A G E N D A

BOARD MEETING
SAN JOAQUIN COUNTY EMPLOYEES RETIREMENT ASSOCIATION
BOARD OF RETIREMENT
FRIDAY, FEBRUARY 10, 2023
AT 9:00 AM

Location: SJCERA Board Room, 6 S. El Dorado Street, Suite 400, Stockton, California

The public may also attend the Board meeting live via Zoom by (1) clicking here https://us02web.zoom.us/j/88289143096 and following the prompts to enter your name and email, or (2) calling (669) 219-2599 or (669) 900-9128 and entering Meeting ID 88289143096#.

Persons who require disability-related accommodations should contact SJCERA at (209) 468 -9950 or ElainaP@sjcera.org at least forty-eight (48) hours prior to the scheduled meeting time.

1.0 ROLL CALL

2.0 PLEDGE OF ALLEGIANCE

3.0 MEETING MINUTES

3.01 Minutes for the Board Meeting of January 20, 2023 05

3.02 Minutes for CEO Performance Review Committee Meeting of January 31, 2023 10

3.03 Board to consider and take possible action on minutes

4.0 PUBLIC COMMENT

4.01 The public is welcome to address the Board during this time on matters within the Board's jurisdiction, following the steps listed below. Speakers are limited to three minutes, and are expected to be civil and courteous. Public comment on items listed on the agenda may be heard at this time, or when the item is called, at the discretion of the Chair.

If joining via Zoom, Public Comment can be made in the following ways:

PC or Mac: select "Participants" in the toolbar at the bottom of your screen, then select the option to raise or lower your hand.

Mobile Device: select the "More" option in the toolbar at the bottom of your screen, then select the option to raise or lower your hand.

Tablet: select the icon labeled "Participants," typically located at the top right of your screen, then select the hand icon next to your device in the Participants column.

If dialing in from a phone for audio only, dial *9 to "raise your hand."

If attending in person, members of the public are encouraged to complete a Public Comment form, which can be found near the entry to the Board Room.

Except as otherwise permitted by the Ralph M. Brown Act (California Government Code Sections 54950 et seq.), no deliberation, discussion or action may be taken by the Board on items not listed on the agenda. Members of the Board may, but are not required to: (1) briefly respond to statements made or questions posed by persons addressing the Board; (2) ask a brief question for clarification; or (3) refer the matter to staff for further information.

5.0 CONSENT ITEMS

5.01 Service Retirement (25) 11

5.02 General (2)

01 Retiree Cost-of-Living Adjustment (COLA) as of April 1, 2023 14

02 Return to active membership - Stefenee Camereno Clinton 19

5.03 Board to consider and take possible action on consent items

6.0 RESOLUTION IN APPRECIATION OF TRUSTEE ROBERT RICKMAN

6.01 Board to consider and take possible action on adoption of resolution of appreciation

7.0 INVESTMENT CONSULTANT REPORTS

7.01 Presentation by David Sancewich of Meketa Investment Group

01 Manager Performance Flash Report 25

02 Economic and Market Update 30

7.02 Benchmark Review 49

7.03 Board to receive and file reports

8.0 EMPLOYER CONTRIBUTION RATE PROJECTION

8.01 Presentation by Graham Schmidt, Consulting Actuary 52

01 Cost Projections Presentation
https://presentation.cheiron.us/presentation/view/SJCERA2023Projections?token=aZuG

8.02 Board to receive and file reports

9.0 STAFF REPORTS

9.01 Trustee and Executive Staff Travel

01 Conferences and Events Schedule 2023 67

02 Summary of Pending Trustee and Executive Staff Travel 68

a Travel Requiring Approval (1)

03 Summary of Completed Trustee and Executive Staff Travel 69

a Summary IREI VIP AMERICAS 2023 70

9.02 Board to consider and take possible action on any new travel request

9.03 Legislative Summary Report - None; No changes since 1/2023

9.04 CEO Report 185

01 Declining Employer Payroll Report 189

9.05 Board to receive and file reports

10.0 REPORT FROM COMMITTEE(S)

10.01 Committee Chair and staff will provide a brief summary of the meeting outcome:

01 CEO Performance Review Committee Meeting - January 31, 2023

10.02 Board to receive and file report

11.0 CORRESPONDENCE

11.01 Letters Received (0)

11.02 Letters Sent (0)

11.03 Market Commentary/Newsletters/Articles

01	Neuberger Berman White Paper Overview of Alternative Risk Premia (”ARP”) Strategies March 2018	193
02	The Conversation What does ESG mean? Two business scholars explain what environmental, social and governance standards and principles are January 13, 2023	202
03	Chief Investment Officer U.S., Local Public Pensions Saw Funding Statuses Fall in 2022 January 17, 2023	205
04	International Shareholder Services, Inc. ESG Themes to Be Aware of in 2023 January 26, 2023	208
05	FUNDfire CalSTRS ‘Not Bad’-6.7% Return for 2022 January 27, 2023	212
06	PIMCO Strained Markets, Strong Bonds January 2023	214

12.0 COMMENTS

12.01 Comments from the Board of Retirement

13.0 CLOSED SESSION

13.01 Purchase or Sale of Pension Fund Investments
California Government Code Section 54956.81

13.02 Personnel Matters
California Government Code Section 54957
Employee Disability Retirement Application(s) (0)

13.03 Conference with Real Property Negotiator - California Government Code Section 54956.8

01 Property: 6 S. El Dorado Street, Suite 400
Stockton, California 95202

Negotiating parties: Johanna Shick, Chief Executive Officer, SJCERA
Connie Hart, Assistant Director General Services,
San Joaquin County

Under negotiation: Lease price and terms

13.04 Conference with Legal Counsel - Existing Litigation
California Government Code Section 54956.9(d)(1)
San Joaquin County Employees' Retirement Association v. Travelers Casualty and Surety Company of America
United States District Court, Eastern District of California, Case No. 2:18-CV-02042-JAM-KAN

13.05 Public Employee Performance Evaluation
California Government Code Section 94957
Title: Retirement Administrator/Chief Executive Officer

13.06 Conference with Labor Negotiator
California Government Code Section 54957.6
Agency Designated Representative: None
Unrepresented Employee: Retirement Administrator/Chief Executive Officer

14.0 CALENDAR

14.01 Board Meeting March 10, 2023 at 10:00 a.m.

14.02 Audit Committee Meeting immediately following the March 10, 2023 Board Meeting

14.03 Board Meeting April 14, 2023 at 9:00 a.m.

14.04 Board Meeting May 5, 2023 at 9:00 a.m.

15.0 ADJOURNMENT

M I N U T E S

BOARD MEETING
SAN JOAQUIN COUNTY EMPLOYEES RETIREMENT ASSOCIATION
BOARD OF RETIREMENT
FRIDAY, JANUARY 20, 2023
AT 9:01 AM
Location: SJCERA Board Room
6 S. El Dorado Street, Suite 400, Stockton, California

1.0 ROLL CALL

1.01 MEMBERS PRESENT: Phonxay Keokham, Emily Nicholas, Chanda Bassett, Steve Ding, JC Weydert, Steve Moore (out at 11:02), Raymond McCray and Michael Duffy presiding.
MEMBERS ABSENT: Jennifer Goodman, Michael Restuccia,
STAFF PRESENT: Chief Executive Officer Johanna Shick, Assistant Chief Executive Officer Brian McKelvey, Retirement Investment Officer Paris Ba, Management Analyst III Greg Frank, Information Systems Manager Adnan Khan, Information Systems Specialist Jordan Regevig, Administrative Secretary Elaina Petersen (via Zoom)
OTHERS PRESENT: Deputy County Counsel Jason Morrish, David Sancewich of Meketa

2.0 PLEDGE OF ALLEGIANCE

2.01 Led by Steve Ding

3.0 APPROVAL OF MINUTES

3.01 Approval of the minutes for the Board Meeting of December 9, 2022

3.02 Approval of the minutes for the Administrative Committee Meeting of January 11, 2023

3.03 The Board voted unanimously (7-0) to approve the Minutes of Board Meeting of December 9, 2022 and the Administrative Committee Meeting of January 11, 2023 (Motion: Bassett; Second: Weydert)

4.0 PUBLIC COMMENT

4.01 There was no public comment

5.0 CONSENT ITEMS

5.01 Service Retirement (26)

5.02 General (2)

01 Annual Trustee Education Report

02 Retirement-Eligible Earnings Codes Ratification Report

5.03 Board Policies

01 Strategic Asset Allocation Policy

a Strategic Asset Allocation Policy - Mark-up

b Strategic Asset Allocation Policy - Clean

02 Trustee and Executive Staff Travel Policy

a Trustee and Executive Staff Travel - Mark-up

b Trustee and Executive Staff Travel - Clean

03 Statement of Reserve Policy

a Statement of Reserve Policy - Mark-up

b Statement of Reserve Policy - Clean

04 Ex-Parte Communications Policy

a Ex Parte Communications Policy - Mark-up

b Ex Parte Communications Policy - Clean

5.04 Optional Membership

01 Bylaws - Mark-up

02 Bylaws - Clean

5.05 Conflict of Interest and Economic Interest Oversight

01 Conflict of Interest Policy

a Conflict of Interest Policy - Mark-up

b Conflict of Interest Policy - Clean

02 Administrative Committee Charter

a Administrative Committee Charter - Mark-up

b Administrative Committee Charter - Clean

5.06 The Board voted unanimously (7-0) to approve the Consent Calendar items (Motion: Weydert; Second: Keokham)

6.0 SPECIALTY CREDIT MANAGER PRESENTATION

6.01 Presentation by Anthony DiNello, of Silver Point Specialty Credit Fund III

7.0 CLOSED SESSION

The Chair convened Closed Session at 9:46 a.m. and adjourned Closed Session and reconvened Open Session at 10:55 a.m.

7.01 Purchase or Sale of Pension Fund Investments
California Government Code Section 54956.81

7.02 Personnel Matters
California Government Code Section 54957
Employee Disability Retirement Application(s) (2)

01 Tony P. Constrancio
Equipment Operator I
Service-Connected Disability

The Board voted unanimously (7-0) to grant the application for service-connected disability retirement. (Motion: Keokham; Second: Bassett)

02 Jerry Winters
Department Information Systems Analyst III
Service-Connected Disability

The Board voted unanimously (7-0) to dismiss the disability retirement application for applicant's failure to pursue the application (Motion: Keokham; Second: Bassett)

7.03 Conference with Real Property Negotiator - California Government Code Section 54956.8

01 Property: 6 S. El Dorado Street, Suite 400
Stockton, California 95202

Negotiating parties: Johanna Shick, Chief Executive Officer, SJCERA
Connie Hart, Assistant Director General Services, San Joaquin County

Under negotiation: Lease price and terms

7.04 Public Employee Performance Evaluation
California Government Code Section 54957
Title: Retirement Administrator/Chief Executive Officer

7.05 Counsel noted that, other than items listed on the agenda and those reported above, there was nothing further to report out of closed session.

8.0 REPORT OUT OF CLOSED SESSION

8.01 On November 5, 2021, the Board voted unanimously to approve Resolution 2023-01-01 titled "Ocean Avenue Fund V" and to authorize the CEO to sign the necessary documents to invest $30 million in the fund.

8.02 On April 8, 2022, the Board voted unanimously to approve Resolution 2023-01-02 titled "Ridgemont Equity Partners Fund IV" and to authorize the CEO to sign the necessary documents to invest $50 million in the fund.

8.03 On June 3, 2022, the Board voted unanimously to approve Resolution 2023-01-03 titled "AEW Essential Housing Fund" and to authorize the CEO to sign the necessary documents to invest $50 million in the fund.

8.04 On June 3, 2022, the Board voted unanimously to approve Resolution 2023-01-04 titled "Bessemer Venture Partners Forge Institutional Fund" and to authorize the CEO to sign the necessary documents to invest $20 million in the fund.

8.05 On June 3, 2022, the Board voted unanimously to approve Resolution 2023-01-05 titled "Bessemer Venture Partners XII Institutional Fund" and to authorize the CEO to sign the necessary documents to invest $30 million in the fund.

8.06 On July 8, 2022, the Board voted unanimously to approve Resolution 2023-01-06 titled "BlackRock Global Infrastructure Fund IV" and to authorize the CEO to sign necessary documents to invest $50 million in the fund.

8.07 On November 4, 2022, the Board voted unanimously to approve Resolution 2023-01-07 titled "Long Arc Capital Fund I" and to authorize the CEO to sign the necessary documents to invest $20 million in the fund.

9.0 INVESTMENT CONSULTANT REPORTS

9.01 Presentation by David Sancewich of Meketa Investment Group

01 Manager Performance Flash Report

02 Economic and Market Update

03 Meketa Watch Memorandum

9.02 The Board received and filed reports

10.0 STAFF REPORTS

10.01 Trustee and Executive Staff Travel

01 Conferences and Events Schedule 2023

02 Summary of Pending Trustee and Executive Staff Travel

03 Summary of Completed Trustee and Executive Staff Travel

10.02 Board to consider and take possible action on any new travel request

10.03 Pending Member Accounts Receivable Report - Fourth Quarter 2022

10.04 Disability Quarterly Report - Statistics

10.05 Legislative Report

01 County Counsel Memo AB2449

02 County Counsel Memo SB1100

10.06 CEO Report

In addition to the written report, CEO Shick noted: 1) the Pension Administration System vendor negotiations have reached satisfactory verbal agreement and due to negotiations taking longer than anticipated the project start date may be delayed until March; 2) the TEFRA notice, reminding retirees they can change their tax withholding elections, will be sent with retirees' February 1 benefits statements and directs them to the forms on SJCERA's website; and 3) two Pensionomics reports, included in the meeting materials, document the positive financial impact of pension recipients in terms of supporting local jobs and generating tax revenues. In addition, she summarized the 2022 Action Plan Results and complimented staff on doing a remarkable job.

01 2022 Action Plan Results

10.07 The Board received and filed reports

11.0 CORRESPONDENCE

11.01 Letters Received (1)

01 January 1, 2023
SACRS
Board of Directors Elections

11.02 Letters Sent (0)

11.03 Market Commentary/Newsletters/Articles

01 Meketa - Whitepaper
Private Equity Primer
October 2022

02 BlackRock
2023 Global outlook
November 2022

03 Neuberger Berman
SOLVING FOR 2023
November 2022

04 Research
Allocators See 2023 Opportunity in Bonds
December 7, 2022

05 NCPERS Monitor
December 2022

06 NCPERS Custodian PERSist
Why Pension Consolidation is Gaining Traction Across the Globe
Winter 2023

07 National Institute on Retirement Security
Pensionomics 2023
January 2023

08 National Institute on Retirement Security
Fact Sheet
California Pensionomics 2023

12.0 COMMENTS

12.01 There were no comments from the Board of Retirement

13.0 CALENDAR

13.01 CEO Performance Review Committee - January 31, 2023 at 1:00 p.m.

13.02 Board Meeting February 10, 2023 at 9:00 a.m.

13.03 Board Meeting March 10, 2023 at 9:00 a.m.

14.0 ADJOURNMENT

14.01 There being no further business the meeting was adjourned at 11:32 a.m.

Respectfully Submitted:

____
Michael Restuccia, Chair

Attest:

____
Raymond McCray, Secretary

San Joaquin County Employees
Retirement Association

M I N U T E S

CEO PERFORMANCE REVIEW COMMITTEE MEETING
SAN JOAQUIN COUNTY EMPLOYEES RETIREMENT ASSOCIATION
BOARD OF RETIREMENT
TUESDAY, JANUARY 31, 2023
AT 1:00 PM
Location: SJCERA Board Room, 6 S. El Dorado Street, Suite 400, Stockton, California

1.0 ROLL CALL

1.01 **MEMBERS PRESENT:** Michael Restuccia, Phonxay Keokham and Chanda Bassett presiding
MEMBERS ABSENT: None
STAFF PRESENT: Administrative Secretary Elaina Petersen
OTHERS PRESENT: Deputy County Counsel Jason Morrish

2.0 PUBLIC COMMENT

2.01 There was no public comment.

3.0 CLOSED SESSION

The Committee Chair convened a Closed Session at 1:01 p.m. the Chair adjourned the Closed Session and reconvened the Open Session at 2:12 p.m.

3.01 Public Employee Performance Evaluation
California Government Code Section 54957
Title: Retirement Administrator/Chief Executive Officer

4.0 REPORT OUT OF CLOSED SESSION

4.01 Counsel reported there was nothing to report out of closed session.

5.0 COMMENTS

5.01 There were no comments from the Committee Members.

6.0 ADJOURNMENT

6.01 There being no further business, the meeting was adjourned at 2:12 p.m.

Respectfully Submitted:

____
Chanda Bassett, Committee Chairperson

San Joaquin County Employees Retirement Association

February 2023

5.01 Service Retirement — Consent

01 MARIETTA G ARELLANO — Deferred Member, N/A

Member Type: General
Years of Service: 20y 01m 26d
Retirement Date: 12/30/2022
Comments: Deferred from SJCERA since June 2021.

02 JAMES G BOJKO — Chief Dist Atty Investigator, District Attorney

Member Type: Safety
Years of Service: 32y 06m 06d
Retirement Date: 12/31/2022

03 EARL L BRATEN — Child Cust Recmd Counsel, Court-Child Custody-Mediation

Member Type: General
Years of Service: 20y 02m 25d
Retirement Date: 12/31/2022

04 ABIGAIL C BUADA — Social Worker Supervisor I, HSA - Services Staff

Member Type: General
Years of Service: 19y 10m 27d
Retirement Date: 12/7/2022

05 ERICA S CHIN — Probation Officer III, Prob-YOBG-JUV-Gender Resp

Member Type: Safety
Years of Service: 23y 00m 19d
Retirement Date: 12/17/2022

06 JACQUELINE F COULTER — Deferred Member, N/A

Member Type: General
Years of Service: 16y 11m 21d
Retirement Date: 12/31/2022
Comments: Deferred from SJCERA since March 2019. Outgoing reciprocity and concurrent retirement with MCERA.

07 ROBERT A FAURE — Clinical Lab Scientist II, Hosp Laboratory Clinic

Member Type: General
Years of Service: 28y 10m 25d
Retirement Date: 12/5/2022

08 SARAH A FLOWERS — Public Hlth Education Asst II, Public Health-MCAH

Member Type: General
Years of Service: 31y 00m 16d
Retirement Date: 12/5/2022

09 ALICIA L FRANKLIN — Eligibility Supervisor, HSA - Eligibility Staff

Member Type: General
Years of Service: 31y 11m 01d
Retirement Date: 1/1/2023

10 **RONALD J FREITAS** District Attorney
District Attorney

Member Type: General
Years of Service: 34y 02m 02d
Retirement Date: 12/31/2022

11 **LAURA FROST-SULIVEN** Court Reporter
Court - Court Reporters

Member Type: General
Years of Service: 21y 03m 19d
Retirement Date: 1/1/2023

12 **BECKY J GABER** Elections Specialist
Registrar of Voters

Member Type: General
Years of Service: 05y 03m 28d
Retirement Date: 12/5/2022
Comments: Tier 2 - eligible to retire with 5 years of service credit.

13 **ALICE E GARLETS** Respiratory Care Prctnr II
Hosp Sleep Lab

Member Type: General
Years of Service: 20y 00m 29d
Retirement Date: 1/1/2023

14 **TONYA E MALLORY** Deputy Dir-Employment&Training
Employment - Economic Developm

Member Type: General
Years of Service: 00y 11m 10d
Retirement Date: 12/19/2022
Comments: 2nd retirement. Member retired May 2021 with first period of employment.

15 **STEVEN A MANNON** Information Systems Analyst II
Information Systems Div - ISF

Member Type: General
Years of Service: 10y 03m 13d
Retirement Date: 1/1/2023

16 **CHRISTINA H MARTINEZ** Eligibility Worker III
HSA - Eligibility Staff

Member Type: General
Years of Service: 36y 00m 00d
Retirement Date: 12/31/2022

17 **TRISA L MARTINEZ** Judicial Secretary
Court-Court Oper-Courtrm Suppt

Member Type: General
Years of Service: 36y 00m 01d
Retirement Date: 12/19/2022

18 **LAURA G MELLISH** Deferred Member
N/A

Member Type: General
Years of Service: 02y 10m 28d
Retirement Date: 12/30/2022
Comments: Deferred from SJCERA since June 1989. Outgoing reciprocity and concurrent retirement with CalPERS.

19 **TURA MORICE** Deferred Member
N/A

Member Type: General
Years of Service: 02y 06m 23d
Retirement Date: 12/29/2022
Comments: Tier 2 - eligible to retire with 5 years of service credit. Deferred from SJCERA since August 2017. Outgoing reciprocity and concurrent retirement with CalPERS.

20 **JEFF J NUSSBAUMER** Deferred Member
N/A

Member Type: Safety
Years of Service: 11y 02m 29d
Retirement Date: 9/28/2022
Comments: Deferred from SJCERA since 12/20/2020.

21 **PAUL M RICHISON** Deferred Member
N/A

Member Type: Safety
Years of Service: 11y 03m 06d
Retirement Date: 12/31/2022
Comments: Deferred from SJCERA since May 2008. Outgoing reciprocity and concurrent retirement with CalPERS.

22 **MARIA C SANDOVAL** Contracts Analyst
HSA - Admin Support

Member Type: General
Years of Service: 31y 04m 14d
Retirement Date: 12/19/2022

23 **JULIE VAISHAMPAYAN** Deferred Member
N/A

Member Type: General
Years of Service: 03y 03m 25d
Retirement Date: 1/1/2023
Comments: Deferred from SJCERA since May 2017. Outgoing reciprocity and concurrent retirement with StanCERA.

24 **VICTORIA M VERBER** District Attorney
District Attorney

Member Type: General
Years of Service: 33y 01m 10d
Retirement Date: 1/1/2023

25 **FELIX Y VILLAGOMEZ** Crafts Worker III
Facilities Management

Member Type: General
Years of Service: 22y 01m 23d
Retirement Date: 12/31/2022

Board of Retirement Meeting
San Joaquin County Employees' Retirement Association

Agenda Item 5.02-01

February 10, 2023

SUBJECT: 2022 Retiree Cost-of-Living Adjustment (COLA)

SUBMITTED FOR: _X_ CONSENT ___ ACTION ___ INFORMATION

RECOMMENDATION

Review and adopt a 3 percent Cost-of-Living Adjustment, as calculated and recommended by SJCERA's independent actuary, Cheiron.

PURPOSE

To determine if there has been an increase or decrease in the applicable cost of living, and the resulting applicable COLA, as defined by statute.

DISCUSSION

In accordance California Government Code 31870.1, the Board is required to determine, on an annual basis, before April 1, whether there has been an increase or decrease in the cost of living in the Bureau of Labor Statistics Consumer Price Index (CPI) for All Urban Consumers for that County. Because the Bureau of Labor Statistics does not publish a CPI for San Joaquin County, SJCERA uses the CPI for the San Francisco-Oakland-Hayward area. Cheiron has determined that the CPI for All Urban Consumers in the San Francisco-Oakland-Hayward area increased by 5.6 percent.

Pursuant to statute, members' retirement benefits must be adjusted by a COLA equivalent to the CPI percentage change rounded to the nearest one-half of one percent, up to a maximum of 3 percent. In years when the change in the CPI is greater than the statutory annual maximum COLA of 3 percent, the percentage over the 3 percent limit is "banked" for use in future years when the COLA is less than 3 percent.

Applying the statutory requirements to this year's facts, the 5.6 percent CPI change, rounded to the nearest half-percent, results in a 5.5 percent COLA. Thus, SJCERA would apply the maximum 3 percent COLA to retirees' May 1, 2023, retirement benefit and credit 2.5 percent to their accumulated carry-over balances (their "COLA bank").

ATTACHMENT

Annual COLA update from Cheiron dated January 18, 2023
Government Code 31870.1

J Shick

JOHANNA SHICK
Chief Executive Officer

Via Electronic Mail

January 18, 2023

Ms. Johanna Shick
Chief Executive Officer
San Joaquin County Employees' Retirement Association
6 El Dorado Street, Suite 400
Stockton, CA 95202

Re: Cost-of-Living Adjustment (COLA) as of April 1, 2023

Dear Ms. Shick:

Pursuant to the scope of retainer services under Cheiron's agreement to provide actuarial services to SJCERA, we have computed the cost-of-living adjustment (COLA) percentages to be used by the Association as of April 1, 2023. The calculations outlined herein have been performed in accordance with 31870.1 of the County Employees Retirement Law of 1937.

Background

The cost-of-living-adjustment (COLA) is determined annually based on increases in the Consumer Price Index (CPI) for All Urban Consumers in the San Francisco-Oakland-Hayward area, using a base period of 1982-1984. The ratio of the annual averages for the prior calendar years is calculated and rounded to the nearest one-half percent. The method for calculating the annual average is to determine the average for all months of data provided by the Bureau of Labor and Statistics (e.g., the sum of six bi-monthly CPI amounts divided by six).

COLA Calculations

The annual average CPIs described above were 328.0 and 310.6 for 2022 and 2021, respectively. This represents an increase of 5.60%, which is subsequently rounded to 5.50%. As a point of comparison, the annual U.S. City Average CPI increased by 8.00% over the same time period.

SJCERA members are subject to the provisions of Section 31870.1, which limits annual COLA increases to 3.0% annually. Therefore, members should receive an increase in benefits of 3.0%, based on the current year change in the CPI. Members' accumulated carry-over balances as of April 1, 2023 will increase 2.5% from their balances on April 1, 2022. The enclosed exhibit summarizes the COLA calculations and carry-over balances.

Please contact us if you have any questions regarding these calculations.

Sincerely,
Cheiron

Graham A. Schmidt, ASA, EA, FCA, MAAA	Timothy S. Doyle, ASA, EA, MAAAA
Consulting Actuary	Associate Actuary

Attachment

cc: Anne Harper, FSA, EA, MAAA

SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

EXHIBIT A

COST-OF-LIVING ADJUSTMENTS (COLA)

As of April 1, 2023

Maximum Annual COLA: 3.0%

Initial Retirement Date	April 1, 2022 Accumulated Carry-Over w/o PPP [2] (A)	April 1, 2022 Accumulated Carry-Over w/PPP Adjust. (B)	Increase in the Annual Average CPI [1] Actual (C)	Increase in the Annual Average CPI [1] Rounded (D)	April 1, 2023 COLA (E)	April 1, 2023 Accumulated Carry-Over w/o PPP (F)	April 1, 2023 Accumulated Carry-Over w/PPP Adjust. (G)
On or Before 04/01/1970	70.5%	13.0%	5.60%	5.5%	**3.0%**	73.0%	15.5%
04/02/1970 to 04/01/1971	68.0%	13.0%	5.60%	5.5%	**3.0%**	70.5%	15.5%
04/02/1971 to 04/01/1972	66.0%	13.0%	5.60%	5.5%	**3.0%**	68.5%	15.5%
04/02/1972 to 04/01/1973	65.0%	13.0%	5.60%	5.5%	**3.0%**	67.5%	15.5%
04/02/1973 to 04/01/1974	64.5%	13.0%	5.60%	5.5%	**3.0%**	67.0%	15.5%
04/02/1974 to 04/01/1975	61.5%	13.0%	5.60%	5.5%	**3.0%**	64.0%	15.5%
04/02/1975 to 04/01/1976	54.5%	13.0%	5.60%	5.5%	**3.0%**	57.0%	15.5%
04/02/1976 to 04/01/1977	47.5%	13.0%	5.60%	5.5%	**3.0%**	50.0%	15.5%
04/02/1977 to 04/01/1978	45.0%	13.0%	5.60%	5.5%	**3.0%**	47.5%	15.5%
04/02/1978 to 04/01/1979	40.5%	13.0%	5.60%	5.5%	**3.0%**	43.0%	15.5%
04/02/1979 to 04/01/1980	34.0%	13.0%	5.60%	5.5%	**3.0%**	36.5%	15.5%
04/02/1980 to 04/01/1981	28.5%	13.0%	5.60%	5.5%	**3.0%**	31.0%	15.5%
04/02/1981 to 04/01/1982	16.50%	13.0%	5.60%	5.5%	**3.0%**	19.0%	15.5%
04/02/1982 to 04/01/1983	6.5%	N/A	5.60%	5.5%	**3.0%**	9.0%	N/A
04/02/1983 to 04/01/1984	4.0%	N/A	5.60%	5.5%	**3.0%**	6.5%	N/A
04/02/1984 to 04/01/1985	4.0%	N/A	5.60%	5.5%	**3.0%**	6.5%	N/A
04/02/1985 to 04/01/1986	1.5%	N/A	5.60%	5.5%	**3.0%**	4.0%	N/A
04/02/1986 to 04/01/2022	0.5%	N/A	5.60%	5.5%	**3.0%**	3.0%	N/A
04/02/2022 to 04/01/2023	0.0%	N/A	5.60%	5.5%	**3.0%**	2.5%	N/A

[1] All Urban Consumers, San Francisco-Oakland-Hayward Area (1982-84 base). (G.C. 31870.1)
For a full description of the Consumer Price Index visit the Bureau of Labor Statistics' website http://stats.bls.gov/cpi/cpifaq.htm

[2] Purchasing Power Protection (PPP) benefits were implemented in 2000 (75% level) and 2001 (80% level) for allowances with an "initial retirement date" of 04/01/1982 or earlier. A "one-time" permanent increase was added to the monthly allowance amount to restore purchasing power to 80% of the purchasing power of the original allowance, determined as of 4/01/2001. These monthly allowances, including the PPP benefit, are adjusted each year by the annual COLA. (PPP reference: G.C. Section 31874.3)

Column A: The COLA Bank as of April 1, 2022, without adjustment for the PPP benefits. For allowances with an Initial Retirement Date on or before 04/01/1982, the values in this column and Column F represent what the total loss of purchasing power would be without the PPP benefits.

Column B: The COLA Bank as of April 1, 2022, with adjustment to reflect implementation of PPP benefits for allowances with an Initial Retirement Date on or before 04/01/1982.

Column E: The cost-of-living adjustment, effective April 1, 2023, to be applied to allowances included in each Initial Retirement Date period.

Column F: The COLA Bank as of April 1, 2023, available for future use, without adjustment for the PPP benefits. For allowances with an Initial Retirement Date on or before 04/01/1982, the values in this column represent what the total loss of purchasing power would be without the PPP benefits. The values in this column equal the value of Column A, less the difference between Columns D and E.

Column G: The COLA Bank as of April 1, 2023, available for future use, with adjustment to reflect implementation of the PPP benefits for allowances with an Initial Retirement Date on or before 04/01/1982. The values in this column equal the value of Column B less the difference between Columns D and E.

California LEGISLATIVE INFORMATION

GOVERNMENT CODE - GOV

TITLE 3. GOVERNMENT OF COUNTIES [23000 - 33205] *(Title 3 added by Stats. 1947, Ch. 424.)*

DIVISION 4. EMPLOYEES [31000 - 33017] *(Division 4 added by Stats. 1947, Ch. 424.)*

PART 3. RETIREMENT SYSTEMS [31200 - 33017] *(Part 3 added by Stats. 1947, Ch. 424.)*

CHAPTER 3. County Employees Retirement Law of 1937 [31450 - 31898] *(Chapter 3 ac 424.)*

ARTICLE 16.5. Cost of Living Adjustment [31870 - 31874.6] *(Article 16.5 added by Stats. 1965, Ch. 15*

31870.1. The board shall before April 1 of each year determine whether there has been an inc the cost of living as provided in this section. Notwithstanding Section 31481 or any other prov (commencing with Section 31450), every retirement allowance, optional death allowance, or a payable to or on account of any member, of this system or superseded system who retires or or died shall, as of April 1st of each year, be increased or decreased by a percentage of the to being received found by the board to approximate to the nearest one-half of 1 percent, the pe increase or decrease in the cost of living as of January 1st of each year as shown by the then Labor Statistics Consumer Price Index for All Urban Consumers for the area in which the coun such change shall not exceed 3 percent per year; however, the amount of any cost-of-living i any year which is not met by the maximum annual change of 3 percent in allowances shall be met by increases or decreases in allowances in future years; except that no decrease shall re below the amount being received by the member or his beneficiary on the effective date of th application of this article, whichever is later.

(Amended by Stats. 1978, Ch. 900.)

Board of Retirement Meeting
San Joaquin County Employees' Retirement Association

Agenda Item 5.02-02

February 3, 2023

SUBJECT: Retired Member Returning to Active Membership

SUBMITTED FOR: _X_ CONSENT ___ ACTION ___ INFORMATION

RECOMMENDATION

Approve the Application to Return to Active Membership for Stefenee Camereno Clinton effective on the first day of the first full pay period following Board of Retirement approval.

PURPOSE

To provide an opportunity for a Retired member to return to Active membership.

DISCUSSION

San Joaquin County has made a conditional offer of full-time benefited employment to Ms. Camereno Clinton. Ms. Camereno Clinton is currently a Retired member of SJCERA and wishes to return to Active Membership.

Government Code Sections 31680.4 and 31680.5 allow for a retiree to suspend their retirement and return to work full time in an SJCERA-covered position as an Active member.

Pursuant to statute, (a) the member must apply to the Board of Retirement for reinstatement (b) the Board of Retirement must determine, based on medical examination that the member is not incapacitated for the duties assigned of the position and (c) the other conditions for membership (working in a full-time, permanent position with San Joaquin County or another SJCERA-participating employer) must be met.

The member's Application to Return to Active Membership, signed medical evaluation letter, and Job Description are provided for the Board's review. Based on the information on these documents, staff recommends approving Ms. Camereno Clinton's return to Active membership.

If approved to re-enter Active membership, the employment may begin. Ms. Alcala will be a Tier 2 member for this period of employment, and her retirement benefit payments will be suspended. When Ms. Camereno Clinton retires again, the original retirement benefit (increased by any cost-of-living adjustments), will resume and the additional benefit (based on the second period of employment) will be paid to as a separate benefit.

ATTACHMENT

Application to Return to Active Membership
Medical Evaluation
Job Description

Brian McKelvey
Assistant Chief Executive Officer

San Joaquin County Employees' Retirement Association

Return to Active Membership Application for Retired Members

INSTRUCTIONS		
Submit this form if you are a Retired SJCERA Member and have received a conditional offer of employment from the County of San Joaquin (or other participating employer) into a position that is eligible for SJCERA Membership. Department of Human Resources must complete the last section of this form.		
MEMBER INFORMATION		
Full Name Stefenee Camareno. Clinton	Employee ID	E-mail stefeneec@aol.com
Department Behavioral Health svcs	Original Retirement Date 2.20.18	Date of Re-employment 1.30.23

MEMBER ACKNOWLEDGMENT

I hereby apply for reinstatement as an Active Member of SJCERA. I understand the Board of Retirement will determine my eligibility for Membership based on the position for which I am hired, my application and whether the pre-employment medical examination results indicate that I am not incapacitated for the duties assigned to me.

I understand my retirement benefit will be suspended on the effective date of my re-employment and will resume only when I subsequently terminate employment. I also understand that I must return any overpayment of my retirement benefit made to me after the effective date of my re-employment.

Member's Signature Stefenee Camareno. Clinton Date 1.6.23

HUMAN RESOURCES AUTHORIZATION NOTE: THIS SECTION MUST BE COMPLETED BY A HR REPRESENTATIVE	
I certify that the Member named above has successfully completed a pre-employment medical exam and (is) (is not) incapacitated for the duties assigned to him/her.	
HR Representative's Full Name Rachel Novetzke	Telephone Number (209) 468-9555
HR Representative's Title Principal Personnel Analyst	E-mail rnovetzke@sjgov.org
HR Representative's Signature [signature] Date 01-12-23	

6 South El Dorado Street, Suite 400 • Stockton, CA 95202
(209) 468-2163 • Fax (209) 468-0480 • www.sjcera.org

The Permanente Medical Group, Inc.
RHEUMATOLOGY
4601 DALE ROAD
MODESTO CA 95356-9718
Dept: 209-735-3230
Main: 209-557-1000

January 6, 2023

Stefenee D Clinton

To whom it may concern,

Ms. Clinton is not incapacitated and is able to work as a full time Chief Mental Health Clinician.

Sincerely,

Michelle Chu

Michelle Chu, M.D.
Rheumatology

This letter was originally viewed by Stefenee D Clinton on 1/6/2023 1:48 PM.

CHIEF MENTAL HEALTH CLINICIAN

DEFINITION

Under general direction, plans, implements and evaluates a social service program in a mental health or related setting; and does related or other work as required in accordance with Rule 3, Section 3 of the Civil Service Rules.

CLASS CHARACTERISTICS

An employee in this class is responsible for management of a specific comprehensive program in the Mental Health Department. Supervision is exercised over a staff of professional, para-professional and other personnel.

TYPICAL DUTIES

1. Plans and develops a mental health program for mentally ill, disabled or emotionally handicapped clients.

2. Conducts and participates in staff meetings to insure effective coordination of work; hires, trains and evaluates staff.

3. Selects, assigns, supervises and evaluates subordinate professional and para-professional personnel in the performance of social casework, and in recording case histories and related matters; assigns cases and assists subordinates with difficult cases.

4. Prepares program budget; prepares and maintains records, reports and correspondence; may requisition supplies.

5. Consults with and informs medical personnel and other staff members of matters relating to social and environmental problems of clients and their families.

6. Participates in the planning and conducting of training programs teaching diagnosis and treatment methods; coordinates the social work program with related community social services and treatment facilities.

7. Supervises and participates in interdisciplinary diagnostic and dispositional conferences to determine the nature of illness and recommend treatment plans; performs clinical assessments; makes pre-release studies of cases and makes recommendations accordingly.

8. Determines, interprets and implements policies and procedures; monitors program effectiveness.

9. Represents Mental Health Services at conferences and addresses groups; may represent the department on matters relating to the service aspects of mental health programs.

10. Serves as an advocate for the civil and service rights of clients and family members.

MINIMUM QUALIFICATIONS

EITHER PATTERN I

Special Requirement: Must possess and maintain a valid license as a Licensed Clinical Social Worker (LCSW), a Marriage and Family Therapist (MFT), or a Licensed Professional Clinical Counselor (LPCC) issued by the California Board of Behavioral Sciences.

OR PATTERN II

Special Requirement: Must possess and maintain a valid license as a Psychologist issued by the California Board of Psychology.

AND FOR BOTH PATTERNS

Education: Graduation from an accredited university with a master's or doctorate degree in social work, counseling, psychology or other course of study acceptable to the State of California Board of Behavioral Sciences towards licensure as a Licensed Clinical Social Worker (LCSW), Marriage and Family Therapist (MFT), Licensed Professional Clinical Counselor (LPCC), or Psychologist.

Experience: Two years of progressively responsible licensed casework experience as an LCSW, MFT, LPCC or Psychologist, which included counseling or therapy in a clinical or treatment setting and also included one year of supervisory experience.

License: Must possess a valid California driver's license.

Knowledge of: Principles, practices, and techniques of psychiatric social casework; principles of employee supervision and training; accepted social work placement methods and practices; social aspects of disability and mental illness and of modern methods of treatment.

Ability to: Plan, assign, and direct the work of subordinate social workers and related personnel; prepare program budgets; prepare reports, records and correspondence; develop and maintain cooperative relationships with clients and their families; analyze information and reach sound decisions on the basis of such information; interpret the casework program to other personnel, other social service agencies, and the community; establish and maintain effective working relationships with others.

Physical/Mental Requirements: ***Mobility*** – frequent operation of a keyboard, sitting for long periods of time, walking; occasional standing for long periods of time, pushing/pulling, bending/squatting and stair climbing; ***Lifting*** – frequent lifting of 5 lbs. or less; ***Visual*** – constant use of overall vision, hand/eye coordination, depth perception and reading/close-up work; frequent need for color perception and field of vision/peripheral; ***Dexterity*** – frequent holding, reaching, grasping, repetitive motion and writing; ***Hearing/Talking*** – constant hearing of normal speech, talking in person and talking on the telephone; frequent hearing on a telephone/radio; occasional hearing of faint sounds and talking over a public address system; ***Emotional/Psychological Factors*** – constant public contact, decision-making and concentration; frequent exposure to emergency situations; occasional exposure to trauma, grief or death; ***Environmental and Other Conditions*** – frequent work in an indoor office environment; occasional exposure to noise, varied outdoor weather conditions; occasional working alone, working weekends/nights, and/or work-related travel.

Adopted: 6/1/90
Amended: 9/18/94
Renumbered: 07/03
Amended: 1/14/15

San Joaquin County Employees' Retirement Association (SJCERA)

Preliminary Monthly Flash Report (Net)[1] December 2022

	Commitment ($000)	Sub-Segment	Market Value	Physical % of Total	Policy Target %	1-Mo	3-Mos	YTD	1-Yr	3-Yrs	5-Yrs	SI Return	SI Date
TOTAL PLAN[1]			$ 3,828,618,522	100.0%	100.0%	-1.9	4.1	-6.9	-6.9	4.7	4.9	7.5	Apr-90
Policy Benchmark [4]						-2.3	3.4	-8.9	-8.9	3.8	4.8	7.3	
Difference:						0.4	0.7	2.0	2.0	0.9	0.1	0.2	
75/25 Portfolio [5]						-2.8	8.6	-17.4	-17.4	3.7	4.6	6.9	
Difference:			.			0.9	-4.5	10.5	10.5	1.0	0.3	0.6	
Broad Growth			$ 2,876,454,709	75.1%	76.0%	-2.2	5.9	-8.3	-8.3	5.4	5.9	8.1	Jan-95
Aggressive Growth Lag[2]			$ 358,941,788	9.4%	10.0%	2.0	2.0	18.3	28.1	20.3	17.5	-2.1	Feb-05
MSCI ACWI +2%Lag						-1.8	-5.4	3.1	6.4	13.0	10.7	0.0	
Difference:						3.8	7.4	15.2	21.7	7.3	6.8	-2.1	
BlackRock Global Energy&Power Lag[3]	*$50,000*	*Global Infrastructure*	$ 35,481,416	0.9%		0.4	0.4	5.7	9.3	--	--	9.4	Jul-19
MSCI ACWI +2% Lag						-8.2	-15.1	-13.3	-13.6	--	--	9.5	
Difference:						8.6	15.5	19.0	22.9	--	--	-0.1	
Ocean Avenue II Lag[3]	*$40,000*	*PE Buyout FOF*	$ 39,458,381	1.0%		4.8	4.8	27.1	40.5	37.4	34.7	18.9	May-13
MSCI ACWI +2% Lag						-8.2	-15.1	-13.3	-13.6	8.8	8.2	8.6	
Difference:						13.0	19.9	40.4	54.1	28.6	26.5	10.3	
Lightspeed Venture Ptr Select V Lag[3]	*$40,000*	*Growth-Stage VC*	$ 6,919,385	0.2%		-4.4	-4.4	--	--	--	--	-4.4	Jun-22
MSCI ACWI +2% Lag						-15.1	-15.1	--	--	--	--	-8.9	
Difference:						10.7	10.7	--	--	--	--	4.5	
Ocean Avenue III Lag[3]	*$50,000*	*PE Buyout FOF*	$ 52,508,432	1.4%		6.1	6.1	31.1	52.6	29.7	37.4	27.4	Apr-16
MSCI ACWI +2% Lag						-8.2	-15.1	-13.3	-13.6	8.8	8.2	8.4	
Difference:						14.3	21.2	44.4	66.2	20.9	29.2	19.0	
Ocean Avenue IV Lag[3]	*$50,000*	*PE Buyout*	$ 60,121,478	1.6%		4.2	4.2	29.0	33.6	--	--	34.9	Dec-19
MSCI ACWI +2% Lag						-8.2	-15.1	-13.3	-13.6	--	--	10.0	
Difference:						12.4	19.3	42.3	47.2	--	--	24.9	
Morgan Creek III Lag[3]	*$10,000*	*Multi-Strat FOF*	$ 4,420,354	0.1%		-13.5	-13.5	-26.4	-36.3	-21.2	-8.7	-6.8	Feb-15
MSCI ACWI +2% Lag						-8.2	-15.1	-13.3	-13.6	8.8	8.2	8.5	
Difference:						-5.3	1.6	-13.1	-22.7	-30.0	-16.9	-15.3	
Morgan Creek V Lag[3]	*$12,000*	*Multi-Strat FOF*	$ 7,951,657	0.2%		1.0	1.0	7.4	16.6	13.9	13.7	13.8	Jun-13
MSCI ACWI +2% Lag						-8.2	-15.1	-13.3	-13.6	8.8	8.2	8.6	
Difference:						9.2	16.1	20.7	30.2	5.1	5.5	5.2	
Morgan Creek VI Lag[3]	*$20,000*	*Multi-Strat FOF*	$ 24,772,205	0.6%		-5.3	-5.3	9.6	19.0	19.9	20.1	11.4	Feb-15
MSCI ACWI +2% Lag						-8.2	-15.1	-13.3	-13.6	8.8	8.2	8.5	
Difference:						2.9	9.8	22.9	32.6	11.1	11.9	2.9	
Stellex Capital Partners II Lag[3]	*$50,000*	*Special Situations PE*	$ 18,945,430	0.5%		9.9	9.9	19.5	14.2	--	--	1.0	Jul-21
MSCI ACWI +2% Lag						-8.2	-15.1	-7.0	-13.6	--	--	-3.5	
Difference:						18.1	25.0	26.5	27.8	--	--	4.5	
Non-Core Private Real Assets Lag[3]	*$341,100*	*Private Real Estate*	$ 108,363,050	2.8%		0.4	0.4	14.3	24.0	15.7	10.2	-1.7	Nov-04
MSCI ACWI +2% Lag						4.6	4.8	21.5	29.6	12.8	10.6	9.3	
Difference:						-4.2	-4.4	-7.2	-5.6	2.9	-0.4	-11.0	
Opportunistic Private Real Estate			$ 32,726,576	0.7%									
Greenfield V[3]	*$30,000*	*Opportunistic Pvt. RE*	$ 219,212	0.0%		-0.4	-0.4	-1.9	-1.8	-10.8	-3.8	-0.5	Jul-08
NCREIF ODCE + 1% Lag Blend						5.5	5.5	24.0	33.2	16.1	13.9	10.1	
Difference:						-5.9	-5.9	-25.9	-35.0	-26.9	-17.7	-10.6	
Greenfield VI[3]	*$20,000*	*Opportunistic Pvt. RE*	$ 30,434	0.0%		-12.6	-12.6	-20.1	-12.5	-38.9	-33.7	-14.2	Apr-12
NCREIF ODCE + 1% Lag Blend						5.5	5.5	24.0	33.2	16.1	13.9	14.5	
Difference:						-18.1	-18.1	-44.1	-45.7	-55.0	-47.6	-28.7	
Greenfield VII[3]	*$19,100*	*Opportunistic Pvt. RE*	$ 4,248,546	0.1%		2.9	2.9	15.0	16.2	15.3	14.5	13.9	Oct-14
NCREIF ODCE + 1% Lag Blend						5.5	5.5	24.0	33.2	16.1	13.9	14.2	
Difference:						-2.6	-2.6	-9.0	-17.0	-0.8	0.6	-0.3	

[1] Returns are preliminary and are finalized during each quarterly reporting cycle. Monthly returns since previous quarter are provided by the managers. Market values are provided by Northern Trust.

[2] Total class returns are as of 9/30/22, and lagged 1 quarter.

[3] Manager returns are as of 9/30/22, and lagged 1 quarter. Since Inception date reflects one quarter lag.

[4] 8/1/22 to present benchmark is 32% MSCI ACWI IMI, 9% BB Aggregate Bond Index, **16%** *50%* BB High Yield/*50%* S&P Leveraged Loans, 7% NCREIF ODCE +1% lag; **10%** T-Bill +4%, **10%** MSCI ACWI +2%, **15%** CRO Custom Benchmark. Prior to 8/1/22 benchmark is legacy policy benchmark.

[5] 4/1/20 to present **75%** MSCI ACWI, **25%** BB Global Aggregate. Prior to 4/1/20 60% MSCI ACWI, 40% BB Global Aggregate.

San Joaquin County Employees' Retirement Association (SJCERA)

Preliminary Monthly Flash Report (Net)[1] — December 2022

	Commitment ($000)	Sub-Segment	Market Value	Physical % of Total	Policy Target %	1-Mo	3-Mos	YTD	1-Yr	3-Yrs	5-Yrs	SI Return	SI Date
Opportunistic Private Real Estate (continued)													
Grandview[3]	*$30,000*	*Opportunistic Pvt. RE*	$ 20,793,003	0.5%		-4.1	-4.1	20.4	20.2	27.1	--	23.0	Apr-18
NCREIF ODCE + 1% Lag Blend						*5.5*	*5.5*	*24.0*	*33.2*	*16.1*	*13.9*	*14.1*	
Difference:						-9.6	-9.6	-3.6	-13.0	11.0	--	8.9	
Miller Global Fund VI[3]	*$30,000*	*Opportunistic Pvt. RE*	$ 115,858	0.0%		34.6	34.6	46.7	143.6	1.7	6.6	2.8	May-08
NCREIF ODCE + 1% Lag Blend						*5.5*	*5.5*	*24.0*	*33.2*	*16.1*	*13.9*	*10.1*	
Difference:						29.1	29.1	22.7	110.4	-14.4	-7.3	-7.3	
Miller Global Fund VII[3]	*$15,000*	*Opportunistic Pvt. RE*	$ 66,192	0.0%		6.6	6.6	276.6	-43.8	-20.7	-16.8	9.9	Dec-12
NCREIF ODCE + 1% Lag Blend						*5.5*	*5.5*	*24.0*	*33.2*	*16.1*	*13.9*	*14.3*	
Difference:						1.1	1.1	252.6	-77.0	-36.8	-30.7	-4.4	
Walton Street V[3]	*$30,000*	*Opportunistic Pvt. RE*	$ 1,334,204	0.0%		-1.6	-1.6	-19.1	-18.7	-14.3	-12.5	-5.1	Nov-06
NCREIF ODCE + 1% Lag Blend						*5.5*	*5.5*	*24.0*	*33.2*	*16.1*	*13.9*	*10.9*	
Difference:						-7.1	-7.1	-43.1	-51.9	-30.4	-26.4	-16.0	
Walton Street VI[3]	*$15,000*	*Opportunistic Pvt. RE*	$ 5,919,127	0.2%		3.3	3.3	14.6	18.3	3.9	4.1	7.9	Jul-09
NCREIF ODCE + 1% Lag Blend						*5.5*	*5.5*	*24.0*	*33.2*	*16.1*	*13.9*	*12.8*	
Difference:						-2.2	-2.2	-9.4	-14.9	-12.2	-9.8	-4.9	
Value-Added Private Real Estate			$ 76,929,541	2.0%									
AG Core Plus IV[3]	*$20,000*	*Value-Added Pvt. RE*	$ 12,168,738	0.3%		-1.8	-1.8	3.1	7.6	8.4	9.1	5.6	Sep-15
NCREIF ODCE + 1% Lag Blend						*5.5*	*5.5*	*24.0*	*33.2*	*16.1*	*13.9*	*13.5*	
Difference:						-7.3	-7.3	-20.9	-25.6	-7.7	-4.8	-7.9	
Almanac Realty VI[3]	*$30,000*	*Value-Added Pvt. RE*	$ 4,008,828	0.1%		-5.7	-5.7	-0.1	2.0	-8.9	-6.5	20.3	Feb-13
NCREIF ODCE + 1% Lag Blend						*5.5*	*5.5*	*24.0*	*33.2*	*16.1*	*13.9*	*14.5*	
Difference:						-11.2	-11.2	-24.1	-31.2	-25.0	-20.4	5.8	
Berkeley Partners Fund V, LP	*$40,000*	*Value-Added Pvt. RE*	$ 27,616,766	0.7%		2.9	2.9	17.5	39.9	--	--	33.9	Aug-20
NCREIF ODCE + 1% Lag Blend						*5.5*	*5.5*	*24.0*	*33.2*	*--*	*--*	*24.4*	
Difference:						-2.6	-2.6	-6.5	6.7	--	--	9.5	
Stockbridge RE III[3]	*$45,000*	*Value-Added Pvt. RE*	$ 33,135,209	0.9%		1.5	1.5	15.2	34.9	22.0	--	14.0	Jul-18
NCREIF ODCE + 1% Lag Blend						*5.5*	*5.5*	*24.0*	*33.2*	*16.1*	*--*	*14.3*	
Difference:						-4.0	-4.0	-8.8	1.7	5.9	--	-0.3	
Traditional Growth[2]			**$ 1,317,225,448**	**34.4%**	**33.0%**	**-4.3**	**10.0**	**-17.7**	**-17.7**	**2.6**	**4.1**	**8.6**	**Jan-95**
MSCI ACWI IMI Net						*-3.8*	*9.8*	*-18.4*	*-18.4*	*4.4*	*5.7*	*7.4*	
Difference:						-0.5	0.2	0.7	0.7	-1.8	-1.6	1.2	
Global Equity			$ 1,275,034,812	33.3%									
Northern Trust MSCI World IMI		*All Cap Global*	$ 1,142,805,711	29.8%		-4.6	10.3	-17.8	-17.8	--	--	4.7	Sep-20
MSCI World IMI Net						*-4.2*	*9.9*	*-18.2*	*-18.2*	*--*	*--*	*4.2*	
Difference:						-0.4	0.4	0.4	0.4	--	--	0.5	
SJCERA Transition		*All Cap Global*	$ 3,063	0.0%		NM	NM	NM	NM	--	--	NM	Jul-20
Emerging Markets			$ 132,226,038										
GQG Active Emerging Markets		*Emerging Markets*	$ 55,830,063	1.5%		-3.4	3.2	-21.1	-21.1	--	--	-3.3	Aug-20
MSCI Emerging Markets Index Net						*-1.4*	*9.7*	*-20.1*	*-20.1*	*--*	*--*	*-2.6*	
Difference:						-2.0	-6.5	-1.0	-1.0	--	--	-0.7	
PIMCO RAE Fundamental Emerging Markets		*Emerging Markets*	$ 76,395,975	2.0%		0.0	15.4	-9.6	-9.6	2.2	1.3	4.4	Apr-07
MSCI Emerging Markets Index						*-1.4*	*9.7*	*-20.1*	*-20.1*	*-2.7*	*-1.4*	*2.6*	
Difference:						1.4	5.7	10.5	10.5	4.9	2.7	1.8	
REITS			$ 42,190,636	1.1%									
Invesco All Equity REIT		*Core US REIT*	$ 42,190,636	1.1%		-4.6	3.5	-24.1	-24.1	-1.1	3.4	7.9	Aug-04
FTSE NAREIT Equity Index						*-5.1*	*5.2*	*-24.4*	*-24.4*	*-0.1*	*3.7*	*7.7*	
Difference:						0.5	-1.7	0.3	0.3	-1.0	-0.3	0.2	

[1] Returns are preliminary and are finalized during each quarterly reporting cycle. Monthly returns since previous quarter are provided by the managers. Market values are provided by Northern Trust.

[2] MSCI ACWI IMI Net as of 4/1/2020, MSCI ACWI Gross prior.

[3] Manager returns are as of 9/30/22, and lagged 1 quarter. Since Inception date reflects one quarter lag.

NM = Returns not meaningful

San Joaquin County Employees' Retirement Association (SJCERA)

Preliminary Monthly Flash Report (Net)[1] December 2022

	Commitment ($000)	Sub-Segment	Market Value	Physical % of Total	Policy Target %	1-Mo	3-Mos	YTD	1-Yr	3-Yrs	5-Yrs	SI Return	SI Date
Stabilized Growth			$ 1,200,287,473	31.4%	33.0%	-1.3	2.4	-3.8	-3.8	4.7	4.9	3.8	Jan-05
Risk Parity			$ 358,053,648	9.4%		-4.7	5.5	-24.2	-24.2	-2.4	0.8	2.9	
T-Bill +4%						*0.7*	*1.8*	*5.5*	*5.5*	*4.7*	*5.3*	*4.6*	
Difference:						-5.4	3.7	-29.7	-29.7	-7.1	-4.5	-1.7	
Bridgewater All Weather		*Risk Parity*	$ 182,185,578	4.8%		-4.2	7.1	-22.0	-22.0	-1.5	1.1	3.1	Mar-12
T-Bill +4%						*0.7*	*1.8*	*5.5*	*5.5*	*4.7*	*5.3*	*5.4*	
Difference:						-4.9	5.3	-27.5	-27.5	-6.2	-4.2	-2.3	
PanAgora Diversified Risk Multi-Asset		*Risk Parity*	$ 175,868,070	4.6%		-5.1	3.8	-26.3	-26.3	-3.2	0.5	2.9	Apr-16
T-Bill +4%						*0.7*	*1.8*	*5.5*	*5.5*	*4.7*	*5.3*	*5.1*	
Difference:						-5.8	2.0	-31.8	-31.8	-7.9	-4.8	-2.2	
Liquid Credit			$ 224,861,262	5.9%		0.5	4.4	-5.4	-5.4	0.2	1.8	1.8	
50% BB High Yield, 50% S&P/LSTA Leveraged Loans						*-0.1*	*3.5*	*-5.9*	*-5.9*	*1.3*	*2.8*	*5.2*	
Difference:						0.6	0.9	0.5	0.5	-1.1	-1.0	-3.4	
Neuberger Berman		*Global Credit*	$ 95,758,518	2.5%		0.2	4.6	-10.4	-10.4	-1.0	--	1.0	Feb-19
33% ICE BofA HY Constrained, 33% S&P/LSTA LL, 33% JPM EMBI Glbl Div.						*0.0*	*4.9*	*-9.9*	*-9.9*	*-0.9*	*--*	*1.4*	
Difference:						0.2	-0.3	-0.5	-0.5	-0.1	--	-0.4	
Stone Harbor Absolute Return		*Absolute Return*	$ 129,102,744	3.4%		0.7	4.3	-1.3	-1.3	1.1	2.1	2.7	Oct-06
3-Month Libor Total Return						*0.3*	*0.8*	*1.2*	*1.2*	*0.8*	*1.4*	*1.4*	
Difference:						0.4	3.5	-2.5	-2.5	0.3	0.7	1.3	
Private Credit Lag[2]			$ 365,818,111	9.6%		0.5	0.5	6.0	7.6	4.8	3.6	3.7	
50% BB High Yield, 50% S&P/LSTA Leveraged Loans						*-4.4*	*-7.1*	*-8.8*	*-7.9*	*1.2*	*2.5*	*5.1*	
Difference:						4.9	7.6	14.8	15.5	3.6	1.1	-1.4	
BlackRock Direct Lending Lag[3]	*$100,000*	*Direct Lending*	$ 88,276,151	2.3%		1.6	1.6	1.6	5.5	---	---	7.8	May-20
S&P/LSTA Leveraged Loans +3% Blend[5]						*-1.9*	*-3.7*	*-3.7*	*2.3*	*---*	*---*	*11.0*	
Difference:						3.5	5.3	5.3	3.2	---	---	-3.2	
Mesa West RE Income IV Lag[3]	*$75,000*	*Comm. Mortgage*	$ 20,938,833	0.5%		-2.3	-2.3	1.0	3.6	6.2	7.1	6.7	Mar-17
S&P/LSTA Leveraged Loans +3% Blend[4]						*-1.9*	*-3.7*	*-0.1*	*2.3*	*6.8*	*7.5*	*7.6*	
Difference:						-0.4	1.4	1.1	1.3	-0.6	-0.4	-0.9	
Crestline Opportunity II Lag[7]	*$45,000*	*Opportunistic*	$ 16,364,568	0.4%		-1.3	-1.3	0.0	0.4	2.2	1.8	4.7	Nov-13
S&P/LSTA Leveraged Loans +3% Blend[4]						*-1.9*	*-3.7*	*-0.1*	*2.3*	*6.8*	*7.5*	*8.1*	
Difference:						0.6	2.4	0.1	-1.9	-4.6	-5.7	-3.4	
Davidson Kempner Distr Opp V Lag[3]	*$50,000*	*Opportunistic*	$ 47,540,041	0.0%		-2.2	-2.2	4.3	6.0	--	--	25.9	Oct-20
S&P/LSTA Leveraged Loans +3% Blend[4]						*-1.9*	*-3.7*	*-0.1*	*2.3*	*--*	*--*	*6.9*	
Difference:						-0.3	1.5	4.4	3.7	--	--	19.0	
Oaktree Lag	*$50,000*	*Leveraged Direct*	$ 31,351,435	0.8%		2.9	2.9	13.0	16.9	19.0	--	12.0	Mar-18
S&P/LSTA Leveraged Loans +3% Blend[4]						*-1.9*	*-3.7*	*-0.1*	*2.3*	*8.3*	*--*	*7.5*	
Difference:						4.8	6.6	13.1	14.6	10.7	--	4.5	
HPS EU Asset Value II Lag[3]	*$50,000*	*Direct Lending*	$ 30,548,373	0.8%		1.8	1.8	6.4	8.3	--	--	3.3	Aug-20
S&P/LSTA Leveraged Loans +3% Blend[4]						*-1.9*	*-3.7*	*-0.1*	*2.3*	*--*	*--*	*7.1*	
Difference:						3.7	5.5	6.5	6.0	--	--	-3.8	
Raven Opportunity III Lag[3]	*$50,000*	*Direct Lending*	$ 57,419,823	1.5%		1.8	1.8	8.1	14.8	8.1	8.8	4.2	Nov-15
S&P/LSTA Leveraged Loans +3% Blend[4]						*0.3*	*0.6*	*3.8*	*10.6*	*9.0*	*8.8*	*8.8*	
Difference:						1.5	1.2	4.3	4.2	-0.9	0.0	-4.6	

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[2] Total class returns are as of 9/30/22, and lagged 1 quarter.
[3] Manager returns are as of 9/30/22, and lagged 1 quarter. Since Inception date reflects one quarter lag.
[4] 9% Annual until 6/30/2018; CPI +6% Annual 7/1/2018 - 3/31/2022; S&P/LSTA Leveraged Loans +3% thereafter.
[5] 50% Bloomberg High Yield/50% S&P Leveraged Loan until 12/31/20 then CPI +6% Annual thereafter. Benchmark lagged one quarter.
[6] MSCI ACWI + 2% until 12/31/20 then CPI +6% Annual thereafter. Benchmark lagged one quarter

San Joaquin County Employees' Retirement Association (SJCERA)

Preliminary Monthly Flash Report (Net)[1] — December 2022

	Commitment ($000)	Sub-Segment	Market Value	Physical % of Total	Policy Target %	1-Mo	3-Mos	YTD	1-Yr	3-Yrs	5-Yrs	SI Return	SI Date
Private Credit Lag (continued)													
Medley Opportunity II Lag[3]	*$50,000*	*Direct Lending*	$ 4,378,784	0.1%		0.0	0.0	-9.9	-12.8	-9.9	-10.4	-2.2	Jul-12
S&P/LSTA Leveraged Loans +3% Blend [4]						*-1.9*	*-3.7*	*-0.1*	*2.3*	*6.8*	*7.5*	*8.2*	
Difference:						1.9	3.7	-9.8	-15.1	-16.7	-17.9	-10.4	
White Oak Summit Peer Fund Lag[3]	*$50,000*	*Direct Lending*	$ 26,799,388	0.7%		-7.5	-7.5	-4.7	-8.9	0.2	3.1	4.2	Mar-16
S&P/LSTA Leveraged Loans +3% Blend [4]						*-1.9*	*-3.7*	*-0.1*	*2.3*	*6.8*	*7.5*	*7.8*	
Difference:						-5.6	-3.8	-4.6	-11.2	-6.6	-4.4	-3.6	
White Oak Yield Spectrum Master V Lag[3]	*$50,000*	*Direct Lending*	$ 42,200,715	1.1%		0.2	0.2	2.4	2.8	---	--	0.9	Mar-20
S&P/LSTA Leveraged Loans +3% Blend [4]						*-1.9*	*-3.7*	*-0.1*	*2.3*	*---*	*--*	*6.8*	
Difference:						2.1	3.9	2.5	0.5	---	--	-5.9	
Core Private Real Estate Lag			$ 251,554,452	6.6%									
Principal US[3]	*$25,000*	*Core Pvt. RE*	$ 46,513,274	1.2%		3.0	3.0	21.6	27.7	12.0	10.2	10.3	Jan-16
NCREIF ODCE + 1% Lag Blend						*5.5*	*5.5*	*24.0*	*33.2*	*16.1*	*13.9*	*13.5*	
Difference:						-2.5	-2.5	-2.4	-5.5	-4.1	-3.7	-3.2	
Prologis Logistics[3]	*$35,000*	*Core Pvt. RE*	$ 138,171,607	3.6%		5.8	5.8	34.2	49.4	28.2	24.0	13.9	Dec-07
NCREIF ODCE + 1% Lag Blend						*5.5*	*5.5*	*24.0*	*33.2*	*16.1*	*13.9*	*10.3*	
Difference:						0.3	0.3	10.2	16.2	12.1	10.1	3.6	
RREEF America II[3]	*$45,000*	*Core Pvt. RE*	$ 67,293,747	1.8%		6.9	6.9	24.6	32.0	13.5	10.9	10.6	Jul-16
NCREIF ODCE + 1% Lag Blend						*5.5*	*5.5*	*24.0*	*33.2*	*16.1*	*13.9*	*13.4*	
Difference:						1.4	1.4	0.6	-1.2	-2.6	-3.0	-2.8	
Diversifying Strategies			$ 814,417,765	21.3%	24.0%	-1.2	-2.9	0.1	0.1	1.8	2.1	6.1	Oct-90
Principal Protection			$ 284,210,015	7.4%	9.0%	-0.2	2.6	-10.0	-10.0	-2.5	0.4	5.8	Oct-90
BB Aggregate Bond Index						*-0.5*	*1.9*	*-13.0*	*-13.0*	*-2.7*	*0.0*	*5.3*	
Difference:						0.3	0.7	3.0	3.0	0.2	0.4	0.5	
Dodge & Cox		*Core Fixed Income*	$ 194,027,727	5.1%		0.0	3.1	-10.6	-10.6	-1.0	1.3	6.5	Oct-90
BB Aggregate Bond Index						*-0.5*	*1.9*	*-13.0*	*-13.0*	*-2.7*	*0.0*	*5.3*	
Difference:						0.5	1.2	2.4	2.4	1.7	1.3	1.2	
Loomis Sayles		*Core Fixed Income*	$ 90,176,224	2.4%		-0.6	1.6	-4.4	--	--	--	-10.0	Mar-22
BB Aggregate Bond Index						*-0.5*	*1.9*	*-4.7*	*--*	*--*	*--*	*-10.1*	
Difference:						-0.1	-0.3	0.3	--	--	--	0.1	
DoubleLine Capital		*MBS*	$ 6,064	0.0%		NM	NM	NM	NM	NM	NM	NM	Feb-12

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[2] Total class returns are as of 9/30/22, and lagged 1 quarter.

