



NCREIF



CRE Finance Council

The Voice of Commercial Real Estate Finance

NCREIF/CREFC Open-end Debt Fund Aggregate

Inaugural
Consultation
Edition

Released 8/3/23



FIRST QUARTER 2023

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About the NCREIF/CREFC Open-end Debt Fund Aggregate

The NCREIF/CREFC Open-end Debt Fund Aggregate is a fund-level aggregate comprising open-end funds that provide credit and financing to borrowers who own commercial real estate. This report will be issued in a draft “consultation” format for at least one-year to obtain industry feedback before it is rolled out as an official product.

The NCREIF/CREFC Open-end Debt Fund Aggregate...

- Will enhance investors’ interest & understanding of the rewards and risk of private real estate debt funds, which may lead to increased allocations to debt, benefiting managers, investors, and commercial real estate finance industry professionals.
- **Contains funds with various strategies and styles ranging from core to value-add, as reported by the managers.** The performance metric is a time-weighted return. The returns are equal-weighted across the funds since the aggregate contains a few large funds that would dominate the results if it were value-weighted.
- **Is NOT a BENCHMARK**, yet, but is a major step toward the goal of creating a more focused index/benchmark of funds that meet certain investment inclusion criteria, which are to be determined.
- Is anticipated to be published quarterly. Results will never reveal individual fund performance.
- Is a project by the industry for the industry that has been in the works for a few years with input from the data contributing managers, investors, consultants and CREFC, the Commercial Real Estate Finance Council, an industry organization that is working closely with NCREIF to help promote the product.
- Furthers NCREIF’s and CREFC’s mission; *“NCREIF is a member-driven, not-for-profit association that improves private real estate investment industry knowledge by providing transparent and consistent data, performance measurement, analytics, standards and education.” “CREFC is the trade association for the commercial real estate finance industry. CREFC promotes liquidity, transparency, and efficiency in the commercial real estate finance markets. It does this by acting as a legislative and regulatory advocate for the industry, playing a vital role in setting market standards and best practices, and providing education for market participants. Member firms include balance sheet and securitized lenders, loan and bond investors, private equity firms, servicers, and rating agencies, among others.”*

Fund Inclusion

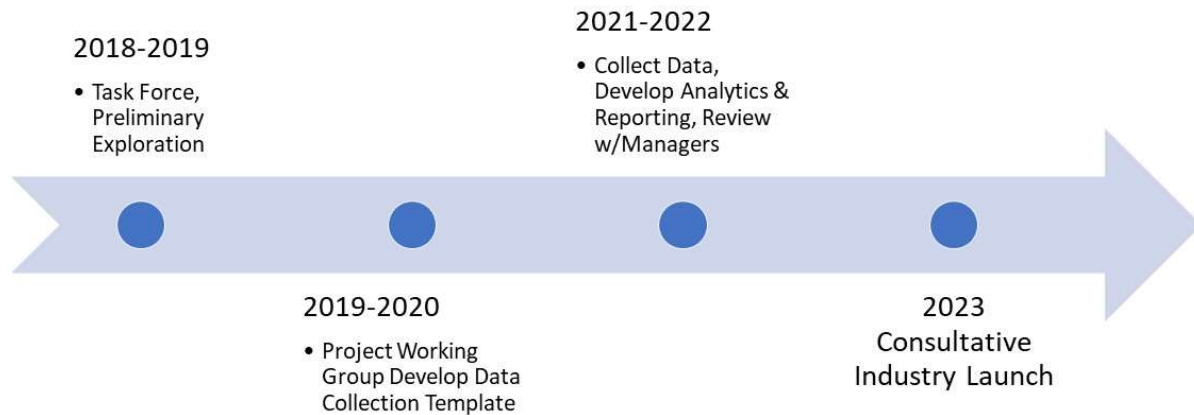
1. Investment Managers must:
 - a. offer an open-end fund product to institutional investors that does debt lending for predominantly private U.S. commercial real estate.
 - b. calculate quarterly net asset values and returns on a market value basis.
 - c. agree to submit all requested data and do so within the time frame required.
 - d. be a NCREIF data contributing member once this becomes an official product.
2. **Funds included have different:**
 - a. **structures, strategies, liquidity provisions, dividend, accounting, and valuation policies, all of which affect performance and comparability. As a result, this product is not a benchmark.**

Disclaimer

The information in this report is proprietary and may not be reported in whole or in part without written permission. The underlying data and text have been obtained from sources considered to be reliable; the information is believed to be accurate but is not guaranteed. This report is for information purposes only and is not to be an offer, solicitation, or recommendation with respect to the purchase or sale of any security or a recommendation of the services supplied by any money management organization. Past performance is no guarantee of future results.

About the NCREIF/CREFC Open-end Debt Fund Aggregate

Project Timeline



Next Steps: Definitions of Styles, Loan Level Data Collection, Closed-end/SA collection

Project Working Group

- Clarion Partners, Nuveen, Principal, UBS
- CREFC, NCREIF

ad hoc participation

- | | | |
|--|---|---|
| <ul style="list-style-type: none">• Managers<ul style="list-style-type: none">• ARES Management• Trawler Capital Management• Walton Street Capital | <ul style="list-style-type: none">• Investors<ul style="list-style-type: none">• CalSTRS• Griffin Capital• NYSTRS• Oregon State Treasury | <ul style="list-style-type: none">• Consultants & Others<ul style="list-style-type: none">• Altus Group• AON• Bard Consulting• Chatham Financial• Situs AMC |
|--|---|---|

2018 Task Force

AON, Clarion Partners, CBRE Global Investors, CREFC, Heitman, INVESCO, Mesa West, Met Life, NCREIF, PGIM, Principal, Quadrant RE Advisors, TH Real Estate, UBS, Voya

Summary

as of March 31, 2023

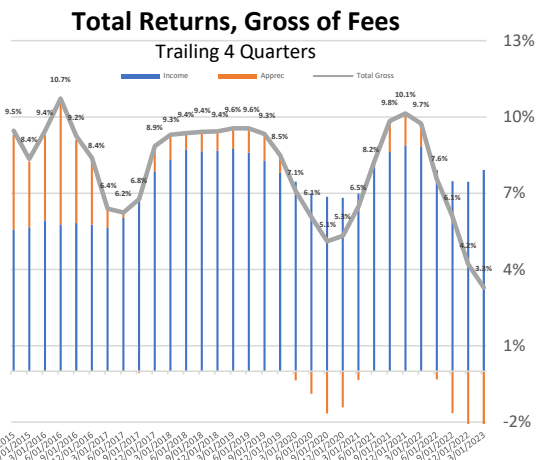
RETURNS (fund level)

