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MEKETA
INVESTMENT GROUP

MEMORANDUM

TO: Members of the Investment Committee, CalPERS
FROM: Meketa Investment Group
DATE: February 15, 2022
RE: Semi-Annual Real Estate Performance Review as of December 31, 2021

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 December 31, 2021, 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 82.1%. The Portfolio's diversification is serving the System as different property sectors experience varying demand and supply dynamics. Similarly, CalPERS' focus on 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.

This became more apparent during the quarter's results reported for September 30, 2021, which reflected property operations during the sixth full quarter of the COVID pandemic, July 1 through September 30, 2021.

It is also crucial to keep in mind that real estate is a long term, illiquid asset, and shorter term, quarter to quarter changes in value, based on third party appraisals, may not necessarily reflect long-term trends in either direction.

CalPERS' Real Estate Portfolio returns exceeded the benchmark for all time periods presented. Measured by a percentage of Loan to Value, CalPERS has historically used more leverage than the benchmark (31.1% versus the benchmark of 22.3%). When property values are rising, this accelerates returns. When values

[1] Real Assets Program Allocation, Characteristics, and Leverage Reports (pdf) and Datasheets (Excel), Period Ending September 30, 2021, and Real Assets Quarterly Performance Report, Partnership Financial Statements as of September 30, 2021.
[2] Per Wilshire's CalPERS Real Assets Performance Analysis Review for the period ended December 31, 2021 reported with a 1-quarter lag, so effectively as of September 30, 2021.

decline, this detracts from performance. Measured by the 3.3x 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 DSRC are well within policy guidelines of <50% and >1.5, respectively.

Net Returns	1 Qtr (%)	1 Year (%)	3 Year (%)	5 Year (%)	10 Year (%)
Real Estate Returns	7.5	16.5	7.4	6.8	9.6
Real Estate Policy Benchmark[1]	6.3	13.4	6.0	6.5	9.0
Over (under) Performance	1.2	3.1	1.4	0.3	0.6

Performance Attribution

The portfolio posted a positive 7.5% return for the quarter, split between 0.9% current income and positive appreciation of 6.6%. Among core holdings, residential properties and industrial buildings posted very strong performance during the quarter. While residential properties are benefitting from improving property level fundamentals, industrial buildings are benefitting from increased demand during COVID as a result of greater e-commerce volume and work-from-home conditions. CalPERS' two core residential managers, on a combined basis representing 25.5% of the core portfolio, posted a return of 16.3% for the quarter. Industrial accounts, representing 22.8% and 6.3% of the core portfolio, posted returns of 11.8% and 11.1%, respectively, for the quarter.

Mall retail property investments, to which CalPERS has a material overweight compared to the benchmark, and which account for 13.9% of the core portfolio, slightly increased 3.4% over the quarter, but declined 1.7% over the trailing one-year period. These investments have produced an 8.4% total net return since inception. While visitor traffic has begun to return following vaccinations becoming more common, it still remains below historic levels. As a result, some retailers have struggled to pay rent and/or close stores. CalPERS malls, which are well located and have financially strong and experienced joint venture partners operating them, are all currently open and expected to experience continued improved operations over the next 18-24 months.

The other portion of CalPERS' retail holdings, grocery anchored shopping centers, which amount to 7.6% of the portfolio, posted a 3.5% net total return for the quarter. The grocery-anchored shopping centers have been impacted primarily by the temporary closure of the small businesses, including restaurants, which lease in-line store. However, the demand for groceries and the re-opening/increased operating capacities of various businesses has begun to result in improving fundamentals.

As of this reporting period, the core risk portfolio, comprised of completed, leased and cash flowing assets, representing 88.2% of the Real Estate Portfolio, produced strong longer term returns of 7.4% for the five-year return against MSCI/PREA benchmark returns of 6.5%. Ten-year returns of 12.6% also

[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.

handily exceeded the 9.0% 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 December 31, 2021[1]	NAV ($B)	1 Year (%)	3 Year (%)	5 Year (%)	10 Year (%)
Core	38.4	16.9	7.9	7.4	12.6
Value Add	3.2	12.8	6.5	5.6	6.3
Opportunistic	1.9	10.0	2.5	2.9	4.7
Real Estate Policy Benchmark	--	13.4	6.0	6.5	9.0

