Risk-Adjusting the Returns to Private Debt Funds *

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Abstract

Private debt funds are the fastest growing segment of the private capital market. We evaluate their risk-adjusted returns, applying a cash-flow based method to form a replicating portfolio that mimics their risk profiles. Using both equity and debt benchmarks to measure risk, a typical private debt fund produces an insignificant abnormal return to its investors. However, gross-of-fee abnormal returns are positive, and using only debt benchmarks also leads to positive abnormal returns as funds contain equity risks. The rates at which private debt funds lend appear to be high enough to offset the funds' fees and risks, but not high enough to exceed both their fees and investors' risk-adjusted rates of return.

Keywords: Private Credit, Private Capital, Loans, Nonbank, Shadow Bank, Alpha
JEL Classification: G12, G21, G23

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1 Introduction

Private debt is one of the largest and fastest-growing asset class of the private capital market, with about $1.5 trillion in assets under management as of 2023 (see Preqin). While various financial intuitions less regulated than commercial banks (henceforth *nonbanks*) –e.g., finance companies, investment banks, insurance companies, and hedge funds– provide direct loans to firms, the fastest growing participant of this lending market is private debt funds. These funds raise money from investors –i.e., limited partners (LPs)– and provide mostly direct loans to firms that typically cannot get bank loans based on their creditworthiness (Block et al. (2023)). However, surprisingly little is known about this market, especially the risks and risk-adjusted returns of private debt funds.

Market participants tout the high returns of private credit relative to their risks, claiming they offer better returns than traditional types of lending. For instance, Steve Schwarzman, the co-founder of Blackstone, commented on private credit: "If you can earn 12 percent, maybe 13 percent on a really good day in senior secured bank debt, ... with almost no prospect of loss, that's about the best thing you can do" (Financial Times, 2023). However, most debt funds make loans that are substantially riskier than Schwarzman's characterization of them. It is not at all clear if, in practice, private debt funds' returns are sufficiently large to offset their risk.

Given the dramatic increase in capital that has been allocated to private debt in recent years, investors clearly believe that private returns justify its risk. This growing role of non-banks in providing credit to firms calls into question the role of the 'specialness' of traditional bank intermediation. Is private credit special, too, and capable of earning "alpha"? Academic research, however, has been silent on the question of whether, in practice, returns are high enough to earn alpha for their investors. This issue is critical for the many investors in the private debt sector, as well as for academics studying the private capital market.

In this paper, we use state-of-the-art methods to evaluate the risk-adjusted returns of private debt funds originated between 1992 and 2015. Our database from Burgiss-MSCI provides in-depth information on the net-of-fee cash flows paid to the LPs; it includes not only net asset values (NAVs) but also distributions and contributions throughout the life of the funds. The risk-adjustment methods we use are based on Gupta and Van Nieuwerburgh (2021), who adapts the approach of Gupta and Van Nieuwerburgh (2021) for debt.

The primary approach of Gupta and Van Nieuwerburgh (2021) is to regress the cash flows of assets, for which one would like to know the price, onto the payoffs of publicly traded benchmarks with observable market prices. The market price of a replicating portfolio constructed from these benchmarks can then be used to price the assets of interest. Flanagan (2023) specifically develops market benchmarks that are well-suited for spanning and pricing debt-like cash flows such as loans.

Private debt funds, whose primary underlying assets are loans, provide a natural setting to apply this methodology. We apply and extend the Flanagan (2023) methodology to price the cash flows of private debt funds, adjusting the methodology for differences in loan-level cash flows and fund cash flows, such as allowing for delayed cash-flow contributions. Private debt funds are also "equity-like" both because their loans are substantially riskier than most other debt, and also because roughly 20 percent of their portfolios include equity features. Our methodology is also flexible and capable of including equity factors to capture this source of risk. Therefore, our risk-adjusting approach includes both debt and equity factors when building the replicating portfolio in order to adjust for both sources of risk.

Borrowers generally approach private debt funds when they are unable to obtain bank financing (see e.g., Chernenko et al. (2022) and Block et al. (2023)). Consequently, firms that borrow privately are generally riskier than firms who receive bank loans, so their cost of borrowing is higher. In addition, private debt funds have substantial fees, so the cost of borrowing includes these fees. The providers of the capital, the fund's LPs, must receive a return sufficient to offset the risk they face after the fees have been paid. Promised returns must be large enough to offset the probability of default, the systematic risk of these defaults, and also the fees that the fund earns. Consequently, promised returns on loans from debt funds are substantially higher than the promised returns on bank loans or even risky bonds.

Our estimates suggest that the risk-adjusted abnormal return on $1 of capital invested in private credit funds is indistinguishable from zero. This result holds using the Gupta and Van Nieuwerburgh (2021) approach, which estimates an insignificant abnormal return of $-0.001, as well as the Korteweg and Nagel (2016)'s generalized public market equivalent (GPME) method, which estimates an insignificant abnormal return of $0.041 per $1 invested. These findings imply that private debt funds lend at rates high enough to offset the funds' fees and risks. However, competition limits the extent to which funds can raise their rates. In equilibrium, fund investors earn only a rate of return appropriate for the risks they face, but no more.

An important caveat to this zero abnormal return result is that it depends crucially on a discounting approach that adjusts for risks correlated with both debt and equity returns. When we use only debt as a risk factor, the estimated risk-adjusted profit becomes a positive, statistically significant $0.11 to $0.12 per $1 of capital invested. This estimate translates to a 1.8% net alpha on private credit funds if only adjusting for corporate debt risk factors. Private debt is sufficiently equity-like that equity-specific risk factors must be accounted for to adjust for risk appropriately. When compared to other debt instruments alone, private debt returns look more attractive than they actually are, because these funds contain equity-based risks.

Our data set differentiates between fund types –i.e., "generalists", "mezzanine" or "distressed" as well as "small" or "large" using median fund size. When only risk-adjusting using corporate-bond risk factors, mezzanine and small funds have positive and significant alphas. However, consistent with our overall findings, we still find no evidence of abnormal returns when we include equity factors across all fund types.

We also perform our analysis on the gross returns, which is determined by the cash flows received from portfolio firms but do not adjust for fees that general partners charge. For these funds, gross alphas are around 4.0 percent, which is approximately equal to what manager General Partners (GPs) would earn with management fees of around 1.5 percent and carried interest of around 15-20 percent. It appears that rates charged to borrowers are set sufficiently high. The typical loan rate is about 700 basis points over LIBOR –i.e., 9-10% (see Jang (2023)). However, these returns are captured by the funds' general partners as compensation for the services they provide, including identifying borrowers, negotiating loans, and monitoring them after providing the capital.

As a comparison, the 4.0 percent required by private credit funds is over twice that of the 1.5 percent gross alpha on syndicated bank loan cash flows when also computed using a similar cash-flow based method (Flanagan (2023)). Despite the higher costs, these nonbank lenders are still the best option for some firms that are segmented from obtaining access to bank financing (Chernenko et al. (2022)). These findings are consistent with the Diamond (1984) style model, in which banks can provide intermediation services at a lower cost than other financial intermediaries, but some riskier borrowers are segmented from borrowing from banks due to increased bank regulation post Financial Crisis. Moreover, some borrowers prefer the speed and flexibility that these alternative lenders provide.