	Quarter-ended	YTD	1 yr	3 yr	5 yr	7 yr	10 yr
Income	2.18%	2.2%	7.9%	7.9%	8.0%	7.7%	na
Appreciation	-1.54%	-1.5%	-4.7%	-1.4%	-0.8%	-0.3%	na
Total Gross of Fees	0.64%	0.6%	3.3%	6.5%	7.2%	7.4%	na
Total Net of Fees and Fund Costs	0.41%	0.4%	2.5%	5.6%	6.1%	6.2%	na
Fund Costs	-0.08%						

[returns available since 3/31/2014]

BALANCES (\$millions at fair value)

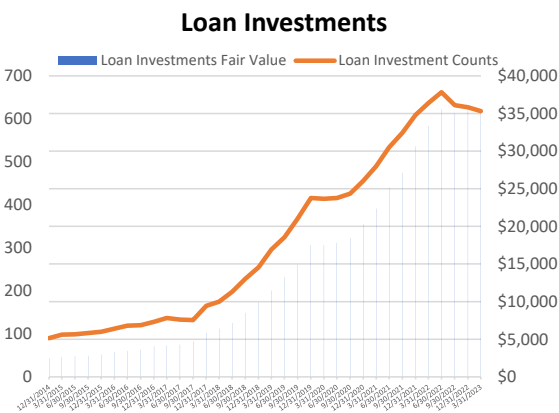
	as of Quarter-ended
Cash	\$1,085
Loan Investments	\$35,494
Total Assets	\$37,175
Debt Payable	-\$18,400
Financial Leverage (debt pay / tot assets)	49.5%
Net Assets	\$18,826
Contributions (quarter activity)	\$1,236
Distributions & Redemptions (quarter activity)	-\$778
Fund Count	15



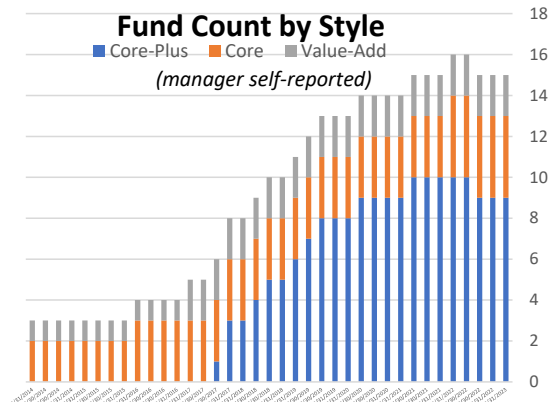
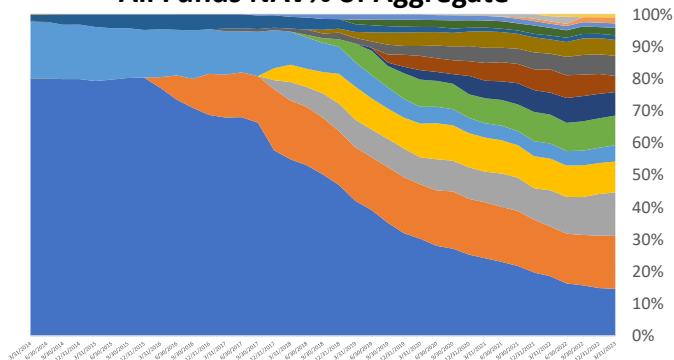
LOAN INVESTMENT METRICS

All-in Rate-Loan Investments (annualized)	7.7%
Wgt Avg Remaining Term (x/extensions)	2.5 yrs
First\$Risk LTV% (attach point of sub loans)	55.7%
Last\$Risk LTV% (detach point of sub loans)	73.2%
DSCR (NOI / [interest + principal])	1.1x
Debt Yield Annualized (noi / loan balance)	6.6%
# of Loan Investments	618

[metrics are equal-weighted across ALL funds]



All Funds NAV% of Aggregate



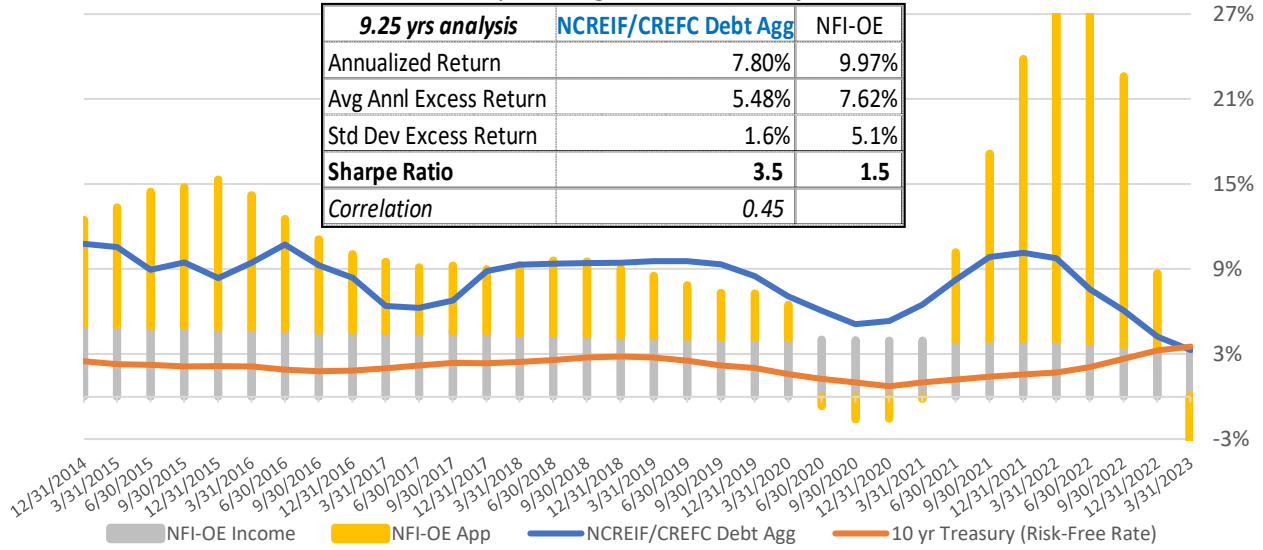
Above information is subject to change and not to be used as an index or a benchmark.

