COMMONWEALTH OF PENNSYLVANIA
PUBLIC SCHOOL EMPLOYEES' RETIREMENT SYSTEM

Public Investment Memorandum

PIMCO Commercial Real Estate Debt Fund, L.P.

High Yield/Private Credit Commitment

James F. Del Gaudio
Portfolio Manager

June 26, 2018

Recommendation:

PSERS Investment Professionals ("PIP"), together with Aksia, LLC, recommends to the Board a commitment of up to $200 million to PIMCO Commercial Real Estate Debt Fund, L.P. ("PCRED" or the "Fund"). Pacific Investment Management Company LLC ("PIMCO" or the "Firm") is sponsoring the Fund to originate and/or acquire U.S. senior commercial real estate ("CRE") first mortgage loans, with a focus on generating current income.

Firm Overview:

PIMCO[1] was founded in Newport Beach, California in 1971. PIMCO is one of the world's largest fixed income managers, with a presence in every major bond market. PIMCO started as a subsidiary of Pacific Life Insurance Company to manage separate accounts for institutional clients. In 2000, PIMCO was acquired by Allianz SE ("Allianz"), a large global financial services company based in Germany. PIMCO operates as a separate and autonomous subsidiary of Allianz. Today, PIMCO has 2,260 employees (including over 730 investment professionals) and has offices in Newport Beach, New York, Singapore, Tokyo, London, Sydney, Munich, Zurich, Toronto, Hong Kong, Milan and Rio de Janeiro. As of March 31, 2018, PIMCO managed $1.77 trillion in assets, including $1.35 trillion in third-party client assets:

Segment	AUM[2]	Focus
Alternatives	$45.8 billion[3]	• Hedge Funds • **Opportunistic / Distressed** • Liquid Absolute Return
Asset Allocation	$38.9 billion	• Asset Allocation Strategies
Equities	$27.5 billion	• Equity Strategies
Real Return	$59.2 billion	• Real Return Strategies
Fixed Income	$1,180.3 billion	• Total Return • Intermediate • Credit • Long Duration • Income • Global • Cash Management • Emerging Markets • Mortgages • Diversified Income • Municipals • Other

PIMCO has developed a strong alternatives platform over the last decade. The firm applies dedicated resources to a select group of strategies that seek to capitalize on PIMCO's broad capabilities across public and private credit, global macro, commodities, volatility and real estate. Today, PIMCO has over 100 investment professionals dedicated to the alternatives platform located across three PIMCO offices: Newport Beach, New York, and London.

Since 2011, PIMCO has invested in excess of $5 billion of capital across ~80 CRE debt and equity investments with over $1.6 billion in private real estate debt investments. The PCRED fund series represents a new business line for PIMCO with an emphasis on performing CRE lending and will allow the Firm to further diversify its CRE offering to borrowers. The target capital raise for the Fund is $1.0 billion with a hard cap of $1.5 billion.

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[1] Includes PIMCO's global affiliates. PIMCO directly owns and controls PIMCO Investments LLC and may directly or indirectly own and control certain other global PIMCO entities.
[2] Assets reflect those managed on behalf of third-party clients and exclude affiliated assets. Fund of funds assets have been netted from each strategy.
[3] As of March 31, 2018. AUM represents assets allocated across PIMCO's alternative strategies.

Market Opportunity:

The impact of the global financial crisis and tightening of global financial sector regulation has constrained the supply of U.S. CRE credit previously provided by traditional lenders (i.e. depository banks, investment banks, insurance companies and commercial mortgage backed securities (CMBS)). This has created dislocations in the CRE financing markets, with an estimated $50-60 billion of annual borrower demand unmet by traditional lenders.[4]

From a supply perspective, more stringent regulation and financial institutional capital requirements have prompted commercial banks, historically the largest source of CRE financing, to consolidate and/or become more constrained in their risk-taking than before the financial crisis of 2008-2009. According to the Mortgage Bankers Association, one-third of the top originators in 2007 are no longer actively lending in this market and those that remain are more risk averse and have often reverted to tighter underwriting standards. In addition, the CMBS market, which at its peak in 2007 represented 54% of total supply, has declined significantly and as of December 31, 2017 stood at 18%.[5]

From a demand standpoint, while transaction volume, which is a major driver of financing demand, has moderated year-to-date, it remains well above historical averages. In addition, institutional investors have generally continued to increase their CRE allocations. Private equity real estate funds have over $178 billion of dry powder in the U.S., as of March 31, 2018 according to Preqin. Finally, $1.1 trillion of U.S. commercial real estate loans are set to mature through 2020, including over $120 billion of loans backed by CMBS. PIMCO anticipates that as much as 30% of these loans may have difficulty refinancing.