[3] Manager returns are as of 9/30/22, and lagged 1 quarter. Since Inception date reflects one quarter lag.

[4] 9% Annual until 6/30/2018; CPI +6% Annual 7/1/2018 - 3/31/2022; S&P/LSTA Leveraged Loans +3% thereafter.

San Joaquin County Employees' Retirement Association (SJCERA)

Preliminary Monthly Flash Report (Net)[1] December 2022

	Commitment ($000)	Sub-Segment	Market Value	Physical % of Total	Policy Target %	1-Mo	3-Mos	YTD	1-Yr	3-Yrs	5-Yrs	SI Return	SI Date
Crisis Risk Offset			$ 530,207,750	13.8%	15.0%	-1.7	-5.6	8.5	8.5	4.8	3.4	6.4	Jan-05
CRO Custom Benchmark [2]						*-0.7*	*-1.1*	*-4.8*	*-4.8*	*2.5*	*3.2*	*4.8*	
Difference:						-1.0	-4.5	13.3	13.3	2.3	0.2	1.6	
Long Duration			$ 111,838,858	2.9%		-2.2	-0.6	-28.1	-28.1	-7.2	-2.1	-1.5	
BB US Long Duration Treasuries						*-1.7*	*-0.6*	*-29.3*	*-29.3*	*-7.4*	*-2.2*	*-0.9*	
Difference:						-0.5	0.0	1.2	1.2	0.2	0.1	-0.6	
Dodge & Cox Long Duration		*Long Duration*	$ 111,838,858	2.9%		-2.2	-0.6	-28.1	-28.1	-7.2	-2.1	-1.5	Feb-16
BB US Long Duration Treasuries						*-1.7*	*-0.6*	*-29.3*	*-29.3*	*-7.4*	*-2.2*	*-0.9*	
Difference:						-0.5	0.0	1.2	1.2	0.2	0.1	-0.6	
Systematic Trend Following			$ 240,295,770	6.3%		-1.3	-7.5	31.1	31.1	14.7	7.4	9.2	
BTOP50 Index						*-0.7*	*-4.4*	*13.8*	*13.8*	*9.5*	*6.0*	*5.1*	
Difference:						-0.6	-3.1	17.3	17.3	5.2	1.4	4.1	
Mt. Lucas Managed Futures - Cash		*Systematic Trend Following*	$ 121,660,318	3.2%		0.0	-9.9	28.9	28.9	17.7	7.5	8.6	Jan-05
BTOP50 Index						*-0.7*	*-4.4*	*13.8*	*13.8*	*9.5*	*6.0*	*5.1*	
Difference:						0.7	-5.5	15.1	15.1	8.2	1.5	3.5	
Graham Tactical Trend		*Systematic Trend Following*	$ 118,635,452	3.1%		-2.6	-5.0	33.4	33.4	11.8	7.2	4.8	Apr-16
SG Trend Index						*-0.2*	*-6.1*	*27.4*	*27.4*	*13.9*	*8.4*	*5.0*	
Difference:						-2.4	1.1	6.0	6.0	-2.1	-1.2	-0.2	
Alternative Risk Premia			$ 178,073,122	4.7%		-1.9	-6.0	19.4	19.4	2.3	1.5	7.5	
5% Annual						*0.4*	*1.2*	*5.0*	*5.0*	*5.0*	*5.0*	*6.2*	
Difference:						-2.3	-7.2	14.4	14.4	-2.7	-3.5	1.3	
AQR Style Premia		*Alternative Risk Premia*	$ 55,128,736	1.4%		-2.7	12.5	30.5	30.5	5.7	-1.9	0.6	May-16
5% Annual						*0.4*	*1.2*	*5.0*	*5.0*	*5.0*	*5.0*	*5.0*	
Difference:						-3.1	11.3	25.5	25.5	0.7	-6.9	-4.4	
PE Diversified Global Macro		*Alternative Risk Premia*	$ 67,159,950	1.8%		-0.8	-18.4	52.1	52.1	5.7	3.0	3.3	Jun-16
5% Annual						*0.4*	*1.2*	*5.0*	*5.0*	*5.0*	*5.0*	*5.0*	
Difference:						-1.2	-19.6	47.1	47.1	0.7	-2.0	-1.7	
Lombard Odier		*Alternative Risk Premia*	$ 55,784,436	1.5%		-2.2	-4.1	-6.1	-6.1	-5.6	--	-4.1	Jan-19
5% Annual						*0.4*	*1.2*	*5.0*	*5.0*	*5.0*	*--*	*5.0*	
Difference:						-2.6	-5.3	-11.1	-11.1	-10.6	--	-9.1	
Cash[3]			$ 109,127,470	2.9%	0.0%	0.3	0.8	1.5	1.5	0.6	1.0	2.3	Sep-94
US T-Bills						*0.4*	*0.8*	*1.5*	*1.5*	*0.7*	*1.3*	*2.3*	
Difference:						-0.1	0.0	0.0	0.0	-0.1	-0.3	0.0	
Northern Trust STIF		*Collective Govt. Short Term*	$ 91,158,306	2.4%		0.3	0.7	1.3	1.3	0.6	1.0	2.5	Jan-95
US T-Bills						0.4	0.8	1.5	1.5	0.7	1.3	*2.3*	
Difference:						-0.1	-0.1	-0.2	-0.2	-0.1	-0.3	0.2	
Parametric Overlay[4]		*Cash Overlay*	$ 28,618,578	0.7%		0.0	0.0	0.0	0.0	--	--	0.0	Jan-20

[1] Returns are preliminary and are finalized during each quarterly reporting cycle. Monthly returns since previous quarter are provided by the managers. Market values are provided by Northern Trust.

[2] Benchmark is (1/3) BB Long Duration Treasuries, (1/3) BTOP50 Index, (1/3) 5% Annual.

[3] Includes lagged cash.

[5] **60%** MSCI ACWI, **40%** BB Universal

[4] Given daily cash movement returns may vary from those shown above.

MEKETA
INVESTMENT GROUP

Economic and Market Update

December 2022 Report

Commentary

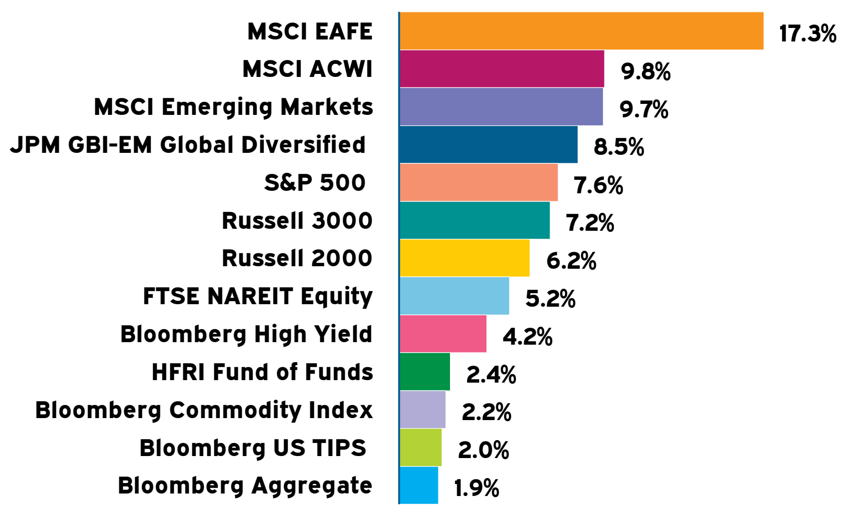
→ Ending a very tough year, most asset classes posted gains in the fourth quarter on signs that policy tightening would slow given cooling inflation.

- Chairman Powell's testimony in November reiterated previous messaging on persistent and high inflation and the need for an extended period of monetary tightening weighing on assets in December. Markets remained focused though on signs that inflation is falling and that the size of future Fed rate hikes could be lower.
- US equity markets sold off (-5.9%) in December but returned 7.2% in the fourth quarter as investors balanced the Fed's caution with improving inflation data.
- In developed equity markets outside the US, sentiment deteriorated somewhat in December, but they posted a strong fourth quarter return of 17.3% driven by a falling US dollar and results in Europe where inflation started to slow.
- Emerging market equities declined in December too (-1.4%) but less than the US and also had a strong fourth quarter (+9.7%). A weaker US dollar, declining inflation globally, and signs of China reopening its economy all contributed to the results.
- Bonds experienced one of the worst years on record given inflation levels and the rapid rise in interest rates. Optimism over declining inflation and a slower pace of policy tightening benefited bonds overall in the fourth quarter though.

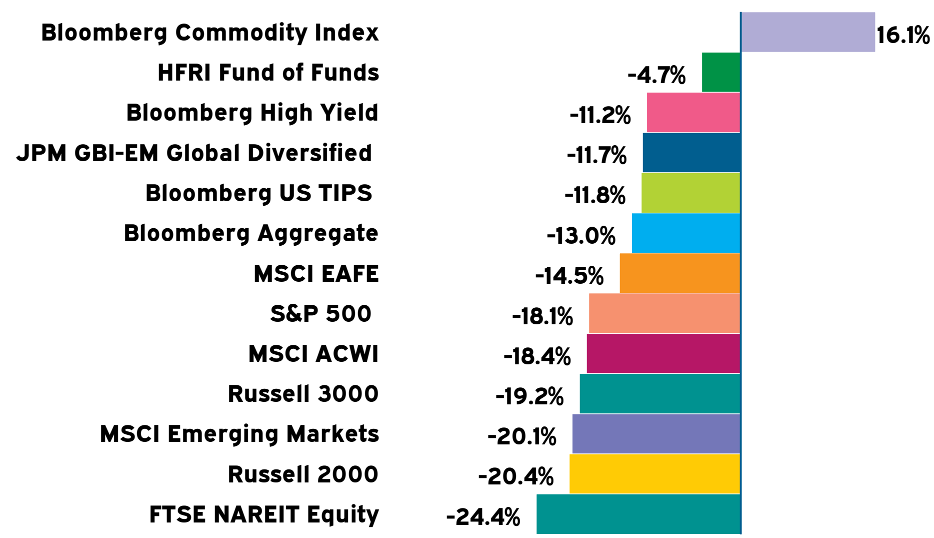
→ Looking to 2023, the path of inflation and monetary policy, slowing growth globally, China reopening its economy, and the war in Ukraine will all be key.

Index Returns[1]

Fourth Quarter



2022



→ After broad declines in Q3 driven by expectations for further policy tightening, most major asset classes were up in the fourth quarter on hopes of inflation and policy tightening peaking.

→ Outside of commodities, all other public market asset classes declined in 2022. It was the first time since the 1960s that both stocks and bonds declined together in a calendar year.

[1] Source: Bloomberg and FactSet. Data is as of December 31, 2022.

Domestic Equity Returns[1]

Domestic Equity	December (%)	Q4 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	-5.8	7.6	-18.1	7.7	9.4	12.6
Russell 3000	-5.9	7.2	-19.2	7.1	8.8	12.1
Russell 1000	-5.8	7.2	-19.1	7.3	9.1	12.4
Russell 1000 Growth	-7.7	2.2	-29.1	7.8	11.0	14.1
Russell 1000 Value	-4.0	12.4	-7.5	6.0	6.7	10.3
Russell MidCap	-5.4	9.2	-17.3	5.9	7.1	11.0
Russell MidCap Growth	-6.0	6.9	-26.7	3.9	7.6	11.4
Russell MidCap Value	-5.1	10.5	-12.0	5.8	5.7	10.1
Russell 2000	-6.5	6.2	-20.4	3.1	4.1	9.0
Russell 2000 Growth	-6.4	4.1	-26.4	0.6	3.5	9.2
Russell 2000 Value	-6.6	8.4	-14.5	4.7	4.1	8.5

US Equities: Russell 3000 Index declined 5.9% for December but gained 7.2% for the quarter. Historic inflation and rapidly rising interest rates led to significant declines (-19.2%) for the full year.

→ US stocks fell broadly in December on the Federal Reserve signaling its continued resolve to raise rates but gained overall for the quarter on hopes that interest rates could be peaking soon given slowing inflation.

→ All sectors declined during December, led by consumer discretionary and technology with defensive sectors declining less. For the quarter though, most sectors were up led by energy and industrials.

→ In a continuation on the overall trend in 2022 value stocks outperformed growth stocks in the fourth quarter given higher interest rates and slowing growth.

[1] Source: Bloomberg. Data is as of December 31, 2022.

Foreign Equity Returns[1]

Foreign Equity	December (%)	Q4 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI ex. US	-0.7	14.3	-16.0	0.1	0.9	3.8
MSCI EAFE	0.1	17.3	-14.5	0.9	1.5	4.7
MSCI EAFE (Local Currency)	-3.0	8.7	-7.0	3.6	3.8	7.6
MSCI EAFE Small Cap	1.1	15.8	-21.4	-0.9	0.0	6.2
MSCI Emerging Markets	-1.4	9.7	-20.1	-2.7	-1.4	1.4
MSCI Emerging Markets (Local Currency)	-2.0	6.6	-15.5	0.1	1.3	4.6
MSCI China	5.2	13.5	-21.9	-7.5	-4.5	2.4

Developed international equities (MSCI EAFE) rose 0.1% in December and an impressive 17.3% in the fourth quarter. Emerging markets (MSCI EM) fell -1.4% in December but gained 9.7% for the quarter. Inflation and rising rates also weighed on international equities last year, as well as a strong US dollar for most of the year.

→ International developed market equities, specifically Europe, held up better relative to the rest of the world in December with the MSCI EAFE up 0.1%. In the fourth quarter, they returned a significant 17.3% due in part to the recent weakness in the US dollar (they returned only 8.7% in local terms) leading to lower declines for the year.

→ In December emerging markets outperformed the US but trailed developed market equities as China's rally was not enough to offset weakness elsewhere (e.g., India -5.5%). For the quarter, a weakening US dollar and China reopening led to strong results (+9.7%), but emerging markets remained the weakest for 2022 due to China.

→ Like the US, value outpaced growth globally in 2022.

[1] Source: Bloomberg. Data is as of December 31, 2022.

Fixed Income Returns[1]

Fixed Income	December (%)	Q4 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Universal	-0.3	2.2	-13.0	-2.5	0.2	1.3	5.1	6.2
Bloomberg Aggregate	-0.5	1.9	-13.0	-2.7	0.0	1.1	4.7	6.4
Bloomberg US TIPS	-1.0	2.0	-11.8	1.2	2.1	1.1	4.4	6.7
Bloomberg High Yield	-0.6	4.2	-11.2	0.0	2.3	4.0	9.0	4.4
JPM GBI-EM Global Diversified (USD)	2.2	8.5	-11.7	-6.1	-2.5	-2.0	5.8	4.9

Fixed Income: The Bloomberg Universal fell -0.3% in December but rose 2.2% for the fourth quarter. Last year was one of the worst on record, with the broad bond market declining 13%.

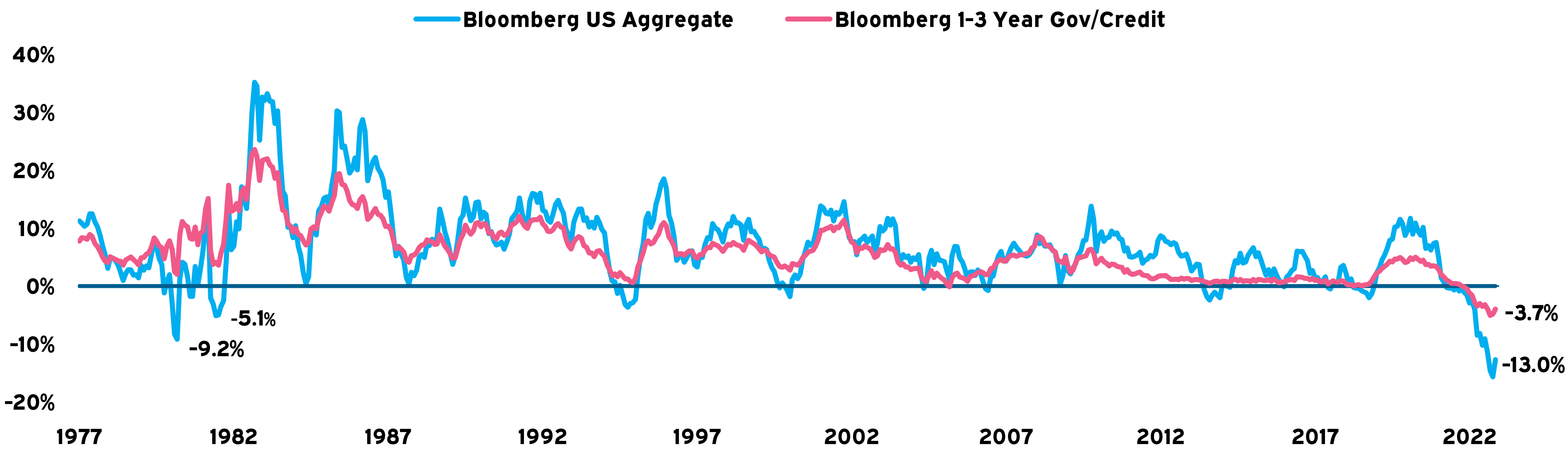
→ The Federal Reserve reconfirming its commitment to tighten policy in the face of high inflation weighed on US fixed income in December. For the quarter though the broad US bond market (Bloomberg Aggregate) was up 1.9% on hopes that inflation would continue to decline and corresponding expectations for the slowing of policy rate hikes.

→ TIPS produced similar results to the broad US bond market for the quarter but outperformed for the year given their inflation adjustment.

→ Riskier bonds outperformed for the quarter due to improving risk sentiment with emerging market bonds performing particularly well.

[1] Source: Bloomberg. JPM GBI-EM data is from InvestorForce. Data is as of December 31, 2022. The yield and duration data from Bloomberg is defined as the index's yield to worst and modified duration respectively.

Fixed Income
Rolling One-year Returns[1]



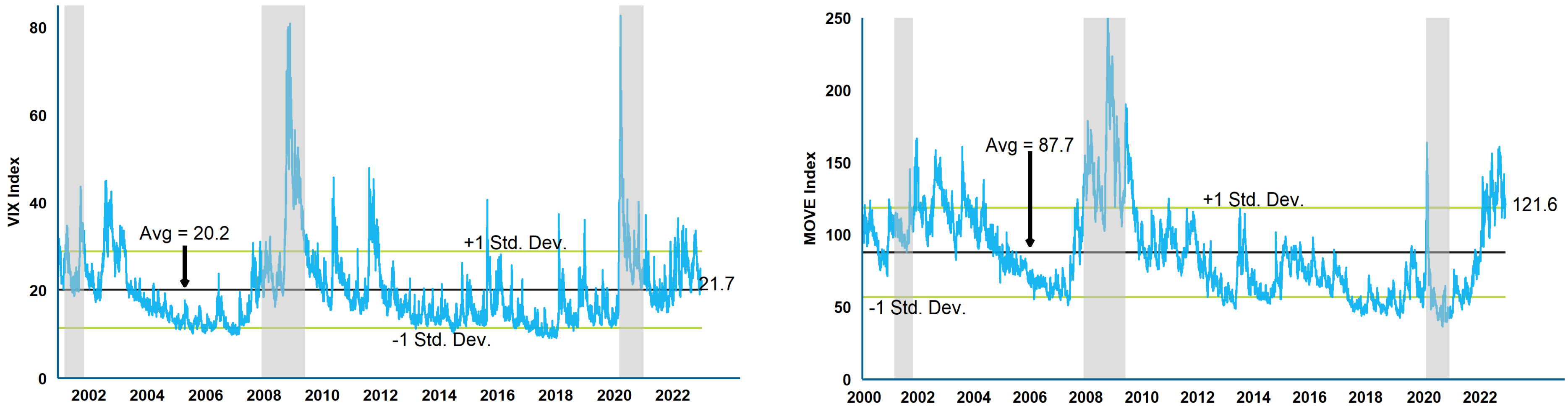
→ Last year was one of the worst return periods for the US bond market given the historic inflation levels and the corresponding rapid rise in interest rates.

→ The broad bond market (Bloomberg US Aggregate) declined 13% in 2022 making it one of the worst periods on record.

→ Short-term bond declines were far smaller (-3.7%) last year, but also were one of the worst on record.

[1] Source: Bloomberg. Data is as of December 31, 2022.

Equity and Fixed Income Volatility[1]

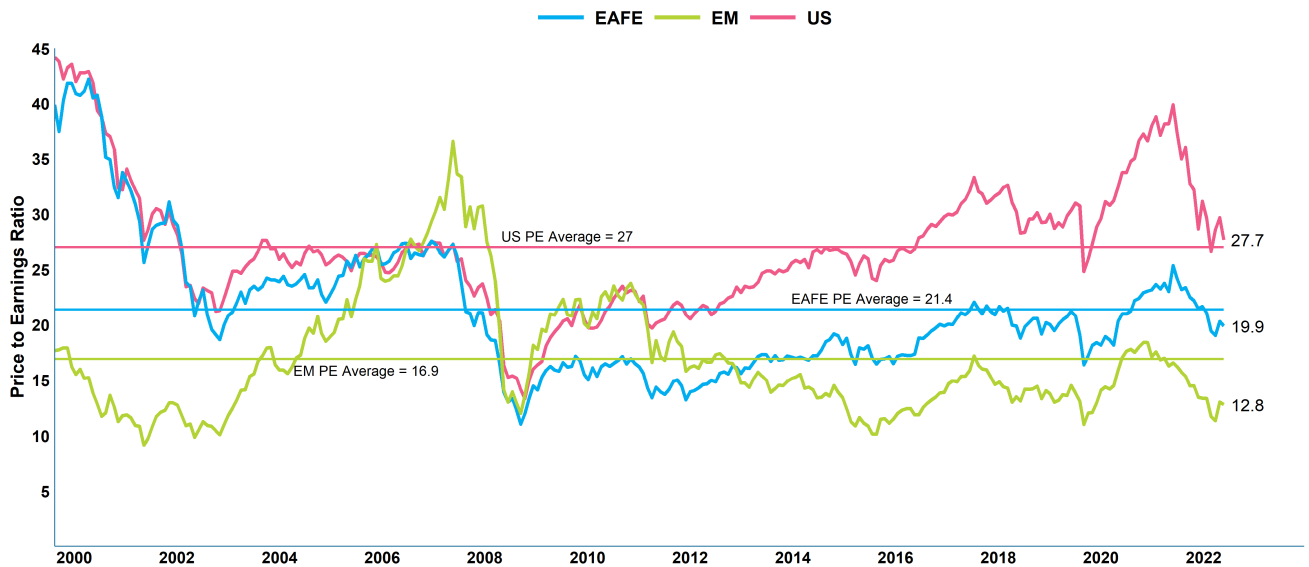


→ Volatility in equities (VIX) finished the year down from its highs and near its long run average as investors anticipated the potential end of Fed rate hikes this year.

→ Fixed income (MOVE) remained elevated and well above its long-run average at year-end due to the uncertain path of US interest rates as the Federal Reserve continues its hawkish stance on inflation.

[1] Equity and Fixed Income Volatility – Source: Bloomberg. Implied volatility as measured using VIX Index for equity markets and the MOVE Index to measure interest rate volatility for fixed income markets. Data is as of December 2022. The average line indicated is the average of the VIX and MOVE values between January 2000 and the recent month-end respectively.

Equity Cyclically Adjusted P/E Ratios[1]



- → After December's sell-off, US equity price-to-earnings ratio finished the year near its long-term (21st century) average.
- → International developed market valuations rose but remain below their own long-term average, with those for emerging markets the lowest and well under the long-term average.
- → Price declines have been the main driver of recent multiple compression as earnings have remained resilient. Concerns remain over whether earnings strength will continue in the face of slowing growth.

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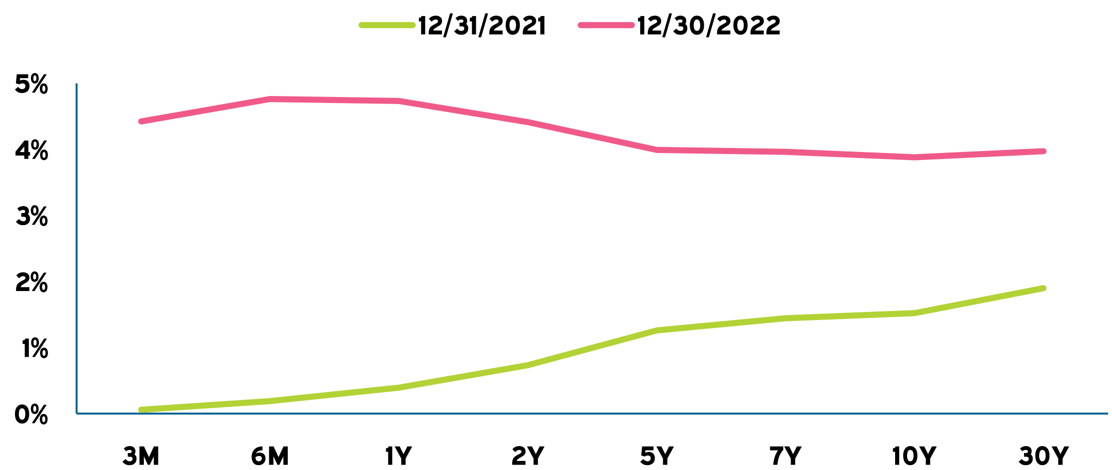
[1] US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group. Developed and Emerging Market Equity (MSCI EAFE and EM Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years. Data is as of December 2022. The average line is the long-term average of the US, EM, and EAFE PE values from December 1999 to the recent month-end respectively.

US Yield Curve[1]



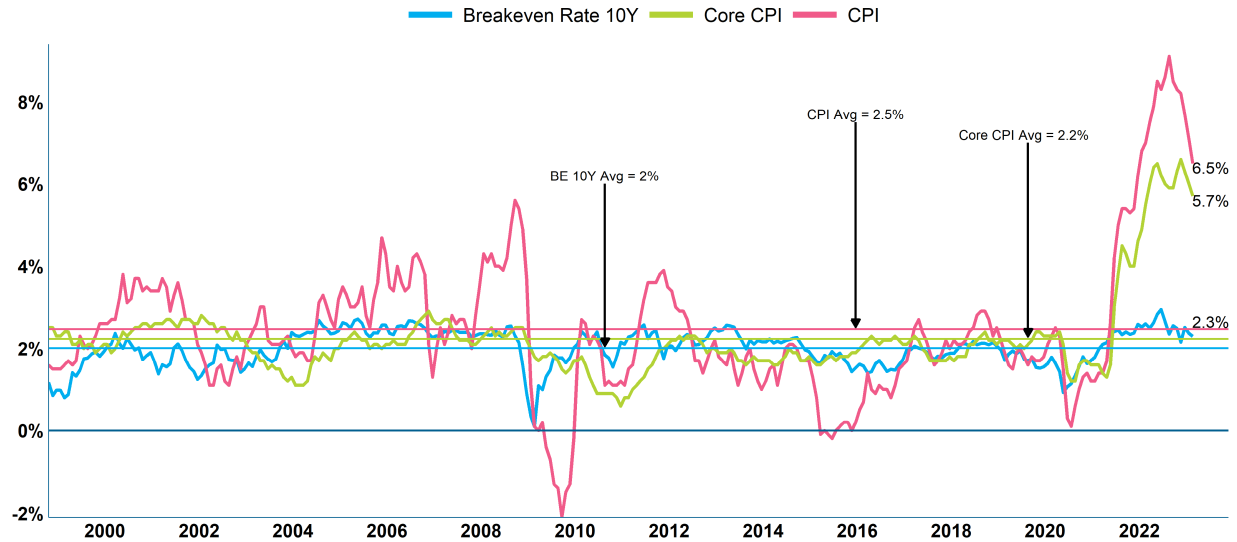
→ In December, policy-sensitive interest rates at the front-end of the curve continued to rise with the two-year Treasury yield increasing from 4.3% to 4.4%. Longer dated ten-year Treasury yields also increased (3.6% to 3.9%). For the year, the yield curve rose dramatically across maturities and moved from steep to inverted.

→ The Fed remains strongly committed to fighting inflation, as it increased rates another 50 basis points to a range of 4.0% to 4.5% at its December meeting. This brought the total number of increases for 2022 to seven.

→ The yield spread between two-year and ten-year Treasuries narrowed somewhat to -0.54% after finishing November at -0.70%. The more closely watched measure by the Fed of three-month and ten-year Treasuries also remained inverted. Historically, inversions in the yield curve have often preceded recessions.

[1] Source: Bloomberg. Data is as of December 31, 2022.

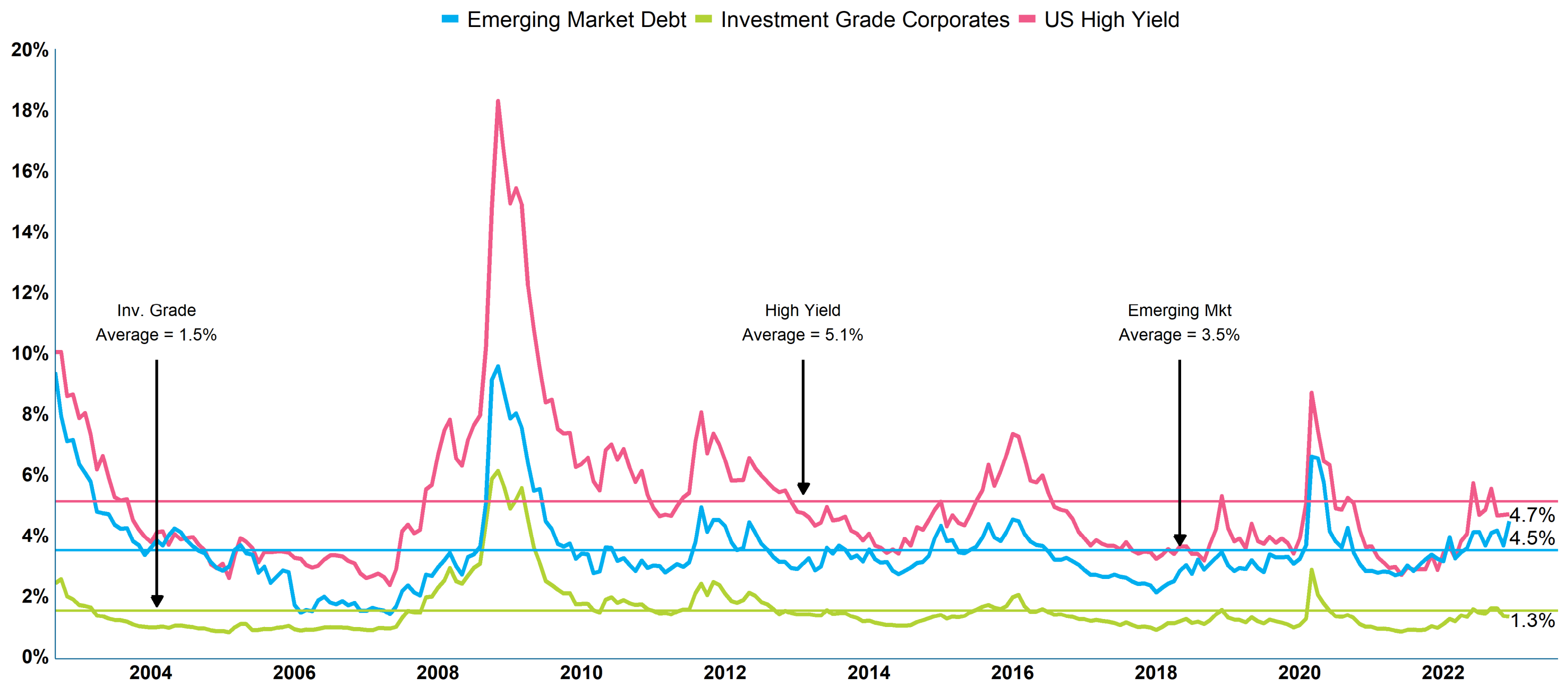
Ten-Year Breakeven Inflation and CPI[1]



- → In December inflation continued to decline (6.5% versus 7.1%) matching expectations and providing support for the Fed to slow the pace of policy tightening. Energy prices fell again for the month but remain up 7.3% from a year prior, while food prices fell slightly, and stickier service prices continued to increase.
- → Core inflation – excluding food and energy – also continued to decline in December (5.7% versus 6.0%) and matched estimates.
- → Inflation expectations (breakevens) declined slightly for the month (2.3% versus 2.4%) and remain well below current inflation levels as investors anticipate a significant moderation in inflation.

[1] Source: Bloomberg. Data is as of December 2022. The CPI and 10 Year Breakeven average lines denote the average values from August 1998 to the present month-end respectively. Breakeven values represent month-end values for comparative purposes.

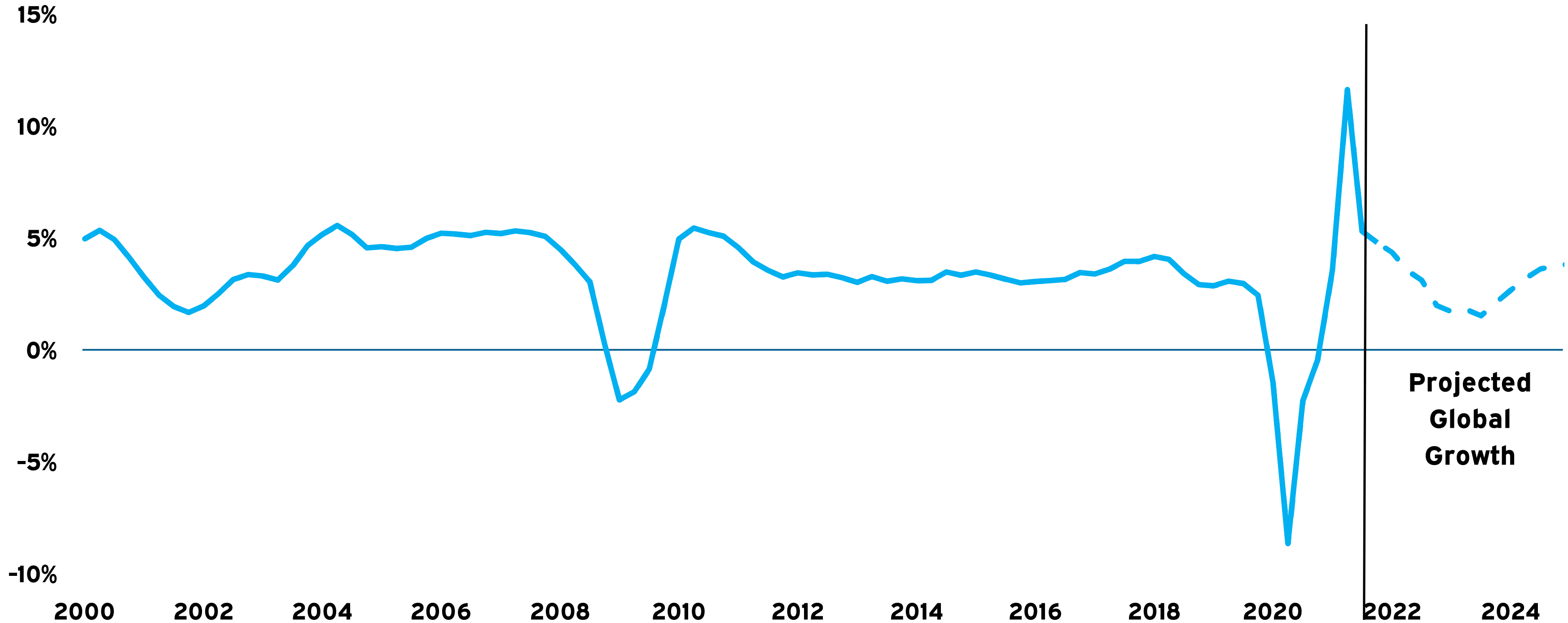
Credit Spreads vs. US Treasury Bonds[1]



- → High yield spreads (the added yield above a comparable maturity Treasury) finished December at 4.7% (the same as the end of November) remaining below their long-run average.
- → Investment grade spreads also held steady at 1.3% as attractive yields and strong balance sheets continued to attract investors, while emerging market spreads rose (4.5% versus 3.6%) due to concerns regarding slower growth and lower commodity prices.

[1] Sources: Bloomberg. Data is as of December 31, 2022. Average lines denote the average of the investment grade, high yield, and emerging market spread values from August 2000 to the recent month-end respectively.

Global Real Gross Domestic Product (GDP) Growth[1]

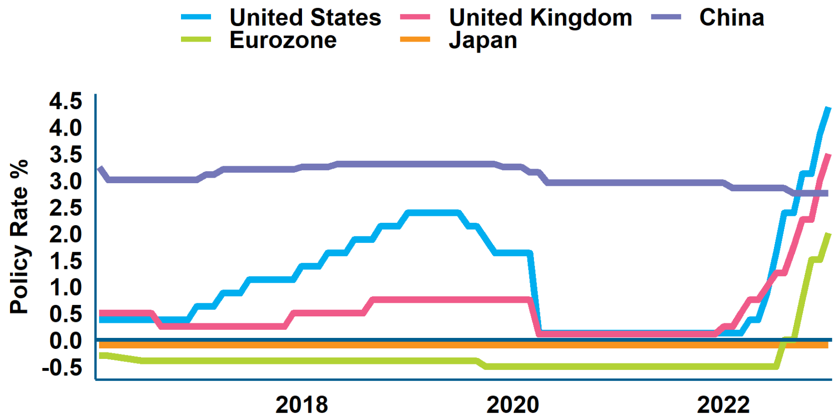


- → Global economies are expected to slow in 2023 compared to 2022, with risks of recession increasing given persistently high inflation and related tighter monetary policy.
- → The delicate balancing act of central banks trying to reduce inflation without dramatically impacting growth will remain key.

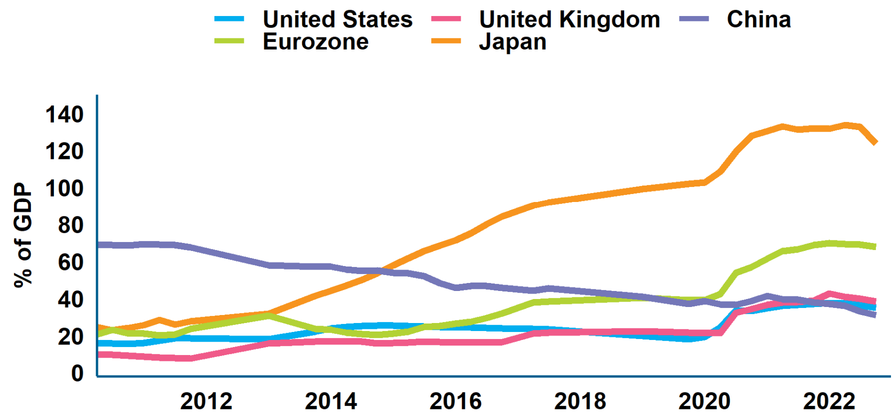
[1] Source: Oxford Economics (World GDP, US$ prices & PPP exchange rate, real, % change YoY). Updated December 2022.

Central Bank Response[1]

Policy Rates



Balance Sheet as % of GDP



→ In 2022 many central banks aggressively reduced pandemic-era policy support in the face of high inflation with the US taking a more aggressive approach.

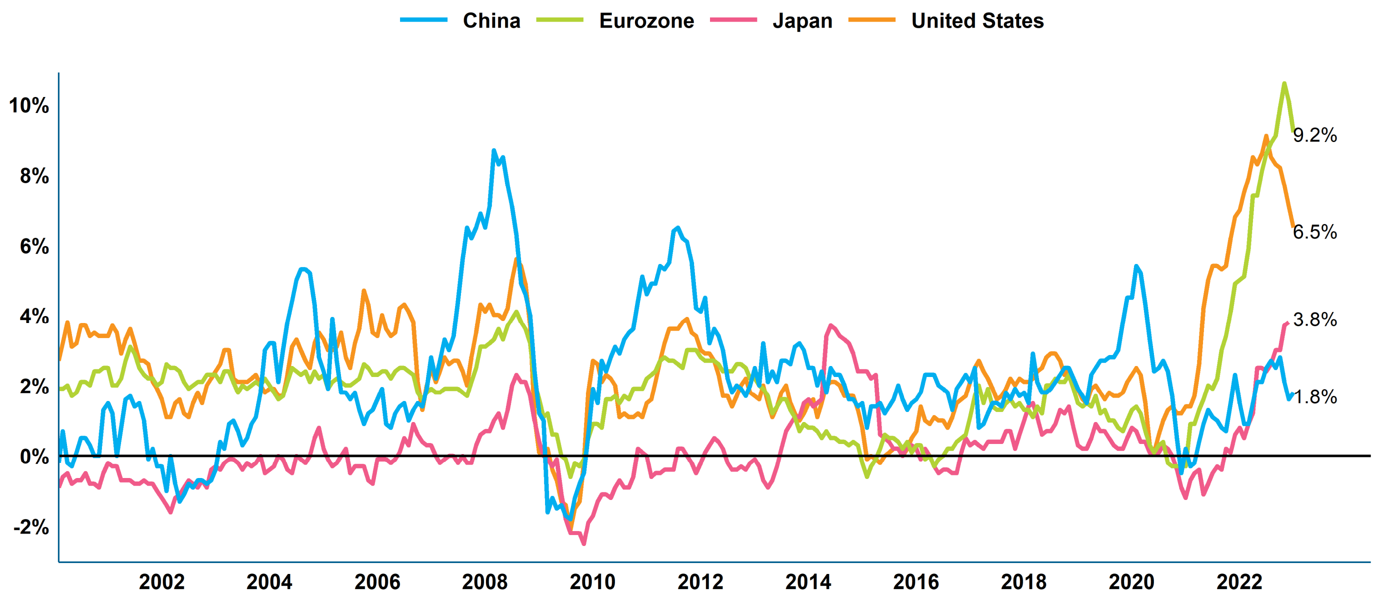
→ In December, the Bank of Japan relaxed its target yield for the 10-year bond which may mark an incremental step toward policy normalization after eight years of quantitative easing.

→ The one notable central bank outlier is China, where the central bank has lowered rates and reserve requirements in response to slowing growth.

→ The risk remains for a policy error, particularly overtightening, as record inflation and aggressive tightening to date could heavily weigh on global growth. The Federal Reserve's policy rate path could diverge from others this year given their strong early start to tightening.

[1] Source: Bloomberg. Policy rate data is as of December 31, 2022. China policy rate is defined as the medium-term lending facility 1 year interest rate. Balance sheet as % of GDP is based on quarterly data and is as of December 31, 2022.

Inflation (CPI Trailing Twelve Months)[1]



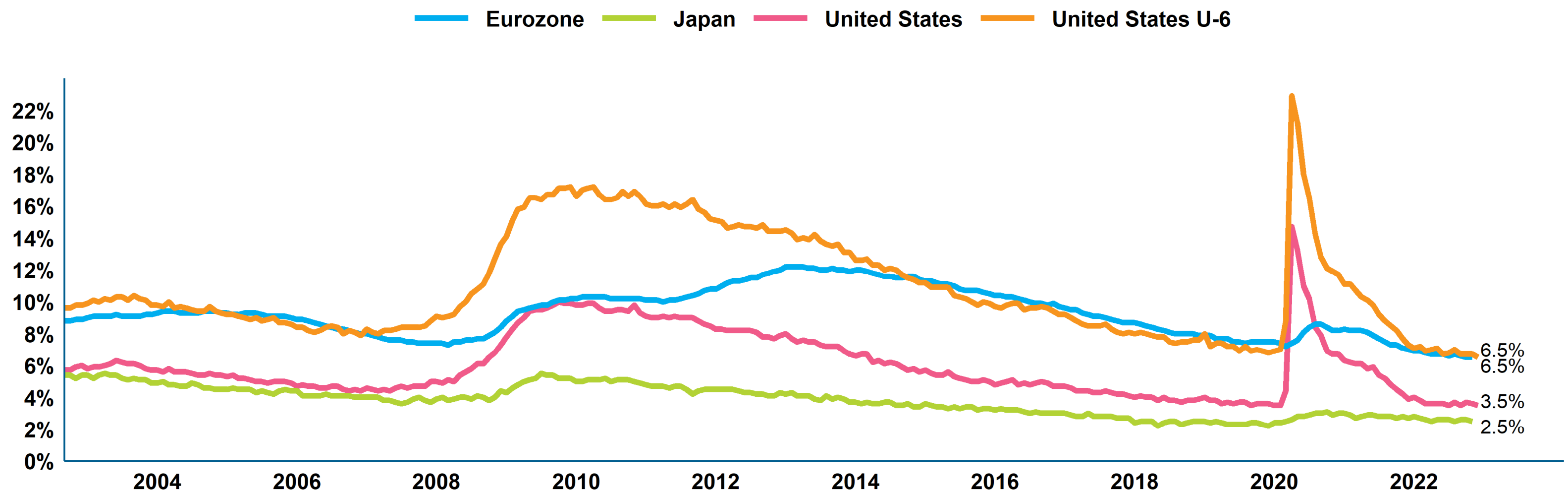
→ Inflation increased dramatically from the lows of the pandemic, particularly in the US and Eurozone where it has reached levels not seen in many decades.

→ Inflation pressures are slowly declining in the US, but they remain elevated, while in Europe they have reached historic levels due to skyrocketing energy prices and a weak euro.

→ Supply issues related to the pandemic, record monetary and fiscal stimulus, strict COVID-19 restrictions in China, and higher commodity prices driven by the war in Ukraine have been key global drivers of inflation.

[1] Source: Bloomberg. Data is as of December 2022. The most recent Japanese inflation data is as of November 2022.

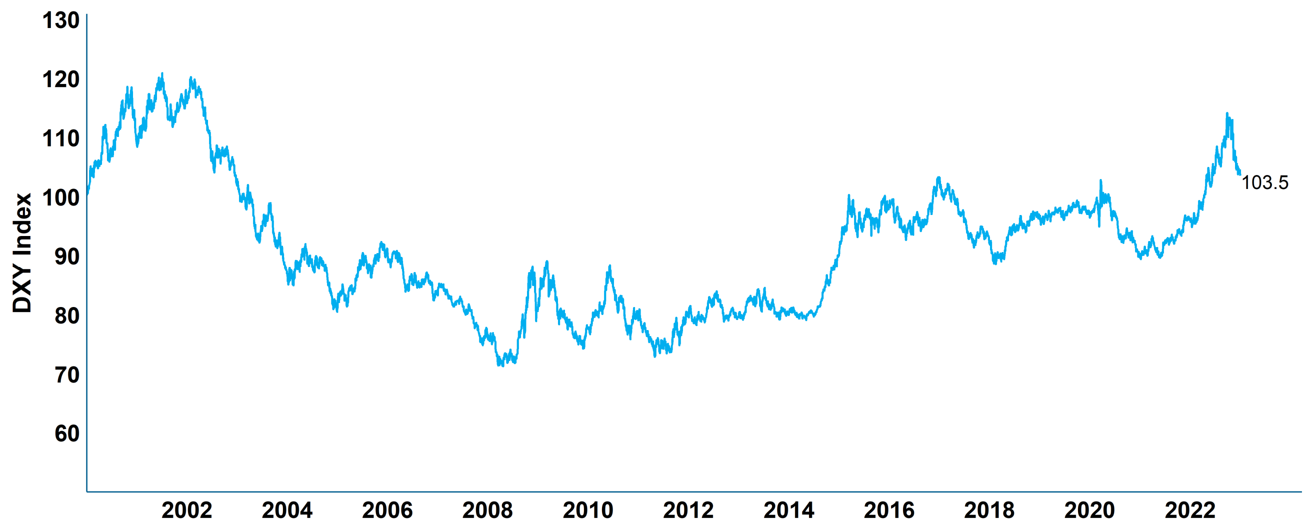
Unemployment[1]



- → As economies have largely reopened, helped by vaccines for the virus, improvements have been seen in the labor market.
- → Despite slowing growth and high inflation, the US labor market remains a bright spot. Unemployment in the US, which experienced the steepest rise from the pandemic, has remained in a tight 3.5%-3.7% range for most of the year.
- → The strong labor market and higher wages, although beneficial for workers, motivates the Fed's efforts to fight inflation, likely leading to higher unemployment.

[1] Source: Bloomberg. Data is as December 31, 2022, for the US. The most recent data for Eurozone and Japanese unemployment is as of November 30, 2022.

US Dollar versus Broad Currencies[1]



→ Overall, the US dollar continued to weaken from its recent peak in December as declining inflation supported the case for the Federal Reserve to slow its tightening.

→ The dollar finished the year much higher than it started though due to the increased pace of policy tightening, stronger relative growth, and safe-haven flows.

→ As we look to 2023, the track of inflation across economies and the corresponding monetary policy will likely be key drivers of currency moves.

[1] Source: Bloomberg. Data as of December 31, 2022.

Summary

Key Trends:

→ The impacts of record high inflation will remain key, with market volatility likely to stay high.

→ Monetary policy could diverge in 2023 with the Fed pausing and others continuing to tighten. The risk of policy errors in both directions remains.

→ Growth will continue to slow globally next year, with many economies likely falling into recessions. Inflation, monetary policy, and the war will all be key.

→ In the US the end of many fiscal programs is expected to put the burden of continued growth on consumers. Higher energy and food prices could weigh on consumer spending.

→ Valuations have significantly declined in the US to around long-term averages, largely driven by price declines. The key going forward will be whether earnings can remain resilient if growth continues to slow.

→ Outside the US, equity valuations remain lower in both emerging and developed markets, but risks remain, including potential continued strength in the US dollar, higher inflation particularly weighing on Europe, and China's rushed exit from COVID-19 restrictions and on-going weakness in the real estate sector.

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MEMORANDUM

TO: SJCERA Board of Retirement
FROM: Meketa Investment Group (Meketa)
DATE: February 10, 2023
RE: 2023 SJCERA Benchmark Review

On an annual basis, Meketa reviews the benchmarks for SJCERA's portfolio, the underlying classes, and the various managers. This review is focused on the continued suitability of these benchmarks in light of changing investment markets. Secondarily, Meketa will review benchmarks as part of ongoing asset class reviews throughout the year.

Over the last several years Meketa has worked with SJCERA to enhance the policy, class and manager benchmarks and move them closer to their long-term objectives. ***This memo does not recommend any changes at this time.***

Each of the various portfolio components are reviewed below.

SJCERA Total Fund Policy

Asset Class	Current Policy Target (%)	Current Benchmark	New Benchmark
Traditional Growth			
Public Global Equity	34	MSCI ACWI IMI	No Change
Aggressive Growth			
Private Equity	8	MSCI ACWI ND + 2%	No Change
Opp/Value Add Real Estate	8		No Change
Stabilized Growth			
Risk Parity	6	T-bills + 4%	No Change
Private/Liquid Credit	15	50% BB High Yield/ 50% Leveraged Loan	No change
Core Real Estate	9	NCREIF ODCE	No Change
Diversifying Strategies			
Principal Protection	7	BB Aggregate Index	No change
Crisis Risk Offset	13	1/3rd BB long Duration, 1/3rd BTOPS 50, 1/3rd 5% Annual	No change
Cash[1]	0	N/A	N/A
Total	**100**	**Total Fund Custom Benchmark**	

[1] Cash does not have an asset class benchmark.

Discussion

When evaluating the performance of a portfolio, sub-class or a specific manager, it's important to compare it against an appropriate benchmark. There are numerous index providers that create benchmarks used to gauge the performance of most investments, including Standard & Poor's, Russell, MSCI, and Bloomberg, among others. In general, an appropriate benchmark represents the investable universe (or opportunity set) while also adhering to broadly accepted industry standards.[1] Such standards are easily implemented through the broad market benchmark framework.

While liquid, long-only classes are fairly easy to benchmark, illiquid and/or more complex strategies/classes, such as Private Equity, are more difficult. Since these types of investments are often multi-asset in nature, they commonly do not possess an easily identifiable investable universe, and are highly illiquid, finding benchmarks that fulfill all of the desired criteria can prove challenging. To this end, Aggressive Growth is currently benchmarked against a hybrid target: a market index + a premium (MSCI ACWI ND +2%)[2] as opposed to solely broad market indexes.

In short to medium term periods of markets inflections, such as 2020, having a benchmark tied to highly volatile market like equites can lead to relatively high-performance dispersions. This can be seen in the SJCERA Aggressive growth portfolio, where relative performance was down (6.4%) for the YTD ending September 2020. However, Meketa expects Private Equity managers to outperform this benchmark hurdle over longer periods.

[1] See, for example, A Primer for Investment Trustees, ©2011, The Research Foundation of the CFA Institute. This publication highlights that broad class benchmarks provide reasonable proxies for the types of capital market risks that must be borne by investors in order to capture investment returns over time. In addition, the most common metrics utilized to measure investment performance rely upon broadly published benchmarks. Finally, the basic standard for a benchmark is that it be (i) unambiguous, (ii) measurable, (iii) investable, (iv) appropriate, (v) measurable in advance, and (vi) owned (i.e., the publisher adheres to high-quality accountability standards). Widely-followed broad class benchmarks easily meet these standards.

[2] **MSCI ACWI ND** comprises both developed and emerging markets less the United States. This series approximates the minimum possible dividend reinvestment. The dividend is reinvested after deduction of withholding tax, applying the rate to non-resident individuals who do not benefit from double taxation treaties. MSCI Barra uses withholding tax rates applicable to Luxembourg holding companies, as Luxembourg applies the highest rates.

Disclosure

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INFORMATION USED TO PREPARE THIS REPORT WAS OBTAINED FROM INVESTMENT MANAGERS, CUSTODIANS, AND OTHER EXTERNAL SOURCES. WHILE WE HAVE EXERCISED REASONABLE CARE IN PREPARING THIS REPORT, WE CANNOT GUARANTEE THE ACCURACY OF ALL SOURCE INFORMATION CONTAINED HEREIN.

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Preliminary Projections

San Joaquin County Employees' Retirement Association

February 10, 2023
Graham Schmidt

Last year, we reviewed all of the SJCERA actuarial assumptions - economic and demographic - as part of the triennial experience study. A summary of the current economic assumptions is shown below.

Return on Assets

Current: 6.75%

Assumed annual return on investments; net of investment expenses

Inflation Rate

Current: 2.75%

Price inflation; building block for other assumptions

Wage Growth

Current: 3.00%

Price inflation plus real wage growth

COLA Rates

Current: 2.60%

Increases in post-retirement COLAs; affected by caps and banking provisions

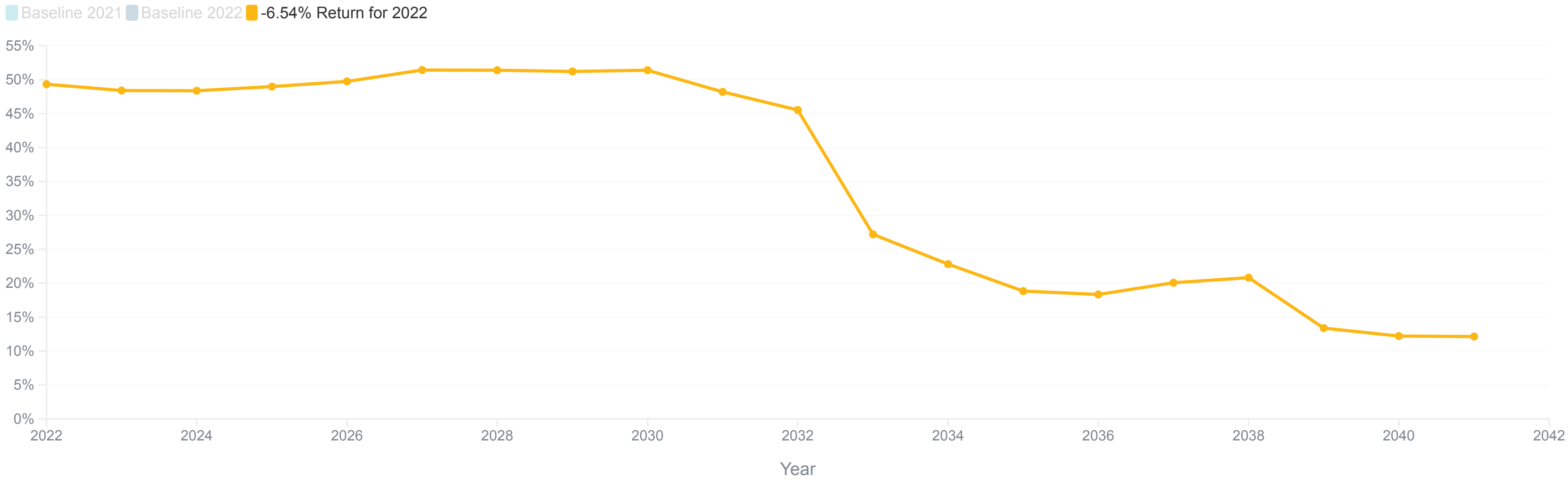
As part of the experience study, we reviewed the medium (10 year) and longer-term (20+ years) expectations for the SJCERA portfolio based on capital market assumptions (CMAs) from Meketa and a survey of other investment consultants (published by Horizon Actuarial Services). The average nominal return assumption was approximately 6.50%, which was a contributing factor in the Board's decision to reduce the return assumption from 7.00% to 6.75%. We expect the 2023 CMAs to be higher than those from 2022 based on changes in market conditions. Therefore, we do not believe any change in the return assumption is necessary or warranted for the January 1, 2023 actuarial valuation.

Expected Nominal Returns (2022 Capital Market Expectations)

The following slides review various projections using the preliminary asset return for 2022 of -6.54%, with no changes to the discount rate or other actuarial assumptions. The liabilities have been rolled forward from the January 1, 2022 actuarial valuation using the current actuarial assumptions. In particular, no adjustment has been made for the impact of pay raises different from those assumed *or* COLAs higher than expected.

This graph shows the projected aggregate employer contribution rates based on the current economic assumptions - assumed returns of 6.75% for years 2023+, inflation at 2.75%, and 3.00% payroll growth - and with a preliminary -6.54% investment loss for 2022.