Returns, Assets, Fund Counts and Cash Flows

Returns, gross of fees (trailing 4 quarters)

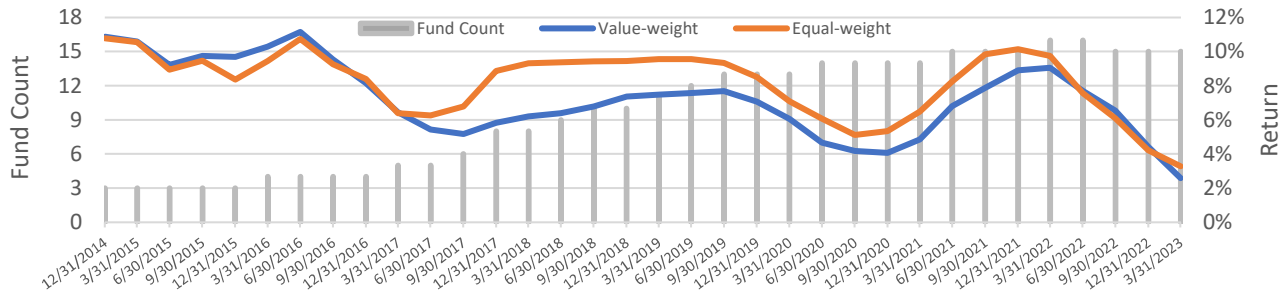
Returns are equal-weighted across ALL funds

9.25 yrs analysis	NCREIF/CREFC Debt Agg	NFI-OE
Annualized Return	7.80%	9.97%
Avg Annl Excess Return	5.48%	7.62%
Std Dev Excess Return	1.6%	5.1%
Sharpe Ratio	3.5	1.5
Correlation	0.45	

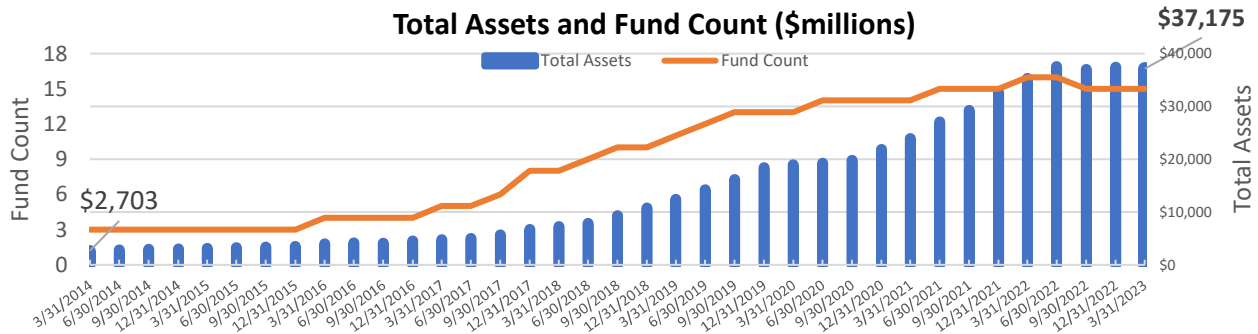


The NFI-OE is the NCREIF All Open-end Fund Index for real estate equity investments

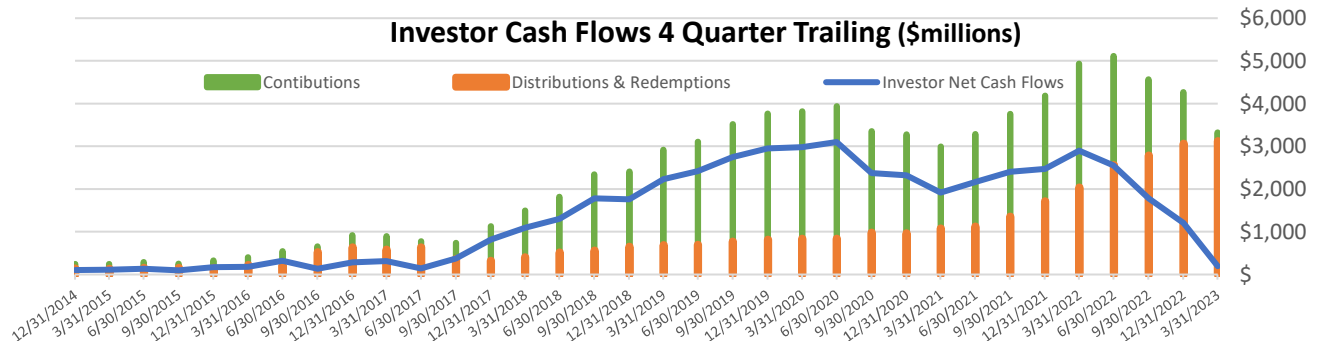
Total Returns, gross of fees (trailing 4 quarters)



Total Assets and Fund Count (\$millions)

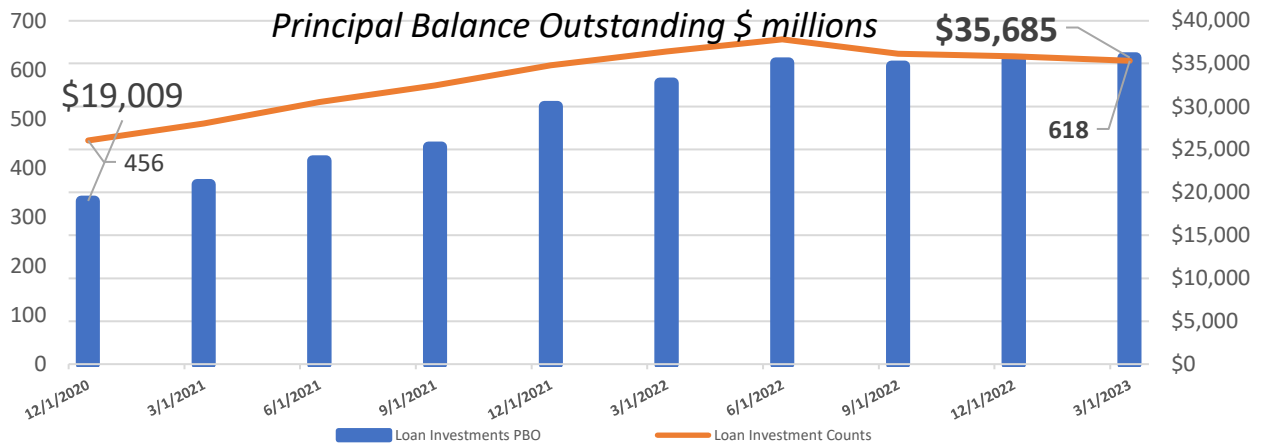


Investor Cash Flows 4 Quarter Trailing (\$millions)