Overall, the results in our paper are consistent with the view that private debt funds enjoy high yields from lending to firms that typically cannot receive financing from banks or public markets. The rates they charge reflect both the risk that their limited partners must bear and the costs of lending to these small and mid-sized, riskier firms. The return that borrowers pay in excess of the risk-adjusted interest rate approximately equals the fees that the private debt funds charge. Rents earned by the funds from making private direct loans accrue to the general partners, not the limited partners. They appear to reflect compensation for identifying, negotiating, and monitoring private loans to firms that could not otherwise raise financing.

The remainder of this paper is organized as follows. Section 2 discusses institutional details and existing literature. Section 3 presents our main empirical strategy. Section 4 describes the data. Section 5 presents the main results while Section 6 concludes.

2 Institutional Details and Related Literature

Private debt funds are rapidly growing institutions that provide credit intermediation. They are limited partnerships of private capital that are raised by a General Partner (the "GP") from investors, the limited partners (the "LPs"). These funds typically charge an annual management fee of about 1.5 percent and a "carried interest" of 15 percent. Because of these relatively high fees, they offer a relatively expensive form of financing, so cater to borrowers who are unable to receive financing from more conventional sources. Such borrowers include low rated or unrated firms, and also leveraged buyouts, which require substantial quantities of debt that can be arranged relatively quickly. Commercial banks used to be the primary lenders in this market but the risks that banks can take is limited by regulation. This regulation does not affect nonbanks, so it has helped create the enormous nonbank lending market.

Private debt portfolios can also include some equity components: commonly preferred equity but also some common equity and warrants, corresponding to about 20 percent of their investments. Although these debt funds utilize some leverage, most of their funding is from typical private equity (PE) investors or Business Development Companies (BDCs).[1]

Block et al. (2023)) summarizes a recent survey of general partners (GPs) of some U.S. and European private debt funds, focusing on the way in which their lending compares to banks' direct and syndicated loans by commercial banks. This survey suggests that private-debt funds lend to riskier companies than a typical bank borrower. However, they include both financial and negative covenants in their contracts to monitor these loans.[2] Nonbanks have gained a substantial market share in both corporate loan and bond markets, especially since the Great Recession. Jang (2023) explores whether private debt funds lend more like banks or arm's-length investors. Using detailed data on loan contracts extended by private debt funds in private equity buyouts, the author shows that direct lenders actively monitor and engage in

[1] BDCs are special types of closed-end funds that were established by the Small Business Investment Incentive Act of 1980 to provide funding directly to small and mid-sized companies. See Davydiuk et al. (2020).

[2] See also Fristch et al. (2021) for a review of the European private debt funds and Erel and Inozemtsev (2024) for an extensive review of the participation of not only private debt funds but also other nonbank financial institutions in the loan and bond markets.

loan restructurings similar to a bank.

This paper contributes to the literature on the growth of FinTech and other nonbanks in credit intermediation. In the corporate loan market, nonbank participation is the largest in the syndicated deals, with nonbank lending in riskier leveraged term loans reaching to about 80% in 2021 (Erel and Inozemtsev (2024)). Although initially, finance companies were the primary lenders to riskier borrowers (Carey et al. (1998)), CLOs, hedge funds, private equity firms, and loan mutual funds increased their presence significantly over time (Irani et al. (2021)). Considering direct loans to mid-sized firms, Chernenko et al. (2022) show that about one-third of these firms borrow directly from nonbanks, especially finance companies, private equity firms, and hedge funds. These lenders charge higher interest rates than banks, even after controlling for the risk of their borrowers. In the market for small corporate business loans, Gopal and Schnabl (2022) document that finance companies and FinTech lenders dominate small business loans secured by non-real estate collateral post Financial Crisis.[3]

The growth in nonbank participation in the direct loan market increased substantially because of the lending gap created by large banks during the Financial Crisis and also increased bank regulation afterwards (see, e.g., Chen et al. (2017), Cortés et al. (2020), and Chernenko et al. (2022)). Private debt funds are relatively younger, but the fastest growing, players in this market (Block et al. (2023). In addition to providing loans to riskier customers that banks do not typically lend to, these nonbank lenders also provide speed and convenience in the loan approval process as well as more flexible, innovative loan terms.

There is some work that examines the performance of these funds in comparison to leveraged loan or bond markets and shows that their returns are higher (e.g., Munday et al. (2018), Boni and Manigart (2023), and Suhonen (2024)). These papers use the funds' net asset values (NAVs) as an approximation to market values in order to measure returns and estimate alphas. Boyer et al. (2023) discuss the issues with using alphas derived from NAVs when private eq-

[3]Nonbank participation has been growing in the personal loans as well. See, for example, Buchak et al. (2018) and Fuster et al. (2021) for evidence from the U.S. mortgage market. There is also a growing literature on peer-to-peer unsecured personal loans that use FinTech. See Morse (2015) for a review.

uity NAVs differ substantially from market values. Similar to studying whether LPs generate alpha from private debt lending, Begenau and Stafford (2019) study whether bank activities generate excess returns for bank shareholders.

3 Discounting Methods

3.1 Risk-Adjusted Profit (RAP)

The primary risk-adjustment approach in this paper applies the Gupta and Van Nieuwerburgh (2021) methodology to private credit funds. This methodology involves regressing the fund cash flows on the payoffs of publicly traded securities and using the prices of these securities to discount the cash flows. A generalized Gupta and Van Nieuwerburgh (2021) model has the form:

$$X^i_{t+h} = a_h + b_h R^k_{t+h} + e^i_{t+h} \quad (1)$$

The model's key identification assumption is that the replicating portfolio, composed of publicly traded benchmarks $b_h R^k_{t+h}$, spans all sources of priced risk in the cash flows, X^i_{t+h}, and the market prices of $b_h R^k_{t+h}$ are known. We select benchmarks to capture the risk exposures of private credit funds, building on Flanagan (2023), who adapts the Gupta and Van Nieuwerburgh (2021) approach to price bank loan cash flows. Flanagan develops market benchmarks that mirror the risk profiles of bank loans by dynamically scaling down the benchmarks' invested capital in proportion to the outstanding principal of the loans whose risky cash flows they are intended to span. Our objective in applying this methodology to private credit funds is, therefore, to select both bond and stock market benchmarks on the right-hand side of Equation (1) that span the risks of private credit fund cash flows. But we also must account for some important differences between pricing fund cash-flows and loan-level cash-flows.

