



Nebraska Investment Council

Fourth Quarter 2020 Real Estate Performance Review

Real Estate Markets Performance and Overview

As of 12/31/2020

Performance Summary	Quarter (%)		1 Year (%)		3 Year (%)		5 Year (%)	
	TGRS	TNET	TGRS	TNET	TGRS	TNET	TGRS	TNET
NFI-ODCE Value Weight	1.3	1.1	1.2	0.3	4.9	4.0	6.2	5.3
NCREIF Property Index "NPI"	1.1		1.6		4.9		5.9	

- The NFI-ODCE trailing one-year return now stands at 0.3% net. Due to moderation in the real estate market, and compounded by market distress caused by COVID-19, 5-year real estate returns have dipped below the sector's long-run average of 7-9% gross.

United States Real Estate Market Update (4Q20)

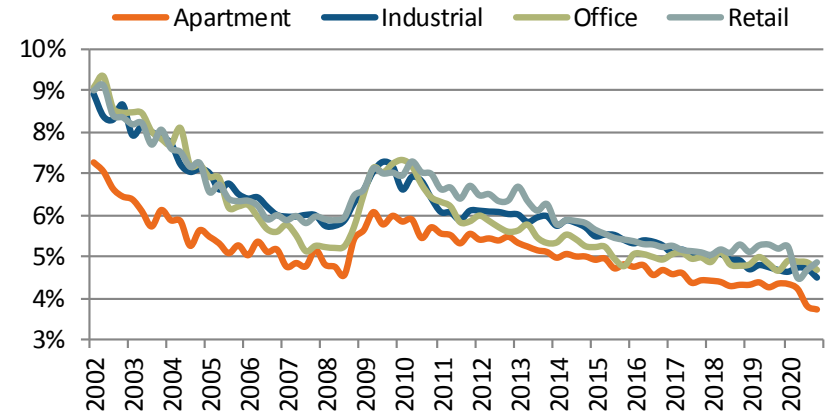
General

- On March 13, 2020, President Trump declared a national emergency. National, state, and local governments across the world implemented stay-at-home orders, which caused a near complete halt of the world economy. Governments have dramatically expanded expenditures in order to protect people and businesses from large-scale disruption. In 4Q20, equity markets continued to bounce back from the March rout and even exceeded prior highs, and the S&P 500 produced a gross total return of 12.1%. The MSCI US REIT index continued to rebound and produced a return of 11.5% but remains down -7.5% YTD.
- The U.S. entered a recession in February 2020; GDP contracted at an annualized rate of -31.4% in the 2nd quarter 2020 but rebounded and grew at annualized rate 33.1% in the 3rd quarter. In the 4th quarter, GDP grew at an annualized rate of 4.0% and was hindered by a second wave of COVID-19. The unemployment rate peaked in April at 14.7% and has since declined to 6.7% at quarter end 4Q20. The Federal Reserve has acted aggressively via quantitative easing and rate cuts, thus far financial markets have stabilized. The CARES Act provided \$1.5 trillion of stimulus to the economy. The Bloomberg average forecast has projected that the world economy will shrink by -3.9% in 2020.

Commercial Real Estate

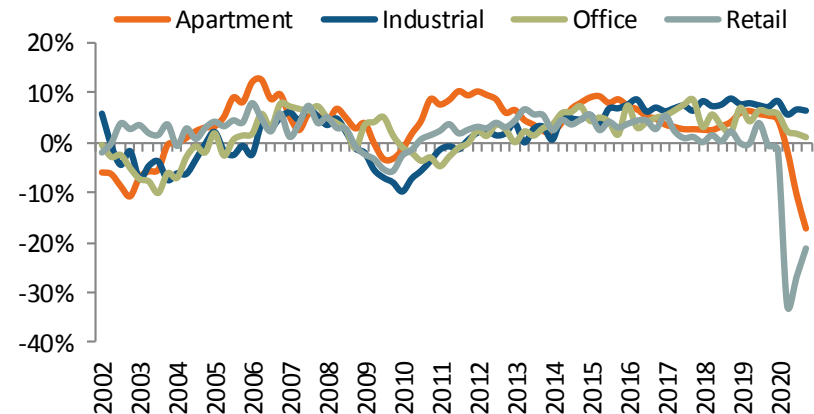
- Shelter in place orders and social distancing have restricted the ability to complete due diligence and acquire assets. Through January 2021, transaction volume was down by 58% YoY. Transactions have primarily occurred in the apartment and industrial sectors.
- Transaction cap rates (5.5%) expanded +60 bps during the quarter. Current valuation cap rates declined for apartments (-8 bps), office (-18 bps), and industrial (-21 bps). A lack of transactions continues to limit evidence to revalue real estate.
- NOI growth has substantially diverged between property sectors due to the impacts of COVID-19. Retail NOI has contracted substantially (-21%) YoY as rent collections declined and retailers were shutdown. Apartment NOI contracted (-17%), primarily driven by declines in effective market rents and a nearly 2% increase in vacancy rates YoY. Public market signals have been divergent by property type.
- In the fourth quarter of 2020, \$39 bn of aggregate capital was raised by real estate funds. There continues to be substantial dry powder, ~\$353 billion, seeking exposure to private real estate.
- 10-year treasury bond yields remained rose 20 bps to 0.9% during the quarter.

Current Value Cap Rates by Property Type



Source: NCREIF

4 Quarter Rolling NOI Growth



Source: NCREIF

United States Property Matrix (4Q20)

INDUSTRIAL

MULTIFAMILY

- In 4Q20, industrial properties were the highest returning sector at 4.7% and outperformed the NPI by 355 bps.
- Transaction volumes increased to \$40.2 billion in the fourth quarter of the year, resulting in a 9.0% increase year-over-year. Individual asset sales increased 28.0% year-over-year, while portfolio purchases turned in a year-over-year volume decrease of 14.0%. At slightly over \$40 billion, the industrial sector turned in it's second highest quarterly transaction volume value to date and increased a significant \$23.3 billion quarter-over-quarter.
- The industrial sector turned in NOI growth of 6.4% over the past year, a decrease from the prior periods TTM growth of 6.6% in 3Q20. Market rent growth is expected to decelerate compared to its recent pace but remains strong.
- Vacancy increased by 10 bps year-over-year to 3.4%, remaining close to all-time historic lows. E-commerce continues to drive demand.
- Industrial cap rates compressed approximately 20 bps from a year ago, to 4.5%. Industrial overall fundamentals still top all property sectors.

