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Evidence from BDCs

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Price Discovery in Private Credit: Evidence from BDCs*

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Abstract

Business Development Companies (BDCs) combine periodic reporting of illiquid private credit with continuously traded equity, providing a unique setting to evaluate private credit performance. During periods of credit stress, performance drops and stock-to-NAV discounts widen sharply as stock prices fall faster than reported NAVs. Market discounts and pre-announcement stock returns predict subsequent NAV markdowns and weaker profitability, although their predictive power is limited for larger BDCs and those with more diversified portfolios. Crucially, market metrics have limited ability to anticipate discrete distress events such as non-accruals and payment-in-kind (PIK) amendments. We find that quarterly NAV announcements contain significant, value-relevant incremental information that results in immediate stock price reactions.

JEL: G12; G21; G23; E44

Keywords: Private Credit, Business Development Companies, Credit Stress, Valuation, NAV, Fair Value, Price Discovery

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1 Introduction

> *"We don't see any particular factor that would drive a drop in the share price," says Craig Packer, the co-president of Blue Owl Capital, who runs their credit activities. "The whole sector has been down. Credit performance in Blue Owl's BDCs continues to be strong," he says.*
>
> — *Barron's*, Sept. 16, 2025

Private credit has grown rapidly, with assets under management exceeding \$2 trillion in 2025 and projected to reach \$4 trillion by 2030.[1] Private debt funds now provide a substantial share of the financing supplied to middle-market firms that historically relied more heavily on banks, syndicated loan markets, or public bonds. This rapid growth, has drawn attention from policymakers and investors, particularly as access to private-market investments expands among retail investors, and connections between private credit funds, banks, insurance companies, and pension funds deepen.[2] Moody's estimates that banks' exposure to private credit vehicles was \$1.4 trillion at the end of 2025. According to Moody's, U.S. life insurers held approximately \$807 billion of highly illiquid fixed-income investments, representing 20 percent of their \$4 trillion fixed-income portfolios.

The growth of private credit has raised several questions particularly around valuation. Private credit assets are generally illiquid, privately negotiated, and infrequently traded. Their reported values therefore depend on models, comparable transactions, third-party appraisals, sponsor information, and manager judgment. These valuation practices may incorporate detailed private information, but they may also cause reported values to respond gradually to changing credit conditions. It is therefore difficult for outside investors and regulators to determine how quickly deterioration in private credit portfolios is recognized.

Business Development Companies (BDCs) provide a unique setting to study valuation of private credit. Like other private credit funds, BDCs originate and hold loans made to

[1] See PitchBook's *2025 Global Private Debt Report*.

[2] This comes at a time when private markets are likely to be opened to the roughly \$14 trillion 401(k) market.

predominantly private, middle-market firms. Unlike most private credit vehicles, however, BDCs file regular reports with the Securities and Exchange Commission, disclose detailed portfolio holdings, and report the fair values of their investments each quarter. Moreover, a substantial fraction of BDCs are publicly traded. Their structure therefore combines periodically reported accounting values for illiquid private credit assets with continuously traded public equity prices.

This combination generates two distinct valuation signals. A public BDC's stock price reflects investors' real-time assessments of the value of its portfolio, expected profitability, funding costs, dividends, and credit risk. Its net asset value (NAV), by contrast, is reported quarterly and represents the BDC's accounting estimate of the fair value of its underlying investments.[3] The difference between stock price and reported NAV may therefore reflect expected portfolio losses, stale accounting marks, liquidity discounts, investor sentiment, agency concerns, or information about future performance that has not yet been incorporated into reported values. BDCs consequently provide a natural setting to examine how public markets value hard-to-observe private assets.

We examine three interconnected questions. First, how do BDC portfolio performance, stock prices, and reported NAVs respond to disruptions in credit market stress? Second, do public-market valuations incorporate information about future performance before that information appears in reported NAVs and accounting outcomes? In particular, do market discounts and pre-announcement returns explain subsequent NAV markdowns, profitability, dividend cuts, and borrower-level distress? Third, even if public prices anticipate part of the information contained in future NAVs, do quarterly NAV announcements provide investors with incremental information?

To address these questions, we assemble a quarterly panel of public and private BDCs from 2012 through 2025. The data combine BDC-level financial information with detailed

[3] Some BDCs have recently announced plans to disclose NAV more frequently as investor concerns about private credit defaults, leverage, and exposure to software firms have increased. See "Apollo to Start Reporting Daily Prices for Private Markets," *Bloomberg*, May 6, 2026.

portfolio holdings, including loan fair values, non-accrual classifications, and payment-in-kind (PIK) features. For publicly traded BDCs, we supplement these data with daily stock returns, quarterly prices and analyst forecasts of NAV. This setting allows us to compare continuously updated market valuations with subsequently reported accounting values and detailed portfolio outcomes.

We first document that BDC portfolio performance deteriorates and market discounts relative to NAV widen during periods of macro credit market stress. A one-percentage-point increase in the leveraged-loan discount margin is associated with an approximately 5.9-percentage-point widening of the BDC valuation discount. Decomposing the response shows that both stock prices and NAVs decline, but stock prices fall more sharply and respond more quickly. Reported NAVs adjust by considerably less and do so more gradually.

We next examine whether the market-to-NAV wedge contains information about future BDC performance. BDCs trading at higher discounts are more likely to report NAV markdowns over the following year and exhibit weaker profitability for up to four quarters. The relation is strongest for future net income and is also present for net investment income and net gains. Moreover, the informativeness of the market-to-NAV wedge varies systematically with the characteristics of the BDCs and the underlying portfolios. Market discounts are more informative about future NAV markdowns for smaller BDCs, for BDCs with more concentrated portfolios, and when the underlying borrowers are held by fewer other BDCs and are therefore more difficult to benchmark externally.

We obtain complementary evidence from stock returns measured before the next quarterly earnings announcement. Pre-announcement stock returns explain subsequent changes in NAV per share as far out as four quarters. Negative returns are associated with a higher probability of future dividend cuts and weaker accounting profitability. These findings indicate that continuously traded BDC equity prices incorporate information about future private credit performance before the corresponding changes are fully reflected in reported NAV.

The market's ability to anticipate performance is not uniform across outcomes. Market discounts and pre-announcement returns explain broad measures of future valuation and profitability more reliably than discrete borrower-level distress events. We find little consistent evidence that market discounts or pre-announcement returns predict subsequent changes in non-accrual or amended PIK exposure. For the share of loans valued below 80 percent of par, the discount results are insignificant, while pre-announcement returns provide limited evidence at certain horizons. This distinction suggests that public market prices aggregate information about broad changes in expected portfolio values, discount rates, funding conditions, and profitability, but are less able to anticipate individual borrower events that are infrequent, lumpy, and affected by renegotiation and reporting decisions.

Finally, we show that the forward-looking nature of public prices does not render reported NAV uninformative. Using analyst forecasts from IBES, we construct the unexpected component of quarterly NAV announcements. Positive NAV surprises generate positive stock-price reactions over the announcement window, even after adjusting returns for market and factor movements. A NAV surprise equal to 1 percent of the pre-announcement stock price is associated with a 0.19-percentage-point higher five-day Fama-French adjusted return. Thus, quarterly NAV announcements contain incremental, value-relevant information that was not fully anticipated by investors.

Taken together, the evidence points to a two-way process of information production in private credit. Public equity prices respond quickly to changing credit conditions and contain information about subsequent NAV adjustments and accounting performance. At the same time, the BDC's internal valuation process—which draws on borrower monitoring, valuation models, third-party appraisals, and manager assessments—produces additional information when NAV is reported. Public prices and reported NAVs are therefore complementary rather than competing measures of private credit value. The BDC setting illustrates how continuously traded securities can provide timely signals about illiquid private assets while also showing why periodic accounting disclosures remain important to investors, lenders, and regulators.

2 Literature Review

This paper contributes to several strands of literature. It adds to the literature on valuation, market discipline, and price discovery in private credit. BDCs provide a useful setting for this question because they hold illiquid private loans, but their equity trades in public markets. Curtis and Raney (2021) show that fair values of illiquid assets can adjust with delay because of information frictions and reporting incentives. Jang and Kim (2025) show that private-credit managers commonly rely on third-party appraisals and rarely deviate from appraised values, pointing to valuation discipline. Their evidence also suggests, however, that appraisal quality depends on the information available to lenders and appraisers, especially in periods of uncertainty. Davydiuk et al. (2024b) study market discipline in direct lending and show that shocks to BDC valuations and institutional ownership affect BDC investment behavior and risk exposure. We add to this literature by examining whether public equity prices contain forward-looking information about private-credit risk before that information is fully reflected in reported NAVs, portfolio marks, and quarterly accounting outcomes. Specifically, we ask whether BDC stock prices predict future NAV changes, dividend cuts, profitability, PIK exposure, distressed loan shares, and non-accruals.

The paper also connects to the literature on closed-end fund discounts. BDCs, structured as closed-end funds, hold portfolios of assets for which reported net asset values can differ from the market value implied by the fund's publicly traded equity. Lee et al. (1991) argue that closed-end fund discounts partly reflect investor sentiment, while Pontiff (1995, 1996) shows that discounts are persistent and difficult to arbitrage away. Other explanations emphasize fund-level frictions and organizational features. Malkiel (1977) studies the role of taxes and unrealized capital gains, Berk and Stanton (2007) link discounts to managerial ability and compensation, and Cherkes et al. (2009) develop a liquidity-based theory in which closed-end funds provide investors with access to illiquid assets through a tradable vehicle[4]. Dimson and Minio-Paluello (2002) and Ross (2005) provide a broader survey of this literature. We build on this asset-pricing perspective in a private-credit setting. Unlike traditional closed-end funds that often hold traded securities, BDCs hold illiquid loans to private firms whose NAVs are reported quarterly and may adjust slowly. This setting allows us to ask whether the public equity discount to NAV reflects forward-looking information about private-credit values, rather than only sentiment, liquidity, fees, or other closed-end fund frictions.[5]

This paper also relates closely to the literature on BDCs and their role in private credit markets. BDCs are a useful setting because they finance relatively opaque middle-market firms while also providing detailed portfolio disclosures. Suhonen (2024) uses listed BDCs to study direct lending returns, factor exposures, and performance persistence. Robinson and Wallskog (2025) study the growth of private lending through BDCs and show that retail investors have become increasingly important owners of these vehicles and they pay higher fees than institutional investors. We use the same public-BDC setting but ask a different question: whether publicly traded BDC prices reveal information about future NAV changes and accounting outcomes. Davydiuk et al. (2024a) provide systematic evidence on BDC investment activity and show that BDC financing supports middle-market firm growth, including employment, patenting, and managerial assistance. Their analysis highlights the role of BDCs as important providers of capital to private firms. Davydiuk et al. (2025) further highlight the institutional distinctiveness of BDCs by showing that when BDCs hold both debt and equity claims in the same portfolio company, they charge higher loan spreads even after controlling for loan characteristics, firm credit quality, and lender funding conditions. Buchner et al. (2024) study the role of venture capital and private equity sponsors in private debt markets and find that unsponsored private debt earns a premium associated

[4]See also (Ross, 2002).

[5]See also Erel et al. (2024) for risk-adjusting returns to private debt funds using cash flows to investors rather than NAVs reported by the funds.

with higher risk. We contribute to this literature by focusing not on the real effects of BDC financing or the pricing of individual portfolio-company loans, but on the information embedded in publicly traded BDC equity prices. Recent work also studies fragility in private-credit vehicles. Fang et al. (2026) show that semi-liquid private credit funds offering NAV-based repurchases can experience run-like redemption pressure when they hold illiquid private loans. We study a complementary setting: publicly traded BDCs, where investors obtain liquidity through secondary-market prices rather than direct redemption at NAV.

A related line of work studies whether direct lenders resemble banks or arm's-length investors in terms of contracting, monitoring, and renegotiation practices. This literature is relevant for our setting because BDC portfolio values depend not only on reported accounting marks, but also on loan terms, lender information, and the renegotiation process. Chernenko et al. (2022) study cash-flow-based direct loans to middle-market firms and show that nonbank borrowers are typically riskier than bank borrowers, with many reporting negative EBITDA, and that their contracts often include features such as warrants that banks cannot use. Jang (2024) shows that financial covenants are common in direct lending, that covenant violations occur frequently, and that direct lenders actively intervene after violations. This evidence suggests that direct lenders operate more like relationship lenders than passive arm's-length investors. Block et al. (2024) similarly describe private debt as relationship-oriented, covenant-intensive lending funded by committed capital. Together, these papers suggest that direct lenders have both private information and contractual control rights that can shape how and when credit deterioration is recognized. We complement this work by asking whether public equity markets incorporate information about such deterioration before it is reflected in reported NAVs.

The paper also speaks to the broader literature on the growth of nonbanks in commercial lending and their interconnections with banks. Erel and Inozemtsev (2024) review the expanding role of nonbank financial institutions in loan and bond markets and discuss how their lending differs from bank lending, including implications for financial stability.

Fritsch et al. (2022) provide related evidence for European private debt funds. A central theme in this literature is that post-GFC bank regulation contributed to the migration of credit from banks to less-regulated lenders. Chen et al. (2017), Cortés et al. (2020), Chernenko et al. (2022), Davydiuk et al. (2024a), and Gopal and Schnabl (2022) show that tighter regulation, capital constraints, and supervisory pressure can reduce bank credit supply and shift lending activity toward nonbanks. However, Acharya et al. (2024) argue that bank and nonbank activities are better understood as interconnected rather than segmented, documenting substantial growth in bank exposures to nonbanks, including investment pools and funds. Chernenko et al. (2025) provide a regulatory-arbitrage explanation for these linkages, arguing that banks find it cheaper to lend to BDCs and private credit funds rather than directly to middle-market portfolio companies. Aramonte and Avalos (2025) similarly argue that the growth in private credit partly stems from declining funding costs and a resulting increase in leverage while Matvos et al. (2026) show that private debt funds pose limited systemic risk because they use relatively little leverage and maintain significantly larger equity buffers than banks. This literature is relevant for our setting because BDC valuations may reflect not only the credit quality of their portfolio companies, but also funding costs, leverage, liquidity risk, and broader stress in bank and nonbank credit markets.

3 Institutional Background on BDCs

BDCs are closed-end investment companies regulated under the Investment Company Act of 1940. They provide capital primarily to middle-market companies whose financing needs may not be readily met by traditional bank lending, broadly syndicated loan markets, or public bond markets. Congress established the BDC framework in 1980 through amendments to the 1940 Act, with the objective of expanding access to capital for smaller U.S. businesses while allowing public investors to participate in private-company finance. Many BDCs elect to be treated as regulated investment companies for federal income tax purposes. Subject to applicable requirements, this treatment generally allows them to avoid corporate-level federal income tax on income and gains distributed to stockholders. BDCs file Forms 10-Q, 10-K, and 8-K with the Securities and Exchange Commission. These publicly available filings provide information about their operations and financial condition, including detailed schedules of their investment portfolios.

BDCs generally must maintain at least 70 percent of their total assets in qualifying assets, principally securities issued by eligible portfolio companies, which are typically private or small public U.S. businesses. They are subject to governance, reporting, affiliated-transaction, and asset-coverage rules under the 1940 Act. The Small Business Credit Availability Act of 2018 permits BDCs, subject to specified approval and disclosure requirements, to reduce their minimum asset-coverage ratio from 200 percent to 150 percent. However, rating-agency considerations may lead BDCs to maintain asset coverage above the statutory minimum, as an investment-grade rating can reduce borrowing costs and broaden the set of institutional investors eligible to hold their securities.

A BDC is a financial intermediary that typically originates, holds, and manages portfolios of loans and other investments in private companies. BDCs typically invest in senior secured loans, unitranche loans, second-lien loans, subordinated debt, preferred equity, and common equity co-investments. Many BDC investments are floating-rate loans. BDCs finance these assets with a mixture of equity, unsecured notes, secured credit facilities, and other borrowings. As a result, their performance depends not only on credit risk in the underlying loan portfolio but also on the interaction between asset yields and funding costs.

4 Data Description and Summary Statistics

Our analysis utilizes detailed data on BDCs for the period 2012 to 2025. BDC-level financial and loan portfolio data are obtained from LSEG's BDC Collateral, which provides quarterly information for both private and public BDCs. The data are compiled from SEC filings and include net asset value, income statement information, balance sheet variables, and loan-level portfolio holdings. BDC-level accounting performance measures used in our empirical specifications are net income, net investment income, and net gains, where net gains are defined as the sum of realized and unrealized gains. Each of these variables is scaled by lagged total assets.

We construct several measures of portfolio quality and composition. These include the amended PIK share, defined as the share of portfolio exposure to loans that begin accruing payment-in-kind interest after origination; the non-accrual loan share, defined as the share of portfolio exposure classified as non-accrual by the BDC; and the share of loans marked below 80 percent of par value, which captures loans that have experienced substantial fair-value markdowns and therefore provides a broader valuation-based measure of credit deterioration.[6] We also measure borrower concentration using a borrower-level Herfindahl–Hirschman Index and borrower commonness using the portfolio-cost-weighted average of the logarithm of the number of BDCs holding each borrower. Higher borrower commonness indicates greater overlap with holdings by other BDCs and, consequently, greater availability of external valuation benchmarks. Together, these variables capture distinct dimensions of portfolio credit quality, downside risk, concentration, and valuation transparency. Our sample aligns with those used in related studies, including Chernenko et al. (2025), Davydiuk et al. (2024b), and Rintamäki and Steffen (2025).

We supplement the BDC accounting and portfolio data with public-market information from Compustat and CRSP. From Compustat, we obtain quarterly stock prices, which we use to construct BDC valuations relative to NAV and changes in stock prices. From CRSP, we obtain daily stock returns and use them to construct pre-announcement return measures, including buy-and-hold returns, market-adjusted cumulative abnormal returns, and Fama–French three-factor-adjusted cumulative abnormal returns.

[6] Appendix C provides additional descriptive evidence on the aggregate evolution and industry composition of adverse portfolio outcomes.

For the NAV-announcement analysis, we obtain analyst forecasts and reported actual values of BDC net asset value from IBES. We retain quarterly NAV forecasts and match publicly traded BDCs to IBES using the CRSP/IBES link file.

For benchmarking purposes, we construct an analogous valuation measure for non-BDC closed-end funds. Following Hwang and Kim (2017), we identify closed-end funds using CRSP share codes, exclude BDCs from the sample, and compute their market premium or discount using reported fund NAVs. This comparison allows us to assess whether the market–NAV wedge observed for BDCs differs from that of other publicly traded closed-end investment vehicles.

Finally, we augment the BDC-quarter panel with credit market and macroeconomic variables. Our primary measure of credit market conditions is the S&P UBS Leveraged Loan Index three-year discount margin. In robustness tests, we use alternative credit spread measures, including the high-yield option-adjusted spread, the Gilchrist–Zakrajšek spread, and the excess bond premium. We account for broader macroeconomic conditions using the VIX, inflation, unemployment, and GDP growth.[7]

Unless otherwise noted, continuous variables are winsorized at the 1st and 99th percentiles. Credit market and macroeconomic variables are not winsorized. Definitions and construction details for all variables are provided inAppendix A.

4.1 Sample and Summary Statistics

Our sample consists of 233 unique BDCs from 2012Q1 to 2025Q4. Of these, 69 are public BDCs and 188 are private BDCs. The public and private counts are not mutually exclusive: 24 BDCs are observed in both categories because they transition from private to public

[7]The Gilchrist–Zakrajšek (GZ) spread is a corporate bond credit spread constructed from security-level bond prices relative to duration-matched Treasury yields. The excess bond premium (EBP) is the component of the GZ spread not explained by expected default risk and is commonly interpreted as capturing variation in the pricing of credit risk. Both measures are obtained from Favara et al. (2016). The remaining credit market and macroeconomic variables are obtained from Bloomberg and FRED.

status during the sample period. As we present in Figure 1, the number of private BDCs has increased over time, eventually surpassing the number of public BDCs in the early 2020s.

Table 1 reports summary statistics for the main variables used in the analysis, separately for public and private BDCs. The average public BDC has $1.84 billion in total assets, while the median one has $0.74 billion, indicating substantial right skewness in the size distribution. Public BDCs are typically larger and more highly leveraged than private BDCs. The size distribution of private BDCs is also right-skewed. As of 2025Q4, the largest private BDC is Blackstone Private Credit Fund, with assets of $86 billion, and the largest public BDC is Ares Capital Corporation, with assets of $31 billion. Several large asset managers (e.g., Blackstone, BlackRock, Ares, and Blue Owl) operate both public and private BDCs.[8]

Table 1 also reports other balance-sheet, profitability, and portfolio-overlap measures. The average debt-to-assets ratio is 44 percent (37 percent) for public (private) BDCs, reflecting the importance of leverage in the BDC business model. Accounting performance is measured using net income (ROA), net investment income, realized gains, unrealized gains, and net gains, with each measure scaled by lagged assets. Net income (ROA) captures overall accounting profitability. Net investment income reflects investment income, primarily interest and fee income, net of operating and financing expenses, before realized and unrealized gains. Realized gains capture gains and losses recognized when investments are sold or otherwise exited, whereas unrealized gains capture changes in the reported fair values of investments that remain in the portfolio. Net gains equal the sum of realized and unrealized gains. Public BDCs have lower mean and median ROA and more negative realized and net gains as a share of lagged assets.

