SFERS
San Francisco Employees' Retirement System

City and County of San Francisco
Employees' Retirement System

Retirement Board Calendar Sheet
Retirement Board Meeting of August 17, 2023

To:	The Retirement Board	
Through:	Alison Romano CEO & CIO	
From:	Tanya Kemp, CFA, CAIA Managing Director, Private Markets	
	Christopher Chow, CFA Director, Real Assets	Chris Terrazzano, CFA Associate PM, Real Assets
Date:	August 17, 2023	

Agenda Item:
Real Assets Annual Update

Background:
As of December 31, 2022, the Real Assets Portfolio had approximately $5.2 billion of NAV (or 15.9% of total Plan assets) and total exposure (NAV + unfunded) of $7.3 billion (or 22.3% of total Plan assets). Since inception, the Real Assets portfolio has generated a net IRR of 8.7% and a TVPI of 1.4x.

Staff and Cambridge Associates will present an update including a review of the portfolio's strategy, performance, and composition. Additionally, Staff and Cambridge Associates will discuss the current market environment, opportunities, and initiatives.

Recommendation:
This item is for discussion only.

Attachments:
Staff Presentation
Consultant Presentation – Cambridge Associates

Real Assets Update

Tanya Kemp, CFA, CAIA, *Managing Director, Private Markets*
Christopher Chow, CFA, *Director, Real Assets*
Chris Terrazzano, CFA, *Associate Portfolio Manager, Real Assets*

August 17, 2023

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Agenda

- Executive Summary
- Program Overview
- Performance Review
- Portfolio Review
- Initiatives
- Appendix

Executive Summary

Executive Summary

- SFERS Real Assets portfolio delivered strong performance during 2022 despite a challenging macroeconomic environment
  - Overall portfolio returned 10.2% in 2022
  - Natural Resources led the three sub-portfolios, returning 21.2%, while Infrastructure returned 10.3% and Real Estate returned 3.4%
- 15.9% current allocation compared to a 10% target
  - Portfolio allocation at the end of 2022 was 54% Real Estate, 33% Natural Resources, and 13% Infrastructure
- $583 million was committed to 12 new investments
  - Commitments were 77% Real Estate and 23% Infrastructure
  - Included three new manager relationships
- Portfolio produced positive cashflow in 2022, with $171 million in net distributions

Data from Aksia as of 12/31/2022, with sector allocations based on NAV + Unfunded

Program Overview

Role of Real Assets

- Designed to provide diversification, total return, yield, and inflation protection
  - Seek to achieve long-term returns of 10%-12% as program continues transition away from core real estate

- Portfolio comprised of three sub-portfolios: 1) Real Estate; 2) Natural Resources; and 3) Infrastructure
  - Infrastructure formally adopted within benchmark in 2022
  - Other strategies considered, such as Intellectual Property

- Global program focused on private market funds and co-investments, emphasizing partnerships with high quality sponsors

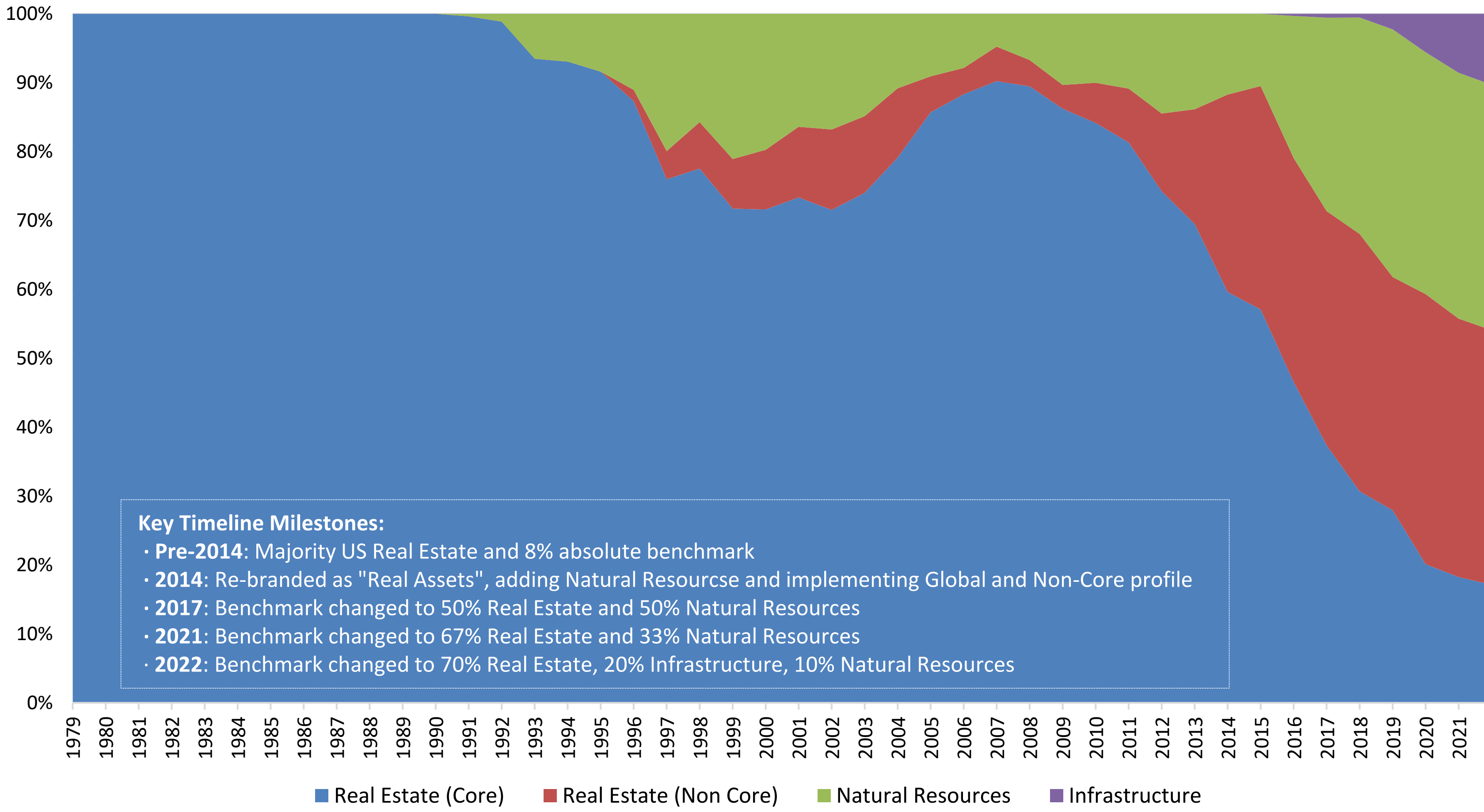
Program Overview

- SFERS began investing in Real Assets in 1978
- As of December 31, 2022, the Real Assets allocation was 15.9% of Plan Assets, or $5.17 billion
  - Target allocation was reduced from 17% to 10% in 2020
- 8.6% since inception program IRR and 9.7% 20-year IRR
- Policy benchmark was revised in July 2022 to 70% NCREIF NFI-ODCE/C|A Real Estate Index; 20% C|A Infrastructure Index; and 10% C|A Natural Resources Index*
  - Prior benchmark was 67% Real Estate and 33% Natural Resources
- Key strategies include Real Estate (54.5%), Resources (32.9%), and Infrastructure (12.6%)

Data from Aksia as of 12/31/2022, with sector allocations based on NAV + Unfunded
* The Policy Benchmark uses floating weights based on year-end NAVs until target is reached or until year 10, whichever is first; the Real Estate sub-benchmark uses floating weights based on Core and Opportunistic year-end NAVs within the Real Estate portfolio

Program Overview (cont.)

Portfolio Exposure



Data based on NAV from Aksia as of 12/31/2022

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2022 Year in Review

- Pacing increased from 2021 levels although lower than commitment pacing model
  - $583 million in new commitments to 12 investments across 11 managers
    - 8 existing relationships, 3 new relationships
    - $61 million in co-investment
  - Expectations of an increasing larger re-up calendar going forward
  - NAV continues to be elevated relative to target and greater focus on liquidity may limit pacing to similar prior years' levels
- New commitments were 77% Real Estate and 23% Infrastructure
  - Continued specialist strategies with re-ups and new relationships (the latter included outdoor storage, self-storage, and data center assets)

Data as of 12/31/2022

2022 Year in Review (cont.)

- Returns were positive across strategies, although strongly driven by Natural Resources which returned over 21%
  - $487 million gain in fair market value

- 330 basis point underperformance when compared to the policy benchmark
  - Variance largely explained by 100% core real estate benchmark applied through 1H2022, which significantly outperformed non-core benchmarks, while Real Estate portfolio was 33% core and 67% non-core
  - 230bps outperformance in Infrastructure, 40bps outperformance in Natural Resources, 50bps underperformance in Real Estate relative to their respective sub-benchmarks

- 15.9% current allocation compared to a 10% target

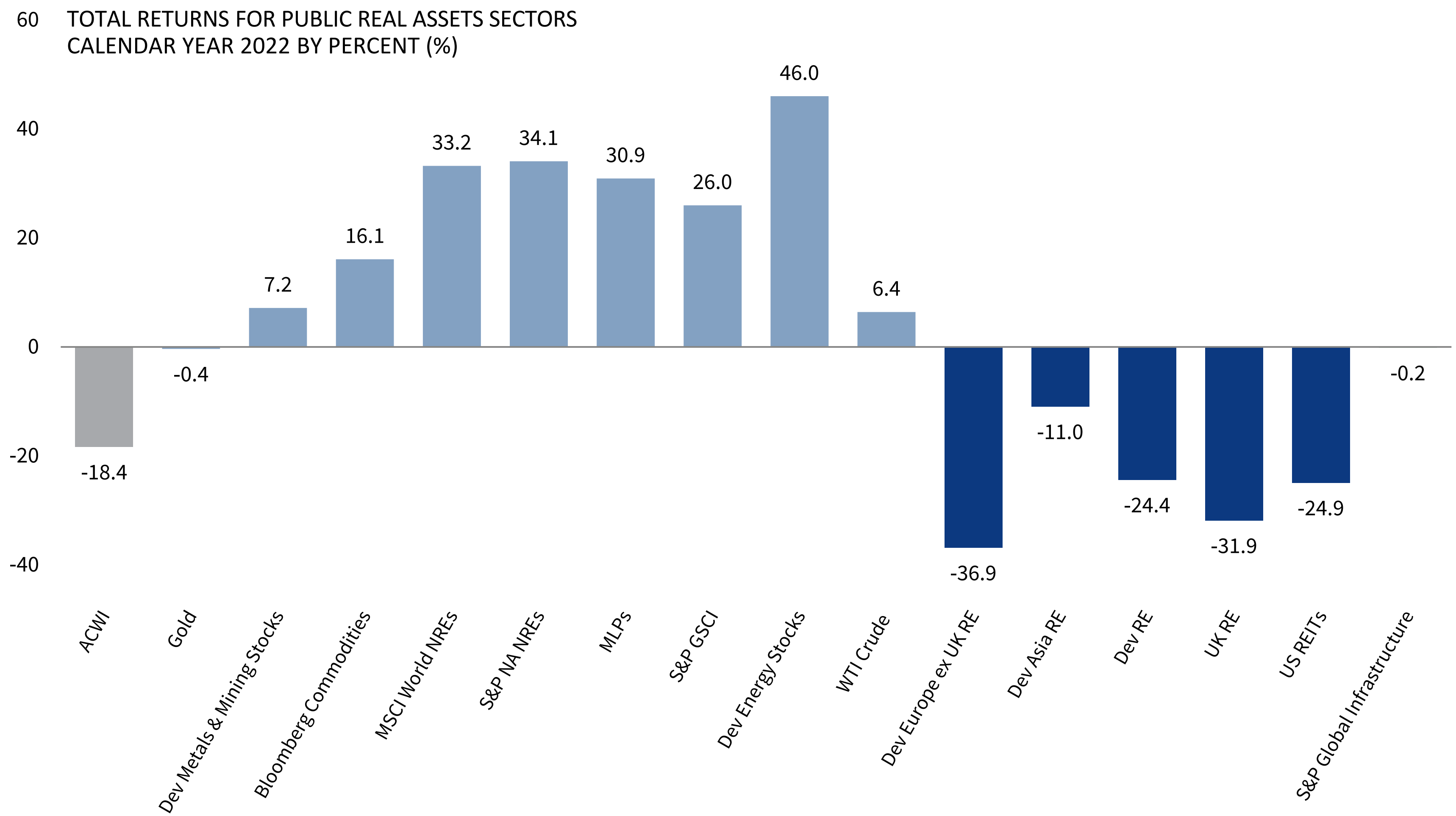
- Portfolio was positive cash flow in 2022, driven by Natural Resources
  - $877 million in total distributions, leading to net distributions of $171 million

- $5.17 billion NAV and $2.1 billion in unfunded commitments

NAV, unfunded amounts, and current allocation are from Aksia and Cambridge Associates as of 12/31/2022

Performance Review

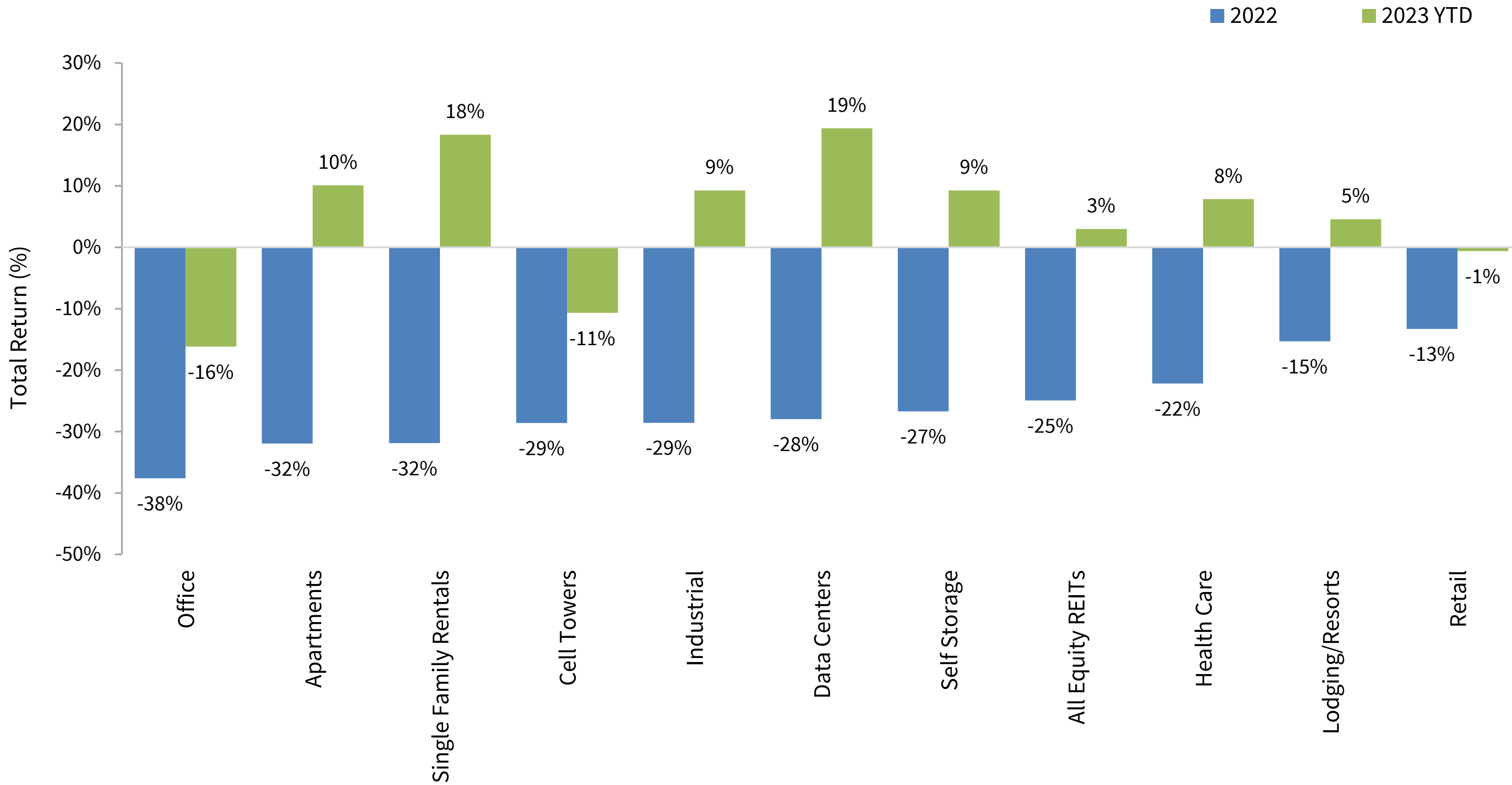
2022 Market Returns



Source(s): Alerian, Bloomberg L.P., European Public Real Estate Association, FTSE International Limited, Intercontinental Exchange, MSCI Inc., National Association of Real Estate Investment Trusts, Standard & Poor's, and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties. Note(s): Data represent total returns, except for gold and WTI crude, which are price returns. Data for international indexes are in local currency terms, except for Bloomberg Commodities, Dev RE, S&P GSCI, and S&P NA NREs, which are shown in USD terms. Total return data for all MSCI indexes are net of dividend taxes.

2022 REIT Performance By Sector

- REIT performance has varied widely by sector and by time period



	Office	Apartments	Single Family Rentals	Cell Towers	Industrial	Data Centers	Self Storage	All Equity REITs	Health Care	Lodging/Resorts	Retail
# of SFERS' Sector-Focused Managers	0	2	0	1	5	1	2	-	1	0	0

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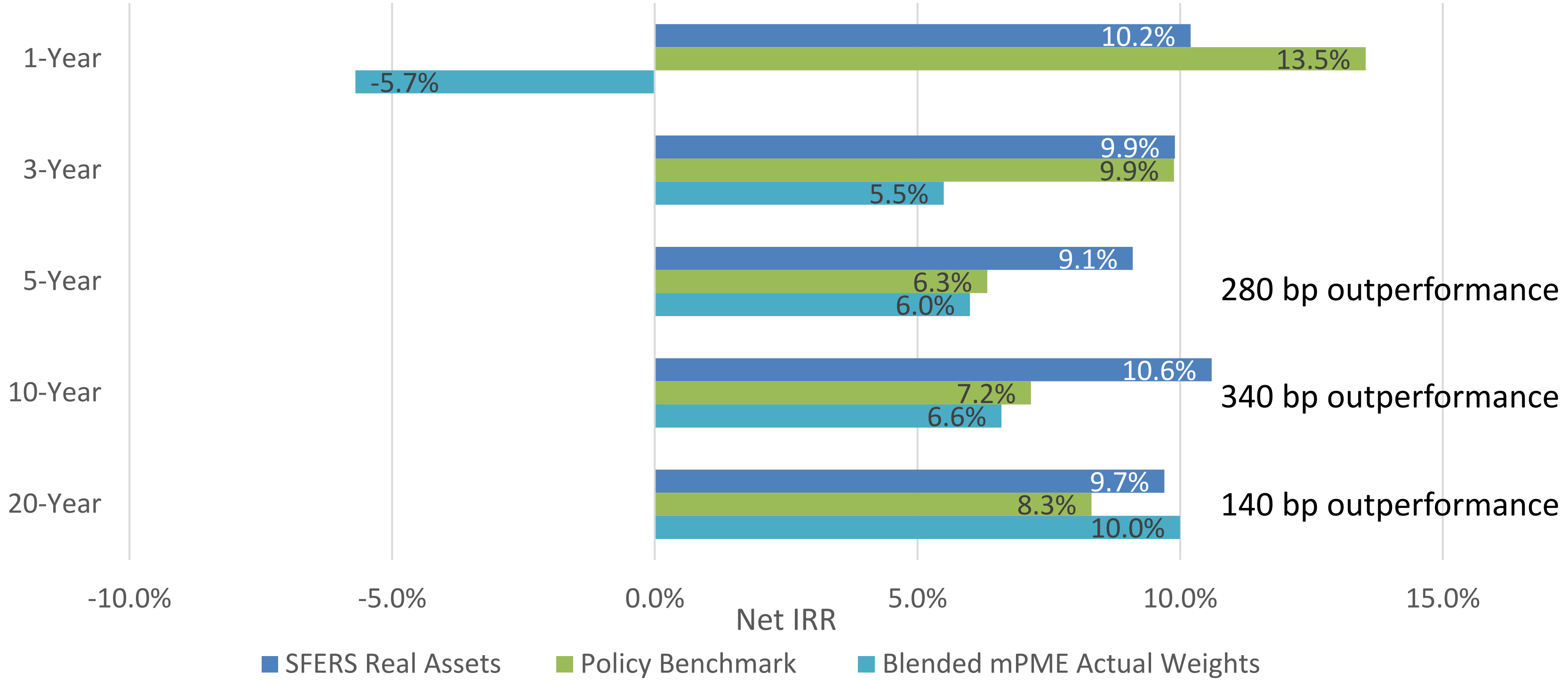
Source(s): Data provided by FTSE International Limited and National Associate of Real Estate Investment Trusts as of June 30, 2023. SFERS sub-strategy manager classifications provided by Aksia as of December 31, 2022.

Real Assets Portfolio Performance

- SFERS Real Assets portfolio has underperformed over the near-term but has significantly outperformed over longer time periods
  - Strategy changes to the Real Assets portfolio emphasizing opportunistic Real Estate have driven returns
  - Natural Resources performance has been mixed in absolute return depending on time period but compares favorably over benchmarks

SFERS Real Assets Performance (as of December 31, 2022)



Sources: mPME and index return data provided by Cambridge Associates as of December 31, 2022. Total Real Assets Program returns provided by Aksia as of December 31, 2022. Note(s): The Policy Benchmark uses the historical benchmark that was in place for each period. The go-forward policy benchmark as of July 1, 2022, uses the NCREIF ODCE for core real estate, the CA Real Estate Benchmark for non-core real estate, the CA Natural Resources Benchmark for resources and the CA Infrastructure Benchmark for infrastructure. Weightings are according to the prior year-end NAV weightings. Blended mPME Actual Weights calculation uses SFERS' actual weights over time to determine the blended return. The current blend is 63% real estate and infrastructure, and 37% resources based on NAV. The FTSE NAREIT All Equity REITs index is used for real estate and infrastructure. The MSCI World Natural Resources Index backfilled with the DataStream World Natural Resources Index to reach inception of SFERS' historical data is used for resources.

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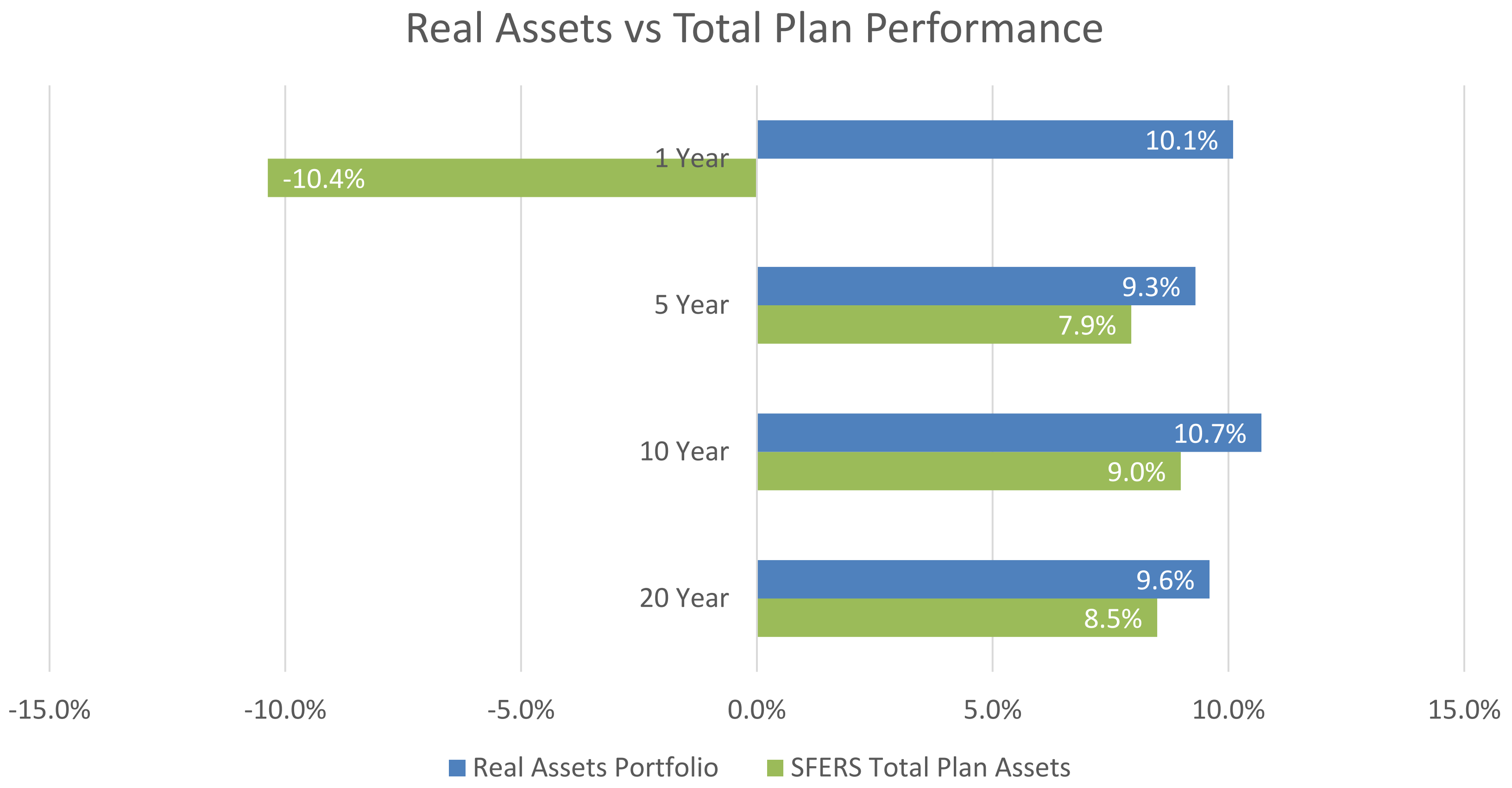
Real Assets Portfolio Performance

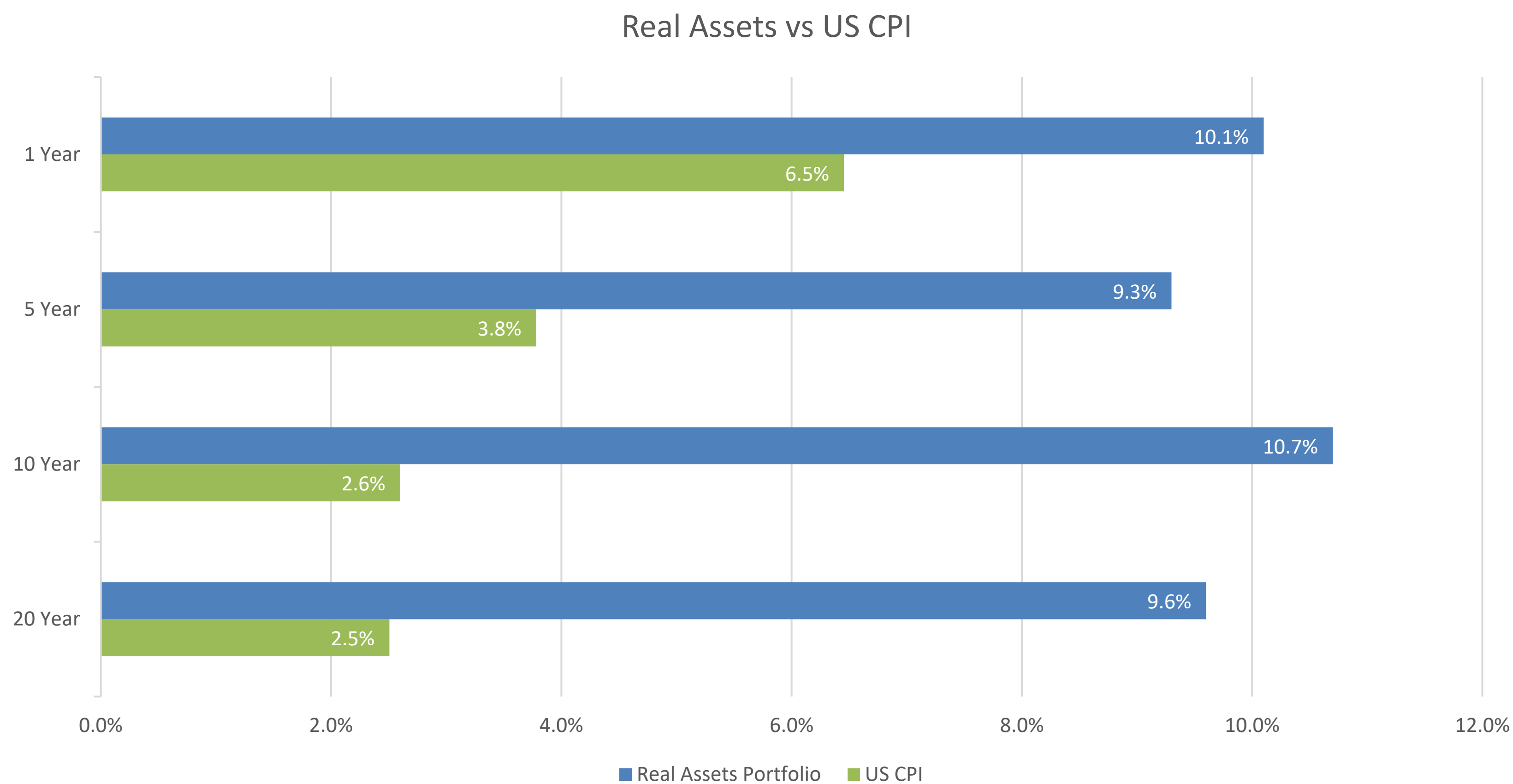
- The Real Assets portfolio serves as a diversifier to other plan assets
- It has outperformed total plan assets over the 1-, 5-, 10-, and 20-year time periods



Source(s): Real Asset Portfolio returns are time-weighted and provided by Aksia as of 12/31/2022. Total Plan Assets returns provided by NEPC as of 12/31/2022.

