Common Investors Across the Capital Structure: Private Debt Funds as Dual Holders

Tetiana Davydiuk, Isil Erel, Wei Jiang, Tatyana Marchuk*

This paper examines the dual role of Business Development Companies (BDCs) as creditors and shareholders in the private direct lending market. Utilizing a comprehensive deal-level database, our analysis shows that dual-holder BDCs are more effective monitors than sole lenders, benefiting from enhanced tools for information access and governance. This effectiveness allows them to charge higher loan spreads, while simultaneously reducing credit risk and lowering the borrowing cost of portfolio firms from other lenders. We rule out alternative explanations attributing higher loan spreads to mere compensation for capital injection or to hold-up by a dominant financier. Our findings highlight a critical mechanism through which BDCs serve a market segment — mid-sized firms with low (or even negative) cash flows and a lack of collateral but high growth potentials — that is typically undesired by traditional bank lenders.

Keywords: business development companies, direct lending, private debt, dualholders, dual-holding, nonbanks, delegated monitoring
JEL Classification: G20, G21, G23, G28, G32

*Tetiana Davydiuk (tetianav.davydiuk@jhu.edu) is at the Carey Business School, Johns Hopkins University. Isil Erel (erel@fisher.osu.edu) is at the Fisher College of Business, Ohio State University, National Bureau of Economic Research (NBER) and European Corporate Governance Institute (ECGI). Wei Jiang (wei.jiang@emory.edu) is at the Goizueta Business School, Emory University, National Bureau of Economic Research (NBER) and European Corporate Governance Institute (ECGI). Tatyana Marchuk (tatyana.marchuk@novasbe.pt) is at the Nova School of Business and Economics, Universidade NOVA de Lisboa, and the Center for Economic Policy Research (CEPR). We thank our discussants Young Soo Jang for their valuable and thorough feedback. The authors also thank the seminar and conference participants at the Johns Hopkins University, Wake Forest University, 18th Jackson Hole Finance Group Conference, UBC Winter Finance Conference, European Summer Symposium on Financial Markets, and BI Finance Department Research Days. Financial support from BI Open Research Funds and Center for Asset Pricing Research (BI) is gratefully acknowledged. Davydiuk also received financial support from NSF Grant 2436298. This work was also funded by Fundaçâo para a Ciência e a Tecnologia (UIDB/00124/2020, UIDP/00124/2020 and Social Sciences DataLab – PINFRA/22209/2016), POR Lisboa and POR Norte (Social Sciences DataLab, PINFRA/22209/2016). All remaining errors are ours.

1 Introduction

Private credit as an emerging asset class has more than tripled in size during the past decade reaching $1.6 trillion in 2023.[1] Though not formally defined, private credit commonly refers to nonbank direct lending, typically cash-flow based rather than asset-backed, to riskier small and mid-sized firms. Business Development Companies (BDCs) play a crucial role in this expansion, filling the gap left by traditional banks as increased banking regulation, especially after the 2007–2008 Financial Crisis, made these types of loans expensive for banks.[2] BDCs, alongside the rise of private equity, provide an alternative source of funding, allowing small and mid-sized market firms to grow and stay private longer.

Although they are primarily *debt* funds, BDCs may also invest in equity or equity-like securities, including warrants, preferred equity, and common equity. Our analysis reveals that a great majority — between 80% to 90% — of BDC-year observations in our sample includes these equity positions. This practice suggests that BDCs strategically combine debt and equity investments within the same portfolio firms to achieve a desired risk-reward profile. In this paper, we explore why lenders choose to become common investors across the capital structure, by investigating how holding both debt and equity in portfolio firms influences loan pricing and the financial outcomes for the borrowing firms. In addition, we document how these dual-held investments impact the dynamics of the financier-firm relationship that is distinct from that with banks or institutional investors.

This study is made feasible by a hand-collected database of investments that involve 69 BDCs and over 9,000 portfolio firms (previously used by Davydiuk, Marchuk, and Rosen, 2024). The key variable for our study, *Dual-Held Deal*, constructed at the BDC-portfolio firm-investment-quarter level, is defined as a debt investment accompanied by a simultaneous equity investment from the same BDC in the same quarter. This practice highlights the strategic flexibility that BDCs enjoy and suggests that BDCs are able to reach the full capital table, thereby achieving a desired

[1] Source: Pitchbook and "2023 Direct Lending Review" by LSTA.

[2] See Davydiuk, Marchuk, and Rosen (2024) for an extensive discussion on BDCs. See Chernenko, Erel, and Prilmeier (2022) for the role of bank regulation in the growth of nonbanks.

risk-reward profile. Unlike BDCs, banks face significant restrictions under the Bank Holding Company Act, which generally limits their ability to hold equity stakes in non-banking businesses unless these investments are made through affiliates.

Dual holding by BDCs is fundamentally different from financial institutions that simultaneously participate in loan syndication and purchase publicly traded shares of the same firm, as analyzed in Jiang, Li, and Shao (2010). First, the vast majority of BDC clients are too small to be viable participants in the loan syndication market, with approximately 90% being private companies without publicly traded shares. Second, institutional dual holders typically manage syndicated loans (or bonds) and stocks in separate portfolios, whereas BDCs usually hold debt and equity instruments within the same portfolio. Third, BDCs, much like private equity firms, provide both financial and operational support to their portfolio firms and exercise governance oversight as a result. For these reasons, we expect BDC dual holders to play a more significant role in financing and monitoring their portfolio firms.

Given the prevalence of dual holdings by BDCs, our first analysis focuses on the selection of dual holding at the deal level and the rationale behind it. We find that dual-held portfolio firms are typically smaller in size, have lower profitability, and possess fewer tangible assets, but exhibit higher asset growth. Most strikingly, firms with negative operating cash flows are 15–21 percentage points more likely to be dual held by BDCs compared to peers with positive EBITDA. Firms with these characteristics are generally not ideal candidates for bank loans, as they lack both the robust cash flows necessary to service debt and the substantial physical assets needed to serve as collateral. Consequently, dual holding reflects the flexible financing structure that BDCs offer, enabling the private credit providers to fill the void left by traditional financial institutions.

Loan pricing is a critical aspect of credit research. Our granular data enables us to isolate the loan spread differential that can be attributed specifically to dual holding. In the cross-section analysis, we find that dual-held loans are priced over 100 basis points higher, even after controlling for industry, firm, and loan characteristics. When we incorporate both BDC-time and firm-time fixed effects — thereby, controlling for time-varying credit supply conditions and firm credit qualities — we observe

that dual-held loans carry a 45 basis point premium in spread, which is statistically significant at the 1% level. This finding implies that when the same firm borrows from two different BDCs within the same quarter, the higher spread commanded by the dual-holder BDC cannot be attributed to unobserved heterogeneity in firm risk but are likely driven by the dual-holding status.

A priori, the relationship between dual holding and loan pricing (after controlling for credit quality and loan terms) is ambiguous based on economic reasoning. Dual holders, who can exercise creditor rights through covenants and reorganization as well as shareholder rights via voting and board representation, have stronger incentives to monitor and greater access to firm information for effective oversight. The effect of this structure on loan spreads is ambiguous in the cross section: on one hand, better monitoring should reduce the firm's risk going forward, which would typically be associated with a lower spread. On the other hand, if dual holders effectively "charge" other creditors for the additional monitoring services they provide, the spread on their loans could be higher. Our empirical results align with the latter scenario. Further supporting this relationship is the positive association we find between loan valuation (relative to par) at origination and dual holding, using the same fixed effects structure. This suggests that loans extended by dual holders are indeed perceived as less risky.

Our baseline empirical result is also consistent with a capital structure mechanism. When a dual holder contributes equity capital alongside debt, the firm's debt becomes less risky compared to a scenario of debt-only financing, due to the additional equity cushion that enhances loss absorption. In this case, dual holders might justify charging a higher loan spread, as the equity injection serves as a "public good" for all other creditors, much like monitoring. To distinguish between these two effects, we note that the benefit from equity injection as a public good is higher when the dual holder's debt is senior and collateralized, as the advantage of capital cushion primarily accrues to junior creditors. Conversely, the monitoring incentive for dual holders is stronger when they hold junior loans, which are more sensitive to firm performance. Our empirical results show that the spread premium on dual holders' loans is more pronounced when they provide junior loans (after controlling for the

direct effect of loan seniority), supporting the monitoring mechanism rather than the capital structure explanation.

Our findings further validate the monitoring effect, as firms experience a lower cost of capital after being included in a dual holder's portfolio, despite the fact that dual holders typically charge higher loan spreads. Specifically, firms potentially monitored by a dual holder enjoy a reduction in spreads on their non-dual-held deals by 16–40 basis points, all else being equal. Although this asymmetry might raise concerns about a potential hold-up problem — where dual holders could limit the outside opportunities of portfolio firms while extracting higher loan spreads — we observe that following dual-holding deals, portfolio firms secure more debt and receive additional financing. Notably, this increased financing disproportionately comes from the dual-holder BDCs, indicating a strong long-term relationship with the dual holders.

The private direct lending market has been relatively under-explored compared to bank loans, the bond market, and private equity. As the first study to examine dual holdings in this context, we shed light on a key mechanism through which BDCs effectively serve a market segment that is less attractive to traditional financiers, such as banks and loan syndicates, yet offers appealing returns relative to the associated risks. BDCs achieve this by becoming well-informed, facilitating both selection and evaluation, and engaging in more hands-on monitoring. Dual holding emerges as a particularly effective tool for both information acquisition and governance, as it allows BDCs, in their roles as both creditors and shareholders, to exercise greater flexibility in leverage, foster closer interactions with management, and employ a broader range of governance mechanisms (from negative covenants to board representation) when necessary. Dual holders' ability to closely monitor firm performance, manage risks, and protect investments adds value beyond merely providing capital. Private debt, alongside private equity, has thus strengthened the private market as a viable and increasingly attractive alternative (to both portfolio firms and investors) to the public market for middle-size firms.

Finally, our study provides an explanation for the seeming puzzle that banks find it more profitable to lend to BDCs rather than directly to the firms that become BDC

portfolio companies. This happens despite the fact that such intermediation per se does not necessarily lower the cost of capital for borrowers because BDCs as lenders need to be much less levered compared to banks. Chernenko, Ialenti, and Scharfstein (2024) argue that regulated and insured banks want to exploit their low-cost funding advantage over a high volume of loans that individually require little capital. Lending to BDCs qualifies as lower risk from a regulatory perspective and thus allows banks to maximize leverage. In other words, BDCs play the role of risk transformation so that banks can apply their relative advantage more by lending to BDCs that come with low capital requirements. Importantly, our study shows that BDCs' risk transformation goes beyond diversification by pooling risky loans; it also materially reduces the risk of individual loans through more effective monitoring.

The rest of the paper is organized as follows. Section 2 provides a review of the literature on the burgeoning field of private credit. Section 3 introduces institutional background and sample overview. Section 4 lays the foundation of variable definitions and construction. Section 5 presents empirical evidence on the nature and impact of dualholding. Section 6 explores potential mechanisms. Section 7 entertains sensitivity check. Finally, Section 8 concludes.

2 Literature Review

We mainly contribute to the literature on the increasing role of nonbanks in the credit markets, focusing on the characteristics and consequences of this growth for borrowers, lenders, and financial markets. A review paper by Erel and Inozemtsev (2024) documents the growth of nonbank financial institutions in the loan and bond markets as credit providers, and discuss how their lending differs from bank lending with its implications for financial (in)stability. Another review paper by Block, Jang, Kaplan, and Schulze (2024) focuses on the growing role of private debt funds in the credit markets and provides insights from surveys conducted with general partners of some private funds in the U.S. and Europe. Authors show that private-debt funds lend to riskier firms, but they manage risk by including both financial and negative covenants in their contracts. Fristch, Lim, Montag, and Schmalz (2021) conduct a

review of the European private debt funds.

Focusing on the reasons for the growth in nonbank lending, several papers have argued that it is due to the increased bank regulation, especially following the 2007–2008 Financial Crisis (see, e.g., Chen, Hanson, and Stein, 2017; Cortés, Demyanyk, Li, Loutskina, and Strahan, 2020; Chernenko, Erel, and Prilmeier, 2022; Gopal and Schnabl, 2022) or convenience/speed of nonbank financing solutions in comparison to bank loans (Buchak, Matvos, Piskorski, and Seru, 2018). Acharya, Cetorelli, and Tuckman (2024) argue that, unlike the conventional belief of segmented markets, nonbanks and banks share businesses and risks that are tightly interwoven. Therefore, they suggest that regulators should consider nonbanks' risks in bank regulation. Using data from BDCs, Chernenko, Ialenti, and Scharfstein (2024) offer an explanation for this observation by arguing that the regulatory capital arbitrage for banks drives the growth of nonbank private credit. Authors show that banks might find it more attractive to lend to BDCs, which in turn lend to mid-sized firms, rather than lending directly to these firms, as the latter approach requires higher regulatory capital.