Turning to measures of portfolio quality, the share of loans with fair value below 80 percent of par has a mean and median of 4.1 percent and 2.3 percent, respectively, for public BDCs, compared with 3.1 percent and 1.0 percent for private BDCs. The non-accrual share

[8] For instance, Blue Owl and BlackRock sponsor five BDCs, Ares sponsors three, and Blackstone sponsors three, as of 2025Q4.

has a mean and median of 1.7 percent and 0.8 percent for public BDCs, compared with 1.1 percent and zero for private BDCs. Finally, the mean and median amended PIK shares are 7.6 percent and 6.4 percent, respectively, for public BDCs, compared with 5.2 percent and 2.6 percent for private BDCs. Amended PIK refers to PIK provisions introduced after loan origination, often in connection with a restructuring.

Portfolio concentration is measured using the borrower-level Herfindahl-Hirschman Index. Borrower commonness captures the extent to which a BDC holds borrowers that are also held by other BDCs. Specifically, it is constructed as a portfolio-cost-weighted average of the log number of BDC holders for each borrower in a given quarter; higher values indicate greater overlap with other BDC portfolios. On average, private BDCs have higher borrower concentration and commonness. These differences indicate that public and private BDCs differ along several dimensions, including size, leverage, profitability, and portfolio composition. However, the growth of private BDCs is relatively recent, with their numbers increasing substantially since the early 2020s.

We focus primarily on public BDCs to examine how their market prices move relative to reported NAVs. BDC valuation relative to NAV is measured as $100 \times (\text{Price} - \text{NAV})/\text{NAV}$, where negative values indicate discounts and positive values indicate premiums. Table 2 shows that BDCs trade at an average discount of 10.5 percent to reported NAV. The median discount is 11.3 percent, and the standard deviation is 23.7 percent.

Table 2 also summarizes public-market information variables for traded BDCs. We construct return measures over the 60-trading-day window ending one trading day before the quarterly earnings announcement date, identified using Compustat item `RDQ`. This timing is intended to capture information incorporated into stock prices before the next NAV and associated accounting information are released. The detailed construction of return measures is discussed in the Data Appendix. We report raw buy-and-hold returns, market-adjusted returns, and Fama–French three-factor-adjusted abnormal returns. The raw buy-and-hold return averages 1.1 percent, while both abnormal return measures are negative on average, indicating that BDCs underperform broad market and factor benchmarks during the pre-announcement window.

Panel B reports three measures of NAV surprise constructed from IBES analyst forecasts and reported actual NAV. The price-scaled and lagged-NAV-scaled surprises are centered near zero but exhibit substantial cross-sectional variation, with standard deviations of 6.7 and 4.9 percentage points, respectively. The unscaled NAV surprise averages $0.02 per share and has a median close to zero, indicating little average forecast error.

Panel C reports credit market and macroeconomic variables used in the analysis. Because these variables are measured at the quarterly level, the table reports 56 quarterly observations rather than BDC-quarter observations. Our main credit spread measure is the S&P UBS Leveraged Loan Index three-year discount margin, with higher values indicating tighter conditions in the leveraged-loan market. The macroeconomic controls capture changes in market volatility, inflation, unemployment, and GDP growth.

5 Empirical Analysis

5.1 Credit Market Distress and Performance

We use the three-year discount margin of the S&P UBS Leveraged Loan Index as our primary measure of credit market stress. The index tracks the market-value-weighted performance of broadly syndicated U.S. dollar-denominated leveraged loans, while its three-year discount margin measures the market-value-weighted average spread over the reference rate that equates constituent loan prices to assumed cash flows over a three-year horizon.

Figure 2 shows how this measure moves over time during the sample period and how it correlates with other common measures of high-yield credit spread measures (i.e, high-yield option-adjusted spreads, the Gilchrist–Zakrajšek , and the excess bond premium). The COVID-19 episode in 2020 provides a clear example of acute stress in private credit markets.

As the figure shows, all measures of distress move closely with each other.

We next examine whether this credit market distress measure correlates with BDC portfolio performance. We further test whether increases in credit market distress correlate with deteriorating fundamentals for BDC portfolios in our sample. This analysis includes both public and private BDCs. We use two measures of tail loan portfolio performance: the share of portfolio fair value with non-accruals and the share of loans with fair-value-to-par-value ratios below 80 percent.

Table 3 reports OLS regressions of cumulative changes in BDC portfolio-quality measures on changes in credit market distress over horizons of 1-4 quarters. Panel A reports results for the share of loans with fair-value-to-par-value ratios below 80 percent and Panel B reports results for the share of non-accrual loans. The estimated specification is

$$\Delta_q Y_{i,t} = \beta_q \Delta Spread_t + \gamma_q' X_{i,t-1} + \delta_q' Z_{t-1} + \alpha_i + \varepsilon_{i,t+q},$$

where $Y_{i,t}$ denotes the tail portfolio outcome reported in each panel and $\Delta_q Y_{i,t} = Y_{i,t+q} - Y_{i,t-1}$. $\Delta Spread_t$ is the quarterly change in the S&P UBS Leveraged Loan Index three-year discount margin. $X_{i,t-1}$ includes lagged BDC-level controls: $\ln(Assets)$, debt-to-assets, and ROA. Z_{t-1} includes lagged macroeconomic controls: changes in the VIX, CPI, and unemployment rate, as well as GDP growth. All specifications include BDC fixed effects, and standard errors are two-way clustered by BDC and quarter.

The results show that increases in credit market distress are associated with current and subsequent deterioration in BDC loan portfolios. The relation is particularly strong for deeply marked and non-accrual loans. A one-percentage-point increase in the leveraged-loan discount margin is associated with a 0.56 percentage-point increase in the share of loans with fair-value-to-par-value ratios below 80 percent in the current quarter. The estimated effect remains positive over subsequent quarters and reaches 0.67 percentage points through the two-quarter horizon. Similarly, a one-percentage-point increase in the spread is associated with a 0.13 percentage-point increase in the non-accrual loan share in the current quarter and a 0.20 percentage-point cumulative increase through the two-quarter horizon. The estimated relation remains positive at longer horizons, indicating that the deterioration in reported portfolio quality persists for several quarters. Taken together, the results indicate that aggregate credit market stress is followed by economically meaningful and persistent increases in reported private-credit portfolio distress, particularly through severe fair-value markdowns and non-accrual classifications.

Figure 3 provides visual evidence on how various BDC performance measures move with our credit spread measure – the S&P UBS Leveraged Loan Index 3-year discount margin– over time. Panel A plots average return on assets, defined as net income divided by lagged assets and expressed as a percentage. The strong negative correlation between this net-income ratio and credit spread is clearly visible. Panel B plots the other portfolio performance measures analyzed in Table 3 including the share of loans with fair-value-to-par-value ratios below 80 percent and the share of non-accrual loans. Both move closely with the credit spread measure, as expected.

5.2 Credit Market Distress and BDC Valuations

We now turn to our main question of how BDC valuations vary with credit market stress. Figure 4 plots BDC valuation relative to NAV, measured as 100 $\times$ (Price - NAV)/NAV, such that negative values indicate discounts and positive values indicate premiums. Panel A shows the equal-weighted and value-weighted quarterly averages. Average valuation relative to NAV is -10.1 percent for the equal-weighted series and -7.2 percent for the value-weighted series, corresponding to average discounts of 10.1 percent and 7.2 percent, respectively.[9] The measure is negative in most quarters, indicating that BDC stocks generally trade below NAV. Discounts widen sharply during periods of credit market stress, particularly during the

[9]These values differ slightly from the pooled BDC-quarter averages reported in Table 2, because the analysis in the figure first aggregates discounts at the quarter level.

COVID-19 pandemic in 2020. This pattern is consistent with the idea that public market prices react more quickly than reported NAVs. Reported NAVs are updated quarterly and are based on fair-value estimates of illiquid portfolio assets. Public stock prices, by contrast, update continuously and may therefore incorporate changes in credit conditions, liquidity, investor sentiment, and expectations about future portfolio performance before those changes are fully reflected in reported NAVs. Panel B plots average BDC valuation relative to NAV together with credit market distress. BDC valuation relative to NAV tends to decline—and discounts therefore widen—when credit spreads increase.

Panel C compares market valuation relative to NAV for BDCs and non-BDC closed-end funds. Closed-end funds provide a natural comparison because they are publicly traded investment vehicles whose market prices may deviate from reported NAV. BDCs trade at substantially larger discounts to NAV than non-BDC closed-end funds, indicating that the market–NAV wedge is especially pronounced in the BDC setting.[10]

In Table 4, we formally examine this relation by regressing changes in BDC valuation relative to NAV on changes in the credit spread. The estimated specification is

$$\Delta Discount_{i,t} = \beta \Delta Spread_t + \gamma' X_{i,t-1} + \delta' Z_{t-1} + \alpha_i + \varepsilon_{i,t},$$

where $Discount_{i,t}$ is the BDC's stock price relative to net asset value, calculated as $100 \times (Price - NAV)/NAV$, and $\Delta Discount_{i,t} = Discount_{i,t} - Discount_{i,t-1}$. Negative values indicate discounts and positive values indicate premiums; consequently, a negative change represents a widening discount. $\Delta Spread_t$ denotes the quarterly change in the S&P UBS Leveraged Loan Index 3-year discount margin. $X_{i,t-1}$ includes lagged BDC-level controls: $\ln(Assets)$, debt-to-assets, and ROA. Z_{t-1} includes lagged macroeconomic controls: changes

[10] Figure D.1 provides additional evidence on cross-sectional variation in BDC valuations relative to NAV. Larger, more profitable, and more actively traded BDCs tend to have higher valuations relative to NAV, as do BDCs with greater borrower commonness and higher leverage. In contrast, borrower concentration, non-accrual exposure, and the share of loans with fair-value-to-par-value ratios below 80 percent are associated with lower valuations relative to NAV. Amended PIK exposure is not significantly associated with valuations.

in the VIX, CPI, and unemployment rate, and growth in GDP. All specifications include BDC fixed effects, and standard errors are two-way clustered by BDC and quarter.

The estimates show a strong negative association between increases in credit market distress and changes in BDC valuation relative to NAV, implying wider discounts. In the current-quarter specification, a one-percentage-point increase in the leveraged-loan discount margin is associated with an approximately 5.9-percentage-point widening of the BDC valuation discount. The association remains negative and statistically significant over the next three quarters, with absolute coefficients ranging from 4.6 to 6.4. At the four-quarter horizon, the coefficient remains negative but is no longer statistically significant. Overall, the results suggest that BDC market valuations are highly sensitive to aggregate credit market conditions for several quarters.[11]

To understand whether discount widening reflects changes in market prices or reported NAVs, Figure 5 separately estimates the response of stock prices and NAV to credit market distress. Both stock prices and reported NAVs decline in response to credit spread increases, but stock prices respond more strongly. A one-percentage-point increase in the leveraged-loan discount margin is associated with stock-price declines of approximately 8 to 11 percent from the current quarter through three quarters ahead. The estimated price response remains negative at the four-quarter horizon but is no longer statistically significant. NAV per share declines by approximately 2 to 3 percent from the current quarter through four quarters ahead. These patterns suggest that BDC discounts widen during credit market stress because market prices fall more sharply than reported NAVs. At the same time, the significant decline in NAV per share indicates that credit market stress is also reflected in reported fair values. The difference in magnitudes is consistent with public equity prices responding more sharply to deteriorating credit conditions, while reported NAVs exhibit smaller changes.

[11] In Figure D.2, we also show that the results are qualitatively similar when we use alternative measures of credit market stress, including the high-yield option-adjusted spread, the Gilchrist–Zakrajšek spread, and the excess bond premium.

5.3 Current Discounts and Future NAV Markdowns

The previous results show that BDC discounts widen during credit market stress. We next examine whether market discounts contain forward-looking information about future NAV changes and portfolio deterioration. This question is closely related to Begenau et al. (2026), who emphasize that market and book values can diverge when accounting values adjust slowly in the traditional banking industry. The BDC setting provides a natural environment to study a similar issue: reported NAVs are updated quarterly and are based on fair-value estimates of illiquid private credit assets, while public stock prices update continuously. If public equity prices incorporate information about portfolio deterioration before it is fully reflected in reported NAVs, then BDCs trading at larger discounts to NAV should be more likely to experience subsequent NAV markdowns.

Similar to Begenau et al. (2026), we now use the gap between market prices and accounting values to test whether market valuations are associated with subsequent accounting adjustments. Specifically, we measure this gap using the log market-to-NAV ratio, $\ln(P/NAV)$, where NAV per share is the relevant accounting value. Lower values of P/NAV indicate that the BDC trades at a larger discount to reported NAV. Thus, we estimate the following specification:

$$Y_{i,t+q} = \beta_q \ln(P/NAV)_{i,t} + \gamma_q' X_{i,t-1} + \alpha_i + \lambda_t + \varepsilon_{i,t+q},$$

where $Y_{i,t+q}$ denotes the outcome measured q quarters ahead. All regressions include lagged BDC-level controls, BDC fixed effects, and quarter fixed effects, with standard errors clustered by BDC and quarter.

We first use future NAV markdown indicators as the outcome. Table 5 reports the results. The coefficient on the log market price-to-NAV ratio is negative across all horizons, indicating that BDCs trading at larger discounts are more likely to experience subsequent NAV markdowns; equivalently, BDCs trading at larger premiums are less likely to experience subsequent markdowns. The estimate is statistically significant at the one- and three-quarter horizons and marginally significant at the four-quarter horizon. The magnitudes are economically meaningful: a 10 percent lower price-to-NAV ratio is associated with an approximately 0.6- to 1.9-percentage-point higher probability of a future NAV markdown, depending on the horizon. These results suggest that market discounts contain information about future NAV deterioration. The evidence is consistent with the interpretation that public equity markets partially anticipate future NAV markdowns before they are fully reflected in reported BDC NAVs.

We next examine whether the information reflected in market discounts extends beyond subsequent NAV markdowns to future accounting performance. If discounts reflect anticipated deterioration in the underlying portfolio, BDCs trading at lower market-to-NAV ratios should also experience weaker future profitability. We therefore estimate the same specification using future net income, net investment income, and net gains as outcomes.

Panel A of Figure 6 reports the coefficient estimates for income variables. The coefficients on the log market-to-NAV ratio are generally positive, indicating that BDCs trading at higher price-to-NAV ratios subsequently have stronger accounting performance. The relation is strongest for net income: the coefficient is positive and statistically significant across all four horizons. The estimates imply that a 10 percent lower price-to-NAV ratio is associated with approximately 0.12 to 0.19 percentage points lower future net income, depending on the horizon.[12]

The coefficient on the log market-to-NAV ratio is statistically significant for net investment income over the first two quarters and marginally significant for net gains over the first three quarters. The separate realized- and unrealized-gain components are less stable, consistent with the lumpy timing of gain recognition and fair-value adjustments. Overall, these results show that the market-to-NAV wedge contains information not only about future NAV markdowns, but also about subsequent BDC accounting performance. This evidence

[12] At the one-quarter horizon, the estimated effect represents approximately 30 percent of the sample mean ROA.

reinforces the interpretation that market discounts reflect forward-looking information about underlying portfolio performance that is only gradually incorporated into reported accounting values.

We next ask whether market discounts are associated with subsequent changes in portfolio-level distress measures, focusing on tail outcomes: the share of loans whose fair value is less than 80 percent of par, non-accrual exposure, as well as the share of amended PIK. These measures capture more discrete forms of credit deterioration compared to the profitability and gain measures above, and their recognition may take time and depend on renegotiation, borrower-level events, and reporting conventions.

Figure 7 reports the coefficient estimates. The evidence is weaker and less consistent than for NAV markdowns and profitability. The coefficients for the share of loans with fair-value-to-par-value ratios below 80 percent are negative, which is consistent with larger discounts explaining future increases in deeply marked loans, but the estimates are not statistically significant. The coefficients for changes in non-accrual exposure are generally positive, with only the two-quarter horizon marginally significant. We do not see any significant results for the share of amended PIK. As shown in Figure C.2, technology and healthcare industries represent nearly half of amended PIK exposure at the end of 2025.

Overall, the market-to-NAV wedge is associated with subsequent NAV markdowns and accounting performance more consistently than with discrete portfolio-distress classifications. This pattern is consistent with market prices aggregating information about expected portfolio deterioration before it is fully reflected in reported NAVs, while individual distress measures are lumpy, infrequent, and affected by borrower-level reporting and restructuring decisions.

5.3.1 BDC Characteristics and NAV Markdowns

Our results so far show that BDCs trading at lower market-to-NAV ratios are more likely to experience subsequent NAV markdowns. We next examine whether this relation varies across BDCs. We begin with BDC size and then investigate portfolio characteristics that more directly capture the external verifiability of the underlying investments.

BDC size provides a broad measure of differences in firms' information environment. Larger BDCs are likely to receive greater attention from analysts and investors, making their reported NAVs easier for outside investors to assess. We therefore examine whether the relation between the market-to-NAV ratio and future NAV markdowns is attenuated among larger BDCs.

We then examine two portfolio characteristics that capture distinct attributes of loan portfolios: borrower commonness and borrower concentration. If the market-to-NAV wedge partly reflects information about portfolio deterioration that has not yet been incorporated into reported NAV, its relation with future NAV markdowns should be stronger when the underlying investments are more difficult for outside investors to value. Borrower commonness measures the extent to which a BDC's borrowers are also held by other BDCs. When a borrower appears in multiple BDC portfolios, outside investors can compare reported valuations across lenders, making the investment easier to benchmark. We therefore expect the market-to-NAV ratio to be less informative about future NAV markdowns when borrower commonness is high. Borrower concentration is measured using the borrower-level Herfindahl–Hirschman Index. More concentrated portfolios are more exposed to idiosyncratic borrower risk and contain fewer positions over which valuation errors can be diversified. We therefore expect the market-to-NAV ratio to be more informative about future NAV markdowns when borrower concentration is high.

Table 6 first examines whether the relation between the market-to-NAV ratio and future NAV markdowns varies with BDC size. The interaction between the log market-to-NAV ratio and the log of total assets is positive across all four time horizons and is statistically significant at the three- and four-quarter horizons. Because the relation between the market-to-NAV ratio and future markdowns is negative, the positive interaction implies that this relation is attenuated for larger BDCs. Equivalently, a low market-to-NAV ratio is more informative about subsequent NAV markdowns for smaller BDCs.

Table 7 reports the results for borrower commonness. The interaction between the log market-to-NAV ratio and borrower commonness is positive across all four horizons. The estimate is significant at the one-quarter horizon and becomes larger and more statistically significant at longer horizons, with significance increasing from the 10 percent level to the 5 percent and 1 percent levels. Because the relation between the market-to-NAV ratio and future markdowns is negative, the positive interaction implies that market discounts are less informative about future NAV markdowns when the underlying borrowers are held by a larger number of BDCs and their valuations are therefore easier to benchmark.

Table 8 presents complementary evidence using borrower concentration. The interaction between the log market-to-NAV ratio and borrower HHI is negative and statistically significant across all four horizons. This implies that the negative relation between the market-to-NAV ratio and future NAV markdowns is stronger for BDCs with more concentrated portfolios. Thus, a low market-to-NAV ratio is particularly informative about subsequent NAV markdowns when portfolios are concentrated and therefore values depend more heavily on a relatively small number of borrowers.

Overall, these results show that the informativeness of the market-to-NAV wedge varies systematically with both the BDC's broader information environment and the external verifiability of its portfolio.[13] Discounts are more informative among smaller BDCs, less informative when portfolio valuations can be benchmarked across multiple BDCs, and more informative when portfolios are concentrated. These findings are consistent with delayed recognition in reported NAV: public equity prices appear to incorporate information about portfolio deterioration earlier when the underlying assets are more difficult for outside investors to value.

[13] Moving from the 25th to the 75th percentile of BDC size weakens the association between a 10 percent lower market-to-NAV ratio and the probability of a future NAV markdown by approximately 0.6 to 2.1 percentage points across horizons. The corresponding attenuation is approximately 1.7 to 4.2 percentage points for borrower commonness. In contrast, moving from the 25th to the 75th percentile of borrower concentration strengthens the association by approximately 0.2 to 0.6 percentage points.

6 Do Stock Returns Explain Future NAV Markdowns?

We next examine whether stock returns contain information about future NAV changes. The previous tests use the level of the price-to-NAV ratio to ask whether market discounts are associated with subsequent NAV markdowns. We now use short-window stock returns before earnings announcements as another measure of whether market prices reflect timely information. If public equity markets incorporate information about private credit values before reported NAVs fully adjust, then negative stock returns before an earnings announcement should be correlated with subsequent declines in NAV per share.