One primary distinction between private credit funds and their underlying loan cash flows is the timing of capital investments. Unlike loan cash flows, whose initial investment occurs at a single point in time, capital in private credit funds may be invested multiple times after fund inception. Additionally, unlike in Flanagan (2023), we do not directly observe the underlying outstanding loan principal, which is needed to construct the benchmark funds. To address these differences, we modify the "rollover benchmarks" from Flanagan (2023) as follows: (1) We use the NAVs reported by private credit funds as a measure for the outstanding loan principal held by these funds. (2) We adjust the rollover benchmarks to accommodate additional capital contributions beyond the initial investment.[4]

Another significant difference between loan-level and private credit fund cash flows is that the latter may invest in more equity-like instruments, such as exposures to warrants and distressed debt bought at deep discounts to face value. They also may realize distributions from selling debt rather than holding them to maturity. These factors can lead to different cash flow characteristics compared to hold-to-maturity loans, where interest payments and defaults are the primary cash flow drivers. We accordingly modify the "gain benchmarks" from Flanagan (2023) to reflect these differences and the timing of capital contributions: When the private credit funds distribute cash-flows, the gain benchmarks also make a corresponding payout that matches the same fraction of its outstanding NAV (e.g., if a private credit fund distributes 20% of its NAV, its corresponding gain benchmark also distributes 20% of its NAV).[5]

The updated definition of a "gain benchmark" in this paper is as follows. A gain benchmark fund, $G^{i,k}_{t+h}$, takes long positions in a risky security, k, and short positions in a risk-free bond until a pre-specified maturity, h. At inception, it invests \$1 of capital (each private credit fund's distributions and contributions are normalized to a \$1 investment) in security, k, and goes short

[4] In this paper, we therefore formally define a "rollover benchmark" as follows. A rollover investment strategy, $F^{i,k}_{t+h}$, starts with an initial $\$X$ investment in a risky security, k, where $\$X$ represents the amount of capital initially invested by a matched private credit fund, i. At the start of each period, the benchmark matches any additional capital contributions made by its matched private credit fund. We assume funds reserved for future contributions are held in a money market account. At the period's end, any accumulated return is paid out. In the next period, the rollover loan benchmark distributes the change in the underlying loan balance (using reported NAVs) and reinvests the remaining balance in the same risky security, repeating this process until the capital invested is zero. Hence, the benchmark's price equals the initial capital allocation plus the reserve capital allocated to the money market account.

[5] This construction of the gain benchmarks, unlike the rollover benchmarks, is robust to mistaking the increases in reported NAV for capital contributions when they may be instead driven by reported capital gains. This makes the gain benchmarks more amenable to spanning priced risk factors due to equity-like investments.

an equivalent amount in the risk-free bond. Thus, the benchmark accumulates returns in risky assets in proportion to the invested capital's underlying fraction until the final maturity date. To "prevent" capital distributions before the maturity h, we assume that any "distribution" the gain benchmark makes sits in a money market account and earns the risk-free rate until the benchmark's final maturity, h. This feature captures the time-varying exposure of the fund's capital to risk exposures and allows for horizon-specific loadings.

The primary difference between gain and rollover benchmarks is that "gain benchmarks" invest this capital in publicly traded securities and reinvest any capital gains or dividends/interest, whereas "rollover benchmarks" immediately distribute dividends/interest. The gain benchmarks also have pre-specified maturities, allowing for horizon-specific loadings. We include both rollover $F^{i,k}_{t+h}$, and gain benchmarks $G^{i,k}_{t+h}$ in the following baseline specification:

$$X^i_{t+h} = a_h + \sum_{k=1} [b^k F^{i,k}_{t+h} + c^k_h G^{i,k}_{t+h}] + e^i_{t+h} \tag{2}$$

This model has the same baseline specification as Flanagan (2023), except that the benchmarks are modified for private credit funds as described above. The prices of the gain benchmarks are zero because they are implemented as long-short portfolios. The price of the rollover funds is equal to the initial capital invested plus the amount of reserve capital needed to satisfy the subsequent capital calls, which we denote as $q^{\$,i}$. As in Gupta and Van Nieuwerburgh (2021), the risk-adjusted profit (RAP) can be computed as:

$$RAP^i = \sum_{h=1} P^{\$}_{t,h} e^i_{t+h} + \sum_{h=1} P^{\$}_{t,h} a_h + \sum_{k=1} q^{\$,i} b^k - 1 \tag{3}$$

The risk-adjusted profit consists of the sum of (a) the residual cash flows discounted at the risk-free rate and (b) the price of purchasing the replicating portfolio, which consists of the price of purchasing the zero-coupon bonds that correspond with the horizon fixed effects a_h and the price of purchasing the rollover benchmarks. Lastly, we subtract \$1, which corresponds to the normalized one-dollar investment in the private credit fund cash flows. We can also rewrite

Equation (3) to see that the risk-adjusted profit compares the net payoffs of the private credit funds to the net payoffs of the replicating portfolio:

$$RAP^i = \underbrace{[\sum_{h=1} P^{\$}_{t,h} X^i_{t+h} - 1]}_{NPV^{rf}\text{ (Fund Cfs)}} - \underbrace{[\sum_{h=1} P^{\$}_{t,h} X^i_{t+h} - [\sum_{h=1} P^{\$}_{t,h} a_h + \sum_{k=1} q^{\$,i} b^k]]}_{NPV^{rf}\text{ (Replicating Cfs)}} \tag{4}$$

Intuitively, the risk-adjusted profit compares the private credit fund cash-flows discounted at the risk-free rate net of the $1 investment to the replicating portfolio cash-flows discounted at the risk-free rate net of its market price. One way to think of this decomposition is to view it from the perspective of IRRs rather than the risk-free NPV:

$$Alpha = IRR(FundCFs) - IRR(ReplicatingCfs) \tag{5}$$

In other words, this equation simply states that the alpha or abnormal return on a fund is equal to its total return minus its cost of capital, which is measured by the return on a capital market benchmark of identical risk. The implication of this relationship is that market benchmarks that yield higher risk-adjusted returns for the same fund have lower costs of capital. We exploit this relationship when testing for whether different benchmarks (i.e., stock factors/bond factors) imply different costs of capital for private credit funds. In practice, we can compute the alpha by annualizing the risk-adjusted profit with the fund's cash-flow duration.

$$Alpha = (1 + RAP)^{(1/Duration)} - 1 \tag{6}$$

3.1.1 RAP Implementation

As in Flanagan (2023), we use cash-flows and returns at the quarterly frequency and specify horizon dummies h at the yearly frequency. We compute fund size by discounting all the funds' contributions using the risk-free rate and normalize the cash-flow distributions to a $1 capital investment using this fund size. We follow Gupta and Van Nieuwerburgh (2021) and only risk adjust the cash-flow distributions on the left-hand side in equation (2). We then estimate Equation (2) using OLS and compute each fund's risk-adjusted profit using (3). Where applicable, we also report the annualized risk-adjusted profit, alpha, using equation (6). We compute the standard errors of the risk-adjusted profit measure by bootstrapping –i.e., re-sampling individual private credit funds without replacement using 50 replications.

In estimating Equation (2), we use the same factors/returns as in Flanagan (2023) to construct our right-hand side benchmarks: risk-free and zero-coupon Treasury bonds, value-weighted corporate bond market returns, high credit risk corporate bonds, high downside risk corporate bonds, value-weighted stock market return, value stocks, small stocks. Because we do not ex-ante know what fraction of the underlying loans in private credit funds are fixed-rate and exposed to interest rate risk, we also include benchmarks that earn the returns on a 10-year Treasury bond. Returns on 10Y treasury bonds are driven only by interest rate risk since they do not have any exposure to credit risk and therefore can help span any source of interest rate risk in the credit fund cash-flows.

