



# Notice of Public Meeting

## The Board of Retirement

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

**Tuesday, May 25, 2021, at 10:00 A.M.**

In accordance with the Governor's Executive Order N-29-20 (3) the Members of the Board will be participating via Zoom video conference and teleconference. Pursuant to Government Code §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://zoom.us/j/92657297211>

- To join the meeting via telephone, dial: (669) 900-9128, and enter Meeting ID: 926 5729 7211

### 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](mailto: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**
  - 1.1 Appointment by Chair of Ad Hoc Nominating Committee for Board Officers
- 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 Board Meeting Minutes from April 27, 2021
- 4. Approval of the Consent Agenda\***

# Notice of Public Meeting

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- 4.1 Disability Retirements (3)
  - Norman Aleman
  - Eyal Graif
  - Patrina Sudano
- 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

**5. Benefit & Actuarial Services**

- 5.1 Consideration of Agenda Items, if any, Removed from the Consent Agenda
- 5.2 Approval of Economic Assumptions to be used in the June 30, 2021 Actuarial Valuation

**6. Investment Services**

- 6.1 Report on Preliminary Monthly Portfolio Performance for the Period Ended April 30, 2021
- 6.2 Report on Quarterly Investment Performance for the Period Ended March 31, 2021
- 6.3 Report on Real Estate Manager Annual Reviews
- 6.4 Report on the Core Equity and Passive Manager Annual Reviews
- 6.5 Approval of Proposed Alternative Investment (to be heard in closed session, Confidential Under Gov. Code §54956.81 and §6254.26, see item C2)

**7. Board & Management Support**

**8. Management Reports**

- 8.1 Chief Executive Officer's Report
- 8.2 Assistant Executive Officer's Reports
- 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 Alternative Investment (to be heard in Closed Session, Confidential Under Gov. Code § 54956.81 and §6254.26, see item 6.5)

**9. Report on Actions Taken in Closed Session**

**10. Adjournment in Memory of the Following Deceased Members:**

Barton, James	April 8, 2021	Sheriff's
Van Pelt, James	April 20, 2021	Information Services
Miller, Abbie	April 20, 2021	Aging & Adult Services
Snowden, Shirley	April 21, 2021	Probation
Luft, John	April 22, 2021	District Attorney's Office
Hernandez, Simon	April 23, 2021	Hospital
Larson, Mary Lou	April 24, 2021	Sheriff's
Stuart, Bette	April 28, 2021	Treasurer's/Retirement Services
Yuki, Dorothy	May 1, 2021	Assessor's
Wong, Edmund	May 9, 2021	Probation



Scott Hood, Chief Executive Officer

Posted: May 19, 2021



# Notice of Public Meeting

(\* 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 REGULAR AGENDA MAY BE TRANSFERRED TO THE CONSENT 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 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](http://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  
**Board of Retirement**

May 25, 2021

Agenda Item 1.1

**TO:** Board of Retirement

**FROM:** Scott Hood, Chief Executive Officer 

**SUBJECT:** Appointment by Chair of Ad Hoc Nominating Committee for Board Officers

**Recommendation**

Accept the Chair's report on the appointment of an Ad Hoc Committee to nominate Board officers for the 2021-2022 fiscal year to be presented for election at the July meeting.

**Background**

In general, at or around the May meeting, the Chair appoints an Ad Hoc Committee to nominate Board officers for the next fiscal year. The election of Board officers takes place at the first meeting in July. Article 1 of the *Regulations of the Board of Retirement* provides for the election of three Board officers: Chair, Vice Chair and Secretary, as follows:

**1.1. Election of Chair:** At the first regular meeting in July, the Board of Retirement shall elect one of its members chair for a term of one year or until his or her successor is duly elected and qualified. The Chair shall preside at all meetings of the Board, shall appoint all committees and shall perform all duties incidental to that office.

**1.2. Election of Vice Chair:** At the first regular meeting in July, the Board of Retirement shall elect one of its members vice chair for a term of one year or until his or her successor is duly elected and qualified. In the Chair's absence or inability to act, the Vice Chair shall take the place and perform the duties of that office.

**1.3. Election of Secretary:** At the first regular meeting in July, the Board of Retirement shall elect one of its members secretary for a term of one year or until his or her successor is duly elected and qualified. The Secretary shall attest to Resolutions and other such documents for the Board. In the Chair's and Vice Chair's absence or inability to act, the Secretary shall take the place and perform the duties of the Chair.

Board officers traditionally serve one-year terms. Also, by tradition, the Board attempts to alternate between appointed and elected trustees in each officer position. In general, the officers tend to move up "through the steps" to eventually become Chair. Exceptions have occurred when a trustee does not serve a full term or does not continue on the Board for an additional term. (See the table below.)

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
**Board of Retirement**

**SamCERA Board Officer History**

	<u><b>Chair</b></u>	<u><b>Vice-Chair</b></u>	<u><b>Secretary</b></u>
2001-02	Bill Cottle	Tom Bryan	Bette Stuart
2002-03	Tom Bryan	Donna Colson	Alma Salas
2003-04	Donna Colson	Alma Salas	Bette Stuart
2004-05	Alma Salas	Ken Lewis	Tom Bryan
2005-06	Ken Lewis	Tom Bryan	Emily Tashman
2006-07	Tom Bryan	Emily Tashman	Bette Stuart
2007-08	Tom Bryan	Emily Tashman	Jim Hooley
2008-09	Emily Tashman	David Wozniak	Sandie Arnott
2009-10	Margaret Jadallah	Al David	Sandie Arnott
2010-11*	Al David	Sandie Arnott	Natalie Kwan Lloyd
2011-12	Al David	Sandie Arnott	Natalie Kwan Lloyd
2012-13	Sandie Arnott	Natalie Kwan Lloyd	Lauryn Agnew
2013-14	Natalie Kwan Lloyd	Lauryn Agnew	Paul Hackleman
2014-15	Lauryn Agnew	Paul Hackleman	Michal Settles
2015-16	Paul Hackleman	Michael Settles	Natalie Kwan Lloyd
2016-17	Paul Hackleman	Mark Battey	Shirley Tourel
2017-18	Mark Battey	Shirley Tourel	David Spinello
2018-19	Sandie Arnott	Kurt Hoefler	Al David
2019-20	Kurt Hoefler	Al David	Robert Raw
2020-21	Al David	Robert Raw	Katherine O'Malley

\*beginning October 2010

**SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION**

APRIL 27, 2021 – REGULAR BOARD MEETING MINUTES

**2104.1 Call to Order, Roll Call and Miscellaneous Business**

**Call to Order:** Mr. David, 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, Al David, Kurt Hoefer, Katherine O'Malley, Robert Raw, Alma Salas (for Paul Hackleman, who joined at 10:05 a.m.), and Eric Tashman (joined at 10:10 a.m.).

Absent: None.

Alternates: Susan Lee.

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

Consultants and speakers: Nick Collier and Craig Glyde (Milliman, Inc.); Joe Abdou, Margaret Jadallah, and John Nicolini (Verus).

**2104.2.1 Oral Communications from the Board:** None.

**2104.2.2 Oral Communications from the Public:** None.

**2104.3.1 Approval of Regular Board Meeting Minutes from March 23, 2021:** Mr. David asked if there were any changes or corrections, or objections, to the meeting minutes from the Board meeting held on March 23, 2021.

**Action:** Mr. Raw moved to approve the minutes from the Board meeting on March 23, 2021. The motion was seconded by Ms. Arnott and carried with a vote of 8-0, with trustees Arnott, Battey, Bowler, David, Hoefer, O'Malley, Raw, and Salas all in favor; none opposed.

**2104.4.0 Approval of the Consent Agenda:** Mr. David asked if there were any items to be removed for discussion from the Consent Agenda. No items were removed. Before the call for a motion, Mr. David noted a change for Agenda Item 4.10, amending the second sentence of the resolution for Regulation 7.3(D) Leave of Absence Credit to read as follows:

An eligible member may also purchase employer-approved leaves of absence on account of maternity or paternity leave, for up to 12 consecutive months for each unpaid parental leave occurrence.

**Action:** Mr. Battey moved to approve the items on the Consent Agenda including the amendment to Regulation 7.3(D). The motion was seconded by Ms. O'Malley and carried with a vote of 8-0, with trustees Arnott, Battey, Bowler, David, Hoefer, O'Malley, Raw, and Salas all in favor; none opposed.

**2104.4.1 Disability Retirements:**

- a) The Board found that **Henry Sutter** (1) is permanently incapacitated from the performance of his usual and customary duties as a Sheriff's Sergeant, (2) that his disability was the result of an injury arising out of and in the course of his employment and (3) granted his application for a service-connected disability retirement.

**2104.4.2 Survivor Death Benefits:** None.

2104.4.3 **Service Retirements:**

<b>Name</b>	<b>Effective Retirement Date</b>	<b>Department</b>
de la Cruz-Borrero, Lilia	February 20, 2021	Probation
Fong, Frances	February 28, 2021	San Mateo County Health
Fuentes, Martha	February 26, 2021	Behavioral Health
Gonzales, Bertha	February 27, 2021	San Mateo County Health
Hershman, Marc	February 28, 2021	Deferred - Board of Supervisors
Pape, Kathleen	February 13, 2021	Sheriff's Office
Petrick-Keegan, Lorie	March 1, 2021	San Mateo County Health
Poveda, Coralia	February 5, 2021	Probation
Puell, Michael	January 30, 2021	Deferred – San Mateo Co. Health
Saika, Anthony	January 29, 2021	Deferred - Sheriff's Office
Shanks, Marie	December 22, 2020	Retired – Plan 3 Portion
Tschaekofske, Suzanne	February 20, 2021	Public Works
Wade, James	February 27, 2021	District Attorney's Office
Warner, Loreen	February 6, 2021	Superior Court

2104.4.4 **Continuances:**

<b>Survivor's Name</b>	<b>Beneficiary of:</b>
Halpin, Juanita	Halpin, William
Hawkins, Laura	Modica, Frances
Sisneros, Shirley	Sisneros, Tony
Webster, Patsy	Webster, Edward
Weise, Linda	Weise, Philip

2104.4.5 **Deferred Retirements:**

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

<b>Name</b>	<b>Retirement Plan Type</b>
Anderson, Jamal	G7, Vested - Auto Defer - Code 31700
Ante, Matthew	G4, Vested - Auto Defer - Code 31700
Ferreras, Almira	G4, Vested
Hirst, Deborah	G4, Vested - Reciprocity
Kakis, Carly	G5, Vested - Reciprocity
Levy, Daniele	G7, Vested
Lu, Emily	G4, Vested
Nguyen, Linda D	G7, Vested - Reciprocity
Reynoso-Perez, Leticia	G5, Vested - Auto Defer - Code 31700

2104.4.6 **Member Account Refunds:**

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

<b>Name</b>	<b>Retirement Plan Type</b>
Alexander Bac, Richard	G7, Vested
Marquez, Erlinda	G4, Non-vested
Williams, Nicole	G4, Vested

2104.4.7 **Member Account Rollovers:**

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

<b>Name</b>	<b>Retirement Plan Type</b>
Bahadur, Kerry	G4, Non-vested
Bryant, Sara	G7, Non-vested
Cox, Melissa	G4, Non-vested
Friedman, Carol	G7, Non-vested

2104.4.8 **Member Account Redeposits:**

<b>Name</b>	<b>Retirement Plan Type</b>
Custodio, Pia-Rosario	G4, Non-vested

2104.4.9 **Acceptance of Trustees' Reports of Educational Activities:** None.

2104.4.10 **Approval of Resolution Amending Regulations:** The Board approved a resolution amending Regulation Section 7.3 (D), adding 7.3 (F) to Section 7.3 Service Credit Available For Purchase By Active Members, renumbering existing Sections 7.3 (F)(1) and (F)(2) to Sections 7.3(G)(1) and (G)(2), adding Section 7.3 (G)(3), renumbering existing Sections 7.3 (F)(3) and (F)(4) to Sections 7.3 (H) and 7.3 (I), amending Sections 7.4 (B) and 7.4(C) to Section 7.4 Payment Options, and amending Section 7.5 (E) Redeposit of Previously Withdrawn Contributions in Article VII Purchase of Credit for Public Service.

2104.5.1 **Consideration of Agenda Items, if any, Removed from the Consent Agenda:** None.

2104.5.2 **Presentation of Actuarial Assumptions and Funding Options:** Mr. Collier and Mr. Glyde discussed funding implementation options with respect to changes to the assumed earnings rate and the impact on the statutory contribution rates. This item was informational and for discussion only, no action was taken.

Mr. Hackleman joined the meeting at 10:05 a.m. and Mr. Tashman joined shortly thereafter, at 10:10 a.m.

2104.6.1 **Report on Preliminary Monthly Portfolio Performance Report for the Period Ended March 31, 2021:** Mr. Coultrip reported that SamCERA's net preliminary return for March was 1.6% bringing the preliminary trailing twelve month return ending March 2021 to 28.2% net, which is above SamCERA's Plan Benchmark return of 26.9% and above SamCERA's Actuarial Assumed Earnings Rate of 6.5%. This item was informational and for discussion only, no action was taken.

2104.6.2 **Report on Cash Overlay (Parametric) Annual Review:** Ms. Ng reviewed the meeting notes from the annual review of SamCERA's cash overlay manager, Parametric. The meeting was held virtually on March 4<sup>th</sup> and consisted of a firm/organizational update, investment process review, and performance



review and attribution. There were no major concerns identified during the review. This item was informational and for discussion only, no action was taken.

- 2104.6.3 **Report on Real Estate Annual Manager Review:** Ms. Ng reviewed the meeting notes from the annual review of SamCERA's real estate managers, INVESCO and Harrison Street. Both meetings were held virtually on April 1<sup>st</sup> and consisted of a firm/organizational update, investment process review, performance review and attribution, and current positioning/market outlook. This item was informational and for discussion only, no action was taken.
- 2104.6.4 **Report on Global Custodian (Northern Trust) Annual Review:** Ms. Ng reviewed the meeting notes from the annual review of SamCERA's custodian bank, Northern Trust, which was held virtually on March 4<sup>th</sup>. Ms. Ng reported that Northern Trust continues to provide consistent and reliable service to staff. There were no major concerns identified during the review. This item was informational and for discussion only, no action was taken.
- 2104.6.5 **Approval of Proposed Alternative Investment (to be heard in Closed Session, Confidential Under Gov. Code §54956.81 and §6254.26, see item C2):** The Board adjourned into Closed Session at 10:58 a.m. to hear item 6.5 then reconvened in Open Session at 11:09 a.m. See Closed Session report under C2.
- 2104.7.1 **Approval of SamCERA Fiscal Year 2021-22 Budget:** Ms. Smith reviewed the three components of SamCERA's budget with the Board (Professional Services, Administrative and Technology) and highlighted the changes from last year within each category. SamCERA's FY 2021-22 budget totals \$44 million, which is approximately \$1.3 million from the prior fiscal year.
- Action:** Ms. Arnott moved to approve SamCERA's budget for FY 2021-22 totaling \$44 million. The motion was seconded by Mr. Hoefler and carried by a vote of 9-0, with trustees Arnott, Battey, Bowler, David, Hackleman, Hoefler, Lee, Raw, and Tashman all in favor; none opposed.
- 2104.7.2 **Directions for Voting by SamCERA Delegates at the SACRS Spring Business Meeting:** Mr. Hood discussed the two key action items on the SACRS May 14<sup>th</sup> business meeting agenda and requested direction from the Board as to how the SamCERA Voting Delegate will vote. The Board supported the SACRS Nominating Committee's final slate of officers for the 2021-22 elections and the legislative changes proposed by the SACRS Legislative Committee. This item was informational and for discussion only, no action was taken.
- 2104.8.1 **Chief Executive Officer's Report:** Mr. Hood reported that the County Manager will be meeting with department heads to discuss a reopening plan as the Governor recently announced a tentative statewide reopening date of June 15<sup>th</sup>. Mr. Hood shared that staff has put together a remobilization plan and will modify based on the County's guidance. Mr. Hood previewed a few items on next month's agenda including additional discussion and direction to staff and the actuary regarding assumptions for the upcoming valuation and the formation of the Ad Hoc Nominating Committee.
- 2104.8.2 **Assistant Executive Officer's Report:** Ms. Smith reported that the candidate filing period for the SamCERA election is currently open and the final filing date is Monday, May 3<sup>rd</sup>. She also shared that she recently was in discussion with Supervisor Canepa regarding Board of Retirement appointments. Ms. Trujillo informed Board members about upcoming educational opportunities.
- 2104.8.3 **Chief Investment Officer's Report:** Mr. Coultrip reported on rebalancing activities during the month. He also reported that staff will be holding core equity annual manager reviews on Thursday, May 6<sup>th</sup> with Blackrock at 8:00 a.m. and QMA at 10:00 a.m. Staff will hold the second session of core equity manager reviews on Thursday, May 13<sup>th</sup> with D.E. Shaw at 8:00 a.m., Panagora at 9:30 a.m., and Acadian at 11:00 a.m.

2104.8.4 **Chief Legal Counsel's Report:** None.

C1 **Consideration of Disability Items, if any, removed from the Consent Agenda:** None.

C2 **Approval of Proposed Alternative Investment (to be heard in Closed Session, Confidential Under Gov. Code §54956.81 and §6254.26, see item 6.5):** Mr. Okada reported that the Board approved the recommendation for a "re-up" commitment to Invesco Real Estate U.S. Value-Add Fund VI in the amount of \$50 million. The motion was approved by a vote of 9-0, with trustees Arnott, Battey, Bowler, David, Hackleman, Hoefler, O'Malley, Raw, and Tashman all in favor; none opposed.

2104.10 **Adjournment:** Mr. David adjourned the meeting at 11:25 a.m. in memory of the deceased members listed below.

Porter, Karl	January 28, 2021	Human Services
Bolster, Walter	February 25, 2021	Forestry & Fire Warden
Goodwin, Earl	March 2, 2021	County Manager's Office
Harber, Mary	March 9, 2021	Crystal Springs Rehab Center
Tabora, Corazon	March 9, 2021	Hospital
Kemnitz, Carol	March 12, 2021	Parks
Grable, Richard	March 12, 2021	Probation
Costello, Bertha	March 29, 2021	Library
Brooks, Monica	March 24, 2021	Recorder's
Kalber, Yvonne	March 30, 2021	Probation
Scott, Jack	April 1, 2021	Road Dept
Garvey, G Christina	April 3, 2021	Hospital
Fernandez, Gloria	April 5, 2021	Hospital
McNeil, Regina	April 11, 2021	Hospital
Porter, Emmit	April 15, 2021	Public Works

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Al David  
Board Chair

SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION  
**Board of Retirement**

May 25, 2021

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 finds that **Norman Aleman** (1) is permanently incapacitated from the performance of his usual and customary duties as a Veterans Services Officer, (2) finds that his disability arose out of and in the course of his employment and such employment contributed substantially to his disability and (3) grants his application for a service-connected disability retirement.
  
- b) The Board finds that **Eyal Graif** (1) is permanently incapacitated from the performance of his usual and customary duties as an IS Application Support Analyst III, (2) finds that his disability was the result of an injury arising out of and in the course of his employment and (3) grants his application for a service-connected disability retirement.
  
- c) The Board refers **Patrina Sudano's** application for service-connected disability retirement to a hearing officer for proposed findings and recommendations.

**4.2 Survivor Death Benefits**

None.

**4.3 Service Retirements**

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

<b>Name</b>	<b>Effective Retirement Date</b>	<b>Department</b>
Andres, Joshua	March 31, 2021	San Mateo County Health
Bernstein, Michele	April 1, 2021	Public Works
Bohnet, Juliene	April 1, 2021	San Mateo County Health
Bow, Catherine	March 31, 2021	Sheriff's Office
Carey, Sarah	April 1, 2021	Child Support Services
Carlson, Brenda	April 1, 2021	SamCERA
Cassidy-White, Nichol	March 21, 2021	Deferred - Library
Cepello, Dennis A	April 1, 2021	Information Services

Chong-Jeung, Aileen	April 1, 2021	Deferred - Environmental Health
Cuevas, Victor	April 1, 2021	San Mateo County Health
De Gabe, Herminia (DOB verified by citizenship docs)	March 31, 2021	Public Health
DeiRossi, Robert	April 1, 2021	Behavioral Health
Ebora, Julie	April 1, 2021	San Mateo County Health
Estrin, Sandra	March 27, 2021	Environmental Health
Feeley, Duane	March 27, 2021	Behavioral Health
Feirman, Nina	March 20, 2021	San Mateo County Health
Firenze, Harrilyn	March 20, 2021	Probation
Fitch, Dina	March 20, 2021	Human Services Agency
Fong, Wallace	March 28, 2021	Sheriff's Office
Gillespie, Helen	April 1, 2021	Superior Court
Graffe, Steve	March 20, 2021	Public Works
Grgich, Laura	March 28, 2021	San Mateo County Health
Griffiths, Julie	April 1, 2021	San Mateo County Health
Gutter, LaSaundra	March 27, 2021	Probation
Hancock, Lois	April 1, 2021	QDRO
Hancock, Miles	April 1, 2021	Deferred – Planning & Building
Higareda, Robert	April 1, 2021	Sheriff's Office
Horgan, Timothy	April 1, 2021	Mental Health
Ibarrientos, Glenn	April 1, 2021	Family Health Services
Karagianes, Alex	March 27, 2021	Sheriff's Office
Kingore-Huffman, Kyra	March 31, 2021	Deferred from Agriculture
Kirik, Inna	March 27, 2021	San Mateo County Health
Kirkpatrick, Scott	March 26, 2021	Sheriff's Office
Kueffner, Jamie	March 31, 2021	Deferred - Information Services
LaClair, Joseph	March 31, 2021	Planning & Building
Laurent, Jenifer	March 27, 2021	Health IT
Laya, Ruth	March 31, 2021	Probation
Lopez, Guillermo	April 1, 2021	Behavioral Health

Lopez, Victor	March 21, 2021	Sheriff's Office
Maragoulas, Theresa	April 1, 2021	Superior Court
Marin, Isagani	March 27, 2021	San Mateo County Health
Martinez, Moises	March 7, 2021	Deferred - Social Services
McKague, Brian	April 1, 2021	Sheriff's Office
Mendoza, Rita	March 12, 2021	Children's Health Services
Merat, Shiva	March 14, 2021	San Mateo County Health
O'Connell, Michael	March 31, 2021	Planning & Building
Peterson, Patrick	March 27, 2021	Tax Collection
Phillips, Thomas	April 1, 2021	Superior Court
Pratap, Robin	March 27, 2021	Probation
Pronske, Robert	March 20, 2021	Sheriff's Office
Rodgers, Karen	April 1, 2021	County Manager's Office
Romero, Manuel	April 1, 2021	Public Works
Rumbaua, Lorda	April 10, 2018	San Mateo County Health
Schwartz, Jennifer	March 6, 2021	Sheriff's Office
Solorzano, Maria	March 13, 2021	San Mateo County Health
Sommer, Torsten	March 31, 2021	Sheriff's Office
Soto, Mario	March 6, 2021	Deferred - Sheriff's Office
Stein, Nelly	March 6, 2021	Human Services Agency
Tang, Kwok-Leung	April 1, 2021	Public Works
Tatola, Pelelina	April 1, 2021	Sheriff's Office
Turner, Aaron	March 31, 2021	Probation
Vasquez, Vincent	March 21, 2021	Sheriff's Office
Ventura, Ana	April 1, 2021	San Mateo County Health
Warren, John	March 31, 2021	District Attorney's Office
Willett, Robert	March 31, 2021	Sheriff's Office

#### 4.4 Continuances

The Board ratifies the granting of a continuance to the following individuals:

Survivor's Name	Beneficiary of:
Batara, Laura	Hudson, Byron

Emmerich, Alfred	Emmerich, Jo Ann
Goodwin, Sandra	Goodwin, Earl

#### 4.5 Deferred Retirements

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

Name	Retirement Plan Type
Cameron, Jaclyn	G7, Vested
Fung, Nga Yew Lucy	G4, Vested - Auto Defer - Code 31700
Kahn, Hannah	P4, Vested - Auto Defer - Code 31700
Nunez, Jacqueline	G7, Non-vested - Reciprocity
Vielman-Reeves, Paula	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
Anderson, Marc	G7, Non-vested
Meadows, Donovan	G7, Non-vested
Thomas, Donald	G4, Non-vested

#### 4.7 Member Account Rollovers

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

Name	Retirement Plan Type
Ananda, Renee	G7, Non-vested
Chen, Jian	G7, Non-vested
Hutchings, James	S7, Non-vested
Irby, Daniel	G7, Non-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**

May 25, 2021

Agenda Item 5.2

**TO:** Board of Retirement

**FROM:** Scott Hood, Chief Executive Officer 

**SUBJECT:** Consideration and Direction to Milliman Inc. Regarding Assumptions to be Used in the June 30, 2021, Actuarial Valuation

**Recommendation**

Provide direction to Milliman, Inc as to the economic actuarial assumptions to be used in the June 30, 2021 actuarial valuation. Staff concurs with Milliman's recommendations that the following assumptions be used:

- The economic assumptions be set at: investment return at 6.25%, inflation at 2.50%, wage at 3.00%, and payroll growth at 3.00%.
- The COLA assumption for Plans 1 and 2 be set in accordance with the inflation assumption.

Staff further recommends that the employer contribution rates be phased in over a three-year period.

**Discussion**

The Board will be asked to provide guidance to Milliman, Inc. regarding the economic assumptions to be used in its June 30, 2021, annual actuarial valuation of the system. Nick Collier, lead actuary, will provide a presentation on investment return, inflation, wage and payroll growth assumptions. As reflected in Mr. Collier's comments and presentations at the March 23<sup>rd</sup> Board Retreat and April 27<sup>th</sup> meeting, Milliman's opinion is that it would be reasonable for the Board to lower its assumed earnings rate to 6.25% and retain all the remaining economic assumptions used in the June 30, 2020 annual valuation. Additionally, the employer rates may be phased in over a three-year period to minimize the short-term impact to the employer contribution expense. Furthermore, as requested by the Board, Milliman has also provided an estimate of the rate changes to member contribution rates to show the impact of lowering the investment return assumption to 6.25% and to 6.0%.

**Attachment**

Milliman's May 2021 Presentation on Economic Assumptions for the 2021 Valuation

# 2021 Assumption Review

Nick Collier  
Craig Glyde

MAY 25, 2021



# Schedule

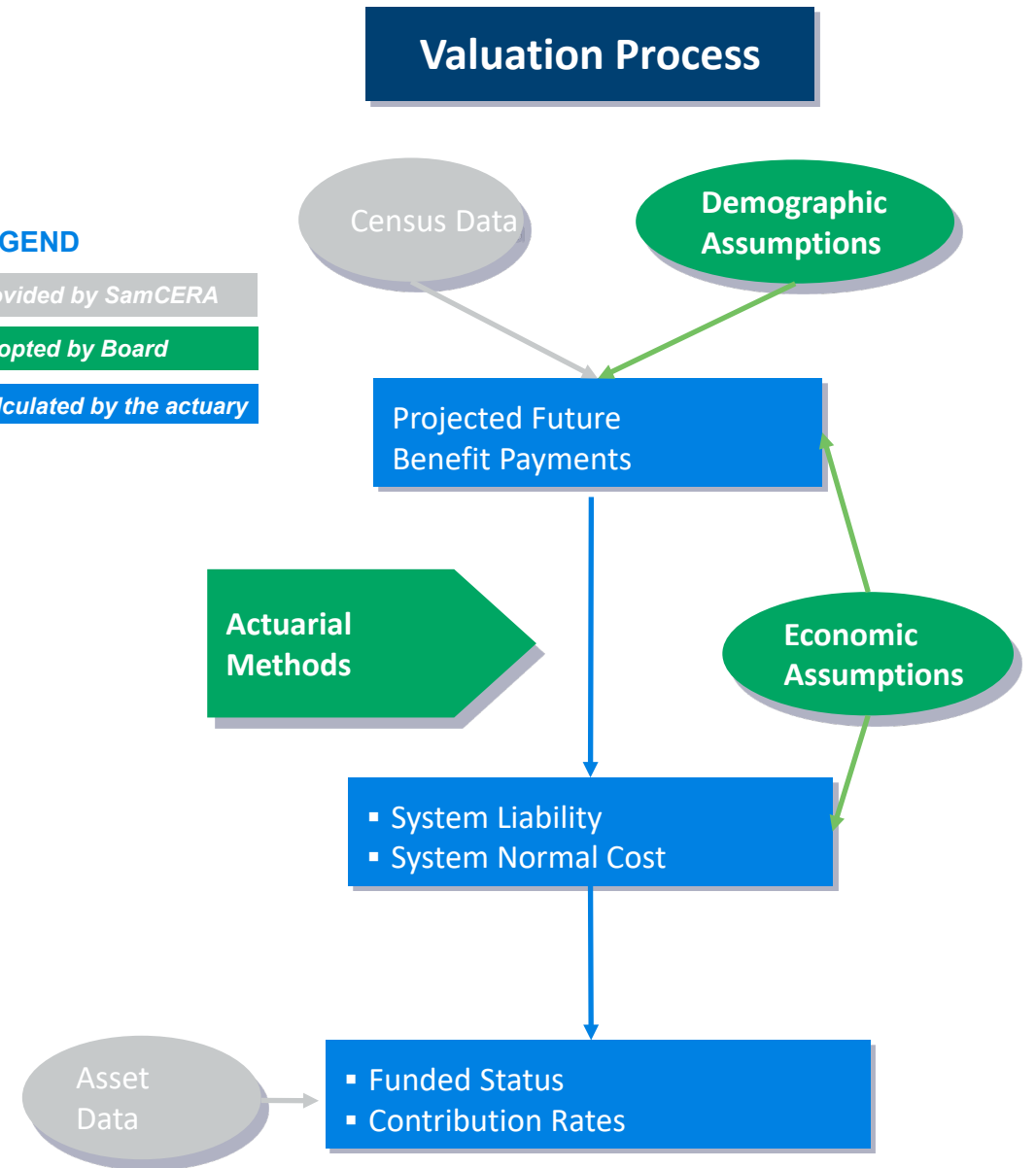
- March & April 2021 meeting:
  - Preliminary discussion of investment return assumption and actuarial methods
- May 2021 meeting:
  - Adopt economic and demographic assumptions for use in 2021 valuation
  - Consider adopting phase-in of statutory employer contribution rate increases due to assumption changes (if changes adopted)
- September 2021 meeting
  - Valuation results
  - Adopt member and employer contribution rates for fiscal year beginning July 1, 2022

## LEGEND

Provided by SamCERA

Adopted by Board

Calculated by the actuary

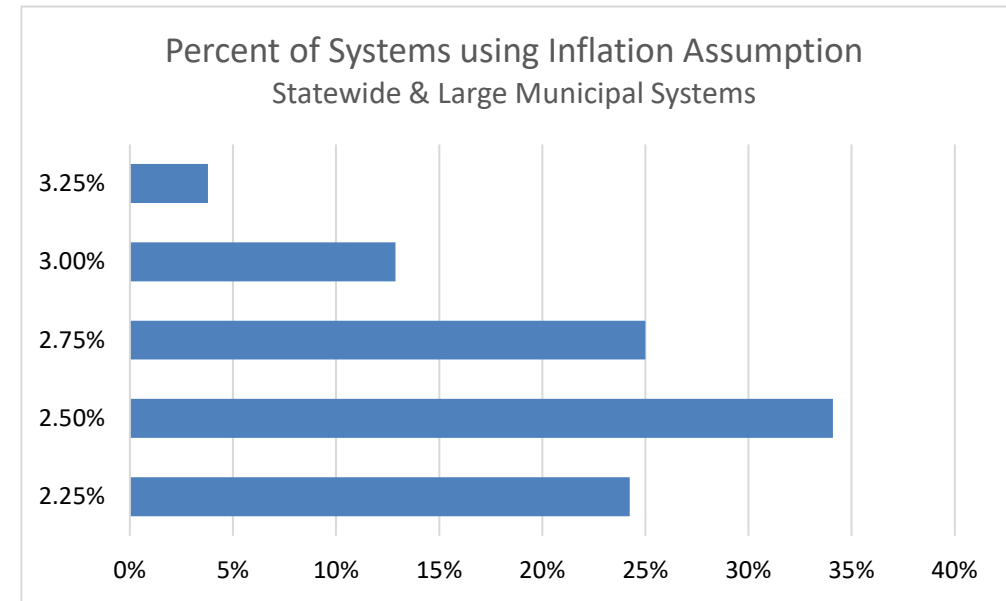


# Demographic Assumptions

- Demographic assumptions were reviewed in detail last year
- Pandemic appears to be having an impact on public plan experience
  - Mortality – higher rates than assumed
  - Termination of employment – lower rates than assumed
  - Retirement – both higher and lower rates (appears to be at least partially driven by type of members covered by system)
- At this point, we are not projecting any long-term impact of the pandemic on the assumptions
- We recommend no changes to the demographic assumptions this year

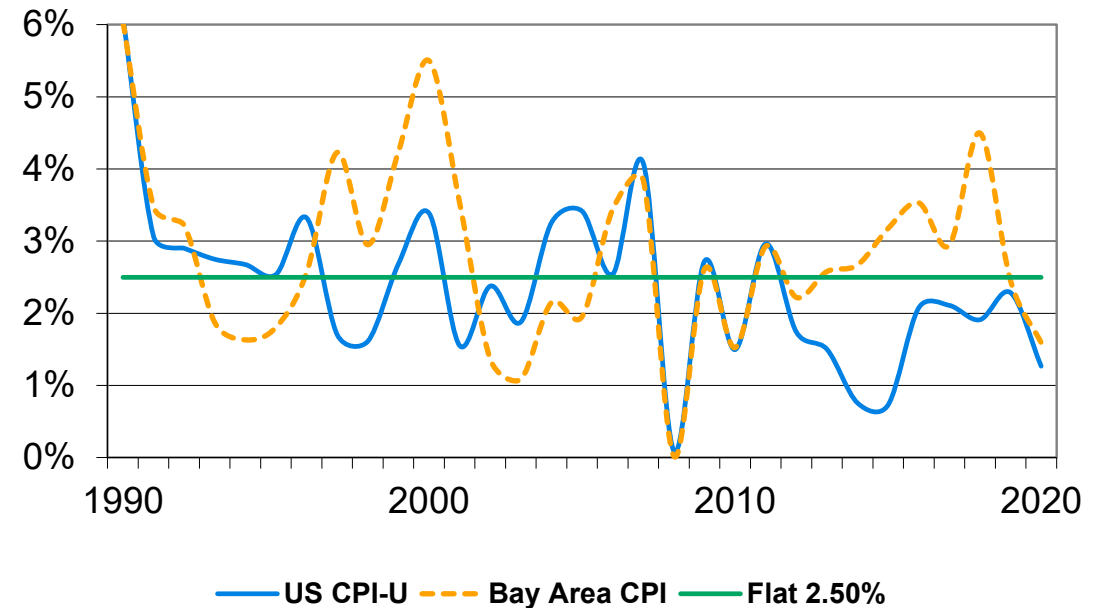
# Price Inflation

- Current CPI inflation assumption used for salary increase and COLAs is 2.50%
  - CalPERS and CalSTRS are at 2.75%
  - 2.50% is the median assumption (and most common) for large systems
- Long-range Social Security projection is 2.4%
- Other forecasts are lower
  - Implied inflation from TIPS
  - Most investment consultants
- Current assumption is reasonable



From 2020 Public Fund Survey

## Historical Inflation

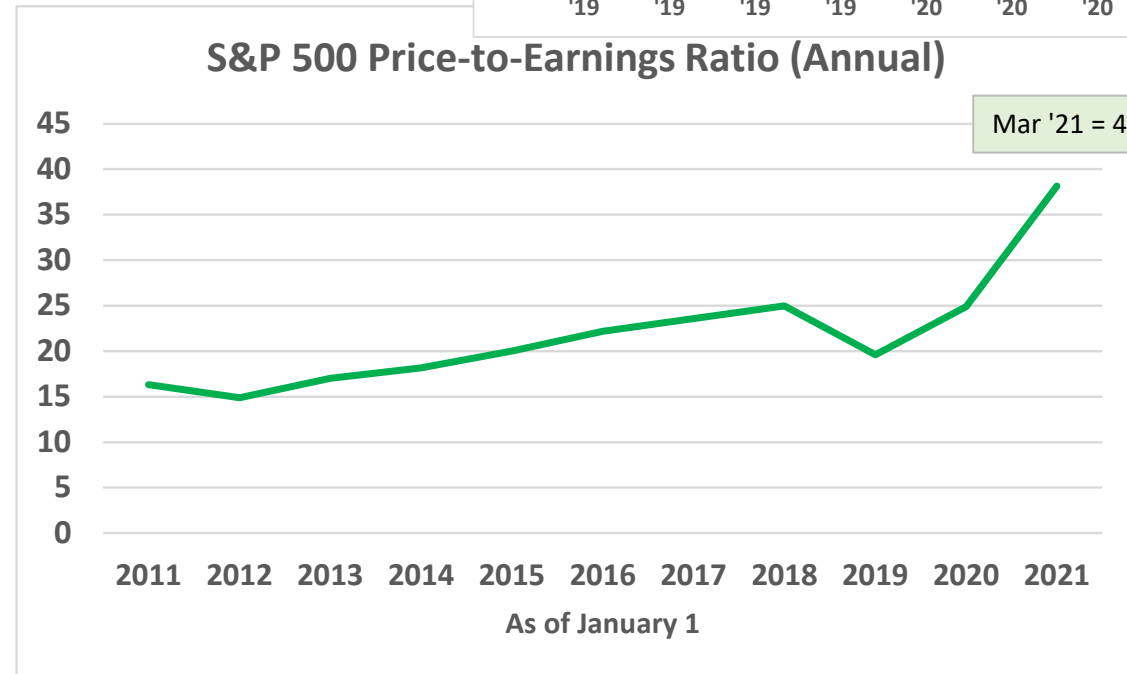
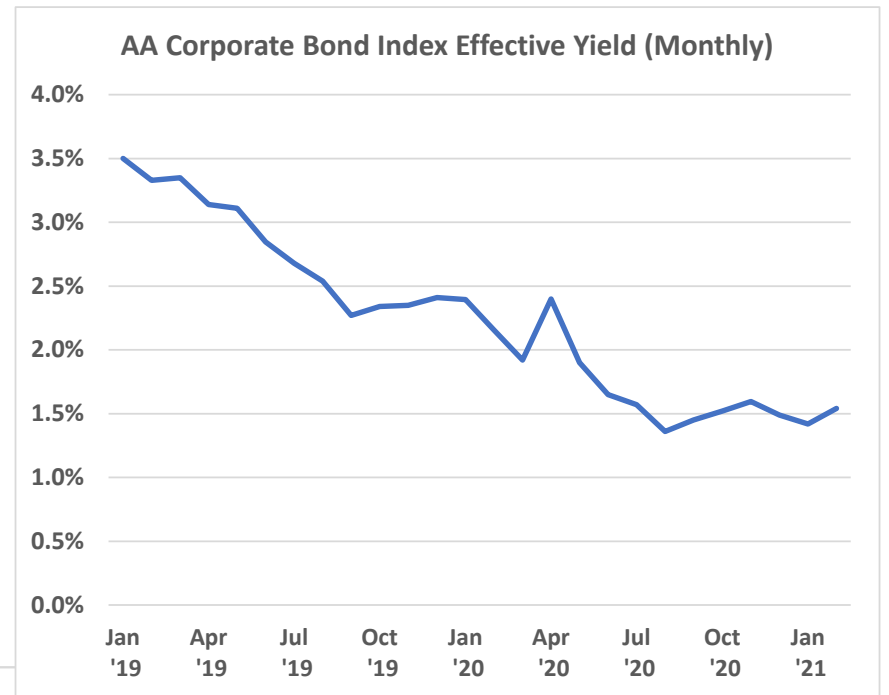


# Payroll Growth

- The system payroll growth assumption is used in the calculation to amortize the unfunded liability
- Fairly standard among public retirement systems to have payroll growth equal to general wage growth
- Historical County payroll has increased at a greater rate than the general wage increase due to increase in number of active members, but this has levelled off over the last 10 years
- It is reasonable to keep the payroll growth assumption equal to the general wage growth assumption (currently 3.00%)

# Economic Outlook – What's Changed?

- Decreasing bond yields
- High P/E ratio relative to historical averages
- High P/E ratios resulted in strong recent returns, but make future returns more difficult
- Good news is that current market environment has resulted in a strong fiscal year return so far for SamCERA



# Expected Return

- Current investment return assumption is 6.5% (net of all expenses)
- Verus' expected 30-year return for SamCERA is 5.3% as of the beginning of the year
  - Based on 1.8% assumed inflation
  - 10-year expectation is 4.9%
- Based on Milliman's capital market assumptions and SamCERA's target asset allocation, expected return is essentially the same as Verus
  - Milliman 30-year = 5.3% / 10-year = 4.9%
- Return assumption should be net of all expenses
  - Assume 0.15% to 0.20% for administrative expenses
  - Assume 0.05% to 0.10% for "fixed" investment expenses (assuming passive expenses for indexing on equities and fixed income)
  - → Need expected return of 6.75% to net 6.50%



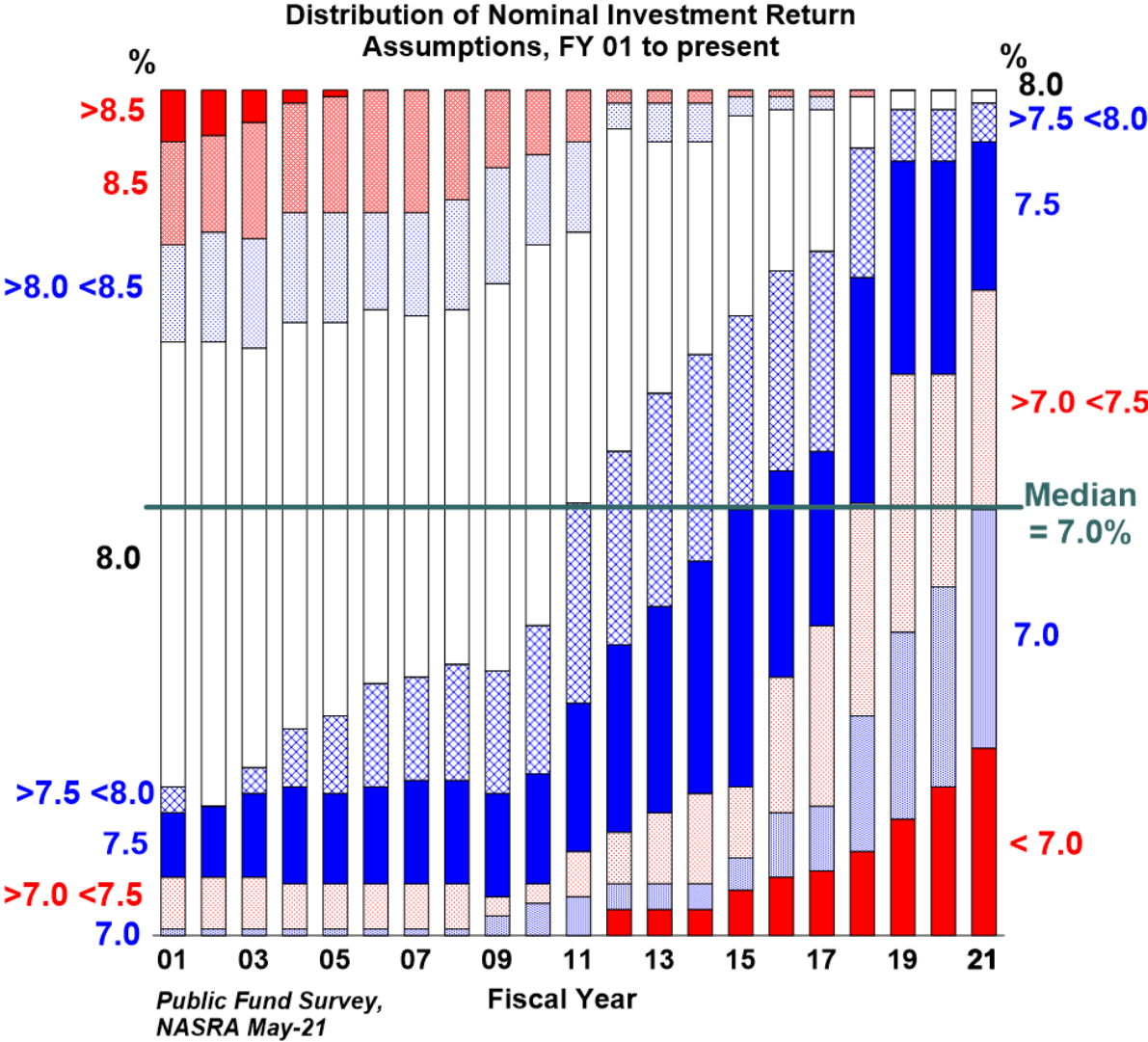
# Expected Return – Probability of Achieving Returns

Return (Net of Expenses)	Probability of Achieving Return	
	Next 10 Years	Next 30 Years
6.50%	27%	21%
6.25%	30%	25%
6.00%	33%	30%

*Based on Milliman’s 2021 capital market assumptions*

# Investment Return – Other Systems

- Median for statewide systems is 7.00%
- CalPERS and CalSTRS at 7.00%
- Most other '37 Act systems are at 7.00% or 6.75%





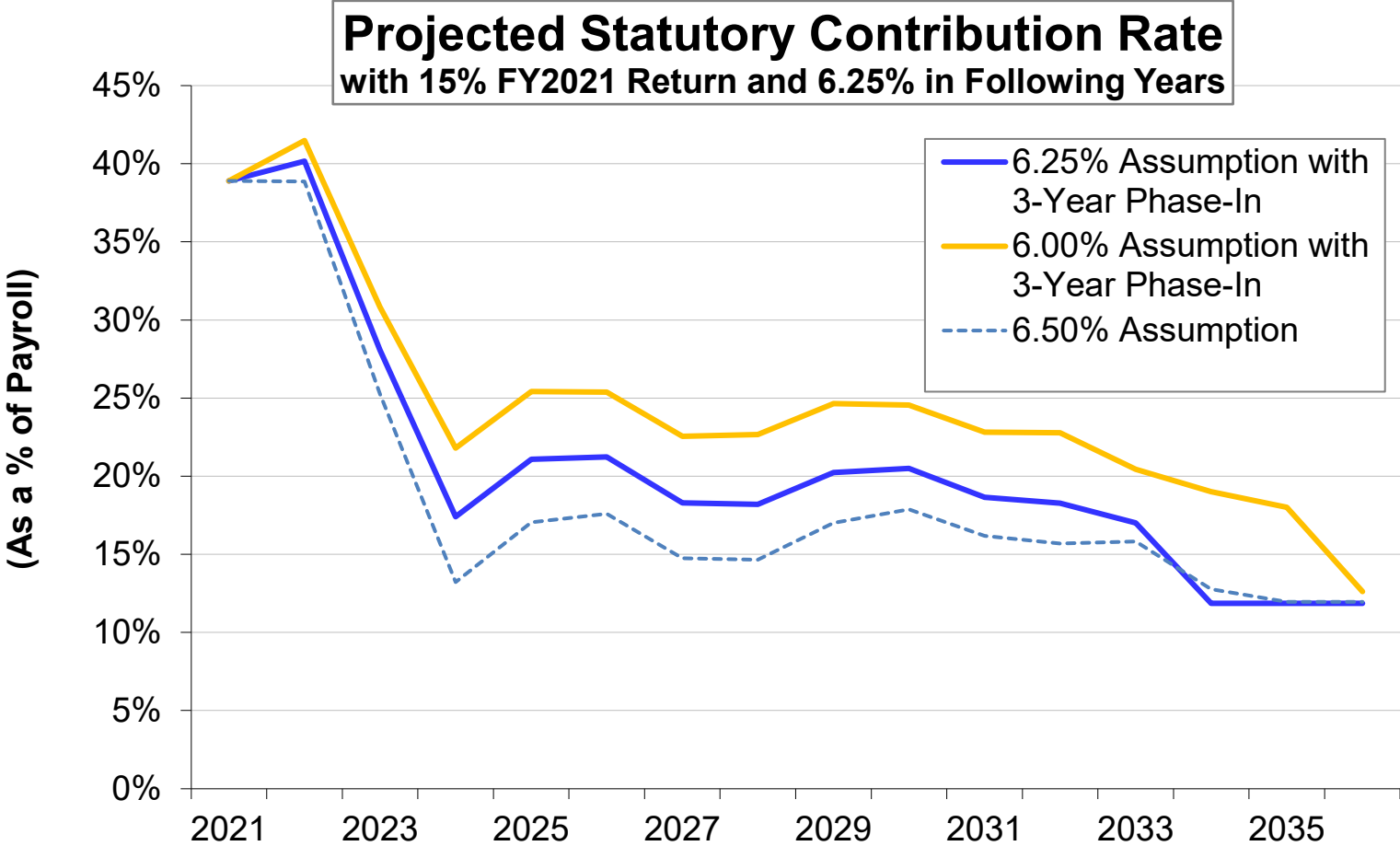
# Estimated Financial Impact of Lower Return Assumption

- Statutory employer contribution rate
  - 6.25% assumption: Estimated increase of 3.9% of pay for next fiscal year (1.3% with 3-year phase-in)
  - 6.00% assumption: Estimated increase of 7.9% of pay for next fiscal year (2.6% with 3-year phase-in)
- Member contribution rates – Legacy plans will vary by plan and member entry age, but rough estimates at 6.25% are:
  - Plan 4 & Plan 7 General – Increase of about 0.6% of pay
    - Example: \$24 a pay period based on \$4,000 bi-weekly
  - Plan 4 & Plan 7 Safety / Probation – Increase of about 0.9% of pay
    - Example: \$45 a pay period based on \$5,000 bi-weekly
- Increases in member contribution rates at 6.00% return assumption are also basically double the increase of moving to 6.25%.
- Actual impact depends on a number of factors and cannot be exactly determined until 2021 valuation

# Phase-in Option – Statutory Employer Contribution Rate

- Some systems phase in the employer contribution rate increase (or decrease) for some, or all, of their assumption changes
  - Generally, this is a period not to exceed the time between experience studies, so '37 Act systems that use this option will phase in over three years
- If 6.25% return assumption adopted: 3.9% of pay statutory employer contribution rate increase would result in the following phase-in:
  - FY2022-23 Rate = Rate calculated in 2021 valuation minus 2.6%
  - FY2023-24 Rate = Rate calculated in 2022 valuation minus 1.3%
  - FY2024-25 Rate = Rate calculated in 2023 valuation (fully phased in)
    - Note that if a phase-in approach is used, the fully phased-in employer rate will be slightly higher than if no phase-in occurred (0.3% of pay higher for 15 years under 6.25% scenario), as fewer contributions would have been received during the phase-in period

# Employer Financial Impact of Lower Assumption – Projection



Lower contributions in short term with phase-in, which increases UAAL and is paid off over 15 years, which increases contribution rates in the longer term.

Fiscal Year	Statutory Contributory Rate		
	6.25% with Phase-In	6.25% w/out Phase-In	Difference
2022	40.2%	42.8%	-2.6%
2023	28.1%	29.2%	-1.1%
2024	17.4%	17.1%	0.3%
2025	21.1%	20.7%	0.3%
2026	21.2%	20.9%	0.3%

# Estimated Financial Impact (General Member Rates)

Estimated Changes in Member Rates (Based on June 30, 2020 Actuarial Valuation)					
	<u>Entry Age</u>	<u>@ 6.5%</u>	<u>@ 6.25%</u>	<u>Increase</u>	<u>Range of Changes for All Entry Ages</u>
<b>General Members - County</b>					
<b>Plan 1</b>	35	14.54%	15.28%	0.74%	0.60% to 0.78%
<b>Plan 2</b>	35	14.50%	15.23%	0.73%	0.60% to 0.78%
<b>Plan 4</b>	35	13.44%	14.08%	0.64%	0.50% to 0.70%
<b>Plan 5</b>	35	8.96%	9.54%	0.58%	0.47% to 0.64%
<b>Plan 7</b>	All	8.75%	9.30%	0.55%	0.55% to 0.55%

General Plan 4 member with an age 35 entry age and earning \$4,000 bi-weekly would see an increase of \$25.60 in their bi-weekly contribution rate (from \$537.60 to \$563.20)

*NOTE: 1) Member rates are total rates. That is, they include COLA share and cost sharing contributions (where applicable).*

*2) Increases in member contribution rates at 6.00% return assumption are approximately double the increase of moving to 6.25%.*

# Estimated Financial Impact (Safety Member Rates)

Estimated Changes in Member Rates (Based on June 30, 2020 Actuarial Valuation)					
	<u>Entry Age</u>	<u>@ 6.5%</u>	<u>@ 6.25%</u>	<u>Increase</u>	<u>Range of Changes for All Entry Ages</u>
<b>Safety Members -- Deputy Sheriff with 10 Years of Service</b>					
<b>Plan 2</b>	30	21.45%	22.57%	1.12%	0.93% to 1.20%
<b>Plan 4</b>	30	19.53%	20.48%	0.95%	0.75% to 1.03%
<b>Plan 5</b>	30	18.06%	18.97%	0.91%	0.71% to 0.99%
<b>Plan 6</b>	30	13.83%	14.71%	0.88%	0.69% to 0.97%
<b>Plan 7</b>	All	14.72%	15.63%	0.91%	0.91% to 0.91%

Safety Plan 4 member with an age 30 entry age and earning \$5,000 bi-weekly would see an increase of \$47.50 in their bi-weekly contribution rate (from \$976.50 to \$1,024.00)

*NOTE: 1) Member rates are total rates. That is, they include COLA share and cost sharing contributions (where applicable).*

*2) Impact on Probation rates is similar to Safety. Plan 7 has the biggest difference with an estimated increase of 0.98% of pay, compared to a 0.91% estimated increase for Safety.*

*3) Increases in member contribution rates at 6.00% return assumption are approximately double the increase of moving to 6.25%.*

# Conclusion

- Investment return assumption
  - We recommend lowering by at least 0.25% (6.25% or less) to reflect lower expected return assumptions
- May want to phase in statutory employer contribution rate increase due to assumptions changes
  - No recommendation on whether to do this, but we believe it is reasonable to do so (or not)
  - If a phase-in is adopted, we recommend the period be 3 years
- Other economic assumptions are reasonable
  - We recommend no changes
- Demographic assumptions are reasonable
  - We recommend no changes

# Questions



# Caveats and Disclaimers

This presentation is based on the data, methods, assumptions and plan provisions described in our actuarial valuation report dated September 21, 2020, except where noted. The statements of reliance and limitations on the use of this material is reflected in the actuarial report and still apply to this presentation.

These statements include reliance on data provided, on actuarial certification, and the purpose of the report.

Milliman's work product was prepared exclusively for SamCERA for a specific and limited purpose. It is a complex, technical analysis that assumes a high level of knowledge concerning SamCERA's operations, and uses SamCERA's data, which Milliman has not audited. It is not for the use or benefit of any third party for any purpose. Any third party recipient of Milliman's work product who desires professional guidance should not rely upon Milliman's work product, but should engage qualified professionals for advice appropriate to its own specific needs.



**SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION**  
**Board of Retirement**

May 25, 2021

Agenda Item 6.1

**TO:** Board of Retirement

**FROM:** Michael Coultrip, Chief Investment Officer *Michael R. Coultrip*

**SUBJECT:** Preliminary Monthly Portfolio Performance Report for the Period Ended April 30, 2021

**Recommendation**

Accept the preliminary performance report dated April 30, 2021.

**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 (pages 2-3) and net manager returns (pages 4-11) also shown.

**Discussion**

The fund's net preliminary return for April was 2.6%, bringing the preliminary trailing twelve-month net return ending April 2021 to 24.5%. The preliminary twelve-month net return is above SamCERA's Plan Benchmark return of 22.3% and above SamCERA's Actuarial Assumed Earnings Rate of 6.5%.

Global equity markets continued their drive higher, especially in the U.S. The U.S. equity market (measured by the S&P 500 Index) was up 5.3%, hitting an all-time high during the month. Small-capitalization stocks were also up 2.1% on the month. Developed international equity (as measured by MSCI EAFE) was up 3.0% while emerging markets were also up 2.5%.

Economic data was generally positive (although the labor market disappointed) as the economic recovery seemed to gain momentum. Real gross domestic product (GDP) increased at an annual rate of 6.4% during the first quarter. Manufacturing continued showing strength, increasing for the 11<sup>th</sup> month in a row. Consumer confidence also surged and showed the highest reading since the COVID-19 outbreak. However, non-farm payrolls increased by "only" +266,000, below the consensus expectations of +1,000,000.

The general U.S. fixed income market was higher by 0.8% as interest rates fell. The 10-year U.S. Treasury yield was lower by 9 basis points during the month and ended at 1.63% by month-end. High Yield returns were up 1.1% as high-yield credit spreads continued to narrow. The Bloomberg Commodity Index also rose by 8.3% during April.

