

Funding Frictions and the Valuation of Private Credit[☆]

Huasheng Nie
UCLA Anderson School of Management
huasheng.nie.phd@anderson.ucla.edu

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[☆]The author thanks Valentin Haddad, Erica Jiang, Francis Longstaff, Ivo Welch, and Stavros Panageas. Mailing address: Huasheng Nie, UCLA Anderson School of Management, 110 Westwood Plaza, Suite C-402, Los Angeles, CA 90095, USA. Corresponding author: Huasheng Nie, huasheng.nie.phd@anderson.ucla.edu.

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Abstract

In frictionless markets, asset values do not depend on the holder. I test this benchmark using publicly listed Business Development Companies (BDCs) that hold the same loan and report lender-specific valuations. I combine security-level portfolio holdings from BDC filings with fund-level liability data. I instrument funding costs with pre-period floating-rate exposure interacted with short-rate movements, and compare co-holders of the same claim in the same quarter. A 100-basis-point rise in a BDC's effective debt rate lowers its valuation of the claim by 3.4% during the 2021–2023 tightening cycle. Pass-through is strongest for BDCs with a low share of bank debt and for those with little committed liquidity, is attenuated by strong lender–sponsor relationships, and operates in both tightening and easing episodes. On new lending, the same shock lowers the principal a BDC holds in a given facility by about 29% and its share of the facility by 11 percentage points; facilities funded by higher-cost BDCs carry spreads 55 basis points wider and attract about 24% less BDC principal. I find no statistically detectable effect on participation. The results show that lender balance sheets shape both reported values for otherwise identical claims and the allocation of newly originated credit across lenders.

Keywords: private credit; direct lending; Business Development Companies; intermediary asset pricing; credit supply.

1. Introduction

In a frictionless market, the value of a claim does not depend on who holds it. This benchmark can fail when assets are illiquid and the intermediaries holding them are financed with different liability structures. A funding shock that raises one lender’s marginal cost of capital but not another’s can then generate different shadow values for the same contractual claim. This paper tests that prediction in private credit, a market that has absorbed a growing share of corporate borrowing from regulated banks.¹ Because private loans rarely trade, transaction prices provide little continuous discipline on reported valuations and required returns. If invariance fails, private-credit valuation and performance measurement are partly intermediary-specific, and monetary and funding shocks can propagate through nonbank balance sheets even when borrower fundamentals are unchanged. Policymakers have identified opaque private-credit valuations as an obstacle to monitoring risk and to tracing shocks through nonbank intermediaries (IMF, 2024).

Business Development Companies (BDCs) provide a rare setting in which lender-specific valuations and liability structures are simultaneously observable. BDCs originate and hold illiquid corporate loans and report them each quarter at fair value,² and multiple BDCs frequently hold the same private loan. As a result, two intermediaries can hold the same loan claim in the same quarter, which lets me compare reported valuations while holding the contractual claim and common borrower news fixed.

Prior work links valuation differences across holders to reporting discretion, governance, and information.³ This paper asks instead whether that dispersion reflects a liability-side required-return wedge: whether funding conditions enter the discount rates used to value and supply private credit.

I address two questions. First, does a BDC’s cost of debt affect how it values a loan that other intermediaries hold in the same quarter? Second, do funding costs pass through to the terms and

¹See Erel and Inozemtsev (2025) on the shift of corporate borrowing toward less regulated intermediaries and Davydiuk et al. (2024a) on the rise of direct lending in the U.S. middle market.

²Fair values are reported under ASC 820, typically as Level 3 assets, using internal discounted cash flow models and third-party valuation vendors; see AICPA (2019) for AICPA guidance on the valuation of portfolio-company investments.

³See, for example, Hanley et al. (2018) and Curtis and Raney (2016) on delayed updating, serial correlation, and strategic fair-value estimation when assets are Level 3 and reporting incentives are strong, and Jang and Kim (2025), who weigh governance alongside information asymmetry and soft information as sources of valuation dispersion in private credit.

quantity of new lending?

To answer these questions, I assemble a new panel linking security-level BDC holdings to fund-quarter liability data. The valuation analysis focuses on publicly listed BDCs, for which the liability and cost-of-equity series required by the design are available. Using Schedules of Investments from BDC regulatory filings, I observe fund-quarter fair values for each portfolio security and construct a panel of co-held loans, where reported marks on the same security can be compared across funds. I use interest expense and interest-bearing debt to measure each fund's quarterly cost of debt.

Identification comes from a simple source of variation: BDCs differ in how much of their debt reprices when short-term rates change. In a shift-share (Bartik-style) design, I interact each BDC's pre-period share of floating-rate debt with changes in short-term benchmark rates. Conditional on security $\times$ quarter and BDC $\times$ security fixed effects (where a security is a specific loan claim), this interaction generates within-security-quarter variation in funding costs across BDCs that hold the same loan in the same quarter. Borrower fundamentals and the underlying claim are held fixed, in the spirit of [Khwaja and Mian \(2008\)](#).⁴ Identification requires that pre-period floating-rate shares be unrelated to subsequent fund-level shocks to marks that these fixed effects do not absorb. It does not require short-rate changes themselves to be exogenous in levels. I complement this strategy with event studies around the 2020 COVID-19 shock and the 2021–2023 tightening cycle, lead-lag tests for valuation smoothing, and specifications that use high-frequency monetary policy surprises as alternative aggregate shocks. The estimates remain negative and statistically significant, and become somewhat larger, when asset-side interest-rate exposure and portfolio characteristics interacted with time are controlled for directly.

During the 2021–2023 tightening cycle, a 100 basis point increase in a BDC's cost of debt reduces the fair value it assigns to an existing co-held loan by about 3.2–3.4% relative to peers holding the same claim. Given the roughly 3.4-year duration of these claims, this markdown corresponds to a rise of roughly 95–100 basis points in the implied required return. Read as a discount-rate effect, that is economically substantial. In the 2019–2020 easing episode, the corresponding semi-elasticity is roughly 7%; because funding costs predominantly fell over that period, the channel operates in both episodes, with valuations rising as funding costs decline. Event studies show no statistically

⁴[Khwaja and Mian \(2008\)](#) use firm fixed effects to compare lending by different banks to the same borrower.

detectable differential pre-trends and close alignment in the timing of the funding-cost and valuation responses. The lead-lag estimates show a contemporaneous response; delayed adjustment is not precisely estimated.

The strength of this channel varies systematically with financial structure. Pass-through is strongest for BDCs with a low share of bank debt and, in a separate specification, for those with the least undrawn revolver capacity; it is substantially weaker for BDCs with ample committed liquidity. Pass-through is also weaker for loans backed by private equity (PE) sponsors with whom the lender has strong prior lending ties.

For new lending, funding costs shape the positions lenders take in the same facility. Conditional on participating, and within a given facility and quarter, a 100 basis point increase in a BDC's cost of debt reduces its facility share by roughly 11 percentage points and the principal it holds by about 29%. In a panel of potential lenders, I find no statistically detectable participation response to funding costs. Participation is instead strongly associated with prior lending relationships. Facilities funded by higher-cost BDCs also carry spreads roughly 55 basis points wider and attract about 24% less BDC principal in total. These facility-level terms are equilibrium outcomes, not supply elasticities. The same wedge is visible in both settings. It moves the value a lender reports on a claim it already holds, and the principal position it takes in a newly originated facility.

1.1. Contributions

This paper makes two contributions to the literatures on private credit and financial intermediation. First, it provides micro-level evidence that intermediaries' funding conditions affect their reported valuations of private loans, consistent with a discount-rate channel. Intermediary asset pricing predicts that required returns depend on the balance-sheet conditions of the intermediaries holding the assets ([Brunnermeier and Pedersen, 2009](#); [He and Krishnamurthy, 2013](#); [He et al., 2017](#)). The co-held-loan evidence provides a claim-level counterpart, in which the holder's funding conditions move its valuation of a fixed claim.

Prior work studies how BDCs complement or substitute for banks, and how BDC capital affects credit supply, employment, and innovation. Banks, in turn, may prefer lending to well-capitalized BDCs rather than directly to middle-market firms, given favorable capital treatment and lower supervisory costs (e.g., [Davydiuk et al., 2024a](#); [Chernenko et al., 2022](#); [Cai and Haque, 2024](#);

Chernenko et al., 2025). In related work, Davydiuk et al. (2024b) use index-driven shocks to BDC equity valuations to study market discipline in direct lending, showing how capital-supply shocks affect BDC risk-taking and portfolio-firm investment. Recent studies of valuation practices focus instead on the reporting side.⁵ My focus differs: comparing valuations of the *same* loan claim across its holders isolates a liability-driven wedge in reported valuations, which I interpret as a difference in the discount rates lenders apply. Reporting discretion is the alternative reading; the easing-episode and lead-lag tests address one-sided smoothing of bad news and delayed adjustment, not every reporting response.

Second, the paper links this valuation channel to balance-sheet structure, relationship capital, and the supply of new credit. Research on banks shows that capital, liquidity, and funding structure shape the response of lending to monetary and funding shocks (e.g., Bernanke and Gertler, 1995; Kashyap and Stein, 2000; Jiménez et al., 2012; Van den Heuvel, 2002; Berger and Bouwman, 2009; Cornett et al., 2011; Gambacorta and Marques-Ibañez, 2011). More recent work highlights a *deposits channel* operating through banks’ cost of funds and deposit spreads (Drechsler et al., 2017). I extend these liability-side insights to the nonbank BDC sector, where funding is predominantly wholesale and assets are private. The attenuation by deep lender-sponsor ties connects the valuation of private credit to the literature on repeated interactions in sponsor finance (Block et al., 2024; Buchner et al., 2024; Jang et al., 2025): pass-through is weaker where such relationships exist. On the origination side, the same funding-cost variation is associated with wider spreads on newly originated facilities and with smaller shares and principal positions for higher-cost lenders, tying the valuation response to lenders’ portfolio decisions.

The remainder of the paper proceeds as follows. Section 2 describes the holdings and liability data and the co-holding sample. Section 3 presents the valuation results: the baseline pass-through, the 2019–2020 easing episode test, event-study and lead-lag evidence on timing, the high-frequency surprise instrument, and heterogeneity by liability structure and sponsor relationships. Section 4 turns to origination, and Section 5 concludes.

⁵See Jang and Kim (2025); Brown et al. (2019); Hooke et al. (2025); Erel et al. (2024) on third-party valuation vendors, creditor oversight, and cross-manager differences in the aggressiveness of loan marks.

2. Data and Sample Overview

2.1. Data Sources and Construction

The data come from BDC quarterly and annual filings (Forms 10-Q and 10-K). I extract security-level positions, reported fair values, outstanding principal, and instrument characteristics from each fund’s Schedule of Investments (SOI). From 2022 onward, I use Inline XBRL section tags to retrieve SOI tables. For earlier filings, an automated HTML parser identifies quarter-end SOI tables from their headers and table structure and harmonizes column names across filers. I then standardize instrument identifiers and attributes and construct a panel of loan claims at the $\text{fund } i \times \text{security } s \times \text{quarter } t$ level.

I link these holdings to PitchBook, which provides granular information on leveraged buyouts and other debt financing transactions. I match SOI borrowers to PitchBook portfolio companies using fuzzy name matching with industry-based restrictions. Matched claims must share a consistent set of contractual characteristics: seniority, lien/security type, contractual maturity, contractual spread, base rate, all-in rate, and payment-in-kind (PIK) indicator.

I link the SOI to Capital IQ/Compustat items on interest expense, interest-bearing debt, asset and liability aggregates, leverage, the unsecured versus secured mix, and the share of floating-rate debt. These data provide the funding-cost measures and liability exposures used in the analysis.

The resulting panel covers 196 BDCs from 2014Q1 through 2025Q1, spanning 35,835 distinct debt securities issued by 10,508 borrowing firms. Throughout, *same security* denotes the same loan claim matched across funds, which allows security $\times$ quarter comparisons of reported valuations among co-holders. Of the 196 filers, the listed BDCs with the vendor liability data and the CRSP-based cost of equity required by the design form the estimation universe. Within the 2021Q1–2023Q2 window, these funds contribute 37,193 BDC–loan–quarter observations across 7,133 securities. Identification comes from the 4,433 security–quarter cells in which multiple BDCs hold the same claim (7,296 co-holder pairs; the median security–quarter has a single holder). Dropping fixed-effect singletons leaves 9,511 observations. Because co-holding requires at least two BDC holders, the estimation sample consists of club and broadly syndicated deals, and the estimates characterize valuation in that co-held segment of private credit.

2.2. BDC Valuation and Funding Costs

I measure the (log) reported mark on loan s held by fund i in quarter t as

$$\ln P_{i,s,t} \equiv \ln \left(\frac{\text{Fair Value}_{i,s,t}}{\text{Principal}_{i,s,t}} \right),$$

where fair value is the dollar amount reported for the position and principal is the corresponding par amount. The empirical funding-cost measure defined below is interest expense over average interest-bearing debt. It is an *average effective debt rate* rather than a directly observed marginal funding cost. The instrument isolates the component of that rate generated by the repricing of floating-rate liabilities, which is the object the framework treats as the funding wedge. Throughout I call this lender-specific reported value the fund's *reported mark* or *reported valuation*, and reserve *price* for the price in an actual transaction. The notation $\log P_{i,s,t}$ and the *Log Price* column headings in the tables refer to this reported mark. The baseline measure of fund i 's cost of debt in quarter t is

$$FC_{i,t} \equiv 4 \times \frac{\text{Interest Expense}_{i,t}}{\frac{1}{2}\text{Interest-Bearing Debt}_{i,t} + \frac{1}{2}\text{Interest-Bearing Debt}_{i,t-1}},$$

where $\text{Interest Expense}_{i,t}$ is the interest expense reported for quarter t and the factor of four annualizes it. $FC_{i,t}$ is in decimal units, so that 0.05 corresponds to a 5% annual cost of debt.