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 12/31/21 Exposure[1]
Risk Classification	(%)	(%)[2]
Core	75-100	89.6
Value Add	0-25	6.2
Opportunistic-All Strategies	0-25	4.2
Geographic Region	(%)	(%)[3]
United States	75-100	93.1
International Developed	0-25	2.8
International Developing	0-15	4.1
International Frontier	0-5	0.0
Manager Exposure[4]	(%)	(%)
Largest Partner Relationship	20 max	19.0
Investments with No External Manager	20 max	0.0
Leverage[5]		
Loan to Value	50% max	31.1%
Debt Service Coverage Ratio	1.5x min	3.3x

1 Private Investment data are one quarter lagged, so effectively as of September 30, 2021.

2 Real Assets Quarterly Performance Report as of September 30, 2021 and Real Assets 2021.9.30 Characteristics Report (PDF), based on asset-level risk.

3 Real Assets Quarterly Performance Report as of September 30, 2021 and Real Assets 2021.9.30 Characteristics Report (PDF), based on asset-level geography.

4 CalPERS Real Assets Portfolio Allocation Report (Excel), Period Ending September 30, 2021: 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 ($67.7 billion).

5 CalPERS Real Assets Portfolio Leverage Report (pdf), Quarter Ending September 30, 2021.

Implementation

The Real Estate Portfolio had a market value of $45.3 billion at the end of the current reporting period, representing 82.1% of the Real Assets program and 9.0% of the total portfolio. Including Forestland and Infrastructure, the Real Assets program currently comprises 11.0% of the total portfolio against a long-term target allocation of 13%, within the policy range of 8% to 18%. CalPERS has a very small 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. However, during the past ten years, the System has not invested sufficient capital to meet its target asset allocation for real estate.

In addition, CalPERS recently adopted a new asset allocation mix and increased the Real Asset target to 15% of the Total Fund. In order to deploy the amounts of capital necessary to achieve the target allocation, CalPERS will likely need to invest through a broader array of investment vehicles, including commingled funds and co-investments. These vehicles will provide additional access to geographies and property types for which CalPERS has capacity and appetite.

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

This report measures results 18 months after the inception of the pandemic. The shutdown of the economy in March 2020 had significant repercussions for the property sector. COVID's impact varied greatly by market and property type, with some (data centers, life sciences, industrial, nearly all housing, suburban locations) being clear winners and others (hospitality, retail, gateway central business district locations) suffering lower occupancies and collections. In general, densely populated areas, such as the Big Six (Boston, New York, Washington, Los Angeles, San Francisco and Seattle), which for a decade had been the preferred locations of new investments, experienced more dramatic declines in value. Spread out, suburban areas suffered less dramatic declines.

Transaction volume came to a near halt in the middle of 2020. As the prospect of a viable vaccine became clearer, and public securities prices recovered, investors waded back into the real estate markets in the fourth quarter, looking for either re-pricing or high-conviction strategies. The distress that appeared to be imminent in Q2 and Q3 of 2020 did not (and has not) arrive(d). Indeed, while there was a decline in total transaction volume in 2020 from 2019, it was not a precipitous one. There were actually increases in transaction volume in the industrial and multifamily sectors but with more than offsetting declines in the office, retail and hotel sectors.

The significant dry powder equity capital ($225 billion) raised and sitting on the sidelines ready to invest, in strategies that employ additional third-party debt in excess of that amount, provided a floor to pricing. The most sought-after properties continue to climb in value. The weight of capital in the market, combined with that lost partial year of capital deployment, means that today's new acquisitions will be even more competitively priced. Any "distress" is likely to be pocketed and idiosyncratic rather than widespread and thematic. Unlike the Great Financial Crisis of 2008-09, the lending community, both regulated and unregulated, did not force liquidations following defaults. The amount of forbearance, as opposed to foreclosure, was also unprecedented. Except for some debt securities which traded in Q2 2020 at discounts and quickly returned to par, opportunity funds did not have a field day during the last three quarters of 2020 and the first three quarters of 2021 insofar as finding deep discount bargains.