3.2 Generalized Public Market Equivalent (GPME)

We also apply the generalized public market equivalent (GPME) approach of Korteweg and Nagel (2016) to value the cash flows of the private debt funds. The idea behind GPME is to estimate a stochastic discount factor (SDF) that correctly prices capital market benchmarks that have outstanding investments of similar magnitude to the assets one would like to know the price of. This SDF can then be used to discount the cash-flows and hence to price the asset of interest. To this end, Korteweg and Nagel (2016) construct benchmark funds with capital market investments to private equity funds, with similar timing of capital investments and distributions. To apply GPME to private *credit*, we exploit the fact that in the previous section, we have already constructed capital market benchmarks that have similar investment timing and magnitude to credit funds and for which we know the price. In particular, we estimate corporate bond and equity versions of GPME that use the corporate bond and equity returns to form SDFs that price their respective rollover capital market benchmarks as well as a rollover benchmark investing in risk-free bonds. These benchmarks effectively invest in these capital market assets in a way that is proportional to the outstanding NAV of the private credit funds, similar to the implementation of GPME in Gredil et al. (2019).

We use the estimated SDF to discount the private credit fund cash-flow distributions normalized to a $1 capital investment as we did in the risk-adjusted profit case. We obtain asymptotic GMM standard errors for these estimates.

4 Data

We employ three key data sources in this paper, which are described below.

Burgiss-MSCI: The central database used in this paper on private debt funds is sourced from Burgiss-MSCI, which is described in detail in (Munday et al., 2018). Our data provide in-depth information on the net-of-fee cash flows paid to Limited Partners investing in private debt funds. In particular, it includes distributions, contributions, and NAVs of a comprehensive sample of private credit funds. Notably, it offers greater coverage of private credit fund cash flows than other databases since it sources the data from Limited Partners rather than relying on FOIA requests (Munday et al., 2018). In addition, Burgiss-MSCI also provides data on the gross cash flows paid from portfolio firms to the debt funds prior to any fees or compensation paid to General Partners (GPs). The major drawback of the Burgiss-MSCI data is that the funds are anonymous and cannot be matched to other data sources.

We apply several filters to our sample. First, we consider only private debt funds denominated in US dollars. Second, we narrow the sample to funds that were initiated between 1992 and 2015. The start date of 1992 is chosen because of the absence of corporate bond returns before this time. The end date of 2015 is selected to allow for a sufficient number of years to observe distributions and estimate risk loadings. Finally, we exclude funds with less than 5 years of cash flow data post-inception. These filters result in a sample of 532 private credit funds.

Following the standard approach in the private equity literature (Gupta and Van Nieuwerburgh, 2021; Korteweg and Nagel, 2016), we compute the fund size as the contribution cash flows discounted at the risk-free rate. We scale the cash flow distributions by this computed fund size, which represents a cash flow relative to a $1 investment. If a fund has not distributed all of its contributions after 16 years (Gupta and Van Nieuwerburgh, 2021) since inception or by the end of the sample, we, in line with Korteweg and Nagel (2016), assume the remaining Net Asset Value (NAV) is liquidated. Further, we discount this final NAV cash flow, at 90%, to account for potentially inflated reported NAVs.

For a subset of funds, Burgess-MSCI provides holding-level cash flows of individual fund investments (i.e., individual loan cash flows). For these funds, we can calculate the gross returns, which are the returns received by the funds prior to the payment of fees. For these data, we apply the same filters as described above for the broader net of fee fund sample.

Pitchbook: Because the Burgiss-MSCI dataset does not provide information on the characteristics of the underlying investments of private credit funds, we turn to Pitchbook data to offer basic summary statistics on the holdings of private credit funds. Particularly relevant are data from Pitchbook on funds' underlying investments such as the fraction of underlying investments in private debt funds that have equity-like features.

Dealscan: We utilize the sample of syndicated term loan cash flows from Flanagan (2023) to estimate the risk-adjusted returns on these loans, involving at least one non-bank as a lead agent in the syndicate.

5 Empirical Analysis

5.1 Private Debt Fund Characteristics

Despite their high costs, private debt funds have grown substantially in recent years. Figure 1 plots the total fund size of the entire sample of credit funds in the Burgiss-MSCI sample by vintage year. This figure documents the large increase in capital raised by private debt funds, with very little capital raised around 2000 and almost $100 billion per year in recent years.

5.1.1 Fund Investments

We provide information on two actual private debt funds in Table 1, *Main Street Capital II* and *CapitalSouth Partners Fund III*. *Main Street Capital II* raised $159m in 2006, and earned a 7% IRR, while *CapitalSouth Partners Fund III* raised $ 280m in 2009 and earned a 12% IRR (Source: Pitchbook). Each fund had mostly debt but also had some equity in its portfolio. The returns of the funds are lower than the rates on the loans it provides for several reasons. First, some of the loans default. Second, the funds charge substantial fees, which can lower the funds' (net-of-fee) returns by two or three percentage points. Third, the funds contain some equity, the returns of which could be higher or lower than that of the debt.

This table highlights an important feature of all private capital funds, which is that, unlike other managers of similar types of portfolios, such as mutual funds or insurance companies, they are essentially unconstrained in the types of securities they invest in. The practice of general partners is to do whatever possible (legally) to boost returns. Two ways to do so in debt funds is to add leverage to the fund by delaying drawdowns through lines of credit backed by the fund's capital commitments, and by adding equity and equity-linked securities such as warrants to their portfolios.

Table 2 provides statistics on the funds' holdings. These data are taken from the *Pitchbook* holdings database that reports the type of investment holdings the credit funds make and which have any type of equity attached to them.[6] These holdings could be direct preferred equity investments (common in Mezzanine funds), preferred equity paired with loans, warrants attached to a buyout, or even common stock investments into startups. This table indicates that 15% of the private credit investments have some equity-like feature attached to them. When value-weighted this figure increases to 20%. Overall, about 60% of private credit funds have

[6] We require that funds report at least 5 of their investment holdings to be included in this sample and apply sample filters in the same way that we apply to our Burgiss-MSCI sample.

at least one equity-linked investment.

Equity-linked investments of the funds are very different from one another; preferred equity can be only slightly riskier than debt, while warrants are substantially more risky than common equity. We do not have sufficient information on the funds' investments to attempt to assess the portfolios' risks directly. While not the majority of the investments - these are credit funds after all - equity-linked investments are nonetheless an important part of the funds' portfolios. Consequently, we rely on methods that account for both equity and debt-related risks when computing the funds' risk adjusted returns.

Another important takeaway from Table 2 is that the most common investment type of private debt funds is loans to fund leveraged buyouts, comprising 62% of fund investments.

5.1.2 Fund Cash Flows

Credit funds, like other private capital funds, receive capital commitments at the initial (and sometimes subsequent) closing, and draw down this capital over the next few years. This drawdown process is illustrated in Panel A of Figure 2. About 25% of a fund's capital is drawn down in each of the first two years, and the vast majority is drawn down by year 6.