Real Assets Portfolio Performance (cont.)

- The Real Assets portfolio has outpaced US CPI over the 1-, 5-, 10-, and 20-year time periods

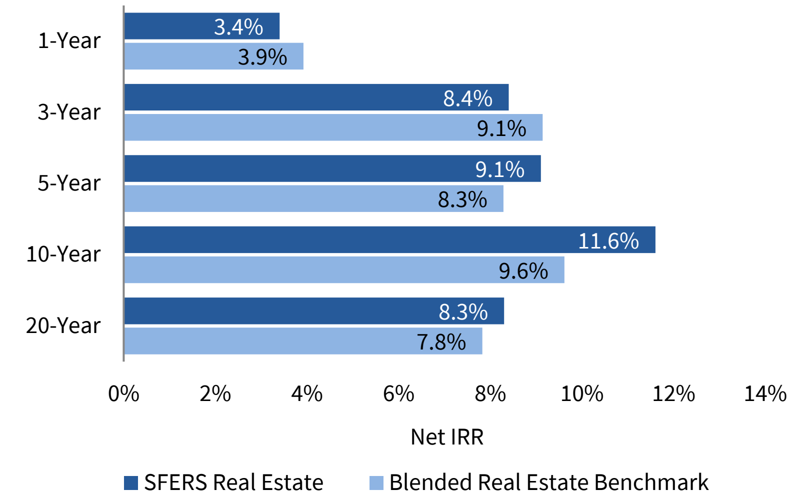


Source(s): Real Asset Portfolio returns are time-weighted and provided by Aksia as of 12/31/2022. US CPI data from Organization for Economic Co-operation and Development, Consumer Price Index: All Items for the United States, retrieved from FRED, Federal Reserve Bank of St. Louis

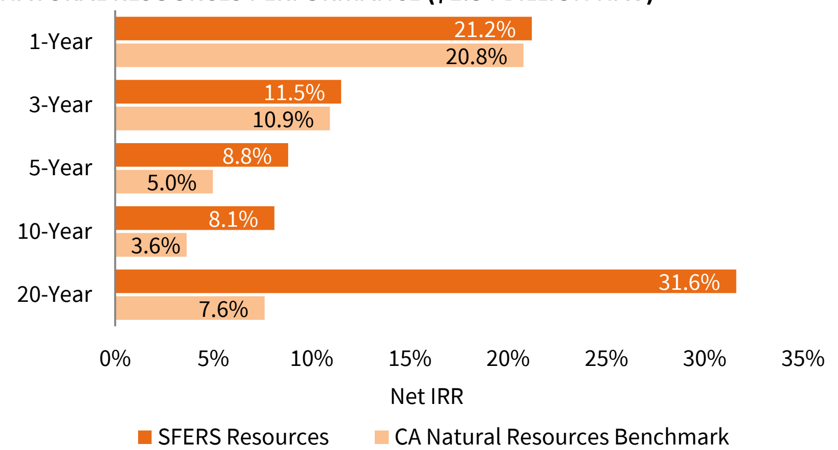
Sub-Strategy Performance

- The Real Estate portfolio has underperformed in the short-term but outperformed in the long-term
- The Natural Resources portfolio has outperformed over every time period
- The Infrastructure portfolio, while nascent, has outperformed over every time period

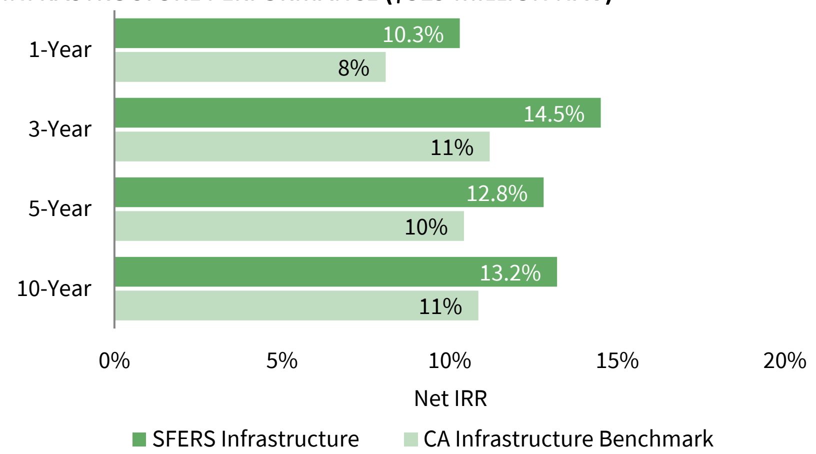
REAL ESTATE PERFORMANCE ($2.80 BILLION NAV)



NATURAL RESOURCES PERFORMANCE ($1.84 BILLION NAV)



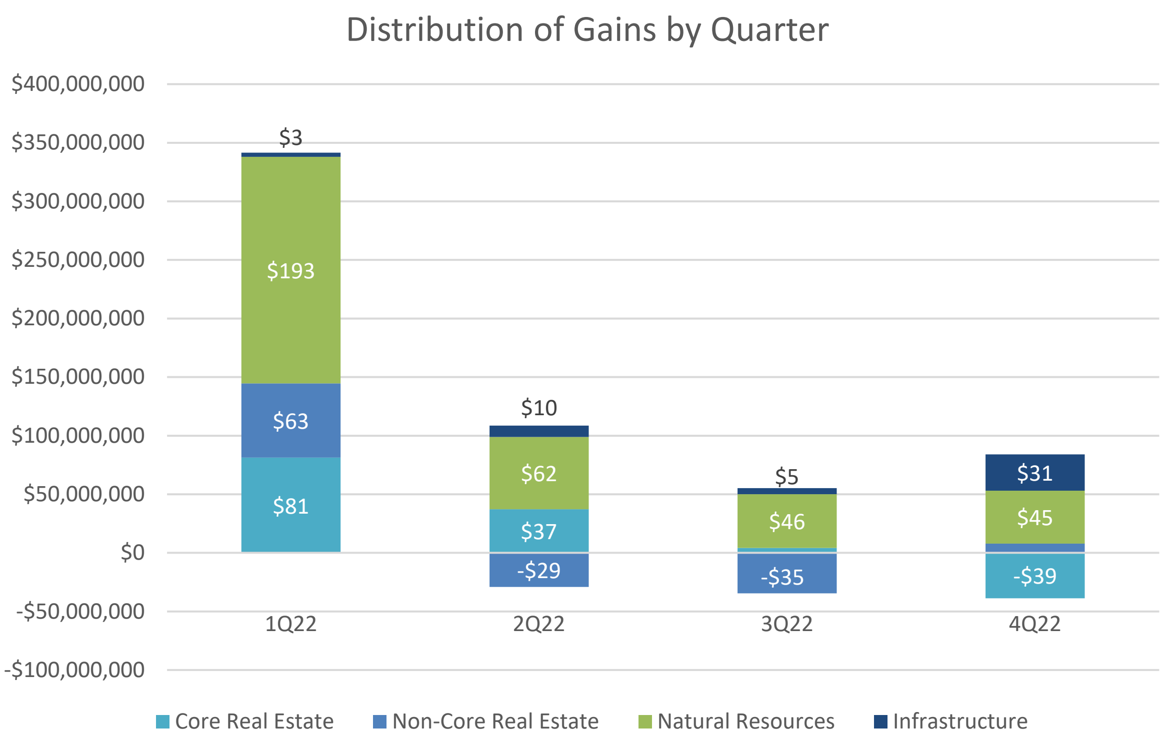
INFRASTRUCTURE PERFORMANCE ($529 MILLION NAV)

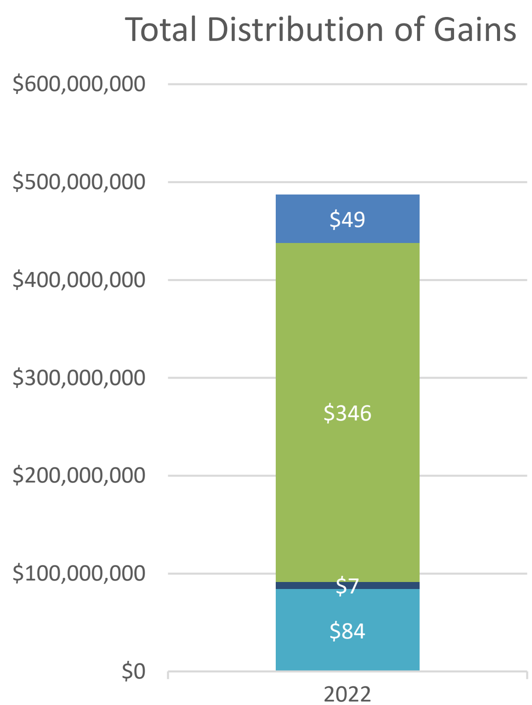


Source(s): Sub-strategy performance provided by Aksia as of December 31, 2022.
Note(s): Blended Real Estate Benchmark uses the CA Benchmark for non-core real estate and the NCREIF ODCE for core real estate which is floated to the NAV of Core RE investments relative to total Real Estate which was 33% as of December 31, 2022 according to the policy benchmark allocations.

2022 Return Attribution

- All sub-strategies were positive for the year although returns were principally driven by Natural Resources
  - Natural Resources (+21%): $346 million gain, which is 71% of total gain while representing about one-third of the Real Assets portfolio





Source: Data provided by Aksia as of 12/31/2022

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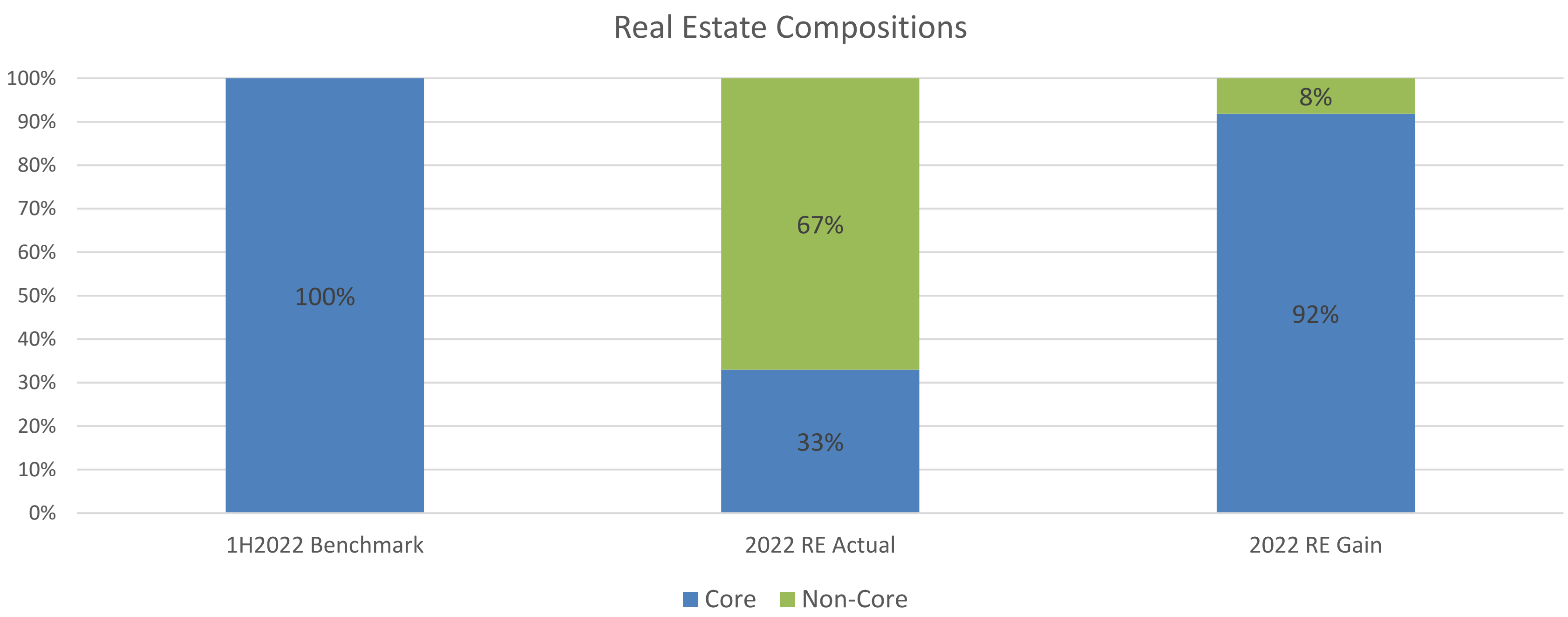
2022 Real Estate Return Attribution

- Primary detractor for Real Assets performance against policy is composition of core US real estate in benchmark while portfolio has increasingly moved towards non-core and non-US
  - Benchmark includes 100% core US real estate in 1H22 while new benchmark adjusts for core and non-core in 2H22
  - Portfolio has significant non-core exposure (~70%), which includes material non-US exposure (~40%) that has been significantly negatively affected in foreign currency translation



Source: Data provided by Aksia as of 12/31/2022

Co-investment Performance

Co-investments	Total Invested	Total Distributions	Total Value	TVPI	Net IRR	DPI
18	$233M	$64M	$177M	1.0x	0%	0.3x

- Two new co-investments in 2022 totaling approximately $61 million in commitments
  - 100% Real Estate
  - Includes one continuation fund
- 48% Natural Resources, 47% Real Estate, 5% Infrastructure
- 80% exposure in North America, 20% in Europe
- Four investments have been fully realized; three investments partially realized
- Material negative impact from one specific sponsor in the conventional energy sector
- Average age of 3.4 years
- While not included in the above metrics, participated in two commingled, diversified co-investment vehicles in 2022

Source(s): Co-investment performance provided by Aksia and SFERS as of 12/31/2022.
Exposure percentages based on contributed capital.

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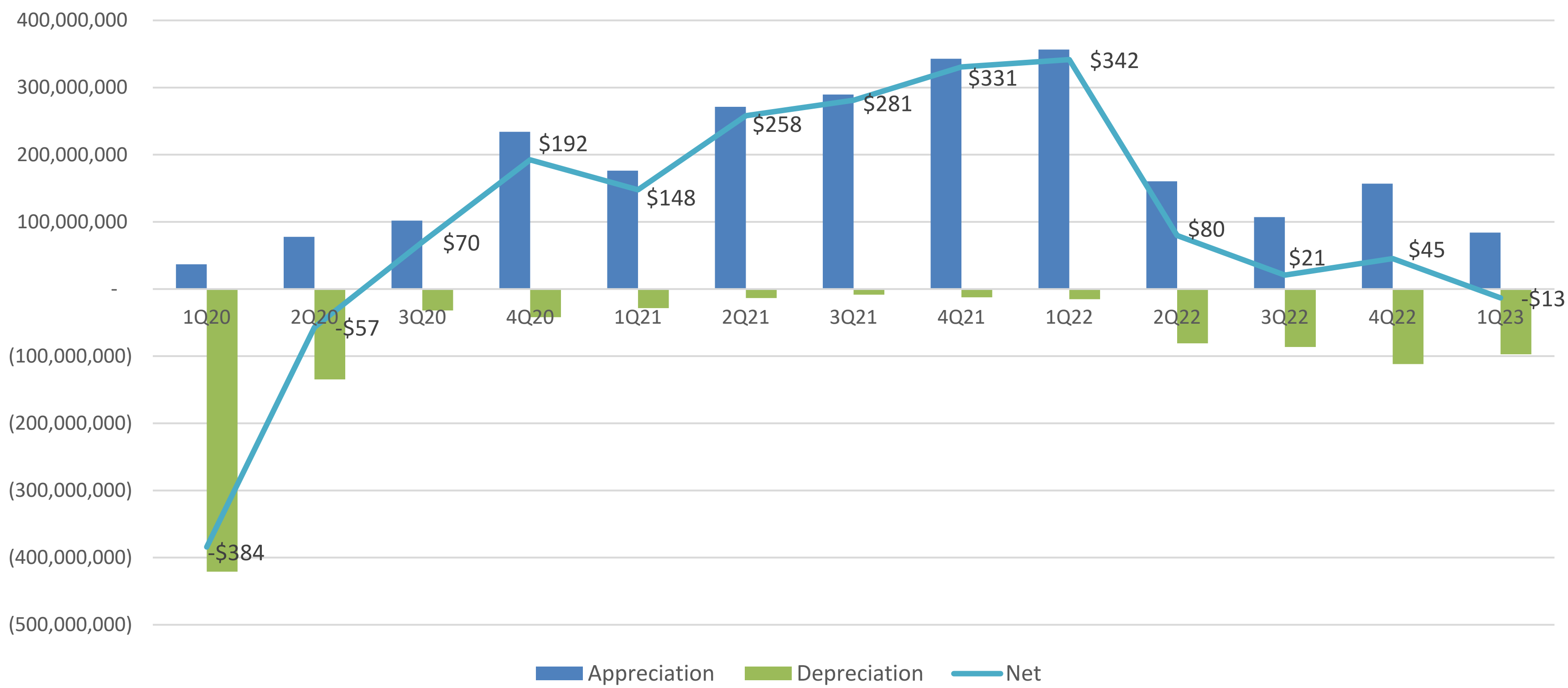
Preliminary Q1 2023 Performance

- After a very strong 2021, performance began to moderate in 2Q2022 due to rising interest rates and a more difficult capital markets environment
- While 2022 quarterly performance was positive, the trend has reversed with 1Q2023 predicted to be slightly negative (approximately -25bps)



Source: Data provided by Aksia as of 7/3/2023

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Portfolio Review

Portfolio Construction

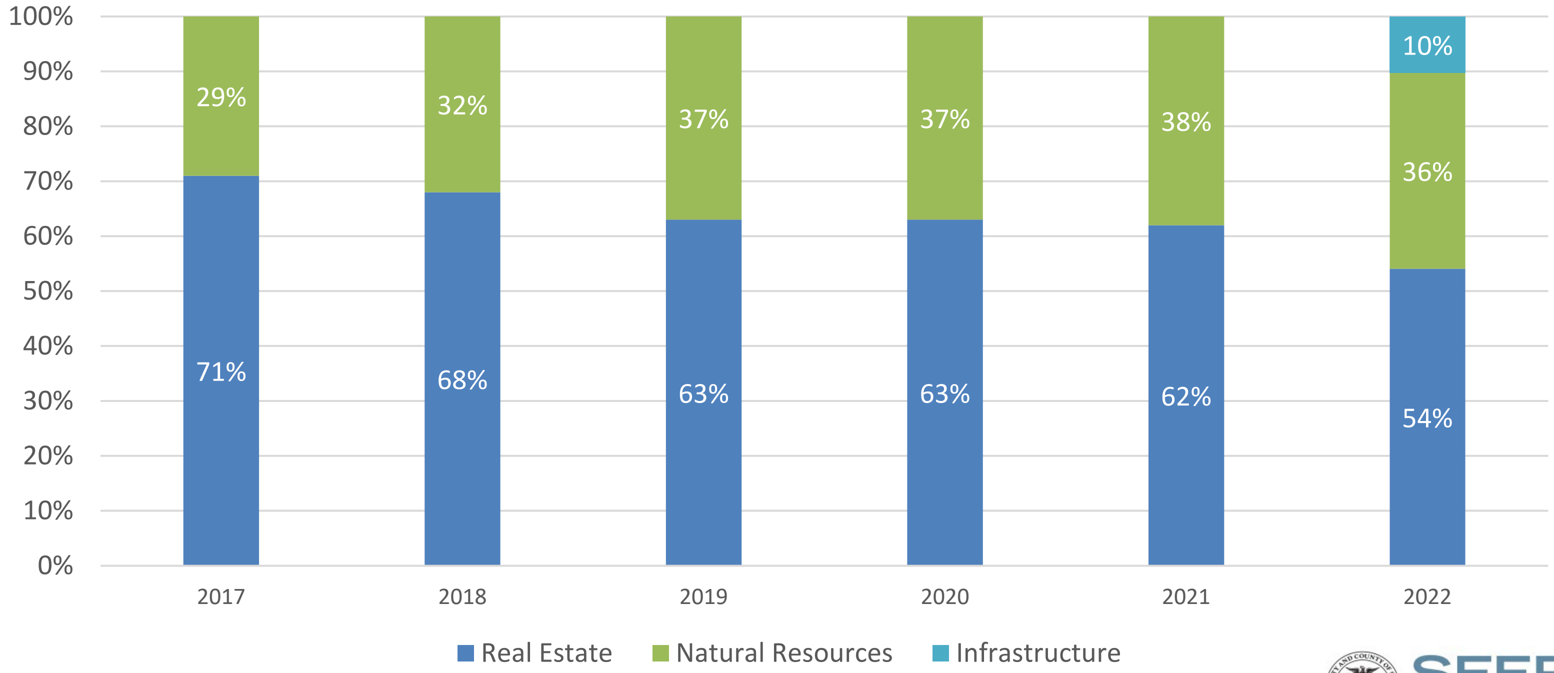
- Real Estate to remain the largest exposure given mature, global opportunity set
  - Overweight specialty sectors and hospitality; slightly underweight retail, residential, and industrial; slightly overweight office
  - Liquidity redemptions in 2020 decreased exposure to industrial, although new commitments have increased exposure
  - Non-US exposure has increased due to prior commitments, although near-term focus is primarily domestic

- Natural Resources exposure has increased due to prior commitments and NAV appreciation, and is expected to remain stable
  - Overweight mining, in-line in conventional energy
  - Expecting greater distribution activity through regularly occuring dividends from operating cash flow as funds mature

- Infrastructure is building from a low base but is growing meaningfully
  - Principally focused on communications and sustainability-oriented strategies
  - Sub-composite was created following 2022 IPS update

Portfolio Construction By Strategy

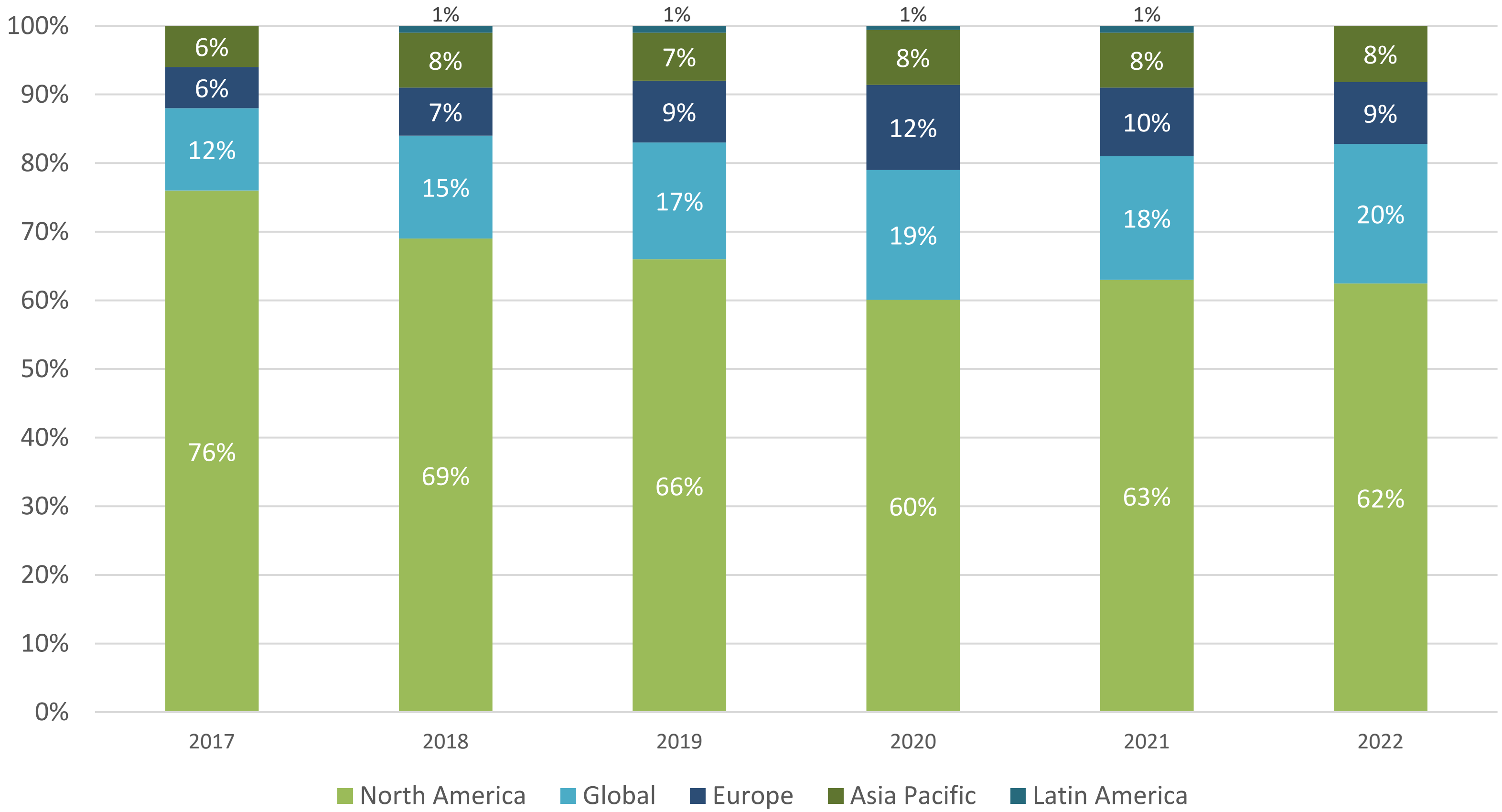
- Allocation to Natural Resources has increased over time, peaking at 38% in 2021 and expected to decrease going forward
- Liquidity decisions, such as the secondary sale in 2019 and core fund redemptions in 2020, have reduced Real Estate exposure over the last several years
- Infrastructure formally introduced as a sub-composite in 2022
- Increased focus on Real Estate and Infrastructure going forward given they are currently underweight relative to long-term target allocations