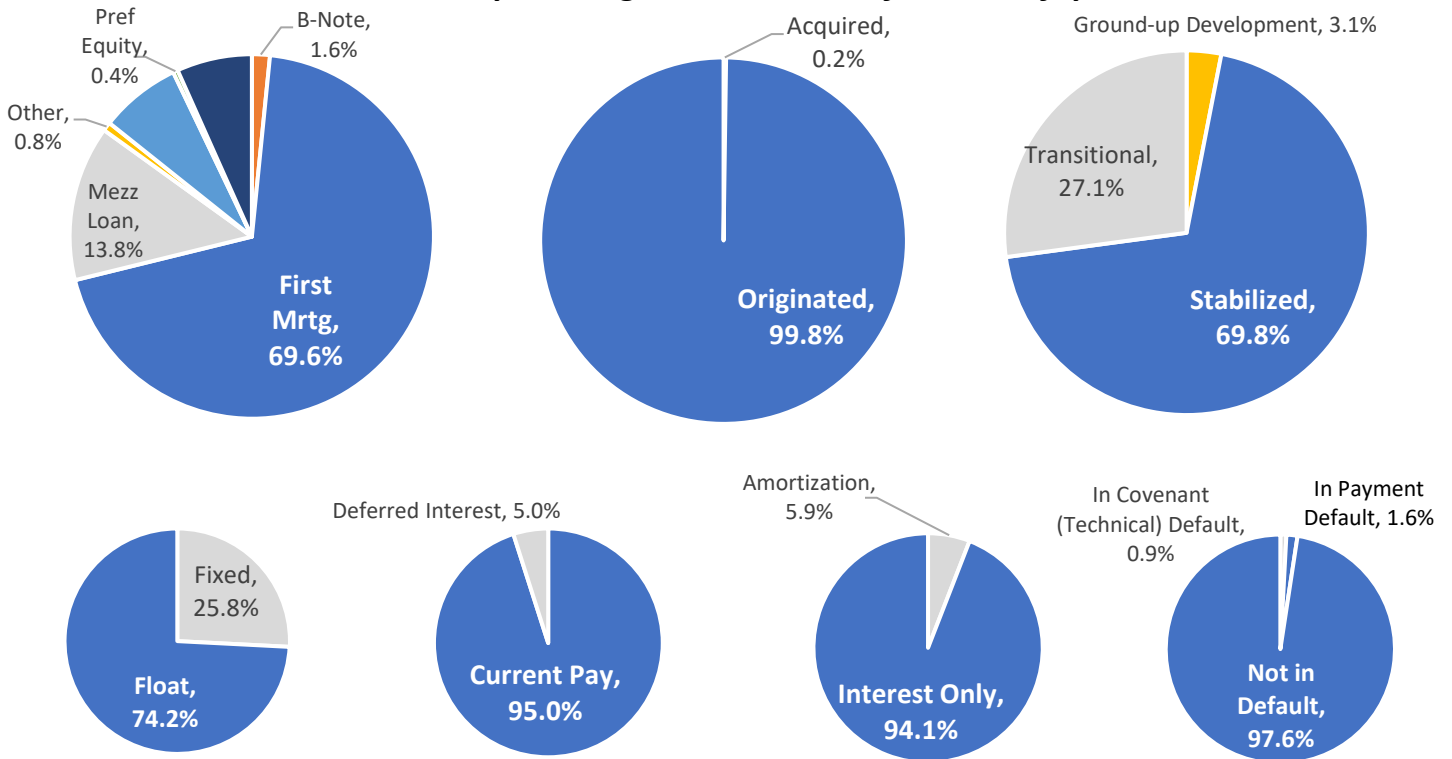


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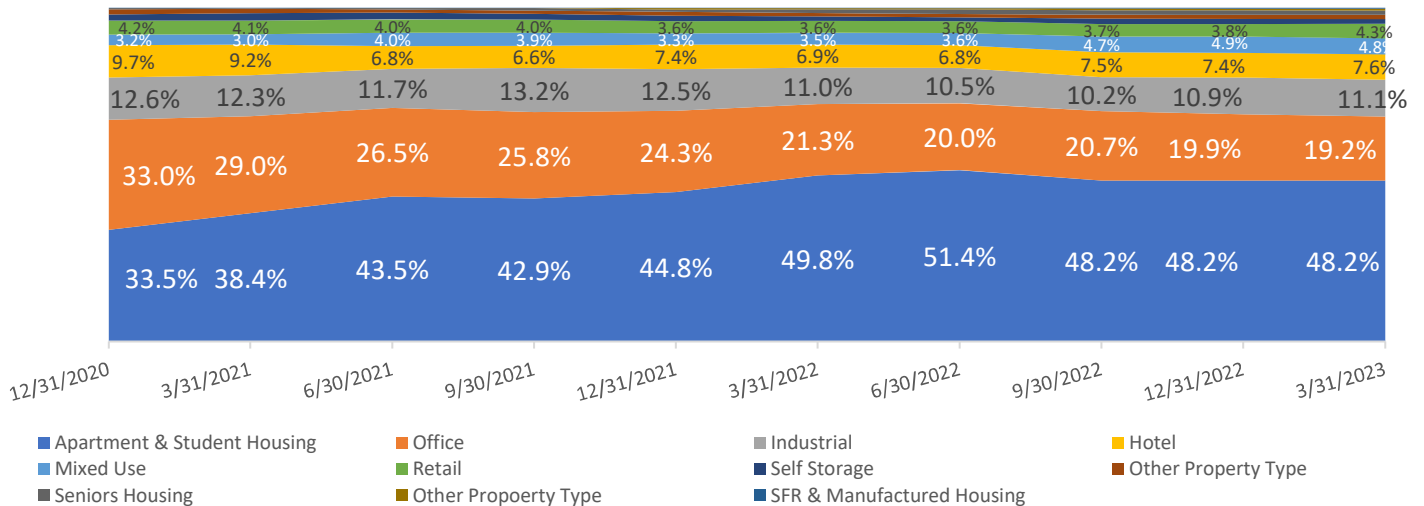
Loan Investment Details