This capital is eventually returned (with interest) to the fund's investors. Panel B of Figure 2 illustrates the timing of these distributions. The largest distributions are in years 4 and 5, with about 20 % of initial capital returned in each year. After this point, the amount distributed declines each year but continues until year 16. Since we assume there is a year 16 distribution equal to 90% of the NAV at that point in time, the figure indicates that there is a spike in that year, which occurs because of this assumption about the funds' final distributions.

We provide summary statistics on our sample in Table 3: The average fund size is $783M, and the average IRR of the net-of-fee cash flows received by LPs is 8.6%. If we compute the NPV of cash-flows using risk-free rates, the average NPV is $0.34 per $1 of capital invested. The average duration of the distributions is 5.5 years.

5.2 Risk-Adjusting Net-of-Fee Distributions Received by LPs

While the distribution of cash flows received by a fund's investors, its LPs, leads to an IRR of 8.6% and an NPV of $0.34 per $1 of capital invested when discounted at the risk-free rate, it is unclear whether these figures represent more than an appropriate return given the investments' risks. Since the risk-free rate is clearly too low, this NPV is an overstatement, and the IRR must be adjusted as well to reflect the risks the LPs face.

We present estimates of the risk adjusted returns received by LPs in Table 4. In Panel A, we report the returns without adjusting for risk (these numbers are repeated from the previous table for the exposition). The average IRR is 8.6% , and the average "risk-free NPV" is $0.34 on a $1 investment.

In Panel B, we report estimates of the risk adjusted return calculated using the Gupta and Van Nieuwerburgh (2021) risk-adjusted profit (RAP) approach. For this approach, one must specify the risk factors facing the cash flows. We have argued that since private debt funds face both equity and debt, one should use both factors when discounting.

The estimates presented in Panel B indicate that when we discount the cash flows using just corporate bonds, we find a statistically significant risk-adjusted profit of $0.11 per $1 of capital invested. Annualizing this total return using the duration of the credit funds, we find a statistically significant alpha of 1.8% using the corporate bond factors. When we replace corporate bond factors with stock factors, the estimate decreases to a statistically insignificant $.05 per $1 invested. When we include both corporate bond and stock factors, we find that the risk-adjusted profit becomes essentially zero. We convert this NPV to an alpha by annualizing the total return to $1 of capital using the duration of the fund. The resulting alpha is an insignificant -0.001%. The standard error of this estimate is 0.9%, meaning that a 95% confidence interval cannot rule out an alpha less than 1.8%.

The estimates using GPME are similar to those using the Gupta and Van Nieuwerburgh (2021) approach. The estimated NPV equals a statistically significant $0.120 per $1 invested using the corporate bond returns in GPME to discount the cash-flows. However, if we discount using stocks, it decreases to one third the value using bonds and is no longer statistically significantly different from zero.[7]

Table 5 presents the risk loadings from our risk-adjusted profit estimation corresponding to Equation (2). For the exposition, we report the loadings for a simplified model with a single stock and corporate bond factor (in the full specification, we include value and small stocks, high credit risk corporate bonds, and high downside risk corporate bonds). Each factor has horizon-specific loadings that correspond to the 'gain' capital benchmarks and a single loading for the 'rollover' benchmarks.

The first column reports the horizon fixed effects that correspond to zero coupon bonds (ZCB) in Equation (2). These fixed effects pick up cash flows from the fund that always pays out regardless of the state of the world, meaning that they are discounted back at the risk-free rate. The second column reports the horizon-specific loadings from benchmarks created by investing in corporate bonds. The corporate bond benchmark funds have positive and statistically significant loadings, especially for the cash-flow distributions in years 2-5 since fund inception. In other words, the cash-flow distributions that come from private credit funds 2-5 years after fund inception mostly closely resemble the risk profile of corporate bonds. Likewise, we see positive and significant stock market loadings in years 1-4 after fund inception as well as years 10-11. The joint F test at the bottom of the table shows that these factors are significant in explaining the variation in fund distributions.

One way to interpret the risk loadings is that they form a capital market replicating portfolios that best replicate the cash flows coming from private credit funds. The significance of risky corporate bond and equity capital market benchmarks indicates that risky capital markets are needed to explain variation in private credit returns and that risk-free benchmarks are not sufficient. The *R-Squared* of the model is also reasonable, at 72%, indicating that our capital market benchmarks form a replicating portfolio that explains much of the variation of fund

[7] It is not feasible to use both stocks and corporate bonds in GPME because exactly pricing both asset classes can produce SDFs with unreasonable Sharpe ratios/cross-market arbitrage opportunities, which are not appropriate for discounting cash flows. (see Cochrane and Saa-Requejo (2000)).

cash-flows. As confirmed by our evidence in Table 2, equity factors seem to matter for pricing the risks in private credit funds.

Private debt funds are not uniform; they vary substantially by size, and also by the type of firms to which they lend. Some funds specialize in lending to firms in financial distress, while others are "mezzanine" funds that provide loans that are typically junior to the firm's all other debt. It is possible that there is cross-sectional variation in abnormal performance where some types of funds perform better than others.

Table 6 presents risk-adjusted returns sorted by fund type, including “generalists”, “mezzanine”, “distressed”, “small” and “large” funds (defined as above /below median fund size).[8] We also report results when dropping outliers in our fund sample. We see that we still see positive and significant returns when only risk-adjusting using corporate bond risk factors, but find no evidence of abnormal returns when we include equity factors across all fund types. There do not appear to be noticeable differences in risk-adjusted returns across fund types.

5.3 Gross-of-Fee Returns

5.3.1. Fee Structure

A major difference between private debt funds and other providers of private debt is the fee structure. Private debt funds' fees are typically lower than private equity funds but substantially higher than other lenders who issue private loans. While there is some variation across funds, a 1.5% management fee and a 15 % carried interest (a fraction of the profits) is common. Presumably the reason why funds can charge so much and still find borrowers is that they have skill at identifying quality borrowers, negotiating loans, and monitoring them after they are made. Because of the fees, a fund must charge higher rates than a lender providing a similar loan.

Fees on private debt funds (and private equity funds as well) are nonlinear, and increase

[8] We split small/large funds based on the median fund size within a given Vintage-Quarter. Fund size is determined by the estimated capital calls at origination rather than the total AUM of the fund advisor.

more when returns are higher. Therefore it is impossible to convert the fees that a fund charges to a specific increase in the cost of finance. However, it is possible to do some illustrative calculations, which we present in Table 7.

Panel A reports estimates of GP fees using the typical private credit fund contract is 1.5 management fee with a 15% carried interest, assuming a 6% hurdle (as is typical). It also presents calculations for 2% management fee with a 20% carry and an 8% hurdle rate. In this table we use the IRRs of the fund to solve for these fees when assuming one of these contract structures: GP Fee = .015 + max(.15*(IRR/.85),0) if IRR $>$ .06; and .015 if IRR $<$ .06. Using this approach, we find that if all our funds had a 1.5/15% contract structure, GPs would earn 3.1% per year and if they had a 2/20% contract they would earn 3.9% per year.

5.3.2. Risk Adjusted Gross of Fee Returns

We next consider the subsample of funds for which Burgiss-MSCI has access to the payments between funds and their portfolio firms. These cash flows occur prior to the payment of the fund's fees, so should be higher than the net of fee cash flows that are paid to the LPs. In our sample, the IRR of the gross cash flows is 13.9%, which is substantially higher than the 8.6% IRR of the net cash flows going to LPs (which is from a much larger sample of funds).

