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MEMORANDUM

TO: Members of the Investment Committee, CalPERS
FROM: Meketa Investment Group
DATE: September 18, 2023
RE: Quarterly Real Estate Performance Review as of June 30, 2023

In our role as the Board Real Estate Consultant, Meketa Investment Group ("Meketa") conducted a quarterly performance review, of the Real Estate Portfolio ("the Portfolio") based on data provided in Wilshire's California Public Employees' Retirement System ("CalPERS") Real Assets Performance Analysis Review for the period ended June 30, 2023, and selected CalPERS reports.[1] This memorandum provides the Portfolio performance data and information on key policy parameters, along with summary market commentary.

Performance[2]

Portfolio-Level Returns

CalPERS ("the System") assigns the goals of diversification from public securities, current income and inflation protection to its Real Assets portfolios, of which real estate comprises 78.7%. The Portfolio's diversification is serving the System as different property sectors experience varying demand and supply dynamics. Similarly, CalPERS' focus on the highest quality locations and materials that attract credit worthy tenants provides defensive characteristics. Across real estate markets, no property type or geographic region necessarily outperforms over the long-term, so diversification is critical.

CalPERS' Real Estate Portfolio returns underperformed the benchmark for all time periods presented. Returns exceeded CalPERS' expectations for the asset class of 5.3% to 5.5%, set by the Capital Market Assumptions for Real Assets for the near- and long-term (five and 20 years) for all time periods, with the exception of the one-year time period.[3] Measured by a percentage of Loan to Value ("LTV"), CalPERS has historically used more leverage than the benchmark (32.6% versus the benchmark of 23.5%). When property values are rising, this accelerates returns. When values decline, this detracts from performance. Measured by the 2.6x multiple of Net Operating Income to debt service, (coverage ratio, or "DSCR"), and the strength of the tenancies, this is nevertheless a prudent level of debt. Both LTV and DSCR are well within policy guidelines of <50% and >1.5%, respectively.

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[1] Real Assets Program Allocation, Characteristics, and Leverage Reports (PDF) and Datasheets (Excel), Period Ending March 31, 2023, and Real Assets Quarterly Performance Report, Partnership Financial Statements as of March 31, 2023.

[2] Per Wilshire's CalPERS Real Assets Performance Analysis Review for the period ended June 30, 2023 reported with a 1-quarter lag, so effectively as of March 31, 2023.

[3] Approved at the September 13, 2021 Investment Committee.

Net Returns June 30, 2023	1 Year (%)	3 Year (%)	5 Year (%)	10 Year (%)
Real Estate Returns	-5.1	7.0	5.9	7.8
Real Estate Policy Benchmark[1]	-4.0	7.3	6.5	8.4
Over (under) Performance	-1.1	-0.3	-0.6	-0.6

Institutional real estate has benefitted from more than a decade of low interest rates and economic growth tailwinds. Slower economic growth and higher interest rates have caused a re-pricing of the entire real estate complex in 2023. Meketa anticipates relative performance will be challenging to assess until the dust settles on the sector. All this to say that we should expect significant near-term volatility in valuations, and that shorter-term performance should be viewed skeptically.

Performance Attribution

The portfolio continues to generate reasonable absolute returns over longer time periods with low leverage and a low risk profile, but near-term performance is challenging. Ten-year net returns of 7.8% missed the benchmark by 60 basis points but delivered both solid income and appreciation returns to the System. Three- and five-year net returns trail the benchmark by 30 and 60 basis points, respectively, largely as a result of somewhat less robust appreciation gains and a higher retail allocation than the benchmark. But, the portfolio continues to generate consistent income with which CalPERS can pay its beneficiaries and the income return exceeded the benchmark for all time periods presented.

The big outlier in performance is the one-year return. For the one-year period, the portfolio posted a negative 5.1% net return, consisting of 2.9% current income and negative appreciation of 8.0%. The total net return trailed the benchmark by approximately 110 basis points. While the current quarter's return was once again negative, it is 240 basis points higher than the prior quarter's return. It should also be noted that in contrast to CalPERS, the benchmark returns include mark to market of debt, which for the one-year period contributed 0.9% to the benchmark return.

As anticipated, higher interest rates and slower economic growth are acting as a drag on the performance of real estate investments across property types and geographies. Rent growth slowed across all property types and office valuations continued to decline. However, retail fundamentals have improved. In addition, CalPERS' industrial and multifamily holdings, which together comprise roughly 50% of CalPERS' total real estate investments, posted lower returns than the industrial and multifamily components of the benchmark. CalPERS' lower returns in these sectors are attributable to sub sector property type selection (e.g., urban high rise apartments vs. suburban garden style apartments), market selection, and overall pricing adjustments due to increasing discount rates.

Meketa notes that the COVID pandemic resulted in a remarkable dispersion of returns across property types and locations, with clear winners and losers. Swiftly rising inflation and interest rates have only

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[1] CalPERS Real Estate Policy Benchmark, with historical composition as follows: As of July 1, 2018 is the MSCI/PREA US ACOE Quarterly Property Fund Index (Unfrozen), Net of Fees. From July 1, 2011 through June 30, 2018, the Policy Benchmark was the NCREIF Fund Index Open-End Diversified Core Equity, Net of Fees. The. Policy Benchmark results are shown on a blended basis during the relevant trailing periods.

magnified this dispersion, as tenants seek to consolidate their space use in the best properties and markets to attract and retain human capital, best serve their customers, and rationalize costs. As a result, institutional investors are scouring data to discern which submarkets and which property attributes are likely to prove most compelling in their ability to attract tenants and provide resilient income streams.

