

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: July 14, 2022

MEMO TO: Members of the Retirement Board

THROUGH: Lisa Sorani, Manager of Employee Services *Lisa Sorani*

FROM: Valerie Weekly, Principal Management Analyst, Retirement

SUBJECT: Retirement Board Regular Meeting – 07/14/2022

A regular meeting of the Retirement Board will convene at 8:30 a.m. on Thursday, July 14, 2022. This meeting will be conducted in person with all Retirement Board members physically present in the Administration Center Boardroom, 375 Eleventh Street, Oakland, California, which shall serve as the physical location for members of the public who wish to attend the meeting in person. Please note, however, that members of the public will also be provided the opportunity to participate via video and teleconference. Public participation will also be available by live audio stream <https://www.ebmud.com/about-us/board-directors/board-meetings/retirement-board-meetings/>; however, listeners will not be able to provide public comment via live audio stream. To participate in the meeting or provide public comment, please see the Appendix of the Agenda for instructions on joining the Zoom meeting online or by phone.

Some Staff and Presenters will be attending via Zoom, which will be broadcast at the meeting.

Enclosed are the agenda for the July 14, 2022 meeting and the minutes for the May 19, 2022 regular meeting. The package also includes the following: **(1) CONSENT** items: Approval of Minutes of the Retirement Board – Regular meeting of May 19, 2022, Ratifying and Approving Investment Transactions by Retirement Fund Managers for April, 2022 and May, 2022, Ratifying and Approving Short-Term Investment Transactions for April, 2022 and May, 2022, Approving Treasurer's Statement of Receipts and Disbursements for April, 2022 and May, 2022; **(2) ACTION** items: Authorize Low Income Adjustments; **(3) INFORMATION:** Performance Report and Economic Review (Meketa Investment Group), Diversity Equity and Inclusion Survey Follow up, ESG in Passive Investments and Potential Engagement Options, Net Zero Training (training), Asset and Liability Roadman and TIPS Education (training), Administration of Health Benefit, and Retirement Board Election Update Retiree Seat; **(4) REPORTS FROM THE RETIREMENT BOARD.**

LS:jm

Enclosure

AGENDA

EBMUD EMPLOYEES' RETIREMENT SYSTEM

July 14, 2022

A regular meeting of the Retirement Board will convene at 8:30 a.m. on Thursday, July 14, 2022. This meeting will be conducted with Retirement Board Members physically present in the Administration Center Boardroom, 375 Eleventh Street, Oakland, California. This location shall serve as the physical location for members of the public who wish to attend the meeting in person. Please note, however, that members of the public will also be provided the opportunity to participate via video and teleconference. Public participation will also be available by live audio stream <https://www.ebmud.com/about-us/board-directors/board-meetings/retirement-board-meetings/>; however, listeners will not be able to provide public comment via live audio stream. To participate in the meeting or provide public comment, please see the Appendix of the Agenda for instructions on joining the Zoom meeting online or by phone. Some Staff and Presenters will be attending via Zoom.

Retirement Board Members: Clifford Chan, Frank Mellon, Marguerite Young, Jae Park, Tim McGowan, and Elizabeth Grassetti

Staff to the Retirement Board: Sophia Skoda, Lourdes Matthew, Lisa Sorani, Valerie Weekly, Robert Hannay, Steven Goodman-Leibof, and Karyn Field

Consultants & Presenters: Meketa - Eric White, Sarah Bernstein, Eric Larsen

****Public Participation****

Please see Appendix at end of Agenda for Public Participation Details

ROLL CALL:

PUBLIC COMMENT: The Retirement Board is limited by State Law to providing a brief response, asking questions for clarification, or referring a matter to staff when responding to items that are not listed on the agenda.

CLOSED SESSION AGENDA

1. Personnel matters pursuant to Government Code Section 54957:
Application for Disability Retirement of Eva Agus
2. Existing litigation pursuant to Government Code section 54956.9(a):
Coleman, et al. v. East Bay Municipal Utility District, et al.
Alameda County Superior Court, Case No. 22-CV-005462

REGULAR BUSINESS MEETING

CONSENT CALENDAR:

1. Approval of Minutes of the Retirement Board – Regular meeting of May 19, 2022
2. Ratifying and Approving Investment Transactions by Retirement Fund Managers for April 2022 and May 2022

3. Ratifying and Approving Short-Term Investment Transactions for April 2022 and May 2022
4. Approving Treasurer's Statement of Receipts and Disbursements for April 2022 and May 2022

ACTION:

5. Authorize Low Income Adjustments – L. Sorani

INFORMATION:

6. Performance Report and Economic Review (Meketa Investment Group) – S. Skoda
7. Diversity Equity and Inclusion Survey Follow-up – S. Skoda
8. ESG in Passive Investments and Potential Engagement Options – S. Skoda
9. Net Zero Training (training) – S. Skoda
10. Asset and Liability Roadmap and TIPS Education (training) – S. Skoda
11. Administration of Health Insurance Benefit – L. Sorani
12. Retirement Board Election Update Retiree Seat – L. Sorani

REPORTS FROM THE RETIREMENT BOARD:

13. Brief report on any course, workshop, or conference attended since the last Retirement Board Meeting

ITEMS TO BE CALENDARED:

MEETING ADJOURNMENT:

The next regular meeting of the Retirement Board will be held at 8:30 a.m. on Thursday, September 22, 2022.

2022 Retirement Board Meetings

July 14, 2022
September 22, 2022
November 17, 2022

APPENDIX

Retirement Board Meeting
Thursday, July 14, 2022
8:30 a.m.

This meeting will be conducted with Retirement Board Members physically present in the Administration Center Boardroom, 375 Eleventh Street, Oakland, California. Members of the public are welcome to attend in person or virtually as described below.

Please note that Retirement Board meetings are recorded and live-streamed.

In Person:

- In accordance with county health guidance and Cal/OSHA requirements, a completed COVID-19 symptoms checklist will be required before entering the building
- In accordance with District safety protocols, masks are required while in the building and Boardroom regardless of vaccination status.

To **view the livestream of the** Retirement Board Meeting, without making public comment, please visit: <https://www.ebmud.com/about-us/board-directors/board-meetings/retirement-board-meetings/>

If you wish to join the meeting, or to make public comment, please visit this page beforehand to familiarize yourself with Zoom.

<http://support.zoom.us/hc/en-us/articles/201362193-Joining-a-Meeting>

There will be a closed session occurring at 8:45am during the July 14, 2022 Retirement Board meeting. The main meeting will begin at 8:30 am, the closed session starts at 8:45am and will end at 9:30 am. The main meeting will restart after the closed session is completed. See details below for the meeting that will start after the closed session ends at 9:30am.

ZOOM Details

When: Jul 14, 2022 08:30 AM Pacific Time

Topic: July 14, 2022 Retirement Board Meeting

Please click the link below to join the webinar:

<https://ebmud.zoom.us/j/86262404915>

Or One tap mobile :

US: +16699006833,,86262404915# or +16694449171,,86262404915#

Or Telephone:

Dial(for higher quality, dial a number based on your current location):

US: +1 669 900 6833 or +1 669 444 9171 or +1 346 248 7799 or +1 253 215 8782 or +1 312 626 6799 or +1 646 931 3860 or +1 929 205 6099 or +1 301 715 8592

Webinar ID: 862 6240 4915

International numbers available: <https://ebmud.zoom.us/u/kn0Gr7NtR>

Providing Public Comment

The EBMUD Retirement Board is limited by State Law to providing a brief response, asking questions for clarification, or referring a matter to staff when responding to items that are not listed on the agenda.

If you wish to provide public comment, please:

- Use the raise hand feature in Zoom to indicate you wish to make a public comment
<https://support.zoom.us/hc/en-us/articles/20055661-Raising-your-hand-in-a-webinar>
 - If you participate by phone, press *9 to raise your hand
- When prompted by the Asst. Secretary, please state your name, affiliation if applicable, and topic
- The Assistant Secretary will call each speaker in the order received
- Comments on non-agenda items will be heard at the beginning of the meeting
- Comments on agenda items will be heard when the item is up for consideration
- Each Speaker is allotted 3 minutes to speak; The Retirement Board President has the discretion to amend this time based on the number of speakers
- The Assistant Secretary will keep track of time and inform each speaker when time is up.

MINUTES OF THE RETIREMENT BOARD
May 19, 2022

A regular meeting of the Retirement Board convened on Thursday, May 19, 2022 at 8:35 a.m. The meeting was called to order by Tim McGowan.

Due to COVID-19 and in accordance with Alameda County's Health Order 20-10 (issued April 29, 2020), and with the Governor's Executive Order N-29-20 which suspends portions of the Brown Act, this meeting was conducted as a hybrid teleconference & in-person meeting. In compliance with said orders, the meeting was conducted as a live Zoom broadcast from the AB Board Room with a physical location for audience members provided in the Board Annex. These measures will only apply during the period in which state or local public health officials have imposed or recommended social distancing.

Roll Call – The following Retirement Board Members were present: Clifford Chan, Frank Mellon, Marguerite Young, Tim McGowan and Elizabeth Grassetti.

The following staff members were present: Winnie Anderson, Sophia Skoda, Lourdes Matthew, Lisa Sorani, Robert Hannay, Steven Goodman-Leibof, and Valerie Weekly.

PUBLIC COMMENT

No public comment

CONSENT CALENDAR

1-4. Consent Calendar – A motion to move the consent calendar was made by Marguerite Young and seconded by Clifford Chan. The motion carried (4-0) by the following voice vote: AYES (Chan, McGowan, Mellon, and Young), NOES (none), ABSTAIN (none), ABSENT (Park).

ACTION

5. Declare Election Results for an Employee Member of the Retirement Board – Lisa Sorani presented this item noting that Tim McGowan had again been elected to the employee seat for the Retirement Board through the election process. Frank Mellon made the motion to adopt and Clifford Chan seconded the motion. The motion carried (3-0) by the following voice vote: AYES (Chan, McGowan, Mellon, Young), NOES (none), ABSTAIN (one), ABSENT (Park).

6. Declare Interest Rate Credited to Members – Lisa Sorani presented this item. The five (5) year average rate of return was 11.3%. The actuarial assume rate of return was 7.0%. The lesser of the two is 7.0%. Therefore, a prorated 3.5% is the appropriate semiannual interest rate. Marguerite Young made the motion to approve and Frank Mellon seconded the motion. The motion carried (4-0) by the following voice vote: AYES (Chan, McGowan, Mellon, Young), NOES (none), ABSTAIN (one), ABSENT (Park).

INFORMATION

7. **Performance Report and Economic Review (Meketa Investment Group)** – Sophia Skoda introduced this item which Eric Young of Meketa presented. Return of 5.8% still looks nice. Fed became much more hawkish. Non-US equities underperformed by 10%. Everything but real estate was down. Outperformance driven by real estate manager. Disappointment for quarter was covered calls. Index rolled at a more advantageous time. Hard to know how lags will occur in the future. Fixed income was a very notable time period during this quarter and outperformed. The first 4 months (Jan – April) included the 10 worst starts in the year; 2022 is the worst start in history for fixed income.

8. **Private Placements Update** – Sophia Skoda introduced this item. Steven Goodman-Leibof presented. The Retirement System owns shares in private placement companies after the termination of a domestic equity manager in 2018. The Retirement System has been liquidating shares when possible. Over the past year, the Retirement System was able to reduce its exposure to private placements by selling shares of two companies. We still own shares in Didi & Magic Leap. Frank Mellon asked if Magic Leap looks like there is a potential for an IPO in the near future. Staff responded that there was no indication of an IPO soon.

9. **Diversity Equity and Inclusion Survey Results** – Sophia Skoda introduced this item. Eric Larsen of Meketa presented. Implement our ES&G mission. Meketa's second DE&I survey. An increase of 50% responses for 2022. 803 public/private managers responded. Eight of nine EBMUDERS managers responded. Frank Mellon asked whether the survey addressed manager's position on defined benefit plans. Eric Larsen said that Meketa will check the underlying survey to see if this was addressed and potentially send out a future survey supplementary survey to the System's managers. Marguerite Young asked whether data for the individual managers would be available. Eric White suggested a supplemental questionnaire as a follow up to the individual managers asking more specific questions. Frank Young asked whether the survey mentions undoing structural racism and suggested it should be included. Sophia Skoda suggested the question can be added to the survey.

10. **Inflation Discussion** – Sophia Skoda introduced this item. Eric White of Meketa presented the information. Eric went through a presentation on the effects of inflation on investment portfolios.

11. **Election Schedule for Retiree Representative to the EBMUD Retirement Board** – Lisa Sorani presented this item. The notice will be mailed out to all retirees and communication via email will follow for those with emails on record with EBMUD. Results to be ready for September board meeting. Clifford Chan suggested there be an informational session.

15. **Brief report on any course, workshop, or conference attended since the last Retirement Board meeting**

Elizabeth Grassetti attended the CALAPRS general assembly in March 2022.

Minutes
Retirement Board Meeting
May 19, 2022

ITEMS TO BE CALENDERED / UPCOMING ITEMS

None

ADJOURNMENT – Tim McGowan moved to adjourn the meeting at 11:59 a.m. and Marguerite Young seconded the motion; the motion carried (4-0) by the following voice vote: AYES (Chan, McGowan, Mellon, and Young), NOES (none), ABSTAIN (none), ABSENT (Park).

President


ATTEST: _____
Secretary

07/14/2022

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: July 14, 2022

MEMO TO: Members of the Retirement Board

FROM: Sophia D. Skoda, Director of Finance 

SUBJECT: Investment Transactions by Retirement Fund Managers for April 2022 and May 2022

The attached Investment Transactions by Retirement Fund Managers report for the months of April 2022 and May 2022 is hereby submitted for Retirement Board approval.

Attachment

SDS:AM:MR

INVESTMENT TRANSACTIONS BY RETIREMENT FUND MANAGERS			
April 2022			
	PURCHASES	SALES	PORTFOLIO VALUE
<u>FIXED INCOME</u>			
C.S. McKee	\$11,706,194	\$11,517,451	\$192,888,440
Federated Bank Loans	\$547,041	\$0	\$52,978,691
Garcia Hamilton Associates	\$39,647,478	\$11,231,091	\$203,352,158
Mackay Shields - HY	\$1,204,407	\$270,969	\$53,416,458
TOTAL	\$53,105,120	\$23,019,510	\$502,635,748
<u>DOMESTIC EQUITY</u>			
Russell 3000 Index Fund	\$0	\$0	\$549,064,941
Total Domestic Equity	\$0	\$0	\$549,064,941
<u>COVERED CALLS</u>			
Parametric (BXM)	\$6,910,166	\$6,702,216	\$153,861,739
Parametric (Delta-Shift)	-\$1,208,623	\$309,210	\$169,445,194
Van Hulzen	\$32,053,689	\$34,124,668	\$139,000,475
Total Covered Calls	\$37,755,232	\$41,136,094	\$462,307,409
<u>INTERNATIONAL EQUITY</u>			
ACWI Index fund	\$0	\$0	\$517,994,262
Global Transition	\$0	\$0	\$1,419,422
Total International Equity	\$0	\$0	\$519,413,684
<u>REAL ESTATE EQUITY</u>			
RREEF America II	\$446,400	\$0	\$65,966,772
CenterSquare	\$3,527,651	\$3,591,692	\$68,242,514
Total Real Estate	\$3,974,050	\$3,591,692	\$134,209,286
TOTAL ALL FUND MANAGERS	\$94,834,402	\$67,747,296	\$2,167,631,068
May 2022			
	PURCHASES	SALES	PORTFOLIO VALUE
<u>FIXED INCOME</u>			
C.S. McKee	\$13,880,251	\$10,363,599	\$194,372,414
Federated Bank Loans	\$340,051	\$0	\$51,803,241
Garcia Hamilton Associates	\$33,188,220	\$26,558,324	\$205,072,610
Mackay Shields - HY	\$3,424,501	\$1,467,483	\$53,458,737
TOTAL	\$50,833,023	\$38,389,407	\$504,707,002
<u>DOMESTIC EQUITY</u>			
Russell 3000 Index Fund	\$0	\$0	\$548,410,564
Total Domestic Equity	\$0	\$0	\$548,410,564
<u>COVERED CALLS</u>			
Parametric (BXM)	\$4,317,479	\$4,098,141	\$154,311,118
Parametric (Delta-Shift)	\$1,098,827	\$600,802	\$169,841,496
Van Hulzen	\$38,693,967	\$37,785,443	\$140,757,798
Total Covered Calls	\$44,110,273	\$42,484,386	\$464,910,412
<u>INTERNATIONAL EQUITY</u>			
ACWI Index fund	\$0	\$0	\$527,655,035
Global Transition	\$0	\$0	\$1,263,659
Total International Equity	\$0	\$0	\$528,918,694
<u>REAL ESTATE EQUITY</u>			
RREEF America II	\$0	\$0	\$65,966,772
CenterSquare	\$3,877,037	\$3,429,663	\$64,067,366
Total Real Estate	\$3,877,037	\$3,429,663	\$130,034,138
TOTAL ALL FUND MANAGERS	\$98,820,334	\$84,303,455	\$2,176,980,809

Prepared By: Matthew Raimondi
 Matt Raimondi, Accounting Technician

Date: 06/27/2022

R.B. RESOLUTION NO. _____

RATIFYING AND APPROVING INVESTMENT TRANSACTIONS BY FUND MANAGERS
FOR MONTHS OF APRIL, 2022 AND MAY, 2022

Introduced by: _____ ; Seconded by: _____

WHEREAS, Retirement Board Rule No. B-5 provides for investment transactions without prior specific approval by the Retirement Board; and

WHEREAS, investment transactions have been consummated during April, 2022 and May, 2022, in accordance with the provisions of said rule and in securities designated as acceptable by Retirement Board Resolution No. 4975, as amended;

NOW, THEREFORE, BE IT RESOLVED that the investment transactions appearing on the following exhibits are hereby ratified and approved.

President

ATTEST:

Secretary

07/14/2022

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: July 14, 2022

MEMO TO: Members of the Retirement Board

THROUGH: Sophia D. Skoda, Director of Finance *SDS*

FROM: Andrea Miller, Controller *AM*

SUBJECT: Short Term Investment Transactions for April 2022

The attached Short Term Investment Transactions report for the month of April 2022 is hereby submitted for Retirement Board approval.

Attachment

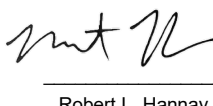
SDS:AM:MR


**EBMUD EMPLOYEES' RETIREMENT SYSTEM
SHORT TERM INVESTMENT TRANSACTIONS
CONSUMMATED BY THE TREASURER
MONTH OF APRIL 2022**

<u>COST/ FACE VALUE</u>	<u>DESCRIPTION</u>	<u>DATE OF PURCHASE</u>	<u>DATE OF SALE/MATURITY</u>	<u>YIELD (%)</u>
\$ 4,463,000.00	Local Agency Investment Fund	1-Apr-22		0.523
12,232.62	Local Agency Investment Fund	15-Apr-22		0.523
4,477,000.00	Local Agency Investment Fund	15-Apr-22		0.523
(11,766,000.00)	Local Agency Investment Fund		28-Apr-22	0.523
8,456,000.00	Local Agency Investment Fund	29-Apr-22		0.523
 <u>\$ 5,642,232.62</u>	Net Activity for Month			
 \$ 5,204,080.43	Beginning Balance			
<u>5,642,232.62</u>	Net Activity for Month			
<u>\$ 10,846,313.05</u>	Ending Balance			

SUBMITTED BY Andrea Miller
Andrea Miller
Controller

DATE 6/27/2022


 Robert L. Hannay
 Treasury Manager


 Kevin Ma
 Acctg. Systems Supvr.
 prepared by Mramondi

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: July 14, 2022

MEMO TO: Members of the Retirement Board

THROUGH: Sophia D. Skoda, Director of Finance *SDS*

FROM: Andrea Miller, Controller *AM*

SUBJECT: Short Term Investment Transactions for May 2022

The attached Short Term Investment Transactions report for the month of May 2022 is hereby submitted for Retirement Board approval.

Attachment

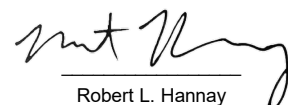
SDS:AM:MR


**EBMUD EMPLOYEES' RETIREMENT SYSTEM
SHORT TERM INVESTMENT TRANSACTIONS
CONSUMMATED BY THE TREASURER
MONTH OF MAY 2022**

<u>COST/ FACE VALUE</u>	<u>DESCRIPTION</u>	<u>DATE OF PURCHASE</u>	<u>DATE OF SALE/MATURITY</u>	<u>YIELD (%)</u>
\$ 4,945,000.00	Local Agency Investment Fund	13-May-22		0.684
4,815,000.00	Local Agency Investment Fund	27-May-22		0.684
(11,806,000.00)	Local Agency Investment Fund		31-May-22	0.684
 <u>\$ (2,046,000.00)</u>	Net Activity for Month			
 \$ 10,846,313.05	Beginning Balance			
<u>(2,046,000.00)</u>	Net Activity for Month			
<u>\$ 8,800,313.05</u>	Ending Balance			

SUBMITTED BY Andrea Miller
Andrea Miller
Controller

DATE 6/27/2022


 Robert L. Hannay
 Treasury Manager


 Kevin Ma
 Acctg. Systems Supvr.
 prepared by Mraimondi

R.B. RESOLUTION NO. _____

RATIFYING AND APPROVING SHORT TERM INVESTMENT TRANSACTIONS BY THE
TREASURER FOR APRIL 2022 AND MAY 2022

Introduced by: _____ ; Seconded by: _____

WHEREAS, Retirement Board Rule No. B-7 provides for the temporary investment of retirement system funds by the Treasurer or Assistant Treasurer in securities authorized by Sections 1350 through 1366 of the Financial Code or holding funds in inactive time deposits in accordance with Section 12364 of the Municipal Utility District Act; and

WHEREAS, investment transactions during April, 2022 and May, 2022, have been made in accordance with the provisions of the said rule;

NOW, THEREFORE, BE IT RESOLVED that the investment transactions consummated by the Treasurer and included on the attached Exhibit A for April, 2022 and May, 2022 are hereby ratified and approved.

President

ATTEST:

Secretary

07/14/2022

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: July 14, 2022

MEMO TO: Members of the Retirement Board

THROUGH: Sophia D. Skoda, Director of Finance *SDS*

FROM: Andrea Miller, Controller *AM*

SUBJECT: Statement of Receipts and Disbursements for April 2022

The attached Statement of Receipts and Disbursements report for the month of April 2022 is hereby submitted for Retirement Board approval.

Attachment

SDS:AM:MR

**STATEMENT OF RECEIPTS AND DISBURSEMENTS
EMPLOYEES' RETIREMENT FUND
MONTH OF APRIL 2022**

CASH BALANCE at March 31, 2022		\$	2,811,723.60
<u>Receipts</u>			
Employees' Contributions	\$	3,029,552.79	
District Contributions		14,483,407.15	
LAIF Redemptions		11,766,000.00	
Refunds and Commission Recapture		<u>66,555.22</u>	
TOTAL Receipts			29,345,515.16
<u>Disbursements</u>			
Checks/Wires Issued:			
Service Retirement Allowances	\$	10,714,565.83	
Disability Retirement Allowances		153,590.69	
Health Insurance Benefit		904,680.38	
Payments to Retiree's Resigned/Deceased		0.00	
LAIF Deposits		17,396,000.00	
Administrative Cost		<u>322,233.06</u>	
TOTAL Disbursements			<u>(29,491,069.96)</u>
CASH BALANCE at April 30, 2022		\$	<u>2,666,168.80</u>
LAIF			<u>10,846,313.05</u>
LAIF and CASH BALANCE at April 30, 2022		\$	<u>13,512,481.85</u>
<u>Domestic Equity</u>			
Russell 3000 Index Fund	\$	<u>549,064,940.93</u>	
Subtotal Domestic Equity		549,064,940.93	
<u>Covered Calls</u>			
Parametric (BXM)	\$	153,861,738.96	
Parametric (Delta-Shift)		169,445,194.44	
Van Hulzen		<u>139,000,475.41</u>	
Subtotal Covered Calls		462,307,408.81	
<u>International Equity</u>			
ACWI Index fund	\$	517,994,262.06	
Global Transition		<u>1,419,422.41</u>	
Subtotal International Equity		519,413,684.47	
<u>Real Estate</u>			
RREEF America REIT II	\$	65,966,772.00	
Center Square		<u>68,242,514.25</u>	
Subtotal Real Estate		134,209,286.25	
<u>Fixed Income</u>			
CS Mckee	\$	192,888,440.23	
Federated Bank Loans		52,978,691.38	
Garcia Hamilton Associates		203,352,157.66	
Mackay Shields-High Yield		<u>53,416,458.29</u>	
Subtotal Fixed Income		502,635,747.56	
Total for Domestic and International Equities			<u>2,167,631,068.02</u>
MARKET VALUE of ASSETS at April 30, 2022		\$	<u>2,181,143,549.87</u>

Respectfully submitted,

Andrea Miller

Andrea Miller
Controller

Robert L. Hannay

Robert L. Hannay
Treasury Mgr.

Kevin Ma

Kevin Ma
Acctg Sys Supvr.

prepared by Mraimondi

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: July 14, 2022

MEMO TO: Members of the Retirement Board

THROUGH: Sophia D. Skoda, Director of Finance *SDS*

FROM: Andrea Miller, Controller *AM*

SUBJECT: Statement of Receipts and Disbursements for May 2022

The attached Statement of Receipts and Disbursements report for the month of May 2022 is hereby submitted for Retirement Board approval.

Attachment

SDS:AM:MR

**STATEMENT OF RECEIPTS AND DISBURSEMENTS
EMPLOYEES' RETIREMENT FUND
MONTH OF MAY 2022**

CASH BALANCE at April 30, 2022		\$ 2,666,168.80
<u>Receipts</u>		
Employees' Contributions	\$ 1,698,807.75	
District Contributions	8,144,579.22	
LAIF Redemptions	11,806,000.00	
Refunds and Commission Recapture	<u>63,413.31</u>	
TOTAL Receipts		21,712,800.28
<u>Disbursements</u>		
Checks/Wires Issued:		
Service Retirement Allowances	\$ 10,744,839.32	
Disability Retirement Allowances	153,590.69	
Health Insurance Benefit	897,960.92	
Payments to Retiree's Resigned/Deceased	69,241.66	
LAIF Deposits	9,760,000.00	
Administrative Cost	<u>125,294.81</u>	
TOTAL Disbursements		<u>(21,750,927.40)</u>
CASH BALANCE at May 31, 2022		\$ 2,628,041.68
LAIF		<u>8,800,313.05</u>
LAIF and CASH BALANCE at May 31, 2022		\$ <u>11,428,354.73</u>
<u>Domestic Equity</u>		
Russell 3000 Index Fund	\$ 548,410,563.93	
Subtotal Domestic Equity		548,410,563.93
<u>Covered Calls</u>		
Parametric (BXM)	\$ 154,311,118.24	
Parametric (Delta-Shift)	169,841,495.75	
Van Hulzen	<u>140,757,797.72</u>	
Subtotal Covered Calls		464,910,411.71
<u>International Equity</u>		
ACWI Index fund	\$ 527,655,035.14	
Global Transition	<u>1,263,658.92</u>	
Subtotal International Equity		528,918,694.06
<u>Real Estate</u>		
RREEF America REIT II	\$ 65,966,772.00	
Center Square	<u>64,067,365.73</u>	
Subtotal Real Estate		130,034,137.73
<u>Fixed Income</u>		
CS Mckee	\$ 194,372,414.47	
Federated Bank Loans	51,803,240.78	
Garcia Hamilton Associates	205,072,609.55	
Mackay Shields-High Yield	<u>53,458,736.92</u>	
Subtotal Fixed Income		504,707,001.72
Total for Domestic and International Equities		<u>2,176,980,809.15</u>
MARKET VALUE of ASSETS at May 31, 2022		\$ <u>2,188,409,163.88</u>

Respectfully submitted,

Andrea Miller

Andrea Miller
Controller

Robert L. Hannay
Robert L. Hannay
Treasury Mgr.

Kevin Ma

Kevin Ma
Acctg Sys Supvr.

prepared by Mramondi

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: July 14, 2022

MEMO TO: Members of the Retirement Board

FROM: Lisa Sorani, Manager of Employee Services *Lisa Sorani*

SUBJECT: Report on Low Income Adjustments for Retired Members and Surviving Spouses

BACKGROUND

Section 35 of the Retirement Ordinance provides for a Low Income Adjustment for retirees or their surviving beneficiary. To qualify, the retiree must have retired with 20 or more years of service; be in receipt of a Social Security benefit; and the retiree (or spouse) must demonstrate that his or her total income from all sources is below 200% of the Federal Poverty level, and for surviving spouses, 150% of the Federal poverty level. Staff mailed flyers to 27 potentially eligible members consisting of 14 retirees and 13 surviving spouses. No applications were received before the established application deadline. As of the date of the writing of this memo, Staff had received an email from a surviving dependent who believes she may meet the required income restrictions for the plan. Staff has requested the documentation necessary to evaluate the request, but we have not yet received those documents. Staff will provide an update to the Retirement Board once a determination has been made.

LS:jm

East Bay Municipal Utility District Employees' Retirement System

July 14, 2022

Economic & Market Update and
May 2022 Performance Update

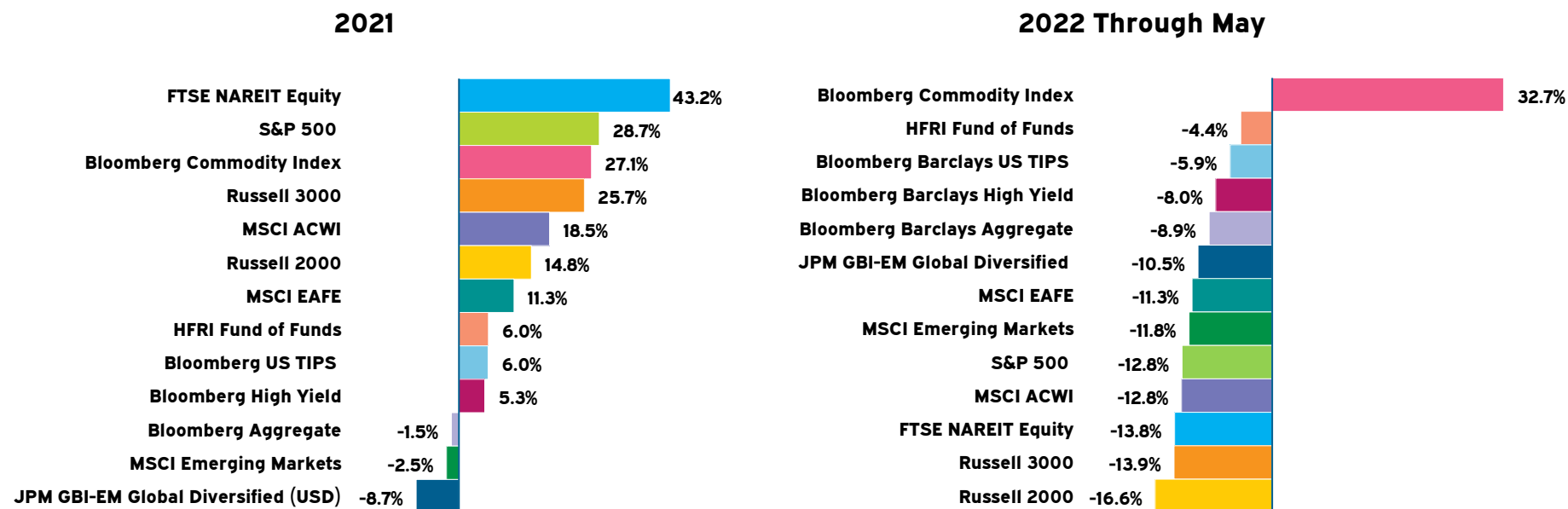
Economic and Market Update

Data as of May 31, 2022

Commentary

- There were no major market movements in May as investors waited for developments with inflation, the pace of monetary policy tightening, the war in Ukraine, ongoing supply chain issues, and China's lockdown of major economic centers to stem the spread of COVID-19.
- Equities were mixed, with international equities largely outperforming US equities.
 - Value-oriented equities outpaced growth, influenced by higher interest rates and notable weakness in some high-profile technology companies.
 - The global bond selloff slowed, as inflation fears, and policy expectations eased modestly despite monetary policy officials remaining steadfast in their near-term tightening expectations.
 - Nonetheless, inflation remains high globally.
- The war in Ukraine, lingering COVID-19 issues, persistent inflation, and strict lockdowns in China will all have considerable economic and financial consequences for the global economy going forward.

Index Returns¹



→ Outside of emerging markets and the broad US investment grade bond market (Bloomberg Aggregate), most asset classes rose in 2021.

→ In May, many major asset classes recovered modestly from losses in the first quarter and April, with US stocks mostly unchanged and bonds higher by 0.6%.² Commodities continued to provide strong performance, adding 1.5% in May, and bringing the year-to-date gain to over 32%.

¹ Source: Bloomberg and FactSet. Data is as of May 31, 2022.

² As measured by the S&P 500 and Bloomberg Aggregate.

Domestic Equity Returns¹

Domestic Equity	May (%)	Q1 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	0.2	-4.6	-12.8	-0.3	16.4	13.4	14.4
Russell 3000	-0.1	-5.3	-13.9	-3.7	15.6	12.7	14.0
Russell 1000	-0.2	-5.1	-13.7	-2.7	16.0	13.1	14.2
Russell 1000 Growth	-2.3	-9.0	-21.9	-6.3	18.3	16.1	16.0
Russell 1000 Value	1.9	-0.7	-4.5	0.9	12.7	9.5	12.0
Russell MidCap	0.1	-5.7	-12.9	-6.8	12.9	10.5	12.8
Russell MidCap Growth	-3.9	-12.6	-25.4	-18.7	9.4	10.6	12.6
Russell MidCap Value	1.9	-1.8	-5.9	-0.1	13.4	9.1	12.3
Russell 2000	0.2	-7.5	-16.6	-16.9	9.7	7.7	10.8
Russell 2000 Growth	-1.9	-12.6	-24.8	-25.7	6.2	6.9	10.5
Russell 2000 Value	1.9	-2.4	-8.2	-7.7	12.2	7.8	10.7

US Equities: Russell 3000 Index declined 0.1%, and value indices significantly outperformed growth in May.