Source(s): Data provided by Aksia as of 12/31/2022

Portfolio Construction By Geography

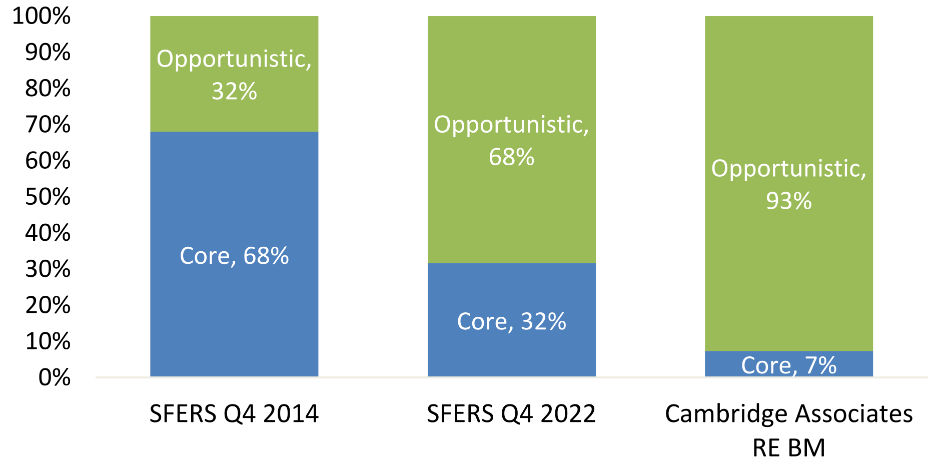
- Diversification within the portfolio's geography has significantly increased over the last few years, with dedicated North American exposure decreasing from 76% in 2017 to 62% in 2022

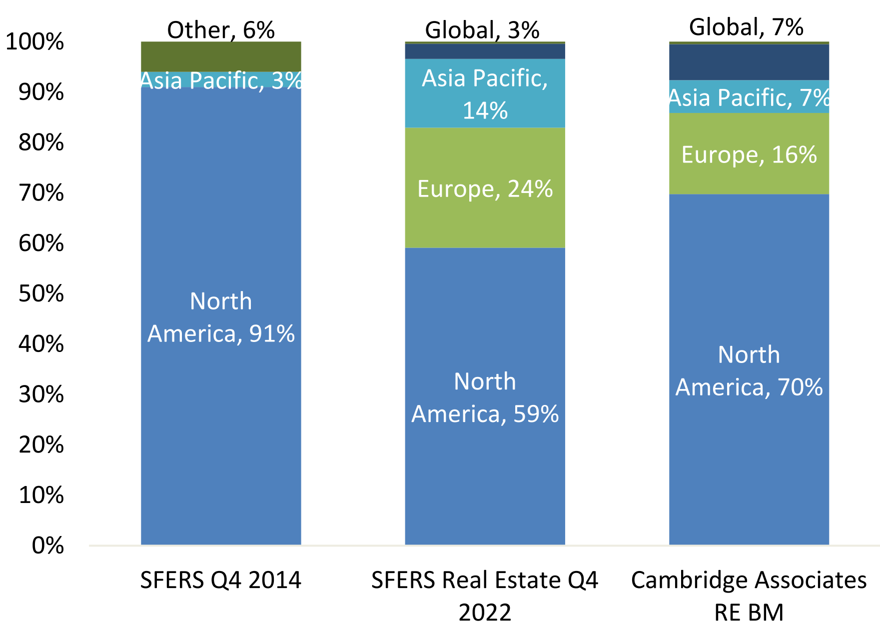


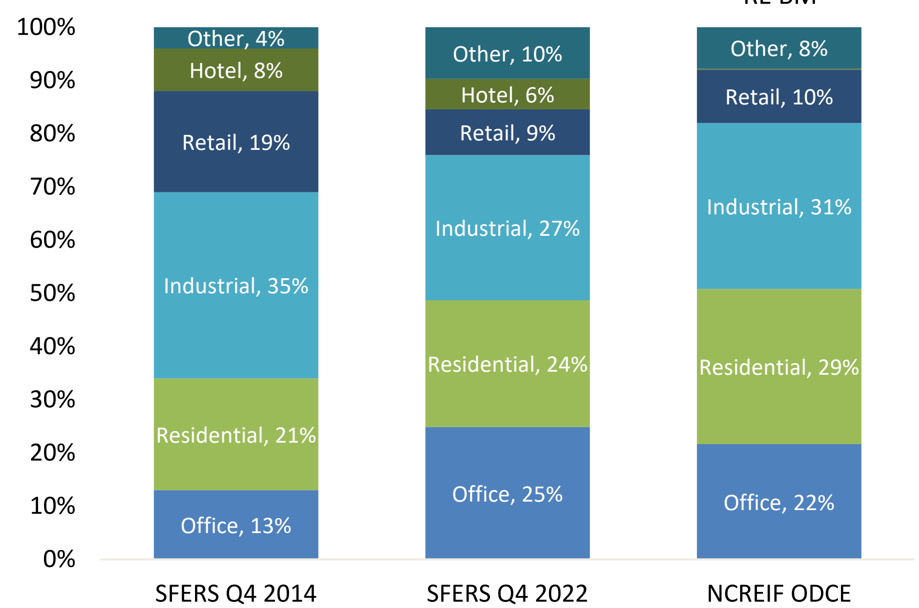
Source(s): Data provided by Aksia as of 12/31/2022

Real Estate Risk Profile & Breakdown

- The real estate portfolio continues to shift away from Core assets
- Exposure is well diversified by property type; increasing industrial following liquidity-based redemptions, though office is slightly overweight
- Commitments throughout the calendar year were predominantly focused on North America, and geographic exposure should remain balanced in the medium-term



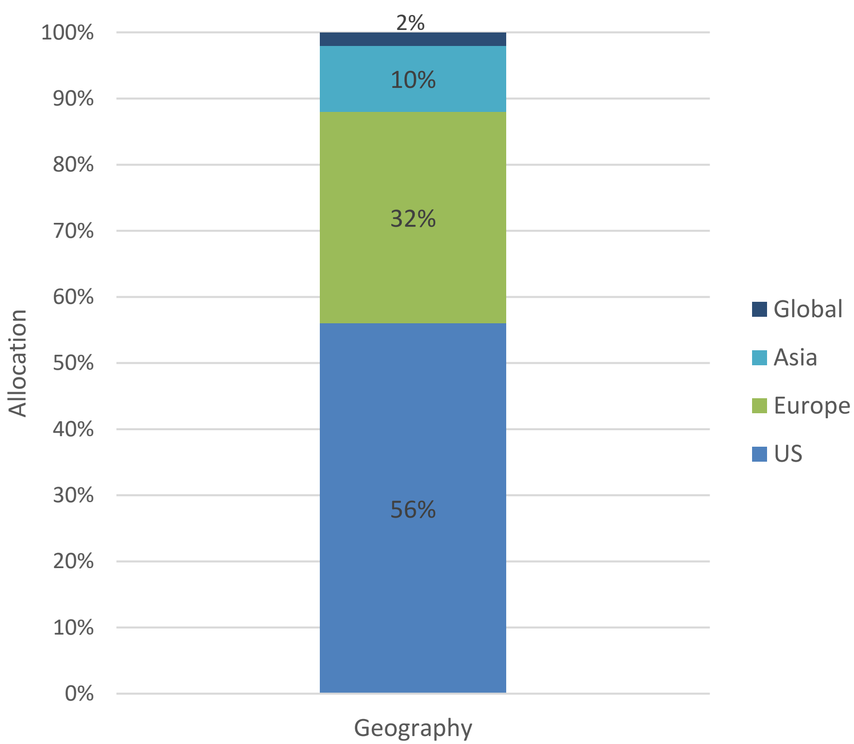


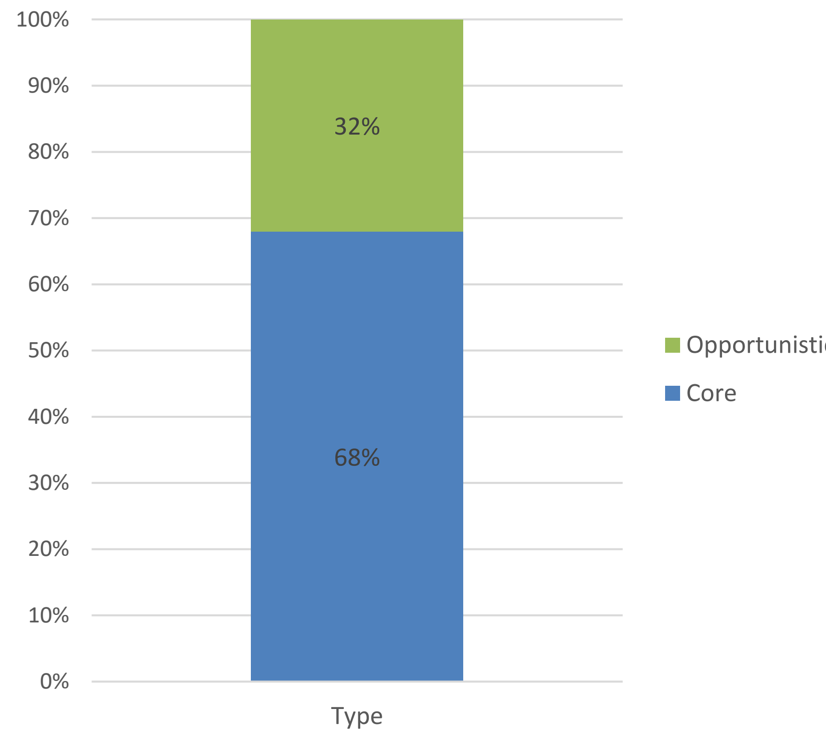


Sources: SFERS property-level Real Estate data is a % of NAV and provided by Aksia as of December 31, 2022. Cambridge Associates Global Real Estate benchmark fund-level data as of December 31, 2022. Note(s): CA benchmark exposures are based on the aggregated CA Global Real Estate Benchmark NAV as of December 31, 2022. Other includes Latin America and N/A. Funds that did not provide a geographic breakdown as of December 31, 2022 had September 30, 2022 allocations applied based on December 31, 2022 NAV.

Real Estate Office

- Office exposure within the Real Estate portfolio is approximately 25%, slightly higher than the NCREIF ODCE benchmark
- 56% of office exposure is within the US while 32% is in Europe and 10% in Asia
- Almost 70% is within Core strategies, where assets are well-leased and producing cash flow

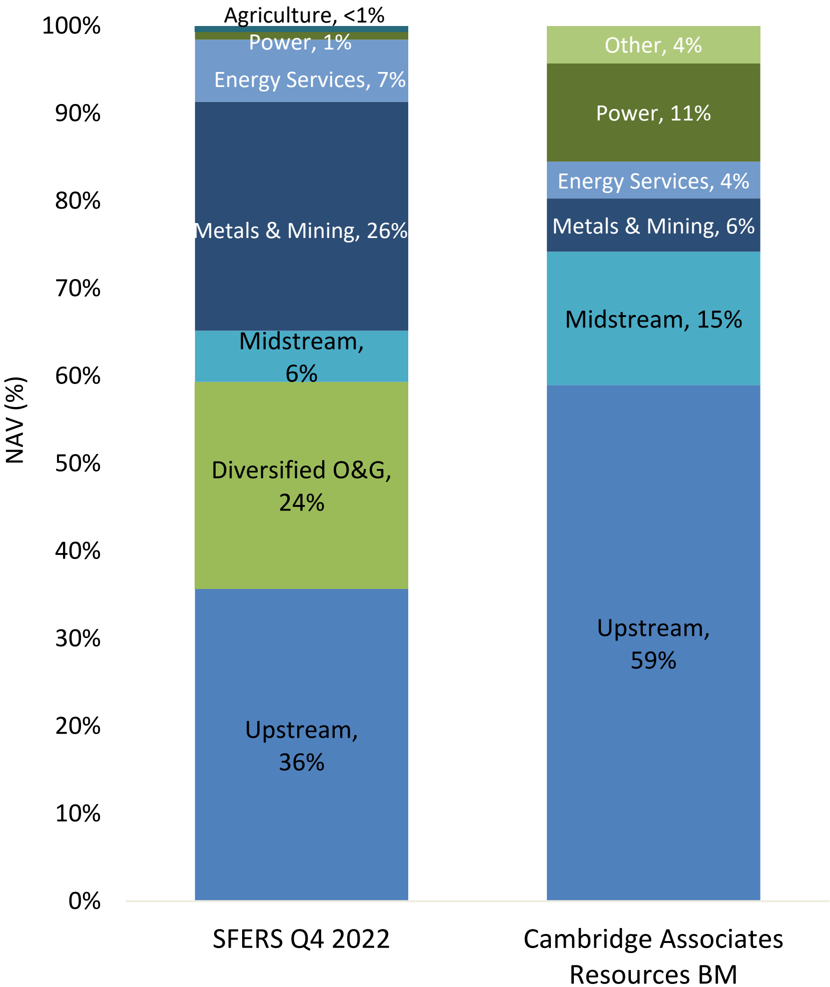




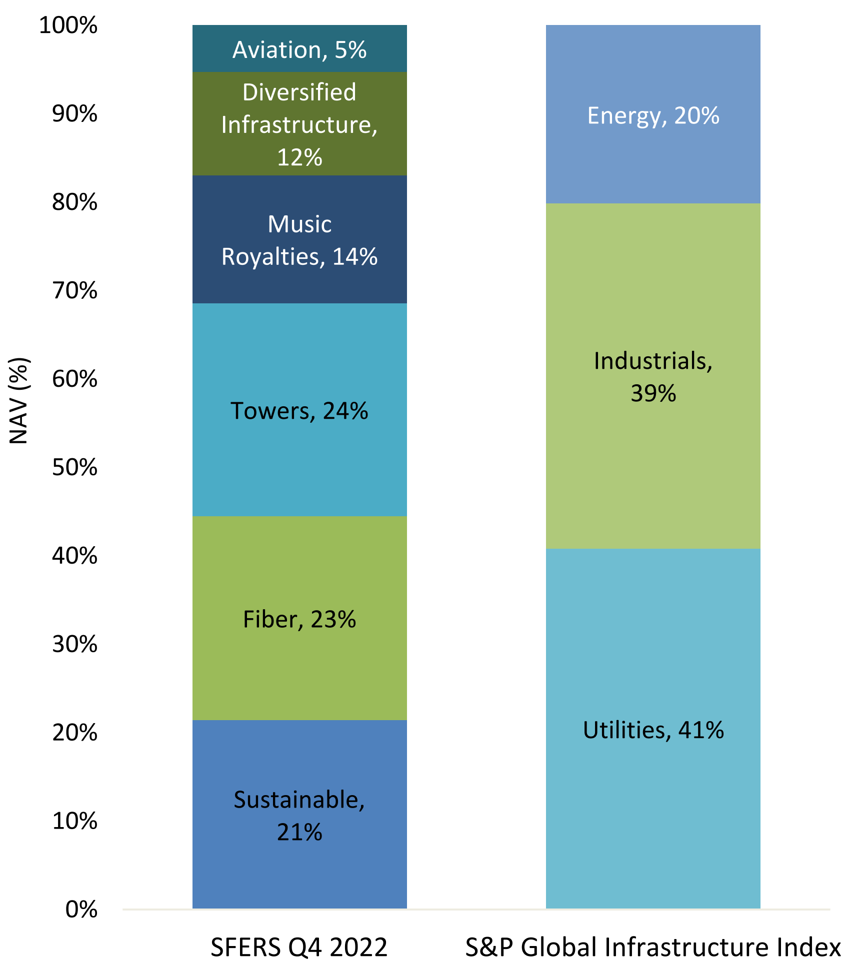
Sources: Cambridge Associates as of 9/30/2022

Natural Resources and Infrastructure Breakdown

RESOURCES ASSET LEVEL SECTOR EXPOSURE BY NAV



INFRASTRUCTURE ASSET LEVEL SECTOR EXPOSURE BY NAV



Source(s): SFERS Infrastructure and Natural Resources asset-level data provided by Aksia as of December 31, 2022. Cambridge Associates Natural Resources Benchmark fund-level data as of December 31, 2022. S&P data as of December 31, 2022. Note(s): "Other" includes Royalty Interests and Timber.

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Annual Deployment Pace

- 2020: $205 million
- 2021: $563 million
- 2022: $583 million
- 2023: $125 million*

Target deployment pace is about $650 million annually over the next 3 years

2020-2022	# Funds	$MM Committed	%
Real Estate	20	$866	64%
Natural Resources	1	$40	3%
Infrastructure	12	$445	33%
Total	**33**	**$1,351**	**100%**

*Does not include an additional pending close of up to $75 million in approved commitments

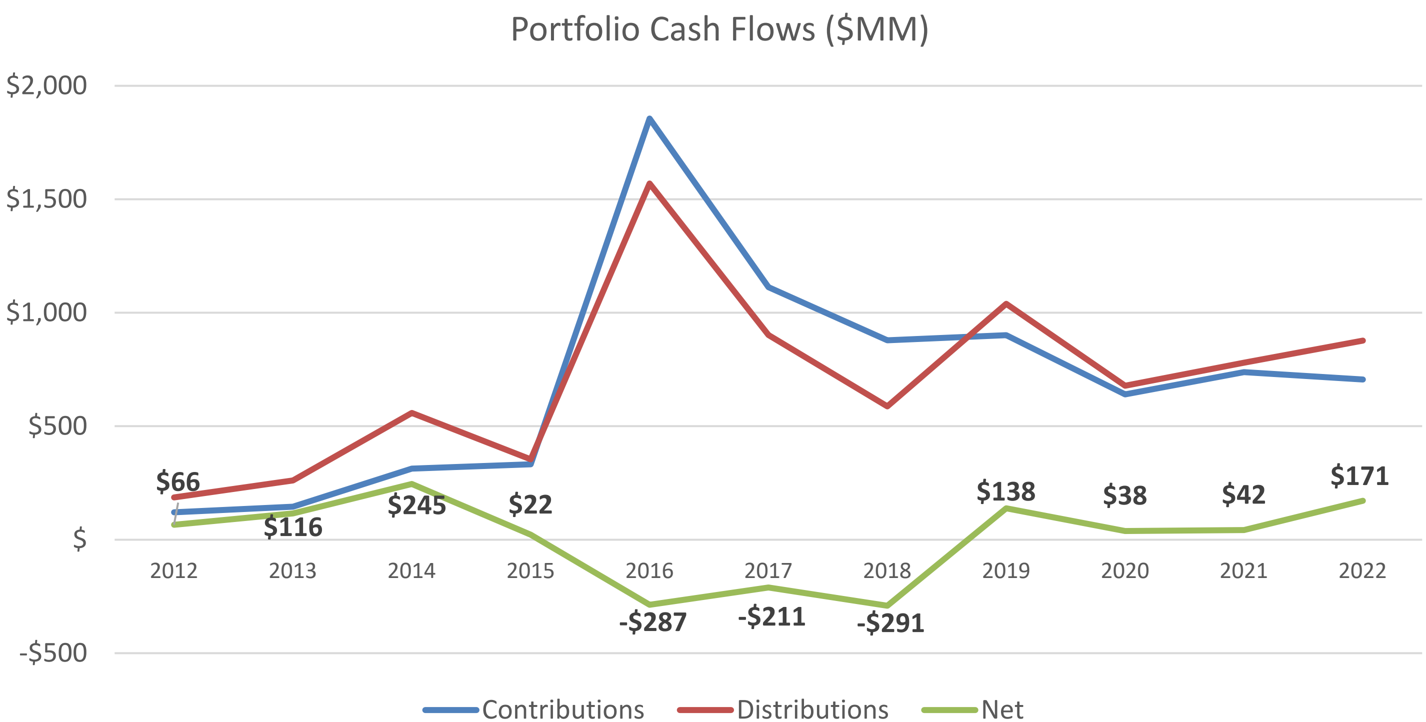
Thematic Strategy Assessment

- Near-term opportunities focused on Real Estate and Infrastructure given underweights
  - Themes include investing behind capital markets volatility, continuing population demographic and migratory trends, and assets with strong long-term market fundamentals

	Less Attractive	Neutral	More Attractive
Real Estate	Office Retail	Development Hospitality	Industrial Residential Special Situations
Natural Resources	Energy 1.0 Timber	Energy 2.0	Agribusiness Metals & Mining
Infrastructure	Transportation	Healthcare Social	Digital Energy Transition

Portfolio Cash Flows

- The Real Assets portfolio has produced positive cash flow since 2019
  - Spike in contributions/distributions in 2016 was due to the transfer of core real estate assets from legacy entities to new vehicles with current Core Real Estate manager
- 2023 YTD is -$99 million and may remain negative through year-end based on current estimates



Source(s): Data provided by Aksia
2023 YTD cash flow as of 6/21/2023

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Initiatives

2022 Initiatives

2022 Initiatives	Status	Details
Evaluate policy benchmarks	Completed	Resulted in updated IPS
Achieve positive net cashflow	Completed	Net distributions of $171 million
Increase portfolio diversification	Completed	Added exposure to specialty sectors as a result of market mapping initiatives
Manage commitment pacing	Ongoing	Maintain vintage year diversification
Continue engagement and collaboration within SFERS	Ongoing	Continued to work collaboratively across teams and integrated ESG into investment underwriting process
Expand monitoring and analytics functions	Ongoing	Deployed a new CRM system and continued internal portfolio reviews by leveraging data from Burgiss and Aksia

ESG Collaboration

- Manager ESG Due Diligence – Collaborated with ESG team on due diligence for all new and existing Real Assets relationships
- ESG Scorecards – Further engagement with existing managers resulted in internal ESG scorecards, providing areas for follow-up and continued dialogue
- Infrastructure Portfolio – Partnered with ESG team to source and diligence sustainability-focused investment strategies
- ESG Platform Support – Supported ESG in ongoing initiatives including PRI reporting

Real Assets ESG Diligence Process

Search

Real Assets Team and ESG Team collaborate to develop ESG due diligence questionnaire (DDQ) for manager.

Pre-Review

Real Assets Team shares DDQ along with any additional ESG materials with the ESG Team for initial review.

Diligence

The ESG Team drafts an agenda, and the Real Assets Team sets up a due diligence meeting with the manager.

Meeting conducted with in-person or via video conferencing.

Memo

ESG Team drafts the Board memo ESG Section.

Real Assets Team reviews and discusses section with ESG Team as needed.

Scorecard

ESG Team develops ESG Scorecard based on memo section. Added to Diligend platform, accessible by Real Assets and ESG Teams.

Real Assets Portfolio 2023 Initiatives

Initiatives	Details
Maintain consistent yet flexible pacing	Aim to diversify vintage year risk by deploying roughly $650 million while considering Plan liquidity
Continue to diversify portfolio in a risk-adjusted manner	Focus on strategic partnerships and opportunistic investments to complement specialist funds that have been added in prior years
Further concentrate portfolio relationships	100% of 2023 pacing is currently expected to be with existing managers
Continue barbell approach of sector specialists coupled with diversified firms	Focus on sectors with attractive demographic trends or structural changes, leaving more cyclical exposure to diversified names
Continue co-investments program	Capitalize on pooled vehicles with greater diversification at the expense of individual co-investments

Real Assets Portfolio 2023 Initiatives

Initiatives	Details
Fully implement cloud-based database platform	Continue utilizing new platform for relationship management and collaborative tracking of due diligence process
Expand RA investment team	Seek to hire an Investment Officer
Continue to strengthen internal strategy analysis	Maintain bi-annual internal strategic planning meetings, create additional market mapping initiatives, and develop internal monitoring tools to analyze underlying holdings exposures
Increase collaboration across SFERS	Continue to work collaboratively across all teams and increase engagement with other verticals within the Plan

Appendix

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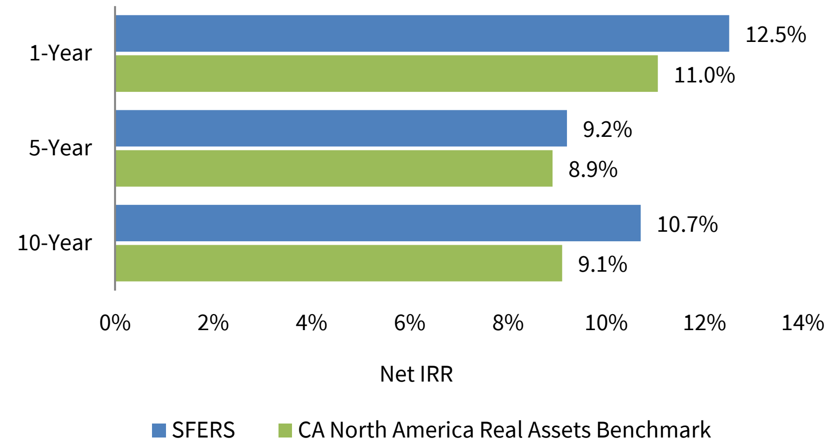
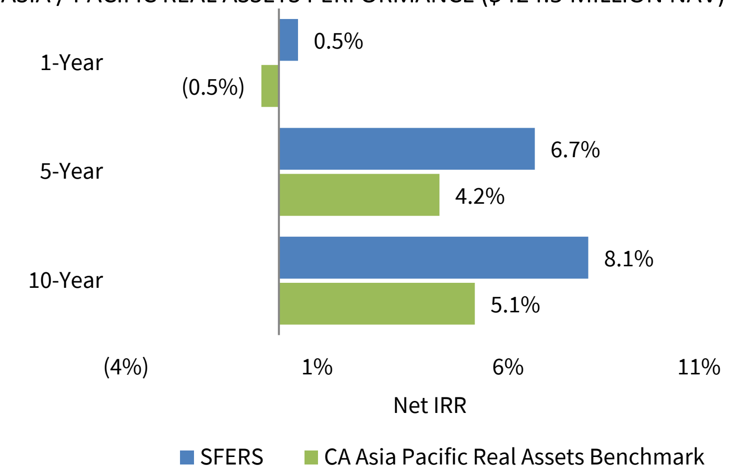
Real Assets Performance By Geography

- North America real assets portfolio outperforms the benchmark over all time periods
- Europe portfolio outperforms the CA Europe Real Assets benchmark in the long-term, driven by meaningful exposure to the industrial sector
- Asia is outperforming the benchmark over longer time horizons despite ongoing COVID-related headwinds impacting performance

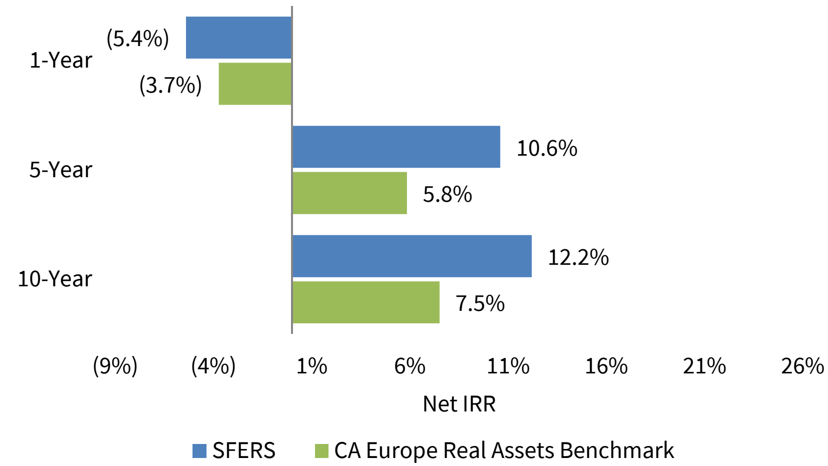
NORTH AMERICA REAL ASSETS PERFORMANCE ($3.22 BILLION NAV)



ASIA / PACIFIC REAL ASSETS PERFORMANCE ($424.5 MILLION NAV)



EUROPE REAL ASSETS PERFORMANCE ($467 MILLION NAV)



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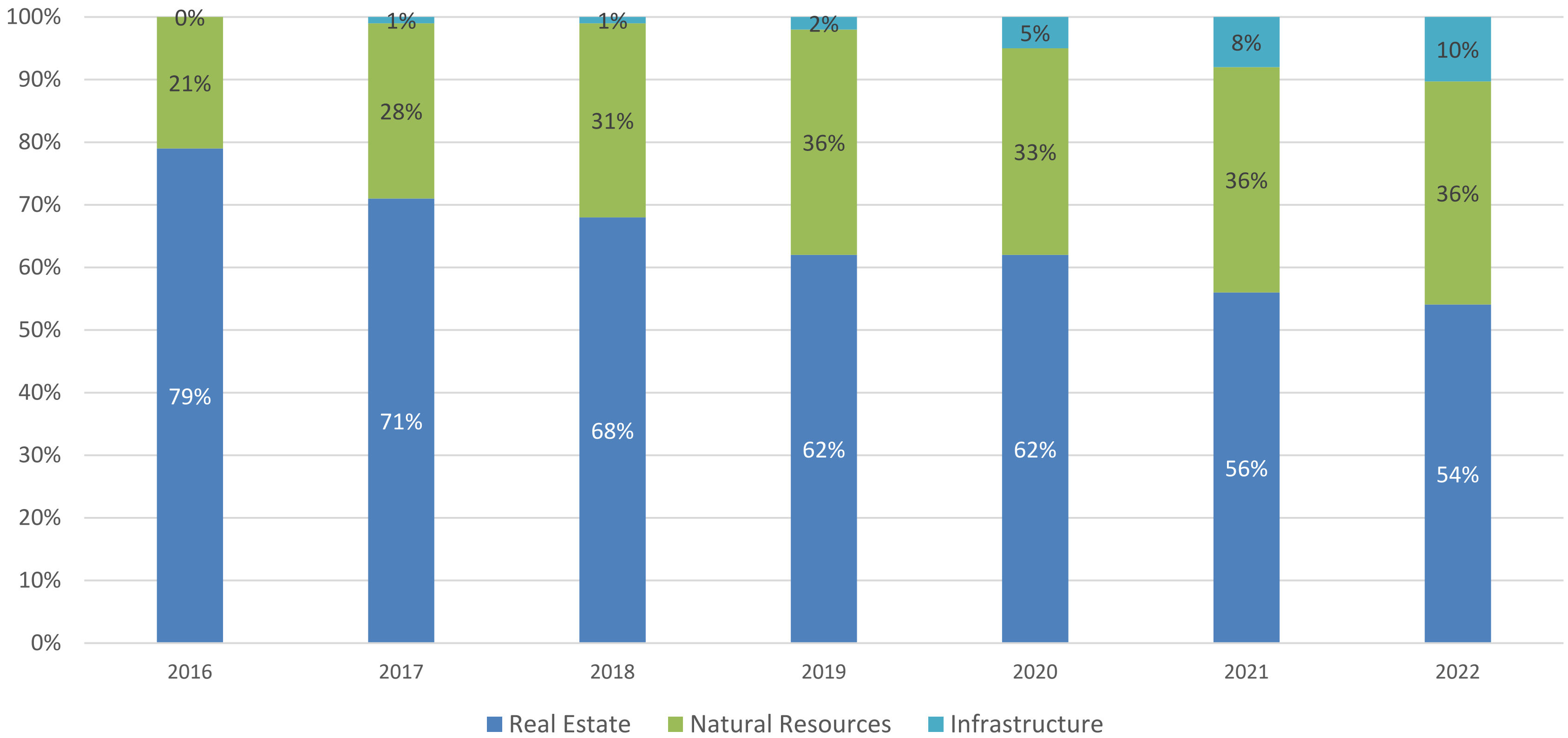
Source(s): Aksia and Cambridge Associates Private Investment Database. Note(s): Global and Latin America funds excluded from this analysis.