Specifically, for each BDC-quarter t, we measure stock returns over the 60 trading days ending one trading day before the earnings announcement for quarter $t+1$. This window captures information incorporated into stock prices before the next reported NAV becomes public. The detailed construction of the return measures is provided in the Data Appendix. We estimate regressions of future NAV growth on pre-announcement stock returns:

$$\Delta_q \ln(NAV)_{i,t} = \beta_q Return^{pre}_{i,t+1} + \gamma_q' X_{i,t} + \alpha_i + \lambda_t + \varepsilon_{i,t+q},$$

where $q = 1, 2, 3, 4$. The return variable is measured over the 60 trading days ending one trading day before the earnings announcement corresponding to quarter $t+1$. This window captures information incorporated into stock prices before the NAV for quarter $t+1$ becomes public. We consider raw buy-and-hold returns, market-adjusted cumulative abnormal returns, and Fama–French three-factor-adjusted cumulative abnormal returns.

Table 9 reports the return results. Pre-announcement stock returns are positively correlated with future NAV growth across horizons. In Panel A, a 10-percentage-point higher dividend-inclusive buy-and-hold return is associated with approximately 0.8 percentage points higher NAV growth over the next quarter and approximately 1.4 percentage points higher NAV growth over four quarters. The estimates are similar when returns are adjusted for broad market movements. The FF3-adjusted return estimates are smaller, but remain positive and statistically significant through the first three horizons.

The magnitudes are economically meaningful given the smoothness of reported NAVs. A one-standard-deviation change in pre-announcement returns is roughly 10 percentage points. Thus, the estimates imply that a one-standard-deviation increase in pre-announcement returns is associated with roughly 0.6 to 1.5 percentage points higher future NAV growth, depending on the return measure and horizon. These effects are not one-for-one, which is expected because stock prices are more volatile than reported NAVs, but they are large enough to indicate that market prices contain information about subsequent NAV adjustments.

The results are similar when returns exclude dividends, as shown in Panel B. The coefficients are slightly larger for dividend-exclusive returns, but the overall pattern is unchanged. The persistence of the estimates through multiple quarters suggests that the information reflected in stock prices is not fully incorporated into reported NAV immediately. Instead, NAVs appear to adjust gradually over subsequent quarters, consistent with delayed recognition of changes in private credit valuations.

Turning to dividend policy, Figure 9 shows that higher FF3-adjusted pre-announcement returns are associated with a lower probability of a subsequent dividend cut. The relation is not statistically significant at the one-quarter horizon but is significant from two through four quarters, with the largest estimate at the three-quarter horizon. A 10-percentage-point higher pre-announcement return is associated with an approximately 1.4- to 2.8-percentage-point lower probability of a dividend cut across the statistically significant horizons.[14]

We also find that pre-announcement returns are associated with subsequent accounting performance. Figure 10 shows that higher FF3-adjusted returns are associated with higher net income over the following two quarters, but not with net investment income. The magnitudes are economically meaningful: a one-standard-deviation increase in FF3-adjusted returns is associated with approximately 0.30 percentage points higher net income one quar-

[14] Figure D.4 reports broadly similar results using buy-and-hold returns.

ter ahead and 0.11 percentage points higher net income two quarters ahead. These estimates correspond to approximately 42 percent and 15 percent, respectively, of the mean ROA at the corresponding horizons. Panel B further shows that higher pre-announcement returns are associated with higher net gains over the following quarter, with the relation driven primarily by unrealized rather than realized gains.[15]

Figure 11 examines whether pre-announcement stock returns are associated with subsequent changes in adverse tail portfolio outcomes. The estimates are not consistently significant across outcomes or horizons. We find no significant association between FF3-adjusted returns and subsequent changes in either the non-accrual share or the amended PIK share. However, at the two-quarter horizon, higher FF3-adjusted returns are associated with less subsequent deterioration in portfolio valuations. Specifically, a 10-percentage-point higher return is associated with a 0.16-percentage-point smaller increase in the share of loans with fair-value-to-par-value ratios below 80 percent.[16] Taken together, the results provide suggestive evidence that stock prices contain information about subsequent severe fair-value markdowns, but they do not indicate a similarly robust relation for non-accruals or amended PIK exposure.

The event-time plot in Figure 8 provides additional descriptive evidence on the timing of market-price adjustments. We sort BDC-quarter observations into three groups based on the subsequent one-quarter change in NAV per share: large negative, near zero, and large positive. The average cumulative buy-and-hold return paths begin to separate before the earnings announcement, with the clearest separation occurring for BDCs that subsequently report large negative NAV changes. These BDCs exhibit lower average cumulative buy-and-hold returns during the 60 trading days before the announcement, suggesting that public equity prices begin to incorporate negative information before the NAV update is formally reported. The return paths also adjust around the announcement itself, consistent with

[15] Figure D.5 reports similar results using buy-and-hold returns.
[16] Figure D.6 reports broadly similar results using buy-and-hold returns.

investors responding to additional information released at the announcement, including the reported NAV update.[17]

7 Information Content of BDC NAV Announcements

The preceding analysis shows that public equity prices incorporate information about future BDC performance before that information is fully reflected in reported NAVs. This does not imply, however, that quarterly NAV announcements by BDCs are entirely anticipated or uninformative. Reported NAVs should contain information obtained through borrower monitoring, valuation models, third-party appraisals, and manager assessments that is not fully available to public-market investors before the announcement.

NAV occupies a particularly important role in the BDC setting. BDCs hold portfolios consisting largely of privately negotiated and infrequently traded investments, yet publicly traded BDCs report NAV per share as part of their quarterly financial disclosures. Although traditional closed-end funds also disclose NAV, the BDC setting is distinctive because reported NAV aggregates fair-value estimates of private-credit positions for which continuously observed market prices are generally unavailable, while the BDC's own equity trades continuously in public markets. A quarterly NAV announcement therefore reveals the fund's updated assessment of the value of an otherwise difficult to observe private credit portfolio.

This setting creates a two-way information environment. Public equity prices may anticipate subsequent changes in reported NAV, as shown in the preceding analysis, but the BDC's valuation process may also produce incremental information that has not yet been incorporated into its stock price. We therefore examine whether the unexpected component of reported NAV, measured relative to analysts' pre-announcement forecasts, is associated with stock-price reactions around the NAV announcement.

[17] Figure D.3 reports analogous plots using average market-adjusted and Fama–French three-factor-adjusted cumulative abnormal returns. The pre-announcement separation is strongest for BDCs that subsequently report large negative NAV changes.

7.1 NAV Surprises and Announcement Returns

We measure unexpected NAV news using analyst forecasts from the IBES Detail History adjusted file. For each BDC i and fiscal quarter q, we retain each analyst's most recent quarterly NAV forecast issued before the IBES actual announcement date and define the consensus forecast as the median across analysts. Because IBES reports both forecasts and actual values in terms of total NAV rather than NAV per share, we convert the forecast error to a per-share measure using CRSP shares outstanding measured three trading days before the announcement.

Let $NAV_{i,q}^{Actual}$ denote reported NAV and $NAV_{i,q}^{Forecast}$ the median analyst forecast. Because IBES reports total NAV, we first convert the forecast error to a per-share measure:

$$NAV\ Surprise_{i,q} = \frac{NAV_{i,q}^{Actual} - NAV_{i,q}^{Forecast}}{S_{i,\tau_{i,q}-3}}.$$

Our main measure scales this surprise by the stock price measured three trading days before the announcement:

$$Price\text{-}scaled\ NAV\ Surprise_{i,q} = \frac{NAV\ Surprise_{i,q}}{P_{i,\tau_{i,q}-3}}.$$

This measure expresses unexpected NAV news relative to the BDC's pre-announcement market value of equity. We also report the unscaled NAV surprise and a version scaled by lagged reported NAV per share.

The stock price response is measured over the five-trading-day window $[-2, +2]$ around the IBES actual announcement date. We examine raw buy-and-hold returns, market-adjusted cumulative abnormal returns, and Fama–French three-factor-adjusted cumulative abnormal returns.[18]

[18] For the factor-adjusted measure, factor loadings are estimated using information available before the event and frozen at event day -3.

We estimate the following announcement-return specification:

$$CAR_{i,q}^{[-2,+2]} = \beta\, Surprise_{i,q} + \gamma' X_{i,q-1} + \alpha_i + \lambda_\tau + \varepsilon_{i,q},$$

where $CAR_{i,q}^{[-2,+2]}$ denotes the return measure around the NAV announcement, $X_{i,q-1}$ contains lagged BDC characteristics, α_i denotes BDC fixed effects, and λ_τ denotes announcement-calendar-quarter fixed effects. Standard errors are clustered by BDC and announcement calendar quarter. The detailed construction of the NAV surprise measures and announcement returns is provided in the Data Appendix.

7.2 Stock-Price Responses to NAV Surprises

Table 10 examines whether unexpected NAV news is associated with stock-price reactions around BDC NAV announcements. Across all specifications, NAV surprises are positively and significantly related to announcement-window returns. This result is robust across the three return measures: raw buy-and-hold returns, market-adjusted cumulative abnormal returns, and Fama–French three-factor-adjusted cumulative abnormal returns. The findings therefore indicate that equity investors respond to the component of reported NAV that was not anticipated by analysts.

Panel A reports the main specification, in which NAV per share surprise is scaled by the pre-announcement stock price. The coefficient on the price-scaled NAV surprise is 0.192 in the FF3-adjusted CAR specification and is statistically significant at the 1 percent level. The estimate implies that an NAV surprise equal to 1 percent of the pre-announcement stock price is associated with a 0.192 percentage-point higher FF3-adjusted announcement return. Equivalently, the coefficient implies an approximately 19.2 percent pass-through from unexpected NAV-per-share news to announcement-window returns.

The magnitude is economically meaningful. The standard deviation of the price-scaled NAV surprise is approximately 6.7 percentage points. A one-standard-deviation increase in the NAV surprise is therefore associated with an increase in the FF3-adjusted CAR of approximately $0.192 \times 6.7 = 1.3$ percentage points. Relative to the standard deviation of FF3-adjusted announcement returns, approximately 4.75 percentage points, this effect represents about one-quarter of a standard deviation.

Panels B and C show that the result is robust to alternative constructions of the NAV surprise. In Panel B, the surprise is scaled by lagged reported NAV per share. The coefficient in the FF3-adjusted CAR specification implies that an NAV surprise equal to 1 percent of lagged NAV per share is associated with a 0.281 percentage-point higher announcement return. Panel C uses the unscaled dollar-per-share NAV surprise. The estimated coefficient indicates that a one-dollar positive NAV-per-share surprise is associated with a 1.66 percentage-point higher FF3-adjusted announcement return.

Overall, the results show that BDC NAV announcements contain value-relevant information for public equity investors. Positive NAV surprises are associated with positive announcement-window returns even after controlling for lagged BDC characteristics, BDC fixed effects, and announcement-calendar-quarter fixed effects. At the same time, the estimated response is substantially below one-for-one. This muted response is consistent with several non-mutually exclusive interpretations. Public equity prices may anticipate part of the information ultimately reflected in reported NAV, reported fair-value marks may contain measurement error or remain stale, and investors may place less than full weight on current NAV news when assessing the BDC's future cash flows and profitability.

8 Conclusion

This paper studies price discovery and information production in private credit by focusing on publicly traded BDCs. At the intersection of public equity markets and illiquid private debt portfolios, BDCs offer a rare opportunity to investigate how private credit assets perform across macro-credit cycles. We show that aggregate credit market stress significantly widens the discount between BDC stock prices and their reported net asset values. This widening is driven predominantly by market equity prices falling more sharply than reported NAVs, which adjust only gradually over subsequent quarters.

We further show that public equity prices contain value-relevant information about subsequent BDC performance. Lower market-to-NAV ratios are associated with future NAV markdowns and weaker profitability, while lower pre-announcement stock returns are associated with lower subsequent NAV growth, a higher probability of dividend cuts, and weaker profitability, with some relations extending as far as four quarters. However, we find little consistent evidence that either measure is associated with subsequent changes in non-accrual or amended PIK exposure. The association between lower market-to-NAV ratios and future NAV markdowns is stronger for smaller BDCs, BDCs with more concentrated portfolios, and BDCs whose borrowers are held by fewer other BDCs and are therefore harder to benchmark externally.

Finally, quarterly NAV disclosures remain informative despite evidence of stock-price anticipation. Positive NAV surprises are associated with positive announcement-window returns, indicating that quarterly NAV disclosures contain incremental, value-relevant information. Overall, our findings indicate that public equity prices provide forward-looking signals about private credit valuations, while quarterly fair-value disclosures contribute additional information. This complementarity offers valuable insights for investors, lenders, and financial regulators monitoring risks in the expanding private-credit sector. Our findings are particularly relevant to the recent policy debate over expanding retail-investor access to private markets.[19]

[19] For example, see Balloch et al. (2025) and Pegoraro et al. (2025).

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Figure 1: Number of BDCs

This figure plots the number of public and private BDCs from 2012Q1–2025Q4. The BDC universe is constructed from LSEG BDC Collateral. A BDC is classified as public in a given quarter if it can be matched to CRSP/Compustat Merged database and has publicly traded equity information available; otherwise, it is classified as private.

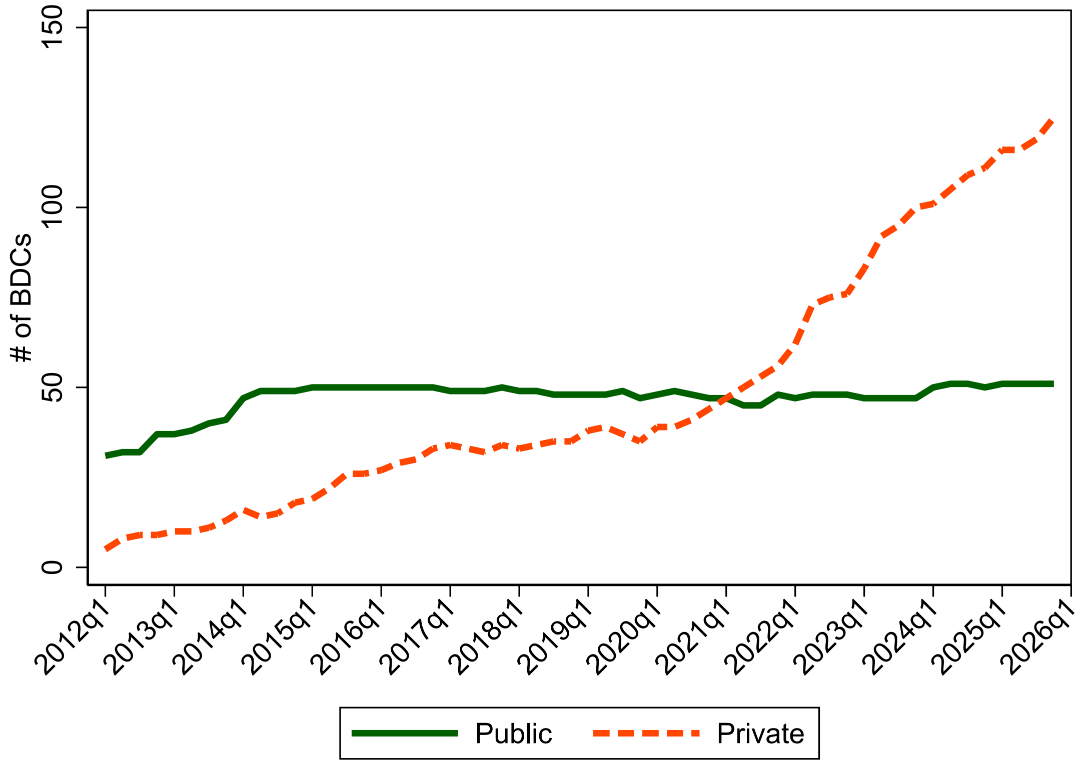


Figure 2: Credit Spreads Over Time

This figure plots standardized measures of quarterly credit market conditions over time. The series include the S&P UBS Leveraged Loan Index 3-year discount margin (LL Index), high-yield option-adjusted spreads (HY OAS), the Gilchrist–Zakrajšek spread (GZ Spread), and the excess bond premium (EBP).

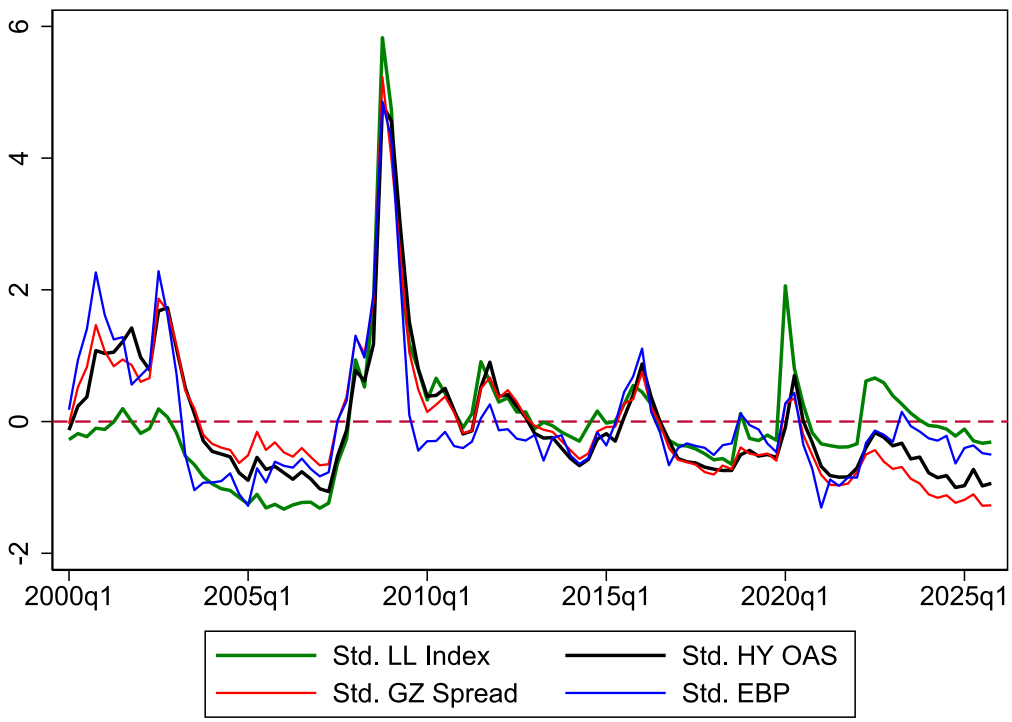
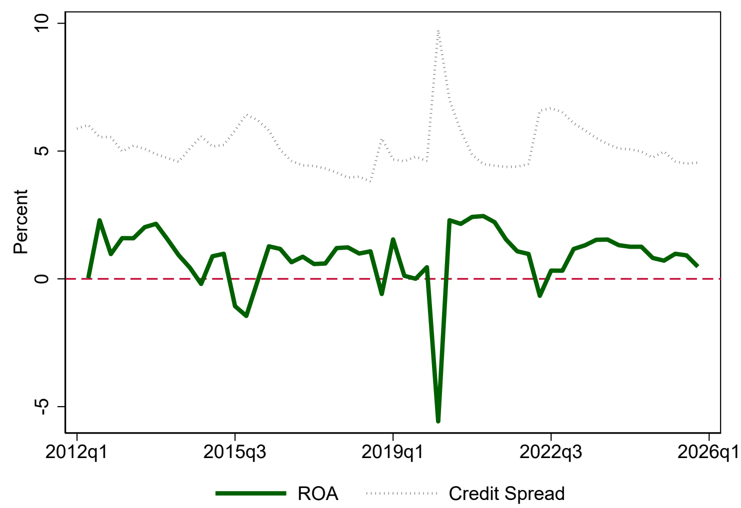
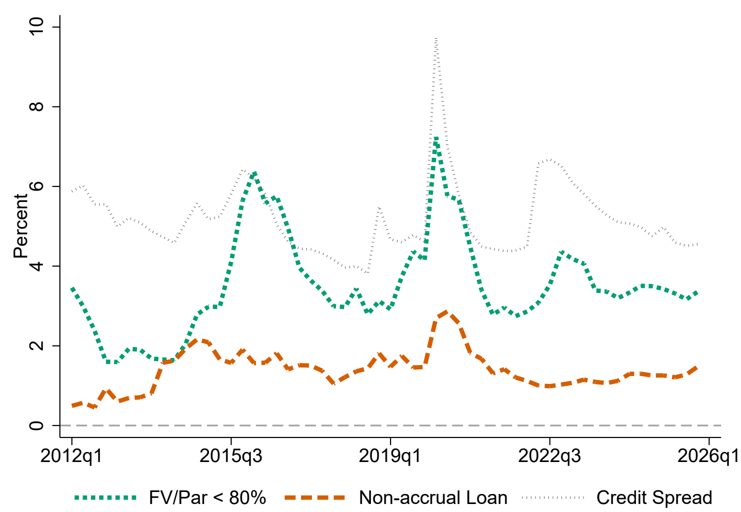


Figure 3: Distress and Performance Measures

This figure plots average BDC performance measures over time. The sample period is 2012Q1–2025Q4. Panel A plots average return on assets, defined as net income divided by lagged assets and multiplied by 100. Panel B plots the share of loans with fair-value-to-par-value ratios below 80 percent and the share of non-accrual loans. In both panels, "Credit Spread" denotes the S&P UBS Leveraged Loan Index 3-year discount margin. All three measures are expressed as percentages.



