



September 2017

CONFIDENTIAL

**Real Assets Performance
Review**

Callan Associates

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Agenda

- Market Overview
- Real Estate Performance Review
- Infrastructure Performance Review
- Appendix
 - Supplemental Performance Information



Market Overview

Market Overview

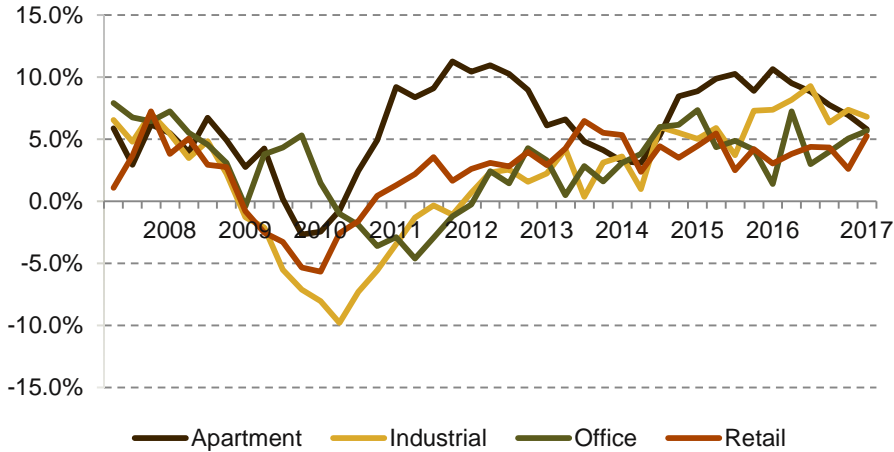
Big Picture

- The first half of 2017 marks the 8th year of the US economic expansion, the 4th longest on record. The unemployment rate has declined to a cyclical low at 4.4%, and monthly job gains have averaged 180,000, on par with 2016.
- In 2Q 2017, US GDP grew by an annualized 2.6%. Core CPI increased 1.7% during the last twelve month period through June 2017.
- Investor satisfaction with real estate remains high, as the sector continued to see steady returns driven by above inflation-level rent growth in many metros. In 2Q 2017, the NPI reported a total annual return of 7%, outperforming the Barclay's US Aggregate Bond Index annual rate of -0.3% and underperforming the S&P 500 annualized return of 17.9%.
- The Federal Reserve increased the targeted Federal Funds rate a quarter percentage point to 1.00% -1.25% in June 2017. This marks the third rate increase in seven months, and at least one more rate hike is expected this year. The 10 year Treasury was at 2.30% in 2Q 2017.
- US property fundamentals are still healthy, but may be peaking
 - Vacancy is now flattening at long term averages
 - Rent and NOI growth are still positive
 - Supply and demand dynamics are under the microscope, availability of construction loans is a key driver
- Real Estate flows from outside the U.S. remain strong, despite political uncertainty