PIMCO believes that the confluence of these factors should create attractive opportunities for more flexible lenders with experience lending through cycles that are not constrained by the regulatory requirements or risk constraints faced by banks and insurance companies.

Portfolio Fit:

A commitment to the Fund allows PSERS to further expand its relationship with a high-conviction manager. The Fund's return target is in-line with PSERS' objective for the High Yield/Private Credit portfolio of generating double-digit net returns over the life of the investment, targeting 8% to 10% net returns. All considered, the combination of expected performance, senior-secured risk/return and fund structure, gives PIP confidence that this offering will be accretive to the High Yield/Private Credit portfolio. In addition, PSERS' High Yield portfolio is currently weighted to managers focused on corporate lending which has become more competitive in the current market environment. A commitment to the Fund will help further diversify and increase PSERS' High Yield/Private Credit portfolio to asset backed lending.

PCRED will be allocated to the Real Assets bucket of PSERS' High Yield/Private Credit portfolio and the table below summarizes PSERS' projected exposure inclusive of a recommended $200 million commitment:

Investment Type ($M)	Active Commitments[1]	%	Market Value	%	Unfunded[1]	%	Total Exposure[1]	%
Opportunistic	$ 3,750.0	37.8%	$ 2,203.7	45.0%	$ 825.2	28.1%	$ 3,028.9	38.7%
Senior Loans	3,514.8	35.4%	1,521.3	31.1%	978.0	33.3%	2,499.3	31.9%
Real Assets	1,526.2	15.4%	622.6	12.7%	670.5	22.8%	1,293.1	16.5%
Mezzanine	1,128.4	11.4%	550.6	11.2%	463.9	15.8%	1,014.5	12.9%
Total	**$ 9,919.3**	**100.0%**	**$ 4,898.2**	**100.0%**	**$ 2,937.6**	**100.0%**	**$ 7,835.8**	**100.0%**

(1) Include post Q1'2018 pending/closed commitments.

[4] SOURCE: Mortgage Bank Association
[5] SOURCE: RCA, Morgan Stanley

Investment Strategy:

The Fund was designed to construct a defensive, diversified portfolio of primarily first mortgage loans secured by U.S. CRE assets with a focus on generating current income. The Fund will target loans in the less efficient areas of the lending market, including transitional assets in prime markets (i.e. Los Angeles, New York, San Francisco, Boston) and value-add stable or prime assets in certain secondary markets (i.e. Brooklyn, Oakland, Philadelphia, Dallas). In addition, it will have the flexibility to supplement its primary investment strategy with tactical investments in other CRE securities or assets that PIMCO believes may offer attractive investment opportunities including mezzanine loans, preferred equity, B-notes and structured investments.

Investment Structure:

The primary source of return will be generated through current income although PIMCO expects a small component of return to be driven by associated fees such as origination fees or extension fees.

The Fund expects to use leverage as part of its investment strategy to help achieve the target return. Leverage will appear primarily in three areas: (i) line of credit, which will enable more efficient use of working capital (ii) warehouse facility, or through (iii) repurchase agreement ("repo") for securities. In order to effectively manage leverage, PCRED will target a lower leverage threshold than what is generally offered by lenders and utilized by many competitors. Direct borrowings are not expected to exceed 2.5x-3x (debt to fund equity) with a hard cap of 3.5x (measured on an incurrence basis). This ultimately results in a 10% - 12% gross return target for the Fund.

Successful implementation of PCRED's investment strategy relies on multiple factors, one of which is the performance of the underlying asset business plan and the borrower. The underlying asset business plan and its level of complexity and risk will influence the underlying loan structure including covenant packages, which are important in monitoring the asset business plan and reduce risk. Examples of covenants that may be utilized include LTV/debt yield testing, equity rebalancing, cash sweeps, dividend stoppers, interest rate management and cash flow audits. Certain amounts of PCRED loan commitments may also be held back until performance conditions are satisfied by borrowers. As it relates to the borrower, the Fund will target experienced institutional CRE equity funds and operators with a track record of success in value-add real estate.