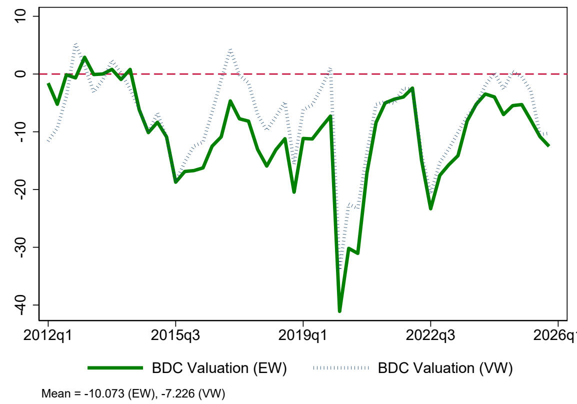
(a) ROA



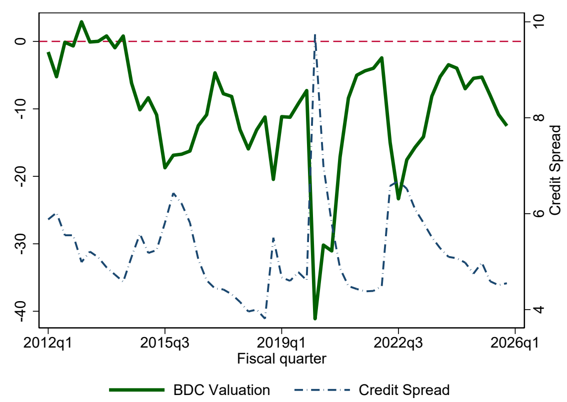
(b) Tail Portfolio Outcomes

Figure 4: BDC Valuation Relative to NAV Over Time

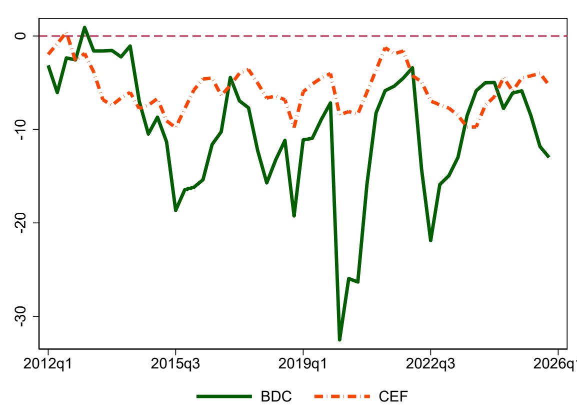
This figure plots the BDC valuation relative to NAV over time. The sample period is 2012Q1–2025Q4. BDC valuation relative to NAV is measured as $100 \times (\text{Price} - \text{NAV})/\text{NAV}$, such that negative values indicate discounts and positive values indicate premiums. Panel A plots the equal-weighted and value-weighted average discount across BDCs. Panel B plots the average equal-weighted BDC discount and the S&P UBS Leveraged Loan Index 3-year discount margin over time. Panel C plots the equal-weighted average discount for BDC and non-BDC closed-end funds (CEF). Discount is winsorized at the 1st and 99th percentiles.



(a) Valuation Relative to NAV



(b) Valuation and Credit Spread



(c) Comparison with CEF

Figure 5: Valuation Decomposition and Credit Distress

This figure plots coefficient estimates from OLS regressions of cumulative changes in BDC stock prices and NAV per share on changes in credit market distress variables over horizons $q = 0, 1, 2, 3, 4$. The sample period is 2012Q1–2025Q4. The estimated specification is

$$\Delta_q \ln(Y)_{i,t} = \beta_q \Delta Distress_t + \gamma_q' X_{i,t-1} + \delta_q' Z_{t-1} + \alpha_i + \varepsilon_{i,t+q},$$

where Y is either stock price or NAV per share, and $\Delta_q \ln(Y)_{i,t} = \ln(Y_{i,t+q}) - \ln(Y_{i,t-1})$, multiplied by 100. $\Delta Distress_t$ is the quarterly change in the S&P UBS Leveraged Loan Index 3-year discount margin. Lagged BDC-level controls include $ln(Assets)$, debt-to-assets, and ROA. Macroeconomic controls include changes in the VIX, CPI, and unemployment rate, and growth in GDP. All specifications include BDC fixed effects. Standard errors are two-way clustered by BDC and quarter. All variables except the credit spreads and macroeconomic controls are winsorized at the 1st and 99th percentiles.

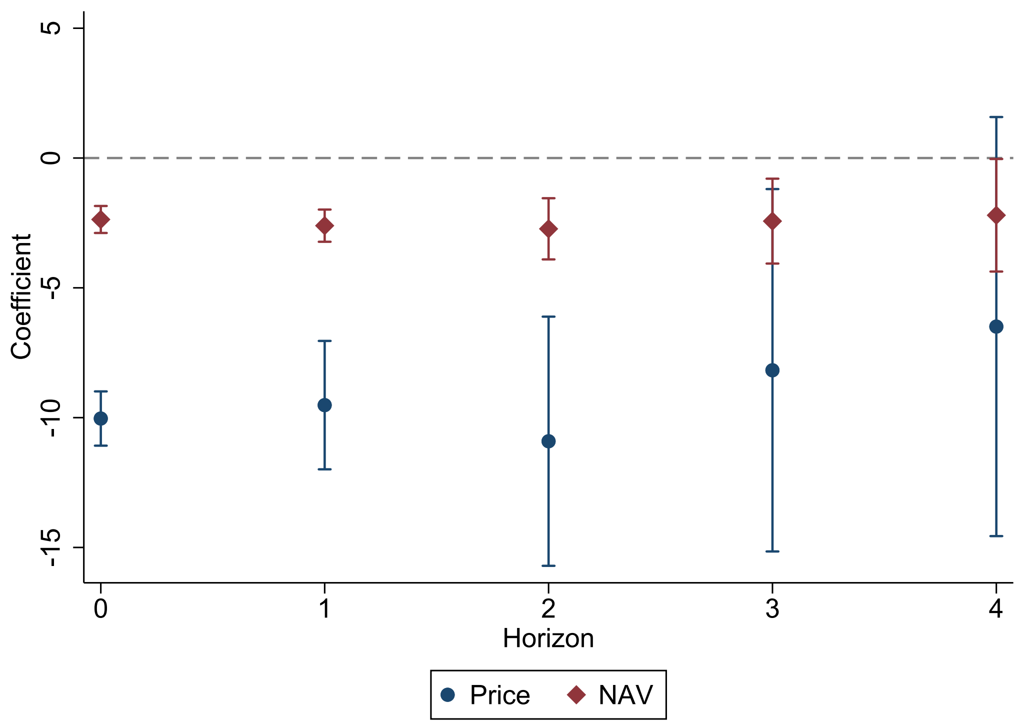
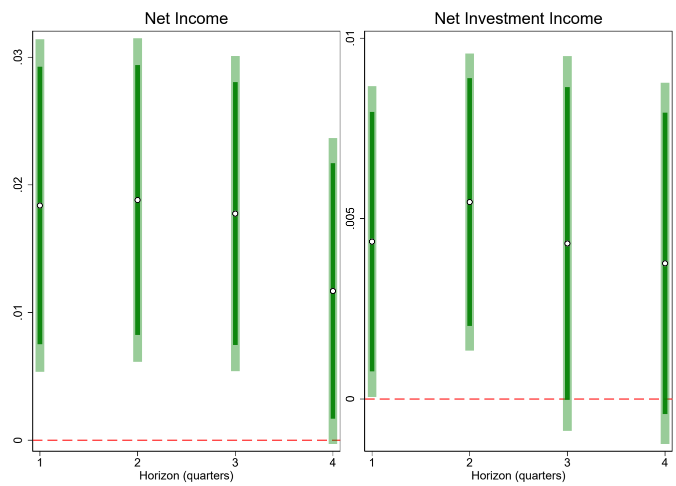


Figure 6: Price-to-NAV Ratios and Future Profitability

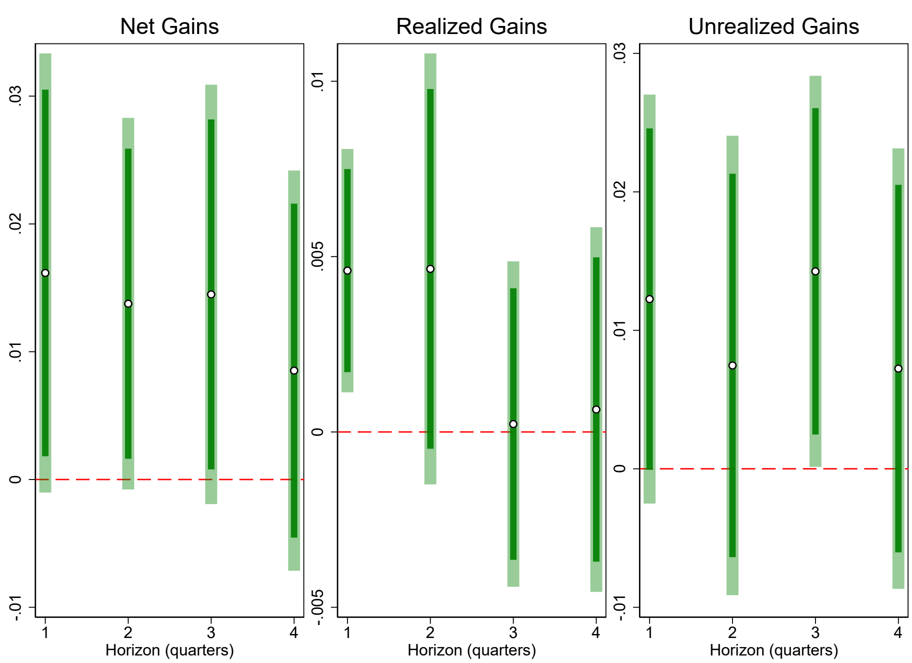
This figure reports OLS regressions of future profitability measures over horizons $q = 1, 2, 3, 4$ on the log price-to-NAV ratio. The estimated specification is

$$Y_{i,t+q} = \beta_q \ln(P/NAV)_{i,t} + \gamma_q' X_{i,t-1} + \alpha_i + \lambda_t + \varepsilon_{i,t+q},$$

where Y denotes net income or net investment income in Panel A, and net gains, realized gains, or unrealized gains in Panel B, each scaled by lagged total assets. $\ln(P/NAV)$ is the log of the ratio of price to NAV per share, measured in quarter t. $X_{i,t-1}$ includes lagged BDC-level controls: ln(Assets), ROA, and debt-to-assets. All specifications include BDC and quarter fixed effects. Standard errors are two-way clustered by BDC and quarter. The light green and dark green intervals denote 95% and 90% confidence intervals, respectively. All variables are winsorized at the 1st and 99th percentiles.



(a) Income Outcomes



(b) Gain Outcomes

Figure 7: Price-to-NAV Ratios and Future Tail Portfolio Outcomes

This figure reports OLS regressions of future changes in BDC portfolio-quality measures on the log price-to-NAV ratio over horizons $q = 1, 2, 3, 4$. The estimated specification is

$$\Delta_q Y_{i,t} = \beta_q \ln(P/NAV)_{i,t} + \gamma_q' X_{i,t-1} + \alpha_i + \lambda_t + \varepsilon_{i,t+q},$$

where $Y_{i,t}$ denotes the tail portfolio outcome measure reported in each panel, and $\Delta_q Y_{i,t} = Y_{i,t+q} - Y_{i,t}$ is the cumulative change from quarter t to quarter $t + q$. The tail portfolio outcome measures are the share of loans with fair-value-to-par-value ratios below 80 percent, the share of non-accrual loans, and the amended PIK share. $\ln(P/NAV)$ is the log of the ratio of price to NAV per share, measured in quarter t. $X_{i,t-1}$ includes lagged BDC-level controls: ln(Assets), ROA, and debt-to-assets. All specifications include BDC and quarter fixed effects. Standard errors are two-way clustered by BDC and quarter. The light green and dark green intervals denote 95% and 90% confidence intervals, respectively. All variables are winsorized at the 1st and 99th percentiles.

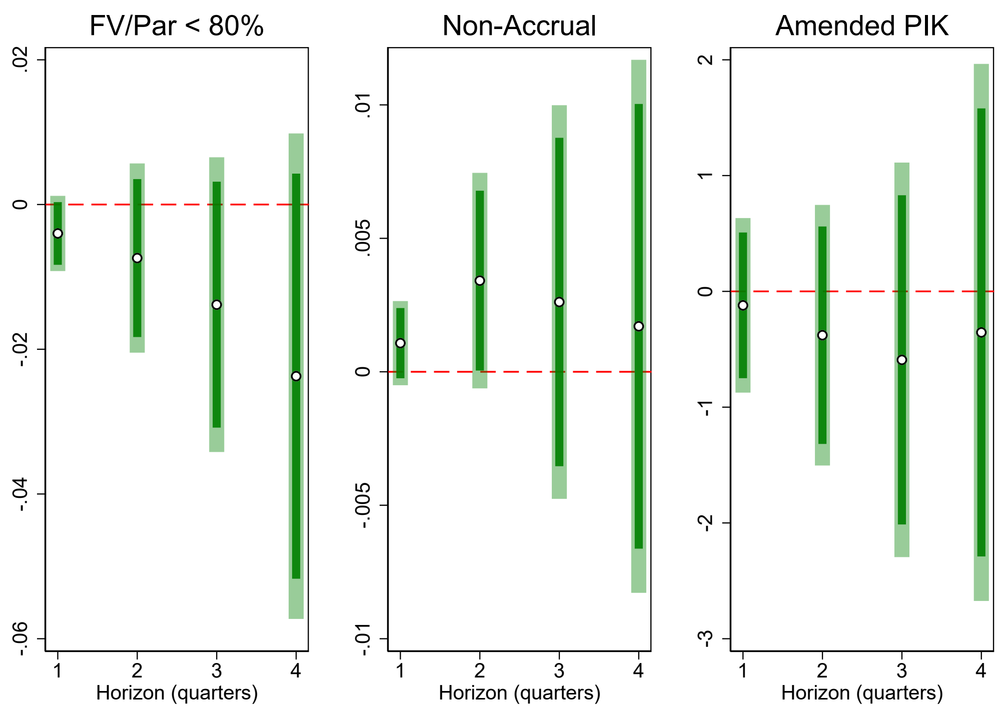


Figure 8: Returns Around Earnings Announcements by Future NAV Changes

This figure plots cumulative raw buy-and-hold returns around quarterly earnings announcements for public BDCs. Event time is measured in trading days relative to the subsequent earnings announcement, with day 0 defined as the first CRSP trading day on or after the announcement date reported in Compustat item RDQ. The event window spans trading days -60 to $+20$. For BDC i in quarter q, the cumulative buy-and-hold return through event day τ is

$$BHR_{i,q}(\tau) = \prod_{s=\underline{\tau}_{i,q}}^{\tau} (1 + R_{i,q,s}) - 1,$$

where $\underline{\tau}_{i,q}$ is the earliest available trading day within the event window and $R_{i,q,s}$ is the daily stock return. BDC-quarter observations are sorted into three groups based on the subsequent one-quarter log change in NAV per share: large negative, near zero, and large positive. The plotted series are averaged within each group and normalized to zero at trading day -60. Returns are expressed in percent.

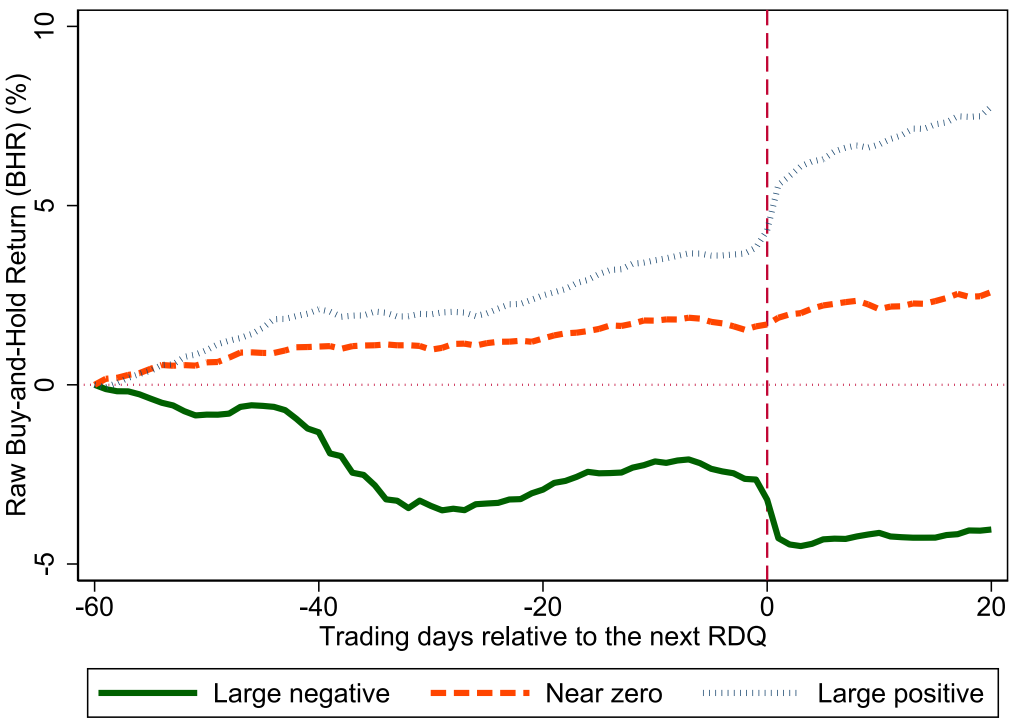


Figure 9: Pre-Announcement Returns and Future Dividend Cut

This figure plots coefficient estimates from regressions of future BDC outcomes on pre-announcement FF3-adjusted stock returns over horizons $q = 1, 2, 3, 4$. The estimated specification is

$$Y_{i,t,t+q} = \beta_q FF3CAR^{pre}_{i,t+1} + \gamma'_q X_{i,t} + \alpha_i + \lambda_t + \varepsilon_{i,t+q},$$

where $FF3CAR^{pre}_{i,t+1}$ is the Fama-French three-factor adjusted cumulative abnormal return measured over the 60-trading-day window ending one trading day before the quarter-$t+1$ earnings announcement date, identified using Compustat item RDQ. The outcome variable $Y_{i,t,t+q}$ is measured from quarter t to quarter $t+q$. $Y_{i,t,t+q}$ is equal to 100 if dividends per share in quarter $t+q$ are lower than dividends per share in quarter t, and zero otherwise. Dividends per share are adjusted for stock splits using Compustat item AJEXQ. $X_{i,t}$ includes BDC-level controls: ln(Assets), debt-to-assets, and ROA. All specifications include BDC and quarter fixed effects. Standard errors are two-way clustered by BDC and quarter. The light green and dark green intervals denote 95% and 90% confidence intervals, respectively. All continuous variables are winsorized at the 1st and 99th percentiles.