Among core holdings, data center buildings, which represent 5.9% of the core portfolio, is the only sector with a positive one-year return at 4.4%. Data center buildings are benefiting from increased cloud computing and technological device usage. Industrial and multifamily returns have moderated from recent highs; both portfolios generated negative returns during the one-year period. CalPERS' industrial portfolio, representing 32.5% of the core portfolio, posted returns for the one-year time period of negative 3.1%. CalPERS' multifamily portfolio, representing 25.1% of the core portfolio, posted returns for the one-year time period of negative 7.7%. It should be noted that the returns of the industrial and multifamily portfolios exceeded the benchmark for the longer three- and five-year time periods. Industrial buildings continue to benefit from increased demand as a result of greater e-commerce volume and work from-home conditions, and multifamily properties continue to have a steady stream of renters due to high single family home prices and mortgage rates. Nonetheless, growth in rents is slowing even among these strong sectors.

Mall retail property investments, to which CalPERS has had a material overweight compared to the benchmark, and which account for 10.5% of the core portfolio, posted a total return of negative 4.6% for the one-year time period. Since inception, these investments have produced a 7.5% total net return.

The other portion of CalPERS' retail holdings, grocery anchored shopping centers, which amount to 10.0% of the core portfolio, generated a return of 3.0% for the one-year time period. The grocery-anchored shopping centers were impacted during COVID by the temporary closure of the small businesses, including restaurants, which lease in-line stores, but have since experienced strong tailwinds with the shift in consumer habits to shopping closer to home. Shorter average lease terms, relative to big box retailers, and little new development have given owners of grocery anchored shopping centers the ability to more proactively push rents, especially given historically low vacancy within the sector.

Finally, it should be noted that the core office portfolio, representing 13.2% of the core portfolio, generated negative returns for the current quarter, one- and three-year time periods. While the underweight in office in comparison to the benchmark is a positive, the sector is very challenged and further deterioration is expected.

As of this reporting period, the core risk portfolio, comprised of completed, leased and cash flowing assets, and representing 87.7% of the Real Estate Portfolio, produced longer-term returns of 6.7% for the five-year return, which exceeded the Real Estate Policy benchmark returns by 20 basis points. Strong ten-year returns of 9.6% handily exceeded the 8.4% benchmark return. Virtually all core properties are held directly in lower cost separate accounts (as opposed to investing in open-end commingled pools). These long-term strategic partnerships anchor the Portfolio, and efforts continue to transition the Portfolio away from legacy, non-strategic risks towards higher quality, stabilized assets that serve the role of the asset class.

Net Returns As of June 30, 2023[1]	NAV ($B)	1 Year (%)	3 Year (%)	5 Year (%)	10 Year (%)
Core	49.0	-5.2	7.4	6.7	9.6
Value Add	4.3	-1.4	4.6	2.7	5.3
Opportunistic	1.8	-10.6	2.2	1.0	2.9
Real Estate Policy Benchmark	--	-4.0	7.3	6.5	8.4

Key Policy Parameters

The Real Estate Portfolio is compliant with all key parameters related to diversification and other limits applicable at the Portfolio level, as demonstrated in the following table.

Key Portfolio Parameter	Policy Range/Limit	NAV 6/30/2023 Exposure[1]
Risk Classification	(%)	(%)[2]
Core	75-100	87.7
Value Add	0-25	8.3
Opportunistic-All Strategies	0-25	4.0
Geographic Region	(%)	(%)[3]
United States	75-100	93.5
International Developed	0-25	3.8
International Developing	0-15	2.7
International Frontier	0-5	0.0
Manager Exposure[4]	(%)	(%)
Largest Partner Relationship	20 max	15.5
Investments with No External Manager	20 max	0.0
Leverage[5]		
Loan to Value	50% max	32.6%
Debt Service Coverage Ratio	1.5x min	2.6x

Implementation

The Real Estate Portfolio had a market value of $55.4 billion at the end of the current reporting period, representing 78.7% of the Real Assets program and 12.0% of the total portfolio. Including Forestland and Infrastructure, the Real Assets program currently comprises 15.2% of the total portfolio against a long-term target allocation of 15.0%, within the policy range of 8% to 18%. CalPERS has a very small

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[1] Private Investment data are one quarter lagged, so effectively as of March 31, 2023.

[2] Real Assets Quarterly Performance Report as of March 31, 2023 and Real Assets March 31, 2023 Characteristics Report (PDF), based on asset-level risk.

[3] Real Assets Quarterly Performance Report as of March 31, 2023 and Real Assets March 31, 2023 Characteristics Report (PDF), based on asset-level geography.

[4] CalPERS Real Assets Portfolio Allocation Report (Excel), Period Ending March 31, 2023: calculated based on manager- and account-level NAV. Percent calculated using relevant NAV plus total unfunded commitments for relationships/investments and same for the Real Assets Program ($83.6 billion).