Increasing input costs (labor and materials) may foreshadow a reduction in new supply, and potentially upward pressure on rents as a result. Supply chain disruptions are also 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. Meketa believes that CalPERS' strategic, long-term tilt to the historic centers of population and employment growth is sound. However, as a result of the virus, we shall all see lots of attention on less dense (read, suburban and low rise) assets and locations, and to e-commerce during the next one to two years.

During the fourth quarter of 2021 and into the new year, the prospect of inflation impacting markets has risen; some might say dramatically, while other believe that the extent and duration of rises in inflation are not yet understood or precise. 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 leas terms), market supply and demand for competing space (also affected by changing usage needs), legislation and other factors.

Interest rates are still at very attractive levels for spread investing, and given the lack of alternatives for current return, serve to maintain strong interest in leveraged property purchases. To the extent that demand drives cap rates lower, and they continue to average their historic range of 150-250 basis points above the risk-free rate of the ten-year Treasury bond, then any declines in value due to lower occupancies and slower growth of effective rental rates will be mitigated. New construction of most property types (exceptions are data centers and "last mile" distribution and fulfillment centers) is disciplined.

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. As CalPERS considers increasing the allocation to Real Assets, it will likely require an expansion of the business model, as is being considered currently by adding international and commingled fund investments, to accomplish reaching its targets.

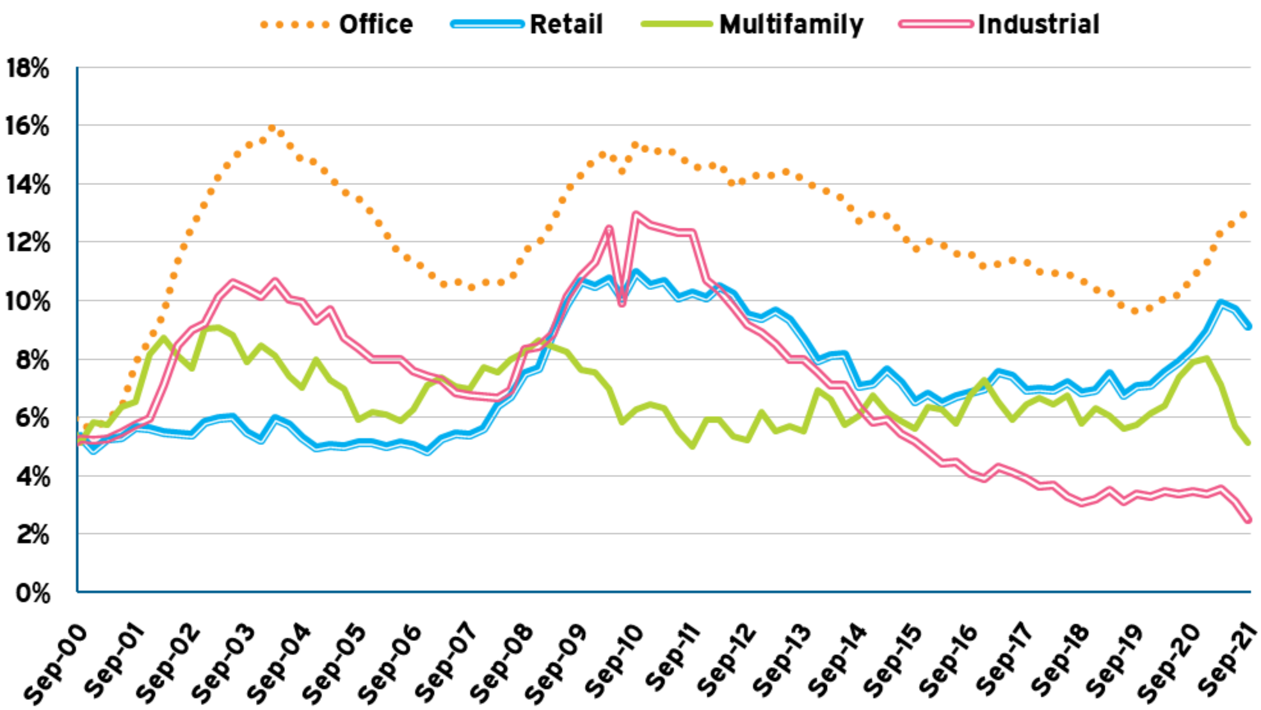
Please do not hesitate to contact us if you have questions or require additional information.