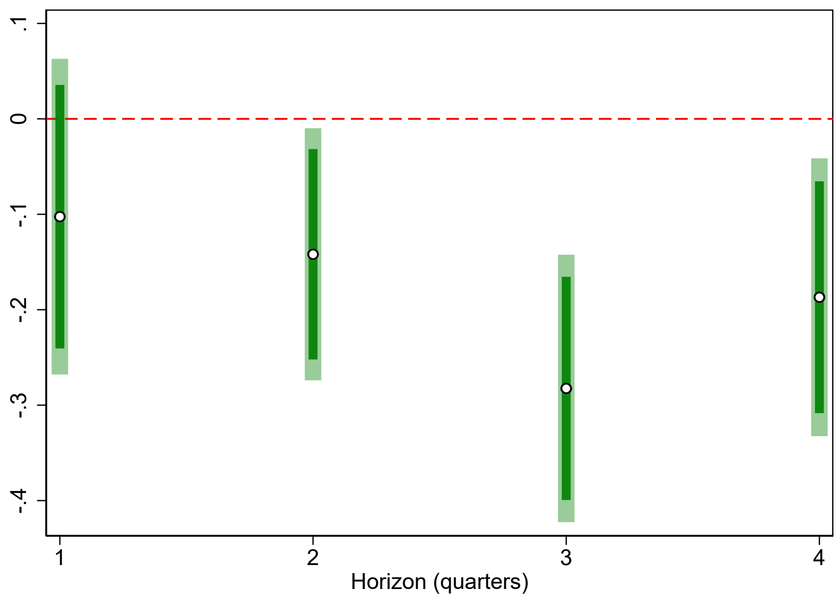
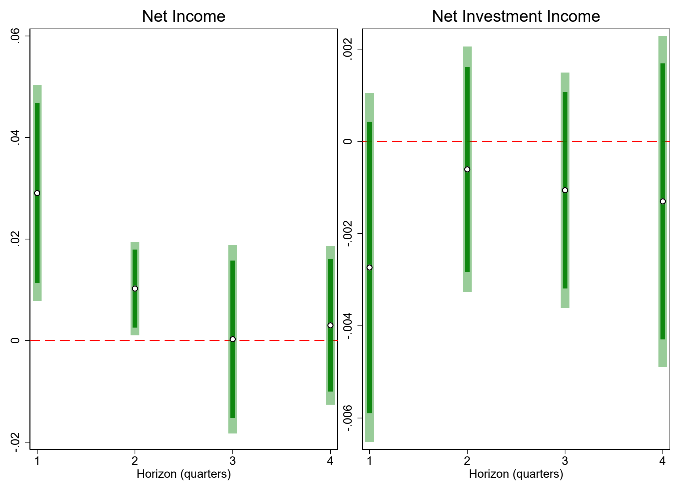


Figure 10: Pre-Announcement Returns and Future Accounting Outcomes

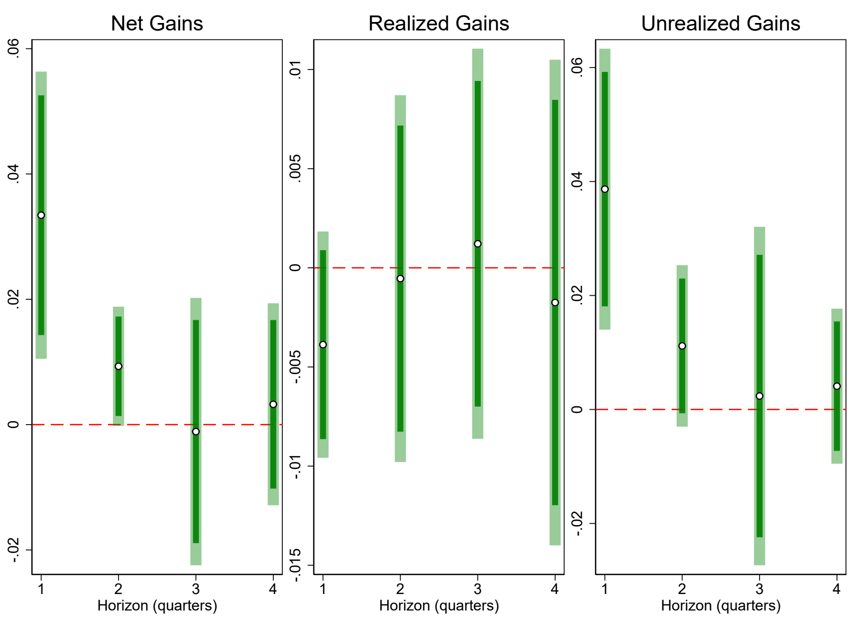
This figure plots coefficient estimates from regressions of future BDC outcomes on pre-announcement FF3-adjusted stock returns over horizons $q = 1, 2, 3, 4$. The estimated specification is

$$Y_{i,t+q} = \beta_q FF3CAR^{pre}_{i,t+1} + \gamma'_q X_{i,t} + \alpha_i + \lambda_t + \varepsilon_{i,t+q},$$

where $FF3CAR^{pre}_{i,t+1}$ is the Fama-French three-factor adjusted cumulative abnormal return measured over the 60-trading-day window ending one trading day before the quarter-$t+1$ earnings announcement date, identified using Compustat item RDQ. The outcome variable Y denotes future net income and net investment income in Panel A, and net gains, realized gains, or unrealized gains in Panel B. Each outcome is scaled by lagged total assets and expressed in percentage points. $X_{i,t}$ includes BDC-level controls: ln(Assets), debt-to-assets, and ROA. All specifications include BDC and quarter fixed effects. Standard errors are two-way clustered by BDC and quarter. The light green and dark green intervals denote 95% and 90% confidence intervals, respectively. All variables are winsorized at the 1st and 99th percentiles.



(a) Income Outcomes



(b) Valuation Outcomes

Figure 11: Pre-Announcement Returns and Future Tail Portfolio Outcomes

This figure plots coefficient estimates from regressions of future BDC outcomes on pre-announcement FF3-adjusted stock returns over horizons $q = 1, 2, 3, 4$. The estimated specification is

$$Y_{i,t,t+q} = \beta_q FF3CAR^{pre}_{i,t+1} + \gamma_q' X_{i,t} + \alpha_i + \lambda_t + \varepsilon_{i,t+q},$$

where $FF3CAR^{pre}_{i,t+1}$ is the Fama-French three-factor adjusted cumulative abnormal return measured over the 60-trading-day window ending one trading day before the quarter-$t+1$ earnings announcement date, identified using Compustat item RDQ. The outcome variable $Y_{i,t,t+q}$ is measured from quarter t to quarter $t+q$. In Panel A, $Y_{i,t,t+q}$ is the change in the share of loans with fair-value-to-par-value ratios below 80 percent from quarter t to quarter $t+q$. In Panel B, $Y_{i,t,t+q}$ is the change in the share of non-accrual loans from quarter t to quarter $t+q$. In Panel C, $Y_{i,t,t+q}$ is the change in the amended PIK share from quarter t to quarter $t+q$. $X_{i,t}$ includes BDC-level controls: ln(Assets), debt-to-assets, and ROA. All specifications include BDC and quarter fixed effects. Standard errors are two-way clustered by BDC and quarter. The light green and dark green intervals denote 95% and 90% confidence intervals, respectively. All variables are winsorized at the 1st and 99th percentiles.

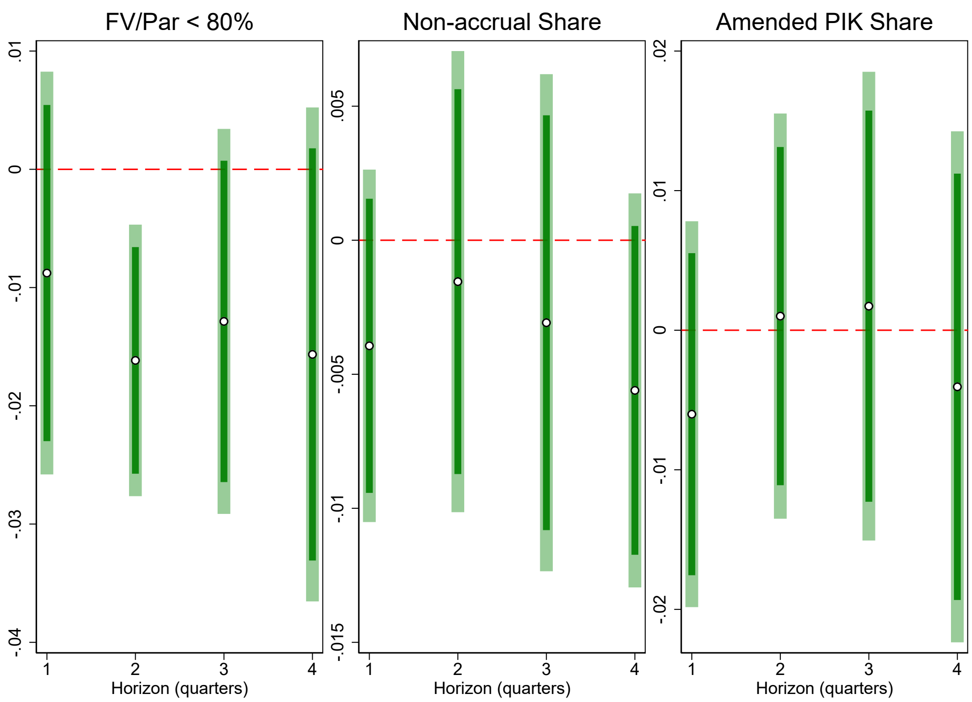


Table 1: Summary Statistics

This table reports summary statistics for the main variables used in the analysis. The table compares public and private BDCs. The sample covers BDC-quarter observations from 2012Q1 to 2025Q4. Total assets are reported in billions of dollars. Debt to Assets is total debt divided by total assets. Net Income, Net Investment Income, Net Gains, Realized Gains, and Unrealized Gains are scaled by lagged assets. Share of loan with FV/Par < 80% is the percentage of loans whose fair value is less than 80 percent of par value. Share of non-accrual loan is the percentage of portfolio loans on non-accrual status. Share of Amended PIK is the percentage of portfolio loans that began accruing payment-in-kind (PIK) interest after origination, rather than from the original loan date, measured at cost value. Borrower HHI is computed at the BDC level as the sum of squared borrower portfolio weights. Borrower Commonness is the value-weighted average, across borrowers in BDC i's portfolio, of the natural logarithm of the total number of BDCs holding each borrower.

	Public BDCs				Private BDCs			
	N	Mean	Median	SD	N	Mean	Median	SD
Total assets ($ bn)	2626	1.8441	0.7358	3.0511	2696	1.4410	0.5367	2.7274
Debt to Assets	2624	0.4397	0.4662	0.1486	2694	0.3674	0.4170	0.1820
Net Income/Assets	2569	0.0067	0.0107	0.0276	2499	0.0105	0.0136	0.0251
Net Investment Income/Assets	2547	0.0104	0.0120	0.0089	2481	0.0124	0.0132	0.0096
Realized Gains/Assets	2545	-0.0029	-0.0000	0.0164	2458	-0.0011	0.0000	0.0106
Unrealized Gains/Assets	2546	-0.0006	-0.0001	0.0296	2458	-0.0002	0.0002	0.0235
Net Gains/L.Assets	2545	-0.0032	-0.0014	0.0253	2458	-0.0014	-0.0001	0.0208
Share of loan with FV/Par < 80%	2607	4.0915	2.3100	6.0298	2676	3.0929	0.9550	5.3696
Share of non-accrual loan	2627	1.6744	0.7877	2.7805	2695	1.1149	0.0000	3.4892
Share of Amended PIK	2584	7.6172	6.4577	6.9742	2644	5.2108	2.5935	7.1709
Borrower HHI	2627	0.0565	0.0315	0.0901	2695	0.0621	0.0258	0.1062
Borrower Commonness	2627	0.5607	0.4838	0.4327	2695	1.1097	1.0473	0.6700

Table 2: Summary Statistics for Public BDC and Market Variables

This table reports summary statistics for public BDC valuation, return, NAV-surprise, and macroeconomic variables. The main sample period is 2012Q1–2025Q4, although return measures are available through 2025Q2. Panel A reports the BDC discount to NAV, NAV per share, stock price, dividends per share, and pre-announcement return measures. Returns are measured over the 60-trading-day window ending one trading day before the quarterly earnings announcement and include raw buy-and-hold returns, market-adjusted CARs, and Fama–French three-factor-adjusted CARs. Panel B reports NAV-surprise measures constructed from quarterly IBES analyst forecasts and reported actual NAV. The NAV surprise is the difference between actual and forecasted total NAV, converted to a per-share measure. Alternative measures scale the surprise by the pre-announcement stock price or lagged NAV per share. Panel C reports credit market and macroeconomic variables matched to BDC-quarter observations. The symbol Δ denotes the change in the corresponding variable.

	N	Mean	Median	SD
Panel A. Market Valuation and Returns				
Discount to NAV	2609	-10.4809	-11.2699	23.7246
NAV per share	2626	14.4681	13.6200	10.7207
Stock Price	2611	12.8514	12.2700	7.4242
Dividends per share	2610	0.3089	0.3200	0.1949
Buy-Hold Returns	2400	1.0589	1.6530	11.1213
Market adj. CAR	2400	-1.2493	-0.8390	9.0994
FF3 adj. CAR	2400	-1.3275	-1.0983	10.4063
Panel B. NAV Surprise Measures				
NAV Surprise/Price	2113	-0.3752	-0.0471	6.7013
NAV Surprise/L.NAV	2022	-0.0266	-0.0649	4.9112
NAV Surprise	2113	0.0218	-0.0078	0.6434
Panel C. Credit Market and Macroeconomic Variables				
Spread	56	5.2025	5.0200	0.9639
ΔSpread	56	-0.0359	-0.1500	0.9403
ΔVIX	56	-0.8339	-0.7000	13.8392
$\Delta\log(\text{CPI})$	56	0.6763	0.5532	0.3935
ΔUnemployment Rate	56	-0.0839	-0.1000	1.4120
GDP Growth	56	2.6857	2.8500	6.3345

Table 3: Credit Market Distress and Tail Portfolio Outcomes

This table reports OLS regressions of cumulative changes in BDC portfolio-quality measures on changes in credit market distress over horizons $q = 0, 1, 2, 3, 4$. Panel A reports results for the share of loans with fair-value-to-par-value ratios below 80 percent, and Panel B reports results for the share of non-accrual loans. The sample period is 2012Q1–2025Q4. The estimated specification is

$$\Delta_q Y_{i,t} = \beta_q \Delta Spread_t + \gamma_q' X_{i,t-1} + \delta_q' Z_{t-1} + \alpha_i + \varepsilon_{i,t+q},$$

where $Y_{i,t}$ denotes the portfolio-quality measure reported in each panel, and $\Delta_q Y_{i,t} = Y_{i,t+q} - Y_{i,t-1}$. $\Delta Spread_t$ is the quarterly change in the S&P UBS Leveraged Loan Index three-year discount margin. $X_{i,t-1}$ includes lagged BDC-level controls: ln(Assets), debt-to-assets, and ROA. Z_{t-1} includes lagged macroeconomic controls: changes in the VIX, CPI, and unemployment rate, as well as GDP growth. All specifications include BDC fixed effects. Standard errors are two-way clustered by BDC and quarter. All variables except the credit market and macroeconomic controls are winsorized at the 1st and 99th percentiles.

	Dependent variables: changes in tail portfolio outcomes				
Horizon	Current	+1Q	+2Q	+3Q	+4Q
Panel A. Δ share of loans with FV/Par $<$ 80%					
Δ Spread	0.5600***	0.5309***	0.6736***	0.5972*	0.4362
	(0.0947)	(0.1109)	(0.1995)	(0.3183)	(0.3660)
N	4806	4595	4386	4196	3993
Adj. R^2	0.014	0.007	0.031	0.030	0.035
Panel B. Δ non-accrual loan share					
Δ Spread	0.1287**	0.1880***	0.2000***	0.1143***	0.1026*
	(0.0581)	(0.0610)	(0.0394)	(0.0348)	(0.0590)
N	4840	4620	4409	4210	4011
Adj. R^2	-0.002	0.013	0.033	0.050	0.067
BDC controls	Yes	Yes	Yes	Yes	Yes
Macro controls	Yes	Yes	Yes	Yes	Yes
BDC FE	Yes	Yes	Yes	Yes	Yes
Time FE	No	No	No	No	No
Clustered SE	BDC × Qtr	BDC × Qtr	BDC × Qtr	BDC × Qtr	BDC × Qtr

Table 4: Credit Market Distress and BDC Valuation Relative to NAV

This table reports OLS regressions of changes in the BDC valuation relative to NAV on changes in credit market distress variables. The sample period is 2012Q1–2025Q4. The estimated specification is

$$\Delta Discount_{i,t} = \beta \Delta Spread_t + \gamma' X_{i,t-1} + \delta' Z_{t-1} + \alpha_i + \varepsilon_{i,t},$$

where $Discount_{i,t}$ is the BDC valuation relative to NAV, defined as $100 \times (Price - NAV)/NAV$, and $\Delta Discount_{i,t} = Discount_{i,t} - Discount_{i,t-1}$. $\Delta Spread_t$ denotes the quarterly change in the S&P UBS Leveraged Loan Index 3-year discount margin. $X_{i,t-1}$ includes lagged BDC-level controls: ln(Assets), debt-to-assets, and ROA. Z_{t-1} includes lagged macroeconomic controls: changes in the VIX, CPI, and unemployment rate, and growth in GDP. All specifications include BDC fixed effects. Standard errors are two-way clustered by BDC and quarter. All variables except the credit spreads and macroeconomic controls are winsorized at the 1st and 99th percentiles.

	Dependent variable: Δ Discount				
	(1)	(2)	(3)	(4)	(5)
	Current	+1Q	+2Q	+3Q	+4Q
$\Delta Spread$	-5.9386***	-5.4632***	-6.3942***	-4.5935**	-3.2803
	(0.3558)	(0.8767)	(1.3921)	(2.0134)	(2.1802)
N	2483	2410	2339	2274	2211
Adj. R^2	0.301	0.168	0.180	0.124	0.086
Controls	Yes	Yes	Yes	Yes	Yes
BDC FE	Yes	Yes	Yes	Yes	Yes
Time FE	No	No	No	No	No
Clustered SE	BDC x Qtr	BDC x Qtr	BDC x Qtr	BDC x Qtr	BDC x Qtr

Table 5: Price-to-NAV Ratios and Future NAV Markdowns

This table reports linear probability model regressions of future NAV markdown indicators on the log price-to-NAV ratio. The estimated specification is

$$Markdown_{i,t,t+q} = \beta_q \ln(P/NAV)_{i,t} + \gamma_q' X_{i,t-1} + \alpha_i + \lambda_t + \varepsilon_{i,t+q},$$

where $Markdown_{i,t,t+q}$ is an indicator equal to 1 if NAV per share at quarter $t+q$ is lower than NAV per share at quarter t, where $q = 1, 2, 3, 4$, and zero otherwise. $\ln(P/NAV)$ is the log of the ratio of price to NAV per share, measured in quarter t. $X_{i,t-1}$ includes lagged BDC-level controls: ln(Assets), ROA, and debt-to-assets. All specifications include BDC and quarter fixed effects. Standard errors are two-way clustered by BDC and quarter. All variables are winsorized at the 1st and 99th percentiles.

	Dependent variable: 1(NAV markdown)			
	(1)	(2)	(3)	(4)
	+1Q	+2Q	+3Q	+4Q
Ln(P/NAV)	-0.1349**	-0.0626	-0.1881**	-0.1533*
	(0.0617)	(0.0846)	(0.0917)	(0.0899)
N	2436	2367	2297	2233
Adj. R^2	0.230	0.265	0.313	0.312
Controls	Yes	Yes	Yes	Yes
BDC FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
Clustered SE	BDC x Qtr	BDC x Qtr	BDC x Qtr	BDC x Qtr

Table 6: BDC Size and Future NAV Markdowns

This table reports linear probability model regressions of future NAV markdown indicators on the log price-to-NAV ratio and its interaction with BDC size, measured by the natural logarithm of total assets. The estimated specification is

$$\begin{aligned} Markdown_{i,t,t+q} = &\ \beta_q \ln(P/NAV)_{i,t} \\ &+ \theta_q \left[\ln(P/NAV)_{i,t} \times ln(Asset)_{i,t}\right] \\ &+ \eta_q ln(Asset)_{i,t} + \gamma_q' X_{i,t-1} \qquad + \alpha_i + \lambda_t + \varepsilon_{i,t+q} \end{aligned}$$

where $Markdown_{i,t,t+q}$ is an indicator equal to 1 if NAV per share at quarter $t+q$ is lower than NAV per share at quarter t, where $q = 1, 2, 3, 4$, and zero otherwise. $\ln(P/NAV)$ is the log of the ratio of price to NAV per share, measured in quarter t. $ln(Asset)$ is the natural logarithm of the BDC's total assets. $X_{i,t-1}$ includes lagged BDC-level controls: ROA and debt-to-assets. All specifications include BDC and quarter fixed effects. Standard errors are two-way clustered by BDC and quarter. All variables are winsorized at the 1st and 99th percentiles.

	Dependent variable: 1(NAV Markdown)			
	(1) +1Q	(2) +2Q	(3) +3Q	(4) +4Q
Ln(P/NAV)	-0.3242	-0.3961	-0.8158***	-0.8522***
	(0.2011)	(0.2410)	(0.2313)	(0.2745)
Ln(Total Assets)	0.0727	0.1079*	0.1211**	0.1344*
	(0.0436)	(0.0597)	(0.0535)	(0.0675)
Ln(P/NAV) × Ln(Total Assets)	0.0320	0.0562	0.1061***	0.1177***
	(0.0327)	(0.0389)	(0.0370)	(0.0409)
N	2436	2367	2297	2233
Adj. R^2	0.229	0.264	0.314	0.315
Controls	Yes	Yes	Yes	Yes
BDC FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
Clustered SE	BDC x Qtr	BDC x Qtr	BDC x Qtr	BDC x Qtr

Table 7: Borrower Commonness and Future NAV Markdowns

This table reports linear probability model regressions of future NAV markdown indicators on the log price-to-NAV ratio and its interaction with borrower commonness. The estimated specification is

$$\begin{aligned} Markdown_{i,t,t+q} = {} & \beta_q \ln(P/NAV)_{i,t} \\ & + \theta_q \left[\ln(P/NAV)_{i,t} \times Commonness_{i,t}\right] \\ & + \eta_q Commonness_{i,t} + \gamma_q' X_{i,t-1} + \alpha_i + \lambda_t + \varepsilon_{i,t+q}. \end{aligned}$$

where $Markdown_{i,t,t+q}$ is an indicator equal to 1 if NAV per share at quarter $t+q$ is lower than NAV per share at quarter t, where $q = 1, 2, 3, 4$, and zero otherwise. $\ln(P/NAV)$ is the log of the ratio of price to NAV per share, measured in quarter t. *Commonness* is the value-weighted average of the natural logarithm of the total number of BDC holders for each borrower in BDC i's portfolio. $X_{i,t-1}$ includes lagged BDC-level controls: ln(Assets), ROA, and debt-to-assets. All specifications include BDC and quarter fixed effects. Standard errors are two-way clustered by BDC and quarter. All variables are winsorized at the 1st and 99th percentiles.

