



Notice of Public Meeting

The Board of Retirement

of the San Mateo County Employees' Retirement Association will meet on

Tuesday, February 22, 2022 at 10:00 A.M.

In accordance with Government Code § 54953 and § 54954, the Members of the Board will be participating via Zoom video conference and teleconference. Pursuant to Government Code § 54953 and § 54954.3, members of the public, to the extent required by law, will have the opportunity to directly address the Board concerning matters within the jurisdiction of the Board. The public can participate and provide comment using the instructions below:

To Join the Meeting

- To join the meeting via video conference, click here: <https://us06web.zoom.us/j/86063001279>
- To join the meeting via telephone, dial: (669) 900-9128, and enter Meeting ID: 860 6300 1279

Public Comment During the Meeting

Persons wishing to address the Board should follow the steps below:

- If joining via video conference, please use the “raise your hand” feature in Zoom during the Oral Communications from the Public period.
- If joining via teleconference dial in, please dial *9 to “raise your hand” during the Oral Communications from the Public period.

You will be called on at the appropriate time. At the beginning of your comment, please state your name.

Public Comment Prior to the Meeting

Persons who wish to address the Board may submit written comments via email to samcera@samcera.org at least 30 minutes before the start of the Board meeting. Please include your name, agenda item, and your comment. The Board will have the email read into the record and attached to the minutes.

For help joining a Zoom meeting, see: <https://support.zoom.us/hc/enus/articles/201362193>

PUBLIC SESSION – The Board will meet in Public Session at 10:00 a.m.

- 1. Call to Order, Roll Call and Miscellaneous Business**
- 2. Oral Communications**
 - 2.1 Oral Communications from the Board
 - 2.2 Oral Communications from the Public
- 3. Approval of the Minutes**
 - 3.1 Approval of Special Board Meeting Minutes from January 25, 2022
 - 3.2 Approval of Board Meeting Minutes from January 25, 2022

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4. Approval of the Consent Agenda*

- 4.1 Disability Retirements (1)
 - Sholaas, Mary
- 4.2 Survivor Death Benefits
- 4.3 Service Retirements
- 4.4 Continuances
- 4.5 Deferred Retirements
- 4.6 Member Account Refunds
- 4.7 Member Account Rollovers
- 4.8 Member Account Redeposits
- 4.9 Acceptance of Trustees' Reports of Educational Activities
- 4.10 Acceptance of Annual Proxy Voting Report for the Period Ended December 31, 2021
- 4.11 Acceptance of Semi-Annual Compliance Certification Statements for the Period Ended December 31, 2021
- 4.12 Adopt a Resolution Finding that Conducting In-person Meetings Would Present an Imminent Risk to the Health and Safety of Attendees.
- 4.13 Acceptance of Preliminary Semi-Annual Budget-to-Actual Report for Period Ended December 31, 2021
- 4.14 Acceptance of Preliminary Semi-Annual Financial Report for Period Ended December 31, 2021
- 4.15 Reaffirm Securities Litigation Policy

5. Benefit & Actuarial Services

- 5.1 Consideration of Agenda Items, if any, Removed from the Consent Agenda

6. Investment Services

- 6.1 Report on Preliminary Monthly Portfolio Performance Report for the Period Ended January 31, 2022
- 6.2 Report on Quarterly Investment Performance for the Period Ended December 31, 2021
- 6.3 Approval of Updated Asset Allocation Policy Portfolio
- 6.4 Report on SamCERA's Risk Dashboard as of December 31, 2021
- 6.5 Approval of Proposed Purchase and Sale of Alternative Investments (to be heard in Closed Session, Confidential Under Gov. Code §54956.81 and §6254.26, see item C2)

7. Board & Management Support

- 7.1 Discussion of Board-Staff Retreat Topics

8. Management Reports

- 8.1 Chief Executive Officer's Report
- 8.2 Assistant Executive Officer's Report
- 8.3 Chief Investment Officer's Report
- 8.4 Chief Legal Counsel's Report

CLOSED SESSION – The Board may meet in closed session prior to adjournment

- C1 Consideration of Disability Items, if any, removed from the Consent Agenda
- C2 Approval of Proposed Purchase and Sale of Alternative Investments (Confidential Under Gov. Code §54956.81 and §6254.26 – see also item 6.5)

9. Report on Actions Taken in Closed Session

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10. Adjournment in Memory of the Following Deceased Members:

Cunha, Robert	January 5, 2022	Public Works
Hartung, Jurgen	January 8, 2022	Mental Health
Buttram, Mary	January 8, 2022	Mental Health
Hallenbeck, Wilma	January 13, 2022	Assessor's
Creigh, Donna	January 15, 2022	Social Services
Lee, Shirley S	January 23, 2022	Courts
McCrae, William	January 23, 2022	Sheriff's
Alamar Pulvers, Joy	January 25, 2022	Mental Health
Slaiter, Donald	January 29, 2022	Agriculture
Gibson, Dayna	January 30, 2022	Human Services
Medina, Douglas	February 5, 2022	Sheriff's
Lazaro, Lee	February 11, 2022	Sheriff's



Scott Hood, Chief Executive Officer

Posted: February 16, 2022

(* ALL ITEMS ON THE CONSENT AGENDA ARE APPROVED BY ONE ROLL CALL MOTION UNLESS A REQUEST IS MADE BY A BOARD MEMBER THAT AN ITEM BE WITHDRAWN OR TRANSFERRED TO THE REGULAR AGENDA. ANY ITEM ON THE CONSENT AGENDA MAY BE TRANSFERRED TO THE REGULAR AGENDA. ANY 4.1 ITEMS REMOVED FROM THE CONSENT AGENDA WILL BE TAKEN UP UNDER CLOSED SESSION; ALL OTHER ITEMS REMOVED FROM THE CONSENT AGENDA WILL BE TAKEN UP UNDER ITEM 5.1.)

THE BOARD NORMALLY MEETS AT 100 MARINE PARKWAY, SUITE 160, WHICH IS LOCATED ON THE SE CORNER OF TWIN DOLPHIN & MARINE PARKWAY IN REDWOOD CITY. Detailed directions are available on the "Contact Us" page of the website www.samcera.org. *Free Parking is available in all lots in the vicinity of the building. A copy of the Board of Retirement's open session agenda packet is available for review at the SamCERA offices and on our website unless the writings are privileged or otherwise exempt from disclosure under the provisions of the California Public Records Act. Office hours are Monday through Thursday 7 a.m. – 6 p.m.*

IN COMPLIANCE WITH THE CALIFORNIA GOVERNMENT CODE AND THE AMERICANS WITH DISABILITIES ACT: *SamCERA's* facilities and board and committee meetings are accessible to individuals with disabilities. Contact *SamCERA* at (650) 599-1234 at least three business days prior to the meeting if (1) you need special assistance or a disability-related modification or accommodation, including auxiliary aids or services, in order to participate in this meeting; or (2) you have a disability and wish to receive the agenda, meeting notice, agenda packet or other writings that may be distributed at the meeting in an alternative format. Notification in advance of the meeting will enable *SamCERA* to make reasonable arrangements to ensure full accessibility to this meeting and the materials related to it.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
JANUARY 25, 2022 – SPECIAL BOARD MEETING MINUTES

2201SP.1 Call to Order, Roll Call and Miscellaneous Business

Call to Order: Ms. O'Malley, Vice-chair, called the Special Meeting of the Board of Retirement to order at 9:55 a.m. via Zoom.

Roll Call:

Present: Sandie Arnott, Mark Battey, Al David, Paul Hackleman, Kurt Hoefer, Katherine O'Malley, and Elaine Orr.

Absent: Ben Bowler, Robert Raw, and Susan Lee.

Alternates: Alma Salas.

Staff: Lili Dames, Scott Hood, Elizabeth LeNguyen, Doris Ng, Paul Okada, Gladys Smith, and Anne Trujillo.

Consultants and speakers: Joe Abdou and Margaret Jadallah (Verus).

2201SP.2 Oral Communications from the Public: Ms. O'Malley asked if there was any public comment concerning items on the agenda from those individuals participating on the telephone or via Zoom. There were no public comments. Ms. Trujillo reported there were no written comments received ahead of the meeting.

2201SP.3 Approval of Resolution Authorizing the Use of Teleconferencing for the Board and Committee Meetings Pursuant to Government Code Section 54953(e): Mr. Hood informed the Board that based on the County's findings along with state and federal health information, staff recommends that the Board of Retirement authorize the continued use of teleconferenced meetings pursuant to AB 361.

Action: Mr. Hackleman moved to approve the resolution authorizing the use of teleconferencing for Board and Committee meetings pursuant to Government Code Section 54953(e). The motion was seconded by Mr. Battey and carried with a vote of 7-0, with trustees Arnott, Battey, David, Hackleman, Hoefer, O'Malley, and Orr all in favor; none opposed.

2201SP.4 Adjournment: Ms. O'Malley adjourned the Special Meeting at 9:59 a.m.

Robert Raw
Board Chair

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
JANUARY 25, 2022 – REGULAR BOARD MEETING MINUTES

2201.1 Call to Order, Roll Call and Miscellaneous Business

Call to Order: Ms. O'Malley, Vice-chair, called the Regular Meeting of the Board of Retirement to order at 10:00 a.m. via Zoom.

Roll Call:

Present: Sandie Arnott, Mark Battey, Ben Bowler (joined the meeting at 10:28 a.m.), Al David, Paul Hackleman, Kurt Hoefler, Katherine O'Malley, and Elaine Orr.

Absent: Robert Raw and Susan Lee.

Alternates: Alma Salas.

Staff: Michael Coultrip, Lili Dames, Scott Hood, Elizabeth LeNguyen, Doris Ng, Paul Okada, Gladys Smith, and Anne Trujillo.

Consultants and speakers: Joe Abdou and Margaret Jadallah (Verus).

2201.2.1 Oral Communications from the Board: None.

2201.2.2 Oral Communications from the Public: Ms. O'Malley asked if there was any public comment from those individuals participating on the telephone or via Zoom. Ms. Smith shared news that Ms. O'Malley is expecting. Ms. Smith and the Board congratulated her and expressed their warm wishes. Ms. O'Malley thanked everyone for their kind words. Ms. Trujillo reported there were no written comments received ahead of the meeting.

2201.3.1 Approval of Special Board Meeting Minutes from December 7, 2021: Ms. O'Malley asked if there were any changes or corrections, or objections, to the minutes from the special meeting held on December 7, 2021. There were no changes, corrections, or objections presented.

Action: Mr. Hackleman moved to approve the minutes from the special meeting on December 7, 2021. The motion was seconded by Mr. David and carried with a vote of 7-0, with trustees Arnott, Battey, David, Hackleman, Hoefler, O'Malley, and Orr, all in favor; none opposed.

2201.3.3 Approval of Regular Board Meeting Minutes from December 7, 2021: Ms. O'Malley asked if there were any changes or corrections, or objections, to the meeting minutes from the regular Board meeting held on December 7, 2021. There were no changes, corrections, or objections presented.

Action: Mr. David moved to approve the minutes from the regular Board meeting on December 7, 2021. The motion was seconded by Mr. Hackleman and carried with a vote of 7-0, with trustees Arnott, Battey, David, Hackleman, Hoefler, O'Malley, and Orr, all in favor; none opposed.

2201.4.0 Approval of the Consent Agenda: Ms. O'Malley asked if there were any items to be removed for discussion from the Consent Agenda. No items were removed.

Action: Mr. Hoefler moved to approve the items on the Consent Agenda. The motion was seconded by Ms. Arnott and carried with a vote of 7-0, with trustees Arnott, Battey, David, Hackleman, Hoefler, O'Malley, and Orr, all in favor; none opposed.

2201.4.1 Disability Retirements: None.

2201.4.2 Survivor Death Benefits: None.

2201.4.3 **Service Retirements:**

Name	Effective Retirement Date	Department
Allen, Frank	October 2, 2021	Revenue Services
Bessette, Michael	October 7, 2021	Deferred - Public Works
Bull, Ingall	October 30, 2021	Behavioral Health
Cain, Angelina	November 30, 2021	District Attorney's Office
Carrillo-Diaz, Ignacio	October 30, 2021	Public Works
Cervania, Chita	October 9, 2021	San Mateo County Health
Darko, Emelia	December 1, 2021	Human Services Agency
Daughenbaugh, Jennifer	October 2, 2021	Deferred - Probation
Day, Michelle	September 18, 2021	Deferred - Sheriff's
De Leon, Sandra	November 2, 2021	Human Services Agency
Echarte, Catherine	November 6, 2021	Deferred - Human Resources
Lemmon, Carol	November 27, 2021	San Mateo County Health
McCaleb, Janis	December 1, 2021	Probation
Morales, Stephanie	October 28, 2021	Behavioral Health
Oborne, Robin	October 2, 2021	Human Services Agency
Pause, Holly	October 30, 2021	Assessor's
Reardon, Timothy	November 6, 2021	San Mateo County Health
Reyes, Ma Cherie	October 29, 2021	Controller's
Shade, Gary	October 9, 2021	San Mateo County Health
Sharma, Maria	October 30, 2021	San Mateo County Health
Singh, Ranjeet	October 30, 2021	Behavioral Health
Smith, Helen T	October 13, 2021	Public Health
Sparks, Bwana	October 15, 2021	Sheriff's

2201.4.4 **Continuances:** The Board ratified the granting of continuance to the following individuals:

Survivor's Name	Beneficiary of
Barnett, Michelle	Seaton, Carolyn
Carter Chaves, Nellie	Chaves, Lawrence
Lisper, Kristina	Foster, Ellis
Miramontes, Jose	Miramontes, Annette
Seaton, Jason	Seaton, Carolyn
Wilmes, John	Wilmes, Mary
Barnett, Michelle	Seaton, Carolyn
Carter Chaves, Nellie	Chaves, Lawrence

2201.4.5 **Deferred Retirements:**

The Board ratified the actions as listed below for the following members regarding deferred retirements:

Name	Retirement Plan Type
Baker, Lee	G4, Vested - Reciprocity
Cardona, Sara	P4, Vested - Reciprocity
Culcasi, Cameo	G7, Vested - Reciprocity
Garcia, Giselle	G4, Vested
Garcia, Peter	G4, Vested - Auto Defer - Code 31700
Lockett, Cassius	G7, Vested - Auto Defer - Code 31700
Martinez-Aboyte, Ana Rosa	G7, Vested

Pisano, Kathryn	G7, Vested - Reciprocity
Pruitt, James	G4, Vested
Raphael, Tina	G4, Vested
Sample, Elizabeth	G4, Vested - Auto Defer - Code 31700
Savadkahi, Shawn	G7, Vested
Yuen, Nga Wing	G7, Non-vested - Reciprocity

2201.4.6 **Member Account Refunds:**

The Board ratified the actions as listed below for the following members regarding refunds:

Name	Retirement Plan Type
Rudoni, Angela	G7, Non-vested

2201.4.7 **Member Account Rollovers:**

The Board ratified the actions as listed below for the following members regarding rollovers:

Name	Retirement Plan Type
Arqueza, Andreiam (FBO: Arqueza, Terry)	S7, Non-vested
Bruce, Michelle (FBO: Bruce, Kathy)	G4, Non-vested
Giovannoni, Ashleigh	G7, Non-vested

2201.4.8 **Member Account Redeposits:**

The Board ratified the actions as listed below for the following members regarding redeposits:

Name	Retirement Plan Type
Romero, Rolly	Probation 4

2201.4.9 **Acceptance of Trustees' Reports of Educational Activities:** None.

2201.4.10 **Acceptance of Semi-Annual Compliance Certification Statements for the Period Ended December 31, 2021:** The Board accepted the semi-annual Compliance Certification Statements for SamCERA's non-alternative investment managers and investment consultant, as of December 31, 2021.

2201.4.11 **Policy for Reimbursement of Travel and Other Official Expenses for Trustees and Staff:** The Board approved further revisions to the Board's "Policy for Reimbursement of Travel and Other Official Expenses for Trustees and Staff."

2201.5.1 **Consideration of Agenda Items, if any, Removed from the Consent Agenda:** None.

2201.5.2 **Approval of Cost of Living Allowance (COLA):** Mr. Hood reviewed Milliman's recommendations for cost of living adjustments for 2022. COLAs were recommended for each retiree and beneficiary recipient, who retire before April 2, 2022, as follows: 3% for Plan 1 and 2; no COLA for Plan 3; and 2% for Plan 4, 5, 6 and 7 members.

Action: Mr. Hackleman motioned to approve a resolution adopting the 2022 cost of living adjustments as recommended. The motion was seconded by Mr. David and carried with a vote of 7-0, with trustees Arnott, Battey, David, Hackleman, Hoefler, O'Malley, and Orr in favor; none opposed.

- 2201.6.1 **Report on Preliminary Monthly Portfolio Performance Report for the Period Ended December 31, 2021:** Mr. Coultrip reported that SamCERA’s net preliminary return for December was 2.2% bringing the preliminary trailing twelve month return ending December 2021 to 11.9% net, which is below SamCERA’s Plan Benchmark return of 13.1% but above SamCERA’s Actuarial Assumed Earnings Rate of 6.25%. This item was informational and for discussion only, no action was taken.
- 2201.7.1 **Discussion of Board-Staff Retreat Topics:** Mr. Hood reviewed the proposed agenda of the 2022 Board-Staff Retreat and received feedback from the Board. This item was informational and for discussion only, no action was taken.
- 2201.8.1 **Chief Executive Officer’s Report:** Mr. Hood reported that staff plans to hold their annual staff retreat virtually. He informed the Board that a special meeting will not be required next month. Mr. Hood previewed a few items on next month’s agenda including the budget and financials report in addition to the retreat agenda. He provided Ms. Jadallah with the opportunity to announce her plan of retiring at the end of the year. The Board congratulated Ms. Jadallah on her anticipated retirement.
- 2201.8.2 **Assistant Executive Officer’s Report:** Ms. Smith reported that staff has filled the Senior Retirement Accountant position and Charlyn He will begin on February 7. She also shared that Esther Barnett was promoted to Retirement Analyst and the recruitment for the Retirement Support Specialist position will begin next week. Ms. Trujillo shared upcoming educational opportunities with the Board.
- 2201.8.3 **Chief Investment Officer’s Report:** Mr. Coultrip notified the Board that staff plans to bring a private equity secondary sale recommendation to the Board next month. He also provided the Board with an update on the cash flow matching manager search. Mr. Coultrip inquired whether the Board would be interested in hearing a potential investment opportunity in the energy space during a future meeting.
- 2201.8.4 **Chief Legal Counsel’s Report:** None.
- C1 **Consideration of Disability Items, if any, removed from the Consent Agenda:** None.
- 2201.10 **Adjournment:** Ms. O’Malley adjourned the meeting at 10:37 a.m. in memory of the deceased members listed below.

Page, Janice	November 13, 2021	Sheriff's
McLaughlin, Rebecca	November 15, 2021	Human Services
Wilmes, Mary	November 30, 2021	Library
Falls, Patricia	November 18, 2021	Recorder's Office
Knapp, James	November 18, 2021	Public Health
Morel, Centra	November 29, 2021	Hospital
Mattila, Vicki	November 13, 2021	Social Services
Hairston, Alla	December 2, 2021	Controller's
Lee, Paul	December 2, 2021	Health Services
Green, Joann	December 11, 2021	County Clerk
Crain, Selena	December 13, 2021	Crystal Springs Rehab Center
Cassidy, Walter	December 14, 2021	Hospital
Fulwider, Lorelie	December 16, 2021	Social Services
Chamberlin, Grace	December 17, 2021	Probation
Preece, Isabelle	December 19, 2021	Public Health
Etherton, John	December 28, 2021	Communications
Mackey, Terrance	December 20, 2021	Sheriff's
Gonzalez, Carlos	December 24, 2021	Mental Health

Dennis Woollum
Sellers, Geraldine
Garrison, Gloria
Gershan, David
Hirose, Ernest
Giguere, Lois
Port, Lillian

January 1, 2022
January 2, 2022
January 2, 2022
January 3, 2022
January 6, 2022
January 8, 2022
January 10, 2022

Sheriff's
Probation
Sheriff's
Public Health
Social Services
Library
County Counsel

Robert Raw
Board Chair

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 22, 2022

Agenda Items 4.1- 4.9

TO: Board of Retirement

FROM: Elizabeth LeNguyen, Retirement Benefits Manager



SUBJECT: Approval of Consent Agenda Items 4.1 – 4.9

4.1 Disability Retirements

- a) The Board find that **Mary Sholaas** (1) is permanently incapacitated from the performance of her usual and customary duties as a Patient Services Assistant II, (2) find that her disability was the result of an injury arising out of and in the course of her employment and (3) grant her application for a service-connected disability retirement.

4.2 Survivor Death Benefits

None.

4.3 Service Retirements

The Board ratifies the service retirement for the individuals listed below as follows:

Name	Effective Retirement Date	Department
Aquino, Alvin	December 7, 2021	Deferred - Behavioral Health
Barulich, Mary	December 31, 2021	Treasurer's
Becker-Raudales, Vannessa	January 1, 2022	District Attorney's Office
Dahl, Donna	December 21, 2021	Courts
Dones, Lapaz	January 1, 2022	San Mateo County Health
Espinosa, Gary	January 1, 2022	Probation
Folena-Schauchulis, Sandra	December 31, 2021	Aging & Adult Services
Graebe, Kirk	January 1, 2022	Information Services
Guerrero, Moises	December 9, 2020	Human Services
Hackett, Karen	December 17, 2021	Def'd - San Mateo County Health
Hurley, Lynda	January 1, 2021	Def'd - San Mateo County Health
Jones, Allen	January 1, 2022	Public Works
Karim, Zander	December 31, 2021	Deferred - Environmental Health

Koon, Helen	December 4, 2021	San Mateo County Health
Machen, Marguerite	December 12, 2021	Def'd - San Mateo County Health
Mealey, Jeannine	December 31, 2021	Behavioral Health
Miller, Richard	December 28, 2021	Deferred - Environmental Health
Moulton, Alycia	December 31, 2021	County Manager's Office
Nastari, Jerry	December 28, 2021	Deferred - Probation
Parsons, Patricia	December 4, 2021	Aging & Adult Services
Peardon, Jason	December 31, 2021	Sheriff's Office
Perez, Mark	December 31, 2021	Public Works
Poyatos, Martha	December 31, 2021	County Manager's Office
Puck, Stanton	December 17, 2021	Deferred - Controller's
Robertson, Bernadette	December 5, 2021	Public Safety Communications
Rostron, Leslie	December 4, 2021	Assessor Clerk Recorder Elections
Rugama, Candida	December 15, 2021	Deferred - Human Services
Salazar, Karen	December 31, 2021	Deferred - Environmental Health
Strehle, Michael	December 26, 2021	Deferred - Sheriff's Office
Tee, Mary Lou	January 1, 2022	Human Services Agency
Vozikes, Mary	January 1, 2022	Behavioral Health

4.4 Continuances

None.

4.5 Deferred Retirements

The Board ratifies the deferred retirements as listed below for the following individuals:

Name	Retirement Plan Type
Adeniji, Adebowale	G4, Vested - Reciprocity
Carbajal, Alexa	G7, Non-Vested – Reciprocity
Chacon, Marcos	G7, Vested - Auto Defer - Code 31700
Conde, Wende	G4, Vested - Auto Defer - Code 31700
Evers, Mari	G4, Vested
Gomez, Devin	G7, Non-Vested – Reciprocity
Goyal, Dolly	G4, Vested – Reciprocity
Herbst, Erin	G4, Vested – Reciprocity

Janowczyk, Joseph	S7, Non-Vested - Reciprocity
Laib, Yuki	G7, Vested
Lamsen, Dianaliza	G7, Vested - Auto Defer - Code 31700
Le, John	G7, Vested
Lim, Paul	G7, Non-Vested – Reciprocity
Ling, Tina	G7, Vested
Long, Jonathan	G4, Vested - Auto Defer - Code 31700
Newland, Casey	G7, Non-Vested – Reciprocity
Novelo, Yolanda	G4, Vested - Auto Defer - Code 31700
Rogers, Jennifer	G4, Vested - Reciprocity
Romero, Rolly	P4, Non-Vested – Reciprocity
Sweeney, Kristin	G7, Vested - Auto Defer - Code 31700

4.6 Member Account Refunds

The Board ratifies the refunds as listed below for the following individuals:

Name	Retirement Plan Type
Alba, Arik	G7, Non-vested
Barnfield, Tiffany	G7, Non-vested
Basler, Jennifer	G7, Non-vested
Benitez, Lysette	G7, Non-vested
Campos, Carolina	G7, Non-vested
Contreras-Delgado, Alejandra	G7, Non-vested
Hightower, Genevieve	G7, Non-vested
Kalinowski, Mikaila	G7, Non-vested
Lopez-Betancourt, Francisco	G7, Non-vested
Malfatti, James	S7, Non-vested
Morales, Joselyn	G7, Non-vested
Soriano, Valentino	G7, Non-vested
Smith, Ava	G4, Non-vested

4.7 Member Account Rollovers

Name	Retirement Plan Type
Crawford, Jason (DRO)	G4, Non-vested
Lee, Alan	G4, Non-vested
Lo, Jonathan	G7, Non-vested
Morales, Joselyn	G7, Non-vested
Von Almen, Travis	G7, Vested

4.8 Member Account Redeposits

None.

4.9 Acceptance of Trustees' Reports of Educational Activities


None.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 22, 2022

Agenda Item 4.10

TO: Board of Retirement

FROM: Doris Ng, Investment Analyst 

SUBJECT: Report on Proxy Voting Summary for the Year Ended December 31, 2021

Recommendation

Accept the Proxy Voting Summary Report for the year ended December 31, 2021.

Background

Consistent with SamCERA's Investment Policy, investment managers are delegated authority for the voting of proxies. Managers have been providing staff with monthly or quarterly reports on all proxies cast.

The summary report is a more streamlined and robust aggregation of the various reports and shows an overview of the proxy voting conducted by SamCERA's domestic and international equity managers on SamCERA's behalf for the period.

On the summary page, the first table shows statistics of the proposals voted and how they were voted relative to management's or proxy advisor's recommendations. The majority of proposals are typically cast in favor of management's recommendations. In the second table, we drill into the proposals cast against management's or proxy advisor's recommendations by proposal type.

Details of the subset of proposals voted against management's or proxy advisor's recommendations will be provided upon request.

Discussion

For the calendar year ended December 31, 2021, there were a total of 112,789 proxy proposals (a significant increase from last year's total of 75,409). Of the total proposals, 10% were cast against management's recommendation, 88% with management's recommendation and 2% not voted, which is in-line with prior years. The top three categories of votes cast against management's recommendation were Boards and Directors (46%), Capital Structure, Mergers, Asset Sales and Other Special Transactions (21%), and Remuneration and Benefits (20%). Within the Boards and Directors category, independence, performance and capacity of the directors were some of the common concerns cited against candidate nominations. Within the Capital Structure, Mergers, Asset Sales and Other Special Transactions category, potential dilution of shareholder interest, anti-takeover potential and giving the board excessive discretion on capital issuance were some of the common concerns. Within the Remuneration

and Benefits category, alignment of shareholder interests, structure of remuneration arrangements, and insufficient information disclosure were some of the common concerns cited in the voting rationales.

Lastly, it is also interesting to note there were 178 votes cast against management's recommendation in the category of Social, Ethical and Environmental Issues, which has doubled from the prior calendar year. Some of the common proposals included disclosure on climate risk/greenhouse gas emissions, diversity, equity and inclusion policies and initiatives, and political contributions/lobbying activities.

Attachment

Proxy Voting Summary for Calendar Year Ended 12-31-2021

Year Ended 12/31/2021

Proxy Voting Summary Statistics

Investment Manager ¹	Strategy	Total Proposals	Proposals Not Voted	FOR Mgmt Rec	AGAINST Mgmt Rec	AGAINST Proxy Advisor Rec ²
Acadian Asset Management	U.S. Managed Volatility	1,569	29	1,385	155	0
Baillie Gifford	International Growth	1,266	0	1,233	33	0
Passive Core	Russell 1000, EAFE, ACWI ex US IMI	102,806	1,972	90,743	10,091	0
Mondrian ³	International Value	822	0	795	27	7
Mondrian ³	Emerging Markets Equity Fund, L.P.	636	0	589	47	13
Low Volatility Core	Defensive Equity U.S. Low Volatility	2,924	0	2,707	217	0
PGIM Quantitative Solutions ⁴	Small Cap Core	2,766	35	2,525	206	192
Grand Total		112,789	2,036	99,977	10,776	212

¹ Note: Information not available for investment manager, D.E. Shaw as related to the Large Cap Core 130/30

² Information not available or applicable for all managers.

³ Voting rationale provided for only select proposals voted against management and/or proxy advisor due to manual process.

⁴ Voting rationale may not be provided for all proposals voted against management, but consistent with manager's internal proxy voting policy.

Votes Against Management or Proxy Advisor


Count of Proposal Type	Investment Manager							Grand Total
	Baillie Gifford	Mondrian	Passive Core	Acadian Asset Management	Low Volatility Core	PGIM Quantitative Solutions		
Boards and Directors	15	28	4,678	58	104	111	4,994	
Capital Structure, Mergers, Asset Sales and Other Special Transactions	9	22	2,220	6	4	10	2,271	
General Corporate Governance Matters	2	8	694	28	47	12	791	
Remuneration and Benefits	6	19	1,967	19	25	71	2,107	
Social, Ethical and Environmental Issues			95	44	37	2	178	
Auditors and Audit-Related Issues	1	4	437				442	
Grand Total	33	81	10,091	155	217	206	10,783	

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 22, 2022

Agenda Item 4.11

TO: Board of Retirement

FROM: Doris Ng, Investment Analyst 

SUBJECT: Semi-Annual Compliance Certification Statements for Period Ended December 31, 2021

Recommendation

Accept the semi-annual Compliance Certification Statements for SamCERA's non-alternative investment managers as of December 31, 2021.

Background

As part of SamCERA's ongoing due diligence process, the Compliance Certification Statement is completed by each of the association's public equity, fixed income, real estate, real asset and cash overlay investment managers and investment consultant on a semi-annual basis.

These statements are used to update SamCERA on any firm-wide compliance issues and to provide strategic-level information regarding such things as derivatives and portfolio positioning. For investment managers whose investments are considered "alternative investment vehicles" per the California Government Section Code §6254.26, the Compliance Certification Statements are not provided in the public board packet and will be sent separately to the Board.

The attached Compliance Certification Statements were not received in time to be included in the mailing for the January Board meeting.

Discussion

The attached Compliance Certification Statements report that SamCERA's investment managers (SSgA and PIMCO) are in compliance with SamCERA's Investment Policy as of December 31, 2021. There were no reported significant developments in portfolio construction, investment approach, firm ownership or organizational structure of concern relating to the association's public investments. There were no notable issues regarding industry or regulatory actions that impact SamCERA. The managers were also requested to provide data regarding the characteristics and composition of their portfolios. No prominent issues were identified during the review. Any items that raise concern will be brought to the manager's or investment consultant's attention and will be thoroughly vetted by staff.

Attachments

Compliance Certification Statement Matrix 12-2021

Compliance Certification Statements (2)

- A. Fixed Income: PIMCO
- B. Real Assets: SSgA

Compliance Certification Statement Matrix – December 31, 2021

Investment Manager	Mandate	General Compliance Issues	Derivative Instruments	Investment Manager Guidelines	Mandate Specific
Fixed Income					
PIMCO (Diversified Income Fund)		No Concerns	No Concerns	No Concerns	No Concerns
Real Assets					
State Street Global Advisors (Custom Real Asset Account)		<ul style="list-style-type: none"> Global Fiduciary Solutions (GFS) to become part of Investment Solutions Group (ISG), headed by Dan Farley, CIO 	No Concerns	No Concerns	<ul style="list-style-type: none"> 18.88% largest single counterparty 1.73% single largest security 1.81% ADR 1.61% Rule 144A 24.76% Derivatives
2 Total		 2 Completed	 0 Pending Information	 0 Confidential	

PIMCO Diversified Income Fund – December 31, 2021

Compliance Certification Statement

San Mateo County

Employees' Retirement Association

In accordance with SamCERA's Investment Policy Statement, the following compliance worksheet will be completed by each of *SamCERA's* investment managers on a semi-annual basis. These statements must be e-mailed to *SamCERA's* office (Investments@samcera.org) by **Monday, January 10, 2022.**

General Compliance Issues

1. Have there been any significant portfolio developments, major changes in firm ownership, organizational structure and personnel?

Yes: Please explain. / **No**

Please refer to the attached Quarterly Firm Report.

2. Have there been any changes in the firm's investment approach?

Yes: Please explain. / **No**

Please refer to the attached Fund Prospectus and/or Statement of Additional Information.

3. Have there have been any industry or regulatory disciplinary actions taken against the firm?

Yes: Please explain. / **No**

Please reference the attached compliance letter.

4. Has the firm's insurance coverage been sustained?

Yes / **No: Please explain.**

Please reference the attached compliance letter.

Investment Management Fees

1. Is *SamCERA's* investment management fee schedule higher than those charged other institutional clients who hold an account investment substantially similar to ours?

Yes: Please explain. / **No**

Please refer to the attached Fund Prospectus and/or Statement of Additional Information.

Derivative Investments

1. Are derivatives used in the management of the investment strategy?
 Yes: Please ANSWER the remaining questions in this section.
 No: Please SKIP the remaining questions in this section.

Please refer to the attached Fund Prospectus and/or Statement of Additional Information.

2. If the firm entered into a non-exchange traded derivative, was the general nature and associated risks of the counter-party fully evaluated?
 Yes / **No: Please explain.**

Please refer to the attached Diversified Income Fund Annual Report.

3. For non-exchange traded derivative transactions, were the counter-parties broker/dealers?
 Yes / **No**

Please refer to the attached Diversified Income Fund Annual Report.

If Yes:

- a) Do the counter-parties have investment grade debt? **Yes/** **No**
b) Are the counter-parties registered with the SEC and do they have net capital to protect against potential adverse market circumstances? **Yes/** **No: Please explain.**

4. For non-exchange traded derivative transactions, were the counter-parties financial institutions (banks)?
 Yes / **No**

Please refer to the attached Diversified Income Fund Annual Report.

If Yes:

- a) Do the counter-parties have investment grade debt? **Yes/** **No**
b) Do the counter-parties have total assets in excess of \$1 billion, and significant net capital to protect against potential adverse market circumstances?
 Yes/ **No: Please explain.**

5. Is individual counter-party exposure well diversified? **Yes/** **No: Please explain.**
a) What is the largest exposure to a single counter-party within the portfolio?
b) Please specify the name of the counter-party and the amount of exposure.
c) Have there been any changes to the investment manager's list of approved counter-parties over the past six months?

Please refer to the attached Diversified Income Fund Annual Report.

- Specify the security pricing sources used when developing portfolio market value exposures for limited allocation derivatives.

Please refer to the attached PIMCO Pricing Policy.

- Provide a statement regarding the liquidity of the derivative investments. Provide a general statement discussing the legal and regulatory risks associated with the portfolio manager's investments in derivatives.

Please refer to the attached PIMCO Pricing Policy.

- State if the legal and regulatory risk associated with portfolio derivative investments have changed over the past six months. **Yes: Please explain.** / **No**

Please refer to the attached PIMCO's Use of Derivatives.

Investment Manager Guidelines

- Are portfolio holdings well-diversified, and made in liquid securities?
 Yes / **No: Please explain.**

Please refer to the attached Bond Statistics Report.

- Has the firm engaged in short selling, use of leverage or margin and/or investments in commodities? **Yes: Please explain.** / **No**

The Fund is permitted to engage in short sales as allowed by the Fund's Prospectus and Statement of Additional Information, which are attached for reference.

Fixed Income Portfolios

- State the percentage of the portfolio held in each of the following types of securities

<i>Treasury</i>	<i>%</i>
<i>Agency</i>	<i>%</i>
<i>Inflation-Linked</i>	<i>%</i>
<i>Mortgage-Backed</i>	<i>%</i>
<i>Asset-Backed</i>	<i>%</i>
<i>Investment-Grade Credit</i>	<i>%</i>
<i>High-Yield Credit</i>	<i>%</i>
<i>Bank Loan</i>	<i>%</i>
<i>Non-US</i>	<i>%</i>
<i>EM Government</i>	<i>%</i>
<i>EM Local Currency</i>	<i>%</i>
<i>EM Corporate</i>	<i>%</i>

<i>Cash & Equivalents</i>	<i>%</i>
<i>Total</i>	<i>%</i>

Please reference the attached Bond Statistics Report.

2. Excluding U. S. Government and Agency bond holdings, did any individual bond issue represent more than 5% of the market value of the portfolio? **Yes** / **No**

Please reference the attached Bond Statistics Report.

a) If **Yes**, please specify the bond issue and percentage amount.

3. What percentage of the portfolio is held in Rule 144A securities?

Please reference the attached compliance letter.

4. At the time of purchase, was there any single industry which represented more than 15% of the market value of the account. **Yes** / **No**

Please reference the attached Holdings Report.

a) If **Yes**, please specify the name of the industry, percentage amount and size relative to benchmark.

5. What proportion of total AUM do the assets in this product make-up of the firm? What size does SamCERA's account comprise of total product assets?

As of 9/30/2021, the Fund represented 0.25% of the Firm assets.

As of 9/30/2021, SamCERA's investment represented 2.46% of Fund assets.

Signed by:



Dated:

1/11/2022

Name of Firm:

PIMCO

State Street Global Advisors Custom Real Asset Account – December 31, 2021

Compliance Certification Statement

San Mateo County

Employees' Retirement Association

In accordance with SamCERA's Investment Policy Statement, the following compliance worksheet will be completed by each of SamCERA's investment managers on a semi-annual basis. These statements must be e-mailed to SamCERA's office (Investments@samcera.org) by **Monday, January 10, 2022**.

General Compliance Issues

1. Have there been any significant portfolio developments, major changes in firm ownership, organizational structure and personnel?
 Yes: Please explain. / **No**

There have been no significant portfolio developments, major changes in firm ownership of organizational structure. However, for information on material changes in personnel, please refer to the separately attached "**Appendix A – SSGA Organizational Memo**".

2. Have there been any changes in the firm's investment approach?
 Yes: Please explain. / **No**
3. Have there have been any industry or regulatory disciplinary actions taken against the firm?
 Yes: Please explain. / **No**

SSGA Funds Management, Inc. (SSGAFM), State Street Global Advisors Trust Company, State Street Bank and Trust Company, and their ultimate parent, State Street Corporation (collectively "State Street") are subject to regulatory oversight by numerous federal agencies, including the U.S. Securities and Exchange Commission (SEC), the U.S. Federal Reserve Bank, and the U.S. Federal Deposit Insurance Corporation, as well as Massachusetts state banking and securities regulators. As with any similarly regulated financial institution, State Street is likely to be responding to multiple inquiries, both formal and informal, from various regulators at any given time. In the normal course, various regulators also conduct periodic reviews, exams and audits of SSGA FM. State Street's policy is that such communications are confidential.

4. Have there been any investment guideline breaches during the prior 6 months?
 Yes: Please explain. / **No**

There have been no active investment guideline breaches for the products in scope.

5. Have proxy ballots been voted in accordance with the best economic interest of *SamCERA*?
 Yes / **No: Please explain.**

Members of the Asset Stewardship team evaluate the proxy solicitation to determine how to vote based on facts and circumstances, and consistent with SSGA's Proxy Voting Guidelines, which seeks to maximize the value of our client accounts.

6. Has the firm's insurance coverage been sustained?
 Yes / **No: Please explain.**

Please refer to the separately attached "**Appendix B – Memorandum of Insurance**".

Investment Management Fees

1. Is *SamCERA*'s investment management fee schedule higher than those charged other institutional clients who hold an account investment substantially similar to ours?
 Yes: Please explain. / **No**

Derivative Investments

1. Are derivatives used in the management of the investment strategy?
 Yes: Please ANSWER the remaining questions in this section.
 No: Please SKIP the remaining questions in this section.
2. If the firm entered into a non-exchange traded derivative, was the general nature and associated risks of the counter-party fully evaluated?
 Yes / **No: Please explain.**
3. For non-exchange traded derivative transactions, were the counter-parties broker/dealers?
 Yes / **No**

If Yes:

- a) Do the counter-parties have investment grade debt? **Yes** / **No**
b) Are the counter-parties registered with the SEC and do they have net capital to protect against potential adverse market circumstances? **Yes** / **No: Please explain.**

Brokers are typically registered with the SEC while banks are registered with multiple regulatory agencies including the OCC. Net Capital is a broker dealer related term. Broker dealers on our panel meet the minimum net capital requirements as proscribed by the respective regulatory governing agency.

4. For non-exchange traded derivative transactions, were the counter-parties financial institutions (banks)?
 Yes / **No**

If **Yes**:

- a) Do the counter-parties have investment grade debt? **Yes** / **No**
- b) Do the counter-parties have total assets in excess of \$1 billion, and significant net capital to protect against potential adverse market circumstances?
 Yes / **No: Please explain.**
5. Is individual counter-party exposure well diversified? **Yes** / **No: Please explain.**
- a) What is the largest exposure to a single counter-party within the portfolio?
- Approximately 18.88% of the fund, as of December 31, 2021.
- b) Please specify the name of the counter-party and the amount of exposure.
- Societe Generale; approximately \$74 million, as of December 31, 2021.
- c) Have there been any changes to the investment manager's list of approved counter-parties over the past six months?
- No.
6. Specify the security pricing sources used when developing portfolio market value exposures for non-exchange traded derivative positions.
- The swap positions are based on a commodity index (Bloomberg Commodity Roll Select TR Index). The Index levels are quoted on Bloomberg.
7. Provide a statement regarding the liquidity of the derivative investments. Provide a general statement discussing the legal and regulatory risks associated with the portfolio manager's investments in derivatives.
- The swap positions are based on a commodity index (Bloomberg Commodity Roll Select TR Index). The Index is comprised of a diversified basket of liquid (listed) commodity futures contracts. Please refer to the separately attached "**Appendix C - Commodity Index Strategy Disclosure Document**".
8. State if the legal and regulatory risk associated with portfolio derivative investments have changed over the past six months. **Yes: Please explain.** / **No**

Real Asset Portfolio

1. Specify the percentage of the portfolio held in each of the following types of securities.

<i>Foreign Ordinary Shares</i>	0.08%
<i>ADR's</i>	1.81%
<i>Common Stock</i>	48.20%
<i>MIP Limited Partnership</i>	0.00%
<i>Derivatives: Futures/ Options</i>	24.76%
<i>Cash & Equivalents (Domestic)</i>	0.24%
<i>Cash & Equivalents (Foreign)</i>	0.03%
<i>Other (TIPS)</i>	24.89%

2. Specify the large, mid and small capitalization exposure of the portfolios.

S&P Global LargeMidCap Natural Resources Index NL Fund (ZVB5)

Large-Cap	75.60%
Mid-Cap	22.56%
Small-Cap	1.84%

S&P Global Infrastructure Index NL CTF (ZVPY)

Large-Cap	68.07%
Mid-Cap	25.68%
Small-Cap	6.25%

Bloomberg Roll Select Commodity Index SM NL FD (ZVME)

Large-Cap	N/A-Swaps%
Mid-Cap	N/A-Swaps %
Small-Cap	N/A-Swaps %

3. What percentage of the portfolio is held in Rule 144A securities?

1.61%

4. What is the largest percentage of the portfolio represented by a single security? Please specify the security and percentage amount. If any securities were above 5% at the time of purchase, please list and explain why.

Corteva Inc - Common Stock USD – 1.73%

5. What is the largest percentage of the portfolio represented by a single issuer? Please specify the security and percentage amount. If any exposure to a single issuer was above 15% at time of purchase, please list and explain why.

Corteva Inc - Common Stock USD – 1.73%

6. What proportion of total AUM do the assets in this product make-up of the firm? What size does SamCERA's account comprise of total product assets?

Part I*

Real Asset Strategy AUM – \$7,185.79 million (0.17%)

Underlying Funds

S&P Global LargeMidCap Natural Resources Index NL Fund (ZVB5) – \$1,373.97 million (0.03%)

Bloomberg Roll Select Commodity Index SM NL FD (ZVME) – \$392.75 million (0.01%)

S&P Global Infrastructure Index NL CTF (ZVPY) – \$1,363.88 million (0.03%)

U.S. TIPS Index NL Fund (CMTP) – \$3,151.21 million (0.08%)

SSGA Firm AUM - 4,138,172.01 million**

Part II*

SMCERA AUM - \$ 407.14 million (5.67%)

Real Asset Strategy AUM - \$7,185.79 million (0.17%)

**AUM data provided is unaudited and as of December 31, 2021.*

*** This figure is presented as of December 31, 2021 and includes approximately \$61,430.12 million USD of assets with respect to SPDR products for which State Street Global Advisors Funds Distributors, LLC (SSGA FD) acts solely as the marketing agent. SSGA FD and State Street Global Advisors are affiliated.*

Source: State Street Global Advisors



Signed by: Craig DeGiacomo, Managing Director, Head of Public Funds and Taft Hartley Distribution & Head of Consultant Relations - North America

Dated: January 20, 2022

Name of Firm: State Street Global Advisors

Disclosures:

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Past performance is not a guarantee of future results. Performance returns for periods of less than one year are not annualized. Index returns are unmanaged and do not reflect the deduction of any fees or expenses. Index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income.

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Investing involves risk including the risk of loss of principal.

Companies with large market capitalizations go in and out of favor based on market and economic conditions. Larger companies tend to be less volatile than companies with smaller market capitalizations. In exchange for this potentially lower risk, the value of the security may not rise as much as companies with smaller market capitalizations.

Equity securities may fluctuate in value in response to the activities of individual companies and general market and economic conditions.

Characteristics presented are calculated using the month end market value of holdings, except for beta and standard deviation, if shown, which use month end return values. Averages reflect the market weight of securities in the portfolio.

State Street Global Advisors Trust Company, One Iron Street, Boston, MA 02210.

Web: www.ssga.com


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SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 22, 2022

Agenda Item 4.12

TO: Board of Retirement

FROM: Scott Hood, Chief Executive Officer 

SUBJECT: Authorization of Teleconferencing for Board and Committee Meetings Pursuant to Government Code Section 54953(e)

Recommendation

Approve a resolution finding that the COVID-19 pandemic state of emergency continues to present imminent risks to the health or safety of in-person attendees and authorizing the use of teleconferencing for Board and Committee meetings pursuant to Government Code Section 54953(e).

Background

Since the onset of the COVID-19 pandemic in March 2020, certain requirements of the Brown Act relating to teleconference/remote meetings by local agency legislative bodies have been waived by Executive Orders issued by the Governor. Among other things, such Executive Orders waived Brown Act provisions that required the physical presence of board members in order to constitute a quorum, and that the public be afforded physical access to all teleconference locations from which board members were participating.

On September 16, 2021, the Governor signed Assembly Bill 361 which codified certain of the teleconference procedures that local agencies had adopted in response to the Governor's Brown Act-related Executive Orders. Specifically, AB 361 allows local agencies to continue to use teleconferencing under certain prescribed circumstances to the extent certain findings have been made and adopted by the local agency legislative body. AB 361 also requires that, if the state of emergency lasts more than 30 days, the local agency must determine that there is a continuing need for teleconferencing due to dangers posed by the ongoing situation. Accordingly, in order to continue holding teleconferenced meetings pursuant to AB 361, local agencies will need to make certain prescribed findings related to the existing state of emergency at least every thirty days, or otherwise hold special meetings to make such findings.

Discussion

On September 28, 2021, the San Mateo County Board of Supervisors, on the recommendation of its County Manager, adopted a resolution finding that in light of then-current information regarding the transmissibility of the COVID-19 Delta variant, as well as best practices for controlling the spread of COVID-19, holding in person meetings would present an imminent risk to the health and safety of its attendees. The Board of Supervisors' resolution therefore authorized the continued use of teleconferenced board meetings and directed staff to continue

to agendaize such meetings only as online teleconference meetings. Thereafter, the Board of Supervisors has made a determination at least once every 30 days that circumstances remain materially the same as those in existence on September 28th and that holding in person meetings would present an imminent risk to the health and safety of its attendees.

On January 25, 2022, this Board held a special meeting for the purpose of determining, by majority vote, whether as a result of the COVID-19 emergency, meeting in person would present imminent risks to the health or safety of attendees. After consideration of the County's most recent findings, as well as other information from state and federal health authorities, staff recommended that the Board of Retirement authorize the continued use of teleconferenced meetings pursuant to AB 361. The Board found that public meetings continue to pose high risks for COVID-19 spread for several reasons. These meetings may bring together people from throughout a geographic region, increasing the opportunity for COVID-19 transmission. Further, the open nature of public meetings makes it difficult to enforce compliance with vaccination, physical distancing, cough and sneeze etiquette, or other safety measures. Finally, it should be noted that the Board of Retirement's facilities are smaller than those of the County's, thereby making physical distancing more difficult.

Since the Board's January special meeting, the County's Board of Supervisors, on February 8, 2022, reaffirmed its determination and findings, as well as further findings related to the Omicron variant, and concluded that holding in-person meetings would continue to present an imminent risk to the health and safety of attendees. In light of the aforementioned information, staff recommends that the Board adopt findings that conducting in-person meetings at the present time would present an imminent risk to the health and safety of attendees. A resolution to that effect and directing staff to return each 30 days to afford the Board the opportunity to reconsider such findings, or to present such updated information at a special meeting if there are more than 30 days between regular meetings, is included herewith.

Attachment

Resolution Authorizing the Use of Teleconferencing for Board and Committee Meetings pursuant to Government Code Section 54953(e)

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

RESOLUTION 2022-__

RESOLUTION AUTHORIZING THE USE OF TELECONFERENCING FOR BOARD AND COMMITTEE MEETINGS PURSUANT TO GOVERNMENT CODE SECTION 54953(e)

WHEREAS, on March 4, 2020, pursuant to section 8550, et seq., of the California Government Code, Governor Newsom proclaimed a state of emergency related to the COVID-19 novel coronavirus and, subsequently, the County's Board of Supervisors declared a local emergency related to COVID-19, and both the proclamation by the Governor and the declaration by the Board of Supervisors remain in effect; and

WHEREAS, on March 17, 2020, Governor Newsom issued Executive Order N- 29-20, which suspended certain provisions in the California Open Meeting Law, codified at Government Code section 54950, et seq. (the "Brown Act"), concerning teleconferencing by local agency legislative bodies, provided that certain requirements were met and followed; and

WHEREAS, on June 11, 2021, the Governor issued Executive Order N-08-21, which extended certain provisions of Executive Order N-29-20 that waive otherwise-applicable Brown Act requirements related to remote/teleconference meetings by local agency legislative bodies through September 30, 2021; and

WHEREAS, on September 16, 2021, Governor Newsom signed AB 361, which provides that local agency legislative bodies may continue to meet remotely without complying with otherwise-applicable Brown Act requirements concerning remote/teleconference, provided that a state of emergency has been declared by the Governor and the local legislative body determines that meeting in person would present imminent risks to the health or safety of attendees, and provided that the legislative body makes such finding at least every thirty days during the term of the declared state of emergency, or at a special meeting called to determine whether such findings continue to be appropriate; and

WHEREAS, on September 28, 2021, the County's Board of Supervisors concluded, based on the recommendation of its County Manager, that there is a continuing threat of COVID-19 to the local community, and that in-person public meetings posed an imminent risk to the health and safety of attendees, and therefore authorized the continued use of teleconferenced meetings pursuant to AB 361; and

WHEREAS, since September 2021, the County's Board of Supervisors has revisited its determination and findings at least every 30 days and has concluded, based on the recommendation of its County Manager, that there is a continuing threat of COVID-19 to the local community, and that in-person public meetings continue to pose an imminent risk to the health and safety of attendees, and therefore has authorized the continued use of teleconferenced meetings pursuant to AB 361; and

WHEREAS, most recently on February 8, 2022, the Board of Supervisors determined that circumstances remain materially the same as those in existence on September 28th and the Board of Supervisors therefore re-approved its findings that holding in-person meetings would present an imminent risk to the health and safety of attendees; and

WHEREAS, this Board held a special meeting on January 25, 2022, for the purpose of determining, by majority vote, whether as a result of the COVID-19 emergency, meeting in person would present imminent risks to the health or safety of attendees and, after consideration of then-current information, concluded that in-person meetings continued to pose such risk and thereby authorized the use of teleconferenced meetings pursuant to AB 361; and

WHEREAS, at its January 25, 2022, special meeting, this Board approved a resolution authorizing such teleconferenced meetings pursuant to AB 361 and directing staff to return each 30 days to afford the Board the opportunity to reconsider such findings, or to present such updated information at a special meeting if there are more than 30 days between regular meetings; and

WHEREAS, in light of current information and the findings set forth above, this Board finds that in-person public meetings have characteristics that give rise to risks to the health and safety of meeting participants (such as the increased mixing associated with bringing together people from across the community, the need to enable those who are immunocompromised or unvaccinated to be able to safely continue to participate fully in public governmental meetings, and the challenges with fully ascertaining and ensuring compliance with vaccination and other safety recommendations at such meetings) and that, at the present time, meetings of this Board, continue to pose an imminent risk to the health and safety of attendees;

THEREFORE, IT IS HEREBY DETERMINED AND ORDERED, that

1. The recitals set forth above are true and correct; and
2. The Board finds that meeting in person would present imminent risks to the health or safety of meeting attendees and directs staff to continue to agendaize public meetings of the Board of Retirement only as online teleconference meetings; and
3. The Chief Executive Officer is hereby authorized and directed to take all actions necessary to carry out the intent and purpose of this Resolution, including conducting open and public meetings of this Board and any Board Committees subject to the Brown Act in accordance with Government Code Section 54953(e) and other applicable provisions of the Brown Act; and
4. Staff is directed to return to this Board at future meetings for the Board to determine whether in-person meetings continue to pose an imminent risk to the health and safety of attendees, and whether this Board should continue meeting remotely under the provisions of AB 361. The consideration of such item shall either be in a special meeting called for the purpose of making such determinations, or in a regular meeting of the Board to the extent such regular meeting is within 30 days of any prior determination by this Board regarding such matters.

* * * * *

Regularly passed and adopted, by the San Mateo County Employees' Retirement Association, Board of Retirement, on February 22, 2022.

Ayes, Trustees:

Noes, Trustees:

Absent, Trustees:

Abstain, Trustees:

Mark Battey, Board Secretary
SamCERA

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 22, 2022

Agenda Item 4.13

TO: Board of Retirement

FROM: Tat-Ling Chow, Finance Officer *Tat-Ling Chow*
Tariq Ali, Chief Technology Officer *Tariq Ali*
Chezelle Milan, Senior Accountant *Chezelle Milan*
Lilibeth Dames, Investment Analyst *Lilibeth Dames*

SUBJECT: Preliminary Semi-Annual Budget-to-Actual Report for Period Ended December 31, 2021

Recommendation

Accept the Preliminary Semi-Annual Budget-to-Actual Report for Period Ended December 31, 2021.

Background

SamCERA's budget covers three different areas as follows:

1. Professional Services Budget – covers costs for actuarial consulting services, custodial services, investment management, investment consulting services, and outside legal services for investment related matters [Government Code §31596.1].
2. Administrative Budget – covers personnel expenses (salaries and benefits) and administrative overhead (services and supplies), which cannot exceed the mandated limit of 0.21% of the accrued actuarial liability of the retirement fund [Government Code §31580.2(a)].
3. Technology Budget – covers expenses for software, hardware, and computer technology consulting services in support of such computer products and is not subject to the mandated limit of 0.21% discussed above [Government Code §31580.2(b)].

Discussion

The mid-year budget and actual expense comparison manifested that SamCERA's actual spending during the first half of the fiscal year overall was closely in line with projections.

	Budget Through 6/30/2022	Actual Through 12/31/2021	Percentage of Budget Used
Professional Services	\$34,621,349	\$19,910,677	58%
Administrative	7,483,784	3,327,520	44%
Technology	2,008,000	311,500	16%
Total	<u>\$44,113,133</u>	<u>\$23,549,697</u>	53%

Professional Services Budget. Actual professional service expenses were about \$20 million in total for the six-months ended December 31, 2021.

Investment Management & Other Professional Services				
Service	Projected Fee Through 6/30/22	Actual Fee Through 12/31/21	Actual Fee (bps)	Percentage of Projected Fee Used
Investment Management	\$ 33,618,349	\$ 19,297,949	62.6	57%
Other Professional Services	1,003,000	612,728	2.0	61%
Total	<u>\$ 34,621,349</u>	<u>\$ 19,910,677</u>	64.6	58%

- **Investment management fees** are either driven by contractual agreements or based on assets under management, the amount of capital committed, and investment performance. Below is a summary of budget and actual expenses comparison through December 31, 2021.

Investment Management Services				
Investment	Projected Fee Through 6/30/22	Actual Fee Through 12/31/21	Actual Fee (bps)	Percentage of Projected Fee Used
Total Public Equity	\$ 6,559,901	\$ 2,582,359	42.3	39%
Total Fixed Income	6,957,738	4,693,176	61.3	67%
Total Alternative Assets	13,055,454	6,279,970	144.1	48%
Total Inflation Hedge	6,785,256	5,590,844	109.0	82%
Total Cash Overlay	260,000	151,600	N/A	58%
Total	<u>\$ 33,618,349</u>	<u>\$ 19,297,949</u>	62.6	57%

Actual investment management fees overall were higher than the mid-year projections. Significant variances include the following:

- Fees on Public Equity investment fell short of expectations due to overestimation of performance fees for one equity fund.
 - Fees on Fixed Income investment exceeded projections because of overperformance in one opportunistic fund.
 - Fees on Inflation Hedge investment exceeded expectations due to underestimation of performance fees for three private real asset funds and one real estate fund.
- **Other professional service charges** are primarily based on contractual agreements.

Other Professional Services					
Contractor	Service	Projected Fee Through 6/30/22	Actual Fee Through 12/31/21	Actual Fee (bps)	Percentage of Projected Fee Used
Milliman Inc.	Actuarial Consulting	\$ 108,000	\$ 94,000	0.3	87%
Verus Investments	Investment Consulting	535,000	257,203	0.8	48%
Northern Trust	Custodian	360,000	261,525	0.8	73%
	Total	<u>\$ 1,003,000</u>	<u>\$ 612,728</u>	2.0	61%

Other professional fees overall exceeded the mid-year expectations because of the following:

- Majority of actuarial consulting fees are always paid in November after the completion of two major projects, the annual valuation of the Retirement Fund and the required disclosure report prescribed by the Governmental Accounting Standards Board.
- Custodian fees to Northern Trust are paid in arrears. A one-time adjustment was made to true up the difference between the amount accrued and the amount actually paid during the reporting period.

Administrative Budget. About 44%, or \$4.2 million, of the administrative budget was consumed during the first six months. The following table summarizes all administrative expenses with explanations as to why the actual results of certain items significantly differ from the projected outcomes.

	Budget Through 6/30/2022	Actual Through 12/31/2021	Percentage of Budget Used	Under Budget	Percentage of Budget Remaining
Salaries and Benefits					
Salaries	\$3,805,642	\$1,703,039	45%	\$2,102,603	55%
Benefits	1,874,891	822,474	44%	1,052,417	56%
Total Salaries and Benefits	<u>5,680,533</u>	<u>2,525,513</u>	44%	<u>3,155,020</u>	56%
Services and Supplies					
Board Expenses	8,000	2,100	26%	5,900	74%
Insurance	86,500	43,175	50%	43,325	50%
Medical Record and Hearing Services	75,000	10,750	14%	64,250	86%
Member Education	63,750	28,128	44%	35,622	56%
Education and Conference	121,252	21,139	17%	100,113	83%
Transportation and Lodging	85,700	21,035	25%	64,665	75%
Property and Equipment	23,000	14,026	61%	8,974	39%
General Office Supplies	41,000	13,713	33%	27,287	67%
Postage and Printing	25,000	5,589	22%	19,411	78%
Leased Facilities	667,040	319,729	48%	347,311	52%
County Services	422,009	264,208	63%	157,801	37%
Audit Services	60,000	51,021	85%	8,979	15%
Other Administration	125,000	7,394	6%	117,606	94%
Total Services and Supplies	<u>1,803,251</u>	<u>802,007</u>	44%	<u>1,001,244</u>	56%
Total	<u>\$7,483,784</u>	<u>\$3,327,520</u>	44%	<u>\$4,156,264</u>	56%

Salaries and Benefits

- Salaries were modestly below the mid-year projections. The cost of living adjustment to salaries did not transpire as anticipated. The old labor contract expired on October 2, 2021 and negotiations for a new contract are still underway. Additionally, a vacant position remained unfilled.

- Benefits were modestly below the mid-year expectations. Certain benefits bear a direct correlation with salaries (e.g., pension and social security insurance contributions). As salaries fell short of expectations, so do such benefits.

Services and Supplies

Actual expenses for most items were below the mid-year projections. Significant variances include the following:

- Medical Record and Hearing Services – No hearing services were scheduled during the reporting period. Additionally, only four disability cases received independent medical evaluation reports from a company specializing in medical and disability evaluation. A new contract is being pursued to use the evaluation services from another provider.
- Member Education – The number of classes held by Financial Knowledge Network, an entity offering financial planning to members, proceeded as scheduled. The actual expense was partly offset by payments from “no show” registrants.
- “Education and Conference” and “Transportation and Lodging” – The budgets for these items were developed with anticipation that restrictions due to Covid were likely to end during the first quarter of the fiscal year and in-person conferences would be resumed. Unexpectedly, online training and conferences continued to thrive with the outbreak of two highly transmissible coronavirus variants (Delta and Omicron).
- General Office Supplies – The need to replenish office supplies was less than anticipated.
- Postage and Printing – Bulk mails usually take place in the second half of the fiscal year such as the Internal Revenue Service Form 1099Rs to retirees with taxable income in January 2022.
- Other Administration – The budget for this category was predominantly allocated to seeking legal services from a private counsel specializing in disability. The need for such services turned out to be relatively low.

Below are the items where actual expenses were modestly above the mid-year benchmarks:

- Property and Equipment – Apart from replacing certain old equipment as anticipated, ergonomic equipment (e.g., an electric sit/stand desk and an ergonomic chair) was purchased to promote efficiency and comfort in the working environment.
- County Services – Most services charged by the County (such as human resources and risk management) are on an annual basis and paid in full at the beginning of the fiscal year.
- Audit Services – The actual expense reflected a full payment towards the annual financial audit completed in October 2021 for the reporting period ended June 30, 2021.

Technology Budget. The table below compares the actual and budgeted amounts. Actual expenses were substantially below the mid-year projections in nearly all budget categories:

	Budget Through 6/30/2022	Actual Through 12/31/2021	Percentage of Budget Used	Under Budget	Percentage of Budget Remaining
Computer Equipment and Software	\$ 25,000	\$ 2,802	11%	\$ 22,198	89%
Software License Maintenance	1,197,000	152,809	13%	1,044,191	87%
Imaging	25,000	-	0%	25,000	100%
Maintenance Tools and Equipment	150,000	88,302 ¹	59%	61,698	41%
Contract IT Services	606,000	67,587	11%	538,413	89%
Technology Research and Development	5,000	-	0%	5,000	100%
Total - Technology Budget	<u>\$2,008,000</u>	<u>\$ 311,500</u>	16%	<u>\$1,696,500</u>	84%

¹ This amount included a server costing \$78,913, which exceeded the capitalization threshold and was reported as capital asset in the Statement of Fiduciary Net Position for financial reporting purposes.

Note: The depreciation expense of \$431,181 was a non-cash item and not included in the budget-to-actual comparison. The expense was reported in the Statement of Changes in Fiduciary Net Position for financial reporting purposes.

- Computer Equipment and Software – Requests for acquiring or replacing computer hardware (e.g., laptops and printers) and software (e.g., licenses for Microsoft Office and Acrobat Professional) have not reached the anticipated levels.
- Software License Maintenance – Majority of the budget was allocated to maintain the pension administration system software, with \$600,000 for the ongoing support and \$500,000 for the purchase of additional support hours. The extent of system ordinary support fell short of expectations, and the anticipated purchase of extra service hours is slated to transpire in a few months.
- Maintenance Tools and Equipment – New servers were purchased to replace old servers that were unable to support critical software (such as Vmware). The purchases were also part of the efforts to migrate all the virtual servers to the new Dell servers.
- Contract IT Services – The consulting fees reported were predominantly for migrating the hosting services provided by Vitech to a cloud-based environment. Other projects requiring external consulting services, such as the upgrade of audio/video technologies in the conference rooms and the launching of a newly developed member mobile application, are expected to be completed by year-end. The cybersecurity measures to be performed by a third party is likely to take place before the new member web portal goes live.

The following two projects are deferred due to time constraints:

- Imaging – an Electronic Content Management project converting documents from paper to digital, a highly effective means to save storage costs in the long-run.
- Technology Research and Development – an ongoing project focuses on exploring new technologies that may benefit staff and key stakeholders.

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 22, 2022

Agenda Item 4.14

TO: Board of Retirement

FROM: Tat-Ling Chow, Finance Officer *Tat-Ling Chow*
Chezelle Milan, Senior Accountant *CB Milan*
Lilibeth Dames, Investment Analyst *Lilibeth Dames*

SUBJECT: Preliminary Semi-Annual Financial Report for Period Ended December 31, 2021

Recommendation

Accept the Preliminary Semi-Annual Financial Report for Period Ended December 31, 2021.

Background

The preliminary semi-annual financial report provides financial information on SamCERA's financial position as of December 31, 2021, and its operating results for the six-month period ended December 31, 2021.

The *Statement of Fiduciary Net Position* (balance sheet) provides a snapshot of the account balance as of December 31, 2021. This Statement indicates the amount of fiduciary net position (total assets minus total liabilities) available to pay future pension benefits. Over time, increases and decreases in net position may serve as a useful indicator of whether the financial health of SamCERA is improving or declining. Other factors, such as market conditions, should also be considered in measuring SamCERA's overall financial health.

The *Statement of Changes in Fiduciary Net Position* (income statement) reports additions to, and deductions from, SamCERA's fiduciary net position for the six-month period ended December 31, 2021. "Additions" consist of contributions from plan sponsors and members, investment income net of investment expenses, securities lending income net of related expenses, and other additions. "Deductions" include retiree benefit payments, member refunds, administrative and information technology expenses.

Summary

SamCERA's financial position improved slightly over the six-months ended December 31, 2021. Its net position increased by \$194 million, or 3%, to \$6.18 billion, predominantly from contributions and appreciation on investments, particularly in Inflation Hedge funds.

Statement of Fiduciary Net Position

The table below shows SamCERA's preliminary Statement of Fiduciary Net Position as of December 31, 2021. Its assets and liabilities were compared to those on July 1, 2021, to reflect changes over the first six-months of the fiscal year.

Statement of Fiduciary Net Position

	Preliminary	Actual	Increase (Decrease)	
	12/31/21	7/1/21	Amount	Percentage
ASSETS:				
Cash and Cash Equivalents				
Cash	\$ 238,648,916	\$ 153,467,110	\$ 85,181,806	56%
Cash Management Overlay	69,386,273	64,054,219	5,332,054	8%
Securities Lending Cash Collateral	2,042,316	4,574,275	(2,531,959)	-55%
Subtotal - Cash and Cash Equivalents	<u>310,077,505</u>	<u>222,095,604</u>	<u>87,981,901</u>	40%
Receivables				
Contributions	-	15,060,101	(15,060,101)	-100%
Due from Broker for Investments Sold	30,864,683	48,257,671	(17,392,988)	-36%
Investment Income	6,275,329	7,838,202	(1,562,873)	-20%
Securities Lending Income	1,270	3,029	(1,759)	-58%
Other Receivable	128,185	83,607	44,578	53%
Subtotal - Receivables	<u>37,269,467</u>	<u>71,242,610</u>	<u>(33,973,143)</u>	-48%
Investments at Fair Value				
Fixed Income	1,530,433,903	1,545,541,099	(15,107,196)	-1%
Public Equity	2,458,995,107	2,411,436,689	47,558,418	2%
Alternatives	871,795,152	860,701,348	11,093,804	1%
Inflation Hedge	1,024,994,072	942,703,531	82,290,541	9%
Subtotal - Investment at Fair Value	<u>5,886,218,234</u>	<u>5,760,382,667</u>	<u>125,835,567</u>	2%
Capital Assets	8,403,632	8,324,720	78,912	1%
Less: Accumulated Depreciation	(4,168,640)	(3,737,459)	(431,181)	12%
Capital Assets, Net of Accumulated Depreciation	<u>4,234,992</u>	<u>4,587,261</u>	<u>(352,269)</u>	-8%
TOTAL ASSETS	<u>6,237,800,198</u>	<u>6,058,308,142</u>	<u>179,492,056</u>	3%
LIABILITIES:				
Payable - Investment Management Fees	2,847,299	3,151,269	(303,970)	-10%
Due to Broker for Investments Purchased	55,440,025	66,319,257	(10,879,232)	-16%
Securities Lending Cash Collateral - Due to Borrowers	2,042,316	4,574,275	(2,531,959)	-55%
Other	980,291	2,177,391	(1,197,100)	-55%
TOTAL LIABILITIES	<u>61,309,931</u>	<u>76,222,192</u>	<u>(14,912,261)</u>	-20%
NET POSITION RESTRICTED FOR PENSIONS	<u>\$ 6,176,490,267</u>	<u>\$ 5,982,085,950</u>	<u>\$ 194,404,317</u>	3%

Assets. SamCERA's total assets increased by \$194 million, or 3%, compared to six months ago. Significant changes of specific items include the following:

- *Cash and Cash Equivalents* increased by \$85 million. The increase was due mainly to the following:
 - \$25 million was redeemed from public real assets account in anticipation of a capital call in private real assets in January 2022.
 - \$35 million was redeemed from public equity account to support portfolio rebalancing slated to take place in January 2022.
 - \$10 million from cash distributions was received at the end of December 2021.

- *Cash Management Overlay* increased by \$5 million. The cash overlay program uses derivative instruments to systematically reduce the cash position in the portfolio through an initial margin and mark-to-market payments. At the end of December 2021, the cash held in the portfolio was relatively higher than six months prior and, therefore, more cash was required in the cash overlay account to satisfy potential margin or collateral calls.
- *Securities Lending Cash Collateral* decreased by \$2.5 million. Although the total market value of securities on loan did not change significantly compared to six months ago, the cash collateral as of December 31 was relatively lower than that of July 1 by \$2.5 million. Nonetheless, the decrease in cash collateral was compensated by a \$3.5 million increase in non-cash collateral.
- *Receivables* overall decreased by \$34 million. Most receivables from the prior fiscal year-end were fully settled shortly after the fiscal year began, including the \$15 million in contributions and \$17 million in trade settlements.
- *Investments* overall increased by \$126 million. The increase was partly from new capital added to the portfolio and partly from market appreciation across various investment types, particularly in Inflation Hedge assets.

Liabilities. SamCERA's total liabilities decreased by \$15 million, or 20%, compared to six months ago. Significant changes include the following:

- *Due to Broker for Investments Purchased* decreased by \$11 million, due mainly to settlements of pending trades at the beginning of the fiscal year.
- *Securities Lending Cash Collateral Due to Borrowers* decreased by \$2.5 million. The decrease was triggered by and in parallel with the decrease in securities lending cash collateral discussed earlier.

Statement of Changes in Fiduciary Net Position

SamCERA's preliminary Statement of Changes in Fiduciary Net Position (income statement) for the six-months ended December 31, 2021, is presented on page 4. Additions to and deductions from the Retirement Fund for the six months were compared to those of the same period in the previous fiscal year.

Additions. A total of \$335 million was added to the Retirement Fund during the first half of the fiscal year, or 63% lower than the same period in the prior fiscal year.

- *Employer Contributions* decreased by \$85 million. Prepayments from the County usually come in two installments, one in July and another in January. In the prior fiscal year, the County transferred its second prepayment of \$101.5 million earlier to the Retirement Fund in December 2020. Also, the County made a \$10 million to its supplementary contribution account in October 2021. The net effect of these two events accounted for most of the decrease seen this year.
- *Investment Income net of related expenses* decreased by \$488 million. The net investment return for the current period was 4%. In contrast, the net investment return

for the same period last year was 15.3%, which was mainly from a robust rebound fueled by numerous economic stimulus plans amid the pandemic.

- *Securities Lending Income* increased by \$19,319, due primarily to a large premium paid by lenders for a specific security in high demand.

Deductions. A total of \$141 million was taken out from the Retirement Fund during the first fiscal half year, or 7% higher than the same period last year. Significant changes include the following:

- *Service Retirement Benefits* increased by 7%. The number of retirees receiving benefits increased by 149, from 5,480 in December 2020 to 5,631 in December 2021. Additionally, the final average compensations for new retirees were comparatively higher.
- *Information Technology Expenses* increased by 15%. A consulting firm was hired to assist in migrating the hosting services provided by Vitech to a cloud-based environment. In addition, new servers were purchased to support critical software (e.g., VMware).

Statement of Changes in Fiduciary Net Position


	<u>Preliminary</u>	<u>Actual</u>	<u>Increase (Decrease)</u>	
	<u>7/1/21 - 12/31/21</u>	<u>7/1/20 - 12/31/20</u>	<u>Amount</u>	<u>Percentage</u>
ADDITIONS:				
Contributions				
Employer Contributions	\$ 127,190,116	\$ 211,892,097	\$ (84,701,981)	-40%
Employee Contributions	34,795,229	34,966,317	(171,088)	0%
Subtotal - Contributions	<u>161,985,345</u>	<u>246,858,414</u>	<u>(84,873,069)</u>	-34%
Investment Income				
Interest and Dividends	40,606,207	40,745,261	(139,054)	0%
Net Appreciation (Depreciation) in fair value of investments	157,221,092	657,616,981	(500,395,889)	-76%
Total Investment Income	197,827,299	698,362,242	(500,534,943)	-72%
Less: Investment Expense	<u>(24,570,148)</u>	<u>(36,766,030)</u>	<u>12,195,882</u>	-33%
Subtotal - Investment Income	<u>173,257,151</u>	<u>661,596,212</u>	<u>(488,339,061)</u>	-74%
Securities Lending Income				
Earnings	8,031	6,541	1,490	23%
Rebates	27,200	3,923	23,277	593%
Less: Securities Lending Expenses	<u>(7,742)</u>	<u>(2,294)</u>	<u>(5,448)</u>	237%
Subtotal - Securities Lending Income	<u>27,489</u>	<u>8,170</u>	<u>19,319</u>	236%
Total Additions	<u>335,269,985</u>	<u>908,462,796</u>	<u>(573,192,811)</u>	-63%
DEDUCTIONS:				
Benefits				
Service Retirement Benefits	120,126,707	112,650,679	7,476,028	7%
Disability Retirement Benefits	14,298,047	13,875,747	422,300	3%
Survivor, Death and Other Benefits	<u>869,303</u>	<u>688,928</u>	<u>180,375</u>	26%
Subtotal - Benefits	135,294,057	127,215,354	8,078,703	6%
Refund of Member Contributions	1,580,323	1,094,114	486,209	44%
Administrative Expenses	3,327,520	3,354,111	(26,591)	-1%
Information Technology Expenses	<u>663,768</u>	<u>578,105</u>	<u>85,663</u>	15%
Total Deductions	<u>140,865,668</u>	<u>132,241,684</u>	<u>8,623,984</u>	7%
Net Income	<u>\$ 194,404,317</u>	<u>\$ 776,221,112</u>	<u>\$ (581,816,795)</u>	-75%

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 22, 2022

Agenda Item 4.15

TO: Board of Retirement

FROM: Scott Hood, Chief Executive Officer 

SUBJECT: Securities and Other Investment-Related Legal Actions Policy

Recommendation

Reaffirm the Board's Securities and Other Investment-Related Legal Actions Policy.

Background

The Board has 24 policies which it has adopted at various times to govern its activities and guide staff's administration of the system. Staff brings these policies to the Board for periodic reaffirmation or amendment on an as-needed basis. The policy before the Board today is its Securities and Other Investment-Related Legal Actions Policy which is in substantially the same form as the policy approved by the Board in December 2019 with minor modifications for clarity and readability. A copy of the revised policy which shows the revisions made to the 2019 policy is attached.

Discussion

In 2011, the Board adopted a Securities Litigation Policy to address securities class actions in which SamCERA may decide to act as lead plaintiff. SamCERA has three firms to monitor the investment portfolio and to make recommendations in this area.

SamCERA's custodial bank is responsible for filing claims in routine domestic class actions. The custodial bank is not responsible for filing claims in courts located outside the United States, claims filed in bankruptcy matters, or antitrust claims. Due to timing issues, as well as the routine nature of these claims, the Securities Litigation Policy was amended in 2012 to authorize the Chief Executive Officer, in consultation with the Chief Legal Counsel, to file such claims or actions without seeking Board approval or ratification. The Policy also provided that: (1) if legal counsel must be promptly retained, the CEO is authorized to do so subject to ratification by the Board; and (2) the Board will be provided with status reports as needed.

In December 2019, the Board amended its Securities Litigation Policy in light of the growth of SamCERA's alternative investment portfolio and the potential need for legal action in relation to investments that are not securities. In connection with these amendments, the policy was renamed the "Securities and Other Investment Related Legal Actions Policy."

Staff recommends that the policy, as modified, be reaffirmed by the Board.

Attachment

Securities and Other Investment-Related Legal Actions Policy (redline)
Securities and Other Investment-Related Legal Actions Policy (clean)



SECURITIES AND OTHER INVESTMENT-RELATED LEGAL ACTIONS POLICY

PURPOSE

In order to protect the assets of the fund, the Board of Retirement adopts this policy to (1) establish procedures and guidelines for SamCERA's active participation (as a lead or named plaintiff) in securities class actions, and SamCERA's participation in class action type claims filed in courts not located in the United States; and (2) authorize steps in asset recovery matters for any investment, including non-securities, such as alternative investments and real estate.

A. STATEMENT OF FUNCTIONS AND RESPONSIBILITIES -CLASS ACTIONS

This policy shall not relieve SamCERA's custodial bank from its responsibility for filing all proofs of claim, including the necessary supporting documents and information, necessary to recover assets in every securities class action proceeding in which SamCERA has potentially suffered losses.

1. Review of Class Action Filings

The Board of Retirement shall select and retain one or more private law firms to identify and evaluate potential securities class action filings in which SamCERA would be a member of the class. Firms will only recommend active participation to SamCERA when they believe that without such participation SamCERA's rights and interests will not be represented in a case.

2. Determination of Active Participation by SamCERA

If SamCERA is asked to actively participate in a case, the Chief Executive Officer, after considering the factors listed below, and in consultation with the Chief Legal Counsel, shall make an initial determination of whether SamCERA will take an active role in a securities class action, or decline to do so.

The following factors will be considered:

- a) The likelihood of achieving a recovery;

- b) The probable net amount of recovery (the probable amount of recovery less the estimated costs of staff and Chief Legal Counsel time and any other costs). Any estimated likely recovery amount must far outweigh any estimated participation costs (mainly staff and Chief Legal Counsel time) so as to eliminate any likelihood of a net loss due to active participation;
- c) The impact on the amount of recovery that would likely result from SamCERA participation as lead or named plaintiff;
- d) Whether SamCERA's rights and/or interests may in fact be preserved by active participation;
- e) Staff's and Chief Legal Counsel's potential workload;
- f) Any other relevant factors

For only those matters in which the Chief Executive Officer and Chief Legal Counsel will recommend to the Board that SamCERA should play an active role, a written report shall be presented to the Board. The report shall reflect the Chief Executive Officer's recommendation based upon the factors listed above. The report shall be placed on the Consent Agenda ~~under~~ as a confidential Anticipated Litigation matter for the Board's approval. Any Board member has the authority to remove the report item for discussion and determination in closed session.