Portfolio Construction By Strategy

- Infrastructure formally introduced as a sub-asset class in 2022
- Going forward, allocations to Real Estate and Infrastructure will likely increase while Natural Resources decreases

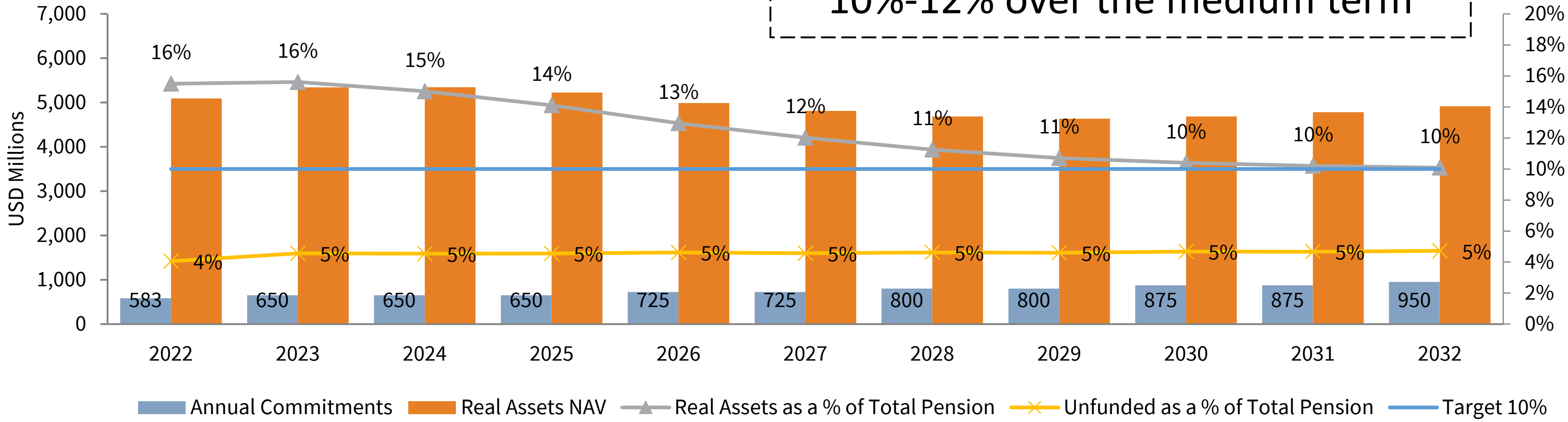


Source(s): Data provided by Aksia as of 12/31/2022
Chart depicts allocation with formal Infrastructure sub-portfolio prior to 2022

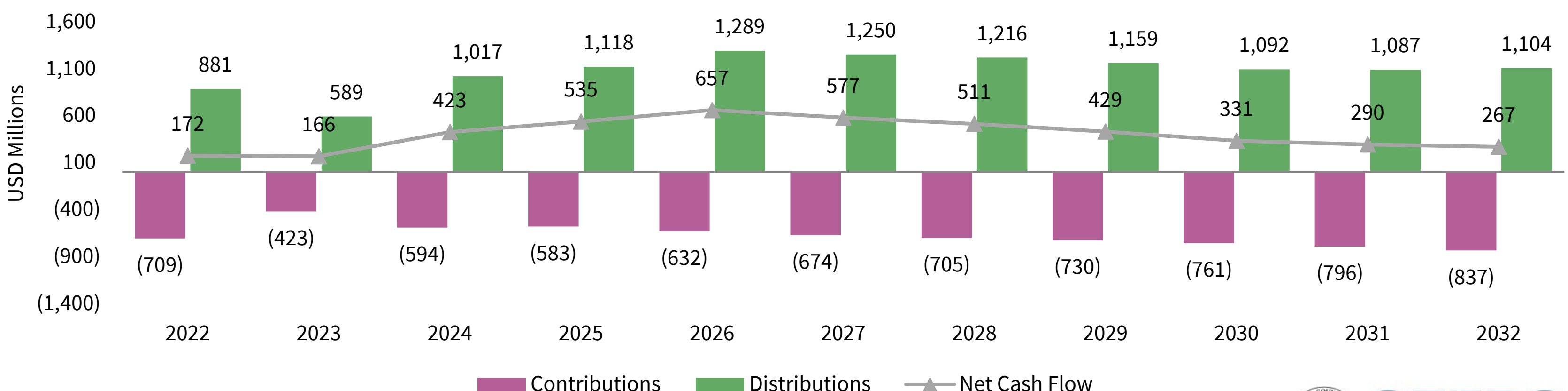
Base Case Pacing

Allocation expected to range around 10%-12% over the medium term

COMMITMENT PACE



ESTIMATED ANNUAL CASH FLOWS



Note: Model populated with historical portfolio data as of December 31, 2022. Projected cash flows and allocations are based on CA modeling and proprietary assumptions. Modeling is intended to be used as a guideline; actual capital calls, distributions, and exposure may differ materially from projections, depending on macroeconomic and fund-specific variables.

SFERS
San Francisco Employees' Retirement System

Real Estate Office

Fund Description	Rating	Geography	Observations
Diversified Core		Denver, Seattle, Austin	Portfolio benefits from lower leverage and overweight to Austin, however, occupancy has declined over the last year
Diversified Opportunistic		LA, NYC, Bay Area	Fund has created near-term liquidity via recent asset sales
Diversified Opportunistic		Houston, Southern CA	Office buildings are large and mostly concentrated in challenging CBDs
Diversified Opportunistic		DC, Southern CA, Bay Area, London, Germany	Lower leverage should help Fund defend assets during challenging environment, but offices in gateway cities will likely struggle

Sources: Cambridge Associates as of 9/30/2022

SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM

REAL ASSETS PORTFOLIO UPDATE

PRESENTED BY MARC CARDILLO, INVESTMENT MANAGING DIRECTOR

CAMBRIDGE ASSOCIATES

August 2023

PORTFOLIO OVERVIEW

CAMBRIDGE ASSOCIATES

- The objective of SFERS' Real Assets Portfolio is to provide portfolio diversification, current income, and protection against unanticipated inflation through a focus on alpha generating, higher returning private investment strategies

- SFERS real assets portfolio has performed well on an absolute basis and relative to the policy benchmark across most time periods – generating 280 and 340 basis points of outperformance over the trailing five-and ten-year periods, respectively.

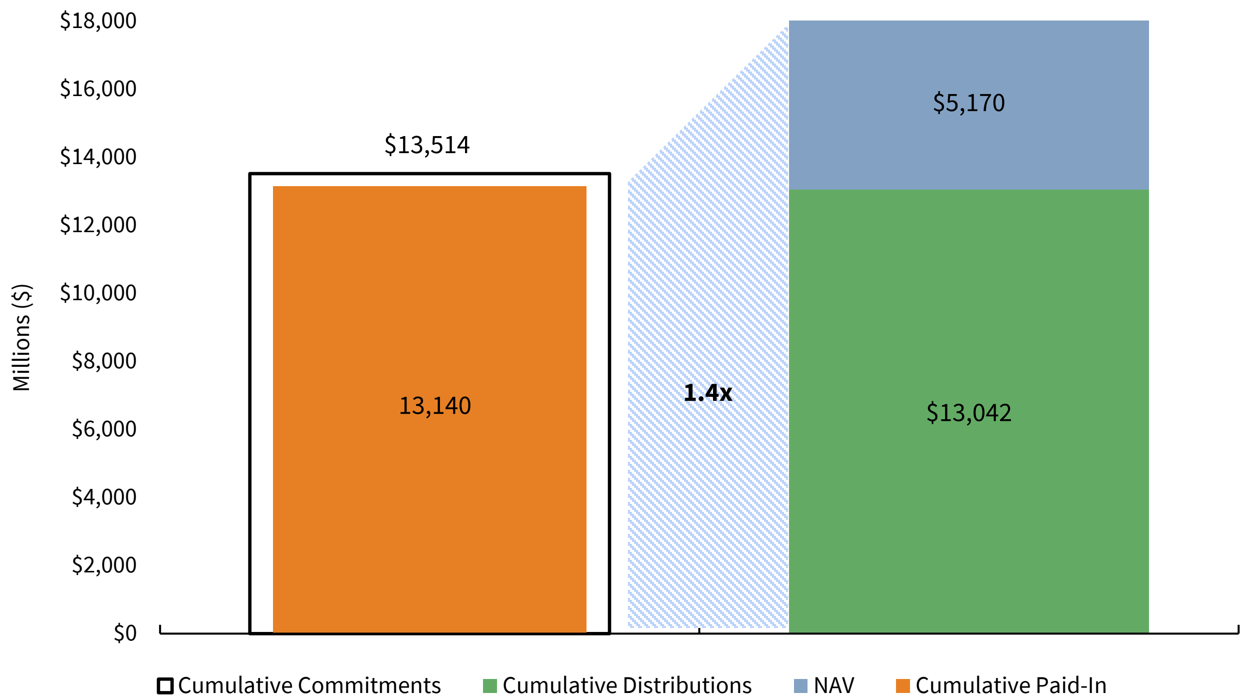
- The real assets portfolio stands at 15.9% of total plan assets[1] by NAV as of December 31, 2022 relative to the revised 10% target which should be met by 2030 assuming an annual commitment pace of ~$650 million over the next five years.

- Natural Resources portfolio will continue to decline as older, traditional energy funds wind down. Infrastructure allocation will grow over time, providing exposure to sectors with compelling long-term drivers, including renewable energy and digital infrastructure. Infrastructure can play a flexible role in the SFERS' portfolio given the diverse opportunity set and potential to generate current income and / or drive growth.

- Real Estate commitments continue to emphasize attractive niche property types executed by sector-focused GPs, rebuilding exposure to industrial sector, and monitoring opportunities that can benefit from recent capital markets volatility.

[1]Based on total plan value of $32.6 billion as of December 31, 2022.

- Since inception in 1978 through December 31, 2022, SFERS has committed $13.5 billion to 182 funds. SFERS' investment managers have called $13.1 billion in capital commitments, or approximately 97.2% of total commitments.
- The portfolio has a total value to paid-in multiple of 1.4x, having generated $5.1 billion in total value creation (net of fees and carried interest).
- Current portfolio NAV stands at $5.2 billion (15.9% of total plan assets[1]). Unfunded commitments of $2.1 billion will be contributed to the portfolio over a period of several years (and offset by portfolio distributions).



[1]Based on total plan value of $32.6 billion as of December 31, 2022.
Source(s): Data provided by Aksia as of December 31, 2022.
Note(s): Commitments made subsequent to December 31, 2022 are not included.

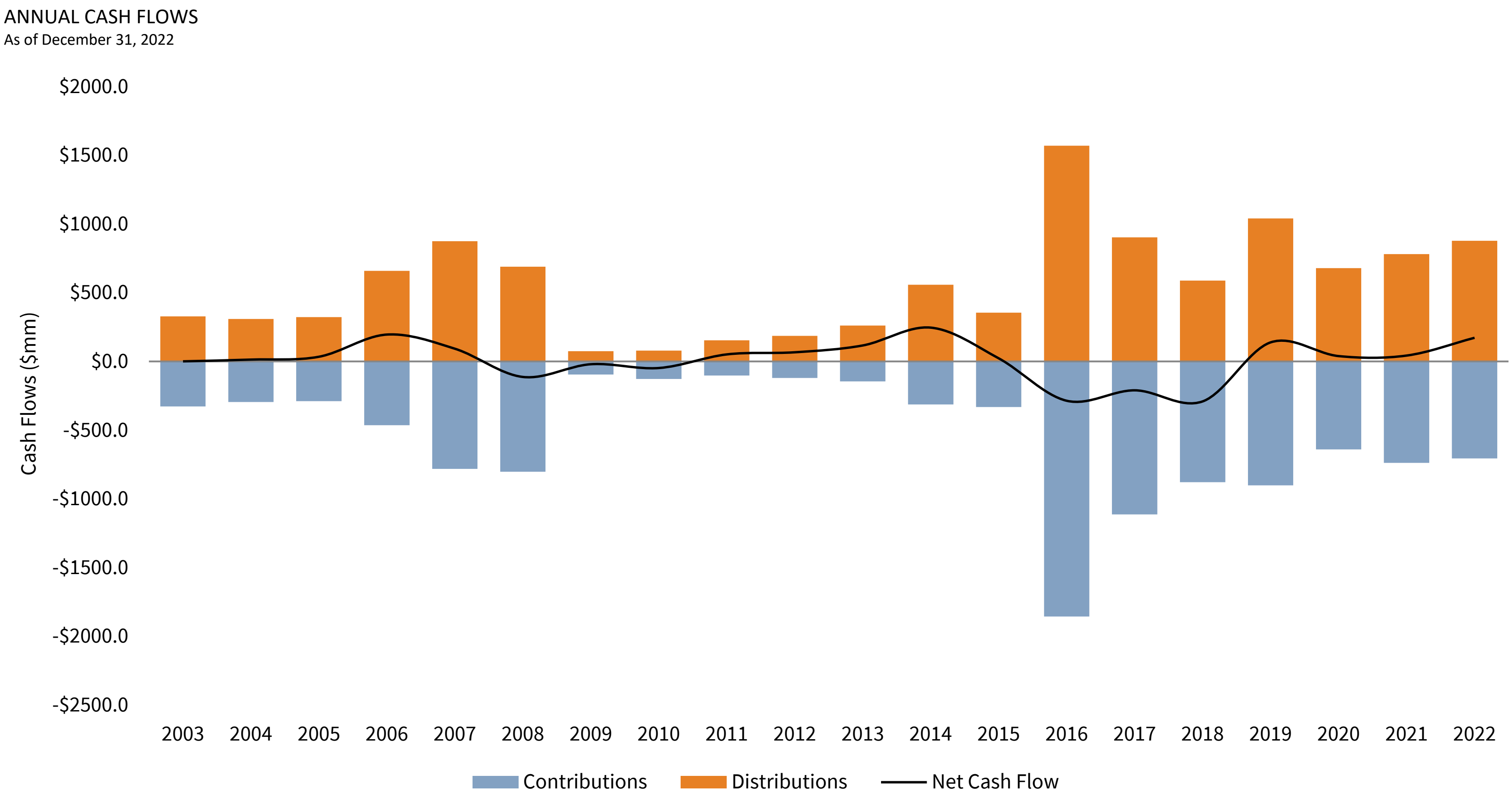
- SFERS' Real Assets portfolio has added significant value over its custom benchmark and has outperformed Cambridge Associates' benchmarks over various trailing periods

	IRR (%)				
	Trailing 1-Year	Trailing 3-Years	Trailing 5-Years	Trailing 10-Years	Since Inception[1]
SFERS Total Real Assets Portfolio	**10.2%**	**9.9%**	**9.1%**	**10.6%**	**8.6%**
Infrastructure	10.3%	14.5%	12.8%	13.2%	13.2%
Natural Resources	21.2%	11.5%	8.8%	8.1%	16.8%
Real Estate	3.4%	8.4%	9.1%	11.6%	7.7%
CA Real Assets Benchmarks	8.4%	10.5%	8.3%	8.7%	NA
CA Infrastructure Benchmark	8.1%	11.2%	10.4%	10.9%	NA
CA Natural Resources Benchmark	20.8%	10.9%	5.0%	3.6%	NA
CA Real Estate Benchmark	2.9%	9.8%	9.1%	10.8%	NA
NAREIT / MSCI World NR Blend mPME	-5.7%	5.5%	6.0%	6.6%	NA
MSCI World Core Infrastructure Index	-7.9%	2.3%	5.7%	7.8%	NA
MSCI World Natural Resources Index	33.2%	12.3%	6.3%	3.5%	NA
NCREIF ODCE	6.6%	9.0%	7.7%	9.2%	7.7%
FTSE NAREIT All Equity REITs Index	-25.0%	0.2%	4.4%	7.1%	11.6%

[1]Inception to date IRRs are not provided for CA benchmarks, given differing inception dates for SFERS' asset class composites. Inception to date not available for younger indices.
Source(s): FTSE, Nareit, NCREIF, MSCI, Aksia, Cambridge Associates.
Note(s): SFERS Performance and benchmark data provided by Aksia as of December 31, 2022. CA benchmark IRRs are pooled returns. NCREIF ODCE (Net) index return calculated on a quarterly basis.

Annual Real Assets Cash Flows

As of December 31, 2022



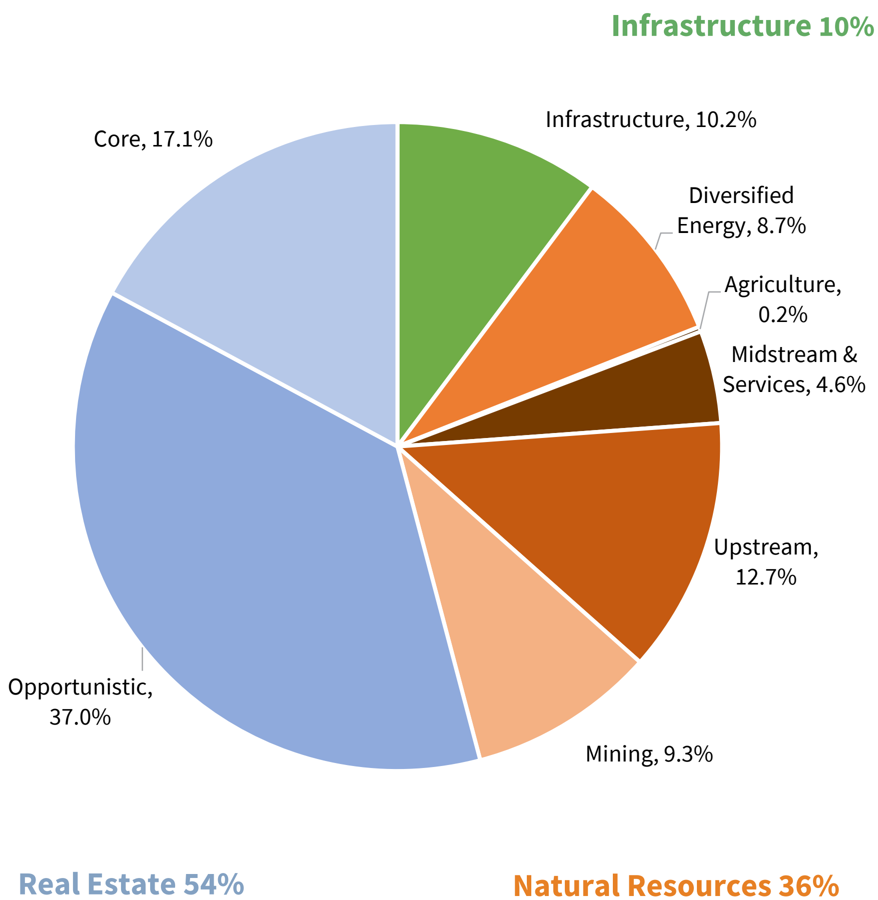
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
NET CASH FLOW ($mm)	$0	$13	$34	$195	$92	($113)	($21)	($49)	$51	$66	$116	$245	$22	($287)	($211)	($291)	$138	$38	$42	$171

Sources(s): Cash flow data provided by as of December 31, 2022.

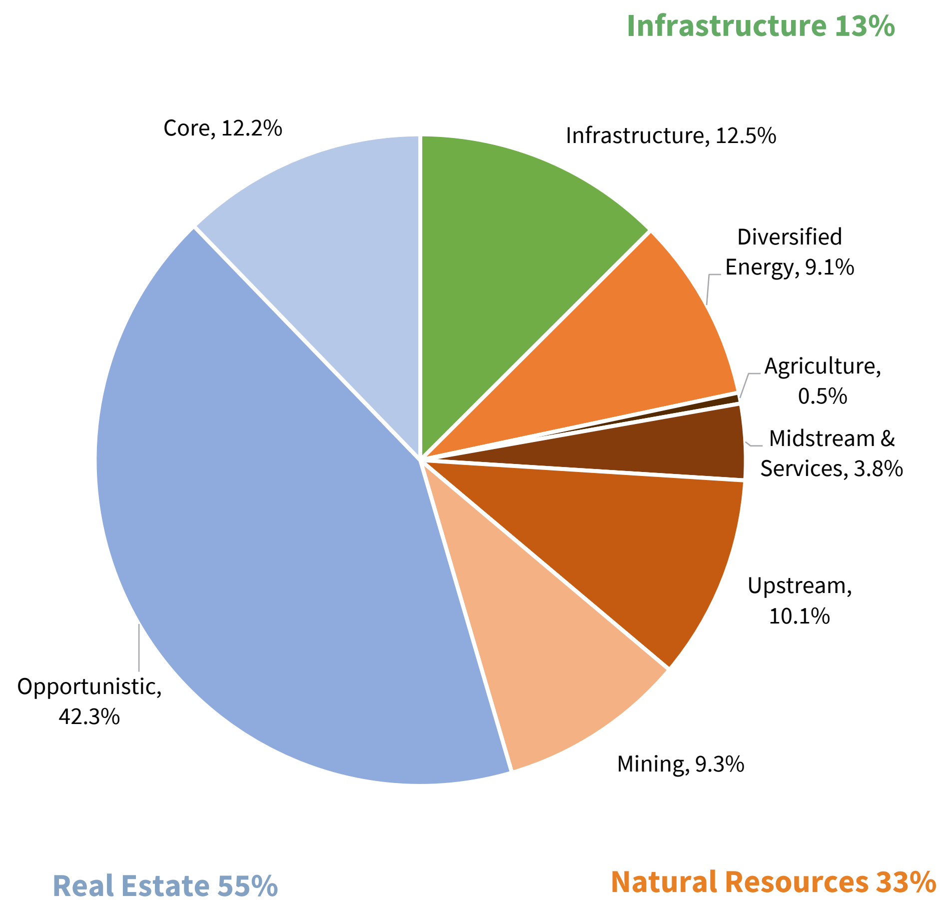
Portfolio Construction

As of December 31, 2022

EXPOSURE BY NAV ($5.2 BILLION)
As of December 31, 2022



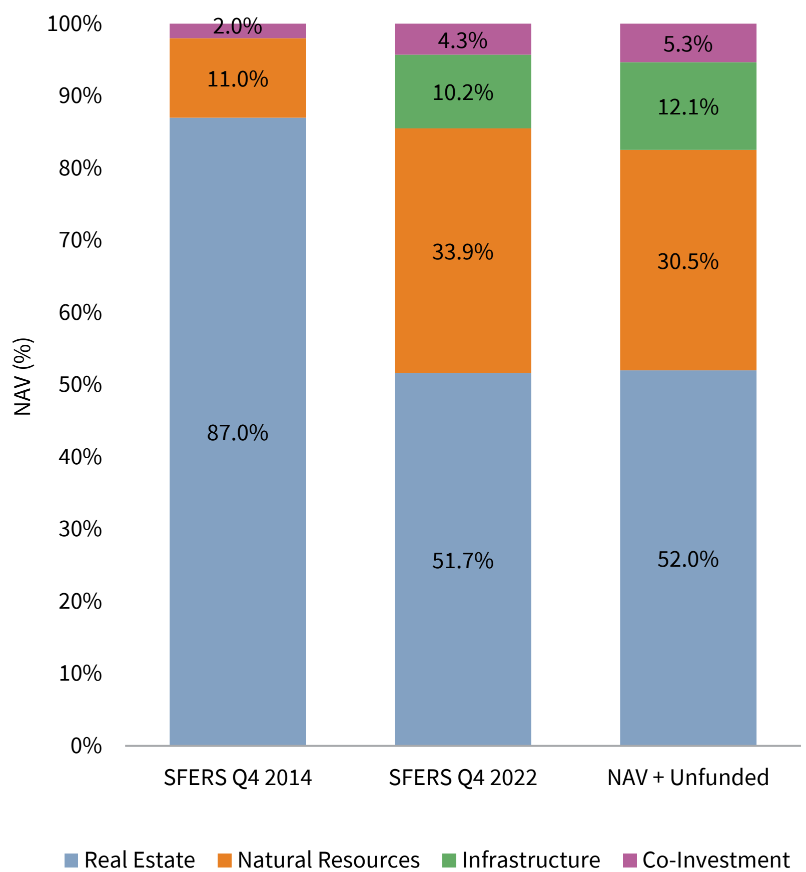
EXPOSURE BY NAV+UNFUNDED ($7.3 BILLION)
As of December 31, 2022

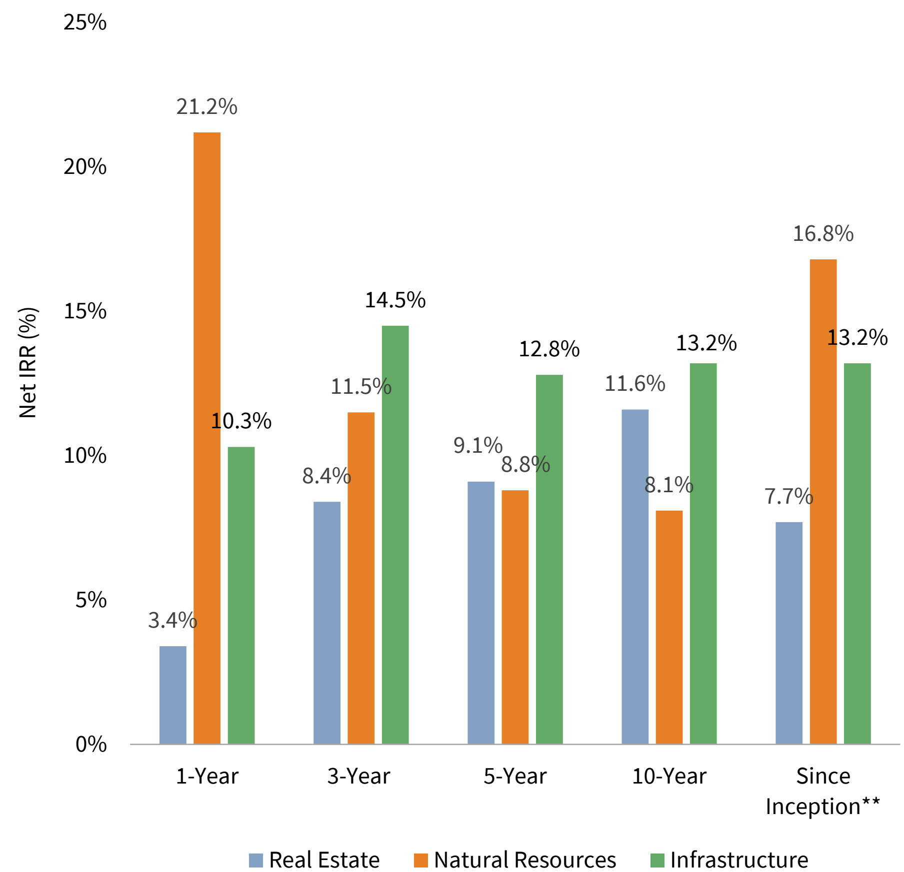


Source(s): Data provided by Aksia as of December 31, 2022.
Note(s): Asset class buckets reflect Aksia sub-strategy categorizations by fund. Totals may not sum due to rounding.