- US stocks were largely flat for the month with strong gains in energy, as well as utilities and financials, being balanced by declines in consumer-focused sectors (discretionary and staples).
- Value stocks continued to outperform growth stocks in May, maintaining the recent trend as rising rates and inflation continued to weigh on growth companies.
- Small company stocks outpaced large company stocks for the month.

¹ Source: Bloomberg. Data is as of May 31, 2022.

Foreign Equity Returns¹

Foreign Equity	May (%)	Q1 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI ex. US	0.7	-5.4	-10.7	-12.3	6.5	4.4	6.4
MSCI EAFE	0.7	-5.9	-11.3	-10.4	6.4	4.2	7.1
MSCI EAFE (Local Currency)	-0.2	-3.7	-5.3	1.1	8.2	5.5	9.6
MSCI EAFE Small Cap	-0.7	-8.5	-15.4	-16.0	6.6	4.1	8.9
MSCI Emerging Markets	0.4	-7.0	-11.8	-19.8	5.0	3.8	4.2
MSCI Emerging Markets (Local Currency)	-0.2	-6.1	-9.6	-15.7	6.4	5.7	6.7
MSCI China	1.2	-14.2	-16.7	-35.9	-0.1	1.3	5.0

International Equities (MSCI EAFE) gained 0.7% and Emerging Markets (MSCI EM) returned 0.4% in May.

- Non-US stocks (developed and emerging markets) outperformed US stocks in May but remain notably negative for the year-to-date period.
- The war in Ukraine, high inflation, and slowing growth continue to weigh on sentiment despite the positive return for the month in both developed and emerging markets.
- Gains in May for emerging markets were largely driven by China where COVID-19 restrictions were loosened and government stimulus increased.
- Like the US, value stocks outperformed growth stocks across developed and emerging markets.

¹ Source: Bloomberg. Data is as of May 31, 2022.

Fixed Income Returns¹

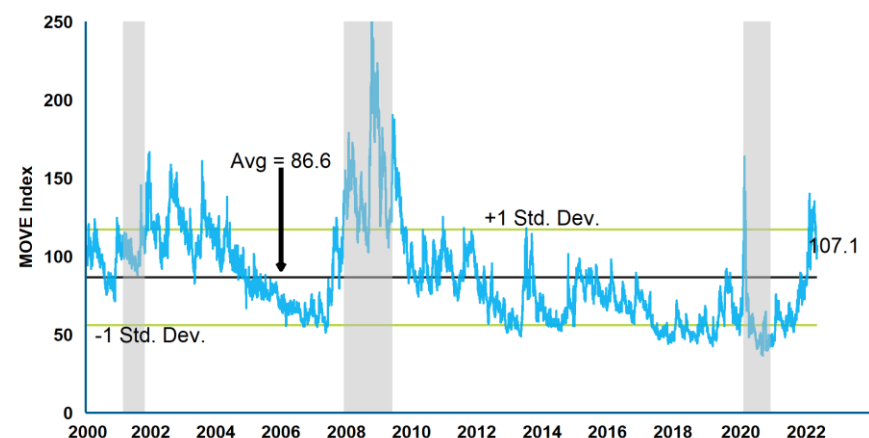
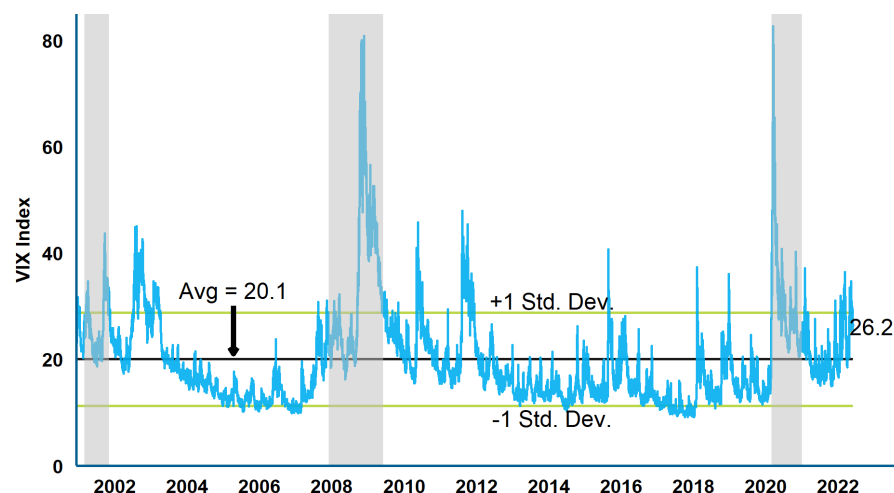
Fixed Income	May (%)	Q1 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Universal	0.6	-6.1	-9.1	-8.4	0.2	1.3	2.1	3.8	6.5
Bloomberg Aggregate	0.6	-5.9	-8.9	-8.2	0.0	1.2	1.7	3.4	6.7
Bloomberg US TIPS	-1.0	-3.0	-5.9	-1.4	4.4	3.7	2.0	3.1	7.3
Bloomberg High Yield	0.2	-4.8	-8.0	-5.3	3.3	3.6	5.4	7.1	4.7
JPM GBI-EM Global Diversified (USD)	1.8	-6.5	-10.5	-16.5	-2.6	-1.3	-0.5	6.9	4.9

Fixed Income: Bloomberg Universal 0.6% in May.

- Slight interest rate declines led to positive performance for the broad US investment grade bond market (Bloomberg Aggregate). The nominal 10-year Treasury yield peaked at 3.13% before declining to 2.85% by month-end, while the 2-year Treasury yield declined from 2.73% to 2.56%.
- US credit spreads widened for high yield debt but tightened slightly for investment grade bonds.
- Emerging market debt led the way for the month but remains the worst performer year-to-date.

¹ Source: Bloomberg. JPM GBI-EM is from InvestorForce. Data is as of May 31, 2022.

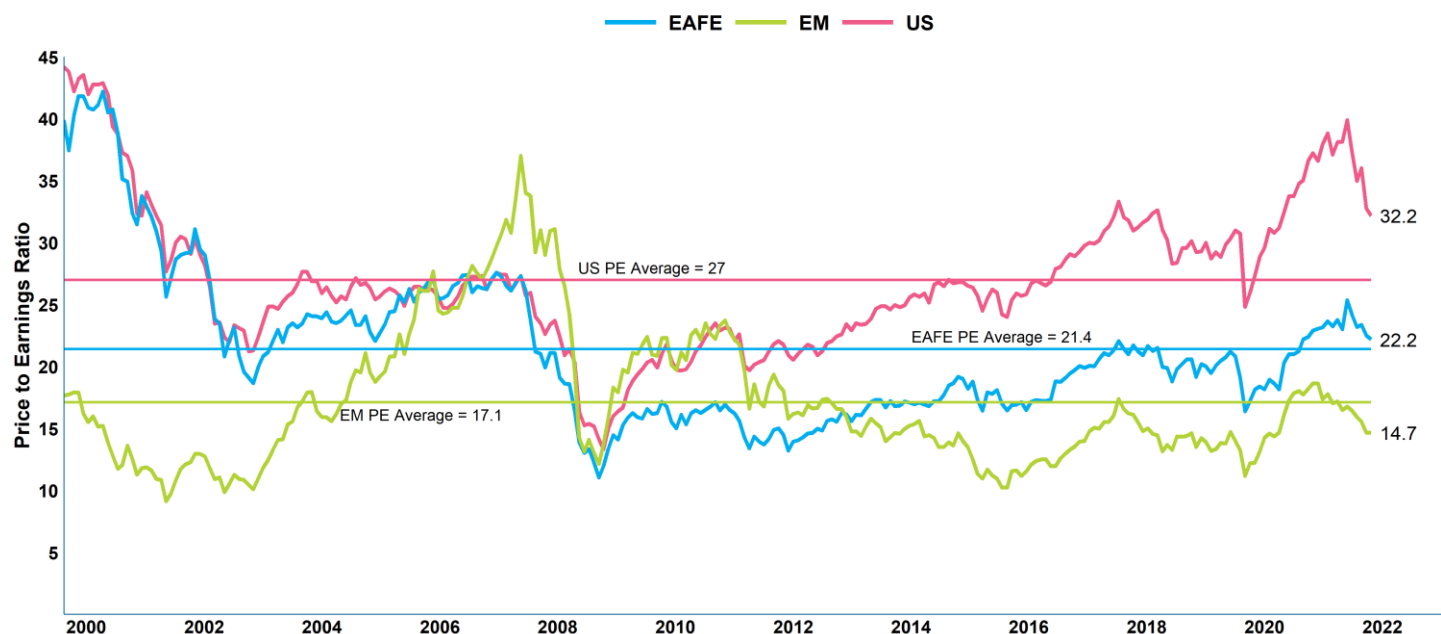
Equity and Fixed Income Volatility¹



- Volatility in both equities (VIX) and fixed income (MOVE) declined in May.
- A modest easing of inflation concerns and a decline in policy expectations supported investor sentiment.
- It is worth noting though that both have recently significantly spiked given persistently high inflation.

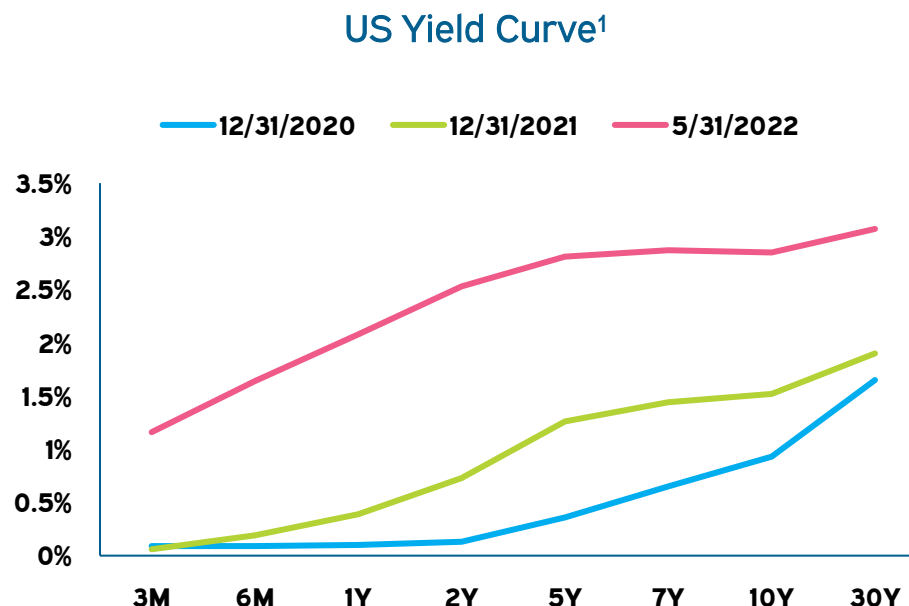
¹ Equity and Fixed Income Volatility – Source: Bloomberg. Implied volatility as measured using VIX Index for equity markets and the MOVE Index to measure interest rate volatility for fixed income markets. Data is as of May 2022. The average line indicated is the average of the VIX and MOVE values between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

Equity Cyclically Adjusted P/E Ratios¹



- Valuations in the US remain well above long-term averages despite the recent decline.
- International developed market valuations remain below the US and are approaching their long-term average, with those for emerging markets under the long-term average.

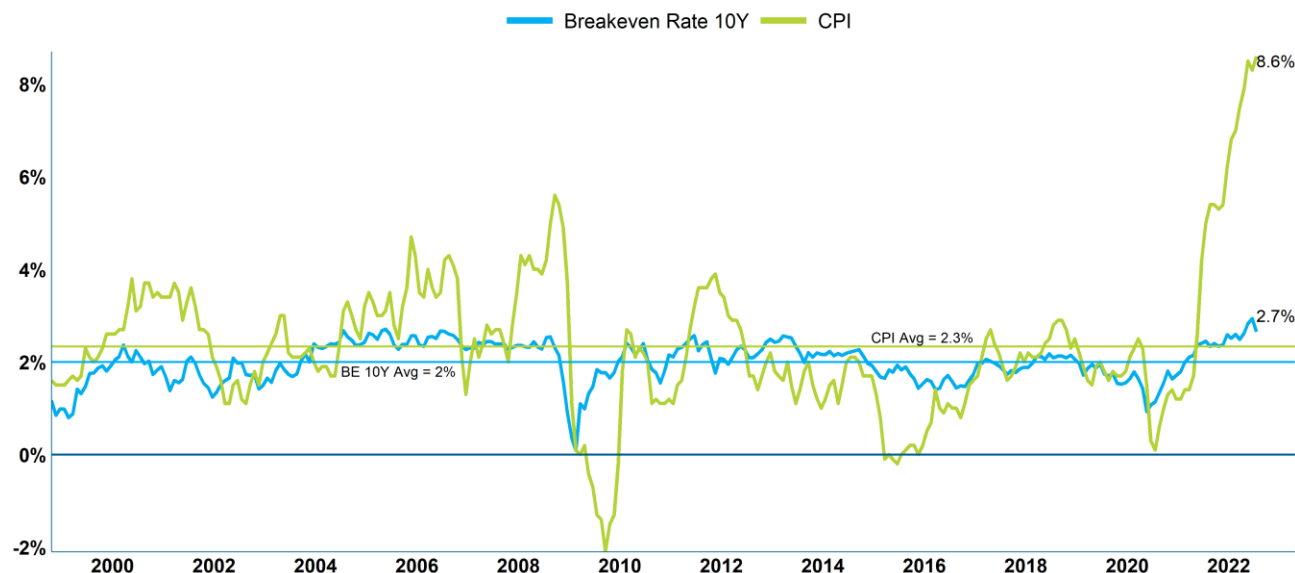
¹ US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group. Developed and Emerging Market Equity (MSCI EAFE and EM Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years. Data is as of May 31, 2022. The average line is the long-term average of the US, EM, and EAFE PE values from December 1999 to the recent month-end respectively.



- In May, rates remain well above those at the start of the year, as markets continue to reflect elevated inflation and rate expectations.
- After a brief inversion in April, which historically has often signaled building recessionary pressures, the spread between two-year and ten-year Treasuries ended May at around 30 basis points.
- Since month-end, rates have significantly increased across maturities with the yield curve flattening. This has been driven by the above-expectations CPI level and the Federal Reserve's plans to tighten policy further.

¹ Source: Bloomberg. Data is as of May 31, 2022.

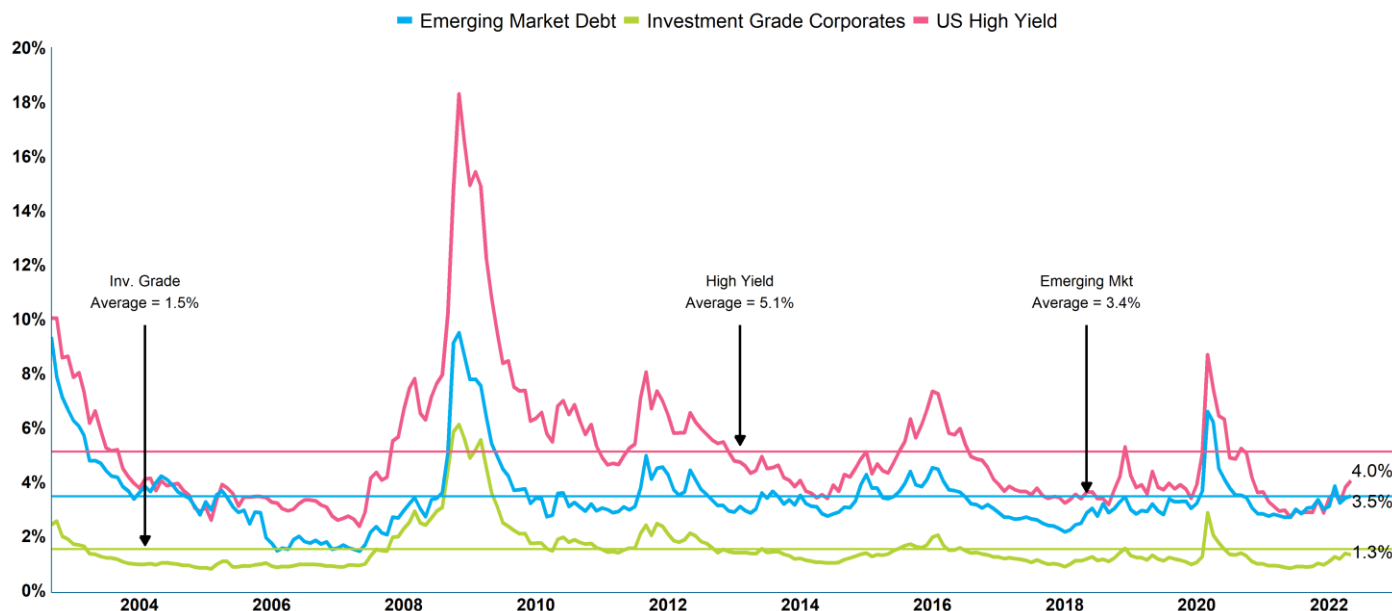
Ten-Year Breakeven Inflation and CPI¹



- Inflation expectations (breakevens) declined modestly in May after breaching 3.0% in April.
- Trailing twelve-month CPI rose in May (8.6% versus 8.3%) and notably came in above expectations. Inflation levels in the US remain well above the long-term average of 2.3%.
- Rising prices for energy (particularly oil), food, and for new and used cars, remain key drivers of higher inflation.

¹ Source: Bloomberg. Data is as of May 31, 2022. The CPI and 10 Year Breakeven average lines denote the average values from August 1998 to the present month-end respectively. Breakeven values represent month-end values for comparative purposes.

Credit Spreads vs. US Treasury Bonds¹



- Credit spreads (the spread above a comparable maturity Treasury) were mixed in May.
- In the US, spreads for high yield increased (4.0% versus 3.8%) while investment grade spreads remained the same. Emerging market spreads also increased (3.5% versus 3.4% during the month) but finished lower than US high yield spreads.
- Despite the recent increase, US high yield spreads remain well below the long-term average (4.0% versus 5.1%).

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

Global Economic Outlook

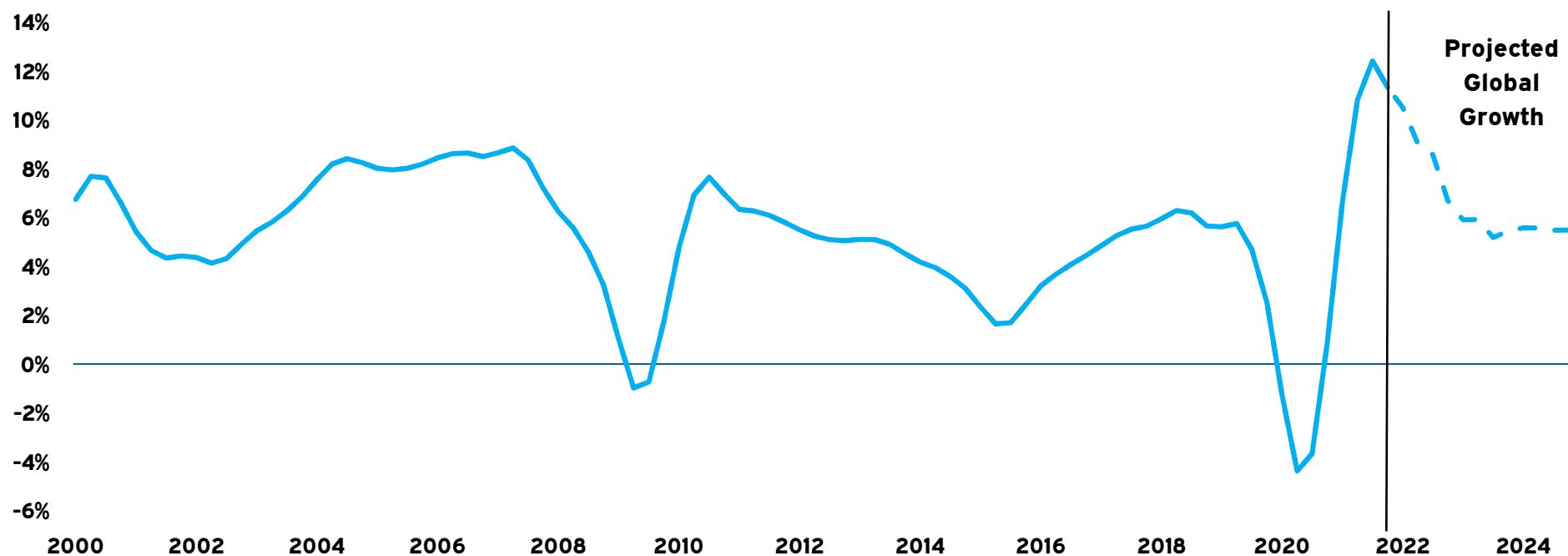
The IMF significantly lowered global growth forecasts in their latest projections, driven by the economic impacts of the war in Ukraine.

- The IMF forecasts final global GDP growth to come in at 6.1% in 2021 and 3.6% in 2022 (0.8% below the prior 2022 estimate), both still above the past ten-year average of 3.0%.
- In advanced economies, GDP is projected to increase 3.3% in 2022 and 2.4% in 2023. The US has limited economic ties with Russia but saw another downgrade in the 2022 growth forecast (3.7% versus 4.0%) largely due to policy tightening happening faster than previously expected. The euro area saw a significant downgrade in expected growth (2.8% versus 3.9%) in 2022 as rising energy prices particularly weigh on the region that is a net importer of energy. The Japanese economy is expected to grow 2.4% this year.
- Growth projections for emerging markets are higher than developed markets, at 3.8% in 2022 and 4.4% in 2023. China's growth was downgraded (4.4% versus 4.8%) for 2022 given tight COVID-19 restrictions and continued property sector problems.
- The global inflation forecast was significantly increased for 2022 (7.4% versus 3.8%).

	Real GDP (%) ¹			Inflation (%) ¹		
	IMF 2022 Forecast	IMF 2023 Forecast	Actual 10 Year Average	IMF 2022 Forecast	IMF 2023 Forecast	Actual 10 Year Average
World	3.6	3.6	3.0	7.4	4.8	3.5
Advanced Economies	3.3	2.4	1.6	5.7	2.5	1.5
US	3.7	2.3	2.1	7.7	2.9	1.9
Euro Area	2.8	2.3	0.9	5.3	2.3	1.2
Japan	2.4	2.3	0.5	1.0	0.8	0.5
Emerging Economies	3.8	4.4	4.2	8.7	6.5	5.1
China	4.4	5.1	6.7	2.1	1.8	2.1

¹ Source: IMF World Economic Outlook. Real GDP forecasts from April WEO Update. Inflation forecasts are as of the April 2022 Update. "Actual 10 Year Average" represents data from 2012 to 2021.

Global Nominal Gross Domestic Product (GDP) Growth¹



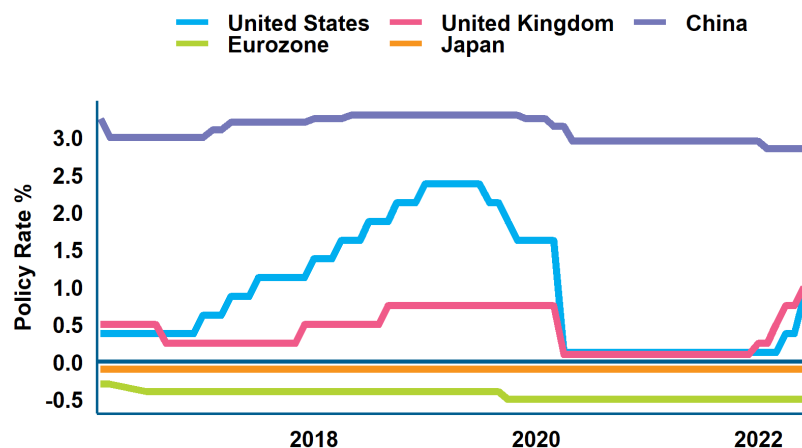
→ Global economies are expected to slow in 2022 compared to 2021.

→ Looking forward, the track of the conflict between Russia and Ukraine, continued supply chain issues, ongoing inflationary pressures, tighter monetary policy, and lingering pandemic problems all remain key with the risk for continued downgrades in growth forecasts.

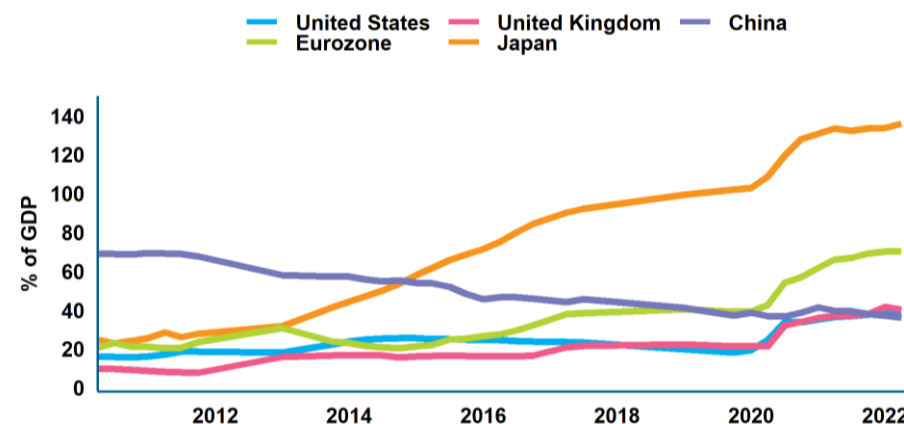
¹ Source: Oxford Economics (World GDP, US\$ prices & PPP exchange rate, nominal, % change YoY). Updated May 2022.

Central Bank Response¹

Policy Rates



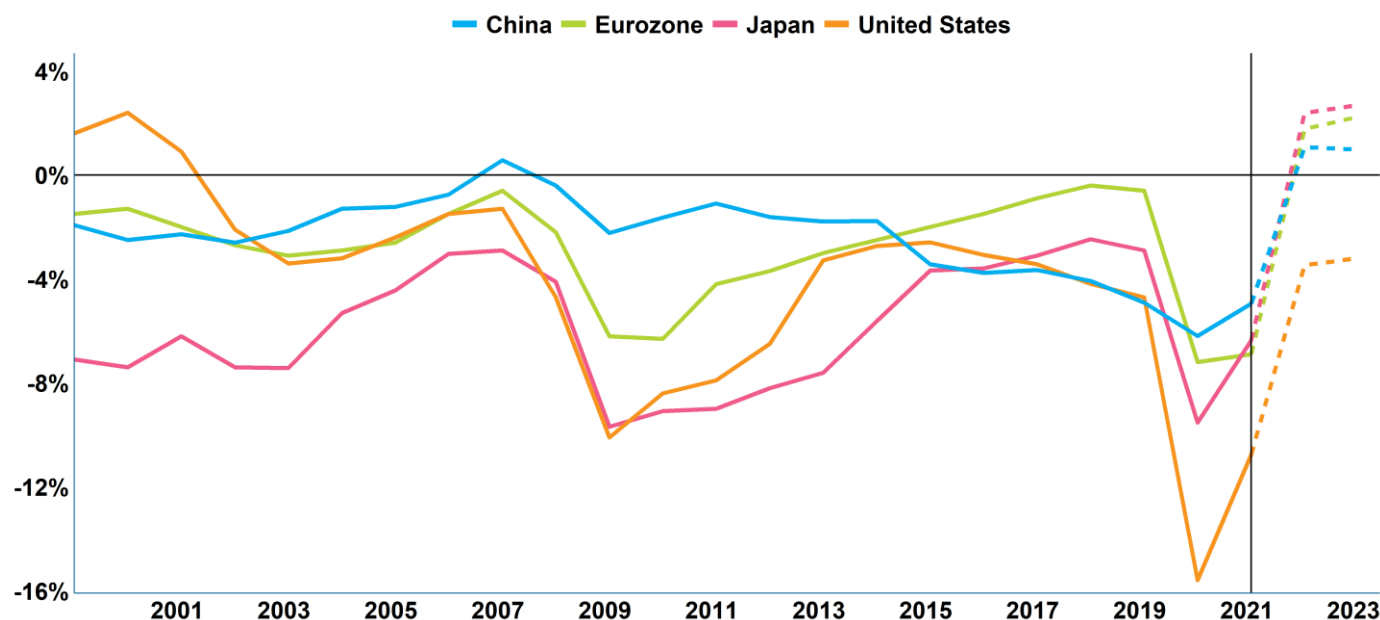
Balance Sheet as % of GDP



- After global central banks took extraordinary action to support economies during the pandemic, including policy rate cuts and emergency stimulus through quantitative easing (QE), many are reducing or considering reducing support, in the face of high inflation.
- The pace of withdrawing support will likely vary across central banks with the US expected to take a more aggressive approach. The risk remains for a policy error, particularly overtightening, as record inflation, the war in Ukraine, and a tough COVID-19 policy in China could suppress global growth.
- The one notable outlier is China, where the central bank recently lowered rates and reserve requirements in response to slowing growth.

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

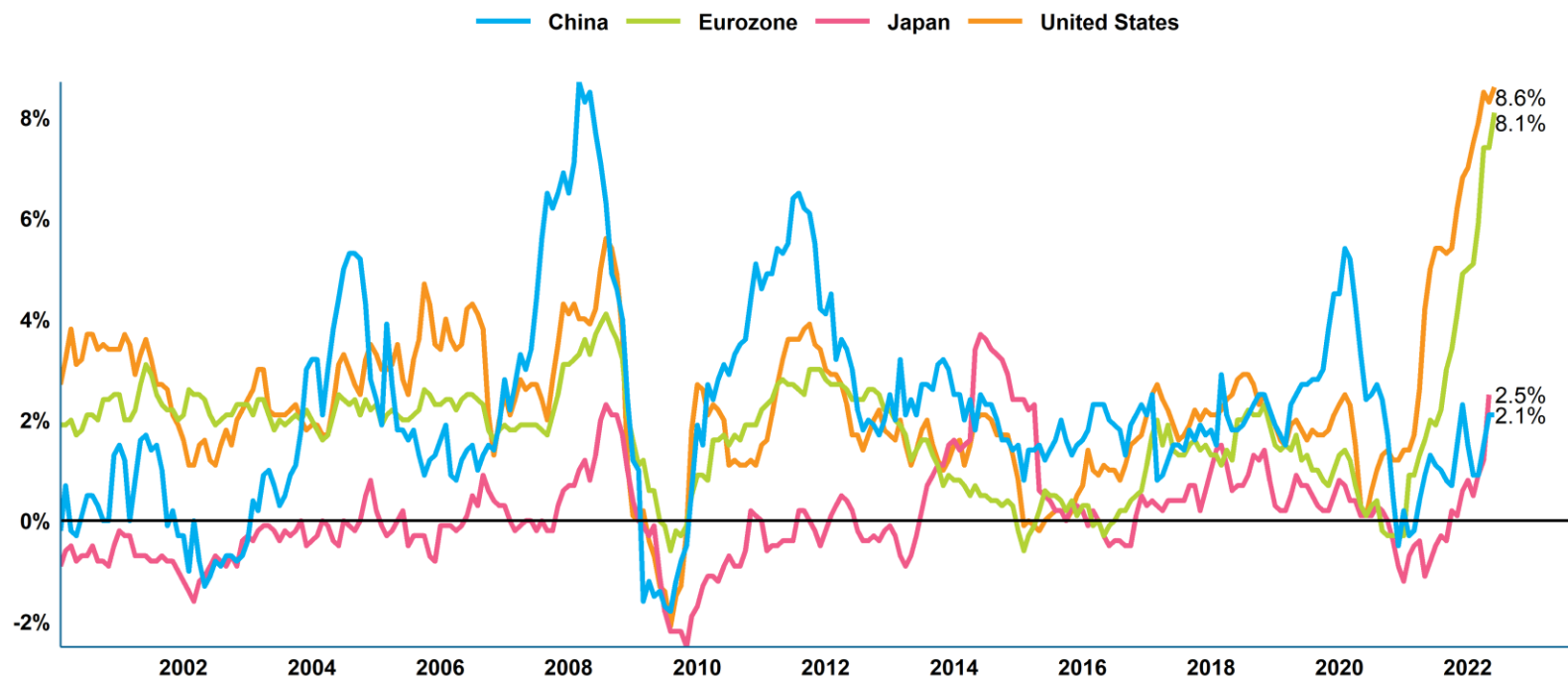
Budget Surplus / Deficit as a Percentage of GDP¹



- Budget deficits as a percentage of GDP drastically increased for major world economies, particularly the US, due to massive fiscal support and the severe economic contraction's effect on tax revenue in 2020 and 2021.
- As fiscal stimulus programs end, and economic recoveries continue, deficits should improve in the coming years.

¹ Source: Bloomberg. Data is as of March 31, 2022. Projections via IMF Forecasts from April 2022 Report. Dotted lines represent 2022 and 2023 forecasts.

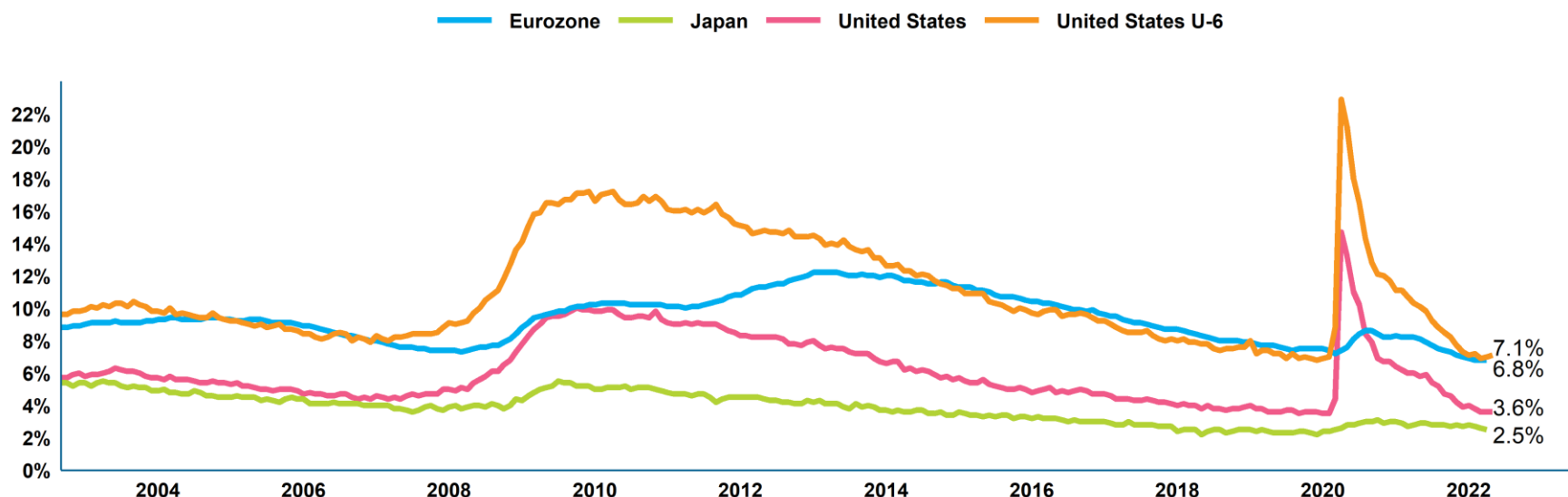
Inflation (CPI Trailing Twelve Months)¹



- Inflation increased dramatically from the lows of the pandemic, particularly in the US and Eurozone where it remains at levels not seen in decades.
- Supply issues related to the pandemic, record monetary and fiscal stimulus, strict COVID-19 restrictions in China, and higher prices in many commodities driven by the war in Ukraine have been key drivers of inflation globally.