B. ALL OTHER INVESTMENT ASSET RECOVERY INCLUDING FOREIGN SECURITIES ACTIONS AND BANKRUPTCY MATTERS, ~~ALTERNATIVE INVESTMENT, REAL ESTATE~~

For class action type claims filed in courts not located in the United States or claims or actions for any investment assets filed in bankruptcy, other state or federal court, or administrative agency, in which the Chief Executive Officer, in consultation with the Chief Legal Counsel, determines that it is in the best interest of SamCERA to respond to or file such a claim or action, the Chief Executive Officer is authorized to take all necessary steps to recover or protect assets in these matters without seeking Board approval or ratification.

C. RETENTION OF OUTSIDE COUNSEL

For matters in which the Chief Executive Officer, in consultation with the Chief Legal Counsel, has determined that outside counsel should be used, all retainer agreements shall be negotiated and submitted for approval, in advance, to the Board of Retirement. However, where it is determined by the Chief Executive Officer that immediate approval is required to preserve SamCERA's rights and/or interests by retaining such counsel, the Chief Executive

Officer in consultation with the Chief Legal Counsel, is authorized to make the decision, subject to ratification by the Board.

D. REPORTS TO THE BOARD ON ACTIVE LITIGATION

The Chief Legal Counsel shall provide the Board with status reports as needed to keep the Board apprised of major developments in matters in which SamCERA is an active participant. Staff will present to the Board an annual report on the time spent by staff, if any, on active litigation matters.

Adopted by the Board of Retirement

January 25, 2011

Amended September 25, 2012

Amended December 3, 2019

Amended February 22, 2022



SECURITIES AND OTHER INVESTMENT-RELATED LEGAL ACTIONS POLICY

PURPOSE

In order to protect the assets of the fund, the Board of Retirement adopts this policy to (1) establish procedures and guidelines for SamCERA's active participation (as a lead or named plaintiff) in securities class actions, and SamCERA's participation in class action type claims filed in courts not located in the United States; and (2) authorize steps in asset recovery matters for any investment, including non-securities, such as alternative investments and real estate.

A. STATEMENT OF FUNCTIONS AND RESPONSIBILITIES -CLASS ACTIONS

This policy shall not relieve SamCERA's custodial bank from its responsibility for filing all proofs of claim, including the necessary supporting documents and information, necessary to recover assets in every securities class action proceeding in which SamCERA has potentially suffered losses.

1. Review of Class Action Filings

The Board of Retirement shall select and retain one or more private law firms to identify and evaluate potential securities class action filings in which SamCERA would be a member of the class. Firms will only recommend active participation to SamCERA when they believe that without such participation SamCERA's rights and interests will not be represented in a case.

2. Determination of Active Participation by SamCERA

If SamCERA is asked to actively participate in a case, the Chief Executive Officer, after considering the factors listed below, and in consultation with the Chief Legal Counsel, shall make an initial determination of whether SamCERA will take an active role in a securities class action, or decline to do so.

The following factors will be considered:

- a) The likelihood of achieving a recovery;

- b) The probable net amount of recovery (the probable amount of recovery less the estimated costs of staff and Chief Legal Counsel time and any other costs). Any estimated likely recovery amount must far outweigh any estimated participation costs (mainly staff and Chief Legal Counsel time) so as to eliminate any likelihood of a net loss due to active participation;
- c) The impact on the amount of recovery that would likely result from SamCERA participation as lead or named plaintiff;
- d) Whether SamCERA's rights and/or interests may in fact be preserved by active participation;
- e) Staff's and Chief Legal Counsel's potential workload;
- f) Any other relevant factors

For only those matters in which the Chief Executive Officer and Chief Legal Counsel will recommend to the Board that SamCERA should play an active role, a written report shall be presented to the Board. The report shall reflect the Chief Executive Officer's recommendation based upon the factors listed above. The report shall be placed on the Consent Agenda as a confidential Anticipated Litigation matter for the Board's approval. Any Board member has the authority to remove the report item for discussion and determination in closed session.

B. ALL OTHER INVESTMENT ASSET RECOVERY INCLUDING FOREIGN SECURITIES ACTIONS AND BANKRUPTCY MATTERS

For class action type claims filed in courts not located in the United States or claims or actions for any investment assets filed in bankruptcy, other state or federal court, or administrative agency, in which the Chief Executive Officer, in consultation with the Chief Legal Counsel, determines that it is in the best interest of SamCERA to respond to or file such a claim or action, the Chief Executive Officer is authorized to take all necessary steps to recover or protect assets in these matters without seeking Board approval or ratification.

C. RETENTION OF OUTSIDE COUNSEL

For matters in which the Chief Executive Officer, in consultation with the Chief Legal Counsel, has determined that outside counsel should be used, all retainer agreements shall be negotiated and submitted for approval, in advance, to the Board of Retirement. However, where it is determined by the Chief Executive Officer that immediate approval is required to preserve SamCERA's rights and/or interests by retaining such counsel, the Chief Executive

Officer in consultation with the Chief Legal Counsel, is authorized to make the decision, subject to ratification by the Board.

D. REPORTS TO THE BOARD ON ACTIVE LITIGATION

The Chief Legal Counsel shall provide the Board with status reports as needed to keep the Board apprised of major developments in matters in which SamCERA is an active participant. Staff will present to the Board an annual report on the time spent by staff, if any, on active litigation matters.

Adopted by the Board of Retirement
January 25, 2011
Amended September 25, 2012
Amended December 3, 2019
Amended February 22, 2022

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 22, 2022

Agenda Item 6.1

TO: Board of Retirement

FROM: Michael Coultrip, Chief Investment Officer 

SUBJECT: Preliminary Monthly Portfolio Performance Report for the Period Ended January 31, 2022

Recommendation

Accept the preliminary performance report dated January 31, 2022.

Background

This preliminary report is intended to provide a high-level view of the portfolio and its trends. It is not intended to provide short-term performance upon which the Board would act. The quarterly performance metrics are not yet available for our private equity, private credit, private real asset, and real estate portfolios. The performance for these portfolios will be reflected in the quarterly performance report generated by Verus.

The attached performance report shows both net and gross of fee returns for the total plan on page one, with net composite returns on page two and net manager returns (pages 3-9) also shown.

Discussion

The fund's net preliminary return for January was -1.8%, bringing the preliminary trailing twelve-month net return ending January 2022 to 9.6%. The preliminary twelve-month net return is below SamCERA's Plan Benchmark return of 11.9% but above SamCERA's Actuarial Assumed Earnings Rate of 6.25%.

Most asset classes (outside of the commodity complex) were down in January, as inflation concerns roiled both the equity and bond markets. The U.S. equity market (measured by the S&P 500 Index) was down 5.2%, while small-capitalization stocks were down 9.6%. Developed international equity (as measured by MSCI EAFE) was down 4.8% while emerging markets were down 1.9% in January.

The Federal Reserve continued their hawkish pivot in January, with the market now pricing five to seven interest rate hikes in 2022, up from three hikes. There is even talk of a 50 bp increase (instead of the usual 25 bp move) in March. The yield curve flattened as bonds sold off across all maturities. Most of the increase in rates was in real rates, as inflation expectations remained steady. The market pricing is suggesting confidence in the Fed being able to engineer a soft landing.


Economic data was generally strong in January. Real Gross Domestic Product grew at a 6.9% pace in the fourth quarter 2021, beating expectations. However, most of the increase was attributed to inventory build-up. Manufacturing continued to grow but at a slower rate due to labor and supply chain challenges. The labor market continued its recovery with 467,000 new jobs added in January, although the headline unemployment rate ticked up slightly to 4.0% in January as the employment participation rate increased. Consumer confidence was slightly weaker in January according to the Conference Board. Inflation (as measured by the Consumer Price Index - All Urban Consumers) increased 7.5% year-over-year, the highest level since February 1982.

The general U.S. fixed income market was down in January as interest rates increased due to inflation concerns and the Fed's hawkish pivot. The yield curve flattened as shorter-term interest rates rose more than longer-term interest rates. The 10-year U.S. Treasury yield was higher by 27 basis points during the month and ended at 1.78% by month-end. High Yield returns were down 2.7% and the Bloomberg Commodity Index was up 8.8%.

Attachments

Verus Capital Market Update

Northern Trust Monthly Preliminary Performance Report



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**

JANUARY 2022
Capital Markets Update

Market commentary

U.S. ECONOMICS

- U.S. GDP grew at a quarterly annualized rate of 6.9% in Q4 2021, beating expectations of a 5.5% growth rate. Inventory growth in the fourth quarter accounted for roughly 70% of the print – though private inventories remain 2.7% below pre-pandemic levels in real dollar terms.
- Headline CPI accelerated to 7.5% year-over-year – the highest level since February 1982 – and beat expectations (7.3%). Strong month-over-month increases in the cost of food (+0.9%), energy (+0.9%), and shelter costs (+0.3%) helped drive the overall rate higher.
- Shelter costs have risen +4.4% year-over-year. While growth in this component has been far lower than that of used cars (+40.5%) and fuel oil (+46.5), increases in shelter costs – which make up ~40% of core CPI – are often considered to be ‘stickier’ and may help support higher levels of inflation as other categories begin to moderate.

U.S. EQUITIES

- The S&P 500 dropped -5.2% and recorded its worst month of performance since March 2020. Rising discount rates amid expectations for more rate hikes in 2022 likely drove the sell off.
- Of the 56% of S&P 500 companies which have reported Q4 earnings, 76% have beat revenue estimates. If all remaining financials come in at expectations for revenues, year-over-year revenue growth will be 15.0% for Q4 2021 which represents the third highest rate since 2008 per FactSet.
- The blended net profit margin for the S&P 500 fell in Q4 to 12.4%, from 12.9% the quarter before. Multiple measures of the labor market continued to indicate tightness – rising wages have likely compressed profit margins in recent months.

U.S. FIXED INCOME

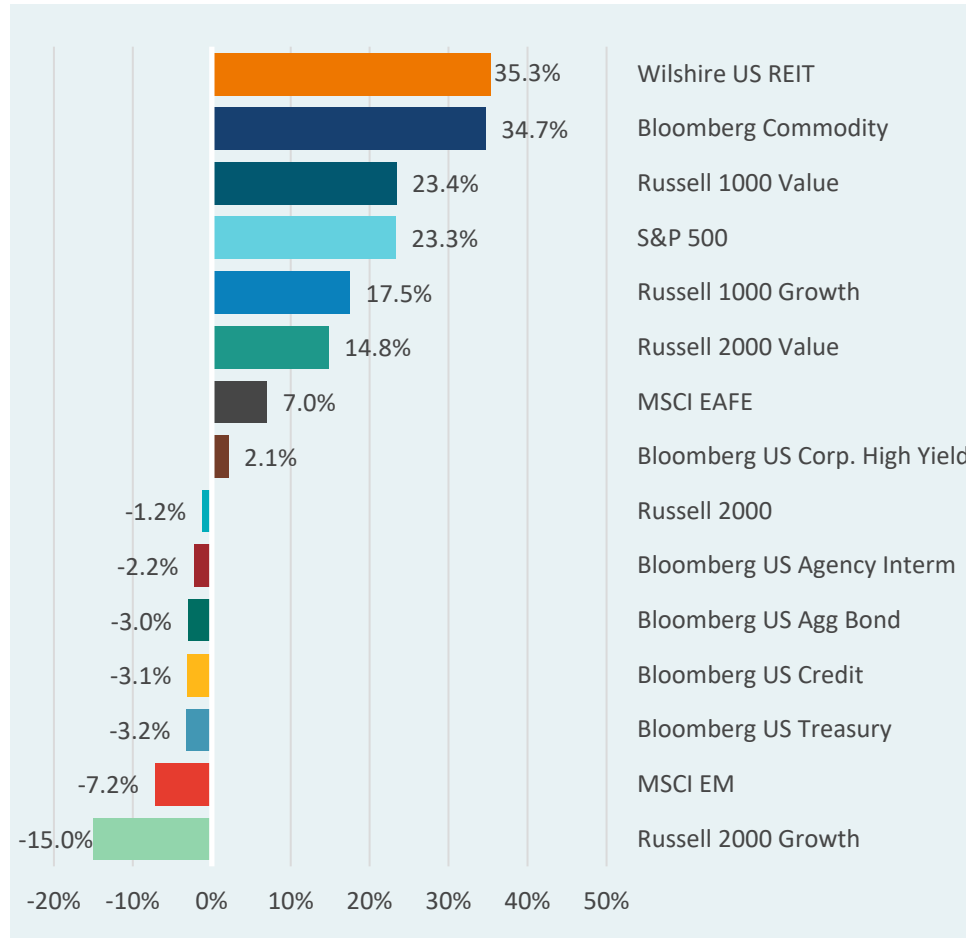
- The FOMC indicated its intent to begin raising rates in March following the conclusion of the asset purchases taper. Fed Chairman Powell took an even more hawkish tone and stated there is ample room to raise rates without detriment to the labor market. Also noted was the “orderly and predictable” unwinding of the Fed’s balance sheet which will follow the rate increases.
- The number of rate hikes expected in 2022 implied by Fed Funds Futures has increased from three to five with investors pricing in an effective fed funds rate of 1.3% for December 2022. Continued strength in the labor market and sustained high inflation helps support expectations that the Fed will use rates more aggressively to achieve its price stability goal.
- The yield curve flattened as bonds sold off across maturities on the prospect of more rate hikes than previously expected. The two-year Treasury yield climbed 45 basis-points and the spread between 30- and two-year yields declined by 24 basis-points.

INTERNATIONAL MARKETS

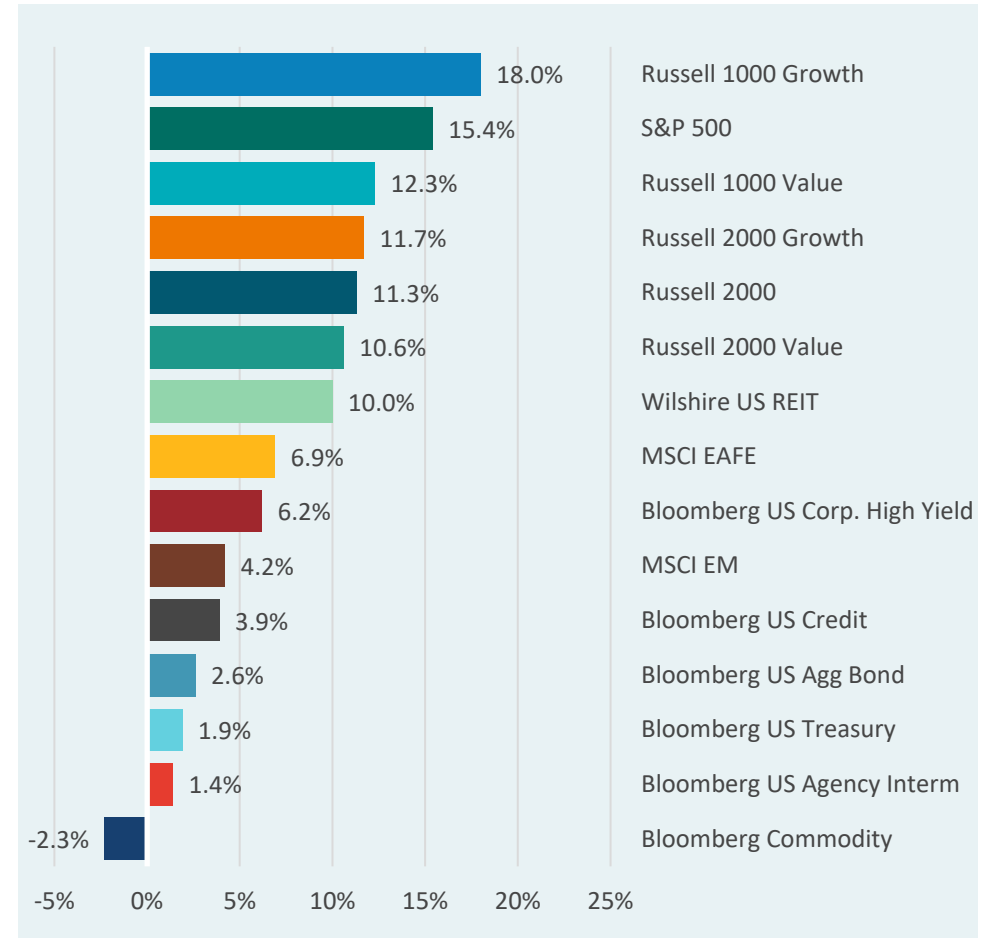
- China’s CSI 300 Index (-7.4%) entered a bear market intra-month, marking the first such market for the index since the trade disputes between the U.S. and China intensified in 2018.
- Geopolitical tensions escalated in Europe as Russia (MSCI Russia -8.7%) amassed troops near the Ukrainian border. The U.S. and its allies have threatened sanctions as a deterrent against Russian invasion.
- China continued its zero-Covid policy and imposed targeted lockdowns in key port cities. Constrained supply chains may continue to boost the cost of China’s manufactured goods.

Major asset class returns

ONE YEAR ENDING JANUARY



TEN YEARS ENDING JANUARY



*Only publicly traded asset performance is shown here. Performance of private assets is typically released with a 3- to 6-month delay.

Source: Morningstar, as of 1/31/22

Source: Morningstar, as of 1/31/22

U.S. large cap equities

- The S&P 500 Index fell -5.2% and neared technical correction intra-month as the index sold-off. A technical correction is marked by a decline of at least 10% from peak to trough, while a technical bear market is marked by a 20% drop from peak to trough.
- The Energy sector rose 19.1%, and strongly outperformed both the overall index (S&P 500 -5.2%) and all 10 other S&P 500 GICS sectors. Energy stocks benefitted from rising oil prices. Oil prices were supported by an increase in geopolitical risk premium as Russo-Ukrainian tensions neared boiling over.
- Of the 11 S&P 500 GICS sectors, only Energy (+19.1%) and Financials (+0.1%) posted positive returns. The Consumer Discretionary (-9.7%), Real Estate (-8.5%), and Information Technology (-6.9%) sectors retreated and led the index lower.
- The Cboe VIX Index of implied volatility ended the month at 24.8 after reaching an intra-month high of 32.0, the highest level in a year. Increasingly hawkish positioning by the Fed and geopolitical tension between Ukraine and Russia likely elevated volatility levels to above the five-year average of 18.6.

S&P 500 PRICE INDEX



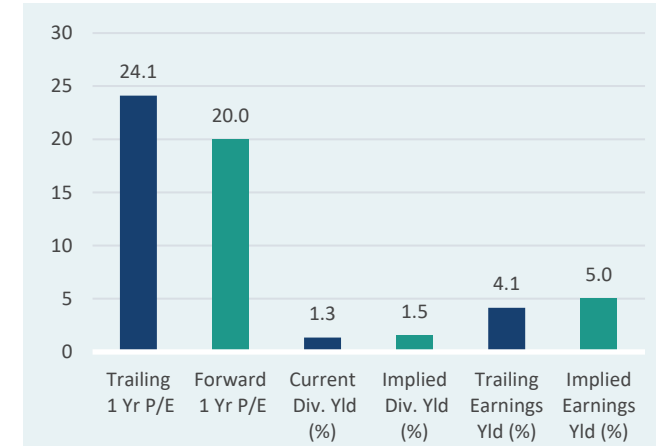
Source: Bloomberg, as of 1/31/22

IMPLIED VOLATILITY (VIX INDEX)



Source: Cboe, as of 1/31/22

S&P 500 VALUATION SNAPSHOT

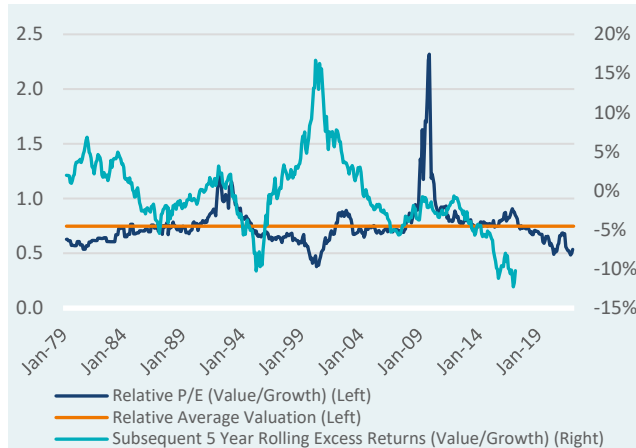


Source: Bloomberg, as of 1/31/22

Domestic equity size and style

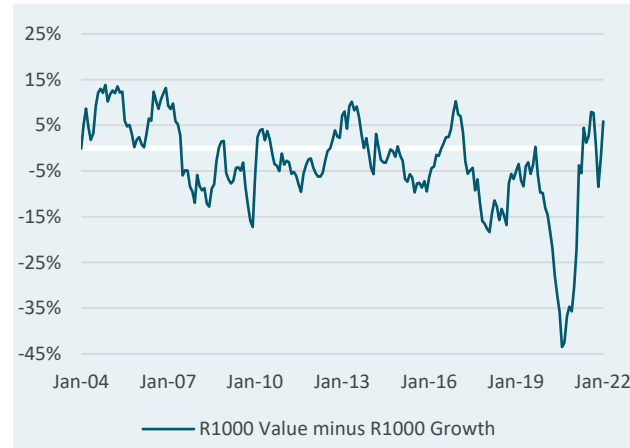
- Value factor stocks (Russell 3000 Value -2.6%) declined over the month and outpaced growth factor stocks (Russell 3000 Growth -8.9%) by the largest amount since March 2001. Rising Treasury yields weighed on growth stocks which are expected to realize more earnings further in the future relative to value stocks.
- The Russell 3000 Value Index holds a 4.3% relative overweight to the energy sector as compared to the Russell 3000 Growth Index. Within the Russell 3000 Value Index Exxon Mobile, Conoco Phillips, and Chevron contributed roughly 19% of the index's return.
- Small-cap equities (Russell 2000 -9.6%) are generally more sensitive to broad economic conditions and lagged over the month, while larger-cap companies' (Russell 1000 -5.6%) who have more robust balance sheets are usually better able to weather worsening economic conditions. Concerns surrounding the Fed tightening weighed on both large- and small-cap equities in January but more so on small-cap equities.
- The S&P 500 High Dividend Index (+1.8%) outpaced the broader S&P 500 (-5.2%), a sign that investors left riskier stocks for more secure dividend paying stocks.

VALUE VS. GROWTH RELATIVE VALUATIONS



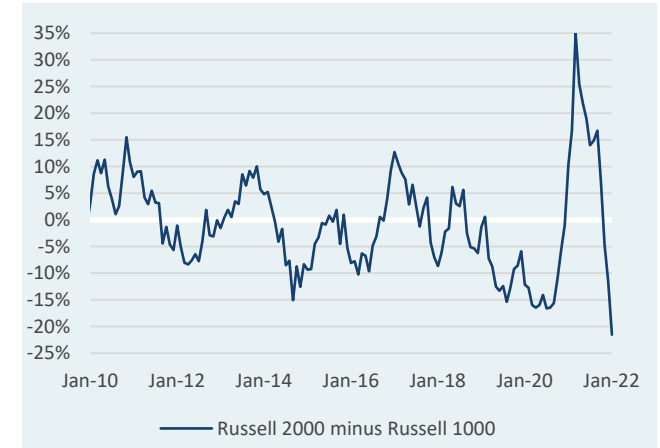
Source: FTSE, Bloomberg, as of 1/31/22

VALUE VS. GROWTH 1-YR ROLLING RELATIVE PERFORMANCE



Source: FTSE, Bloomberg, as of 1/31/22

SMALL VS. LARGE 1-YR ROLLING RELATIVE PERFORMANCE

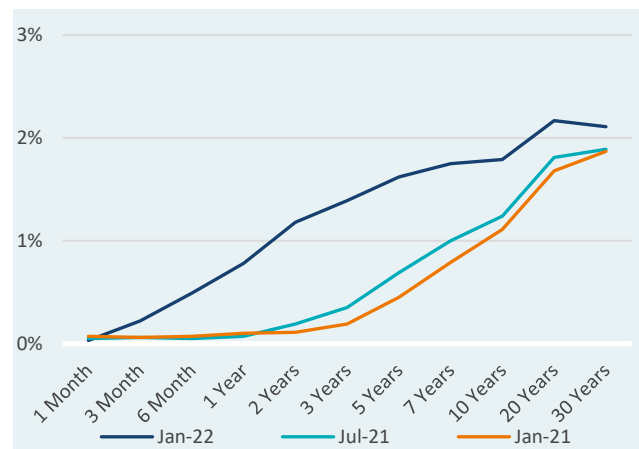


Source: FTSE, Bloomberg, as of 1/31/22

Fixed income

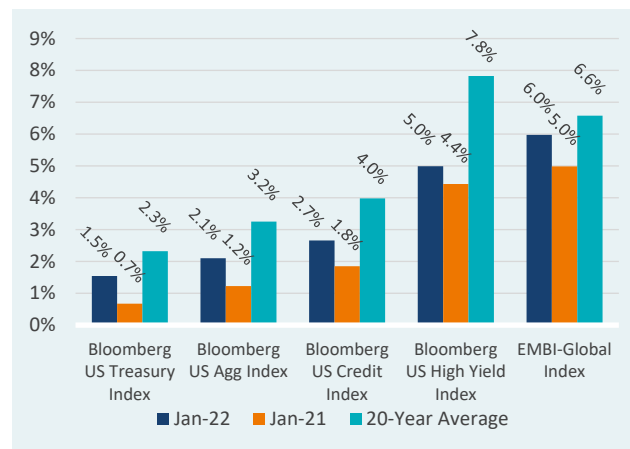
- Fixed income returns were negative in January as interest rates rose. Given the sensitivity of a bond's price to interest rate changes is greater for bonds with more time to maturity, lower duration (Bloomberg US Treasury 1-3 Year -0.7%) outperformed higher duration Treasuries (Bloomberg US Treasury Long -4.1%).
- High-yield spreads (ICE BofA High Yield Index Option-Adjusted Spread) widened 53 bps in January as investors raised expectations for default rates. The Markit North American High-Yield CDX Index fell -2.1% – a decline in the index reflects increased expectations for defaults in high-yield bonds.
- The Bloomberg US TIPS Index declined -2.0%, pressured by rising nominal yields and declining breakeven inflation rates. The 5-year breakeven inflation rate – the markets expectation for annualized inflation over the period – declined as nearly five Fed rate hikes were priced into the market and weighed on longer-term inflation expectations.
- Declines in breakeven inflation rates and increases in nominal yields led real yields to surge. The five-year real-yield rose 41 basis points to -1.2%, its highest level since October 2020.

U.S. TREASURY YIELD CURVE



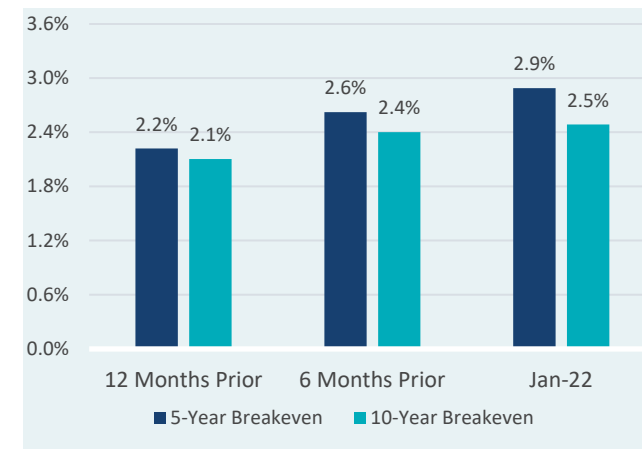
Source: Bloomberg, as of 1/31/22

NOMINAL YIELDS



Source: Morningstar, as of 1/31/22

BREAKEVEN INFLATION RATES

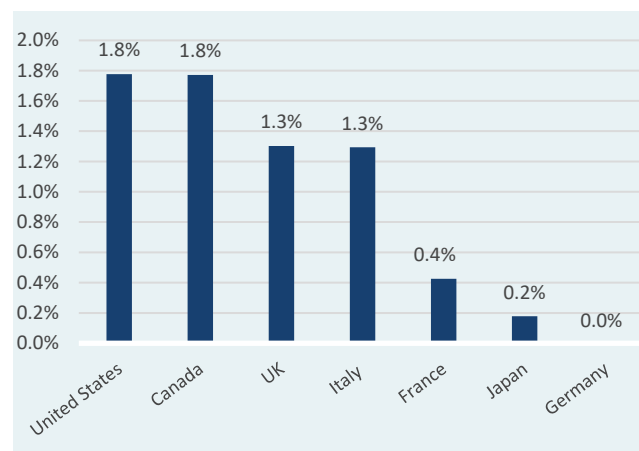


Source: Bloomberg, as of 1/31/22

Global markets

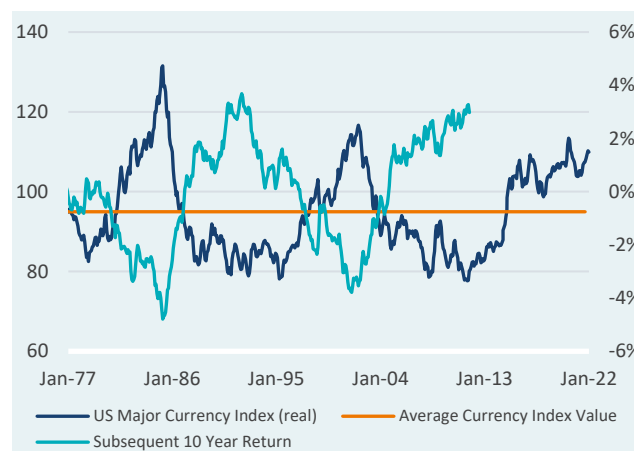
- Global equities (MSCI ACWI -4.9%) were weighed down by U.S. equities (S&P 500 -5.2%). Emerging market equities' (MSCI EM -1.9%) relative outperformance was a benefit to the global equity index.
- Ten-year German Bund yields climbed 21 basis points to end the month at 0.03% and crossed into positive territory for the first time since 2019. The German Bund yield has been held in negative territory as the ECB targeted negative rates to stimulate economic growth. High Euro-Area inflation relative to history – 5.1% year-over-year – is stoking expectations for a shift in policy.
- Latin American equities were a bright spot within emerging markets (MSCI EM Latin America +7.4%). Brazil (+13.0%), Chile (+12.5%), Peru (+11.8%), and Columbia (+10.6%) led the region higher. The local currencies of each of these countries also saw some of the largest currency appreciations globally.
- The International Monetary Fund lowered its 2022 global growth forecast by 50 basis points to 4.4%. The report cited decreased stimulus spending, tightening monetary policies, and lingering supply shortages as drivers for global growth moderation.

GLOBAL SOVEREIGN 10-YEAR YIELDS



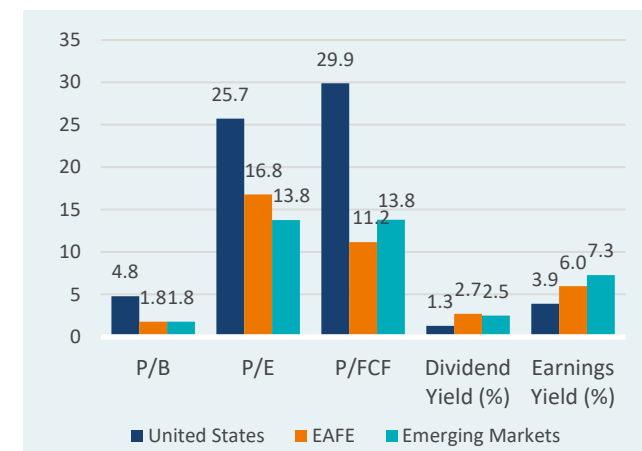
Source: Bloomberg, as of 1/31/22

U.S. DOLLAR MAJOR CURRENCY INDEX



Source: Federal Reserve, as of 1/31/22

MSCI VALUATION METRICS (3-MONTH AVG)



Source: Bloomberg, as of 1/31/22

Commodities

- The Bloomberg Commodity Index (+8.8%) continued strong performance. The index was helped higher from the Energy Sub-Index (+22.0%) as natural gas and oil prices rallied following a year of strong performance.
- The precious metals sub-index (-2.4%) was the only commodity sub-index to decline as gold and silver prices retreated. Gold, which makes up ~75% of the sub-index, is generally negatively correlated to interest rates, and the Fed's more hawkish positioning was a headwind for the metal. Historically seen as a hedge against inflation, the connection between gold prices and inflation has weakened during the post-covid inflationary period.

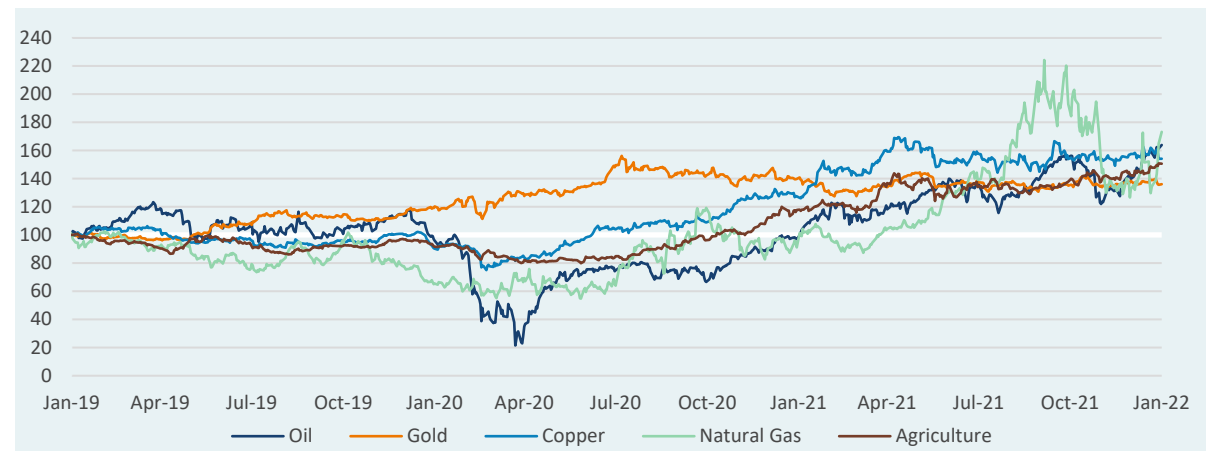
- Natural gas prices rose +38.3% as increasing tensions between Russia and Ukraine raised concerns that Russia may halt flows into Europe if stringent sanctions are put in place against the major exporter. Russian natural gas accounts for nearly a third of European supply. Europe is already facing a tight natural gas market and any deficit could present upside to energy prices for the area.
- Brent crude oil prices climbed +19.6% and ended the month at \$92.35 – the highest level in more than seven years. Severe winter weather hindered production in Texas and further escalation between Russia and Ukraine could have implications for global oil supplies.

INDEX AND SECTOR PERFORMANCE

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Bloomberg Commodity	8.8	8.8	8.8	34.7	11.0	5.4	(2.3)
Bloomberg Agriculture	5.8	5.8	5.8	27.9	15.5	4.1	(1.2)
Bloomberg Energy	22.0	22.0	22.0	76.0	2.9	1.4	(8.3)
Bloomberg Grains	5.3	5.3	5.3	18.4	13.8	4.2	(1.6)
Bloomberg Industrial Metals	3.0	3.0	3.0	34.2	15.6	10.1	1.1
Bloomberg Livestock	3.0	3.0	3.0	10.3	(6.5)	(3.1)	(4.1)
Bloomberg Petroleum	16.5	16.5	16.5	77.1	10.0	7.1	(5.7)
Bloomberg Precious Metals	(2.4)	(2.4)	(2.4)	(6.8)	9.3	6.1	(1.7)
Bloomberg Softs	3.6	3.6	3.6	49.0	15.2	(0.1)	(4.5)

Source: Morningstar, as of 1/31/22

COMMODITY PERFORMANCE



Source: Bloomberg, as of 1/31/22

Appendix

Periodic table of returns

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	YTD	5-Year	10-Year
Commodities	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	6.7	36.4	38.5	28.3	8.8	22.3	18.0
Real Estate	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	30.2	1.9	31.4	34.6	27.6	0.0	16.6	15.3
Cash	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	17.3	25.0	0.0	28.5	21.0	27.1	0.0	10.9	12.3
Hedge Funds of Funds	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	33.5	11.8	0.6	12.1	22.2	-1.5	26.5	20.0	26.5	-1.3	10.5	11.7
Emerging Markets Equity	7.0	2.8	1.0	39.2	16.5	7.5	18.4	11.6	-25.9	28.4	16.8	0.4	16.4	33.1	6.0	0.0	11.8	21.7	-3.5	25.5	18.3	25.2	-1.9	9.7	11.3
US Bonds	4.1	-2.4	-6.0	29.9	14.3	6.3	15.5	10.3	-33.8	23.3	16.1	-2.1	15.3	23.3	4.9	-0.8	11.2	14.6	-6.0	22.4	14.0	17.7	-2.2	8.8	10.6
Large Cap Value	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	17.1	-4.8	22.0	10.3	14.8	-2.3	8.3	9.3
60/40 Global Portfolio	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	-8.3	18.6	7.8	11.3	-3.8	7.9	7.1
International Equity	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-9.3	18.4	7.5	8.9	-4.8	7.9	6.9
Large Cap Equity	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	-11.0	8.7	4.6	6.5	-5.6	7.8	4.2
Small Cap Value	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	7.0	-11.2	7.8	2.8	2.8	-5.8	5.4	4.2
Large Cap Growth	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-2.0	-1.8	-7.5	1.0	3.5	-12.9	7.7	0.5	0.0	-8.6	5.2	2.6
Small Cap Equity	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	1.7	-13.8	6.4	0.5	-1.5	-9.6	3.1	0.6
Small Cap Growth	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	0.9	-14.6	2.1	-3.1	-2.5	-13.4	1.1	-2.3

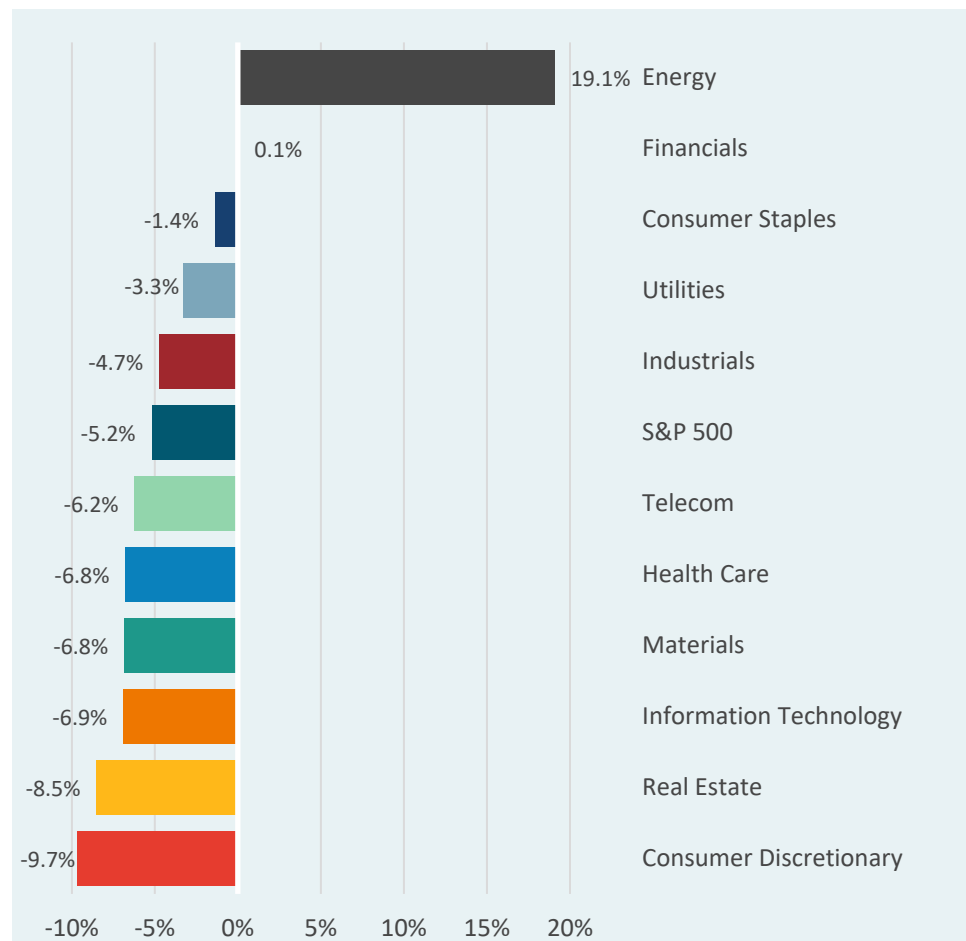
BEST
↑
↓
WORST



Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, Bloomberg US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, Bloomberg Global Bond. NCREIF Property Index performance data as of 12/31/21.

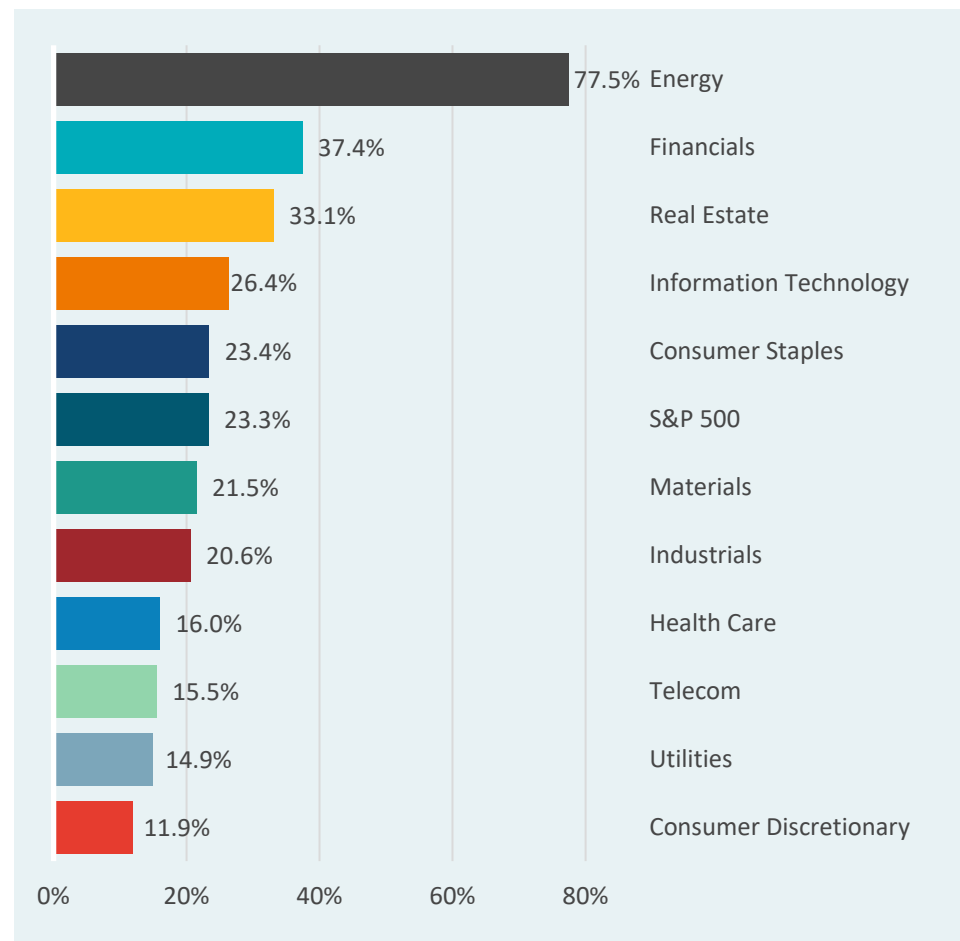
S&P 500 sector returns

QTD



Source: Morningstar, as of 1/31/22

ONE YEAR ENDING JANUARY



Source: Morningstar, as of 1/31/22

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	(5.2)	(5.2)	(5.2)	23.3	20.7	16.8	15.4
S&P 500 Equal Weighted	(4.3)	(4.3)	(4.3)	25.0	18.1	14.2	14.5
DJ Industrial Average	(3.2)	(3.2)	(3.2)	19.4	14.5	14.6	13.4
Russell Top 200	(5.0)	(5.0)	(5.0)	22.7	22.1	18.0	16.1
Russell 1000	(5.6)	(5.6)	(5.6)	20.3	20.5	16.6	15.3
Russell 2000	(9.6)	(9.6)	(9.6)	(1.2)	12.0	9.7	11.3
Russell 3000	(5.9)	(5.9)	(5.9)	18.8	19.9	16.1	15.0
Russell Mid Cap	(7.4)	(7.4)	(7.4)	13.9	16.1	12.8	13.4
Style Index							
Russell 1000 Growth	(8.6)	(8.6)	(8.6)	17.5	26.4	22.3	18.0
Russell 1000 Value	(2.3)	(2.3)	(2.3)	23.4	13.8	10.5	12.3
Russell 2000 Growth	(13.4)	(13.4)	(13.4)	(15.0)	11.4	10.9	11.7
Russell 2000 Value	(5.8)	(5.8)	(5.8)	14.8	11.7	7.9	10.6

INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
MSCI ACWI	(4.9)	(4.9)	(4.9)	13.2	15.4	12.6	10.7
MSCI ACWI ex US	(3.7)	(3.7)	(3.7)	3.6	9.1	8.0	6.2
MSCI EAFE	(4.8)	(4.8)	(4.8)	7.0	9.3	7.9	6.9
MSCI EM	(1.9)	(1.9)	(1.9)	(7.2)	7.2	8.3	4.2
MSCI EAFE Small Cap	(7.3)	(7.3)	(7.3)	2.4	9.9	8.6	9.1
Style Index							
MSCI EAFE Growth	(10.5)	(10.5)	(10.5)	0.9	12.3	10.4	8.3
MSCI EAFE Value	1.0	1.0	1.0	12.9	5.9	5.1	5.4
Regional Index							
MSCI UK	0.9	0.9	0.9	19.8	6.6	6.1	4.8
MSCI Japan	(5.1)	(5.1)	(5.1)	(2.5)	7.6	6.6	7.3
MSCI Euro	(4.4)	(4.4)	(4.4)	12.3	10.6	8.5	7.3
MSCI EM Asia	(3.5)	(3.5)	(3.5)	(12.2)	9.3	9.9	6.6
MSCI EM Latin American	7.4	7.4	7.4	5.8	(4.6)	1.4	(2.6)

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
Bloomberg US TIPS	(2.0)	(2.0)	(2.0)	3.5	7.2	4.7	2.6
Bloomberg US Treasury Bills	(0.0)	(0.0)	(0.0)	0.0	0.9	1.1	0.6
Bloomberg US Agg Bond	(2.2)	(2.2)	(2.2)	(3.0)	3.7	3.1	2.6
Bloomberg US Universal	(2.2)	(2.2)	(2.2)	(2.7)	3.9	3.3	3.0
Duration							
Bloomberg US Treasury 1-3 Yr	(0.7)	(0.7)	(0.7)	(1.3)	1.7	1.4	1.0
Bloomberg US Treasury Long	(4.1)	(4.1)	(4.1)	(5.2)	7.1	5.6	4.1
Bloomberg US Treasury	(1.9)	(1.9)	(1.9)	(3.2)	3.3	2.6	1.9
Issuer							
Bloomberg US MBS	(1.5)	(1.5)	(1.5)	(2.6)	2.2	2.2	2.1
Bloomberg US Corp. High Yield	(2.7)	(2.7)	(2.7)	2.1	6.3	5.4	6.2
Bloomberg US Agency Interm	(1.1)	(1.1)	(1.1)	(2.2)	1.9	1.7	1.4
Bloomberg US Credit	(3.2)	(3.2)	(3.2)	(3.1)	5.3	4.3	3.9

OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Index							
Bloomberg Commodity	8.8	8.8	8.8	34.7	11.0	5.4	(2.3)
Wilshire US REIT	(6.9)	(6.9)	(6.9)	35.3	12.2	9.5	10.0
CS Leveraged Loans	0.4	0.4	0.4	4.5	4.8	4.3	4.7
S&P Global Infrastructure	6.6	4.6	11.9	11.9	10.2	7.8	7.7
Alerian MLP	11.1	11.1	11.1	48.3	0.5	(2.5)	0.6
Regional Index							
JPM EMBI Global Div	(2.8)	(2.8)	(2.8)	(3.5)	3.4	3.8	4.8
JPM GBI-EM Global Div	(0.0)	(0.0)	(0.0)	(7.8)	0.3	2.4	0.0
Hedge Funds							
HFRI Composite	(1.7)	(1.7)	(1.7)	6.9	8.9	6.4	5.3
HFRI FOF Composite	(1.3)	(1.3)	(1.3)	5.4	7.0	5.2	4.2
Currency (Spot)							
Euro	(1.4)	(1.4)	(1.4)	(7.7)	(0.8)	0.7	(1.5)
Pound Sterling	(0.9)	(0.9)	(0.9)	(2.3)	0.7	1.3	(1.6)
Yen	(0.1)	(0.1)	(0.1)	(9.1)	(1.9)	(0.5)	(4.0)

Source: Morningstar, HFRI, as of 1/31/22

Detailed private market returns

Comparison to public market index returns

Private Equity Pooled IRRs	1 Year	3 Year	5 Year	10 Year
Global Private Equity FoFs & Secondary Funds	58.6	23.9	19.8	14.2
Global Private Equity Direct Funds *	52.3	26.6	22.7	17.4
U.S. Private Equity Direct Funds *	58.4	29.2	24.2	18.9
Europe Private Equity Direct Funds *	52.1	26.2	23.7	15.4
Asia Private Equity Direct Funds *	31.4	19.0	17.6	15.5

Public Index Time-weighted Returns				
MSCI World	28.8	13.1	13.7	12.7
S&P 500	30.0	16.0	16.9	16.6
MSCI Europe	27.3	7.8	8.8	8.2
MSCI AC Asia Pacific	18.3	8.5	9.6	8.3

Private Real Estate Pooled IRRs	1 Year	3 Year	5 Year	10 Year
U.S. All Private Real Estate	25.3	10.7	10.6	12.6

Public Index Time-weighted Returns				
FTSE NAREIT Equity REIT	37.4	10.0	6.8	11.3

Private Credit Pooled IRRs	1 Year	3 Year	5 Year	10 Year
U.S. All Private Debt **	33.5	13.7	13.0	12.6

Public Index Time-weighted Returns				
S&P / LSTA U.S. Leveraged Loan 100 Index	6.7	3.9	4.3	4.7

Private Real Assets Pooled IRRs	1 Year	3 Year	5 Year	10 Year
Global Nature Resources ***	30.6	(2.4)	2.7	2.1
Global Infrastructure	14.8	10.4	11.2	10.4

Public Index Time-weighted Returns				
S&P Global Natural Resources	42.2	4.6	9.5	4.6
S&P Global Infrastructure	23.0	6.7	6.0	7.8

Source: Pooled IRRs are from Thompson Reuters C/A and Time-weighted Returns are from Investment Metrics, as of September 30th, 2021. All returns in U.S. dollars.

* Includes Buyout, Growth Equity and Venture Capital.

** Includes Control-Oriented Distressed, Credit Opportunities, Senior Debt and Subordinated Capital.

*** Includes Private Equity Energy, Timber and Upstream Energy & Royalties.

Notices & disclosures

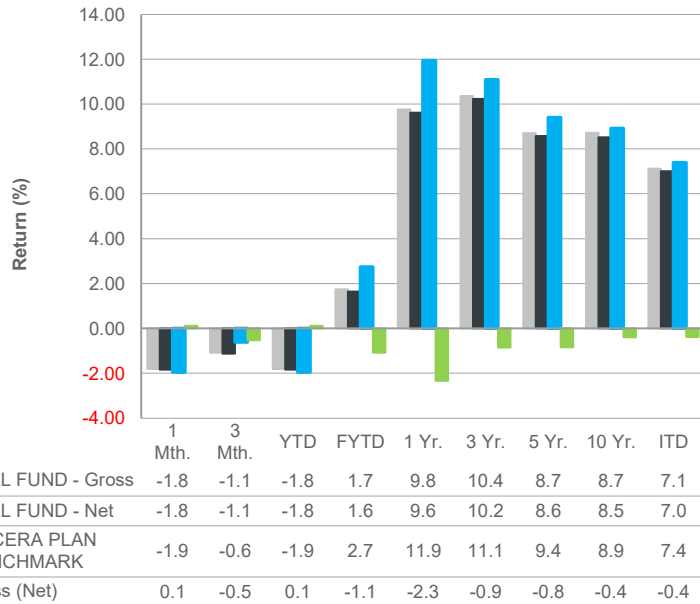
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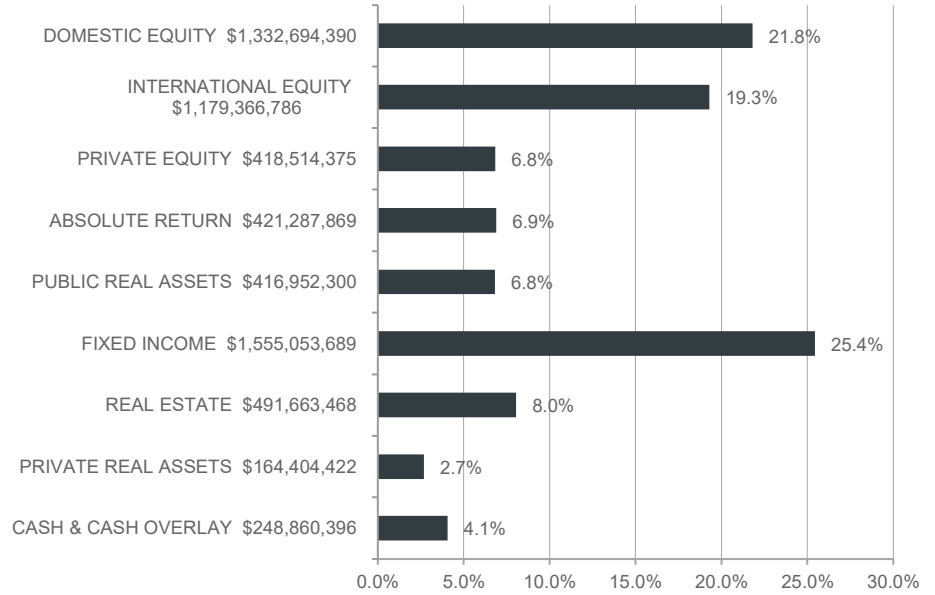
San Mateo County Composite Return Summary January 31, 2022



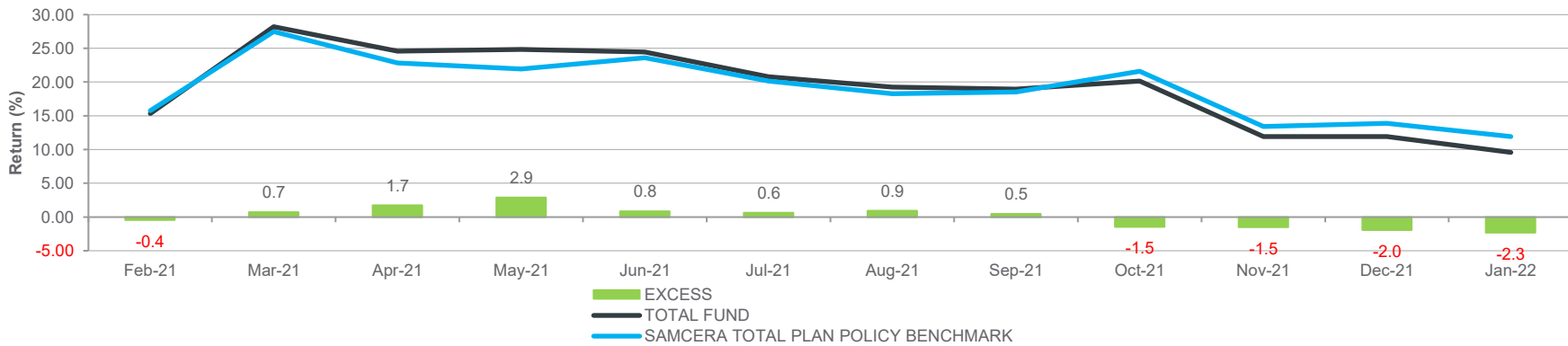
Total Fund Performance



Asset Allocation



Rolling Month End Annual Returns

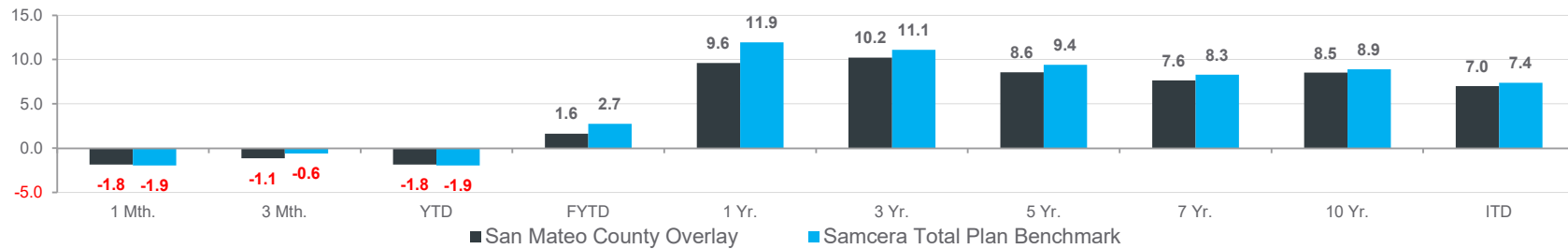


San Mateo County Composite Return Summary

January 31, 2022



Return Comparison



Composite Returns (Net of Manager Fees)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
San Mateo County Overlay	6,111,441,363	-1.8	-1.1	-1.8	1.6	9.6	10.2	8.6	7.6	8.5	7.0
Samcera Total Plan Benchmark		-1.9	-0.6	-1.9	2.7	11.9	11.1	9.4	8.3	8.9	7.4
Excess		0.1	-0.5	0.1	-1.1	-2.3	-0.9	-0.8	-0.7	-0.4	-0.4
San Mateo Ex-Clifton Overlay	6,098,677,630	-1.8	-1.1	-1.8	1.7	9.6	10.2	8.5	7.5	8.5	6.9
Samcera Total Plan Benchmark		-1.9	-0.6	-1.9	2.7	11.9	11.1	9.4	8.3	8.9	7.4
Excess		0.1	-0.5	0.1	-1.1	-2.3	-0.9	-0.9	-0.7	-0.5	-0.5
Total Equity	2,512,061,176	-4.8	-3.3	-4.8	-0.8	11.3	14.4	11.9	10.3	11.1	8.3
Samcera Total Equity Benchmark		-4.8	-3.6	-4.8	-0.0	13.1	15.4	12.7	11.3	12.2	8.9
Excess		0.0	0.3	0.0	-0.8	-1.8	-1.0	-0.8	-1.0	-1.0	-0.7
Fixed Income	1,555,053,689	-1.2	-1.0	-1.2	-0.7	0.8	4.7	4.2	3.9	4.4	5.4
Samcera Fixed Income Benchmark		-2.4	-2.1	-2.4	-1.8	-1.6	4.4	3.8	3.2	3.0	4.9
Excess		1.2	1.0	1.2	1.1	2.4	0.3	0.4	0.7	1.4	0.5
Alternatives	839,802,243	-0.2	0.4	-0.2	4.7	13.5	18.0	12.5	10.3	8.8	1.0
Samcera Alternatives Benchmark		3.4	3.2	3.4	9.0	22.5	14.5	12.6	10.7	10.4	8.8
Excess		-3.6	-2.8	-3.6	-4.3	-9.0	3.5	-0.1	-0.4	-1.7	-7.8
Inflation Hedge	1,073,020,190	2.9	2.6	2.9	9.3	18.6	4.7	4.8	--	--	6.1
SamCERA Inflation Hedge Index		1.6	6.0	1.6	12.2	25.4	9.8	8.0	--	--	--
Excess		1.3	-3.4	1.3	-2.9	-6.8	-5.1	-3.2	--	--	--
Cash	248,860,396	0.0	-0.0	0.0	0.1	0.3	0.7	0.8	0.7	0.7	1.8
Samcera Cash Benchmark		-0.0	0.0	-0.0	0.0	0.0	0.9	1.1	0.9	0.6	1.7
Excess		0.0	-0.0	0.0	0.1	0.2	-0.2	-0.4	-0.2	0.0	0.0



San Mateo County Composite Return Summary

January 31, 2022



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Total Equity	2,512,061,176	-4.8	-3.3	-4.8	-0.8	11.3	14.4	11.9	10.3	11.1	8.3
Samcera Total Equity Benchmark		-4.8	-3.6	-4.8	-0.0	13.1	15.4	12.7	11.3	12.2	8.9
Excess		0.0	0.3	0.0	-0.8	-1.8	-1.0	-0.8	-1.0	-1.0	-0.7
Domestic Equity	1,332,694,390	-5.0	-1.6	-5.0	3.8	18.9	17.4	14.5	12.9	13.9	9.5
Samcera Dom. Equity Benchmark		-5.9	-3.7	-5.9	2.7	18.8	19.9	16.1	14.0	14.9	10.0
Excess		0.9	2.1	0.9	1.1	0.1	-2.5	-1.7	-1.0	-1.1	-0.6
Large Cap Equity	1,199,221,668	-4.9	-1.2	-4.9	4.4	19.3	18.0	15.1	13.6	14.6	10.2
Russell 1000		-5.6	-3.1	-5.6	3.8	20.3	20.5	16.6	14.3	15.3	10.7
Excess		0.7	1.9	0.7	0.6	-1.0	-2.5	-1.5	-0.7	-0.8	-0.5
Blackrock Russell 1000	533,221,494	-5.6	-3.1	-5.6	3.8	20.4	20.7	16.7	--	--	16.7
Russell 1000		-5.6	-3.1	-5.6	3.8	20.3	20.5	16.6	--	--	16.6
Excess		0.0	0.1	0.0	0.0	0.1	0.2	0.1	--	--	0.2
DE Shaw Commingled Fund	189,164,700	-3.5	-0.1	-3.5	5.5	20.2	18.6	15.8	14.1	--	13.8
Russell 1000		-5.6	-3.1	-5.6	3.8	20.3	20.5	16.6	14.3	--	13.7
Excess		2.1	3.0	2.1	1.7	-0.1	-1.9	-0.8	-0.2	--	0.1
Acadian US MGD V-SL	232,306,183	-6.4	-0.8	-6.4	3.7	15.4	11.6	--	--	--	14.3
Russell 1000		-5.6	-3.1	-5.6	3.8	20.3	20.5	--	--	--	23.3
Excess		-0.8	2.4	-0.8	-0.1	-4.9	-8.9	--	--	--	-9.0
Panagora Defuseq -SL	244,529,290	-3.1	1.8	-3.1	5.4	20.0	14.3	--	--	--	16.8
Russell 1000		-5.6	-3.1	-5.6	3.8	20.3	20.5	--	--	--	23.3
Excess		2.5	4.9	2.5	1.6	-0.4	-6.2	--	--	--	-6.5
Domestic Equity Overlay	22,293,525	181.1	192.9	181.1	197.3	418.4	--	--	--	--	257.4
ICE BofAML US 3-Month Treasury Bill		-0.0	0.0	-0.0	0.0	0.0	--	--	--	--	0.1
Excess		181.1	192.9	181.1	197.3	418.3	--	--	--	--	257.3
Small Cap Equity	111,179,197	-7.3	-6.5	-7.3	-3.3	13.9	9.9	7.5	7.1	9.1	6.6
Russell 2000		-9.6	-11.5	-9.6	-11.7	-1.2	12.0	9.7	9.7	11.3	8.2
Excess		2.4	5.0	2.4	8.4	15.2	-2.1	-2.2	-2.6	-2.2	-1.6



San Mateo County Composite Return Summary

January 31, 2022



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
QMA US Small Cap	111,179,197	-7.3	-6.5	-7.3	-3.3	13.9	9.9	7.5	--	--	9.4
Russell 2000		-9.6	-11.5	-9.6	-11.7	-1.2	12.0	9.7	--	--	10.9
Excess		2.4	5.0	2.4	8.4	15.2	-2.1	-2.2	--	--	-1.5
International Equity	1,179,366,786	-4.5	-5.3	-4.5	-5.7	3.2	10.9	9.0	6.9	7.0	5.9
SamCERA Custom Hedge Intl		-3.6	-3.6	-3.6	-3.2	6.7	10.0	8.5	6.5	6.6	5.4
Excess		-0.9	-1.7	-0.9	-2.5	-3.5	0.9	0.5	0.3	0.5	0.4
Baillie Gifford	338,377,137	-12.0	-14.0	-12.0	-14.6	-9.3	15.2	11.2	8.9	--	9.0
MSCI ACWI ex USA Growth		-8.1	-8.7	-8.1	-9.2	-3.7	12.1	10.7	7.9	--	--
Excess		-4.0	-5.3	-4.0	-5.4	-5.6	3.0	0.6	1.0	--	--
Blackrock MSCI ACWI ex US IMI	373,521,076	-3.9	-4.5	-3.9	-4.8	4.3	--	--	--	--	15.3
MS AC WIdxUS IMI Nt		-4.1	-4.6	-4.1	-5.0	4.0	--	--	--	--	15.3
Excess		0.2	0.2	0.2	0.2	0.4	--	--	--	--	0.0
Mondrian Investment Partners	382,813,876	0.7	-0.6	0.7	-2.9	6.7	6.3	6.4	4.4	5.4	5.3
MSCI ACWI xUSA Value		0.9	0.6	0.9	0.1	12.3	6.6	6.2	4.9	5.3	5.3
Excess		-0.2	-1.1	-0.2	-3.0	-5.6	-0.3	0.2	-0.4	0.1	0.0
Currency Hedge Futures	418,096,903	-0.9	-2.4	-0.9	-3.9	-6.2	--	--	--	--	0.7
ICE BofAML US 3-Month Treasury Bill		-0.0	0.0	-0.0	0.0	0.0	--	--	--	--	0.1
Excess		-0.9	-2.4	-0.9	-4.0	-6.3	--	--	--	--	0.7
Currency Hedge Futures Offsets	418,096,903	0.0	0.0	0.0	0.0	0.0	--	--	--	--	0.0
ICE BofAML US 3-Month Treasury Bill		-0.0	0.0	-0.0	0.0	0.0	--	--	--	--	0.1
Excess		0.0	-0.0	0.0	-0.0	-0.0	--	--	--	--	-0.1
International Equity Overlay	84,654,697	-1.7	-2.6	-1.7	-1.8	-6.2	--	--	--	--	21.9
ICE BofAML US 3-Month Treasury Bill		-0.0	0.0	-0.0	0.0	0.0	--	--	--	--	0.1
Excess		-1.7	-2.6	-1.7	-1.8	-6.2	--	--	--	--	21.8
Fixed Income	1,555,053,689	-1.2	-1.0	-1.2	-0.7	0.8	4.7	4.2	3.9	4.4	5.4
Samcera Fixed Income Benchmark		-2.4	-2.1	-2.4	-1.8	-1.6	4.4	3.8	3.2	3.0	4.9
Excess		1.2	1.0	1.2	1.1	2.4	0.3	0.4	0.7	1.4	0.5



San Mateo County Composite Return Summary

January 31, 2022



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Core Fixed Income	994,548,467	-1.6	-1.7	-1.6	-1.9	-2.1	3.8	3.3	2.8	3.5	5.0
BBG US Aggregate		-2.2	-2.1	-2.2	-2.1	-3.0	3.7	3.1	2.4	2.6	4.6
Excess		0.5	0.4	0.5	0.2	0.9	0.1	0.2	0.5	0.9	0.4
FIAM B Core Bond	264,817,106	-2.0	-1.9	-2.0	-1.7	-2.0	5.0	4.0	--	--	4.0
BBG US Aggregate		-2.2	-2.1	-2.2	-2.1	-3.0	3.7	3.1	--	--	2.8
Excess		0.2	0.3	0.2	0.4	1.0	1.3	0.9	--	--	1.2
Western Total Return	230,661,374	-0.8	-1.2	-0.8	-1.9	-1.3	3.8	3.9	--	--	3.9
BBG US Aggregate		-2.2	-2.1	-2.2	-2.1	-3.0	3.7	3.1	--	--	2.8
Excess		1.4	0.9	1.4	0.2	1.6	0.2	0.8	--	--	1.1
DoubleLine	255,463,893	-1.5	-1.9	-1.5	-2.3	-2.4	--	--	--	--	1.5
BBG US Aggregate		-2.2	-2.1	-2.2	-2.1	-3.0	--	--	--	--	-0.1
Excess		0.6	0.3	0.6	-0.2	0.6	--	--	--	--	1.6
NISA Core Bond	233,197,985	-2.0	-2.0	-2.0	-1.9	-2.7	--	--	--	--	-0.3
BBG US Aggregate		-2.2	-2.1	-2.2	-2.1	-3.0	--	--	--	--	-0.8
Excess		0.1	0.1	0.1	0.2	0.2	--	--	--	--	0.5
Core Fixed Income Overlay	10,408,109	-2.2	-0.8	-2.2	0.9	-1.4	--	--	--	--	-1.5
ICE BofAML US 3-Month Treasury Bill		-0.0	0.0	-0.0	0.0	0.0	--	--	--	--	0.1
Excess		-2.2	-0.8	-2.2	0.9	-1.4	--	--	--	--	-1.6
Opportunistic Credit	560,505,222	-0.5	0.2	-0.5	1.4	6.3	6.4	6.0	6.3	7.8	8.3
BBG BA Intermediate HY Ind		-2.9	-2.0	-2.9	-1.4	1.0	6.2	5.2	5.2	5.8	6.8
Excess		2.3	2.3	2.3	2.8	5.3	0.1	0.8	1.1	1.9	1.5
Pimco Private Income	54,491,668	0.0	2.2	0.0	5.8	15.6	--	--	--	--	9.3
BBG BA Intermediate HY Ind		-2.9	-2.0	-2.9	-1.4	1.0	--	--	--	--	5.6
Excess		2.9	4.3	2.9	7.2	14.6	--	--	--	--	3.7
AG CREDIT SOL FU LP	13,851,878	0.0	2.6	0.0	2.6	30.7	--	--	--	--	24.9
BBG BA Intermediate HY Ind		-2.9	-2.0	-2.9	-1.4	1.0	--	--	--	--	4.2
Excess		2.9	4.6	2.9	4.0	29.7	--	--	--	--	20.7



San Mateo County Composite Return Summary

January 31, 2022



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
AG CSF ANX DISLOC FD	33,346	0.0	5.8	0.0	5.8	29.0	--	--	--	--	21.5
BBG BA Intermediate HY Ind		-2.9	-2.0	-2.9	-1.4	1.0	--	--	--	--	11.0
Excess		2.9	7.8	2.9	7.2	28.0	--	--	--	--	10.6
AG Opportunistic Whole Loan	869,291	0.0	3.6	0.0	10.0	37.8	11.9	17.3	13.3	--	11.6
BBG BA Intermediate HY Ind		-2.9	-2.0	-2.9	-1.4	1.0	6.2	5.2	5.2	--	5.0
Excess		2.9	5.6	2.9	11.4	36.8	5.6	12.0	8.1	--	6.6
Angelo Gordon	1	0.0	0.0	0.0	0.0	-12.8	16.8	20.4	16.2	--	15.0
BBG BA Intermediate HY Ind		-2.9	-2.0	-2.9	-1.4	1.0	6.2	5.2	5.2	--	5.3
Excess		2.9	2.0	2.9	1.4	-13.8	10.6	15.1	10.9	--	9.7
Blackrock Direct Lending Feede	24,466,776	-0.0	2.2	-0.0	3.4	4.8	--	--	--	--	2.8
BBG BA Intermediate HY Ind		-2.9	-2.0	-2.9	-1.4	1.0	--	--	--	--	5.8
Excess		2.9	4.2	2.9	4.8	3.8	--	--	--	--	-3.1
Beach Point Select Fund	87,689,853	-0.1	1.5	-0.1	5.4	13.5	12.7	9.1	9.5	--	9.5
BBG BA Intermediate HY Ind		-2.9	-2.0	-2.9	-1.4	1.0	6.2	5.2	5.2	--	5.2
Excess		2.8	3.5	2.8	6.8	12.5	6.4	3.9	4.2	--	4.2
Brigade Cap Mngmt	89,822,568	-0.4	0.4	-0.4	3.0	10.4	8.1	6.1	6.2	6.4	6.7
BBG BA Intermediate HY Ind		-2.9	-2.0	-2.9	-1.4	1.0	6.2	5.2	5.2	5.8	6.3
Excess		2.5	2.5	2.5	4.4	9.4	1.9	0.9	0.9	0.6	0.4
White Oak YSF V	29,610,215	0.0	0.4	0.0	-0.1	0.5	--	--	--	--	0.5
BBG BA Intermediate HY Ind		-2.9	-2.0	-2.9	-1.4	1.0	--	--	--	--	2.0
Excess		2.9	2.5	2.9	1.3	-0.5	--	--	--	--	-1.6
White Oak Yield Spec	32,032,776	0.0	0.7	0.0	2.3	5.6	5.6	--	--	--	--
BBG BA Intermediate HY Ind		-2.9	-2.0	-2.9	-1.4	1.0	6.2	--	--	--	5.2
Excess		2.9	2.7	2.9	3.7	4.6	-0.6	--	--	--	--
PIMCO Div. Income Fund	131,276,483	-2.3	-2.3	-2.3	-2.5	-1.6	4.3	--	--	--	3.8
BBG BA Intermediate HY Ind		-2.9	-2.0	-2.9	-1.4	1.0	6.2	--	--	--	4.8
Excess		0.6	-0.2	0.6	-1.1	-2.6	-2.0	--	--	--	-1.1



San Mateo County Composite Return Summary

January 31, 2022



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
TCP Direct Lending VIII	20,673,135	0.8	2.9	0.8	3.9	7.4	6.9	6.9	--	--	--
BBG BA Intermediate HY Ind		-2.9	-2.0	-2.9	-1.4	1.0	6.2	5.2	--	--	5.7
Excess		3.7	4.9	3.7	5.3	6.4	0.7	1.7	--	--	--
Franklin Templeton	75,687,231	0.3	-0.7	0.3	-2.6	-3.0	-4.4	-1.4	-0.5	1.4	1.7
Bloomberg Multiverse Index		-2.0	-2.5	-2.0	-3.6	-5.6	2.4	2.8	2.1	1.6	2.1
Excess		2.3	1.7	2.3	1.0	2.7	-6.8	-4.2	-2.6	-0.1	-0.4
Alternatives	839,802,243	-0.2	0.4	-0.2	4.7	13.5	18.0	12.5	10.3	8.8	1.0
Samcera Alternatives Benchmark		3.4	3.2	3.4	9.0	22.5	14.5	12.6	10.7	10.4	8.8
Excess		-3.6	-2.8	-3.6	-4.3	-9.0	3.5	-0.1	-0.4	-1.7	-7.8
Private Equity	418,514,375	-0.6	-0.0	-0.6	9.4	25.0	37.9	27.4	23.1	20.1	-5.6
Samcera PE Benchmark		7.0	5.6	7.0	16.9	47.1	24.8	20.0	17.7	18.6	18.1
Excess		-7.6	-5.6	-7.6	-7.5	-22.2	13.1	7.4	5.4	1.5	-23.8
Absolute Return	421,287,869	0.2	0.8	0.2	-0.0	2.9	-3.2	-3.3	-1.2	1.3	1.1
Samcera SOFR + 4%		0.3	1.0	0.3	2.3	4.0	4.9	5.2	5.0	4.7	4.7
Excess		-0.1	-0.2	-0.1	-2.4	-1.2	-8.1	-8.5	-6.2	-3.4	-3.6
Aberdeen Std GARS	77,402,846	-2.3	-0.4	-2.3	-3.2	-3.8	3.2	2.0	--	--	1.1
Samcera SOFR + 4%		0.3	1.0	0.3	2.3	4.0	4.9	5.2	--	--	5.0
Excess		-2.6	-1.4	-2.6	-5.5	-7.8	-1.7	-3.2	--	--	-3.9
Graham Global Investment	87,754,286	2.6	-0.2	2.6	-2.5	1.5	--	--	--	--	1.9
Samcera SOFR +4%		0.3	1.0	0.3	2.3	4.0	--	--	--	--	4.3
Excess		2.3	-1.2	2.3	-4.9	-2.5	--	--	--	--	-2.3
PIMCO MAARS Fund L.P.	90,193,696	1.1	6.3	1.1	11.8	11.4	--	--	--	--	8.1
Samcera SOFR +4%		0.3	1.0	0.3	2.3	4.0	--	--	--	--	4.2
Excess		0.8	5.3	0.8	9.5	7.3	--	--	--	--	3.9
Acadian MAAR Fund LLC	80,880,441	-1.6	-0.3	-1.6	-1.2	1.3	--	--	--	--	1.4
Samcera SOFR +4%		0.3	1.0	0.3	2.3	4.0	--	--	--	--	4.1
Excess		-2.0	-1.3	-2.0	-3.5	-2.8	--	--	--	--	-2.7



San Mateo County Composite Return Summary

January 31, 2022



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
CFM SYS Global Macro Fund	85,056,600	1.1	-1.6	1.1	-3.7	6.2	--	--	--	--	8.6
Samcera SOFR +4%		0.3	1.0	0.3	2.3	4.0	--	--	--	--	4.1
Excess		0.7	-2.6	0.7	-6.0	2.1	--	--	--	--	4.6
Inflation Hedge	1,073,020,190	2.9	2.6	2.9	9.3	18.6	4.7	4.8	--	--	6.1
SamCERA Inflation Hedge Index		1.6	6.0	1.6	12.2	25.4	9.8	8.0	--	--	--
Excess		1.3	-3.4	1.3	-2.9	-6.8	-5.1	-3.2	--	--	--
Real Estate	491,663,468	4.2	4.4	4.2	11.2	16.5	7.5	7.8	--	--	8.2
Samcera NCREIF ODCE (gross)		0.0	8.0	0.0	15.1	22.2	9.2	8.7	--	--	8.6
Excess		4.2	-3.6	4.2	-4.0	-5.7	-1.7	-0.9	--	--	-0.4
Invesco Core Real Estate	308,163,052	5.8	5.8	5.8	14.5	20.7	8.0	8.2	9.1	9.9	8.0
Samcera NCREIF ODCE (gross)		0.0	8.0	0.0	15.1	22.2	9.2	8.7	9.6	10.4	8.2
Excess		5.8	-2.2	5.8	-0.6	-1.4	-1.2	-0.5	-0.5	-0.6	-0.2
Invesco US Val IV	4,688,836	5.7	5.7	5.7	14.2	14.3	10.8	10.9	--	--	11.6
Samcera NCREIF ODCE (gross)		0.0	8.0	0.0	15.1	22.2	9.2	8.7	--	--	9.1
Excess		5.7	-2.2	5.7	-1.0	-7.8	1.6	2.2	--	--	2.6
PGIM Real Estate US Debt Fund	85,294,675	0.3	1.1	0.3	2.5	5.4	5.3	--	--	--	5.0
Samcera NCREIF ODCE (gross)		0.0	8.0	0.0	15.1	22.2	9.2	--	--	--	8.7
Excess		0.3	-6.9	0.3	-12.6	-16.8	-3.9	--	--	--	-3.8
Invesco US VAL V	28,260,966	4.7	4.7	4.7	19.4	30.7	--	--	--	--	12.3
Samcera NCREIF ODCE (gross)		0.0	8.0	0.0	15.1	22.2	--	--	--	--	--
Excess		4.7	-3.3	4.7	4.2	8.5	--	--	--	--	--
Harrison Street Core Property	56,609,882	2.6	2.6	2.6	5.2	10.9	--	--	--	--	6.2
Samcera NCREIF ODCE (gross)		0.0	8.0	0.0	15.1	22.2	--	--	--	--	10.7
Excess		2.6	-5.4	2.6	-10.0	-11.3	--	--	--	--	-4.6
Stockbridge Value IV	8,646,057	0.0	1.7	0.0	0.0	--	--	--	--	--	-9.4
Samcera NCREIF ODCE (gross)		0.0	8.0	0.0	15.1	--	--	--	--	--	19.6
Excess		0.0	-6.3	0.0	-15.1	--	--	--	--	--	-29.0