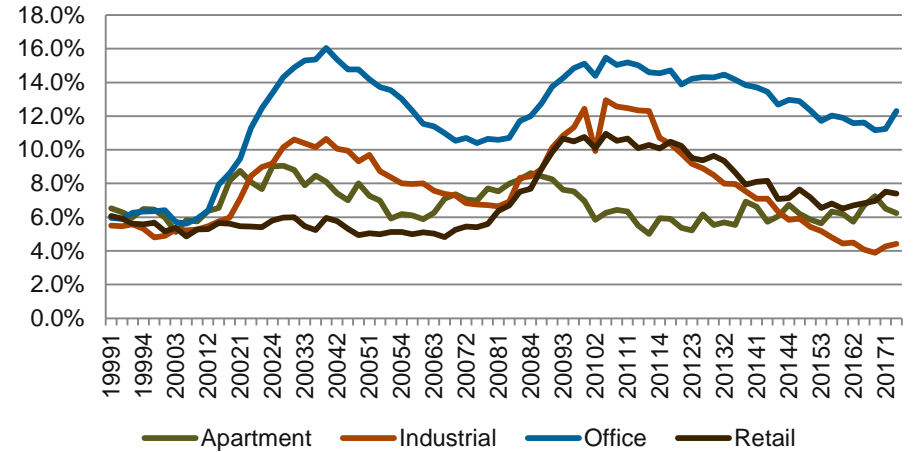
Market Overview

U.S. Market Trends

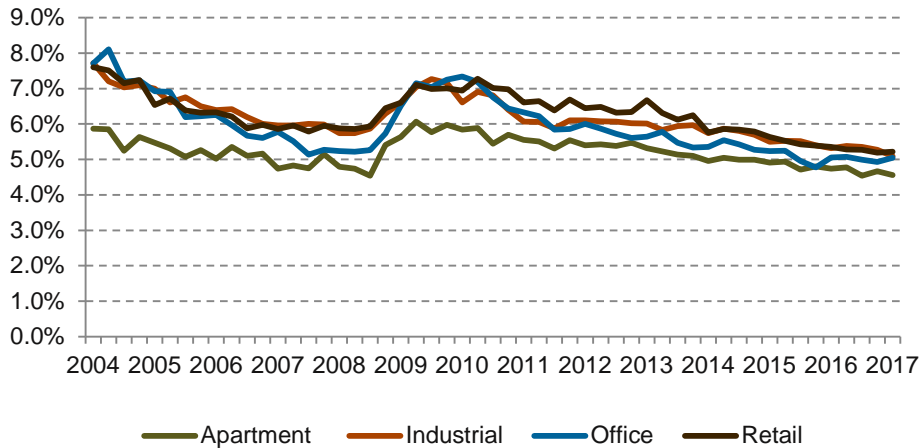
4-Quarter NOI Growth by Property Type



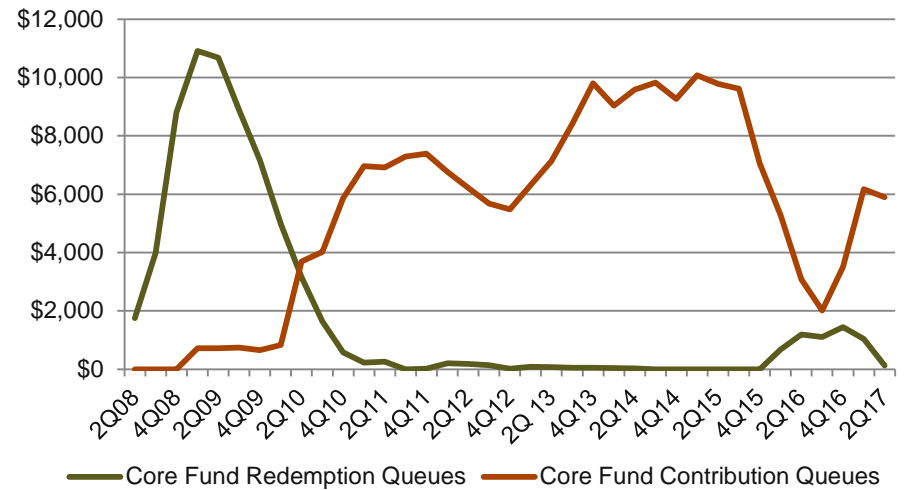
Vacancy by Property Type



Capitalization Rates by Property Type



Core Fund Contribution/Redemption Queues



Source: NCREIF

Real Estate Indicators

Quartile Results



WIDE SPREAD: blue blocks signal quarters when spreads were the widest (top quartile)



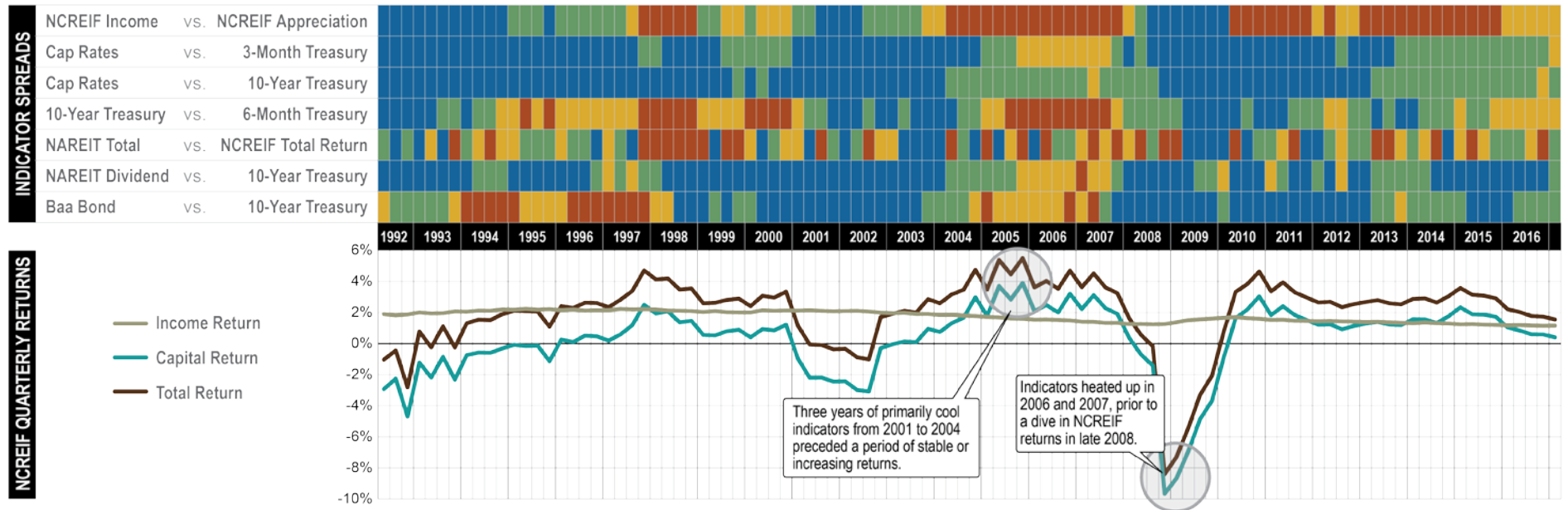
2nd Quartile: green blocks define quarters when spreads were less wide



3rd Quartile: yellow blocks mark quarters when spreads narrowed



NARROW SPREAD: red blocks are periods when spreads were narrowest or inverted (fourth quartile)



The seven indicator spreads reveal multiple instances when wide spreads (cool indicators) preceded stable or increasing performance, and narrow spreads (hot indicators) were more prevalent before declining market periods.



Real Estate Performance Review

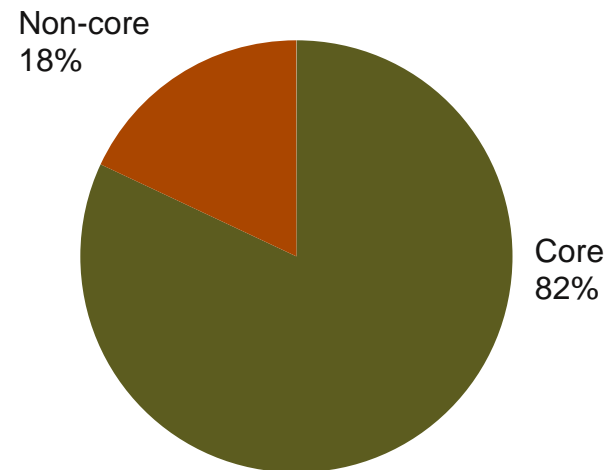
Real Estate Portfolio Summary

March 31, 2017

- Portfolio is comprised of private real estate; REIT portfolio liquidated in third quarter 2016.
- Unfunded commitments as of March 31 include commitments to GreenOak US Fund III, Blackstone High Grade Debt Fund, Oak Street Real Estate Capital Fund IV, CityView, IC Berkeley, and Newport Capital Partners II.
- Portfolio is well positioned with 82% of the portfolio in funds that pursue “Core” strategies with income producing properties. Core investments in four funds are diversified by property type while Clarion Lion Industrial Trust is “Core-Plus” comprised of industrial properties.

