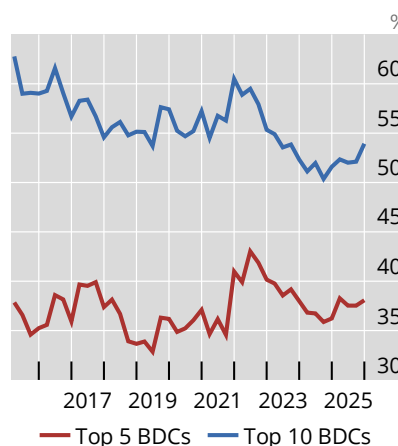
High concentration in software exposure may be somewhat mitigated by low leverage and secure lending

Graph 4

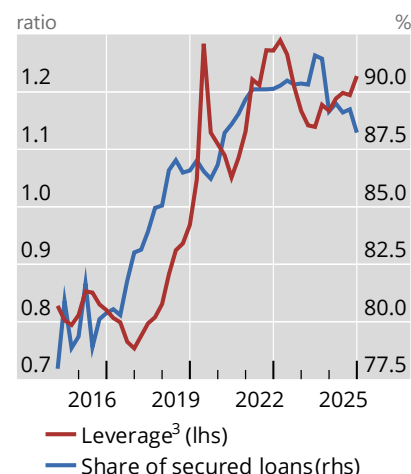
A. Software borrowers increasingly rely on multiple BDC lenders¹



B. Software exposure highly concentrated in a few BDC lenders²



C. Low leverage and high share of secured loans may mitigate spillover risks³



¹ Number of distinct BDCs lending to the same borrower, expressed as a share of the total BDC loan volume to the software sector. ² Share of BDC software principal held by the five and 10 largest lenders. ³ Based on listed BDCs. Principal-weighted average leverage, ratio of debt to equity.

Sources: PitchBook Data Inc | LCD; Bloomberg; authors' calculations.

⁹ Meanwhile, investment in AI itself is shifting from equity to private credit. See Aldasoro et al (2026) and Eren et al (2026).

A potential vulnerability concerns the roughly one quarter of software loans held by non-traded BDCs, often semi-open structures where liquidity risk is more salient. Their investors can only exit by redeeming shares against the issuing BDC, generating cash demands that can be met by using pre-funded cash positions, drawing on bank lines or selling assets. Quarterly redemption caps – typically 5% of assets under management – are meant to manage this liquidity risk, but under stress they might offer less protection than anticipated.¹⁰ Cash buffers and loan repayments are usually insufficient to fund repeated 5% quarterly redemptions (Fang et al (2026)). Moreover, managers may feel tempted or pressured, perhaps for reputational reasons, to accommodate larger redemptions than contractually required. In early 2026, for instance, a large non-traded BDC breached its redemption cap for the first time, illustrating how funding structure-related fragility can surface despite fair weather contractual provisions. Such fragility could compound any repricing triggered by AI-related credit events, posing sustained liquidity stress.

Broader concerns emerge from what cannot be observed. The protections above rest on disclosure and underwriting. But recent events have called this into question, as several cases exposed weak due diligence practices and cast doubt on the quality of the covenants lenders are relying on.¹¹ More importantly, BDCs are only the visible part of private credit. BDCs' software exposure is roughly similar to that of other direct lenders, so their portfolios may offer a representative picture of how similar software exposures may be building in other segments of the private credit ecosystem, where disclosure is thinner and links to banks and other lenders are harder to trace (Berg and Lee (2026)).¹² Stress tests suggest that a severe downturn could force sizeable asset sales across the sector (Chernenko and Scharfstein (2025)). It is probably through these channels, rather than through BDCs themselves, that disruption to software credit could spread more widely.

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¹⁰ Non-traded BDCs' ability to manage liquidity pressures is highly sensitive to shock severity (IMF (2026)).

¹¹ These include the default or bankruptcy of several highly leveraged borrowers, a dispute between banks over double-pledged receivables and fraud-related charges taken by a global bank in connection with a major private credit sponsor.

¹² At end-2025, the share of outstanding loans to software-as-a-service (SaaS) firms originated by private credit intermediaries was about 19% of total direct loans (Doerr et al (2026)). For BDCs, the share of loans to software firms was about 21% of their loan portfolio.