- Natural Resources exposure will decline while Infrastructure allocation will increase

SFERS RA Portfolio Exposure & Performance by Sub-Strategy

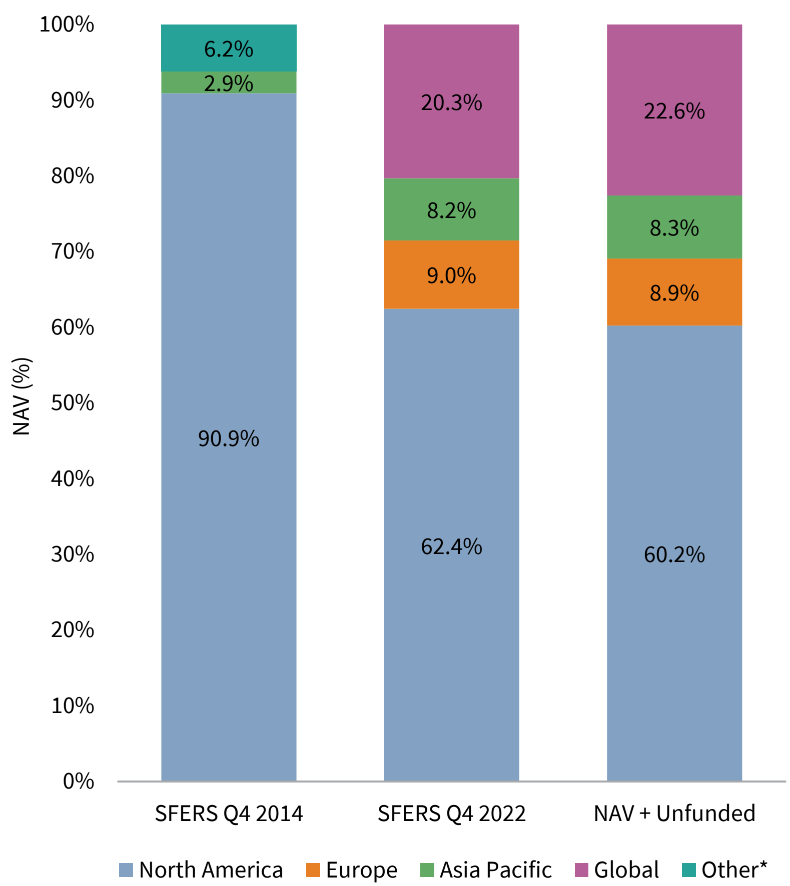


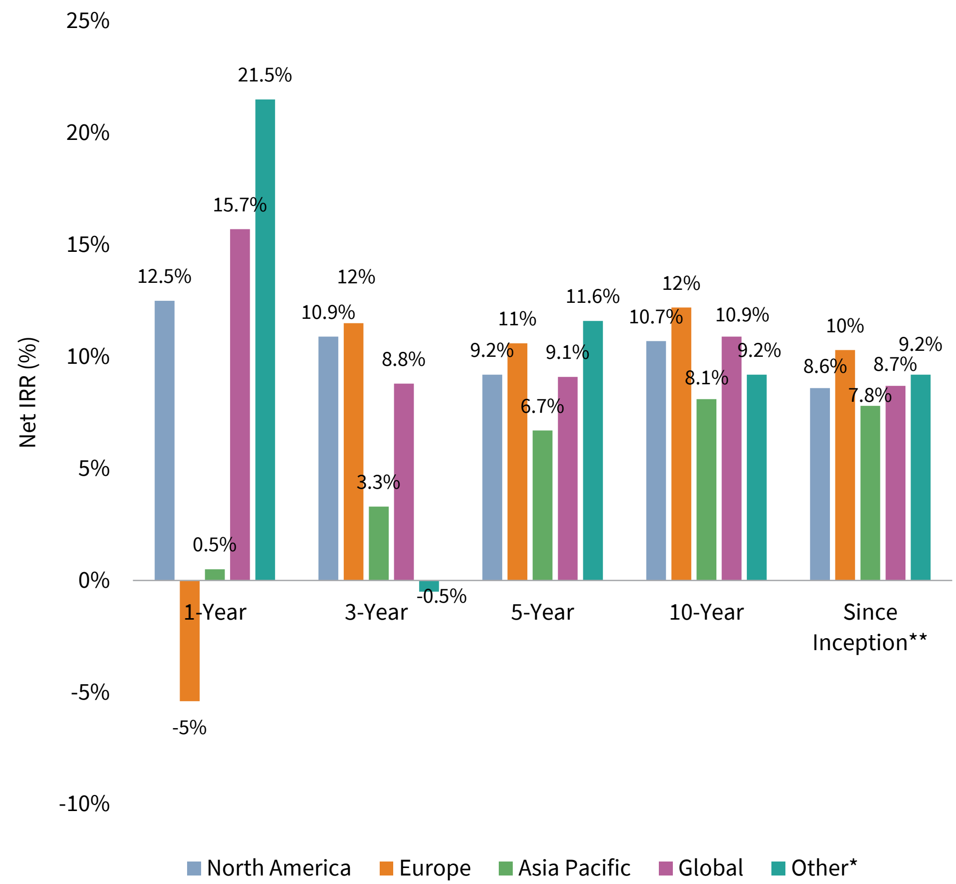


**Since inception performance reflects inception date for each respective sub-strategy.
Source(s): Analysis based on Aksia fund-level NAV data as of December 31, 2014 and December 31, 2022.

- SFERS' exposure to Global managers across strategies has benefitted performance across short and long-term time periods

SFERS RA Portfolio Exposure & Performance by Geography





*Other consists of exposure to Africa, Middle East, and Latin America / Caribbean.
**Since inception performance reflects inception date for each respective geography.
Source(s): Analysis based on Aksia fund-level NAV data as of December 31, 2014 and December 31, 2022.

REAL ASSETS MARKET UPDATE

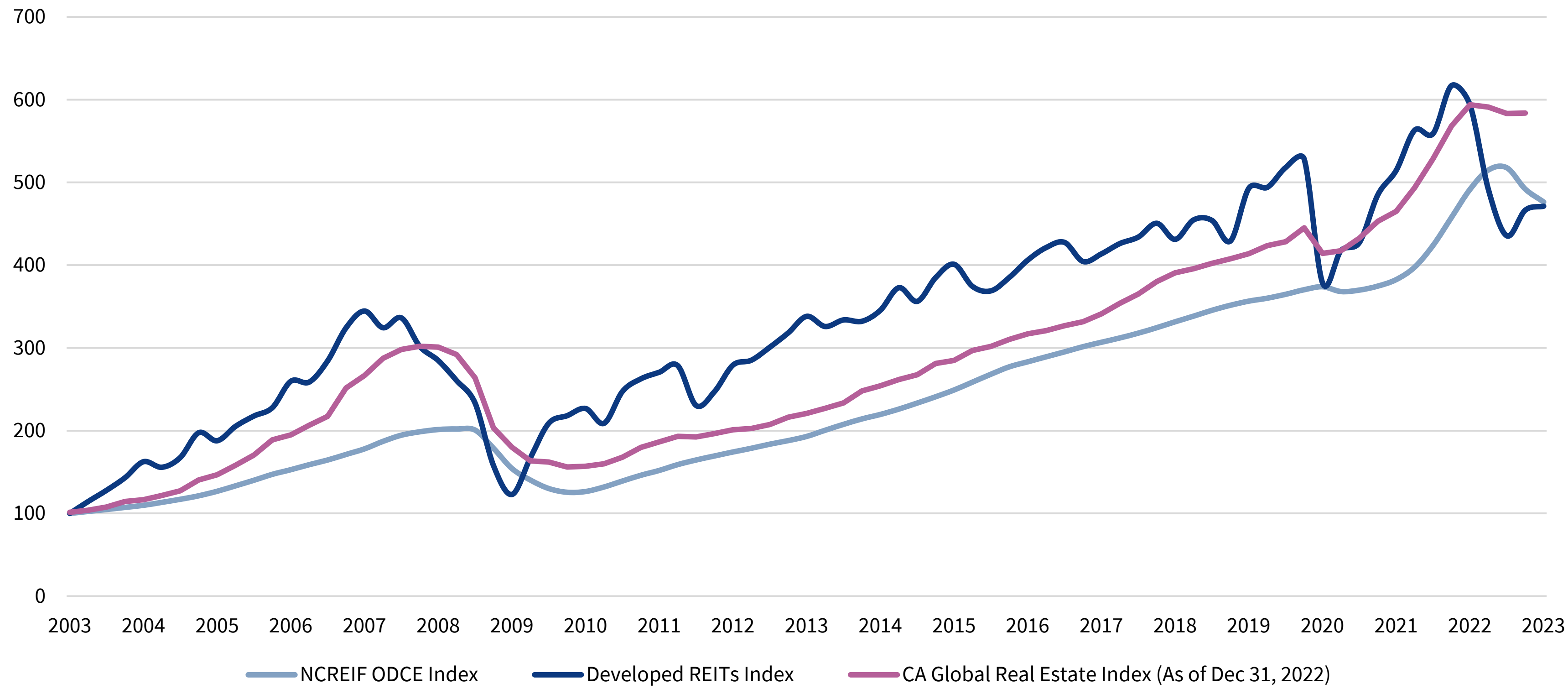
CAMBRIDGE ASSOCIATES

- Federal monetary policy of rapid interest rate increases stalled real estate transaction activity and put downward pressure on values (with an estimated 100 to 150 bp increase in cap rates).
- The lag between public and private market repricing led to meaningful redemption requests in open-ended funds, as investors sought to generate liquidity, balance their portfolios, and find value arbitrage between public and private markets.
- Additional pressure has come from banks that hold a substantial amount of real estate loans and seek to minimize exposure to real estate, putting additional pressure on values.
- Some borrowers will ultimately default on their loans, but the banking system as a whole is much better protected today against defaults than during the Global Financial Crisis (GFC) and should not face system wide stress.
- The Office sector is challenged by changes in business and consumer behavior, and that will create attractive distress opportunities, especially for those who know sector and can invest across the capital stack.
- Niche sectors that benefit from fragmented ownership, along with traditional multifamily housing and industrial that benefit from long-term tailwinds, continue to demonstrate resilience.
- Commercial real estate is not one homogenous asset class.

Real Estate has generated strong returns over the last two decades but multiple interest rates hikes have put downward pressure on values.

GLOBAL REAL ESTATE INDEX CUMULATIVE RETURN

2003 – First Quarter 2023 • US Dollar • Indexed to 100



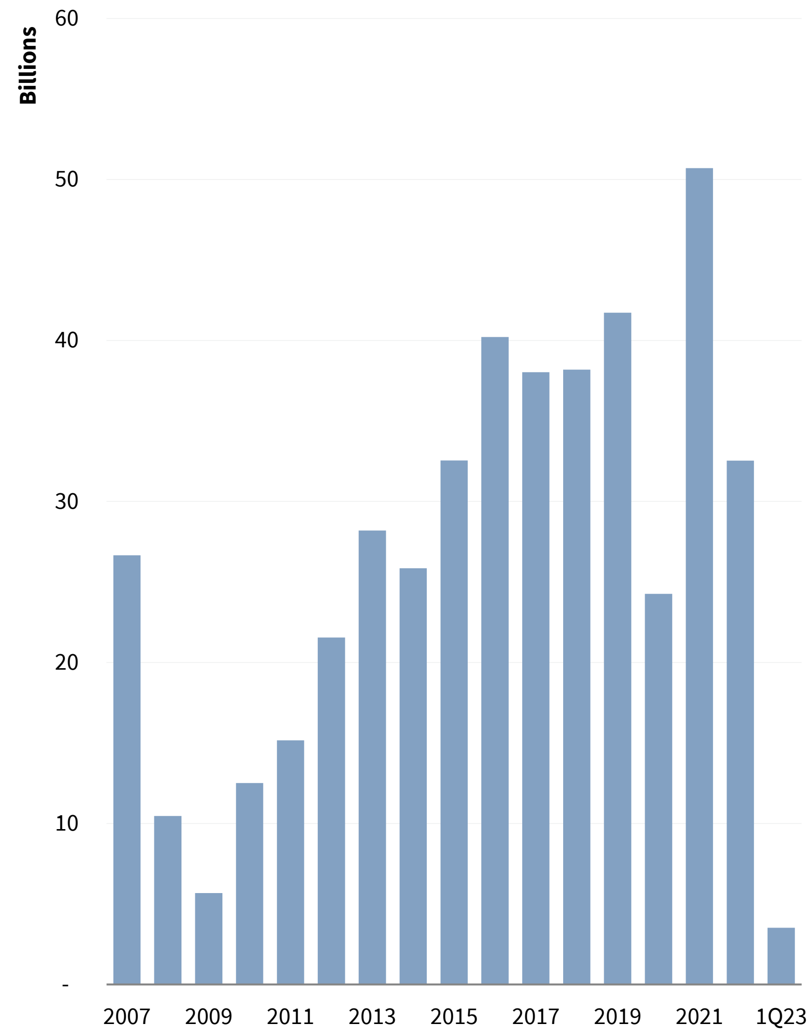
	1-Year	2-Year	3-Year	5-Year	10-Year	15-Year	20-Year
NCREIF ODCE Index	-3.09%	11.58%	8.40%	7.51%	9.45%	5.91%	8.12%
Developed REITs Index	-20.61%	-4.31%	7.57%	1.79%	3.37%	3.41%	8.06%
CA Global Real Estate Index *(As of December 31, 2022)*	2.72%	13.51%	9.45%	8.95%	10.44%	4.49%	9.22%

Source(s): Cambridge Associates LLC, National Council of Real Estate Investment Fiduciaries (NCREIF), FTSE International Limited, National Association of Real Estate Investment Trusts
Notes(s): The NCREIF Property Index (NPI) and NCREIF ODCE Index represent quarterly, unleveraged composite total return for private commercial real estate properties held for investment purposes only. All properties in the NPI and ODCE have been acquired, at least in part, on behalf of tax-exempt institutional investors and held in a fiduciary environment. US REITs are represented by the FTSE ® NAREIT All Equity REITs Index representing both income and appreciation. The CA Global Real Estate Index data are pooled horizon internal rate of return (IRR) calculations (net of fees, expenses, and carried interest) based on data compiled from real estate funds (including opportunistic and value-added funds).

Rapid rise in interest rates has resulted in a dramatic decline in transaction activity amidst wide bid-ask spreads.

- 2022 transaction activity started strong, but ultimately finished down 36% from a record high 2021, driven by the rising cost of debt, reduced debt availability and general market uncertainty.
- Q1 2023 transactions were 62% lower than Q1 2022 transactions, demonstrating that bid-ask spreads remain wide.
- RE owners are not selling unless forced, and buyers are generally being patient and waiting for more signs of capitulation and / or more clarity on future interest rate hikes and the economy.
- Market generally remains in "price discovery" mode, with apartments transactions being an exception.

US REAL ESTATE TRANSACTION VOLUMES
2007 – First Quarter 2023 • Billions ($)

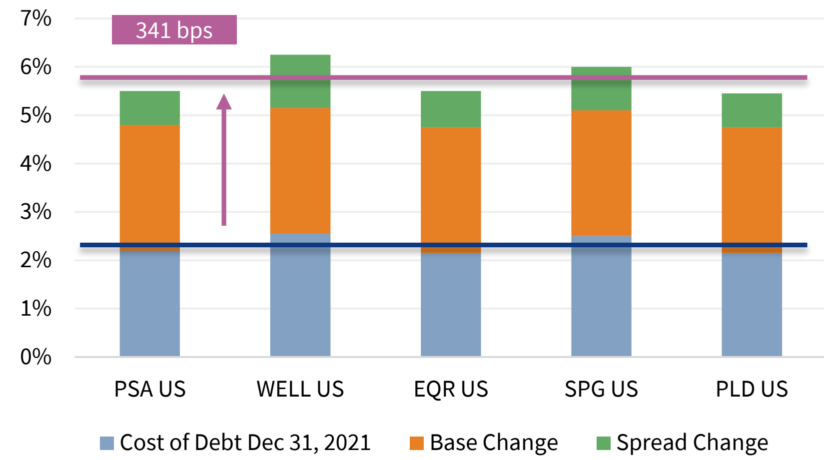


Source(s): National Council of Real Estate Investment Fiduciaries

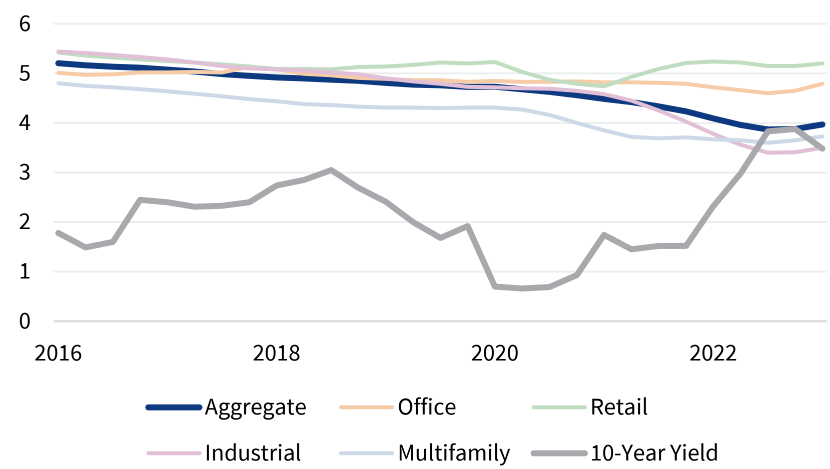
Rising debt costs led to higher cap rates which creates short term negative leverage situations for many borrowers.

- By the end of 2022, borrowing costs for real estate managers had increased nearly 350 bps (combination of spread and base rate increase), putting downward pressure on asset values.
- As a result, on average, cap rates expanded by between 100-150 bps by the end of 2022, which would translate to a ~30% value decline; an additional repricing (25 to 50 bp cap rate expansion) is ongoing.
- However, value declines are not uniform and assets in supply constrained markets with strong cash flows continue to demonstrate resilience.

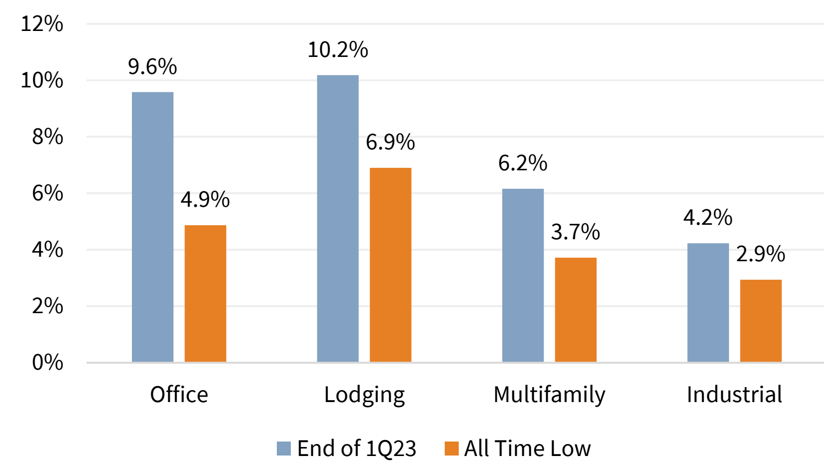
RISING COST OF DEBT
Cost of Debt for Select REITs through November 2022 • Percent (%)



PRIVATE US REAL ESTATE CAP RATE EXPANSION LAGGING PUBLICS
First Quarter 2016 – First Quarter 2023 • Percent (%)



IMPLIED CAP RATES OF PUBLIC REITS: TODAY VS PRIOR TROUGHS
Percent (%)

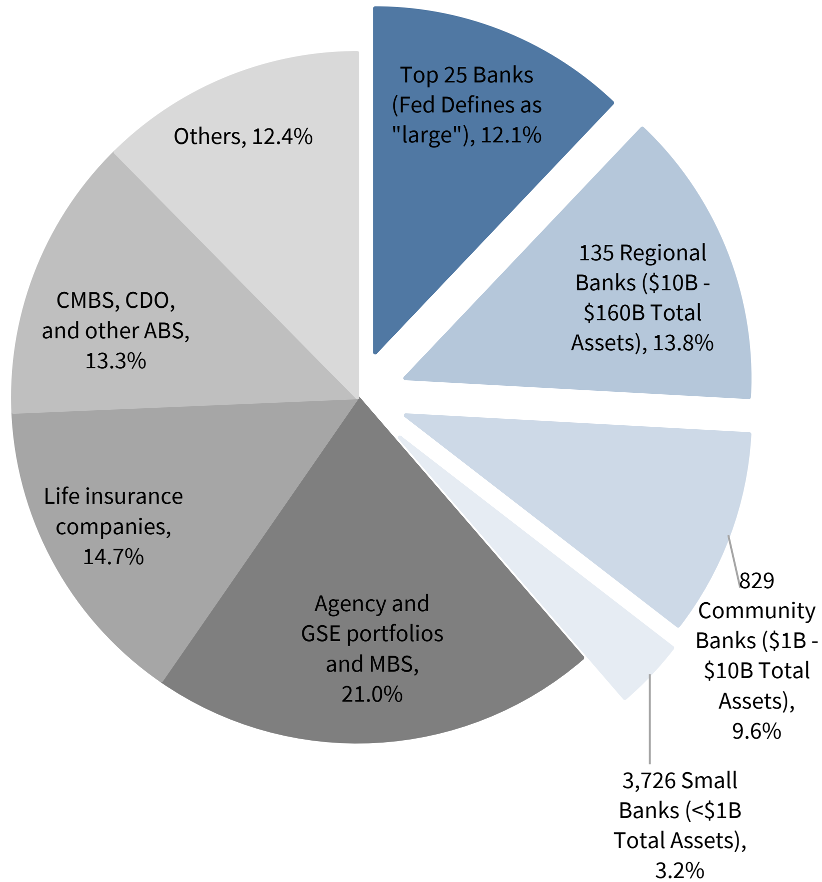


Source(s): National Council of Real Estate Fiduciaries, DWS, Green Street Advisors LLC

Recent bank collapses shed a light on banks' exposure to commercial real estate debt.

- Banks hold roughly $1.7 trillion of commercial real estate backed debt on their balance sheets, with over 40% (~$700 billion) of that debt maturing before the end of 2024.
- Large banks hold only 4% of real estate on their balance sheets, while regional and community banks are much more exposed, with 17% and 24% respectively.
- While Small banks also have a larger direct exposure to CRE, above 15%, any distress in their relatively small share is unlikely to have a major impact on the banking system.

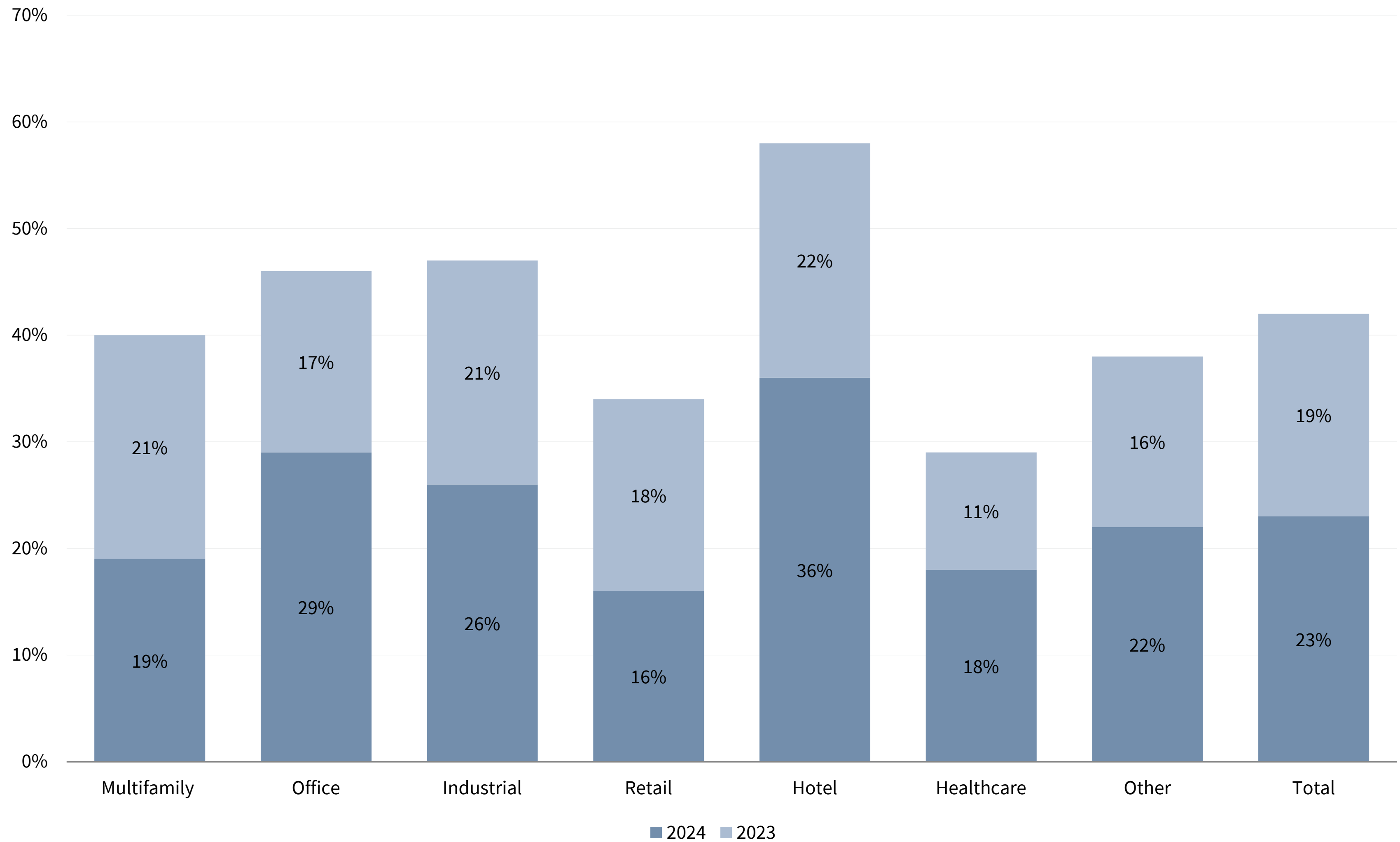
SHARE OF OUTSTANDING $4.5 TRILLION US CRE DEBT
Income producing Multifamily and Commercial Real Estate • Percent (%)



Source(s): Moody's Analytics, Mortgage Bankers Association, Federal Deposit Insurance Corporate

42% of all CRE loans held by banks are expected to mature in 2023 and 2024.