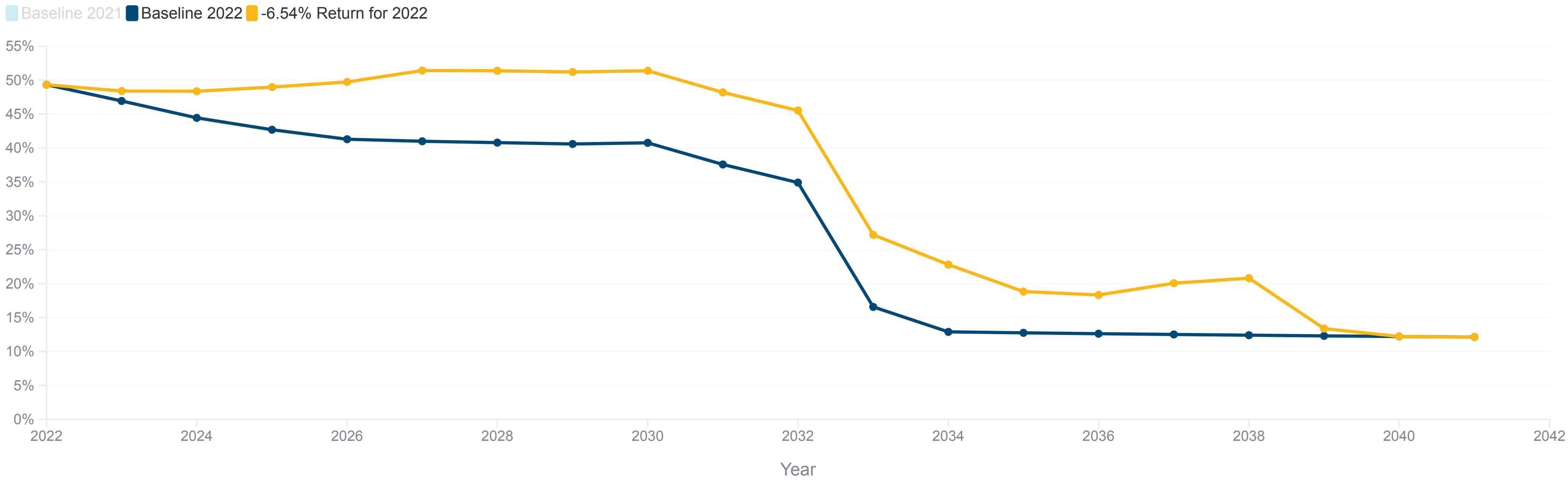
SJCERA



CHEIRON

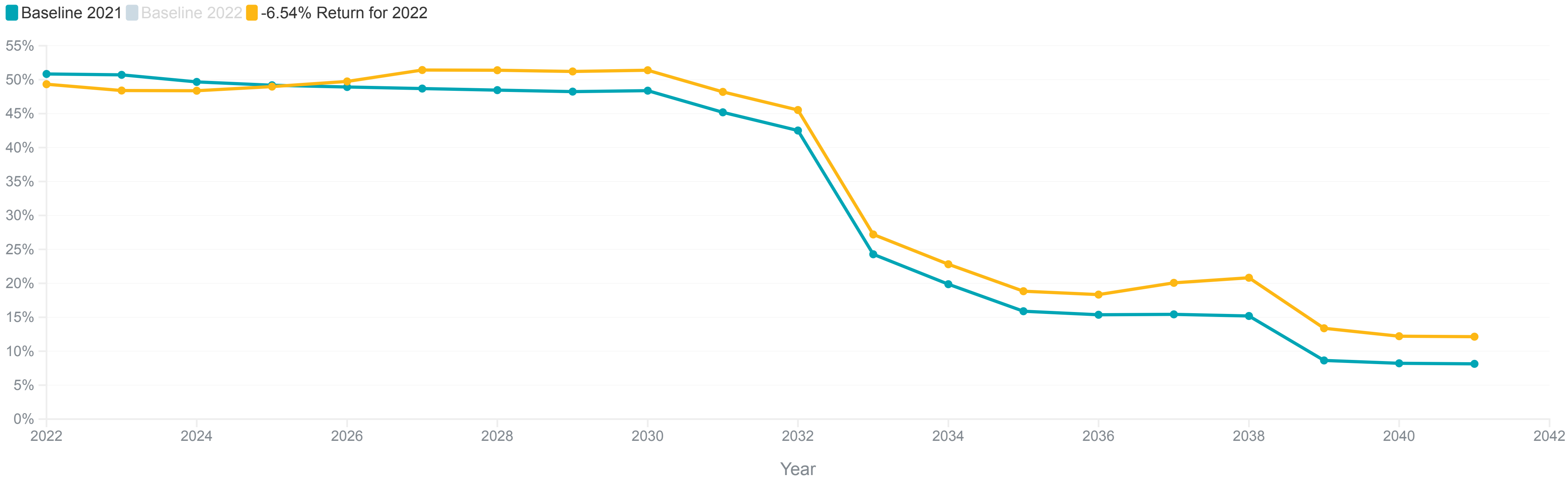
The projected contribution rates are substantially higher than the baseline projected costs from the 2022 AVR (based on a 6.75% assumed return for 2022), due to the investment loss.

SJCERA



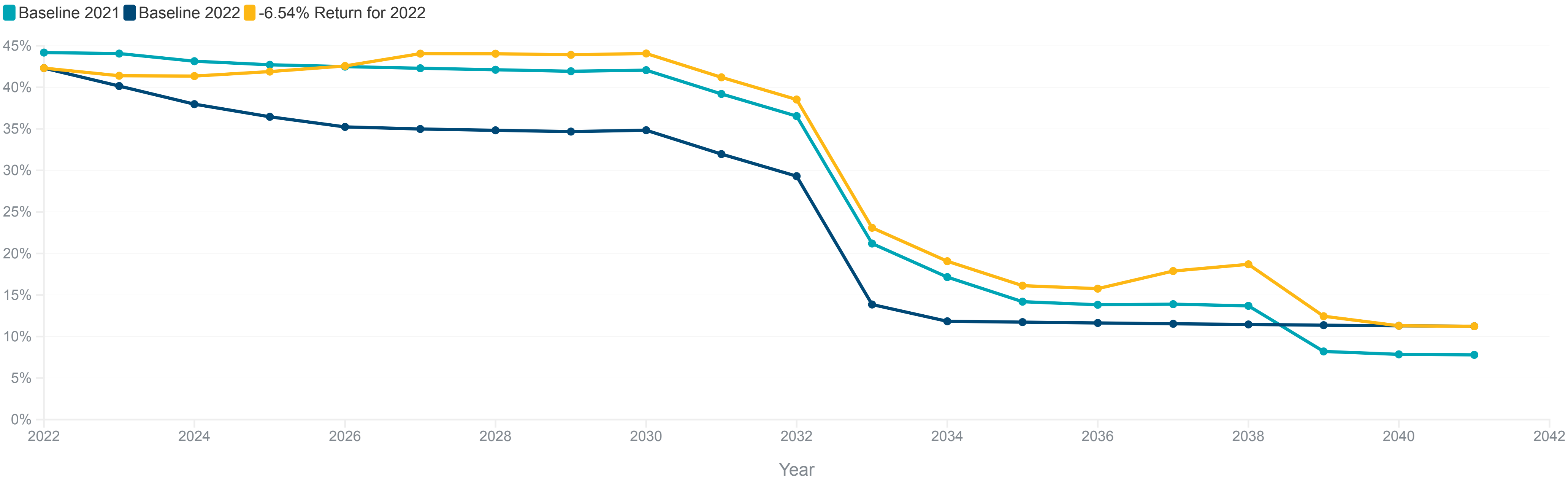
However, they are relatively in line for the next few years with the same projections from the 2021 AVR - which were based on the prior actuarial assumptions, including a discount rate of 7.00% - and then somewhat higher thereafter.

SJCERA



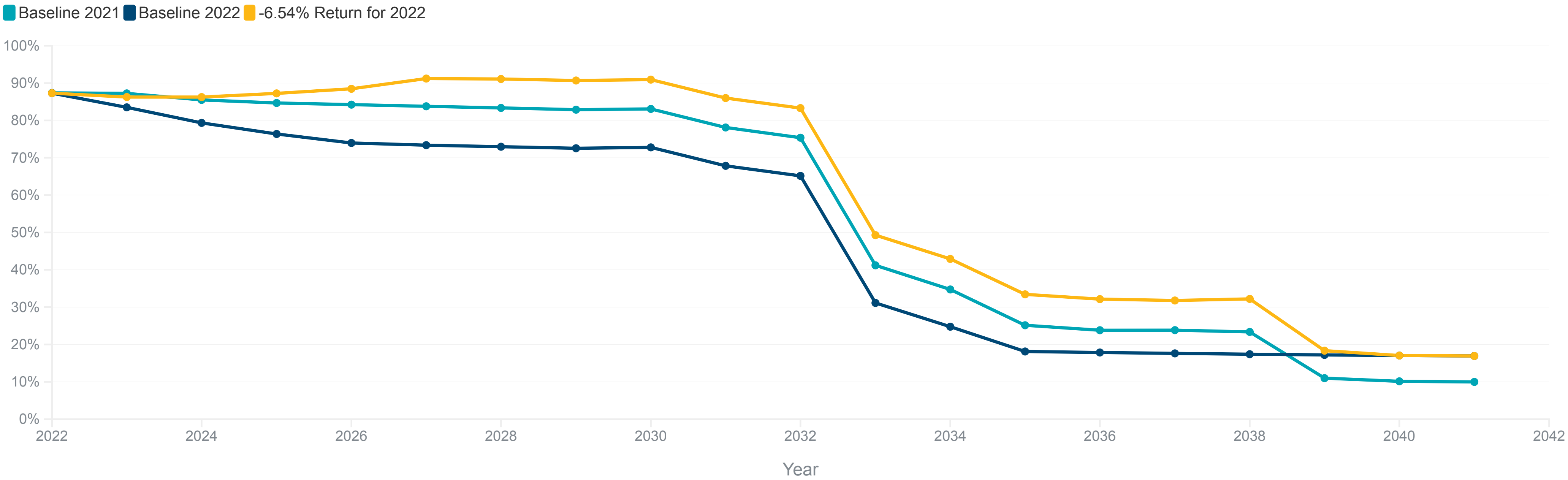
Below is the same comparison for the General employer rates, which reflect a similar pattern

General

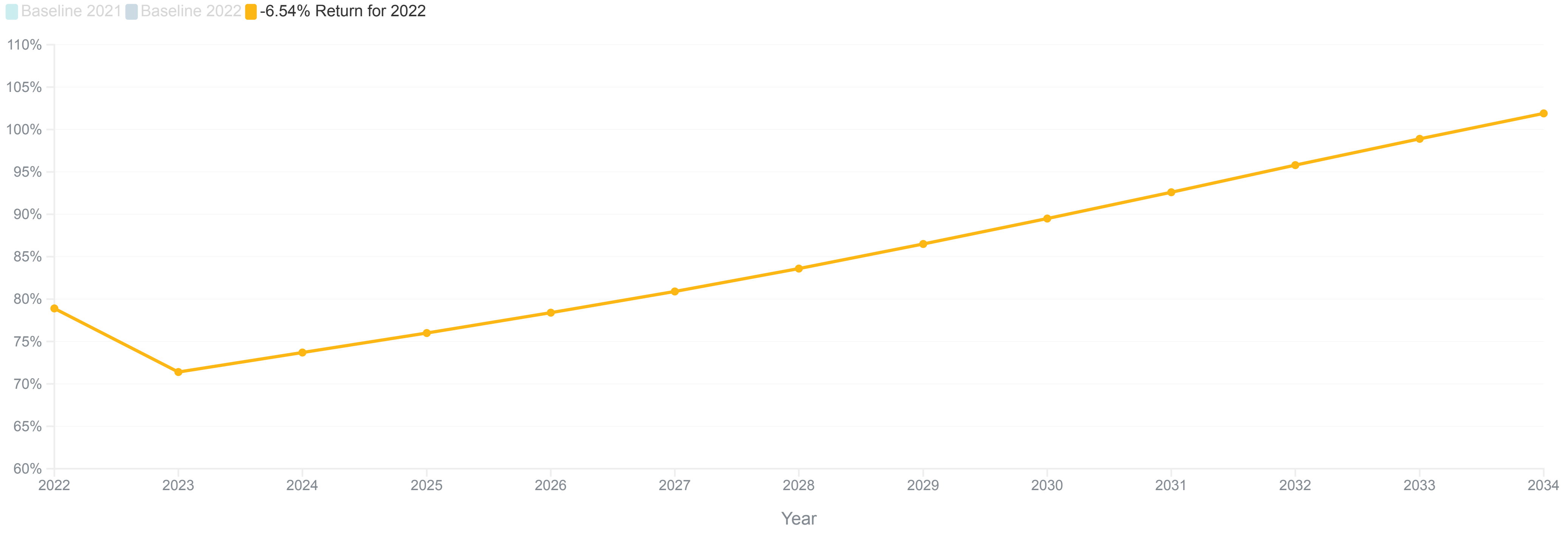


As well as the Safety employer rates.

Safety



Finally, we show the projection of funded status using the **market value** of assets. The baseline projection based on a -6.54% return shows a significant reduction in the funded status between 2022 and 2023, but steady improvement thereafter, assuming the assumptions are met (including a 6.75% return each year). The funded status projections include the value of the additional contribution reserves (made by the County, Courts, and Mosquito District) as of January 1, 2022, but assume no additional contributions thereafter.



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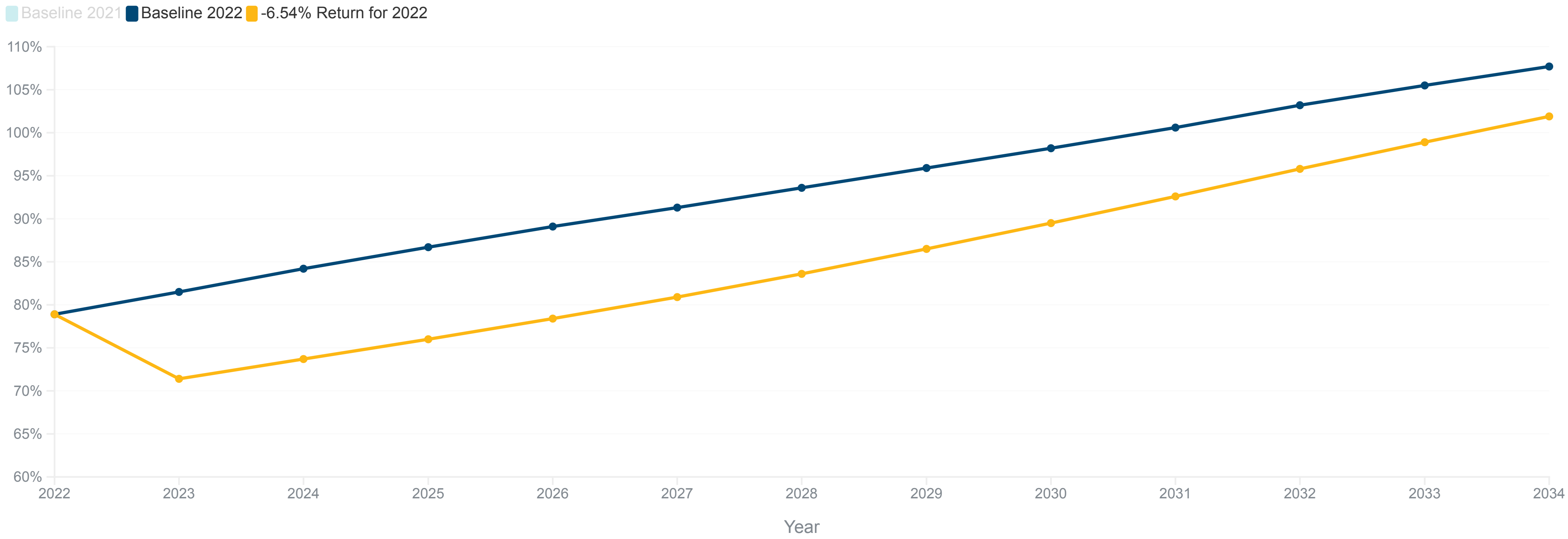
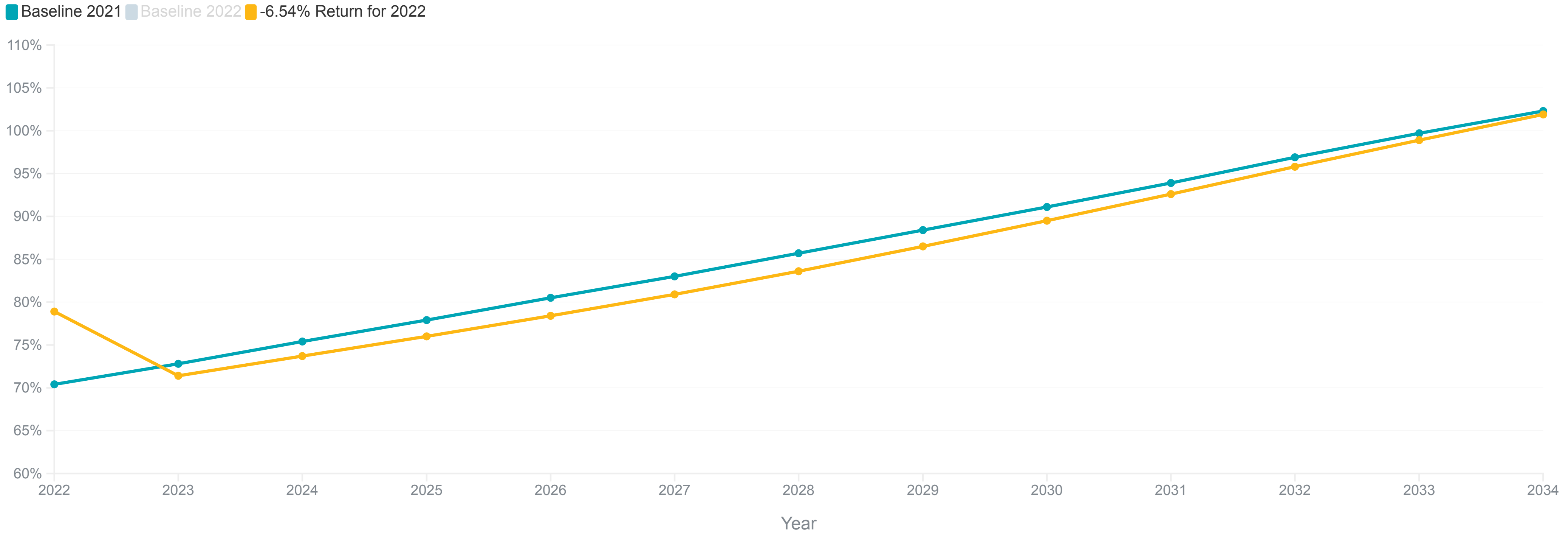
As expected, the funded ratio projection is lower than that from the 2022 AVR, due to the investment loss, which is reflected immediately in the market value of assets and not smoothed in, as it is in the contribution projections.



CHEIRON

But as with the contributions, the current projection of funded status is fairly similar to the projection included in the 2021 AVR, which was based on a 7.00% return assumption.



CHEIRON

SJCERA Consulting Team

Click card for bio or to contact

Graham Schmidt

Anne Harper

Timothy Doyle

Certification

The purpose of this presentation is to present a projection of contributions and funded status for SJCERA based on preliminary market returns for 2022.

In preparing our presentation, we relied on information (some oral and some written) supplied by SJCERA. This information includes, but is not limited to, the Plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23. The data and actuarial assumptions used (unless modified within this communication) are described in our January 1, 2022 actuarial valuation report.

Cheiron utilizes ProVal actuarial valuation software leased from Winklevoss Technologies (WinTech) to calculate liabilities and project benefit payments. We have relied on WinTech as the developer of ProVal. We have a basic understanding of ProVal and have used ProVal in accordance with its original intended purpose. We have not identified any material inconsistencies in assumptions or output of ProVal that would affect this valuation.

Deterministic projections in this presentation were developed using R-scan, a proprietary tool used to illustrate the impact of changes in assumptions, methods, plan provisions, or actual experience (particularly investment experience) on the future financial status of the Plan. R-scan uses standard roll-forward techniques that implicitly assume a stable active population. Because R-scan does not automatically capture how changes in one variable affect all other variables, some scenarios may not be consistent.

To the best of our knowledge, this presentation and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this presentation. This presentation does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

This presentation was prepared for the SJCERA Retirement Board for the purposes described herein. Other users of this presentation are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

2023 CONFERENCES AND EVENTS SCHEDULE

2023 EVENT DATES		EVENT TITLE	EVENT SPONSOR	LOCATION	REG. FEE	WEBLINK FOR MORE INFO	EST. BOARD EDUCATION HOURS
Feb 11	Feb 11	Administrators' Round Table	CALAPRS	Online webinar	$50	calaprs.org	*4
Feb 18	Feb 18	Attorneys Round Table	CALAPRS	Online webinar	$50	calaprs.org	*4
Feb 28	Mar 1	Pension Bridge ESG 2023	With Intelligence	Los Angeles, CA	$0	with.intelligence.com	*14.4
Mar 4	Mar 7	General Assembly 2023	CALAPRS	Monterey, CA	$250	calaprs.org	10.5*
Mar 8	Mar 8	7th Annual Real Estate West Forum	Markets Group	San Francisco, CA	$3000	Invite by email	TBD - Agenda Pending
Mar 29	Mar 31	Advanced Principles of Pension Governance for Trustees	CALAPRS	Los Angeles, CA	$3250	calaprs.org	*9
Apr 17	Apr 19	The Pension Bridge Annual	With Intelligence	San Francisco, CA	$0	with.intelligence.com	*14.4
Apr 29	Apr 29	Trustee Roundtable	CALAPRS	Online webinar	$50	calaprs.org	*4
May 9	May 12	SACRS Spring Conference	SACRS	San Diego, CA	$120	sacrs.org	*11
Jul 16	Jul 19	SACRS/UC Berkeley Program	SACRS	Berkeley, CA	$2500	sacrs.org	*24
Sep 27	Sep 29	Administrators' Institutue 2023	CALAPRS	Carmel-by-the-Sea	TBD	calaprs.org	*14.4
Nov 7	Nov 10	SACRS Fall Conference	SACRS	Rancho Mirage, CA	$120	sacrs.org	*11

** Estimates based on prior agendas*

SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

SUMMARY OF PENDING TRUSTEE AND EXECUTIVE STAFF TRAVEL

2023 Event Dates	Sponsor / Event Description	Location	Traveler(s)	Estimated Cost	BOR Approval Date
Feb 11	CALAPRS Administrators' Round Table	Online	Johanna Shick	$50.00	N/A
Mar 4-7	CALAPRS General Assembly	Monterey	Johanna Shick, JC Weydert	$2,857	N/A
Apr 17-19	The Pension Bridge Annual	San Francisco	Ray McCray	$1,180	Pending
May 9-12	SACRS Spring Conference	San Diego	JC Weydert, Phonxay Keokham	$3,400	N/A

SAN JOAQUIN COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

SUMMARY OF COMPLETED TRUSTEE AND EXECUTIVE STAFF TRAVEL

Event Dates 2023	Sponsor / Event Description	Location	Traveler(s)	Estimated Cost	Actual Cost	Event Report Filed
Jan 17-20	IREI 2023 Visions, insights & Perspectives America	Rancho Palos Verdes, CA	Michael Restuccia	$1,250.00	$1,736.78	2/10/2023
Feb 7	2023 Employee Benefits Update	Webinar	J. Shick	$0	$0	N/A

Board Member	Travel (not including SACRS & CALAPRS)	Dates	Amount used of $2500:	Balance Left of $2500
RESTUCCIA	IREI	1/2023	$1,736.00	$764
BASSETT				
DING				
DUFFY				
GOODMAN				
KEOKHAM				
MCCRAY				
NICHOLAS				
WEYDERT				
MOORE				

From Mike Restuccia

IREI VIP Meeting
Terranea Resort
Rancho Palos Verdes
January 17th through January 20, 2023

The VIP Americas is the flagship event that is anticipated by the industry's top investment managers, investors, and consultants. It is "THE" place to meet the right people.

IREI strives for a ratio of three (3) managers to every one (1) investor to create a balanced environment. This ensures that attendees are able to really engage and get to know one another. Our audience is also capped so that the event is kept at a size that fosters relationship building. The attendance was approximately 450 participants with over 40 more that were not allowed since the balance of investors to money managers would have been out of the mix required. There were over 39 sponsors at various levels.

The Qualified Institutional Investor registration category is reserved for individuals employed by a public, corporate or union pension fund organization, a foundation or endowment, or an insurance company with responsibility for real estate investment strategy or decision-making. A government official is defined as a federal, state, local or city-level government employee focused on the policy making, planning, and/or funding/financing of real estate projects, as well as legislators and their staff. This definition does not include pension/benefit plan administrators.

The beginning theme was Adapt and Overcome. We must adapt to the changing investment environment and how do you overcome. Later in the session a retired Navy Seal discussed the details.

The first session discussed Relationships on a global basis. It was a consensus that relationships have gotten stronger during the pandemic mainly since communications was enhanced since there were a lot of unknowns. Many felt that the relationships have developed into more of a partnership than just a transaction. Best practice is to stay close to the asset and your tenants.

The relationships improved at all levels, employees, employers, tenants’ landlords and others involved in the real estate environment. Landlords have gotten closer to their tenants for a variety of reasons, Some delayed rent payments, reduced space or no issues, all felt the relationships clearly felt like partners. It was felt that relationships have proven to be #1 in the real estate business, strengthening these relationships is important however new relationships still need to be achieved.

The was a discussion of the difference and likeness of operators and allocators. Allocators do just that, allocate funds, operators have more control, more efficient underwriting and other aspects of purchase and sales being quicker.

It was felt that creating innovation HUBS, office, multifamily is needed so that people can work together. It is necessary to make people feel part of that community or hub which will make people want to stay.

Debt and rates are a concern in that it makes values challenging. Currently there is a lot of dry powder, but it is now not for new assets, it is for shoring up current assets. If the asset cannot be shored up, the asset is sold, but the value is challenging in this declining market. It was discussed that banks are less patient in today’s environment than during the GFC, however, many do not have the skills to take over the asset, big concern for lenders.

The recent low rates are not healthy and current rates are more normal and better to compensate for risks. In addition, low leverage is smart today.

It was a consensus that over the next 5 years real estate will be one of the top performing investments. However, do not underwrite today thinking tomorrow will be better, underwrite to make it work today. Government can derail a soft landing since government is broken.

All RE managers looked good the last few years, however, now it is easier to see the lucky from the skilled.

Office sector is experiencing a decline in demand. However, 80% of employees want to get back to the office, if it is close to home, 20% do not want to go back at all. Going back is better for collaboration and mentorship. Younger employees want to go back to learn from the experienced. Many companies will require employees to come back but will be flexible with days and times. However, it is very tricky since it is hard to find employees. In addition, with the high crime rates in the big cities, many employees are scared to go back.

One of the guest speakers identified the top 2023 risks.
Ukraine – War going nowhere, will grind out.
Russia – Is and will continue to target companies. Pipelines, social media electric grids etc.
European money will be used for increased energy costs and take away from other necessary items.
China – Leader is the most powerful person, used to be run by committees, now run by one person. He was given the power in the constitution.
China makes up 19% of the world economy.
Data coming from China is very unreliable, and the leader does not trust private business and is the sole source of information.

Iran – The leader is 83 years old and who will be the new boss? Approximately 75% of the population are young people and think differently than the current leaders.
They are big supporters of Russia, and it is weeks not years away from nukes different than what we are led to believe. This could create big issues for Israel and the US past 2023.

Investment Map shows that the developing world is going through hard times, debt, food, pandemic, rates, exports are down, revenues are down all creating economic risk and may lead to social unrest. Emerging markets ae at highest risk.

Investments Keep risk on, we have been here many times and will get through it, however, many unknowns. Russia, North Korea China and the US are competitors abut need to work together and both need globalization to survive. Since US politics is unknown and especially in 2024 and allies as well as enemies are undecided what to do because a new US leader can be a disruptor. Invest in US and Europe, not Asia and China is not sure. Debt and inflation is and will continue to create investment issues.

Consumer confidence- Better in late 2023. Capital raising has been slow, more time is needed to get the money, there has been a flight to quality and cash flow is king.

China has a lot of debt that they will not be paid, and most is associated with infrastructure.

Infrastructure has many risks, get local experienced partners and be selective not all infrastructure assets have or will have cash flow, don't invest based on appreciation.

Demographics – Over 65 years of age is the fastest growing age group and will be the largest 25-65 years of age makes for a strong rental market and is strong and below 25 years of age is decreasing.

Currently 4-6 million shortfall in single family residences
Multi-family has more supply but a strong demand.
Student housing – supply is down, and demand is up.

Home prices have appreciated, and net wage growth is down which created a worse affordability situation. In addition, starting to see stress in the market based on high rates, refi is costly and owners can't pay the mortgage on variable rate loans. Do not see massive problems since for the most part LTVs are low.

Navigating market downturns – Recession, too much leverage, overvaluations, credit distress. GDP is important since the GDP correlates to RE values.

Leverage – Households hold $19 trillion in debt but have $163 trillion in assets. Job openings are around 10 million strong.

Downturn – Use lessons learned from the past, diversify the portfolio keep vintage year diversification, use zero to low leverage, don't panic, don't time investments and be patient with allocating capital, stay invested.

This cycle, what's different – Higher building costs, high job openings, increased real intertest rates was 2% now 4%, values up based on pumping money into the economy, not fundamentals.

Best markets- Sunbelt, population and job growth, gateway areas not so much.

Need to stress test the investments, train staff, listen to clients, they have ideas you may not think of, swings for singles and doubles, not homeruns.

Brent Gleason is a retired Navy Seal and currently runs a consulting group. The following is what a Seal needs to adopt.
Advise – Adapt and overcome change, resilience, discipline, accountability, get up every time.
All in all the time, Get comfortable being uncomfortable. The easiest day was yesterday, Overcome!!!
I will not fail. Never get out of the fight. Passion movies one forward RAMR
Results
Actions
Mindset
Rituals

What's causing change – Demographics, mentality, RE sectors are changing per demand.

Work from home – Affects on markets will be short term since business want their employees back

As unemployment increases it will be easier to get people back to the office, right now is a challenge since employers are concerned with losing employees and not being able to replace them.
Many employers right now are adopting a hybrid model with flexibility with days in the office and work hours.
Elected officials create most of the problems since most don’t understand the real world which makes them the most dangerous of all dangers.
Global warming, climate change needs to be changed to environmental change, the environment always changes and has for years. M<any say they can but no one can quantify the cost, what are the long term risks if any, and what is the risk at the asset level and location.

Lenders – Capital is available, and spreads are good. Properties are now highly leveraged based on the increase in rates. Lenders are working closely with borrowers. Will get worse and trouble assets will be tough to work out, especially on large $500 million deals. Lenders do not want to own the assets, taking them back is not desirable prefer keeping the borrower engaged. Some lenders are offering to sell their loans at 65% of par. Not a good sign and some are selling. Many buyers think 65% of par is not a large enough discount.

Outlook – 3 to 5 years rates will stay high, and now more want to invest in real estate assets, selectively, both asset class location and country.

Risks – General Partners ability to perform, Energy security, geopolitics, world is in a new cycle, this is resetting the world mindset possibly creating a tipping point.

Be optimistic but realistic, we will have high volatility but will create opportunities. Rest expectations of returns which rates will do that. Many managers will not take on more assets, want resources concentrated on the current portfolio and write-downs will continue through 2023 for sure, maybe longer.

AEW RESEARCH WHITEPAPER | JANUARY 2023

Lower for longer, **no longer.**

Changing Yields, Property Valuations, and Investment Opportunities

AEW

PREPARED BY AEW RESEARCH, JANUARY 2023

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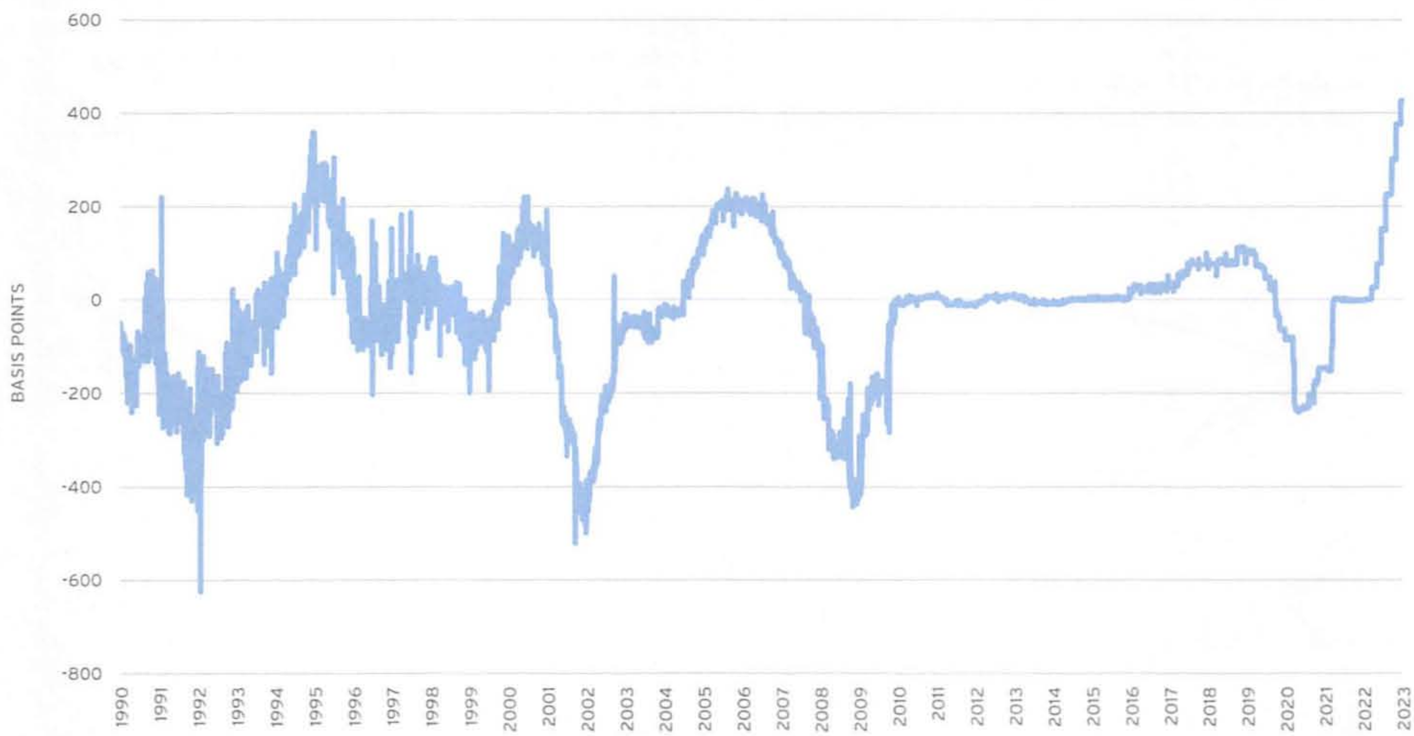
The Federal Reserve spent much of 2022 attempting to convince financial markets of its commitment to controlling inflation, pulling forward the pace of expected interest rate increases and raising the expected so-called "terminal rate" for overnight borrowing at each of the last five monetary policy meetings of the Federal Open Market Committee (FOMC). More importantly the FOMC increased the effective Fed Funds rate by more than 400 basis points in less than one year, the fastest and largest increase in the policy rate since the early 1980s.

Figure 1
Change in Effective Fed Funds Rate Over Past 365 Days



Source: Federal Reserve Bank of St. Louis (FRED)

"

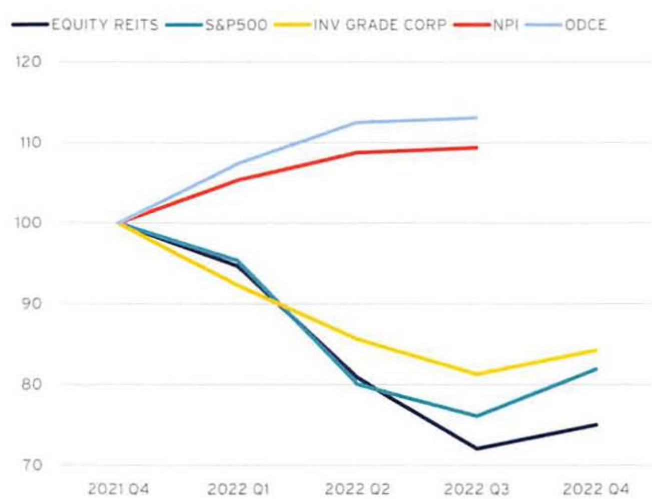
When someone shows you who they are, believe them the first time.

MAYA ANGELOU

This rapid change in the yield environment and its implications for future growth/recession showed up quickly in the value of publicly traded risk assets with stock, bond and REIT prices typically declining 15%-25% during 2022. For its part, private market valuations for property, as represented by the NCREIF Property Index (NPI) or the Open-Ended Diversified Core Equity (ODCE) fund index, have not yet showed any meaningful valuation change.[1]

The lagged response of private equity valuations relative to public markets is not new and is expected; a similar pattern has been observed in prior valuation adjustment periods. For example, during the financial crisis, publicly traded REIT values began declining during 2007 before reaching a trough during the first quarter of 2009. In contrast, NPI valuations did not begin to decline until the second quarter of 2008 and did not reach a cyclical trough until the first quarter 2010, i.e., a four-quarter lag relative to the public REIT market. If history is an indicator, these private and public values tend to meet somewhere in the middle.

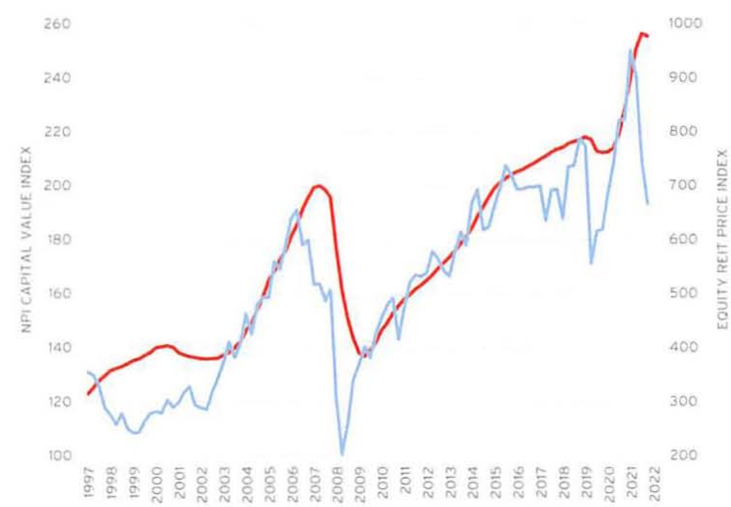
Figure 2
Total Return Index, 2021 Q4 = 100



Source: Factset, NCREIF

[1] NPI and ODCE data currently available only through 2022 Q3

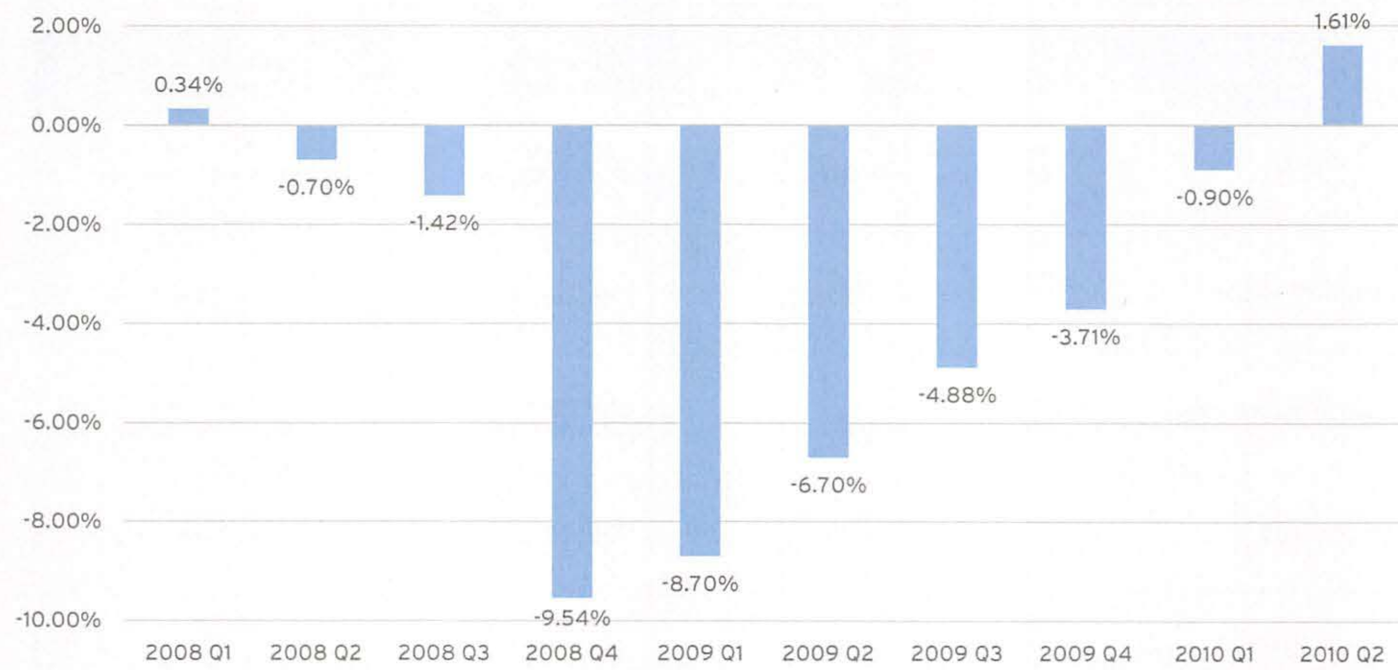
Figure 3
Equity REIT Price Index and NPI Capital Value Index 1977 Q4=100



Source: NCREIF, NAREIT

> **How did you go bankrupt?" Bill asked.**
> **"Two ways," Mike said.**
> **"Gradually and then suddenly."**
>
> **ERNEST HEMINGWAY, THE SUN ALSO RISES**

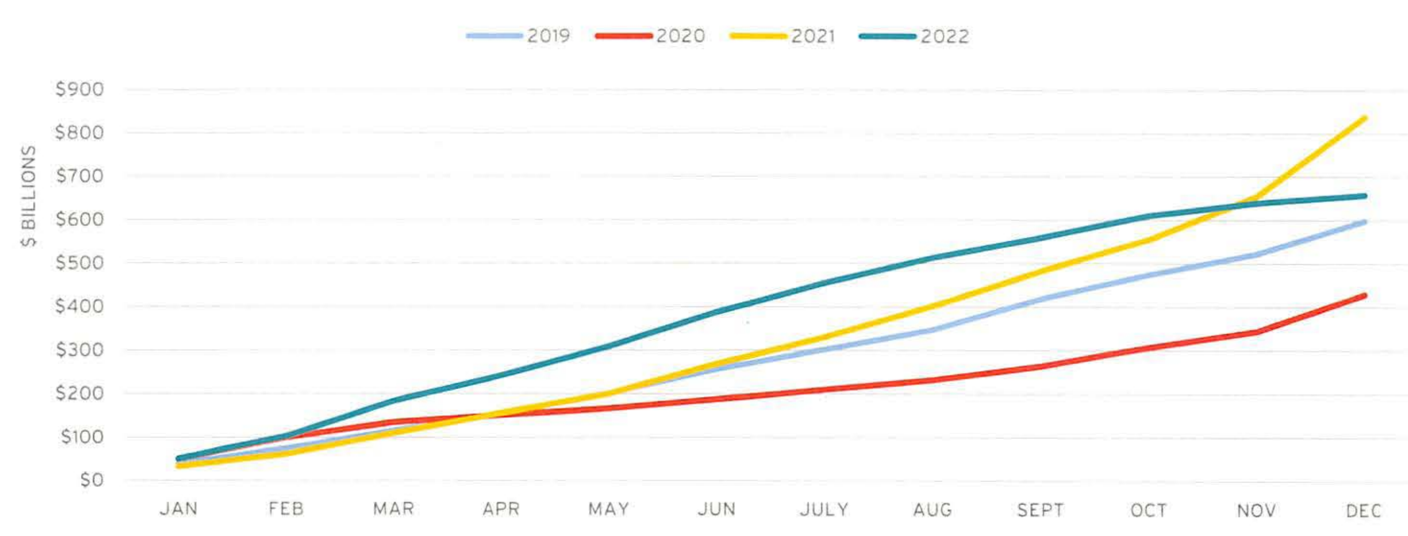
Figure 4
NPI Capital Appreciation During GFC by Quarter



Source: NCREIF

Hemingway's observation regarding the path to bankruptcy, gradually and then suddenly, is also an apt description of the path of asset re-pricing in private markets. Often, it takes several quarters or longer for new market clearing prices to be observed and incorporated in valuations of assets already owned. This process can be elongated in times of limited market liquidity. In 2022, despite beginning the year with a torrid pace in aggregate trading in the nation's property markets (far ahead of the record 2021 pacing), a sharp decline was observed mid-year, largely in response to the disruption of rising interest rates (and credit spreads) on property financing, and the widening of bid-ask spreads that followed.

Figure 5
Cumulative Total Transaction Volume by Year



Source: RCA/MSCI

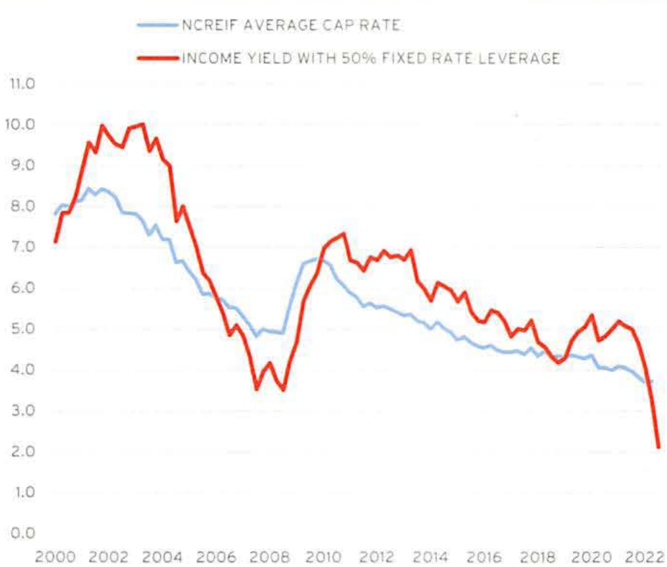
Table 1
Changing CRE Debt Financing Conditions

	TODAY (DEC-2022)	YEAR AGO (DEC-2021)	PRE-PANDEMIC (DEC-2019)
MAX LOAN SIZE (Single Asset)	$125MM Challenging Syndications Market	$250MM+ Healthy Syndications Market	$250MM+ Healthy Syndications Market
MAX LOAN TO VALUE	50%-55% LTV	60%-75% LTV	60%-75% LTV
LOAN NOI UNDERWRITING	Lender's Underwritten NOI	Borrower's Underwritten NOI	Borrower's Underwritten NOI
MIN DSCR REQ.'S	1.20-1.30x (Amort.)	1.10x-1.20x (IO)	1.15x-1.25x (IO)
CREDIT SPREAD OVER UST'S	175-225 bps	120-150 bps	140-170 bps
UST YIELDS (%)	3.60% (5 year) 3.50% (10 year)	1.20% (5 year) 1.45% (10 year)	1.60% (5 year) 1.75% (10 year)
ALL-IN FIXED RATES	5.5%-6.00%	2.50%-3.00%	3.00%-3.50%
AMORTIZATION	5 Years IO (<50% LTV)	10 Years IO (<50% LTV)	10 Years IO (<50% LTV)
ACTIVE LENDERS	Fannie Mae/Freddie Mac Life Companies (Selective) Banks - Regional (Selective) Debt Funds (Opportunistically)	Fannie Mae/Freddie Mac Life Companies Banks CMBS Debt Funds	Fannie Mae/Freddie Mac Life Companies Banks CMBS Debt Funds
CONSTRUCTION LOANS Recourse Requirement	20%-25% Principal Recourse	0%-10% Principal Recourse	0%-15% Principal Recourse
CONSTRUCTION LOANS Credit Spread / Max LTC	300-350 bps / 55% LTC	225-275 bps / 65% LTC	275-325 bps / 65% LTC
DEBT MARKET COMMENTARY	Wider Credit Spreads Limited Liquidity Preferred Property Types Existing Relationships	Unprecedented Liquidity Fierce Lender Competition Risk On Approach Historically Low All-In Rates	Ample Liquidity Healthy Competition All Product Types and Strategies

Source: AEW Capital Markets

Table 1 highlights some of the most salient changes that have occurred in property market lending over the past year and relative to conditions prior to COVID. Perhaps the most important change over the past year is the dramatic rise in all-in fixed interest rates facing borrowers today from the extremely low borrowing costs of 2.5% to 3.0% during the depths of the pandemic to rates approaching or exceeding 6% today, albeit at far lower loan volumes to-date. With the typical property in the NCREIF Property Index currently valued at a current yield (cap rate) of less than 4%, current borrowing costs well above the income yield simply do not work for many property investments at current valuations, unless the property fundamentals allow for underwriting significant future growth in property income.

Figure 6
NPI Average Cap Rate and Leveraged Income Yield



Source: NCREIF, American Council of Life Insurers (ACLI)

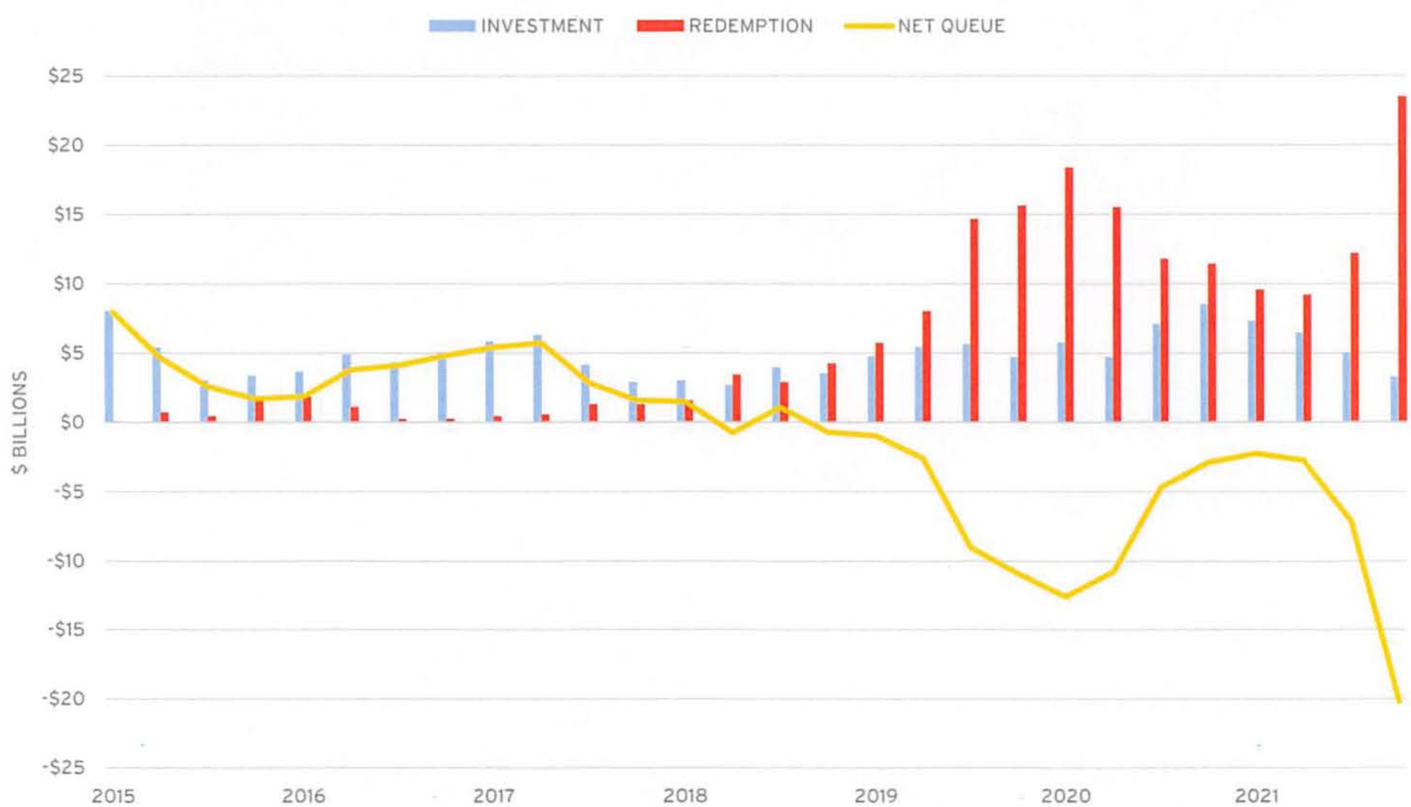
The disconnect between borrowing costs and valuation yields has, of course, occurred before. During the Global Financial Crisis of 2007-2009, leverage also turned negatively accretive and, in response, property yields were forced higher - despite the Federal Reserve aggressively cutting interest rates and injecting liquidity into the financial system. Today, this same force weighs on property valuations but with significant differences. First, the U.S. economy contracted sharply during 2008, losing roughly nine million jobs during 2008 and 2009 and greatly contracting property demand, while today, the U.S. economy is not yet in broad recession. Second, and perhaps most importantly, the Federal Reserve is aggressively raising interest rates and draining liquidity. Clearly, the yield on currently held properties (and, by extension, on properties that will trade in a re-priced market) will likely continue to rise over the course of 2023 with the usual uncertainties of how much, how fast and the degree to which increasing yields will come from rising property income (NOI) or declining property values. With the U.S. economy seemingly on the verge of a period of significantly slower economic growth or outright recession, the lion's share of any rise in yields, in the short-term, will likely come largely from property value decline.

Provide Liquidity, Don't Demand It

Invest/Hold Re-Pricing Properties

Periods of asset re-pricing and credit market dislocation are usually accompanied by elevated demand for liquidity. Today, for example, we see growing queues from core funds with estimated aggregate redemption requests of $20 billion - $25 billion relative to total asset value of approximately $280 billion. Satisfying redemption requests obviously becomes more difficult as the queue of new investment capital shrinks and transaction volume wanes.

Figure 7
Estimated ODCE Funds Investment/Redemption Queue



Source: Various

Following each of the past three periods of asset re-pricing, however, core property has produced outsized total return. Post-trough periods are typically characterized by economic recovery and loosening of credit market conditions, which support improving property market fundamentals and asset valuations, often from a position of higher initial yield. While policy makers today are tightening credit conditions and attempting to slow economic growth, there will come a point where policy pivots towards injecting liquidity and encouraging growth; previously, investing into that pivot has been well rewarded.

Table 2

ODCE Total Return in Periods Following Trough Quarter of Value Decline by Cycle

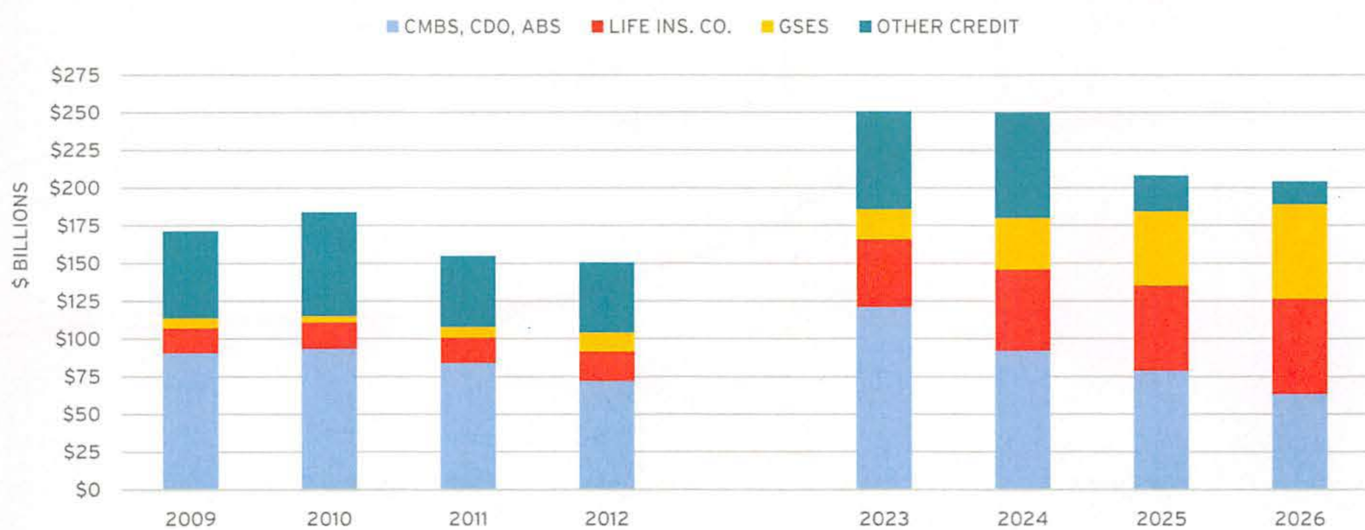
	PEAK TO TROUGH DECLINE IN VALUE	CUMULATIVE TOTAL RETURN AFTER TROUGH		
		1 YEAR	3 YEAR	5 YEAR
EARLY 1990s	-35.2%	12.6%	45.2%	84.1%
TECH CRASH	-5.4%	7.8%	41.5%	92.6%
GFC	-44.0%	19.0%	48.3%	87.9%

Source: NCREIF

Near-term downward pressure on property values will also put additional stress on the refinancing of maturing property loans over the next several years. Approximately $250 billion of non-bank commercial property loans will mature during each of 2023 and 2024, roughly $100 billion per year more than matured in the years immediately following the financial crisis. While multifamily loans dominated origination during 2018 and 2019, there were also roughly $200 billion of office, retail and hotel loans originated over each year.

Figure 8

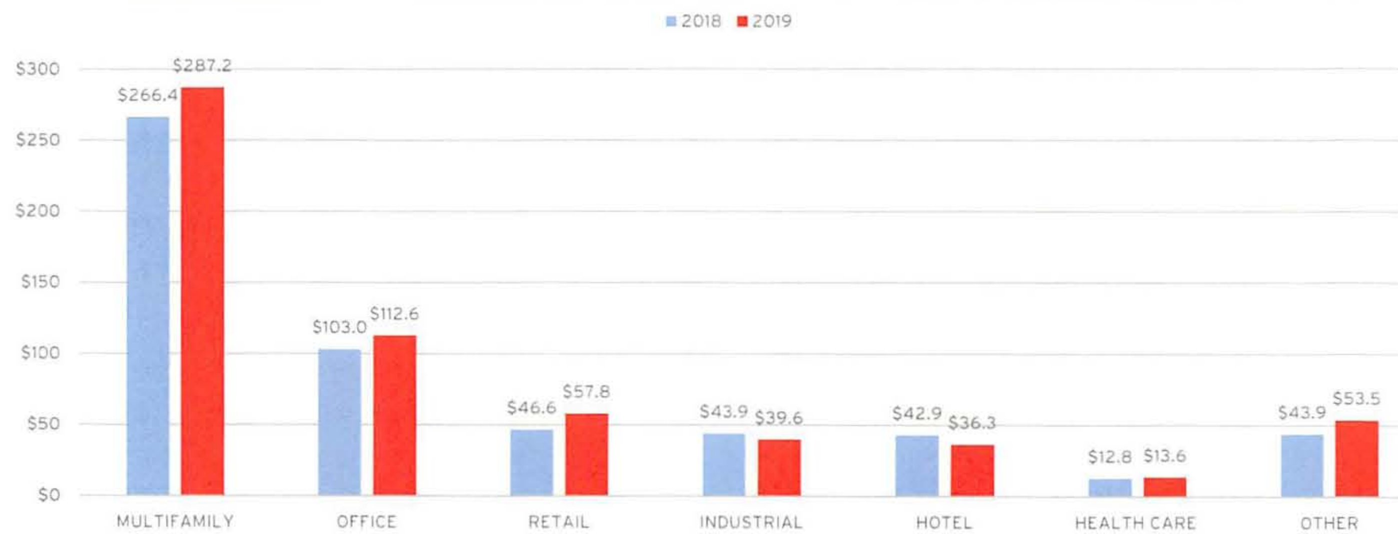
Non-Bank Loan Maturities by Originator



Source: Mortgage Bankers Association

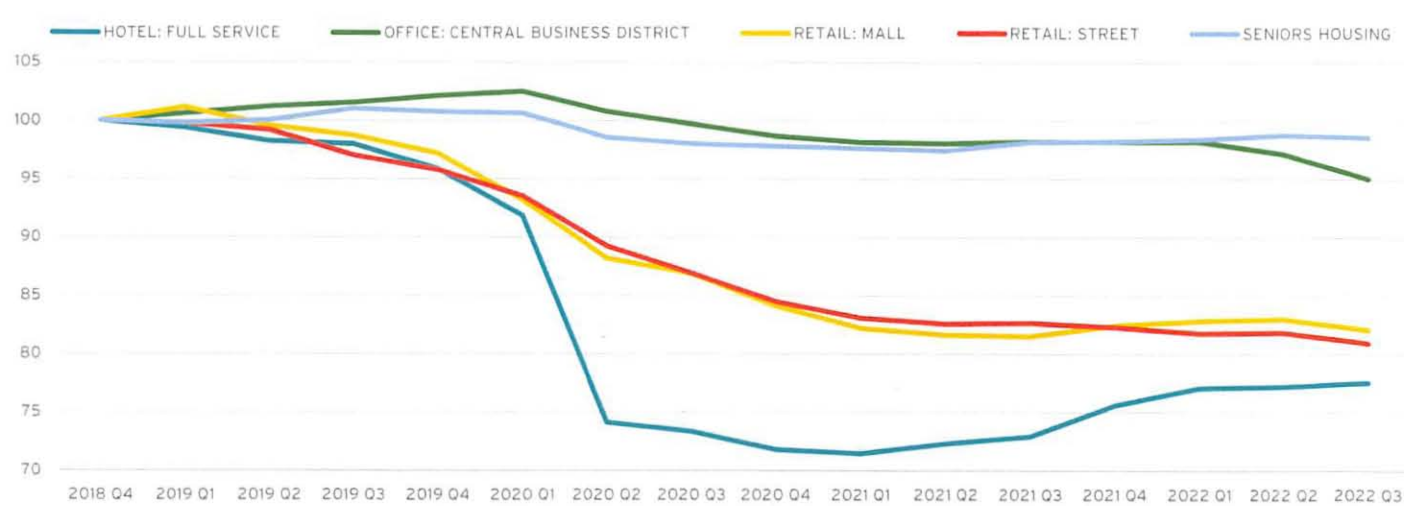
Maturing property loans that originated in the years immediately preceding the pandemic will be particularly difficult to refinance if property values have declined over that period. While the average apartment property valuation in the NCREIF universe has increased more than 20% since 2018 and the average industrial property is up more than 75%, several key property sectors have suffered broad valuation declines led by hotels and retail properties. This problem is compounded by tighter lending criteria regarding metrics such as loan to value, debt service coverage and debt yield. Many of these properties will require some combination of so-called rescue capital - fresh equity, senior financing, or mezzanine lending. Recent estimates suggest the near-term capital need for the office property sector alone to be more than $50 billion over the next two years with commensurate capital needs for other property sectors relative to their earlier loan origination volume and valuation changes since origination. [2]

Figure 9
2018-2019 Loan Origination by Property Type



Source: Mortgage Bankers Association

Figure 10
Average Change in Capital Value, 2018 Q4 = 100



Source: NCREIF

[2] NPI and ODCE data currently available only through 2022 Q3

CONCLUSION

“What happens after what comes next?

