INVESTMENT ADVISORY COUNCIL

OF THE
MINNESOTA
STATE BOARD OF INVESTMENT

INVESTMENT ADVISORY COUNCIL
MEETING
May 16, 2022

The Minnesota Legislature has established a seventeen member Investment Advisory Council (IAC) to advise the Board and its staff on investment-related matters. All proposed investment policies are reviewed by the IAC before they are presented to the State Board of Investment (SBI) for action.

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INVESTMENT ADVISORY COUNCIL MEETING

AGENDA

May 16, 2022

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AGENDA
INVESTMENT ADVISORY COUNCIL MEETING

Hybrid Meeting
Monday, May 16, 2022
12:00 p.m.

		TAB	
1.	**Call to Order**		
2.	**Approval of Minutes of February 14, 2022**		**Motion Needed**
3.	**Performance Summary**	**A**	
4.	**Executive Director's Administrative Report** (Mansco Perry)	**B**	
5.	**Report from the SBI Administrative Committee** (Mansco Perry) A. Review of Executive Director's Proposed Work Plan FY23 B. Review of Budget Plan for FY23 and FY24 C. Review of Continuing Fiduciary Education Plan	**C**	**Motion Needed**
6.	**Update on Meketa Climate Risk Project** (Sarah Bernstein)	**D**	
7.	**DEI Committee Update: Recommendation for DEI Investment Belief** (Mansco Perry)	**E**	**Motion Needed**
8.	**Recommendation for the Water Quality and Sustainability Account from the 3M Settlement** (Mansco Perry)	**F**	**Motion Needed**
9.	**Summary of Non-Defined Benefit Investment Programs** (Patrica Ammann and Erol Sonderegger)	**G**	
10.	**Private Markets Commitment for Consideration** (Andy Christensen and Andrew Krech)	**H**	**Motion Needed**
11.	**Some Suggestions from the Executive Director** (Mansco Perry)	**I**	**Motion Needed**
12.	**Update from Executive Director Search Committee** (Gary Martin)	**J**	
13.	**Other Items**		

REPORTS

- **Public Markets Investment Program Report**
- **Participant Directed Investment Program and Non-Retirement Investment Program Report**
- **SBI Environmental, Social, and Governance (ESG) Report**
- **Aon Market Environment Report**
- **Meketa Capital Markets Outlook & Risk Metrics Report**
- **SBI Comprehensive Performance Report**

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Approval of
February 14, 2022
IAC Meeting Minutes

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Minutes
Investment Advisory Council
February 14, 2022

Call to Order
The Investment Advisory Council (IAC) met at 12:00 p.m. on Monday, February 14, 2022. The Chair of the IAC determined that an in-person meeting was not practical or prudent because of the current COVID-19 health pandemic. As is permitted under the Open Meeting Law in these conditions, the IAC meeting was conducted via Zoom for Government video conferencing software and over the phone. Attendance and all votes were conducted by roll call.

MEMBERS PRESENT: Doug Anderson, Dennis Duerst, Kim Faust, Susanna Gibbons, Morris Goodwin Jr., Jennifer Hassemer (for Jim Schowalter), Peggy Ingison, Erin Leonard, Gary Martin, Dan McConnell, Nancy Orr, Carol Peterfeso, Martha Sevetson Rush, Jay Stoffel, Shawn Wischmeier, and Public Member Emeritus Malcolm McDonald.

MEMBERS ABSENT: Denise Anderson.

SBI STAFF: Mansco Perry, Patricia Ammann, Paul Anderson, Shirley Baribeau, Nate Blumenshine, Tammy Brusehaver, Andy Christensen, Dan Covich, Stephanie Gleeson, Aaron Griga, Cathy Hua, Andrew Krech, Steve Kuettel, Melissa Mader, John Mulé, Charlene Olson, S. Emily Pechacek, Erol Sonderegger, Jonathan Stacy, Reece Tolkinen, David Velasquez, and Jeff Weber.

OTHERS ATTENDING: Leslie Hill, Zahira Habib-Dewji, and Andrey Rumyantsev, Record Currency; Kristen Doyle and Katie Comstock, Aon Investments; Allan Emkin, Sarah Bernstein, Gordon Latter, and Ghiane Jones, Meketa Investment Group; Sean Crawford, Arabella Wuchek, and James Kakoza, Albourne America; Luz Frias and J. Adam Sorenson, Attorney General's Office; Karl Procaccini, Governor's Office; Ramona Advani, State Auditor's Office.

Members of the public attended the meeting, however, due to the meeting being held via virtual teleconference the SBI was unable to track the information.

Approval of Minutes
The minutes of the November 15, 2021 meeting were approved unanimously by roll call vote. Morris Goodwin was not present for the vote.

Introduction of New Staff Members
Mr. Christensen introduced five of the newest members of the SBI staff and noted that the SBI is in various stages of filling positions for two Investment Officers, two Investment Analysts, and an

Accounting Officer. Mr. Christensen also mentioned two job vacancies as one Investment Officer recently left and an Investment Accounting Specialist will be retiring soon.

Performance Summary
Mr. Perry, Executive Director, referred members to the December 31, 2021 Performance Summary provided in Tab A of the meeting materials. Mr. Perry informed the Board that as of December 31, 2021 the SBI was responsible for almost $136 billion in assets and that the Combined Funds represent $94 billion of those assets. Mr. Perry reported that the Combined Funds continue to exceed its long-term objectives by outperforming its Composite Index over the ten-year period ending December 31, 2021 (Combined Funds 11.6% vs. Combined Fund Composite Index 11.2%) and provided a real rate of return above inflation over a 20 year time-period (Combined Funds 8.6% vs CPI-U 2.3%). The Combined Funds matched the composite index for the quarter and exceeded the composite index for all other reporting periods.

Mr. Perry noted that the Combined Funds actual asset mix is in-line with the asset allocation targets. He commented on the quarter-end returns for each asset group and that Public Equities performed slightly below its benchmark mainly from global equities, and to a lesser extent, domestic equities underperforming their respective benchmarks. Mr. Perry stated that for the quarter, the Total Fixed Income segment slightly underperformed its composite benchmark and the Private Markets invested allocation returned 6.4% and the uninvested allocation returned 11.1%. Next, Mr. Perry noted that the Volatility Benchmark Comparison shows the Combined Funds portfolio added value for all time-periods listed on a risk-adjusted basis. Lastly, Mr. Perry stated that the Combined Funds performance ranked in the first quartile for the quarter and the second quartile for the year ending December 31, 2021 compared to other public plans with over $20 billion in assets in the Trust Universe Comparison Service (TUCS).

Executive Director's Administrative Report
Mr. Perry referred members to Tab B of the meeting materials for the Executive Director's Administrative Report. He stated that the Administrative Budget gives an indication as to how close Staff has tracked the budget for the last six months and provided in the Tab is a copy of the SBI's Legislative Auditor letter, which has no written findings or recommendations; with the financial audit completed, the Fiscal Year 2021 Annual Report has been distributed. Mr. Perry continued that the Administrative Report included the Iran and Sudan summary and that there was no litigation during the quarter.

Report from Record Currency Management
Mr. Martin, Chairperson on the IAC, introduced Mr. Sonderegger, Assistant Executive Director, Portfolio Management and Risk Analysis, to review the currency overlay program. Mr. Sonderegger referred members to Tab C of the meeting materials and reminded members that the Board authorized the implementation of the Currency Overlay Program for the Combined Funds as part of the Board Resolution passed in May 2020 Concerning the Management of Combined Funds Asset Allocation and Liquidity. Mr. Sonderegger stated that the scope of that authorization called for the Currency Overlay Program to be used primarily as a risk management tool to hedge the SBI's non-dollar equity exposure using a gradual implementation process using three phases, which was outlined in the meeting materials.

Mr. Sonderegger introduced Ms. Hill, CEO of Record Currency Management, who presented on the currency overlay strategy and the performance and scope of the hedging program since its gradual roll out in October of 2020.

Private Markets Commitments

Mr. Perry referred members to Tab J of the meeting materials for the Private Markets Commitments. He stated with his forthcoming retirement, Staff accelerated the schedule for approval of twenty-one private market recommendations, which would normally be presented over a six month to one-year time-period. Mr. Perry noted that he preferred not to be bringing forth any new commitments for consideration this time nor during his remaining tenure as Executive Director, but he agreed that moving forward with this tranche would be beneficial for the portfolio. He stated we would not be bringing forth any deals at the next meeting.

Mr. Perry introduced Mr. Krech, Director of Private Markets, to provide a summary of the private market recommendations. Mr. Krech reminded the Council that the due-diligence process continues even after Board approval as more documents and fund details become available throughout the year. Mr. Krech and Mr. Stacy responded to questions on the three new private market manager relationships, Clearlake Capital Partners, Siris Partners, and TSG Consumer Partners. Mr. Krech provided information on the annual capital raising timeline and general due diligence process, specifically with the three new private equity funds during a remote work environment. There were additional questions related to the sizing of the commitments with each manager, typical range of commitments, how sizing is determined, and selection process to determine a final list of private market investments to recommend. Mr. Krech addressed questions specifically to Minnesota Asia Investors regarding challenges completing due diligence with Asian based firms. Mr. Krech stated that the objective with Asia Alternatives, a fund of funds, was their ability to select successful local Asian managers given the limited resources the SBI has with a small staff, travel limitations, and language barriers. Mr. Krech reminded the Council that the Minnesota Asia Investors is divided into two pools of capital: the balanced pool, which invests alongside Asia Alternatives commingled fund vehicles; and the co-investment pool that makes direct commitments, or co-investments, in the underlying funds as well as in individual companies.

Mr. Krech stated that Staff is recommending investments in the following three funds with new private market managers: Clearlake Capital Partners VII (Private Equity), Siris Partners V (Private Equity), and TSG9 (Private Equity); and the following eighteen funds with existing private market managers: Advent International GPE X (Private Equity), Apax XI (Private Equity), Blackstone Capital Partners IX (Private Equity), Blackstone Growth II (Private Equity), Bridgepoint Europe VII (Private Equity), Brookfield Capital Partners VI (Private Equity), IK X Fund (Private Equity), KKR Core Investments Fund II (Private Equity), KKR Europe VI (Private Equity), MN Asia Investors, LP (Private Equity), Nordic Capital XI (Private Equity), Thoma Bravo XV (Private Equity), TPG Partners IX (Private Equity), WCAS XIV (Private Equity), Wind Point X (Private Equity), HPS Strategic Investment Partners Fund V (Private Credit), Oaktree Special Situations Fund III (Private Credit), and Värde Fund XIV (Private Credit).

A motion was made that the IAC endorse the twenty-one private markets commitments. The motion was seconded and approved unanimously by roll call vote.

Treasury Protection Portfolio Duration Report
Mr. Sonderegger presented on the Treasury Protection Portfolio Duration report and Staff Policy Paper included in Tab D of the meeting materials. Mr. Sonderegger stated that Staff conducted a review of the Treasury Protection Portfolio target duration and benchmark as inflationary pressures are expected to persist and pose the risk of a significant rise in interest rates from the recent low yield environment. As the Federal Reserve works to contain inflation in this scenario, staff suggested lowering the target duration range to nine years from the current target of twelve years as a risk mitigation strategy. In addition, staff suggested using interest rate triggers that would shift the target duration and benchmark to a dynamic target duration and policy benchmark based on prevailing interest rates as represented by the Ten-Year Treasury Note. Mr. Sonderegger addressed comments from the Council regarding suitable duration range for the portfolio, other risk-off hedge opportunities, increasing the active risk budget for managers rather than changing their benchmark, and equity risk premium triggers. As part of the discussion, Mr. Perry noted that the primary objective of the Treasury Protection Portfolio had less to do as a hedge and more to do with preservation of capital and to maintain a degree of liquidity. He noted that there is not enough scale in this allocation to provide an appropriate hedge and that the benchmark is not ideal as he would prefer not being at the long end of the curve and putting more dollars at risk. After discussion, Mr. Perry stated that since there was not a strong consensus among IAC members to move forward, he would not bring Staff's recommendation to change the current policy benchmark that would allow for a reduced duration in the portfolio from twelve years to nine years.

Stewardship Items
Mr. Mulé, Director Legal and Policy Services, informed the Council that the SBI's first annual Stewardship Report, which provides a comprehensive accounting of the SBI's work with Environmental, Social, and Governance (ESG) activities, can be found in the SBI's 2021 Annual Report and on the SBI's website. Mr. Mulé also noted that the smaller ESG reports continue to be distributed on a quarterly basis. Lastly, Mr. Mulé introduced Mr. Blumenshine, Investment Officer, Stewardship and ESG, to introduce the next two agenda items: Diversity, Equity and Inclusion (DEI) Task Force and Meketa's Climate Risk Project.

Report from the DEI Task Force
Mr. Blumenshine referred members to the DEI Task Force Report provided in Tab E of the meeting materials. He reminded members that the Task Force was created by the Executive Director to identify opportunities and make recommendations to the Executive Director on how to increase DEI in the SBI's investment program. Mr. Blumenshine introduced Ms. Gibbons and Mr. Goodwin, co-chairs of the DEI Task Force, to share their initial recommendations as well as provide an update on progress made towards future objectives.

Mr. Goodwin began the discussion noting the large amount of credible data on the benefits of considering investment practices, policies, and beliefs with a DEI viewpoint. Next, Ms. Gibbons stated that the research supports both the economic and performance benefits of having diverse teams. Ms. Gibbons stressed that every step in the Task Force research was as fiduciaries and recommendations of the Task Force was to lead to improved investment results and economic outcomes that benefit plan participants and beneficiaries, the State of Minnesota, and its taxpayers. Ms. Gibbon's asked for the Council's input into the Task Force findings. Ms. Gibbons commented on the importance to lean on the consultants to expand the list of DEI managers under consideration. Ms. Comstock with Aon and Ms. Jones with Meketa commented on advancements their respective firms are making with DEI manager coverage.

Lastly, Mr. Perry discussed next steps with the DEI Task Force recommendations outlined in Tab E of the meeting materials. Mr. Perry stated that he will have further discussions with Meketa, who helped frame the original investment beliefs, and others. Mr. Perry also stated that he would bring any final edits back to the IAC for their input before going to the Board if he decides to update the investment beliefs prior to his retirement.

Meketa Climate Risk Project Report

Mr. Blumenshine introduced Mr. Emkin and Ms. Bernstein from Meketa who were retained in August 2021 to complete a climate special project that reviews the impact of climate risk and address how best to mitigate its impact on investment assets. Ms. Bernstein stated that this project would be issued in three reports. Phase One - Climate Global Trends, is included in Tab F of the meeting materials. Phase Two will survey global pension plans on how they manage climate risk and opportunities and how they approach investments in order to align with the Paris Climate Accords. Phase Three, Ms. Bernstein noted, will analyze the SBI's current total portfolio exposure to climate risk and opportunities across all of the asset classes and provide options for the SBI to discuss potential implementation for a successful climate transition strategy consistent with the Paris Climate Accords. Ms. Bernstein noted Phase One, Climate Global Trends, covers climate change global outlook, developments on the energy transition away from fossil fuels, how climate change is interacting with financial markets, how climate policies, regulations and institutional collaborations are evolving, and background on available climate data and metrics and risk ratings and analytic tools such as climate scenarios analysis. Through this research, Meketa has found overwhelming evidence that global warming is real and that physical climate risk and the energy transition will affect everything.

Report on Combined Funds Portfolio by SBI Consultants

Mr. Martin introduced the next agenda item, which includes reports from each of the SBI's consultants on the Combined Funds portfolio.

Albourne Partners

Mr. Christensen, Assistant Executive Director, Investment Strategy and Administration, introduced Mr. Crawford and Mr. Kakoza with Albourne Partners, SBI's private market consultant, to present the information provided in Tab G of the meeting materials. Mr. Crawford began by identifying Albourne's capabilities and the resources available to Staff. Albourne acts as an extension of Staff and helps with back and middle office duties that include custodial reconciliation, and fee reporting and validation, and assists with advisory services with pacing models, asset allocation work, and due diligence on items like ESG and DEI initiatives within private markets. Mr. Crawford noted that Albourne has an established New and Emerging Managers program where they are looking for the next generation of talent and provided information on their diverse manager coverage. Mr. Kakoza provided additional information on the project they are working on with Staff, which incorporates ESG and DEI data collection as part of the SBI's due diligence during the managers fundraising process. He noted a recent initiative at Albourne has been to include further integration of the DEI questionnaire into their operational due diligence process.

Aon Investments

Mr. Christensen introduced Ms. Doyle and Ms. Comstock of Aon Investments to give their overview of the SBI's portfolio. Ms. Doyle started with comments that they believe the SBI's governance structure follows best practices with the different committees of the Board and the use of investment experts on the IAC to help with investment decisions. Ms. Doyle noted that there are not a lot of U.S. public pension plans with a similar governance structure and believes this structure allows for constructive dialogue and ultimately leads to effective decision-making across the organization and at the Board level. Aon would encourage further discussion with the level of delegation that Staff has in terms of selection of investment managers. Aon surveyed the top fifteen U.S. public pension plans and found the SBI to be at the lower end of the spectrum compared to its peers in terms of the amount of delegation allowed. Currently, in the public markets, Staff has the discretion to allocate dollars and terminate, but require Board approval to hire. Mr. Perry noted that this is a historical practice and that the Board could delegate the hiring of managers to Staff. He also noted that in the future when having the discussion on delegation it should address the benefits and the risks.

Ms. Doyle also stated that Aon would also recommend adopting a formal investment policy statement to use as a guide for the IAC; and given the support they provide to staff, Aon would encourage more interaction with the consultants at these meetings. Ms. Doyle noted that many of the portfolio recommendations have been incorporated since Aon made their initial recommendations when hired. This included increasing the private markets allocation and taking larger sizes at the manager levels, the addition of a return seeking fixed income sub-asset class and ability to fund an opportunistic manager. Lastly, Ms. Doyle noted the shift to passive in areas where active risk is not compelling; mainly within domestic equity and developed international equity.

Ms. Comstock highlighted Aon's thoughts on opportunities and areas of focus for the SBI to consider. These include an allocation to core real estate, additional diversification within private markets, more commitments to private credit and non-core real estate, resources towards an opportunistic asset group, complete a formal asset liability study, active management aligned with Staff's conviction, and periodic review of benchmarks for both public market and private market managers.

Meketa Investment Group

Mr. Martin next introduced Mr. Emkin and Ms. Jones of Meketa Investment Group to provide their assessment and overview of the SBI's portfolio. Mr. Emkin stated that the most important decision that will impact the portfolio and the highest priorities should be to look at asset liability management across all the portfolios focusing on liquidity and defining risk. Mr. Emkin believes that the IAC and the Board should focus on higher-level items that include strategic asset allocation and structured portfolios and to spend less time on manager selection. Lastly, Mr. Emkin noted that the SBI has had the rare benefit of 35 to 40 years of continuity and history in its leadership and that now is the time to maintain the culture and keep Staff motivated and feeling valued. Mr. Emkin introduced Ms. Jones to provide comments on the Combined Funds portfolio. Ms. Jones suggested revisiting the allocation to active and passive management with a focus towards high conviction active managers. She continued that a reduction in the number of managers in the public equity and fixed income asset classes could provide potential fee savings and enhance returns. Ms. Jones noted investment opportunities for the portfolio include an inflation protection sub-asset group of Treasury Inflation-Protected Securities (TIPS) and commodities, core real estate portfolio, and other risk mitigating strategies.

Executive Director Search Committee Report

Mr. Martin updated the Council on the Executive Director Search Committee, which is comprised of one designee from each Board Member, the three directors from the Statewide Retirement Systems, and three members of the IAC, which included Mr. Martin as Chair, Ms. Faust and Mr. Wischmeier. Mr. Martin stated three executive search firms responded to the SBI's Executive Search Firm Request for Proposal and he provided a draft timeline of the search process to select Mr. Perry's replacement. Mr. Martin stated the dates are fluid but anticipates a recommendation to the Board for a replacement in July.

Adjournment of Meeting

The motion to adjourn the meeting was seconded and approved by roll call vote. The meeting adjourned at 3:24 p.m.

Respectfully submitted,

Mansco Perry III

Mansco Perry III
Executive Director and
Chief Investment Officer

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TAB A

Quarterly Performance Summary

March 31, 2022

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Performance Summary

March 31, 2022

Description of SBI Investment Programs

The Minnesota State Board of Investment is responsible for the investment management of various retirement funds, trust funds and cash accounts.

Combined Funds

The Combined Funds represent the assets for both the active and retired public employees in the statewide retirement systems, the biggest of which are the Public Employees Retirement Association (PERA), the Teachers Retirement Association (TRA), and the Minnesota State Retirement System (MSRS). The SBI commingles the assets of these plans into the Combined Funds to capture investment efficiencies. All assets in the Combined Funds are managed externally by investment management firms retained by contract.

Fire Plans + Other Retirement Plans

Fire Plans and Other Retirement Plans include assets from volunteer fire relief plans and other public retirement plans with authority to invest with the SBI, if they so choose. Fire Plans that are not eligible to be consolidated with Public Employees Retirement Association (PERA) or elect not to be administered by PERA may invest their assets with the SBI using the same asset pools as the Combined Funds. The Statewide Volunteer Firefighter Retirement Plan is administered by PERA and has its own investment vehicle called the Volunteer Firefighter Account.

Participant Directed Investment Program

The Participant Directed Investment Program (PDIP) provides investment vehicles for a variety of retirement or other tax-advantaged savings plans. Investment goals among the PDIP’s many participants are varied. In order to meet the variety of goals, participants may allocate their investments among one or more accounts that are appropriate for their needs within statutory requirements and rules established by the participating organizations.

Non-Retirement Funds

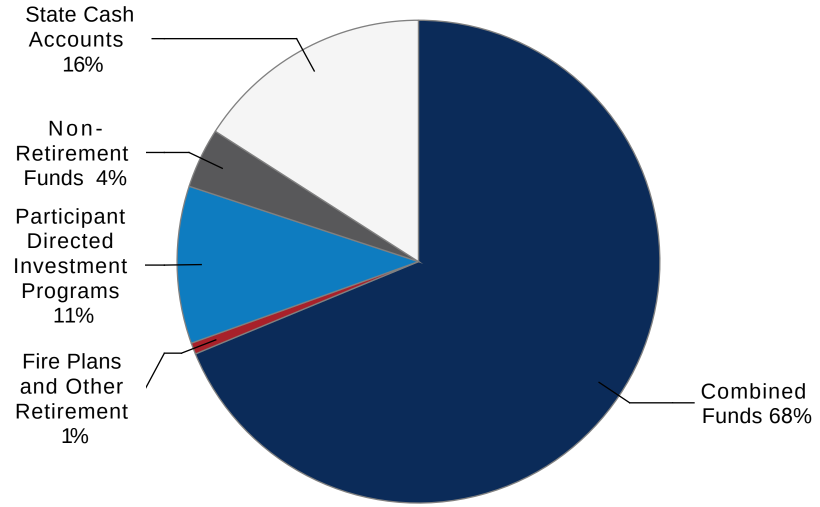
The Non-Retirement Funds are funds established by the State of Minnesota and other government entities for various purposes which include the benefit of public schools, the environment, other post-employment benefits, workers compensation insurance, and other purposes.

State Cash

The State Cash accounts are cash balances of state government funds including the State General Fund. Most accounts are invested by SBI staff through a short-term pooled fund referred to as the Treasurer's Cash Pool. It contains the cash balances of special or dedicated accounts necessary for the operation of certain State agencies and non-dedicated cash in the State Treasury. Because of special legal restrictions, a small number of cash accounts cannot be commingled.

Funds Under Management

	$ Millions
Combined Funds	**$89,861**
Fire Plans + Other Retirement Plans	**991**
Participant Directed Investment Program	**13,775**
State Deferred Compensation Plan	9,536
Health Care Savings Plan	1,702
Unclassified Employees Retirement Plan	384
Hennepin County Supplemental Retirement Plan	182
PERA Defined Contribution Plan	96
Minnesota College Savings Plan	1,847
Minnesota Achieving a Better Life Experience Plan	28
Non-Retirement Funds	**5,264**
Assigned Risk Plan	267
Permanent School Fund	1,952
Environmental Trust Fund	1,667
Closed Landfill Investment Fund	133
Miscellaneous Trust Funds	358
Other Postemployment Benefits Accounts	887
State Cash	**21,492**
Invested Treasurer's Cash	21,424
Other State Cash Accounts	68
Total SBI AUM	**131,383**



Note: Differentials within column amounts may occur due to rounding

Quarterly Report

Comparison to Objective

Match or Exceed Composite Index (10 yr.)

Outperform a composite market index weighted in a manner that reflects the long-term asset allocation of the Combined Funds over the latest 10 year period.

	10 Year
Combined Funds	10.2%
Combined Funds - Composite Index	9.9
Excess	0.3

Provide Real Return (20 yr.)

Provide returns that are 3-5 percentage points greater than inflation over the latest 20 year period.

	20 Year
Combined Funds	8.3%
CPI-U	2.4
Excess	5.9

Note:

Throughout this report performance is calculated net of investment management fees, differentials within column amounts may occur due to rounding, and returns for all periods greater than one year are annualized.

STATE STREET.

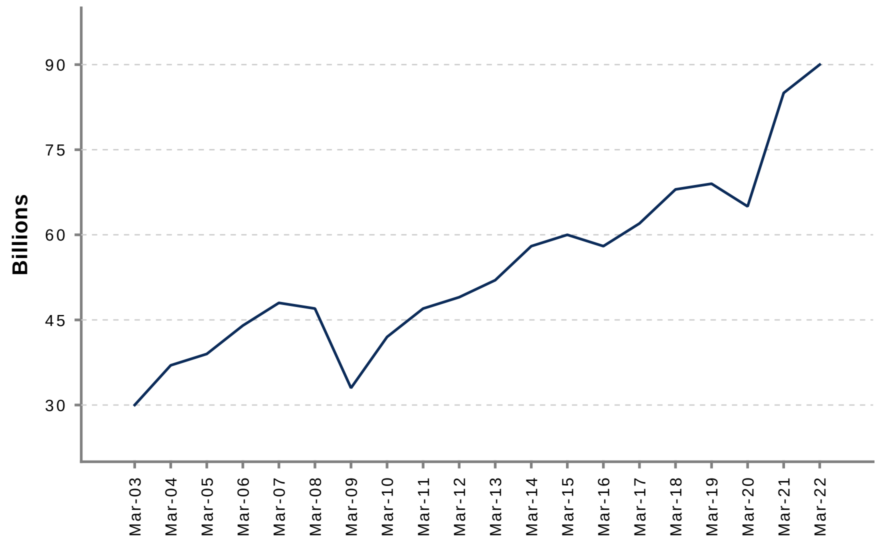
Combined Funds Summary

Combined Funds Change in Market Value ($Millions)

	One Quarter
Combined Funds	
Beginning Market Value	$94,134
Net Contributions	-705
Investment Return	-3,567
Ending Market Value	89,861

The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

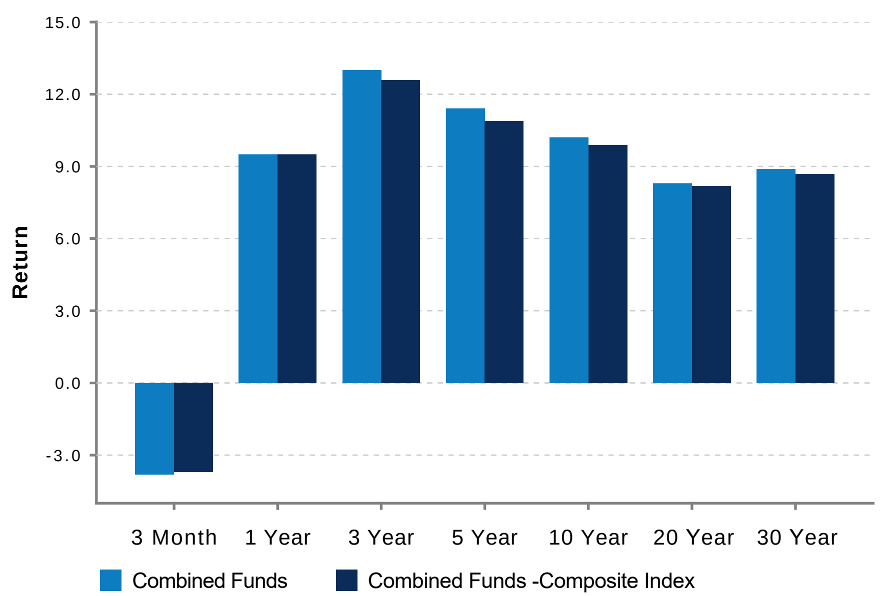
Asset Growth



Performance (Net of Fees)

The Combined Funds' performance is evaluated relative to a composite of public market index and private market investment returns. The Composite performance is calculated by multiplying the beginning of month Composite weights and the monthly returns of the asset class benchmarks.

	Qtr	FYTD	1 Yr	3 Yr	5 Yr	10 Yr	20 Yr	30 Yr
Combined Funds	-3.8%	2.7%	9.5%	13.0%	11.4%	10.2%	8.3%	8.9%
Combined Funds - Composite Index	-3.7%	2.7%	9.5%	12.6%	10.9%	9.9%	8.2%	8.7%
Excess	-0.1%	-0.0%	0.0%	0.5%	0.4%	0.3%	0.2%	0.2%

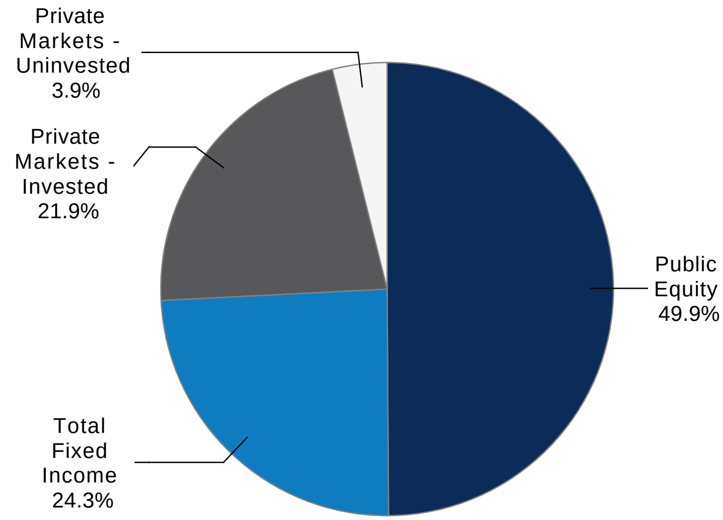


Combined Funds Summary

Asset Mix

The Combined Funds actual asset mix relative to the Strategic Asset Allocation Policy Target is shown below. Any uninvested portion of the Private Markets allocation is held in Public Equity.

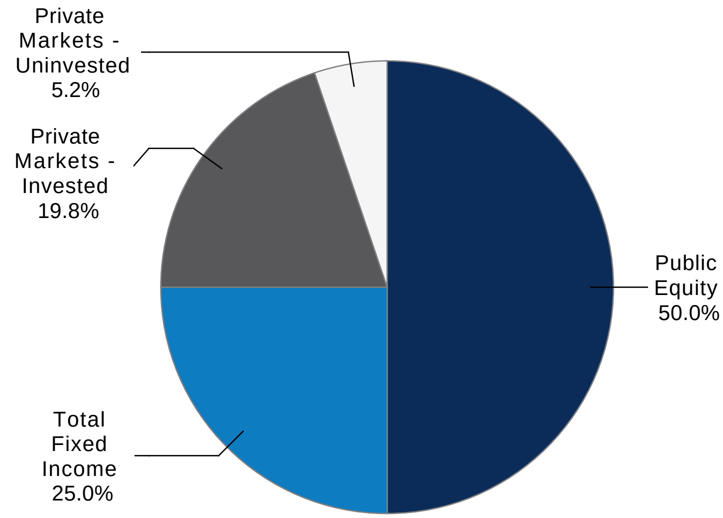
	(Millions)	Actual Mix	Policy Target
Public Equity	$44,835	49.9%	50.0%
Total Fixed Income	21,863	24.3	25.0
Private Markets - Total	23,164	25.8	25.0
Private Markets - Invested	19,659	21.9	
Private Markets - Uninvested	3,505	3.9	
TOTAL	89,861	100.0	



Composite Index Comparison

The Combined Funds Composite is set as the Strategic Asset Allocation Policy Target. Asset class weights for Private Markets - Invested and Private Markets - Uninvested are reset at the start of each month. The Combined Funds Composite weighting shown below is as of the first day of the quarter.

	Policy Weight	Market Index
Public Equity	50.0%	Public Equity Benchmark
Total Fixed Income	25.0	Total Fixed Income Benchmark
Private Markets - Invested	19.8	Private Markets
Private Markets - Uninvested	5.2	S&P 500



Combined Funds Asset Class Performance Summary

Public Equity

The Combined Funds Public Equity includes Domestic Equity, International Equity and Global Equity.

The Public Equity benchmark is 67% Russell 3000 and 33% MSCI ACWI ex US (net).

	Market Value	Actual Weight	Policy Weight	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 Year
Public Equity	$44.8	49.9%	50.0%	-5.7%	-0.2%	7.1%	14.9%	12.7%	11.9%	8.5%	9.4%
Public Equity Benchmark				-5.3	0.1	7.4	14.6	12.5			
Excess				-0.3	-0.2	-0.3	0.3	0.2			
Domestic Equity	30.5	33.9	33.5	-5.5	3.1	11.6	18.3	15.5	14.2	9.3	10.2
Domestic Equity Benchmark				-5.3	3.4	11.9	18.1	15.3	14.3	9.4	10.3
Excess				-0.2	-0.3	-0.3	0.2	0.1	-0.0	-0.1	-0.1
International Equity	13.4	14.9	16.5	-5.7	-6.2	-1.4	8.2	7.3	6.2	6.7	
International Equity Benchmark				-5.4	-6.6	-1.5	7.5	6.7	5.5	6.4	
Excess				-0.2	0.4	0.1	0.8	0.5	0.6	0.3	
Global Equity	1.0	1.1	0.0	-11.8	-12.9	-3.6					
MSCI AC WORLD INDEX NET				-5.4	-0.1	7.3					
Excess				-6.5	-12.8	-10.9					

Note:

Prior to 6/30/16 the returns of Domestic and International Equity were not reported as a total Public Equity return. For additional information regarding historical asset class performance and benchmarks, please refer to the Combined Funds Performance Report.

Combined Funds Asset Class Performance Summary

Total Fixed Income

The Combined Funds Fixed Income program includes Core/Core Plus, Return Seeking Fixed Income, Treasuries and Laddered Bond + Cash.

The Total Fixed Income benchmark is 40% Bloomberg U.S. Aggregate Index/ 40% Bloomberg Treasury 5+ Years Index/ 20% ICE BofA US 3-Month Treasury Bill.

	Market Value	Actual Weight	Policy Weight	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 Year
Total Fixed Income	$21.9	24.3%	25.0%	-5.6%	-5.2%	-2.9%	3.2%	3.3%	3.2%	4.6%	5.6%
Total Fixed Income Benchmark				-5.6%	-5.1%	-2.9%	2.7%				
Excess				0.0%	-0.1%	0.0%	0.5%				
Core/Core Plus	$4.5	5.0%	5.0	-6.5%	-6.4%	-4.4%	2.5%	2.8%	2.9%	4.4%	5.5%
Core Bonds Benchmark				-5.9%	-5.9%	-4.2%	1.7%	2.1%	2.2%	4.0%	5.1%
Excess				-0.5%	-0.5%	-0.3%	0.8%	0.7%	0.7%	0.4%	0.4%
Return Seeking Fixed Income	$3.8	4.3%	5.0	-5.1%	-5.1%	-2.9%					
Bloomberg U.S. Aggregate				-5.9%	-5.9%	-4.2%					
Excess				0.8%	0.8%	1.3%					
Treasury Protection	$8.3	9.2%	10.0	-7.8%	-6.7%	-3.1%	2.2%				
Bloomberg Treasury 5+ Year				-8.1%	-6.8%	-3.1%	2.2%				
Excess				0.3%	0.1%	0.1%	0.1%				
Laddered Bond + Cash	$5.2	5.8%	5.0	-0.2%	-0.3%	-0.2%	0.7%	1.1%	0.7%	1.5%	3.1%
ICE BofA US 3-Month Treasury Bill				0.0%	0.1%	0.1%	0.8%	1.1%	0.6%	1.3%	2.4%
Excess				-0.3%	-0.3%	-0.3%	-0.1%	-0.0%	0.1%	0.2%	0.7%

Note:

Since 12/1/2020 the Total Fixed Income includes allocations to Core/Core Plus Bonds, Return Seeking Bonds, Treasuries and Laddered Bond + Cash. From 7/1/2020 to 11/30/2020 Total Fixed Income was Core Bonds, Treasuries and Cash. From 2/1/2018-6/30/20 Total Fixed Income was Core Bonds and Treasuries. Prior to 2/1/2018, Total Fixed Income was Core Bonds. For additional information regarding historical asset class performance and benchmarks, please refer to the Combined Funds Performance Report.

STATE STREET.

Combined Funds Asset Class Performance Summary

Private Markets

	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	25 Year	30 Year
Private Markets - Invested	3.0%	19.9%	31.8%	18.3%	16.5%	13.9%	13.8%	13.8%	13.0%
Private Markets -Uninvested (1)	-4.2%	7.0%	16.1%						
Private Equity	3.3%	20.7%	33.9%	25.1%	21.9%	18.0%	15.9%	15.4%	15.3%
Private Credit	0.2%	13.7%	22.7%	11.3%	12.0%	12.9%	12.4%	12.6%	
Resources	2.8%	16.8%	27.8%	-0.3%	2.2%	2.2%	12.8%	12.5%	12.3%
Real Estate	4.8%	26.4%	32.3%	15.6%	13.6%	12.9%	9.7%	10.6%	9.1%

Private Markets

The time-weighted rates of return for the Private Markets portfolio are shown here. Private Markets included Private Equity, Private Credit, Resources, and Real Estate. Some of the existing investments are relatively immature and returns may not be indicative of future results.

Private Equity Investments - The objectives of the Private Equity portfolio, which may include leveraged buyouts, growth equity, venture capital and special situations, are to achieve attractive returns and to provide overall portfolio diversification to the total plan.

Private Credit Investments - The objectives of the Private Credit portfolio, which may include mezzanine debt, direct lending, and other forms of non-investment grade fixed income instruments, are to achieve a high total return over a full market cycle and to provide some degree of downside protection and typically provide current income in the form of a coupon. In certain situations, investments in the Private Credit portfolio also provide an equity component of return in the form of warrants or re-organized equity.

Resource Investments - The objectives of the Resources portfolio, which may include energy, infrastructure, and other hard assets, are to provide protection against the risks associated with inflation and to provide overall portfolio diversification to the total plan.

Real Estate Investments - The objectives of the Real Estate portfolio, which may include core and non-core real estate investments, are to achieve attractive returns, preserve capital, provide protection against risks associated with inflation, and provide overall portfolio diversification to the total plan.

The SBI also monitors Private Markets performance using money-weighted return metrics such as Internal Rate of Return and Multiple of Invested Capital. For money-weighted return metrics please refer to the Combined Funds Performance Report.

(1) The Uninvested portion of the Private Markets allocation is invested in a combination of a passively managed S&P 500 Index strategy and a cash overlay strategy invested in equity derivatives and cash

SBI Combined Funds Strategic Allocation Category Framework

	03/31/2022 ($ millions)	03/31/2022 Weights	Category Range	
Growth - Appreciation				
Public Equity	$ 48,342.75	53.8%		
Private Equity	$ 14,312.04	15.9%		
Non-Core Real Assets	$ 3,198.49	3.6%		
	$ 65,853.28	**73.3%**	*50%*	*75%*
Growth - Income-oriented				
Core Fixed Income	$ 4,505.95	5.0%		
Private Credit	$ 1,612.73	1.8%		
Return-Seeking Fixed Income	$ 3,825.15	4.3%		
	$ 9,943.83	**11.1%**	*15%*	*30%*
Real Assets				
Core Real Estate		0.0%		
Real Assets	$ 470.51	0.5%		
	$ 470.51	**0.5%**	*0%*	*10%*
Inflation Protection				
TIPS		0.0%		
Commodities		0.0%		
		0.0%	*0%*	*10%*
Protection				
U.S. Treasuries	$ 8,293.04	9.2%		
	$ 8,293.04	**9.2%**	*5%*	*20%*
Liquidity				
Cash	$ 5,300.83	5.9%		
	$ 5,300.83	**5.9%**	*0%*	*5%*
Opportunity				
Opportunity		**0.0%**		
		0.0%	*0%*	*10%*
Total	**$ 89,861.48**	**100%**		
Illiquid Asset Exposure	**$ 19,593.77**	**21.8%**	*0%*	*30%*

Volatility Equivalent Benchmark Comparison

	As of March 31, 2022							
	1-year	*3-year*	*5-year*	*10-year*	*15-year*	*20-year*	*25-year*	*30-year*
SBI Combined Funds Return	**9.5%**	**13.0%**	**11.4%**	**10.2%**	**8.0%**	**8.3%**	**8.4%**	**8.9%**
Volatility Equivalent Benchmark Return			**8.2%**	**7.1%**	**5.6%**	**6.5%**	**6.5%**	**7.1%**
Value Added			**3.1%**	**3.1%**	**2.4%**	**1.8%**	**1.9%**	**1.8%**

Standard Deviation: Benchmark = Combined Funds			**9.5%**	**8.2%**	**9.5%**	**9.5%**	**9.8%**	**9.3%**
Benchmark Stock Weight			**62%**	**61%**	**57%**	**61%**	**62%**	**62%**
Benchmark Bond Weight			**38%**	**39%**	**43%**	**39%**	**38%**	**38%**

The Volatility Equivalent Benchmark stock and bond weights are adjusted to equal the standard deviation of the SBI Combined Funds portfolio. Then a return is calculated. The bond return used is the Bloomberg U.S. Aggregate. The stock return used is the MSCI AC World Net Return Index. Prior to 12/31/98 it was the MSCI ACWI Total Return Index and pre-11/1/1993 it was the Wilshire 5000 adjusted for various SBI divestment mandates.

Combined Funds Summary

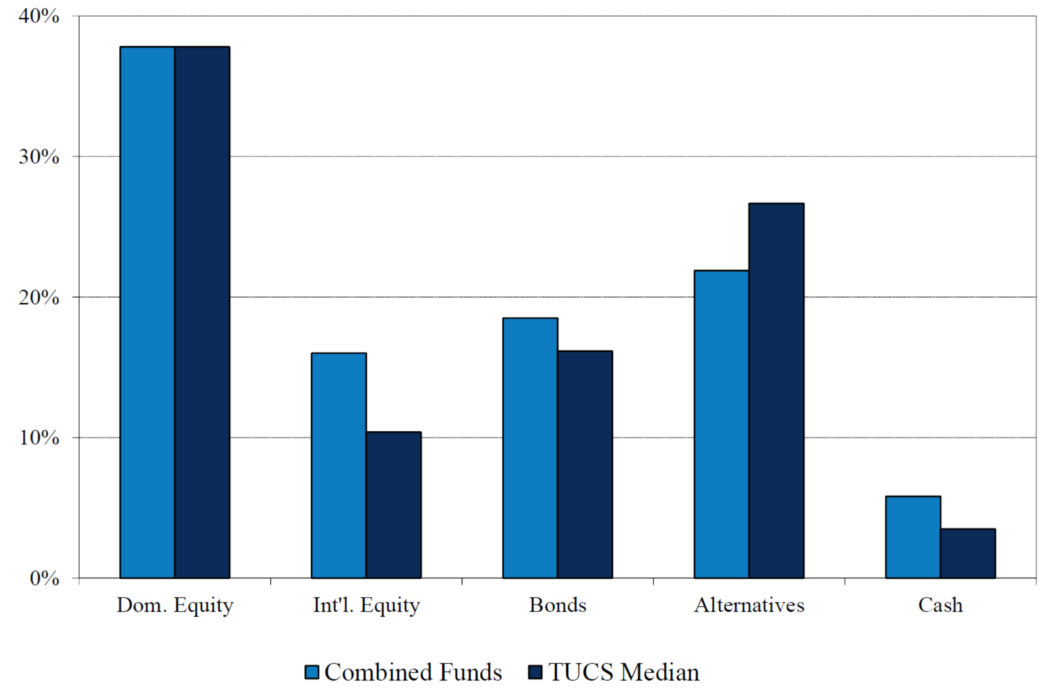
Asset Mix Compared to Other Pension Funds

The comparison universe used by the SBI is the Trust Universe Comparison Service (TUCS). Only funds with assets over $20 billion are included in the comparisons shown in this section.

Comparisons of the Combined Funds' asset mix to the median allocation to stocks, bonds and other assets of the public funds in TUCS over $20 billion are shown below:

Combined Funds Asset Mix

	($Millions)	Actual Mix
Public Equity	44,835	49.9
Total Fixed Income	21,863	24.3
Private Markets - Invested	19,659	21.9
Private Markets - Uninvested	3,505	3.9
TOTAL	89,861	100.0



	Domestic Equity	International Equity	Bonds	Alternatives	Cash
Combined Funds	37.8%	16.0%	18.5%	21.9%	5.8%
Median in TUCS	37.8%	10.4%	16.2%	26.7%	3.5%

Combined Funds Summary

Performance Compared to Other Pension Funds

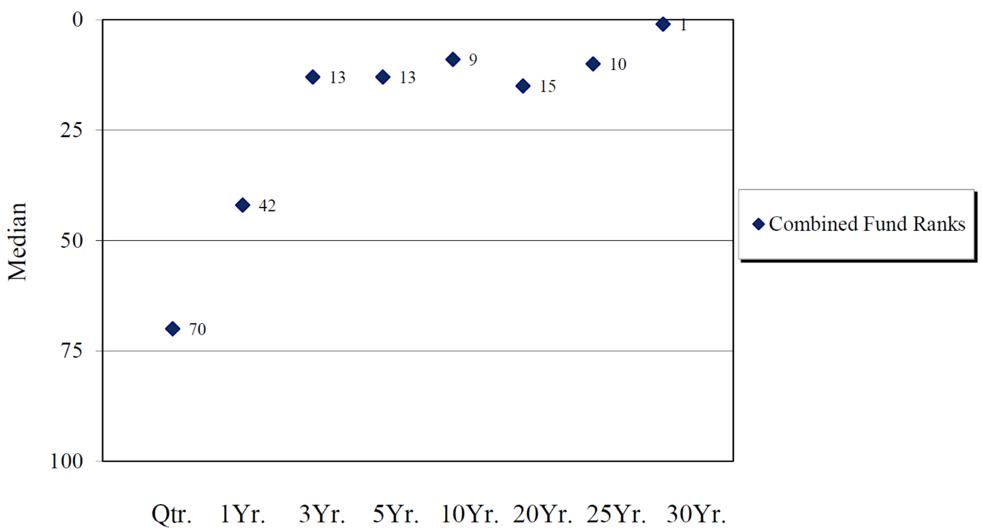
While the SBI is concerned with how its returns compare to other pension investors, universe comparisons should be used with great care. There are several reasons why such comparisons will provide an "apples to oranges" look at performance:

- Differing Allocations. Asset allocation will have a dominant effect on return. The allocation to stocks among the funds in TUCS typically ranges from 20-90%, a very wide range for meaningful comparison. This further distorts comparisons among funds.

- Differing Goals/Liabilities. Each pension fund structures its portfolio to meet its own liabilities and risk tolerance. This will result in different asset mix choices. Since asset mix will largely determine investment results, a universe ranking is not relevant to a discussion of how well a plan sponsor is meeting its long-term liabilities.

With these considerations in mind, the performance of the Combined Funds compared to other public pension funds in Trust Universe Comparison Service (TUCS) are shown below.

The SBI's returns are ranked against public plans with over $20 billion in assets. All funds in TUCS report their returns gross of fees.



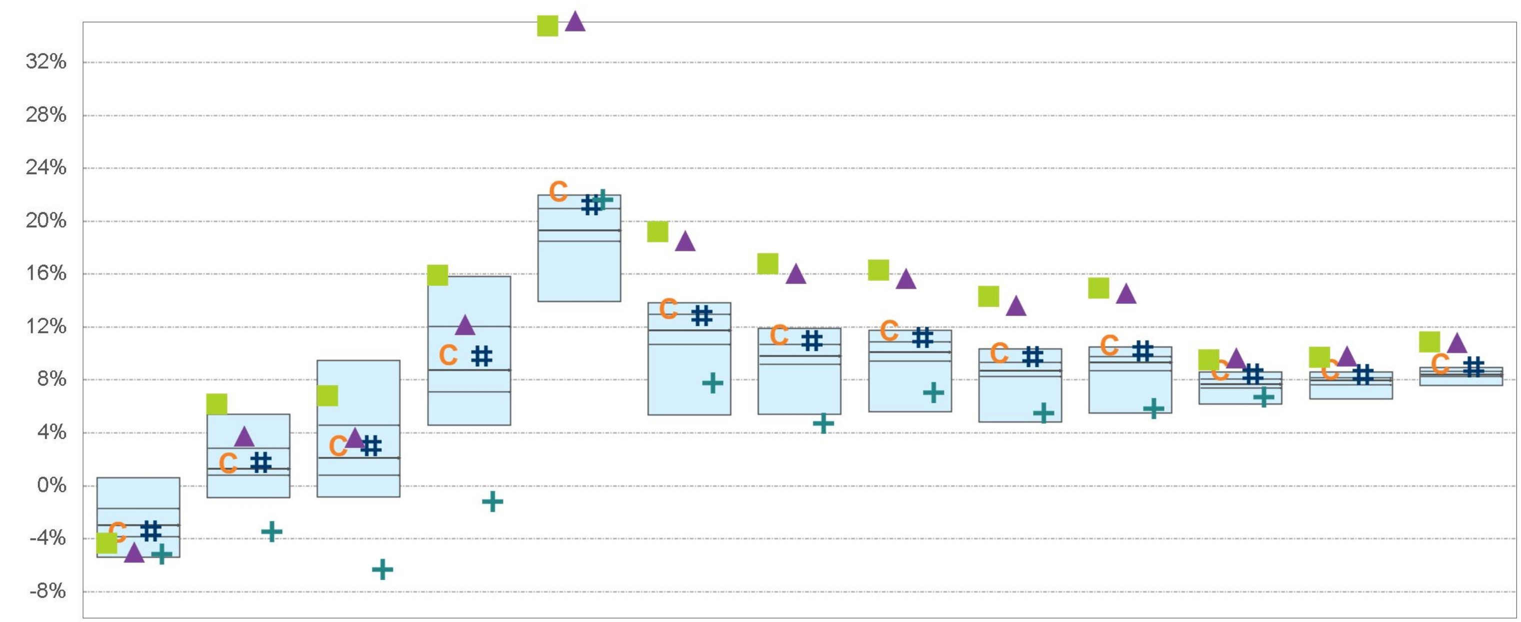
Periods Ended 03/31/2022

	Qtr	1 Yr	3 Yrs	5 Yrs	10 Yrs	20 Yrs	25 Yrs	30 Yrs
Combined Funds Percentile Rank in TUCS	70th	42nd	13th	13th	9th	15th	10th	1st

Minnesota State Board of Investments
Performance Comparison

Total Returns of Master Trusts - Public : Plans > $20 Billion

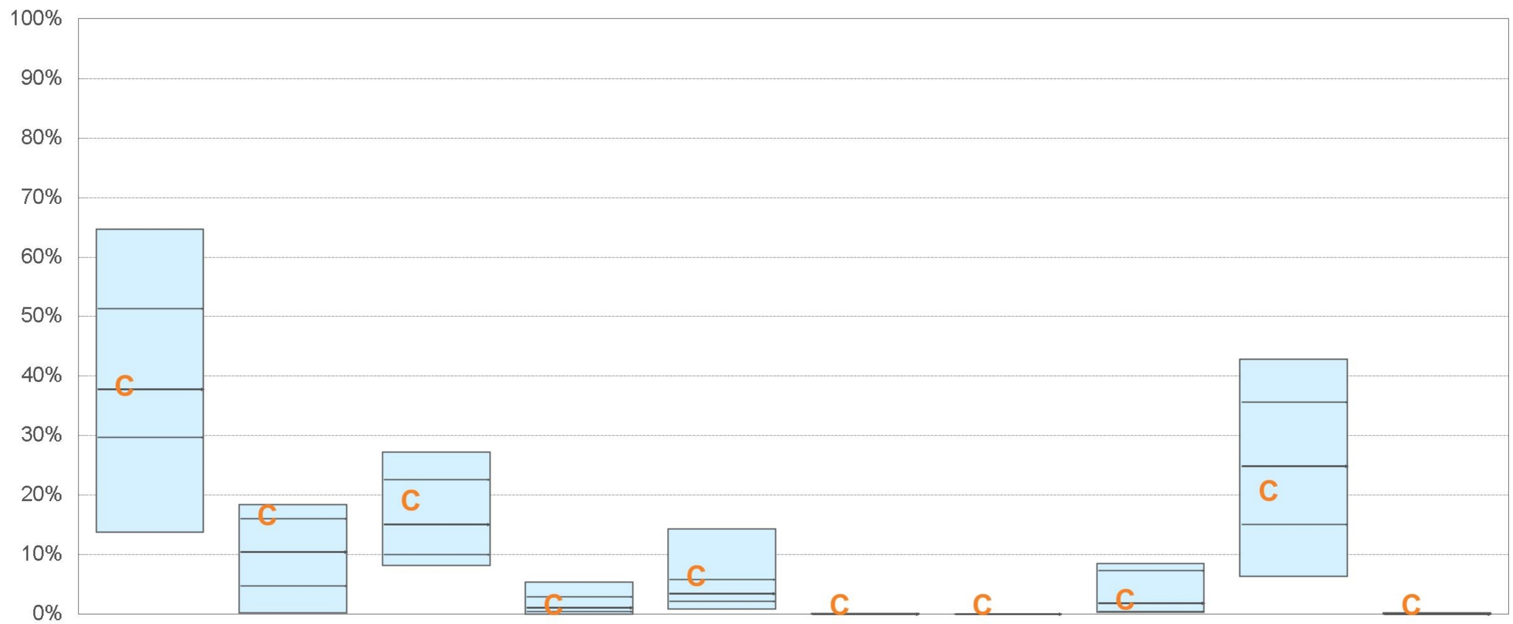
Cumulative Periods Ending : March 31, 2022



Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years	20 Years	25 Years	30 Years
5th	0.62	5.41	9.46	15.84	21.99	13.85	11.89	11.74	10.35	10.49	8.60	8.62	8.95
25th	-1.70	2.82	4.56	12.04	20.97	12.95	10.70	10.88	9.31	9.74	8.05	8.15	8.67
50th	-2.98	1.31	2.10	8.75	19.30	11.75	9.81	10.11	8.69	9.32	7.70	7.95	8.42
75th	-3.85	0.78	0.82	7.11	18.46	10.68	9.17	9.43	8.25	8.71	7.41	7.65	8.28
95th	-5.40	-0.89	-0.86	4.58	13.91	5.34	5.39	5.61	4.83	5.48	6.16	6.57	7.59
No. Of Obs	27	27	27	27	27	25	25	25	25	25	23	21	17

C Combined Funds	-3.80 (70)	1.45 (46)	2.75 (46)	9.63 (42)	21.99 (5)	13.12 (13)	11.11 (9)	11.45 (13)	9.75 (13)	10.33 (9)	8.47 (15)	8.48 (10)	8.96 (1)
# SBI Combined Funds Ind	-3.71 (62)	1.50 (42)	2.73 (46)	9.50 (42)	20.97 (28)	12.55 (25)	10.68 (25)	10.94 (21)	9.45 (21)	9.91 (21)	8.16 (20)	8.14 (25)	8.71 (18)
■ S&P 500	-4.60 (91)	5.91 (1)	6.53 (9)	15.64 (5)	34.46 (1)	18.92 (1)	16.49 (1)	15.99 (1)	14.01 (1)	14.64 (1)	9.25 (1)	9.44 (1)	10.57 (1)
+ MSCI World Ex US (N)	-5.44 (95)	-3.73 (95)	-6.61 (99)	-1.49 (99)	21.32 (13)	7.51 (94)	4.45 (99)	6.76 (94)	5.19 (94)	5.55 (94)	6.41 (94)		
▲ Russell 3000	-5.28 (91)	3.49 (17)	3.39 (32)	11.91 (28)	34.86 (1)	18.23 (1)	15.79 (1)	15.39 (1)	13.37 (1)	14.28 (1)	9.37 (1)	9.53 (1)	10.55 (1)

Minnesota State Board of Investments
Asset Allocation of Master Trusts - Public : Plans > $20 Billion
Quarter Ending March 31, 2022



Percentile Rankings	US Equity	Non-US Equity	US Fixed	Non-US Fixed	Cash	Convertible	GIC GAC	Real Estate	Alternative Investments	Other
5th	64.71	18.36	27.18	5.43	14.36	0.07	-	8.55	42.89	0.18
25th	51.33	16.01	22.59	2.93	5.83	0.00	-	7.27	35.61	0.00
50th	37.79	10.39	15.09	1.06	3.49	0.00	-	1.80	24.86	0.00
75th	29.70	4.77	9.99	0.43	2.19	0.00	-	0.42	15.07	0.00
95th	13.81	0.20	8.17	0.00	0.90	0.00	-	0.29	6.35	0.00
C Combined Funds	37.79 (50)	16.01 (25)	18.50 (37)	0.00 (100)	5.83 (25)	0.00 (100)	0.00 (1)	1.80 (50)	20.08 (58)	0.00 (99)

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TAB B

Executive Director's Administrative Report

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EXECUTIVE DIRECTOR'S ADMINISTRATIVE REPORT

DATE: May 9, 2022

TO: Members, State Board of Investment

FROM: Mansco Perry III
Executive Director and Chief Investment Officer

1. Reports on Budget and Travel

A report on the SBI's administrative budget for the fiscal year to date through March 31, 2022, is included as **Attachment A**.