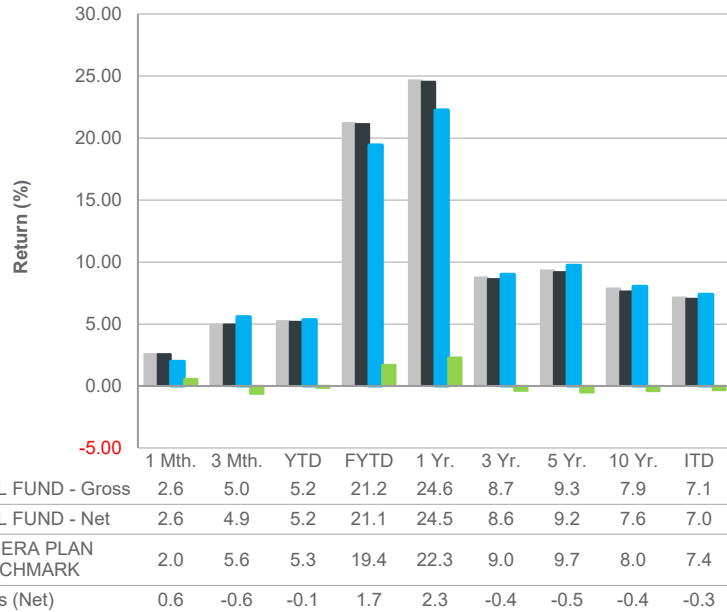
**Attachments**

Northern Trust Monthly Preliminary Performance Report  
Verus Capital Market Update

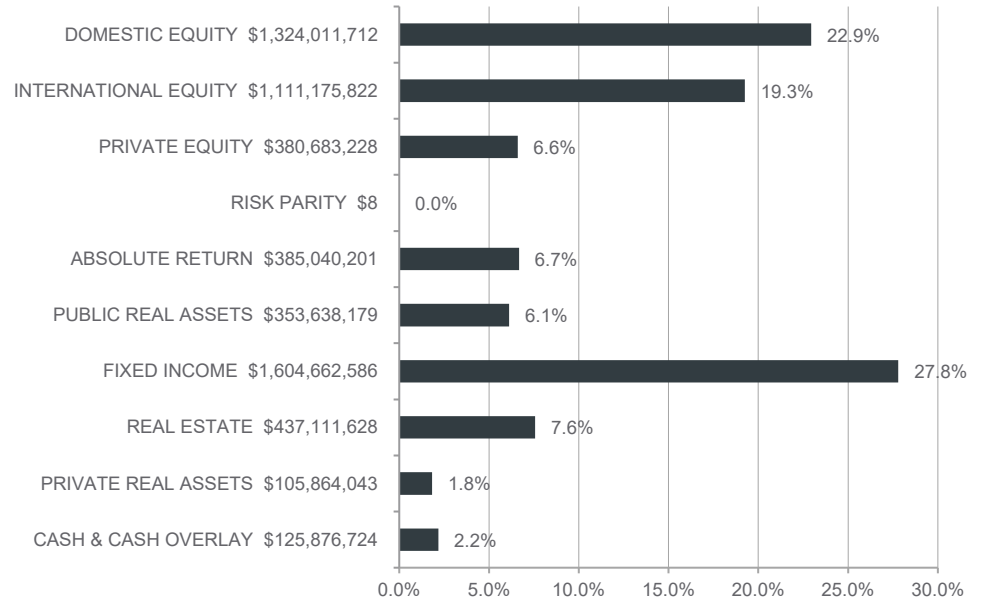
# San Mateo County Composite Return Summary April 30, 2021



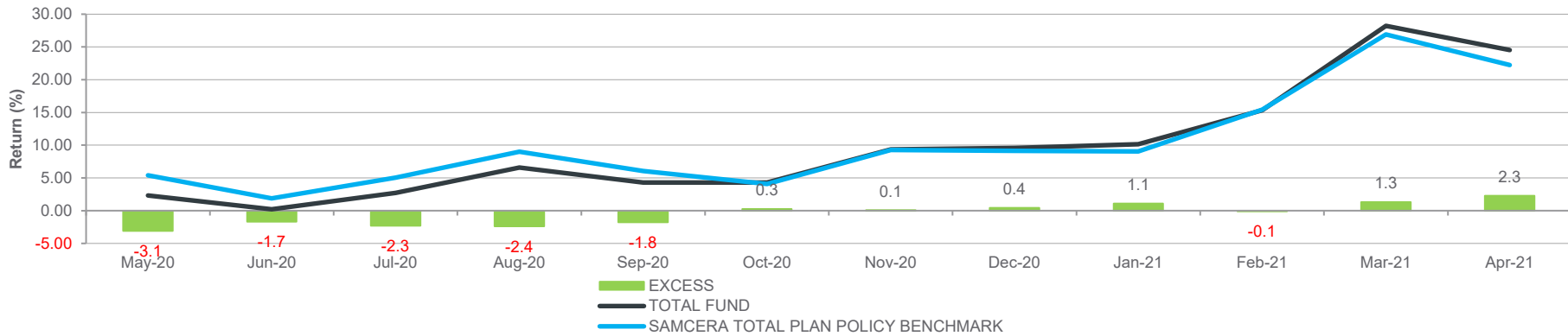
**Total Fund Performance**



**Asset Allocation**



**Rolling Month End Annual Returns**

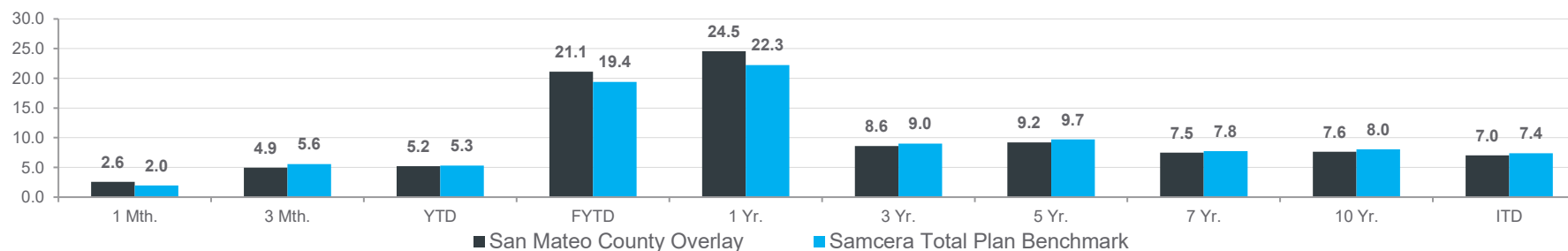


# San Mateo County Composite Return Summary

April 30, 2021



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	5,772,147,546	2.6	4.9	5.2	21.1	24.5	8.6	9.2	7.5	7.6	7.0
Samcera Total Plan Benchmark		2.0	5.6	5.3	19.4	22.3	9.0	9.7	7.8	8.0	7.4
Excess		0.6	-0.6	-0.1	1.7	2.3	-0.4	-0.5	-0.3	-0.4	-0.3
San Mateo Ex-Clifton Overlay	5,764,130,829	2.6	5.0	5.2	21.1	24.4	8.5	9.1	7.4	7.6	7.0
Samcera Total Plan Benchmark		2.0	5.6	5.3	19.4	22.3	9.0	9.7	7.8	8.0	7.4
Excess		0.6	-0.6	-0.1	1.7	2.1	-0.5	-0.6	-0.4	-0.5	-0.4
Total Equity	2,435,187,534	3.5	9.1	9.0	34.3	44.7	12.6	13.5	10.2	10.0	8.4
Samcera Total Equity Benchmark		3.9	10.0	9.9	35.8	46.3	13.4	14.8	11.5	11.0	9.1
Excess		-0.4	-0.9	-0.9	-1.5	-1.6	-0.8	-1.2	-1.2	-1.0	-0.6
Fixed Income	1,604,662,586	0.9	-0.0	-0.1	4.6	7.1	5.3	5.1	4.3	4.6	5.5
Samcera Fixed Income Benchmark		0.8	-0.9	-1.3	2.3	4.3	5.8	4.1	3.8	3.8	5.0
Excess		0.1	0.9	1.2	2.4	2.8	-0.5	0.9	0.5	0.9	0.5
Risk Parity	8	0.0	0.0	0.0	-0.0	-0.0	1.9	4.5	3.9	4.6	5.0
Samcera Risk Parity Benchmark		3.3	5.5	4.5	21.3	27.5	10.3	10.6	9.0	9.2	9.3
Excess		-3.3	-5.5	-4.5	-21.4	-27.5	-8.3	-6.0	-5.1	-4.7	-4.3

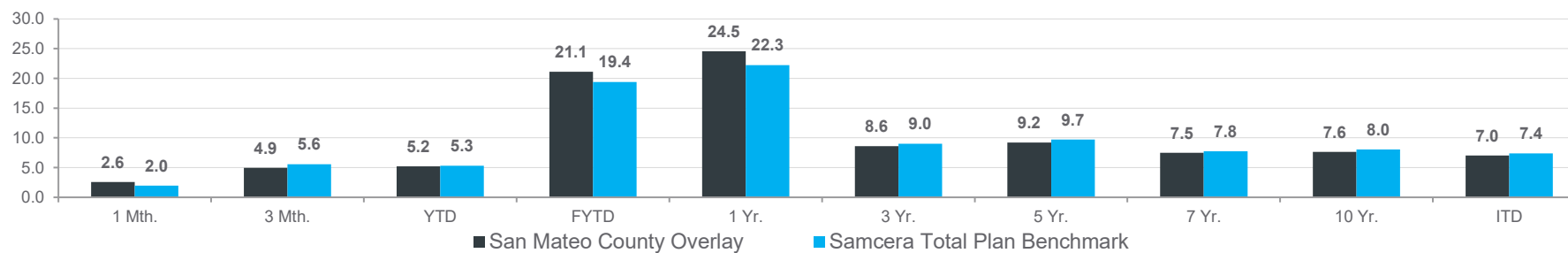


# San Mateo County Composite Return Summary

April 30, 2021



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
Alternatives	765,723,429	2.0	2.7	4.0	40.2	32.2	14.6	12.0	9.4	7.6	0.4
Samcera Alternatives Benchmark		0.1	8.5	7.6	26.4	13.8	10.6	12.0	8.7	8.8	8.4
Excess		2.0	-5.7	-3.6	13.8	18.4	4.0	-0.1	0.7	-1.3	-8.0
Inflation Hedge	896,613,850	3.9	5.7	6.7	12.3	10.4	1.2	4.1	--	--	4.7
SamCERA Inflation Hedge Index		0.8	4.1	4.1	10.9	9.9	3.5	5.2	--	--	5.5
Excess		3.1	1.5	2.6	1.4	0.5	-2.3	-1.1	--	--	-0.9
Cash	125,876,724	0.1	0.1	0.2	0.5	0.6	0.9	0.9	0.7	0.7	1.8
Samcera Cash Benchmark		0.0	0.0	0.0	0.1	0.1	1.5	1.2	0.9	0.6	1.8
Excess		0.1	0.1	0.2	0.4	0.5	-0.6	-0.3	-0.2	0.1	0.0



# San Mateo County Composite Return Summary

April 30, 2021



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Total Equity	2,435,187,534	3.5	9.1	9.0	34.3	44.7	12.6	13.5	10.2	10.0	8.4
Samcera Total Equity Benchmark		3.9	10.0	9.9	35.8	46.3	13.4	14.8	11.5	11.0	9.1
Excess		-0.4	-0.9	-0.9	-1.5	-1.6	-0.8	-1.2	-1.2	-1.0	-0.6
Domestic Equity	1,324,011,712	4.6	11.9	10.8	35.8	44.7	16.1	15.9	12.9	12.6	9.5
Samcera Dom. Equity Benchmark		5.2	12.3	11.8	40.1	50.9	18.9	17.7	14.1	13.9	10.1
Excess		-0.5	-0.4	-1.0	-4.3	-6.2	-2.9	-1.8	-1.3	-1.3	-0.6
Large Cap Equity	1,216,522,554	4.9	11.6	10.1	34.0	42.4	16.6	16.4	13.6	13.2	10.2
Russell 1000		5.4	12.5	11.6	38.9	49.5	19.2	17.8	14.4	14.2	10.8
Excess		-0.5	-0.9	-1.5	-4.9	-7.0	-2.7	-1.3	-0.8	-1.0	-0.6
Blackrock Russell 1000	560,462,988	5.4	12.6	11.7	39.6	50.4	19.5	--	--	--	18.1
Russell 1000		5.4	12.5	11.6	38.9	49.5	19.2	--	--	--	17.9
Excess		0.1	0.1	0.1	0.7	0.9	0.2	--	--	--	0.2
DE Shaw Commingled Fund	209,102,330	5.4	11.5	8.4	37.9	46.2	16.8	17.2	--	--	14.2
Russell 1000		5.4	12.5	11.6	38.9	49.5	19.2	17.8	--	--	14.2
Excess		-0.0	-1.0	-3.2	-1.0	-3.2	-2.4	-0.6	--	--	-0.1
Acadian US MGD V-SL	217,229,983	3.6	7.9	7.8	23.2	27.4	--	--	--	--	16.0
Russell 1000		5.4	12.5	11.6	38.9	49.5	--	--	--	--	28.2
Excess		-1.7	-4.6	-3.8	-15.7	-22.0	--	--	--	--	-12.2
Panagora Defuseq -SL	229,727,254	4.2	12.6	9.8	26.4	32.2	--	--	--	--	19.6
Russell 1000		5.4	12.5	11.6	38.9	49.5	--	--	--	--	28.2
Excess		-1.2	0.1	-1.8	-12.5	-17.2	--	--	--	--	-8.6
Domestic Equity Overlay	4,739,775	41.1	68.4	92.7	158.8	201.8	--	--	--	--	201.8
ICE BofAML US 3-Month Treasury Bill		0.0	0.0	0.0	0.1	0.1	--	--	--	--	0.1
Excess		41.1	68.4	92.6	158.7	201.7	--	--	--	--	201.7
Small Cap Equity	112,228,932	2.0	15.3	18.9	54.9	69.3	9.3	10.8	7.4	8.7	6.9
Russell 2000		2.1	9.6	15.1	58.6	74.9	15.2	16.5	12.0	11.6	9.0
Excess		-0.1	5.8	3.9	-3.7	-5.6	-5.9	-5.6	-4.6	-2.9	-2.1



# San Mateo County Composite Return Summary

April 30, 2021



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	112,228,932	2.0	15.3	18.9	54.9	69.3	9.3	--	--	--	11.3
Russell 2000		2.1	9.6	15.1	58.6	74.9	15.2	--	--	--	15.3
Excess		-0.1	5.8	3.9	-3.7	-5.6	-5.9	--	--	--	-4.0
International Equity	1,111,175,822	2.1	5.9	6.8	32.6	44.7	8.6	10.4	6.4	5.5	6.2
SamCERA Custom Hedge Intl		2.4	7.2	7.8	30.9	40.8	6.9	9.8	5.7	4.9	5.6
Excess		-0.3	-1.4	-0.9	1.7	3.9	1.7	0.6	0.8	0.7	0.6
Baillie Gifford	371,518,100	3.3	2.9	3.6	37.6	57.8	15.8	15.0	10.3	--	11.3
MSCI ACWI ex USA Growth		3.7	3.1	3.7	30.3	42.9	11.8	12.9	8.6	--	--
Excess		-0.5	-0.2	-0.1	7.3	14.9	4.0	2.1	1.7	--	--
Blackrock MSCI ACWI ex US IMI	363,452,359	3.2	7.0	7.1	34.1	--	--	--	--	--	29.7
MS AC WIdxUS IMI Nt		3.2	6.9	7.1	34.0	--	--	--	--	--	29.9
Excess		0.0	0.1	0.1	0.1	--	--	--	--	--	-0.3
Mondrian Investment Partners	366,956,221	1.7	7.0	8.0	33.4	40.7	3.7	7.1	3.7	4.2	5.6
MSCI ACWI xUSA Value		2.3	9.8	9.7	35.4	43.7	2.9	7.6	3.2	3.4	5.4
Excess		-0.6	-2.9	-1.7	-2.0	-3.0	0.8	-0.5	0.4	0.8	0.2
Currency Hedge Futures	388,600,773	1.9	-1.0	-1.7	5.6	7.0	--	--	--	--	7.0
ICE BofAML US 3-Month Treasury Bill		0.0	0.0	0.0	0.1	0.1	--	--	--	--	0.1
Excess		1.9	-1.0	-1.7	5.5	6.9	--	--	--	--	6.9
Currency Hedge Futures Offsets	388,600,773	-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	0.1	0.1	--	--	--	--	0.1
Excess		-0.0	-0.0	-0.0	-0.1	-0.1	--	--	--	--	-0.1
International Equity Overlay	9,249,141	3.0	3.4	11.3	38.8	55.7	--	--	--	--	55.7
ICE BofAML US 3-Month Treasury Bill		0.0	0.0	0.0	0.1	0.1	--	--	--	--	0.1
Excess		3.0	3.3	11.2	38.7	55.6	--	--	--	--	55.6
Fixed Income	1,604,662,586	0.9	-0.0	-0.1	4.6	7.1	5.3	5.1	4.3	4.6	5.5
Samcera Fixed Income Benchmark		0.8	-0.9	-1.3	2.3	4.3	5.8	4.1	3.8	3.8	5.0
Excess		0.1	0.9	1.2	2.4	2.8	-0.5	0.9	0.5	0.9	0.5



# San Mateo County Composite Return Summary

April 30, 2021



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	1,021,647,566	1.0	-1.4	-1.9	0.6	2.9	5.0	3.9	3.8	4.1	5.2
BBG Barclays US Aggregate		0.8	-1.9	-2.6	-1.4	-0.3	5.2	3.2	3.3	3.4	4.8
Excess		0.2	0.5	0.7	2.0	3.2	-0.2	0.7	0.5	0.7	0.4
FIAM B Core Bond	265,610,809	1.0	-1.5	-2.2	0.6	3.5	6.3	4.2	--	--	4.6
BBG Barclays US Aggregate		0.8	-1.9	-2.6	-1.4	-0.3	5.2	3.2	--	--	3.4
Excess		0.2	0.4	0.4	2.0	3.8	1.1	1.0	--	--	1.2
Western Total Return	221,964,921	0.9	-0.5	-1.2	5.4	10.8	4.5	5.1	--	--	4.6
BBG Barclays US Aggregate		0.8	-1.9	-2.6	-1.4	-0.3	5.2	3.2	--	--	3.4
Excess		0.1	1.4	1.4	6.8	11.0	-0.6	1.9	--	--	1.2
Blackrock Inter Gov	0	--	--	--	--	--	--	--	--	--	--
BBG Barclays US Aggregate		0.8	-1.9	-2.6	-1.4	-0.3	5.2	--	--	--	3.9
Excess		--	--	--	--	--	--	--	--	--	--
DoubleLine	247,557,240	1.1	-1.5	-1.5	0.3	2.3	--	--	--	--	3.4
BBG Barclays US Aggregate		0.8	-1.9	-2.6	-1.4	-0.3	--	--	--	--	0.8
Excess		0.3	0.4	1.1	1.7	2.6	--	--	--	--	2.6
NISA Core Bond	235,107,376	0.9	-1.8	-2.6	-1.2	0.4	--	--	--	--	0.4
BBG Barclays US Aggregate		0.8	-1.9	-2.6	-1.4	-0.3	--	--	--	--	-0.3
Excess		0.1	0.1	0.1	0.2	0.7	--	--	--	--	0.7
Core Fixed Income Overlay	51,407,219	1.0	-3.4	-4.4	-5.2	-4.7	--	--	--	--	-4.7
ICE BofAML US 3-Month Treasury Bill		0.0	0.0	0.0	0.1	0.1	--	--	--	--	0.1
Excess		1.0	-3.4	-4.4	-5.3	-4.8	--	--	--	--	-4.8
Opportunistic Credit	583,015,021	0.8	2.5	3.2	13.0	16.1	5.9	7.5	5.9	7.0	8.5
BB Barc BA Intermediate HY Ind		0.9	1.0	1.0	9.9	14.4	7.5	6.6	5.5	6.3	7.3
Excess		-0.2	1.5	2.2	3.1	1.6	-1.6	0.9	0.4	0.7	1.3
Pimco Private Income	42,506,912	0.0	5.8	5.8	19.3	12.3	--	--	--	--	8.1
BB Barc BA Intermediate HY Ind		0.9	1.0	1.0	9.9	14.4	--	--	--	--	7.7
Excess		-0.9	4.8	4.8	9.5	-2.1	--	--	--	--	0.4





# San Mateo County Composite Return Summary

April 30, 2021



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
AG CREDIT SOL FU LP	11,532,315	0.0	9.0	9.0	24.8	14.7	--	--	--	--	23.5
BB Barc BA Intermediate HY Ind		0.9	1.0	1.0	9.9	14.4	--	--	--	--	6.6
Excess		-0.9	8.1	8.0	14.9	0.3	--	--	--	--	17.0
AG CSF ANX DISLOC FD	12,380,877	0.0	10.2	10.2	22.0	22.1	--	--	--	--	20.2
BB Barc BA Intermediate HY Ind		0.9	1.0	1.0	9.9	14.4	--	--	--	--	19.2
Excess		-0.9	9.2	9.1	12.2	7.6	--	--	--	--	1.0
AG Opportunistic Whole Loan	1,992,905	0.0	19.1	19.1	39.5	5.7	14.7	15.3	10.6	--	10.6
BB Barc BA Intermediate HY Ind		0.9	1.0	1.0	9.9	14.4	7.5	6.6	5.5	--	5.5
Excess		-0.9	18.1	18.0	29.7	-8.7	7.2	8.7	5.1	--	5.1
Angelo Gordon	1	0.0	-12.8	-12.8	53.9	28.9	25.3	21.6	17.0	--	16.4
BB Barc BA Intermediate HY Ind		0.9	1.0	1.0	9.9	14.4	7.5	6.6	5.5	--	5.8
Excess		-0.9	-13.8	-13.9	44.1	14.4	17.8	15.0	11.5	--	10.6
Blackrock Direct Lending Feede	9,524,119	0.0	0.2	0.8	11.1	10.5	--	--	--	--	1.5
BB Barc BA Intermediate HY Ind		0.9	1.0	1.0	9.9	14.4	--	--	--	--	8.2
Excess		-0.9	-0.8	-0.3	1.2	-3.9	--	--	--	--	-6.7
Beach Point Select Fund	89,524,186	0.0	4.0	6.1	22.7	31.3	9.5	9.9	--	--	9.1
BB Barc BA Intermediate HY Ind		0.9	1.0	1.0	9.9	14.4	7.5	6.6	--	--	5.9
Excess		-0.9	3.0	5.1	12.8	16.9	2.0	3.3	--	--	3.2
Brigade Cap Mngmt	104,784,833	1.4	4.7	8.0	24.3	34.7	6.2	8.0	5.0	6.1	6.7
BB Barc BA Intermediate HY Ind		0.9	1.0	1.0	9.9	14.4	7.5	6.6	5.5	6.3	6.8
Excess		0.4	3.8	7.0	14.4	20.3	-1.2	1.4	-0.5	-0.1	-0.1
White Oak YSF V	34,447,924	0.0	0.6	0.6	--	--	--	--	--	--	0.6
BB Barc BA Intermediate HY Ind		0.9	1.0	1.0	--	--	--	--	--	--	2.4
Excess		-0.9	-0.4	-0.4	--	--	--	--	--	--	-1.8
White Oak Yield Spec	34,204,765	0.0	1.6	1.6	5.9	5.0	6.0	--	--	--	--
BB Barc BA Intermediate HY Ind		0.9	1.0	1.0	9.9	14.4	7.5	--	--	--	6.2
Excess		-0.9	0.6	0.6	-4.0	-9.4	-1.4	--	--	--	--



# San Mateo County Composite Return Summary

April 30, 2021



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
PIMCO Div. Income Fund	132,539,208	1.2	-0.6	-1.0	5.9	10.6	5.7	--	--	--	4.8
BB Barc BA Intermediate HY Ind		0.9	1.0	1.0	9.9	14.4	7.5	--	--	--	5.8
Excess		0.3	-1.6	-2.1	-4.0	-3.8	-1.7	--	--	--	-1.0
TCP Direct Lending VIII	31,716,643	1.0	2.1	3.4	9.2	12.3	5.8	--	--	--	--
BB Barc BA Intermediate HY Ind		0.9	1.0	1.0	9.9	14.4	7.5	--	--	--	6.6
Excess		0.1	1.1	2.3	-0.7	-2.1	-1.6	--	--	--	--
Franklin Templeton	77,860,333	1.7	-0.2	-1.5	-1.2	-3.4	-3.5	0.5	-0.1	1.5	2.1
BB Barclays Multiverse Index		1.3	-2.2	-3.1	3.0	4.7	3.8	2.9	2.1	2.2	2.6
Excess		0.4	2.1	1.6	-4.2	-8.1	-7.4	-2.4	-2.2	-0.7	-0.5
Risk Parity	8	0.0	0.0	0.0	-0.0	-0.0	1.9	4.5	3.9	4.6	5.0
Samcera Risk Parity Benchmark		3.3	5.5	4.5	21.3	27.5	10.3	10.6	9.0	9.2	9.3
Excess		-3.3	-5.5	-4.5	-21.4	-27.5	-8.3	-6.0	-5.1	-4.7	-4.3
Panagora	8	0.0	0.0	0.0	0.0	0.0	2.8	4.8	--	--	4.8
Samcera Risk Parity Benchmark		3.3	5.5	4.5	21.3	27.5	10.3	10.6	--	--	8.7
Excess		-3.3	-5.5	-4.5	-21.3	-27.5	-7.5	-5.7	--	--	-4.0
Alternatives	765,723,429	2.0	2.7	4.0	40.2	32.2	14.6	12.0	9.4	7.6	0.4
Samcera Alternatives Benchmark		0.1	8.5	7.6	26.4	13.8	10.6	12.0	8.7	8.8	8.4
Excess		2.0	-5.7	-3.6	13.8	18.4	4.0	-0.1	0.7	-1.3	-8.0
Private Equity	380,683,228	3.3	4.4	7.0	71.5	54.8	34.3	25.5	22.1	15.7	-7.6
Samcera PE Benchmark		-0.2	17.4	15.2	54.8	23.6	15.5	18.1	15.4	15.9	17.0
Excess		3.6	-13.0	-8.1	16.7	31.3	18.8	7.5	6.6	-0.2	-24.6
Absolute Return	385,040,201	0.8	1.2	0.7	5.8	6.0	-6.3	-2.8	0.5	--	1.0
Samcera SOFR + 4%		0.3	1.0	1.3	3.4	4.1	5.5	5.3	5.0	--	4.8
Excess		0.5	0.2	-0.6	2.4	1.9	-11.8	-8.1	-4.5	--	-3.7
AQR Delta XN	0	--	--	--	--	--	--	--	--	--	--
Samcera SOFR + 4%		0.3	1.0	1.3	3.4	4.1	5.5	5.3	5.0	--	4.8
Excess		--	--	--	--	--	--	--	--	--	--



# San Mateo County Composite Return Summary

April 30, 2021



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
Aberdeen Std GARS	79,620,566	0.0	-1.1	-2.1	5.5	8.1	3.7	2.7	--	--	1.8
Samcera SOFR + 4%		0.3	1.0	1.3	3.4	4.1	5.5	5.3	--	--	5.2
Excess		-0.3	-2.0	-3.4	2.1	4.0	-1.8	-2.5	--	--	-3.4
Graham Global Investment	79,147,695	3.3	3.1	1.7	9.2	10.2	--	--	--	--	4.4
Samcera SOFR +4%		0.3	1.0	1.3	3.4	4.1	--	--	--	--	4.4
Excess		3.0	2.1	0.4	5.8	6.1	--	--	--	--	-0.0
PIMCO MAARS Fund L.P.	70,365,554	-1.7	-1.5	-0.3	0.1	1.9	--	--	--	--	1.9
Samcera SOFR +4%		0.3	1.0	1.3	3.4	4.1	--	--	--	--	4.2
Excess		-2.0	-2.5	-1.6	-3.3	-2.3	--	--	--	--	-2.4
Acadian MAAR Fund LLC	69,166,282	-2.7	-1.6	-2.8	--	--	--	--	--	--	-1.0
Samcera SOFR +4%		0.3	1.0	1.3	--	--	--	--	--	--	2.4
Excess		-3.1	-2.6	-4.1	--	--	--	--	--	--	-3.4
CFM SYS Global Macro Fund	86,740,104	4.4	8.3	8.3	--	--	--	--	--	--	13.9
Samcera SOFR +4%		0.3	1.0	1.3	--	--	--	--	--	--	2.4
Excess		4.1	7.3	6.9	--	--	--	--	--	--	11.5
Inflation Hedge	896,613,850	3.9	5.7	6.7	12.3	10.4	1.2	4.1	--	--	4.7
SamCERA Inflation Hedge Index		0.8	4.1	4.1	10.9	9.9	3.5	5.2	--	--	5.5
Excess		3.1	1.5	2.6	1.4	0.5	-2.3	-1.1	--	--	-0.9
Real Estate	437,111,628	1.6	1.9	3.5	3.8	0.6	5.0	6.4	--	--	6.6
Samcera NCREIF ODCE EW (gross)		0.0	2.3	2.3	4.3	2.9	5.3	6.5	--	--	6.4
Excess		1.6	-0.4	1.2	-0.4	-2.4	-0.3	-0.1	--	--	0.2
Invesco Core Real Estate	264,373,282	1.4	1.4	3.0	3.5	-2.0	4.0	6.0	8.1	9.2	7.2
Samcera NCREIF ODCE EW (gross)		0.0	2.3	2.3	4.3	2.9	5.3	6.5	8.5	9.8	7.3
Excess		1.4	-0.8	0.7	-0.8	-4.9	-1.3	-0.6	-0.5	-0.6	-0.1
Invesco US Val IV	14,968,415	0.1	0.1	5.8	1.9	1.9	9.7	9.3	--	--	10.6
Samcera NCREIF ODCE EW (gross)		0.0	2.3	2.3	4.3	2.9	5.3	6.5	--	--	7.1
Excess		0.1	-2.1	3.5	-2.3	-1.0	4.4	2.7	--	--	3.4



# San Mateo County Composite Return Summary

April 30, 2021



Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
PGIM Real Estate US Debt Fund	84,998,126	0.6	1.4	2.7	4.0	4.9	5.7	--	--	--	4.9
Samcera NCREIF ODCE EW (gross)		0.0	2.3	2.3	4.3	2.9	5.3	--	--	--	5.8
Excess		0.6	-0.9	0.4	-0.3	2.0	0.4	--	--	--	-0.9
Invesco US VAL V	20,495,919	9.5	9.5	15.4	10.3	10.3	--	--	--	--	7.9
Samcera NCREIF ODCE EW (gross)		0.0	2.3	2.3	4.3	2.9	--	--	--	--	--
Excess		9.5	7.2	13.1	6.0	7.3	--	--	--	--	--
Harrison Street Core Property	52,275,886	1.4	2.4	2.6	3.4	3.6	--	--	--	--	3.4
Samcera NCREIF ODCE EW (gross)		0.0	2.3	2.3	4.3	2.9	--	--	--	--	2.9
Excess		1.4	0.1	0.3	-0.8	0.7	--	--	--	--	0.5
Public Real Assets	353,638,179	4.1	8.9	9.3	26.7	30.3	-2.8	--	--	--	--
SamCera Liquid Real Asset Inde		4.1	9.0	9.5	27.3	32.8	3.1	5.6	--	--	6.9
Excess		-0.0	-0.1	-0.2	-0.6	-2.5	-5.8	--	--	--	--
SSGA CST REAL ASSET NL	353,638,179	4.1	8.9	9.3	26.7	30.4	2.4	--	--	--	--
SamCera Liquid Real Asset Inde		4.1	9.0	9.5	27.3	32.8	3.1	--	--	--	5.8
Excess		-0.0	-0.1	-0.2	-0.6	-2.4	-0.6	--	--	--	--
Private Real Assets	105,864,043	14.2	15.2	14.9	21.5	16.9	2.4	5.9	--	--	8.7
SamCERA Private Real Asset Idx		-0.6	8.6	7.9	17.7	0.8	1.7	6.1	--	--	5.6
Excess		14.8	6.6	7.1	3.8	16.1	0.8	-0.2	--	--	3.0
Cash Overlay	8,016,717	0.0	0.1	0.1	0.2	0.3	--	--	--	--	0.3
ICE BofAML US 3-Month Treasury Bill		0.0	0.0	0.0	0.1	0.1	--	--	--	--	0.1
Excess		0.0	0.1	0.0	0.1	0.2	--	--	--	--	0.2
General Account	43,150,329	0.0	0.0	0.0	0.0	0.1	1.4	1.3	1.0	0.8	1.9
County Treasury Pool	24,787,333	0.4	0.4	0.6	1.4	1.4	1.7	1.5	1.3	1.1	2.6
Currency Hedge Cash Overlay	49,922,335	0.0	0.0	0.0	0.1	0.2	--	--	--	--	0.2



# San Mateo County Composite Return Summary

April 30, 2021



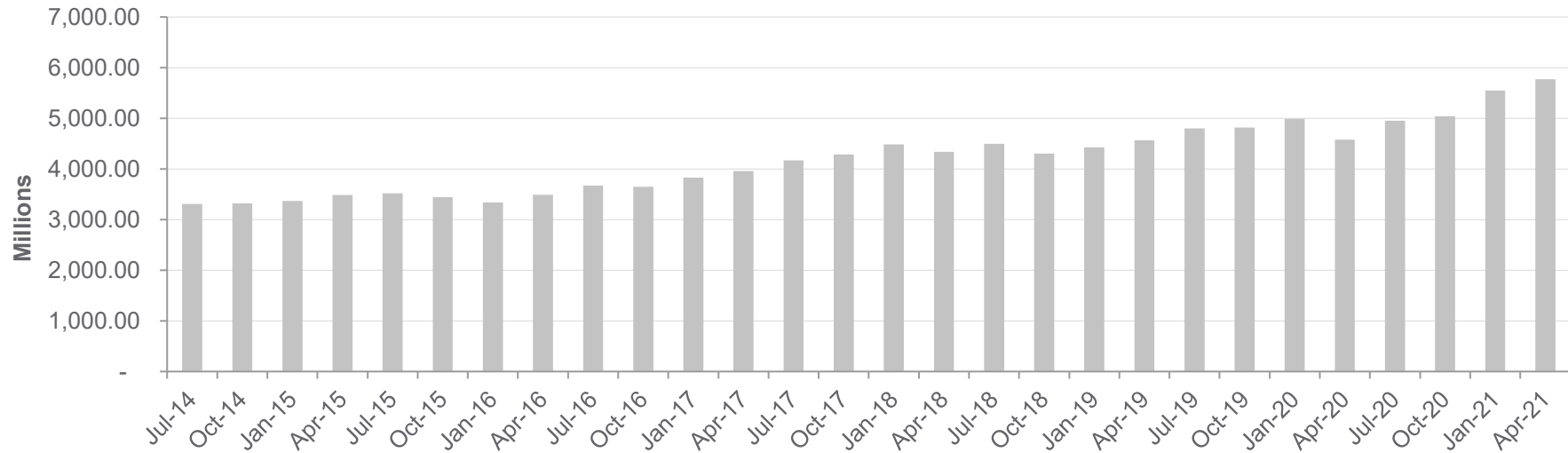
Composite Returns (NET)	Market Value (\$)	1 Mth.	3 Mth.	YTD	FYTD	1 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	ITD
San Mateo County Overlay	5,772,147,546	2.6	4.9	5.2	21.1	24.5	8.6	9.2	7.5	7.6	7.0
Samcera Total Plan Benchmark		2.0	5.6	5.3	19.4	22.3	9.0	9.7	7.8	8.0	7.4
Excess		0.6	-0.6	-0.1	1.7	2.3	-0.4	-0.5	-0.3	-0.4	-0.3



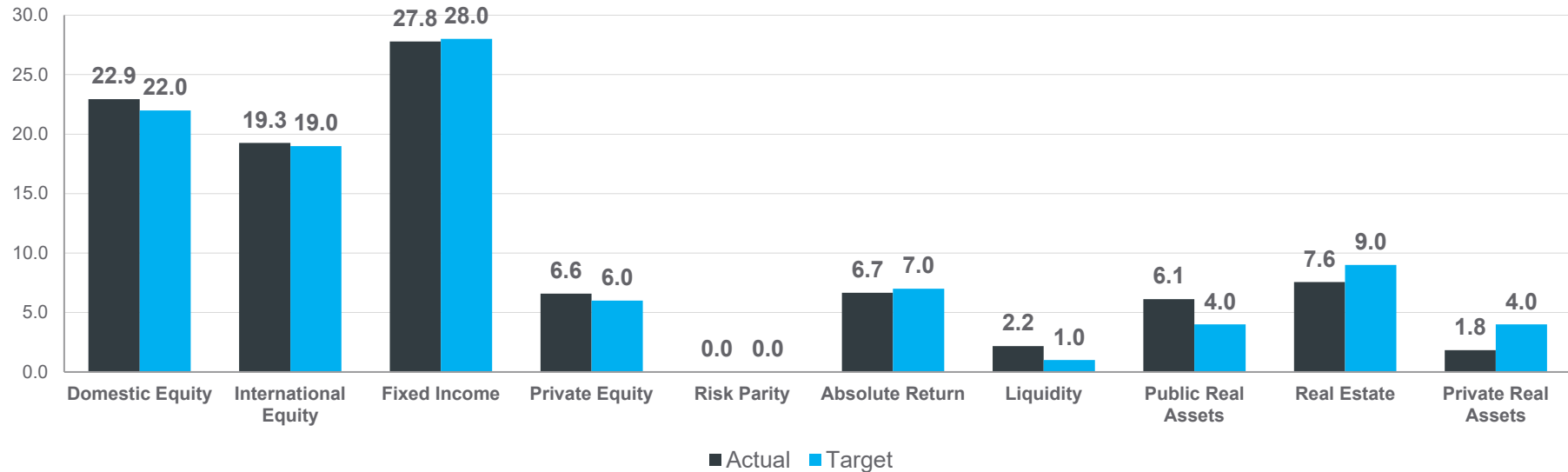
**Record of Asset Growth**

	Three Months	One Year
<b>TOTAL FUND</b>		
Beginning Market Value	5,550,459,240	4,578,378,139
Contributions	33,405,678	774,224,367
Withdrawals	-85,455,993	-797,067,349
Income Received	22,001,490	72,528,023
Gain/Loss	252,062,146	1,063,209,883
Ending Market Value	5,772,147,546	5,772,147,546

**Net Asset Values Over Time (\$000)**

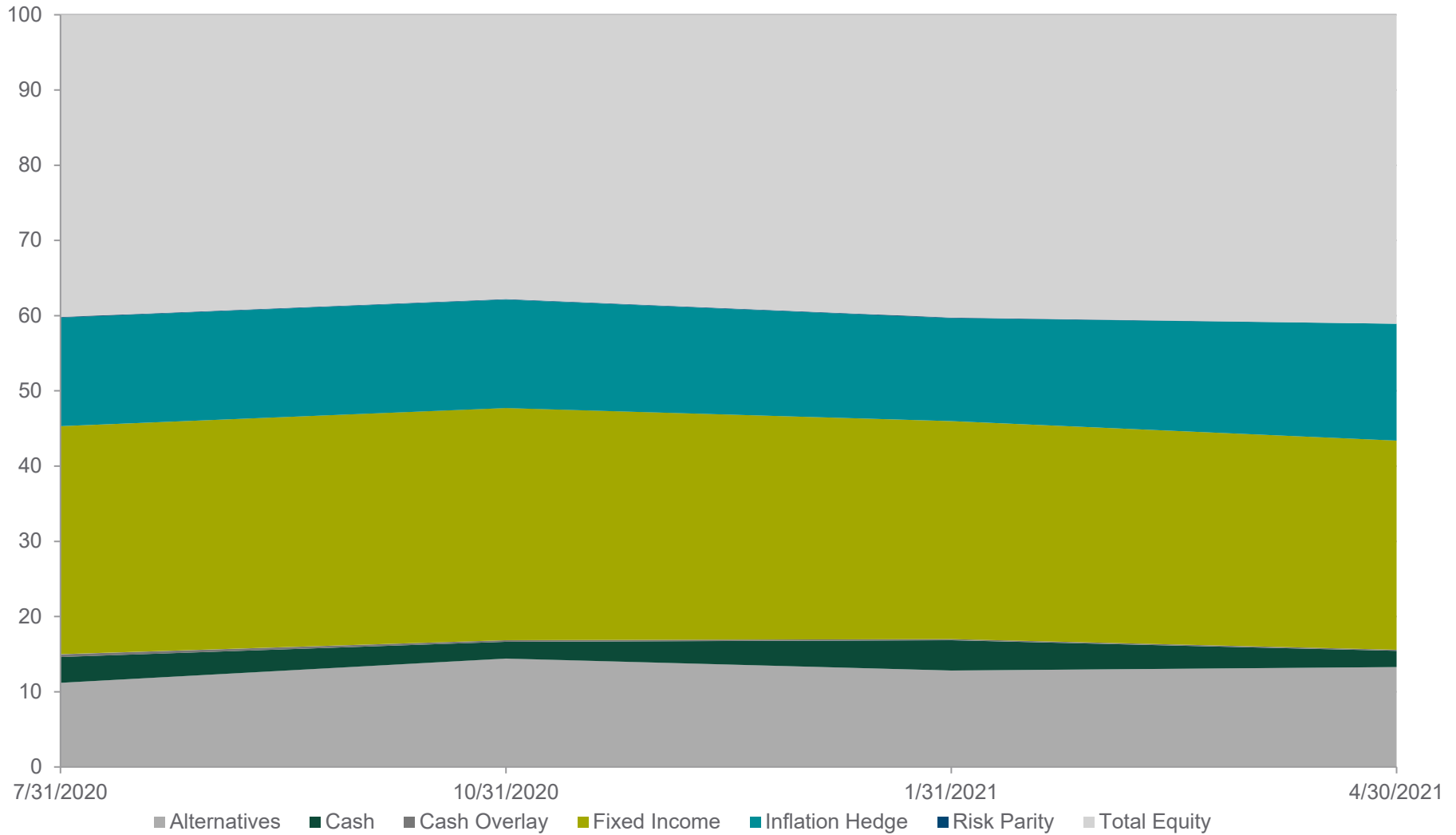


Actual vs Target Weights



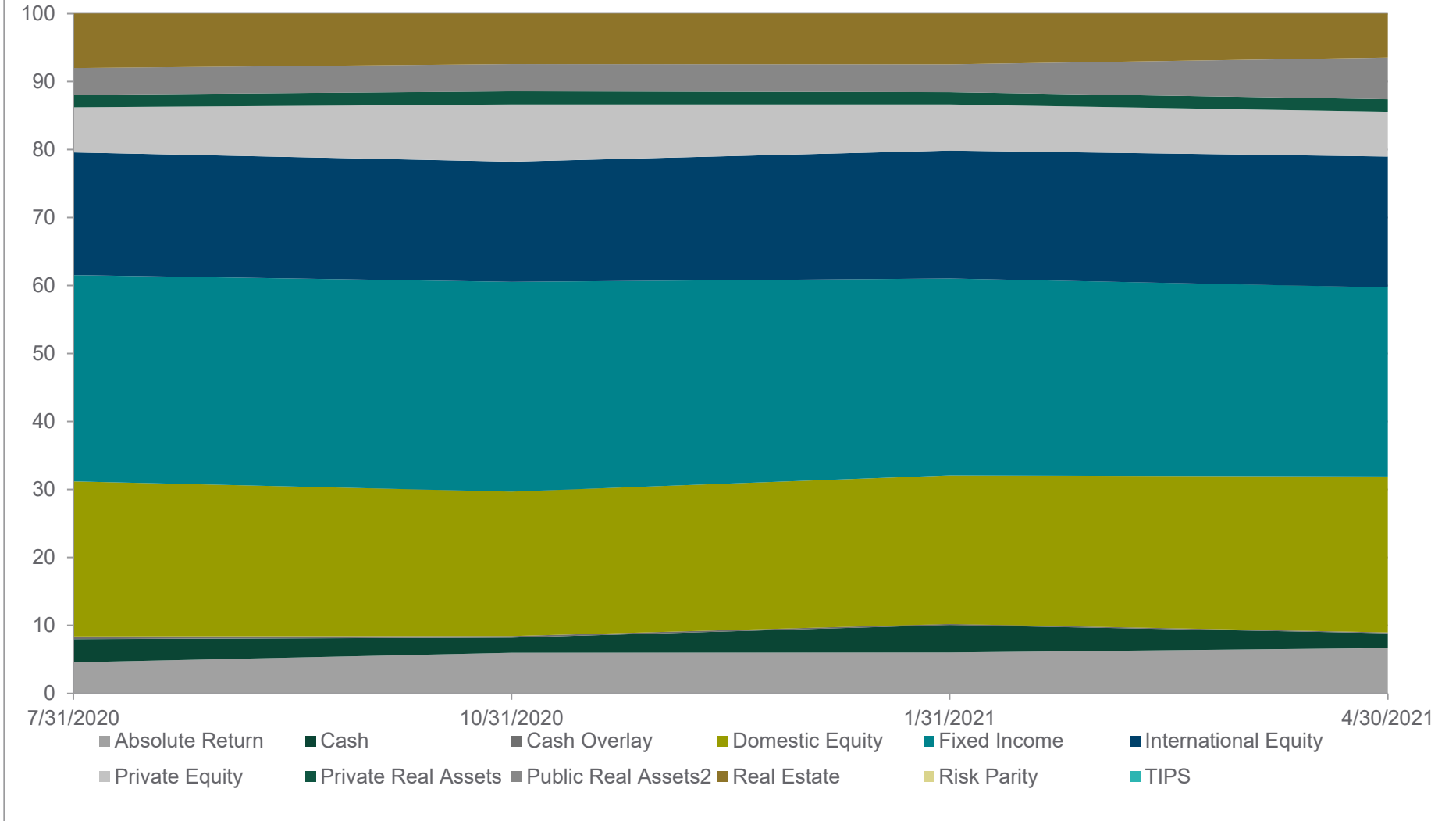
	Min	Actual	Target	Deviation	Max
Domestic Equity	20.0	22.9	22.0	0.9	24.0
International Equity	17.0	19.3	19.0	0.3	21.0
Fixed Income	26.0	27.8	28.0	-0.2	30.0
Private Equity	4.0	6.6	6.0	0.6	8.0
Risk Parity	0.0	0.0	0.0	0.0	0.0
Absolute Return	5.0	6.7	7.0	-0.3	9.0
Liquidity	0.0	2.2	1.0	1.2	2.0
Public Real Assets	2.0	6.1	4.0	2.1	6.0
Real Estate	7.0	7.6	9.0	-1.4	11.0
Private Real Assets	2.0	1.8	4.0	-2.2	6.0

Asset Allocation over Time





### Sub-Asset Class Allocation Over Time



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**PERSPECTIVES  
THAT DRIVE  
ENTERPRISE  
SUCCESS**

APRIL 2021  
Capital Markets Update

# Market commentary

## U.S. ECONOMICS

- U.S. GDP expanded at an annualized quarterly rate of 6.4% in Q1 (+0.4% YoY), the highest number since 2003 outside of the re-opening surge seen in Q3 2020. The inflation-adjusted value of domestically produced goods and services climbed to an annualized \$19.1 trillion close to the pre-pandemic peak of nearly \$19.3 trillion.
- The April jobs report was a disappointment against many economist forecasts, who on average were predicting upwards of one million jobs to be added to the Labor Department's non-farm payrolls. The print showed that only 266,000 jobs were added in April. Some analysts believe that enhanced unemployment benefits are keeping people from taking jobs on the margin. Additionally, 29% of unemployed Americans have now been out of work for at least a year.
- The unemployment rate worsened in April and ticked up to 6.1%, from 6.0% the month before, and roughly 8 million people who were employed before the pandemic have yet to recover their jobs. Fed officials have stated that the conversation around tightening financial conditions will not begin until substantial further progress has been made regarding labor market conditions.

## U.S. EQUITIES

- The S&P 500 Index returned +5.3% in April and hit an all-time high level of 4211 on the price index on the penultimate day of the month.
- Ten sectors are reporting year-over-year earnings growth, led by consumer discretionary, financial, and materials. The industrial sector is the only sector reporting a year-over-year decline in earnings.
- Following first quarter earnings analysts expect double-digit earnings growth for the remaining three quarters of 2021.

## U.S. FIXED INCOME

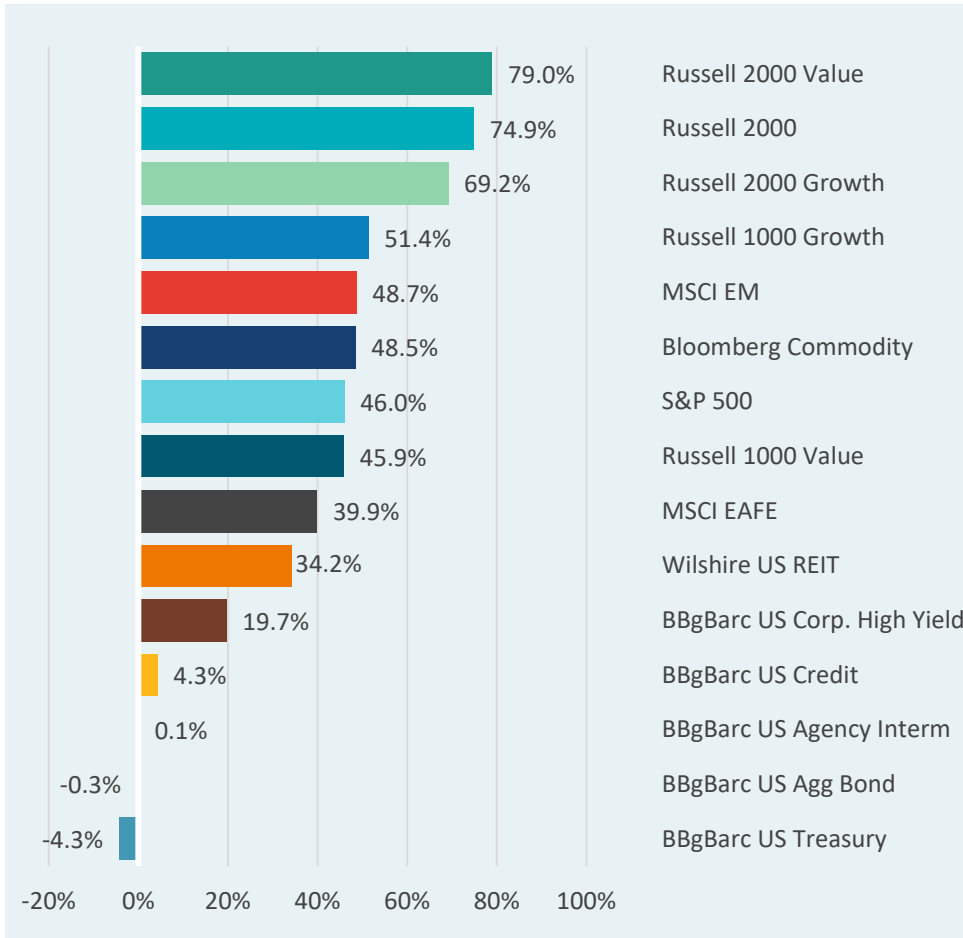
- At their April meeting the Federal Open Market Committee continued to hold the fed funds range steady at 0.00% - 0.25%. Federal Reserve Chair Jerome Powell reiterated that although their assessment of the U.S. economy is improving, they are not ready to scale back pandemic support.
- Median year-ahead inflation expectations in the U.S. increased 20 basis points to 3.4% in April, the highest level since September 2013. While concerns have mounted around the risk of price increases as the economy reopens, overall price increases have been moderate thus far, and Fed officials remain confident that a pickup in inflation is more likely to be transitory than persistent.
- The Bloomberg Barclays U.S. Treasury Long Index posted a +2.3% gain as the long end of yield curve ticked lower. The 30-year Treasury bond yield fell to 2.30% from 2.41% the month before.

## INTERNATIONAL MARKETS

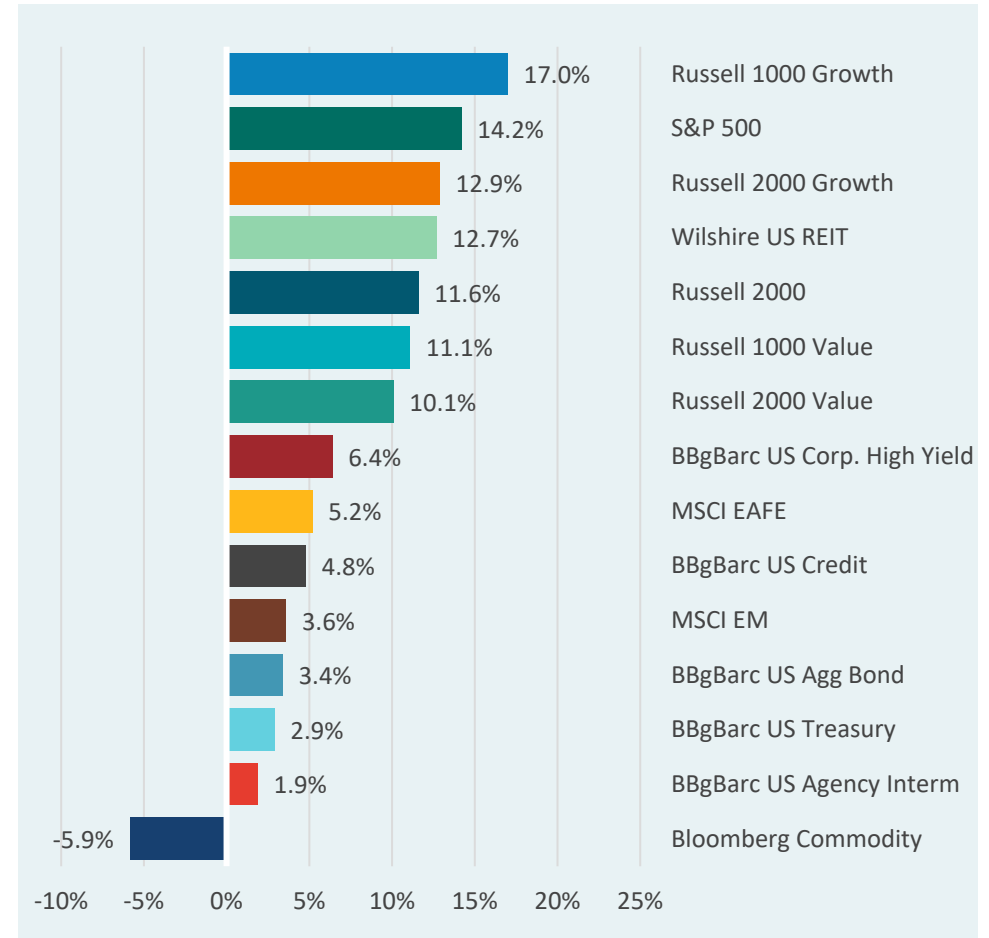
- Covid-19 case growth rose to record levels in India with the 7-day average of new cases increasing from 65k to 365k in April. Health experts worry that if the virus continues to spread at its current rate it could lead to more mutations of the virus.
- Emerging market equities (MSCI EM +2.5%) underperformed both U.S. equities (S&P 500 Index +5.3%) and international developed equities (MSCI EAFE Index 3.0%).
- India, which makes up almost 10% of the MSCI Emerging Markets Index, declined -2.3% in U.S. dollar terms over the month. Other large constituents including China (+0.3%) and South Korea (+0.9%) posted relatively subdued returns in April.

# Major asset class returns

ONE YEAR ENDING APRIL



TEN YEARS ENDING APRIL



\*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 4/30/21

Source: Morningstar, as of 4/30/21

# U.S. large cap equities

- The S&P 500 gained 5.3% in April, and all eleven major sectors advanced. The real estate (+8.3%), telecom (+7.9%), and consumer discretionary (+7.1%) sectors were the top performers while energy (+0.6%) was the worst-performing sector.
- Per FactSet, of the 60% of companies in the S&P 500 that have reported earnings, 86% have reported EPS above the mean estimate. This is well above the one- and five-year averages of 77% and 74% respectively. If 86% holds it will be the highest mark since FactSet starting tracking EPS surprise in 2008.
- The Cboe Implied Volatility Index, which represents the market's expectations for volatility over the coming 30 days, ticked below 16.3 in the middle of April the lowest the index has been since the onset of the global pandemic. The index closed the month at 18.6.
- An upbeat outlook for the global economy remains despite the worry that new Covid variants pose to the post-pandemic recovery. The forward one-year price-to-earnings of the S&P 500 remained at historic highs. For the month ended April the S&P 500 showed a 21.8 forward P/E well above the five-year average of 17.9.

## S&P 500 PRICE INDEX



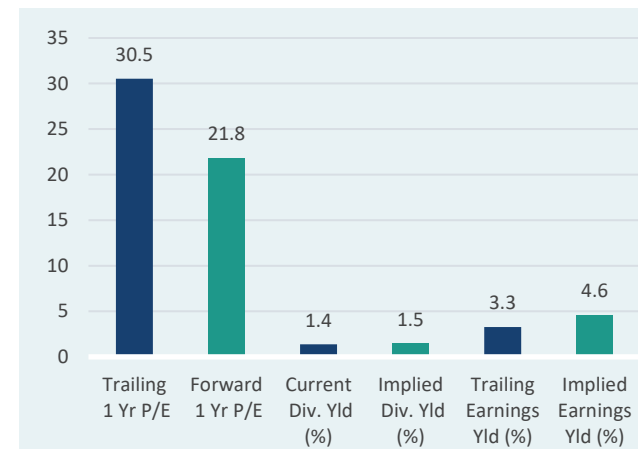
Source: Bloomberg, as of 4/30/21

## IMPLIED VOLATILITY (VIX INDEX)



Source: CBOE, as of 4/30/21

## S&P 500 VALUATION SNAPSHOT

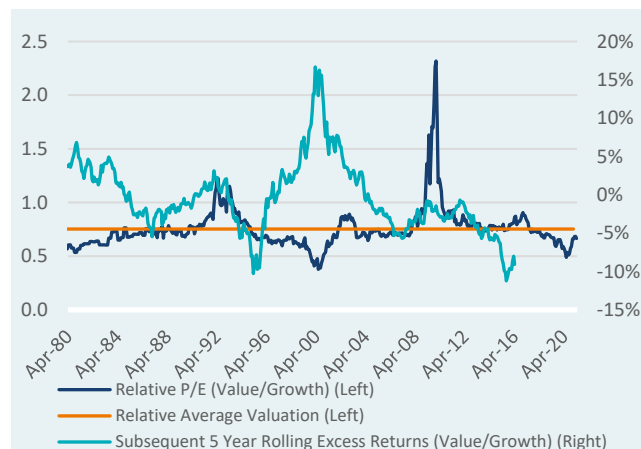


Source: Bloomberg, as of 4/30/21

# Domestic equity size and style

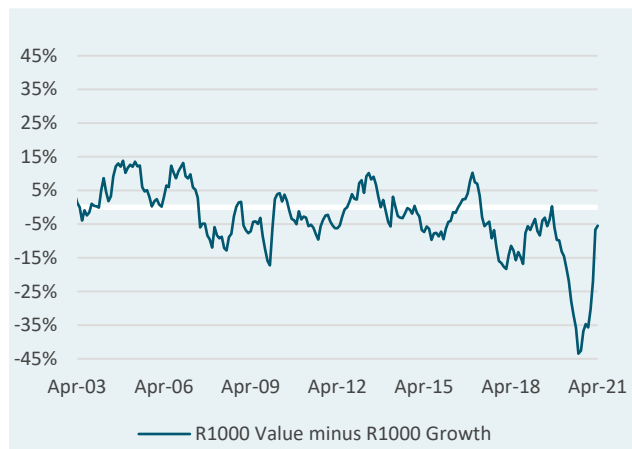
- Large-cap equities extended their recent outperformance over small-cap equities to two months. The Russell 1000 Index returned 5.4% while the Russell 2000 Index gained 2.1%. Year-to-date, small cap equities (+15.1%) have still outperformed their large-cap (+11.6%) counterparts.
- Large-cap equities' notable contributor was the information technology sector which returned 5.4% in the Russell 1000 Index compared to 0.7% in the Russell 2000 Index. The energy sector within the Russell 2000 Index was the only sector in the red with a decline of -3.2%; within the Russell 1000 it gained 0.9%.
- The Russell 3000 Growth Index advanced 6.5% while the Russell 3000 Value Index posted a 3.9% return. The outperformance seen by growth style stocks was largely attributed to its roughly 41% larger weight to the combined information technology and consumer discretionary sectors, as compared to the value index.
- The MSCI USA Cyclical Sectors Index (+6.1%) outperformed the MSCI Defensive Sectors Index (+3.4%) as stocks that are more economically sensitive followed the current economic expansionary cycle.