WATTS WACKER[3]

While the near-term will be largely characterized by challenging capital structures requiring new debt and equity solutions (i.e., rescue capital) with commensurately higher returns, the longer run investment environment following the current period may prove even more beneficial. Many investors, plan sponsors especially, have struggled over the past decade with an investment landscape defined by low or negative nominal and real yields. Following the financial crisis, central banks across the globe collectively distorted the cost of capital in pursuit of varying and likely worthy goals of financial system stabilization, economic growth, pandemic relief, and so on. If today's coordinated normalization of yields, ostensibly in pursuit of price stability, ultimately gives way to a new normal of positive real sovereign yields, most investors could benefit greatly, in the mid- to longer term. If so, it may once again be possible to deploy capital (debt and equity) at compelling returns with less risk, and potentially without additional layers of leverage. This suggests a new, and likely prolonged period of senior and subordinate lending opportunities with higher yields, the prospect of fresh equity investment into mis-priced equity risk and, eventually, re-priced core property.

FOR MORE INFORMATION, PLEASE CONTACT:

AEW RESEARCH

+1.617.261.9000

AEW.COM

[3] Wacker, Watts and Taylor James. "The 500 Year Delta: What Happens After What Comes Next". Harperbusiness (1997).

INSTITUTIONAL REAL ESTATE, INC.

IREI'S CALENDAR OF IN-PERSON EVENTS

Below is a list of the upcoming in-person events IREI has planned. Please note this list is subject to change.

- 2023 Visions, Insights & Perspectives Americas: January 17-19 (Rancho Palos Verdes, CA)
- Americas Spring Editorial Advisory Board Meeting: April 18-20 (Massachusetts)
- Visions, Insights & Perspectives Infrastructure: June 6-8 (Austin, TX)
- Real Assets Adviser Editorial Advisory Board Meeting: July (TBD)
- Americas Fall Editorial Advisory Board Meeting: September 12-14 (SoCal)
- Europe Editorial Advisory Board Meeting: September 27-29 (Portugal)
- 2023 IREI Springboard: October 4-6 (Park City, UT)
- Asia Pacific Editorial Advisory Board Meeting: October 24-26 (Seoul)
- iREOC Annual Membership Meeting: November (Austin, TX)
- Institutional Investing in Infrastructure (i3) Editorial Advisory Board Meeting: November 29-December 1 (SoCal)
- 2024 Visions, Insights & Perspectives Americas: January 22-24 (SoCal)

IREI'S Q1 AMERICAS VIRTUAL ROUNDTABLES

Below is a list of the Americas virtual roundtables IREI has planned for Q1_2023.

- Friday February 17th from 10am - 11am PST
- Friday February 24th from 10am - 11am PST
- Friday March 3rd from 10am - 11am PST
- Friday March 10th from 10am - 11am PST
- Friday March 17th from 10am - 11am PST
- Friday March 24th from 10am - 11am PST
- Friday March 31st from 10am - 11am PST

VIP Americas Assigned Tables

First row in front of stage

1 to 7

14 to 8

15 to 21

28 to 22

29 to 35

36 to 42

49 to 43

VIP AMERICAS
VISIONS INSIGHTS & PERSPECTIVES
Institutional Real Estate, Inc.

Welcome back to 2023 VIP Americas

INSTITUTIONAL REAL ESTATE, INC.

Welcome back

John McClelland

Board Member, Institutional Real Estate, Inc.

Today’s AM Agenda – January 19

8:00am: Beyond multifamily: Compare and contrast alternative-housing strategies

8:45am: Navigating market downturns

9:30am: Keynote: Brent Gleeson

10:15am: Break

10:45am: Keynote Roundtable Group Discussion

11:15am: Keynote Group Leader Reports

12:00pm: Defining quality markets of the future

12:45pm: Lunch

people data insights

Today's PM Agenda – January 19

1:45pm: 360 View of a REOC Programmatic Investment Program

2:30pm: Lenders' perspectives: Economy, markets, and sectors

3:15pm: Networking Break

3:45pm: Global capital-flow trends: Portfolio rebalancing and denominator effect

4:30pm: Investor Advisory Board Wrap Up

4:45pm: Wrap Up & Closing Remarks

5:30pm: Adjourn

6:30pm: Networking Reception

7:30pm: Gala Dinner

Beyond multifamily: Compare and contrast alternative-housing strategies

Moderator:

Ben Mohns – Senior Managing Director, Head of Asset Management, North America, Harrison Street

Panelists:

Colleen Keating – CEO, FirstKey Homes

David Rose – Chief Investment Officer Student Living, CA Ventures

Brian Sunday, – Managing Director, Senior Portfolio Manager, AEW Capital Management

Navigating market downturns

Moderator:

John McClelland – Board Member, Institutional Real Estate, Inc.

Panelists:

Sonny Kalsi – Co-CEO, BentallGreenOak
Jack Koch – Partner, Park Madison Partners
Soultana P. Reigle – Managing Director, PGIM Real Estate
Mark G. Roberts – Director of Research, Crow Holdings

Introducing This Year's Keynote Speaker:

Faris Mansour
Managing Director
PGIM Real Estate

Networking Break

10:15 – 10:45am

Foyer

Keynote Roundtable Discussions

Loretta Clodfelter
Senior Editor, *Institutional Real Estate Americas*
Institutional Real Estate, Inc.

Group Leader Role

Is to be a facilitator and help focus the discussion

Group Leader Role

You'll find copies of the instructions and topic question options in the center of your tables.

Group Leader Role

- Keep conversation moving
- Keep discussion focused and on assigned questions
- Keep the conversation
  - Flowing
  - Balanced between participants
  - Free from marketing

Group Leader Role

If your table does not have a group leader, pick someone.

Group Leader Role

After reading the instructions, if you still need assistance, please raise your hand and a member of our team will provide guidance.

Roundtable Timeline

10:45am: Overview of Roundtable set-up; table member introductions and review of topic options

10:50am: Tables decide on topic and begin discussion

11:10am: Tables begin to write up their group's findings

11:15am: Group Leader Reports

12:00pm: Defining quality markets of the future

Roundtable Discussions: Group Leader Reports

Moderators:

Loretta Clodfelter

Senior Editor, *Institutional Real Estate Americas*

Institutional Real Estate, Inc.

Chase McWhorter

Managing Director, Americas and Infrastructure

Institutional Real Estate, Inc.

Notes on Group Leader Reports

- We will randomly select group leaders and will call as many as we can
- Group leaders will have 3-5 minutes to share their tables' findings
- You may invite others at your table to speak if they are eager to do so; however, you still only have 3-5 minutes total
- We are not looking for a summary of your answers
- Rather, we want to hear insight (s) from your discussions that you think the audience will find interesting and valuable

Keynote roundtable topics

- Adapt & Overcome: Change Management
- Tying It All Together
- Resilience

Defining quality markets of the future

Moderator:

Loretta Clodfelter – Senior Editor, *Institutional Real Estate Americas*, Institutional Real Estate, Inc.

Panelists:

Emi Adachhi – Director of North America Research and Global Co-Head of Research Operations, Heitman

John Chang – Senior VP, National Director of Research Services, Marcus & Millichap Real Estate Investment Services

Chae Hong – Partner, Townsend Advisory Group

VIP AMERICAS
VISIONS INSIGHTS & PERSPECTIVES
Institutional Real Estate, Inc.

Lunch at Palos Verdes Terrace

INSTITUTIONAL REAL ESTATE, INC.

360 View of a REOC Programmatic Investment Program

Moderator:

Chase McWhorter – Managing Director, Americas & Infrastructure, Institutional Real Estate, Inc.

Panelists:

Russell Dixon – Chairman & CEO, RedHill Realty Investment

Scott Stuckman – Executive Managing Director, USAA Real Estate

Jonathan Van Gorp – Managing Director, Makena Capital Management, LLC

Lenders’ perspectives: Economy, markets and sectors

Moderator:

Loretta Clodfelter – Senior Editor, *Institutional Real Estate Americas*, Institutional Real Estate, Inc.

Panelists:

Ronnie Gul – Principal, Mesa West Capital

Daniel Heflin – Founding Partner & Co-CIO, Torchlight Investors

Mitch Pleis – Portfolio Manager, California State Teachers’ Retirement System

Carolyn Powell – Managing Director, PCCP, LLC

Networking Break

3:15 – 3:45 pm

Foyer

Global capital-flow trends: Portfolio rebalancing and denominator effect

Moderator:

Tom Parker – Executive Vice President and Publisher, Institutional Real Estate, Inc.

Panelists:

Indraneel Karlekar – Global Head of Research & Strategy, Principal Asset Management

Thomas Mueller-Borja – Managing Director, BlackRock

Eduardo Park – Investment Officer, Los Angeles City Employees Retirement System

Investor Advisory Board Wrap Up

Moderator:

Loretta Clodfelter – Senior Editor, *Institutional Real Estate Americas*, Institutional Real Estate, Inc.

Panelists:

Chae Hong – Partner, Townsend Advisory Group

Paul Mouchakkaa – Senior Managing Director, Head of Real Estate, Alberta Investment Management Corporation

Alison Yager – Partner, Global Leader Real Estate, Mercer

It’s a Wrap: Thank You!

Chase McWhorter

Managing Director, Americas and Infrastructure

Institutional Real Estate, Inc.

John McClelland

Board Member

Institutional Real Estate, Inc.

Tom Parker

Executive Vice President and Publisher

Institutional Real Estate, Inc.

Tonight's Activities

6:30pm:	Networking Reception, *Palos Verdes Terrace*
7:30pm:	Gala Dinner, *Palos Verdes Ballroom*

VIP | VISIONS INSIGHTS & PERSPECTIVES
AMERICAS | Institutional Real Estate, Inc.

Thank you!

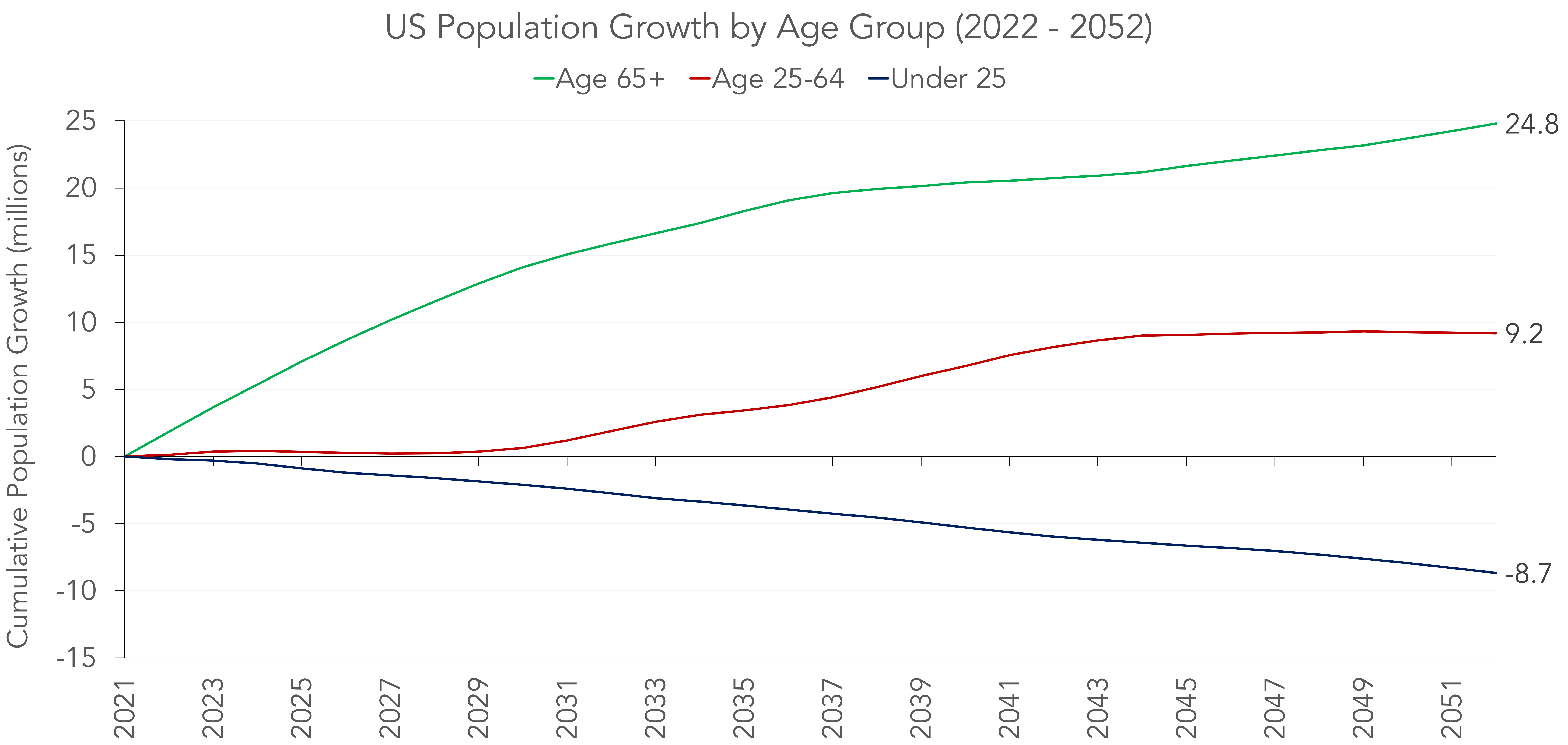
We look forward to seeing you at VIP Americas 2024, January 22-24 in SoCal!

INSTITUTIONAL REAL ESTATE, INC.

Beyond Multifamily: Compare and Contrast Alternative-Housing Strategies

Ben Mohns
Senior Managing Director
Head of Asset Management, North America
Harrison Street

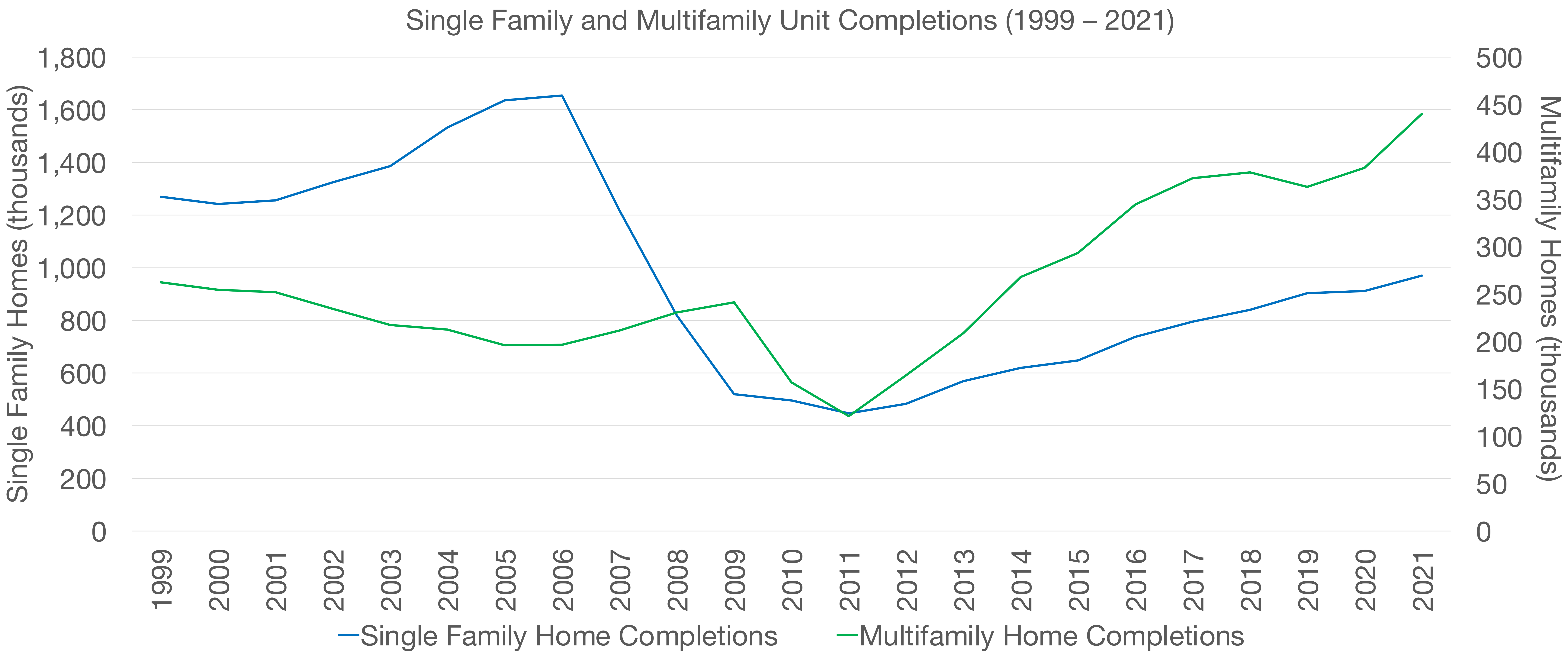
US Demographic Trends



Source: Moody's Analytics, Census, Harrison Street Research.

No Post-GFC Recovery for Single Family Home Completions

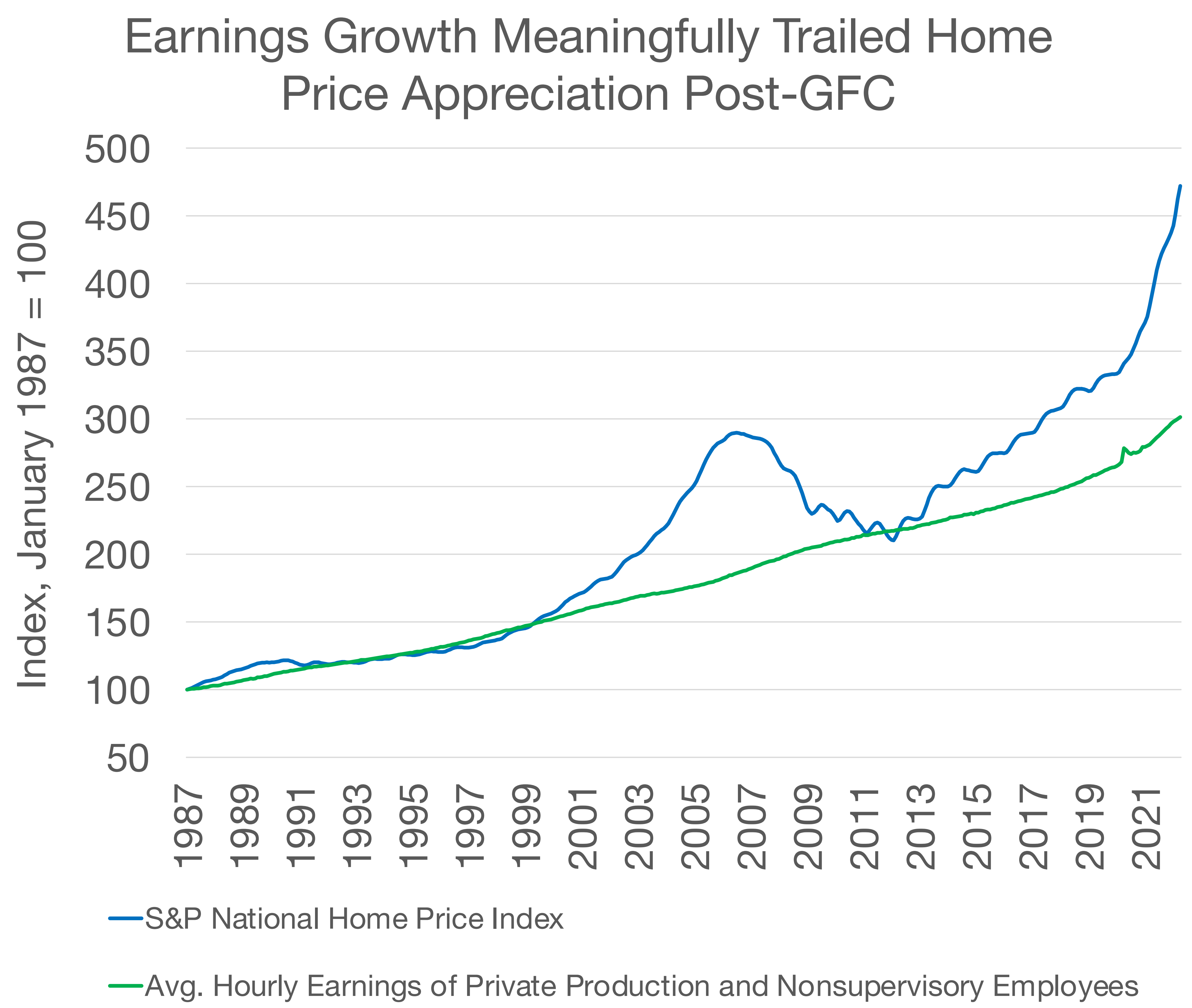
New supply of single-family homes remained low in the wake of the Great Financial Crisis ("GFC"), driving home prices up faster than wage growth. Conversely, multifamily supply growth rebounded sharply.

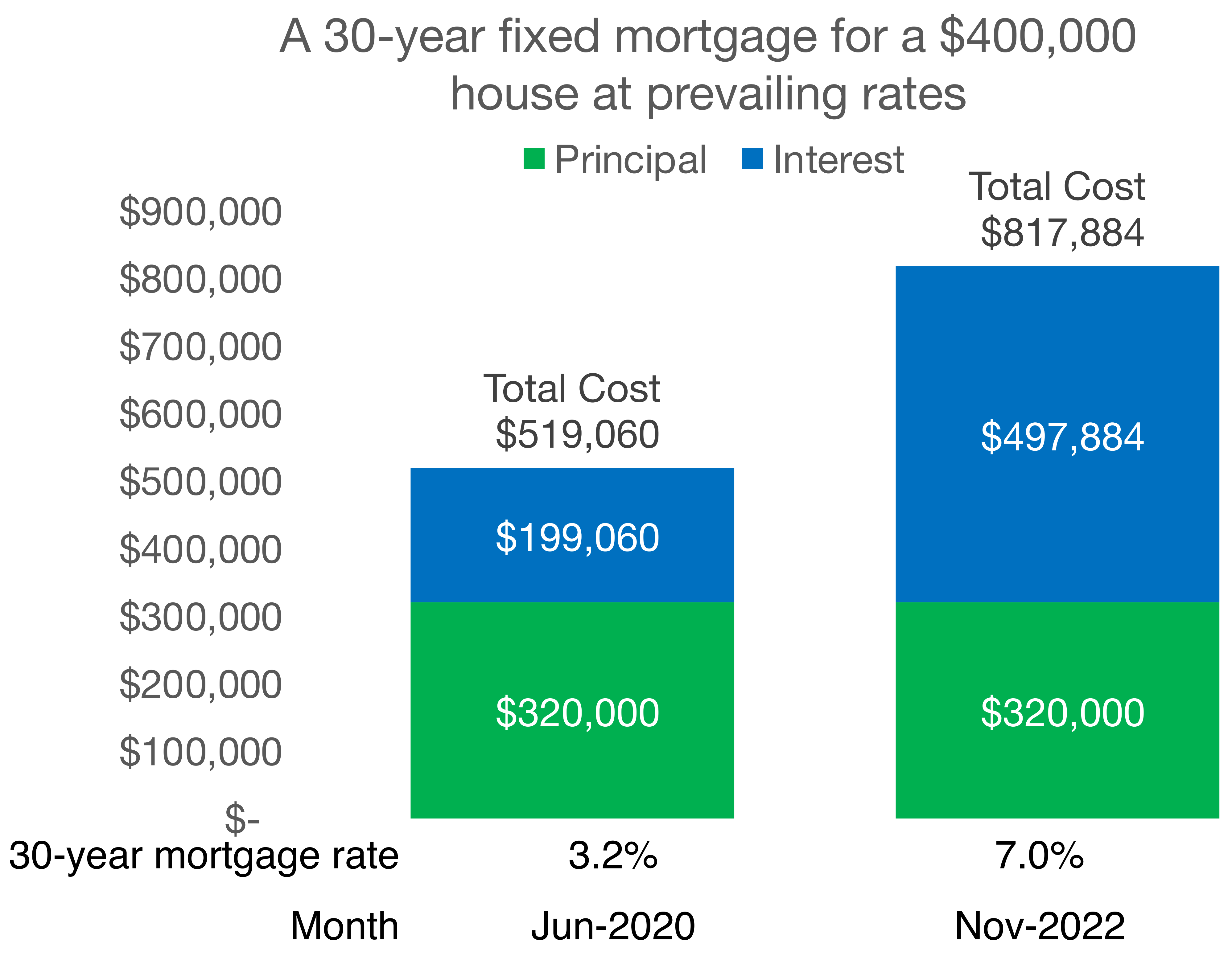


US Census Bureau, 2022.

Single Family Home Price Appreciation Outpaced Wage Growth Before Mortgage Rates Jumped

While the Federal Reserve is focused on arresting high inflation with higher interest rates, the sharp rise in mortgage rates has substantially reduced home affordability.



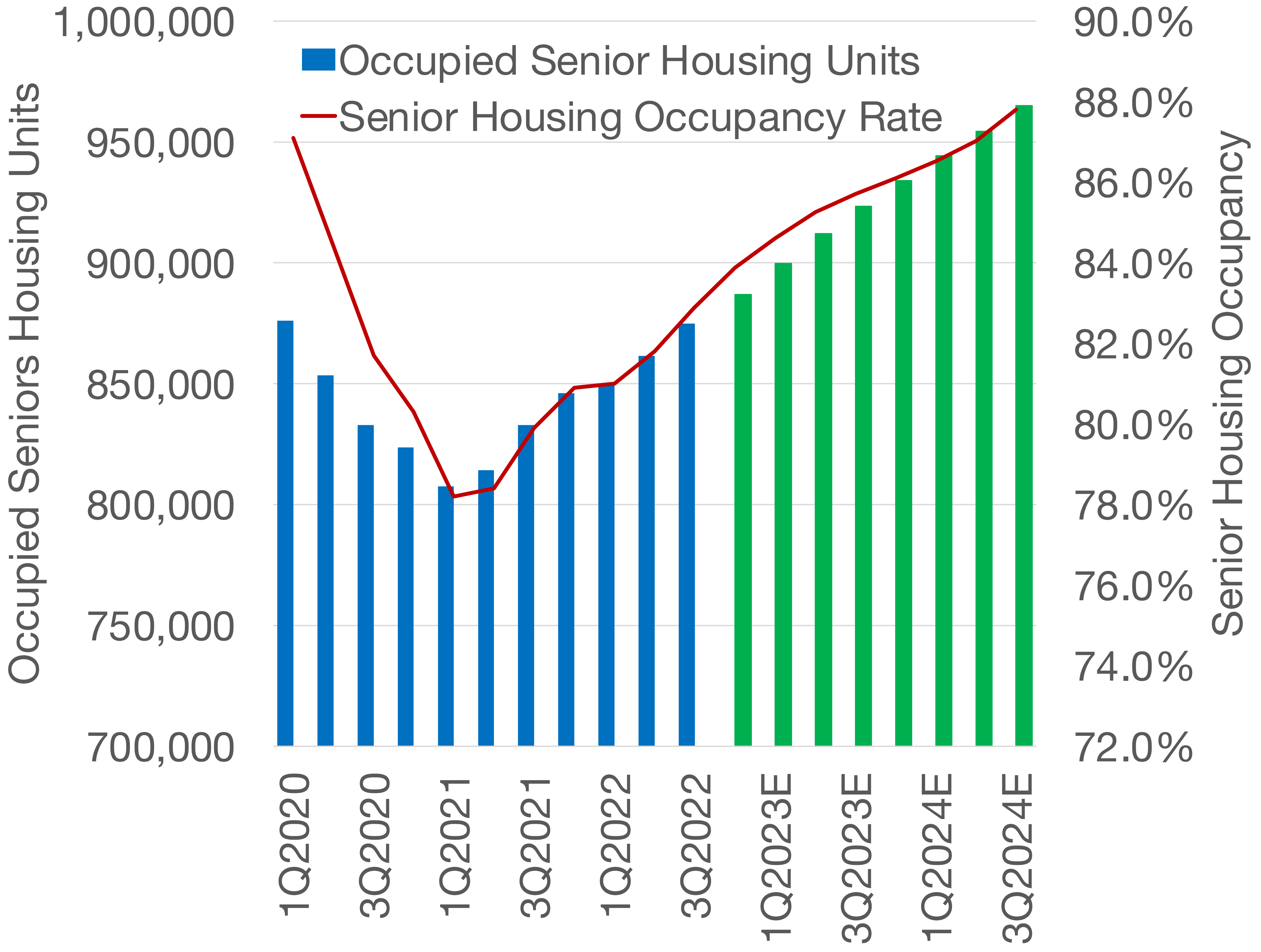


US Census Bureau, 2022. Federal Reserve St. Louis (FRED), BLS, S&P Dow Jones Indices LLC, July 2022.

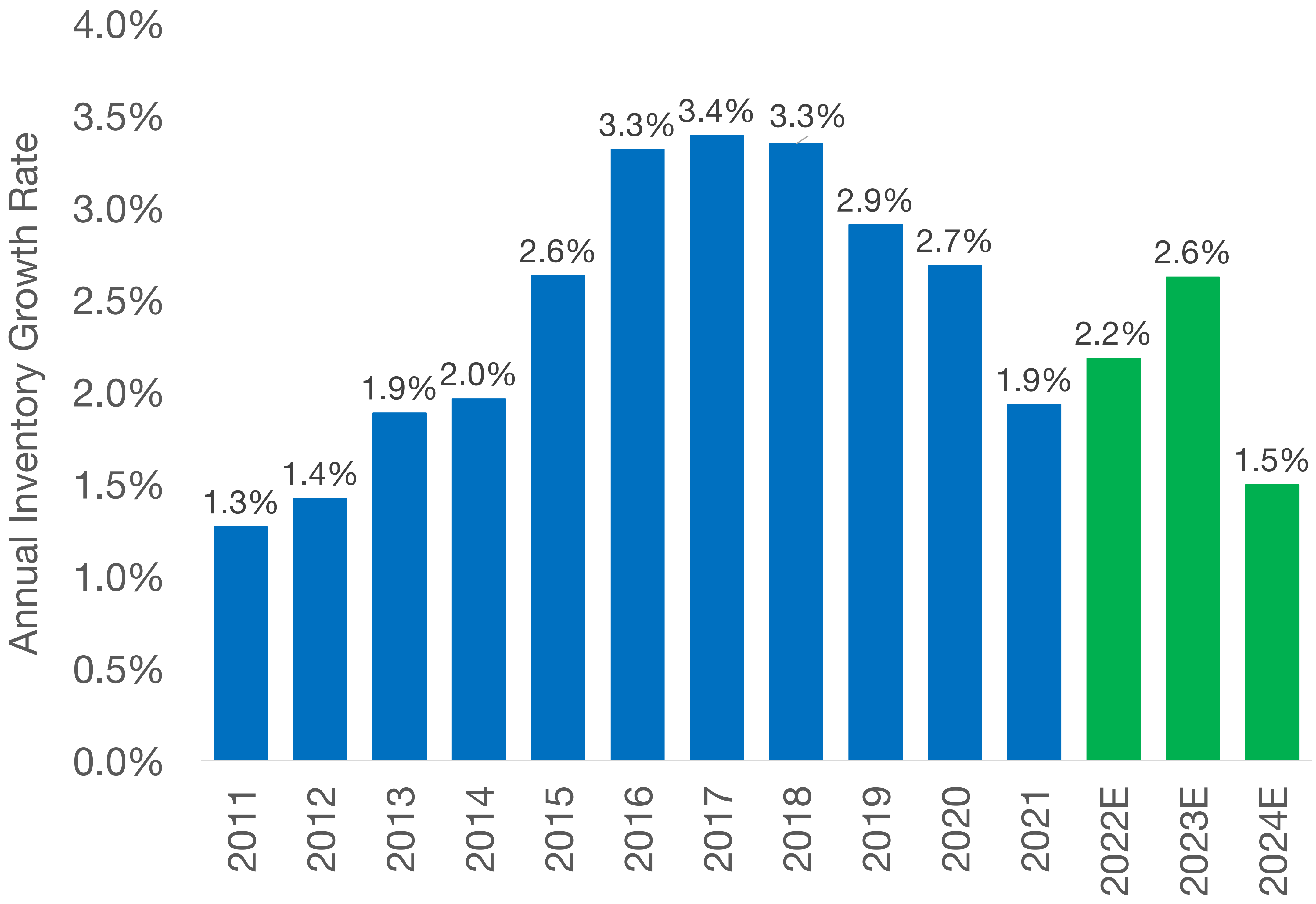
Senior Housing Fundamentals

- The "V-shaped" recovery in senior housing demonstrates the resiliency of needs-based support for an aging population.
- A challenging development environment has restricted supply growth for the next 18 – 24 months.

Demand recovery underway, spurred by the aging population, exhibiting a V-shaped recovery.



Senior Housing supply growth has been suppressed by restrictive lending environment



NIC MAP Vision, Moody's Analytics, Harrison Street Research.

Student Housing

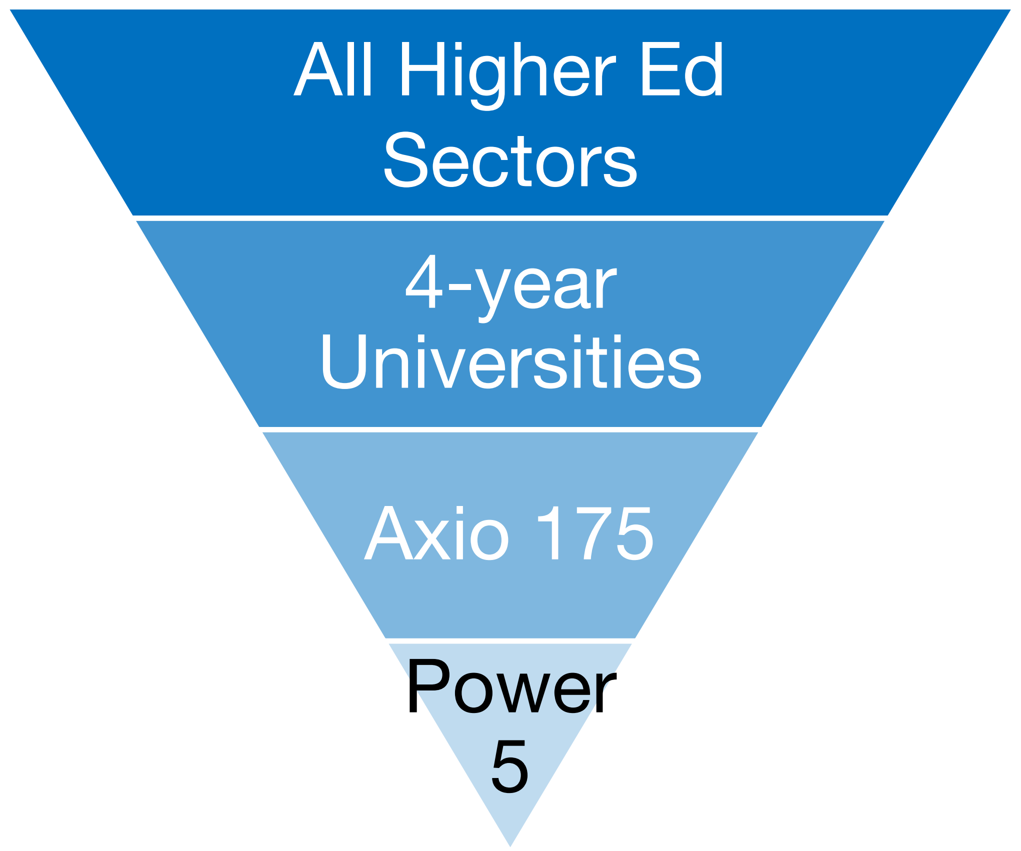
Purpose-Built Student Housing Universe Primarily Top Tier Schools with Growing Enrollment

- All US Higher Ed Sectors (5,500+ schools); enrollment **fell ~2.5% YoY**
- 4-year Universities (2,600+ schools); enrollment **fell ~3.0% YoY**
- Axio 175 (~175 selective 4-year universities); enrollment **up ~1.1% YoY**
- Power 5: 64 top tier 4-year universities in the ACC, SEC, Big 10, Big 12, and Pac 12 athletic conferences; enrollment **up ~2.6% YoY**

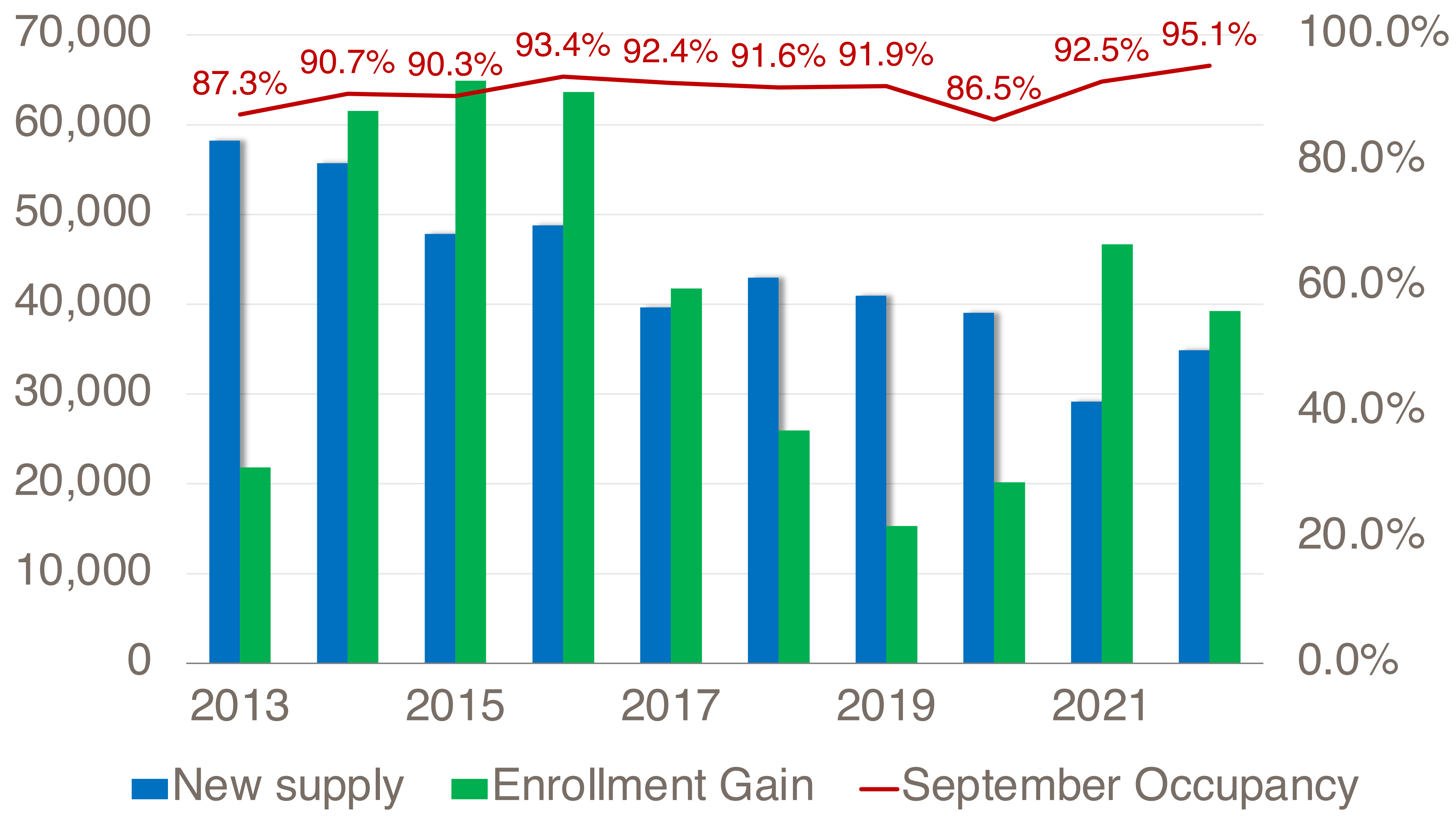
Enrollment Gains Outpace New Supply

- Enrollment gains at Axio 175 universities outpace new supply in 2021 and 2022; supply projected to remain below historic levels in coming years
- Muted deliveries in 2021 and 2022 have buoyed fundamentals

STUDENT HOUSING UNIVERSE



ENROLLMENT GAINS VS NEW SUPPLY



Sources: National Student Clearinghouse, IPEDS, Realpage Axiometrics, college and university websites, College Board; enrollment YoY changes and tuition are for Academic Year 2021/22

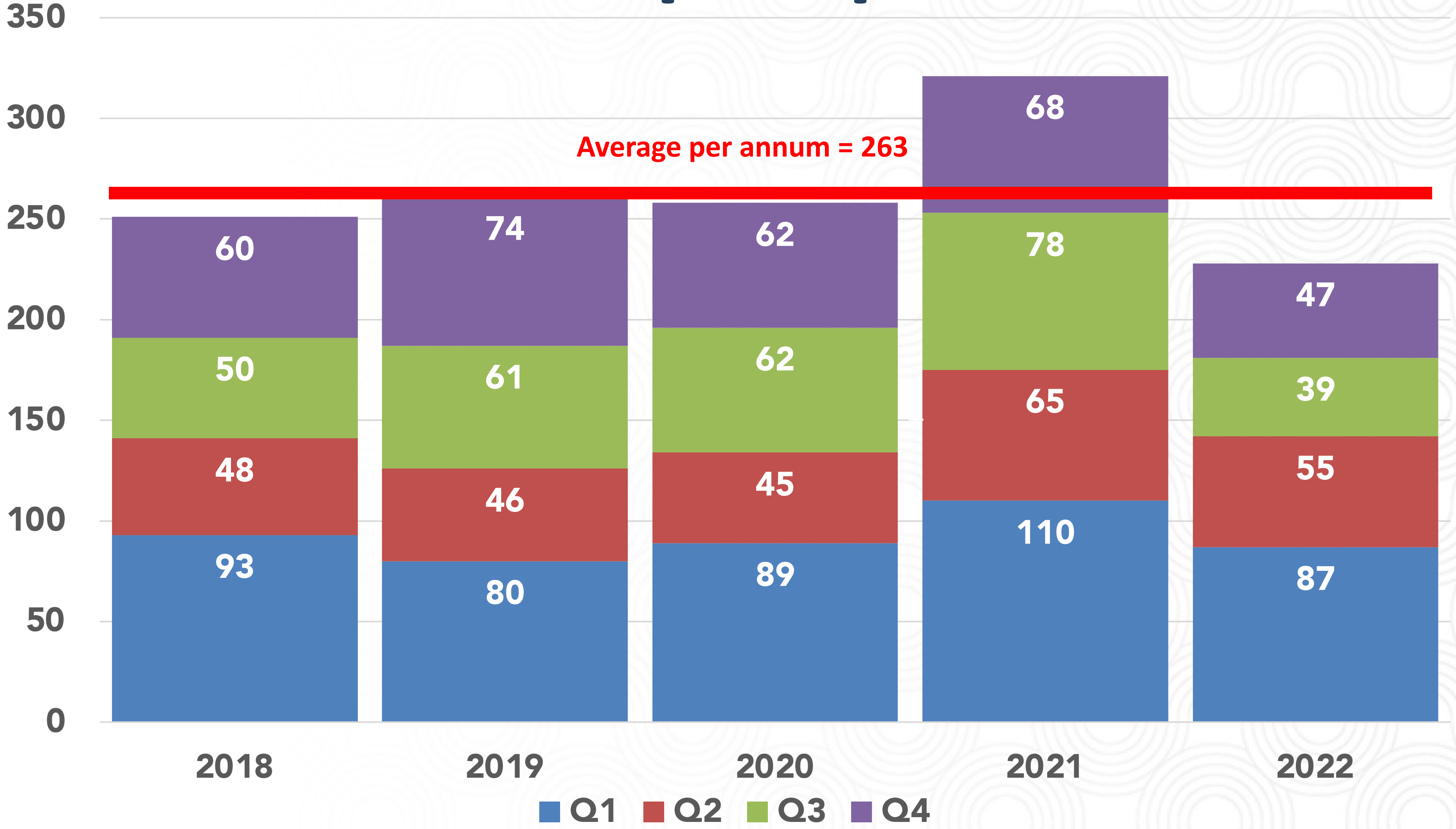
Thank you!

IREI.Q DATABASE

Closed-end fund offerings and capital fund raising update

Tom Parker
Executive Vice President and Publisher
Institutional Real Estate, Inc.

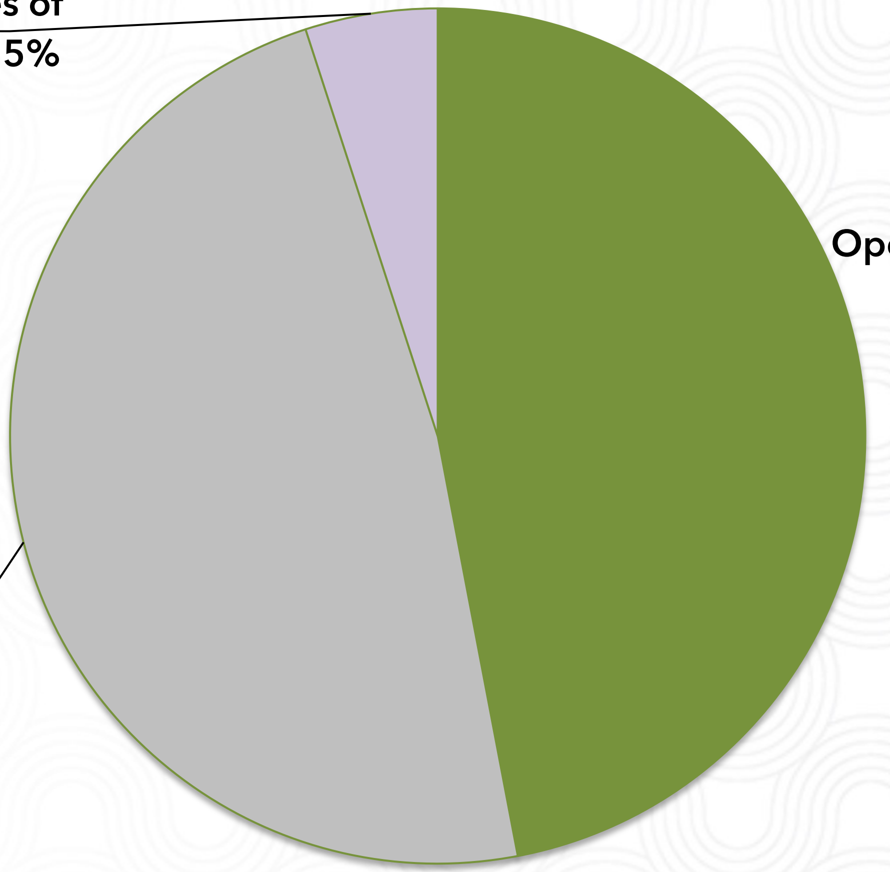
Number of investment programs launched per quarter



Source: Institutional Real Estate, Inc. IREI.Q Database

Investment offerings currently in the market

BY TYPE OF OFFERING



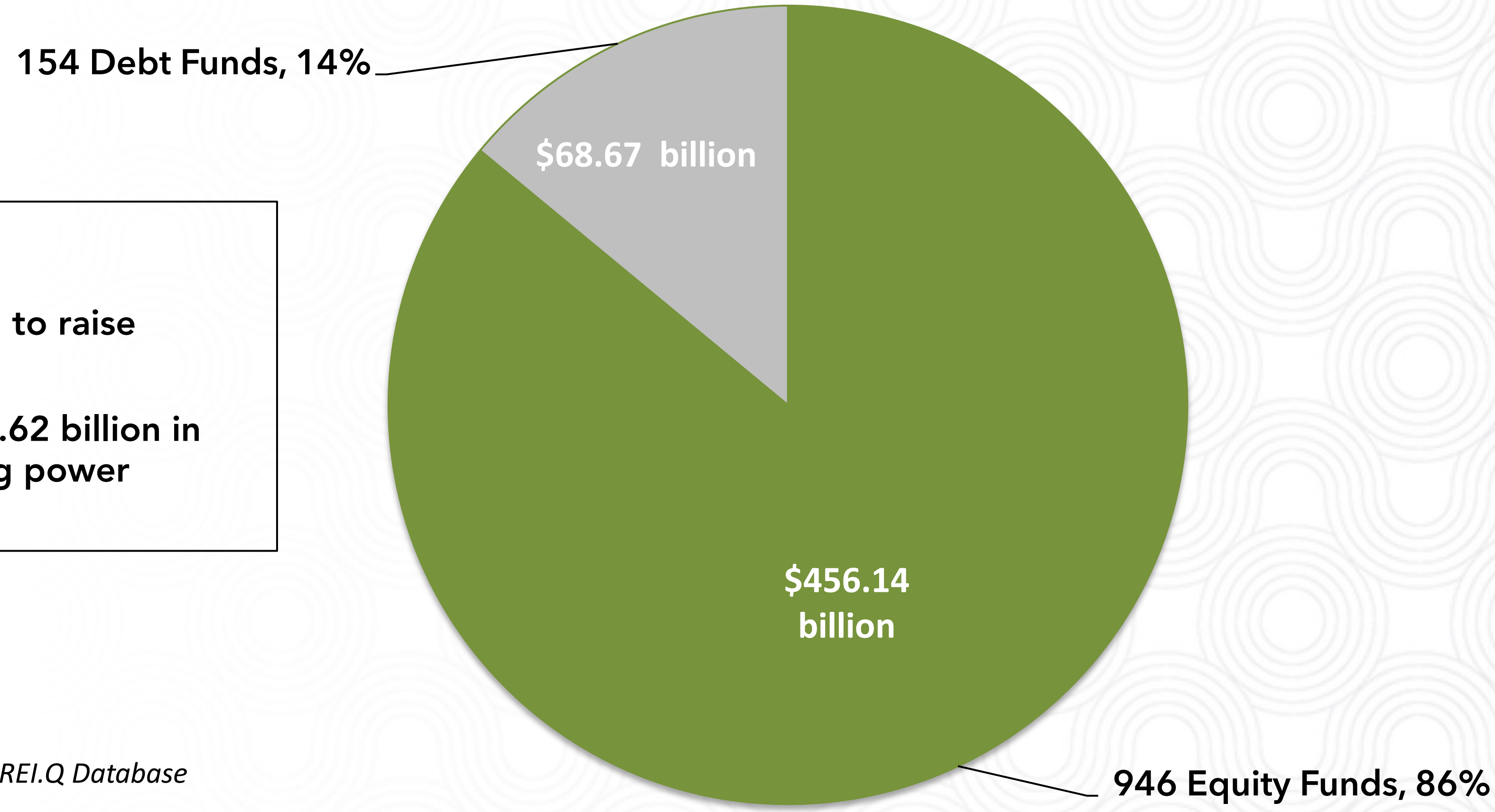
- 1,100 Offerings
- Collectively seeking to raise $524.81 billion
- Equivalent to: $692.62 billion in potential purchasing power

Source: Institutional Real Estate, Inc. IREI.Q Database

Closed-end fund holding periods: 3-8 years
Open-end fund holding periods: 8-10+ years

Investment offerings currently in the market

BY TYPE OF OFFERING

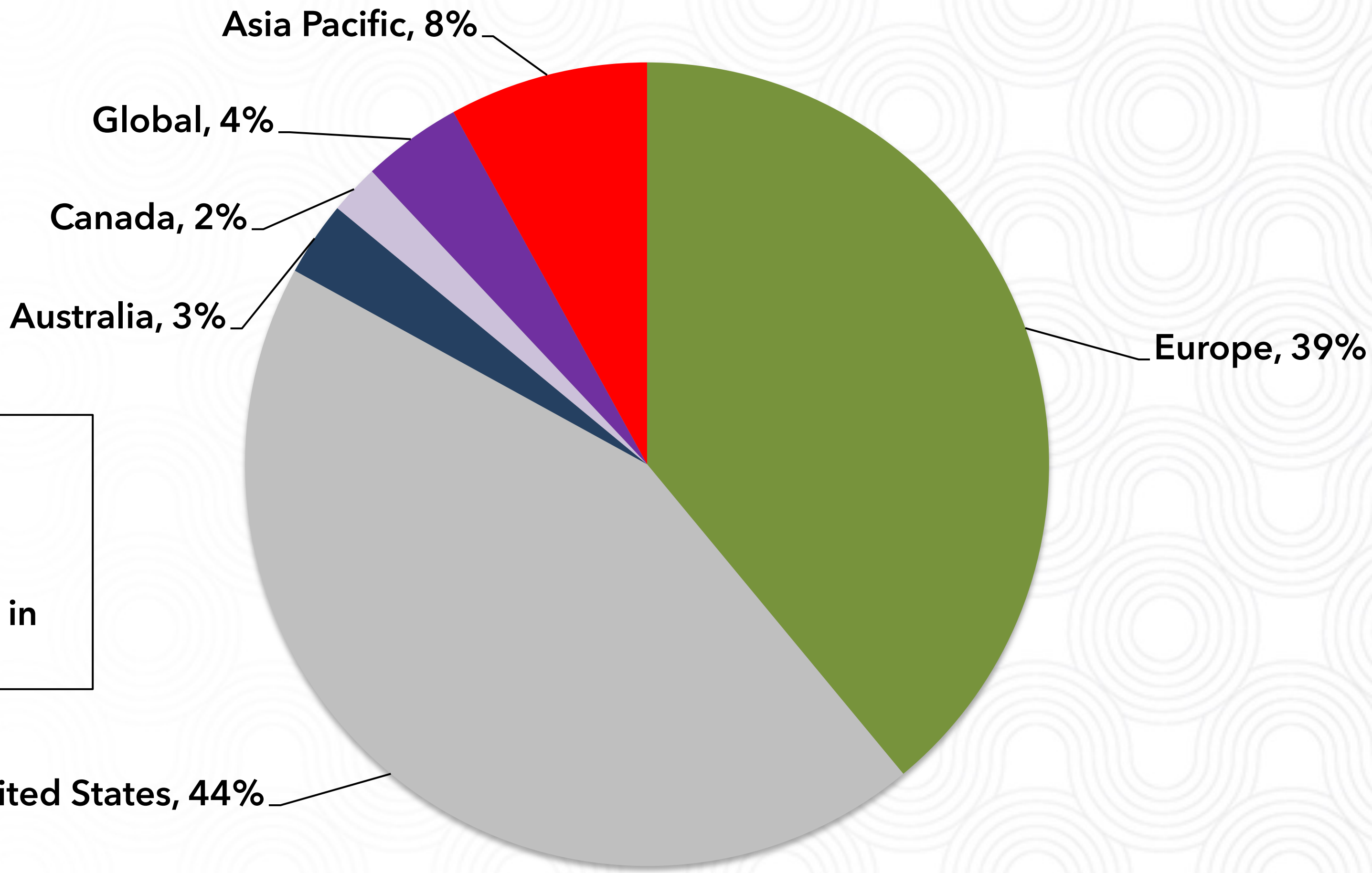


- 1,100 Offerings
- Collectively seeking to raise $524.81 billion
- Equivalent to: $692.62 billion in potential purchasing power

Source: Institutional Real Estate, Inc. IREI.Q Database

Investment offerings currently in the market

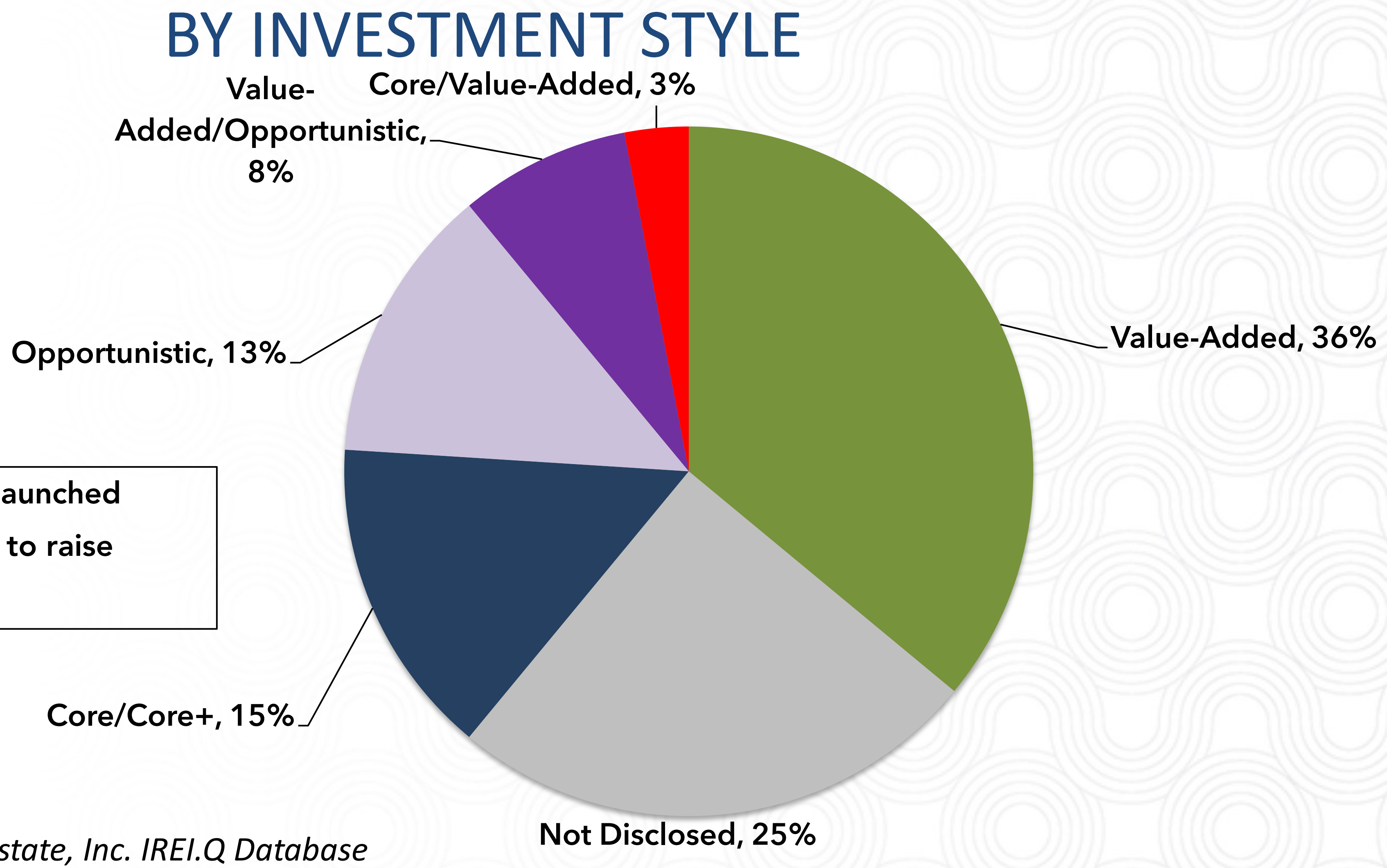
BY GEOGRAPHIC MARKET FOCUS



- 1,100 Offerings
- Collectively seeking to raise $524.81 billion
- Equivalent to: $692.62 billion in potential purchasing power

Source: Institutional Real Estate, Inc. IREI.Q Database

Investment offerings launched in 2022



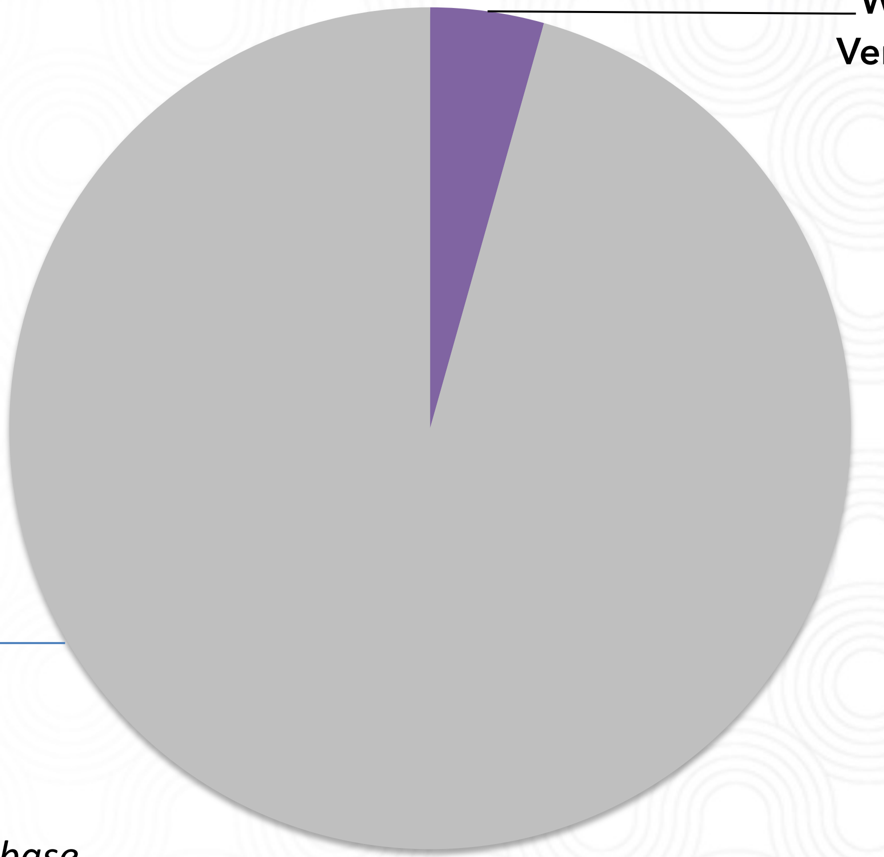
- 226 offerings were launched
- Collectively seeking to raise $183.00 billion

Source: Institutional Real Estate, Inc. IREI.Q Database

Total number of investors

BY PROPENSITY TO INVEST VIA JOINT VENTURES

- 3,702 Investors around the globe
- Who collectively control more than $88.1 trillion in investment capital
- And more than $2.6 trillion in real estate assets



Identifying, confirming and flagging in the database which investors will (and which investors won't) do direct joint ventures with REOCs continues to be an ongoing process

Source: Institutional Real Estate, Inc. IREI.Q Database

Investment offerings closed and aggregate capital raised

(FINAL CLOSES ONLY)