	Dependent variable: 1(NAV Markdown)			
	(1) +1Q	(2) +2Q	(3) +3Q	(4) +4Q
Ln(P/NAV)	-0.2254***	-0.2265**	-0.3873***	-0.3791***
	(0.0774)	(0.1079)	(0.1061)	(0.1065)
Commonness	0.0675	0.0268	0.0984	0.1227
	(0.0737)	(0.0867)	(0.0945)	(0.1032)
Ln(P/NAV) × Commonness	0.2588*	0.4479**	0.5611***	0.6322***
	(0.1533)	(0.1838)	(0.1837)	(0.2007)
N	2436	2367	2297	2233
Adj. R^2	0.231	0.268	0.319	0.319
Controls	Yes	Yes	Yes	Yes
BDC FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
Clustered SE	BDC x Qtr	BDC x Qtr	BDC x Qtr	BDC x Qtr

Table 8: Borrower Concentration and Future NAV Markdowns

This table reports linear probability model regressions of future NAV markdown indicators on the log price-to-NAV ratio and its interaction with borrower-level HHI. The estimated specification is

$$\begin{aligned} Markdown_{i,t,t+q} = {} & \beta_q \ln(P/NAV)_{i,t} \\ & + \theta_q \left[\ln(P/NAV)_{i,t} \times Concentration_{i,t}\right] \\ & + \eta_q Concentration_{i,t} + \gamma_q' X_{i,t-1} \qquad + \alpha_i + \lambda_t + \varepsilon_{i,t+q}. \end{aligned}$$

where $Markdown_{i,t,t+q}$ is an indicator equal to 1 if NAV per share at quarter $t+q$ is lower than NAV per share at quarter t, where $q = 1, 2, 3, 4$, and zero otherwise. $\ln(P/NAV)$ is the log of the ratio of price to NAV per share, measured in quarter t. *Concentration* is the borrower-level Herfindahl-Hirschman Index. $X_{i,t-1}$ includes lagged BDC-level controls: ln(Assets), ROA, and debt-to-assets. All specifications include BDC and quarter fixed effects. Standard errors are two-way clustered by BDC and quarter. All variables are winsorized at the 1st and 99th percentiles.

	Dependent variable: 1(NAV Markdown)			
	(1)	(2)	(3)	(4)
	+1Q	+2Q	+3Q	+4Q
Ln(P/NAV)	-0.0663	0.0548	-0.0213	0.0360
	(0.0725)	(0.0982)	(0.0970)	(0.0924)
Borrower HHI	0.2649	0.1398	0.2778	0.2073
	(0.3254)	(0.3497)	(0.2437)	(0.2879)
Ln(P/NAV) × Borrower HHI	-0.5384***	-0.9602***	-1.3524***	-1.5769***
	(0.1298)	(0.3376)	(0.2487)	(0.2936)
N	2436	2367	2297	2233
Adj. R^2	0.231	0.268	0.321	0.321
Controls	Yes	Yes	Yes	Yes
BDC FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
Clustered SE	BDC x Qtr	BDC x Qtr	BDC x Qtr	BDC x Qtr

Table 9: Pre-Announcement Stock Returns and Future NAV Changes

This table reports OLS regressions of future changes in NAV per share over horizons $q = 1, 2, 3, 4$ on pre-announcement stock returns. The estimated specification is

$$\Delta_q \ln(NAV)_{i,t} = \beta_q Return^{pre}_{i,t+1} + \gamma_q' X_{i,t} + \alpha_i + \lambda_t + \varepsilon_{i,t+q},$$

where $\Delta_q \ln(NAV)_{i,t} = 100 \times [\ln(NAV_{i,t+q}) - \ln(NAV_{i,t})]$. NAV per share is adjusted for stock splits using Compustat item AJEXQ. The main independent variables are stock returns measured over the 60-trading-day window ending one trading day before the quarter-$t+1$ earnings announcement date, where earnings announcement dates are identified using Compustat item RDQ. Buy-and-hold return is the cumulative raw return over this window. Market-adjusted CAR is the cumulative abnormal return over this window relative to the CRSP value-weighted market return. FF3-adjusted CAR is the cumulative abnormal return over this window relative to expected returns from the Fama-French three-factor model. Detailed variable definitions are provided in the Data Appendix. Panel A uses dividend-inclusive returns, and Panel B uses dividend-exclusive returns. $X_{i,t}$ includes BDC-level controls: ln(Assets), debt-to-assets, and ROA. All specifications include BDC and quarter fixed effects. Standard errors are two-way clustered by BDC and quarter. All variables are winsorized at the 1st and 99th percentiles.

	Dependent variable: $100 \times [\log(\text{NAV}_{t+q}) - \log(\text{NAV}_t)]$			
Separate regression using:	$q = 1$	$q = 2$	$q = 3$	$q = 4$
Panel A. Returns with dividends included				
Buy-and-hold return only	0.082**	0.135***	0.131**	0.140*
	(0.033)	(0.045)	(0.053)	(0.078)
Market-adjusted return only	0.088**	0.141***	0.140**	0.151*
	(0.035)	(0.048)	(0.055)	(0.078)
FF3-adjusted return only	0.056**	0.089**	0.085**	0.074
	(0.024)	(0.035)	(0.041)	(0.058)
N	2353	2336	2274	2210
Panel B. Returns with dividends excluded				
Buy-and-hold return only	0.099***	0.158***	0.158***	0.172**
	(0.033)	(0.048)	(0.057)	(0.084)
Market-adjusted return only	0.102***	0.159***	0.160***	0.176**
	(0.035)	(0.050)	(0.059)	(0.083)
FF3-adjusted return only	0.065**	0.098**	0.094**	0.087
	(0.024)	(0.037)	(0.042)	(0.058)
N	2353	2336	2274	2210
Controls	Yes	Yes	Yes	Yes
BDC FE	Yes	Yes	Yes	Yes
Time FE	Qtr	Qtr	Qtr	Qtr
Clustered SE	BDC × Qtr	BDC × Qtr	BDC × Qtr	BDC × Qtr

Table 10: BDC NAV Surprise and Stock Performance

This table reports OLS regressions of BDC returns around announcements of net asset value (NAV). The sample period covers earnings announcement events occurring between calendar quarters 2012Q2 and 2025Q4. The estimated specification is

$$CAR_{i,t}^{[-2,+2]} = \beta \, NAVSurprise_{i,t} + \gamma' X_{i,t-1} + \alpha_i + \lambda_\tau + \varepsilon_{i,t},$$

where $CAR_{i,t}^{[-2,+2]}$ is measured over the five-trading-day window around the IBES actual NAV announcement date for BDC i's fiscal quarter t. The dependent variable is the buy-and-hold return in column 1, the market-adjusted CAR in column 2, and the Fama–French three-factor-adjusted CAR in column 3. The main explanatory variable is the NAV surprise, defined as the difference between IBES actual NAV and the median analyst forecast of NAV, converted to a per-share measure using CRSP shares outstanding three trading days before the announcement date. In Panel A, the NAV surprise is scaled by the stock price three trading days before the announcement. In Panel B, the NAV surprise is scaled by lagged NAV per share. In Panel C, the NAV surprise is expressed in unscaled dollars per share. The vector $X_{i,t-1}$ includes lagged firm-level controls. All specifications include BDC fixed effects, α_i, and announcement-calendar-quarter fixed effects, λ_τ. Standard errors are two-way clustered by BDC and announcement calendar quarter. All continuous variables are winsorized at the 1st and 99th percentiles.

	BHR [-2,+2]	Mkt-adj CAR [-2,+2]	FF3 CAR [-2,+2]
Panel A. Price-scaled NAV surprise			
NAV Surprise/Price	0.192***	0.198***	0.192***
	(0.033)	(0.032)	(0.035)
N	2049	2049	2049
Adj. R^2	0.206	0.163	0.141
Panel B. NAV surprise scaled by lagged NAV			
NAV Surprise/Lagged NAV	0.280***	0.285***	0.281***
	(0.040)	(0.040)	(0.043)
N	1966	1966	1966
Adj. R^2	0.219	0.175	0.152
Panel C. Unscaled NAV surprise			
NAV Surprise	1.701***	1.717***	1.660***
	(0.289)	(0.301)	(0.309)
N	2049	2049	2049
Adj. R^2	0.198	0.151	0.129
Controls	Yes	Yes	Yes
BDC FE	Yes	Yes	Yes
Time FE	Qtr	Qtr	Qtr
Clustered SE	BDC × Qtr	BDC × Qtr	BDC × Qtr

A Data Appendix

BDC Collateral Sample Construction

This appendix outlines the data-cleaning steps used to construct the sample. Following Rintamäki and Steffen (2025), we exclude three BDCs whose business models are not primarily focused on private credit: MacKenzie Realty Inc., Terra Income Fund 6, and Newtek Business Services. MacKenzie Realty Inc. and Terra Income Fund 6 focus on commercial real estate lending, while Newtek Business Services specializes in SBA-guaranteed loans to small businesses.

We construct several variables directly from the loan-level data. For each BDC-quarter, we aggregate loan-level cost and fair value and use these totals to compute portfolio shares, including the share of PIK loans, first-lien loans, and equity investments, using both cost and fair-value denominators. Missing or negative loan-level cost and fair value amounts are set to zero before aggregation.

We construct borrower concentration using a borrower-level Herfindahl-Hirschman Index. For each BDC-quarter, we aggregate fair-value exposure by borrower, compute each borrower's share of total portfolio fair value, and define borrower HHI as the sum of squared borrower shares. We also reconstruct selected ratios, such as the asset-to-debt ratio, when the underlying components are available, and we use accounting relationships to infer missing realized or unrealized gains when the missing component is mechanically implied to be zero.

BDC Loan-Level Panel Construction

To systematically analyze the composition and performance of BDC portfolios, we construct a BDC asset-level panel structured at the individual investment level for each BDC-quarter. Because raw commercial database identifiers are frequently missing or inconsistently reported across periods, we circumvent these issues by constructing a unique investment identifier based on a consistent set of observable characteristics, similar to the approach used by Rintamäki and Steffen (2025). Specifically, we define this identifier using a tuple of four variables: the lender (BDC), the borrower, the asset's seniority, and the instrument type. This allows us to robustly track individual positions across time.

We classify instrument types hierarchically using the vendor's normalized security class and raw text descriptions to identify Equity, Term Loans, Delayed Draw Term Loans (DDTLs), Revolvers, and Unitranches. Observations with missing security class information are allocated to the Term Loan category, while miscellaneous assets are grouped as "Other". Seniority is similarly classified into First Lien, Second Lien, and Subordinated Debt based on the provided security type descriptions, with Equity investments naturally classified separately.

BDCs frequently report a single investment across multiple separate line items in a given quarter. When multiple observations share the same identifier in the same year-quarter, we aggregate them to reconstruct the total position. We sum the fair value, par amount, and cost values of the affected line items. For continuous characteristics—including interest rates, dividend rates, cash rate spreads, and all-in yields—we compute weighted averages using the strictly positive cost of the asset as the weight.

Finally, we apply several filters to ensure data integrity and address pass-through reporting errors from the raw SEC filings. We remove observations with clear data-entry errors, such as fair-to-cost or fair-to-par ratios below 0 or exceeding 500%, as well as interest or dividend rates reported above 100%. In cases where the benchmark reference rate is missing, we impute it as zero.

Data Construction for Comparison Groups

To identify closed-end funds (CEFs), we follow the methodology described in Hwang and Kim (2017). Specifically, we first identify publicly listed CEFs using CRSP share codes, defined as CRSP SIZ-format item `shrcd`, ending in 4. We then exclude funds with share codes 74, which correspond to interests, units of limited partnership interest, depository receipts, and related securities, as well as share code 24, which corresponds to certificates. Next, we match CRSP identifiers, `PERMCO`, to the CRSP/Compustat merged database to obtain the Compustat identifier, `GVKEY`. After excluding business development companies (BDCs) from the CEF sample, we use `GVKEY` to obtain monthly security-level information for the remaining CEFs. Finally, we construct the quarterly price premium/discount to NAV by computing (Price − NAV)/NAV at the relevant quarter end.

CRSP Return Sample Construction

Our primary sample is constructed using daily stock return data from the Center for Research in Security Prices (CRSP) in the CIZ format, alongside quarterly earnings announcement dates from Compustat (item `RDQ`). To measure firm performance and calculate daily abnormal returns, we utilize three approaches: the raw Buy-and-Hold Return (BHR), a standard Market-Adjusted model, and the Fama-French 3-Factor (FF3) model.

The factor loadings are estimated one trading day prior to the previous quarter's earnings announcement.[20] We evaluate pre-announcement performance over the 60 trading days immediately preceding the focal earnings announcement, restricting the window to days strictly between the previous and focal announcements. To ensure data integrity, we drop overlapping quarters, quarters with fewer than 30 trading days, and reporting gaps exceeding 90 trading days. We also exclude BDCs that are observed for only one quarter. Figure A.1 illustrates the timeline of this return construction.

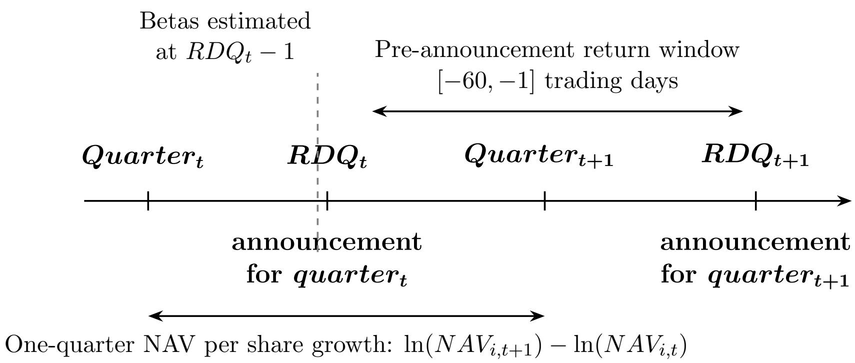
We calculate quarterly firm-level performance shocks by aggregating daily returns over this pre-announcement window. The raw BHR is calculated by geometrically compounding the gross daily returns of each firm. For the risk-adjusted models, we calculate daily abnormal returns. In the Market-Adjusted model, we subtract the CRSP value-weighted index return

[20] This procedure is performed independently for both the dividend-inclusive and dividend-exclusive returns. For every trading day, we estimate regressions using the firm's prior 252 trading days of excess returns, requiring a minimum of 120 valid trading days in the estimation window.

directly from the firm's daily return. For the FF3 model, the predicted daily return is calculated using the frozen factor loadings and realized daily factor premiums. We then sum these daily abnormal returns to generate a single Cumulative Abnormal Return (CAR) for each firm-quarter.

Figure A.1: Timing of Pre-Announcement Return Measures

This figure illustrates the timeline of the pre-announcement return construction. Factor loadings for the risk-adjusted models are estimated over a 252-day historical window and frozen one trading day prior to the previous quarter's earnings announcement (RDQ_t). Returns are then aggregated over the 60-trading-day window strictly bounded between the previous and focal announcements, ending one trading day prior to the quarter $t+1$ earnings announcement (RDQ_{t+1}).



The resulting firm-quarter return shocks are merged into our primary quarterly fundamental panel. Finally, continuous fundamental variables and return metrics are winsorized at the 1st and 99th percentiles.

Construction of NAV Surprise

We obtain analyst forecasts of net asset value (NAV) from the IBES Detail History adjusted file. In our IBES extract, NAV forecasts are available in the adjusted Detail file, while the corresponding unadjusted file does not contain NAV forecasts. We match publicly listed BDCs to IBES using the CRSP/IBES link file. We retain quarterly NAV forecasts and match each forecast to the BDC's CRSP identifier using the forecast announcement date and the valid date range in the CRSP/IBES link file.

Because the IBES NAV variable is reported as total NAV rather than NAV per share, we convert the total NAV forecast error into a per-share measure using CRSP shares outstanding. Specifically, for each BDC i and fiscal quarter q, we retain each analyst's most recent NAV forecast issued before the IBES actual announcement date and define the consensus forecast as the median across analysts. Before constructing the consensus, we exclude economically implausible analyst-level forecasts, including nonpositive forecasts and forecasts above \$20 billion.[21] We further require positive reported NAV per share and stock

[21] These filters remove eight negative forecasts and one forecast above \$20 billion. To address likely matching or unit errors, we also exclude five BDC-quarter observations for which the median analyst forecast

price, nonmissing NAV-surprise and announcement-return measures, and at least two usable BDC-quarter observations for each BDC.

Let $\tau_{i,q}$ denote the IBES actual announcement date for firm i's fiscal quarter q, and let $S_{i,\tau_{i,q}-3}$ denote CRSP shares outstanding three trading days before the announcement trading date. IBES reports NAV in millions of dollars, and CRSP shares outstanding are converted to millions of shares.

We use three related measures of NAV surprise. The first is the dollar-per-share NAV surprise:

$$NAV\ Surprise_{i,q} = \frac{NAV_{i,q}^{Actual} - NAV_{i,q}^{Forecast}}{S_{i,\tau_{i,q}-3}}.$$

where $NAV_{i,q}^{Actual}$ is the IBES actual NAV and $NAV_{i,q}^{Forecast}$ is the median analyst forecast of total NAV.

The second (our main measure) scales the NAV surprise by the stock price three trading days before the announcement:

$$Price\text{-}scaled\ NAV\ Surprise_{i,q} = \frac{NAV\ Surprise_{i,q}}{P_{i,\tau_{i,q}-3}} = \frac{NAV_{i,q}^{Actual} - NAV_{i,q}^{Forecast}}{S_{i,\tau_{i,q}-3} \times P_{i,\tau_{i,q}-3}}.$$

This measure expresses the unexpected NAV news relative to the firm's pre-announcement market value of equity and is the main explanatory variable in the announcement-return regressions.

The third measure scales the NAV surprise by lagged NAV per share:

$$NAV\text{-}scaled\ NAV\ Surprise_{i,q} = \frac{NAV\ Surprise_{i,q}}{NAV_{i,q-1}}.$$

This measure expresses the NAV surprise as a fraction of the firm's lagged reported NAV per share and is used as an alternative scaling.

We measure stock price reactions around the IBES actual NAV announcement date. For each BDC i and fiscal quarter q, let $\tau_{i,q}$ denote the IBES actual announcement date, and let $\tilde{\tau}_{i,q}$ denote the corresponding CRSP trading date. If the IBES announcement date does not fall on a CRSP trading day, we use the first CRSP trading day on or after the IBES announcement date. We define event time k relative to this announcement trading date, so that $k = 0$ corresponds to $\tilde{\tau}_{i,q}$.

The main dependent variables are cumulative returns and cumulative abnormal returns over the five-trading-day window $[-2, +2]$ around the announcement. We require a complete five-trading-day event window. To avoid look-ahead bias in factor-adjusted returns, factor loadings are frozen three trading days before the announcement date, at event time $k = -3$.

As before, we defined three announcement-return measures:

of total NAV differs from the BDC-reported total NAV by at least $1 billion.

The raw buy-and-hold announcement return is

$$RET_{i,q}^{[-2,+2]} = \prod_{k=-2}^{2} (1 + r_{i,\tau+k}) - 1,$$

where $r_{i,\tau+k}$ is the daily stock return of BDC i on event day k.

The market-adjusted cumulative abnormal return is defined as the sum of daily stock returns minus daily market returns over the event window:

$$CAR_{i,q}^{MKTADJ} = \sum_{k=-2}^{2} \left(r_{i,\tau+k} - r_{m,\tau+k}\right).$$

The main dependent variable is the Fama–French three-factor-adjusted cumulative abnormal return. We estimate rolling factor loadings before the event and freeze the loadings at event time $k = -3$. Expected returns are computed as

$$\widehat{r}_{i,\tau+k} = r_{f,\tau+k} + \widehat{\alpha}_{i,\tau-3} + \widehat{\beta}_{i,\tau-3}^{MKT} MKT_{\tau+k} + \widehat{\beta}_{i,\tau-3}^{SMB} SMB_{\tau+k} + \widehat{\beta}_{i,\tau-3}^{HML} HML_{\tau+k},$$

where MKT, SMB, and HML are the Fama–French factors and r_f is the risk-free rate. The FF3-adjusted CAR is

$$CAR_{i,q}^{FF3} = \sum_{k=-2}^{2} \left(r_{i,\tau+k} - \widehat{r}_{i,\tau+k}\right).$$

B Variable Definitions

This appendix defines the main variables used in the analysis.