**VALUE VS. GROWTH RELATIVE VALUATIONS**



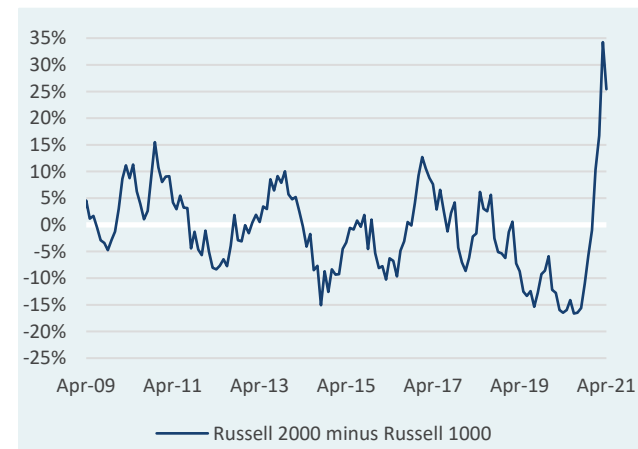
Source: FTSE, Bloomberg, as of 4/30/21

**VALUE VS. GROWTH 1-YR ROLLING RELATIVE PERFORMANCE**



Source: FTSE, Bloomberg, as of 4/30/21

**SMALL VS. LARGE 1-YR ROLLING RELATIVE PERFORMANCE**

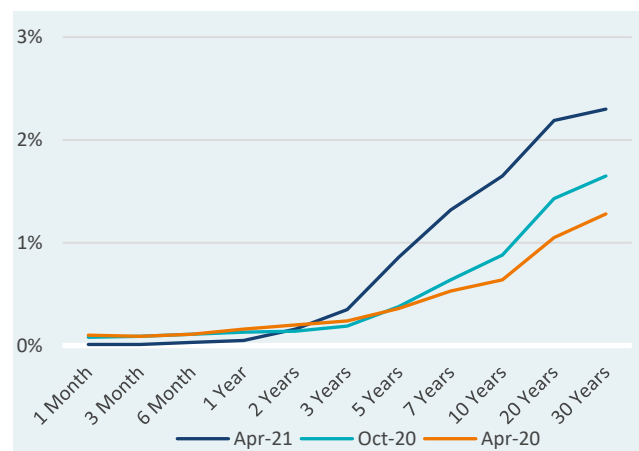


Source: FTSE, Bloomberg, as of 4/30/21

# Fixed income

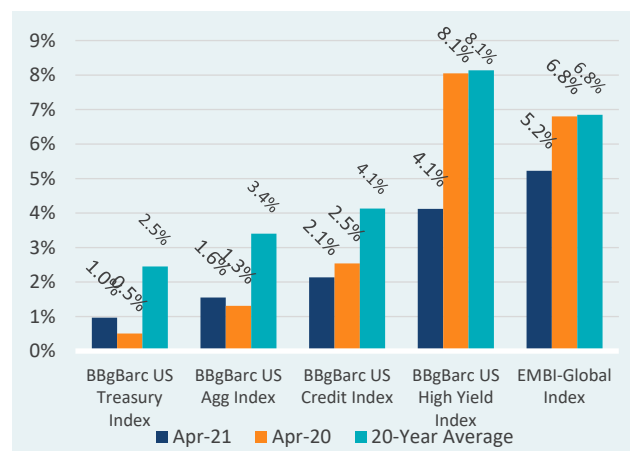
- The five-year breakeven inflation rate, measured as the difference between the five-year nominal Treasury bond yield and the five-year inflation protected Treasury bond yield, rose another five basis points to 2.57%, the highest level since July 2008.
- The Bank of England slowed its emergency bond-buying, a signal that it is on course to end the crisis support later this year. The U.K. has had good success with its vaccine program and is hoping that the removal of pandemic-era restrictions will help to sustain the strength of the economic recovery through 2021.
- The Bank of Canada became one of the first major central banks to signal a more hawkish stance as it announced that it may raise interest rates as early as next year and has already begun to taper the pace of bond purchases. Some economists believe this may be a signal for what other central banks might do in the second half of this year.
- Italy raised \$4.5 billion in its third issuance of U.S. dollar denominated bonds since July 2019. Italy has seen a sharp rise in borrowing needs as the coronavirus has slowed economic growth and its budget deficit has surged to a 20-year high.

**U.S. TREASURY YIELD CURVE**



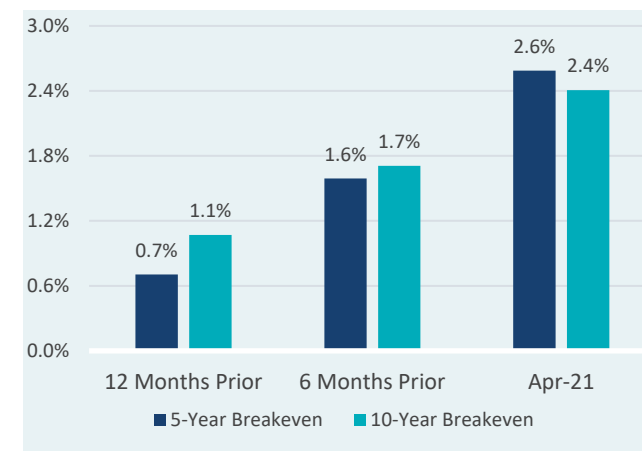
Source: Bloomberg, as of 4/30/21

**NOMINAL YIELDS**



Source: Morningstar, as of 4/30/21

**BREAKEVEN INFLATION RATES**



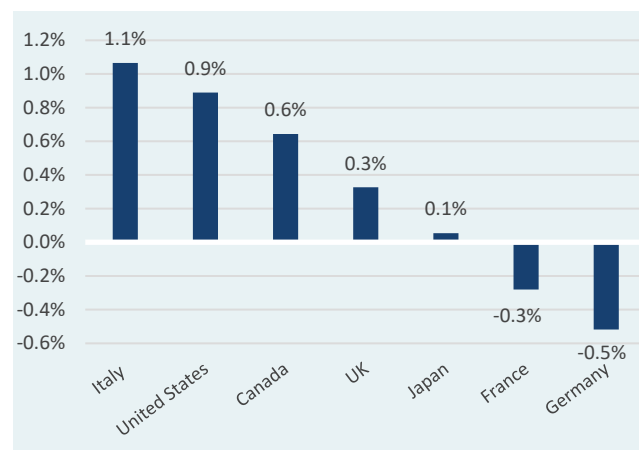
Source: Bloomberg, as of 4/30/21



# Global markets

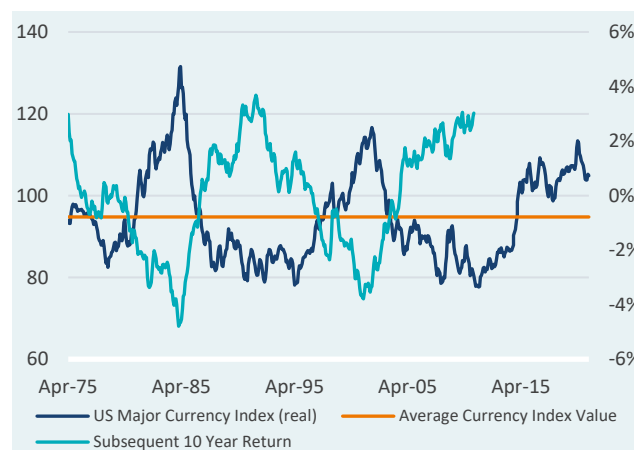
- All major global equity indices posted positive performance over the month, and the global equity benchmark, the MSCI ACWI Index, rose +4.4%. The Index was supported by strong performance in U.S. equities (S&P 500 +5.3%) where earnings season has brightened firms' balance sheets.
- The European Union real GDP fell -0.6% in Q1 on a quarterly annualized basis (-1.8% YoY), slipping into a technical recession after two consecutive quarters of decline. Despite this, economists are positive on hopes that an accelerated vaccination campaign can slow a third wave of Covid-19 infections.
- Japanese equities (MSCI Japan -1.5%) significantly underperformed other developed equities (MSCI EAFE +3.0%) in April as Japan extended its state of emergency to May 11th. Japan's vaccination rollout has been slower than many other developed nations due in part to logistical bottlenecks.
- Investors who hedged the US dollar in European equities (MSCI Europe Index +2.4%) lagged those who were unhedged (+4.5%). The Euro (+2.4%) appreciated relative to the dollar in a month in which the dollar reversed course and gave back most of the ground it had gained over the first three months of the year.

**GLOBAL SOVEREIGN 10-YEAR YIELDS**



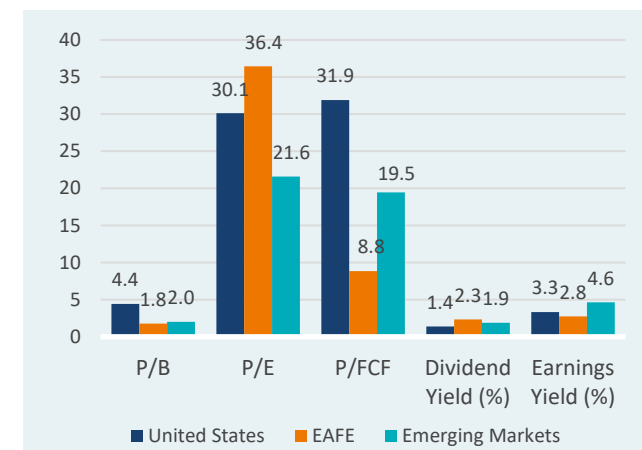
Source: Bloomberg, as of 4/30/21

**U.S. DOLLAR MAJOR CURRENCY INDEX**



Source: Federal Reserve, as of 4/30/21

**MSCI VALUATION METRICS (3-MONTH AVG)**



Source: Bloomberg, as of 4/30/21

# Commodities

- The Bloomberg Commodity Index rose 8.3% over the month ended April 30<sup>th</sup>. The largest-weighted component of the index, energy, was up +7.1%. The second largest sub-index, grains, carried the broad commodity index higher and surged +16.0%.
- The Bloomberg Grains Sub-Index advanced 16.0% due to increasing demand and a tight supply for corn and wheat. China’s expanding hog herd and the rest of the world’s cattle and chickens are eating feed grains faster than farmers can grow them. Droughts in Brazil continue to threaten crop yields which may further weigh on supply.

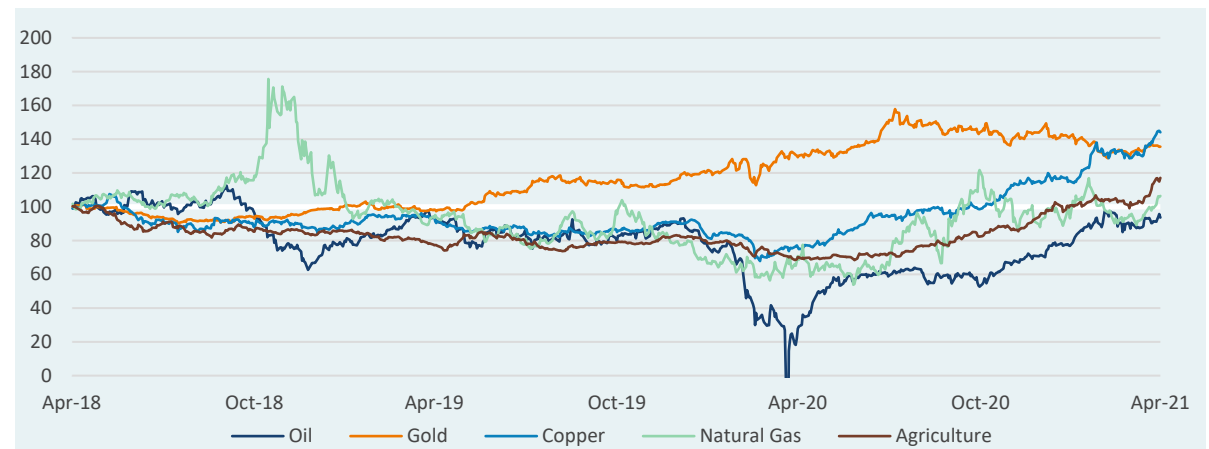
- In April, the Bloomberg Industrial Metals Sub-Index was up +8.8%. Broad strength from Copper (+11.8%), Nickel (+10.0%) and Aluminum (+8.4%) helped the Industrial Metals Sub-Index higher.
- A surge in demand for lumber sent prices higher in April. The U.S. Lumber Random Length Composite – a commonly-used bellwether for lumber prices – saw a +13.1% increase. Shortages of existing homes available for sale is leading to new construction at a massive level. About 25% of homes for sale are now newly built, compared to the historical average where only 10% of homes were new construction.

## INDEX AND SECTOR PERFORMANCE

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Bloomberg Commodity	8.3	8.3	15.8	48.5	1.6	2.3	(5.9)
Bloomberg Agriculture	14.0	14.0	21.8	66.9	7.2	1.6	(4.0)
Bloomberg Energy	7.1	7.1	25.6	52.4	(13.1)	(5.4)	(14.7)
Bloomberg Grains	16.0	16.0	25.6	71.7	8.3	1.5	(3.6)
Bloomberg Industrial Metals	8.8	8.8	17.0	63.1	6.5	10.6	(2.0)
Bloomberg Livestock	(1.5)	(1.5)	8.8	22.2	(5.2)	(4.6)	(4.4)
Bloomberg Petroleum	6.9	6.9	31.3	130.9	(8.9)	0.1	(10.3)
Bloomberg Precious Metals	3.6	3.6	(6.0)	12.7	9.9	5.3	(1.7)
Bloomberg Softs	12.4	12.4	10.8	42.2	1.1	(2.5)	(8.9)

Source: Morningstar, as of 4/30/21

## COMMODITY PERFORMANCE



Source: Bloomberg, as of 4/30/21

# Appendix

# Periodic table of returns

BEST

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	YTD	5-Year	10-Year
Small Cap Value	66.4	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	23.6	22.9	17.0
Commodities	43.1	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	15.8	18.9	14.2
Large Cap Value	33.2	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	15.7	17.8	12.9
Small Cap Equity	27.3	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	15.1	16.5	11.6
Large Cap Equity	26.5	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	11.6	13.5	11.1
Large Cap Growth	21.3	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	7.8	12.5	10.1
Small Cap Growth	24.3	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	7.2	12.2	8.8
International Equity	20.9	-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	6.6	9.5	6.5
Emerging Markets Equity	13.2	-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	4.8	8.9	5.2
Hedge Funds of Funds	11.4	-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	4.2	6.0	3.6
60/40 Global Portfolio	7.3	-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	4.2	5.8	3.5
Real Estate	4.8	-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	1.6	1.7	3.2	3.4
Cash	-0.8	-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	0.0	2.3	0.6
US Bonds	-1.5	-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	-2.6	1.1	-5.9

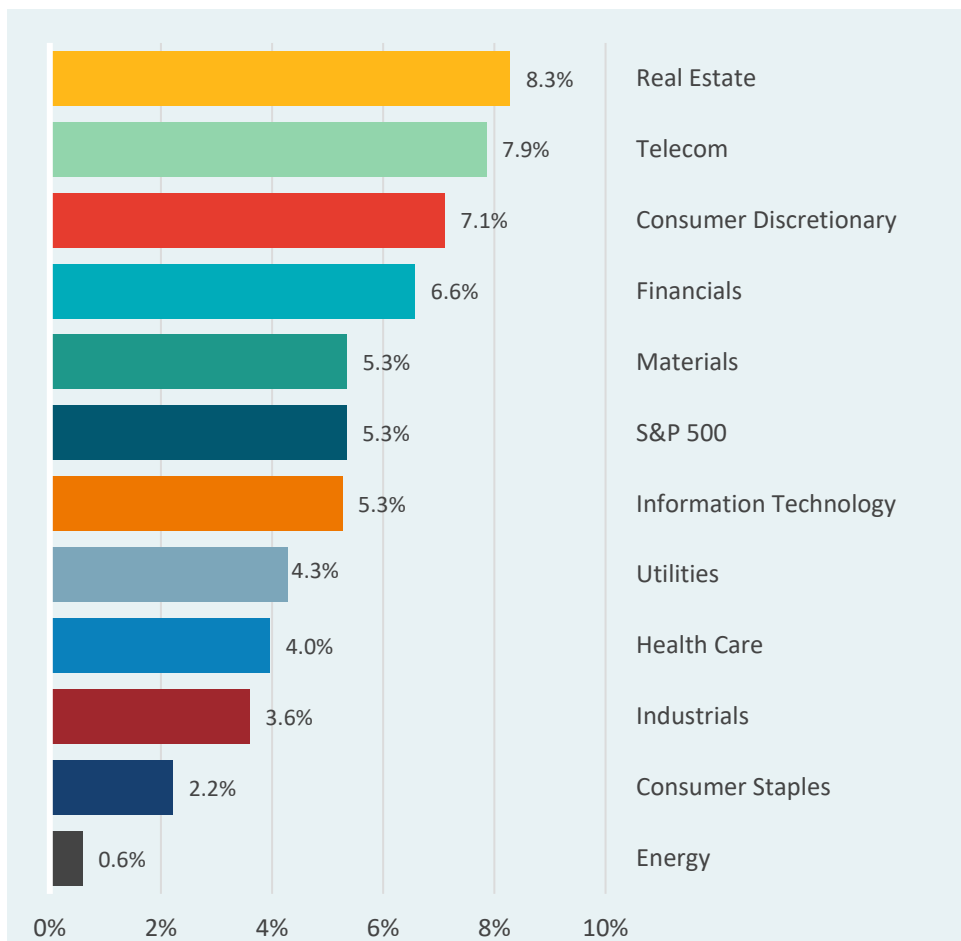
WORST



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, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 3/31/21.

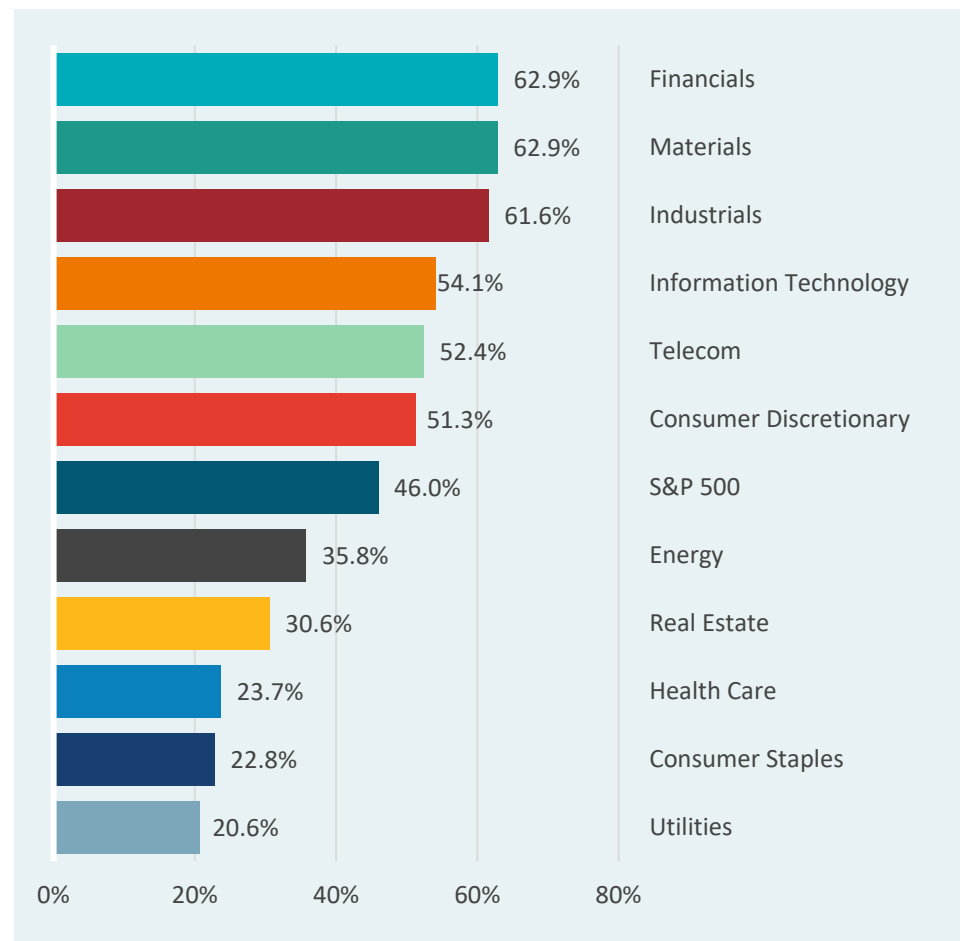
# S&P 500 sector returns

QTD



Source: Morningstar, as of 4/30/21

ONE YEAR ENDING APRIL



Source: Morningstar, as of 4/30/21

# Detailed index returns

## DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Core Index</b>							
S&P 500	5.3	5.3	11.8	46.0	18.7	17.4	14.2
S&P 500 Equal Weighted	4.7	4.7	16.8	57.1	16.5	15.5	13.3
DJ Industrial Average	2.8	2.8	11.3	42.1	14.5	16.5	12.9
Russell Top 200	5.5	5.5	10.9	46.1	20.2	18.6	14.8
Russell 1000	5.4	5.4	11.6	49.5	19.2	17.8	14.2
Russell 2000	2.1	2.1	15.1	74.9	15.2	16.5	11.6
Russell 3000	5.2	5.2	11.8	50.9	18.9	17.7	14.0
Russell Mid Cap	5.1	5.1	13.7	59.6	16.7	15.6	12.7
<b>Style Index</b>							
Russell 1000 Growth	6.8	6.8	7.8	51.4	25.4	22.9	17.0
Russell 1000 Value	4.0	4.0	15.7	45.9	12.3	12.2	11.1
Russell 2000 Growth	2.2	2.2	7.2	69.2	18.0	18.9	12.9
Russell 2000 Value	2.0	2.0	23.6	79.0	11.7	13.5	10.1

## INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Broad Index</b>							
MSCI ACWI	4.4	4.4	9.1	45.7	13.3	13.9	9.2
MSCI ACWI ex US	2.9	2.9	6.5	43.0	7.0	9.8	4.7
MSCI EAFE	3.0	3.0	6.6	39.9	6.3	8.9	5.2
MSCI EM	2.5	2.5	4.8	48.7	7.5	12.5	3.6
MSCI EAFE Small Cap	4.0	4.0	8.7	52.6	7.2	10.9	7.9
<b>Style Index</b>							
MSCI EAFE Growth	4.2	4.2	3.6	38.3	10.8	11.3	7.0
MSCI EAFE Value	1.9	1.9	9.5	40.9	1.5	6.2	3.3
<b>Regional Index</b>							
MSCI UK	4.4	4.4	10.8	32.6	0.8	4.5	3.0
MSCI Japan	(1.5)	(1.5)	0.0	30.6	5.5	9.1	7.0
MSCI Europe	4.5	4.5	8.8	43.1	6.3	8.6	4.7
MSCI EM Asia	2.4	2.4	4.6	50.2	10.3	15.3	6.5
MSCI EM Latin American	3.7	3.7	(1.8)	46.4	(4.5)	3.6	(3.8)

## FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Broad Index</b>							
BBgBarc US TIPS	1.4	1.4	(0.1)	6.1	6.2	4.1	3.3
BBgBarc US Treasury Bills	0.0	0.0	0.0	0.1	1.5	1.2	0.7
BBgBarc US Agg Bond	0.8	0.8	(2.6)	(0.3)	5.2	3.2	3.4
BBgBarc US Universal	0.8	0.8	(2.2)	1.8	5.4	3.6	3.7
<b>Duration</b>							
BBgBarc US Treasury 1-3 Yr	0.0	0.0	(0.0)	0.2	2.9	1.7	1.3
BBgBarc US Treasury Long	2.3	2.3	(11.5)	(15.6)	7.4	3.7	6.4
BBgBarc US Treasury	0.7	0.7	(3.5)	(4.3)	4.6	2.4	2.9
<b>Issuer</b>							
BBgBarc US MBS	0.6	0.6	(0.6)	(0.2)	4.1	2.5	2.8
BBgBarc US Corp. High Yield	1.1	1.1	1.9	19.7	7.0	7.5	6.4
BBgBarc US Agency Interim	0.3	0.3	(0.7)	0.1	3.4	2.0	1.9
BBgBarc US Credit	1.1	1.1	(3.4)	4.3	6.6	4.6	4.8

## OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Index</b>							
Bloomberg Commodity	8.3	8.3	15.8	48.5	1.6	2.3	(5.9)
Wilshire US REIT	8.0	8.0	17.5	34.2	11.4	5.7	12.7
CS Leveraged Loans	0.1	0.1	2.0	20.8	4.1	4.6	5.0
Alerian MLP	7.1	7.1	30.7	44.6	(4.2)	(3.0)	(0.4)
<b>Regional Index</b>							
JPM EMBI Global Div	2.2	2.2	(2.4)	16.0	5.3	5.1	5.7
JPM GBI-EM Global Div	2.3	2.3	(4.6)	11.2	1.0	3.0	0.3
<b>Hedge Funds</b>							
HFRI Composite	2.7	2.7	8.7	31.5	8.4	7.8	4.7
HFRI FOF Composite	2.3	2.3	4.2	22.5	6.2	6.0	3.5
<b>Currency (Spot)</b>							
Euro	2.4	2.4	(1.6)	9.9	(0.1)	1.0	(2.1)
Pound Sterling	0.4	0.4	1.3	9.8	0.2	(1.1)	(1.8)
Yen	1.1	1.1	(5.5)	(2.2)	0.0	(0.4)	(2.9)

Source: Morningstar, HFRI, as of 4/30/21

# 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	12.3	12.2	10.4	11.9
Global Private Equity Direct Funds *	20.4	16.2	14.8	14.6
U.S. Private Equity Direct Funds *	21.0	17.6	15.0	16.0
Europe Private Equity Direct Funds *	18.6	14.2	16.3	12.7
Asia Private Equity Direct Funds *	19.9	14.3	13.8	13.3

Public Index Time-weighted Returns				
MSCI World	10.4	7.7	10.5	9.4
S&P 500	15.1	12.3	14.1	13.7
MSCI Europe	(0.8)	(0.6)	4.2	4.3
MSCI AC Asia Pacific	11.2	4.3	9.1	5.6

Private Real Estate Pooled IRRs	1 Year	3 Year	5 Year	10 Year
U.S. All Private Real Estate	0.5	6.6	7.9	12.2

Public Index Time-weighted Returns				
FTSE NAREIT Equity REIT	(18.2)	0.2	3.9	7.9

Private Credit Pooled IRRs	1 Year	3 Year	5 Year	10 Year
U.S. All Private Debt **	3.7	6.4	8.2	10.2

Public Index Time-weighted Returns				
S&P / LSTA U.S. Leveraged Loan 100 Index	1.7	3.4	4.1	4.1

Private Real Assets Pooled IRRs	1 Year	3 Year	5 Year	10 Year
Global Nature Resources ***	(20.2)	(7.5)	(2.8)	(0.0)
Global Infrastructure	6.6	8.5	10.7	9.6

Public Index Time-weighted Returns				
S&P Global Natural Resources	(9.5)	(2.8)	6.7	0.2
S&P Global Infrastructure	(13.9)	(1.4)	4.5	5.5

Source: Pooled IRRs are from Thompson Reuters C/A and Time-weighted Returns are from Investment Metrics, as of September 30<sup>th</sup>, 2020. 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 EMPLOYEES' RETIREMENT ASSOCIATION**  
**Board of Retirement**

May 25, 2021

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 March 31, 2021

**Recommendation**

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

**Discussion**

The SamCERA net 1st quarter total return was +2.6%, which was 100 bps lower than the +3.6% policy benchmark return. As can be seen on Page 20 and 21, alternatives were the main detractor to performance, while fixed income was the main contributor.

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

**Attachment**

Verus Quarterly Performance Report Ending March 31, 2021



**PERSPECTIVES  
THAT DRIVE  
ENTERPRISE  
SUCCESS**



**PERIOD ENDING: MARCH 31, 2021**

Investment Performance Review for

**San Mateo County Employees' Retirement Association**

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Market Environment

TAB I

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Alternatives

TAB VI

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Total Fund

TAB II

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Inflation Hedge

TAB VII

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US Equity

TAB III

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Appendix

TAB VIII

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International Equity

TAB IV

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Fixed Income

TAB V

# 1<sup>st</sup> quarter summary

## THE ECONOMIC CLIMATE

- Real GDP grew at a -2.4% rate year-over-year in the fourth quarter (+4.3% quarterly annualized rate) as the U.S. economic recovery continued at a brisk pace.
- The speed of vaccinations in the U.S. has exceeded expectations, reaching more than 3 million doses per day during the first week of April. Approximately 23% of the country have been fully vaccinated, and 37% have received a first dose.
- The Europe Union has been slower to roll out vaccinations, suggesting member countries may be grappling with the virus for longer periods of time.

## PORTFOLIO IMPACTS

- We believe the U.S. economy is playing catch-up to the markets in the current environment. While it seems increasingly likely that the economy will rapidly come back to life over the next year, this optimism may already be baked into equity prices.
- U.S. core inflation remained low and stable, at 1.6% year-over-year in March. A jump in gasoline prices, along with base effects from the 2020 recession, pushed up headline inflation to 2.6%. It appears likely that inflation will continue to see a temporary rise in the coming months due to the lower prices of Q2 2020, since inflation is a year-over-year measure.

## THE INVESTMENT CLIMATE

- President Biden announced his \$2 trillion Infrastructure Plan. In its initial form, the plan did not have bipartisan support, reportedly due to the lower proportion of the plan that related to traditional infrastructure spending, the size of the plan, and the proposed methods to fund it. Negotiations will commence in late-April, though it remains possible that the bill is modified in order to pass it via the “reconciliation” process, to avoid the need for Republican support.
- According to FactSet, S&P 500 earnings expectations for 2021 improved by 5.0% during the quarter. Analysts are now forecasting 25.4% earnings growth for 2021—an incredible recovery from the -11.2% earnings drop expected of 2020.

## ASSET ALLOCATION ISSUES

- U.S. equities were a top performer in Q1, returning +6.2%. International equities returned +3.5% (MSCI EAFE Index) and emerging markets returned +2.3% (MSCI Emerging Markets Index), on an unhedged currency basis.
- Size and value factors both delivered strong relative performance. U.S. value stocks beat growth stocks (Russell 1000 Value +11.3%, Russell 1000 Growth +0.9%), as growth stocks entered a correction in February. Small capitalization stocks continued their rally (Russell 2000 +12.7%, Russell 1000 +5.9%).

Prospects for a strong economic rebound are compelling, though this good news may already be reflected in asset prices

We believe a neutral risk stance is warranted in the current environment

# U.S. economics summary

- Real GDP grew at a -2.4% rate year-over-year in the fourth quarter (+4.3% quarterly annualized rate) as the U.S. economic recovery continued. The Atlanta Fed’s GDPNow forecast for 2021 Q1 growth was 6.0% on a quarter-over-quarter annualized basis as of April 9th, suggesting an even more robust pace than the prior quarter.
- The speed of vaccinations in the U.S. has exceeded expectations, reaching 3 million doses per day. Approximately 23% of the country have been fully vaccinated, and 37% have received a first dose.
- President Biden announced his \$2 trillion Infrastructure Plan. In its initial form, the bill would spend \$400b on expanded care for the elderly and disabled, spend \$500b on electric vehicle subsidies and incentives, and spend \$100B on national high-speed broadband internet access, with a smaller portion of the spending going towards traditional infrastructure such as power grid, railway, and public transit.
- U.S. core inflation remained low and stable, at 1.6% year-over-year in March. A jump in gasoline prices, along with base effects from the 2020 recession, pushed up headline inflation to 2.6%. It appears likely that inflation will continue to see a temporary rise in the coming months due to the lower prices of Q2 2020, since inflation is a year-over-year measure.
- While the U.S. unemployment rate continues to improve, falling from 6.7% to 6.0% during the quarter, the overall labor participation rate has stagnated. A disconnect seems to exist between the strong economy and weaker labor market.
- Consumer sentiment improved during Q1, along with the economic recovery. Sentiment is now at an average level relative to history.

	Most Recent	12 Months Prior
GDP (YoY)	(2.4%) 12/31/20	2.3% 12/31/19
Inflation (CPI YoY, Core)	1.6% 3/31/21	2.1% 3/31/20
Expected Inflation (5yr-5yr forward)	2.20% 3/31/21	1.25% 3/31/20
Fed Funds Target Range	0% – 0.25% 3/31/21	0% – 0.25% 3/31/20
10-Year Rate	1.74% 3/31/21	0.67% 3/31/20
U-3 Unemployment	6.0% 3/31/21	4.4% 3/31/20
U-6 Unemployment	10.7% 3/31/21	8.8% 3/31/20

# International economics summary

- Economic growth continued to recover during the fourth quarter, though was still negative on a year-over-year basis in many countries. Growth expectations have risen as successful vaccine rollouts suggest that the world may get back to normal more quickly than originally assumed.
- Europe may unfortunately be excluded from this optimism, as a renewed wave of COVID-19 has once again led to lockdowns and restrictions. The Europe Union has been slower to rollout vaccinations, suggesting member countries may be grappling with the virus for longer periods of time.
- Unemployment was stable in the Eurozone and Japan, and fell modestly in the United States. As we described in prior quarters, governments have taken very different approaches to supporting workers, which makes labor market comparisons difficult.
- Despite heightened discussions about inflation risk, inflation remains muted and stable around the world, though the rebound in energy prices from record-low levels last year is having a lifting impact. This influence, driven by base effects, will most likely persist for the next few months.
- The gap between the manufacturing and services sectors of the economy narrowed toward the end of the quarter, as the beaten-down services sector showed signs of life across Europe. Extended periods of service sector activity expansion will likely depend on manageable levels of case growth and relaxed social distancing controls.
- Vaccine campaigns across mainland Europe as well as Japan have materially lagged those of the U.S. and the U.K., and the indefinite suspension of the AstraZeneca vaccine in many countries is likely to widen the gap in the short-term.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	(2.4%) 12/31/20	2.6% 3/31/21	6.0% 3/31/21
Eurozone	(4.9%) 12/31/20	1.3% 3/31/21	8.3% 2/28/21
Japan	(1.4%) 12/31/20	(0.2%) 3/31/21	2.8% 2/28/21
BRICS Nations	1.6% 12/31/20	1.4% 3/31/21	5.7% 12/31/20
Brazil	(4.1%) 12/31/20	6.1% 3/31/21	14.2% 1/31/21
Russia	(3.0%) 12/31/20	5.8% 3/31/21	5.4% 3/31/21
India	0.4% 12/31/20	5.5% 3/31/21	6.5% 3/31/21
China	18.3% 3/31/21	0.4% 3/31/21	4.2% 12/31/20

*NOTE: India lacks reliable government unemployment data. Unemployment rate shown above is estimated from the Centre for Monitoring Indian Economy*

# Equity environment

- U.S. equities were a top performer in Q1, delivering +6.2%. International equities delivered +3.5% (MSCI EAFE Index) and emerging markets delivered +2.3% (MSCI Emerging Markets Index), on an unhedged currency basis. Trailing one-year returns hit extremely high levels, reflecting low base effects (markets bottomed out during March of 2020), and a recovery from those depressed levels year-over-year.
- We believe the U.S. economy is playing catch-up to the markets in the current environment. While it seems increasingly likely that the economy will rapidly recover over the next year, this optimism may already be baked into equity prices. It is reasonable to be enthusiastic about U.S. economic prospects while also being cautious about lofty equity valuations.
- According to FactSet, S&P 500 earnings expectations for 2021 improved by 5.0% during the

quarter. Analysts are now forecasting 25.4% earnings growth for 2021—an incredible recovery from the -11.2% earnings drop expected of 2020.

- The Cboe VIX Index has slowly been falling back towards the longer-term average of 19. The index fluctuated in the low 20s during Q1, falling below 19 briefly in late March.
- The U.S. dollar stabilized in the first quarter, paring some of the losses accrued in the final three quarters of last year. Rising relative yields helped the dollar to appreciate materially relative to the euro, yen, and a broad basket of emerging market currencies.
- A rotation towards value stocks persisted during the quarter, as beaten-down sectors delivered outsized performance. Energy, financials, industrials, and materials were the strongest performers.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (S&P 500)	6.2%		56.4%	
US Small Cap (Russell 2000)	12.7%		94.8%	
US Large Value (Russell 1000 Value)	11.3%		56.1%	
US Large Growth (Russell 1000 Growth)	0.9%		62.7%	
International Large (MSCI EAFE)	3.5%	7.6%	44.6%	37.7%
Eurozone (Euro Stoxx 50)	6.3%	10.6%	53.7%	45.3%
U.K. (FTSE 100)	5.9%	5.0%	35.6%	22.5%
Japan (NIKKEI 225)	(0.2%)	7.0%	52.6%	57.4%
Emerging Markets (MSCI Emerging Markets)	2.3%	3.7%	58.4%	52.2%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 3/31/21

# Domestic equity

U.S. equities moved higher in Q1, returning +6.2%. According to FactSet, S&P 500 earnings expectations for 2021 improved by 5.0% during the quarter. Analysts are now forecasting 25.4% earnings growth for 2021—an incredible recovery from the -11.2% earnings drop expected of 2020.

Equities continued upward and valuations have followed. The U.S. market has been a top performer but has also remained one of the most expensive markets. On the other hand, successful COVID-19 vaccine rollouts, rosy earnings expectations, and the potential for an impressive economic

reopening may be supportive of high prices. This reopening appears to be fueling a rotation towards traditional cyclical sectors, such as energy, financials, and industrials.

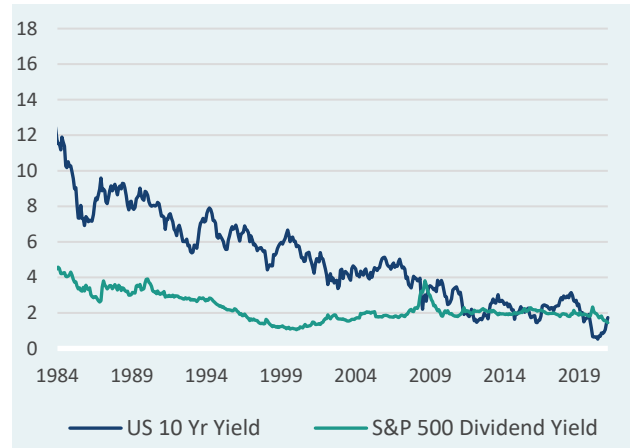
As markets move higher, it appears to us that the economy may be playing catch-up to the markets. While it seems increasingly likely that the economy will rapidly recover during the next year, this optimism may already be reflected in equity prices. In other words, it is reasonable to be enthusiastic about U.S. economic prospects while also being cautious about higher equity valuations.

## S&P 500 INDEX



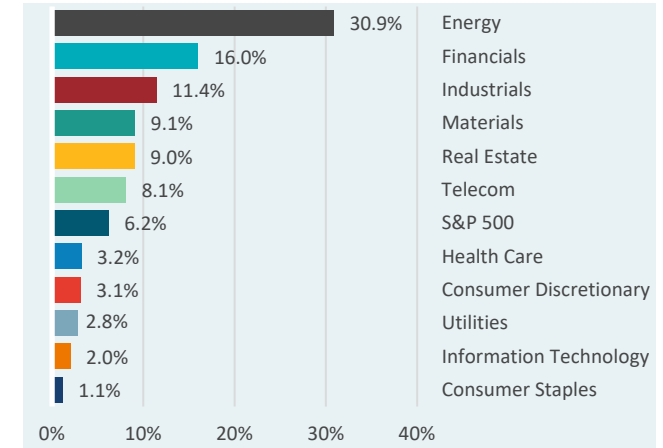
Source: Standard & Poor's, as of 3/31/21

## DIVIDEND YIELD VS BOND YIELD



Source: Standard & Poor's, as of 3/31/21

## Q1 SECTOR PERFORMANCE



Source: Standard & Poor's, as of 3/31/21



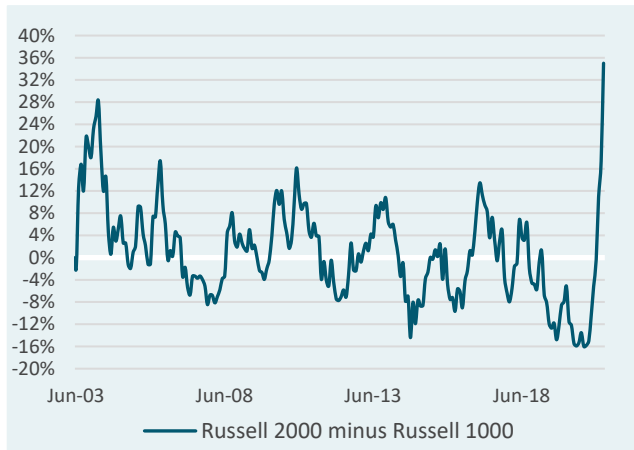
# Domestic equity size & style

Factor performance surged during the quarter, as small capitalization and value stocks delivered strong relative returns. U.S. value stocks beat growth stocks by a wide margin (Russell 1000 Value +11.3%, Russell 1000 Growth +0.9%), as growth entered a correction in February and value marched higher. Small cap stocks continued their surprisingly strong rally, outperforming growth (Russell 2000 +12.7%, Russell 1000 +5.9%).

A rotation towards value occurred as beaten-down sectors such as energy, financials, and materials delivered outsized performance—sectors which tend to possess a heavier concentration of value stocks. Companies which benefited from the pandemic due to a shift in household habits may see a further reversal of that windfall as households begin to go back to normal life. Additionally, value stocks typically exhibit strength during economic recoveries. These dynamics of growth and value may suggest further value factor strength, though factor trends are noisy and extremely difficult to predict.

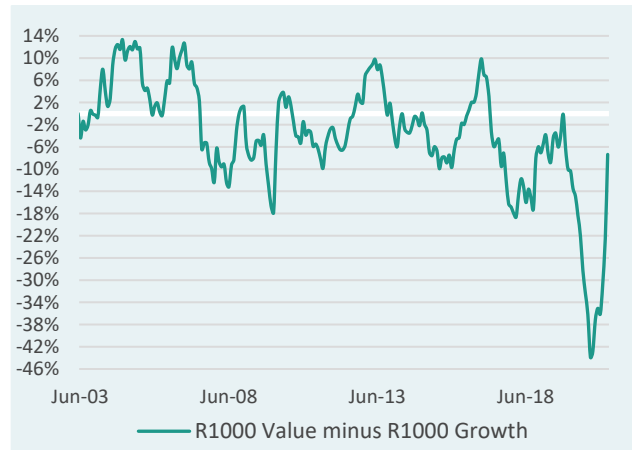
Small cap and value stocks delivered strong relative performance during Q1

SMALL CAP VS LARGE CAP (YOY)



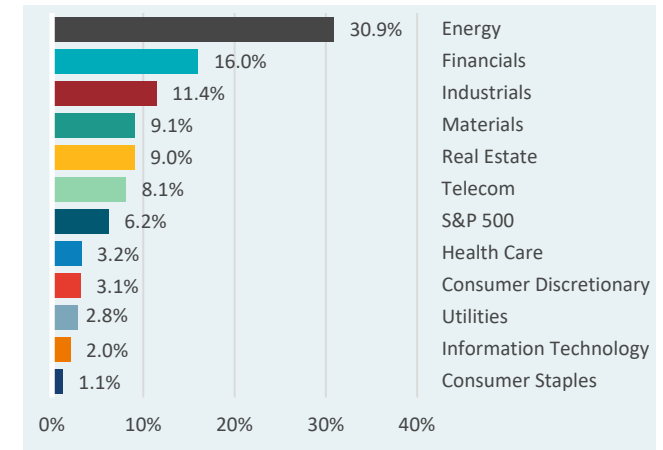
Source: FTSE, as of 3/31/21

VALUE VS GROWTH (YOY)



Source: FTSE, as of 3/31/21

Q1 SECTOR PERFORMANCE



Source: Standard & Poor's, as of 3/31/21

# International developed equity

International equities delivered +3.5% (MSCI EAFE Index) during the first quarter on an unhedged currency basis. International developed underperformed the S&P 500 Index (+6.2%) while outperforming the MSCI Emerging Markets Index (+2.3%). The trend towards U.S. dollar weakness has boosted the performance of unhedged international equities, adding +6.8% over the past year, though this trend may have begun to reverse in the first quarter.

International developed equity weakness may be partly attributed to snags in the European COVID-19 vaccination

campaign, which has materially lagged the rest of the world. However, European equities (+4.1%) managed to outperform Japanese equities (+1.6%) in U.S. dollar terms, primarily due to currency movements, as the yen (-6.7%) depreciated more sharply relative to the U.S. dollar than the euro (-4.0%) or swiss franc (-6.2%).

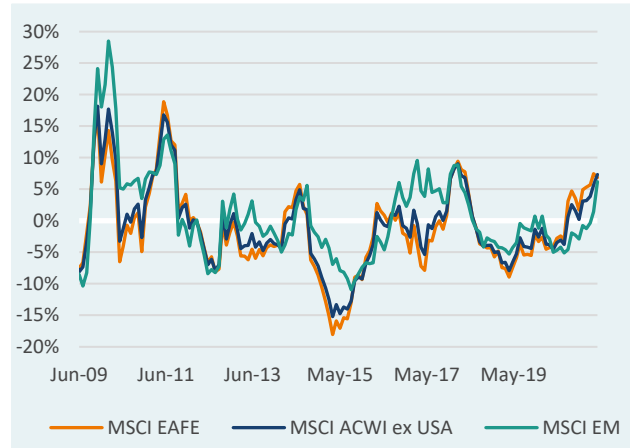
Bets against the Japanese yen rose to multi-year highs amid a backdrop of increasing relative interest rates available in the U.S., and a wave of risk-on sentiment pouring cold water on the appeal of traditional safe-haven assets.

**INTERNATIONAL DEVELOPED EQUITIES**



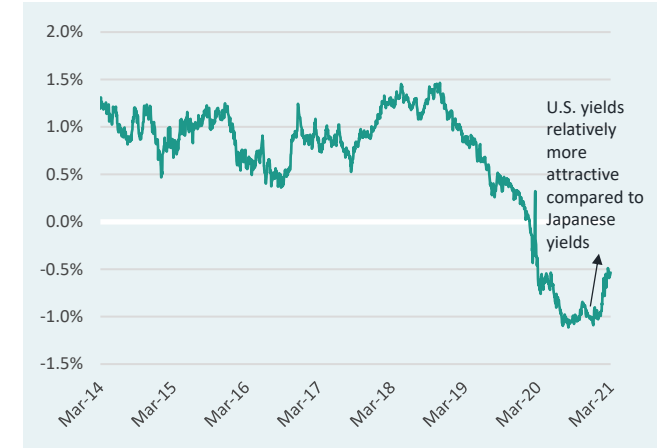
Source: MSCI, as of 3/31/21

**EFFECT OF CURRENCY (1-YEAR ROLLING)**



Source: MSCI, as of 3/31/21

**10-YEAR REAL YIELD SPREAD (US MINUS JAPAN)**



Source: Bloomberg, as of 3/31/21

# Emerging market equity

Emerging market equities (MSCI EM +2.3%) underperformed U.S. (S&P 500 +6.2%) and international developed equities (MSCI EAFE +3.5%) during the quarter. Latin American equities pulled back from strong performance in Q4, underperforming the broader index (MSCI Latin America -5.3%).

Chinese mainland equities, which account for roughly 36% of the MSCI EM Index, slumped -0.4%, dampening overall index returns. Many analysts attributed the relative weakness in China to tightening liquidity conditions, as the People's Bank

of China shifted focus away from promoting economic recovery and toward clamping down on real estate speculation and leverage broadly, in the interest of preventing the buildup of financial excesses.

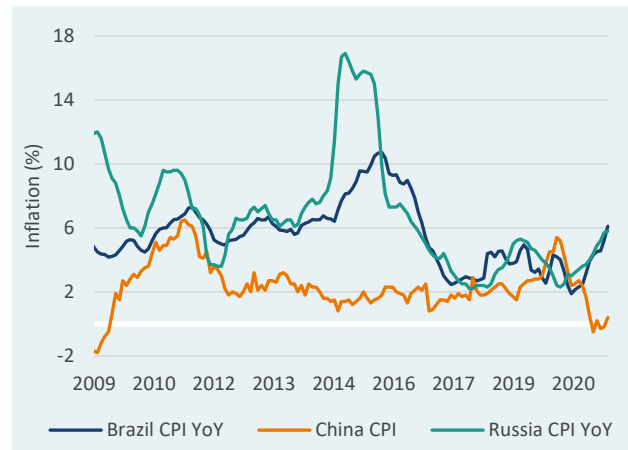
Central banks from Turkey to Russia to Brazil delivered surprise rate hikes in part to respond to a resurgence in inflation, which weighed on markets. Idiosyncratic political developments further pressured returns in Turkey (-20.4%) and Brazil (-10.0%), while Russian equities held up better (+2.4%) despite a weaker ruble (-2.1%).

## EMERGING MARKET EQUITY



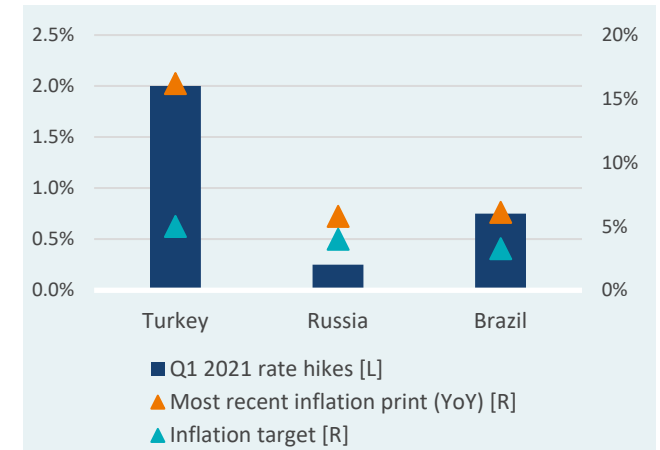
Source: MSCI, as of 3/31/21

## INFLATION (YOY)



Source: Bloomberg, as of 3/31/21 or most recent data

## SURPRISE CENTRAL BANK RATE HIKES



Source: Bloomberg, as of 3/31/21

# Interest rate environment

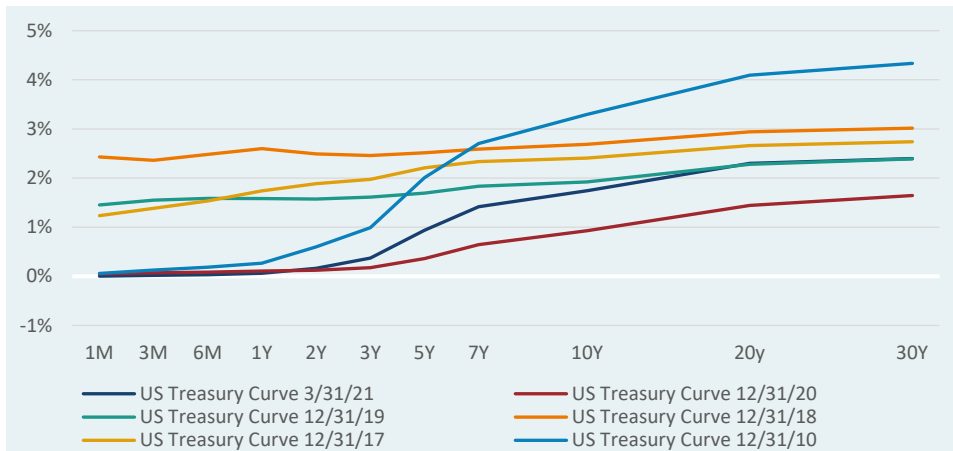
- Ten-year U.S. Treasury yields moved sharply higher, rising from 0.91% to 1.74%. Higher interest rates and tighter financial conditions create concerns for currently above-average risk asset prices, and for the economic recovery more broadly.
- Bond yields around the world rose in tandem with the United States, though the yield of shorter-dated bonds and cash remained anchored near zero. Rising bond yields at longer tenors and relatively steady movement in short tenor yields resulted in yield curve steepening in many countries.
- The spike in global interest rates tested the standing policies at a number of major central banks. The Reserve Bank of Australia was forced to step in to defend its 3-year bond yield target, the Bank of Japan widened the target band for its 10-year bond yield, and the ECB tweaked its asset purchase program to allow for more flexible purchases.
- The Federal Reserve maintained an accommodative tone and signaled it will continue to provide support until substantial progress has been made in the labor market and the pandemic is clearly in the rear-view mirror. On balance, the Fed remains of the view that any pickup in inflation over the next few months is likely to be transitory.
- Breakeven inflation rates surged as reflation bets continued to mount. The five-year breakeven inflation rate closed the quarter at 2.6%, its highest level since 2008.
- Credit spreads compressed to near decade-tights as demand for higher-yielding bonds remained high, and concerns over a wave of pandemic-driven defaults abated.
- Long-duration Treasuries posted their worst quarter since Q1 of 1980. The Bloomberg Barclays U.S. Long Treasury Index delivered a total return of -13.5%.

Area	Short Term (3M)	10-Year
United States	0.02%	1.74%
Germany	(0.67%)	(0.29%)
France	(0.62%)	(0.05%)
Spain	(0.56%)	0.34%
Italy	(0.54%)	0.67%
Greece	(0.24%)	0.86%
U.K.	(0.01%)	0.85%
Japan	(0.11%)	0.09%
Australia	0.00%	1.79%
China	2.28%	3.19%
Brazil	3.32%	9.28%
Russia	4.70%	7.00%

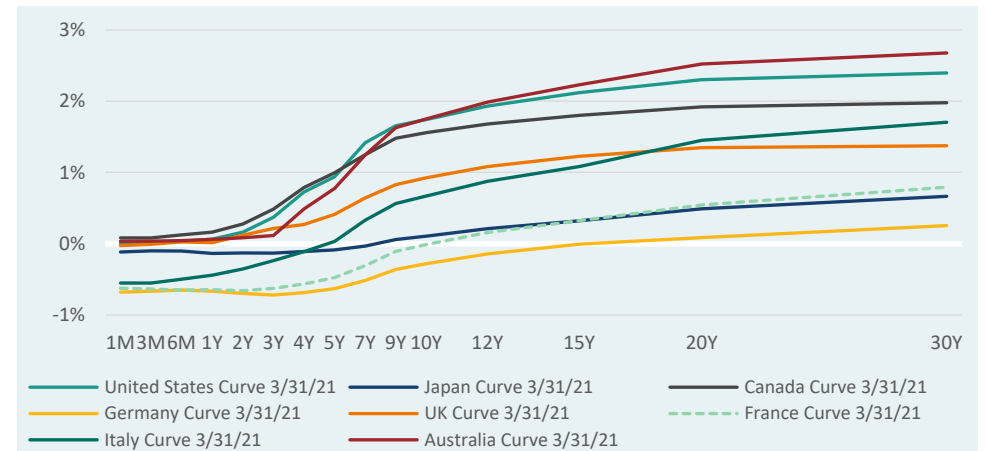
Source: Bloomberg, as of 3/31/21

# Yield environment

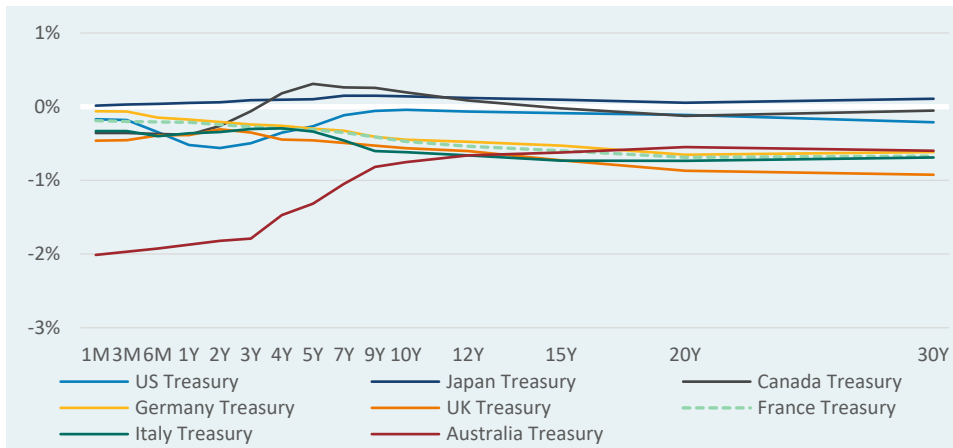
## U.S. YIELD CURVE



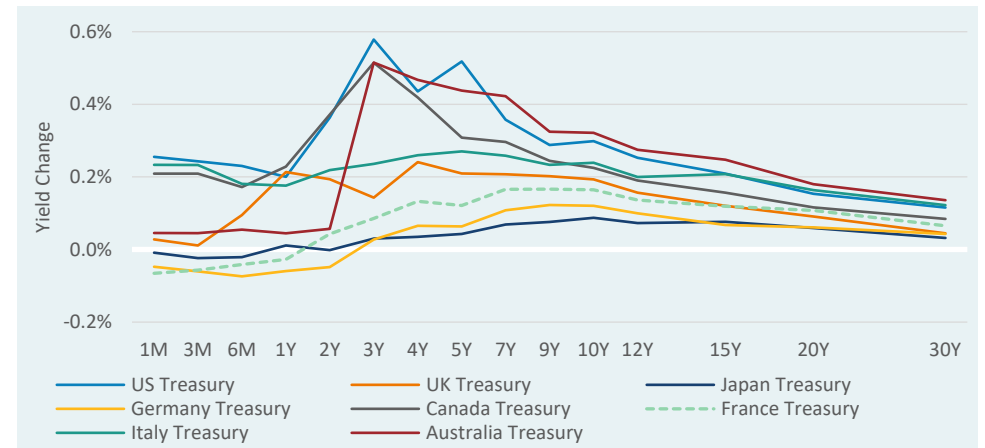
## GLOBAL GOVERNMENT YIELD CURVES



## YIELD CURVE CHANGES OVER LAST FIVE YEARS



## IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 3/31/21

# Currency

U.S. dollar weakness had prevailed for most of 2020, but turned around in the first quarter of 2021. The Bloomberg Dollar Spot Index increased 2.8% over the quarter, after slipping -5.4% in 2020. Strength in the dollar was attributed to rising relative yields in the U.S., the relatively effective vaccination campaign, and speculation that a series of fiscal support packages might fuel supernormal growth over the next few years.

Currency beta returns, or the returns of a long-short portfolio of G10 currencies constructed by investing in three equally-weighted factors (carry, value, momentum), remained negative over the trailing year. Rotations back into the U.S. dollar and

out of the euro and yen supported performance for the carry factor while detracting from the performance of the currency momentum factor.

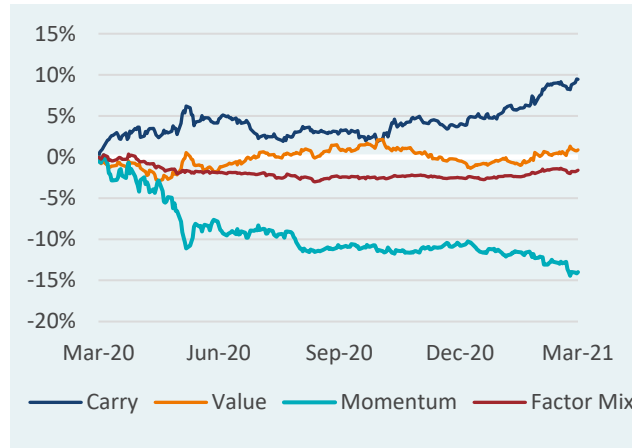
International developed currencies fared poorly, pressured by risk-on sentiment, a lackluster European vaccination effort, and concerns expressed by the European Central Bank about rising global interest rates. The embedded currency portfolio of the MSCI EAFE Index returned -4.1%, as the yen (-6.7%) and euro (-4.0%) weakened relative to the U.S. dollar. Emerging market currencies (-3.1%) softened, driven by declines in the Brazilian real (-7.8%) and Turkish lira (-9.9%).

**BLOOMBERG DOLLAR SPOT INDEX**



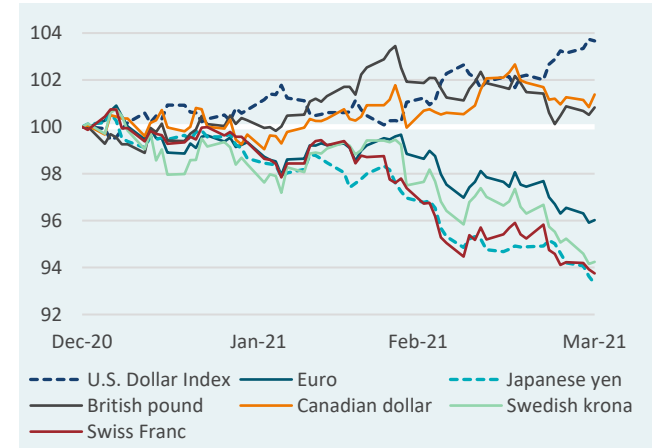
Source: Bloomberg, as of 3/31/21

**CURRENCY BETA (ONE-YEAR RETURNS)**



Source: MSCI, Bloomberg, as of 3/31/21

**U.S. DOLLAR INDEX CONSTITUENTS**



Source: Bloomberg, as of 3/31/21

- The Total Fund, net of manager fees, returned 2.6% in the first quarter of 2021 and ranked in the 78<sup>th</sup> percentile among other public plans greater than \$1 billion (median of 3.3%). It lagged the policy index return of 3.6%. The Total Fund ex Overlay returned 2.6% for the quarter. The Total Fund one-year return of 28.2% beat the policy index return of 27.4% and ranked in the 88<sup>th</sup> percentile of its peer universe. The three-year return of 7.8% (87<sup>th</sup> percentile) lagged the median large public plan (8.8%) and the policy index (8.8%).
  