Investment Instruments:

The primary investment instrument will be first mortgage loans secured by U.S. CRE assets with a focus on generating current income. In addition, the Fund will have the flexibility to invest in tactical investments that PIMCO believes may offer attractive investment opportunities, including mezzanine loans, preferred equity, B-notes and structured investments.

Instrument	Description
Commercial Mortgage Loans	The Fund will through direct origination or acquisition, invest in commercial mortgage loans. Such investments may be of any credit quality, may have any combination of principal and interest payment structures, may be newly originated or existing, may have been originated to specific or general underwriting standards which vary according to the seller and may be of any size and any lien position (e.g. first-lien, second-lien or unsecured/mezzanine).
Mezzanine Loans	Loans acquired in relation to real estate that are subordinated to senior indebtedness (by mortgage or otherwise) encumbering the relevant commercial real estate. Mezzanine loans typically represent the portion of an issuer's capital structure between senior secured debt and common equity.
Preferred Equity	Preferred equity of commercial real estate assets, typically subordinate to debt financing, and are not secured.
B-notes	A "B-note" is a mortgage loan that is typically secured by a first mortgage on a single large commercial property or a group of related properties and subordinated to an "A-note" secured by the same first mortgage on the same collateral.
Structured Investments	The Fund's structured investments could span the entire credit rating spectrum, ranging from AAA-rated to unrated, and the Fund may invest in any level of a structured investments' capital structure (and may acquire or otherwise obtain exposure to horizontal or vertical "slices" of a structured investment or any combination thereof).

Investment Team:

The Fund will be managed by Jeffrey Thompson and Devin Chen with support from a 35+ member commercial real estate team.[6] Five of these individuals have the primary responsibility of supporting the Fund, with two additional portfolio managers expected to join later in 2018. The senior leadership on the strategy average over 20 years' experience investing across the commercial real estate private credit and equity markets. The 35+ person team brings in-house real estate valuation and asset management capabilities, providing detailed underwriting capabilities and additional risk management support.

PCRED will have an investment committee that is responsible for reviewing and approving certain Fund transactions and asset management decisions. Devin Chen and John Murray will serve as co-chairs of the committee. There are currently eight members on the PCRED investment committee, representing a diverse range of expertise that is intended to incorporate cross-sector perspectives and relative value input. The table below includes all members of the PCRED investment committee.

[6] Certain PIMCO personnel who will provide investment advice to the Fund are separated by an information barrier that has been established between the private side of the Alternatives platform (the "Special Alternatives Group") and PIMCO's public-side trading floor. As a result, communications between the Special Alternatives Group and PIMCO's public side investment professionals are subject to certain restrictions as set forth in PIMCO's policies and procedures pertaining to MNPI and information barriers.

Name	Role	Yrs. Experience PIMCO / Total	Prior Experience
Jeff Thompson	Executive Vice President	1.5 / 26	GE Capital, Annaly Capital
Devin Chen	Executive Vice President	7 / 20	JER Partners, Banc of America
John Murray	Managing Director	8 / 17	JER Partners, U.S. Army
Russel Gannaway	Managing Director	8 / 12	JER Partners
Laurent Luccioni	Managing Director	4 / 20	MGPA, Cherokee Investment Partners
John Lee	Executive Vice President	4 / 16	Canyon Capital Realty Advisors, O'Connor Capital Partners
Christian Stracke	Managing Director	9 / 21	CreditSights, Commerzbank Securities
Rick LeBrun	Managing Director	12 / 17	Ropes & Gray

Investment Highlights:

PSERS Track Record with PIMCO

Over the course of 30 years, PSERS has invested in various PIMCO strategies/products (approximately $2.5 billion in original commitments), and currently has $1.7 billion in market value as of March 31, 2018. Since 1987, PIMCO has generated net of fee alpha (total return minus benchmark return minus all fees and costs) in excess of $575 million for PSERS.