A report on travel for the period from January 1, 2022 – March 31, 2022 is included as **Attachment B**.

2. Legislative Update

I will present an update on legislative matters. A summary is included in **Attachment C**.

3. Russia/Belarus Update

During the 2022 legislative session, the Minnesota legislature passed a bill requiring the SBI to liquidate its holdings in companies with their principal place of business in Russia or Belarus. The bill was signed into law and became effective on April 2, 2022. The statute prohibits any new investment in target companies and requires the SBI to identify and liquidate, to the extent practicable, 50% of its direct holdings in target companies within nine months of the effective date; and 100% of its holdings within 18 months of the effective date.

All managers have been notified of the statutory prohibition on any additional purchases of Russian or Belarusian securities. In addition, SBI Staff has worked with investment managers to identify securities currently held which are subject to the requirements. SBI Staff has initiated the transfer of all securities subject to liquidation to a single manager who will be responsible for the orderly and prudent liquidation of the securities within the required timeframe, subject to market and regulatory constraints. Finally, SBI Staff intends to develop and publish a formal list of securities which managers are prohibited from purchasing as well as guidance for any additional screening criteria to be used by the manager, which will be updated on a yearly basis each June.

SBI Staff will provide the Board with quarterly updates on the staff's progress in implementing the requirements.

4. Sudan Update

Each quarter, staff provides a report to the Board on steps taken to implement *Minnesota Statutes*, section 11A.243 that requires SBI actions concerning companies with operations in

Sudan. Staff receives periodic reports from the Vigeo Eiris Conflict Risk Network (CRN) about the status of companies with operations in Sudan.

The SBI is restricted from purchasing stock in the companies designated as highest offenders by the CRN. Accordingly, staff updates the list of restricted stocks and notifies investment managers that they may not purchase shares in companies on the restricted list. Staff receives monthly reports from the SBI's custodian bank concerning SBI holdings of companies on the CRN list and writes letters as required by law.

According to the law, if after 90 days following the SBI's communication, a company continues to have active business operations in Sudan, the SBI must divest holdings of the company according to the following schedule:

- at least 50% shall be sold within nine months after the company appeared on the scrutinized list; and

- 100% shall be sold within fifteen months after the company appeared on the list.

In the first quarter, there was one restricted company on the SBI divestment list, and no restricted shares sold.

On March 21, 2022, staff sent a letter to each applicable external manager (international equity, domestic equity and global equity) containing the most recent restricted list and the list of stocks to be divested in compliance with Minnesota law.

5. Iran Update

Each quarter, staff provides a report to the Board on steps taken to implement *Minnesota Statutes*, section 11A.244 that requires SBI actions concerning companies with operations in Iran.

SBI receives information on companies with Iran operations from Institutional Shareholder Services, Inc. (ISS). Staff receives monthly reports from the SBI's custodian bank concerning SBI holdings of companies on the restricted list and writes letters as required by the law.

According to the law, if after 90 days following the SBI's communication a company continues to have scrutinized business operations, the SBI must divest all publicly traded securities of the company according to the following schedule:

- at least 50% shall be sold within nine months after the company appeared on the scrutinized list; and

- 100% within fifteen months after the company appeared on the scrutinized list.

In the first quarter, there were no restricted companies on the SBI divestment list, therefore no restricted shares to sell.

On March 21, 2022, staff sent a letter to each applicable external manager (international equity, domestic equity, global equity and fixed income) containing the most recent restricted list and the list of companies to be divested in compliance with Minnesota law.

6. Litigation Update

SBI legal counsel will give a verbal update on the status of any litigation at the meeting.

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ATTACHMENT A

STATE BOARD OF INVESTMENT
FISCAL YEAR 2022 ADMINISTRATIVE BUDGET REPORT
FISCAL YEAR TO DATE THROUGH MARCH 31, 2022

ITEM	FISCAL YEAR 2022 BUDGET	FISCAL YEAR 2022 3/31/2022
PERSONNEL SERVICES		
FULL TIME EMPLOYEES	$ 6,735,800	$ 4,067,284
OVERTIME AND PREMIUM PAY	100	87
MISCELLANEOUS PAYROLL	349,900	47,889
SUBTOTAL	**$ 7,085,800**	**$ 4,115,260**
STATE OPERATIONS		
RENTS & LEASES	285,000	234,389
REPAIRS/ALTERATIONS/MAINTENANCE	21,000	13,113
PRINTING & BINDING	12,000	6,943
PROFESSIONAL/TECHNICAL SERVICES	250,000	80,182
COMPUTER SYSTEMS SERVICES	169,000	125,365
COMMUNICATIONS	25,000	11,003
TRAVEL, IN-STATE	3,000	14
TRAVEL, OUT-STATE*	235,000	1,551
SUPPLIES	50,000	12,385
EQUIPMENT	43,685	29,635
EMPLOYEE DEVELOPMENT	150,000	102,359
OTHER OPERATING COSTS	125,000	97,107
INDIRECT COSTS	300,000	147,589
SUBTOTAL	**$ 1,668,685**	**$ 861,635**
TOTAL ADMINISTRATIVE BUDGET**	**$ 8,754,485**	**$ 4,976,895**

*Airfare for Travel, Out-State in the amount of $1,151.47 was paid with a credit on account from FY 2020.
**Budget increase due to insurance refunds.

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ATTACHMENT B

STATE BOARD OF INVESTMENT

Travel Summary by Date
January 1, 2022 - March 31, 2022

Purpose	Name	Destination / Date	Total Cost
Conference: Council of Institutional Investors	J. Mulé	Washington D.C. 3/6/2022 - 3/9/2022	$ 1,470.56
Conference: Council of Institutional Investors	N. Blumenshine	Washington D.C. 3/6/2022 - 3/9/2022	1,400.94
Manager Monitoring **Private Markets Managers:** Thoma Bravo	A. Krech	Miami, FL 3/21/2022 - 3/23/2022	1,408.94

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ATTACHMENT C

Updated 05.05.2022

BILLS OF INTEREST TO THE MINNESOTA STATE BOARD OF INVESTMENT

Bill No.	**Author**	**Name of Bill**	**Current Status**	**Notes**
HF4165 SF3928	Jordan, et al Housley, et al	Russia and Belarus Investment Divestment Required	04/01: HF4165 was signed into law by the Governor	The bill would require the SBI to liquidate its holdings in companies with their principal place of business in Russia or Belarus. In addition, the SBI would be prohibited from purchasing securities in such companies. The bill provides a number of criteria to consider when determining a company's principal place of business. The bill requires SBI to liquidate 50% of its subject holdings within nine months of the effective date, and 100% of subject holdings within 18 months of the effective date. The bill was passed by the legislature and signed into law by the Governor on April 1. It became effective April 2. Session law 43—H.F. No. 4165.
HF4018 SF4018 **HF4017** **SF3540**	Nelson Rosen, et al	State Board of Investment; professional employee classification **Omnibus Pension Policy and Technical Bill**	03/22: HF4018 was adopted into the omnibus pension policy and technical bill 04/07: HF4017 is on General Orders 04/20: SF3540 is on General Orders	The bill would clarify language in several state statutes to correct a conflict between the SBI's investment salary plan and state statutes. The bill would specify that those SBI employees who perform investment functions or are otherwise statutory unclassified employees will be in the unclassified service and employed pursuant to the SBI investment salary plan. Such employees would be exempted from the coverage by a bargaining unit under the Public Employee Labor Relations Act. All other SBI employees would be in the classified service of the state. The bill is included in Art. 6 of the omnibus pension policy and technical bill.
HF4293 SF3975	Nelson Kiffmeyer	Omnibus State Government Finance Bill	04/26: HF4293 was passed by the House as amended 05/02: HF4293 was passed in lieu of SF3975, as amended by the Senate	The bill contains various state government finance provisions, including funding and benefit enhancements for state pensions. The bill provides for a temporary increase in COLAs of 2.5% in 2023 and 2024; reduces the return rate assumption to7% for the statewide pension systems; and provides additional state funding to various statewide pensions. To the extent the supplemental funding is not specifically allocated in the bill, it is applied proportionally to the pension systems based on the percentage of market value. The language relevant to pensions is contained in Articles 7—10 of the House bill. The Senate version of the bill does not contain the pension language. The bill is currently in conference committee.

HF2610 **HF4017** **SF3540**	Rasmusson	Volunteer Firefighter Investments **Omnibus Pension Policy and Technical Bill**	03/22: HF2610 was adopted, as amended, into the omnibus pension policy and technical bill 04/07: HF4017 is on General Orders 04/20; SF3540 is on General Orders	The bill, as amended, would require the State Auditor to provide fire relief associations with an annual report showing the fire relief's investment returns for various periods compared to the returns for the SBI's supplemental investment fund platform. The relief association must certify that it has reviewed the report. The bill is included in Art. 5, Sec. 20 of the omnibus pension policy and technical bill.
HF4029 SF3383	Long, et al Pappas, et al	Fossil Fuel Divestment Act	03/07: HF4029 was referred to the Committee on Climate and Energy Finance and Policy 02/24: SF3383 was referred to State Government Finance and Policy and Elections	The bill would require the SBI to liquidate its direct holdings in fossil fuel companies, which are defined as the top 200 companies measured in carbon content of fossil fuel reserves. The mandate includes all subsidiaries and affiliates of such companies. The SBI may no acquire additional securities in such companies and must complete liquidation by July 1, 2027.
HF4028 SF3384	Long ,et al Pappas, et al	Climate Change Impact Report	03/07: HF4028 was referred to the Committee on Climate and Energy Finance and Policy 02/24: SF3384 was referred to State Government Finance and Policy and Elections	The bill would require the SBI to complete a report on various aspects of fiduciary duty, climate change risk, and fossil fuel investments. The SBI would be required to submit the report to the Legislative Commission on Pensions and Retirement by February 1, 2023.
HF4574 SF4441	Lucero, et al Mathews	The Stop Environmental Social Governance (ESG) and Social Credit Score Discrimination Act	03/24: HF4574 was referred to State Government Finance and Elections 04/04: SF4441 was referred to State Government Finance and Policy and Elections	The bill would require the SBI to liquidate direct combined pension fund holdings in any company determined to boycott mining, energy production, production agriculture, or commercial lumber production. The SBI would also be prohibited from purchasing any new investments in such companies and must complete liquidation by July 1, 2027.
HF1664	Schultz	Long-Term Services and Supports Trust Fund	02/2021: HF1664 was referred to the Human Services Finance and Policy Committee	The bill would establish a Long-Term Services and Supports Trust Fund from which the Commissioner of Human Services would be authorized to pay for certain services benefiting qualified individuals requiring long-term care services. The trust would be a separate account in the general fund and all investment returns associated with the trust would be credited to the trust. The SBI would serve on an advisory board responsible for policies related to the trust.

HF1258 SF0976	Becker-Finn, et al. Pappas, et al.	Minnesota Secure Choice Program	02/2021: HF1258 was referred to the State Government Finance and Elections Committee 02/2021: SF0976 was referred to the State Government Finance and Policy and Elections Committee	The bill creates two state-sponsored retirement plans for private employers. The bill provides for auto-enrollment of private employees. The SBI would be responsible for choosing the investment options for the employee directed plans. The SBI executive director (or designee) would serve on the secure choice board responsible for administering the plan. The plan would be subject to ERISA, which may place investment responsibilities/duties on the SBI which are different from the investment responsibilities/duties the SBI has under Minnesota law.
HF2076 SF1910	Lislegard Tomassoni, et al.	Giants Ridge Account Established in State Treasury	03/2021: HF2076 was referred to the Industrial Education and Economic Development and Finance Policy Committee 03/10: SF1910 was referred to the Taxes Committee	The bill creates an account in the state treasury for appropriations and other funds which will be utilized for operations and maintenance of the Giants Ridge Recreation Area. The account would be administered by the Department of Iron Range Resources and Rehabilitation. The SBI is responsible for investing the funds pursuant to law. It appears this would remain in the ITC.
SF593	Ingebrigtsen	Funds to make annual payments for certain state lands in lieu of taxes	02/2021: SF593 was referred to the Environment and Natural Resources Policy and Legacy Finance Committee	The bill establishes an outdoor heritage trust account to be invested through the SBI. The trust is funded by one-time payment of 30 times the property taxes payable in the year prior to the year the state acquires land using funds from the environment and natural resources trust fund and the outdoor heritage fund. The Department of Revenue acts as agent for making deposits and withdrawals from the account maintained at the SBI.
SF959	Ingebrigtsen, et al.	Omnibus Environment and Natural Resources Policy and Finance Bill	04/2021: SF959 was laid on the table in conference committee	The bill would create an account with the SBI through which the Commissioner of Natural Resources would be authorized to deposit and invest financial assurance funds received from private entities that lease mineral rights from the state. The account would be a separate account with SBI and the SBI staff would assist in determining an asset allocation for the funds. The language relevant to the SBI's responsibilities is contained in Art. 2, Sec. 1 of the Senate version of the omnibus bill.

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TAB C

Report from SBI Administrative Committee

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DATE: May 9, 2022

TO: Members, Investment Advisory Council

FROM: Mansco Perry III

Subject: Review of SBI Executive Director's FY23 Management and Budget Plan

The SBI Administrative Committee met on May 2, 2022 to discuss the SBI Executive Director's FY23 Management and Budget Plan. There will be a brief review at the May 16, 2022 Investment Advisory Council Meeting. The Executive Director is requesting the Investment Advisory Council endorse the following report.

RECOMMENDATION:

The Executive Director is requesting that the Investment Advisory Council endorse the Administrative Committee's recommendation to the Board to approve the Executive Director's FY23 Management and Budget Plan.

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Following is a summary of the Executive Director's Management and Budget Plan.

The members of the SBI Administrative Committee are:

Karl Procaccini	Chair and Governor's Representative
Bibi Black	Secretary of State's Representative
Ramona Advani	State Auditor's Representative
Luz Frias	Attorney General's Representative
Erin Leonard	Minnesota State Retirement System (MSRS)
Jay Stoffel	Teachers Retirement Association (TRA)
Doug Anderson	Public Employees Retirement Association (PERA)
Gary Martin	IAC Representative
Shawn Wischmeier	IAC Representative

1. Review of Executive Director's Proposed Work Plan for FY23.

The Executive Director's Proposed Work Plan for FY23 was presented. As in previous work plans, the FY23 plan follows the same category order found in the Executive Director's position description. The plan is a compilation of on-going responsibilities as well as the new initiatives the Executive Director will undertake during the next fiscal year.

A summary of the proposed plan is shown in **Attachment A on Page 5** of this tab. The Executive Director will review the work plan summary. Supporting information is included in the FY23 Management and Budget Plan document.

RECOMMENDATION:

The Committee recommends that the SBI approve the FY23 Executive Director's Work Plan. Further, the Committee recommends that the Work Plan serve as the basis for the Executive Director's performance evaluation for FY23.

2. Review of Budget Plan for FY23 and FY24.

The SBI's Administrative Budget is set annually by the Board. The budget is comprised of several portions:

Personnel Services
Operating Expenses
Investment Support Services
Subscription Services

The budget is funded by a combination of:

- direct charge-backs to entities that invest with the SBI;
- an appropriation by the legislature from the general fund to support management of general fund assets;
- directed appropriations budget from the investment asset pool; and

- the directed commissions budget received from the SBI's use of active investment management.

An overview of the budget is shown in **Attachment B on page 15 of this Tab**. Supporting information was sent to each Board member in April 2022 as part of the FY23 Management and Budget Plan.

RECOMMENDATION:

The Committee recommends that the SBI approve the FY23, and FY24 Administrative Budget Plan, as presented to the Committee, and that the Executive Director have the flexibility to reallocate funds between budget categories if the Executive Director deems necessary.

3. **Review of Continuing Fiduciary Education Plan.**

Minnesota Statutes, Chapter 356A requires each public pension plan to establish a continuing education plan for its fiduciaries. The Continuing Fiduciary Education Plan is shown in **Attachment C on page 21 of this Tab**. Please note that the travel allocation policy for Board members and their designees is included in the plan.

RECOMMENDATION:

The Committee recommends that the SBI adopt the attached Continuing Fiduciary Education Plan.

ATTACHMENT A

STATE BOARD OF INVESTMENT
Executive Director's Proposed Work Plan

FY23
(Categories A, B, C, D, E correspond to the position description)

A. DEVELOPMENT OF INVESTMENT POLICIES

1. Participant Directed Investment Program (PDIP)

2. Climate Change Transition Strategy

3. Diversity Equity and Inclusion (DEI) Policy

B. IMPLEMENTATION OF INVESTMENT POLICIES APPROVED BY THE SBI

1. Portfolio Rebalancing: Transition Management

2. Meet or Exceed the Performance Objectives

3. Investments with New and Existing Private Markets Managers

4. Public Markets Manager Search Process

5. Conduct Investment Manager Portfolio and Compliance Review of Guidelines and Contracts

6. Conduct Investment Manager Review of Investment and Operational Due Diligence Topics

7. Internal Management of State Cash and Related Accounts

8. Implement State Law Concerning Iran

9. Implement State Law Concerning Sudan

10. Implement State Law Concerning Russia and Belarus

11. Implement Board Policy Concerning Thermal Coal Companies

C. REVIEW AND CONTROL OF INVESTMENT POLICIES

1. Monitor and Evaluate Investment Manager Performance

2. Public Markets Manager Guidelines

3. Provide Staff Support to Proxy Committee

4. Monitor Implementation of Northern Ireland Mandate

5. Provide Staff Support for Corporate Actions and Miscellaneous Legal Issues

D. ADMINISTRATION AND MANAGEMENT

1. RFP for Custodial Services

2. RFP for Contact and Document Management Database

3. RFP for Foreign Tax Advisory Services

4. SBI Space Planning Project

5. Staff Support to Executive Director Search Committee

6. Coordinate Financial Audit by Legislative Auditor

7. Legislative Package Fiscal Year 2023

8. Prepare Fiscal Year 2024 Management and Budget Plan

9. Annual Update of Business Continuity Plan

10. Prepare Annual Supplemental Investment Fund (SIF) Investment Options Prospectus and Information Booklet for the Statewide Volunteer Firefighter Retirement Plan (SVFRP)

11. Prepare Annual Non-Retirement Prospectus for the Trusts and Other Participating Entities; Other Postemployment Benefits (OPEB); and Qualifying Governmental Entities

12. Respond to Minnesota Government Data Practices Act Requests

E. COMMUNICATION AND REPORTING

1. Prepare Reports on Investment Results

2. Prepare status reports on the Executive Director Fiscal Year 2022 Work Plan for Review by the SBI, IAC, and Consultants, as requested

3. Meet with State Board of Investment (SBI) and Investment Advisory Council (IAC) Members

4. Meet with Board's Designees

5. Prepare Fiscal Year 2022 Annual Report

6. Investment Advisory Council (IAC) Discussions

G. OTHER ITEMS

During the course of the year, the Executive Director may encounter other significant items which must be addressed that were not contemplated at the time the annual work Plan was developed. Any such items will be reported in the Executive Director's Work Plan Status Report.

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STATE BOARD OF INVESTMENT

Project Summary
FY23

DEVELOPMENT OF INVESTMENT POLICIES
Climate Change Transition Strategy

GOAL: Implement a successful climate change transition strategy for the SBI investment programs

BACKGROUND: To implement a successful climate transition strategy in the SBI investment programs, the Executive Director has established an Investment Advisory Council (IAC) Committee on Climate Change to evaluate risks posed by climate change and recommend to the SBI how best to mitigate its impact on SBI investments.

The SBI has been reviewing the topic of climate change for the past several years and the organization has determined that climate change presents a critical risk to its investment program. While we recognize that divestment does not necessarily represent the best approach to responsible investing, it should be acknowledged that the SBI will need to transition aspects of the portfolio in meeting certain terms of the Paris Agreement. The task of determining the SBI's obligations and corresponding strategy is a complicated one. To better understand the SBI's exposures and implement a successful climate change transition strategy, the Executive Director engaged Meketa Consulting Group during Fiscal Year 2022 to produce a Climate Change Investment Analysis Report. The first two of three phases of this report were presented in Fiscal Year 2022.

In the first half of Fiscal Year 2023, Meketa will present the final portion of its report analyzing the SBI portfolio's current exposure to climate risks and opportunities, and provide climate transition strategy options. Upon completion of the report, the IAC Committee on Climate Change will meet to evaluate the options and make a recommendation to the IAC and SBI regarding implementing a successful climate transition strategy.

RESPONSIBLE: Director, Legal and Policy Services

Third and final phase of Meketa's Climate Change Investment Analysis Report presented to SBI.	Aug. 2022
IAC Committee on Climate Change presents recommendations to SBI.	Nov. 2022
Provide IAC Committee on Climate Change with staff support as it monitors implementation of climate transition strategy.	Ongoing

STATE BOARD OF INVESTMENT

Project Summary
FY23

DEVELOPMENT OF INVESTMENT POLICIES
Diversity, Equity, and Inclusion (DEI) Policy

GOAL: Establish and implement a policy to promote diversity, equity and inclusion, (DEI) in the SBI investment programs**.**

BACKGROUND: To develop and implement a successful DEI policy in SBI investment programs, the Executive Director has established an Investment Advisory Council (IAC) Committee on DEI.

To address the issue of DEI in SBI investment programs in response to the Board directive included in the Environmental, Social, and Governance (ESG) Resolution dated February 26, 2020, the Executive Director assembled a DEI Task Force to advise him on the following topics:

1) Internal Audit: Measure the current racial, gender and other dimensions of diversity among Staff, IAC, Consultants, Managers and Investments.
2) Investment Beliefs: Determine extent to which DEI may impact investment outcomes and if the current investment beliefs need to be updated.
3) Education and Training: Review resources for Staff and IAC to become more informed about DEI.
4) Emerging Manager Program: Research the effectiveness of investment programs targeting asset managers with high levels of team diversity and determine if such a program would work for the SBI.
5) Due Diligence: Find best practices for incorporating DEI into manager evaluations.

In Fiscal Year 2022, the DEI Task Force recommended that the SBI update its investment beliefs and increase its efforts to gather diversity data from its managers, consultants, IAC and staff. Given the longevity, complexity and scope, of increasing DEI in all aspects of the SBI's investment programs, the Executive Director established the IAC Committee on DEI at the end of Fiscal Year 2022 to continue this work.

RESPONSIBLE: Director, Legal and Policy Services; Investment Officer, Stewardship and ESG

IAC Committee on DEI presents DEI policy recommendations to SBI.	Aug. 2022
Provide IAC Committee on DEI with staff support as it monitors implementation of DEI in the SBI's investment programs to be consistent with fiduciary duty.	Ongoing

STATE BOARD OF INVESTMENT

Project Summary
FY23

ADMINISTRATION AND MANAGEMENT
RFP for Custodial Services

GOAL:	To review the SBI's needs for custody services and select a master custodian through an RFP process.
BACKGROUND:	The SBI has a contract for master custodial services with State Street Bank & Trust. The current contract with State Street Bank & Trust expires on April 30, 2023. The SBI will develop and issue an RFP, and evaluate the capabilities of the best qualified organizations.
RESPONSIBLE:	Assistant Executive Director, Investment Strategy and Administration; Assistant Executive Director, Portfolio Management and Risk Analysis; Director, Participant Directed and Non-Retirement Investments; Director, Financial Services and Operations; Director, Private Markets; Director, Legal and Policy Services

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Develop and review RFP.	Jan. – Feb. 2022
Issue RFP and review responses.	Mar. – Jun. 2022
Interview finalists.	Jun. – Jul. 2022
Present recommendation to the SBI.	Aug. 2022

STATE BOARD OF INVESTMENT

Project Summary
FY23

ADMINISTRATION AND MANAGEMENT
RFP for Contact and Document Management Database

GOAL: To identify and select through a request for proposal (RFP) process, a Data Management system that will provide contact management, document storage and internal research capabilities.

BACKGROUND:

The amount of funds that the SBI has researched and invested in continues to grow. A Data Management System provides one central location for data to be stored and would make that data searchable and therefore useful for research. A Data Management system allows all notes and correspondence from team members to be located by a simple search. This is beneficial not only for members of the investment team, but also for management and compliance. Also, it is helpful for business continuity when people retire from the SBI or when people are added to the team.

RESPONSIBLE: Director, Private Markets

Develop and review RFP.	Apr. – May 2022
Issue RFP and review responses.	May – Jun. 2022
Interview finalist.	Jun. – Jul. 2022
Present recommendation to the SBI.	Aug. 2022

STATE BOARD OF INVESTMENT

Project Summary
FY23

ADMINISTRATION AND MANAGEMENT
RFP for Foreign Tax Advisory Services

GOAL:	To review the SBI's needs for foreign tax advisory services in multiple non-US markets and select a provider through an RFP process.
BACKGROUND:	Some non-US markets require that non-resident, institutional investors maintain a local agent to deal with routine filing issues including, but not limited to, settling capital gains tax liabilities; filing periodic declarations of exemptions; obtaining country specific tax identification numbers; and filing annual returns. The SBI is seeking a single provider with offices covering a wide range of emerging markets to act as our local agent. The SBI's current contract with Ernst and Young for tax advisory services expires June 14, 2023.
RESPONSIBLE:	Director, Financial Services and Operations

Develop and review RFP.	Mar. – Apr. 2022
Issue RFP and review responses.	Apr. – Jun. 2022
Interview finalists.	Jul. 2022
Present recommendation to the SBI.	Aug. 2022
Finalize contract.	Dec. 2022

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ATTACHMENT B

Administrative Budget
Fiscal Year 2023 and 2024 Budget Plan
Overview

The Fiscal Years 2023 and 2024 budget process is based on budget procedures instituted by Minnesota Management and Budget. The SBI receives a General Fund appropriation (currently $139,000) to support the management of the General Fund portion of the Invested Treasurer's Cash (ITC) pool. The remaining budget revenues are generated from invoicing actual cost of services to plans that have funds under SBI management. In Fiscal Year 2022 the SBI invoices over 400 plans on a quarterly basis.

The Fiscal Year 2023 budget includes 42 Full Time Equivalent (FTE) positions. The 35 budgeted positions is an increase of seven positons from Fiscal Year 2022. As of March 31, 2022 the SBI has 29 full-time staff and we anticipate filling five more by Fiscal Year end. The SBI has included a 3% projected salary increase in the budget for all staff in Fiscal Years 2023 and 2024. The investment staff salaries also include a 3% performance increase that requires approval from the Board. The actual salary increases for non-investment staff will be determined by legislative negotiated contracts per bargaining unit. The investment staff salary increases, if any, will be determined in accordance with the SBI Salary Plan.

For Fiscal Years 2023 and 2024, SBI operating expenses have increased relative to the Fiscal Year 2022 budget, due primarily to the need for increased rental square footage associated with growth in staff. This need will potentially be accommodated by a move to the first floor of the Retirement Systems Building. Additionally, the Fiscal Year 2023 and 2024 budgets reflect increases in anticipated IT hardware and software and staff travel. We have not budgeted for any remodel needs, with the exception of the additional square footage. It will be necessary to call a special budget meeting to fund a remodel/move once we have a better determination of the cost of the office move.

Administrative Budget
Fiscal Year 2023 and 2024 Budget Plan

	FY2022 Budget	FY2022 Projected	FY2023 Request	FY2024 Request
Personnel Services	$7,085,800	$5,815,700	$8,033,000	$8,347,000
Operating Expense	1,650,000	1,128,730	1,961,300	1,961,300
Total	$8,735,800	$6,944,430	$10,294,300	$10,308,300

Personnel Services: Personnel Services are estimated to account for 81% of the requested Fiscal Year 2023 budget and 81% of the requested Fiscal Year 2024 budget.

Personnel Services include salaries, retirement, insurance, FICA and severance.

Operating Expenses: Operating Expenses are estimated to account for 19% of the requested Fiscal Year 2023 budget, and 19% of the requested Fiscal Year 2024 budget.

Operating Expenses include rents, leases, printing, data processing, communications, travel, employee development, miscellaneous fees, office equipment, furnishings and supplies.

Investment Support Services Budget
Fiscal Year 2023 & 2024 Budget Plan
Overview

The SBI currently has four Investment Support Services contracts that are funded from the Investment Support Services budget. The SBI is in a Request For Proposal (RFP) evaluation process for the Trading/Ticketing and Accounting System.

	FY2022 Budget	**FY2022 Projected**	**FY2023 Request**	**FY2024 Request**
Investment Support	$4,000,000	$2,939,000	$4,000,000	$4,000,000
Total	$4,000,000	$2,939,000	$4,000,000	$4,000,000

Investment Support: The Investment Support Services budget will cover the following contracts for FY23 and FY24: Aon Investments USA Inc., Meketa Investment Group, LLC, Albourne America LLC and Broadridge Financial Solutions, Inc.

Subscription Services Budget
Calendar 2022 Budget Plan
Overview

Annually, the SBI goes through a rigorous process in the establishment of the Subscription Services budget. SBI staff review and document the subscriptions services they use to ensure each expenditure is necessary. The SBI funds the Subscription Services budget using funds generated by Directed Commissions and Securities Lending. The SBI monitors and reconciles active management and the trading costs to ensure the SBI is receiving a portion of directed commissions, as appropriate, subject to best execution by its investment managers. In addition, the SBI uses Securities Lending revenue to pay for Subscriptions Services that are greater than the Directed Commissions revenue received. The budget and expenditures are on a calendar year basis to match the accounting period of our managers and Directed Commissions brokers. The Directed Commissions/Securities Lending funding is established on an annual basis. With the addition of staff the SBI has increased budgeting for Bloomberg and FactSet systems which has resulted in a material increase for the Calendar Year 2022 budget.

	CY2021 Budget	CY2021 Actual	CY2022 Budget
Subscription Services	$1,315,195	$1,328,000	$2,218,600

STATE BOARD OF INVESTMENT
ADMINISTRATIVE BUDGET PLAN
FISCAL YEARS 2023 AND 2024

DESCRIPTION	FY2022 PROPOSED	FY2022 PROJECTED	FY2023 PROPOSED	FY2024 PROPOSED
PERSONNEL SERVICES				
FULL TIME EMPLOYEES	$ 6,735,800	5,731,500	$ 8,033,000	$ 8,247,000
OTHER BENEFITS	350,000	84,200	300,000	100,000
SUBTOTAL	$ 7,085,800	5,815,700	$ 8,333,000	$ 8,347,000
STATE OPERATIONS				
RENTS & LEASES	285,000	281,000	390,000	390,000
PRINTING & BINDING	12,000	10,000	12,000	12,000
PROFESSIONAL/TECHNICAL SERVICES	250,000	130,000	250,000	250,000
COMPUTER SYSTEMS SERVICES	169,000	131,000	191,000	191,000
COMMUNICATIONS	25,000	14,000	25,000	25,000
TRAVEL, IN-STATE	3,000	30	3,000	3,000
TRAVEL, OUT-STATE	235,000	48,000	300,000	300,000
EMPLOYEE DEVELOPMENT	150,000	122,900	219,000	219,000
SUPPLIES	50,000	22,400	50,000	50,000
REPAIRS/ALTERATIONS/MAINTENANCE	21,000	20,000	21,000	21,000
INDIRECT COSTS	300,000	194,400	300,000	300,000
OTHER OPERATING COSTS	125,000	119,000	125,000	125,000
EQUIPMENT	25,000	36,000	75,300	75,300
SUBTOTAL	$ 1,650,000	$ 1,128,730	$ 1,961,300	$ 1,961,300
TOTAL MSBI OPERATING FUND	$ 8,735,800	$ 6,944,430	$ 10,294,300	$ 10,308,300
PERCENT INCREASE (DECREASE) OVER PRIOR YEAR BUDGET			17.8%	0.1%

STATE BOARD OF INVESTMENT
INVESTMENT SUPPORT SERVICES BUDGET PLAN
FISCAL YEARS 2022 AND 2023

DESCRIPTION	FY2022 BUDGET	FY2022 PROJECTED	FY2023 PROPOSED	FY2024 PROPOSED
STATE OPERATIONS				
PROFESSIONAL/TECHNICAL SERVICES	3,500,000	2,595,000	3,500,000	3,500,000
COMPUTER SYSTEMS SERVICES	500,000	344,000	500,000	500,000
TOTAL	$ 4,000,000	$ 2,939,000	$ 4,000,000	$ 4,000,000
PERCENT INCREASE (DECREASE) OVER PRIOR YEAR BUDGET			0.0%	0.0%

STATE BOARD OF INVESTMENT
SUBSCRIPTION SERVICES
CALENDAR YEAR 2021

DESCRIPTION	CY2021 BUDGET	CY2021 ACTUAL	CY2022 PROPOSED
SUBSCRIPTION SERVICES			
SUBSCRIPTION SERVICES	1,315,195	$ 1,328,000	2,218,600
PERCENT INCREASE (DECREASE) OVER PRIOR YEAR BUDGET			68.69%

ATTACHMENT C

CONTINUING FIDUCIARY EDUCATION PLAN

REQUIRED BY MS 356A.13

The State Board of Investment (SBI) undertakes the following activities related to fiduciary education. Taken as a group, these activities shall constitute the plan for continuing fiduciary education required by Minnesota Statutes 356A.13. In addition, pursuant to statutory requirements of qualification, the SBI Executive Director and many members of the Board's Investment Advisory Council (IAC) can be reasonably considered to be experts with respect to their duties as fiduciaries.

1. Briefing for New Board/IAC Members

Shortly after election to the Board or appointment to the IAC, each new member is briefed on SBI operations and policies. As part of the briefing, SBI's legal counsel will review the member's fiduciary obligations and responsibilities as specified in *Minnesota Statutes,* Chapters 11A and 356A.

2. Development and Review of Investment Policies

The SBI adopts comprehensive investment policies for each fund under its control. The policies cover investment objectives, asset allocation, management structure, and performance evaluation. Policy papers or reports on these topics are developed and written by SBI staff in conjunction with the IAC and consultants. Relevant research and analyses from the academic and professional investment fields are used to formulate these policy guidelines.

After the Board formally adopts them, these written policies guide the management of all assets under the SBI's control. The SBI intends to review its stated investment policies periodically. This review may occur within the framework of the SBI's regular quarterly meetings or may take place at special meetings or seminars specifically designated for this purpose.

3. Input from Board's Consultants

The SBI retains outside investment consultants to advise the Board members on a wide variety of investment management issues. As part of their contracts with the SBI, the consultants offer to meet with the Board members or their designees to discuss investment-related issues. These individual consultations occur throughout the year. In addition, the consultants are available at each meeting of the Board and IAC. These meetings are supplemented by quarterly reports on investment performance prepared by the consultants.

4. Roundtable Discussions

Roundtable discussions will be held periodically for Board members, Investment Advisory Council members, and other interested parties. The Roundtable Discussions will be presented primarily by SBI consultants, investment managers, and /or SBI Staff. The discussions will focus on investment or other relevant educational information which is pertinent to the management and / or oversight of the SBI Investment Programs.

5. Travel Allocation

The SBI allocates $10,000 annually to each Board member (or their designee) for costs associated with attendance at investment-related seminars and conferences. This allocation is used at the discretion of each Board member.

2021 Minnesota Statutes

356A.13 CONTINUING FIDUCIARY EDUCATION

Subdivision 1. **Obligation of fiduciaries**. A fiduciary of a covered pension plan shall make reasonable effort to obtain knowledge and skills sufficient to enable the fiduciary to perform fiduciary activities adequately. At a minimum, a fiduciary of a covered pension plan shall comply with the program established in accordance with subdivision 2.

Subd. 2. **Continuing fiduciary education program**. The governing boards covered pension plans shall each develop and periodically revise a program for the continuing education of any of their board members and any of their chief administrative officers who are not reasonably considered to be experts with respect to their activities as fiduciaries. The program must be designed to provide those persons with knowledge and skills sufficient to enable them to perform their fiduciary activities adequately.

TAB D

Update on Meketa Climate Risk Project

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DATE: May 9, 2022

TO: Members, Investment Advisory Council

FROM: SBI Staff

SUBJECT: Update on Meketa Climate Risk Project

Meketa Investment Group will give a verbal update on the second of three reports of the Climate Risk Project being conducted on behalf of the SBI.

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MEKETA

INVESTMENT GROUP

Minnesota State Board of Investments (SBI)

May 16, 2022

Climate Change Investment Analysis

Phase II: Public Pension Climate Leaders Survey

Meketa Project Team

Project Director: Sarah Bernstein, Head of Sustainability

Project Strategic Advisor: Allan Emkin, Managing Principal, Consultant

Ghiane Jones, Managing Principal, Consultant

Gordon Latter, Managing Principal, Consultant

Casey Satterlee, Sr. Investment Analyst

Matthew Parla, Client Service Assistant

Table of Contents

Preface

The Minnesota State Board of Investments ("SBI"), in its oversight of the SBI investment portfolio, continues to address potential investment risks and opportunities associated with climate change. Meketa's Climate Change Investment Analysis project for the SBI is designed to provide data, analysis, and options for the SBI to consider in order to further develop its strategy to address long-term climate investment risks and opportunities. During year one of the project, Meketa intends to address these issues in three reports:

→ In this Phase II report, we present results of a survey of public pension plan climate leaders. The report focuses on how public pension plan leaders manage climate-related investment risks and opportunities. The survey results provide the SBI a range of investment strategy perspectives to consider as it determines the best course of action for the SBI.

→ In our Phase I report, we reviewed high level global trends in climate change and related developments in financial markets across asset classes, policy and regulatory frameworks, institutional collaboration, and trends for investment-related climate risk data, metrics, and climate scenario analyses. Those trends appear to be gaining momentum.

→ The Phase III report will analyze the SBI portfolio's current exposure to climate risks and opportunities throughout the total portfolio – public and private market investments - and provide options for the SBI to implement a successful climate transition strategy consistent with the terms of the Paris Agreement.

We thank the pension funds below for their insights, and time and effort in responding to the survey:

California Public Employees Retirement System ("CalPERS")
California State Teachers Retirement System ("CalSTRS")
Connecticut Retirement Plans and Trust Funds ("CRPTF")
District of Columbia Retirement Board ("DCRB")
East Bay Municipal Utility District Employees Retirement System ("EBMUDERS")
Employee's Retirement System of Rhode Island ("ERSRI")
Illinois State University Retirement System ("Illinois SURS")
London Pensions Fund Authority ("LPFA")
Los Angeles County Employees Retirement Association ("LACERA")
Maryland State Retirement and Pension System ("MSRPS")
New York City Retirement Funds ("NYCRF")
New York State Common Retirement Fund ("NYSCRF")
New York State Teachers Retirement System ("NYSTRS")
Oregon State Treasury ("OST")
PensionDanmark ("PD")
San Francisco Employees Retirement System ("SFERS")
Seattle City Employees Retirement System ("SCERS")
University of California Office of Investments of the Regents ("UC Regents")
Vermont Pension Investment Commission ("VPIC")

We thank the SBI for engaging Meketa to work on these critical issues and thank the SBI Staff for their insights and information.

Highlights

The Meketa Phase II report to the SBI concentrates on the responses from climate pension plan leaders to our survey on behalf of the SBI. Meketa reviewed 20 public pension plans, including the SBI. We surveyed the plan's approaches to incorporating climate change risk and opportunities into their investment programs. The analysis covers 18 US public pension plans, and two non-US public pension plans. The plans range in size from $2 billion in assets under management ("AUM") to nearly $500 billion. In addition to the plans covered in this review, there are other US public pension plans, and many non-US public plans, that exhibit climate investment leadership.

Among institutional investors, growing attention is being devoted to identification and management of climate change physical and transition risks. The issues are complex, with no easy answers. In the United States today, **Meketa finds that most public pension plans do not address climate-related risks and opportunities explicitly in their investment strategy**. Among asset owners that actively seek to address these risks and opportunities, there is no well accepted best practice on how best to tackle these issues.

Currently, leading public pension plans adopt a wide range of approaches to managing climate risks of investments. Among the 20 pension plans reviewed, 18 (sixteen US plans and both non-US plans) have investment beliefs or policy explicitly relevant to climate change. **Net Zero/Paris Aligned pledges increased to seven today, up from zero in 2018.** This includes the four largest US public pension plans (CalPERS, CalSTRS, NYSCRF and NYCRF), each with assets over $250 billion AUM, and three plans under $50 billion AUM – SFERS and the two non-US plans surveyed, PensionDanmark, and London Pensions Fund Authority.

Staff dedicated to ESG, including to climate investment issues is prevalent at the 14 plans surveyed over $20 billion AUM, and at three of the six funds under $20 billion AUM. In some cases, smaller funds commit a higher percent of staff to ESG investment and corporate governance/engagement than their larger counterparts. Some funds noted that they intend to further increase their ESG staff, including one plan noting that they intend to add a dedicated climate investment staff member.

All 20 public pension plans devote significant attention to proxy voting and engagement, including engagement with managers, investee companies, and government regulators and policy makers. Over half of the plans have participated in activist ownership campaigns. There is growing attention to voting against Boards of Directors in cases where engagement efforts seem unproductive.

Ten of the 20 plans have an explicit commitment to invest in climate solutions.

Two plans have implemented broad divestment, while five plans divest selectively on a case-by-case basis. Two of the plans surveyed divest some thermal coal, complying with legislation.

Asset owners continue to evolve their analytical climate risk tools and increase their monitoring of climate risks. Approaches include regular monitoring of environmental key performance indicators and climate scenario analyses.

Overview

This overview summarizes the survey results for seven areas regarding the pension plans' approaches to climate investment strategies:

1) Investment policy
2) Staffing
3) Stewardship
4) Investment and divestment
5) Portfolio monitoring
6) Asset allocation and climate scenario analysis, and
7) Participation in institutional investor organizations that address climate investment issues

As shown in Figure 1, there is a wide range of climate investment strategies, as evidenced in the Investment Beliefs, Investment Policies and Net Zero pledges among the 20 plans reviewed here.

→ Eighteen of the 20 plans reviewed have adopted Investment Beliefs and/or Investment Policies that explicitly address climate change.

→ Seven plans have publicly announced a Net Zero or Paris aligned strategy, including the four largest plans (CalPERS, CalSTRS, NYSCRF NYCRF) and three plans under $50 billion AUM: SFERS and the two non-US plans surveyed PD and LPFA.

→ Legislation requires climate risk reporting for five plans: (CalPERS, CalSTRS, MSRPS, PD, LPFA).

→ Legislation requires thermal coal divestment for two plans: (CalPERS, CalSTRS).

Figure 1: Policies[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?
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
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

[1] Source: Meketa survey and research.

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

Figure 2: Staffing[1]

Name of Asset Owner	AUM ($B)	Total # Investment Staff	Dedicated ESG Investment Staff	Dedicated Non-Investment ESG/Governance Staff	% ESG Staff
MSBI	94	15	**1**	0	6.7
CalPERS	480	305	**22**	0	7.2
CalSTRS	320	200	**20**	0	10.0
NYSCRF	280	98	**10**	3	13.3
NYCRF	275	40-50	**5-10**	5-10	20-30
UC Regents	168	NA	**NA**	NA	NA
NYSTRS	146	77	**ESG team members also have other duties**	0	ESG team members; also have other duties
OST	97	52	**1**	0	1.9
LACERA	75	34	**2**	0	5.9
MSRPS	68	37	**0 (w/ formal committee)**	0	0.0
PD	48	50	**2**	4	12.0
CRTPF	46	18	**1**	1	11.1
SFERS	37	21	**2**	0	9.5
Illinois SURS	24	9	**0**	0.3	3.3
DCRB	11	3	**0**	0	0.0
ERSRI	11	5	**0**	0	0.0
LPFA	10	50	**6**	2	16.0
VPIC	6	3	**1**	0	33.3
SCERS	4	4	**0.5**	0	12.5
EBMUDERS	2	0	**0**	0	0.0

→ Because climate is often part of broad ESG responsibilities, we asked plans to report ESG staff.

→ The four largest plans each employ from 10 to 22 ESG staff (CalPERS, CalSTRS, NYSCRF, NYCRS)

→ Fourteen of the 16 plans under $150 billion AUM report less than five dedicated ESG staff.

→ However, as a percent (ESG investment and non-investment staff to total investment staff), five of the seven funds with the highest percentages are under $50 billion AUM (This in part reflects larger funds dedication of staff to in-house management of passive assets).

[1] Source: Meketa survey and research.

Figure 3: Stewardship Approach[1]

Name of Asset Owner	AUM ($B)	Explicit Proxy Voting Guidelines for Climate Issues?	Participate in Activist Ownership Campaigns?	Dedicated Resources to Engagement Efforts?
MSBI	94	Yes, MSBI guidelines	Yes	Yes, one full time staff member has responsibility for company, manager, and regulatory engagements
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
LACERA	75	Yes, LACERA guidelines	Not provided	Yes, collaborate with CA 100+ 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 CA 100+	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

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

- Fourteen of the 20 plans adopt their own specific proxy voting guidelines, in some cases modifying proxy voting provider baseline guidelines to the plan's specific criteria.

→ Over half of the plans have participated in activist ownership campaigns, with varying definitions, including letter writing campaigns, to investments in activist investment managers.

- Most plans have staff for engagement (dedicated, dedicated with other duties, or ad hoc).

[1] Source: Meketa survey and research.

Figure 4: Investment and Divestment[1]

Name of Asset Owner	AUM ($B)	Use Divestment as Climate Tool?	Explicit Commitment to Invest in Companies Addressing Energy Transition and/or Climate Mitigation Challenges?
MSBI	94	Yes, thermal coal resolution. Prefer engagement	No
CalPERS	480	Yes, thermal coal that complies with legislation	No
CalSTRS	320	Prefer engagement; thermal coal divestment complies with legislation	Yes. Varies across strategies
NYSCRF	280	Yes, case by case. To date divested total 55 thermal coal, oil sands and shale oil/gas firms	Yes
NYCRF	275	Yes (TRS, NYCERS & BERS)	Yes (TRS, NYCERS & BERS)
UC Regents	168	Yes, broad fossil fuel divestment	Yes
NYSTRS	146	Yes, divested thermal coal names; restricted from new purchase certain carbon-intensive fossil fuel holdings	Yes
OST	97	No	No
LACERA	75	No	Broad approach to climate aware portfolio
MSRPS	68	No	No
PD	48	Yes, divested some oil & gas majors; is not invested in thermal coal or oil sands - considered sun-setting businesses	Yes
CRTPF	46	No	Yes
SFERS	37	Yes, excludes thermal coal; certain oil& gas	No
Illinois SURS	24	No	No
DCRB	11	No	No
ERSRI	11	No	No
LPFA	10	Prefers engage & monitor; selectively divest	Yes
VPIC	6	No	Yes
SCERS	4	No	Yes, primarily through infrastructure
EBMUDERS	2	No	No

→ Seven of the 20 plans explicitly invest in climate solutions and use some form of divestment

→ Ten plans have an explicit commitment to invest in climate solutions.

→ Ten plans have made some fossil fuel divestment:

- Two plans implemented broad divestment (NYCRS and UC Regents)
- Three plans divest some thermal coal (CalPERS and CalSTRS-legislation, MSBI)
- Five plans divest selectively/case by case (NYSCRF, NYSTRS, PD, SFERS, LPFA)

→ Five plans do not explicitly invest in climate solutions or use divestment (OST, Illinois SURS, DCRB, ERSRI, EBMUDERS)

[1] Source: Meketa survey and research.

Figure 5: Asset Allocation and Climate Scenario Analysis[1]

Name of Asset Owner	AUM ($B)	Address Climate Change Risks/Opportunities in Strategic Asset Allocation?	Employ Climate Scenario Analysis?
MSBI	94	No	No
CalPERS	480	Not explicitly but assumptions are made based on climate risk	Yes
CalSTRS	320	No	No
NYSCRF	280	Yes	Yes
NYCRF	275	No	Ad hoc
UC Regents	168	Yes	Yes
NYSTRS	146	No, address Stewardship	No, reviewing vendors
OST	97	No	Engaged with external parties to provide portfolio impact analysis
LACERA	75	Yes	Yes, both top-down and bottom-up
MSRPS	68	Yes	Yes
PD	48	Yes, dedicated portfolios for sustainable/green investments	Temperature alignment tools used for public equity
CRTPF	46	Yes, generally, no climate related to date	No
SFERS	37	No	Yes, use PACTA scenario analysis
Illinois SURS	24	No	No
DCRB	11	No	No
ERSRI	11	No	No
LPFA	10	Intended	No
VPIC	6	Yes	No
SCERS	4	Yes	Yes
EBMUDERS	2	Not directly	No

→ Explicitly incorporating climate risks and opportunities into capital market assumptions, that are then used to set long-term strategic asset allocation, is a nascent practice.

→ The majority of plans do not currently address climate changes risks and opportunities in their strategic asset allocation. Among the nine funds who indicated that they do, there were widely ranging definitions including specific carve outs dedicated to sustainable/green investments.

→ Ten of the plans do not currently employ climate scenario analysis. Three funds indicate that they are either reviewing options or may use climate scenario analysis in the future.

[1] Source: Meketa survey and research.

Figure 6: Portfolio Monitoring[1]

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?
MSBI	94	Yes, use investment consultant	Plan to do so	
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)
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

→ Fifteen of the 20 plans monitor managers for climate risks and opportunities and/or for GHG emissions.

→ 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.
- At least five plans expect to increase or begin monitoring for climate risks and opportunities and/or for GHG emissions.

[1] Source: Meketa survey and research.

Figure 7: Signatories/Supporters of Investor Organizations That Address Climate[1]

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
Total Number of Plans	**20**	**18**	**17**	**14**	**12**	**10**	**6**	**5**	**3**	**3**	**3**	**2**	**2**
MSBI	94	✓	✓	✓	✓	-	-	-	-	-	-	-	-
CalPERS	480	✓	✓	✓	✓	✓	✓	✓	✓	-	Co-founder	Co-Founder	✓
CalSTRS	320	✓	✓	✓	✓	✓	✓	-	-	-	-	-	✓
NYSCRF	280	✓	✓	✓	✓	✓	✓	-	-	✓	✓	-	-
NYCRF	275	✓	✓	✓*	✓	✓	-	-	-	✓**	-	-	-
NYSTRS	146	✓	✓	-	✓	-	-	✓	-	-	-	-	-
UC Regents	168	✓	✓	✓	-	✓	-	-	-	-	-	-	-
OST	97	✓	✓	-	✓	-	✓	✓	-	-	-	-	-
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	✓	-	-	✓	✓	-	-	-	-	-	-	-

*TRS, NYCERS;
**TRS, NYCERS, BERS

→ The information presented on the participation in institutional investor efforts on climate change is not meant to be inclusive of all participation, or of all organizations that are valued in supporting investor climate strategies. It reflects many of the organizations and efforts that were noted by multiple plans surveyed. Please see individual plan summaries for some additional information.

→ 100% (20 of 20 plans surveyed) participate in at least one coalition that addresses climate issues.

→ 90% (all 18 US public pension plans) surveyed are CII members.

→ 85% (17 plans) are signatories to Climate Action 100+.

→ 50% (10 plans) are signatories to the Task Force on Climate Related Financial Disclosure ("TCFD").

→ Five of the seven plans that have a net zero pledge are members of either NZAOA or PAII.

→ Generally, the US pension plans surveyed under $25B AUM, are active, but join fewer organizations than larger public plans. Coalitions often require time and/or membership fee commitments.

[1] Source: Meketa survey and research.

Summary of Individual Fund Approaches

The summaries below seek to briefly present some of the main features of each pension plan's approach to managing climate risks and opportunities. We identify each fund's overall approach as either 'Climate Aware' or 'Net Zero Pledge'. Climate Aware and Net Zero Pledge plans both make use of similar investment tools to manage climate risks and opportunities.

California Public Employees' Retirement System ("CalPERS") (Approach: Net Zero Pledge)

CalPERS, with $480 billion AUM as of December 2021, is the largest public pension plan in the US and has been a leading active institutional investor on climate issues for decades. CalPERS' Sustainable Investment Strategy utilizes four channels to address climate change: engagement, advocacy, integration, and partnership. Engagement involves working with companies to drive change to a low carbon economy. Advocacy ensures support in the regulatory and policy arenas to limit temperature rise to 1.5 degrees Celsius. Integration ensures CalPERS is actively considering climate risk throughout its investment processes and asset classes. Partnership building plays a foundational role in each channel.

CalPERS is active in many institutional investor efforts that address climate issues. In 2019, CalPERS became a founding member of the NZAOA, and in 2021 co-founded the ESG Data Convergence Project, and is a signatory to other organizations including Climate Action 100+, PRI, Ceres, CII, CDP, SASB/VRF, IIGCC and the TPI. With 305 total investment staff, 7.2% (22) are dedicated to ESG. CalPERS receives ESG data from vendors.

CalPERS summarizes on their website: "As an investor in the global economy, the scale and multi-faceted nature of climate change presents a systemic risk to our portfolio. Climate change affects investors like us in two main ways: through physical impact and energy transition risks. Through our engagement and advocacy efforts, we're working to minimize the absolute risk from climate change to our portfolio. Through our research and integration efforts, we are working to understand the financial risks to our portfolio and prepare for the long-term changes that will accompany climate change. Our Sustainable Investments Program leverages the best available science and tools to inform investment decisions with key insights into the highest-value climate change-related risks and opportunities. We also work to identify and focus on the largest opportunities for financially attractive emission reductions across the fund, and advocate for policies that can drive the transition to a thriving low-carbon global economy in which we can invest."

Regarding divestment of fossil fuels, in 2017, CalPERS divested from publicly traded thermal coal producers with more than 50% in revenues derived from thermal coal, complying with legislation.

California State Teachers' Retirement System ("CalSTRS") (Approach: Net Zero Pledge)

CalSTRS, with approximately $324 billion in assets under management, is the second largest public pension fund in the US. CalSTRS is a member of Ceres, PRI, CDP, Climate Action 100+ and CII. In September of 2021, CalSTRS pledged to achieve net zero GHG emissions by 2050. CalSTRS has dedicated investment staff numbering 200, 10% of which are dedicated to ESG initiatives and research.

CalSTRS' TCFD-aligned Green Initiative Task Force Report highlights the CalSTRS investments climate-related governance framework, strategy, and risk management processes. These include: CalSTRS ESG Policy, transition and physical risk assessments, proxy voting, corporate and public policy engagement, quantitative and qualitative scenario assessments, and manager and security selection due diligence. Consideration and assessments related to stranded asset risk, litigation and regulation are conducted during the various stages of due diligence for CalSTRS active holdings. For CalSTRS passive holdings, staff regularly engages portfolio companies on such risks to understand better the companies' low-carbon transition assumptions and underwriting practices.

Separately, CalSTRS invests in a low carbon equity benchmark. CalSTRS has an extensive history of engaging companies on ESG risks including climate-related risks and participating actively in institutional efforts to support long-term investing and support for climate energy transition and physical climate risk management. CalSTRS identifies their procedures in their published ESG Policy.

Complying with legislation, in May 2016, CalSTRS began divestment of publicly traded companies that generate 50% or more of their revenue from the sale of thermal coal, CalSTRS broadened its divestment from US thermal coal holdings to non-US thermal coal holdings in June 2017.

Connecticut Retirement Plans and Trust Funds ("CRPTF") (Approach: Climate Aware)

Connecticut Retirement Plans and Trust Funds is a $46 billion public pension fund. The CRPTF Investment Policy Statement ("IPS") explicitly acknowledges economic and financial risks associated with climate change and plans to implement a Net Zero or Paris Aligned pledge are under active consideration. The Fund has 18 investment staff. Currently, 11% (two) CRPTF investment staff are dedicated to ESG efforts.

The plan's proxy voting guidelines around climate issues are explicit in the IPS. CRPTF devotes resources to engagement efforts and actively engages with companies that do not have Paris aligned plans. The plan addresses climate change in strategic asset allocation and is working towards a dedicated climate aware portfolio. CRPTF, generally, has used divestment as a tool but has not to date on climate related issues. CRPTF divested from civilian firearms manufactures in 2020 and most recently, from Russian-domiciled securities. Additionally, they are also a signatory to PRI and a member of Ceres, CA 100+, and CDP.