- First quarter results were enhanced by the following factors:
  1. QMA rose 16.5% beating its index (12.7%). After a long stretch where value leaning strategies underperformed, the small cap portfolio's value tilt strongly outperformed the broad benchmark during the quarter.
  2. Beach Point Select returned 6.0%, outperforming the Bloomberg Barclays BA Intermediate High Yield Index (0.1%) and 50% BB HY/50% Bank Loan (1.4%) indexes. Opportunistic/Distressed names were the biggest contributors for the quarter.
  3. Similarly, Brigade returned 6.6% for the quarter, outperforming the Bloomberg Barclays BA Intermediate High Yield Index (0.1%) and 50% BB HY/50% Bank Loan (1.4%) indexes. High yield spread tightening was a tailwind for the strategy during the period.
  
- First quarter results were hindered by the following factors:
  1. DE Shaw U.S. Broad Market Core underperformed the Russell 1000 Index for the quarter (2.9% vs. 5.9% for the index). Idiosyncratic factors and an underweight to the financial sector detracted during the quarter.
  2. Acadian and PanAgora's low volatility portfolios underperformed again during the first quarter as lower beta and lower volatility names underperformed the broad Russell 1000 Index.

Total Fund  
Performance Summary (Net of Fees)

Period Ending: March 31, 2021

	3 Mo (%)	Rank*	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Total Fund**</b>	<b>2.6</b>	<b>78</b>	<b>18.2</b>	<b>80</b>	<b>28.2</b>	<b>88</b>	<b>10.3</b>	<b>90</b>	<b>7.8</b>	<b>87</b>	<b>8.8</b>	<b>89</b>	<b>7.7</b>	<b>58</b>
<i>Policy Index<sup>1</sup></i>	3.6	36	17.9	85	27.4	92	11.6	67	8.8	55	9.7	57	8.2	35
<i>InvMetrics Public DB &gt; \$1B Net Median</i>	3.3		19.4		32.6		11.8		8.8		9.8		7.8	
<b>Total Fund ex Overlay</b>	<b>2.6</b>	<b>78</b>	<b>18.3</b>	<b>80</b>	<b>27.9</b>	<b>88</b>	<b>10.3</b>	<b>90</b>	<b>7.7</b>	<b>88</b>	<b>8.8</b>	<b>89</b>	<b>7.6</b>	<b>64</b>
<i>Policy Index<sup>1</sup></i>	3.6	36	17.9	85	27.4	92	11.6	67	8.8	55	9.7	57	8.2	35
<i>InvMetrics Public DB &gt; \$1B Net Median</i>	3.3		19.4		32.6		11.8		8.8		9.8		7.8	
<b>Public Equity</b>	<b>5.4</b>	<b>56</b>	<b>29.6</b>	<b>78</b>	<b>53.6</b>	<b>87</b>	<b>16.2</b>	<b>85</b>	<b>11.3</b>	<b>78</b>	<b>12.7</b>	<b>86</b>	<b>9.9</b>	<b>65</b>
<i>Blended Public Equity Index<sup>1</sup></i>	5.8	42	30.7	67	55.9	70	17.5	55	12.2	57	13.7	49	10.3	47
<i>InvMetrics All DB Total Eq Net Median</i>	5.5		32.3		58.7		17.6		12.5		13.7		10.3	
<b>US Equity</b>	<b>5.9</b>	<b>88</b>	<b>29.4</b>	<b>94</b>	<b>55.1</b>	<b>96</b>	<b>17.3</b>	<b>92</b>	<b>14.0</b>	<b>87</b>	<b>14.6</b>	<b>85</b>	<b>12.3</b>	<b>73</b>
<i>Blended US Equity Index<sup>1</sup></i>	6.3	78	33.2	68	62.5	60	21.5	22	17.1	16	16.7	18	13.6	15
<i>Russell 3000</i>	6.3	78	33.2	68	62.5	60	21.5	22	17.1	16	16.6	21	13.8	8
<i>InvMetrics All DB US Eq Net Median</i>	7.3		34.3		63.4		20.5		15.9		16.0		12.9	
<b>Large Cap Equity</b>	<b>5.0</b>	<b>64</b>	<b>27.5</b>	<b>65</b>	<b>52.2</b>	<b>72</b>	<b>17.4</b>	<b>61</b>	<b>14.7</b>	<b>52</b>	<b>15.4</b>	<b>44</b>	<b>13.0</b>	<b>45</b>
<i>Russell 1000</i>	5.9	57	31.8	41	60.6	37	21.5	36	17.3	34	16.7	32	14.0	30
<i>eV US Large Cap Equity Net Median</i>	6.8		29.6		57.3		19.3		14.8		14.7		12.7	
<i>Acadian US MGD V</i>	4.1	82	18.7	94	36.0	94	10.0	97	--	--	--	--	--	--
<i>BlackRock Russell 1000</i>	5.9	58	31.8	28	60.6	25	21.5	19	17.3	17	--	--	--	--
<i>DE Shaw</i>	2.9	92	30.8	33	57.2	35	18.4	52	14.8	48	16.3	18	14.3	8
<i>PanAgora Defuseq</i>	5.5	66	21.2	89	40.0	90	11.5	92	--	--	--	--	--	--
<i>Russell 1000</i>	5.9	59	31.8	28	60.6	25	21.5	19	17.3	17	16.7	13	14.0	13
<i>eV US Large Cap Core Equity Net Median</i>	6.5		28.5		54.7		18.5		14.6		14.8		12.8	

\* 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: March 31, 2021

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Small Cap Equity</b>	<b>16.5</b>	<b>37</b>	<b>51.7</b>	<b>54</b>	<b>88.8</b>	<b>57</b>	<b>14.0</b>	<b>89</b>	<b>8.6</b>	<b>87</b>	<b>10.9</b>	<b>84</b>	<b>9.1</b>	<b>87</b>
<i>Russell 2000</i>	12.7	57	55.4	40	94.8	42	21.7	41	14.8	44	16.4	43	11.7	48
<i>eV US Small Cap Equity Net Median</i>	13.8		52.2		91.5		19.8		13.8		14.9		11.5	
<b>QMA US Small Cap</b>	<b>16.5</b>	<b>23</b>	<b>51.7</b>	<b>49</b>	<b>88.8</b>	<b>54</b>	<b>14.0</b>	<b>90</b>	<b>8.6</b>	<b>92</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Russell 2000</i>	12.7	56	55.4	28	94.8	32	21.7	36	14.8	37	16.4	33	11.7	48
<i>eV US Small Cap Core Equity Net Median</i>	13.3		51.4		90.0		19.5		13.3		14.8		11.5	
Domestic Equity Overlay	10.6	--	56.0	--	--	--	--	--	--	--	--	--	--	--
<b>International Equity</b>	<b>4.7</b>	<b>17</b>	<b>29.8</b>	<b>63</b>	<b>51.6</b>	<b>75</b>	<b>14.9</b>	<b>32</b>	<b>8.3</b>	<b>21</b>	<b>10.3</b>	<b>42</b>	<b>5.8</b>	<b>44</b>
<i>Blended International Equity Index<sup>1</sup></i>	5.2	11	27.8	85	48.1	90	12.7	75	6.6	58	10.1	54	5.4	62
<i>MSCI EAFE Gross</i>	3.6	47	26.1	92	45.2	93	11.8	85	6.5	60	9.4	77	6.0	39
<i>InvMetrics All DB ex-US Eq Net Median</i>	3.5		30.7		55.4		13.8		6.8		10.1		5.7	
<b>Baillie Gifford</b>	<b>0.3</b>	<b>47</b>	<b>32.9</b>	<b>25</b>	<b>67.1</b>	<b>33</b>	<b>25.7</b>	<b>21</b>	<b>14.5</b>	<b>20</b>	<b>14.5</b>	<b>40</b>	<b>--</b>	<b>--</b>
<i>MSCI ACWI ex US<sup>1</sup></i>	3.6	9	29.0	51	50.0	80	12.8	94	7.0	91	10.3	85	--	--
<i>MSCI ACWI ex US Growth</i>	0.0	55	25.6	74	49.8	81	18.1	64	10.7	58	12.4	71	--	--
<i>eV ACWI ex-US Growth Equity Net Median</i>	0.2		29.1		60.0		20.0		11.6		13.7		8.4	
<b>Mondrian</b>	<b>6.1</b>	<b>76</b>	<b>31.1</b>	<b>71</b>	<b>45.7</b>	<b>84</b>	<b>7.6</b>	<b>67</b>	<b>4.0</b>	<b>36</b>	<b>7.1</b>	<b>56</b>	<b>4.7</b>	<b>50</b>
<i>MSCI ACWI ex USA Value Gross</i>	7.2	60	32.3	69	49.5	70	7.2	75	3.0	53	7.9	51	3.6	86
<i>MSCI ACWI ex USA Gross</i>	3.6	92	29.0	82	50.0	69	12.8	24	7.0	15	10.3	21	5.4	32
<i>eV ACWI ex-US Value Equity Net Median</i>	8.3		36.0		56.1		9.5		3.2		8.1		4.7	
<b>BlackRock MSCI ACWI EX-US IMI<sup>1</sup></b>	<b>3.8</b>	<b>38</b>	<b>30.0</b>	<b>64</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>MSCI ACWI ex USA IMI</i>	3.8	40	29.9	65	51.9	70	12.8	81	6.5	74	9.8	72	5.1	84
<i>eV ACWI ex-US All Cap Core Eq Net Median</i>	3.4		31.0		54.9		16.0		8.6		11.1		6.7	
Int'l Equity Currency Overlay														
International Equity Overlay	8.1	--	26.8	--	--	--	--	--	--	--	--	--	--	--

\* Funded June 2020.

1. See Appendix for Benchmark History.

Total Fund  
Performance Summary (Net of Fees)

Period Ending: March 31, 2021

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Fixed Income</b>	<b>-1.3</b>	<b>23</b>	<b>3.3</b>	<b>27</b>	<b>8.5</b>	<b>35</b>	<b>5.4</b>	<b>46</b>	<b>4.8</b>	<b>46</b>	<b>5.2</b>	<b>22</b>	<b>4.7</b>	<b>25</b>
<i>Blended Fixed Income Index<sup>1</sup></i>	-2.2	50	1.4	48	6.6	51	5.5	43	5.4	27	4.2	50	3.9	52
<i>InvMetrics All DB Total Fix Inc Net Median</i>	-2.2		1.3		6.6		5.2		4.7		4.2		4.0	
<b>Core Fixed</b>	<b>-2.8</b>	<b>--</b>	<b>-0.4</b>	<b>--</b>	<b>3.8</b>	<b>--</b>	<b>4.9</b>	<b>--</b>	<b>4.4</b>	<b>--</b>	<b>3.9</b>	<b>--</b>	<b>4.0</b>	<b>--</b>
<i>BBgBarc US Aggregate TR</i>	-3.4	--	-2.1	--	0.7	--	4.7	--	4.7	--	3.1	--	3.4	--
<i>DoubleLine</i>	-2.6	98	-0.9	97	2.3	66	--	--	--	--	--	--	--	--
<i>BBgBarc US Aggregate TR</i>	-3.4	99	-2.1	99	0.7	90	4.7	12	4.7	13	3.1	53	3.4	53
<i>eV US Securitized Fixed Inc Net Median</i>	-0.3		1.6		5.6		3.5		3.8		3.2		3.6	
<i>FIAM Bond</i>	-3.1	39	-0.3	25	5.5	15	6.3	6	5.7	6	4.2	6	4.2	15
<i>NISA Core Bond**</i>	-3.4	68	-2.1	81	--	--	--	--	--	--	--	--	--	--
<i>BBgBarc US Aggregate TR</i>	-3.4	62	-2.1	82	0.7	91	4.7	79	4.7	79	3.1	77	3.4	75
<i>eV US Core Fixed Inc Net Median</i>	-3.2		-1.3		3.1		5.2		4.9		3.5		3.7	
<i>Western TRU</i>	-2.2	7	4.2	1	13.9	1	5.0	64	3.5	99	4.9	2	--	--
<i>3-Month Libor Total Return USD</i>	0.0	1	0.2	12	0.3	95	1.2	99	1.6	99	1.5	99	0.9	99
<i>BBgBarc US Aggregate TR</i>	-3.4	62	-2.1	82	0.7	91	4.7	79	4.7	79	3.1	77	3.4	75
<i>eV US Core Fixed Inc Net Median</i>	-3.2		-1.3		3.1		5.2		4.9		3.5		3.7	
<i>Core Fixed Income Overlay</i>	-5.2	--	-6.0	--	--	--	--	--	--	--	--	--	--	--
<b>Opportunistic Credit</b>	<b>1.7</b>	<b>--</b>	<b>11.2</b>	<b>--</b>	<b>18.5</b>	<b>--</b>	<b>6.3</b>	<b>--</b>	<b>5.6</b>	<b>--</b>	<b>8.0</b>	<b>--</b>	<b>7.3</b>	<b>--</b>
<i>BBgBarc BA Intermediate HY</i>	0.1	--	8.9	--	19.9	--	7.5	--	7.2	--	6.9	--	5.8	--
<i>AG CSF Annex Dislocation<sup>+</sup></i>	5.9	--	20.0	--	--	--	--	--	--	--	--	--	--	--
<i>BBgBarc BA Intermediate HY</i>	0.1	--	8.9	--	19.9	--	7.5	--	7.2	--	6.9	--	5.8	--
<i>Angelo Gordon Opportunistic<sup>+</sup></i>	5.1	--	25.3	--	34.6	--	6.5	--	9.6	--	11.9	--	--	--
<i>Angelo Gordon Credit Solutions</i>	9.6	1	27.7	1	39.5	2	--	--	--	--	--	--	--	--
<i>BBgBarc BA Intermediate HY</i>	0.1	86	8.9	84	19.9	69	7.5	27	7.2	13	6.9	61	5.8	63
<i>eV US High Yield Fixed Inc Net Median</i>	1.0		11.5		21.7		6.7		6.1		7.2		6.0	

<sup>+</sup> Preliminary return as of 3/31/2021.

<sup>\*</sup> Funded April 2020.

<sup>\*\*</sup> Funded May 2020.

1. See Appendix for Benchmark History.

Total Fund  
Performance Summary (Net of Fees)

Period Ending: March 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	6.0	1	22.7	2	33.4	5	12.2	1	9.4	1	10.3	2	--	--
BBgBarc BA Intermediate HY	0.1	86	8.9	84	19.9	69	7.5	27	7.2	13	6.9	61	5.8	63
eV US High Yield Fixed Inc Net Median	1.0		11.5		21.7		6.7		6.1		7.2		6.0	
Brigade Capital	6.6	1	22.6	2	35.5	3	7.6	25	5.8	66	8.9	5	5.9	58
BBgBarc BA Intermediate HY	0.1	86	8.9	84	19.9	69	7.5	27	7.2	13	6.9	61	5.8	63
50% Barclays HY/ 50% Bank Loan	1.4	32	11.2	57	22.3	48	5.9	73	5.5	74	6.7	65	5.5	79
eV US High Yield Fixed Inc Net Median	1.0		11.5		21.7		6.7		6.1		7.2		6.0	
PIMCO Diversified	-2.5	99	4.6	99	12.1	95	5.2	79	5.3	77	--	--	--	--
Blended PIMCO Diversified Index	-2.4	99	4.7	99	14.4	92	5.6	75	5.4	75	5.6	88	5.7	72
BBgBarc BA Intermediate HY	0.1	86	8.9	84	19.9	69	7.5	27	7.2	13	6.9	61	5.8	63
eV US High Yield Fixed Inc Net Median	1.0		11.5		21.7		6.7		6.1		7.2		6.0	
Franklin Templeton	-3.1	64	-2.8	99	-2.8	99	-4.6	99	-3.2	99	0.7	99	1.8	89
BBgBarc Multiverse TR	-4.3	81	1.7	81	5.5	87	4.5	75	2.9	77	2.9	79	2.4	78
eV All Global Fixed Inc Net Median	-2.0		5.5		14.1		5.8		4.2		4.6		3.7	
<b>Private Credit</b>	<b>0.9</b>	<b>--</b>	<b>7.0</b>	<b>--</b>	<b>12.0</b>	<b>--</b>	<b>6.7</b>	<b>--</b>	<b>7.2</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
Cliffwater Direct Lending Index*	3.7	--	11.3	--	14.9	--	7.7	--	8.0	--	8.9	--	9.3	--
Blackrock DL Feeder IX-U+	0.6	69	5.4	99	14.1	92	--	--	--	--	--	--	--	--
Cliffwater Direct Lending Index	3.7	5	11.3	56	14.9	92	7.7	25	8.0	4	8.9	5	9.3	1
eV US High Yield Fixed Inc Net Median	1.0		11.5		21.7		6.7		6.1		7.2		6.0	
PIMCO Private Income*	1.7	24	11.3	56	19.9	70	--	--	--	--	--	--	--	--
BBgBarc BA Intermediate HY	0.1	86	8.9	84	19.9	69	7.5	27	7.2	13	6.9	61	5.8	63
Cliffwater Direct Lending Index	3.7	5	11.3	56	14.9	92	7.7	25	8.0	4	8.9	5	9.3	1
eV US High Yield Fixed Inc Net Median	1.0		11.5		21.7		6.7		6.1		7.2		6.0	

\* Preliminary return as of 3/31/2021.

Total Fund  
Performance Summary (Net of Fees)

Period Ending: March 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*	2.0	19	7.5	91	11.1	97	6.6	54	7.3	12	--	--	--	--
White Oak Yield*	0.0	94	3.2	99	5.9	99	5.2	79	5.9	61	--	--	--	--
White Oak YSF V+*	0.0	94	--	--	--	--	--	--	--	--	--	--	--	--
<i>Cliffwater Direct Lending Index</i>	3.7	5	11.3	56	14.9	92	7.7	25	8.0	4	8.9	5	9.3	1
<i>eV US High Yield Fixed Inc Net Median</i>	1.0		11.5		21.7		6.7		6.1		7.2		6.0	
<b>Alternatives</b>	<b>1.2</b>	<b>--</b>	<b>37.7</b>	<b>--</b>	<b>36.0</b>	<b>--</b>	<b>20.1</b>	<b>--</b>	<b>13.5</b>	<b>--</b>	<b>11.9</b>	<b>--</b>	<b>8.4</b>	<b>--</b>
<i>Blended Alternatives Index<sup>1</sup></i>	7.5	--	26.1	--	13.9	--	16.7	--	11.7	--	12.0	--	9.0	--
<b>Private Equity*** **</b>	<b>2.1</b>	<b>65</b>	<b>65.9</b>	<b>2</b>	<b>61.4</b>	<b>3</b>	<b>43.3</b>	<b>2</b>	<b>31.6</b>	<b>3</b>	<b>25.5</b>	<b>3</b>	<b>16.4</b>	<b>9</b>
<i>Blended Private Equity Index<sup>1</sup></i>	15.3	5	54.4	3	23.9	28	28.9	4	17.5	22	18.1	13	16.0	12
<i>InvMetrics All DB Private Eq Net Median</i>	5.4		23.4		17.5		13.9		13.4		13.0		12.1	
<b>Hedge Fund/Absolute Return</b>	<b>0.0</b>	<b>74</b>	<b>5.3</b>	<b>94</b>	<b>6.2</b>	<b>96</b>	<b>-5.1</b>	<b>98</b>	<b>-6.2</b>	<b>99</b>	<b>-3.0</b>	<b>99</b>	<b>--</b>	<b>--</b>
<i>Absolute Return Custom Index<sup>1</sup></i>	1.0	67	3.2	95	4.3	97	5.1	74	5.5	53	5.3	57	--	--
<i>InvMetrics All DB Hedge Funds Net Median</i>	2.9		16.4		25.2		8.3		5.9		5.7		4.2	
Aberdeen Standard GARS	-2.1	88	5.5	76	8.3	76	4.9	63	3.4	61	2.7	72	--	--
Acadian MAAR Fund LLC**	0.0	76	--	--	--	--	--	--	--	--	--	--	--	--
CFM Systematic Global Macro**	5.5	32	--	--	--	--	--	--	--	--	--	--	--	--
Graham Quant Macro	-1.4	84	5.7	75	8.7	75	--	--	--	--	--	--	--	--
PIMCO MAARS Fund LP***	1.5	65	1.9	85	--	--	--	--	--	--	--	--	--	--
<i>Absolute Return Custom Index<sup>1</sup></i>	1.0	69	3.2	84	4.3	83	5.1	63	5.5	46	5.3	55	--	--
<i>eV Alt All Multi-Strategy Median</i>	3.0		13.2		21.9		7.4		4.9		6.0		4.9	

\* Preliminary return as of 3/31/2021.

\* Funded December 2020.

\*\* Funded October 2020.

\*\*\* Funded April 2020.

\*\*\* 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: March 31, 2021

	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Inflation Hedge</b>	<b>3.8</b>	<b>--</b>	<b>10.5</b>	<b>--</b>	<b>10.6</b>	<b>--</b>	<b>0.1</b>	<b>--</b>	<b>1.1</b>	<b>--</b>	<b>3.5</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Blended Inflation Hedge Index<sup>1</sup></i>	5.0	--	15.0	--	14.5	--	5.0	--	4.5	--	5.6	--	--	--
<b>Real Estate</b>	<b>1.7</b>	<b>60</b>	<b>3.7</b>	<b>56</b>	<b>0.6</b>	<b>83</b>	<b>3.6</b>	<b>42</b>	<b>4.9</b>	<b>49</b>	<b>6.5</b>	<b>13</b>	<b>9.5</b>	<b>15</b>
<i>NCREIF ODCE</i>	2.1	46	3.9	51	2.3	64	3.6	44	4.9	50	6.2	30	9.7	9
<i>InvMetrics All DB Real Estate Pub Net Median</i>	2.0	--	3.9	--	2.8	--	3.4	--	4.9	--	5.4	--	8.6	--
<i>Harrison Street Core Property</i>	1.4	--	3.8	--	3.5	--	--	--	--	--	--	--	--	--
<i>NCREIF ODCE</i>	2.1	--	3.9	--	2.3	--	3.6	--	4.9	--	6.2	--	9.7	--
<i>Invesco</i>	1.4	--	2.7	--	-1.9	--	2.3	--	4.0	--	6.0	--	9.2	--
<i>NCREIF ODCE</i>	2.1	--	3.9	--	2.3	--	3.6	--	4.9	--	6.2	--	9.7	--
<i>Invesco US Val IV</i>	0.1	--	6.6	--	1.8	--	5.9	--	8.3	--	9.2	--	--	--
<i>NCREIF ODCE</i>	2.1	--	3.9	--	2.3	--	3.6	--	4.9	--	6.2	--	9.7	--
<i>NCREIF ODCE + 2%</i>	2.6	--	5.5	--	4.3	--	5.7	--	7.0	--	8.3	--	11.8	--
<i>Invesco US Val V</i>	9.5	--	14.7	--	9.8	--	11.1	--	--	--	--	--	--	--
<i>NCREIF ODCE</i>	2.1	--	3.9	--	2.3	--	3.6	--	4.9	--	6.2	--	9.7	--
<i>NCREIF ODCE + 2%</i>	2.6	--	5.5	--	4.3	--	5.7	--	7.0	--	8.3	--	11.8	--
<i>PGIM RE US Debt Fund</i>	1.4	--	3.9	--	4.9	--	5.2	--	5.7	--	--	--	--	--
<i>NCREIF ODCE</i>	2.1	--	3.9	--	2.3	--	3.6	--	4.9	--	6.2	--	9.7	--
<b>Private Real Asset**</b>	<b>8.5</b>	<b>--</b>	<b>16.7</b>	<b>--</b>	<b>7.3</b>	<b>--</b>	<b>4.4</b>	<b>--</b>	<b>0.8</b>	<b>--</b>	<b>-0.6</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Blended Private Real Asset Index<sup>1</sup></i>	10.6	--	41.4	--	-1.2	--	9.6	--	3.1	--	4.7	--	--	--
<i>Blended Secondary CA Private RA Index<sup>1</sup></i>	6.4	--	13.2	--	-1.6	--	0.0	--	1.1	--	5.8	--	--	--

\*\* Returns are one-quarter lag.

1. See Appendix for Benchmark History.

Total Fund  
Performance Summary (Net of Fees)

Period Ending: March 31, 2021

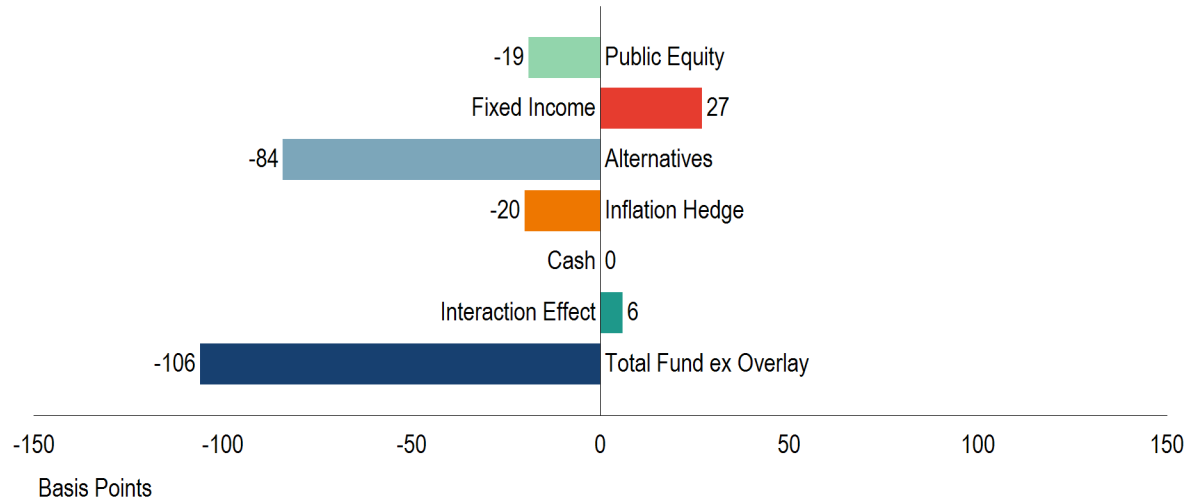
	3 Mo (%)	Rank	Fiscal YTD (%)	Rank	1 Yr (%)	Rank	2 Yrs (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank
<b>Public Real Assets</b>	<b>5.0</b>	<b>--</b>	<b>21.8</b>	<b>--</b>	<b>36.0</b>	<b>--</b>	<b>-4.2</b>	<b>--</b>	<b>-2.6</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>
<i>Blended Public Real Asset Index<sup>1</sup></i>	5.1	--	21.9	--	37.4	--	2.4	--	2.3	--	4.8	--	--	--
SSgA Custom Real Asset	5.0	--	21.8	--	36.0	--	2.4	--	2.3	--	--	--	--	--
<i>SSgA Custom Real Asset Index<sup>1</sup></i>	5.1	--	21.9	--	37.4	--	2.4	--	2.3	--	--	--	--	--
<b>Cash</b>	<b>0.1</b>	<b>--</b>	<b>0.4</b>	<b>--</b>	<b>0.5</b>	<b>--</b>	<b>0.8</b>	<b>--</b>	<b>1.0</b>	<b>--</b>	<b>0.9</b>	<b>--</b>	<b>0.8</b>	<b>--</b>
<i>91 Day T-Bills</i>	0.0	--	0.1	--	0.1	--	1.0	--	1.4	--	1.1	--	0.6	--
General Account	0.2	--	0.5	--	0.9	--	1.8	--	2.9	--	2.4	--	1.5	--
Treasury & LAIF	0.2	--	1.0	--	1.5	--	2.0	--	2.4	--	2.2	--	1.5	--
<i>91 Day T-Bills</i>	0.0	--	0.1	--	0.1	--	1.0	--	1.4	--	1.1	--	0.6	--
Currency Hedge Cash Overlay	-0.1	--	-0.2	--	--	--	--	--	--	--	--	--	--	--

\* Liquidating as of March 2020.

1. See Appendix for Benchmark History.

Total Fund ex Overlay  
Performance Attribution

Period Ending: March 31, 2021

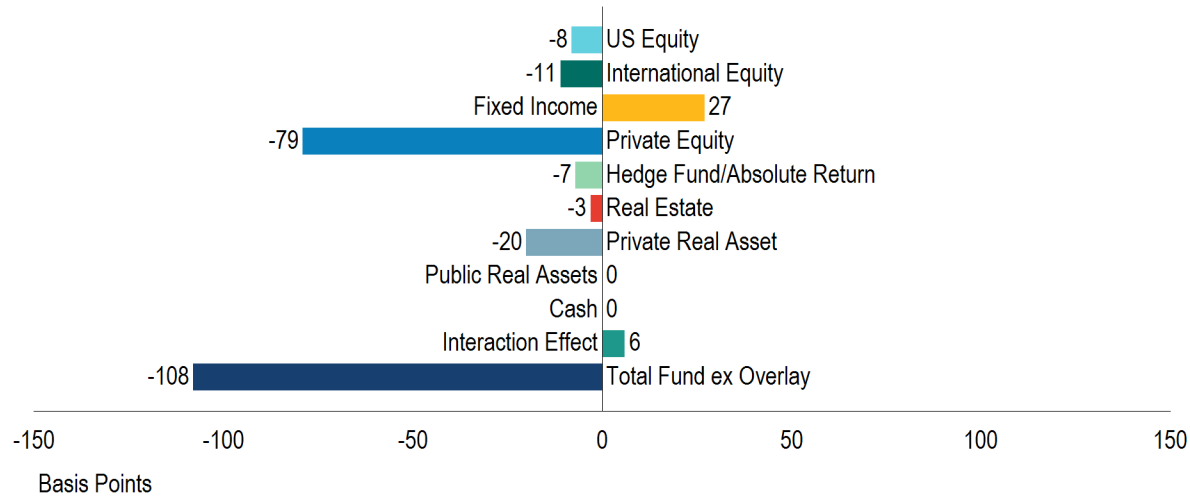


	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction*	Total Effects
Public Equity	5.35%	5.84%	-0.49%	-0.19%	0.01%	0.00%	-0.18%
Fixed Income	-1.25%	-2.16%	0.91%	0.27%	-0.03%	0.00%	0.24%
Alternatives	1.21%	7.50%	-6.29%	-0.84%	-0.01%	0.03%	-0.82%
Inflation Hedge	3.79%	4.98%	-1.19%	-0.20%	-0.05%	0.04%	-0.22%
Cash	0.12%	0.01%	0.11%	0.00%	-0.08%	0.00%	-0.08%
<b>Total</b>	<b>2.51%</b>	<b>3.58%</b>	<b>-1.06%</b>	<b>-0.96%</b>	<b>-0.16%</b>	<b>0.06%</b>	<b>-1.06%</b>

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

Total Fund ex Overlay  
Performance Attribution

Period Ending: March 31, 2021



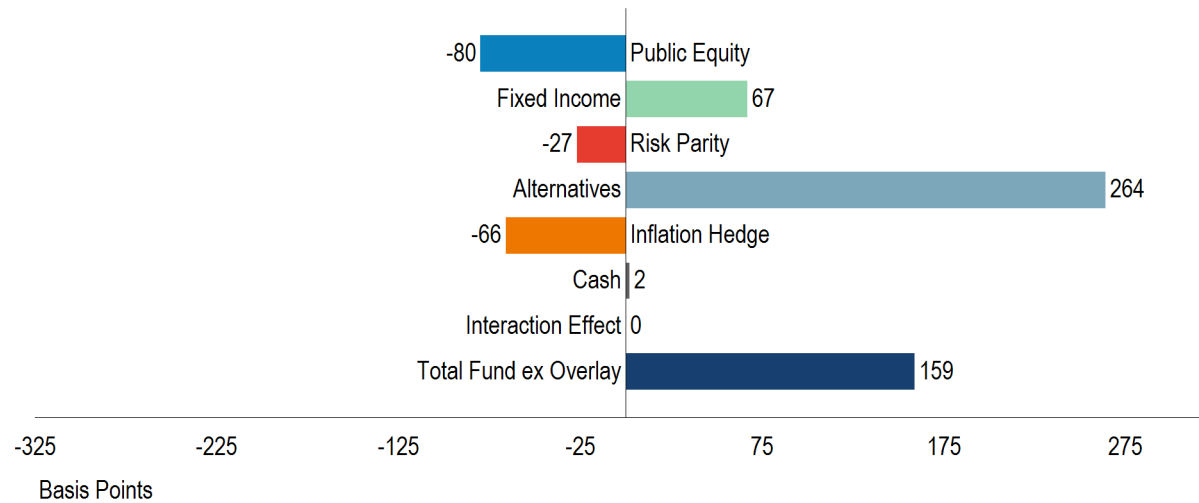
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction* Effects	Total Effects
US Equity	5.94%	6.35%	-0.41%	-0.08%	0.00%	0.00%	-0.07%
International Equity	4.67%	5.25%	-0.58%	-0.11%	0.00%	0.00%	-0.11%
Fixed Income	-1.25%	-2.16%	0.91%	0.27%	-0.03%	0.00%	0.24%
Private Equity	2.07%	15.31%	-13.24%	-0.79%	0.09%	-0.08%	-0.78%
Hedge Fund/Absolute Return	0.05%	1.03%	-0.99%	-0.07%	0.02%	0.01%	-0.03%
Real Estate	1.74%	2.09%	-0.35%	-0.03%	0.02%	0.00%	-0.01%
Private Real Asset	8.49%	10.62%	-2.13%	-0.20%	-0.16%	0.13%	-0.22%
Public Real Assets	4.98%	5.08%	-0.10%	0.00%	-0.01%	0.00%	-0.01%
Cash	0.12%	0.01%	0.11%	0.00%	-0.08%	0.00%	-0.08%
<b>Total</b>	<b>2.49%</b>	<b>3.58%</b>	<b>-1.08%</b>	<b>-1.00%</b>	<b>-0.14%</b>	<b>0.06%</b>	<b>-1.08%</b>

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: March 31, 2021

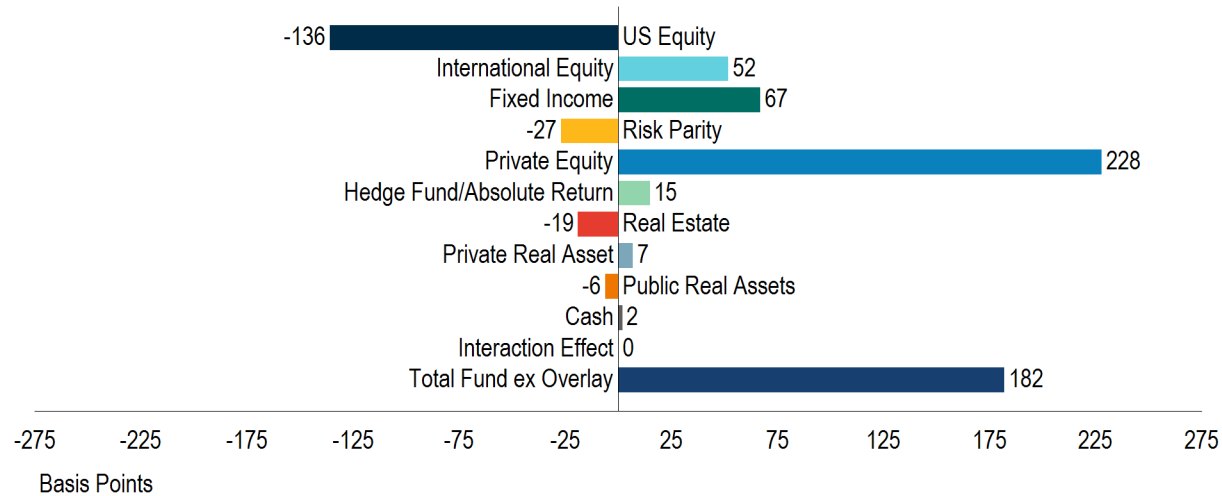


	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction*	Total Effects
Public Equity	53.58%	55.91%	-2.34%	-0.80%	0.00%	0.00%	-0.80%
Fixed Income	8.48%	6.59%	1.89%	0.67%	0.00%	0.00%	0.67%
Risk Parity	--	--	--	-0.27%	0.00%	0.00%	-0.27%
Alternatives	35.98%	13.95%	22.03%	2.64%	0.00%	0.00%	2.64%
Inflation Hedge	10.57%	14.50%	-3.93%	-0.66%	0.00%	0.00%	-0.66%
Cash	0.52%	0.09%	0.44%	0.02%	0.00%	0.00%	0.02%
<b>Total</b>	<b>28.20%</b>	<b>26.61%</b>	<b>1.59%</b>	<b>1.59%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>1.59%</b>

Attribution does not include the impact of the Parametric Minneapolis strategy. Risk Parity closed June 2020.  
\* Interaction Effects include Residual Effects.

Total Fund ex Overlay  
Performance Attribution (1 Year)

Period Ending: March 31, 2021



	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction *	Total Effects
US Equity	55.08%	62.53%	-7.45%	-1.36%	0.00%	0.00%	-1.36%
International Equity	51.58%	48.15%	3.43%	0.52%	0.00%	0.00%	0.52%
Fixed Income	8.48%	6.59%	1.89%	0.67%	0.00%	0.00%	0.67%
Risk Parity	--	--	--	-0.27%	0.00%	0.00%	-0.27%
Private Equity	61.44%	23.89%	37.55%	2.28%	0.00%	0.00%	2.28%
Hedge Fund/Absolute Return	6.15%	4.27%	1.88%	0.15%	0.00%	0.00%	0.15%
Real Estate	0.63%	2.30%	-1.67%	-0.19%	0.00%	0.00%	-0.19%
Private Real Asset	7.31%	-1.16%	8.46%	0.07%	0.00%	0.00%	0.07%
Public Real Assets	35.97%	37.38%	-1.42%	-0.06%	0.00%	0.00%	-0.06%
Cash	0.52%	0.09%	0.44%	0.02%	0.00%	0.00%	0.02%
<b>Total</b>	<b>28.26%</b>	<b>26.44%</b>	<b>1.82%</b>	<b>1.82%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>1.82%</b>

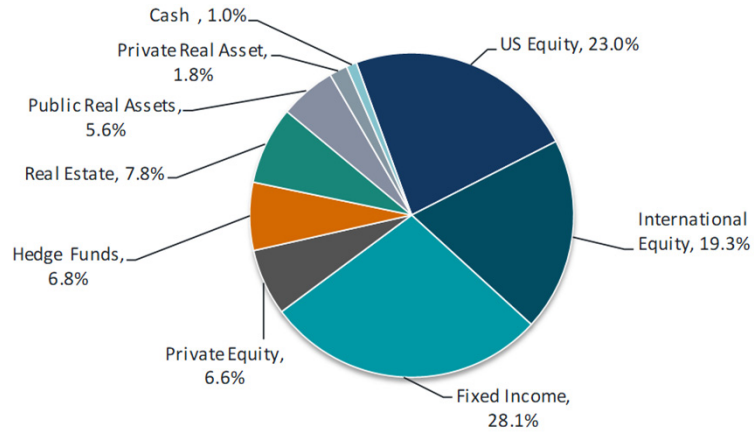
Attribution does not include the impact of the Parametric Minneapolis strategy. Risk Parity closed June 2020.  
\* Interaction Effects include Residual Effects.

# Total Fund

## Asset Allocation Analysis

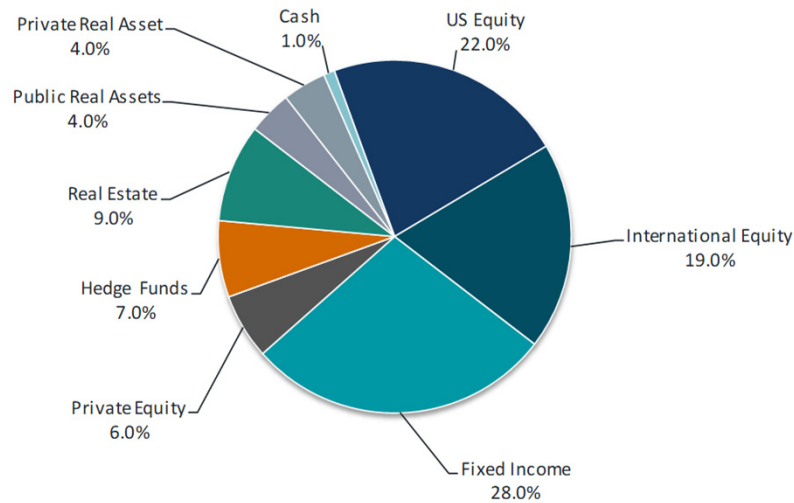
Period Ending: March 31, 2021

**Current w/ Overlay**



ASSET ALLOCATION	MARKET VALUE W/ OVERLAY	W/ OVERLAY	W/O OVERLAY
US Equity	1,298,761,265	23.0%	23.0%
International Equity	1,086,753,773	19.3%	19.0%
Fixed Income	1,580,849,773	28.1%	27.0%
Private Equity	374,248,452	6.6%	6.6%
Hedge Funds	382,006,413	6.8%	6.8%
Real Estate	437,081,621	7.8%	7.8%
Public Real Assets	315,185,037	5.6%	5.6%
Private Real Asset	101,078,678	1.8%	1.8%
Cash	58,590,177	1.0%	2.4%
<b>TOTAL</b>	<b>5,634,555,188</b>	<b>100.0%</b>	<b>100.0%</b>

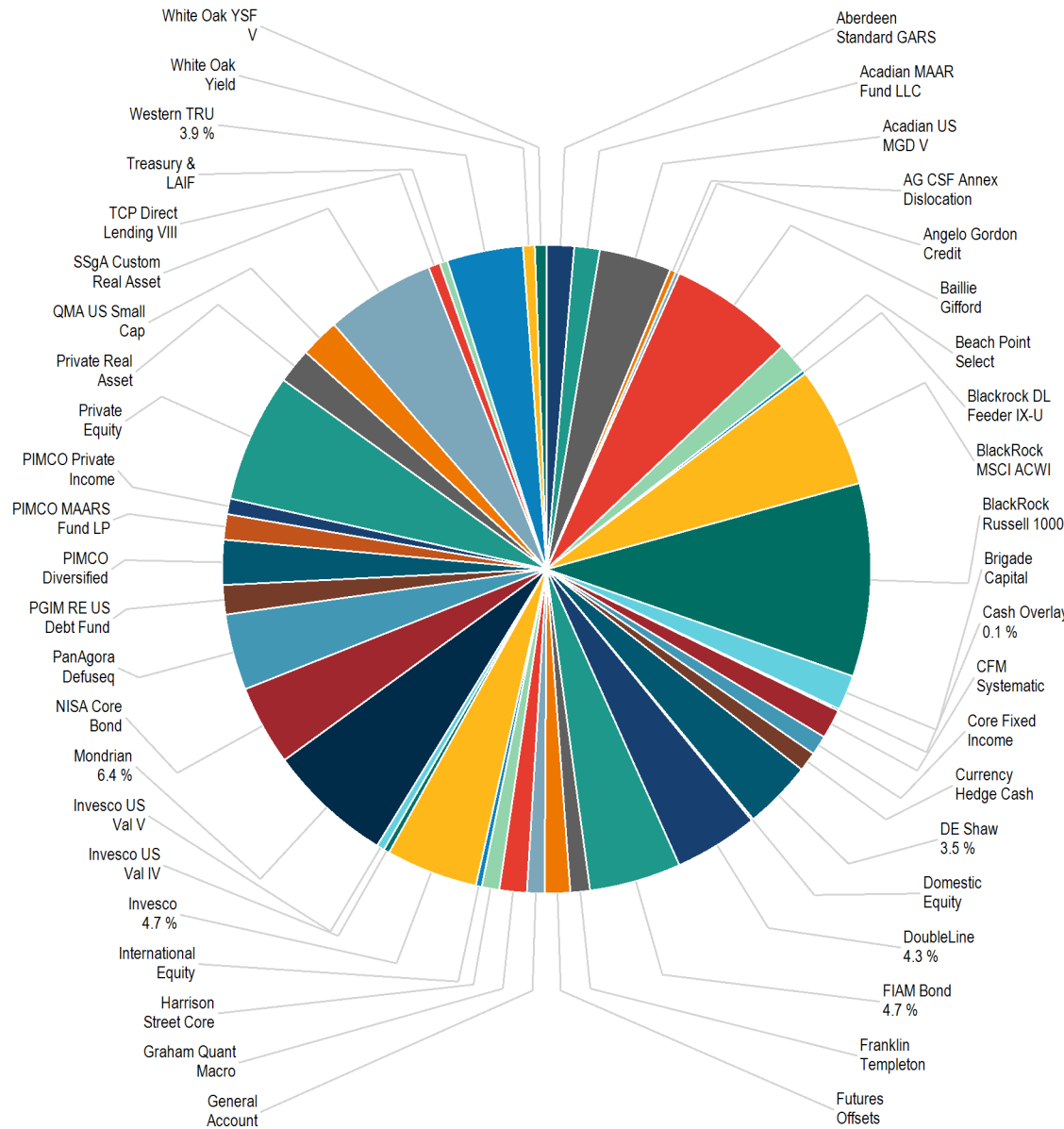
**Target**



ASSET ALLOCATION	W/ OVERLAY	TARGET	DIFF
US Equity	23.0%	22.0%	1.0%
International Equity	19.3%	19.0%	0.3%
Fixed Income	28.1%	28.0%	0.1%
Private Equity	6.6%	6.0%	0.6%
Hedge Funds	6.8%	7.0%	-0.2%
Real Estate	7.8%	9.0%	-1.2%
Public Real Assets	5.6%	4.0%	1.6%
Private Real Asset	1.8%	4.0%	-2.2%
Cash	1.0%	1.0%	0.0%
<b>TOTAL</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>

# Total Fund Manager Allocation Analysis

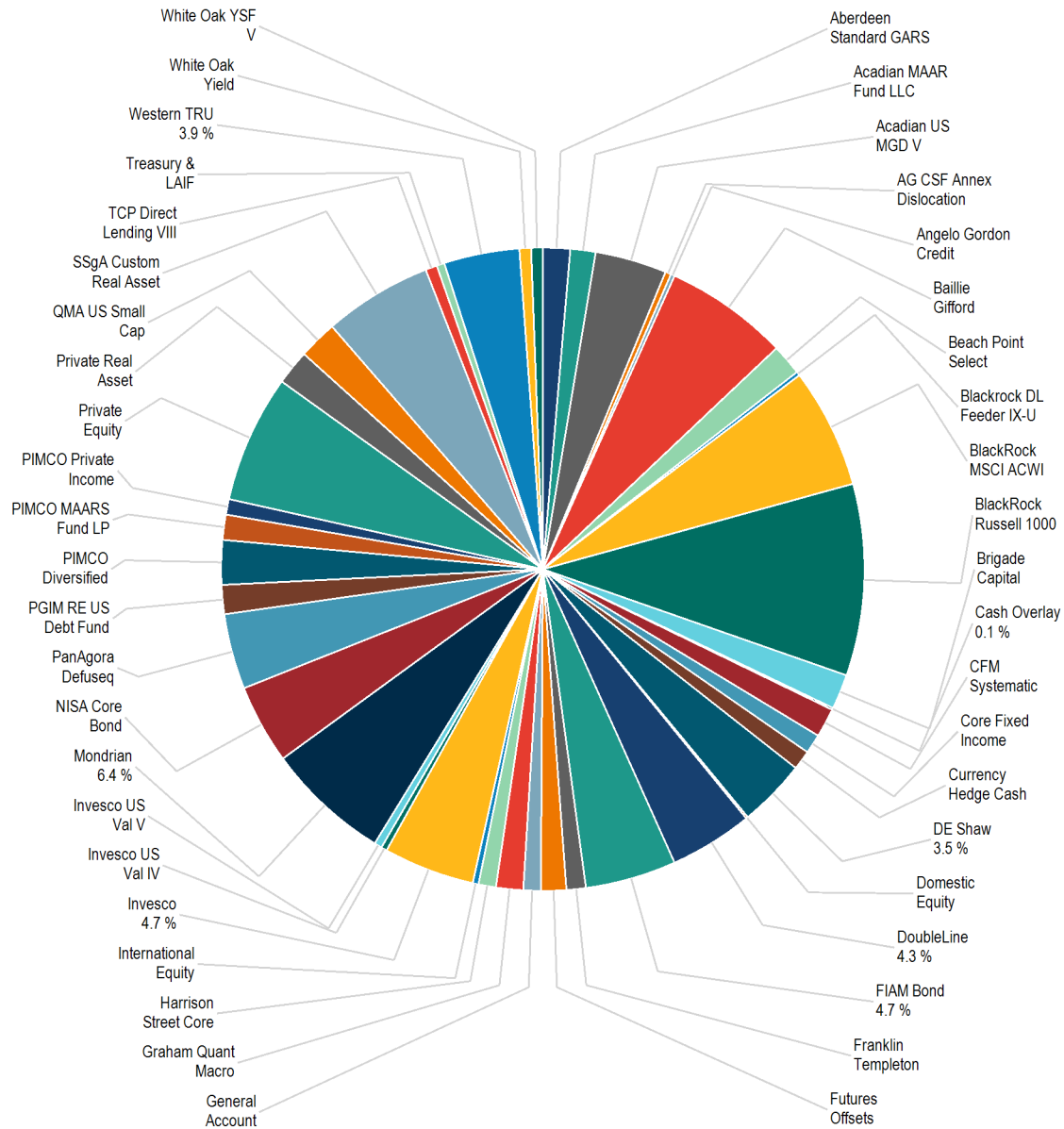
Period Ending: March 31, 2021



Name	Market Value	% of Portfolio
Acadian US MGD V	\$209,613,223	4%
BlackRock Russell 1000	\$555,875,029	10%
DE Shaw	\$198,408,132	4%
PanAgora Defuseq	\$220,495,657	4%
QMA US Small Cap	\$110,044,569	2%
Domestic Equity Overlay	\$4,324,655	0%
Baillie Gifford	\$359,692,161	6%
Mondrian	\$360,663,827	6%
BlackRock MSCI ACWI EX-US IMI	\$352,128,710	6%
Int'l Equity Currency Overlay	\$0	0%
International Equity Overlay	\$14,269,075	0%
DoubleLine	\$244,933,819	4%
FIAM Bond	\$263,280,582	5%
NISA Core Bond	\$233,089,997	4%
Western TRU	\$219,944,558	4%
Core Fixed Income Overlay	\$57,365,266	1%
AG CSF Annex Dislocation Fund	\$14,087,050	0%
Angelo Gordon Opportunistic	\$2,096,853	0%
Angelo Gordon Credit Solutions	\$12,887,330	0%
Beach Point Select	\$89,524,186	2%
Brigade Capital	\$103,389,080	2%
PIMCO Diversified	\$130,946,041	2%
Franklin Templeton	\$56,904,649	1%
Blackrock DL Feeder IX-U	\$9,524,119	0%
PIMCO Private Income	\$42,506,912	1%
TCP Direct Lending VIII	\$31,716,643	1%
White Oak Yield	\$34,204,765	1%
White Oak YSF V	\$34,447,924	1%
Private Equity	\$374,248,452	7%
Aberdeen Standard GARS	\$79,606,282	1%

# Total Fund Manager Allocation Analysis

Period Ending: March 31, 2021



Name	Market Value	% of Portfolio
Acadian MAAR Fund LLC	\$71,110,441	1%
CFM Systematic Global Macro	\$83,092,096	1%
Graham Quant Macro	\$76,600,570	1%
PIMCO MAARS Fund LP	\$71,597,025	1%
Harrison Street Core Property	\$51,901,255	1%
Invesco	\$264,373,688	5%
Invesco US Val IV	\$14,968,415	0%
Invesco US Val V	\$20,495,919	0%
PGIM RE US Debt Fund	\$85,342,344	2%
Private Real Asset	\$101,078,678	2%
SSgA Custom Real Asset	\$315,185,037	6%
General Account	\$48,527,456	1%
Treasury & LAIF	\$21,772,333	0%
Transition Account	\$9	0%
Currency Hedge Cash Overlay	\$57,121,687	1%
Cash Overlay	\$7,127,688	0%
Futures Offsets (SMCE02001)	-\$75,958,995	-1%
<b>Total</b>	<b>\$5,634,555,188</b>	<b>100%</b>

**Statistics Summary**

**3 Years**

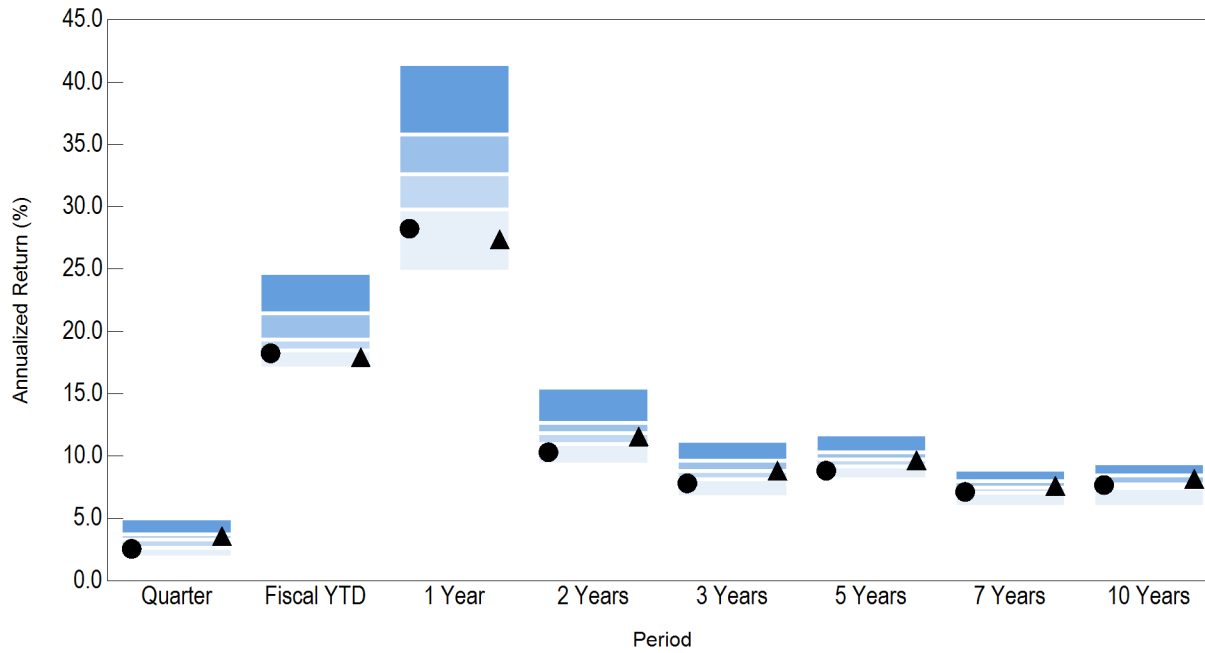
	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	7.8%	87	9.4%	20	0.7	47	-0.5	63	2.2%	74
Policy Index	8.8%	55	9.3%	19	0.8	29	--	--	0.0%	1
InvMetrics Public DB > \$1B Net Median	8.8%	--	10.8%	--	0.7	--	-0.2	--	1.3%	--

**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	8.8%	89	7.6%	20	1.0	39	-0.5	75	1.8%	71
Policy Index	9.7%	57	7.6%	20	1.1	25	--	--	0.0%	1
InvMetrics Public DB > \$1B Net Median	9.8%	--	8.8%	--	1.0	--	-0.1	--	1.3%	--

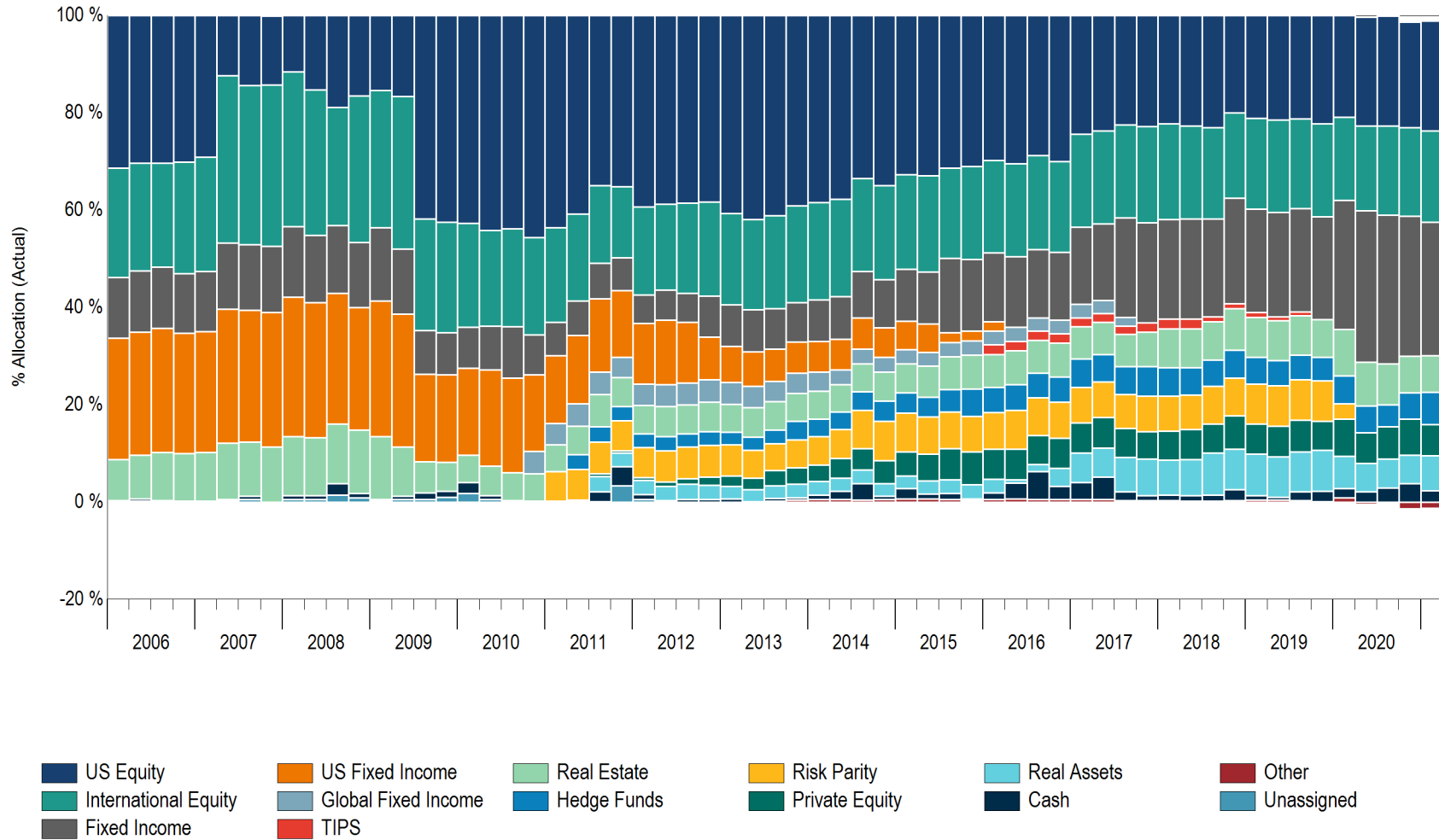
InvMetrics Public DB > \$1B Net Return Comparison



	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
<b>Return (Rank)</b>								
5th Percentile	5.0	24.7	41.4	15.5	11.2	11.7	8.9	9.4
25th Percentile	3.7	21.5	35.8	12.7	9.6	10.3	8.0	8.5
Median	3.3	19.4	32.6	11.8	8.8	9.8	7.5	7.8
75th Percentile	2.7	18.5	29.8	11.0	8.2	9.2	7.1	7.5
95th Percentile	1.9	17.1	24.8	9.4	6.7	8.2	5.9	6.0
# of Portfolios	57	57	57	57	57	57	56	53
● Total Fund	2.6 (78)	18.2 (80)	28.2 (88)	10.3 (90)	7.8 (87)	8.8 (89)	7.1 (75)	7.7 (58)
▲ Policy Index	3.6 (36)	17.9 (85)	27.4 (92)	11.6 (67)	8.8 (55)	9.7 (57)	7.6 (44)	8.2 (35)