Compelling Market Opportunity / Portfolio Fit

As discussed above (*see Market Opportunity*), The impact of the global financial crisis and ensued tightening of global financial sector regulation has constrained the supply of U.S. CRE credit previously provided by traditional lenders (i.e. depository banks, investment banks, insurance companies and commercial mortgage backed securities (CMBS)). This has created dislocations in the CRE financing markets, with an estimated $50-60 billion of annual borrower demand unmet by traditional lenders.

This dynamic has the potential to create a compelling investment opportunity for alternative capital providers such as PIMCO, whose primary objective (via PCRED) is to originate and/or acquire U.S. senior CRE first mortgage loans. In addition, PSERS' High Yield portfolio is weighted to managers focused on corporate lending which has become more competitive in the current market environment. A commitment to the Fund will help further diversify and increase PSERS' High Yield portfolio to the asset backed lending space.

Experienced Investment Team

The dedicated investment team is led by Devin Chen and Jeff Thompson, both of whom have significant experience as real estate investors. Devin Chen has co-led CRE equity and debt investments in the BRAVO series of funds from 2011 through the present. Jeff Thompson was previously part of the senior leadership team of GE Capital's U.S. commercial real estate lending business, which was one of the largest CRE lenders before 2008 and withstood the crisis in relatively good standing.

Strong PIMCO Platform

As an organization, PIMCO is one of the most active participants in financial markets globally. The resulting breadth and depth of market information creates a unique understanding of and ability to identify relative value opportunities across the capital structure. Furthermore, PIMCO believes its ability to provide comprehensive solutions across the capital structure directly contributes to the firm's reputation as compelling transaction counterparty. Separately, PIMCO's macro expertise is expected to provide a unifying framework for evaluating opportunities and, in conjunction with asset-level analysis, underwriting prospective investments for the Fund. According to Aksia, PIMCO's analytical and risk management infrastructure is best-in-class and a key point of differentiation relative to its private markets competitors.

Investment / Risk Considerations:

New Strategy / Team Execution Risk
There is always a degree of execution risk when establishing a new product line or strategy. An element of team cohesion risk also exists given a number of the Fund's key investment professionals are new to PIMCO, with further expected hires. With regard to new strategies, PIMCO has developed a strong alternatives platform over the last decade, launching a number of successful product lines, many of which PSERS has participated in *(see PSERS History & Performance)*. PCRED is a natural extension of PIMCO's core competencies in fixed income and real estate and the Fund should benefit from PIMCO's status as one of the world's largest CMBS investors, which gives them access to an immense source of data. Other synergies with the broader PIMCO platform include sourcing, analytics, credit research and access to financing. With regard to team cohesion, three of PCRED's fully dedicated investment professionals (Jeff Thompson, Ravi Anand and Paul Mundinger) all worked together at GE Capital for a collective term of 55 years and were responsible for over $50bn in CRE transactions. In addition, PIMCO has the approval to hire an additional senior originator, asset manager and underwriter. These professionals join a cohesive senior U.S. CRE team at PIMCO led by John Murray and Devin Chen and who joined PIMCO in 2009 and 2010, respectively. Jeff Thompson (PCRED Lead Portfolio Manager) joined PIMCO in January 2017, and has integrated nicely into PIMCO's U.S. CRE team, working/leading on a number of transactions for various client mandates. While PCRED represents PIMCO's first dedicated strategy focused on senior-secured CRE lending, PIMCO has invested in excess $1.6 billion across 18 CRE debt investments.
Competition
As discussed earlier, PIMCO is a newer entrant in the performing CRE lending space. Therefore, it is expected that PCRED will face competition from longer-established players in sourcing deal flow for the fund. That said, PIMCO is taking a measured approach in sizing the Fund at $1 billion of equity commitments (targeting a portfolio of 30 – 40 loans) against the backdrop of favorable supply/demand dynamics that exist for lenders who can offer borrowers flexibility, speed, certainty of execution and comprehensive solutions across the capital structure *(see Market Opportunity)*. The Fund will also benefit from the relationships cultivated by PIMCO's investment team prior to and since joining PIMCO, as well as those members of the broader PIMCO real estate investment group. Additionally, as a top holder of CMBS, PIMCO has access to significant deal flow generated by CMBS dealers. Lastly, PIMCO should benefit from significant synergies across the broader PIMCO platform that will create another source for deal flow.
Leverage Profile
The Fund expects to use leverage as part of its investment strategy to help achieve the target return. Leverage decisions are viewed in the context of the entire fund and may be incurred at the fund level or asset level (i.e., warehouse line or repo financing). It is anticipated that PCRED will utilize a subscription facility (i.e. fund-level leverage), which will enable more efficient use of working capital. PIMCO expects LTV ratios to generally range between 65% - 75%, and debt-service coverage ratios to typically range from 1.5-2.0x, though individual investments can range from 1.0-4.0x. According to Aksia, PIMCO has a large finance team dedicated to its alternatives group and it is an experienced borrower in public markets. Furthermore, PIMCO's importance as a counterparty (i.e. to banks) should reduce the likelihood of having financing pulled due to mark-to-market events.
Liquidity Profile
The Fund is expected to be invested within three-years of its final closing (the "Investment Period"), with the ability to fully recycle investment proceeds throughout the Investment Period. Additionally, PIMCO has the ability to draw unfunded commitments throughout the term of the fund for limited purposes. The total term of the Fund will be seven years from the final closing date, subject to up to two consecutive one-year extensions at the discretion of the General Partner.