- The apartment sector delivered a 1.0% return during the quarter, underperforming the NPI by 15 bps.
- Transaction volume in the fourth quarter of 2020 rose to \$60.3 billion, resulting in an increase of 7.0% year-over-year. This volume continues to make multifamily the most actively traded sector for the fourteenth straight quarter.
- Cap rates decreased to 3.7%, compressing 65 bps year-over-year. Multifamily cap rates continue falling to their lowest in years, driven by continued decrease in NOI and increases in valuation.
- The multifamily sector has seen increasing vacancy rates due to the pandemic but continues to hold steady relatively speaking, vacancy has increased 185 bps from a year ago. Various rent concessions have helped managers to maintain tenants through out the pandemic, these concessions will have various impacts on NOI over the next few quarters. The aging millennials have begun shifting their desires to suburban living, but continued home price appreciation has deterred the full effect of this migratory trend.

OFFICE

RETAIL

- The office sector returned 0.5% in 4Q20, 65 bps below the NPI return over the period.
- Transaction volumes decreased by 29.0% year-over-year in the fourth quarter. Transaction volume equaled \$30.0 billion for the quarter, an increase of \$15.4 billion quarter-over-quarter. Single asset transactions accounted for 71.0% of volume.
- Office sector vacancy rates have expanded since the beginning of the pandemic due to work from home orders and uncertainty revolving around the future of office space. Office continues to be the highest vacancy property type at close to 11.2%.
- NOI growth continued to fall for the office sector to 1.0% in the last year, a decrease of 75 bps and 125 bps from 3Q20 and 2Q20, respectively. Due to work from home orders and rent deferrals/relief, NOI growth is expected to continue being compressed.
- Office cap rates expanded from a year ago to approximately 4.7%, an expansion of just 2 bps. Office-using job growth has been stunted significantly in 2020 due to many work from home orders.

- As of 4Q20, the retail sector delivered a quarterly return of -1.2%, performing 240 bps below the NPI.
- Transaction volumes totaled \$13.7 billion in the fourth quarter, falling 34% year-over-year. Single asset transactions accounted for just over 68.8% of all sales volume for the quarter.
- Cap rates have compressed approximately 35 bps within the sector over the last year, to 4.8%. The current valuation cap rate did expand quarter-over-quarter by 20 bps due to downward valuation adjustments made across the sector in general.
- NOI growth slightly increased though still significantly negative, -21.3% over the last year. This is a 5.8% increase from last quarter. Retail is expected to continue to suffer from the shift towards e-commerce and hesitance of the consumer.
- Retail vacancy rates increased 185 bps over the past year to 9.0%. Many big box stores have closed as the need for retail space shrinks, translating to a negative outlook for rent growth. Paired with the global economic crisis that has had a significant negative impact on this sector.

Global Real Estate Market Update (4Q20)

- Global investment activity during the fourth quarter of 2020 was up significantly relative to 3Q20 but was down by 20% over the year compared to 2019. During 4Q20, Transaction volumes recovered significantly in the US and APAC regions while the EU continued to experience significant depression.

- Despite resurgence in COVID cases in certain regions, globally COVID case declines and increased availability of the vaccine have driven an uptick in investor appetite. Interest has been concentrated primarily on industrial, logistics and data center assets with heightened attention given to multifamily properties in certain regions.

- Investment activity in the Americas witnessed a sharp decline and fell by 32% year-over-year. Despite a continued rise in COVID cases, the roll out of the vaccine helped spur investment. Transaction volume in the US increased 97% relative to 3Q20.

- In the Asia Pacific region, volumes were down year-over-year, but transaction activity continued to recover rising 41% relative to 3Q20. Japan and Hong Kong saw improvement in the Q420 due to the execution of several large office deals. Mainland China and Australia investment improved but remained significantly depressed over the year. Korea investment remained strong driven by active domestic real estate funds.

- Although investment activity dropped in the EMEA region, it dropped less than the Americas, with a 25% year-over-year decline. Germany, the largest market, witnessed only a 5% decline.

- In the office sector, global leasing activity declined by over 43% year-over-year and vacancy rates increased by 80 bps to 12.9%. The declines represent an uncertainty about future office space needs. The US witnessed a 90 bps increase in vacancy reaching 15% in Q420. Across the main European markets, rents decreased by 378 bps y-o-y hitting -1.7% in Q420. In the APAC region, despite improvement, net absorption remained depressed.

- Despite a recovery in sales, the retail sector continued to suffer globally as the shutdowns and social distancing measures of the COVID-19 outbreak posed challenges for operators. The bifurcation between property types (necessity-based vs malls/street retail) and markets (urban vs suburban) has significantly widened.

- Despite the multifamily market recording a significant decrease in investments globally, the sector remains the most liquid in commercial real estate highlighting its attractiveness. In the U.S., absorption beat expectations posting an increase in vacancy of only 10 bps to 4.5%, with suburban assets performing above average. However, in Europe investment was up 7% year-over-year. In the APAC, a resurgence of demand occurred as lock-downs ebbed resulting in a 26% y-o-y increase in transaction volumes.

- Industrial yields continued to compress due to strong market fundamentals and heightened demand. US investment volumes recovered in Q420 but still fell by 1.3% compared to 4Q19. EMEA investment volumes performed better than expectations with 4Q20 outpacing 3Q19 by 11%. In the Asia Pacific, rent remained flat y-o-y but values increased slightly by 1.8%.