[5] CalPERS Real Assets Portfolio Leverage Report (PDF), Quarter Ending March 31, 2023.

exposure to overseas properties, and almost no exposure to the hospitality industry in its private real estate holdings.

The CalPERS business model for real estate emphasizes control, transparency, alignment and governance. CalPERS' market advantages are its size, scale and ability to hold assets for longer periods. The implementation of this business model is primarily through direct investing with separately managed accounts, in which CalPERS has effectively complete control. Cancellable separate accounts are created with expert, aligned fiduciary managers/partners. These relationships are overseen by Staff with the benefit of independent consultants' prudent person opinions and monitored on behalf of the Trustees by the Board Consultant. This provides a replicable, scalable model that can grow as the Total Fund size grows and invest within the strategic ranges based on market conditions and alternative investments available to the Total Fund. As the System grows and markets evolve, this method of investing helps control risk and reduce costs.

CalPERS continues to be an industry leader in creating and embracing Responsible Contractor Policies and ESG best practices at its properties. Additionally, during the last five years, the Staff has made progress harmonizing several of the private asset classes under the Real Assets Unit. This has improved continuity of research, decision-making, risk mitigation and reporting, as well as providing increased knowledge across INVO. This is consistent with a System wide, Total Fund approach rather than a collection of independent asset "silos."

Real Estate Market Commentary

While the core NCREIF ODCE Fund universe produced historically high returns in 2021 and the first part of 2022, decades-high inflation, and the corresponding monetary policy actions of the Federal Reserve, have had a widespread and negative impact on commercial real estate. As commercial real estate assets re-price amid greatly reduced transaction volume and restrictive capital markets, some asset owners with maturing debt are struggling to refinance or sell their asset(s). We therefore anticipate some continued volatility, despite property level fundamentals remaining healthy overall.

While inflation has moderated to date in 2023, the pace at which it is moderating is slower than expected. The multiple interest rate increases by the Federal Reserve during 2022 and year-to-date 2023 aimed at reducing inflation have caused rent growth to slow dramatically across property types and locations, and for debt costs to more than double. For the first time in more than a decade, market conditions are resulting in "negative" or non-accretive leverage, meaning the cost of new debt financing exceeds the going-in-yield of the real estate acquisition. Rising interest rates have also been the impetus for three high profile regional bank failures which induced turmoil and a great deal of uncertainty across the banking industry. As a result, lenders are becoming more conservative with their underwriting and willingness to make loans and highly leveraged buyers are less likely to compete as underwriting tightens. While "hard assets" such as real estate offer protection from inflation over the mid to longer term because of their ability to raise rents, the timing and amount of correlation vary depending on the individual rent roll (weighted average lease terms), market supply and demand for competing space (also affected by changing usage needs), legislation, and other factors. While the likelihood of distress is increasing, it is not anticipated to be widespread.

Those with upcoming loan maturities, expiring interest rate caps, and other situations requiring a re-financing of current debt could have difficulty obtaining financing and be forced to sell their commercial real estate asset(s). Those holding office, hotel and retail property types will have more difficulty getting new financing than those holding industrial and/or multifamily assets. While this situation could create buying opportunities for well capitalized, low leverage investors, the current economic uncertainty coupled with thin transaction volumes (and therefore comparable sales) makes finding reasonable price and return expectations challenging.

While many properties experienced full recoveries during 2021 and 2022, and in some cases have exceeded pre-pandemic levels, COVID's impact varied greatly by market and property type. Increased e-commerce utilization and an aging population fueled increasing rents, high occupancy and increased valuations, for industrial buildings and life science buildings. Single family homeowners are not selling their homes in order to keep their lower interest rate mortgage. This is negatively impacting the amount of inventory available to buyers, who are already challenged by high mortgage rates and home affordability. The preceding factors are keeping occupancy high at multifamily rental buildings and in the single-family home rental sector. A cloud-computing and technology reliant population is driving investments in data centers. While business and leisure travel along with foot traffic at malls and other retail establishments have all bounced back since mid-2020, benefiting hospitality and retail properties respectively, office buildings continue to be under-utilized. While there has been an increase in return to office mandates, hybrid working conditions appear to be permanent for many businesses. Newer office assets that are well located, highly amenitized, and focused on tenant well-being are markedly outperforming older assets with dated designs and fewer amenities. The difference between the highest quality office assets and everything else has become even more pronounced during 2023 with equity and/or debt being very limited for everything except top tier assets.

Core returns were record-setting during calendar 2021 and the first half of 2022, with the NCREIF ODCE Fund index recording a net 21.0% return for calendar year 2021 and a net one-year return of 28.3% as of June 30, 2022. However, beginning in the second half of 2022, returns have been flat to negative with the 2022 calendar year ending with a net 6.6% one-year return. During the second half of 2022 and year-to-date 2023, rent growth has slowed dramatically across property types and locations but overall fundamentals, such as occupancy, remain healthy. It is anticipated that different locations and property types' experience will continue to vary considerably, even in the same generally accepted statistical metro areas.