¹ Source: Bloomberg. Data is as of May 2022, except for Japan, where the most recent data available is as of April 30, 2022.

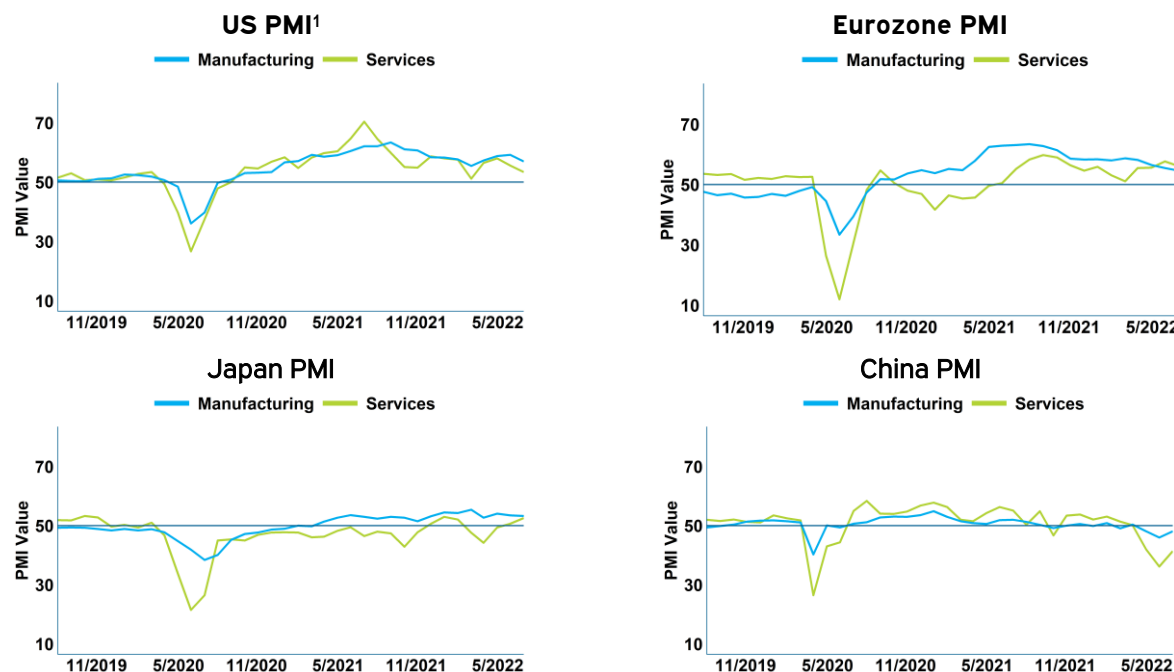
Unemployment¹



- As economies have largely reopened, helped by vaccines for the virus, improvements have been seen in the labor market.
- US unemployment, which experienced the steepest rise from the pandemic, declined back to pre-pandemic levels. The broader measure (U-6) that includes discouraged and underemployed workers declined but is much higher at 7.1%.

¹ Source: Bloomberg. Data is as of May 2022, for the US. The most recent data for Eurozone and Japanese unemployment is as of April 30, 2022.

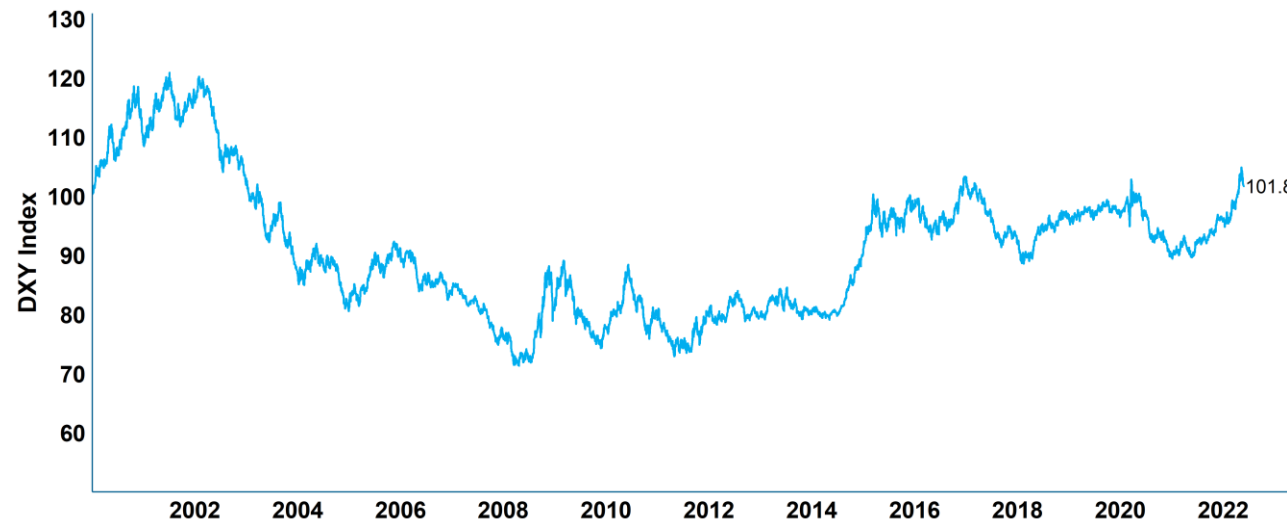
Global PMIs



- After improvements from the lows of the pandemic, Purchasing Managers Indices (PMI), based on surveys of private sector companies, have experienced some pressures recently.
- Service sector PMIs in the US and Europe have recently declined due to higher prices and supply issues, while they continue to improve in Japan as pandemic restrictions ease. In China they remain in contraction due to strict policies.
- In most countries, manufacturing PMIs are in expansion territory as pandemic-related production issues ease and orders increase. China is the one exception, though, with the manufacturing PMI falling below 50 due again to increased COVID-19 restrictions.

¹ Source: Bloomberg. US Markit Services and Manufacturing PMI, Caixin Services and Manufacturing PMI, Eurozone Markit Services and Manufacturing PMI, Jibun Bank Services and Manufacturing PMI. Data is as of May 2022. Readings below 50 represent economic contractions.

US Dollar versus Broad Currencies¹



- The US dollar weakened slightly against a broad basket of peers in May.
- Safe-haven flows, relatively stronger growth, and higher rates have all been key drivers of the dollar's on-going strength.
- The euro, yen, and yuan have all experienced significant declines versus the dollar, adding to inflation and slowing growth concerns.

¹ Source: Bloomberg. Data as of May 31, 2022.

Summary

Key Trends in 2022:

- The impacts of record high inflation will remain key going forward, with volatility likely to remain high.
- The war in Ukraine has created significant uncertainty, with a wide range of potential outcomes.
- Expect growth to slow globally in 2022 to the long-term trend. Inflation, monetary policy, and the war will all be key.
- The end of many fiscal programs is expected to put the burden of continued growth on consumers. Higher energy and food prices will depress consumers' spending in other areas.
- Monetary policy will likely tighten globally but will remain relatively accommodative. The risk of overtightening policy impacting growth remains.
- Valuations remain high in the US but have declined from recent peaks.
- Outside the US, equity valuations remain lower in both emerging and developed markets, but risks remain, including continued strength in the US dollar, higher inflation particularly weighing on Europe, and China maintaining its restrictive COVID-19 policies.

EBMUDERS Total Plan Composite | As of May 31, 2022

Performance Summary									
	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	20 Yrs (%)
EBMUDERS Total Plan Composite	2,181,950,440	100.0	-5.5	-9.4	-4.2	8.9	7.6	9.5	7.5
<i>Total Plan Bench</i>			<i>-6.1</i>	<i>-9.6</i>	<i>-4.7</i>	<i>7.6</i>	<i>6.6</i>	<i>8.6</i>	<i>7.1</i>
US Equity Composite	549,674,223	25.2	-9.1	-13.9	-3.7	15.5	13.0	14.1	9.1
<i>Russell 3000 Hybrid</i>			<i>-9.1</i>	<i>-13.9</i>	<i>-3.7</i>	<i>15.6</i>	<i>12.7</i>	<i>14.0</i>	<i>9.3</i>
NonUS Equity Composite	527,655,035	24.2	-4.6	-10.4	-11.4	7.4	4.0	7.0	6.3
<i>MSCI ACWI xUS (blend)</i>			<i>-5.4</i>	<i>-10.5</i>	<i>-12.0</i>	<i>7.0</i>	<i>4.9</i>	<i>6.9</i>	<i>6.1</i>
Covered Calls Composite	464,910,412	21.3	-5.5	-8.2	0.5	10.3	8.1	--	--
<i>CBOE S&P 500 BuyWrite USD</i>			<i>-8.3</i>	<i>-7.5</i>	<i>2.5</i>	<i>6.4</i>	<i>4.9</i>	--	--
Real Estate Composite	126,203,455	5.8	-5.3	-2.4	13.8	10.2	9.6	10.5	--
<i>NCREIF NPI Lag</i>			<i>-3.5</i>	<i>-2.3</i>	<i>12.6</i>	<i>8.9</i>	<i>8.4</i>	<i>9.6</i>	--
Fixed Income Composite	504,707,002	23.1	-2.2	-5.8	-5.4	1.1	2.1	2.3	4.2
<i>Fixed Income Composite Bench</i>			<i>-2.0</i>	<i>-6.4</i>	<i>-5.9</i>	<i>0.8</i>	<i>1.7</i>	<i>2.1</i>	<i>3.9</i>
Cash Composite	8,800,313	0.4	0.1	0.2	0.3	1.3	1.5	0.9	1.8
<i>FTSE T-Bill 3 Months TR</i>			<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0.7</i>	<i>1.1</i>	<i>0.6</i>	<i>1.2</i>

¹ Policy Benchmark consists of 25% Russell 3000 / 20% CBOE S&P 500 BuyWrite USD / 25% MSCI ACWI ex USA Gross / 10% BBgBarc US Aggregate TR / 10% BBgBarc US Intermediate Gov/Cred / 2.5% ICE BofAML US Corp Cash Pay BB -B 1-5Yr / 2.5% 60% CredSuisLevLoan/40% BBStGovCorp / 2.5% FTSE NAREIT Equity REIT / 2.5% S&P/LSTA Performing Loan TR USD index 12/1/2019 - present; see Appendix for historical Policy Benchmark composition.

² Russell 3000 as of 10/1/05. Prior: 30% S&P500, 10% S&P400, 10% Russell 2000 (4/1/05-9/30/05); 33% S&P500, 10% S&P400, 10% Russell 2000 (9/1/98-3/31/05); 30% S&P500, 15% Wilshire 5000 (4/1/96-8/31/98).

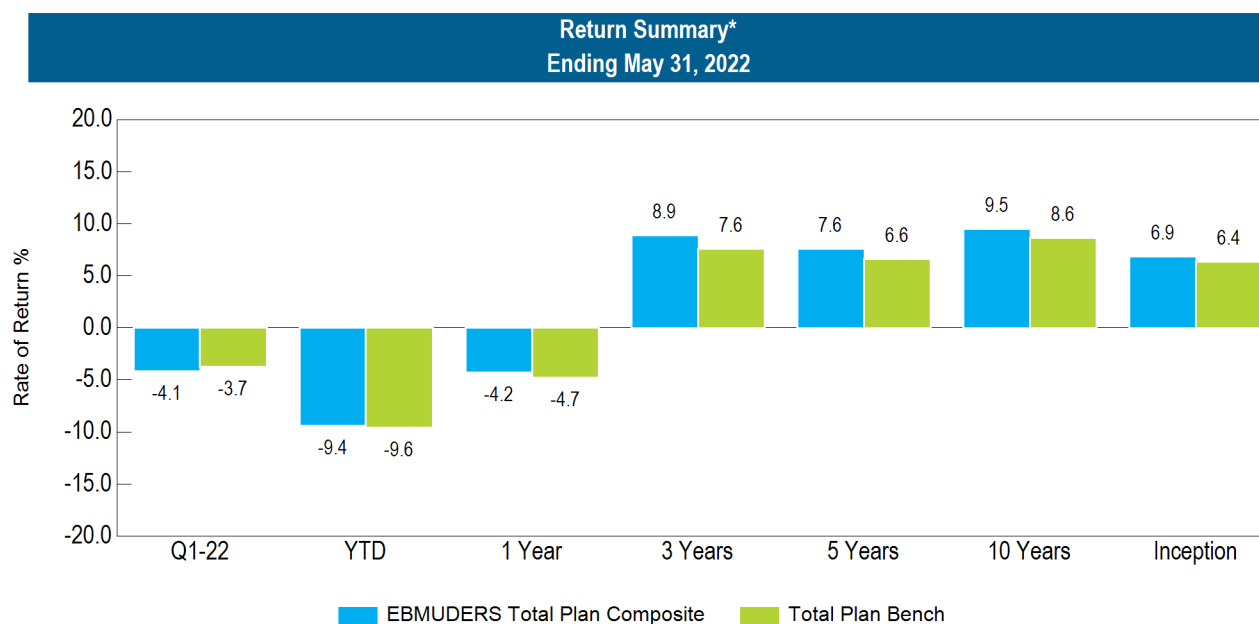
³ MSCI ACWIxU.S. as of 1/1/07; MSCI EAFE ND thru 12/31/06.

⁴ 50% NCREIF (lagged), 50% FTSE NAREIT Equity REITs Index as of 11/1/11; NCREIF (lagged) thru 10/31/11.

⁵ 40% BB Aggregate, 40% BBgBarc US Intermediate Gov/Cred, 10% ICE BofA ML U.S. Corp Cash Pay BB-B 1-5 Year, and 10% Blend 60% Credit Suisse Leverage Loan/40% BBg BC Short Term Gov/Corp 12/1/2019-present. See Appendix for historical Composite benchmark.

EBMUDERS Total Plan Composite | As of May 31, 2022

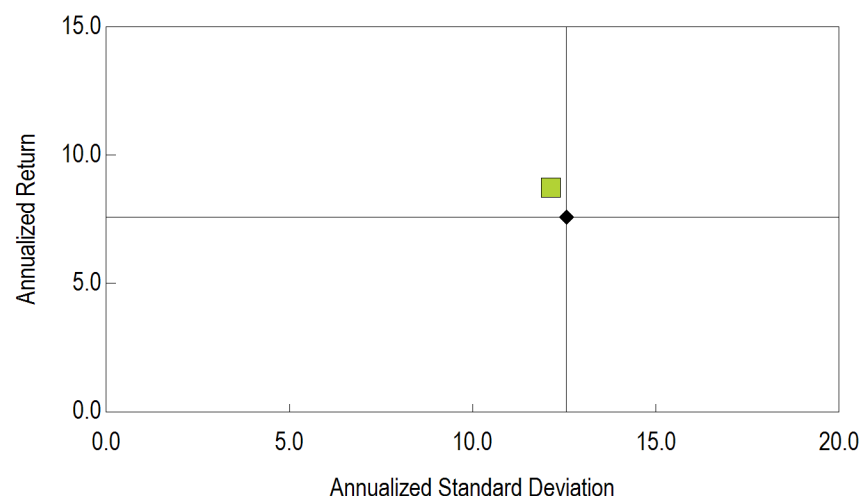
Summary of Cash Flows		
	Quarter-To-Date	One Year
Beginning Market Value	\$2,304,356,784	\$2,298,100,452
Net Cash Flow	\$3,592,802	-\$17,905,452
Capital Appreciation	-\$125,999,145	-\$98,244,561
Ending Market Value	\$2,181,950,440	\$2,181,950,440



¹Policy Benchmark consists of 25% Russell 3000 / 20% CBOE S&P 500 BuyWrite USD / 25% MSCI ACWI ex USA Gross / 10% BBgBarc US Aggregate TR / 10% BBgBarc US Intermediate Gov/Cred / 2.5% ICE BofAML US Corp Cash Pay BB -B 1-5Yr / 2.5% 60% CredSuisLevLoan/40% BBStGovCorp / 2.5% FTSE NAREIT Equity REIT / 2.5% S&P/LSTA Performing Loan TR USD index 12/1/2019 - present; see Appendix for historical Policy Benchmark composition.

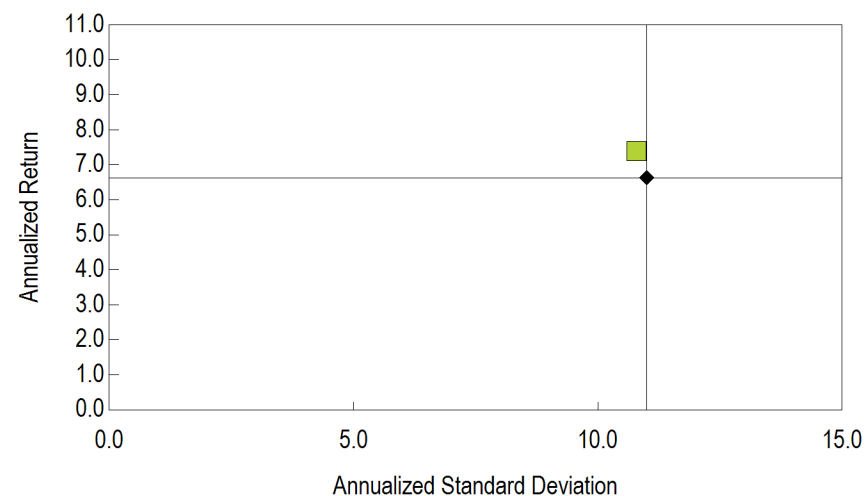
EBMUDERS Total Plan Composite | As of May 31, 2022

Annualized Return vs. Annualized Standard Deviation
3 Years Ending May 31, 2022



■ EBMUDERS Total Plan Composite ● InvMetrics Public DB > \$1B Gross
◆ Total Plan Bench

Annualized Return vs. Annualized Standard Deviation
5 Years Ending May 31, 2022



■ EBMUDERS Total Plan Composite ● InvMetrics Public DB > \$1B Gross
◆ Total Plan Bench

3 Years Ending May 31, 2022

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
EBMUDERS Total Plan Composite	8.89%	12.13%	0.69
Total Plan Bench	7.58%	12.56%	0.56

5 Years Ending May 31, 2022

	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
EBMUDERS Total Plan Composite	7.58%	10.79%	0.61
Total Plan Bench	6.63%	11.00%	0.51

EBMUDERS Total Plan Composite | As of May 31, 2022

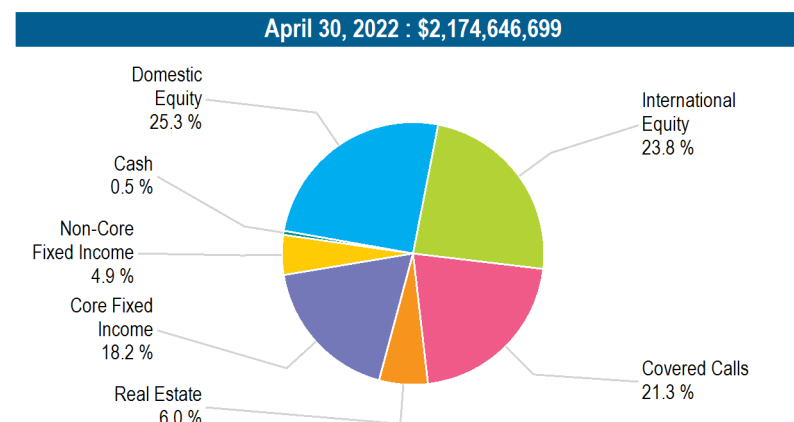
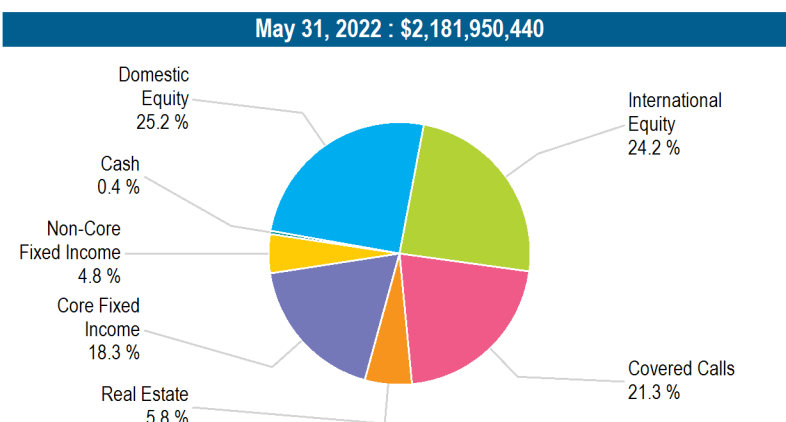
Asset Allocation vs. Target						
	Current (\$)	Current (%)	Policy (%)	Difference* (%)	Policy Range (%)	Within Range
Domestic Equity	549,674,223	25.2	25.0	0.2	20.0 - 30.0	Yes
International Equity	527,655,035	24.2	25.0	-0.8	20.0 - 30.0	Yes
Covered Calls	464,910,412	21.3	20.0	1.3	17.0 - 23.0	Yes
Real Estate	126,203,455	5.8	5.0	0.8	3.0 - 7.0	Yes
Core Fixed Income	399,445,024	18.3	20.0	-1.7	17.0 - 23.0	Yes
Non-Core Fixed Income	105,261,978	4.8	5.0	-0.2	3.0 - 7.0	Yes
Cash	8,800,314	0.4	0.0	0.4	0.0 - 0.0	No
Total	2,181,950,440	100.0	100.0			

*Difference between Policy and Current Allocation

¹Current policy target allocations elected by the Board in January 2019 took effect March 2019 upon the transition to the new long-term strategic allocation.

²Policy rebalancing ranges shown are for non-turbulent market periods. The Plan also has established rebalancing ranges to be in effect during turbulent market periods

³RREEF results are lagged 1 quarter



Manager Performance - Gross of Fees | As of May 31, 2022

	Market Value	QTD	YTD	1 Yr	3 Yrs	5 Yrs
Domestic Equity	549,674,223					
Northern Trust Russell 3000	548,410,564	-9.1	-13.9	-3.7	15.6	--
<i>Russell 3000</i>		<i>-9.1</i>	<i>-13.9</i>	<i>-3.7</i>	<i>15.6</i>	--
International Equity	527,655,035					
Northern Trust ACWI ex US	527,655,035	-4.6	-10.4	-11.9	6.6	--
<i>MSCI ACWI ex USA Gross</i>		<i>-5.4</i>	<i>-10.5</i>	<i>-12.0</i>	<i>7.0</i>	--
Covered Calls	464,910,412					
Parametric BXM	154,311,118	-5.3	-6.8	1.9	9.6	7.2
<i>CBOE S&P 500 BuyWrite USD</i>		<i>-8.3</i>	<i>-7.5</i>	<i>2.5</i>	<i>6.4</i>	<i>4.9</i>
Parametric Delta Shift	169,841,496	-7.2	-11.5	1.5	15.8	11.8
<i>CBOE S&P 500 BuyWrite USD</i>		<i>-8.3</i>	<i>-7.5</i>	<i>2.5</i>	<i>6.4</i>	<i>4.9</i>
Van Hulzen	140,757,798	-3.6	-5.5	-2.0	5.3	4.9
<i>CBOE S&P 500 BuyWrite USD</i>		<i>-8.3</i>	<i>-7.5</i>	<i>2.5</i>	<i>6.4</i>	<i>4.9</i>
Real Estate	126,203,455					
RREEF America II Lag	62,136,089	0.0	10.9	23.2	10.4	9.5
<i>NCREIF NPI Mo 1 Qtr Lag</i>		<i>3.6</i>	<i>10.1</i>	<i>20.8</i>	<i>9.3</i>	<i>8.3</i>
CenterSquare	64,067,366	-9.9	-12.6	4.8	8.9	9.0
<i>FTSE NAREIT Equity REIT</i>		<i>-10.3</i>	<i>-13.8</i>	<i>3.9</i>	<i>7.2</i>	<i>7.4</i>

¹RREEF results are lagged 1 quarter

Manager Performance - Gross of Fees | As of May 31, 2022

	Market Value	QTD	YTD	1 Yr	3 Yrs	5 Yrs
Core Fixed Income	399,445,024					
CS McKee	194,372,414	-3.3	-9.0	-8.3	0.1	1.4
<i>Bloomberg US Aggregate TR</i>		-3.2	-8.9	-8.2	0.0	1.2
Garcia Hamilton	205,072,610	-1.1	-4.1	-4.6	--	--
<i>Bloomberg US Intermediate Gov/Cred</i>		-1.3	-5.7	-6.2	--	--
Non-Core Fixed Income	105,261,978					
MacKay Shields (HY)	53,458,737	-0.9	-2.2	-0.3	4.6	--
<i>ICE BofA ML US Corp Cash Pay BB-B 1-5Yr</i>		-1.2	-3.5	-1.5	3.0	--
Federated Investment Counseling (Bank Loans)	51,803,241	-3.2	-3.9	-2.4	1.4	--
<i>60% CredSuisLevLoan/40% BBStGovCorp</i>		-1.4	-1.5	-0.2	2.2	--
Cash	8,800,314					
Cash LAIF	8,800,313	0.1	0.2	0.3	1.3	1.5
<i>FTSE T-Bill 3 Months TR</i>		0.1	0.1	0.1	0.7	1.1

EBMUDERS Benchmark History | As of May 31, 2022
Benchmark History
As of May 31, 2022
EBMUDERS Total Plan Composite

12/1/2019	Present	25% Russell 3000 / 20% CBOE S&P 500 BuyWrite USD / 25% MSCI ACWI ex USA Gross / 10% Bloomberg US Aggregate TR / 10% Bloomberg US Intermediate Gov/Cred / 2.5% ICE BofA ML US Corp Cash Pay BB-B 1-5Yr / 2.5% 60% CredSuisLevLoan/40% BBStGovCorp / 2.5% FTSE NAREIT Equity REIT / 2.5% S&P/LSTA Performing Loan TR USD
3/1/2019	11/30/2019	25% Russell 3000 / 20% CBOE S&P 500 BuyWrite USD / 25% MSCI ACWI ex USA Gross / 15% Bloomberg US Aggregate TR / 5% Bloomberg US Govt/Credit 1-3 Yr. TR / 2.5% ICE BofA ML US Corp Cash Pay BB-B 1-5Yr / 2.5% 60% CredSuisLevLoan/40% BBStGovCorp / 2.5% FTSE NAREIT Equity REIT / 2.5% S&P/LSTA Performing Loan TR USD
7/1/2018	2/28/2019	25% Russell 3000 / 20% CBOE S&P 500 BuyWrite USD / 25% MSCI ACWI ex USA Gross / 15% Bloomberg US Aggregate TR / 5% Bloomberg US Govt/Credit 1-3 Yr. TR / 2.5% Bloomberg US High Yield 1-5Yr Cash Pay 2% / 2.5% NCREIF NPI Mo 1 Qtr Lag / 2.5% FTSE NAREIT Equity REIT / 2.5% S&P/LSTA Performing Loan TR USD
4/1/2014	6/30/2018	40% Russell 3000 / 20% CBOE S&P 500 BuyWrite USD / 15% MSCI ACWI ex USA Gross / 10% Bloomberg US Aggregate TR / 5% Bloomberg US Govt/Credit 1-3 Yr. TR / 2.5% Bloomberg US High Yield 1-5Yr Cash Pay 2% / 2.5% NCREIF NPI Mo 1 Qtr Lag / 2.5% FTSE NAREIT Equity REIT / 2.5% S&P/LSTA Performing Loan TR USD
3/1/2014	3/31/2014	40% Russell 3000 / 20% CBOE S&P 500 BuyWrite USD / 15% MSCI ACWI ex USA Gross / 15% Bloomberg US Aggregate TR / 2.5% Bloomberg US High Yield 1-5Yr Cash Pay 2% / 2.5% NCREIF NPI Mo 1 Qtr Lag / 2.5% FTSE NAREIT Equity REIT / 2.5% S&P/LSTA Performing Loan TR USD
11/1/2011	2/28/2014	50% Russell 3000 / 20% MSCI ACWI ex USA Gross / 25% Bloomberg US Universal TR / 2.5% NCREIF NPI Mo 1 Qtr Lag / 2.5% FTSE NAREIT Equity REIT
1/1/2008	10/31/2011	50% Russell 3000 / 20% MSCI ACWI ex USA Gross / 25% Bloomberg US Universal TR / 5% NCREIF NPI Mo 1 Qtr Lag
1/1/2007	12/31/2007	50% Russell 3000 / 20% MSCI ACWI ex USA Gross / 25% Bloomberg US Aggregate TR / 5% NCREIF Property Index
10/1/2005	12/31/2006	50% Russell 3000 / 25% Bloomberg US Aggregate TR / 5% NCREIF NPI Mo 1 Qtr Lag / 20% MSCI EAFE
4/1/2005	9/30/2005	30% S&P 500 / 10% S&P 400 MidCap / 10% Russell 2000 / 20% MSCI EAFE / 25% Bloomberg US Aggregate TR / 5% NCREIF NPI Mo 1 Qtr Lag
9/1/1998	3/31/2005	33% S&P 500 / 10% S&P 400 MidCap / 10% Russell 2000 / 17% MSCI EAFE / 30% Bloomberg US Aggregate TR
3/31/1996	8/31/1998	30% S&P 500 / 15% Wilshire 5000 / 15% MSCI EAFE / 30% Bloomberg US Aggregate TR / 5% NCREIF Property Index / 5% FTSE T-Bill 3 Months TR

EBMUDERS Benchmark History | As of May 31, 2022

EBMUDERS Total Plan x Securities Lending Composite		
12/1/2019	Present	25% Russell 3000 / 20% CBOE S&P 500 BuyWrite USD / 25% MSCI ACWI ex USA Gross / 10% Bloomberg US Aggregate TR / 10% Bloomberg US Intermediate Gov/Cred / 2.5% ICE BofA ML US Corp Cash Pay BB-B 1-5Yr / 2.5% 60% CredSuisLevLoan/40% BBStGovCorp / 2.5% FTSE NAREIT Equity REIT / 2.5% S&P/LSTA Performing Loan TR USD
3/1/2019	11/30/2019	25% Russell 3000 / 20% CBOE S&P 500 BuyWrite USD / 25% MSCI ACWI ex USA Gross / 15% Bloomberg US Aggregate TR / 5% Bloomberg US Govt/Credit 1-3 Yr. TR / 2.5% ICE BofA ML US Corp Cash Pay BB-B 1-5Yr / 2.5% 60% CredSuisLevLoan/40% BBStGovCorp / 2.5% FTSE NAREIT Equity REIT / 2.5% S&P/LSTA Performing Loan TR USD
7/1/2018	2/28/2019	25% Russell 3000 / 20% CBOE S&P 500 BuyWrite USD / 25% MSCI ACWI ex USA Gross / 15% Bloomberg US Aggregate TR / 5% Bloomberg US Govt/Credit 1-3 Yr. TR / 2.5% Bloomberg US High Yield 1-5Yr Cash Pay 2% / 2.5% NCREIF NPI Mo 1 Qtr Lag / 2.5% FTSE NAREIT Equity REIT / 2.5% S&P/LSTA Performing Loan TR USD
4/1/2014	6/30/2018	40% Russell 3000 / 20% CBOE S&P 500 BuyWrite USD / 15% MSCI ACWI ex USA Gross / 10% Bloomberg US Aggregate TR / 5% Bloomberg US Govt/Credit 1-3 Yr. TR / 2.5% Bloomberg US High Yield 1-5Yr Cash Pay 2% / 2.5% NCREIF NPI Mo 1 Qtr Lag / 2.5% FTSE NAREIT Equity REIT / 2.5% S&P/LSTA Performing Loan TR USD
3/1/2014	3/31/2014	40% Russell 3000 / 20% CBOE S&P 500 BuyWrite USD / 15% MSCI ACWI ex USA Gross / 15% Bloomberg US Aggregate TR / 2.5% Bloomberg US High Yield 1-5Yr Cash Pay 2% / 2.5% NCREIF NPI Mo 1 Qtr Lag / 2.5% FTSE NAREIT Equity REIT / 2.5% S&P/LSTA Performing Loan TR USD
11/1/2011	2/28/2014	50% Russell 3000 / 20% MSCI ACWI ex USA Gross / 25% Bloomberg US Universal TR / 2.5% NCREIF NPI Mo 1 Qtr Lag / 2.5% FTSE NAREIT Equity REIT
1/1/2008	10/31/2011	50% Russell 3000 / 20% MSCI ACWI ex USA Gross / 25% Bloomberg US Universal TR / 5% NCREIF NPI Mo 1 Qtr Lag
1/1/2007	12/31/2007	50% Russell 3000 / 20% MSCI ACWI ex USA Gross / 25% Bloomberg US Aggregate TR / 5% NCREIF Property Index
10/1/2005	12/31/2006	50% Russell 3000 / 25% Bloomberg US Aggregate TR / 5% NCREIF NPI Mo 1 Qtr Lag / 20% MSCI EAFE
4/1/2005	9/30/2005	30% S&P 500 / 10% S&P 400 MidCap / 10% Russell 2000 / 20% MSCI EAFE / 25% Bloomberg US Aggregate TR / 5% NCREIF NPI Mo 1 Qtr Lag
9/1/1998	3/31/2005	33% S&P 500 / 10% S&P 400 MidCap / 10% Russell 2000 / 17% MSCI EAFE / 30% Bloomberg US Aggregate TR
3/31/1996	8/31/1998	30% S&P 500 / 15% Wilshire 5000 / 15% MSCI EAFE / 30% Bloomberg US Aggregate TR / 5% NCREIF Property Index / 5% FTSE T-Bill 3 Months TR
Public Equity Composite		
1/1/2007	Present	71.43% Russell 3000 / 28.57% MSCI ACWI ex USA Gross
10/1/2005	12/31/2006	28.57% MSCI EAFE / 71.43% Russell 3000
4/1/2005	9/30/2005	42.86% S&P 500 / 14.285% S&P 400 MidCap / 14.285% Russell 2000 / 28.57% MSCI EAFE
9/1/1998	3/31/2005	47.14% S&P 500 / 14.285% S&P 400 MidCap / 14.285% Russell 2000 / 24.29% MSCI EAFE