Two additional fund-quarter measures appear in the specifications below. I measure the cost of equity in the capital-asset-pricing form $KE_{i,t} = r_t^f + \hat{\beta}_{i,t} ERP_t$. Here $\hat{\beta}_{i,t}$ is a market beta estimated on a rolling window of the fund's CRSP returns and adjusted by shrinkage, and ERP_t is the prevailing equity risk premium. This measure is available only for listed funds. The weighted average cost of capital combines the two components, $WACC_{i,t} = w_{i,t}^E KE_{i,t} + (1 - w_{i,t}^E) FC_{i,t}$, where $w_{i,t}^E$ is the fund's equity weight. Specifications that use $\Delta WACC_{i,t}$ as the endogenous regressor are estimated on the subset of fund-quarters for which both components are available.

Co-holders of the same loan routinely report different marks: Appendix Figure A1 plots the average within-loan standard deviation of co-holder marks over time.

Appendix Table A3 documents that this dispersion is systematic: it widens for below-par credits, varies with instrument type, and increases with the number and concentration of co-holders,

consistent with heterogeneous valuation models producing disagreement about the same claim. These patterns raise the paper’s question: does part of this disagreement reflect the funding conditions of the intermediaries reporting these valuations?

2.3. External Validity Across BDC Funding Models

The identifying variation and first-stage strength are concentrated among listed BDCs, for which the cost-of-equity measure is also available. To assess whether listed BDCs report systematically different valuations, Appendix Table A7 compares listed and non-listed holders of the same loan in the same quarter. It finds no statistically detectable average difference in the marks they report, including in specifications that absorb loan-security $\times$ quarter fixed effects and exclude fund-family pairs that might share valuation infrastructure. Whether the two groups respond alike to funding shocks is a separate question: Section 3.1.3 shows that the pass-through cannot be estimated with useful precision for non-listed BDCs, so the paper’s causal estimates apply to listed BDCs.

3. Empirical Evidence on Funding-Cost Pass-Through to Valuation

3.1. Funding-Cost Pass-Through for Existing Loans

Does a change in a BDC’s effective debt rate move the marks on loans it already holds? Because valuations and funding costs are persistent, I work in first differences, analyzing quarter-on-quarter changes. The outcome is the log change in the reported fair-value mark of loan s , fair value per dollar of principal, as held by BDC i in quarter t . Identification comes from comparing how different BDCs revalue the *same* co-held loan in the *same* quarter. I winsorize this change at the 0.5th and 99.5th percentiles to limit the influence of extreme reporting revisions.

The empirical analysis focuses on the monetary tightening cycle from 2021Q1 to 2023Q2. Over this period, successive policy-rate increases moved the federal funds rate sharply away from the effective lower bound, generating large movements in short-term benchmarks and in BDC funding costs. The sample ends in 2023Q2 to avoid conflating funding shocks with the structural transition from LIBOR to SOFR. Table A1 reports summary statistics for the valuation and origination samples.

[Insert Table A1 here.]

3.1.1. Empirical Specification and Identification

A simple valuation framework organizes the empirical design. The value that fund i assigns to claim s in quarter t can be written as

$$P_{i,s,t} = PV(CF_{s,t}, r_{s,t} + \theta \mu_{i,t}), \quad (1)$$

where $CF_{s,t}$ denotes the claim's contractual cash flows, $r_{s,t}$ is the required return common to all holders of claim s at time t , $\mu_{i,t}$ is an intermediary-specific funding wedge, and θ measures the loading of that wedge into the discount rate. Lender invariance is the null hypothesis $\theta = 0$. In first differences, holding the claim fixed,

$$\Delta \log P_{i,s,t} \approx -D_{s,t} \theta \Delta \mu_{i,t},$$

where $D_{s,t}$ is the claim's discount-rate duration. This expression motivates the empirical design: security $\times$ quarter fixed effects absorb $CF_{s,t}$ and $r_{s,t}$, BDC $\times$ security fixed effects absorb match-specific valuation trends, and the instrument generates variation in funding costs. Empirically, the coefficient of interest is the IV semi-elasticity of reported marks with respect to the BDC's average effective debt rate. Under the valuation approximation, and if that rate isolates the funding wedge $\mu_{i,t}$ rather than other holder-specific responses, it equals $-D_{s,t} \theta$, and it measures whether, and by how much, lender invariance fails.

To isolate valuation changes driven by the intermediary's liability structure from those driven by borrower fundamentals, I estimate the following panel specification at the BDC-loan-quarter (i, s, t) level:

$$\Delta \log P_{i,s,t} = \beta \Delta \text{Cost of Debt}_{i,t} + \gamma' X_{i,t} + \alpha_{i,s} + \lambda_{s,t} + \varepsilon_{i,s,t}, \quad (2)$$

where $\Delta \log P_{i,s,t}$ is the change in the log mark of loan s reported by BDC i between quarters $t-1$ and t , $\Delta \text{Cost of Debt}_{i,t}$ is the corresponding change in BDC i 's average cost of debt, and $X_{i,t}$ includes time-varying BDC-level controls such as the cost of equity and lagged leverage. Throughout, the coefficient β is a semi-elasticity. Because the cost of debt is measured in decimals, a 100 basis point increase enters as 0.01 and changes the log reported mark by 0.01β , that is, by approximately β percent.

Because the specification is in first differences, the BDC–security fixed effects $\alpha_{i,s}$ absorb match-specific *trends*, that is, any persistent drift in how BDC i revalues claim s . The security–quarter fixed effects $\lambda_{s,t}$ absorb every shock common to the holders of loan s in quarter t , including borrower news such as rating changes or earnings announcements and any movement in the claim’s secondary-market value. Conditional on $(\alpha_{i,s}, \lambda_{s,t})$, identification of β comes solely from *within-security-quarter* variation. It reflects how BDC i ’s mark on loan s co-moves with its own funding cost relative to other BDCs that hold the same claim in the same quarter.

3.1.2. Instrumental Variables Strategy

Estimating Equation (2) by OLS raises two main identification concerns. First, reporting incentives can bias the OLS estimate of β upward. Funding pressure may strengthen incentives to preserve reported Net Asset Value (NAV) and avoid breaching leverage constraints. If, in response, managers inflate marks precisely when funding costs rise, changes in funding costs will be positively correlated with the residual $\varepsilon_{i,s,t}$. This behavior pushes OLS estimates toward zero or even positive values, masking a negative pass-through from funding costs to reported valuations. Second, the accounting-based effective debt rate, $\Delta\text{Cost of Debt}_{i,t}$, is likely contaminated by measurement error. It is constructed from financial statements and averages across credit facilities with different floors, reset dates, and hedging arrangements. As a result, $\Delta\text{Cost of Debt}_{i,t}$ is a noisy proxy for the true marginal funding rate. Under classical measurement error, this noise attenuates OLS coefficients toward zero even if the causal effect of funding costs on reported marks is strongly negative.

I instrument the observed change in funding costs with the interaction of BDC i ’s pre-period floating-rate liability share and the aggregate short-rate shock:

$$Z_{i,t} \equiv \text{Pre Floating Share}_i \times \Delta\text{LIBOR3M}_t,$$

where $\text{Pre Floating Share}_i$ is BDC i ’s share of floating-rate liabilities, averaged over the four quarters of 2021 and held fixed thereafter, and $\Delta\text{LIBOR3M}_t$ is the quarterly change in three-month LIBOR. Intuitively, when the benchmark rate moves, BDCs with more floating-rate debt see a larger change in their funding costs. Conditional on the security $\times$ quarter fixed effects, which absorb all borrower-level and claim-specific consequences of the macro shock, $Z_{i,t}$ therefore generates

cross-sectional variation in funding costs across BDCs that hold the same loan in the same quarter.⁶ The measurement window ends before the first rate increase of the cycle in 2022Q1, so the shares are fixed before the tightening the design exploits; they are not measured before the sample begins, however, and the identifying assumption is that they are unrelated to fund-level shocks to marks that the fixed effects do not absorb. Whether correlated fund-level characteristics, most importantly asset-side exposure to rate changes, load on the interaction is the main such concern; the balance diagnostics below and the direct test in Appendix Table A5 address it.

As a diagnostic for the *exogenous shares* assumption, Appendix Table A2 reports BDC-level means of pre-2022 characteristics for funds with below- and above-median pre-period floating-rate exposure, restricting the sample to the 2021 pre-period. Most characteristics (size, leverage, cost of equity, reported marks, maturities, term-loan and PIK shares, and realized pre-period changes in funding costs) are balanced. Two are not: high-exposure funds hold 14.1 percentage points more first-lien loans ($p = 0.03$) and slightly lower-yielding portfolios ($p = 0.10$). The same-loan comparison holds the claim being valued fixed, but the rest of a BDC’s portfolio could still shape its response to aggregate shocks. The controlled specifications in Table 1 (cost of equity, lagged leverage) partially address this concern.

The exclusion restriction cannot be tested directly. Appendix Table A5 controls directly for measured asset-side exposure, the most plausible violation: the estimate survives and becomes somewhat larger. BDC loan books are almost uniformly floating-rate. The fair-value-weighted floating share of 2021 holdings has a mean of 0.99 and a standard deviation of 0.04 across sample funds, against 0.38 and 0.23 for the liability share that forms the instrument. Asset-side repricing can generate little cross-fund variation. Adding the floating-asset share interacted with the rate change, the first-lien share and portfolio yield interacted with quarter indicators, or all three leaves the pass-through estimate intact. It rises in absolute value from -3.4 to between -3.8 and -5.1 , with first-stage F -statistics between 27 and 33. The asset-side interaction does not predict funding-cost changes (-0.001 , s.e. 0.013).

Dropping any single fund leaves the baseline coefficient between -4.1 and -2.7 , significant at the

⁶The fixed effects absorb the common benchmark movement itself, so what identifies β is dispersion in exposure across the co-holders of a given loan, scaled by that quarter’s rate change.

10% level in every case and at the 5% level in about three-quarters of cases.

3.1.3. Baseline Pass-Through Estimates

In the first stage (Panel A of Table 1), a one-unit difference in the 2021 floating-rate debt share predicts a 78–83 basis point difference in the response of the cost of debt to a 100 basis point change in the benchmark rate, with first-stage F -statistics around 36. The zero-to-one normalization extrapolates beyond the observed exposure range; it expresses the first-stage slope, not a comparison of two actual funds. The slope is below one. Floors on some facilities and the averaging of the accounting measure over contracts with staggered reset dates attenuate measured pass-through; swaps can raise or lower effective floating-rate exposure.

[Insert Table 1 here.]

In Panel B, OLS regressions of $\Delta \log P_{i,s,t}$ on $\Delta \text{Cost of Debt}_{i,t}$ with the full set of fixed effects and controls deliver small and statistically insignificant coefficients. By contrast, the 2SLS estimates based on $Z_{i,t}$ are large and negative, with coefficients on $\Delta \text{Cost of Debt}_{i,t}$ in the range -3.2 to -3.4 . The estimates change little after controlling for the cost of equity and lagged leverage, so contemporaneous variation in the measured cost of equity does not account for them. A 100 basis point increase in the instrumented cost of debt corresponds to a same-quarter markdown of about 3.2–3.4% in the valuation of a given co-held loan relative to its peers. The 100 basis point normalization is convenient rather than typical: the standard deviation of the quarterly change in the cost of debt in the estimation sample is about 50 basis points, so a one-standard-deviation shock corresponds to a markdown of roughly 1.7%.⁷ Two further procedures support the same conclusion: wild-cluster bootstrap p -values for columns (1)–(3) are 0.007, 0.006, and 0.008, and weak-instrument-robust Anderson–Rubin 95% confidence sets are $[-7.5, -0.4]$, $[-7.3, -0.4]$, and $[-7.2, -0.3]$ (Appendix Table A5 reports both for the asset-side specifications). The WACC columns have fewer observations because they require both the debt and the equity cost change. Loan duration provides an illustrative conversion from these semi-elasticities to required returns. The co-held loans in the estimation sample have a median remaining maturity of about 4.4 years,

⁷Panel A of Table A1 reports a larger dispersion because it covers every BDC-quarter over the wider 2020Q1–2023Q2 window rather than the co-held estimation sample.

implying a discount-rate (spread) duration of roughly 3.4 years.⁸ Under these assumptions, a 3.2–3.4% valuation decline corresponds to an increase of roughly 95–100 basis points in the loan-specific discount rate. That would be an economically substantial pass-through of the intermediary’s funding cost into the required return in equation (1). The mapping treats the funding-cost change as a persistent shift in the required return over the claim’s remaining life. The same duration applied to the larger easing-episode and high-frequency estimates would imply larger responses, but those samples differ in loan composition, shock definition, and window, so I do not compare implied required returns across them. The conversion is an illustration for a representative claim, not an estimated required-return response.