CRE BANK LOAN MATURITIES BY PROPERTY TYPE
As of March 2023 • Percent (%) Shares Outstanding



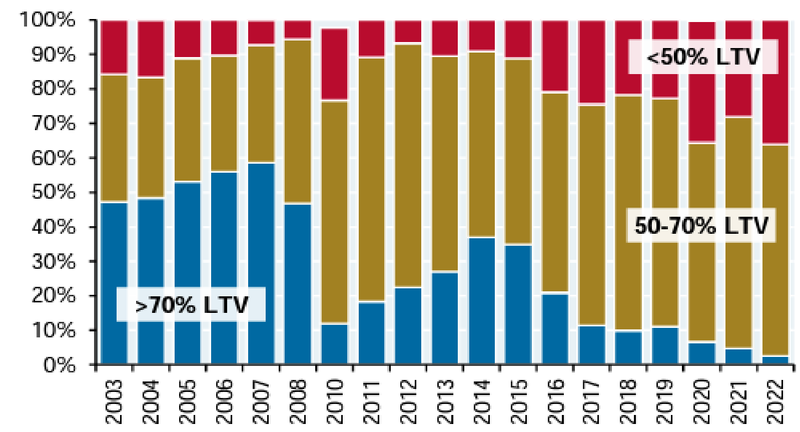
Source(s): Moody's Analytics, Mortgage Bankers Association

Lenders are better protected from value declines than in the past, still, expect there to be stress…

- Lending restrictions enacted post GFC have greatly reduced lenders' overall risk.
- Prior to the GFC, the average loan to value (LTV) of underlying loans in the CMBS market was 70%, with approximately 60% of loans underwritten above 70%.
- By 2019, average LTVs in the CMBS market were down to 55%, with less than 10% of loans issued above 70%.
- Pockets of stress are likely to be far less severe.
- Debt availability is more challenging for certain property types, and most difficult for office transactions.
- However, debt for multi-family assets remains available, as life companies, Fannie Mae / Freddie Mac remain active.

CMBS WEIGHTED AVERAGE LTV
2003 – 2022 • Percent (%)

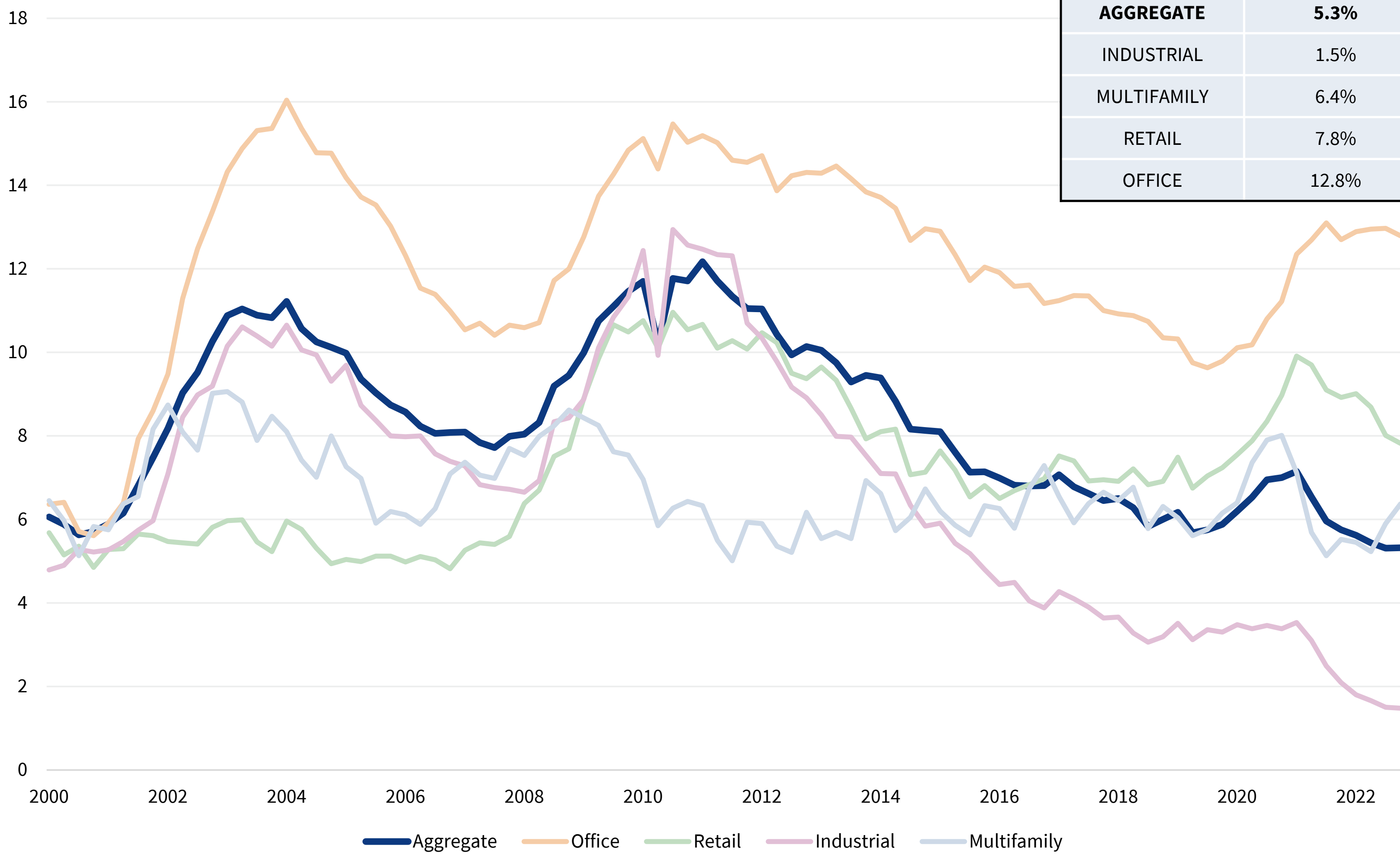
CMBS LTVS BY VINTAGE YEAR
2003 – 2022 • Percent (%)



Source(s): J.P. Morgan Asset Management

Vacancies will move higher in 2023. Industrial vacancy rates will remain near all time lows while office vacancies approach all time highs.

US PROPERTY: VACANCY RATE
First Quarter 2000 – Fourth Quarter 2022 • Percent (%)



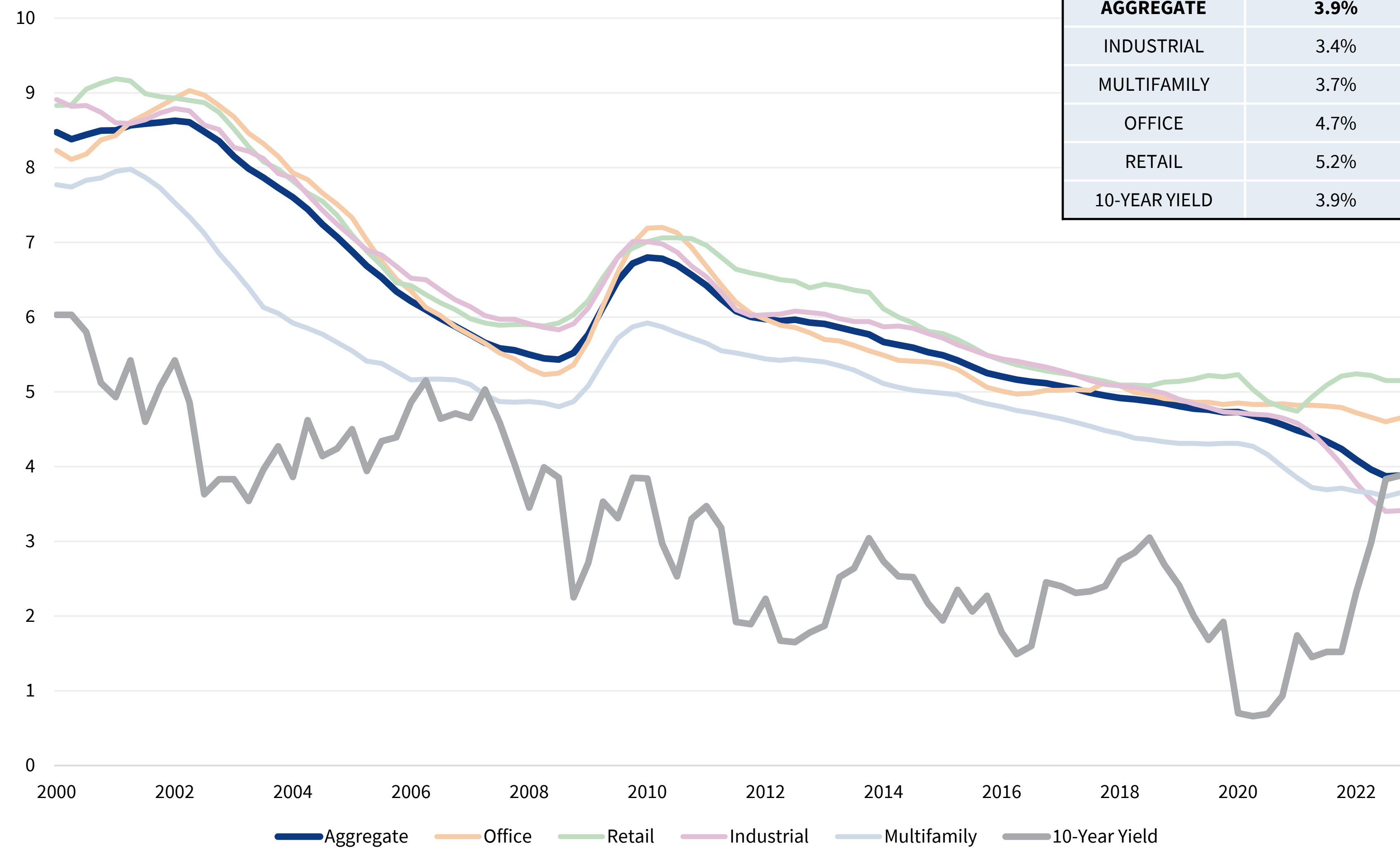
VACANCY RATES (12/31/22)	
AGGREGATE	**5.3%**
INDUSTRIAL	1.5%
MULTIFAMILY	6.4%
RETAIL	7.8%
OFFICE	12.8%

Source(s): National Council of Real Estate Investment Fiduciaries
Note(s): The NCREIF Property Index (NPI) is a quarterly, unleveraged composite total return for private commercial real estate properties held for investment purposes only. All properties in the NPI have been acquired, at least in part, on behalf of tax-exempt institutional investors and held in a fiduciary environment.

Cap rates are rising from all time lows achieved in early 2022 and are likely to rise further as financing costs now exceed unlevered yields for most property types.

US PROPERTY: CAPITALIZATION RATES

First Quarter 2000 – Fourth Quarter 2022 • Percent (%)



CAP RATES (12/31/22)	
AGGREGATE	**3.9%**
INDUSTRIAL	3.4%
MULTIFAMILY	3.7%
OFFICE	4.7%
RETAIL	5.2%
10-YEAR YIELD	3.9%

Source(s): National Council of Real Estate Investment Fiduciaries

Note(s): The NCREIF Property Index (NPI) is a quarterly, unleveraged composite total return for private commercial real estate properties held for investment purposes only. All properties in the NPI have been acquired, at least in part, on behalf of tax-exempt institutional investors and held in a fiduciary environment. Cap rates based on appraisal value.

Net Operating Income (NOI) growth decelerating from historically high levels. Industrial is expected to maintain the highest NOI growth in 2023.

US NOI GROWTH

Quarterly Last Twelve Months (LTM) and Time Horizon (years) • Percent (%)

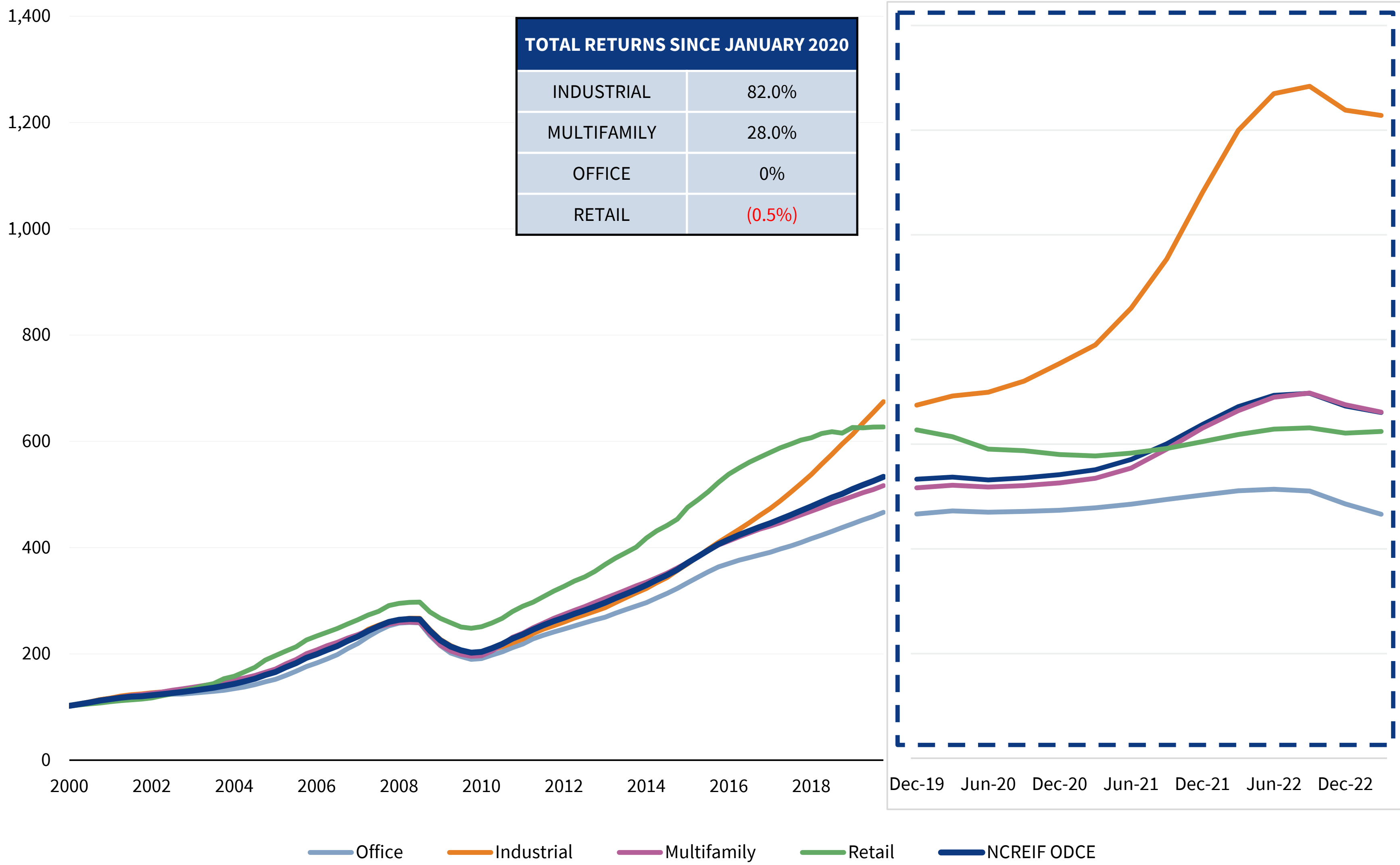
YEAR	MUTIFAMILY	INDUSTRIAL	OFFICE	RETAIL
LTM NOI GROWTH				
Q1 2023	8.1%	13.3%	2.9%	6.2%
Q4 2022	10.4%	12.0%	3.7%	4.6%
Q3 2022	17.6%	13.6%	(0.8%)	4.1%
Q2 2022	22.3%	12.6%	2.7%	13.5%
Q1 2022	23.4%	11.7%	(1.2%)	15.5%
ROLLING 4 QUARTER NOI GROWTH CAGR (YEARS)				
1	8.1%	13.3%	2.9%	6.2%
3	4.7%	10.6%	1.5%	0.5%
5	4.9%	9.5%	3.4%	(0.1%)
10	4.9%	7.6%	4.1%	1.6%
10	4.9%	3.4%	2.4%	1.8%

Source(s): Cambridge Associates LLC, Green Street Advisors LLC, National Council of Real Estate Investment Fiduciaries

Commercial real estate is not one homogenous asset class!

CORE REAL ESTATE PERFORMANCE

First Quarter 2000 – First Quarter 2023 • Indexed to 100

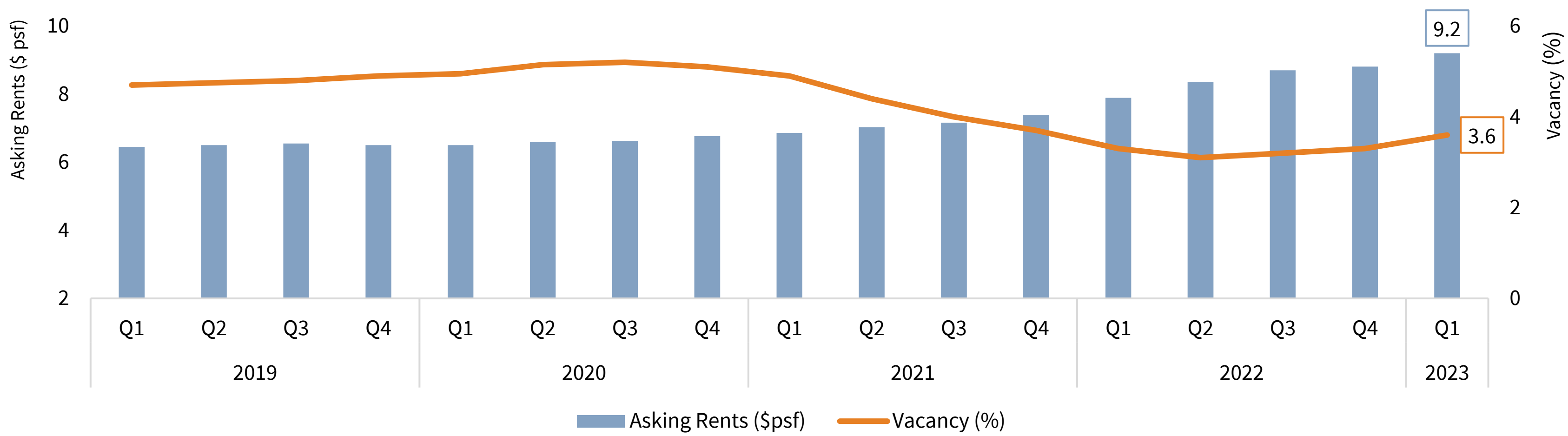


TOTAL RETURNS SINCE JANUARY 2020	
INDUSTRIAL	82.0%
MULTIFAMILY	28.0%
OFFICE	0%
RETAIL	(0.5%)

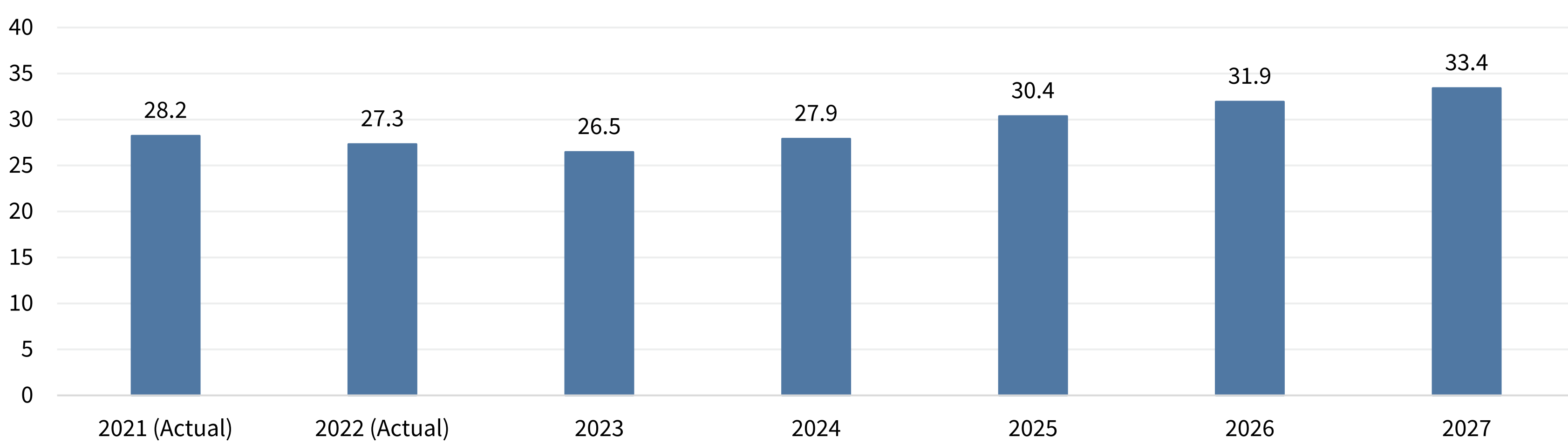
Source(s): National Council of Real Estate Investment Fiduciaries

Industrial will continue to benefit from online retail, reduced construction, and onshoring.

CONTINUED POSITIVE TRENDS IN US INDUSTRIAL
First Quarter 2019 – First Quarter 2023



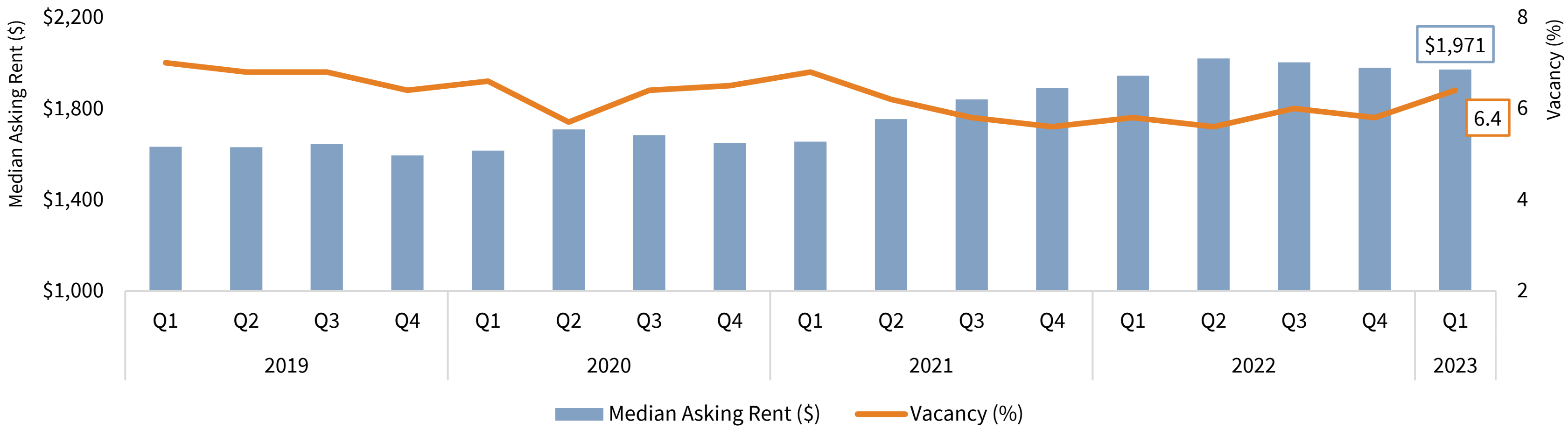
WAREHOUSE CONSTRUCTION STARTS FORECAST
2021 – 2027 • Billions ($)



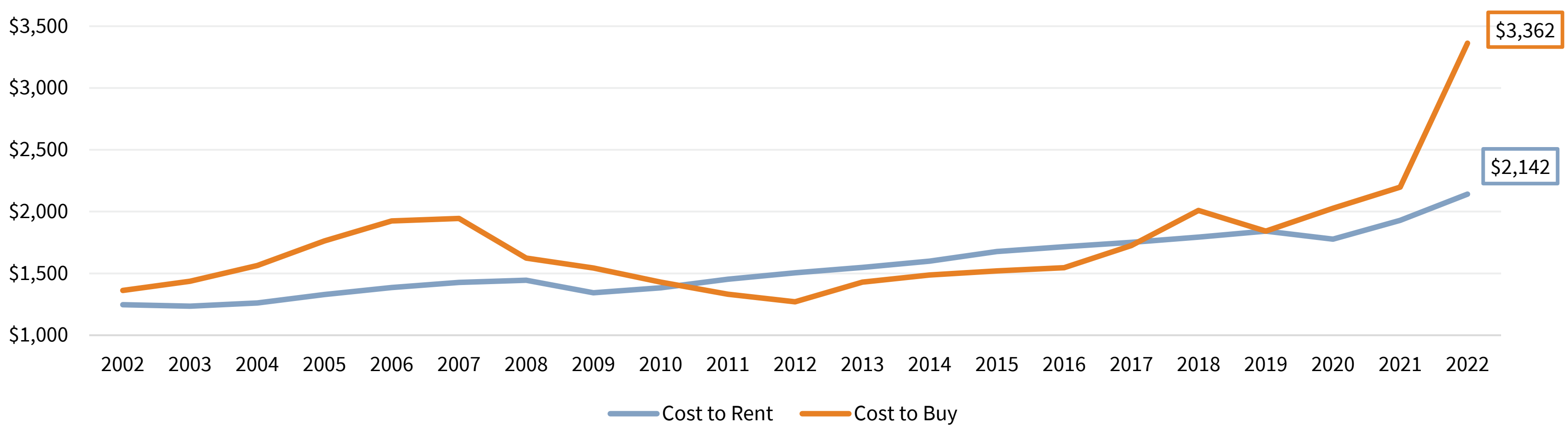
Source(s): Cushman & Wakefield LLC, ConstructConnect, Inc.

Multifamily will benefit from a shortage of housing, lack of affordability, and high interest rates which make home ownership less affordable.

MULTIFAMILY STABILIZATION ABOVE HISTORICAL AVERAGE
First Quarter 2019 – First Quarter 2023



COST TO BUY VS. COST TO RENT
As of Q3 2002 – Q3 2022

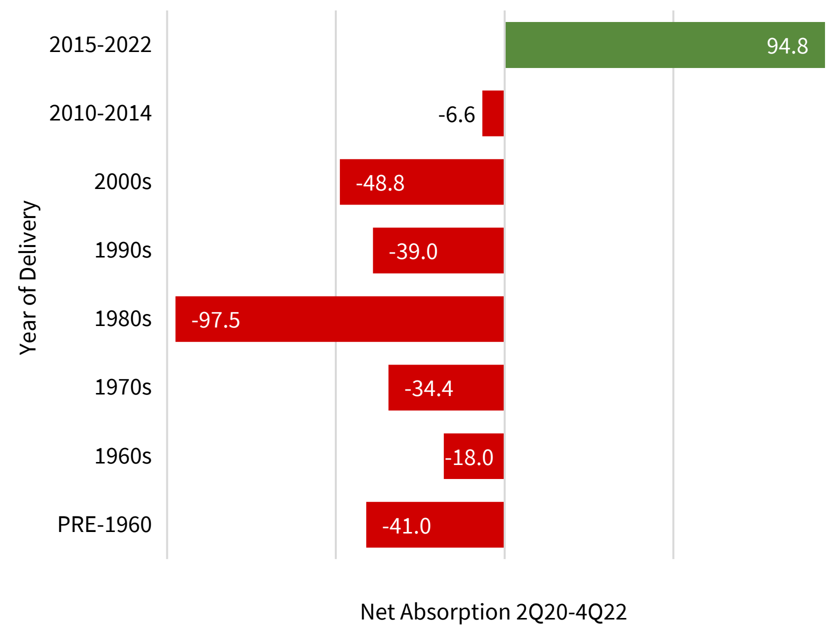


Source(s): Rent.com, Federal Reserve of St. Louis, CBRE Research

Office has been negatively impacted by changing consumer demands and business behavior. Retail went through a similar impact that ultimately made the sector stronger.