Global Total Commercial Real Estate Volume - 2019 - 2020

\$ US Billions	Q4 2020	Q4 2019	% Change			% Change
			Q4 20 - Q4 19	2020	2019	Full Year
Americas	141	166	-15%	367	540	-32%
EMEA	89	145	-39%	285	380	-25%
Asia Pacific	227	216	5%	770	855	-10%
Total	457	528	-13%	1422	1775	-20%

Source: Real Capital Analytics, Inc., Q4' 20

Global Outlook - GDP (Real) Growth % pa, 2020-2022

	2020	2021	2022
Global	-3.5	5.4	4.2
Asia Pacific	0.3	5.1	5.0
Australia	-2.8	3.8	3.3
China	2.3	8.4	5.5
India	-7.5	10.0	6.0
Japan	-4.8	2.7	2.1
North America	-3.7	4.9	3.6
US	-3.5	4.9	3.7
Middle East	-3.6	3.1	3.7
European Union	-6.4	4.3	4.2
France	-8.1	5.8	4.0
Germany	-4.9	3.4	3.9
UK	-10.2	4.6	5.5

Source: Bloomberg

Executive Summary

Portfolio Overview

- NAV for the DB/CBB portfolio ended Q4 at \$969 million, resulting in an allocation of 5.5%
 - Policy range for Real Estate is between 1.0% and 11.0%
- NAV for the Endowments portfolio ended Q4 at \$54 million, resulting in an allocation of 3.5%
 - Policy range for Real Estate is between 0.0% and 10.0%
- The OSERS portfolio currently makes up 9.3% of the total plan's assets. Closed-end funds have started to liquidate, bringing the plan in line with the real estate allocation target of 7.5% by 2021.

Investment Line-up Changes & Pacing

- DB/CBB 2020 / 2021 Pacing: \$70 million to Non-Core planned for 2020; \$70 million to Non-Core planned for 2021
 - Subsequent to quarter end capital pacing for 2020 and 2021 have been filled
- 50-50 Endowment 2020 / 2021 Pacing: \$4.5 million to Non-Core planned for 2020; \$2.5 million to Non-Core planned for 2021
 - Subsequent to quarter end capital pacing for 2020 and 2021 have been filled
- Healthcare Endowment 2020 / 2021 Pacing: \$1.5 million to Non-Core planned for 2020; \$1.5 million to Non-Core planned for 2021
 - Subsequent to quarter end capital pacing for 2020 and 2021 have been filled
- OSERS 2020 / 2021 Pacing: No new commitments planned for 2020; \$15 million to Non-Core and \$10 million to Core planned for 2021

Executive Summary (cont'd)

Performance

- In the near-term commercial real estate has appeared to stabilize following market dislocation in the second and third quarters of 2020. The Core portfolios' total time weighted returns across the DB/CBB (0.9% net) and Endowments (0.7% net) held up well against NFI-ODCE (1.1% net) for the quarter, while OSERS (5.4% net) outperformed due to 25 Capital's recent improvement from the first half of 2020.
- In the long-term both the DB/CBB and the two Endowment programs continue to perform relatively in-line with ODCE, despite UBS TPF's drag on performance and COVID-19 distress. Since inception time weighted returns for the DB/CBB, Endowments, and OSERS exceed the benchmark by 19 basis points, 499 basis points, and 46 basis points, respectively.
- The since inception dollar weighted returns of the Plans have started to moderate similar to that of the overall real estate market.
 - DB/CBB plan (Est. Q4 2004): 6.4% net IRR and 1.4x net equity multiple
 - Endowments (Est. Q4 2008): 8.5% net IRR and 1.4x net equity multiple
 - OSERS (Est. Q3 1995): 8.4% net IRR and 1.4x net equity multiple

Portfolio Overview

Portfolio Detail ¹ as of December 31, 2020	Defined Benefit Portfolio	Endowment Portfolio	Total NIC Portfolio	OSERS RE Portfolio
Number of Active Investments	22	10	32	8
Total Commitments	\$1,188,500,000	\$87,000,000	\$1,275,500,000	\$330,736,306
Unfunded Commitments	\$172,559,233	\$8,110,623	\$180,669,856	\$8,339,263
Cumulative Paid-In	\$1,423,133,039	\$104,300,044	\$1,527,433,083	\$416,762,117
Cumulative Distributions	\$974,056,644	\$88,434,486	\$1,062,491,130	\$464,765,539
Net Asset Value	\$969,123,433	\$54,277,750	\$1,023,401,183	\$130,178,388
Total Value ²	\$1,943,180,077	\$142,712,236	\$2,085,892,313	\$594,943,927
DPI ³	0.68x	0.85x	0.70x	1.12x
TVPI ⁴	1.37x	1.37x	1.37x	1.43x
IRR since inception	6.36%	8.46%	6.40%	8.36%
Real Estate Inception Date	12/31/2004	12/1/2008	12/31/2004	9/30/1995