Jang (2023) uses detailed data on loan contracts extended by private debt funds in private equity buyouts and shows that direct lenders actively monitor and engage in loan restructurings similar to banks. This finding differs from Chernenko, Erel, and Prilmeier (2022), who analyze cash-flow-based direct loans to middle-market firms extended by a variety of nonbank financial institutions. The authors show that nonbank borrowers are more likely to be unprofitable and, thus, their loan contracts are less likely to include financial covenants but warrants. Davydiuk, Marchuk, and Rosen (2024) focus on the growth of BDCs, showing that their loans and monitoring help mid-sized private firms grow their employment and increase patenting activity. We contribute to this literature by exploring a unique role of BDCs as common investors across the firm capital structure.

The literature on dual holders of equity and debt in loan markets is growing. Focusing on the syndicated loan market, Jiang, Li, and Shao (2010) document that syndicated loans with nonbank institutional dual holders are associated with lower loan yield spreads as compared to other loans funded by the similar types of

lenders who do not equity of the borrower. They argue that the presence of dual holders mitigates the shareholder-creditor conflict of interest, thereby decreasing the borrowing cost. Further evidence on dual ownership reducing shareholder-creditor conflicts is provided by Chava, Wang, and Zou (2018), who also focus on syndicated loans with institutional ownership. Authors show that such ownership affects borrowers' investments through reductions in capital expenditure restrictions in loan contracts. Furthermore, Antón and Lin (2019) find that dual holder monitoring mitigates borrowers' underinvestment. Using mergers between syndicated-loan participants and equity holders of the same firm, Chu (2017) shows that payouts of firms, especially distressed ones, are reduced with the reduced shareholder-creditor conflicts. All these papers focus on institutional participation in largely syndicated deals, where a typical loan is a large loan to a larger borrower and typically syndicated by a commercial bank as the lead arranger.[3] Our contribution is to examine on loans to smaller borrowers where a BDC acts as a direct lender similar to a local bank. We focus on a rather common yet unstudied dual-holding structure not available for banks by regulation.

Banks can hold equity in only limited circumstances.[4] Focusing on banks' voting rights, separate from cash-flow rights, in their fiduciary capacity through their trust business, Santos and Wilson (2008) find that they charge lower interest rates on their loans if they have larger voting rights. Researchers have also studied the dual holdings of equity and bonds rather than bank loans. For example, Chen, Zhang, and Zhu (2023) find that firms with dual holders of its equity and bond have less risk-inducing compensation structures for their managers.

[3]Several studies have documented the increasing role of nonbank lenders in the syndicated loan market (see e.g., Ivashina and Sun, 2011; Massoud, Nandy, Saunders, and Song, 2011; Nadauld and Weisbach, 2012; Lim, Minton, and Weisbach, 2014; Berlin, Nini, and Yu, 2020; Biswas and Zhai, 2021; Irani, Iyer, Meisenzahl, and Peydro, 2021).

[4]See Haubrich and Santos (2023) for details.

3 Institutional Background and Sample Overview

3.1 Business Development Companies and Private Credit Market

A business development company (BDC) is a type of closed-end investment company established under the Small Business Investment Incentive Act of 1980. The primary objective of BDCs is to channel capital into small- and mid-sized private businesses. To maintain their regulatory status, BDCs are required to allocate at least 70% of their capital to eligible assets, provide substantial managerial assistance to their portfolio firms, and adhere to specific debt-to-equity ratios, which has been 2:1 since 2018. Eligible assets for BDCs include cash, government securities, and investments in eligible portfolio firms, which encompass all private U.S. firms and public U.S. firms with a market capitalization of up to $250 million (which is roughly 50-th percentile of the size distribution of public firms at 2023 year-end). Monitoring these smaller firms is essential for BDCs not only by their business model or riskiness of the portfolio firms they invest in but also by law. As discussed by Tashjian (1981), their active monitoring activities include "any arrangement whereby a business development company, through its directors, officers, employees, or general partners, offers to provide, and if accepted, does so provide, significant guidance and counsel concerning the management, operations, or business objectives and policies of a portfolio company" or having "one of its own officers, directors, or employees elected to the portfolio companies' board of directors in order to take an active role in management" (see section (2a) (47) of the Small Business Investment Incentive Act of 1980).

BDCs primarily focus on the middle market, targeting firms with annual revenues between $10 million and $1 billion. They typically invest in debt securities issued by their portfolio firms, with about two-thirds of all deals involving such securities, although equity coinvestments are also common. BDCs finance their investments by raising capital in both public and private markets. Initially, they may use private funding but often choose to go public through an initial public offering (IPO) to raise equity. For their debt funding, BDCs avoid short-term funding options like deposits are for banks, instead opt for long-term borrowing through senior secured

debt, convertible bonds, and other hybrid securities. This strategic approach to funding ensures they can support the growth and development of their portfolio firms effectively. More details on the BDCs' funding can be found in Davydiuk, Marchuk, and Rosen (2023).

3.2 BDC Sample Overview

Our sample of BDCs builds on the hand-collected quarterly database of the BDC investments as described in Davydiuk, Marchuk, and Rosen (2024). The sample includes 69 BDCs, who provided funding to over 9,000 portfolio firms (out of which over 90% were private) over the period from 2004 through 2017.[5]

Panel (a) of Figure 1 shows the steady growth of BDCs from less than 10 to around 60 during the sample period. Given the key object of interest of this study, dual holders, we specifically trace out BDCs that are simultaneously equity holders in the firms they provide private credit for. The chart shows that about 80% of the BDCs served as dual holders in each year prior to 2014, and around 90% thereafter. When we sort the sample by portfolio firms, we see rapid growth of firms receiving private credit (Panel b). Prior to 2010, BDCs funded less than 1,200 portfolio firms per a given quarter. Since then, this number has been steadily increasing reaching about 4,000 portfolio firms per quarter in 2014. The number of dual-held firms grows proportionately during this time period, increasing from about 250 in 2010 to more than 750 in 2017. The share of dual-held portfolio firms is stable over time at around 20%. Finally, Panel (c) suggests that the growth comes from mostly the extensive margin, as the growth in the number of portfolio firms per a BDC has mostly been modest. A BDC funds on average between 60 and 100 portfolio firms per quarter. About 20 of those firms are the firms with the simultaneous equity and debt investments.

[Insert Figure 1 here.]

[5]Our sample includes all BDCs that were filing the schedule of investments in their 10-K/10-Q regulatory filings during the sample period.

4 Data Description and Key Variables

Key information required for our analyses concerns deals (both debt and equity) made by the BDCs and firms they fund. For deal-level information, we collect the following variables: instrument type, principal amount, loan fair value, interest rate, and maturity date. For equity deals, we identify different types of equity investments such as common equity, preferred equity, warrants, and other equity (e.g., minority interest). All this information is recorded in the schedules of investments reported by BDCs within their SEC 10-K/10-Q regulatory filings.

For BDC-funded firms, we collect industry and location data from N-2 Forms, employment data from Annual Returns/Reports of Employee Benefit Plan filed with the Department of Labor (DOL) using pension participants data from Form 5500.[6] We also proxy the employment growth with the average of the growth rates in the number of participants for each pension plan, weighted by the number of participants. For the common firm-level characteristics such as total assets, debt, tangible assets, sales, earnings, and age, we merge our list of BDC portfolio firms with Standard & Poor's Compustat database using a string matching algorithm based on the combination of firm name and address. Around 1,200, or about 12% of BDC-funded firms are covered by Compustat, which contains only publicly-traded or bond-issuing firms. We employ this set of BDC-funded portfolio firms only to study the effects of firm-level characteristics on dual-holding.

Because private loans are just one source of external financing, we resort to the Refinitiv DealScan database on syndicated loans to complement the information about firms' financing options. More specifically, we match the list of BDC-funded firms with the list of borrowers from DealScan by the firm name and address. About 11,300 syndicated loans in DealScan with the origination date between 2004 and 2017 were made to BDC portfolio firms, and in around 400 of those loans BDCs also served

[6]The DOL gathers the data on the number of employees enrolled in pension plans, such as defined benefit and contribution, and in various health benefit plans. Under the Employee Retirement Income Security Act of 1974, the requirement to file the Form 5500 applies to a broad set of employers, including very small ones. While these filings offer good coverage of pension offerings in general (McCue, 2009), the reported numbers are only an approximation for firm-level employment since pension plan participation rates are higher for full-time and higher-paid workers (see, e.g., Perez and Groshen, 2014). We merge the employment data with our list of BDC portfolio firms using a string matching algorithm based on the combination of firm name and address.

as syndicate participants.

Our key variables of interest are loan spread and loan valuation. Loan spread is calculated as the difference between the reported total rate and three-month LIBOR rate. Loan valuation is defined as the ratio of the loan fair value to the principal amount.[7] The ratio is skewed due to the low fair values of undrawn credit lines and unfunded commitments. Therefore, we constrain our data to loan valuations above 60%. Academic studies on distressed debt typically assume a loss-given-default of 35%–40%, implying a lower bound for loan valuations of 60% (see, e.g., Sundaresan, Wang, and Yang, 2014). We also winsorize the right tail of the loan valuation distribution at 1%.

The summary statistics are reported in Table 1, separately for the midpoint and end of the sample period. As of 2010:Q4, a median loan has a size of $8 million, matures in 5 years, with an interest rate of 9%. BDCs offer several pricing alternatives for their debt securities, including a conventional spread over a base rate (e.g., LIBOR), a fixed cash rate, and a "payment-in-kind" (PIK) rate options. The Table demonstrates that debt deals with a fixed cash rate were relatively more common among BDCs in 2010, while in 2017 there has been a shift towards floating rate pricing. Not surprisingly, we find that floating loan rates are on average lower than the fixed ones. For example, in 2010:Q4 the median variable loan rate offered by BDCs was about 3% lower that the corresponding fixed rate. In 2017:Q4, this difference shrinks to less than 1%. The Table also indicates that very few deals featured loan rates with a PIK option. The PIK rate offers borrowers a possibility to postpone their debt interest payments up to the maturity date, allowing them to better align the maturity of their capital expenditures and funding. Though more flexible, the PIK loans are on average more expensive than loans with conventional floating and fixed interest rates.

[Insert Table 1 here.]

[7] By regulation, BDCs are required to disclose the valuation of their investments at the deal-level.

5 Empirical Evidence on Dualholding and Credit Structure

5.1 Descriptive tests

As discussed in the previous section, 80%–90% of the BDCs were dual holders at some point in time, and around 20% of the BDC-financed portfolio firms had at least one lender who simultaneously provided equity investment. Typical equity investment positions are common shares, preferred shares, and common stock warrants (which are often bundled with a debt security). Less common formats include preferred stock warrants and different forms of interest (membership interest, company interest, partnership interest, royalty interest, trust interest). Warrants allow BDCs to increase their equity interest in a portfolio firm when its equity appreciates in value. From the risk management perspective, warrants can also be used to receive a stake in the firm and acquire control rights and a voice when a debt investment deteriorates in value. It is worth noting though that warrants offer neither cash flow nor control rights prior to its exercise, but only the prospects. Hence, in our analyses, we separate warrants and materialized equity holdings (including that from the exercise of warrants).

We first define dual-holding at the deal level. $Dual\text{-}Held\ Deal_{k,i,j,t}$ is an indicator variable that equals one if a portfolio firm i receives a debt investment k with a simultaneous equity investment from a BDC j in an investment quarter t. The indicator is equal to zero if a portfolio firm i has *only debt* investment k. We refer to these debt deals as the *dual-held* deals or DH-deals. It is worth noting that nearly in all cases portfolio firms receive equity investments that are concurrent (about 68% of the dual-held portfolio firms) or subsequent of debt investments (about 25% of the dual-held portfolio firms). Therefore, dual holders are primarily creditors who also hold equity instead of pre-existing equity holders who join credit deals.

As a diagnostic test, Table 2 report the summary statistics on loan terms for dual-held and non-dual-held debt deals for the full sample period as well as those as of 2010:Q4 and 2017:Q4, respectively, so that we can observe time trends, if any. When we compare dual-held and non-dual-held debt deals, we find that the dual-held loans

have shorter maturity (about 1.5 year shorter in 2010 and 1 years shorter in 2017), lower loan valuation (about 2.5% in 2010 and 2017), and higher loan spread (about 1.3% higher in 2010 and 1.6% higher in 2017). Dual-held loans are more likely to be subordinated, and unsecured than non-dual-held loans.