CF/KR/DG/SPM/jls

Attachment

Q3 Real Estate Market Views

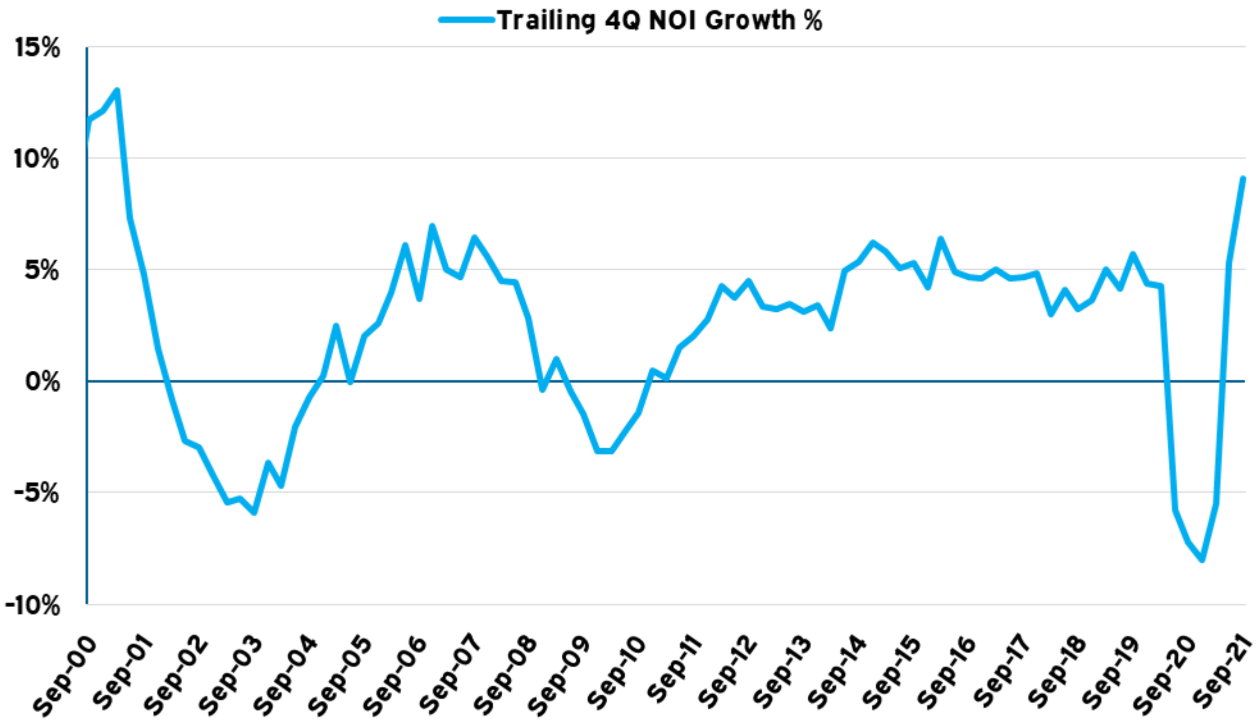
Vacancy by Property Type[1]



In the third quarter of 2021, vacancy rates continued to decrease for all property types except office. Multifamily vacancies have decreased by 277 basis points over the past year. Industrial vacancies set an all-time low vacancy rate at 2.5%. Retail vacancies have decreased slightly over the last two quarters, currently at 9.1%. Office vacancy continues to increase, reaching 13.1% in Q3 2021. Office and retail saw increases in vacancy over the trailing twelve months, while industrial and retail have seen decreases over the same period. Compared to one year ago, vacancy rates in multifamily decreased 277 basis points, industrial decreased 97 basis points, and retail increased 76 basis points., and office increased 230 basis points. Overall, the vacancy rate across all properties decreased 99 basis point from Q3 2020.

[1] Source: NCREIF.