¹Total Paid-In Cash includes all contributions and all management fees

²Total Distributions + Net Asset Value

³Distributions / Paid-In Cash

⁴Total Value / Paid-In Cash

DB/CBB Portfolio Time Weighted Performance¹

As of 12/31/2020

Returns (%)	Quarter				1 Year				3 Year				5 Year				Inception		TWR Calculation Inception	Net IRR	Equity Multiple
	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	TGRS	TNET			
Core																					
Lion Properties Fund	0.9	1.1	2.0	1.8	3.5	-1.2	2.2	1.5									4.7	3.9	1Q19	3.4	1.0
PRISA SA	0.9	0.5	1.5	1.3	4.0	-1.4	2.5	1.7	4.2	1.6	5.8	5.0	4.4	2.3	6.7	5.9	6.1	5.3	2Q06	5.3	1.9
UBS Trumbull Property Fund	0.9	-2.8	-1.9	-2.1	3.9	-7.7	-4.0	-4.7	4.4	-4.1	0.2	-0.5	4.5	-1.7	2.7	1.9	5.2	4.3	3Q06	4.2	1.7
Core	0.9	-0.1	0.8	0.6	3.8	-3.0	0.7	-0.1	4.2	0.1	4.2	3.4	4.3	1.3	5.7	4.8	6.2	5.3	2Q06	5.5	1.5
Core Debt																					
UBS Trumbull Property Income Fund	0.9	-0.2	0.7	0.5	3.5	-2.6	0.8	0.0	3.9	0.9	4.8	4.0	4.0	1.6	5.7	4.9	6.5	5.7	2Q15	5.1	1.2
Core Debt	0.9	-0.2	0.7	0.5	3.5	-2.6	0.8	0.0	3.9	0.9	4.8	4.0	4.0	1.6	5.7	4.9	6.5	5.7	2Q15	5.1	1.2
Core Plus																					
PRISA II	1.1	0.6	1.7	1.4	4.1	-3.0	1.0	-0.1	4.0	1.8	5.9	4.7	4.2	3.0	7.3	6.1	4.6	3.5	3Q07	6.1	1.7
Core Plus	1.1	0.6	1.7	1.4	4.1	-3.0	1.0	-0.1	4.0	1.8	5.9	4.7	4.2	3.0	7.3	6.1	4.6	3.5	3Q07	6.1	1.7
Value Added																					
Almanac Realty Securities V, LP	-23.6	4.8	-18.8	-19.0	-31.3	2.4	-28.5	-29.0	1.5	-7.3	-4.1	-5.2	8.8	-7.0	3.3	2.0	8.8	6.2	3Q08	11.9	1.5
Almanac Realty Securities VII	1.5	0.3	1.8	1.5	8.0	-1.5	6.4	5.2	8.0	5.0	13.3	12.0	8.6	6.1	15.1	12.5	15.7	12.5	3Q15	12.9	1.4
Almanac Realty Securities VIII	2.2	13.8	16.0	14.2	4.6	6.4	11.1	0.3									14.4	-2.4	3Q19	4.1	1.0
Rockwood Capital Real Estate Partners Fund IX	1.6	1.0	2.7	2.0	2.1	-28.7	-27.2	-29.6	2.6	-9.4	-7.1	-9.9	2.7	-1.2	1.4	-1.1	9.2	6.1	4Q13	10.6	1.3
Rockwood Capital Real Estate Partners Fund X	1.0	1.4	2.3	1.9	2.4	2.5	5.0	3.1	2.1	6.4	8.7	6.2					6.0	3.2	4Q16	4.5	1.1
Rockwood Capital Real Estate Partners Fund XI	0.6	1.1	1.8	-1.9	-26.7	-76.4	-87.4	-25.6									-72.1	15.3	4Q19	-36.2	0.9
Value Added	1.3	2.3	3.6	2.8	4.4	-0.4	4.0	0.8	5.2	4.0	9.3	6.5	5.7	5.2	11.2	8.2	4.3	1.7	4Q07	5.8	1.2
Opportunistic																					
AG Realty Fund VIII	-3.1	-4.4	-7.5	-6.2	-3.0	-15.7	-18.3	-15.7	-3.7	-0.9	-4.5	-4.5	-1.9	4.1	2.1	0.8	11.1	7.7	2Q12	12.8	1.5
CBRE Strategic Partners U.S. Opportunity 5	-0.5	6.5	6.0	6.0	-1.0	12.0	11.0	11.0	-0.6	8.5	7.9	7.5	2.5	4.3	7.0	6.4	-10.5	-12.3	4Q08	5.4	1.4
Landmark Real Estate Fund VI	-2.3	0.0	-2.3	-2.6	5.0	-15.9	-10.6	-11.4	-4.6	-7.8	-9.8	-10.9	5.4	-12.7	-5.6	-6.8	5.1	3.5	1Q11	19.0	1.6
Landmark Real Estate Fund VII	1.8	-0.9	0.8	0.5	-4.6	0.8	-3.4	-3.9	3.6	-4.7	-0.9	-1.9	7.8	-4.2	3.6	1.8	17.1	12.5	1Q15	7.8	1.2
Landmark Real Estate Fund VIII	5.5	-3.8	1.7	0.8	10.2	-10.9	-1.5	-4.0	9.7	-5.2	4.4	-0.6					0.3	-4.0	4Q17	9.2	1.1
Rockpoint Real Estate Fund III	-0.1	3.2	3.1	2.4	0.7	-2.3	-1.6	-4.4	1.3	3.3	4.7	1.6	1.2	3.2	4.4	0.3	8.7	2.7	2Q09	13.6	1.4
Torchlight Debt Fund VII, LP	0.2	5.9	6.1	3.3													6.1	3.3	4Q20	0.2	1.0
Torchlight Debt Opportunity Fund IV	0.4	-1.7	-1.3	-0.1	2.2	-15.0	-13.1	-4.6	5.4	-5.9	-0.7	2.4	7.2	-2.3	4.8	5.6	7.1	7.0	1Q14	9.3	1.4
Torchlight Debt Opportunity Fund V	0.9	3.8	4.6	3.1	3.9	-9.6	-6.0	-0.1	7.7	0.3	8.1	7.2	11.7	2.6	14.5	10.4	15.2	8.4	3Q15	10.3	1.3
Torchlight Debt Opportunity Fund VI	1.7	1.2	2.9	2.6	7.1	-9.6	-3.0	-4.3									11.9	2.5	3Q18	2.3	1.0
Opportunistic	1.5	0.4	1.9	1.4	2.5	-5.5	-3.1	-3.0	5.0	-1.1	3.8	1.8	7.5	-0.6	6.9	4.3	0.9	-3.4	4Q08	10.2	1.3
Total Portfolio																					
NIC - DB Direct	1.0	0.2	1.2	0.9	3.7	-3.0	0.7	-0.2	4.3	0.5	4.8	3.7	4.8	1.5	6.4	5.2	7.7	6.5	1Q05	6.4	1.4
Indices																					
NFI-ODCE Value Weight	0.9	0.4	1.3	1.1	3.8	-2.6	1.2	0.3	4.1	0.8	4.9	4.0	4.2	1.9	6.2	5.3	7.3	6.3	1Q05		

¹Returns shown are time-weighted, which ignores both the timing and magnitude of cashflows into and out of the portfolio. While time-weighted returns are commonly used as a standard measure of performance in traditional asset classes, the Internal Rate of Return ("IRR") is a better and more common measure of real estate performance.