Alignment of Interest / GP Commitment
PIMCO's longstanding practice is to support fund launches via a seed program established in partnership with Allianz. This is in part to maximize capital treatment for the parent company. Within an established governance framework, PIMCO strategies are allocated a certain investable balance and the firm manages this closely for important fund launches and areas of strategic investment. Recently the program was extended to include Alternative strategies. Through this program Allianz will commit $25 million to the Fund. Beyond this, qualified employees of PIMCO are also eligible to invest directly. For PCRED, employee investments for the first close are still undetermined as the employee document due date is July 12, 2018. However, $4 million has already been committed prior to doc due date (please note employees are not required to pre-disclose commitment amounts) and we anticipate there will be additional employee interest in the coming weeks.

PSERS History & Performance:

PSERS has a long-standing relationship with PIMCO, dating back to 1987. Over the course of the last thirty years, the relationship has evolved to a strategic partnership and PIMCO has managed a broad range of mandates across fixed income, alternatives, and equities.

Starting in 1987, the first mandate PIMCO managed was a $480 million Core Total Return portfolio, and in 1999, PSERS funded a $75 million allocation to PIMCO's StocksPLUS portfolio. In 2008, PSERS decided to allocate to PIMCO's growing Absolute Return platform, and committed capital to the Fixed Income Absolute Return (PARS V) portfolio and the Global Credit Relative Value strategy (GCOF).

In 2012, PSERS significantly grew its relationship with PIMCO, funding a $1 billion Multi-Sector Fixed Income Portfolio, which consisted of Core Fixed Income, High Yield, EM Local, Global Fixed Income, Long Treasuries, and a Local Overlay sleeve. The multi-sector fund-of-one structure was created to serve as a slice of PSERS' Fixed Income portfolio, facilitate derivatives trading, as well as bolster the strategic partnership in which PSERS has customized access to a broad range of PIMCO's platform (e.g. solutions studies, thought leadership, senior PMs, ad hoc requests, etc.). Individual sleeve allocations are driven by PSERS' policy benchmark. In 2012, PSERS grew its Absolute Return portfolio and allocated to PIMCO's Volatility Arbitrage fund (MAV). In 2015, PSERS allocated to the Commodity Alpha fund (PCAF), and is currently invested in a total of four of PIMCO's absolute return funds. Most recently, in 2017, PSERS allocated $250 million to PIMCO BRAVO Fund III.