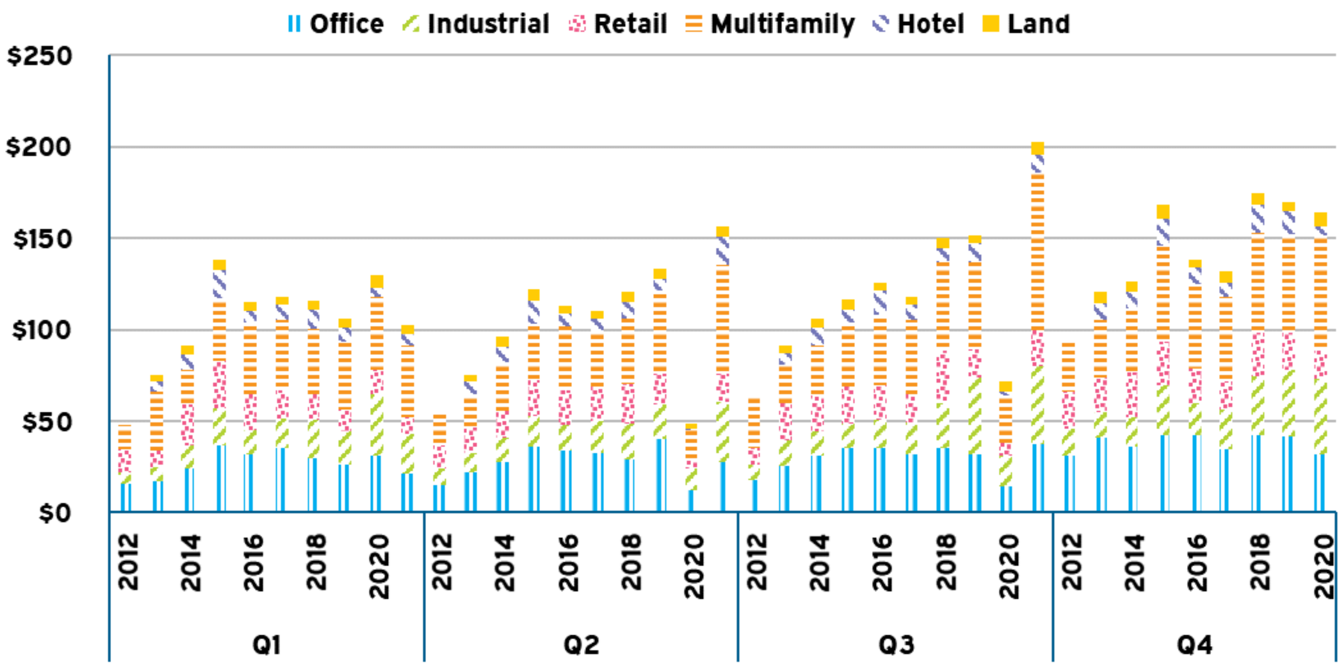
NOI Growth[1]



The trailing twelve-month rate of NOI growth continued to increase significantly in Q3 2021 to 9.1%. As rent collections improved significantly and delinquencies/deferrals rolled off over the trailing four quarters, NOI has generally stabilized. Industrial NOI growth is trending above 10.0% for the trailing year ending Q3 2021. Office NOI growth trended up slightly to 3.3% year-over-year, and Apartment NOI (a sector with "gross" rents, compared to "net" rents in other property types) experienced positive NOI growth at 10.9% year-over-year as occupancy levels improved. Retail NOI growth has improved significantly from the previous four quarters, now at 17.4% year-over-year.

[1] Source: NCREIF.