We adjust these cash flows for risk using the Gupta and Van Nieuwerburgh (2021) approach and present the estimates in Panel B of Table 7. These estimates imply that the gross abnormal returns are significantly positive. When adjusted by the risk free rate, the implied alpha is 5.3% and when discounted using both equity and debt factors, the alpha is 4.1%.

The abnormal return from the gross cash flows is approximately equal to the estimate of fees paid by the fund. This pattern suggests that the loans are priced above their fundamental risks, but that any rents go to the GPs who manage the fund rather than the LPs who invest in it. Presumably, these GPs are adding value through their ability to source, negotiate, and manage deals.

5.3.3. Comparison to Syndicated Loans

Another way to illustrate the importance of fees in the pricing of loans from private debt funds is to consider a sample of loans from nonbank lenders who do not charge the same level of fees. We consider a sample of syndicated loans from the Dealscan database that have at least one nonbank as a lead lender in the syndicate. [9]

Table 8 reports the annualized risk-adjusted profit on the cash flows from these syndicated loans cash-flows. This table suggests that nonbank abnormal returns are about 1.7%, which is substantially lower than the 4.1% abnormal returns of the pre-fee cash flows from the private debt funds in our sample. It is nonetheless slightly higher than bank abnormal returns of 1.4%, reported by Flanagan (2023). The difference between the gross returns of debt funds and nonbank syndicated loans likely reflects a number of factors: a) The firms that turn to private credit funds probably could not get (cheaper) funding from syndicated loans; b) private credit also involves equity-linked investments; and c) loans from private debt funds have to be priced so that the ultimate providers of capital, the LPs, receive a high enough return so that when fees are netted out, still are high enough to justify investing even given the loans high risk.

6 Concluding Remarks

The fastest growing sector of the private capital market involves lending, and in particular, private debt funds, which currently surpass $1.5 trillion under management. Yet, the academic literature on private debt funds is remarkably sparse. While practitioners argue that these funds are excellent investments, our knowledge is limited about their returns and whether these returns are sufficient to justify their risk.

Private debt funds, like private equity funds, charge substantial fees, usually a 1.5% annual management fee and a 15% carried interest. Since other nonbank lenders have much lower fees, private debt funds must lend at much higher rates than other nonbank lenders, and consequently do business with lower quality borrowers who do not have other sources of capital. To boost returns, private debt funds supplement the loans in their portfolios with equity or eq-

[9] We rely on the definition of a nonbank used by Chernenko, Erel, and Prilmeier, 2022).

uity linked instruments such as warrants. Consequently, to measure the risk adjusted returns investors receive, it is important to take the net-of-fee distributions and discount them using an approach that adjusts for both equity and debt related risks.

In this paper, we follow such a procedure that was developed by Flanagan (2023) for evaluating bank loans. Our estimates indicate that once we adjust for fees and risks, private debt funds provide their investors with returns just appropriate for the risks they face, but not more. When we examine the gross-of-fee cash flows received by the debt funds from their portfolio firms, they do have an alpha that approximately equals the fees that they charge.

Overall, the results in our paper are consistent with the view that private debt funds charge rates to their borrowers that reflect their fees and also the risks involved in lending to these small and mid-sized, riskier firms. The return that borrowers pay in excess of the risk-adjusted interest rate approximately equals the fees that the private debt funds charge. Rents earned by the funds from making private direct loans accrue to the general partners, not the limited partners. These rents appear to reflect compensation for identifying, negotiating, and monitoring private loans to firms that could not otherwise raise financing.

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Figure 1: Investment into Private Credit over Time

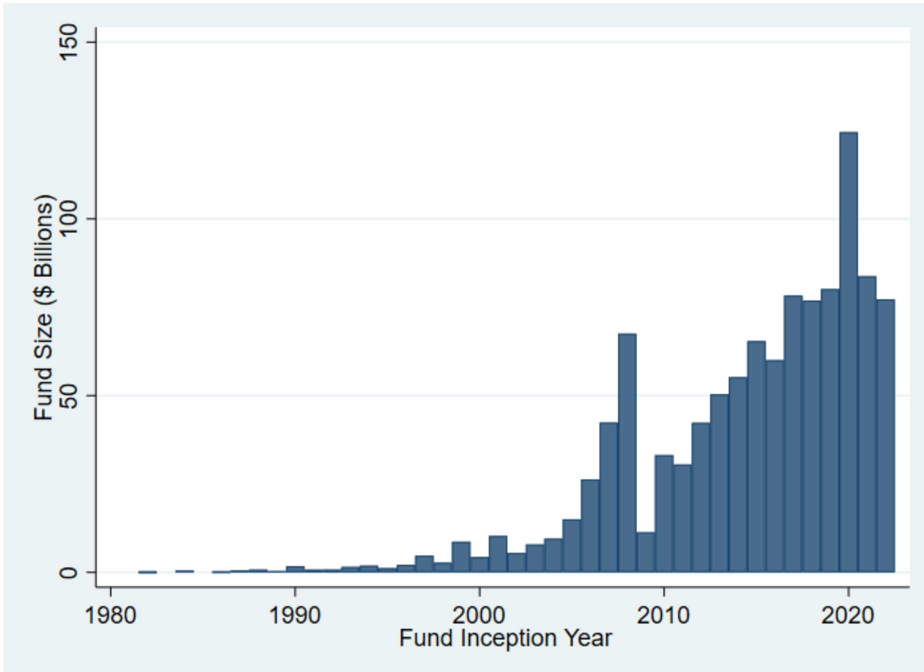
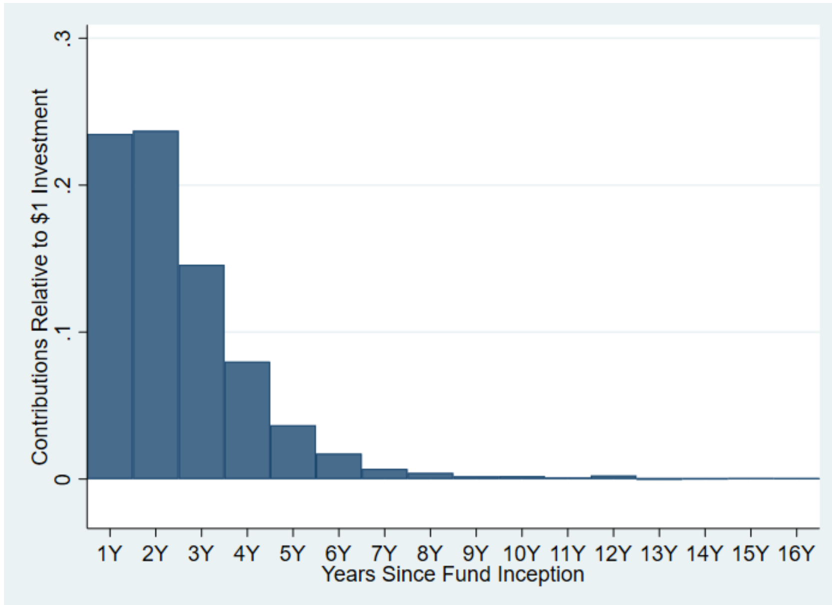
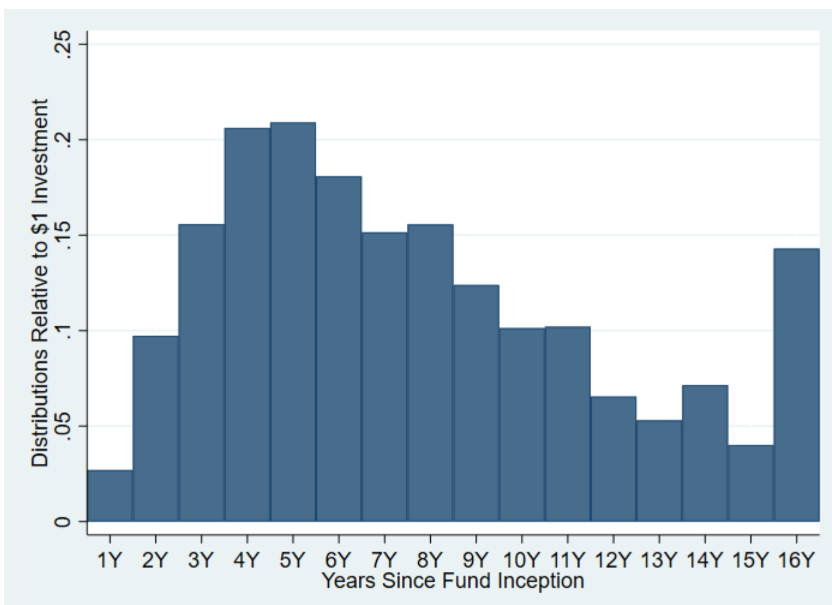