Total Fund  
Asset Allocation History

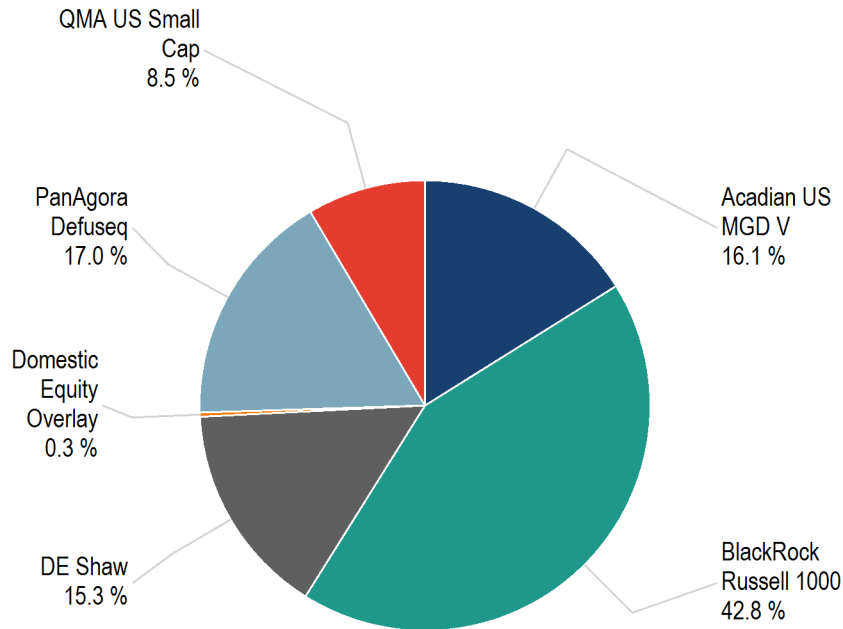
Period Ending: March 31, 2021





US Equity  
 Manager Allocation Analysis

Period Ending: March 31, 2021



	Actual \$	Actual %	Manager Contribution to Excess Return %
Acadian US MGD V	\$209,613,223	16.1%	-0.3%
BlackRock Russell 1000	\$555,875,029	42.8%	0.0%
DE Shaw	\$198,408,132	15.3%	-0.5%
PanAgora Defuseq	\$220,495,657	17.0%	-0.1%
QMA US Small Cap	\$110,044,569	8.5%	0.3%
Domestic Equity Overlay	\$4,324,655	0.3%	0.0%
Actual vs. Policy Weight Difference			0.1%
<b>Total</b>	<b>\$1,298,761,265</b>	<b>100.0%</b>	<b>-0.4%</b>

**Statistics Summary**

**3 Years**

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
US Equity	14.0%	18.8%	0.7	-1.9	1.7%
Blended US Equity Index	17.1%	19.3%	0.8	--	0.0%
Russell 3000	17.1%	19.3%	0.8	--	0.0%

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Large Cap Equity	14.7%	18.1%	0.7	-1.4	1.8%
Russell 1000	17.3%	19.0%	0.8	--	0.0%
BlackRock Russell 1000	17.3%	19.0%	0.8	0.9	0.0%
Russell 1000	17.3%	19.0%	0.8	--	0.0%
DE Shaw	14.8%	19.4%	0.7	-0.9	2.9%
Russell 1000	17.3%	19.0%	0.8	--	0.0%
Small Cap Equity	8.6%	27.3%	0.3	-1.2	5.0%
Russell 2000	14.8%	25.7%	0.5	--	0.0%
QMA US Small Cap	8.6%	27.3%	0.3	-1.2	5.0%
Russell 2000	14.8%	25.7%	0.5	--	0.0%

**Statistics Summary**

**5 Years**

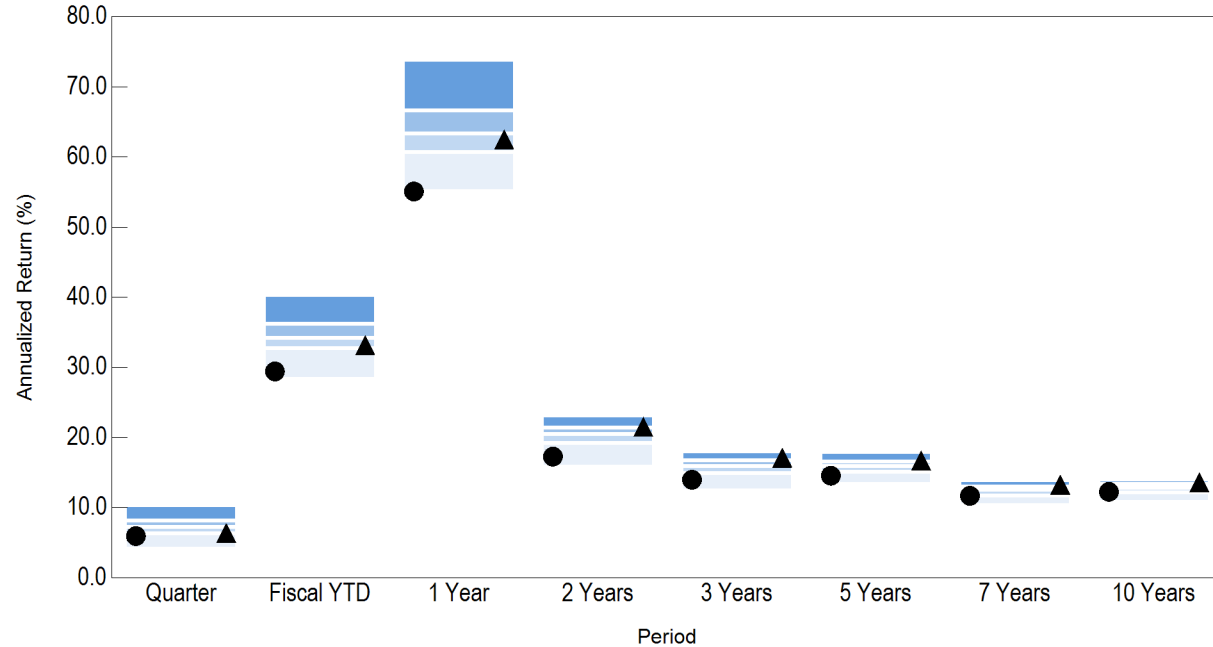
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
US Equity	14.6%	15.1%	0.9	-1.5	1.4%
Blended US Equity Index	16.7%	15.6%	1.0	--	0.0%
Russell 3000	16.6%	15.6%	1.0	-0.9	0.1%

**Statistics Summary**

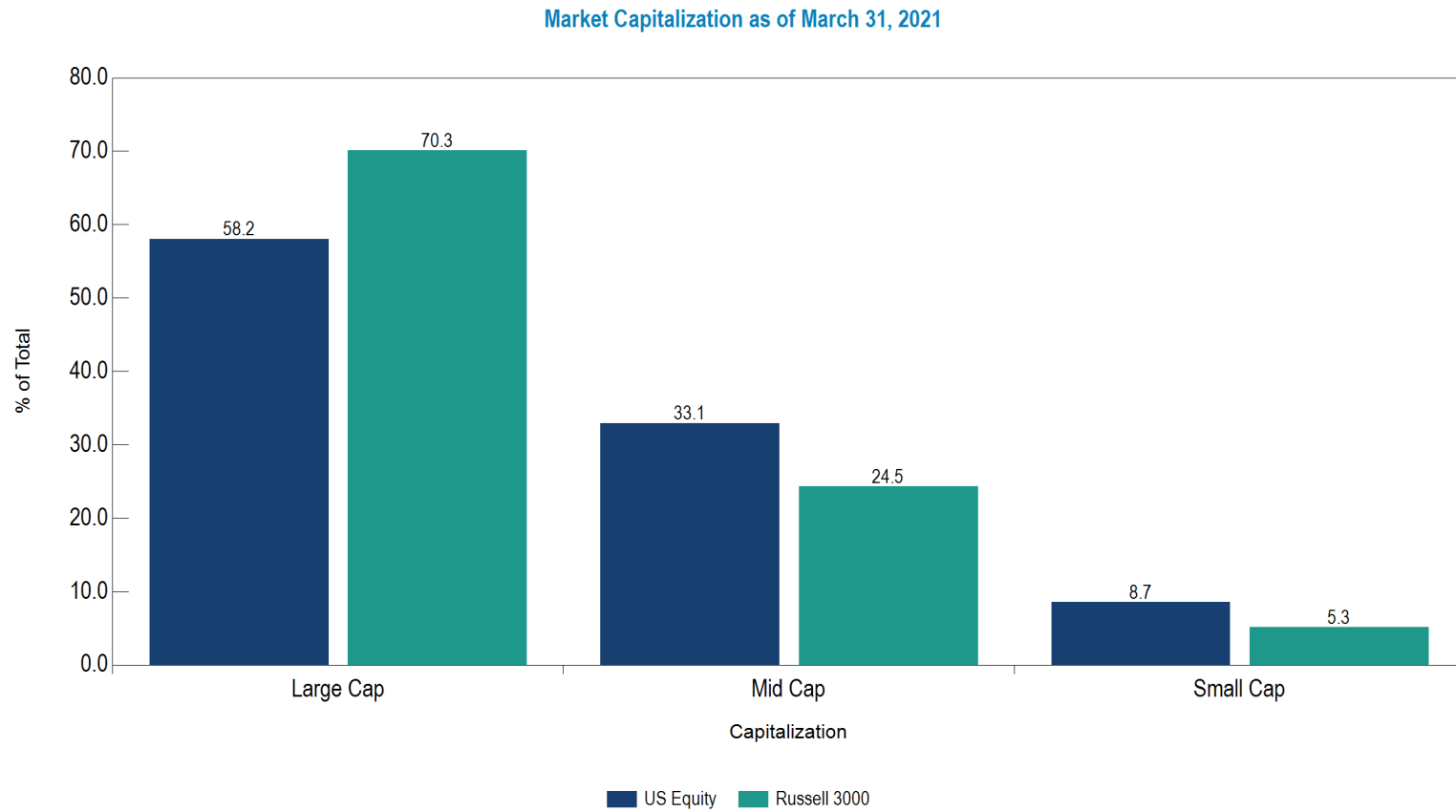
**5 Years**

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Large Cap Equity	15.4%	14.6%	1.0	-0.8	1.7%
Russell 1000	16.7%	15.3%	1.0	--	0.0%
DE Shaw	16.3%	15.5%	1.0	-0.1	2.7%
Russell 1000	16.7%	15.3%	1.0	--	0.0%
Small Cap Equity	10.9%	22.1%	0.4	-1.3	4.2%
Russell 2000	16.4%	21.0%	0.7	--	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	10.3	40.3	73.8	23.1	18.0	17.9	13.8	14.0
25th Percentile	8.2	36.3	66.7	21.4	16.8	16.6	13.0	13.4
Median	7.3	34.3	63.4	20.5	15.9	16.0	12.6	12.9
75th Percentile	6.4	32.8	60.8	19.3	15.0	15.1	11.8	12.2
95th Percentile	4.2	28.4	55.2	15.9	12.5	13.4	10.4	10.9
# of Portfolios	445	445	445	442	440	417	404	325
● US Equity	5.9 (88)	29.4 (94)	55.1 (96)	17.3 (92)	14.0 (87)	14.6 (85)	11.7 (78)	12.3 (73)
▲ Blended US Equity Index	6.3 (78)	33.2 (68)	62.5 (60)	21.5 (22)	17.1 (16)	16.7 (18)	13.2 (18)	13.6 (15)



See appendix for the market capitalization breakpoints.

Characteristics

	Portfolio	Russell 3000
Number of Holdings	2,871	3,035
Weighted Avg. Market Cap. (\$B)	299.0	385.9
Median Market Cap. (\$B)	4.4	2.3
Price To Earnings	26.9	29.5
Price To Book	4.0	4.3
Price To Sales	2.6	3.0
Return on Equity (%)	17.1	15.2
Yield (%)	1.5	1.4

Top Holdings

APPLE INC	3.7%
MICROSOFT CORP	3.6%
AMAZON.COM INC	2.0%
ALPHABET INC	1.5%
FACEBOOK INC	1.3%
JOHNSON & JOHNSON	1.1%
PROCTER & GAMBLE CO (THE)	1.0%
TESLA INC	1.0%
VERIZON COMMUNICATIONS INC	1.0%
CISCO SYSTEMS INC	0.8%

Best Performers

	Return %
GAMESTOP CORP. (GME)	907.6%
AMC ENTERTAINMENT HOLDINGS INC (AMC)	381.6%
EXPRESS INC (EXPR)	341.8%
KOPIN CORP (KOPN)	331.7%
PANDION THERAPEUTICS INC (PAND)	304.4%
GLOBALSTAR INC (GSAT)	298.7%
ACLARIS THERAPEUTICS INC (ACRS)	289.5%
EVOLUS INC (EOLS)	286.6%
RING ENERGY INC (REI)	250.1%
RUBIUS THERAPEUTICS INC (RUBY)	249.1%

Worst Performers

	Return %
ODONATE THERAPEUTICS INC (ODT)	-82.2%
FREQUENCY THERAPEUTICS INC (FREQ)	-73.1%
LUMOS PHARMA INC (LUMO)	-67.2%
WASHINGTON PRIME GROUP INC (WPG)	-65.7%
IMMUNOVANT INC (IMVT)	-65.3%
IDERA PHARMACEUTICALS INC (IDRA)	-64.6%
IMARA INC (IMRA)	-61.7%
ATHENEX INC (ATNX)	-61.1%
CONCERT PHARMACEUTICALS INC (CNCE)	-60.5%
AMICUS THERAPEUTICS INC (FOLD)	-57.2%

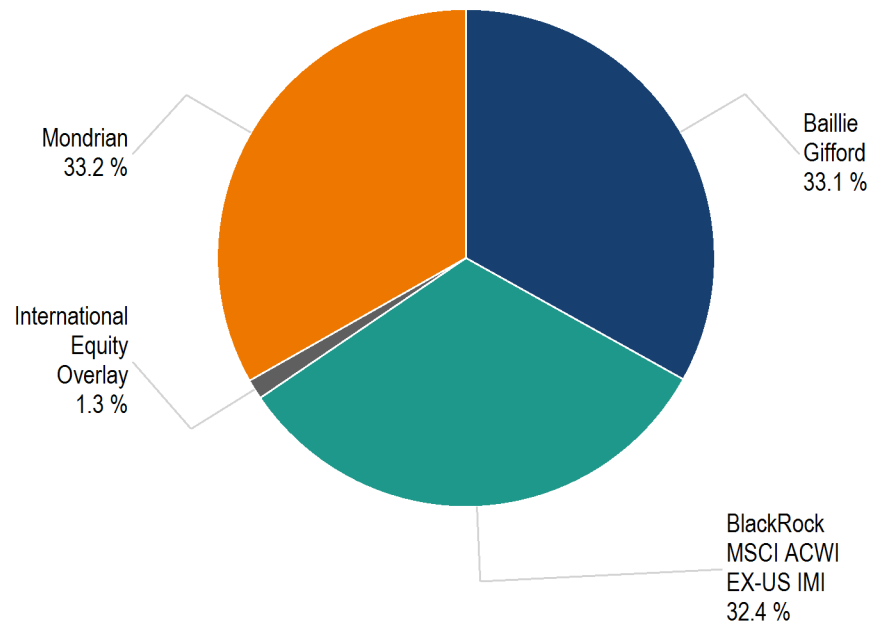


US Equity Performance Attribution vs. Russell 3000

	Total Effects	Attribution Effects				Returns		Sector Weights			
		Selection Effect	Allocation Effect	Interaction Effects	Portfolio	Benchmark	Portfolio	Benchmark			
Energy	0.1%	0.0%	0.1%	0.0%	30.1%	31.0%	2.3%	1.9%			
Materials	0.0%	0.0%	0.0%	0.0%	9.4%	10.4%	3.8%	2.8%			
Industrials	0.0%	0.0%	0.0%	0.0%	11.4%	11.6%	8.8%	9.3%			
Consumer Discretionary	0.3%	0.3%	0.0%	0.0%	7.5%	5.3%	11.2%	12.4%			
Consumer Staples	-0.1%	0.0%	-0.1%	0.0%	2.4%	2.1%	9.3%	5.9%			
Health Care	-0.1%	-0.1%	0.0%	0.0%	2.1%	2.6%	15.2%	14.1%			
Financials	-0.2%	0.1%	-0.2%	0.0%	16.9%	16.3%	8.7%	10.8%			
Information Technology	0.5%	0.4%	0.2%	0.0%	2.8%	1.4%	23.5%	27.4%			
Communication Services	-0.1%	-0.1%	0.0%	0.0%	6.4%	7.5%	9.7%	10.0%			
Utilities	0.0%	0.0%	0.0%	0.0%	4.3%	3.5%	4.0%	2.4%			
Real Estate	0.0%	0.0%	0.0%	0.0%	8.3%	8.7%	3.0%	3.2%			
Cash	0.0%	0.0%	0.0%	0.0%	0.0%	--	0.2%	0.0%			
Unclassified	0.0%	0.0%	0.0%	0.0%	7.9%	--	0.1%	0.0%			
<b>Portfolio</b>	<b>0.3%</b>	<b>=</b>	<b>0.5%</b>	<b>+</b>	<b>-0.1%</b>	<b>+</b>	<b>-0.1%</b>	<b>6.6%</b>	<b>6.4%</b>	<b>100.0%</b>	<b>100.0%</b>

U.S. Effective Style Map





	Actual \$	Actual %	Manager Contribution to Excess Return %
Baillie Gifford	\$359,692,161	33.1%	-1.1%
Mondrian	\$360,663,827	33.2%	-0.3%
BlackRock MSCI ACWI EX-US IMI	\$352,128,710	32.4%	0.0%
International Equity Overlay	\$14,269,075	1.3%	0.0%
Actual vs. Policy Weight Difference			0.9%
<b>Total</b>	<b>\$1,086,753,773</b>	<b>100.0%</b>	<b>-0.6%</b>

**Statistics Summary**

**3 Years**

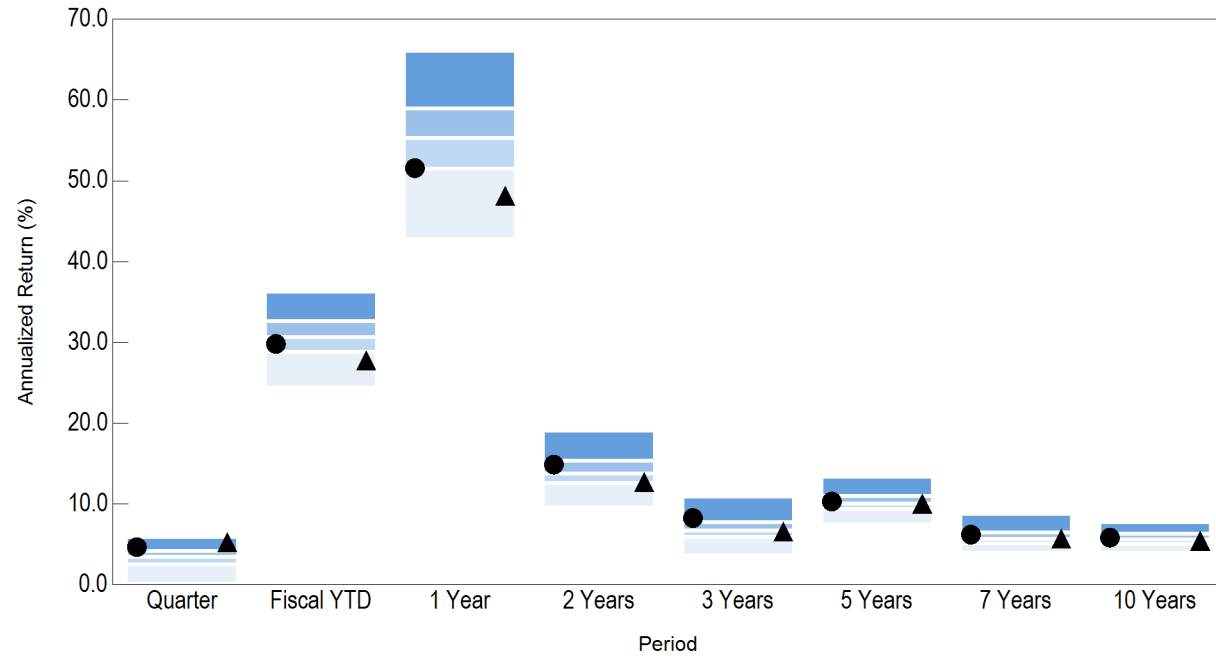
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
International Equity	8.3%	16.7%	0.4	1.1	1.5%
Blended International Equity Index	6.6%	16.8%	0.3	--	0.0%
Baillie Gifford	14.5%	18.5%	0.7	1.2	6.3%
MSCI ACWI ex US	7.0%	17.6%	0.3	--	0.0%
Mondrian	4.0%	19.1%	0.1	0.4	2.8%
MSCI ACWI ex USA Value Gross	3.0%	20.2%	0.1	--	0.0%

**Statistics Summary**

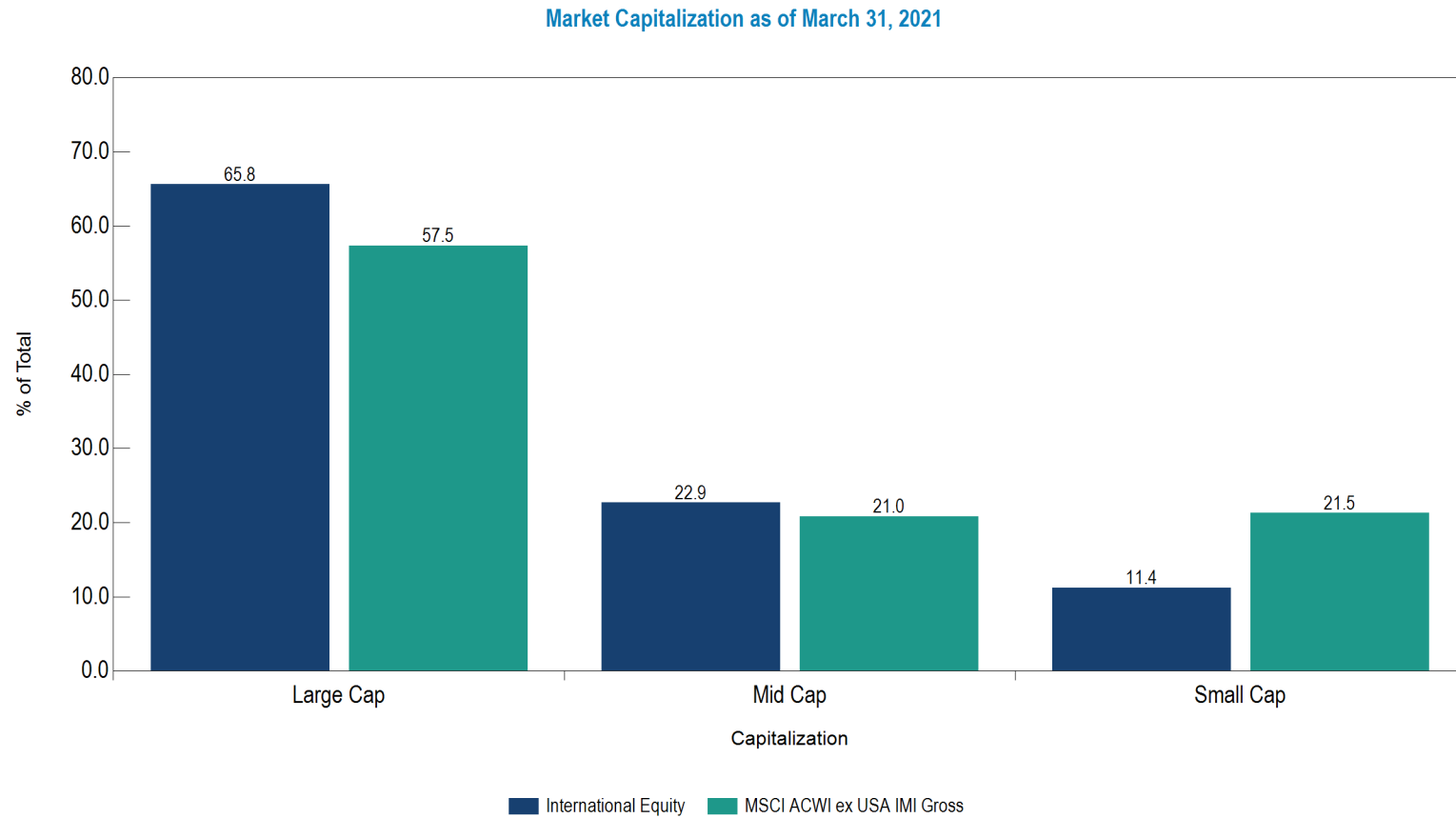
**5 Years**

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
International Equity	10.3%	14.0%	0.7	0.2	1.7%
Blended International Equity Index	10.1%	14.0%	0.6	--	0.0%
Baillie Gifford	14.5%	15.6%	0.9	0.8	5.6%
MSCI ACWI ex US	10.3%	14.6%	0.6	--	0.0%
Mondrian	7.1%	15.7%	0.4	-0.2	3.7%
MSCI ACWI ex USA Value Gross	7.9%	16.6%	0.4	--	0.0%

InvMetrics All DB ex-US Eq Net Return Comparison



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	5.9	36.3	66.1	19.1	10.9	13.3	8.8	7.7
25th Percentile	4.2	32.7	59.0	15.4	7.8	11.0	6.5	6.4
Median	3.5	30.7	55.4	13.8	6.8	10.1	5.7	5.7
75th Percentile	2.6	28.9	51.6	12.6	6.0	9.5	5.2	5.1
95th Percentile	0.2	24.4	42.8	9.6	3.7	7.5	4.0	4.0
# of Portfolios	293	293	293	292	288	271	261	203
● International Equity	4.7 (17)	29.8 (63)	51.6 (75)	14.9 (32)	8.3 (21)	10.3 (42)	6.2 (32)	5.8 (44)
▲ Blended International Equity Index	5.2 (11)	27.8 (85)	48.1 (90)	12.7 (75)	6.6 (58)	10.1 (54)	5.7 (50)	5.4 (62)



See appendix for the market capitalization breakpoints.

Characteristics

	Portfolio	MSCI ACWI ex USA IMI Gross
Number of Holdings	6,521	6,554
Weighted Avg. Market Cap. (\$B)	90.5	88.8
Median Market Cap. (\$B)	2.2	1.9
Price To Earnings	23.8	21.3
Price To Book	2.9	2.6
Price To Sales	1.5	1.4
Return on Equity (%)	9.0	9.6
Yield (%)	2.0	2.2

Top Holdings

TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	1.4%
ASML HOLDING NV	1.3%
TAIWAN SEMICONDUCTOR MANUFACTURING CO LTD	1.3%
ALIBABA GROUP HOLDING LTD	1.2%
UNITED OVERSEAS BANK LTD	1.2%
SHOPIFY INC	1.1%
CK HUTCHISON HOLDINGS LTD	0.9%
PING AN INSURANCE GROUP	0.9%
COMPAGNIE DE SAINT GOBAIN SA	0.9%
SANOFI	0.9%

Best Performers

	Return %
POSEIDON CONCEPTS CORP (POOSF)	49,899.8%
HENG TEN NETWORKS GROUP LTD	267.3%
FUTU HOLDINGS LTD (FUTU)	247.1%
MEDIGEN VACCINE BIOLOGICS CORP	176.7%
TILRAY INC (APHA.)	165.8%
PPDAI GROUP INC (FINV)	162.5%
HYOSUNG TNC CORP	162.1%
ORGANIGRAM HOLDINGS INC (OGI.)	160.7%
ADANI TOTAL GAS LTD	155.4%
IIFL FINANCE LTD	151.1%

Worst Performers

	Return %
FREEDOM FOODS GROUP (A:FNPX)	-84.6%
PIRAEUS FINANCIAL HOLDINGS SA	-67.8%
G-TREEBNT CO LTD	-61.2%
DL HOLDINGS CO LTD	-54.9%
AI INSIDE INC	-54.8%
CANTARGIA AB	-54.5%
YOMA STRATEGIC (T:SVIW)	-52.9%
CHINA FORTUNE LAND DEVELOPMENT CO LTD	-51.6%
ILYANG PHARM. (KO:IYP)	-51.5%
GUORUI PROPERTIES LTD	-49.5%



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%	10.6%	9.8%	3.6%	4.0%			
Materials	0.0%	-0.1%	0.0%	0.2%	4.1%	5.4%	5.1%	8.5%			
Industrials	0.3%	0.3%	0.0%	0.0%	8.0%	5.7%	13.8%	12.8%			
Consumer Discretionary	-0.3%	-0.1%	0.0%	-0.1%	2.2%	2.9%	16.7%	13.5%			
Consumer Staples	0.0%	0.0%	0.0%	0.0%	-2.4%	-1.8%	8.2%	8.5%			
Health Care	0.3%	0.3%	0.0%	0.0%	-0.8%	-3.4%	9.1%	9.3%			
Financials	-0.3%	-0.3%	-0.1%	0.2%	7.1%	8.7%	13.8%	17.0%			
Information Technology	-0.2%	-0.1%	0.0%	-0.1%	3.0%	3.6%	15.6%	12.7%			
Communication Services	-0.4%	-0.3%	0.0%	-0.1%	1.6%	5.3%	8.8%	6.6%			
Utilities	0.1%	0.0%	0.0%	0.0%	0.8%	-0.8%	3.0%	3.4%			
Real Estate	0.1%	0.0%	0.0%	0.1%	4.2%	2.5%	1.4%	3.7%			
Cash	-0.1%	0.0%	-0.1%	0.0%	0.0%	--	0.9%	0.0%			
Unclassified	0.0%	--	--	--	--	--	0.0%	0.0%			
<b>Portfolio</b>	<b>-0.4%</b>	<b>=</b>	<b>-0.3%</b>	<b>+</b>	<b>-0.1%</b>	<b>+</b>	<b>0.1%</b>	<b>3.5%</b>	<b>3.9%</b>	<b>100.0%</b>	<b>100.0%</b>

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	
<b>Europe</b>									
Austria	8.2%	9.7%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Belgium	-1.3%	-1.7%	0.2%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Czech Republic*	5.5%	5.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Denmark	1.6%	-2.3%	0.8%	1.5%	0.1%	0.0%	0.0%	0.0%	0.1%
Finland	3.5%	0.6%	0.7%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
France	6.1%	4.4%	5.5%	6.3%	0.1%	0.0%	0.0%	0.0%	0.1%
Germany	-6.7%	3.9%	4.8%	5.6%	-0.6%	0.0%	0.0%	0.1%	-0.5%
Greece*	3.3%	3.4%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Hungary*	0.3%	0.3%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Ireland	15.8%	6.5%	0.7%	0.4%	0.0%	0.0%	0.0%	0.0%	0.1%
Italy	6.7%	5.7%	1.6%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Luxembourg	-12.5%	3.9%	0.7%	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%
Netherlands	11.7%	11.6%	2.8%	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Norway	9.6%	9.7%	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Poland*	-2.7%	-5.8%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Portugal	-0.6%	-2.9%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Russia*	10.8%	6.2%	0.4%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Spain	6.2%	1.8%	2.1%	1.5%	0.1%	0.0%	0.0%	0.0%	0.1%
Sweden	8.4%	8.3%	3.4%	2.5%	0.0%	0.1%	-0.1%	0.0%	0.0%
Switzerland	1.3%	-1.4%	3.8%	5.7%	0.2%	0.0%	0.1%	-0.1%	0.3%
United Kingdom	5.9%	6.3%	12.0%	9.3%	0.0%	0.0%	0.0%	0.0%	-0.1%

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

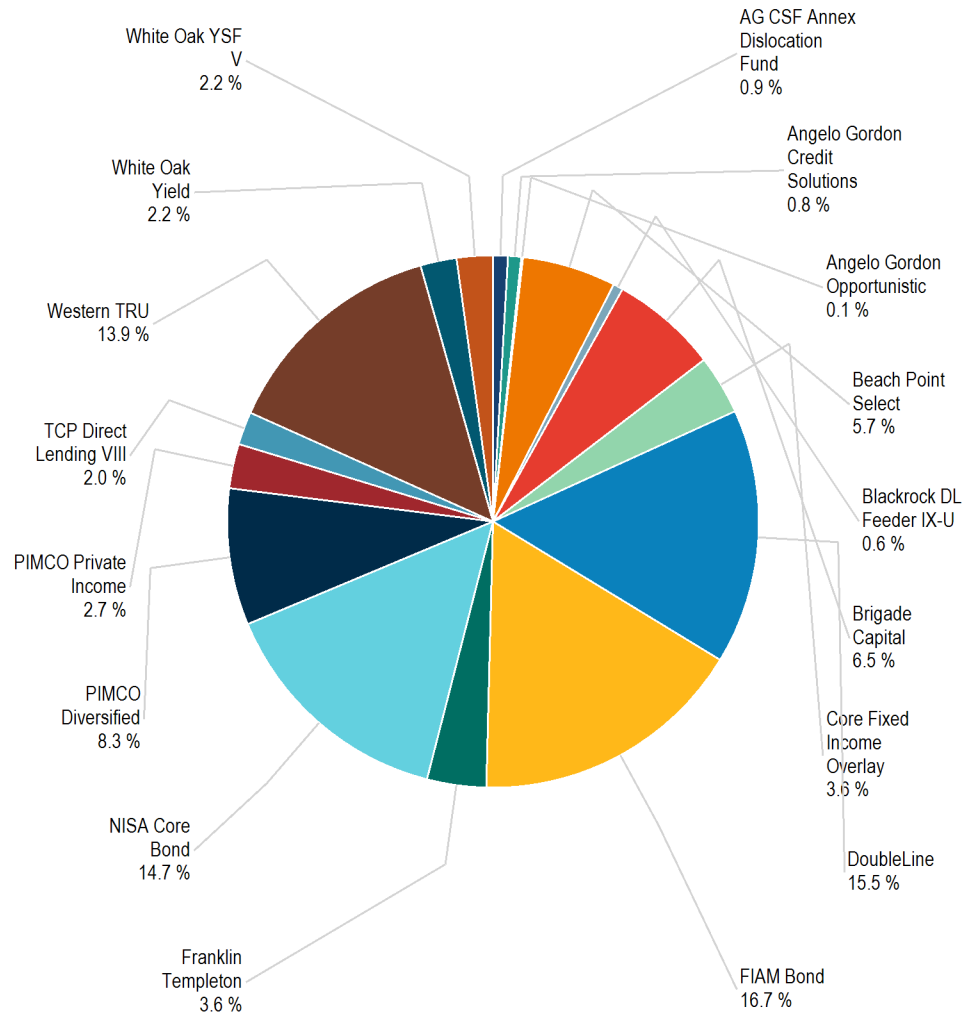
	Returns and Weights				Attribution Effects				Total Effects
	Manager Return	Index Return	Manager Weight	Index Weight	Selection Effect	Allocation Effect	Currency Effect	Interaction Effect	
<b>AsiaPacific</b>									
Australia	5.2%	3.0%	2.8%	4.7%	0.1%	0.0%	0.0%	0.0%	0.1%
China*	0.3%	0.6%	10.1%	10.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Hong Kong	9.1%	8.4%	3.1%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%
India*	0.4%	6.9%	3.9%	3.0%	-0.2%	0.0%	0.0%	-0.1%	-0.3%
Indonesia*	-3.3%	-7.8%	0.3%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Japan	0.9%	1.9%	19.5%	16.5%	-0.2%	0.1%	-0.2%	0.0%	-0.3%
Korea*	2.7%	1.7%	2.9%	4.2%	0.0%	0.0%	0.0%	0.0%	0.1%
Malaysia*	-3.1%	-4.1%	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
New Zealand	-14.1%	-8.5%	0.7%	0.3%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Pakistan*	5.4%	5.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Philippines*	-9.9%	-9.9%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Singapore	10.2%	7.7%	1.6%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Taiwan*	11.9%	10.9%	4.5%	4.1%	0.0%	0.0%	0.0%	0.0%	0.1%
Thailand*	4.2%	6.4%	0.3%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Americas</b>									
Argentina*	-12.1%	-4.4%	0.6%	0.1%	0.0%	-0.1%	0.0%	0.0%	-0.1%
Brazil*	-8.9%	-9.4%	1.4%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Canada	6.1%	9.7%	4.1%	6.3%	-0.2%	0.0%	-0.1%	0.1%	-0.2%
Chile*	17.7%	17.7%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Colombia*	-17.2%	-17.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Mexico*	6.0%	3.5%	0.4%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Peru*	-13.2%	-10.4%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
United States	1.3%	5.4%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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	
<b>Other</b>									
Egypt*	-2.6%	-2.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Israel	1.6%	1.6%	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Kuwait*	6.8%	6.9%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Qatar*	3.9%	4.0%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Saudi Arabia*	18.1%	18.1%	0.3%	0.7%	0.0%	-0.1%	0.0%	0.0%	-0.1%
South Africa*	14.8%	12.4%	0.9%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Turkey*	-14.8%	-15.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
United Arab Emirates*	13.9%	14.1%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Totals</b>									
Americas	1.3%	5.6%	7.3%	8.8%	-0.3%	0.0%	0.0%	0.1%	-0.3%
Europe	4.3%	4.2%	40.2%	40.1%	-0.1%	0.0%	0.2%	0.0%	0.1%
Asia/Pacific	2.7%	2.9%	50.0%	48.1%	-0.1%	0.0%	-0.1%	0.0%	-0.2%
Other	11.9%	9.5%	1.6%	3.0%	0.1%	-0.1%	0.0%	0.0%	0.0%
Cash	0.0%	--	0.9%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%
<b>Total</b>	<b>3.4%</b>	<b>3.9%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>-0.5%</b>	<b>-0.1%</b>	<b>0.1%</b>	<b>0.0%</b>	<b>-0.5%</b>
<b>Totals</b>									
Developed	3.7%	4.2%	72.4%	70.0%	-0.4%	0.0%	-0.1%	0.0%	-0.4%
Emerging*	2.7%	3.1%	26.7%	30.0%	-0.3%	0.1%	0.2%	0.0%	0.0%
Cash	0.0%	--	0.9%	0.0%	0.0%	-0.1%	0.0%	0.0%	-0.1%

# Fixed Income Manager Allocation Analysis

Period Ending: March 31, 2021



	Actual \$	Actual %	Manager Contribution to Excess Return %
AG CSF Annex Dislocation Fund	\$14,087,050	0.9%	0.1%
Angelo Gordon Credit Solutions	\$12,887,330	0.8%	0.1%
Angelo Gordon Opportunistic	\$2,096,853	0.1%	0.0%
Beach Point Select	\$89,524,186	5.7%	0.3%
Blackrock DL Feeder IX-U	\$9,524,119	0.6%	0.0%
Brigade Capital	\$103,389,080	6.5%	0.4%
DoubleLine	\$244,933,819	15.5%	0.1%
FIAM Bond	\$263,280,582	16.7%	0.1%
Franklin Templeton	\$56,904,649	3.6%	0.0%
NISA Core Bond	\$233,089,997	14.7%	0.0%
PIMCO Diversified	\$130,946,041	8.3%	0.0%
PIMCO Private Income	\$42,506,912	2.7%	0.0%
TCP Direct Lending VIII	\$31,716,643	2.0%	0.0%
Western TRU	\$219,944,558	13.9%	-0.3%
White Oak Yield	\$34,204,765	2.2%	-0.1%
White Oak YSF V	\$34,447,924	2.2%	-0.1%
Core Fixed Income Overlay	\$57,365,266	3.6%	0.0%
Actual vs. Policy Weight Difference			0.3%
<b>Total</b>	<b>\$1,580,849,773</b>	<b>100.0%</b>	<b>0.9%</b>

Statistics Summary

3 Years

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Fixed Income	4.8%	3.6%	1.0	-0.3	1.8%
Blended Fixed Income Index	5.4%	4.1%	1.0	--	0.0%
Core Fixed	4.4%	3.1%	1.0	-0.1	1.5%
BBgBarc US Aggregate TR	4.7%	3.6%	0.9	--	0.0%
FIAM Bond	5.7%	4.0%	1.1	0.7	1.6%
BBgBarc US Aggregate TR	4.7%	3.6%	0.9	--	0.0%
Western TRU	3.5%	6.8%	0.3	0.3	6.8%
3-Month Libor Total Return USD	1.6%	0.3%	0.9	--	0.0%
Opportunistic Credit	5.6%	6.8%	0.6	-0.4	4.3%
BBgBarc BA Intermediate HY	7.2%	8.0%	0.7	--	0.0%
Angelo Gordon Opportunistic	9.6%	18.3%	0.4	0.3	18.6%
BBgBarc US Aggregate TR	4.7%	3.6%	0.9	--	0.0%
Beach Point Select	9.4%	8.9%	0.9	0.5	4.9%
BBgBarc BA Intermediate HY	7.2%	8.0%	0.7	--	0.0%
Brigade Capital	5.8%	12.2%	0.4	-0.2	7.1%
BBgBarc BA Intermediate HY	7.2%	8.0%	0.7	--	0.0%
PIMCO Diversified	5.3%	6.9%	0.6	-0.1	1.3%
Blended PIMCO Diversified Index	5.4%	7.8%	0.5	--	0.0%
Franklin Templeton	-3.2%	6.8%	-0.7	-0.8	7.7%
BBgBarc Multiverse TR	2.9%	4.6%	0.3	--	0.0%

**Statistics Summary**

**3 Years**

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Private Credit	7.2%	4.1%	1.4	-0.3	2.7%
Cliffwater Direct Lending Index	8.0%	5.5%	1.2	--	0.0%
TCP Direct Lending VIII	7.3%	2.9%	2.0	-0.2	4.5%
Cliffwater Direct Lending Index	8.0%	5.5%	1.2	--	0.0%
White Oak Yield	5.9%	3.1%	1.5	-0.6	3.6%
Cliffwater Direct Lending Index	8.0%	5.5%	1.2	--	0.0%

Fixed Income  
Risk vs. Return (5 Years)

Period Ending: March 31, 2021

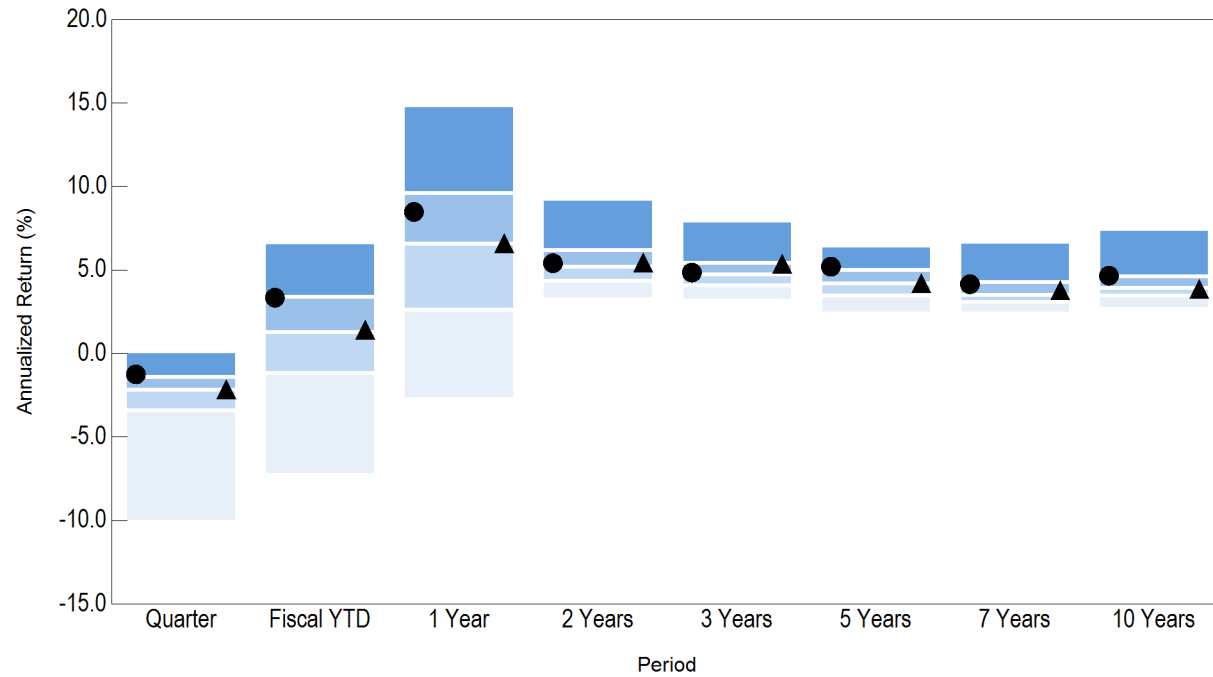
Statistics Summary

5 Years

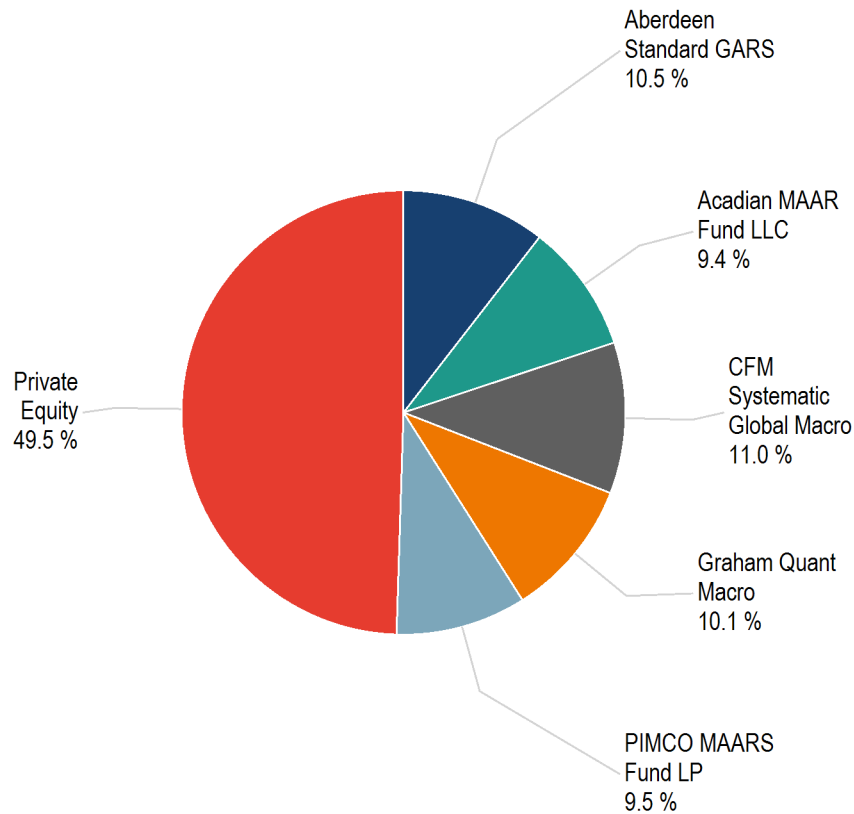
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Fixed Income	5.2%	3.1%	1.3	0.5	1.8%
Blended Fixed Income Index	4.2%	3.6%	0.8	--	0.0%
Core Fixed	3.9%	2.9%	1.0	0.6	1.4%
BBgBarc US Aggregate TR	3.1%	3.3%	0.6	--	0.0%
FIAM Bond	4.2%	3.6%	0.8	0.9	1.3%
BBgBarc US Aggregate TR	3.1%	3.3%	0.6	--	0.0%
Western TRU	4.9%	5.5%	0.7	0.6	5.5%
3-Month Libor Total Return USD	1.5%	0.2%	1.4	--	0.0%
Opportunistic Credit	8.0%	5.5%	1.2	0.3	3.7%
BBgBarc BA Intermediate HY	6.9%	6.4%	0.9	--	0.0%
Angelo Gordon Opportunistic	11.9%	15.1%	0.7	0.6	15.3%
BBgBarc US Aggregate TR	3.1%	3.3%	0.6	--	0.0%
Beach Point Select	10.3%	7.0%	1.3	0.8	4.0%
BBgBarc BA Intermediate HY	6.9%	6.4%	0.9	--	0.0%
Brigade Capital	8.9%	9.9%	0.8	0.3	5.9%
BBgBarc BA Intermediate HY	6.9%	6.4%	0.9	--	0.0%
Franklin Templeton	0.7%	6.2%	-0.1	-0.3	7.8%
BBgBarc Multiverse TR	2.9%	4.7%	0.4	--	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	0.1	6.6	14.9	9.3	8.0	6.5	6.7	7.5
25th Percentile	-1.4	3.4	9.6	6.2	5.4	5.0	4.3	4.7
Median	-2.2	1.3	6.6	5.2	4.7	4.2	3.5	4.0
75th Percentile	-3.4	-1.2	2.6	4.4	4.1	3.5	3.1	3.5
95th Percentile	-10.1	-7.2	-2.7	3.3	3.2	2.4	2.4	2.7
# of Portfolios	258	258	258	257	255	237	226	189
● Fixed Income	-1.3 (23)	3.3 (27)	8.5 (35)	5.4 (46)	4.8 (46)	5.2 (22)	4.2 (29)	4.7 (25)
▲ Blended Fixed Income Index	-2.2 (50)	1.4 (48)	6.6 (51)	5.5 (43)	5.4 (27)	4.2 (50)	3.8 (38)	3.9 (52)



	Actual \$	Actual %	Manager Contribution to Excess Return %
Aberdeen Standard GARS	\$79,606,282	10.5%	-0.4%
Acadian MAAR Fund LLC	\$71,110,441	9.4%	-0.1%
CFM Systematic Global Macro	\$83,092,096	11.0%	0.2%
Graham Quant Macro	\$76,600,570	10.1%	-0.3%
PIMCO MAARS Fund LP	\$71,597,025	9.5%	0.0%
Private Equity	\$374,248,452	49.5%	-7.7%
Actual vs. Policy Weight Difference			1.8%
<b>Total</b>	<b>\$756,254,865</b>	<b>100.0%</b>	<b>-6.3%</b>

**Statistics Summary**

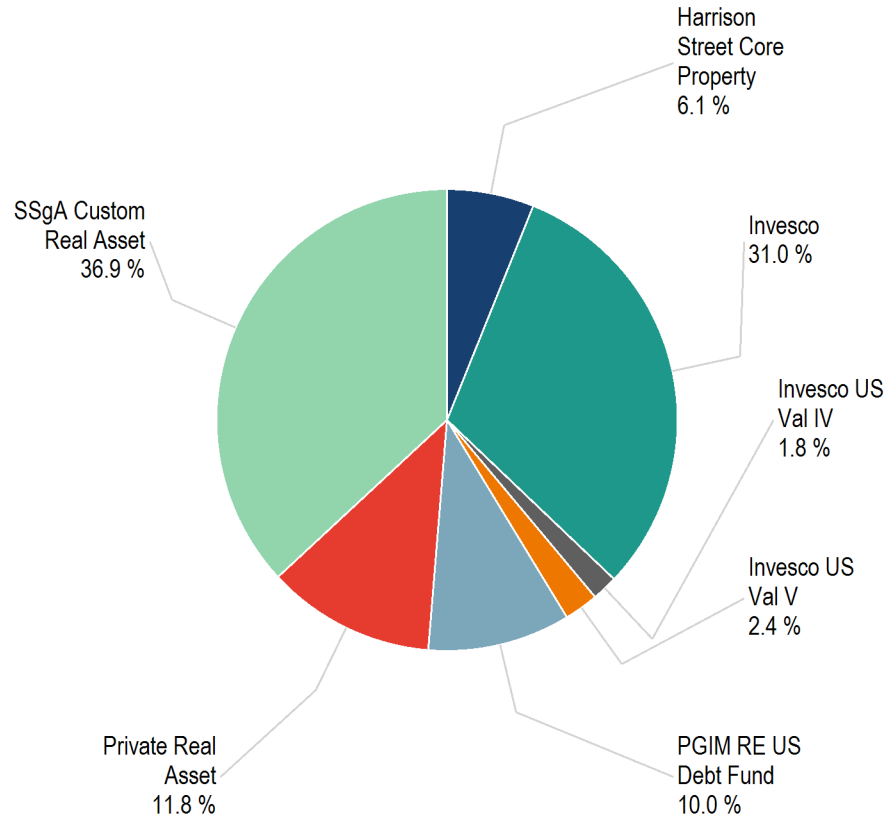
**3 Years**

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Alternatives	13.5%	14.5%	0.8	0.1	14.3%
Blended Alternatives Index	11.7%	9.5%	1.1	--	0.0%
Private Equity	31.6%	24.2%	1.2	0.6	24.4%
Blended Private Equity Index	17.5%	19.1%	0.8	--	0.0%
Hedge Fund/Absolute Return	-6.2%	6.7%	-1.1	-1.7	6.8%
Absolute Return Custom Index	5.5%	0.3%	15.3	--	0.0%
Aberdeen Standard GARS	3.4%	4.9%	0.4	-0.4	4.9%
Absolute Return Custom Index	5.5%	0.3%	15.3	--	0.0%

**Statistics Summary**

**5 Years**

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Alternatives	11.9%	11.8%	0.9	0.0	11.6%
Blended Alternatives Index	12.0%	7.7%	1.4	--	0.0%
Private Equity	25.5%	19.7%	1.2	0.4	20.0%
Blended Private Equity Index	18.1%	15.3%	1.1	--	0.0%
Hedge Fund/Absolute Return	-3.0%	5.9%	-0.7	-1.4	5.9%
Absolute Return Custom Index	5.3%	0.2%	17.8	--	0.0%
Aberdeen Standard GARS	2.7%	4.3%	0.4	-0.6	4.3%
Absolute Return Custom Index	5.3%	0.2%	17.8	--	0.0%



	Actual \$	Actual %	Manager Contribution to Excess Return %
Harrison Street Core Property	\$51,901,255	6.1%	0.0%
Invesco	\$264,373,688	31.0%	-0.2%
Invesco US Val IV	\$14,968,415	1.8%	0.0%
Invesco US Val V	\$20,495,919	2.4%	0.2%
PGIM RE US Debt Fund	\$85,342,344	10.0%	-0.1%
Private Real Asset	\$101,078,678	11.8%	-0.3%
SSgA Custom Real Asset	\$315,185,037	36.9%	0.0%
Actual vs. Policy Weight Difference			-0.7%
<b>Total</b>	<b>\$853,345,336</b>	<b>100.0%</b>	<b>-1.2%</b>

Statistics Summary

3 Years

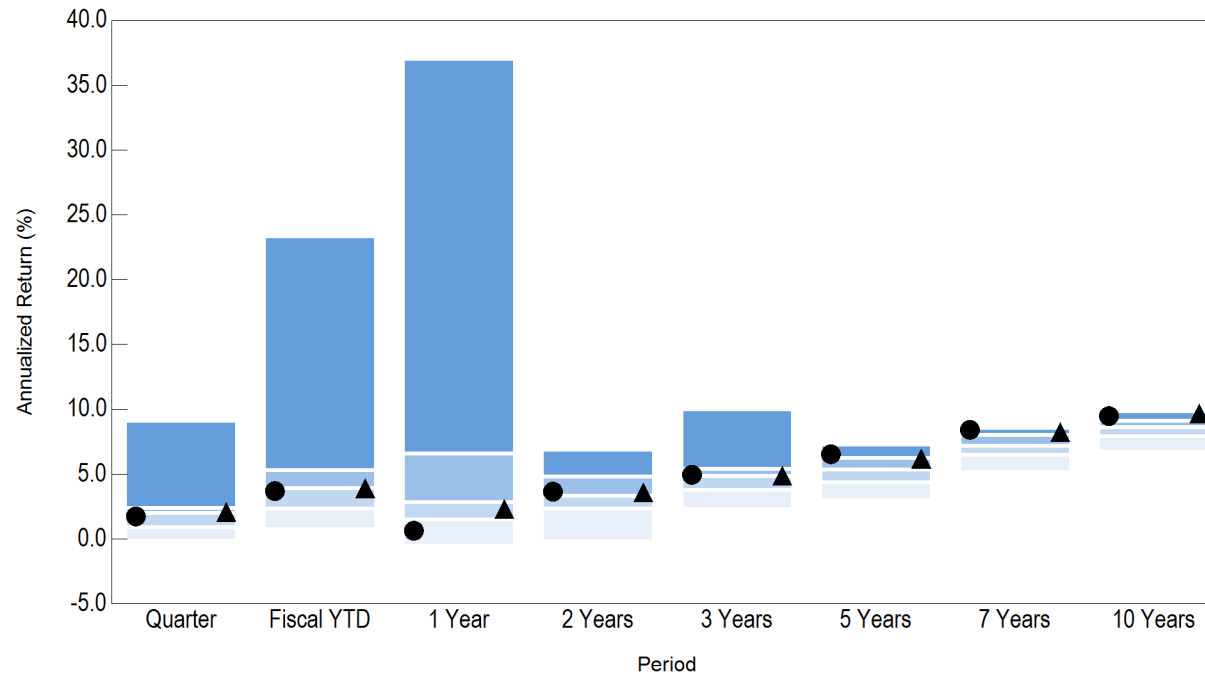
	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error
Inflation Hedge	1.1%	7.0%	0.0	-1.1	3.1%
Blended Inflation Hedge Index	4.5%	6.4%	0.5	--	0.0%
Real Estate	4.9%	3.4%	1.0	0.1	1.2%
NCREIF ODCE	4.9%	2.8%	1.3	--	0.0%
Invesco	4.0%	4.0%	0.7	-0.4	2.0%
NCREIF ODCE	4.9%	2.8%	1.3	--	0.0%
Invesco US Val IV	8.3%	6.3%	1.1	0.8	4.4%
NCREIF ODCE	4.9%	2.8%	1.3	--	0.0%
PGIM RE US Debt Fund	5.7%	2.3%	1.9	0.4	1.9%
NCREIF ODCE	4.9%	2.8%	1.3	--	0.0%
Private Real Asset	0.8%	10.8%	-0.1	-0.1	20.5%
Blended Private Real Asset Index	3.1%	20.7%	0.1	--	0.0%
Public Real Assets	-2.6%	19.8%	-0.2	-1.1	4.4%
Blended Public Real Asset Index	2.3%	16.6%	0.1	--	0.0%
SSgA Custom Real Asset	2.3%	16.3%	0.1	-0.1	0.8%
SSgA Custom Real Asset Index	2.3%	16.6%	0.1	--	0.0%

**Statistics Summary**

**5 Years**

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error Rank
Real Estate	6.5%	3.6%	1.5	0.3	24
NCREIF ODCE	6.2%	3.0%	1.7	--	1
Invesco	6.0%	4.0%	1.2	-0.1	--
NCREIF ODCE	6.2%	3.0%	1.7	--	--
Invesco US Val IV	9.2%	5.7%	1.4	0.8	--
NCREIF ODCE	6.2%	3.0%	1.7	--	--
Private Real Asset	-0.6%	9.1%	-0.2	-0.3	--
Blended Private Real Asset Index	4.7%	16.3%	0.2	--	--

InvMetrics All DB Real Estate Pub Net Return Comparison



	Return (Rank)							
	Quarter	Fiscal YTD	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years
5th Percentile	9.1	23.3	37.0	6.8	10.0	7.3	8.5	9.8
25th Percentile	2.4	5.3	6.6	4.8	5.4	6.3	8.1	9.1
Median	2.0	3.9	2.8	3.4	4.9	5.4	7.2	8.6
75th Percentile	0.9	2.4	1.5	2.4	3.8	4.4	6.5	7.9
95th Percentile	-0.1	0.8	-0.5	-0.2	2.3	3.0	5.2	6.8
# of Portfolios	76	76	76	75	74	70	67	53
● Real Estate	1.7 (60)	3.7 (56)	0.6 (83)	3.6 (42)	4.9 (49)	6.5 (13)	8.4 (7)	9.5 (15)
▲ NCREIF ODCE	2.1 (46)	3.9 (51)	2.3 (64)	3.6 (44)	4.9 (50)	6.2 (30)	8.2 (12)	9.7 (9)



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

The Standard Life Aberdeen Global Absolute Return Strategy (GARS) was initially launched in 2005 to help address Standard Life's own pension plan's deficit problem. GARS' primary investment objective is to deliver a positive absolute return over the medium to long term with lower volatility than equities, irrespective of market conditions. It seeks returns through dynamic allocation to investment opportunities in traditional and advanced asset classes, and also separately exploits the team's security selection expertise. In the search for attractive investment positions, the team follows a rigorous research process. This includes a variety of research techniques, including broad global macro-economic, fundamental analysis, quantitative research and valuation modeling. 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 rigorously examines and review position proposals to approve a high conviction, short list of positions that work well together. Having a cash benchmark means that GARS has a potentially unrestricted investment universe and all portfolio holdings are at the Portfolio Manager's discretion. The GARS portfolio also routinely uses a variety of conventional derivatives for investment, liquidity, efficiency, and hedging purposes. The GARS strategy has experienced significant growth in its asset under management since it becomes available to external investors in 2006.