[Insert Table 2 here]

The statistics above do not take into account potentially different portfolio firm characteristics. Parallel to dual-held deals, we define $Dual\text{-}Held\ PF_{i,t}$ to be an indicator variable equal to one if a portfolio firm i has a simultaneous equity and debt investment from any BDC in an investment quarter t and zero otherwise. The indicator is equal to zero if a portfolio firm i has *only debt* investments from BDCs. We refer to these portfolio firms as the *dual-held* firms or DH-firms.

Private credit must fill a void from conventional bank financing to enjoy growth: They could either target firms usually not favored by banks or they have a convenience/speed of lending advantage for the the borrowers, as discussed above in the literature review. Though firms could benefit from relationship lending, the matching cost could be high and the cost of switching lenders is even higher in bank financing. Finally, some firms may be considered to be so risky that they are unlikely to qualify for a loan in the absence of abundant collaterals. The flexible structure involving debt and equity instruments allow such firms to obtain financing from BDCs.

Table 3 reports results of the regression at the level of the portfolio firm i in the investment quarter t that connects the status of DH with the characteristics of the firm, as well as time and industry fixed effects. Because very few firms are repeat recipients of financing, a specification with firm fixed effect is not feasible.

$$Dual\text{-}Held\ PF_{i,t} = \beta X_{i,t-1} + \alpha_t + \alpha_{SIC2} + \epsilon_{i,t} \tag{1}$$

The sample includes all portfolio firms of BDCs that are covered by Compustat (so that firm-level financial information is available). BDCs commonly invest in private middle-market firms, and mid- or small-cap, or thinly traded public firms. Therefore, the portfolio firms covered in these tests correspond to a subsample of

larger borrowers of BDCs, due to data coverage.

[Insert Table 3 here.]

Table 3 shows that dual-held portfolio firms are typically smaller in size, have lower profitability (measured by EBITDA/Sales), less tangible assets (measured by net PP&E), but with higher asset growth. Public firms with negative operating cash flows are 15–21 percentage points more likely to be dual-held by BDCs compared to peers with positive EBITDA. Note that Chernenko, Erel, and Prilmeier (2022) show that firms with negative EBITDA are significantly more likely to borrow from a nonbank financial institution. But they do not focus on dual holders, which we focus on. Moreover, a standard deviation increase in net PPE-to-sales ratio reduces the likelihood of BDC financing by 2–4 percentage points. Finally, a standard deviation increase in asset growth boosts the probability of BDC financing by 1.7–2.6 percentage points. These results hold whether we consider all forms of equity or common equity only.

This analysis, though restricted to larger firms with traded stocks or bonds only, supports the hypothesis that BDC-financed firms are not natural candidates for bank loans as they lack both robust cash flows to service their debt and sizable physical assets to serve as collateral. This is consistent with BDC's focus on providing financing to middle-market firms in early growth stages or undergoing financial restructuring. These firms often rely on intangible assets, innovative business models, or intellectual property, which may not immediately translate into high profitability. Furthermore, flexible and risk-tolerant financing provided by BDCs is often used to support operational growth, acquisition strategies, or capital expenditures, rather than being secured by hard assets. This combination of characteristics makes BDCs a valuable funding source for firms that are asset-light but have potential for significant growth and return on investment. Although prior literature has shown that nonbank lenders typically serve riskier borrowers with negative EBITDA and higher leverage (e.g., Chernenko, Erel, and Prilmeier, 2022), our findings on characteristics of the dual holders' portfolio firms are new to the literature.

5.2 Dualholding and Loan Terms

Analyzing the potential impact of the dualholding naturally starts with loan spread, the key parameter characterizing the structure of a credit deal. A priori, the direction of the effect is not clear. The previous section shows that BDC-financed firms tend to be in less favorable financial situations making a loan risky. Because dual holders are injecting equity capital at the same time, providing a cushion to all creditors (in addition to themselves if there are multiple creditors), they may charge a higher rate on their loan to internalize the benefit to the firm from equity contribution.

However, these are also firms with potential upsides. A BDC creditor that sees upside potential in the firm's operations could bundle credit with equity (especially warrants). Firms that are unwilling to dilute their future cash flow and control rights will only accept the financing deal if the credit comes at a discounted rate. When equity holding becomes substantive such that as a shareholder the BDC could exercise monitoring rights, then the debt investment could become less risky and hence could justify lower risk spread.

A first test to assess the effect of simultaneous equity (common and preferred equity) and debt investments on loan spread is based on the following baseline panel regression at the investment level:

$$Spread_{i,j,k,t} = \beta Dual\text{-}Held\ Deal_{i,j,k,t} + \gamma X_{i,j,k,t} + \alpha_{j,t} + \alpha_{i,t} + \epsilon_{i,j,k,t}. \quad (2)$$

In the above equation, each observation is indexed by portfolio firm i, BDC j, loan deal k, and time t (at the quarterly frequency). The dependent variable $Spread$ is the spread over three-month LIBOR of the loan deal. $X_{i,j,k,t}$ includes a set of controls, including *Loan Size* (the logarithm of loan principal amount), and *Maturity* (the logarithm of loan duration in months).[8] In addition, we control for whether the loan is senior or subordinated, secured or unsecured, and first or higher lien. Firm level characteristics are not featured as they are effectively controlled for with saturated fixed effects.

Our regressions can accommodate a variety of fixed effects to absorb unobserved

[8] If we control for loan valuation (the ratio of loan fair value to loan principal amount), a proxy for firm credit quality, there is no impact on the relation between duel-held and spread.

heterogeneity at the BDC, time, portfolio firm, industry, and region (county) levels. We list the most stringent combination of fixed effects that our data structure allows. A BDC-time fixed effect ($\alpha_{j,t}$) controls for all time-varying characteristics specific to the BDC, the credit supplier, while a firm-time fixed effect ($\alpha_{i,t}$) controls for all time-varying firm-level characteristics, including credit quality along measurable and immeasurable dimensions. We also include industry-time and country-time fixed effects. The estimations results are reported in Table 4.

[Insert Table 4 here.]

Without any controls and fixed effects, we find that dual-held debt deals have a 1.79% higher loan spread than non-dual-held debt deals in line with our summary statistics (see Table 4). The effect is statistically significant at the 1% level. The coefficient estimates become smaller with progressive controls and inclusion of fixed effects, ranging from 0.45% to 1.79%, but remain significant at the 1% level. With all controls and both BDC-time and firm-time fixed effects, we find that spread on a dual-held debt deal is 0.45% higher than non-dual-held deals. In this specification, there are nearly 2,000 unique portfolio firms; 60 unique BDCs among which 52 are dual-holders in at least one deal. The specification suggests that, if a given portfolio firms receives two loans during the same quarter from the same BDC with identical observed contractual terms, the deal in which the BDC also contributes equity capital is associated with a 45 basis point premium in load spread. Because the fixed effects distill a within-relation where firm condition is held constant and so is lender business style in a given time period, the premium is most likely attributable to dual-holding status.[9]

With the other combinations of fixed effects, the coefficients associated with $Dual\text{-}Held\ Deal_{i,j,k,t}$ are larger in magnitude and all significant. For example, the coefficient is 1.18% when we replace firm-time fixed effect with industry-time and county-time fixed effects. In this setting, we require simultaneous borrowing from

[9]To account for differences in the sample size across the regression specifications, we additionally estimate the effect of dual holdings on the loan spread for the subsample of portfolio firms for which the firm-time fixed effects are well identified, that is, only with the portfolio firms in the regression specification (8). Table A.1 shows that the results continue to hold.

dual-holder and non-dual-holder BDCs in the same industry or county and during the same quarter. Such a specification allows a broader set of deals.

Since warrants do not require any equity capital injection at issuance nor grant the lending BDCs shareholder rights, they are not included in the regression (2). Given that warrants are a common equity-like attachment to loan deals by BDCs, we assess the relationship between loan spread and dual-holding with warrants in Table A.2. In this regression, dual-held deals with common and preferred equity are excluded from the sample. In the cross-section, a positive relationship between loan spread and dual-holding with warrants remains, but the significance disappears. These results suggest that lenders may require warrants for risky firms with upside potential (which is correlated with higher loan spreads), but the presence of warrants does not impact loan spreads for a given firm-quarter. The contrast with Table 4 also highlights the unique information that could be extracted by comparing spreads among similar loan deals within the same firm-quarter cohort, so that any selection effect due to time-varying firm conditions is filtered out.

An alternative approach to including firm fixed effects to account for differences in the firm risk profile is to estimate our main specification in the sample of Compustat firms controlling for firm characteristics used in Table 3. The estimation results are reported in Table A.3. In the regression specifications (3) and (4) with firm characteristics, the difference in the loan spread between dual-held and non-dual held debt deals is 0.82%–1.57%.

As focusing on Compustat firms reduces the sample size and leads to a selective sample of larger firms that have issued bonds or stocks, we also use loan valuations conducted by BDCs as another way to account for differences in the firm risk profile. In these regressions with BDC and time fixed effects, the sample includes pairs of dual-held and non-dual-held loans matched on a specific BDC as the lender, an investment quarter, whether a loan is senior, secured, or first-lien. For each pair of loans, we select 75% best matches based on the loan size, maturity, and valuation in columns (1) and (2) and 50% best matches in columns (3) and (4). The difference in the loan spread between dual-held and non-dual-held debt deals ranges between 0.78% and 1.20% (see Table A.4).

Lastly, Panel (a) of Figure 2 depicts the variation in the coefficient on *Dual-Held Deal* across time, estimated from the four-year rolling-window regressions with imputed BDC and firm-time fixed effects. We can see the loan spread differential between dual-held and non-dual held debt deals is stable over time and is about 0.45%. Such consistency suggests that the relation represents a fundamental economic force that is not sensitive to macroeconomic conditions and business cycles.

[Insert Figure 2 here.]

In our sample, 60% of the dual holders (at the deal level) contribute debt and equity capital concurrently (defined as within two quarters), 25% have preexisting equity, and the rest contribute equity more than two quarters post the loan deal. If we apply regression specification (2) to these three types of dual holders separately classified, we find that concurrent deals entail the highest premium in loan spreads, 0.45%–1.21% with the firm-quarter fixed effects. Results are reported in Table A.5.

In addition to loan spread, we also study whether dualholding is associated with differences in other key loan-level characteristics, notably loan maturity and loan size. In Panel (a) of Table 6, we apply the same regression specification as in equation (2) except with the dependent variable being the loan maturity expressed in quarters. In the most strict specification with firm-time fixed effects and loan controls, we find no statistically significant difference in loan maturity between dual-held and non-dual-held loans.

Analogously, Panel (b) of Table 6 examines loan size where the dependent variable is the natural logarithm of the loan principal amount. We find that that dual-held loans are of a larger size (0.28%–0.53%) than non-dual-held loans, suggesting that for BDC portfolio firms, equity and debt capital are complements rather than substitutes.

6 Exploring Potential Mechanisms

6.1 How Can Dual Holding Affect Loan Pricing?

Having established the prevalence of the dual holdings by BDCs and the meaningfully larger spread on credit that they come with, we next discuss potential mechanisms for this finding. A direct and perhaps trivial explanation could be that dual holding is the result of a selection of riskier borrowers, where a full control of risk profile could be difficult. Such a hypothesis is supported by results presented in Table 3, where a lack of both cash flows (i.e., negative EBITDA) and collateral (i.e., low net PP&E) are the two front predictors for a credit deal to involve simultaneous equity investment. This hypothesis, however, does not drive our full result as the positive coefficient in the load spread regression holds with firm-quarter fixed effects (presumably credit risk is fully accounted for within a fixed effect cohort), in addition to BDC-quarter fixed effects, as shown in column (8) of Table 4.

There are multiple potential mechanisms underlying the positive relationship between load spreads and dual-held loans beyond a mere selection problem. The first is the delegated monitoring. Due to the fact that dual holders can exercise both creditor rights through covenants and reorganization (see e.g., Nini, Smith, and Sufi, 2012) and shareholder rights via voting and board representation, they have better access to firm information. Loan deals create non-public information as they result from private agreements after which credits have access to financial statements, covenants compliance, waiver requests, financial projections, and sometimes even plans for acquisitions (see e.g., Ivashina and Sun, 2011). The combination of information and governance rights makes the dual holders more powerful monitors compared to pure creditors and other outsider shareholders. Such an effect on loan spreads is ambiguous in the cross section as better monitoring makes the firm less risky which should be associated with lower spread (Jiang, Li, and Shao, 2010); but if dual holders "charge" to be rewarded by other parties for the monitoring service then the spread on *their* loan could be higher holding firm credit condition constant (i.e., within the firm-time cohort), which is our finding in Table 4.