	\$ Millions	(%)
CTPF Total Plan Assets	\$9,937.00	100.00%
Real Estate Target	\$894.33	9.00%
Plan's Real Estate Market Value	\$745.27	7.50%
Unfunded Commitments	\$101.85	1.03%
Market Value & Unfunded Commitments	\$806.58	11.28%

Real Estate Portfolio Risk

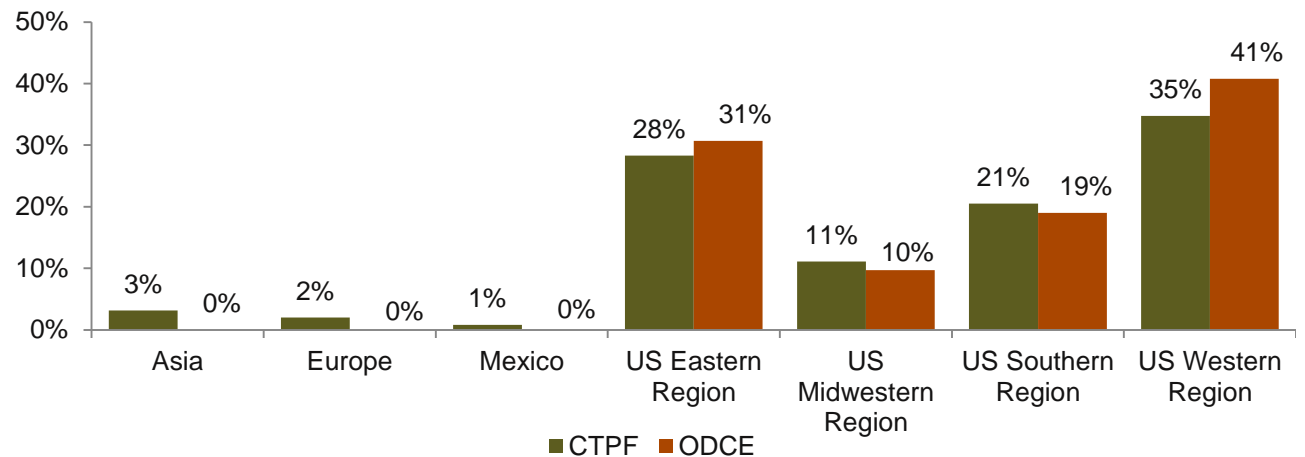


Real Estate Portfolio Diversification

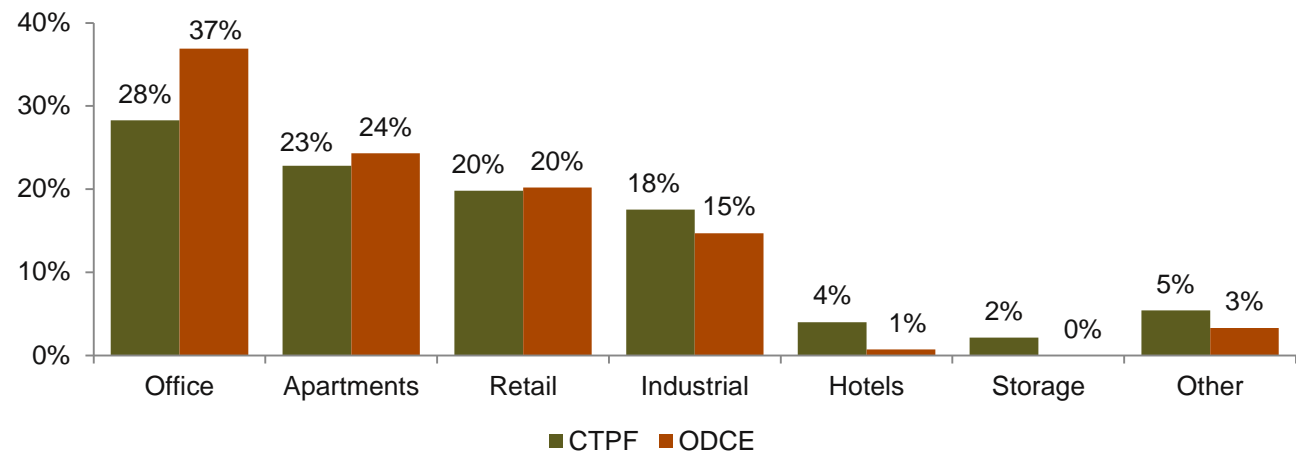
March 31, 2017

- The real estate portfolio is primarily U.S. at 94% with 6% in Non-U.S. markets including Asia, the United Kingdom, Continental Europe and Mexico. Non-U.S. exposure is in Fortress, MB Asia, Europa, RREEF and Walton Street.
- Four core property types comprise 89% of the portfolio. Hotels, Storage and Other comprise 11%. Property Types in Other include mixed use, for sale residential, senior housing, land, diversified, and for sale residential. ODCE does not break Storage out from other.