San Mateo County Composite Return Summary

January 31, 2022



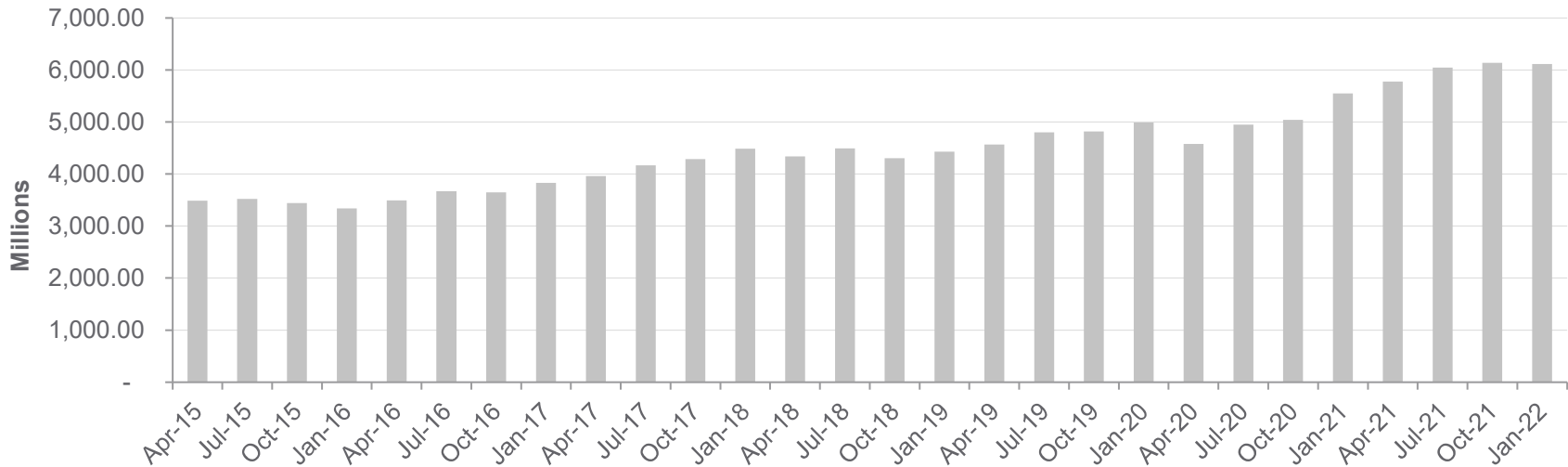
Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Public Real Assets	416,952,300	2.4	2.6	2.4	8.1	20.0	2.2	2.5	--	--	--
SamCera Liquid Real Asset Inde		2.4	2.7	2.4	8.2	20.1	7.4	5.8	--	--	7.4
Excess		0.0	-0.1	0.0	-0.2	-0.2	-5.2	-3.3	--	--	--
SSGA CST REAL ASSET NL	416,952,300	2.4	2.6	2.4	8.1	20.0	7.2	5.8	--	--	--
SamCera Liquid Real Asset Inde		2.4	2.7	2.4	8.2	20.1	7.4	5.8	--	--	6.5
Excess		0.0	-0.1	0.0	-0.2	-0.2	-0.2	-0.0	--	--	--
Private Real Assets	164,404,422	0.0	-2.9	0.0	7.6	29.0	4.1	3.3	--	--	9.6
SamCERA Private Real Asset Idx		4.2	4.7	4.2	8.9	36.3	10.5	9.7	--	--	11.8
Excess		-4.2	-7.6	-4.2	-1.4	-7.2	-6.5	-6.5	--	--	-2.2
Cash Overlay	12,763,733	0.0	-0.3	0.0	-0.4	-0.3	--	--	--	--	-0.0
ICE BofAML US 3-Month Treasury Bill		-0.0	0.0	-0.0	0.0	0.0	--	--	--	--	0.1
Excess		0.0	-0.3	0.0	-0.4	-0.4	--	--	--	--	-0.1
General Account	101,637,814	0.0	0.0	0.0	0.0	0.1	0.9	1.2	1.0	0.7	1.8
County Treasury Pool	76,034,752	0.1	0.1	0.1	0.7	1.0	1.5	1.5	1.3	1.1	2.6
Currency Hedge Cash Overlay	58,424,088	0.0	-0.1	0.0	-0.1	-0.1	--	--	--	--	0.0
San Mateo County Overlay	6,111,441,363	-1.8	-1.1	-1.8	1.6	9.6	10.2	8.6	7.6	8.5	7.0
Samcera Total Plan Benchmark		-1.9	-0.6	-1.9	2.7	11.9	11.1	9.4	8.3	8.9	7.4
Excess		0.1	-0.5	0.1	-1.1	-2.3	-0.9	-0.8	-0.7	-0.4	-0.4



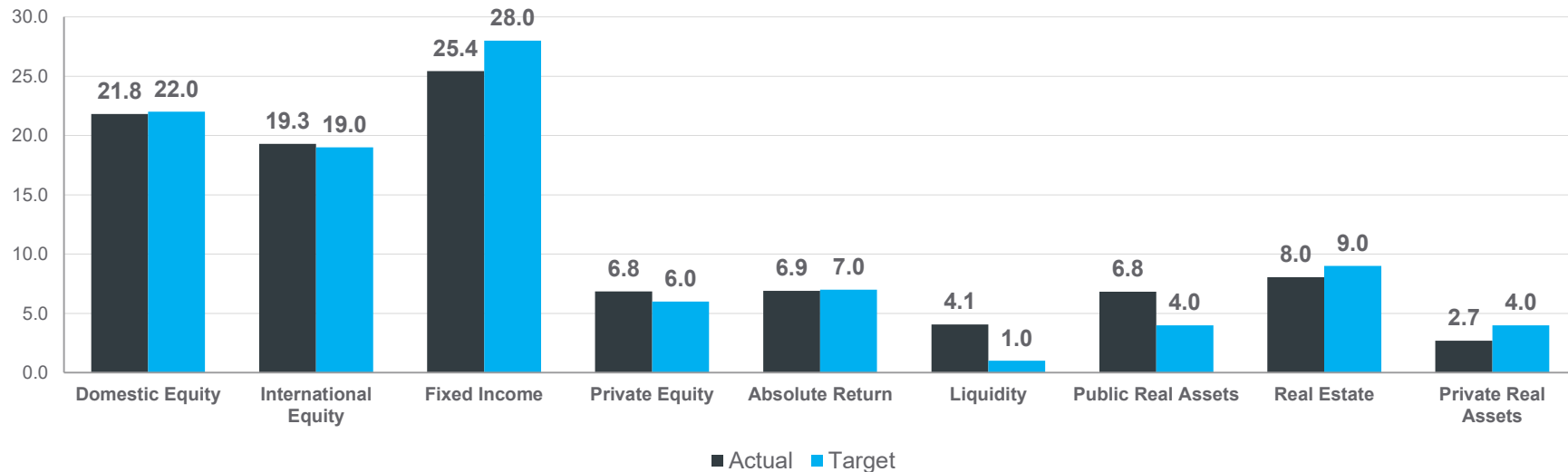
Record of Asset Growth

	Three Months	One Year
TOTAL FUND		
Beginning Market Value	6,133,995,482	5,550,459,240
Contributions	113,143,096	316,647,501
Withdrawals	-67,827,664	-292,892,254
Income Received	20,037,479	90,639,795
Gain/Loss	-87,759,627	447,438,665
Ending Market Value	6,111,441,363	6,111,441,363

Net Asset Values Over Time (\$000)

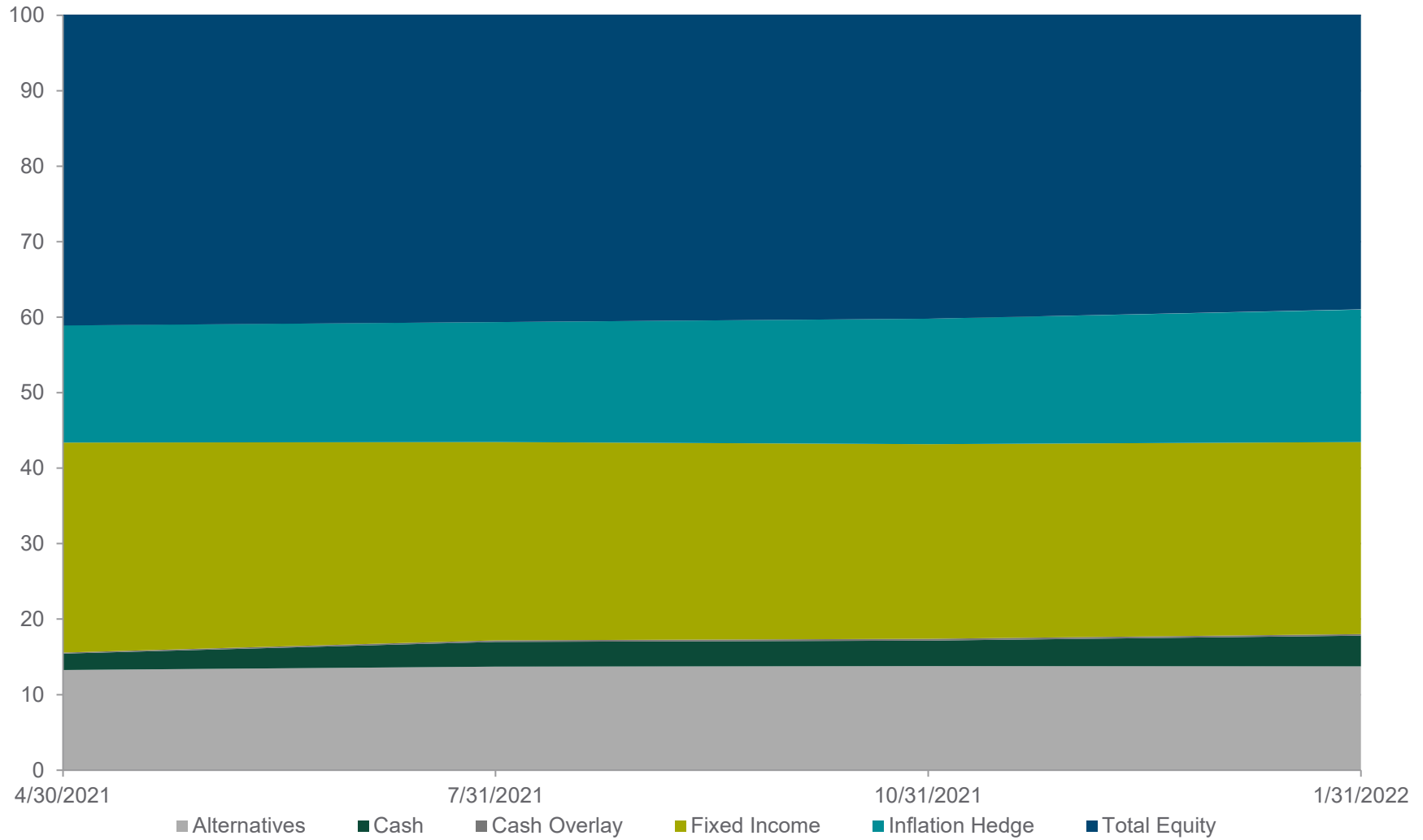


Actual vs Target Weights

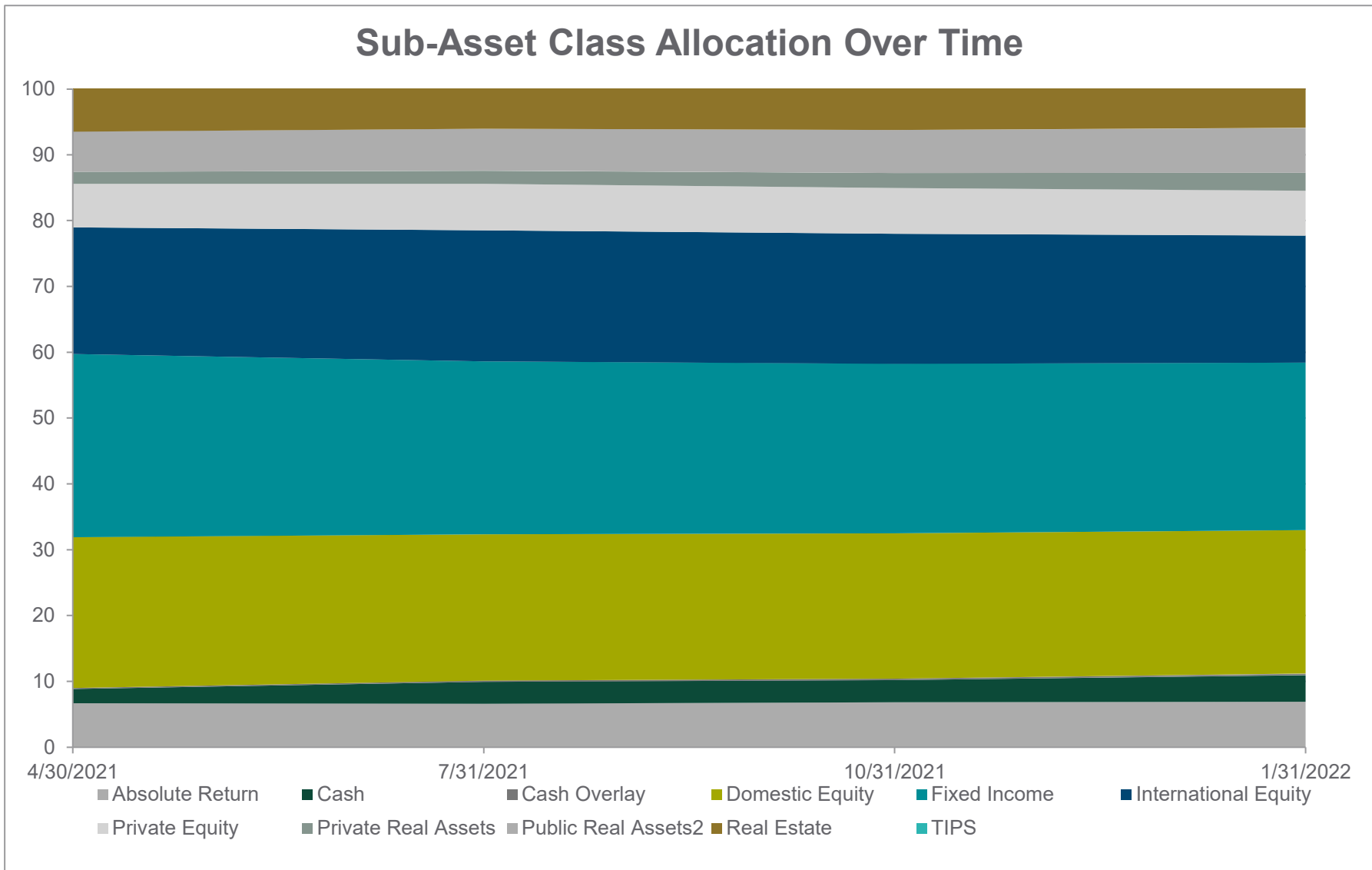


	Min	Actual	Target	Deviation	Max
Domestic Equity	20.0	21.8	22.0	-0.2	24.0
International Equity	17.0	19.3	19.0	0.3	21.0
Fixed Income	26.0	25.4	28.0	-2.6	30.0
Private Equity	4.0	6.8	6.0	0.8	8.0
Absolute Return	5.0	6.9	7.0	-0.1	9.0
Liquidity	0.0	4.1	1.0	3.1	2.0
Public Real Assets	2.0	6.8	4.0	2.8	6.0
Real Estate	7.0	8.0	9.0	-1.0	11.0
Private Real Assets	2.0	2.7	4.0	-1.3	6.0

Asset Allocation over Time



Sub-Asset Class Allocation Over Time



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SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 22, 2022

Agenda Item 6.2

TO: Board of Retirement

FROM: Michael Coultrip, Chief Investment Officer 

SUBJECT: Report on Quarterly Investment Performance Report for the Period Ended December 31, 2021

Recommendation

Accept Verus Advisory's quarterly performance report for the period ended December 31, 2021.

Discussion

The 4th quarter net total return for the SamCERA portfolio was 2.9%, which was 0.70% below the policy benchmark return of 3.6%. As can be seen on Page 20 and 21, inflation hedge was the main detractor (real estate and private real assets).

Margaret Jadallah will present the report to the Board and will be available for questions.

Attachment

Verus Quarterly Performance Report Ending 12/31/2021



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



PERIOD ENDING: DECEMBER 31, 2021

Investment Performance Review for

San Mateo County Employees' Retirement Association

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VERUSINVESTMENTS.COM

SEATTLE 206-622-3700

LOS ANGELES 310-297-1777

SAN FRANCISCO 415-362-3484

PITTSBURGH 412-784-6678

Market Environment

TAB I

Alternatives

TAB VI

Total Fund

TAB II

Inflation Hedge

TAB VII

US Equity

TAB III

Appendix

TAB VIII

International Equity

TAB IV

Fixed Income

TAB V

4th quarter summary

THE ECONOMIC CLIMATE

- Real GDP grew at a 4.9% rate year-over-year in the third quarter (+2.3% quarterly annualized rate). A slowdown in consumer spending contributed to a lower rate of growth. This was due to a combination of factors, including new COVID-19 restrictions, a delay in the reopening of businesses across the country, and general fear of virus spread which has led to less spending on services.
- The U.S. labor market improved further, as unemployment fell from 4.8% to 3.9%. The labor force participation rate has also improved, though very gradually, rising from 61.6% to 61.9%.

PORTFOLIO IMPACTS

- Credit spreads have reached extremely tight levels. High yield bonds traded at a credit spread of 283 bps at year-end. However, these spread levels may be justified by record-low bond default activity. Just 0.4% of U.S. high yield bonds defaulted in 2021, on a par-weighted basis.
- U.S. core CPI increased 5.5% year-over-year in December. Headline inflation, which includes all goods, reached 7.0%. Large price increases have occurred across many goods and services, though approximately half of the rise in inflation continues to be driven by energy prices and automobiles.

THE INVESTMENT CLIMATE

- In December it was announced that Senator Joe Manchin had communicated a hard “No” regarding his support for the Build Back Better bill. For months, Democrats have sought a solution to the disparate needs and spending interests of their party.
- Extremely fast spread of the Omicron variant worldwide does not seem to have had an outsized impact on the markets. While this new wave has in fact led to shutdowns in certain economies, much of the world has remained open, perhaps in acknowledgment that the health effects of Omicron are believed to be milder in nature.

ASSET ALLOCATION ISSUES

- Equity markets delivered strong returns in Q4, up +6.7% and ending the year up 18.5% (MSCI ACWI). U.S. equities delivered 11.0% during the quarter, while international equities delivered 2.7% and emerging market equities saw a slight loss of -1.3%, on an unhedged currency basis.
- Size and Value factor performance was negative once again during Q4. Large capitalization stocks significantly outperformed small capitalization stocks and Growth beat Value. Tighter monetary conditions and a pullback in some growth stocks has renewed talks of a possible Value rotation.

Risk assets continue to perform strongly, despite rapid global spread of the Omicron variant

U.S. economics summary

- Real GDP grew at a 4.9% rate year-over-year in the third quarter (+2.3% quarterly annualized rate). A slowdown in consumer spending contributed to a lower pace of growth. This was due to a combination of factors, including new COVID-19 restrictions, a delay in the reopening of businesses, and general fear of virus spread which has led to less spending on services. As GDP growth is stated in *inflation-adjusted* terms, higher inflation has also contributed to slower economic growth.
- U.S. core CPI, which excludes food and energy prices, increased 5.5% year-over-year in December. Headline inflation, which includes all goods, reached 7.0%. Large price increases have occurred across many goods and services, though approximately half of the rise in inflation continues to be driven by energy prices and automobiles.
- The U.S. unemployment fell further, from 4.8% to 3.9% during Q4. The labor force participation rate has improved, though very gradually, rising from 61.6% to 61.9%.
- After months of political brinksmanship, it appears the Build Back Better plan has stalled, as Senator Joe Manchin had communicated a hard “No” on his support for the Build Back Better bill. Democrats continue to seek a solution to the disparate needs and spending interests of their party.
- U.S. home prices increased +19.1% over the past year ending October. However, price growth may be cooling off, as the inventory of homes has expanded materially and mortgage interest rates have begun to rise.
- Consumer sentiment was mixed during the quarter. Depressed survey levels suggest we are no longer in the euphoric spending environment of mid to late 2021.

	Most Recent	12 Months Prior
Real GDP (YoY)	4.9% 9/30/21	(2.9%) 9/30/20
Inflation (CPI YoY, Core)	5.5% 12/31/21	1.6% 12/31/20
Expected Inflation (5yr-5yr forward)	2.3% 12/31/21	2.0% 12/31/20
Fed Funds Target Range	0% – 0.25% 12/31/21	0% – 0.25% 12/31/20
10-Year Rate	1.51% 12/31/21	0.91% 12/31/20
U-3 Unemployment	3.9% 12/31/21	6.7% 12/31/20
U-6 Unemployment	7.3% 12/31/21	11.7% 12/31/20

International economics summary

— COVID-19 variant B.1.1.529 (Omicron) was discovered in Botswana on November 11th and has since spread exponentially around the globe, replacing the delta variant as the dominant global strain. Based on available studies and data, the Omicron variant is much more infectious than prior variants, but its symptoms are less severe. Many countries have taken a cautious approach and have reinstated social distancing controls.

— Several countries including China and New Zealand have implemented zero-COVID approaches with the goal of completely eradicating the virus within their borders. These policies may present upside risks for inflation looking ahead, as they are likely to result in more uncertainty and therefore potentially sustain or even worsen current supply chain problems.

— Prices paid by global producers of

goods and services have surged over the last year. Chinese producer price growth (+10.3% in December) hit its highest level in 26 years, and German producer prices (+19.2% in November) grew very quickly as supply chain disruptions squeezed prices for timber and raw metal materials.

— Eurozone GDP grew +3.7% year-over-year in Q3, lagging U.S. growth over the same period (+4.9%). Economic growth was more robust in Italy (+3.8%) and a bit weaker in Germany (+2.5%).

— China’s real estate crisis seems to be spreading. In early December, Evergrande, one of the largest property developers in China, defaulted on its debt. An increasing number of Chinese property developers have been strained. Given that real estate development makes up nearly one third of China’s economy, a crisis in this sector could have serious ramifications.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	4.9% 9/30/21	7.0% 12/31/21	3.9% 12/31/21
Eurozone	3.9% 9/30/21	5.0% 12/31/21	7.2% 11/30/21
Japan	1.2% 9/30/21	0.8% 12/31/21	2.7% 11/30/21
BRICS Nations	5.2% 9/30/21	3.3% 12/31/21	5.4% 6/30/21
Brazil	4.0% 9/30/21	10.1% 12/31/21	12.1% 10/31/21
Russia	4.3% 9/30/21	8.4% 12/31/21	4.3% 11/30/21
India	8.4% 9/30/21	5.6% 12/31/21	7.9% 12/31/21
China	4.0% 12/31/21	1.5% 12/31/21	5.1% 12/31/21

NOTE: India lacks reliable government unemployment data. Unemployment rate shown above is estimated from the Centre for Monitoring Indian Economy. The Chinese unemployment rate represents the monthly surveyed urban unemployment rate in China.

Equity environment

- Equity markets delivered strong returns in Q4, up 6.7% and ending the year up 18.5% (MSCI ACWI). U.S. equities delivered 11.0% during the quarter, while international equities delivered 2.7% and emerging market equities saw a slight loss of -1.3%, on an unhedged currency basis.
- Size and Value factor performance was negative once again during Q4. Large capitalization stocks significantly outperformed small capitalization stocks (Russell 1000 +9.8%, Russell 2000 +2.1%) and Growth exceeded Value (Russell 1000 Growth +11.6%, Russell 1000 Value +7.8%). This theme held for full-year 2021.
- Extremely fast spread of the Omicron variant worldwide does not seem to have had an outsized impact on the markets. While this new wave has in fact led to shutdowns in certain countries,

much of the world has remained open, perhaps in acknowledgment that the health effects of Omicron are milder in nature.

- Labor costs and labor supply issues are front-of-mind in corporate boardrooms, and 60% of S&P 500 companies have reported negative impacts to Q4 earnings during quarterly calls so far, as reported by FactSet.
- Weakness in Chinese equities (MSCI China -6.1%) continued to drive the broader underperformance of emerging market equities. Chinese policymakers have signaled a shift in focus from containing excessive leverage in the property sector to promoting growth and stability ahead of next year’s parliamentary meeting. Still, the risk of further crackdowns on targeted sectors of the economy remains in place.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
U.S. Large Cap (S&P 500)	11.0%		28.7%	
U.S. Small Cap (Russell 2000)	2.1%		14.8%	
U.S. Equity (Russell 3000)	9.3%		25.7%	
U.S. Large Value (Russell 1000 Value)	7.8%		25.2%	
US Large Growth (Russell 1000 Growth)	11.6%		27.6%	
Global Equity (MSCI ACWI)	6.7%	7.1%	18.5%	20.9%
International Large (MSCI EAFE)	2.7%	4.2%	11.3%	19.4%
Eurozone (Euro Stoxx 50)	4.4%	6.9%	14.6%	24.4%
U.K. (FTSE 100)	5.2%	5.1%	17.3%	18.9%
Japan (NIKKEI 225)	(5.3%)	(2.0%)	(4.7%)	6.7%
Emerging Markets (MSCI Emerging Markets)	(1.3%)	(1.3%)	(2.5%)	(1.3%)

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 12/31/21

Domestic equity

U.S. equities were a top performer in Q4, delivering 11.0% (S&P 500). The S&P 500 Index achieved all-time closing highs on 70 days over the course of the year, which was nearly a record number in and of itself. Performance across sectors was broadly positive during Q4, though those with a greater “value” bias lagged the index (ex: Financials, Energy, Industrials). Per FactSet, the bottom-up price target for the S&P 500 Index by 2022 year-end is around 5300, which implies a price return of roughly 11% for the year.

While supply chain disruptions remain a key concern for chief financial officers in the United States and around the globe, the number one headwind for earnings in Q4 shifted to labor costs and shortages, based on earnings calls transcribed by FactSet. Workers have been quitting their jobs in great numbers

for a wide variety of reasons, pushing many employers to raise wages in order to retain employees, which could erode margins. Of companies that had reported Q4 earnings, 60% reported that rising labor costs had negatively impacted earnings. On a more optimistic note, those companies reported aggregate year-over-year earnings growth of around 28%, suggesting somewhat defensible margins and modest pricing power. Of companies mentioning labor issues, 85% discussed increasing prices or improving price realization on their earnings calls.

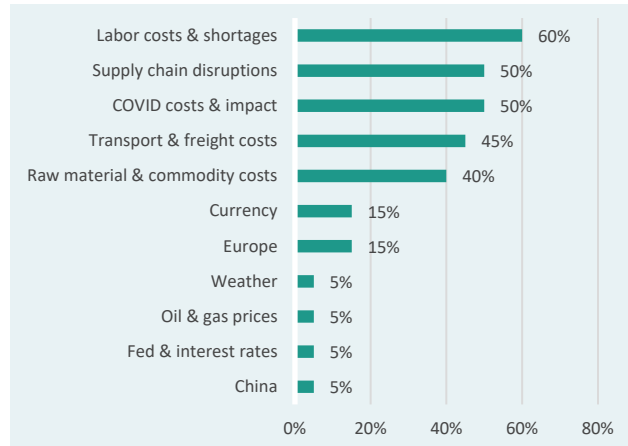
Net profit margins have fallen a percentage point from the record level of 13% achieved in Q2 2021, but remain historically high. If earnings growth in Q4 2021 meets expectations (21.4%), it will mark the fourth consecutive quarter of 20% YoY earnings growth.

S&P 500 INDEX



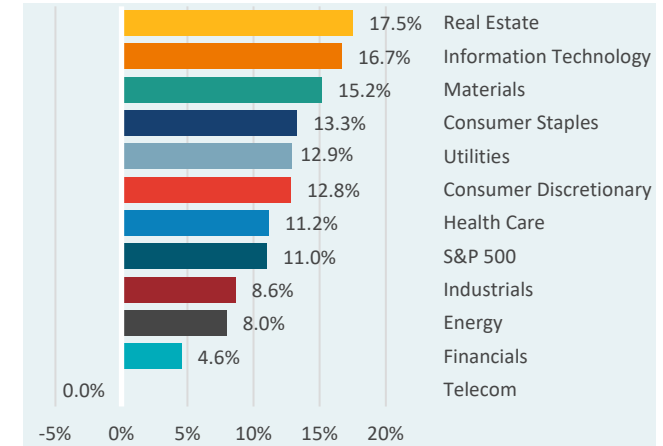
Source: Standard & Poor's, as of 12/31/21

S&P 500 COS. CITING NEGATIVE IMPACT – 4Q21



Source: FactSet, as of 1/13/22

Q4 SECTOR PERFORMANCE



Source: Standard & Poor's, as of 12/31/21

Domestic equity size & style

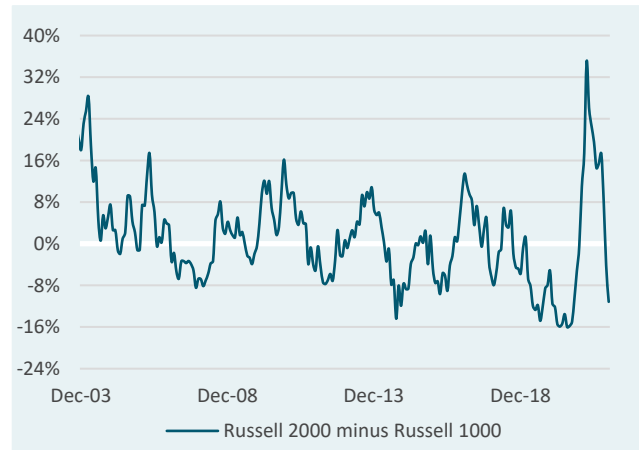
Size and Value factor performance was negative once again during Q4. Large capitalization stocks significantly outperformed small capitalization stocks (Russell 1000 +9.8%, Russell 2000 +2.1%) and Growth exceeded Value (Russell 1000 Growth +11.6%, Russell 1000 Value +7.8%). This theme held for full-year 2021.

Within MSCI's suite of long-only factor indices, Quality (+11.0%) was the top performer in Q4 which generally implies investor appetite for more defensive positioning. The strong performance of the Quality factor was skewed by Nvidia (+42.0%), Apple (+25.7%) and Microsoft (+19.5%).

Towards the end of the year, investor expectations for tighter Fed policy and interest rate hikes increased markedly. If the market is in fact undergoing a transition to tighter monetary conditions, this could have a notable impact on Value and Growth stock performance. The general cheapness of certain Value stocks and richness of certain Growth stocks may accentuate a value rotation, if and when this occurs. As always, we like to keep in mind that factor performance tends to be noisy and difficult to predict, which suggests that style investing should in most cases involve a longer-term focus.

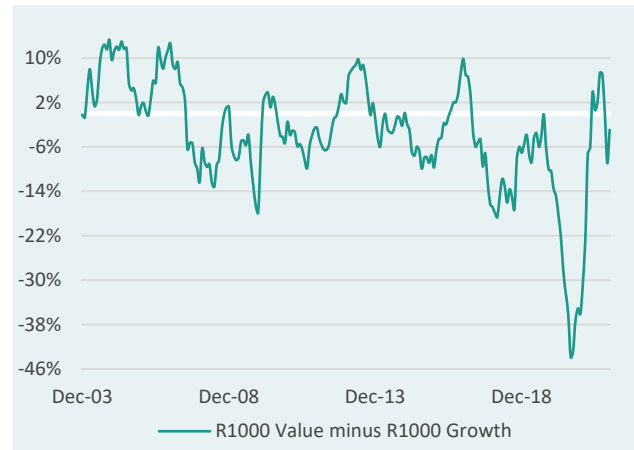
Size and Value underperformed during Q4 2021

SMALL CAP VS LARGE CAP (YOY)



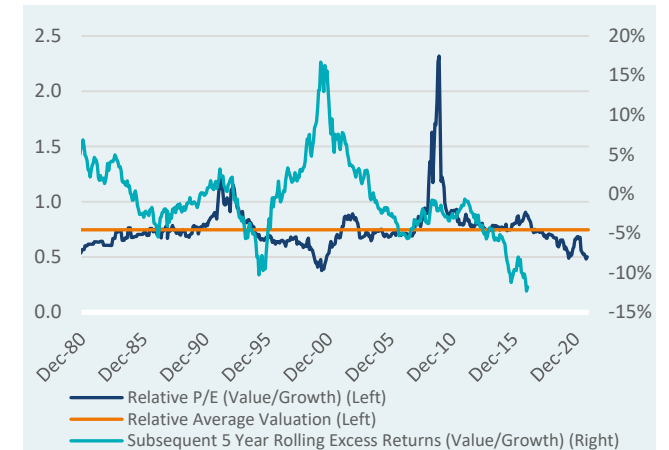
Source: FTSE, as of 12/31/21

VALUE VS GROWTH (YOY)



Source: FTSE, as of 12/31/21

VALUE VS. GROWTH RELATIVE VALUATIONS



Source: Standard & Poor's, as of 12/31/21

International developed equity

International developed equities delivered 2.7% during the quarter. U.S. equities were the top performer (S&P 500 +11.0%) while emerging market equities saw a slight loss (MSCI Emerging Markets -1.3%), on an unhedged currency basis. Currency movement during the quarter resulted in a loss of -1.5% (MSCI EAFE) relative to those investors with a currency hedging program.

Japanese equities (MSCI Japan -4.0%) underperformed most developed markets, reversing strong third quarter returns, though this was mostly caused by currency market movement (Yen -3.1%). The yen fell to its weakest level relative to the dollar since early 2017 in the fourth quarter as

the Bank of Japan's dovish policy increasingly diverged from peers, many of which have signaled the beginning of a normalization process from pandemic stimulus. Rising interest rate differentials, as well as speculation that the new strain of COVID-19 might not be as disruptive as had been feared, has likely contributed to investor flows out of yen positions.

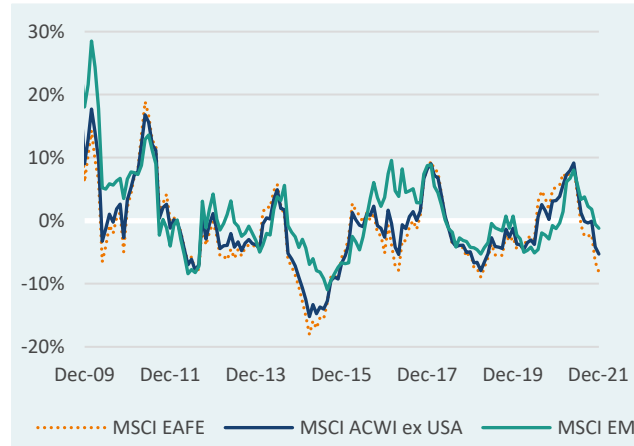
Swiss equities (MSCI Switzerland +12.8%) were the top performer in developed European markets, and unhedged U.S. investors benefitted from a 2.1% appreciation in the Swiss Franc relative to the U.S. dollar.

EFFECT OF CURRENCY (1-YEAR ROLLING)



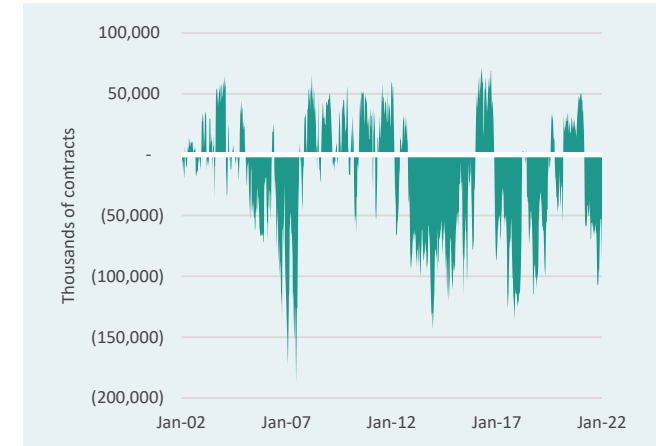
Source: MSCI, as of 12/31/21

INTERNATIONAL DEVELOPED EQUITIES



Source: MSCI, as of 12/31/21

YEN NET FUTURES POSITIONING



Source: CFTC, non-commercial positioning, as of 1/11/22

Emerging market equity

Emerging market equities saw a mild loss (MSCI EM -1.5%) on an unhedged currency basis, underperforming global markets again in the fourth quarter. Latin American and Asian emerging markets performed generally on par during the quarter (MSCI EM Latin America -2.7%, MSCI EM Asia -1.0%).

Weakness in Chinese equities (MSCI China -6.1%) continues to drive broader emerging market underperformance, as China delivered -21.7% return in 2021, while the broader complex was down -2.5% (MSCI China, MSCI Emerging Markets).

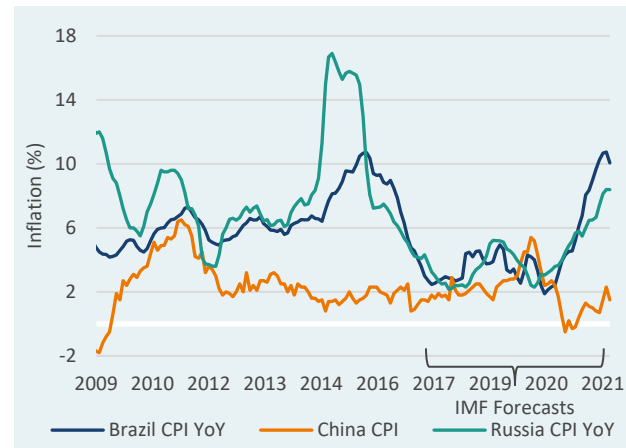
Inflation in Brazil has reached 10.7%, while Russia saw an 8.4% rise in prices and China sits near the longer-term average at 1.5%. Emerging market central banks have continued to raise interest rates. Brazil hiked their rate during the quarter from 6.25% to 9.25% in order to fight rising prices, while Russia hiked its rate from 6.75% to 8.50%. It is worth noting that many of these central banks have very recently implemented a domestic interest rate tightening cycle in order to battle price fluctuations and/or unwanted domestic currency movements. In other words, many emerging central banks deal with these types of issues more often than developed central bankers.

EMERGING MARKET EQUITY



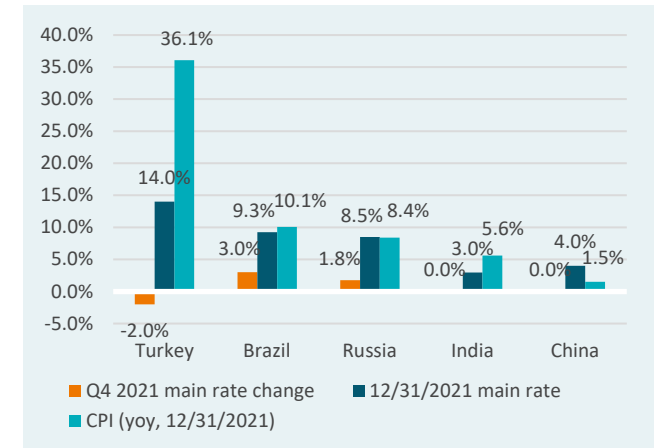
Source: MSCI, as of 12/31/21

INFLATION (YOY)



Source: Bloomberg, as of 12/31/21 or most recent data

CENTRAL BANK RATE CHANGES AND INFLATION



Source: Bloomberg, various, as of 12/31/21

Fixed income environment

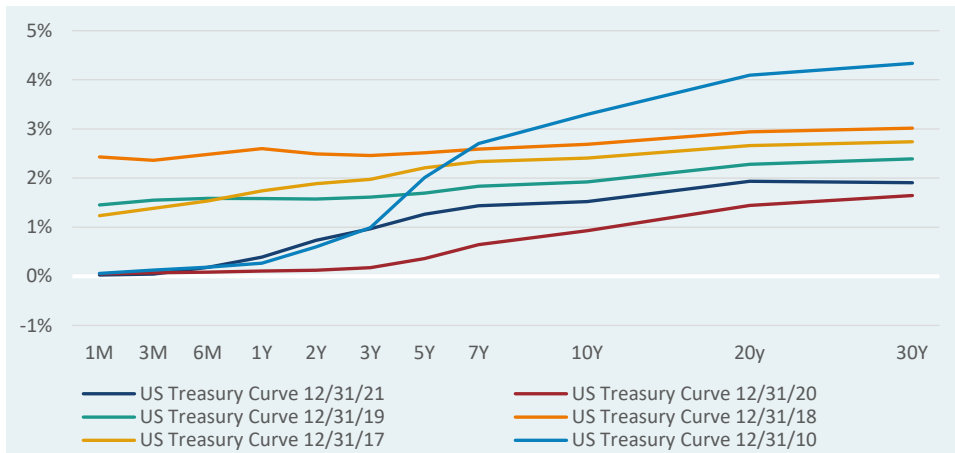
- The 10-year U.S. Treasury yield was relatively rangebound during the quarter, remaining at a yield of 1.5%. Thus far, U.S. interest rates have not noticeably reacted to an inflation rate of 7.0%. Market pricing seems to indicate that investors generally expect inflation to be transitory—perhaps falling towards normal levels by the end of this year.
- One of the largest stories over the quarter was the Fed’s pivot on inflation, the retirement of the word “transitory” to describe inflation, and a more aggressive policy path expected by investors. The conversation around the balance sheet shifted from concluding the taper in June to concluding in March, and perhaps selling assets as soon as June. The conversation around interest rates shifted from potentially hiking around June to the market fully pricing in a hike by March and maybe two by May. The Fed is now clearly more concerned with inflation relative to unemployment.
- Although credit spreads are tight, bond defaults have dropped to incredibly low levels. The one-year high-yield bond default rate reached 0.4% in December, one of the lowest rates on record.
- New issue activity across credit markets has been historically high. In the fourth quarter, \$285 billion of investment grade credit was issued. Over the full year, gross issuance totaled \$1.4 trillion, which was second only to the \$1.8 trillion issued in 2020.
- In early December, Evergrande, one of the largest property developers in China, defaulted on its debt. At the start of 2022, property developer Shimao also defaulted on its debt. These bonds had been classified as investment grade until recently. Credit spreads of Chinese debt have expanding enormously, from near 750 bps in June to 2,175 bps in November.

	QTD Total Return	1 Year Total Return
Core Fixed Income (Bloomberg U.S. Aggregate)	0.0%	(1.5%)
Core Plus Fixed Income (Bloomberg U.S. Universal)	0.0%	(1.1%)
U.S. Treasuries (Bloomberg U.S. Treasury)	0.2%	(2.3%)
U.S. High Yield (Bloomberg U.S. Corporate HY)	0.7%	5.3%
Bank Loans (S&P/LSTA Leveraged Loan)	0.7%	5.2%
Emerging Market Debt Local (JPM GBI-EM Global Diversified)	(2.5%)	(8.7%)
Emerging Market Debt Hard (JPM EMBI Global Diversified)	(0.4%)	(1.8%)
Mortgage-Backed Securities (Bloomberg MBS)	(0.4%)	(1.0%)

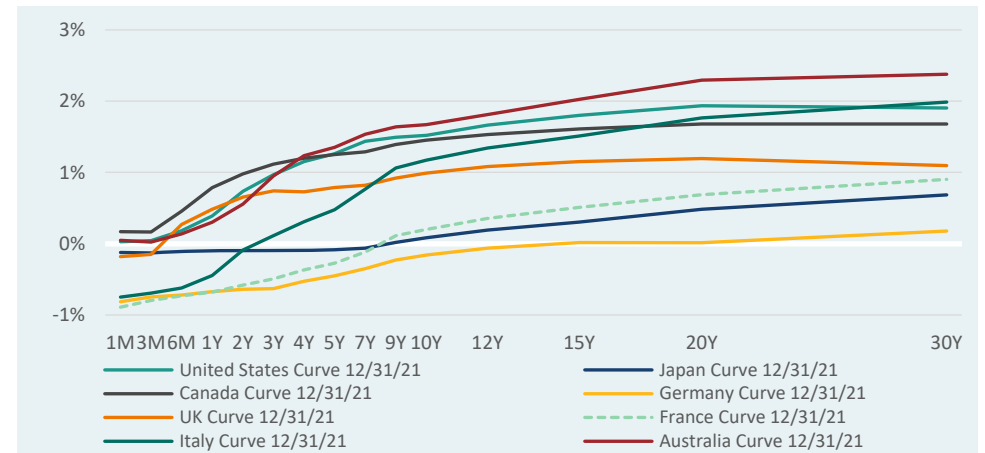
Source: Bloomberg, as of 12/31/21

Yield environment

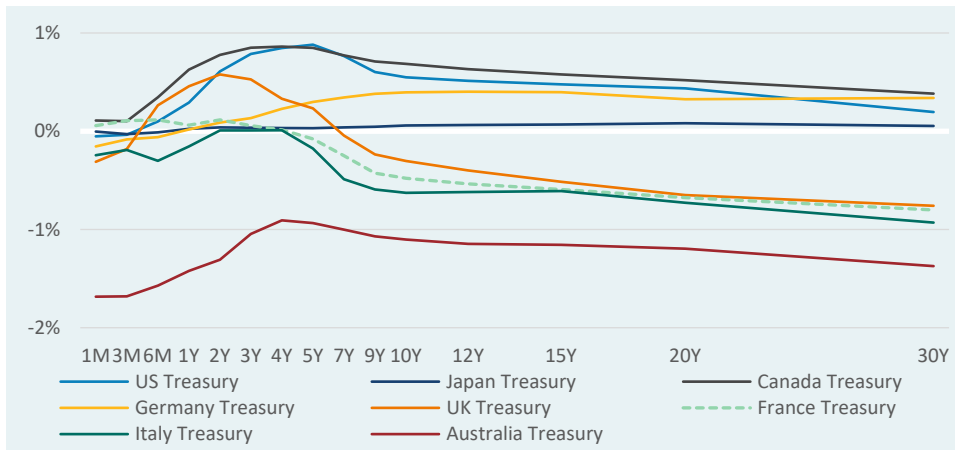
U.S. YIELD CURVE



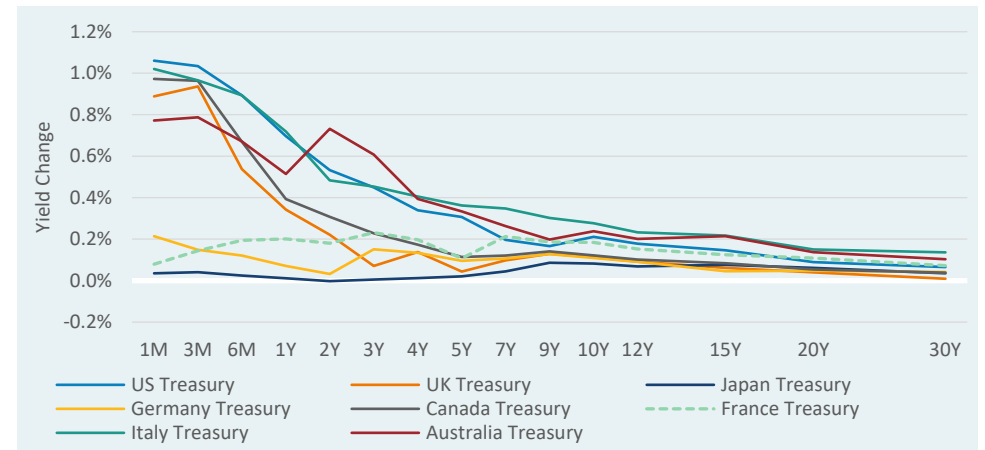
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 12/31/21

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	4.5	11.0	28.7	28.7	26.1	18.5	16.6
S&P 500 Equal Weighted	6.2	9.0	29.6	29.6	23.6	15.7	15.6
DJ Industrial Average	5.5	7.9	20.9	20.9	18.5	15.5	14.2
Russell Top 200	4.0	11.0	27.9	27.9	27.3	19.7	17.2
Russell 1000	4.1	9.8	26.5	26.5	26.2	18.4	16.5
Russell 2000	2.2	2.1	14.8	14.8	20.0	12.0	13.2
Russell 3000	3.9	9.3	25.7	25.7	25.8	18.0	16.3
Russell Mid Cap	4.1	6.4	22.6	22.6	23.3	15.1	14.9
Style Index							
Russell 1000 Growth	2.1	11.6	27.6	27.6	34.1	25.3	19.8
Russell 1000 Value	6.3	7.8	25.2	25.2	17.6	11.2	13.0
Russell 2000 Growth	0.4	0.0	2.8	2.8	21.2	14.5	14.1
Russell 2000 Value	4.1	4.4	28.3	28.3	18.0	9.1	12.0

INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
MSCI ACWI	4.0	6.7	18.5	18.5	20.4	14.4	11.9
MSCI ACWI ex US	4.1	1.8	7.8	7.8	13.2	9.6	7.3
MSCI EAFE	5.1	2.7	11.3	11.3	13.5	9.5	8.0
MSCI EM	1.9	(1.3)	(2.5)	(2.5)	10.9	9.9	5.5
MSCI EAFE Small Cap	4.4	0.1	10.1	10.1	15.6	11.0	10.8
Style Index							
MSCI EAFE Growth	4.3	4.1	11.3	11.3	19.0	13.6	10.1
MSCI EAFE Value	6.0	1.2	10.9	10.9	7.8	5.3	5.8
Regional Index							
MSCI UK	7.3	5.6	18.5	18.5	8.7	6.2	5.1
MSCI Japan	1.9	(4.0)	1.7	1.7	11.7	8.5	8.3
MSCI Euro	6.3	3.9	14.9	14.9	14.6	9.7	8.4
MSCI EM Asia	1.5	(1.0)	(5.1)	(5.1)	13.3	11.9	8.1
MSCI EM Latin American	5.9	(2.7)	(8.1)	(8.1)	(2.4)	1.5	(2.2)

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
Bloomberg US TIPS	0.3	2.4	6.0	6.0	8.4	5.3	3.1
Bloomberg US Treasury Bills	0.0	0.0	0.0	0.0	1.0	1.2	0.7
Bloomberg US Agg Bond	(0.3)	0.0	(1.5)	(1.5)	4.8	3.6	2.9
Bloomberg US Universal	(0.1)	(0.0)	(1.1)	(1.1)	5.2	3.8	3.3
Duration							
Bloomberg US Treasury 1-3 Yr	(0.2)	(0.6)	(0.6)	(0.6)	2.0	1.6	1.1
Bloomberg US Treasury Long	(1.4)	3.1	(4.6)	(4.6)	8.8	6.5	4.5
Bloomberg US Treasury	(0.5)	0.2	(2.3)	(2.3)	4.1	3.1	2.1
Issuer							
Bloomberg US MBS	(0.1)	(0.4)	(1.0)	(1.0)	3.0	2.5	2.3
Bloomberg US Corp. High Yield	1.9	0.7	5.3	5.3	8.8	6.3	6.8
Bloomberg US Agency Interm	(0.2)	(0.7)	(1.2)	(1.2)	2.4	2.0	1.6
Bloomberg US Credit	(0.1)	0.2	(1.1)	(1.1)	7.2	5.1	4.4
OTHER							
Index							
Bloomberg Commodity	3.5	(1.6)	27.1	27.1	9.9	3.7	(2.9)
Wilshire US REIT	8.8	17.1	46.2	46.2	19.2	10.9	11.5
CS Leveraged Loans	0.6	0.7	5.4	5.4	5.4	4.3	4.8
S&P Global Infrastructure	6.6	4.6	11.9	11.9	10.2	7.8	7.7
Alerian MLP	3.7	0.9	40.9	40.9	1.0	(3.7)	(0.3)
Regional Index							
JPM EMBI Global Div	1.4	(0.4)	(1.8)	(1.8)	5.9	4.7	5.3
JPM GBI-EM Global Div	1.6	(2.5)	(8.7)	(8.7)	2.1	2.8	0.7
Hedge Funds							
HFRI Composite	1.3	0.6	10.3	10.3	10.9	7.1	5.8
HFRI FOF Composite	0.8	0.7	6.5	6.5	8.6	5.8	4.6
Currency (Spot)							
Euro	1.0	(1.9)	(7.1)	(7.1)	(0.2)	1.5	(1.3)
Pound Sterling	2.4	0.5	(0.9)	(0.9)	2.1	1.9	(1.4)
Yen	(1.4)	(3.1)	(10.3)	(10.3)	(1.6)	0.3	(4.0)

Source: Morningstar, HFRI, as of 12/31/21

- The Total Fund, net of manager fees, returned 2.9% in the fourth quarter of 2021 and ranked in the 88th percentile among other public plans greater than \$1 billion (median of 4.0%). It lagged the policy index return of 3.6%. The Total Fund ex Overlay returned 2.9% for the quarter. The Total Fund one-year return of 12.1% lagged the policy index return of 13.9% and ranked in the 84th percentile of its peer universe. The three-year return of 12.5% (89th percentile) lagged the median large public plan (14.6%) and the policy index (13.3%).

- Fourth quarter results were enhanced by the following factors:
 1. Acadian outperformed the Russell 1000 gaining 11.8% versus 9.8% for the index. The value factor continued to provide positive returns in Q4, as did certain factors within quality (such as the cash strength factor.)
 2. QMA beat the Russell 2000 (4.9% vs. 2.1%,) bringing the 1-year outperformance to 12%. Despite small cap underperforming large cap, QMA's value factor contributed to relative returns for the quarter.

- Fourth quarter results were hindered by the following factors:
 1. Mondrian gained 0.1% trailing the MSCI ACWI ex US Value (1.3%). An overweight to Japan was the top detractor for performance as Japan trailed most countries with a -6.2% return in the fourth quarter. Stock selection in Brazil and Spain also hurt relative performance.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2021

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank*	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Total Fund**	2.9	88	4.0	61	12.1	84	10.7	91	12.5	89	9.3	90	9.1	62
<i>Policy Index¹</i>	3.6	74	4.8	41	13.9	58	11.5	86	13.3	83	10.2	68	9.6	48
<i>InvMetrics Public DB > \$1B Net Median</i>	4.0		4.4		14.2		13.4		14.6		10.7		9.4	
Total Fund ex Overlay	2.9	88	4.1	61	12.2	84	10.7	91	12.4	90	9.3	91	9.1	65
<i>Policy Index¹</i>	3.6	74	4.8	41	13.9	58	11.5	86	13.3	83	10.2	68	9.6	48
<i>InvMetrics Public DB > \$1B Net Median</i>	4.0		4.4		14.2		13.4		14.6		10.7		9.4	
Public Equity	5.8	71	4.2	77	16.7	81	15.2	95	18.8	94	13.4	87	12.1	70
<i>Blended Public Equity Index¹</i>	5.9	69	5.1	63	18.8	63	17.2	63	20.3	63	14.4	58	12.7	52
<i>InvMetrics All DB Total Eq Net Median</i>	6.6		5.6		19.8		17.8		20.7		14.7		12.8	
US Equity	9.6	25	9.2	35	23.9	80	19.0	92	22.2	90	15.8	77	14.9	69
<i>Blended US Equity Index¹</i>	9.3	38	9.2	40	25.7	54	23.3	21	25.8	14	18.0	16	16.2	10
<i>Russell 3000</i>	9.3	38	9.2	40	25.7	54	23.3	21	25.8	14	18.0	16	16.3	8
<i>InvMetrics All DB US Eq Net Median</i>	9.1		9.0		25.7		21.8		24.6		16.9		15.4	
Large Cap Equity	10.2	31	9.8	37	23.9	65	19.3	57	22.6	55	17.0	45	15.7	40
<i>Russell 1000</i>	9.8	36	10.0	35	26.5	49	23.7	34	26.2	35	18.4	35	16.5	28
<i>eV US Large Cap Equity Net Median</i>	8.9		8.7		26.1		20.4		23.5		16.3		14.8	
<i>Acadian US MGD V</i>	11.8	18	10.9	39	23.2	74	12.5	95	16.6	95	--	--	--	--
<i>BlackRock Russell 1000</i>	9.8	56	10.0	54	26.5	57	23.7	22	26.2	21	--	--	--	--
<i>DE Shaw</i>	10.7	37	9.3	62	21.2	88	20.7	50	23.0	61	17.2	44	16.6	11
<i>PanAgora Defuseq</i>	9.1	71	8.6	72	20.6	90	12.5	95	17.8	93	--	--	--	--
<i>Russell 1000</i>	9.8	56	10.0	54	26.5	57	23.7	22	26.2	21	18.4	20	16.5	11
<i>eV US Large Cap Core Equity Net Median</i>	10.0		10.2		26.9		20.7		23.7		16.7		15.1	

* Total Fund and asset class aggregates are ranked in InvMetrics universes. Managers are ranked in eVest (eA) manager universes.

** Includes Parametric Minneapolis manager funded in August 2013.

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2021

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Small Cap Equity	4.9	58	4.3	45	26.4	40	13.9	88	16.5	91	9.2	80	11.0	89
<i>Russell 2000</i>	2.1	79	-2.3	85	14.8	77	17.4	67	20.0	60	12.0	55	13.2	58
<i>eV US Small Cap Equity Net Median</i>	5.3		3.7		23.8		19.7		21.4		12.5		13.7	
QMA US Small Cap	4.9	69	4.3	56	26.4	40	13.9	92	16.5	92	9.2	93	--	--
<i>Russell 2000</i>	2.1	91	-2.3	95	14.8	92	17.4	73	20.0	67	12.0	66	13.2	68
<i>eV US Small Cap Core Equity Net Median</i>	6.1		4.8		24.2		20.6		21.4		13.1		14.0	
Domestic Equity Overlay	1.4	--	-1.6	--	8.9	--	--	--	--	--	--	--	--	--
International Equity	1.5	53	-1.2	55	9.1	36	11.0	39	15.0	37	10.7	36	8.0	52
<i>Blended International Equity Index¹</i>	2.1	20	0.4	20	11.2	12	10.4	49	14.0	50	10.2	46	7.9	55
<i>MSCI EAFE Gross</i>	2.7	10	2.4	6	11.8	9	10.0	56	14.1	49	10.1	49	8.5	32
<i>InvMetrics All DB ex-US Eq Net Median</i>	1.6		-1.0		8.4		10.3		14.0		10.0		8.0	
Baillie Gifford	1.1	54	-3.0	77	3.8	78	17.8	49	22.8	40	15.2	51	--	--
<i>MSCI ACWI ex US</i>	1.9	43	-1.1	69	8.3	54	9.7	94	13.7	99	10.1	99	--	--
<i>MSCI ACWI ex US Growth</i>	2.4	38	-1.3	71	5.4	75	13.6	79	18.2	78	13.4	73	--	--
<i>eV ACWI ex-US Growth Equity Net Median</i>	1.3		1.5		8.9		17.4		21.5		15.3		11.0	
Mondrian	0.1	53	-3.6	83	6.9	87	3.4	80	8.4	82	6.6	61	5.7	92
<i>MSCI ACWI ex USA Value Gross</i>	1.3	31	-0.8	35	11.1	65	5.3	70	8.9	66	6.6	60	5.9	91
<i>MSCI ACWI ex USA Gross</i>	1.9	25	-1.1	37	8.3	79	9.7	28	13.7	22	10.1	21	7.8	40
<i>eV ACWI ex-US Value Equity Net Median</i>	0.2		-1.9		12.2		7.3		10.5		7.5		7.0	
BlackRock MSCI ACWI EX-US IMI	1.7	66	-0.9	65	8.7	59	--	--	--	--	--	--	--	--
<i>MSCI ACWI ex USA IMI</i>	1.6	66	-1.0	66	8.5	63	9.8	80	13.6	78	9.8	82	7.6	81
<i>eV ACWI ex-US All Cap Core Eq Net Median</i>	3.0		1.0		10.0		13.8		16.9		12.1		9.2	
Int'l Equity Currency Overlay	2.0	--	0.0	--	3.6	--	--	--	--	--	--	--	--	--
International Equity Overlay	2.0	--	0.0	--	3.6	--	--	--	--	--	--	--	--	--

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2021

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Fixed Income	0.2	24	0.4	28	1.6	14	4.2	24	5.6	30	4.5	22	4.7	16
<i>Blended Fixed Income Index¹</i>	0.2	23	0.6	21	0.4	28	3.7	35	6.0	23	4.4	26	3.4	54
<i>InvMetrics All DB Total Fix Inc Net Median</i>	-0.1		0.1		-0.5		3.3		5.1		3.9		3.4	
Core Fixed	-0.3	--	-0.3	--	-1.2	--	3.2	--	4.8	--	3.7	--	3.6	--
<i>Bloomberg US Aggregate TR</i>	0.0	--	0.1	--	-1.5	--	2.9	--	4.8	--	3.6	--	2.9	--
DoubleLine	-0.3	48	-0.7	88	-1.0	74	--	--	--	--	--	--	--	--
<i>Bloomberg US Aggregate TR</i>	0.0	28	0.1	42	-1.5	89	2.9	25	4.8	8	3.6	36	2.9	53
<i>eV US Securitized Fixed Inc Net Median</i>	-0.3		-0.1		-0.1		1.7		3.3		3.1		3.0	
FIAM Bond	0.1	8	0.3	10	-0.8	19	4.4	6	6.1	4	4.4	4	3.8	16
NISA Core Bond	0.0	18	0.1	22	-1.5	50	--	--	--	--	--	--	--	--
<i>Bloomberg US Aggregate TR</i>	0.0	22	0.1	27	-1.5	52	2.9	74	4.8	76	3.6	73	2.9	81
<i>eV US Core Fixed Inc Net Median</i>	-0.1		-0.1		-1.5		3.3		5.2		3.8		3.2	
Western TRU	-1.1	99	-1.2	99	-1.6	58	2.2	99	4.5	89	3.8	52	--	--
<i>3-Month Libor Total Return USD</i>	0.0	17	0.1	27	0.2	4	0.4	99	1.0	99	1.4	99	0.9	99
<i>Bloomberg US Aggregate TR</i>	0.0	22	0.1	27	-1.5	52	2.9	74	4.8	76	3.6	73	2.9	81
<i>eV US Core Fixed Inc Net Median</i>	-0.1		-0.1		-1.5		3.3		5.2		3.8		3.2	
Core Fixed Income Overlay	1.4	--	3.2	--	-0.1	--	--	--	--	--	--	--	--	--
Opportunistic Credit	1.0	--	1.8	--	6.9	--	6.1	--	7.2	--	6.3	--	8.4	--
<i>Bloomberg BA Intermediate HY</i>	0.6	--	1.5	--	4.1	--	5.9	--	8.7	--	6.0	--	5.4	--
Angelo Gordon Opportunistic ⁺	17.8	--	20.9	--	32.8	--	13.5	--	13.0	--	15.5	--	--	--
Angelo Gordon Credit Solutions ⁺	2.8	1	5.6	1	22.7	1	12.7	1	--	--	--	--	--	--
<i>Bloomberg BA Intermediate HY</i>	0.6	52	1.5	41	4.1	77	5.9	44	8.7	36	6.0	35	5.4	86
<i>eV US High Yield Fixed Inc Net Median</i>	0.7		1.5		5.0		5.6		8.2		5.8		6.4	

⁺ Preliminary return as of 12/31/2021.

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2021

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Beach Point Select	4.3	1	5.7	1	15.9	1	12.8	1	12.8	1	9.5	2	--	--
<i>Bloomberg BA Intermediate HY</i>	0.6	52	1.5	41	4.1	77	5.9	44	8.7	36	6.0	35	5.4	86
<i>eV US High Yield Fixed Inc Net Median</i>	0.7		1.5		5.0		5.6		8.2		5.8		6.4	
Brigade Capital	1.5	3	3.3	2	14.2	1	8.9	5	9.0	29	6.6	18	6.5	43
<i>Bloomberg BA Intermediate HY</i>	0.6	52	1.5	41	4.1	77	5.9	44	8.7	36	6.0	35	5.4	86
<i>50% Barclays HY/ 50% Bank Loan</i>	0.7	43	1.7	24	5.3	41	5.1	65	7.1	77	5.3	75	5.8	78
<i>eV US High Yield Fixed Inc Net Median</i>	0.7		1.5		5.0		5.6		8.2		5.8		6.4	
PIMCO Diversified	0.0	95	0.2	98	0.3	99	3.4	95	6.4	87	--	--	--	--
<i>Blended PIMCO Diversified Index¹</i>	0.2	91	0.3	97	0.6	99	3.6	93	6.8	83	5.0	81	5.5	85
<i>Bloomberg BA Intermediate HY</i>	0.6	52	1.5	41	4.1	77	5.9	44	8.7	36	6.0	35	5.4	86
<i>eV US High Yield Fixed Inc Net Median</i>	0.7		1.5		5.0		5.6		8.2		5.8		6.4	
Franklin Templeton	-1.1	81	-2.8	85	-4.4	72	-5.0	99	-3.0	99	-1.0	99	2.1	79
<i>Bloomberg Multiverse TR</i>	-0.7	67	-1.6	67	-4.5	73	2.0	80	3.7	81	3.4	77	2.0	80
<i>eV All Global Fixed Inc Net Median</i>	-0.3		-0.4		-0.8		3.4		5.6		4.4		3.7	
Private Credit	0.5	--	1.9	--	6.6	--	6.7	--	7.1	--	7.1	--	--	--
<i>Cliffwater Direct Lending Index*</i>	2.7	--	5.4	--	13.2	--	9.2	--	9.2	--	8.8	--	9.7	--
Blackrock DL Feeder IX-U ⁺	1.0	12	3.7	1	7.5	9	--	--	--	--	--	--	--	--
<i>Cliffwater Direct Lending Index</i>	2.7	1	5.4	1	13.2	2	9.2	4	9.2	24	8.8	3	9.7	1
<i>eV US High Yield Fixed Inc Net Median</i>	0.7		1.5		5.0		5.6		8.2		5.8		6.4	
PIMCO Private Income ⁺	0.0	96	2.2	7	11.6	3	9.6	3	--	--	--	--	--	--
<i>Bloomberg BA Intermediate HY</i>	0.6	52	1.5	41	4.1	77	5.9	44	8.7	36	6.0	35	5.4	86
<i>Cliffwater Direct Lending Index</i>	2.7	1	5.4	1	13.2	2	9.2	4	9.2	24	8.8	3	9.7	1
<i>eV US High Yield Fixed Inc Net Median</i>	0.7		1.5		5.0		5.6		8.2		5.8		6.4	

* Preliminary return as of 12/31/2021.

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2021

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
TCP Direct Lending VIII*	2.2	1	3.6	1	7.4	11	6.8	21	6.8	83	7.0	11	--	--
White Oak Yield*	0.0	96	0.6	94	3.8	80	4.4	80	5.5	93	--	--	--	--
White Oak YSF V*	0.0	96	0.4	96	1.7	99	--	--	--	--	--	--	--	--
<i>Cliffwater Direct Lending Index</i>	2.7	1	5.4	1	13.2	2	9.2	4	9.2	24	8.8	3	9.7	1
<i>eV US High Yield Fixed Inc Net Median</i>	0.7		1.5		5.0		5.6		8.2		5.8		6.4	
Alternatives	-0.2	--	6.6	--	15.8	--	23.6	--	18.0	--	13.0	--	9.9	--
<i>Blended Alternatives Index¹</i>	1.1	--	5.3	--	17.5	--	14.6	--	11.9	--	12.0	--	10.3	--
Private Equity** **	0.1	74	13.5	35	30.2	58	48.9	3	37.3	2	28.2	3	22.1	1
<i>Blended Private Equity Index¹</i>	1.0	61	9.1	57	34.9	48	26.2	53	19.0	61	18.8	41	18.2	22
<i>InvMetrics All DB Private Eq Net Median</i>	2.4		10.2		34.0		27.2		20.8		17.3		14.9	
Hedge Fund/Absolute Return	-0.5	88	-0.3	83	2.2	88	-2.5	94	-2.6	94	-3.0	97	1.6	92
<i>Absolute Return Custom Index¹</i>	1.0	50	2.1	62	4.0	84	4.3	87	4.9	85	5.2	72	4.7	77
<i>InvMetrics All DB Hedge Funds Net Median</i>	1.0		3.4		9.6		10.4		10.0		7.0		5.9	
Aberdeen Standard GARS	1.6	40	-0.9	70	-2.6	87	2.4	76	4.6	69	2.3	81	--	--
Acadian MAAR Fund LLC	-1.1	77	0.4	58	1.7	78	--	--	--	--	--	--	--	--
CFM Systematic Global Macro	-5.7	95	-4.7	87	6.8	53	--	--	--	--	--	--	--	--
Graham Quant Macro	-2.3	86	-5.1	88	-2.4	87	--	--	--	--	--	--	--	--
PIMCO MAARS Fund LP	5.3	17	10.3	9	11.2	38	--	--	--	--	--	--	--	--
<i>Absolute Return Custom Index¹</i>	1.0	44	2.1	41	4.0	66	4.3	66	4.9	67	5.2	59	4.7	59
<i>eV Alt All Multi-Strategy Median</i>	0.7		1.1		7.5		7.5		7.8		6.5		6.0	

* Preliminary return as of 12/31/2021.

** Returns are one-quarter lag.

** Excludes EnCap Energy Capital Fund and Sheridan Production Partners.

1. See Appendix for Benchmark History.

Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2021

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Inflation Hedge	3.0	--	8.0	--	18.1	--	4.9	--	5.9	--	4.9	--	--	--
<i>Blended Inflation Hedge Index¹</i>	5.3	--	10.4	--	23.2	--	10.1	--	9.9	--	7.6	--	--	--
Real Estate	4.3	52	10.2	43	16.2	50	7.9	59	7.5	50	7.9	38	9.7	20
<i>NCREIF ODCE</i>	8.0	21	15.1	18	22.2	20	11.2	11	9.2	15	8.7	17	10.4	9
<i>InvMetrics All DB Real Estate Pub Net Median</i>	4.7	--	9.4	--	16.2	--	8.5	--	7.4	--	7.2	--	9.1	--
Harrison Street Core Property	2.5	--	5.4	--	9.8	--	--	--	--	--	--	--	--	--
Invesco	5.7	--	13.7	--	20.8	--	8.9	--	8.0	--	8.2	--	9.8	--
<i>NCREIF ODCE</i>	8.0	--	15.1	--	22.2	--	11.2	--	9.2	--	8.7	--	10.4	--
Invesco US Val IV ⁺	0.0	--	2.0	--	6.4	--	4.3	--	7.4	--	9.1	--	--	--
Invesco US Val V	4.6	--	14.1	--	30.8	--	15.1	--	--	--	--	--	--	--
<i>NCREIF ODCE</i>	8.0	--	15.1	--	22.2	--	11.2	--	9.2	--	8.7	--	10.4	--
<i>NCREIF ODCE + 2%</i>	8.5	--	16.2	--	24.6	--	13.4	--	11.4	--	10.9	--	12.6	--
PGIM RE US Debt Fund	1.1	--	2.5	--	5.4	--	4.9	--	5.3	--	--	--	--	--
Stockbridge Value IV ⁺	0.0	--	1.7	--	--	--	--	--	--	--	--	--	--	--
<i>NCREIF ODCE</i>	8.0	--	15.1	--	22.2	--	11.2	--	9.2	--	8.7	--	10.4	--
Private Real Asset⁺⁺	-2.2	--	8.5	--	28.7	--	13.1	--	4.5	--	3.0	--	--	--
<i>Blended Private Real Asset Index¹</i>	1.1	--	4.4	--	28.8	--	7.8	--	7.0	--	6.1	--	--	--
<i>Blended Secondary CA Private RA Index¹</i>	3.1	--	9.8	--	22.0	--	6.4	--	3.8	--	6.9	--	--	--
Public Real Assets	3.4	--	5.5	--	17.7	--	0.3	--	4.9	--	2.8	--	--	--
<i>Blended Public Real Asset Index¹</i>	3.5	--	5.7	--	17.8	--	6.0	--	9.2	--	5.8	--	--	--
SSgA Custom Real Asset	3.4	--	5.5	--	17.7	--	5.9	--	9.1	--	5.8	--	--	--
<i>SSgA Custom Real Asset Index¹</i>	3.5	--	5.7	--	17.8	--	6.0	--	9.2	--	5.8	--	--	--

⁺ Preliminary return as of 12/31/2021.

⁺⁺ Returns are one-quarter lag.

1. See Appendix for Benchmark History.

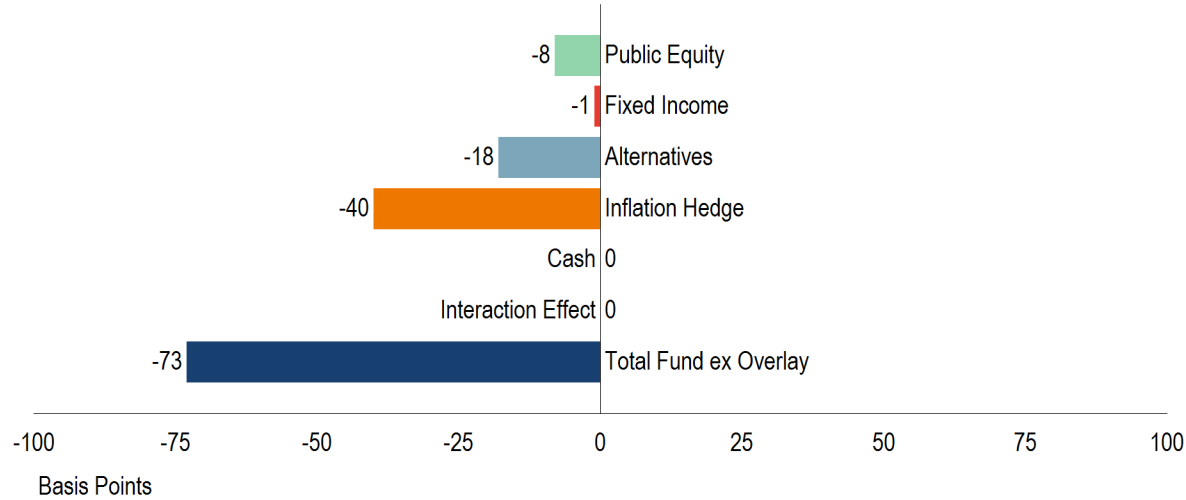
Total Fund
Performance Summary (Net of Fees)

Period Ending: December 31, 2021

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
Cash	0.0	--	0.1	--	0.3	--	0.5	--	0.7	--	0.8	--	0.8	--
91 Day T-Bills	0.0	--	0.0	--	0.0	--	0.2	--	0.8	--	1.1	--	0.6	--
General Account	0.0	--	0.2	--	0.4	--	0.7	--	1.5	--	2.2	--	1.5	--
Treasury & LAIF	0.4	--	0.6	--	1.2	--	1.3	--	1.9	--	2.3	--	1.5	--
91 Day T-Bills	0.0	--	0.0	--	0.0	--	0.2	--	0.8	--	1.1	--	0.6	--
Currency Hedge Cash Overlay	-0.1	--	-0.1	--	-0.2	--	--	--	--	--	--	--	--	--

Total Fund ex Overlay
Performance Attribution

Period Ending: December 31, 2021

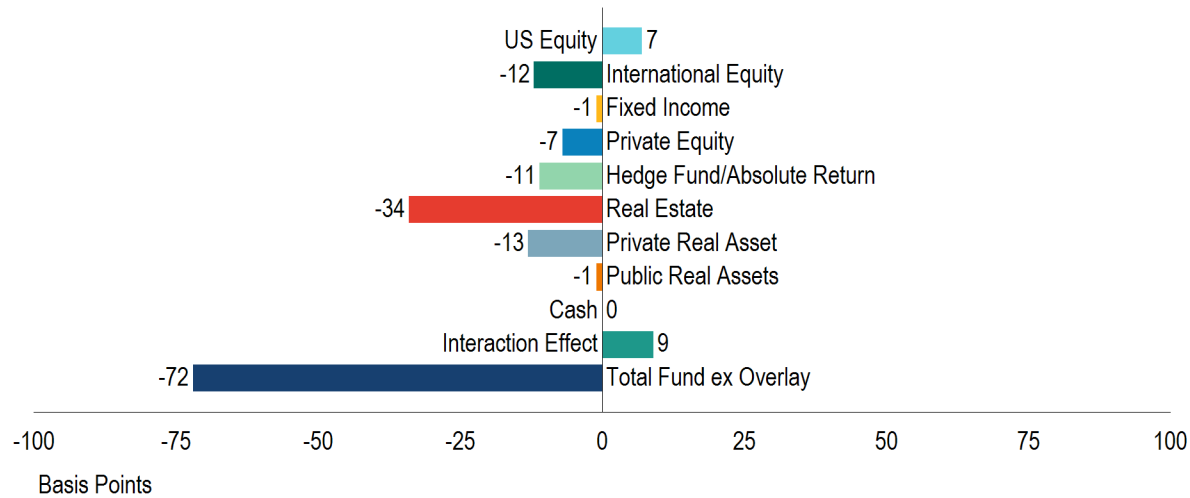


	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction*	Total Effects
Public Equity	5.75%	5.94%	-0.19%	-0.08%	-0.02%	0.00%	-0.10%
Fixed Income	0.20%	0.24%	-0.04%	-0.01%	0.07%	0.00%	0.06%
Alternatives	-0.22%	1.06%	-1.28%	-0.18%	-0.03%	-0.01%	-0.22%
Inflation Hedge	2.99%	5.34%	-2.35%	-0.40%	0.00%	0.01%	-0.39%
Cash	0.05%	0.01%	0.04%	0.00%	-0.08%	0.00%	-0.08%
Total	2.85%	3.57%	-0.73%	-0.67%	-0.06%	0.00%	-0.73%

Attribution does not include the impact of the Parametric Minneapolis strategy.
* Interaction Effects include Residual Effects.