Core investors have been actively rebalancing their portfolios in light of increasing interest rates and declining commercial real estate values. In addition, the broad decline in public equities and the resulting denominator effect is causing some investors to be over-allocated to real estate. The redemption queues at many large open-end funds increased in the second half of 2022 and into 2023. While some funds satisfy redemption requests on a first-come first-serve basis, some will distribute redemption proceeds on a pro-rata basis. Due to decreased new fund commitments and market-wide lower transaction volume, it is unclear how long it will take to satisfy the redemption requests. The funds within the core NCREIF ODCE Fund universe have also been rebalancing among property types. Office investments have decreased as a proportion of total investments from 32.9% in 2020 to 20.8% today, due to increased disposition activity within the office sector, declines in values, and redeployment of capital into the residential, industrial and alternative property sectors. Office valuations overall have noticeably decreased over the past three years and many expect values to decline further.

There remains significant dry powder equity capital (nearly $350 billion) raised and sitting on the sidelines ready to invest, although the amount raised for new closed-end funds decreased throughout 2022 and into 2023. As institutional capital adapts to the re-pricing that is currently occurring in the private real estate market, investors are becoming more selective when committing to additional funds and preparing for an economic slowdown and uncertain commercial real estate environment.

Increasing interest rates, lack of construction financing, rising input costs (labor and materials) and a slowing economy are causing a reduction in construction starts and, therefore, new supply. While supply chain disruptions have improved, there are still some shortages affecting construction and delivery of new inventory. This represents an opportunity for investors like CalPERS with high-quality, well-located assets to maintain long-term resilient income streams, and also for those with quality development projects far enough along in the development pipeline with certainty around execution pricing and timing.

As the overall economy slows, we expect rent growth to continue to slow and values to decrease across property types and locations. The actions of the Federal Reserve aimed at lowering inflation have resulted in near frozen debt capital markets, greatly reduced transaction volume, and price opacity.

Conclusion

CalPERS' continued discipline, long-term investment horizon in this illiquid asset class, and focus on the role of the asset class should continue to serve the needs of the System. Adhering to the Strategic Plan, particularly in times of market uncertainty and disruption, will ensure the real estate program continues to scale in an appropriate manner and contribute to the Investment Office Mission.

Please do not hesitate to contact us if you have questions or require additional information.

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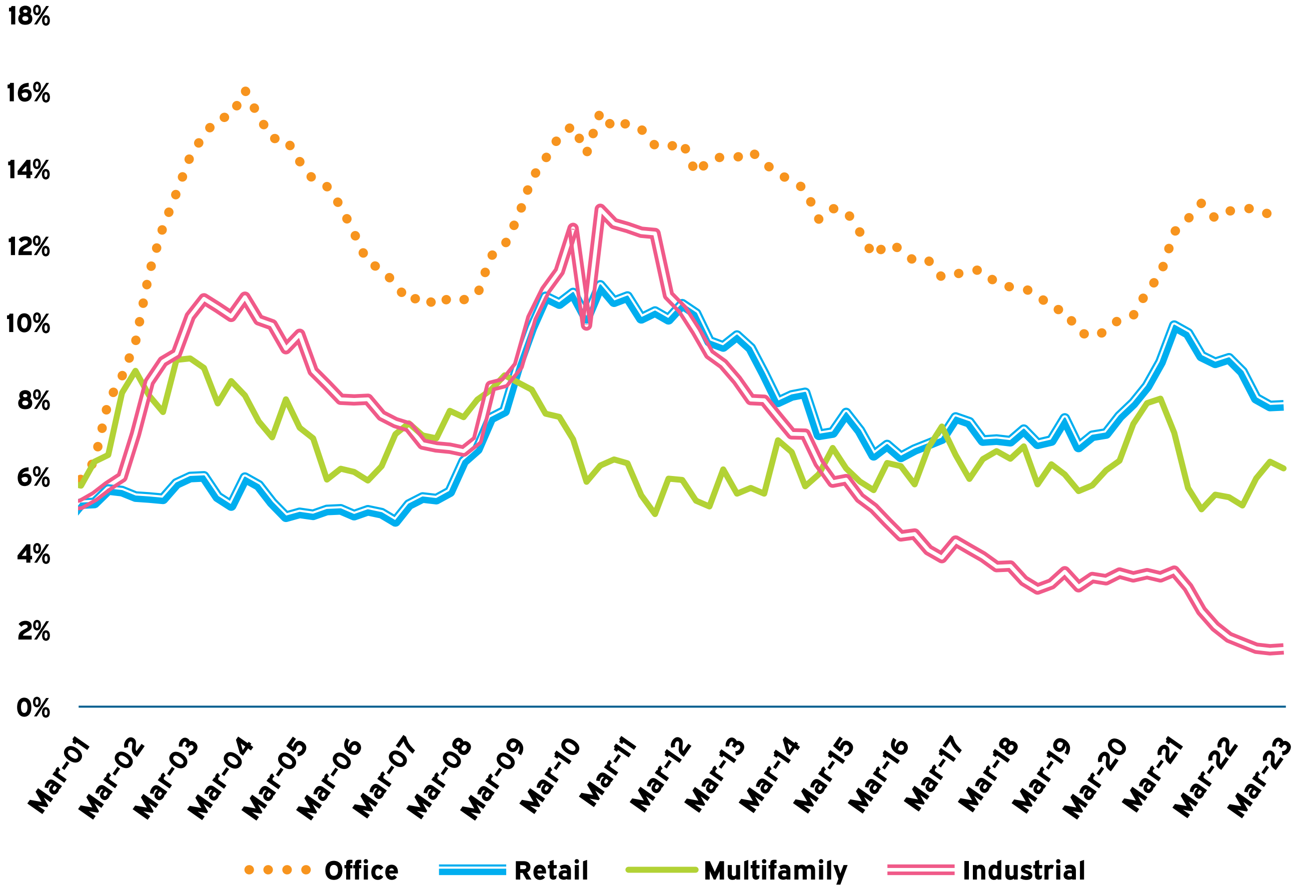
Attachment