- Vacancy rates have climbed as businesses allow employees to work from home.
- The office sector was struggling before the pandemic due to its high capital expenditure requirements, and evolving tenant expectations.
- The newest Class A properties will likely see modest depreciation in value as demand for that product remains strong, while owners of less desirable buildings could see 30-40% decline in values compared to pre-pandemic.
- The retail sector faced a similar change in consumer demand (e-commerce) which left the sector out of favor for much of the last decade. The distress in this sector allowed owners to reorient retail centers to better meet consumer demand and preferences.

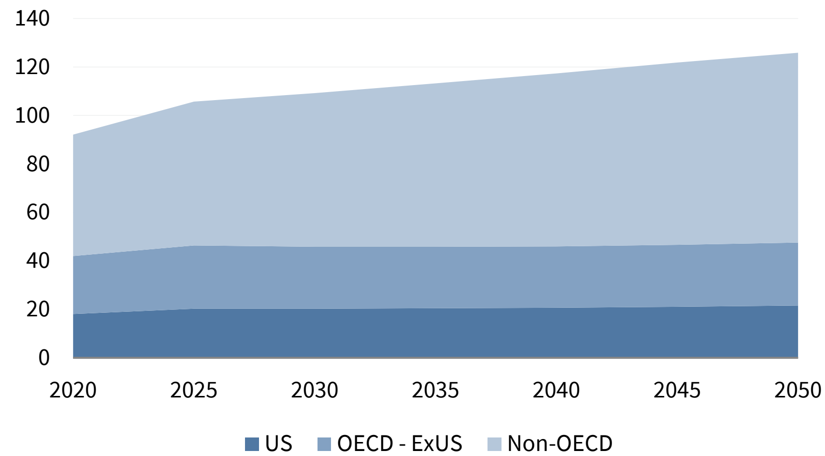
NET ABSORPTION OF OFFICE SPACE DURING PANDEMIC
By Year of Delivery (MSF*)



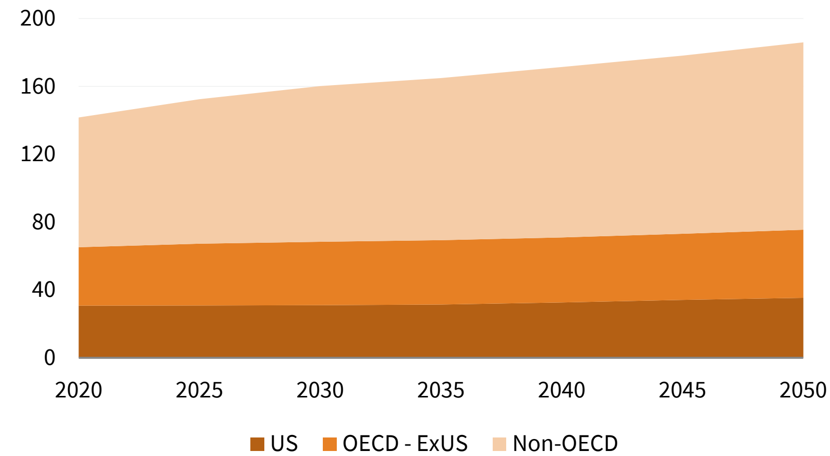
* MSF = Millions of square feet
Source(s): JLL Research, Green Street Advisors LLC, National Council of Real Estate Investment Fiduciaries

While demand growth will slow as the world transitions to renewable energy sources, oil and gas will remain key to meeting global energy needs, particularly in emerging markets.

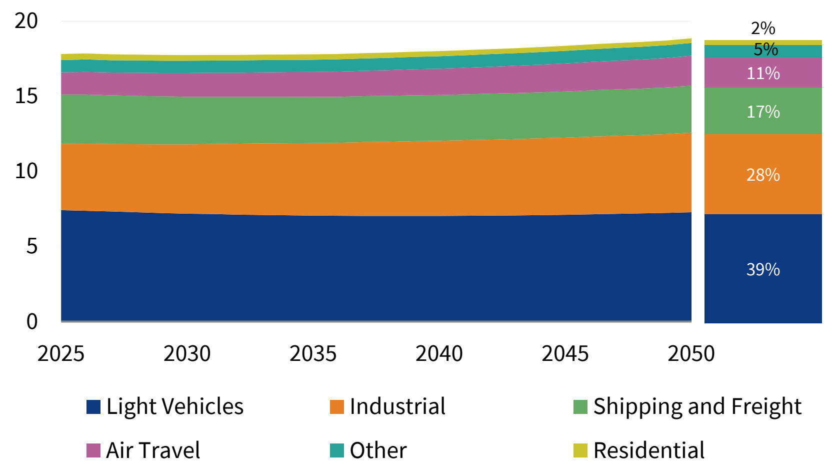
FORECASTED GLOBAL LIQUID FUELS CONSUMPTION
2020 – 2050E • Million bbl/d



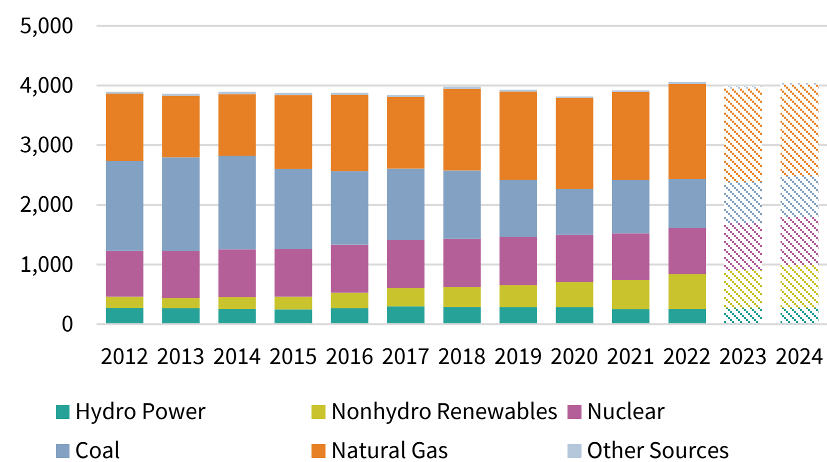
FORECASTED GLOBAL NATURAL GAS CONSUMPTION
2020 – 2050E • Trillion cubic feet



US LIQUID FUELS CONSUMPTION
2025E – 2050E • Million bbl/d



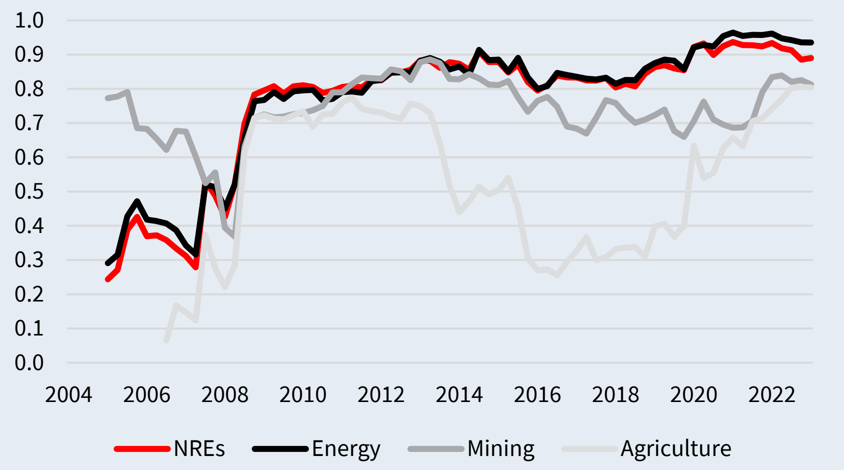
ELECTRICITY GENERATION: FUEL SOURCE
2012 – 2024E • Billions of kilowatt hours (kwh)



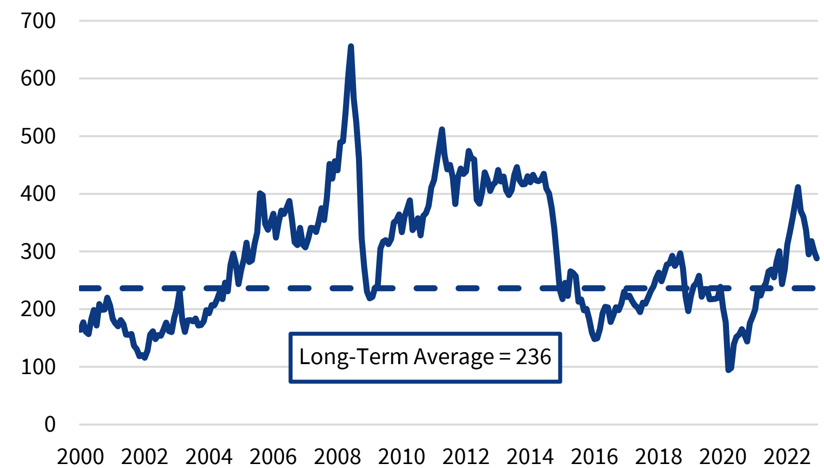
Source(s): US Energy Information Administration
Note(s): Data sourced from EIA's Annual Energy Outlook (2022), International Energy Outlook (2021); Dashed bars represent projections.

Commodity prices are mixed as markets weigh the conflicting impact of both positive fundamentals and the potential for a recession.

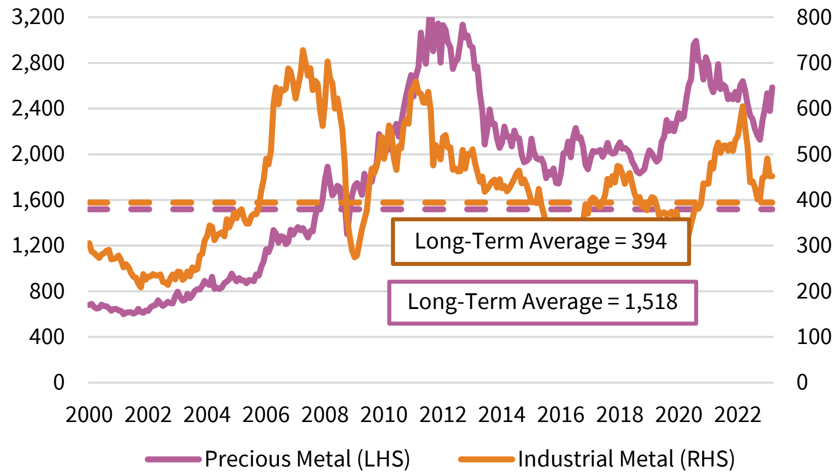
ROLLING 5-YR CORRELATIONS OF EQUITY INDEX VS COMMODITY
First Quarter 2005 – First Quarter 2023



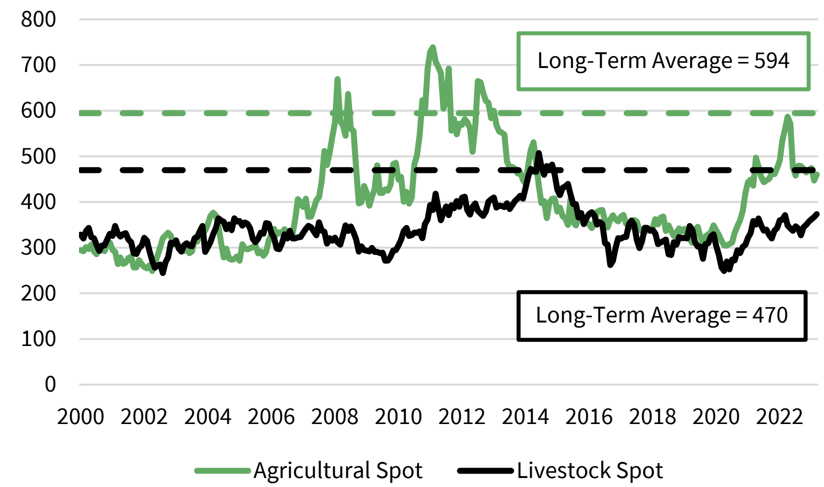
S&P GSCI ENERGY SPOT
First Quarter 2000 – First Quarter 2023



S&P GSCI MINING SPOTS
First Quarter 2000 – First Quarter 2023



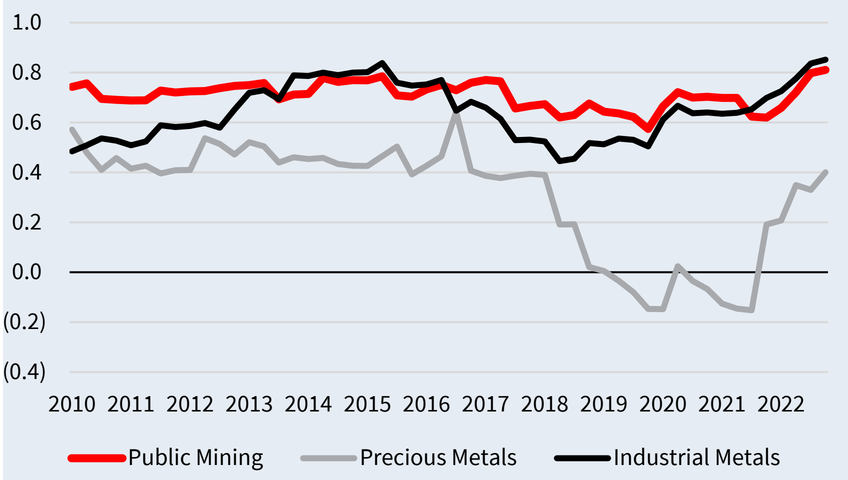
S&P GSCI AGRICULTURE SPOTS
First Quarter 2000 – First Quarter 2023



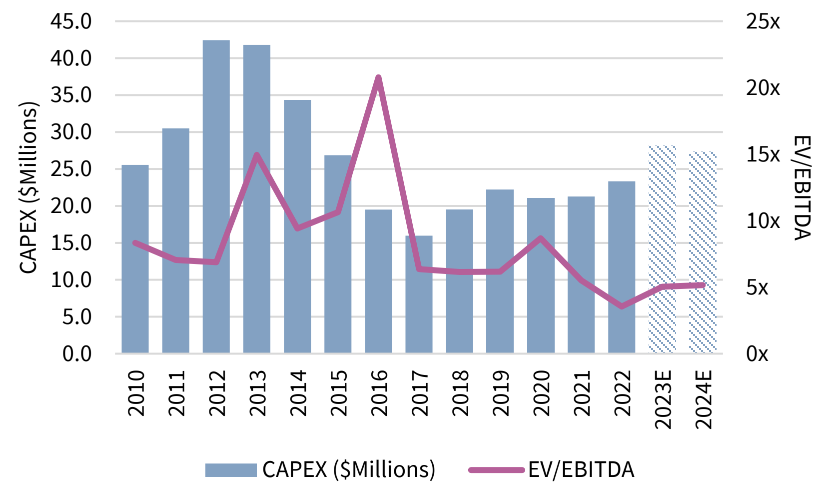
Source(s): Standard & Poor's, Thomson Reuters Datastream, and US Department of Labor - Bureau of Labor Statistics.
Note(s): Charts constructed using monthly price index levels adjusted to March 31, 2022. Correlations are measured as follow: Energy (Datastream Energy Index vs S&P GSCI Energy Index); Mining (Datastream World General Mining Index vs 50% S&P GSCI Industrials Metals Index + 50% S&P GSCI Precious Metals Index); Agriculture (MSCI All Country World Select Agriculture Producers IMI Index (Gross) vs 50% S&P GSCI Agriculture Index + 50% S&P GSCI Livestock Index); NREs (MSCI World Natural Resources Index (Net) vs S&P GSCI).

Mining managers that focus on late-stage investments may be well positioned to take advantage of low valuations and a potential commodity boom in industrial metals and minerals.

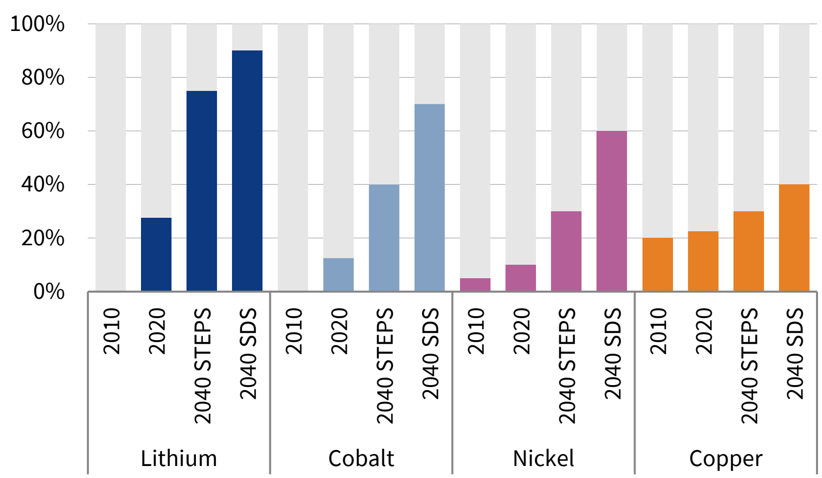
ROLLING 5-YR CORRELATIONS TO PRIVATE MINING STRATEGIES
First Quarter 2010 – Fourth Quarter 2022



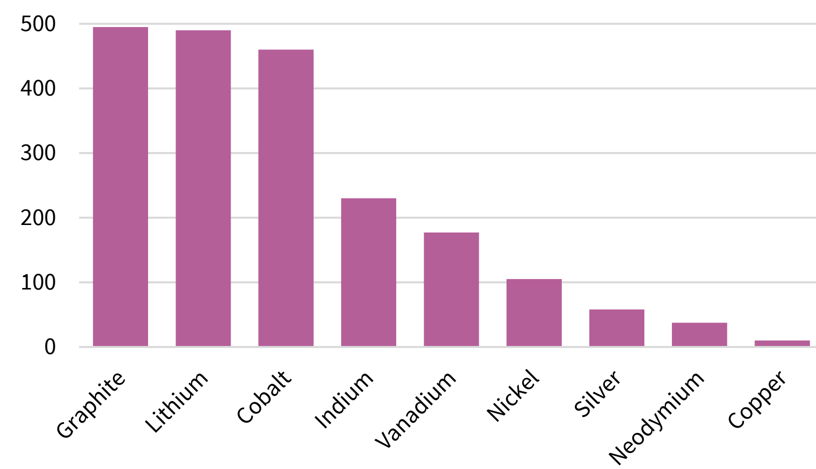
CAPEX UNDERSPEND MAY DRIVE METAL PRICES, TRADING VALUATIONS
2010 – 2024E



SHARE OF CLEAN ENERGY TECH IN TOTAL DEMAND FOR MINERALS
As of May 2021 • Percent (%)



2050 DEMAND FROM ENERGY TECHNOLOGY VS 2018 PRODUCTION
As of December 202o • Percent (%)



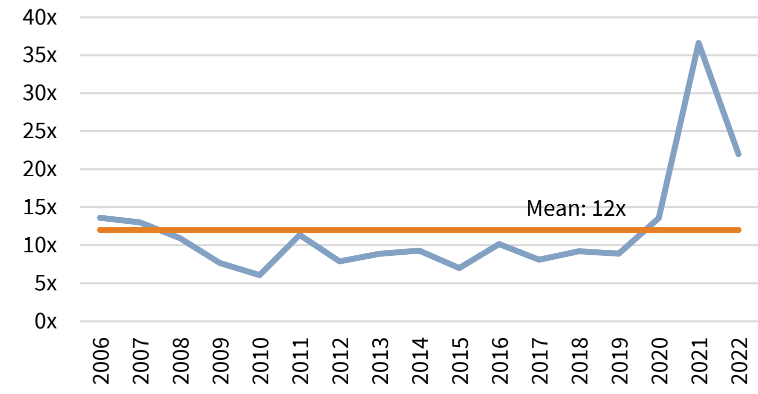
Source(s): Cambridge Associates LLC, Thomas Reuters Datastream, IEA
Note(s): Correlations represent the relationship between private mining funds within the CA PE Energy Mining subgroup and various public indices using the mPME methodology, wherein cash is invested and redeemed from the index at the equal pace of cash inflows to (and outflows from) private funds within the CA PE Energy Mining subgroup; public indices used are as follows: S&P GSCI Precious Metals Index ("Precious Metals"), S&P GSCI Industrial Metals Index ("Industrial Metals"), and Datastream World General Mining Index ("Public Mining"). CAPEX data represents total annual CAPEX spend by 38 large and mid cap stocks across 23 developed markets. Valuations represent this same pool of 38 large and mid cap stocks in the MSCI World Metals and Mining Index. STEPS = Stated Policies Scenario, an indication of where the energy system is heading based on sector-by-sector analysis of today's policies and policy announcements; SDS = Sustainable Development Scenario, indicating what would be required in a trajectory consistent with meeting the Paris agreement.

Valuation trends are driving Infrastructure investors towards development / greenfield.

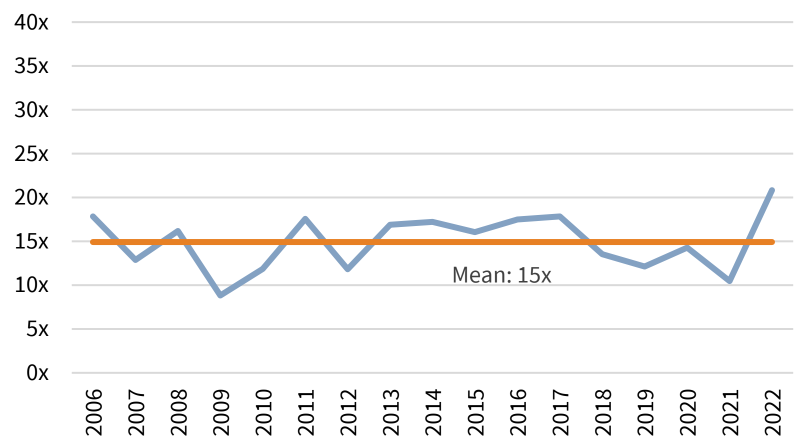
Infrastructure Valuations Remain High

- Valuations represent both a threat and opportunity, dependent on the strategy taken (e.g. greenfield / brownfield versus secondary).
- Utility valuations have converged downwards given rising interest rates and inflation impacts on capital expenditure and financing
- Within energy, late-stage renewables valuations have risen given the sector's increased attractions. Similarly, transportation and telecoms has seen increased demand and valuations

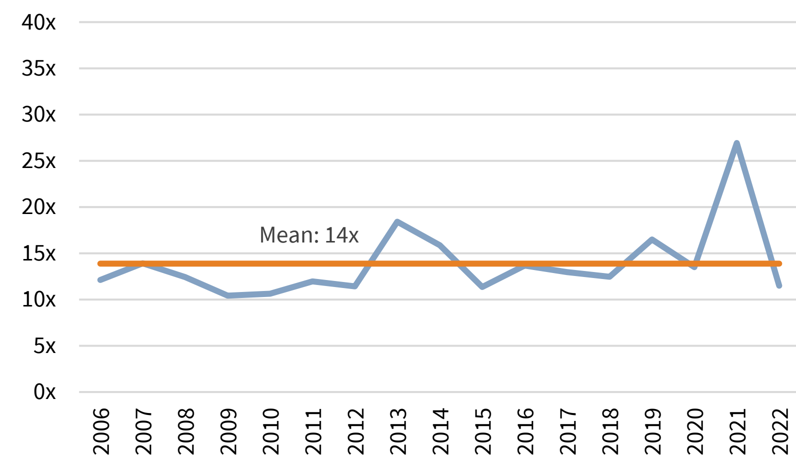
TELECOMMUNICATIONS
2006 – 2022 (EV/EBITDA)



TRANSPORTATION
2006 – 2022 (EV/EBITDA)



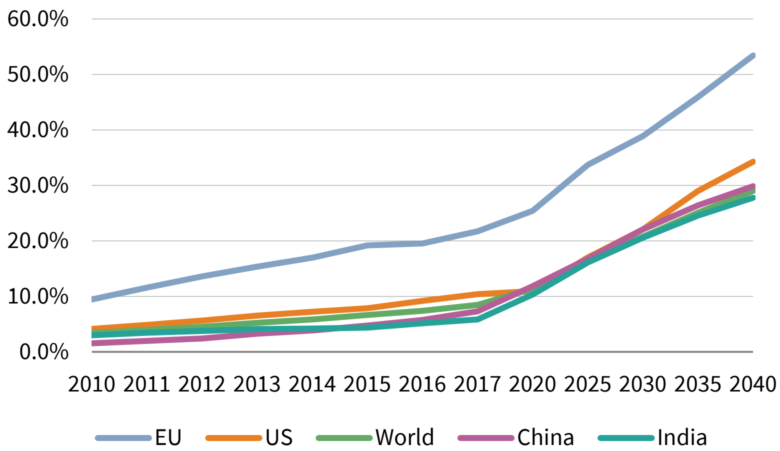
UTILITY & ENERGY
2006 – 2022 (EV/EBITDA)



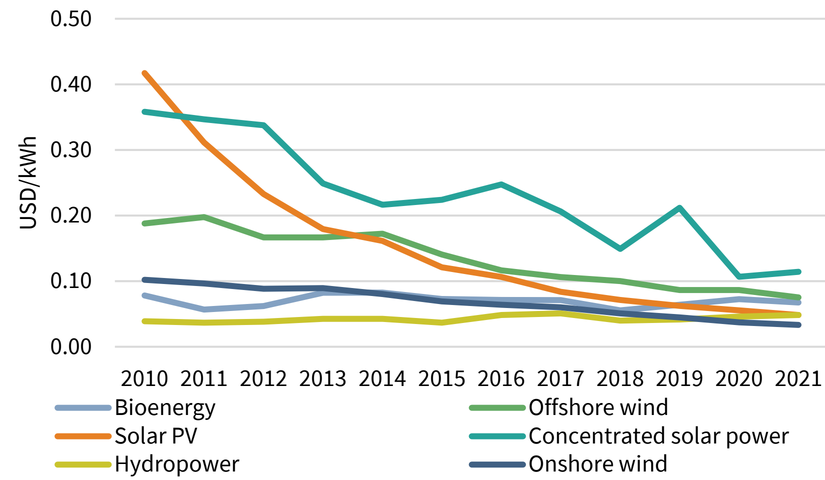
Source(s): Dealogic. Data as of 12/31/22.

Renewables are increasingly competitive with traditional fossil fuel sources.