Characteristics are equal-weighted across ALL funds as of quarter-end



Underlying collateral property type allocations



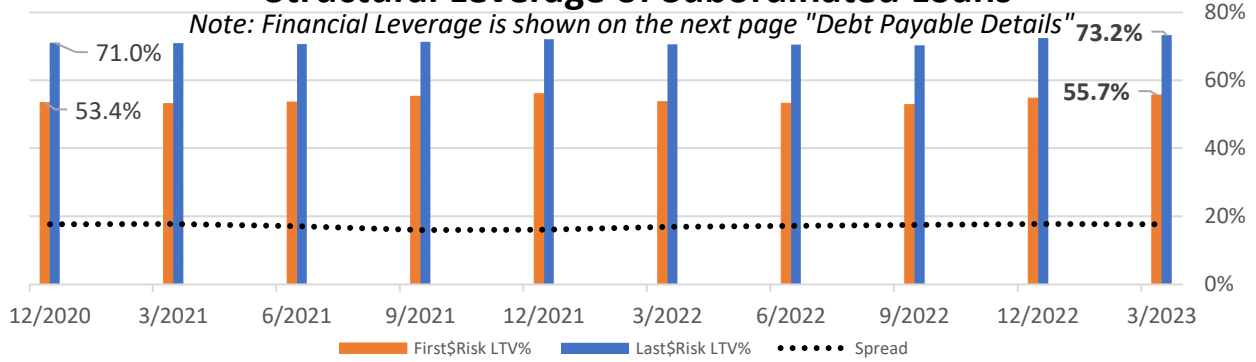
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Loan Investment Metrics

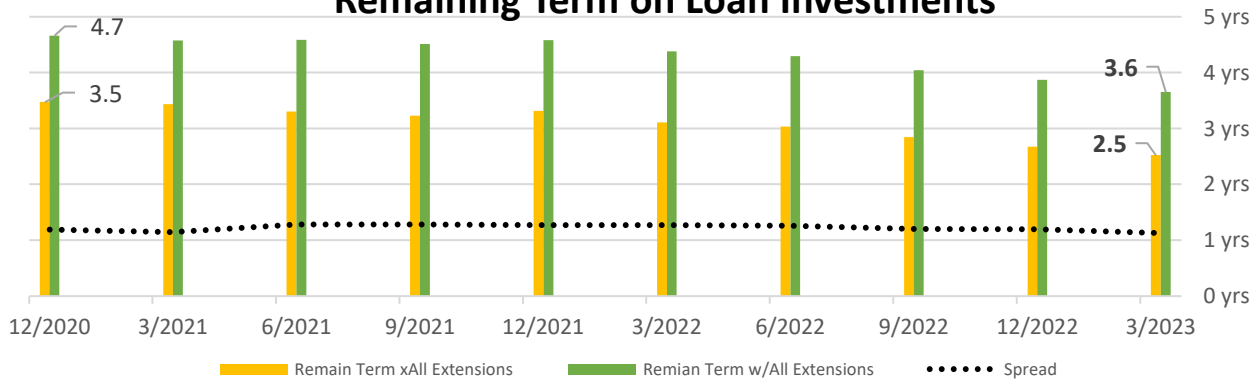
(Equal-weighted across ALL funds)

Structural Leverage of Subordinated Loans

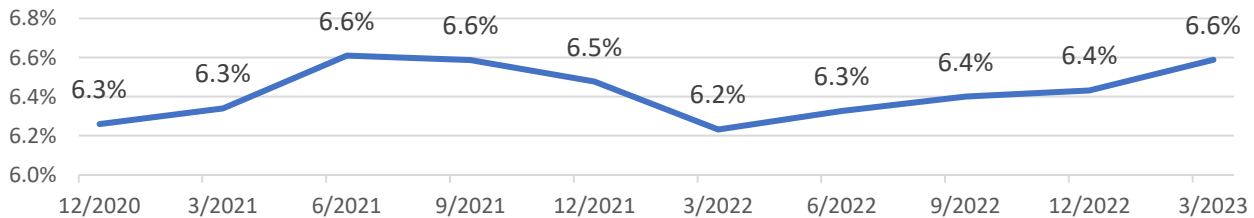
Note: Financial Leverage is shown on the next page "Debt Payable Details"



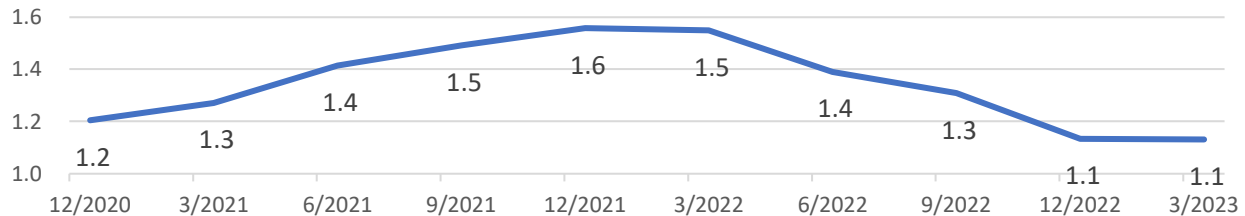
Remaining Term on Loan Investments



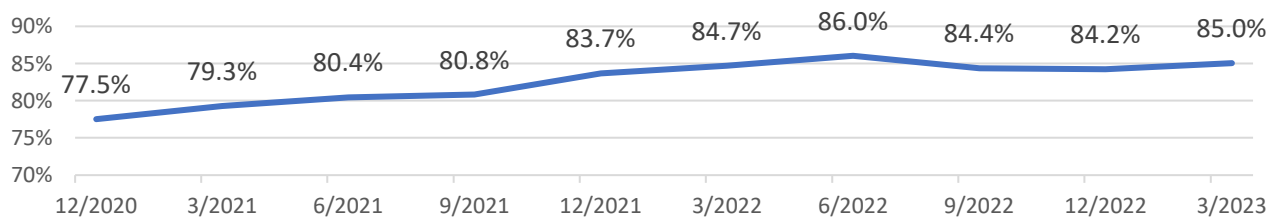
Debt Yield



DSCR based on NOI



Leased Percent



NOTE: Not all funds have reported METRICS and some funds have not reported all periods.