The second mechanism concerns capital structure. Because a dual holder simultaneously contributes equity capital, the firm's debt becomes less risky, relative to the counter-factual of debt-only financing, due to a deeper cushion in the capital structure layer that will absorb potential loss before debt becomes impaired. In this case, dual holders could charge a higher load spread, as equity injection serves as a "public good" to all other creditors. The service has a higher public good component to it if dual holders' debt portion is senior and collateralized as the benefit mostly goes to junior creditors.

The third mechanism follows from the "hold up" theory (Rajan, 1992). According to this theory, a borrower becomes dependent on a particular lender for financing, which allows the lender to exploit this dependency to their advantage. This problem arises due to the relationship-specific investments made by both parties, and information asymmetry, both of which result in bargaining power dynamics that favors the lender especially for firms dependent on external financing. The holdup problem could be amplified in our setting for two reasons. First, dual holders, due to their additional information advantage and financing capacity, is likely to enjoy even higher bargaining power. Second, most BDC clients have relationship with very few (typically one or two) lenders, a contrast to more mature firms that would form loan syndication. In our sample, the average dual-held portfolio firm has a relationship with 1.47 BDCs, while the average for the rest of portfolio firms is slightly larger at 1.76 BDCs.

6.2 Evidence from Loan Valuation

To resolve the ambiguity, we resort to a different outcome variable, $Valuation_{i,j,k,t}$, the ratio of the fair value of the loan at the time of initiation to the principal amount, based on the underwriting and risk assessment processes. Lenders periodically conduct fair value assessments of their portfolio, primarily to evaluate their own capital adequacy. Since this information is mainly used at the aggregate level for BDCs, there is no evident motive for individual loan assessments to be biased in any

particular direction. We estimate the following regression:

$$Valuation_{i,j,k,t} = \beta Dual\text{-}Held\ Deal_{i,j,k,t} + \gamma X_{i,j,k,t} + \alpha_{j,t} + \alpha_{i,t} + \epsilon_{i,j,k,t}. \quad (3)$$

If delegated monitoring works, then firm is expected to be less risky (compared to the counterfactual of an absence of a dual holder), and hence the fair valuation should be higher, regardless of whether and to what extent the dual holder internalizes the benefit in the form of a higher loan spread.

Results, reported in Table 5, support the delegated monitoring hypothesis. In regression specifications with firm-quarter fixed effects, we find a positive and statistically significant estimated coefficient on *Dual-Held Deal*, indicating that dualholding is associated with 1.40–1.37 percentage point higher valuation. The fact that the relation emerges with firm-quarter fixed effects highlights the importance of a full control of all factors that contribute to firm credit quality including unobservable characteristics. In the cross section, where inherently risky firms are more likely to involve dualholding, the relation between valuation and dualholding could be muted or even reversed.

Similar to Panel (a) of Figure 2, Panel (b) plots the variation in the coefficient on *Dual-Held Deal* across time, estimated from the four-year rolling-window regressions with both BDC and firm-time fixed effects. The coefficients, which represent the difference in the loan valuation between dual-held and non-dual-held debt deals, are consistently above zero over time, fluctuating around 1.2%. Overall, the findings suggest that contributed capital and delegated monitoring are associated with less risk in the loans held by dual holders, which findings are inconsistent with the hold-up explanation.

Some BDC lenders receive warrants as part of the loan deal. Warrants provide dual holders with participation in the upside of the firm valuation, but before warrants are redeemed the lenders contributes no equity capital, nor do they gain shareholder rights. As a result, the capital injection and shareholder monitoring channels are shut down, providing us a setting for a placebo test. Table A.2 demonstrates that the difference in loan valuation for warrant-only dual-held and non-dual-held deals

is negative and statistically insignificant. The contrast between materialized equity investment and potential of future equity supports our main hypotheses regarding capital structure and monitoring.

6.3 Further Tests on Capital Structure Hypothesis

The loan spread and valuation results shown in the previous section is also consistent with the capital structure hypothesis. Under this hypothesis, dual holders' equity injection serves as a "public good" to all other creditors and hence they can charge a higher price for their loans. Moreover, the capital contribution also makes the debt safer, other things equal, leading to higher loan valuation.

To separate the capital structure effect from delegated monitoring, we note that the public-good component of equity holding varies with the seniority of the dual holder's debt. If dual holders' debt is more senior and more likely to be secured, then the benefit of equity injection mostly goes to other, junior creditors. Conversely, the benefit could be self-serving if the dual holders themselves are holding the junior tranche of debt which would be the first to take hit in the case of inadequate capital. Thus, a test could be built on based on the relationship between loan spreads and dual-holdings, sorted on the seniority of the dual holder's debt positions.

Our summary statistics suggest that dual-holder BDCs are more likely to originate subordinated rather than senior, and not secured than non-dual-holder BDCs. We test for these relationships more formally by estimating the following panel regressions at the investment level:

$$Seniority_{i,j,k,t} = \beta Dual\text{-}Held\ Deal_{i,j,k,t} + \gamma X_{i,j,k,t} + \alpha_{j,t} + \alpha_{i,t} + \epsilon_{i,j,k,t}, \tag{4}$$

where the dependent variable is the indicator variable for seniority status of dual holder's debt position. More specifically, $Seniority_{i,j,k,t}$ is equal to one if a loan k originated by a BDC j to a portfolio firm i at time t is (i) senior, (ii) secured, and (iii) first lien. The results are presented in Table 7. Confirming the summary statistics, we find that dual-held loans are 13%–15% less likely to be senior, 6%–22% less likely to be secured, and 13%–17% less likely to be first lien in the most restrictive regression

specification with firm-time fixed effects.

[Insert Table 7 here.]

Because dual holders mostly hold junior debt, their equity injection is less likely to be a public good for other creditors. However, in order to address whether capital structure hypothesis holds, we should still show whether the loan spread is associated with the varying seniority of dual holders' loans, which we analyze next. Specifically, we estimate the following investment-level panel regressions.

$$\begin{aligned} Spread_{i,j,k,t} = \beta_1 Dual\text{-}Held\ Deal_{i,j,k,t} + \beta_2 Senior_{k,i,j,t} \\ + \beta_3 Dual\text{-}Held\ Deal_{k,i,j,t} \times Senior_{k,i,j,t} + \gamma X_{k,i,j,t} + \alpha_{j,t} + \alpha_{i,t} + \epsilon_{k,i,j,t}, \end{aligned} \quad (5)$$

where the dependent variable is the spread over three-month LIBOR of a loan indexed by i, j, k, t. $Senior_{i,j,k,t}$ is an indicator variable equal to one if the loan is senior, and zero otherwise. Results, reported in Table 8, show that while dual holders' loans overall charge a higher spread, the relative premium is reduced by 1.33%–1.84% for senior loans within the same firm-quarter cohort; or 1.04%–1.09% in the cross section controlling for loan characteristics. A test for $\beta_1 + \beta_3 = 0$ rejects the null and in favor of a positive value, suggesting that those senior loans still command a premium in spread relative to senior loans held by non-dual holders.

These results are consistent with the monitoring mechanism, but not with the capital-structure one. Under the monitoring hypothesis, dual holders with junior debt have a stronger incentive to monitor as all their investment — debt or equity — are junior. So, the effect on loan spreads should be stronger for dual holders with junior debt. However, under the capital-cushion hypothesis, dual holders with senior debt should charge more for their "service" as they are transferring greater "cushion" value to other, more junior, lenders.

If monitoring yields benefit, then the firm should enjoy lower cost of debt capital from non-dual holder creditors while the spread on the dualholding loan commands a premium. Such a dichotomy provides another setup to test the monitoring hypothesis. In this test, we draw the comparison between dual-held debt deals versus

portfolio firms with a dual-holder BDC, with the following panel regression:

$$Spread_{i,j,k,t} = \beta_1 Dual\text{-}Held\ PF_{i,t} + \beta_2 Dual\text{-}Held\ Deal_{i,j,k,t} + \gamma X_{i,j,k,t} + \alpha_{j,t} + \alpha_{i,t} + \epsilon_{k,i,j,t}, \tag{6}$$

where $Dual\text{-}Held\ PF_{i,t}$ is an indicator variable that equals to one if a portfolio firm i has at least one dual holder BDC during the quarter. The estimation results are reported in Table 9. We find that for firms that are potentially monitored by a dual holder, their non-dual-held deals have a 0.16%–0.40% lower spreads, other things equal, suggesting reduced cost of capital. The coefficient on $Dual\text{-}Held\ Deal_{i,j,k,t}$ reaffirms that dual holder indeed charges a higher spread on their own loans. Such a combination lends further support to the hypothesis that non-dual holding BDCs delegate firm monitoring to dual-holder BDCs.

[Insert Table 9 here]

6.4 Further Tests on Hold-Up Hypothesis

Under the hold-up hypothesis, the bargaining power of a dual holder would restrict portfolio firms' outside financing opportunities, leading to higher loan spread by dual holders. The fact that portfolio firms with dual holders enjoy lower cost of debt (see Table 9) is inconsistent with such a hypothesis. We are able to provide a more direct test in examining firms' abilities to access subsequent rounds of financing. To this end, we estimate the following firm-level regressions:

$$Subsequent\ Financing_i = \beta Dual\text{-}Held\ PF_i + \epsilon_i, \tag{7}$$

where the dependent variable *Subsequent Financing* is (i) the natural logarithm of one plus the number of debt deals of a portfolio firm i excluding the first debt deal, and (ii) the total loan amount of debt deals of a portfolio firm i excluding the first debt deal. Results in Table 10 show that the dual-held portfolio firms secure 20% more debt deals and receive $15 millions more in funding relative to non-dual-held portfolio firms. Importantly, this additional funding comes from BDCs that provided financing in the first debt deal (see columns "own") suggesting the presence of stronger relationship

between a borrower and a dual-holder lender.

[Insert Table 10 here.]

7 Additional Empirical Findings on Dual Holding

7.1 Effect of Loan Size on Loan Spread between Dual-Held and Non-Dual Held Deals

Arguably, the hold-up up problem is more severe if a significant portion of firm financing, relative to the size of the firm, is provided by a dual-holder BDC. To test these two hypotheses, we estimate the regression specification (2) by splitting the sample into the four groups based on the loan size. The estimation results are presented in Table A.6. For loans below the 25th percentile of the loan size distribution, the difference in loan spread between dual-held and non-dual-held debt deals is 1.03%–1.16%. This difference increases to 1.47% for loans above the 25th and below the 50th percentiles, and then drops to 1.14%–1.16% for loans above the 50th and below the 75th percentiles and further to 0.75%–0.80% in the top quartile of the loan size distribution. These estimates suggest a potential hump-shape relationship between the loan size and the degree of the hold-up problem.

To verify this hump-shape relationship between the loan size and the degree of the hold-up problem, we estimate the following investment-level panel regression:

$$\begin{aligned} Spread_{k,i,j,t} = {} & \beta_0 + \beta_1 Dual\text{-}Held\ Deal_{k,i,j,t} \\ & + \sum_{k=0}^{k=2} (\beta_{2+2k} Ln(Loan\ Size_{k,i,j,t})^k + \beta_{3+2k} Dual\text{-}Held\ Deal_{k,i,j,t} \times Ln(Loan\ Size_{k,i,j,t})^k) \\ & + \epsilon_{k,i,j,t}, \end{aligned}$$

where the dependent variable is the spread over 3 month LIBOR of a loan of type k originated by a BDC j to a portfolio firm i at time t. $Loan\ Size_{k,i,j,t}$ is the principal of a loan of type k originated by a BDC j to a portfolio firm i at time t expressed in millions. In this regression, we do not include any controls or fixed effects. Based on

the coefficient estimates, we depict the fitted value of the loan spread as a function of the natural logarithm of the loan size for dual-held and non-dual-held loans in the top panel of Figure A.2. The bottom panel of the Figures show the differential loan spread between dual-held and non-dual-held loans as a function of the natural logarithm of the loan size. The red dotted vertical lines correspond to the 5th and 95th percentiles of the loan size distribution. The black dashed vertical lines correspond to the 25th, 50th, and 75th percentiles of the loan size distribution. In line with our regression estimates in Table A.6, we observe the hump-shape relationship between the loan size and the degree of the hold-up problem.