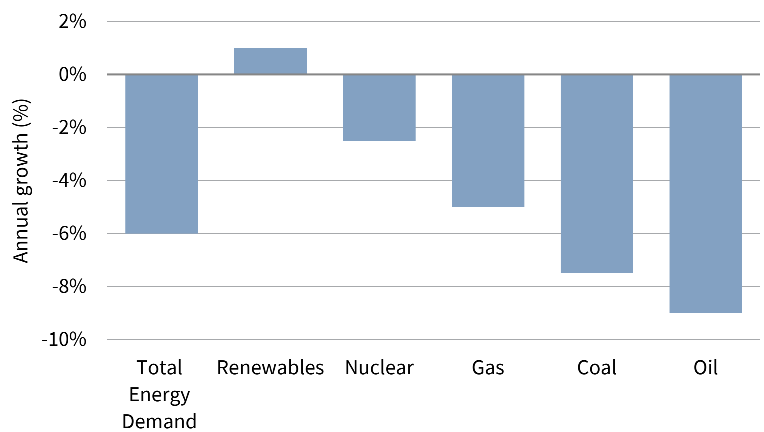
RENEWABLES SHARE OF POWER GENERATION BY REGION
2010-2040



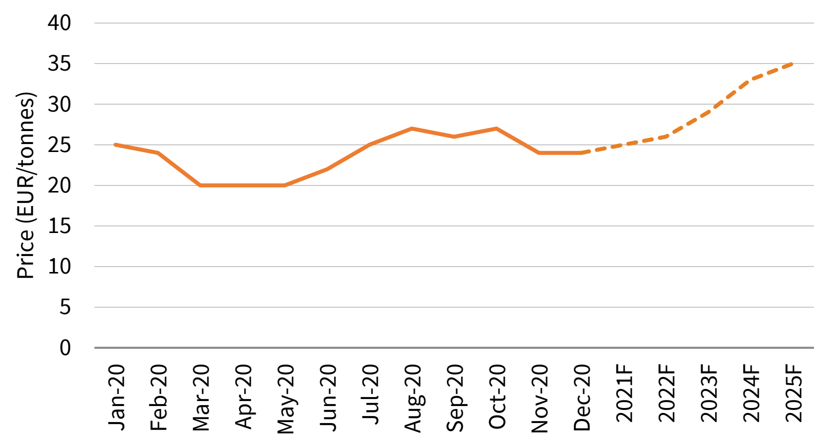
MEAN UNSUBSIDIZED LEVELIZED COST OF ENERGY BY SOURCE
2010-2021



CHANGE IN GLOBAL ENERGY DEMAND IN 2020
Global primary energy demand change vs. 2019



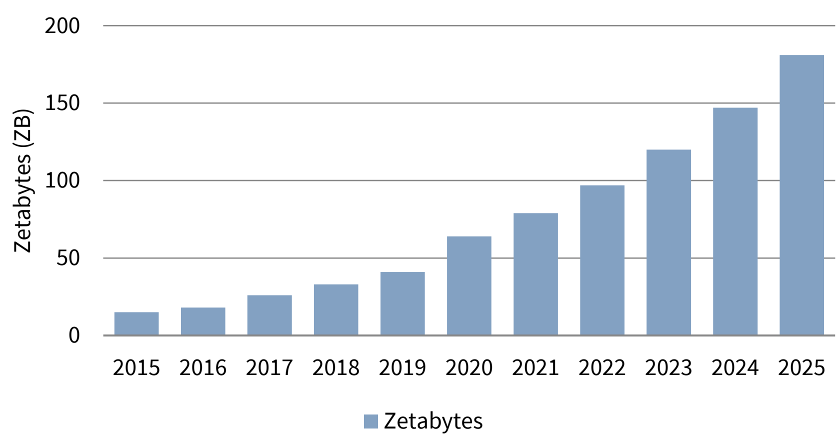
CARBON EMISSION FRAMEWORK PRICE
CO2, EUR/tonne, Average



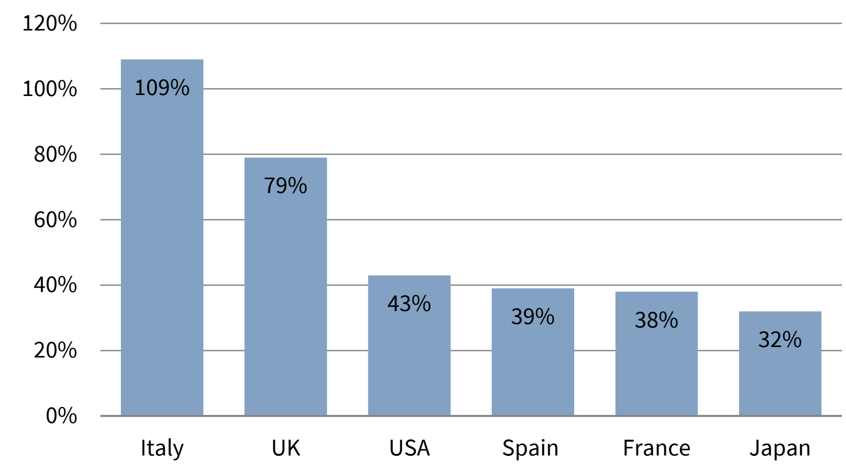
Source(s): Lazard Lavelized Cost of Energy Analysis 2021, DWS Outlook 2021, International Energy Agency, International Renewable Energy Agency (IRENA), Cambridge Associates.

COVID-19 pandemic dramatically accelerated digitization trends, creating pressing need for digital infrastructure upgrades globally.

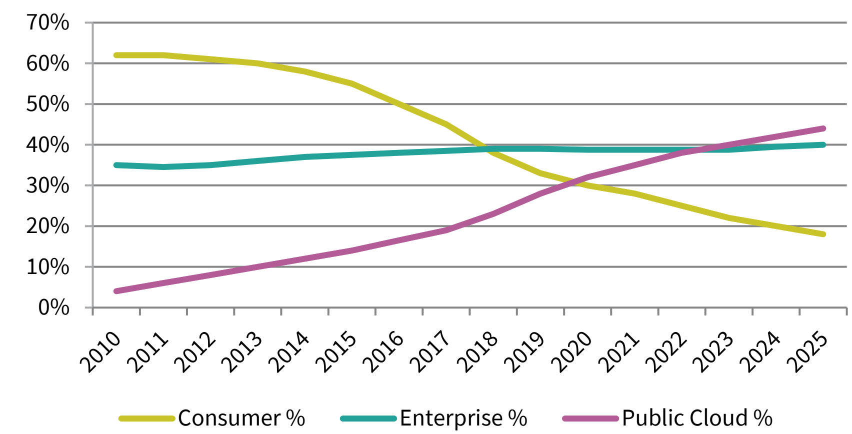
DATA CONSUMPTION FORECASTED TO GROW BY 300% BY 2025
2015-2025



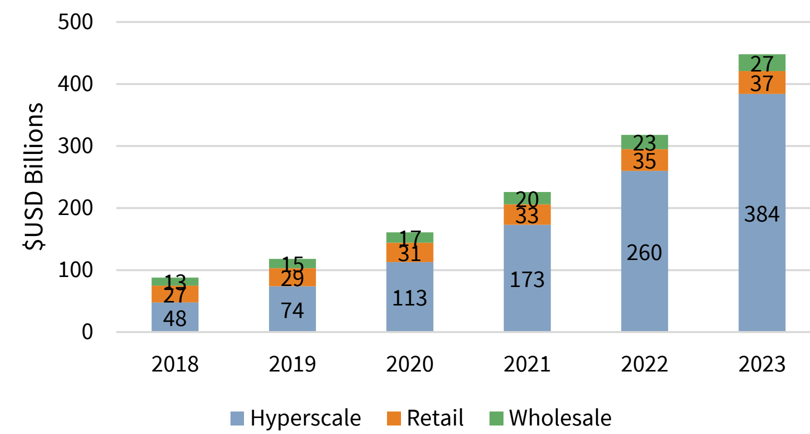
MEANINGFUL INCREASE IN INTERNET TRAFFIC VOLUME SINCE COVID-19
Feb 2020-May 2020



DATA STORAGE DESTINATIONS OVER TIME
2010-2025



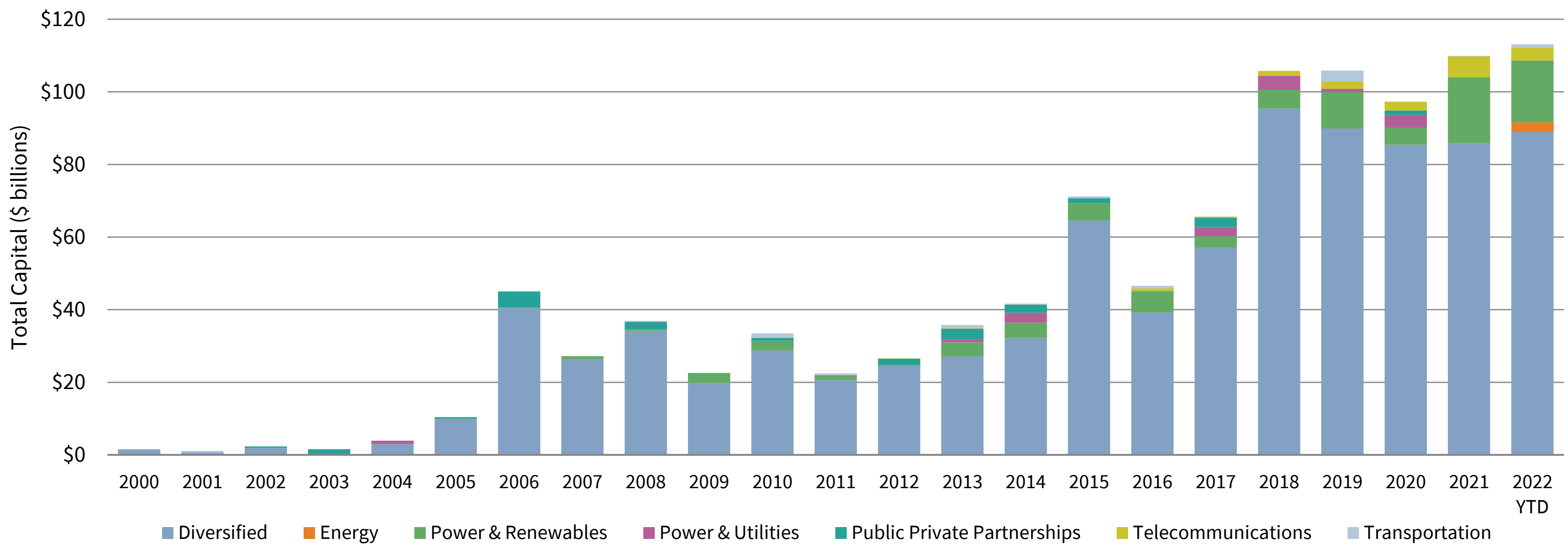
DATA CENTER MARKET SIZE
2018-2023



Source(s): Cisco VNI Study, 2021, Cambridge Associates.

Infrastructure fundraising surges given overall strong secular trends.

INFRASTRUCTURE HISTORICAL FUNDRAISING



- Population growth, decarbonisation, growth in emerging markets, and digitization drive investing. Level of necessary infrastructure investment will equal 3.5% of world GDP through the year 2030.
- Fundraising has been at record highs, and 2022 is on track for an all-time high. The first half of the year has seen the close of four mega funds, which raised a combined $61 billion.
- Renewables specific funds have also been a large contributor during the first half of the year, with Brookfield’s $15 billion Global Transition Fund making up a large share of total fundraising in the sector.
- Digital infrastructure strategies, the other secular trend driving the asset class, comes second in the sector-specific fundraising.

Source(s): InfraDeals. Data as of 09/30/22.

Five Foundations for Real Assets Themes in 2023

Decarbonization

2023

- **ESG frameworks** continue to evolve with investors looking for better ability to track and measure impact. In real estate, **regulation and tenant demand** for **net zero** contributes to bifurcation and additional costs, adding to inflationary pressure.
- Certain mining sectors may benefit from the need for metals aiding the energy transition.

2022

- Resource scarcity driven by consumption, climate change, shifting demand curves, and increased emphasis on efficiency leading to increased investor demand for sustainable/ renewable energy and infrastructure opportunities.

Demographics

2023

- Despite market volatility, demographic trends continue to progress and evolve underpinned by the continued dispersion of high vs. low tax geographies that shift population to the Sun Belt market.
- Aging population in Japan creates additional demand for leisure/hospitality and services

2022

- Global population growth, shifts in population composition inclusive of age, racial and ethnic identity, income, beliefs, and people living longer all lead to evolving consumer behavior and preferences.

Digital

2023

- Despite the continued demand for digital infrastructure (fiber, software, data storage), not all digital space is created equally (i.e., degree of criticality) with shifting leverage between landlords and tenants exacerbated by market turmoil.
- The U.S. market appears more mature leading to more opportunities in select geographies in Asia and Europe.

2022

- Continuous technology innovation is changing the way businesses, societies, and governments operate and enabling increased mobility and interconnectivity.
- As a result, there is a rising demand for data, data storage, bandwidth, hardware, and software and a need for agility.

Five Foundations for Real Assets Themes in 2023

Disruption

2023

- Deglobalization, rapid increase in inflation and interest rates create pockets of bottom-up, idiosyncratic, special-situation opportunities across regions, 2023 is likely to be a positive year for alpha generation of distress opportunities.
- Demand for quality assets and a focus on value (including downside protection) rather than growth will likely orient capital more towards debt, at least while repricing is ongoing. Reversion to historical averages (rent growth, interest rates, etc.) could distort returns from recent vintages but create attractive opportunities going forward. Across regions, Europe and developed Asia look particularly vulnerable and could offer attractive distressed opportunities.

2022

- COVID-19 has adversely impacted the global economy, impacting sectors in various ways which will likely create 'winners' and 'losers' as the world emerges from the pandemic.
- Many of these changes were already in-progress pre-pandemic and accelerated, impacting real asset sectors ranging from residential, commercial, and retail real estate to digital infrastructure, to energy transition. The resulting disruption will likely create both opportunities and threats.

Diversification

2023

- The less correlated nature of private real assets compared to PE/VC, especially in sectors like infrastructure (listed and private), multifamily and industrial, can provide diversification benefits and help de-risk investors' portfolios. Investors should consider tactical allocations to heavily discounted public REITs.

2022

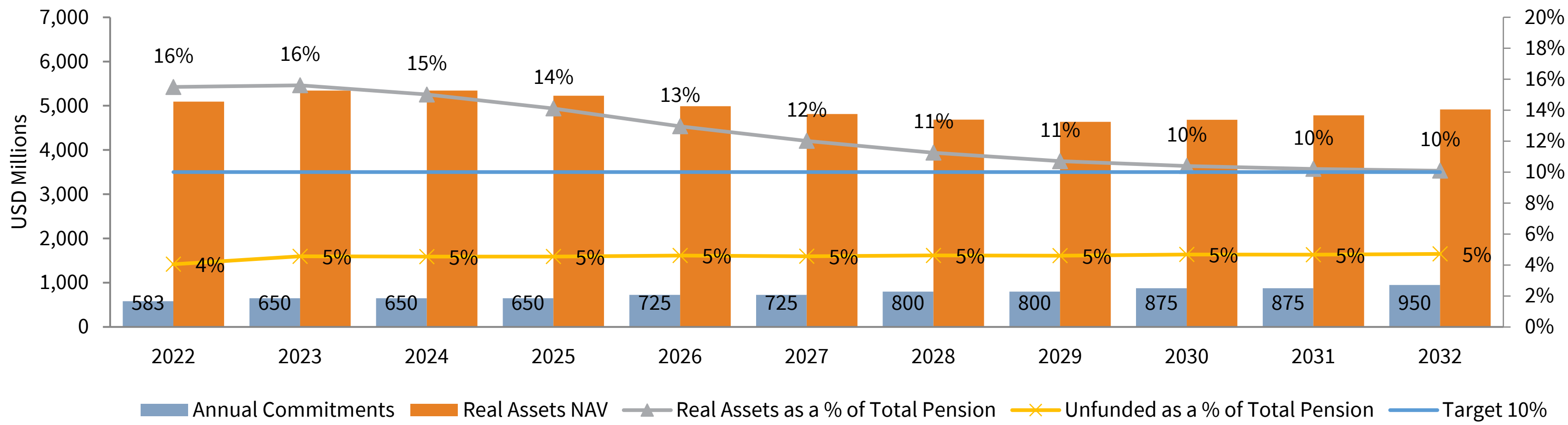
- Given cyclically low interest rates brought about by QE, investors increasing demand for inflation hedges and sources of income beyond traditional fixed income. Investors are also looking for uncorrelated sources of return beyond traditional equity portfolios

APPENDIX: MODELING ASSUMPTIONS

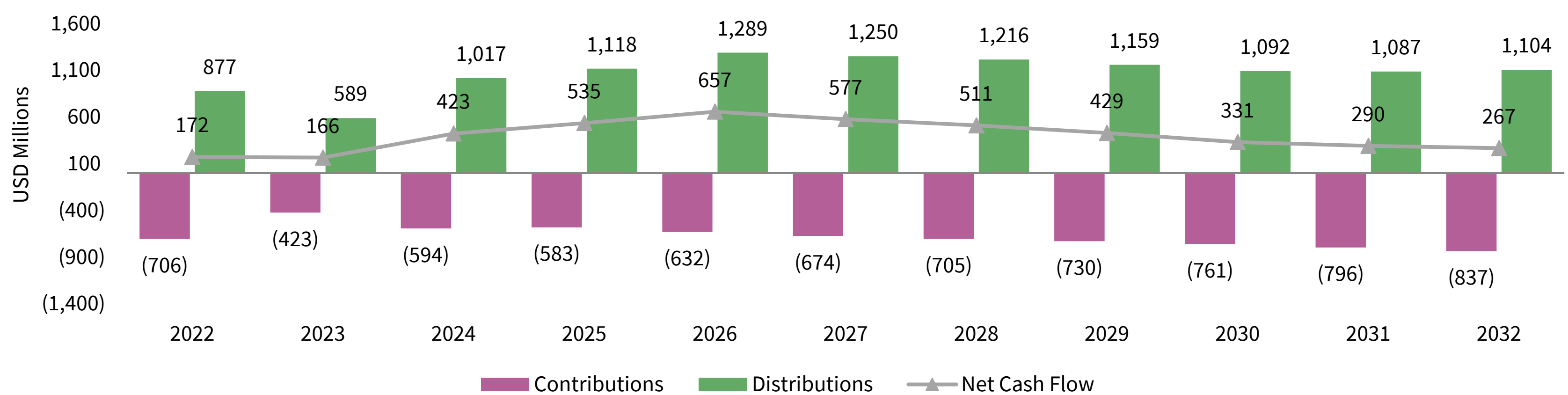
Real Assets
Base Case (4% Pool Growth)

Starting Pool Value: $32.6 billion (as at 12/31/2022)

COMMITMENT PACE
As of December 31, 2022



ESTIMATED ANNUAL CASH FLOWS
As of December 31, 2022

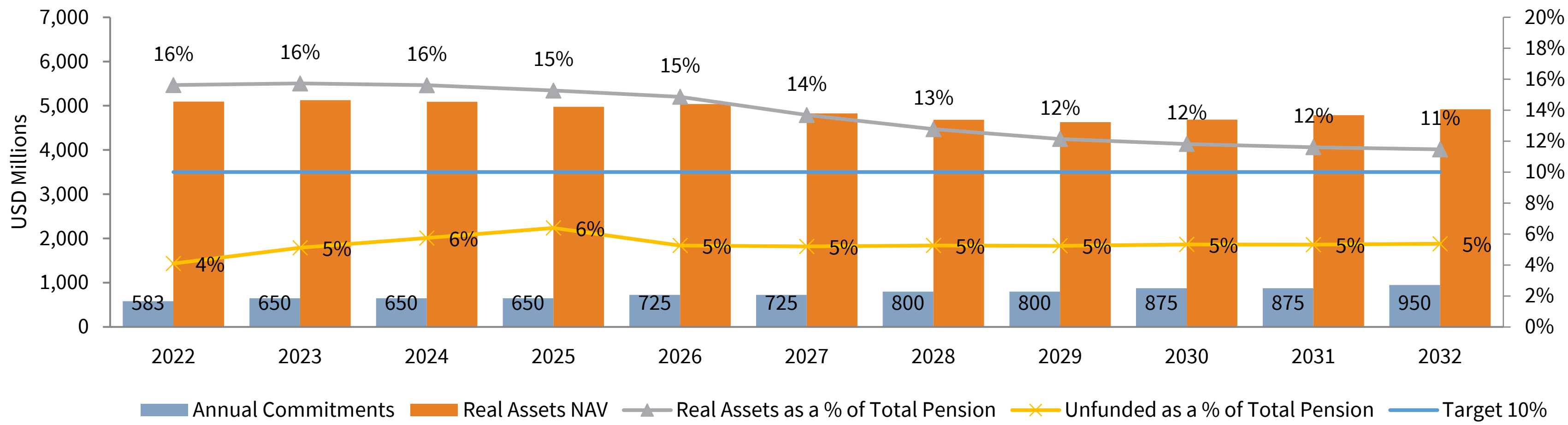


Note: Model populated with historical portfolio data as of December 31, 2022. Projected cash flows and allocations are based on CA modeling and proprietary assumptions. Modeling is intended to be used as a guideline; actual capital calls, distributions, and exposure may differ materially from projections, depending on macroeconomic and fund-specific variables.

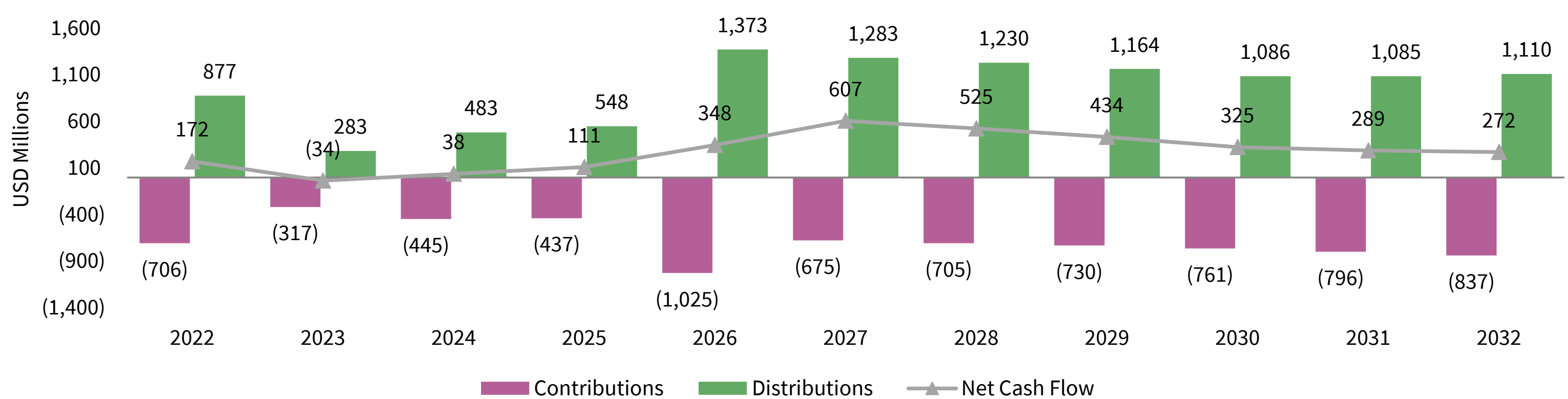
Real Assets
No Growth Stress Case (0% Pool Growth, 2022-2024)

Starting Pool Value: $32.6 billion (as at 12/31/2022)

COMMITMENT PACE
As of December 31, 2022



ESTIMATED ANNUAL CASH FLOWS
As of December 31, 2022

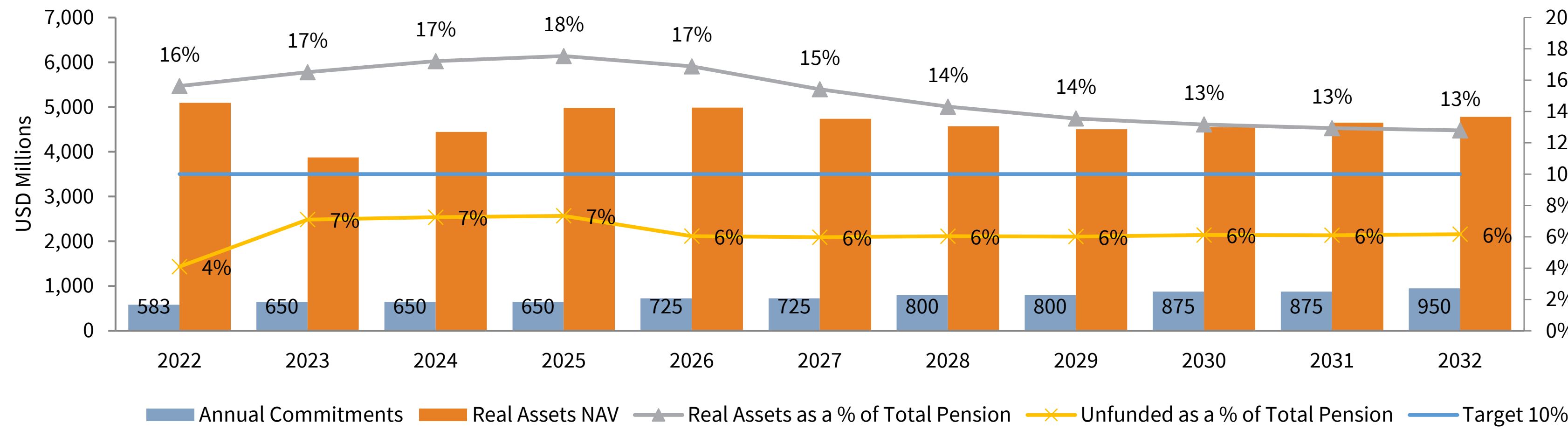


Note: Model populated with historical portfolio data as of December 31, 2022. Projected cash flows and allocations are based on CA modeling and proprietary assumptions. Modeling is intended to be used as a guideline; actual capital calls, distributions, and exposure may differ materially from projections, depending on macroeconomic and fund-specific variables.

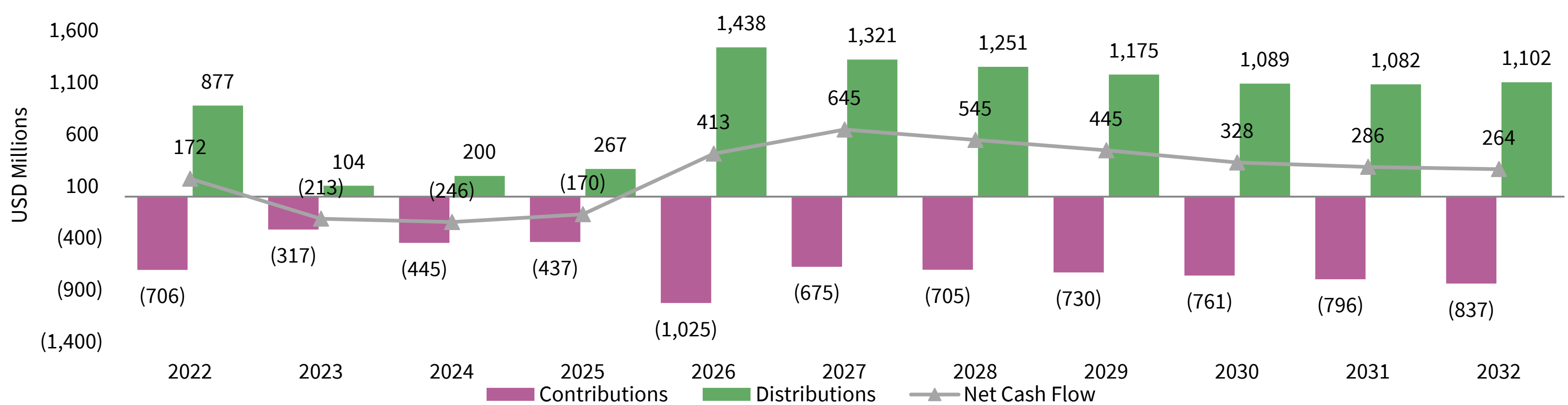
Real Assets
GFC Stress Case

Starting Pool Value: $32.6 billion (as at 12/31/2022)

COMMITMENT PACE
As of December 31, 2022



ESTIMATED ANNUAL CASH FLOWS
As of December 31, 2022



Note: Model populated with historical portfolio data as of December 31, 2022. Projected cash flows and allocations are based on CA modeling and proprietary assumptions. Modeling is intended to be used as a guideline; actual capital calls, distributions, and exposure may differ materially from projections, depending on macroeconomic and fund-specific variables.

Modeling Assumptions Overview

- Portfolio projected to glide to target of 10% over next 5 to 7 years
  - Recommended annual commitment pace of about $650 for the next five years
  - Opportunity to refine portfolio construction under the new target
- Total pool value of $32.6 billion (as at 12/31/2022)
- 10% target NAV
- Allocation mix: 70% Real Estate; 20% Infrastructure; 10% Natural Resources
- Return assumptions: 10% net IRR for Real Estate, 10% net IRR for Infrastructure, 9% net IRR for Natural Resources
- Key Variables
  - Core Real Estate Distributions: Currently assumes no realizations and baseline dividend yield of ~4% (relative to ~$100 million of annual distributions assumed previously)

Modeling Assumptions Overview (continued)

- Base Case
  - Assumes (nominal) pool growth of 4%
  - Assumes "normal" market environment assumptions for contributions, distributions, and NAV growth

- No Growth Stress Case
  - Assumes (nominal) pool growth of 0% from 2023-2025, and 4% thereafter
  - NAV experiences no growth from 2023-2025 and then returns to normal growth in 2026+
  - Distributions are cut by 50% in 2023-2025, before returning to normal in 2026+
  - Contributions are cut by 25% in 2023-2025, before returning to normal in 2026+

- GFC Stress Case
  - Applies GFC-like changes to pool value for 2022-2024 (~28% drop in 2022, followed by two years of ~10% gains)
  - NAV declines 28% in 2023, before returning to normal growth in 2024+
  - Distributions are cut by 75% in 2023-2025, before returning to normal in 2026+
  - Contributions are cut by 25% in 2023-2025, before returning to normal in 2026+