Investment Committee Disclosure:

Relationship with Aksia, LLC:	None Disclosed
Introduction Source:	Fund Sponsor
Placement Agent:	None used for PSERS. The Fund's placement agent is PIMCO Investments LLC ("PIMCO Investments"), a wholly-owned subsidiary of PIMCO. The Fund or PIMCO Investments may engage other affiliates or non-affiliates of PIMCO to serve as placement agents, sub-placement agents or distribution agents, or to otherwise participate directly or indirectly in the distribution of the interests in the Fund. The Fund will not directly pay any compensation to placement agents. PIMCO may pay a portion or percentage of any fees or other benefit that it receives from the Fund to persons who act as placement agent in connection with the sale of Interests. In addition, sales charges may be imposed by third-party placement agents on limited partners investing in the Fund through such placement agents.
PA Political Contributions:	None Disclosed
PA Presence:	Yes
Potential Conflicts:	We are not aware of PIMCO having any investment conflicts.
First Time Fund With PSERS:	No (PIMCO), Yes (PCRED fund series)
PSERS Allocation Implementation Committee Approval:	June 26, 2018

Oversight Responsibility:

Investment Office:	Charles J. Spiller	Deputy CIO, Non-Traditional Investments
	James F. Del Gaudio	Portfolio Manager
External Consultant:	Aksia, LLC	

Aksia

Manager Recommendation Memo

August 8, 2018

Board of Trustees
Commonwealth of Pennsylvania,
Public School Employees' Retirement System ("PSERS")
5 North Fifth Street
Harrisburg, PA 17101

Re: PIMCO Commercial Real Estate Debt Fund, L.P.

Dear Trustees:

Aksia LLC, having been duly authorized by the Board of PSERS, has evaluated and hereby recommends a direct allocation to PIMCO Commercial Real Estate Debt Fund, L.P. ("PCRED") in line with PSERS' Investment Policy Statement, Objectives, and Guidelines. It is further recommended that PSERS invest up to $200 million in PCRED.

PIMCO (the "GP") is one of the largest investment management firms in the world with approximately $1.77 trillion in assets, including $1.35 trillion in third-party client assets and $45.8 billion in its alternatives business. While PIMCO is generally known for its public markets corporate and securitized credit capabilities, since 2011, the GP has grown its private markets focused assets and resources considerably with the launch of the BRAVO funds focused on post-crisis dislocations. In commercial real estate specifically, PIMCO has built a team of 35+ portfolio managers (as of year-end 2017) and has invested in excess of $5 billion across ~80 transactions since 2011, generating attractive gross IRRs. In early 2017, with the hire of Jeff Thompson, a former member of the leadership team of GE Capital's CRE origination business, PIMCO began to build-out its dedicated CRE lending resources and contemplated launching a CRE lending fund. In 2018, PIMCO added additional resources to its dedicated CRE lending team and formally launched PCRED.

We believe that PCRED is a relatively strong first time offering that is differentiated from the broader set of U.S. CRE lenders by the experience and track record of its senior portfolio management team, the resources afforded by a strong GP, access to best-in-market financing and the GP's strategic focus on large loans made to strong and well-capitalized sponsors. In our opinion, the key issues in this offering include uncertainty as to the ability to generate deal flow and translate into originations, especially in the context of a market that is flat-to-down in transaction volume; a business plan that, as of this writing, requires additional steps to completion; and a team that is sized somewhat below those of peers, albeit in-line with anticipated origination targets.

Aksia's recommendation is based upon the following analytical factors and is made within the context of PSERS' investment guidelines:

- Due diligence of PCRED's investment process, including a review of the sponsor, investment strategy, market positioning, investment personnel, and risk management;
    - Most recent on-site investment due diligence visit conducted May 23, 2018.
- Due diligence of PCRED's operations, including a review of its organizational structure, service providers, regulatory and compliance, trade flow process, PPM & LPA, and financial statement analysis;
    - Most recent on-site operational due diligence visit conducted February 5, 2018, with a subsequent onsite visit conducted May 23, 2018.
- Evaluation of PCRED's strategy within the context of the current investment environment; and
- Appropriateness of PCRED as a component of PSERS' portfolio.

This recommendation is given solely for the benefit of PSERS and cannot be relied upon by other investors considering an investment in PCRED, since their needs, objectives, and circumstances may not be identical to those of PSERS. The scope of this recommendation is limited to the investment merits of PCRED. Aksia manager recommendation memos should be reviewed with other Aksia due diligence materials, including the due diligence reports. In addition, please consult your tax, legal and/or regulatory advisors before allocating to any private investment fund.

Please feel free to contact us should you have any questions about this recommendation.

Respectfully,

Patrick Adelsbach
Partner, Head of Credit Strategies

Simon Fludgate
Partner, Head of Operational Due Diligence