Real Estate Market Views – Q1 2023

Vacancy by Property Type[1]



In the first quarter of 2023, vacancy rates increased for retail and industrial properties. Both sectors' vacancies increased by two basis points in Q1 2023, representing only a slight change. Alternatively, multifamily and office assets both experienced a decrease in vacancy rates in Q1 2023. Multifamily vacancies decreased 17 basis points during the quarter, while office vacancies declined 11 basis points in Q1, bringing vacancies to 12.68%, the lowest vacancy rate for the office sector since Q1 2021. Compared to one year ago, vacancy rates declined in office (-22 basis points), retail (-122 basis points), and industrial (-30 basis points), while multifamily vacancy rates increased by 75 basis points over the last year. Overall, the total vacancy rate across all property types decreased 28 basis points from Q1 2022.

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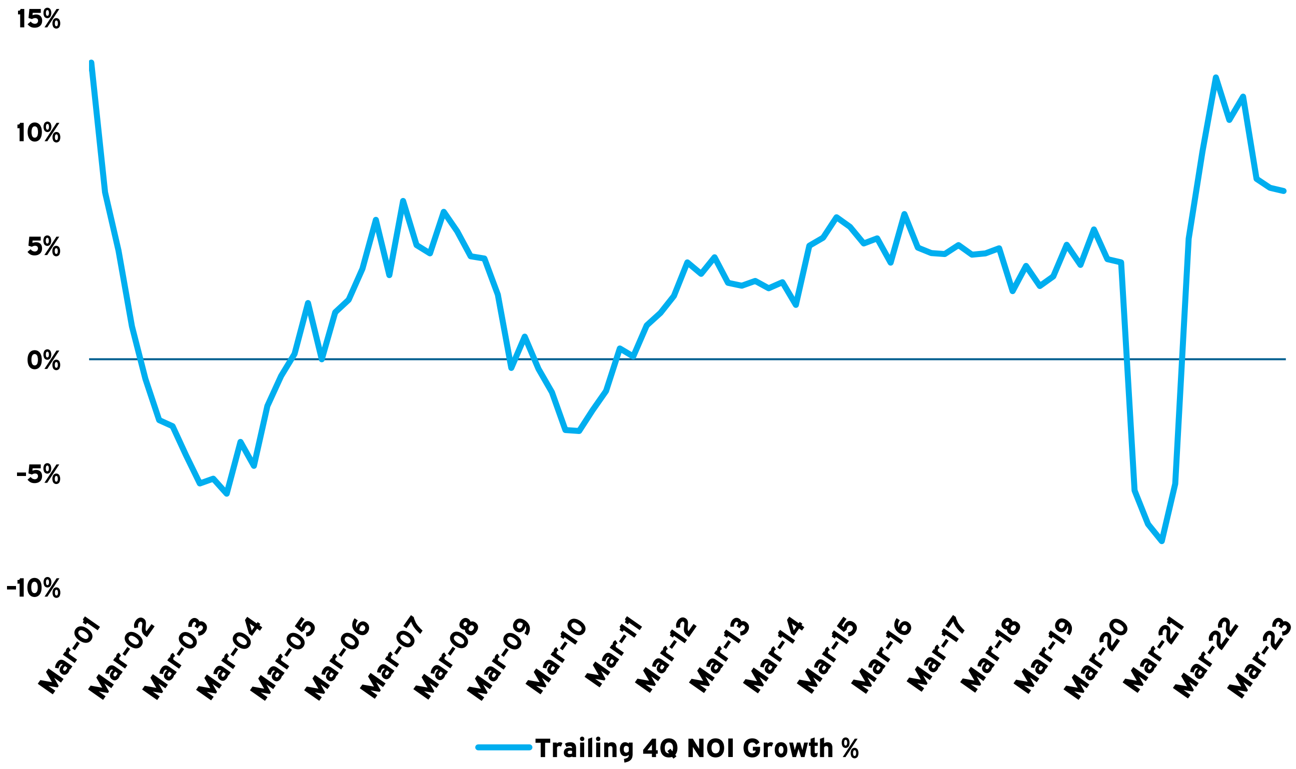
[1] Source: NCREIF.