## **Acadian Asset Management – Acadian U.S. Managed Volatility**

Acadian attempts to take advantage of the mispricing of risk by building low-risk equity portfolios that hold predominantly low-risk stocks, and then also adding information on the correlation structure of equities to help further reduce risk through diversification.

## **Acadian Asset Management – MAAR Fund**

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.

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

As bank balance sheets have strengthened since the crisis, Angelo Gordon expects approximately \$40 billion of re-performing loans and non-performing loans will trade hands each year in the near term. By acquiring these loans at a discounted price and replacing original servicers with better-focused special servicers, Angelo Gordon believes it can improve operational efficiency and generate attractive returns. To take advantage of this opportunity, Angelo Gordon established this Opportunistic Whole Loan Fund to make investments primarily in a portfolio of non-performing loans and re-performing but will 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. Angelo Gordon has been an active participant in the residential and consumer debt market since 2008. The Partnership's investment approach to residential mortgage loans and securities is guided by an analytically based investment process anchored by distressed asset valuation and cash flow modeling. Angelo Gordon's analysis of re-performing and non-performing loans begins with its loan due diligence process. This process will include a review of substantially all of the properties in the pool, as well as a review of the loan files backing the loan pool. In addition, a macro overlay is embedded in the investment process which incorporates general economic trends, along with specific views on interest rates, unemployment, collateral appreciation or depreciation, governmental intervention in creditors' rights and liquidation timelines.

## **Angelo, Gordon & Co. – Credit Solutions**

This fund is Angelo, Gordon's re-entry into the special situations private fund market. The fund expects to hold concentrated positions in the US and within Europe in both public and private markets.

## **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 we 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 crisis 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 80-120 stocks, with country and sector weights +/-6% relative to the index and industry 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 – 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 – Direct Lending Fund**

Upon completion of the TCP acquisition, the former TCP team is raising a direct lending portfolio. The fund will invest in privately originated, performing senior secured debt primarily in North American based companies with an average EV of \$750 million.

## **BlackRock (formerly Tennenbaum Capital Partners) - Direct Lending Fund VIII**

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.

## **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 (SGM) is a directional strategy that takes long and short positions in liquid futures and forwards across 130+ markets and across equities, bonds, currencies, and commodities.

## **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 19 years in the course of research conducted for purposes of managing the firm's hedge funds. In addition to its beta one strategies, D.E. Shaw manages substantial assets in its hedge fund strategies. 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 in its Securitized Income portfolios.

## **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 will 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). Invesco Value Fund IV will provide a nice compliment to the more conservative Invesco Core Fund and offer 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's investment strategy consists of strategic top-down and tactical bottom-up decisions. The Investment committee meets monthly and sets the strategic parameters including sector selection and yield curve positioning.

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

PanAgora's Defensive Equity strategy seeks to balance risk exposures within the portfolio across multiple dimensions to achieve true diversification. The Defensive Equity approach is used to construct equity portfolios designed to achieve tailored exposure to certain factors, including low volatility, multi-factor (value, quality, and momentum), and high dividend yield while maintaining less risk concentration throughout the portfolio.

## **Parametric Currency Overlay – Currency Hedge**

An overlay hedge placed on half of the notional value of international equities. The portfolio uses Parametric for this overlay.

## **PIMCO Diversified**

PIMCO Diversified Income Fund offers a broad and flexible multi-credit approach in a liquid and cost-effective format. The Diversified Income Fund seeks to produce consistent above benchmark performance using diversified sources of alpha from a universe that includes global credit as well as “non-core” credit sectors (ex., securitized, emerging markets).

## **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).

## **PIMCO Private Income Fund**

PIMCO Private Income Fund provides an attractive 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.

## **PGIM RE Debt**

PGIM Real Estate US Debt Fund 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.

## **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 Commodity Index, S&P Global Natural Resources Index, and S&P Global Infrastructure Index. The portfolio is used to fund upcoming private real asset mandates.

## **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: March 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	
60/40 MSCI World/BBgBarc 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%	
10 Year Treasury +2%	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%	
60/40 MSCI World/BBgBarc 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%	
60/40 Russell 3000/BBgBarc US Aggregate (RP)	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%	
91 Day T-Bills	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%	
BBgBarc Aggregate	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%	
BBgBarc BA Intermediate HY	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%	
BBgBarc 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%	
BBgBarc Credit BAA	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%	
BBgBarc Multiverse	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%	
BBgBarc TIPS	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 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%	
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%	
CPI + 5% (RA)	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%	
Blended Public 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%	
Blended Private Real Asset	0.0%	0.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	5.0%	
Libor +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%	
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%	
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%	
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%	
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%	
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%	
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%	
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%	
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%	
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%	
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%	
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%	
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%	
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%	
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%	
	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: March 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
60/40 MSCI World/BBgBarc 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%	8.0%	10.0%	10.0%
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/BBgBarc Global 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%
60/40 Russell 3000/BBgBarc 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	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%
BBgBarc Aggregate	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%
BBgBarc BA Intermediate HY	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%
BBgBarc BBB	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%
BBgBarc Credit BAA	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%
BBgBarc Multiverse	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%
BBgBarc TIPS	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%
Bloomberg Commodity	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%
Citigroup non-US WGBI	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%
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	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%
Blended Private Real Asset	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%
Libor +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: March 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
BBgBarc 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%
BBgBarc 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%
BBgBarc 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%
BBgBarc 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%
BBgBarc 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%
BBgBarc 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 WGBl	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
BBgBarc BA Intermediate HY	100.0%	0.0%
BBgBarc 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/BBgBarc 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: March 31, 2021

<b>Private Equity Benchmark</b>		<b>As of:</b>	
	<b>4/1/18</b>	<b>10/1/10</b>	
Russell 3000 +3% 1Q Lag	100.0%	0.0%	
Russell 3000 +3%	0.0%	100.0%	
	<b>100.0%</b>	<b>100.0%</b>	

<b>Hedge Fund Benchmark</b>		<b>As of:</b>	
	<b>1/1/21</b>	<b>10/1/10</b>	
Libor +4%	0.00%	100.00%	
SOFR +4%	100.0%	0.0%	
	<b>100.0%</b>	<b>100.0%</b>	

<b>Inflation Hedge</b>		<b>As of:</b>							
	<b>2/1/21</b>	<b>7/1/20</b>	<b>4/1/20</b>	<b>10/1/19</b>	<b>4/1/18</b>	<b>2/1/17</b>	<b>10/1/16</b>	<b>4/1/16</b>	
BBgBarc 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%	
	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	

<b>Public Real Asset Benchmark</b>		<b>As of:</b>		
	<b>5/1/20</b>	<b>10/1/16</b>	<b>1/1/14</b>	
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%	
BBgBarc TIPS	25.0%	0.0%	0.0%	
	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	

<b>Private Real Asset Benchmark</b>		<b>As of:</b>			
	<b>1/1/21</b>	<b>4/1/18</b>	<b>10/1/16</b>	<b>1/1/14</b>	
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%	
	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	

<b>Private RA Secondary Benchmark</b>		<b>As of:</b>	
	<b>9/1/14</b>		
Cambridge Associates Private Natural Resources 1 Qtr Lag	50.0%		
Cambridge Associates Private Infrastructure 1 Qtr Lag	50.0%		
	<b>100.0%</b>		

<b>Real Estate Benchmark</b>		<b>As of:</b>		
	<b>1/1/09</b>	<b>6/1/00</b>	<b>7/1/96</b>	
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%	
	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	

# Policy Index and Benchmark History

Period Ending: March 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%
	<b>100.0%</b>	<b>100.0%</b>

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%
	<b>100.0%</b>	<b>100.0%</b>

Brigade Secondary Benchmark	As of:	
	8/1/10	
BBgBarc High Yield	50.0%	
Credit Suisse Leveraged Loans	50.0%	
	<b>100.0%</b>	

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

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%
BBgBarc TIPS	25.00%	0.00%
	<b>100.0%</b>	<b>100.0%</b>

# Fee Schedule

Period Ending: March 31, 2021

## **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-Intermediate Govt Bond Index Fund**

On All Assets:	0.025% 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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## **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

## **NISA**

First \$500 million:	0.15% per annum
Thereafter:	0.125% per annum

# Manager Compliance (Net)

Period Ending: March 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	--	--	--
Baillie Gifford	MSCI ACWI ex US	✓	✓	✓
Mondrian	MSCI ACWI ex USA Value Gross	R	R	R
DoubleLine	BBgBarc US Aggregate TR	--	--	--
FIAM Bond	BBgBarc US Aggregate TR	✓	✓	✓
NISA Core Bond	BBgBarc US Aggregate TR	--	--	--
Western TRU	3-Month Libor Total Return USD	✓	✓	R
AG CSF Annex Dislocation Fund	BBgBarc BA Intermediate HY	--	--	--
Angelo Gordon Opportunistic	BBgBarc US Aggregate TR	✓	--	✓
Angelo Gordon Credit Solutions	BBgBarc BA Intermediate HY	--	--	--
Beach Point Select	BBgBarc BA Intermediate HY	✓	✓	✓
Brigade Capital	BBgBarc BA Intermediate HY	✓	✓	R
PIMCO Diversified	Blended PIMCO Diversified Index	--	--	--
Franklin Templeton	BBgBarc Multiverse TR	--	--	--
Blackrock DL Feeder IX-U	Cliffwater Direct Lending Index	--	--	--
PIMCO Private Income	BBgBarc BA Intermediate HY	--	--	--
TCP Direct Lending VIII	Cliffwater Direct Lending Index	--	--	--
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: March 31, 2021

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

2<sup>ND</sup> QUARTER 2021  
Investment Landscape

# Recent Verus research

Visit: <https://www.verusinvestments.com/insights/>

## Topics of interest

### IS THERE ALPHA AVAILABLE FROM EMERGING & DIVERSE MANAGERS?

While discussion on the alpha-generating ability of emerging and diverse managers has been part of institutional conversation for decades, the use of emerging and diverse managers has become a mainstay of industry conferences and in many Board meetings more recently. This paper explores the alpha-generating ability of emerging and diverse firms across asset classes and structures.

### LEVERAGE IN PORTFOLIOS

Our latest Topics of Interest paper hopes to shed light on one segment of today's investment challenge, the benefits and risks associated with using leverage. This paper finds that for investors with sufficient capital to leverage market opportunities and allocate to a wide range of asset classes, and with an appropriate Enterprise Risk Tolerance to accept the range of outcomes involved, modest leverage may be responsibly employed to provide greater diversification of risk while maintaining a similar return target.

### HOW TO MAKE MANAGER DECISIONS

Manager research decisions are made harder if you use the wrong tools and approaches. In this new paper, we outline the reasons why many investors may be finding these decisions harder than they need to and discuss a different way of thinking that may make the task of manager assessment clearer and more effective.

### DEVELOPING AN END-GAME STRATEGY FOR CORPORATE PENSIONS

As a plan sponsor's de-risking strategy ultimately bears fruit and the plan approaches full funding, a new phase of the pension management lifecycle brings with it new challenges. Navigating the later stages of the asset-liability journey requires that plan sponsors establish a clear and well-defined view of the end-state. Doing so requires careful consideration of costs (some knowable, some not), risks, and less tangible company-specific considerations. Once this end-state is defined, investment and contribution strategy can be cohesively aligned to maximize the probability of success. With greater flexibility, the probability of a successful outcome increases.

## Annual research

### ACTIVE MANAGEMENT ENVIRONMENT

We are pleased to release the Verus 2021 Active Management Environment. The past year has been one of extreme volatility and divergence in many respects, creating interesting opportunities for active managers to show differentiated performance and deliver alpha to clients. We hope the insights from this research will allow for a deeper understanding of active manager behavior and inform selection in the future.

### IMPLICATIONS OF RISK TOLERANCE ON ESTABLISHING AN EFFECTIVE INVESTMENT STRATEGY FOR PUBLIC PENSION PLANS

The future health of public pension plans is dependent on many factors and faces many risks, including low prospective returns, unfavorable plan demographics, and stressed plan sponsor financial conditions. This paper will explore these risks and provide a framework for discussion and evaluation designed to ensure a plan's investment program is appropriately aligned with its risk tolerance.

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# 1<sup>st</sup> quarter summary

## THE ECONOMIC CLIMATE

- Real GDP grew at a -2.4% rate year-over-year in the fourth quarter (+4.3% quarterly annualized rate) as the U.S. economic recovery continued at a brisk pace. [p. 11](#)
- The speed of vaccinations in the U.S. has exceeded expectations, reaching more than 3 million doses per day during the first week of April. Approximately 23% of the country have been fully vaccinated, and 37% have received a first dose. [p. 7](#)
- The Europe Union has been slower to roll out vaccinations, suggesting member countries may be grappling with the virus for longer periods of time. [p. 19](#)

## PORTFOLIO IMPACTS

- We believe the U.S. economy is playing catch-up to the markets in the current environment. While it seems increasingly likely that the economy will rapidly come back to life over the next year, this optimism may already be baked into equity prices. [p. 29](#)
- U.S. core inflation remained low and stable, at 1.6% year-over-year in March. A jump in gasoline prices, along with base effects from the 2020 recession, pushed up headline inflation to 2.6%. It appears likely that inflation will continue to see a temporary rise in the coming months due to the lower prices of Q2 2020, since inflation is a year-over-year measure. [p. 13](#)

## THE INVESTMENT CLIMATE

- President Biden announced his \$2 trillion Infrastructure Plan. In its initial form, the plan did not have bipartisan support, reportedly due to the lower proportion of the plan that related to traditional infrastructure spending, the size of the plan, and the proposed methods to fund it. Negotiations will commence in late-April, though it remains possible that the bill is modified in order to pass it via the “reconciliation” process, to avoid the need for Republican support. [p. 11](#)
- According to FactSet, S&P 500 earnings expectations for 2021 improved by 5.0% during the quarter. Analysts are now forecasting 25.4% earnings growth for 2021—an incredible recovery from the -11.2% earnings drop expected of 2020. [p. 28](#)

## ASSET ALLOCATION ISSUES

- U.S. equities were a top performer in Q1, returning +6.2%. International equities returned +3.5% (MSCI EAFE Index) and emerging markets returned +2.3% (MSCI Emerging Markets Index), on an unhedged currency basis. [p. 28](#)
- Size and value factors both delivered strong relative performance. U.S. value stocks beat growth stocks (Russell 1000 Value +11.3%, Russell 1000 Growth +0.9%), as growth stocks entered a correction in February. Small capitalization stocks continued their rally (Russell 2000 +12.7%, Russell 1000 +5.9%). [p. 31](#)

Prospects for a strong economic rebound are compelling, though this good news may already be reflected in asset prices

We believe a neutral risk stance is warranted in the current environment

# What drove the market in Q1?

**“Biden signs \$1.9 trillion Covid relief bill, clearing way for stimulus checks, vaccine aid”**

## U.S. PERSONAL INCOME GROWTH (YEAR-OVER-YEAR)

Sep	Oct	Nov	Dec	Jan	Feb
6.0%	5.0%	3.2%	3.7%	13.1%	4.3%

Article Source: CNBC, as of March 11<sup>th</sup>, 2021

**“U.S. vaccination campaign gains steam as White House speeds shipments”**

## AVERAGE DAILY VACCINE DOSE ADMINISTRATIONS (TRAILING SEVEN DAYS)

1/15	1/31	2/14	2/28	3/15	3/31
843,447	1,348,021	1,681,951	1,735,053	2,427,429	2,828,491

Article Source: Reuters, March 31<sup>st</sup>, 2021

**“Bond Traders Gird for More Pain After Biggest Loss Since 1980”**

## BLOOMBERG BARCLAYS US LONG TREASURY INDEX TOTAL RETURN

Oct	Nov	Dec	Jan	Feb	Mar
-3.01%	+1.20%	-1.18%	-3.61%	-5.57%	-4.99%

Article Source: Bloomberg, March 31<sup>st</sup>, 2021

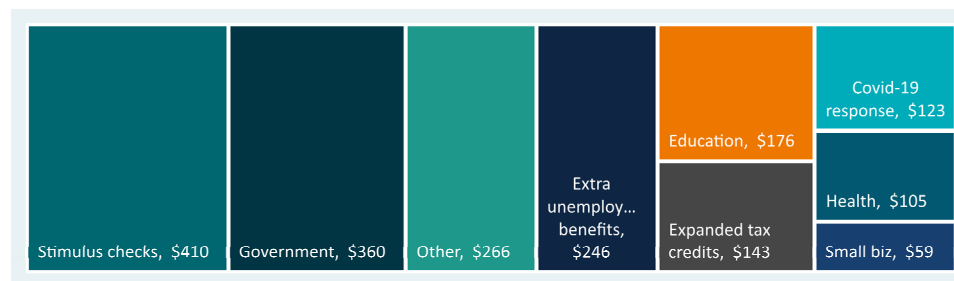
**“OECD More Than Doubles US Economic Growth Forecast”**

## U.S. 2021 GDP GROWTH FORECAST (BLOOMBERG MEDIAN ESTIMATE)

Oct	Nov	Dec	Jan	Feb	Mar
3.8%	3.8%	3.9%	4.1%	4.9%	5.7%

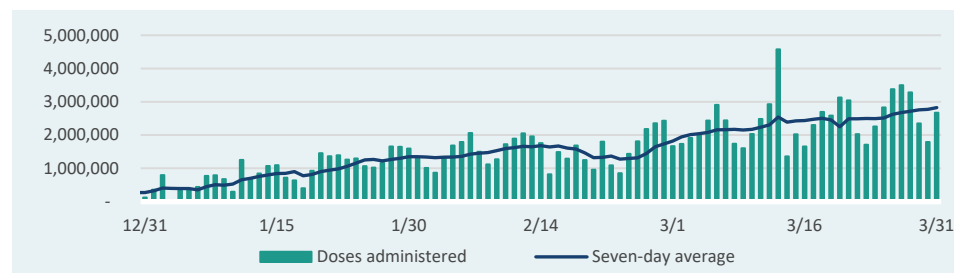
Article Source: Chief Investment Officer, March 17<sup>th</sup>, 2021

## AMERICAN RESCUE PLAN ACT ALLOCATIONS



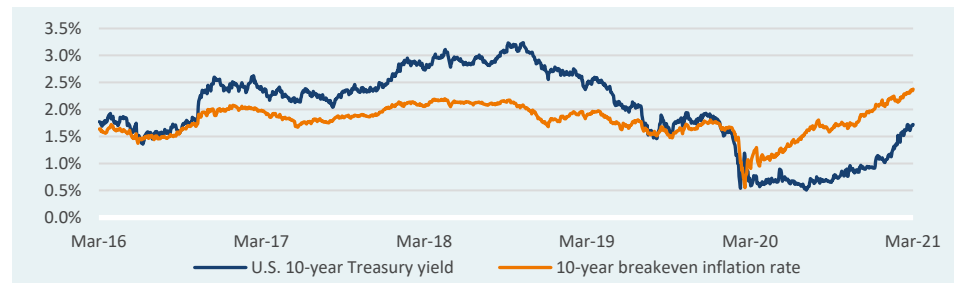
Source: Wall Street Journal, as of 3/11/21

## U.S. COVID-19 VACCINATION CAMPAIGN



Source: Bloomberg, as of 3/31/21

## INTEREST RATES AND INFLATION EXPECTATIONS



Source: Bloomberg, as of 3/31/21

# Economic environment

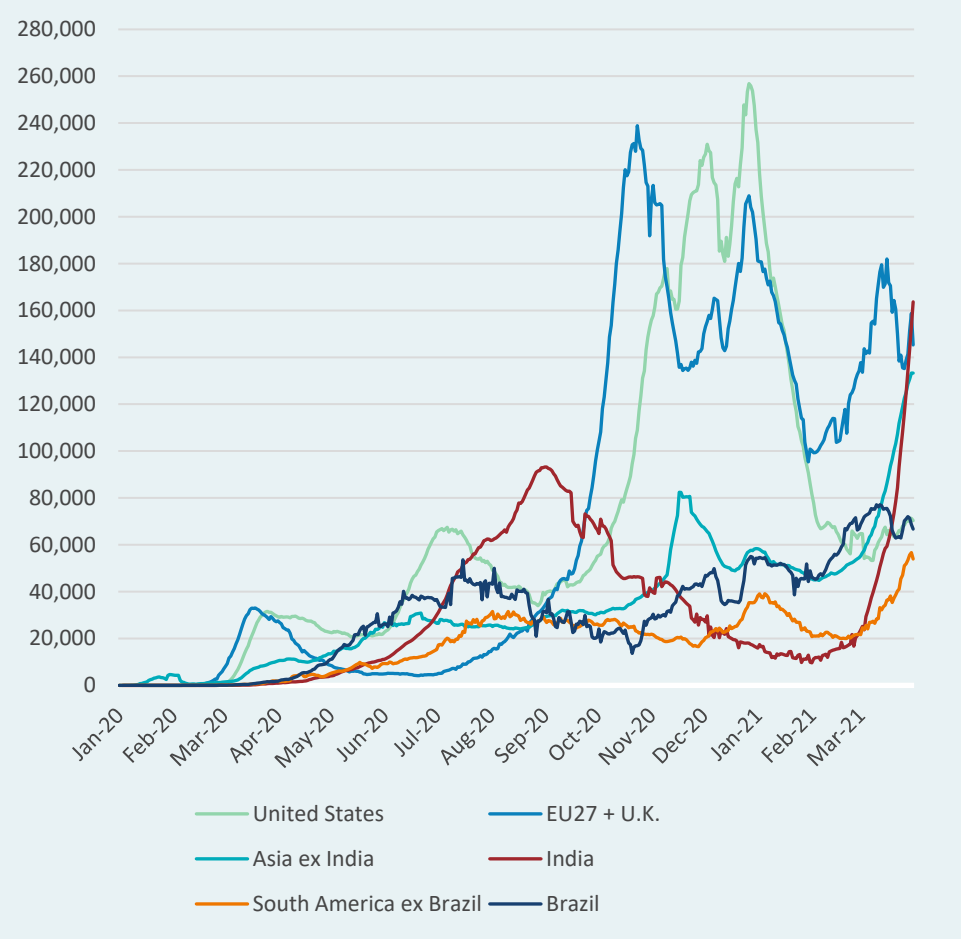
# U.S. economics summary

- Real GDP grew at a -2.4% rate year-over-year in the fourth quarter (+4.3% quarterly annualized rate) as the U.S. economic recovery continued. The Atlanta Fed's GDPNow forecast for 2021 Q1 growth was 6.0% on a quarter-over-quarter annualized basis as of April 9th, suggesting an even more robust pace than the prior quarter.
  - The speed of vaccinations in the U.S. has exceeded expectations, reaching 3 million doses per day. Approximately 23% of the country have been fully vaccinated, and 37% have received a first dose.
  - President Biden announced his \$2 trillion Infrastructure Plan. In its initial form, the bill would spend \$400b on expanded care for the elderly and disabled, spend \$500b on electric vehicle subsidies and incentives, and spend \$100B on national high-speed broadband internet access, with a smaller portion of the spending going towards traditional infrastructure
- such as power grid, railway, and public transit.
- U.S. core inflation remained low and stable, at 1.6% year-over-year in March. A jump in gasoline prices, along with base effects from the 2020 recession, pushed up headline inflation to 2.6%. It appears likely that inflation will continue to see a temporary rise in the coming months due to the lower prices of Q2 2020, since inflation is a year-over-year measure.
  - While the U.S. unemployment rate continues to improve, falling from 6.7% to 6.0% during the quarter, the overall labor participation rate has stagnated. A disconnect seems to exist between the strong economy and weaker labor market.
  - Consumer sentiment improved during Q1, along with the economic recovery. Sentiment is now at an average level relative to history.

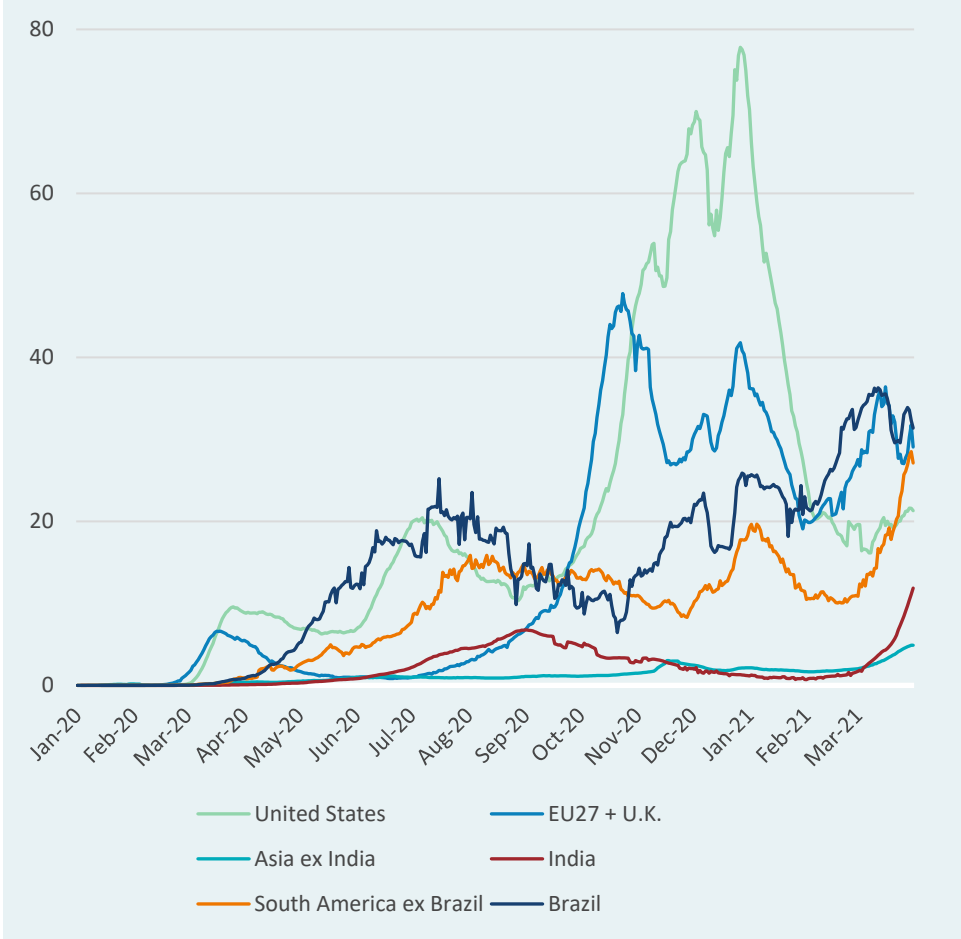
	Most Recent	12 Months Prior
GDP (YoY)	(2.4%) 12/31/20	2.3% 12/31/19
Inflation (CPI YoY, Core)	1.6% 3/31/21	2.1% 3/31/20
Expected Inflation (5yr-5yr forward)	2.20% 3/31/21	1.25% 3/31/20
Fed Funds Target Range	0% – 0.25% 3/31/21	0% – 0.25% 3/31/20
10-Year Rate	1.74% 3/31/21	0.67% 3/31/20
U-3 Unemployment	6.0% 3/31/21	4.4% 3/31/20
U-6 Unemployment	10.7% 3/31/21	8.8% 3/31/20

# COVID-19 case growth

SEVEN-DAY AVERAGE DAILY CASE GROWTH



SEVEN-DAY AVERAGE DAILY CASE GROWTH – PER 100,000 RESIDENTS

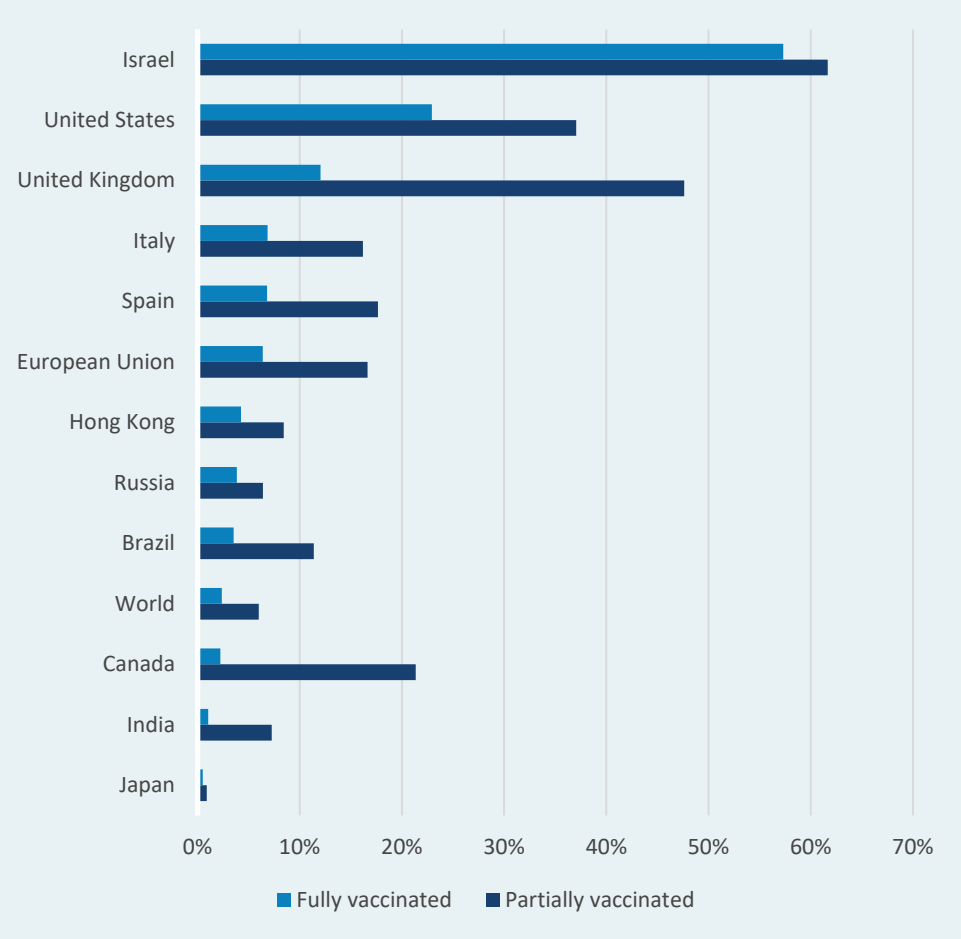


Source: Bloomberg, as of 4/15/21



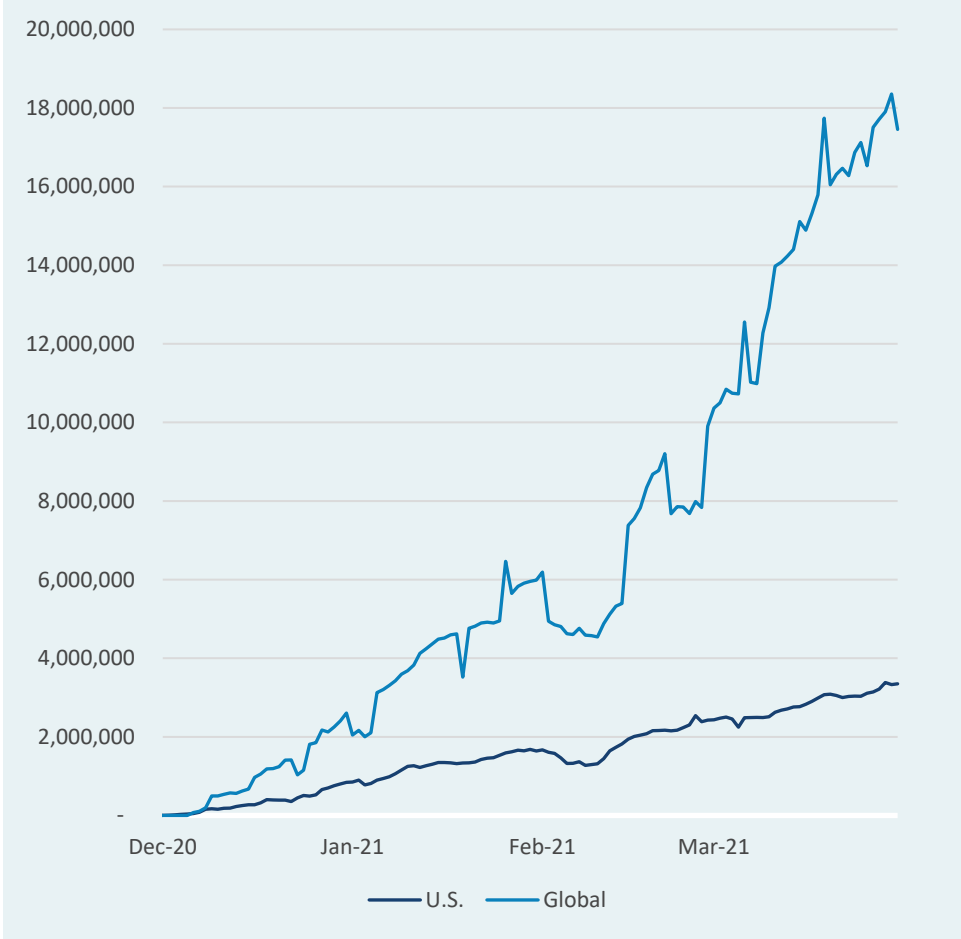
# Global vaccination campaign

PERCENTAGE OF PEOPLE WHO ARE...



Source: Our World in Data, as of 4/14/21, or most recent release.

DAILY VACCINE DOSE ADMINISTRATIONS (7-DAY TRAILING AVERAGE)



Source: Bloomberg, as of 4/15/21

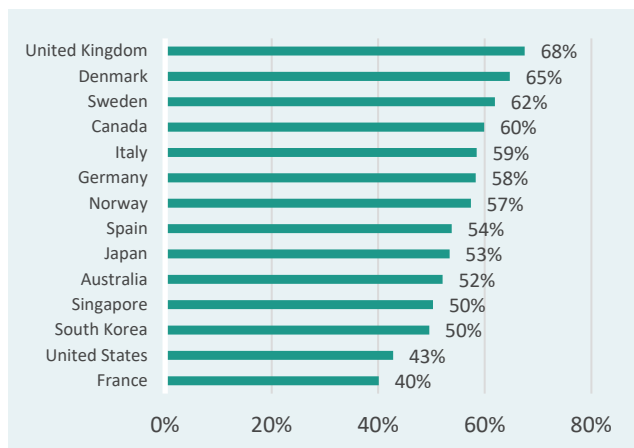
# Vaccine hesitancy

Toward quarter-end, concerns over the development of blood clots in a very small percentage of recipients of the AstraZeneca/Oxford and Johnson & Johnson vaccines led policymakers in many countries to suspend administrations pending further investigation.

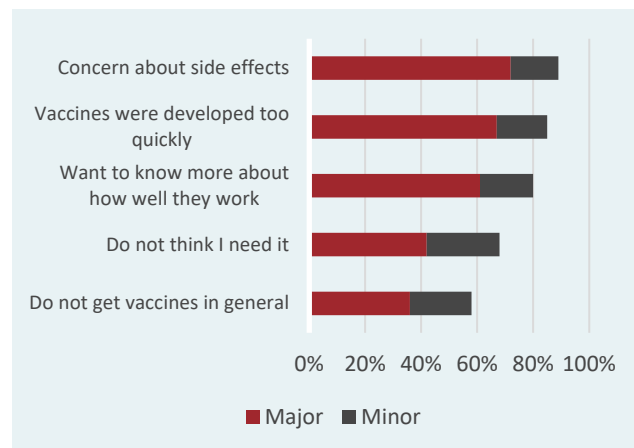
Though today these side effects appear quite rare, these developments will likely result in further delays in the push toward herd immunity over the short-term. If suspensions are lifted in the intermediate term, the vaccines in question are likely to face public relations issues which could

further hamper vaccination efforts. This dynamic is currently playing out in Europe with regard to the AstraZeneca vaccine—most of the Western part of the continent is taking a more cautious approach, while the Eastern segment has largely dismissed any clot-related concerns. Over the longer term, we believe that expanded vaccine production capacity, sufficiently diversified vaccine portfolios, and the coming online of new vaccines will reduce significantly the risk that idiosyncratic vaccine concerns create problems for the global vaccination campaign.

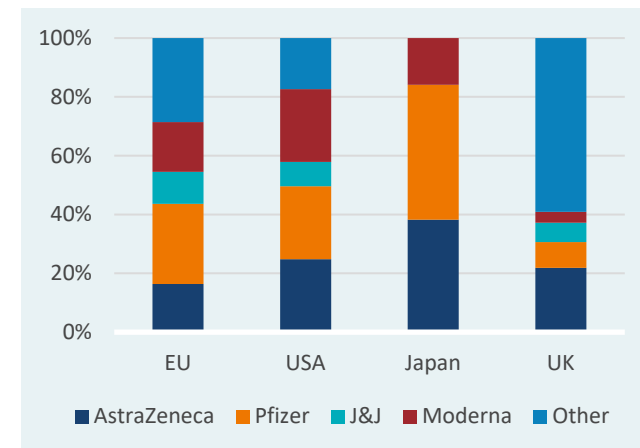
## VACCINE WILLINGNESS



## AMONG U.S. ADULTS ELECTING NOT TO BE VACCINATED, THE PERCENTAGE WHO SAY EACH OF THE FOLLOWING IS A MAJOR/MINOR REASON



## VACCINE PORTFOLIO COMPOSITION ESTIMATE



Source: Our World in Data, Pew Research, Duke Global Health Innovation Centre, as of 3/31/21, or most recent release. The bars in the “Vaccine Willingness” chart indicate the percentage of people who agree with the following statement: “If a COVID-19 vaccine were made available to me this week, I would definitely get it.”

# GDP growth

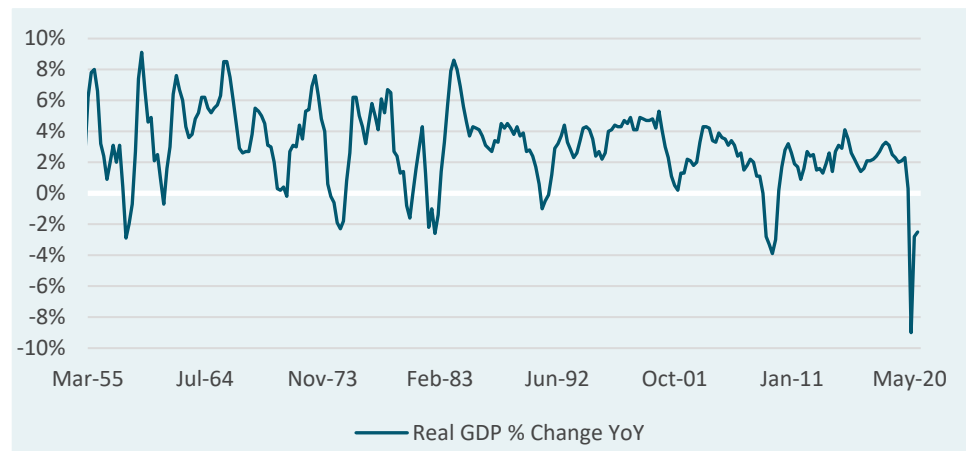
Real GDP grew at a -2.4% rate year-over-year in the fourth quarter (+4.3% quarterly annualized rate) as the U.S. economic recovery continued. The Atlanta Fed's GDPNow forecast for 2021 Q1 growth was 6.0% on a quarter-over-quarter annualized basis as of April 9th, suggesting an even quicker pace than the prior quarter.

President Biden announced his \$2 trillion Infrastructure Plan. In its initial form, the bill would spend \$400b on care for the elderly and disabled, \$500b on electric vehicle subsidies and incentives, and \$100b on national high-speed broadband internet access, with a smaller portion of spending going towards traditional infrastructure such as power grid, railway, and transit.

The plan as originally proposed did not have bipartisan support, reportedly due to the lower proportion of the plan dedicated to traditional infrastructure spending, its size, and its funding methods. Negotiations will commence in late-April, though it remains possible that the bill is modified in order to pass it via the "reconciliation" process, to avoid the need for Republican support.

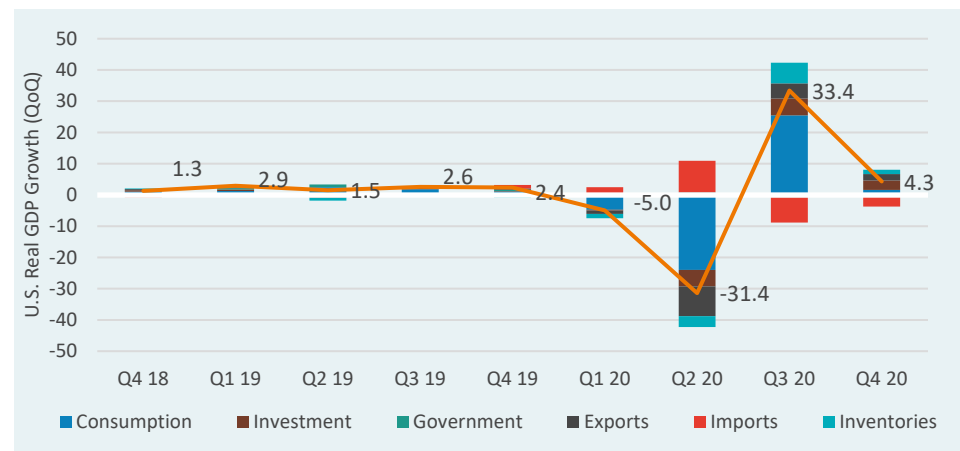
Large government stimulus programs are typically implemented during earlier stages of a recession, with the intent to fill a gap in demand and offset initial weakness. The current stimulus plans are very large and are being implemented at a time when the economy is well on the way to recovery. This creates risks of economic overheating, excesses, and inflation.

## U.S. REAL GDP GROWTH (YOY)



Source: Bloomberg, as of 12/31/20

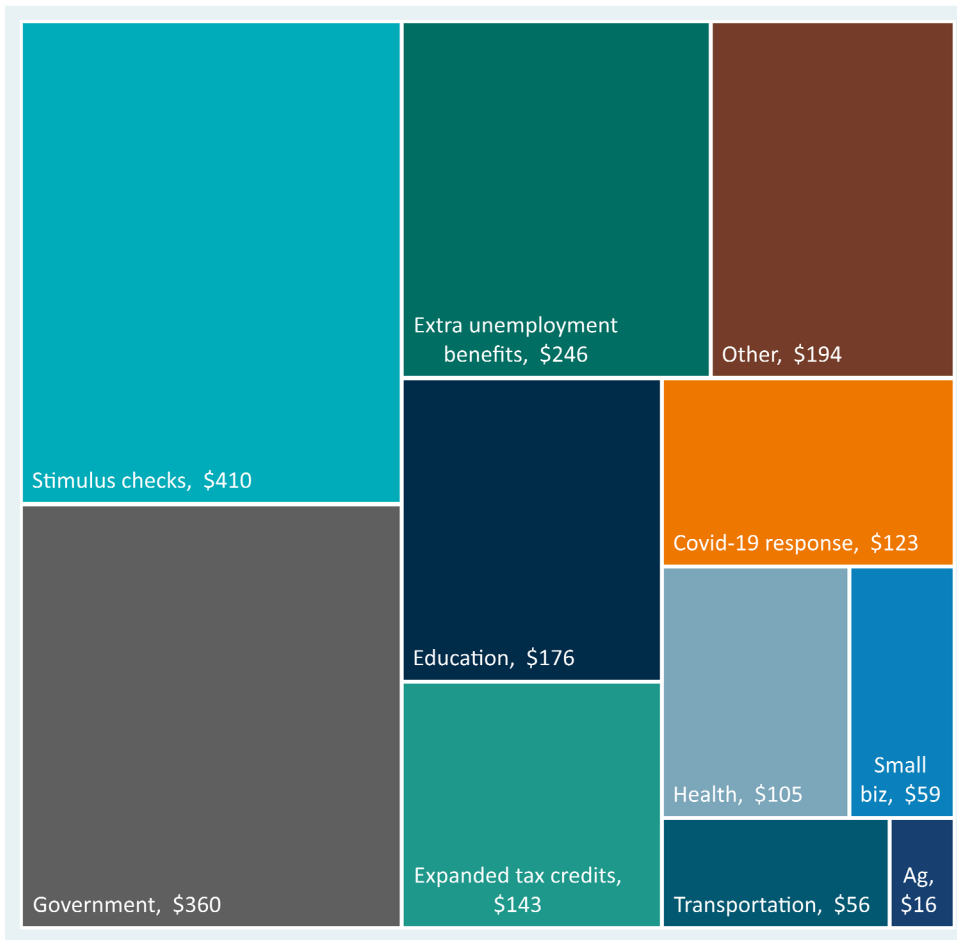
## U.S. GDP GROWTH ATTRIBUTION



Source: BEA, annualized quarterly rate, as of 12/31/20

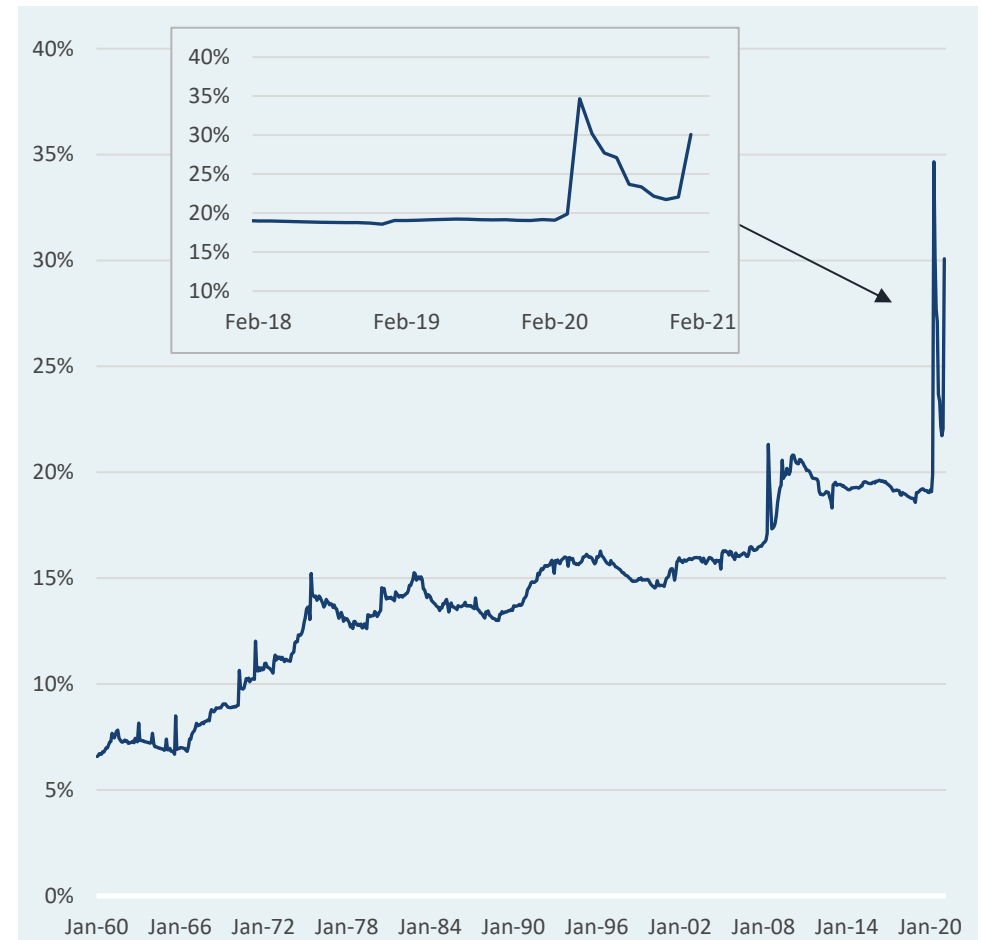
# American Rescue Plan Act of 2021

STIMULUS BILL ALLOCATIONS (BILLIONS)



Source: Wall Street Journal, as of 3/13/21

GOVT. TRANSFER PAYMENTS AS A % OF DISPOSABLE PERSONAL INCOME



Source: BEA, as of 2/28/21

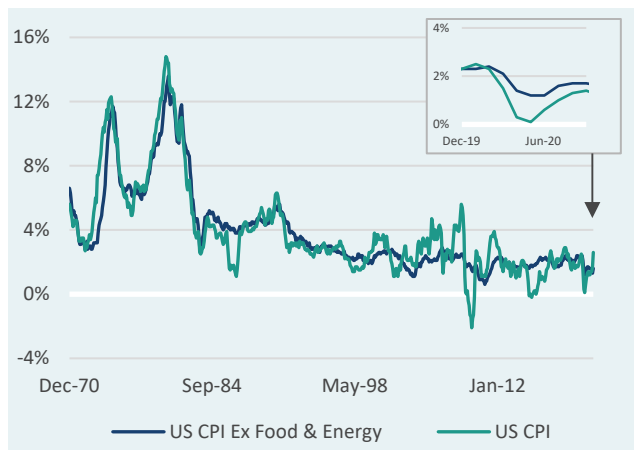
# Inflation

U.S. core inflation remained low and stable, at 1.6% year-over-year in March. A jump in gasoline prices, along with base effects from the 2020 recession, pushed up headline inflation to 2.6%. It appears likely that inflation may jump temporarily in the coming months due to the lower prices of spring 2020, which will flow through to inflation, since inflation is a year-over-year measure.

The 10-year TIPS breakeven inflation rate continued higher during the quarter to nearly 2.4% from 2.0%. Most inflation indicators have risen, though we believe that government purchases of TIPS may be artificially pushing up the breakeven rate.

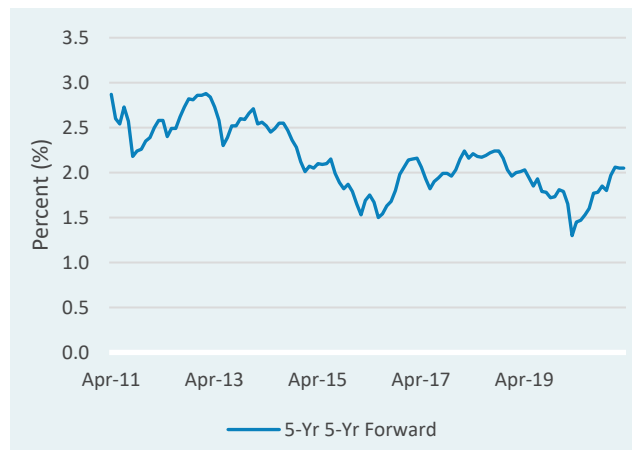
Investor fears persist around potential inflation. Following the response of central banks to the Global Financial Crisis, and very little inflationary effects resulting from that monetary experiment, it is reasonable to have doubts around whether ultra low interest rates and easy money are highly inflationary. Some have argued that most money “printed” after 2008-2009 ended up on bank balance sheets, rather than in the real economy, which resulted in muted inflationary effects. In the current environment, much easy money is arriving in the form of checks delivered straight to households. This new form of stimulus, along with broader government spending, may suggest possible rising inflation, though we believe the probability of this remains low.

## U.S. CPI (YOY)



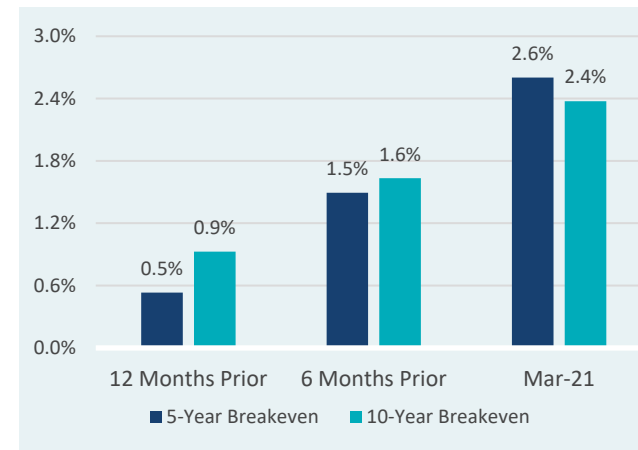
Source: Bloomberg, as of 3/31/21

## MARKET INFLATION EXPECTATIONS



Source: FRED, as of 3/31/21

## BREAKEVEN INFLATION RATES



Source: Bloomberg, as of 3/31/21

# Labor market

Unemployment fell from 6.7% in December to 6.0% in March. However, the overall labor force participation rate paints a less optimistic picture. At 61.5% participation in March, this metric has not budged since June of 2020.

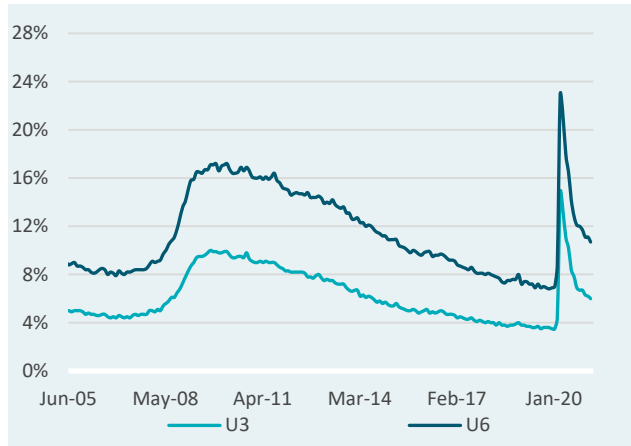
The U.S. labor force showed a strong rebound during the fall of 2020, but more recently appears to have stalled. Approximately 2% of the total U.S. workforce remains out of a job and is not seeking work, relative to pre-COVID levels. This effect is illustrated in the labor participation rate, which is a broad measure of employment—defined as the percentage of the country’s population that is currently employed, among all

eligible workers. The participation rate fell from 63.3% immediately before the pandemic, to 60.2% in April, then back to 61.7% in August. The labor market remains weak despite an impressive economic comeback.

The most recent NFIB Small Business Optimism report explained “Main Street is doing better as state and local restrictions are eased, but finding qualified labor is a critical issue for small businesses nationwide... Small business owners are competing with the pandemic and increased unemployment benefits that are keeping some workers out of the labor force.”

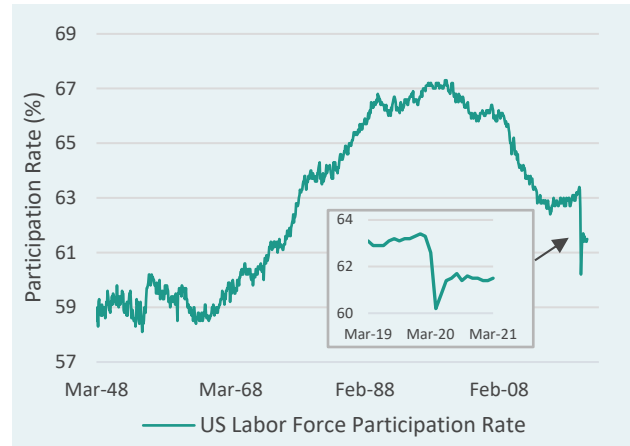
**A large portion of the U.S. labor force remains neither employed nor seeking work**

## U.S. UNEMPLOYMENT



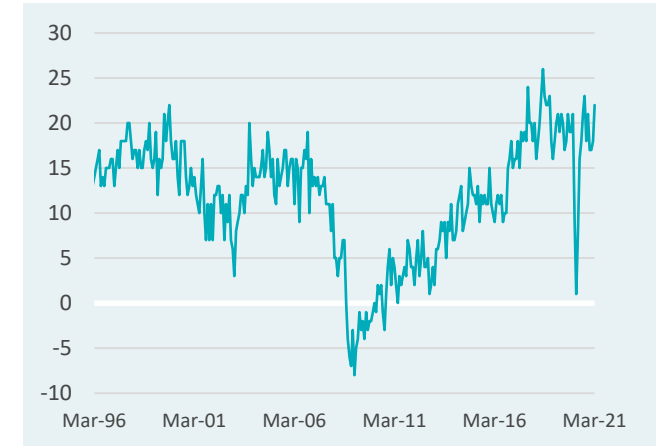
Source: FRED, as of 3/31/21

## LABOR PARTICIPATION RATE



Source: FRED, as of 3/31/21

## NFIB SMALL BUSINESS HIRING PLANS INDEX



Source: NFIB, as of 3/31/21

# Employment conditions

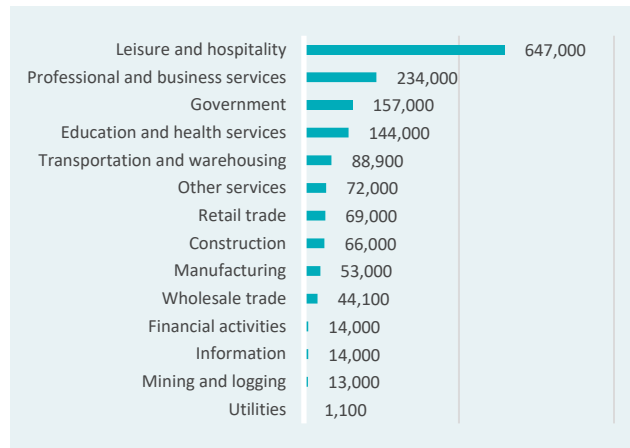
Hiring activity picked up considerably in the first quarter of 2021, supported by strong progress on the vaccination campaign and the concurrent relaxation of social distancing controls. While the broad unemployment rate dipped from 6.7% to 6.0%, that number probably overstates the magnitude of the labor market recovery thus far. Labor force participation dropped from 63.4% in January of 2020 to 60.2% in April, and as of the end of the first quarter, that number had recovered to just 61.5%. As a result, while unemployment has improved, there remain roughly nine million U.S. citizens who have yet to regain employment.

The primary concern of the Federal Reserve remains limiting the potential scarring of the labor market as a result of the shutdowns over the last year, and the Fed's accommodation, paired with continued progress on the vaccination campaign should lay the foundation for a continued recovery in the labor market over the next several quarters. There remains much wood to chop.

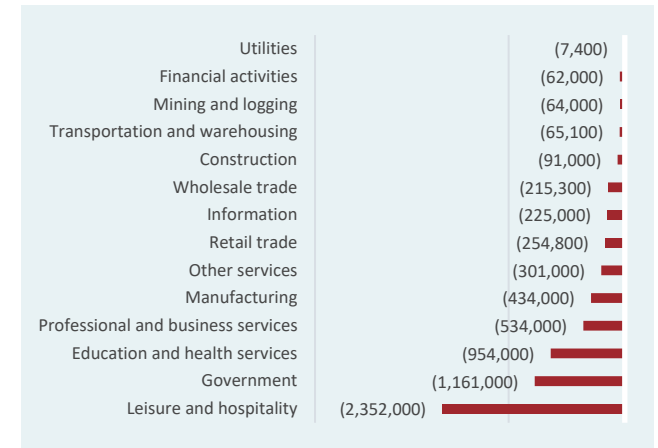
**NON-FARM PAYROLLS – ONE-MONTH CHANGE**



**NON-FARM PAYROLLS – THREE-MONTH CHANGE**



**NON-FARM PAYROLLS – ONE-YEAR CHANGE**



Source: BLS, as of 3/31/21

# The consumer

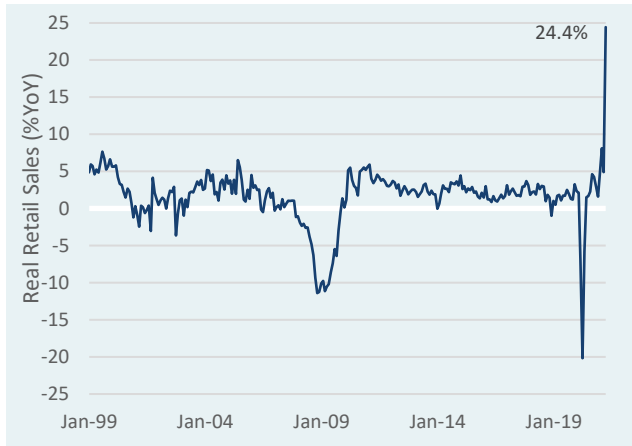
U.S. retail sales rocketed higher in the first quarter, accelerating to a 9.8% month-over-month pace in March (this rate was an astounding 24.4% on a year-over-year basis, though this metric is more difficult to interpret since it calculates growth from a starting point of March 2020—the depths of the recession). As expected, vast government stimulus is translating to red hot consumer spending.