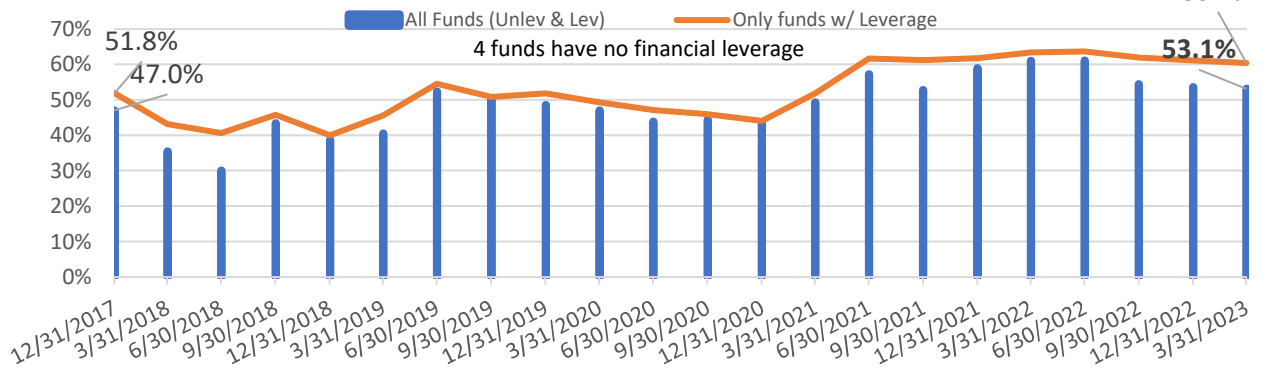
Above information is subject to change and not to be used as an index or a benchmark.

Debt Payable Details

(Equal-weighted across ALL funds)

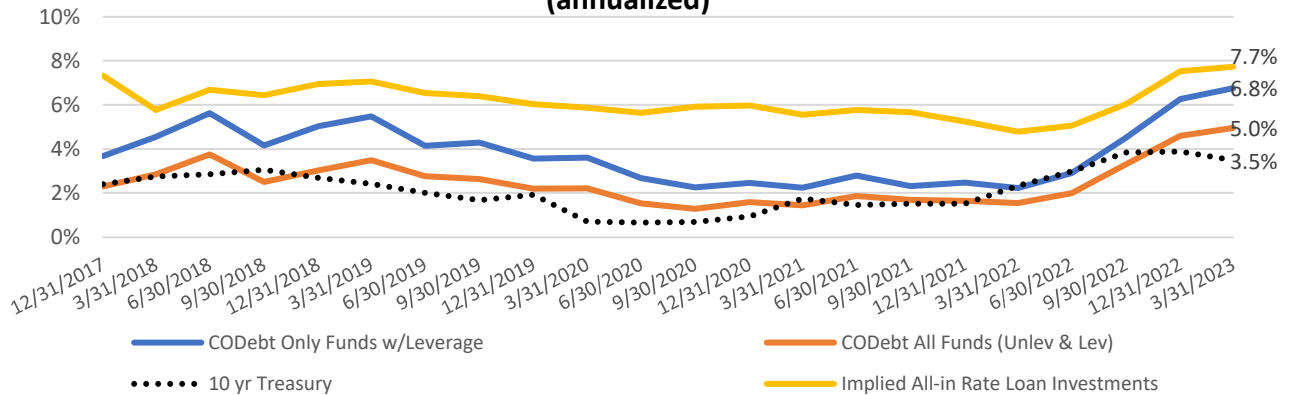
Financial Leverage

Note: Structural Leverage is shown on the previous page "Loan Investment Metrics"

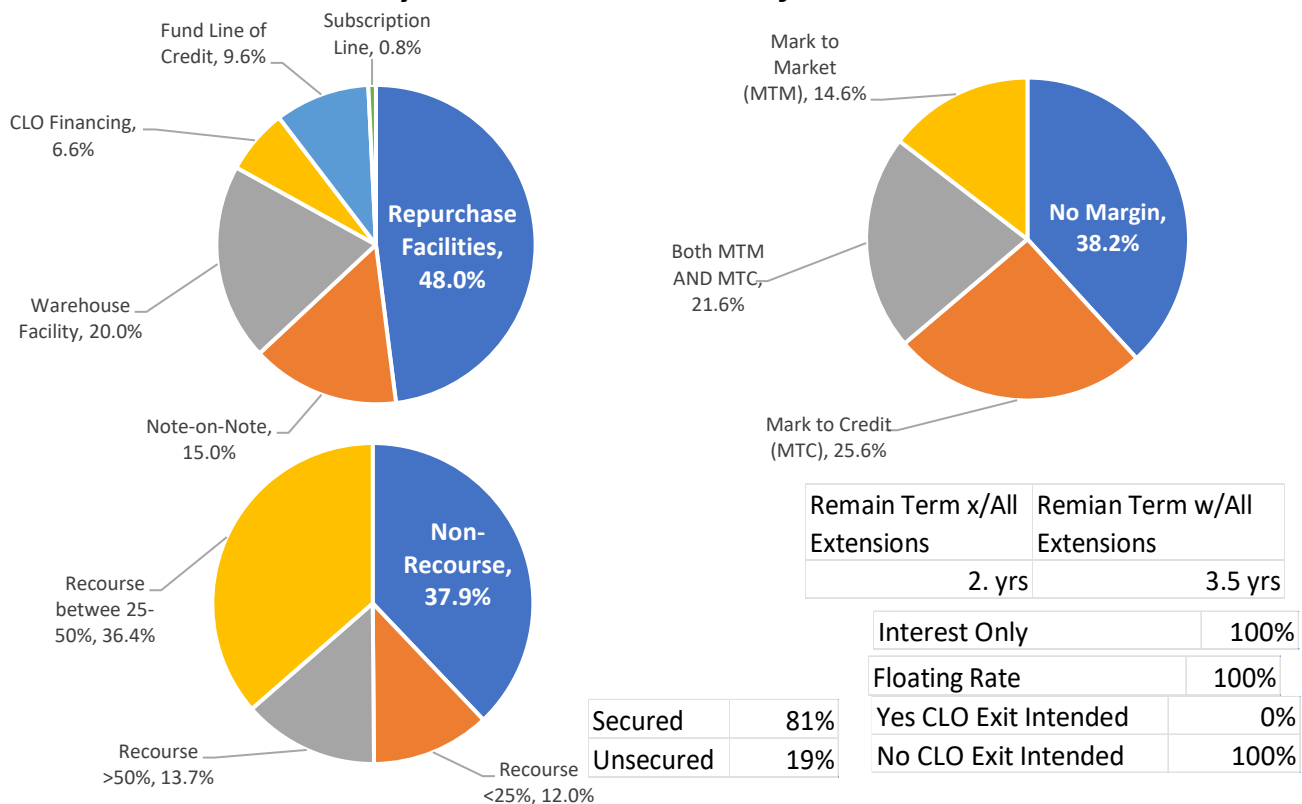


Implied Rates

(annualized)