EBMUDERS Benchmark History | As of May 31, 2022

1/1/1994	8/31/1998	50% S&P 500 / 25% Wilshire 5000 / 25% MSCI EAFE
US Equity Composite		
10/1/2005	Present	Russell 3000
4/1/2005	9/30/2005	60% S&P 500 / 20% S&P 400 MidCap / 20% Russell 2000
9/1/1998	3/31/2005	62.23% S&P 500 / 18.87% S&P 400 MidCap / 18.87% Russell 2000
4/1/1996	8/31/1998	33.3% Wilshire 5000 / 66.6% S&P 500
US Equity Large Cap Composite		
10/1/2005	Present	Russell 1000 Value
6/1/1994	9/30/2005	S&P 500
NonUS Equity Composite		
1/1/2007	Present	MSCI ACWI ex USA Gross
1/1/1970	12/31/2006	MSCI EAFE
NonUSE Developed Markets Composite		
1/1/2007	Present	MSCI ACWI ex USA Gross
1/1/1970	12/31/2006	MSCI EAFE
Covered Calls Composite		
	Present	CBOE S&P 500 BuyWrite USD
Real Estate Composite		
11/1/2011	Present	50% FTSE NAREIT Equity REIT / 50% NCREIF NPI Mo 1 Qtr Lag
10/1/1998	10/31/2011	NCREIF NPI Mo 1 Qtr Lag
4/1/1978	9/30/1998	NCREIF Property Index
Fixed Income Composite		
12/1/2019	Present	40% Bloomberg US Aggregate TR / 10% ICE BofA ML US Corp Cash Pay BB-B 1-5Yr / 40% Bloomberg US Intermediate Gov/Cred / 10% 60% CredSuisLevLoan/40% BBStGovCorp
3/1/2019	11/30/2019	60% Bloomberg US Aggregate TR / 10% ICE BofA ML US Corp Cash Pay BB-B 1-5Yr / 20% Bloomberg US Govt/Credit 1-3 Yr. TR / 10% 60% CredSuisLevLoan/40% BBStGovCorp

EBMUDERS Benchmark History | As of May 31, 2022

7/1/2018	2/28/2019	60% Bloomberg US Aggregate TR / 10% S&P/LSTA Performing Loan TR USD / 20% Bloomberg US Govt/Credit 1-3 Yr. TR / 10% Bloomberg US High Yield 1-5Yr Cash Pay 2%
4/1/2014	6/30/2018	50% Bloomberg US Aggregate TR / 12.5% S&P/LSTA Performing Loan TR USD / 25% Bloomberg US Govt/Credit 1-3 Yr. TR / 12.5% Bloomberg US High Yield 1-5Yr Cash Pay 2%
3/1/2014	3/31/2014	75% Bloomberg US Aggregate TR / 12.5% Bloomberg US High Yield 1-5Yr Cash Pay 2% / 12.5% S&P/LSTA Performing Loan TR USD
1/1/2008	2/28/2014	Bloomberg US Universal TR
1/1/1976	12/31/2007	Bloomberg US Aggregate TR
Fixed Income Core Fixed Income Composite		
12/1/2019	Present	50% Bloomberg US Aggregate TR / 50% Bloomberg US Intermediate Gov/Cred
Fixed Income Non-Core Fixed Income Composite		
12/1/2019	Present	50% 60% CredSuisLevLoan/40% BBStGovCorp / 50% ICE BofA ML US Corp Cash Pay BB-B 1-5Yr
3/1/2019	11/30/2019	25% 60% CredSuisLevLoan/40% BBStGovCorp / 25% ICE BofA ML US Corp Cash Pay BB-B 1-5Yr / 50% Bloomberg US Govt/Credit 1-3 Yr. TR
3/1/2014	2/28/2019	25% S&P/LSTA Performing Loan TR USD / 25% Bloomberg US High Yield 1-5Yr Cash Pay 2% / 50% Bloomberg US Govt/Credit 1-3 Yr. TR
Cash Composite		
	Present	FTSE T-Bill 3 Months TR

WE HAVE PREPARED THIS REPORT (THIS "REPORT") FOR THE SOLE BENEFIT OF THE INTENDED RECIPIENT (THE "RECIPIENT").

SIGNIFICANT EVENTS MAY OCCUR (OR HAVE OCCURRED) AFTER THE DATE OF THIS REPORT AND THAT IT IS NOT OUR FUNCTION OR RESPONSIBILITY TO UPDATE THIS REPORT. ANY OPINIONS OR RECOMMENDATIONS PRESENTED HEREIN REPRESENT OUR GOOD FAITH VIEWS AS OF THE DATE OF THIS REPORT AND ARE SUBJECT TO CHANGE AT ANY TIME. ALL INVESTMENTS INVOLVE RISK. THERE CAN BE NO GUARANTEE THAT THE STRATEGIES, TACTICS, AND METHODS DISCUSSED HERE WILL BE SUCCESSFUL.

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

CERTAIN INFORMATION CONTAINED IN THIS REPORT MAY CONSTITUTE "FORWARD - LOOKING STATEMENTS," WHICH CAN BE IDENTIFIED BY THE USE OF TERMINOLOGY SUCH AS "MAY," "WILL," "SHOULD," "EXPECT," "AIM," "ANTICIPATE," "TARGET," "PROJECT," "ESTIMATE," "INTEND," "CONTINUE" OR "BELIEVE," OR THE NEGATIVES THEREOF OR OTHER VARIATIONS THEREON OR COMPARABLE TERMINOLOGY. ANY FORWARD-LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION ARE BASED UPON CURRENT ASSUMPTIONS. CHANGES TO ANY ASSUMPTIONS MAY HAVE A MATERIAL IMPACT ON FORWARD - LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS. ACTUAL RESULTS MAY THEREFORE BE MATERIALLY DIFFERENT FROM ANY FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION.

PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

MEMORANDUM

TO: East Bay Municipal Utility District Employees' Retirement System ("EBMUDERS")
FROM: Meketa Investment Group ("Meketa")
DATE: July 14, 2022
RE: Update: EBMUDERS Diversity, Equity, and Inclusion Individual Manager Survey results

As follow up to the May 2022 presentation of Meketa's Diversity, Equity, and Inclusion ("DEI") annual survey aggregate results for EBMUDERS managers, and in response to the Board's request for individual manager information, **Meketa plans to present the results of the 2022 DEI survey including individual manager results at the EBMUDERS Board's September 2022 meeting.**

All nine EBMUDERS investment managers have agreed to some, or all, of their DEI information being used in a report to EBMUDERS as individual manager data, rather than only in aggregate:

Center Square
CS McGee
DWS (RREEF)
Federated Hermes – redacted version only
Garcia Hamilton
MacKay Shields
Northern Trust
Parametric
Valinvest (Van Hulzen)

Meketa reached out to each EBMUDERS manager to secure their approval to use their individual responses in our DEI Manager Survey report to EBMUDERS. Because this is the first year that Meketa conducted a DEI survey through Diligence Vault, and across all managers that Meketa covers, including those that provide services to EBMUDERS, the survey was not sent directly on behalf of EBMUDERS, so we needed to get each manager's explicit approval to use individual results in our report to you. This year's survey asks for a great deal more quantitative DEI data. Some managers redacted, or left blank, detailed DEI data for a public domain report, while allowing us to use in our report their responses to less quantitative questions that we have asked on EBMUDERS' behalf in past surveys.

Going forward, for future annual Meketa surveys, we have set up a system to make sure in advance that the managers approve the data for Meketa's annual DEI survey, and for our ESG firm level and ESG product level surveys to be used at the individual manager level.



INVESTMENT GROUP

East Bay Municipal Utility District Employees Retirement System (EBMUDERS)

July 14, 2022

ESG Passive Investing – Education

Meketa Project Team

Sarah Bernstein, Head of Sustainability
Diego Valdez Colin, Meketa ESG Summer Intern
Matthew Parla, Client Service Assistant

Table of Contents

Introduction..... 3

Sustainability Equity Indices..... 5

Passive Equity Sustainability Investment..... 12

Proxy Voting..... 15

Engagement Potential..... 17

Conclusions..... 20

Appendix 22

Introduction

Introduction

→ Sustainability investing has grown and developed tremendously in the last few years.

→ This report reviews recent developments in:

- Sustainability Equity Indexes
- Passive Sustainable Equity Investing
- Proxy Voting Vehicles
- Engagement Options

Sustainability Equity Indices

Total Number of ESG Indices¹

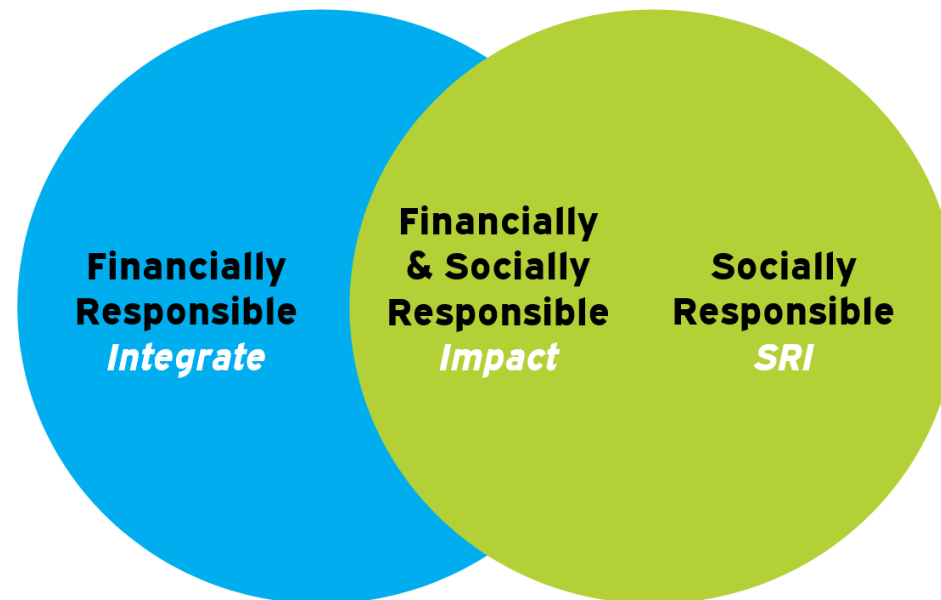
Total Number of ESG Indices from FTSE/Russell, MSCI, and S&PDJI (4Q2021)					
Type of Index	Year First Index Type Launched	Total 2021 Year-End	FTSE Russell 2021 Year-End	MSCI 2021 Year-End	S&PDJI 2021 Year-End
Total		51	15	17	19
E,S&G	1990	20	6	6	8
E	2007	21	8	6	7
S	2011	6	1	3	2
G	2015	1	-	-	1
E&S	2015	2	-	1	1
S&G	2015	1	-	1	-

→ Sustainability equity indexes have proliferated.

→ Sustainability equity indexes available are concentrated in environmental themes and combined E,S, &G.

¹ See Appendix

Sustainable Investing Vehicles Span a Wide Range of Goals¹



- A focus on financial results is central to 'Integrate' approaches.
- Financially and Socially Responsible, or Impact approaches seek both a market or better return and a socially responsible outcome.
- Traditional Socially Responsible approaches have no explicit financially responsible goal.

¹ See Appendix

Primary Objectives of ESG Indices¹

Type of Index	Total	Primary objective		
		Integrate	Impact	SRI
Total	51	23	11	17
ESG	20	12	-	8
E	21	9	8	4
S	6	-	1	5
G	1	1	-	-
E&S	2	1	1	-
S&G	1	-	1	-

→ A focus on financial results were integral to the goals of roughly two-thirds of Sustainability equity indices.

→ Other index providers and asset managers are developing their own ESG indices.

¹ See Appendix

ESG Index Construction¹

Construction Approach	
ESG Characteristics	
Exclude	<ul style="list-style-type: none"> → Reduce exposure to unwanted ESG characteristics → Give up shareholder voting rights and engagement at companies with ESG concerns → Portfolio diversification reduced in accordance with reduction in number of securities compared to parent index
Select	<ul style="list-style-type: none"> → Retain shareholder rights and engagement on leaders within theme → Give up shareholder voting rights and engagement at all companies outside leaders within ESG theme → Portfolio diversification reduced in accordance with reduction in number of securities compared to parent index
Reweight	<ul style="list-style-type: none"> → Retain shareholder voting rights and engagement, reweighted by ESG priorities → Portfolio diversification reweighted by ESG factor(s)
Matching Parent Index Characteristics	
Optimize	→ Keep tracking error low and meet multiple sustainability objectives
Maintain	→ Match parent index industry, country, and/or size weights

- ESG equity index construction shows reweighting securities is on the rise, but indexes built by excluding and/or selecting stocks still leads.
- Index construction has implications for shareholder rights when ESG index significantly reduces universe.
- Expect more change. Comparability over time may be a challenge.

¹ See Appendix

Sample ESG Indices (as of December 31, 2021)¹

Name of Index (Primary Goal I, M, S)	No. of Firms	Weighted Avg Mkt Cap (\$B)	Gross Return 5-Yr (%)	Std Deviation 5-Yr (%)	Sharpe Ratio 5-Yr (%)	Tracking Error 5-Yr (%)
FTSE Developed	2,211	397.2	15.5	15.4	1.00	-
4Good (S)	1,058	498.8	16.1	15.5	1.04	1.51
ex-Fossil Fuels (S)	2,117	411.8	16.2	15.4	1.05	0.76
Low Carbon Emissions Select (I)	2,105	410.0	16.0	15.6	1.02	1.63
TPI Climate Transition (I)	2,052	403.7	15.5	15.5	1.00	1.38
MSCI World	1,546	418.8	15.6	15.0	0.96	-
ESG Leaders (I)	712	368.6	16.1	14.7	1.01	1.52
ex-Fossil Fuels (S)	1,469	433.5	16.4	14.8	1.02	0.71
Low Carbon Target (I)	1,267	393.3	15.8	15.1	0.97	0.32
Climate Paris Aligned (I)	655	364.8	17.0	14.8	1.05	1.18
Women's Leadership (M)	629	65.1	13.6	16.5	0.78	3.10
S&P 500®	505	597.8	18.5	15.4	1.20	-
ESG (I)	310	543.6	19.7	15.3	1.28	1.25
Fossil Fuel Free (S)	489	607.8	19.2	15.3	1.26	0.66
Carbon Efficient (M)	490	653.4	18.5	15.5	1.19	0.59
Net Zero 2050 Paris Aligned ESG Index (M)	279	483.2	20.9	15.5	1.35	1.42
E&S Responsible (I)	290	747.9	19.8	15.2	1.30	1.41

→ Trailing results as of December 31, 2021, for sample ESG indexes show many outperform parent.

¹ See Appendix

ESG Key Performance Indicators (as of December 31, 2021)¹

E, S, and G KPI	MSCI World	MSCI World ESG Leaders	MSCI World ex-Fossil Fuel	MSCI World Low Carbon Target	MSCI World Climate Paris Aligned	MSCI World Women's Leadership
No. of Constituents	1,546	712	1,469	1,267	655	629
Environment						
Weighted Avg. Carbon Emissions Intensity	130.3	70.4	100.2	58.4	27.9	129.1
Weighted Avg. Green Revenue Share	9.8%	12.2%	10.1%	9.6%	14.6%	8.9%
Disclosure- CDP Reporting (% Assets)	74.3%	81.0%	75.8%	75.1%	76.3%	67.5%
Science Based Targets (% Assets)	34.0%	41.9%	35.3%	34.6%	36.4%	26.6%
Social						
% Women on Board (DB)	31.6%	31.6%	31.7%	31.5%	31.9%	37.4%
% Ethnic Diversity on Board	66.6%	65.1%	67.6%	66.6%	63.3%	51.5%
Governance						
Companies w/ Different Voting Share Classes (% Assets)	12.6%	10.4%	12.0%	12.3%	14.2%	13.6%
Weighted. Avg. % Independent Board (%)	75.3%	76.0%	75.7%	75.0%	73.9%	72.6%
1+ Financial Expert on Audit Committee (% of Assets)	88.4%	87.3%	88.6%	87.9%	87.1%	85.7%

- ESG key performance indicators are often backward-looking and represent a single point in time, like traditional investment financial metrics.
- Parent index universe changes can materially skew parent E,S and G metrics relative to ESG sub-indices.
- ESG index license fees are coming down (very marginally).

¹ See Appendix

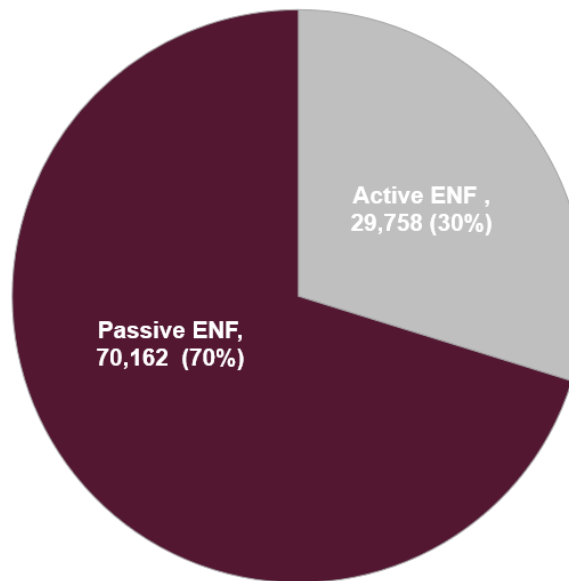
Passive Equity Sustainability Investment

Passive Equity Sustainability Investment

→ ESG Passive equity investing has grown tremendously.

- The largest percentage of inflows has been in passively managed investment strategies, about 70%, although total ESG assets passive still accounts for about 30% of total ESG assets.

ESG/SRI Estimated Net Flows Since Start 2020 (\$Mil)



Source: Refinitiv Lipper, July 2021. Past performance is no guarantee of future performance. Please see end for important legal disclosures.

Passive Equity Sustainability Investment (continued)

- Asset owners often have employed ESG passive equity as a dedicated share/carve out from total passive.
- Managed to a distinct ESG benchmark, such as a low carbon or Paris aligned index.
 - Employing an ESG index includes ESG index additional fees passed along through the asset manager.
- Managed in relation to an existing market-cap weighted index.
 - LGIM is now offering a new model that allows comingled assets to continue using a traditional market cap benchmark, at the same fee, and only pay an additional fee for a net zero trajectory fund when the fund outperforms the standard market cap benchmark.

Proxy Voting

Proxy Voting

- Proxy voting options for passive equity investing are also evolving.
- The standard traditional model for comingled funds is that the asset owner's proxies are voted by the manager according to the manager proxy voting policy.
- Under this model, the asset owner has the option of considering proxy voting alongside other key decision-making elements, such as fees, and operational abilities when retaining or reviewing passive managers.
- A new model, launched in 2022 by BlackRock allows asset owners in commingled funds, for no additional fee, to select which of approximately 10 different proxy voting guidelines from ISS that they prefer their proxies voted, if they should:
 - Want to align their passive equity voting with their active, if their active managers are voting according to an ISS guideline.
 - Are dissatisfied with BlackRock's proxy voting and prefer their proxies be voted using an ISS guideline, whether or not their active managers are voting according to the same ISS framework.

Engagement Potential

Engagement Potential

- Beyond voting proxies, engagement can further enhance an asset owner's efforts to address key risks.
- Engagement can occur with managers, policy makers and regulators, and with investee companies.
- Passive managers can be important actors in their engagement with investee companies and are being increasingly assessed by both their proxy voting track record, and their engagement efforts.

Engagement Potential (continued)

→ Additional engagement efforts by asset owners may follow various directions:

- Increase staff resources to engage with managers regulators and investee companies.
- Retain a firm to provide additional engagement services.
 - Federated Hermes offers such a model, to leverage their broad active engagement.
 - Glass Lewis recently launched an engagement service to leverage their broad proxy voting.
 - Consultants can provide directed engagement support to an asset owner's engagement with managers, regulators and to participate more actively in collaborative institutional investor engagement organizations such as Ceres.
- Increase staff resources and external service provider engagement support.

Conclusions

Conclusions

- Passive equity sustainability investing is both growing and evolving.
- Passive equity sustainability investing can consider how different options best fit with an asset owner's approach to ESG, taking into account:
 - ESG compared to standard market cap tracking error
 - Proxy voting record
 - Engagement options

Appendix

Sustainability Equity Indexes

WHITEPAPER

APRIL 2022

Environmental, Social, and Governance (“ESG”)¹ indices are no longer new. Some have been offered for over 30 years. In the last five years, ESG indices continued to mature to offer a new range of options that can be considered by institutional investors, particularly for indices that incorporate all E, S, and G considerations, and indices specifically addressing Environmental considerations.

This report reviews developments in the types of sustainability equity indices, categorizes these indices by their primary goals, describes the construction methodologies commonly used to build ESG indices, and provides key performance indicators (“KPIs”) for a sample of ESG indices. The report concentrates on the 51 ESG indices that were available from FTSE/Russell, MSCI and S&P Dow Jones Indices at the time of our analysis. Each provider also offers customized ESG indices. In addition to the ESG indices available from FTSE/Russell, MSCI, and S&P Dow Jones Indices reviewed here, other providers also offer ESG index products.

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¹ Please note that we use the terms “ESG” and “sustainability” interchangeably throughout this paper.

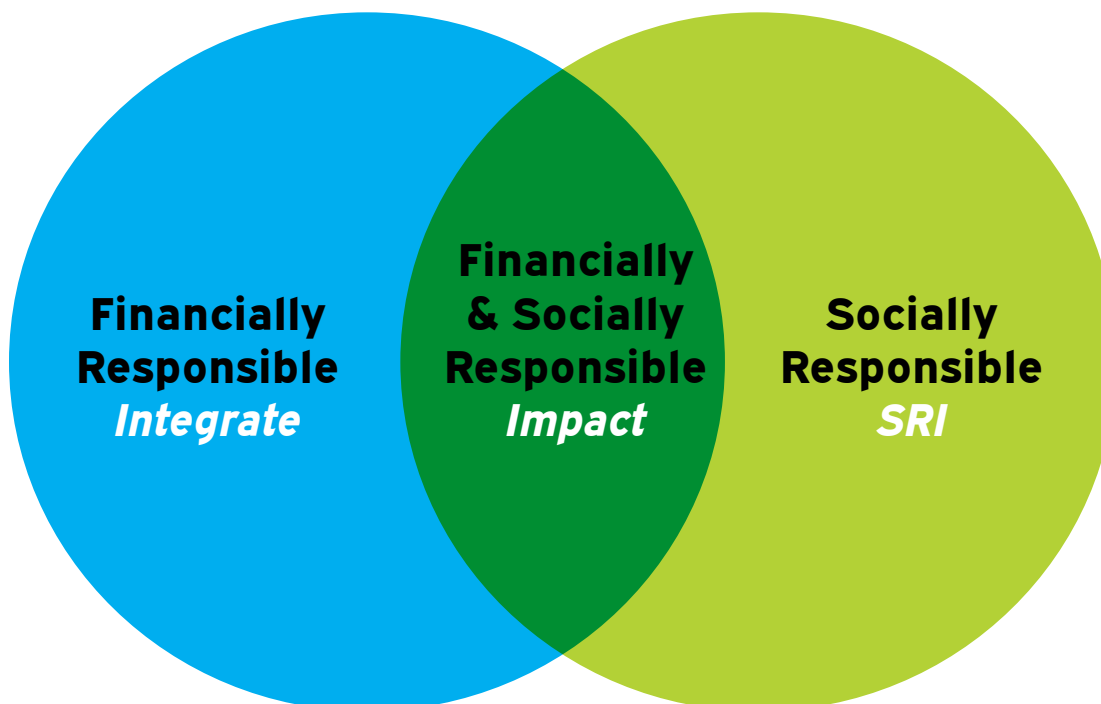


Table of Contents

Key findings 3

Overview 4

Investment financial performance for sample sustainability indices 8

E, S, and G KPIs for sample sustainability indexes 10

Conclusion 18

Appendix I: ESG index primary objective and construction approach 19

Appendix II: Summary descriptions of ESG indices 21

Appendix III: E, S, and G key performance indicator descriptions 28

Appendix IV: UN Sustainable Development Goals 29

Key findings

- **Focus on financial results were integral to the goals of roughly two-thirds of ESG equity indices.** Indices designed to integrate ESG factors for long-term financially responsible performance (Integrate) and indices designed for Impact (i.e., to meet and/or exceed market financial risk/return performance and generate a meaningful and quantifiable, where possible, environmental or social impact) together represented two-thirds of the 51 ESG indices offered by FTSE/Russell, MSCI and S&P Dow Jones Indices ("S&PDJI"). Socially responsible ("SRI") indices that focus on a socially responsible result without an explicit market or better risk/return goal accounted for the remaining third of these 51 indices.
- **ESG equity index construction approaches show reweighting securities is on the rise, but indexes built by excluding and/or selecting stocks still lead.** A growing number of sustainability indexes preserve the broad market exposure of the parent index (and consequently some parent index shareholder proxy voting and engagement potential) by reweighting the constituent stocks by ESG factor(s) rather than only excluding or selecting securities by ESG factors. Some ESG indexes maintain the parent index country, industry, and/or size characteristics to better match the return/risk of the parent index. A few ESG indexes are optimized to track the parent index risk and return within a relatively narrow range.
- **Expect more change.** Just as these indices evolved significantly over the previous five years, we expect further development in the coming years as the availability of ESG-related data increases and becomes more standardized. For example, climate-related indices are being augmented to incorporate Scope 3 greenhouse gas emissions (i.e., emissions from a company's supply chain and from the use of its products), instead of the sole focus on Scope 1 and Scope 2 emissions, and to address growing biodiversity concerns.
- **Comparability over time may be a challenge.** Index rule adjustments such as defining materiality; changing weights of underlying E, S, and G factors in ESG scores; introducing adjustments such as ESG momentum; and data quality improvements (as more companies report on ESG and reporting becomes more standardized) will likely enhance the fit of ESG indexes with institutional investor goals. However, these improvements may come at the expense of straight-forward historical comparability for any given index.
- **Consider stewardship ramifications in index selection.** There is increasing recognition that making changes to an investment portfolio such as divesting may not result in environmental and/or social changes in the real economy. At the same time, there is growing sophistication and some success in proxy voting and engagement efforts among institutional investors. Within this context, it can be valuable to understand and consider the relative breadth of the set of constituents for each ESG index compared to the parent index universe. From a stewardship perspective, indices that exclude companies or sectors may reduce the asset owner's ability to vote proxies and participate as a shareholder in engagement efforts.

- **ESG KPIs are often backward looking and represent a single point in time.** The E, S, and G KPIs we analyzed for a sample of ESG indexes often represent backward-looking assessments for a single point in time. The specific indicators may change over time. These considerations are similar to those with traditional financial metrics. Some indices are incorporating forward-looking metrics. Both backward- and forward-looking metrics may provide additional insights if they are tracked to observe patterns over time.
- **Parent index universe changes can materially skew parent E, S, and G metrics relative to ESG sub-indexes.** A notable example was in December 2020 when Tesla (TSLA) was added to the S&P 500® index. TSLA was later added to the S&P 500® ESG indexes at the regularly scheduled annual reconstitution for each index but after 2020 year-end. Thus, for example, as of December 31, 2020, the S&P 500® Weighted Average Green Revenue Share was over 10%, while each of its ESG sub-indexes fell below this level. This reconstitution inconsistency was rectified during 2021 and shows the sustainability sub-indices that added TSLA outperforming the parent index for green revenue share.
- **Asset managers are developing their own ESG indexes.** The overall market continues to shift as more asset managers offer ESG investment funds to represent the ESG indices of the major index providers and offer ESG investment funds based on the development of their own ESG indices and approaches to ESG.
- **ESG index license fees are coming down (very marginally).** ESG index license fees, even for simple indices like an ex-thermal coal index, still tend to be a few basis points higher than parent index license fees. While in part this may reflect the research required to develop and maintain sustainability indexes, it likely primarily reflects the much smaller relative market demand for ESG indices, compared to parent standard market cap weight indices, and index providers' ability to command higher prices at this juncture. Modest improvements have occurred in license fees for ESG indices compared to parent indices. We anticipate a continued trend toward more competitive license fees for ESG indices.

Overview

Rapid evolution in index construction and sustainability data exponentially broadened the type of indices available to benchmark sustainability equity portfolios and made passive equity investment in sustainability indices viable for a wide range of investor goals. Historically, sustainability equity investing primarily meant investing according to socially responsible values, typically labeled socially responsible investing ("SRI"). Investment strategies that went beyond simple exclusion of specific securities for a social or environmental value (such as ex-tobacco, ex-controversial weapons, or ex-fossil fuels) were few and mainly offered by active investment managers. Today, in addition to indices that capture social or environmental values without explicit concern for investment financial risk and return, indices are offered that seek improved risk-adjusted returns by integrating ESG risks (Integrate). Other sustainability indices are designed to generate both financially and socially responsible (Impact) outcomes.

The earliest published sustainability indexes from FTSE/Russell, MSCI, and S&P Dow Jones Indices incorporated environmental, social, and governance factors. The MSCI KLD² 400 Social Index was launched in 1990, the S&P Dow Jones Sustainability Index (“DJSI”) in 1999, and the FTSE/Russell FTSE4Good Index in 2001. The first Environmental (“E”) index – S&P Global Water – came to market in 2007. The first Social (“S”) index – MSCI ex-Controversial Weapons – launched in 2011. Governance (“G”) and Environmental & Social (“ES”) indexes appeared by 2015.

² KLD – Kinder, Lydenberg, and Domini, co-founders of institutional research firm. Please note that we use the terms “ESG” and “sustainability” interchangeably throughout this paper.

Sustainability indexes – number and types of indices

The number of sustainability indexes has grown exponentially over the past 20 years, from three in 2001, to seven by 2010, to 51 distinct sustainability index series (indices) available by the fourth quarter of 2021 from FTSE/Russell, MSCI and S&PDJI. Figure 1 summarizes the types of ESG indices available as of December 31, 2021.

Total Number of ESG Indices from FTSE/Russell, MSCI, and S&PDJI (4Q2021)					
Type of Index	Year First Index Type Launched	Total 2021 Year-End	FTSE Russell 2021 Year-End	MSCI 2021 Year-End	S&PDJI 2021 Year-End
Total		51	15	17	19
E,S&G	1990	20	6	6	8
E	2007	21	8	6	7
S	2011	6	1	3	2
G	2015	1	-	-	1
E&S	2015	2	-	1	1
S&G	2015	1	-	1	-

FIGURE 1
Total Number of ESG Indices

Source: FTSE/Russell, MSCI, and S&PDJI.

Among ESG indices, environmental indices are the most common with 21 available from these three providers. Each firm offers at least six E indices. E,S&G indices are next most common with 20 available. Each firm also offers at least six E,S&G indices. Today, there are a total of six S indices from these three providers, one G index, two E&S indices, and one Social & Governance (“S&G”) index.

Many environmental indices focus on reducing exposure to carbon emissions or to carbon reserves. Some incorporate reduced carbon exposure and higher green revenues. The FTSE Green Revenues indices concentrate on increasing green revenues. The underlying concept is that green revenues are being generated by very large companies that often have wide-ranging product lines in addition to green revenues, including oil and gas companies. For example, Valero, an energy and oil and gas refining company, generated 4.5% of its total revenue from ethanol biofuel in the first quarter of 2021. Some environmental index series capture specific submarkets, such as S&PDJI’s Global Water and Global Clean Energy indices.

Primary objectives and construction methods of sustainability indices. Sustainability indices can also be categorized by the primary investor goals they seek to achieve. Sustainability indices encompass a wide range of investor goals. As illustrated in Figure 2, index providers offer indices that: 1) integrate ESG to outperform the financial risk-adjusted return of the parent index (*Integrate*); 2) seek to generate a meaningful and quantifiable, where possible, ESG impact and meet or exceed financial risk-adjusted returns of the parent index (*Impact*); and 3) are designed to align with investor ethical/social values without necessarily generating a market risk-adjusted return comparable to that of the parent index (*SRI*).

Figures 2 and 3 describe these three categories of primary objectives for ESG indices and the general construction approaches used by index providers.

Primary Objectives			
Resulting Financial Expectations	Financially Responsible <i>Integrate</i>	Financially & Socially responsible <i>Impact</i>	Socially Responsible <i>SRI</i>
	Incorporate ESG criteria to enhance long-term return and/or manage financial risk compared to parent index	Seek to generate measurable social or environmental benefits and meet or exceed financial returns of parent index	Align with investor ethical/social/ political values
	Seek higher return gross of fees and/or lower risk than parent index; if optimized, meet parent index return and risk, gross of license fees	Meet or exceed parent index return and risk, gross of fees.	Potential for lower return and/or higher risk than parent index

FIGURE 2
Primary Objectives of ESG Indices

Source: Meketa Investment Group.

As shown in Figure 3, the number of indices designed to Integrate ESG (23) was slightly higher than the number of indices designed as SRI products (17). There were 11 Impact indices. Thus, financial risk/return is considered in 34 of the 51 indices – the Integrate and Impact indices. The majority of ESG indices use an Integrate approach, E indices use predominantly Integrate and Impact, while Social indices predominantly use an SRI approach. The primary objective for each index was determined by the index provider based on Meketa's definitions.