7.2 Comparing BDC Loans with Syndicated Loans

Our sample restricts our view to BDC financing, while their portfolio firms may receive loans originated outside the BDC space. Because of data availability, we are able to trace out syndicated loans by our sample portfolio firms. Though syndicated loans are typically issued to large firms, we find some overlap for our middle-market portfolio firms. Figure A.3 depicts the number of syndicated loans and loans originated by BDCs over time. For this sample of portfolio firms that receive both forms of loans, we are able to compare loan pricing (loan spread over the three-month LIBOR) with the following regression:

$$Spread_{i,k,t} = \beta Dealscan\ Loan_{i,k,t} + \gamma X_{i,k,t} + \alpha_{i,t} + \epsilon_{i,k,t}, \tag{8}$$

where $Dealscan\ \ Loan_{k,i,t}$ is an indicator variable that equals one if a loan k is a syndicated loan, and zero of a loan is originated by a BDC. The regression sample without controls and fixed effects consists of about 7,500 BDC deals and about 10,800 loans in the syndicated market. Table A.7 reports the estimation results. The last column of Table A.7 shows that BDCs charge 192 basis points higher spreads, a striking difference considering that both types of loans are extended to the same firm-quarter cohort and with control of loan characteristics including loan size, maturity, and seniority. These results are consistent with BDCs charging for monitoring their

portfolio firms.[10]

8 Conclusion

Dual holders represent a unique and increasingly important phenomenon in the private credit landscape, particularly for small and mid-sized firms. By holding both debt and equity positions within the same portfolio firms, dual holders offer a blend of capital that not only provides financing flexibility but also facilitates closer monitoring. This dual engagement has been shown to influence loan pricing, with dual-held loans typically carrying a premium due to the additional monitoring services and the strategic alignment of interests between the financier and the firm. Despite the higher loan spreads, the overall reduction in the cost of capital for firms included in dual-holder portfolios and the subsequent increase in financing opportunities—especially from the dual-holder BDCs themselves—highlight the potential long-term benefits of this arrangement.

[10] According to Gustafson, Ivanov, and Meisenzahl (2021), only about 20% of syndicated loans involve active monitoring.

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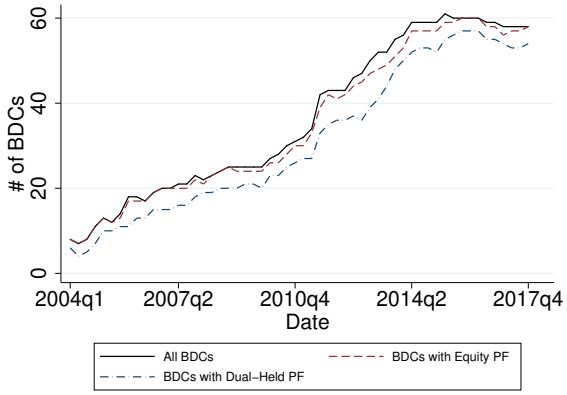
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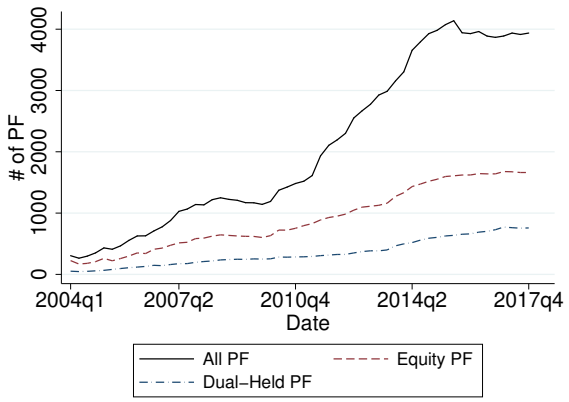
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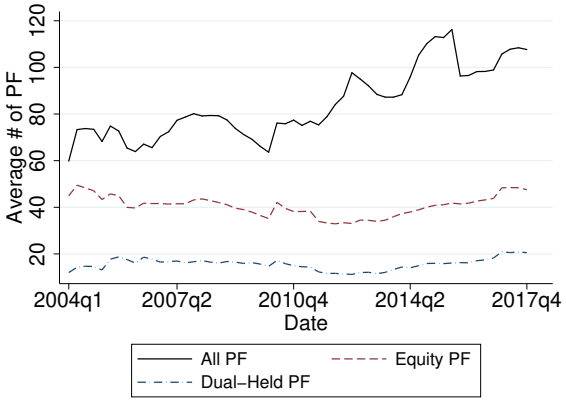
Figures



Panel (a): Number of BDCs



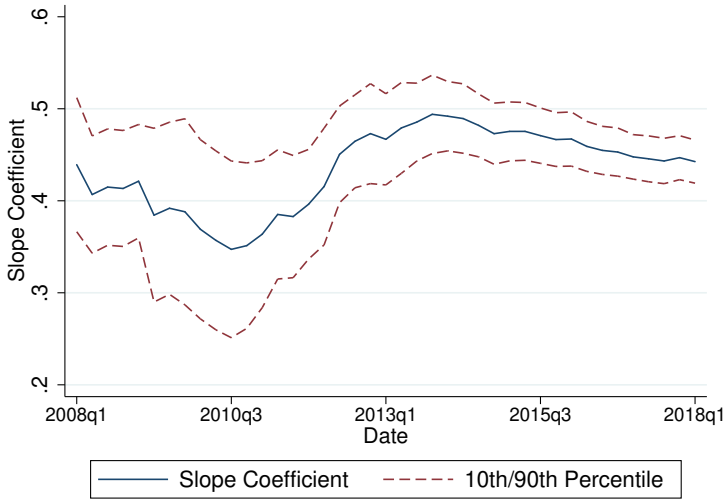
Panel (b): Aggregate Number of PFs



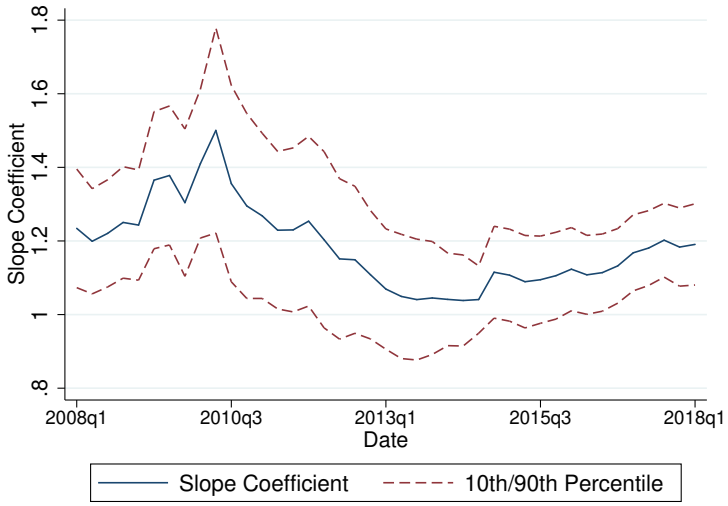
Panel (c): Average Number of PFs per a BDC

Fig. 1: Presence of Dual Holding in the BDC Space

This figure presents the descriptive statistics on dual holdings in the BDC investment space. Panel (a) depicts the number of BDCs in each quarter (black solid line), as well as the number of BDCs with portfolio firms with an outstanding equity investment (dashed red), and with a simultaneous equity and debt investment (dash-dotted blue). Panel (b) depicts the aggregate number of portfolio firms in each quarter across all BDCs (black dolid line), as well as the number of portfolio firms with an outstanding equity investment (dashed red), with a simultaneous equity and debt investment (dash-dotted blue). Panel (c) depicts the cross-sectional average number of portfolio firms per a BDC in each quarter (black solid line), as well as the cross-sectional average number of portfolio firms with an outstanding equity investment (dashed red), and with a simultaneous equity and debt investment (dash-dotted blue). The data are quarterly observations from 2004:Q1 to 2017:Q4.



Panel (a): Loan Spread



Panel (b): Loan Valuation

Fig. 2: Loan Spread between DH and NDH Firms over Time

The figure plots the estimated coefficient β from the 16-quarter rolling-window investment-level panel regressions:

$$y_{k,i,j,t} = \beta Dual\text{-}Held\ Deal_{k,i,j,t} + \gamma X_{k,i,j,t} + \epsilon_{k,i,j,t},$$

where the dependent variable is (i) the spread over 3 month LIBOR of a loan of type k originated by a BDC j to a portfolio firm i at time t in Panel (a) and (ii) the ratio of the fair value over the principal amount of a loan of type k originated by a BDC j to a portfolio firm i at time t in Panel (b). $Dual\text{-}Held\ Deal_{k,i,j,t}$ is an indicator variable that equals to one if a portfolio firm i has a debt investment k and a simultaneous equity investment from a BDC j in a quarter t, and zero otherwise. We include the imputed BDC and firm-time fixed effects from the full sample regression estimation. The data are quarterly observations from 2004:Q1 to 2017:Q4.

Tables

Table 1: Summary Statistics on Loan Terms

Panel (a): 2010:Q4

	Count	Mean	St.Dev.	Median	10%	25%	75%	90%
Loan Size, $ Millions	272	11.39	15.00	7.48	1.77	3.37	13.12	24.74
Loan Maturity, Years	296	4.63	1.86	5.00	1.83	3.33	5.92	6.83
Fair Value/Principal, %	272	98.06	5.97	100.00	94.21	98.00	100.26	101.17
Loan Rate, %	290	9.51	3.38	9.25	5.50	6.75	12.00	14.00
Rate: Cash Only, %	109	10.35	3.44	10.50	5.80	7.75	13.00	14.50
Rate: Base + Spread, %	152	8.22	2.73	7.30	5.50	6.25	10.25	12.00
Rate: Includes PIK, %	21	14.36	1.56	14.00	13.00	14.00	15.00	16.50
Loan Spread, %	289	9.24	3.34	8.95	5.20	6.45	11.70	13.70
Senior	306	0.79	0.41	1.00	0.00	1.00	1.00	1.00
Secured	306	0.50	0.50	0.00	0.00	0.00	1.00	1.00
First Lien	306	0.93	0.25	1.00	1.00	1.00	1.00	1.00

Panel (b): 2017:Q4

	Count	Mean	St.Dev.	Median	10%	25%	75%	90%
Loan Size, $ Millions	793	12.99	28.47	6.92	0.70	2.57	14.77	27.50
Loan Maturity, Years	812	4.69	1.86	4.88	2.00	3.58	5.92	7.00
Fair Value/Principal, %	790	96.47	9.98	99.57	94.09	98.04	100.00	100.50
Loan Rate, %	800	8.78	2.32	8.70	6.13	7.24	10.01	11.74
Rate: Cash Only, %	86	9.26	3.09	9.32	5.00	8.00	12.00	12.00
Rate: Base + Spread, %	687	8.59	1.97	8.55	6.16	7.13	9.75	10.98
Rate: Includes PIK, %	53	10.86	3.98	11.06	4.60	9.00	13.00	15.00
Loan Spread, %	798	7.28	2.29	7.19	4.64	5.76	8.50	10.23
Senior	829	0.87	0.33	1.00	0.00	1.00	1.00	1.00
Secured	829	0.62	0.49	1.00	0.00	0.00	1.00	1.00
First Lien	829	0.85	0.36	1.00	0.00	1.00	1.00	1.00

This tables report the cross-sectional statistics on loan terms across BDC debt deals. The data on loan size are expressed in millions of December 2017 dollars. The summary statistics are reported as of 2010:Q4 in Panel (a) and 2017:Q4 in Panel (b).

Table 2: Loan Terms: Dual-Held vs Non-Dual-Held Debt Deals

Panel (a): 2004:Q1–2017:Q4

	Dual-Held			Non-Dual-Held			
	N	Mean	St.Dev.	N	Mean	St.Dev.	Difference
Loan Size, $ Millions	4560	18.10	33.92	13950	13.62	19.94	4.484***
Loan Maturity, Years	4450	4.02	1.95	14696	5.10	1.75	−1.079***
Fair Value/Principal, %	4491	95.78	10.82	13926	97.75	7.26	−1.966***
Loan Spread, %	4711	9.31	3.47	14619	7.52	2.73	1.787***
Senior	5052	0.69	0.46	15062	0.84	0.37	−0.141***
Secured	5052	0.43	0.50	15062	0.63	0.48	−0.195***
First Lien	5052	0.94	0.24	15062	0.85	0.35	0.086***

Panel (b): 2010:Q4

	Dual-Held			Non-Dual-Held			
	N	Mean	St.Dev.	N	Mean	St.Dev.	Difference
Loan Size, $ Millions	53	11.88	14.19	188	11.87	16.20	0.011
Loan Maturity, Years	64	3.66	2.22	201	5.14	1.58	−1.473***
Fair Value/Principal, %	53	96.51	7.46	188	99.09	4.79	−2.577***
Loan Spread, %	64	9.87	3.71	194	8.55	3.04	1.325***
Senior	70	0.66	0.48	205	0.84	0.36	−0.187***
Secured	70	0.23	0.42	205	0.60	0.49	−0.371***
First Lien	70	0.97	0.17	205	0.91	0.29	0.064*

Panel (c): 2017:Q4

	Dual-Held			Non-Dual-Held			
	N	Mean	St.Dev.	N	Mean	St.Dev.	Difference
Loan Size, $ Millions	174	13.35	39.09	567	13.52	25.66	−0.164
Loan Maturity, Years	180	4.04	1.81	579	5.00	1.85	−0.959***
Fair Value/Principal, %	173	94.65	12.38	565	97.13	9.01	−2.476***
Loan Spread, %	171	8.43	2.43	574	6.78	1.99	1.644***
Senior	181	0.78	0.41	594	0.89	0.31	−0.108***
Secured	181	0.43	0.50	594	0.69	0.46	−0.263***
First Lien	181	0.84	0.37	594	0.84	0.37	0.001

This tables report the cross-sectional statistics on loan terms across BDC dual-held and non-dual-held debt deals. Dual-held debt deals are new loans to portfolio firms that have a simultaneous equity investment from a BDC in a given quarter. The data on loan size are expressed in millions of December 2017 dollars. The summary statistics are reported over the sample period between 2004:Q1 and 2017:Q4 in Panel (a), as of 2010:Q4 in Panel (b), and as of 2017:Q4 in Panel (c).