The unadjusted exposure measure ignores interest-rate swaps, which can move a fund’s effective rate exposure away from its balance-sheet floating share. Appendix Table A4 repeats the analysis with a swap-adjusted exposure measure, using swap positions, notionals and payment directions collected from each fund’s SEC filings. Correcting for this, if anything, sharpens the results. On the identical estimation sample, the second-stage coefficients range from -3.5 to -3.7 , all significant at the 5% level, and the first-stage F -statistics rise above 41 in the cost-of-debt columns. The pass-through estimates are robust to the measured swap adjustment.

A separate concern is the funding-cost measure itself, which the baseline takes from the vendor data. I rebuild it directly from SEC filings as interest expense over average interest-bearing debt, computed for the same funds and quarters, leaving the marks, the instrument and the fixed effects unchanged. The pass-through is -3.9 in the tightening cycle and -4.8 in the COVID episode, both significant at the 5% level, with first-stage F -statistics of 10.4 and 27.1. In the tightening cycle the weak-instrument-robust confidence set for this alternative measure also excludes zero. Because the two series come from different sources and agree closely where both exist, this is a measurement check rather than a separate identification strategy.

The estimates in Table 1 are identified from listed BDCs, because the vendor liability data and the CRSP-based cost of equity exist only for traded funds. Extending the analysis to non-listed BDCs, with liability variables rebuilt from SEC filings, does not settle whether pass-through differs outside

⁸For a par floating-rate loan with quarterly payments, $\Delta \ln P \approx -D \Delta \mu$ with $D = (1 - (1 + y)^{-T})/y$; at $T = 4.4$ years and all-in yields of 9–10%, $D \approx 3.4$ –3.5. Using the mean remaining maturity (4.2 years) instead leaves the mapping essentially unchanged.

the listed sector: non-listed BDCs borrow overwhelmingly at floating rates, so the instrument is weak there, and the reduced form has the same sign as the listed estimate and about one-third its magnitude but is imprecise and fragile.⁹ I report the paper’s results for listed BDCs, for which both the exposure variation and the cost-of-equity control are available, and do not claim that the mechanism has been shown to operate in the non-listed sector.

3.2. The 2019–2020 Easing Episode

I next ask whether the negative funding-cost relationship also appears in the preceding easing environment. I re-estimate Equation (2) over 2019Q1–2020Q4, which covers the 2019 mid-cycle rate cuts, the onset of COVID-19, and the emergency cuts to the zero lower bound in March 2020.

[Insert Table 2 here.]

Table 2 summarizes the results. The empirical design mirrors the baseline. The unit of observation is a BDC–loan–quarter (i, s, t) , and all specifications include BDC×security and security×quarter fixed effects. The change in the cost of debt, and in the WACC, is instrumented with the interaction of pre-period floating-rate exposure, averaged over the four quarters of 2019, and the quarterly change in three-month LIBOR. The 2019 average overlaps the first year of the window, but it is predetermined relative to the 2020 repricing that provides most of the identifying variation. Panel A shows first-stage F -statistics between 13.8 and 16.7 across columns. Panel B shows the same pattern as in the tightening cycle: OLS coefficients relating $\Delta \log P_{i,s,t}$ to $\Delta \text{Cost of Debt}_{i,t}$ are negative but much smaller in magnitude than the 2SLS coefficients, which are large, negative, and stable across columns. A 100 basis point increase in the instrumented cost of debt lowers reported marks on existing co-held loans by roughly 7%. The estimate changes little after controlling for the cost of equity and lagged leverage. Consistent with the event-study evidence in Section 3.3, identification in this episode comes largely from the sharp repricing in 2020Q2.

⁹On the overlapping listed funds the SEC-based liability series correlate 0.95–0.98 with the vendor data. The non-listed first-stage F is about four in the tightening cycle and below one during COVID, which leaves the COVID episode unidentified outright. The non-listed reduced form is -0.0079 (s.e. 0.0038) over the tightening cycle, against -0.0261 (s.e. 0.0101) for listed funds in the same units, with a t -statistic between -1.06 and -2.72 across winsorization conventions, the exclusion of funds with a listed family sibling, and leave-one-out resampling. The listed/non-listed difference is -0.0178 (s.e. 0.0107) across separate samples and 0.0138 (s.e. 0.0109) in a pooled reduced form with non-listed×quarter fixed effects; neither is distinguishable from zero, and the sign is not stable across the two designs. A quarter of non-listed funds sit below a pre-period floating share of 0.83, and most security×quarter cells containing several non-listed co-holders do contain variation; within-cell exposure dispersion in the COVID episode is 0.005.

I do not read the larger 2019–2020 coefficient as a stronger channel during easing: the samples differ in loan composition, in the timing and distribution of funding shocks, and in macroeconomic conditions.

The episode also tests whether the relationship appears when funding costs fall. Because policy rates and funding costs predominantly declined over 2019–2020, identification here comes largely from negative funding-cost shocks, and the estimated semi-elasticity implies that valuations rise as funding costs fall. The valuation response runs in both directions. That pattern is less readily explained by discretionary smoothing of bad news alone.

3.3. Event-Study Evidence on Timing and Pre-Trends

Pre-period floating exposure could proxy for slow-moving differences across BDCs that would generate differential trends in funding costs or marks even in the absence of monetary shocks. A related concern is that BDCs may spread valuation adjustments over several quarters, so that the contemporaneous estimates in Section 3.1.3 partly reflect gradual smoothing. Event studies address both issues. They test for differential pre-trends in funding costs and marks by pre-period floating exposure, and trace the dynamic response of both around monetary-policy episodes.

For the 2019–2020 easing episode and the 2021–2023 hiking cycle, I estimate

$$Y_{i,s,t} = \alpha_{i,s} + \lambda_{s,t} + \sum_k \beta_k (\text{Pre Floating Share}_i \cdot \mathbf{1}\{K_t = k\}) + \varepsilon_{i,s,t}, \quad (3)$$

where $Y_{i,s,t}$ is either $\Delta \text{Cost of Debt}_{i,t}$ or $\Delta \log \text{Price}_{i,s,t}$, and K_t indexes quarters relative to the monetary policy episode. The quarter before the episode, $k = -1$, is the omitted reference period. As in the baseline specification, all regressions include $\text{BDC} \times \text{security}$ and $\text{security} \times \text{quarter}$ fixed effects. The coefficient β_k is therefore the event-time- k slope of $Y_{i,s,t}$ with respect to $\text{Pre Floating Share}_i$: for example, it captures the difference in $Y_{i,s,t}$ in quarter k between two co-holding BDCs that differ in floating exposure by one unit (i.e., 100 percentage points).

[Insert Figure 1 here.]

For the 2019–2020 easing episode, the estimated β_k display no systematic pre-trends. For $k \leq -2$, the coefficients are close to zero in both the funding-cost and mark regressions, indicating that, prior to the episode, there is no systematic relation between pre-period floating exposure and the

evolution of $\Delta \text{Cost of Debt}_{i,t}$ or $\Delta \log \text{Price}_{i,s,t}$. The main deviations emerge in 2020Q2. In that quarter the coefficients turn significantly negative for funding costs and significantly positive for marks: higher-exposure BDCs see larger declines in measured funding costs and, correspondingly, larger relative valuation gains. The timing reflects BDC liability structures and floating-rate reset conventions. Interest expense in 2020Q1 was largely determined by reference rates prevailing before the March 2020 cuts. The COVID-induced decline in three-month LIBOR reached measured funding costs, and reported marks, mainly in 2020Q2. This timing suggests that the one-quarter delay reflects the mechanics of rate resets rather than gradual, multi-quarter smoothing of a one-time shock.

In the 2021–2023 hiking cycle, the estimated responses reverse direction. As in 2019–2020, the pre-period slopes are close to zero: for $k \leq -2$, the β_k are small and statistically insignificant in both funding-cost and mark regressions, indicating no statistically detectable differential trends in $Y_{i,s,t}$ as a function of Pre Floating Share $_i$ before the tightening episode. From 2022Q1 the coefficients are persistently positive for funding costs and negative for marks: in quarters with rate increases, higher-exposure BDCs see larger increases in effective debt rates and larger markdowns on co-held loans. The repeated nonzero coefficients coincide with a succession of rate increases, as expected if valuations are updated with each new funding shock rather than with a lag behind past shocks.

The lack of statistically detectable pre-trends and the close alignment between the funding-cost and valuation responses support the identifying assumption. The dynamics of marks are consistent with a contemporaneous response once the contractual reset structure of liabilities is taken into account, with delayed adjustment imprecisely estimated.

3.4. Pass-Through Using High-Frequency Monetary Policy Surprises

One concern with the baseline strategy is that changes in three-month LIBOR need not be exogenous policy shocks. LIBOR movements also reflect macroeconomic news and shifts in risk and liquidity premia, so $\Delta \text{LIBOR3M}_t$ itself is not an exogenous shock. The baseline does not require such an assumption: identification comes from cross-sectional heterogeneity in pre-period floating-rate liability shares that load on aggregate rate movements.¹⁰

¹⁰Recent work on shift-share designs distinguishes between identification via *exogenous shares* (Goldsmith-Pinkham et al., 2020) and via *quasi-random shocks* (Borusyak et al., 2022). In the baseline specification using realized

It is nonetheless useful to ask whether the estimated pass-through survives when the aggregate shock is measured by unexpected changes in the policy-rate path. I use the monetary policy surprise series of [Bauer and Swanson \(2023\)](#), as published by the Federal Reserve Bank of San Francisco. Each surprise is the first principal component of changes in the first four quarterly Eurodollar futures rates, which span horizons up to about one year, in a narrow window around a Federal Open Market Committee announcement. Summing the surprises that fall in a calendar quarter gives a quarterly series, HF Monetary Policy Surprise_{*t*}, and I define the alternative instrument

$$Z_{i,t}^{\text{HF}} = \text{Pre Floating Share}_i \times \text{HF Monetary Policy Surprise}_t,$$

where Pre Floating Share_{*i*} is the pre-period floating-rate liability share in 2021, held fixed over the sample. Unlike the LIBOR-based instrument, the surprise series remains usable after the benchmark transition, so this sample extends through 2023Q4 and is larger than the [Table 1](#) sample (12,684 versus 9,498 observations).

[Insert [Table 3](#) here.]

[Table 3](#) reports the results. This specification includes BDC and security×quarter fixed effects, with standard errors clustered by BDC and borrower. Panel A shows that $Z_{i,t}^{\text{HF}}$ predicts $\Delta\text{Cost of Debt}_{i,t}$, with first-stage F -statistics between 12.9 and 13.5 and a coefficient of about 2.2 across specifications.¹¹

Panel B presents the corresponding second-stage estimates. Across columns, the 2SLS coefficients on $\Delta\text{Cost of Debt}_{i,t}$ lie between -5.5 and -5.9 , significant at the 10% level in two specifications and at the 5% level in the third. A 100 basis point increase in the instrumented cost of debt reduces reported marks on existing co-held loans by about 5–6% in the same quarter. The point estimates

$\Delta\text{LIBOR3M}_t$, identification relies on the exogeneity of the shares: conditional on fixed effects, pre-period liability structures are assumed unrelated to unobserved determinants of valuation changes that covary with the instrument. In this section, I complement that design by replacing realized rate changes with high-frequency monetary policy surprises, an announcement-window measure of unexpected revisions to the policy-rate path.

¹¹The coefficient exceeds one because the outcome and the regressor are measured over different windows: the outcome is the realized quarterly change in the average rate on the BDC’s debt stock, while the regressor is the sum of the quarter’s announcement-window revisions to the expected policy path over the coming year. A one-basis-point path surprise typically signals a persistent revision to expected short rates, so realized benchmarks, and with them floating coupons, can move by more than one basis point over the quarter. The coefficient is therefore a ratio of within-quarter funding-cost changes to announcement-window surprises; it does not imply that spreads over the benchmark widen, and its scale is not comparable to the LIBOR-based first stage.

are stable when the cost of equity and lagged leverage are included.

The alternative instrument yields the same qualitative conclusion with larger point estimates. Given the wider confidence intervals and the longer window, I do not emphasize the magnitude difference.

3.5. Lead-Lag IV Evidence on the Timing of the Funding-Cost Channel

Do valuations respond in the quarter a funding-cost shock is realized, or adjust over subsequent quarters? If managers smooth valuations over time, a funding-cost shock in quarter t should also show up in forward-horizon or multi-quarter changes in marks. I examine this timing with a set of lead-lag IV specifications.

[Insert Table 4 here.]

Table 4 reports results for the 2021Q1–2023Q2 sample. The specification follows Section 3.1.3. Panel A shows a strong first stage when $\Delta\text{Cost of Debt}_{i,t}$ enters alone and a materially weaker one when current and lagged changes enter jointly.