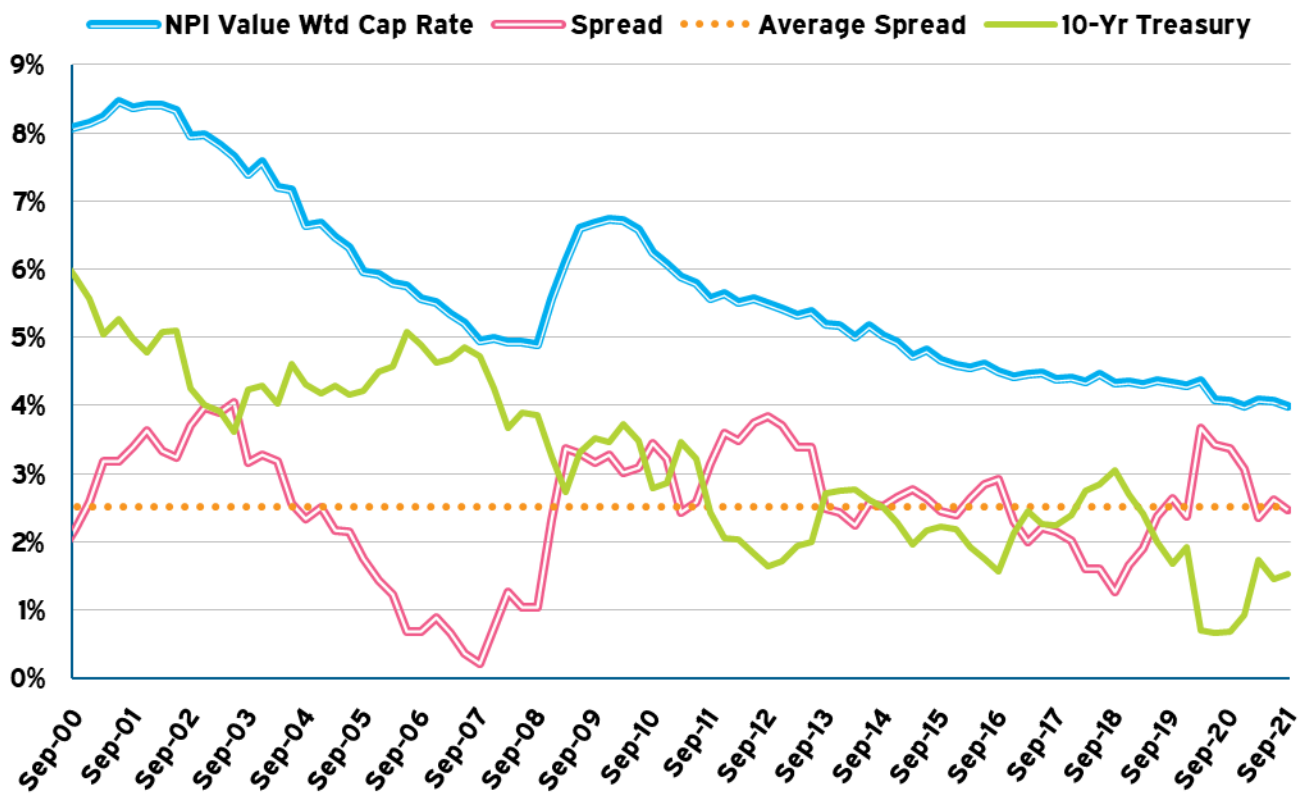
Transaction Volume ($B)[1]



Private real estate transaction volume for properties valued over $2.5 million for Q3 2021 was up significantly from Q3 2020 to $202.9 billion, representing the highest transaction volume for a single quarter since 2012. Compared to a year ago when transaction volumes were severely depressed due to COVID-19, all property types saw major increases in transaction volume: office (+162%), industrial (+160%), retail (+180%), multifamily (+231%), hotel (+336%) and land (+36%). Multifamily and industrial properties made up the largest percentages of total transaction volume during the quarter, at 42% and 21%, respectively.

[1] Source: PREA.

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



The NPI Value Weighted Cap Rate decreased 8 basis points in Q3 2021 to 4.0%. The 10-year Treasury yield increased by 7 basis points in Q3 2021 from the previous quarter and is still well below historical yields. The spread between cap rates and treasury yields (246 basis points) is near the long-term average spread of 251 basis points.