Table B.1: Variable Definitions

Variable	Definition
Valuation relative to NAV	$(Price - NAV)/NAV$, where negative values indicate discounts and positive values indicate premiums. Price is from Compustat item `PRCCQ`, and NAV per share is from BDC Collateral.
Chg in ln(price)	Change in the log of quarterly price, adjusted for stock splits using Compustat item `AJEXQ`.
Chg in ln(NAV per share)	Change in the log of quarterly NAV per share, adjusted for stock splits using Compustat item `AJEXQ`.
Non-accrual loan share	The share of loans classified as non-accrual, measured at fair value. Loans classified as partially on non-accrual are treated as non-accrual.
FV/Par < 80% share	The share of loans with a fair-value-to-par-value ratio below 80 percent, measured at fair value.
Amended PIK share	The share of loans that began accruing payment-in-kind interest after origination, rather than from the original loan date, measured at cost value.
Ln(total assets)	Log of total assets. Total assets are from BDC Collateral.
Debt to assets	Total debt divided by total assets. This variable is obtained by inverting the asset-to-debt ratio from BDC Collateral.
Dividend Cut	Indicator equal to one if quarterly dividends per share, adjusted for stock splits using Compustat item `AJEXQ`, decrease relative to the previous quarter. Dividends per share are from Compustat (`DVPSXQ`).
Ln(Turnover)	Log of common shares traded during the quarter, Compustat item `CSHTRQ`, divided by shares outstanding, Compustat item `CSHOQ`. The measure is scaled to match the units used in the analysis.
Borrower HHI	Herfindahl-Hirschman Index of BDC loan borrowers. The index ranges from 0 to 1 and is computed using non-negative fair-value portfolio exposures from BDC Collateral.
Borrower Commonness	Portfolio-cost-weighted average of the logarithm of the number of BDCs holding each borrower in a given quarter. Specifically, $$\text{Commonness}_{it} = \sum_{b \in \mathcal{B}_{it}} w_{ibt} \ln(n_{bt}),$$ where w_{ibt} is borrower b's share of BDC i's portfolio cost in quarter t, and n_{bt} is the number of distinct BDCs holding borrower b in quarter t.
ROA	Net income divided by lagged total assets. Net income and total assets are from BDC Collateral.
Net Inv. Income/L.assets	Net investment income divided by lagged total assets. Net investment income and total assets are from BDC Collateral.
Realized gains/L.assets	Net realized gains divided by lagged total assets. Both variables are from BDC Collateral.
Unrealized gains/L.assets	Net unrealized gains divided by lagged total assets. Both variables are from BDC Collateral.
Net gains/L.assets	Net gains divided by lagged total assets. Both variables are from BDC Collateral.

Continued on next page

Table B.1 continued

Variable	Definition
Buy-and-hold return	Unadjusted return accumulated over the 60-trading-day pre-announcement window. It is calculated as $$BHR_{i,q} = \left[\prod_{t=-60}^{-1}(1+R_{i,t})\right]-1,$$ where $R_{i,t}$ is the realized daily total return for firm i on trading day t relative to the upcoming earnings announcement at $t=0$.
Market-adjusted CAR	Cumulative abnormal return over the 60-trading-day pre-announcement window, adjusted for broad market movements: $$CAR^{MKT}_{i,q} = \sum_{t=-60}^{-1}(R_{i,t}-R_{m,t}),$$ where $R_{m,t}$ is the daily return on the CRSP value-weighted market index.
FF3-adjusted CAR	Cumulative abnormal return adjusted for systematic risk using the Fama-French three-factor model. Expected daily returns are calculated as $$\widehat{R}_{i,t} = R_{f,t} + \widehat{\alpha}_i + \widehat{\beta}_{i,mkt}(MKT_t - R_{f,t}) + \widehat{\beta}_{i,smb}SMB_t + \widehat{\beta}_{i,hml}HML_t.$$ The FF3-adjusted CAR is then calculated as $$CAR^{FF3}_{i,q} = \sum_{t=-60}^{-1}(R_{i,t}-\widehat{R}_{i,t}).$$ Factor loadings are estimated one trading day prior to the previous quarter's earnings announcement.
Std. net financial sentiment	Standardized buzz-weighted average of daily net sentiment scores from MarketPsych over the 60 calendar days immediately preceding the firm's quarterly earnings announcement. Net sentiment is measured as positive references minus negative references, scaled by total daily news and social media volume.
Std. negative sentiment	Standardized buzz-weighted average of daily negative news and social media references from MarketPsych over the 60 calendar days immediately preceding the firm's quarterly earnings announcement. It measures the intensity of pessimistic or unfavorable language directed at the firm.
Std. positive sentiment	Standardized buzz-weighted average of daily positive news and social media references from MarketPsych over the 60 calendar days immediately preceding the firm's quarterly earnings announcement. It measures the intensity of optimistic or favorable language directed at the firm.
NAV surprise	The difference between IBES actual total NAV and the median analyst forecast of total NAV, divided by CRSP shares outstanding measured three trading days before the IBES actual announcement date. The consensus forecast is constructed using each analyst's most recent quarterly NAV forecast issued before the announcement. The measure is expressed in dollars per share.

Continued on next page

Table B.1 continued

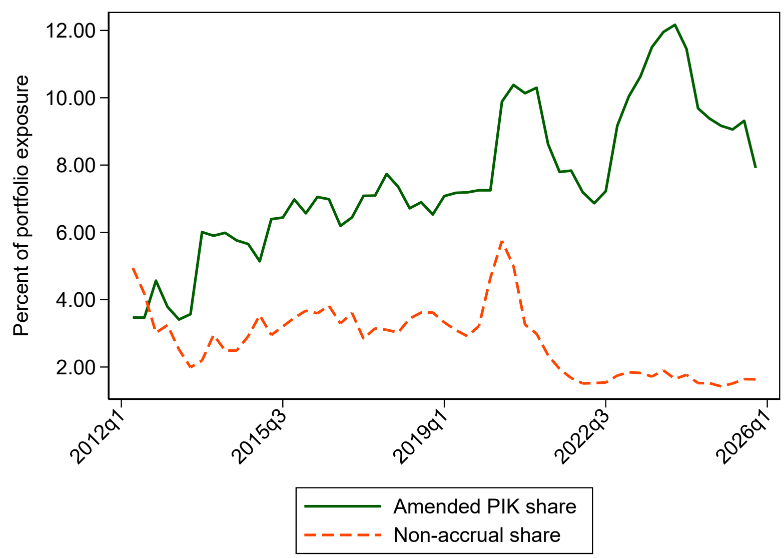
Variable	Definition
Price-scaled NAV surprise	NAV surprise divided by the BDC's stock price measured three trading days before the IBES actual announcement date. The measure expresses unexpected NAV news relative to the BDC's pre-announcement market value of equity and is the main NAV-surprise measure used in the announcement-return analysis.
NAV-scaled NAV surprise	NAV surprise divided by lagged reported NAV per share. The measure expresses unexpected NAV news as a fraction of the BDC's previously reported NAV per share and is used as an alternative scaling of the NAV surprise.
VIX change	Quarterly change in the VIX. Source: FRED, VIXCLS.
Core CPI inflation	Log difference in average CPI over the quarter. Source: FRED, CPILFESL.
Unemployment change	Change in the average unemployment rate over the quarter. Source: FRED, UNRATE.
GDP growth	Quarterly real GDP growth. Source: FRED, A191RL1Q225SBEA.
Credit spread	The quarterly S&P UBS Leveraged Loan Index 3-year discount margin. Source: Bloomberg, CSLLLTOB.
HY OAS	The quarterly high-yield option-adjusted spread. Source: FRED, BAMLH0A0HYM2.
GZ spread	The quarterly aggregate Gilchrist–Zakrajšek spread. Source: Favara et al. (2016)
EBP	The quarterly aggregate excess bond premium. Source: Favara et al. (2016)

C BDC Tail Outcomes and Industry Composition

This section provides descriptive evidence on the evolution and industry composition of adverse outcomes in BDC portfolios. We first examine aggregate trends in amended PIK and non-accrual exposure and then assess whether these outcomes are concentrated in particular industries. Figure C.1 presents the quarterly aggregate shares of amended PIK and non-accrual exposure from 2012 through 2025. Each measure is calculated as a percentage of the aggregate reported cost of loans held in BDC portfolios.

Figure C.1: Amended PIK and Non-Accrual Exposure

This figure presents the quarterly aggregate shares of portfolio loans associated with amended PIK and non-accrual status. Both measures are expressed as percentages of the aggregate reported cost of loans in BDC portfolios.

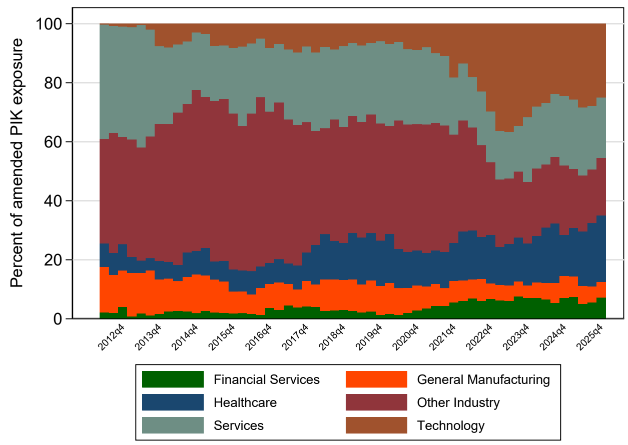


The figure shows that amended PIK exposure increased sharply during the onset of the COVID-19 pandemic and remained elevated through early 2021. After partially receding, it began to rise again in late 2022 and reached a peak of 12.2% in 2024Q1. Amended PIK exposure subsequently declined but remained elevated relative to the pre-pandemic period, reaching 7.9% by 2025Q4.

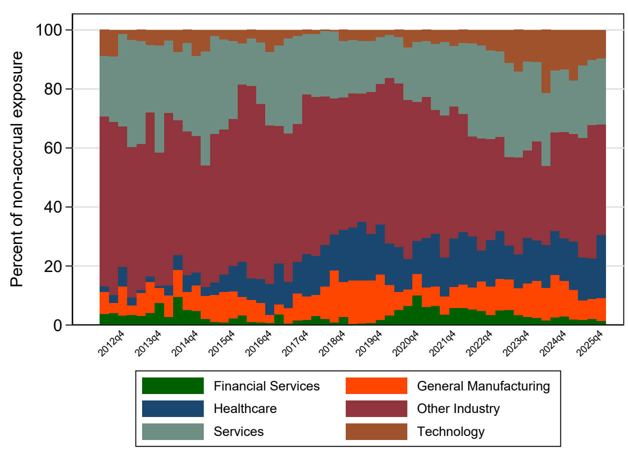
Non-accrual exposure is generally smaller and follows a different time-series pattern. It fluctuates at relatively modest levels through most of the 2010s, rises sharply at the onset of the COVID-19 pandemic, and peaks at 5.7% in 2020Q2. It then declines rapidly and remains comparatively stable at approximately 1.4% to 1.9% of aggregate loan cost from 2022 onward.

Figure C.2: Industry Composition of Amended PIK and Non-Accrual Exposure

This figure presents the quarterly industry composition of amended PIK and non-accrual exposure from 2012 through 2025. The five largest industry groups are identified using aggregate reported loan cost over the full sample, and all remaining industries are classified as Other Industry. In Panel A, an industry's share is calculated as the reported cost of amended PIK loans in that industry divided by the aggregate reported cost of all amended PIK loans. In Panel B, an industry's share is calculated as the reported cost of non-accrual loans in that industry divided by the aggregate reported cost of all non-accrual loans. Loans classified as partially on non-accrual are treated as non-accrual. The industry shares sum to 100% within each quarter and panel.



(a) Amended PIK Exposure



(b) Non-Accrual Exposure

Figure C.2 presents the quarterly industry composition of amended PIK and non-accrual exposure. The five largest industry groups are identified using aggregate reported loan cost over the full sample, and all remaining industries are classified as Other Industry.

The composition of amended PIK exposure changes noticeably after 2021. Technology becomes the largest component, while Healthcare also accounts for an increasing share. Together, Technology and Healthcare represent nearly half of amended PIK exposure by

2025Q4. At the same time, the share attributed to Other Industry declines, indicating that the recent increase in amended PIK exposure has become more concentrated in these two sectors.

The composition of non-accrual exposure also varies considerably over time. In the later part of the sample, non-accrual exposure is distributed primarily across Other Industry, Healthcare, and Services. Technology accounts for a larger share in some quarters, but its contribution is less persistent. Healthcare remains an important component near the end of the sample.

Overall, the figure shows that adverse portfolio outcomes are concentrated in a relatively small number of industries, although the industries accounting for the largest shares vary over time.

D Other Figures

Figure D.1: Cross-Sectional Variation in BDC Valuations Relative to NAV

This figure reports average coefficient estimates from Fama–MacBeth regressions of the BDC valuation relative to NAV on lagged BDC characteristics. The dependent variable is the BDC valuation relative to NAV, defined as $100 \times (Price - NAV)/NAV$. Each explanatory variable is standardized within quarter, so the coefficients measure the average percentage-point difference in valuation relative to NAV associated with a one-standard-deviation difference in the corresponding characteristic across BDCs in the same quarter. The univariate estimates are obtained from separate regressions for each characteristic. The sample consists of publicly traded BDCs from 2012Q2 to 2025Q4. Reported standard errors are adjusted for serial correlation using Newey–West standard errors with four quarterly lags. Horizontal lines represent 95 percent confidence intervals.

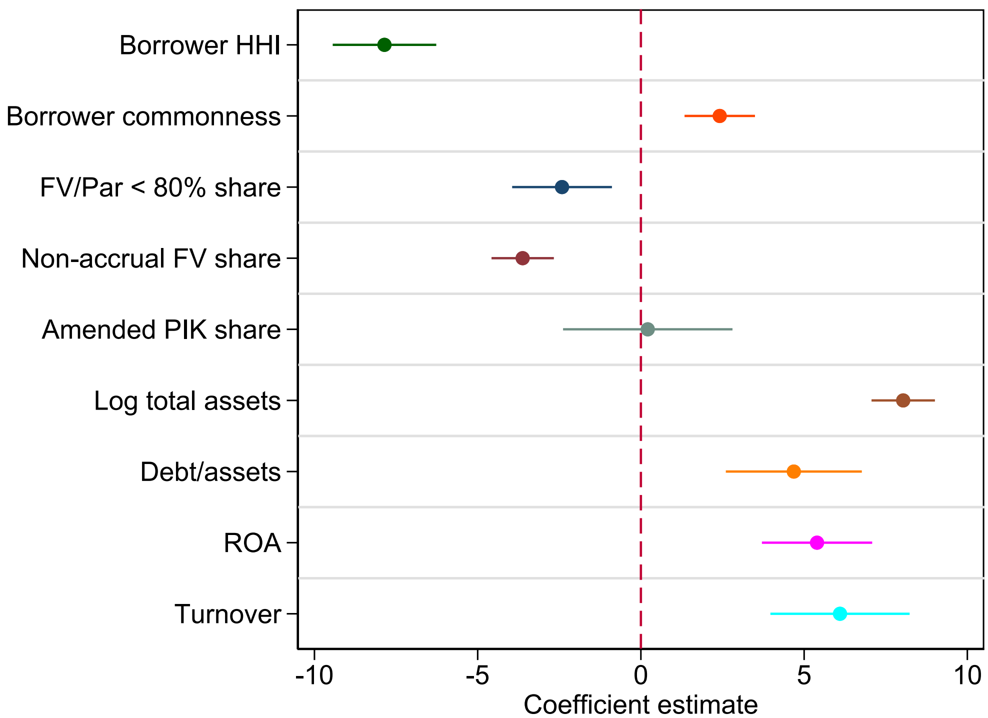


Figure D.2: Valuation and Other Measures of Credit Distress

This figure plots coefficient estimates from OLS regressions of cumulative changes in the BDC valuation relative to NAV on changes in credit market distress variables over horizons $q = 0, 1, 2, 3, 4$. The sample period is 2012Q1–2025Q4. The estimated specification is

$$\Delta_q Discount_{i,t} = \beta_q \Delta Distress_t + \gamma_q' X_{i,t-1} + \delta_q' Z_{t-1} + \alpha_i + \varepsilon_{i,t+q},$$

where $Discount_{i,t}$ is the BDC valuation relative to NAV, defined as $(Price - NAV)/NAV$, and $\Delta_q Discount_{i,t} = Discount_{i,t+q} - Discount_{i,t-1}$, multiplied by 100. $\Delta Distress_t$ is the quarterly change in the credit market distress variable, defined as the high-yield option-adjusted spread in Panel A, the Gilchrist–Zakrajšek spread in Panel B, and the excess bond premium in Panel C. $X_{i,t-1}$ includes lagged BDC-level controls, and Z_{t-1} includes lagged macroeconomic controls. BDC-level controls include ln($Assets$), debt-to-assets, and ROA. Macroeconomic controls include changes in the VIX, CPI, and unemployment rate, and growth in GDP. All specifications include BDC fixed effects. Standard errors are clustered by BDC and quarter. The light green and dark green intervals denote 95% and 90% confidence intervals, respectively. All variables except the credit spreads and macroeconomic controls are winsorized at the 1st and 99th percentiles.

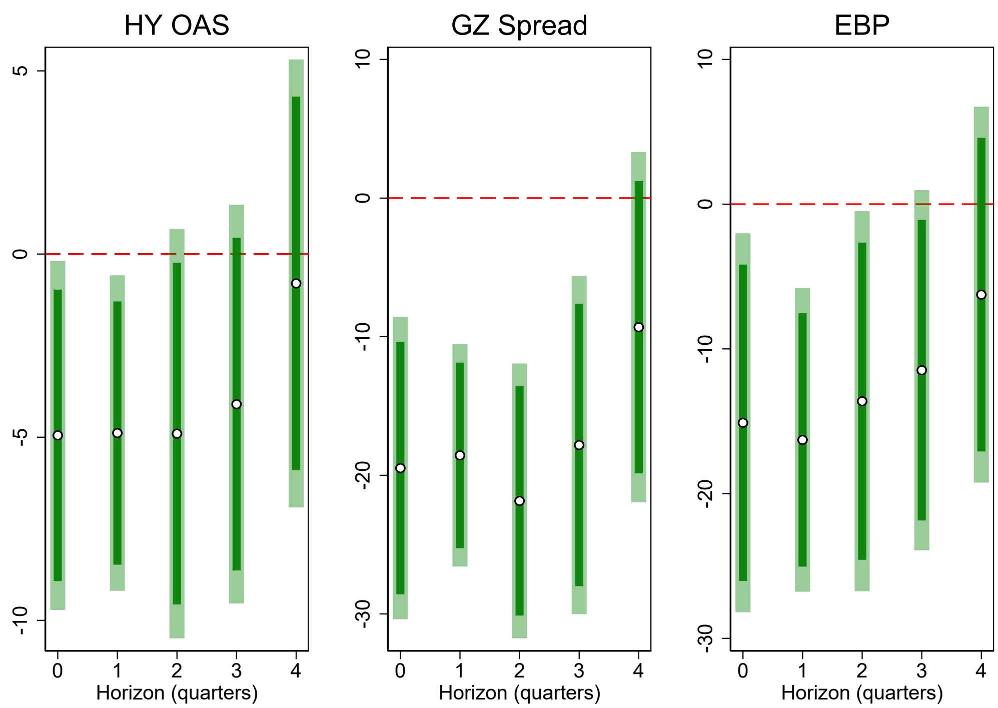
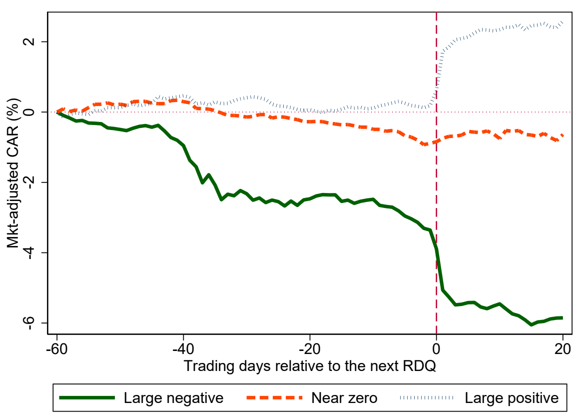


Figure D.3: Returns Around Earnings Announcements

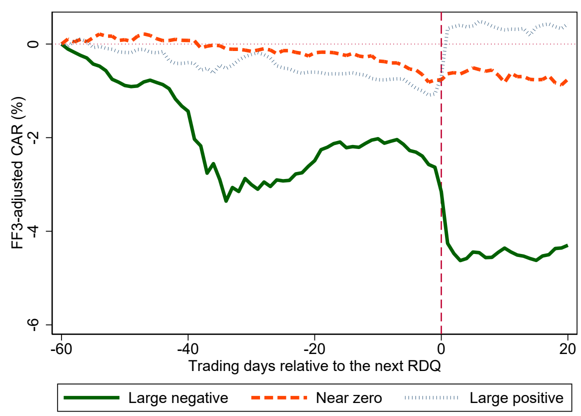
This figure plots cumulative abnormal returns around quarterly earnings announcements for public BDCs. Event time is measured in trading days relative to the subsequent earnings announcement, with day 0 defined as the first CRSP trading day on or after the announcement date reported in Compustat item RDQ. The event window spans trading days -60 to $+20$. For BDC i in quarter q, cumulative market-adjusted and Fama–French three-factor-adjusted returns through event day τ are defined as

$$CAR_{i,q}^{MKT}(\tau) = \sum_{s=\underline{\tau}_{i,q}}^{\tau} (R_{i,q,s} - R_{m,s}), \qquad CAR_{i,q}^{FF3}(\tau) = \sum_{s=\underline{\tau}_{i,q}}^{\tau} \left(R_{i,q,s} - \widehat{R}_{i,q,s}\right),$$

where $\underline{\tau}_{i,q}$ is the earliest available trading day within the event window, $R_{m,s}$ is the return on the CRSP value-weighted market index, and $\widehat{R}_{i,q,s}$ is the expected return from the Fama–French three-factor model. Factor loadings are estimated using information available before the preceding earnings announcement and held fixed over the event window. BDC-quarter observations are sorted into three groups based on the subsequent one-quarter log change in NAV per share: large negative, near zero, and large positive. The plotted series are averaged within each group and normalized to zero on event day -60. Returns are expressed in percent.