Panel B turns to the second stage. Columns (1) and (2) use the quarterly changes in reported marks at $t + 1$ and $t + 2$, $\Delta \log \text{Price}_{i,s,t+1}$ and $\Delta \log \text{Price}_{i,s,t+2}$. Column (3) uses the cumulative outcome $\sum_{h=0}^2 \Delta \log \text{Price}_{i,s,t+h}$, the sum of the winsorized quarterly log changes at t , $t + 1$, and $t + 2$; before winsorization this sum equals $\log P_{i,s,t+2} - \log P_{i,s,t-1}$. All three use $\Delta\text{Cost of Debt}_{i,t}$ as the sole endogenous regressor. Across these specifications, the coefficients on $\Delta\text{Cost of Debt}_{i,t}$ are small and statistically insignificant. Their confidence intervals are wide, so these tests have limited power against economically relevant delayed adjustment. Column (4) instead uses the contemporaneous change in the reported mark, $\Delta \log \text{Price}_{i,s,t}$, as the dependent variable and includes both $\Delta\text{Cost of Debt}_{i,t}$ and $\Delta\text{Cost of Debt}_{i,t-1}$ on the right-hand side. In this distributed-lag specification, the coefficient on $\Delta\text{Cost of Debt}_{i,t}$ is about -3.7 and marginally significant, while the coefficient on $\Delta\text{Cost of Debt}_{i,t-1}$ is small and statistically insignificant once current funding conditions are controlled for.

Over the tightening cycle, the contemporaneous estimate is negative and lagged changes in funding costs add little explanatory power, while the forward and cumulative estimates are too imprecise to determine the extent of delayed adjustment or persistence.

3.6. Heterogeneity by Liability Structure

I next examine whether valuation sensitivity varies with the BDC’s pre-period liability structure. I consider two dimensions. First, does pass-through differ between BDCs that borrow relatively little from banks and those that borrow primarily from banks? Second, does undrawn revolver capacity attenuate the impact of funding shocks on marks?

The analysis focuses on two pre-2022 balance sheet indicators. The first, $\mathbf{1}\{\text{High Bank Debt}_i\}$, equals one if bank debt as a share of BDC i ’s total debt, measured over 2021, is above the median. The second is an indicator for high undrawn revolver capacity, $\mathbf{1}\{\text{High Undrawn Revolver}_i\}$, equal to one if undrawn revolving commitments as a share of total debt plus undrawn commitments, measured over 2021, are above the median. The medians are taken over the loan-quarter observations of the estimation sample.

To allow for heterogeneous pass-through, I estimate

$$\Delta \log P_{i,s,t} = \beta_0 \widehat{\Delta \text{Cost of Debt}_{i,t}} + \beta_1 \left(\widehat{\Delta \text{Cost of Debt}_{i,t}} \times D_i \right) + \alpha_{i,s} + \lambda_{s,t} + \varepsilon_{i,s,t}, \quad (4)$$

where D_i is, in turn, the high-bank-debt or high-undrawn-revolver dummy. All specifications include BDC $\times$ security and security $\times$ quarter fixed effects, so identification continues to come from within-security-quarter variation across co-holding BDCs. Both $\widehat{\Delta \text{Cost of Debt}_{i,t}}$ and $\widehat{\Delta \text{Cost of Debt}_{i,t}} \times D_i$ are treated as endogenous and are instrumented with $Z_{i,t}$ and $Z_{i,t} \times D_i$.

[Insert Table 5 here.]

Table 5 reports results for the 2021Q1–2023Q2 tightening cycle. Panel A reports the first stages for the interacted instrument set. Panel B documents pronounced heterogeneity in pass-through. Column (1) considers the bank-debt dimension. For BDCs with *low* bank-debt exposure ($D_i = 0$), the baseline semi-elasticity is $\beta_0 \approx -7.16$, implying that a 100 basis point increase in the cost of debt lowers reported marks by around 7%. For BDCs with *high* bank-debt exposure ($D_i = 1$), the interaction coefficient is $\beta_1 \approx 3.79$, so the implied semi-elasticity is roughly -3.4 . Pass-through is about twice as large in absolute value for BDCs with a low bank-debt share as for those funded largely by banks. This pattern is consistent with relationship banks providing flexibility and renegotiation capacity in distress, while arm’s-length investors impose more rigid market-based

discipline (Bolton and Freixas, 2000; Chemmanur and Fulghieri, 1994).

Column (2) turns to undrawn revolver capacity. For BDCs with *low* undrawn capacity, the baseline coefficient is $\beta_0 \approx -4.65$. For BDCs with *high* undrawn capacity, the interaction term is $\beta_1 \approx 3.62$, so the implied semi-elasticity is close to -1 . Committed liquidity appears to attenuate the immediate impact of funding shocks on marks, in line with the corporate liquidity literature on undrawn credit lines as a hedge against aggregate financing shocks (Sufi, 2009; Acharya et al., 2013).

The interacted first stages are weaker than in the baseline ($F \approx 9$ for the bank-debt specification), so these contrasts are suggestive. Liability structure, then, appears to shape the strength of the valuation channel. BDCs that enter the tightening cycle with a low share of bank debt, and separately those with limited undrawn capacity, show higher pass-through from funding shocks to reported marks.

3.7. Heterogeneity by Sponsor Relationships

A second, asset-side source of heterogeneity is the lender’s relationship with the borrower’s private equity (PE) sponsor. I test whether stronger ties between a BDC’s credit family and the sponsor weaken pass-through into reported marks. Repeated lender–sponsor interactions can improve information, screening, and monitoring, supporting more favorable loan terms and lower financing frictions (Ivashina and Kovner, 2011; Demiroglu and James, 2010; Huang et al., 2016, 2018). Recent work further suggests that lender–sponsor relationships can shape creditor behavior dynamically: stronger ties reduce monitoring and retained loan shares (Haque et al., 2024), may increase creditor leniency when preserving future deal flow is valuable (Haque and Kleymenova, 2023), and make private-debt funds more dependent on sponsors for origination opportunities (Block et al., 2024). Relationship capital may attenuate the transmission of liability-side shocks into private-credit valuations.

I count prior deals between BDC i ’s credit family and loan s ’s PE sponsor as of 2021Q1. *High Sponsor Tie* $_{i,s}$ equals one when this count is above the median among family–sponsor pairs with at least one prior deal, and zero otherwise. I then interact $\Delta\text{Cost of Debt}_{i,t}$ with this indicator, treating both terms as endogenous and instrumenting them with $Z_{i,t}$ and its interaction with the indicator.

[Insert Table 6 here.]

Table 6 reports the results. The interacted instrument set has a joint first-stage F of 17.5. Panel B indicates that sponsor relationships substantially attenuate the pass-through of funding costs into reported marks. For loans without strong sponsor ties, a 100-basis-point increase in the instrumented cost of debt lowers the reported mark by about 4.1%. The positive, statistically significant interaction with *High Sponsor Tie* $_{i,s}$ implies a smaller effect for loans backed by sponsors with stronger prior ties. The implied semi-elasticity falls in magnitude from 4.06 to 1.72 for strong-tie loans, a reduction of roughly 58%.

The design does not isolate the precise mechanism: stronger ties may provide better information, raise the value of future deal flow, or encourage support through temporary funding pressure. One interpretation is that relationship capital raises the continuation value of the lender–borrower match and thereby lowers the sensitivity of the lender’s valuation to transitory funding shocks. Distinguishing this from reporting-based explanations would require linking sponsor ties to subsequent position changes.

4. Funding-Cost Pass-Through to Loan Origination

I now turn from existing claims to *new* lending. The origination sample covers facilities originated from 2021Q1 through 2023Q4.¹² A BDC’s position in a facility counts as an origination when the BDC first reports the facility in its schedule of investments in the PitchBook deal-close quarter, in the quarter before it, or in the PitchBook announcement quarter. Later first appearances, which can reflect secondary purchases, delayed draws, or amendments, are excluded. When qualifying positions of different BDCs imply different origination quarters for a facility, the earliest is retained, and the facility enters with the positions observed in that quarter.

A facility is a contractual loan security or tranche, the same security-level unit used in the valuation analysis, and several BDCs may lend into the same facility. The data report each facility’s spread over the benchmark rate at the security–quarter level, together with the principal position each participating BDC reports in its schedule of investments. Aggregate BDC principal is the sum of

¹²For 2023Q3–Q4, after the June 2023 cessation of panel-based USD LIBOR, the three-month rate is the synthetic LIBOR that ICE continued to publish.

these positions across the BDCs in the sample. A BDC’s facility share is its position divided by the facility amount, defined as the larger of aggregate BDC principal and the PitchBook facility amount when the latter is observed. Positions of lenders outside the BDC sample are not observed. Co-lending permits comparisons among intermediaries with different funding costs that fund the same borrower, and often the same facility, in a given quarter, in the spirit of [Khwaja and Mian \(2008\)](#) and recent work on private credit (e.g., [Davydiuk et al., 2024b](#); [Haque et al., 2024](#); [Jang, 2024](#); [Erel and Inozemtsev, 2025](#)). Equation (1) implies that the same wedge capitalized into the valuation of legacy claims also raises the intermediary’s reservation return on new ones.

4.1. Specification and Identification

I relate origination outcomes to the *level* of the lender’s funding cost when the facility is priced, since both the contractual spread and the lenders’ positions are set in levels. This formulation follows evidence that intermediaries price loans as a mark-up over their own funding costs. [Schwert \(2018\)](#) shows that banks’ balance-sheet conditions and capital constraints are important determinants of loan spreads, and [Buchak et al. \(2018\)](#) document *cost-plus* pricing among shadow intermediaries, with wholesale funding costs passed through to borrower rates.

The baseline specification is

$$Y_{i,s,t} = \beta \widehat{\text{Cost of Debt}}_{i,t} + X'_{s,t}\gamma + \alpha_i + \lambda_{f,t} + \varepsilon_{i,s,t}, \quad (5)$$

where the unit of observation is a BDC–loan–quarter (i, s, t) . The dependent variable $Y_{i,s,t}$ is one of four outcomes. Two are facility-level: the contractual spread on security s in quarter t , $\text{Spread}_{s,t}$ (in percentage points), and the log of aggregate BDC principal in the facility, $\log \text{Total Amount}_{s,t}$. Two are lender-level: BDC i ’s facility share, $\text{Share}_{i,s,t}$, its principal position divided by the larger of aggregate BDC principal and the PitchBook facility amount, and the log of BDC i ’s own principal position, $\log \text{Amount}_{i,s,t}$. The vector $X_{s,t}$ includes a term-loan dummy, a first-lien dummy, maturity (in years), and a PIK indicator. In this specification $\text{Cost of Debt}_{i,t}$ is measured in percentage points, so each coefficient is the effect of a 100 basis point increase; the valuation tables measure it in decimals.

All specifications include BDC fixed effects, α_i , which absorb persistent differences in business model, mandate, and risk appetite. The high-dimensional fixed effects $\lambda_{f,t}$ differ by outcome:

- For the spread and aggregate BDC principal in columns (1)–(2) of Table 7, I include borrowing-company $\times$ quarter fixed effects. These absorb conditions common to the borrower’s facilities in that quarter, including borrower demand and risk. Each facility’s spread and total amount are common to all participating BDCs. Estimating (5) at the BDC–security–quarter level therefore attaches each facility outcome to the funding cost of every participant. Identification comes from issuer–quarter cells in which multiple loan securities are issued and funded by BDCs with different funding costs. Repeating the facility-level outcome across participants weights facilities by the number of BDC lenders. Because the participant set is itself an equilibrium outcome, I read these columns as describing how facility terms vary with participants’ funding costs, not as a facility-level supply curve with respect to a single lender’s cost.
- For the within-facility allocation outcomes in columns (3)–(4), I include loan-security $\times$ quarter fixed effects. These hold contractual terms, borrower risk, and aggregate conditions fixed within a security–quarter. The comparison is among BDCs co-lending in the *same* security in the *same* quarter. Because it is restricted to lenders that chose to participate, it identifies the allocation of a given facility across participants, not the extensive margin of participation or total credit supply.

Unobserved, time-varying BDC shocks may affect both funding costs and origination, biasing OLS estimates of β . I instrument with $Z_{i,t}$, the same exposure-based instrument used in the valuation analysis, so that the variation in the level of funding costs at origination comes from exposure-induced repricing of floating-rate liabilities. Because exposure is interacted with the *change* in the benchmark rather than with its level, the instrument isolates short-run funding-cost innovations; the origination estimates accordingly speak to recent innovations rather than to persistent differences in the level of funding costs.

[Insert Table 7 here.]

4.2. Origination Results

In Panel A of Table 7, the instrument carries first-stage F -statistics of 17.1 and 21.0. Panel B reports the second-stage 2SLS estimates. I begin with columns (3) and (4), which examine the allocation of credit *within* a facility and so hold the loan opportunity itself fixed.