District of Columbia Retirement Board ("DCRB") (Approach: Climate Aware)

The DCRB is the retirement board that manages and controls the retirement funds of the District of Columbia Police Officers, Fire Fighters, and the Teachers. As of December 2021, the system managed approximately $11.4 billion in AUM with three dedicated investment staff.

The DCRB has had in place an ESG policy since 2013 that explicitly includes climate change. DCRB requires all active managers to consider environmental risks/opportunities as part of their investment-decision process. In addition, when presenting investment memos to the Investment Committee, the DCRB investment Team typically includes a section on ESG. This section details the prospective manager's ESG initiatives or policies, so the Committee understands how the manager integrates the evaluation of ESG risks and opportunities into their investment process, as well as how they report outcomes to investors. As it relates to proxy voting, the DCRB proxy voting policy supports disclosure of climate change risks, reduction of greenhouse gases, adoption of greenhouse gas emission limits, and related climate change issues.

East Bay Municipal Utility District Employees' Retirement System ("EBMUDERS") (Approach: Climate Aware)

East Bay Municipal Utilities District Employee Retirement System is a $2.3bn public pension plan in Northern California. The System is 100% passively invested in equities and does not have any dedicated investment staff. EBMUDERS is a member/signatory of the Ceres Investor Network on Climate Risk, and Climate Action 100+, TCFD, and signed the 2021 of Global Investor Statement to Governments on Climate Change. Given the passive nature of the plan, EBMUDERS chooses to implement ESG and climate factors via proxy voting guidelines and ESG considerations in manager due diligence. The System utilizes Glass Lewis' Public Pension Policy for proxy voting and is considering participating in activist ownership campaigns in the future. EBMUDERS is still in the early stages of exploring additional ESG and climate-specific initiatives.

Employees' Retirement System of Rhode Island ("ERSRI") (Approach: Climate Aware)

The Employees' Retirement System of the State of Rhode Island ("ERSRI") is a $10.6bn public pension fund. The ERSRI has total investment staff of five, with none currently dedicated to ESG. While ERSRI does not currently have explicit investment beliefs of investment policy specific to climate change, it is an initiative that they hope to evaluate soon. At a high level, ERSRI incorporates ESG considerations into all manager selection, where broad-based ESG scores are assigned. ERSRI utilizes ISS proxy voting guidelines that include a preference for climate-aware Boards. While ERSRI does not have dedicated resources to engagement efforts, the Fund does engage periodically on a variety of topics, including ESG considerations. ERSRI is at the very beginning of the process for incorporating ESG and climate awareness into the Fund's investment profile.

Illinois State University Retirement System ("Illinois SURS") (Approach: Climate Aware)

Illinois SURS is one of the largest pension funds in the state of Illinois, serving 61 employers including state universities, community colleges, and state agencies. As of December 2021, Illinois SURS had $23.8 billion in AUM. The system has nine dedicated investment staff, with one person dedicated about 30% of their time to ESG, including climate issues. Illinois SURS incorporated ESG language into its investment beliefs and it looks to integrate ESG issues into its investment process.

The real asset commitment reviews for the Board include an ESG section which includes some relevant climate discussions, but they are not used as a screening tool. For proxy voting, Illinois SURS uses the Glass Lewis guidelines with public pension overlay. The plan's proxy voting guidelines include a preference for climate aware boards and proposals. Currently, Illinois SURS does not use divestment as a tool, nor does it monitor GHG emissions at this point. The state of Illinois has mandated divestment statutes for certain "restricted securities", none of which are related to climate change.

London Pensions Fund Authority ("LPFA") (Approach: Net Zero Pledge)

The LPFA is the largest local government pension provider in London with about $9.5 billion AUM (approximately £6.9 billion) as of March 31, 2021. Working with their asset managers, Local Pensions Partnership Investments ("LPPI"), there are 50+ investment staff, 16% of which are dedicated ESG staff.

The LPFA has an explicit Climate Change Policy within their investment policy and committed to a net zero pledge in 2021. Under the pledge, LPFA has one year to develop an implementation plan which will be published in September 2022. In addition, the LPFA is required by UK code to publish an annual study outlining how ESG considerations are considered within investments as well as proxy votes. The LPFA occasionally uses divestment as a tool but prefers to use engagement and monitoring instead of blanket divestment. That said, LPPI excludes extractive fossil fuel companies from their Global Equities Fund, as well as coal across the portfolio. LPFA/LPPI has explicit proxy voting guidelines related to ESG and climate change, participates in activist ownership campaigns, and will be creating a target for dedicated climate change investing in 2022.

LPFA has identified climate change as a long-term material financial risk with the potential to impact *all* asset classes within the portfolio. The LPFA does not currently employ climate scenario analysis but monitors current investments and screens potential investments for climate change risks and/or opportunities. LPFA/LPPI are members and signatories of numerous initiatives including PRI, CDP, UK Stewardship Code, Local Authority Pension Fund Forum, Planet Mark, C40 Cities, and the UK Occupational Pensions Stewardship Council.

Los Angeles County Employees Retirement Association ("LACERA") (Approach: Climate Aware)

LACERA, with approximately $75 billion in assets as of December 2021 actively implements its Corporate Governance Climate Risk principle, which states: "Climate change may present financial, operational, and regulatory risks to a firm's ability to generate sustainable value, as well as to the broader economy. Firms should assess and disclose material climate-related risks and sufficient, non-proprietary information to enable investors to prudently and adequately evaluate the prospective impact of climate risk on firm value." LACERA has not taken divestment/exclusion action regarding climate risks. With 34 total investment staff, 5.9% (two) are dedicated to ESG. LACERA also receives ESG related services from investment consultants and other providers.

LACERA monitors market-wide risks and opportunities related to climate change to inform engagement and investment strategies. The fund conducts carbon footprint analysis and climate scenario analysis of public market investments. LACERA undertook new modeling to inform the Plan's strategic asset allocation. Some asset class structure reviews – such as real assets – have incorporated climate. LACERA actively engages on climate risk issues. The Plan endorsed the Climate Action 100+ initiative, the Taskforce on Climate-related Financial Disclosures, and signed the Global Investor Statement to Governments on Climate Change. LACERA votes proxies consistent with LACERA's proxy voting policy.

Maryland State Retirement and Pension System ("MSRPS") (Approach: Climate Aware)

Maryland State Retirement and Pension System has over 150 local governmental agencies participating with over $68 billion in assets to support the distribution of key benefits and services to its recipients. The System's Investment Policy Manual explicitly addresses climate change as a risk and MSRPS employs climate scenario analysis in its strategic asset allocation review process. MSRPS currently has 37 total investment staff. While no staff are fully dedicated to ESG, a formal ESG Risk Committee was formed in 2017 consisting of the CIO, Senior Compliance Officer, and five investment professionals responsible for managing asset classes across the plan.

MSRPS plans to use Aladdin's ESG Starter Pack to support climate risk analysis. Currently, the Fund does not use fossil fuel divestment as a tool in its investment process. The System's proxy voting policy has a section dedicated to climate change, and its manager due diligence process includes a broad ESG evaluation. The MSRPS ESG Risk Committee publishes a biennial responsible investing report. This report and the annual Risk Assessment and IPM are available at https://sra.maryland.gov/investments-financials.

The system is a member of the UN PRI, Ceres Investor Network on Climate Risk and Sustainability, the SASB Alliance, and the Climate Action 100+.

New York City Retirement Funds ("NYCRF") (Approach: Net Zero Pledge*)

*TRS and NYCERS are PRI signatories. TRS, NYCERS and BERS are PAII signatories.

The New York City Comptroller is by law the custodian of City-held trust funds and the assets of the New York City Public Pension Funds and serves as Trustee on four of the five funds. Further, the Comptroller is delegated to serve as investment advisor by all five pension boards. The Comptroller's Bureau of Asset Management ("BAM") oversees the investment portfolio for each system and related defined contribution funds. The Systems, as of December 2021, had approximately $275 billion in assets under management, constituting the fourth largest public pension plan in the US. These five pension funds comprising the Systems are the New York City Employees' Retirement System ("NYCERS"), the Teachers' Retirement System of the City of New York ("TRS"), the New York City Police Pension Fund ("POLICE"), the New York City Fire Pension Fund ("FIRE"), and the New York City Board of Education Retirement System ("BERS"). BAM has 40-50 dedicated investment staff members, with 5-10 dedicated to ESG investments. In addition, the organization has a six-person team dedicated to overseeing its proxy voting and engagement efforts. Going forward, the Comptroller plans to hire a climate subject matter expert and an ESG integration professional to support its ESG team and investment staff on climate-related investing issues and to strengthen its ESG integration efforts.

The New York City Comptroller is highly climate aware and helped lead adoption of a goal to achieve net zero GHG emissions by 2040 with three of the five New York City Pension Funds: TRS, NYCERS, and BERS. The Systems' efforts include a goal to approximately double investments in climate change solutions, such as renewable energy, energy efficiency and green real estate, to over $8 billion by 2025 and achieve a total of over $37 billion in climate solutions investments by 2035 across the three funds, in line with a total of $50 billion in total pension fund investments in climate change solutions by 2035. The three New York City pension funds have also adopted the Net Zero Asset Owner Commitment of the Paris Aligned Investment Initiative ("PAII"), a former partner of the United Nations Framework Convention on Climate Change's ("UNFCCC's") Race to Zero campaign, joining asset owners and investors globally in developing best practices to achieve net zero emissions. In addition to PAII, the Comptroller is currently a member of institutional investor organizations that address climate investment issues including PRI, Ceres, and Climate Action 100+.

On behalf of TRS, NYCERS and BERS, the Comptroller worked with Meketa and BlackRock to conduct an analysis of climate risks and the potential impact of divestment of fossil fuel reserve owners on the Systems' portfolios. The analysis determined that divestment of fossil fuel reserve owners would be a prudent course of action without a significant impact on risk and return of the portfolio. As a result, the Comptroller decided to pursue divestment and in June 2021 began divesting from passive and active equity and fixed income securities issued by over 200 companies that own fossil fuel reserves.

New York State Common Retirement Fund ("NYSCRF") (Approach: Net Zero Pledge)

NYSCRF is the third largest public pension fund in the US with approximately $279.7 billion in assets as of December 2021. NYSCRF released its Climate Action Plan in 2019. The Plan delineates the Fund's next level of climate-related assessment, investment, engagement, and advocacy work. In 2020, the Fund set a goal to transition its investments to Net Zero greenhouse gas emissions and hired a new Director of Sustainable Investment and Climate Solutions, expanded the Corporate Governance unit's dedicated climate staff, and contracted consultants and data providers who can provide unique research and analysis services. Today, NYSCRF has 98 total investment staff. Staff dedicated to ESG include 10 investment staff and three non-investment/ESG governance staff, or 13% compared to the total investment staff. NYSCRF also receives ESG related services from investment consultants and other providers.

For years, the Fund used a multi-faceted approach to climate change, employing investment, active stewardship, and public policy advocacy strategies. Over the last 10 years, the Fund identified and assessed its risks through scenario analysis and carbon footprint analysis. The Fund committed to investing $20 billion in sustainable strategies, including climate solutions; engaged with the largest emitters to reduce risks and assess transition readiness; and advocated at the international, national, and state levels for policies to reduce climate-related investment risks and create opportunities for the Fund and the economy.

NYSCRF approaches divestment of fossil fuel companies using a phased case-by-case assessment. In their Climate Action Plan released in 2019, NYSCRF states they will use an "enhanced, phased, risk assessment process … to evaluate companies in high impact sectors on climate transition readiness."[1] NYSCRF will place companies at high climate risk on a watch list and prioritize them for engagement. If these companies fail to demonstrate a readiness to transition to the low carbon economy, NYSCRF will consider actions such as underweighting, restricting new investment, and divestment consistent with the NYSCRF's investment policies, processes, and fiduciary duty. NYSCRF began this assessment process in 2020. To date, the Fund has divested from 55 oil sands, thermal coal, and shale oil and gas companies. The plan's reviews of oil sands and coal companies led to the Fund's divestment from 34 firms that the Fund determined failed to demonstrate transition readiness. After reviewing 42 shale oil and gas companies, the Fund determined 21 failed to show viable transition strategies.

NYSCRF is active in PRI, Ceres, CA100+, PAII, CII, the ESG Data Convergence Project, and supports the CDP, TCFD.

[1] https://www.osc.state.ny.us/sites/default/files/reports/documents/pdf/2019-07/climate-action-plan-2019.pdf

New York State Teachers' Retirement System ("NYSTRS") (Approach: Climate Aware)

NYSTRS is one of the 10 largest public pension funds in the nation and had $146.3 billion in assets as of June 2021. The Fund has 77 dedicated investment staff and an ESG team that consists of representatives from the investment and administrative departments. In January 2022, the System revised its proxy voting policy to more clearly articulate the System's use of proxy voting to affect climate-friendly change among its portfolio holdings.

NYSTRS uses divestment as a tool and in December 2021 it began the process of divesting directly held public equity securities in companies that derive more than 10% of their revenue from activities related to thermal coal. This is approximately $66 million in thermal coal assets. In addition, NYSTRS created a Restricted List to "freeze" or prohibit further purchases of certain carbon-intensive fossil fuel holdings, based on thermal coal and CO_2 emissions or revenue from oil sands. Regarding the divestment of companies with more than 10% of total revenue from thermal coal, the impact on portfolio risk and return was considered in making the decision, both from a historical and forward-looking perspective. The divested thermal coal names represent a small portion of the public equities portfolio, and the policy benchmark. The contribution of thermal coal companies to the benchmark return over the past 20 years was estimated to be negligible and the impact to tracking error was estimated to be less than one basis point.

NYSTRS is involved in several institutional investor organizations focused on climate change, including Climate Action 100+, Ceres, Value Reporting Foundation, and the Council of Institutional Investors.

Oregon State Treasury/Oregon Public Employees Retirement System ("OST") (Approach: Climate Aware)

The Oregon State Treasury manages various state assets, but its responses represent that of the Oregon Public Employees Retirement System. Oregon PERS has been serving the public employees of Oregon since 1946 and it had $93 billion in assets as of December 2021. The Oregon Investment Council which guides the Oregon PERS investments includes as Investment Belief #8: "*The Integration of Environmental, Social and Governance (ESG) Factors, Similar to Other Investment Factors, May Have a Beneficial Impact on the Economic Outcome of an Investment and Aid in the Assessment of Risks Associated with that Investment."* The System has 50 dedicated investment staff, one of which focuses solely on ESG.

Currently, the OST does not employ climate scenario analysis. The OST has engaged Manifest Climate and Ortec Finance to provide a portfolio impact analysis due to transition in response to climate change. The OST has not made an explicit commitment to invest in companies addressing energy transition and/or climate mitigation challenges, and they do not use divestment from fossil fuels as climate risk/opportunity investment tool.

The OST is involved with many institutional investor organizations focused on climate change including the Sustainability Accounting Standards Board, Council of Institutional Investors, Ceres, and Climate Action 100+.

PensionDanmark ("PD") (Approach: Net Zero Pledge)

PensionDanmark, with $48 billion AUM, is one of the 50 largest pension funds in Europe and is a non-profit, labor-market pension fund. PensionDanmark has investment staff totaling 50, with 12% dedicated to ESG and governance issues. PensionDanmark believes in engagement and active ownership, not divestment, and sees investments in the climate solution space as the most effective way for investors to mitigate climate change. As such, they are active members of Climate Action 100+ and, in September 2019, became one of six asset owners to initiate the United Nations-convened NZAOA. PensionDanmark has explicit climate change policy and investment beliefs.

PensionDanmark considers climate change in strategic asset allocation and utilizes climate scenario analysis. Additionally, although PensionDanmark approaches climate change through active ownership rather than divestment, the fund is not invested in coal production or oil sands, since the fund considers these industries to be sun setting businesses with bad return prospects. The fund decided in 2021 to divest some oil and gas majors that achieved a low score in PensionDanmark's internal oil and gas model.

San Francisco Employees' Retirement System ("SFERS") (Approach: Net Zero Pledge)

San Francisco Employees' Retirement System is a $36.7bn public pension plan, providing retirement benefits for the employees of California's fourth-largest city. In 2020, the System voted to implement a Net Zero Carbon Emissions by 2050 Ambition, and in 2021 published its Climate Action Plan, detailing implementation activities for the Net Zero ambition. With 21 investment staff, 10% are dedicated to ESG/Governance. The SFERS has a strong approach to both ESG and climate specific considerations in its portfolio, including incorporating ESG into the investment policy and manager due diligence.

SFERS leverages proxy voting guidelines from Glass Lewis related to climate change issues and participates in activist ownership campaigns related to climate change risks. SFERS began divesting from thermal coal producers in 2017, and oil and gas in 2018. As part of their Net Zero ambition, the System continues to exclude thermal coal investments and certain oil and gas companies from its investments. SFERS uses a Climate Transition Risk Framework to determine those companies that should be fully divested or placed on a restricted or watch list.

SFERS does not address climate change risks and/or opportunities in strategic asset allocation, but the System does employ climate scenario analysis. SFERS utilizes PACTA scenario analysis and MSCI portfolio carbon analytics to examine the plan's investments under different climate scenarios and highlight areas of risk and opportunity. SFERS monitors its total investment portfolio for climate change risks and opportunities by asset class, and monitors scope 1 & 2 GHG emissions data. SFERS publishes a carbon foot printing analysis annually in its Climate Action Plan.

SFERS is a member and/or signatory to a number of organizations that address investment climate risks, including PRI, Ceres, and Climate Action 100+. In addition, the System is part of the Ceres Climate Asset Risk working group and a signatory to the Investor Expectations on Corporate Climate Lobbying.

Seattle City Employees Retirement System ("SCERS") (Approach: Climate Aware)

SCERS, with approximately $3.9 billion AUM, is predominantly a passive investor with four dedicated investment professionals on staff, where one professional dedicates approximately 50% of their time to ESG investments. The SCERS Investment Policy Statement factors in ESG and identifies climate change as a key area of focus.

The Fund endeavors to improve company operations through shareholder advocacy and is active in UNPRI, Ceres, CII, ILPA, and CA100+. It has also participated in activist campaigns like the Exxon Board of Directors challenge. SCERS conducted five studies of fossil fuel divestment (three from its investment consultant, one from staff, and one from the SCERS Investment Advisory Committee) and decided not to exclude or divest. The Board Policy states that it will not divest from or invest in a targeted company, sector, or other set of investments with the primary goal of advancing an ESG priority because doing so would be inconsistent with SCERS' 1) mission to fulfill the promise made to our members by delivering the retirement benefits they have earned, 2) fiduciary duties of prudence and loyalty that are paramount, and 3) investment beliefs that emphasize the benefits of diversification, cost control, and passive management. In its infrastructure allocation, SCERS invests in companies that are addressing energy transition. SCERS tracks its allocation to the CU200. SCERS, with its consultant, has begun to incorporate climate scenario analysis into SCERS Strategic Asset Allocation analysis.

University of California Office of the President of the Regents ("UC Regents") (Approach: Climate Aware)

The UC Regents manages approximately $168 billion including retirement, endowment, and cash assets. UC Regents is highly climate aware. Separate from their Investments, the UC Regents have a carbon neutral goal for all UC campus emissions by 2025. With xx total investment staff, xx% (x of xx) are dedicated ESG investment or non-investment ESG staff. UC Investments also receive ESG and climate-related services from investment consultants and data providers.

UC Regents has a robust climate approach to investments, including specific climate policy within the IPS and ESG, and climate-related investment beliefs. In 2015, the UC Regents committed to investing $1 billion in clean energy over the next five years and published the "Framework for Sustainable Investing". In 2020, the UC Regents achieved their clean energy technologies investment goal. UC Investments does not employ divestment across the board, preferring to engage with companies and Boards and exercise their proxy voting rights. However, in 2015 they divested from major companies with revenues from tar sands or coal and in 2019 divested from fossil fuel reserve owners.

UC Regents has an explicit commitment to invest in companies addressing energy transition/climate mitigation challenges. Additionally, climate change risks and opportunities are considered in strategic asset allocation, and they utilize climate scenario analysis. UC Regents actively monitor the portfolios and existing and potential managers for climate change risk and opportunities. They monitor Scope 1, 2, and 3 GHG emissions data. UC Regents continues to increase their shareholder engagement on climate change. UC Regents is currently a member of PRI, Climate Action 100+, TCFD and the Net Zero AOA. UC Investments was the first major public US university to sign on to PRI.

Vermont Pension Investment Commission ("VPIC") (Approach: Climate Aware)

The Vermont Pension Investment Commission is a $6 billion public pension plan with 3 dedicated investment staff. VPIC is involved with many organizations including PRI, Ceres, Climate Action 100+, and TCFD. The Commission has a robust ESG approach to investing, with ESG specified in the investment policy. The VPIC has divested from investments related to Terror or Genocide Linked Countries and Tobacco but does not currently employ divestment as a tool for climate change impact. VPIC is an active member of other ESG organizations including the Northeast Investors Diversity Initiative, IOPA, Say-On-Pay Working Group, Majority Action, Investor Alliance for Human Rights, HCMC.

The Commission has adopted an ESG policy for manager due diligence and portfolio monitoring and is currently evaluating additional climate specific tools for future integration into the investment process. VPIC has explicit proxy voting guidelines for both domestic and international investments and participates in activist ownership campaigns both individually and within coalitions. The VPIC approves a list of topics annually to engage on during the upcoming proxy season.

Conclusions

As the SBI considers how best to evolve its approach to climate risks and opportunities, the survey indicates there is a wide range of approaches by peer public pension plans to addressing climate risks and opportunities. The attention to the urgent physical and transition climate risks have brought to fore the distinction decarbonizing an investment portfolio and helping move the market beta towards net zero.

A growing number of public pension plans have adopted Net Zero or Paris-aligned investment strategies. The relatively recent growth in net zero pledges is indicative of the rapid increase in attention to climate investment issues. With this attention, plans of all sizes, and widely varying experience in addressing climate risks and opportunities, continue to evolve their approach. The major tools being used by plans include developing their investment policies and investment beliefs to more carefully and directly address climate change; monitoring their investment portfolios, using stewardship approaches both individually and collectively with other institutional investors, including proxy voting and engagement with managers, companies and government regulators and policy makers, investing in climate solutions, and divesting from fossil fuel companies, either broadly, or on a case-by-case basis, often incorporating more forward-looking metrics. The 20 plans surveyed take different approaches to dedicated staff to support their climate investment strategy.

Appendix

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.

Year Founded	Organization Name	Abbreviation	About
2013	Planet Mark	-	Planet Mark'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.
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.

TAB E

DEI Committee Update

Recommendation for DEI Investment Belief

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DATE: May 9, 2022

TO: Members, Investment Advisory Council

FROM: Mansco Perry III
Executive Director and Chief Investment Officer

SUBJECT: Recommendation for DEI Investment Belief

The Diversity, Equity, and Inclusion (DEI) Task Force (now DEI Committee) has recommended to the Executive Director that the SBI Investment Beliefs be amended to include a statement which enforces the belief that diversity adds value and should be valued by the investment industry. The Executive Director has asked Meketa, the consultant that was instrumental in assisting the Minnesota State Board of Investment in the development of its original Statement of Investment Beliefs, to review and help to develop such a statement.

Following is the language that the Executive Director plans to present to the Board as the recommended addition to the SBI's Statement of Investment Beliefs:

> **Best practices are developed by the best teams.**
> *There is no merit-based explanation for the lack of racial and gender diversity in the investment industry. In fact, research indicates that such diversity adds value. The SBI must ensure that non-financial biases do not prevent it from working with the best teams. In this diverse and changing world, organizations that demonstrate a commitment to diversity are more likely to succeed.*

RECOMMENDATION:

The Executive Director requests that the Investment Advisory Council endorse the recommendation to the SBI Board that the aforementioned language be added to the SBI's Statement of Investment Beliefs at the May 25, 2022 SBI Meeting.

I would encourage that an investment belief statement focusing on Climate Risk be considered by the SBI after the Meketa report has been completed and accepted.

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ATTACHMENT A

SBI Investment Beliefs

The SBI adopted a set of Investment Beliefs for managing the assets of the Combined Funds (those funds utilized to support the defined benefit plans of the State's employees). The primary purpose of these Beliefs is to guide the SBI toward sound investing principles related to investing on behalf of the Combined Funds. In this respect, the Beliefs help provide context for SBI's actions, reflect SBI's investment values, and acknowledge SBI's role in supporting the State's broader retirement systems. When relevant, the SBI also uses these Beliefs as a guide when investing the assets of the other investment programs that it manages, as deemed appropriate.

The SBI is a long-term investor whose primary mission is to maintain the viability of the retirement systems it supports.

When determining an appropriate level of risk that the systems' assets should bear the SBI must reflect the nature of those systems' liabilities and funding policy.

The SBI's strategic allocation policy is the primary determinant of (i) the asset portfolio's long-term investment return and (ii) asset portfolio's risk.

While the SBI can sacrifice some short-term liquidity to pursue a greater long-term return, the investment portfolio's net cash flows and ability to pay benefits on a year-by-year basis are key risk considerations.

Diversification improves the risk-adjusted return profile of the SBI investment portfolio.

Diversification of the SBI investment portfolio takes place across several critical dimensions, such as allocation across global regions and country markets (e.g., U.S. versus Europe, Asia, emerging markets, etc.), allocation among different types of assets (equities, bonds, real estate, etc.), spreading assets across various sectors and industries (e.g., technology, financials, consumer-oriented, etc.), and weighting of different risk factor premiums (e.g., value vs. growth, small companies vs. big companies, carry, illiquidity, etc.). If the correlation (i.e., relationship) among the returns generated by these factors is less than perfect (i.e., less than 1.0), then diversification is beneficial.

There are long-term benefits to SBI managing investment costs.

The equity risk premium is significantly positive over a long-term investment horizon although it can vary over time.

The equity risk premium is also pervasive across several asset classes and its overall exposure should be managed accordingly.

Private market investments have an illiquidity premium that the SBI can capture.

This risk premium can increase the portfolio's long-term compound return and help diversify the portfolio's risk.

SBI Investment Beliefs

It is extremely challenging for a large institutional investor to add significant value over market-representative benchmarks, particularly in the highly-competitive public global equity markets.

Passive management should be utilized when there is low confidence that active management can add value. Active management can have potential to add value where information processing is difficult and challenging, allowing for market inefficiencies that are potentially exploitable.

The SBI benefits significantly when roles and levels of authority are clearly defined and followed.

The role of the members of the State Board of Investment (Board) is to establish investment policies that are in compliance with state statute and guide the ongoing management of the funds. The Board delegates implementation of that policy to the Executive Director/CIO, and exercises oversight with respect to the Executive Director/CIO's implementation activities and the portfolio's active risk level in the context of the portfolio's strategic allocation policy. The Board also ensures adequate resources are available to the SBI staff to perform their work;

The Investment Advisory Council (IAC) key role is advising the Board and Executive Director/CIO on general policy matters and methods to enhance the management of the investment portfolio;

The Executive Director's/CIO's key role is implementing SBI investment policies and setting the portfolio's active risk level in a prudent manner to achieve value-added over policy benchmarks.

Utilizing engagement initiatives to address environmental, social, and governance-related (ESG) issues can lead to positive portfolio and governance outcomes.

In addition to specific engagement strategies the SBI might apply, proxy rights attached to shareholder interests in public companies are also "plan assets" of the SBI and represent a key mechanism for expressing SBI's positions relating to specific ESG issues. By taking a leadership role in promoting responsible corporate governance through the proxy voting process, SBI can contribute significantly to implementing ESG best practices which should, in turn, add long-term value to SBI's investments.

> **Best practices are developed by the best teams.**
> *There is no merit-based explanation for the lack of racial and gender diversity in the investment industry. In fact, research indicates that such diversity adds value. The SBI must ensure that non-financial biases do not prevent it from working with the best teams. In this diverse and changing world, organizations that demonstrate a commitment to diversity are more likely to succeed.*

TAB F

Recommendation for the Water Quality and Sustainability Account from the 3M Settlement

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DATE: May 9, 2022

TO: Members, Investment Advisory Council

FROM: Mansco Perry III
Executive Director and Chief Investment Officer

SUBJECT: Recommendation for the Water Quality and Sustainability Account from the 3M Settlement

The Minnesota Pollution Control Agency (MPCA) and Minnesota Department of Natural Resources (DNR), as co-trustees (the "Co-Trustees") of the Water Quality and Sustainability Account (the "Account"), requested that Minnesota State Board of Investment (SBI) invest the assets of the Account. Staff worked with the Co-Trustees to review different allocation models based on the risk tolerance and return objectives for the Account using its consultant's asset-liability models and capital market assumptions. The Commissioners of MPCA and DNR have approved the approach. Representatives of the MPCA, DNR, and SBI Staff have met, or are scheduled to meet, with members of the SBI and or their designees to brief them regarding the Account.

Established

The Account is established under Minnesota Statute 115B.52 and allows the SBI to invest the assets. The Account consists of funds from the State of Minnesota settlement with the 3M Company, which after legal and other expenses is approximately $720 million.

Investment Objectives

The Account serves to finance drinking water and natural resource projects categorized by the Co-Trustees into three budgeting areas: Capital Spending, Operation and Maintenance, and Contingency. To manage the assets according to the spending needs of each budgeting area, three sub-accounts will be created. Each sub-account will use investment options and have an asset allocation that addresses the time horizon, real purchasing power requirements, risk tolerance (ensure safety of principal), and return objectives (meet long-term capital needs). A summary of the Investment Plan established by the Co-Trustees follows this memo as **Appendix A**.

Investment Decisions and Options

The Co-Trustees are responsible for the funding amounts, asset allocation, and other investment decisions for the sub-accounts, which shall be invested by the SBI accordingly. Investment options available to the Co-Trustees include the Non-Retirement pooled equity, fixed income, and cash funds. SBI has worked with the Co-Trustees to develop a Statement of Understanding and an Investment Policy for the sub-accounts.

As part of the investment plan, the Co-Trustees have asked the SBI to invest the Capital Spending sub-account in a separately managed laddered bond portfolio, managed internally by SBI Staff.

A copy of the investment guidelines for the laddered bond portfolio follows this memo as **Appendix B**.

Establishment of Water Quality and Sustainability Account
SBI Staff intends to recommend that the Board approve at its meeting on May 25, 2022 the establishment of the Water Quality and Sustainability Account and required sub-accounts. If approved by the Board, it is the intent of all parties to implement the new separate account structure by July 1, 2022 or a later if determined appropriate by the Co-Trustees.

RECOMMENDATION:

The Executive Director requests that the Investment Advisory Council endorse the recommendation to the SBI Board to establish the Water Quality and Sustainability Account and required sub-accounts at the May 25, 2022 SBI Meeting.

Minnesota 3M PFAS Settlement Investment Plan

Background

The 3M Settlement resulted in a $850 million grant with $700 million allocated to Priority 1, the amount available after payment of legal fees, expense repayments, and deducting the $20 million set aside for Priority 2. Priority 1 funds will be spent on constructing and operating and maintaining drinking water infrastructure projects; providing home treatment systems to private well owners; contingency for additional treatment or alternative water sources; protecting drinking water at the source; and administrative support.

The Minnesota Pollution Control Agency (MPCA) and Minnesota Department of Natural Resources (DNR) are Co-Trustees (the "Co-Trustees) of the Water Quality and Sustainability Account (the "Account").[1] The Account was established under Minnesota Statute 115B.52 and allows the Minnesota State Board of Investment to invest the assets, which are currently invested in Invested Treasurer's Cash ("ITC") earning approximately 1% annual interest as of March 31, 2022.

Co-Trustees asked the State Board of Investment (SBI) to consider other potential investment options that would be most appropriate given the spending needs. SBI considered different investment strategies for sub-accounts with a goal of ensuring sufficient funds to implement drinking water infrastructure projects, as outlined in the Conceptual Plan, while covering costs to reduce long-term cost burdens. The Co-Trustees worked with SBI staff when reviewing the investment options available, the risk tolerance and return objectives for the Account, in addition to evaluating various investment scenario forecasts based on asset-liability models and capital market assumptions provided by the SBI's consultant.[2]

Proposed Sub-Account Structure and Asset Allocation

Investment Objectives: The Account is available to finance various drinking water and natural resource projects. The projects in the Conceptual Drinking Water Supply Plan have been categorized into four different budgeting areas: Capital Spending, Operation and Maintenance, Contingency, and State Administrative Expenses.[3] To manage the assets according to the spending needs of each budgeting category, four sub-accounts will be created. Each sub-account will use investment options and have an asset allocation that addresses the investment time horizon, real purchasing power requirements, risk tolerance (ensure safety of principal), and return objectives (meet long-term capital budget items).

Investment options available to the Co-Trustees include:

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[1] Trustees, MPCA and DNR, are responsible for setting funding amounts of the sub-accounts, the asset allocation decisions, and other investment decisions.

[2] Assumed expected long-term (10-year) returns/standard deviations are 5.8%/17.0% for equities, 1.9%/4.0% for bonds, and 1.5%/1.0% for cash, respectively.

[3] The $20 million set aside for Priority 2 will remain in the Account, for the time being, invested in ITC.

1) Invested Treasurer's Cash (ITC): A portfolio of high-quality, liquid, short-term investments managed by the SBI. The investment objectives of the ITC are to preserve capital, provide liquidity (meet cash needs without forced sale of security at a loss), and provide a competitive rate of return.

2) Externally-managed Non-Retirement pooled investment vehicles of equity (e.g., stocks), fixed income (e.g., government or corporate bonds), and cash. These are represented by the following:

    a. Non-Retirement Equity Fund: A passively-managed U.S. equities fund managed by Mellon Corporation which invests in 500 large-cap stocks and is expected to track the S&P 500 Index. The fund's goal is to provide long-term growth and should average higher returns than bonds or money market funds in the long term, but it has the largest risk of capital loss in the short-term.

    b. Non-Retirement Bond Fund: An actively managed fund of U.S. bonds managed by Prudential Global Advisors which invests in high-quality government and corporate bonds and mortgage securities that have intermediate to long-term maturities. Returns will generally move in the opposite direction of interest rate changes. The fund is moderately conservative, is expected to provide more capital protection than equities but a higher rate of return than money market securities.

    c. Non-Retirement Money Market Fund: An actively managed money market fund managed by State Street Global Advisors which invests in high-quality, short-term instruments. The fund is expected to provide liquidity and safety of capital while earning money market rates of return. Returns will generally follow the rise and fall of short-term interest rates. Returns from the fund will vary much less than investments that include stocks and bonds and as such are expected to earn less over time.

3) Laddered Treasury bonds: An account separately managed by the SBI of laddered Treasury bonds (e.g., bonds issued by the U.S. Treasury that mature on different dates) and some residual cash versus a cash account. An investment in laddered bonds will enhance returns and preserve capital by locking in current expectations of future interest rates to minimize both mark-to-market and reinvestment risk.

Both ITC and the Non-Retirement Money Market Fund are cash accounts. The SBI encourages usage of ITC as a cash preservation option when available. In a multi-asset allocation structure (Option 2), ITC is unavailable as an investment option, and the Non-Retirement Money Market Fund is made available in its place.

Co-Trustees, with support from SBI and input from the working groups, have considered these options for the Account's sub-accounts. Co-Trustees recommend the following asset allocation:

1) <u>Sub-Account: Capital Spending</u>

   a. **Initial funding amount: $387 million**, which includes $300 million for drinking water infrastructure projects, $70 million for drinking water protection project, and $17 million to cover anticipated inflation.

   b. **Investment goals:** Invest in a way that covers expenses based on Co-Trustees expected capital spending schedule over 10 years and is adaptable to cover costs sooner or later than anticipated if needed. The strategy should also cover potential inflation at an assumed rate of at least 3% as estimated in the Conceptual Plan**.**

   c. **Asset allocation:** Funds shall be invested in a separate account managed by the SBI and invested in a portfolio of cash and laddered Treasury bonds whose maturities roughly match that of the expected schedule of capital spending. Cash needs shall be funded through the maturity or sale of bonds. Co-Trustees recommend investing 100% of funds in a separate account of laddered Treasury bonds and cash managed by the SBI.

d. **Rationale:** Given the short-dated nature of spending needs, tolerance for risk is relatively low. Since proceeds will not be needed immediately, investing in a Treasury ladder will enhance returns while preserving capital by locking in current expectations of future interest rates to minimize both mark-to-market and reinvestment risk.

2) Sub-Account: Operation and Maintenance (O&M)

a. **Initial funding amount: $115 million**, which includes $28 million for O&M on POETSs (30 years) and $87 million for O&M on public water systems (20 years).

b. **Investment goals:** Manage investment risk to increase annual returns and lower the probability of shortfalls in most market conditions to cover and, if possible, exceed the 20- and 30-year O&M projects estimated in the Conceptual Plan, net of potential inflation.

c. **Asset Allocation:** Funds shall be invested in Non-Retirement pooled investment vehicles of equities, fixed income, and cash. Co-Trustees recommend investing these funds in 40% Equity, 30% Fixed Income, and 30% Cash.

d. **Rationale:** This share of equities substantially increases the potential for higher returns (growth) to meet the long-term investment objective, while also investing substantially in assets that can protect capital in different economic scenarios (cash and bonds). In consultation with the SBI, Co-Trustees are comfortable with the risk of shortfall in most market conditions and believe that the allocation represents a favorable tradeoff between returns versus downside risk.

3) Sub-Account: Contingency

a. **Initial funding amount: $183 million** to address future uncertainty, including future treatment needs, alternative sources of drinking water (if needed), and cost overruns.

b. **Investment goals:** Invest in a risk-constrained strategy that allows for funds to grow to meet future uncertain needs while focusing more on capital preservation and liquidity than O&M given the potential for short-term capital spending needs.

c. **Asset allocation:** Funds shall be invested in Non-Retirement pooled investment vehicles of equities, fixed income, and cash. When new project needs become certain, funds will be sold and transferred to the Capital Spending and Operations & Maintenance Accounts. Co-Trustees recommend investing these funds in 25% Equity, 25% Fixed Income, and 50% Cash.

d. **Rationale:** The asset allocation mix reflects the potential that approximately 1/3 of Contingency funds would be used for Capital Spending and 2/3 for O&M, as estimated by Abt Associates. Because the expected needs and timing are uncertain, the allocation reflects modest growth while limiting the potential for capital loss.

4) Sub-Account: State Administrative Expenses

a. **Initial funding amount: $15 million** to cover annual state administration costs over the next 20 years.

b. **Investment goals:** Invest in a low-risk strategy that ensures funds are available as needed to fund on-going agency expenses.

c. **Asset allocation:** Co-Trustees recommend 100% of funds shall continue to be invested in ITC.

d. **Rationale:** This option provides a competitive rate of return in line with the goal of preserving capital and maximizing liquidity, which are stated investment objectives of ITC.

Next Steps

The SBI has worked with the Co-Trustees to complete a Statement of Understanding, an Investment Policy for the sub-accounts, and Investment Guidelines for the separate account. The SBI and Co-Trustees will present a recommendation to establish these accounts at the SBI Board meeting on May 25, 2022.

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APPENDIX B

MINNESOTA STATE BOARD OF INVESTMENT
INVESTMENT GUIDELINES

WATER QUALITY AND SUSTAINABILITY ACCOUNT
LADDERED BOND PORTFOLIO

The investment actions of the Minnesota State Board of Investment (SBI) in managing the Laddered Bond Portfolio will be governed and evaluated by the following guidelines, which are comprised below.

1. ELIGIBLE INVESTMENTS

The Manager may purchase or sell fixed income instruments. The investments must satisfy the following criteria:

(a) All securities held must be covered by the authorization in *Minnesota Statutes* Chapter 11A.24.

(b) Governmental bonds, notes, bills, and other evidences of indebtedness provided the issue is backed by the full faith and credit of the U.S. Government. The obligations in which the Manager may invest under this subdivision include guaranteed or insured issues of:

  (1) the United States, its agencies, its instrumentalities, or organizations created and regulated by an act of Congress;

(c) Cash equivalent reserves shall be invested in the SBI's Short-Term Investment Fund, managed by its custodian bank.

2. SEPARATE ACCOUNT AND DAILY PRICING

The Laddered Bond portfolio will be managed internally in a separate account. All assets will be held in custody by the SBI's custodian bank. All securities held in the portfolio must be capable of being priced on a daily basis and accessible by the custodian.

3. LEVERAGE

The Laddered Bond portfolio may not use leverage at any time. Leverage exists when the market value of the assets in the portfolio exceeds the owner's (SBI) equity in the assets when viewing the portfolio at any time. Leverage is presumed to exist if the owner's equity is unable to satisfy all of the obligations existing in the portfolio.

The Manager may not short or lend out individual securities.

4. TRADE PROCESSING AND PRICING

(a) The SBI, as Manager, must report all trades to the SBI's custodian bank via the accounting portal by 1:00 PM CST. For same day settlement trades, the deadline is 10:30 AM EST (9:30 CST). Any trades after these deadlines should not be sent until the following day to ensure a smooth and accurate pricing process.

(b) The account will be priced by the SBI's custodian bank and such prices will be used to measure performance of the Laddered Bond Portfolio.

Executive Director and Chief Investment Officer

Signature:________________________________

Name:___________________________________

Date:____________________________________

Investment Guidelines Effective Date: July 1, 2022

TAB G

Summary of Non-Defined Benefit Investment Programs

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DATE: May 9, 2022

TO: Members, Investment Advisory Council

FROM: SBI Staff

SUBJECT: Non-Defined Benefit Investment Programs Managed by the SBI:
Fire Plans and Other Public Retirement Plans;
Participant Directed Investment Program;
Non-Retirement Investment Program; and
State Cash Accounts

Of the $131.4 billion in total assets managed by the State Board of Investment (SBI) as of March 31, 2022, $41.5 billion, or 32%, is comprised of non-Combined Funds assets. The SBI is responsible for managing and assisting clients (those agencies and entities that the SBI serves) by offering investment options to invest. The SBI is also responsible for investing the state cash accounts. A further description of these investment programs follows.

Fire Relief Plans and Other Public Retirement Plans, $991.3 million
Volunteer fire relief plans not eligible to be consolidated by the Public Employees Retirement Association (PERA) or elect not to be administered by PERA in the Statewide Volunteer Firefighter Retirement Plan may invest in the eligible investment options offered by the SBI. These plans are responsible for their own investment and asset allocation decisions and can invest all or some of their assets in one or more of the investment options available.

Participant Directed Investment Program (PDIP), $13,775.0 million
The PDIP provides investment options for a variety of retirement and tax advantaged savings plans. Investment vehicles and options offered to participants in this program are based on statutory requirements, plan structure, operational limitation, and other regulations and rules established for the respective plan. This program is structured to provide a diversified set of investment options across asset types, investment styles, and risk/return spectrum to help participants achieve their individual savings goals at a competitive price.

Non-Retirement Program, $5,264.0 million
The Non-Retirement Program is available to Trust Funds, Other Post Employment Benefit (OPEB) Accounts, and Qualifying Governmental Entities. Trust Funds and OPEB Accounts have differing accounting requirements and spending targets that derive from specific constitutional and statutory provisions. As a result, investment objectives and asset allocation targets are unique to each entity that use the Non-Retirement investment options. Qualifying Governmental entities have authority to invest in the Non-Retirement Equity Fund.

State Cash Accounts, $21,492.0 million
The SBI manages the cash balances of more than 400 state agency accounts with the overall objectives of preserving capital, meeting state agency liquidity needs and providing a competitive return on invested assets. Nearly all of the State Cash Accounts are invested in a pooled short-term fund referred to as the Invested Treasurer's Cash Pool (ITC). The pool is constructed to generate income while emphasizing capital preservation by investing in high-quality, liquid investments with an overall weighted-average maturity of less than one (1) year. Where required, SBI also manages dedicated separate accounts for certain state agencies. All state cash account assets are managed internally by SBI Investment Staff.

There will be a brief presentation at the May 16, 2022, Investment Advisory Council Meeting of the investment vehicles/options offered within these four investment programs. Presentation material is included on the following pages.

Overview of Non-Defined Benefit Investment Programs:

Fire Relief Plans and Other Public Retirement Plans

Participant Directed Investment Program

Non-Retirement Program

State Cash Accounts

Investment Advisory Council Meeting

May 16, 2022

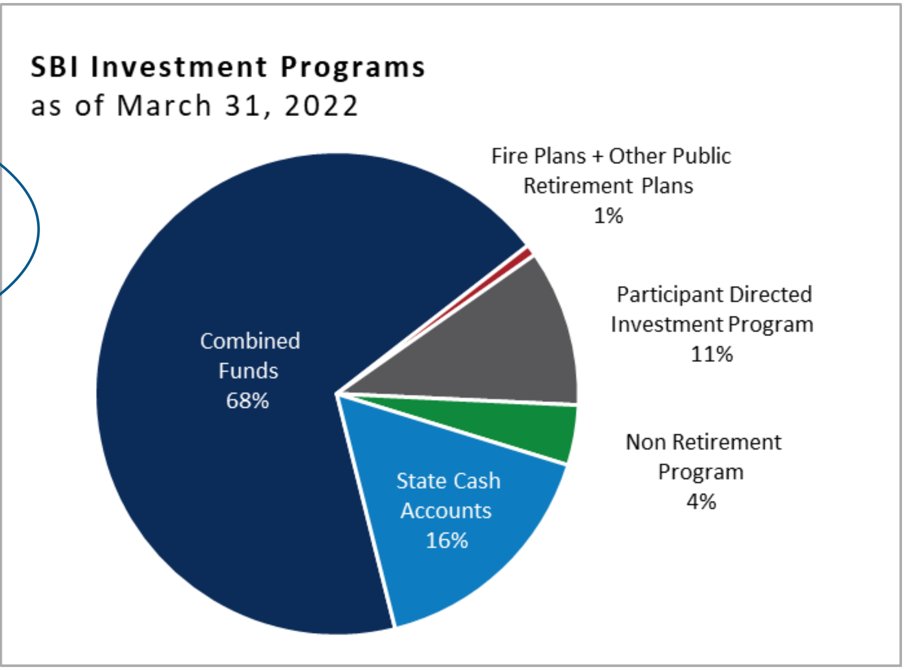
SBI Investment Programs

Assets Under Management as of March 31, 2022

SBI Investment Programs	In Millions
Combined Funds	$ 89,861.5
Fire Plans + Other Public Retirement Plans	991.3
Participant Directed Investment Program	13,775.0
Non Retirement Program	5,264.0
State Cash Accounts	21,492.0
Total Funds Under Management	**$ 131,383.8**

Non-Defined Benefit Investment Programs Total Assets

$41.5 Billion



SBI Investment Programs
Fire Relief Plans + Other Public Retirement Plans

Fire Relief Plans + Other Public Retirement Plans

Investment Vehicles offered to Eligible Plans

Investment Program/Plans	SIF Asset Class Pools	Volunteer Firefighter Account[1]	Money Market Fund[2]	# of Investment Options	**Administered By**
Fire Relief Plans + Other Public Retirement Plans					
Volunteer Fire Relief Associations	✓		✓	6	Fire Plan
Other Public Retirement Plans	✓		✓	6	Retirement Plan
Statewide Volunteer Firefighter Plan		✓		1	PERA

[1] Volunteer Firefighter Account has an allocation 45% Bond Fund, 35% U.S. Equity Fund, 15% Broad International Fund, and 5% Money Market Fund.

[2] Money Market Fund is a commingled pool vehicle.

PERA, Public Employees Retirement Association

1
Public Retirement Fund, $450 million

165
Volunteer Fire Relief Plans, $392 million

204
Statewide Volunteer Firefighter Plans, $149 million

As of 3/31/2022

SBI Investment Programs
Fire Relief Plans + Other Public Retirement Plans

Supplemental Investment Fund (SIF) Asset Class Pools and Money Market Fund

ALLOCATION OF ASSETS IN SIF ASSET CLASS POOLS and MONEY MARKET FUND (*by Objective)*

Growth		Income		Asset Allocation		Capital Preservation	
U.S. Equity Index Fund	41%	Bond Fund	10%	Balanced Fund	10%	Money Market	2%
U.S. Actively Managed Equity Fund	9%			Volunteer Firefighter Account	14%		
Broad International Equity Fund	14%						

SIF Asset Class Pools share many of the same external investment managers as the Combined Funds.

PARTICIPATING PLANS

- Approximately 534 volunteer firefighter plans have authority to invest with the SBI, if they so choose. Of that amount, 165 fire relief plans use one or more of the SIF Asset Class Pools and 204 invest in the Volunteer Firefighter Account.
  - o Volunteer fire relief plans that choose to use one or more of the SIF Asset Class Pools for their investments, administer their own accounts.
  - o Public Employees Retirement Association (PERA) administers the Statewide Volunteer Firefighter Plan that uses the Volunteer Firefighter Account as the investment option.
- Combined, volunteer fire relief plans make up 50% of the assets in the SIF Asset Class Pools, including the Volunteer Firefighter Account.
- St. Paul Teachers' Retirement Fund Association (SPTRFA) assets represent 42% of the SIF Asset Class Pools.

Note: Participants in the PERA DC Plan represent 8% of the SIF Asset Class Pools. PERA DC participant assets are listed with the PDIP program.

SBI Investment Programs
Participant Directed Investment Program (PDIP)

Participant Directed Investment Program

143,205
Health Care Savings Plan Participants

1,052
Hennepin County Retirement Plan Members

95,181
Minnesota Deferred Compensation Plan Participants

8,070
PERA Defined Contribution Plan Members

3,321
Unclassified Retirement Plan Members

Investment Vehicles offered to Eligible Plans

Investment Program/Plans	SIF Asset Class Pools	Mutual Funds/ CITs[1]	Money Market Fund[2]	Stable Value Fund[3]	Third-Party Program Manager	# of Investment Options	Administered By
Participant Directed Investment Program							
Health Care Savings Plan		✓	✓	✓		10	MSRS
Hennepin County Supplemental Retirement Plan		✓	✓			9	MSRS
Minnesota Deferred Compensation Plan		✓	✓	✓		14	MSRS
PERA Defined Contribution Plan	✓		✓	✓		7	PERA
Unclassified Employees Retirement Plan		✓	✓	✓		11	MSRS
Minnesota ABLE Plan					✓	7	DHS
Minnesota College Savings Plan					✓	12	OHE

[1] Not all mutual funds and CITs are available to the participating plans; eligibility depends on plan structure and other items. Mutual Funds offered are the lowest class shares.

[2] Money Market Fund is a commingled pool vehicle.

[3] Stable Value Fund is managed in a separate account.

MSRS, Minnesota State Retirement System. PERA, Public Employees Retirement Association. DHS, Department of Human Services. OHE, Office of Higher Education.

82,933
MN College Savings Plan Account Owners

2,816
MN ABLE Savings Plan Account Owners (as of 3/31/22)

Participants/Members as of 6/30/2021

SBI Investment Programs
Participant Directed Investment Program (PDIP)

Mutual Funds/CITs Platform, Money Market Fund, and Stable Value Fund

Tier 1 Professionally Managed/Novice	Tier 2 Cost Aware	Tier 3 Engaged
Target Date Funds SSgA Target Retirement Funds	**Fixed Income Index** Vanguard Total Bond Market Index	**Capital Preservation** Money Market Fund Stable Value Fund
Balanced Index Vanguard Balanced Index	**Total U.S. Stock Market Index** Vanguard Total Stock Market Index	**Fixed Income** Dodge & Cox Income Fund
	Large Cap Index Vanguard Institutional Index	**Large Cap** Vanguard Dividend Growth Fund
	Mid Cap Index Vanguard Mid Cap Index	**Small Cap** T. Rowe Price Small Cap Stock Fund
	International Index Vanguard Total International Stock Index	**Non-U.S. Equity** Fidelity Diversified International Fund
		Self-Directed Brokerage Window

Objective
- Asset Allocation
- Capital Preservation
- Income
- Growth

Empower Results®

OBJECTIVE

Provide investment options that offer participants broad asset class exposure with institutional pricing. The plan design should provide an efficient number of options that allow participants to meet their individual savings goals based on their risk/return profile.

PARTICIPATING PLANS

The mutual fund/CIT platform provides investment options to the Minnesota Deferred Compensation Plan (MNDCP), the Unclassified Retirement Plan, Health Care Savings Plan, and Hennepin County Supplemental Retirement Plan.

The PERA Defined Contribution Plan uses the SIF Asset Class Pools, Money Market Fund and Stable Value Fund for it's investment options.

MSRS Minnesota State Retirement System
Your Foundation for Retirement

SBI Investment Programs
Participant Directed Investment Program
State Sponsored Savings Plans

Third Party Program Managers

Minnesota ABLE Plan Options	%
Aggressive	14
Growth	13
Moderately Aggressive	11
Moderate	10
Moderately Conservative	7
Conservative	15
Checking Account	30
Total Allocation Breakdown	**100**

MINNESOTABLE*plan*
A member of The National ABLE Alliance

Minnesota College Savings Plan Options	%
Enrollment Based Option	58
Risk Based Allocation Options	
Aggressive	4
Moderate	5
Conservative	1
Static Options	
International Equity	1
U.S. and International Equity	17
U.S. Large Cap Equity	5
Social Choice Equity Fund	0
Equity & Interest Accumulation	0
Fixed Income	1
Money Market	1
Principal Plus Interest	7
Total Allocation Breakdown	**100**

minnesota
College Savings Plan

OBJECTIVE

To encourage and assist individuals and families to save for the purposes of supporting individuals with either eligible college expenses (MN College Savings Plan) or eligible disability expenses (MN ABLE).

PARTICIPATING PLANS

MN College Savings Plan:
SBI and MN Office of Higher Education contract jointly with TIAA to provide administrative, marketing, communication, recordkeeping and investment management services.

MN ABLE Plan:
Minnesota Department of Human Services contracts with Ascensus to provide services required to operate the program and the SBI acknowledges responsibility for the investments. Minnesota joined a multi-state consortium to leverage resources to get the services at a lower cost to offer an affordable plan. As of March 31, 2022 there were 19 other states and U.S. territories in the consortium.

SBI Investment Programs
Non-Retirement Program

Non-Retirement Program

16
Trust Accounts

23
Other Post Employment Benefit Plans (OPEB)

2
Qualifying Governmental Entities

Accounts as of 3/31/2022

Investment Vehicles offered to Eligible Plans

Investment Program/Plans	Separate Accounts	# of Investment Options	Administered By
Non-Retirement Accounts			
Trust Funds	✓	3	State Agency
Other Post-Employee Benefit Plans	✓	3	PERA
Qualifying Government Entities	✓	1	PERA

PERA, Public Employees Retirement Association

SBI Investment Programs
Non-Retirement Program

Separate Accounts

ASSET ALLOCATION TARGETS OF LARGEST TRUST ACCOUNTS as of March 31, 2022

	Assets in Millions	U.S. Equity Fund	Bond Fund	Money Market Fund	Assigned Risk Plan Fixed Income
Permanent School Fund	$1,951.6	50%	48%	2%	
Environmental Trust Fund	$1,667.0	70%	28%	2%	
Assigned Risk Plan	$267.3	20%			80%
Closed Landfill Investment Fund	$133.2	70%	30%		

PARTICIPATING ENTITIES

Minnesota Pollution Control Agency
MWCARP (Minnesota Workers' Compensation Assigned Risk Plan)
Environment and Natural Resources Trust Fund
Department of Natural Resources
Metropolitan Council
Center for Rural Policy and Development
Department of Iron Range Resources & Rehabilitation

MANAGEMENT OF NON RETIREMENT TRUST FUNDS

- Non-Retirement Equity Fund is passively managed to the S&P 500 Index by Mellon Investments Corporation.
- Non-Retirement Bond Fund is actively managed by Prudential Global Investment Management (PGIM) against the Bloomberg U.S. Aggregate Bond Index.
- Non-Retirement Money Market Fund is actively managed by State Street Global Advisors (SSGA) in a short-term investment management pool and is measured against the iMoneyNet All Taxable Money Fund Average.
- Assigned Risk Plan Fixed Income Portfolio is actively managed by RBC Global Asset Management against the Bloomberg Intermediate Goverment Index.
- Met Council OPEB Laddered Bond Portfolio is internally managed by SBI Staff and structured to meet Met Council's OPEB cash benefit outflow projections.

SBI Investment Programs
Investment Stewardship

"Utilizing engagement initiatives to address environmental, social, and governance-related (ESG) issues can lead to positive portfolio and governance outcomes". *(SBI Investment Belief)*

Current focus of SBI Staff is to better understand the degree in which ESG and Diversity related influences are incorporated into investment decision making.