Debt Payable Characteristics as of Quarter-end



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Fund List

NCREIF/CREFC Open-end Debt Fund Aggregate

Manager Name	Fund Name	First Close of Commitments	1 st Capital Call & 1 st Full Quarter Ended
Ares Management	Ares Open-end Debt Fund - Levered	March 2019	June 30, 2019
Ares Management	Ares Open-end Debt Fund - Unlevered	April 2019	September 30, 2019
Barings LLC	Barings Real Estate Debt Income Fund, LP	January 2021	June 30, 2021
CBRE Investment Management	CBRE U.S. Credit Partners, LP	• March 2020	June 30, 2020
CIM Group	CMMT Partners, L.P.	December 2016	March 31, 2017
CrossHarbor Capital Partners	Strategic Debt Income Fund	December 2017	March 31, 2019
Heitman	Heitman Core Real Estate Debt Income Trust, L.P.	July 2017	December 31, 2017
Invesco Real Estate	Invesco Commercial Mortgage Income - U.S. Fund, L.P.	September 2017	June 30, 2018
MetLife Investment Management	MetLife Commercial Mortgage Income Fund	September 2015	March 31, 2016
Nuveen Real Estate and PCCP, LLC	Core-Plus Real Estate Debt Fund LP	May 2018	September 30, 2018
PGIM Real Estate	PGIM Real Estate U.S. Core Debt Fund	November 2005	March 31, 2006
PGIM Real Estate	PGIM Real Estate U.S. Debt Fund, L.P.	July 2017	December 31, 2017
Sound Mark Partners	Sound Mark Horizons Fund, LP	October 2013	March 31, 2014
Third Point Private CRE Credit LLC	Third Point Private CRE Credit Fund LP	June 2017	September 30, 2017
UBS Realty	Trumbull Property Income Fund	March 1981	March 31, 2014
Walton Street Capital	Walton Street Real Estate Debt Core Fund, L.P.	October 2021	March 31, 2022

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Glossary of Terms

NCREIF/CREFC Open-end Debt Fund Aggregate

Term	Definition
Appreciation Return%	The aggregate common investor Limited Partners appreciation return, gross of investment advisory fees and promote that you report to investors for the quarter. INCLUDE UNREALIZED AND REALIZED LOSSES ON LOANS.
Cash	Quarter-end Cash balance shown on the fund financials
Contributions	For the quarter. Include re-invested distributions as contributions (gross-up).
Debt Payable at Fair Value	Quarter-end Debt Payable at Fair Value shown on the fund financials
Debt Payable CLO Exit Intended	Choices are Yes or No. If the debt financing facility or a portion thereof is intended to be settled by executing a CLO (collateralized loan obligation) then answer with a "Yes".
Debt Payable Default	Choices are Not in Default, In Payment Default, In Covenant (Technical) Default
Debt Payable Interest Rate	Choices are Fixed or Floating rate.
Debt Payable Margin	Choices are No Margin feature, Mark to Credit (MTC), Mark to Market (MTM), Both MTC and MTM. Mark to Credit is a re-margin by the lender that is specific to changes in the underlying loan collateral credit profile - for example, a major tenant gives notice to vacate (which was not underwritten at origination), a degradation in property cash flow below underwritten levels, a material change in LTV, etc. Mark to Market is a re-margin by the lender relating to a macro market event, such as a change in the overall interest rate environment and/or credit spreads.
Debt Payable Paydown	Choices are Amortization or Interest Only.
Debt Payable Principal Balance Outstanding	PBO, also known as par value.
Debt Payable Recourse	Choices are Non-Recourse, Recourse <25%, Recourse 25-50%, Recourse >50%.
Debt Payable Security	Choices are Secured or Unsecured. Secured: Third-party lender has some direct security interest in the underlying collateral, or in the case of a subscription line, investor commitments. Unsecured: Third-party lender is not directly secured by a pledge of the underlying collateral or the investor commitments. For example, the Third-party lender may have an interest in the Fund's equity.
Debt Payable Structure Type	Subscription Line: A form of financing collateralized solely by the fund's investor commitments. Fund Line of Credit: A form of short-term borrowing, either secured or unsecured, such as a revolving credit facility. Warehouse Facility: A loan that is collateralized by mortgage loan assets without the legal transfer of assets. Assets pledged to the facility are typically cross-collateralized and may be subject to margin calls for market or credit events. Repurchase Facilities: Mortgage loan assets are legally "sold" to a lender that the borrower has the right to buy back at a defined price and date. These facilities are subject to margin calls that are typically based on interest rate spread events ("mark to market") or credit events ("mark to credit"). A-Notes: Structural financing if A-note is still held on lender's books due to an ongoing or contingent liability. Note-on-Note Financing: Financing from a third-party lender that is collateralized by an individual mortgage loan and is typically match term with the underlying loan collateral. CLO Financing: represents loans under a Collateralized Loan Obligation that are shown "gross" on both the asset and liability side.
Debt Service Coverage Ratio (NOI DSCR) for ALL PROPERTIES	Aggregate NOI for the quarter at 100% of all properties regardless of life cycle divided by the aggregate interest and principal of your loan investments plus interest and principal on loans senior to your loans.
Debt Yield (All PROPERTIES)	Aggregate NOI for the quarter of your underlying property collateral divided by the aggregate loan investments PBO plus loans senior to your loans. INPUT A QUARTERLY, NOT AN ANNUAL YIELD.
Denominator Used for Quarterly Returns	The aggregate common investor Limited Partners time-weighted denominator used in the return calculations for the quarter. A time-weighted denominator is beginning fair value net assets plus day-weighted investor contributions minus day-weighted investor distributions and redemptions.
Distributions	For the quarter. Distributions declared/paid (do not include investor redemptions)
Ending Net Assets at Fair Value	Quarter-end Ending Net Assets at Fair Value shown on the fund financials (LP + GP Net Assets).
Excess Return	Total Return gross of fees less the risk-free rate (10-year treasury).
Fee Income on Loan Investments	Quarter activity from fee income on loan investments. This includes, but is not limited to, origination fees, exit fees, prepayment fees, loan kickers, extension, modification, interim term loan fees, etc. DO NOT INCLUDE ANY OTHER INCOME OR EXPENSE IN THIS FIELD.
First\$Risk LTV% (attachment point)	Loans senior to your loan investments at principal balance outstanding divided by aggregate Property Gross Market Value at 100%. THIS IS FOR SUBORDINATED LOANS ONLY.
Fund Costs Excluding Fees (appraisal, legal, audit)	Quarter activity for fund costs. DO NOT INCLUDE ANY OTHER INCOME OR EXPENSE IN THIS FIELD. DO NOT INCLUDE ANY ADVISORY FEES OR PROMOTES.
Income Return%	The aggregate common investor Limited Partners income return, gross of investment- advisory fees and promote that you report to investors for the quarter. DO NOT INCLUDE REALIZED LOSSES ON LOANS AS THAT IS TO BE INCLUDED IN THE APPRECIATION RETURN%.
Interest and Fee Expense (All-in) on Debt Payable	Quarter activity for interest expense and financing costs on ALL debt payable, including subscription lines. DO NOT INCLUDE ANY OTHER INCOME OR EXPENSE IN THIS FIELD.
Interest Income on Loan Investments	Quarter activity from interest income on loan investments. DO NOT INCLUDE ANY OTHER INCOME OR EXPENSE IN THIS FIELD.
Last\$Risk LTV% (detachment point)	Your loan investments plus loans senior to your loan investments at principal balance outstanding divided by aggregate Property Gross Market Value at 100%. THIS IS FOR SUBORDINATED LOANS ONLY.
Leased Percent (ALL PROPERTIES) as of quarter-end	The sum-product of the leased percent for ALL properties, regardless of life cycle using Gross Market Value at 100%.
Loan Investment Event of Default	Not in Default, In Default. In Default means if notice of default is given, in cure period, etc.
Loan Investment Interest Rate	Choices are Fixed or Floating rate.
Loan Investment Life Cycle	Stabilized: Properties are greater than or equal to 85% leased at quarter-end. Leased means a legal lease agreement has been signed, regardless if space is occupied or rent is being paid. Ground-up Development: Under development as of quarter-end. Transitional: Other than stabilized, development or land. Raw Land: Not under development.