A 100 basis point increase in Cost of Debt $_{i,t}$ reduces a BDC’s facility share by about 11 percentage points (column (3)). Its own principal position falls by 0.34 log points, or roughly 29% in levels (column (4)). Because the comparison holds the borrower, the facility, its contractual terms, and the quarter fixed, these differences in positions reflect differences in lenders’ funding conditions. Columns (1) and (2) turn to facility-level outcomes, which are common to all participants in a deal. Facilities funded by higher-cost BDCs carry wider spreads. A 100 basis point increase in Cost of Debt $_{i,t}$ is associated with a spread about 55 basis points wider (column (1)), conditional on loan characteristics and fixed effects. Column (2) shows a coefficient of -0.28 on $\log \text{Total Amount}_{s,t}$, about 24% smaller in levels. Facilities funded by higher-cost participants attract less BDC principal in total, again an equilibrium correlation rather than a supply elasticity. With standard errors clustered at the BDC level, all four coefficients are statistically significant: the spread at the 5% level and the three quantity outcomes at the 10% level. Two limitations qualify the credit-supply interpretation. First, the facility-level estimates in columns (1)–(2) cannot separate whose funding cost determines the terms of a deal; a design that assigns each facility the funding cost of its lead arranger, or of the borrower’s pre-existing relationship lenders, would sharpen this margin. Second, the within-facility estimates in columns (3)–(4) condition on participation, and speak to how much a lender funds rather than whether it lends at all.

Appendix Table A6 examines that extensive margin directly. The potential-lender panel assigns every BDC with funding-cost data active in a quarter to every facility originated in that quarter, giving 597 facilities and 23,638 fund–facility pairs with a participation rate of 5.5%. It estimates participation, facility share, and own amount, the share times the PitchBook facility amount, with the latter two entered as zero for non-participants, under facility $\times$ quarter and BDC fixed effects, so that lenders assigned to the same opportunity in the constructed risk set are compared. The potential-lender panel also uses a different sample from Table 7 and interacts pre-period floating-rate exposure with the level of three-month LIBOR rather than with its quarterly change, so its coefficients are not directly comparable with those in Table 7.

A 100 basis point increase in instrumented funding costs changes participation by -0.05 percentage points (s.e. 0.43). The estimate is not statistically distinguishable from zero, but neither is it precise: the weak-instrument-robust 95% set of $[-0.9, 0.9]$ percentage points admits a decline of up to about 17% of the base participation rate. The participation coefficient remains statistically insignificant

across the alternative risk sets and samples in columns (2)–(6) of Table A6 and in a panel rebuilt from SEC filings, which roughly doubles the risk set and yields 0.09 percentage points (s.e. 0.22). The estimates for share and own amount including zeros are likewise small.

What does predict participation is a prior relationship. Among pairs in which the fund had lent to the borrower in the preceding eight quarters, 45% participate, against 5.5% overall. Prior lenders to the borrower or its sponsor nonetheless account for only 36% of actual participants, so relationship-based risk sets are too narrow to serve as choice sets, and the broad risk set is the main specification. Its limitation is that some assigned lenders may face mandate or size constraints that make the opportunity less comparable than the fixed effects imply. The evidence identifies an allocation response among participating lenders and no participation response that the data can detect.

4.3. Economic Magnitudes and Comparison with Existing Loans

Origination spreads and reported valuations measure different margins. New facilities are structured to clear near par, so a wider contractual spread does not lower the price of the loan: it is the compensation the lender obtains for funding it. Because the spread is common to all participants, the coefficient of 0.55 describes how facility spreads vary with participants’ funding costs. It does not measure an individual lender’s pass-through rate, nor does it say that a given lender obtained 55 basis points of additional compensation.

Existing loans and new originations differ in how lenders can adjust to funding shocks. On a claim it already holds, the lender marks the claim itself. Read as a discount-rate effect, the 3.2–3.4% markdown corresponds, under the duration assumptions in Section 3.1.3, to a rise of roughly 95–100 basis points in the required return applied to that claim. On a claim it is still negotiating, the spread is agreed with the borrower and shared with every other participant, so the wedge cannot be capitalized unilaterally. What the lender does still control is how much of the facility to take. Because existing loans rarely trade, the reported valuation is the margin on which a funding shock is most readily observed.

The origination estimates carry the same wedge into new lending. Within a facility and conditional on participation, higher-cost BDCs take smaller shares and hold smaller principal positions, the latter significant at the 10% level; at the facility level, spreads and aggregate BDC principal are associated with participants’ instrumented funding costs. Prior relationships are associated with

which lenders participate; funding costs are associated with how much each participant holds. Both settings are consistent with equation (1), in which the same funding wedge raises the return a lender requires on a claim it holds and on one it is deciding whether to fund.

5. Conclusion

This paper shows that private-credit valuations are not lender-invariant. When two publicly listed BDCs hold the same loan in the same quarter, the one facing higher funding costs marks it lower. During the 2021–2023 tightening cycle, a 100-basis-point increase in a listed BDC’s cost of debt lowers its reported valuation of an existing loan by about 3.2–3.4% relative to co-holders. Pass-through is strongest for BDCs with a low share of bank debt and for those with limited undrawn credit, and weakest where the lender has strong prior ties to the borrower’s private-equity sponsor. At origination, higher-cost participating BDCs take smaller facility shares and hold smaller principal positions, and the facilities they fund carry wider spreads. Participation is strongly associated with prior lending relationships, while its response to funding costs is not statistically detectable.

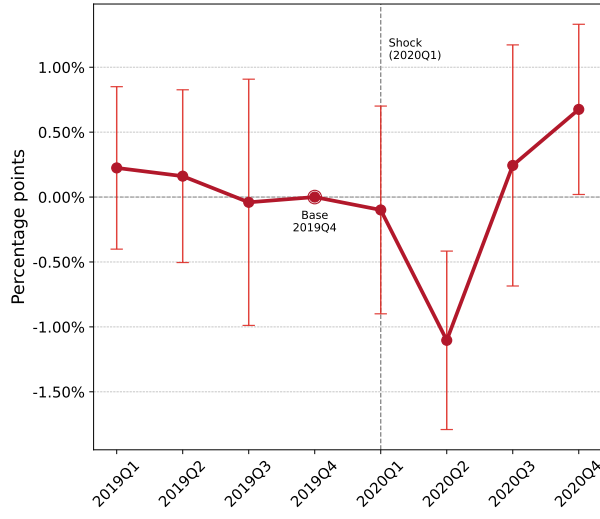
The broader implication is that reported fair values in private credit do not reflect borrower fundamentals alone. Within the same claim and quarter they also move with the holder’s funding structure and relationship capital. That is what an intermediary-specific required return would produce. The design does not distinguish changes in lenders’ required returns from changes in their valuation reporting, but the response runs in both directions, which a one-sided reporting story does not readily explain. This matters for the interpretation of private-credit performance and for the comparability of marks across lenders. These findings also bear on policy discussions of nonbank intermediation. As a growing share of corporate credit sits on balance sheets whose valuations respond to funding conditions, the liability structures of nonbank lenders are informative about how funding shocks reach the valuation and allocation of that credit (IMF, 2024). In private credit, what a loan is worth on paper depends partly on who holds it.

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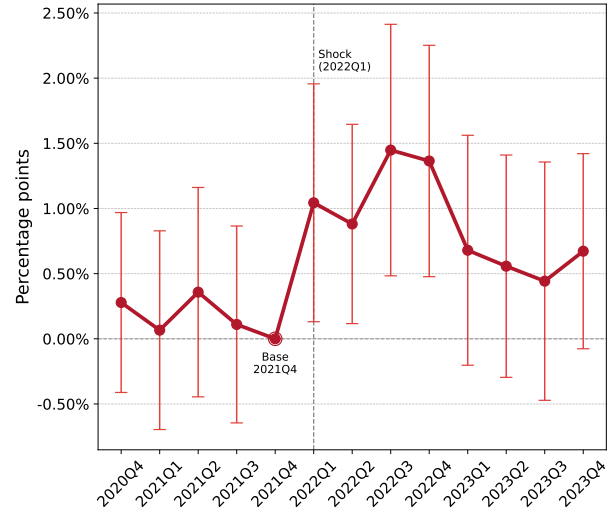
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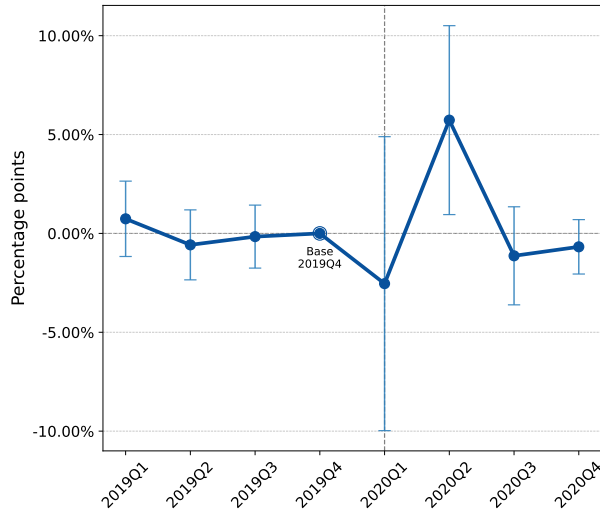
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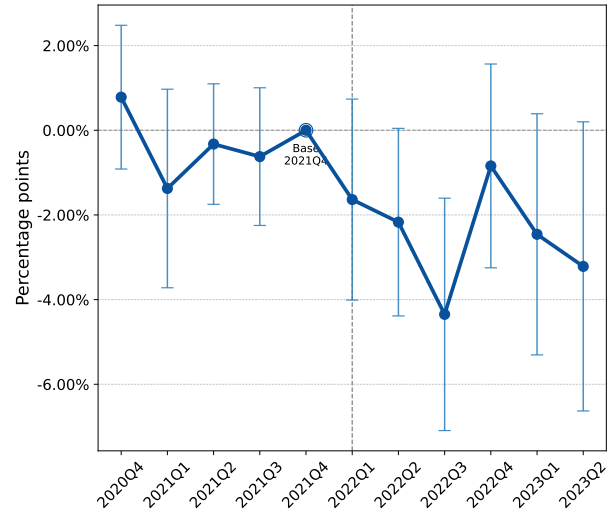
Panel A: $\Delta \text{Cost of Debt}_{i,2019-2020}$



Panel B: $\Delta \text{Cost of Debt}_{i,2021-2023}$



Panel C: $\Delta \log \text{Price}_{i,s,2019-2020}$



Panel D: $\Delta \log \text{Price}_{i,s,2021-2023}$

Figure 1: Funding-cost and reported-valuation responses around easing and tightening episodes. This figure plots coefficients on the interaction between the fund's pre-period floating debt share, which ranges from zero to one, and event-time indicators, from the specification in Section 3.3. Panels A and B use $\Delta \text{Cost of Debt}_{i,t}$ as the outcome; Panels C and D use $\Delta \log \text{Price}_{i,s,t}$. Panels A and C cover the 2019–2020 easing episode; Panels B and D cover the 2021–2023 hiking cycle. Funding-cost data extend through 2023Q4 (Panel B); the baseline valuation sample ends in 2023Q2 (Panel D). Event time K_t is measured in quarters relative to the shock; $k = -1$ is the omitted pre-shock quarter (circled point), and the vertical dashed line marks the shock quarter ($k = 0$). Coefficients are per unit increase in the pre-period floating debt share, in percentage points for the funding-cost panels (A and B) and in percent, that is, 100 times the log change in the reported mark, for the valuation panels (C and D). Error bars display 95% confidence intervals based on standard errors clustered at the BDC level.

Table 1: **Pass-through of funding costs into reported marks: 2021Q1–2023Q2.** This table reports first-stage estimates (Panel A) and second-stage 2SLS estimates alongside OLS comparisons (Panel B) for the 2021Q1–2023Q2 sample. The unit of observation is a BDC–loan claim–quarter (i, s, t) , where i indexes BDCs, s indexes loan securities, and t indexes calendar quarters. The instrument for $\Delta \text{Cost of Debt}_{i,t}$ and $\Delta \text{WACC}_{i,t}$ is the interaction of pre-period floating-rate exposure in 2021 and the three-month LIBOR change. All regressions include BDC $\times$ security and security $\times$ quarter fixed effects. Standard errors (in parentheses) are clustered at the BDC level, and the reported F-test on the instrument is the Kleibergen–Paap rk Wald F statistic. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: First Stage				
	$\Delta \text{Cost of Debt}_{i,t}$	$\Delta \text{Cost of Debt}_{i,t}$	$\Delta \text{Cost of Debt}_{i,t}$	$\Delta \text{WACC}_{i,t}$
	(1)	(2)	(3)	(4)
Pre Floating Share $_i$	0.78***	0.79***	0.83***	0.54***
$\times \Delta 3\text{M LIBOR}_t$	(0.13)	(0.13)	(0.14)	(0.09)
$\Delta \text{Cost of Equity}_{i,t}$		0.20	0.23	
		(0.19)	(0.19)	
Leverage $_{i,t-1}$			0.00	
			(0.00)	
BDC $\times$ Security FE	✓	✓	✓	✓
Security $\times$ Quarter FE	✓	✓	✓	✓
Observations	9,498	9,498	9,498	9,443
F-test on IV	36.34	37.59	37.40	35.87

Panel B: Second Stage (2SLS and OLS)						
Dependent Variable: $\Delta \text{Log Price}_{i,s,t}$						
	2SLS	2SLS	2SLS	OLS	2SLS	OLS
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \text{Cost of Debt}_{i,t}$	-3.42**	-3.39**	-3.22*	0.51		
	(1.67)	(1.62)	(1.59)	(0.42)		
$\Delta \text{WACC}_{i,t}$					-4.90**	0.26
					(2.44)	(0.65)
$\Delta \text{Cost of Equity}_{i,t}$		0.38	0.43	-0.26		
		(1.82)	(1.82)	(1.75)		
Leverage $_{i,t-1}$			0.01	0.00		
			(0.01)	(0.01)		
BDC $\times$ Security FE	✓	✓	✓	✓	✓	✓
Security $\times$ Quarter FE	✓	✓	✓	✓	✓	✓
Observations	9,498	9,498	9,498	9,498	9,443	9,443
1st-stage F (IVs)	36.34	37.59	37.40	–	35.87	–