Total Fund ex Overlay
Performance Attribution

Period Ending: December 31, 2021

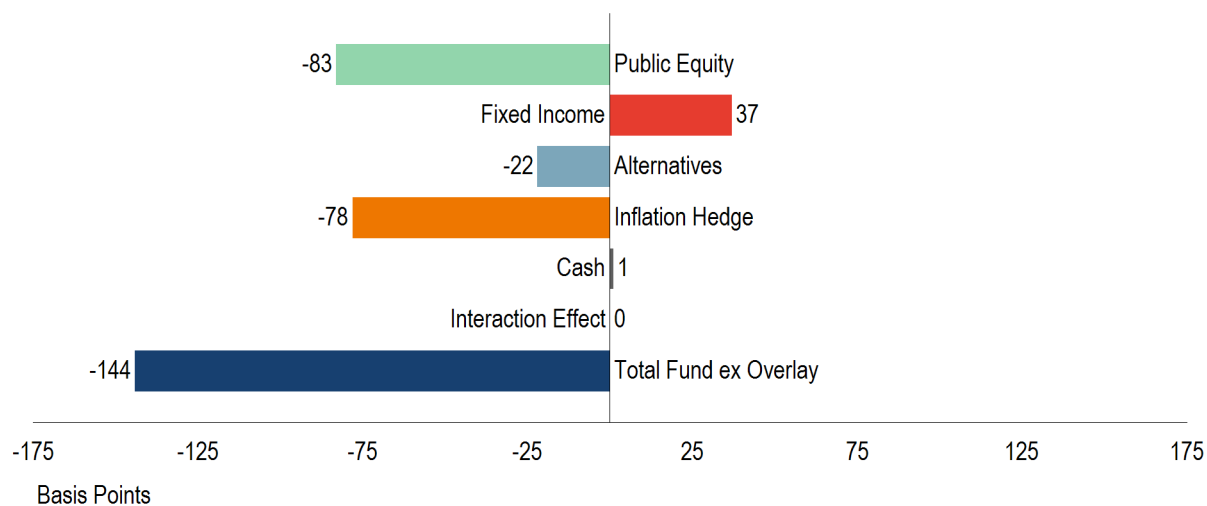


	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction* Effects	Total Effects
US Equity	9.65%	9.28%	0.37%	0.07%	-0.05%	0.00%	0.03%
International Equity	1.54%	2.14%	-0.60%	-0.12%	-0.01%	0.00%	-0.13%
Fixed Income	0.20%	0.24%	-0.04%	-0.01%	0.07%	0.00%	0.06%
Private Equity	0.09%	1.00%	-0.91%	-0.07%	-0.03%	-0.01%	-0.11%
Hedge Fund/Absolute Return	-0.54%	1.04%	-1.58%	-0.11%	0.00%	0.00%	-0.10%
Real Estate	4.30%	7.97%	-3.67%	-0.34%	-0.05%	0.04%	-0.35%
Private Real Asset	-2.17%	1.06%	-3.23%	-0.13%	0.04%	0.06%	-0.03%
Public Real Assets	3.36%	3.50%	-0.14%	-0.01%	0.01%	0.00%	0.00%
Cash	0.05%	0.01%	0.04%	0.00%	-0.08%	0.00%	-0.08%
Total	2.86%	3.57%	-0.72%	-0.71%	-0.10%	0.09%	-0.72%

Attribution does not include the impact of the Parametric Minneapolis strategy.
* Interaction Effects include Residual Effects.

Total Fund ex Overlay
Performance Attribution (1 Year)

Period Ending: December 31, 2021

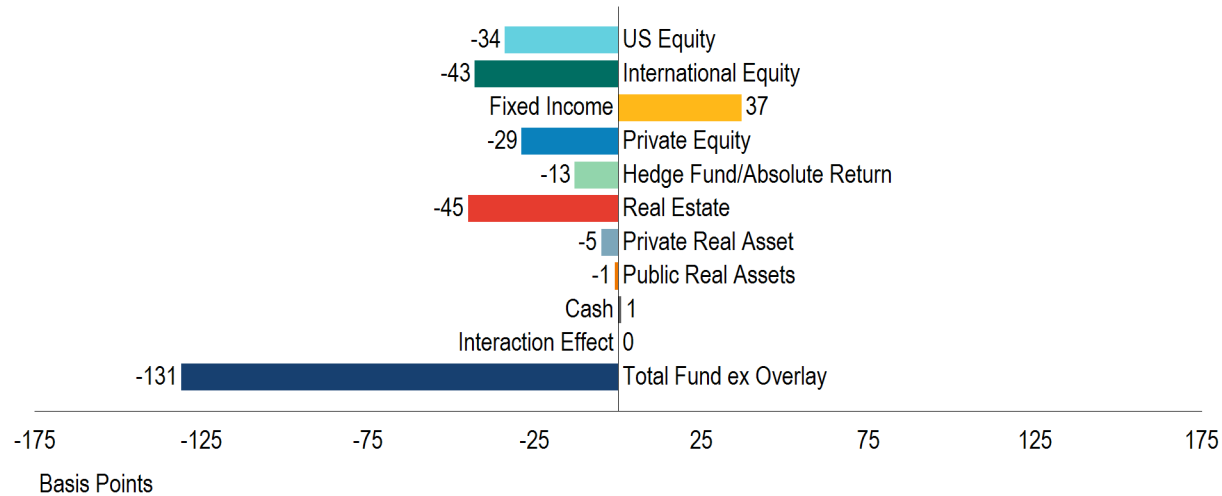


	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction*	Total Effects
Public Equity	16.73%	18.83%	-2.10%	-0.83%	0.00%	0.00%	-0.83%
Fixed Income	1.62%	0.41%	1.21%	0.37%	0.00%	0.00%	0.37%
Alternatives	15.83%	17.52%	-1.69%	-0.22%	0.00%	0.00%	-0.22%
Inflation Hedge	18.13%	23.16%	-5.03%	-0.78%	0.00%	0.00%	-0.78%
Cash	0.31%	0.03%	0.27%	0.01%	0.00%	0.00%	0.01%
Total	12.05%	13.49%	-1.44%	-1.44%	0.00%	0.00%	-1.44%

Attribution does not include the impact of the Parametric Minneapolis strategy.
* Interaction Effects include Residual Effects.

Total Fund ex Overlay
Performance Attribution (1 Year)

Period Ending: December 31, 2021



	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction*	Total Effects
US Equity	23.93%	25.66%	-1.73%	-0.34%	0.00%	0.00%	-0.34%
International Equity	9.06%	11.22%	-2.16%	-0.43%	0.00%	0.00%	-0.43%
Fixed Income	1.62%	0.41%	1.21%	0.37%	0.00%	0.00%	0.37%
Private Equity	30.24%	34.87%	-4.64%	-0.29%	0.00%	0.00%	-0.29%
Hedge Fund/Absolute Return	2.18%	4.04%	-1.86%	-0.13%	0.00%	0.00%	-0.13%
Real Estate	16.20%	22.17%	-5.97%	-0.45%	0.00%	0.00%	-0.45%
Private Real Asset	28.70%	28.79%	-0.09%	-0.05%	0.00%	0.00%	-0.05%
Public Real Assets	17.67%	17.78%	-0.11%	-0.01%	0.00%	0.00%	-0.01%
Cash	0.31%	0.03%	0.27%	0.01%	0.00%	0.00%	0.01%
Total	12.04%	13.36%	-1.31%	-1.31%	0.00%	0.00%	-1.31%

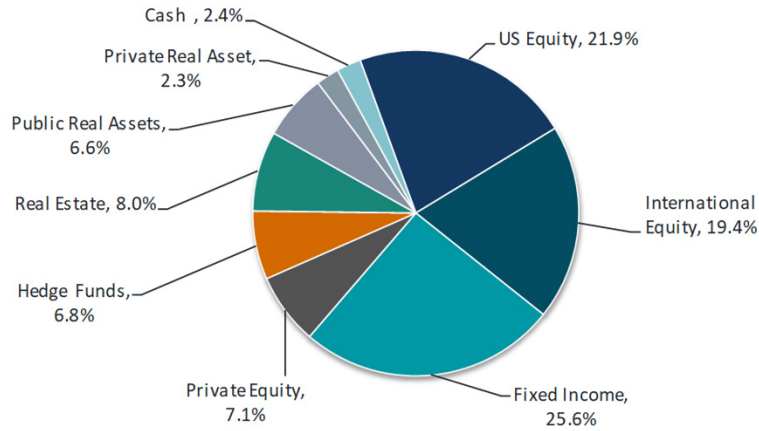
Attribution does not include the impact of the Parametric Minneapolis strategy.
* Interaction Effects include Residual Effects.

Total Fund

Asset Allocation Analysis

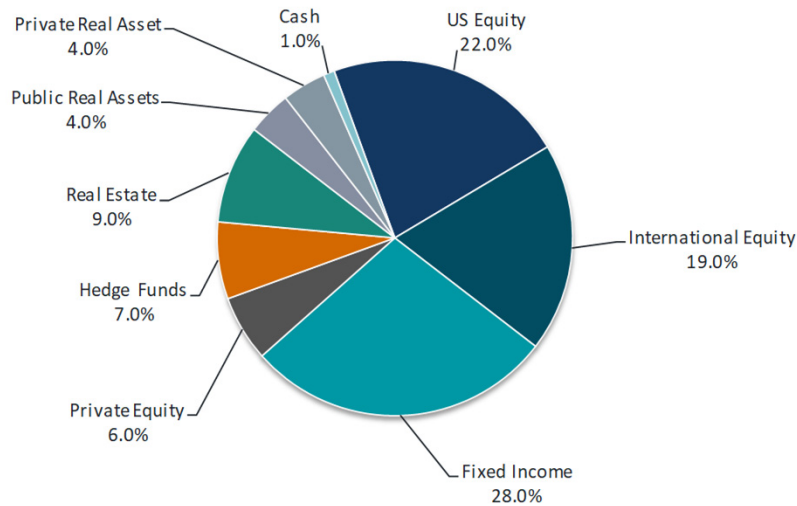
Period Ending: December 31, 2021

Current w/ Overlay



ASSET ALLOCATION	MARKET VALUE W/ OVERLAY	W/ OVERLAY	W/O OVERLAY
US Equity	1,349,427,281	21.9%	21.9%
International Equity	1,198,470,933	19.4%	18.1%
Fixed Income	1,580,776,268	25.6%	25.4%
Private Equity	438,395,279	7.1%	7.1%
Hedge Funds	420,036,191	6.8%	6.8%
Real Estate	491,327,652	8.0%	8.0%
Public Real Assets	407,143,345	6.6%	6.6%
Private Real Asset	140,830,463	2.3%	2.3%
Cash	149,025,425	2.4%	4.0%
TOTAL	6,175,432,836	100.0%	100.0%

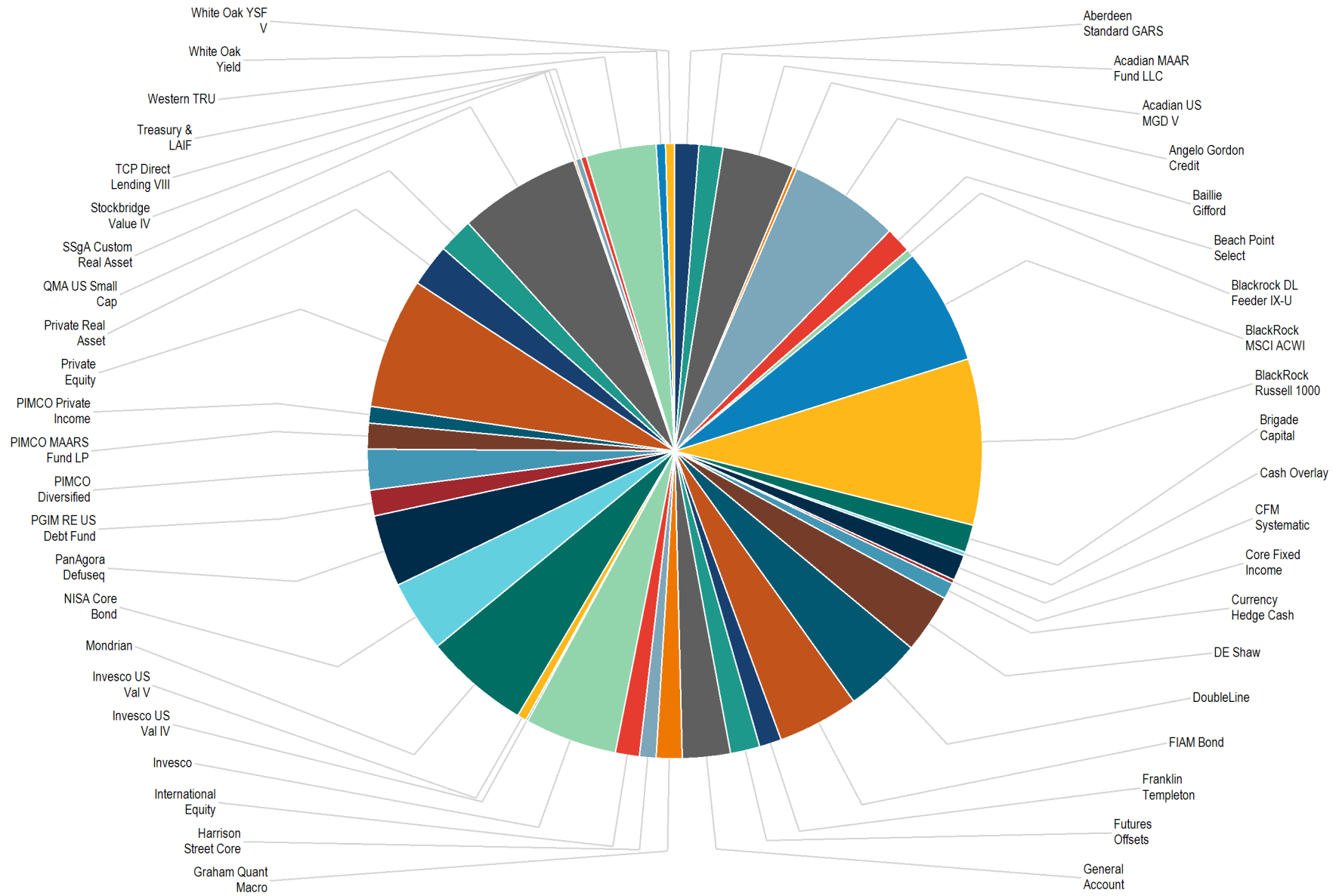
Target



ASSET ALLOCATION	W/ OVERLAY	TARGET	DIFF
US Equity	21.9%	22.0%	-0.1%
International Equity	19.4%	19.0%	0.4%
Fixed Income	25.6%	28.0%	-2.4%
Private Equity	7.1%	6.0%	1.1%
Hedge Funds	6.8%	7.0%	-0.2%
Real Estate	8.0%	9.0%	-1.0%
Public Real Assets	6.6%	4.0%	2.6%
Private Real Asset	2.3%	4.0%	-1.7%
Cash	2.4%	1.0%	1.4%
TOTAL	100.0%	100.0%	0.0%

Total Fund Manager Allocation Analysis

Period Ending: December 31, 2021



Total Fund Manager Allocation Analysis

Period Ending: December 31, 2021

Name	Market Value	% of Portfolio
Acadian US MGD V	\$237,882,827	3.9%
BlackRock Russell 1000	\$554,394,843	9.0%
DE Shaw	\$196,044,056	3.2%
PanAgora Defuseq	\$242,168,342	3.9%
QMA US Small Cap	\$119,888,912	1.9%
Domestic Equity Overlay	-\$951,700	0.0%
Baillie Gifford	\$373,402,990	6.0%
Mondrian	\$354,804,838	5.7%
BlackRock MSCI ACWI EX-US IMI	\$388,661,060	6.3%
Int'l Equity Currency Overlay	\$0	0.0%
International Equity Overlay	\$81,602,045	1.3%
DoubleLine	\$259,478,581	4.2%
FIAM Bond	\$269,979,133	4.4%
NISA Core Bond	\$238,042,598	3.9%
Western TRU	\$232,405,356	3.8%
Core Fixed Income Overlay	\$15,188,234	0.2%
AG CSF Annex Dislocation Fund	\$33,346	0.0%
Angelo Gordon Opportunistic	\$1,049,254	0.0%
Angelo Gordon Credit Solutions	\$14,542,385	0.2%
Beach Point Select	\$87,892,005	1.4%
Brigade Capital	\$90,145,163	1.5%
PIMCO Diversified	\$134,800,684	2.2%
Franklin Templeton	\$75,490,955	1.2%
Blackrock DL Feeder IX-U	\$24,908,783	0.4%
PIMCO Private Income	\$54,503,664	0.9%
TCP Direct Lending VIII	\$20,673,135	0.3%
White Oak Yield	\$32,032,776	0.5%
White Oak YSF V	\$29,610,216	0.5%
Private Equity	\$438,395,279	7.1%

Total Fund
 Manager Allocation Analysis

Period Ending: December 31, 2021

Name	Market Value	% of Portfolio
Aberdeen Standard GARS	\$79,185,575	1.3%
Acadian MAAR Fund LLC	\$82,219,197	1.3%
CFM Systematic Global Macro	\$84,156,125	1.4%
Graham Quant Macro	\$85,490,534	1.4%
PIMCO MAARS Fund LP	\$88,984,760	1.4%
Harrison Street Core Property	\$56,218,913	0.9%
Invesco	\$308,163,518	5.0%
Invesco US Val IV	\$4,434,296	0.1%
Invesco US Val V	\$28,260,966	0.5%
PGIM RE US Debt Fund	\$85,603,902	1.4%
Stockbridge Value IV	\$8,646,057	0.1%
Private Real Asset	\$140,830,463	2.3%
SSgA Custom Real Asset	\$407,143,345	6.6%
General Account	\$158,793,402	2.6%
Treasury & LAIF	\$18,883,491	0.3%
Transition Account	\$249	0.0%
Currency Hedge Cash Overlay	\$54,412,944	0.9%
Cash Overlay	\$12,773,918	0.2%
Futures Offsets (SMCE02001)	-\$95,838,579	-1.6%
Total	\$6,175,432,836	100.0%

Statistics Summary

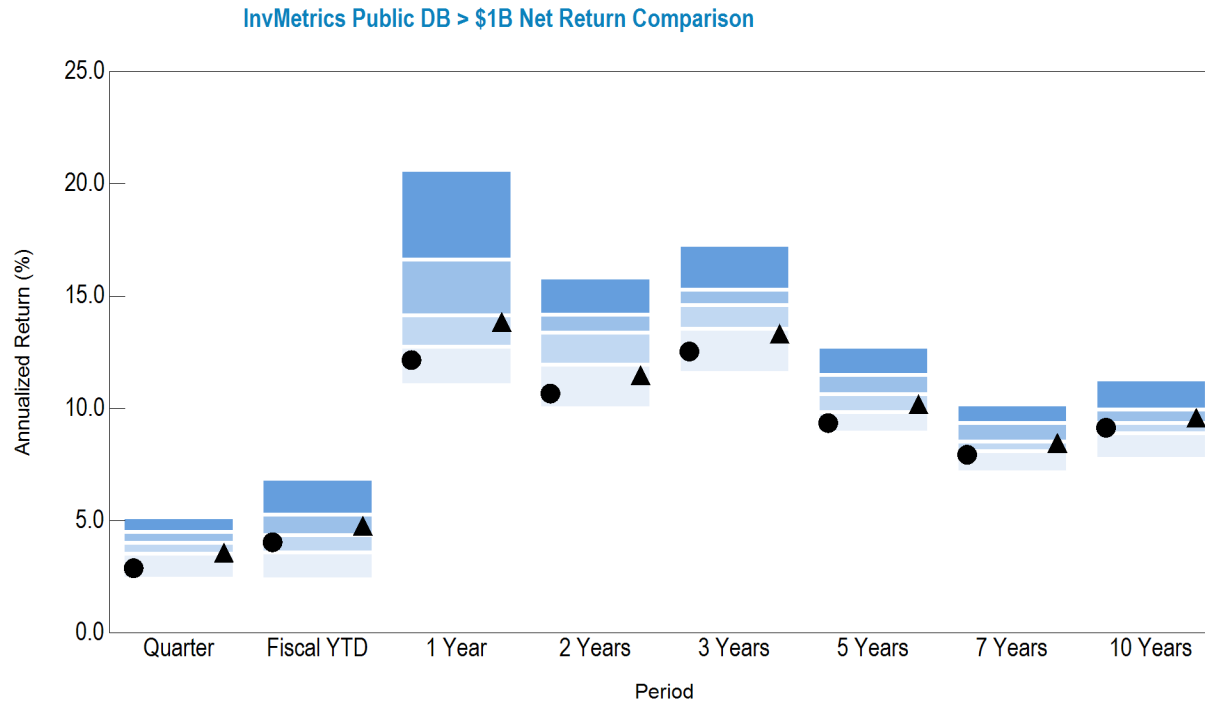
3 Years

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	12.5%	89	9.0%	29	1.3	62	-0.3	83	2.3%	71
Policy Index	13.3%	83	8.7%	25	1.4	38	--	--	0.0%	1
InvMetrics Public DB > \$1B Net Median	14.6%	--	10.2%	--	1.3	--	0.1	--	1.5%	--

Statistics Summary

5 Years

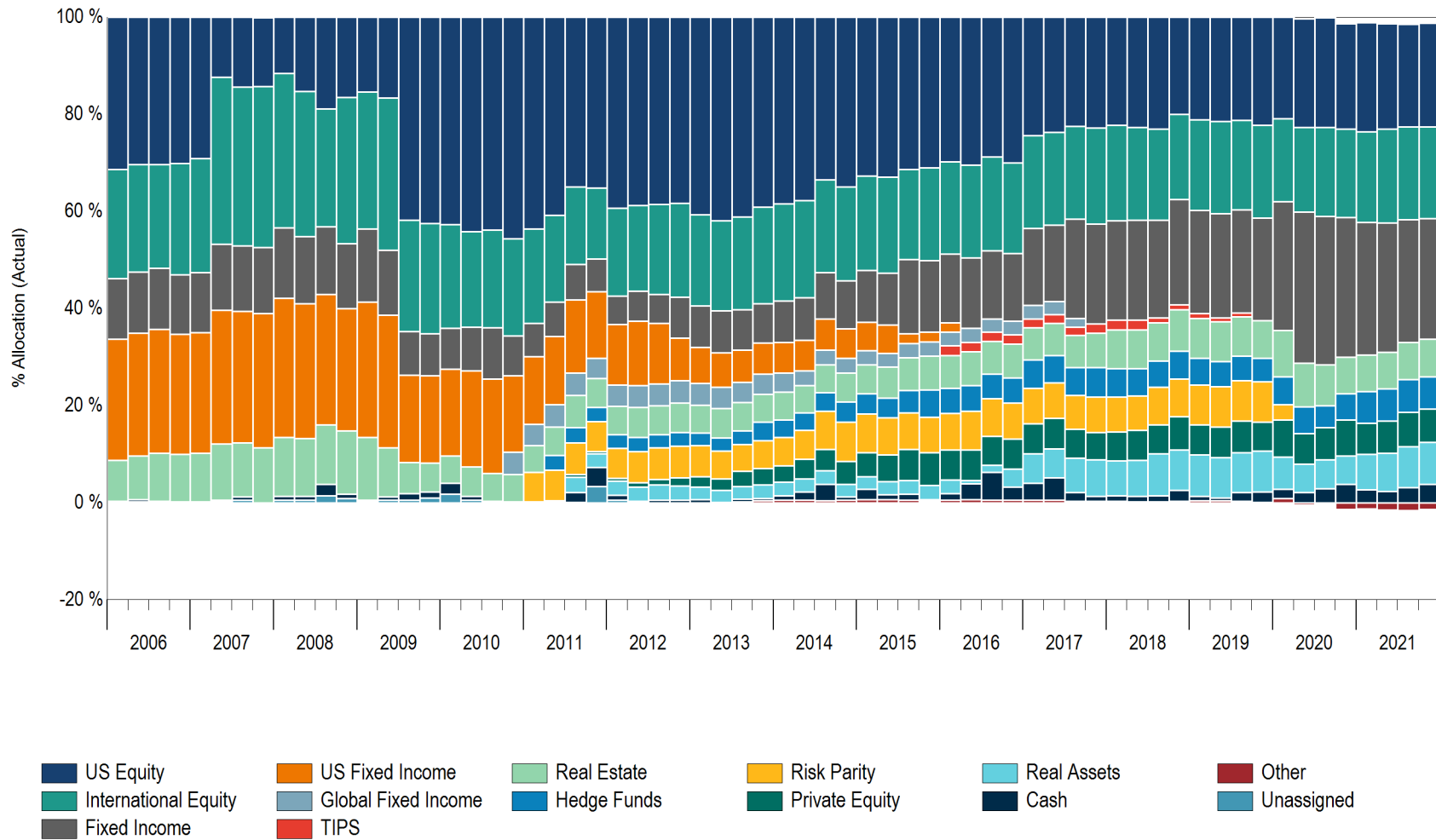
	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	9.3%	90	7.8%	27	1.1	51	-0.5	81	1.9%	63
Policy Index	10.2%	68	7.6%	25	1.2	38	--	--	0.0%	1
InvMetrics Public DB > \$1B Net Median	10.7%	--	8.8%	--	1.1	--	0.0	--	1.5%	--



	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
Return (Rank)								
5th Percentile	5.1	6.9	20.6	15.8	17.3	12.7	10.2	11.3
25th Percentile	4.5	5.3	16.7	14.2	15.3	11.5	9.4	10.0
Median	4.0	4.4	14.2	13.4	14.6	10.7	8.5	9.4
75th Percentile	3.5	3.6	12.8	12.0	13.6	9.8	8.1	8.9
95th Percentile	2.4	2.4	11.1	10.0	11.6	8.9	7.2	7.7
# of Portfolios	55	54	54	54	54	54	54	51
● Total Fund	2.9 (88)	4.0 (61)	12.1 (84)	10.7 (91)	12.5 (89)	9.3 (90)	7.9 (83)	9.1 (62)
▲ Policy Index	3.6 (74)	4.8 (41)	13.9 (58)	11.5 (86)	13.3 (83)	10.2 (68)	8.5 (55)	9.6 (48)

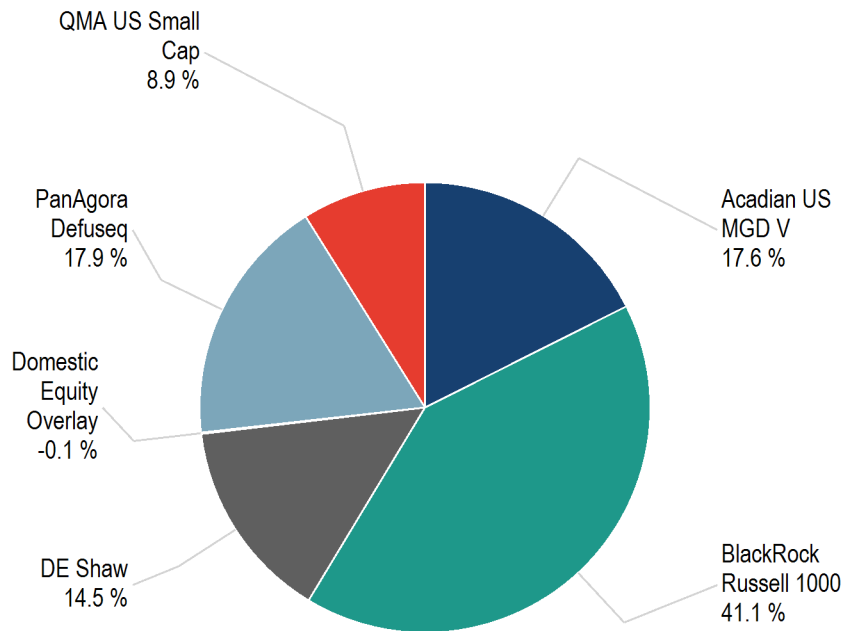
Total Fund
Asset Allocation History

Period Ending: December 31, 2021



US Equity
 Manager Allocation Analysis

Period Ending: December 31, 2021



	Actual \$	Actual %	Manager Contribution to Excess Return %
Acadian US MGD V	\$237,882,827	17.6%	0.3%
BlackRock Russell 1000	\$554,394,843	41.1%	0.0%
DE Shaw	\$196,044,056	14.5%	0.1%
PanAgora Defuseq	\$242,168,342	17.9%	-0.1%
QMA US Small Cap	\$119,888,912	8.9%	0.2%
Domestic Equity Overlay	-\$951,700	-0.1%	0.0%
Actual vs. Policy Weight Difference			-0.2%
Total	\$1,349,427,281	100.0%	0.4%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
US Equity	22.2%	17.6%	1.2	-1.9	1.9%
Blended US Equity Index	25.8%	18.2%	1.4	--	0.0%
Russell 3000	25.8%	18.2%	1.4	--	0.0%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Large Cap Equity	22.6%	17.2%	1.3	-1.8	2.0%
Russell 1000	26.2%	18.0%	1.4	--	0.0%
Acadian US MGD V	16.6%	16.2%	1.0	-1.8	5.3%
Russell 1000	26.2%	18.0%	1.4	--	0.0%
BlackRock Russell 1000	26.2%	18.0%	1.4	0.4	0.0%
Russell 1000	26.2%	18.0%	1.4	--	0.0%
DE Shaw	23.0%	18.5%	1.2	-1.2	2.7%
Russell 1000	26.2%	18.0%	1.4	--	0.0%
PanAgora Defuseq	17.8%	16.0%	1.1	-1.2	6.9%
Russell 1000	26.2%	18.0%	1.4	--	0.0%
Small Cap Equity	16.5%	25.5%	0.6	-0.6	5.5%
Russell 2000	20.0%	23.7%	0.8	--	0.0%
QMA US Small Cap	16.5%	25.5%	0.6	-0.6	5.5%
Russell 2000	20.0%	23.7%	0.8	--	0.0%

Statistics Summary

5 Years

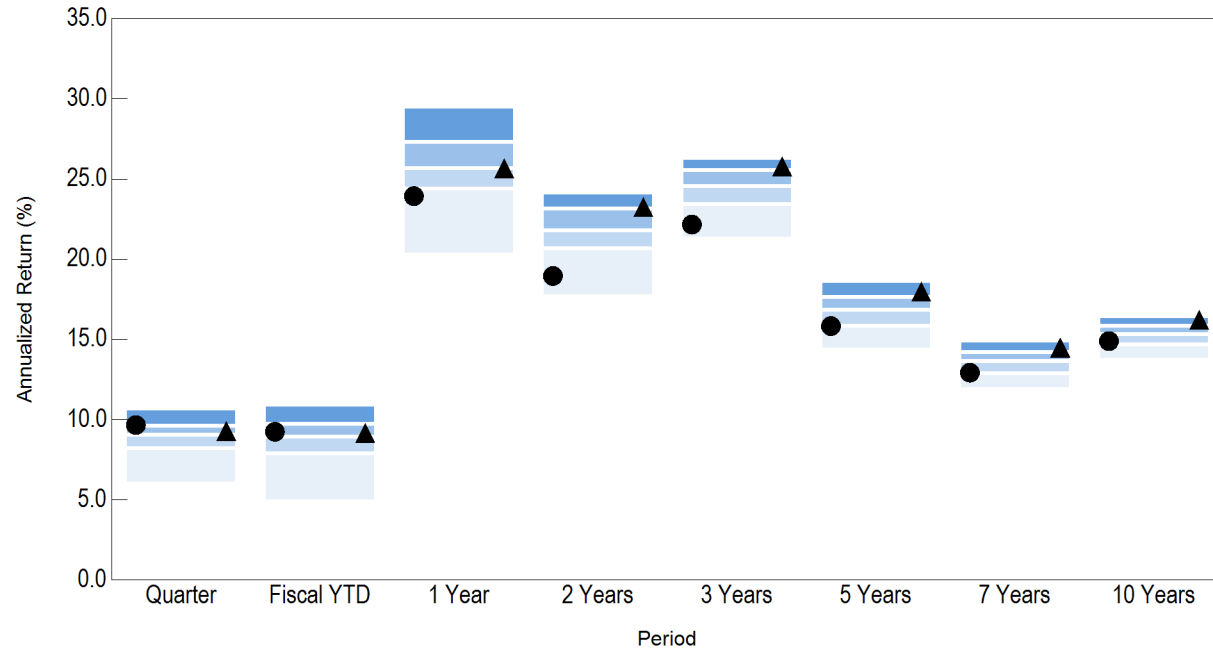
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
US Equity	15.8%	15.5%	1.0	-1.4	1.6%
Blended US Equity Index	18.0%	16.0%	1.1	--	0.0%
Russell 3000	18.0%	16.0%	1.1	--	0.0%

Statistics Summary

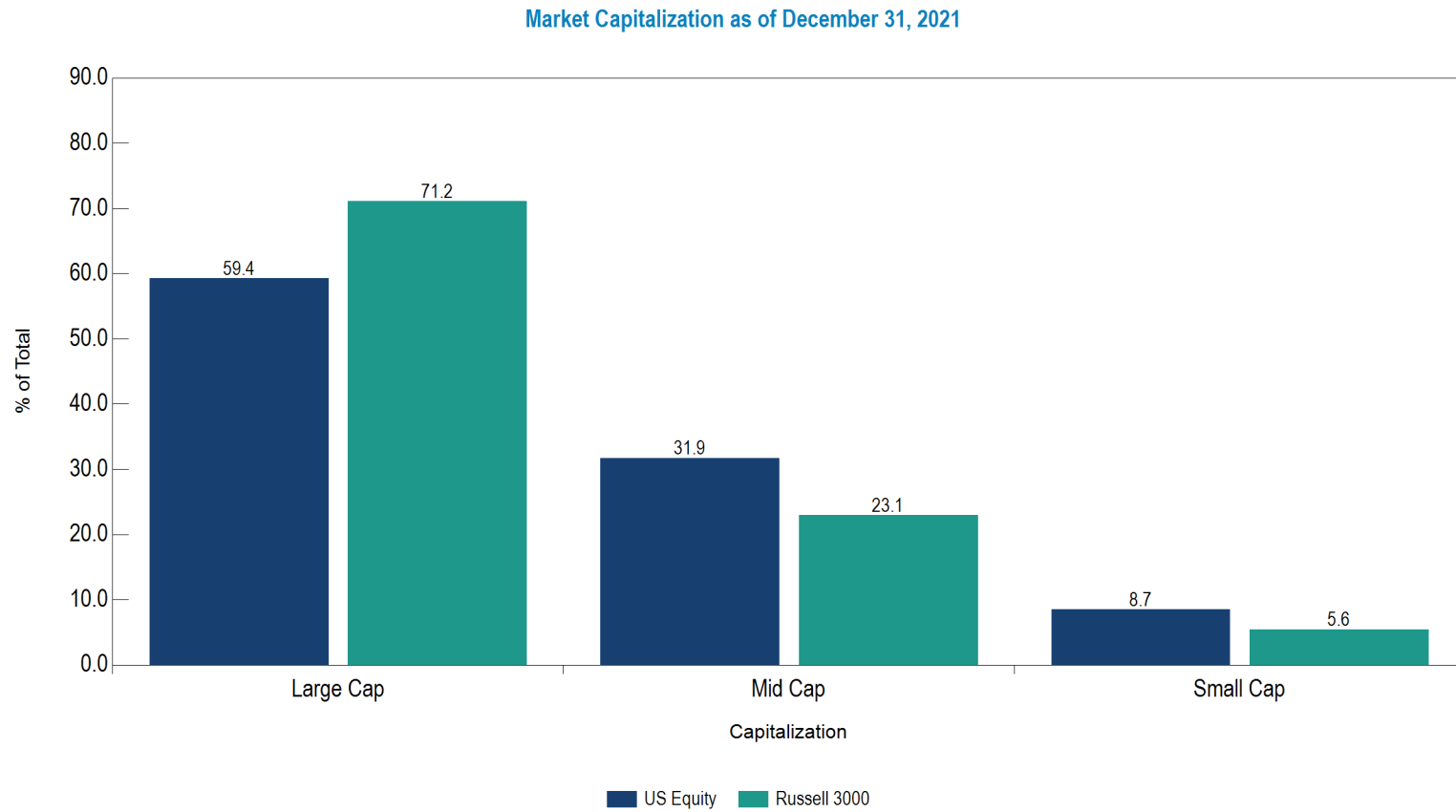
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Large Cap Equity	17.0%	15.1%	1.1	-0.8	1.8%
Russell 1000	18.4%	15.8%	1.1	--	0.0%
DE Shaw	17.2%	15.9%	1.0	-0.5	2.6%
Russell 1000	18.4%	15.8%	1.1	--	0.0%
Small Cap Equity	9.2%	21.7%	0.4	-0.6	4.5%
Russell 2000	12.0%	20.6%	0.5	--	0.0%
QMA US Small Cap	9.2%	21.7%	0.4	-0.6	4.5%
Russell 2000	12.0%	20.6%	0.5	--	0.0%

InvMetrics All DB US Eq Net Return Comparison



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	10.7	10.9	29.5	24.1	26.3	18.6	14.9	16.4
25th Percentile	9.6	9.7	27.4	23.2	25.6	17.7	14.2	15.9
Median	9.1	9.0	25.7	21.8	24.6	16.9	13.7	15.4
75th Percentile	8.2	7.9	24.4	20.7	23.5	15.9	12.9	14.7
95th Percentile	6.0	4.9	20.3	17.7	21.3	14.4	11.9	13.8
# of Portfolios	329	327	326	326	322	312	293	246
● US Equity	9.6 (25)	9.2 (35)	23.9 (80)	19.0 (92)	22.2 (90)	15.8 (77)	12.9 (75)	14.9 (69)
▲ Blended US Equity Index	9.3 (38)	9.2 (40)	25.7 (54)	23.3 (21)	25.8 (14)	18.0 (16)	14.5 (15)	16.2 (10)



See appendix for the market capitalization breakpoints.

Characteristics

	Portfolio	Russell 3000
Number of Holdings	2,942	3,065
Weighted Avg. Market Cap. (\$B)	436.7	568.6
Median Market Cap. (\$B)	4.6	2.8
Price To Earnings	22.7	24.9
Price To Book	4.2	4.5
Price To Sales	2.9	3.4
Return on Equity (%)	23.4	22.9
Yield (%)	1.4	1.3

Top Holdings

MICROSOFT CORP	4.4%
APPLE INC	4.0%
AMAZON.COM INC	2.2%
ALPHABET INC	2.0%
META PLATFORMS INC	1.4%
TESLA INC	1.2%
ALPHABET INC	0.9%
JOHNSON & JOHNSON	0.8%
BERKSHIRE HATHAWAY INC	0.8%
COSTCO WHOLESALE CORP	0.7%

Best Performers

	Return %
ASSERTIO HOLDINGS INC (ASRT)	140.6%
ADICET BIO INC	123.1%
YELLOW CORP (YELL)	122.8%
R.R. DONNELLEY & SONS CO (RRD)	119.1%
CHEMOCENTRYX INC (CCXI)	112.9%
TRICIDA INC (TCDA)	106.0%
XENON PHARMACEUTICALS INC (XENE)	104.4%
IRHYTHM TECHNOLOGIES INC (IRTC)	101.0%
KEZAR LIFE SCIENCES INC (KZR)	93.5%
PROTAGONIST THERAPEUTICS INC (PTGX)	93.0%

Worst Performers

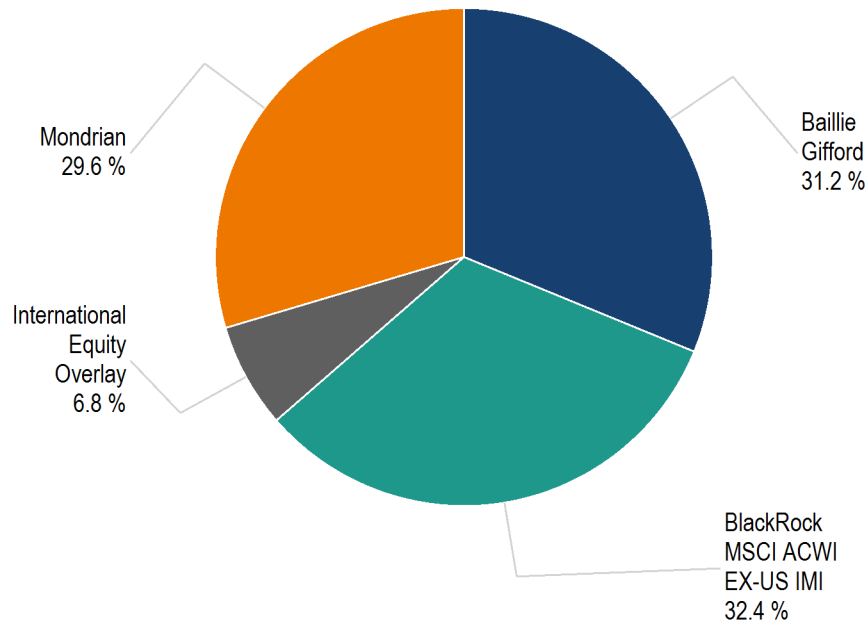
	Return %
CORTEXIME INC (CRTX)	-86.2%
RAFAEL HOLDINGS INC (RFL)	-83.4%
EXICURE INC (XCUR)	-83.2%
ADAGIO THERAPEUTICS INC	-82.8%
CATALYST BIOSCIENCES INC (CBIO)	-77.8%
IronNet Inc (IRNT)	-75.4%
ATEA PHARMACEUTICALS INC (AVIR)	-74.5%
EROS STX GLOBAL CORP (ESGC)	-73.9%
REATA PHARMACEUTICALS INC (RETA)	-73.8%
GENERATION BIO CO (GBIO)	-71.8%

US Equity Performance Attribution vs. Russell 3000

	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	-0.1%	-0.1%	0.0%	0.0%	4.1%	6.6%	3.2%	2.4%			
Materials	0.1%	0.0%	0.1%	0.0%	13.3%	13.5%	4.7%	2.4%			
Industrials	0.2%	0.2%	0.0%	0.0%	10.5%	8.3%	8.9%	9.1%			
Consumer Discretionary	-0.1%	-0.1%	0.0%	0.0%	9.4%	10.1%	11.3%	12.1%			
Consumer Staples	0.1%	0.0%	0.1%	0.0%	12.3%	12.5%	8.3%	5.3%			
Health Care	-0.1%	-0.1%	0.0%	0.0%	7.2%	7.6%	14.9%	13.7%			
Financials	0.3%	0.3%	0.1%	-0.1%	7.1%	5.0%	9.4%	11.9%			
Information Technology	-0.2%	0.1%	-0.2%	0.0%	14.3%	14.0%	21.9%	27.2%			
Communication Services	-0.1%	-0.1%	0.0%	0.0%	-1.4%	-0.8%	10.5%	10.2%			
Utilities	0.0%	0.0%	0.1%	0.0%	12.0%	13.1%	3.7%	2.4%			
Real Estate	0.0%	0.0%	0.0%	0.0%	14.8%	14.9%	3.0%	3.4%			
Cash	0.0%	0.0%	0.0%	0.0%	0.0%	--	0.1%	0.0%			
Unclassified	0.0%	0.0%	0.0%	0.0%	10.1%	--	0.1%	0.0%			
Portfolio	0.1%	=	0.2%	+	0.0%	+	-0.1%	9.4%	9.3%	100.0%	100.0%

U.S. Effective Style Map





	Actual \$	Actual %	Manager Contribution to Excess Return %
Baillie Gifford	\$373,402,990	31.2%	-0.2%
Mondrian	\$354,804,838	29.6%	-0.4%
BlackRock MSCI ACWI EX-US IMI	\$388,661,060	32.4%	0.0%
International Equity Overlay	\$81,602,045	6.8%	0.0%
Actual vs. Policy Weight Difference			0.0%
Total	\$1,198,470,933	100.0%	-0.6%

Statistics Summary

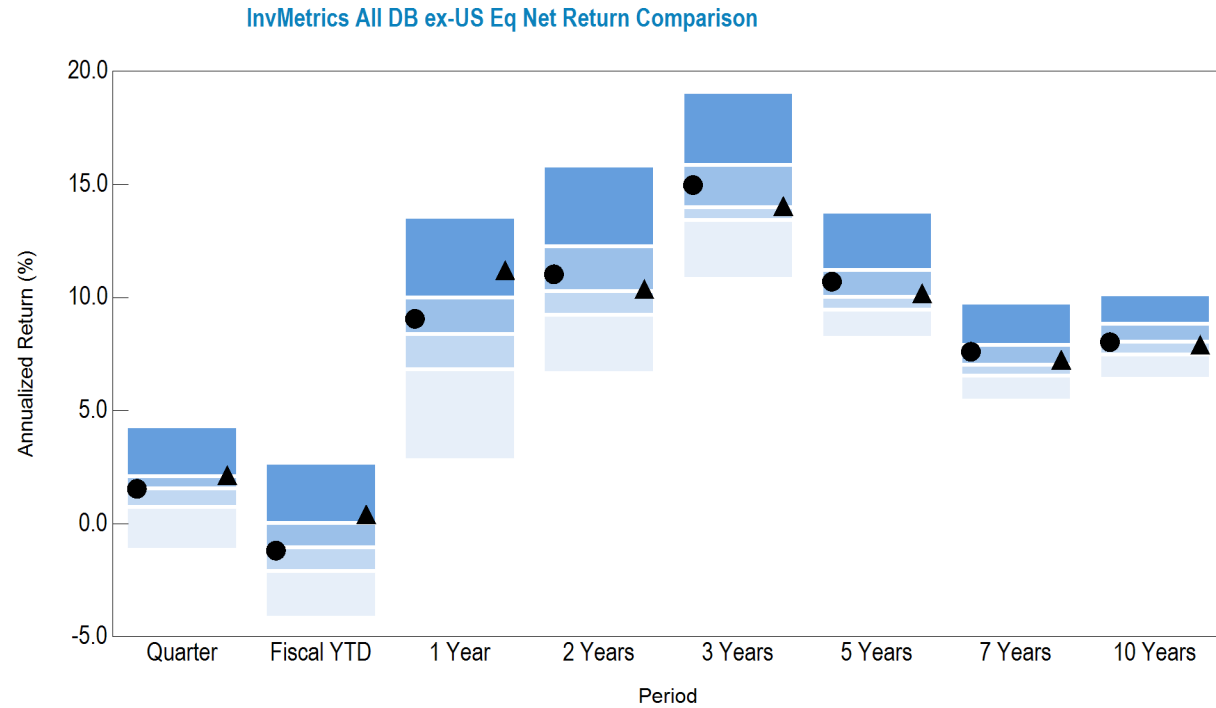
3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
International Equity	15.0%	15.8%	0.9	0.6	1.6%
Blended International Equity Index	14.0%	15.9%	0.8	--	0.0%
Baillie Gifford	22.8%	17.0%	1.3	1.5	6.0%
MSCI ACWI ex US	13.7%	17.0%	0.8	--	0.0%
Mondrian	8.4%	18.9%	0.4	-0.2	2.7%
MSCI ACWI ex USA Value Gross	8.9%	19.8%	0.4	--	0.0%

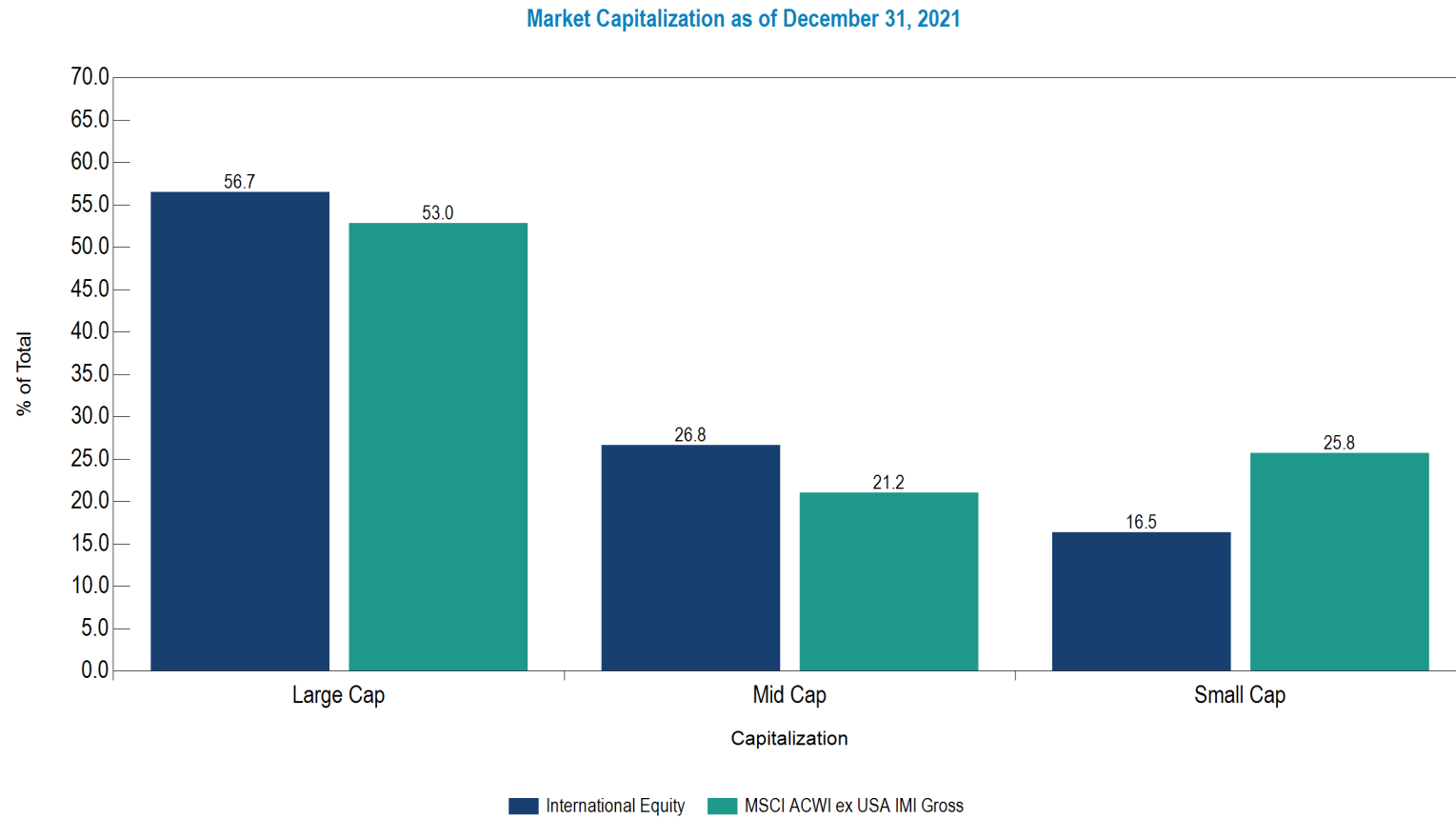
Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
International Equity	10.7%	14.0%	0.7	0.3	1.5%
Blended International Equity Index	10.2%	14.0%	0.6	--	0.0%
Baillie Gifford	15.2%	15.5%	0.9	0.9	5.6%
MSCI ACWI ex US	10.1%	14.8%	0.6	--	0.0%
Mondrian	6.6%	16.0%	0.3	0.0	3.0%
MSCI ACWI ex USA Value Gross	6.6%	16.8%	0.3	--	0.0%



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	4.3	2.7	13.6	15.8	19.1	13.8	9.7	10.1
25th Percentile	2.1	0.1	10.0	12.3	15.9	11.2	7.9	8.8
Median	1.6	-1.0	8.4	10.3	14.0	10.0	7.1	8.0
75th Percentile	0.8	-2.1	6.8	9.2	13.4	9.5	6.6	7.5
95th Percentile	-1.1	-4.1	2.8	6.7	10.8	8.2	5.5	6.4
# of Portfolios	219	218	216	214	213	203	191	159
● International Equity	1.5 (53)	-1.2 (55)	9.1 (36)	11.0 (39)	15.0 (37)	10.7 (36)	7.6 (32)	8.0 (52)
▲ Blended International Equity Index	2.1 (20)	0.4 (20)	11.2 (12)	10.4 (49)	14.0 (50)	10.2 (46)	7.3 (43)	7.9 (55)



See appendix for the market capitalization breakpoints.

Characteristics

	Portfolio	MSCI ACWI ex USA IMI Gross
Number of Holdings	6,735	6,706
Weighted Avg. Market Cap. (\$B)	85.0	85.0
Median Market Cap. (\$B)	2.1	2.0
Price To Earnings	16.0	15.3
Price To Book	2.9	2.7
Price To Sales	1.5	1.5
Return on Equity (%)	14.4	14.0
Yield (%)	2.3	2.6

Top Holdings

ASML HOLDING NV	1.5%
TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	1.4%
TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	1.2%
UNITED OVERSEAS BANK LTD	1.2%
HOUSING DEVELOPMENT FINANCE CORP LTD	1.0%
SANOFI	1.0%
NIBE INDUSTRIER AB, MARKARYD	1.0%
SONY GROUP CORPORATION	1.0%
SARTORIUS SHS.PREF.	0.9%
NOVARTIS AG	0.9%

Best Performers

	Return %
TATA TELESERVICES (MAHARASHTRA) LTD	481.1%
PHARMAESSENTIA CORP	232.2%
BRIGHTCOM GROUP LTD	204.8%
DUBAI FINANCIAL MARKET PJSC	173.1%
COWELL E HOLDINGS INC	168.8%
VIDENTE CO LTD	163.6%
WEMADE ENTERTAINMENT (KO:WEM)	152.2%
ILDONG PHARMACEUTICAL CO LTD	139.9%
SKYWORTH GROUP LTD	133.0%
AVZ MINERALS LTD	132.2%

Worst Performers

	Return %
CMBC CAPITAL HOKDING LTD	-96.9%
CA CULTURAL TECHNOLOGY GRP LTD	-83.5%
ONCOPEPTIDES AB	-80.6%
ATA IMS BERHAD	-76.5%
QUTOUTIAO INC (QTT)	-71.9%
BEYONDSRING INC (BYSI)	-71.3%
SHIMAO SERVICES HOLDINGS LTD	-66.4%
COMMON STOCK HKD.01	-66.4%
CHINA AOYUAN GROUP LTD	-65.7%
RISKIFIED LTD COM NPV CL A	-65.5%
17 EDUCATION TECHNOLOGY GR ADR USD.0001	-65.3%

International Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

	Attribution Effects				Returns		Sector Weights				
	Total Effects	Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	0.0%	0.0%	0.0%	0.0%	-0.7%	-0.3%	4.0%	4.6%			
Materials	-0.1%	-0.2%	-0.1%	0.1%	1.3%	3.5%	5.3%	8.4%			
Industrials	0.2%	0.2%	0.0%	0.0%	3.7%	2.1%	13.6%	13.6%			
Consumer Discretionary	-0.5%	-0.3%	-0.1%	-0.1%	-3.4%	-1.1%	16.6%	12.5%			
Consumer Staples	0.0%	0.0%	0.0%	0.0%	2.3%	2.5%	7.3%	8.1%			
Health Care	0.1%	0.1%	0.0%	0.0%	0.4%	-0.4%	9.9%	9.2%			
Financials	-0.2%	-0.3%	0.0%	0.1%	0.1%	1.6%	14.0%	18.0%			
Information Technology	-0.2%	-0.2%	0.1%	-0.1%	3.7%	5.4%	15.4%	13.0%			
Communication Services	0.1%	0.1%	-0.1%	0.0%	0.1%	-2.1%	8.1%	5.9%			
Utilities	0.0%	0.0%	0.0%	0.0%	7.0%	6.1%	3.2%	3.1%			
Real Estate	0.1%	0.0%	0.0%	0.0%	1.2%	0.3%	1.5%	3.6%			
Cash	0.0%	0.0%	0.0%	0.0%	0.0%	--	1.0%	0.0%			
Unclassified	0.0%	--	--	--	--	--	0.0%	0.0%			
Portfolio	-0.6%	=	-0.5%	+	-0.1%	+	0.0%	1.0%	1.7%	100.0%	100.0%

Int'l Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Europe									
Austria	3.3%	4.4%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Belgium	2.4%	3.4%	0.2%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Czech Republic*	12.4%	12.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Denmark	-0.3%	5.2%	0.9%	1.6%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Finland	2.4%	3.3%	0.7%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
France	7.5%	6.8%	5.7%	6.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Germany	-2.5%	0.6%	4.6%	5.4%	-0.2%	0.0%	0.0%	0.0%	-0.1%
Greece*	0.7%	0.5%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Hungary*	-9.9%	-9.9%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Ireland	4.5%	0.1%	0.2%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Italy	5.2%	4.9%	2.1%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Luxembourg	3.4%	1.7%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Netherlands	5.5%	3.5%	3.7%	2.9%	0.0%	0.0%	0.0%	0.0%	0.1%
Norway	3.4%	2.3%	0.2%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Poland*	0.0%	-2.5%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Portugal	13.4%	1.1%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Russia*	-5.8%	-8.0%	0.5%	0.9%	0.0%	0.0%	0.0%	0.0%	0.1%
Spain	-2.5%	-1.1%	2.0%	1.5%	0.0%	0.0%	0.0%	0.0%	-0.1%
Sweden	11.0%	6.8%	2.9%	2.7%	0.1%	0.0%	0.0%	0.0%	0.1%
Switzerland	16.4%	12.2%	3.1%	5.7%	0.2%	-0.2%	-0.1%	-0.1%	-0.1%
United Kingdom	5.1%	4.7%	12.5%	9.5%	0.0%	0.1%	0.0%	0.0%	0.1%

Int'l Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

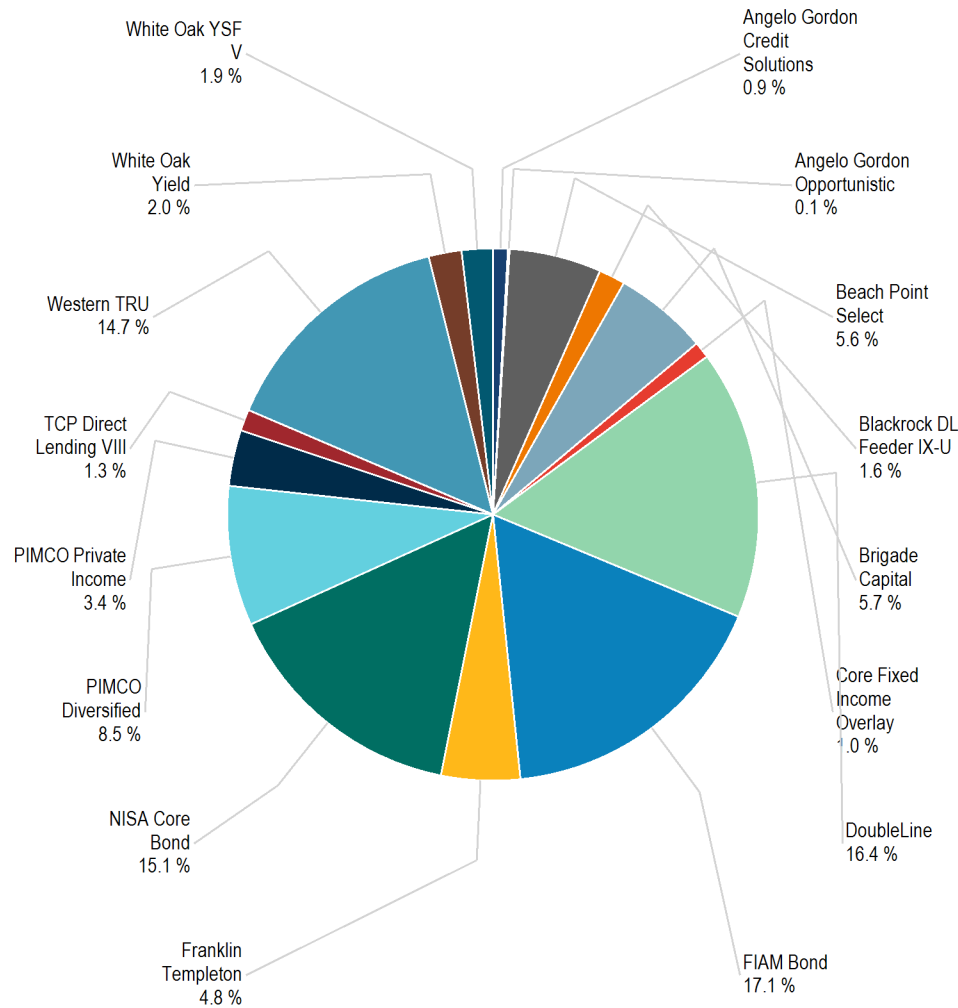
	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
AsiaPacific									
Australia	1.7%	2.7%	2.1%	4.7%	0.0%	0.0%	0.0%	0.0%	0.0%
China*	-5.6%	-6.1%	8.7%	8.9%	0.0%	0.0%	0.0%	0.0%	0.1%
Hong Kong	-6.5%	-3.7%	4.1%	1.8%	-0.1%	-0.1%	0.0%	-0.1%	-0.3%
India*	-1.1%	0.0%	4.4%	3.8%	0.0%	0.0%	0.0%	0.0%	-0.1%
Indonesia*	6.4%	5.3%	0.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Japan	-4.8%	-4.7%	20.1%	16.0%	0.0%	-0.2%	-0.1%	0.0%	-0.3%
Korea*	-2.2%	-1.7%	3.0%	3.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Malaysia*	2.3%	0.8%	0.2%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
New Zealand	1.3%	-3.6%	0.6%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Pakistan*	-3.3%	-2.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Philippines*	3.5%	3.6%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Singapore	3.7%	-0.2%	1.5%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Taiwan*	7.6%	9.1%	4.6%	4.5%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Thailand*	2.7%	3.6%	0.3%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Americas									
Argentina*	-19.6%	4.6%	0.6%	0.1%	0.0%	0.0%	0.0%	-0.1%	-0.1%
Brazil*	-4.6%	-6.7%	1.3%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Canada	5.5%	6.4%	3.8%	7.0%	-0.1%	-0.1%	0.0%	0.0%	-0.2%
Chile*	-5.8%	-5.9%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Colombia*	-2.1%	-2.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Mexico*	6.6%	5.4%	0.5%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Peru*	8.3%	11.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
United States	22.2%	10.0%	0.8%	0.0%	0.0%	0.1%	0.0%	0.1%	0.1%

Int'l Equity Performance Attribution vs. MSCI ACWI ex USA IMI Gross

	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
Other									
Egypt*	17.5%	17.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Israel	10.1%	10.3%	0.2%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Kuwait*	2.0%	2.1%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Qatar*	3.2%	3.1%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Saudi Arabia*	-0.8%	-0.8%	0.3%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%
South Africa*	-3.6%	-0.5%	0.8%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%
Turkey*	-12.1%	-12.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
United Arab Emirates*	11.6%	11.4%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Totals									
Americas	3.4%	4.2%	6.9%	9.1%	-0.1%	0.0%	0.0%	0.0%	-0.1%
Europe	5.2%	4.9%	40.5%	41.4%	0.2%	0.0%	0.0%	0.0%	0.1%
Asia/Pacific	-2.7%	-1.8%	49.9%	46.1%	-0.3%	-0.1%	-0.1%	0.0%	-0.6%
Other	0.2%	2.5%	1.6%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash	0.0%	--	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	1.0%	1.7%	100.0%	100.0%	-0.3%	-0.3%	-0.1%	0.0%	-0.6%
Totals									
Developed	1.9%	2.7%	72.9%	71.2%	-0.4%	0.0%	-0.2%	0.0%	-0.6%
Emerging*	-1.5%	-1.0%	26.0%	28.8%	-0.2%	0.1%	0.1%	0.0%	-0.1%
Cash	0.0%	--	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Fixed Income Manager Allocation Analysis

Period Ending: December 31, 2021



	Actual \$	Actual %	Manager Contribution to Excess Return %
AG CSF Annex Dislocation Fund	\$33,346	0.0%	0.0%
Angelo Gordon Credit Solutions	\$14,542,385	0.9%	0.0%
Angelo Gordon Opportunistic	\$1,049,254	0.1%	0.0%
Beach Point Select	\$87,892,005	5.6%	0.2%
Blackrock DL Feeder IX-U	\$24,908,783	1.6%	0.0%
Brigade Capital	\$90,145,163	5.7%	0.1%
DoubleLine	\$259,478,581	16.4%	-0.1%
FIAM Bond	\$269,979,133	17.1%	0.0%
Franklin Templeton	\$75,490,955	4.8%	0.0%
NISA Core Bond	\$238,042,598	15.1%	0.0%
PIMCO Diversified	\$134,800,684	8.5%	0.0%
PIMCO Private Income	\$54,503,664	3.4%	0.0%
TCP Direct Lending VIII	\$20,673,135	1.3%	0.0%
Western TRU	\$232,405,356	14.7%	-0.2%
White Oak Yield	\$32,032,776	2.0%	-0.1%
White Oak YSF V	\$29,610,216	1.9%	-0.1%
Core Fixed Income Overlay	\$15,188,234	1.0%	0.0%
Actual vs. Policy Weight Difference			0.0%
Total	\$1,580,776,268	100.0%	0.0%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Fixed Income	5.6%	3.5%	1.4	-0.2	1.8%
Blended Fixed Income Index	6.0%	4.1%	1.3	--	0.0%
Core Fixed	4.8%	3.0%	1.3	0.0	1.4%
Bloomberg US Aggregate TR	4.8%	3.4%	1.2	--	0.0%
FIAM Bond	6.1%	3.9%	1.3	0.9	1.5%
Bloomberg US Aggregate TR	4.8%	3.4%	1.2	--	0.0%
Western TRU	4.5%	6.4%	0.6	0.5	6.4%
3-Month Libor Total Return USD	1.0%	0.3%	0.6	--	0.0%
Opportunistic Credit	7.2%	6.6%	1.0	-0.4	4.3%
Bloomberg BA Intermediate HY	8.7%	7.9%	1.0	--	0.0%
Angelo Gordon Opportunistic	13.0%	20.2%	0.6	0.4	20.5%
Bloomberg US Aggregate TR	4.8%	3.4%	1.2	--	0.0%
Beach Point Select	12.8%	8.6%	1.4	0.8	5.2%
Bloomberg BA Intermediate HY	8.7%	7.9%	1.0	--	0.0%
Brigade Capital	9.0%	12.0%	0.7	0.0	7.1%
Bloomberg BA Intermediate HY	8.7%	7.9%	1.0	--	0.0%
PIMCO Diversified	6.4%	6.9%	0.8	-0.3	1.2%
Blended PIMCO Diversified Index	6.8%	7.7%	0.8	--	0.0%
Franklin Templeton	-3.0%	5.7%	-0.7	-1.1	6.3%
Bloomberg Multiverse TR	3.7%	4.6%	0.6	--	0.0%

Statistics Summary

3 Years

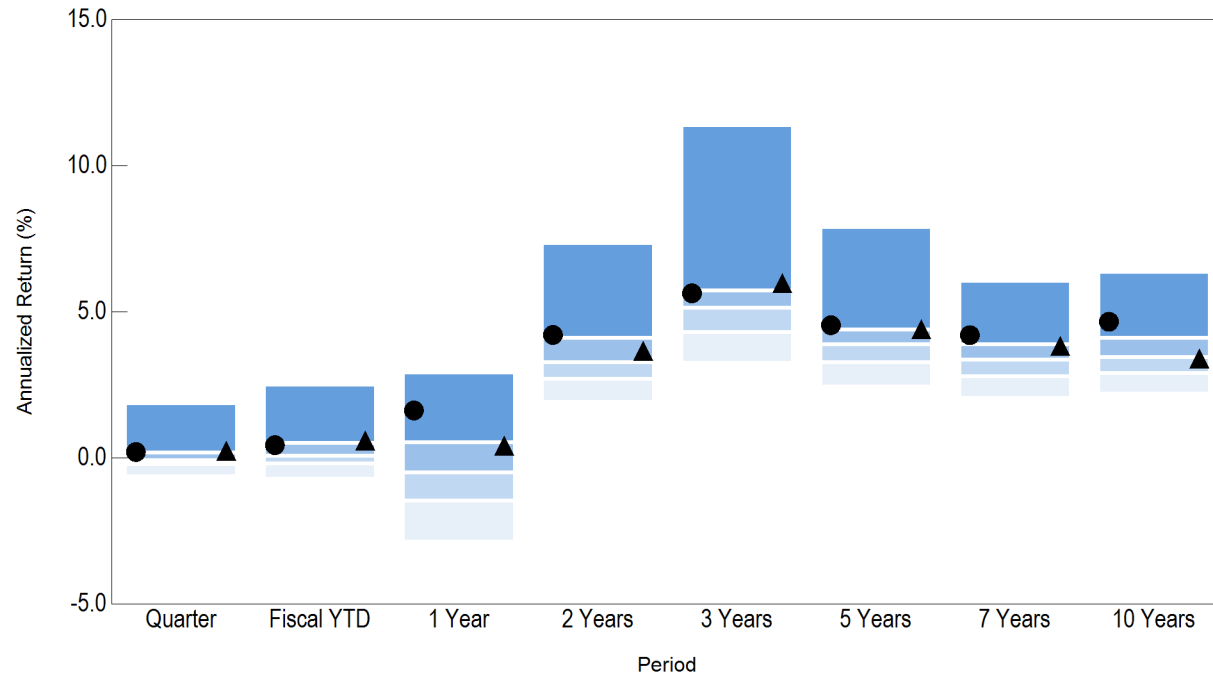
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Private Credit	7.1%	4.2%	1.5	-0.8	2.7%
Cliffwater Direct Lending Index	9.2%	5.9%	1.4	--	0.0%
TCP Direct Lending VIII	6.8%	3.0%	2.0	-0.5	4.9%
Cliffwater Direct Lending Index	9.2%	5.9%	1.4	--	0.0%
White Oak Yield	5.5%	2.9%	1.6	-1.0	3.8%
Cliffwater Direct Lending Index	9.2%	5.9%	1.4	--	0.0%

Statistics Summary

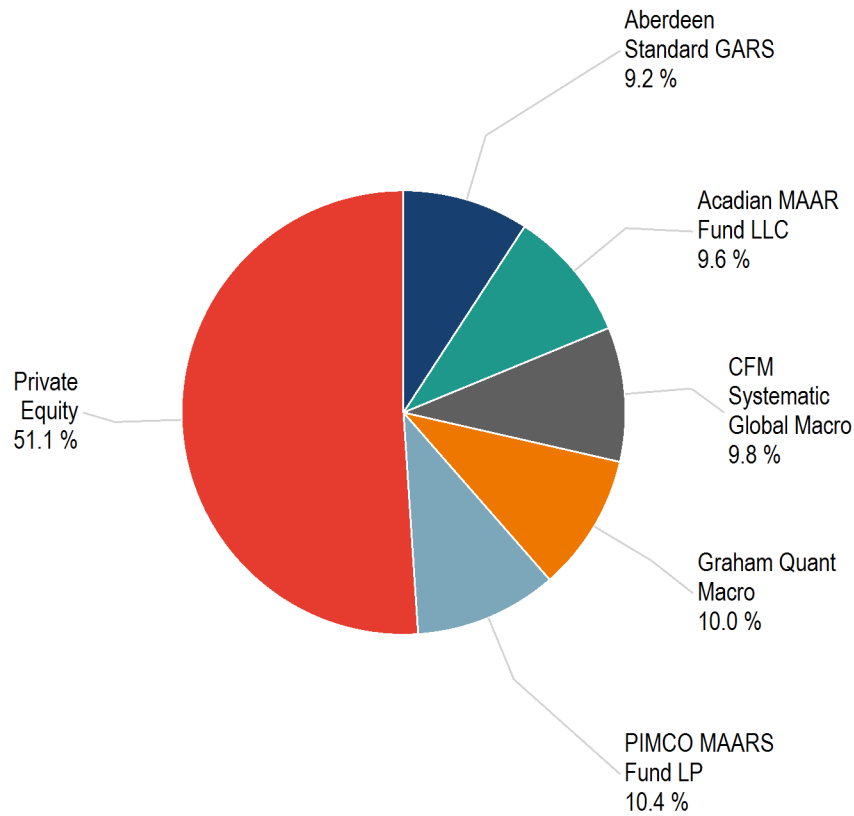
5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Fixed Income	4.5%	2.9%	1.2	0.1	1.6%
Blended Fixed Income Index	4.4%	3.4%	1.0	--	0.0%
Core Fixed	3.7%	2.6%	1.0	0.1	1.2%
Bloomberg US Aggregate TR	3.6%	3.1%	0.8	--	0.0%
FIAM Bond	4.4%	3.4%	1.0	0.7	1.2%
Bloomberg US Aggregate TR	3.6%	3.1%	0.8	--	0.0%
Western TRU	3.8%	5.4%	0.5	0.4	5.4%
3-Month Libor Total Return USD	1.4%	0.3%	1.0	--	0.0%
Opportunistic Credit	6.3%	5.3%	1.0	0.1	3.6%
Bloomberg BA Intermediate HY	6.0%	6.3%	0.8	--	0.0%
Angelo Gordon Opportunistic	15.5%	16.8%	0.9	0.7	17.1%
Bloomberg US Aggregate TR	3.6%	3.1%	0.8	--	0.0%
Beach Point Select	9.5%	7.0%	1.2	0.8	4.3%
Bloomberg BA Intermediate HY	6.0%	6.3%	0.8	--	0.0%
Brigade Capital	6.6%	9.5%	0.6	0.1	5.7%
Bloomberg BA Intermediate HY	6.0%	6.3%	0.8	--	0.0%
Franklin Templeton	-1.0%	6.0%	-0.3	-0.7	6.7%
Bloomberg Multiverse TR	3.4%	4.1%	0.6	--	0.0%
Private Credit	7.1%	3.5%	1.7	-0.6	3.0%
Cliffwater Direct Lending Index	8.8%	5.0%	1.5	--	0.0%
TCP Direct Lending VIII	7.0%	2.5%	2.3	-0.4	4.6%
Cliffwater Direct Lending Index	8.8%	5.0%	1.5	--	0.0%

InvMetrics All DB Total Fix Inc Net Return Comparison



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	1.9	2.5	2.9	7.3	11.4	7.9	6.0	6.4
25th Percentile	0.2	0.5	0.5	4.1	5.7	4.4	3.9	4.1
Median	-0.1	0.1	-0.5	3.3	5.1	3.9	3.4	3.4
75th Percentile	-0.2	-0.2	-1.5	2.7	4.3	3.3	2.8	2.9
95th Percentile	-0.6	-0.7	-2.9	1.9	3.3	2.5	2.0	2.2
# of Portfolios	178	177	177	177	175	169	156	136
● Fixed Income	0.2 (24)	0.4 (28)	1.6 (14)	4.2 (24)	5.6 (30)	4.5 (22)	4.2 (18)	4.7 (16)
▲ Blended Fixed Income Index	0.2 (23)	0.6 (21)	0.4 (28)	3.7 (35)	6.0 (23)	4.4 (26)	3.8 (29)	3.4 (54)



	Actual \$	Actual %	Manager Contribution to Excess Return %
Aberdeen Standard GARS	\$79,185,575	9.2%	0.1%
Acadian MAAR Fund LLC	\$82,219,197	9.6%	-0.2%
CFM Systematic Global Macro	\$84,156,125	9.8%	-0.7%
Graham Quant Macro	\$85,490,534	10.0%	-0.3%
PIMCO MAARS Fund LP	\$88,984,760	10.4%	0.4%
Private Equity	\$438,395,279	51.1%	-0.5%
Actual vs. Policy Weight Difference			0.0%
Total	\$858,431,470	100.0%	-1.3%

Statistics Summary

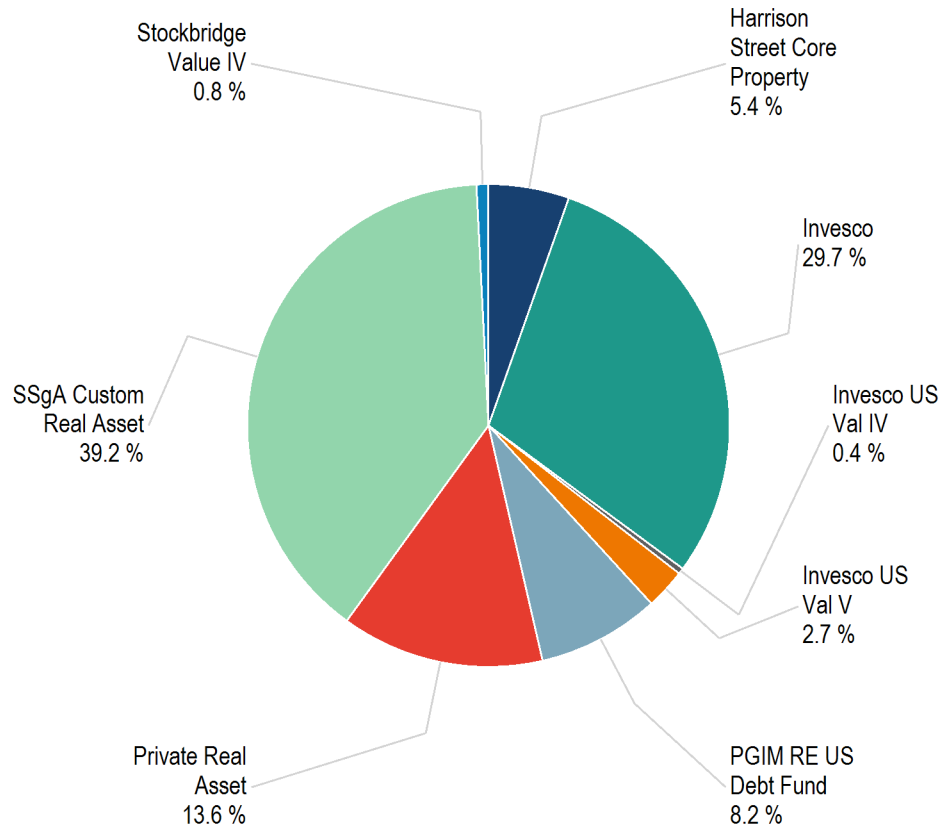
3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Alternatives	18.0%	15.1%	1.1	0.4	14.9%
Blended Alternatives Index	11.9%	9.4%	1.2	--	0.0%
Private Equity	37.3%	25.7%	1.4	0.7	25.9%
Blended Private Equity Index	19.0%	19.0%	1.0	--	0.0%
Hedge Fund/Absolute Return	-2.6%	6.7%	-0.5	-1.1	6.7%
Absolute Return Custom Index	4.9%	0.3%	13.9	--	0.0%
Aberdeen Standard GARS	4.6%	4.8%	0.8	-0.1	4.8%
Absolute Return Custom Index	4.9%	0.3%	13.9	--	0.0%

Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Alternatives	13.0%	12.1%	1.0	0.1	11.9%
Blended Alternatives Index	12.0%	7.7%	1.4	--	0.0%
Private Equity	28.2%	20.5%	1.3	0.5	20.9%
Blended Private Equity Index	18.8%	15.5%	1.1	--	0.0%
Hedge Fund/Absolute Return	-3.0%	6.0%	-0.7	-1.4	6.0%
Absolute Return Custom Index	5.2%	0.3%	15.1	--	0.0%
Aberdeen Standard GARS	2.3%	4.4%	0.3	-0.7	4.4%
Absolute Return Custom Index	5.2%	0.3%	15.1	--	0.0%



	Actual \$	Actual %	Manager Contribution to Excess Return %
Harrison Street Core Property	\$56,218,913	5.4%	-0.3%
Invesco	\$308,163,518	29.7%	-0.7%
Invesco US Val IV	\$4,434,296	0.4%	-0.1%
Invesco US Val V	\$28,260,966	2.7%	-0.1%
PGIM RE US Debt Fund	\$85,603,902	8.2%	-0.6%
Stockbridge Value IV	\$8,646,057	0.8%	-0.1%
Private Real Asset	\$140,830,463	13.6%	-0.4%
SSgA Custom Real Asset	\$407,143,345	39.2%	-0.1%
Actual vs. Policy Weight Difference			-0.1%
Total	\$1,039,301,460	100.0%	-2.4%

Statistics Summary

3 Years

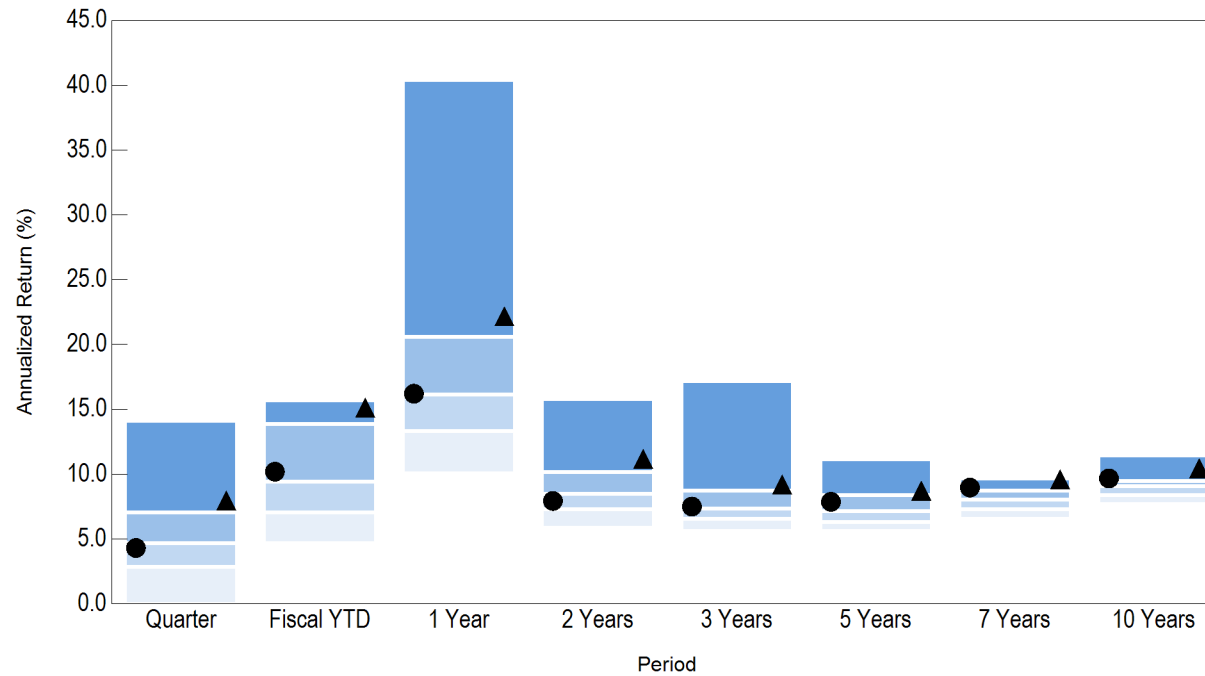
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Inflation Hedge	5.9%	7.4%	0.7	-1.1	3.6%
Blended Inflation Hedge Index	9.9%	7.0%	1.3	--	0.0%
Real Estate	7.5%	5.0%	1.3	-0.7	2.5%
NCREIF ODCE	9.2%	6.4%	1.3	--	0.0%
Invesco	8.0%	6.8%	1.1	-0.5	2.4%
NCREIF ODCE	9.2%	6.4%	1.3	--	0.0%
Invesco US Val IV	7.4%	6.2%	1.1	-0.3	6.9%
NCREIF ODCE	9.2%	6.4%	1.3	--	0.0%
PGIM RE US Debt Fund	5.3%	1.8%	2.5	-0.6	6.2%
NCREIF ODCE	9.2%	6.4%	1.3	--	0.0%
Private Real Asset	4.5%	13.9%	0.3	-0.1	21.9%
Blended Private Real Asset Index	7.0%	20.2%	0.3	--	0.0%
Public Real Assets	4.9%	19.6%	0.2	-1.0	4.3%
Blended Public Real Asset Index	9.2%	16.4%	0.5	--	0.0%
SSgA Custom Real Asset	9.1%	16.1%	0.5	-0.1	0.8%
SSgA Custom Real Asset Index	9.2%	16.4%	0.5	--	0.0%

Statistics Summary

5 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error Rank
Inflation Hedge	4.9%	6.1%	0.6	-0.9	--
Blended Inflation Hedge Index	7.6%	5.8%	1.1	--	--
Real Estate	7.9%	4.4%	1.5	-0.4	19
NCREIF ODCE	8.7%	5.3%	1.4	--	1
Invesco	8.2%	5.7%	1.3	-0.3	--
NCREIF ODCE	8.7%	5.3%	1.4	--	--
Invesco US Val IV	9.1%	5.8%	1.4	0.1	--
NCREIF ODCE	8.7%	5.3%	1.4	--	--
Private Real Asset	3.0%	11.5%	0.2	-0.2	--
Blended Private Real Asset Index	6.1%	16.4%	0.3	--	--
Public Real Assets	2.8%	16.0%	0.1	-0.9	--
Blended Public Real Asset Index	5.8%	13.7%	0.3	--	--
SSgA Custom Real Asset	5.8%	13.4%	0.4	0.1	--
SSgA Custom Real Asset Index	5.8%	13.7%	0.3	--	--

InvMetrics All DB Real Estate Pub Net Return Comparison



Return (Rank)

5th Percentile	14.1	15.7	40.4	15.8	17.1	11.1	9.6	11.4
25th Percentile	7.1	13.9	20.6	10.2	8.7	8.4	8.8	9.5
Median	4.7	9.4	16.2	8.5	7.4	7.2	8.1	9.1
75th Percentile	2.9	7.1	13.3	7.3	6.6	6.3	7.3	8.4
95th Percentile	0.0	4.7	10.1	5.9	5.6	5.6	6.6	7.7
# of Portfolios	51	50	50	50	49	49	49	45
● Real Estate	4.3 (52)	10.2 (43)	16.2 (50)	7.9 (59)	7.5 (50)	7.9 (38)	9.0 (20)	9.7 (20)
▲ NCREIF ODCE	8.0 (21)	15.1 (18)	22.2 (20)	11.2 (11)	9.2 (15)	8.7 (17)	9.6 (7)	10.4 (9)

Aberdeen Standard (ASI) Global Absolute Return Strategy (GARS)

The Aberdeen Standard Global Absolute Return Strategy (GARS) was designed in 2005 to address the needs of Standard Life's own Defined Benefit pension plan, with an objective to generate absolute returns with significantly less volatility than equity investments. The GARS investment process is designed to capitalize on an array of research and investment techniques and draws together the team's three-year investment insights. The team then examines and reviews position proposals to approve a high conviction, short list of positions that should work well together. The GARS strategy is built using a broad range of return-seeking positions (i.e. multi-strategy) that incorporate multiple risk views when constructing the portfolio. The strategy will take some directional risk at times if the portfolio management team believes that it will earn positive returns over their three-year time horizon. Given the scale of the GARS portfolio, the team requires all investment positions to be both scalable and suitably liquid. In addition, the strategy's risk-based approach requires the team to be able to reliably model the risk behavior of each selected investment, so all assets used must be well-understood from a risk perspective before going into the portfolio.