Geographic Diversification



Property Type Diversification

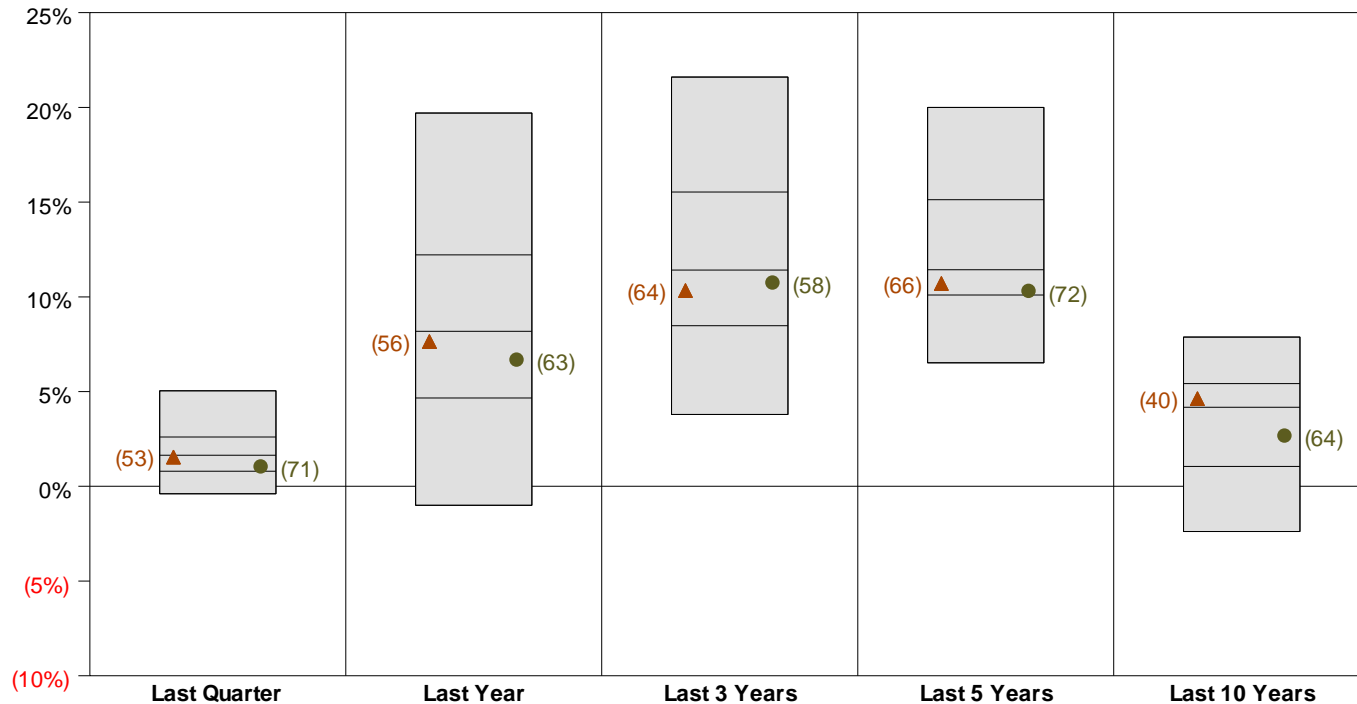


Note: Subtotals reflect actual weights, not the sum of rounded weights shown.

Total Real Estate Performance

Periods Ending March 31, 2017

Performance vs CAI Total Real Estate Database



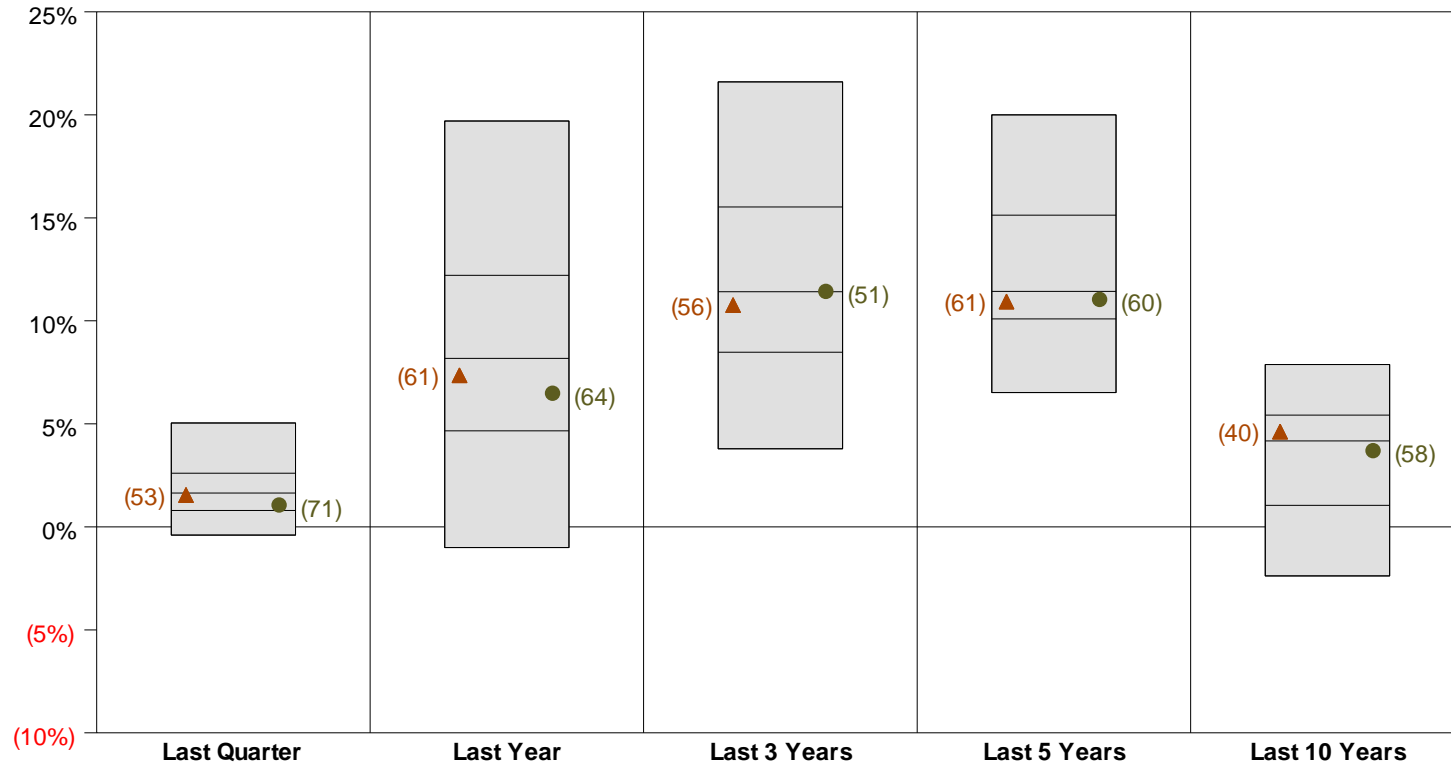
	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	5.04	19.70	21.60	20.00	7.88
25th Percentile	2.60	12.21	15.53	15.13	5.42
Median	1.64	8.18	11.41	11.43	4.17
75th Percentile	0.80	4.66	8.48	10.10	1.05
90th Percentile	(0.39)	(1.00)	3.79	6.52	(2.38)
Total Real Estate ●	0.97	6.60	10.67	10.23	2.60
Total Real Estate Custom Index ▲	1.54	7.64	10.33	10.70	4.63