Table 2: **Pass-through of funding costs into reported marks: 2019Q1–2020Q4.** This table reports first-stage estimates (Panel A) and second-stage 2SLS estimates alongside OLS comparisons (Panel B) for the 2019Q1–2020Q4 sample. The unit of observation is a BDC–loan claim–quarter (i, s, t) , where i indexes BDCs, s indexes loan securities, and t indexes calendar quarters. The instrument for $\Delta \text{Cost of Debt}_{i,t}$ and $\Delta \text{WACC}_{i,t}$ is the interaction of pre-period floating-rate exposure in 2019 and the three-month LIBOR change. All regressions include BDC $\times$ security and security $\times$ quarter fixed effects. Standard errors (in parentheses) are clustered at the BDC level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: First Stage				
	$\Delta \text{Cost of Debt}_{i,t}$ (1)	$\Delta \text{Cost of Debt}_{i,t}$ (2)	$\Delta \text{Cost of Debt}_{i,t}$ (3)	$\Delta \text{WACC}_{i,t}$ (4)
Pre Floating Share _{<i>i</i>} × Δ 3M LIBOR _{<i>t</i>}	1.02*** (0.26)	1.00*** (0.24)	1.08*** (0.29)	0.61*** (0.16)
$\Delta \text{Cost of Equity}_{i,t}$		0.18 (0.13)	0.16 (0.12)	
Leverage _{<i>i,t-1</i>}			0.00 (0.00)	
BDC $\times$ Security FE	✓	✓	✓	✓
Security $\times$ Quarter FE	✓	✓	✓	✓
Observations	4,863	4,863	4,863	4,863
F-test on IV	15.22	16.72	13.80	13.99

Panel B: Second Stage (2SLS and OLS)						
Dependent Variable: $\Delta \text{Log Price}_{i,s,t}$						
	2SLS (1)	2SLS (2)	2SLS (3)	OLS (4)	2SLS (5)	OLS (6)
$\Delta \text{Cost of Debt}_{i,t}$	-6.99*** (2.05)	-6.91*** (2.19)	-6.70*** (2.10)	-1.32** (0.57)		
$\Delta \text{WACC}_{i,t}$					-11.80** (5.31)	-2.10*** (0.56)
$\Delta \text{Cost of Equity}_{i,t}$		0.16 (0.51)	0.18 (0.50)	0.11 (0.47)		
Leverage _{<i>i,t-1</i>}			0.01 (0.02)	-0.01 (0.01)		
BDC $\times$ Security FE	✓	✓	✓	✓	✓	✓
Security $\times$ Quarter FE	✓	✓	✓	✓	✓	✓
Observations	4,863	4,863	4,863	4,863	4,863	4,863
1st-stage F (IVs)	15.22	16.72	13.80	–	13.99	–

Table 3: **Pass-through using high-frequency monetary policy surprises.** This table reports first-stage (Panel A) and second-stage (Panel B) 2SLS estimates for the 2021–2023 sample. The unit of observation is a BDC–loan claim–quarter (i, s, t) , where i indexes BDCs, s indexes loan securities, and t indexes calendar quarters. The instrument for $\Delta \text{Cost of Debt}_{i,t}$ is the interaction of pre-period floating-rate exposure in 2021 and the Bauer–Swanson high-frequency monetary policy surprise, HF Monetary Policy Surprise $_t$: the first principal component of changes in the first four quarterly Eurodollar futures rates in a narrow window around FOMC announcements, summed within each calendar quarter. All regressions include BDC and security $\times$ quarter fixed effects. Standard errors (in parentheses) are two-way clustered by BDC and borrower, and the reported F-test on the instrument is the Kleibergen–Paap rk Wald F statistic. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: First Stage			
Dependent Variable: $\Delta \text{Cost of Debt}_{i,t}$			
	(1)	(2)	(3)
Pre Floating Share $_i$	2.22***	2.21***	2.16***
$\times$ HF Monetary Policy Surprise $_t$	(0.62)	(0.60)	(0.59)
$\Delta \text{Cost of Equity}_{i,t}$		0.05	0.06
		(0.13)	(0.13)
Leverage $_{i,t-1}$			0.00
			(0.00)
BDC FE	✓	✓	✓
Security $\times$ Quarter FE	✓	✓	✓
Observations	12,684	12,684	12,684
F-test on IV	12.85	13.53	13.22

Panel B: Second Stage (2SLS)			
Dependent Variable: $\Delta \text{Log Price}_{i,s,t}$			
	(1)	(2)	(3)
$\Delta \text{Cost of Debt}_{i,t}$	-5.54*	-5.85**	-5.90*
	(2.82)	(2.86)	(2.95)
$\Delta \text{Cost of Equity}_{i,t}$		2.00	2.04
		(1.35)	(1.36)
Leverage $_{i,t-1}$			0.00
			(0.01)
BDC FE	✓	✓	✓
Security $\times$ Quarter FE	✓	✓	✓
Observations	12,684	12,684	12,684
1st-stage F (IVs)	12.85	13.53	13.22

Table 4: **Lead-lag test of pass-through to reported marks and valuation smoothing, 2021Q1–2023Q2.** This table reports 2SLS estimates from a lead-lag specification that relates funding-cost shocks to BDC reported marks over the 2021Q1–2023Q2 sample. The unit of observation is a BDC–loan claim–quarter (i, s, t) . Columns (1)–(3) treat $\Delta\text{Cost of Debt}_{i,t}$ as endogenous, instrumented by pre-period floating-rate exposure interacted with the contemporaneous change in three-month LIBOR; column (4) adds $\Delta\text{Cost of Debt}_{i,t-1}$, instrumented by the corresponding lagged interaction. Panel A reports first-stage coefficients for $\Delta\text{Cost of Debt}_{i,t}$ and $\Delta\text{Cost of Debt}_{i,t-1}$. Panel B reports second-stage coefficients where the dependent variable is $\Delta \log \text{Price}_{i,s,\tau}$ evaluated at horizons $\tau = t + 1, t + 2$, the sum of the winsorized quarterly changes over $t, t + 1$, and $t + 2$ (before winsorization, $\log P_{t+2} - \log P_{t-1}$), and the contemporaneous change at t . Comparing the contemporaneous and forward-horizon responses provides a lead-lag test for delayed adjustment (valuation smoothing) of reported marks to funding-cost shocks. Estimation samples differ across columns because forward-horizon price changes require additional quarters. All specifications include $\text{BDC} \times \text{security}$ and $\text{security} \times \text{quarter}$ fixed effects. Standard errors (in parentheses) are clustered at the BDC level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: First Stage					
	$\Delta\text{Cost of Debt}_{i,t}$			$\Delta\text{Cost of Debt}_{i,t}$	$\Delta\text{Cost of Debt}_{i,t-1}$
	(1)	(2)	(3)	(4)	(5)
Pre Floating Share _{<i>i</i>} × $\Delta 3\text{M LIBOR}_t$	0.80*** (0.14)	0.76*** (0.14)	0.88*** (0.18)	0.57*** (0.20)	-0.52*** (0.14)
Pre Floating Share _{<i>i</i>} × $\Delta 3\text{M LIBOR}_{t-1}$				0.17 (0.16)	1.10*** (0.17)
BDC×Security FE	✓	✓	✓	✓	✓
Security×Quarter FE	✓	✓	✓	✓	✓
Observations	8,838	7,690	5,792	7,977	7,977
Panel B: Second Stage (2SLS)					
	$\Delta \log \text{Price}_{i,s,t+1}$	$\Delta \log \text{Price}_{i,s,t+2}$	$\Delta \log \text{Price}_{i,s,t \rightarrow t+2}$	$\Delta \log \text{Price}_{i,s,t}$	
	(1)	(2)	(3)	(4)	
$\Delta\text{Cost of Debt}_{i,t}$	0.75 (1.49)	1.36 (2.29)	1.28 (3.64)	-3.73* (2.01)	
$\Delta\text{Cost of Debt}_{i,t-1}$				1.60 (2.04)	
Observations	8,838	7,690	5,792	7,977	
1st-stage F (IVs)	33.35	29.96	24.32	8.26	
BDC×Security FE	✓	✓	✓	✓	
Security×Quarter FE	✓	✓	✓	✓	

Table 5: **Heterogeneous pass-through by liability structure: 2021Q1–2023Q2.** This table reports second-stage (Panel B) and corresponding first-stage (Panel A) 2SLS estimates of the pass-through of funding costs into BDC reported marks for the 2021Q1–2023Q2 sample. The unit of observation is a BDC–loan claim–quarter (i, s, t) . I allow the effect of $\Delta \text{Cost of Debt}_{i,t}$ to vary with indicators for high bank-debt exposure and high undrawn revolver capacity. *High Bank Debt_i* and *High Undrawn Revolver_i* are dummy variables equal to one if the fund’s 2021 bank debt as a share of total debt, or its 2021 undrawn revolving commitments as a share of total debt plus undrawn commitments, respectively, lies above the median across the loan–quarter observations of the estimation sample, and zero otherwise. I treat $\Delta \text{Cost of Debt}_{i,t}$ and its interactions with these dummies as endogenous, and instrument both the main effect and the interaction terms with the corresponding interactions of pre-period floating-rate exposure in 2021 and the three-month LIBOR change. Panel A reports the first stages for the funding-cost change and its group interaction: columns (1)–(2) use bank-debt share, columns (3)–(4) undrawn revolver capacity. All regressions include BDC×security and security×quarter fixed effects. Standard errors (in parentheses) are clustered at the BDC level, and the reported F-test on the instrument set is the Kleibergen–Paark Wald F statistic. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: First Stage				
	(1)	(2)	(3)	(4)
Pre Floating Share _i × Δ 3M-LIBOR _t	0.71*** (0.13)	-0.03 (0.06)	0.66*** (0.17)	-0.08* (0.04)
Pre Floating Share _i × High Bank Debt _i × Δ 3M-LIBOR _t	0.26*** (0.08)	1.00*** (0.04)		
Pre Floating Share _i × High Undrawn Revolver _i × Δ 3M-LIBOR _t			0.14 (0.11)	0.94*** (0.05)
Observations	9,498		9,498	
BDC×Security FE	✓		✓	
Security×Quarter FE	✓		✓	
Panel B: Second Stage (2SLS)				
Dependent Variable: $\Delta \text{Log Price}_{i,s,t}$				
	(1)		(2)	
$\Delta \text{Cost of Debt}_{i,t}$	-7.16** (2.97)		-4.65** (1.95)	
$\Delta \text{Cost of Debt}_{i,t} \times \text{High Bank Debt Dummy}_i$	3.79** (1.46)			
$\Delta \text{Cost of Debt}_{i,t} \times \text{High Undrawn Revolver Dummy}_i$				3.62* (1.92)
BDC×Security FE	✓		✓	
Security×Quarter FE	✓		✓	
Observations	9,498		9,498	
1st-stage F (IVs)	9.35		18.28	

Table 6: **Heterogeneous pass-through by sponsor relationships: 2021Q1–2023Q2.** This table reports second-stage (Panel B) and corresponding first-stage (Panel A) 2SLS estimates of the pass-through of funding costs into BDC reported marks for the 2021Q1–2023Q2 sample. The unit of observation is a BDC–loan claim–quarter (i, s, t) . I allow the effect of $\Delta \text{Cost of Debt}_{i,t}$ to vary with an indicator for strong prior lending ties between the BDC’s credit family and the borrower’s PE sponsor. *High Sponsor Tie* $_{i,s}$ is a dummy variable equal to one if the cumulative number of prior deals between BDC i ’s credit family and loan s ’s PE sponsor, measured as of 2021Q1, lies above the median among family–sponsor pairs with at least one prior deal, and zero otherwise. The funding-cost change and its interaction with *High Sponsor Tie* $_{i,s}$ are endogenous, instrumented by the baseline exposure–LIBOR interaction and its interaction with *High Sponsor Tie* $_{i,s}$. Panel A reports the first stage for the funding-cost change in column (1) and for its interaction with *High Sponsor Tie* $_{i,s}$ in column (2). All regressions include BDC $\times$ security and security $\times$ quarter fixed effects. Standard errors (in parentheses) are clustered at the BDC level, and the reported F-test on the instrument set is the Kleibergen–Paap rk Wald F statistic. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: First Stage		
	$\Delta \text{Cost of Debt}_{i,t}$	$\Delta \text{Cost of Debt}_{i,t}$ $\times \text{High Sponsor Tie}_{i,s}$
	(1)	(2)
Pre Floating Share $_i \times \Delta \text{3M-LIBOR}_t$	0.79*** (0.14)	−0.03 (0.03)
Pre Floating Share $_i \times \text{High Sponsor Tie}_{i,s} \times \Delta \text{3M-LIBOR}_t$	−0.01 (0.07)	0.86*** (0.04)
Observations		9,498
BDC $\times$ Security FE		✓
Security $\times$ Quarter FE		✓