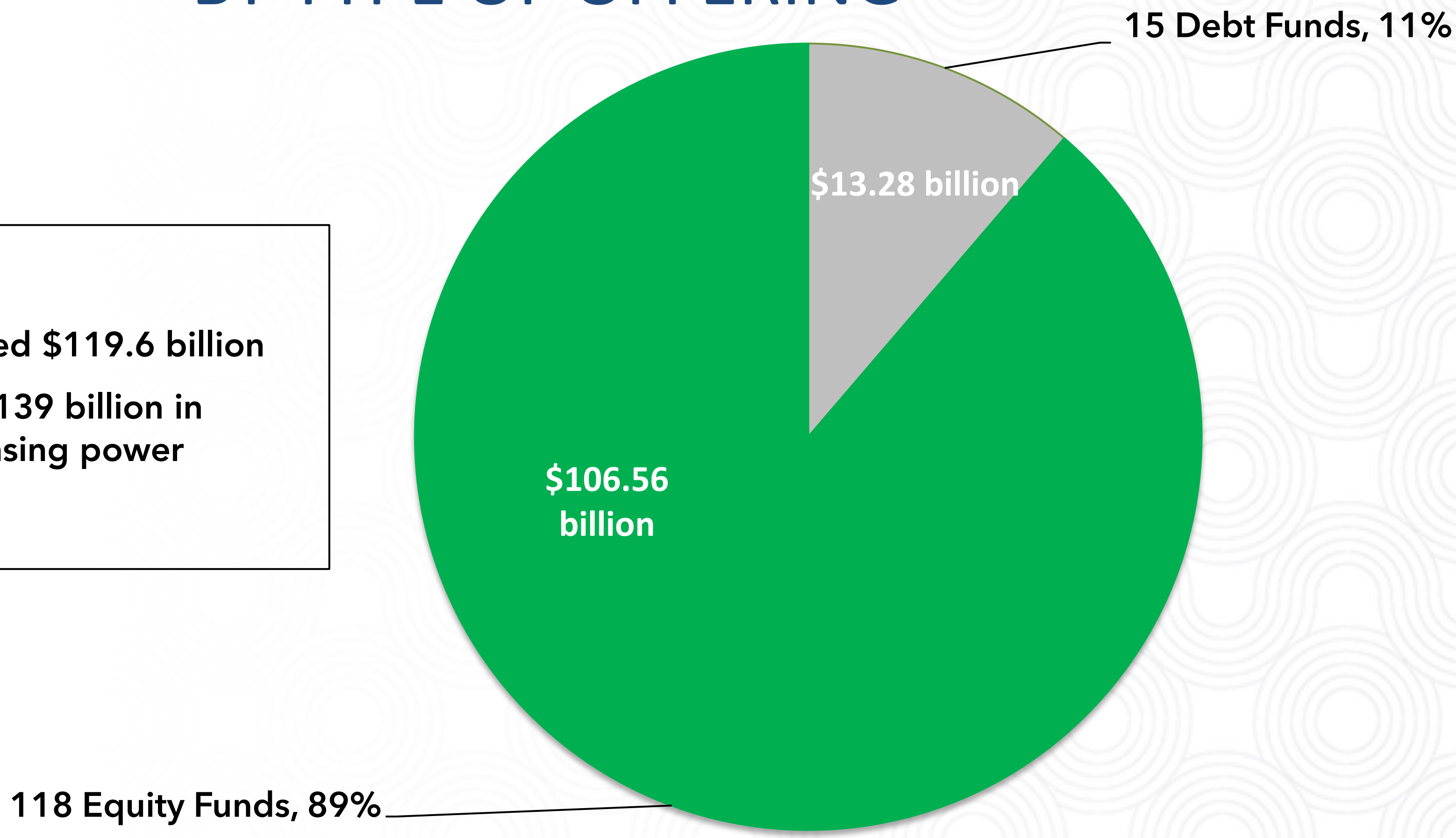
PERIOD	# OF FUNDS		VOLUME ($B)	
Q1/21	39		$30.8	
Q2/21	39		$18.0	
Q3/21	39		$43.2	
Q4/21	50		$67.0	
2021 Totals	167		$159.0	
Q1/22	41		$30.9	
Q2/22	37		$24.7	
Q3/22	28		$21.1	
Q4/22	27		$42.9	
2022 YTD Totals	133	20% decrease	$119.6	24% decrease

Source: Institutional Real Estate, Inc. IREI.Q Database

Investment offerings closed in 2022

BY TYPE OF OFFERING

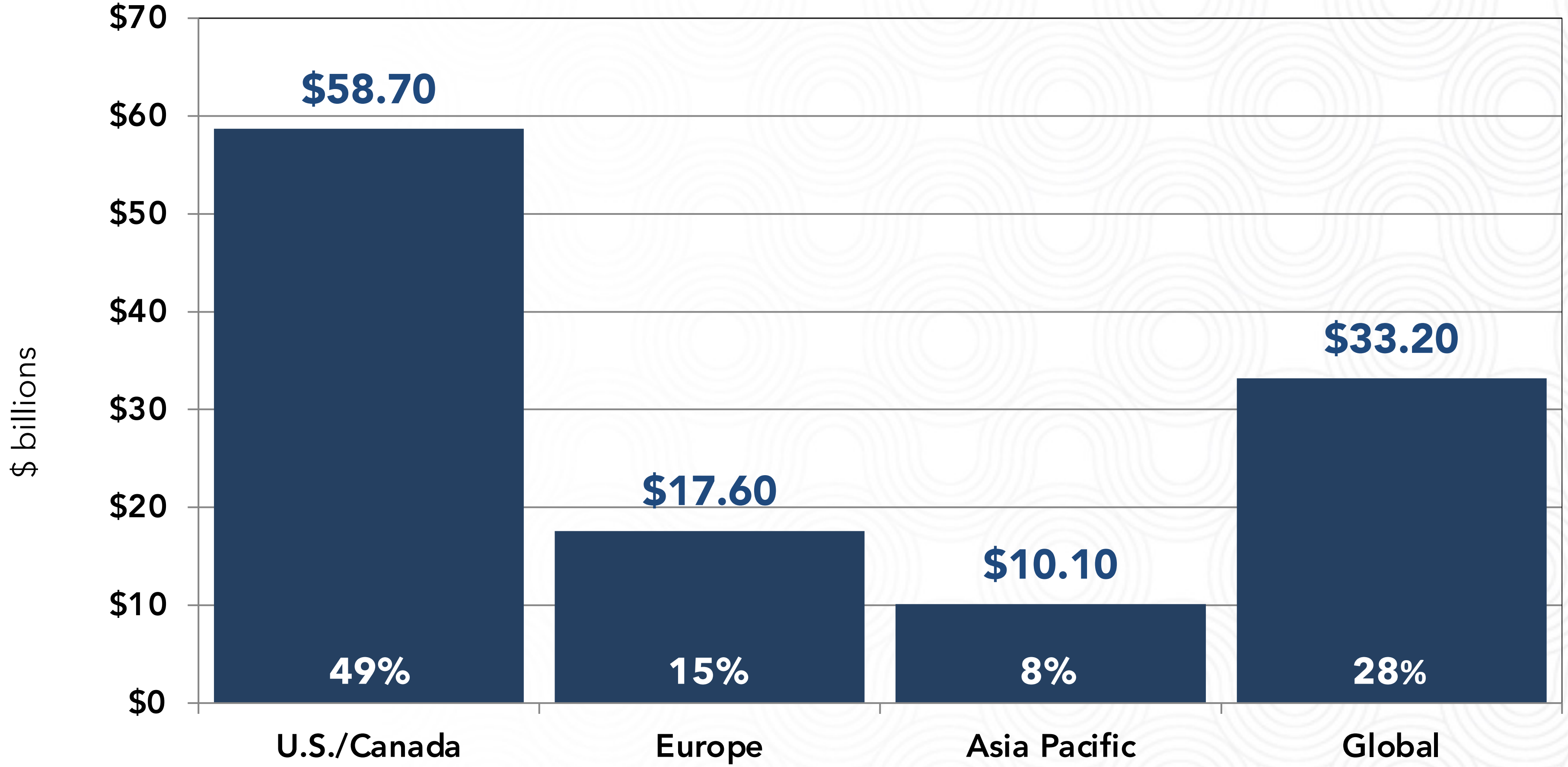
- 133 Offerings
- Collectively raised $119.6 billion
- Equivalent to: $139 billion in potential purchasing power



Source: Institutional Real Estate, Inc. IREI.Q Database

Investment offerings closed in Q1 2022 – Q4 2022

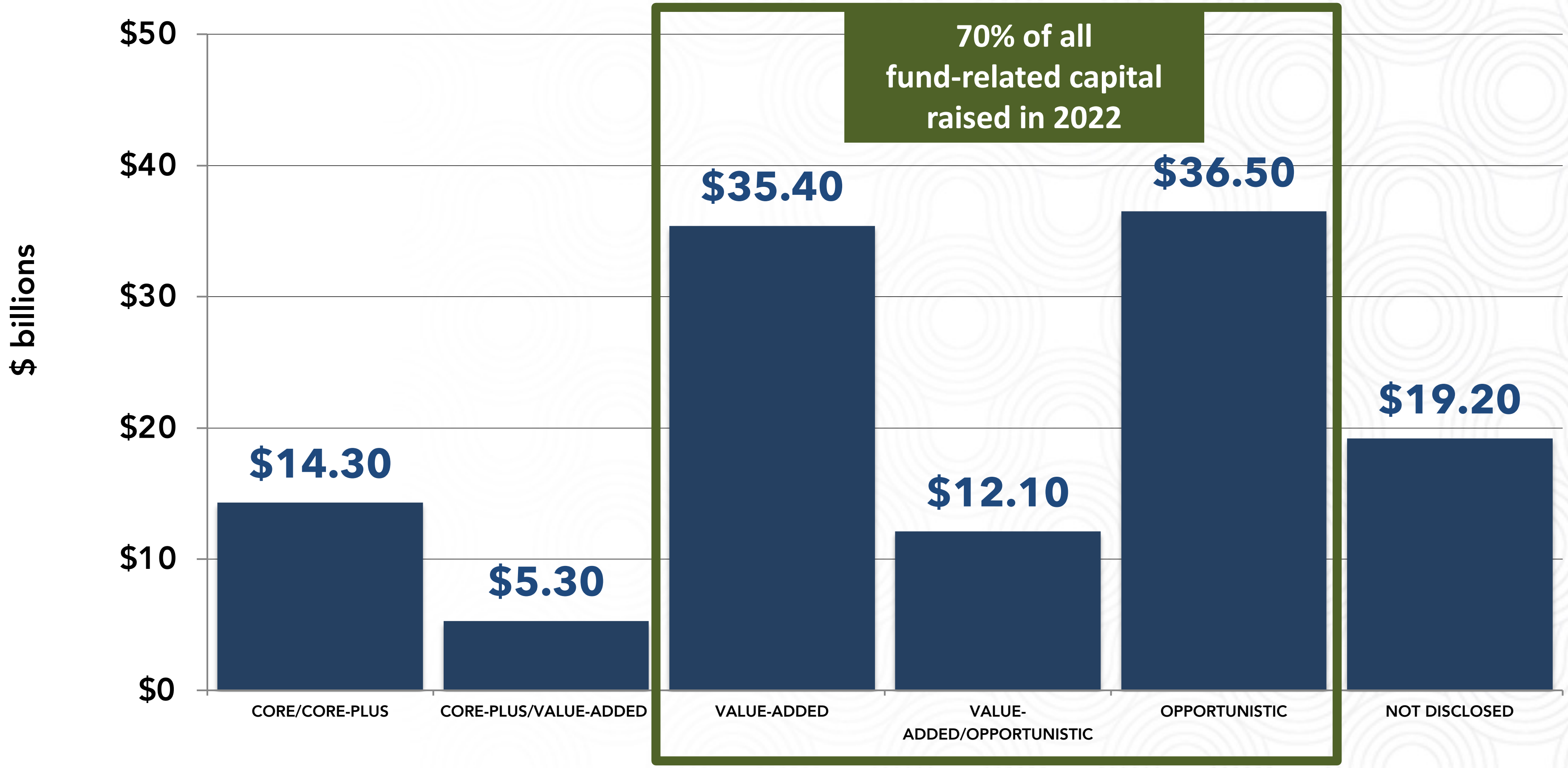
($ BILLION, BY GEOGRAPHIC FOCUS)



Source: Institutional Real Estate, Inc. IREI.Q Database

Investment offerings closed in Q1 2022 – Q4 2022

($ BILLION, BY INVESTMENT STYLE)



Source: Institutional Real Estate, Inc. IREI.Q Database

Largest investment offerings closed YTD 2022

FUND NAME	TOTAL RAISED	REGION
Brookfield Strategic Real Estate Partners IV	$17.00 billion	Global
TPG Real Estate Partners IV	$6.80 billion	Global
Aermont Capital Real Estate Fund V	$3.79 billion	Europe
GLP Japan Development Partners IV	$3.70 billion	Asia
West Street Real Estate Investment Partners I	$3.50 billion	Global
These five funds alone raised	**$34.79 billion**	**29% of total**

Source: Institutional Real Estate, Inc. IREI.Q Database

In the past, mega fund offerings have accounted for up to 60% of the total capital raised by all investment programs closing during a given quarter

The bottom line

- The number of offerings in the market in 2022 were slightly below the averages for the past five-years
- The number of offerings in the market decreased in 2022 by 28% from 2021 levels
- Closed-end offerings constituted the majority of the offerings available
- Capital raised by closed-end fund offerings decreased from 2021 amounts by 24%
- 49% of offerings closed were targeting US and Canadian markets
- 70% of all offerings closed were targeting higher return strategies
- Five mega funds raised 29% of the capital
- The remaining 71% of the capital was raised by 128 smaller offerings

Panel Discussion: Global capital-flow trends: Portfolio rebalancing and denominator effect

MODERATOR:

Tom Parker

Executive Vice President and Publisher, Institutional Real Estate, Inc.

PANELISTS:

Indraneel Karlekar – Global Head of Research & Strategy, Principal Asset Management Management

Thomas Mueller-Borja – Managing Director, BlackRock

Eduardo Park – Investment Officer, Los Angeles City Employees Retirement System

VIP AMERICAS
VISIONS INSIGHTS & PERSPECTIVES
Institutional Real Estate, Inc.

Thank you!

TOP RISKS 2023

Ian Bremmer
President

Cliff Kupchan
Chairman

1 Rogue Russia
2 Maximum Xi
3 Weapons of mass disruption
4 Inflation shockwaves
5 Iran in a corner
6 Energy crunch
7 Arrested global development
8 Divided States of America
9 Tik Tok boom
10 Water stress
* *Red herrings*

25 years eurasia group

TOP RISKS 2023

Ian Bremmer
President

Cliff Kupchan
Chairman

We're (mostly) through the pandemic. Russia has no way to win in Ukraine. The European Union is stronger than ever. NATO rediscovered its reason for being. The G7 is strengthening. Renewables are becoming dirt cheap. American hard power remains unrivaled. Midterms in the United States were decidedly normal ... and many of the candidates posing the biggest threat to democracy (especially those who would have had authority over elections) lost their races. Meanwhile, Donald Trump is the weakest he has been since he became president, with a large number of Republicans preparing to take him on for the GOP nomination.

There's got to be a catch.

The big one: A small group of individuals has amassed an extraordinary amount of power, making decisions of profound geopolitical consequence with limited information in opaque environments. On a spectrum of geopolitics with integrated globalization at one extreme, these developments are at the other extreme, and they're driving a disproportionate amount of the uncertainty in the world today.

Our top risks this year are skewed toward these actors and their impact: Rogue Russia, Maximum Xi, Weapons of mass disruption, and Iran in a corner all come from international actors facing severe structural challenges and strong opposition (internal and/or external) in achieving their desired goals, with neither oversight, adequate expert inputs, nor checks and balances constraining their actions.

Dictatorships are stumbling at the same time that they're becoming more consolidated. Vladimir Putin's Russia is too isolated for its leader to attend the G20 summit, facing serious economic and military decline ... while NATO has never looked stronger. Iran, Russia's most important military ally, faces a deeply hostile geopolitical environment alongside the greatest domestic unrest since the 1979 revolution that brought the Islamic Republic to power. China was thoroughly unprepared for its troubles with zero Covid (our #1 risk last year), leading to unprecedented demonstrations ... and a sudden turnaround of President Xi Jinping's policy, ending restrictions two years after the Americans and Europeans. Their trajectories are, to varying degrees, increasingly unsustainable.

More broadly, progress in human development has been thrown into reverse by a global pandemic, a land war in Europe, a massive inflationary shock, and mounting climate catastrophe. After decades of globalization pushing unprecedented global growth and the emergence of a robust global middle class, we are now seeing a majority of the world's 8 billion people fare worse, not better, in education levels, life expectancy, economic well-being, and safety and security. The headwinds for human development will grow in 2023.

American leadership is a double-edged sword. One year into Russia's failed war, the United States has only gained as the world's sole global military leader. Core allies clearly recognize their reliance on the United States for national security, broadly defined. America's comparative economic power is stronger coming out of the pandemic

TOP RISKS 2023

Ian Bremmer
President

Cliff Kupchan
Chairman

and through the Russia war than after the global financial crisis in 2008. Whispering in Europe has gotten louder that the global position of the United States is benefiting from the war, while the Europeans and Japan face deindustrialization and a permanent end to the peace dividend. China, too, faces massive economic challenges, much greater than other major countries. Its economy is still expected to surpass that of the United States in GDP by 2030, but there is a growing chance it never does. And if it does, this does not herald a Chinese century as China's population halves by 2100. If any major middle-income country is truly outperforming in the coming decades, it's the world's soon-to-be third largest economy (and its largest democracy), India.

But in terms of leading by example, it's a radically different story for the United States. In 1989, the US was the world's leading exporter of democracy. Today, it is the leading exporter of tools that undermine democracy—the result of algorithms and social media platforms that rip at the fabric of civil society while maximizing profit, creating unprecedented political division, disruption, and dysfunction. That trend is accelerating fast—not driven by governments but by a small collection of individuals with little understanding of the social and political impact of their actions.

Is the tech centibillionaire a bigger threat to global instability than Putin or Xi? It's unclear but the right question to ask and a critical challenge for the world's democracies, highlighting the vulnerability of representative political institutions and the growing allure of state control and surveillance. As we showed with the J Curve back in 2006, open societies were the most stable, in part because technology strengthened them and weakened authoritarian regimes. In 2023, less than two decades later, the opposite is true.

It's not the end of democracy (nor of NATO or the West). But we remain in the depths of a geopolitical recession, with the risks this year the most dangerous we've encountered in the 25 years since we started Eurasia Group.

And now, our top risks.

1 Rogue Russia

A humiliated Russia will turn from global player into the world's most dangerous rogue state, posing a serious security threat to Europe, the United States, and beyond.

In 2022, despite much bluster directed at the West, the Kremlin was careful to keep its war on Ukraine contained within the country, avoiding direct confrontation with NATO and hoping to divide the united Western front in support of Kyiv. In 2023, Putin can't afford to be that cautious.

Nearly one year since it invaded Ukraine and promised quick victory, Russia has no good remaining military options to win the war. Moscow will continue shelling Ukrainian cities and critical infrastructure, but that won't affect the military balance on the ground. Russia can also launch an offensive with newly mobilized troops this spring, but a lack of training and strong Ukrainian defenses will limit their effectiveness.

Russia also has little leverage left over either the United States or Europe. While it will cut off most remaining gas flows to Europe, increasing European public support for negotiations, this won't prompt a rollback of sanctions (with nine rounds now unanimously approved by all 27 EU member states) or undermine military support for Ukraine (most of which comes from the United States, the United Kingdom, and the most steadfastly anti-Russian EU states).

Russia won't back down. Having raised the war's stakes by mobilizing hundreds of thousands of Russian troops and annexing four Ukrainian regions (much of which they didn't—and don't—actually occupy), Putin remains under intense pressure to, at a minimum, control most of Donetsk, Luhansk, Kherson, and Zaporizhzhia. But Ukrainians will accept only a full Russian withdrawal from all Ukrainian territory, likely including Crimea. Adding to the pressure, Ukraine's now formidable military capabilities might threaten Russia's ability to defend Crimea—a Kremlin red line.

The war has only escalated since it started

Event categories ■ **Escalation by Russia** ■ **Retaliation by the West** ■ **Retaliation by Ukraine**

Feb

- **21st** Russia recognizes the independence of Donetsk and Luhansk separatist regions and orders troops to prepare to deploy
- **22nd** Germany cancels certification of Nord Stream 2 pipeline
- **24th** Russian invasion begins
- **23rd to 28th** The EU, the US, and allies impose sweeping sanctions on Russian financial institutions, the export of dual-use goods and technology, and Russian officials and close associates; Russia's central bank is sanctioned and foreign reserves frozen

Mar

- **2nd** Seven Russian banks are banned from accessing the SWIFT international financial messaging system
- **15th** Russia says it takes complete control of Kherson region

Apr

- **12th** Putin says talks hosted by Turkey are at a dead end
- **14th** Ukraine sinks the Moskva, the flagship of Russia's Black Sea Fleet

Jun

- **23rd** US Department of Defense announces Ukraine will receive high-mobility artillery rocket systems (HIMARS)

Aug

- **29th** Ukraine launches counter-offensive and recaptures territory in the east

Sep

- **21st** Putin declares partial mobilization of military age men
- **26th** Nord Stream pipeline attack *(evidence for responsibility inconclusive)*

Oct

- **8th** Explosion on Kerch bridge connecting Crimea to Russia
- **10th** Russia begins bombing Ukrainian infrastructure, civilians, and cities, including Kyiv

Nov

- **11th** Ukraine recaptures Kherson

Dec

- **7th** Putin makes veiled threats to use nuclear weapons
- **21st** Putin declares no limits to war financing ahead of Zelensky visit to Washington
- **21st** US announces Ukraine will receive Patriot missile systems

Source: Eurasia Group

Putin has little left to lose from further escalation against the West and Ukraine, short of actions that risk direct war with NATO. Russia is nearly completely cut off from advanced industrial democracies—economically, diplomatically, culturally, and technologically. And the United States and Europe are already giving Ukraine some of their most advanced military systems; the Patriot missile system headed its way makes this point abundantly clear to the Kremlin. The only deterrent remaining for the West is direct war against the world's largest nuclear power—something Putin knows the West won't gamble on.

Defeated on the battlefield in Ukraine, increasingly staggered by sanctions, left without leverage over the EU or the United States, with little to lose from further isolation and Western retaliation, and facing intense domestic pressure to show strength, Russia will turn to asymmetric warfare against the West to inflict damage and weaken NATO unity, rather than employ overt aggression that depends on military and/or economic power that Russia no longer has.

Rogue Russia will increasingly act like a global version of its now-closest remaining ally of consequence, Iran. Before Russia's fall from grace, Iran had been the world's most powerful rogue state, itself effectively "decoupled" from the international community. Accordingly, Tehran has long pursued a revisionist foreign policy in the Middle East via asymmetric means, including espionage, drone and missile strikes, support for terrorism, proxy wars, and the like. Russia will likewise intensify its efforts to destabilize the United States and Europe—but with greater asymmetric security capabilities than Iran, and with the world's biggest nuclear arsenal as the ultimate cover to deter Western retaliation.

Nuclear saber-rattling by Moscow will intensify. Putin's threats will become more explicit; he's likely to move tactical nuclear weapons closer to Ukraine—and publicize it—and we could see an increase in the alert status of Russia's nuclear arsenal. Russia will calibrate its nuclear threats, and direct nuclear use remains unlikely; Putin is as Armageddon-averse as Iran's supreme leader. But the risk is clear: Nuclear signaling is easier said than done, and the potential for mutually assured destruction because of accidents and miscalculation will be higher in 2023 than at any time since the Cuban missile crisis in 1962. And unlike the height of the Cold War, Putin has no way to climb down or return to a pre-war status quo.

Kremlin-affiliated hackers will ramp up cyberattacks on Western firms and governments. Pipelines, as well as LNG terminals, will be attractive targets for Russian sabotage. Russian officials have credibly threatened retaliation against American and European satellites that play a role in the war. Fiber is vulnerable too: Cables in Europe and under the Atlantic will be targets, probably in a fingerprint-free way as with the Nord Stream pipeline attack in September (where there's still no evidence of responsibility).

Russia will also intensify its offensive against Western elections by supporting and funding disinformation and extremism. The US presidential campaign will quickly ramp up this year, and Trump is all-in with an anti-war plank that's music to Putin's ears. Disruptive disinformation against Republican challengers to Trump and potential Democratic nominees, including President Joe Biden, will begin early. Moscow will also stir trouble in the Balkans, as a ploy to distract NATO from Ukraine.

Ukraine will also face new risks. Russia can't retake much Ukrainian territory, but it can inflict much more suffering on the Ukrainian people. It will continue to pound Ukrainian critical infrastructure, including with newly obtained Iranian ballistic missiles (please see risk #5). It may try harder to decapitate the Ukrainian government, possibly with assassination attempts against Ukrainian President Volodymyr Zelensky and other senior officials. Finally, Moscow will try to make a rump Ukraine economically unviable at a time when Kyiv faces an uphill struggle to fund the country's reconstruction. That will likely include new stoppages of grain exports, with efforts to blame Ukraine and the West for global food insecurity that exacerbates frictions between the West and developing countries. These moves will in turn lead to growing European calls to seize frozen Russian assets and use them for Ukrainian reconstruction.

Rogue Russia will increasingly act like a global version of its now-closest remaining ally of consequence, Iran

Several actions remain off-limits, even for a rogue Russia. Major attacks on Western critical infrastructure that can be quickly and clearly traced to the Russian government remain unlikely, at least unless the Ukrainian military achieves another major breakthrough on the ground. So are targeted assassinations of Western leaders and missile or drone strikes on NATO territory. Moscow has so far avoided waging a major cyber conflict with the United States for fear it might lose that war too. That will probably remain the case in 2023.

There is a silver lining: Just like Iran's rogue behavior has created a new alignment among Gulf nations, the United States, and Israel (most dramatically, but not limited to the Abraham Accords), Russia's rogue behavior will create ongoing opportunities for the G7 to strengthen cooperation among advanced industrial democracies and rebuild institutions for a stronger global security order. That said, a rogue Russia represents a geopolitical crisis of the highest order. It's a threat to global security, Western political systems, the cybersphere, space, and food security … not to mention every Ukrainian civilian.

2 Maximum Xi

Xi emerged from China's 20th Party Congress in October 2022 with a grip on power unrivaled since Mao Zedong.

Having stacked the Communist Party's Politburo Standing Committee with his closest allies, Xi is virtually unfettered in his ability to pursue his statist and nationalist policy agenda. But with few checks and balances left to constrain him and no dissenting voices to challenge his views, Xi's ability to make big mistakes is also unrivaled. Arbitrary decisions, policy volatility, and elevated uncertainty will be endemic in Xi's China. That's a massive and underappreciated global challenge, given the unprecedented reality of a state capitalist dictatorship having such an outsized role in the global economy.

Xi has committed a series of missteps in the recent past.

Last year we warned that China had walked itself into a zero-Covid trap; unfortunately, we were right. Xi's refusal to offer high-quality, foreign-made mRNA vaccines, combined with underwhelming vaccination drives even with locally made doses, left the Chinese population more vulnerable to severe disease than it should be, and have made Xi's sudden and surprise exit from zero Covid much deadlier.

An opaque crackdown on private technology companies undercut global investor sentiment, put some of the country's most promising firms into a deep freeze, and wiped out an estimated one trillion dollars in market value.

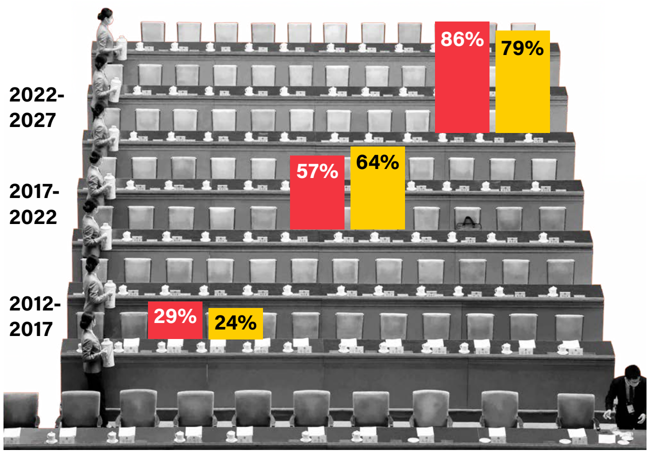
And Xi's announcement of a "no limits friendship" with Russia on 4 February 2022 lent credibility to Putin's war in Ukraine and darkened perceptions of China's influence on the global system.

In each instance, Xi's authoritarian personality and policy preferences—political control, economic statism, and assertive diplomacy—overrode the advice of pragmatic voices within the bureaucracy. And that was before Xi cemented

Xi loyalists now dominate top Communist Party bodies

% of members who have personal ties to Xi, worked under Xi, or worked under a top Xi lieutenant

Politburo Standing Committee | Politburo



Note: Data do not include Wang Huning, an adviser to previous leaders who is now a Xi ally; counting Wang, 100% of PSC members are Xi allies
Source: Eurasia Group

his position as modern-day emperor. Now that all Chinese policy flows directly from a single all-powerful leader, there's even less transparency on the decision-making process, less information flowing to the top, and less room to admit error, course correct, or compromise.

We see risks in three areas this year, all stemming from Maximum Xi.

First, the ill effects of centralized decision-making on public health are now on display. Just weeks ago, Xi ended the zero-Covid policy in the same arbitrary manner that he implemented it more than two years ago. His snap decision to lift all restrictions and let the virus spread unchecked despite low elderly vaccination rates, without warning citizens and local governments, and absent sufficient preparations to cope with the resulting outbreaks will all but ensure that more than one million Chinese people will die, many unnecessarily (though most will not be reported). Only a leader with unchallenged power could execute such an extraordinary—and extraordinarily costly—reversal.

Moreover, if a severe new strain of Covid were to emerge, Maximum Xi makes it more likely that it would spread widely in China and beyond. China would be unlikely to identify the new variant because of reduced testing and sequencing, to recognize more severe disease due to an overwhelmed health system, and to let news of a more severe variant get out given Xi's track record on transparency. The world would have little or no time to prepare for a deadlier virus.

A second area of concern is the economy, where Xi's drive for state control will produce arbitrary decisions and policy volatility. China's economy is in a fragile state after two years of harsh Covid-19 controls. Forced deleveraging efforts and plummeting homebuyer and market sentiment have ground growth in the critical real estate sector to a halt, depleting local government revenue. Debt defaults threaten to spread to the broader financial sector. It has long been the case that more global GDP growth was coming from a politically riskier market as China's economic footprint expanded. But in 2023, China's outlook is even more important, given the rising risks of recession elsewhere (please see risk #4).

This backdrop—of weakening global growth and deepening domestic challenges—demands competent economic management from Beijing. But the Chinese leadership is delivering opacity and unpredictability. China's sudden decision to delay the release of long-scheduled economic data during the 20th Party Congress was an ominous sign of things to come for global markets. At a minimum, heightened market and company sensitivity to the singular voice of Xi will invite volatility in response to any signals he conveys, resulting in a repricing of credit risks that in turn drives debt defaults and bankruptcies. Beijing will struggle to manage these pressures in an environment of centralized power and stifled debate.

A final risk area is foreign policy, where Xi's nationalist views and assertive style will drive Beijing's relations with the world. Xi isn't looking for a near-term crisis, given the scale and immediacy of economic challenges at home. But "wolf warrior" diplomacy will nonetheless intensify as diplomats channel Xi's bold rhetoric, often at the expense of effective engagement. Xi's personal affinity for Putin will limit how closely China is willing to align with the developed world—and even, in the worst-case scenarios, with developing countries—in response to increasingly rogue behavior by Russia (please see risk #1) that threatens global peace and stability. An indifferent response to Russian aggression could invite a global backlash, undermining China's international standing and adding to economic risks. China's foreign policymaking would be less marked by overzealousness and miscues if it was informed by effective debate and feedback on likely global responses. In this, as in other critical policy areas, Xi will be listening to no one more than himself.

The last time a Chinese leader had this much power to pursue such a misguided policy agenda, the result was widespread famine, economic ruin, and death. While another Cultural Revolution or Great Leap Forward is unlikely given the size of China's educated urban middle class, Xi's consolidation of power will take China at least a few steps backward this year.

Xi ended the zero-Covid policy in the same arbitrary manner that he implemented it more than two years ago

3 Weapons of mass disruption

When the Berlin Wall came down, the United States was the world's principal exporter of democracy. Not always consistently and not always with positive results, but no other country came close. For most of the time since, technological innovation (much of which took place in America) has been a liberalizing force. But today, the US has become the principal exporter of tools that undermine democracy—not intentionally, but nonetheless as a direct consequence of the business models driving growth. Resulting technological advances in artificial intelligence (AI) will erode social trust, empower demagogues and authoritarians, and disrupt businesses and markets.

This year will be a tipping point for disruptive technology's role in society. A new form of AI, known as generative AI, will allow users to create realistic images, videos, and text with just a few sentences of guidance. Large language models like GPT-3 and the soon-to-be-released GPT-4 will be able to reliably pass the Turing test—a Rubicon for machines' ability to imitate human intelligence. And advances in deepfakes, facial recognition, and voice synthesis software will render control over one's likeness a relic of the past. User-friendly applications such as ChatGPT and Stable Diffusion will allow anyone minimally tech-savvy to harness the power of AI (indeed, the title of this risk was generated by the former in under five seconds).

These advances represent a step-change in AI's potential to manipulate people and sow political chaos. When barriers to entry for creating content no longer exist, the volume of content rises exponentially, making it impossible for most citizens to reliably distinguish fact from fiction. Disinformation will flourish, and trust—the already-tenuous basis of social cohesion, commerce, and democracy—will erode further. This will remain the core currency of social media, which—by virtue of their private ownership, lack of regulation, and engagement-maximizing business model—are the ideal breeding ground for AI's disruptive effects to go viral.

New technologies will be a gift to autocrats bent on undermining democracy abroad and stifling dissent at home

These breakthroughs will have far-reaching political and economic effects.

Demagogues and populists will weaponize AI for narrow political gain at the expense of democracy and civil society. We've already seen the likes of Trump, Brazil's Jair Bolsonaro, and Hungary's Viktor Orbán leverage the power of social media and disinformation to manipulate electorates and win elections, but technological advances will create structural advantages for every political leader to deploy these tools—no matter where they sit on the political spectrum. Political actors will use AI breakthroughs to create low-cost armies of human-like bots tasked with elevating fringe candidates, peddling conspiracy theories and "fake news," stoking polarization, and exacerbating extremism and even violence—all of it amplified by social media's echo chambers. We will no doubt see this trend play out this year in the early stages of the US primary season (please see risk #8) as well as in general elections in Spain and Pakistan.

These tools will also be a gift to autocrats bent on undermining democracy abroad and stifling dissent at home. Here, Russia and China lead the way. Building on its subversion of the 2016 US election, as well as disinformation campaigns in Ukraine and Eastern Europe, Moscow will step up its rogue behavior (please see risk #1) with newly empowered influence operations targeting NATO countries. The 2023 Polish parliamentary elections are the most obvious target, but others will be vulnerable, too. Meanwhile, Beijing—which already uses sensors, mobile tech, and facial recognition to track its citizens' movements, activities, and communications—will deploy new technologies not only to tighten surveillance and control of its own society, but also to spread propaganda on social media and intimidate Chinese language communities overseas, including in Western democracies.

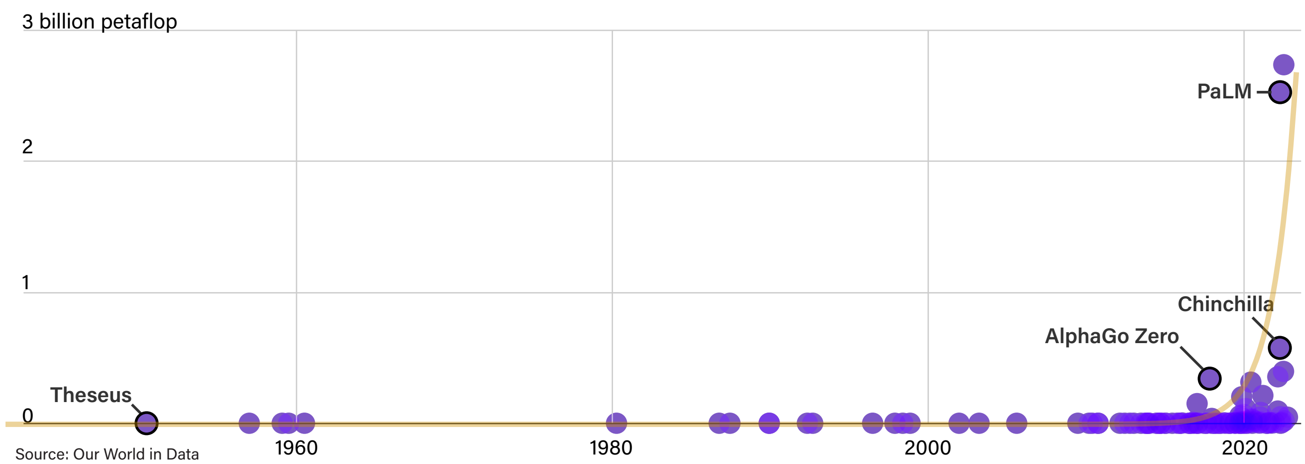
The proliferation of AI will have profound implications beyond politics, too. Companies in every sector will contend with new reputational risks when key executives or accounts are impersonated with malicious intent, triggering public relations scandals and even stock selloffs. Generative AI will make it difficult for businesses and investors to distinguish between genuine engagement and sentiment on the one hand, and sabotage attempts by hackers, activist investors, or corporate rivals on the other, with material implications for their bottom lines. Citizen activists, trolls, and anyone in-between will be able to cause corporate crises by generating large enough volumes of high-quality tweets, product reviews, online comments, and letters to executives to simulate mass movements in public opinion. AI-generated content amplified by social media will overwhelm high-frequency trading and sentiment-driven investment strategies, with market-moving effects.

Of course, AI also offers incredible productivity gains that we've only just begun to appreciate (if this wasn't our Top Risks report, we'd be writing more about them). But that's the thing with revolutionary technologies, from the printing press to nuclear fission and the internet—their power to drive human progress is matched by their ability to amplify humanity's most destructive tendencies. The former is embraced and promoted; the latter downplayed and usually ignored ... until there's a crisis.

The irony is that America's fertile ground for innovation—nurtured by its representative democracy, free markets, and open society—has allowed these technologies to develop and spread without guardrails, to the point that they now threaten the very political systems that made them possible.

AI's power is growing exponentially

Computation used to train AI systems, measured in total petaflops (10^{15} floating-point operations per second)



Source: Our World in Data

4 Inflation shockwaves

The global inflation shock that began in the United States in 2021 and took hold worldwide in 2022 will have powerful economic and political ripple effects in 2023. It will be the principal driver of global recession, add to financial stress, and stoke social discontent and political instability everywhere.

Today's historically high inflation comes from multiple sources. First was the Covid-19 pandemic, which prompted governments to cushion the fall in incomes with extraordinary fiscal and monetary stimulus at the same time that it disrupted global supply. Then, just as the United States and Europe were coming out of the pandemic thanks to vaccines, China doubled down on its zero-Covid policy, locking down the global economy's most important manufacturing and shipping hubs. Finally, Russia's invasion of Ukraine and the West's sanctions in response put a strain on the global supply of energy, food, and fertilizer.

This unprecedented confluence of overlapping shocks pushed inflation to levels most countries hadn't seen in nearly 50 years. At first, central bankers believed the mounting price pressures would be "transitory" and kept policy too loose for too long. Once they realized their mistake, they were forced to respond to prevent inflation expectations from becoming unmoored. The US Federal Reserve took the lead with aggressive interest rate hikes and balance-sheet reduction in 2022, prompting others to follow suit.

Though the end of the tightening cycle is now in sight, central banks will maintain a restrictive policy stance through much of 2023, undermining global demand. And global credit and financial conditions will continue to tighten beyond this year as past rate hikes work their way through the financial system with a lag.

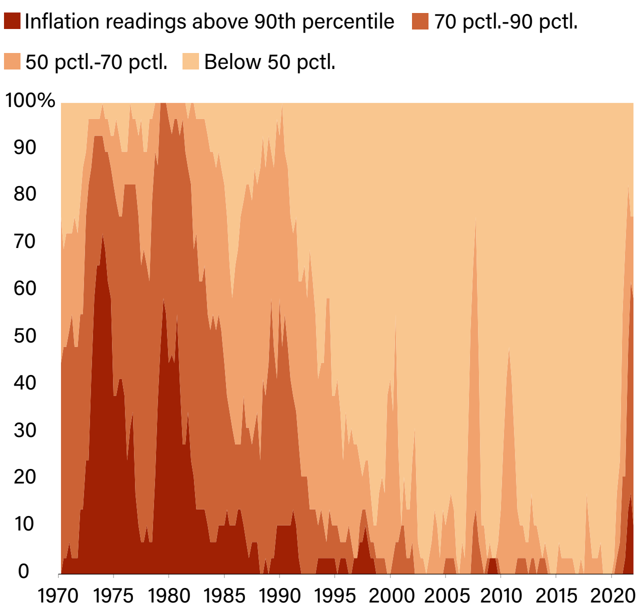
But inflation will prove sticky despite rapidly rising interest rates, driven by continued supply chain constraints and lingering pandemic-era "excess savings"—but also, critically, by persistently high energy prices caused by the war in Ukraine (please see risk #6) that can't be countered by monetary policy.

With tightening credit and financial conditions at a time of still-high inflation, households and companies will feel the pinch. Wary of adding fuel to the inflation fire and facing rising interest costs, policymakers in credit-worthy advanced economies will try to absorb the income risk for households and relieve cost pressures on businesses through costly energy market interventions and subsidies financed by public debt. But in some advanced economies such as the United Kingdom and Italy, and in most developing markets, comprehensive and long-lasting fiscal support measures will be too expensive. As a result, households and companies will see their real incomes erode.

The combination of high inflation, rising interest rates, and insufficient fiscal support will push the global economy into recession. The global downturn will be compounded by uncertainty in China's economic rebound post-zero Covid (please see risk #2) and Europe's painful transition to living without Russian energy. With consumer and

Inflation at levels not seen in a generation

Percentage of OECD countries experiencing higher-than-average inflation



Inflation shocks* and government change**

Any change in government

Since 1970	Since 1996	Total
54%	**67%**	**58%**

Change in government through elections

Since 1970	Since 1996	Total
72%	**81%**	**76%**

*Five or more consecutive quarters of inflation above 90th percentile; 57 shocks analyzed.
** Change in government during the inflationary shock or 24 months after its peak.
Source: IMF, Eurasia Group

Rising interest rates and global recession will raise the risk of emerging-market crises

business confidence weakening, global growth will slow from 6% in 2021 to about 3% in 2022 to less than 2% in 2023, with much of the world experiencing negative growth. While the absence of financial imbalances of the scale witnessed in 2008 or 2020 will limit the depth of the downturn, without a boost from expansionary monetary and fiscal policy, the recession will prove protracted.

One immediate effect of these economic troubles will be pressure on incumbents in countries with elections this year: Turkey, Spain, Argentina, Nigeria, and Poland. But even countries where elections are not scheduled will see greater risk of government turnover. And where governments muddle through, popular pressure for fiscally unsustainable policies in a tight financial environment will exacerbate debt problems and could trigger market instability—for example, in the UK, Italy, Brazil, Colombia, and Hungary.

Rising interest rates and global recession will also raise the risk of emerging-market crises. The nightmare scenario is a sudden stop in capital flows to emerging markets as we saw in the early 1980s, 1997, and 2008, prompted by a collapse in risk appetite that causes capital flight to the United States. These sorts of crises take much longer to happen than expected ... and then happen very suddenly. The resulting currency depreciation would make it hard for countries to service their dollar-denominated debts and to afford imports of food, energy, and other necessities. Lower income commodity importers with high levels of foreign-currency debt and fixed exchange rates or low foreign exchange reserves such as Pakistan and Egypt are especially vulnerable to balance-of-payments, debt, and banking crises. But even rich countries that borrow in their own currencies, such as the UK and Japan, are in danger from rapid depreciations that leave them unable to afford imports and vulnerable to financial stress.

In the unlikely-but-plausible event of a systemic financial crisis, global policy coordination will be lacking. Neither geopolitics nor domestic politics are in the same place they were in 2008, when the world's largest economies came together at the G20 to avert disaster. Consumed by domestic challenges, creditor nations have little appetite for multilateral debt restructuring and relief, and international financial institutions such as the IMF could fill only part of the resulting financing gaps. Several countries would be forced to make the difficult decision to default on their debts, further weakening global growth, fueling social unrest, and disrupting politics.

5 Iran in a corner

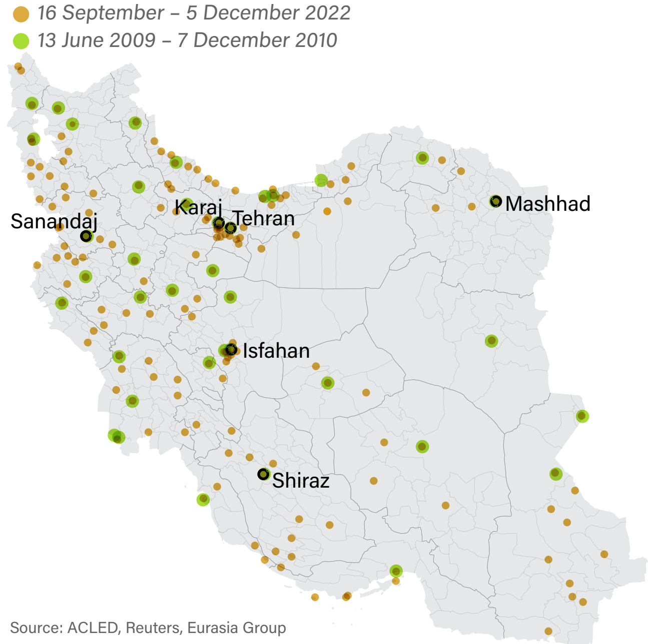
More than three months after a young woman named Mahsa Amini was killed by Iran's so-called Morality Police, nationwide anti-government protests continue. At the same time, Tehran has escalated its nuclear program in dramatic ways, all but ending any chance of reviving the nuclear deal. And now Iran has wedded itself to Putin's imperial ambitions in Ukraine. Facing convulsions at home while lashing out abroad, this year will feature new confrontations between the Islamic Republic and the West.

Led by young people and women, protests have spread across the country—creating the most serious popular threat to the state since the revolution that brought the Islamic Republic to power in 1979. The demonstrations are explicitly anti-government, with protesters calling for the fall of the clerical regime. In response, the authorities have killed more than 500 people, according to human rights groups. Tehran has ceded no ground on demands for meaningful reforms. Faced with popular unrest, the state has shown that it lacks any capacity to respond except with repression.

The protests are leaderless, dispersed, and attract relatively small numbers—all factors that make them unlikely to overthrow the Iranian regime. But they've also been remarkably persistent, with security services so far unable to crush the protesters as they did in previous rounds of unrest. The demonstrations will accordingly erode what's left of the regime's legitimacy and lead Iran to lash out against countries that support the protesters.

Then there's the nuclear program. The effort to revive the 2015 Joint Comprehensive Plan of Action and impose time-limited constraints on Iran's nuclear development has failed. The mood in Tehran has shifted decisively against compromise, given the protests and the government's perception that the deal won't deliver enough sure benefits.

Protests across Iran: 2022 vs 2009



Source: ACLED, Reuters, Eurasia Group

Meanwhile, since Biden took office, Iran's nuclear program has become both more advanced and less monitored. Iran announced in November that it would begin producing near-weapons grade enriched uranium using some of its most advanced centrifuges at a facility buried deep inside a mountain, a site impenetrable to all but the biggest munitions. Iran today can produce enough fissile material for a nuclear weapon in a matter of weeks—the closest it has ever been. That poses threats to both the region and the West.

Iran's material support for Russia's war in Ukraine had added another dimension to its failed relations with the West. Tehran has sold Moscow hundreds of drones used to attack civilians in Ukrainian cities, and it is poised to build a drone production factory in Russia and ship short-range ballistic missiles. Combined with repression at home (supported by Russia), Iran's involvement in a European war has swung public and elite opinion on the continent sharply against the Islamic Republic; it will also lead the United States to impose additional economic sanctions and otherwise disrupt Iran's supply chains, with Europe likely to step up its own measures over human rights concerns and Tehran's military cooperation with Moscow.

These three factors—domestic repression, nuclear advances, and involvement in the Ukraine war—all combine to increase the risk of confrontation with Iran this year.

With a nuclear deal out of reach, the gloves will again come off between Iran and Israel. Israel's new prime minister, Binyamin Netanyahu, has been committed for decades to setting back Iran's nuclear advances. Israel will likely ramp up covert efforts through cyberattacks and sabotage of key nuclear sites and critical infrastructure. For its part, Iran will likely retaliate against Israel with strikes from Syria, Lebanon, Iraq, Yemen, Gaza—and at sea.

Israel, and to a lesser extent the United States, will once again make noisy preparations for an aerial assault on Iran's nuclear sites. The chance of an attack in 2023 remains low, given the risks of a devastating regional conflict, the likelihood that Iran will not take steps that provoke an attack, and the fact that Iran is not actively working on technology that is key to the final stages of a weapon. But in October, when the UN missile ban is set to expire, Western countries will be poised to trigger the snapback of prior UN sanctions, if they haven't done so already by then. Iran would respond in provocative ways, by expelling inspectors or resuming efforts to weaponize, for example. All this significantly elevates the risk of military attack.

Risks to Gulf states will increase as well. Tehran accuses Riyadh of fueling the demonstrations inside Iran, and it could retaliate militarily to both punish Saudi Arabia and distract the domestic population. Even if the 2019 attacks on Saudi oil facilities are not repeated, the risks of missile attacks from Yemen and Iraq are significant. The United Arab Emirates would be vulnerable as well but less so, given its careful efforts to maintain ties with Tehran. But the deployment of Israeli missile defense systems in the UAE in 2022 demonstrated Abu Dhabi's concerns.

Lastly, there will be more questions this year about the stability and longevity of the Islamic Republic. The chance of regime collapse is low, but it's higher than at any point in the past four decades. For most Iranians, the state has lost legitimacy and shows little capacity to reform. The uncertainty rises if Supreme Leader Ali Khamenei, 83, dies or is incapacitated. The leader has no chosen successor, and the succession process has only happened once in the state's history. These problems could create unexpected infighting during the transition and open the door for the Islamic Revolutionary Guard Corps to further expand its influence—shifting Iran closer to a military dictatorship with a more aggressive policy toward the region.

The chance of regime collapse is low, but it's higher than at any point in the past four decades

6 Energy crunch

Energy consumers are breathing a sigh of relief now that the oil-supply shock expected after the Russian invasion of Ukraine failed to materialize and gas prices, especially in Europe, have fallen back from their 2022 highs. But despite mostly sanguine forecasts for this year, a combination of geopolitics, economics, and production factors will create much tighter market conditions, especially in the second half of 2023. That will raise costs for households and businesses, increase the fiscal burden on consumer economies, widen the rift between OPEC+ and major consumers, and create yet another source of increased tensions between the West and the developing world.

On oil, a faster-than-expected economic recovery in China driven by the country's sudden exit from zero-Covid policies, combined with only a shallow recession in the United States that will not cause demand destruction, will increase crude-oil demand growth and expose an acute lack of new supply. Contributing to the problem are Russian production declines amid continued sanctions, low levels of OPEC+ spare capacity, reduced capital investment in non-OPEC production, and the absence of an Iran nuclear deal (please see risk #5). The supply shocks anticipated in 2022 will drive crude prices above $100 per barrel before the end of the year.

On gas, the European Union's need to rebuild gas storage from the second quarter of 2023 in the absence of cheap Russian supplies will create new competition for LNG and more demand for pipeline gas from Norway and North Africa. That will drive up prices, especially for Europe but also indirectly in North America, Asia, and other regional markets. Markets in Europe already price in almost $50 per million British thermal units (MMBTU) next summer; the price is likely to spike higher as China's growth recovers and global demand for LNG increases. US natural gas prices will also feel the strain,

Higher oil prices will also increase frictions between OPEC+ and the United States

heading above the $5 per MMBTU currently priced in and closer to the $8 or more we saw when European demand for gas drove up US prices in 2022.

High oil prices will place a heavy burden on poorer developing countries, which have limited cash for expensive energy imports and face surging borrowing costs to fill the hole, resulting in energy shortages and social discontent. Angry over having to shoulder costs for sanctions on Russia they didn't agree to, emerging markets will chip away at the Western sanctions regime by continuing to trade with Russia. Two of the world's three biggest energy consumers, China and India, will continue to buy large quantities of Russian crude at a steep discount. The United States will respond by hitting some emerging markets (albeit not China or India) with secondary sanctions, further inflaming tensions between industrialized economies and emerging markets already rocked by high inflation (please see risk #4), the war in Ukraine, the Covid-19 pandemic, and climate change.

Higher oil prices will also increase frictions between OPEC+, led by Saudi Arabia, and global consumers, led by the United States, as both sides pursue conflicting fiscal objectives. OPEC+ wants to protect a price floor of about $90 per barrel for Brent (some in the West think $100), much higher than before the Ukraine war and at odds with consumer preferences. This divergence will increase conflict between the US and its Gulf allies with rising grievances already driven by Washington's pivot to Asia, its transition to non-hydrocarbon energy, its focus on domestic production, and the Gulf's growing energy and security ties with China. Not to mention the Biden administration's focus on human rights and "democracy vs. autocracy," as well as its move to build an oil consumer cartel of sorts. Higher prices will prompt the US to intervene directly in markets and punish moves by oil-producing states it sees as (at least partially) politically motivated.

Regarding gas, high prices and supply limits will require more financial support from already stretched European governments, fueling calls for more EU-wide borrowing to help member states shoulder the burden. This comes on top of energy costs for households and businesses in Europe doubling between 2021 and 2022, despite government efforts to cushion the impact of extreme wholesale price spikes. The EU's industrial sector will remain at risk of government-mandated curbs on gas supply, threatening energy-intensive sectors such as steel, aluminum, and fertilizers, and creating an overall drag on economic growth. While extended gas shortages in Europe will be avoided thanks to reduced consumption and close cooperation with allied suppliers such as the United States and Norway, the risk of temporary power outages will remain high.

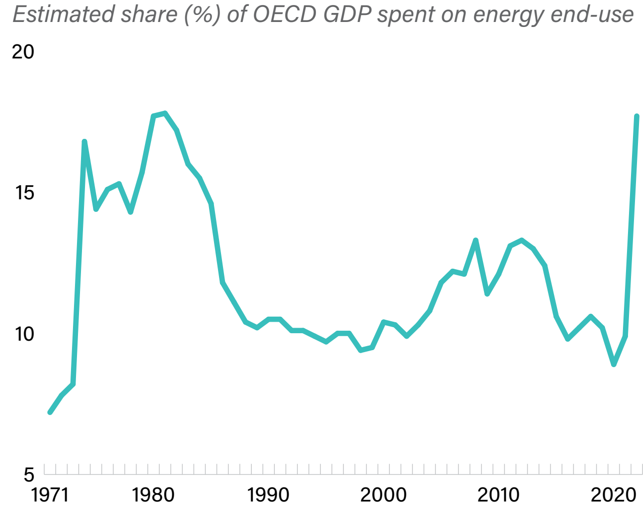
High gas prices as Europe seeks to secure adequate supplies for the 2023-2024 winter will leave energy-hungry states in South and Southeast Asia priced out of the LNG market for long stretches of 2023. The impact will be felt most acutely in the agricultural sectors of emerging markets, where fertilizer costs and food prices will increase again following the war-induced spike of 2022. As with oil, the result will be widespread energy shortfalls, food insecurity, and social unrest.

West-South tensions inflamed by the global energy crunch will also undermine climate policy. In developed nations, high prices will lead governments to prioritize energy security over emissions reductions. In developing nations, especially in Asia and Latin America, the high price of gas will disrupt energy transition plans. As climate-related extreme weather events increase in frequency and severity, emerging market calls for financial support from advanced economies for climate adaptation and loss and damage compensation will grow louder but largely go unheeded, and international climate cooperation will continue to falter.

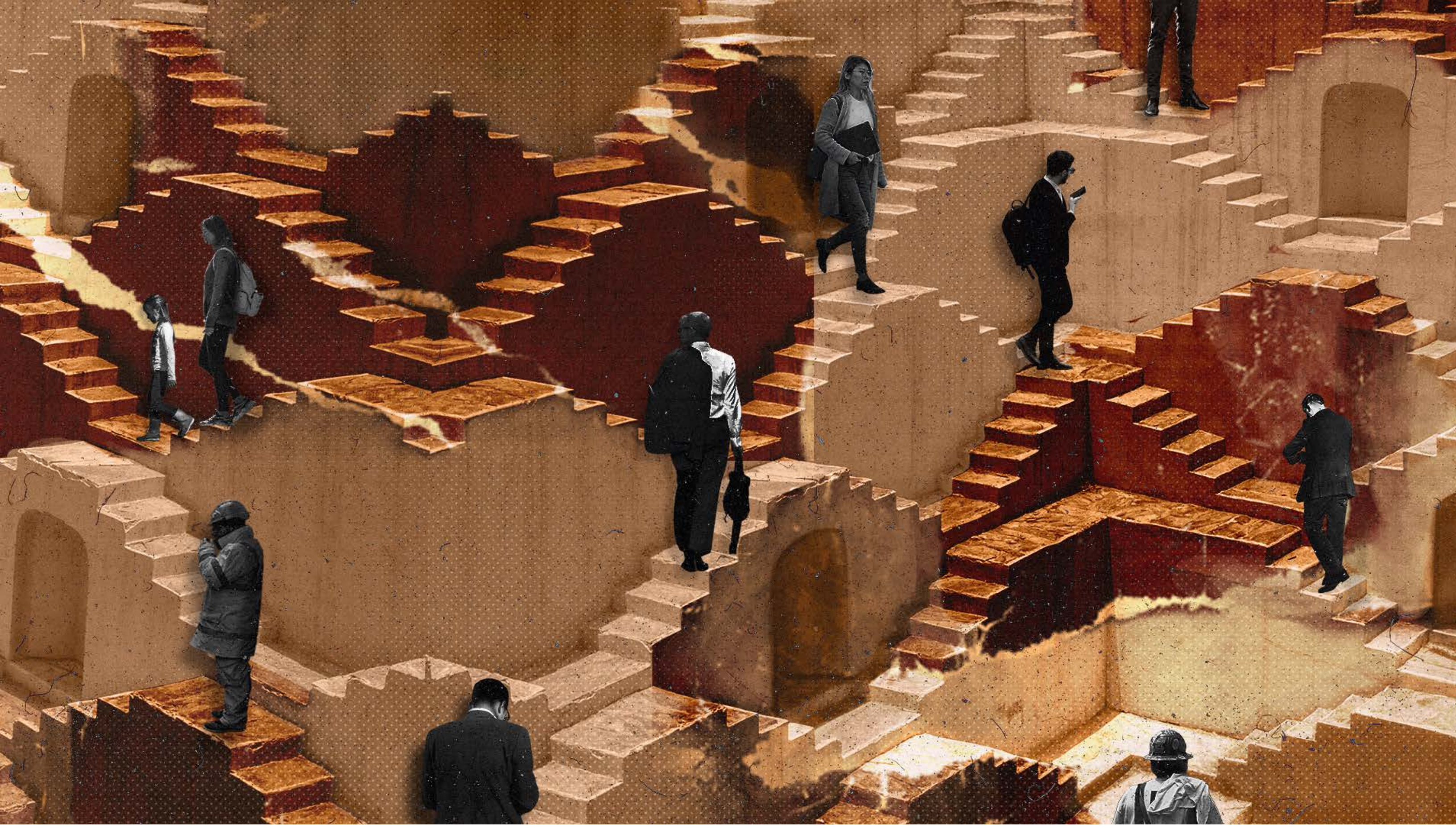
In short, the respite in energy markets this winter will be temporary—the eye of the hurricane before a renewed energy crunch adds to pressure on consumers, puts fiscal strain on governments, and deepens divides between developed and developing nations and the United States and Gulf countries.

Expensive energy

Estimated share (%) of OECD GDP spent on energy end-use



Source: OECD, FT



7 Arrested global development

The last two generations of humanity have experienced an unprecedented period of fast-expanding and broad-based prosperity. The world economy tripled in size, almost every country grew significantly richer, and more than one billion people escaped extreme poverty to join the ranks of history's first global middle class, narrowing the opportunity gap between developing and advanced industrialized nations. Human development indicators ranging from infant mortality and life expectancy to education and women's rights tell a story of nearly uninterrupted improvement in living standards and quality of life around the world.

That progress has been thrown into reverse by three years of mutually reinforcing shocks, including the Covid-19 pandemic, the Russia-Ukraine war, and the global inflation surge. The United Nations estimates that five years of human development progress have been lost since Covid-19 hit, and the impact has been global: More than 90% of countries experienced a decline in human development in 2020 or 2021. In 2023, billions of people will become more vulnerable as more economic, security, and political gains are lost.

Inflation's global shockwaves (please see risk #4) will take an especially heavy toll on vulnerable populations in developing countries as rising prices, tighter financial conditions, and slowing global growth stoke public (and therefore political) anxiety.

Food insecurity will intensify as food supplies are further disrupted by the Russia-Ukraine war and inflation eats away at purchasing power. Uncertainty will encourage more governments to impose protectionist trade restrictions. High gas prices will threaten fertilizer production and raise costs for farmers across the board, driving up food prices (please see risk #6). Higher costs of farming will also increase the demand for cheap labor in the agricultural sector, which accounts for 70% of global child labor and mainly employs children of early school age.

Women and girls will suffer the most, losing hard-earned rights, opportunities, and security

There will be longer-term impacts on educational attainment and inequality as more children—especially girls—are forced out of school to work. This issue is affecting emerging markets and advanced industrial economies alike: In the United States, the average elementary-school student lost over half a school year's-worth of learning in math and roughly a quarter of a school year in reading during the pandemic—the biggest educational disruption in American history. The Horn of Africa, heavily dependent on Ukraine's grain and struck by four consecutive failed rainy seasons, will be worst hit. In Ethiopia, Kenya, and Somalia, for example, the number of children at risk of dropping out of school tripled in the first three months of war.