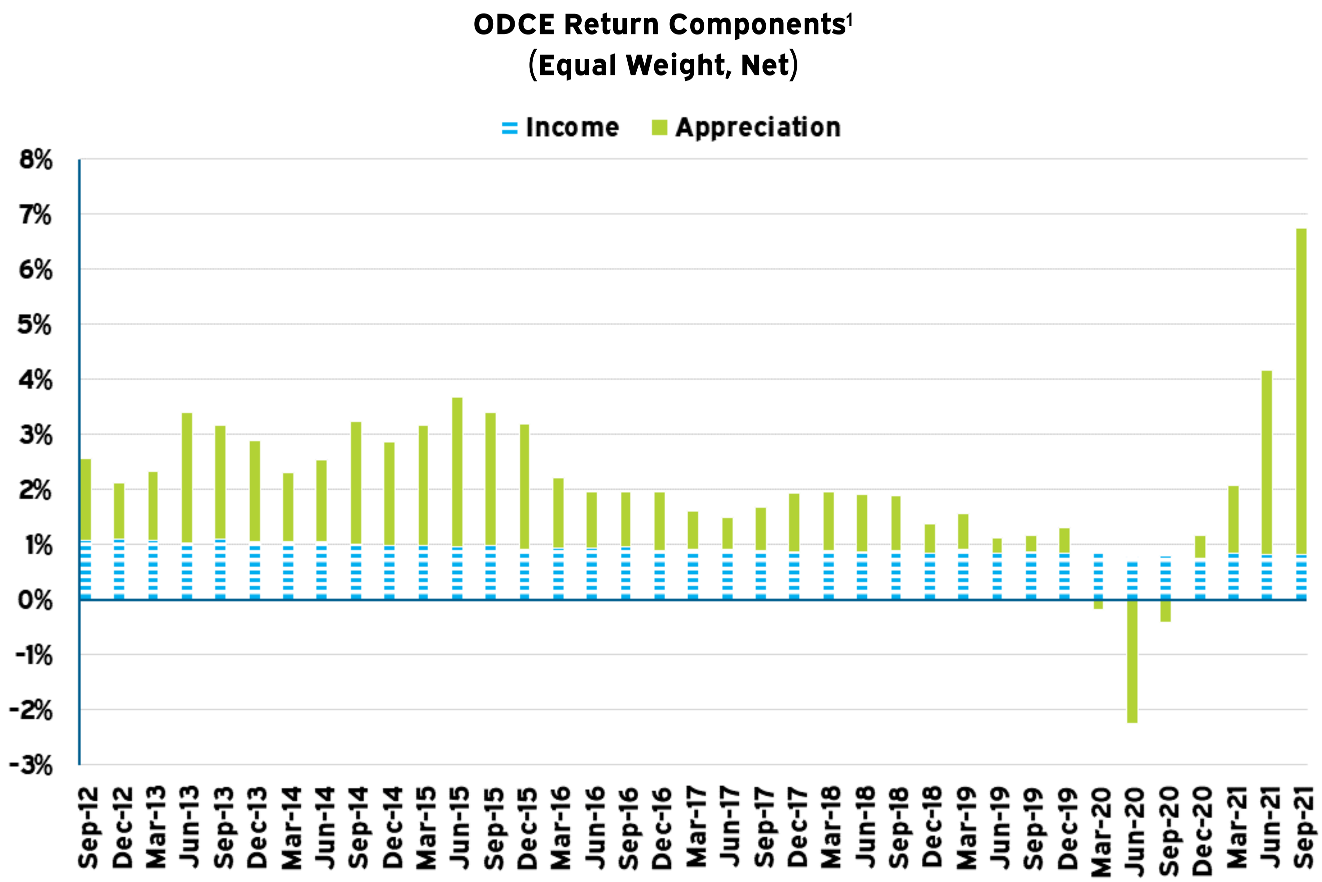
[1] Source: NCREIF and US Department of the Treasury.

Trailing Period Returns[1]

As of September 30, 2021	1 Year (%)	3 Years (%)	5 Years (%)	10 Years (%)
NFI-ODCE (EW, net)	14.8	6.8	7.1	9.2
NFI-ODCE (VW, net)	13.6	6.1	6.6	8.9
NCREIF Property Index	12.2	6.7	6.8	9.0
NAREIT Equity REIT Index	31.5	11.7	8.3	12.1

Private real estate indices were positive in Q3 2021 and continue to be positive over the 1-year, 3-year, 5-year, and 10-year time horizons. Public real estate performance in 2020 and into 2021 has been volatile, returning 0.2% in Q3 2021, after posting a 12.0% return in the prior quarter and a negative return (-5.1%) over the course of 2020.

[1] Source: NCREIF.



The NFI-ODCE Equal Weight return for Q3 2021 was positive at 6.8%, posting the highest quarterly return since Q2 2011. The income component of the quarterly return was consistent at 0.8%, and appreciation for the quarter was very strong at 5.9%.

[1] Source: NCREIF.