NOI Growth[1]



The trailing twelve-month rate of NOI growth decelerated in Q1 2023 to 7.4%, as compared to 7.5% in Q4 2022. Resilient demand and a historically high industrial occupancy rate underpinned the continued NOI growth in industrial, which was 13.3% for the trailing twelve months ending Q1 2023, accelerating from 12.0% in Q4 2022. Multifamily NOI growth was also strong, with 8.1% growth over the trailing twelve months. Office NOI growth decelerated from Q4 2022 by 74 basis points, achieving 2.9% NOI growth year-over-year in Q1 2023. Retail NOI growth accelerated from Q4 2022, and reached 6.2% NOI growth year-over-year in Q1 2023.

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[1] Source: NCREIF.

Transaction Volume ($B)[1]

Private real estate transaction volume for properties valued over $2.5 million was significantly down in Q1 2023, totaling $87.8 billion, down $67.6 billion from last quarter. Transaction volume for Q1 2023 was the slowest of any first quarter since 2013, primarily resulting from the rising rate environment and continued market volatility. Compared to Q1 2022, all property types saw decreases in transaction volume over the last year (Q1 2022-Q1 2023). As was also true in the last quarter (Q4 2022), multifamily and industrial properties made up the largest share (53%) of the first quarter's transaction volume.

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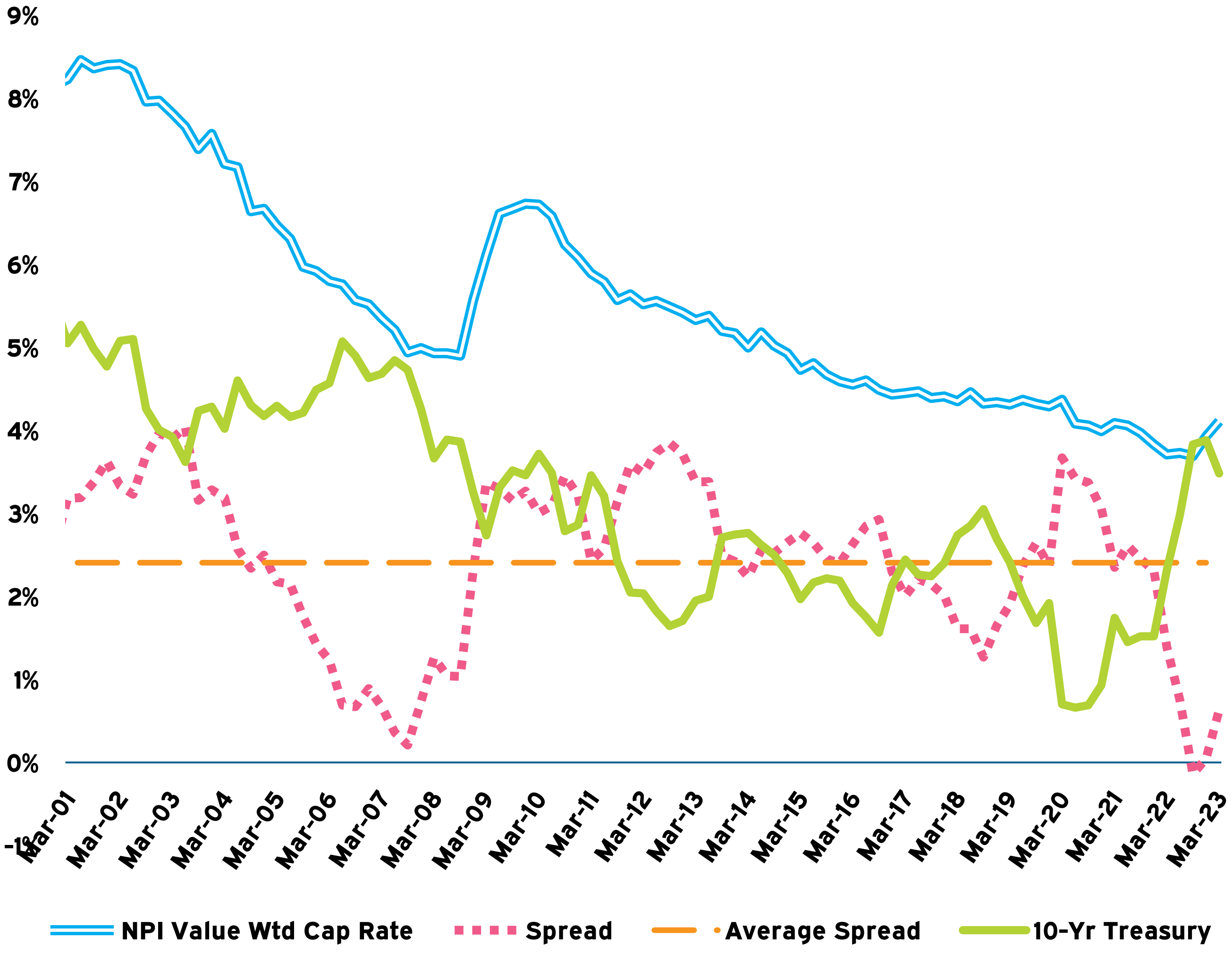
[1] Source: PREA.

Real Estate Capital Markets
Cap Rates vs. 10-Year Treasury[1]



The NPI Value Weighted Cap Rate increased from 3.9% in Q4 2022 to 4.1% in Q1 2023. The 10-year Treasury yield decreased by 40 basis points in Q1 2023 to approximately 3.5%. The spread between cap rates and treasury yields at the end of Q1 2023 was 63 basis points, and well below the long-term average spread of 241 basis points.