Panel B: Second Stage (2SLS)	
Dependent Variable: $\Delta \text{Log Price}_{i,s,t}$	
	(1)
$\Delta \text{Cost of Debt}_{i,t}$	−4.06** (1.78)
$\Delta \text{Cost of Debt}_{i,t} \times \text{High Sponsor Tie}_{i,s}$	2.34** (1.15)
BDC $\times$ Security FE	✓
Security $\times$ Quarter FE	✓
Observations	9,498
1st-stage F (IVs)	17.48

Table 7: **Funding Costs and Facility Origination.** This table reports first-stage (Panel A) and second-stage (Panel B) 2SLS estimates from regressions of facility terms and participating BDCs' allocations on the BDC's funding cost. The observation unit is the BDC-loan security-quarter. Cost of Debt is measured in percentage points and instrumented, as in the valuation analysis, by pre-period floating-rate exposure interacted with the quarterly change in three-month LIBOR. In Columns (1)–(2), the dependent variables are the contractual loan spread ($\text{Spread}_{s,t}$, in percentage points) and the log of the aggregate principal held by sample BDCs in loan security s in quarter t ($\text{Log Total Amount}_{s,t}$). In Columns (3)–(4), the dependent variables are the BDC's principal position divided by the facility amount, the larger of aggregate BDC principal and the PitchBook facility amount where observed ($\text{Share}_{i,s,t}$, a fraction), and the log of the BDC's own principal position in that security ($\text{Log Amount}_{i,s,t}$). All specifications include BDC fixed effects; Columns (1)–(2) additionally include borrowing company $\times$ quarter fixed effects, and Columns (3)–(4) include loan security $\times$ quarter fixed effects. Panel A column (1) is the first stage for Panel B columns (1)–(2); Panel A column (2) is the first stage for Panel B columns (3)–(4). Standard errors (in parentheses) are clustered at the BDC level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: First Stage				
	(1)	(2)		
	Cost of Debt $_{i,t}$ (%)	Cost of Debt $_{i,t}$ (%)		
Pre Floating Share $_i \times \Delta$ 3M-LIBOR $_t$	0.94*** (0.23)	1.08*** (0.24)		
Term Loan Dummy	0.04** (0.02)			
First Lien Dummy	-0.03 (0.04)			
Maturity (years)	-0.02 (0.01)			
PIK	-0.00 (0.03)			
BDC FE	✓	✓		
Borrowing Company $\times$ Quarter FE	✓			
Loan Security $\times$ Quarter FE		✓		
Observations	2,484	1,404		
F-test on IV	17.07	20.96		

Panel B: Second Stage (2SLS)				
	Spread $_{s,t}$ (%)	Log Total Amount $_{s,t}$	Share $_{i,s,t}$	Log Amount $_{i,s,t}$
	(1)	(2)	(3)	(4)
Cost of Debt $_{i,t}$ (%)	0.55** (0.25)	-0.28* (0.16)	-0.11* (0.06)	-0.34* (0.21)
Term Loan Dummy	0.55*** (0.13)	1.92*** (0.16)		
First Lien Dummy	-1.39*** (0.19)	-0.24 (0.15)		
Maturity (years)	0.29*** (0.07)	0.30*** (0.09)		
PIK	0.39 (0.25)	-0.11 (0.21)		
BDC FE	✓	✓	✓	✓
Borrowing Company $\times$ Quarter FE	✓	✓		
Loan Security $\times$ Quarter FE			✓	✓
Observations	2,484	2,484	1,404	1,404

Appendix

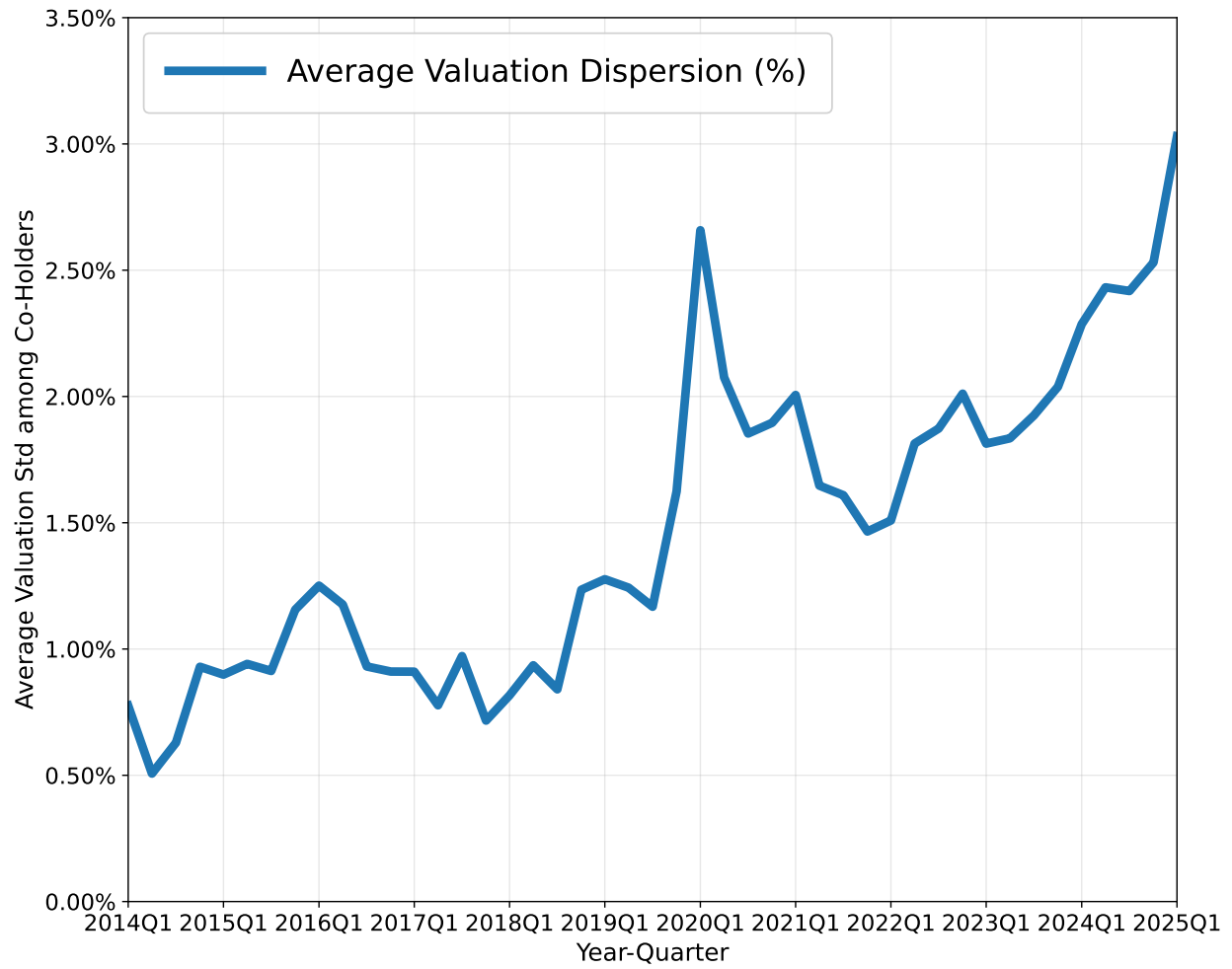


Figure A1: Time series of average valuation dispersion (standard deviation) of co-held loans.

Table A1: **Summary Statistics.** This table reports descriptive statistics for BDC level variables (Panel A), BDC-security variables (Panel B), and loan origination variables (Panel C). Panels A and B cover the valuation sample from 2020Q1 through 2023Q2; Panel C covers the origination sample from 2021Q1 through 2023Q4 at the facility-quarter level; Facility amount, PitchBook is the facility amount reported by PitchBook, and Facility amount, constructed is the larger of aggregate BDC principal and the PitchBook amount, the share denominator in Table 7. Facility amount, PitchBook is observed for 3,693 of the 3,850 facility-quarters and the mark at issuance for 3,652; the constructed amount is available for all 3,850, which is why its mean is slightly below the PitchBook mean. The estimation samples in the main tables are subsets of these samples, as described in the text.

	(1) Mean	(2) Std Dev	(3) Min	(4) 25%	(5) Median	(6) 75%	(7) Max
Panel A: BDC-Quarter							
Cost of debt %	5.26	1.98	0.00	4.02	5.23	6.42	22.46
Δ cost of debt %	0.19	1.28	-12.52	-0.06	0.13	0.41	18.62
Leverage	1.02	0.47	0.00	0.80	1.10	1.28	2.34
Assets (million USD)	2,561.80	4,095.99	0.28	521.58	1,076.82	2,636.39	23,800
Cost of equity %	8.95	1.03	5.98	8.22	9.09	9.72	11.43
WACC %	6.64	1.05	4.28	5.78	6.70	7.48	9.15
Undrawn commitments %	26.00	11.89	7.08	18.19	25.71	32.95	58.52
Bank Debt share %	35.15	25.29	0.64	14.00	35.39	53.80	100.00
Floating-rate Debt share %	41.73	26.45	0.00	17.96	40.45	61.95	100.00
BDC-Quarter Observations	559						
Panel B: BDC-Security-Quarter							
Yield to maturity %	10.72	4.73	2.58	7.29	10.40	12.52	25.11
Reported fair-value mark (par = 1)	0.94	0.14	0.15	0.96	0.99	1.00	1.07
Δ log price %	-0.34	6.58	-39.10	-0.40	0.00	0.67	29.00
Maturity (years)	3.91	1.90	0.00	2.67	4.01	5.17	33.19
First-lien dummy	0.76	0.43	0	1	1	1	1
Term-loan dummy	0.84	0.36	0	1	1	1	1
High Sponsor Tie	0.30	0.46	0	0	0	1	1
BDC-Security-Quarter Observations	73,380						
Panel C: Loan origination							
Spread over benchmark %	6.23	1.97	0.00	5.25	6.00	6.80	20.00
Term-loan dummy	0.84	0.37	0	1	1	1	1
First-lien dummy	0.81	0.39	0	1	1	1	1
Maturity (years)	5.09	1.61	0.07	4.26	5.26	6.00	14.98
PIK Loan dummy	0.18	0.39	0	0	0	0	1
Facility amount, PitchBook (million USD)	153.29	426.96	0.01	4.99	15.17	80.00	4,800
Facility amount, constructed (million USD)	152.08	418.20	0.01	6.66	20.00	86.44	4,800
Reported fair-value mark at issuance	0.97	0.07	0.28	0.97	0.98	1.00	1.06
Security-Quarter Observations	3,850						

Table A2: **BDC-Level Balance on Pre-Period Floating-Rate Exposure.** This table reports BDC-level characteristics in the pre-period (2021), split by the cross-sectional median of pre-period floating-rate liability exposure. Low (High) denotes BDCs with pre-period floating-rate shares below (above) the sample median 0.40. Variables are averaged at the BDC level. *High – Low* is the difference in means between the two groups; *t*-statistics and *p*-values are from two-sample tests of equality of means.

Variable	Mean (Low)	Mean (High)	High – Low	<i>t</i> -stat	<i>p</i> -value
Δ log reported marks	-0.06%	0.27%	0.33%	1.02	0.32
Δ cost of debt	-0.01%	-0.09%	-0.08%	-0.96	0.34
Leverage	0.99	1.06	0.06	0.55	0.58
Assets (million USD)	2,005.52	3,404.69	1,399.17	1.21	0.23
Cost of equity	7.93%	8.06%	0.13%	0.43	0.67
Yield to Maturity	8.33%	7.62%	-0.71%	-1.74	0.10
Reported marks	0.93	0.96	0.03	0.96	0.35
Maturity (years)	3.70	4.01	0.31	1.19	0.24
First Lien Loan	63.38%	77.44%	14.06%	2.30	0.03
Term Loan	87.93%	89.17%	1.24%	0.25	0.80
PIK Loan	25.95%	22.28%	-3.67%	-0.75	0.46

Table A3: **Determinants of Within-Security Price Dispersion.** This table reports OLS estimates of the cross-sectional dispersion in reported marks across BDC co-holders in the full BDC holdings sample over 2014Q1–2025Q1. The unit of observation is a loan-security–quarter (s, t) with at least two BDC holders. The dependent variable is $\text{sd}(\text{Loan Price}_{i,s,t})_{s,t} \times 100$, the cross-sectional standard deviation of fair-value marks across BDC holders of loan s in quarter t , expressed in cents of par. The sample is trimmed at the 99th percentile of the dependent variable. *Below Par* _{s,t} indicates a loan–quarter whose principal-weighted consensus mark is below par. In specifications that include debt-type indicators, the omitted category is revolvers. Columns vary the sample and fixed effects as indicated, including quarter fixed effects throughout and borrower or loan-security fixed effects where noted. Standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Dependent Variable: Standard Deviation(Loan Price _{i,s,t}) _{s,t} $\times 100$			
	(1) All	(2) Term Loan	(3) All	(4) All
Adj. HHI of Shares	0.99*** (0.12)	1.01*** (0.12)	1.10*** (0.15)	1.03*** (0.18)
Number of BDCs	0.29*** (0.02)	0.23*** (0.02)	0.24*** (0.02)	0.29*** (0.03)
Below Par	3.57*** (0.11)	3.46*** (0.11)	3.73*** (0.12)	2.95*** (0.10)
PIK Loan	0.28*** (0.10)	0.29*** (0.09)	0.21 (0.15)	
Syndicated	−2.51*** (0.22)		−2.44*** (0.23)	
Term Loan	−2.16*** (0.21)		−2.31*** (0.22)	
DDTL	−0.05 (0.29)		−0.86*** (0.31)	
Unitranche	−2.57*** (0.22)		−2.78*** (0.27)	
Spread (%)	0.03** (0.01)	0.02 (0.01)	0.10*** (0.03)	
First Lien	0.36*** (0.06)	0.37*** (0.06)	0.29*** (0.09)	
Senior	0.06 (0.07)	0.06 (0.06)	0.06 (0.08)	
Years to Maturity	0.04*** (0.01)	0.05*** (0.01)	0.08*** (0.02)	
Borrower FE			✓	
Security FE				✓
Quarter FE	✓	✓	✓	✓
Observations	85,436	72,277	85,436	87,514
R^2	0.181	0.157	0.161	0.100