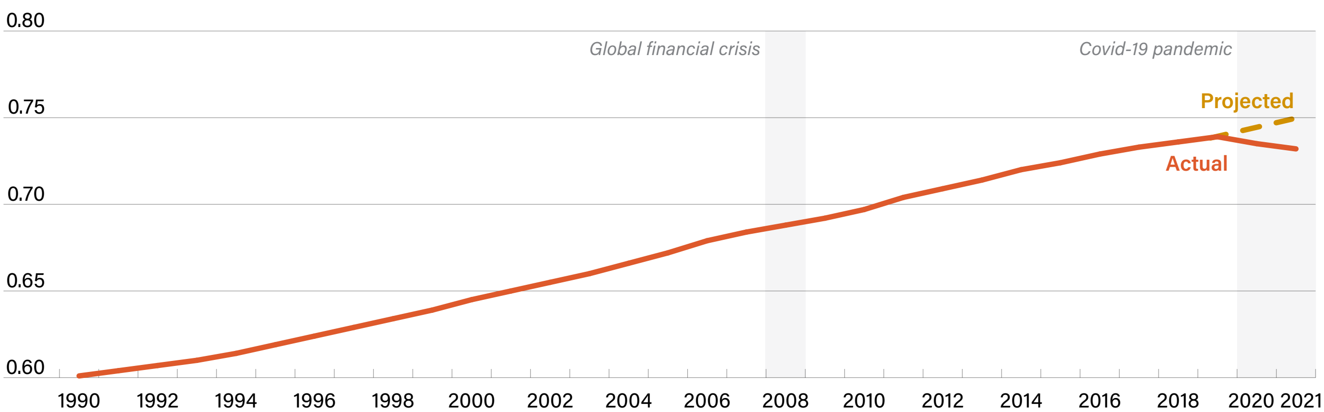
Women and girls will suffer the most, losing rights, opportunities, and security as advances in gender equality are rolled back. Stagnating growth, food insecurity, and cuts in social and health spending will push more women out of the labor market or into the informal economy, leaving them at higher risk of poverty, hunger, domestic violence, and sexual exploitation. More girls will be at risk of child and forced marriages, especially in West and Central Africa. The pandemic alone is projected to force an additional 10 million girls into early marriage by 2030 and lead to the first increase in the practice after more than 20 years of declining rates.

Climate change will multiply these threats as extreme weather events disrupt supply chains and trade patterns, adding stress to food and energy markets. These conditions will force larger numbers of people from their homes and across borders, with regional political, economic, and security spillovers.

Most developing country governments have limited fiscal space to address these humanitarian crises. Further, tighter financial conditions will prompt rich nations to cut back on official development assistance, and aid to Ukraine (itself inadequate for reconstruction) will crowd out relief for the world's poorest, especially in sub-Saharan Africa and South Asia. The result: The global middle class will contract, and further down the development chain, tens of millions of people will find themselves on the verge of disaster without a safety net.

Human development in reverse

Human Development Index



Note: The period of the global financial crisis is indicative
Source: Human Development Report Office calcualtions based on data from Barro and Lee (2018), IMF (2021c, 2022), UNDESA (2022a, 2022b), UNESCO Institute for Statistics (2022), UNSD (2022) and World Bank (2022c)

8 Divided States of America

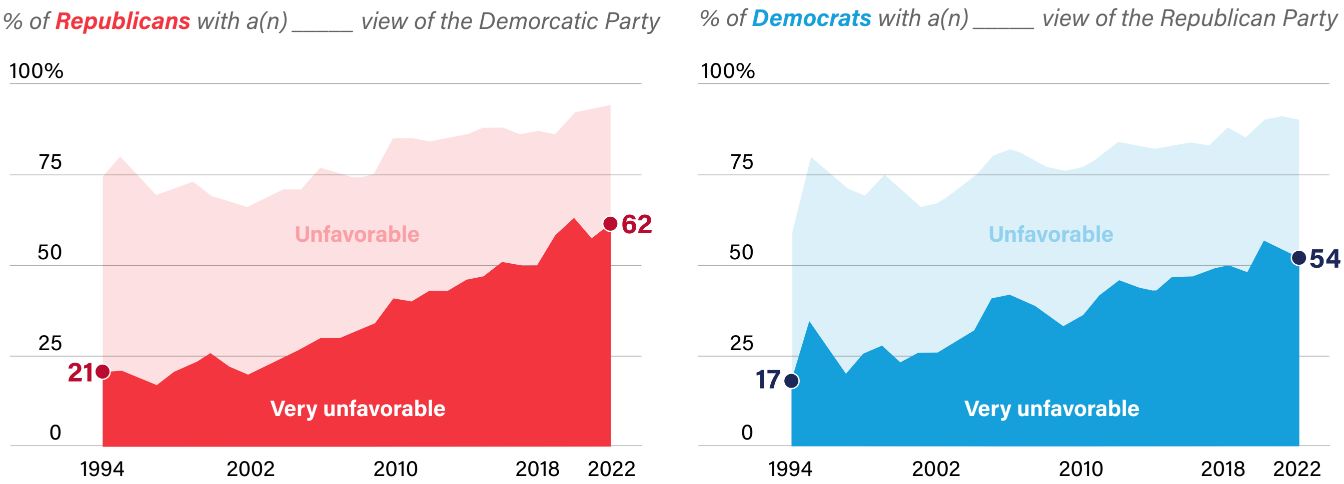
First, the good news. The 2022 midterm elections halted the slide toward a constitutional crisis in the next US presidential election. Not because the Republicans won control of the House of Representatives, nor because the Democrats held the Senate. Most importantly, voters across the United States rejected virtually all candidates running for governor or secretary of state who denied the legitimacy of Biden's victory over Trump in the 2020 vote. And it's governors and secretaries of state who will administer future elections at the state level. That's why US politics doesn't appear higher on this year's list of top risks.

But it still made the cut.

The United States remains one of the most politically polarized and dysfunctional of the world's advanced industrial democracies. The growing partisan polarization of the American electorate is continuing to erode the legitimacy of core federal institutions: the three branches of government and the peaceful transfer of power through free and fair elections. Consequently, political power is devolving to the states, increasingly led by partisans stepping into the void left by Washington to pursue agendas that cannot be implemented by a fractious and sclerotic federal government. Accordingly, the contrast in policy direction between Texas and California, for example, is far starker than it was even five years ago.

This polarization has less impact on America's global position than you might expect. US advanced industrial allies and partners around the world still rely heavily on the United States in national security relations—both in terms of direct military coordination as well as, more broadly, in asymmetric threats (counterterrorism, cyberdefense) and national

Partisan animosity is on the rise



Note: Based on partisans and does not include those who lean to each party.
Source: Yearly averages of survey data from Pew Research Center American Trends Panel (2020-2022) and Pew Research Center phone surveys (1994-2019).

security-related components of the global economy (semiconductors, financial transactions). That's become less true among developing countries from Latin America, Southeast Asia, and sub-Saharan Africa—and particularly among oil producers in the Middle East. But the shift has more to do with China's and other countries' rise than US political dysfunction.

Nonetheless, this environment will become increasingly challenging for companies used to thinking of the United States as a coherent market with a predictable regulatory regime. States traditionally have competed for corporate investment through incentive packages. But now, conservative politicians are differentiating themselves by picking fights with major employers over issues such as environmental, social, and governance (ESG) regulations, while left-leaning politicians are pursuing more pro-worker, consumer, and environmental policies that increase the cost of doing business in their states. This divergence will make long-term investment planning more difficult for both American and foreign firms because a mastery of state-level politics will become central to a successful business strategy.

There is also the continuing risk of political violence in the United States, even as some who participated in the Capitol riots two years ago on 6 January are now being sent to prison. The polarization that drives public anger has become a structural feature of American life, fueled in part by social media (please see risk #3).

Of course, red-blue animosity has been trending higher for decades. But today, roughly two-thirds of Americans view members of the opposing party not just as wrong but as dishonest, immoral, and a threat to the country itself. And the belief that threats and violence are politically justified has risen among members of both parties—though the increase has been sharper among Republicans. American's growing propensity toward settling political debates through non-democratic means will increase the risk of large-scale protests and one-off acts of political violence.

For all these reasons, America's bitter political polarization remains a risk we expect will grow through 2023.

There is a continuing risk of political violence in the US, even as some who participated in the Capitol riots go to prison

Oh, Canada

Canada has long seemed impervious to the political divisions and dysfunction apparent across the border in the United States. But the trucker convoy that occupied the capital of Ottawa last year—ostensibly protesting Covid-19 vaccination mandates—was a big indication that something had changed. In 2023, deepening polarization and regional antagonism in Canada will add to growing political instability on the continent.

Governments worldwide will face challenging economic conditions this year, and Canada is vulnerable. Persistent inflation will squeeze Canadians as rising interest rates and slowing growth prompt a sharp housing market correction, increase unemployment, and put fiscal pressures on indebted households, businesses, and governments.

These are manageable economic shocks. But two political factors are likely to make things worse. First, Canada's hyper-polarized political parties, divided along regional lines, will amplify rural-urban and eastern-western tensions for political gain.

Second, declining trust in traditional media outlets, combined with Canada's deep and unique exposure to the US political and media ecosystem—which manifests in cross-border political links, transnational special interest groups, Canadian consumption of US cable news and talk radio, and connections between US and Canadian far-right and far-left fringe groups (especially on social media)—will facilitate contagion from the divided republic to the south.

This means that Canada's combative partisan and regional politics are poised to take a turn for the worse. In Ottawa, inflammatory attacks on Prime Minister Justin Trudeau of the Liberal Party will be met by attempts to paint the Conservative opposition as a Canadian version of Trumpism. Both are overegged ... but will gain traction. More serious would be hyper-partisan tactics by provincial premiers (taking a page from US governors) that reflect the increasing factionalization of Canadian politics. Flashpoints include negotiations over healthcare funding as well as federal immigration, energy, and climate change policies.

Canada and the US are growing closer, but it's less about alignment between Ottawa and Washington than cross-border alliances between sub-national governments and politicians of the same political stripe. Politics in Alberta and Texas (or New York and Ontario) are increasingly alike. This will add new uncertainties to US-Canada relations and the world's largest trading partnership. As the political temperature rises, we will see closer coordination between American and Canadian far-right and far-left fringe groups—with an increasing risk of disruptions, protests, civil disobedience, and even violence.

When the US sneezes, Canada catches a cold. Watch out for sniffles north of the border in 2023.

9 Tik Tok boom

Born between the mid-1990s and the early 2010s, Generation Z is the first with no experience of life without the internet. Digital devices and social media have connected its members across borders to create the first truly global generation. And that makes them a new political and geopolitical force, especially in the United States and Europe. Gen Z has both the ability and the motivation to organize online to reshape corporate and public policy, making life harder for multinationals everywhere and disrupting politics with the click of a button.

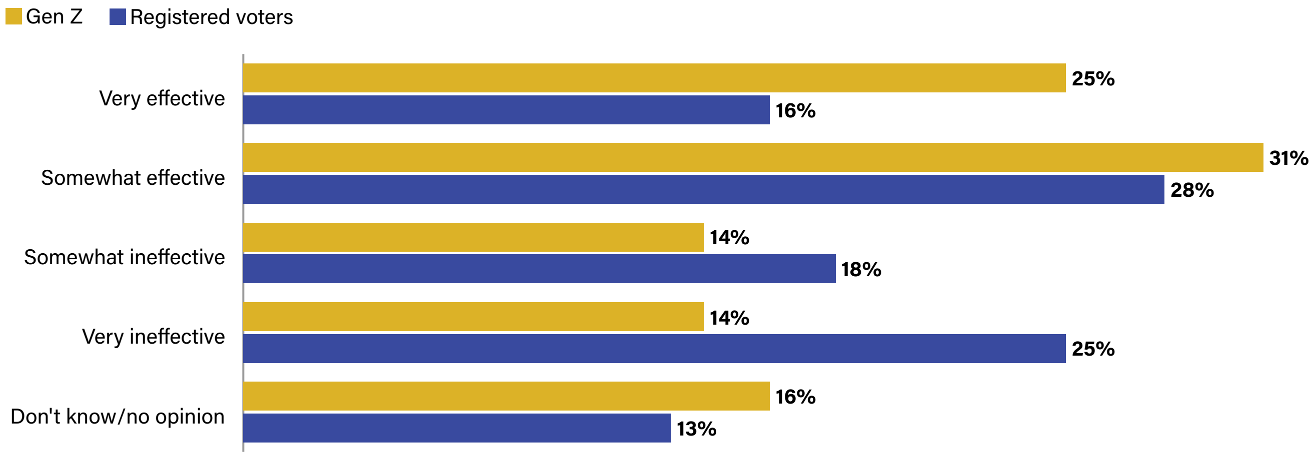
Gen Z grew up as America's post-Cold War dominance waned, revealing leadership failures at home and abroad through a series of formative historical events: the 2008 financial crisis, the Arab Spring and the Syrian civil war, Brexit, Trump's election, the Black Lives Matter movement, the #MeToo reckoning, mass school shootings in the US, the Covid-19 pandemic, and now the Russia-Ukraine war.

The result is a generation radicalized by the turbulent nature of its times and the failure of leaders and existing institutions to respond. Gen Z has broader expectations, demands, and policy impulses than its predecessors, including a marked distrust of institutions and traditional channels of political change and economic achievement.

Not only is this generation the most racially and ethnically diverse in Western history, but its members are also more aware of systemic racism, gender issues, and economic inequality—and they accordingly lean heavily progressive. Many are

The activist generation

How effective Gen Z think protesting is as a way to impact politics and public affairs, compared to registered voters



Source: POLITICO/Morning Consult survey of 1,000 eligible Gen Z voters and 1,987 registered voters of all ages in September 2020

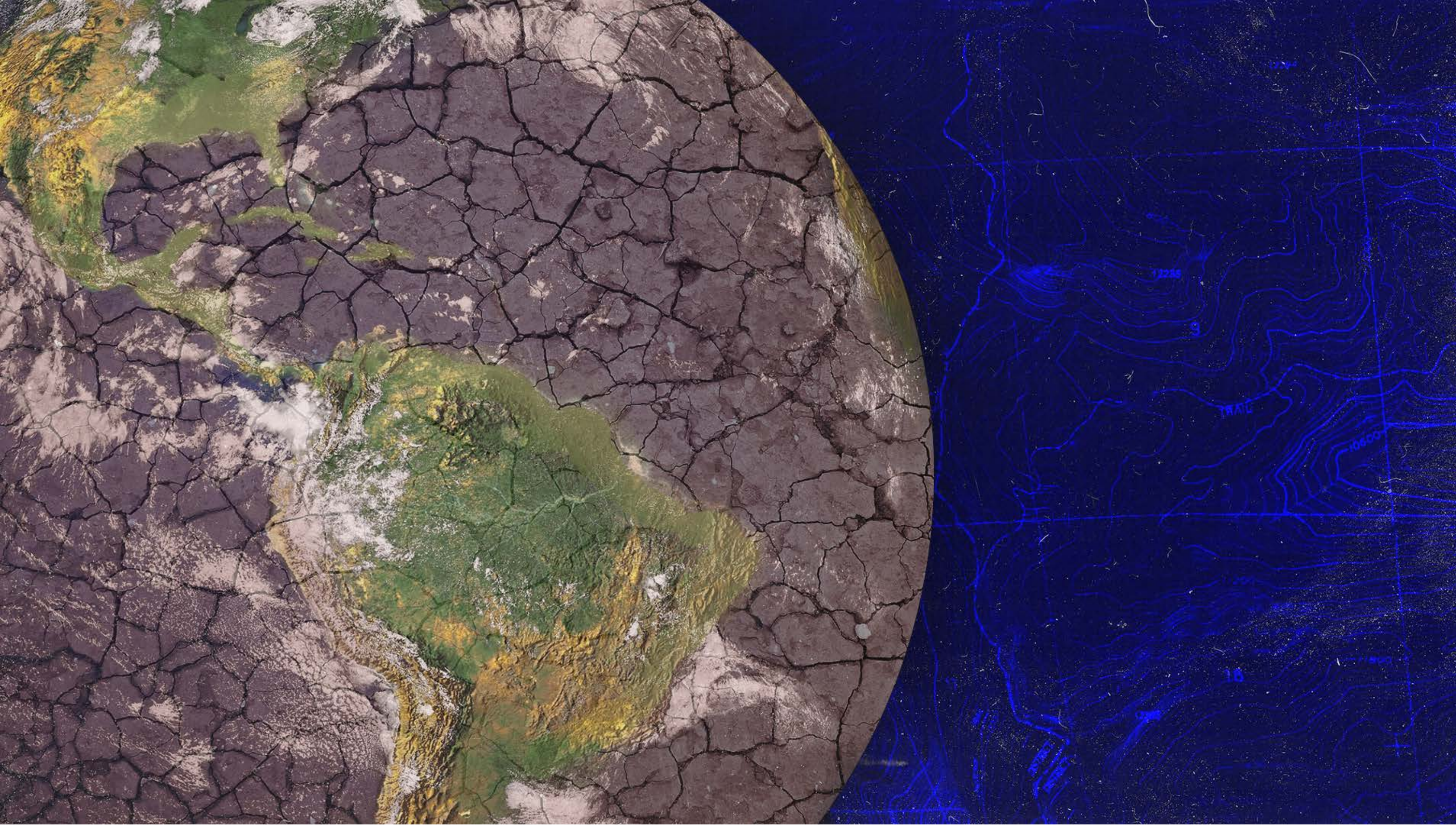
natural activists willing to skip school or work to protest government policies on climate change, gun control, and social justice while demanding that educational and business institutions conform to their worldview.

This generation is now coming of age, entering the workforce and political life. Gen Z currently makes up 30% of the world's population and is expected to comprise 27% of the global workforce by 2025. In the United States, Gen Z turned out in record numbers for the 2022 midterm elections, helping to hold off a Republican "red wave" by breaking in favor of Democratic candidates in swing states such as Pennsylvania and Michigan. And while its power at the ballot box will only grow, Gen Z's political influence already extends further owing to its outsized role in campaigns organized on social media.

Generational transitions often require corporations and governments to make significant institutional, strategic, and policy changes. When women entered the workforce during World War II, businesses were required to develop new workplace conditions better suited to childcare and family obligations. In the 1960s, baby boomers ushered in a period of radical social and political change. And more recently, millennials encouraged companies to think differently about issues such as mental health, leading to the adoption of new corporate services, benefits, and support systems.

Gen Z is redefining the workplace by pushing companies to incorporate fundamental changes in how they recruit, organize, retain, and develop talent; embrace new career paths and opportunities; foster genuine diversity and inclusion; and reevaluate their social, political, and environmental impact. As a result, corporations will feel unprecedented pressure to take sides in political and geopolitical debates, whether they like it or not.

Gen Z turned out in record numbers for the US midterm elections, helping to hold off a Republican "red wave"



10 Water stress

This year, water stress will become a global and systemic challenge … while governments will still treat it as a temporary crisis.

In 2022, receding water levels exacerbated the food crisis in Africa, halted shipping and nuclear output in Europe, and led to factory shutdowns in China. Water scarcity also forced the United States to limit water releases in western states and triggered social unrest in Latin America, heightening tensions between corporations and communities. Forecasts for 2023 are worse. Water stress will become the new normal: River levels will fall to new lows, and two-thirds of companies globally will face substantial water risks to their operations or supply chains.

Within countries, the number of water-related conflicts, already up sharply since the 1980s, will reach new heights in 2023. The impact will be greatest in the Middle East and Africa, where water will act as a “trigger” in places where militias fight over the scarce resource, and as a “casualty” in places where militants destroy water pumps, tanks, and pipes. Water scarcity will also trigger refugee flows in the Middle East (Syria, Iraq, and Yemen), threaten economic prospects in North Africa (Algeria, Morocco, and Tunisia), and heighten food insecurity in the horn of Africa (Ethiopia, Kenya, Somalia) by driving food prices higher and forcing farmers to migrate. The spillover effects on domestic inequality will increase social unrest in those places where they combine with other economic and social crises, including high inflation, unemployment, disease outbreaks, and energy shortages.

While the consequences of water stress will worsen, governments’ ability to handle them will not improve. Having failed to adequately prepare for a permanent decrease in water availability, policymakers will rely on short-term emergency measures that abruptly restrict and redistribute resources.

While the consequences of water stress will worsen, governments' ability to handle them will not improve

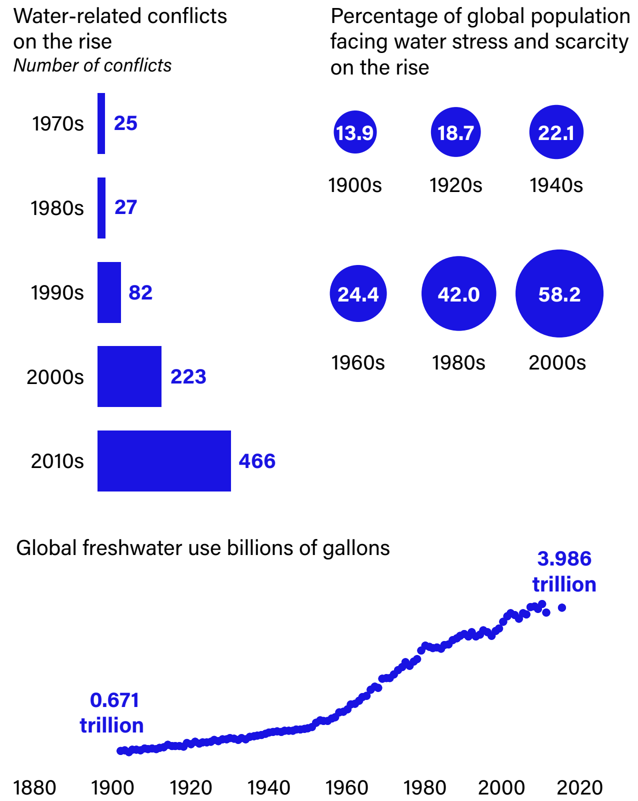
US policymakers will have to choose between electricity generation, water releases, industrial production, and food production on the one hand, and water conservation on the other. More US farmers, who will suffer the most from water restrictions taking effect in 2023 (an up to 21% reduction in Colorado River water supplies for some states), will be asked to forgo harvesting to help tackle water scarcity.

Europe will face different challenges. Norway may have to limit electricity exports to preserve hydropower for domestic use, exposing itself to legal challenges from the Netherlands and Germany. And sinking water levels in the Rhine and Po rivers will disrupt inland shipping and hamper broader economic activity in western Europe.

In Latin America, political decisions will push water-intensive industries such as beverage companies to move facilities from dry to water-rich regions. Local policymakers will follow Santiago de Chile's lead by rotating water cuts among customers, affecting the retail and hospitality industries.

There are no quick fixes in sight. For decades, rich nations treated water scarcity as a problem affecting poor countries that could be mitigated through bilateral aid. This led to chronic underinvestment in technological solutions such as desalination plants, which remain prohibitively expensive for use in agriculture—a sector accounting for 70% of freshwater withdrawals. International cooperation won't come to the rescue, either. While climate and biodiversity international negotiations—known as conferences of the parties, or COPs—are gaining traction, the COP focused on desertification remains overlooked (have you even heard of it?). The last one in May 2022 made no significant progress. And other global initiatives such as the upcoming UN Water Conference won't make a dent in water stress this year.

Water stress on the rise



Sources: Council on Strategic Risks, Population Connection, Nature, Kummu et al., Global International Geosphere-Biosphere Programme, Our World in Data

Water policy requires a transition from crisis to risk management. That shift will not materialize in 2023, leaving investors, insurers, and private companies to figure out how to handle this challenge on their own.

RED HERRINGS

Cracks in support for Ukraine

The United States and Europe will remain aligned in staunch support of Ukraine despite growing skepticism of involvement in the US and internal disagreement in the EU over whether to press Ukraine to negotiate.

Regardless of fluctuations in political support in the United States in the coming months, Ukraine's main benefactor has already frontloaded its 2023 material assistance. The Biden administration ensured military and financial aid for the year when it passed a $45 billion appropriation in December. In addition, lend-lease authority remains in place until the end of the year, granting the administration wide authority to provide Ukraine with more military hardware.

There is also strong bipartisan support for Ukraine in Washington, despite growing populist-right and progressive-left wariness of a "blank check" in US aid. Even with a majority in one chamber of Congress, Republicans will not block all new aid this year, and Congress will approve potential requests for smaller, military-focused packages. Such support will be tied to specific needs and conditioned on greater oversight of aid deployment, clarity on the US endgame, and increased EU contributions. Bipartisan consensus in the US on backing Kyiv will underpin continued transatlantic commitment to seek peace on Ukraine's terms.

For their part, most EU members see Russia's attack on Ukraine as a fundamental challenge to Europe's future. Washington's strong support for both Kyiv and NATO allies will be a constant reminder of the US security umbrella shielding Europe from hostilities, thereby dampening appetite for more EU strategic autonomy. Though European views diverge on how the war should end, EU members will not break ranks with Washington in deferring to Kyiv on peace talks.

Despite bearing the brunt of the war's economic fallout, European allies will also increase defense spending, in line with US demands. Sanctions pressure will remain high, with no political room for a climbdown on either side of the Atlantic. The EU will continue its economic decoupling from Russia, particularly in energy with the help of gas imports from the United States.

US-EU alignment on NATO's revitalization, including the addition of Finland and Sweden as members, will anchor stable transatlantic relations. Tensions will resurface when the time comes to fund Ukraine's reconstruction—made much more expensive by Russia's continued attacks on Ukrainian critical infrastructure—but that won't happen until the war ends, and the war isn't ending anytime soon. While 2023 may see the peak of Western aid to Ukraine, the Atlantic alliance will remain unified in its support for Kyiv this year.

Western support for Ukraine remains strong

The **United States** should continue to support Ukraine despite Russia threatening to use nuclear weapons

4-5 October 2022, % of US respondents

Overall, do you approve or disapprove of the **European Union's** support for Ukraine following Russia's invasion of Ukraine?

October/November 2022, % of EU respondents

Source: Reuters/Ipsos, Eurobarometer

EU political dysfunction

As much of the EU enters recession this quarter, the bloc is beginning to feel serious strain from the Ukraine war. This year's economic downturn and energy crunch (please see risks #4 and #6) will add to this pressure, exacerbating the outlook for the EU at a time it is grappling with leadership challenges. With a new government in Berlin struggling at home and abroad, French President Emmanuel Macron hobbled by his lack of a parliamentary majority, and Mario Draghi's exit as Italy's prime minister, there is no one capable of leading the bloc through this year's travails.

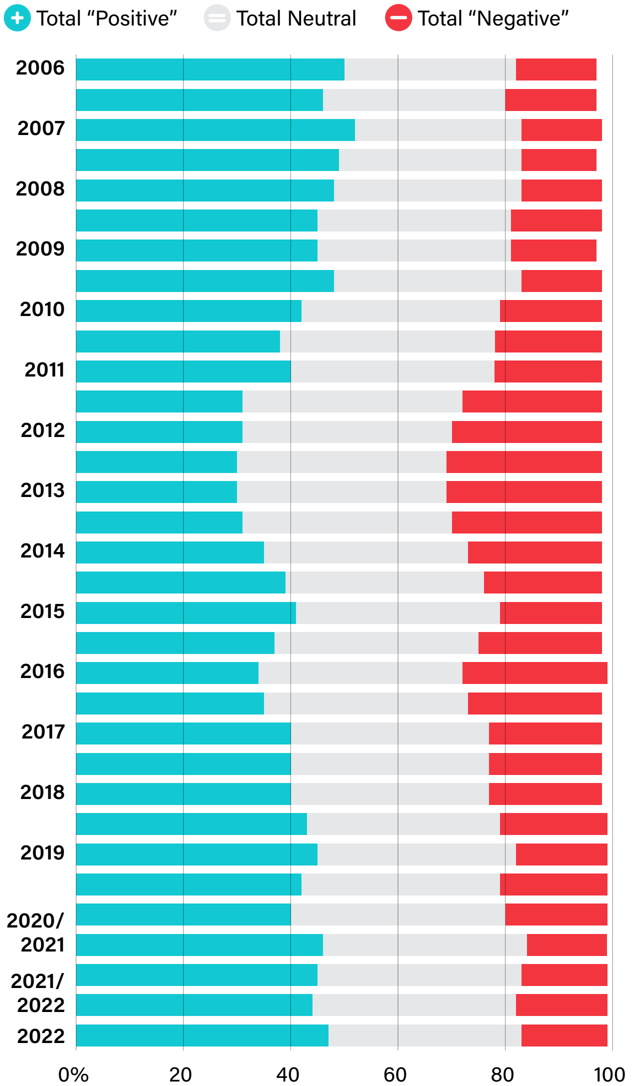
And yet, we expect the EU to remain cohesive in 2023. Yes, Germany will oppose more European fiscal solidarity and national budgets will continue to bear the brunt of the energy and inflation fallout in 2023. But more EU common borrowing remains possible. Discussions in Brussels on actions such as sanctions against Russia will also get more challenging (especially in terms of the economic fallout), but the EU is unlikely to waver in its commitment to Ukraine or reverse its decoupling from Russia.

In fact, the crises of the last several years—the Eurozone debt crisis, Brexit, the Covid-19 pandemic, and the Russia-Ukraine war—have all strengthened the European Union as a political actor. It now has stronger common fiscal policies, energy policies, health policies, and defense policies than ever before. This cohesion provides more direct economic leverage over potential outliers like Hungary. While it's true that no individual European leader has the ballast that Germany's former chancellor Angela Merkel had, the EU possesses the strongest supranational governance on the planet, so that doesn't matter nearly as much as it used to.

An existential threat from a surge in populism as a result of cost-of-living challenges is also unlikely. Italy's post-fascist ruling party, the Brothers of Italy, has tacked to the center. In France, Macron has assembled a fragile ad-hoc majority with the center right, and even if he calls an early election, the populists will remain divided and far from a majority. While Spanish elections at the end of next year may see the far-right Vox enter government for the first time, the center-right opposition Popular Party will

Support for the EU remains strong

In general, does the EU conjure up for you a very postive, fairly postive, neutral, fairly negative, or very negative image?



Source: Eurobarometer

remain firmly in the lead. The center-right government in Greece should narrowly hold onto power next summer, while Poland's euroskeptic government is likely to be replaced by a liberal, more pro-EU coalition in the fall.

Taiwan crisis

There is growing concern in Washington that the United States and China are headed for confrontation over Taiwan … and that it's increasingly likely China proactively changes the status quo, possibly even leading to direct military conflict in the near term. US Secretary of State Antony Blinken has asserted that China's Xi is "determined to pursue reunification on a much faster timeline" than previously thought. Senior defense officials have suggested Chinese use of force to retake Taiwan could happen by 2027, and possibly as soon as this year. But Taiwan isn't set to become a crisis in 2023.

Taiwan's ruling Democratic Progressive Party could escalate tensions with Beijing by advocating more overtly pro-autonomy policies ahead of the 2024 presidential election—especially now that President Tsai Ing-wen, a relative moderate on cross-strait issues, has stepped down as party chair. But last year's local elections made the engagement-minded Kuomintang opposition party more, not less, powerful.

Biden has repeatedly said the United States would defend Taiwan against a Chinese attack, casting doubt on Washington's longstanding commitment to "strategic ambiguity." But while the US will seek to improve political and economic ties with Taiwan, as well as military deterrence against any potential Chinese attack, the White House isn't considering a formalized security guarantee—let alone crossing Beijing's redline of recognizing Taiwan as a sovereign state.

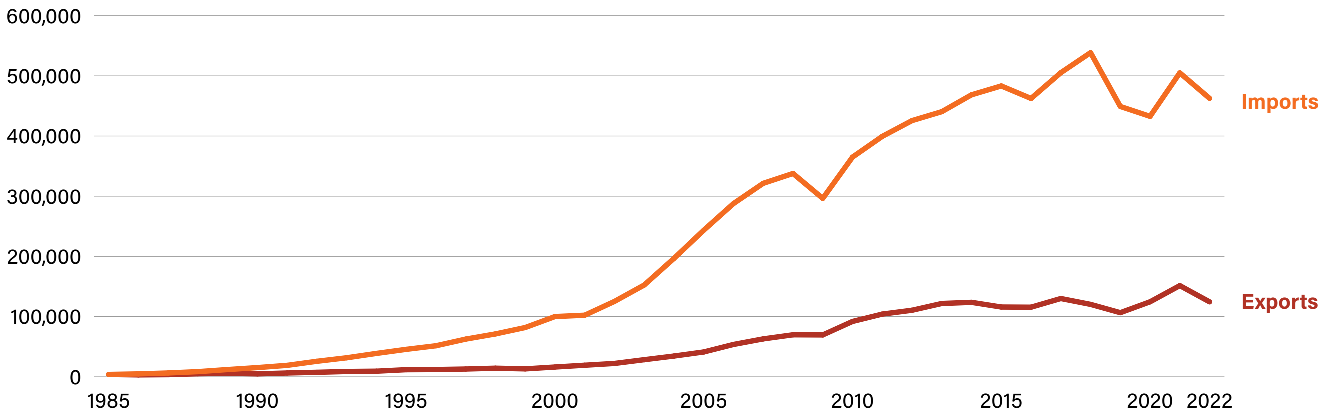
A more hawkish, Republican-controlled House will advance proposals to weaken or even abandon the United States's One China policy, but the real momentum is behind symbolic shows of support such as congressional visits to Taiwan and diplomatic engagements like the 21st Century Trade Initiative. Importantly, neither US private sector nor US allies want to risk a crisis.

For its part, China will match Taiwanese and American "provocations" with strong rhetoric and posturing of its own, and there may be more frequent military exercises and activities around Taiwan that prove disruptive to shipping and global supply chains. But Xi has recently reaffirmed Beijing's longstanding policy of prioritizing "peaceful unification" over the long term.

In short, neither China nor the United States is willing to test the other's redlines in 2023. In fact, Biden and Xi have told each other clearly and repeatedly that they're not looking for a crisis. And there are good reasons why a confrontation over Taiwan would pose intolerable risks for both countries. First, the US and China both remain consumed with domestic challenges—inflation in the US, slowing growth in China, and a possible global recession—challenges that would grow exponentially in the event of a military conflict. Second, China can't invade Taiwan without incurring significant US-led sanctions and losing access to the critical semiconductors that Taiwan Semiconductor Manufacturing Company (TSMC) produces. Third, despite sustained tension and efforts by both China and the US to reduce their interdependence, the two economies are deeply entangled and will remain so for the foreseeable future. A near-term military conflict would guarantee mutually assured economic destruction.

US and China remain economically interdependent

US trade in goods with China, $ Millions



Note: All figures are in millions of U.S. dollars on a nominal basis, not seasonally adjusted unless otherwise specified.
Source: United States Census Bureau

Especially after witnessing Russia's abrupt isolation by the West, China will defer moves that could possibly provoke military conflict until the balance of power is decisively in its favor, or until the US is ruled by a president who is clearly unwilling to defend Taiwan. None of this is remotely possible in 2023.

Tech tit-for-tat

When the US imposed sweeping restrictions on China's semiconductor industry last year, the move had the hallmarks of a containment policy, with Biden locking the two countries on course for a permanent tech competition. In effect, Washington was cutting Beijing off from the most critical technologies on earth. Retaliatory moves were sure to follow.

But there are several reasons why China is interested in keeping tensions contained in 2023.

First, between the exit from zero Covid, domestic unrest, and a challenging economic outlook, Xi has bigger fish to fry at home (please see risk #2) and is eager to avoid new crises.

Second, Xi's main retaliatory options—export controls on rare earth minerals, restrictions on semiconductor packaging for Western firms, unlinked economic measures—would damage China's own economy at a time of historically weak growth.

Third, China is hundreds of billions of dollars and a minimum of three to five years away from being able to produce the chips it needs domestically. Its dependence on older-generation semiconductors from TSMC, which are excluded from US export restrictions, will only increase in the meantime.

And fourth, Xi doesn't see the US moves as a step-change escalation. After all, China has been intent on achieving technological leadership and self-reliance for years. Export controls are considered fair game given Beijing's longstanding policies—for example, Made in China 2025 and "dual circulation".

None of this is to say that Xi is happy with Washington's new tech policy—he isn't. Nor does it mean that Washington won't keep pushing hardline policies in this area (including more targeted regulations and export controls) under the banner of national security—it will. But the White House knows it needs to draw a line under deteriorating relations with Beijing. This means refraining from embarrassing or provoking China unnecessarily, focusing instead on stabilizing the relationship overall and working more constructively in areas of mutual interest.

We try not to think too hard about writing a report on where the world is going (put it that way, and it feels like a daunting task). But it's not about prediction. You start with where the world is, really is, and to the extent that you get that assessment right, it constrains more outcomes than any crystal ball ever could. In many ways, Top Risks is about the art of what's not possible.

We learn as much about ourselves as the world in the process. What biases are we holding on to that need to be challenged? What are the things we think we know that aren't really so? And what would make us wrong?

We hope we've addressed these issues—we've certainly tried! As always, we'll be keeping the Top Risks on our homepage all year, so we can keep ourselves honest ... and then come back in December and see how we've done.

In the meantime, a heartfelt thanks for your support for the 25 years since we started Eurasia Group. It's a milestone that makes us stop for a moment. Yes, we're older, if not wiser (though it helps that we were children when we founded this thing). We're definitely more grateful.

Our very best wishes for our year ahead.

Ian and Cliff

Brasília London New York San Francisco São Paulo Singapore Tokyo Washington D.C.

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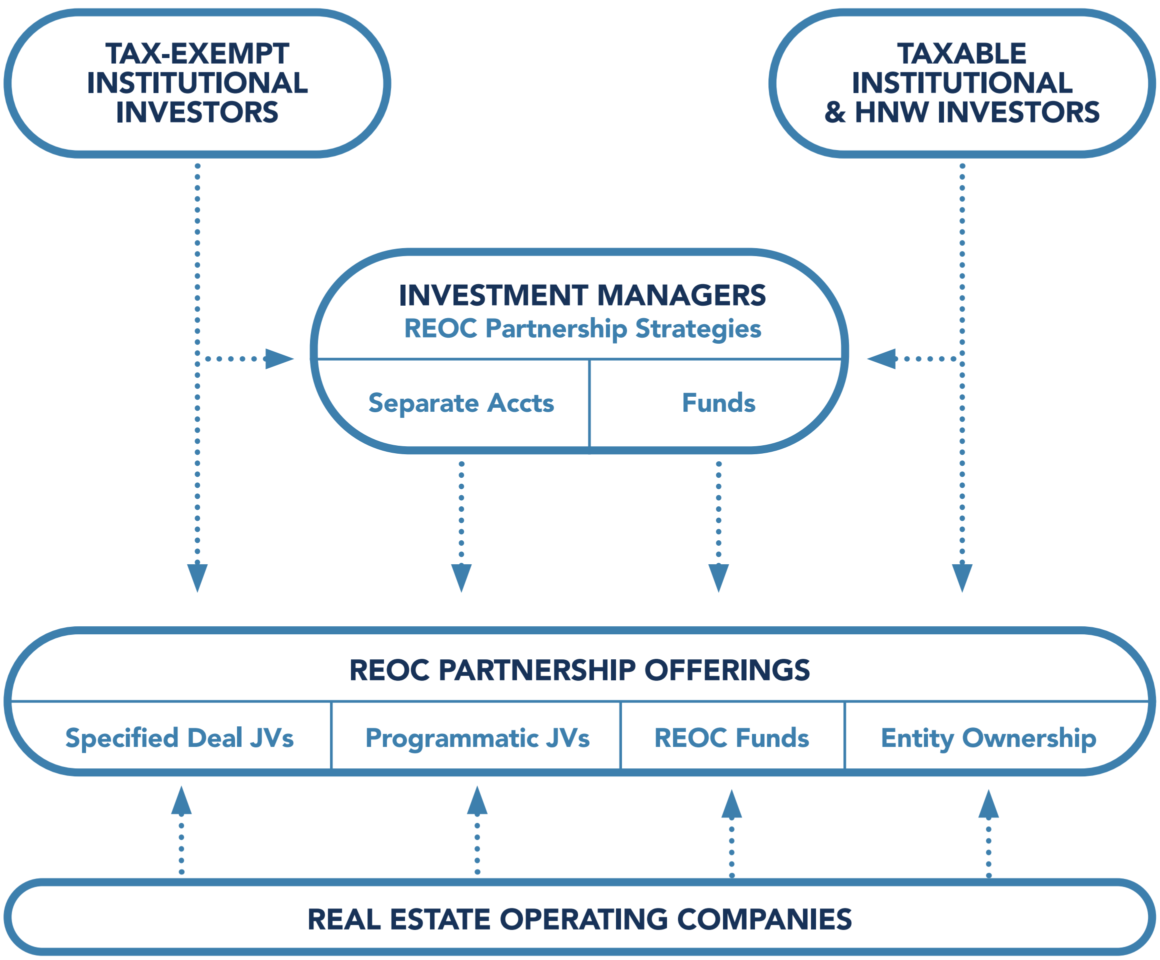

VIP VISIONS INSIGHTS & PERSPECTIVES
AMERICAS Institutional Real Estate, Inc.

Navigating Market Downturns

MARK ROBERTS, CFA, AIA
DIRECTOR OF RESEARCH
CROW HOLDINGS

JANUARY 2023

INSTITUTIONAL REAL ESTATE, INC.   CROW HOLDINGS

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Peak-to-trough value losses are elevated in credit crises…

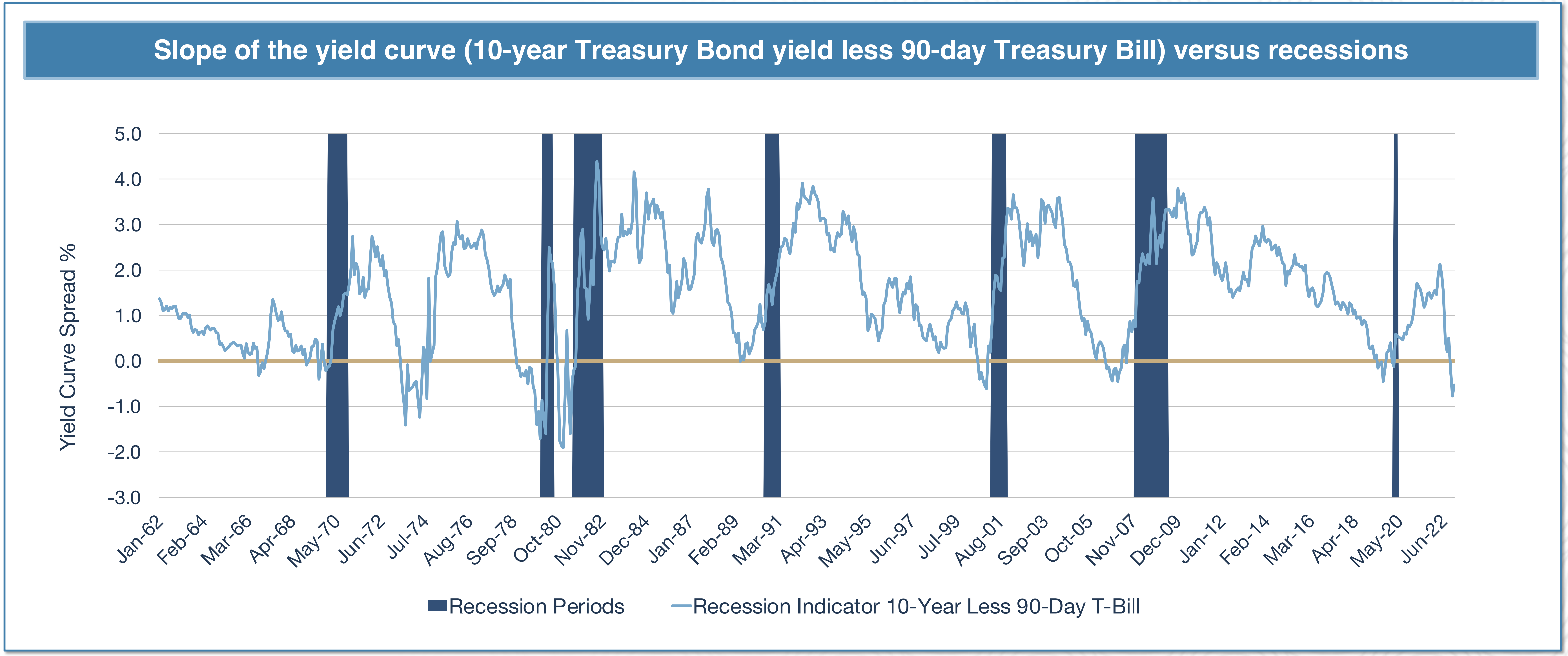
	ECONOMY						REAL ESTATE MARKETS				
	Severe Recession	Declining Jobs	High Inflation	Credit Crunch	Financial Crisis	Corporate Distress	Over-supply	Excessive Leverage	Borrower Defaults	Capital Outflows	Peak-to-trough
UK 1970s											-49%
Early 1980s											-11%
Early 1990s											-33%
Dot com											-6%
GFC											-28%
2022	?			?	?						?

Sources: PGIM Real Estate. As of October 2022.

REF: 006791

Is the Yield Curve Signaling Challenges Ahead?

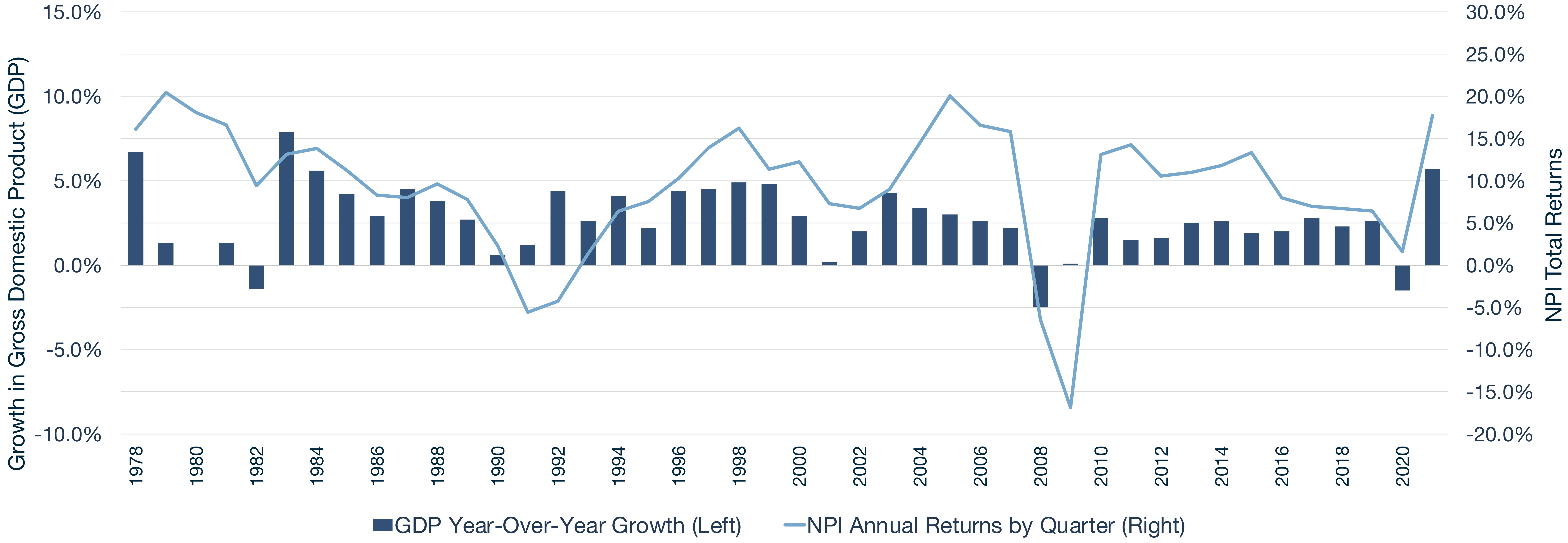
The NY Federal Reserve probability of a recession by Nov. 2023 has increased to ~38%.



Source: St. Louis Federal Reserve FRED Database for 10-Year Treasury Yield and 90-Treasury Bill. Chart reflects the difference between the two. Recession dates shown in grey as reported by the National Bureau of Economic Research. Data as of December 31, 2022. Recession probability from the NY Federal Reserve as of November 2022, the latest available. At the time, the yield curve spread was negative (-36 bps). Since then, the yield curve has inverted further to c. -100 bps.

Real Estate Returns versus Growth in Real GDP

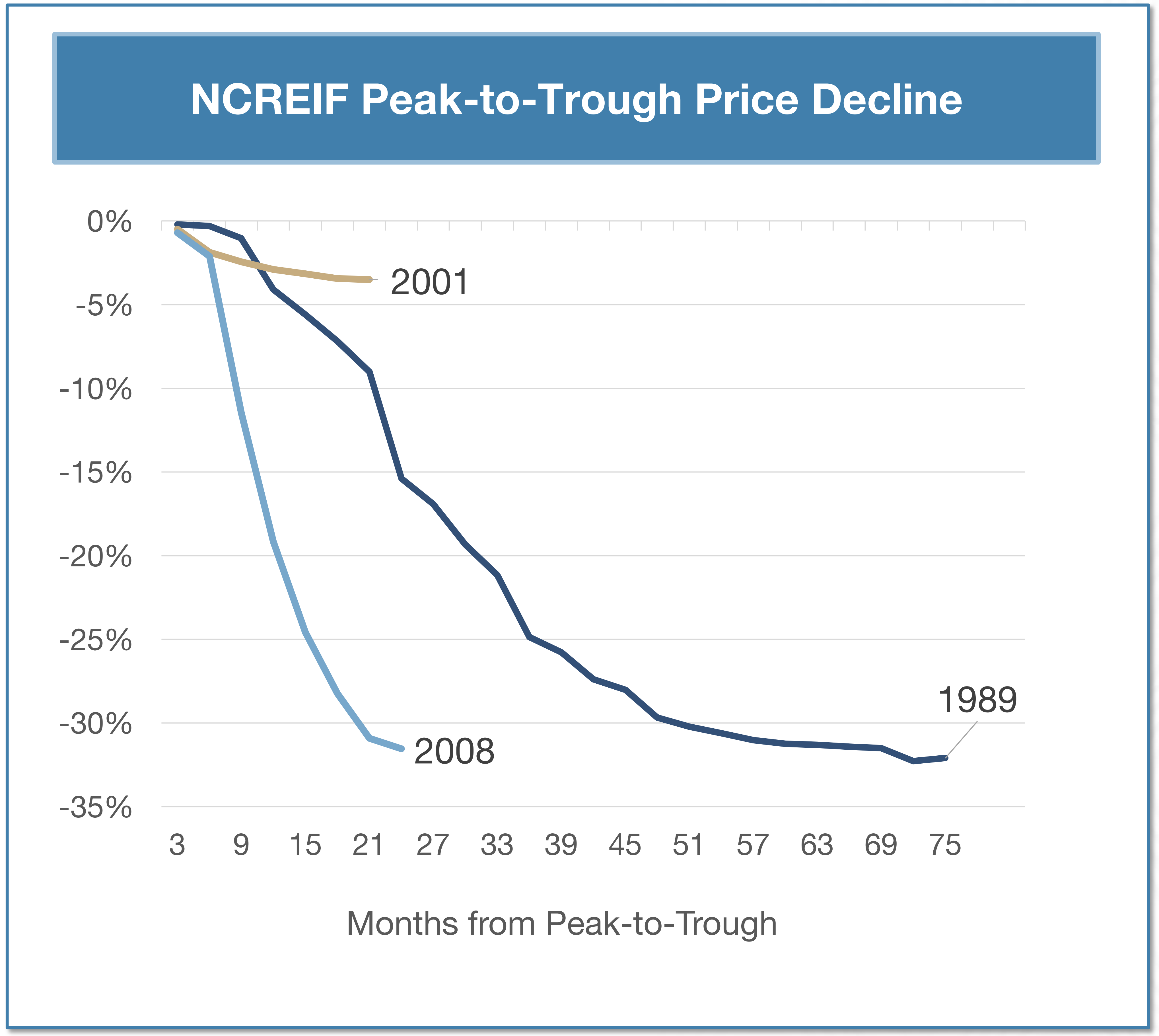
Real estate total returns as reflected in NCREIF are positively correlated with growth in GDP

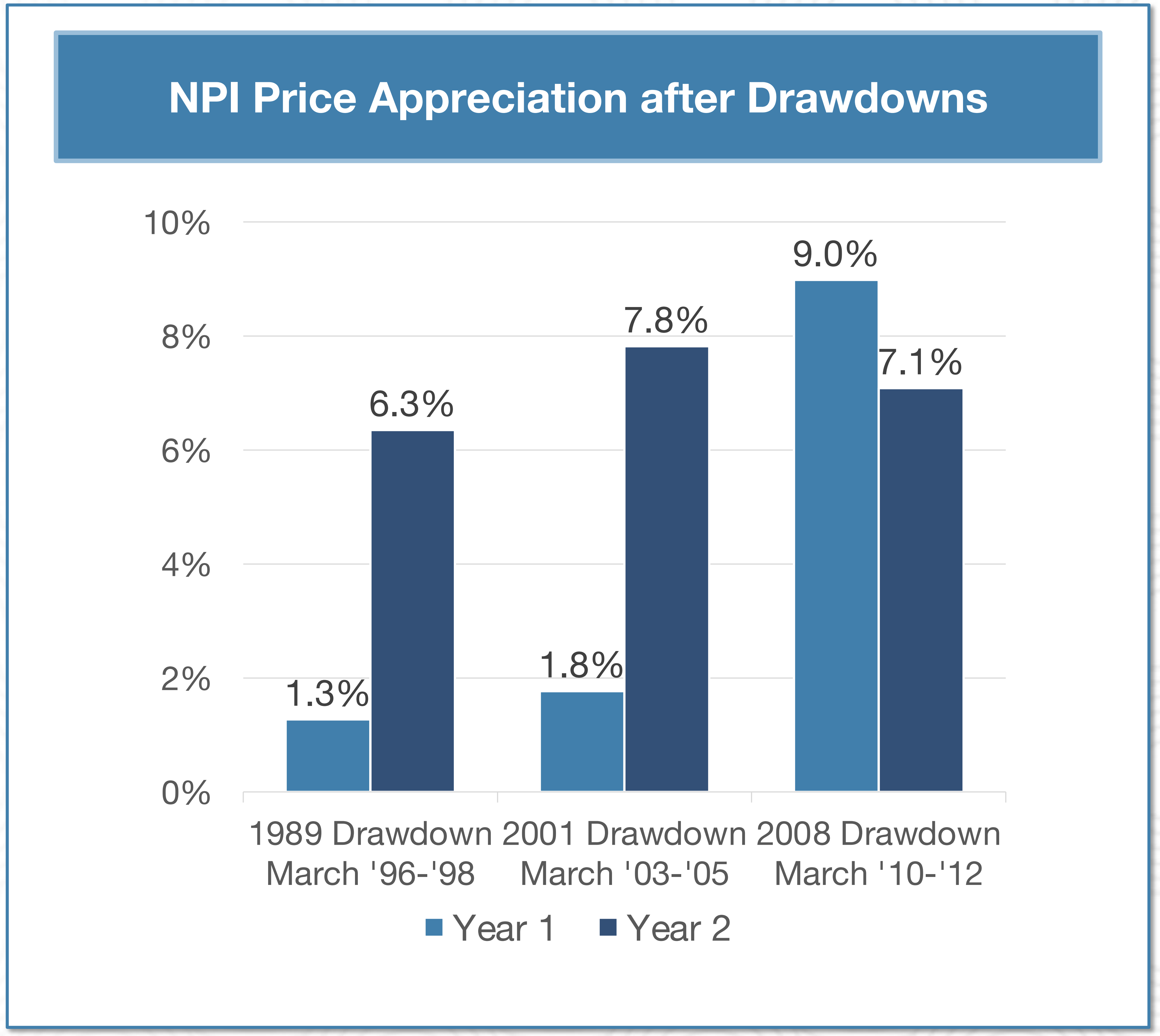


Source: Crow Holdings Research using data from the St. Louis Federal Reserve FRED Database for growth in Gross Domestic Product (GDP) and NCREIF Property Index. Data reflects the timeframe from 1Q1978-4Q2021 reflecting the latest calendar year annual data.

Peak-to-Trough Declines & Future Price Gains

Since 1980, there have been three prominent price declines of varying durations



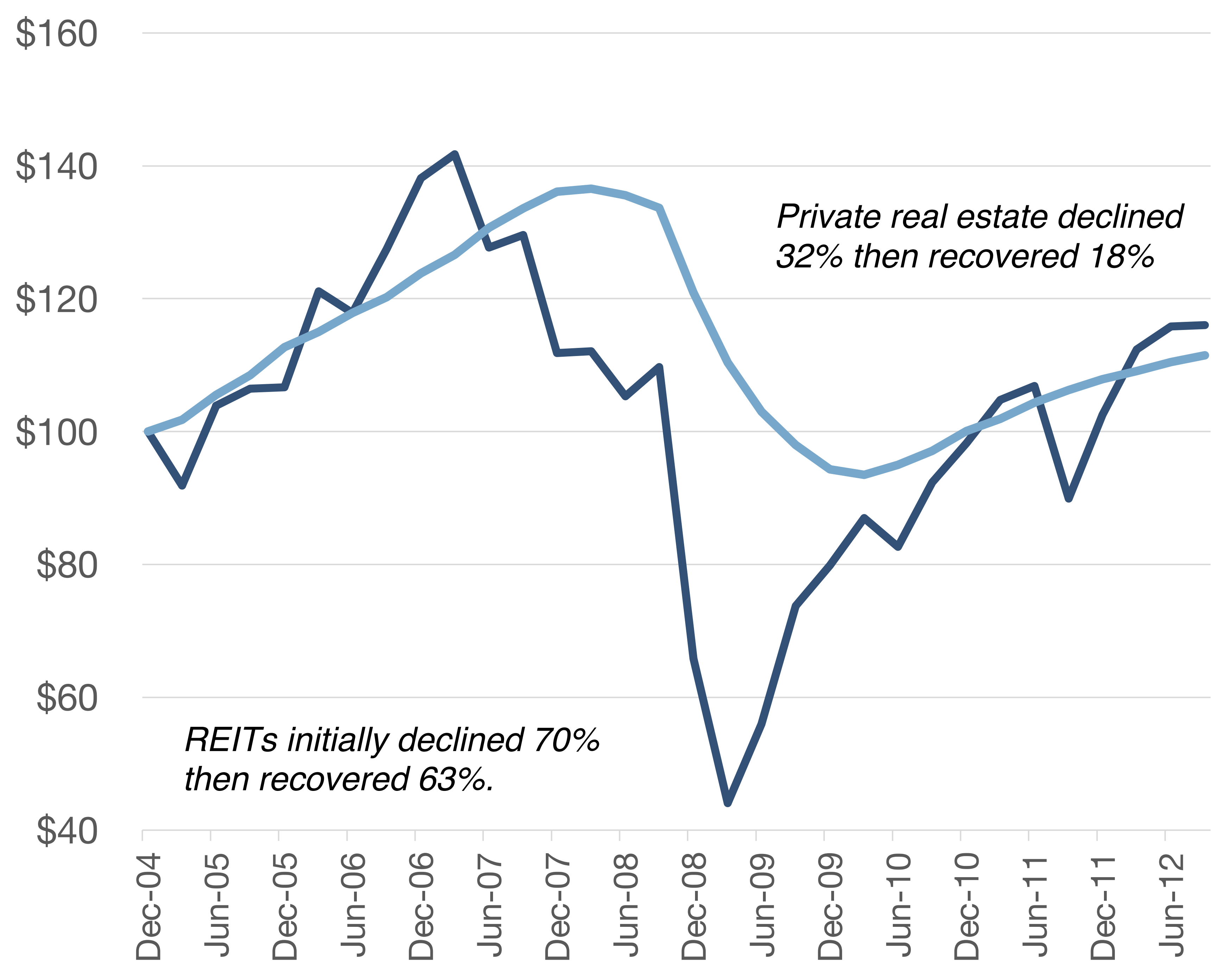


Source: Crow Holdings Research using NCREIF Property Index Price Appreciation Index. Data reflect the price appreciation index as of the data shown. COVID-19 March 2020 drawdown of c. 2% not shown as it lasted 6 months.