ESG Related Items

- Membership of ESG Related Organizations
- ESG Factors Integrated Into Investment Process
- Reporting
- Oversight
- Proxy Voting

Diversity, Equity and Inclusion (DEI) Programs

- DEI Talent Acquisition
- Diversity Focus and Training

Future Development with Investment Stewardship Initiatives

SBI Investment Programs

Investment Fee Analysis—Mutual Funds/CIT/Money Market/Stable Value Fund

Fund Name	Mgmt Style	Investment Vehicle Type	Annual Expense as of 3/31/2021: Investment Mgmt Fees	SBI Admin Fees	Total SBI Net Expense Ratio	Institutional Peer Comparison[1]: Universe Median Fee	Peer Group
Mutual Funds							
Tier 1							
SSGA MN Target Retirement Fund	Passive	CIT	0.07%	na	0.07%	0.12%-0.15%	Mixed-Asset Target Lifecycles (Passive)
Tier 2							
Vanguard Total Stock Market Index	Passive	Mutual Fund	0.02%	na	0.02%	0.30%	U.S. Multi-Cap Core Equity (Passive)
Vanguard Institutional Index Plus	Passive	Mutual Fund	0.02%	na	0.02%	0.20%	S&P 500 Index (Passive)
Vanguard Mid Cap Index	Passive	Mutual Fund	0.03%	na	0.03%	0.05%	U.S. Mid Cap Core Equity (Passive)
Vanguard International Equity Fund	Passive	Mutual Fund	0.07%	na	0.07%	0.23%	Intl Multi-Cap Core Equity (Passive)
Vanguard Balanced Fund	Passive	Mutual Fund	0.06%	na	0.06%	0.81%	Mixed-Asset Target Allocation Growth
Vanguard Bond Fund	Passive	Mutual Fund	0.03%	na	0.03%	0.12%	U.S. Broad Market Core & Core+ Fixed Income (Passive)
Tier 3							
Money Market Fund	Active	Commingled Pool	0.00%	0.006%	0.01%	0.19%	Money Market Taxable
Stable Value Fund[2]	Active	Separate Account	0.20%	0.006%	0.21%	0.44%	Stable Value
Vanguard Dividend Growth	Active	Mutual Fund	0.27%	na	0.27%	0.69%	U.S. Large Cap Equity All
T Rowe Price Small Cap	Active	Mutual Fund	0.67%	na	0.67%	0.95%	U.S. Small Cap Equity All
Fidelity Diversified International Equity	Active	CIT	0.58%	na	0.58%	0.82%	International Large Cap Growth Equity
Dodge & Cox Income Fund[3]	Active	Retail Mutual Fund	0.35%	na	0.35%	0.44%	U.S. Broad Market Core Fixed Income

[1]Institutional mutual fund fee universes were created by Aon Investments, as of December 31, 2020, using a custom proprietary methodology. Peer universe membership data has been sourced from Investment Metrics. Fund expense information has been sourced from Morningstar for all asset classes except the stable value universe which uses information from Hueler. Since fund expense ratios do not change frequently, Aon Investments believes this study to be a relevant comparison for up to a year, at which time it will be updated. For complete information on methodologies, contact your Aon Investments consultant.

[2]Stable Value Fund Investment Management Fee is 0.045% of assets; the remainder represents financial institutional wrap provider fees of approximately 0.15%.

[3]Revenue sharing of 0.08% is rebated back to the participant. Fee listed is net of rebate.

SBI Investment Programs

Investment Fee Summary—SIF Asset Class Pools and Non-Retirement Separate Accounts

Fund Name	Mgmt Style	Investment Vehicle Type	Annual Expense as of 3/31/2021 Investment Mgmt Fees	SBI Admin Fees	Total SBI Net Expense Ratio
SIF Asset Class Pool Funds					
U.S. Equity Index Fund	Passive	Commingled Pool	0.01%	0.006%	0.02%
U.S. Equity Actively Managed Fund	Active	Commingled Pool	0.19%	0.006%	0.20%
Broad International Equity Fund	Active	Commingled Pool	0.24%	0.006%	0.25%
Bond Fund	Active	Commingled Pool	0.10%	0.006%	0.11%
Balanced Fund	Blend	Commingled Pool	0.04%	0.006%	0.05%
Volunteer Firefighter Account	Blend	Commingled Pool	0.09%	0.006%	0.10%
Non-Retirement Funds					
Mellon, S&P 500 Index	Passive	Separate Account	0.004%	0.006%	0.01%
PGIM, Core Bonds	Active	Separate Account	0.10%	0.006%	0.11%
SSGA, Cash	Active	Separate Account	0.02%	0.006%	0.03%
RBC Global Mgmt, Govt Intermediate Bond	Active	Separate Account	0.10%	0.006%	0.11%

SBI Investment Programs
Mutual Fund Platform Review

Investment Structure Review

SBI engaged Aon to perform an analysis of the Mutual Fund/CIT investment menu during FY21 to review/re-affirm investment policy objectives and assess completeness and/or repetitiveness among current options.

Key Take-Aways from Review

The Plan is appropriately structured and follows Aon's best practices. The Mutual Fund Platform:

- Offers a diversified set of investment fund options across asset types, investment styles, and the risk/return spectrum.
    - MNDCP, offers 14 investment options which is in line with peers;
    - Provides tiered investment structure that categorizes funds and helps guide participants during the savings phase; and
    - Includes underlying investment managers that are generally of high quality.
- Charges reasonable overall fees of the options--participants have access to low-cost options in each major asset class.

Observations for Future Consideration

- Provided a number of suggestions to streamline the investment menu, which SBI Staff will consider for future workplan items.

SBI Investment Programs

Target Date Fund (TDF) Competitive Review

Background

Aon completed a U.S. Target Date Fund Competitive Review during FY21 that considered the following for the Minnesota Target Retirement Fund managed by State Street Global Advisors (SSGA):

- Glide Path Risk Level
- Asset Class Diversification
- Asset Class Implementation
- Manager Selection
- Fees Compared to Peer Group
- Aon's Rating/Overall View of Strategy.

Key Take-Aways from Review

- Passive investment approach provides broad coverage at a low cost.
- Competitive investment management fees relative to other passive offerings.
- Buy-rated platform by Aon.

Observations for Future Consideration

- Review Aon's approach to glide path risk capacity and baseline characteristic definitions

SBI Investment Programs
State Cash Accounts

State Cash Accounts

Invested Treasurer's Cash Pool (ITC)

- Pool originally created in 1987
- Represents the State's cash reserves plus cash available for authorized future expenses
- Only State agencies may invest in the Pool
- Managed internally by SBI Investment Staff since inception
- Invests in high-quality money market instruments and short-term debt securities
- Income is accrued daily and credited monthly
- Pool balance as of 3/31/22 was $21,424.2 million

Excess Debt Service Reserves

- Segregated funds representing the excess portion of debt service reserves allocated to each debt issuance
- Managed internally by SBI Investment Staff
- Investment objective: positive arbitrage vs. cost of funds (or minimize negative arbitrage)
- Invests in high quality tax-exempt municipal or U.S. Treasury securities
- Debt service funds invested in separate accounts totaled $68.0 million as of 3/31/22

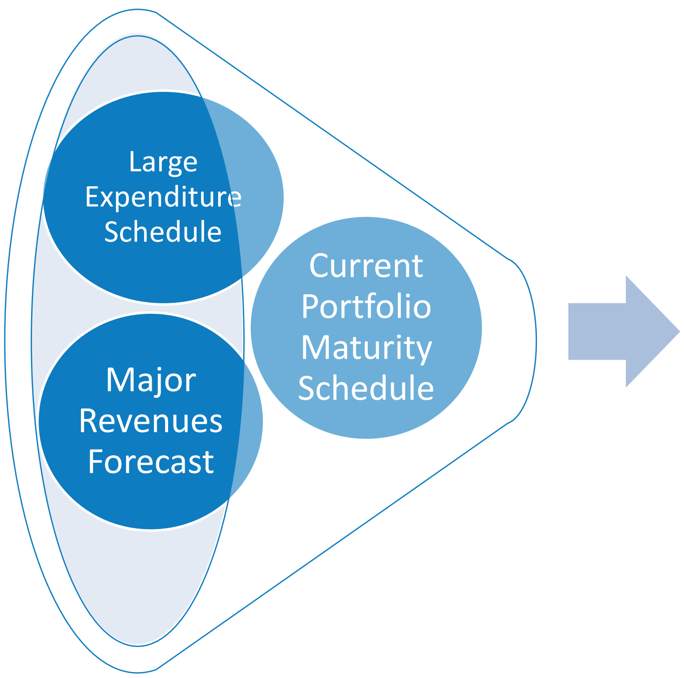
Investment Objectives

1. **Protect Principal**
2. **High Degree of Liquidity**
3. **Provide Competitive Income vs. Money Market Fund**

The SBI's investment strategy for the ITC Pool seeks to:

- Provide daily liquidity while investing excess funds in a maturity ladder to capture term yield premium over time
- Safely capture a modest credit spread premium by investing a portion of the Pool in top-tier commercial paper and high-quality corporate bonds
- Minimize transaction costs by employing a buy-and-hold strategy

Cashflow Matching – Net Expenditures vs. Portfolio Maturities



ACTIONS

- Identify key dates to match maturity of investments with cashflow needs
- Determine amount to be invested in longer maturities to capture incremental yield, if attractive

GOALS

- Ensure sufficient liquidity for all State agency cash needs with laddered maturities
- Minimize portfolio return volatility by employing a buy-and-hold strategy
- Enhance return vs. money market fund or overnight deposits

Portfolio Snapshot as of 3/31/22

Key Portfolio Metrics	
Par Value (000s)	$22,246,857
Market Value (000s)	$21,418,460
Yield to Maturity %	1.17%
Wtd Avg Maturity (Days)	211
Floating Rate %	10.3%
% Callable	4.4%

Sector Distribution	Mkt Val (000s)	% Portfolio
U.S. Tsy & Agy	$5,108,941	23.9%
Commercial Paper	$7,512,765	35.1%
Repurchase Agreement	$800,000	3.7%
Cert. of Deposit	$1,148,864	5.4%
Canadian Gov't	$305,326	1.4%
Supranational	$363,144	1.7%
Asset-Backed	$2,014,482	9.4%
Corporate Bond	$4,164,938	19.4%
Total	$21,418,460	100.0%

Maturity Distribution	Mkt Val (000s)	% Portfolio
Overnight	$1,308,537	6.1%
2-7 Days	$2,504,306	11.7%
8-30 Days	$2,096,685	9.8%
31-60 Days	$2,881,816	13.5%
61-90 Days	$778,106	3.6%
3-6 Months	$4,796,656	22.4%
6-12 Months	$2,271,317	10.6%
1-2 Years	$3,275,513	15.3%
2-3 Years	$1,222,509	5.7%
3-5 Years	$283,014	1.3%
Total	$21,418,460	100.0%

Credit Quality Distribution		
Short-Term Ratings	**Mkt Val (000s)**	**% Portfolio**
A-1+P-1	$8,132,800	38.0%
A-1/P-1	$2,587,252	12.1%
Long-Term Ratings		
AAA	$4,897,634	22.9%
AA	$3,653,499	17.1%
A	$2,147,275	10.0%
Total	$21,418,460	100.0%

Source: Bloomberg PORT analytics as of 3/31/22. Pricing and market values may differ from official accounting valuation.

TAB H

Private Markets Commitment for Consideration

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DATE: May 9, 2022

TO: Members, Investment Advisory Council

FROM: SBI Staff

SUBJECT: Private Markets Commitment for Consideration

Staff has reviewed the following action agenda item:

A. Status of SBI Current Private Markets Commitments
B. Consideration of new commitment

Existing Manager:

Real Estate	Blackstone	BREP X	$200 Million

IAC action is required on item B.

A. Status of SBI Current Private Markets Commitments

Minnesota State Board of Investment

Combined Funds

March 31, 2022

Combined Funds Market Value	$89,861,483,613
Amount Available for Investment	**$2,806,364,369**

	% of Combined Funds	Current Level	Target Level [1]	Difference
Market Value (MV)	21.9%	$19,659,006,534	$22,465,370,903	$2,806,364,369
Policy Target	*25%*			
Statutory Limit	*35%*			
MV +Unfunded	34.5%	$31,006,930,492	$40,437,667,626	$9,430,737,134
Policy Limit	*45.0%*			

Asset Class	% of Combined Funds	Market Value	Unfunded Commitment	Total
Private Equity	15.9%	$14,312,041,911	$7,250,665,433	$21,562,707,344
Private Credit	1.8%	$1,612,732,496	$1,619,683,727	$3,232,416,223
Real Assets	2.3%	$2,051,984,859	$669,691,250	$2,721,676,109
Real Estate	1.8%	$1,617,014,503	$1,807,883,548	$3,424,898,051
Other[2]		$65,232,765		$65,232,765
Total		$19,659,006,534	$11,347,923,958	$31,006,930,492

Cash Flows

March 31, 2022

Calendar Year	Capital Calls	Distributions	Net Invested
2022	$1,287,092,053	($854,035,863)	$433,056,190
2021	$4,556,450,698	($3,672,823,834)	$883,626,864
2020	$2,786,134,001	($2,318,825,278)	$467,308,723
2019	$2,543,614,503	($2,080,037,860)	$463,576,642
2018	$1,992,000,341	($2,049,733,815)	($57,733,474)
2017	$2,021,595,780	($2,383,863,711)	($362,267,931)

[1] There is no target level for MV + Unfunded. This amount represents the maximum allowed by policy

[2] Represents in-kind stock distributions from the liquidating portfolio managed by T.Rowe Price and cash accruals.

B. Consideration of New Investment Commitments

ACTION ITEMS:

1) **Investment with an existing real estate manager, Blackstone Inc. ("Blackstone"), in Blackstone Real Estate Partners X ("BREP X").**

   Blackstone is forming BREP X to make a broad range of opportunistic real estate and real estate-related investments. BREP X will focus primarily on the U.S. and Canada, but the Fund will also participate in 20% of the amount of each real estate investment made by each of the current BREP Europe and BREP Asia funds. Blackstone intends to continue its successful "buy it, fix it, sell it" strategy of targeting complicated assets and situations, creating value through hands-on ownership, and selling assets once its achieved its asset management objectives. BREP X will seek opportunities to invest in high-conviction asset classes and geographies where Blackstone expects outsized growth, including, but not limited to, global logistics, rental housing, and hospitality.

   In addition to reviewing the attractiveness of the Blackstone Real Estate Partners X investment offering, staff conducted due diligence, reference checks, a literature database search, and reviewed the potential investor base for the fund.

   More information on Blackstone Real Estate Partners X is included as **Attachment A beginning on page 5.**

   RECOMMENDATION:

   Staff is requesting that the Investment Advisory Council concur with Staff's recommendation to commit up to $200 million, or 20% of Blackstone Real Estate Partners X, whichever is less, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by Blackstone Inc. upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Blackstone Inc. or reduction or termination of the commitment.

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ATTACHMENT A

REAL ESTATE MANAGER SUMMARY PROFILE

I. Background Data

Name of Fund:	Blackstone Real Estate Partners X L.P.
Type of Fund:	Real Estate Limited Partnership
Target Fund Size:	$28 billion
Fund Manager:	Blackstone Inc.
Manager Contact:	Grant Murray 345 Park Avenue New York, NY 10154

II. Organization and Staff

Blackstone Real Estate, part of Blackstone Inc. ("Blackstone" or the "Firm"), is forming Blackstone Real Estate Partners X L.P. ("BREP X" or the "Fund") to make a broad range of opportunistic real estate and real estate-related investments. BREP X will focus primarily on the U.S. and Canada, but the Fund will also participate in 20% of the amount of each real estate investment made by each of the current BREP Europe and BREP Asia funds.

The Firm was founded in 1985 and became a public company in 2007. Within the Blackstone Group, Blackstone's Real Estate Group was established in 1991 and is the largest owner of commercial real estate globally with $298 billion of investor capital under management (as of March 31, 2022) and a $514 billion global real estate portfolio (as of December 31, 2021).[1] Blackstone Real Estate currently has 741 professionals located in 11[2] offices globally and operates as one integrated business (as of December 31, 2021). The investment committee meets weekly and includes Jon Gray, President and Chief Operating Officer of Blackstone as the Chairman of the Blackstone Real Estate Investment Committee, and Ken Caplan and Kathleen McCarthy, Global Co-Heads of Blackstone Real Estate. The Investment Committee also includes all Senior Managing Directors in the Real Estate group as well as senior executives of Blackstone, including Stephen Schwarzman, Chairman and Chief Executive Officer, and Michael Chae, Chief Financial Officer.

Blackstone is highly focused on its efforts and commitments to ESG and DEI. Blackstone takes a comprehensive approach to ESG by integrating it in the diligence process and, upon ownership, the managing of their properties. As a regular component of acquisition/investment due diligence, Blackstone uses outside counsel, in coordination with the Real Estate ESG, Legal & Compliance and relevant deal teams, to review ESG factors associated with each investment. All professionals in Blackstone Real Estate focus on ESG factors in the exercise

[1] As used herein, "investor capital" includes GP and side-by-side commitments, as applicable.
[2] Seoul office is scheduled to open in 1H 2022.

of their responsibilities, especially the acquisitions and asset management professionals who are closest to the management of investments.

Blackstone's commitment to DEI is reflected at all levels of the organization. Approximately one-third of its leadership team is diverse and 50% of its primary businesses have a diverse professional as one of their top two leaders. The Firm achieved 41% female representation globally and 49% ethnically diverse representation in the U.S. among the 2021 incoming analyst class.

III. Investment Strategy

Blackstone intends to continue its successful "buy it, fix it, sell it" strategy of targeting complicated assets and situations, creating value through hands-on ownership, and selling assets once its achieved its asset management objectives. By being one of the largest global owners and operators of virtually all property types, the scale of their holdings provides timely insights on changing market conditions and trends. Blackstone believes its seasoned investment team utilizes its real-time proprietary market data to identify patterns more rapidly than its competitors. Blackstone believes the size of the BREP Funds and the breadth of their team continue to be Blackstone's greatest competitive advantages, enabling their professionals to execute large, complicated transactions with speed and certainty at attractive pricing.

Once an asset is acquired, Blackstone Real Estate's experienced asset management professionals proactively seek to drive value at the asset level to generate the most value for limited partners. The global team of 181[3] asset management professionals (as of December 31, 2021) takes a hands-on approach while working closely with its portfolio companies and/or operating partners to seek to ensure business plans are executed seamlessly. Blackstone is relentlessly results oriented and hones its business plans through frequent formalized asset management meetings, including weekly asset management updates, detailed monthly review sessions, and multiple meetings surrounding Blackstone's robust quarterly valuation process.

As was the case with prior funds, BREP X will seek opportunities to invest in high-conviction asset classes and geographies where Blackstone expects outsized growth, and complex situations where it believes it is uniquely positioned to generate outperformance. Key investment themes may include:

- Global logistics: The logistics sector continues to outperform, fueled by rising e-commerce penetration and robust investor demand, trends that have only accelerated as a result of COVID-19. Limited new supply combined with increasing demand for faster delivery times has led to strong absorption and a sharp acceleration in rent growth for logistics assets.

- Rental housing: Strong demographic trends coupled with a chronic undersupply in many major U.S. cities have created a structural housing shortage. Blackstone believes supply

[3] Includes Asset Management, Portfolio Management and Capital Markets for Blackstone Real Estate's equity business, as applicable.

will continue to be constrained in today's inflationary environment as costs for raw materials and labor continue to rise. BREP seeks to invest in well-located, affordable apartments in select markets with strong fundamentals, focusing on constrained supply, demographic tailwinds, population and job growth and affordability.

- Hospitality: Blackstone continues to believe in the long-term shift toward experiential spending, driving strength in the hospitality sector. Although hospitality was significantly impacted by COVID-19 disruption, Blackstone Real Estate believes the sector is poised to rebound given pent-up leisure demand and increasing recreation spend. Blackstone utilizes a targeted investment approach and key areas of focus today include: irreplaceable resorts in supply-constrained locations, select service assets experiencing trends similar to those in the rental housing sector, and 'drive-to' resorts benefiting from pent-up leisure demand.

IV. *Investment Performance*

Previous fund performance as of March 31, 2022 for Blackstone Real Estate Partners is shown below:

Fund	Vintage Year	Total Commitments	SBI Commitment	Net IRR*	Net MOIC*	DPI (as of 12/31/21)**
BREP I	1994	$381 million	--	40%	2.4x	2.8x
BREP II	1996	$1.2 billion	--	19%	1.8x	2.1x
BREP III	1999	$1.5 billion	--	21%	2.0x	2.4x
BREP IV	2003	$2.2 billion	--	12%	1.5x	1.7x
BREP V	2005	$5.5 billion	$100 million	11%	1.9x	2.3x
BREP VI	2007	$11.1 billion	$100 million	13%	2.0x	2.5x
BREP VII	2011	$13.5 billion	$100 million	15%	1.7x	1.5x
BREP VIII	2015	$16.6 billion	$150 million	19%	1.8x	1.0x
BREP IX	2019	$21.3 billion	$300 million	47%	1.6x	0.3x
BREP Asia I	2013	$4.3 billion	--	13%	1.6x	1.3x
BREP Asia II	2017	$7.3 billion	$75 million	13%	1.2x	0.1x
BREP Asia III	2022	$7.5 billion	$100 million	n/a	n/a	n/a
BREP Int'l	2001	€824 million	--	23%	2.1x	2.1x
BREP Int'l II***	2005	€1.6 billion	--	8%	1.8x	1.8x
BREP Europe III	2008	€3.2 billion	--	14%	1.6x	1.9x
BREP Europe IV	2013	€6.7 billion	--	14%	1.5x	1.5x
BREP Europe V	2016	€8.0 billion	--	15%	1.5x	0.3x
BREP Europe VI	2019	€9.9 billion	--	32%	1.4x	0.1x

* Previous fund investments are not indicative of future results. Committed Capital and Net IRR were provided in Blackstone's public filings.
** DPI is represented as Total Realized Proceeds over Total Invested Capital.
*** The 8% Net IRR excludes investors that opted out of the Hilton investment opportunity. Overall BREP International II performance reflects a 7% Net IRR.

V. Investment Period and Term

The Fund will have a six-year investment period and a term of approximately ten years.

This document is a summary of more detailed information provided in the Fund's Confidential Private Placement Memorandum (the "PPM"). It is qualified in its entirety by the more detailed information provided in the PPM and the Fund's Agreement of Limited Partnership.

TAB I

Some Suggestions from the Executive Director

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DATE: May 9, 2022

TO: Members, State Board of Investment
Members, Investment Advisory Council

FROM: Mansco Perry, Executive Director and Chief Investment Officer

SUBJECT: Some Suggestions from the Executive Director

Following are some suggestions on projects or tasks which are or were in progress but which I am doubtful will reach closure prior to my departure. I also have suggestions which I have spent some, but not much, time mulling over but believe may be worth future consideration. In any case, it will be up to others to determine what, if anything, happens. Regardless, the following are no longer mine to pursue or to worry about. Hopefully some will find something of merit that is worthy of their time.

Comprehensive Review of Private Markets Program

In the Fiscal Year 2022 Management and Budget Plan, a major endeavor was to review the components and restructure of the Combined Funds Private Markets Program and to develop a strategic plan for the Program. The SBI began the program more than forty years ago and for the last quarter of the last century was comprised primarily of private equity, real estate and resource investments. Over the past decade, the focus of the Program has broadened to include a variety of funds which in the earlier years had been included in many private equity portfolios; e.g., private credit, distressed and opportunistic strategies as well as an expansion of real asset based funds beyond the oil and gas/energy-focused funds which were a major focus of the Combined Funds portfolio.

The SBI has been very fortunate with the success of the Private Markets Program, having earned the reputation of one of the best performing Programs in the country. Despite its success, it is a worthwhile endeavor to review and examine the capability of further improving the performance of the Program.

While there has been internal discussion and engagement with our consultant regarding the review, we have not made any significant progress. I would encourage my successor and the staff to devote and expend the necessary time and energy to provide a thorough analysis in an effort to develop a detailed, coherent, and comprehensive synopsis of the composition of the entire program. As a reminder, some of the major aspects of the project we had hoped to pursue can be found in **Appendix A** *attached.*

Treatment of Private Markets allocation and market value and unfunded commitments

At the August 2020 SBI meeting, several topics were presented by staff. One of the major topics of discussion was the policy surrounding the management of market and uncommitted values or Private Market assets in the Combined Funds portfolio. Following is the comment staff made regarding the issue at that time:

In the early 1990's, the MSBI began to recognize the need to account for the fact that when the organization makes private market commitments, it is critical to closely monitor both the market value of invested and appreciated capital, and the level of affiliated unfunded commitments. The affiliated unfunded commitments represent a future obligation and have a significant impact on total portfolio liquidity. It should be acknowledged that growing from our current Private Markets allocation of ~16% (as of March 31, 2022 it was approximately 21.9%) to our target allocation of 25% may take a significant period of time and is largely dependent on the growth or decline of other portfolio assets as well as the MSBI Private Markets commitment pace. Increasing from the current allocation to the target allocation will require that the organization sustain a level of unfunded commitments in addition to its invested market value target. Managing this task is one of the most difficult aspects of portfolio management that a plan sponsor faces, given the impact on total portfolio liquidity.

Growing and ultimately maintaining our Private Markets allocation requires appropriate latitude regarding future commitments. Once a target market value level is achieved, it is critical to maintain a level of unfunded commitments that will ensure appropriate levels of invested market value going forward, as the portfolio experiences capital calls, distributions, and changes in unrealized market value.

At that time, the temporary policy was in place which:

- Held the target allocation at 25% of the total market value of the Combined Funds portfolio.

- The variance between the target market value and the actual market value of Private Market assets (which is referred as the un-invested allocation of Private Markets would be invested in a combination of physical and synthetic exposure to the S & P 500).

- The portfolio is allowed to exceed the Private Markets target allocation of 25% and can hold up to 35%. *At that time, no rationale was given for allowing up to the statutory maximum allocation of 35% for Private Markets. The implication was this would facilitate the ability to reach and sustain the target level and allow for a drop in the denominator of the total Combined Funds market value. While this implication still holds true, prudence would dictate that the organization needs to develop a solution which assures that the statutory maximum is not violated. Potential suggestions would be to limit the invested assets to an amount less than the 35% maximum and determine a cause of action prior to a violation of the statutory limit. Or seek an increase (which would require legislative action) in the limit which may result in more serious problems for the portfolio.*

- The policy for the upper limit for Private Markets Market Value plus Unfunded Commitments was temporarily increased to a maximum of 45% from 35%, and MSBI staff was to present a proposed new permanent recommendation for the management of Unfunded Commitments by the end of Fiscal Year 2021. *At the final meeting of Fiscal Year 2021, staff informed the IAC and Board that they would continue to review the temporary policy and report at a later date. Despite some internal discussion and conversation with Albourne, we have no concrete solutions at this time. However, as Executive Director I believe it would be prudent to revise the policy and reduce the upper limit for Private Markets Market Value plus Unfunded Commitments to a maximum of 40% from 45%. Such an approach recognizes the necessity that the growth in the market value and unfunded commitments of the Private Markets program should be managed so as not to impair the viability of the other assets in the portfolio.*

- *In accordance with our financial accounting approach we only include commitments of funds that have been legally executed, or closed. This is in accordance with the standards by which our auditors review our private markets accounting. I would advise that prior to approving additional commitments that the staff provide a prospective accounting of current commitments which includes all existing executed (closed) fund commitments, all approved commitments that had not been executed and the amount of commitments being requested at that time. This comprehensive amount should be included in a calculation of market value and commitments when considering any new requested commitments. I believe that this comparison should be taken into consideration for making new commitments and having a sense of the probability of both violating the market value plus commitment policy limit and also other factors which may be adversely impacted such as benefit payment liquidity in the near future. As a potential mitigating factor it would be advisable for there to be an understanding by the decision makers of any potential commitments which may not be called by the general partners and an estimate of the probability that such commitments would not be called.*

- *I would also suggest that a review of this subject be directed to be a core topic of review during the next Asset Allocation (or Asset / Liability) Review for the Combined Funds.*

RECOMMENDATION:

The Executive Director is requesting that the IAC endorse his recommendation to the Board that the temporary policy for:

1) **the Private Markets target market value allocation remain at 25% and can exceed the target up to maximum of 30% rather than the statutory maximum of 35% recognizing that a breach of the statutory maximum would be a violation of law and would put the Board in unchartered territory;**

2) **the maximum for the Private Markets Market Value and Unfunded Commitments be revised from 45% and reduced to 40%; and**

3) **the Executive Director and Consultants be directed to review these matters as core topics during the next Asset Allocation (or Asset / Liability) Review for the Combined Funds and present a more comprehensive policy at that time.**

Asset Allocation Review

It has been the practice of the SBI to perform an Asset Allocation (or Asset / Liability) Review every 5 to 6 years. I would propose that the Board adopt a policy which would result in the study taking place on a preset time during each term of the Board. From my perspective, there is nothing special about the timing of asset allocation review other than it should take place periodically to provide those responsible for the development and oversight of the portfolio a guideline. I believe the SBI and the state's public retirement community would benefit having a pre-defined time period to prepare for and assess the process and results. As a suggestion I would propose that the Staff and Consultants be directed to present the results of the Review at the second or third quarterly SBI Board and IAC meetings of the second year of the SBI Board Members 4 year term. This would allow for adequate time to prepare and complete the review. It allows the Staff and Consultants time to receive the Quadrennial Experience Studies from the Statewide Retirement Associations, thus enabling its use in the Review. And the results may be informative to the Legislative Commission on Pensions and Retirement.

RECOMMENDATION:

The Executive Director is requesting that the IAC endorse his recommendation to the Board that the Executive Director and the Board Consultants prepare and present the results of the Asset Allocation (or Asset / Liability) Review at the second or third quarterly SBI Board and IAC meetings of the second year of the SBI Board Members four year term.

Other suggestions for consideration:

- I would propose that the Statewide Retirement Association Boards, State Board of Investment and the Legislative Commission on Pension and Retirement hold a joint meeting to discuss statewide public pension issues on at least an annual basis.

- I would propose that the Executive Director develop a program focused on meeting with appropriate oversight agencies or committee's for the various non-defined benefit clients of the SBI on a formal schedule to take place at least once during the four year term of the Board member (preferably during the first three years and reported during the four year term).

- The Board should create a formal committee to recruit, vet, and recommend potential IAC members in accordance with the statute.

- The Board and Executive Director should spend time focusing on the future structure of the SBI. The organization has responsibility for more assets than most organizations in the State of Minnesota and probably the smallest infrastructure. I would suggest that someone should review and analyze the implications of that situation. In the eight plus years since my return to the SBI, we have doubled in assets.

APPENDIX A

STATE BOARD OF INVESTMENT

Project Summary
FY22

DEVELOPMENT OF INVESTMENT POLICIES
Comprehensive Review of Private Markets Program

GOAL: To review the components and restructure of the Combined Funds Private Markets Program and to develop a strategic plan for the Program. The Executive Director will engage the Private Markets Consultant, IAC members, SBI Consultants, Staff and external experts to research and/or provide their perspective in order to assist him in developing prospective recommendations for the program.

BACKGROUND: The Combined Funds Private Markets Program began more than forty years ago and for the first quarter of the century was comprised primarily of private equity, real estate and resource investments. Over the past decade, the focus of the Program has broadened to include a variety of funds which in the earlier years had been included in many private equity portfolios; e.g., private credit, distressed and opportunistic strategies as well as an expansion of real asset based funds beyond the oil and gas/energy-focused funds which were a major focus of the Combined Funds portfolio.

The SBI has been very fortunate with the success of the Private Markets Program, having earned the reputation of one of the best performing Programs in the country. Despite its success, it is a worthwhile endeavor to review and examine the capability of further improving the performance of the Program.

The Executive Director, in consultation with the SBI's Private Markets Consultant, will review and analyze the following:

- Re-classify current funds into four major asset classes (Private Equity, Real Estate, Private Credit and Real Assets), with each categorizing distinct sub classes.
- Define the role of each major asset class in the Combined Funds. Assess prospective performance and risk characteristics of each of the classes.
- For each major asset class:
  - Review and analyze SBI historic performance.
  - Assess general asset class performance and composition.
  - Compare SBI performance vs. industry performance by Asset Class.
  - What could enhance SBI portfolio?
  - What has impaired SBI?
  - Candidates to dispose of (sell)?

- Analyze potential Private Market allocation structures.
  - We presume Private Equity will always be the cornerstone of the Program. The analysis will consider the impact that the addition/diminution of other asset classes would have on the Program.
  - Should the Program be predominantly Private Equity, or 100%, as a possibility?
  - Should other asset classes be excluded from the Program?
  - Do we need multiple asset classes for diversification purposes? Given the makeup of the non-Private Markets allocation, is it necessary to have a diversified Private Markets Program as part of the Total Fund portfolio?

- To what extent should the Private Markets Program have International exposure? Should each asset class include International exposure?

- To what extent should the Private Markets Program diversify by size of the underlying investment for the various Asset Classes?

- What role should secondary funds have in the Program?

- What role should co-investments have in the Program?

- Explain alternative approaches to commitment pacing.

- Explain impact of commitment pacing to the management of unfunded commitments.

- Explain impact of comment pacing and management of funded commitments on total fund liquidity.

- What impact would any of the above recommendations have in terms of Private Markets team structure?

- Explain how Environmental, Social, and Governance factors should be incorporated into the program.

Outline review project and develop timeline with Private Markets Consultant.	Apr. – Jun. 2021
The review is anticipated to continue into Fiscal Year 2023 to cover all parts of the project.	

TAB J

Report from Executive Director Search Committee

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DATE: May 9, 2022

TO: Members, Investment Advisory Council

FROM: Members, Executive Director Search Committee

SUBJECT: Report from Executive Director Search Committee

The Executive Director Search Committee will give a verbal update on the status and progress of the Executive Director search process.

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REPORTS

- Public Markets Investment Report
- Participant Directed Investment Program and Non-Retirement Investment Program Report
- SBI Environmental, Social, and Governance (ESG) Report
- Aon Market Environment Report
- Meketa Capital Markets Outlook & Risk Metrics Report
- SBI Comprehensive Performance Report

REPORT

Public Markets Investment Program

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DATE: May 9, 2022

TO: Members, Investment Advisory Council

FROM: SBI Staff

SUBJECT: SBI Public Markets Program Report

This report provides a brief performance review of the SBI Public Markets portfolio through the first quarter of 2022. Included in this section are a short market commentary, manager performance summaries and a report of any organizational updates for the public equity and fixed income managers in the SBI portfolio.

The report includes the following sections:

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Review of SBI Public Markets Program

First Quarter 2022

Market Summary

Global capital markets fell in the first quarter of 2022, with the MSCI All Country World (ACWI) Index (net) losing -5.4% in U.S. dollar terms. Within the U.S., the broad Russell 3000 Index fell -5.3%, led lower by underperformance of growth companies (R3000G -9.3% vs R3000V -0.8%). Small-cap stocks lagged large caps, with the Russell 2000 Index of small-cap companies falling -7.5% on the quarter. In terms of sectors, energy names rallied strongly (+38.6%) on the spike in energy prices, while communications services (-12.0%) and consumer discretionary names (-10.3%) led the market lower.

During the quarter, European stocks sold off sharply as Russia's invasion of Ukraine in late-February overshadowed the continued recovery in global economic activity earlier during the quarter. Markets swooned as the reality of war on Western Europe's doorstep rattled investor confidence and shook faith in Europe's security after decades of U.S.-NATO efforts to contain Russia. Energy and food-related commodities spiked in response to the conflict on the risk of supply disruptions, leading to further upward pressure on inflation rates globally. While commodity-producing nations such as Australia, Canada, Brazil, Saudi Arabia, and Chile saw their markets bounce as commodity prices rose, Asian markets sold off as China's growth picture remains clouded by debilitating lockdowns from its continued zero-COVID policy.

Commodity prices spiked up +33.1% during the quarter, as measured by the GSCI Commodity Index, led by gains in natural gas (+58.3%), crude oil (+38.2%) and wheat (+29.5%). The U.S. dollar rose nearly 3% during the quarter on a trade-weighted basis as investors sought the relative safety of U.S. assets in response to the Russia-Ukraine conflict. In addition, the prospect of a faster pace of rate hikes in the U.S. relative to other developed economies served to further boost demand for U.S. dollars during the quarter.

The U.S. Federal Reserve (Fed) completed its transition to full inflation-fighting mode during the quarter. In addition to raising rates by 25 basis points at its March FOMC meeting, the Fed sounded the alarm on inflation (which rose at a whopping +8.5% annual rate in March) and telegraphed its intention to aggressively raise its policy rate over the remainder of 2022. In response, interest rates in the 2–5-year portion of the Treasury yield curve rose dramatically, and bond prices declined sharply. Longer rates rose, too, as higher short-term interest rates and the prospect of faster than expected inflation weighed on investor demand for longer maturity bonds.

Overall, faster inflation, tightening financial conditions and weakened consumer and business confidence led to a down-rating of global growth expectations for 2022 and 2023. In April, the International Monetary Fund lowered its forecast for world GDP growth in 2022 and 2023 to +3.6%, a decline of -0.8% and -0.3%, respectively, from its January 2022 outlook.

Overall Combined Funds Portfolio - Quarter and One-Year Performance

The overall Combined Funds portfolio returned -3.8% during the first quarter of 2022, slightly underperforming the composite benchmark return of -3.7% over the same period. Portfolio relative performance during the quarter was driven primarily by manager underperformance within the public equity portfolio (both domestic and international). On the positive side, the portfolio's underweight to bonds and, within bonds, the relatively strong performance of the return-seeking bond strategies helped relative performance. The currency hedging program also benefitted returns as the U.S. dollar rose sharply during the quarter and the hedging program helped offset currency depreciation in the portfolio's non-U.S. equity holdings.

Within public equity, most active managers fell short of their benchmarks, with global equity, emerging markets and U.S. large-cap growth managers detracting most from relative performance. In particular, the portfolio's growth-oriented active equity managers suffered from the market rotation away from high growth companies towards more defensive quality growth and value stocks. Within emerging markets, manager exposure to Russia and peripheral markets like Poland and Hungary hurt performance while industry and security selection was also broadly negative. On the positive side, the portfolio's U.S. small cap managers (both growth and value) added value relative to their benchmarks, as did the U.S. large cap value managers.

The private markets invested portfolio returned +3.0%, led by strong performance from the real estate and private equity portfolios. The private markets uninvested portfolio, which is invested in an S&P 500 Index strategy, fell -4.2% for the quarter and helped temper overall fund performance as that index outpaced both broad stocks and bonds.

For the year ending March 31, 2022, the Combined Funds portfolio matched the composite benchmark return of +9.5%. Overall relative performance was aided by an overweight to equities – and corresponding underweight to fixed income – maintained for most of the period. On the negative side, relative performance from the active equity portfolio was a modest detractor. Overall, the public equity portfolio lagged the benchmark (+7.1% Portfolio vs. +7.4% Benchmark). Underperformance of active managers was broad-based, with notable exceptions within the portfolio's active small cap and semi-passive large cap managers. The total fixed income portfolio matched the policy benchmark return for the full year (-2.9% Portfolio vs. -2.9% Benchmark) as robust performance from the portfolio's core and return-seeking managers helped offset underperformance within the core plus and cash segments.

The invested private markets portfolio returned +31.8% for the year, led by the private equity portfolio which gained +33.9% for the period. The private markets uninvested portfolio, which is invested in an S&P 500 Index strategy, gained +16.1% for the year.

A note on portfolio impact from Russia/Belarus

In the first quarter, SBI Staff estimates that the portfolio impact to the Combined Funds from the sharp decline in value of the Russian and Belarusian assets held in the portfolio, net of manager sales, was approximately $184 million, or approximately 0.20% of the Combined Funds portfolio. The decline in value was primarily accrued within the Emerging Markets Equity portfolio, and in the Return-Seeking and Core Plus Fixed Income portfolios.

Domestic Equity

In January and through the first three weeks of February, market movements were dominated by inflation concerns, the resultant unease over corporate earnings forecasts, and a rerating downward of growth stocks. Russia's invasion of Ukraine on February 24th further exacerbated supply chain concerns, engendered a spike in oil and other commodity prices, and brought further inflation and global growth concerns to the fore. Domestic stocks tumbled in the first two months of the quarter but rebounded in the second half of March as the conflict stayed contained within Ukraine's borders and investors saw renewed evidence that companies could pass through higher input costs to end consumers. The Russell 3000 Index finished the quarter lower by -5.3%.

Concerns over inflation and global growth drove a shift in investor preference to the relative safety of companies with durable revenues and pricing power. Value stocks – led by Energy, Industrials and Financials, trounced growth stocks during the quarter (R3000V -0.8% vs. R3000G -9.3%). Within the growth stock segment, the bid-to-safety rotation away from high-growth companies into quality-growth companies that began in December continued through the quarter. Large caps outperformed small caps (R1000 -5.1% vs. R2000 -7.5%) as investors shunned companies perceived as having less pricing power and less ability to weather a potential economic slowdown. Energy (+37.0%) posted its strongest calendar quarter return on record, just ahead of Q2 2020. Materials (+5.4%) and utilities (+3.5%), the other commodities-focused sectors, also posted gains, while consumer staples (-0.1%) and financials (-2.2%) provided relative protection versus more cyclical sectors. Technology (-9.9%), consumer discretionary (-9.8%), and telecommunications (-7.1%) sectors posted the largest losses.

The Combined Funds' domestic equity portfolio fell -5.5% during the quarter, slightly underperforming the Russell 3000 Index, which returned -5.3%. An overweight to small cap stocks in the portfolio modestly detracted from relative performance. Active management was a negative contributor during the quarter, with underperformance concentrated within the large cap growth active managers, as was the case last quarter. Accordingly, large cap managers underperformed in aggregate (-6.6% Portfolio vs. -5.1% Benchmark). The remaining managers generally outperformed, and active small cap managers nicely outpaced their benchmarks (-5.9% vs. -7.5%). In aggregate, passive managers tracked their benchmarks during the quarter.

Active large and all-cap growth managers were the largest underperformers during the quarter. Active large cap growth managers underperformed (Sands -21.6% and Winslow -12.8% vs. -9.0% Benchmark), as did active all-cap manager Zevenbergen (-19.6% Portfolio vs. -9.3% Benchmark). Sands and Zevenbergen both underperformed materially due to their concentrated nature and focus on higher-growth stocks during a quarter that saw a continued downward rerating in high-multiple stocks (Netflix -37.8%, Twilio -37.4%, Snowflake -32.4%, Shopify -50.9%, Sea Ltd. -46.5%). Winslow fared better given its focus on higher-quality growth stocks and broader diversification.

Active large cap value managers were mixed during the quarter (Barrow Hanley +2.3% and LSV -1.3% vs. Benchmark -0.7%). LSV's quantitative, deep value approach led it to an overweight in cyclical sectors such as consumer discretionary and an underweight to energy stocks, which hurt relative performance. The portfolio is overweight smaller-cap names, which further detracted. Slightly offsetting these negatives were strong security selection in less cyclical sectors. Barrow Hanley's gains were largely due to positioning derived from its bottom-up fundamental research, benefiting from an overweight in energy stocks and from strong stock-specific attribution, particularly in the industrials sector.

Semi-passive large cap managers were slightly below their benchmark in aggregate (-5.4% Portfolio vs. Benchmark -5.1%). Quantitative manager Blackrock was hurt most from trend-based non-fundamental models, including carbon-intensity ESG models which drove an ineffective underweight to industrials. This was offset somewhat by value-oriented signals, which did well as value stocks performed well. J.P. Morgan's sector-neutral, fundamental strategy was in-line with the benchmark.

Active small cap growth managers performed well versus their benchmarks. Only one manager, Wellington, underperformed (-14.0% Portfolio vs. -12.6% Benchmark), due mostly to an underweight to the high-flying energy sector. Arrowmark fared best (-8.4% Portfolio vs. -12.6% Benchmark), followed by Hood River (-11.2% Portfolio vs. -12.6% Benchmark). In aggregate, the active small cap growth managers have positioned their portfolios with a larger-cap, quality-growth, and lower-priced bias versus the benchmark, all of which were in favor during the quarter. Despite dispersion among active small cap value managers, the cohort had some of the strongest performance over the quarter versus their benchmarks within domestic equities. The largest outperformer was Hotchkis & Wiley (+9.1% Portfolio vs. -2.4% Benchmark). Overweight positioning to energy and healthcare sectors were major contributors, as was strong security selection within industrials and financials.

Global Equity and ACWI ex USA Equity

The portfolio's global equity managers returned -11.8% in the first quarter, underperforming the MSCI ACWI Index (net), which returned -5.4%. The rotation away from growth toward value was starkly illustrated in manager returns, with value manager Ariel posting a gain of +1.1% on the quarter, while growth-focused managers Martin Currie and Baillie Gifford saw the value of their portfolios decline -15.6% and -22.0%, respectively. Martin Currie's portfolio generally underperformed with the biggest negative contributors coming from of U.S. technology and healthcare names (Adobe -19.7%, Masimo Corp -50.3%). Baillie Gifford, the most growth-tilted manager, was also hurt by U.S. tech names that had gotten a big lift during the pandemic: Netflix (-37.8%), Moderna (-32.2%), and Shopify (-51.0%). Meanwhile, Ariel avoided the tech sell-off and gained most from Latin American financials that benefited from improving economic and political conditions in Peru and Brazil.

The portfolio's ACWI ex USA manager, Earnest Partners, outperformed the benchmark during the quarter (-2.5% Portfolio vs. -5.4% Benchmark). Earnest's overweight to defense firms (especially off-benchmark aviation electronic and helicopter supplier Leonardo SpA +40.1%) outperformed in the wake of Russia's invasion of Ukraine. Meanwhile, good selection within energy names and a holding in Chilean lithium producer SQM (+69.7%) positioned Earnest to benefit from the commodity squeeze.

Developed International Equity and Currency Overlay

International developed markets equities, as measured by the MSCI World ex USA Index (net), fell -4.8% during the first quarter in U.S. dollar terms, slightly outperforming the broad U.S. market. The U.S. dollar gained against most developed currencies as Russia's invasion of Ukraine triggered a flight to safety and undermined the growth outlook in Europe. Commodity-focused economies including Canada and Australia saw their currencies rise versus the dollar on higher commodity prices. Equities followed currency markets with nearly all of Europe ending the quarter in negative territory; Germany, France, and the Netherlands made the largest negative contributions at -12.9%, -8.7%, and -17.4% respectively. Only the UK (+1.1%), Norway (+10.2%), and Portugal (+2.3%) were able to buck the trend, each led by their energy industries. Japan, whose economy is heavily dependent on commodity imports, fell -6.6%. Meanwhile, commodity producers Canada and Australia made the biggest positive contributions to the index, returning +9.3% and +7.3%.

The portfolio's active developed markets managers lagged the MSCI World ex USA Index (net), returning -6.3% versus the benchmark's -4.8% return. Once again, a tilt toward growth played a key role in underperformance. Stock selection within the U.K. was a drag, as was issue selection across the banking sector broadly. Acadian (-3.5%), Marathon (-4.0%), and AQR (-4.3%) each benefitted from less-growth focused investment approach and managed to outperform the benchmark over the quarter. Meanwhile, the portfolio's growth-focused managers struggled. Notably, core manager Columbia Threadneedle lost -8.1% as it faced headwinds from both its quality and growth tilts. In the industrials, materials, and consumer discretionary sectors, holdings were challenged by market expectations of economic slowdown (Recruit -26.2%, CRH -22.1%, Inditex -32.2%). Core quality growth manager J.P. Morgan faced the same thematic challenges and returned -9.6% vs. the benchmark's -4.8% return.

The passive developed markets portfolio tracked the MSCI World ex USA Index (net) within guideline tolerance for the quarter (-4.6% Portfolio vs. -4.8% Benchmark).

The portfolio's currency hedging program, which seeks to protect the passive developed markets portfolio from a decline in value of foreign currencies relative to the U.S. dollar, had a net positive impact during the period (+0.7%), as the dollar rallied against most developed currencies. Hedge gains were mostly accrued against the Japanese yen; Japan's widening yield differential and status as a commodity importer triggered further depreciation of the currency. The program's overall hedge ratio ranged between 36.9% and 59.5% over the quarter.

Emerging Markets Equity

Emerging market equities, as measured by MSCI Emerging Markets Index (net), posted a loss of -7.0% in U.S. dollar terms during the first quarter of 2022. The quarter saw vastly divergent return outcomes among the regions of the emerging markets. Hawkish interest rate policies to limit inflation, the continued post-COVID economic recovery, and optimism for political stability all buoyed Latin American markets; Brazil, Peru, Columbia, and Chile all posted 30+% gains. Meanwhile, Russian equities (and their international listings in the U.S., U.K., and other markets) suffered near total losses as Western nations placed sweeping financial sanctions on the Russian government, state-controlled enterprises, and key business leaders' personal wealth. The combination of sanctions placed on Russia by NATO allies and retaliatory restrictions and capital controls initiated by Russia itself made Russian equity holdings untradeable for foreign investors, effectively wiping out their value and triggering Russia's removal from the MSCI Emerging Markets Index in early March. Russian equities listed in Russia and elsewhere accounted for approximately 2.2% of the index prior to the invasion. Other commodity-oriented nations generally enjoyed strong returns for the quarter (U.A.E. +21.2%, South Africa +20.3%, Qatar +19.5%, Kuwait +19.4%, Saudi Arabia +17.3%), while Asia's export-oriented nations continued to weather supply chain difficulties, COVID-19 lockdowns, and slowing Chinese GDP growth.

The portfolio's active emerging markets managers underperformed the MSCI Emerging Markets Index (net) (-8.8% Portfolio vs. -7.0% Benchmark). The biggest headwinds came in the banking sector with investments in Russian banks like TCS Group and Sberbank. As capital fled Russia, much of it settled in other commodity-driven emerging market financial institutions. This capital movement combined with favorable commodity pricing triggered a rally in banks that service commodity-driven economies (for example, South Africa's Standard Bank Group was up +42.1% on the quarter). The portfolio was collectively underweight these names.

Value-oriented manager Pzena was able to capture a significant tailwind from the outperformance of value vs. growth, and also benefitted from strong issue selection, particularly in China, Hong Kong, and Korea. Pzena had some thematic winners, too, including: Hong Kong's Pacific Basin (+48.0%), a global shipping leader profiting from the global supply chain snarl; South Africa's Sasol (+49.7%), a mining and materials company that supplies the oil industry; and a large country overweight to index-leader Brazil.

On the negative side, quality growth manager Neuberger Berman (-10.8% versus -7.0% Benchmark) was hurt by its allocation to Russian banks and other financial firms that focused on Russia and its Slavic neighbors, including Ukraine. Core fundamental manager Macquarie (down -11.1%) also struggled with an overweight to Russia. Additionally, Macquarie's focus on the semiconductor and beverage sectors hurt relative performance for the quarter. Quality growth-oriented managers Morgan Stanley and Martin Currie both suffered from exposure to Russia and Eastern European stocks which suffered from Russia/Ukraine contagion as well as the broader rotation from growth names into value, resulting in both sector/industry and issue selection headwinds.

Earnest Partners' dedicated China A-share strategy underperformed the MSCI China A Index during the quarter (-18.7% Portfolio vs. -14.5% Benchmark). Earnest has no exposure to either Chinese energy or real estate, the two leading sectors for the quarter. Moreover, many of Earnest's tech names are based in major cities that were hard hit by COVID-19 lockdowns.

The passive emerging markets portfolio experienced slight negative tracking error relative to the MSCI Emerging Markets Index (net) within guideline tolerance for the quarter (-7.2% Portfolio vs. -7.0% Benchmark).

Core/Core Plus and Return Seeking Bonds

The Bloomberg Aggregate Bond Index returned -5.9% during the first quarter of 2022, the largest quarterly drawdown going back to the index's inception in 1973. All three major Index components, U.S. Government bonds, investment grade corporate bonds and Agency mortgage-backed securities (MBS) experienced significant weakness as interest rates rose across the spectrum of maturities and spreads widened as quickening inflation and the war in Ukraine weighed on investor sentiment.

The U.S. Federal Reserve (Fed) accelerated its pivot to inflation-fighting mode during the quarter. In addition to raising rates by 25 basis points at its March FOMC meeting, the Fed sounded the alarm on inflation (which rose at a whopping +8.5% annual rate in March) and telegraphed its intention to aggressively raise its policy rate over the remainder of 2022. With further inflationary pressure from the war in Ukraine adding to an already difficult inflation outlook, markets worried the Fed had become behind the curve and would be forced to raise rates dramatically faster than had been forecast. In response, interest rates on 2- to 5-year maturity Treasuries rose dramatically and the front-end of the yield curve and prices declined. The 2-year Treasury note yield rose 160 basis points to end the quarter at 2.34%, resulting in a loss of -2.54% over the period, as measured by the Bloomberg 2-Year U.S. Treasury Bellwether Index.

Interest rates on longer maturity bonds rose, too, as investors weighed the prospect of higher-for-longer inflation. Overall, however, short-term yields rose much more than at the long-end and the yield curve flattened significantly. The yield difference between the 2-year and 10-year Treasury note narrowed from +80 basis points at the start of 2022 to less than +1 basis point at the end of the quarter. A so-called flat or inverted yield curve is often viewed as a harbinger of economic slowdown or recession. The non-Treasury, or spread sectors, of the bond market suffered from a double whammy of higher interest rates and spread widening as investor sentiment was soured by the reality of more aggressive Fed tightening as well as overhang from the Ukraine conflict and the potential for a period of both higher inflation and slower growth (“stagflation”). Credit-sensitive assets, including both investment grade and lower-rated high yield corporate bonds, underperformed, as did structured assets tied to commercial real estate or consumer receivables. Agency mortgage-backed securities suffered from a combination of high interest rate volatility and the prospect that the Fed would begin to liquidate its large MBS portfolio as another tool to tighten monetary policy to combat inflation. Emerging markets debt was battered by direct and knock-on effects of the war in Ukraine as well as a dramatic pickup in inflation within developing economies and lingering effects from the pandemic.

The portfolio’s core/core plus bond managers underperformed the Bloomberg Aggregate Index during the quarter (-6.5% Portfolio vs. -5.9% Benchmark). At the composite level, managers’ overweight duration positioning and a sector overweight to investment grade credit hurt performance, as did exposure to out-of-benchmark emerging market debt. An allocation to Russian debt within Western Asset’s core plus portfolio was a significant detractor during the quarter. Index providers J.P. Morgan, BofA and Bloomberg all removed Russian and Belarusian government debt from their EMD and multi-sector bond indices during the quarter. On the positive side, the portfolio’s allocation to high yield was positive as strong issue selection outweighed the general weaker tone of the sector overall. An allocation to bank loans was also positive as investors rewarded the floating-rate feature of that sector as short-term interest rates rose sharply.

The portfolio’s return seeking bond managers outperformed the Bloomberg Aggregate Index policy benchmark over the fourth quarter (-5.1% Portfolio vs. -5.9% Benchmark). The return seeking managers’ emphasis on sectors with relatively lower duration such as high yield bank loans and floating-rate securitized credit were positive contributors to relative performance. Bank loans were among the best performing spread sectors, as investors favored the sector’s floating rate coupons in a rising rate environment as well as the perceived relative safety of bank loans’ placement at the top of the capital structure, often secured with hard assets. On the negative side, emerging market debt remained under pressure, including both local currency and hard currency sub-sectors. While the war in Ukraine dimmed the economic outlook in that region, the broader implications of higher energy and food prices, increased political instability and the prospect of aggressive policy tightening by the U.S. Federal Reserve all served to sour investor sentiment for the asset class.

Treasury Protection Portfolio

For the three months ending in March, the Treasury Protection portfolio modestly outperformed the Bloomberg Treasury 5+ Year Index (-7.8% Portfolio vs. -8.1% Benchmark). Overall, the portfolio's managers were positioned slightly short duration versus the benchmark. On the negative side, managers modest positioning in U.S. Agencies was a drag as spreads on these securities widened modestly.

Yields on U.S. Treasury securities rose dramatically in the first quarter, particularly within the 2-to 5-year segment of the yield curve as the Fed officially raised its policy rate at the March FOMC meeting and signaled a need to further aggressively raise rates to combat inflation. Yields on longer maturities also rose significantly during the quarter as inflation rose to a further multi-decade high in March, spurred by a spike in energy and food prices caused by the war in Ukraine. The yield on the 10-year U.S. Treasury Note rose +83 basis points during the quarter to end at 2.34%. The dramatic spike in yields caused a significant price decline, with the 10-year Note returning -6.9% on the quarter. The 30-year T-Bond yield rose +54 basis points to 2.45%, returning -11.4% for the quarter. Long-term rates rose less than at the front-end, however, as investors viewed the Fed's pivot to inflation-fighting mode as likely to lower inflation over the medium term and therefore supporting real returns for long-term investors. In addition, as the yield curve flattened dramatically, investors noted the possibility that the Fed might overshoot and precipitate a recession.