Endowment Portfolio Time Weighted Performance

As of 12/31/2020

Returns (%)	Quarter				1 Year				3 Year				5 Year				Inception		TWR Calculation Inception	Net IRR	Equity Multiple
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Core																					
Lion Properties Fund	0.9	1.1	2.0	1.8	3.5	-1.2	2.2	1.5									4.2	3.4	2Q19	3.0	1.0
PRISA SA	0.9	0.7	1.6	1.4	3.9	-1.4	2.5	1.7	4.2	1.4	5.7	4.8	4.4	2.2	6.7	5.8	11.1	10.2	1Q10	9.2	2.0
UBS Trumbull Property Fund	0.9	-2.8	-1.9	-2.1	3.9	-7.7	-4.0	-4.7	4.4	-4.1	0.2	-0.5	4.5	-1.7	2.7	1.9	8.0	7.1	1Q10	6.2	1.6
Core	0.9	-0.1	0.8	0.6	3.8	-3.2	0.5	-0.3	4.2	-0.2	4.0	3.2	4.3	1.2	5.5	4.7	11.3	10.3	1Q10	8.2	1.5
Core Debt																					
UBS Trumbull Property Income Fund	0.9	-0.2	0.7	0.5	3.5	-2.6	0.8	0.0	3.9	0.9	4.8	4.0					5.4	4.6	2Q16	4.7	1.2
Core Debt	0.9	-0.2	0.7	0.5	3.5	-2.6	0.8	0.0	3.9	0.9	4.8	4.0					5.4	4.6	2Q16	4.7	1.2
Opportunistic																					
Landmark Real Estate Fund VII	1.8	-0.9	0.8	0.5	-4.6	0.8	-3.4	-3.9	3.6	-4.7	-0.9	-1.9	7.8	-4.2	3.6	1.8	17.0	12.4	1Q15	7.8	1.2
Metropolitan Real Estate Partners International III, L.P.	-0.1	0.3	0.2	-0.1	6.6	-13.0	-6.7	-7.7	4.5	-11.4	-7.2	-8.2	3.7	-5.4	-1.8	-2.8	-10.6	-11.7	3Q09	5.1	1.1
Metropolitan Real Estate Partners VI, L.P.	0.0	0.2	0.2	0.0	-5.9	8.7	2.2	1.3	-2.6	5.1	2.6	1.6	-0.1	3.7	3.8	2.8	11.0	10.4	1Q09	11.2	1.5
Metropolitan Real Estate Secondaries and Co-Investments Fund, L.P.	0.4	2.0	2.4	2.1	0.5	-21.4	-20.9	-16.3	1.1	-1.5	-0.3	0.2	0.9	3.0	3.9	2.8	3.9	2.8	1Q16	7.4	1.2
Torchlight Debt Fund VII, LP	0.2	5.9	6.1	3.3													6.1	3.3	4Q20	0.2	1.0
Opportunistic	0.6	0.9	1.5	1.2	-1.2	-10.0	-11.2	-9.5	1.7	-2.7	-1.1	-1.4	2.9	-0.1	2.8	1.8	10.9	9.8	1Q09	9.3	1.3
Total Portfolio																					
NIC - DB Endowment	0.8	0.1	0.9	0.7	2.7	-4.5	-1.8	-2.1	3.5	-0.4	3.1	2.3	4.0	1.1	5.1	4.1	11.3	10.4	1Q09	8.5	1.4
Indices																					
NFI-ODCE Value Weight	0.9	0.4	1.3	1.1	3.8	-2.6	1.2	0.3	4.1	0.8	4.9	4.0	4.2	1.9	6.2	5.3	6.4	5.4	1Q09		

- Portfolio is underperforming the benchmark over the Quarter, 1-Year, 3-Year, and 5-Year timeframes
- Portfolio is outperforming the benchmark over the Since Inception timeframes

OSERS Portfolio Time Weighted Performance

As of 12/31/2020

Returns (%)	Quarter				1 Year				3 Year				5 Year				Inception		TWR Calculation Inception	Net IRR	Equity Multiple
	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	INC	APP	TGRS	TNET	TGRS	TNET			
Core																					
JP Morgan Strategic Property Fund	0.8	1.1	1.9	1.7	3.6	-2.1	1.4	0.4	3.8	0.8	4.6	3.5	4.0	1.8	5.8	4.7	9.0	8.3	1Q98	9.6	3.0
UBS Trumbull Property Fund	0.9	-2.8	-1.9	-2.1	3.9	-7.7	-4.0	-4.7	4.4	-4.1	0.2	-0.5	4.5	-1.7	2.7	1.8	8.9	7.8	4Q95	10.4	2.5
Core	0.9	-0.7	0.1	-0.1	3.8	-4.8	-1.2	-2.0	4.1	-1.6	2.4	1.6	4.2	0.1	4.3	3.3	9.4	8.5	4Q95	10.0	2.7
Value Added																					
Almanac Realty Securities VI	-5.1	-1.1	-6.2	-6.5	2.1	-34.1	-32.1	-32.9	6.8	-18.2	-12.3	-13.0	7.0	-11.2	-4.8	-5.6	5.1	3.6	1Q12	9.0	1.3
Almanac Realty Securities VII	1.5	0.3	1.8	1.5	8.0	-1.5	6.4	5.2	8.0	5.0	13.3	12.0	8.6	6.1	15.1	12.5	15.7	12.5	3Q15	12.9	1.3
Value Added	0.3	0.0	0.4	0.1	7.0	-9.7	-3.3	-4.4	7.8	-1.0	6.7	5.6	7.3	1.2	8.6	7.0	9.2	8.1	1Q98	7.4	1.4
Opportunistic																					
25 Capital Residential Mortgage Opportunities Fund	0.2	30.7	30.9	29.7	9.8	-13.7	-4.6	-12.3	2.6	-5.1	-2.5	-6.7	0.0	0.1	0.3	-3.0	3.1	-1.4	1Q13	3.0	1.1
JP Morgan India Fund II	0.5	3.3	3.8	3.0	-3.7	-19.0	-22.8	-25.4	-2.6	-23.2	-25.8	-27.6	0.1	-14.9	-15.3	-17.2	-6.6	-9.5	4Q12	-15.9	0.4
Mariner Real Estate Partners III	0.0	2.5	2.5	2.2	0.0	-35.1	-35.1	-36.3	0.0	-11.2	-11.2	-12.6	0.0	-5.7	-5.7	-7.1	2.6	1.3	4Q11	7.7	1.5
Mariner Real Estate Partners IV	0.0	5.7	5.7	5.4	0.0	13.0	13.0	11.8	0.0	14.7	14.7	11.6	0.0	20.4	20.4	15.8	13.2	9.5	1Q15	14.0	1.3
Opportunistic	0.1	8.7	8.8	8.3	0.3	-2.6	-2.4	-4.3	-0.2	1.1	0.8	-1.6	-0.5	4.6	4.0	1.5	7.6	5.2	4Q11	5.4	1.2
Total Portfolio																					
OSERS	0.3	5.5	5.8	5.4	1.8	-4.3	-2.6	-4.2	1.6	0.2	1.8	-0.2	1.5	3.0	4.5	2.4	9.4	8.2	4Q95	8.4	1.4
Indices																					
NFI-ODCE Value Weight	0.9	0.4	1.3	1.1	3.8	-2.6	1.2	0.3	4.1	0.8	4.9	4.0	4.2	1.9	6.2	5.3	8.7	7.7	4Q95		