Note: There was no Real Estate Custom Index in prior reporting. Current Quarter Index is weighted based on CTPF's public/private weights. Starting in 4Q16, the weighting was 100% NCREIFODCE Value Weight Net because the REIT investment was liquidated. Custom Index rebalances automatically based on private real estate and public real estate portfolio weights.

Private Real Estate Performance

Periods Ending March 31, 2017

Performance vs Callan Total Domestic Real Estate Databa

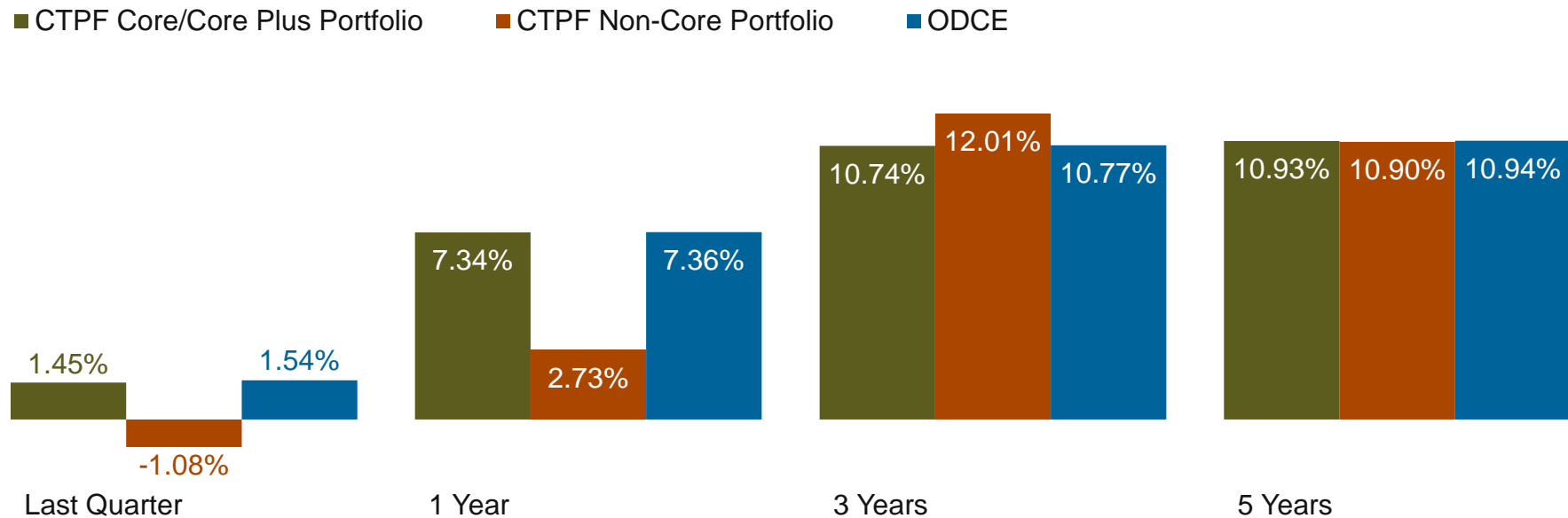


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Median	1.64	8.18	11.41	11.43	4.17
75th Percentile	0.80	4.66	8.48	10.10	1.05
90th Percentile	(0.39)	(1.00)	3.79	6.52	(2.38)

CTPF (RE) - Total Private Real Estate ●	0.97	6.40	11.36	10.96	3.62
NCREIF NFI-ODCE Val Wt Nt ▲	1.54	7.36	10.77	10.94	4.62

Core/Core Plus and Non Core Returns

Periods Ending March 31, 2017



Portfolio/Index	Last Quarter	1 Year	3 Years	5 Years
CTPF Core/Core Plus Portfolio	1.45%	7.34%	10.74%	10.93%
NFI-ODCE Value Weight Net (ODCE)	1.54%	7.36%	10.77%	10.94%
Relative Performance	-0.09%	-0.02%	-0.03%	-0.01%
CTPF Non-Core Portfolio	-1.08%	2.73%	12.01%	10.90%
NFI-ODCE Value Weight Net (ODCE)	1.54%	7.36%	10.77%	10.94%
Relative Performance	-2.96%	-4.63%	1.24%	-0.04%