Laddered Bonds + Cash Portfolio

For the quarter ending March 31, 2022, the combined Laddered Bonds + Cash portfolio returned -0.24%, underperforming the portfolio's benchmark (ICE BofA US 3-Month Treasury Bill) which returned +0.04%. Portfolio underperformance was focused within the Laddered Bonds portfolio, which returned -0.32% during the quarter as a dramatic rise in yields at the front end of the yield curve caused price declines even in short-term maturities normally well insulated from price volatility. The ladder portfolio's strategy includes an equal, or laddered, allocation to high quality, short-term bonds maturing each month through late-2023. As a result, the portfolio's longer duration profile (0.5 years) hurt performance on a total return basis this quarter relative to holding cash. However, the portfolio's yield profile of 1.27% as of quarter-end provides a strong yield advantage over cash that should ultimately translate into positive relative performance as interest rate volatility ebbs. The portfolio's cash strategy returned +0.04% for the quarter, matching the return of the benchmark.

Public Markets Managers' Organizational Update

First Quarter 2022

Acadian (Developed Markets Equity)
Acadian's Chief Operating Officer Mark Minichiello retired on February 28, 2022. Acadian will not be replacing his role; instead, the team of long-tenured managers who reported to Mr. Minichiello will now report directly to Acadian's co-CEOs.

Ariel (Global Equity)
Krishna Chintalapalli, Vice President, Research and Yury Monakov, Vice President, Portfolio Analyst/Trader left Ariel in Q1 to pursue other investment industry opportunities. Mr. Monakov's position will be filled with a new hire. Mr. Chintalapalli's coverage was reassigned across the existing team. Kevin Mei joined the team as a Research Associate specializing in Chinese markets.

BlackRock (Domestic Equity, Fixed Income)
Ben Golub, co-founder and Chief Risk Officer, transitioned to a Senior Advisor role after 34-years in day-to-day roles. Ed Fishwick, Ben's partner as Global Co-head of the Risk and Quantitative Analysis team (RQA) for more than 15 years, has been named BlackRock's Chief Risk Officer. Ed will join the firm's Global Executive Committee, and will report to the firm's President, Rob Kapito.

Rob Wuertz, Director, and Portfolio Manager of Multi Sector Fixed Income left the firm in February 2022. Sam Summers has been and continues to be the primary portfolio manager of the SBI's Opportunistic Fixed Income account.

Columbia Threadneedle (Developed Markets Equity)
In a planned move, Colin Moore retired from his role as Executive Vice President and Global Chief Investment Officer (CIO), effective January 2022. Effective January 1, 2022, William Davies transitioned from CIO of EMEA and Global Head of Equities to become Global CIO for Columbia Threadneedle.

Goldman Sachs Asset Management (Fixed Income)
In the first quarter, Sam Finkelstein was named sole CIO of GSAM Fixed Income and Liquidity Solutions, while Ashish Shaw is moving to a broader role of CEO of public markets. Mr. Shaw, who joined GSAM is 2018, will continue to lead GSAM's cross-sector strategy, which is the group responsible for top level sector allocation and the broad beta decision within fixed income portfolios.

Marathon (Developed Markets Equity)
Samuel Dolton joined the portfolio management team on March 7th as an analyst covering Asia Pacific ex Japan. In addition, Board Chairman Sir Brian Ivory stepped down at the end of March. David Stewart has been appointed the new Chairman. He has been a non-executive director of Marathon for three years; he is also Chairman of Hermes Fund Management, International Market Management, and Caledonia Investment Trust.

Martin Currie (Emerging Markets Equity and Global Equity)
Martin Currie's compliance function has been integrated into parent company Franklin Templeton. Stewart Brown, Global Compliance Manager for Franklin Templeton, became Chief Compliance Officer for Martin Currie effective February 22, 2022. Former CCO Nigel Anderson remains with the firm in the Franklin Templeton Enterprise Risk team.

The Martin Currie Global Long-Term Unconstrained team welcomed Jackie Cui and Anna Shevkunova during the quarter. Ms. Cui has a background in ESG and the insurance sector, while Ms. Shevkunova previously focused on valuation and risk assessment across sectors. Both are chartered accountants.

Martingale (Domestic Equity)
Prabhu Kavi, one of two members of the investment team who provides research and model execution support for senior team members, left at the end of April to pursue an opportunity outside of the investment management business. Martingale plans to hire a replacement for Mr. Kavi.

McKinley (Developed Markets Equity)
Anureet Saxena, Ph.D., Director of Quantitative Research at McKinley Capital Management, LLC resigned in February due to personal circumstances. John Guerard, Jr., Ph.D., former McKinley Capital Director of Quantitative Research, and current Chairman of the firm's Scientific Advisory Board, has reassumed the role of Director of Quantitative Research on an interim basis.

NISA (Cash Overlay)
David Kon, Chief Data Officer, Enterprise Data, departed in February of 2022. Mr. Kon's responsibilities were assumed by other members of NISA's Senior Team. In April, Tony Gould, CFA, CAIA joined NISA as a Director to focus on custom portfolio construction. Mr. Gould was formerly a Managing Director at AQR, one of MSBI's developed markets equity managers.

PGIM (Fixed Income)
Temple Houston, Head of Global Investment Grade Credit Research will retire in April 2023 after 34 years with PGIM, to be replaced by Cheryl Akawie, currently head of US High Yield Credit Research. In addition, Daniel Thorogood, High Yield Portfolio Manager, will retire after 32 years with PGIM and be replaced by Derek Godwin. Overall, the retirements will result in several promotions and other staffing appointments.

Winslow (Domestic Equity)
Peter Dlugosch was promoted to Portfolio Manager to the U.S. Large Cap Growth Strategy and continues to be primarily responsible for risk management. In this role, Mr. Dlugosch's quantitative, trading, and analytical expertise will support risk management, position sizing, macro updates, and idea generation for the portfolio.

2022 Manager Meetings

As a result of the ongoing COVID-19 pandemic and continued restrictions on business travel on the part of managers' and MSBI Staff policies, there were no in-person meetings conducted with Public Markets managers during the first quarter of 2022.

Throughout the quarter, however, Staff utilized teleconference and videoconference technologies to remain in communication with managers as needed. During the quarter, Staff held 38 manager strategy review calls via teleconference or videoconference.

Investment Manager	Asset Class
Acadian Asset Management LLC	Developed Markets Equity
AQR Capital Management, LLC	Developed Markets Equity
ArrowMark Colorado Holdings, LLC	Domestic Equity
Ashmore Investment Management Limited	Fixed Income
Baillie Gifford Overseas Limited	Global Equity
Barrow, Hanley, Mewhinney & Strauss, LLC	Domestic Equity
BlackRock Financial Management, Inc.	Fixed Income
BlackRock Institutional Trust Company, N.A.	Domestic Equity
Columbia Threadneedle Investments	Developed Markets Equity
Columbia Threadneedle Investments	Fixed Income
Goldman Sachs Asset Management, LP	Fixed Income
Hood River Capital Management, LLC	Domestic Equity
Hotchkis and Wiley Capital Management, LLC	Domestic Equity
J.P. Morgan Investment Management Inc.	Domestic Equity
LSV Asset Management	Domestic Equity
Macquarie Investment Management Advisers	Emerging Markets Equity
Marathon Asset Management LLP	Developed Markets Equity
Martin Currie Inc.	Emerging Markets Equity
Martin Currie Inc.	Global Equity
Martingale Asset Management, L.P.	Domestic Equity
McKinley Capital Management, LLC	Developed Markets Equity
Neuberger Berman Investment Advisers LLC	Fixed Income

2022 Manager Meetings (cont.)

Investment Manager	Asset Class
Neuberger Berman Investment Advisers LLC	Emerging Markets Equity
NISA Investment Advisors, LLC	Cash Overlay
Oaktree Asset Management	Fixed Income
Payden & Rygel	Fixed Income
Peregrine Capital Management	Domestic Equity
Pzena Investment Management, LLC	Emerging Markets Equity
Record Currency LLC	Currency Overlay
Rice Hall James & Associates, LLC	Domestic Equity
The Rock Creek Group, LLC	Emerging Markets Equity
Sands Capital Management, LLC	Domestic Equity
State Street Global Advisors	Developed Markets Equity
State Street Global Advisors	Emerging Markets Equity
State Street Global Advisors	Fixed Income
Western Asset Management Company, LLC	Fixed Income
Winslow Capital Management, LLC	Domestic Equity
Zevenbergen Capital Investments LLC	Domestic Equity

REPORT

Participant Directed Investment Program and Non-Retirement Investment Program

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DATE: May 9, 2022

TO: Members, Investment Advisory Committee

FROM: SBI Staff

SUBJECT: Participant Directed Investment Program and Non-Retirement Program

This section of the report provides commentary on the Participant Directed Investment Program (PDIP) investment options and Non-Retirement Program managers along with the list of due diligence meetings staff conducted during the second quarter.

The report includes the following sections:

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Participant Directed Investment Program Fund Commentaries
First Quarter 2022

Domestic Equities

Vanguard Total Stock Market Index Institutional Plus

The Fund employs an indexing approach designed to track the performance of the CRSP U.S. Total Market Index, which represents approximately 100% of the investable U.S. stock market and includes large-, mid-, small-, and micro-cap stocks. The Fund matched its benchmark return for the quarter and for the year with a -5.4% and +11.7% return, respectively.

Vanguard Institutional Index Plus

The Fund attempts to employ a full replication indexing approach designed to track the S&P 500 Index. Performance for the Fund matched the S&P 500 Index return for the quarter with a -4.6% return and for the year with a +15.6% return. *This option is only available to the Minnesota Deferred Compensation Plan (MNDCP).*

Vanguard Dividend Growth Fund

The Fund is actively managed by Wellington Management and invests in large- and mid- cap equity holdings with an emphasis on high-quality companies with a history of paying stable or increasing dividends. Performance for the Fund returned -2.0% for the quarter and +17.3% for the year. The Fund does not consider its benchmark sector positioning when constructing the portfolio; weightings result from stock selection.

Vanguard Mid-Cap Index

The Fund attempts to employ a full replication indexing approach designed to track the performance of a broadly diversified pool of medium-size U.S. stocks. The Fund matched the CRSP US Mid Cap Index return for the quarter and for the year with a -6.3% return and a +8.8% return, respectively.

T. Rowe Price Institutional Small-Cap Stock Fund

The Fund's investment process emphasizes fundamental research and active, bottom-up stock selection. The Fund underperformed the Russell 2000 for the quarter with a -11.3% return compared to the benchmark return of -7.5% and outperformed for the year with a -4.5% return compared to the benchmark return of -5.8%.

International Equities

Fidelity Diversified International Equity Fund

The Fund's approach actively selects companies based on fundamental analysis, management quality, and attractive valuations over a long time horizon. The Fund returned -11.9% for the quarter, underperforming the MSCI EAFE benchmark return of -5.9%. For the year, the Fund returned -0.4%, underperforming the benchmark return of +1.2%.

Vanguard Total International Stock Index
The Fund attempts to employ an indexing approach designed to track the FTSE Global All Cap ex US Index, a market-cap weighted pool designed to measure performance of developed and emerging market companies. The Fund underperformed the benchmark return for the quarter with a -6.1% versus the benchmark return of -5.3% and underperformed for the year with a -1.8% return compared to -0.9% for the benchmark, respectively.

Fixed Income and Capital Preservation Options

Dodge & Cox Income Fund
The Fund invests in a diversified portfolio that consists primarily of investment-grade debt securities with a larger allocation to corporate and securitized debt relative to the benchmark. The fixed income fund outperformed the Bloomberg U.S. Aggregate Index for the quarter with a -5.2% return compared to a -5.9% return for the benchmark. For the year, the Fund outperformed with a -3.6% return compared to the benchmark return of -4.2%.

Vanguard Total Bond Market Index
The Fund employs a sampling process to its index investment approach to track the performance of the Bloomberg U.S. Aggregate Index. The Fund returned -6.0% for the quarter, slightly underperforming the benchmark return of -5.9% and matched the one year return of -4.2%.

Stable Value Fund
Galliard Asset Management manages the stable value portfolio in a separate account and invests in investment contracts issued by high quality financial institutions and in a diversified, high quality fixed income portfolio. The portfolio returned +0.4% for the quarter compared to a +0.5% return its benchmark, the 3-Year Constant Maturity Treasury +45 basis points. For the year, the portfolio returned +1.9% compared to the benchmark return of +1.3%.

Money Market Fund
State Street Global Advisors manages the money market fund in a commingled pool vs. ICE BofA U.S. 3 Month T-Bill benchmark. In a very low yield environment within short duration fixed income, the Fund earned 0.0% for the quarter and +0.1% for the year.

Model Portfolio Option

Vanguard Balanced
The Balanced Fund seeks capital appreciation, current income, and long-term growth of income. The Fund allocation tracks the investment performance of an index with 60% CRSP US Total Stock Market Index and 40% Bloomberg Barclays U.S. Aggregate Float Adjusted Index. The Balanced Fund matched the composite benchmark for the quarter and for the year with a -5.6% return and a +5.3% return, respectively.

Non-Retirement Fund Commentaries
First Quarter 2022

Assigned Risk Plan Fixed Income Manager
RBC Global Asset Management actively manages the fixed income portfolio for the Assigned Risk Plan to the Bloomberg U.S. Governmental Intermediate benchmark with a focus on security selection and secondarily on sector allocation. The portfolio returned -4.1% for the quarter compared to the benchmark return of -4.2%. For the year, the portfolio matched the benchmark return of a -4.2% return.

Non-Retirement Program Fixed Income Manager
Prudential Global Investment Management (PGIM) actively manages the Non-Retirement Fixed Income portfolio to the Bloomberg U.S. Aggregate in a separately managed portfolio. The fixed income portfolio underperformed for the quarter with a -6.2% return compared to the benchmark return of -5.9%. For the year, the portfolio matched the benchmark with a -4.2% return.

Non-Retirement Program Domestic Equity Manager
Mellon Investments Corporation passively manages the Non-Retirement Domestic Equity portfolio to the S&P 500 Index in a separately managed portfolio. The portfolio matched the benchmark return for the quarter and the year with a -4.6% return and a +15.6% return, respectively.

Non-Retirement Program Money Market Manager
State Street Global Advisors manages the Non-Retirement Money Market Fund against the iMoneyNet All Taxable Money Fund Average. The Fund matched the benchmark for the quarter with a +0.0% return and for the year with a +0.1% return.

2022 Manager Meetings

As a result of the ongoing COVID-19 pandemic and continued restrictions on business travel on the part of managers' and MSBI Staff policies, there were no in-person meetings conducted during the first quarter of 2022.

Throughout the quarter, however, Staff utilized teleconference and videoconference technologies to remain in communication with managers as needed. During the quarter staff met with the investment funds noted below.

Investment Manager	Management Style/Asset Class	Investment Program
• Ascensus	Multi-Asset Class Platform	PDIP (MN ABLE Plan)
• Galliard	Stable Value Fund	PDIP
• Invesco	Stable Value Prospective Mgr.	Bench List
• PGIM	Active, Fixed Income	Non-Retirement Program
• State Street Global Advisors	Target Date Fund	PDIP
	Money Market Fund	PDIP
• TIAA-CREF	Multi-Asset Class Platform	PDIP (MN 529 Plan)
• T. Rowe Price	Active, Small Cap Equities	PDIP
	Stable Value Prospective Mgr.	Bench List
• Vanguard	Passive, Total Stock Market Fund	PDIP
	Passive, Institutional S&P 500 Index	PDIP
	Passive, Mid Cap Index Fund	PDIP
	Passive, Total International Equity	PDIP
	Passive, Bond Fund	PDIP
	Passive, Balanced Fund	PDIP
	Active, Dividend Growth Fund	PDIP

REPORT

SBI Environmental, Social, and Governance (ESG) Report

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MINNESOTA
STATE BOARD OF INVESTMENT

ENVIRONMENTAL, SOCIAL, GOVERNANCE REPORT

2022 Proxy Voting

The 2022 Proxy Voting Season is underway!

While every proposal is unique, the Minnesota State Board of Investment (MSBI) continues to vote for a significant number of proposals geared towards improving environmental sustainability and diversity. The MSBI also continues to vote against a significant number of proposals related to unsatisfactory executive compensation proposals.

Prior to the 2022 proxy season, the MSBI was more active than it has been in recent years in terms of engaging with public companies in its portfolio. The MSBI led engagements and filed resolutions with four different companies on the topics of diversity and climate change. In the previous quarter's ESG report, the MSBI highlighted its successful engagement with Marathon Oil which resulted in public commitments to reduce flaring and methane venting. This quarter's report focuses on the results of three engagements related to diversity.

Diversity, Equity and Inclusion Engagement Efforts

To help multiply its ability to promote Diversity, Equity, and Inclusion (DEI) in its portfolio, the MSBI is part of the Midwest Investors Diversity Initiative (MIDI). For the 2022 season, MIDI identified 19 public companies in the Midwest with little or no documented racial, ethnic, and/or gender diversity on their boards of directors, fail to disclose individual-level board diversity in the proxy, and fail to disclose their EEO-1 report. The MSBI took the lead on engaging six of those companies and filed shareholder proposals at three of them: Perficient, R1 RCM, and OptimizeRx.

THE PROPOSALS RESOLVED THAT:

"Shareholders request the Board of Directors prepare a report by 2023, at reasonable expense and omitting proprietary information, on steps the Company is taking to enhance board diversity, such as:

- *Embedding in governance documents a commitment to diversity inclusive of gender, race, and ethnicity;*
- *Committing publicly to include women and people of color in each candidate pool for board and senior leadership seats;*
- *Disclosing in annual proxy statements the gender, racial, and ethnic composition of the board; and*
- *Detailing board strategies to reflect the diversity of the company's workforce, community, and customers."*

The results of the DEI engagements are discussed on the following page.

Results of SBI's DEI Engagement Efforts with Companies

Perficient

From December through March, the SBI engaged with Perficient by filing a proposal, writing emails and participating in a video call. During the course of the engagement, Perficient made the following steps to enhance board diversity:

- A director that self-identified as an underrepresented minority was appointed to the Board;
- Information regarding the Board nominees' diversity will be disclosed in the Proxy Statement; and
- The initial "Rooney Rule" was adopted, whereby the Nominating and Corporate Governance Committee will interview at least one candidate who is a member of one or more underrepresented group for each future vacant Board position.

Based on this productive result, the SBI withdrew its proposal.

R1 RCM

From December through March, the SBI engaged with R1 RCM by filing a proposal, writing emails and participating in a video call. During the course of the engagement, R1 RCM made the following steps to enhance board diversity:

- R1 RCM published its 2021 ESG report which highlighted the Company's commitment to diversity at all levels of the organization (including in its governance documents);
- Disclosed employee demographics;
- Disclosed the gender and ethnic composition of the Board; and
- In addition, Company representatives committed to present language at an upcoming board meeting that would explicitly include female and minority candidates in all future director candidate pools.

Based on this productive result, the SBI withdrew its proposal.

OptimizeRx

From January through March, the SBI engaged with OptimizeRX by filing a proposal, writing emails and participating in a video call. During the course of the engagement, OptimizeRX made the following steps to enhance board diversity:

- Expanded its 2021 commitment to the Parity Pledge (a pledge to interview and consider at least one qualified woman and one underrepresented minority for every open senior leadership role, VP or higher) to include the board of directors;
- Committed to disclosing the gender, racial, and ethnic composition of their Board in the 2022 proxy statement; and
- Committed to disclose a consolidated EEO-1 report once they grow above 100 U.S.-based employees.

Based on this productive result, the SBI withdrew its proposal.

MINNESOTA STATE BOARD OF INVESTMENT

Contact

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REPORT

AON Market Environment Report

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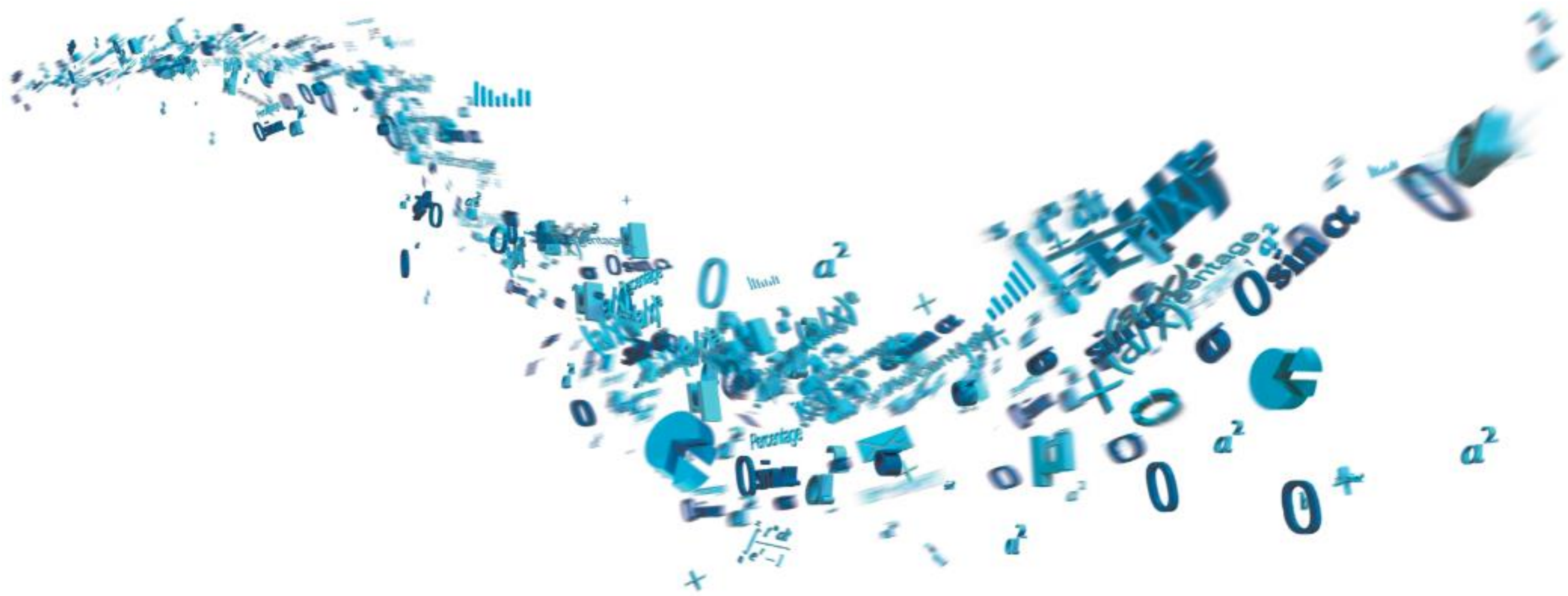


Market Environment

First Quarter 2022

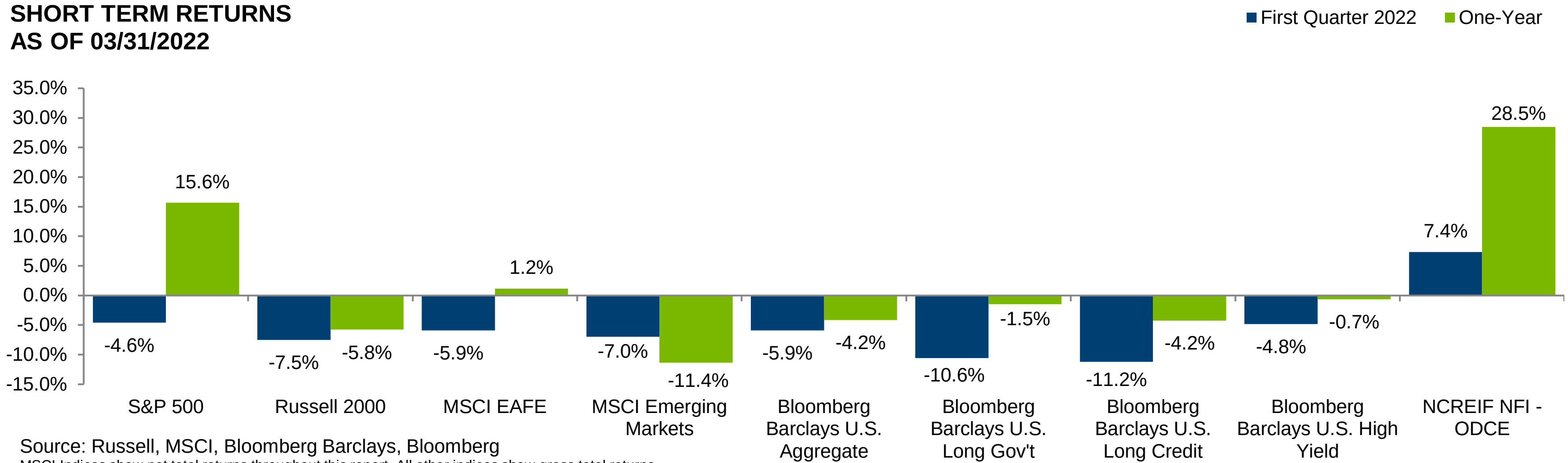
Aon

Investment advice and consulting services provided by Aon Investments USA Inc., an Aon Company.

Empower Results®

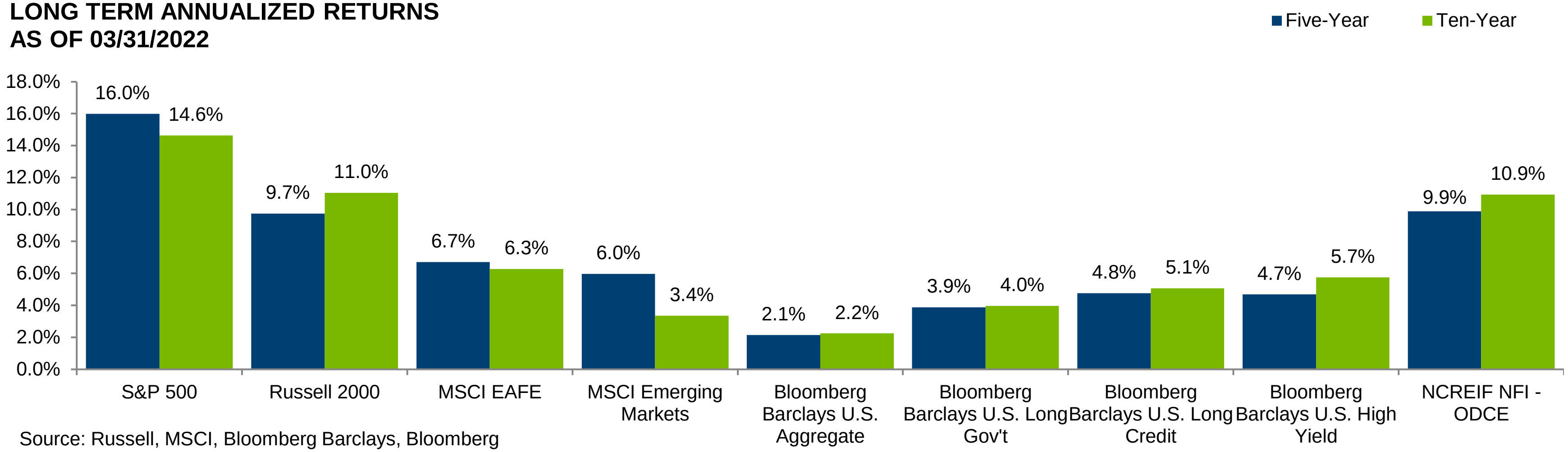
Market Highlights

SHORT TERM RETURNS
AS OF 03/31/2022



Source: Russell, MSCI, Bloomberg Barclays, Bloomberg
MSCI Indices show net total returns throughout this report. All other indices show gross total returns.

LONG TERM ANNUALIZED RETURNS
AS OF 03/31/2022



Source: Russell, MSCI, Bloomberg Barclays, Bloomberg

Note: MSCI Indices show net total returns throughout this report. All other indices show gross total returns.

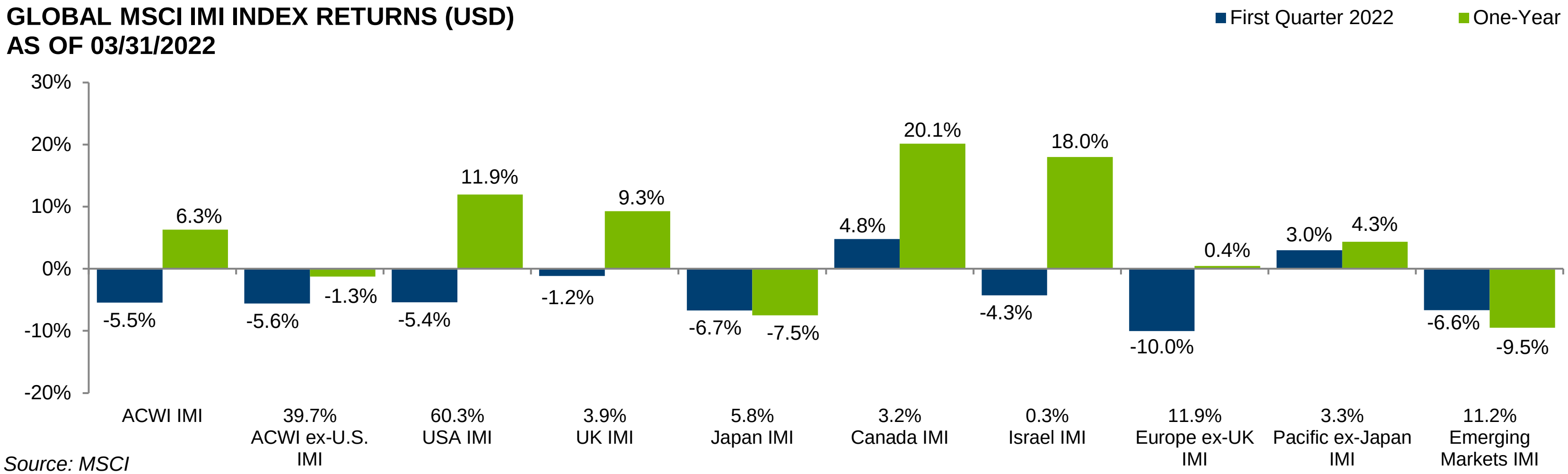
Market Highlights

Returns of the Major Capital Markets						
Period Ending 03/31/2022	**First Quarter**	**YTD**	**1-Year**	**3-Year[1]**	**5-Year[1]**	**10-Year[1]**
Equity						
MSCI All Country World IMI	-5.47%	-5.47%	6.30%	13.49%	11.37%	9.95%
MSCI All Country World	-5.36%	-5.36%	7.28%	13.75%	11.64%	10.00%
Dow Jones U.S. Total Stock Market	-5.40%	-5.40%	11.67%	18.12%	15.31%	14.21%
Russell 3000	-5.28%	-5.28%	11.92%	18.24%	15.40%	14.28%
S&P 500	-4.60%	-4.60%	15.65%	18.92%	15.99%	14.64%
Russell 2000	-7.53%	-7.53%	-5.79%	11.74%	9.74%	11.04%
MSCI All Country World ex-U.S. IMI	-5.60%	-5.60%	-1.27%	7.87%	6.92%	5.78%
MSCI All Country World ex-U.S.	-5.44%	-5.44%	-1.48%	7.51%	6.76%	5.55%
MSCI EAFE	-5.91%	-5.91%	1.16%	7.78%	6.72%	6.27%
MSCI EAFE (Local Currency)	-3.73%	-3.73%	6.21%	8.23%	6.55%	8.61%
MSCI Emerging Markets	-6.97%	-6.97%	-11.37%	4.94%	5.98%	3.36%
Equity Factors						
MSCI World Minimum Volatility (USD)	-2.81%	-2.81%	10.09%	8.85%	9.47%	10.17%
MSCI World High Dividend Yield	0.46%	0.46%	10.30%	10.02%	9.06%	9.18%
MSCI World Quality	-8.41%	-8.41%	12.14%	18.70%	16.60%	13.72%
MSCI World Momentum	-5.63%	-5.63%	7.97%	16.49%	16.41%	14.01%
MSCI World Enhanced Value	-1.07%	-1.07%	5.09%	8.24%	7.02%	8.28%
MSCI World Equal Weighted	-5.11%	-5.11%	3.06%	10.35%	9.00%	9.18%
MSCI World Index Growth	-9.60%	-9.60%	9.43%	19.79%	16.91%	13.47%
Fixed Income						
Bloomberg Barclays Global Aggregate	-6.16%	-6.16%	-6.40%	0.69%	1.70%	1.04%
Bloomberg Barclays U.S. Aggregate	-5.93%	-5.93%	-4.15%	1.69%	2.14%	2.24%
Bloomberg Barclays U.S. Long Gov't	-10.57%	-10.57%	-1.46%	3.23%	3.88%	3.96%
Bloomberg Barclays U.S. Long Credit	-11.23%	-11.23%	-4.24%	4.37%	4.77%	5.07%
Bloomberg Barclays U.S. Long Gov't/Credit	-10.95%	-10.95%	-3.11%	4.23%	4.60%	4.72%
Bloomberg Barclays U.S. TIPS	-3.02%	-3.02%	4.29%	6.22%	4.43%	2.69%
Bloomberg Barclays U.S. High Yield	-4.84%	-4.84%	-0.66%	4.58%	4.69%	5.75%
Bloomberg Barclays Global Treasury ex U.S.	-6.49%	-6.49%	-8.72%	-0.85%	0.84%	-0.22%
JP Morgan EMBI Global (Emerging Markets)	-9.26%	-9.26%	-6.18%	0.52%	1.68%	3.45%
Commodities						
Bloomberg Commodity Index	25.55%	25.55%	49.25%	16.12%	9.00%	-0.70%
Goldman Sachs Commodity Index	33.13%	33.13%	64.55%	13.40%	9.98%	-3.31%
Hedge Funds						
HFRI Fund-Weighted Composite[2]	-0.30%	-0.30%	3.87%	8.76%	6.48%	5.26%
HFRI Fund of Funds[2]	-2.70%	-2.70%	1.25%	5.88%	4.64%	3.93%
Real Estate						
NAREIT U.S. Equity REITS	-3.86%	-3.86%	26.49%	11.12%	9.63%	9.81%
NCREIF NFI - ODCE	7.36%	7.36%	28.46%	11.29%	9.88%	10.93%
FTSE Global Core Infrastructure Index	3.58%	3.58%	15.77%	10.23%	10.65%	10.32%
Private Equity						
Burgiss Private iQ Global Private Equity[3]			48.46%	23.39%	20.59%	16.50%

MSCI Indices show net total returns throughout this report. All other indices show gross total returns.
[1] Periods are annualized.
[2] Latest 5 months of HFR data are estimated by HFR and may change in the future.
[3] Burgiss Private iQ Global Private Equity data is as at September 30, 2021

Global Equity Markets

GLOBAL MSCI IMI INDEX RETURNS (USD)
AS OF 03/31/2022



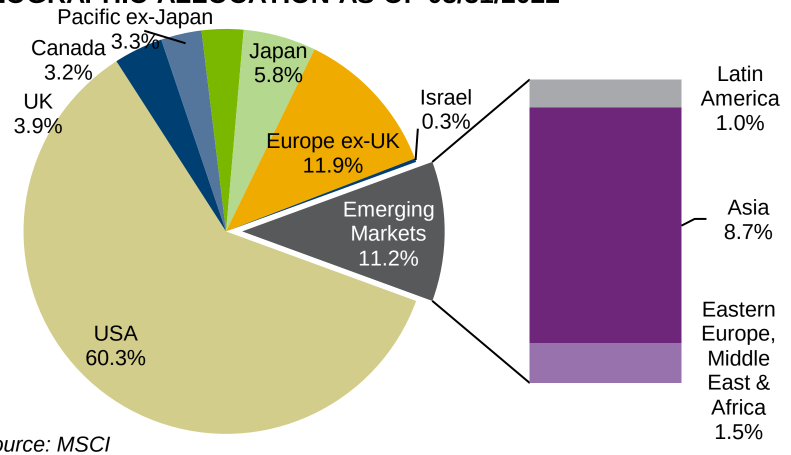
Source: MSCI

- Equities were challenged during the first quarter and volatility remained elevated. Global equity markets fell over the quarter, with the U.S. weighing on the index in January, while Europe and Emerging Markets were weaker during the latter part of the quarter. The MSCI All Country World Investable Market Index (ACWI IMI) returned -5.5% for the quarter but was up 6.3% over the past year.
- Across international markets, except for Canada and Pacific ex-Japan, all the regions were weak over the quarter. Canadian equities were the best performer led by Energy and Materials sectors.
- Europe ex-UK equities were the worst regional performer with a return of -10.0%. This was due to a combination of the highly infectious sub-variant of Omicron, BA.2, spreading across Europe, and Europe’s proximity and exposure to the fall out from the Russia-Ukraine conflict.
- Emerging Markets returned -6.6% for the first quarter with Chinese and Korean equities weighing on the region. China re-imposed strict lockdowns in major cities like Shanghai and Shenzhen as the country now faces its most significant surge in Covid-19 cases since the pandemic began.

Global Equity Markets

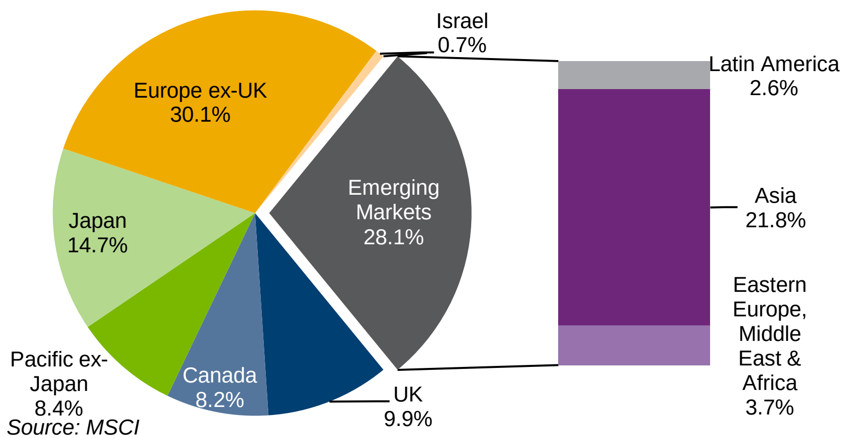
Below is the country/region breakdown of the global and international equity markets as measured by the MSCI All Country World IMI Index and the MSCI All Country World ex-U.S. IMI Index, respectively.

MSCI ALL COUNTRY WORLD IMI INDEX
GEOGRAPHIC ALLOCATION AS OF 03/31/2022



Source: MSCI

MSCI ALL COUNTRY WORLD EX-U.S. IMI INDEX
GEOGRAPHIC ALLOCATION AS OF 03/31/2022

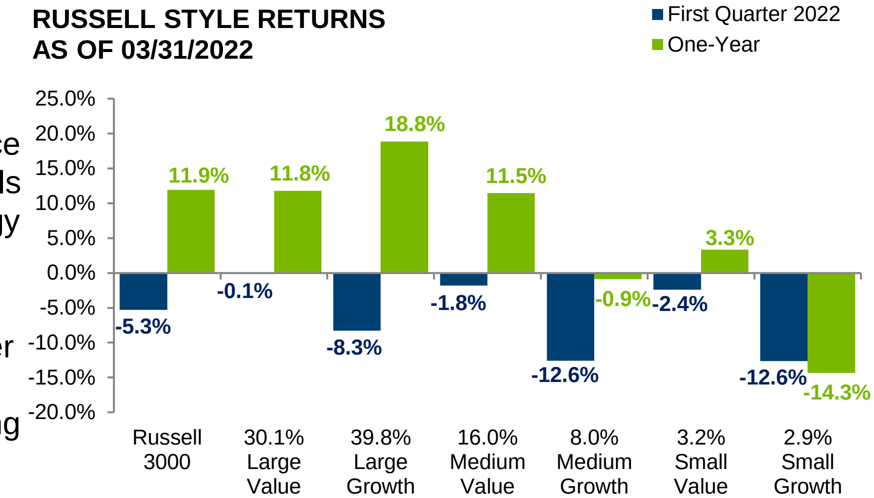


Source: MSCI

U.S. Equity Markets

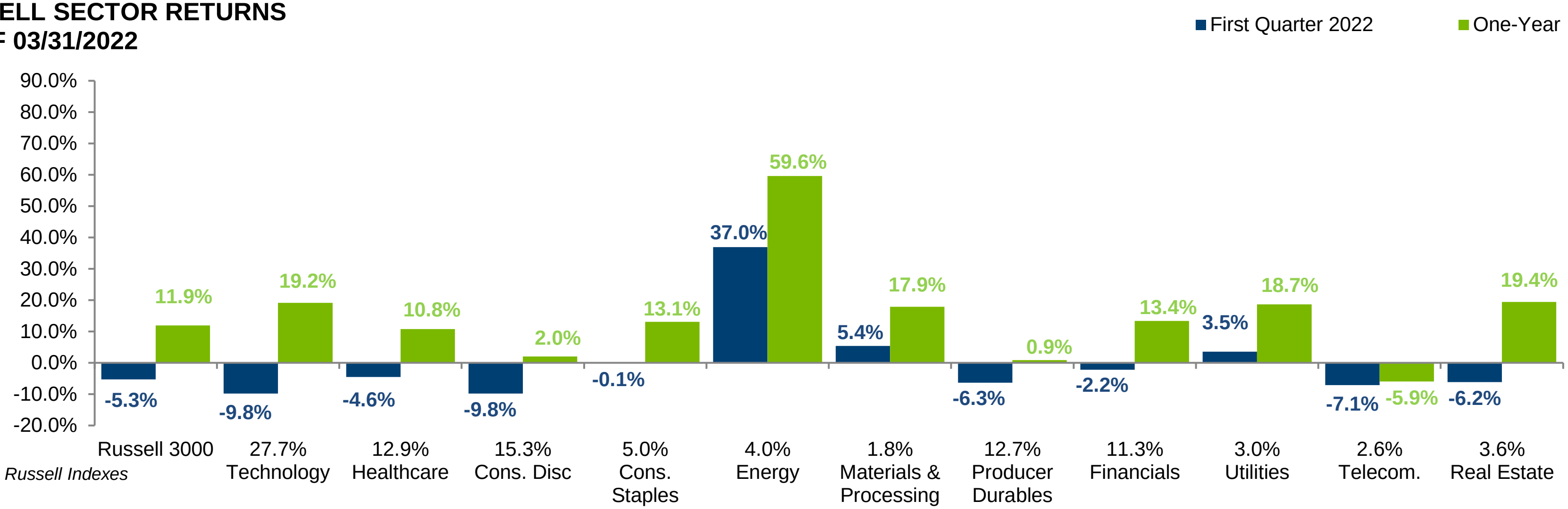
- U.S. equities had a weak quarter with the S&P 500 index falling by 4.6%.
- The Russell 3000 Index fell 5.3% during the first quarter but was up 11.9% over the trailing one-year period. Performance among sectors was generally negative. Energy and Materials & Processing were the best performers while the Technology and Consumer Discretionary sectors were the worst performers at -9.8%.
- Large and medium cap stocks outperformed small caps over the quarter. On a style basis, value outperformed growth across market capitalizations over the quarter. Over a trailing one-year period, except for large-cap stocks, value has outperformed growth.

**RUSSELL STYLE RETURNS
AS OF 03/31/2022**



Source: Russell Indexes

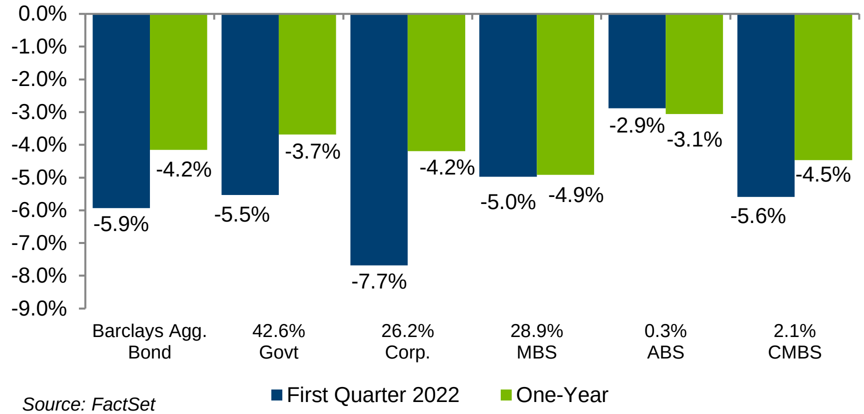
**RUSSELL SECTOR RETURNS
AS OF 03/31/2022**



Source: Russell Indexes

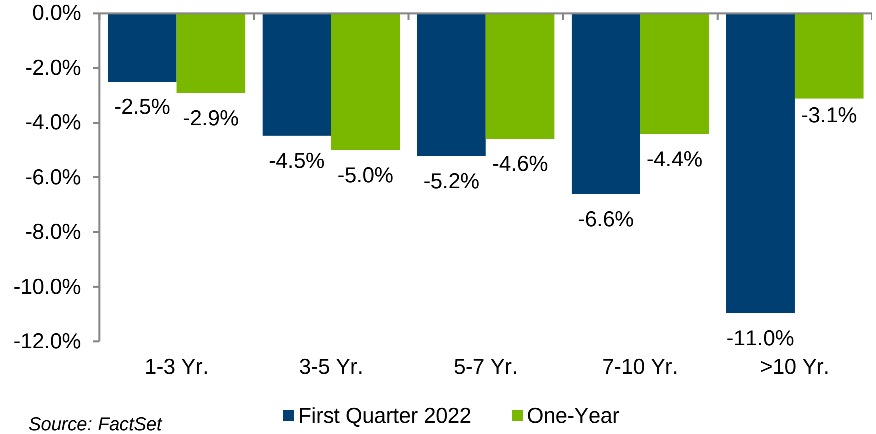
U.S. Fixed Income Markets

BLOOMBERG BARCLAYS AGGREGATE RETURNS BY SECTOR AS OF 03/31/2022



Source: FactSet

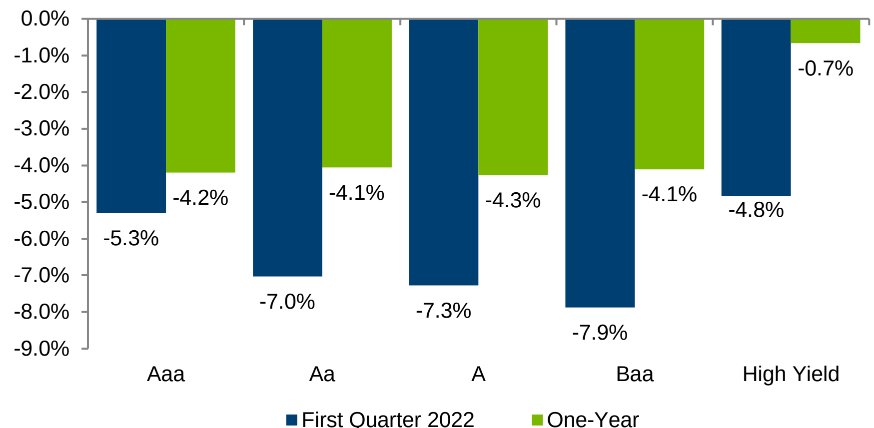
BLOOMBERG BARCLAYS AGGREGATE RETURNS BY MATURITY AS OF 03/31/2022



Source: FactSet

- The Bloomberg Barclays U.S. Aggregate Bond Index was down -5.9% over the quarter and -4.2% over the past year.
- Across durations, all maturities finished the quarter in negative territory.
- Within investment-grade bonds, lower-credit quality underperformed higher-quality issues, with Baa bonds falling by 7.9%. High-yield bonds fell by 4.8%.

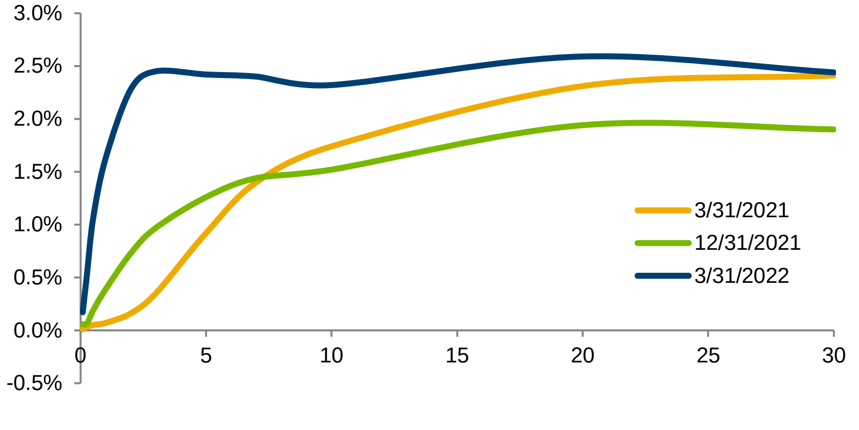
BLOOMBERG BARCLAYS AGGREGATE RETURNS BY QUALITY AND HIGH YIELD RETURNS AS OF 03/31/2022



Source: FactSet

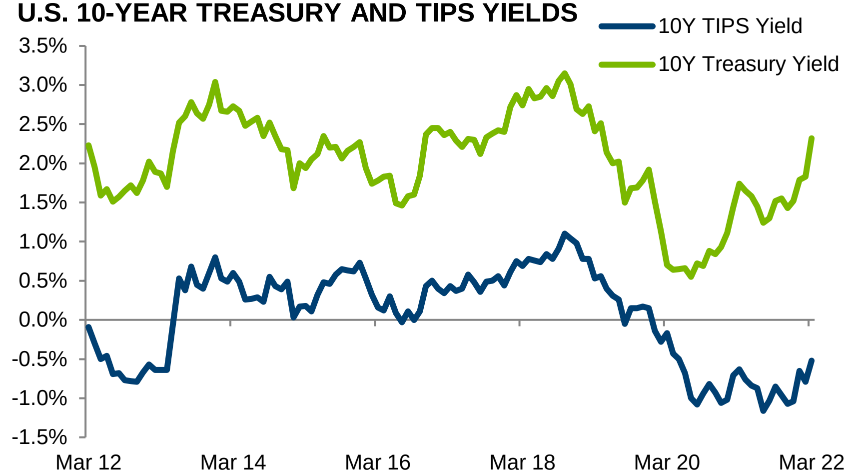
U.S. Fixed Income Markets

U.S. TREASURY YIELD CURVE



Source: U.S. Department of Treasury

U.S. 10-YEAR TREASURY AND TIPS YIELDS

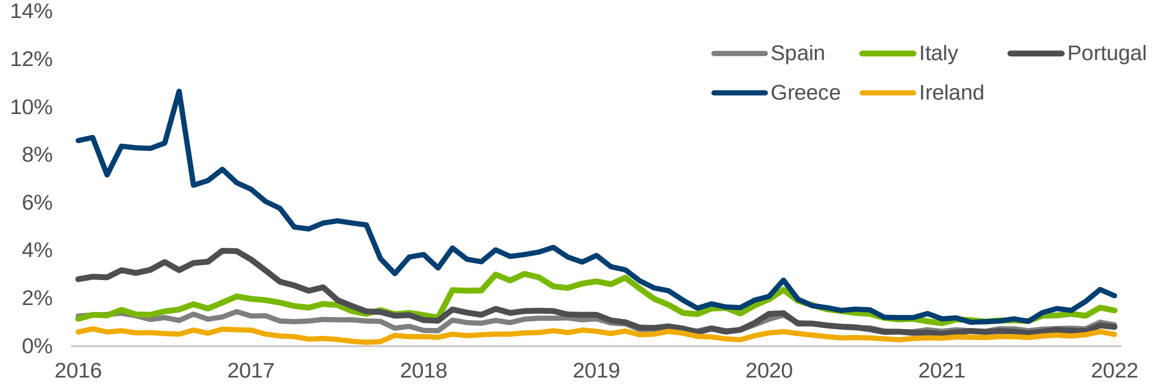


Source: U.S. Department of Treasury

- U.S. treasury yields saw notable increases, particularly in the front end, with the 2-year yield briefly trading above the 10-year yield, “inverting” the curve in the final days of the quarter. The 2-year yield had the largest move over the quarter, rising 155 bps, followed by the 5-year yield up 116 bps. The longer end of the curve also rose, but at a slower pace, with the 10-year Treasury yield up 80bps to 2.32%, and the 30-year Treasury yield up 54bps to 2.44% over the quarter.
- As expected, the Federal Reserve (Fed) increased its benchmark interest rate by 25bps in March and formally ended quantitative easing. Chair Powell indicated that the FOMC will look to reduce the size of the balance sheet, potential starting in May. Regarding rate hikes, the FOMC consensus forecast shows the federal funds rate at approximately 1.9% by year-end, 2.8% by the end of 2023, and 2.4% through 2024.
- Inflation remained elevated, with U.S. CPI up 7.9% year-over-year in February and core CPI, which excludes food and energy prices, up by 6.4%.
- Despite inflationary pressures, the 10-year TIPS yield rose by 52bps over the quarter to -0.52%.

European Fixed Income Markets

EUROZONE PERIPHERAL BOND SPREADS (10-YEAR SPREADS OVER GERMAN BUNDS)



Source: FactSet

- European government bond spreads over 10-year German bunds widened across the Euro Area. The European Central Bank (ECB) ended its emergency quantitative easing program in March and announced that it would accelerate the winddown of its legacy QE program and potentially stop net purchases in the third quarter if economic data supported the move.
- German government bund yields rose sharply, up 73bps to 0.55% over the quarter.
- The Eurozone posted quarter-on-quarter growth of 0.3% in Q4, lower than 2.3% growth in Q3.

Credit Spreads

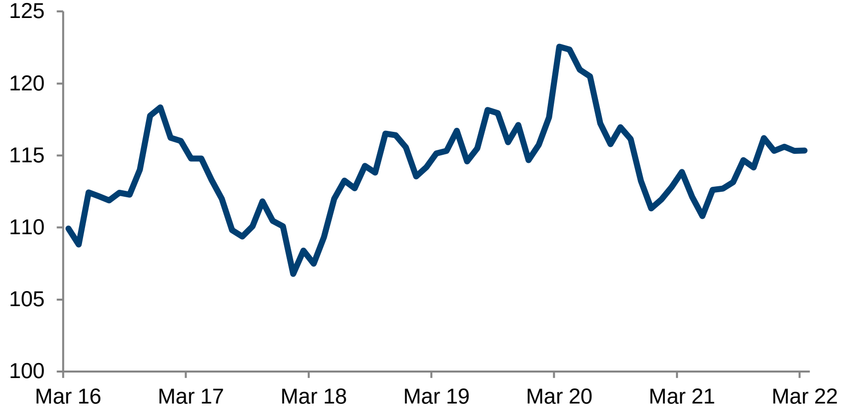
Spread (bps)	03/31/2022	12/31/2021	03/31/2021	Quarterly Change (bps)	One-Year Change (bps)
U.S. Aggregate	41	36	31	5	10
Long Gov't	3	0	1	3	2
Long Credit	155	130	126	25	29
Long Gov't/Credit	88	74	76	14	12
MBS	24	31	12	-7	12
CMBS	85	68	71	17	14
ABS	57	38	35	19	22
Corporate	116	92	91	24	25
High Yield	325	283	310	42	15
Global Emerging Markets	313	285	267	28	46

Source: FactSet, Bloomberg Barclays

- Credit markets declined from risk-averse sentiment during the quarter, with spreads widening.
- While spreads are still narrow relative to historical averages, High Yield and Global Emerging Markets spreads increased by 42bps and 28bps, respectively.