Table A4: **Robustness: swap-adjusted floating-rate exposure, 2021Q1–2023Q2.** This table repeats the analysis of Table 1 on the identical estimation sample, replacing the floating-rate exposure with a swap-adjusted share. Interest-rate swap positions, notional amounts, and payment directions are collected from each BDC’s 10-K and 10-Q derivative disclosures, and the direction of every swap is verified against the filing’s own text. A receive-fixed swap converts fixed-rate borrowings into synthetic floating-rate debt and therefore *adds* its notional to floating exposure; a pay-fixed swap subtracts its notional. Effective floating exposure is floating-rate borrowings plus receive-fixed notionals minus pay-fixed notionals, divided by total borrowings and bounded between zero and one; the instrument interacts the 2021 pre-period average of this adjusted share with the three-month LIBOR change. Three of the eligible listed BDCs hold interest-rate swaps in the pre-period; each of the three swaps fixed-coupon unsecured notes into floating (receive-fixed) as a designated fair-value hedge, so their effective floating exposure exceeds the unadjusted share. All regressions include BDC×security and security×quarter fixed effects; standard errors (in parentheses) are clustered at the BDC level; the reported F-test on the instrument is the Kleibergen–Paap rk Wald F statistic. OLS columns of Table 1 are omitted, as they do not use the instrument. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: First Stage				
	$\Delta \text{ Cost of Debt}_{i,t}$	$\Delta \text{ Cost of Debt}_{i,t}$	$\Delta \text{ Cost of Debt}_{i,t}$	$\Delta \text{ WACC}_{i,t}$
	(1)	(2)	(3)	(4)
Swap-Adj. Pre Floating Share _{<i>i</i>} × $\Delta \text{ 3M LIBOR}_t$	0.75*** (0.11)	0.75*** (0.11)	0.78*** (0.12)	0.49*** (0.08)
$\Delta \text{ Cost of Equity}_{i,t}$		0.17 (0.19)	0.19 (0.19)	
Leverage _{<i>i,t-1</i>}			0.00 (0.00)	
BDC×Security FE	✓	✓	✓	✓
Security×Quarter FE	✓	✓	✓	✓
Observations	9,498	9,498	9,498	9,443
F-test on IV	42.32	42.51	41.48	35.29

Panel B: Second Stage (2SLS)				
Dependent Variable: $\Delta \text{ Log Price}_{i,s,t}$				
	2SLS	2SLS	2SLS	2SLS
	(1)	(2)	(3)	(4)
$\Delta \text{ Cost of Debt}_{i,t}$	-3.72** (1.55)	-3.72** (1.55)	-3.55** (1.53)	
$\Delta \text{ WACC}_{i,t}$				-5.65** (2.42)
$\Delta \text{ Cost of Equity}_{i,t}$		0.43 (1.83)	0.49 (1.83)	
Leverage _{<i>i,t-1</i>}			0.01 (0.01)	
BDC×Security FE	✓	✓	✓	✓
Security×Quarter FE	✓	✓	✓	✓
Observations	9,498	9,498	9,498	9,443
1st-stage F (IVs)	42.32	42.51	41.48	35.29

Table A5: **Robustness to asset-side interest-rate exposure, 2021Q1–2023Q2.** This table re-estimates the baseline 2SLS specification of Table 1 on the identical 9,498-observation sample, adding controls for asset-side exposure to the same aggregate rate shock. *Floating-asset share_i* is the fair-value-weighted share of BDC *i*’s 2021 loan holdings that carry a floating rate, where a holding is classified as floating if its rate type is floating or a spread over a benchmark rate is reported (covering 85% of 2021 fair value); across sample funds it has a mean of 0.99 and a standard deviation of 0.04, against 0.38 and 0.23 for the liability floating share that forms the instrument. *First-lien share_i* and *portfolio yield_i* are the fair-value-weighted 2021 first-lien share and coupon of the same holdings, the two characteristics on which high- and low-exposure funds differ in Appendix Table A2. Column (2) adds the floating-asset share interacted with the three-month LIBOR change; column (3) interacts first-lien share and portfolio yield with quarter indicators; column (4) includes both; column (5) instead interacts all three characteristics with the LIBOR change; column (6) adds the cost-of-equity and lagged-leverage controls of column (3) of Table 1 to the column (4) specification. In a placebo regression of $\Delta \text{Cost of Debt}_{i,t}$ on the asset-side interaction and the instrument, the asset-side term is -0.001 (s.e. 0.013) while the instrument is 0.008 (s.e. 0.001). Dropping any single BDC from the baseline leaves the coefficient between -4.13 and -2.66 , significant at the 10% level in every case and at the 5% level in about three-quarters of cases. The last two rows report two further inference procedures: wild-cluster bootstrap *p*-values for the coefficient on $\Delta \text{Cost of Debt}_{i,t}$ (Webb weights, 4,999 replications, clustered by BDC, computed after partialling out both sets of fixed effects), and 95% Anderson–Rubin confidence sets, which remain valid under weak instruments, obtained by inverting the cluster-robust reduced-form test over a grid of null values. All regressions include BDC $\times$ security and security $\times$ quarter fixed effects; standard errors (in parentheses) are clustered at the BDC level; the reported *F*-test on the instrument is the Kleibergen–Paap rk Wald *F* statistic. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Dependent variable: $\Delta \text{Log Price}_{i,s,t}$	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \text{Cost of Debt}_{i,t}$	-3.42** (1.67)	-3.75** (1.75)	-4.68** (2.29)	-5.05** (2.40)	-4.99** (2.26)	-4.74** (2.35)
Floating-asset share _i $\times$ Δ 3M LIBOR _t		0.17 (0.11)		0.18 (0.11)	0.19* (0.11)	0.18* (0.11)
First-lien share _i $\times$ Quarter FE			✓	✓		✓
Portfolio yield _i $\times$ Quarter FE			✓	✓		✓
First-lien, yield $\times$ Δ 3M LIBOR _t					✓	
Cost of equity, lagged leverage						✓
BDC $\times$ Security FE	✓	✓	✓	✓	✓	✓
Security $\times$ Quarter FE	✓	✓	✓	✓	✓	✓
Observations	9,498	9,498	9,498	9,498	9,498	9,498
F-test on IV	36.35	32.85	30.22	28.17	29.00	27.49
Wild-cluster bootstrap <i>p</i>	0.007	0.005	0.002	0.001	0.000	0.001
Anderson–Rubin 95% set	[−7.5, −0.4]	[−8.2, −0.6]	[−10.5, −0.5]	[−11.3, −0.7]	[−10.7, −0.8]	[−10.8, −0.5]

Table A6: **Funding costs and participation in new facilities: a potential-lender panel, 2021Q1–2023Q4.** Each facility originated in a quarter is paired with every BDC in a risk set of potential lenders, and participation, facility share, and the BDC’s own amount, measured as its facility share times the PitchBook facility amount in millions of dollars (the latter two set to zero for non-participants) are regressed on the BDC’s instrumented cost of debt under facility $\times$ quarter and BDC fixed effects, so that lenders assigned to the same opportunity in the constructed risk set are compared. Risk sets: all BDCs with funding-cost data holding loans in the quarter (columns (1) and (4)–(6)); funds that originated in the preceding four quarters (2); funds that lent to the same borrower in the preceding eight quarters (3). Column (4) uses funding costs lagged one quarter, (5) keeps club deals with at least two participating BDCs, (6) ends the sample in 2023Q2, and (7) conditions on participation, where participation is identically one and its response cannot be estimated; column (3) starts from 834 prior-lender pairs, of which 735 remain after singleton fixed-effect groups are dropped. Panel C drops the few participant rows whose PitchBook facility amount, and hence own amount, is unobserved, leaving 23,619, 17,835, 724, 21,601, 21,054, 20,344, 1,219 observations in columns (1)–(7). Participation and share coefficients are in percentage points per 100 basis points of cost of debt; the instrument is pre-period floating-rate exposure interacted with the level of three-month LIBOR, matching the level of the cost of debt on the right-hand side. Standard errors (in parentheses) are clustered at the BDC level; bootstrap p -values are wild-cluster (Webb weights, 1,999 replications) after partialling out the fixed effects; Anderson–Rubin 95% sets invert the cluster-robust reduced-form test; the F -test on the instrument is the Kleibergen–Paap rk Wald F statistic. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	All active BDCs (1)	Active originators (2)	Prior lenders to borrower (3)	Lagged funding cost (4)	Club deals (5)	Through 2023Q2 (6)	Participants only (7)
Panel A: Participation (percentage points)							
Cost of Debt $_{i,t}$	-0.05 (0.43)	0.35 (0.75)	-6.63 (6.21)	0.18 (0.52)	-0.07 (0.49)	-0.21 (0.50)	n/a
Wild-cluster bootstrap p	0.921	0.666	0.252	0.746	0.895	0.686	
Anderson–Rubin 95% set	[-0.92, 0.88]	[-1.12, 2.02]	[-19.50, 6.00]	[-0.86, 1.30]	[-1.06, 0.98]	[-1.24, 0.82]	
Panel B: Facility share (percentage points; zero if not participating)							
Cost of Debt $_{i,t}$	0.02 (0.13)	0.17 (0.26)	-2.40 (2.66)	0.15 (0.17)	0.02 (0.15)	-0.04 (0.17)	-3.82 (2.79)
Wild-cluster bootstrap p	0.895	0.544	0.365	0.392	0.927	0.857	0.070
Anderson–Rubin 95% set	[-0.24, 0.31]	[-0.34, 0.75]	[-8.00, 2.75]	[-0.18, 0.53]	[-0.29, 0.35]	[-0.39, 0.33]	[-9.50, 1.75]
Panel C: Log(1 + own amount, \$ million) (zero if not participating)							
Cost of Debt $_{i,t}$	-0.012 (0.008)	-0.005 (0.013)	-0.166 (0.134)	-0.009 (0.009)	-0.013 (0.009)	-0.017* (0.009)	-0.122 (0.096)
Participation rate	0.055	0.066	0.447	0.055	0.059	0.056	1.000
Facility $\times$ Quarter FE	✓	✓	✓	✓	✓	✓	✓
BDC FE	✓	✓	✓	✓	✓	✓	✓
Observations	23,638	17,853	735	21,620	21,070	20,362	1,233
F-test on IV	60.0	51.9	98.4	55.5	60.0	55.7	97.0

Table A7: **Listed versus Non-listed BDC Loan Marks.** This table reports OLS estimates comparing the fair-value marks reported by public and non-listed BDCs in the full BDC holdings sample over 2014Q1–2025Q1. The unit of observation is a BDC–loan claim–quarter (i, s, t) , where i indexes BDCs, s loan securities, and t calendar quarters. The dependent variable is $\log(\text{mark}_{i,s,t})$, the log fair-value mark of loan security s reported by BDC i in quarter t . Public_i is a dummy variable equal to one if the BDC is publicly listed, and zero otherwise. Columns (1)–(4) add quarter, loan-security, and borrowing-company fixed effects; because each loan security has a single borrower, borrowing-company fixed effects are nested within loan-security fixed effects, so column (4) coincides with column (2). Column (5) absorbs loan-security $\times$ quarter fixed effects, so identification comes from public and non-listed BDCs marking the same loan in the same quarter. Column (6) further excludes loan-quarter observations in which a public and non-listed BDC belong to the same fund family. Standard errors (in parentheses) are two-way clustered by BDC and borrower. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Dependent Variable: $\log \text{Price}_{i,s,t}$	(1)	(2)	(3)	(4)	(5)	(6)
Public BDC Dummy	−0.0082 (0.0139)	0.0058 (0.0046)	−0.0080 (0.0095)	0.0058 (0.0046)	0.0064 (0.0041)	0.0087 (0.0090)
Quarter FE	✓	✓	✓	✓		
Loan Security FE		✓		✓		
Borrowing Company FE			✓	✓		
Loan Security $\times$ Quarter FE					✓	
Excl. same BDC family						✓
Observations	428,652	424,289	428,193	424,289	272,408	153,814
R^2	0.0035	0.5367	0.2494	0.5367	0.7517	0.7694