- Portfolio is underperforming the benchmark over the 1-Year, 3-Year, and 5-Year timeframes
- Portfolio is outperforming the benchmark over the Quarter and Since Inception timeframes

OSERS – Real Assets Evolution of Performance

Partnership Name	Vintage Year	Real Asset Strategy	IRR as of									
			12/31/2011	12/31/2012	12/31/2013	12/31/2014	12/31/2015	12/31/2016	12/31/2017	12/31/2018	12/31/2019	12/31/2020
BTG Pactual Timberland	2004	Real Estate	0.00%	4.15%	4.38%	3.91%	3.53%	3.15%	2.63%	1.30%	1.21%	1.20%
JP Morgan Maritime Global	2010	Infrastructure	0.00%	-86.16%	7.20%	-1.93%	-18.11%	-23.19%	-10.76%	-6.96%	-7.29%	-9.32%
Total Real Assets Portfolio			0.00%	2.90%	4.47%	3.58%	1.69%	0.05%	0.42%	-0.51%	-0.88%	-1.63%

Partnership Name	Vintage Year	Real Asset Strategy	TVPI as of									
			12/31/2011	12/31/2012	12/31/2013	12/31/2014	12/31/2015	12/31/2016	12/31/2017	12/31/2018	12/31/2019	12/31/2020
BTG Pactual Timberland	2004	Real Estate	1.00x	1.33x	1.41x	1.40x	1.39x	1.38x	1.33x	1.16x	1.16x	1.16x
JP Morgan Maritime Global	2010	Infrastructure	1.00x	0.32x	1.10x	0.97x	0.74x	0.60x	0.73x	0.76x	0.70x	0.59x
Total Real Assets Portfolio			1.00x	1.20x	1.34x	1.25x	1.11x	1.00x	1.03x	0.96x	0.93x	0.87x

Non-Core IRR Equivalent

RE Strategy	NIC Performance	NFI-ODCE	NPI	Inception Date
DB Value Added	5.8%	6.0%	7.2%	8/24/2007
DB Opportunistic	10.2%	8.7%	9.0%	9/24/2007
DB Value Added & Opportunistic	8.1%	7.4%	8.1%	8/24/2007

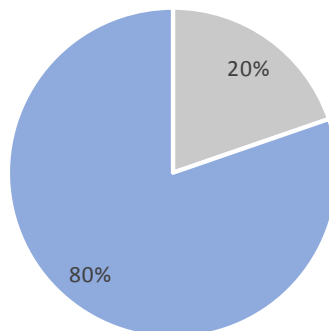
RE Strategy	NIC Performance	NFI-ODCE	NPI	Inception Date
Endowment Opportunistic	9.3%	8.0%	8.7%	12/1/2008

RE Strategy	OSERS Performance	NFI-ODCE	NPI	Inception Date
OSERS Value Added	7.4%	6.6%	8.3%	1/1/1998
OSERS Opportunistic	5.4%	8.5%	8.9%	8/3/2011
OSERS Value Added & Opportunistic	6.2%	7.8%	8.5%	1/1/1998