Type of Index	Total	Primary Objective		
		Integrate	Impact	SRI
Total	51	23	11	17
ESG	20	12	-	8
E	21	9	8	4
S	6	-	1	5
G	1	1	-	-
E&S	2	1	1	-
S&G	1	-	1	-

FIGURE 3
Primary Objectives of ESG Indices

Sources: FTSE/Russell, MSCI, & S&P DJI

As summarized in Figure 4, index providers use different approaches to incorporate ESG characteristics. Different construction methods can bring different overall portfolio considerations. For example, they may exclude securities that do not offer specific E, S, and/or G characteristics or select securities that offer specific E, S and/or G characteristics. Both approaches reduce portfolio diversification and give up shareholder voting rights and engagement opportunities for companies that do not fit the ESG characteristics that are being sought. Index providers also reweight the securities in a parent index thereby retaining shareholder voting rights and engagement access and broadly maintaining portfolio diversification, albeit reweighted by ESG factors.

Construction Approach	
ESG Characteristics	
Exclude	<ul style="list-style-type: none"> → Reduce exposure to unwanted ESG characteristics → Give up shareholder voting rights and engagement at companies with ESG concerns → Portfolio diversification reduced in accordance with reduction in number of securities compared to parent index
Select	<ul style="list-style-type: none"> → Retain shareholder rights and engagement on leaders within theme → Give up shareholder voting rights and engagement at all companies outside leaders within ESG theme → Portfolio diversification reduced in accordance with reduction in number of securities compared to parent index
Reweight	<ul style="list-style-type: none"> → Retain shareholder voting rights and engagement, reweighted by ESG priorities → Portfolio diversification reweighted by ESG factor(s)
Matching Parent Index Characteristics	
Optimize	→ Keep tracking error low and meet multiple sustainability objectives
Maintain	→ Match parent index industry, country, and/or size weights

FIGURE 4
ESG Index Construction

Source: Meketa Investment Group.

Some index construction approaches also seek to keep the tracking error to the parent index low and/or maintain the industry, country, and/or size weights of a parent index.

Most indices that Integrate ESG seek to maintain or optimize results compared to the parent index. Eighteen of the 23 Integrate-oriented indices employ either maintain or optimize construction techniques in relation to the parent. The remaining five indices that Integrate ESG combine S or G factors with other financial-oriented metrics to reweight or select stocks. For example, MSCI's Governance Quality Index reweights using G factors and traditional financial quality metrics. S&P Dow Jones Capex and Human Capital index series selects stocks that are proactively making investments in physical and human capital, using the S&P Global Corporate Sustainability Assessment human capital score, capital expenditures ("capex") revenue effect, and capex research and development ("R&D") growth.

Most Impact indices rely on selection to construct the index. Eight of the 11 Impact-oriented indexes are constructed by selecting securities based on sustainability criteria, of which seven rely on selection as the sole construction method. Most of these indices define strong ESG theme-based criteria to build relatively concentrated portfolios, such as MSCI's Global Environment and Women's Leadership indices and FTSE's Environmental Markets and Women on Boards Leadership indices. The S&PDJI Carbon Price Risk Adjusted and Global Carbon Efficient indices both reweight securities, while the S&P Paris Aligned & Climate Transition (PACT) indices exclude securities and then optimize to meet multiple objectives while minimizing tracking error.

SRI-oriented indices are typically constructed by excluding securities that conflict with the social or ethical values being sought. Ten of the 17 SRI-oriented sustainability indexes are constructed using exclusion alone. Three ESG indices that are SRI-oriented use selection as the sole construction approach, such as the S&P Dow Jones Sustainability Index. The remaining four use both exclusion and selection. Ex-fossil fuel and fossil fuel free indices are categorized as SRI indices because the construction approach excludes fossil fuel companies, without explicit financial investment goals.

Appendix I categorizes each of the 51 sustainability equity indices from FTSE/Russell, MSCI and S&PDJI by primary goals and identifies the construction approach. Appendix II includes additional descriptions of each index.

Investment financial performance for sustainability indices

For this report, we investigated the investment, financial and ESG performance of 14 sustainability indexes compared to a parent index. From each index provider, we reviewed an ESG index, an ex-fossil fuel index, a low carbon index, a Climate Transition or Climate Paris Aligned index, and an index focused on social issues as listed in Figure 5. These 14 indexes include a mixture of Integrate (I), Impact (M), and SRI (S) primary goals and various construction methods. The parent indexes are the FTSE Developed, MSCI World and S&P 500®.

Parent Index	FTSE Developed	MSCI World	S&P 500®
ESG Index	4-Good (S)	ESG Leaders (I)	ESG (I)
ex-Fossil Fuel Index	ex-Fossil Fuel (S)	ex-Fossil Fuel (S)	Fossil Fuel Free (S)
Low Carbon Index	Low Carbon Select (I)	Low Carbon Target (I)	Global Carbon Efficient (M)
Climate Index	TPI Climate Transition (I)	Climate Paris Aligned (I)	Net Zero 2050 Paris Aligned ESG (M)
Social Index	-	Women's Leadership (M)	E&S Responsible (I)

FIGURE 5
Fourteen Sample Sustainability Indices
Sources: FTSE/Russell, MSCI, S&PDJI.

Please note that index providers offer similarly named indexes using different data sources and definitions. For example, The FTSE ex-Fossil Fuel indices exclude companies that own proved or probable reserves in coal, oil, or gas. The MSCI ex-Fossil Fuel Indices exclude companies that have proved and probable coal reserves and/or oil and natural gas reserves used for energy purposes. The S&P 500® Fossil Fuel Free Index excludes companies that own proven or probable fossil fuel reserves with greater than 50% recovery probability. Summary descriptions of all 51 indices may be found in Appendix II.

In this section, we review the annualized return, risk (standard deviation), Sharpe ratio, and tracking error compared to the parent index for the trailing one, three- and five-year periods ending December 31, 2021 as summarized in Figure 6 (FTSE), Figure 7 (MSCI) and Figure 8 (S&PDJI). We note that the financial performance history reviewed here is limited and includes a period of significant economic and market upheaval due to Covid-19 in US and global markets.

The ex-fossil fuel indexes from all three index providers outperformed their respective parent indexes during the three- and five-year trailing periods, as measured by

higher annualized returns and higher Sharpe ratios. For each provider's ex-fossil fuel index, the five-year tracking error to their respective parent index was below 0.8% per annum. These ex-fossil fuel indexes provide examples of SRI indexes (indexes constructed without any explicit goal to meet or exceed market investment investment financial returns) that during these time periods did outperform their parent index returns.

Among the four FTSE Developed ESG indexes reviewed, the returns were in-line with or above that of the parent index, with the FTSE 4Good Index performing the best during the periods reviewed, as shown in Figure 6. The FTSE Developed 4Good Index included less than half of the constituents of the parent FTSE Developed Index (1,058:2,211). Among the four FTSE Developed Sustainability indexes reviewed here, this index held the least number of constituents and second highest five-year tracking error after the Low Carbon Emissions Select Index.

Name of Index (Primary Goal I, M, S)	No. of Firms	Weighted Avg Mkt Cap (\$B)	Gross Return			Risk (Std Deviation)			Sharpe Ratio			Tracking Error
			1-Yr (%)	3-Yr (%)	5-Yr (%)	1-Yr (%)	3-Yr (%)	5-Yr (%)	1-Yr (%)	3-Yr (%)	5-Yr (%)	5-Yr (%)
FTSE Developed	2,211	397.2	21.4	21.9	15.5	10.8	18.3	15.4	1.98	1.20	1.00	-
4Good (S)	1,058	498.8	23.6	22.8	16.1	10.9	18.4	15.5	2.17	1.24	1.04	1.51
ex-Fossil Fuels (S)	2,117	411.8	21.0	22.9	16.2	10.9	18.2	15.4	1.94	1.26	1.05	0.76
Low Carbon Emissions Select (I)	2,105	410.0	22.6	22.4	16.0	10.5	18.5	15.6	2.16	1.21	1.02	1.63
TPI Climate Transition (I)	2,052	403.7	23.5	22.4	15.5	10.6	18.4	15.5	2.23	1.22	1.00	1.38

FIGURE 6
Sample ESG Indexes - FTSE
Annualized Risk-Return
Statistics (Periods Ending
December 31, 2021)

Source: FTSE/Russell. Green highlight indicates outperformance of parent index; yellow highlight marks underperformance of parent index; no highlight indicates results equal parent index

Among the five MSCI World ESG indexes reviewed, the Climate Paris Aligned Index generated the highest returns and highest Sharpe ratios over the trailing three- and five-year periods, while the ESG Leaders Index led in these two metrics over the trailing one-year period as shown in Figure 7. The MSCI World Climate Paris Aligned index was comprised of 655 from the 1,546 constituents of the MSCI World (42%). The MSCI World ESG Leaders index included 712 of the 1,546 (46%) MSCI World constituents.

Name of Index (Primary Goal I, M, S)	No. of Firms	Weighted Avg Mkt Cap (\$B)	Gross Return			Risk (Std Deviation)			Sharpe Ratio			Tracking Error
			1-Yr (%)	3-Yr (%)	5-Yr (%)	1-Yr (%)	3-Yr (%)	5-Yr (%)	1-Yr (%)	3-Yr (%)	5-Yr (%)	5-Yr (%)
MSCI World	1,546	418.8	22.3	22.3	15.6	10.0	17.3	15.0	2.07	1.20	0.96	-
ESG Leaders (I)	712	368.6	25.3	23.2	16.1	11.2	16.8	14.7	2.08	1.27	1.01	1.52
ex-Fossil Fuels (S)	1,469	433.5	21.9	23.3	16.4	10.2	17.0	14.8	2.00	1.26	1.02	0.71
Low Carbon Target (I)	1,267	393.3	22.1	22.7	15.8	10.1	17.4	15.1	2.02	1.21	0.97	0.32
Climate Paris Aligned (I)	655	364.8	22.4	23.7	17.0	10.4	17.1	14.8	2.00	1.28	1.05	1.18
Women's Leadership (M)	629	65.1	18.3	19.2	13.6	10.1	19.5	16.5	1.71	0.95	0.78	3.10

FIGURE 7
Sample ESG Indexes - MSCI
Annualized Risk-Return
Statistics (Periods Ending
December 31, 2021)

Source: MSCI. Green highlight indicates outperformance of parent index; yellow highlight marks underperformance of parent index; no highlight indicates results equal parent index.

For the five S&P 500® ESG indexes, all except the Carbon Efficient Index generated returns, risk, and Sharpe ratios for each trailing period that were relatively in-line with each other and outperformed the S&P 500® parent index as shown in Figure 8. The S&P 500® ESG Index generated the best performance for the one-year period and the S&P 500® Net Zero 2050 Paris-Aligned ESG Index led over the three- and five-year periods, as measured by annualized returns and Sharpe ratios. Of the 505 constituents in the parent index, the S&P 500® ESG and Net Zero 2050 indexes respectively held 310 and 279 holdings.

Name of Index (Primary Goal I, M, S)	No. of Firms	Weighted Avg Mkt Cap (\$B)	Gross Return			Risk (Std Deviation)			Sharpe Ratio			Tracking Error
			1-Yr (%)	3-Yr (%)	5-Yr (%)	1-Yr (%)	3-Yr (%)	5-Yr (%)	1-Yr (%)	3-Yr (%)	5-Yr (%)	5-Yr (%)
S&P 500®	505	597.8	28.7	26.1	18.5	11.0	17.4	15.4	2.60	1.50	1.20	-
ESG (I)	310	543.6	31.8	28.2	19.7	11.7	17.3	15.3	2.73	1.63	1.28	1.25
Fossil Fuel Free (S)	489	607.8	28.4	26.8	19.2	11.4	17.2	15.3	2.49	1.56	1.26	0.66
Carbon Efficient (M)	490	653.4	28.8	26.2	18.5	11.4	17.6	15.5	2.53	1.49	1.19	0.59
Net Zero 2050 Paris Aligned ESG Index (M)	279	483.2	31.6	29.2	20.9	12.1	17.4	15.5	2.60	1.68	1.35	1.42
E&S Responsible (I)	290	747.9	29.9	27.7	19.8	11.3	17.1	15.2	2.65	1.62	1.30	1.41

FIGURE 8
Sample ESG Indexes - S&PDJI Annualized Risk-Return Statistics (Periods Ending December 31, 2021)

Source: S&PDJI. Green highlight indicates outperformance of parent index; yellow highlight marks underperformance of parent index; no highlight indicates results equal parent index.

E, S, and G KPIs for sample sustainability indexes

This section explores E, S, and G metrics using Institutional Shareholder Services ("ISS")³ ESG and Sustainable Development Goals ("SDG")⁴ data for each of the 14 sustainability indices discussed in the previous section and compares them to their respective parent indices. We note that each index provider uses different ESG metrics and different sources than ISS to construct their ESG indices. FTSE/Russell builds its ESG indices using data from FTSE/Russell, Sustainalytics, and TPI. MSCI is the primary/sole ESG and climate data provider for constructing MSCI ESG and climate indexes. The S&PDJI leverages primary in-house data sources including S&P Global Trucost for climate data and the S&P Global Corporate Sustainability Assessment to build core ESG indices similar to MSCI.

Description of E, S, and G KPIs

To provide some perspective on these 14 sustainability indices using E, S, and G KPIs, we selected a few environmental, social and governance metrics. As briefly described in Appendix III, the environmental factors encompass measures of carbon emissions, green revenue share, climate risk disclosure and targets. These metrics are supplemented by an

³ Data provider for ESG and SDG data.

⁴ See Appendix IV. Released by UN General Assembly for betterment of humanity.

exploration of the exposure to fossil fuel reserve owners, thermal coal revenue, and revenue from fossil fuel.

The social factors include measures of racial and gender diversity on corporate boards. An additional table identifies the top five companies within each index that had UN Global Compact verified violations. Each of these data points and their specific measurements can be approached in different ways. As one example, many providers exclude based on United Nations Global Compact (“UNGC”) data, and many providers may disagree on the use of UNGC as a factor.

The tables below present these E, S, and G KPIs for the 14 sustainability indexes reviewed here.

FTSE Developed E, S, and G KPIs

As shown in Figure 9, the FTSE Developed 4 Good, ex-Fossil Fuel, Low Carbon and TPI Climate Transition indexes each showed better environmental KPIs than the FTSE Developed Index, including weighted average carbon emissions, percent of assets allocated to companies that report at least Scope 1 and Scope 2 greenhouse gas emissions to the Climate Disclosure Project (“CDP”), and the percent of assets of companies that have Science Based Targets for emissions reductions.

E, S, and G KPI	FTSE Dvd	FTSE Dvd 4 Good	FTSE Dvd ex-Fossil Fuel	FTSE Dvd Low Carbon	FTSE Dvd TPI Climate Transition
No. of Constituents	2,211	1,058	2,117	2,105	2,052
Environment					
Weighted Avg. Carbon Emissions Intensity	129.1	101.7	101.5	61.8	66.1
Weighted Avg. Green Revenue Share	9.7%	9.6%	9.9%	9.9%	9.2%
Disclosure- CDP Reporting (% Assets)	75.5%	91.8%	76.8%	90.2%	88.7%
Science Based Targets (% Assets)	31.4%	38.1%	32.7%	49.0%	41.2%
Social					
% Women on Board (DB)	31.6%	33.1%	31.6%	34.6%	33.5%
% Ethnic Diversity on Board	69.3%	64.8%	69.6%	69.3%	70.5%
Governance					
Companies w/ Different Voting Share Classes (% Assets)	14.0%	13.9%	13.3%	10.9%	12.0%
Weighted. Avg. % Independent Board (%)	75.2%	76.0%	75.5%	78.1%	76.6%
1+ Financial Expert on Audit Committee (% of Assets)	89.5%	89.1%	89.4%	91.1%	89.6%

FIGURE 9
FTSE Developed ESG Sample Indexes – E, S, and G KPIs

Sources: FTSE/Russell; ISS ESG and SDG Data. Green highlight indicates outperformance of parent index; yellow highlight marks underperformance of parent index; no highlight indicates results equal parent index.

The social indicators for the FTSE Developed ESG indexes reviewed here, as measured by the percent of women on boards and the percent of assets of companies with ethnic diversity on their board, generated results that closely aligned with that of the FTSE Developed parent index. These metrics offer very broad indicators regarding gender and ethnic diversity. More detailed analyses of board, executive and overall staff diversity may generate greater distinctions between the ESG indexes and the parent index.

The metrics for the governance KPIs indicated that the four ESG FTSE Developed indexes all generated roughly similar results but performed modestly better than the FTSE Developed parent index for the weighted average percent of board members that are independent. All four indexes also showed a lower percent of assets with different voting class shares than the parent FTSE Developed index. The 4Good and ex-Fossil Fuel indexes showed a slightly lower percent of assets allocated to companies that had at least one financial expert on their audit committee.

Figure 10 highlights the fossil fuel exposure of the four FTSE Developed ESG indexes reviewed here. Each ESG index showed a lower percent exposure to fossil fuel reserve owners and a lower exposure to companies with greater than 50% of revenues from fossil fuels (energy and extractives) than the parent FTSE Developed index. The percent of assets from companies with greater than 20% thermal coal revenues was less than 0.1% in the FTSE Developed parent index, representing two of the total 2,211 companies. Not surprisingly, each FTSE Developed ESG index registered zero revenues from companies with greater than 20% thermal coal revenues.

Index	# of Constituents	Fossil Fuel Reserves Owners	>20% Thermal Coal Revenue	> 50% Fossil Fuel Revenue
FTSE Developed: % of Assets		4.7%	0.01%	4.2%
FTSE Developed: # of Companies	2,211	86	2	106
FTSE Developed 4 Good: % of Assets	1,058	3.3%	0.00%	2.8%
FTSE Developed ex-Fossil Fuel: % of Assets	2,117	0.4%	0.00%	1.7%
FTSE Developed Low Carbon: % of Assets	2,105	2.3%	0.00%	1.2%
FTSE Developed TPI Climate Transition: % of Assets	2,052	1.8%	0.00%	1.6%

FIGURE 10
FTSE Developed ESG
Sample Indexes – Fossil Fuel
Exposure

Sources: FTSE/Russell; ISS ESG and SDG Data. Green highlight indicates outperformance of parent index.

The number of violations of the UN Global Compact Ten Principles provides an additional indication of the social responsibility of the companies in a portfolio. To provide some additional perspective on the differences between the FTSE Developed ESG indexes reviewed and the parent FTSE Developed index, we identified the five companies in the FTSE Developed Index with the highest number of UN Global Compact violations. In Figure 11, we show the weight of each company in the FTSE Developed Index and in each ESG index. As illustrated, the FTSE Developed 4 Good Index had no exposure to four of the top five UN Global Compact violators and slightly increased exposure to one of the five companies. In contrast, the FTSE Developed ex-Fossil Fuel and TPI indexes showed a slightly higher relative exposure to four of the five companies than the FTSE Developed parent index. The Low Carbon index held lower or zero weights in the top five companies with the highest number of UN Global Compact violations.

Name of Company	Fresenius Medical	Airbus SE	Alphabet Inc.	Porsche Automobil	LM Ericsson
Number of Violations	8	7	5	4	4
Weight – Parent	0.047%	0.112%	2.642%	0.023%	0.053%
Weight – 4Good	-	-	4.295%	-	-
Weight - ex-FF	0.049%	0.118%	2.784%	0.024%	0.001%
Weight - Low Carbon	-	-	1.280%	-	0.239%
Weight - TPI	-	0.144%	3.232%	0.150%	0.057%
Principle Violated Most, No. of Times Violated	Principle 10 – Corruption, 8x	Principle 10 – Corruption, 7x	Principle 10 – Corruption, 4x	Principles 7-9 – Environment, 3x	Principle 10 – Corruption, 4x
GICS Sector	Health Care	Industrials	Communication Services	Consumer Discretionary	Information Technology

Broadly, we find that for the FTSE Developed ESG indexes reviewed here each index generates E, S and/or G metrics that are generally better than the parent index.

MSCI World E, S, and G KPIs

Figure 12 summarizes E, S, and G KPIs for the five MSCI World ESG indexes reviewed.

E, S, and G KPI	MSCI World	MSCI World ESG Leaders	MSCI World ex-Fossil Fuel	MSCI World Low Carbon Target	MSCI World Climate Paris Aligned	MSCI World Women's Leadership
No. of Constituents	1,546	712	1,469	1,267	655	629
Environment						
Weighted Avg. Carbon Emissions Intensity	130.3	70.4	100.2	58.4	27.9	129.1
Weighted Avg. Green Revenue Share	9.8%	12.2%	10.1%	9.6%	14.6%	8.9%
Disclosure- CDP Reporting (% Assets)	74.3%	81.0%	75.8%	75.1%	76.3%	67.5%
Science Based Targets (% Assets)	34.0%	41.9%	35.3%	34.6%	36.4%	26.6%
Social						
% Women on Board (DB)	31.6%	31.6%	31.7%	31.5%	31.9%	37.4%
% Ethnic Diversity on Board	66.6%	65.1%	67.6%	66.6%	63.3%	51.5%
Governance						
Companies w/ Different Voting Share Classes (% Assets)	12.6%	10.4%	12.0%	12.3%	14.2%	13.6%
Weighted. Avg. % Independent Board (%)	75.3%	76.0%	75.7%	75.0%	73.9%	72.6%
1+ Financial Expert on Audit Committee (% of Assets)	88.4%	87.3%	88.6%	87.9%	87.1%	85.7%

FIGURE 11
FTSE Developed ESG Sample Indexes – Five Companies with Highest Number of UN Global Compact Violations

Sources: FTSE/Russell; ISS ESG and SDG Data. Green highlight indicates outperformance of parent index; yellow highlight marks underperformance of parent index; no highlight indicates results equal parent index.

FIGURE 12
MSCI World Sample ESG Indexes – E, S and G Key Performance Indicators Data as of December 31, 2021

Sources: MSCI; ISS ESG and SDG Data. Green highlight indicates outperformance of parent index; yellow highlight marks underperformance of parent index; no highlight indicates results equal parent index.

Regarding environmental KPIs, the MSCI World Climate Paris Aligned Index most significantly outperformed the parent MSCI World in both Weighted Average Carbon Emissions Intensity and Weighted Average Green Revenue Share. The MSCI World ESG Leaders Index included the highest percentage of CDP disclosure and percent of assets that had Science Based Targets for reducing emissions.

Like the results for the FTSE Developed ESG indexes, the board gender and ethnic diversity metrics shown here for the five MSCI ESG indexes generally produced results closely aligned to those for the MSCI World parent index. One exception was the MSCI World Women's Leadership Index, which showed higher board gender diversity but markedly lower board ethnic diversity than the parent MSCI World index, reflecting distinctions within the MSCI World index universe between gender and ethnic board diversity.

The governance KPIs for the five MSCI World ESG indexes reviewed were similar to those of the MSCI World Index with some marginally better and some marginally worse than the MSCI World parent index.

Regarding the fossil fuel exposure of the five sample MSCI World ESG indexes, as shown in Figure 13, all five ESG indexes exhibited a lower percent exposure to fossil fuel reserve owners, to companies with greater than 20% thermal coal revenues, and to companies with greater than 50% revenues from fossil fuels. The MSCI Climate Paris Aligned Index exhibited the lowest fossil fuel exposure among these five MSCI World ESG indexes. The MSCI Climate Paris Aligned Index held 655 of the 1,546 constituents in the MSCI World universe, compared to the 629 constituents in the MSCI Women's Leadership Index, 712 constituents in the MSCI World ESG Leaders Index, and respectively 1,267 and 1,469 constituents in the MSCI World Low Carbon Target and ex-Fossil Fuel indexes.

Index	# of Constituents	Fossil Fuel Reserves Owners	>20% Thermal Coal Revenue	> 50% Fossil Fuel Revenue
MSCI World: % of Assets		4.4%	0.03%	4.1%
MSCI World: # of Companies	1,546	64	1	85
MSCI ESG Leaders: % of Assets	712	1.4%	0.00%	2.2%
MSCI ex-Fossil Fuels: % of Assets	1,469	0.5%	0.00%	1.4%
MSCI Low Carbon Target: % of Assets	1,267	2.1%	0.00%	2.6%
MSCI Climate Paris Aligned: % of Assets	655	0.4%	0.00%	0.0%
MSCI Women's Leadership: % of Assets	629	2.7%	0.00%	3.7%

FIGURE 13
MSCI World Sample ESG Indexes – Fossil Fuel Exposure

Sources: MSCI; ISS ESG and SDG Data. Green highlight indicates outperformance of parent index.

Figure 14 illustrates the weight of the five companies in the MSCI World with the highest number of UN Global Compact violations and their corresponding weight in each ESG index. As illustrated, the MSCI World Women's Leadership Index had exposure to only one of the top five UN Global Compact violators in the MSCI World Index, albeit at a relatively higher weight than the parent index. In contrast, the MSCI World ex-Fossil Fuel Index includes all five companies and had a slightly higher exposure to all of them than the MSCI World Index. The Low Carbon index held lower or zero weight in a few of the top five companies with violations, but a slightly increased weight in two of the top five companies with the highest number of UN Global Compact violations. The MSCI World Climate Paris Aligned Index had exposure to two of the top five companies with UN Global Compact violations with one weighted slightly above and the other weighted slightly below the parent index. The MSCI World ESG Leaders Index had exposure to two of the top five companies with UN Global Compact violations with one of the two being substantially overweight.

Name of Company	Fresenius Medical	Airbus SE	Alphabet Inc.	Porsche Automobil	LM Ericsson
Number of Violations	8	7	5	4	4
Weight - Parent	0.048%	0.121%	2.735%	0.023%	0.052%
Weight - ESG Leaders	-	-	5.397%	-	0.102%
Weight - ex-FF	0.051%	0.127%	2.874%	0.025%	0.054%
Weight - Low Carbon	0.027%	0.130%	2.741%	0.003%	0.049%
Weight - Climate Paris	-	-	2.702%	-	0.093%
Weight - Women's	0.173%	-	-	-	-
Principle Violated Most, No. of Times Violated	Principle 10 – Corruption, 8x	Principle 10 – Corruption, 7x	Principle 10 – Corruption, 4x	Principles 7-9 – Environment, 3x	Principle 10 – Corruption, 4x
GICS Sector	Health Care	Industrials	Communication Services	Consumer Discretionary	Information Technology

FIGURE 14
MSCI World Sample ESG Indexes – Five Companies with the Highest Number of UN Global Compact Violations

Sources: MSCI – and ISS ESG and SDG Data. Green highlight indicates outperformance of parent index; yellow highlight marks underperformance of parent index; no highlight indicates results equal parent index.

Broadly, we find for the MSCI World ESG indexes reviewed here that each index generates E, S, and/or G metrics that outperform the parent index.

S&P 500® E, S and G KPIs

Figure 15 summarizes the high-level E, S, and G KPIs for the five S&P 500® ESG indexes reviewed. Regarding environmental KPIs, all five S&P 500® ESG indexes outperformed the S&P 500® parent index in weighted average carbon emissions intensity and CDP disclosure. The S&P 500® ESG indexes illustrate how timing differences in adding or removing specific companies from the parent index can have material near-term impacts on how ESG sub-indexes compare to the parent index.

In December 2020, results for the Weighted Average Green Revenue Share of the ESG indexes underperformed the S&P 500® parent index due to the addition of Tesla (TSLA) in December 2020 to the parent index. Tesla was added to the ESG indexes reviewed here after December 2020, in accordance with each index's annual reconstitution. The S&P 500® E&S Responsible Index is the only one of the five ESG indexes reviewed here that did not add TSLA after it had been added to the S&P 500®. By December 31, 2021, when the four ESG indexes that added TSLA as a constituent had completed this addition, they each outperformed the parent index on Weighted Average Green Revenue Share. Generally, the S&P 500® ESG indexes reviewed here registered social and governance KPI results largely in-line with the S&P 500® parent index with some results slightly underperforming and some slightly outperforming the parent index, using the S and G metrics identified for this report.

E, S, and G KPI	S&P 500®	S&P 500® ESG	S&P 500® E&S Responsible	S&P 500® Fossil Fuel Free	S&P 500® Carbon Efficient	S&P 500® Net Zero Paris Aligned ESG
No. of Constituents	505	310	290	489	490	279
Environment						
Weighted Avg. Carbon Emissions Intensity	127.2	95.0	116.1	115.9	97.1	14.0
Weighted Avg. Green Revenue Share	11.3%	13.1%	10.5%	11.5%	11.5%	11.9%
Disclosure- CDP Reporting (% Assets)	75.5%	82.9%	85.8%	76.6%	77.1%	84.7%
Science Based Targets (% Assets)	33.6%	37.4%	42.3%	34.3%	34.4%	31.4%
Social						
% Women on Board (DB)	32.1%	32.5%	33.3%	32.1%	32.0%	31.0%
% Ethnic Diversity on Board	97.2%	97.1%	96.9%	97.3%	97.4%	95.6%
Governance						
Companies w/ Different Voting Share Classes (% Assets)	9.9%	7.8%	10.7%	10.1%	9.7%	11.7%
Weighted. Avg. % Independent Board (%)	83.2%	83.9%	84.2%	83.2%	83.5%	81.9%
1+ Financial Expert on Audit Committee (% of Assets)	97.7%	97.1%	97.0%	97.6%	97.8%	95.5%

FIGURE 15
E, S, and G KPIs for S&P 500 Select Sustainability Indexes as of December 31, 2021.

Sources: S&PDJI, ISS ESG and SDG Data. Green highlight indicates outperformance of parent index; yellow highlight marks underperformance of parent index; no highlight indicates results equal parent index.

As shown in Figure 16, The S&P 500® Index included no constituents with greater than 20% in revenues from thermal coal as of December 31, 2021, and thus, each of the five ESG indexes reviewed here held no exposure to such companies. All five of the S&P 500® ESG indexes registered lower exposure to fossil fuel reserve owners and to companies with greater than 50% revenues from fossil fuels with the S&P 500® Net Zero Paris Aligned Index showing the lowest exposure to fossil fuel reserve owners and companies with greater than 50% revenues from fossil fuels.

Index	# of Constituents	Fossil Fuel Reserves Owners	>20% Thermal Coal Revenue	> 50% Fossil Fuel Revenue
S&P 500®: % of assets		3.8%	0.00%	3.7%
S&P 500®: # of Companies	505	17	0	35
S&P 500® ESG: % Assets	310	2.7%	0.00%	2.9%
S&P 500® E&S Responsible: % Assets	290	0.6%	0.00%	1.9%
S&P 500® Fossil Fuel Free: % Assets	489	1.8%	0.00%	1.7%
S&P 500® Carbon Efficient: % Assets	490	3.2%	0.00%	2.7%
S&P Net Zero Paris Aligned ESG: % Assets	279	0.1%	0.00%	0.0%

FIGURE 16
S&P 500® Sample ESG Indexes: Fossil Fuel Exposure

Sources: S&PDJI and ISS ESG and SDG Data. Green highlight indicates outperformance of parent index.

As shown in Figure 17, the five constituents of the S&P 500® Index with the highest number of UN Global Compact violations include four leading IT/communication services companies (Alphabet, Amazon, Apple, and Meta/Facebook) and Philip Morris. The S&P 500® Net Zero Paris Aligned ESG Index had lower or no exposure to four of these companies; however, it had nearly twice the exposure to Alphabet. Both the S&P 500® ESG Leaders and E&S Responsible indexes have zero exposure to Phillip Morris but higher exposure to three of the four IT companies. The S&P 500® Fossil Fuel Free and Carbon Efficient indexes each registered only slight variations in holdings of these five securities as compared to the parent S&P 500® index.

Name of Company	Alphabet Inc.	Amazon.com, Inc.	Apple Inc.	Meta Platforms, Inc.	Philip Morris
Number of Violations	5	2	2	2	2
Weight – Parent	4.164%	3.604%	6.858%	1.972%	0.366%
Weight – ESG Leaders	5.450%	4.716%	8.975%	-	-
Weight – E&S Responsible	5.681%	4.916%	9.356%	2.690%	-
Weight – FFF	4.259%	3.685%	7.013%	2.017%	0.375%
Weight – Carbon Efficient	3.855%	3.921%	7.796%	1.959%	0.393%
Weight – Paris Aligned	8.096%	-	6.723%	1.853%	-
Principle Violated Most, No. of Times Violated	Principle 10 – Corruption, 3x	Principle 10 – Corruption, 2x	Principle 1 – Human Rights; Principle 10 – Corruption	Principle 1 – Human Rights, 2x	Principle 10 – Corruption, 2x
GICS Sector	Communication Services	Consumer Discretionary	Information Technology	Communication Services	Consumer Staples

FIGURE 17
S&P 500® Sample ESG Indexes: Five Companies With Highest Number of UN Global Compact Violations

Sources: S&PDJI and ISS ESG and SDG Data. Green highlight indicates outperformance of parent index; yellow highlight marks underperformance of parent index; no highlight indicates results equal parent index.

In keeping with the findings for the FTSE Developed and MSCI World indexes reviewed previously, we find for the S&P 500® ESG indexes that generally each index generates E, S, and/or G metrics that outperform the parent index.

Conclusion

The widening range of sustainability index families present new possibilities for passive equity investing and for benchmarking active equity portfolios. Going forward, we anticipate both continued refinement of existing sustainability index approaches and the introduction of new indices.

ESG indices that are designed to integrate ESG metrics to enhance returns and/or lower risk of the parent index that we reviewed did not always achieve that goal during the 5-year period reviewed. We believe these results generally reflect natural market movements. Depending on the ESG index construction method, an ESG index may use long-term factors that move in and out of favor over short-term market cycles, similar to many traditional factors (e.g., value or growth indices).

Consideration of any specific sustainability index, either for a core equity portfolio, a satellite equity investment fund, or as a benchmark for an actively managed equity fund, should include a careful review of the primary investment goals of the index; analysis of how the index construction is expected to effect risk, return, diversification, shareholder voting and engagement, and ESG exposure on the issues of concern; and index license fees.