Acadian Asset Management – Acadian U.S. Managed Volatility

Acadian's goal is to build a portfolio focused on absolute return and risk with the aim of achieving an absolute return similar to or better than that of a domestic equity index but with lower volatility over the long term. Acadian targets absolute risk to be 25-35% less than a typical capitalization-weighted benchmark. That said, tracking error is not a major consideration and can appear relatively high due in part to Acadian's comfort with carrying large sector variations versus the benchmark. Acadian seeks to combine the values of all of the security-level factors to determine a peer-relative return forecast for each stock. Separately they make a top-down forecast for the stock's peer group, and then add that forecast to the stock's score. Acadian's managed volatility strategies utilize the same alpha forecasts as Acadian's active equity strategies but with risk being the initial consideration when constructing portfolios. Alpha forecasts play a modest role relative to the importance of risk estimates but are important to the goal of achieving a higher risk-adjusted return. Incorporation of alpha forecasts generally results in higher exposure to value, size and quality.

Acadian Asset Management – MAARS Fund

Acadian Multi-Asset Absolute Return (MAARS) strategy was inceptioned in November 2017. MAARS targets a volatility of 6%-8% and a return of cash plus 5%. This is a multi-factor strategy that aims to exploit behavioral inefficiencies within and across global markets and is designed to be diversifying, dynamic and defensive. It is market neutral, implemented using long and short positions across five primary asset classes (equity, fixed income, currency, commodities, and volatility) and over 100 underlying assets with a focus on liquid instruments. Return forecasts incorporate asset-specific and macroeconomic insights and are utilized to harvest active returns from within and across asset classes through market selection and directional positioning. The strategy integrates risk and return across asset classes. Avoidance of downside events is highlighted in the approach with a greater weighting in their models allocated to down market beneficiaries, such as quality factors, and asymmetric positioning which reduces positions when risk rises. Differentiated attributes of this approach are its approach and weighting to commodities and its volatility sleeve which can incorporate long volatility.

Angelo, Gordon & Co. – AG Opportunistic Whole Loan Fund

The Angelo Gordon Opportunistic Whole Loan (OWL) Fund was established to make investments primarily in a portfolio of non-performing loans (NPLs) and re-performing loans (RPLs). AG sees a lot of operational inefficiency in the market place. By acquiring these loans at a discounted price and replacing original servicers with better-focused special servicers, AG believes it can improve operational efficiency and generate attractive returns. In addition, OWL may also include investments in new residential mortgage loans and excess mortgage servicing rights. Opportunistic investments in commercial mortgage loans and other mortgage related investments may also be included in the Fund's portfolio. OWL is towards the end of its fund life and is continuing to sell down the fund's holdings and distribute proceeds to LPs.

Angelo, Gordon & Co. – Credit Solutions

The Angelo Gordon (AG) Credit Solutions Fund (CSF) expects to hold concentrated positions of 5-8% of NAV (averaging 30 positions over the life of the Fund with recycling). The Fund is targeting a net 15% IRR with a 5-7% current yield. The Fund should be 70% concentrated in the U.S. with the balance in Europe. Finally, while the opportunities can be sourced from both the public markets and the private markets, AG is finding compelling sources of return at this time through structuring new privately placed secured term loans out of public investments made by the firm. CSF will address corporate credit-based opportunities created in three main areas: 1) trading-based price dislocations that reduce creation multiples (price through the debt that must be repaid before value accrues to other stakeholders) while generating high current income; 2) opportunities in issuers tied to industries directly impacted by COVID-19 where the market's perception of the impact differs from the actual impact; and 3) corporate debt issuers that will be materially impacted by the pandemic and will need to restructure, but whose creation value is materially lower than the issuer's intrinsic value.

Angelo, Gordon & Co. – CSF (Annex) Dislocation

Angelo Gordon completed syndication of its AG Credit Solutions Fund ("CSF") in December of 2019. CSF was designed to capture opportunities in a late-cycle credit market and the initial stages of a market dislocation. Angelo Gordon designed and documented CSF to allow the placement of an annex fund in times of dislocation and credit deterioration. Given the price movements in the credit markets in March of 2020, driven by the lack of liquidity, financing needs of investment grade and non-investment grade borrowers, and anticipated impacts (restructurings, rescue financings, liquidations, etc.), Angelo Gordon came to market with the \$1.8 billion AG CSF Annex Dislocation Fund ("ADF"). ADF's investment aim is to target senior securities of world-class businesses with irreplaceable assets and strong cash flow profiles which, because of market stress, can be purchased at a material discount to what they believe is a company's long-term intrinsic value. ADF will address corporate credit-based opportunities created in three main areas: 1) trading-based price dislocations that reduce creation multiples (price through the debt that must be repaid before value accrues to other stakeholders) while generating high current income; 2) opportunities in issuers tied to industries directly impacted by COVID-19 where the market's perception of the impact differs from the actual impact; and 3) corporate debt issuers that will be materially impacted by the pandemic and will need to restructure, but whose creation value is materially lower than the issuer's intrinsic value.

Baillie Gifford – ACWI ex US Focus Equities

ACWI ex US Focus is a fundamental growth strategy. Research is organized primarily by regional teams, with each member of the ACWI ex US Focus Portfolio Construction Group representing a regional team. Four global sector groups also contribute research. Baillie Gifford conducts approximately 2000 company meetings annually both in Edinburgh and onsite. Companies are evaluated on their growth opportunity relative to the average company, their ability to execute on that opportunity, and the degree to which probability of future success is already valued by the market. Baillie Gifford's basic philosophy is that share prices ultimately follow earnings. They believe that the stock market has a recurring tendency to under-appreciate the value of long-term compound growth. The process seeks to add value through use of proprietary fundamental research to identify companies exhibiting some combination of sustained above average growth, and attractive financial characteristics. The portfolio generally holds 60-90 stocks, with country and sector weights +/-10% relative to the index and stock weights +/- 5% relative to the index.

Beach Point Capital Management, L.P. - Beach Point Select Fund

Beach Point Select Fund is a commingled fund vehicle within the firm's Opportunistic Credit strategy. This fund focuses on off-the-run, complex, and less-liquid securities. It is a best ideas portfolio of distressed debt, special situations, private/direct loans, catalyst-driven high yield bonds and bank loans, and credit-informed equities with a North American and European focus. The Select Fund differs from other funds and accounts in the Opportunistic Credit strategy by pursuing a more concentrated portfolio and emphasizing a higher percentage of less-liquid/private investments. Beach Point invests up and down the entire capital structure and it constructs portfolios with a bottom-up, research-driven approach that also takes into account top-down macro considerations. Its investment process includes idea generation, detailed credit analysis, relative value decision making and investment selection, portfolio construction and on-going monitoring. The ultimate goal of its investment process is to produce a well-diversified investment portfolio with limited downside risk and substantial upside potential.

BlackRock – MSCI ACWI ex US IMI Index

The ACWI ex US IMI Index Fund seeks to replicate the return of the MSCI ACWI ex US IMI Index. This index represents the developed equity markets outside of North America, including small cap equity. BlackRock monitors their funds daily to ensure that additions and deletions to the indexes, mergers and acquisitions, restructurings and other capitalization changes are made to the fund in such a way as to minimize tracking error and transactions costs.

BlackRock – Russell 1000 Index

The Russell 1000 Index Fund tracks large U.S. companies and achieve broad diversification with low costs by fully replicating the Russell 1000 Index. BlackRock monitors their funds daily to ensure that additions and deletions to the indexes, mergers and acquisitions, restructurings and other capitalization changes are made to the fund in such a way as to minimize tracking error and transactions costs.

BlackRock (formerly Tennenbaum Capital Partners) - Direct Lending Funds VIII and IX

TCP Direct Lending Fund VIII is a private investment fund managed by Tennenbaum Capital Partners ("TCP"). The Fund is designed to continue TCP's successful strategy of investing in privately-originated, performing senior secured debt primarily in North America-based companies with target enterprise values between \$100 million and \$1.5 billion. The Fund will include positions in 1st lien, 2nd lien and unitranche debt, with a preference for floating-rate debt, which TCP believes provides better flexibility to adapt to market conditions. TCP's direct lending strategy has generated attractive investment opportunities across market cycles, as evidenced by the Firm's prior direct lending track record. Fund VIII targets an unlevered annual yield of approximately 9-12%, with its return primarily driven by current income. SamCERA committed \$35 million to DLF VIII in June 2016 in its unlevered fund sleeve and \$35 million to the DLF IX in June 2019.

Brigade – Opportunistic Credit

Opportunistic Credit is a fundamental, bottom-up strategy focused on high yield corporate bonds and bank loans with tactical allocations to structured securities, convertibles, and other sectors of the bond markets as they become attractive on a relative value basis. While performing credits represent the majority, Brigade will invest up to 35% of the portfolio in distressed securities and restructuring situations if these types of opportunities are attractive on a risk-adjusted basis and the timing is right with respect to the credit cycle. The portfolio is comprised of mostly North American issuers, but they are not restricted geographically and expect to have a moderate allocation to Europe over time. Although the portfolio is generally long-only, Brigade has the ability to implement a limited amount of tactical macro hedges.

CFM - Systematic Global Macro

Capital Fund Management (CFM) Systematic Global Macro (SCM) is a directional strategy that takes long and short positions in liquid future and forwards across 130+ markets and across equities, bonds, currencies, and commodities. It is a new strategy that draws on model signals from existing strategies at the firm – Discus (diversified CTA), CFM ISTrends (trend following) and CFM ISTrend Equity Capped (defensive trend following) - and SamCERA is a seed investor with an attractive fee. SGM’s objective is to provide absolute returns that are uncorrelated with traditional asset classes over a long time horizon with an annualized volatility target between 8% and 12%. SGM uses a diverse set of trading strategies that are based on factors (momentum, value, carry, macro and sentiment) across asset classes. These technical and fundamental factors operate at different time scales and can have varying degrees of influence on performance depending on market and economic conditions. An additional global macro defensive overlay is combined with these outputs in constructing the final portfolio. CFM uses a form of portfolio construction known as agnostic risk parity to ensure that the SGM portfolio is diversified on an out-of-sample basis. The goal of SGM is to generate consistent returns while limiting drawdowns.

DE Shaw – DE Shaw US Broad Market Core Alpha Extension Fund

The D. E. Shaw group believes that there exist some market inefficiencies that may be identified through quantitative analysis, advanced technology, and the insight of practitioners. Identifying these inefficiencies involves a process of hypothesis formulation, testing, and validation. Importantly, to avoid data-mining, the hypothesis formulation precedes the analysis of the historical data. D.E. Shaw’s Structured Equity strategies rely largely on quantitative and computational investment techniques developed by the D. E. Shaw over the last two decades in the course of research conducted for purposes of managing the firm’s hedge funds. D.E. Shaw’s investment process involves a suite of quantitative models, each designed to capitalize on a distinct and uncorrelated set of market inefficiencies. Some of these models are technical in nature and involve price and volume inputs. Other models rely on fundamental data, such as figures gleaned from corporate balance sheets or income statements. Still others, again quantitative, anticipate or react to a particular corporate event or set of events. These models typically operate with forecast horizons of a few weeks to many months. The ability to trade on shorter-term signals distinguishes D.E. Shaw from many of its long only and 130/30 peers. Portfolio construction involves the use of a proprietary optimizer which runs dynamically throughout the trading day. The portfolio is broadly diversified with several hundred long and short positions. Over- and under-weighting of sectors and industries relative to the benchmark will be quite modest, with the intention that most of the alpha be generated by security selection. The US Broad Market Core Alpha Extension Fund is a 130/30 strategy which maintains a beta that is approximately neutral to the Russell 1000 Index.

DoubleLine – Securitized Income

The DoubleLine Securitized Income strategy is an actively managed, liquid, long only, intermediate-term fixed income product. The primary objective of the strategy is to seek and maximize current income and total return by utilizing a combination of Agency MBS and structured credit. The DoubleLine Structured Products team aims to offer clients investment grade exposure to both interest rate duration and credit spread to provide a more attractive total return profile compared to the benchmark. Securitized Income seeks to maximize income and total return by investing across the structured products universe, focusing on agency mortgage-backed securities (MBS) and investment grade securitized credit. DoubleLine takes a barbelled approach to investing in the securitized market, and they will separate rates from credit and will adjust the allocations to both at the based on the economic cycle and opportunities. Duration positioning is achieved through Agency MBS, Agency CMBS, and treasuries while credit exposure is attained through all areas of structured credit.

Fidelity (FIAM) – Broad Market Duration Commingled Pool

Pyramis' Broad Market Duration (BMD) investment strategy seeks to achieve absolute and risk-adjusted returns in excess of the BC U.S. Aggregate Index, focusing its investments in US Treasuries, agencies, investment grade corporate bonds, mortgage-backed and asset-backed securities. The BMD commingled pool can also hold small, opportunistic positions in out-of-benchmark securities, such as inflation-linked bonds. The investable universe includes all US dollar denominated, investment grade debt securities. The BMD investment approach emphasizes issuer and sector valuation and individual security selection. Through the integration of fundamental and quantitative research and trading, the BMD strategy is implemented in a team environment. Risk management technology is utilized to explicitly quantify benchmark exposures on a daily basis, and Pyramis uses the same analytical framework to assess both index and portfolio risk. Tracking error should range between 40 and 60 basis points per annum over the benchmark, and stringent portfolio construction risk control rules are strictly adhered to.

Franklin Templeton Investments – Global Fixed Income

Franklin Templeton manages the global bond mandate in an unconstrained fashion using a top-down, fundamental framework. In the short term and on a country-by-country basis there are often inefficiencies in global bond and currency markets, however, over the longer term the market will generally price to fundamentals. Thus, FT focuses on fundamental research to identify long-term opportunities and uses short-term market inefficiencies to build positions in such investments. The investment and portfolio construction process begin with the determination of the Fund's or institutional client's investment objectives, resulting in a set of risk-return parameters and exposure limits within which the portfolio is managed. Next the firm's global economic outlook for the industrialized countries is developed, with a focus on interest rate and exchange rate forecasts. The portfolio's interest rate outlook is a function of global general equilibrium macroeconomic analysis as well as country-specific research. Macroeconomic conditions in the G-3 economies are analyzed first, primarily with respect to how current and projected growth and inflation dynamics are expected to influence monetary policy. This analysis is then extended out to the rest of the industrialized countries (G-13) as well as emerging markets, which results in broad targets for cash, duration, currencies and the developed/emerging market mix. Using the firm's interest rate and exchange rate outlook, probability-weighted horizon returns for bonds of various countries are then calculated. This analysis is used to establish specific country weights and duration targets based on risk-adjusted expected total return measured in the portfolio's base currency. Analysis of emerging markets includes sovereign credit analysis along with greater emphasis on capital flows, inter-market dynamics and trends in the level of risk aversion in the market.

Graham – Quant Macro Fund

Graham Quant Macro ("GQM") is a directional, long and short strategy that utilizes fundamental and price-based indicators to establish return forecasts across global interest rates, foreign exchange, stock indices and commodities. The strategy incorporates a variety of submodels that generate macro fundamental forecasts, assess yield and earnings differentials, compare current valuations relative to historic fair value, and analyze directional price trends across markets. Quantitative risk management and portfolio construction techniques are used to diversify risk across the portfolio and enhance risk-adjusted returns. Historically, the average holding period has been approximately eight to ten weeks, although the sub-models will make daily adjustments to positions. The strategy is designed to have low correlation to traditional markets and other alternative strategies and has the potential to provide significant portfolio diversification benefits.

Harrison Street Core Property

Based in Chicago, Harrison Street's exclusive focus since inception in 2005 has been investing in non-core property sectors of the real estate market. The Harrison Street Core Fund is an open-end fund that invests primarily in stabilized education, healthcare, and self-storage real estate assets in the United States using modest leverage with an emphasis on generating current income. The focus on these alternative property types is intended to concentrate on areas of the real estate market that are less GDP sensitive with demand drivers that are more demographic driven such as aging populations, education growth and healthcare delivery. Each of these areas tend to be less tied to the business cycle, have fragmented ownership and more operationally intensive. The fund acts as a diversifier within real estate portfolios with sector exposures that are not a typical focus of other core ODCE funds.

INVESCO Realty Advisors – INVESCO Core Equity, LLC

SamCERA is a founding member of INVESCO's open-end Core Equity real estate fund and rolled its separate account properties into the fund. INVESCO Core Equity, LLC (the "Fund") is a perpetual life, open-end vehicle which invests in a diversified portfolio of institutional quality office, retail, industrial and multifamily residential real estate assets. The Fund buys core properties that are located within the United States, typically requiring an investment of \$10 million or more. The portfolio cannot be more than 30% leveraged.

INVESCO Realty Advisors – INVESCO US Val IV

Invesco has provided SamCERA with Core Real Estate exposure since 2004 through the Invesco Core Equity Fund. The Invesco real estate team manages around \$62B in assets with investments and offices around the globe. Invesco Value Fund IV looks to acquire fundamentally sound but broken "core" assets that can be repositioned into institutional-quality, income producing properties. Investments are limited to direct equity interests in office, multi-family, retail and industrial properties across the US. The Fund is expected to be geographically concentrated in U.S. gateway cities and top 25 Metropolitan Statistical Areas (MSA's). Invesco Value Fund IV provides a complement to the more conservative Invesco Core Fund and offers the potential of enhanced returns to the SamCERA Real Estate portfolio.

INVESCO Realty Advisors – INVESCO US Val V

Invesco has provided SamCERA with Core Real Estate exposure since 2004 through the Invesco Core Equity Fund and through the Invesco US Value IV Fund since December 2015. The Invesco real estate team manages around \$62B in assets with investments and offices around the globe. Invesco Value Fund V will be similar to the Value Add IV and look to acquire fundamentally sound but broken "core" assets that can be repositioned into institutional-quality, income producing properties. Investments will be limited to direct equity interests in office, multi-family, retail and industrial properties across the US. The Fund is expected to be geographically concentrated in U.S. gateway cities and top 25 Metropolitan Statistical Areas (MSA's).

Mondrian Investment Partners – International Equity

Mondrian is a value-oriented, defensive manager whose investment philosophy is based on the principle that investments must be evaluated for their fundamental long-term value. The firm's philosophy involves three stated investment objectives: 1) provide a rate of return meaningfully greater than the client's domestic rate of inflation, 2) structure client portfolios that preserve capital during protracted international market declines, and 3) provide portfolio performance that is less volatile than benchmark indices and other international managers. Mondrian applies typical value screening criteria to a universe of 1,500 stocks, from which 500 are selected for more detailed work. Through fundamental research, and the deliberations of the Investment Committee, the universe is further reduced to a list of 150 stocks. The investment team conducts detailed fundamental analysis on the remaining stocks, a process which includes applying the firm's dividend discount model consistently across all markets and industries. Mondrian also uses a purchasing power parity model to give an accurate currency comparison of the value of the stocks under consideration. The firm will only consider buying stocks in countries with good investor protection practices and relatively simple repatriation procedures. A computer-based optimization program is employed in the portfolio construction process. Mondrian's portfolio holds 80-125 issues.

NISA – Core Bond

NISA applies a risk-controlled approach to all of its fixed income portfolios. This approach does not permit large bets or positions that generate significant tracking error versus the benchmark. Instead, NISA invests in a large number of small, diversified, active positions which seek tight tracking error to the chosen benchmark. Benchmark weight is a significant consideration when constructing and managing portfolios. The investment strategy is comprised of strategic (top-down) and tactical (bottom-up) decisions. Strategic decisions include sector selection and yield curve positioning while tactical decisions include industry and security selection and trading activity. Review of both strategic and tactical decisions is continual. The amount of portfolio risk budget devoted to one aspect versus the other will change as market conditions warrant. In general, strategic decisions change relatively infrequently, while tactical decisions, especially security selection, will change fairly often as market conditions provide opportunities. Over a typical market cycle, the bottom-up is expected to contribute to 70% of value-added while top-down is roughly 30%.

PanAgora Asset Management – Defensive U.S. Equity Low Volatility

PanAgora's Defensive Equity strategy seeks to harness the 'low-volatility premium' through a systematic, factor-based investment approach focused on achieving market-like returns with less risk. This is accomplished by leveraging PanAgora's proprietary Risk Parity portfolio construction methodology, which seeks to efficiently capture the equity premium associated with low volatility, while taking minimal unintended risks. Since the firm's inception, PanAgora has been using quantitative techniques to integrate fundamental insights with large amounts of dynamic market data. They score individual securities on a factor basis and also on a diversification basis, in the context of a broadly diversified portfolio. The portfolio construction process optimizes the portfolio around the intended factor exposure (volatility) while maintaining equal risk contribution across sectors (ex., overweight utilities and consumer staples, underweight financials and technology). Shorter term volatility and longer term correlation analysis is combined in the approach. The result for the US Defensive Equity strategy is a portfolio expected to have lower volatility (beta around 0.65-0.75), and similar returns relative to the capitalization-weighted benchmark over a full market cycle. PanAgora expects the strategy to participate in approximately 75% of up markets and 55% in down markets.

Parametric Overlay – Cash Overlay and Currency Hedge

Parametric's cash overlay program is an efficient way for SamCERA to maintain its target asset allocation in a systematic fashion through cash securitization at the fund and manager level, transition/reallocation support and asset class rebalancing back to target within defined bands. The cash overlay program is invested synthetically using liquid futures with cash balances reviewed daily. A combination of large and small cap futures implementation is the proxy for private equity. SamCERA's investment guidelines initially allowed only for cash overlay. Rebalancing was added to the SamCERA program in January 2014. Cash overlay and rebalancing is expected to add 10-20 bps to the portfolio over time. An additional currency overlay hedge placed on half of the notional value of developed international equities. The addition of currency hedging started in September 2018 and was fully implemented on 10/1/2019. The purpose of the currency is first and foremost to lower portfolio risk and secondarily to add incremental performance.

PIMCO Diversified

PIMCO's Diversified Income (DI) Fund is a multi-sector strategy that invests across a broad spectrum of global credit market sectors, including investment grade and high yield corporate debt, as well as emerging markets. The allocation among these will vary based on PIMCO's assessment of global trends and relative valuations. This active and dynamic approach allows for increased responsiveness in asset allocation to changing economic and market conditions while remaining anchored by PIMCO's investment process and longer-term orientation. The ability to invest globally helps to improve diversification and may allow investors to benefit from differences in business cycles across regions and credit quality trends across credit sectors. PIMCO's DI investment strategy seeks to provide high yield-like returns with lower volatility against a blended index (1/3 Bloomberg Barclays Global Agg Credit ex-EM; 1/3 BofA Merrill Lynch BB-B rated Developed Markets High Yield; 1/3 JPMorgan EMBI Global). The fund allows for a duration band of 3-8 years. The team focuses its investments into these groups: credit strategies (investment grade, high yield, emerging markets and non-core credits including MBS, municipals and other govt-related sectors); duration strategies (U.S. and non-U.S. duration) and currencies (tactical non-USD exposure).

PIMCO – MAARS

PIMCO MAARS is an alternative risk premia strategy that looks for risks associated with: (1) Supply and Demand Constraints, (2) Behavioral Biases, and (3) Asymmetric Risks (event risk). As reflected in the design of the MAARS strategies, PIMCO believes that alternative risk premia strategies are best implemented using a systematic approach that minimizes the discretionary inputs in day-to-day portfolio management. MAARS places a greater emphasis and weighting on global interest rates, currencies and commodities and a lesser emphasis on equities than many of its Alt Beta peers. Relative to Alt Beta peers, the strategy's rates and currency (FX) models are particularly robust, reflective of PIMCO's core competency and long history managing these asset classes using derivative instruments.

PIMCO Private Income Fund

PIMCO Private Income Fund (PIF) uses an opportunistic and flexible approach to global private credit. PIF provides a total return oriented global credit exposure utilizing both top-down sector relative value and bottom up security selection. The strategy invests across private residential, commercial, corporate and specialty finance markets. PIMCO's Private Income Fund (PIF) is targeting 8-12% net returns with income providing most of the fund's returns. The Private Income Investment Committee (IC) identifies market themes and direction for their relative value framework, and sector specialists provide recommendations to the PM team within that construct. PIF has the ability to invest throughout the capitalization structure. The fund can use a moderate amount of leverage to enhance portfolio returns (1.5 times with a hard cap of 2 times).

PGIM RE Debt

PGIM Real Estate US Debt Fund (PREDS) focuses on a loan origination strategy with a mix of 20% senior long duration loans on stable assets, 60% senior short/medium duration loans on stable and transitional assets, and 20% mezzanine mid/long duration debt. SamCERA was a founding investor in the PREDS strategy which invests in US commercial real estate debt in an open-ended vehicle with a return target of 7-8% (gross) coming from stable current income. The fund makes investments in first lien mortgages and mezzanine debt. First lien mortgages can be floating rate or fixed rate, but only floating rate loans will use leverage. Subordinate investments (mezzanine debt and preferred equity) will be limited by design. The fund can source and invest in secondary loans through a variety of Prudential real estate professionals, but the primary focus will be on direct origination through the real estate finance team.

Quantitative Management Associates – QMA Small-Cap Core

Quantitative Management Associates (QMA) utilizes a bottom-up quantitative framework in order provide a diversified exposure to core U.S. small-cap stocks, while attempting to produce consistent outperformance versus the benchmark with moderate tracking error levels. QMA uses an adaptive, systematic investment process to exploit opportunities created by mispriced securities to consistently add value over long time periods. Bottom-up stock selection drives exposure to key sources of alpha (valuation, growth, and quality). The QMA stock selection model adapts to changes in company growth rates and market environments by putting more emphasis on valuation for slowly growing companies, and more emphasis on future growth projections for companies with higher projected growth rates.

State Street Global Advisors (SSgA) Custom Real Asset

SSgA Custom Real Asset portfolio uses a portfolio of liquid real assets to proxy private real assets. The portfolio is comprised of equal weightings of the Bloomberg Roll Select Commodity Index, S&P Global Mid-Large Cap Natural Resources Index, S&P Global Infrastructure Index, and Bloomberg Barclays TIPS Index. SSgA provides beta exposure through these underlying liquid components which can be customized to changing client needs (ex., TIPS was added in May 2020 with the other three parts of the portfolio reduced pro-rata). The portfolio is used to fund upcoming private real asset mandates.

Stockbridge Value IV

Stockbridge Value IV will implement a value-added strategy that will seek to own assets that are undervalued, underutilized, and/or not operating to their full potential. The manager will add value with their internal asset management team through active strategies including additional capital investment, leasing, recapitalization, renovation and/or development. The fund will target three to five year holding periods for investments, with disposition taking place after the completion of the value-add strategy. The fund will target 15 to 25 mid-sized investments, diversified by geography and property type. The strategy will target 21 markets in the United States in which the firm has boots on the ground coverage with dedicated acquisitions professionals and asset managers responsible for knowing each market extensively with a vast network of relationships.

Western Asset Management – Total Return Unconstrained (TRU)

Western Asset's Total Return Unconstrained strategy (TRU) seeks to provide bond-like risk and return over the long term but does not have a benchmark. This allows for asset allocation based on value rather than using the construction of a benchmark as baseline positioning. The investment approach is active with very broad latitude on duration (-3 to +8 years) and on asset allocation across all of the eligible sectors in a core plus mandate. The portfolio must have at least 50% of its holdings in investment-grade securities. The flexibility offered by this strategy allows for defensive positioning in rising rate environments and opportunistic deployment of capital when value opportunities arise. It also allows the portfolio managers to emphasize (or deemphasize) either credit or rates when one or the other appears to offer greater (or lesser) value. um non-US exposure.

White Oak - White Oak Yield Spectrum Fund

The White Oak Yield Spectrum Fund's objective is to earn substantial current income by originating, extending, and/or investing in a diversified portfolio of primarily senior secured corporate credit and debt instruments consisting of term loans, asset-based loans and equipment leases and loans issued by small to middle-market companies located primarily in the United States and Canada. It focuses on providing self-originated deals for predominantly non-sponsored, privately-held borrowers.

White Oak - White Oak Yield Spectrum Fund V

The White Oak Yield Spectrum Fund's objective is to earn substantial current income by originating, extending, and/or investing in a diversified portfolio of primarily senior secured corporate credit and debt instruments consisting of term loans, asset-based loans and equipment leases and loans issued by small to middle-market companies located primarily in the United States and Canada. It focuses on providing self-originated deals for predominantly non-sponsored, privately-held borrowers.

Policy Index and Benchmark History

Period Ending: December 31, 2021

Total Plan Policy Index	As of													
	2/1/21	1/1/21	7/1/20	4/1/20	10/1/19	7/1/19	4/1/19	1/1/19	10/1/18	4/1/18	10/1/17	2/1/17	1/1/17	
10 Year Treasury +2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
60/40 MSCI World/Bloomberg Global Aggregate (RP)	0.0%	0.0%	0.0%	4.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
60/40 Russell 3000/Bloomberg US Aggregate (RP)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
91 Day T-Bills	1.0%	1.0%	1.0%	1.0%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Aggregate	18.0%	21.0%	21.0%	18.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	12.0%	10.0%	10.0%
Bloomberg BA Intermediate HY	10.0%	10.0%	10.0%	8.0%	8.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	6.0%	6.0%	6.0%
Bloomberg BBB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Credit BAA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Multiverse	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%	3.0%	3.0%
Bloomberg TIPS	0.0%	0.0%	0.0%	0.0%	1.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Bloomberg Commodity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Citigroup non-US WGBI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CPI + 5% (RA)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Blended Public Real Asset	4.0%	4.0%	4.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	0.0%	0.0%	0.0%	0.0%
Blended Private Real Asset	4.0%	3.0%	3.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	8.0%	7.0%	5.0%	5.0%
Libor +4% (HF)	0.0%	0.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	5.0%
SOFR +4% (HF)	7.0%	6.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex US IMI 100% Hedged (Net)	9.5%	9.0%	9.0%	9.0%	9.0%	7.6%	5.7%	3.8%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US IMI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	19.0%	19.0%	19.0%
MSCI ACWI ex-US IMI (Net)	9.5%	9.0%	9.0%	9.0%	9.0%	11.4%	13.3%	15.2%	17.1%	19.0%	19.0%	0.0%	0.0%	0.0%
MSCI EAFE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NCREIF ODCE	9.0%	10.0%	10.0%	9.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	7.0%	7.0%	7.0%
NCREIF Property	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 1000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 1000 Value	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 2000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 3000	22.0%	21.0%	21.0%	22.0%	22.0%	22.0%	22.0%	22.0%	22.0%	21.0%	21.0%	23.0%	28.0%	28.0%
Russell 3000 +3% (PE)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.0%	7.0%	7.0%	7.0%
Russell 3000 +3% 1Q Lag (PE)	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	7.0%	0.0%	0.0%	0.0%	0.0%
S&P 500	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Policy Index and Benchmark History

Period Ending: December 31, 2021

Total Plan Policy Index	As of:													
	10/1/16	9/1/16	1/1/16	7/1/14	1/1/14	2/1/13	1/1/11	10/1/10	1/1/09	5/1/07	6/1/00	3/1/99	9/1/98	7/1/96
10 Year Treasury +2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.0%	10.0%	10.0%
60/40 MSCI World/Bloomberg Global Aggregate (RP)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
60/40 Russell 3000/Bloomberg US Aggregate (RP)	8.0%	8.0%	8.0%	8.0%	8.0%	6.0%	6.0%	6.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
91 Day T-Bills	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Aggregate	10.0%	10.0%	10.0%	10.0%	9.3%	11.0%	11.0%	12.9%	27.0%	27.0%	29.0%	25.0%	21.0%	21.0%
Bloomberg BA Intermediate HY	6.0%	5.0%	5.0%	5.0%	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg BBB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Credit BAA	0.0%	0.0%	0.0%	0.0%	0.0%	3.5%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Multiverse	3.0%	3.0%	3.0%	3.0%	3.8%	4.4%	4.4%	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg TIPS	2.0%	2.0%	2.0%	2.0%	2.0%	3.1%	3.3%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Commodity	0.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Citigroup non-US WGBI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	9.0%	9.0%
CPI + 5% (RA)	0.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Blended Public Real Asset	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Blended Private Real Asset	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Libor +4% (HF)	5.0%	5.0%	5.0%	4.0%	4.0%	3.0%	3.0%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SOFR +4% (HF)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US	0.0%	0.0%	0.0%	0.0%	0.0%	18.0%	18.0%	18.0%	21.0%	21.0%	15.0%	0.0%	0.0%	0.0%
MSCI ACWI ex US IMI 100% Hedged (Net)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US IMI	19.0%	20.0%	20.0%	20.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US IMI (Net)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI EAFE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	20.0%	20.0%
NCREIF ODCE	7.0%	7.0%	7.0%	6.0%	6.0%	5.0%	5.0%	5.0%	6.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NCREIF Property	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.0%	6.0%	0.0%	0.0%	0.0%
Russell 1000	0.0%	0.0%	24.0%	24.0%	24.0%	28.0%	28.0%	28.0%	37.0%	37.0%	40.0%	22.0%	20.0%	20.0%
Russell 1000 Value	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%	5.0%	0.0%
Russell 2000	0.0%	0.0%	4.0%	6.0%	6.0%	7.0%	7.0%	7.0%	9.0%	9.0%	10.0%	15.0%	15.0%	15.0%
Russell 3000	28.0%	28.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 3000 +3% (PE)	7.0%	7.0%	7.0%	7.0%	7.0%	8.0%	8.0%	8.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 3000 +3% 1Q Lag (PE)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
S&P 500	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Policy Index and Benchmark History

Period Ending: December 31, 2021

Public Equity Benchmark	As of:																		
	2/1/21	7/1/20	10/1/19	7/1/19	4/1/19	1/1/19	10/1/18	10/1/17	2/1/17	10/1/16	9/1/16	1/1/16	1/1/14	10/1/10	5/1/07	6/1/00	3/1/99	9/1/98	1/1/96
MSCI ACWI ex-US	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	34.0%	31.3%	23.1%	0.0%	0.0%	0.0%
MSCI ACWI ex US IMI 100% Hedged (Net)	23.2%	23.1%	22.5%	18.5%	13.9%	9.3%	4.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex-US IMI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	47.5%	45.2%	40.4%	41.7%	41.7%	40.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI ACWI ex US IMI (Net)	23.2%	23.1%	22.5%	27.8%	32.4%	37.0%	41.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MSCI EAFE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	32.3%	33.3%	33.3%
Russell 1000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	48.0%	52.8%	55.2%	61.5%	35.5%	33.3%	33.3%
Russell 1000 Value	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.0%	8.4%	0.0%
Russell 2000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.3%	12.0%	13.2%	13.5%	15.4%	24.2%	25.0%	25.0%
Russell 3000	53.7%	53.9%	55.0%	53.7%	53.7%	53.7%	53.7%	52.5%	54.8%	59.6%	58.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
S&P 500	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.4%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

US Equity Benchmark	As of:						
	9/1/16	1/1/16	6/1/00	3/1/99	9/1/98	7/1/96	1/1/95
Russell 1000	0.0%	85.7%	80.0%	52.0%	50.0%	50.0%	69.0%
Russell 1000 Value	0.0%	0.0%	0.0%	12.0%	12.5%	0.0%	0.0%
Russell 2000	0.0%	14.3%	20.0%	36.0%	37.5%	37.5%	14.0%
Russell 3000	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
S & P 500	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%	17.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

International Equity Benchmark	As of:								
	10/1/19	7/1/19	4/1/19	1/1/19	10/1/18	10/1/17	1/1/14	6/1/00	1/1/96
MSCI ACWI ex US	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
MSCI ACWI ex US IMI 100% Hedged (Net)	50.0%	40.0%	30.0%	20.0%	10.0%	0.0%	0.0%	100.0%	0.0%
MSCI ACWI ex US IMI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MSCI ACWI ex US IMI (Net)	50.0%	60.0%	70.0%	80.0%	90.0%	100.0%	0.0%	0.0%	0.0%
MSCI EAFE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Fixed Income Benchmark	As of:															
	2/1/21	7/1/20	4/1/20	10/1/19	10/1/17	2/1/17	10/1/16	4/1/16	7/1/14	1/1/14	2/1/13	1/1/11	10/1/10	6/1/00	3/1/99	7/1/96
Bloomberg Aggregate	64.3%	67.7%	69.2%	63.6%	66.7%	57.1%	52.6%	55.5%	50.0%	46.3%	50.0%	50.0%	58.6%	100.0%	83.3%	70.0%
Bloomberg BA Intermediate HY	35.7%	32.3%	30.8%	36.4%	33.3%	28.6%	31.6%	27.8%	25.0%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg BBB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.3%	0.0%	0.0%	0.0%
Bloomberg Credit BAA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.0%	15.0%	0.0%	0.0%	0.0%	0.0%
Bloomberg Multiverse	0.0%	0.0%	0.0%	0.0%	0.0%	14.3%	15.8%	16.7%	15.0%	18.8%	20.0%	20.0%	20.5%	0.0%	0.0%	0.0%
Bloomberg TIPS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	10.0%	14.0%	15.0%	13.6%	0.0%	0.0%	0.0%
Citigroup non-US WGBI	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.7%	30.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Opportunistic Credit Benchmark	As of:	
	1/1/14	12/1/09
Bloomberg BA Intermediate HY	100.0%	0.0%
Bloomberg Credit BAA	0.0%	100.0%
	100.0%	100.0%

Alternatives Benchmark	As of:								
	2/1/21	1/1/21	10/1/18	4/1/18	2/1/17	4/1/16	1/1/16	1/1/14	1/1/11
60/40 Russell 3000/Bloomberg US Aggregate (RP)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	30.0%
Bloomberg Commodity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.7%	18.8%	15.0%
CPI + 5% (RA)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.8%	12.5%	0.0%
Libor +4% (HF)	0.0%	0.0%	50.0%	46.2%	46.2%	41.7%	29.4%	25.0%	15.0%
SOFR +4% (HF)	53.8%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russell 3000 +3% (PE)	0.0%	0.0%	0.0%	0.0%	53.8%	58.3%	41.2%	43.8%	40.0%
Russell 3000 +3% 1Q Lag (PE)	46.2%	50.0%	50.0%	53.8%	0.0%	0.0%	0.0%	0.0%	0.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Policy Index and Benchmark History

Period Ending: December 31, 2021

Private Equity Benchmark

As of:	4/1/18	10/1/10
Russell 3000 +3% 1Q Lag	100.0%	0.0%
Russell 3000 +3%	0.0%	100.0%
	100.0%	100.0%

Hedge Fund Benchmark

As of:	1/1/21	10/1/10
Libor +4%	0.00%	100.00%
SOFR +4%	100.0%	0.0%
	100.0%	100.0%

Inflation Hedge

As of:	2/1/21	7/1/20	4/1/20	10/1/19	4/1/18	2/1/17	10/1/16	4/1/16
Bloomberg TIPS	0.00%	0.00%	0.00%	5.88%	11.1%	12.5%	14.3%	14.3%
Bloomberg Commodity	0.00%	0.00%	0.00%	0.00%	0.0%	0.0%	0.0%	21.4%
CPI + 5% (RA)	0.00%	0.00%	0.00%	0.00%	0.0%	0.0%	0.0%	14.3%
Blended Public Real Asset	23.53%	23.53%	35.29%	35.29%	33.3%	0.0%	0.0%	0.0%
Blended Private Real Asset	23.53%	17.65%	11.77%	11.77%	11.1%	43.8%	35.7%	0.0%
NCREIF ODCE	52.94%	58.82%	52.94%	47.06%	44.4%	43.8%	50.0%	50.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Public Real Asset Benchmark

As of:	5/1/20	10/1/16	1/1/14
Bloomberg Roll Select Commodity	25.0%	34.0%	0.0%
S&P Global Large-MidCap Commodity and Resources	25.0%	33.0%	0.0%
S&P Global Infrastructure	25.0%	33.0%	0.0%
CPI + 5%	0.0%	0.0%	100.0%
Bloomberg TIPS	25.0%	0.0%	0.0%
	100.0%	100.0%	100.0%

Private Real Asset Benchmark

As of:	1/1/21	4/1/18	10/1/16	1/1/14
Bloomberg Roll Select Commodity	0.00%	0.00%	34.00%	0.0%
S&P Global Large-MidCap Commodity and Resources	0.00%	0.00%	33.00%	0.0%
S&P Global Infrastructure	0.00%	0.00%	33.00%	0.0%
50/50 S&P Global Infra & Lrg-MidCap Com & Resources +2% 1QL	0.00%	100.00%	0.00%	0.0%
75/25 S&P Global Infra & Lrg-MidCap Com & Resources +2% 1QL	100.00%	0.00%	0.00%	0.0%
CPI + 5%	0.00%	0.00%	0.00%	100.0%
	100.0%	100.0%	100.0%	100.0%

Private RA Secondary Benchmark

As of:	9/1/14
Cambridge Associates Private Natural Resources 1 Qtr Lag	50.0%
Cambridge Associates Private Infrastructure 1 Qtr Lag	50.0%
	100.0%

Real Estate Benchmark

As of:	1/1/09	6/1/00	7/1/96
10 Year Treasury +2%	0.0%	0.0%	100.0%
NCREIF ODCE	100.0%	0.0%	0.0%
NCREIF Property	0.0%	100.0%	0.0%
	100.0%	100.0%	100.0%

Policy Index and Benchmark History

Period Ending: December 31, 2021

Baillie Gifford Benchmark	As of:	
	1/1/14	5/1/12
MSCI ACWI ex-US	100.0%	0.0%
MSCI EAFE	0.0%	100.0%
	100.0%	100.0%

Baillie Gifford Secondary Benchmark	As of:	
	1/1/14	5/1/12
MSCI ACWI ex-US Growth	100.0%	0.0%
MSCI EAFE Growth	0.0%	100.0%
	100.0%	100.0%

Brigade Secondary Benchmark	As of:	
	8/1/10	
Bloomberg High Yield	50.0%	
Credit Suisse Leveraged Loans	50.0%	
	100.0%	

PIMCO Diversified	As of:	
	9/1/17	
JPMorgan EMBI Global	33.333%	
BofAMLBB-BRatedDvlpdMktsHYHdgdUSD	33.333%	
Global Agg Credit Ex EM USD hedged	33.334%	
	100.0%	

SSgA Custom Real Asset	As of:	
	5/1/20	11/1/16
Bloomberg Roll Select Commodity	25.00%	33.33%
S&P Global Large-MidCap Commodity and Resources	25.00%	33.33%
S&P Global Infrastructure	25.00%	33.34%
Bloomberg TIPS	25.00%	0.00%
	100.0%	100.0%

Acadian Asset Management

First \$50 million:	0.27% per annum
Next \$50 million:	0.225% per annum
Thereafter:	0.18% per annum

Baillie Gifford

First \$25 million:	0.60% per annum
Next \$75 million:	0.50% per annum
Next \$300 million:	0.40% per annum
Thereafter:	0.30% per annum

BlackRock-Russell 1000 Index Fund

On All Assets:	0.01% per annum
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BlackRock-MSCI ACWI ex US IMI Index Fund

On All Assets:	0.045% per annum
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DoubleLine

On All Assets:	0.30% per annum
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NISA

First \$500 million:	0.15% per annum
Next \$1 billion:	0.125% per annum
Next \$1 billion:	0.105% per annum
Next \$1.5 billion:	0.085% per annum
Thereafter:	0.065% per annum

Franklin Templeton Investment

First \$50 million:	0.40% per annum
Next \$50 million:	0.30% per annum
Thereafter:	0.25% per annum

FIAM Bond

First \$50 million:	0.25% per annum
Next \$50 million:	0.20% per annum
Next \$100 million:	0.125% per annum
Thereafter:	0.10% per annum

PanAgora Asset Management

First \$50 million:	0.25% per annum
Next \$50 million:	0.15% per annum
Thereafter:	0.10% per annum

Parametric Overlay

First \$50 million:	0.12% per annum
Next \$100 million:	0.10% per annum
Thereafter:	0.05% per annum
Plus monthly reporting fee of \$1500	

Parametric Currency Overlay

First \$250 million:	0.05% per annum
Thereafter:	0.03% per annum

PIMCO Diversified

On All Assets:	0.75% per annum
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QMA

First \$100 million:	0.55% per annum
Next \$100 million:	0.53% per annum
Thereafter:	0.49% per annum

Western Asset Management

On All Assets:	0.25% per annum
Performance Fee:	20.00%

Mondrian Investment Partners

Assets Below \$190 million

First \$20 million:	1.00% per annum
Thereafter:	0.33% per annum

Assets Above \$190 million

First \$50 million:	1.00% per annum
Next \$150 million:	0.19% per annum
Thereafter:	0.33% per annum

Manager Compliance (Net)

Period Ending: December 31, 2021

Name	Primary Benchmark	Rule 1	Rule 2	Rule 3
Acadian US MGD V	Russell 1000	--	--	--
DE Shaw	Russell 1000	R	✓	R
PanAgora Defuseq	Russell 1000	--	--	--
QMA US Small Cap	Russell 2000	R	R	R
Baillie Gifford	MSCI ACWI ex US	✓	R	✓
Mondrian	MSCI ACWI ex USA Value Gross	R	R	✓
DoubleLine	Bloomberg US Aggregate TR	--	--	--
FIAM Bond	Bloomberg US Aggregate TR	✓	✓	✓
NISA Core Bond	Bloomberg US Aggregate TR	--	--	--
Western TRU	3-Month Libor Total Return USD	✓	R	R
AG CSF Annex Dislocation Fund	Bloomberg BA Intermediate HY	--	--	--
Angelo Gordon Opportunistic	Bloomberg US Aggregate TR	✓	--	✓
Angelo Gordon Credit Solutions	Bloomberg BA Intermediate HY	--	--	--
Beach Point Select	Bloomberg BA Intermediate HY	✓	✓	✓
Brigade Capital	Bloomberg BA Intermediate HY	✓	✓	R
PIMCO Diversified	Blended PIMCO Diversified Index	--	--	--
Franklin Templeton	Bloomberg Multiverse TR	--	--	--
Blackrock DL Feeder IX-U	Cliffwater Direct Lending Index	--	--	--
PIMCO Private Income	Bloomberg BA Intermediate HY	--	--	--
TCP Direct Lending VIII	Cliffwater Direct Lending Index	R	✓	✓
White Oak Yield	Cliffwater Direct Lending Index	--	--	--
White Oak YSF V	Cliffwater Direct Lending Index	--	--	--
Aberdeen Standard GARS	Absolute Return Custom Index	R	R	R
Acadian MAAR Fund LLC	Absolute Return Custom Index	--	--	--
CFM Systematic Global Macro	Absolute Return Custom Index	--	--	--
Graham Quant Macro	Absolute Return Custom Index	--	--	--
PIMCO MAARS Fund LP	Absolute Return Custom Index	--	--	--

Rule 1 - Manager has underperformed the benchmark index for the five year period.

Rule 2 - Manager has underperformed the 50th percentile in the appropriate style universe for the five year period.

Rule 3 - Excess 5 Year Sharpe Ratio vs. Benchmark is positive

Manager Compliance (Gross)

Period Ending: December 31, 2021

Name	Primary Benchmark	Rule 1	Rule 2	Rule 3
Acadian US MGD V	Russell 1000	--	--	--
DE Shaw	Russell 1000	R	✓	R
PanAgora Defuseq	Russell 1000	--	--	--
QMA US Small Cap	Russell 2000	R	R	R
Baillie Gifford	MSCI ACWI ex US	✓	✓	✓
Mondrian	MSCI ACWI ex USA Value Gross	✓	R	✓
DoubleLine	Bloomberg US Aggregate TR	--	--	--
FIAM Bond	Bloomberg US Aggregate TR	✓	✓	✓
NISA Core Bond	Bloomberg US Aggregate TR	--	--	--
Western TRU	3-Month Libor Total Return USD	✓	✓	R
AG CSF Annex Dislocation Fund	Bloomberg BA Intermediate HY	--	--	--
Angelo Gordon Opportunistic	Bloomberg US Aggregate TR	✓	--	✓
Angelo Gordon Credit Solutions	Bloomberg BA Intermediate HY	--	--	--
Beach Point Select	Bloomberg BA Intermediate HY	✓	✓	✓
Brigade Capital	Bloomberg BA Intermediate HY	✓	✓	R
PIMCO Diversified	Blended PIMCO Diversified Index	--	--	--
Franklin Templeton	Bloomberg Multiverse TR	--	--	--
Blackrock DL Feeder IX-U	Cliffwater Direct Lending Index	--	--	--
PIMCO Private Income	Bloomberg BA Intermediate HY	--	--	--
TCP Direct Lending VIII	Cliffwater Direct Lending Index	R	✓	✓
White Oak Yield	Cliffwater Direct Lending Index	--	--	--
White Oak YSF V	Cliffwater Direct Lending Index	--	--	--
Aberdeen Standard GARS	Absolute Return Custom Index	R	R	R
Acadian MAAR Fund LLC	Absolute Return Custom Index	--	--	--
CFM Systematic Global Macro	Absolute Return Custom Index	--	--	--
Graham Quant Macro	Absolute Return Custom Index	--	--	--
PIMCO MAARS Fund LP	Absolute Return Custom Index	--	--	--

Rule 1 - Manager has underperformed the benchmark index for the five year period.

Rule 2 - Manager has underperformed the 50th percentile in the appropriate style universe for the five year period.

Rule 3 - Excess 5 Year Sharpe Ratio vs. Benchmark is positive



**PERSPECTIVES
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1ST QUARTER 2022
Investment Landscape

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Topics of interest

THE ROLE OF INCOME IN PORTFOLIOS

Many aspects of investing are fundamentally rooted in the idea that total investment return includes both investment income and investment price appreciation (growth). Nearly every asset class can be decomposed into these two characteristics—some assets being composed mostly of income and some assets being composed mostly of price appreciation. As interest rates have fallen around the world, the importance of income, and the role it plays in portfolios, has seen a dramatic increase. In this Topic of Interest, we revisit these two fundamental characteristics to provide investors with a lens with which to view decision-making in the current market environment.

INTEGRATING ACTIVE RETURN INTO ASSET ALLOCATION MODELING

Long-term asset class forecasts, or capital market assumptions, typically focus on the future performance of broad markets. However, most investors employ some combination of passive and active management in their portfolios. And active management is most often pursued with the expectation that returns will be different than that of the broad market (specifically, that “active return” will be achieved above and beyond the market return). If capital market assumptions are typically comprised of market forecasts, but investors tend to build portfolios with the expectation of market return plus active return, how might investors estimate the expected behavior of active management (active return) in their asset allocation work? In this Topic of Interest we look at this question from multiple angles.

Annual research

2022 CAPITAL MARKET ASSUMPTIONS

Some important developments occurred in the last year. During our 2022 Capital Market Assumptions webinar, we discussed:

- Market movements of 2021 and how these shifts have improved our long-term outlook,
- The impact of rising inflation and interest rates on asset class expectations,
- And our newly released forecasts for specific hedge fund styles, and forecasts for various strategies/approaches with the private credit universe.

Verus business update

2021

- We celebrated our 35th anniversary. Wurts Johnson & Company (founding name) was established in January 1986.
- Eight employees passed their CFA exams, including two who passed Level III, earning their charters. Verus now has a total of 32 CFA charterholders.
- Jeff MacLean, CEO, was awarded the 2021 Knowledge Broker Award by CIO Magazine in September.
- Verus expanded the ownership group to 30 employees. 95% of senior consultants are shareholders.
- We continued to grow our Pittsburgh footprint by adding three professionals for a total of five and moved to a new space on Liberty Avenue. Verus established our “east coast” office in Pittsburgh, PA in May 2020.
- Our national client footprint expanded to 23 states, with our recent additions of clients in Massachusetts, Illinois, and Texas.
- Our assets under advisement has reached over \$664 billion, as a result of strong markets and success in retaining several new clients. Our OCIO business saw continued growth as well, surpassing \$5 billion in assets.
- We completed a third-party verification process that supports our claim of GIPS* compliance and have implemented the verified GIPS and policies and procedure for our OCIO performance composites. We have 17 unique composites. Our E&F and Taft-Hartley composites now have >5-year track records.
- The IIDC grew to 24 consulting firms with over \$32 trillion in assets under advisement. Verus founded the Institutional Investing Diversity Cooperative in December 2020, leading a call to action in the consulting industry for disclosure of asset manager diversity data at the investment team level.

2022

- Managing Director | Senior Consultant, Margaret Jadallah plans to retire towards the end of the year.



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4th quarter summary

THE ECONOMIC CLIMATE

- Real GDP grew at a 4.9% rate year-over-year in the third quarter (+2.3% quarterly annualized rate). A slowdown in consumer spending contributed to a lower rate of growth. This was due to a combination of factors, including new COVID-19 restrictions, a delay in the reopening of businesses across the country, and general fear of virus spread which has led to less spending on services. **p. 9**
- The U.S. labor market improved further, as unemployment fell from 4.8% to 3.9%. The labor force participation rate has also improved, though very gradually, rising from 61.6% to 61.9%. **p. 14**

PORTFOLIO IMPACTS

- Credit spreads have reached extremely tight levels. High yield bonds traded at a credit spread of 283 bps at year-end. However, these spread levels may be justified by record-low bond default activity. Just 0.4% of U.S. high yield bonds defaulted in 2021, on a par-weighted basis. **p. 24**
- U.S. core CPI increased 5.5% year-over-year in December. Headline inflation, which includes all goods, reached 7.0%. Large price increases have occurred across many goods and services, though approximately half of the rise in inflation continues to be driven by energy prices and automobiles. **p. 13**

THE INVESTMENT CLIMATE

- In December it was announced that Senator Joe Manchin had communicated a hard “No” regarding his support for the Build Back Better bill. For months, Democrats have sought a solution to the disparate needs and spending interests of their party. **p. 12**
- Extremely fast spread of the Omicron variant worldwide does not seem to have had an outsized impact on the markets. While this new wave has in fact led to shutdowns in certain economies, much of the world has remained open, perhaps in acknowledgment that the health effects of Omicron are believed to be milder in nature. **p. 10**

ASSET ALLOCATION ISSUES

- Equity markets delivered strong returns in Q4, up +6.7% and ending the year up 18.5% (MSCI ACWI). U.S. equities delivered 11.0% during the quarter, while international equities delivered 2.7% and emerging market equities saw a slight loss of -1.3%, on an unhedged currency basis. **p. 27**
- Size and Value factor performance was negative once again during Q4. Large capitalization stocks significantly outperformed small capitalization stocks and Growth beat Value. Tighter monetary conditions and a pullback in some growth stocks has renewed talks of a possible Value rotation. **p. 29**

Risk assets continue to perform strongly, despite rapid global spread of the Omicron variant

What drove the market in Q4?

“World is put on high alert over the Omicron coronavirus variant”

NUMBER OF NEW DETECTED COVID-19 INFECTIONS WORLDWIDE (MILLIONS)

Jul	Aug	Sep	Oct	Nov	Dec
15.6	19.9	16.0	13.0	15.7	25.4

Article Source: CNN, as of November 28th, 2021

“Transitory’ is out for describing inflation at the Fed... what will take its place?”

HEADLINE CONSUMER PRICE INFLATION (YEAR-OVER-YEAR)

Jul	Aug	Sep	Oct	Nov	Dec
5.4%	5.3%	5.4%	6.2%	6.8%	7.0%

Article Source: MarketWatch, December 15th, 2021

“Unphased by Omicron, Fed policymakers show greater consensus for faster taper”

FEDERAL RESERVE BALANCE SHEET SIZE (TRILLIONS)

Jul	Aug	Sep	Oct	Nov	Dec
\$8.2T	\$8.3T	\$8.4T	\$8.6T	\$8.7T	\$8.8T

Article Source: Reuters, December 2nd, 2021

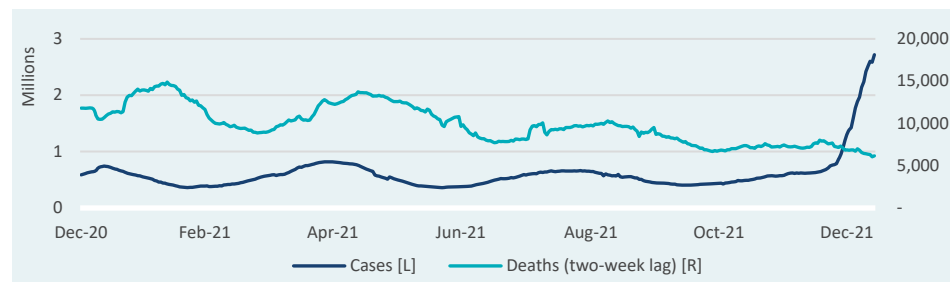
“Dow, S&P 500 end at all-time records as U.S. stocks extend winning streak amid strong company earnings”

S&P 500 INDEX – NUMBER OF CUMULATIVE YEAR-TO-DATE RECORD CLOSES

Jul	Aug	Sep	Oct	Nov	Dec
41	53	54	59	66	70

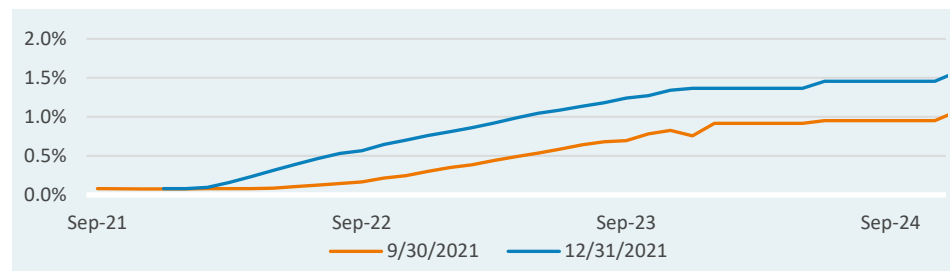
Article Source: October 26th, 2021

GLOBAL CASE GROWTH VS. LAGGED DEATHS (7-DAY TRAILING AVERAGE)



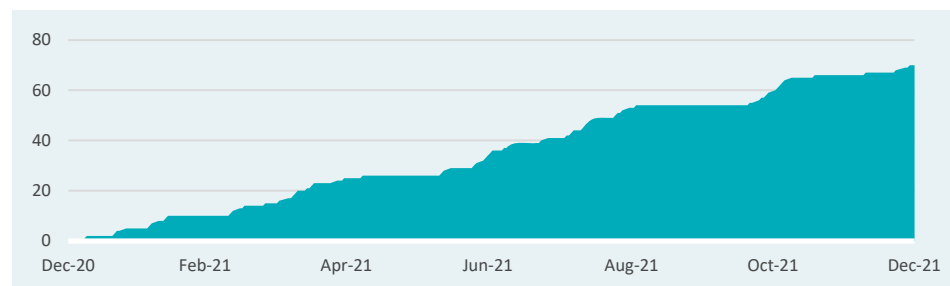
Source: Bloomberg, as of 12/31/21

IMPLIED EFFECTIVE FED FUNDS RATE



Source: Bloomberg, as of 12/31/21

S&P 500 INDEX – CUMULATIVE NUMBER OF RECORD CLOSES IN 2021



Source: Standard & Poor's, Bloomberg, as of 12/31/21

Economic environment

U.S. economics summary

- Real GDP grew at a 4.9% rate year-over-year in the third quarter (+2.3% quarterly annualized rate). A slowdown in consumer spending contributed to a lower pace of growth. This was due to a combination of factors, including new COVID-19 restrictions, a delay in the reopening of businesses, and general fear of virus spread which has led to less spending on services. As GDP growth is stated in *inflation-adjusted* terms, higher inflation has also contributed to slower economic growth.
- U.S. core CPI, which excludes food and energy prices, increased 5.5% year-over-year in December. Headline inflation, which includes all goods, reached 7.0%. Large price increases have occurred across many goods and services, though approximately half of the rise in inflation continues to be driven by energy prices and automobiles.
- The U.S. unemployment fell further, from 4.8% to 3.9% during Q4. The labor force participation rate has improved, though very gradually, rising from 61.6% to 61.9%.
- After months of political brinksmanship, it appears the Build Back Better plan has stalled, as Senator Joe Manchin had communicated a hard “No” on his support for the Build Back Better bill. Democrats continue to seek a solution to the disparate needs and spending interests of their party.
- U.S. home prices increased +19.1% over the past year ending October. However, price growth may be cooling off, as the inventory of homes has expanded materially and mortgage interest rates have begun to rise.
- Consumer sentiment was mixed during the quarter. Depressed survey levels suggest we are no longer in the euphoric spending environment of mid to late 2021.

	Most Recent	12 Months Prior
Real GDP (YoY)	4.9% 9/30/21	(2.9%) 9/30/20
Inflation (CPI YoY, Core)	5.5% 12/31/21	1.6% 12/31/20
Expected Inflation (5yr-5yr forward)	2.3% 12/31/21	2.0% 12/31/20
Fed Funds Target Range	0% – 0.25% 12/31/21	0% – 0.25% 12/31/20
10-Year Rate	1.51% 12/31/21	0.91% 12/31/20
U-3 Unemployment	3.9% 12/31/21	6.7% 12/31/20
U-6 Unemployment	7.3% 12/31/21	11.7% 12/31/20

GDP growth

Real GDP grew at a 4.9% rate year-over-year in the third quarter (+2.3% quarterly annualized rate). During the quarter, a slowdown in consumer spending resulted in a lower pace of growth. This was partly a factor of new COVID-19 restrictions and a delay in the reopening of businesses across the country. Fear of contracting the virus likely led to less spending on services. Government assistance to businesses and households also continued to fall, creating a drag on growth. On the other hand, a strong rebuilding of inventories by businesses had a large positive impact on economic growth.

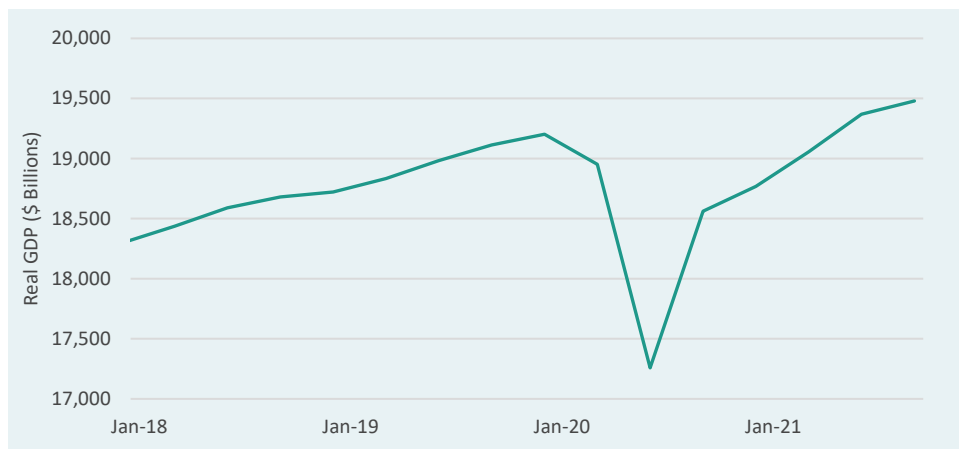
Although Q3 showed a weaker rate of growth, expectations more broadly are for further strong economic expansion—

materially above pre-pandemic rates. The Atlanta Fed GDPNow estimate, as of January 14th, suggests a GDP growth rate of 6.8% in the fourth quarter (seasonally-adjusted quarterly annualized rate).

U.S. GDP growth is traditionally quoted in *inflation-adjusted* terms. This means that higher inflation has contributed to slower GDP growth, as shown below. It will be important to watch the rate of inflation and the impact of higher inflation on GDP figures. Multiple past U.S. recessions were caused at least partially by rising inflation rather than solely by slowing growth (see 1970s, 1980s).

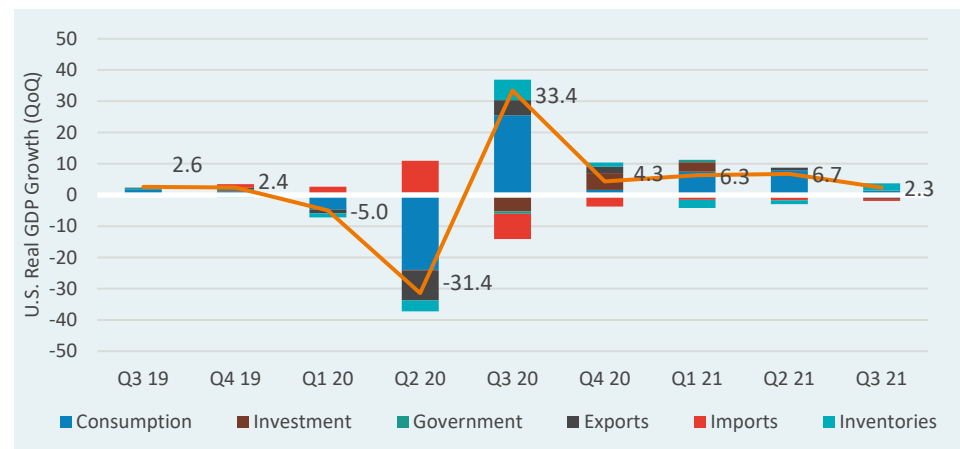
Although Q3 was relatively weak, economists expect continued above-average GDP growth

U.S. REAL GROSS DOMESTIC PRODUCT



Source: FRED, as of 9/30/21

U.S. REAL GDP COMPONENTS (QOQ)



Source: FRED, as of 9/30/21

Omicron variant

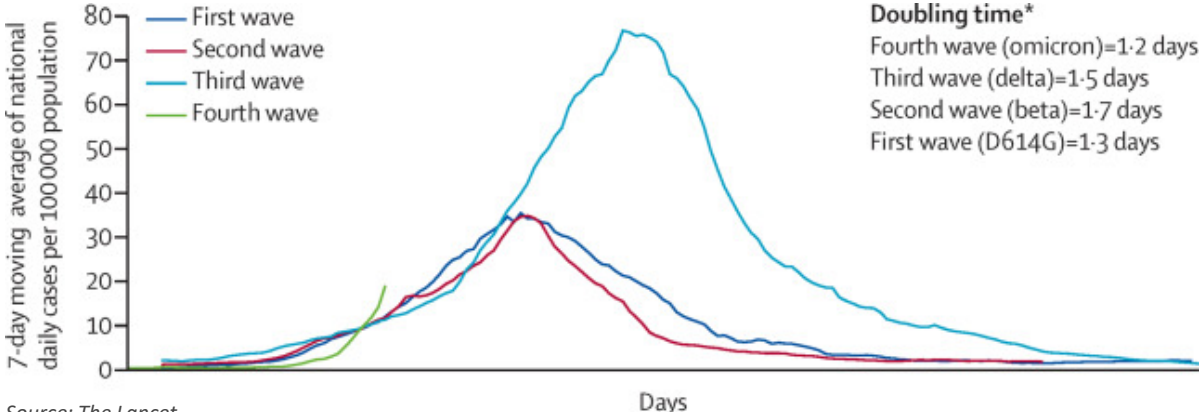
COVID-19 variant B.1.1.529 (Omicron) was discovered in Botswana on November 11th and has since spread exponentially around the globe, replacing the delta variant as the dominant global strain.

Based on available studies and data, the Omicron variant is much more infectious than prior variants, but its symptoms are less severe. In the Gauteng province within South Africa, the doubling time of cases proved to be faster than each of the previous three waves at 1.2 days

While case growth has accelerated more quickly than in previous waves in South Africa, hospitalizations and deaths have not paced the increase in cases, leaving some to predict that symptoms may be less severe.

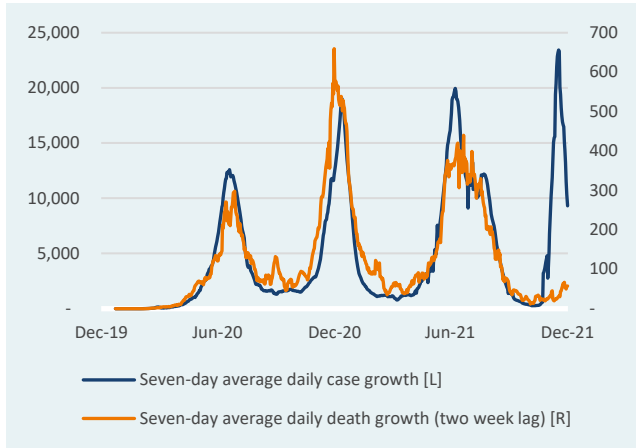
Some have argued that it is a good thing that a highly infectious but not severe strain is spreading around the world, because it will provide some level of neutralizing antibodies to the people it infects, shortening the path to herd immunity. A more pessimistic view would be that “letting it rip” would allow more time for the virus to mutate to a more deadly strain.

COVID WAVE CASE DOUBLING TIME – GAUTENG PROVINCE, SOUTH AFRICA



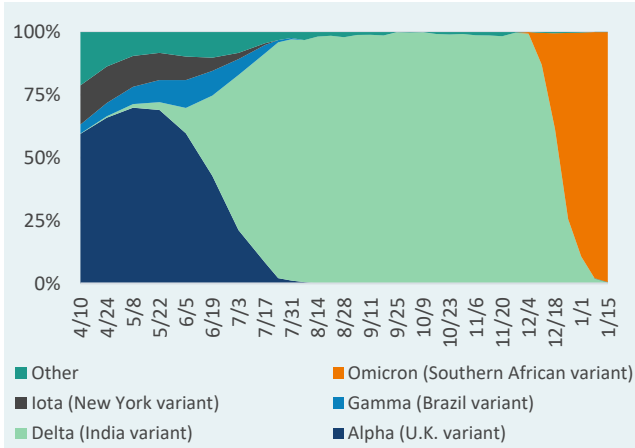
Source: The Lancet

SOUTH AFRICAN CASES AND DEATHS



Source: Bloomberg, as of 12/31/21

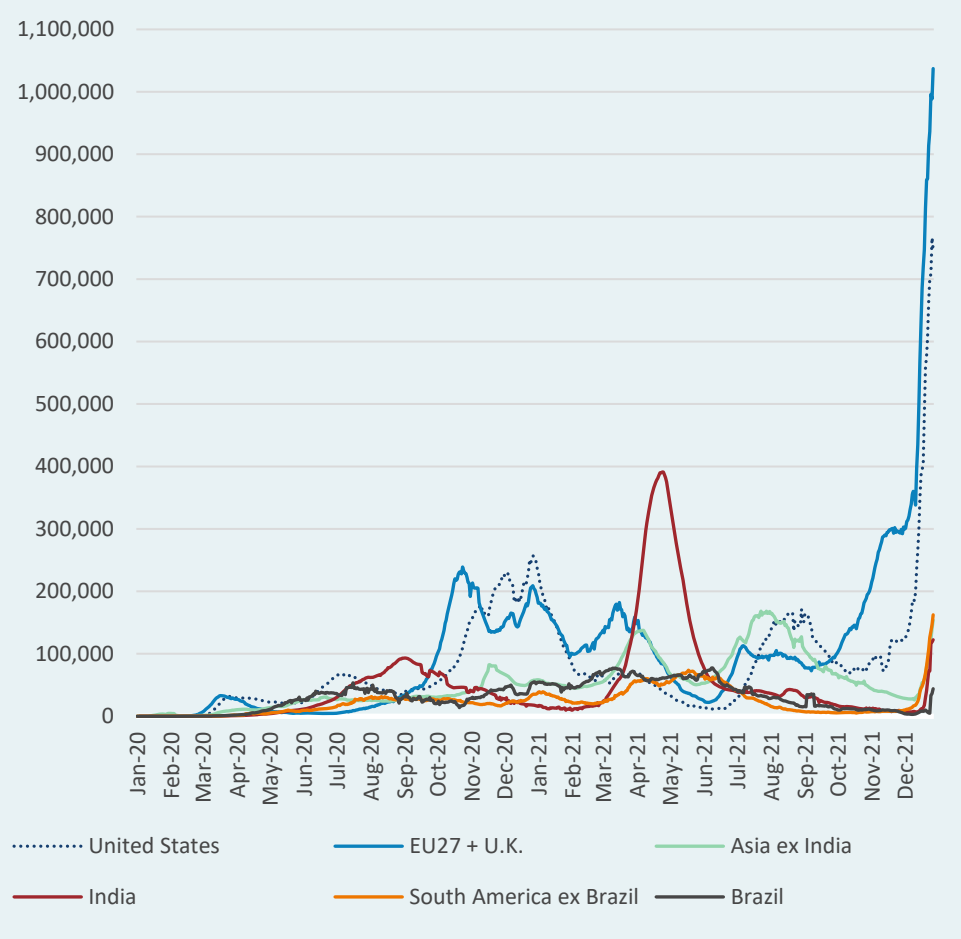
STRAIN DOMINANCE IN THE UNITED STATES



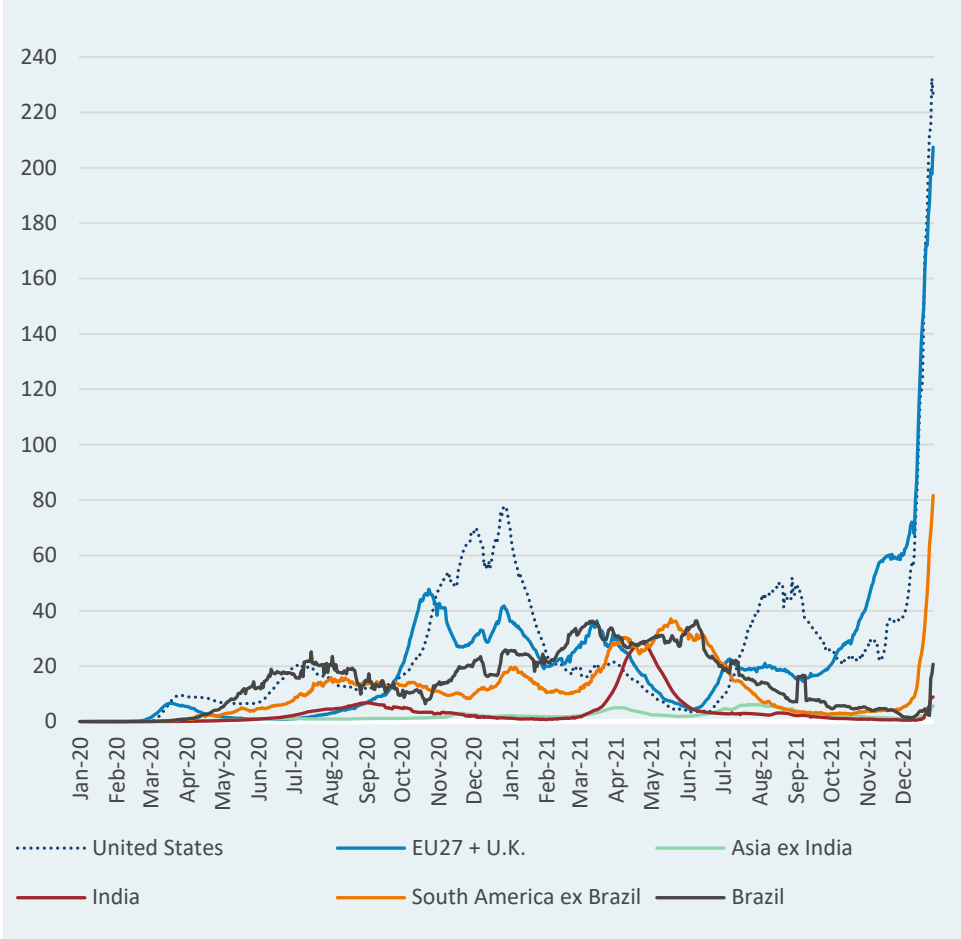
Source: CDC, as of 1/15/22

COVID-19 case growth monitors

DAILY AVERAGE CASE GROWTH (SEVEN-DAY TRAILING)



DAILY AVERAGE CASE GROWTH (SEVEN-DAY TRAILING) – PER 100,000



Source: Bloomberg, as of 1/11/22

“Build Back Better” update

After months of political brinksmanship, it appears the BBB plan has stalled

- For months, Democrats have sought a solution to the disparate needs and spending interests of their party. This ranged from the more aggressive spending demands of Bernie Sanders, who hoped for a total of nearly \$6 trillion in new spending, to Senator Joe Manchin who had expressed throughout the year a willingness to support a maximum of \$1.5 trillion in new spending. In December it was announced that Senator Joe Manchin communicated a hard “No” regarding his support for the bill.
- The party appears to have taken a calculated risk in continuing to push for spending in excess of the \$1.5 trillion limit that Joe Manchin had indicated, as well as refusing to negotiate on other items where disagreement existed, such as tax credits and climate change legislation. Despite DNC claims that the Build Back Better would not raise the national deficit, Manchin also expressed skepticism around sunset clauses and other assumptions within the bill that he believed hid the true magnitude of spending and its likely impact on the U.S. deficit.
- Some remain hopeful for a revival of negotiations and perhaps an agreement on many or most of the items within the bill. However, in January Senator Manchin indicated that he will not support the bill altogether—a reversal from the sentiments expressed during earlier negotiations.