Performance Drivers and Detractors by Style

Total Portfolio For Quarter Ending March 31, 2017

- Core/Core Plus Portfolio Performance Relative to ODCE Benchmark
 - Performance was slightly below NCREIF ODCE benchmark for quarter. Performance returns were on par with benchmark for one, three and five year time periods.
 - JP Morgan Strategic Property Fund and LaSalle Property Fund, comprising 41% of the core/core plus portfolio, exceeded benchmark for quarter by 10 bps and 8 bps, respectively.
 - UBS Trumbull underperformed benchmark by 65 bps. Income return met benchmark. Underperformance was in appreciation. The Fund uses significantly lower leverage than the universe of core funds (15%), which has caused the underperformance along with property type and geographic allocation.
 - For the two core plus funds, Lion Industrial Trust significantly exceeded the benchmark by 147 bps, while PRISA II underperformed benchmark by 61 bps.
 - *Fundamentals are very strong in the industrial sector. Lion Industrial Trust benefitted from continued strong leasing activity and solid rental rate growth on new leases.*
 - *PRISA II experienced lower relative appreciation (51 bps) which led to total return underperformance.*
- Non Core Portfolio Performance
 - Quarterly time weighted returns for non-core closed end funds are not particularly meaningful.
 - Non-core under performed the ODCE for the quarter based on significant negative performance contributions from Europa Fund III , Fortress Japan Opportunity Fund Domestic, Fortress Japan Opportunity Fund II and Franklin Templeton.



**Infrastructure Performance
Review**

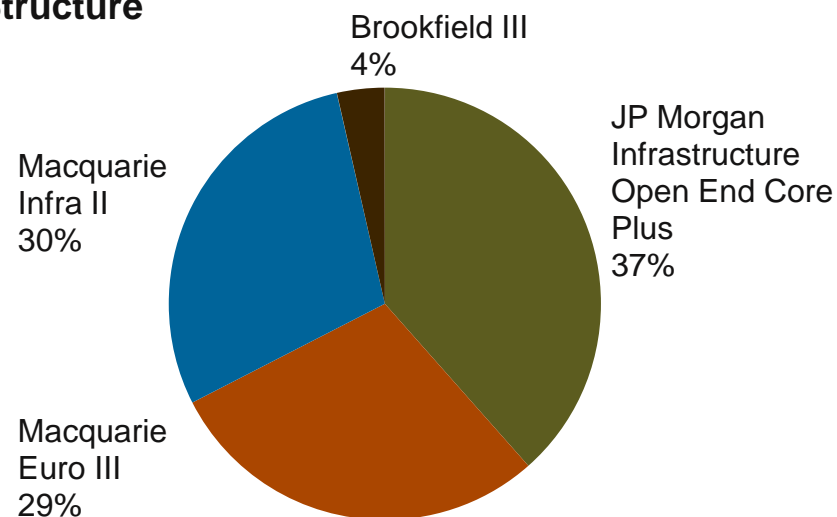
Infrastructure Portfolio Summary

March 31, 2017

- Infrastructure comprised 2.50% of the total portfolio (\$249 million) on a funded basis compared to a target of 2%.
- Unfunded commitments reflect remaining commitment to Brookfield Infrastructure Fund III. The Fund first called capital in the 4th quarter and is actively investing.

	\$ Millions	(%)
CTPF Total Plan Assets	\$9,937.00	100.00%
Infrastructure Target	\$198.74	2.00%
Plan's Infrastructure Market Value	\$248.80	2.50%
Unfunded Commitments	\$41.38	0.42%
Market Value & Unfunded Commitments	\$290.20	2.92%

Manager Structure



Infrastructure Performance

As of March 31, 2017

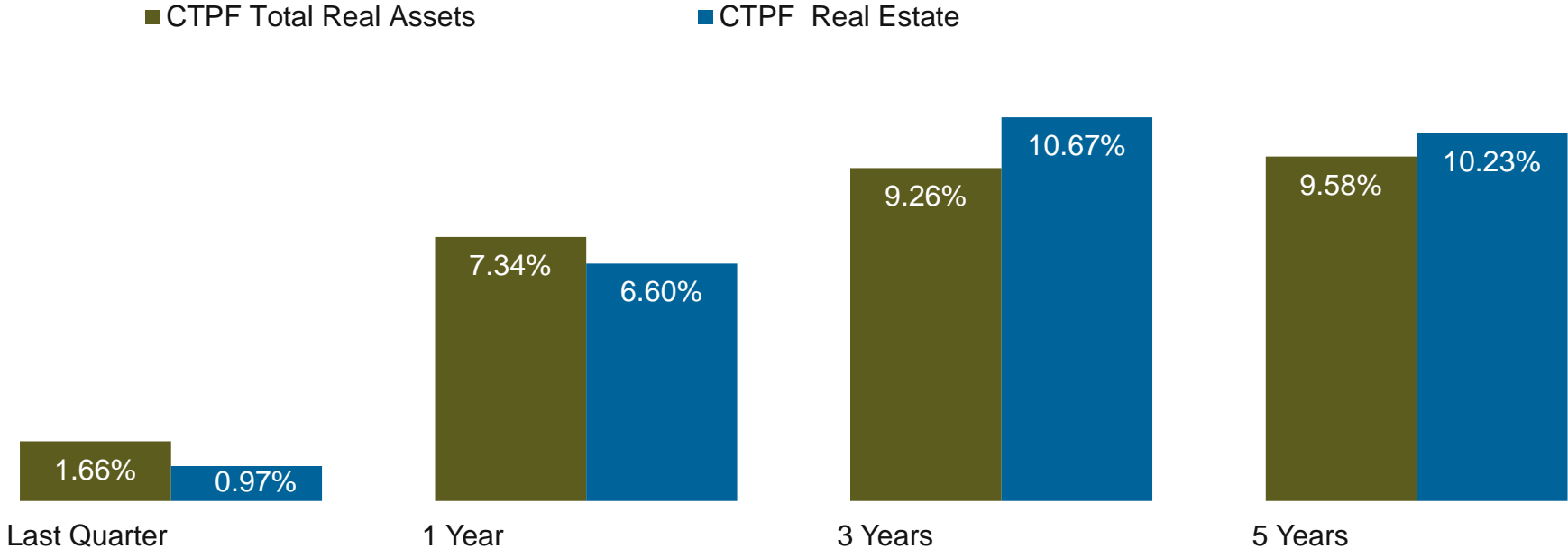
- Total infrastructure investments exceed 1Q17 benchmark by 185 bps and one year return by 163 bps, respectively. On a three and five year average basis, investments underperformed benchmark by 519 bps and 294 bps, respectively.
 - JP Morgan exceeds benchmark in local currency. Foreign currency detracts from returns. Average one and three years returns were 1.7%.
- Similar to real estate non core funds, performance of the closed end infrastructure funds should be evaluated over the long term and on an IRR and equity multiple basis and compared to their stated return targets.
 - Macquarie European Infrastructure III has two large investments left including partial ownership of Brussels and Copenhagen Airports. It has realized a 9% net IRR and projects a 1.9x equity multiple. Fund terminates in March 2018.
 - MIP II's market value increased by 9% in 1Q 2017.
 - Neither Macquarie fund is on track to meet target returns for the life of the Fund of 10%-13% or 10%-12%, respectively.
 - Brookfield Infrastructure III has invested 21% of \$50 million commitment to date.