DB/CBB Real Estate Equity/Debt Exposure

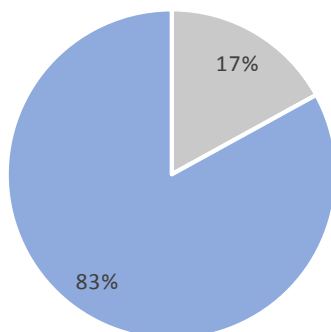
Total Real Estate

■ % Debt ■ % Equity



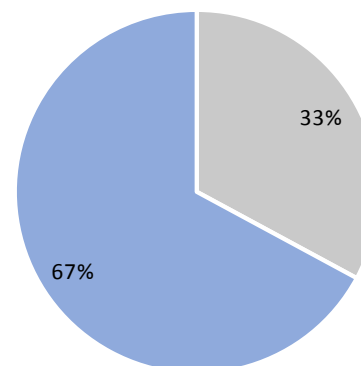
Core

■ % Debt ■ % Equity



Non-Core

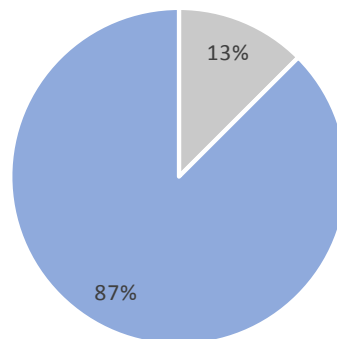
■ % Debt ■ % Equity



Endowment Capital Stack Exposure

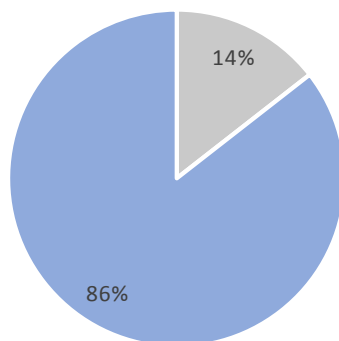
Total Real Estate

■ % Debt ■ % Equity



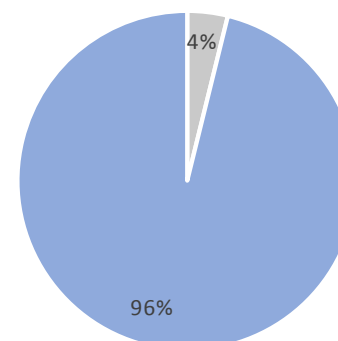
Core

■ % Debt ■ % Equity



Non-Core

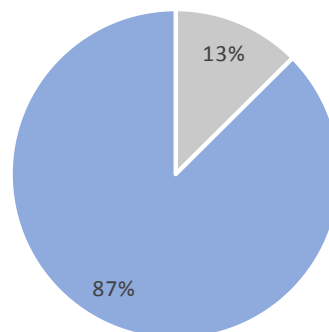
■ % Debt ■ % Equity



OSERS Capital Stack Exposure

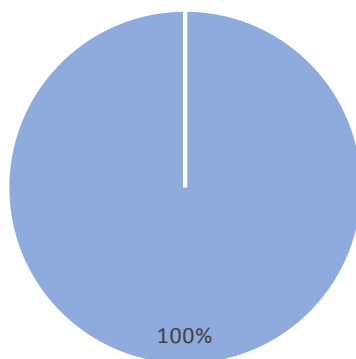