Inflation

U.S. core CPI, which excludes food & energy prices, increased 5.5% year-over-year in December. Headline inflation, which includes all goods, reached 7.0%. Large price increases have occurred across many goods and services, though approximately half of the rise in inflation continues to be driven by energy prices and automobiles. Inflation has proven more “sticky”, which suggests that higher prices may be less transitory than previously believed.

The price of shelter continue to be a notable driver of U.S. inflation, as shelter costs have risen 4.1% over the past year. Although the rate of price growth in this area has been fairly modest, the cost of shelter makes up nearly one third of the overall CPI basket (32.4% as of November). As we have mentioned

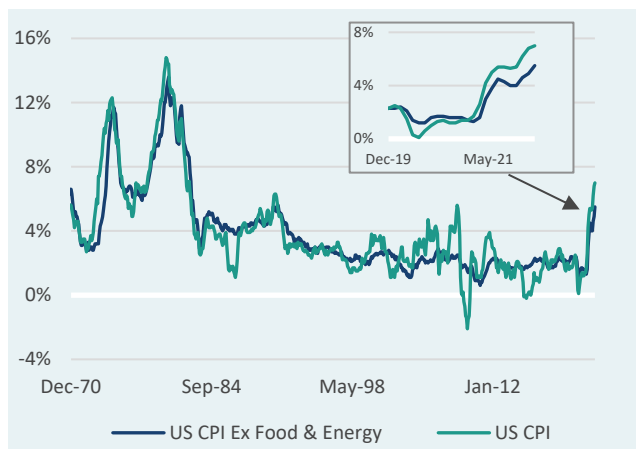
previously, the way in which housing costs are captured in official statistics is nuanced, and increases in home prices do not necessarily flow through directly to official inflation numbers. Instead, today’s higher shelter costs may take quarters or even years to show up in government statistics.

We maintain our view that inflation will most likely begin falling towards previous levels later in 2022, though this could be a slower process. The variables that will likely impact this outcome include: whether energy and automobile prices plateau, the speed at which supply chain problems are resolved, and the willingness of businesses to raise wages in line with rates of inflation (quickly rising wages could further pressure prices upward).

Inflation has proven more “sticky”

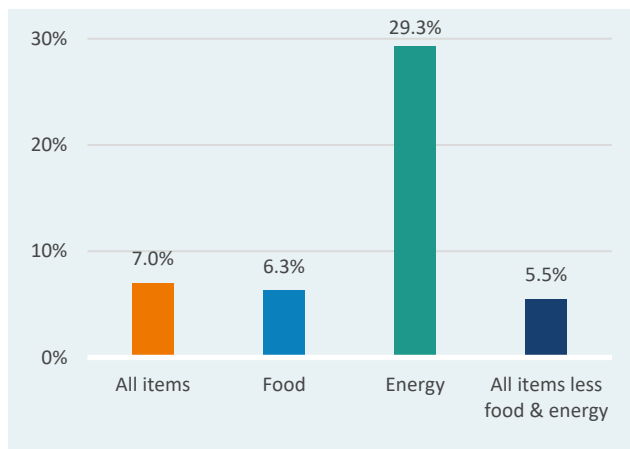
Higher prices may be less transitory than previously believed

U.S. CPI (YOY)



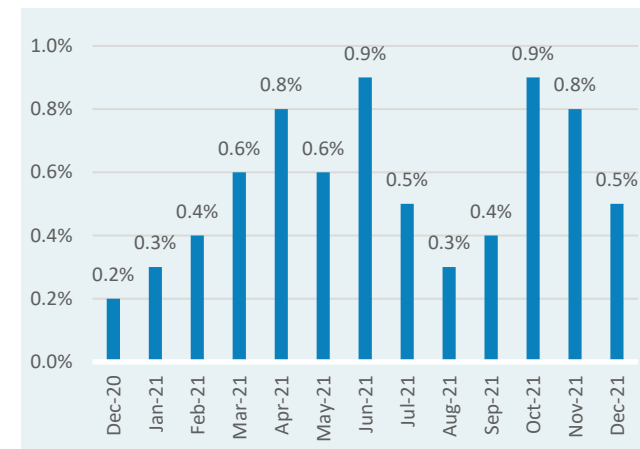
Source: BLS, as of 12/31/21

U.S. CPI (YOY)



Source: BLS, as of 12/31/21

MONTHLY PRICE MOVEMENT



Source: BLS, as of 12/31/21

Labor market

The U.S. unemployment rate fell further, from 4.8% to 3.9% during Q4. The labor force participation rate has improved, though very gradually, rising from 61.6% to 61.9%. The U.S. labor shortage has reached historic proportions. Job openings far exceed the supply of workers. As of November, 10.5 million job openings were posted, while only 6.8 million Americans were seeking work.

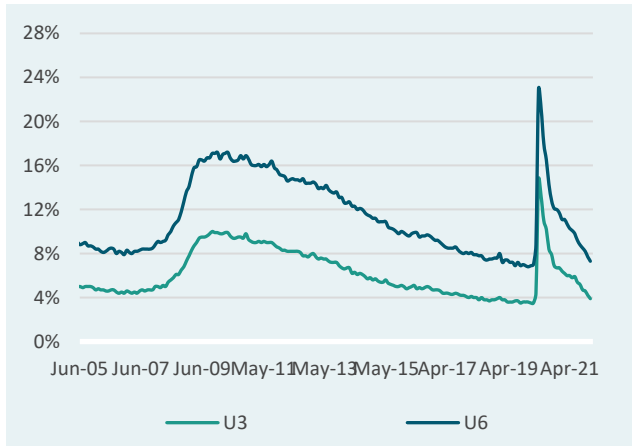
In 2021, using U.S. government employment and retirement data, we reached a conclusion that the sudden and historically large quantity of workers leaving the labor force was mostly caused by early retirements. At the time, multiple theories had

been proposed, such as COVID-19 fear (workers were not seeking employment due to a fear of human interaction) or that this was due to government aid and stimulus (workers flush with cash were finding it temporarily unnecessary to hold a job). Over recent quarters it does appear that our thesis has held. The U.S. labor force participation rate remains stuck, as two million abnormally early retirements imply that the available workforce is now permanently smaller. This reduction in workforce likely reduces the productive capacity of the U.S. economy and aggregate household income, though it may have an incremental lifting effect on the wages of existing workers.

A portion of the U.S. labor force remains neither employed nor seeking work

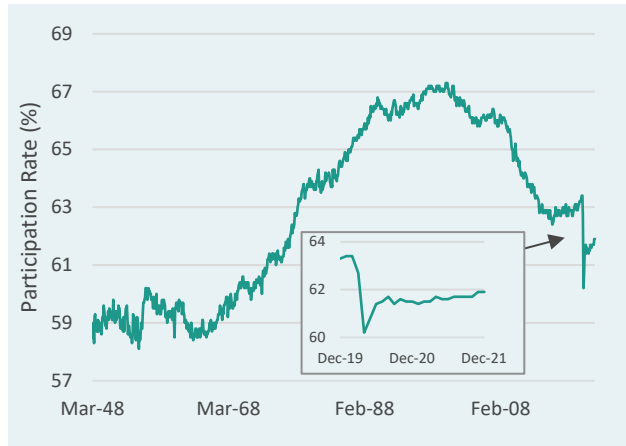
Much of this loss appears to be due to early retirements

U.S. UNEMPLOYMENT



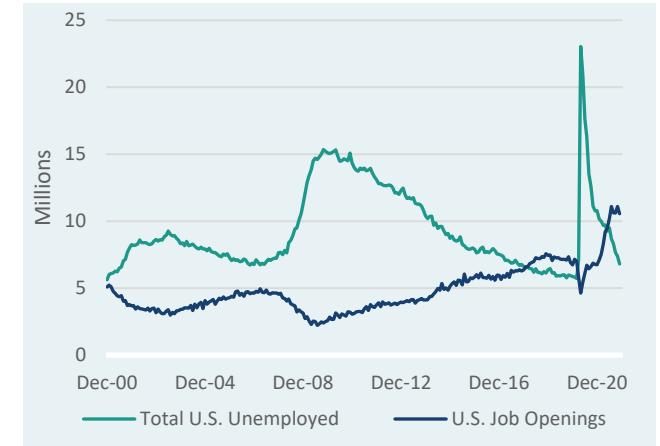
Source: FRED, as of 12/31/21

LABOR PARTICIPATION RATE



Source: FRED, as of 12/31/21

UNEMPLOYED VS # JOBS AVAILABLE



Source: FRED, as of 11/30/21

Labor costs & shortages

“We could see mid-single-digit inflation in retails, as **rising raw material pricing, labor and transportation costs are all impacting us and our suppliers**. We have no way to say how long this will last, but our industry has been disciplined about pricing for decades, and we expect that to continue.” -AutoZone (Dec. 7)



“Moving on to inflation, again, it's pretty much the same story that we told during each of the last two quarters. **There have been and are a variety of inflationary pressures that we and others are seeing from labor cost to freight cost, to higher demand, to container shortages and port delays, to increased demand on certain product categories**, much of what you see and read out there. Various shortages on everything from chips to oils and chemicals supplied by facilities hit by the Gulf storms a while back. Higher commodities prices.” -Costco (Dec. 9)



“To further impact our second-quarter results, I will highlight several key drivers. **The difficult labor market once again had the largest effect on our bottom line, representing an estimated \$470 million in additional year-over-year costs**. As I did last quarter, I'll separate the effect of the labor market into two components: **higher rates and network inefficiencies resulting from labor shortages**.” -FedEx (Dec. 16)



“To add to the challenge, **industry-wide shortages in the labor market are impacting every part of the supply chain, adding significant costs that are above and beyond inflation**. We're seeing record levels of **disruptions across our raw material suppliers, internal and external production facilities, our own distribution centers, our customers' warehouses and the logistics networks required to connect each of these elements of the supply chain**. These disruptions are resulting in service challenges and elevated costs across the industry.” -General Mills (Dec. 21)



“**Lost production days and unplanned downtimes** were primarily due to **labor shortages** across our manufacturing network, including **COVID-related absenteeism**.” -Lamb Weston (Jan. 6)



Source: FactSet, as of 1/13/22

The consumer

U.S. real retail sales remain strong, up 10.6% year-over-year. It is worth noting that this was the growth rate *after* adjusting for inflation. American households continue to spend at a rapid pace, though this could be set to slow down as government spending and other easy money policies are likely in the rearview mirror.

Auto sales volumes fell dramatically in the second half of 2021. Multiple variables are having an impact, as microchip shortages crimp new car production, many households already purchased a vehicle recently (assisted by stimulus checks), and very high auto prices have disincentivized purchases more generally.

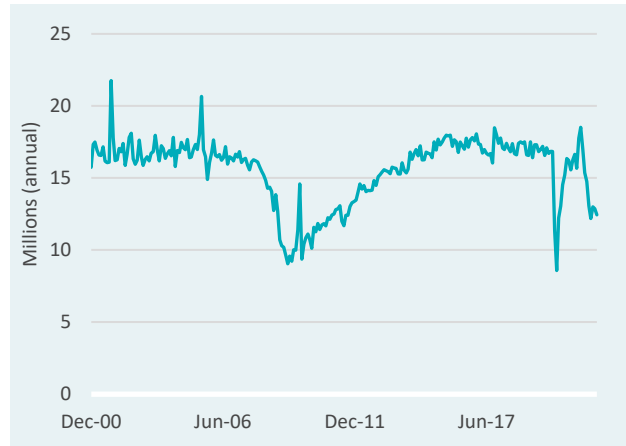
A rather surprising economic result of the pandemic has been the jump in household savings rates, paying down of debt, and broadly improved financial situation of domestic households. As we have discussed in recent quarters, the inability of Americans to take vacations during much of the past two years, as well as reduced spending on services such as dining out, meant greater saving and less spending. However, it is incredibly important to point out that economic metrics such as the ones discussed here inherently involve an *averaging* of all household situations. The recent recession has had particularly destructive effects on specific sectors of the economy, and many have yet to recover.

REAL RETAIL SALES GROWTH (MONTHLY)



Source: FRED, as of 11/30/21

AUTO SALES



Source: Federal Reserve, as of 12/31/21

U.S. HOUSEHOLD DEBT BURDEN



Source: FRED, as of 9/30/21 – household debt service payments as a percent of disposable personal income

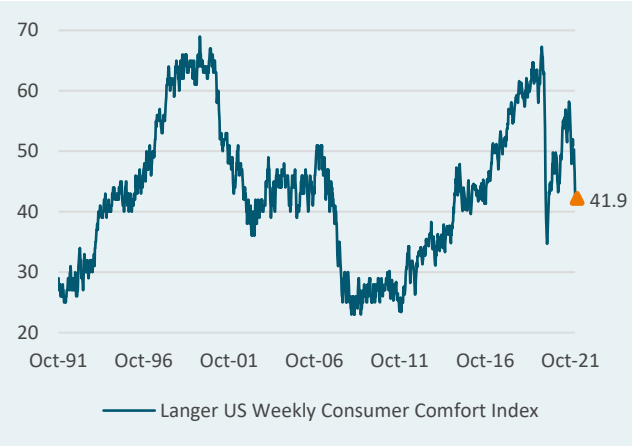
Sentiment

Consumer sentiment was mixed during the quarter. The University of Michigan survey indicated relatively depressed but stable sentiment. Announced increases to Social Security payments (+5.9% YoY) due to inflation and a rise in wages among younger workers lifted sentiment slightly. On the other hand, the Langer U.S. Weekly Consumer Comfort Index suggested a sharp falloff in sentiment. Rising inflation, the spreading Omicron variant, and the steepest one week drop in “buying conditions” in 36 years translated to much poorer sentiment to start 2022. Both surveys seem to communicate an end to the euphoric spending spree that occurred in mid to late 2021.

The NFIB Small Business Optimism index was rangebound during the quarter but remained near the long-term average level. As outlined by the survey, 59% of small businesses have increased prices, which was the highest reading since 1979. The December survey suggests that business conditions are not encouraging to small business owners, as new government mandates and tax increases have been discussed in the legislature. Furthermore, high inflation and supply chain issues continue to create challenges.

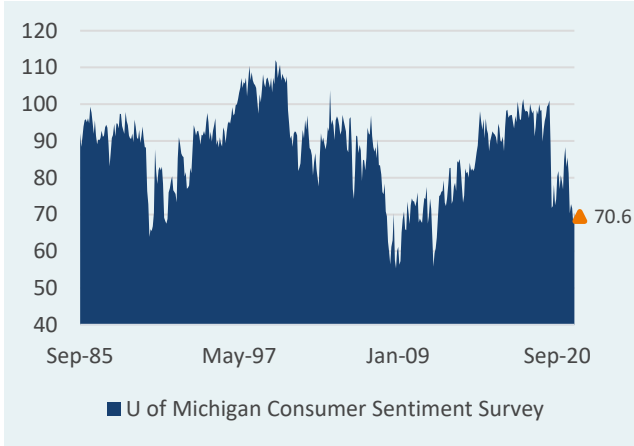
Sentiment remains depressed, as concerns exist around inflation, Omicron, and economic restrictions

CONSUMER COMFORT



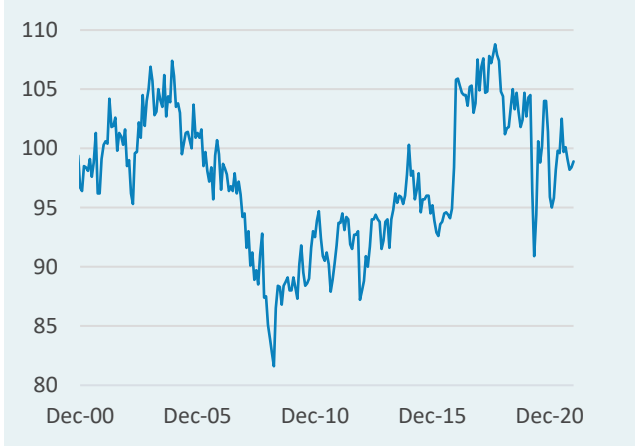
Source: Bloomberg, as of 1/9/22

CONSUMER SENTIMENT



Source: University of Michigan, as of 12/31/21

SMALL BUSINESS OPTIMISM



Source: NFIB, as of 12/31/21

Housing

U.S. home prices increased +19.1% over the past year, ending October. However, price growth may be cooling off, as the inventory of homes has expanded materially and mortgage interest rates have begun to rise. The dramatic surge in real estate values throughout the pandemic resulted in considerable wealth gains for those who owned homes, but has also created real financial issues for many who rent as housing costs have risen faster than incomes.

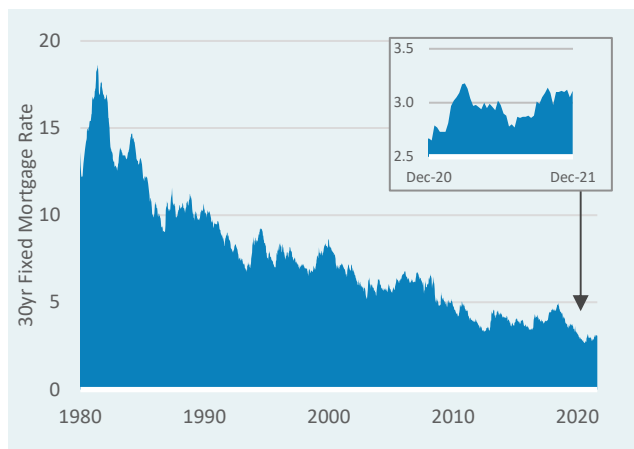
Much higher living costs may lead to further social unrest and political discussions on topics such as the relaxation of

zoning restrictions and rent control. The growing homeless crisis in many U.S. areas further compounds the need, both real and perceived, for bringing the costs of housing under control.

U.S. mortgage rates have risen off the all-time-low (2.65%) achieved earlier in 2021. During the first week of January, the 30-year average fixed rate mortgage reached 3.22%. Given high home prices, small increases in interest rates will have a larger impact on affordability. Higher borrowing costs would act as a headwind to further home price appreciation.

A dramatic jump in shelter costs may be adding pressure to household budgets

30YR FIXED MORTGAGE RATE (AVERAGE)



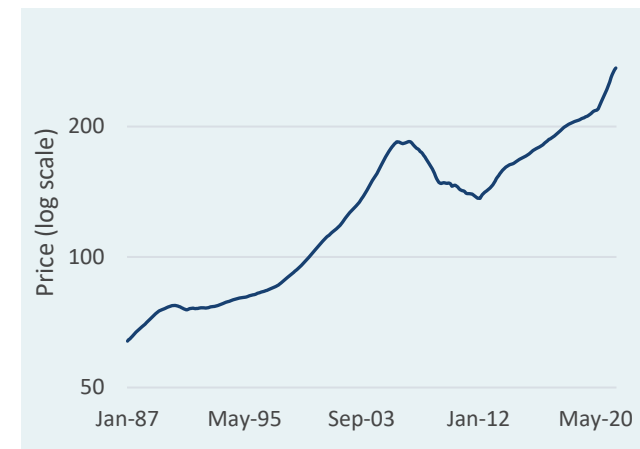
Source: U.S. Census Bureau, as of 12/31/21

SUPPLY OF HOMES



Source: FRED, as of 11/30/21

CASE-SHILLER HOME PRICE INDEX



Source: FRED, as of 10/31/21

International economics summary

— COVID-19 variant B.1.1.529 (Omicron) was discovered in Botswana on November 11th and has since spread exponentially around the globe, replacing the delta variant as the dominant global strain. Based on available studies and data, the Omicron variant is much more infectious than prior variants, but its symptoms are less severe. Many countries have taken a cautious approach and have reinstated social distancing controls.

— Several countries including China and New Zealand have implemented zero-COVID approaches with the goal of completely eradicating the virus within their borders. These policies may present upside risks for inflation looking ahead, as they are likely to result in more uncertainty and therefore potentially sustain or even worsen current supply chain problems.

— Prices paid by global producers of

goods and services have surged over the last year. Chinese producer price growth (+10.3% in December) hit its highest level in 26 years, and German producer prices (+19.2% in November) grew very quickly as supply chain disruptions squeezed prices for timber and raw metal materials.

— Eurozone GDP grew +3.7% year-over-year in Q3, lagging U.S. growth over the same period (+4.9%). Economic growth was more robust in Italy (+3.8%) and a bit weaker in Germany (+2.5%).

— China's real estate crisis seems to be spreading. In early December, Evergrande, one of the largest property developers in China, defaulted on its debt. An increasing number of Chinese property developers have been strained. Given that real estate development makes up nearly one third of China's economy, a crisis in this sector could have serious ramifications.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	4.9% 9/30/21	7.0% 12/31/21	3.9% 12/31/21
Eurozone	3.9% 9/30/21	5.0% 12/31/21	7.2% 11/30/21
Japan	1.2% 9/30/21	0.8% 12/31/21	2.7% 11/30/21
BRICS Nations	5.2% 9/30/21	3.3% 12/31/21	5.4% 6/30/21
Brazil	4.0% 9/30/21	10.1% 12/31/21	12.1% 10/31/21
Russia	4.3% 9/30/21	8.4% 12/31/21	4.3% 11/30/21
India	8.4% 9/30/21	5.6% 12/31/21	7.9% 12/31/21
China	4.0% 12/31/21	1.5% 12/31/21	5.1% 12/31/21

NOTE: India lacks reliable government unemployment data. Unemployment rate shown above is estimated from the Centre for Monitoring Indian Economy. The Chinese unemployment rate represents the monthly surveyed urban unemployment rate in China.

International economics

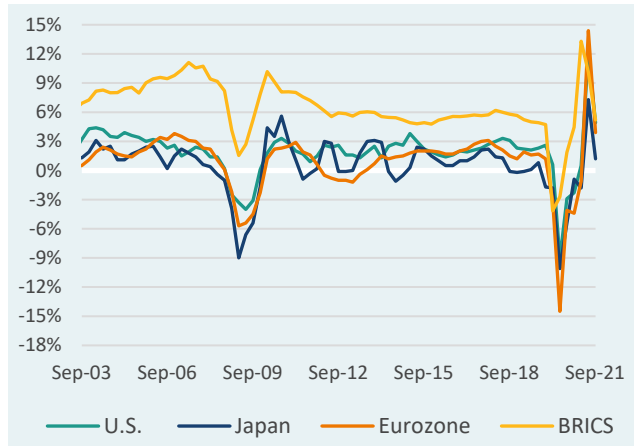
The rate of economic growth across most economies has moved back towards average levels, as the global recession and recovery fades from the rearview mirror. In October, the International Monetary Fund cut their 2021 advanced economy growth projections (from 5.6% to 5.2%), citing supply chain disruptions which have dampened the outlook for these economies. Worsening pandemic dynamics were flagged as a greater risk for emerging and developing economies, though 2021 growth expectations were revised up 0.1% to 6.4%.

Inflation moved higher in many areas, and the United States continues to cope with one of the highest rates of inflation among other major developed economies. Several countries

including China and New Zealand have implemented zero-COVID approaches with the goal of completely eradicating the virus within their borders. These policies may present upside risks for inflation looking ahead, as they are likely to result in more uncertainty and therefore potentially sustain or even worsen current supply chain problems. Inflation trends and the reaction of central banks to these trends will have important implications for markets.

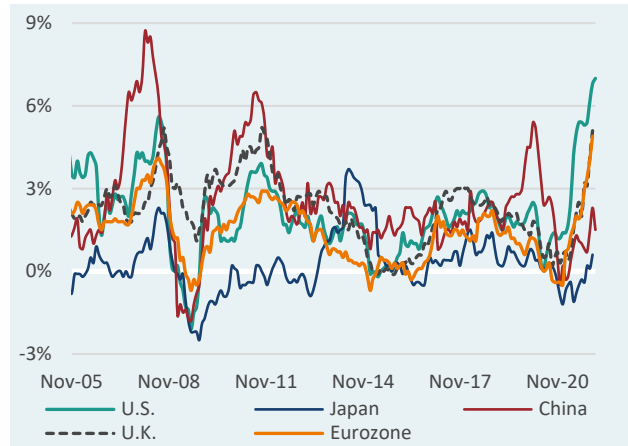
Unemployment has generally improved to pre-pandemic levels, as government restrictions are relaxed, people regain comfort in moving out and about, and economies trend back towards normalcy.

REAL GDP GROWTH (YOY)



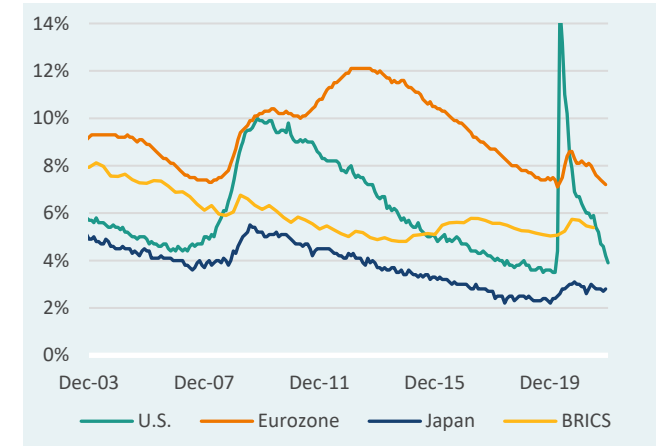
Source: Bloomberg, as of 9/30/21

INFLATION (CPI YOY)



Source: Bloomberg, as of 12/31/21 – or most recent release

UNEMPLOYMENT



Source: Bloomberg, as of 12/31/21 – or most recent release

Fixed income rates & credit

Fixed income environment

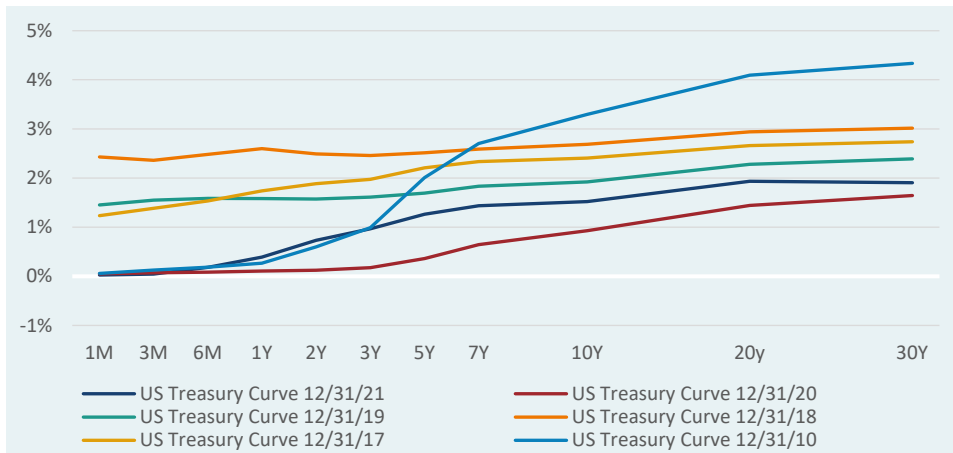
- The 10-year U.S. Treasury yield was relatively rangebound during the quarter, remaining at a yield of 1.5%. Thus far, U.S. interest rates have not noticeably reacted to an inflation rate of 7.0%. Market pricing seems to indicate that investors generally expect inflation to be transitory—perhaps falling towards normal levels by the end of this year.
- One of the largest stories over the quarter was the Fed’s pivot on inflation, the retirement of the word “transitory” to describe inflation, and a more aggressive policy path expected by investors. The conversation around the balance sheet shifted from concluding the taper in June to concluding in March, and perhaps selling assets as soon as June. The conversation around interest rates shifted from potentially hiking around June to the market fully pricing in a hike by March and maybe two by May. The Fed is now clearly more concerned with inflation relative to unemployment.
- Although credit spreads are tight, bond defaults have dropped to incredibly low levels. The one-year high-yield bond default rate reached 0.4% in December, one of the lowest rates on record.
- New issue activity across credit markets has been historically high. In the fourth quarter, \$285 billion of investment grade credit was issued. Over the full year, gross issuance totaled \$1.4 trillion, which was second only to the \$1.8 trillion issued in 2020.
- In early December, Evergrande, one of the largest property developers in China, defaulted on its debt. At the start of 2022, property developer Shimao also defaulted on its debt. These bonds had been classified as investment grade until recently. Credit spreads of Chinese debt have expanding enormously, from near 750 bps in June to 2,175 bps in November.

	QTD Total Return	1 Year Total Return
Core Fixed Income (Bloomberg U.S. Aggregate)	0.0%	(1.5%)
Core Plus Fixed Income (Bloomberg U.S. Universal)	0.0%	(1.1%)
U.S. Treasuries (Bloomberg U.S. Treasury)	0.2%	(2.3%)
U.S. High Yield (Bloomberg U.S. Corporate HY)	0.7%	5.3%
Bank Loans (S&P/LSTA Leveraged Loan)	0.7%	5.2%
Emerging Market Debt Local (JPM GBI-EM Global Diversified)	(2.5%)	(8.7%)
Emerging Market Debt Hard (JPM EMBI Global Diversified)	(0.4%)	(1.8%)
Mortgage-Backed Securities (Bloomberg MBS)	(0.4%)	(1.0%)

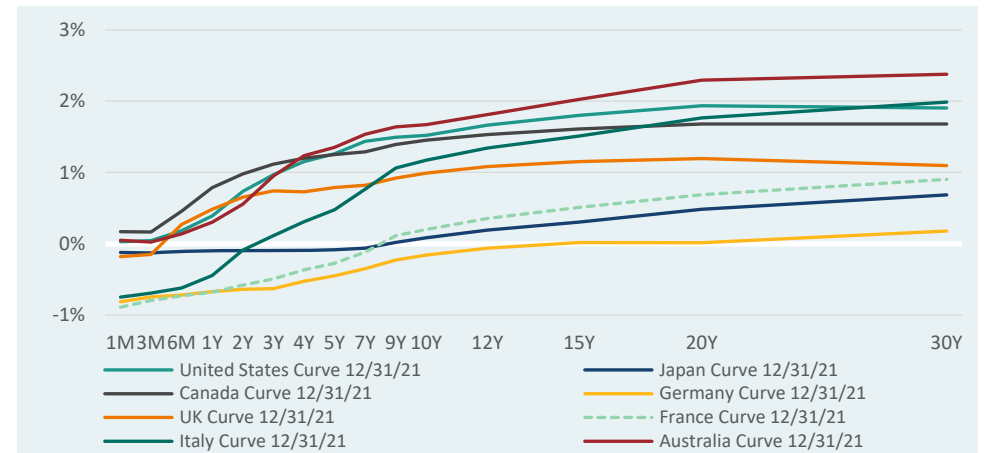
Source: Bloomberg, as of 12/31/21

Yield environment

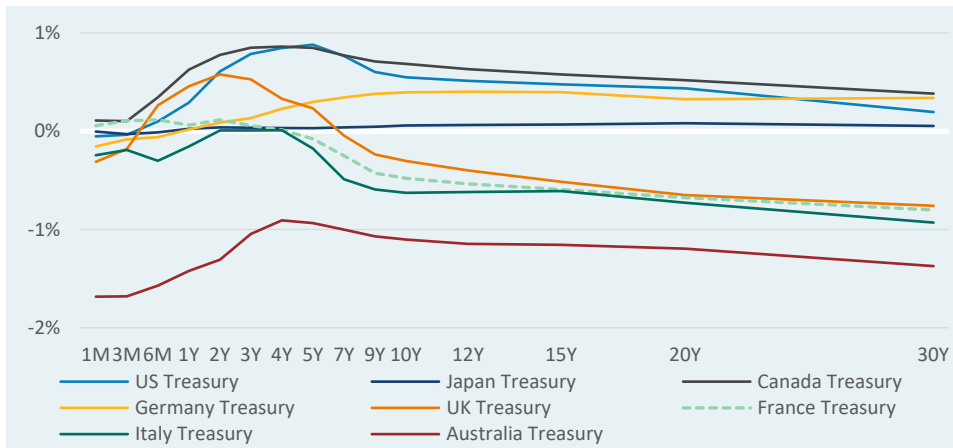
U.S. YIELD CURVE



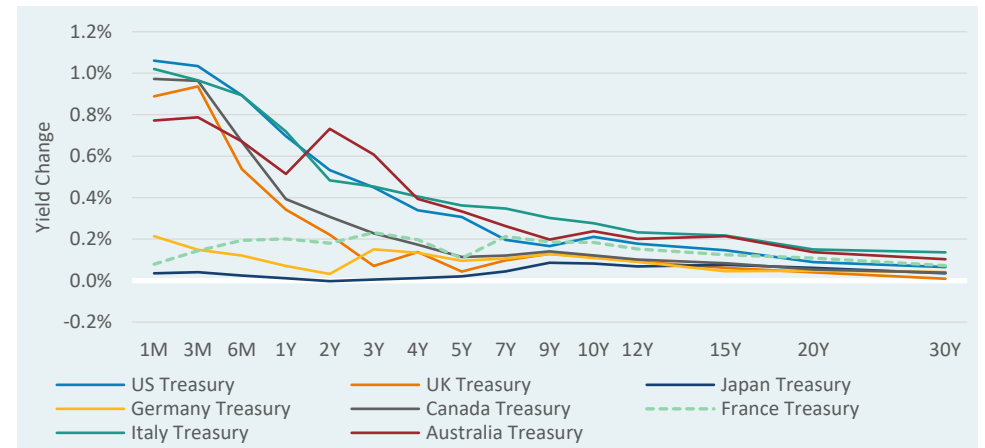
GLOBAL GOVERNMENT YIELD CURVES



YIELD CURVE CHANGES OVER LAST FIVE YEARS



IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 12/31/21

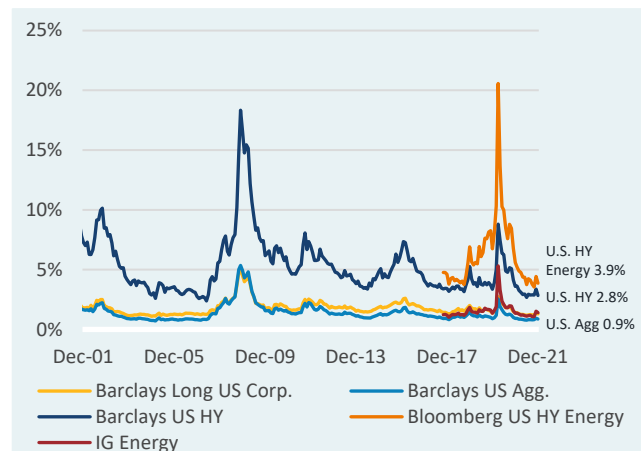
Credit environment

During the fourth quarter, high yield bonds returned 0.7%, matching the performance of loans and outperforming investment grade credit (+0.2%). Over the full year, leveraged loans returned 5.4%, exceeding high yield performance (+5.3%) as well as investment grade credit (-1.2%). Credit spreads tightened modestly over the course of the year with pockets of volatility. This was also the case during Q4 as the Omicron variant circulated across the globe, reducing the appetite for risk. Investment grade spreads widened 8 basis points to 92 bps, which was 4 bps tighter relative to the beginning of the year. High yield corporate spreads finished 2021 at 283 bps, 6 bps tighter for the quarter and 77 bps tighter to end the year.

The search for yield continues within credit markets as option-adjusted

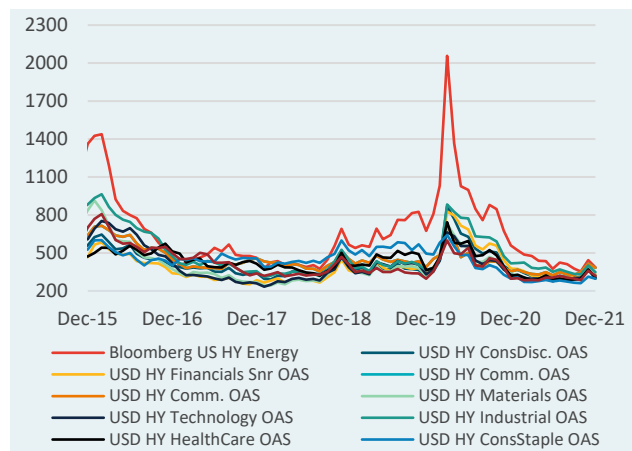
spreads continue to be at or near historic lows and short-term interest rates remain near zero. We have observed that numerous managers are positioning portfolios relatively more defensively with an eye toward capitalizing on potential future volatility, as well as placing greater focus on more niche segments within credit markets. Despite tight spreads, increased rate volatility, and surging inflation, a record amount of funds (\$583 billion) flowed into fixed income funds and ETFs in 2021, exceeding the previous record set in 2019 (\$459 billion). Demand was broad-based, driven by demographics, an abundance of cash on corporate balance sheets, and strong equity market returns which led to increased rebalancing activity. Furthermore, given continued low rates across developed markets, U.S. fixed income remains an attractive market for foreign investors to pick up yield.

SPREADS



Source: Barclays, Bloomberg, as of 12/31/21

HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 12/31/21

Market	Credit Spread (OAS)	
	12/31/21	12/31/20
Long U.S. Corp	1.3%	1.4%
U.S. Inv Grade Corp	0.9%	1.0%
U.S. High Yield	2.8%	3.6%
U.S. Bank Loans*	4.3%	4.6%

Source: Barclays, Credit Suisse, Bloomberg, as of 12/31/21

*Discount margin (4-year life)

Default & issuance

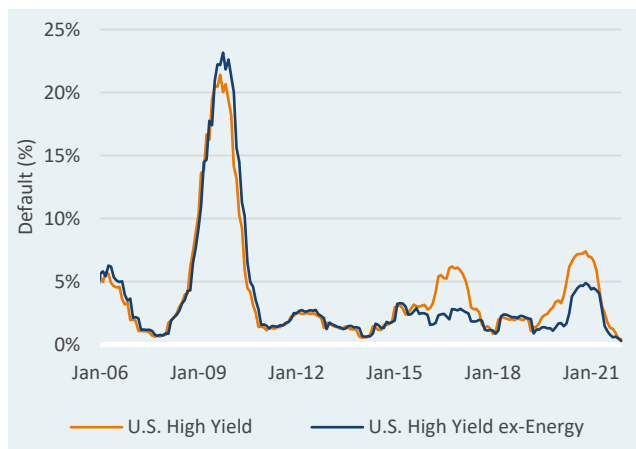
Contrasting the pandemic-driven surge of credit defaults in 2020, which resulted in the second highest annual dollar volume of defaulted bonds and loans on record, default activity in 2021 was very modest. Overall, 14 companies defaulted on loans and bonds during the year on debt totaling \$9.8 billion. The year-over-year improvement was largely fueled by robust economic growth, improving credit fundamentals, and greater access to capital markets, as record bond and loan refinancing activity totaling roughly \$1 trillion since 2020 has improved corporate liquidity.

The par-weighted U.S. high yield default rate ended the year at a historic low of 0.4%, down 82 bps for the quarter and down 656 bps for the year. The par-weighted loan default rate ended the year at 0.5%, down 23 bps for the quarter and 348 bps for the year. For context, the 25-year average annual

default rate of high yield was 3.1%, while the default rate for loans has averaged 3.0% since 1998.

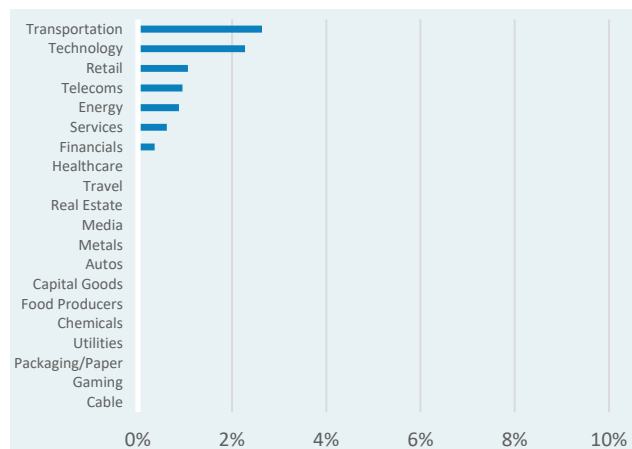
While new issue activity across credit markets fell broadly during the second half of the year, total credit issuance in 2021 was historically high. In the fourth quarter, \$285 billion of investment grade credit was issued. Over the full year, gross issuance totaled \$1.4 trillion, which was second only to the \$1.8 trillion issued in 2020. Similarly, the fourth quarter was the lightest quarter for new issue activity for both high yield bonds and loans with \$87.3 billion and \$114.4 billion, respectively. However, each asset class experienced record issuance over the year with \$557.1 billion in high yield bonds and \$534.4 billion in loans.

HY DEFAULT RATE (ROLLING 1-YEAR)



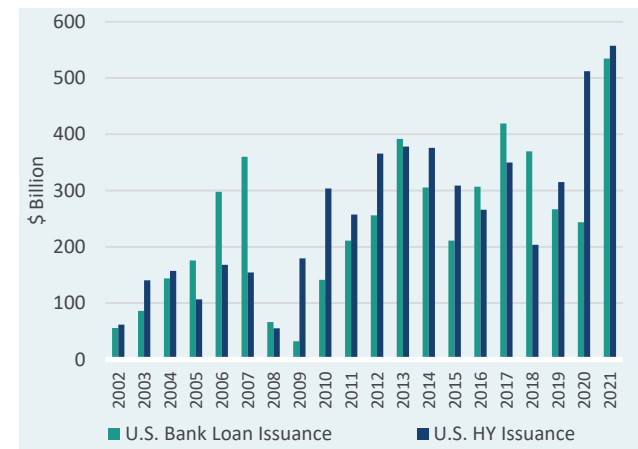
Source: BofA Merrill Lynch, as of 12/31/21

U.S. HY SECTOR DEFAULTS (LAST 12 MONTHS)



Source: BofA Merrill Lynch, as of 12/31/21 – par weighted

U.S. ISSUANCE (\$ BILLIONS)



Source: BofA Merrill Lynch, as of 12/31/21

Equity

Equity environment

- Equity markets delivered strong returns in Q4, up 6.7% and ending the year up 18.5% (MSCI ACWI). U.S. equities delivered 11.0% during the quarter, while international equities delivered 2.7% and emerging market equities saw a slight loss of -1.3%, on an unhedged currency basis.
- Size and Value factor performance was negative once again during Q4. Large capitalization stocks significantly outperformed small capitalization stocks (Russell 1000 +9.8%, Russell 2000 +2.1%) and Growth exceeded Value (Russell 1000 Growth +11.6%, Russell 1000 Value +7.8%). This theme held for full-year 2021.
- Extremely fast spread of the Omicron variant worldwide does not seem to have had an outsized impact on the markets. While this new wave has in fact led to shutdowns in certain countries,

much of the world has remained open, perhaps in acknowledgment that the health effects of Omicron are milder in nature.

- Labor costs and labor supply issues are front-of-mind in corporate boardrooms, and 60% of S&P 500 companies have reported negative impacts to Q4 earnings during quarterly calls so far, as reported by FactSet.
- Weakness in Chinese equities (MSCI China -6.1%) continued to drive the broader underperformance of emerging market equities. Chinese policymakers have signaled a shift in focus from containing excessive leverage in the property sector to promoting growth and stability ahead of next year's parliamentary meeting. Still, the risk of further crackdowns on targeted sectors of the economy remains in place.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
U.S. Large Cap (S&P 500)	11.0%		28.7%	
U.S. Small Cap (Russell 2000)	2.1%		14.8%	
U.S. Equity (Russell 3000)	9.3%		25.7%	
U.S. Large Value (Russell 1000 Value)	7.8%		25.2%	
US Large Growth (Russell 1000 Growth)	11.6%		27.6%	
Global Equity (MSCI ACWI)	6.7%	7.1%	18.5%	20.9%
International Large (MSCI EAFE)	2.7%	4.2%	11.3%	19.4%
Eurozone (Euro Stoxx 50)	4.4%	6.9%	14.6%	24.4%
U.K. (FTSE 100)	5.2%	5.1%	17.3%	18.9%
Japan (NIKKEI 225)	(5.3%)	(2.0%)	(4.7%)	6.7%
Emerging Markets (MSCI Emerging Markets)	(1.3%)	(1.3%)	(2.5%)	(1.3%)

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 12/31/21

Domestic equity

U.S. equities were a top performer in Q4, delivering 11.0% (S&P 500). The S&P 500 Index achieved all-time closing highs on 70 days over the course of the year, which was nearly a record number in and of itself. Performance across sectors was broadly positive during Q4, though those with a greater “value” bias lagged the index (ex: Financials, Energy, Industrials). Per FactSet, the bottom-up price target for the S&P 500 Index by 2022 year-end is around 5300, which implies a price return of roughly 11% for the year.

While supply chain disruptions remain a key concern for chief financial officers in the United States and around the globe, the number one headwind for earnings in Q4 shifted to labor costs and shortages, based on earnings calls transcribed by FactSet. Workers have been quitting their jobs in great numbers

for a wide variety of reasons, pushing many employers to raise wages in order to retain employees, which could erode margins. Of companies that had reported Q4 earnings, 60% reported that rising labor costs had negatively impacted earnings. On a more optimistic note, those companies reported aggregate year-over-year earnings growth of around 28%, suggesting somewhat defensible margins and modest pricing power. Of companies mentioning labor issues, 85% discussed increasing prices or improving price realization on their earnings calls.

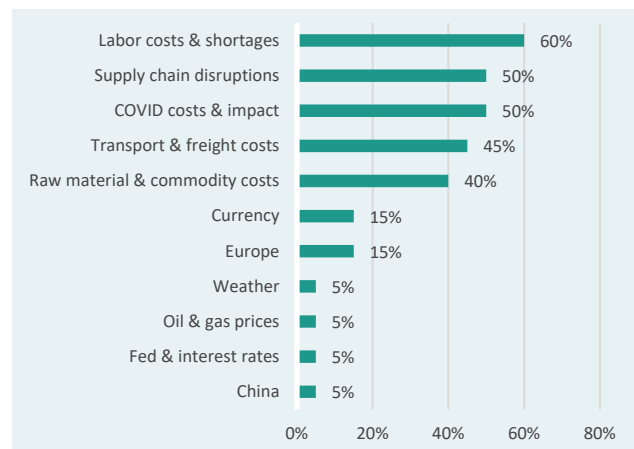
Net profit margins have fallen a percentage point from the record level of 13% achieved in Q2 2021, but remain historically high. If earnings growth in Q4 2021 meets expectations (21.4%), it will mark the fourth consecutive quarter of 20% YoY earnings growth.

S&P 500 INDEX



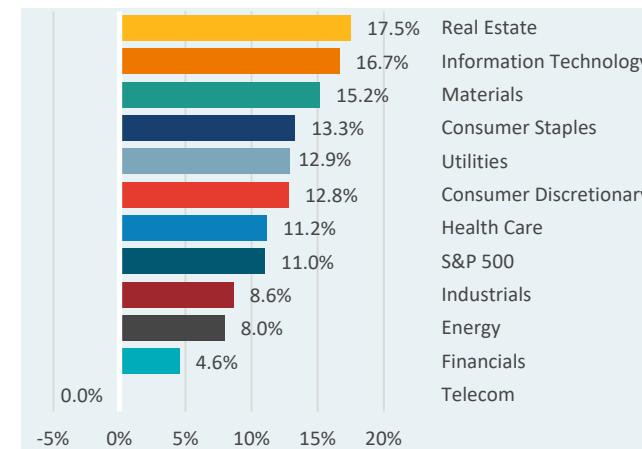
Source: Standard & Poor's, as of 12/31/21

S&P 500 COS. CITING NEGATIVE IMPACT – 4Q21



Source: FactSet, as of 1/13/22

Q4 SECTOR PERFORMANCE



Source: Standard & Poor's, as of 12/31/21

Domestic equity size & style

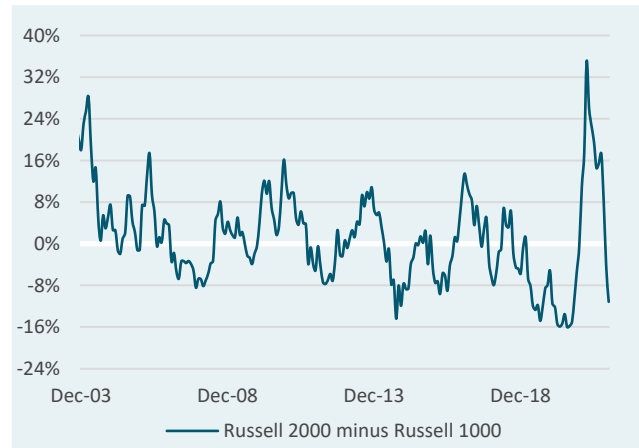
Size and Value factor performance was negative once again during Q4. Large capitalization stocks significantly outperformed small capitalization stocks (Russell 1000 +9.8%, Russell 2000 +2.1%) and Growth exceeded Value (Russell 1000 Growth +11.6%, Russell 1000 Value +7.8%). This theme held for full-year 2021.

Within MSCI's suite of long-only factor indices, Quality (+11.0%) was the top performer in Q4 which generally implies investor appetite for more defensive positioning. The strong performance of the Quality factor was skewed by Nvidia (+42.0%), Apple (+25.7%) and Microsoft (+19.5%).

Towards the end of the year, investor expectations for tighter Fed policy and interest rate hikes increased markedly. If the market is in fact undergoing a transition to tighter monetary conditions, this could have a notable impact on Value and Growth stock performance. The general cheapness of certain Value stocks and richness of certain Growth stocks may accentuate a value rotation, if and when this occurs. As always, we like to keep in mind that factor performance tends to be noisy and difficult to predict, which suggests that style investing should in most cases involve a longer-term focus.

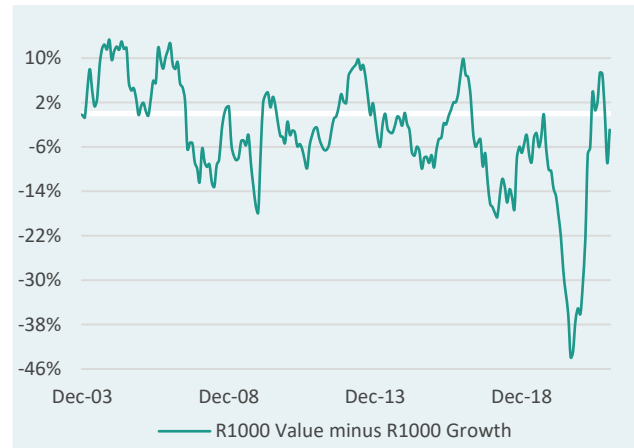
Size and Value underperformed during Q4 2021

SMALL CAP VS LARGE CAP (YOY)



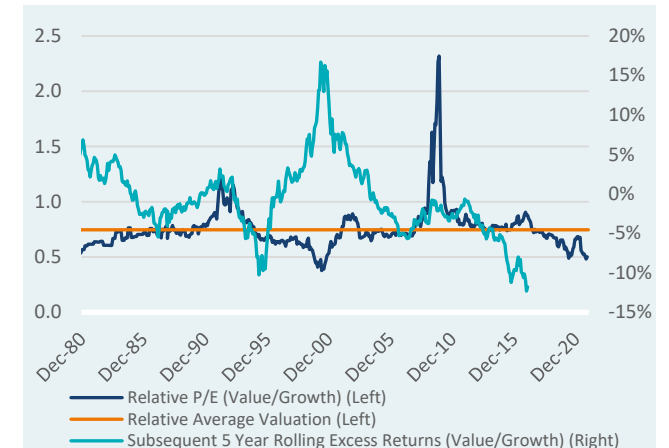
Source: FTSE, as of 12/31/21

VALUE VS GROWTH (YOY)



Source: FTSE, as of 12/31/21

VALUE VS. GROWTH RELATIVE VALUATIONS



Source: Standard & Poor's, as of 12/31/21

International developed equity

International developed equities delivered 2.7% during the quarter. U.S. equities were the top performer (S&P 500 +11.0%) while emerging market equities saw a slight loss (MSCI Emerging Markets -1.3%), on an unhedged currency basis. Currency movement during the quarter resulted in a loss of -1.5% (MSCI EAFE) relative to those investors with a currency hedging program.

Japanese equities (MSCI Japan -4.0%) underperformed most developed markets, reversing strong third quarter returns, though this was mostly caused by currency market movement (Yen -3.1%). The yen fell to its weakest level relative to the dollar since early 2017 in the fourth quarter as

the Bank of Japan's dovish policy increasingly diverged from peers, many of which have signaled the beginning of a normalization process from pandemic stimulus. Rising interest rate differentials, as well as speculation that the new strain of COVID-19 might not be as disruptive as had been feared, has likely contributed to investor flows out of yen positions.

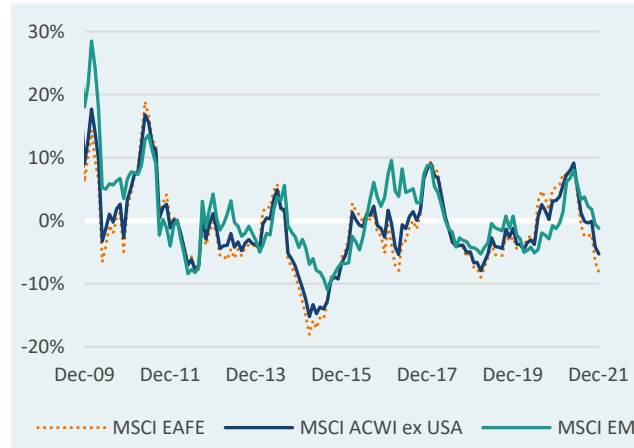
Swiss equities (MSCI Switzerland +12.8%) were the top performer in developed European markets, and unhedged U.S. investors benefitted from a 2.1% appreciation in the Swiss Franc relative to the U.S. dollar.

EFFECT OF CURRENCY (1-YEAR ROLLING)



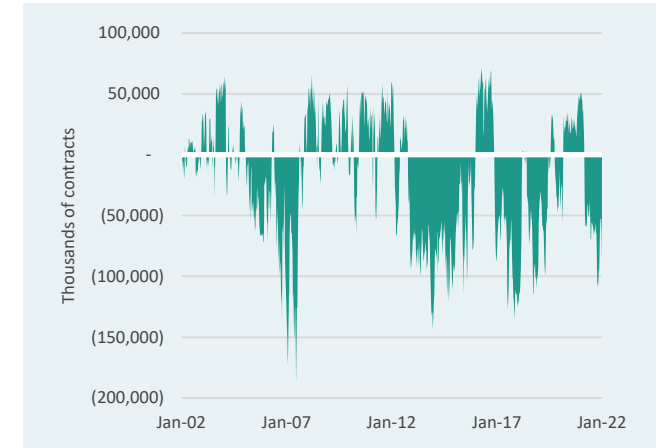
Source: MSCI, as of 12/31/21

INTERNATIONAL DEVELOPED EQUITIES



Source: MSCI, as of 12/31/21

YEN NET FUTURES POSITIONING



Source: CFTC, non-commercial positioning, as of 1/11/22

Emerging market equity

Emerging market equities saw a mild loss (MSCI EM -1.5%) on an unhedged currency basis, underperforming global markets again in the fourth quarter. Latin American and Asian emerging markets performed generally on par during the quarter (MSCI EM Latin America -2.7%, MSCI EM Asia -1.0%).

Weakness in Chinese equities (MSCI China -6.1%) continues to drive broader emerging market underperformance, as China delivered -21.7% return in 2021, while the broader complex was down -2.5% (MSCI China, MSCI Emerging Markets).

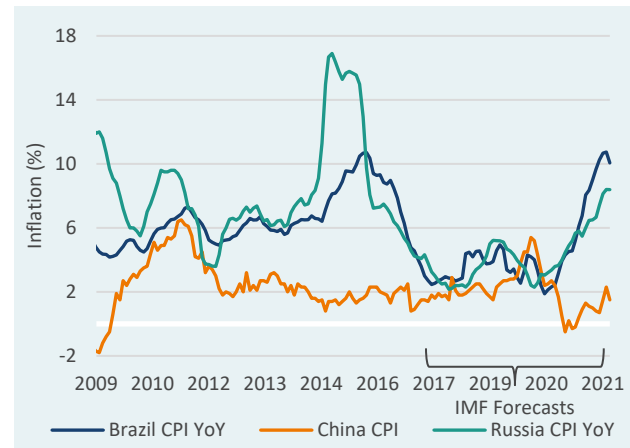
Inflation in Brazil has reached 10.7%, while Russia saw an 8.4% rise in prices and China sits near the longer-term average at 1.5%. Emerging market central banks have continued to raise interest rates. Brazil hiked their rate during the quarter from 6.25% to 9.25% in order to fight rising prices, while Russia hiked its rate from 6.75% to 8.50%. It is worth noting that many of these central banks have very recently implemented a domestic interest rate tightening cycle in order to battle price fluctuations and/or unwanted domestic currency movements. In other words, many emerging central banks deal with these types of issues more often than developed central bankers.

EMERGING MARKET EQUITY



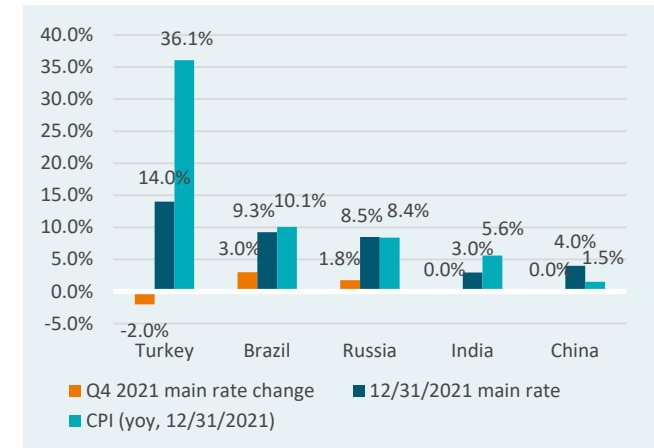
Source: MSCI, as of 12/31/21

INFLATION (YOY)



Source: Bloomberg, as of 12/31/21 or most recent data

CENTRAL BANK RATE CHANGES AND INFLATION



Source: Bloomberg, various, as of 12/31/21

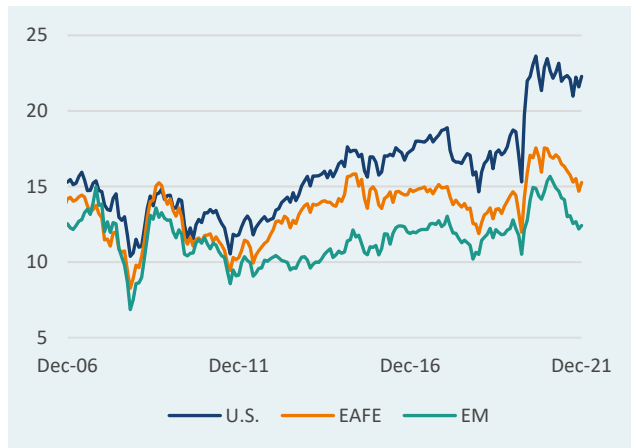
Equity valuations

Forward price/earnings equity multiples have been falling around the world, as earnings expectations rise faster than equity prices. U.S. equities remain the exception in this regard, as U.S. valuations have stayed elevated. The domestic equity market offers one half of the dividend yield of international developed equities (MSCI EAFE), with a forward P/E multiple that is 50% higher. The valuation difference between U.S. and the rest of the world is wider than ever before. This effect is partly due to the rising share of domestic technology stocks, as the technology sector tends to demand loftier valuations than most other sectors, but only partly so. The high prices of U.S. equities may imply more muted returns over the longer-term.

U.S. equity trailing P/E ratio was unmoved during the quarter, while international developed equity valuations fell (19.3 to 17.2) along with emerging market equity valuations (15.8 to 14.0). Relative valuation differences across global markets are apparent in the yield (carry) offered by each market. U.S. equities offer a 3.8% earnings yield, while international developed offer 5.8% and emerging market equities offer 7.1%. In simple terms, for the U.S. market to deliver future performance equivalent to other markets, domestic stocks will either need to deliver outsized profit growth or higher valuations.

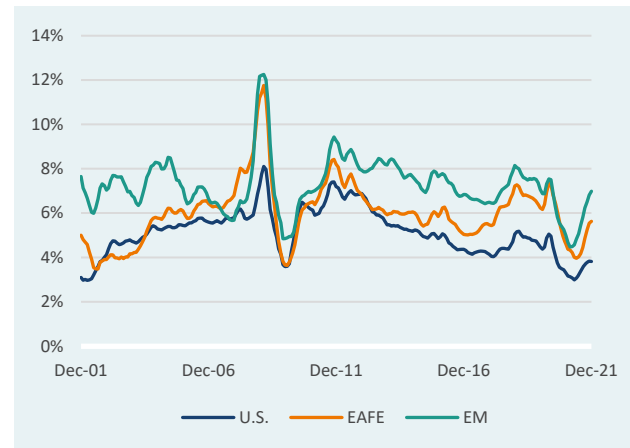
Most equity valuations have moved back towards normal levels, though U.S. prices remain exceptionally rich

FORWARD P/E RATIOS



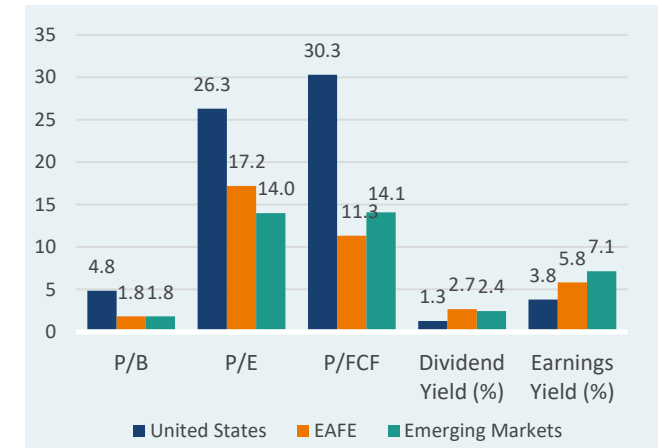
Source: MSCI, 12m forward P/E, as of 12/31/21

CURRENT EARNINGS YIELD (3-MONTH AVERAGE)



Source: Bloomberg, MSCI, as of 12/31/21

VALUATION METRICS (3-MONTH AVERAGE)



Source: Bloomberg, MSCI as of 12/31/21 - trailing P/E

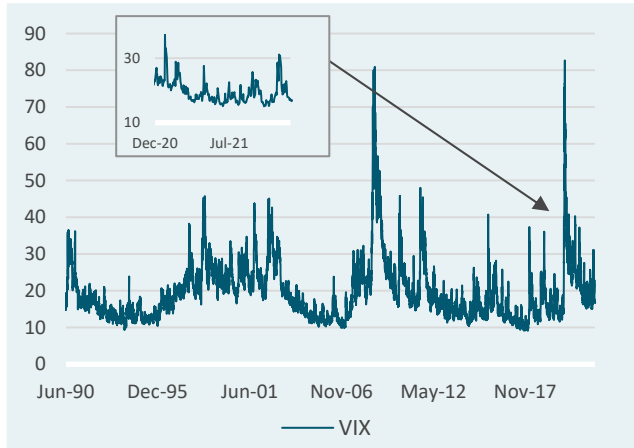
Equity volatility

The Cboe VIX Index stayed near average levels throughout the fourth quarter, with the exception of market choppiness at the end of November which briefly sent the VIX Index above 30. Realized volatility over the past year was muted. U.S. and emerging market equities exhibited 11% volatility during the calendar year, while international developed showed 9.8%. Historically, it has been uncommon for global markets to show similar levels of volatility, as developed markets tend to deliver lower volatility, and emerging markets higher volatility.

Market response to the Omicron variant was minimal, with a few larger market drops followed by quick recoveries. We

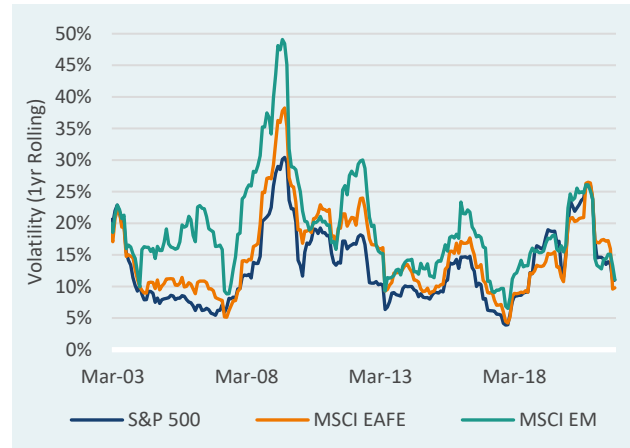
believe that investors have largely moved beyond COVID-19, and that markets have adjusted to the transition away from fiscal stimulus and many of the recent unique government spending programs. As we enter 2022, investors seem to be focused on Federal Reserve plans for tapering and interest rate hikes. It is very possible that this rate hike cycle will look similar to those of the past decade—bouts of volatility as markets either accept or push back against tightening financial conditions, “good news is bad news” as positive economic developments are seen as potentially encouraging tighter Fed policy, and “bad news is good news” as economic weakness is interpreted as an excuse for Federal Reserve easiness and accommodation.

U.S. IMPLIED VOLATILITY (VIX)



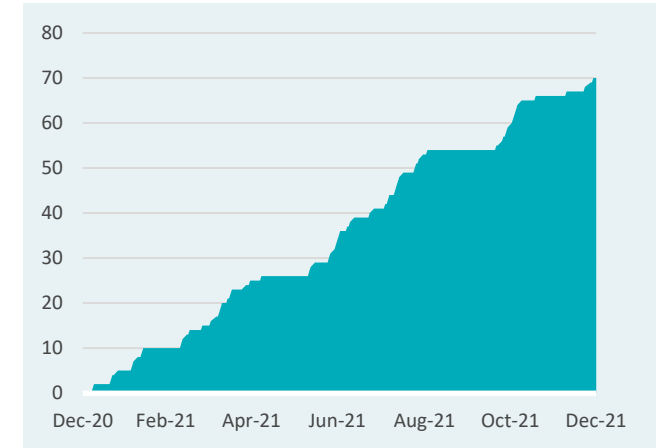
Source: Cboe, as of 12/31/21

REALIZED VOLATILITY



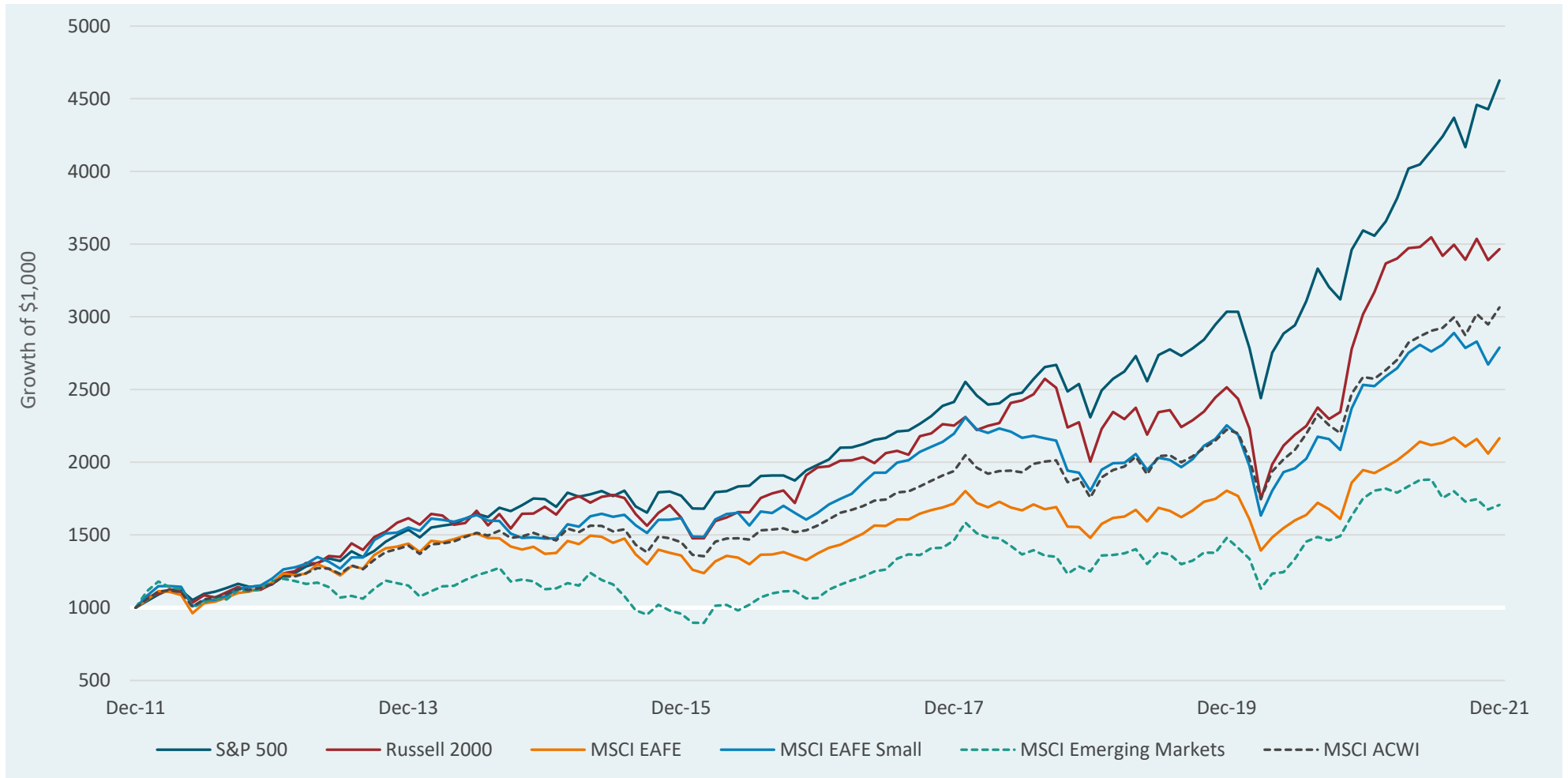
Source: Standard & Poor's, MSCI, as of 12/31/21

S&P 500 INDEX – CUMULATIVE NUMBER OF RECORD CLOSES IN 2021



Source: Standard & Poor's, Bloomberg, as of 12/31/21

Long-term equity performance



Source: Morningstar, as of 12/31/21

Other assets

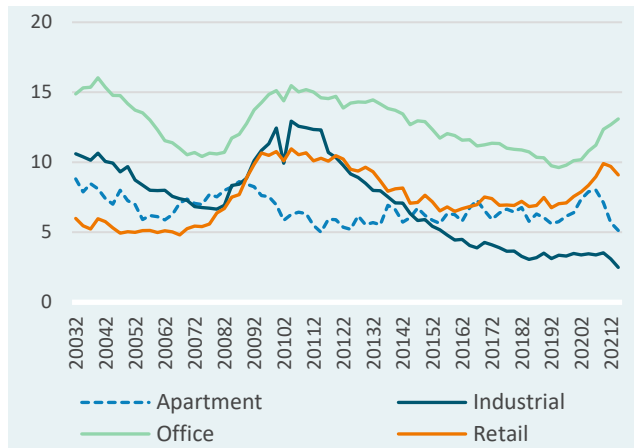
Private real estate fundamentals

Private real estate fundamentals have seen steady improvement in vacancy rates and net operating income (NOI) growth during 2021.

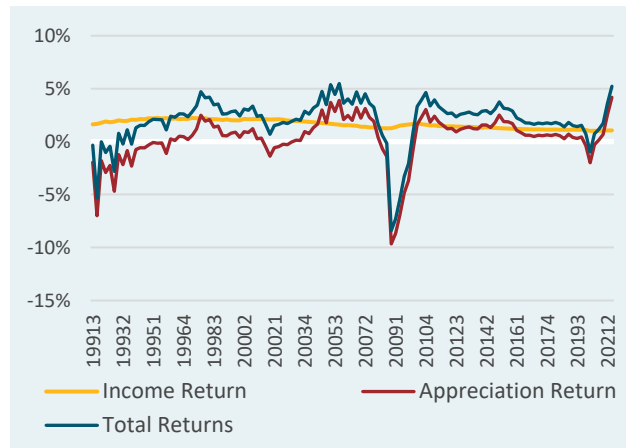
Performance has also been very strong. In Q3 2021, the NCREIF ODCE posted a 6.4% net return, the highest single quarter return in the history of the index, beating the previous high of 6.2% (Q4 1978). Early indications are Q4 2021 will be another strong quarter.

The office sector has been one exception where vacancy rates have continued to climb and NOI growth has been modest (although still positive).

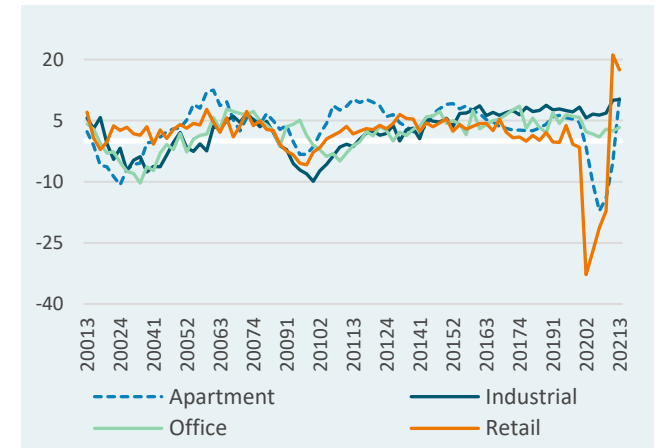
VACANCY BY PROPERTY TYPE



NCREIF PROPERTY INDEX QUARTERLY RETURNS



NOI GROWTH BY PROPERTY TYPE (4-QTR ROLLING)



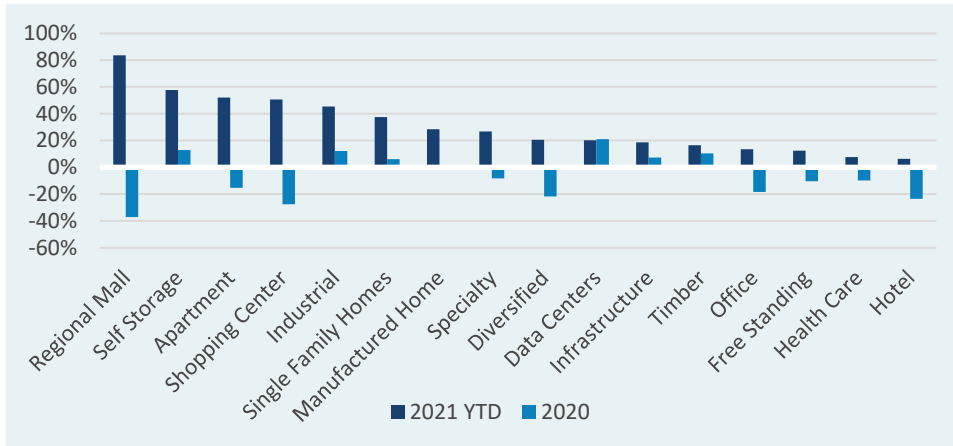
Source: NCREIF, as of 9/30/21

Strong rebound in REITs

REITs rebounded strongly in 2021 posting an overall return of +42.3% for the FTSE NAREIT Equity Index. Several of the strongest sectors of 2021 were those that struggled the most in 2020, such as Regional Malls, Shopping Centers, and Apartments. Sectors with pandemic-driven tailwinds such as Industrial and Data Centers continued to perform well in 2021.

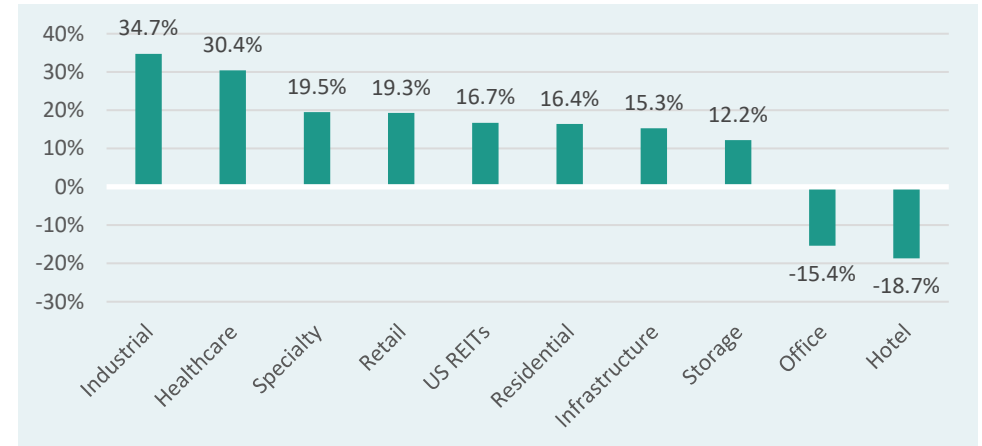
Valuations have become rich across a number of sectors, trading at substantial premiums to their net asset values (NAVs). The U.S. REIT market overall is currently trading at a 16% premium to NAV.