(a) Market-adjusted Returns



(b) FF3-adjusted Returns

Figure D.4: Pre-Announcement Returns and Future Dividend Cut

This figure plots coefficient estimates from regressions of future BDC outcomes on pre-announcement raw buy-and-hold stock returns over horizons $q = 1, 2, 3, 4$. The estimated specification is

$$Y_{i,t,t+q} = \beta_q RET^{pre}_{i,t+1} + \gamma_q' X_{i,t} + \alpha_i + \lambda_t + \varepsilon_{i,t+q},$$

where $RET^{pre}_{i,t+1}$ is the raw buy-and-hold return measured over the 60-trading-day window ending one trading day before the quarter-$t+1$ earnings announcement date, identified using Compustat item RDQ. The outcome variable $Y_{i,t,t+q}$ is measured from quarter t to quarter $t+q$. $Y_{i,t,t+q}$ is equal to 100 if dividends per share in quarter $t+q$ are lower than dividends per share in quarter t, and zero otherwise. Dividends per share are adjusted for stock splits using Compustat item AJEXQ. $X_{i,t}$ includes BDC-level controls: ln(Assets), debt-to-assets, and ROA. All specifications include BDC and quarter fixed effects. Standard errors are clustered by BDC and quarter. The light green and dark green intervals denote 95% and 90% confidence intervals, respectively. All continuous variables are winsorized at the 1st and 99th percentiles.

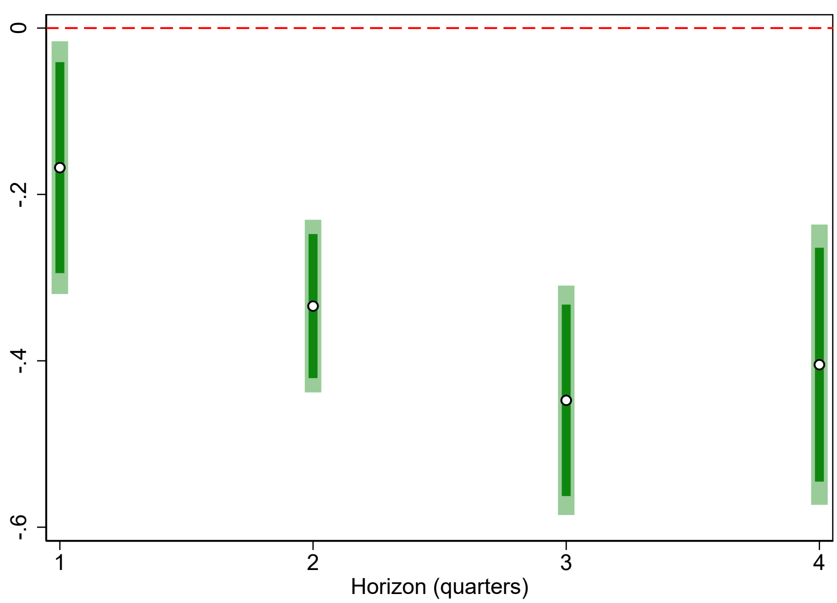
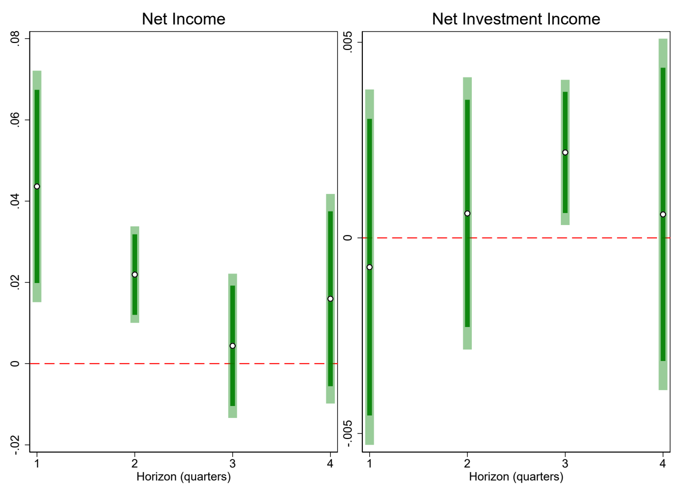


Figure D.5: Pre-Announcement Returns and Future Accounting Outcomes

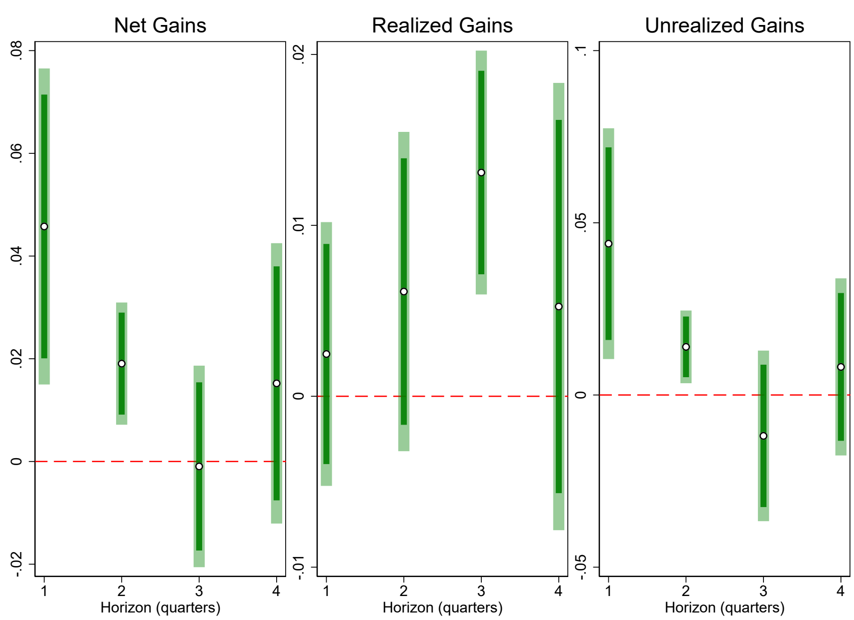
This figure plots coefficient estimates from regressions of future BDC outcomes on pre-announcement stock returns over horizons $q = 1, 2, 3, 4$. The estimated specification is

$$Y_{i,t+q} = \beta_q RET^{pre}_{i,t+1} + \gamma_q' X_{i,t} + \alpha_i + \lambda_t + \varepsilon_{i,t+q},$$

where $RET^{pre}_{i,t+1}$ is the buy-and-hold return measured over the 60-trading-day window ending one trading day before the quarter-$t+1$ earnings announcement date, identified using Compustat item RDQ. The outcome variable Y denotes future net income and net investment income in Panel A, and net gains, realized gains, or unrealized gains in Panel B. Each outcome is scaled by lagged total assets and expressed in percentage points. $X_{i,t}$ includes BDC-level controls: ln(Assets), debt-to-assets, and ROA. All specifications include BDC and quarter fixed effects. Standard errors are clustered by BDC and quarter. The light green and dark green intervals denote 95% and 90% confidence intervals, respectively. All variables are winsorized at the 1st and 99th percentiles.



(a) Income Outcomes



(b) Valuation Outcomes

Figure D.6: Pre-Announcement Returns and Future BDC Outcomes

This figure plots coefficient estimates from regressions of future BDC outcomes on pre-announcement stock returns over horizons $q = 1, 2, 3, 4$. The estimated specification is

$$Y_{i,t,t+q} = \beta_q RET^{pre}_{i,t+1} + \gamma_q' X_{i,t} + \alpha_i + \lambda_t + \varepsilon_{i,t+q},$$

where $RET^{pre}_{i,t+1}$ is the buy-and-hold return measured over the 60-trading-day window ending one trading day before the quarter-$t+1$ earnings announcement date, identified using Compustat item RDQ. The outcome variable $Y_{i,t,t+q}$ is measured from quarter t to quarter $t+q$. In Panel A, $Y_{i,t,t+q}$ is the change in the share of loans with fair-value-to-par-value ratios below 80 percent from quarter t to quarter $t+q$. In Panel B, $Y_{i,t,t+q}$ is the change in the share of non-accrual loans from quarter t to quarter $t+q$. In Panel C, $Y_{i,t,t+q}$ is the change in the share of amended PIK loans from quarter t to quarter $t+q$. $X_{i,t}$ includes BDC-level controls: ln(Assets), debt-to-assets, and ROA. All specifications include BDC and quarter fixed effects. Standard errors are two-way clustered by BDC and quarter. The light green and dark green intervals denote 95% and 90% confidence intervals, respectively. All variables are winsorized at the 1st and 99th percentiles.

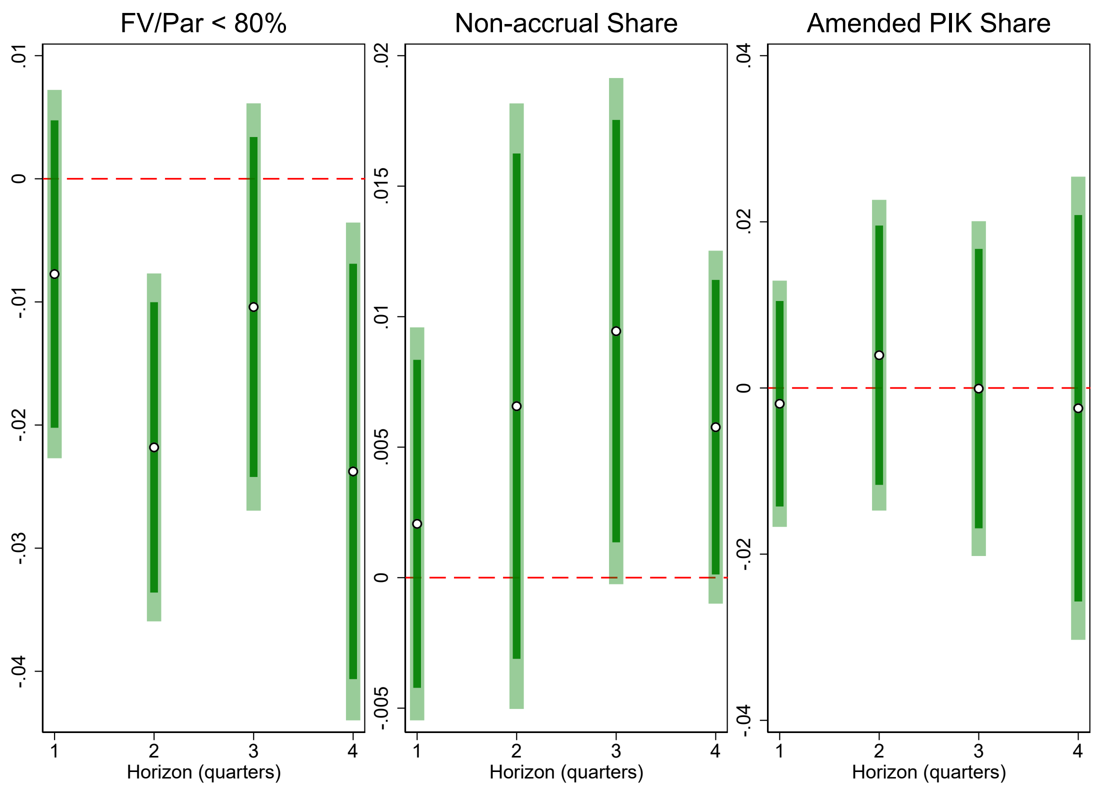


Figure D.7: Sentiment Around Earnings Announcements

This figure plots the cumulative abnormal sentiment (CAS) around quarterly earnings announcements for public BDCs. Event time is measured in calendar days relative to the next earnings announcement date. Day 0 is defined as the next earnings announcement date, identified using Compustat item RDQ. The event window covers calendar days -60 to $+20$ around the next earnings announcement. At each event time τ, the cumulative abnormal sentiment is calculated as the sum of daily abnormal sentiment scores from calendar day -60 to calendar day τ:

$$CAS_{i,\tau} = \sum_{s=-60}^{\tau} (Sentiment_{i,s} - \overline{Sentiment}_s),$$

where $Sentiment_{i,s}$ is the buzz-weighted net financial sentiment score for BDC i on event day s (with buzz defined as the total volume of news and social media references), and $\overline{Sentiment}_s$ is the cross-sectional average sentiment across all BDCs on that same calendar day. The sample is sorted into three groups based on the subsequent one-quarter log change in NAV per share: large negative, near zero, and large positive. The plotted series are averaged across BDC-quarter observations within each group and are rebased to zero at calendar day -60.

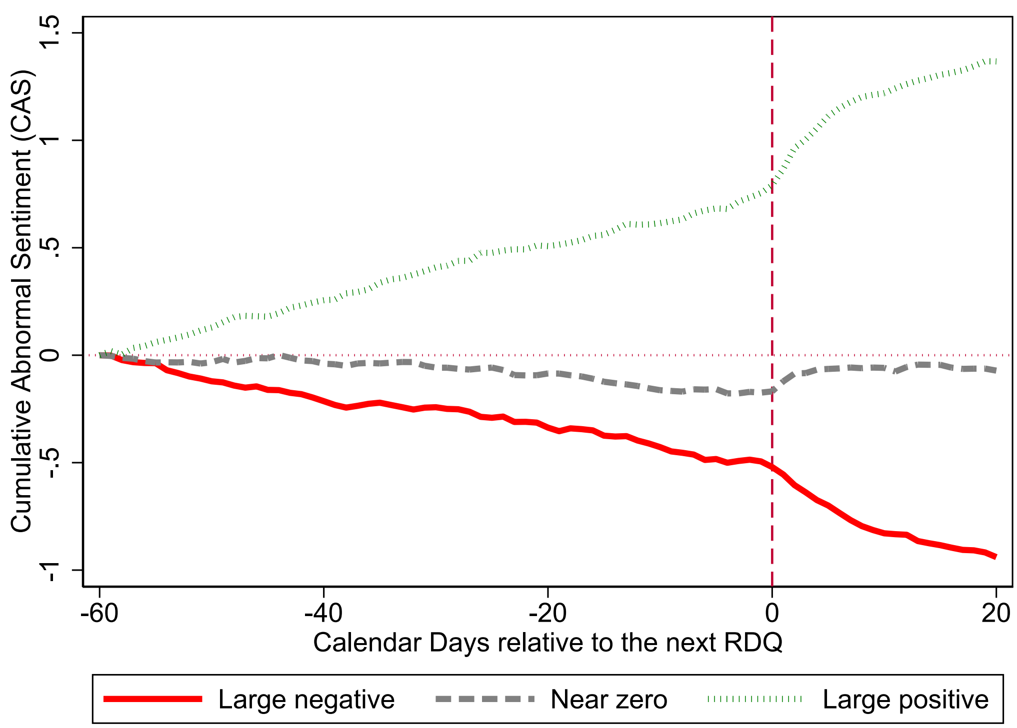
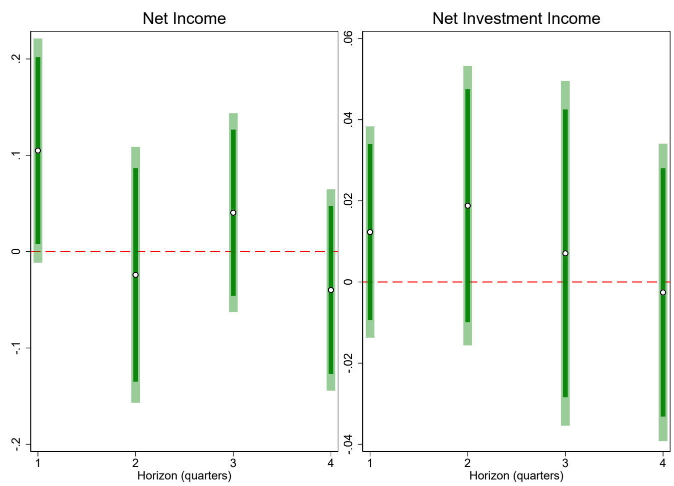


Figure D.8: Pre-Announcement Sentiment and Future Accounting Outcomes

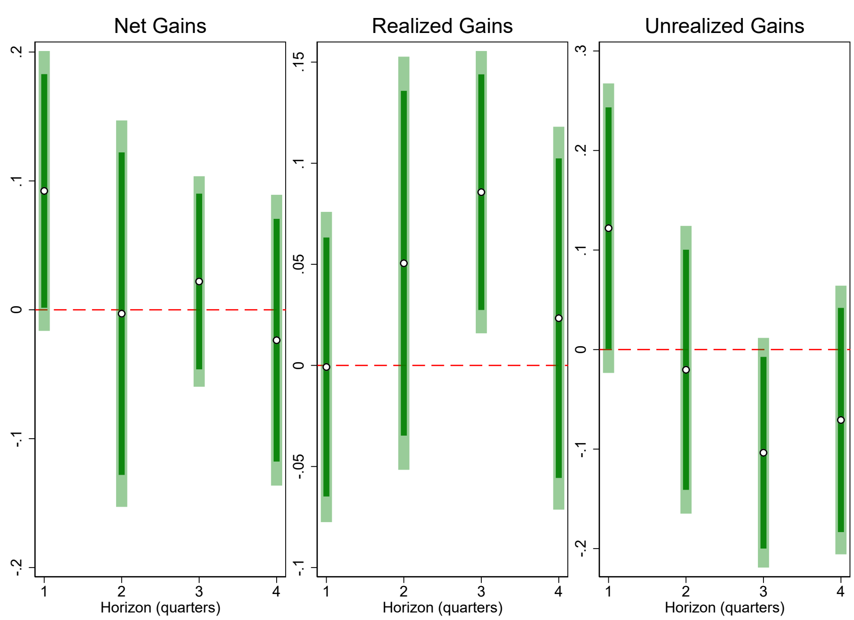
This figure plots coefficient estimates from regressions of future BDC outcomes on pre-announcement media sentiment over horizons $q = 1, 2, 3, 4$. The estimated specification is

$$Y_{i,t+q} = \beta_q Sentiment^{pre}_{i,t+1} + \gamma_q' X_{i,t} + \alpha_i + \lambda_t + \varepsilon_{i,t+q},$$

where $Sentiment^{pre}_{i,t+1}$ is the standardized net sentiment measure over the 60-calendar-day window ending one day before the quarter-$t+1$ earnings announcement date, identified using Compustat item RDQ. The outcome variable Y denotes future net income and net investment income in Panel A, and net gains, realized gains, or unrealized gains in Panel B. Each outcome is scaled by lagged total assets and expressed in percentage points. $X_{i,t}$ includes BDC-level controls: ln(Assets), debt-to-assets, and ROA. All specifications include BDC and quarter fixed effects. Standard errors are two-way clustered by BDC and quarter. The light green and dark green intervals denote 95% and 90% confidence intervals, respectively. All continuous variables are winsorized at the 1st and 99th percentiles.



(a) Income Outcome



(b) Valuation Outcome

E Other Tables

Table E.1: Pre-Announcement Sentiment and Future NAV Changes

This table reports OLS regressions of future changes in NAV per share over horizons $q = 1, 2, 3, 4$ on pre-announcement media sentiment. The estimated specification is

$$\Delta_q \ln(NAV)_{i,t} = \beta_q Sentiment^{pre}_{i,t+1} + \gamma_q' X_{i,t} + \alpha_i + \lambda_t + \varepsilon_{i,t+q},$$

where $\Delta_q \ln(NAV)_{i,t} = 100 \times [\ln(NAV_{i,t+q}) - \ln(NAV_{i,t})]$. NAV per share is adjusted for stock splits using Compustat item AJEXQ. The main independent variables are sentiment measured over the 60-day window ending one day before the quarter-$t+1$ earnings announcement date, where earnings announcement are identified using Compustat item RDQ. Sentiment metrics include Net Financial Sentiment, Negative Sentiment, and Positive Sentiment, which are constructed as buzz-weighted averages of daily LSEG MarketPsych Indices scores and standardized to have a mean of zero and a standard deviation of one. Detailed variable definitions are provided in the Data Appendix. $X_{i,t}$ includes BDC-level controls: ln(Assets), debt-to-assets, and ROA. All specifications include BDC and quarter fixed effects. Standard errors are clustered by BDC and quarter. All variables are winsorized at the 1st and 99th percentiles.

	Dependent variable: $100 \times [\log(\text{NAV}_{t+q}) - \log(\text{NAV}_t)]$			
Separate regression using:	$q = 1$	$q = 2$	$q = 3$	$q = 4$
Sentiment	0.164**	0.186	0.182	0.030
	(0.072)	(0.158)	(0.230)	(0.259)
Negative sentiment	-0.283***	-0.372*	-0.307	0.007
	(0.098)	(0.210)	(0.227)	(0.233)
Positive sentiment	0.035	0.011	0.076	0.074
	(0.068)	(0.143)	(0.270)	(0.311)
N	2110	2098	2041	1984
Controls	Yes	Yes	Yes	Yes
BDC FE	Yes	Yes	Yes	Yes
Time FE	Qtr	Qtr	Qtr	Qtr
Clustered SE	BDC × Qtr	BDC × Qtr	BDC × Qtr	BDC × Qtr