Glossary of Terms

NCREIF/CREFC Open-end Debt Fund Aggregate

Term	Definition
Loan Investment Location	Choices are United States or Non-U.S.
Loan Investment Market	Choices are Public or Private.
Loan Investment Paydown	Choices are Amortization or Interest Only.
Loan Investment Payment	Choices are Current Pay or Deferred Interest. Interest owed is added to the loan balance for the period in lieu of payment, common in transitional and construction financing. The accrued/deferred interest can be partial or in full depending on the terms of the agreement.
Loan Investment Property Type	Apartment & Student Housing (excludes Single Family Rental and Manufactured Housing), Hotel includes full service, limited service and resort. Industrial includes Warehouse, Manufacturing, Flex and Specialized, as well as Life Science Industrial. Mixed Use represents two or more property type uses where any one property type use does not represent more than 69% of the value or income. In other words, if one property type use is significant, i.e., greater than 69% of value or income, then it should be classified as that property type, not as Mixed Use. Office includes Urban, Suburban, Medical and Life Science Office. Retail includes Strip, Street and Malls. Also shown separately are Self-Storage , Seniors Housing , SFR & Manufactured Housing . Other includes, but is not limited to; Data Centers, Entertainment, Lab, Land, and Parking.
Loan Investment Sourcing	Choices are Acquired or Originated
Loan Investment Structure	First Mortgage: A senior mortgage that has priority over all junior encumbrances. Excludes Participating Mortgages. Second Mortgage: A mortgage secured by real estate subordinate to a first mortgage. B-Note: A type of promissory note executed and delivered by the borrower under a commercial real estate loan. A B-note is subordinate to one or more senior promissory notes, which are referred to as A-notes. Mezzanine: A subordinate loan made after the first-lien mortgage that is secured by an ownership interest in the borrower, instead of by the mortgaged property itself. The borrower pledges its equity stake in the property as collateral for the loan. The term “mezzanine” implies indebtedness that sits between mortgage debt and owner equity. Participating Mortgage: Allows the lender to have participatory equity rights through a share of increases in income and/or increases in residual value over the loan balance or original value at the time of loan funding. Preferred Equity: An alternate form of financing that is an equity investment in the property owning entity. Repayment is in the form of priority distributions that can be structured to accrue or have scheduled throughout the life of the investment. The preferred equity investor enters into a joint venture partnership with the other equity interest (managing member or general partner). Public Debt Securities, including B-piece: Securitized loans that are traded on public exchanges. Meant to capture all debt securities including CMBS, B-pieces and other publicly traded commercial real estate securities. CLO (retained portion): represents the portion of loan investments in a CLO financing exit that is retained (i.e., not sold off).
Loan Investments at Fair Value	Quarter-end Loan Investments at Fair Value balance shown on the fund financials
Loan Investments at Principal Balance Outstanding	The principal balance outstanding of the aggregate of all your loan investments.
Number of Loan Investments	Quarter-end balance of the number of loan investments.
Other Income (Expense) to reconcile to GROSS OF FEE Income	The remainder for income OR a negative number for expense--making the summation of Interest Income + Fee Income + (Interest and Finance Expense) + (Fund Costs Excluding Fees) + Other Income (Expense) = INCOME BEFORE FEES & PROMOTE which is the numerator for your Gross of Fee Income Return.
Redemptions	For the quarter. Withdrawals, other than cash distributions or dividend distributions.
Remaining Term of Debt Payables in Years, EXCLUDING ALL EXTENSIONS	The sum-product of the remaining term in years EXCLUDING ALL EXTENSIONS x Debt Payable PBO\$
Remaining Term of Debt Payables in Years, INCLUDING ALL EXTENSIONS	The sum-product of the remaining term in years INCLUDING ALL EXTENSIONS x Debt Payable PBO\$
Remaining Term of Loan Investments EXCLUDING ALL EXTENSIONS in Years	The sum-product of the remaining term in years of Your Loan Investments EXCLUDING ALL EXTENSIONS x loan PBO\$
Remaining Term of Loan Investments INCLUDING ALL EXTENSIONS in Years	The sum-product of the remaining term in years of Your Loan Investments INCLUDING ALL EXTENSIONS x loan PBO\$
Total Assets at Fair Value	Quarter-end Total Assets at Fair Value shown on the fund financials
Total Return% Gross of Fees and Promote	The aggregate common investor Limited Partners total return, gross of investment advisory fees and promote that you report to investors for the quarter.
Total Return% Net of Fees and Promote	The aggregate common investor Limited Partners total return, net of investment advisory fees and promote that you report to investors for the quarter.