REIT PERFORMANCE BY SUB SECTOR (2021 VS 2020)



Source: Cohen & Steers, as of 11/30/21

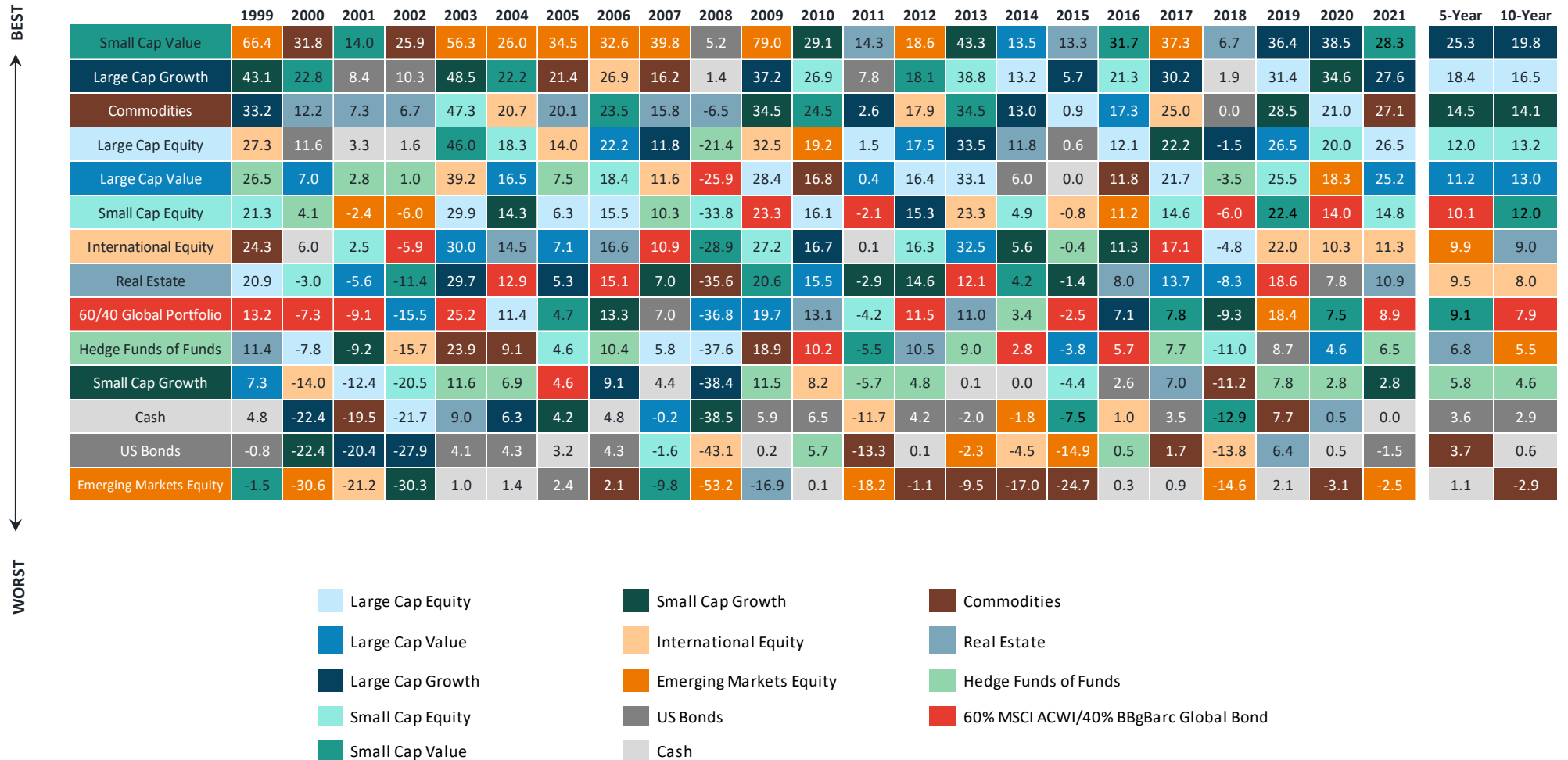
REIT PREMIUM/DISCOUNT TO NAV BY SUB SECTOR



Source: Heitman, as of 12/31/21

Appendix

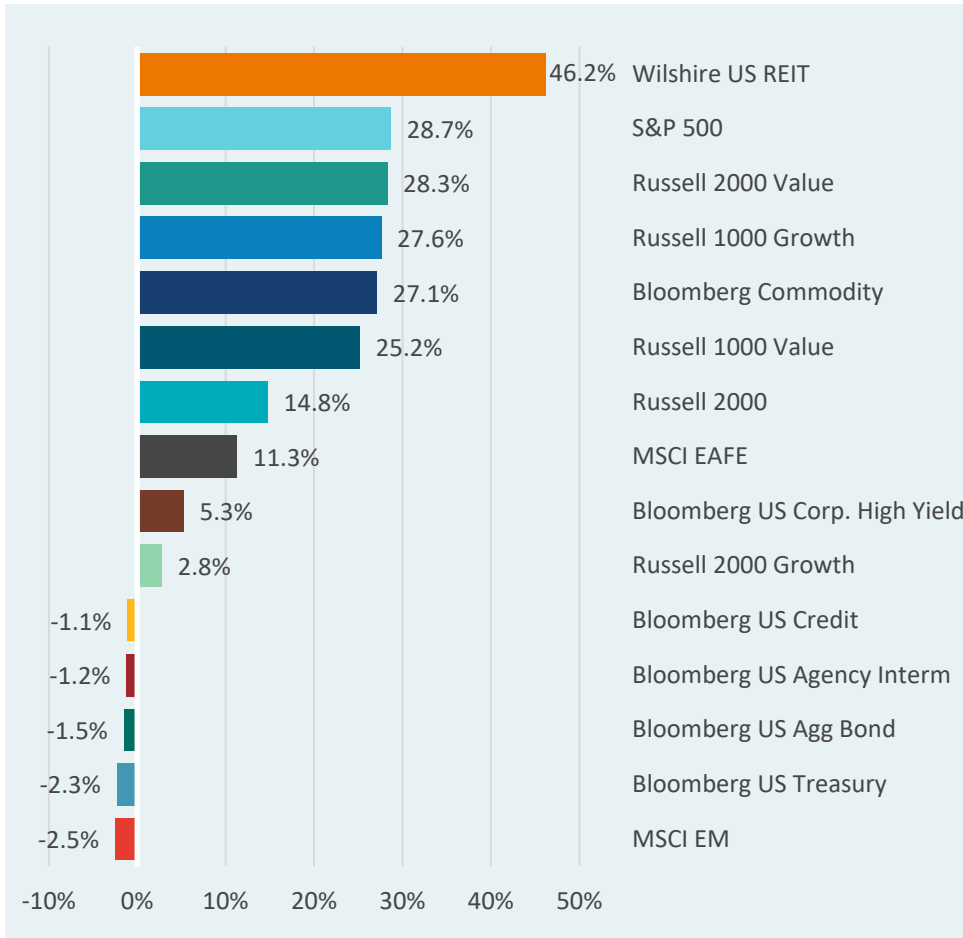
Periodic table of returns



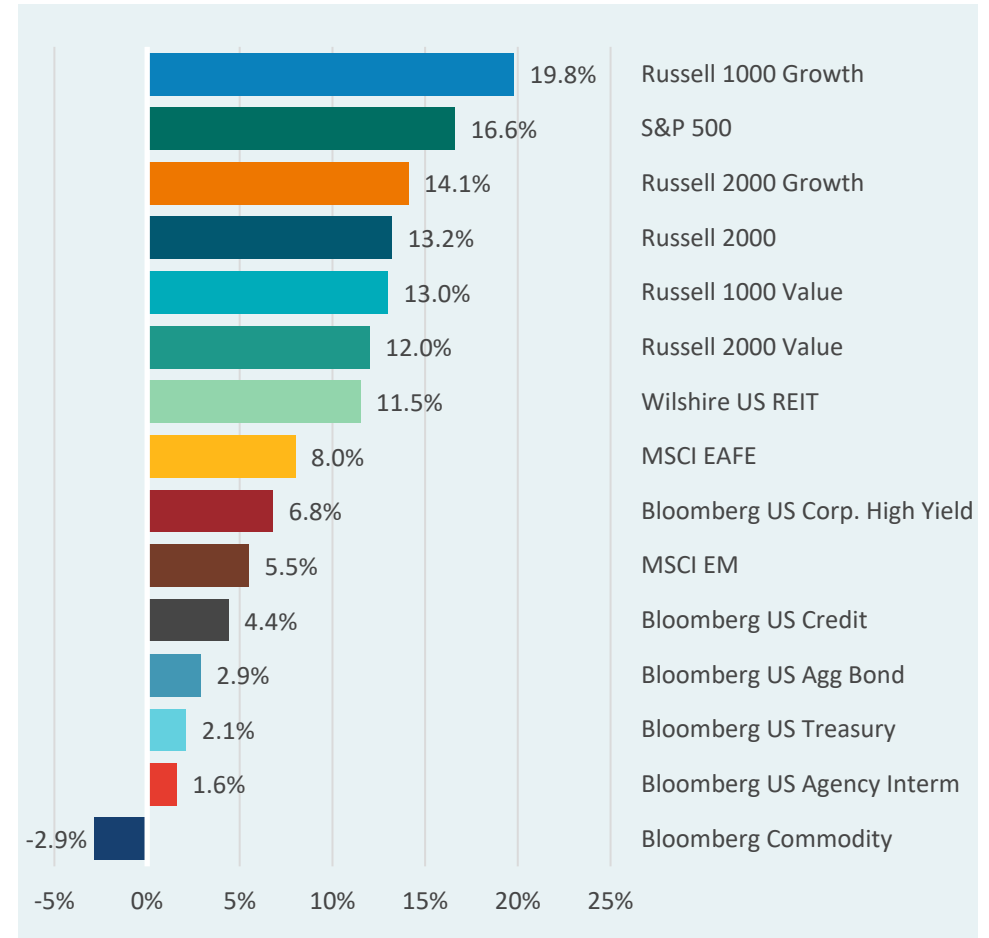
Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, Bloomberg US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, Bloomberg Global Bond. NCREIF Property Index performance data as of 9/30/21.

Major asset class returns

ONE YEAR ENDING DECEMBER



TEN YEARS ENDING DECEMBER



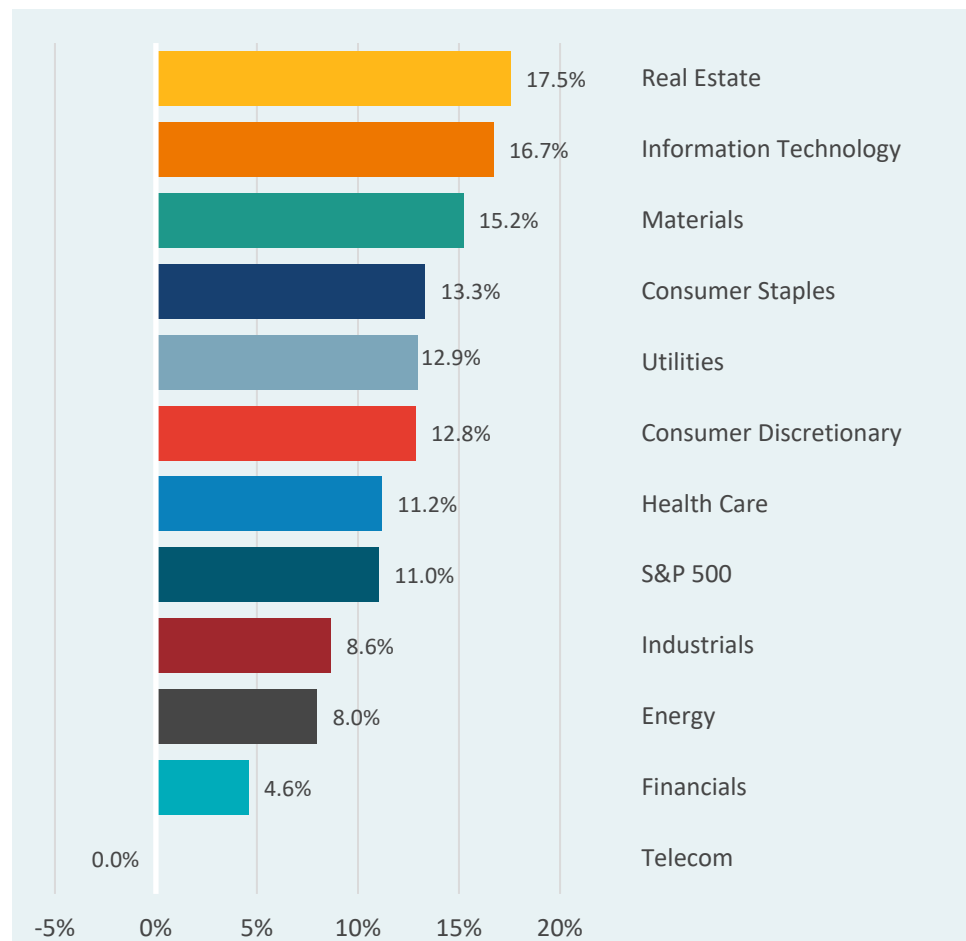
*Only publicly traded asset performance is shown here. Performance of private assets is typically released with a 3- to 6-month delay.

Source: Morningstar, as of 12/31/21

Source: Morningstar, as of 12/31/21

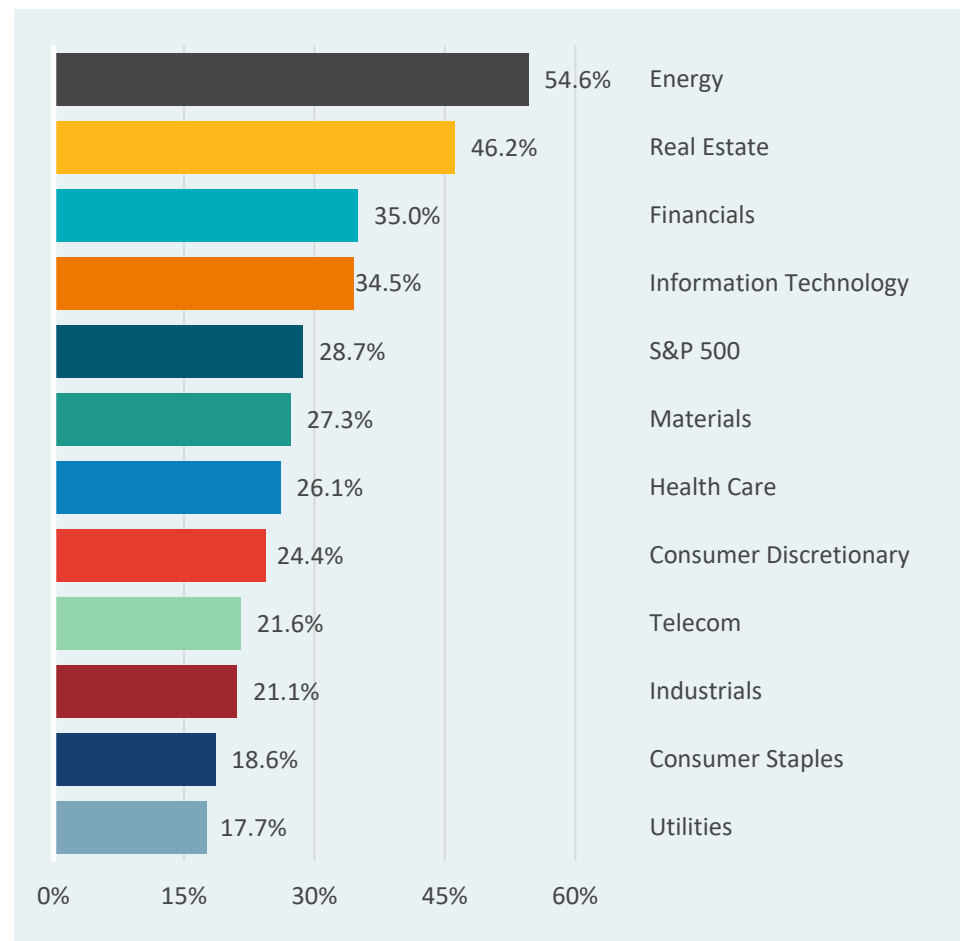
S&P 500 sector returns

Q4 2021



Source: Morningstar, as of 12/31/21

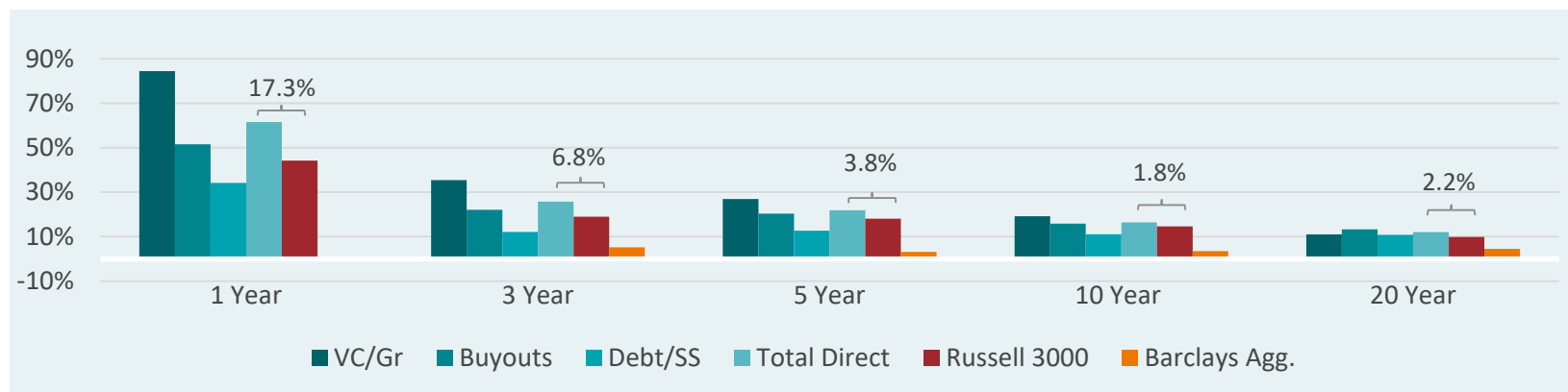
ONE YEAR ENDING DECEMBER



Source: Morningstar, as of 12/31/21

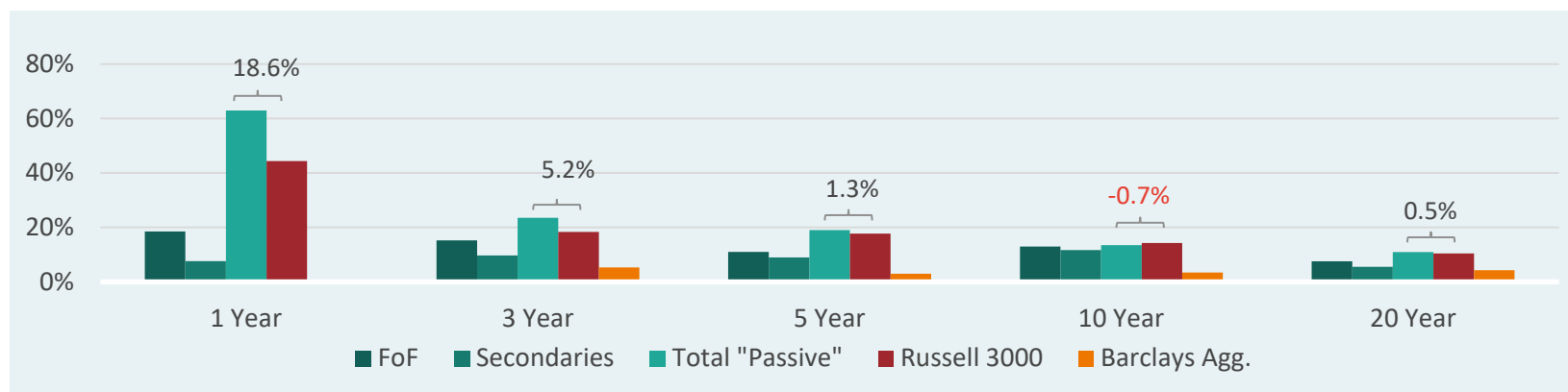
Private equity vs. traditional assets performance

DIRECT PRIVATE EQUITY FUND INVESTMENTS



Direct P.E Fund Investments outperformed comparable public equities across all time periods.

"PASSIVE" STRATEGIES

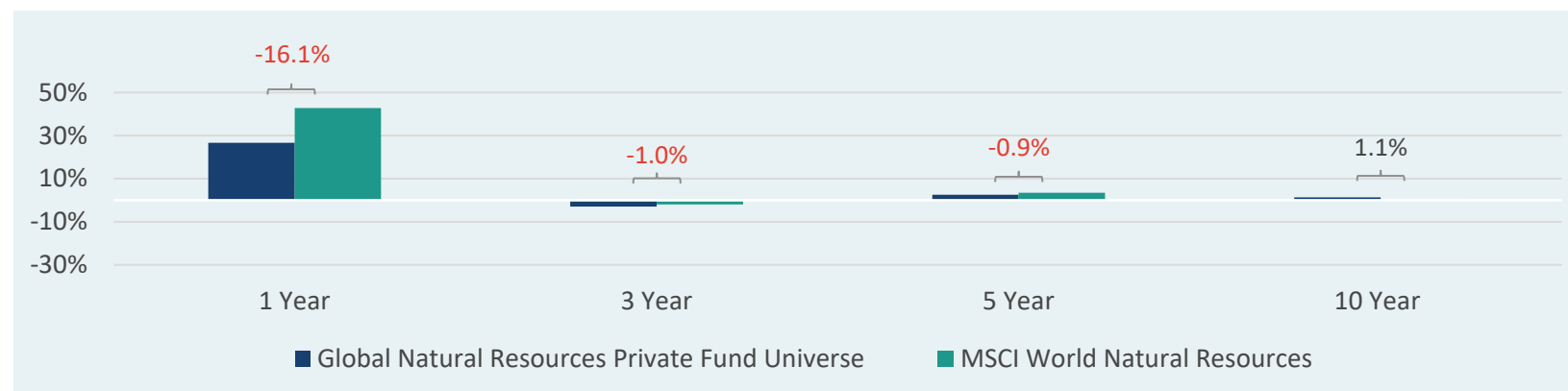


"Passive" strategies outperformed comparable public equities across all time periods, aside from the 10-year basis.

Sources: Refinitiv CJA PME: U.S. Private Equity Funds sub asset classes as of June 30, 2021. Public Market Equivalent returns resulted from "Total Passive" and Total Direct's identical cash flows invested into and distributed from respective traditional asset comparable.

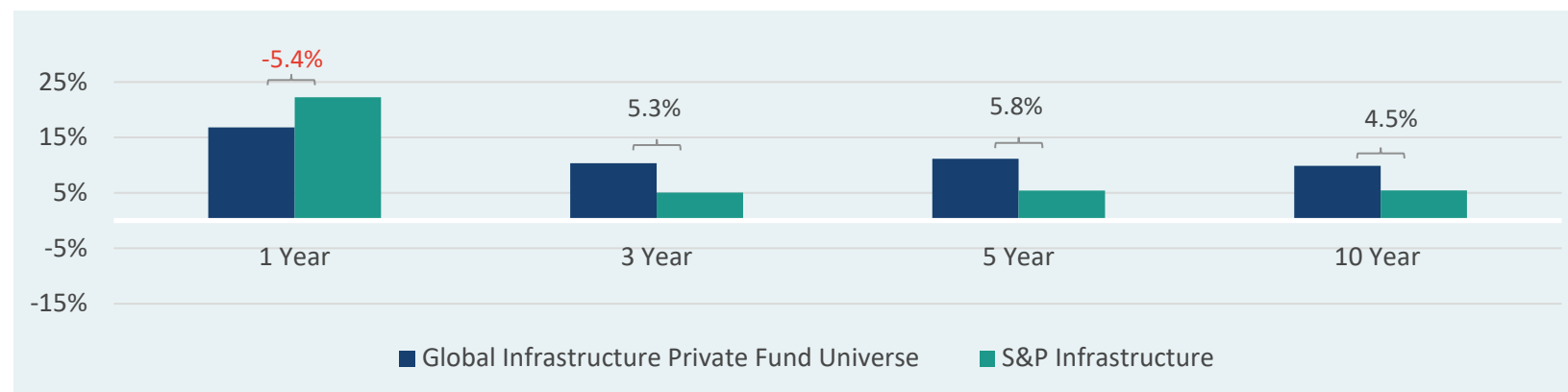
Private vs. liquid real assets performance

GLOBAL NATURAL RESOURCES FUNDS



N.R. funds underperformed the MSCI World Natural Resources benchmark across all time periods, aside from the 10-year basis.

GLOBAL INFRASTRUCTURE FUNDS

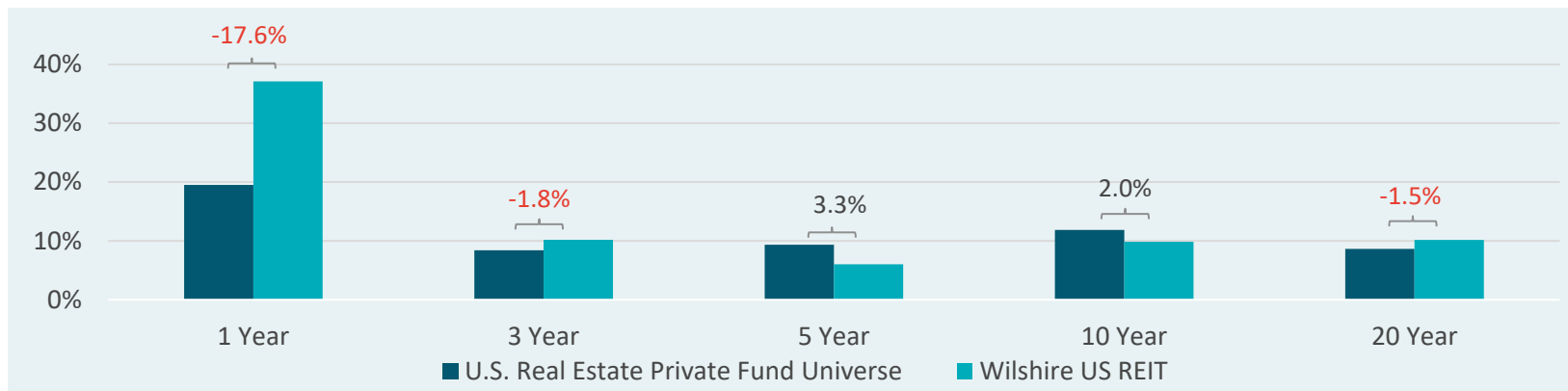


Infra. funds outperformed the S&P Infra. across all periods, aside from the 1-year basis.

Sources: Refinitiv CJA PME: Global Natural Resources (vintage 1999 and later, inception of MSCI World Natural Resources benchmark) and Global Infrastructure (vintage 2002 and later, inception of S&P Infrastructure benchmark) universes as of June 30, 2021. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real assets universes.

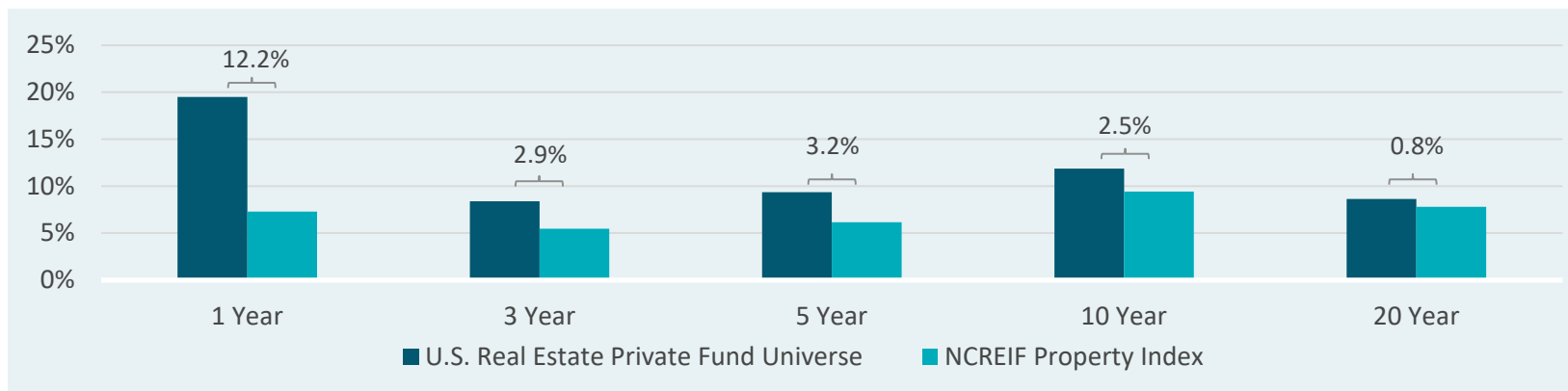
Private vs. liquid and core real estate performance

U.S. PRIVATE REAL ESTATE FUNDS VS. LIQUID UNIVERSE



U.S. Private R.E. funds underperformed the Wilshire U.S. REIT Index across all time periods, aside on a 5-year and 10-year basis.

U.S. PRIVATE REAL ESTATE FUNDS VS. CORE FUNDS



U.S. Private R.E. Funds outperformed the NCREIF Property Index across all time periods.

Sources: Refinitiv CJA PME: Global and U.S. Real Estate universes as of June 30, 2021. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real estate universes.

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	4.5	11.0	28.7	28.7	26.1	18.5	16.6
S&P 500 Equal Weighted	6.2	9.0	29.6	29.6	23.6	15.7	15.6
DJ Industrial Average	5.5	7.9	20.9	20.9	18.5	15.5	14.2
Russell Top 200	4.0	11.0	27.9	27.9	27.3	19.7	17.2
Russell 1000	4.1	9.8	26.5	26.5	26.2	18.4	16.5
Russell 2000	2.2	2.1	14.8	14.8	20.0	12.0	13.2
Russell 3000	3.9	9.3	25.7	25.7	25.8	18.0	16.3
Russell Mid Cap	4.1	6.4	22.6	22.6	23.3	15.1	14.9
Style Index							
Russell 1000 Growth	2.1	11.6	27.6	27.6	34.1	25.3	19.8
Russell 1000 Value	6.3	7.8	25.2	25.2	17.6	11.2	13.0
Russell 2000 Growth	0.4	0.0	2.8	2.8	21.2	14.5	14.1
Russell 2000 Value	4.1	4.4	28.3	28.3	18.0	9.1	12.0

INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
MSCI ACWI	4.0	6.7	18.5	18.5	20.4	14.4	11.9
MSCI ACWI ex US	4.1	1.8	7.8	7.8	13.2	9.6	7.3
MSCI EAFE	5.1	2.7	11.3	11.3	13.5	9.5	8.0
MSCI EM	1.9	(1.3)	(2.5)	(2.5)	10.9	9.9	5.5
MSCI EAFE Small Cap	4.4	0.1	10.1	10.1	15.6	11.0	10.8
Style Index							
MSCI EAFE Growth	4.3	4.1	11.3	11.3	19.0	13.6	10.1
MSCI EAFE Value	6.0	1.2	10.9	10.9	7.8	5.3	5.8
Regional Index							
MSCI UK	7.3	5.6	18.5	18.5	8.7	6.2	5.1
MSCI Japan	1.9	(4.0)	1.7	1.7	11.7	8.5	8.3
MSCI Euro	6.3	3.9	14.9	14.9	14.6	9.7	8.4
MSCI EM Asia	1.5	(1.0)	(5.1)	(5.1)	13.3	11.9	8.1
MSCI EM Latin American	5.9	(2.7)	(8.1)	(8.1)	(2.4)	1.5	(2.2)

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
Bloomberg US TIPS	0.3	2.4	6.0	6.0	8.4	5.3	3.1
Bloomberg US Treasury Bills	0.0	0.0	0.0	0.0	1.0	1.2	0.7
Bloomberg US Agg Bond	(0.3)	0.0	(1.5)	(1.5)	4.8	3.6	2.9
Bloomberg US Universal	(0.1)	(0.0)	(1.1)	(1.1)	5.2	3.8	3.3
Duration							
Bloomberg US Treasury 1-3 Yr	(0.2)	(0.6)	(0.6)	(0.6)	2.0	1.6	1.1
Bloomberg US Treasury Long	(1.4)	3.1	(4.6)	(4.6)	8.8	6.5	4.5
Bloomberg US Treasury	(0.5)	0.2	(2.3)	(2.3)	4.1	3.1	2.1
Issuer							
Bloomberg US MBS	(0.1)	(0.4)	(1.0)	(1.0)	3.0	2.5	2.3
Bloomberg US Corp. High Yield	1.9	0.7	5.3	5.3	8.8	6.3	6.8
Bloomberg US Agency Interm	(0.2)	(0.7)	(1.2)	(1.2)	2.4	2.0	1.6
Bloomberg US Credit	(0.1)	0.2	(1.1)	(1.1)	7.2	5.1	4.4
OTHER							
Index							
Bloomberg Commodity	3.5	(1.6)	27.1	27.1	9.9	3.7	(2.9)
Wilshire US REIT	8.8	17.1	46.2	46.2	19.2	10.9	11.5
CS Leveraged Loans	0.6	0.7	5.4	5.4	5.4	4.3	4.8
S&P Global Infrastructure	6.6	4.6	11.9	11.9	10.2	7.8	7.7
Alerian MLP	3.7	0.9	40.9	40.9	1.0	(3.7)	(0.3)
Regional Index							
JPM EMBI Global Div	1.4	(0.4)	(1.8)	(1.8)	5.9	4.7	5.3
JPM GBI-EM Global Div	1.6	(2.5)	(8.7)	(8.7)	2.1	2.8	0.7
Hedge Funds							
HFRI Composite	1.3	0.6	10.3	10.3	10.9	7.1	5.8
HFRI FOF Composite	0.8	0.7	6.5	6.5	8.6	5.8	4.6
Currency (Spot)							
Euro	1.0	(1.9)	(7.1)	(7.1)	(0.2)	1.5	(1.3)
Pound Sterling	2.4	0.5	(0.9)	(0.9)	2.1	1.9	(1.4)
Yen	(1.4)	(3.1)	(10.3)	(10.3)	(1.6)	0.3	(4.0)

Source: Morningstar, HFRI, as of 12/31/21

Definitions

Bloomberg US Weekly Consumer Comfort Index - tracks the public's economic attitudes each week, providing a high-frequency read on consumer sentiment. The index, based on cell and landline telephone interviews with a random, representative national sample of U.S. adults, tracks Americans' ratings of the national economy, their personal finances and the buying climate on a weekly basis, with views of the economy's direction measured separately each month. (www.lanqerresearch.com)

University of Michigan Consumer Sentiment Index - A survey of consumer attitudes concerning both the present situation as well as expectations regarding economic conditions conducted by the University of Michigan. For the preliminary release approximately three hundred consumers are surveyed while five hundred are interviewed for the final figure. The level of consumer sentiment is related to the strength of consumer spending. (www.Bloomberg.com)

NFIB Small Business Outlook - Small Business Economic Trends (SBET) is a monthly assessment of the U.S. small-business economy and its near-term prospects. Its data are collected through mail surveys to random samples of the National Federal of Independent Business (NFIB) membership. The survey contains three broad question types: recent performance, near-term forecasts, and demographics. The topics addressed include: outlook, sales, earnings, employment, employee compensation, investment, inventories, credit conditions, and single most important problem. (<http://www.nfib-sbet.org/about/>)

NAHB Housing Market Index - the housing market index is a weighted average of separate diffusion indices for three key single-family indices: market conditions for the sale of new homes at the present time, market conditions for the sale of new homes in the next six months, and the traffic of prospective buyers of new homes. The first two series are rated on a scale of Good, Fair, and Poor and the last is rated on a scale of High/Very High, Average, and Low/Very Low. A diffusion index is calculated for each series by applying the formula $(\text{Good-Poor} + 100)/2$ to the present and future sales series and $(\text{High/Very High-Low/Very Low} + 100)/2$ to the traffic series. Each resulting index is then seasonally adjusted and weighted to produce the HMI. Based on this calculation, the HMI can range between 0 and 100.

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Glossary

Allocation Effect: An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

Alpha: The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as: $\text{Portfolio Return} - [\text{Risk-free Rate} + \text{Portfolio Beta} \times (\text{Market Return} - \text{Risk-free Rate})]$.

Benchmark R-squared: Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager.

Beta: A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

Book-to-Market: The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios.

Capture Ratio: A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

Correlation: A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

Excess Return: A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

Information Ratio: A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: excess return divided by tracking error.

Interaction Effect: An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

Portfolio Turnover: The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

Price-to-Earnings Ratio (P/E): Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

R-Squared: Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

Selection Effect: An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

Sharpe Ratio: A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as: $\text{Portfolio Excess Return} / \text{Portfolio Standard Deviation}$.

Sortino Ratio: Measures the risk-adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

Standard Deviation: A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

Style Analysis: A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

Style Map: A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

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SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 22, 2022

Agenda Item 6.3

TO: Board of Retirement

FROM: Michael Coultrip, Chief Investment Officer 

SUBJECT: Approval of Updated Asset Allocation Policy Portfolio

Recommendation

Approve the proposed updated asset allocation policy portfolio after reviewing the attached capital market assumption and asset allocation report from Verus.

Background

SamCERA is planning on undertaking a full asset-liability analysis in late 2022/early 2023, which will analyze the probabilistic risk/return portfolio tradeoffs across multiple dimensions, (e.g. funded status, expected contributions, etc.). Consistent with SamCERA's Investment Policy, SamCERA undertakes an asset-liability study every three years.

In the years in which a full asset-liability analysis is not performed, the Board will re-evaluate the target policy portfolio, incorporating updated capital market assumptions and current market trends, to determine whether to incorporate any smaller asset allocation tweaks to the target policy portfolio.

Discussion

The attached report from Verus summarizes their updated asset class capital market assumptions. Pages 7 and 8 summarize the major changes to the assumptions compared to last year. Pages 4 and 5 show SamCERA's current policy portfolio along with a proposed long-term policy portfolio. As can be seen on page 4, the current policy portfolio has a 0.4% higher return (5.4% vs 5.0%) using the updated Verus capital market assumptions. The proposed policy has a slightly higher expected risk and return profile (with similar risk-adjusted returns) than our current policy portfolio.

The table below shows the tweaks between our current policy portfolio to the proposed long-term policy portfolio. There is no change to the overall Growth category weighting, while there is a 1% reduction to Diversifying and corresponding 1% increase to Inflation Hedge.

The specific changes are summarized below:

1. 1% increase to private equity and a corresponding 1% decrease to public equity.
2. Addition of a 1.5% allocation to a short-term cash flow match liquidity portfolio, funded from core fixed income.

- 1% increase to private real assets (infrastructure) and a corresponding 1% decrease to core fixed income.

SamCERA Updated Asset Allocation Policy

	Current Long-Term Policy	Proposed Long-Term Policy	Change (%)
Growth	57.0%	57.0%	0.0%
Total Equity	47.0%	47.0%	0.0%
Domestic Equity	22.0%	21.0%	-1.0%
Core Domestic Equity	12.0%	11.0%	-1.0%
Low Volatility Equity	8.0%	8.0%	-
Small-Cap Equity	2.0%	2.0%	-
International Equity	19.0%	19.0%	-
Private Equity	6.0%	7.0%	1.0%
Total Opportunistic Credit	10.0%	10.0%	0.0%
Public Opportunistic Credit	7.0%	7.0%	-
Private Opportunistic Credit	3.0%	3.0%	-
Diversifying	26.0%	25.0%	-1.0%
Core Fixed Income	18.0%	15.5%	-2.5%
Liquidity	1.0%	2.5%	1.5%
Absolute Return	7.0%	7.0%	0.0%
Inflation Hedge	17.0%	18.0%	1.0%
Public Real Assets	4.0%	4.0%	-
Real Estate	9.0%	9.0%	-
Private Real Assets	4.0%	5.0%	1.0%

Joe Abdou and Margaret Jadallah from Verus will present this report to the Board during the Board meeting.

Attachment

Verus Asset Allocation Report



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**

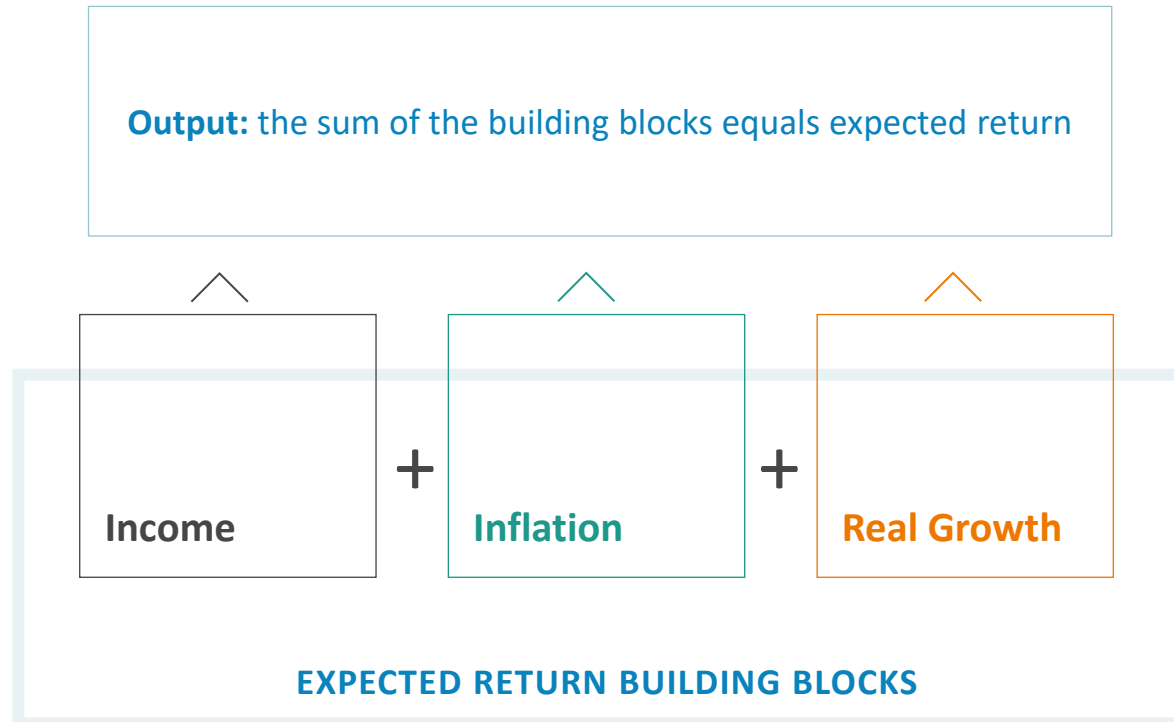


FEBRUARY 2022

2022 Capital Market Assumptions Review

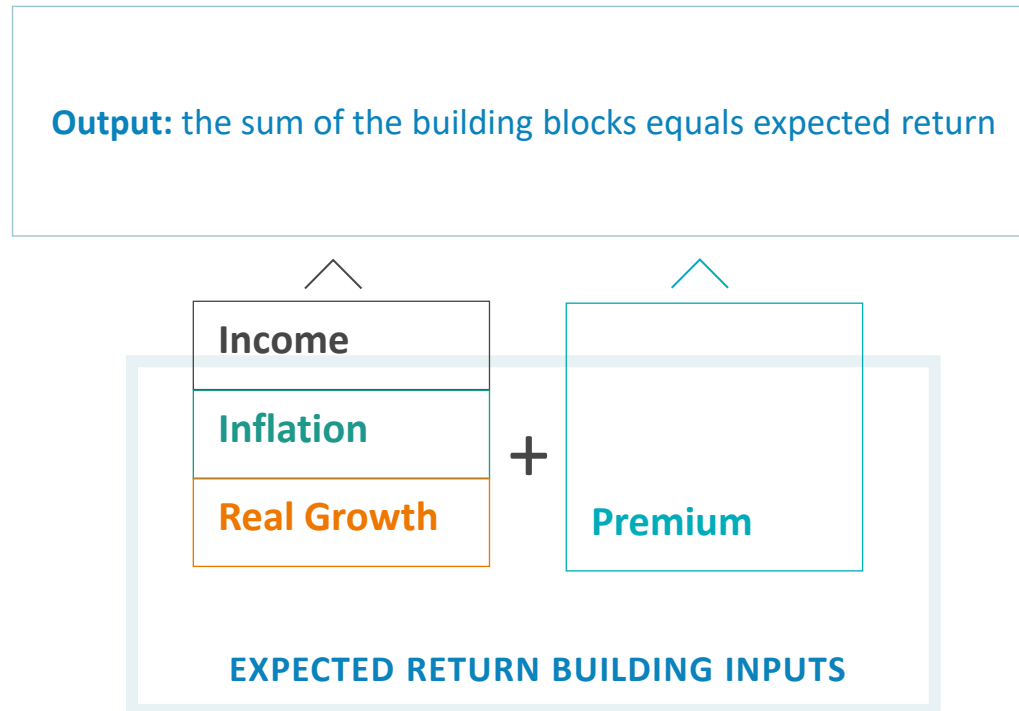
SamCERA

Building block methodology



For illustrative purposes only

Build-up/spread



Alternative asset classes will in some cases use the build-up + spread methodology

For illustrative purposes only

Methodology

CORE INPUTS

- We use a fundamental building block approach based on several inputs, including historical data and academic research to create asset class return forecasts.
- For most asset classes, we use the long-term historical volatility after adjusting for autocorrelation.
- Correlations between asset classes are calculated based on the last 10 years. For illiquid assets, such as private equity and private real estate, we use BarraOne correlation estimates.

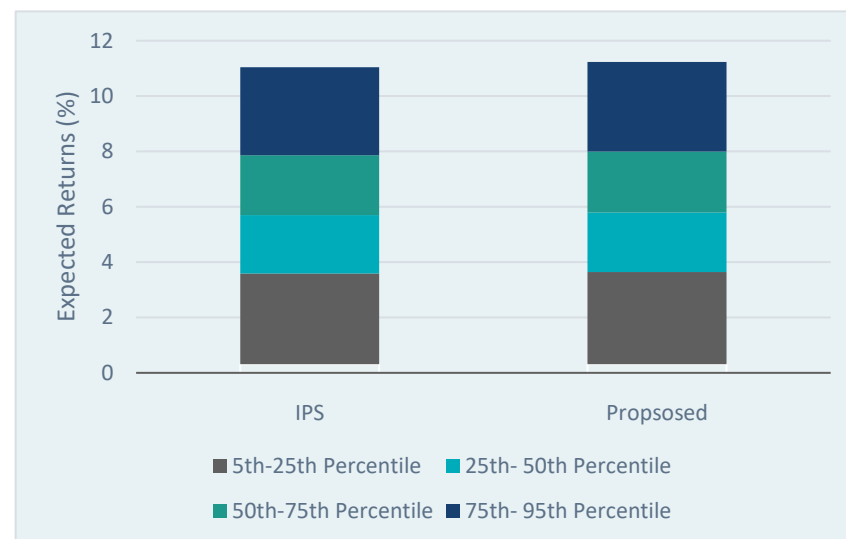
Asset	Return Methodology	Volatility Methodology*
Inflation	25% weight to the University of Michigan Survey 5-10 year ahead inflation expectation and the Survey of Professional Forecasters (Fed Survey), and the remaining 50% to the market's expectation for inflation as observed through the 10-year TIPS breakeven rate	-
Cash	75% * current federal funds rate + 25% * U.S. 10-year Treasury yield	Long-term volatility
Bonds	Nominal bonds: current yield; Real bonds: real yield + inflation forecast	Long-term volatility
Credit	Current option-adjusted spread + U.S. 10-year Treasury – effective default rate	Long-term volatility
Private Credit	Levered gross return (LIBOR + spread + original issuance discounts) – management fees – carried interest	Estimated volatility
Equity	Current yield + real earnings growth (historical average) + inflation on earnings (inflation forecast) + expected P/E change	Long-term volatility
Intl Developed Equity	Current yield + real earnings growth (historical average) + inflation on earnings (intl. inflation forecast) + expected P/E change	Long-term volatility
Private Equity	US large cap domestic equity forecast * 1.85 beta adjustment	1.2 * Long-term volatility of U.S. small cap
Commodities	Collateral return (cash) + spot return (inflation forecast) + roll return (assumed to be zero)	Long-term volatility
Hedge Funds	Return coming from traditional betas + 15-year historical idiosyncratic return	Long-term volatility
Core Real Estate	Cap rate + real income growth – capex + inflation forecast	65% of REIT volatility
Infrastructure	Current yield + real income growth + inflation on earnings (inflation forecast)	Long-term volatility

*Long-term historical volatility data is adjusted for autocorrelation (see Appendix)

10-year expected return & risk assumptions

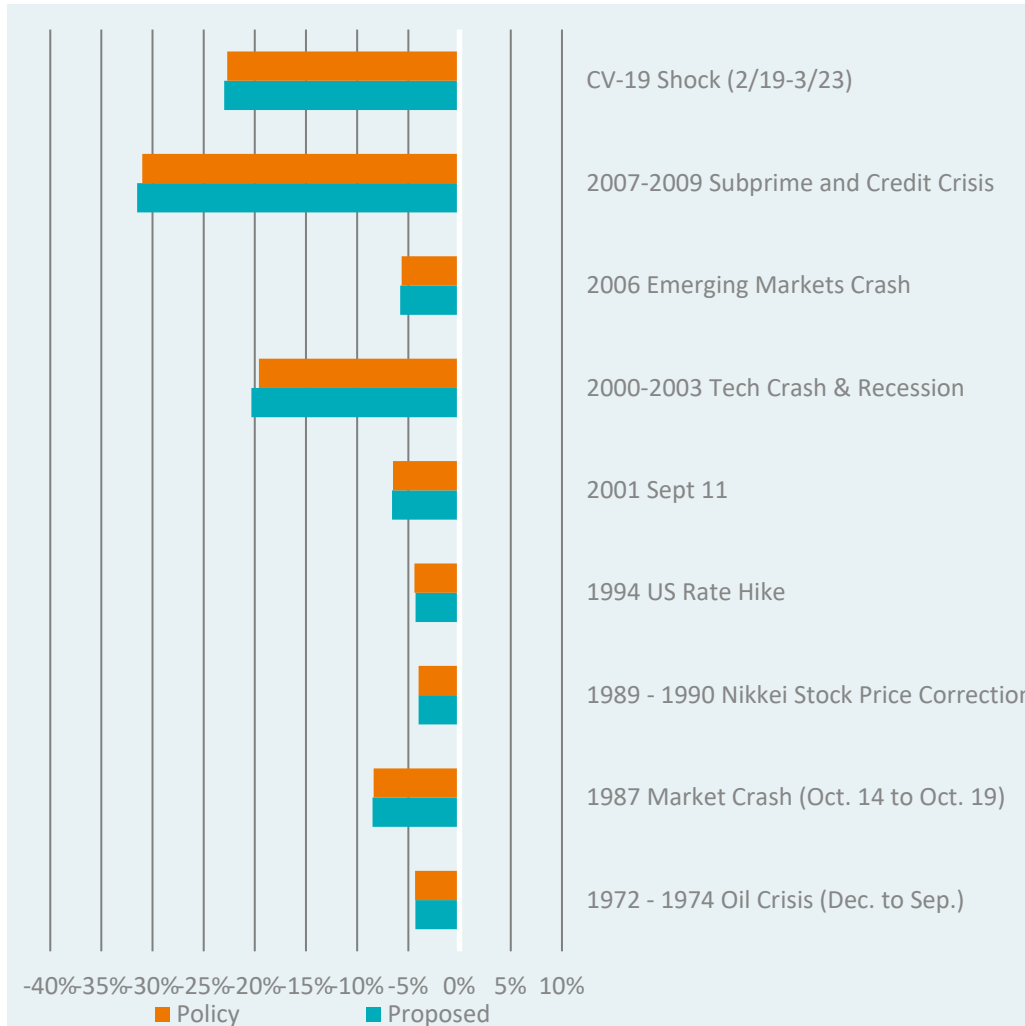
	<u>CMA's (10 Yr)</u>			Sharpe Ratio		
	SamCERA policy - 2021	SamCERA Policy - 2022	SamCERA Proposed			
US Large	12.0	12.0	11.0	5.3	15.7	0.39
Low Vol	8.0	8.0	8.0	4.6	12.3	0.39
US Small	2.0	2.0	2.0	5.3	21.6	0.32
Total Domestic Equity	22	22	21			
International Developed	15.0	15.0	15.0	6.1	16.9	0.40
Emerging Markets	4.0	4.0	4.0	6.1	25.3	0.34
Total Int'l Equity	19	19	19			
High Yield Corp. Credit	7.0	7.0	7.0	3.1	11.2	0.30
Private Equity	6.0	6.0	7.0	9.5	26.0	0.46
Private Credit	3.0	3.0	3.0	6.8	14.6	0.51
Total Growth	57	57	57			
Hedge Fund (Asymmetric Style)	7.0	7.0	7.0	2.3	4.9	0.41
Core Fixed Income	18.0	18.0	15.5	2.2	4.1	0.46
Short-Term Gov't/Credit	1.0	1.0	2.5	1.5	3.6	0.33
Total Diversifying	26	26	25			
Core Real Estate	9.0	9.0	9.0	6.5	12.5	0.54
Real Assets	8.0	8.0	9.0			
Total Inflation Hedge	17	17	18			
Total Allocation	100	100	100			

	SamCERA policy - 2021	SamCERA Policy - 2022	SamCERA Proposed
Mean Variance Analysis			
Forecast 10 Year Return	5.0	5.4	5.5
Standard Deviation	9.9	10.1	10.3
Return/Std. Deviation	0.5	0.5	0.5
1st percentile ret. 1 year	-15.6	-15.5	-15.8
Sharpe Ratio	0.51	0.53	0.53

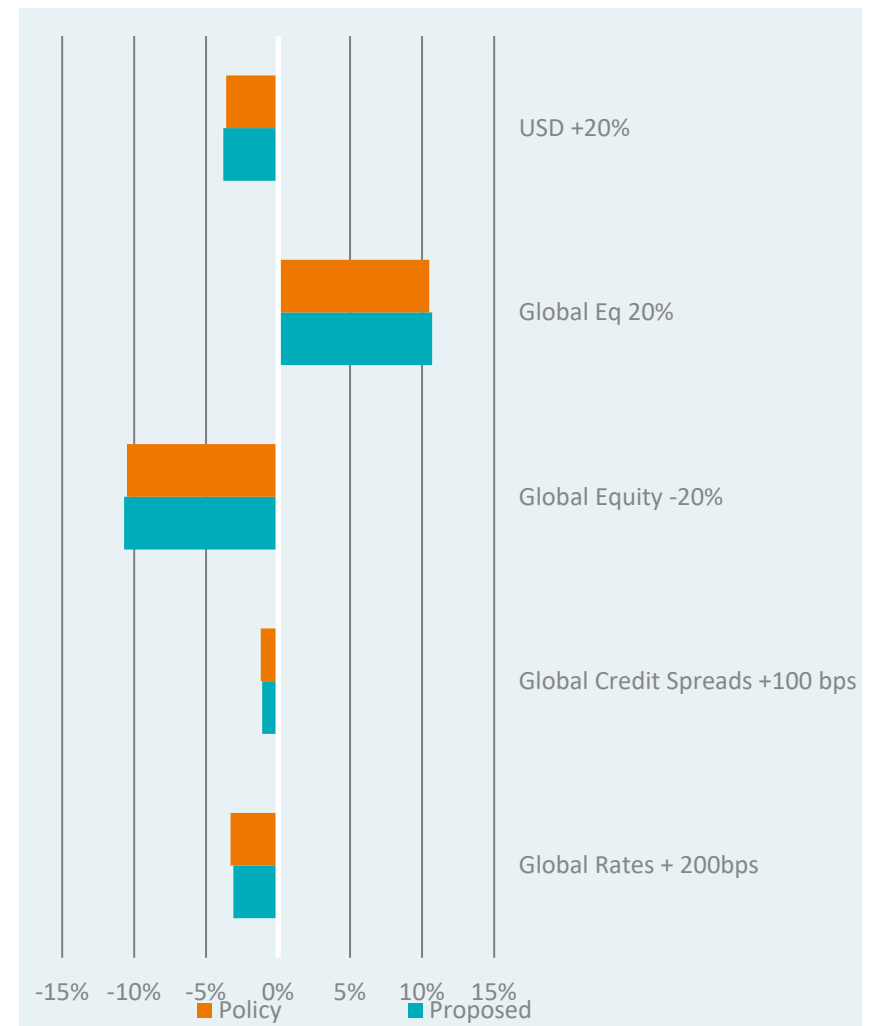


Scenario analysis and stress test

Tail Risk - Scenario Analysis



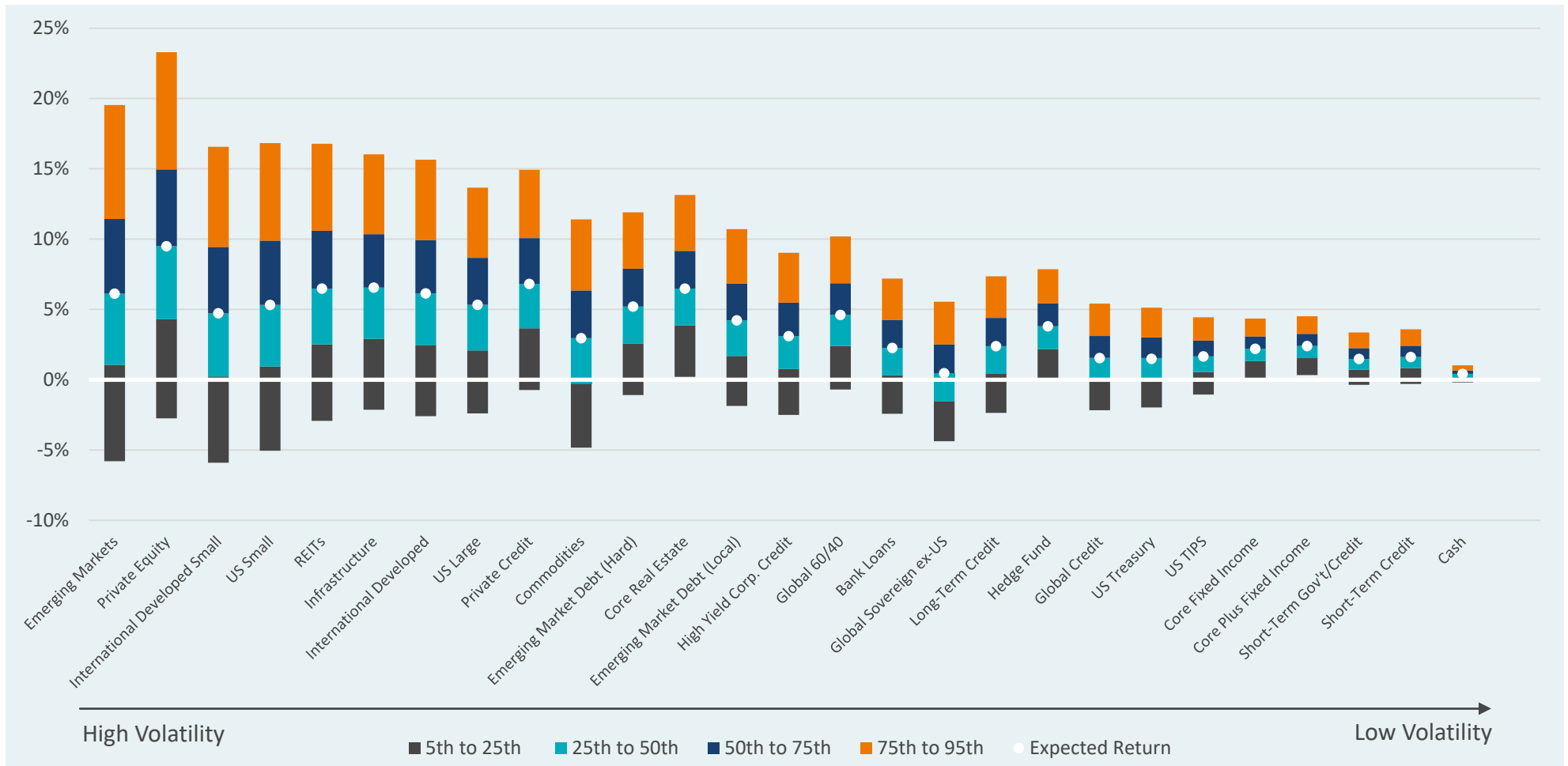
Tail Risk - Stress Tests



Source: Barra

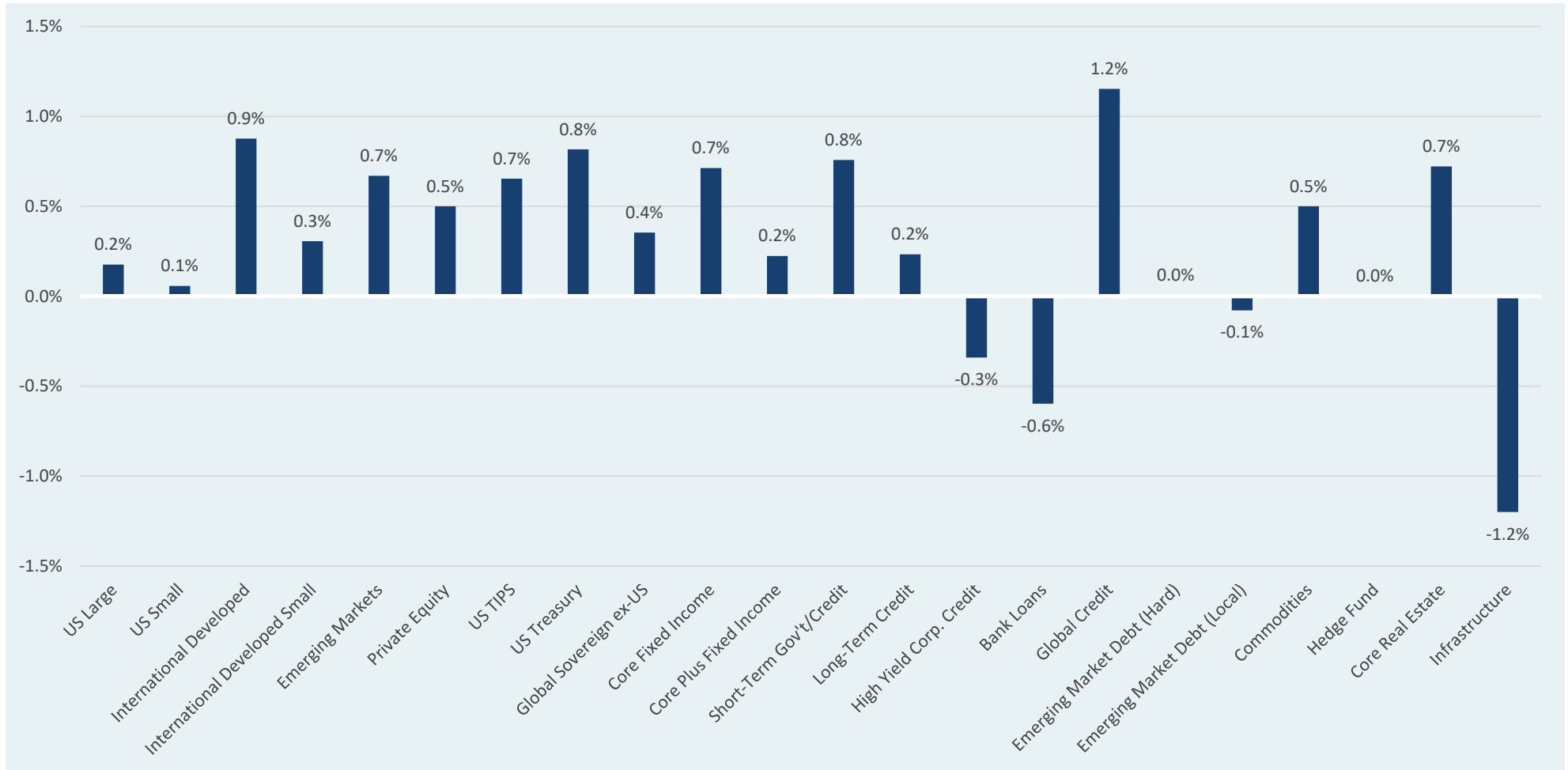
Range of likely 10-year outcomes

10-YEAR RETURN 90% CONFIDENCE INTERVAL



Source: Verus, MPI

2022 vs. 2021 return forecast



Source: Verus, as of 9/30/21

Relevant capital market assumption changes

- Return expectations of higher quality fixed income increased, as bond yields recovered from pandemic lows
 - Long end of yield curve increased as 10-year U.S. Treasury yield climbed from 0.68% to 1.49%.
 - Short end of curve remained anchored at zero, though as economy has improved, market has priced in Fed interest rate hikes beginning March 2022.
 - However, riskier fixed income forecasts were generally lower due to historically tight credit spreads.
- Equity return expectations increased modestly as valuations fell and inflation moved higher
- Inflation expectations increased materially throughout 2021. Overall, inflation forecast increased from 2.0% to 2.5%.
 - Inflation is important component of asset classes performance as inflation expectations affect *nominal* returns, rather than *real* returns
- For Private Credit, 2022 CMAs have been updated to instead assume more diversified basket of Private Credit exposures that more effectively captures diverse exposures within this universe
 - Verus 2021 CMAs had assumed exposure to only unlevered Direct Lending

Summary

- Setting SamCERA's asset allocation policy is most important fiduciary decision SamCERA Board makes; thus, annual review is warranted
 - asset allocation policy drives 90+% of total fund return and risk experience
 - best practice for public funds is annual asset allocation policy review to understand how capital market assumption changes may affect total fund expected return and risk in between asset allocation and asset/liability studies
- Changes in Verus' capital market assumptions from 2021 to 2022 produce an updated long-term policy expected return of 5.4% versus 5.0%, which is 40 basis points higher
 - Principally, increased assumptions driven by higher actual and expected yields
 - Expected risk assumptions tend to be fairly static; there is no meaningful change in expected total fund risk from 2021
- Given the addition of the CDI portfolio, Verus and staff recommend modest changes into private asset classes ahead of the upcoming ALM study to give the teams time to ramp up contributions

Appendix

Inflation

Inflation

We use a weighted average of market expectations (50%), consumer expectations (25%), and professional forecasts (25%) to create a 10-year inflation forecast. The market's expectations for 10-year inflation can be inferred by taking the difference between the U.S. 10-year Treasury yield and the 10-year Treasury Inflation-Protected (TIPS) yield (referred to as the breakeven inflation rate).

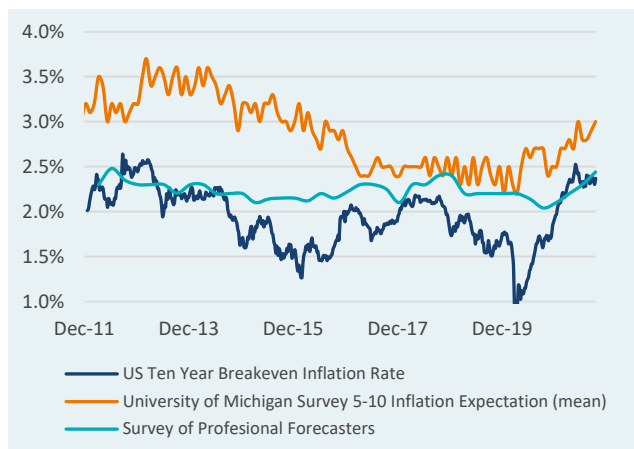
Inflation at the beginning of the year remained depressed from 2020 economic downturn, but then spiked in the second quarter due to a combination of year-over-year base effects, a recovery in energy, and pandemic-related supply/demand imbalances. Inflation is now a nationwide

concern, and debates abound regarding how “transitory” it might be.

Consumer inflation expectations further separated from investor inflation expectations during the year, as consumer expectations tend to more closely track the current rate of inflation. While investors are pricing lower-for-longer inflation, American households are expecting 3.0% long-term inflation—the highest forecast since 2016. Inflation expectations from the Survey of Professional Forecasters rose from 2.0% to 2.4% during the year.

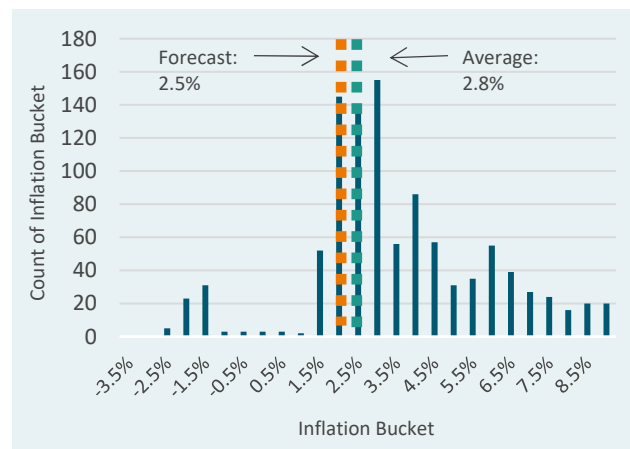
Our inflation forecast increased from 2.0% to 2.5%.

INFLATION EXPECTATIONS



Source: U. of Michigan, Philly Fed, as of 9/30/21

U.S. 10-YR ROLLING AVERAGE INFLATION SINCE 1923



Source: Bloomberg, as of 9/30/21

FORECAST

	10-Year Forecast
University of Michigan Survey (25% weight)	+3.0%
Survey of Professional Forecasters (25% weight)	+2.4%
US 10-Year TIPS Breakeven Rate (50% weight)	+2.4%
Inflation Forecast	2.5%

Source: Verus, as of 9/30/21

Fixed income

Cash

The U.S. Treasury yield recovered from its collapse to nearly zero in 2020, though the curve steepness is mild, historically speaking. The Federal Funds Rate range remains at 0-0.25%, and no interest rate hikes are priced in until at least 2022.

The yield of cash seems to have decoupled from the rate of inflation in many developed markets, as near-zero interest rates and relatively high inflation result in deeply negative interest rates on an inflation-adjusted basis. We believe that the current federal funds rate, as well as the steepness of the U.S. Treasury yield curve, may provide

guidance regarding the future longer-term cash return. We place a 75% forecasting weight on the current federal funds rate and a 25% weight to the 10-year U.S. Treasury.

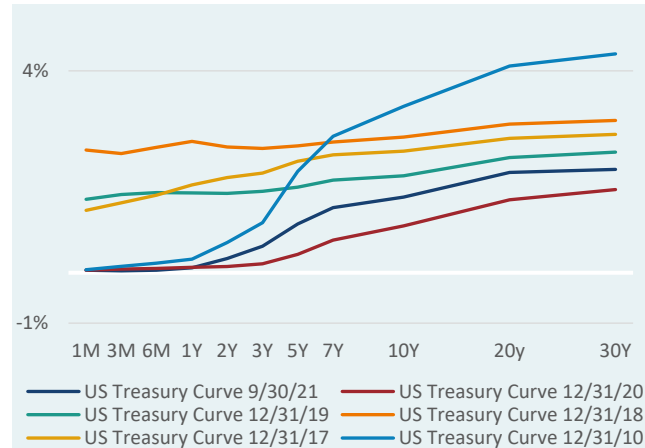
Applying these relationships result in a 10-year cash forecast of 0.4%.

CASH YIELD (3-MONTH T-BILL)



Source: FRED, as of 9/30/21

U.S. TREASURY YIELD CURVE



Source: Bloomberg, as of 9/30/21

FORECAST

	10-Year Forecast
Cash	+0.4%
Inflation Forecast	-2.5%
Real Return	-2.1%

Source: Verus, as of 9/30/21

Rates

We forecast the return from rates based upon the current 10-year Treasury yield, with all cash flows reinvested at the current yield. The 10-year yield rose from 0.7% to 1.5% through September.

U.S. Treasury yields remain high relative to other developed nations, which will likely limit increases in domestic interest rates, as higher rates would attract foreign capital inflows and push rates downward. Investors generally believe U.S. yields will stay lower-for-longer. The U.S. yield curve has steepened as the long end of the curve has risen, but remains relatively flat by historical standards.

Developed world central banks are moving away from extremely loose policies that were enacted to fight the pandemic-induced recession. Higher inflation is also a new risk that creates unique challenges for policymakers who must decide how to balance the need for economic recovery with the risks of rising inflation.

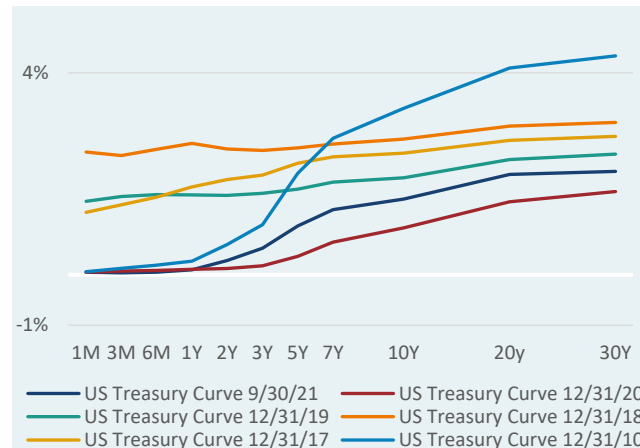
Our expectations are for a 1.5% return over the next ten years, in line with the current U.S. 10-year Treasury yield.

U.S. 10-YR TREASURY YIELD



Source: Bloomberg, as of 9/30/21

U.S. TREASURY YIELD CURVE



Source: Bloomberg, as of 9/30/21

FORECAST

	10-Year Forecast
U.S. 10-Year Treasury	+1.5%
Inflation Forecast	-2.5%
Real Return	-1.1%

Source: Verus, as of 9/30/21

Real rates

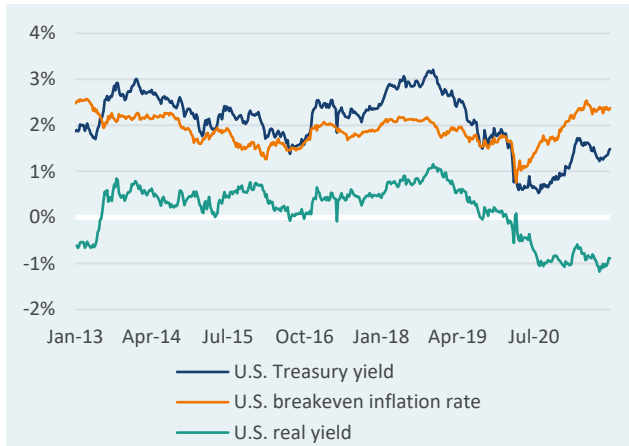
TIPS provide high sensitivity to duration (interest rate risk) over short periods and track inflation (CPI) fairly well over longer periods. Changing inflation expectations, demand for inflation protection, and rate movements contribute to the price movement of TIPS. Currently, investors appear to expect higher inflation to be temporary, but also expect that inflation will be higher in the next decade than the most recent decade.

The long end of the yield curve increased as the 10-year U.S. Treasury climbed from 0.69% to 1.49%. While inflation has risen substantially,

inflation expectations have been more subdued. The breakeven inflation rate increased from 1.63% to 2.38%.

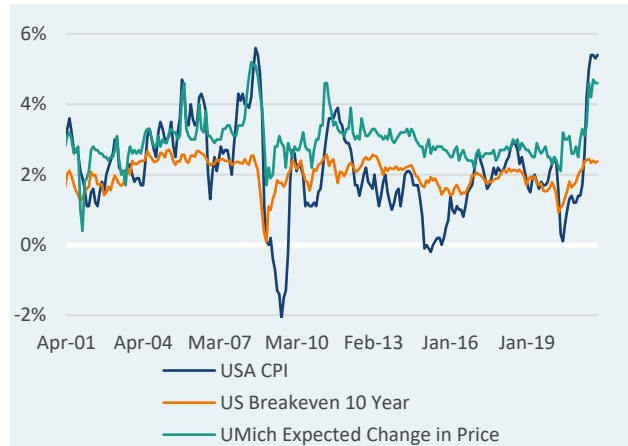
To arrive at a nominal 10-year forecast, we add the current real TIPS yield to our 10-year inflation forecast. Our real rates forecast remains in negative territory as both Treasury yields and priced inflation has risen.

NOMINAL YIELD VS. REAL



Source: Bloomberg, as of 9/30/21

INFLATION EXPECTATIONS



Source: Bloomberg, as of 9/30/21

FORECAST

	10-Year Forecast
U.S. 10-Year TIPS Real Yield	-0.9%
Inflation Forecast	+2.5%
Nominal Return	1.7%

Source: Verus, as of 9/30/21

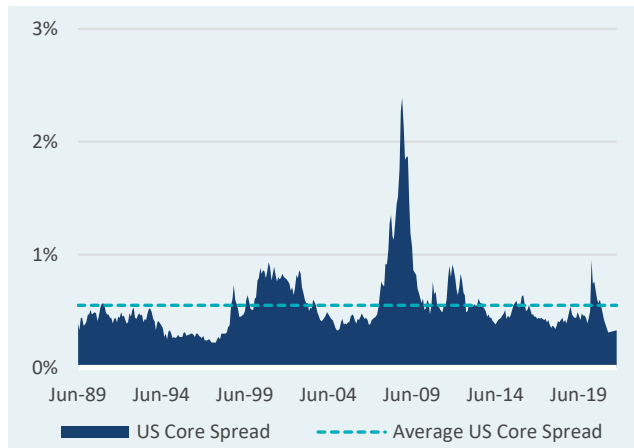
Core fixed

Credit fixed income return is composed of a bond term premium (duration) and credit spread. The bond term premium is represented by the 10-year U.S. Treasury yield.

We use default rates and credit spreads for each respective fixed income category to provide our 10-year return forecast. Our default rate assumption is derived from a variety of sources, including historical data and academic research. The effective default that is subtracted from the return forecast is based on our assumed default and recovery rates.

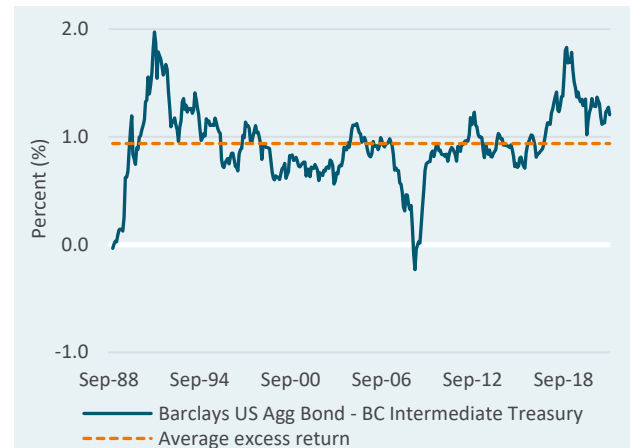
Core fixed income spreads fell from 90 bps to 81 bps over the year and remain below the 30-year average of 1.25%. Higher interest rates bolstered our core fixed income expectations, while slightly tighter credit spreads had an opposing effect. Our forecast increased from 1.5% to 2.2% during the year.