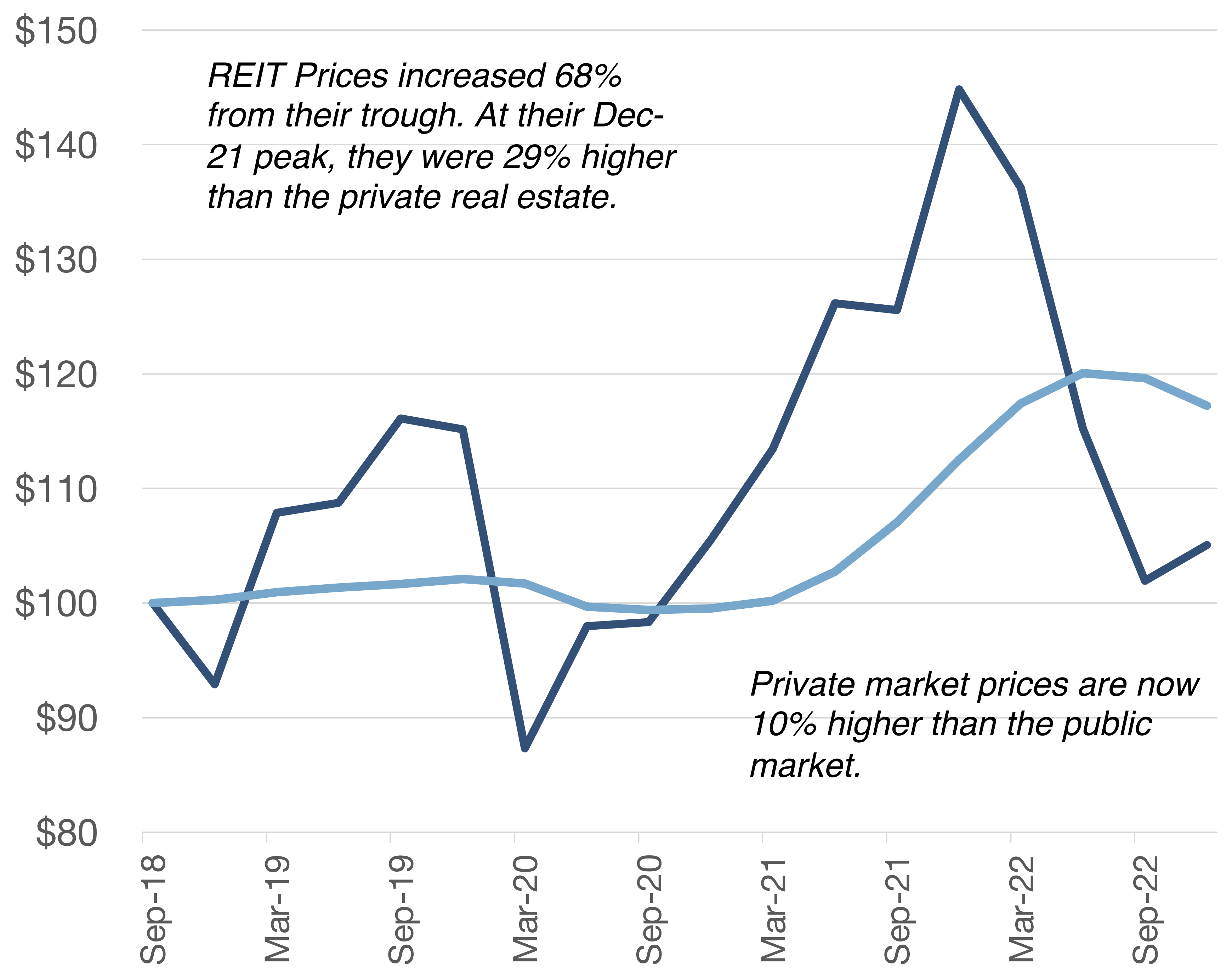
Public vs Private Real Estate Price Trends

Compared to the GFC, there are distinct differences in relative price trends

Pre and Post GFC Real Estate Price Trends



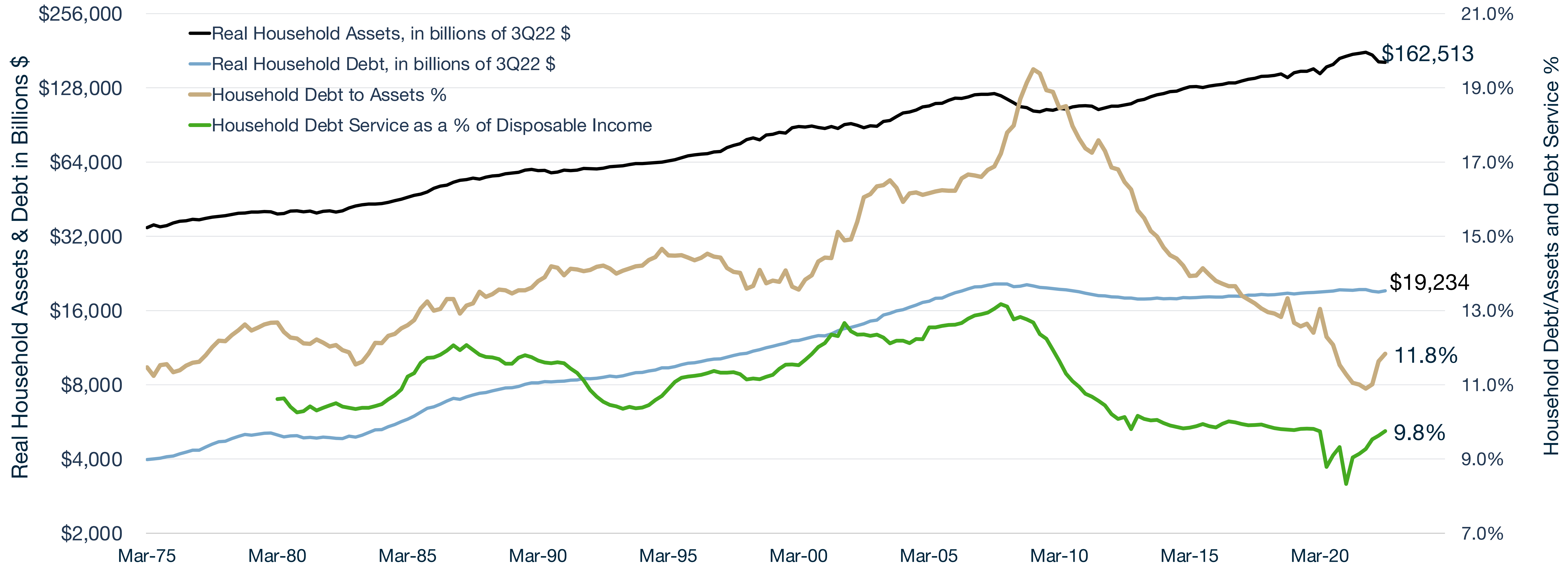
COVIID-19 Era Price Trends



Source: Crow Holdings Research, using NAREIT Equity price returns and NCREIF Property Appreciation indices for the time periods shown. The starting date for the comparison reflect those periods when the net asset values of the public and private markets were equal based on the NAV premium/discount analysis published by Greenstreet..

Overleveraged Households Can Drive Cycles

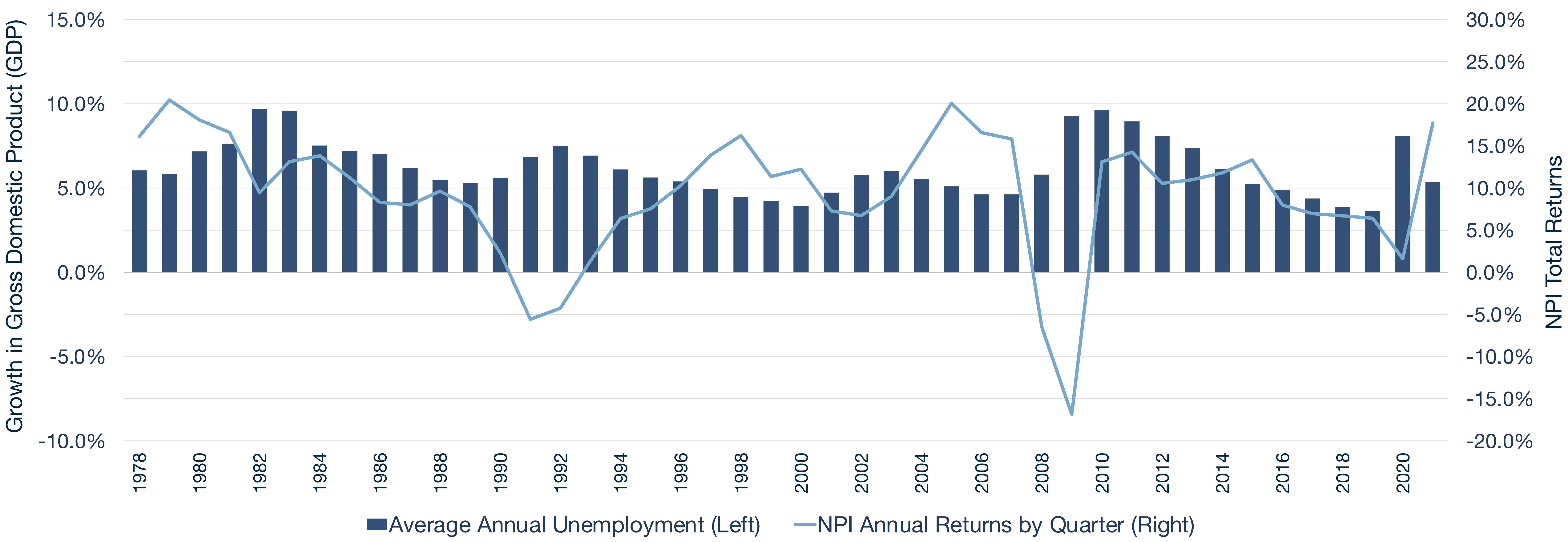
Household balance sheets appear to be resilient: Debt-to-Assets (11.8%) and Debt Service (9.8%) near 45-year lows



Source: Crow Holdings Research and Laffer and Associates using data from Bloomberg which comes from the Federal Reserve's flow of funds data. Timeframe used is from March 1975 – September 2022, the latest data available. The flow of funds data is provided in nominal terms. The author deflated those from 3Q2022 using the consumer price index ("CPI") from the Bureau of Labor Statistics for the time shown. Notably, deflating the asset and debt figures does not change the debt-to-assets ratio.

Real Estate Returns versus Unemployment Rates

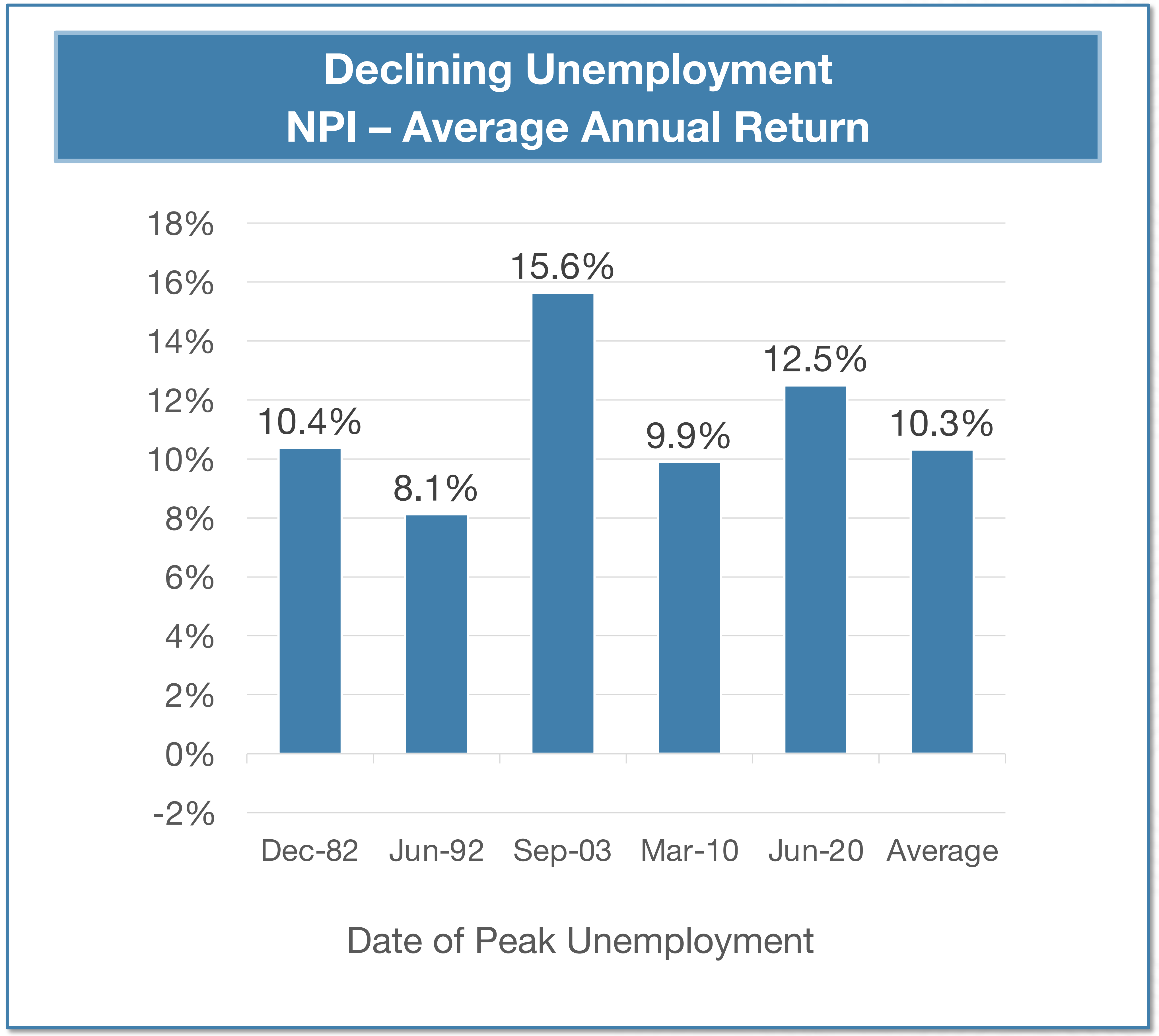
Real estate total returns as reflected in NCREIF improve as unemployment declines and vice versa

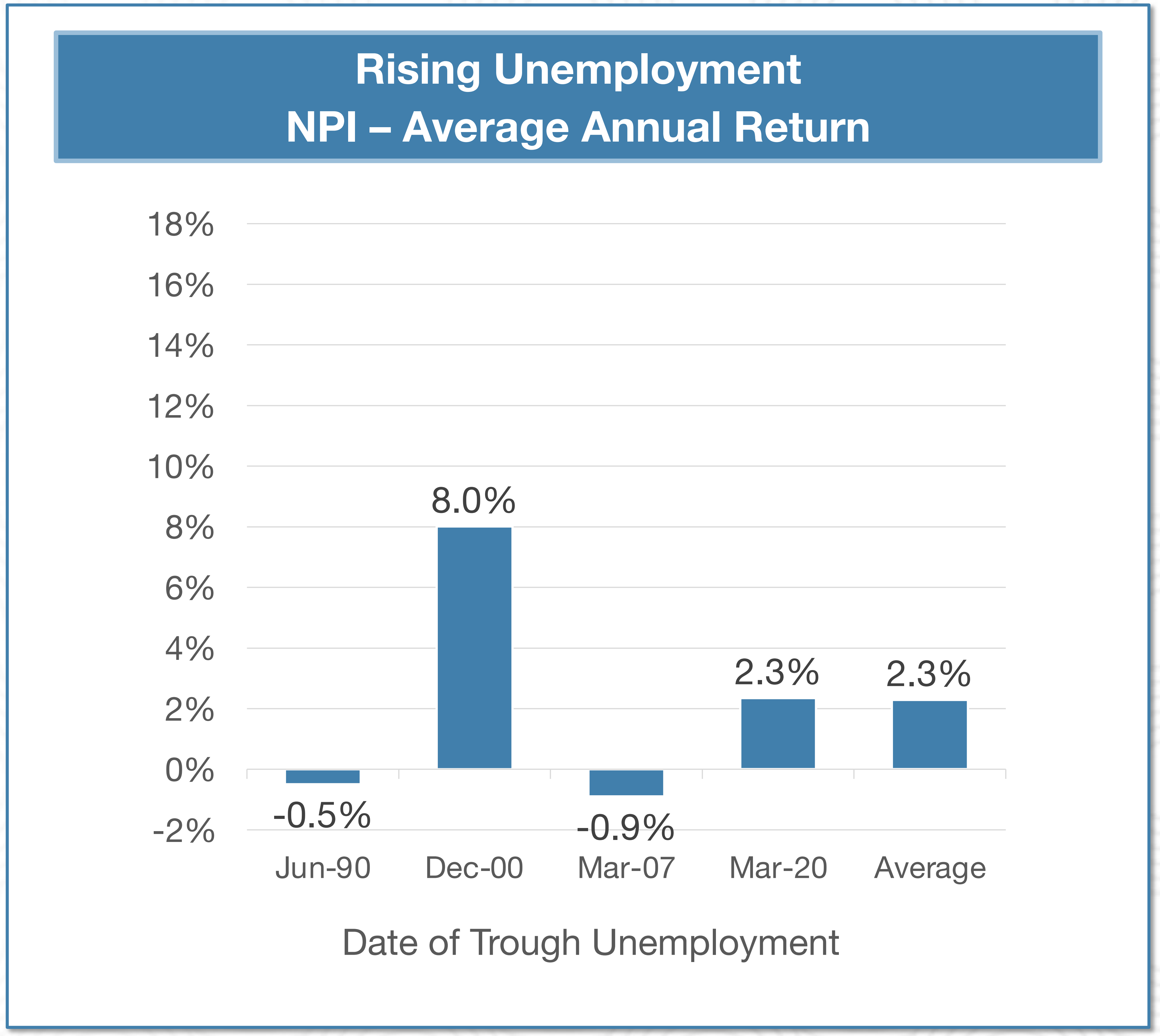


Source: Crow Holdings Research using data from Bloomberg for U-3 Unemployment rates as provide by the Bureau of Labor Statistics and NCREIF Property Index. Data reflects the timeframe from 1Q1978-4Q2021 reflecting the latest calendar year annual data.

Real Estate Total Returns Relative to Unemployment Cycles

Declining unemployment cycles last an average of 7 years while rising unemployment cycles lasted an average of 2.5 years

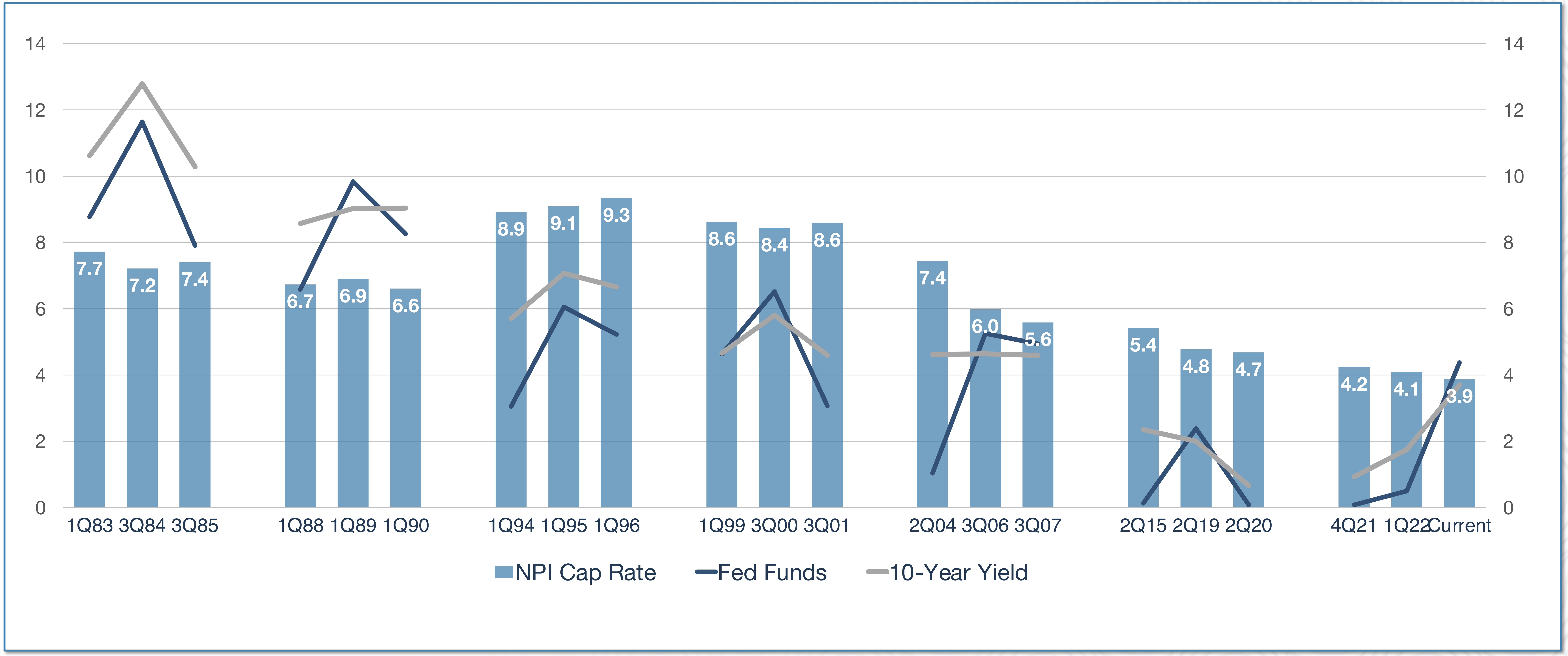




Source: Crow Holdings Research, Bloomberg for U-3 unemployment data as of June 2022 and NCREIF data for total returns. Overall time series starts in December 1982 – June 2022. Total returns reflect the average of annual total returns by quarter for the time periods shown.

Past Interest Rate Cycles: Cap Rates Held Steady or Declined

In past cycles, the Fed increased rates 3% on average and then lowered them by ~ 1.5% - 2% within 12-18 months.



Source: St. Louis Federal Reserve FRED Database, Federal Funds Rate and 10-Year Treasury yield as of December 31, 2022. Cap Rates reflect the NCREIF current value cap rates from the 3Q2022 NCREIF Trends Report.

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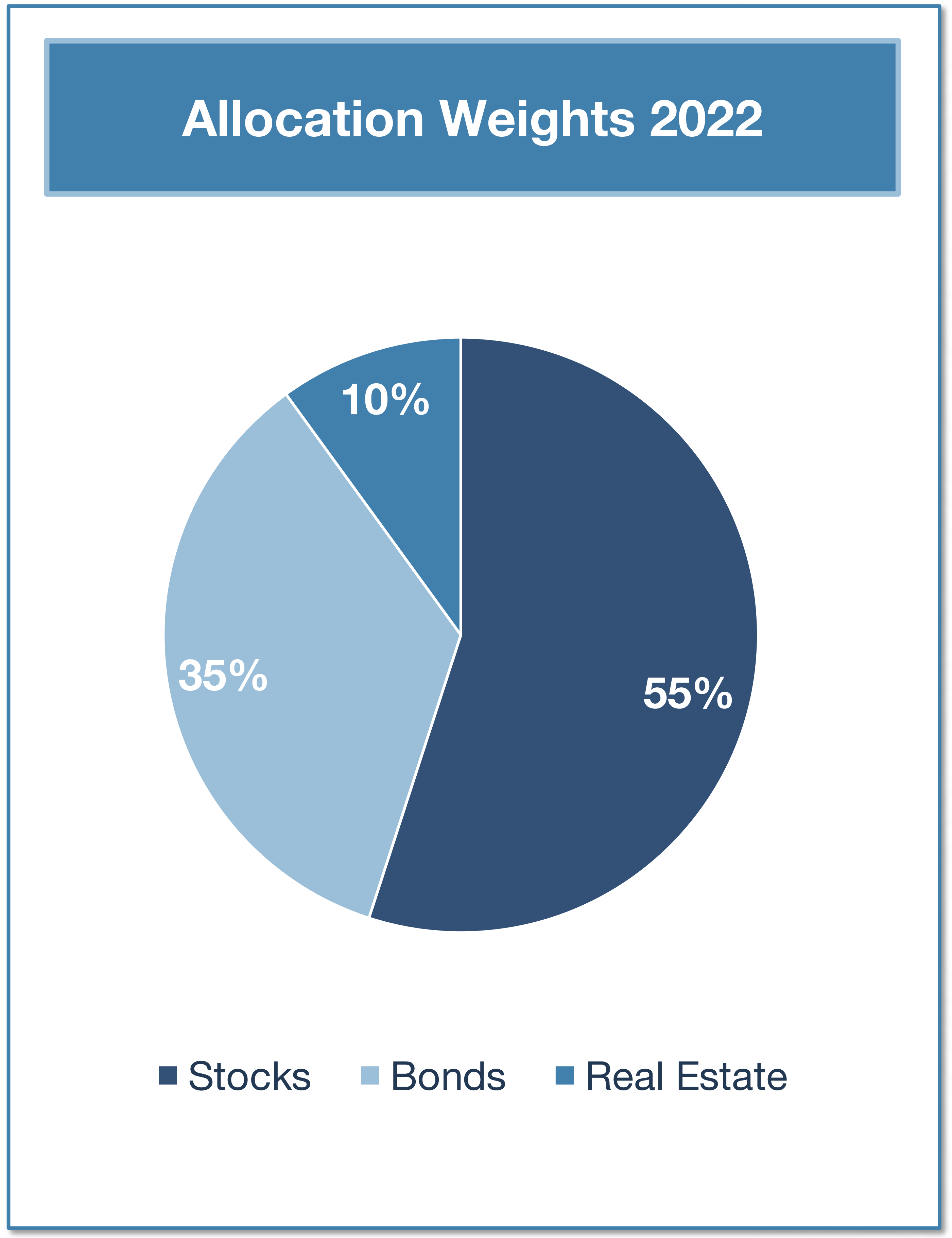
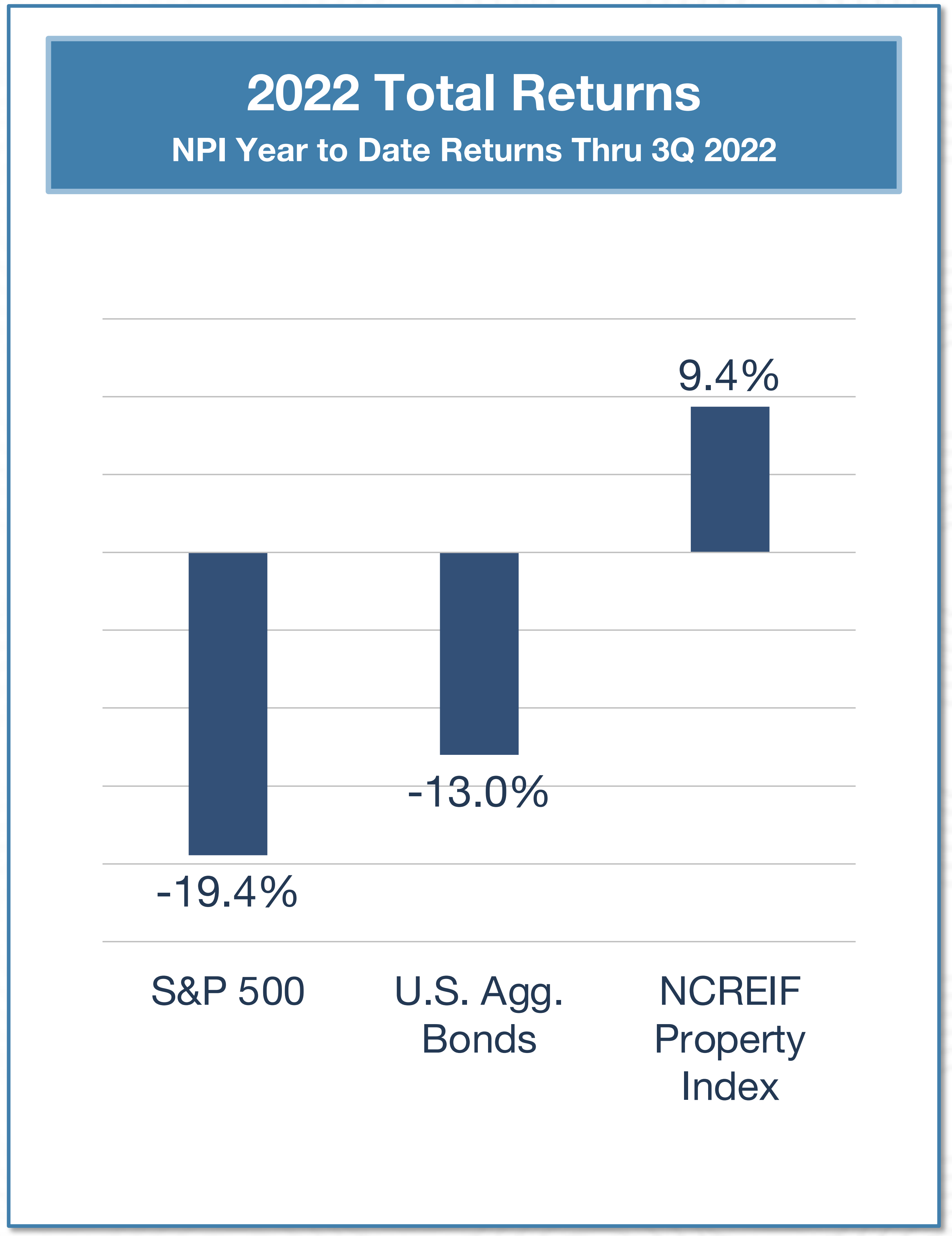
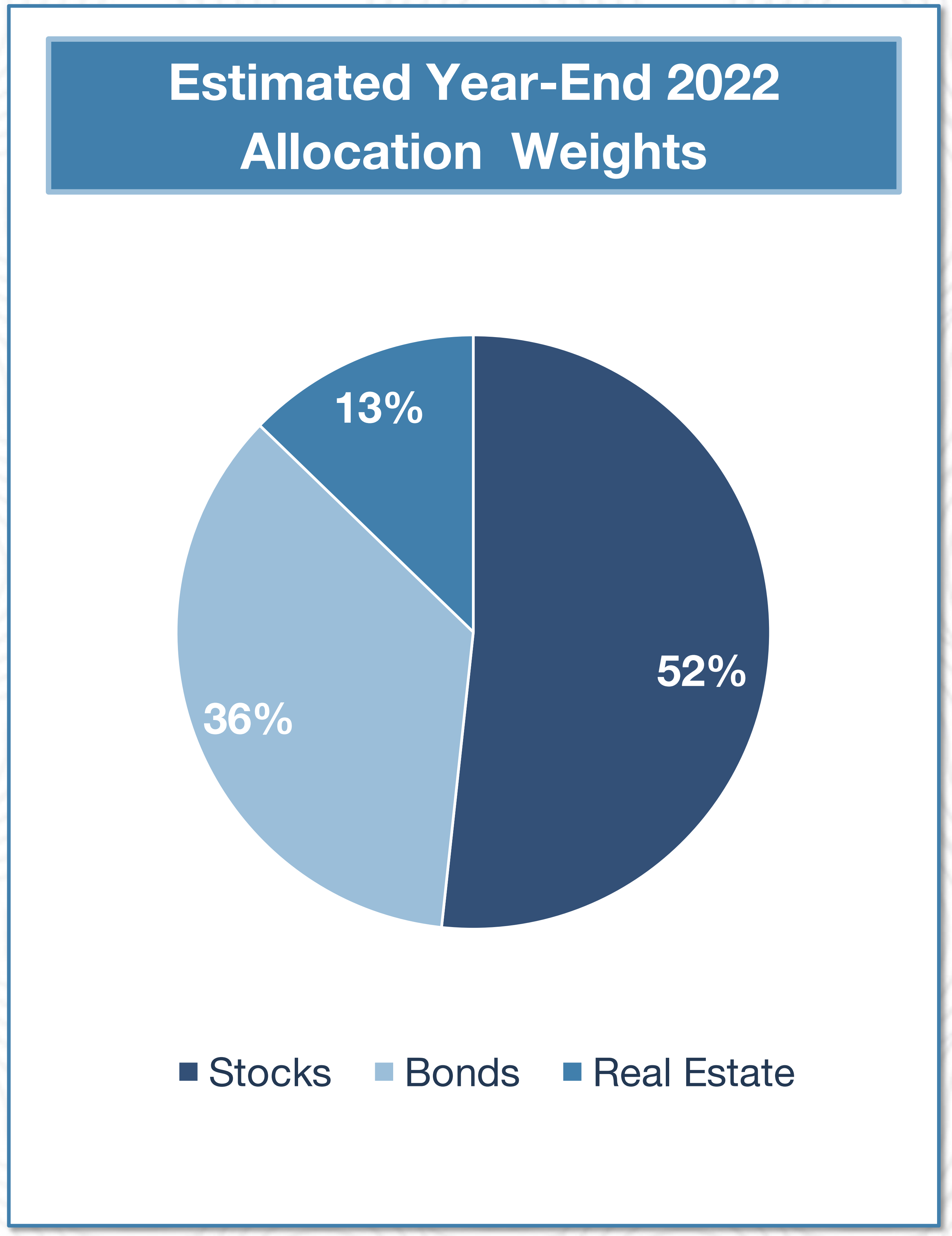
Weak Stock and Bond Returns May Lead to Rebalancing

Over the last 15 years, a portfolio of stocks (55%), bonds (35%), and real estate (10%) delivered an average annual return of 7.7%.





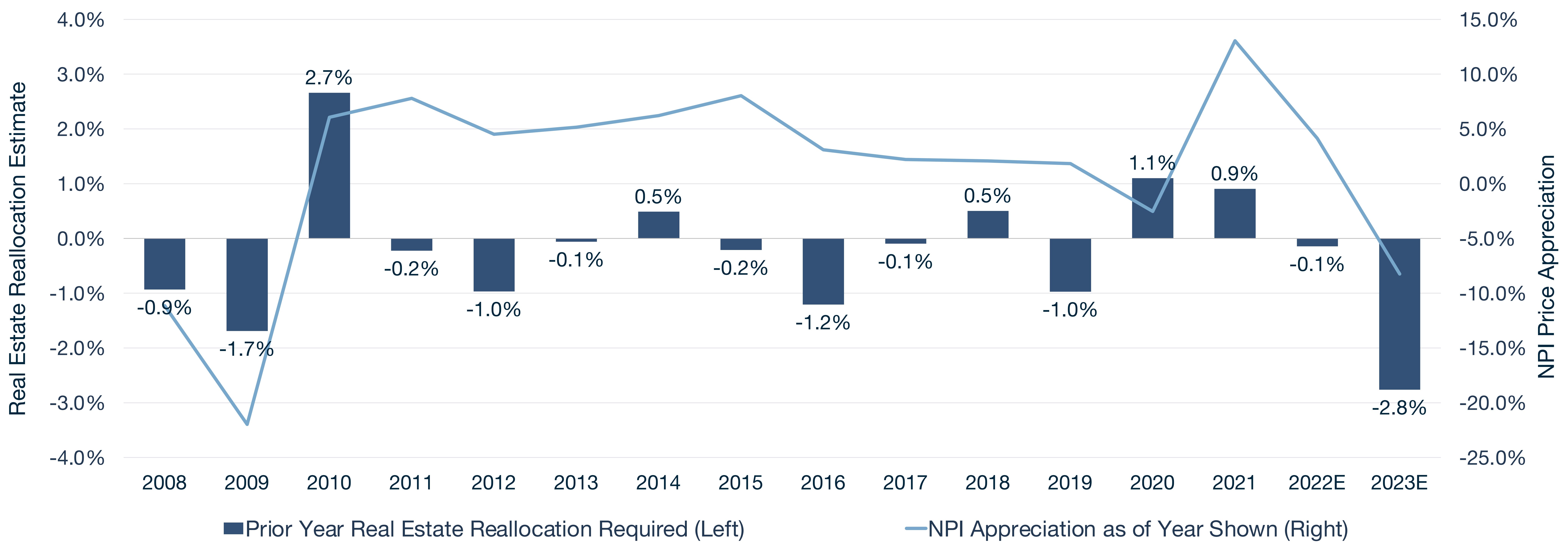


Source: Crow Holdings Research, Bloomberg with data as of 4Q2022 for the S&P 500 and Bloomberg Aggregate Bond Index. NCREIF Property Index as of September 30, 2022. Rebalancing analysis assumes an allocation to equities (55%), bonds (35%) and 10% (real estate) are maintained on an annual basis.

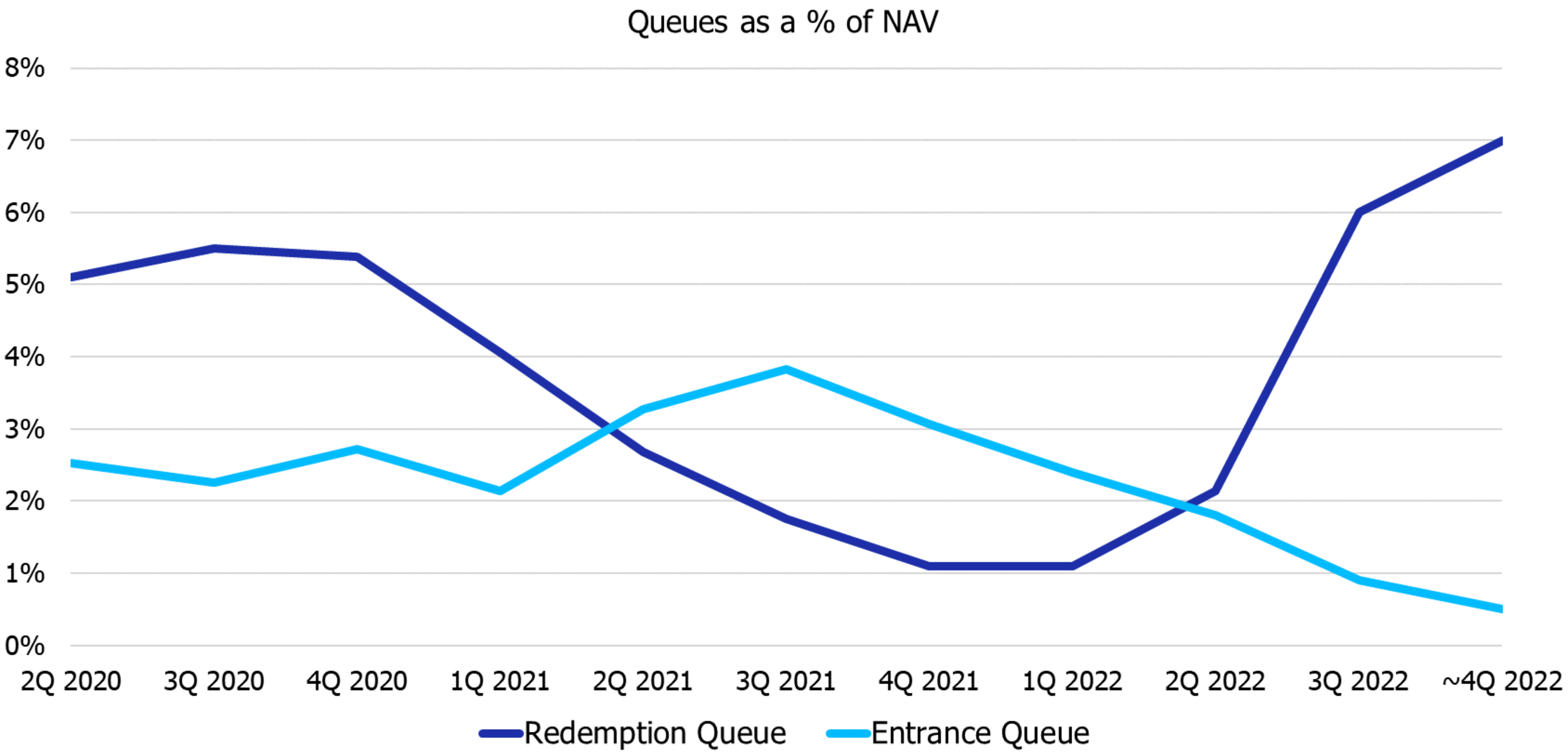
Potential Rebalancing Required & Impact on Real Estate Values

Rebalancing required is greater than post Global Financial Crisis because of weak bond returns in 2022

Values are not expected to decline as much as during GFC as real values have increased half as much



NFI – ODCE: Entry and Redemption Queue



Sources: IDR, Component Funds. Graph excludes redemptions that formed prior to COVID-19. Entrance and redemption queues shown as a percentage of net assets total. Data shown for 4Q 2022 is a preliminary estimate and is subject to change pending final data.

Navigating Market Downturns

JANUARY 2023
IREI VIP AMERICAS

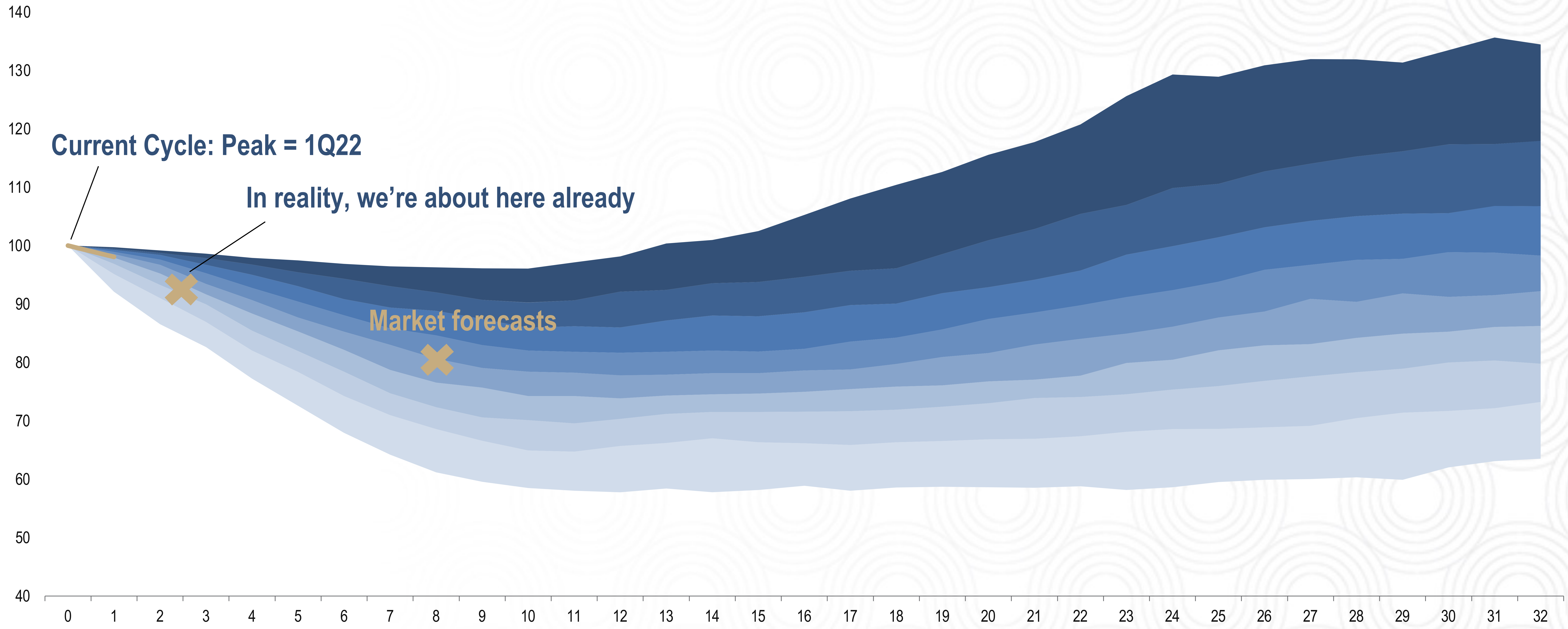
INSTITUTIONAL REAL ESTATE, INC.

CROW HOLDINGS

This confidential document has been prepared solely for the information of the person to whom it has been delivered. The commentary reflects the thoughts of the author as of November 2022. This information has been provided by Crow Holdings Capital. All material presented is compiled from third party sources believed to be reliable and current, but accuracy cannot be guaranteed. This is not to be construed as an offer to buy or sell any financial instruments and should not be relied upon as the sole factor in an investment making decision. The views and opinions expressed are those of the author at the time of publication and are subject to change. There is no guarantee that these views will come to pass.

Cycles vary in magnitude and duration…

Real Prime Capital Values During Market Downturns (Index: Peak = 100)



Note: Chart tracks downturns across a wide range of global cities and sectors since the 1980s. The shaded areas represent deciles between the 10th and 90th percentile.

Sources: PGIM Real Estate. As of October 2022.

Real Estate Total Returns & Unemployment Cycles

Unemployment rises faster than it declines. It increases an average of 1.25%/year and declines an average of 0.5%/year.

Declining Unemployment Cycles						
Start Date – Peak	End Date - Trough	Peak	Trough	Change	Cycle Duration in Years	Nominal Total Returns
Dec-82	Jun-90	10.7	5.3	5.4	7.5	10.4%
Jun-92	Dec-00	7.6	3.9	3.7	8.5	8.1%
Sep-03	Mar-07	6.1	4.5	1.6	3.5	15.6%
Mar-10	Mar-20	9.6	3.8	5.8	10.0	9.9%
Jun-20	Mar-22	13.0	3.5	9.5	1.7	12.5%

Rising Unemployment Cycles						
Start Date – Peak	End Date - Trough	Peak	Trough	Change	Cycle Duration in Years	Nominal Total Returns
Jun-90	Jun-92	5.3	7.6	-2.3	2.0	-0.5%
Dec-00	Sep-03	3.9	6.1	-2.2	2.8	8.0%
Mar-07	Mar-10	4.5	9.6	-5.1	3.0	-0.9%
Mar-20	Jun-20	3.8	13	-9.2	0.3	2.3%

Source: Crow Holdings Research, Bloomberg for U-3 unemployment data from the Bureau of Labor Statistics as of June 2022 and NCREIF data for total returns. Overall time series starts in December 1982 – June 2022. Total returns reflect the average of annual total returns by quarter for the time periods shown.

Thank you!

San Joaquin County Employees' Retirement Association

February 3, 2023

TO: Board of Retirement

FROM: Johanna Shick
Chief Executive Officer

SUBJECT: Chief Executive Officer Report

Strengthen the long-term financial health of the Retirement Plan

Evaluate the appropriateness of actuarial assumptions

- *Implement adopted assumption changes*

Staff has implemented all assumption changes that became effective in 2023, including updating information systems, staff tools (such as excel spreadsheets), staff procedures, and member communications.

At the February 10 Board meeting, Cheiron will present the effect that an estimated -6.54 percent 2022 investment return would have on employer contribution rates and the funded ratio. The aggregate employer contribution rate for 2023 is 48.4 percent and is expected to remain about the same in 2024. Cheiron forecasts modest increases in the years 2025 through 2027 to a projected high of 51.42 percent (assuming all assumptions are met every year from 2023 through 2027). The presentation also disaggregates the employer rates by General and Safety to assist employers with budgeting. It bears repeating that these are estimates based on preliminary return information. It is fully anticipated that the final rates presented in the January 1, 2023 valuation this summer will be different.

- *Conduct benchmark review and implement new benchmarks as appropriate*

Meketa has reviewed SJCERA's benchmarks and is scheduled to present their review at the February meeting. No changes to our benchmarks are recommended at this time.

Determine the future vision for the investment program operating model

- *Define and document SJCERA's views on environmental, social, and governance (ESG) matters for the organization and the investment portfolio*

Investment Officer, Paris Ba, included two articles in the Board's reading materials on ESG to help trustees familiarize themselves with the topic. In addition, staff has asked Meketa to coordinate a training on ESG related matters, to be presented at an upcoming Board meeting. These educational efforts are intended to assist trustees in understanding and developing their view on ESG investing.

Optimize the investment manager lineup

- *Conduct Global Equity and Crisis Risk Offset asset class reviews, assessing managers'/mandates' alignment with our Strategic Asset Allocation policy and goals*

Crisis Risk Offset education is scheduled for the March Board meeting.

Modernize the operations infrastructure

Implement Pension Administration System (PAS)

- *Contract with PAS Vendor.*

The PAS contract between Tegrit and SJCERA has been fully executed: all parties signed it on January 26, 2023. ACEO Brian McKelvey is working with Linea Solutions, MBS, and Tegrit to initiate the project. During this initiation phase, the parties will work collaboratively to develop the Project Work Plan, which includes the Project, Communications, and Risk Management plans as well as the Requirements and Change Control methodologies, and the Testing Strategy.

Align resources and organizational capabilities

Employee of the Month

Congratulations to Retirement Technician Vickie Monegas for being named Employee of the Month. Vickie is recognized for her willingness to step up and embrace new tasks. She recently assumed responsibility for overseeing the new member process, ensuring new employees, working in positions eligible for SJCERA membership, are placed in the right tier and membership group, and contribute at the correct rate. Vickie also recently did an outstanding job narrating SJCERA's New Employee Orientation video. Vickie is making exceptional contributions to our organization!

Maintain Business Operations

Board of Retirement Elections/Appointments

Management Analyst III, Greg Frank, has begun work with the Registrar of Voters' Office for the upcoming election for the second seat on the Board of Retirement, elected by Active, General Members. Generally, candidacy paperwork becomes available for pick up at the Registrar of Voters' Office in mid-April and must be submitted by early May. The election occurs in June, and the new term of office begins July 1.

Terms for fifth and ninth seats, which are appointed by the Board of Supervisors, expire June 30. Applications generally become available from the Clerk of the Board's Office in April. Staff will keep you apprised as more information becomes available.

Declining Employer Payroll Report

In compliance with SJCERA's *Declining Employer Payroll* policy, Management Analyst III, Greg Frank prepared the attached, annual Declining Employer Payroll report. It is staff's assessment that employers continue to enroll new hires and any reduction in payroll is either immaterial or not expected to be long-lasting. As a result, it is staff's opinion that the data does not require the Board to determine a "triggering event" has occurred.

Retiree Newsletter

Each year, inserted in their March 1 benefit statement, retirees receive an update from SJCERA on the prior year's accomplishments and upcoming goals. This year's update (which is submitted to the vendor at the end of January for a March 1 mailing) is attached to this report.

Provide Excellent Customer Service

A few quotes from our members:

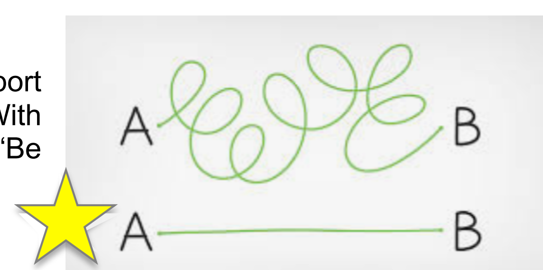
"Leonor is always very welcoming, patient, kind and willing to take time in explaining her answers to us. Excellent people person and quickly responds, which is fantastic! What a gem!"

"I received the information on deductions from Margarita Arce in a timely manner which allowed me to get the needed paperwork sent back in quickly. Thank you!"

"Very helpful! I'm learning as I go, and Andrea has not disappointed!"

Conclusion

It's only been two weeks since our last Board meeting, so my report is short and sweet. We're off to a great start on our 2023 goals. With that (and in the spirit of Franklin D. Roosevelt who once said, "Be sincere; be brief; be seated"), I conclude this report.



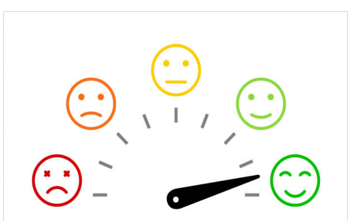
San Joaquin County Employees' Retirement Association

Dear Retired Members:

Last year was definitely one for the books: Businesses and families recovering from losses caused by COVID-19, and adjusting to inflation and rising interest rates. Through it all, SJCERA focused on maintaining sound investment strategies, and providing excellent service and lifetime retirement benefits to our members. Below are highlights of SJCERA's 2022 happenings and what is on the horizon for 2023.

Performance. 2022 has been a difficult year for the capital markets. Stocks fell significantly due to global economic concerns and high inflation. In an effort to combat high inflation, the U.S. Federal Reserve raised rates to levels not seen in the previous 15 years, causing fixed income markets to decline as well.

As a result, SJCERA's total portfolio declined 5.1 percent year-to-date for the period ending November 30, 2022 (the most recently available report). However, SJCERA's total portfolio has outperformed its policy benchmark over the year-to-date (YTD), and 1-, 3-, and 5-year periods. It is important to note, SJCERA has built a portfolio to weather this type of market environment. For example, assets allocated to the Crisis Risk Offset portion of the portfolio gained 10.3 percent during the same period. In addition, the Board of Retirement regulary reviews and adjusts our investment approach in light of market forecasts and risks. In 2022, the Board conducted a full asset-liability study, modified the strategic asset allocation, and we are transitioning to the the new long-term targets.



95% member satisfaction rating

Customer Satisfaction. SJCERA continues to receive very positive customer satisfaction ratings. In 2022, 95 percent of members completing the survey reported they were satisfied with the service received from SJCERA. Reasons for requesting service continue to be dominated by Retiree Payroll changes (insurance and deduction information) at 30.26 percent of inquiries, and service retirement related inquiries (counseling, inquiries, estimates) at 26.32 percent.

What's New. SJCERA's revamped website went live in August. Visit www.SJCERA.org to explore the new features. Scroll through the What's New section for the latest news, Board decisions, and office closures. Use the search function to find the form you have been looking for or just enjoy the new look and feel. We welcome your feedback: email it to ContactUs@sjcera.org.

Improve Technology. Phase one of the 2021 cybersecurity and disaster recovery plan assessments has been implemented. SJCERA contracted with a team of experts to simulate an adversarial attack, attempting to identify and exploit potential weaknesses within the

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(209) 468-2163 • ContactUs@sjcera.org • w.sjcera.org

organization's cybersecurity defenses. Overall, SJCERA performed well. Action has been taken on the contractor's recommendations including providing additional and ongoing training for staff and the Board to ensure cyber threats remain top-of-mind.

Notified Employers of Return to Work Rules. For those retirees seeking to return to work, Executive Order N-4-22 reinstated the normal, statutory rules as of April 1, 2022. For more information, refer to the Retired Members page at www.SJCERA.org.

<u>Looking Ahead in 2023</u>

Annual Cost of Living Adjustment (COLA). In February each year the Board of Retirement reviews the COLA recommended by SJCERA's independent actuary. The adopted COLA increase is included in your May 1 benefit payment. For 2023, the actuary recommended a 3 percent COLA for SJCERA benefit recipients.

2023 Goals Underway. SJCERA's Action Plan includes goals to continue to strengthen the long-term financial health of the retirement plan, modernize the operations infrastructure and align resources and organizational capabilities. To accomplish these goals, SJCERA will review our asset allocation, adopt industry standard business processes, and enhance education and development across all levels of the organization. Also in 2023, Phase 2 recommendations from the 2021 cybersecurity and disaster recovery plan assessments will be implemented, to include an annual security assessment.

On the Horizon. SJCERA has contracted with an outside vendor to implement a new Pension Administration Sytem (PAS). Once completed, the upgraded system will allow for automated functions, streamlined operational processes and a full-service member portal. Implementation of the new system will take approximately three- to five- years, and will be well worth the wait. Keep up to date on SJCERA's progess on our 2023 goals by watching Board meetings or reading my monthly CEO report to the Board, included in the meetings' materials. Meeting dates and Board material can be found on the Board of Retirement page at www.SJCERA.org.

2023 looks to be equally exciting as last year. While times may be uncertain, one thing remains constant: SJCERA's commitment to you, our members. With the prudent construction of our diversified portfolio, expert guidance from our dedicated consultants, sound decisions of our Trustees, and the steadfast efforts of SJCERA staff, the pension fund and our members' retirement benefits are in good hands for a secure future.

SJCERA is honored to be your trusted partner in delivering your retirement benefits and services with care. As always, I welcome your feedback and may the coming year be filled with joy, peace and health for you and your family.

Sincerely,

JShick

Johanna Shick
Chief Executive Officer

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February 4, 2023

TO: Board of Retirement

THROUGH: Johanna Shick, CEO

FROM: Greg Frank, MA III

SUBJECT: Declining Employer Payroll Report

Background

The purpose of the Board's Declining Employer Payroll policy is to establish guidelines by which SJCERA intends to assure that a participating employer experiencing a declining active member payroll would continue to satisfy its obligation to timely pay all unfunded actuarial accrued liabilities (UAAL).

Currently, SJCERA's employers pay contributions based on a percentage-of-payroll. If an employer's covered payroll is declining or is expected to decline over time, a different methodology to fund the UAAL would need to be determined. The policy directs the CEO to work with staff, the actuary, and participating employers to obtain the information needed to annually report if there are any declining payroll triggering events. This memo is intended to fulfill the annual reporting requirement.

Recommendation

No action required at this time. My analysis identified no triggering events and all SJCERA participating employers have made their required contribution payments with three employers (the County, the Superior Court, and the Mosquito and Vector Control District) making additional contributions.

It is further recommended for staff and counsel to monitor the incorporation process of Mountain House Community Service District for any potential future impacts.

Summary of Analysis

The policy defines two types of triggering events: (1) Ceasing to enroll new hires and (2) A material and expected to be long-lasting reduction in SJCERA-covered payroll. Analysis of each follows.

1) *Triggering event resulting from ceasing to enroll new hires.*

   To analyze if employers are ceasing to enroll new hires, I compared the active member data (from SJCERA's Comprehensive Annual Financial Report) to employer full-time equivalent (FTE) data (from employer documents). Allocated FTE data includes filled and funded vacant positions, along with part-time positions converted to FTEs. Vacant positions and part-time employees are not included in SJCERA's member data. I would expect to see the percentage of members to FTEs to either increase or remain fairly stable. If the percentage of members to FTEs begins decreasing, additional investigation may be required to determine if the employer is avoiding hiring employees into retirement-eligible positions.

   It is not a perfect comparison because employer FTE data is reported on a fiscal year end of June 30 and SJCERA's member data is on the calendar year end of December 31. The majority of employers have an increase in both Members and FTEs from 2017 to 2021. The primary driver of employers who have a decline in FTEs is a result of turnover and not due to the elimination of positions, the cessation of hiring employees into SJCERA-eligible positions, or the exclusion of eligible employees from SJCERA enrollment. As the chart below indicates, the number of Total Members compared to Total FTEs ranges between 77.9 percent to 85.5 percent for 2017 to 2021.

The only known issue of employers ceasing to enroll new hires was identified in 2018 and that situation has been resolved. When staff became aware that a special district was not enrolling new full-time employees hired after January 1, 2007, the two employees were enrolled and the employer paid the past due contributions.

We have been notified that Mountain House Community Services District is in the process of incorporating. Government Code 31468 defines district to include, "…any city…and any other political subdivision…formed or created under the constitution or laws of this state and located or having jurisdiction wholly or partially within the county." Government Code 31557 states, "In the case of districts for which the board of supervisors is not the governing body, the governing body adopts by a two-thirds vote, a resolution providing for the inclusion of the district in the retirement association and the board, by majority vote, consents thereto." Mountain House representatives have indicated they intend to continue their participation in SJCERA.

The County Hospital and Dignity Health entered into a Management Service Agreement (MSA) effective July 1, 2022. Hospital employees (existing and new hires) other than certain executive positions continue to be County employees and members of SJCERA. Should circumstances change regarding the existing employees and new hires' employment or membership in SJCERA, I would suggest hiring Cheiron to do a study regarding the impact of ceasing to enroll new hires.

	Member to FTE Comparison									
Employer	**2017**	2017-18 Annual % Change	**2018**	2018-19 Annual % Change	**2019**	2019-20 Annual % Change	**2020**	2020-21 Annual % Change	**2021**	Avg. Annual % Change
County										
Members[1]	5,812	3.6%	6,021	-0.8%	5,970	0.2%	5,980	-1.2%	5,911	0.4%
FTEs (Allocated)[2]	7,036	1.1%	7,114	1.9%	7,252	2.7%	7,447	3.1%	7,679	2.3%
Member/FTEs	82.6%		84.6%		82.3%		80.3%		77.0%	
Superior Court										
Members	299	-0.3%	298	4.7%	312	-5.8%	294	0.7%	296	-0.3%
FTEs	314	-2.5%	306	5.7%	324	-0.8%	321	3.7%	333	1.5%
Member/FTEs	95.2%		97.4%		96.4%		91.6%		88.9%	
Lathrop Manteca Fire District (LMFD)										
Members	35	25.7%	44	9.1%	48	-2.1%	47	-4.3%	45	7.1%
FTEs	36	4.2%	38	20.0%	45	4.4%	47	-6.4%	44	5.6%
Member/FTEs	97.2%		117.3%		106.7%		100.0%		102.3%	
Mosquito & Vector Control District (MVCD)										
Members	34	5.9%	36	0.0%	36	-2.8%	35	2.9%	36	1.5%
FTEs	36	-2.8%	35	2.9%	36	-2.8%	35	0.0%	35	-0.7%
Member/FTEs	94.4%		102.9%		100.0%		100.0%		102.9%	
Mountain House Community Services District (MHCSD)										
Members	23	17.4%	27	3.7%	28	-3.6%	27	-3.7%	26	3.3%
FTEs	20	17.5%	24	12.8%	27	7.5%	29	-5.3%	27	8.8%
Member/FTEs	115.0%		114.9%		105.7%		94.7%		96.3%	
Waterloo Morada Fire District (WMFD)										
Members	17	-5.9%	16	6.3%	17	17.6%	20	-5.0%	19	2.9%
FTEs	16	12.5%	18	-5.6%	17	11.8%	19	5.3%	20	6.3%
Member/FTEs	106.3%		88.9%		100.0%		105.3%		95.0%	
Tracy Public Cemetery										
Members	6	0.0%	6	16.7%	7	14.3%	8	0.0%	8	8.3%
FTEs	6	0.0%	6	16.7%	7	0.0%	7	14.3%	8	8.3%
Member/FTEs	100.0%		100.0%		100.0%		114.3%		100.0%	
Historical Society										
Members	1	300.0%	4	0.0%	4	0.0%	4	25.0%	5	100.0%
FTEs	2	100.0%	4	0.0%	4	0.0%	4	25.0%	5	37.5%
Member/FTEs	50.0%		100.0%		100.0%		100.0%		100.0%	
Law Library										
Members	2	-50.0%	1	100.0%	2	0.0%	2	-50.0%	1	-12.5%
FTEs	2	-50.0%	1	100.0%	2	-50.0%	1	0.0%	1	-12.5%
Member/FTEs	100.0%		100.0%		100.0%		200.0%		100.0%	
Total Members	**6,229**	**3.6%**	**6,453**	**-0.4%**	**6,424**	**-0.1%**	**6,417**	-1.1%	**6,347**	**0.5%**
Total FTEs	**7,468**	**1.0%**	**7,545**	**2.2%**	**7,713**	**2.5%**	**7,909**	3.1%	**8,152**	**2.3%**
Member/FTEs	**83.4%**		**85.5%**		**83.3%**		**81.1%**		**77.9%**	

[1] – Members data from Annual Comprehensive Financial Report Schedule of Participating Employers
[2] – FTE data is from annual employer reports (if available) or provided directly by the employer

2) *Triggering event resulting from a material and expected long-lasting reduction in SJCERA-covered payroll.*

Per the Pensionable Payroll chart below, there is no long-lasting reduction in covered payroll and all employers have had an increase in pensionable payroll from 2017 to 2021, with a Total Average Annual Percent Change of 2.6 percent. This increase in Pensionable Payroll is in line with Cheiron's three percent assumption for the annual expected increase in base payroll.

As noted above in the discussion about the County Hospital and Dignity Health, no reduction in SJCERA covered-payroll is anticipated since both existing and future hire employees will remain County employees and members of SJCERA. However, if circumstances change, I would suggest hiring Cheiron to do a study regarding the impact of a reduction in pensionable payroll.

The Local Agency Formation Commission (LAFCO) has not had active members since 2018. In 2023, LAFCO is expected to have two active members. While this represents an <u>increase</u> in pensionable payroll, hiring and payroll with small employers can be very volatile. Staff will discuss potential impacts and policy implications with Cheiron.

	Pensionable Payroll[1]									
Employer	**2017**	2017-18 Annual % Change	**2018**	2018-19 Annual % Change	**2019**	2019-20 Annual % Change	**2020**	2020-21 Annual % Change	**2021**	Avg. Annual % Change
County	399,071,707	2.3%	408,148,298	3.7%	423,208,843	1.6%	429,994,745	2.1%	438,892,823	2.5%
Superior Court	18,342,308	5.4%	19,328,951	5.1%	20,315,771	-3.9%	19,521,004	3.0%	20,107,867	2.4%
LMFD	2,782,703	18.6%	3,298,967	6.5%	3,513,665	6.5%	3,743,525	-3.0%	3,630,093	7.6%
MVCD	2,432,592	-0.1%	2,429,420	7.2%	2,603,914	4.9%	2,732,383	3.0%	2,813,341	3.9%
MHCSD	1,757,811	13.2%	1,990,698	12.6%	2,241,456	7.5%	2,408,599	6.0%	2,553,381	11.3%
WMFD	1,094,499	-0.4%	1,090,298	8.9%	1,187,062	17.6%	1,395,677	8.2%	1,510,141	9.5%
Tracy Public Cemetery	260,460	4.0%	270,936	11.1%	301,079	14.7%	345,388	2.4%	353,716	9.0%
Historical Society	125,613	8.3%	136,012	70.3%	231,608	-1.2%	228,822	2.8%	235,249	21.8%
Law Library[2]			69,867	53.4%	107,186	-19.0%	86,791	-5.0%	82,425	4.5%
Total	**425,867,693**	2.6%	**436,763,447**	3.9%	**453,710,584**	1.5%	**460,456,934**	2.1%	**470,179,036**	2.6%

1 – The pensionable payroll information is taken from the annual GASB 67/68 reports
2 – The Law Library 2017 pensionable payroll has been excluded from the chart because the unfilled Director position skews the percentages

The member and pensionable payroll information for 2022 are not yet available and consequently will be included in next year's report.