Appendices

Total Real Assets Performance

Periods Ending March 31, 2017



- Infrastructure investments benefitted portfolio return in 1Q17.

Note: REIT investment liquidated in 3Q 2016.

Watch List

- UBS Trumbull Property Fund
- Watchlist criteria are being reviewed along with other Investment Policy changes



Glossary of Terms

Definitions

Style Groups

Total Real Estate DB: The Total Real Estate Funds Database consists of both open and closed-end commingled funds managed by real estate firms that report to the Callan Database.

Open-End Real Estate: The Open-End Real Estate Database consists of all open end real estate funds that report to the Callan Database.

Real Estate Value Added: The Real Estate Value Added Database consists of all real estate funds that manage to a value add strategy and report to the Callan Database.

Real Estate Opportunistic: The Real Estate Opportunistic Database consists of all real estate funds that manage to a value add strategy and report to the Callan Database.

REIT Global DB: The REIT Global Database consists of products investing in global equity real estate through portfolios consisting primarily of equity Real Estate Investment Trusts (REIT). The Database is comprised of returns for both separate account composites and commingled vehicles.

*The above groups are based on time-weighted returns.

Vintage Year Database Groups: The Vintage Year Groups are comprised of all funds that report to the database with the initial drawdown taking place in the labeled year. These groups are based on IRRs derived from the cash flows submitted to the Callan Database.

Indices

Stylized Index: Weights the various style group participants to be comparable to the investor portfolio holdings for each period.

NAREIT Equity Index: This is an index of Equity Real Estate Investment Trust returns reflecting the stock value changes of REIT issues as determined through public market transactions.

The NFI-ODCE Value-Weight Index is a time-weighted return Index with an inception date of 12/31/1977. The Index is comprised of 33 open-end commingled funds, in which 23 are still actively investing. Inclusion within the Index requires (a) minimum of 80% of net fund assets invested in the multifamily, retail, industrial, office, or hotel property type, (b) maximum of 20% of net fund assets invested in real estate debt or private/public company equity, (c) at least 80% of net assets invested in properties with a minimum occupancy of 60%, (d) no more than 70% of real estate net assets invested in a single property type or region, (e) maximum of 40% leverage, and (f) at least 95% of net real estate assets invested within the U.S. market.

Definitions

Terms

Beginning Market Value: Value of real estate, cash and other holdings from prior period end.

Contributions: Cash funded to the investment for acquisition and capital items (i.e., initial investment cost or significant capital improvements).

Distributions: Actual cash returned from the investment, representing distributions of income from operations. **Withdrawals:** Cash returned from the investment, representing returns of capital or net sales proceeds.

Ending Market Value: The value of an investment as determined by actual sales dollars invested and withdrawn plus the effects of appreciation and reinvestment; market value is equal to the ending cumulative balance of the cash flow statement (NAV).

Unfunded Commitments: Capital allocated to managers which remains to be called for investment. Amounts are as reported by managers.

Remaining Allocation: The difference between the ending market value + the unfunded commitments and the target allocation. This figure represents dollars available for allocation.

Core: Direct investments in operating, fully leased, office, retail, industrial, or multifamily properties using little or no leverage (normally less than 30%).

Value-Added: Core returning investments that take on moderate additional risk from one or more of the following sources: leasing, re-development, exposure to non-traditional property types, the use of leverage.

Opportunistic: Investments that take on additional risk in order to achieve a higher return. Typical sources of risks are: development, land investing, operating company investing, international exposure, high leverage, distressed properties.

Non Core: Includes both value added and opportunistic strategies

Vintage Year: Year of first drawdown

Definitions

Performance

Capitalization rate: Commonly known as cap rate, is a rate that helps in evaluating a real estate investment. $\text{Cap rate} = \text{Net operating income} / \text{Current market value (Sales price) of the asset.}$

Net operating income: Commonly known as NOI, is the annual income generated by an income-producing property after taking into account all income collected from operations, and deducting all expenses incurred from operations.

Real Estate Appraisal: The act of estimating the value of property. A real estate appraisal may take into account the quality of the property, values of surrounding properties, and market conditions in the area.