According to anonymized cellular phone data collected by Google for COVID-19 public health research, Americans began returning to their daily routines through late spring and summer, as activity began moving back towards normalcy. Then, as COVID-19 cases

began to surge, many types of activities dipped once again. It now appears that activity such as retail, recreation, and grocery shopping are moving back to normal levels. At the same time, public transit usage and travel to workplaces remains depressed.

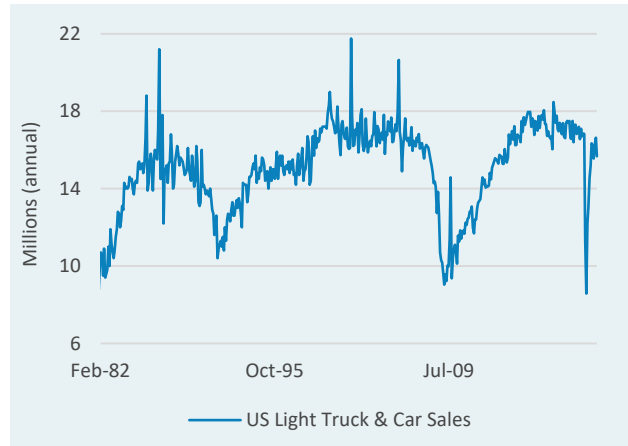
In last quarter’s landscape we discussed concerns around the difficulty in determining what portion of the economic bounceback may have been due to unprecedented government stimulus, rather than a “natural” recovery of jobs and the financial health of Americans. We remain cautious, as certain aspects of the economy remain very weak, such as the labor market trends outlined earlier in this document.

**REAL RETAIL SALES GROWTH (YOY)**



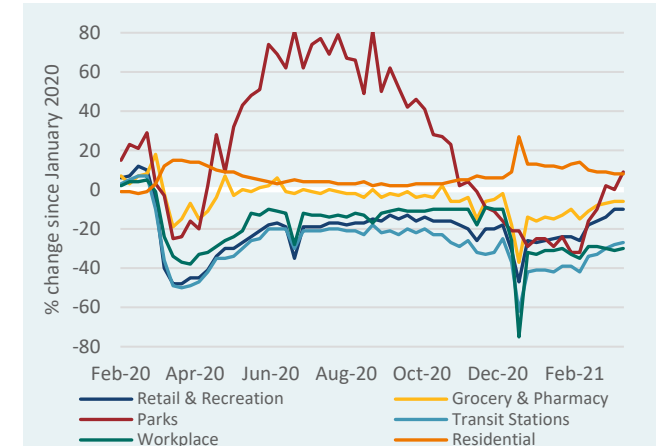
Source: FRED, as of 3/31/21

**AUTO SALES**



Source: Federal Reserve, as of 2/28/21

**GOOGLE U.S. ACTIVITY TRACKER**



Source: Google anonymized U.S. citizen mobility, as of 3/31/21



# Sentiment

Consumer sentiment has seen only mild improvement, despite the stronger-than-expected pace of economic recovery.

The Bloomberg Consumer Comfort Index attempts to gauge Americans' views on the economy, their personal financial situation, and buying conditions. The index rose from 44.6 to 50.0 during the quarter. The University of Michigan Consumer Sentiment Survey attempts to gauge attitudes about the business climate, personal finances, and spending conditions. The index jumped from 80.7 to 84.9 in Q1,

directionally in line with the continued economic recovery.

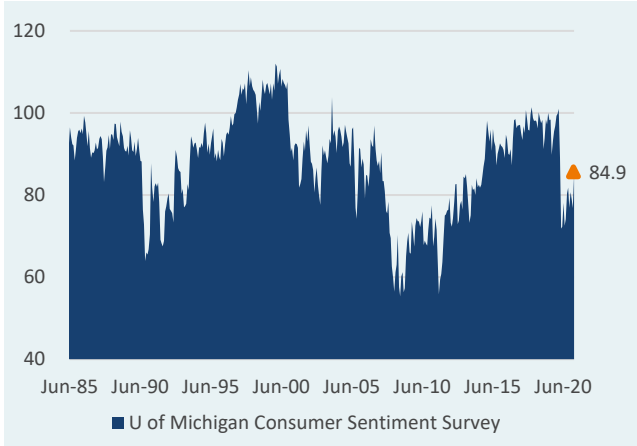
The NFIB Small Business Optimism Index returned to an average reading in Q4 and remains materially weaker than pre-pandemic levels. Participants in the survey expressed uncertainty around business conditions, and extreme difficulties in finding qualified workers due to attractive unemployment benefits. A surprising 42% of small business owners reported job openings that could not be filled, which was a record-high figure.

**CONSUMER COMFORT**



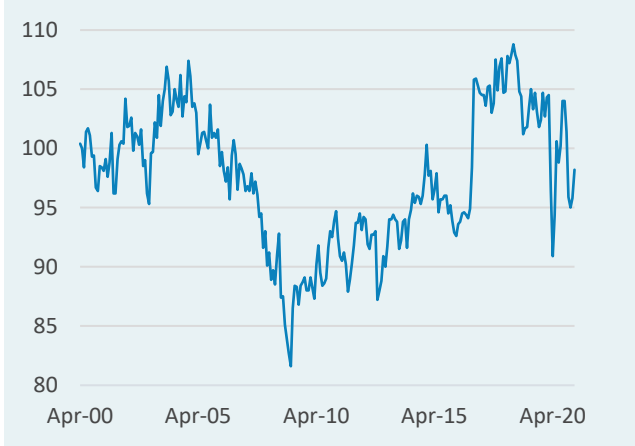
Source: Bloomberg, Langer, as of 3/28/21

**CONSUMER SENTIMENT**



Source: University of Michigan, as of 3/31/21

**SMALL BUSINESS OPTIMISM**



Source: NFIB, as of 3/31/21

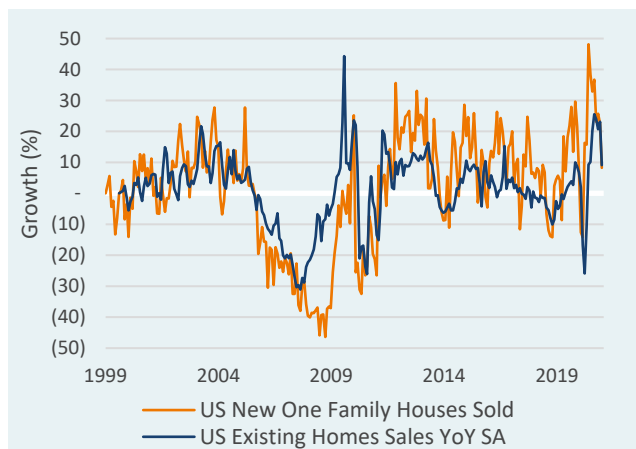
# Housing

Sales of existing homes continued at a near-record pace through fall of 2020 and the beginning of 2021, before decelerating to 9.1% year-over-year in February. Sales of new homes followed a similar directional trend, though new homes have shown an even stronger growth rate consistently over the past decade. The impressive number of sales were achieved despite there being an extremely slim inventory of homes available on the market.

It has been surprising to witness a housing boom coincide with a sharp and deep global recession, although the dynamics that led to this environment are fairly simple to understand with

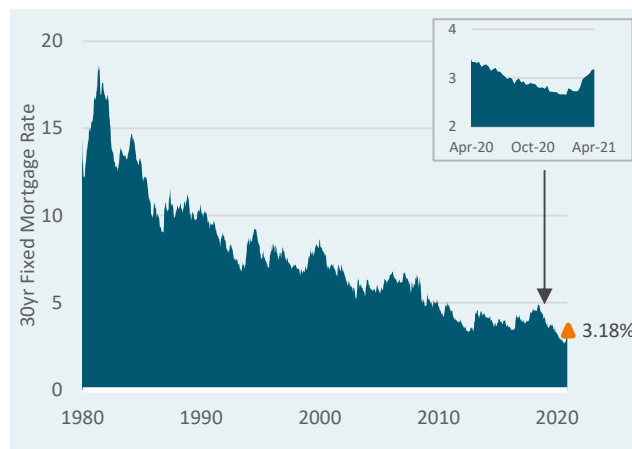
hindsight. Record-low interest rates, record-low inventory of homes, and a desire of Americans for more space during the work-from-home environment, have lifted the cost of homes significantly. Some of these influences appear to be easing. Rising interest rates since the beginning of the year have contributed to higher mortgage rates, as the 30-year fixed average mortgage rate has risen from 2.65% to 3.18%. And the nationwide inventory of homes has improved to 4.8 months worth of supply. A further easing of conditions may help to cool down an extremely hot market.

**U.S. HOME SALES (YOY)**



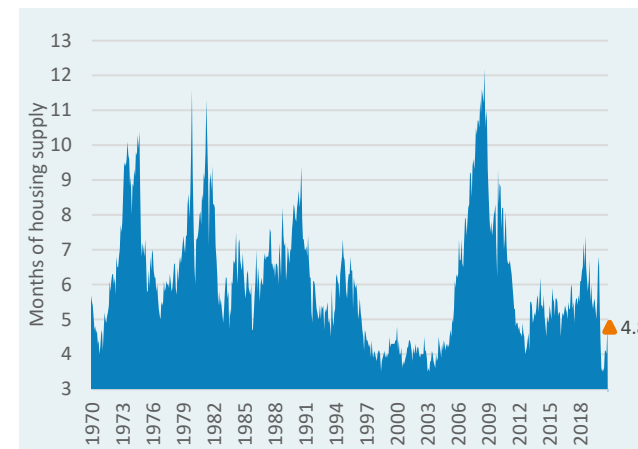
Source: FRED, as of 2/28/21

**30-YEAR FIXED MORTGAGE RATE (AVERAGE)**



Source: FRED, as of 3/31/21

**HOUSING INVENTORY**



Source: FRED, as of 2/28/21

# International economics summary

- Economic growth continued to recover during the fourth quarter, though was still negative on a year-over-year basis in many countries. Growth expectations have risen as successful vaccine rollouts suggest that the world may get back to normal more quickly than originally assumed.
- Europe may unfortunately be excluded from this optimism, as a renewed wave of COVID-19 has once again led to lockdowns and restrictions. The Europe Union has been slower to rollout vaccinations, suggesting member countries may be grappling with the virus for longer periods of time.
- Unemployment was stable in the Eurozone and Japan, and fell modestly in the United States. As we described in prior quarters, governments have taken very different approaches to supporting workers, which makes labor market comparisons difficult.
- Despite heightened discussions about inflation risk, inflation remains muted and stable around the world, though the rebound in energy prices from record-low levels last year is having a lifting impact. This influence, driven by base effects, will most likely persist for the next few months.
- The gap between the manufacturing and services sectors of the economy narrowed toward the end of the quarter, as the beaten-down services sector showed signs of life across Europe. Extended periods of service sector activity expansion will likely depend on manageable levels of case growth and relaxed social distancing controls.
- Vaccine campaigns across mainland Europe as well as Japan have materially lagged those of the U.S. and the U.K., and the indefinite suspension of the AstraZeneca vaccine in many countries is likely to widen the gap in the short-term.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	(2.4%) 12/31/20	2.6% 3/31/21	6.0% 3/31/21
Eurozone	(4.9%) 12/31/20	1.3% 3/31/21	8.3% 2/28/21
Japan	(1.4%) 12/31/20	(0.2%) 3/31/21	2.8% 2/28/21
BRICS Nations	1.6% 12/31/20	1.4% 3/31/21	5.7% 12/31/20
Brazil	(4.1%) 12/31/20	6.1% 3/31/21	14.2% 1/31/21
Russia	(3.0%) 12/31/20	5.8% 3/31/21	5.4% 3/31/21
India	0.4% 12/31/20	5.5% 3/31/21	6.5% 3/31/21
China	18.3% 3/31/21	0.4% 3/31/21	4.2% 12/31/20

NOTE: India lacks reliable government unemployment data. Unemployment rate shown above is estimated from the Centre for Monitoring Indian Economy

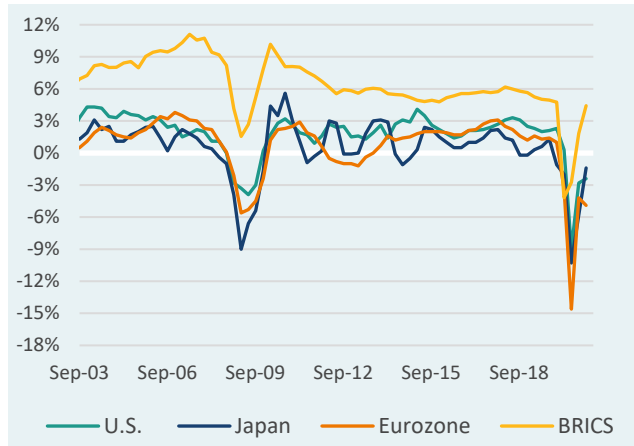
# International economics

Economic growth continued to recover during the fourth quarter, though still negative on a year-over-year basis in many countries. Growth expectations have risen as successful vaccine rollouts suggest that the world may move back to normal more quickly than originally expected, although the speed of vaccine distribution has differed wildly. As of quarter-end, the U.S. and United Kingdom lead in vaccine rollouts, while the European Union and Japan lag behind. Europe is seeing a renewed wave of COVID-19, which has once again led to lockdowns and restrictions.

Despite heightened discussions about inflation risk, inflation around the world remains muted and stable, though the rebound in energy prices from record-low levels last year is having a lifting impact. This influence, driven by base effects, will most likely persist for the next few months.

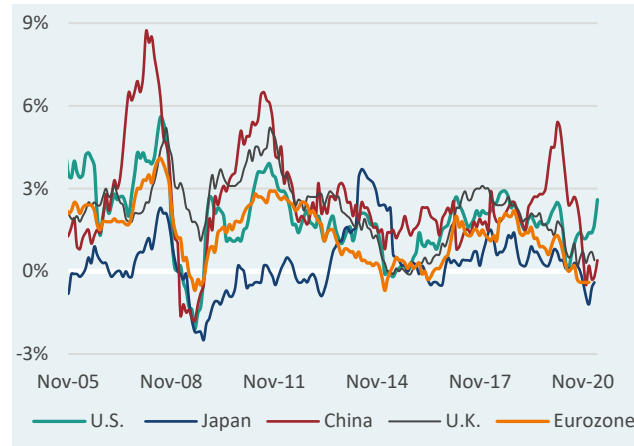
Unemployment was stable in the Eurozone and Japan, and fell modestly in the United States. As we have described in prior quarters, governments have taken very different approaches to supporting workers, which has made global labor market comparisons difficult.

**REAL GDP GROWTH (YOY)**



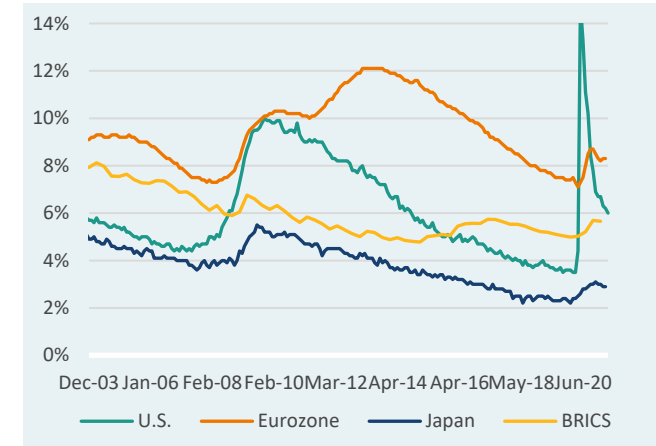
Source: Bloomberg, as of 12/31/20

**INFLATION (CPI YOY)**



Source: Bloomberg, as of 3/31/21 – or most recent release

**UNEMPLOYMENT**



Source: Bloomberg, as of 3/31/21 – or most recent release

# Fixed income rates & credit

# Interest rate environment

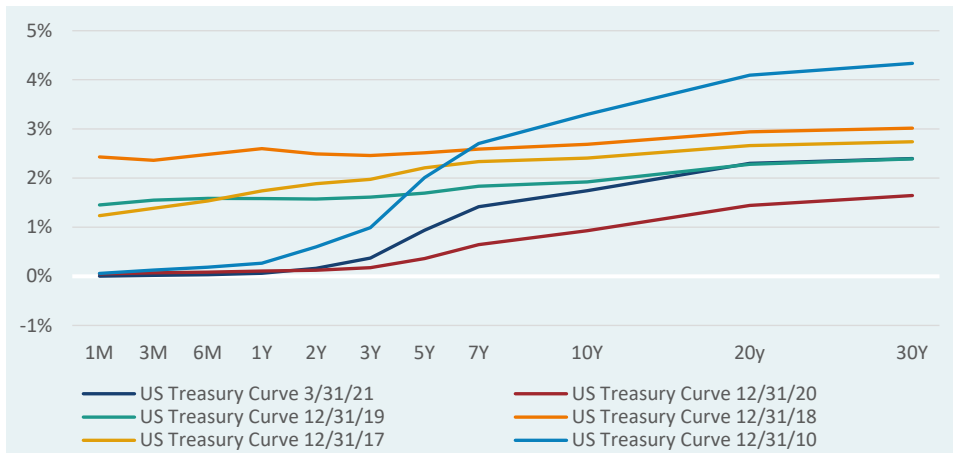
- Ten-year U.S. Treasury yields moved sharply higher, rising from 0.91% to 1.74%. Higher interest rates and tighter financial conditions create concerns for currently above-average risk asset prices, and for the economic recovery more broadly.
- Bond yields around the world rose in tandem with the United States, though the yield of shorter-dated bonds and cash remained anchored near zero. Rising bond yields at longer tenors and relatively steady movement in short tenor yields resulted in yield curve steepening in many countries.
- The spike in global interest rates tested the standing policies at a number of major central banks. The Reserve Bank of Australia was forced to step in to defend its 3-year bond yield target, the Bank of Japan widened the target band for its 10-year bond yield, and the ECB tweaked its asset purchase program to allow for more flexible purchases.
- The Federal Reserve maintained an accommodative tone and signaled it will continue to provide support until substantial progress has been made in the labor market and the pandemic is clearly in the rear-view mirror. On balance, the Fed remains of the view that any pickup in inflation over the next few months is likely to be transitory.
- Breakeven inflation rates surged as reflation bets continued to mount. The five-year breakeven inflation rate closed the quarter at 2.6%, its highest level since 2008.
- Credit spreads compressed to near decade-tights as demand for higher-yielding bonds remained high, and concerns over a wave of pandemic-driven defaults abated.
- Long-duration Treasuries posted their worst quarter since Q1 of 1980. The Bloomberg Barclays U.S. Long Treasury Index delivered a total return of -13.5%.

Area	Short Term (3M)	10-Year
United States	0.02%	1.74%
Germany	(0.67%)	(0.29%)
France	(0.62%)	(0.05%)
Spain	(0.56%)	0.34%
Italy	(0.54%)	0.67%
Greece	(0.24%)	0.86%
U.K.	(0.01%)	0.85%
Japan	(0.11%)	0.09%
Australia	0.00%	1.79%
China	2.28%	3.19%
Brazil	3.32%	9.28%
Russia	4.70%	7.00%

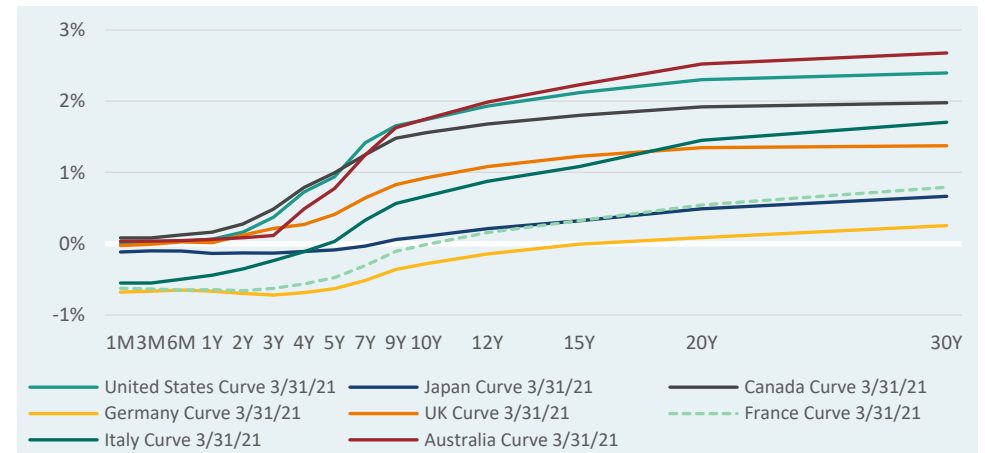
Source: Bloomberg, as of 3/31/21

# Yield environment

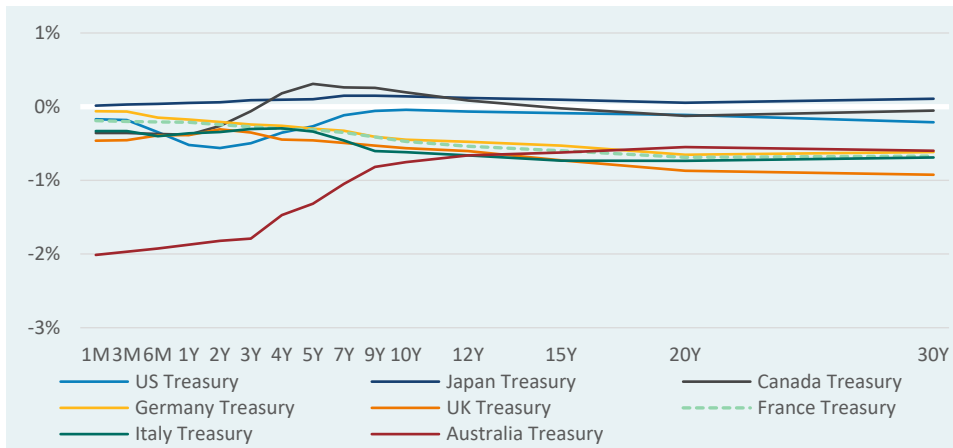
## U.S. YIELD CURVE



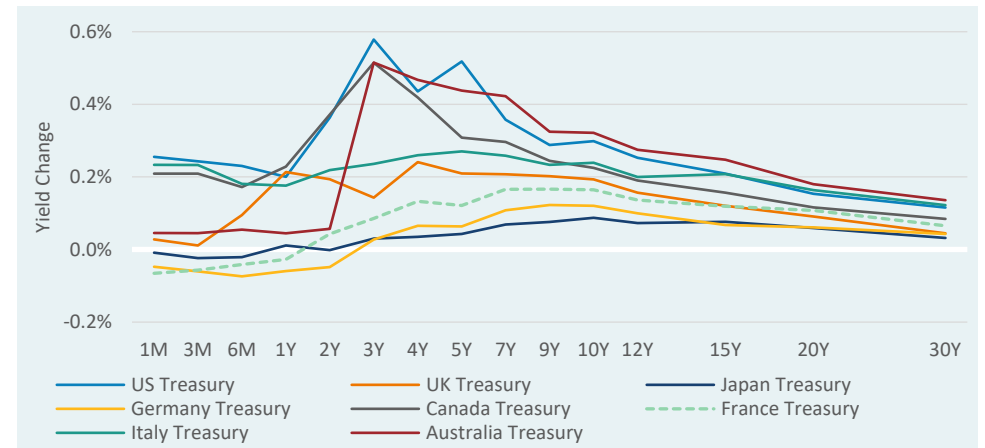
## GLOBAL GOVERNMENT YIELD CURVES



## YIELD CURVE CHANGES OVER LAST FIVE YEARS



## IMPLIED CHANGES OVER NEXT YEAR



Source: Bloomberg, as of 3/31/21

# Yield increases have tested central banks

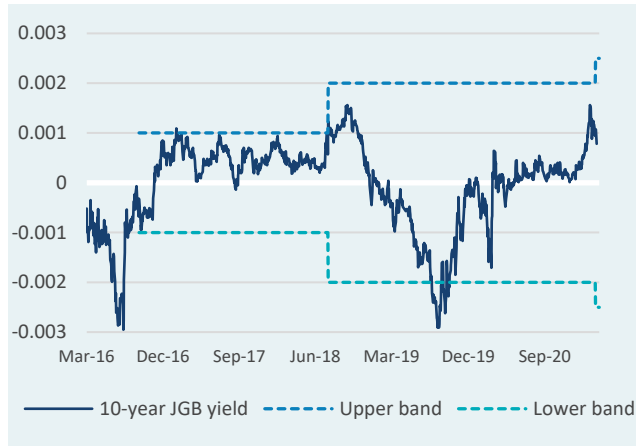
**Bank of Japan:** Clarified that 10-year yields can move within 25 basis points of the 0.00% target; tweaked guidance around buying ¥6 trillion in equity ETFs to make its purchases more “flexible and nimble”.

**Reserve Bank of Australia:** Purchased A\$7 billion of bonds in a matter of days, A\$5 billion more than the scheduled amount, in order to defend its 0.10% target for its three-year bond yield.

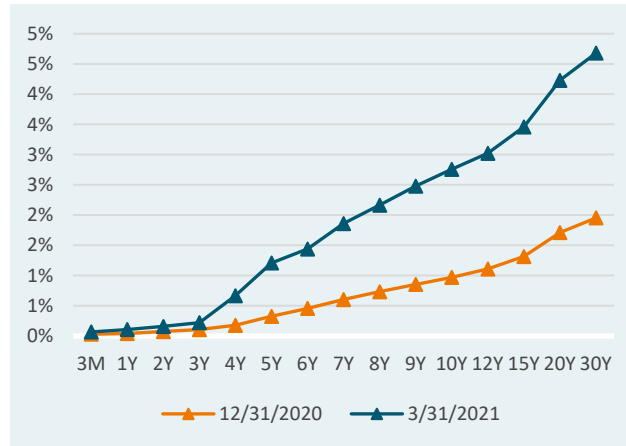
**European Central Bank:** Elected not to expand the size of its Pandemic Emergency Purchase Programme (PEPP), but elected to frontload bond purchases to increase short-term accommodation.

**Federal Reserve:** Fed officials have largely avoided comment and have been sticking to the script that financial conditions remain loose, and that higher long rates are indicative of an improving economic outlook. As a result, some have surmised that the ambiguity around the Fed’s reaction function may result in elevated levels of bond market volatility in the near-term.

**BANK OF JAPAN 10-YEAR YIELD TARGET BAND**



**AUD AUSTRALIAN YIELD CURVE**



**VALUE OF GLOBAL NEGATIVE YIELDING DEBT**



Source: Bloomberg, as of 3/31/21



# Credit environment

During the first quarter, credit market performance largely reflected the movements of the US Treasury curve, which steepened significantly as 10-year yields rose 82 basis points while 2-year yields remained anchored near zero.

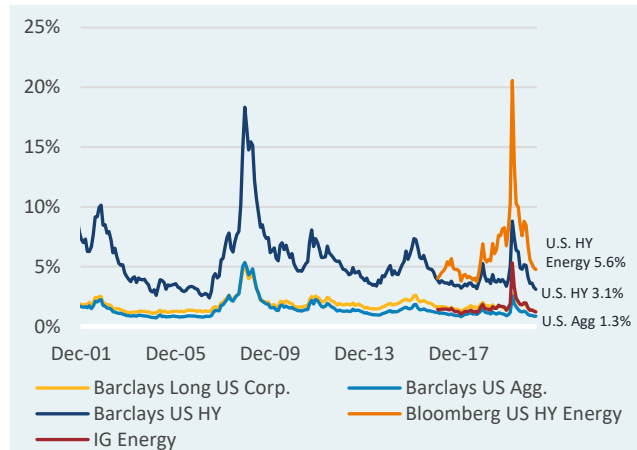
Investment grade credit, with an effective duration of 8.5, returned -4.65% over the quarter while high yield, with an effective duration of 3.9, return +0.85%. Bank Loans outperformed, returning +2.0% over the quarter.

Credit spreads continued to tighten during the quarter, as the vaccine rollout, which accelerated faster than expected, led to higher growth expectations for 2021. High yield spreads

tightened 51 basis points, to 308 basis points, while investment grade tightened a more modest 6 basis points to end the quarter at 90 basis points.

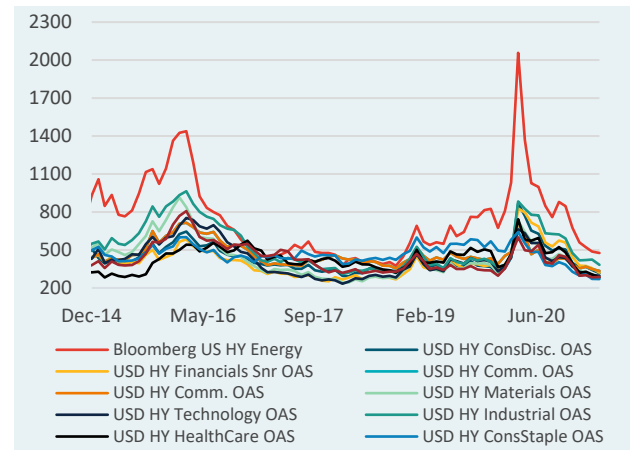
Spreads in higher quality investment grade assets have continued to compress over the past year. Notably, the BBB/A spread is now at an all-time low of 40 basis points, down from a high of 163 basis points experienced in Q1 2020. Similarly, the BB/BBB spread is now 155 basis points, down from recent high of 512 basis points established in March of 2020 and below the ten-year average of 215 basis points.

## SPREADS



Source: Barclays, Bloomberg, as of 3/31/21

## HIGH YIELD SECTOR SPREADS (BPS)



Source: Bloomberg, as of 3/31/21

Market	Credit Spread (OAS)	
	3/31/21	3/31/20
Long U.S. Corp	1.3%	2.8%
U.S. Inv Grade Corp	0.9%	2.7%
U.S. High Yield	3.1%	8.8%
U.S. Bank Loans*	4.3%	8.3%

Source: Barclays, Credit Suisse, Bloomberg, as of 3/31/21

\*Discount margin (4-year life)

# Default & issuance

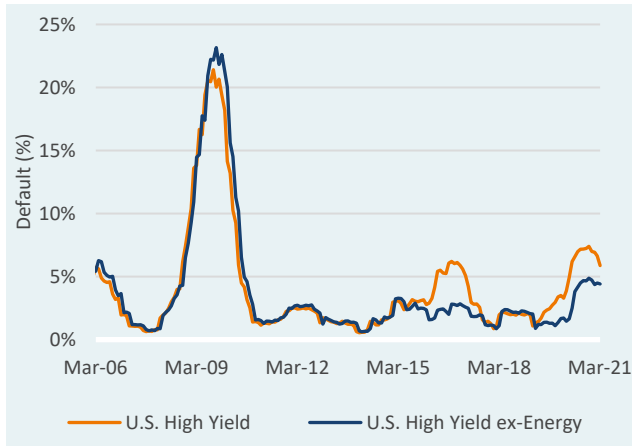
Default activity was modest over the quarter, with 5 companies totaling \$3.2 billion defaulting on bonds and loans. The par-weighted U.S. high yield default rate retreated 139 basis points from recent highs to end the quarter at 5.4%. Similarly, the loan par-weighted default rate ended the quarter at an eleven-month low of 3.3%, down 61 basis points year-to-date.

Given the market perception of upside rate risk throughout the remainder of 2021, high yield bond issuers continued to come to market at a blistering pace. Gross issuance for the quarter set a new quarterly record of \$158.6 billion, outpacing the previous record set in Q2 2020 of \$145.5

billion. Quarterly issuance remains significantly elevated relative to the ten-year average of \$79.9 billion. Notably, \$44.8 billion was issued to take-out leverage loans in Q1, which was roughly 60% of the previous annual record of \$78.5 billion set in 2012. \$154.6 billion in leverage loans were issued during the quarter, an amount eclipsing the previous record of \$139.5 in Q1 2017.

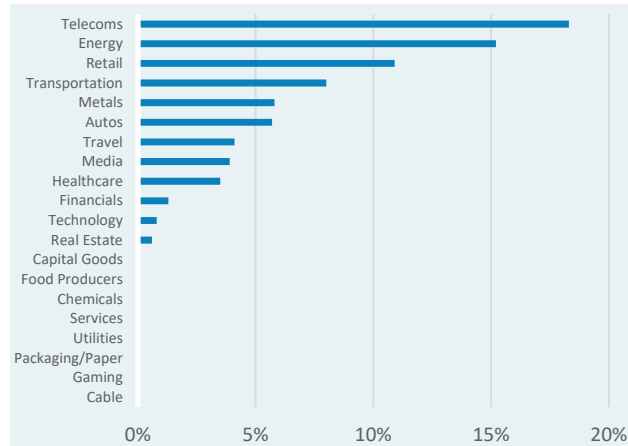
Investment grade issuance for the quarter totaled \$423 billion, which remains elevated from the 4-year average first quarter issuance of \$375, but lower than \$480 billion issued in Q1 2020 when supply surged due to COVID funding.

**HY DEFAULT RATE (ROLLING 1-YEAR)**



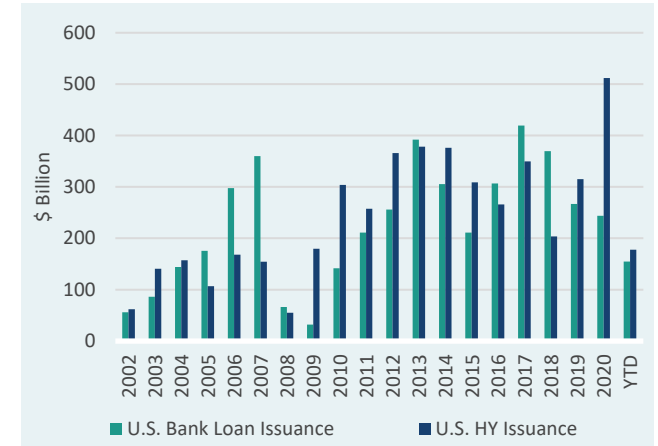
Source: BofA Merrill Lynch, as of 3/31/21

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



Source: BofA Merrill Lynch, as of 3/31/21 – par weighted

**U.S. ISSUANCE (\$ BILLIONS)**



Source: BofA Merrill Lynch, as of 3/31/21

# Equity

# Equity environment

- U.S. equities were a top performer in Q1, delivering +6.2%. International equities delivered +3.5% (MSCI EAFE Index) and emerging markets delivered +2.3% (MSCI Emerging Markets Index), on an unhedged currency basis. Trailing one-year returns hit extremely high levels, reflecting low base effects (markets bottomed out during March of 2020), and a recovery from those depressed levels year-over-year.
- We believe the U.S. economy is playing catch-up to the markets in the current environment. While it seems increasingly likely that the economy will rapidly recover over the next year, this optimism may already be baked into equity prices. It is reasonable to be enthusiastic about U.S. economic prospects while also being cautious about lofty equity valuations.
- According to FactSet, S&P 500 earnings expectations for 2021 improved by 5.0% during the

quarter. Analysts are now forecasting 25.4% earnings growth for 2021—an incredible recovery from the -11.2% earnings drop expected of 2020.

- The Cboe VIX Index has slowly been falling back towards the longer-term average of 19. The index fluctuated in the low 20s during Q1, falling below 19 briefly in late March.
- The U.S. dollar stabilized in the first quarter, paring some of the losses accrued in the final three quarters of last year. Rising relative yields helped the dollar to appreciate materially relative to the euro, yen, and a broad basket of emerging market currencies.
- A rotation towards value stocks persisted during the quarter, as beaten-down sectors delivered outsized performance. Energy, financials, industrials, and materials were the strongest performers.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (S&P 500)	6.2%		56.4%	
US Small Cap (Russell 2000)	12.7%		94.8%	
US Large Value (Russell 1000 Value)	11.3%		56.1%	
US Large Growth (Russell 1000 Growth)	0.9%		62.7%	
International Large (MSCI EAFE)	3.5%	7.6%	44.6%	37.7%
Eurozone (Euro Stoxx 50)	6.3%	10.6%	53.7%	45.3%
U.K. (FTSE 100)	5.9%	5.0%	35.6%	22.5%
Japan (NIKKEI 225)	(0.2%)	7.0%	52.6%	57.4%
Emerging Markets (MSCI Emerging Markets)	2.3%	3.7%	58.4%	52.2%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 3/31/21

# Domestic equity

U.S. equities moved higher in Q1, returning +6.2%. According to FactSet, S&P 500 earnings expectations for 2021 improved by 5.0% during the quarter. Analysts are now forecasting 25.4% earnings growth for 2021—an incredible recovery from the -11.2% earnings drop expected of 2020.

Equities continued upward and valuations have followed. The U.S. market has been a top performer but has also remained one of the most expensive markets. On the other hand, successful COVID-19 vaccine rollouts, rosy earnings expectations, and the potential for an impressive economic

reopening may be supportive of high prices. This reopening appears to be fueling a rotation towards traditional cyclical sectors, such as energy, financials, and industrials.

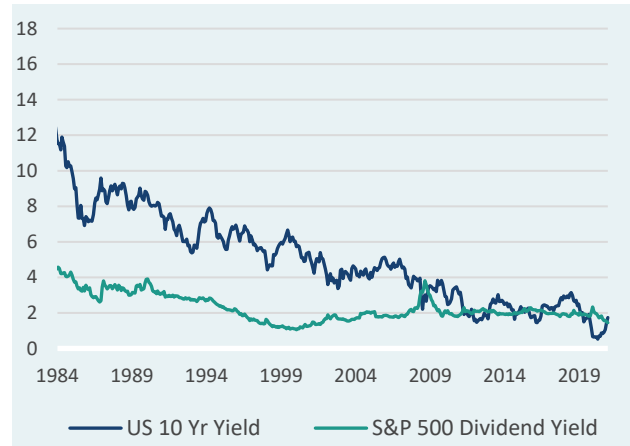
As markets move higher, it appears to us that the economy may be playing catch-up to the markets. While it seems increasingly likely that the economy will rapidly recover during the next year, this optimism may already be reflected in equity prices. In other words, it is reasonable to be enthusiastic about U.S. economic prospects while also being cautious about higher equity valuations.

## S&P 500 INDEX



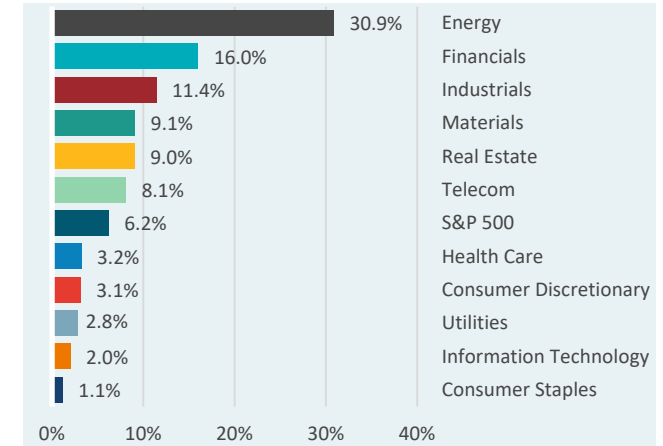
Source: Standard & Poor's, as of 3/31/21

## DIVIDEND YIELD VS BOND YIELD



Source: Standard & Poor's, as of 3/31/21

## Q1 SECTOR PERFORMANCE



Source: Standard & Poor's, as of 3/31/21

# Retail market speculation

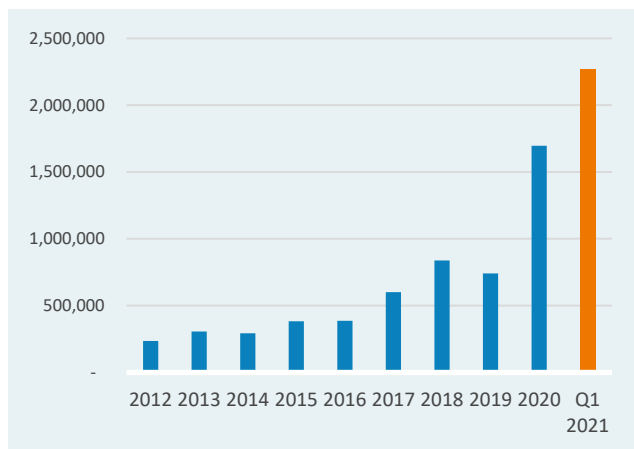
In recent years, trading has become free on certain platforms, making day trading a more attractive proposition. Retail's portion of total market trading has increased from 10% in 2010 to 23% in 2020, according to Bloomberg Intelligence.

Some trading platforms have attracted users by designing the trading process to be entertaining, similar to a video game. Discussion sites such as Reddit have also become popular places to talk about trades in a social setting.

Lockdowns due to COVID-19 have prevented many Americans from pursuing their usual hobbies, leading to boredom. Stock trading may have become an entertaining outlet for otherwise non-traders. And government stimulus checks may have provided idle cash to fuel this new hobby.

This environment appears to have contributed to intense speculation in stocks such as GME and AMC. In these instances, retail traders aimed to force a "short squeeze" on these heavily-shorted stocks.

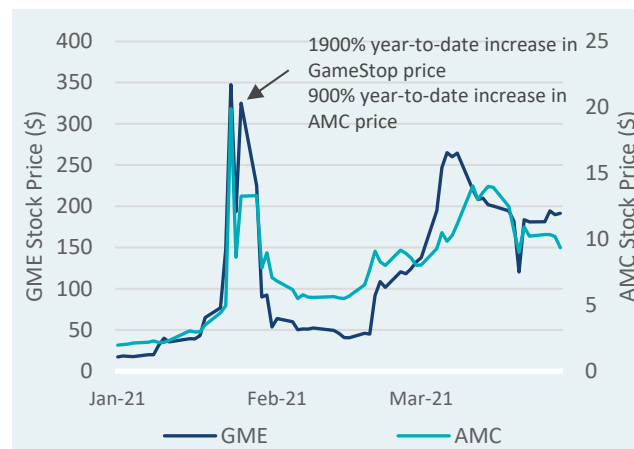
## SCHWAB - ORGANIC CHANGE IN ACTIVE BROKERAGE ACCOUNTS\*



Source: Bloomberg, as of 4/15/21.

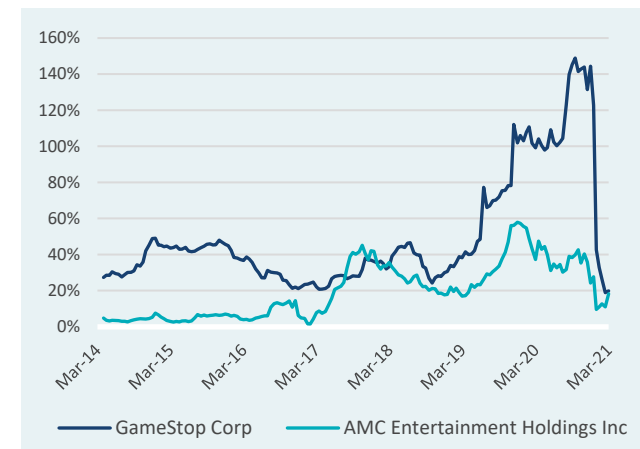
\*Excludes 15.6 million brokerage accounts which Schwab added in 2020 as a result of its acquisition of TD Ameritrade and its acquisition of the assets of USAA's Investment Management Company.

## GAMESTOP & AMC THEATERS STOCK PRICES



Source: Bloomberg, as of 3/31/21

## SHORT INTEREST AS A PERCENTAGE OF FLOAT



Source: Bloomberg, as of 3/31/21

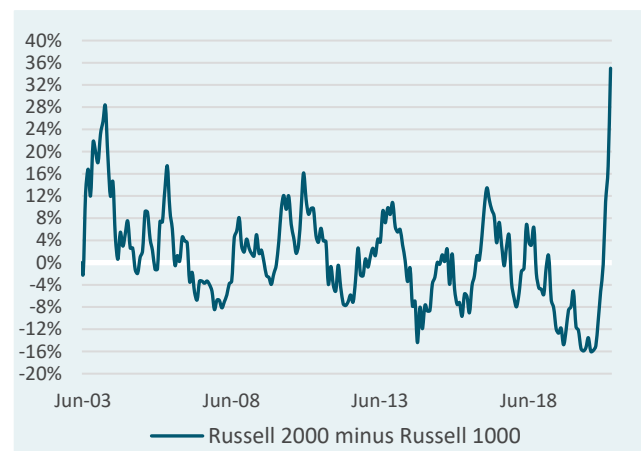
# Domestic equity size & style

Factor performance surged during the quarter, as small capitalization and value stocks delivered strong relative returns. U.S. value stocks beat growth stocks by a wide margin (Russell 1000 Value +11.3%, Russell 1000 Growth +0.9%), as growth entered a correction in February and value marched higher. Small cap stocks continued their surprisingly strong rally, outperforming growth (Russell 2000 +12.7%, Russell 1000 +5.9%).

A rotation towards value occurred as beaten-down sectors such as energy, financials, and materials delivered outsized performance—sectors which tend to possess a heavier concentration of value stocks. Companies which benefited from the pandemic due to a shift in household habits may see a further reversal of that windfall as households begin to go back to normal life. Additionally, value stocks typically exhibit strength during economic recoveries. These dynamics of growth and value may suggest further value factor strength, though factor trends are noisy and extremely difficult to predict.

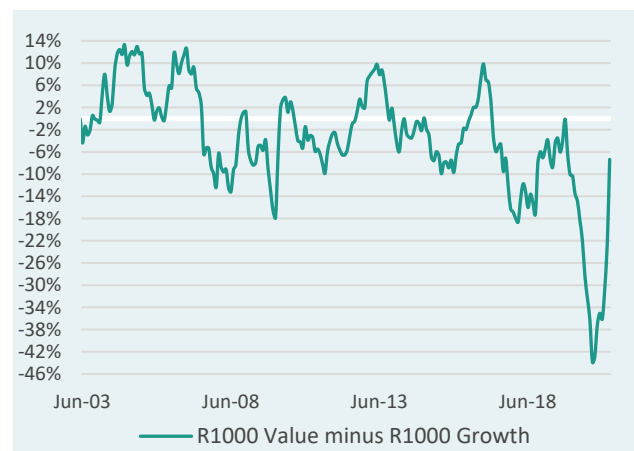
Small cap and value stocks delivered strong relative performance during Q1

SMALL CAP VS LARGE CAP (YOY)



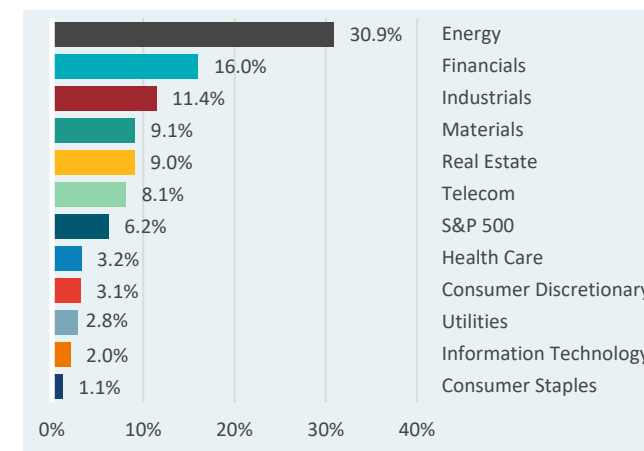
Source: FTSE, as of 3/31/21

VALUE VS GROWTH (YOY)



Source: FTSE, as of 3/31/21

Q1 SECTOR PERFORMANCE



Source: Standard & Poor's, as of 3/31/21

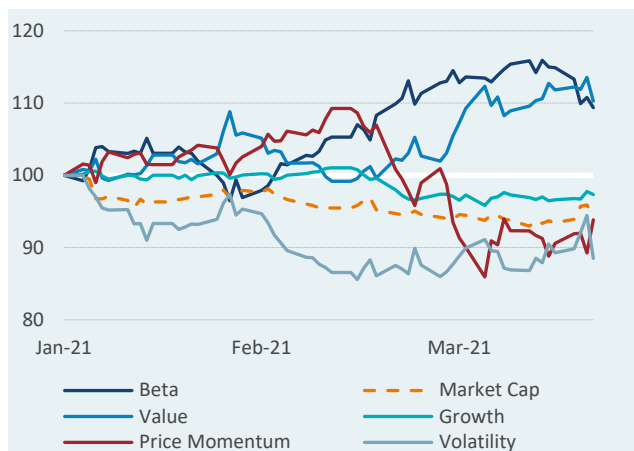
# Factor portfolios in 2021

Factor performance trends that started with positive COVID vaccine news in late 2020 continued into 2021 Q1. Investors kept favoring the value factor; they also bought stocks with higher betas and higher volatility (long/short, sector neutral, S&P 500 Index quintiles). This was a significant change from pre-vaccine pandemic behavior when investors had bid up the low volatility, growth, and price momentum factors.

From a longer-term perspective, the latest rotation did not come close to reversing the trend of positive results accruing to the momentum and low volatility factors.

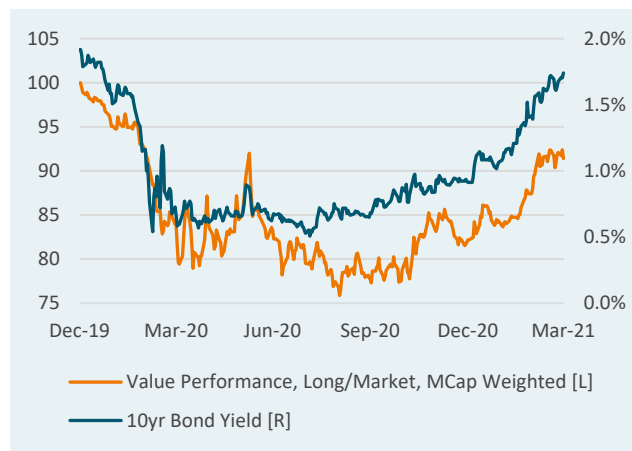
Value stocks, which were largely beaten down during the pandemic, remain an ongoing beneficiary of the economic recovery rooted in both positive medical news and ongoing government stimulus programs. Higher interest rates and a steepening yield curve, which are related to the recovery trade, also help certain cheap financial stocks. In contrast, certain growth stocks are hurt by higher rates as future profits are further discounted. The recent market activity is reflected within the momentum factor itself as investors sold growth and low volatility stocks to keep buying stocks with higher exposure to value and other factors.

## Q1 2021 PERFORMANCE



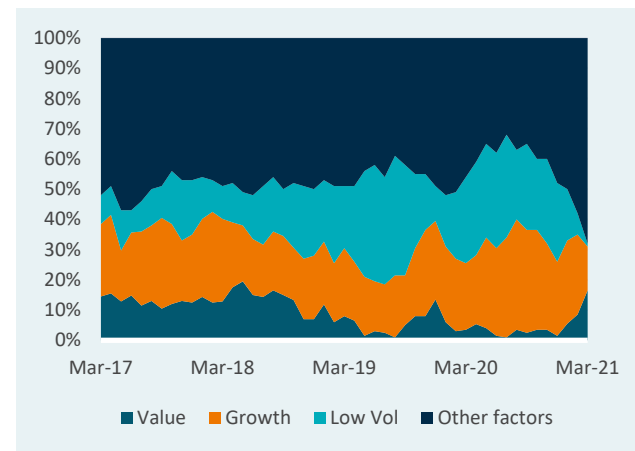
Source: J.P. Morgan, as of 3/27/21

## VALUE PERFORMANCE AND RATE MOVEMENT



Source: J.P. Morgan, as of 3/31/21

## J.P. MORGAN MOMENTUM BUCKET: LONG-SIDE FACTOR EXPOSURES (S&P 500 INDEX UNIVERSE)



Source: J.P. Morgan, as of 3/31/21



# International developed equity

International equities delivered +3.5% (MSCI EAFE Index) during the first quarter on an unhedged currency basis. International developed underperformed the S&P 500 Index (+6.2%) while outperforming the MSCI Emerging Markets Index (+2.3%). The trend towards U.S. dollar weakness has boosted the performance of unhedged international equities, adding +6.8% over the past year, though this trend may have begun to reverse in the first quarter.

International developed equity weakness may be partly attributed to snags in the European COVID-19 vaccination

campaign, which has materially lagged the rest of the world. However, European equities (+4.1%) managed to outperform Japanese equities (+1.6%) in U.S. dollar terms, primarily due to currency movements, as the yen (-6.7%) depreciated more sharply relative to the U.S. dollar than the euro (-4.0%) or swiss franc (-6.2%).

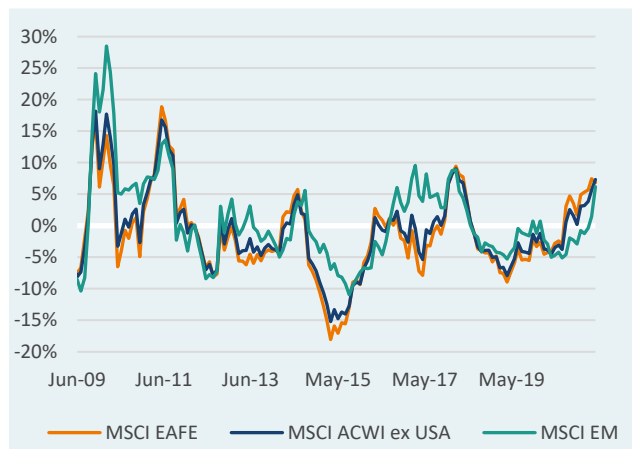
Bets against the Japanese yen rose to multi-year highs amid a backdrop of increasing relative interest rates available in the U.S., and a wave of risk-on sentiment pouring cold water on the appeal of traditional safe-haven assets.

**INTERNATIONAL DEVELOPED EQUITIES**



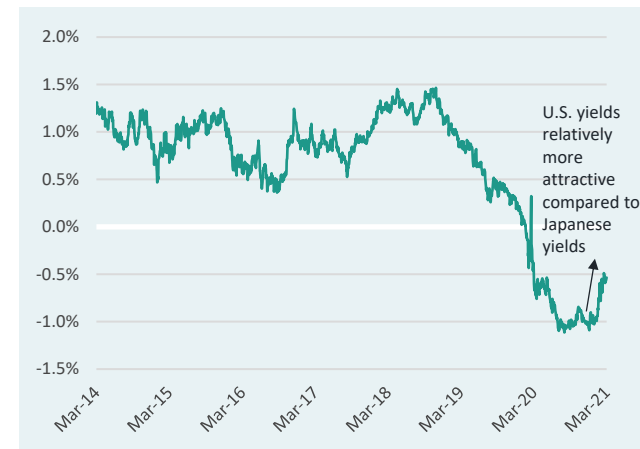
Source: MSCI, as of 3/31/21

**EFFECT OF CURRENCY (1-YEAR ROLLING)**



Source: MSCI, as of 3/31/21

**10-YEAR REAL YIELD SPREAD (US MINUS JAPAN)**



Source: Bloomberg, as of 3/31/21

# Emerging market equity

Emerging market equities (MSCI EM +2.3%) underperformed U.S. (S&P 500 +6.2%) and international developed equities (MSCI EAFE +3.5%) during the quarter. Latin American equities pulled back from strong performance in Q4, underperforming the broader index (MSCI Latin America -5.3%).

Chinese mainland equities, which account for roughly 36% of the MSCI EM Index, slumped -0.4%, dampening overall index returns. Many analysts attributed the relative weakness in China to tightening liquidity conditions, as the People's Bank

of China shifted focus away from promoting economic recovery and toward clamping down on real estate speculation and leverage broadly, in the interest of preventing the buildup of financial excesses.

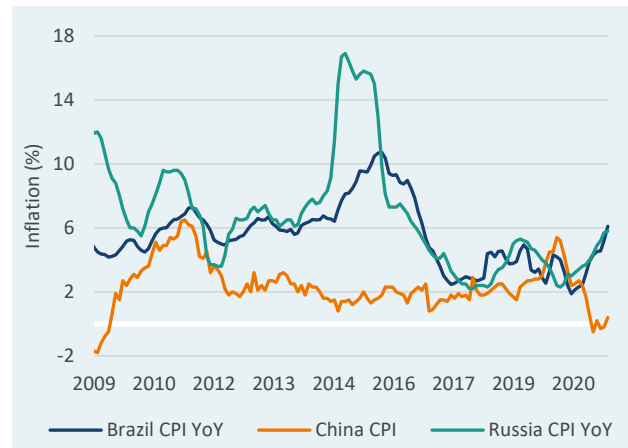
Central banks from Turkey to Russia to Brazil delivered surprise rate hikes in part to respond to a resurgence in inflation, which weighed on markets. Idiosyncratic political developments further pressured returns in Turkey (-20.4%) and Brazil (-10.0%), while Russian equities held up better (+2.4%) despite a weaker ruble (-2.1%).

## EMERGING MARKET EQUITY



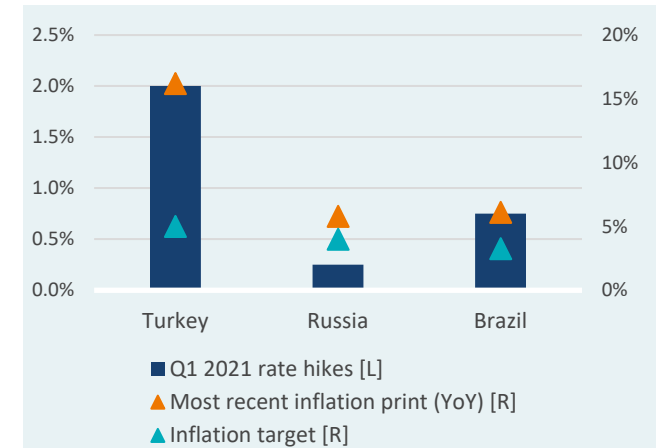
Source: MSCI, as of 3/31/21

## INFLATION (YOY)



Source: Bloomberg, as of 3/31/21 or most recent data

## SURPRISE CENTRAL BANK RATE HIKES



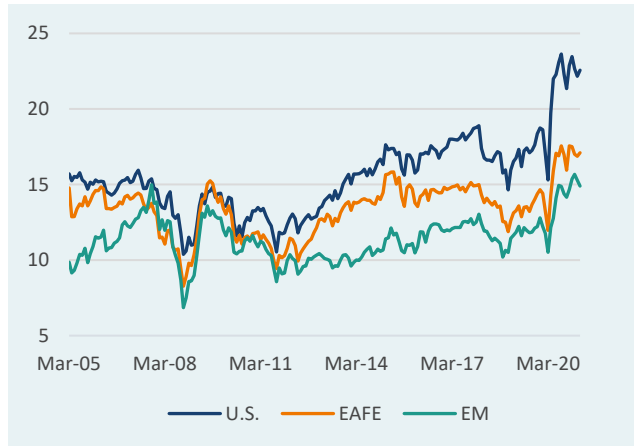
Source: Bloomberg, as of 3/31/21

# Equity valuations

Valuations remain at very high levels relative to history. However, prices may be somewhat justified, considering the historically low (though slightly higher over the quarter) level of interest rates, and the fact that earnings are expected to rebound sharply later this year. Additionally, some have projected that aggressive cost-cutting measures and pandemic-driven innovation could result in higher operating leverage within U.S. companies, which would allow them to generate more earnings per dollar of revenue than before the pandemic began, and perhaps more earnings overall if revenues were to return to near pre-pandemic levels.