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[1] Source: NCREIF and US Department of the Treasury.

Trailing Period Returns[1]

As of March 31, 2023	1 Year (%)	3 Years (%)	5 Years (%)	10 Years (%)
NFI-ODCE (EW, net)	-3.7	8.2	7.1	8.8
NFI-ODCE (VW, net)	-3.9	7.5	6.6	8.5
NCREIF Property Index	-1.6	7.7	7.1	8.5
NAREIT Equity REIT Index	-19.4	10.2	6.2	6.4

Private real estate indices were negative in Q1 2023, as well as over the 1-year time horizons. The 3-year, 5-year, and 10-year horizons remained positive. The NFI ODCE Equal Weight Index posted a return in Q1 2023 of -3.5%, however private core real estate continued to vastly outperform the public index over the trailing one-year period. Private core real estate has generally outperformed the public index for all periods presented, with the exception of the 3-year time horizon as of Q1 2023. Public real estate performance has generated consistently negative returns over the last year, posting a negative return in Q1 2022 that has continued through Q1 2023.

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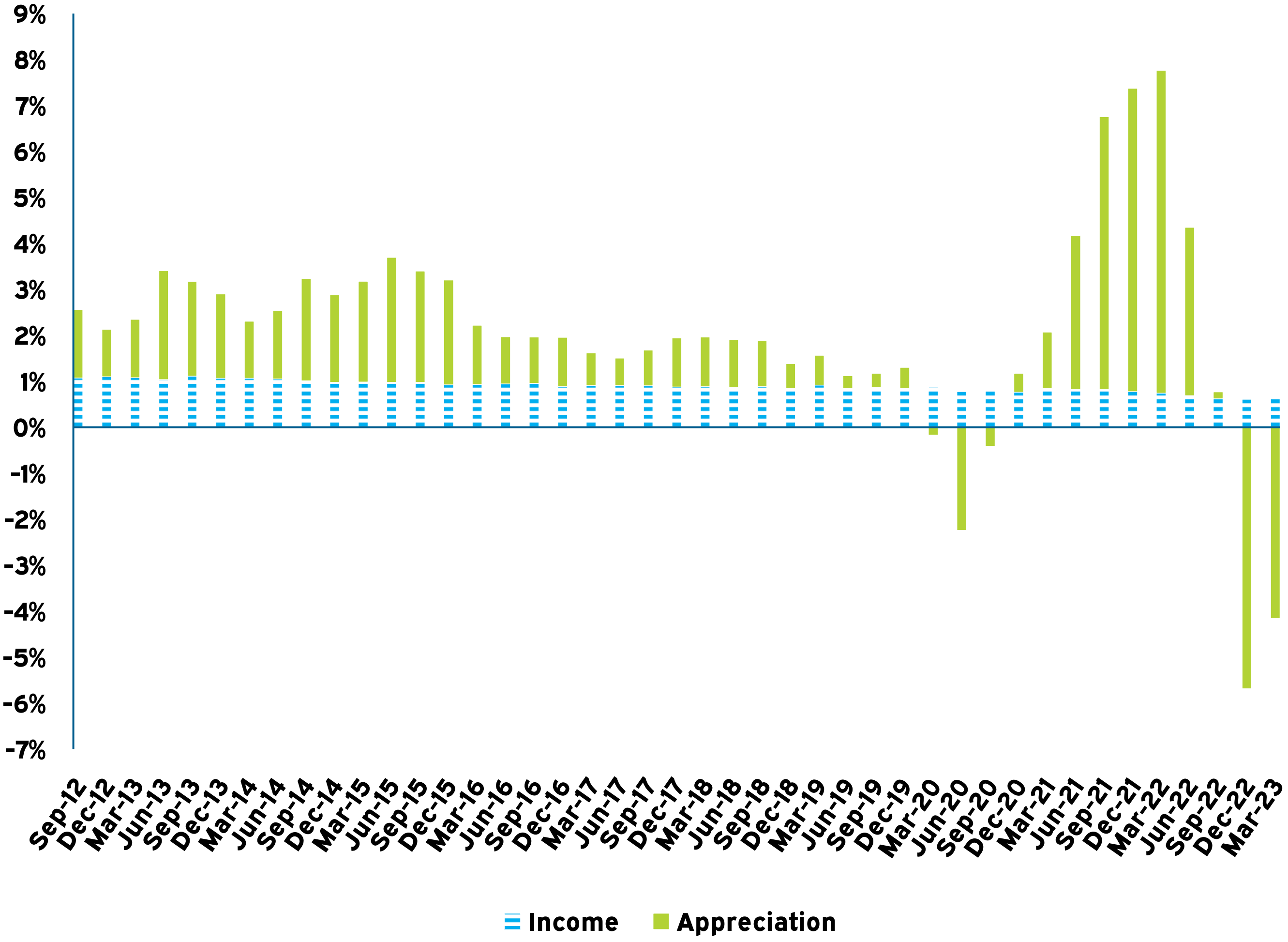
[1] Source: NCREIF.