Income Return (“INC”): Net operating income net of debt service before deduction of capital items (e.g., roof replacement, renovations, etc.)

Appreciation Return (“APP”): Increase or decrease in investment's value based on internal or third party appraisal, recognition of capital expenditures which did not add value or uncollectible accrued income, or realized gain or loss from sales.

Total Gross Return: The sum of the income return and appreciation return before adjusting for fees paid to and/or accrued by the manager.

Total Net Return: Total gross return less Advisor fees reported. All fees are requested (asset management, accrued incentives, paid incentives). No fee data is verified.

Inception Returns: The total net return for an investment or portfolio over the period of time the client has funds invested. Total portfolio Inception Returns include returns from investments no longer held in the current portfolio.

Net IRR: IRR after advisory fees, incentive and promote. This includes actual cash flows and a reversion representing the LP Net Assets at market value as of the period end reporting date.

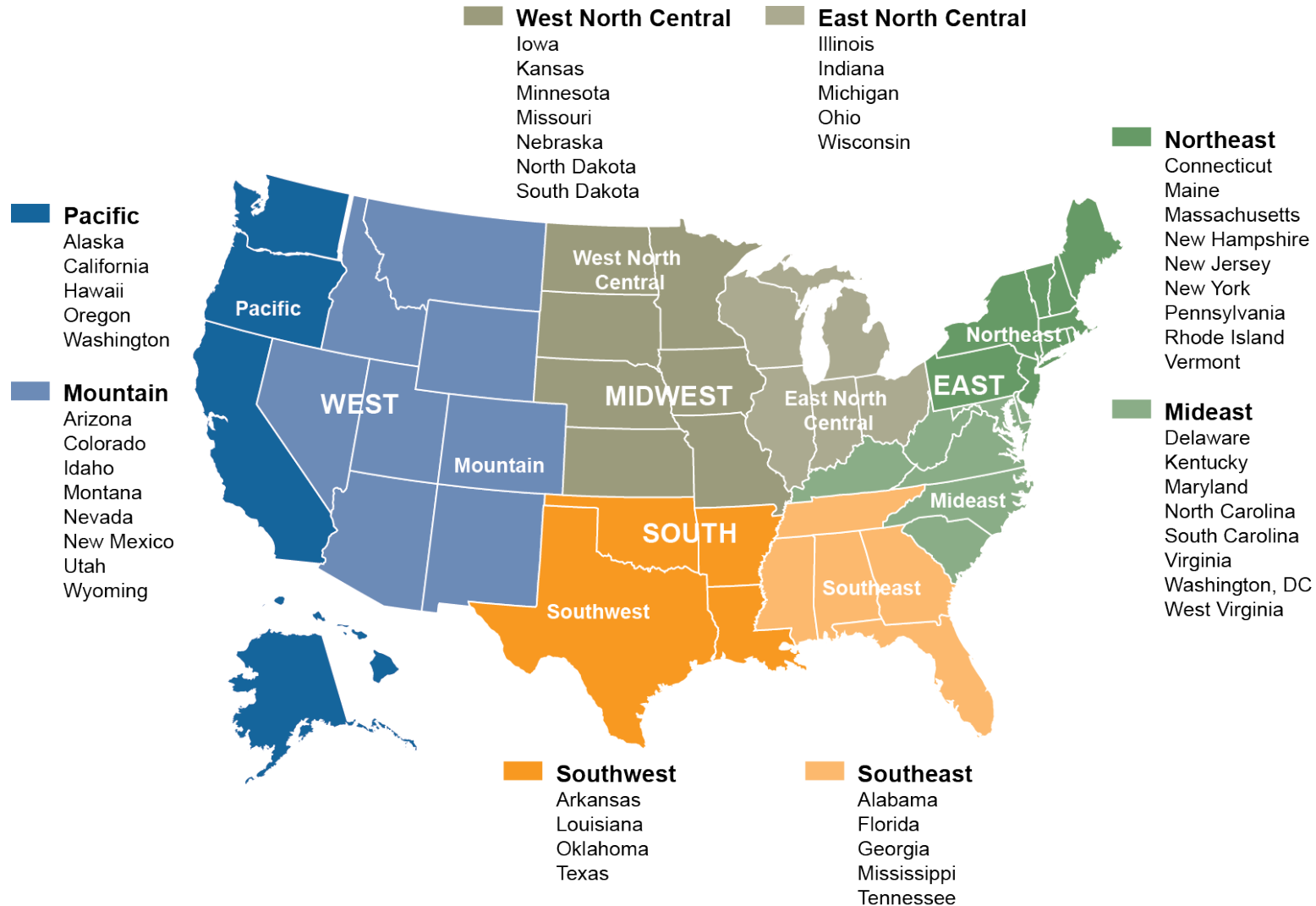
Equity Multiple: The ratio of Total Value to Paid-in-Capital (TVPIC). It represents the Total Return of the investment to the original investment not taking into consideration the time invested. Total Value is computed by adding the Residual Value and Distributions. It is calculated net of all investment advisory and incentive fees and promote.

DPI Multiple: The ratio of distributions paid to the investor divided by the amount of contributions paid by the investor. It is calculated net of all investment advisory and incentive fees and promote.

Sharpe Ratio: Sharpe Ratio is a measure of the risk-adjusted return of a portfolio. The ratio represents the return gained per unit of risk taken. The risk of the portfolio is the Standard Deviation of the portfolio returns.

NCREIF Region Map

Geographic Regions and Divisions



Source: NCREIF

Disclaimers

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Performance numbers in this presentation are based on quarterly data collected from CTPF investment managers and calculated by Callan Associates beginning in the fourth quarter of 2015. Quarterly performance history prior to the fourth quarter of 2015 was calculated and provided to Callan by the previous consultant, The Townsend Group.