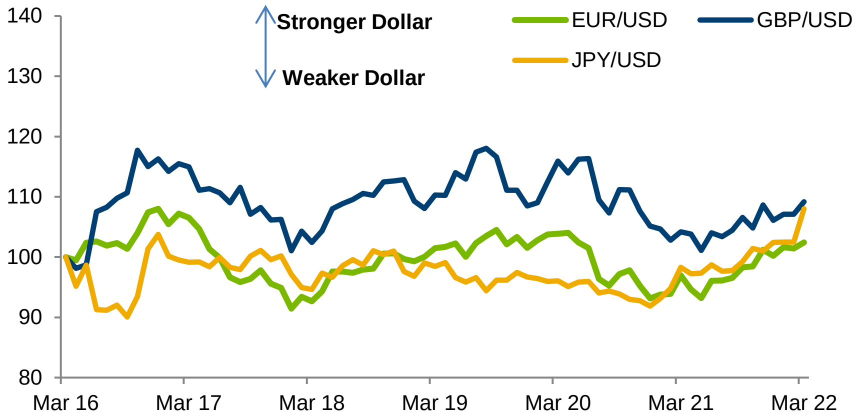
Currency

TRADE WEIGHTED U.S. DOLLAR INDEX (2006 = 100)



Source: Federal Reserve

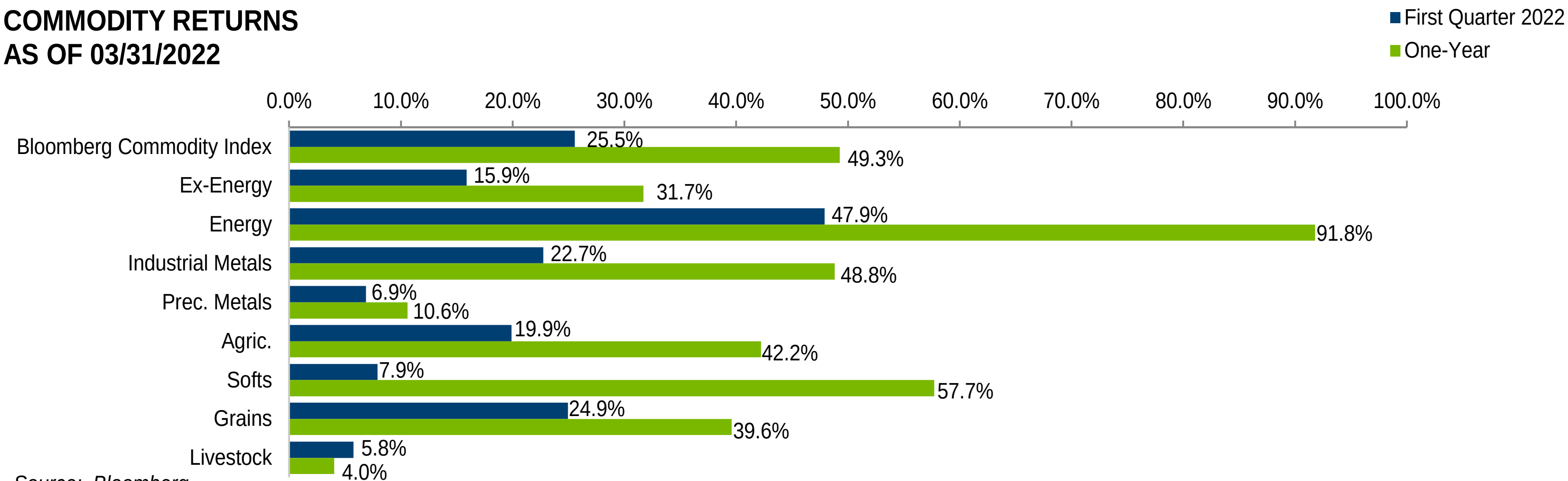
U.S. DOLLAR RELATIVE TO EUR, GBP AND JPY REBASED TO 100 AT 03/31/2016



Source: FactSet

- The U.S. Dollar strengthened against most safe-haven currencies but depreciated against commodity-sensitive currencies such as the Canadian dollar. On a trade-weighted basis, the U.S. dollar was relatively flat.
- The Sterling depreciated by 2.9% against the U.S. dollar. The Bank of England increased its benchmark interest rate for the third time since December 2021, with the policy rate sitting at 0.75%.
- The U.S. dollar appreciated by 2.2% against the Euro and by 5.4% against the Yen.

Commodities

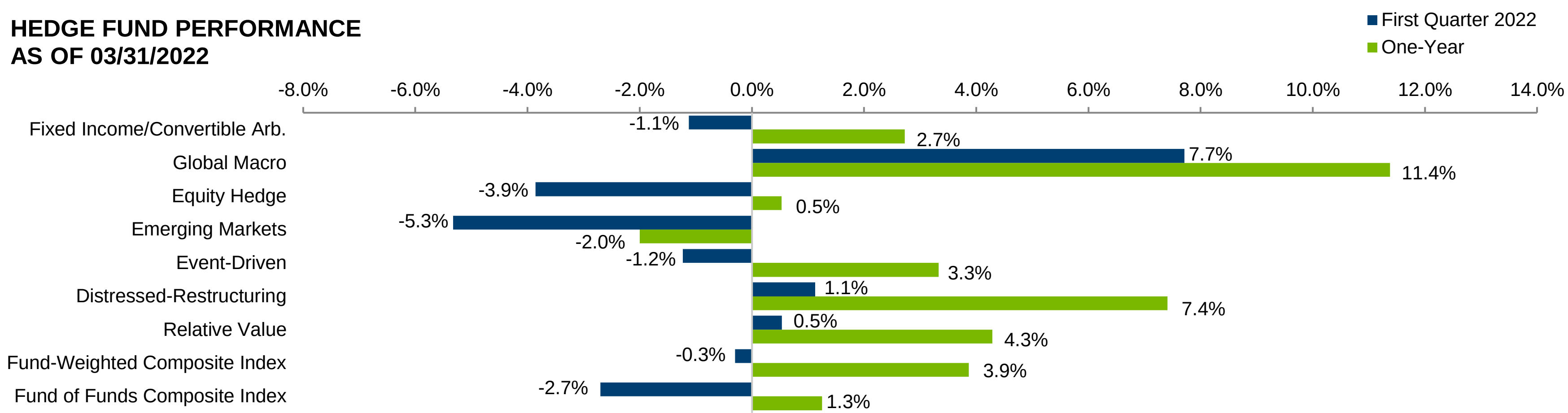


Source: Bloomberg
Note: Softs and Grains are part of the wider Agriculture sector

- Commodity prices soared on concerns over geopolitical tensions further exacerbating supply-chain issues, with the Bloomberg Commodity Index returning 25.5% for the quarter.
- Energy continued to have outsized gains, with the sector up 47.9% over the quarter and 91.8% over the trailing one-year period. The price of Brent crude oil rose by 38.7% to $108/bbl while WTI crude oil spot prices rose by 33.3% to $100/bbl over the quarter.
- Rising yields slowed the momentum in Precious Metals gains over the quarter, with the subcomponent returning 6.9% and underperforming Industrial Metals, which were up 22.7% for the quarter.

Hedge Fund Markets Overview

HEDGE FUND PERFORMANCE
AS OF 03/31/2022

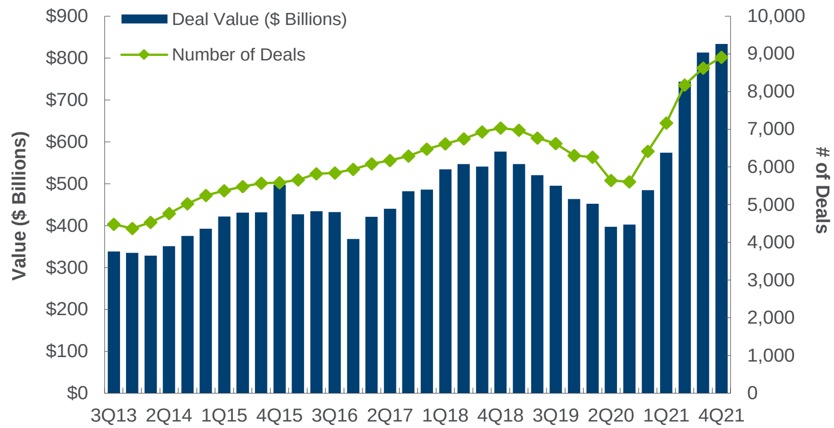


Note: Latest 5 months of HFR data are estimated by HFR and may change in the future.
Source: HFR

- Hedge fund performance was mixed over the quarter, with equity-sensitive strategies struggling.
- The HFRI Fund-Weighted Composite and HFRI Fund of Funds Composite Index produced returns of -0.3% and -2.7% over the quarter, respectively.
- Over the quarter, Global Macro and Distressed-Restructuring strategies were the best performers with returns of 7.7% and 1.1% respectively.
- Emerging Markets and Equity Hedge strategies were the worst performers with returns of -5.3% and -3.9% respectively.
- Over the trailing one-year period, all strategies, except for Emerging Markets, were positive, led by Global Macro and Distressed-Restructuring funds.

Private Equity Market Overview – 4Q 2021

LTM Global Private Equity-Backed Buyout Deal Volume

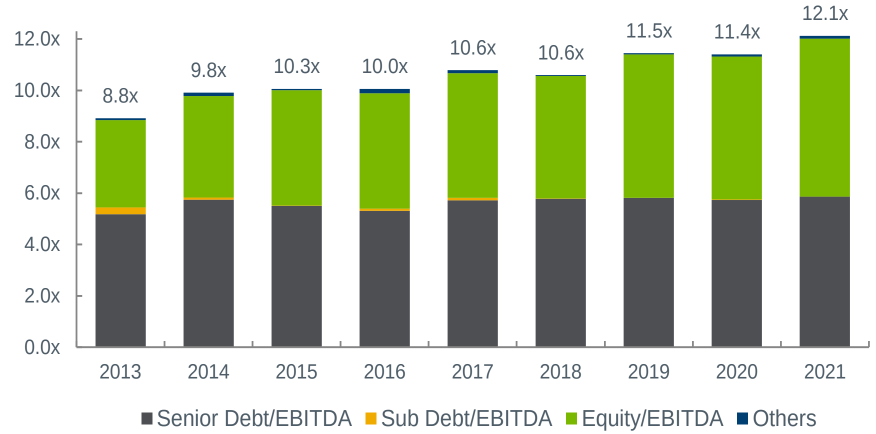


Source: Preqin

- **Fundraising:** In 2021, $1.1 trillion was raised by 2,990 funds, which was an increase of 13.9% on a capital basis and 15.8% by number of funds from the prior year. Dry powder stood at $2.8 trillion at the end of the year, an increase of 10.4% and 28.0% compared to year-end 2020 and the five-year average, respectively.[1]
- **Buyout:** Global private equity-backed buyout deals totaled $833.2 billion in 2021, which was an increase on a capital basis of 71.9% and 46.5% from 2020 and the five-year average, respectively.[1] At the end of 2021, the average purchase price multiple for all U.S. LBOs was 12.1x EBITDA, up from year-end 2020's average of 11.4x and up from the five-year average (11.2x). Large cap purchase price multiples stood at 11.8x, up compared to the full-year 2020 level of 11.3x. The average purchase price multiple across European transactions greater than €1B averaged 11.6x EBITDA for year-end 2021, down significantly from the 13.1x multiple seen at year-end 2020. Purchase prices for transactions of €500M million or more decreased from 12.6x in 2020 to 11.5x in 2021.[2] Globally, exit value totaled $894.7 billion on 3,186 deals during the year, higher than the $482.7 billion in exits from 2,095 deals during 2020.[1]
- **Venture:** During the year, 15,500 venture-backed transactions totaling $329.6 billion were completed, which was an increase on a capital basis over the prior year's total of $166.6 billion across 12,173 deals. This was an increase of 88.7% compared to the five-year average of $174.7 billion and marked a new annual record. Total U.S. venture-backed exit value totaled approximately $774.1 billion across an estimated 1,875 completed transactions in 2021, up substantially from $288.9 billion across 1,123 exits in 2020.[3]
- **Mezzanine:** 29 funds closed on $12.6 billion during the year. This was a significant decrease from the prior year's total of $29.8 billion raised by 44 funds and represented a decrease of 32.3% from the five-year average of $18.6 billion. Estimated dry powder was $48.3 billion at the end of 2021, down from $52.0 billion during the prior year.[1]

Private Equity Market Overview – 4Q 2021

U.S. LBO Purchase Price Multiples – All Transactions Sizes



Source: S&P

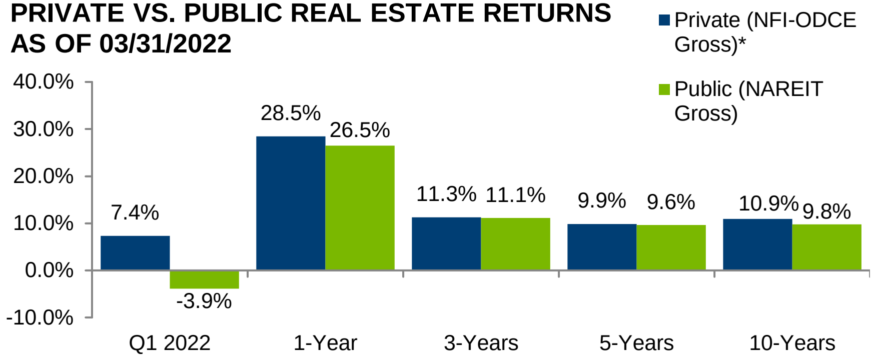
- **Distressed Debt:** The LTM U.S. high-yield default rate was 0.5% as of December 2021, which was down substantially from December 2020's LTM rate of 5.2%.[4] The high-yield default rate is projected to trend lower through early Q1 2022. During the year, $72.4 billion was raised by 77 funds, down from the $74.6 billion raised by 90 funds during 2020. Dry powder was estimated at $158.4 billion at the end of 2021, which was down 3.9% from year-end 2020. This remained above the five-year annual average level of $130.5 billion.[1]
- **Secondaries:** 64 funds raised $44.4 billion during the year, down significantly from the $84.9 billion raised by 63 funds in 2020. This was 4.5% lower than the five-year average of $46.5 billion.[1] The average discount rate for all private equity sectors finished the year at 6.7%, an improvement from the 11.8% discount at the end of 2020.[5]
- **Infrastructure:** $124.3 billion of capital was raised by 130 funds in 2021 compared to $111.5 billion of capital raised by 145 partnerships in 2020. At the end of the year, dry powder stood at $313.0 billion, up from last year's record of $290.1 billion. Infrastructure managers completed 2,432 deals for an aggregate deal value of $561.6 billion in 2021 compared to 2,432 deals totaling $296.0 billion in 2020.[1]
- **Natural Resources:** During 2021, 28 funds closed on $14.4 billion compared to 30 funds totaling $10.5 billion in 2020. Energy and utilities industry managers completed 223 deals totaling $34.7 billion in 2021, compared to $16.3 billion across 157 deals in 2020.[1]

Sources: [1] Preqin [2] Standard & Poor's [3] PwC/CB Insights MoneyTree Report [4] PitchBook/NVCA Venture Monitor [5] Fitch Ratings [6] Thomson Reuters [7] UBS

Notes: FY=Fiscal year ended 12/31; YTD=Year to date; LTM=Last 12 months (aka trailing 12 months); PPM=Purchase Price Multiples: Total Purchase Price ÷ EBITDA.

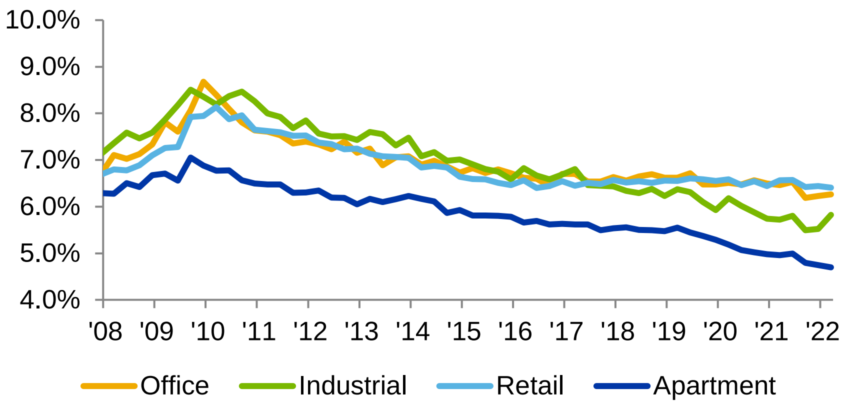
U.S. Commercial Real Estate Markets

PRIVATE VS. PUBLIC REAL ESTATE RETURNS AS OF 03/31/2022



**First quarter returns are preliminary*
Sources: NCREIF, FactSet

CAP RATES BY SECTOR



Sources: RCA, AON 3/31/2022

- U.S. Core Real Estate returned 7.4%* in first quarter 2022, equating to a 28.5% total gross return year-over-year. Townsend witnessed a robust recovery across the US economy and US real estate markets in 2021, with a continuation through the first quarter of 2022. Real estate capital markets are highly liquid and competitive for in vogue sectors but have also been surprisingly strong for less favored sectors. Capital raising has exceeded pre-pandemic levels and even exceeded historical highs, resulting in a continued build up of dry powder in the market.
- Global property markets, as measured by the FTSE EPRA/NAREIT Developed Real Estate Index, returned -3.8% (USD) in aggregate during the first quarter and experienced a cumulative increase of 15.4% over the trailing 1-year period. REIT market performance was driven by Asia Pacific (-0.8% USD), North America (-3.9% USD), and Europe (-7.1% USD). The U.S. REIT markets (FTSE NAREIT Equity REITs Index) returned -3.9% in the first quarter. The U.S. 10-year treasury bond yields steepened to 2.3% during the quarter, an increase of 80 basis points over year-end 2021.
- In first quarter 2022, deal volumes across all sectors moderated from a historic high in fourth quarter 2021. The demand for modern logistics networks has outpaced development and now low-single-digit vacancy rates are common across major markets in the US. A mismatch of supply and demand is driving strong rent growth in the industrial sector, as e-commerce still only accounts for approximately 15% of retail sales and is forecasted to grow at close to 10% per annum between 2022-2025. Significant demand combined with an undersupply of modern assets continues to support the development modern logistics properties and refurbishment of well-located older product.
- The strong global economic rebound has stoked inflation beyond economists' expectations and persistent supply chain disruption has been slow to resolve. Commercial real estate construction has been particularly impacted by supply chain disruption and witnessed material prices increases well beyond CPI. Key materials inputs for commercial and residential construction have seen substantial price increases, including Lumber, Copper, and Steel. Real estate provides an inflationary hedge, and the trend is already prevalent in industrial, apartment, and life sciences in terms of rising rent growth. However, not all sectors will benefit from hedge. Office fundamentals likely to remain weak in the near-term
- Townsend has identified high conviction investment themes that are predicated on secular growth trends and strong underlying real estate market fundamentals. These investment themes have commonalities such as anticipated tenant demand growth, natural barriers to supply, and operating complexity that are anticipated to persist medium to long-term.

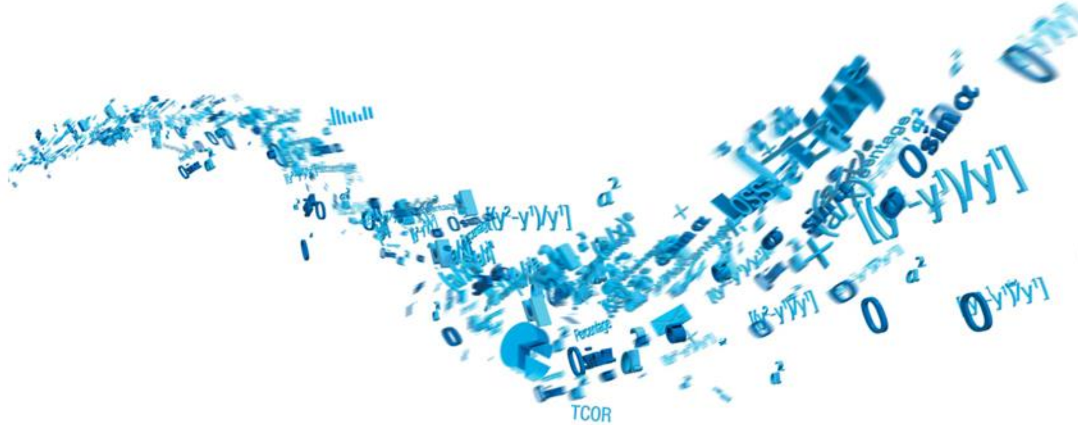
*Indicates preliminary NFI-ODCE data gross of fees

Notes

1. Preqin
2. Standard & Poors
3. PitchBook/National Venture Capital Association Venture Monitor
4. Fitch Ratings
5. UBS

Notes:

FY: Fiscal year ended 12/31
YTD: Year to date
YE: Year end
LTM: Last twelve months (aka trailing twelve months or TTM)
PPM: Purchase Price Multiples: Total Purchase Price / EBITDA
/bbl: Price per barrel
MMBtu: Price per million British thermal units

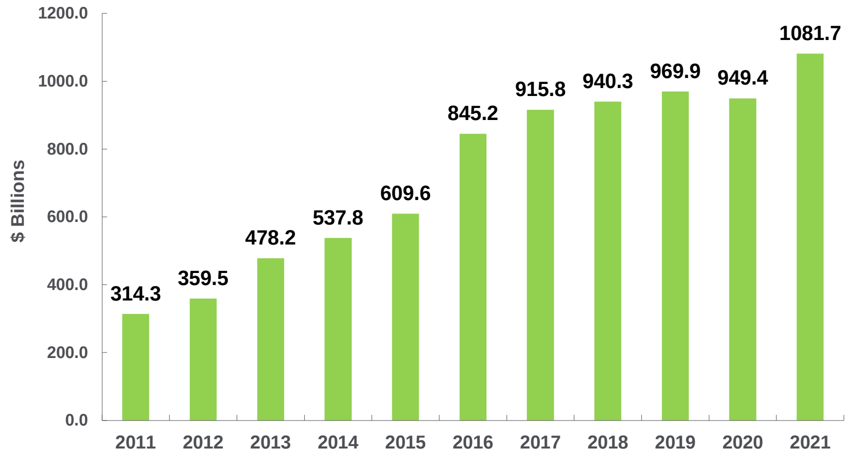


Appendix A:

Global Private Equity Market Overview
4Q 2021

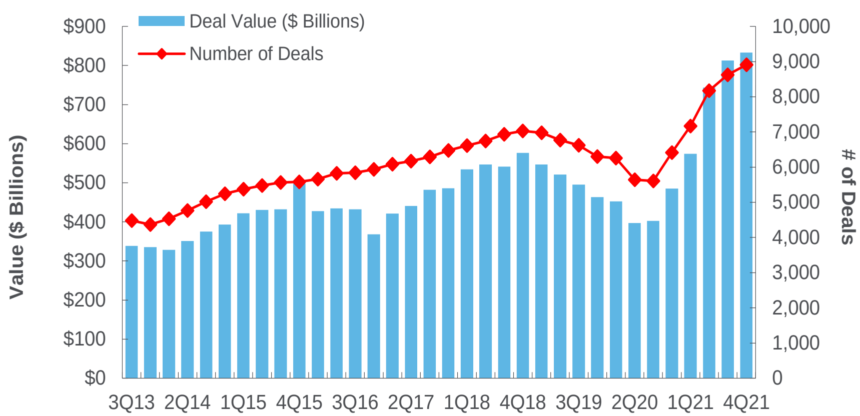
Private Equity Overview

Total Funds Raised



Source: Preqin

LTM Global Private Equity-Backed Buyout Deal Volume



Source: Preqin

Fundraising

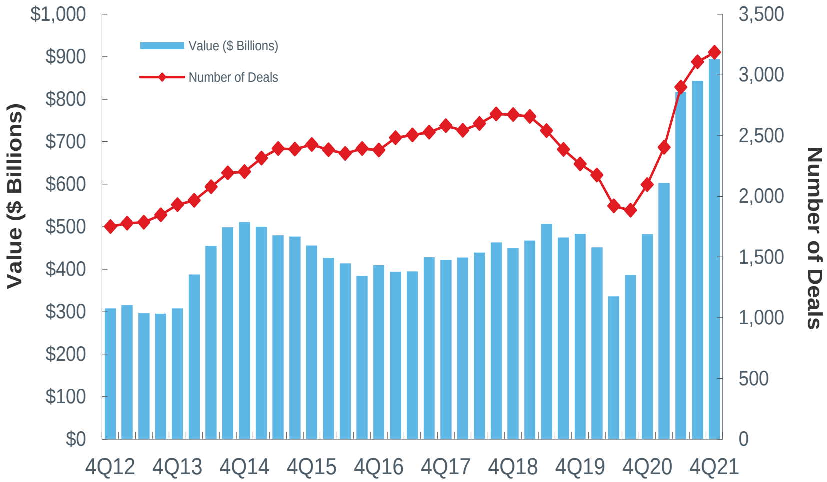
- In 2021, $1.1 trillion was raised by 2,990 funds, which was an increase of 13.9% on a capital basis and 15.8% by number of funds from the prior year.[1]
  - 2021 fundraising was 11.4% higher, on a capital basis, than the five-year average, and 0.9% lower by number of funds raised.
  - The majority of 2021 capital was raised by funds with target geographies in North America, comprising 63.1% of the annual total. Capital targeted for Europe made up 20.2% of the total funds raised during the year, while the remainder was attributable to managers targeting Asia and other parts of the world.
- Dry powder stood at $2.8 trillion at the end of the year, an increase of 10.4% and 28.0% compared to year-end 2020 and the five-year average, respectively.[1]

Activity

- In 2021, 8,906 buyout deals were completed for an aggregate deal value of $833.3 billion as compared to 6,415 transactions totaling $484.9 billion in 2020.[1]
  - This was 46.5% higher than the five-year average deal volume of $568.9 billion.
  - Average deal size was $93.6 million in Q4 2021. This was up 23.8% compared to Q4 2020 and up 17.0% relative to the five-year quarterly average.
- European LBO loan volume totaled €102.6 billion in 2021, up by 109.2% compared to 2020's total of €49.0 billion. 2021's total was up 55.0% compared to the five-year average level of €66.2 billion.[3]
- At the end of 2021, the average purchase price multiple for all U.S. LBOs was 12.1x EBITDA, up from year-end 2020 (11.4x) and up from the five-year average (11.2x).[3]
  - This was 0.9x and 1.7x turns (multiple of EBITDA) above the five and ten-year average levels, respectively.
  - Large-cap purchase price multiples stood at 11.8x, up from the 11.3x observed at year-end 2020.[3]
- The average purchase price multiple across European transactions greater than €1B averaged 11.6x EBITDA for year-end 2021, down significantly from the 13.1x multiple seen at year-end 2020. Purchase prices for transactions of €500M million or more decreased from 12.6x in 2020 to 11.5x in 2021.[3]
- Debt remained broadly available in the U.S.
  - U.S. average leverage level in 2021 was 5.9x compared to the five and ten-year averages of 5.8x and 5.6x, respectively.[3]
  - The amount of debt issued supporting new transactions and growth decreased compared to 2020 from 62.4% to 61.9%, and is lower than the five-year average of 65.0%.[3]
- In Europe, average senior debt/EBITDA in 2021 was 5.8x, down from the 5.9x observed in 2020. This was also up over the five-year average of 5.5x and ten-year average level of 5.1x.[3]

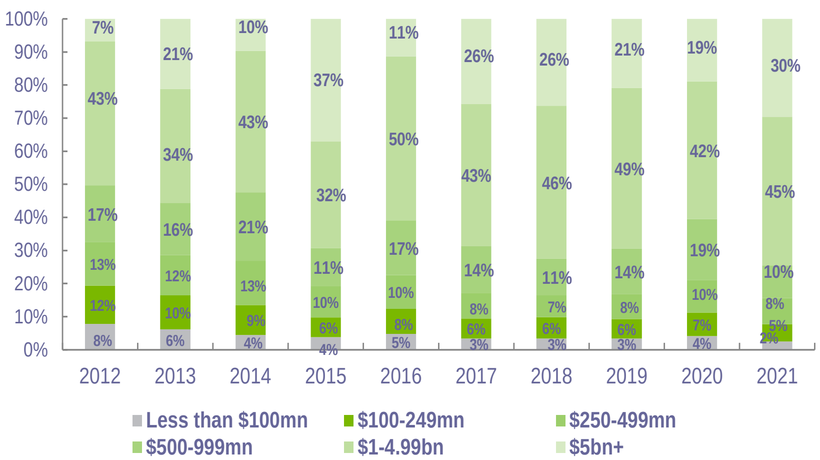
Buyouts / Corporate Finance

LTM PE Exit Volume and Value



Source: Preqin

M&A Deal Value by Deal Size



Source: Preqin

Fundraising

- $502.8 billion was closed on by 718 buyout and growth funds in 2021, compared to $393.7 billion raised by 629 funds the year before.[1]
  - This was higher than the five-year average of $442.6 billion by 730 funds.
  - Hellman & Friedman Capital Partners X was the largest fund raised during the year, closing on $24.4 billion.[1]
- Buyout and growth equity dry powder was estimated at $1.1 trillion, which was roughly equal to the amount observed at the end of 2020. This was substantially higher than the five-year average level of $987.9 billion.[1]
  - Mid-cap and large cap funds increased in dry powder year-over-year by 0.9% and 4.3% respectively. Large cap dry powder exhibited the largest increase during the year, setting a new record of $314.4 billion. Mega funds ended 2021 with $439.8 billion in dry powder, while small cap ended at $153.4 billion. Mega buyout dry powder finished the year down 4.1% from 2020.[1]
  - An estimated 56.0% of buyout dry powder was targeted for North America, while European and Asian dry powder comprised 22.3% and17.4% of the total, respectively.[1]

Activity

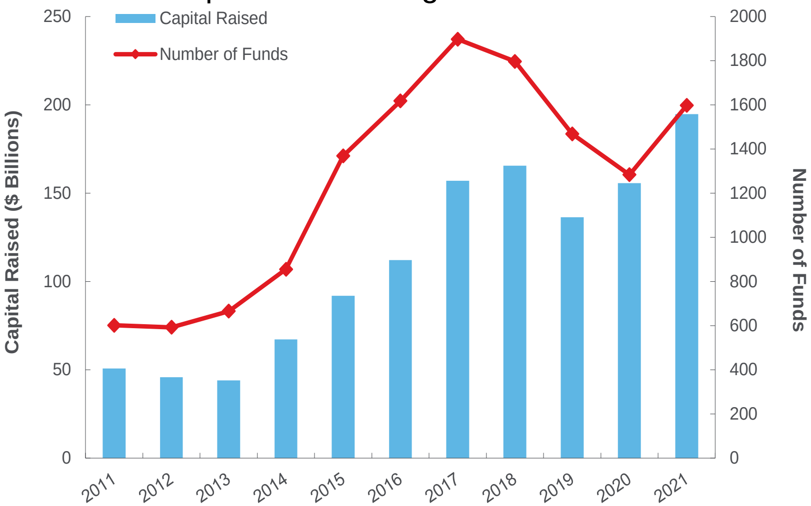
- Global private equity-backed buyout deals totaled $833.3 billion in 2021, which was an increase on a capital basis of 71.9% and 46.5% from 2020 and the five-year average, respectively.[1]
  - $213.0 billion in deal value was completed during Q4 2021, which was up 10.6% from 4Q 2020 and up 49.8% compared to the five-year quarterly average.
  - In 2021, deals valued at $5.0B or greater accounted for an estimated 29.6% of total deal value during the year compared to 18.9% in 2020 and 20.9% in 2019.[1] Deals valued between $1.0B to $4.99B represented 44.9% of total deal value during the year.
- Entry purchase price multiples for all U.S. transaction sizes in 2021 stood at 12.1x EBITDA, up from 2020's level (11.4x).[3]
  - Large-cap purchase price multiples stood at 11.8x, down compared to 11.3x in 2020.[3]
  - The average purchase price multiple across European transactions greater than €1B averaged 11.6x EBITDA for year-end 2021, down significantly from the 13.1x multiple seen at year-end 2020. Purchase prices for transactions of €500M million or more decreased from 12.6x in 2020 to 11.5x in 2021. [3]
  - The portion of average purchase prices financed by equity for all deals was 49.3% in 2021, down slightly from 49.5% in 2020. This remained above the five and ten-year average levels of 46.4% and 43.3%, respectively.[3]
- Globally, exit value totaled $894.7B across 3,186 deals in 2021 compared to $482.7B across 2,095 deals in 2020. This marked an increase of 63.7% compared to the 5yr average.[1]

Opportunity[4]

- Managers targeting the middle and large markets with expertise across business cycles.

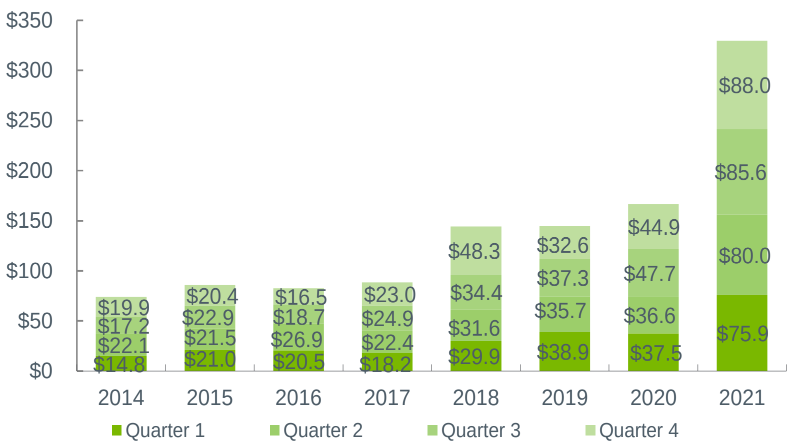
Venture Capital

Venture Capital Fundraising



Source: Preqin

U.S. Venture Capital Investments by Quarter ($B)



Source: PwC/CB Insights Report

Fundraising

- $194.6.0 billion of capital was raised by 1,597 funds in 2021, up from the prior year's total of $155.6 billion raised by 1,283 managers. 2021 marked a new record compared to the previous record of $165.6 billion raised by 1,796 funds in 2018.[1]
  - 2021 fundraising was up by 20.3% on a capital basis compared to the 5yr average of $161.8B.
  - Tiger Private Investment Partners XIV was the largest fund raised during the year, closing on $6.7 billion.
- During the year, the average fund size was $130.0 million, a slight decrease compared to the $133.0 average witnessed at year-end 2020. However, this represented an increase of 14.6% compared to the five-year average fund size of $113.4 million. [1]
- At the end of 2021, there were an estimated 3,917 funds in market targeting $306.1 billion.[1]
  - Alpha Wave Venture II and Tiger Global Private Investment Partners XVI were the largest venture funds in market, each targeting an estimated $10.0 billion.
  - The majority of funds in market are seeking commitments of $250.0 million or less.
- Dry powder was estimated at $439.5 billion at the end of 2021, which was up from 2020's total of $332.3 billion. This was 52.0% higher than the five-year average.[1]

Activity

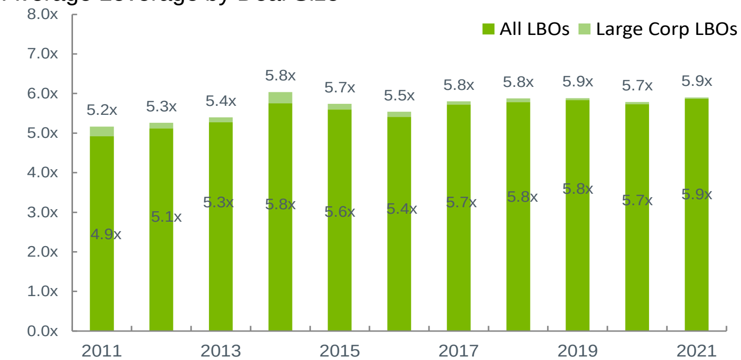
- During the year, 15,500 venture-backed transactions totaling $329.6B were completed, which was an increase over the prior year's total of $166.6B across 12,173 deals. This was an increase of 88.7% compared to the five-year average of $174.7B and marked a new annual record.[8]
  - In 2021, there were 571 U.S.-based deals involving unicorn companies, representing roughly $138.9 billion in deal value. This was up substantially by number compared to 2020, which saw 238 unicorn deals closed, and higher on a deal value basis. 2021 marked a new record in regards to total deal value, which was an increase from the $52.6 billion in deal value during 2020.[8]
- At the end of 2021, median pre-money valuations increased across all transaction stages. Compared to year-end 2020, Seed, Series A, Series B, Series C and Series D+ transactions increased by 70.0%, 45.5%, 14.9%, 8.9%, and 112.2%, respectively, during 2021.[9]
- Total U.S. venture-backed exit activity totaled approximately $774.1B across an estimated 1,875 completed transactions in 2021, up significantly from $288.9B across 1,123 exits in 2020. 2021 exit volume was the highest on record, with Q2 alone producing $266.9 billion of deal value.[8]
  - The number of U.S. venture-backed initial public offerings increased over 2020, with 296 public listings completed in 2021. On a value basis, 2021 IPOs surpassed the prior year by roughly $473.5 billion.[8]

Opportunity [4]

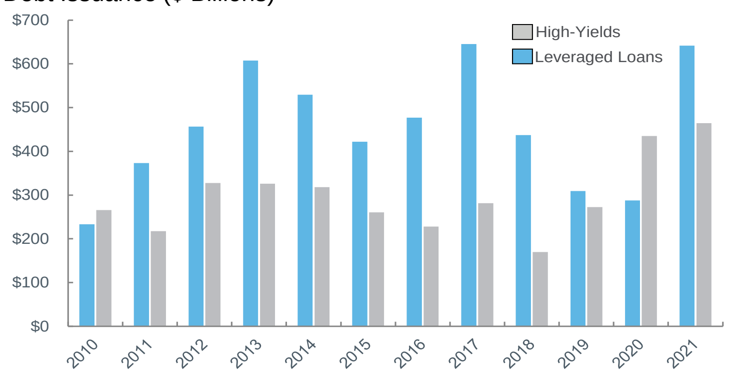
- Early stage continues to be attractive, although we continue to monitor valuations
- Smaller end of growth equity
- Technology sector

Leveraged Loans & Mezzanine

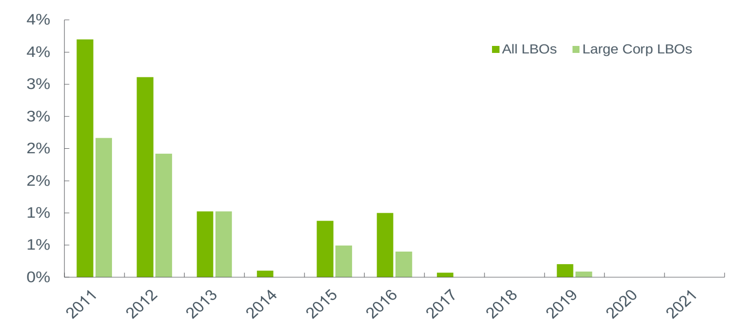
Average Leverage by Deal Size



Debt Issuance ($ Billions)



Mezzanine % of Purchase Price Multiple



Sources from top to bottom: S&P, UBS, & S&P

<u>Leveraged Loans</u>

Fundraising

- New CLO issuance totaled $186.7 billion in 2021, up substantially from the $68.1 billion seen in 2020.This marked a new annual record.[2]
- High-yield debt issuance totaled $464.5 billion in 2021, up from $435.0 billion in 2020. This marked the highest issuance volume on record.[2]
- Leveraged loan mutual fund net flows ended 2021 with a net inflow of $33.9 billion, compared to a net outflow of $19.6 billion in 2020.[2]

Activity

- Leverage for all LBO transactions ended the year at 5.9x, up slightly from 2020's level of 5.7x. Leverage continues to be comprised almost entirely of senior debt. The average leverage level for large cap LBOs was 5.9x during the year, up slightly from the 5.7x witnessed in 2020.[3]
- Institutional new leveraged loan issuances totaled $615.3 billion in 2021, up meaningfully from 2020's total of $288.7 billion. This was substantially higher than the previous record of $502.9 billion set in 2017.[2]
- 61.9% of new leveraged loans were used to support M&A and growth activity in 2021, down from 62.4% in 2020. This was also below the five-year average of 65.0%.[3]
- European leveraged loan issuance increased by 109.2% year-over-year to €102.6 billion.[3]
  - This was above the five-year average level of €66.2 billion and well above the ten-year average level of and €55.6 billion.
- TMT and Industrials made up the largest share of new leveraged loan issue volume, together totaling 54.4% of 2021's loan volume.[2]

Opportunity

- Funds with the ability to source deals directly and the capacity to scale for large transactions (both sponsored and non-sponsored)
- Funds with an extensive track record, experience through prior credit cycles, and staff with workout experience

<u>Mezzanine</u> - Fundraising

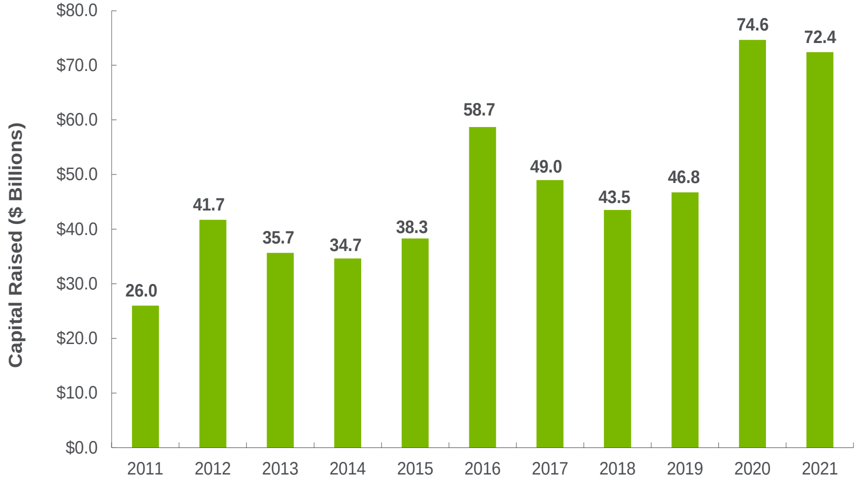
- 29 funds closed on $12.6 billion during the year. This was a significant decrease from the prior year's total of $29.8 billion raised by 44 funds and represented a decrease of 32.3% from the five-year average of $18.4 billion.[1]
- Estimated dry powder was $48.3B at the end of 2021, down from year-end 2020's total of $52.0B.[1]
- Fundraising activity has accelerated compared to the prior year. with an estimated 118 funds in market targeting $65.5 billion of commitments, compared to 77 funds in market at the end of 2020 targeting $28.6 billion of commitments. GS Mezzanine Partners VIII is the largest fund in market, targeting commitments of $12.0 billion.[1]

Opportunity [4]

- Funds with the capacity to scale for large sponsored deals

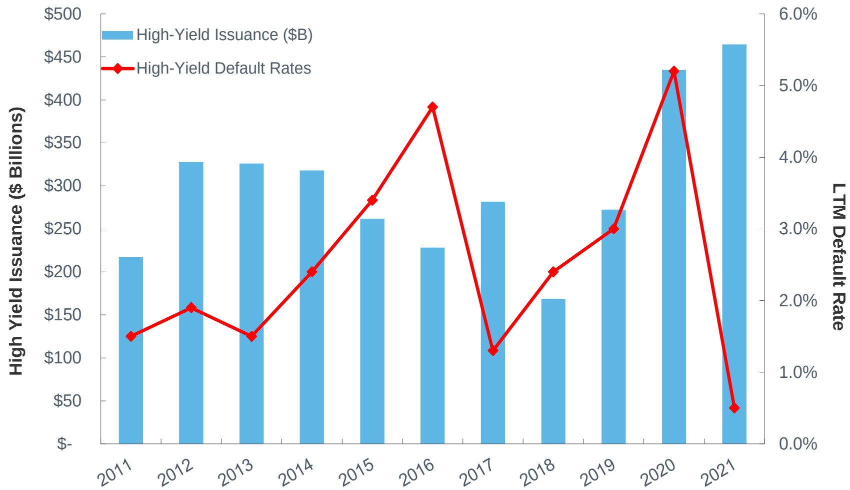
Distressed Private Markets

Distressed Debt, Turnaround, & Special Situations Fundraising



Source: Preqin

High-Yield Bond Volume vs Default Rates



Source: UBS & Fitch Ratings

Fundraising

- During the year, $72.4 billion was raised by 77 funds compared to $74.6 billion raised by 90 funds in 2020.[1]
  - 2021 fundraising was 26.4% higher than the prior five-year average.
  - Oaktree Opportunities Fund XI was the largest partnership raised during the year, closing on $15.9 billion.
- Dry powder was estimated at $158.4 billion at the end of 2021. This was down compared to year-end 2020 ($164.8 billion), but above the five-year average level of $130.5 billion.[1]
- Roughly 190 funds were in the market at the end of 2021, seeking $85.2 billion in capital commitments.[1]
  - Special situation managers were targeting the most capital as at year-end 2021, seeking an aggregate $51.2 billion, followed by distressed debt managers ($29.6 billion).
  - Bridgepoint Credit Opportunities IV was the largest fund in market with a target fund size of $10.0 billion.

Activity

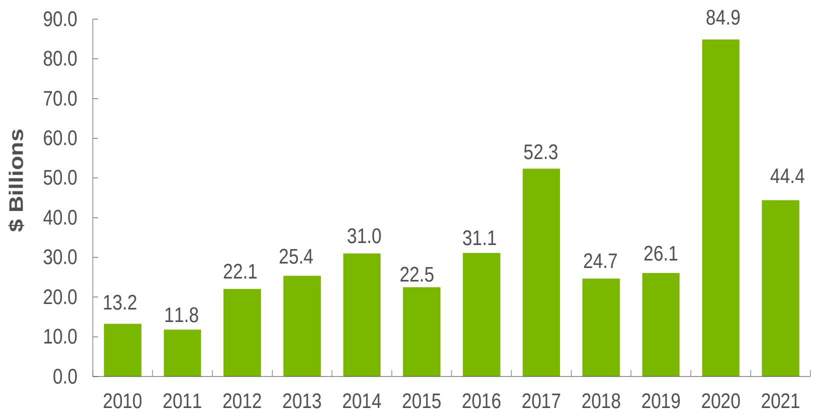
- The LTM U.S. high-yield default rate was 0.5% as of year-end 2021, which was down substantially from year-end 2020's rate of 5.2%.[6]
- High purchase prices and continued elevated levels of leverage may result in an increase in distressed opportunities looking out over the next two to three years, or sooner if there is a stall in the economy.

Opportunity [4]

- Funds capable of performing operational turnarounds
- Funds with the flexibility to invest globally

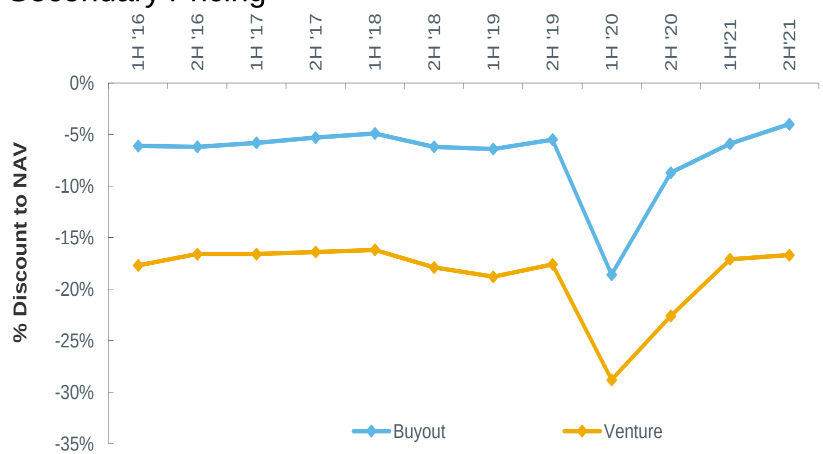
Secondaries

Secondary Fundraising



Source: Preqin

Secondary Pricing



Source: UBS

Fundraising

- 65 funds raised $44.4 billion during the year, down significantly from the $84.9 billion raised by 63 funds in 2020.[1]
  - Coller International Partners VIII was the largest fund raised during the year, closing with capital commitments of $9.0 billion.
- As of year-end 2021, dry powder was estimated to be $142.8 billion, which was higher than 4Q 2020's level of $136.9 billion.[1] The top 15 secondary buyers are estimated to command more than 86.0% of the market's capital reserves. Of the top 20 dedicated secondary buyers, 15 are currently in market or are in some stage of fundraising.[2]
- Through 4Q 2021, there were an estimated 111 secondary and direct secondary funds in market, targeting approximately $64.7 billion. The majority of secondary funds are targeting North American investments.[1]
  - As of year-end 2021, Lexington Capital Partners X was the largest fund in market, seeking aggregate commitments of $15.0 billion.[1]

Activity

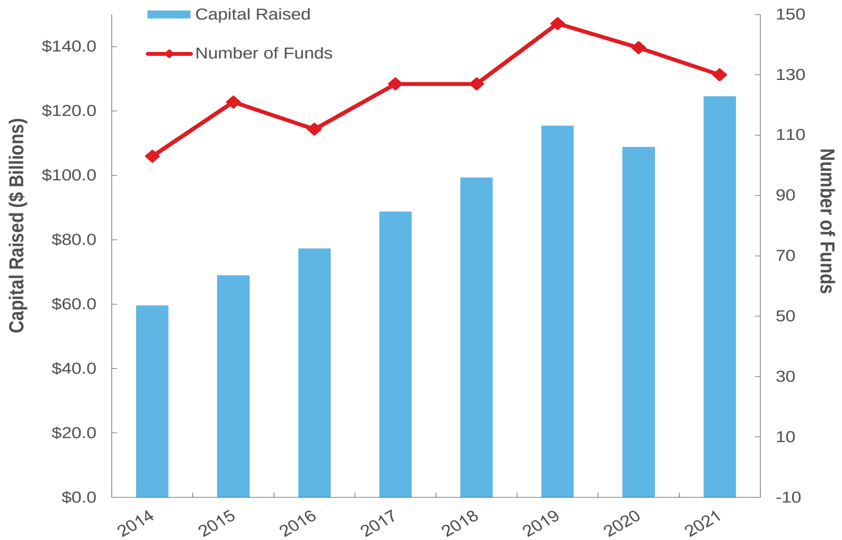
- The market continues to have strong participation from both buyers and sellers, with opportunistic selling activity from public and private pensions, financial institutions and insurance companies.
  - Secondary funds were the most active buyers in 2021, accounting for 87.8% of total purchases, followed by fund of funds, which accounted for 9.7% of purchases.[13]
  - General Partners and Pensions (that are not fund of funds or secondaries funds) sold the most positions in 2021, accounting for 38.3% and 22.2% of volume, respectively.[13]
- In 2021, the private equity market transaction volume totaled $133.2 billion, representing an increase of 137.0% from the level observed in 2020. 51.2% of deal volume was fund secondaries transactions and the remainder was direct secondaries positions.[13]
  - Leveraged buyout funds continued to be the most purchased private equity funds during 2021, representing 76.0% of deal flow on a capital basis, followed by venture capital at 14.0% of deal flow.[13]
- Transaction fund leverage and deferred payment structures continue to be prevalent and are used as a means to improve pricing and deal returns in an increasingly competitive environment.[2]
- The average discount rate for all private equity sectors finished the year at 6.0%, a smaller discount compared to the 8.7% discount seen at the end of 2020. The average buyout pricing discount ended the year at 4.0%, while the average venture discount increased to 16.7%.[2]
- Pricing is expected to be attractive for sellers given lower targeted return thresholds, the large amount of dry powder, and the robust competitive dynamics seen in the sector.[2]
- GP-led transactions continue to take a greater share of transaction volume and activity, accounting for 51% of volume in 2021. [2]

Opportunity [4]

- Funds that are able to execute complex and structured transactions
- Niche strategies

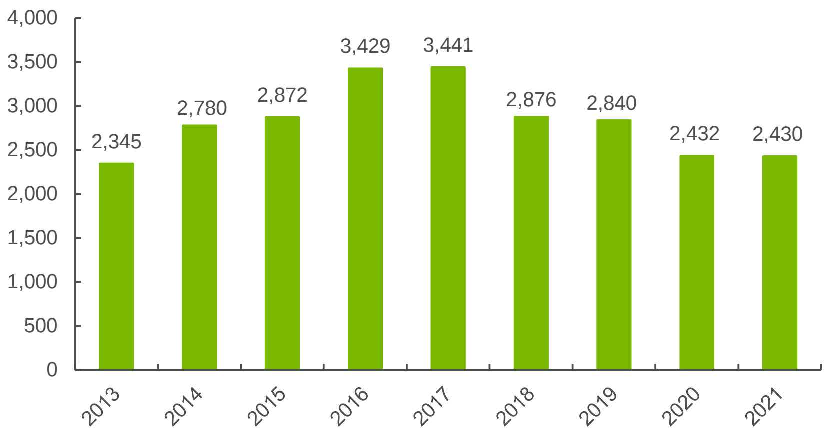
Infrastructure

Global Infrastructure Fundraising



Source: Preqin

Number of Deals Completed



Source: Preqin

Fundraising

- $124.6 billion of capital was raised by 130 funds in 2021 compared to $112.5 billion of capital raised by 150 partnerships in 2020.[1]
  - KKR Global Infrastructure Investors IV was the largest fund raised during the year, closing on $17.0 billion.[1]
- As of the end of 2021, there were an estimated 341 funds in the market seeking roughly $212.1 billion.[1]
  - Brookfield Global Transition Fund was the largest fund in market and was seeking commitments of $12.5 billion.
- At the end of the year, dry powder stood at $313.0 billion, up from the year-end 2020's record total of $290.1 billion.[1]
- Concerns surrounding the relative availability and pricing of assets remain. Fundraising continues to be very competitive given the number of funds and aggregate target level of funds in market. Investor appetite for the asset class persists despite the record levels of dry powder and increased investment activity from strategic and corporate buyers as well as institutional investors.

Activity

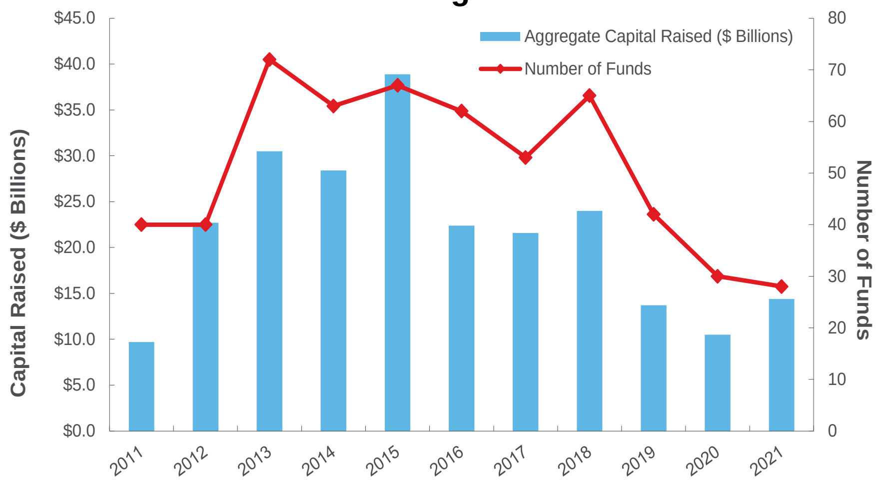
- Infrastructure managers completed 2,430 deals for an aggregate deal value of $546.6 billion in 2021 compared to 2,432 deals totaling $296.0 billion in 2020.[1]
  - By region, Europe saw the highest number of deals completed, with 40.4% of deals being invested in the region, followed by North America at 28.2%. Asia amassed 11.9% of activity during the year.
  - By number, renewable energy was the dominant industry during the year with 56.5% of deals, followed by conventional energy, which accounted for 11.0% of 2021's deal activity. Transportation accounted for 9.9% of activity during 2021.[1]

Opportunity [4]

- Mid-market core+ and value-add infrastructure as well as a platform investing approach continue to offer the best relative value
- Assess funds with pre-specified assets with caution due to possible lag in and uncertainty around valuation impact
- Blind-pool funds may be better positioned to take advantage of the market dislocation in certain sub-sectors, however careful review of such strategies is required
- Build-to-core greenfield strategies particularly in the social / PPP infrastructure space offer a premium for investors willing to take on construction / development risk

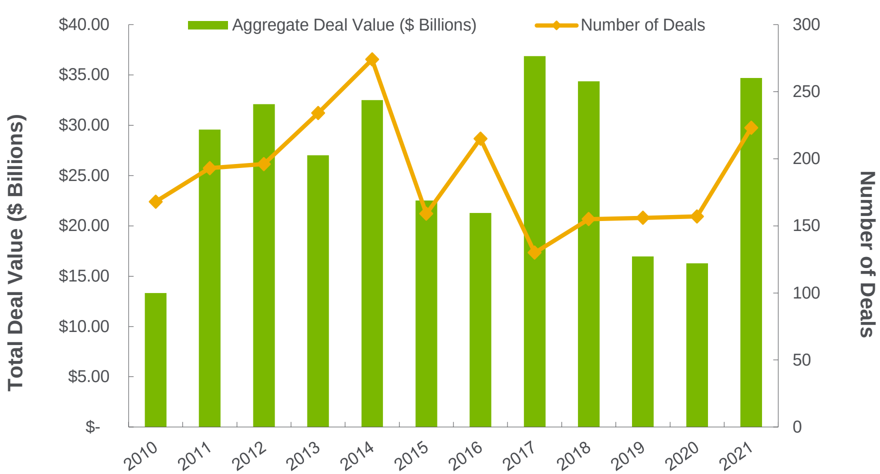
Natural Resources

Natural Resources Fundraising



Source: Preqin

Energy & Utilities Deal Activity



Source: Preqin

Fundraising

- During 2021, 28 funds closed on $14.4 billion compared to 30 funds totaling $10.5 billion in 2020.[1]
- Dry powder stood at $36.3 billion at the end of 2021, which was down 12.9% from 4Q 2020's level of $41.7 billion and down from the five-year average level by 20.9%.[1]

Activity

- Energy and utilities industry managers completed 223 deals totaling $34.7 billion in 2021, compared to $16.3 billion across 157 deals in 2020.[1]
- Crude oil prices increased during the year. [11]
  - WTI crude oil prices increased 52.5% during the year to $71.71 per bbl.
  - Brent crude oil prices ended the year at $74.17/bbl, up 48.4% from 4Q 2020.
- Natural gas prices (Henry Hub) finished 2021 at $3.76 per MMBtu, which was up 45.2% from 4Q 2020.[11]
- A total of 586 crude oil and natural gas rotary rigs were in operation in the U.S. at the end of 2021. This was up by 11.0% from the prior quarter and up 67.0% year-over-year.[15]
  - Crude oil rigs represented 81.9% of the total rigs in operation. 61.0% of the 480 active oil rigs were in the Permian basin.
  - 44.3% and 27.4% of natural gas rigs were operating in the Haynesville and Marcellus basins, respectively.
- The price of iron ore (Tianjin Port) ended the year at $116.96 per dry metric ton, down from $155.43 at year-end 2020.[12]

Opportunity[4]

- Acquire and exploit existing oil and gas strategies over early-stage exploration in core U.S. and Canadian basins
- Select midstream opportunities

Empower Results®

Notes

1. Preqin
2. UBS
3. Standard & Poor’s
4. Aon Investments USA Inc.
5. Moody’s
6. Fitch Ratings
7. PriceWaterhouseCoopers/National Venture Capital Association MoneyTree Report
8. PitchBook/National Venture Capital Association Venture Monitor
9. Cooley Venture Financing Report
10. U.S. Energy Information Administration
11. Bloomberg
12. Setter Capital Volume Report: Secondary Market FY 2021
13. KPMG and CB Insights
14. Baker Hughes

Notes:
FY: Fiscal year ended 12/31
YTD: Year to date
YE: Year end
LTM: Last twelve months (aka trailing twelve months or TTM)
PPM: Purchase Price Multiples: Total Purchase Price / EBITDA
/bbl: Price per barrel
MMBtu: Price per million British thermal units

Appendix B:

Real Estate Market Update

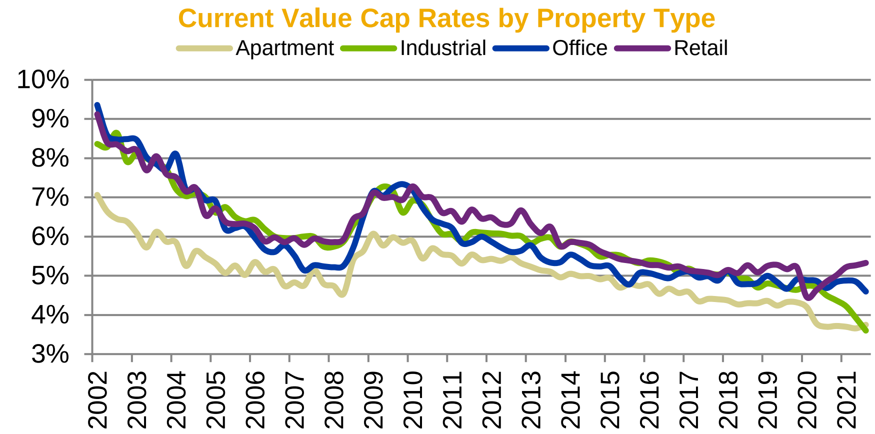
4Q 2021

United States Real Estate Market Update (4Q21)

General

- 2021 was the year of broad-based recovery, following a 2020, where the pandemic was cemented in headlines across the globe. The post-pandemic economic recovery has remained generally on track; however, an array of headwinds have emerged including tight labor markets, the surfacing of COVID variants, various geopolitical events, and widespread global supply chain struggles. In 4Q21, equity markets continued to bounce back from the March 2020 rout and continued to exceed prior highs, the S&P 500 produced a gross total return of 11.0%, bringing the year-to-date total return to 28.7%. The MSCI US REIT index has rebounded sharply and produced returns of 16.3% and 43.1% for the quarter and year, respectively.