ODCE Return Components[1]
(Equal Weight, Net)



The NFI-ODCE Equal Weight return in Q1 2023 reflected a net return of -3.5%, representing its second consecutive negative return, although increasing by 158 basis points from Q4 2022. This result was driven by a -4.2% appreciation return for the quarter, which was slightly offset by a 0.9% income return. Upward adjustments to the discount rate, used in valuations to reflect increasing interest rates and the cost of debt financing, negatively impacted the appreciation component of returns.

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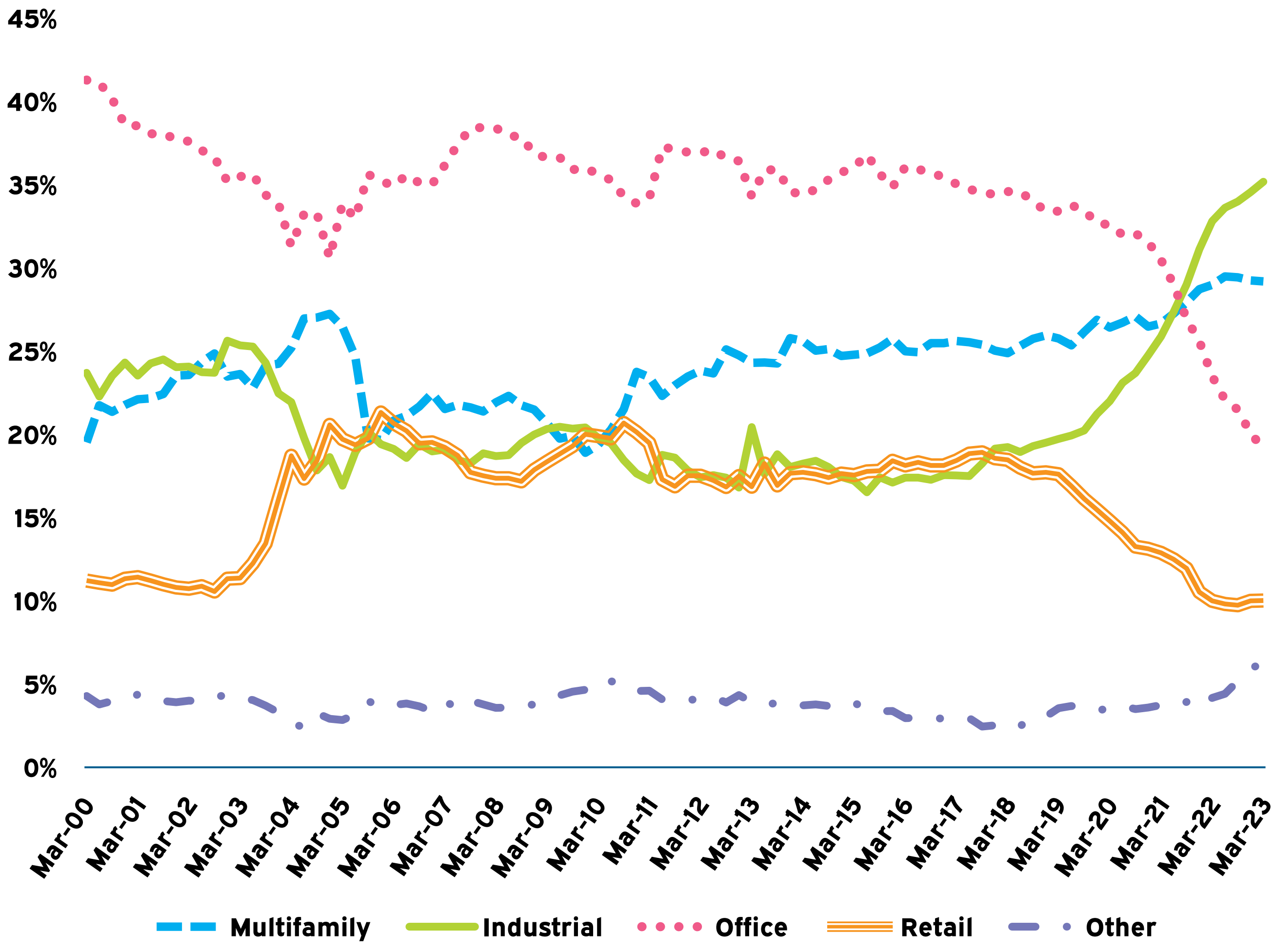
[1] Source: NCREIF.



ODCE Property Type Allocation[1]
(% of EW NAV)

The NFI-ODCE Equal Weight Index currently comprises 29% multifamily, 35% industrial, 19% office, 10% retail, and 6% in other property types, based on its net asset value ("NAV") as of Q1 2023. The heavy weight towards multifamily and industrial results from a trend of consistent growth within each sector over the past 5+ years, in accordance with a steady decline in both office and retail exposure which was heightened after the onset of COVID in March 2020. In the past year (Q1 2022-Q1 2023), the Other category has also seen material growth, with exposure to healthcare-related assets increasing from zero to 1.2% in Q1 2023. "Other" also includes 2.5% self-storage, 0.6% land, 0.1% hotel, and 1.7% in other smaller sectors as of Q1 2023.

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[1] Source: NCREIF.