Figure 1 plots the total fund size of the entire sample of credit funds in the Burgiss-MSCI sample by vintage year in which the fund was created. Source: Burgiss-MSCI

Figure 2: Private Credit Contributions and Distributions by Horizon



Panel A: Average contributions into Private Credit Funds by number of years since fund inception. Contributions are normalized to a $ 1 capital investment. Source: Burgiss-MSCI



Panel B: Average distributions into Private Credit Funds by number of years since fund inception. Distributions are normalized to a $ 1 capital investment. Source: Burgiss-MSCI

Table 1: Fund and Investment Examples

Loan Level Example A		
Firm Name	Investment Type	Amount
CHMB	12% Loan	$1.4M
Merrick Systems	13% Loan	$3M
CAI Software	12% Loan	$6.75M
Cody Pools	Preferred Equity + 10.5% Loan	$16M

Fund Level Example A		
Fund/Lender Name	IRR	Fund Size
Main Street Capital II	7%	$159M

Loan Level Example B		
Firm Name	Investment Type	Amount
Immersive Media	13% Loan	$1.3M
B&W Growers	14% Loan	$10M
SOAR Transportation	Preferred Equity + Warrants	$16M
Abutec	Preferred Equity	$5.4M

Fund Level Example B		
Fund/Lender Name	IRR	Fund Size
CapitalSouth Partners Fund III	12%	$280M

Notes: Table 1 provides some examples of typical private credit funds and their underlying investments
Source: Pitchbook

Table 2: Investment Holdings in Private Credit Funds

	Mean	SD	Min	P25	P50	P75	Max	N
% Equity Investments	0.150	0.233	0.000	0.000	0.059	0.182	1.000	424
% Equity Investments (Dollar Amt)	0.198	0.308	0.000	0.000	0.011	0.282	1.000	407
Any Equity Investments	0.590	0.492	0.000	0.000	1.000	1.000	1.000	424
% LBO Investments	0.623	0.300	0	0.400	0.712	0.857	1.000	424

Notes: Table 2 provides descriptive statistics on the credit funds' holdings, including the fraction of investments that are equity or have any equity-like attachments (% Equity Investments). We report a discretized version of the variable 'Any Equity Investments' which is equal to 1 if any of the funds' investments are equity or have equity attachments. %LBO Investments measures the fraction of fund investments that are loans as a part of leverage buyouts. Source: Pitchbook

Table 3: Fund-Level Cash-Flow Summary Statistics

	Mean	SD	Min	P25	P50	P75	Max	N
Fund Size	783	1151	2	169	418	903	10744	532
Fund Duration	5.517	1.791	1.748	4.324	5.336	6.637	13.478	532
IRR	0.086	0.104	-0.344	0.049	0.085	0.125	0.811	532
Amt. Distributed	1074	1677	3	224	589	1255	17194	532
Amt. Contributed	796	1162	2	173	437	925	10825	532
Rf NPV	0.339	0.533	-0.783	0.146	0.288	0.464	7.238	532

Notes: Table 3 presents summary statistics on the net of fee LP private credit cash-flow dataset. Fund size is the present value of fund contributions discounted at the risk-free rate in $ millions. Fund Duration is the Macaulay Duration of the fund's cash-flow distributions. IRR is the IRR of the fund's net cash-flows. Amt. Distributed is the raw sum of total distributions of a fund in $ millions. Amt. Contributed is the raw sum of total contributions of a fund in $ millions. Rf NPV is the present value using the risk-free rate of the fund distributions relative to a $1 capital investment into the fund. Source: Burgiss-MSCI

Table 4: Baseline Fund Risk-Adjusted Returns

Panel A: Risk Free Benchmarks

	LP Net of Fee Cash-Flows	
	(1)	(2)
	IRR	NPV
Estimate	0.086***	0.339***
	(19.09)	(14.67)
Observations	532	532

Panel B: Risk-Adjusted Profit

	NPV			Alpha	
	(1)	(2)	(3)	(4)	(5)
	Bonds	Stocks	Both	Bonds	Both
Estimate	0.105**	0.051	-0.001	0.018**	-0.000
	(2.18)	(1.02)	(-0.01)	(2.26)	(-0.01)
Observations	532	532	532	532	532
R2	0.73	0.72	0.73	0.73	0.73

Panel C: GPME

	NPV	
	(1)	(2)
	Bonds	Stocks
Estimate	0.120**	0.041
	(2.47)	(1.48)
$b1$	0.13	0.02
$b2$	12.98	1.89
Observations	532	532

t statistics in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

Notes: Table 4 presents estimates of the risk adjusted returns received by LPs. Panel A starts by reporting returns without adjusting for risk, including the mean IRR and mean NPV discounted at the risk-free rate. Panel B reports risk adjusted returns using the risk adjust profit measure using only corporate bond factors (Column 1), only stock factors (Column 2), and both corporate bond and stock factors (Column 3). In columns (4) & (5), we report the annualized "alpha" version of this risk-adjusted profit measure using corporate bonds only and both, respectively. In Panel C, we report the risk adjusted NPV measures estimated by using GPME using a corporate bond factor (Column 1) and stock factor (Column 2).
Source: Burgiss-MSCI