Appendix I: ESG index primary objective and construction approach

Index ESG Category and Index Name	Index Construction Approach	Index Primary Objective		
		Integrate	Impact	SRI
FTSE/Russell, MSCI and S&PDJI	51	23	11	17
FTSE/Russell	15	9	3	3
ESG-Blossom Japan	Exclude, Select	X		
ESG-Russell ESG	Reweight, Maintain	X		
ESG-Global ESG	Reweight, Maintain	X		
ESG-ESG Low Carbon Select	Reweight, Maintain	X		
E-EPRA NAREIT Green	Reweight, Maintain	X		
E-Global Climate	Reweight, Maintain	X		
E-Smart Sustainability	Reweight, Maintain	X		
E-TPI* Climate Transition	Reweight, Maintain	X		
E-Paris Aligned	Reweight, Maintain	X		
E-Divest Invest	Exclude, Select, Reweight		X	
E-Environmental Markets	Select		X	
S-Women on Boards Leadership	Select		X	
ESG-FTSE4Good	Exclude, Select			X
ESG-Global Choice	Exclude, Select			X
E-ex-Fossil Fuel	Exclude			X

FIGURE 18
FTSE/Russell ESG Index
Primary Objective and
Construction Approach

Source: FTSE/Russell, MSCI, and S&PDJI.

*TPI – Transition Pathway Initiative

Index ESG Category and Index Name	Index Construction Approach	Index Primary Objective		
		Integrate	Impact	SRI
MSCI	17	7	3	7
ESG-ESG Leaders	Exclude, Select, Maintain	X		
ESG-ESG Focus	Exclude, Reweight, Optimize	X		
ESG-ESG Universal	Exclude, Reweight, Maintain	X		
E-Low Carbon Target	Reweight, Optimize	X		
E-Low Carbon Leaders	Exclude, Reweight, Optimize	X		
E-Climate Change	Exclude, Reweight, Maintain	X		
E-Climate Paris Aligned	Exclude, Reweight, Optimize	X		
ES-Sustainable Impact	Select		X	
E-Global Environment	Select		X	
SG-Women's Leadership	Select		X	
ESG-SRI*	Exclude, Select, Maintain			X
ESG-KLD 400 Social	Exclude, Select, Maintain			X
ESG-ESG Screened	Exclude			X
E-ex-Fossil Fuel	Exclude			X
S-ex-Controversial Weapons	Exclude			X
S-ex-Tobacco Involvement	Exclude			X
S-Faith Based	Exclude			X

FIGURE 19
MSCI ESG Index Primary
Objective and Construction
Approach

Source: FTSE/Russell, MSCI, and S&PDJI.

*SRI – Socially Responsible Investing

Index ESG Category and Index Name	Index Construction Approach	Index Primary Objective		
		Integrate	Impact	SRI
S&P Dow Jones Indices	19	7	5	7
ESG-Dow Jones Select ESG RE Securities	Exclude, Reweight	X		
ESG-S&P ESG Elite	Exclude, Select, Maintain	X		
ESG-S&P ESG	Exclude, Select, Maintain	X		
ESG-S&P Select Equal Weight ESG	Select, Reweight	X		
ES-S&P International Environmental & Socially Responsible	Exclude, Reweight, Optimize	X		
ESG-Dow Jones Sustainability Diversified	Exclude, Select, Maintain	X		
G-S&P/Drucker Institute Corporate Effectiveness	Select	X		
E-S&P Carbon Price Risk Adjusted	Reweight		X	
E-S&P Global Carbon Efficient	Reweight		X	
E-S&P Paris Aligned & Climate Transition (PACT)	Exclude, Optimize		X	
E-S&P Global Clean Energy	Select		X	
E-S&P Global Water	Select		X	
ESG-Dow Jones Sustainability	Select			X
ESG-S&P ESG Exclusion	Exclude			X
ESG-S&P Sustainability Screened	Exclude			X
E-S&P Fossil Fuel Free	Exclude			X
E-S&P/TSX* Renewable Energy and Clean Technology	Select			X
S-JPX*/S&P CAPEX & Human Capital	Select			X
S-S&P Catholic Values	Exclude			X

FIGURE 20
S&P Dow Jones ESG Index
Primary Objective and
Construction Approach

Source: FTSE/Russell, MSCI, and S&PDJI.

*TSX – Toronto Stock Exchange

*JPX – Japan Exchange Group

Appendix II: summary descriptions of ESG indices

This appendix provides summary descriptions of the indexes provided by FTSE/Russell, MSCI, and S&P Dow Jones Indices (S&PDJI). The indexes are grouped by index provider, alphabetically – FTSE/Russell, MSCI, and S&PDJI. Within each set of index provider's information, their ESG indexes are grouped into three categories that highlight the broad primary objective for using ESG information to construct the index. These include:

- **Integrate** – integrate ESG factors to enhance return, and/or manage ESG financial risk
- **Impact** – generate measurable social or environmental benefits and market or better financial returns
- **SRI** – align with investor ethical/social/political values

The information for each index includes the index's E, S, and G segment; name; year launched; summary description; and summary construction approach.

FTSE/Russell Indexes - Integrate

ESG - Blossom Japan, 2017 The FTSE Blossom Japan Index is designed to provide market participants with a tool to identify and measure the performance of Japanese companies that demonstrate strong ESG practices. The index is constructed to be industry neutral compared with the Japanese equity market represented by the FTSE All Cap Japan index. Approach: select, optimize.

ESG - ESG, 2017 The FTSE ESG index series is designed to help investors align investment and ESG objectives in a broad benchmark whilst maintaining industry neutrality. Company weights are "tilted" using FTSE/Russell's ESG ratings. Subsequently, industry neutral re-weighting is applied so that the industry weights in each index match the underlying index universe. As a result, each FTSE ESG index is expected to have risk/return characteristics that are similar to the underlying universe, with the added benefit of improved ESG metrics. Companies are reweighted by ESG, maintaining industry and country weights of parent index. Approach: reweight, maintain.

ESG - UK 100 ESG Select, 2018 The FTSE UK 100 ESG Select Index is designed to measure the performance of the top 100 companies, as demonstrated by their ESG practices, within the FTSE All Share Index. This index uses the overall rating from FTSE Russell's ESG ratings and data model to select companies for inclusion. Companies are weighted by investable market capitalization. Approach: reweight, maintain.

E - Green Revenues, 2016 The FTSE Green Revenues index series is designed to obtain increased exposure to companies engaged in the transition to a green economy based on FTSE/Russell's Green Revenues data model. All constituents of the parent index are included. Constituent weights (where applicable) are based on each constituent's Low Carbon Economy Industrial Indicator ("LOWCII") factor. A company's LOWCII factor is defined as the ratio of revenues as classified by the Low Carbon Economy Industrial Classification System ("LCEICS") to total revenues. Approach: reweight by ESG, maintain industry and country weights of parent index.

E - EPRA NAREIT Green, 2018 The FTSE EPRA NAREIT Green indexes provide investors with a useful tool for integrating climate risk into their listed real estate portfolio. These indexes provide a sustainability focused extension to the FTSE EPRA NAREIT Global Real Estate index series, the world's leading series of listed real estate benchmarks. The FTSE EPRA NAREIT Green indexes weight constituents based on two sustainable

investment measures, green building certification and energy usage, and follow the FTSE Global Factor index series methodology to address concerns about liquidity, capacity, diversification and turnover. Approach: reweight, maintain.

E - Global Climate, 2017 The FTSE Climate index series is designed to hedge climate risks and gain exposure to upsides that climate change may bring to companies. This index series considers green revenues alongside carbon emissions and fossil fuel reserves. The index series methodology is designed to reflect the performance of a global and diversified basket of securities where their weights are varied to account for risks and opportunities associated with climate change. Approach: reweight by E, maintain industry and country weights of parent index.

E - Low Carbon Select, 2019 The FTSE Developed ESG Low Carbon Select index series is comprised of mid and large cap stocks from developed markets and targets 50% reduction in index level carbon emissions, 50% reduction in fossil fuel reserves and 20% improvement in index level ESG ratings. The index is constructed using the FTSE Russell Target Exposure methodology. The index series also excludes companies involved with controversial product activities - weapons, thermal coal, tobacco, nuclear power, gambling, adult entertainment, and companies involved with controversies related to the UN Global Compact principles. Approach: exclude, select.

E - TPI Climate Transition, 2020 The FTSE Developed ex Korea TPI Climate Transition Index is designed to reflect the performance of a global and diversified basket of securities where constituent weights vary to account for risks and opportunities associated with the transition to a low carbon economy. Constituent weights are based on five key climate considerations: company exposure to green revenues, fossil fuel reserves and carbon emissions; companies' climate governance activities (aligned with the Taskforce on Climate-related Financial Disclosures' recommendations); and forward-looking commitments to carbon emission pathways (aligned to the Paris Agreement and 2DC/1.5DC warming scenarios). The index combines data and analysis from FTSE Russell and the Transition Pathway Initiative (TPI). Companies involved in controversial weapons are excluded. Approach: reweight by E, maintain industry and country weights of parent index.

E - Smart Sustainability, 2016 The FTSE Smart Sustainability index series is the combination of sustainability parameters and risk premia via factor exposure within a single index solution. It reflects the growing demand for the incorporation of both factors and ESG data into investment tools, including indexes. The Smart Sustainability index family reflects the performance of stocks with the application of a range of factor and sustainability adjustments. This index family achieves the desired exposures by combining factor characteristics such as value, quality, low volatility and size with sustainability parameters such as ESG practices and climate change.

FTSE/Russell Indexes - Impact

E - FTSE Divest-Invest, 2016 The FTSE Divest-Invest Index series is designed to incorporate a combination of rules-based strategies to reduce exposure to companies from certain Industrial Classification Benchmark ("ICB") subsectors associated with a high carbon economy and obtain increased exposure to companies engaged in the transition to a low carbon economy. Securities in the following sectors and subsectors of the ICB system which are ineligible for inclusion: Oil & Gas Producers (ICB 0530); Oil Equipment, Services & Distribution (ICB 0570); Coal (ICB 1771); and General Mining (ICB 1775). Excluded companies are replaced, one by one, by the eligible company with the LOWCII factor until all removed companies are replaced. The

constituent weights of replacement companies are calculated in proportion to their LOWCII factors and then scaled to replace the total weight of the excluded securities. The remaining constituents (i.e., non-replacement companies) are weighted by investable market capitalization. Approach: exclude by E, select by E, then reweight.

E - FTSE Environmental Markets, 2018 The FTSE Environmental Opportunities All-Share Index comprises all companies globally that have at least 20% of their business derived from environmental markets and technologies as defined by the FTSE Environmental Markets Classification System ("EMCS"). These include Renewable and Alternative Energy, Energy Efficiency; Water Infrastructure and Technology; Waste Management and Technologies; Pollution Control; Environmental Support Services; and Food, Agriculture and Forestry. Approach: select.

S - Women on Boards Leadership, 2018 The FTSE Women on Boards Leadership index series is designed to integrate leadership in gender diversity into a broad market benchmark. These indexes increase exposure to companies based on the strength of their diversity leadership at the board level and how well they manage wider impacts on society. This is achieved by using a tilt (or stock weight adjustment) to integrate gender diversity and social impact. Approach: select.

FTSE/Russell Indexes - SRI

ESG - FTSE4Good, 2001 The FTSE4Good benchmark and tradable indexes have been designed to measure the performance of companies utilizing globally recognized ESG standards to take account of ESG risk levels. They have also been designed to facilitate investment in those companies. The FTSE ESG ratings are used as the core basis to determine the constituents of the FTSE4Good Index. Each company in the research universe is given a FTSE ESG rating ranging from 0 to 5, with 5 being the highest rating. Companies involved in tobacco, coal, and controversial weapons are excluded. Approach: exclude.

E - ex-Fossil Fuels, 2014 This index series is a capitalization-weighted index designed to represent the performance of constituents of the parent index after the exclusion of companies that have a certain revenue and/or reserve exposure to oil, gas, and coal. A company is categorized as an excluded company if it satisfies the following conditions: (1) classified as in the ICB subsectors – Exploration & Production (Standard Industrial Code "SIC" 0533), Integrated Oil & Gas (0537), Coal Mining (SIC Code: 1771), and General Mining (SIC Code: 1775); and either have (2) revenues arising from Bituminous Coal and Lignite Surface Mining SIC Code: 1221), Bituminous Coal Underground Mining (SIC code: 1222), Anthracite Mining (SIC code: 1231), Crude Petroleum and Natural Gas (SIC code: 1311), and Natural Gas Liquids (SIC code: 1321) based on the companies' most recent published Annual Report and Accounts; or (3) proved and probable reserves in coal, oil, or gas based on the companies' most recent published annual report and accounts. Approach: exclude.

ES - Global Choice, 2018 The FTSE Global Choice index series is designed to help investors align their portfolios with their individual values by selecting companies based on the impact of their conduct and products on society and the environment. The FTSE Global Choice index series is a market cap weighted series with a rules-based methodology for defining how the products and conduct of a company impact society and the environment. The underlying framework includes large, mid, and small securities across developed and emerging markets globally with modular indexes available to target specific country markets. The result is a framework for applying robust and customizable values-based screens to a range of broad market indexes. Approach: exclude, select.

MSCI ESG Indexes - Integrate

ESG - ESG Leaders Designed to represent the performance of companies that have high ESG ratings relative to their sector peers to ensure the inclusion of the best-in-class companies from an ESG perspective. Approach: exclude, select, maintain.

ESG - ESG Focus Designed to target companies with positive ESG characteristics while closely representing the risk and return profile of the underlying market. Approach: exclude, reweight, optimize.

ESG - ESG Universal Designed to enhance exposure to ESG while maintaining a broad and diversified universe to invest in. Approach: exclude, reweight, maintain.

E - Low Carbon Target Designed to address two dimensions of carbon exposure – carbon emissions and fossil fuel reserves. By overweighting companies with low carbon emissions relative to sales and those with low potential carbon emissions per dollar of market capitalization, the indexes aim to reflect a lower carbon exposure than that of the broad market. Approach: reweight, optimize.

E - Low Carbon Leaders Aims to achieve at least 50% reduction in the carbon footprint of the parent index. Approach: exclude, reweight, optimize.

E - Climate Change Designed to enable investors to holistically integrate climate risk considerations in their investment process while increasing diversification through a rules-based reweighting methodology. Approach: exclude, reweight, maintain.

E - Climate Paris Aligned Designed to address climate change in a holistic way by minimizing its exposure to transition and physical climate risks and helping investors pursue new opportunities while aiming to align with the Paris Agreement requirements of limiting global warming to no more than 1.5°C. Approach: exclude, reweight, optimize.

MSCI ESG Indexes - Impact

ES - Sustainable Impact Designed to identify listed companies whose core business addresses at least one of the world's social and environmental challenges as defined by the UN SDGs. Approach: select.

E - Global Environment Designed to maximize its exposure to clean technology environmental themes. Approach: select.

SG - Women's Leadership Aims to include companies which lead in their respective countries in terms of female representation in board and in leadership positions. Approach: select.

MSCI ESG Indexes - SRI

ESG - SRI Designed to represent the performance of companies with high ESG ratings. They employ a 'best-in-class' selection approach to target the top 25% companies in each sector according to their MSCI ESG ratings. Approach: exclude, select, maintain.

ESG - KLD 400 Social Designed to provide exposure to companies with high MSCI ESG ratings while excluding companies whose products may have negative social or environmental impacts. Approach: exclude, select, maintain.

ESG - ESG Screened Designed for institutional investors and aim to exclude companies associated with controversial, civilian, nuclear weapons and tobacco that derive revenues from thermal coal and oil sands extraction or that are not in compliance with the UN Global Compact principles. Approach: exclude.

S - ex-Controversial Weapons Developed for use by investors, including pension funds and universal owners, who wish to avoid investments in cluster bombs, landmines, depleted uranium, chemical and biological weapons, blinding laser weapons, non-detectable fragments and incendiary weapons. Approach: exclude.

S - ex-Tobacco Involvement Designed for investors who seek to avoid investments in companies involved in the tobacco business. They are free float-adjusted market capitalization weighted. Approach: exclude.

E - ex-Fossil Fuels Developed for use by institutional investors, including pension funds, who aim to eliminate or reduce some or all fossil fuel reserves exposure from their investments. Approach: exclude.

S - Faith Based Designed to be used as a US equity benchmark for Catholic investors who seek equity ownership in alignment with the moral and social teachings of the Catholic Church. The MSCI Islamic index series follow Sharia investment principles. Approach: exclude.

S&P Dow Jones ESG Indexes - Integrate

ESG - Dow Jones Select ESG Real Estate Securities, 2021 The Dow Jones Select ESG Real Estate Securities indices include constituents from the Dow Jones Select Real Estate Securities indices. Exclusions are made and constituents are reweighted based on GRESB's real estate ESG assessment. Approach: exclude, reweight.

ESG - ESG Elite, 2020 The S&P ESG Elite indices are a best-in-class ESG index that is designed to measure the performance of securities meeting strict sustainability criteria while maintaining similar overall sector weights as the parent benchmark. Approach: exclude, select, maintain.

ESG - ESG, 2020 The S&P ESG indices are a broad-based, market-cap-weighted index that is designed to measure the performance of securities meeting sustainability criteria while maintaining similar overall industry group weights as their parent benchmarks. Approach: exclude, select, maintain.

ESG - ESG Select Equal Weight, 2019 The ESG Select Equal Weight Index family is designed to measure the equal-weighted performance of stocks with the highest S&PDJIESG scores among a subset of a larger universe measure by market. Approach: select, reweight.

ES - International Environmental & Socially Responsible, 2015 The S&P Environmental & Socially Responsible Index family is designed to measure the performance of securities from their parent benchmark that meet environmental and social sustainability criteria. Approach: exclude, select, maintain.

ESG - Dow Jones Sustainability Diversified, 2013 The Dow Jones Sustainability Diversified indices exhibit a sustainable tilt while minimizing region, industry, and size biases relative to traditional global benchmarks. They include the top 50% float-adjusted market capitalizations within regions and Global Industry Classification Standard sectors of the index universe based on their corporate sustainability score as measured by the Corporate Sustainability Assessment of S&P Global. Approach: exclude, select, maintain.

G - S&P/Drucker Institute Corporate Effectiveness, 2019 The S&P/Drucker Institute Corporate Effectiveness index is designed to track stocks in the S&P 500® that consistently rank highly on proprietary management criteria. These companies

create value through excellence in employee engagement and development, customer satisfaction, social responsibility, innovation, and high-quality earnings. Approach: select.

S&P Dow Jones ESG Indexes - Impact

E - Carbon Price Risk Adjusted, 2018. The S&P Carbon Price Risk Adjusted indices are designed to measure the performance of the constituent companies of their parent benchmark, reweighted to account for the potential specific impact of 2030 carbon prices on constituents' stock prices. Approach: reweight.

E - Global Carbon Efficient, 2009. The S&P Global Carbon Efficient indices are designed to measure the performance of companies in their parent benchmark while overweighting or underweighting those companies that have lower or higher levels of carbon emissions per unit of revenue. Approach: reweight.

E - Paris Aligned & Climate Transition (PACT), 2020 The S&P Paris Aligned & Climate Transition indices are designed to measure the performance of eligible equity securities from their parent benchmark, selected and weighted to be collectively compatible with a 1.5°C global warming climate scenario at the index level. Approach: exclude, optimize.

E - Global Clean Energy, 2007 The S&P Global Clean Energy Index provides liquid and tradable exposure to 30 companies from around the world that are involved in clean energy related businesses. The index comprises a diversified mix of clean energy production and clean energy equipment and technology companies. Approach: select.

E - Global Water, 2007 The S&P Global Water Index provides liquid and tradable exposure to 50 companies from around the world that are involved in water related businesses. To create diversified exposure across the global water market, the 50 constituents are distributed equally between two distinct clusters of water related businesses: Water Utilities & Infrastructure and Water Equipment & Materials. Approach: select.

S&P Dow Jones ESG Indexes - SRI

ESG - Dow Jones Sustainability, 2009 The Dow Jones Sustainability indices are designed to measure the performance of sustainability leaders as identified by S&P through a Corporate Sustainability Assessment (CSA). They represent the top 10-30% of the largest companies in different regions in the S&P Global Broad Market Index ("BMI") based on long-term economic, environmental and social criteria. Approach: select.

ESG - ESG Exclusion, 2019 The S&P ESG Exclusion indices are designed to measure the performance of parent benchmark constituents, excluding companies involved in controversial weapons, tobacco products, small arms, and thermal coal. Approach: exclude.

ESG - Sustainability Screened, 2020 The S&P Sustainability Screened indices measure the performance of stocks in their parent benchmark, excluding companies involved in controversial weapons, small arms, tobacco, and fossil fuels at specific involvement thresholds. Approach: exclude.

E - Global 1200 Fossil Fuel Free, 2015 The S&P Global 1200 Fossil Fuel Free indices are designed to measure the performance of companies in their parent benchmark region that do not own fossil fuel reserves. Fossil fuel reserves are defined as economically and technically recoverable sources of crude oil, natural gas and thermal coal. Approach: exclude.

E - Renewable Energy and Clean Technology, 2010 The S&P/TSX Renewable Energy and Clean Technology Index measures performance of companies listed on the TSX whose core business is the development of green technologies and sustainable infrastructure solutions. Constituents are screened by Sustainalytics, one of the world's leading providers of ESG research and analysis. Approach: select.

S- CAPEX & Human Capital, 2016 The JPX/S&P CAPEX & Human Capital indices are designed to measure the performance of Japanese companies that are proactively making investments in physical and human capital. Approach: select.

S - Catholic Values, 2015 The S&P 500® Catholic Values indices exclude certain activities that are not aligned with the Responsible Investment Guidelines of the U.S. Conference of Catholic Bishops (USCCB). The index family is designed for investors who do not want to breach religious norms in their passive investing strategies. Approach: exclude.

Appendix III: E, S, and G KPI descriptions

Environment

Weighted Avg. Carbon Emissions (Scope 1 and 2) Intensity	Scope 1 and 2 Carbon Emissions weighted by security weight in the index and summed to total index. This factor identifies the index's total (Scope 1 + Scope 2) carbon emissions intensity. Carbon intensity for each company is expressed as the issuer's total carbon emissions per million USD of revenue as a proxy of the carbon efficiency per unit of output.
Weighted Avg. Green Revenue Share	The weighted average of the share of net sales (reported or estimated) generated by each company with products/services defined as having a contributing impact on the achievement of the objective "Contributing to sustainable energy use." It is the sum of significant and limited net contribution percentage.
Disclosure-CDP Reporting (% Assets)	The percent of assets represented by companies that report to the CDP Greenhouse Gas ("GHG") Scope 1 and Scope 2 Emissions data as part of their response to CDP's Climate Change Questionnaire.
Science Based Targets (% Assets)	This metric provides the percent of assets accounted for by companies designated as having a Committed or Approved Science Based Target ("SBT") within the ISS factor - issuer GHG reduction targets. This factor differentiates an issuer's targets as "No Target," "Non-Ambitious Target," "Ambitious Target," "Committed SBT," or "Approved SBT" based on the existence and quality of GHG reduction targets. The factor considers both science-based targets and other targets set by the issuer.
Fossil Fuel Reserve Ownership (% Assets)	Percent of assets accounted for by companies identified as owning coal, oil, or gas reserves.
>20% Thermal Coal Revenues (% Assets)	Percent of assets accounted for by companies identified as generating greater than 20% of revenues from thermal coal.
>50% Fossil Fuel Revenues (% Assets)	Percent of assets accounted for by companies identified as generating greater than 50% of their revenues from fossil fuels. This may include energy and extractives companies such as coal, oil and natural gas exploration, extraction, power generation, refining, processing, distribution and services (services, equipment and support to fossil fuel operations).

Social

Weighted Average % Women on Board	The percent of female Board members by company, weighted by that company's share of assets, then summed to the total index.
Ethnic Diversity on Board (% Assets)	Number of companies with one or more ethnically diverse board member(s), weighted by each company's share of the index and summed to the total index.
UN Global Compact Verified Violations	Verified violations of any of the 10 principles of the UN Global Compact, which cover the areas of human rights, labor, environment, and anti-corruption. They are derived from: the Universal Declaration of Human Rights, the International Labour Organization's Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development, and the United Nations Convention Against Corruption.

Governance

Different Voting Share Classes	The percent of assets accounted for by companies that have classes of stock with different voting rights or unequal ability to elect directors.
Weighted. Avg. % Independent Board	The weighted average percent of independent board members of total board members, according to ISS' local market classification.
1+ Financial Expert on Audit Committee	The percent of assets represented by companies with at least one financial expert on the audit committee

FIGURE 21

E, S, and G KPI Descriptions Using ISS ESG and SDG Data

Sources: ISS and Meketa Investment Group.

Appendix IV: UN Sustainable Development Goals

The Sustainable Development Goals (SDGs) are a new, universal set of goals, targets, and indicators that UN member states will be expected to use to frame their agendas and political policies over the next 15 years. The 17 SDGs are listed below. Within the goals are 169 targets that put some specifics to these broad goals. The UN states that “responsible business and investment will be essential to achieving transformational change through the SDGs. For companies, successful implementation will strengthen the enabling environment for doing business and building markets around the world.”

1. No poverty. End poverty in all its forms everywhere.
2. Zero hunger. End hunger, achieve food security and improved nutrition, and promote sustainable agriculture.
3. Good health and well-being. Ensure healthy lives and promote well-being for all ages.
4. Quality education. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
5. Gender equality. Achieve gender equality and empower all women and girls.
6. Clean water and sanitation. Ensure availability and sustainable management of water and sanitation for all.
7. Affordable and clean energy. Ensure access to affordable, reliable, sustainable, and modern energy for all.
8. Decent work and economic growth. Promote sustained, inclusive, and sustainable economic growth; full and productive employment; and decent work for all.
9. Industry, innovation and infrastructure. Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation.
10. Reduced inequality. Reduce inequality within and among countries.
11. Sustainable cities and communities. Make cities and human settlements inclusive, safe, resilient, and sustainable.
12. Responsible production and consumption. Ensure sustainable consumption and production patterns.
13. Climate action. Take urgent action to combat climate change and its impacts.
14. Life below water. Conserve and sustainably use the oceans, seas, and marine resources for sustainable development.
15. Life on land. Protect, restore, and promote sustainable use of terrestrial ecosystems; sustainably manage forests; combat desertification; halt and reverse land degradation; and halt biodiversity loss.
16. Peace justice and strong institutions. Promote peaceful and inclusive societies for sustainable development; provide access to justice for all; and build effective, accountable, and inclusive institutions at all levels.
17. Partnerships for the goals. Strengthen the means of implementation and revitalize the global partnership for sustainable development.

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INVESTMENT GROUP

East Bay Municipal Utility District Employees Retirement System (EBMUDERS)

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Net Zero and Asset Owner
Climate Investment Risk and
Opportunities Tools

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Table of Contents

Introduction.....3

Definitions.....5

Asset Owner Industry Trends13

Conclusions and Future Considerations.....21

Appendices.....26

 Appendix I: Meketa Survey of Public Pension Plan Climate Leaders27

 Appendix II: Summary Descriptions of Climate Focused Institutional Investor Organizations.....35

Introduction

Introduction

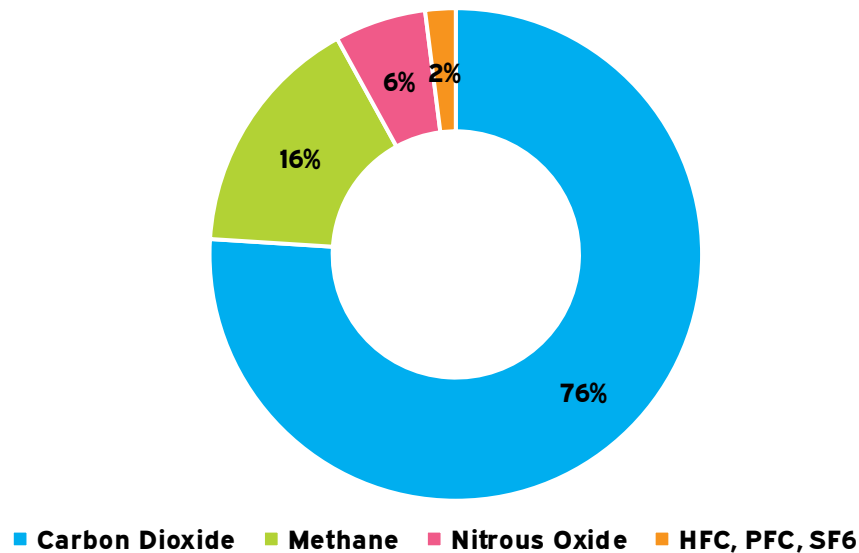
- Climate change is the challenge of our generation and ours to solve for the benefit of future generations.
- It is a complex problem and there are no silver bullets – tackling it requires concerted, purposeful action over an extended period of time which will require a confluence of technology, capital, and government action.
- Emission reduction is key to achieving our desired goal of mitigating climate change.
- As part of efforts to reduce emissions, some governments, companies, asset owners and asset managers have adopted net zero greenhouse gas emissions by 2050 ambitions.
- Today's goal is to frame the issue and understand the pros and cons of actions taken by other public pension plan owners.

Definitions

What Is the Climate Change Problem?

→ Greenhouse gas (“GHG”) emissions from human activities are causing climate change and global warming.

Global Manmade GHG Emissions by Gas (2015)^{1,2}



- Over three quarters of human-caused greenhouse gases emissions come from Carbon Dioxide (CO₂) emissions.
- Consequently, much of the effort globally is focused on reducing CO₂ emissions.
- Methane traps heat least 80 times more than CO₂, but dissipates in a decade rather than centuries.

¹ Source: <https://www.c2es.org/content/international-emissions/#:~:text=Global%20Manmade%20Greenhouse%20Gas%20Emissions%20by%20Gas%2C%202015>

² Notes: CO₂ accounts for about 76 percent of total greenhouse gas emissions. Methane, primarily from agriculture, contributes 16 percent of greenhouse gas emissions and nitrous oxide, mostly from industry and agriculture, contributes 6 percent to global emissions. All figures here are expressed in CO₂-equivalents.

What are Climate-Related Investment Risks and Opportunities?

→ Climate change can impact businesses in two ways: physical risks and energy transition risks.

Physical Risks



Transitional Risks

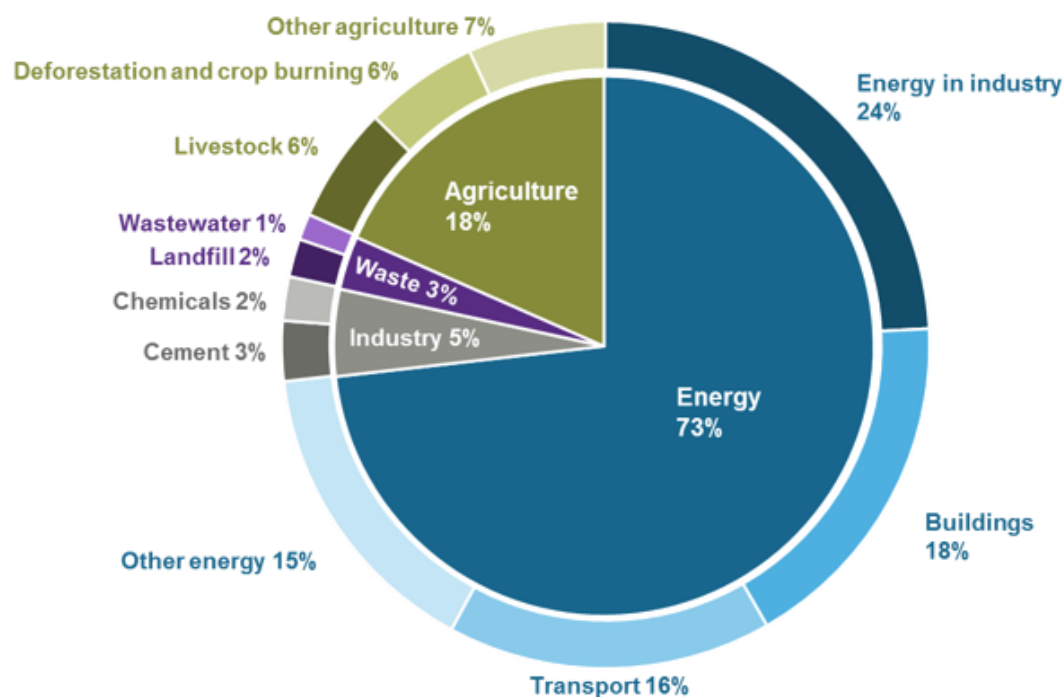


- Physical risks, such as rising oceans, and more severe weather can impair physical assets and interrupt production.
- Energy transition risks include the impact of government regulation and technology changes, along with consumer-led changes in consumption patterns in response to climate change.
- The financial materiality and magnitude of physical and transition climate risks vary by asset class, sector, industry, and even individual company and physical asset.
- Climate change brings new risks and new opportunities.

Which Economic Sectors Are the Highest the Carbon Emitting?

→ Carbon emissions vary widely by economic sector and geography.

Global Greenhouse Gas Emissions by Sector^{1,2}



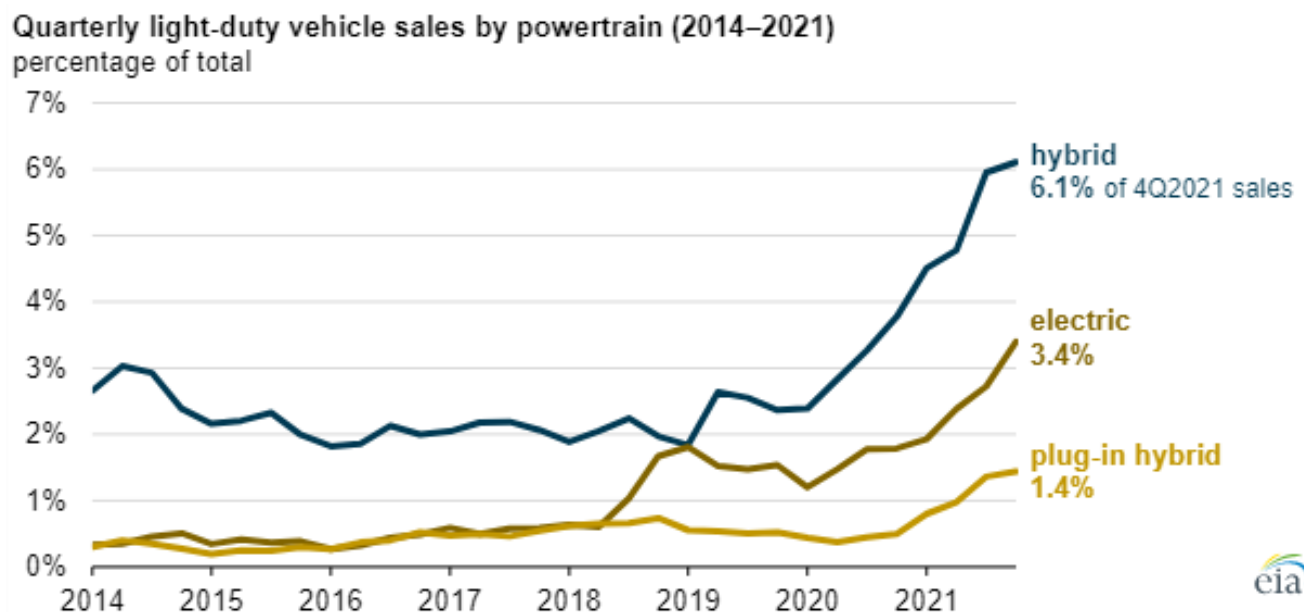
→ From a production standpoint, two large sectors comprise the vast majority of emissions – energy production and agriculture. Energy production and uses are where the most innovation and new regulation are expected.