U.S. CORE CREDIT SPREAD



Source: Bloomberg, as of 9/30/21

ROLLING EXCESS RETURN (10-YR)



Source: Bloomberg, as of 9/30/21

FORECAST

	10-Year Forecast
Bloomberg U.S. Option-Adjusted Spread	+0.8%
Effective Default	-0.1%
U.S. 10-Year Treasury	+1.5%
Nominal Return	2.2%
Inflation Forecast	-2.5%
Real Return	-0.4%

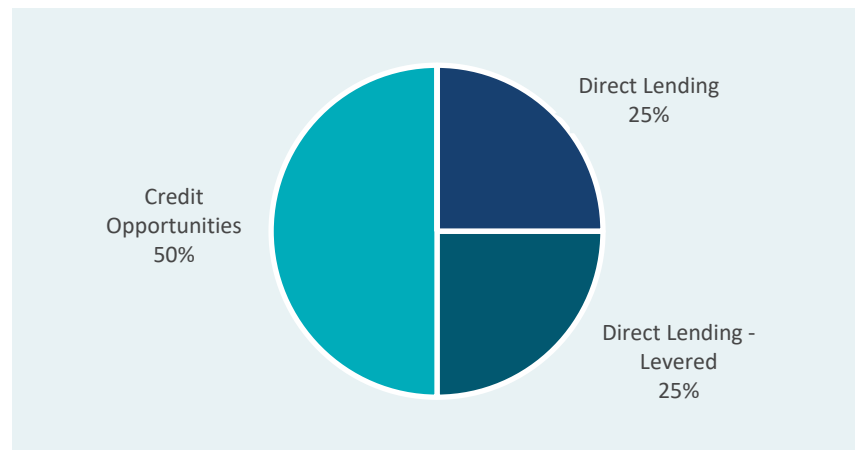
Source: Verus, as of 9/30/21

Private credit

The spectrum of private credit is broad and the types of investments in this asset class can differ considerably in terms of return expectations and risks involved. To reflect the disparate characteristics of this asset class, our private credit forecast assumes a diversified portfolio comprised of 25% direct lending, 25% direct lending with fund-level leverage, and 50% credit opportunities strategies. Our resulting private credit forecast is a result of our combined expectations for each of these exposure types.

We follow a building block approach to build return expectations.

PRIVATE CREDIT WEIGHTS



Source: Verus

Direct lending expected return is a product of interest rates (LIBOR with a 0.5% rate floor), a floating rate credit spread above LIBOR, plus original issuance discounts, minus management fees and carried interest. Direct lending with fund-level leverage includes these same building blocks but is adjusted for the added spread from leverage and the costs of that leverage. The expected return of credit opportunities strategies is a result of interest rates (U.S. Treasury yield), credit spread, original issuance discounts, minus management fees and carried interest, with an adjustment for added spread from leverage and the costs of that leverage. Further details of this methodology is provided on the next page.

FORECAST

	10-Year Forecast
Credit Opportunities (50% weight)	7.0%
Direct Lending – Unlevered (25% weight)	5.0%
Direct Lending – Levered (25% weight)	8.0%
Private Credit Weighted Return Forecast	6.8%
Inflation Forecast	-2.5%
Real Return	4.3%

Source: Verus, as of 9/30/21 – assuming universe weights as indicated by left-hand chart
Please reach out to your Verus consultant for Private Credit universe forecast methodology

Private credit

Below we illustrate the specific building blocks of our private credit forecasts. The build up method is used to calculate a gross investment level return, which is adjusted to account for fund level leverage, management fees, and carried interest.

	Direct Lending –Unlevered	Direct Lending – Levered		Credit Opportunities*		Junior Capital / Mezzanine	Distressed	
Interest Rate Floor	0.5%	0.5%	Base Interest Rate	0.7% - 1.2%	Fixed rate coupon	8.5%	Return expectations for distressed have been developed on a range bound basis given the diversity of strategies included in the asset class:	
Spread	5.5%	5.5%	Spread	4.5% - 9.0%	Paid-in-kind coupon	3.5%		
Original Issuance Discount	2.0%	2.0%	Original Issuance Discount	1.5%	Annualized equity upside	1.5%		
<i>Gross return</i>	<i>6.7%</i>	<i>6.7%</i>	<i>Gross return</i>	<i>5.7% - 10.7%</i>	<i>Gross return</i>	<i>13.5%</i>	Distressed strategies are highly opportunistic by nature and returns are primarily, if not entirely, driven by capital appreciation limiting the ability to use a build up method.	
Leverage Cost	NA	2.3%	Leverage Cost	2.34%	Leverage Cost	NA		
Leverage Level	0.0x	1.0x	Leverage Level	0.3x – 0.5x	Leverage Level	0.0x	Distressed strategies typically target 10%+ net returns, but market conditions often weigh heavily into the overall performance.	
<i>Levered gross return</i>	<i>6.7%</i>	<i>11.0%</i>	<i>Levered gross return</i>	<i>7.4% - 13.2%</i>	<i>Levered gross return</i>	<i>13.5%</i>		
Effective Management Fees	1.0%	1.8%	Effective Management Fees	1.5% - 2.0%	Effective Management Fees	1.5%	Periods of market volatility, dislocation, and economic downturns generally provide a more attractive investment environment for distressed strategies where outperformance may be expected.	
Carried Interest	0.7%	1.2%	Carried Interest	0.9% - 2.3%	Carried Interest	3.2%		
							Historically, median fund level net returns have ranged between 9-10% although top to bottom quartile dispersion is has been wide historically.	
Total Net Return	5.0%	8.0%	Total Net Return	7.0%	Total Net Return	8.8%	Total Net Return	9.0%

*Return expectations for credit opportunities have been developed on a range-bound basis given the diversity of strategies included in the asset class. Values represent the mid-point estimate of those ranges. For Credit Opportunities, our return assumption is the midpoint of the total net return range of 5.0% - 9.0%.

Source: Verus

Credit summary

	Core	Long-Term Credit	Global Credit*	High Yield*	Bank Loans*	EM Debt (USD)	EM Debt (Local)	Private Credit	Real Estate Debt
Index	Bloomberg U.S. Aggregate	Bloomberg Long U.S. Corporate	Bloomberg Global Credit	Bloomberg U.S. High Yield	S&P LSTA	JPM EMBI	JPM GBI-EM	N/A	Bloomberg CMBS IG
Method	OAS + U.S. 10-Year	OAS + U.S. 10-Year	OAS + Global 10-Year Treasuries	OAS + U.S. 10-Year	LIBOR + Spread	OAS + U.S. 10-Year	Current Yield	Build up method using Direct Lending (unlevered), Direct Lending (levered), Opportunistic Credit**	LIBOR + Spread
Spread to	Intermediate U.S. Treasury	Long-Term U.S. Treasury	Global Long-Term Treasuries	Intermediate U.S. Treasury	LIBOR	Intermediate U.S. Treasury	-	-	LIBOR
Default Assumption	-0.5%	-4.5%	-	-	-	-0.5%	-0.5%	-	-3.7%
Recovery Assumption	80%	95%	-	-	-	60%	40%	-	47%
Spread	0.8%	1.1%	0.8%	3.2%	4.3%	3.9%	-	-	4.0%
Yield	-	-	-	-	-	-	4.5%	-	-
Risk Free Yield	1.5%	1.5%	1.2%	1.5%	0.1%	1.5%	-	-	0.1%
Effective Default	-0.1%	-0.2%	-0.4%	-1.6%	-2.1%	-0.2%	-0.3%	-	-2.0%
Nominal Return	2.2%	2.4%	1.5%	3.1%	2.3%	5.2%	4.2%	6.8%	2.1%
Inflation Forecast	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Real Return	-0.4%	-0.2%	-1.0%	-0.6%	-0.3%	2.7%	1.7%	4.3%	-0.4%

*We assume half of the spread of higher risk credit will be lost to defaults, as this has roughly been the case throughout history.

**We assume 25% Direct Lending (Unlevered), 25% Direct Lending (Levered), 50% Credit Opportunities – please refer to the previous page for more information.

Source: Verus

Equities

Equities

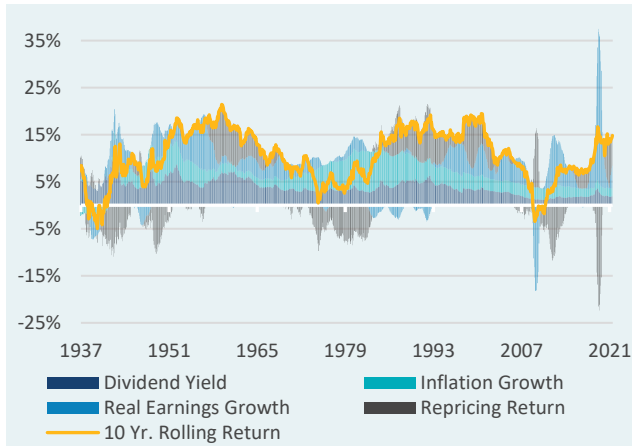
Investment returns in the equity space can be broken down into earnings growth, dividend yield, inflation, and repricing. Over the very long-term, repricing represents a small portion of return to equity investors, but over shorter time frames, the impacts on return can vary considerably.

If investors are willing to pay more for earnings, it could signal that investors are more confident in positive earnings growth going forward, while the opposite is true if investors pay less for earnings. It is somewhat surprising that investor confidence varies so much given that the long-term earnings growth is relatively stable.

Investor confidence in earnings growth can be measured using both the Shiller P/E ratio and the trailing 12-month P/E ratio. We take an average of these two valuations metrics when determining our repricing assumption. In short, if the P/E ratio is too high (low) relative to history, we expect future returns to be lower (higher) than the long-term average. Implicit in this analysis is the assumption that P/E's will exhibit mild mean reversion over 10 years.

We make a conservative repricing estimate given how widely repricing can vary over time. We then skew the repricing adjustment because the percentage change in index price is larger with each incremental rise in valuations when P/E's are low, compared to when they are high.

TRAILING 10-YR S&P 500 RETURN COMPOSITION



Source: Shiller, Standard & Poor's, as of 6/30/21

U.S. LARGE SHILLER P/E



Source: Shiller, S&P 500, as of 9/30/21

P/E REPRICING ASSUMPTION

Average P/E Percentile Bucket	Lower P/E	Upper P/E	Repricing Assumption
Lower 10%	-	10	2.00%
10% - 20%	10	13	1.50%
20% - 30%	13	15	0.75%
30% - 45%	15	18	0.50%
45% - 55%	18	19	0.0%
55% - 70%	19	21	-0.25%
70% - 80%	21	22	-0.50%
80% - 90%	22	24	-0.75%
Top 10%	24	-	-1.00%

Source: Verus

Global equity

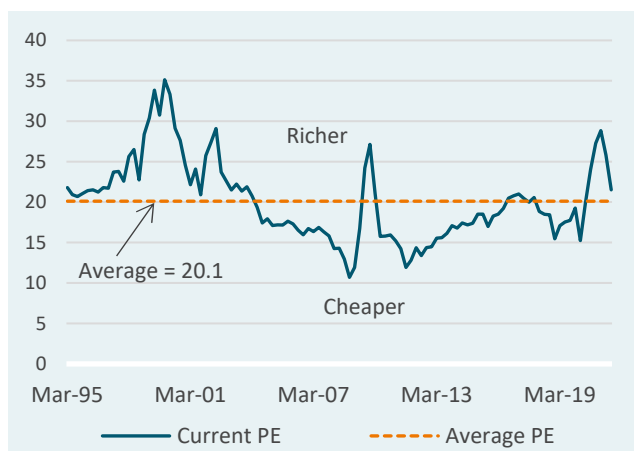
Global Equity is a combination of U.S. large, international developed, and emerging market equities. We can therefore combine our existing return forecasts for each of these asset classes to arrive at our global equity return forecast.

We use the MSCI ACWI Index as our benchmark for global equity and apply the country weights of this index to determine the weightings for our global equity return calculation. As with other equity asset classes, we use the historical standard deviation of the benchmark (MSCI ACWI Index) for our volatility forecast.

The valuation of global equities are driven by the richness/cheapness of the underlying markets, as indicated by the current price-to-earnings ratio.

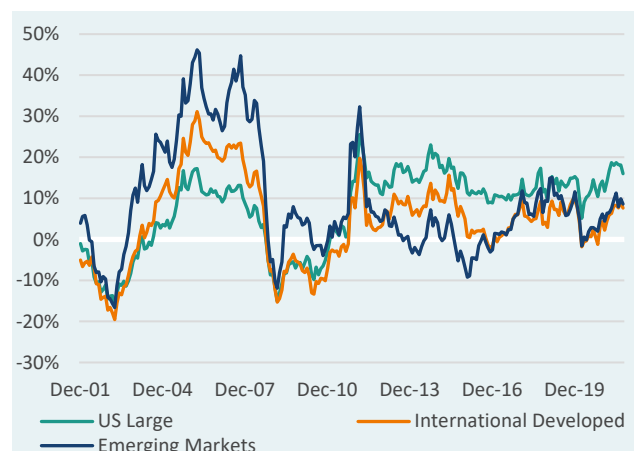
Our return building blocks produce a local return forecast for international equities. For investors who wish to incorporate market implied currency movements into the return forecast, please see the adjustments and explanation in the Appendix.

GLOBAL EQUITY P/E RATIO HISTORY



Source: MSCI, as of 9/30/21

MARKET PERFORMANCE (3-YR ROLLING)



Source: MSCI, Standard & Poor's, as of 9/30/21

FORECAST

Market	Weight	CMA return
U.S. Large	58%	5.3%
Developed Large	31%	6.1%
Emerging Markets	11%	6.1%
Global Equity Forecast		5.7%

Source: Verus, weights rescaled to equal 100%, as of 9/30/21

Equity summary

	U.S. Large	U.S. Small	EAFE	EAFE Small	EM
Index	S&P 500	Russell 2000	MSCI EAFE Large	MSCI EAFE Small	MSCI EM
Method	Building Block Approach: current dividend yield + historical average real earnings growth + inflation on earnings + repricing				
Current Shiller P/E Ratio	38.3	63.6	21.3	-	12.7
Regular P/E Ratio	25.1	181.5**	19.0	51.6	15.3
2021 Shiller P/E Change	+24.4%	+47.6%	+25.3%	-	+13.4%
2021 Regular P/E Change	-3.5%	-98.7%	-45.1%	+80.4%	-23.9%
Current Shiller P/E Percentile Rank	95%	98%	45%	-	49%
Current Regular P/E Percentile Rank	90%	99%	54%	55%*	61%
Average of P/E Methods' Percentile Rank	93%	99%	50%	55%*	55%
2021 YTD Return	15.9%	12.4%	8.3%	10.0%	-1.2%
Shiller PE History	1982	1988	1982	Not Enough History	2005
Long-Term Average Shiller P/E	23.4	32.4	22.4	-	14.7
Current Dividend Yield	1.4%	1.3%	3.0%	2.3%	2.8%
Long-Term Average Real Earnings Growth	2.4%	2.5%	1.6%	1.2%	0.8%
Inflation on Earnings	2.5%	2.5%	1.5%	1.5%	2.5%
Repricing Effect (Estimate)	-1.0%	-1.0%	0.0%	-0.3%	0.0%
Nominal Return	5.3%	5.3%	6.1%	4.7%	6.1%
Inflation Forecast	2.5%	2.5%	2.5%	2.5%	2.5%
Real Return	2.8%	2.8%	3.6%	2.2%	3.6%

Data as of 9/30/21

*Average trailing P/E from previous 12 months (25% weight) and current P/E (75% weight) are blended into one P/E metric, which is then percentile ranked relative to long-term history. This is done to reduce reliance on a single price multiple, as insufficient data history is available to calculate Shiller P/E for this asset class.

**Earnings fell to nearly zero during 2020, which is the cause of this very high figure

NOTE: For all equities, we exclude data prior to 1972, which allows for a more appropriate comparison between data sets

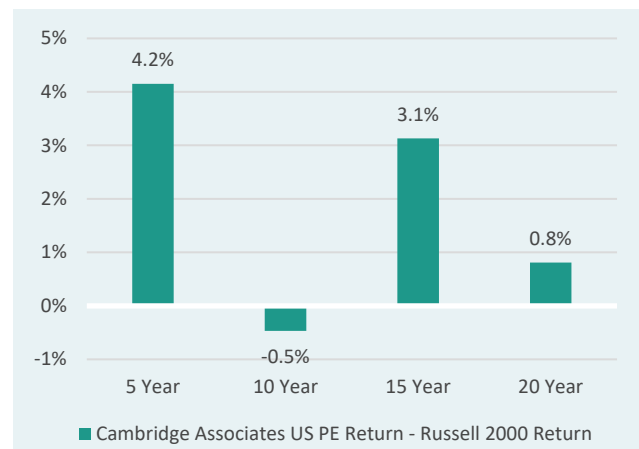
Private equity

Private equity and public equity returns have been correlated historically because the underlying economic forces driving these asset class returns are quite similar. The return relationship between the two can vary in the short-term, but over the long-term investors have received a premium, driven by leverage, concentrated factor exposure (smaller and undervalued companies), skill, and possibly illiquidity.

Historically, the beta of private equity relative to public equities has been high. We use a beta assumption of 1.85 to U.S. large cap equities in our capital market forecast.

Private equity performance typically differs based on the implementation approach. We provide a 10-year forecast for the entire private equity universe of 9.5%. Direct private equity programs have historically outperformed the broader universe by approximately 1.0%, and we forecast direct private equity accordingly with a forecast of 10.5%. Private equity fund-of-fund (FoF) programs have historically lagged the universe by 1.0%, and we forecast private equity fund-of-funds at 8.5% to reflect this drag.

PRIVATE EQUITY EXCESS RETURN (PE – U.S. SMALL CAP EQUITY)



Source: Cambridge, Russell, as of 3/31/21

PRIVATE EQUITY IMPLEMENTATION FORECASTS

	10-Year Forecast
Private Equity Universe Forecast	9.5%
Private Equity FoF Forecast	8.5%
Private Equity Direct Forecast	10.5%

Source: Verus, as of 9/30/21

PRIVATE EQUITY UNIVERSE FORECAST

	10-Year Forecast
U.S. Large Cap Forecast	+5.3%
1.85 Beta Multiplier	+4.2%
Nominal Return	9.5%
Inflation Forecast	-2.5%
Real Return	7.0%

Source: Verus, as of 9/30/21

Real assets / alternatives

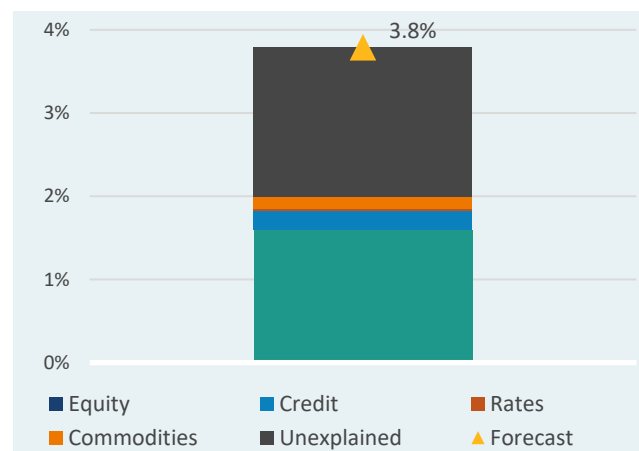
Hedge funds

Hedge fund performance variation through time can be partly explained by public market betas (ex: equity, rates, credit, etc.) and partly explained by non-public sources of return (ex: alternative betas, skill, luck). Certain hedge funds can be mostly explained by public market betas, while others are driven mostly by non-public sources of return. We do not believe hedge funds should be thought of as an asset class, and in most cases we recommend benchmarking and modeling individual hedge funds in line with the underlying asset class exposure set (equity hedge funds modeled as equity exposure, fixed income hedge funds modeled as fixed income exposure, etc.) Our forecast for “hedge funds” that we show here can be thought of as a forecast of the broad universe of hedge funds.

To forecast hedge fund returns, we identified the portion of historical hedge fund performance that can be attributed to public market betas, and the portion of hedge fund returns that cannot be attributed to public market beta. This means our forecast has two components: the public market return (explained return) and the non-public market return (unexplained return).

To forecast the public market beta portion of hedge funds, we take the historical sensitivity of hedge funds to equity, rates, credit, and commodities and pair these with our current 10-year public market forecasts for each asset class. To forecast the non-public market return portion of hedge funds (unexplained return) we simply assume the historical performance contribution of these sources will continue.

HEDGE FUND FORECAST



Source: Verus, as of 9/30/21

HEDGE FUND PUBLIC MARKET SOURCES OF RETURN (EXPLAINED RETURN)

Equity
Rates
Credit
Commodities

HEDGE FUND NON-PUBLIC SOURCES OF RETURN (UNEXPLAINED RETURN)

Alternative betas
Skill
Luck

Source: Verus

FORECAST

	10-Year Forecast
Public Market % of Return	+2.0%
Non-Public Market % of Return	+1.8%
Nominal Return	+3.8%
Inflation Forecast	-2.5%
Real Return	1.3%

Source: Verus, as of 9/30/21

Private core real estate/REITS

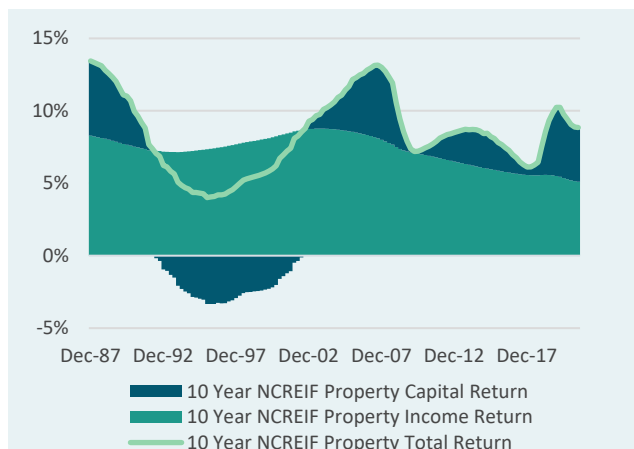
Performance of the NCREIF property index can be decomposed into an income return (cap rate) and capital return. The return coming from income has historically been more stable than the return derived from capital changes.

The cap rate is the ratio of earnings less expenses to price and does not include extraordinary expenses. A more accurate measure of the yield investors receive should include non-recurring capital expenditures; we assume a 2.0% capex expenditure. We also assume income growth will roughly equal the rate of broad economic growth, and we use GDP forecasts as an estimate for future income growth.

Private real estate and REITs have provided very similar returns over the long-term. Investors should be careful when comparing risk-adjusted returns of publicly traded assets to returns of appraisal priced assets, due to data problems and smoothing effects. While private real estate appears to be less volatile than REITs, the true risks to investors are likely very similar.

We assume the effects of leverage and liquidity offset each other. Therefore, our return forecast is the same for private real estate and REITs.

TRAILING 10-YR NCREIF RETURN COMPOSITION



Source: NCREIF, as of 6/30/21

PRIVATE REAL ESTATE

	Private Real Estate 10-Year Forecast
Current Cap Rate	+4.1%
Real Income Growth	+1.9%
Capex Assumption	-2.0%
Inflation	+2.5%
Nominal Return	6.5%
Inflation Forecast	-2.5%
Real Return	+4.0%

Source: Verus, as of 9/30/21

REITS

	10-Year Forecast
Nominal Return Forecast	6.5%
Inflation Forecast	-2.5%
Real Return	4.0%

Source: Verus, as of 9/30/21

Infrastructure

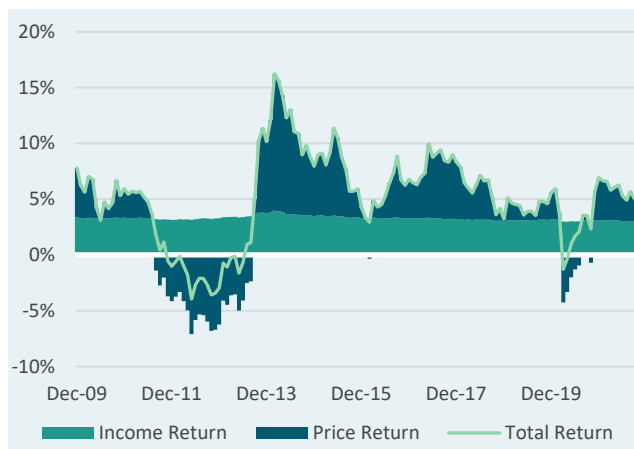
Infrastructure includes a variety of investment types across a subset of industries. There is not one definition for what can be included within infrastructure. The asset class has grown dramatically during the last decade as investors sought assets that might provide more attractive yield relative to fixed income along with the potential for inflation protection.

Similar to real estate investment, income plays a significant role in the returns which investors receive. Income yields are currently lower than average due to higher prices and competition in the space, which

might reasonably be expected to translate into lower expected future returns.

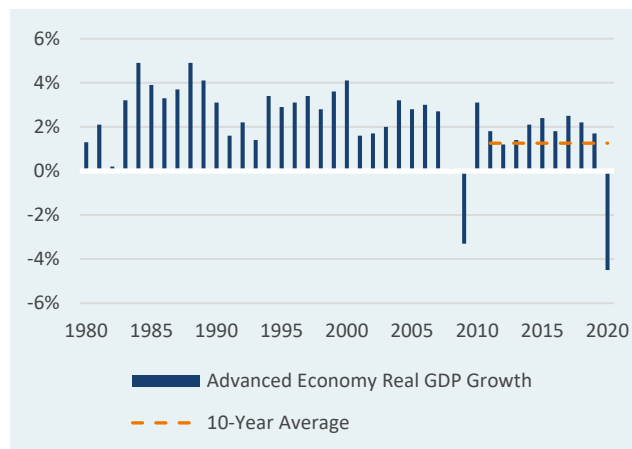
Due to the discount rate effect, infrastructure asset valuations would generally be negatively affected by material increases in interest rates. Because leverage is used in this space, higher interest rates would also impact investors in the form of higher borrowing costs.

5-YR ROLLING RETURN COMPOSITION



Source: S&P Global Infrastructure Index, as of 9/30/21

ADVANCED ECONOMY REAL GDP GROWTH



Source: IMF, as of 9/30/21

FORECAST

	10-Year Forecast
Global Inflation	+2.2%
Yield	+3.1%
Income Growth	+1.3%
Nominal Return	6.6%
U.S. Inflation Forecast	-2.5%
Real Return	4.0%

Source: Verus, as of 9/30/21

Commodities

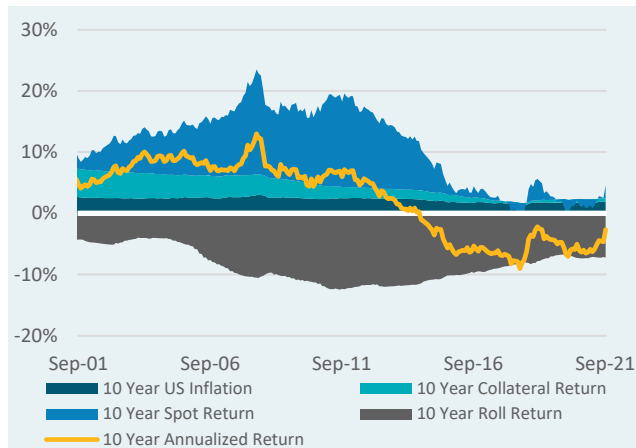
Commodity returns can be decomposed into three sources: collateral return (cash), spot changes (inflation), and roll yield.

Roll return is generated by either backwardation or contango present in futures markets. Backwardation occurs when the futures price is below the spot price, which results in positive yield. Contango occurs when the futures price is above the spot price, and this results in a loss to commodity investors. Historically, futures markets have fluctuated between backwardation and contango but with a net-zero effect over the very long-term (since 1877). Therefore, roll return is assumed to

be zero in our forecast. Over the most recent 10-year period, roll return has been negative, though this is likely the result of multiple commodity crises and a difficult market environment.

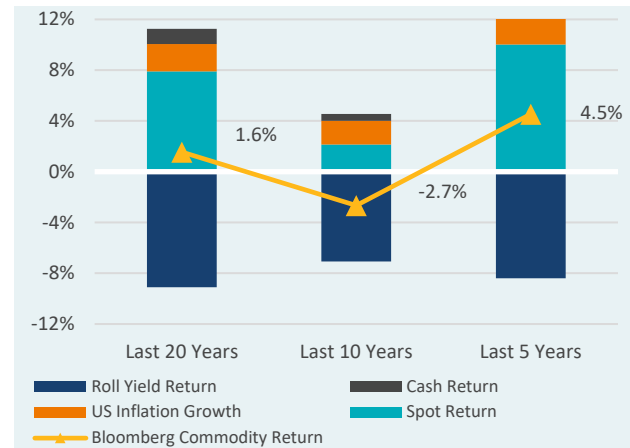
Our 10-year commodity forecast combines collateral (cash) return with spot return (inflation) to arrive at the nominal return, and subtracts out inflation to arrive at the real return.

TRAILING 10YR BLOOMBERG COMMODITY RETURN COMPOSITION (%)



Source: MPI, Bloomberg, as of 9/30/21

BLOOMBERG COMMODITY RETURN COMPOSITION (%)



Source: MPI, Bloomberg, as of 9/30/21

FORECAST

	10-Year Forecast
Collateral Return (Cash)	+0.4%
Roll Return	+0.0%
Spot Return (Inflation)	+2.5%
Nominal Return	3.0%
Inflation Forecast	-2.5%
Real Return	0.4%

Source: Verus, as of 9/30/21

Autocorrelation adjustment

- We adjust all volatility forecasts that use the long-term historical volatility for autocorrelation.
- Autocorrelation occurs when the future returns of a time series are described (positively correlated) by past returns.
- Time series with positive autocorrelation exhibit artificially low volatility, while time series with negative autocorrelation exhibit artificially high volatility.
- Many asset classes that we tested showed positive autocorrelation, meaning the volatility forecasts that we use in the forecasting process are too low for those asset classes.
- The result of this process was that several asset classes have higher volatility forecasts than if we had made no adjustment for autocorrelation.

Autocorrelation has been shown to be statistically significant across many asset classes, which implies an adjustment is appropriate

Methodology

CORE INPUTS

- We use a fundamental building block approach based on several inputs, including historical data and academic research to create asset class return forecasts.
- For most asset classes, we use the long-term historical volatility after adjusting for autocorrelation.
- Correlations between asset classes are calculated based on the last 10 years. For illiquid assets, such as private equity and private real estate, we use BarraOne correlation estimates.

Asset	Return Methodology	Volatility Methodology*
Inflation	25% weight to the University of Michigan Survey 5-10 year ahead inflation expectation and the Survey of Professional Forecasters (Fed Survey), and the remaining 50% to the market's expectation for inflation as observed through the 10-year TIPS breakeven rate	-
Cash	75% * current federal funds rate + 25% * U.S. 10-year Treasury yield	Long-term volatility
Bonds	Nominal bonds: current yield; Real bonds: real yield + inflation forecast	Long-term volatility
International Bonds	Current yield	Long-term volatility
Credit	Current option-adjusted spread + U.S. 10-year Treasury – effective default rate	Long-term volatility
International Credit	Current option-adjusted spread + foreign 10-year Treasury – effective default rate	Long-term volatility
Private Credit	Levered gross return (LIBOR + spread + original issuance discounts) – management fees – carried interest	Estimated volatility
Equity	Current yield + real earnings growth (historical average) + inflation on earnings (inflation forecast) + expected P/E change	Long-term volatility
Intl Developed Equity	Current yield + real earnings growth (historical average) + inflation on earnings (intl. inflation forecast) + expected P/E change	Long-term volatility
Private Equity	US large cap domestic equity forecast * 1.85 beta adjustment	1.2 * Long-term volatility of U.S. small cap
Commodities	Collateral return (cash) + spot return (inflation forecast) + roll return (assumed to be zero)	Long-term volatility
Hedge Funds	Return coming from traditional betas + 15-year historical idiosyncratic return	Long-term volatility
Core Real Estate	Cap rate + real income growth – capex + inflation forecast	65% of REIT volatility
REITs	Core real estate	Long-term volatility
Value-Add Real Estate	Core real estate + 2%	Volatility to produce Sharpe Ratio (g) equal to core real estate
Opportunistic Real Estate	Core real estate + 3%	Volatility to produce Sharpe Ratio (g) equal to core real estate
Infrastructure	Current yield + real income growth + inflation on earnings (inflation forecast)	Long-term volatility
Risk Parity	Expected Sharpe Ratio * target volatility + cash rate	Target volatility

*Long-term historical volatility data is adjusted for autocorrelation (see Appendix)

10-year return & risk assumptions

Asset Class	Index Proxy	Ten Year Return Forecast		Standard Deviation Forecast	Sharpe Ratio Forecast (g)	Sharpe Ratio Forecast (a)	10-Year Historical Sharpe Ratio (g)	10-Year Historical Sharpe Ratio (a)
		Geometric	Arithmetic					
Equities								
U.S. Large	S&P 500	5.3%	6.4%	15.7%	0.31	0.39	1.21	1.19
U.S. Small	Russell 2000	5.3%	7.4%	21.6%	0.23	0.32	0.77	0.81
International Developed	MSCI EAFE	6.1%	7.6%	17.9%	0.32	0.40	0.52	0.57
International Small	MSCI EAFE Small Cap	4.7%	6.9%	22.2%	0.19	0.29	0.66	0.71
Emerging Markets	MSCI EM	6.1%	8.9%	25.3%	0.23	0.34	0.32	0.40
Global Equity	MSCI ACWI	5.7%	7.1%	17.3%	0.31	0.39	0.84	0.86
Private Equity	Cambridge U.S. Private Equity	9.5%	12.4%	26.0%	0.35	0.46	-	-
Private Equity (Direct)	Cambridge U.S. Private Equity	10.5%	13.4%	26.0%	0.39	0.50	-	-
Private Equity (Fund of Funds)	Cambridge U.S. Private Equity	8.5%	11.4%	26.0%	0.31	0.42	-	-
Fixed Income								
Cash	30 Day T-Bills	0.4%	0.4%	1.2%	-	-	-	-
U.S. TIPS	Bloomberg U.S. TIPS 5-10	1.7%	1.8%	5.3%	0.25	0.27	0.59	0.60
U.S. Treasury	Bloomberg Treasury 7-10 Year	1.5%	1.7%	6.8%	0.16	0.20	0.43	0.45
Global Sovereign ex U.S.	Bloomberg Global Treasury ex U.S.	0.5%	1.0%	9.5%	0.01	0.06	-0.01	0.02
Global Aggregate	Bloomberg Global Aggregate	1.4%	1.6%	6.1%	0.16	0.20	0.28	0.30
Core Fixed Income	Bloomberg U.S. Aggregate Bond	2.2%	2.3%	4.1%	0.44	0.46	0.80	0.80
Core Plus Fixed Income	Bloomberg U.S. Universal	2.4%	2.5%	4.0%	0.50	0.51	0.82	0.83
Short-Term Gov't/Credit	Bloomberg U.S. Gov't/Credit 1-3 Year	1.5%	1.6%	3.6%	0.31	0.33	1.07	1.06
Short-Term Credit	Bloomberg Credit 1-3 Year	1.6%	1.7%	3.6%	0.34	0.35	1.25	1.24
Long-Term Credit	Bloomberg Long U.S. Corporate	2.4%	2.8%	9.4%	0.21	0.26	0.67	0.70
High Yield Corp. Credit	Bloomberg U.S. Corporate High Yield	3.1%	3.7%	11.2%	0.24	0.30	1.01	1.00
Bank Loans	S&P/LSTA Leveraged Loan Index	2.3%	2.7%	9.3%	0.20	0.25	0.82	0.83
Global Credit	Bloomberg Global Credit	1.5%	1.8%	7.3%	0.15	0.19	0.67	0.68
Emerging Markets Debt (Hard)	JPM EMBI Global Diversified	5.2%	5.9%	12.6%	0.38	0.44	0.66	0.68
Emerging Markets Debt (Local)	JPM GBI-EM Global Diversified	4.2%	4.9%	12.2%	0.31	0.37	0.04	0.09
Private Credit	S&P LSTA Leveraged Loan Index	6.8%	7.8%	14.6%	0.44	0.51	-	-
Private Credit (Direct Lending - Unlevered)	S&P LSTA Leveraged Loan Index	5.0%	5.5%	10.5%	0.44	0.49	-	-
Private Credit (Direct Lending - Levered)	S&P LSTA Leveraged Loan Index	8.0%	9.4%	17.4%	0.44	0.51	-	-
Private Credit (Credit Opportunities)	S&P LSTA Leveraged Loan Index	7.0%	8.0%	15.0%	0.44	0.51	-	-
Private Credit (Junior Capital / Mezzanine)	S&P LSTA Leveraged Loan Index	8.8%	10.4%	19.0%	0.44	0.53	-	-
Private Credit (Distressed)	S&P LSTA Leveraged Loan Index	9.0%	12.6%	29.1%	0.30	0.42	-	-

Investors wishing to produce expected geometric return forecasts for their portfolios should use the arithmetic return forecasts provided here as inputs into that calculation, rather than the single-asset-class geometric return forecasts. This is the industry standard approach, but requires a complex explanation only a heavy quant could love, so we have chosen not to provide further details in this document – we will happily provide those details to any readers of this who are interested.

10-year return & risk assumptions

Asset Class	Index Proxy	Ten Year Return Forecast		Standard Deviation Forecast	Sharpe Ratio Forecast (g)	Sharpe Ratio Forecast (a)	10-Year Historical Sharpe Ratio (g)	10-Year Historical Sharpe Ratio (a)
		Geometric	Arithmetic					
Other								
Commodities	Bloomberg Commodity	3.0%	4.2%	15.9%	0.16	0.24	-0.25	-0.18
Hedge Funds	HFRI Fund Weighted Composite	3.8%	4.1%	7.7%	0.44	0.48	0.88	0.49
Hedge Funds (Fund of Funds)	HFRI Fund of Funds Composite	2.8%	3.1%	7.7%	0.31	0.35	-	-
Hedge Funds (Equity Style)	Custom HFRI Benchmark Mix*	4.5%	5.6%	15.0%	0.27	0.34	-	-
Hedge Funds (Credit Style)	Custom HFRI Benchmark Mix*	3.6%	4.1%	10.1%	0.32	0.37	-	-
Hedge Funds (Asymmetric Style)	Custom HFRI Benchmark Mix*	2.3%	2.4%	4.9%	0.39	0.41	-	-
Real Estate Debt	Bloomberg CMBS IG	2.1%	2.4%	7.4%	0.23	0.27	1.12	1.11
Core Real Estate	NCREIF Property	6.5%	7.2%	12.5%	0.49	0.54	2.08	2.02
Value-Add Real Estate	NCREIF Property + 200bps	8.5%	9.8%	16.7%	0.49	0.56	-	-
Opportunistic Real Estate	NCREIF Property + 300bps	9.5%	11.1%	18.7%	0.49	0.57	-	-
REITs	Wilshire REIT	6.5%	8.2%	19.3%	0.32	0.40	0.67	0.72
Global Infrastructure	S&P Global Infrastructure	6.6%	8.0%	17.6%	0.35	0.43	0.45	0.51
Risk Parity	S&P Risk Parity 10% Vol Index	5.4%	5.9%	10.0%	0.50	0.55	-	-
Currency Beta	MSCI Currency Factor Index	0.8%	0.9%	3.4%	0.12	0.13	0.24	0.25
Inflation		2.5%	-	-	-	-	-	-

Investors wishing to produce expected geometric return forecasts for their portfolios should use the arithmetic return forecasts provided here as inputs into that calculation, rather than the single-asset-class geometric return forecasts. This is the industry standard approach, but requires a complex explanation only a heavy quant could love, so we have chosen not to provide further details in this document – we will happily provide those details to any readers of this who are interested.

*To represent hedge fund styles, we use a combination of HFRI benchmarks: Equity Style = 33% HFRI Fundamental Growth, 33% HFRI Fundamental Value, 33% HFRI Activist. Credit Style = 20% HFRI Distressed/Restructuring, 20% HFRI Credit Arbitrage, 20% HFRI Fixed Income-Corporate, 20% HFRI Fixed Income-Convertible Arbitrage, 20% HFRI Fixed Income-Asset Backed. Asymmetric Style = 50% HFRI Relative Value, 50% HFRI Macro

Correlation assumptions

	Cash	US Large	US Small	Intl Large	Intl Small	EM	Global Equity	PE	US TIPS	US Treasury	Global Sovereign ex-US	US Core	Core Plus	Short-Term Gov't/Credit	Short-Term Credit	Long-Term Credit	US HY	Bank Loans	Global Credit	EMD USD	EMD Local	Commodities	Hedge Funds	Real Estate	REITs	Infrastructure	Risk Parity	Currency Beta			
Cash	1.0																														
US Large	-0.2	1.0																													
US Small	-0.2	0.9	1.0																												
Intl Large	-0.2	0.9	0.8	1.0																											
Intl Small	-0.2	0.9	0.8	1.0	1.0																										
EM	-0.1	0.7	0.7	0.8	0.8	1.0																									
Global Equity	-0.2	1.0	0.9	1.0	0.9	0.9	1.0																								
PE	-0.2	0.7	0.6	0.6	0.6	0.6	0.7	1.0																							
US TIPS	0.0	0.2	0.1	0.2	0.2	0.3	0.2	0.2	1.0																						
US Treasury	0.2	-0.3	-0.4	-0.3	-0.3	-0.2	-0.3	-0.2	0.7	1.0																					
Global Sovereign ex-US	0.1	0.2	0.1	0.3	0.4	0.5	0.3	0.1	0.6	0.4	1.0																				
US Core	0.2	0.0	-0.1	0.0	0.0	0.1	0.0	0.0	0.8	0.9	0.6	1.0																			
Core Plus	0.1	0.2	0.1	0.2	0.2	0.3	0.2	0.1	0.8	0.8	0.6	1.0	1.0																		
Short-Term Gov't/Credit	0.4	-0.1	-0.1	0.0	0.0	0.1	0.0	-0.1	0.6	0.7	0.5	0.8	0.7	1.0																	
Short-Term Credit	0.0	0.4	0.4	0.4	0.4	0.5	0.4	0.0	0.6	0.3	0.5	0.6	0.7	0.6	1.0																
Long-Term Credit	0.0	0.3	0.2	0.3	0.3	0.4	0.3	0.1	0.7	0.6	0.5	0.8	0.9	0.5	0.7	1.0															
US HY	-0.2	0.8	0.7	0.8	0.8	0.8	0.8	0.5	0.4	-0.2	0.4	0.2	0.5	0.1	0.7	0.6	1.0														
Bank Loans	-0.3	0.6	0.7	0.6	0.7	0.6	0.7	0.3	0.3	-0.3	0.2	0.1	0.3	0.0	0.6	0.4	0.9	1.0													
Global Credit	-0.1	0.6	0.5	0.7	0.7	0.8	0.7	0.3	0.6	0.2	0.7	0.5	0.7	0.4	0.8	0.8	0.8	0.6	1.0												
EMD USD	-0.2	0.6	0.5	0.7	0.7	0.7	0.7	0.4	0.6	0.1	0.6	0.5	0.7	0.3	0.7	0.7	0.8	0.7	0.9	1.0											
EMD Local	0.0	0.6	0.5	0.7	0.7	0.8	0.7	0.4	0.4	0.0	0.7	0.3	0.5	0.3	0.6	0.5	0.7	0.5	0.8	0.8	1.0										
Commodities	-0.1	0.5	0.5	0.6	0.6	0.6	0.6	0.3	0.2	-0.3	0.3	-0.1	0.1	0.0	0.3	0.1	0.6	0.5	0.5	0.5	0.6	1.0									
Hedge Funds	-0.2	0.8	0.8	0.8	0.8	0.7	0.8	0.6	0.2	-0.3	0.2	0.0	0.2	0.0	0.5	0.4	0.8	0.7	0.6	0.6	0.5	0.5	1.0								
Real Estate	-0.2	0.6	0.6	0.5	0.5	0.5	0.6	0.4	0.2	-0.1	0.2	0.1	0.1	-0.1	0.1	0.2	0.4	0.3	0.3	0.4	0.4	0.3	0.5	1.0							
REITs	-0.2	0.7	0.6	0.6	0.6	0.5	0.7	0.5	0.5	0.1	0.3	0.4	0.5	0.2	0.5	0.5	0.7	0.5	0.6	0.6	0.5	0.3	0.5	0.7	1.0						
Infrastructure	-0.2	0.8	0.7	0.8	0.8	0.7	0.8	0.7	0.4	-0.1	0.5	0.3	0.4	0.2	0.6	0.5	0.8	0.7	0.8	0.8	0.8	0.5	0.7	0.3	0.7	1.0					
Risk Parity	-0.1	0.7	0.6	0.7	0.7	0.7	0.8	0.4	0.5	0.0	0.4	0.3	0.5	0.3	0.7	0.5	0.8	0.7	0.7	0.8	0.7	0.7	0.7	0.4	0.6	0.8	1.0				
Currency Beta	0.0	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	1.0			

Note: Correlation assumptions are based on the last ten years. Private Equity and Real Estate correlations are especially difficult to model – we have therefore used BarraOne correlation data to strengthen these correlation estimates.

Notices & disclosures

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SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 22, 2022

Agenda Item 6.4

TO: Board of Retirement

FROM: Michael Coultrip, Chief Investment Officer

SUBJECT: Report on SamCERA's Risk Dashboard



Recommendation

Accept the SamCERA risk dashboard.

Background

Verus provides semi-annual risk management reporting (SamCERA Risk Dashboard) using index level holdings to better highlight various risk exposures of the plan. Verus presents the Risk Dashboard on an annual basis to the Board.

Discussion

Marc Gesell of Verus will present the SamCERA Risk Dashboard with data as of December 31, 2021.

Attachment

SamCERA Risk Dashboard

San Mateo County Employees' Retirement Association

Portfolio Risk Report

December 31, 2021

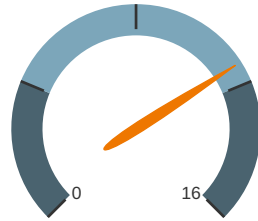
1 Portfolio risk



Portfolio: 10.4%



Policy: 10.6%



Average Public Pension: 11.4%



Global 60/40: 10.5%

2 Portfolio equity beta



Portfolio: 0.61



Policy: 0.62



Average Public Pension: 0.66



Global 60/40: 0.62

3 Portfolio interest rate risk - Duration



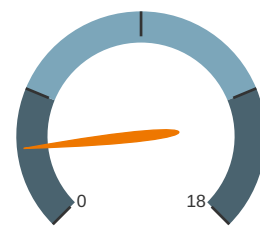
Portfolio: 1.4



Policy: 1.8

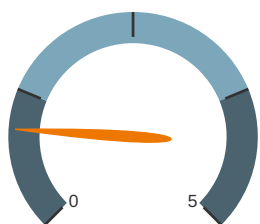


Average Public Pension: 1.6

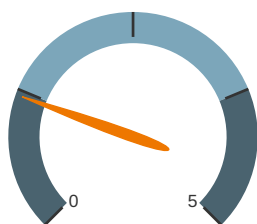


Global 60/40: 2.6

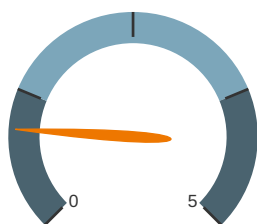
4 Portfolio credit risk - Spread duration



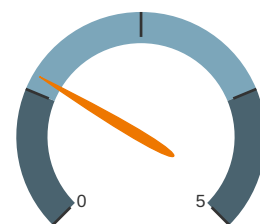
Portfolio: 0.9



Policy: 1.2



Average Public Pension: 0.9

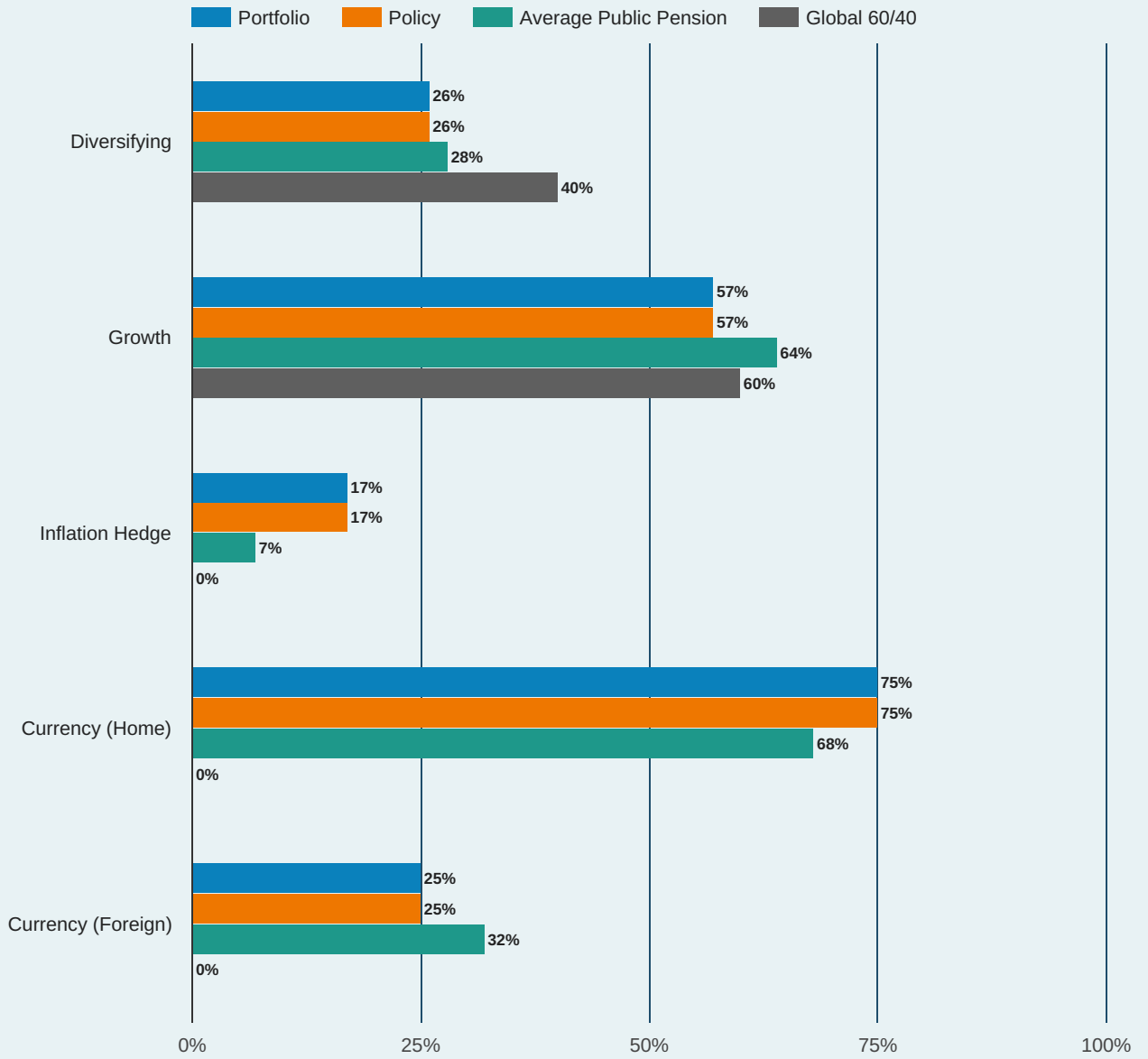


Global 60/40: 1.4

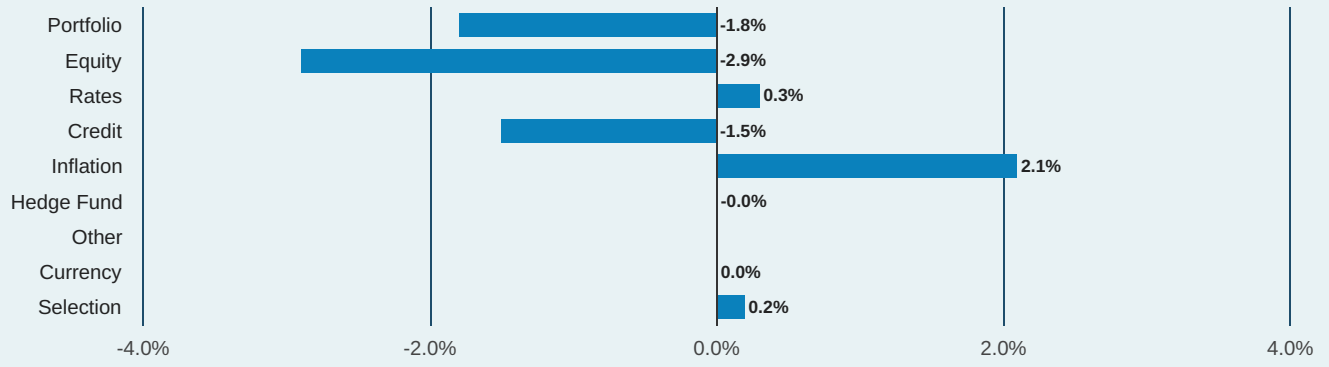
4 Exposure allocation by asset class

		Portfolio	Policy	Average Public Pension	Global 60/40
Diversifying	Liquidity	3.1%	1.0%	1.5%	
	Absolute Return	6.9%	7.0%	7.1%	
	Core Fixed	16.3%	18.0%	18.9%	40.0%
Diversifying Total		26.3%	26.0%	27.5%	40.0%
Growth	Emerging Markets		4.0%	3.4%	
	Small Cap Equity	2.0%	2.0%		
	Private Credit	2.6%			
	Opportunistic Credit	6.6%	10.0%	1.3%	
	Private Equity	7.2%	6.0%	8.6%	
	Developed International	18.2%	15.0%	26.3%	60.0%
	Large Cap Equity	20.1%	20.0%	24.0%	
Growth Total		56.7%	57.0%	63.6%	60.0%
Inflation Hedge	Private Real Assets	2.4%	4.0%	1.4%	
	Public Real Assets	6.7%	4.0%		
	Real Estate	7.9%	9.0%	6.1%	
Inflation Hedge Total		17.0%	17.0%	7.5%	
Portfolio					
Portfolio Total		100.0%	100.0%	98.6%	100.0%

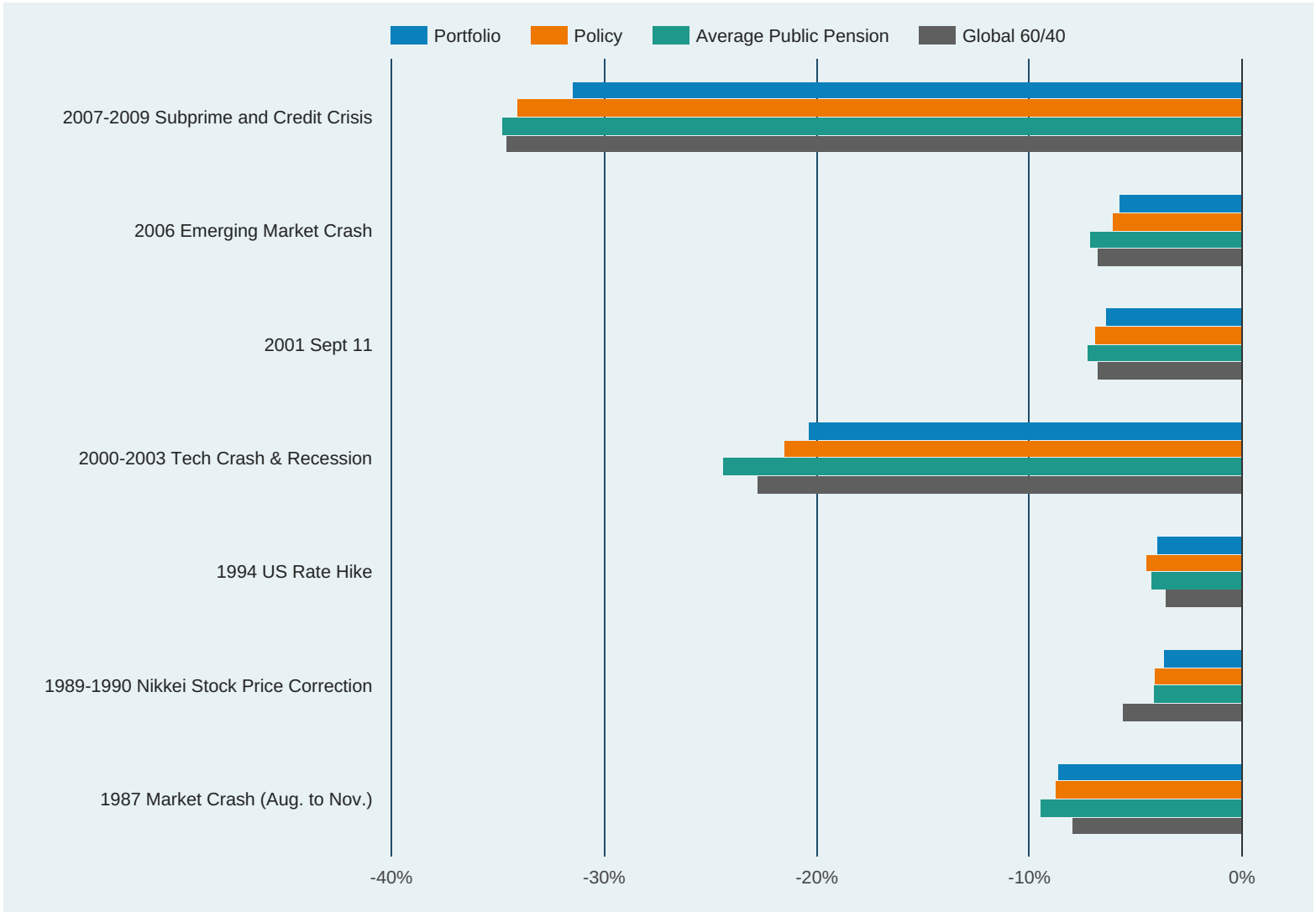
5 Exposure allocation



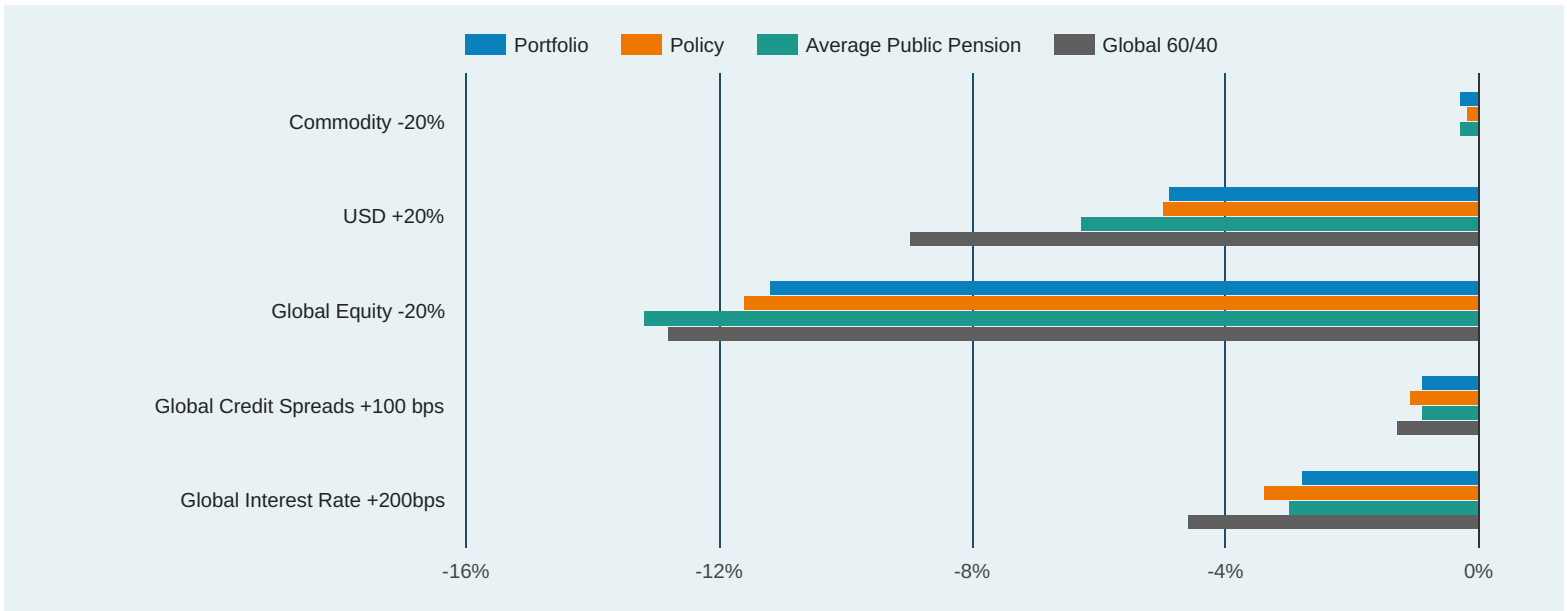
6 Risk factor weight relative to target



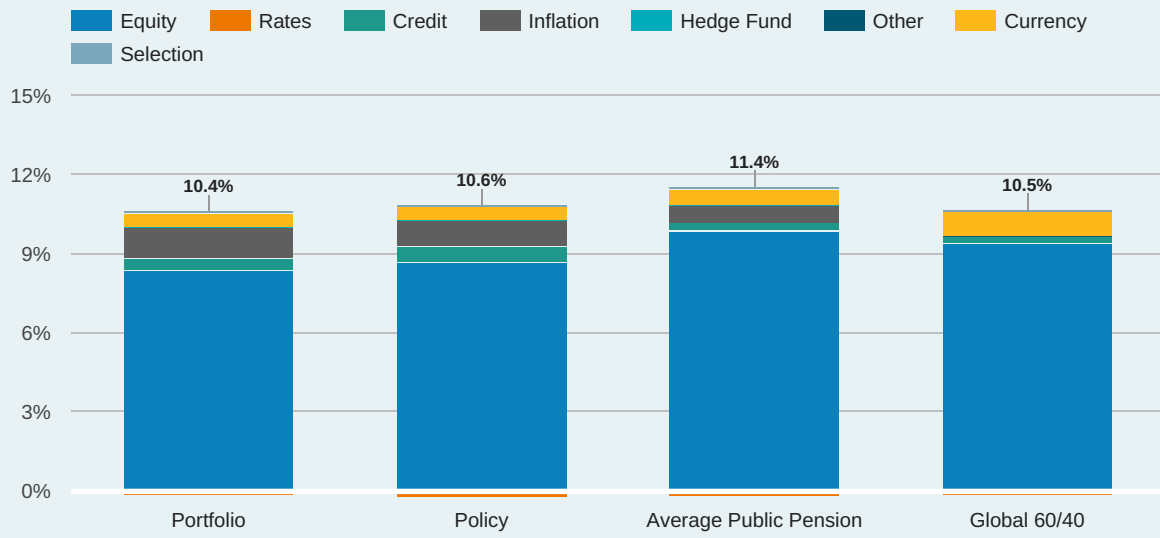
7 Tail risk - Scenario analysis



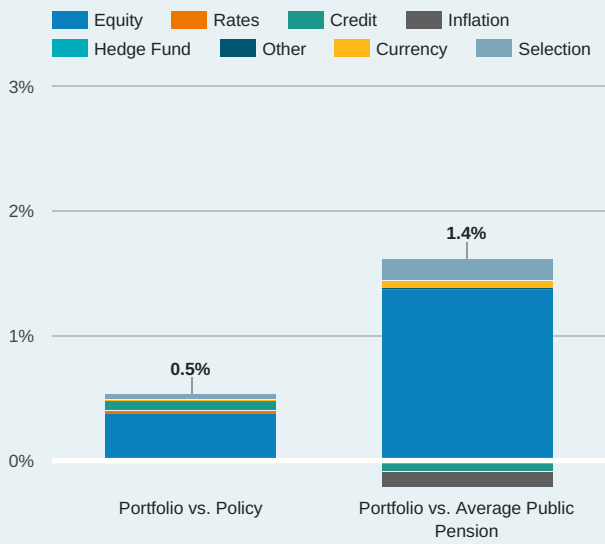
8 Tail risk - Stress tests



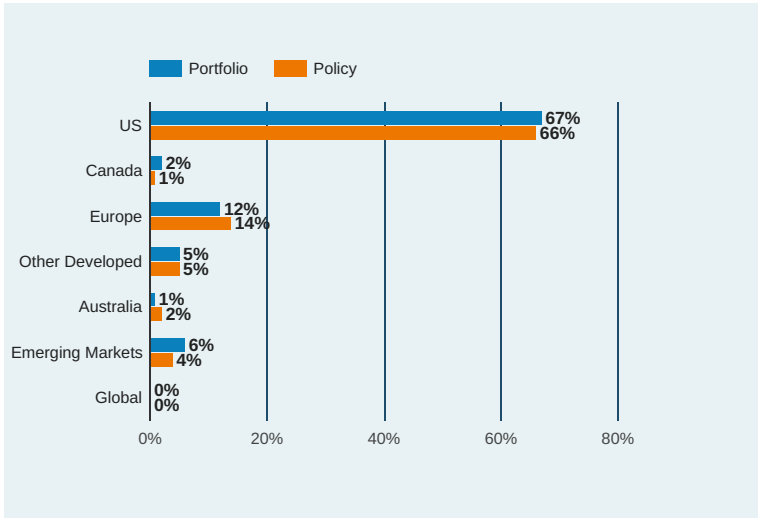
9 Risk contribution by risk factor



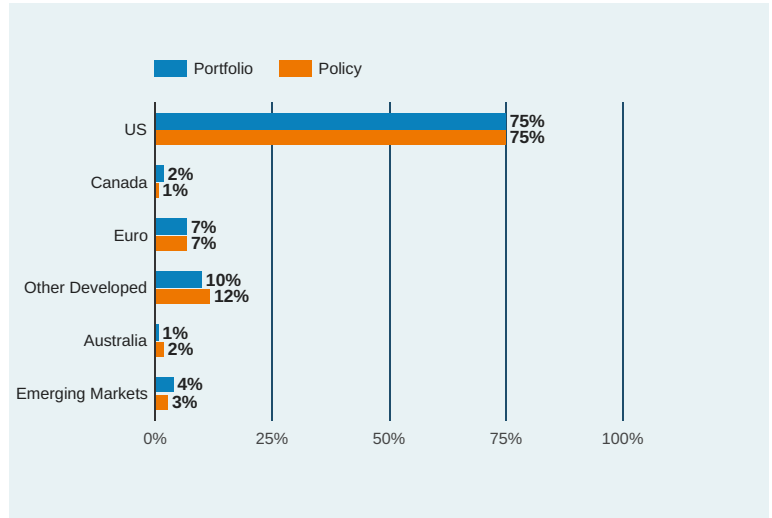
10 Active risk contribution by risk factor



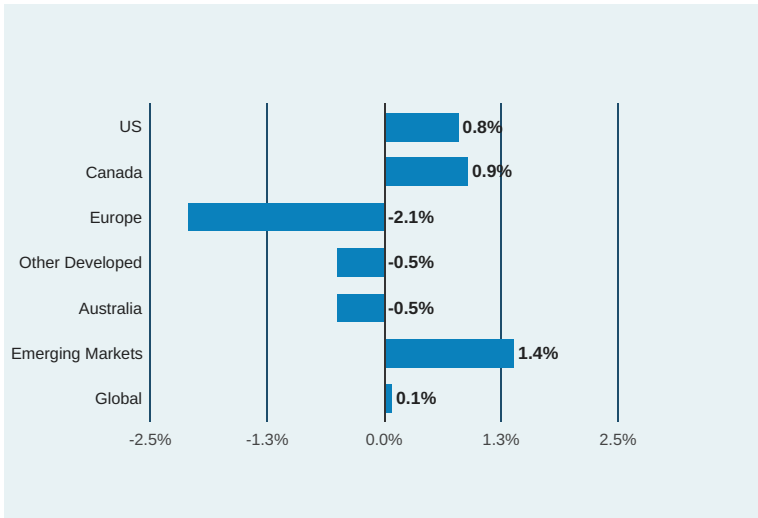
11 Geographic exposure



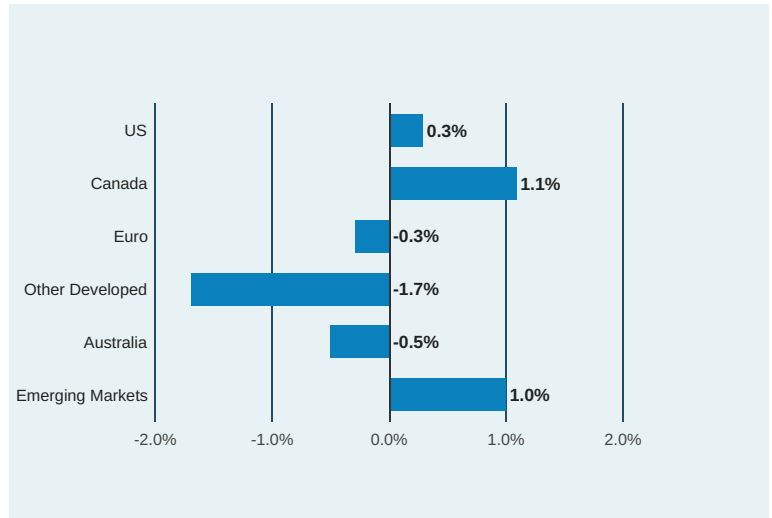
12 Currency exposure



13 Net geographic exposure



14 Net currency exposure



15 Market value summary per BarraOne

Bucket	Asset Class	Account Name	Account	Market Value (millions)	
Cash	Cash	General Account	SAMCERAO49	158.8	
		Treasury & LAIF	SAMCERAO50	18.9	
		Cash Overlay	SAMCERAO85	12.8	
		Transition Account	SAMCERAO78	0.0	
Cash Total				190.5	
Credit	Global Credit	PIMCO Diversified	SAMCERAO64	134.8	
		Franklin Templeton	SAMCERA_FRANKTEMP	75.5	
		Angelo Gordon Credit Solutions	SAMCERAO75	14.5	
	HY Bonds	AG CSF Annex Dislocation Fund	SAMCERAO79	0.0	
	Private Credit	PIMCO Private Income	SAMCERAO72	54.5	
		White Oak Yield	SAMCERAO62	32.0	
		White Oak YSF V	SamCERAO94	29.6	
		Blackrock DL Feeder IX-U	SAMCERAO74	24.9	
		TCP Direct Lending VIII	SAMCERAO57	20.7	
		US Credit	Brigade Capital	SAMCERAO29	90.2
			Beach Point Select	SAMCERAO28	87.9
	Angelo Gordon Opportunistic		SAMCERAO26	1.1	
	Credit Total				565.7
Equity	Global Equity	Baillie Gifford	SAMCERAO14	373.4	
		Mondrian	SAMCERAO17	354.8	
	International Equity	BlackRock MSCI ACWI EX-US IMI	SAMCERAO91	388.7	
	Private Equity	Private Equity	SAMCERA_PE	438.4	
	US Equity	BlackRock Russell 1000	SAMCERAO59	554.4	
		PanAgora Defuseq	SAMCERAO69	242.2	
		Acadian US MGD V	SAMCERAO68	237.9	
		DE Shaw	SAMCERAO04	196.0	

		QMA US Small Cap	SAMCERA055	119.9
Equity Total				2,905.6
Hedge Fund	Fund of Funds	Aberdeen Standard GARS	SAMCERA037	79.2
	Hedge Fund	PIMCO MAARS Fund LP	SAMCERA080	89.0
		Graham Quant Macro	SAMCERA076	85.5
		CFM Systematic Global Macro	SamCERA093	84.2
		Acadian MAAR Fund LLC	SamCERA092	82.2
Hedge Fund Total				420.0
Inflation	Commodities	SSgA Custom Real Asset	SAMCERA058	407.1
	Real Estate	Invesco	SAMCERA044	308.2
		Private Real Asset	SAMCERA_RA	140.8
		PGIM RE US Debt Fund	SAMCERA063	85.6
		Harrison Street Core Property	SAMCERA073	56.2
		Invesco US Val V	SAMCERA071	28.3
		Stockbridge Value IV	SamCERA095	8.7
		Invesco US Val IV	SAMCERA045	4.4
Inflation Total				1,039.3
Rates	Core Bonds	NISA Core Bond	SAMCERA090	238.0
	US Bonds	FIAM Bond	SAMCERA021	270.0
		DoubleLine	SAMCERA077	259.5
		Western TRU	SAMCERA022	232.4
Rates Total				999.9
Total Portfolio (millions)				6,121.0

Chart Definitions

1 Portfolio risk

Total risk comparison of Portfolio, Policy, and Average Public Pension. Policy is composed of: 10.0% Bloomberg Barclays U.S. Corporate High Yield, 18.0% Bloomberg Barclays Aggregate Index, 7.0% HFRI FOF Diversified, 1.0% Cash, 4.0% Custom Real Asset Index, 4.0% Custom Real Asset Index, 9.0% NCREIF ODCE, 15.0% MSCI EAFE, 4.0% MSCI EM, 6.0% Private Equity, 20.0% Russell 1000 Index, and 2.0% Russell 2000 Index. Average Public Pension consists of: 24.0% S&P 500 Index, 6.3% MSCI ACWI IMI, 17.4% MSCI ACWI ex USA IMI, 2.6% MSCI EAFE, 3.4% MSCI EM, 1.7% Bloomberg Barclays Global Aggregate, 1.4% Bloomberg Barclays Global Treasury ex US, 17.2% Bloomberg Barclays U.S. Aggregate, 1.3% Bloomberg Barclays Emerging Markets, 7.1% HFRI FOF Index, 8.6% Private Equity, 1.4% Bloomberg Commodity Index, 6.1% NCREIF Property Index, and 1.5% Cash. Global 60/40 is composed of 60% MSCI ACWI IMI and 40% Bloomberg Barclays Global Aggregate.

2 Portfolio equity beta

Equity risk presented by equity beta to market. Equity beta is a measure describing the sensitivity of portfolio returns with returns of the equity market (MSCI ACWI).

3 Portfolio interest rate risk - Duration

Interest rate risk presented by duration and dollar movement of portfolios. Duration of a financial asset that consists of fixed cash flows is the weighted average of the times until those fixed cash flows are received (measured in years). It also measures the percentage change in price for a given change in yields (the price sensitivity to yield). DV01 \$ (dollar duration) is the change in price in dollars of a financial instrument resulting from a one basis point change in yield.

4 Exposure allocation by asset class

Actual exposures to various asset classes and sub-asset classes are as allocated in investment policy and are compared vs a reference benchmark. Assignment to sub-asset classes is at the custodial account level according to manager mandate.

4 Portfolio credit risk - Spread duration

Credit risk presented by spread duration and dollar movement of portfolios. Spread duration measures the percentage change in price for a one percentage point change in spreads.

5 Exposure allocation

Exposure allocation among major risk buckets (rates, credit, equity, inflation, currency) and net currency exposure (domestic vs. foreign). Full Cash collateral is assumed for all derivatives.

6 Risk factor weight relative to target

Contribution by factor to total relative risk of the Portfolio vs the Policy: For example, Equity is equity risk contribution to Portfolio minus equity risk contribution to the Policy, divided by total risk of the Policy. The factor overweights are additive to the total relative risk at the top line. "Other" includes Country factors and World factors.

7 Tail risk - Scenario analysis

Tail risk is a form of risk measurement that considers the possibility that a market will experience losses greater than what the normal distribution would suggest. This graph shows the expected performance under various historical scenarios (described in the appendix at the end of this report). For each historical scenario, the current market value is recalculated to determine return under identical market conditions, assuming an instantaneous shock.

8 Tail risk - Stress tests

This display shows expected performance when individual risk factors are subjected to instantaneous shocks. Directly affected assets are revalued at factor level.

9 Risk contribution by risk factor

Risk contribution by risk factor. Volatility measures the price variation of a portfolio or financial instrument over time.

10 Active risk contribution by risk factor

Active risk in terms of annual tracking error: Tracking Error (TE) measures how closely a portfolio follows its benchmark. It is the standard deviation of the difference between the portfolio and benchmark returns.

11 Geographic exposure

Geographic exposures are calculated using the notional exposure as a percentage of market value, including derivatives, cash securities and currency holdings, but excluding currency derivatives. Any portfolio that uses derivatives may have a total different than 100% because both cash and derivative country exposures are included.

12 Currency exposure

Currency portfolio allocation. Currency exposures from both the underlying securities and the purchasing currency of the futures contract are included.

13 Net geographic exposure

Difference between portfolio and policy allocation among major geographic areas.

14 Net currency exposure

Difference between portfolio and policy allocation among major currencies.

15 Market value summary per BarraOne

Market Value is presented by account and risk bucket in dollars as reported by BarraOne. Some differences may exist due to timing, pricing sources and availability of information on new investments.

Tail Risk Scenario Definitions

1 2007-2009 Subprime and Credit Crisis

(9/30/2007 - 3/4/2009) The burst of the housing bubble in mid-2007 marked the beginning of the years-long subprime mortgage crisis, rooted from the easy credit, low interest rates, and loose regulatory environment in the early 2000s, which made low quality (subprime) mortgaging extremely easy. The contagious meltdown quickly led to plunging asset prices in the financial markets, rising bankruptcies, delinquencies, and foreclosures, and central bank monetary rescues and fiscal interventions by governments around the globe.

2 2006 Emerging Market Crash

(5/10/2006 - 6/14/2006) A number of emerging markets, including Brazil, India, and Argentina, plunged rapidly in May 2006.

3 **2001 Sept 11**

(9/7/2001 - 9/21/2001) The U.S. stock market was closed for a week upon a series of coordinated suicide attacks upon the United States on September 11, 2001. It plunged sharply over the week upon reopening.

4 **2000-2003 Tech Crash & Recession**

(1/19/2000 - 3/12/2003) Period of crisis and slowdown for technological firms due to a rapid jump in stock prices when a speculative technology bubble began to burst, triggering a sell-off of companies. The period includes a slowdown for internet companies that went out of business as the stock market plummeted further.

5 **1994 US Rate Hike**

(1/31/1994 - 12/13/1994) In combating inflation, the U.S. Federal Reserve raised its interest rate from 3.25% in February to 5.5% in November 1994.

6 **1989-1990 Nikkei Stock Price Correction**

(12/29/1989 - 3/30/1990) After hitting the Nikkei stock index's all-time high on December 29, 1989, the Japan financial market crashed and plunged to a low in March 1990.

7 **1987 Market Crash (Aug. to Nov.)**

(8/3/1987 - 11/30/1987) The U.S. stock market began to topple on October 14, 1987 after reaching a record high. It was triggered by reports of a larger trade deficit and the elimination of the tax benefits of financing mergers. The aggravating selling pressure in October 19 from confused and fearful investors and the failing portfolio insurers' models led to a substantial global market sell-off.

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SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
Board of Retirement

February 22, 2022

Agenda Item 7.1

TO: Board of Retirement
FROM: Scott Hood, Chief Executive Officer
SUBJECT: 2022 Board-Staff Retreat Topics



Recommendation

Provide direction for staff regarding the topics and schedule for the March 22, 2022, Board-Staff Retreat.

Background

This item is to give trustees a final opportunity to discuss the upcoming retreat on March 22, 2022. The Board assists on setting the topics to be addressed at the retreat and provides input regarding the proposed presenters.

Discussion

Last year's retreat was held over Zoom and was a one-day event due to the Covid-19 Pandemic. This year's retreat will also be held remotely. The Board already approved a start time of 8:30 a.m. for March 22nd and we are proposing this one-day retreat to occur in addition to the regular Board meeting. The retreat portion would have 4 major topics and time for discussion between topics. Per the Boards direction at the January meeting, the impact of inflation to the portfolio will also be included.

Planned topics are included in the following list:

- High level-look at the economy- Ian Toner
- Managing a Maturing Plan with a Focus on Liabilities- Jeff MacLean
- Portfolio Review & Plan and Metrics; Tracking Liabilities
- Current State of Environmental, Social and Governance Considerations- Verus

BOARD/STAFF RETREAT

March 22, 2022

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BOARD/STAFF RETREAT AGENDA

- 8:30 a.m. Beginning of Regular Board Meeting Agenda
- 8:45 a.m. Economic Outlook
Ian Toner, Chief Investment Officer, Verus
- 9:45 a.m. Break
- 10:00 a.m. Discussion on Plan Maturity, Part IV
Jeff MacLean, Chief Executive Officer, Verus
- 11:30 a.m. Lunch

- 12:00 p.m. Portfolio Review & Plan Metrics;
Liabilities
101 and Liability Tracking
Mike Coultrip, Chief Investment Officer
Scott Hood, Chief Executive Officer
- 12:45 p.m. Update on Current State of Environmental,
Social and Governance Issues
Margaret Jadallah and Joe Abdou, Verus
- 2:00 p.m. End of Retreat