Table 3: Selection of Dual-Held Portfolio Firms

	Equity				Common			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln(Assets)	−4.11***	−3.03***	−3.83***	−2.88***	−2.96***	−2.17***	−2.69***	−2.11***
	(0.55)	(0.60)	(0.62)	(0.67)	(0.46)	(0.51)	(0.51)	(0.56)
EBITDA/Sales	−0.02***		−0.02***		−0.03***		−0.02***	
	(0.01)		(0.01)		(0.01)		(0.01)	
EBITDA<0		20.85***		18.43***		18.70***		14.72***
		(3.13)		(3.53)		(2.67)		(2.96)
Leverage	−1.28	−0.85	0.03	0.45	−2.30*	−2.25*	−2.05	−2.07
	(1.43)	(1.46)	(1.71)	(1.75)	(1.18)	(1.23)	(1.40)	(1.47)
PPENT/Assets	−7.39**	−10.54***	−13.13**	−13.70**	−7.09***	−9.63***	−10.05**	−11.63**
	(3.19)	(3.24)	(6.22)	(6.24)	(2.63)	(2.73)	(5.01)	(5.13)
Ln(Firm Age)	−1.06	−1.15	−0.89	−0.84	0.15	0.07	0.32	0.31
	(1.19)	(1.21)	(1.29)	(1.31)	(0.99)	(1.03)	(1.06)	(1.10)
Asset Growth	3.34	4.26**	3.53	4.38**	5.24***	4.46**	4.74**	3.70**
	(2.06)	(1.83)	(2.16)	(1.94)	(1.87)	(1.80)	(1.94)	(1.87)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	No	Yes	Yes	No	No	Yes	Yes
R^2	0.14	0.19	0.19	0.24	0.13	0.18	0.20	0.23
N	872	889	868	885	844	858	840	854

This table reports the estimated coefficients from firm-level regressions using OLS:

$$Dual\text{-}Held\ PF_{i,t} = \beta X_{i,t-1} + \epsilon_{i,t},$$

where the dependent variable is an indicator variable that equals to one hundred if a portfolio firm i has a simultaneous equity and debt investment from any BDC in an investment year t, and zero otherwise. The matrix X includes firm-level characteristics measured one year prior to the investment date. The sample includes only portfolio firms in Compustat. The data are annual observations from 2004 to 2017.

Table 4: Loan Spread: Dual-Held Debt Deals

Panel (a) Equity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dual-Held Deal	1.79***	1.40***	1.20***	1.12***	1.16***	0.50***	1.18***	0.45***	1.20***	1.18***
	(0.10)	(0.09)	(0.09)	(0.09)	(0.22)	(0.16)	(0.19)	(0.14)	(0.12)	(0.11)
Ln(Loan Size)		0.40***		0.31***		0.15***		0.14***		0.28***
		(0.02)		(0.03)		(0.02)		(0.03)		(0.03)
Ln(Loan Maturity)		−0.72***		−0.35***		0.39***		0.71***		−0.43***
		(0.08)		(0.10)		(0.14)		(0.21)		(0.11)
Loan Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
BDC-Time FE	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Firm-Time FE	No	No	No	No	Yes	Yes	Yes	Yes	No	No
Industry-Time FE	No	No	No	No	No	No	No	No	Yes	Yes
County-Time FE	No	No	No	No	No	No	No	No	Yes	Yes
R^2	0.06	0.22	0.48	0.55	0.71	0.82	0.75	0.85	0.68	0.73
N	19330	17586	19159	17447	8892	7878	8621	7603	13648	12421

This table reports the estimated coefficients from investment-level panel regressions using OLS:

$$Spread_{k,i,j,t} = \beta Dual\text{-}Held\ Deal_{k,i,j,t} + \gamma X_{k,i,j,t} + \epsilon_{k,i,j,t},$$

where the dependent variable is the spread over 3 month LIBOR of a loan of type k originated by a BDC j to a portfolio firm i at time t. $Dual\text{-}Held\ Deal_{k,i,j,t}$ is an indicator variable that equals to one if a portfolio firm i has a debt investment k and a simultaneous equity investment of the corresponding type from a BDC j in a quarter t, and zero otherwise. The data are quarterly observations from 2004:Q1 to 2017:Q4.

Table 4: Loan Spread: Dual-Held Debt Deals

Panel (b) Common

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dual-Held Deal	1.85***	1.33***	1.04***	0.95***	1.24***	0.64***	0.84***	0.37**	1.11***	1.09***
	(0.14)	(0.13)	(0.13)	(0.12)	(0.27)	(0.21)	(0.23)	(0.18)	(0.18)	(0.17)
Ln(Loan Size)		0.41***		0.34***		0.16***		0.14***		0.30***
		(0.02)		(0.03)		(0.02)		(0.03)		(0.03)
Ln(Loan Maturity)		−0.81***		−0.39***		0.45***		1.01***		−0.45***
		(0.08)		(0.11)		(0.13)		(0.18)		(0.13)
Loan Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
BDC-Time FE	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Firm-Time FE	No	No	No	No	Yes	Yes	Yes	Yes	No	No
Industry-Time FE	No	No	No	No	No	No	No	No	Yes	Yes
County-Time FE	No	No	No	No	No	No	No	No	Yes	Yes
R^2	0.05	0.22	0.49	0.56	0.71	0.82	0.76	0.86	0.68	0.73
N	17067	15564	16864	15393	7934	7058	7645	6768	11842	10818

This table reports the estimated coefficients from investment-level panel regressions using OLS:

$$Spread_{k,i,j,t} = \beta Dual\text{-}Held\ Deal_{k,i,j,t} + \gamma X_{k,i,j,t} + \epsilon_{k,i,j,t},$$

where the dependent variable is the spread over 3 month LIBOR of a loan of type k originated by a BDC j to a portfolio firm i at time t. $Dual\text{-}Held\ Deal_{k,i,j,t}$ is an indicator variable that equals to one if a portfolio firm i has a debt investment k and a simultaneous equity investment of the corresponding type from a BDC j in a quarter t, and zero otherwise. The data are quarterly observations from 2004:Q1 to 2017:Q4.

Table 5: Loan Valuation: Dual-Held Debt Deals

	Equity				Common			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dual-Held Deal	0.83	0.70	1.37**	1.10*	1.41**	1.25*	1.53*	1.40*
	(0.66)	(0.67)	(0.57)	(0.59)	(0.64)	(0.65)	(0.81)	(0.81)
Ln(Loan Size)		0.52***		0.76***		0.51***		0.77***
		(0.09)		(0.12)		(0.09)		(0.13)
Ln(Loan Maturity)		0.25		−0.08		0.49		0.23
		(0.67)		(0.98)		(0.78)		(1.31)
Loan Controls	No	Yes	No	Yes	No	Yes	No	Yes
BDC-Time FE	No	No	Yes	Yes	No	No	Yes	Yes
Firm-Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.65	0.65	0.67	0.67	0.66	0.66	0.68	0.68
N	8383	8150	8116	7879	7439	7274	7152	6985

This table reports the estimated coefficients from investment-level panel regressions using OLS:

$$Valuation_{k,i,j,t} = \beta Dual\text{-}Held\ Deal_{k,i,j,t} + \gamma X_{k,i,j,t} + \epsilon_{k,i,j,t},$$

where the dependent variable is the ratio of the fair value over principal amount of a loan of type k originated by a BDC j to a portfolio firm i at time t. $Dual\text{-}Held\ Deal_{k,i,j,t}$ is an indicator variable that equals to one if a portfolio firm i has a debt investment k and a simultaneous equity investment of the corresponding type from a BDC j in a quarter t, and zero otherwise. The data are quarterly observations from 2004:Q1 to 2017:Q4.

Table 6: Loan Maturity and Size: Dual-Held Debt Deals

Panel (a) Maturity

	Equity				Common			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dual-Held Deal	0.56***	−0.06	0.77***	0.04	0.71***	0.14	0.46	−0.05
	(0.19)	(0.18)	(0.26)	(0.25)	(0.26)	(0.26)	(0.34)	(0.34)
Ln(Loan Size)		0.34***		0.38***		0.33***		0.37***
		(0.04)		(0.05)		(0.04)		(0.05)
Loan Controls	No	Yes	No	Yes	No	Yes	No	Yes
BDC-Time FE	No	No	Yes	Yes	No	No	Yes	Yes
Firm-Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.88	0.90	0.91	0.92	0.89	0.90	0.91	0.93
N	8958	8209	8687	7938	8015	7332	7727	7043

Panel (b) Size

	Equity				Common			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dual-Held Deal	0.34**	0.30**	0.53***	0.44***	0.39**	0.36**	0.34**	0.28*
	(0.15)	(0.13)	(0.13)	(0.13)	(0.19)	(0.18)	(0.15)	(0.15)
Ln(Loan Maturity)		0.60***		0.76***		0.57***		0.77***
		(0.07)		(0.09)		(0.07)		(0.11)
Loan Controls	No	Yes	No	Yes	No	Yes	No	Yes
BDC-Time FE	No	No	Yes	Yes	No	No	Yes	Yes
Firm-Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.58	0.59	0.70	0.70	0.57	0.58	0.70	0.71
N	8449	8209	8183	7938	7504	7332	7218	7043

This table reports the estimated coefficients from investment-level panel regressions using OLS:

$$y_{k,i,j,t} = \beta Dual\text{-}Held\ Deal_{k,i,j,t} + \gamma X_{k,i,j,t} + \epsilon_{k,i,j,t},$$

where the dependent variable is (i) the maturity (expressed in quarters) and (ii) the natural logarithm of the principal amount of a loan of type k originated by a BDC j to a portfolio firm i at time t. $Dual\text{-}Held\ Deal_{k,i,j,t}$ is an indicator variable that equals to one if a portfolio firm i has a debt investment k and a simultaneous equity investment of the corresponding type from a BDC j in a quarter t, and zero otherwise. The data are quarterly observations from 2004:Q1 to 2017:Q4.

Table 7: Loan Characteristics: Dual-Held Debt Deals

	Senior		Secured		First Lien	
	(1)	(2)	(3)	(4)	(5)	(6)
Dual-Held Deal	-0.15^{***}	-0.13^{***}	-0.22^{***}	-0.06^{**}	-0.13^{***}	-0.17^{***}
	(0.03)	(0.04)	(0.03)	(0.03)	(0.02)	(0.03)
BDC-Time FE	No	Yes	No	Yes	No	Yes
Firm-Time FE	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.59	0.72	0.69	0.92	0.63	0.76
N	9387	9124	9387	9124	9387	9124

This table reports the estimated coefficients from investment-level panel regressions using OLS:

$$Seniority_{k,i,j,t} = \beta Dual\text{-}Held\ Deal_{k,i,j,t} + \gamma X_{k,i,j,t} + \epsilon_{k,i,j,t},$$

where the dependent variable is the indicator variable that equals to one if a loan k originated by a BDC j to a portfolio firm i at time t is senior in columns (1)–(3), secured in columns (4)–(6), or first lien in columns (7)–(9). $Dual\text{-}Held\ Deal_{k,i,j,t}$ is an indicator variable that equals to one if a portfolio firm i has a debt investment k and a simultaneous equity investment from a BDC j in a quarter t, and zero otherwise. The data are quarterly observations from 2004:Q1 to 2017:Q4.