White Paper | MARCH 2018

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Overview of Alternative Risk Premia ("ARP") Strategies

While alternative risk premia ("ARP") strategies are capturing the attention of investors and the industry alike, these are not "new" strategies. Popularized by the work of Fama and French, countless academics have published papers on systematic exceptions to the asset returns predicted by the Capital Asset Pricing Model (CAPM) which was first introduced in the early 1960s. What is new is the number of investment products that now package these alternative risk premia using quantitative methods. This increase has been driven by investors who recognize the appeal of their attractive return profiles and low correlation with traditional asset classes. Alternative risk premia strategies continue to evolve, developing new methods and techniques to sharpen existing signals and systematically extract premia from expensive "hedge" fund strategies. Given the increased complexity and diversity of these strategies, this paper outlines a framework for investors to navigate the alternative risk premia (ARP) universe.

As we reflect on the market activity of recent years and look ahead to the potential challenges of tomorrow with investors facing potentially weaker returns and higher risk from traditional asset classes, they are increasingly turning to ARP strategies to meet their goals. By systematically capturing the returns associated with different investing styles or strategies, such as value or momentum to name two common approaches, these strategies can potentially provide reliable long-term returns that are weakly correlated to traditional asset classes, and cheaper and easier to find than genuine alpha. As with any other asset class, investors should conduct full due diligence on the range of relevant strategies, but with the added number of offerings and the evolving (and inconsistent) nomenclature, there are additional dimensions that should be evaluated by prospective investors.

This paper describes the objectives of ARP strategies, the drivers of their returns and where they might fit in a portfolio, factors to consider when selecting an ARP manager.

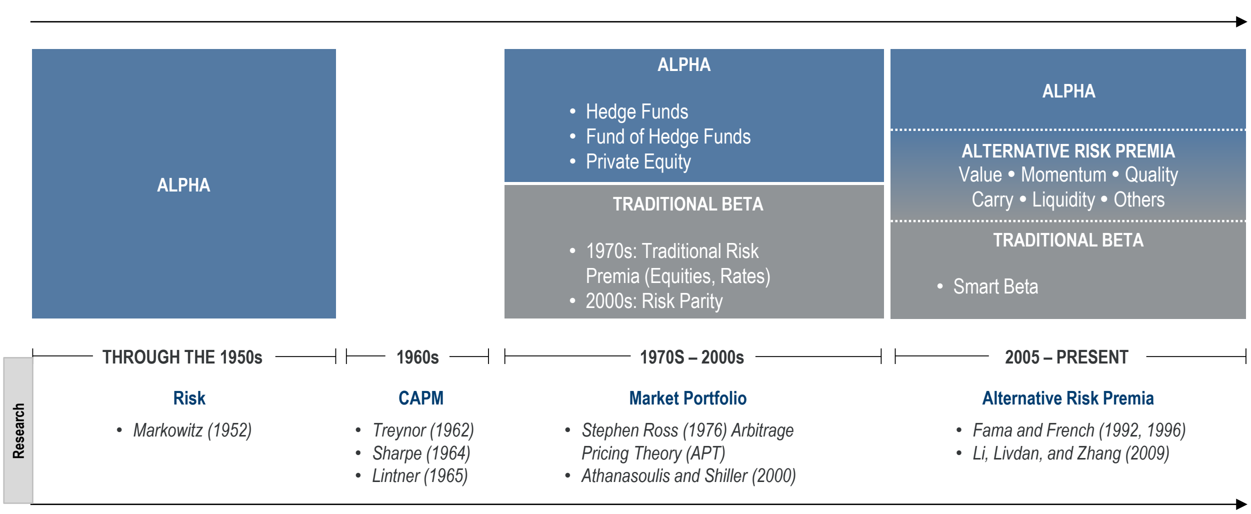
Objectives of an Alternative Risk Premia Strategy

There is no shortage of industry jargon in an ARP strategy discussion (e.g., alternative beta, exotic beta, risk premia, alternative risk premia, factor investing, among others). Generally speaking, these strategies **seek absolute returns that are not highly correlated to traditional assets such as stocks and bonds**. As such, most investors bucket these strategies within alternatives or "absolute return" or "diversifying" buckets. Managers of these strategies seek these return objectives by implementing systematic long/short investment strategies to capture "factors" such as value (securities with lower valuations tend to deliver higher long-term returns than those with higher valuations) and momentum (securities whose price has recently outperformed tend to outperform, and vice versa). These strategies are typically transparent, liquid, and can be often expressed using systematic rules. The resulting portfolio and strategy often deliver a more consistent risk profile, while simultaneously being more cost effective than typical hedge funds charging "2 and 20" fees. We often remark that what is today's "alpha" may be codified as tomorrow's alternative risk premium.

Investors may also seek to access bespoke factor exposures in addition to absolute return exposures more broadly. ARP strategies can be customized to provide specific exposures to help diversify and/or hedge other parts of an asset allocation. For example, an investor may want to utilize trend/momentum strategies to help offset other strategies in the portfolio which exhibit negative skew (i.e. long left tail in a normal curve).

Figure 1 below highlights the evolving perspective on returns: what was previously considered "pure alpha" has been gradually decomposed throughout recent history into its more granular component building blocks, many of which can now be systematized and traded efficiently. Over time, we expect continued evolution along this spectrum, leading to a more granular understanding of the drivers of asset returns.

FIGURE 1: EVOLUTION OF RISK PREMIA INVESTING—NEW WAYS TO ACCESS OLD SOURCES OF RETURN



Sources of Returns

As reviewed above, ARP strategies are systematic, long/short strategies designed to capture premiums—returns that are compensation for accepting certain risks. While the risk premia themselves can come in many different shapes and forms, their general characteristics include the following:

BACKED BY RESEARCH	Well documented and backed by both practitioners and academics
ECONOMICALLY INTUITIVE	Targets additional premium driven by factors other than the market
PERSISTENT	Pervasive across asset classes, market cycles and geographies
TRADABLE	Can be easily accessed using liquid instruments

There are several categories of explanation for the existence of risk premia, primarily related to risk, investor behavior and market structure.

Premia can also be largely grouped by the following categories:

FUNDAMENTAL PREMIA

Captures returns that are driven by fundamental data across cross-asset class risks such as economic growth, real rates, fiscal policies or within a specific asset class such as value, quality, income.

TECHNICAL PREMIA

Captures returns that are driven purely by price action such as momentum, trend, implied vs. realized volatility.

MICRO PREMIA

Focus on security selection and thematic ideas, such as online retailer to outperform big box retailers.

This type of premia can be a secondary filter on fundamental or technical premia in that once a style has been identified, e.g. momentum, a secondary screen can help select securities that have strong fundamental characteristics.

Returns beyond what can be explained by these categories and drivers of return may be considered "pure" alpha, and are typically scarce, capacity-constrained and generally warrant higher fees. Sources of such alpha may include:

- Undiscovered beta
- Effective tactical asset allocation and/or factor timing
- Areas where information barriers are high to obtain relevant data, or markets that are opaque or hard to trade
- Completely idiosyncratic alpha (the rarest)

Given the evolution that we have discussed of alpha decomposition transforming into beta over time, the dispersion of alpha across managers can be expected to be tighter going forward than over the last 15 years. For example, hedge fund assets under management grew from $850 billion to $3.5 trillion between 2009 and 2017.[1] However, pure "alpha" in **dollar** terms may not have necessarily increased more than threefold.

[1]Source: BarclayHedge. Hedge fund industry assets under management. Data as of December 31, 2017.

Types of ARP Managers

There has been significant growth over the past few years in ARP offerings, although these can generally be boiled down to three major categories of risk premia strategies offered:

1. Broker/Dealer strategies – Banks and broker-dealers may each offer anywhere from 10 to 50 individual risk premia and a few multi-factor premia that can be accessed by qualified investors through total return swaps or other structured products. One driver of the expansion of this product suite from the banks/broker-dealers was the restrictions on proprietary trading under the Dodd-Frank regulations, where trading strategies that were previously utilized by bank trading desks were now being offered to clients in packaged form.

Pros – The rules are designed at the outset and are completely transparent.
Cons – The total costs are opaque and potentially prohibitive, and "simple" definitions are often convoluted and made too "cute" (e.g. with backtested optimized triggers). Importantly, banks and broker-dealers do not necessarily have the same fiduciary obligations as investment managers and therefore may be less likely to offer guidance on how, where and when to use individual risk premia. These products are also documented under ISDAs; involve counterparty risk; and depending on the strategy, may or may not have liquidity prior to the stated maturity of the trade. Finally, banks do not necessarily need to evolve the factors to account for changes in market behavior, new data sets and regulatory changes.

2. "Smart" beta type strategies – Several firms, mainly traditional long-only quant shops, have moved into the risk premia space via straightforward, simply constructed premia using either direct investments or bank swaps.
Pros – These strategies leverage factor definition and portfolio construction methodologies that are well defined and easy to understand, and often are available at attractive fees.
Cons – Locked-in rules can fail to adapt to market conditions—they do not help push the envelope by sharpening signals, nor do they stay abreast of new tools, methodologies and data.

3. Dynamic (or 2.0 type) strategies – Traditional hedge funds, in response to fee pressure, have started offering strategies that help discern diversifying return drivers by systematizing consistent, robust and persistent signals in a thoughtful, intuitive and liquid manner.
Pros – These types of strategies help investors achieve their objectives, i.e. to provide diversifying returns as new information/tools/techniques become available without comprising on the philosophy of the process.
Cons – Investors may compromise on transparency. While the signals and exposures may be known, their precise definitions are usually not fully disclosed since the manager continues to evolve the signal and construction process. Fees are also typically higher than smart beta strategies, albeit lower than traditional hedge fund active management.

Estimated assets for the first category are in the hundreds of billions, while the remaining two categories are dominated by a small handful of players. Also, some investors interchangeably use risk parity, risk premia or dynamic beta. They are very different strategies and should not be labeled together.

Considerations when Selecting ARP Strategies

Apart from the "standard" due diligence one would conduct when evaluating any investment strategy, we believe the following factors are relevant in the selection of ARP strategies:

Investment philosophy – The key drivers of potential risk/return are the types of signals used ("categories" in our discussion above) and the asset classes in which they are employed. Not all asset classes are utilized by every strategy. Strategies tend to differ by allocation to each asset class and this can be static, dynamic or a combination of both. An investor needs to understand manager's experience and strength in trading each asset class and tie that to the broader exposure at the strategy level (e.g. currencies can be one of the most difficult risk exposures to trade, so it is pertinent that manager has considerable experience and edge trading this asset class). In other words, play to the manager's strength—since allocation between asset classes can carry considerable risk in a multi-asset class context. A traditional matrix of a manager's risk premia and asset class would typically consist of some combination of the following:

CATEGORY	ASSET CLASS
Fundamental Technical Micro	Equity Rates Currency Commodities Credit Volatility* Alternative (Event Driven, Cat Bonds, etc.)

*Few managers tend to have a separate line item for volatility premia even though the underlying may be traditional asset classes

Investors should determine why each signal was selected (and why others were avoided), which will help create a road map of the broad exposures of the final portfolio.

Signal definition – While the labels of these signals may be similar or even the same from one manager to the next—e.g. equity value—the exact definitions used will differ. For example, value can be defined by a simple P/B ratio, or as an average of a combination of yield-focused characteristics, or by utilizing forward-looking estimates, or using alternative real-time estimates for some sectors. From an investor's standpoint, it is important to understand the economic/behavioral efficiency rationale for a signal to persist and as to why a manager is using a specific definition and why they believe that will result in a high likelihood of persistent outcomes.

Portfolio construction – Several methods of portfolio construction are commonly used, including traditional covariance-driven methodologies, rank of ranks, machine learning, fixed allocations, risk parity allocations or a combination of these. Again, it is key for investors to determine the economic rationale as to why a manager is using a specific methodology, and whether they have accounted for the unique considerations that may exist for certain signals/countries/sectors. Each one of these methodologies has pros and cons, which we will tackle in a separate paper.

Risk management – Risk can be managed from the top down (portfolio volatility targets, notional limits or stop losses), or from the bottom up at a micro level (position level risk limits) or through a combination of the two. An investor also needs to make sure that the risk model does not impair the alpha model.

Execution – This is a key aspect of any investment strategy that often is not fully considered by investors. In ARP strategies in particular, execution can be an important determinant of a strategy's success. ARP strategies are not seeking to take huge bets on a handful of positions—a profitable ARP strategy is often achieving success through a series of singles and doubles. As such, execution and capital markets expertise are critical from a total cost perspective, as is a thoughtful approach to managing liquidity, especially during volatile periods.

Other factors to consider:

Research process for sourcing and refining signals – Typically a combination of thorough research, portfolio manager and team experience, academic backing and trading expertise would be the best mix of manager traits to build signals. Trading static bank signals may leave a portfolio exposed to crowding risk with no sharpening of signals as more information and computing techniques become available.

Investment time horizon – Risk premia strategies will vary from one provider to the next across their liquidity profiles, data frequency, trading periods and other characteristics. It is important to make sure one is comparing "apples to apples" and creating peer groups of strategies that have a similar investment time horizon and to set expectations based on that horizon. In general, most strategies have a three- to five-year holding period. Higher frequency strategies tend to have shorter investment time horizons.

Leverage – Similar to other strategy characteristics, ARP managers typically employ some degree of leverage so it also is important to compare such strategies on a pari passu basis. Leverage typically ranges from 2X to 8X gross notional exposure for most strategies. More importantly, it is critical to look through to the underlying portfolio to see the contribution to leverage, both from a signal and asset class basis. Also, investors should understand how much leverage comes from borrowing as compared to the notional exposure from derivatives, and they should also review the margin/equity policy for the strategy.

Turnover and trading frequency – The turnover of ARP strategies typically ranges from 75% to 250% depending on the asset classes traded. Another common factor overlooked is trading frequency. Less trading frequency generally tends to be matched with longer half-life of the models, and may be prone to larger drawdowns.

Costs – Investors should consider total costs, including management fees, fund expenses, commissions and service provider costs (prime broker, custodian, etc.), and swap costs (if relevant). Smart beta type ARP managers are generally on the lower end of the cost spectrum. Also, investors should consider hidden costs that may detract from the total return of the strategy. For example, how is the manager/counterparty compensated beyond stated fees, and is there potential for the manager to extract trading profits in excess of stated fees that will detract from total performance?

Volatility – Similar to leverage, volatility typically ranges from 5% to 15%. Most strategies at the higher end of the volatility spectrum are generally more levered, so investors should exercise additional caution when evaluating higher volatility strategies. Some funds target a specific volatility while others target notional levels.

Skew – In general, liquid hedge funds need to provide skew that is close to zero if not positive, but very few do. One way to look at this characteristic would be to see what percent of the portfolio is in convergence trades (trades that are expected to mean revert) versus divergence trades. Traditional asset classes and hedge funds tend to have a lot more convergence trades. In order to diversify, the ARP strategy would need to have a sizable portion of the risk in divergence trades, which would provide a higher skew and more attractive correlations versus traditional indices and hedge funds.

Discretionary input – Strategies that tend to have a significant degree of discretion—either over positions or risk, with 10% a typical threshold level for the amount of discretion—will not squarely fall into a traditional ARP sandbox.

Experience in trading alternative products – Since ARP strategies can be a supplement for liquid hedge funds, it is important to understanding a manager's experience in trading alternative strategies through various crises and over as long a history as possible. One should be cautious of product proliferation especially if managers have little to no experience in trading long/short or when managers create multiple derivatives of a core strategy.

Benchmarks – Currently, the ARP space lacks a standard benchmark given the plethora of investment approaches, strategy objectives and levers available to trade signals. Two of the more well-known reference indices are the Societe Generale (SG) Multi Alternative Risk Premia index and HFRX suite of indices, but there are important considerations around these indices and they should be used carefully and only where appropriate. The best solution, once a particular strategy has been selected, is to identify the main objectives and exposures and use a set of triangulation tools to help determine the outcomes on an absolute and relative basis.

Capacity – Managers tend to use many different asset classes and signals. While the deployment of additional levers may provide more diversification, this may come at a cost of constraining capacity, especially if the strategy has exposure to certain asset classes such as commodities, emerging market debt, structured products or credit-linked instruments such as catastrophe bonds. One way to assess this is to work backward from the strategy's least liquid asset class exposures (stress test for liquidity) to determine the ARP strategy's overall capacity. Investors should also be aware of any proxies or derivatives usage to gain exposure to less liquid markets.

Finally, other factors that are important in determining capacity in ARP strategies include turnover, trading periods, signal frequency, investment holding time horizon, redemption/subscription clauses, market correlations and transaction costs, among others.

Developing an ARP Allocation Framework

While it goes without saying that the objectives of an ARP investment program will differ from one investor to the next, we believe that there are a handful of universal core decisions that every investor should consider.

1. Determining the answer to the question: What overall objective am I trying to achieve? Some possible answers include:

- Replace some or all hedge fund or fund of hedge funds exposure with a potentially more transparent, liquid, cost-effective alternative investment strategy
- Reduce costs within an alternatives allocation, without significantly changing the risk profile
- Add a diversified long volatility profile to help offset short volatility exposure within hedge funds in credit, distressed or more illiquid strategies
- Shift active risk budget from traditional asset classes where passive options can be used to a greater extent to attractive alternative strategies such as ARP, which are more likely to contribute to reaching target returns
- Diversification for a long duration portfolio against a backdrop of healthy funding ratios and liabilities that are largely hedged
- Generate return on cash while awaiting private equity investment

2. Determine the time horizon for the investment in ARP. While it may be possible to select an ARP strategy with a time horizon in sync with the investor's, diversifying an ARP allocation across a few strategies may provide a more consistent path toward achieving the desired time horizon.

3. Establish risk parameters. There are a plethora of parameters an investor may focus on to help manage and monitor risk. Some of the more important ones to focus on for an ARP strategy include:

- **Leverage.** Set guidelines around the expected total notional leverage ranges and contribution to leverage from the various asset classes and premia employed by the strategy.
- **Volatility.** Understand the expected volatility range for the program.
- **Drawdown Threshold.** Determine any hard limits to one's "pain threshold," that is, how much an investor is willing to lose within a specific time period. This may be accomplished through the use of cone charts (taking action when performance breaches pre-determined boundaries), or using absolute stop loss/drawdown limits, such as VaR, or several other drawdown statistics. There will be pros and cons to any such metrics—in the case of the cone chart, for example, the entry point of the investment is important—so investors should weigh these considerations before final selection.
- **Skew.** Understanding the long-term range for skew can be helpful in managing expectations around the expected distribution and ultimate path of returns.
- **Correlation and Beta.** Investors should have an understanding before investing about the expected correlation and beta of the ARP portfolio to their overall investment programs as well as to other alternative managers in which they may be invested. Any desired limits on these statistics should be considered at this time as well.
- **Liquidity.** Scenario analysis and stress testing (based on Bayesian methodology) can be used to establish how much liquidity is required during critical periods, such as during margin calls, capital calls or periods of increasing liabilities. That said, caution should be applied toward viewing or treating ARP strategies as an "ATM" during a stress scenario since that may cause the investor to lose the diversification benefits of the strategy in their asset allocations when they are needed most.

4. Selecting ARP Strategies

Once a full understanding of a potential pool of ARP managers has been gained, setting out these details into a matrix that can easily highlight the exposures across premia and asset class is helpful to selecting strategies. For example, let's suppose an investor seeks a long volatility strategy to diversify their portfolio's skew characteristics at a reasonable cost. An ARP strategy offering the following matrix of exposures may be a possible candidate for investment:

	EQUITIES	RATES	COMMODITIES	FX
Trend	Y	Y	Y	Y
Options Selling	Y	Y		
Cross-sectional momentum	Y		Y	

Selecting two to three managers—rather than a single manager—to address a particular objective can help increase the probability of meeting objectives since taken together, over time, the combination of managers is more likely to average out at the investor's expectation for the various risk and return characteristics.

Investors should also analyze whether the individual strategies are diversified on a standalone basis. For example, assessing the diversification across risk premia styles, time horizon, asset classes, types of trades in the book (divergence versus convergence trades) and risk-on versus risk-off signals all are helpful questions to ask. Finally, an assessment of trading frequency to minimize the impact of path dependency, as well as gaining comfort in the portfolio management team also is important, with previous experience in ARP being an important differentiator among managers.

5. Benchmarking

Given the wide range of approaches in alternative risk premia strategies as well as the similarly diverse objectives that investors may have for such programs, the issue of benchmarking an ARP program is not entirely straightforward. Of course individual managers may have stated benchmarks for their ARP strategies, which can be considered when developing an overall benchmark for the allocation. For allocators that invest in more than one ARP manager, however, the issue of benchmarking the overall ARP allocation is more complex.

There are both endogenous and exogenous approaches. On the former, for example, one approach is to consider the objectives of the investor's overall ARP program and develop a benchmark in line with that. For example, if the goal is to replace some hedge fund exposure with a more cost-effective, transparent option, then the benchmark for the ARP program might simply be the client's benchmark or reference index for its alternatives bucket. An exogenous approach would be to consider some of the third party ARP indices that are being developed, such as the SG Multi Alternative Risk Premia Index or others that seek to monitor performance of a diversified group of ARP managers. It is important, however, to understand the index constituents and construction to ensure that the performance comparison is relevant.

Conclusion

Since 2013, the ARP space has grown to over 50 buy-side strategies and in excess of 200+ individual risk premia offered by the sell-side. Most of the strategies have a short track record, so it is important to have a thoughtful process by which an investor makes decisions in this space. Given the growing complexity and diversity of the strategies, it is important to conduct due diligence on ARP strategies as one would with a potential hedge fund investment (as opposed to how one might evaluate a long only or smart beta manager), and to truly understand the manager's experience in managing ARP strategies or whether this is a "new" endeavor for them. There are currently a sufficient number of players and enough dispersion in the ARP universe to be able to build a portfolio of multiple ARP strategies—ideally three to five depending on the amount of assets to be deployed. An allocation to such a portfolio of ARP strategies can form a core allocation within the investor's alternatives bucket that can diversify the investor's overall portfolio, while contributing to a more consistent pattern of returns over time.

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The Societe Generale (SG) Multi Alternative Risk Premia Index represents risk premia managers who employ investment programs diversified across multiple asset classes while utilizing multiple risk premia factors. These managers trade multiple asset classes such as equities, fixed income, currencies, and in many cases commodities, and aim to capture a diversity of discrete risk premia, including most prevalently value, carry and momentum. These multi-asset, multi-risk premia strategies are typically systematic. Single asset class and risk premia programs are excluded. The SG Multi Alternative Risk Premia Index is an equally weighed, non-investable index of funds.

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There are many environmental, social and governance principles worth considering. ArtemisDiana/iStock via Getty Images Plus

What does ESG mean? Two business scholars explain what environmental, social and governance standards and principles are

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Environmental, social and governance business standards and principles, often referred to as ESG, are becoming both more commonplace and controversial.

But what does "ESG" really mean?

It's shorthand for the way that many corporations operate in accordance with the belief that their long-term survival and their ability to generate profits require accounting for the impact their decisions and actions have on the environment, society as a whole and their own workforce.

These practices grew out of long-standing efforts to make businesses more socially and environmentally responsible.

ESG investing, sometimes called sustainable investment, also takes these considerations into account.

Zeroing in on the E, S and G

ESG priorities vary widely, but there are some common themes.

These priorities usually emphasize environmental sustainability – the E in ESG – with a focus on contributing to efforts to slow the pace of climate change.

There's also an effort to uphold high ethical standards through corporate operations. These social concerns – the S – can include, for example, ensuring that a company doesn't buy goods and services from exploitative suppliers, or treats its employees well. Or it might entail taking care to hire and retain a diverse workforce and taking steps to reduce social injustices in the communities where a corporation operates.

Companies embracing ESG principles should also have high-quality governance – the G. Governance includes oversight, handled by a competent and qualified board of directors, regarding the hiring and firing of top corporate leaders, executive compensation and any dividends paid to shareholders.

Governance also pertains to whether a company's leadership operates fairly and responsibly, with transparency and accountability.

Why ESG matters

By 2026, the total amount invested globally according to these principles will nearly double to US$34 trillion from $18.4 trillion in 2021, the accounting firm PwC estimates. However, increasing scrutiny of which investments really qualify as ESG could mean it takes longer to reach that volume.

This corporate concept is becoming a political touchstone in the U.S. because some states, like Florida and Kentucky, arguing that these practices divert from the focus on maximizing profits and can be detrimental to investors by making other considerations a priority, have barred their pension funds from using ESG principles as part of their investment considerations. Some very large asset managers, including BlackRock, aren't allowed to work with those pension funds anymore.

Many of the arguments against embracing these principles hold that they reduce profits by taking other factors into account. But how do ESG practices affect financial performance?

A team of New York University scholars looked at the results of 1,000 different studies that had sought to answer this question. It found mixed results: Some of the studies found that ESG principles increased returns, others found that they weakened performance, and a third group determined that these principles made no difference at all.

It's possible that the disparities among results could be due largely to the lack of clarity regarding what counts and does not count as ESG, which has been a long-standing discussion and makes it hard to assess how ESG investments perform.

The NYU scholars also found two consistent results regarding ESG strategies. First, they help protect investors against risks such as losses resulting from the failure of a supply chain due to environmental or geopolitical issues, and they can protect companies from volatility during periods of economic instability and downturns. Second, investors and companies benefit more from ESG strategies in the long term than in the short term.

PensionsJanuary 17, 2023

U.S. State, Local Public Pensions Saw Funding Statuses Fall in 2022

The Equable Institute recently released its year-end update to State of Pensions 2022, covering the funding status of public pensions across the country.

The national average funded ratio for U.S. state and local public pension plans is estimated to have declined from 83.9% in 2021 to 77.3% in 2022, once all public pensions release their 2022 data, according to a recently released end-of-year report on public pensions from the Equable Institute.

Equable used figures from 76.4% of the 225 retirement systems with available data that reported preliminary investment returns for their full fiscal 2022 to inform the prediction. The remaining plans with available data have fiscal years that end on December 31 and will be reporting in the coming months.

During 2022, states and cities made full contributions to their pension funds and, in many cases, even provided supplemental contributions. However, poor investment returns in 2022 drove down the average funded ratio for state and local plans.

Equable found that state and public pensions in Connecticut, Mississippi, New Jersey, Illinois, Kentucky and South Carolina are at a critical funding level, meaning their pensions are less than 60% fully funded against the liabilities due to pensioners. Kentucky, at 47.3% funded, and Illinois, at 50% funded, were the worst funded states in the nation to end 2022.

Conversely, Washington, D.C. and Washington state topped Equable's aggregate funded ratio rankings, with funded ratios of 103.4% and 102.9%, respectively. Similarly, pension systems in Iowa, Tennessee, New York, Nebraska, Wisconsin and South Dakota earned top marks by maintaining average funded statuses greater than 90%, a ratio deemed "resilient" by Equable.

Equable found that public pensions' return on investment in 2022 was -6.14% on average, falling well short of assumed annual returns laid out in pension plan designs, which had projected an average of a 6.9% annual gain. 2022's negative returns erased nearly half of the funded ratio gains of 2021, which Equable explains was an outlier.

"Last year's incredible investment returns (24.8% on average) did include some future returns that were 'pulled forward' and ultimately led to a market correction," according to the firm's report.

As a repercussion of market movements, the total pension funding shortfall, also known as an unfunded liability gap, will increase to $1.45 trillion in 2022, reversing the one-year drip below the $1 trillion funding gap line in 2021.

"Strong investment returns in 2021 led to a decline in unfunded liabilities, down to $986.6 billion, [though] that pension debt has increased back up to $1.45 trillion as of 2022's calendar year end, due to poor investment returns," the Equable report stated, noting that the better-than-expected performance in private equity during 2022 kept this increase from being even greater.

According to the report, Equable does not expect most pension funds to hit their assumed rates of return for 2023, due to a variety of reasons, including: major public market indices being effectively flat over the last six months; the lag in reporting equity values on non-mark-to-market assets, such as private equity placements; the war in Ukraine; and the specter of more federal bank rate hikes. "Pension fund trustees should be considering lower investment assumptions, and state legislatures should be looking at larger contribution rates," according to the report.

Investment consultancy Wilshire found in an end-of-year report on the funding statuses of U.S. state public pensions that the aggregate funded ratio for U.S. state public pension plans increased by 3.1% during the fourth quarter of 2022, finishing at a funded ratio of 68.4%. Despite the gains in funding status during Q4, funding statuses in the quarter in November, estimated at 70.5% to end that month.

"Calendar year 2022 caps a volatile year for markets with the FT Wilshire 5000 Index ending 2022 down 19%, which is its fourth worst calendar year return," wrote Ned McGuire, managing director at Wilshire. "This quarter's ending funded ratio has fallen to its level [not seen since] the end of the second quarter of 2020, after the onset of COVID-19."

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Funding Status of Pensions Increases Marginally Despite Equity Market Downturn

Here's How Much Rising Rates Help Pension Plan Liabilities

Tags: Equable Institute, Funding Status, Ned McGuire, Pension Funding Status, Pensions, public pensions, Wilshire

By Dusty Hagedorn

ESG Themes to Be Aware of in 2023

January 26, 2023
Top concerns for ESG investing in 2023 include net-zero emissions targets, employee well-being and data scarcity, according to one annual global outlook.

Ongoing crises, like the global pandemic and the war in Ukraine and new tests driven by data needs and the regulatory landscape are expected to offer investors myriad opportunities and challenges in the realm of environmental, social and governance this year, according to research released Thursday.

The report "Actionable Insights: Top ESG Themes in 2023," the annual global outlook from by ISS ESG, which, like CIO, is owned by International Shareholder Services Inc.

The report points to climate change, the regulatory environment, cryptocurrencies, the future of corporate and ESG ratings, an employer's role in the well-being of employees, the food production industry, and the energy transition among important issues and concludes, "In this investment landscape, access to adequate data is crucial."

Not Just an Environmental Concern

Beginning with environmental concerns, the report highlighted biodiversity loss as an economic problem just as much as a biological one, because more than half of global GDP is “moderately or highly dependent on nature.”

London-based ISS ESG pinpoints the food industry as the main culprit of biodiversity devastation. Food companies are responsible for more than half of all negative impact on biodiversity, one-third of global greenhouse gas emissions, 90% of global deforestation and make up nine of the top 10 companies responsible for the largest negative impacts on biodiversity, according to the firm’s Biodiversity Impact Assessment Tool

The report highlighted soil degradation and biodiversity loss while ascertaining that prioritizing healthy soil would increase carbon sequestration, reduce existing greenhouse gas emissions and support crop yield.

Energy transition and the move toward net-zero carbon emissions may provide an opportunity for investors. Decarbonization solutions extend to wind, hydro, solar, nuclear and the storage of energy, all of which will likely be prioritized moving forward.

“Historically, growth from new energy sources has added to total energy consumption, rather than replaced legacy energy sources,” Nicolaj Sebrell, ISS ESG’s sector head, wrote in the report. “For example, the introduction of coal as a new energy source during the industrial revolution did not displace biomass energy (mainly wood).”

Sebrell continued that nuclear and wind energy are the power sources that produce the least carbon during their lifecycles, noting that solar power generation produces several times more carbon than the outputs of wind or nuclear, though solar still represents a drastic improvement upon the emission profiles of fossil fuels.

The ISS ESG report cites the scarcity of data about companies’ operations and efforts on the journey to net-zero carbon emissions as reaching a peak in 2023.

“While this process comes with costs, there will also be opportunities: for example, in the production of transition-exposed commodities such as cobalt, lithium, and copper,” the report states.

Regulatory Challenges

As another focal point for the year, the report identified the necessity for investors to evaluate potential risks to enterprise value stemming from regulatory action and targeted legislation of business activity deemed to be anti-competitive, specifically potential antitrust cases that could face Big Tech.

Focusing on antitrust concerns in Big Tech, the report depicted a social cost created by business models of dominant digital advertising players: “Users trade personal data and attention for content, while advertisers pay the platform to target users based upon their demographic profile and online behavior," the company wrote. "If the digital advertising market is less competitive because of a few dominant platforms, users will likely get reduced- or lower-quality content and services or have to give up more privacy, while advertisers will pay higher prices, [creating a] social cost that becomes more extreme as competitive dynamics veer toward monopoly."

To limit powers flowing to Big Tech, the EU recently finalized the Digital Markets Act, which becomes applicable on May 2. The law designates a commission that will eventually designate digital gatekeepers to whom the law will apply. Gatekeepers will be required to comply with a set of rules to operate specific services within the EU. In addition to requiring the review of potential acquisition, the rules prohibit behaviors that enhance market power, including combining personal data across services without explicit user consent; conditioning access to core platform services upon registration or use of another service; processing third-party data for targeted advertising; self-preferencing; or not allowing third-party app stores or software to run on an operating system.

In the week when the U.S. Department of Justice and eight U.S. states sued Google seeking to increase competition in the online ad business, the report concluded that, "Investors in the digital sector will encounter growing regulatory risks in 2023, and ESG analysis can help investors navigate these risks."

Crypto's ESG Profile?

The report also examines the controversies in the cryptocurrency industry. They are unlikely to lead to an ultimate downfall for the sector, according to the report's authors, but rising interest rates and the opportunity for investors to earn a real rate of return in conventional fixed-income, plus the FTX collapse have brought serious doubt to the non-security "currencies."

Crypto falls into the ESG category obliquely, with questions about the regulation of the sector and the energy consumed to create new coins. Crypto currently has no regulatory framework.

"[Cryptocurrencies] generally do not pay an interest rate, nor can they call on an established institutional framework in the event of a bank run on a particular crypto asset or entity," the report stated. "Crypto's attractiveness to some investors has come from its secrecy and its use of blockchain, which could be interpreted as bypassing traditional financial watchdogs."

The ISS ESG authors suggest that one way to provide confidence in crypto and the wider decentralized finance sector would be for crypto companies to actively seek out industry-wide regulation to protect consumers.

"Such regulation might include the following: a clear definition of purpose/genuine business case; reasonable capital adequacy constraints where depositor assets are held; regular reporting and transparency on key metrics; independent third-party audits; location in markets where financial regulations apply; and disclosure of conflicts of interest," the authors wrote.

The heightened awareness of the environmental impact of specific industries will influence investment decisions in 2023, as many investors continue to move toward net-zero carbon emissions. Obtaining transparent, reliable and standardized data on portfolio companies' emissions, targets and reduction strategies, in addition to global sustainability standards and disclosures, will be of keen focus this year.

One size does not fit all, from a regulatory perspective, as some industries' relationships with regulation presents a contrasting situation to investors; the future performance of web-based businesses may be affected by increased regulatory measures meant to counter anticompetitive practices. Meanwhile, achieving a regulatory framework to protect consumers may become a required catalyst to restore confidence in the crypto sector.

Related Stories:

Crypto Bloodbath Won't Stop Spreading, as Some Lose the Right to Their Money

Exploring ESG Investing: An ESG Path Forward

The Case for ESG Investing, From NTAM's Sustainability Chief

Tags: antitrust, Big Tech, COP15, Crypto, ESG, ISS, ISS ESG, Net Zero, Nicolaj Sebrell

By Dusty Hagedorn

FUNDfire

Calstrs Had 'Not Bad' -6.7% Return for 2022, CIO Says

Several factors have contributed to the system's portfolio being in better shape than expected, Chris Ailman told the $310 billion system's investment committee.

By Justin Mitchell | January 27, 2023

The **California State Teachers' Retirement System**, or Calstrs, recorded a -6.7% return for calendar year 2022, its investment chief said Thursday.

Chris Ailman

The return was "not bad," **Chris Ailman** told Calstrs' investment committee. While the system's equities and fixed income portfolios were down double digits last year, its value stood at $301.6 billion as of June 30, and rose to just over $302 billion by Dec. 31. As of Thursday, the fund's value stood at $310 billion, an $8 billion improvement since June 30.

"Go figure – it's really surprising, I'm surprised we're up at that level," Ailman said.

However, the current year-end marks do not include the system's private assets. Those numbers will not be ready until "mid-spring," Ailman said. The full report on the system's 2022 performance will come at its next meeting, scheduled for March.

Last year, both Calstrs and its sister system, the **California Public Employees Retirement System**, ended up increasing their June 30 losses considerably by the fall after adjustments, as reported.

On Thursday, Ailman said the Calstrs real estate portfolio gained 21% in 2022. Valuations in private assets like this are "appraisal-based," Ailman said, and those appraisals come from transactions, of which there have been very few in the private markets.

"The valuations are certainly what I would consider soft and not good estimates. But I don't know how much they'll come down," he said. "If the public markets recover quickly in the next six months, then I don't think we'll see much of a write-down."

Related Content

November 10, 2022
Calpers, Calstrs Losses Greater than Initially Reported

When asked by investment committee Chair **William Prezant** how much he suspects private asset valuations will decrease, Ailman said "to be realistic," he expected about 10%.

"It occurs to me that the one of the many smart things we've done is really not heavily invest in venture capital, because it would seem to me that that area of private equity would be the most

September 21, 2016
Calif. Fee Disclosure Law May Still Bite, But Years Off

damaged by the present market," Prezant said.

"I slightly disagree," Ailman responded. "I wish we were more [invested] in venture capital, [but] we can't be."

In 2016, the California legislature passed a law requiring public pensions to report fee data for new investments starting in 2017, as reported. While the system is simply too big for many venture capital funds, laws like that are the biggest reason the system does not do more venture investments, Ailman said. Calstrs staff did not respond to a request for comment on whether he was referring to any additional laws.

"We've become a pariah," he said. "Many of the venture capital firms in Silicon Valley kicked us out over other money that didn't ask as many hard questions."

Ailman did agree that Calstrs' lack of exposure to venture capital has played a role in its relatively strong performance last year.

"The venture capital funds aren't finding the unicorns and they're showing losses … that side has been very weak in 2022," he said, "We've been out of that area and so we didn't get hurt."

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PIMCO

CYCLICAL OUTLOOK

JANUARY 2023

Strained Markets, Strong Bonds

Resilient assets with attractive yields can help portfolios stay centered in 2023, when we expect inflation to moderate, central bank policy to steady, and a recession to take hold.

A company of Allianz

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SUMMARY

- Tighter financial conditions will likely cool inflation and lead to a recession across developed markets, which should be modest but not painless as unemployment will probably rise.
- Bonds are alluring again, with improved yields and lower expected volatility on the highest-quality assets at the center of our concentric circles investment framework.
- We are cautious in more economically sensitive areas of financial markets, while equities have become less attractive amid higher interest rates.

After facing difficulties on all fronts in 2022, investors should be rewarded with more opportunities in the year ahead, even as the global economy confronts headwinds.

We expect a modest recession in 2023 across developed markets as central banks continue to battle inflation, yet uncertainties remain. We discussed these and other factors at PIMCO's Cyclical Forum in December in Newport Beach, arriving at three key economic themes heading into 2023, which we review in the next section.

Any recession could further challenge riskier assets such as equities and lower-quality corporate credit. But we believe the repricing across financial markets in 2022 has improved prospects for returns elsewhere, particularly in bonds. We are focusing on high quality fixed income sectors that offer more attractive yields than they have in several years.

In our concentric circles framework, where risk increases toward the outer rings, we are prioritizing investments nearest the core for 2023. Rather than taking greater risks to chase incremental returns, we're seeking to make portfolios resilient, targeting investments that should be able to withstand even a more significant downturn. In other words, we're expecting a mild recession but preparing in case of something deeper.

Economic outlook: Waiting on recession

Since our October *Cyclical Outlook*, "Prevailing Under Pressure," economic *activity* has been more resilient than expected, while inflation has remained elevated. However, the *outlook* – as measured by surveys of business leaders and purchasing managers – has deteriorated, as banks have tightened credit conditions, industrial order books have waned, and consumers have depleted elevated savings. Financial conditions also remain tight as central banks raised market expectations for the level of policy rates, while crystalizing what's priced in with actual hikes.

As a result, some kind of recession over the next 12 months still appears likely across developed markets (DM). Unlike other modern recessions, where rate hikes in *anticipation* of inflation triggered broader market stress, this recession and rising unemployment could be the cost of returning inflation to target levels. Our baseline view is that **recessions in 2023 will be modest**, although we are preparing for a range of possible outcomes.

We would emphasize **three themes** heading into 2023:

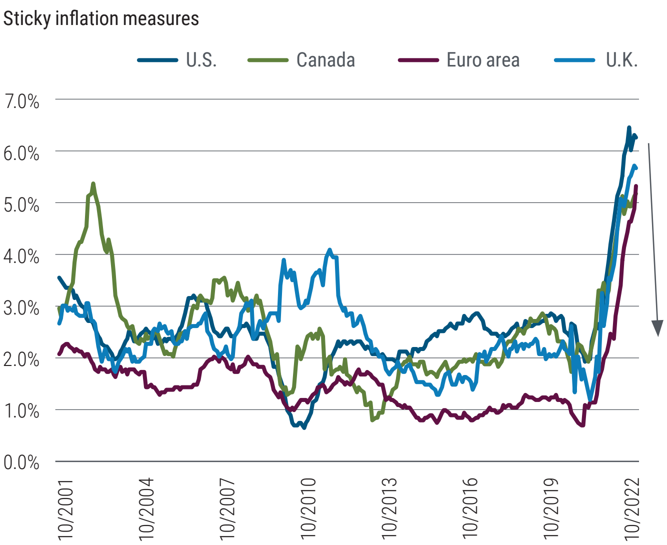
1. INFLATION IS LIKELY TO MODERATE, AND RISKS TO THE INFLATION OUTLOOK APPEAR MORE BALANCED.

Supply constraints, related first to the pandemic and later to the war in Ukraine, together with a stimulus-induced demand surge and an acceleration in unit labor costs, have all added to inflation. However, now that most price adjustments appear to be behind us, some of this inflation is likely to fade away with little central bank help.

For example, the 40% and 50% increase in U.S. used car and global energy prices, respectively, contributed 4 percentage points to U.S. headline inflation in 2022. If those prices just stabilize, U.S. headline consumer price index (CPI) inflation could fall from about 8% to 4% (annualized) relatively quickly, in our view.

Going from 4% to 2% would take more time, as the "stickier" categories may be slow to moderate (see Figure 1). Tight labor markets across DM have elevated wage and unit labor cost inflation. Shelter and rental inflation are expected to only gradually moderate.

Figure 1: Sticky inflation measures close to peaking



Source: Haver Analytics and PIMCO calculations as of October 2022. "Sticky" price baskets are constructed using the least volatile categories across each country/region from 2012 to 2019. Methodology is based on research by Michael F. Bryan and Brent Meyer, "Are some prices in the CPI more forward looking than others? We think so," (Federal Reserve Bank of Cleveland, 2010)

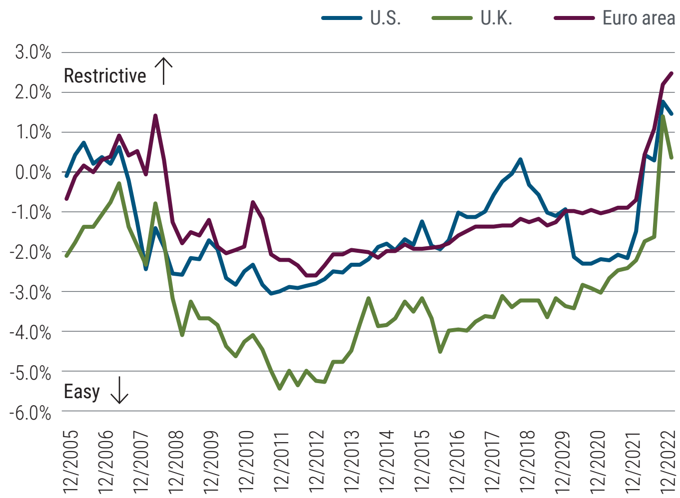
The faster-than-expected economic reopening in China could quicken the easing of supply-chain disruptions. We believe consumption, especially in services, will drive that reopening, limiting any pressure on global goods inflation.

2. CENTRAL BANKS ARE CLOSER TO *HOLDING* POLICY AT RESTRICTIVE LEVELS AS OPPOSED TO *GETTING* POLICY TO RESTRICTIVE LEVELS.

Monetary policy has likely already reached restrictive levels in several major economies – see Figure 2. While nominal DM overnight rates are still below inflation, that is likely to change as inflation moderates and central banks reach points where they pause their hiking cycles.

We think the U.S. Federal Reserve (Fed) may need to reach a roughly 5% nominal federal funds rate, which is already largely priced into markets and reflected in the Fed's own projections. (For more, see our recent *Viewpoint*, "Don't Fight the Fed, But Don't Lose the Thread.")

Figure 2: Monetary policy already appears to be restrictive in several developed markets



Source: Bloomberg, Haver Analytics, and PIMCO calculations as of December 2022. A level above 0% indicates monetary policy in that region is likely restrictive, and a level below 0% indicates monetary policy is likely easy (accommodative). For each region, data shown is calculated as the 1-year, 1-year-forward real rate (proxied by interest rate swap data minus survey-based long-run inflation expectations) minus PIMCO's estimate of the neutral real rate (r*), based on our internal model. Euro area r* estimate is a GDP-weighted sum of individual estimates for Germany, France, Spain, Italy, the Netherlands, Belgium, Finland, and Austria.

Estimates put the real neutral interest rate in Europe well below other DM rates, suggesting the European Central Bank (ECB) has less work to do. We think a 3% rate, or slightly higher, where the ECB pauses is a reasonable estimate, given the euro area is likely close to if not already in a recession, and that inflation may peak in the fourth quarter of 2022 or early 2023. (For more, see our recent blog post, "ECB Hikes, and Indicates Higher Rates Coming.")

The Bank of England and Bank of Canada are likely targeting nominal rates somewhere between the ECB and the Fed. Estimates of their real neutral rates are above that in Europe.

Overall, DM central banks have already largely realigned market pricing with the need for restrictive policy and have achieved this relatively quickly, with little additional market stress or contagion. The pace of tightening according to our financial conditions index (which includes rates, equity, credit, and foreign exchange) has mirrored that during the 2008 global financial crisis, with little deterioration in market functioning and without a sudden stop in credit markets, which could result in a more severe economic outcome.

While we expect DM central banks to continue to hike for the next quarter or so, before holding policy in restrictive territory, the trade-off they face will eventually change. Today, with low unemployment and elevated inflation, restrictive policy is needed. As 2023 progresses, inflation moderates, and unemployment rises, the need for restrictive policy will get less clear.

> Developed market central banks have largely realigned market pricing with the need for restrictive policy

Since the U.S. appears to be leading DM inflationary trends, and inflation could fall faster in the U.S. than elsewhere, the Fed may be the first central bank to discuss cutting rates in the second half of 2023.

3. SHALLOW RECESSIONS WON'T BE COMPLETELY PAINLESS.

As tighter financial conditions cool inflation over time (monetary policy works through lags), the mechanism won't be painless for the real economy, since it largely works through weakening the labor market.

Using data spanning back to the 1960s across 14 developed markets, we estimate the increase in unemployment needed to moderate inflation. We find central banks could need to increase the unemployment rate by around 0.7 percentage points to bring inflation down by 1 percentage point. By that measure, U.S. unemployment may have to increase to around 5%, from 3.5% in December, to moderate the sticky inflation over time.

The U.S. labor market is one of the tightest across DM, and consequentially unit labor cost inflation is well above both DM peers and levels consistent with the Fed's 2% long-term inflation goal. Similar measures in other regions are also elevated. In the European Union and U.K., unit labor cost inflation is running around 4% year-over-year, while Canada's is slightly higher. Unemployment likely will need to rise across these regions as well.

BOTTOM LINE: RECESSION LIKELY, BUT SOFT LANDING PLAUSIBLE

The U.K., which is likely already in a recession, appears to be leading the DM downturn. We expect the euro area to follow, and the U.S. and Canada to slip into recession later in the first half of 2023. Euro area and U.K. inflation appear to be following the U.S. with a lag. We expect euro area and U.K. headline inflation to peak just above 10% in the fourth quarter of 2022, while U.S. CPI inflation likely peaked near 9% in mid-2022.

Japan stands out as relatively more resilient, with expected growth at or slightly above trend, as the relaxation of economic restrictions helps offset global headwinds. Core rates of Japanese inflation have firmed, increasing the likelihood that the Bank of Japan further alters its yield curve control framework, following the first adjustment announced in late December after our Cyclical Forum.

Fiscal policy is likely to be muted, despite economic weakness, with much less impact on the 2023 outlook in the U.S. and Canada. Fiscal support packages in Europe and the U.K. to offset higher energy costs aren't likely enough to stave off recession.

Macro uncertainty is still high and there are risks. Linkages between real economies and global markets, coupled with the fastest pace of financial conditions tightening in decades, elevate the risk of accidents, contagion, and credit market disruption.

Yet there is still a plausible path to a soft landing as labor hoarding amid still-scarce supply, as well as moderating inflation, reaccelerate real income growth. Consumer and business balance sheets are strong, with elevated cash reserves, while pandemic-related supply constraints created large order backlogs, pent-up demand, and margin expansion, which are all likely to support business activity. China's reopening may also provide a tailwind to the global economy.

Investment implications: Bonds are back

We continue to see a strong case for investing in bonds, after yields reset higher in 2022 and with an economic downturn looking likely in 2023. Fixed income markets today can offer broad opportunities to build resilient portfolios with the potential for both attractive returns and mitigation against downside risks.

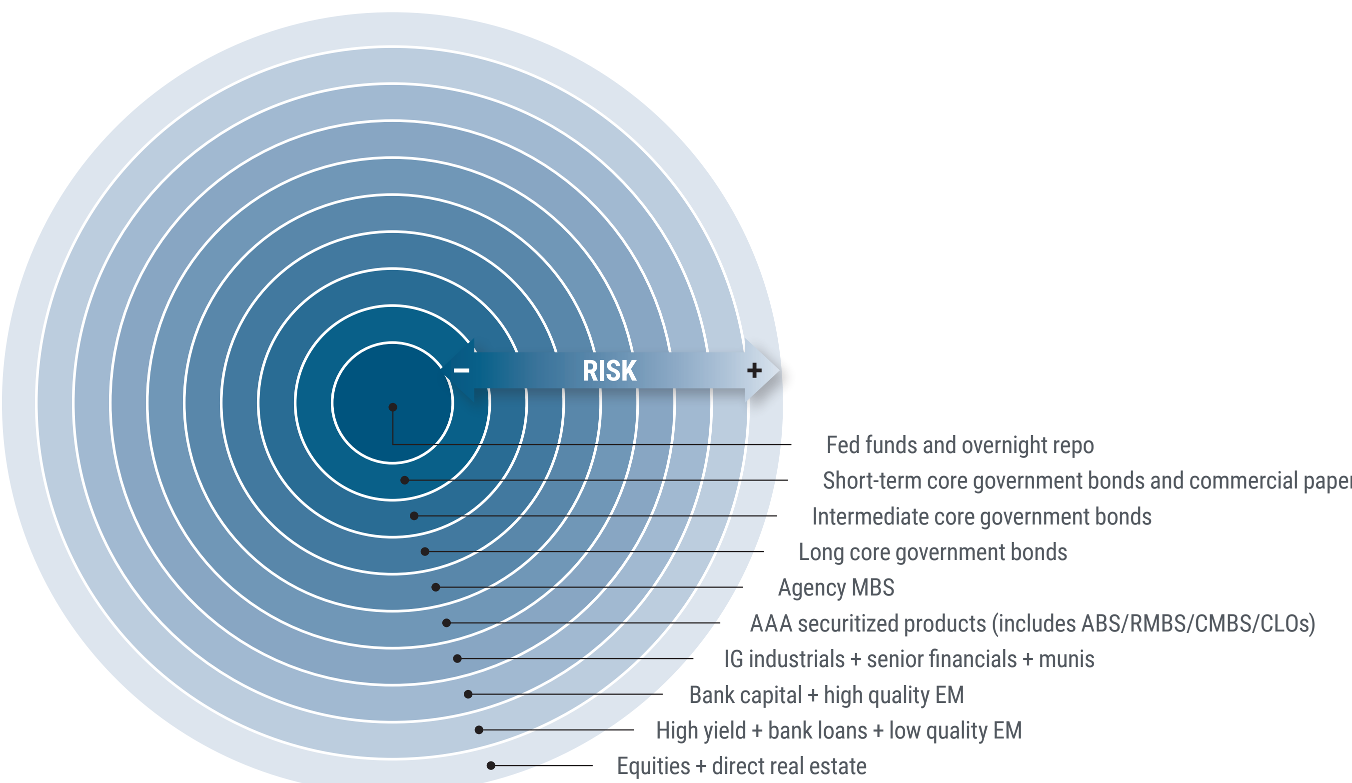
While our baseline is a modest recession and moderating inflation, our Investment Committee (IC) discussions focused on the wide range of plausible scenarios and asset price returns in those scenarios. For example, corporate credit could perform well in a very mild recession. Although we expect disinflation, U.S. Treasury Inflation-Protected Securities (TIPS) could perform well given uncertainty over where core inflation settles versus current pricing.

In this environment, we want to be careful in overall risk positioning and keep dry powder to allow us to add risk to portfolios in the event of notable new information on the outlook or significant market moves.

Even with the range of scenarios, uncertainty over the outlook for the Fed should be much lower in 2023. This led us to focus on the concentric circles investment framework, which we have used over the years and remains written on the whiteboard in our IC room (see Figure 3).

The framework starts with the relative lower risk in the middle in short-term and intermediate interest rates, moving out to U.S. agency mortgage-backed securities (MBS) and investment grade corporate credit in the middle rings, to the riskier outer bands with equities and real estate.

Figure 3: PIMCO's concentric circles



Source: PIMCO. **For illustrative purposes only.** MBS = mortgage-backed securities. ABS = asset-backed securities. RMBS = residential mortgage-backed securities. CMBS = commercial mortgage-backed securities. CLOs = collateralized loan obligations. IG = investment grade. EM = emerging markets.

This is more than an empirical observation on the correlation of risk and return; it is a statement on cause and effect – with central bank policy a crucial driver. Changing the price of borrowing at the center creates ripples that change the prices of risk assets in the outer circles. Asset prices at the edge also depend on investor animal spirits, and on confidence in policymakers and their policies.

When PIMCO introduced these concentric circles years ago, the focus was on central banks' success in reflating the economy after the global financial crisis. Today, the focus is on the ability to reduce inflation. If the Fed and other central banks can convince investors that the center will hold, then assets at the center should perform well. And – sequentially – this should feed into improved returns at the outer edges.

But in the event there is a loss of confidence on inflation, and central banks are forced to raise rates more than expected, this will have negative consequences for the outer circles.

CORE BOND STRATEGIES

The repricing of the front end of the yield curve over the past 12 months has boosted the allure of short-dated bonds at the center of the concentric circles.

U.S. core bond funds offer starting yields at about 5.5%,[1] which rises for funds with a larger credit component. This is attractive given our baseline outlook, and these funds' more favorable risk profile may offer additional downside mitigation versus outer-circle assets in the event of worse outcomes.

Overall, we do not expect to make large changes in current positioning based on the outlook and valuations. Rather, we are focused on identifying asymmetric trades across the range of plausible scenarios to complement current positioning.

We expect a yield range of about 3.25% to 4.25% for the 10-year U.S. Treasury in our baseline, and broader ranges across scenarios for 2023, with a view of being neutral on duration – a gauge of interest rate risk – or having a tactical underweight position at current levels.

TIPS pricing suggests high confidence in the Fed's anti-inflation credibility and could provide a reasonably priced cushion against more adverse inflation scenarios.

MORTGAGE-BACKED SECURITIES (MBS)

We retain a positive view on U.S. agency MBS. These are high quality, AAA rated assets with relatively attractive spreads that are inner-core, bend-but-not-break securities.[2] An expected decline in interest rate volatility would support MBS.

PUBLIC AND PRIVATE CREDIT AND STRUCTURED PRODUCTS

Our views on credit and structured products are little changed since our October outlook, strongly favoring up-in-quality and up-in-liquidity positioning in core portfolios.

We are particularly cautious in more economically sensitive market areas, especially investments that will bear the brunt of any monetary policy overshoots. One example is floating rate, senior secured bank loans, where our credit team sees material downgrade and default risk even at current policy rate levels. There will still be attractive, resilient companies in this sector, but investors should be cautious.

Given heightened uncertainty, our analyst team will be even more proactive in downgrading names on any forward indicators of credit deterioration.

Private credit markets, which can be slower to reprice than public markets, may be at risk of further declines in the short term. But a patient approach can set aside capital to take advantage of opportunities in the months and years ahead.

CURRENCIES AND EMERGING MARKETS (EM)

We favor the U.S. dollar, euro, and British pound as funding currencies for long positions in G-10 and EM currencies where we see cyclical tailwinds and valuation advantage. As we get greater confidence on the outlook for the Fed and the economy, there will likely be a good case to increase U.S. dollar short positions.

1 Based on Bloomberg data for recent yield levels of core bond funds.

2 "Bend-but-not-break" refers to credits that PIMCO would not expect to default in a credit-stressed environment.

In Japan, we have been underweight duration in many portfolios, anticipating the adjustment in the Bank of Japan's yield-curve-control regime. We expect to maintain these underweights, given the potential for further such adjustments. This reinforces the case for being overweight the Japanese yen, which we see as cheap in our valuation models and a position we would expect to benefit in a deeper-than-anticipated recession.

We are also underweight interest rate risk in China, where the skew is toward higher yields given the country's reopening.

Despite unprecedented global shocks, EM countries have been resilient. High real rates buffer risks from further Fed hikes and the effects of the U.S. dollar. China's reopening provides a tailwind, and we believe the inflation peak has passed.

EM valuations screen as historically cheap. Still, much depends on the Fed's ability to tame inflation and China's ability to reactivate economic activity. EM appears poised to perform well down the road, but we remain cautious until the monetary policy outlook becomes clearer.

COMMODITIES

The outlook for commodities remains constructive, with support from underinvestment in hydrocarbon production and power assets, low petroleum inventories, and depleted agriculture stocks. The greatest 2023 catalyst will likely be the reemergence of demand from China. The primary headwind is deceleration in DM demand amid tightening financial conditions.

The past two years have underscored commodities' diversification benefits. With forward markets already discounting a sequential decline in prices, the opportunity cost for owning inflation hedges such as commodities is very low.

ASSET ALLOCATION AND EQUITIES

Equities have become less attractive amid higher interest rates and recession risk. Higher bond yields have precipitated a move from a "TINA" market (where "there is no alternative" to equities) to one in which appealing alternatives exist.

As the equity risk premium (ERP) has compressed and the earnings yield has lagged behind the move higher in rates, equities appear richly priced. Our models show a much lower recession probability is priced into the S&P 500 than macro indicators suggest, while earnings per share (EPS) estimates appear overly optimistic (for more, see our latest *Asset Allocation Outlook*, "Risk-Off, Yield-On").

A change to our underweight position would require stabilization in rates, an ERP reflective of recession, and lower earnings expectations. Until these criteria are met, we favor defensive sectors and quality companies with reasonable valuations, clean balance sheets, and resilient growth prospects.

About Our Forums

Honed over more than 50 years and tested in virtually every market environment, PIMCO's investment process is anchored by our Secular and Cyclical Economic Forums. Four times a year, our investment professionals from around the world gather to discuss and debate the state of the global markets and economy and identify the trends that we believe will have important investment implications.

At the Secular Forum, held annually, we focus on the outlook for the next five years, allowing us to position portfolios to benefit from structural changes and trends in the global economy. Because we believe diverse ideas produce better investment results, we invite distinguished guest speakers – Nobel laureate economists, policymakers, investors, and historians – who bring valuable, multidimensional perspectives to our discussions. We also welcome the active participation of the PIMCO Global Advisory Board, a team of world-renowned experts on economic and political issues.

At the Cyclical Forum, held three times a year, we focus on the outlook for the next six to 12 months, analyzing business cycle dynamics across major developed and emerging market economies with an eye toward identifying potential changes in monetary and fiscal policies, market risk premiums, and relative valuations that drive portfolio positioning.

All investments contain risk and may lose value. Investing in the **bond market** is subject to risks, including market, interest rate, issuer, credit, inflation risk, and liquidity risk. The value of most bonds and bond strategies are impacted by changes in interest rates. Bonds and bond strategies with longer durations tend to be more sensitive and volatile than those with shorter durations; bond prices generally fall as interest rates rise, and low interest rate environments increase this risk. Reductions in bond counterparty capacity may contribute to decreased market liquidity and increased price volatility. Bond investments may be worth more or less than the original cost when redeemed. **Commodities** contain heightened risk, including market, political, regulatory and natural conditions, and may not be appropriate for all investors. **Equities** may decline in value due to both real and perceived general market, economic and industry conditions. Investing in **foreign-denominated and/or -domiciled securities** may involve heightened risk due to currency fluctuations, and economic and political risks, which may be enhanced in emerging markets.**Currency rates** may fluctuate significantly over short periods of time and may reduce the returns of a portfolio. **Mortgage- and asset-backed securities** may be sensitive to changes in interest rates, subject to early repayment risk, and while generally supported by a government, government-agency or private guarantor, there is no assurance that the guarantor will meet its obligations. **U.S. agency mortgage-backed securities** issued by Ginnie Mae (GNMA) are backed by the full faith and credit of the United States government. Securities issued by Freddie Mac (FHLMC) and Fannie Mae (FNMA) provide an agency guarantee of timely repayment of principal and interest but are not backed by the full faith and credit of the U.S. government. **Inflation-linked bonds (ILBs)** issued by a government are fixed income securities whose principal value is periodically adjusted according to the rate of inflation; ILBs decline in value when real interest rates rise. **Treasury Inflation-Protected Securities (TIPS)** are ILBs issued by the U.S. government. **Private credit** involves an investment in non-publically traded securities which may be subject to illiquidity risk. Portfolios that invest in private credit may be leveraged and may engage in speculative investment practices that increase the risk of investment loss. The value of **real estate** and portfolios that invest in real estate may fluctuate due to: losses from casualty or condemnation, changes in local and general economic conditions, supply and demand, interest rates, property tax rates, regulatory limitations on rents, zoning laws, and operating expenses. **Diversification** does not ensure against loss.

The **credit quality** of a particular security or group of securities does not ensure the stability or safety of an overall portfolio.

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