¹ Source: Climate Watch, Our World in Data, World Resource Institute, J.P. Morgan Asset Management.

² CO₂ equivalent tons standardize emissions to allow for comparison between gases. One equivalent ton has the same warming effect as one ton of CO₂ over 100 years. Past performance is not a reliable indicator of current and future results. Data as of 2016.

Reducing Emissions Requires Reducing Supply and Demand

→ Reducing carbon emissions requires reducing the supply and the demand for fossil fuels.



→ In industries where greener solutions are being developed, like transportation, the efforts are still in early stages.

→ Even electric vehicles have meaningful carbon footprints. Cradle-to-grave analyses show only a small improvement in overall emissions because:

- Manufacturing batteries and vehicles is still a dirty business.
- Electricity used to run electric vehicles is often still produced by fossil fuels, not renewables.

What Is Net-Zero?

- Net-Zero refers to an ambition, a goal, to get the world to net-zero GHG emissions by 2050 or before.
- Achieving *net-zero* emissions means that some GHG are still released, but these are offset by removing an equivalent amount of GHG from the atmosphere and storing it permanently in soil, plants, or materials.
- Because it would be prohibitively expensive or disruptive to eliminate some sources of emissions entirely, achieving net-zero emissions is considered more feasible than achieving zero emissions.
- Net zero pledges have become a way for businesses, governments and asset owners and managers to begin planning for a low carbon future.
- Net Zero is a long term ambition that will require heavy lifting from governments and regulators around the world.

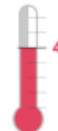
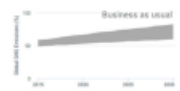

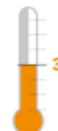


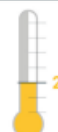





Net-Zero Ambitions for Investors

- For investors, an ambition to support Net-Zero in addressing climate risks and opportunities has focused attention on change in the real economy to mitigate the long-term investment risks.
- Addressing net zero in the real economy ambitions for investors cannot be reached through simple tools like:
 - Hedging your portfolio to carbon neutral, or broad divestment.

How Does Divestment Fit with Net-Zero Ambitions?¹

→ Broad divestment of fossil fuel producers is increasingly seen as an insufficient tool in attaining net zero overall.

How Different Climate Scenarios Might Impact Equity Investment Opportunities

Alignment Target	Temperature	Societal Action Required	Portfolio Construction Challenge
Business as usual	 4.0°C	 None	 No portfolio rebalancing needed to align to a business-as-usual scenario.
Commitments made by countries already (NDC aligned)	 3.0°C	 Policies currently proposed in Paris Agreement	 Possible to reweight a market portfolio away from heavy emitters using climate-related data, shrinking the investible universe by ~15%.
2°C	 2.0°C	 Net zero before end of the century, much deeper reductions than NDC pledges	 Large proportion of companies would need to be excluded in portfolio construction, shrinking the investible universe by ~60%.
1.5°C	 1.5°C	 Net zero by 2050, -15% CO2 reduction/year	 Limited universe of listed companies leading to a very concentrated portfolio, shrinking the investible universe by ~90%.

→ To create a portfolio aligned with net zero in today's economy, an asset owner would have to eliminate 90% of an investment portfolio.

→ Divesting fossil fuel suppliers skews portfolios to IT and health care; ignores demand-side transition needs; and divests from leaders in producing clean energy solutions.

¹ Table Source: MSCI "2021 ESG Trends to Watch" <https://www.msci.com/documents/10199/a7a02609-aeef-a6a3-1968-4000f1c8d559>

Asset Owner Industry Trends

Asset Owner Industry Trends

→ Growing attention is being devoted to climate change physical, energy, and transition risks.

- The issues are complex, with no easy answers.

	Public Pension Plans
Nothing	Established trend
Education	Established trend
Monitoring	Recent trend
Action—Climate Investment	Recent trend
Action—Divestment	Recent trend
Action—Engagement	Recent trend
Action—Net-Zero Strategy	Recent trend

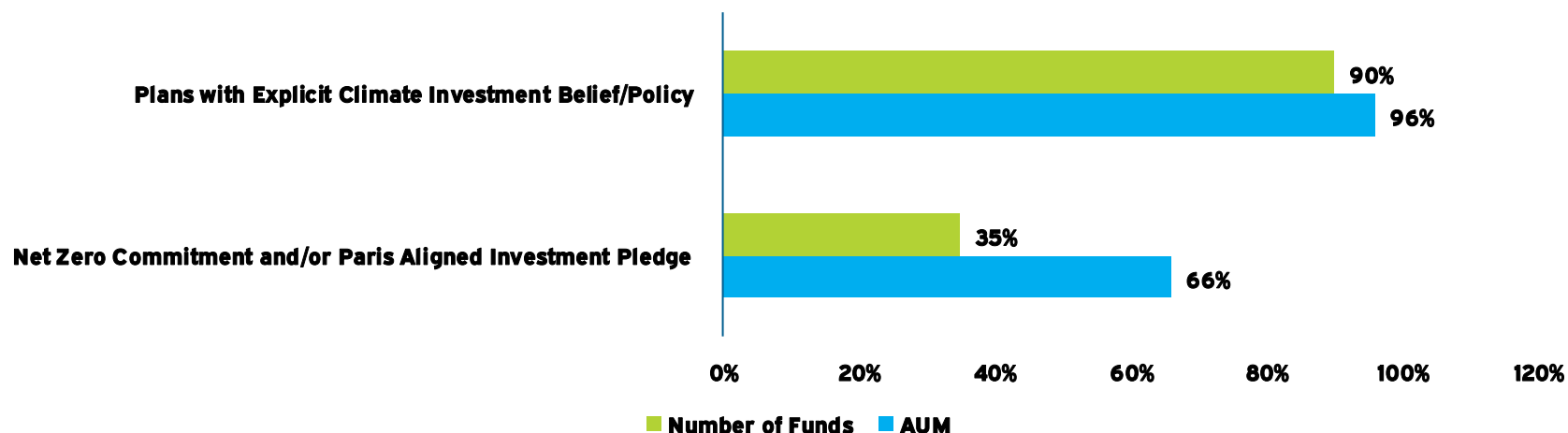
= no trend = recent trend = established trend

→ There is no well-accepted best practice on how to tackle these issues and a wide range of approaches.

Asset Owner Industry Trends (continued)

- Some public pension plans have taken more deliberate steps to address climate risks and opportunities.
- Meketa's recent survey of public pension plans that are climate leaders illustrates the trends summarized in the next few slides and presented in Appendix I for:
 1. Investment Beliefs, Policy Statements, and Net Zero pledges
 2. Stewardship – Proxy voting and engagement
 3. Collaboration with institutional investor organizations on climate
 4. Investment in climate solutions
 5. Divestment from fossil fuels
 6. Monitoring portfolio and managers for climate risks and opportunities
- We thank EBMUDERS for responding to our survey.

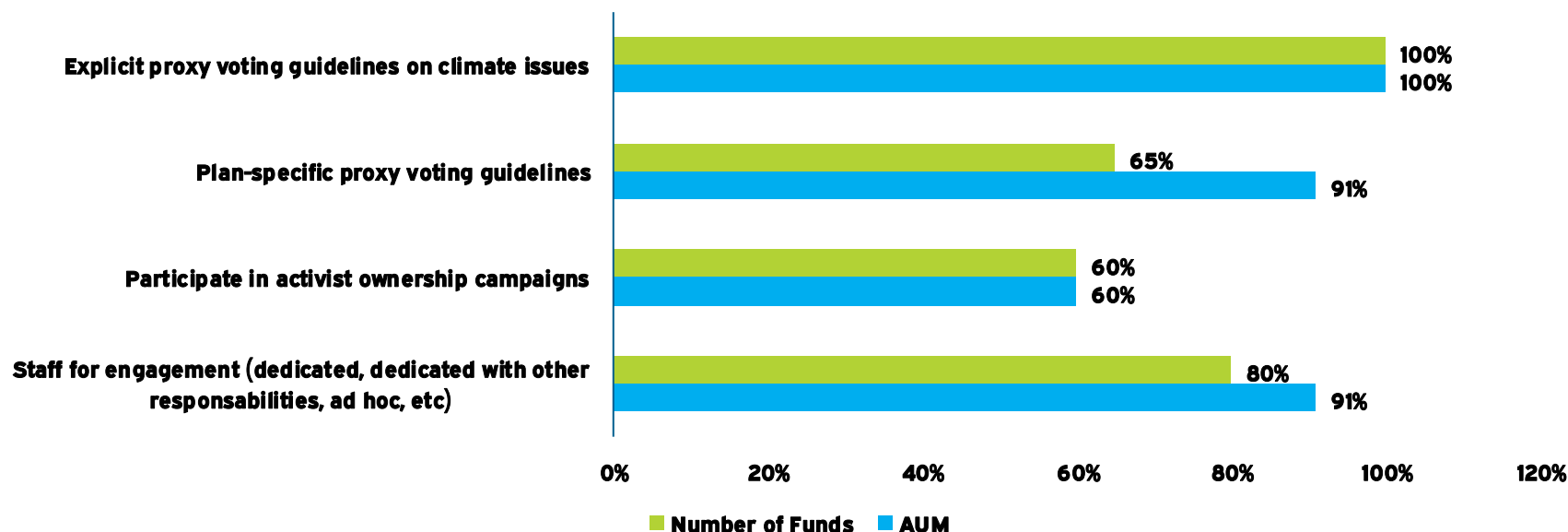
Climate-Related Investment Policies¹



- A growing number of public pension plans have Investment Beliefs/Investment Policy on climate risks and opportunities.
- There is an increasing trend toward adopting net-zero ambitions – up to five by 2021 from zero in 2018.
- So far, mostly larger public pensions in the U.S. have adopted net zero pledges: CalPERS, CalSTRS, NYSCRF, NYC Pension Plans, and SFERS.

¹ See Appendix I

Stewardship Approach¹

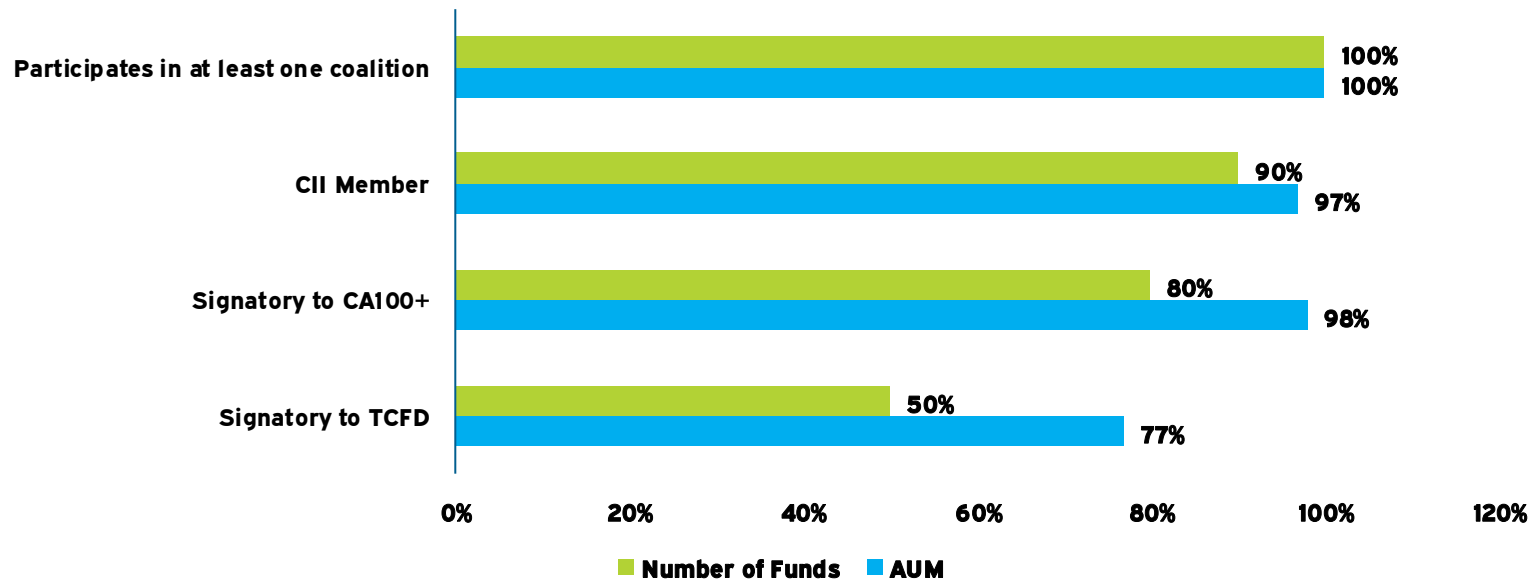


→ All 20 pension plans surveyed maintain explicit proxy voting guidelines on climate issues.

- Most plans have staff that engage with managers, investee companies, and governmental regulators and policy makers (dedicated, dedicated with other duties, or ad hoc).
- There is growing attention to voting against Boards of Directors in cases where engagement efforts are repetitively unproductive.

¹ See Appendix I

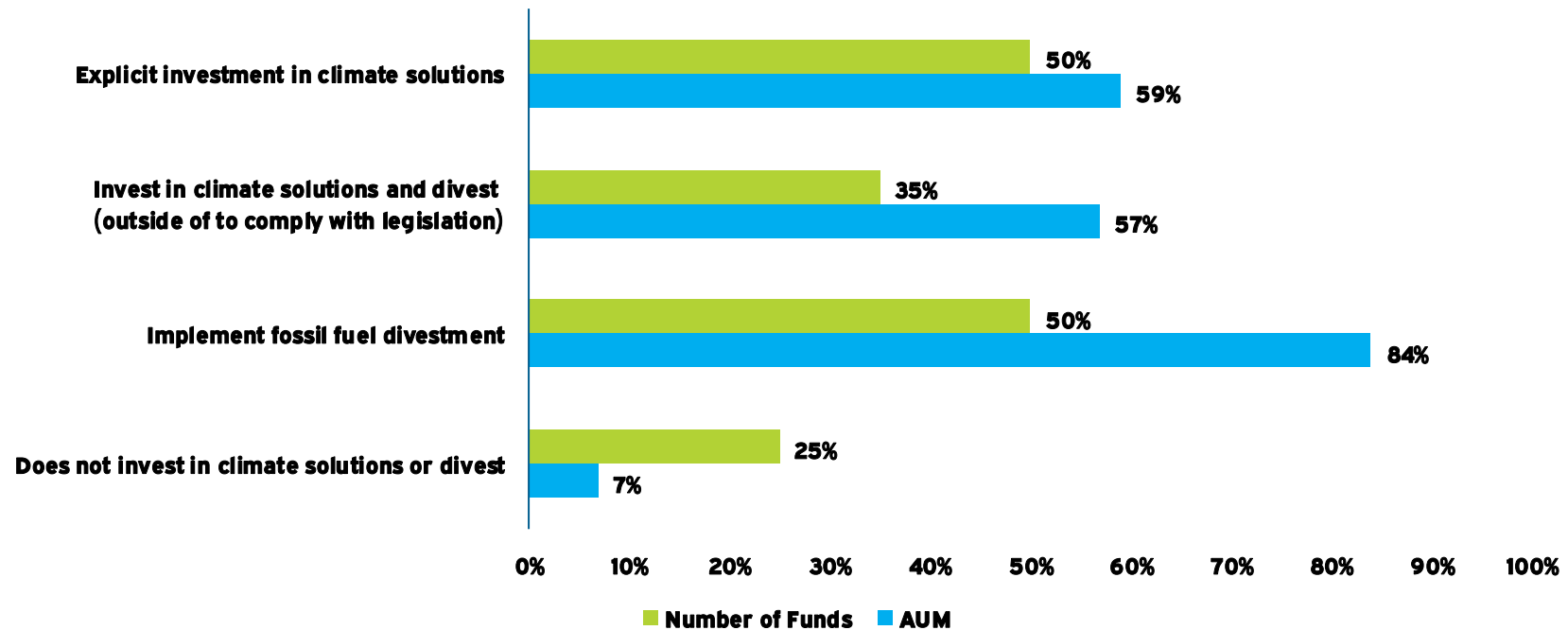
Signatories/Supporters of Investor Organizations That Address Climate¹



- Many plans are signatories/supporters of investor organizations that address climate.
- The plans surveyed under \$25 billion AUM join fewer organizations than larger public plans. Coalitions often require time and/or membership fee commitments.
- EBMUDERS is an active member of the Council of Institutional Investors, Ceres, and a signatory to the TCFD.

¹ See Appendix I

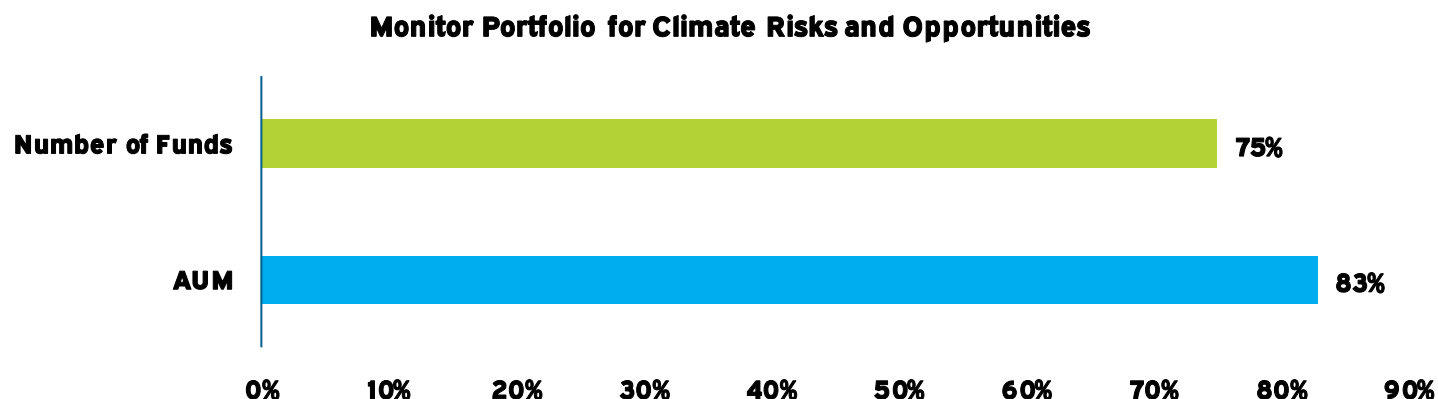
Investment in Climate Solutions¹



- There are multiple approaches to climate investment and divestment, with no best practices.
- A growing number of plans have made an explicit commitment to invest in climate solutions.
- Divestment of fossil fuel companies has grown and become more targeted to supplement engagement efforts.

¹ See Appendix I

Portfolio Monitoring¹



→ Asset owners continue to increase their monitoring of climate key performance indicators.

- The survey did not ask specifically for future intentions. The responses indicate that:
 - Plans that have been active on climate risk and opportunities for over a decade continue to evolve their portfolio monitoring and approaches, while plans beginning are increasing climate monitoring.

¹ See Appendix I

Conclusions and Future Considerations

Conclusions and Future Considerations

→ As EBMUDERS considers how best to evolve its approach to climate risks and opportunities:

- **CLIMATE ISSUES ARE COMPLEX.**
 - Decarbonizing an investment portfolio and helping move the market beta toward net zero are not equal.
- **MANY U.S. PUBLIC PENSION PLANS ARE VERY EARLY ON IN DISCUSSING CLIMATE RISKS AND OPPORTUNITIES.**
- **NO BEST PRACTICES.**
 - There is a wide range of approaches by plans to address climate risks and opportunities.
 - Plans of all sizes, and widely varying experience in addressing climate, continue to evolve their approaches.
- **GROWING TREND TO ADOPT NET-ZERO BY 2050.**
 - A growing number of public pension plans adopt Net-Zero or Paris-aligned investment strategies.






Conclusions and Future Considerations (continued)

→ The major tools being used by public pension plans include:

- Developing investment policies and investment beliefs to explicitly address climate change.
 - Climate Aware
 - Net Zero by 2050 Aspiration
- Monitoring their investment portfolios for climate risks and opportunities.
- Using stewardship approaches both individually, and collectively with other institutional investors, including:
 - Proxy voting
 - Engaging with managers, companies and government regulators and policy makers
- Investing in climate solutions.
- Divesting from fossil fuel companies, either:
 - Case-by-case basis, often incorporating more forward-looking metrics
 - Broadly

Conclusions and Future Considerations (continued)

Approaches to addressing Climate Risks and Opportunities	Impact on Real Economy	Cost	Complexity
Support Investor Organizations	Can improve collaborative results	Low	Low
Portfolio Measurement and Monitoring	Can improve portfolio impact	Medium	Low to Medium
Stewardship- Proxy Voting and Engagement	Medium to High	Medium to High	Low to Medium
Investing in Climate Solutions	Medium to High	Low	Low
Divestment	Low	Low to Medium	Low to Medium
Net-Zero Pledge	Medium to High	Medium to High	High

 = Low
  = Low to Medium
  = Medium
  = Medium to High
  = High

→ There is a wide range of options to further evolve how EBMUDERS addresses climate change.

Next Steps

Key takeaways:

- Climate change is a serious issue that presents risks and opportunities for EBMUDERS investment program.
- There are many levers available to achieve measurable progress on this issue.
- Each tool presents EBMUDERS as fiduciaries with costs and potential benefits.
- Careful consideration, evaluation and consultation is required.

Appendices

Appendix I

Meketa Survey of Public Pension Plan Climate Leaders

Climate-Related Investment Policies¹

Name of Asset Owner	AUM (\$B)	Investment Beliefs/Policy re: Climate Change?	Details	Net Zero and/or Paris Aligned Investment Pledge?	Plans to Implement NZ/Paris Pledge	Gov't/Regulatory Mandates re: Climate Change Required?
CalPERS	480	Yes	CalPERS Vision references sustainability; Investment Beliefs reference ESG factors such as governance, human capital, and climate	Pledged 2019 (NZAOA)	Focusing on real world emissions reduction through advocacy, engagement, and integration	Yes, CA SB 964 requires a published report every 3 years on climate related risk within portfolio; Earlier legislation to divest thermal coal
CalSTRS	320	Yes	Investment Belief #9 outlines importance of incorporating climate change opportunities	Pledged 2021	Net Zero by 2050. Develop action plan establishing baseline and milestones for managing emissions-related risks, among others	Yes. CA SB 964 requires a published report every 3 years on climate related risk within portfolio; Earlier legislation to divest thermal coal
NYSCRF	280	Yes	2019 Climate Action Plan	Pledged 2020 (PAII)	Reduce GHG emissions from the Fund's entire portfolio to net-zero by 2040	NA
NYCRF	275	Yes (BERS, NYCERS, TRS)	N/A	Pledged 2021 (PAII)	Achieve net zero GHG emissions from the Fund's entire portfolio by 2040	N/A
UC Regents	168	Yes	-	No	-	No
NYSTRS	146	Yes	Investment Beliefs reference sustainable investing (under Stewardship; Proxy Policy on environment/climate change;	No	N/A	N/A
OST	97	Yes	Integration of ESG may have beneficial impact on outcome of an investment	No	N/A	No
MSBI	94	Yes	Utilize engagement initiatives to address ESG issues	No	N/A	SBI Resolution on ESG Initiatives, SBI Resolution Concerning Reduction of Investments Associated with Thermal Coal Production

¹ Source: Meketa survey and research.

Climate-Related Investment Policies (continued)¹

Name of Asset Owner	AUM (\$B)	Investment Beliefs/Policy re: Climate Change?	Details	Net Zero and/or Paris Aligned Investment Pledge?	Plans to Implement NZ/Paris Pledge	Gov't/Regulatory Mandates re: Climate Change Required?
LACERA	75	Yes	Investment beliefs address ESG broadly, Corp Governance and Stewardship principles recognize climate change as risk/opportunity	No	N/A	None other than fiduciary duty
MSRPS	68	No	Incorporate ESG risk factors into investment decision-making process	No	N/A	Maryland Pension Risk Mitigation Act requires the Board to submit a risk (including climate risk) assessment report annually
PD	48	Yes	Investment policy addresses active ownership and screening strategies for all managers	Pledged 2019 (NZAOA)	Reduce GHG emissions from portfolio to net-zero by 2050	Yes, EU – SFDR, Article 8
CRTPF	46	Yes	IPS explicitly acknowledges economic and financial risks associated with climate change	No	Under active consideration	No
SFERS	37	Yes	Specific ESG beliefs	Pledged 2020	Net zero by 2050	No
Illinois SURS	24	Yes	Broad ESG incorporation and beliefs	No	N/A	No
DCRB	11	Yes	Separate account managers exclude CU200	No	N/A	No
ERSRI	11	No	N/A	No	N/A	No
LPFA	10	Yes	RI currently provided by delegated asset manager, LPPI, LPFA recruiting for additional RI Manager resources to help manage LPPI, the processes and policies.	Pledged 2021 (PAII)	LPFA has one year to develop an action plan	Yes, required to prepare an Investment Strategy Statement outlining ESG policies
VPIC	6	Yes	Investment beliefs specific to ESG	No	N/A	No
SCERS	4	Yes	Factors in ESG and has identified climate change as a key area of focus	No	N/A	No
EBMUDERS	2	Yes	Considers ESG, does not directly address climate change	No	N/A	No

¹ Source: Meketa survey and research.

Stewardship Approach¹

Name of Asset Owner	AUM (\$B)	Explicit Proxy Voting Guidelines for Climate Issues?	Participate in Activist Ownership Campaigns?	Dedicated Resources to Engagement Efforts?
CalPERS	480	Yes, CalPERS guidelines	CalPERS lends support but does not participate officially	Yes, 6 dedicated staff
CalSTRS	320	Yes, CalSTRS guidelines	Yes	Yes
NYSCRF	280	Yes, NYSCRF guidelines	No	Yes
NYCRF	275	Yes	Yes, CA 100+	Yes, 6 dedicated staff
UC Regents	168	Yes, UC Investments Guidelines	Yes	NA
NYSTRS	146	Yes, NYSTRS guidelines	Yes	Yes, team members have other duties
OST	97	Yes, Glass Lewis ESG voting guidelines	Yes, on an ad-hoc basis such as letter writing campaigns	Ad hoc
MSBI	94	Yes, MSBI guidelines	Yes	Yes, one full time staff member has responsibility for company, manager, and regulatory engagements
LACERA	75	Yes, LACERA guidelines	Not provided	Yes, collaborate with CA100+ on company specific engagements
MSRPS	68	Yes, MSRPS guidelines	Yes, such as letter writing campaigns	Yes, team members have other duties
PD	48	Yes, follow CA100+	Yes, CA 100+	Yes
CRTPF	46	Yes, explicit in IPS	Yes	Yes, corporate governance team
SFERS	37	Yes, Glass Lewis Viewpoint research for SFERS guidelines	Yes	Yes,
Illinois SURS	24	Yes, Glass Lewis Public Pension guidelines	No	No
DCRB	11	Yes, leverage ISS	No	No
ERSRI	11	Yes, leverage ISS	No	Ad hoc
LPFA	10	Yes, LPFA guidelines	Yes	Yes
VPIC	6	Yes, VPIC guidelines	No	Yes
SCERS	4	Yes, ISS US Public Funds guidelines	Yes	Yes, team member has other duties
EBMUDERS	2	Yes, Glass Lewis Public Pension guidelines	No	No; focus of staff and board for future

¹ Source: Meketa survey and research.

Signatories/Supporters of Investor Organizations That Address Climate¹

Name of Pension Plan	AUM (\$B)	CII	Climate Action 100+	PRI	Ceres	TCFD	CDP	SASB/VRF	IIGCC	PAII	ESG Data Convergence Project	Net Zero AOA	TPI
CalPERS	480	✓	✓	✓	✓	✓	✓	✓	✓	-	Co-founder	Co-Founder	✓
CalSTRS	320	✓	✓	✓	✓	✓	✓	-	-	-	-	-	✓
NYSCRF	280	✓	✓	✓	✓	✓	✓	-	-	✓	✓	-	-
NYCRF	275	✓	✓	✓*	✓	✓	-	-	-	✓**	-	-	-
UC Regents	168	✓	✓	✓	-	✓	-	-	-	-	-	-	-
NYSTRS	146	✓	✓	-	✓	-	-	✓	-	-	-	-	-
OST	97	✓	✓	-	✓	-	✓	✓	-	-	-	-	-
MSBI	94	✓	✓	✓	✓	-	-	-	-	-	-	-	-
LACERA	75	✓	✓	✓	-	✓	-	✓	-	-	-	-	-
MSRPS	68	✓	✓	✓	✓	-	-	✓	-	-	-	-	-
PensionDanmark	48	-	✓	✓	-	✓	-	-	✓	-	-	Co-Founder	-
C RTPF	46	✓	✓	✓	✓	-	✓	-	-	-	-	-	-
SFERS	37	✓	✓	✓	✓	✓	-	-	-	-	✓	-	-
Illinois SURS	24	✓	-	-	-	-	-	-	-	-	-	-	-
DCRB	11	✓	-	-	-	-	-	-	-	-	-	-	-
ERSRI	11	✓	-	-	-	-	-	-	-	-	✓	-	-
LPFA	10	-	✓	✓	-	✓	✓	-	✓	✓	-	-	✓
VPIC	6	✓	✓	✓	✓	-	-	-	-	-	-	-	-
SCERS	4	✓	✓	✓	✓	-	-	-	-	-	-	-	-
EBMUDERS	2	✓	-	-	✓	✓	-	-	-	-	-	-	-
Total Number of Plans	20	18	17	14	12	10	6	5	3	3	3	2	2

*TRS, NYCERS;

**TRS, NYCERS, BERS

¹ Source: Meketa survey and research.

Investment in Climate Solutions¹

Name of Asset Owner	AUM (\$B)	Explicit Commitment to Invest in Companies Addressing Energy Transition and/or Climate Mitigation Challenges?
CalPERS	480	No
CalSTRS	320	Yes, varies across strategies
NYSCRF	280	Yes, committed to invest \$20 billion; invested \$11 billion as of April 2021; invested additional \$2 billion in FTSE sustainable equity in Dec 2021
NYCRF	275	Yes (TRS, NYCERS & BERS)
UC Regents	168	Yes
NYSTRS	146	Yes
OST	97	No
MSBI	94	No
LACERA	75	Broad approach to climate aware portfolio
MSRPS	68	No
PD	48	Yes, divested some oil & gas majors; is not invested in thermal coal or oil sands - considered sun-setting businesses
CRPTF	46	Yes
SFERS	37	No
Illinois SURS	24	No
DCRB	11	No
ERSRI	11	No
LPFA	10	Prefers engage & monitor; selectively divest
VPIC	6	No
SCERS	4	No
EBMUDERS	2	No

¹ Source: Meketa survey and research.

Divestment as a Climate Tool¹

Name of Asset Owner	AUM (\$B)	Use Divestment as Climate Tool?
CalPERS	480	Yes, thermal coal that complies with legislation
CalSTRS	320	Prefer engagement; thermal coal divestment complies with legislation
NYSCRF	280	Yes, case by case. To date divested total 55 thermal coal, oil sands and shale oil/gas firms
NYCRF	275	Yes (TRS, NYCERS & BERS)
UC Regents	168	Yes, broad fossil fuel divestment
NYSTRS	146	Yes, divested thermal coal names; restricted from new purchase certain carbon-intensive fossil fuel holdings
OST	97	No
MSBI	94	Yes, thermal coal resolution. Prefer engagement
LACERA	75	No
MSRPS	68	No
PD	48	Yes
CRPTF	46	No
SFERS	37	Yes, excludes thermal coal; certain oil& gas
Illinois SURS	24	No
DCRB	11	No
ERSRI	11	No
LPFA	10	Yes
VPIC	6	Yes
SCERS	4	Yes, primarily through infrastructure
EBMUDERS	2	No

¹ Source: Meketa survey and research.

Portfolio Monitoring¹

Name of Asset Owner	AUM (\$B)	Actively Monitor Portfolio or Managers for Climate Change Risks and Opportunities?	Monitor Scope 1, 2, and/or 3 GHG Emissions data?	Recommendations on Climate Data, Specific Metrics, Tools, or Resources?
CalPERS	480	Yes	Yes, use MSCI for public markets and ask private external managers for GHG data	MSCI, ESG Data Convergence Project, GRESB
CalSTRS	320	No, beginning to develop systems and processes to do so	No, began process to measure and manage CO2 emissions exposure	N/A Still researching
NYSCRF	280	Yes	Yes, scope 1&2	GRESB
NYCRF	275	Yes, ad-hoc basis	Ad hoc and will systemize under net zero plan	N/A
UC Regents	168	Yes	Yes	N/A
NYSTRS	146	Yes, uses investment consultant	Yes, monitors all using MSCI	N/A
OST	97	Yes, for private markets investments ESG is incorporated in due diligence; retained Four Twenty-Seven for details on real estate assets	No	Four Twenty-Seven (part of Moody's)
MSBI	94	Yes, use investment consultant	Plan to do so	
LACERA	75	Yes, for public markets	Procure analytics for public markets from two vendors, collaborate with GRESB for real estate data	Carbon footprint for baseline data, scenario analysis for more forward-looking lenses
MRSPF	68	Yes, included in strategic asset allocation review; working on an implementation project with BlackRock Aladdin Risk	Yes, staff expects to utilize BlackRock Aladdin Risk to monitor	N/A
PD	48	Yes	Yes, use MSCI and Bloomberg data	MSCI combined with "Bloomberg Reported"
CRTPF	46	Yes, annual reviews. Heavier scrutiny on real assets.	No	Bloomberg
SFERS	37	**	Yes, Scope 1&2	**
Illinois SURS	24	No	No	N/A
DCRB	11	No	No	N/A
ERSRI	11	No	No	N/A
LPFA	10	Yes	Yes, monitored for the Global Equity Fund as part of TCFD and within Real Assets where available.	N/A
VPIC	6	Yes	No	N/A
SCERS	4	Yes, tracks exposure to CU200	No	Climate Action 100+
EBMUDERS	2	Not regularly	Not regularly	N/A

¹ Source: Meketa survey and research.