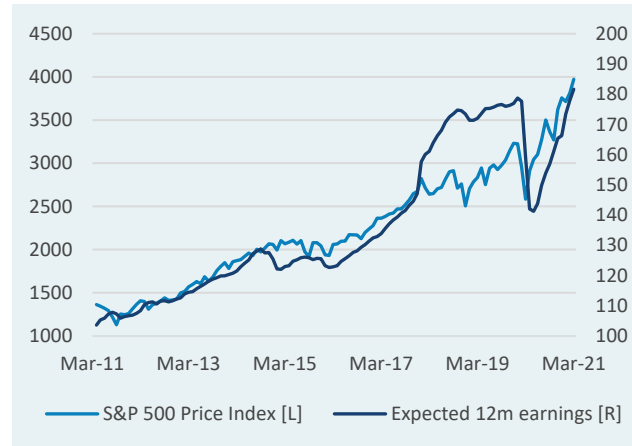
Equity prices proved quite resilient to the significant increase in global interest rates, leaving investors pondering the level at which rising interest rates would materially impact the present value of equities. While this is difficult to gauge, the answer is likely dependent on the sector and duration characteristics of the various global equity benchmarks. Additionally, central bank accommodation remains a crucial support for equity prices. Looking ahead, if central bankers were to adopt a more hawkish tone as the developed world approaches herd immunity, valuations may be challenged.

## FORWARD P/E RATIOS



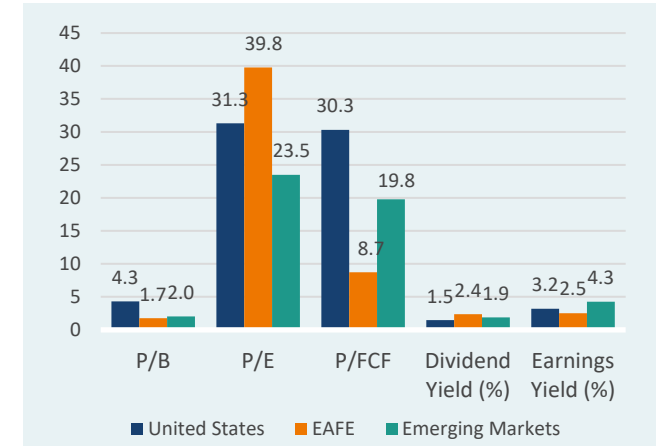
Source: MSCI, 12m forward P/E, as of 3/31/21

## S&P 500 PRICE & EARNINGS EXPECTATIONS



Source: Bloomberg, as of 3/31/21

## VALUATION METRICS (3-MONTH AVERAGE)



Source: Bloomberg, MSCI as of 3/31/21 - trailing P/E

# Equity volatility

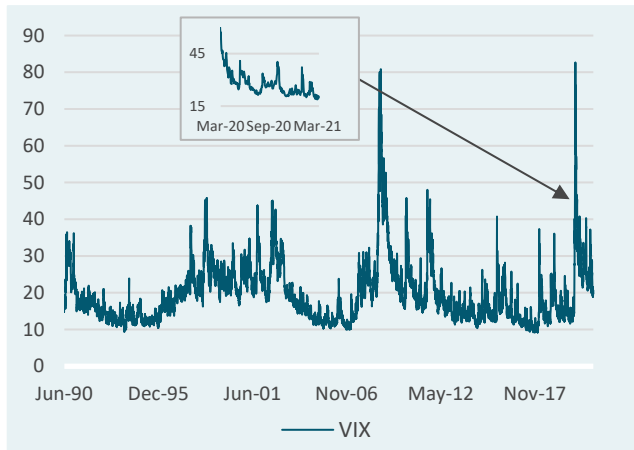
The Cboe VIX Index has slowly been falling back towards the longer-term average of 19. The index fluctuated in the low 20s during Q1, falling below 19 briefly in late March.

One-year trailing realized volatility began to fade alongside implied volatility in the first quarter of the year, as the tumultuous markets of Q1 2020 fell out of the lookback period. Central bank accommodation has translated to easy global financial conditions, though policy normalization and liquidity tightening in China has likely contributed to recent

weakness in Chinese equity markets.

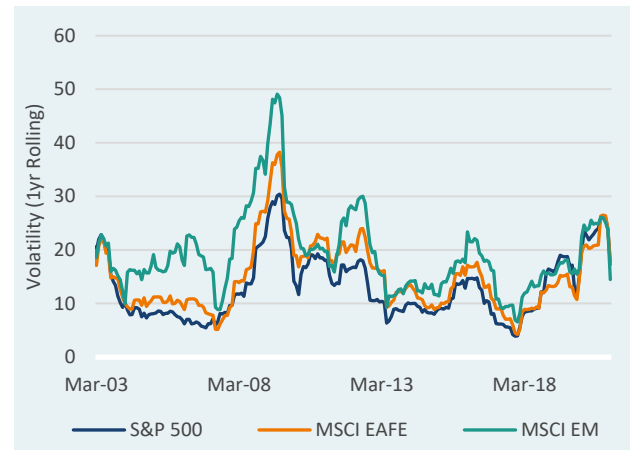
Since seeing recoveries during Q3 and Q4 of last year, respectively, U.S. and international equities have headed higher with relatively low volatility. Idiosyncratic political developments across the emerging markets universe, surprise central bank rate hikes, and the high concentration of tech in Asian EM countries in a period of rising rates, all contributed to a more volatile quarter for the emerging markets complex.

**U.S. IMPLIED VOLATILITY (VIX)**



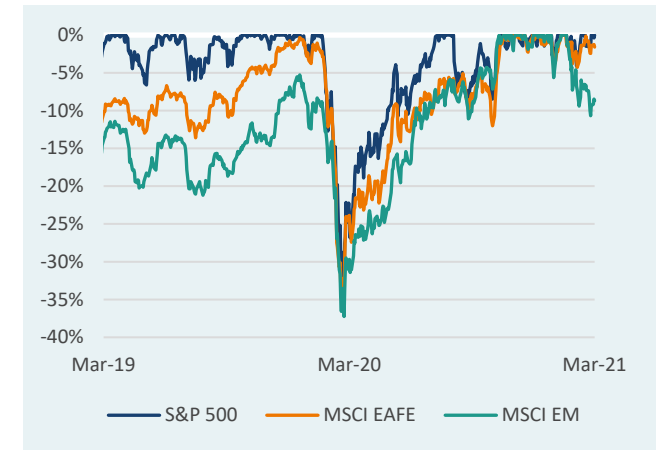
Source: Cboe, as of 3/31/21

**REALIZED VOLATILITY**



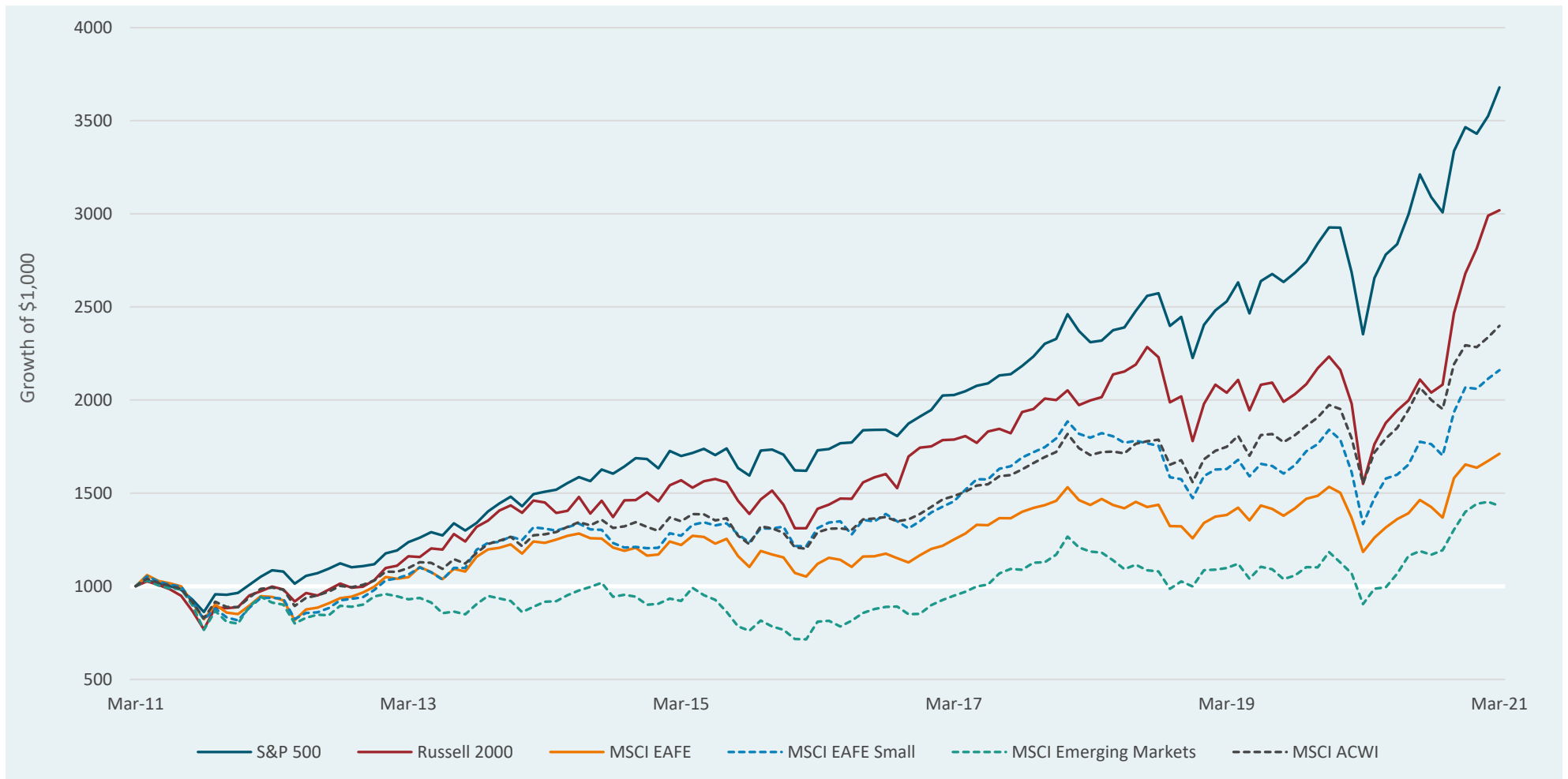
Source: Standard & Poor's, MSCI, as of 3/31/21

**MAX DRAWDOWNS FROM PRIOR PEAKS**



Source: Standard & Poor's, MSCI, Bloomberg, as of 3/31/21

# Long-term equity performance



Source: Morningstar, as of 3/31/21

# Other assets

# Currency

U.S. dollar weakness had prevailed for most of 2020, but turned around in the first quarter of 2021. The Bloomberg Dollar Spot Index increased 2.8% over the quarter, after slipping -5.4% in 2020. Strength in the dollar was attributed to rising relative yields in the U.S., the relatively effective vaccination campaign, and speculation that a series of fiscal support packages might fuel supernormal growth over the next few years.

Currency beta returns, or the returns of a long-short portfolio of G10 currencies constructed by investing in three equally-weighted factors (carry, value, momentum), remained negative over the trailing year. Rotations back into the U.S. dollar and

out of the euro and yen supported performance for the carry factor while detracting from the performance of the currency momentum factor.

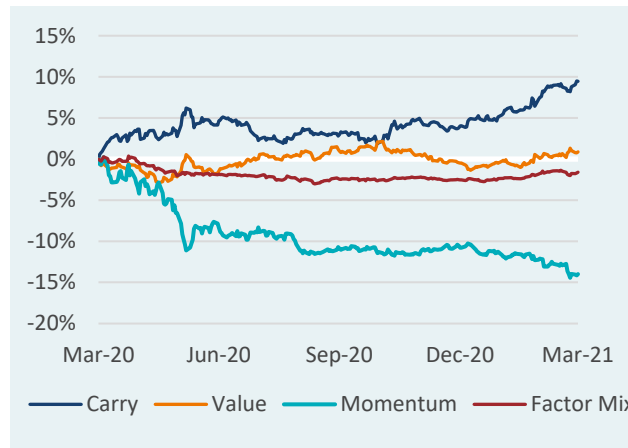
International developed currencies fared poorly, pressured by risk-on sentiment, a lackluster European vaccination effort, and concerns expressed by the European Central Bank about rising global interest rates. The embedded currency portfolio of the MSCI EAFE Index returned -4.1%, as the yen (-6.7%) and euro (-4.0%) weakened relative to the U.S. dollar. Emerging market currencies (-3.1%) softened, driven by declines in the Brazilian real (-7.8%) and Turkish lira (-9.9%).

**BLOOMBERG DOLLAR SPOT INDEX**



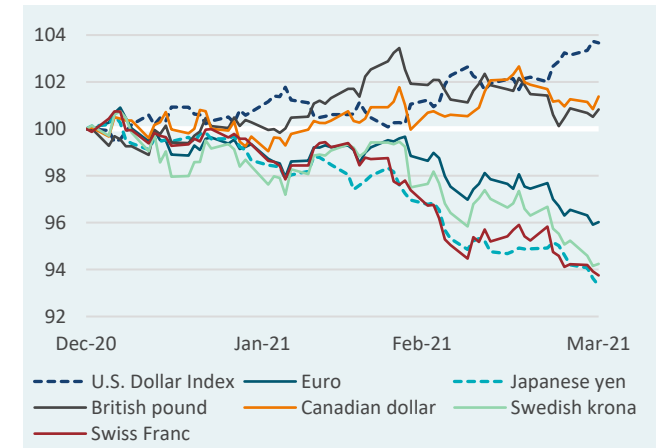
Source: Bloomberg, as of 3/31/21

**CURRENCY BETA (ONE-YEAR RETURNS)**



Source: MSCI, Bloomberg, as of 3/31/21

**U.S. DOLLAR INDEX CONSTITUENTS**



Source: Bloomberg, as of 3/31/21

# Appendix



# Periodic table of returns

BEST  
↑

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	YTD	5-Year	10-Year
Small Cap Value	66.4	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	21.2	21.0	16.6
Small Cap Equity	43.1	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	12.7	18.6	14.0
Large Cap Value	33.2	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	11.3	16.7	13.0
Commodities	27.3	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	6.9	16.4	11.7
Large Cap Equity	26.5	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	5.9	13.6	11.0
Small Cap Growth	21.3	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	4.9	12.1	10.1
International Equity	24.3	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	3.5	11.7	8.6
Emerging Markets Equity	20.9	-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	2.3	9.2	6.6
Hedge Funds of Funds	13.2	-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	2.0	8.8	5.5
60/40 Global Portfolio	11.4	-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	1.0	5.6	3.7
Large Cap Growth	7.3	-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	0.9	5.4	3.4
Cash	4.8	-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	3.1	3.4
Real Estate	-0.8	-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	0.0	2.3	0.6
US Bonds	-1.5	-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	-3.4	1.1	-6.3

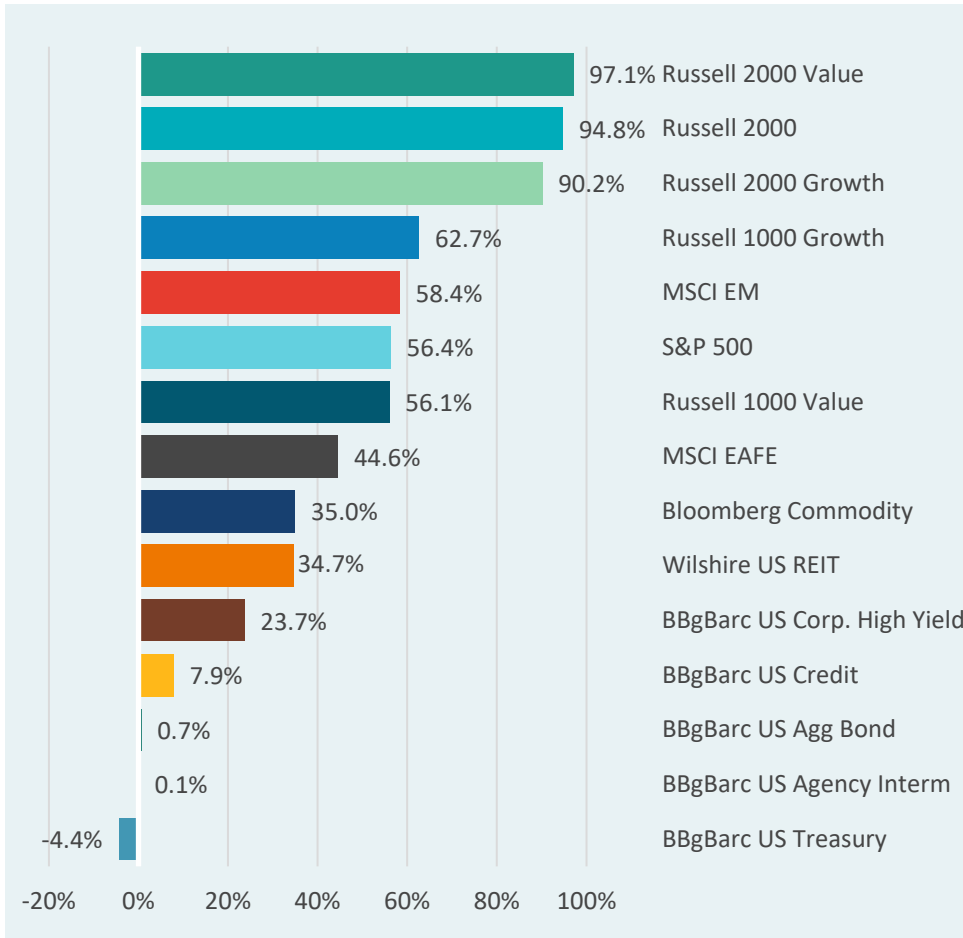
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WORST



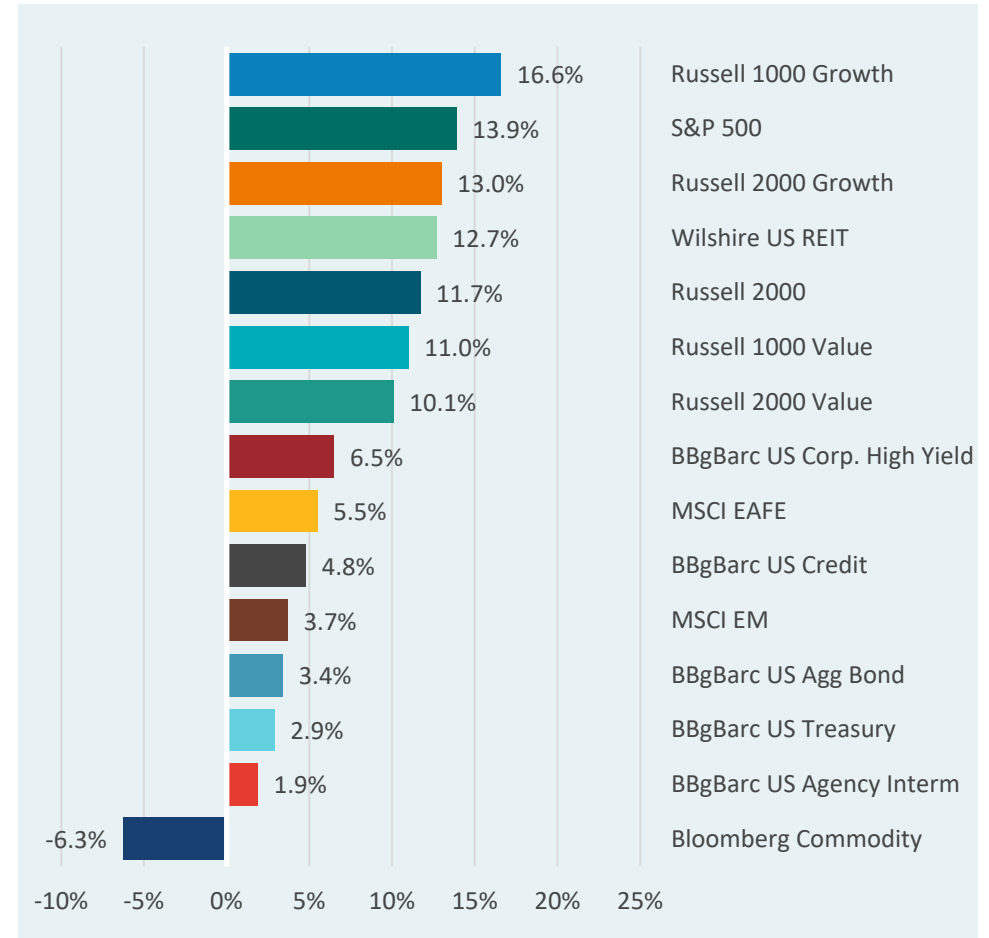
Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BBgBarc US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, BBgBarc Global Bond. NCREIF Property Index performance data as of 12/31/20.

# Major asset class returns

ONE YEAR ENDING MARCH



TEN YEARS ENDING MARCH



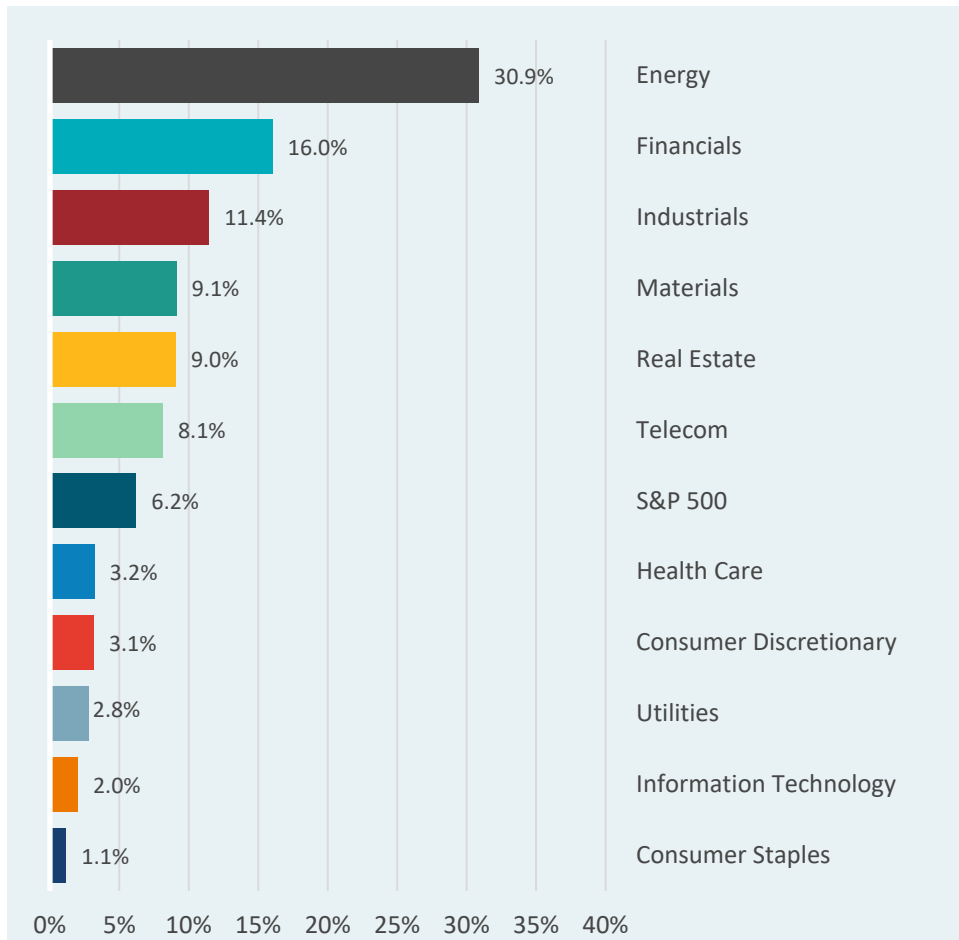
\*Only publicly traded asset performance is shown here. Performance of private assets is typically released with a 3- to 6-month delay.

Source: Morningstar, as of 3/31/21

Source: Morningstar, as of 3/31/21

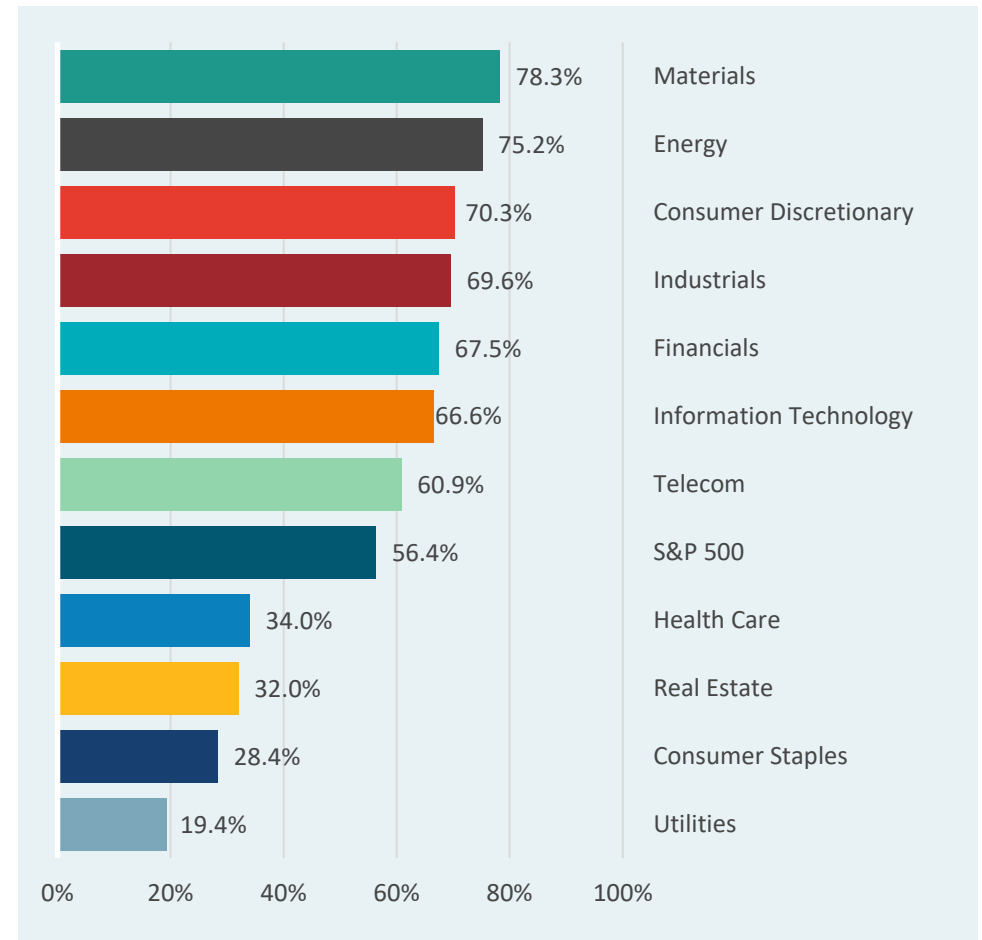
# S&P 500 sector returns

Q1 2021



Source: Morningstar, as of 3/31/21

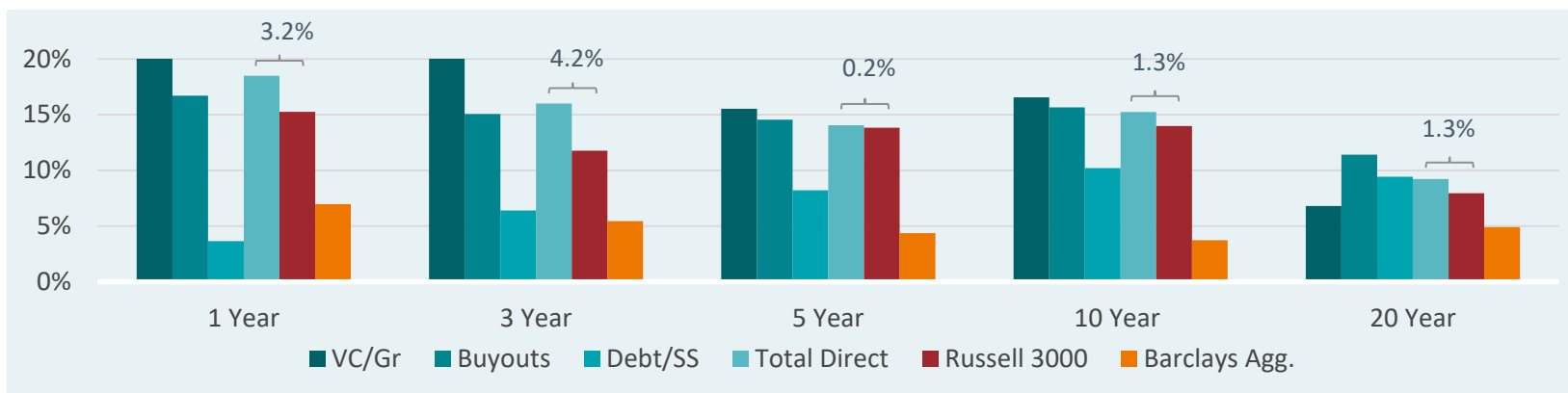
ONE YEAR ENDING MARCH



Source: Morningstar, as of 3/31/21

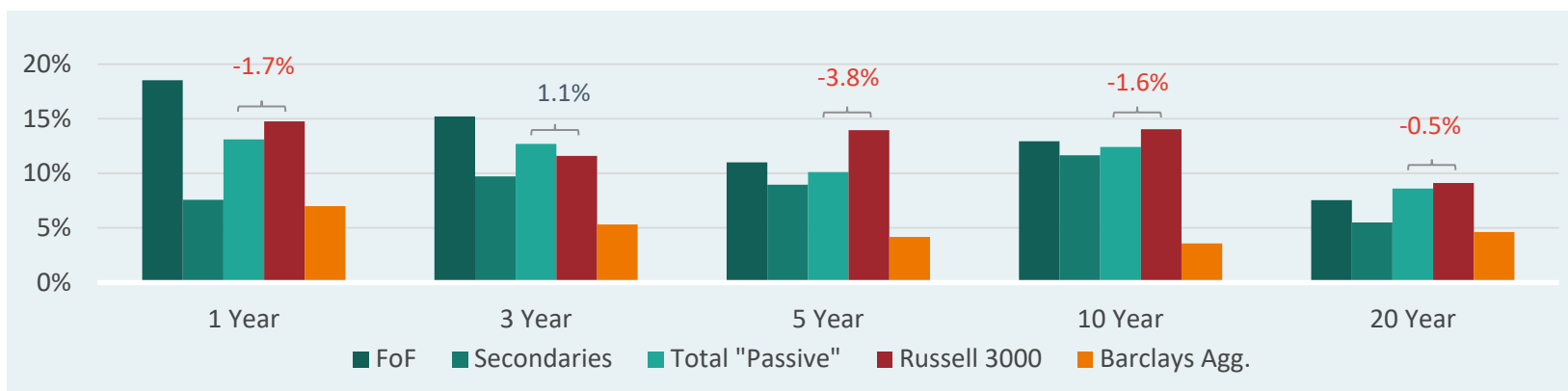
# Private equity vs. traditional assets performance

## DIRECT PRIVATE EQUITY FUND INVESTMENTS



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

## “PASSIVE” STRATEGIES

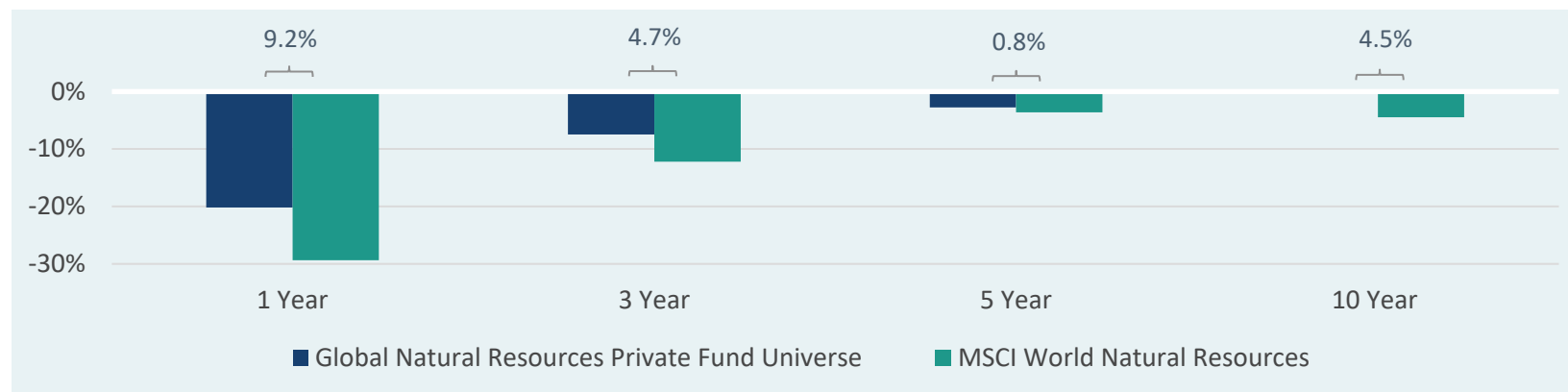


“Passive” strategies underperformed comparable public equities across all time periods, aside from the 3-year basis.

Sources: Refinitiv Cambridge Universe’s PME Module: U.S. Private Equity Funds sub asset classes as of September 30, 2020. Public Market Equivalent returns resulted from “Total Passive” and Total Direct’s identical cash flows invested into and distributed from respective traditional asset comparable.

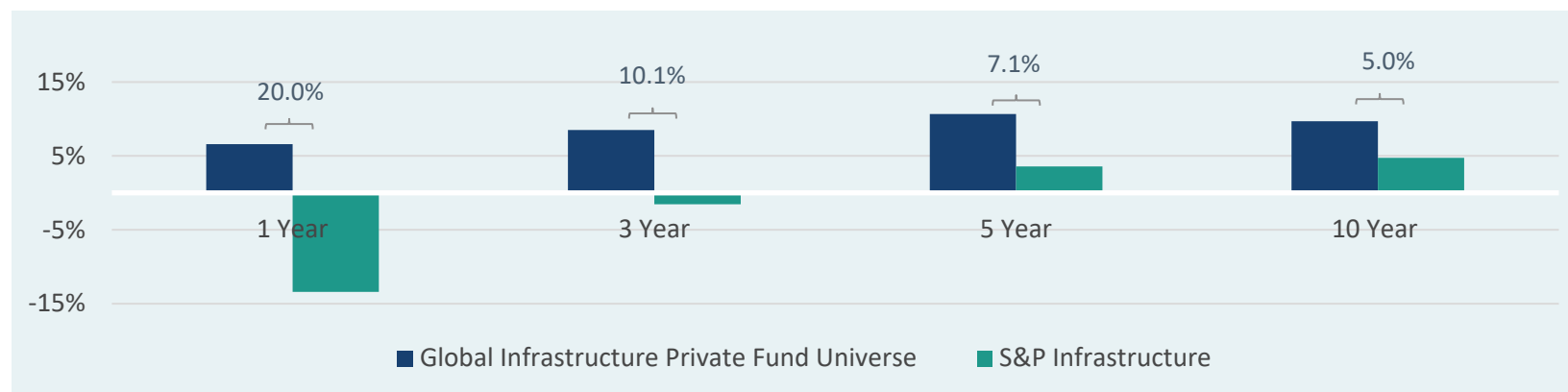
# Private vs. liquid real assets performance

## GLOBAL NATURAL RESOURCES FUNDS



N.R. funds outperformed the MSCI World Natural Resources benchmark across all time periods.

## GLOBAL INFRASTRUCTURE FUNDS

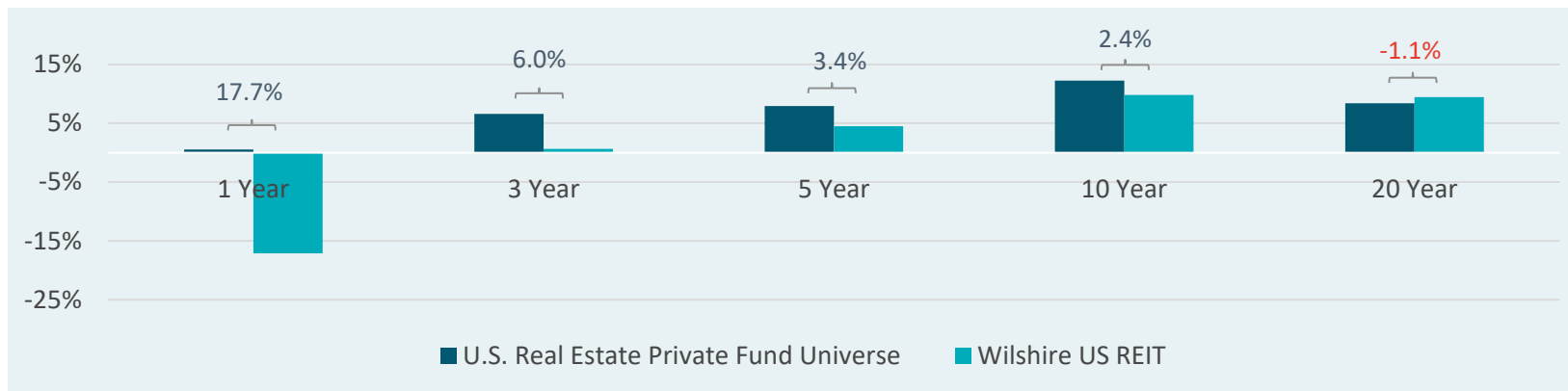


Infra. funds outperformed the S&P Infra. across all periods.

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 September 30, 2020. Public Market Equivalent returns resulted from identical cash flows invested into and distributed from respective liquid real assets universes.

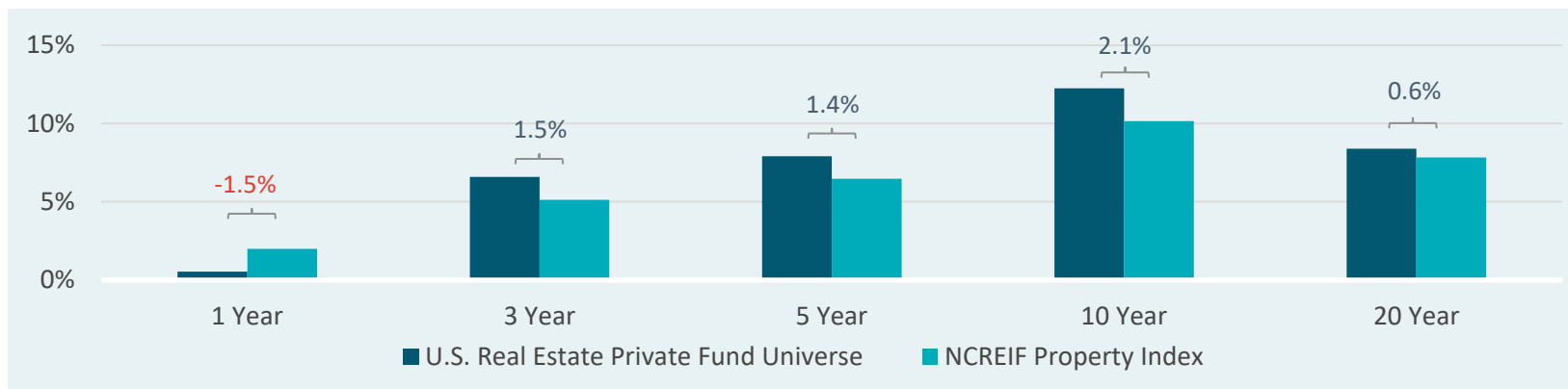
# Private vs. liquid and core real estate performance

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



U.S. Private R.E. funds outperformed the Wilshire U.S. REIT Index across all time periods, aside on a 20-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, aside on a 1-year basis.

Sources: Refinitiv CJA PME: Global and U.S. Real Estate universes as of September 30, 2020. 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
<b>Core Index</b>							
S&P 500	4.4	6.2	6.2	56.4	16.8	16.3	13.9
S&P 500 Equal Weighted	6.0	11.5	11.5	71.6	14.9	14.7	13.1
DJ Industrial Average	6.8	8.3	8.3	53.8	13.6	16.0	13.1
Russell Top 200	4.2	5.1	5.1	56.3	18.3	17.4	14.6
Russell 1000	3.8	5.9	5.9	60.6	17.3	16.7	14.0
Russell 2000	1.0	12.7	12.7	94.8	14.8	16.4	11.7
Russell 3000	3.6	6.3	6.3	62.5	17.1	16.6	13.8
Russell Mid Cap	2.7	8.1	8.1	73.6	14.7	14.7	12.5
<b>Style Index</b>							
Russell 1000 Growth	1.7	0.9	0.9	62.7	22.8	21.0	16.6
Russell 1000 Value	5.9	11.3	11.3	56.1	11.0	11.7	11.0
Russell 2000 Growth	(3.1)	4.9	4.9	90.2	17.2	18.6	13.0
Russell 2000 Value	5.2	21.2	21.2	97.1	11.6	13.6	10.1

## INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Broad Index</b>							
MSCI ACWI	2.7	4.6	4.6	54.6	12.1	13.2	9.1
MSCI ACWI ex US	1.3	3.5	3.5	49.4	6.5	9.8	4.9
MSCI EAFE	2.3	3.5	3.5	44.6	6.0	8.8	5.5
MSCI EM	(1.5)	2.3	2.3	58.4	6.5	12.1	3.7
MSCI EAFE Small Cap	2.2	4.5	4.5	62.0	6.3	10.5	8.0
<b>Style Index</b>							
MSCI EAFE Growth	1.2	(0.6)	(0.6)	42.6	9.8	10.8	7.2
MSCI EAFE Value	3.4	7.4	7.4	45.7	1.8	6.6	3.7
<b>Regional Index</b>							
MSCI UK	2.8	6.2	6.2	33.5	0.9	4.3	3.3
MSCI Japan	1.1	1.6	1.6	39.7	6.3	10.5	7.2
MSCI Europe	3.1	4.1	4.1	44.9	5.6	8.2	5.1
MSCI EM Asia	(3.0)	2.2	2.2	60.1	9.5	14.5	6.6
MSCI EM Latin American	4.6	(5.3)	(5.3)	50.1	(6.1)	4.0	(4.1)

## FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Broad Index</b>							
BBgBarc US TIPS	(0.2)	(1.5)	(1.5)	7.5	5.7	3.9	3.4
BBgBarc US Treasury Bills	0.0	0.0	0.0	0.1	1.5	1.2	0.7
BBgBarc US Agg Bond	(1.2)	(3.4)	(3.4)	0.7	4.7	3.1	3.4
BBgBarc US Universal	(1.2)	(3.1)	(3.1)	3.0	4.9	3.6	3.8
<b>Duration</b>							
BBgBarc US Treasury 1-3 Yr	(0.0)	(0.1)	(0.1)	0.3	2.8	1.7	1.3
BBgBarc US Treasury Long	(5.0)	(13.5)	(13.5)	(15.8)	5.9	3.1	6.3
BBgBarc US Treasury	(1.5)	(4.3)	(4.3)	(4.4)	4.1	2.2	2.9
<b>Issuer</b>							
BBgBarc US MBS	(0.5)	(1.1)	(1.1)	(0.1)	3.7	2.4	2.8
BBgBarc US Corp. High Yield	0.1	0.9	0.9	23.7	6.8	8.1	6.5
BBgBarc US Agency Interim	(0.4)	(1.0)	(1.0)	0.1	3.2	2.0	1.9
BBgBarc US Credit	(1.6)	(4.5)	(4.5)	7.9	5.9	4.7	4.8

## OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
<b>Index</b>							
Bloomberg Commodity	(2.1)	6.9	6.9	35.0	(0.2)	2.3	(6.3)
Wilshire US REIT	4.8	8.8	8.8	34.7	9.0	5.7	12.7
CS Leveraged Loans	0.1	2.0	2.0	20.8	4.1	4.6	5.0
Alerian MLP	6.9	22.0	22.0	99.1	(4.0)	(2.1)	(0.7)
<b>Regional Index</b>							
JPM EMBI Global Div	(1.0)	(4.5)	(4.5)	16.0	4.0	5.1	5.6
JPM GBI-EM Global Div	(3.1)	(6.7)	(6.7)	13.0	(0.8)	3.1	0.5
<b>Hedge Funds</b>							
HFRI Composite	1.0	6.1	6.1	34.0	7.7	7.5	4.6
HFRI FOF Composite	0.4	2.0	2.0	23.9	5.4	5.6	3.4
<b>Currency (Spot)</b>							
Euro	(3.2)	(3.9)	(3.9)	7.1	(1.5)	0.6	(1.9)
Pound Sterling	(1.3)	0.9	0.9	11.3	(0.6)	(0.8)	(1.5)
Yen	(3.6)	(6.6)	(6.6)	(2.3)	(1.3)	0.3	(2.8)

Source: Morningstar, HFRI, as of 3/31/21

# 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](http://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](http://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

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**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**

May 25, 2021

Agenda Item 6.3

**TO:** Board of Retirement

**FROM:** Doris Ng, Investment Analyst 

**SUBJECT:** Report on Real Estate Annual Manager Review

**Recommendation**

Accept and review the report on the annual review of SamCERA's real estate manager, PGIM.

**Background**

On April 15<sup>th</sup>, SamCERA staff and consultant held annual review meeting virtually with our real estate manager, PGIM.

The meeting lasted approximately 1.5 - 2 hours, and consisted of a firm/organizational update, investment process review, performance review and attribution, and current positioning/market outlook.

**Discussion**

PGIM's Real Estate U.S. Debt fund is an open-ended commingled fund that invests primarily in senior loans secured by U.S. commercial real estate.

There were no significant concerns identified during the portfolio review. Attached you will find meeting notes from Verus summarizing the findings and details from the annual review.

**Attachment**


PGIM Real Estate U.S. Debt Fund Annual Review Meeting Notes (confidential)

**SAN MATEO COUNTY EMPLOYEES' RETIREMENT ASSOCIATION**  
**Board of Retirement**

May 25, 2021

Agenda Item 6.4

**TO:** Board of Retirement

**FROM:** Doris Ng, Investment Analyst 

**SUBJECT:** Report on Core Equity and Passive Manager Annual Reviews

**Recommendation**

Accept and review the report on the annual reviews of SamCERA's Core Equity and Passive strategies.

**Background**

On May 6<sup>th</sup>, SamCERA staff and consultant held annual review meetings virtually with our passive index manager, Blackrock, and our small-cap core equity manager, Quantitative Management Associates. Each meeting lasted approximately 1.5 hours, and consisted of a firm/organizational update, investment process review, performance review and attribution, and current positioning/market outlook. The annual reviews for our other core equity manager, D.E. Shaw, and low volatility equity managers, PanAgora and Acadian, took place on May 13<sup>th</sup>, and will be reported at the next scheduled board meeting.

**Discussion**

The Blackrock Russell 1000 and MSCI ACWI ex US IMI Index Funds were reviewed first. Next, the QMA U.S. Small Cap Core Equity Fund, which is a fundamental, bottom-up, quantitative small-cap core strategy that uses an adaptive and systematic approach to stock selection, was reviewed. The firm discussed recent personnel changes and a number of retirements that are expected to occur later this year.

There were no major concerns identified during the reviews. Meeting notes are attached to this memo summarizing the findings from these annual reviews.

**Attachments**

BlackRock Passive Index Annual Review Meeting Notes  
QMA Annual Review Meeting Notes

*Date of meeting: 5/6/2021*

*Location: Zoom meeting*

Manager Representative(s)

Scott Dohemann (Head of Index Strategy),  
Daphne Tai (VP, Index Strategy)  
Jeremy Watt (Director, Relationship Mgr.),  
Grant Dechert (Associate, Relationship Mgr.)

Verus Representative

Margaret Jadallah

Client Representative

Doris Ng, Analyst

Account Assets (3/31/21) \$908MM

Russell 1000 \$556 million

MSCI ACWI ex-US IMI \$352 million

## Product Description

BlackRock uses a full replication approach to passive equity investing. They hold each stock in the same proportion in which they are represented in the Russell 1000 and the MSCI ACWI ex-US IMI indexes, respectively. 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.

Since the last SamCERA review, the Plan terminated its intermediate government fixed income mandate with BlackRock due to asset allocation changes to the SamCERA portfolio and switched its international equity mandate from EAFE to ACWI ex-US IMI as a result of structural changes to the international equity part of the portfolio. For SamCERA's conversion from EAFE to ACWI ex-US IMI which took place at the beginning of June 2020, 60% was converted cost-free through a unit exchange.

## Organization

BlackRock, founded in 1988, has risen to become the largest asset manager in the world through the growth of its legacy products as well as a series of strategic acquisitions. The firm managed \$9 trillion under management as of 3/31/21. In addition to its asset management business, BlackRock provides risk management and advisory services through its BlackRock Solutions arm. BlackRock acquired Tenenbaum in 2018 (another SamCERA manager) to enhance its credit research and capabilities. In 2021, the firm acquired Aperio, a tax-managed, customized index equity specialist to help BlackRock expand its tax-managed equity strategies and ESG capabilities. In recent years, BlackRock has become a notable proponent for sustainability (ESG) through active engagement and proxy voting.

In June 2020, BlackRock realigned the structure of its investment platform, bringing together all active portfolio management functions into a newly constituted Portfolio Management Group (PMG). Rich Kushel, Senior Managing Director, expanded his role and took on the Head of PMG position. Over the past year, indexing and quantitative research has been combined under the leadership of Nogie Udevbulu. There was no impact to portfolio manager responsibilities with these realignments, and the index group has been stable.

At 3/31/21, BlackRock managed \$5.9 trillion in passive management through indexing and ETFs (iShares). iShares growth over the past year has been driven primarily through fixed income iShares followed by ETF demand in ESG iShares. The Russell 1000 and MSCI ACWI ex-US IMI index strategies have both continued to grow with approximately \$173 billion and \$70 billion in AUM as of 12/31/20, respectively. During the global pandemic, a subset of Blackrock

index clients opted to enter a new hybrid strategy that combines collective trust fund exposure (like SamCERA uses) with ETF exposure into a single, unitized separately managed account in order to enable same day trading.

## Investment Team

BlackRock employs a large team of portfolio managers, research professionals, strategists and traders on its EII (ETF and Index Investment) team, which includes all equity index applications. In total, the group is comprised of 60 portfolio managers, 52 researchers and 50 traders. Most of these employees are located in San Francisco with a subset in New York and outside of the U.S. 5 portfolio managers are dedicated to Russell 1000 mandates, and 7 portfolio managers cover MSCI ACWI ex-US IMI mandates.

The portfolio management team makes decisions around portfolio structure – optimization vs. full replication, cash equitization, trading around index changes, corporate action elections, and divesting based on client instruction. Researchers are responsible for both index research and trading research. The Global Equity Trading group executes trades on behalf of all portfolio management teams. The team is organized along regions, asset classes and investment styles. BlackRock's size and scale enables competitive pricing from the broker-dealer community and allows for internal crossing opportunities. BlackRock's Risk & Quantitative Analysis (RQA) monitors risk factors across client portfolios and is independent from the EII team.

## Investment Strategy

BlackRock focuses on three objectives in the management of its full replication approach: minimizing tracking error, minimizing transaction costs, and minimizing investment and operational risks. BlackRock believes that superior investment outcomes can most reliably be achieved through Total Performance Management – the management of return, risk, and cost. BlackRock employs quantitative management techniques through the use of sophisticated computer-driven models to ensure all ideas are theoretically sound and empirically valid. BlackRock's passive size and scale is a differentiator, and the ability to cross trade is an important means of cost reduction.

The Russell 1000 Index Fund targets a 0 to 5 bps tracking error to its benchmark while the MSCI ACWI ex-US IMI Index fund has a target range of 0-15 bps. There are multiple, small sources of tracking to the benchmark in index management. Commissions, taxes, market impact, futures mispricing, security mis-weights and cash drag are small detractors from performance. Securities lending and a tax advantage specific to international portfolios are tailwinds.

There are daily, independent reviews of the strategies by BlackRock's RQA team as well as formal monthly performance reviews of the strategies. Deviations are reviewed and may result in portfolio changes. This is an important feedback loop into the process.

Over the past year, BlackRock has continued to enhance its investment platform and algorithm inputs to leverage portfolio managers' time as assets grow. The monitoring of limit breaches and available cash are largely monitored electronically, and more straightforward corporate actions are also automatically flagged so that the team can spend its time on more complicated areas.

## Performance & Positioning

The Russell 1000 Fund has matched its benchmark over the past year and annualized periods. Tracking error of about 4

bps is within expectations. For the MSCI ACWI ex-US IMI Index Fund, the tracking error has been slightly greater than expectations (averaging slightly over 30 bps), but the difference has resulted in outperformance over the benchmark. The positive tracking has been due primarily to a tax advantage inherent in international portfolios (which added 43 bps) as the maximum tax rate is assumed when investing overseas, but the difference can be reclaimed. Another source of tracking involves a change to capital gains tax treatment in India whereby unrealized gains must be accrued and can be meaningful when the country has a strong return. Futures mis-tracking and cash drag were smaller detractors from the ACWI ex-US IMI Fund.

Scott Dohemann and Daphne Tai described a few of the more significant index changes over the past year. Tesla was in the Russell 1000 all year but was a big change to the S&P 500 which required close coordination for all index funds involved (buying and selling). Because of Tesla, different large cap indexes looked and performed more differently than normal over the past year. The significant rise in Gamestop and other highly volatile names was addressed through ensuring that stocks with tremendous upside volatility maintained very close benchmark exposure (tight tracking) on an ongoing basis. The China Executive Order, requiring divestment from securities associated with Chinese military companies, was announced and then changed with little advance warning at the beginning of 2021. This was a complicated transition where all team members in various roles had to work together, including RQA, and liquidity had to be carefully monitored by the trading team.

## **Conclusion**

BlackRock's mandates are being properly managed, and we consider BlackRock to be a top tier passive manager.

Date of meeting: 5/6/2021

Location: Zoom Call

Manager Representative(s)

Gavin Smith (Head of Equity Research, PM)  
Stacy Mintz (Co-head of Equity Portfolio Management)  
Stephen Courtney (Portfolio Manager)  
Patrick McMenamain (Relationship Management)  
Brad Zenz (Client Relations)

Verus Representative(s)

Margaret Jadallah

Client Representative(s)

Michael Coultrip (CIO), Doris Ng (Analyst)

**Product Description**

Quantitative Management Associates (QMA) utilizes a bottom-up quantitative framework in order to 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 with the goal of consistently adding 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.

QMA was added to the SamCERA portfolio in August 2016. QMA managed \$110 million for SamCERA as of 3/31/21.

**Meeting Notes****Organization**

QMA is an SEC-registered investment adviser, organized as a Limited Liability Company in the state of New Jersey. Founded in 1975, QMA manages portfolios for a worldwide institutional client base, including corporate and public pension plans, endowments and foundations, multi-employer pension plans, and sub-advisory accounts for other financial services companies. QMA began managing US equity accounts for institutional clients in January 1975. After operating for many years as a division within Prudential Financial, Inc., known today as PGIM, Inc. (formerly known as Prudential Investment Management), QMA became a wholly owned subsidiary of PGIM in 2004.

QMA's primary office is located in Newark, NJ, where the team responsible for the US Small Cap Core Equity strategy is based. QMA's portfolio management, research, and trading are performed in the Newark office. The firm has a secondary office in San Francisco where portfolio management and research are also performed, and more recently opened an office in London. In 2018, QMA acquired Wadhvani Asset Management (WAM), a team of 30 investment professionals in London. They joined offices with a smaller QMA London office. WAM uses high frequency trading and different signals/timing than QMA. There is no integration of signals between WAM and QMA.



## Investment Team

QMA's investment team includes 27 professionals of which 23 are PhDs. Portfolio managers average 17 years of experience with 11 at QMA. All US Small Cap Core Equity portfolios are team managed, and Stacie Mintz has worked on the portfolio since its inception in 1997.

There has been an above average amount of change on QMA's quantitative equity team over the past year with additional change (retirements) in the coming year. In July 2020, QMA appointed a new CIO as part of a restructuring plan for its equity business. George Patterson, previously the firm's co-head of the Quantitative Equity platform, was named CIO and CIO Roy Henriksson departed the firm after a transition period. (Roy now works at a competitor firm.) The restructuring centered around prioritizing portfolio alpha in all QMA's research and implementation (as opposed to spending some research time on factors that were deemed too academic and less impactful). Last year Stacie Mintz was promoted to co-head of the Quantitative Equities team alongside existing co-head Peter Xu, PhD, both of whom have been with QMA for over 20 years. Portfolio manager Gavin Smith took on additional head of Equity Research responsibilities at that time.

In 2021, Prudential offered a retirement package to long-standing employees of the organization, including those at QMA. Four individuals will be retiring in the fourth quarter of 2021, including Peter Xu, at which time Stacie Mintz will be sole head of Quantitative Equities. Verus views Peter Xu's year-end departure as a particular loss of senior talent to the team. Four other investment team members departed in February 2021, but they were not directly involved in US Small Cap portfolio management. A few of these roles will be offset with more junior hires in 2021 in research and software development. The February 2021 departures were described as further fine-tuning of the equity investment platform. While SamCERA's portfolio will (presumably) continue to be managed by Stacie Mintz and other tenured QMA professionals post 2021, this amount of professional turnover warrants ongoing monitoring.

The US Small Cap Core Equity product had negative net flows of about \$270 million which were driven primarily by a large client from a Prudential affiliate that reduced domestic equity exposure. Total product assets were \$1.96 billion as of 12/31/20.

## Investment Strategy

QMA's 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. Stocks are categorized along a continuum of slow growth to fast growth with optimal adaptive factor weights to valuation, earnings expectations and quality. Stocks with the highest rankings are purchase candidates. Consistency of alphas are emphasized in their approach, and industry adjustments are utilized for multiple industries.

QMA will also tilt the portfolio based on shorter term signals and currently has had a larger than average weighting to valuation based on its assessment that valuations are cheap compared to historical ranges. QMA has incorporated some new shorter-term growth signals into its approach, including machine learning-based inputs, while maintaining longer-term fundamental earnings insights. After a 2+ year period where value-leaning, quantitative approaches underperformed significantly, the value tilt has started experiencing tailwinds again.

QMA does not use a traditional risk model, but instead uses fundamental risk limits/deviations to the Russell 2000 specific to industry and sector (+/-0.75%), size (+/-3%) and style (+/-2%). Position weights are also benchmark relative (+/-0.75%). An example of how they are different from other quant managers is that they may buy less of two stocks that rank equally as opposed to choosing only one. Initial position size is 50 bps which then can drift within portfolio construction guidelines. Portfolio tilts (ex. Value overweight) are discussed and deliberated by the portfolio management team prior to implementation.

As noted above, the investment process has been refined to focus solely on research and factors that drive portfolio

alpha and de-emphasizing those that may be interesting academically but may not result in impactful portfolio alpha.

### **Performance & Positioning**

During the first quarter of 2021, SamCERA's US Small Cap portfolio returned 16.5% net and significantly outperformed the Russell 200 Index (12.7%). This strong rebound, due mainly to value and size factors, reverses a very poor stretch of performance on a relative basis (since inception 8/2016 return through 3/31/21 is 11.0% net vs 15.2% for the Russell 2000). QMA requires earnings in its growth-oriented holdings, and until recently non-earners were favored by the market. QMA is working on strengthening its research of growth factors to add measures that are more forward-looking regarding earnings and fundamentals and being less oriented to price momentum. Quality factor inputs within the value and growth buckets detracted from performance in 2020, whereas these factors have historically been additive. The team is looking at some additional inputs to quality that are more dynamic (i.e., short selling cost of borrowing) and should enhance insight into the persistence of profitability.

Despite the forward-looking and more dynamic inputs, there are no major changes to their investment philosophy. The approach remains primarily the same but is now experiencing tailwinds again.

### **Conclusion**

SamCERA's patience has been rewarded with an improvement in performance, albeit still under the benchmark when compared to longer time periods. Verus remains comfortable with the approach but notes that personnel turnover has been high and requires monitoring.