Table 8: Loan Spread: Dual-Held Senior and Subordinated Debt Deals

	(1)	(2)	(3)	(4)
Dual-Held Deal	1.86***	2.03***	2.02***	2.03***
	(0.30)	(0.37)	(0.25)	(0.28)
Senior	−3.29***	−1.74***	−1.86***	−1.06***
	(0.13)	(0.18)	(0.11)	(0.14)
Dual-Held Deal × Senior	−1.33***	−1.84***	−1.09***	−1.04***
	(0.28)	(0.39)	(0.26)	(0.29)
Ln(Loan Size)		0.13***		0.28***
		(0.03)		(0.03)
Ln(Loan Maturity)		0.67***		−0.43***
		(0.21)		(0.11)
$\beta_1 + \beta_3$	0.54***	0.20	0.94***	0.99***
	(0.18)	(0.15)	(0.12)	(0.12)
Loan Controls	No	Yes	No	Yes
BDC-Time FE	Yes	Yes	Yes	Yes
Firm-Time FE	Yes	Yes	No	No
Industry-Time FE	No	No	Yes	Yes
County-Time FE	No	No	Yes	Yes
R^2	0.83	0.85	0.71	0.73
N	8621	7603	13648	12421

This table reports the estimated coefficients from investment-level panel regressions using OLS:

$$Spread_{k,i,j,t} = \beta_1 Dual\text{-}Held\ Deal_{k,i,j,t} + \beta_2 Senior_{k,i,j,t} + \beta_3 Dual\text{-}Held\ Deal_{k,i,j,t} \times Senior_{k,i,j,t} + \gamma X_{k,i,j,t} + \epsilon_{k,i,j,t},$$

where the dependent variable is the spread over 3 month LIBOR of a loan of type k originated by a BDC j to a portfolio firm i at time t. $Dual\text{-}Held\ Deal_{k,i,j,t}$ is an indicator variable that equals to one if a portfolio firm i has a debt investment k and a simultaneous equity investment from a BDC j in a quarter t, and zero otherwise. $Senior_{k,i,j,t}$ is an indicator variable that equal to one if a debt investment k of a portfolio firm i from a BDC j in a quarter t is senior, and zero otherwise. The data are quarterly observations from 2004:Q1 to 2017:Q4.

Table 9: Loan Spread: Dual-Held Deals vs Dual-Held Firms

	Equity		Common	
	(1)	(2)	(3)	(4)
Dual-Held PF	−0.30*	−0.16	−0.40**	−0.18
	(0.16)	(0.15)	(0.19)	(0.18)
Dual-Held Deal	0.85***	0.53***	0.66***	0.39**
	(0.16)	(0.13)	(0.18)	(0.16)
Ln(Loan Size)		0.20***		0.21***
		(0.02)		(0.02)
Ln(Loan Maturity)		0.11		0.18***
		(0.07)		(0.07)
Loan Controls	No	Yes	No	Yes
BDC-Time FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
R^2	0.75	0.82	0.75	0.82
N	17042	15406	14863	13457

This table reports the estimated coefficients from investment-level panel regressions using OLS:

$$Spread_{k,i,j,t} = \beta_1 Dual\text{-}Held\ PF_{i,t} + \beta_2 Dual\text{-}Held\ Deal_{k,i,j,t} + \gamma X_{k,i,j,t} + \epsilon_{k,i,j,t},$$

where the dependent variable is the spread over 3 month LIBOR, of a loan of type k originated by a BDC j to a portfolio firm i at time t. $Dual\text{-}Held\ PF_{i,t}$ is an indicator variable that equals to one if a portfolio firm i has a simultaneous equity of a corresponding type and debt investment from any BDC in an investment quarter t and zero otherwise. $Dual\text{-}Held\ Deal_{k,i,j,t}$ is an indicator variable that equals to one if a portfolio firm i has a debt investment k and a simultaneous equity investment of a corresponding type from a BDC j in a quarter t, and zero otherwise. The data are quarterly observations from 2004:Q1 to 2017:Q4.

Table 10: Subsequent Financing for Dual-Held Portfolio Firms

	Log(1+#Debt Deals)			Debt Loan Amount, Millions		
	All	Own	Other	All	Own	Other
Dual-Held PF	0.20^{***}	0.25^{***}	-0.04^{**}	14.90^{***}	13.35^{***}	1.55
	(0.02)	(0.02)	(0.02)	(2.39)	(2.05)	(1.11)
First-Loan-Time FE	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.11	0.10	0.06	0.04	0.03	0.03
N	6509	6509	6509	6509	6509	6509

This table reports the estimated coefficients from firm-level regressions using OLS:

$$Subsequent\ Financing_i = \beta Dual\text{-}Held\ PF_i + \epsilon_i,$$

where the dependent variable is (i) the natural logarithm of one plus the number of debt deals of a portfolio firm i excluding the first debt deal, and (ii) the total loan amount of debt deals of a portfolio firm i excluding the first debt deal. In columns *Own*, we focus on deals and loan amounts by BDCs which provided funding in the first debt deal. In columns *Other*, we focus on deals and loan amounts by BDCs which provided funding after the first debt deal. $Dual\text{-}Held\ PF_i$ is an indicator variable that equals to one if a portfolio firm i has a simultaneous equity and debt investment from at least one BDC in any quarter, and zero otherwise. The data are quarterly observations from 2004:Q1 to 2017:Q4.

Appendix

A Additional Figures

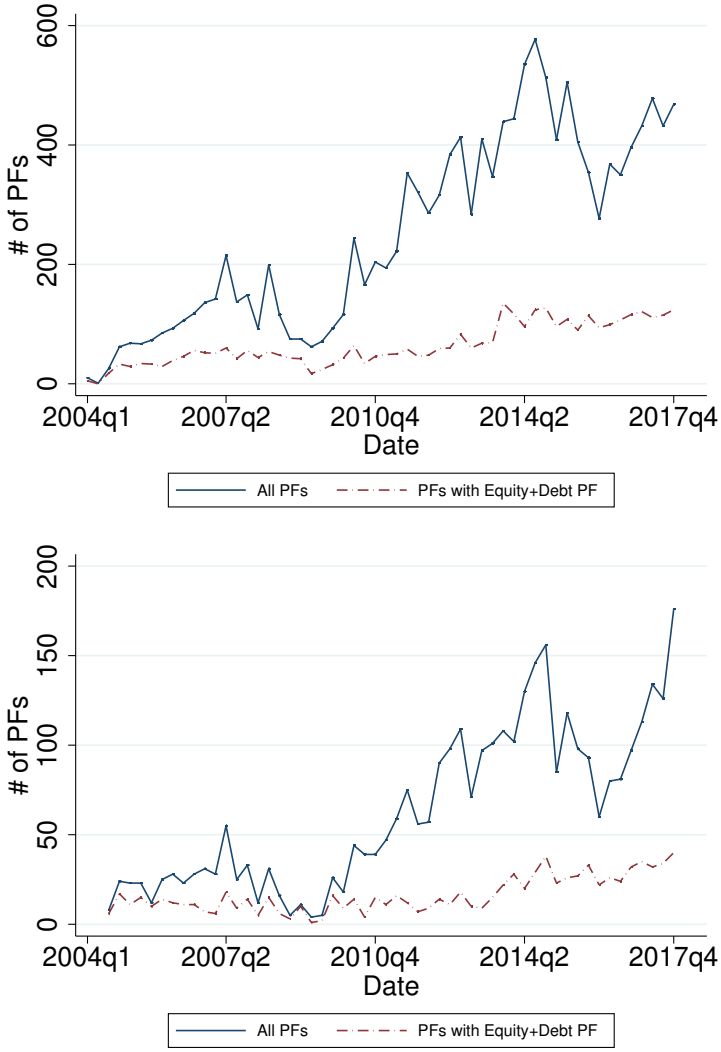


Fig. A.1: Number of Dual-Held Portfolio Firms Over Time

The top panel of this figure depicts the number of portfolio firms receiving a new loan vs the number of portfolio firms receiving a new loan and equity investment simultaneously (the sample as in regression specification (1) from Table 4). The bottom panel of this figure reports similar statistics for a sample of firms with investment links with multiple BDCs in the same quarter (the sample as in regression specification (7) from Table 4). The data are quarterly observations from 2004:Q1 to 2017:Q4.

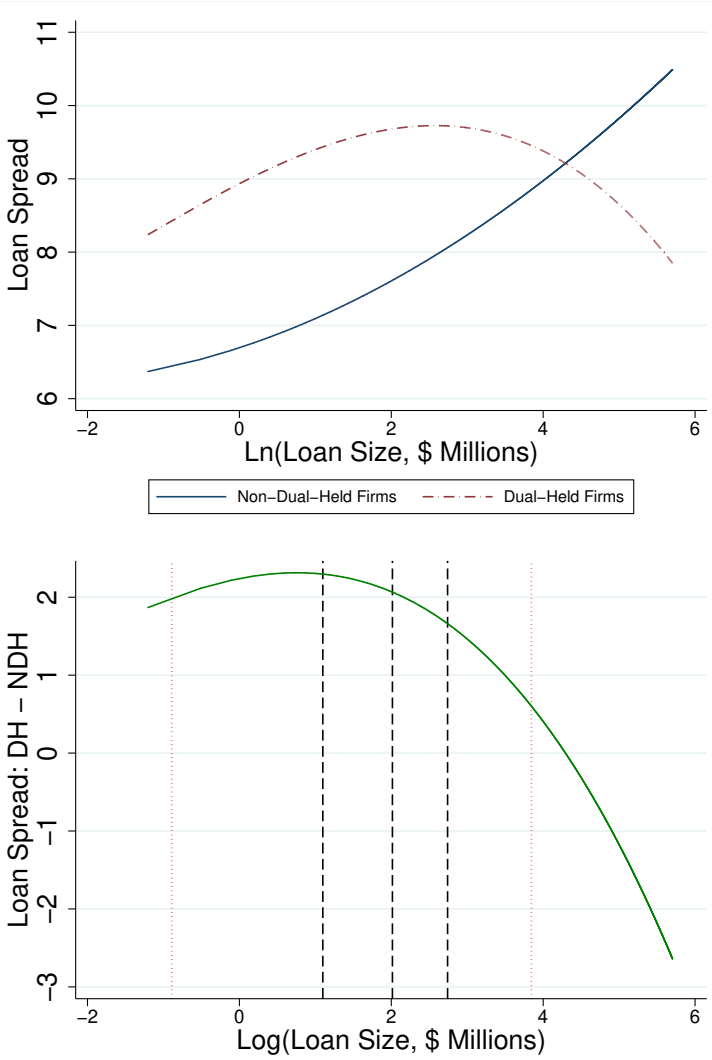


Fig. A.2: Loan Spread as Function of Loan Size: DH- vs NDH-Debt Deals

The top panel of this figure depicts the fitted value of the loan spread as a function of the natural logarithm of the loan size for dual-held and non-dual-held firms based on the estimation of the following investment-level panel regression:

$$y_{k,i,j,t} = \beta_0 + \beta_1 Dual\text{-}Held\ Deal_{k,i,j,t} + \sum_{k=0}^{k=2} (\beta_{2+2k} Ln(Loan\ Size_{k,i,j,t})^k + \beta_{3+2k} Dual\text{-}Held\ Deal_{k,i,j,t} \times Ln(Loan\ Size_{k,i,j,t})^k) + \epsilon_{k,i,j,t},$$

where the dependent variable is the spread over 3 month LIBOR of a loan of type k originated by a BDC j to a portfolio firm i at time t. $Dual\text{-}Held\ Deal_{k,i,j,t}$ is an indicator variable that equals to one if a portfolio firm i has a debt investment k and a simultaneous equity investment of the corresponding type from a BDC j in a quarter t, and zero otherwise. $Loan\ Size_{k,i,j,t}$ is the principal of a loan of type k originated by a BDC j to a portfolio firm i at time t expressed in millions. The data are quarterly observations from 2004:Q1 to 2017:Q4.

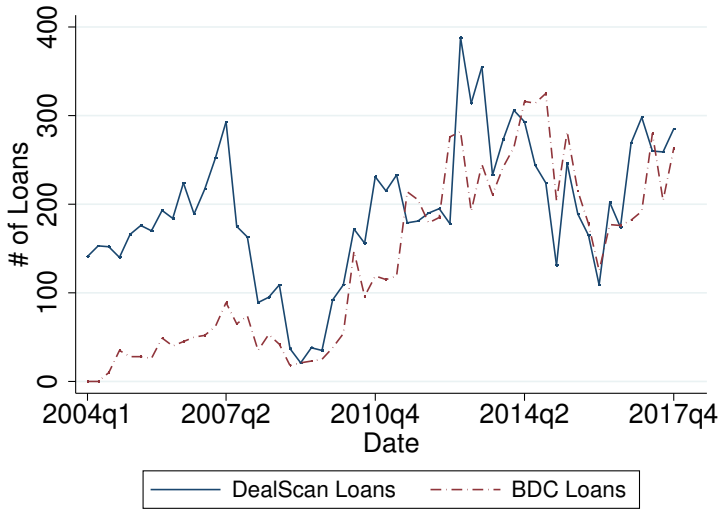


Fig. A.3: Number of Syndicated and BDC-Originated Loans Over Time

The figure depicts the number of syndicated loans and loans originated by BDCs (the sample as in regression specification (1) from Appendix Table A.7). The data are quarterly observations from 2004:Q1 to 2017:Q4.