- The U.S. entered a recession in February 2020, but the economy has since rebounded with the continued rollout of vaccines and an unprecedented level of federal aid distributed to households and businesses. In the 4th quarter, U.S. GDP grew at an annualized rate of 6.9%, well above the forecasted 5.5%. The unemployment rate peaked in April 2020 at 14.7% and has since declined to 3.9% at quarter end 4Q21, falling an additional 90 bps from the end of 3Q21. The Federal Reserve continues to view the overall economy as strong, despite, noting an anticipated slowing of growth in early 2022. The world economy is forecasted to grow by 5.9% in 2021, slowing to 4.9% of growth in 2022.

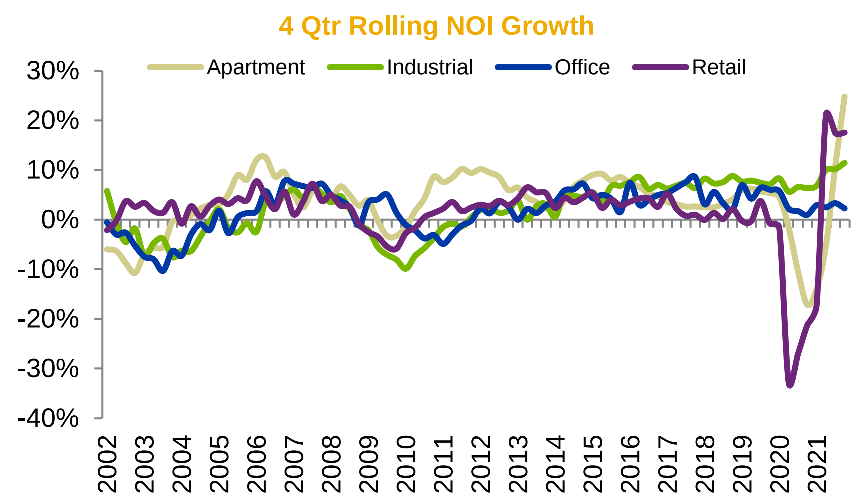


Source: NCREIF

Commercial Real Estate

- Through the fourth quarter of 2021, total CRE transaction activity for the quarter was up 97% YoY, specifically increasing significantly QoQ, to the tune of 53%. The market continues to rebound strongly and has now reached all time high transaction activity levels. Transaction volume has been the strongest in the apartment and industrial sectors.

- Transaction cap rates (4.2%) compressed significantly during the quarter, to the tune of -81 bps. Current valuation cap rates declined for industrial (-32 bps) and office (-15 bps). While both the apartment (+9 bps) and retail (+6 bps) property sectors experienced slight cap rate expansion.
- NOI growth has substantially diverged between property sectors due to the impacts of COVID-19. Retail NOI has expanded substantially (+18%) YoY as the sector continues to slowly recover from decreased rent collections and retailer shutdowns early last year. Apartment NOI expanded (+25%) YoY, as broad-based effective market rents have fully recovered and in many cases are now exceeding levels only seen prior to the global pandemic.
- In Q4 2021, $70 bn of aggregate capital was raised by real estate funds. There continues to be substantial dry powder,~$391 billion, seeking exposure to private real estate.
- 10-year treasury bond yields remained essentially flat at 1.51% as of quarter end. Economists expect rates to move modestly higher throughout 2022, though forecasts vary in significance.



Source: NCREIF

Sources: Bureau of Economic Analysis, U.S. Census Bureau, St. Louis Fed, NCREIF, Real Capital Analytics, Bloomberg LP., Preqin.

United States Property Matrix (4Q21)

TOWNSEND® GROUP
an Aon company

INDUSTRIAL

- In 4Q21, industrial properties were the highest returning sector at 10.3% and outperformed the NPI by 720 bps.
- Transaction volumes rose to $67.1 billion in the fourth quarter of the year, resulting in a 59% increase year-over-year. Individual asset sales increased 38% year-over-year, while portfolio purchases turned in a year-over-year volume increase of 160%. At slightly over $67.1 billion, the industrial sector increased a significant $23.5 billion quarter-over-quarter.
- The industrial sector turned in NOI growth of 11.5% over the past year. NOI continues to reach all time highs for the sector.
- Vacancy decreased by 130 bps year-over-year to 2.1%. Vacancy in the sector decreased 40 bps from last quarter, reaching all-time historic lows. E-commerce continues to drive demand across the sector.
- Industrial cap rates compressed approximately 90 bps from a year ago, to 3.6%. Industrial overall fundamentals still top all property sectors.

MULTIFAMILY

- The apartment sector delivered a 6.8% return during the quarter, outperforming the NPI by 60 bps.
- Transaction volume in the fourth quarter of 2021 rose to $148.9 billion, resulting in an increase of 134% year-over-year. Transaction volume for the sector is now exceeding historic highs. This volume continues to make multifamily the most actively traded sector for the eighteenth straight quarter.
- Cap rates remained steady at 3.8% quarter-over-quarter, increasing 5 bps year-over-year. Multifamily cap rates remain at the lowest level observed in years, driven by continued increases in valuation.
- The multifamily sector saw increasing vacancy rates throughout the entirety of 2020 due to the global pandemic. Through 2021, the sector appears to have shaken that trend although vacancy rates increased 40 bps quarter-over-quarter, but 250 bps lower than a year ago and back to pre-pandemic levels. The aging millennials have begun shifting their desires to suburban living, but continued home price appreciation has deterred the full effect of this migratory trend.

OFFICE

- The office sector returned 1.7% in 4Q21, 450 bps below the NPI return over the period.
- Transaction volumes increased by 73% year-over-year in the fourth quarter. Transaction volume equated to $51.6 billion for the quarter, an increase of $12.9 billion quarter-over-quarter. Office transaction levels have officially regressed to levels only seen prior to the COVID-19 pandemic.
- Office sector vacancy rates have expanded since the beginning of the pandemic due to work from home orders and uncertainty revolving around the future of office space. Office continues to be the highest vacancy property type at close to 12.7%, compressing 40 bps from last quarter.
- NOI growth in the office sector compressed quarter-over-quarter by 100 bps and appears to be in the midst of its recovery to pre-pandemic levels as it has increased 130 bps since the same period last year.
- Office cap rates compressed slightly from a year ago, sitting at approximately 4.6%. Office-using job growth was stunted significantly through out 2020 due to work from home orders. Though we are observing a slow but steady flow back to in-office work, there is still uncertainty in the sector as many companies remain hesitant.

RETAIL

- As of 4Q21, the retail sector delivered a quarterly return of 2.2%, performing 400 bps below the NPI.
- Transaction volumes totaled $32.5 billion in the fourth quarter, increasing 126% year-over-year. Single asset transactions accounted for just over 59.5% of all sales volume for the quarter.
- Cap rates have expanded approximately 40 bps within the sector over the last year, to 5.3%. Current valuation cap rates did expand quarter-over-quarter by 6 bps due to slight downward valuation adjustments made across the sector in general.
- NOI growth significantly increased, +17.5% over the last year. Retail has begun its slow recovery as vaccine rollouts have allowed a large portion of store nationally to open and operate safely.
- Retail vacancy rates compressed over the quarter by 20 bps, and down 5 bps over the past year to 8.9%. Many big box stores have closed as the need for retail space shrinks, translating to a negative outlook for rent growth. Paired with the global economic crisis, which has had a significant negative impact on this sector.

Sources: Real Capital Analytics, Green Street, NCREIF

Global Real Estate Market Update (4Q21)

TOWNSEND® GROUP
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- The real estate investment market had an exemplary 2021, setting transaction records across the Americas, EMEA and Asia Pacific regions for the first time. In 4Q21 US Volume was $321 billion, a 112% growth year over year. The US was at the forefront of this recovery and transaction volume as a result of strong demand in industrial and apartment properties.

- This record setting growth in activity illuminates both how quickly the market has recovered following the pandemic induced shutdowns and the temperature for investor demand for commercial property.

Global Total Commercial Real Estate Volume - 2020 - 2021

$ US Billions	Q4 2021	Q4 2020	% Change Q4 21 - Q4 20	2021	2020	% Change Full Year
Americas	321	151	112%	755	381	98%
EMEA	152	111	37%	403	317	27%
Asia Pacific	288	248	16%	871	806	8%
Total	761	511	49%	2029	1505	35%

Source: Real Capital Analytics, Inc., Q4' 21

- Investment activity in the Americas witnessed an extreme surge to by 112% year-over-year. Transaction volume in the US increased 72% relative to 3Q21.

- In the Asia Pacific region, volumes grew 22% year-over-year . Mainland China (+18%) remains the top market in the region with , Australia (+105%), and South Korea (+32%) seeing the most improvements in deal activity year over year in 4Q21.

- Throughout 2021, new lease transactions increased from pandemic lows, negative net absorption diminished, and sublease space began to recede amid strong job growth nationally. These trends will accelerate in 2022—fueled by the expected creation of 1 million new office-using jobs—resulting in nationwide positive net absorption for the first time since Q1 2020. At the same time, however, occupiers are still determining how best to support hybrid work and how it will impact their portfolio strategies. Although demand will be greater in 2022, the U.S. office market will contend with the highest vacancy in nearly three decades and lower rental rates until the second half of the year.
- The retail sector is recovering relatively well from the pandemic's major disruptions. Existing retail space is more efficient, with sales per sq. ft. improving due to few new stores being built and rising retail sales. Consumer spending is forecast to rise in 2022, as a build-up of personal savings during the pandemic is released. The revival of inbound international travel, responsible for more than $150 billion in expenditures annually according to a 2019 U.S. Travel Association report, will provide an additional boost to retail in coastal and other tourism-focused markets.

- Multifamily led all sectors for investment volume in Q4 ($136 billion) and for the year ($315 billion). In Europe, apartment sector growth was led by Germany, with the completion of the largest ever European transaction,Vonovia's acquisition of Deutsche Wohnen for close to $32b. In Asia Pacific, China cemented its position as the largest market for income-producing property. Chinese transaction volume was up 18% YOY and 45% against the annual average for 2015-19.

- Inflation and its corresponding impact on monetary policy are taking on greater importance. Although we anticipate that inflation should slow as the year progresses (particularly beyond the second quarter of 2022), the pandemic adds tremendous uncertainty to this prospect in terms of timing and magnitude. Moreover, even if inflation decelerates as we anticipate, central banks around the world will need to carefully manage monetary policy, walking a fine line between preventing economies from overheating further and restraining real growth too much.

Global Outlook - GDP (Real) Growth % pa, 2021-2023

	2021	2022	2023
Global	**5.9**	**4.3**	**3.6**
Asia Pacific	**6.0**	**5.0**	**4.5**
Australia	4.2	4.1	2.9
China	8.1	5.2	5.1
India	9.2	7.8	
Japan	1.7	2.9	1.5
North America	**5.7**	**3.7**	**2.5**
US	5.7	3.8	2.5
Middle East	**3.2**	**4.9**	**3.6**
European Union	**5.5**	**4.1**	**2.6**
France	6.8	4.0	2.3
Germany	2.8	3.8	2.6
UK	7.1	4.5	2.2

Source: Bloomberg

Sources: Jones Lang LaSalle Research, Cushman & Wakefield, Real Capital Analytics, Inc., CBRE

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REPORT

Meketa Capital Markets Outlook & Risk Metrics

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Capital Markets Outlook & Risk Metrics

As of March 31, 2022

Capital Markets Outlook

Markets

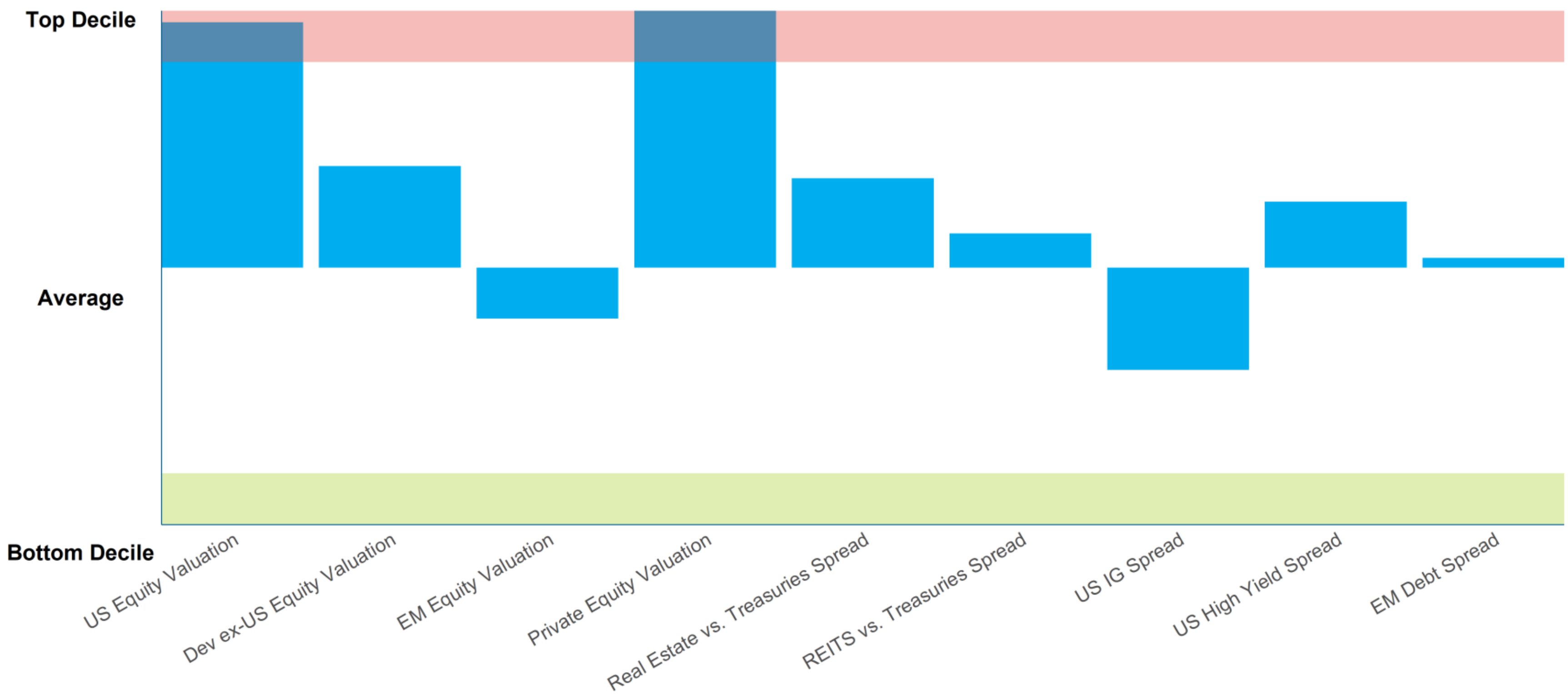
- Global stocks and bonds generally posted negative returns for the first quarter of 2022 as the war in Ukraine and persistent global inflation pressures weighed on investor sentiment.
- In March, US equities reversed some of the losses from earlier in the year as the US economy continued to signal resilient growth and consumer demand.
- For both US and Non-US markets, there was little difference between value and growth stocks in March, though investors favored value stocks by a significant margin for the quarter.
- Developed markets outperformed emerging markets, as investors repriced their concerns related to China's growth outlook and US regulatory pressure on US-listed Chinese companies.
- In March, the Federal Reserve hiked short-term interest rates to 0.5% but real interest rates remained negative. The speed and trajectory of interest rate changes will likely remain one of the most important drivers of the global capital markets in 2022.
- Rising rates led to losses for most US and global bond markets as CPI hit 7.9% and PCE hit 6.4% over the last 12 months.
- Inflation-oriented assets like commodities and public natural resources equities benefited from a surge in a broad spectrum of commodity prices in late February and March related to the war in Ukraine.
- REITs and infrastructure stocks proved resilient during the first quarter of 2022 and offered strong returns in March.

Capital Markets Outlook

Markets

- The war in Ukraine continues to put upward pressure on food and energy prices, which has economic implications for developed and emerging markets.
- Food and energy prices combined with COVID reopening pressures have pushed inflation to multi-decade highs in Europe and the US. This poses a challenge for policy makers struggling to cool inflation while supporting growth.

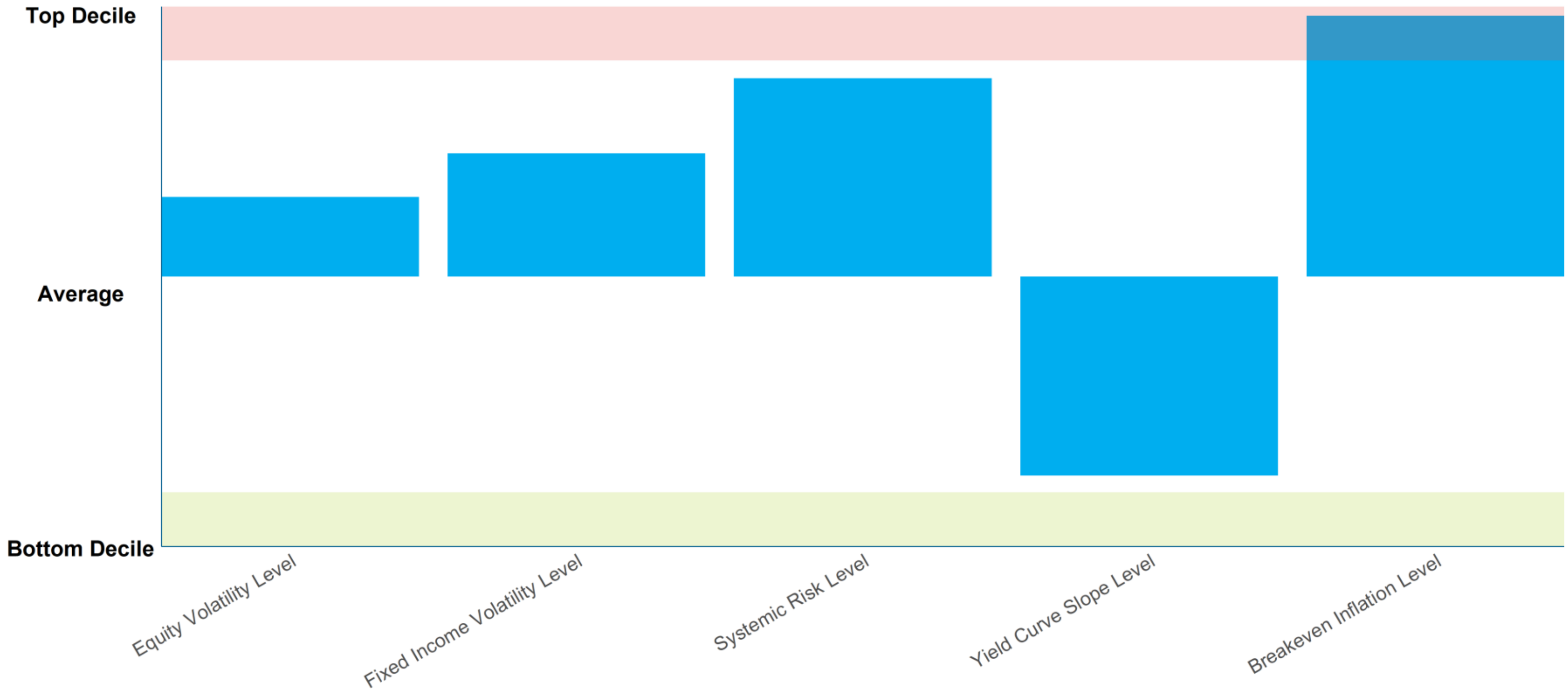
Risk Overview/Dashboard (1)
(As of March 31, 2022)[1]



- Dashboard (1) summarizes the current state of the different valuation metrics per asset class relative to their own history.

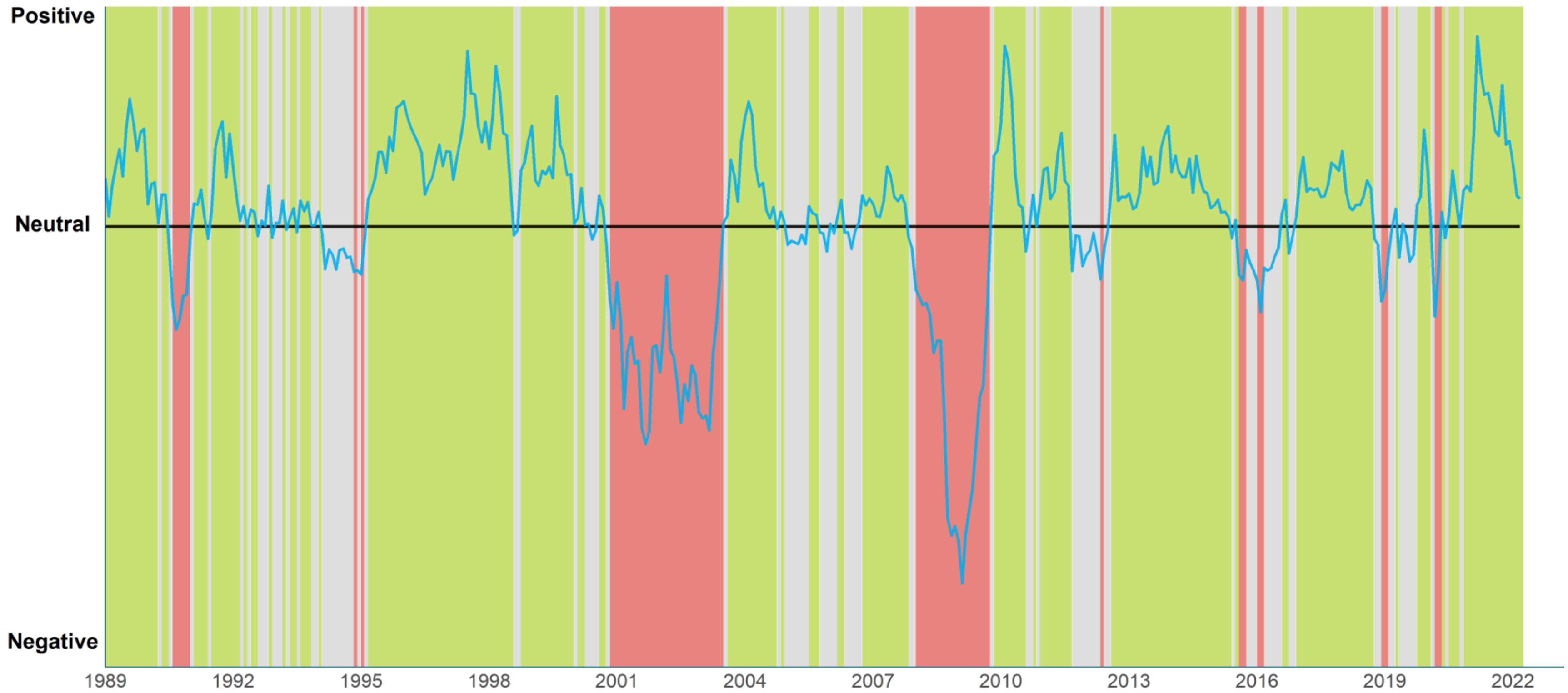
[1] With the exception of Private Equity Valuation, that is YTD as of December 31, 2020.

Risk Overview/Dashboard (2)
(As of March 31, 2022)

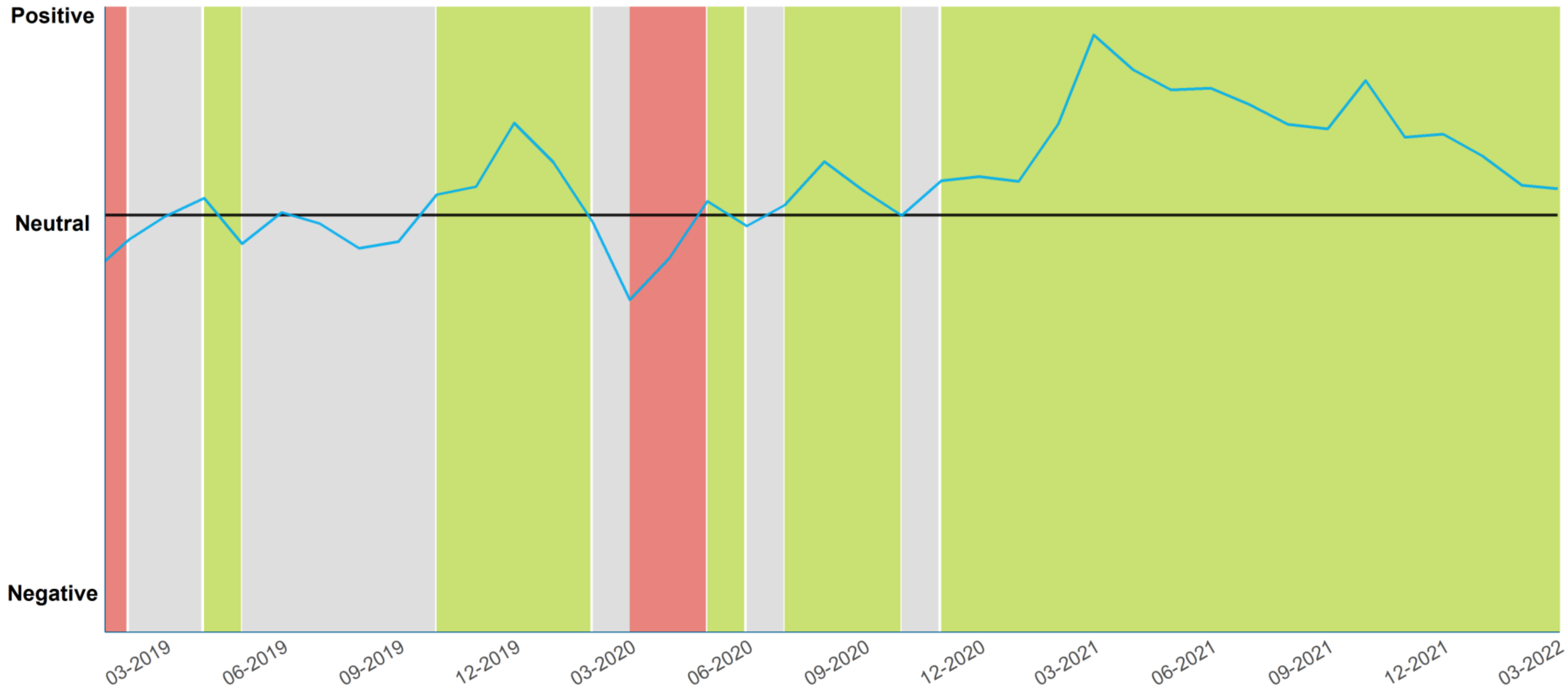


- Dashboard (2) shows how the current level of each indicator compares to its respective history.

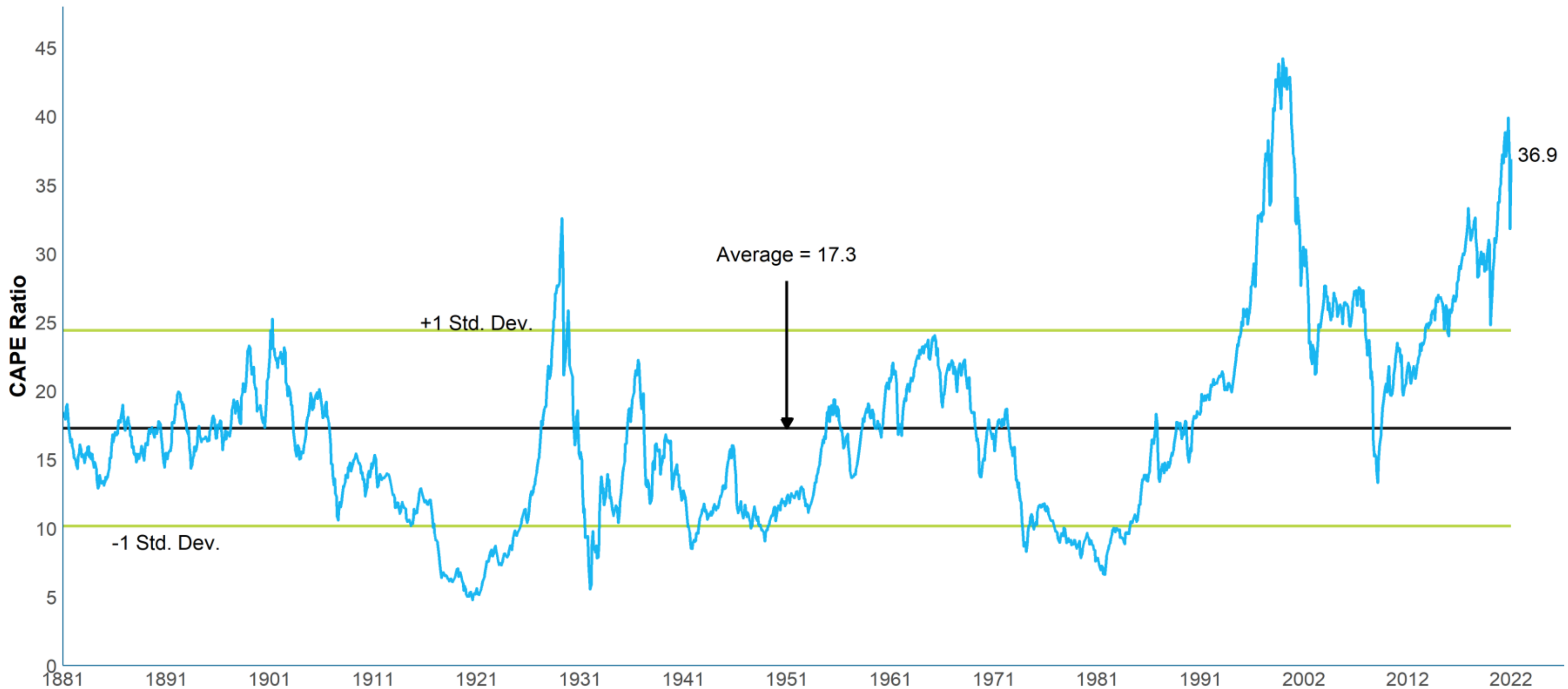
Market Sentiment Indicator (All History)
(As of March 31, 2022)



Market Sentiment Indicator (Last Three Years)
(As of March 31, 2022)



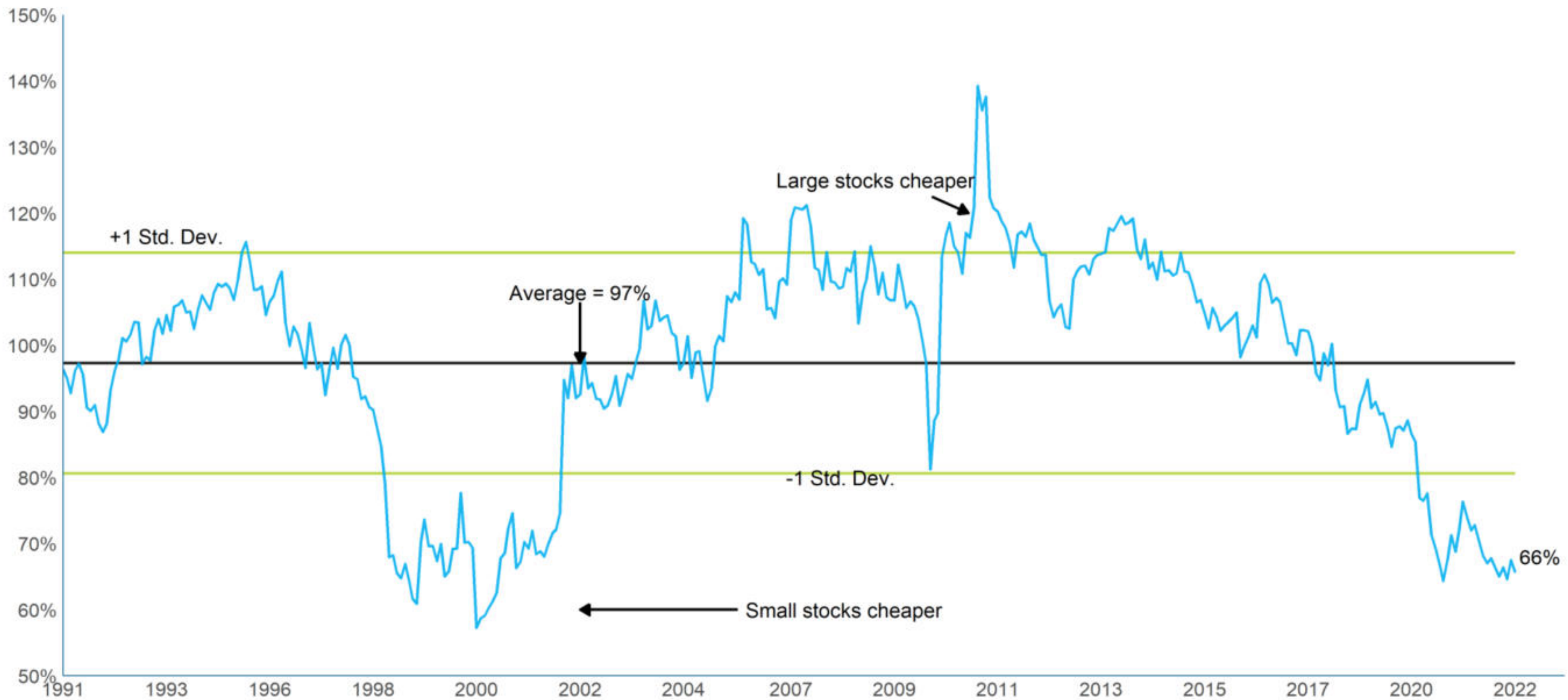
US Equity Cyclically Adjusted P/E[1]
(As of March 31, 2022)



- This chart details one valuation metric for US equities. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

[1] US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group.

Small Cap P/E vs. Large Cap P/E[1]
(As of March 31, 2022)



- This chart compares the relative attractiveness of small cap US equities vs. large cap US equities on a valuation basis. A higher (lower) figure indicates that large cap (small cap) is more attractive.

[1] Small Cap P/E (Russell 2000 Index) vs. Large Cap P/E (Russell 1000 Index) - Source: Russell Investments. Earnings figures represent 12-month "as reported" earnings.

Growth P/E vs. Value P/E[1]
(As of March 31, 2022)

- This chart compares the relative attractiveness of US growth equities vs. US value equities on a valuation basis. A higher (lower) figure indicates that value (growth) is more attractive.

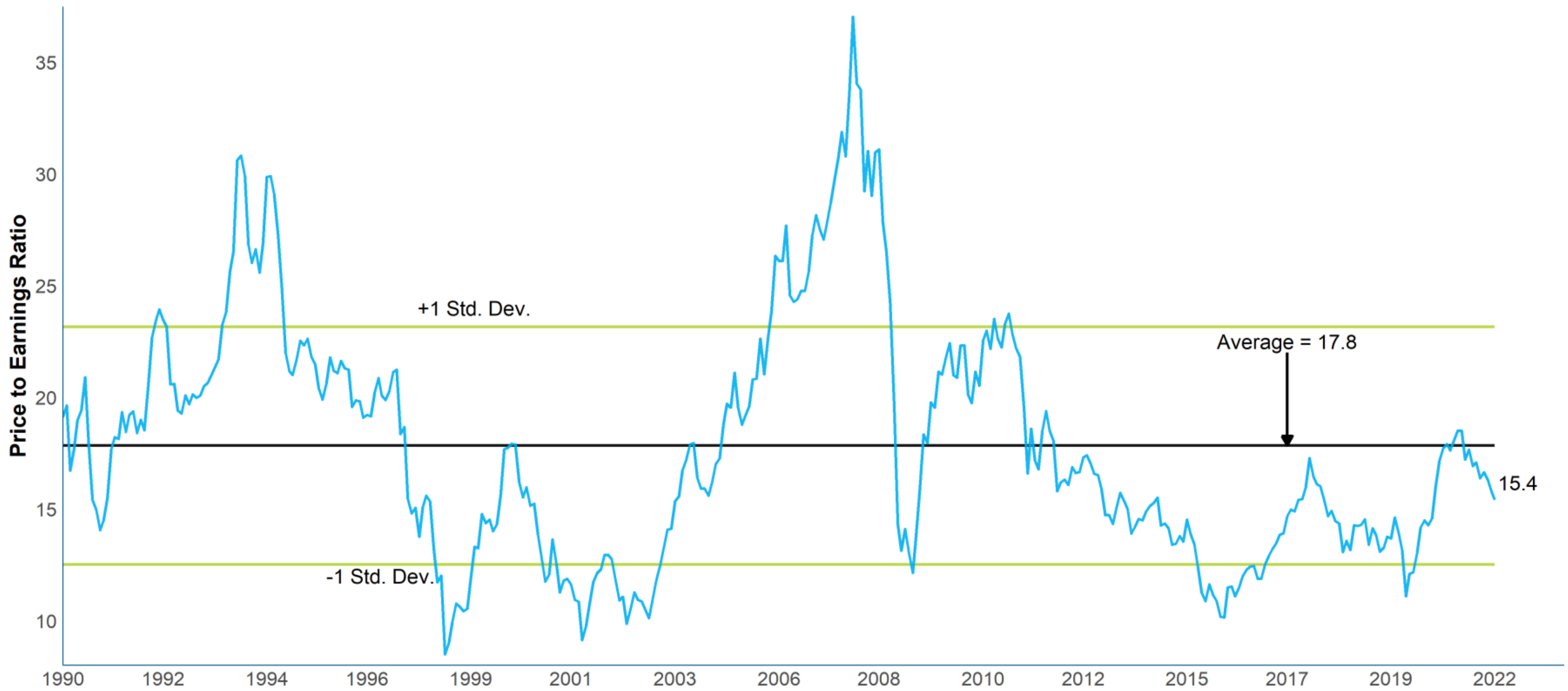
[1] Growth P/E (Russell 3000 Growth Index) vs. Value (Russell 3000 Value Index) P/E - Source: Bloomberg, MSCI, and Meketa Investment Group. Earnings figures represent 12-month "as reported" earnings.

Developed International Equity Cyclically Adjusted P/E[1]
(As of March 31, 2022)

- This chart details one valuation metric for developed international equities. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

[1] Developed International Equity (MSCI EAFE Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years.

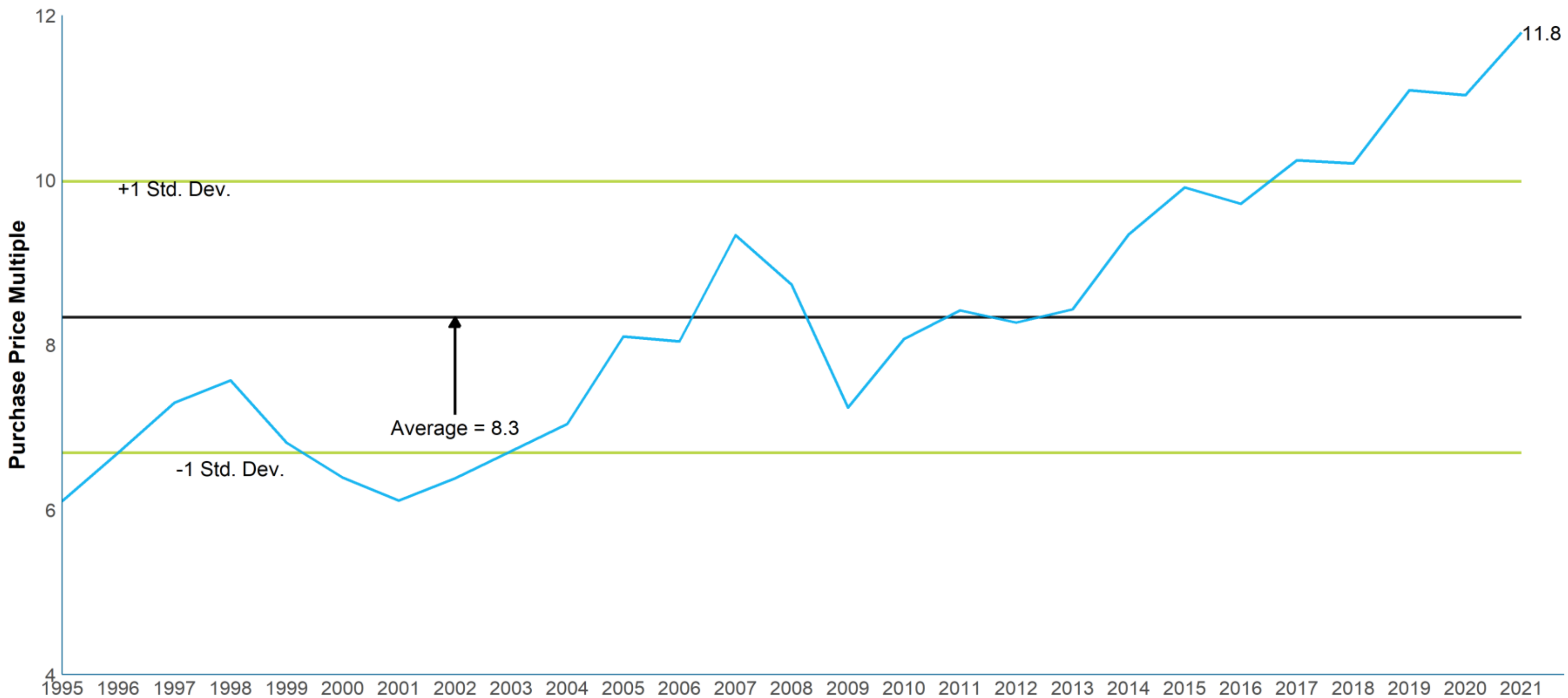
Emerging Market Equity Cyclically Adjusted P/E[1]
(As of March 31, 2022)



- This chart details one valuation metric for emerging markets equities. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

[1] Emerging Market Equity (MSCI Emerging Markets Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years.

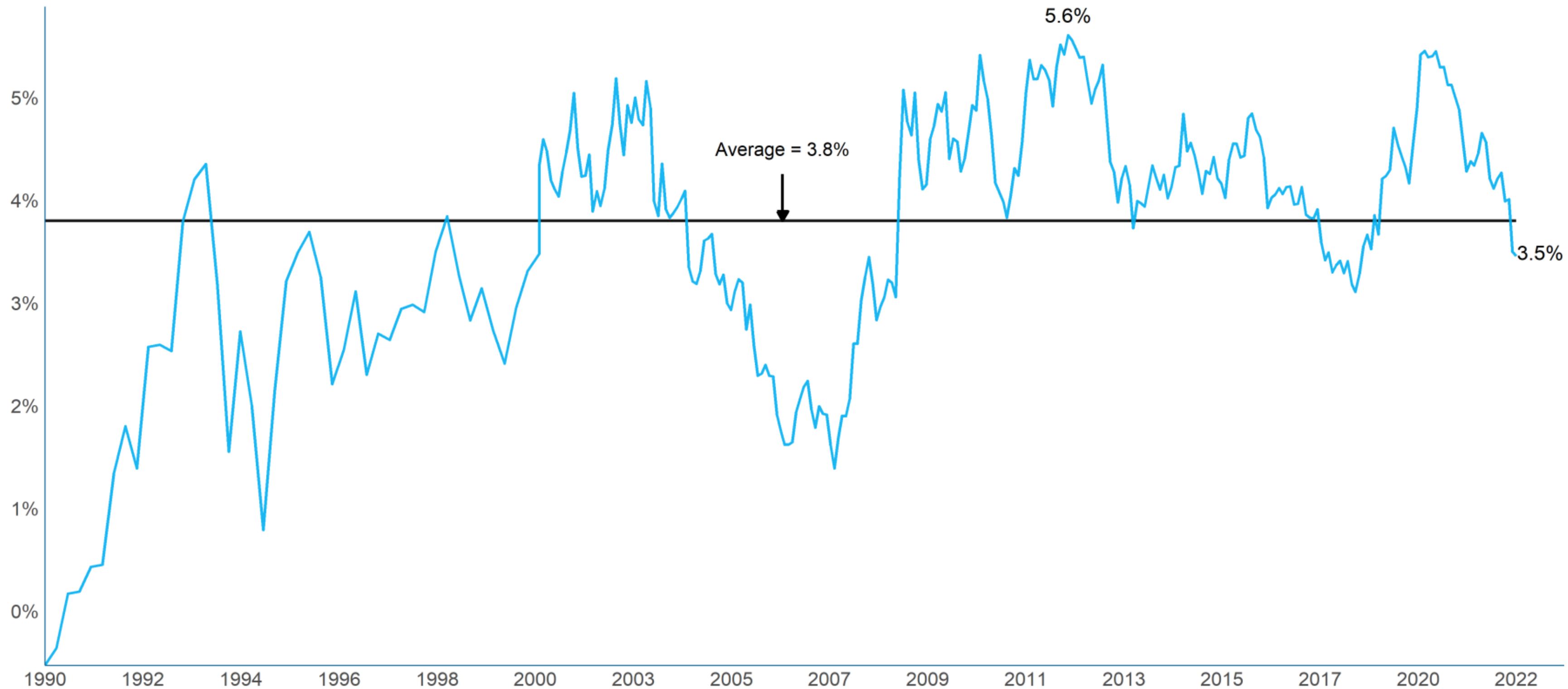
Private Equity Multiples[1]
(As of February 28, 2022)[2]



- This chart details one valuation metric for the private equity market. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

[1] Private Equity Multiples – Source: S&P LCD Average EBITDA Multiples Paid in All LBOs.
[2] Annual Data, as of December 31, 2021

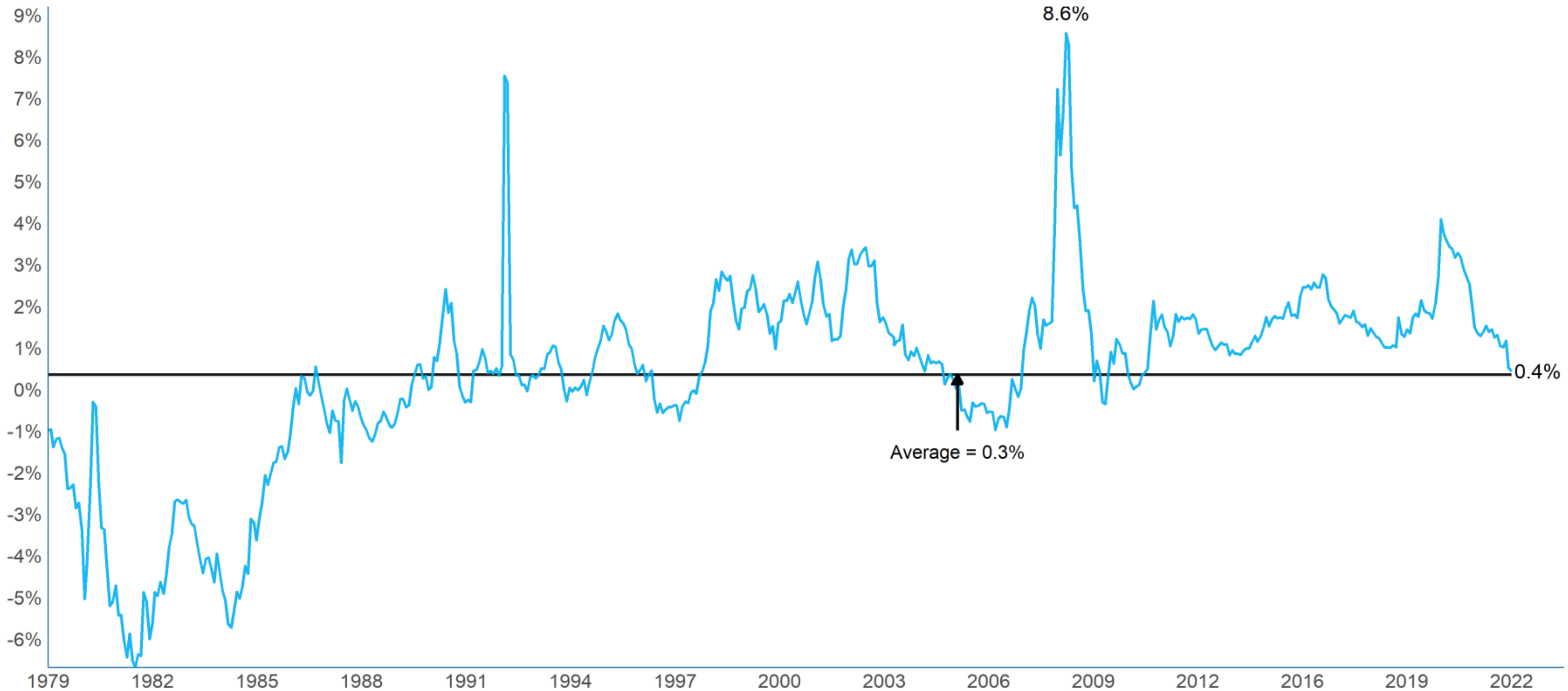
Core Real Estate Spread vs. Ten-Year Treasury[1]
(As of March 31, 2022)



- This chart details one valuation metric for the private core real estate market. A higher (lower) figure indicates cheaper (more expensive) valuation.

[1] Core Real Estate Spread vs. Ten-Year Treasury – Source: Real Capital Analytics, US Treasury, Bloomberg, and Meketa Investment Group. Core Real Estate is proxied by weighted sector transaction-based indices from Real Capital Analytics and Meketa Investment Group.

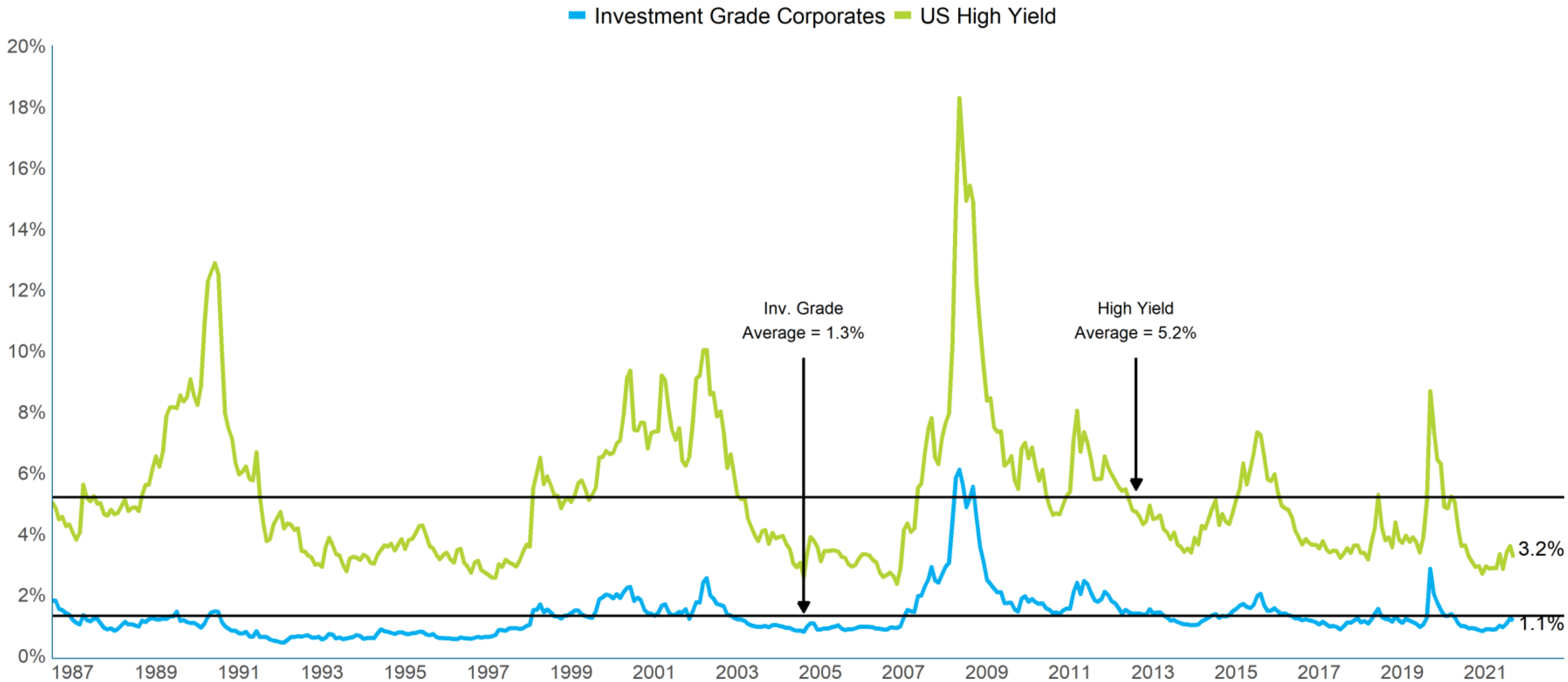
REITs Dividend Yield Spread vs. Ten-Year Treasury[1]
(As of March 31, 2022)



- This chart details one valuation metric for the public REITs market. A higher (lower) figure indicates cheaper (more expensive) valuation.

[1] REITs Dividend Yield Spread vs. Ten-Year Treasury – Source: NAREIT, US Treasury. REITs are proxied by the yield for the NAREIT Equity Index.

Credit Spreads[1]
(As of March 31, 2022)



- This chart details one valuation metric for the US credit markets. A higher (lower) figure indicates cheaper (more expensive) valuation relative to history.