Appendix II

Summary Descriptions of Climate Focused Institutional Investor Organizations

Appendix II: Summary Descriptions of Climate Focused Institutional Investor Organizations

Summary Descriptions of Institutional Investor Organizations with a Climate Focus

Year Founded	Organization Name	Abbreviation	About
1985	Council of Institutional Investors	CII	CII is a nonprofit association of US public, corporate and union employee benefit funds, other employee benefit plans, state and local entities charged with investing public assets and foundations and endowments with combined assets under management of approximately \$4 trillion.
1989	Ceres	Ceres	Ceres is a nonprofit organization transforming the economy to build a just and sustainable future for people and the planet. Through powerful networks and global collaborations of investors, companies and nonprofits, Ceres drives action and inspires equitable market-based and policy solutions throughout the economy.
2000	Carbon Disclosure Project	CDP	CDP is a not-for-profit charity that runs the global disclosure system for investors, companies, cities, states, and regions to manage their environmental impacts. The world's economy looks to CDP as the gold standard of environmental reporting with the richest and most comprehensive dataset on corporate and city action.
2005	Principles for Responsible Investing	PRI	The PRI is the world's leading proponent of responsible investment. It works to understand the investment implications of environment, social and governance ("ESG") factors and to support its international network of investor signatories in incorporating these factors into their investment and ownership decisions.
2009	Global Real Estate Sustainability Benchmark	GRESB	GRESB is the global ESG benchmark for financial markets, composed of an independent foundation and a benefit corporation. Working together as one, the GRESB Foundation focuses on the development, approval, and management of the GRESB Standards while GRESB BV performs ESG assessments and provides related services to GRESB Members.
2011	Sustainability Accounting Standards Board	SASB	SASB Standards guide the disclosure of financially material sustainability information by companies to their investors. Available for 77 industries, the Standards identify the subset of ESG issues most relevant to financial performance in each industry.
2013	PlanetMark	-	PlanetMark's purpose is to unite the very best of people, technology, and nature to radically reduce carbon emissions, transform communities and ultimately halt the climate crisis.
2015	The Task Force on Climate-related Financial Disclosures	TCFD	Created by the Financial Stability Board, the TCFD has set out its series of recommendations to establish a framework for businesses to manage climate risks; both transition and physical, and benefit from the related opportunities.
2017	Climate Action 100+	CA100+	Climate Action 100+ is an investor-led initiative to ensure the world's largest corporate greenhouse gas emitters take necessary action on climate change.

Appendix II: Summary Descriptions of Climate Focused Institutional Investor Organizations

Summary Descriptions of Institutional Investor Organizations with a Climate Focus (continued)

Year Founded	Organization Name	Abbreviation	About
2017	Transition Pathway Initiative	TPI	The Transition Pathway Initiative ("TPI") is a global, asset-owner led initiative which assesses companies' preparedness for the transition to a low carbon economy.
2017	The Institutional Investors Group on Climate Change	IIGCC	IIGCC is the European membership body for investor collaboration on climate change.
2019	Net-Zero Asset Owner Alliance	NZAOA	Institutional investors transitioning their portfolio to net-zero GHG emissions by 2050.
2019	Paris Aligned Investment Initiative	PAII	The Paris Aligned Investment Initiative is a collaborative investor-led global forum enabling investors to align their portfolios and activities to the goals of the Paris Agreement. The Paris Aligned Investment Initiative ("PAII") was established in May 2019 by the Institutional Investors Group on Climate Change ("IIGCC"). As of March 2021, the initiative has grown into a global collaboration supported by four regional investor networks – AIGCC (Asia), Ceres (North America), IIGCC (Europe) and IGCC (Australasia).
2021	ESG Data Convergence Project	ESG DCP	The Project's objective is to streamline the private investment industry's historically fragmented approach to collecting and reporting ESG data in order to create a critical mass of meaningful, performance-based, comparable ESG data from private companies. This allows GPs and portfolio companies to benchmark their current position and generate progress toward ESG improvements while enabling greater transparency and more comparable portfolio information for LPs.

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East Bay Municipal Utility District Employees Retirement System

July 14, 2022

AL Roadmap & TIPS Education

AL Roadmap

- Goal: *To review and possibly modify EBMUDERS' Strategic Allocation Policy, reflecting the Board's unique definition, tolerance for, and beliefs about investment risk*
- Asset allocation determination is one of the most important responsibilities of Board members as it most directly impacts the ability of the System to meet its liabilities
- Asset-Liability study should be a dynamic process ensuring Board members are well informed and positioned to make a prudent decision on behalf of the System
 - Timeframe should be fluid and adjusted to best meet the needs of Board members
- Three components of Asset-Liability process:
 1. Asset Class Education – Review asset classes for potential inclusion in AL model
 - A. Treasury Inflation Protected Securities (TIPS) – **Today**
 - B. Risk Mitigating Strategies – Next Board Meeting
 - C. Private Equity / Private Credit / Infrastructure / Other – (Optional) Future meeting(s)
 2. Asset-Liability Study Education – Reviews key concepts in AL management and modelling
 - A. Strategic Analysis of Current Portfolio and Capital Market Assumptions
 - B. AL Management and Actuarial Concepts Education
 3. Asset Liability Study – Conduct AL study and select new strategic asset allocation
 - A. Risk Definitions and Voting – Set parameters for AL model
 - B. Live Model Presentation and strategic allocation selection

Treasury Inflation Protected Securities (TIPS) Education

What are TIPS?

- Bonds issued by the US Government that offer a guaranteed return over inflation.
- Principal is adjusted semi-annually at rate of inflation.
- Two components to yield:
 - Real yield
 - Market's expectation for future inflation
- Market value fluctuates.
- Prices rise when higher inflation is perceived.

TIPS Basics

- TIPS are securities whose principal is tied to the Consumer Price Index.
- TIPS pay interest twice a year, at a fixed rate, based on the real interest rate at time of issuance (but never less than 0.125%).
- The rate is applied to the adjusted principal; so, like the principal, interest payments rise with inflation and fall with deflation.
- With inflation, the adjusted principal increases. With deflation, it decreases.
- When the security matures, the U.S. Treasury pays the original or adjusted principal, whichever is greater.
- Advantages:
 - Government guaranteed.
 - Inflation protection.
 - At maturity, investors never get less than principal amount (even with deflation).
 - Low correlation to other asset classes.
- Disadvantages:
 - Principal can decline with inflation (though matures at Par).
 - Interest rate sensitivity – Interest rate risk may overwhelm inflation benefit (especially longer-term TIPS).
 - Potential for negative real yield.

TIPS Example

→ Example: Investor purchases a 5-year TIPS issued with 0.5% interest rate.

Year	Rate	Inflation	Adj. Principal	Interest
1	0.5%	2%	\$1020	\$5.10
2	0.5%	5%	\$1071	\$5.36
3	0.5%	8%	\$1157	\$5.79
4	0.5%	-3%	\$1122	\$5.61
5	0.5%	2%	\$1144	\$5.72

→ At maturity, the investor receives the adjusted principal of \$1,144. And has received a total of \$27.58 in interest for total consideration of \$1,171.58.

→ Investor earns return of approximately 3.2% per year relative to average inflation of 2.7% per year.

Why Should Investors Own TIPS?

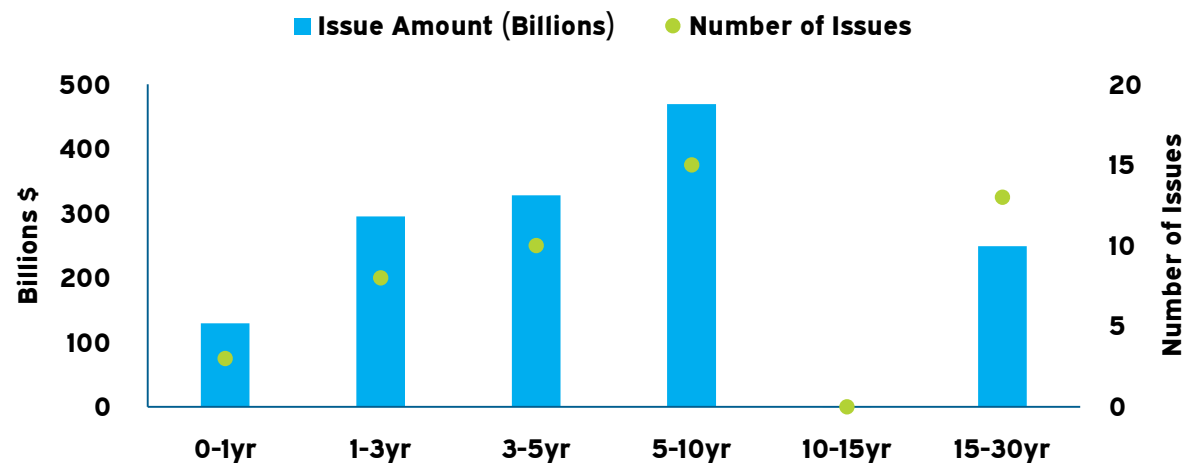
→ TIPS historically have provided the four benefits outlined below.



Size and Composition of the TIPS Market

- The total size of the TIPS market is ~\$1.8 trillion.
- TIPS issues represent about 8% of the total outstanding issuance of the US Treasury.
- Total outstanding issuance by dollar amount is skewed to the short term
 - Roughly 50% is in maturities less than five years by market value.
- However, the number of issues is rather limited.
 - There are 21 TIPS issues with maturities less than five years.

Size of TIPS Market by Years to Maturity¹



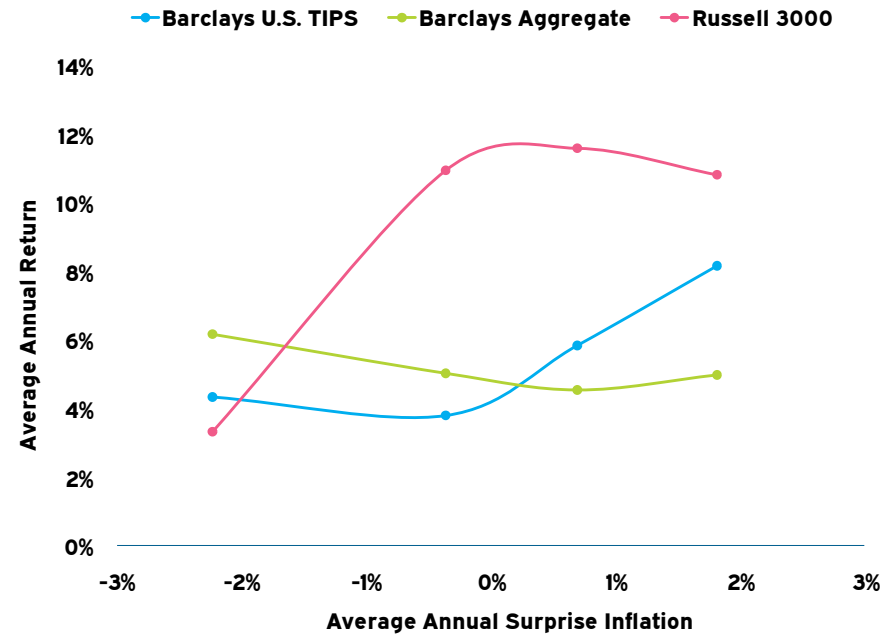
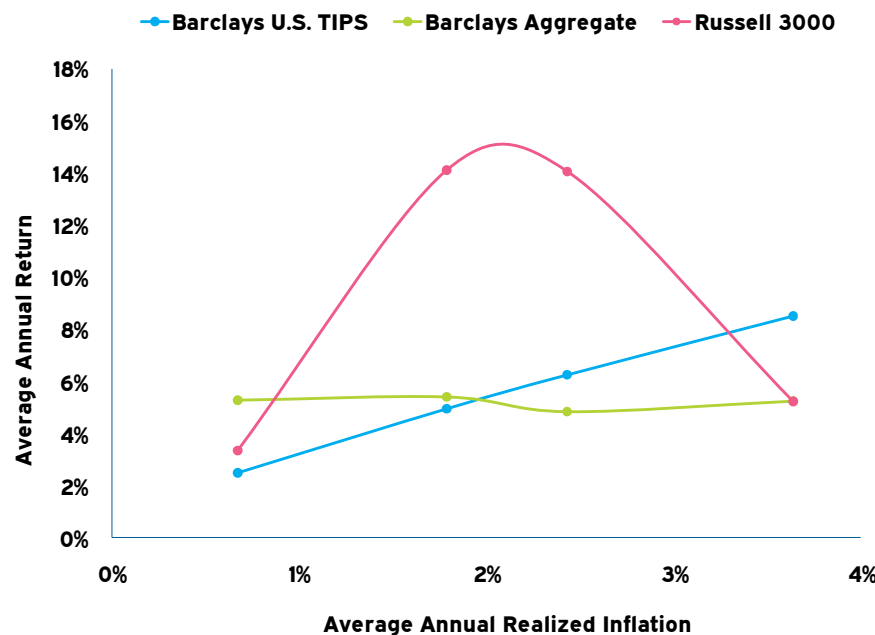
¹ Source: Bloomberg data as of March 31, 2022.

Role of TIPS: Need for an Inflation Hedge

- Periods of high inflation are often accompanied by low stock and bond returns. These are the periods when TIPS fare relatively well.
- Markets factor inflation into asset prices. When inflation is much higher (or lower) than what is expected, asset prices react strongly to these “surprises”.

Asset Class Returns Relative to Inflation (Since 1997)

Annual Returns vs. Realized Inflation Annual Returns vs. Surprise Inflation



Case for Short Duration TIPS

Sensitivity to Interest Rates

Key Takeaway

Adding shorter duration TIPS will reduce sensitivity to a rising interest rate environment. This is particularly relevant in an environment that perhaps represents the end of a 40-year secular decline in interest rates.

- Duration estimates how much the price of a bond portfolio will change due to movements in interest rates.
 - A duration of 10 implies that the price of a bond will drop 10% with a 1% increase in interest rates.
- Longer duration bonds are more sensitive to interest rate changes.
- The Bloomberg 1-5 Year TIPS Index has a duration less than half that of the Bloomberg US TIPS Index.
 - This significantly decreases its sensitivity to interest rate fluctuations.

Duration & Maturity¹

	Duration (Years) ²	Maturity (Years)
Bloomberg 1-5 Year TIPS	2.4	3.0
Bloomberg US TIPS	5.8	8.0
Bloomberg Aggregate	6.5	8.8

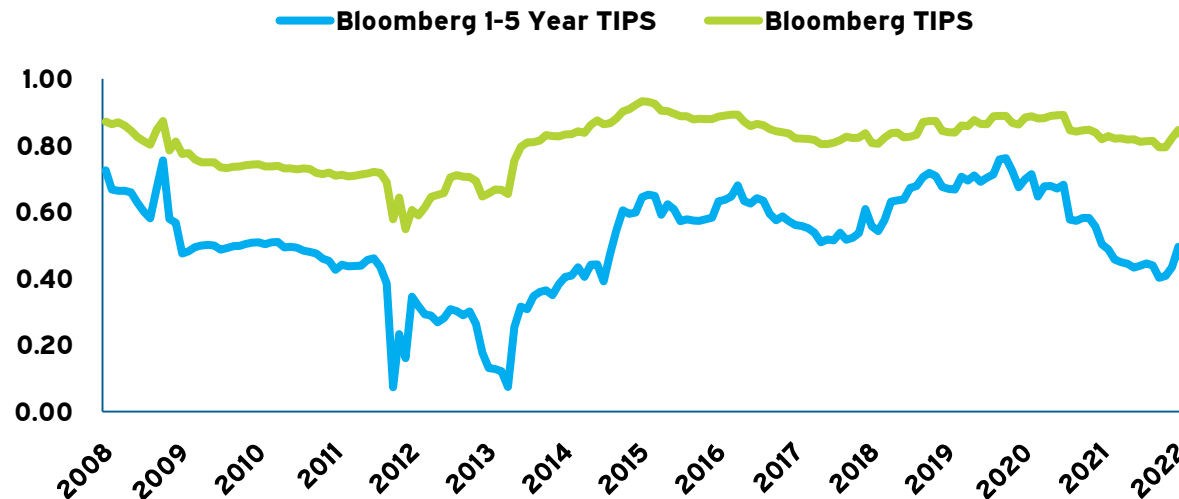
¹ Source: Bloomberg data as of March 2022.

² The duration for TIPS cannot be precisely calculated as the exact size of future cash flows is unknown (since future inflation is unknown). Hence, duration is estimated based upon market expectations for future inflation. Option-adjusted duration is used for the Bloomberg Aggregate.

Sensitivity to Interest Rates (continued)

- Shorter duration TIPS have historically offered lower correlations to the broad bond market.
- The nature of a rising rate environment will impact TIPS in differing ways based on their duration.
 - If longer-term rates are rising faster than shorter-term rates (i.e., a rate rise accompanied by a steepening yield curve), longer-term TIPS will perform far worse than short-term TIPS.
 - However, in an environment where short-term rates rise faster than long-term rates, then short-term TIPS will share the pain.

Rolling 3-Year Correlation vs. the Bloomberg Aggregate Index¹



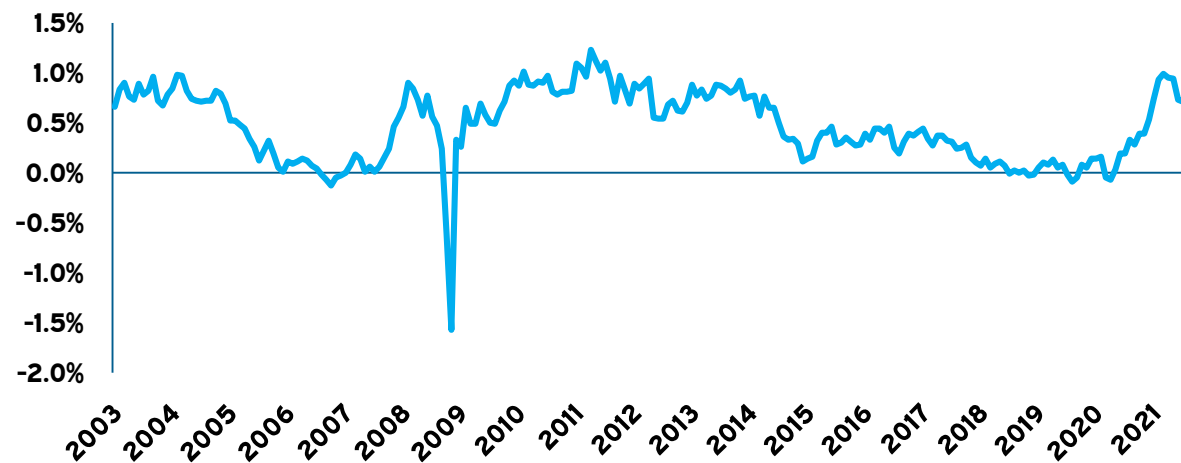
¹ Source: Meketa analysis based on Bloomberg data for 2008 through March 2022.

Lower Yield

Key Takeaway

The primary trade-off of short-term TIPS is that they typically offer a lower yield than longer-term TIPS.

- In return for accepting less interest rate risk, investors generally receive a lower yield for short term TIPS.
- The amount of this trade-off (i.e., yield give-up) depends on the steepness of the yield curve.
 - The opportunity cost of holding short-term TIPS is small during a period with a flat yield curve
 - A steep yield curve provides a yield advantage to market duration TIPS.

Historical 10-5 Yield Curve Steepness for TIPS¹

¹ Source: Meketa analysis of Bloomberg data for the period from 2005 through March 2022.

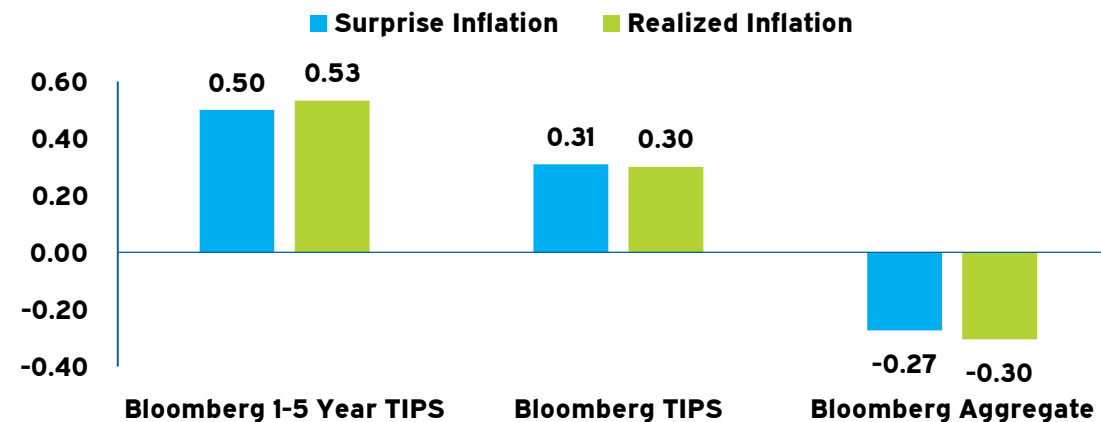
Inflation Protection

Key Takeaway

Shorter duration TIPS has acted as a purer hedge against inflation as seen historically in inflationary periods, and most recently over the past year. This also results in lower volatility (standard deviation), and slightly lower returns over longer time periods.

- Short duration TIPS have exhibited positive correlations to both realized inflation and unexpected (i.e., “surprise”) inflation historically, unlike nominal bonds.
- Short-term TIPS are much less exposed to interest rates, which effectively leaves inflation as the primary driver of their performance.

Correlation with Inflation¹



¹ Source: Meketa analysis of Bloomberg data for the period from 2005 through March 2022.

Historical Scenario Analysis¹

Key Takeaway

Shorter duration TIPS have acted as a purer hedge against inflation as seen historically in inflationary periods.

TIPS Performance during Top 20% and Bottom 20% of Inflationary Periods

1971-3/2022	Inflation (CPI)	Change in 10-Year Treasury Yield	US TIPS 1-5 Year	US TIPS 5-Year Constant Maturity	US TIPS 10-Year Constant Maturity
Top 20% of Inflation Periods ²	9.0%	0.7%	7.7%	5.7%	2.9%
Bottom 20% of Inflation Periods	1.1%	-0.5%	2.0%	2.7%	4.0%

Historical Scenario Analysis³

Scenario	Inv. Grade Bonds	TIPS	Short-Term TIPS
COVID Rebound/Supply Shock (Apr 2021 – Apr 2022)	-7.2%	2.0%	3.3%
Taper Tantrum (May - Aug 2013)	-3.7%	-8.5%	-2.1%
Rate spike (1994 Calendar Year)	-2.9%	-7.5%	-3.8%
Volcker Recession (Jan - Mar 1980)	-8.7%	-7.8%	-3.9%
Stagflation (Jan 1973 - Sep 1974)	7.9%	4.3%	2.3%

¹ Source: Meketa analysis based on data from Bloomberg and FRED. For the period prior to 1997, the results use simulated TIPS returns based on an internal Meketa Investment Group model that is built upon industry and academic research.

² Represents ranked rolling 12-month inflation. Represents average of rolling 12-month returns and change in yields during these periods.

³ Source: Meketa historical scenario analysis based on Bloomberg Aggregate, Bloomberg US TIPS, Bloomberg US TIPS 1-5 Year.

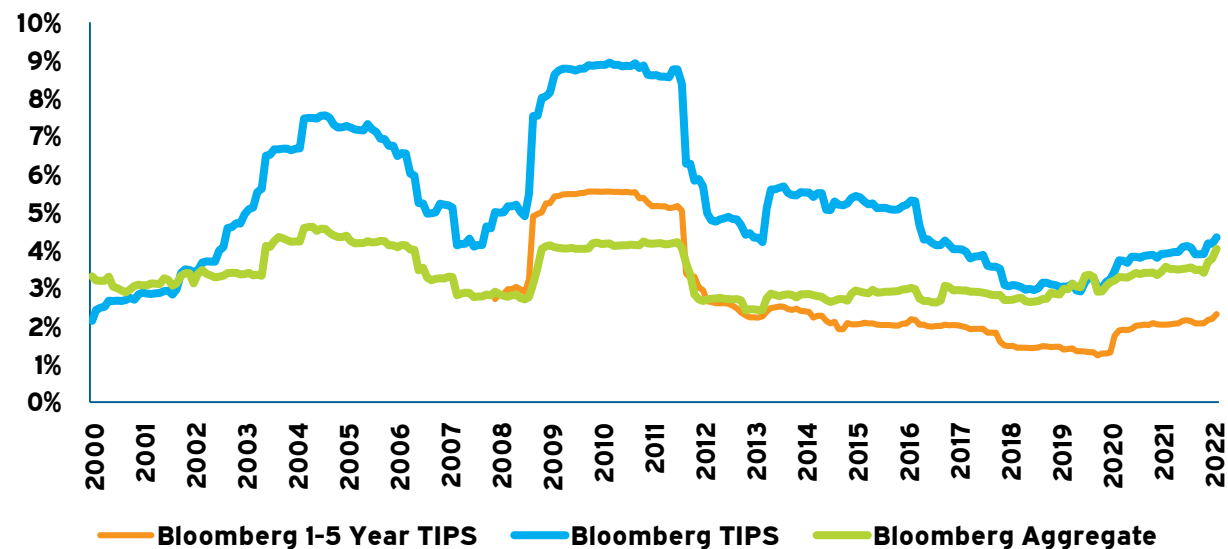
Historical Volatility

Key Takeaway

Shorter duration TIPS have exhibited lower volatility and slightly lower returns over longer time periods.

→ Shorter duration TIPS have typically experienced less volatility.

- This is to be expected given the lower sensitivity to changes in interest rates.

Three-year Rolling Standard Deviation (1976-2022)¹

¹ Source: Meketa analysis based on Bloomberg data for the period from 2000 through March 2022.

Liquidity

Key Takeaway

While short-term TIPS are not as liquid as nominal Treasuries, they are still far more liquid than the riskier assets that tend to comprise the majority of many investors' portfolios.

- The TIPS market is not as liquid as that for nominal Treasury bonds.
 - This is due to the smaller size of the TIPS market, the fact that TIPS constitute a non-benchmark investment for many bond managers, and TIPS' attractiveness as a buy and-hold investment.
- Consequently, it is slightly more expensive to trade TIPS than it is to trade nominal Treasuries.
 - In recent years, the trading spread has been approximately 0.10% of principal value for TIPS versus approximately 0.05% for Treasuries.¹
- It is likely that during periods of heightened volatility the spreads for TIPS could widen just as they do for other securities.

¹ Source: Bloomberg, average monthly bid-ask spread of on-the-run 10-year TIPS and Treasuries between September 30, 2018 and September 30, 2021.

Pros and Cons

Key Takeaway

There are pros and cons to investing in shorter duration TIPS relative to longer-term TIPS. The primary trade-off is between receiving a purer inflation and sacrificing long-term return potential.

Benefits	Disadvantages
Less exposure to interest rate risk	Long-term return potential is lower
Better inflation hedge	Lower yield
Less volatility	Underperform in a “flight to quality” crises

Summary

- TIPS are a high quality, liquid asset that can act as an inflation hedge and provide downside protection.
- Shorter term TIPS offer a “cleaner” exposure to inflation protection due to the lower interest rate exposure.
- Shorter term TIPS also lower expected return due to their (usually) lower yields.
 - The amount of this trade-off depends on the steepness of the yield curve.
- Short-term TIPS might seem particularly attractive for an investor who is concerned about rising interest rates and increases in inflation.

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EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: July 14, 2022

MEMO TO: Members of the Retirement Board

FROM: Lisa Sorani, Manager of Employee Services *Lisa Sorani*

SUBJECT: Discuss Health Insurance Benefit (HIB) Administration

DISCUSSION

The Retirement Ordinance, Section 36 lays out the terms of the Health Insurance Benefit (HIB). Section 36 (h) gives the Retirement Board the authority to adopt rules governing the administration of the HIB including schedule and method of payments of the HIB.

The HIB is based on an Internal Revenue Service (IRS) governed 401(h) tax advantaged account. The 401(h) rules limit what items the HIB can reimburse, and the Retirement Ordinance further limits the rules of the HIB to reimburse insurance premiums such as health insurance, dental insurance, Medicare insurance, and long-term care insurance.

The 401(h) rules require that the administration of the plan include confirmation of the insurance coverage and payment of the insurance premium prior to reimbursement. Staff in the Employee Services department mail HIB applications forms and adjudicate all incoming HIB claims from retirees. The process is run across a calendar year, and it takes a full year to review, confirm and adjust the HIB benefits for that calendar year. Due to the number of applications received, retirees may submit their HIB application and not have their application reviewed and their benefit adjusted for several months. As the retiree population continues to grow the administration of the HIB will continue to grow more complex and time consuming. Staff have made process improvements over the last two years, but the annual HIB audit remains a huge amount of work from retirement system staff who are not solely dedicated to HIB, but who have other responsibilities. Five different employees in the retirement unit work on the HIB audit each year part-time. The cost of staff time easily exceeds \$200,000 each year. The part-time nature of the work creates manual adjustments to be processed on every retiree payroll each year, not to the pension benefit but to the payment of HIB. The manual calculation and process of the edits each month also leads to errors.

Over the past year, staff have been discussing the technology changes that will come with the new Pension Administration system Pension Gold (contract pending). The build of the HIB administration in Pension Gold would be a custom-built program since HIB are not standard pension benefits. A custom-built program would result in additional cost for the project and for ongoing maintenance of the new system. Even with a custom build, staff time would still be required to handle the review of the HIB claims. Through conversation with District benefit

consultants, Alliance Insurance Services, Inc., staff learned that other local agencies are managing similar retiree health reimbursement plans with several vendors who also provide employee Flexible Spending and Health Reimbursement Account administration. Most of the other public agencies use Health Reimbursement Accounts (HRA) to provide health reimbursement benefits. 401(h) (HIB) and HRA plans vary somewhat in compliance rules, however, the work of reviewing claims and reimbursing claims is very similar; so Staff is confident that the proposing vendors could accurately administer this work.

Current inefficiencies in the HIB Administration

- Most claims are processed via paper forms through the U.S. mail;
- EBMUD has no secure method for Retirees to upload digital documents to us, which represents risk to EBMUD and the retiree;
- During the kickoff of the HIB audit, over half of the calls to the Employee Services Hotline are from retirees related to HIB across several months;
- All HIB adjustments are calculated manually;
- All HIB adjustments for non-District benefits are manually entered into the LifeWorks claims tracking system by Retirement Service staff;
- HIB adjustments are tracked on a spreadsheet shared with Payroll team, with adjustments made every pay period;
- All HIB adjustments are manually entered into the payroll system by payroll staff
- Over 80% of the adjustments on retiree payroll each month are related to HIB adjustments.

Expected Improvements by outsourcing

- Cost savings to the District for HIB administration. Vendor fees are usually billed as a per retiree fee. At current retiree numbers the proposals ran from \$60,000 to \$75,000 annual;
- Managed by organizations that do similar work for employee Flexible Spending Account Administration. These vendors have the technology and have built their business on processing this type of work;
- Secure technology allowing retirees to upload claims rather than mailing;
- Toll-free access to courteous, professional staff for those retirees who do not want to use new technology;
- 24-hour online access to HIB account information for retirees;
- Claim review and processing completed within 48 hours of each received claim;
- Faster claim review means fewer adjustments in HIB reimbursements;
- Ability to post claims online or via app on cell phone, or via U.S. Mail;
- Dedicated customer service line for HIB claim questions, with representatives use to working with retiree;
- Payment to retiree by vendor (not on retiree pension checks) – streamline retiree pension payroll;

Health Insurance Benefit (HIB) Administration
Retirement Board Meeting
July 14, 2022

- Retiree can set up direct deposit with vendor so HIB payments deposit straight to their bank account;
- Monthly payment of HIB by vendor can be set to similar timing of Retiree Payroll so payments come at similar time of deductions for health insurance on retiree paychecks;
- Dedicated Account Manager for District Retirement Staff contact.

Anticipated next steps

Staff are still in conversation with several possible vendors and expect to make a final decision by the end of September. When the contract is ready, staff will first bring the contract to the Retirement Board to request support of the contract and recommendation to the Board of Directors. Creation of the Statement of Work in the contract, will inform edits needed to Retirement Board rule C-3. The final step will be to bring to the Retirement Board edits to Rule C-3 to review and approve.

LS:ls

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: July 14, 2022

MEMO TO: Members of the Retirement Board

THROUGH: Lisa Sorani, Manager of Employee Services *Lisa Sorani*

FROM: Valerie Weekly, Principal Management Analyst, Retirement *Valerie Weekly*

SUBJECT: Retirement Board Election Update – Retiree Election

As of July 12, 2022, the candidate biography for each candidate was sent out to all Retirees. Each candidate must receive five (5) nominations from retirees in order to be placed on the Ballot. As of the writing of this memo on July 7, 2022, only one candidate form has been received.

The nomination period runs through July 25, 2022.

As requested, staff and Retirement Board President Tim McGowan promoted and hosted two informational Zoom meetings about the Retirement Board and the work of the Retiree Board member. All retirees were notified and invited to join the call, however, no retirees joined either meeting.

When we send out information about the election each year, it is noted whether or not the current seated Retirement Board member is planning to run again. It is possible this information limits participation from other retirees.

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