Total Real Estate

■ % Debt ■ % Equity



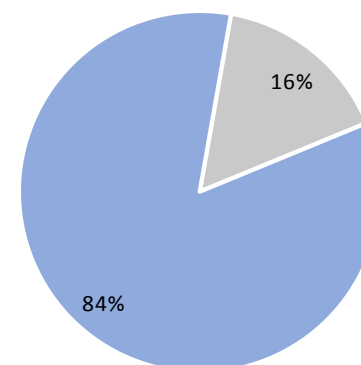
Core

■ % Debt ■ % Equity

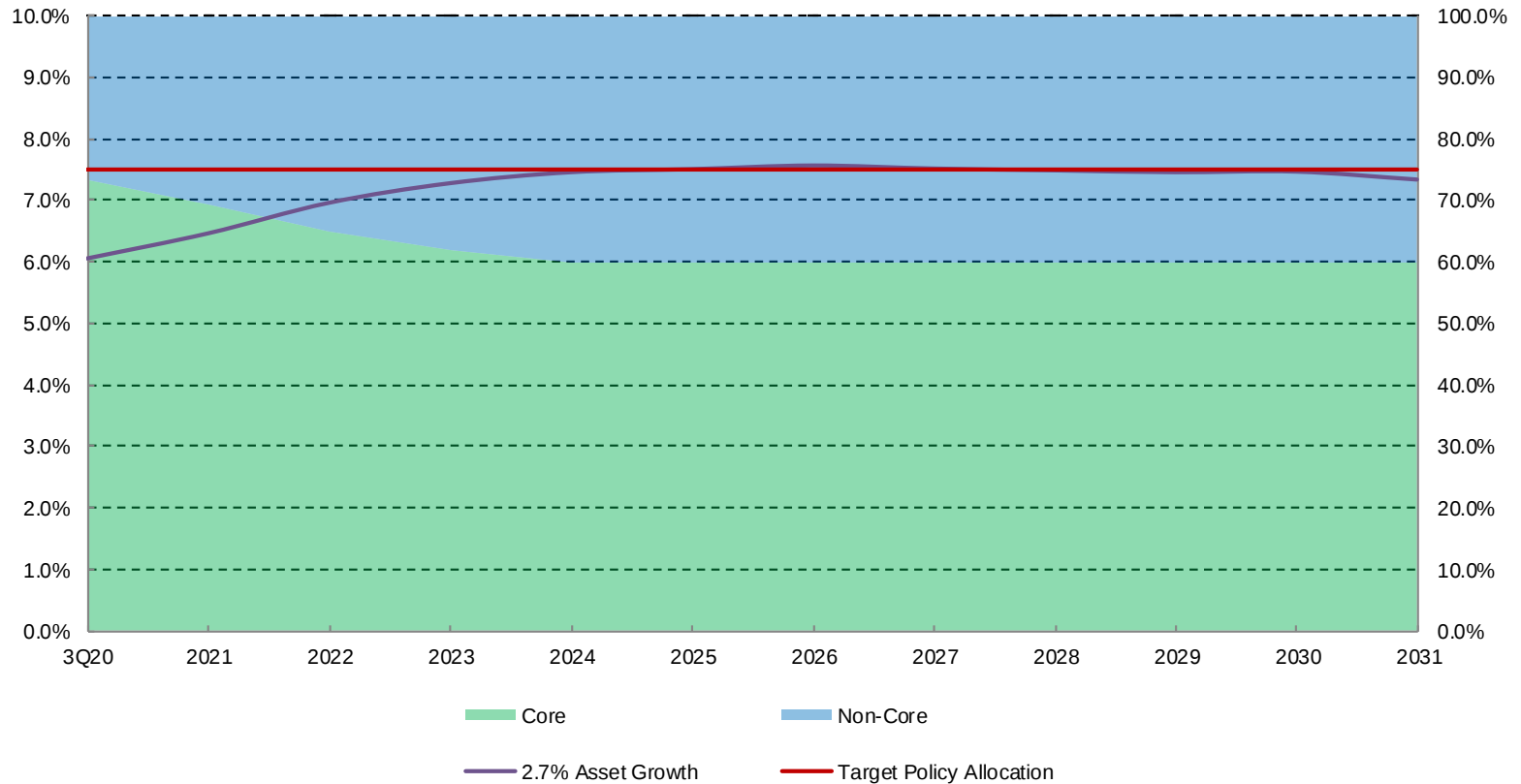


Non-Core

■ % Debt ■ % Equity

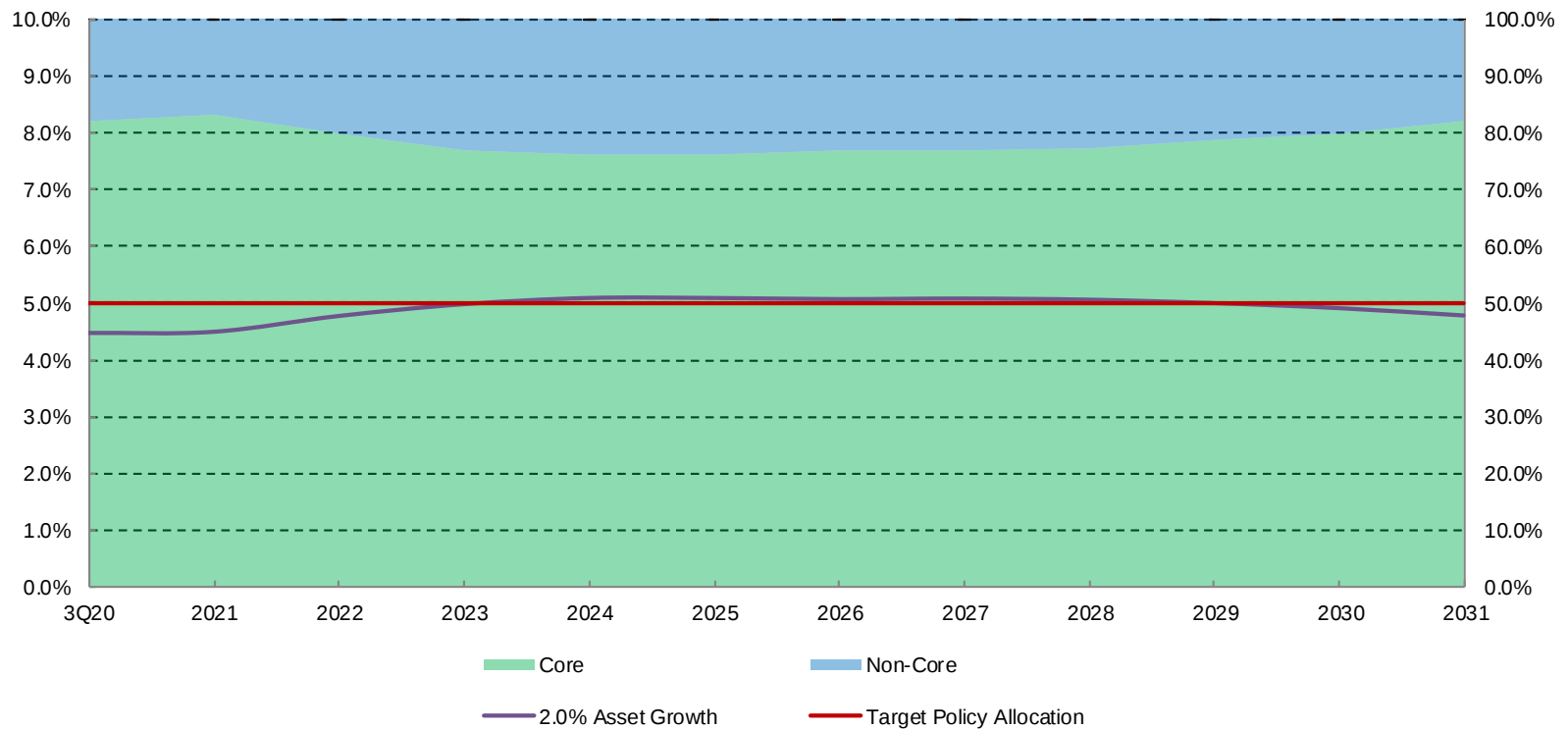


Projected NAV of Real Estate as a Percent of Total Program



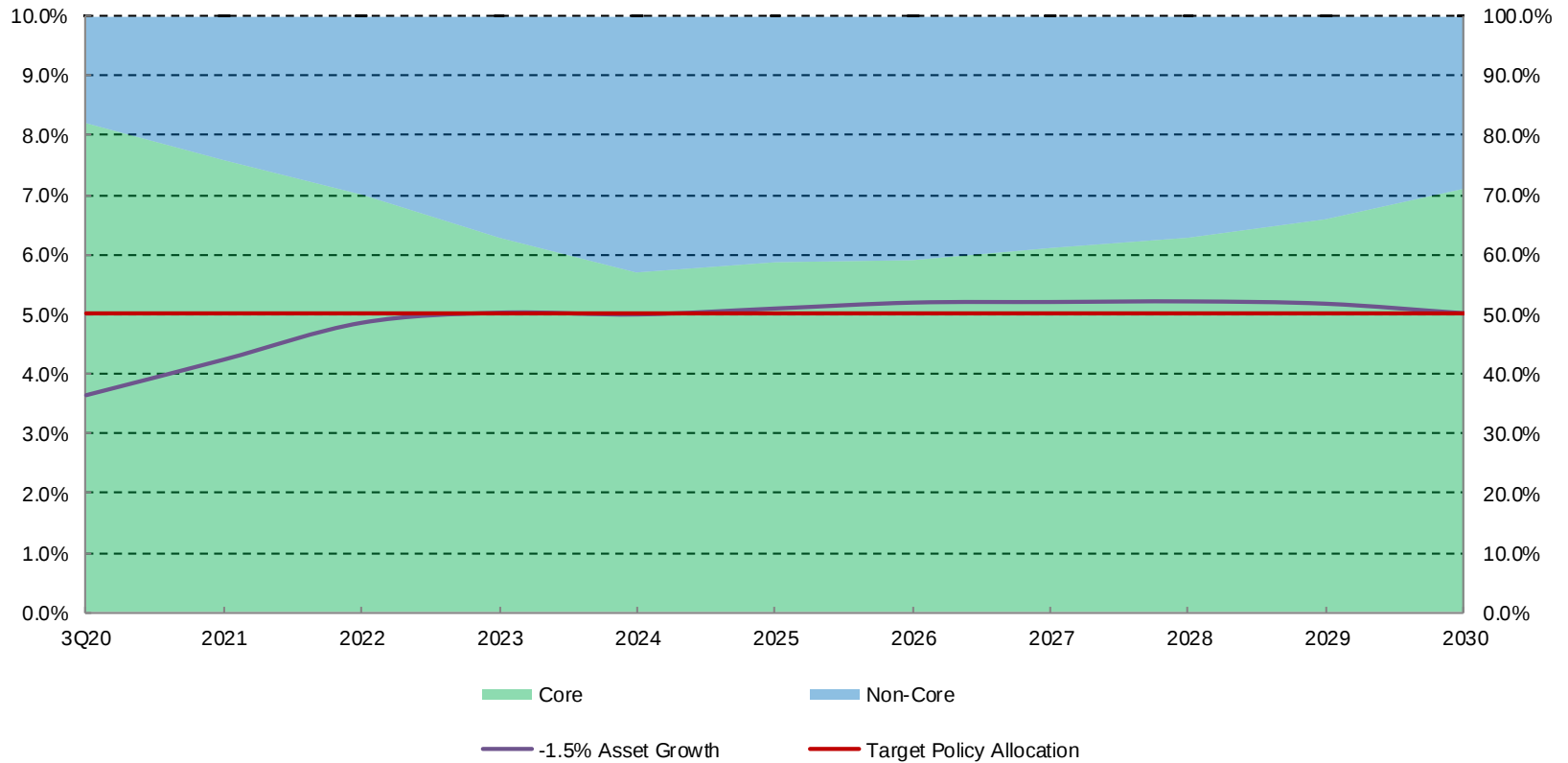
50-50 Endowment Current Pacing

Projected NAV of Real Estate as a Percent of Total Program



Healthcare Endowment Current Pacing

Projected NAV of Real Estate as a Percent of Total Program



OSERS – Current Pacing

Projected NAV of Real Estate as a Percent of Total Program