B Additional Tables

Table A.1: Loan Spread: Dual-Held Debt Deals Subsample Analysis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dual-Held Deal	1.43***	1.26***	1.15***	1.21***	1.04***	0.40**	1.25***	0.45***	1.00***	1.05***
	(0.14)	(0.14)	(0.13)	(0.13)	(0.21)	(0.16)	(0.19)	(0.14)	(0.19)	(0.18)
Ln(Loan Size)		0.31***		0.21***		0.14***		0.13***		0.17***
		(0.03)		(0.02)		(0.02)		(0.03)		(0.03)
Ln(Loan Maturity)		−0.65***		−0.15		0.79***		0.73***		0.26
		(0.12)		(0.12)		(0.21)		(0.23)		(0.18)
Loan Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
BDC-Time FE	No	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Firm-Time FE	No	No	No	No	Yes	Yes	Yes	Yes	No	No
Industry-Time FE	No	No	No	No	No	No	No	No	Yes	Yes
County-Time FE	No	No	No	No	No	No	No	No	Yes	Yes
R^2	0.05	0.22	0.47	0.56	0.71	0.81	0.76	0.85	0.72	0.80
N	7548	7548	7548	7548	7548	7548	7548	7548	6740	6740

This table reports the estimated coefficients from investment-level panel regressions using OLS:

$$Spread_{k,i,j,t} = \beta Dual\text{-}Held\ Deal_{k,i,j,t} + \gamma X_{k,i,j,t} + \epsilon_{k,i,j,t},$$

where the dependent variable is the spread over 3 month LIBOR of a loan of type k originated by a BDC j to a portfolio firm i at time t. $Dual\text{-}Held\ Deal_{k,i,j,t}$ is an indicator variable that equals to one if a portfolio firm i has a debt investment k and a simultaneous equity investment from a BDC j in a quarter t, and zero otherwise. The regression sample is selected by the specification (8) and held constant across all specifications. The data are quarterly observations from 2004:Q1 to 2017:Q4.

Table A.2: Loan Spread and Valuation: Warrant Dual-Held Debt Deals

	Loan Spread				Loan Valuation			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dual-Held Deal	0.35	0.15	0.30	0.86	−0.73	−0.82	−0.60	−0.92
	(0.50)	(0.48)	(0.62)	(0.57)	(1.63)	(1.61)	(1.18)	(1.19)
Ln(Loan Size)		0.16***		0.15***		0.60***		0.93***
		(0.02)		(0.03)		(0.10)		(0.14)
Ln(Loan Maturity)		0.48***		1.04***		0.70		0.45
		(0.13)		(0.18)		(0.65)		(0.98)
Loan Controls	No	Yes	No	Yes	No	Yes	No	Yes
BDC-Time FE	No	No	Yes	Yes	No	No	Yes	Yes
Firm-Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.73	0.82	0.77	0.86	0.65	0.65	0.67	0.67
N	7556	6784	7280	6515	7101	6983	6832	6716

This table reports the estimated coefficients from investment-level panel regressions using OLS:

$$y_{k,i,j,t} = \beta \textit{Dual-Held Deal}_{k,i,j,t} + \gamma X_{k,i,j,t} + \epsilon_{k,i,j,t},$$

where the dependent variable is (i) the spread over 3 month LIBOR and (ii) the ratio of the fair value over principal amount of a loan of type k originated by a BDC j to a portfolio firm i at time t. $\textit{Dual-Held Deal}_{k,i,j,t}$ is an indicator variable that equals to one if a portfolio firm i has a debt investment k and a simultaneous warrant from a BDC j in a quarter t, and zero otherwise. The data are quarterly observations from 2004:Q1 to 2017:Q4.

Table A.3: Loan Spread: Dual-Held Debt Deals Compustat Firms

	(1)	(2)	(3)	(4)
Dual-Held Deal	1.57***	0.98***	1.45***	0.82**
	(0.36)	(0.31)	(0.40)	(0.35)
Ln(Loan Size)		0.31***		0.27***
		(0.05)		(0.05)
Ln(Loan Maturity)		0.58***		0.61***
		(0.12)		(0.13)
Firm Controls	No	No	Yes	Yes
Loan Controls	No	Yes	No	Yes
BDC FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
R^2	0.72	0.79	0.72	0.80
N	1560	1513	1403	1366

This table reports the estimated coefficients from investment-level panel regressions using OLS:

$$Spread_{k,i,j,t} = \beta Dual\text{-}Held\ Deal_{k,i,j,t} + \gamma X_{k,i,j,t} + \epsilon_{k,i,j,t},$$

where the dependent variable is the spread over 3 month LIBOR of a loan of type k originated by a BDC j to a portfolio firm i at time t. $Dual\text{-}Held\ Deal_{k,i,j,t}$ is an indicator variable that equals to one if a portfolio firm i has a debt investment k and a simultaneous equity investment from a BDC j in a quarter t, and zero otherwise. The sample includes only portfolio firms in Compustat. The data are quarterly observations from 2004:Q1 to 2017:Q4.

Table A.4: Loan Spread: Dual-Held Debt Deals
Matched Sample of Loans

	(1)	(2)	(3)	(4)	(5)	(6)
Dual-Held Deal	1.20***	1.14***	0.89***	0.87***	0.81***	0.78***
	(0.02)	(0.02)	(0.04)	(0.04)	(0.11)	(0.11)
Ln(Loan Size)		0.20***		0.21***		0.30***
		(0.01)		(0.02)		(0.08)
Ln(Loan Maturity)		−0.65***		−0.46***		−0.63***
		(0.04)		(0.09)		(0.16)
Loan Controls	No	Yes	No	Yes	No	Yes
BDC-Time FE	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.55	0.60	0.62	0.66	0.57	0.62
N	24796	24796	7908	7908	2064	1968

This table reports the estimated coefficients from investment-level panel regressions using OLS:

$$Spread_{k,i,j,t} = \beta Dual\text{-}Held\ Deal_{k,i,j,t} + \gamma X_{k,i,j,t} + \epsilon_{k,i,j,t},$$

where the dependent variable is the spread over 3 month LIBOR of a loan of type k originated by a BDC j to a portfolio firm i at time t. $Dual\text{-}Held\ Deal_{k,i,j,t}$ is an indicator variable that equals to one if a portfolio firm i has a debt investment k and a simultaneous equity investment from a BDC j in a quarter t, and zero otherwise. The sample includes pairs of dual-held and non-dual-held loans matched on a BDC, an investment quarter, whether a loan is senior, secured, or first-lien. For each pair of loans, we select 75% best matches based on the loan size, maturity, and valuation in columns (1) and (2), 50% best matches in columns (3) and (4), and the best match in columns (5) and (6). The data are quarterly observations from 2004:Q1 to 2017:Q4.

Table A.5: Loan Spread: Dual-Held Debt Deals
Timing of Equity Investment

	(1)	(2)	(3)	(4)
Concurrent Debt/Equity	1.21***	0.60***	1.34***	0.45**
	(0.22)	(0.18)	(0.24)	(0.21)
Preexisting Equity	1.01***	0.49**	0.76***	0.38*
	(0.29)	(0.20)	(0.25)	(0.21)
Preexisting Debt	1.01***	0.47**	0.74***	0.53***
	(0.25)	(0.21)	(0.23)	(0.19)
Ln(Loan Size)		0.15***		0.14***
		(0.02)		(0.03)
Ln(Loan Maturity)		0.43***		0.72***
		(0.13)		(0.20)
Loan Controls	No	Yes	No	Yes
BDC-Time FE	No	No	Yes	Yes
Firm-Time FE	Yes	Yes	Yes	Yes
R^2	0.71	0.81	0.75	0.84
N	9031	7982	8763	7706

This table reports the estimated coefficients from investment-level panel regressions using OLS:

$$Spread_{k,i,j,t} = \beta_1 Concurrent\ Debt/Equity_{\ k,i,j,t} + \beta_2 Preexisting\ Equity_{\ k,i,j,t} + \beta_3 Preexisting\ Debt_{\ k,i,j,t} + \gamma X_{k,i,j,t} + \epsilon_{k,i,j,t},$$

where the dependent variable is the spread over 3 month LIBOR of a loan of type k originated by a BDC j to a portfolio firm i at time t. $Concurrent\ Debt/Equity_{k,i,j,t}$ is an indicator variable that equals to one if a portfolio firm i has a debt investment k originated within ± 2 quarters of the first equity investment of the corresponding type from a BDC j in a quarter t, and zero otherwise. $Preexisting\ Equity_{\ k,i,j,t}$ is an indicator variable that equals to one if a portfolio firm i has a debt investment k originated more than 2 quarters after the first equity investment of the corresponding type from a BDC j in a quarter t, and zero otherwise. $Preexisting\ Debt_{\ k,i,j,t}$ is an indicator variable that equals to one if a portfolio firm i has a debt investment k originated more than 2 quarters before the first equity investment of the corresponding type from a BDC j in a quarter t, and zero otherwise. The data are quarterly observations from 2004:Q1 to 2017:Q4.

Table A.6: Loan Spread & Loan Size: Dual-Held Debt Deals

	Loan Size $\leq$ 25%		25% $<$ Loan Size $\leq$ 50%		50% $<$ Loan Size $\leq$ 75%		Loan Size $>$ 75%	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dual-Held Deal	1.16***	1.03***	1.47***	1.47***	1.16***	1.14***	0.80***	0.75***
	(0.19)	(0.20)	(0.18)	(0.18)	(0.14)	(0.13)	(0.14)	(0.13)
Ln(Loan Size)		0.09**		0.31**		0.51***		0.18
		(0.04)		(0.15)		(0.16)		(0.11)
Ln(Loan Maturity)		−0.23**		−0.36***		−0.29***		−0.67**
		(0.11)		(0.13)		(0.11)		(0.34)
Loan Controls	No	Yes	No	Yes	No	Yes	No	Yes
BDC-Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.51	0.55	0.58	0.63	0.63	0.68	0.48	0.54
N	4016	3884	4012	3985	4307	4254	4424	4224

This table reports the estimated coefficients from investment-level panel regressions using OLS:

$$Spread_{k,i,j,t} = \beta Dual\text{-}Held\ Deal_{k,i,j,t} + \gamma X_{k,i,j,t} + \epsilon_{k,i,j,t},$$

where the dependent variable is the spread over 3 month LIBOR of a loan of type k originated by a BDC j to a portfolio firm i at time t. $Dual\text{-}Held\ Deal_{k,i,j,t}$ is an indicator variable that equals to one if a portfolio firm i has a debt investment k and a simultaneous equity investment from a BDC j in a quarter t, and zero otherwise. The data are quarterly observations from 2004:Q1 to 2017:Q4.

Table A.7: Loan Spread: BDC versus Dealscan Loans

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dealscan Loan	−3.42***	−2.92***	−3.21***	−2.57***	−2.80***	−2.77***	−2.22***	−1.92***
	(0.06)	(0.07)	(0.06)	(0.07)	(0.06)	(0.07)	(0.06)	(0.08)
Ln(Loan Size)		−0.03*		−0.05***		0.19***		0.13***
		(0.02)		(0.02)		(0.01)		(0.01)
Ln(Loan Maturity)		0.02		0.07		0.24***		0.86***
		(0.07)		(0.07)		(0.06)		(0.12)
Constant	7.48***	9.67***	7.36***	9.54***	7.11***	8.60***	6.83***	7.51***
	(0.06)	(0.17)	(0.06)	(0.16)	(0.03)	(0.13)	(0.04)	(0.23)
Loan Controls	No	Yes	No	Yes	No	Yes	No	Yes
Time FE	No	No	Yes	Yes	Yes	Yes	No	No
Firm FE	No	No	No	No	Yes	Yes	No	No
Firm-Time FE	No	No	No	No	No	No	Yes	Yes
R^2	0.36	0.44	0.41	0.48	0.59	0.67	0.73	0.78
N	18246	17588	18246	17588	18205	17537	13663	13106

This table reports the estimated coefficients from investment-level panel regressions using OLS:

$$Spread_{k,i,t} = \beta Dealscan\ Loan_{k,i,t} + \gamma X_{k,i,t} + \epsilon_{k,i,t},$$

where the dependent variable is the spread over 3 month LIBOR of a BDC loan of type k or the all-in-drawn spread of a syndicated loan of type k originated at time t to a portfolio firm i. $Dealscan\ Loan_{k,i,t}$ is an indicator variable that equals to one if a loan k is a syndicated loan, and zero of a loan is originated by a BDC. The data are quarterly observations from 2004:Q1 to 2017:Q4.