Table 5: Risk-Loadings From RAP Model

	ZCB	Corp Bond Mkt	Tbills	Stock Mkt
	(1)	(2)	(3)	(4)
Horizon 1	-0.001	0.008	0.042**	0.016*
	(-0.55)	(0.39)	(2.44)	(1.92)
Horizon 2	0.004*	0.031*	0.024	0.023***
	(1.85)	(1.81)	(1.12)	(3.62)
Horizon 3	0.009***	0.031**	-0.007	0.017***
	(3.50)	(2.15)	(-0.36)	(3.88)
Horizon 4	0.007**	0.053***	0.002	0.011**
	(2.45)	(3.01)	(0.08)	(2.04)
Horizon 5	-0.006	0.050*	0.041	0.018
	(-0.80)	(1.70)	(0.94)	(1.15)
Horizon 6	-0.002	0.016	0.037*	0.004
	(-0.59)	(0.78)	(1.89)	(1.00)
Horizon 7	-0.003	0.024**	0.014	0.002
	(-0.79)	(2.05)	(1.12)	(0.54)
Horizon 8	0.001	-0.023	0.041	0.004
	(0.25)	(-1.15)	(1.38)	(0.96)
Horizon 9	-0.001	0.001	0.013	0.004
	(-0.47)	(0.08)	(1.14)	(1.60)
Horizon 10	-0.001	-0.018*	0.017	0.007*
	(-0.14)	(-1.65)	(0.93)	(1.94)
Horizon 11	0.001	-0.002	0.005	0.004*
	(0.66)	(-0.34)	(0.63)	(1.65)
Horizon 12	0.005	-0.009	-0.004	0.003
	(1.20)	(-1.04)	(-0.39)	(1.13)
Horizon 13	0.004	0.004	-0.020**	0.001
	(1.14)	(0.64)	(-2.08)	(0.43)
Horizon 14	-0.005	0.024**	-0.008	-0.001
	(-1.62)	(2.06)	(-0.82)	(-0.38)
Horizon 15	0.006**	-0.026***	0.014*	0.000
	(2.54)	(-2.78)	(1.66)	(0.14)
Horizon 16	0.000	-0.008	-0.005	0.017
	(0.01)	(-0.17)	(-0.15)	(1.62)
Rollover Loading		0.057	-0.204***	0.086**
		(1.02)	(-5.28)	(2.12)
Observations	23101	23101	23101	23101
F-stat p-value	0.015	0.001	0.024	0.001
R^2	0.724	0.724	0.724	0.724

t statistics in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

Notes: Table 5 presents the risk loadings from our risk-adjusted profit estimation corresponding to Equation (2). For the exposition, we report the loadings for a simplified model with a single stock and corporate bond factor. Each factor has horizon-specific loadings that correspond to the 'gain' capital benchmarks and a single loading for the 'rollover' benchmarks. ZCB corresponds to the zero coupon bond that are estimated using the horizon fixed effects. Corp Bond Mkt corresponds to the benchmarks constructed using the value-weighted returns on all corporate bonds. Stock Mkt corresponds to the benchmarks constructed using the value-weighted returns on all corporate bonds. Tbills correspond to the benchmarks constructed using the value-weighted returns on 10Y Treasury bonds.
Source: Burgiss-MSCI

Table 6: Fund-Level Heterogeneity in Risk-Adjusted Returns

	IRR	NPV (Rf)	RAP - Bonds	RAP	GPME (Bonds)	GPME	Num Funds
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Full Sample	0.086***	0.339***	0.105**	-0.001	0.120**	0.041	532
	(19.09)	(14.67)	(2.18)	(-0.01)	(2.47)	(1.46)	
Generalist	0.070***	0.235***	-0.194	-0.291	0.007	-0.126***	89
	(6.58)	(5.90)	(-0.37)	(-0.26)	(0.09)	(2.63)	
Mezzanine	0.084***	0.342***	0.083*	0.036	0.128	0.065*	193
	(16.60)	(11.72)	(1.69)	(0.64)	(1.19)	(1.80)	
Distressed	0.083***	0.353***	0.099	0.108	0.054	0.051	163
	(10.84)	(7.00)	(1.02)	(1.08)	(0.65)	(0.84)	
Small	0.080***	0.375***	0.211***	0.020	0.184**	0.058	298
	(10.94)	(8.23)	(2.72)	(0.26)	(2.44)	(1.12)	
Large	0.091***	0.310***	0.046	-0.001	0.074	0.029	234
	(16.11)	(15.19)	(0.78)	(-0.02)	(1.19)	(0.82)	
No Outliers	0.085***	0.314***	0.063*	0.004	0.117**	0.032	520
	(21.96)	(20.94)	(1.89)	(0.12)	(0.12)	(1.28)	

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: Table 6 reports the returns and risk adjusted return measures on a subsample of private credit funds. We split the sample by fund type, including “generalists”, “mezzanine”, “distressed”, “small” and “large” funds (defined as above /below median fund size). We also report results when dropping outliers in our fund sample. Source: Burgiss-MSCI

Table 7: GP Fees and Gross Risk-Adjusted Returns

Panel A: GP Fee Estimates

	1.5 / 15 Contract	2.0 / 20 Contract
	(1)	(2)
Estimate	0.031***	0.039***
	(44.00)	(37.85)
Observations	532	532

Panel B: Gross Risk-Adjusted Cfs

	IRR	NPV (Rf)	RAP (Bonds)	RAP	Alpha (Bonds)	Alpha
	(1)	(2)	(3)	(4)	(5)	(6)
Estimate	0.139***	0.415***	0.308***	0.232**	0.053***	0.041**
	(6.02)	(12.43)	(3.98)	(2.18)	(4.44)	(2.56)
Observations	65	65	65	65	65	65

t statistics in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

Notes: Panel A reports estimates of GP fees using the typical private credit fund contract is 1.5 management fee with a 15% carried interest, assuming a 6% hurdle or 2.0 management fee with 20% carried interest, assuming a 8% hurdle. We back out estimates of these annual fees using the funds' IRRS. Panel B reports the risk adjusted returns of the gross cash-flows (i.e. before GP fees) a the subsample of funds for which Burgiss-MSCI has access to the payments between funds and their portfolio firms.
Source: Burgiss-MSCI

Table 8: Risk-Adjusted Returns on Nonbank Syndicated Loans

Panel A: Bank Estimates

	NPV		Alpha	
	(1) Bonds Only	(2) Both	(3) Bonds Only	(4) Both
Estimate	0.027***	0.024***	0.016***	0.014***
	(20.96)	(16.51)	(20.99)	(16.54)

Panel B: Nonbank Estimates

	NPV		Alpha	
	(1) Bonds Only	(2) Both	(3) Bonds Only	(4) Both
Estimate	0.036***	0.029***	0.021***	0.017***
	(11.96)	(9.10)	(12.62)	(9.50)

t statistics in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

Notes: Table 8 estimates the gross risk-adjusted returns on the realized cash-flows of syndicated loans in dealscan, for which at least one nonbank part of the lead syndicate. Panel A reports the risk adjusted returns only on the sample of loans for which there is no nonbank as the lead agent in the syndicate. Panel B reports the risk adjusted returns only on the sample of loans for which there is at least one nonbank as the lead agent in the syndicate.
Source: Dealscan