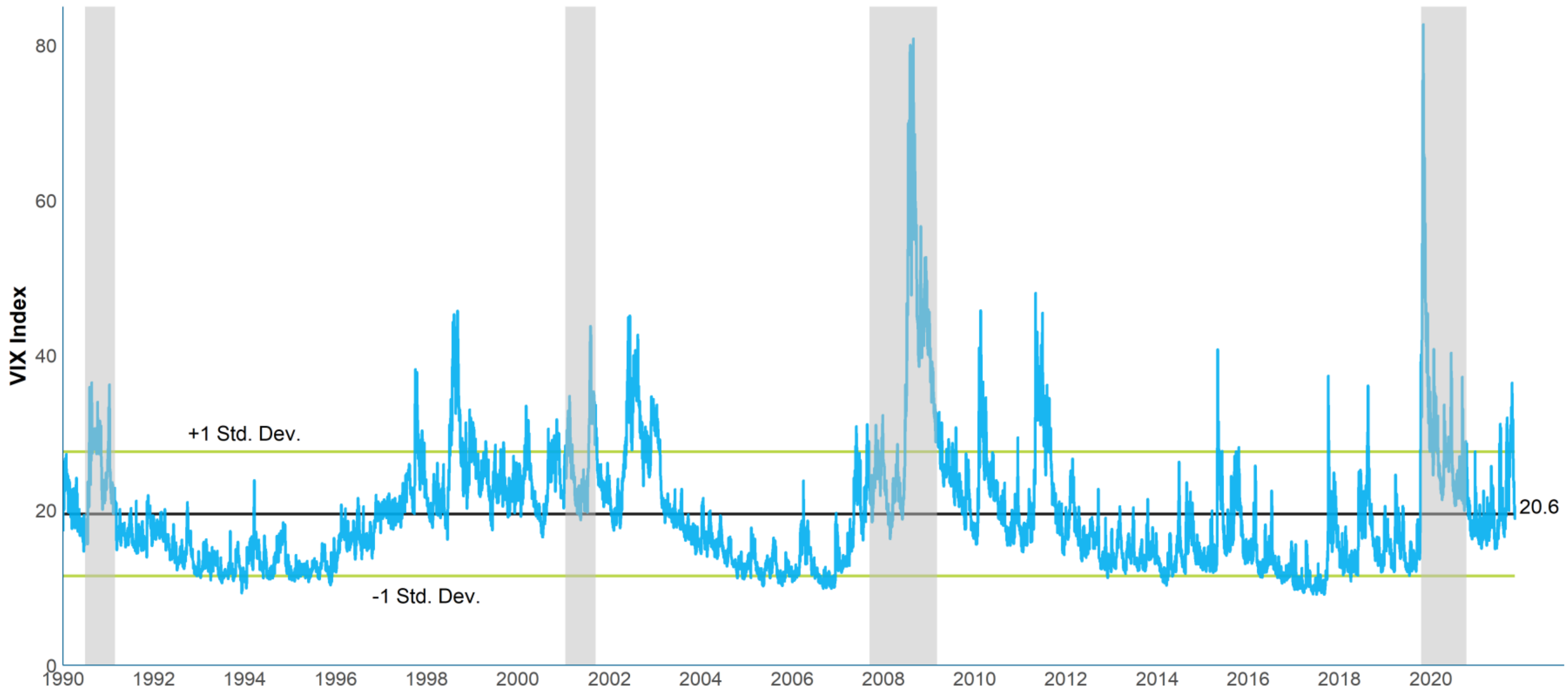
[1] Credit Spreads – Source: Bloomberg. High Yield is proxied by the Bloomberg High Yield Index and Investment Grade Corporates are proxied by the Bloomberg US Corporate Investment Grade Index. Spread is calculated as the difference between the Yield to Worst of the respective index and the 10-Year US Treasury yield.

Emerging Market Debt Spreads[1]
(As of March 31, 2022)

- This chart details one valuation metric for the EM debt markets. A higher (lower) figure indicates cheaper (more expensive) valuation relative to history.

[1] EM Spreads – Source: Bloomberg. Option Adjusted Spread (OAS) for the Bloomberg EM USD Aggregate Index.

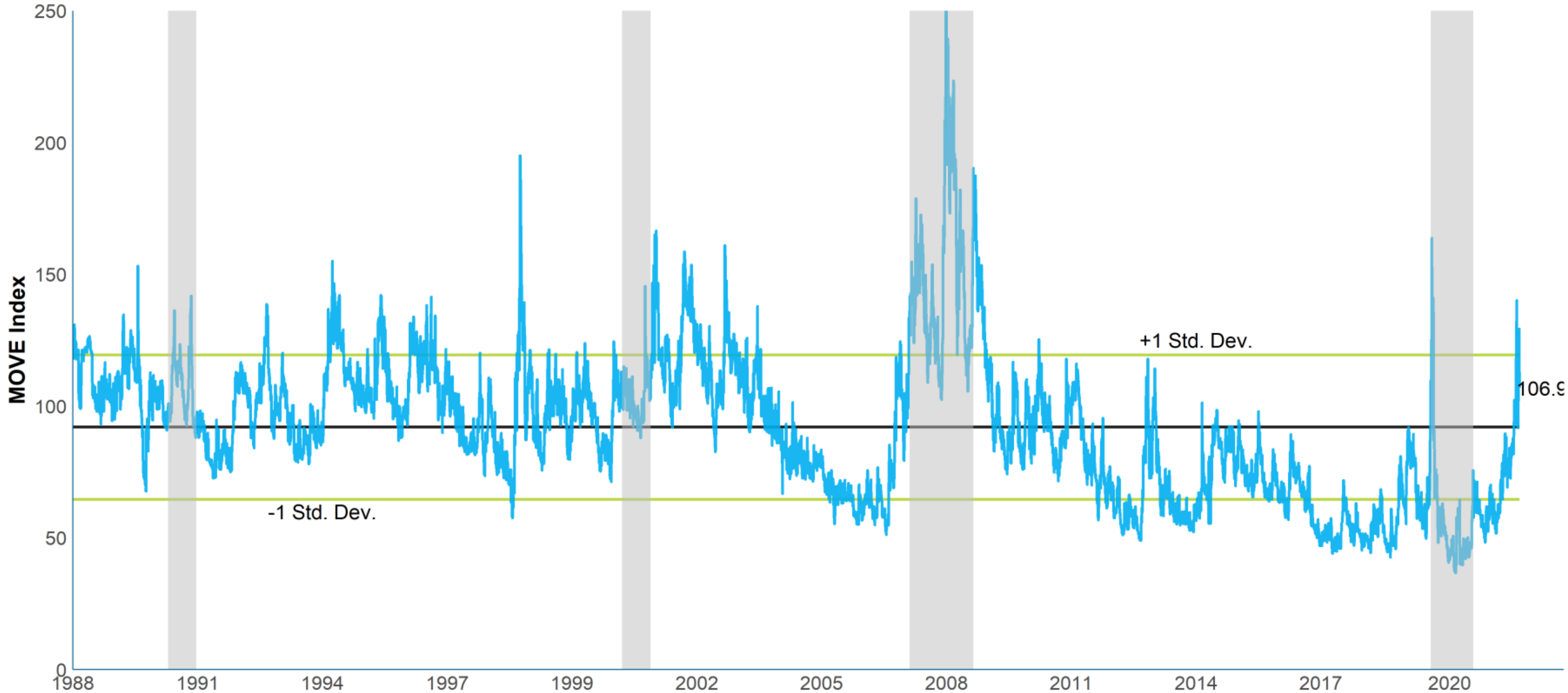
Equity Volatility[1]
(As of March 31, 2022)



- This chart details historical implied equity market volatility. This metric tends to increase during times of stress/fear and while declining during more benign periods.

[1] Equity Volatility – Source: Bloomberg, and Meketa Investment Group. Equity Volatility proxied by VIX Index, a Measure of implied option volatility for US equity markets.

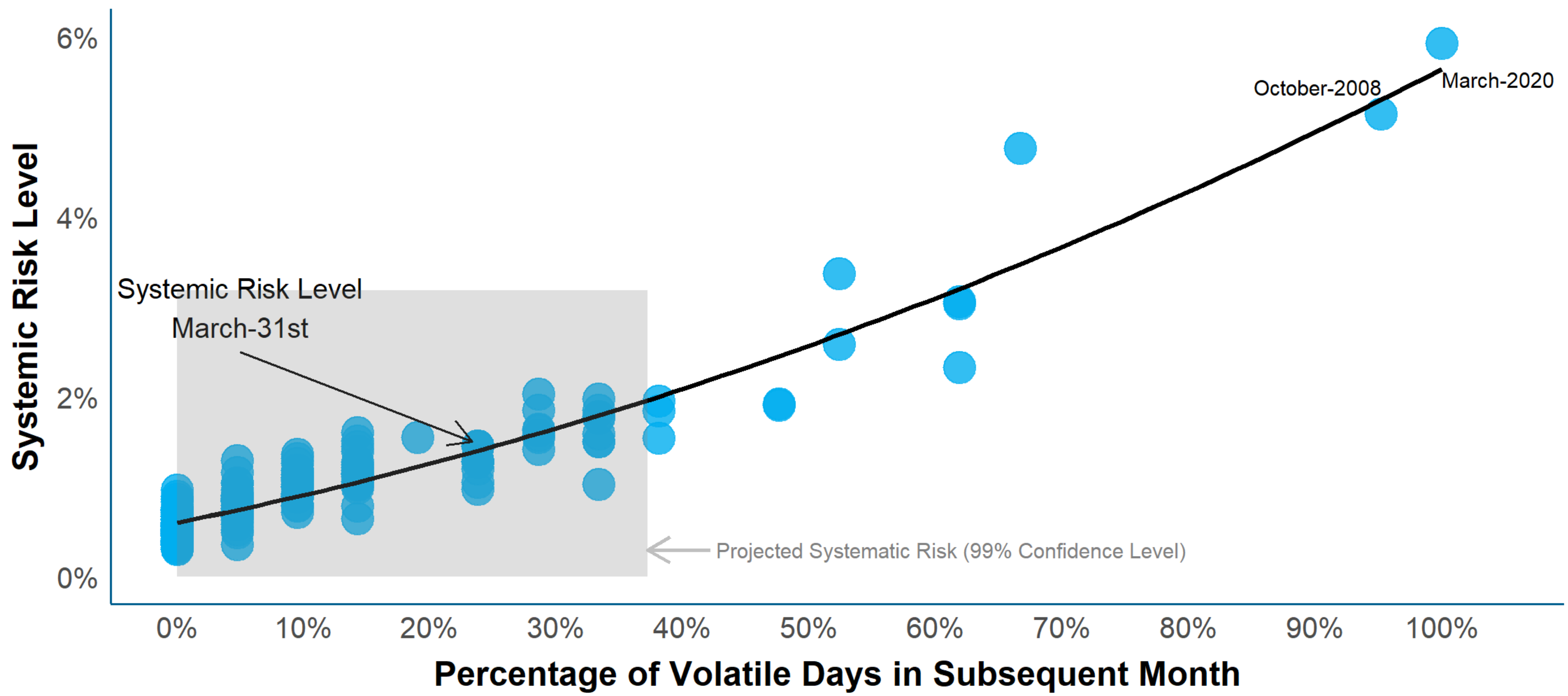
Fixed Income Volatility[1]
(As of March 31, 2022)



- This chart details historical implied fixed income market volatility. This metric tends to increase during times of stress/fear and while declining during more benign periods.

[1] Fixed Income Volatility – Source: Bloomberg, and Meketa Investment Group. Fixed Income Volatility proxied by MOVE Index, a Measure of implied option volatility for US Treasury markets.

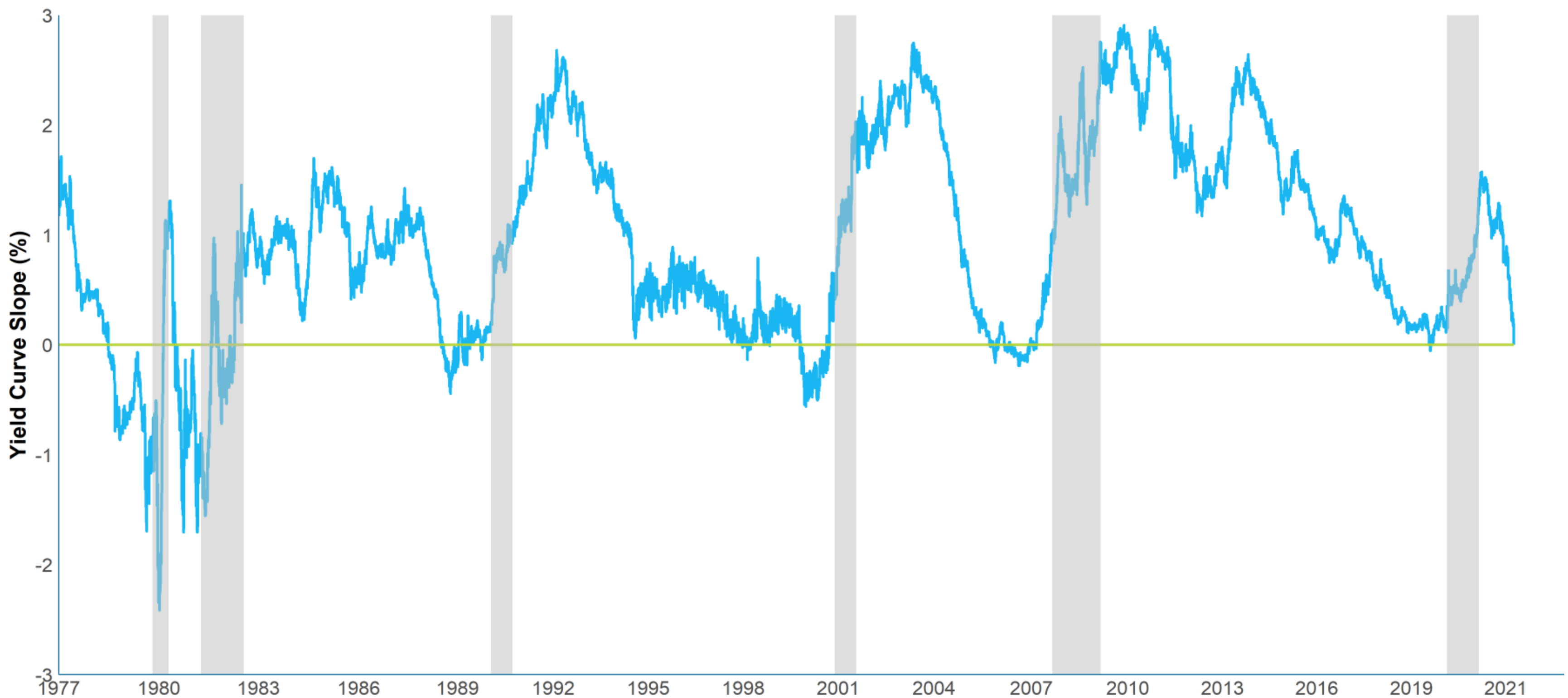
Systemic Risk and Volatile Market Days[1]
(As of March 31, 2022)



- Systemic Risk is a measure of 'System-wide' risk, which indicates herding type behavior.

[1] Source: Meketa Investment Group. Volatile days are defined as the top 10 percent of realized turbulence, which is a multivariate distance between asset returns.

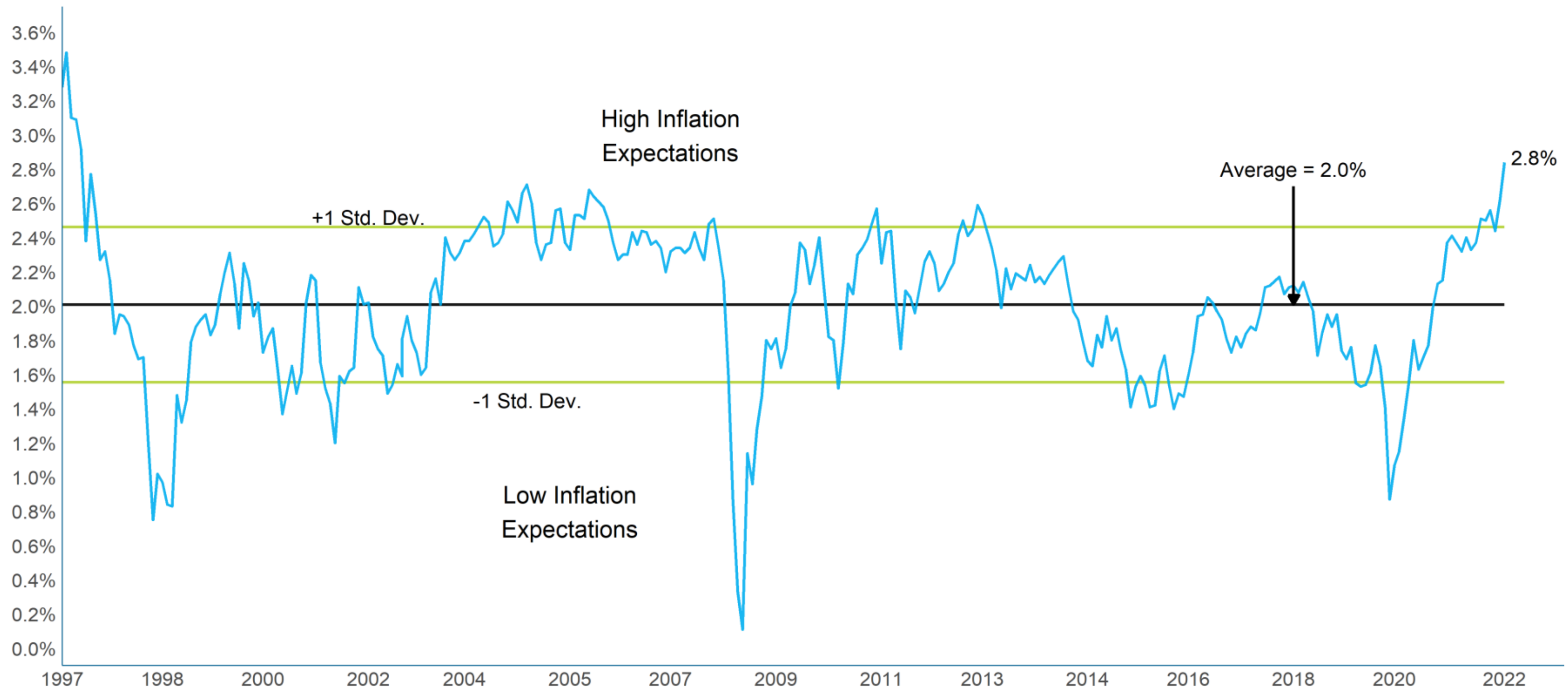
Yield Curve Slope (Ten Minus Two)[1]
(As of March 31, 2022)



- This chart details the historical difference in yields between ten-year and two-year US Treasury bonds/notes. A higher (lower) figure indicates a steeper (flatter) yield curve slope.

[1] Yield Curve Slope (Ten Minus Two) – Source: Bloomberg, and Meketa Investment Group. Yield curve slope is calculated as the difference between the 10-Year US Treasury Yield and 2-Year US Treasury Yield.

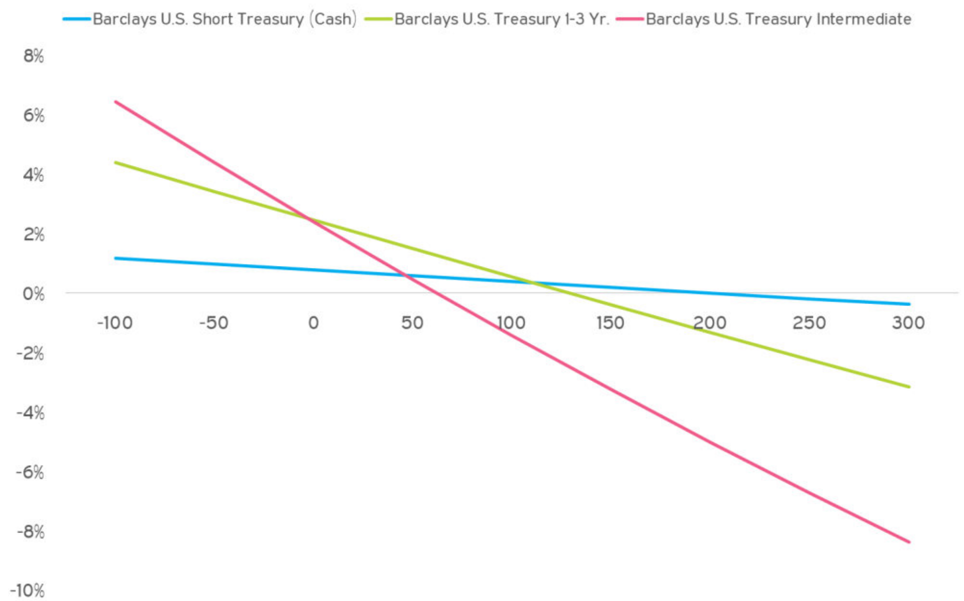
Ten-Year Breakeven Inflation[1]
(As of March 31, 2022)



- This chart details the difference between nominal and inflation-adjusted US Treasury bonds. A higher (lower) figure indicates higher (lower) inflation expectations.

[1] Ten-Year Breakeven Inflation – Source: US Treasury and Federal Reserve. Inflation is measured by the Consumer Price Index (CPI-U NSA).

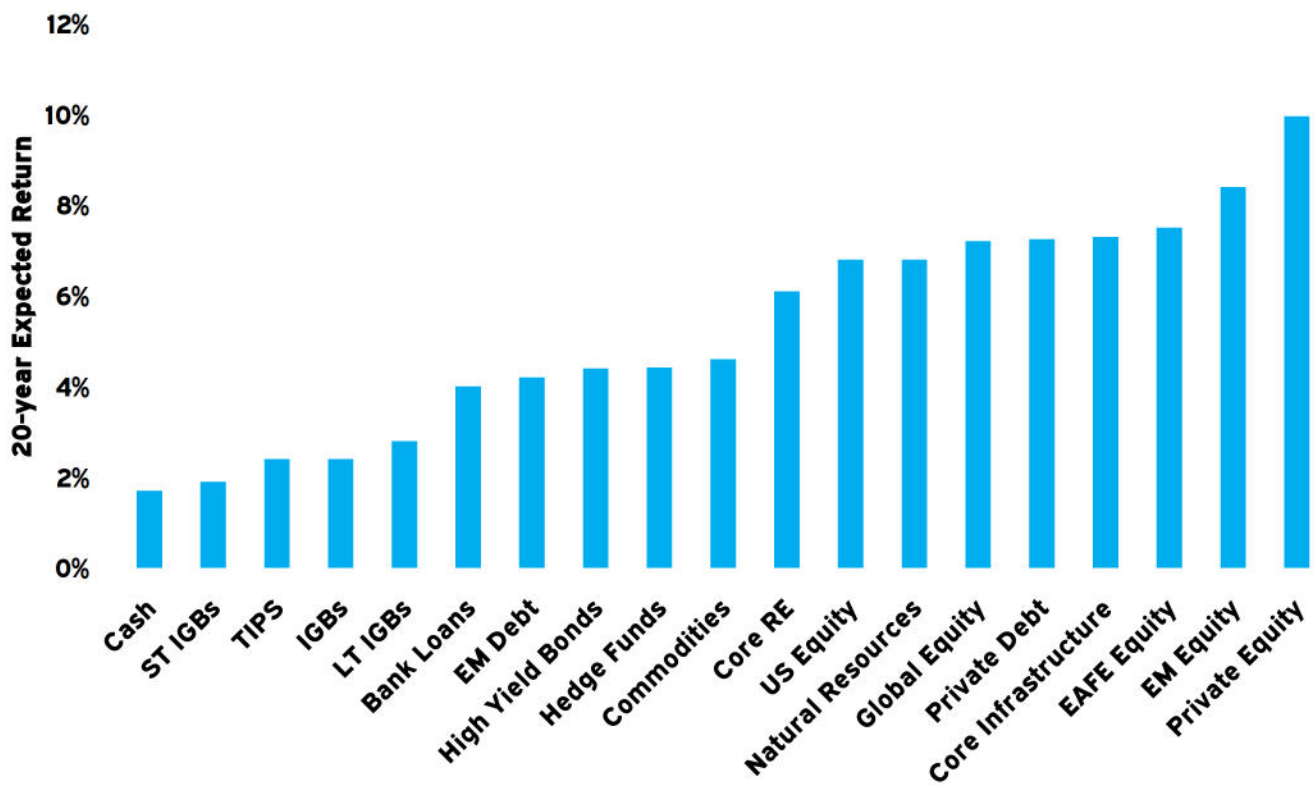
Total Return Given Changes in Interest Rates (bps)[1]
(As of March 31, 2022)



	Total Return for Given Changes in Interest Rates (bps)									Statistics	
	-100	-50	0	50	100	150	200	250	300	Duration	YTW
Barclays US Short Treasury (Cash)	1.2%	1.0%	0.8%	0.6%	0.4%	0.2%	0.0%	-0.2%	-0.4%	0.39	0.78%
Barclays US Treasury 1-3 Yr.	4.4%	3.4%	2.5%	1.5%	0.5%	-0.4%	-1.3%	-2.2%	-3.2%	1.93	2.45%
Barclays US Treasury Intermediate	6.4%	4.4%	2.4%	0.5%	-1.4%	-3.3%	-5.0%	-6.7%	-8.4%	3.93	2.39%
Barclays US Treasury Long	22.3%	11.9%	2.6%	-5.9%	-13.3%	-19.7%	-25.1%	-29.6%	-33.0%	17.8	2.55%

[1] Data represents the expected total return from a given change in interest rates (shown in basis points) over a 12-month period assuming a parallel shift in rates. Source: Bloomberg, and Meketa Investment Group.

Long-Term Outlook – 20-Year Annualized Expected Returns[1]



- This chart details Meketa's long-term forward-looking expectations for total returns across asset classes.

[1] Source: Meketa Investment Group's 2022 Annual Asset Study.

Appendix

Data Sources and Explanations[1]

- US Equity Cyclically Adjusted P/E on S&P 500 Index – Source: Robert Shiller and Yale University.
- Small Cap P/E (Russell 2000 Index) vs. Large Cap P/E (Russell 1000 Index) - Source: Russell Investments. Earnings figures represent 12-month "as reported" earnings.
- Growth P/E (Russell 3000 Growth Index) vs. Value (Russell 3000 Value Index) P/E - Source: Bloomberg, MSCI, and Meketa Investment Group. Earnings figures represent 12-month "as reported" earnings.
- Developed International Equity (MSCI EAFE) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years.
- Emerging Market Equity (MSCI Emerging Markets Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years.
- Private Equity Multiples – Source: S&P LCD Average EBITDA Multiples Paid in All LBOs.
- Core Real Estate Spread vs. Ten-Year Treasury – Source: Real Capital Analytics, US Treasury, Bloomberg, and Meketa Investment Group. Core Real Estate is proxied by weighted sector transaction-based indices from Real Capital Analytics and Meketa Investment Group.

[1] All Data as of March 31, 2022, unless otherwise noted.

Appendix

Data Sources and Explanations[1]

- REITs Dividend Yield Spread vs. Ten-Year Treasury – Source: NAREIT, US Treasury. REITs are proxied by the yield for the NAREIT Equity Index.
- Credit Spreads – Source: Bloomberg High Yield is proxied by the Bloomberg High Yield Index and Investment Grade Corporates are proxied by the Bloomberg US Corporate Investment Grade Index.
  - Spread is calculated as the difference between the Yield to Worst of the respective index and the 10-Year Treasury Yield.
- EM Debt Spreads – Source: Bloomberg, and Meketa Investment Group. Option Adjusted Spread (OAS) for the Bloomberg EM USD Aggregate Index.
- Equity Volatility – Source: Bloomberg, and Meketa Investment Group. Equity Volatility proxied by VIX Index, a Measure of implied option volatility for US equity markets.
- Fixed Income Volatility – Source: Bloomberg, and Meketa Investment Group. Equity Volatility proxied by MOVE Index, a Measure of implied option volatility for US Treasury markets.
- Systemic Risk and Volatile Market Days – Source: Meketa Investment Group. Volatile days are defined as the top 10 percent of realized turbulence, which is a multivariate distance between asset returns.
- Systemic Risk, which measures risk across markets, is important because the more contagion of risk that exists between assets, the more likely it is that markets will experience volatile periods.

[1] All Data as of March 31, 2022, unless otherwise noted.

Appendix

Data Sources and Explanations[1]

- Yield Curve Slope (Ten Minus Two) – Source: Bloomberg, and Meketa Investment Group. Yield curve slope is calculated as the difference between the 10-Year US Treasury Yield and 2-Year US Treasury Yield.
- Ten-Year Breakeven Inflation – Source: US Treasury and Federal Reserve. Inflation is measured by the Consumer Price Index (CPI-U NSA).

[1] All Data as of March 31, 2022, unless otherwise noted.

Meketa Market Sentiment Indicator

Explanation, Construction and Q&A

Meketa has created the MIG Market Sentiment Indicator (MIG-MSI) to complement our valuation-focused Risk Metrics. This measure of sentiment is meant to capture significant and persistent shifts in long-lived market trends of economic growth risk, either towards a risk-seeking trend or a risk-aversion trend.

This appendix explores:

- What is the Meketa Market Sentiment Indicator?
- How do I read the indicator graph?
- How is the Meketa Market Sentiment Indicator constructed?
- What do changes in the indicator mean?

Meketa has created a market sentiment indicator for monthly publication (the MIG-MSI – see below) to complement Meketa's Risk Metrics.

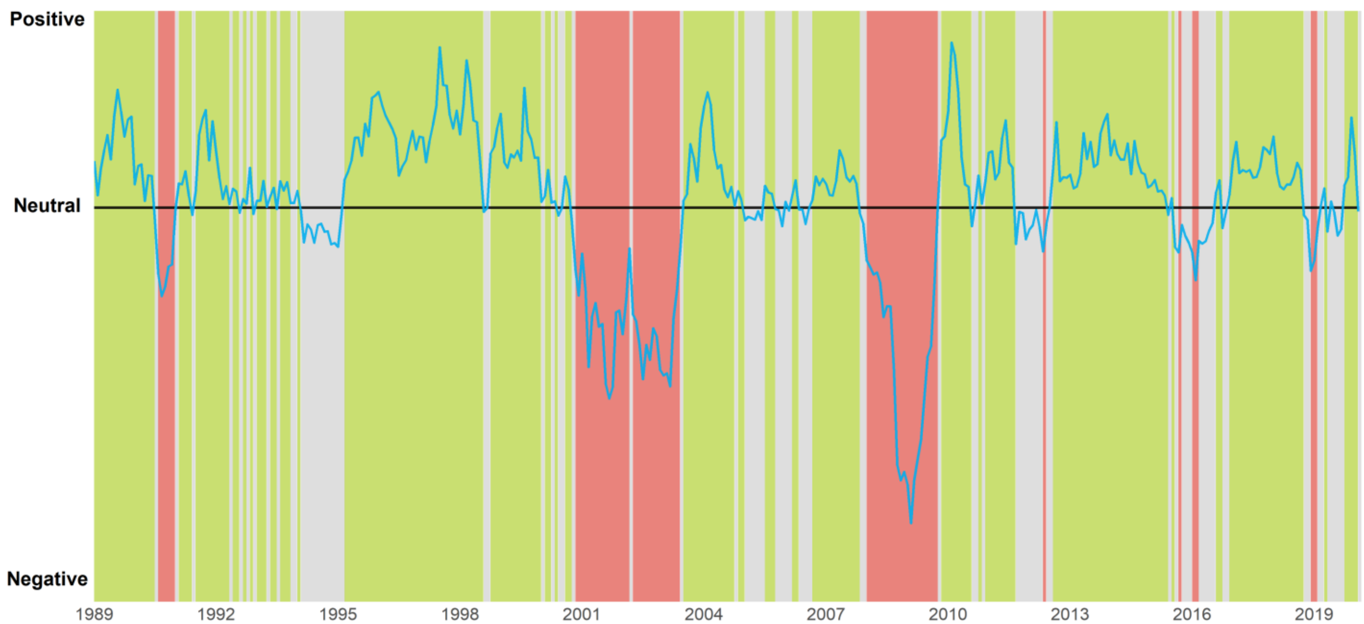
- Meketa's Risk Metrics, which rely significantly on standard market measures of relative valuation, often provide valid early signals of increasing long-term risk levels in the global investment markets. However, as is the case with numerous valuation measures, the Risk Metrics may convey such risk concerns long before a market correction take place. The MIG-MSI helps to address this early-warning bias by measuring whether the markets are beginning to acknowledge key Risk Metrics trends, and / or indicating non-valuation-based concerns. Once the MIG-MSI indicates that the market sentiment has shifted, it is our belief that investors should consider significant action, particularly if confirmed by the Risk Metrics. Importantly, Meketa believes the Risk Metrics and MIG-MSI should always be used in conjunction with one another and never in isolation. The questions and answers below highlight and discuss the basic underpinnings of the Meketa MIG-MSI:

What is the Meketa Market Sentiment Indicator (MIG-MSI)?

- The MIG-MSI is a measure meant to gauge the market's sentiment regarding economic growth risk. Growth risk cuts across most financial assets and is the largest risk exposure that most portfolios bear. The MIG-MSI takes into account the momentum (trend over time, positive or negative) of the economic growth risk exposure of publicly traded stocks and bonds, as a signal of the future direction of growth risk returns; either positive (risk seeking market sentiment), or negative (risk averse market sentiment).

How do I read the Meketa Market Sentiment Indicator graph?

- Simply put, the MIG-MSI is a color-coded indicator that signals the market's sentiment regarding economic growth risk. It is read left to right chronologically. A green indicator on the MIG-MSI indicates that the market's sentiment towards growth risk is positive. A gray indicator indicates that the market's sentiment towards growth risk is neutral or inconclusive. A red indicator indicates that the market's sentiment towards growth risk is negative. The black line on the graph is the level of the MIG-MSI. The degree of the signal above or below the neutral reading is an indication the signal's current strength.
- Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.



How is the Meketa Market Sentiment Indicator (MIG-MSI) Constructed?

- The MIG-MSI is constructed from two sub-elements representing investor sentiment in stocks and bonds:
  - Stock return momentum: Return momentum for the S&P 500 Equity Index (trailing 12-months).
  - Bond yield spread momentum: Momentum of bond yield spreads (excess of the measured bond yield over the identical duration US Treasury bond yield) for corporate bonds (trailing 12-months) for both investment grade bonds (75% weight) and high yield bonds (25% weight).
  - Both measures are converted to Z-scores and then combined to get an "apples to apples" comparison without the need of re-scaling.
- The black line reading on the graph is calculated as the average of the stock return momentum measure and the bonds spread momentum measure[1]. The color reading on the graph is determined as follows:
  - If both stock return momentum and bond spread momentum are positive = GREEN (positive).
  - If one of the momentum indicators is positive, and the other negative = GRAY (inconclusive).
  - If both stock return momentum and bond spread momentum are negative = RED (negative).

[1] Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.
"Time Series Momentum" Moskowitz, Ooi, Pedersen, August 2010. *http://pages.stern.nyu.edu/~lpederse/papers/TimeSeriesMomentum.pdf*

What does the Meketa Market Sentiment Indicator (MIG-MSI) mean? Why might it be useful?

- There is strong evidence that time series momentum is significant and persistent. Across an extensive array of asset classes, the sign of the trailing 12-month return (positive or negative) is indicative of future returns (positive or negative) over the next 12-month period. The MIG-MSI is constructed to measure this momentum in stocks and corporate bond spreads. A reading of green or red is agreement of both the equity and bond measures, indicating that it is likely that this trend (positive or negative) will continue over the next 12 months. When the measures disagree, the indicator turns gray. A gray reading does not necessarily mean a new trend is occurring, as the indicator may move back to green, or into the red from there. The level of the reading (black line) and the number of months at the red or green reading, gives the user additional information on which to form an opinion, and potentially take action.

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REPORT

SBI Comprehensive Performance Report

March 31, 2022

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Comprehensive Performance Report

March 31, 2022

Description of SBI Investment Programs

The Minnesota State Board of Investment is responsible for the investment management of various retirement funds, trust funds and cash accounts.

Combined Funds

The Combined Funds represent the assets for both the active and retired public employees in the statewide retirement systems, the biggest of which are the Public Employees Retirement Association (PERA), the Teachers Retirement Association (TRA), and the Minnesota State Retirement System (MSRS). The SBI commingles the assets of these plans into the Combined Funds to capture investment efficiencies. All assets in the Combined Funds are managed externally by investment management firms retained by contract.

Fire Plans + Other Retirement Plans

Fire Plans and Other Retirement Plans include assets from volunteer fire relief plans and other public retirement plans with authority to invest with the SBI, if they so choose. Fire Plans that are not eligible to be consolidated with Public Employees Retirement Association (PERA) or elect not to be administered by PERA may invest their assets with the SBI using the same asset pools as the Combined Funds. The Statewide Volunteer Firefighter Retirement Plan is administered by PERA and has its own investment vehicle called the Volunteer Firefighter Account.

Participant Directed Investment Program

The Participant Directed Investment Program (PDIP) provides investment vehicles for a variety of retirement or other tax-advantaged savings plans. Investment goals among the PDIP's many participants are varied. In order to meet the variety of goals, participants may allocate their investments among one or more accounts that are appropriate for their needs within statutory requirements and rules established by the participating organizations.

Non-Retirement Funds

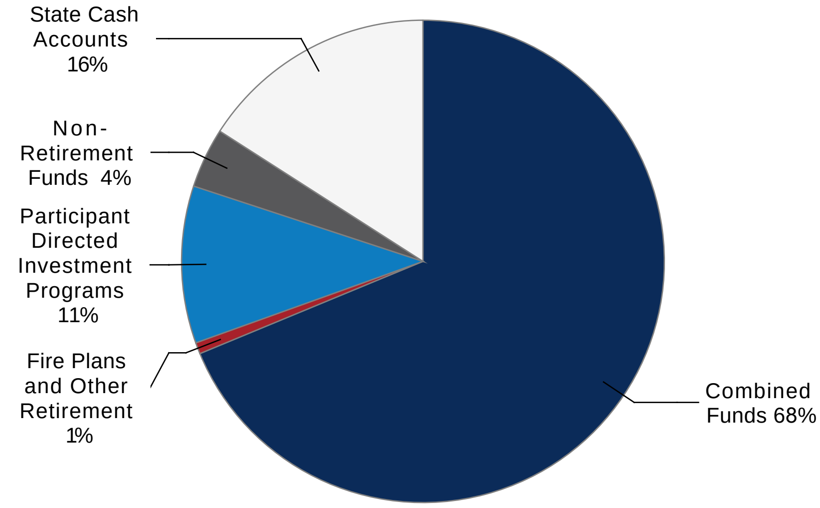
The Non-Retirement Funds are funds established by the State of Minnesota and other government entities for various purposes which include the benefit of public schools, the environment, other post-employment benefits, workers compensation insurance, and other purposes.

State Cash

The State Cash accounts are cash balances of state government funds including the State General Fund. Most accounts are invested by SBI staff through a short-term pooled fund referred to as the Treasurer's Cash Pool. It contains the cash balances of special or dedicated accounts necessary for the operation of certain State agencies and non-dedicated cash in the State Treasury. Because of special legal restrictions, a small number of cash accounts cannot be commingled.

Funds Under Management

	$ Millions
Combined Funds	**$89,861**
Fire Plans + Other Retirement Plans	**991**
Participant Directed Investment Program	**13,775**
State Deferred Compensation Plan	9,536
Health Care Savings Plan	1,702
Unclassified Employees Retirement Plan	384
Hennepin County Supplemental Retirement Plan	182
PERA Defined Contribution Plan	96
Minnesota College Savings Plan	1,847
Minnesota Achieving a Better Life Experience Plan	28
Non-Retirement Funds	**5,264**
Assigned Risk Plan	267
Permanent School Fund	1,952
Environmental Trust Fund	1,667
Closed Landfill Investment Fund	133
Miscellaneous Trust Funds	358
Other Postemployment Benefits Accounts	887
State Cash	**21,492**
Invested Treasurer's Cash	21,424
Other State Cash Accounts	68
Total SBI AUM	**131,383**



Note: Differentials within column amounts may occur due to rounding

Quarterly Report

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Performance Reporting Legend

Manager Level Data
Aggregate Level Data
Sub-Asset Class Level Data
Asset Class Level Data

Note:

Throughout this report performance is calculated net of investment management fees, gross of administrative fees. Aggregates include terminated managers, and returns for all periods greater than one year are annualized. Inception Date and Since Inception Returns refer to the date of retention by the SBI. FYTD refers to the return generated by an account since July 1 of the most recent year. For historical benchmark details, please refer to the addendum of this report. Some aggregate inception to date return are based portfolio management decisions to re-group manager accounts in different or newly created aggregates.

STATE STREET

Combined Funds

March 31, 2022

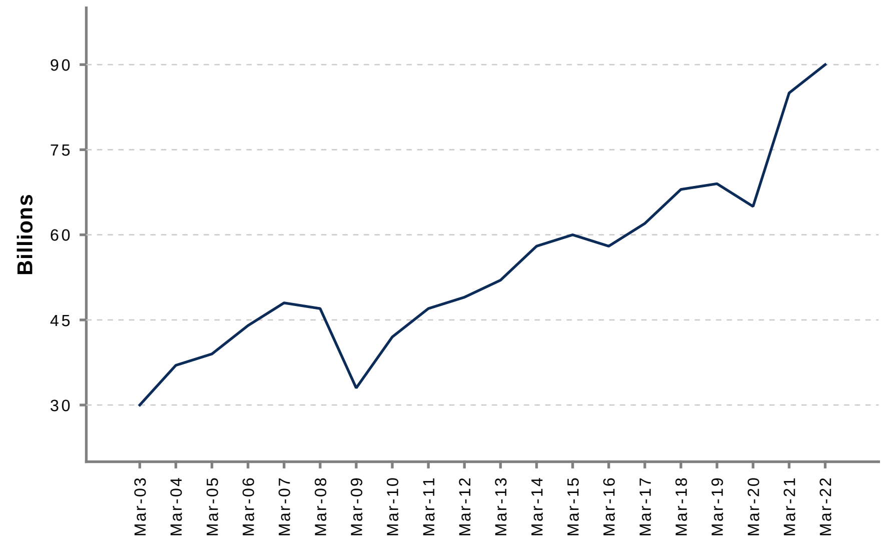
Combined Funds Summary

Combined Funds Change in Market Value ($Millions)

	One Quarter
Combined Funds	
Beginning Market Value	$94,134
Net Contributions	-705
Investment Return	-3,567
Ending Market Value	89,861

The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

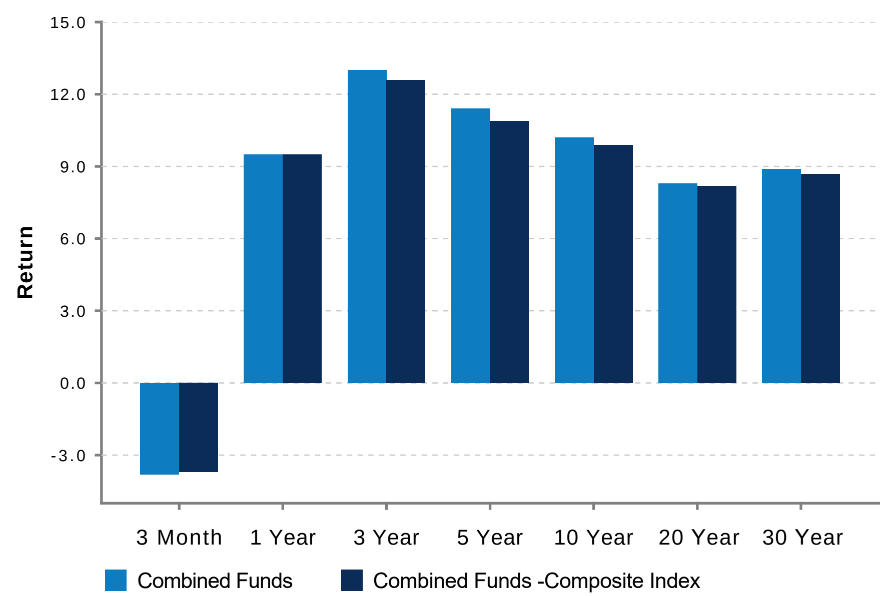
Asset Growth



Performance (Net of Fees)

The Combined Funds' performance is evaluated relative to a composite of public market index and private market investment returns. The Composite performance is calculated by multiplying the beginning of month Composite weights and the monthly returns of the asset class benchmarks.

	Qtr	FYTD	1 Yr	3 Yr	5 Yr	10 Yr	20 Yr	30 Yr
Combined Funds	-3.8%	2.7%	9.5%	13.0%	11.4%	10.2%	8.3%	8.9%
Combined Funds - Composite Index	-3.7%	2.7%	9.5%	12.6%	10.9%	9.9%	8.2%	8.7%
Excess	-0.1%	-0.0%	0.0%	0.5%	0.4%	0.3%	0.2%	0.2%

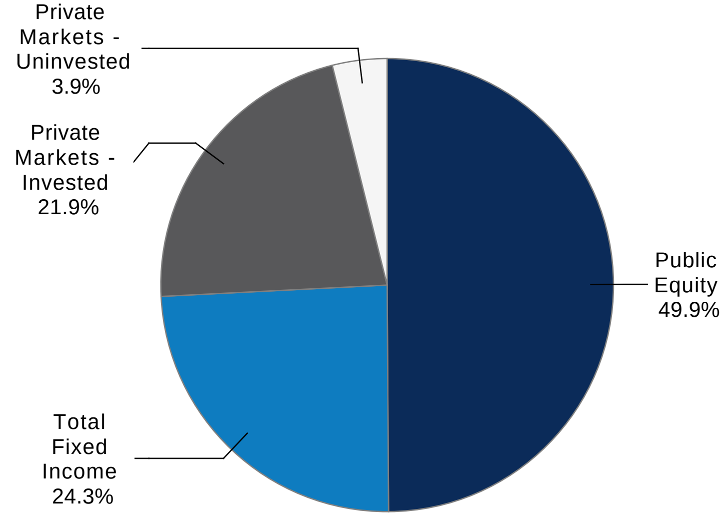


Combined Funds Summary

Asset Mix

The Combined Funds actual asset mix relative to the Strategic Asset Allocation Policy Target is shown below. Any uninvested portion of the Private Markets allocation is held in Public Equity.

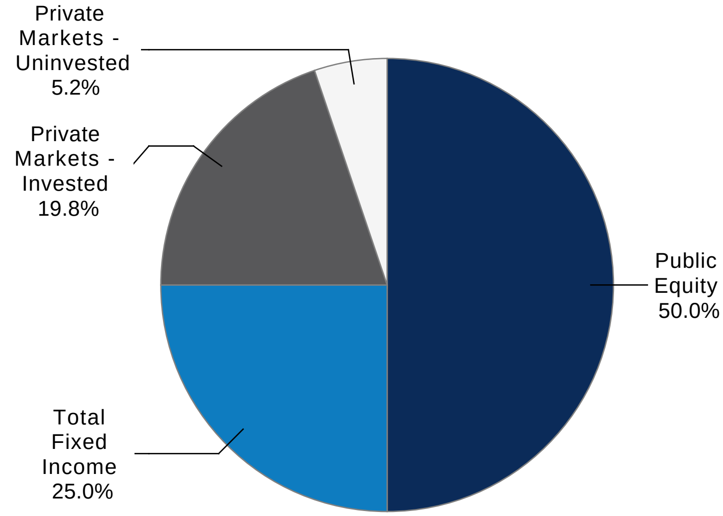
	(Millions)	Actual Mix	Policy Target
Public Equity	$44,835	49.9%	50.0%
Total Fixed Income	21,863	24.3	25.0
Private Markets - Total	23,164	25.8	25.0
Private Markets - Invested	19,659	21.9	
Private Markets - Uninvested	3,505	3.9	
TOTAL	89,861	100.0	



Composite Index Comparison

The Combined Funds Composite is set as the Strategic Asset Allocation Policy Target. Asset class weights for Private Markets - Invested and Private Markets - Uninvested are reset at the start of each month. The Combined Funds Composite weighting shown below is as of the first day of the quarter.

	Policy Weight	Market Index
Public Equity	50.0%	Public Equity Benchmark
Total Fixed Income	25.0	Total Fixed Income Benchmark
Private Markets - Invested	19.8	Private Markets
Private Markets - Uninvested	5.2	S&P 500



Combined Funds Asset Class Performance Summary

Public Equity

The Combined Funds Public Equity includes Domestic Equity, International Equity and Global Equity.

The Public Equity benchmark is 67% Russell 3000 and 33% MSCI ACWI ex US (net).

	Market Value	Actual Weight	Policy Weight	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 Year
Public Equity	$44.8	49.9%	50.0%	-5.7%	-0.2%	7.1%	14.9%	12.7%	11.9%	8.5%	9.4%
Public Equity Benchmark				-5.3	0.1	7.4	14.6	12.5			
Excess				-0.3	-0.2	-0.3	0.3	0.2			
Domestic Equity	30.5	33.9	33.5	-5.5	3.1	11.6	18.3	15.5	14.2	9.3	10.2
Domestic Equity Benchmark				-5.3	3.4	11.9	18.1	15.3	14.3	9.4	10.3
Excess				-0.2	-0.3	-0.3	0.2	0.1	-0.0	-0.1	-0.1
International Equity	13.4	14.9	16.5	-5.7	-6.2	-1.4	8.2	7.3	6.2	6.7	
International Equity Benchmark				-5.4	-6.6	-1.5	7.5	6.7	5.5	6.4	
Excess				-0.2	0.4	0.1	0.8	0.5	0.6	0.3	
Global Equity	1.0	1.1	0.0	-11.8	-12.9	-3.6					
MSCI AC WORLD INDEX NET				-5.4	-0.1	7.3					
Excess				-6.5	-12.8	-10.9					

Note:

Prior to 6/30/16 the returns of Domestic and International Equity were not reported as a total Public Equity return. For additional information regarding historical asset class performance and benchmarks, please refer to the Combined Funds Performance Report.

Combined Funds Asset Class Performance Summary

Total Fixed Income

The Combined Funds Fixed Income program includes Core/Core Plus, Return Seeking Fixed Income, Treasuries and Laddered Bond + Cash.

The Total Fixed Income benchmark is 40% Bloomberg U.S. Aggregate Index/ 40% Bloomberg Treasury 5+ Years Index/ 20% ICE BofA US 3-Month Treasury Bill.

	Market Value	Actual Weight	Policy Weight	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 Year
Total Fixed Income	$21.9	24.3%	25.0%	-5.6%	-5.2%	-2.9%	3.2%	3.3%	3.2%	4.6%	5.6%
Total Fixed Income Benchmark				-5.6%	-5.1%	-2.9%	2.7%				
Excess				0.0%	-0.1%	0.0%	0.5%				
Core/Core Plus	$4.5	5.0%	5.0	-6.5%	-6.4%	-4.4%	2.5%	2.8%	2.9%	4.4%	5.5%
Core Bonds Benchmark				-5.9%	-5.9%	-4.2%	1.7%	2.1%	2.2%	4.0%	5.1%
Excess				-0.5%	-0.5%	-0.3%	0.8%	0.7%	0.7%	0.4%	0.4%
Return Seeking Fixed Income	$3.8	4.3%	5.0	-5.1%	-5.1%	-2.9%					
Bloomberg U.S. Aggregate				-5.9%	-5.9%	-4.2%					
Excess				0.8%	0.8%	1.3%					
Treasury Protection	$8.3	9.2%	10.0	-7.8%	-6.7%	-3.1%	2.2%				
Bloomberg Treasury 5+ Year				-8.1%	-6.8%	-3.1%	2.2%				
Excess				0.3%	0.1%	0.1%	0.1%				
Laddered Bond + Cash	$5.2	5.8%	5.0	-0.2%	-0.3%	-0.2%	0.7%	1.1%	0.7%	1.5%	3.1%
ICE BofA US 3-Month Treasury Bill				0.0%	0.1%	0.1%	0.8%	1.1%	0.6%	1.3%	2.4%
Excess				-0.3%	-0.3%	-0.3%	-0.1%	-0.0%	0.1%	0.2%	0.7%

Note:

Since 12/1/2020 the Total Fixed Income includes allocations to Core/Core Plus Bonds, Return Seeking Bonds, Treasuries and Laddered Bond + Cash. From 7/1/2020 to 11/30/2020 Total Fixed Income was Core Bonds, Treasuries and Cash. From 2/1/2018-6/30/20 Total Fixed Income was Core Bonds and Treasuries. Prior to 2/1/2018, Total Fixed Income was Core Bonds. For additional information regarding historical asset class performance and benchmarks, please refer to the Combined Funds Performance Report.

Combined Funds Asset Class Performance Summary

Private Markets

	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	25 Year	30 Year
Private Markets - Invested	3.0%	19.9%	31.8%	18.3%	16.5%	13.9%	13.8%	13.8%	13.0%
Private Markets -Uninvested (1)	-4.2%	7.0%	16.1%						
Private Equity	3.3%	20.7%	33.9%	25.1%	21.9%	18.0%	15.9%	15.4%	15.3%
Private Credit	0.2%	13.7%	22.7%	11.3%	12.0%	12.9%	12.4%	12.6%	
Resources	2.8%	16.8%	27.8%	-0.3%	2.2%	2.2%	12.8%	12.5%	12.3%
Real Estate	4.8%	26.4%	32.3%	15.6%	13.6%	12.9%	9.7%	10.6%	9.1%

Private Markets

The time-weighted rates of return for the Private Markets portfolio are shown here. Private Markets included Private Equity, Private Credit, Resources, and Real Estate. Some of the existing investments are relatively immature and returns may not be indicative of future results.

Private Equity Investments - The objectives of the Private Equity portfolio, which may include leveraged buyouts, growth equity, venture capital and special situations, are to achieve attractive returns and to provide overall portfolio diversification to the total plan.

Private Credit Investments - The objectives of the Private Credit portfolio, which may include mezzanine debt, direct lending, and other forms of non-investment grade fixed income instruments, are to achieve a high total return over a full market cycle and to provide some degree of downside protection and typically provide current income in the form of a coupon. In certain situations, investments in the Private Credit portfolio also provide an equity component of return in the form of warrants or re-organized equity.

Resource Investments - The objectives of the Resources portfolio, which may include energy, infrastructure, and other hard assets, are to provide protection against the risks associated with inflation and to provide overall portfolio diversification to the total plan.

Real Estate Investments - The objectives of the Real Estate portfolio, which may include core and non-core real estate investments, are to achieve attractive returns, preserve capital, provide protection against risks associated with inflation, and provide overall portfolio diversification to the total plan.

The SBI also monitors Private Markets performance using money-weighted return metrics such as Internal Rate of Return and Multiple of Invested Capital. For money-weighted return metrics please refer to the Combined Funds Performance Report.

(1) The Uninvested portion of the Private Markets allocation is invested in a combination of a passively managed S&P 500 Index strategy and a cash overlay strategy invested in equity derivatives and cash.

Asset Class & Manager Performance
March 31, 2022

The assets of the Combined Funds are allocated to public equity, fixed income, private markets, and cash. Each asset class may be further differentiated by geography, management style, and/or strategy. Managers are hired to manage the assets accordingly. This diversification is intended to reduce wide fluctuations in investment returns on a year-to-year basis and enhances the Funds' ability to meet or exceed the actuarial return target over the long-term.

The Combined Funds consist of the assets of active employees and retired members of the statewide retirement plans. The SBI commingles the assets of these plans into the Combined Funds to capture investment efficiencies. This sharing is accomplished by grouping managers by asset class, geography, and management style, into several Investment Pools. The individual funds participate in the Investment Pools by purchasing units which function much like the shares of a mutual fund.

While the vast majority of the units of these pools are owned by the Combined Funds, the Supplemental Investment Fund also owns units of these pools. The Supplemental Investment Funds are mutual fund-like investment vehicles which are used by investors in the Participant Directed Investment Program. Please refer to the Participant Directed Investment Program report for more information.

The performance information presented on the following pages for Public Equity and Fixed Income includes both the Combined Funds and Supplemental Investment Fund. The Private Markets is Combined Funds only. All assets in the Combined Funds are managed externally by investment management firms retained by contract.

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Domestic Equity

March 31, 2022

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Total Domestic Equity										
ACTIVE DOMESTIC EQUITY AGGREGATE (1)	**$3,271,324,924**	**10.5%**	**-7.3%**	**-5.2%**	**0.7%**	**15.5%**	**13.8%**	**13.1%**	**8.8%**	**06/1996**
Active Domestic Equity Benchmark			-6.4	-3.2	2.9	14.9	12.5	12.8	9.3	06/1996
Excess			-1.0	-2.0	-2.1	0.7	1.3	0.3	-0.6	
SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)	**3,192,434,890**	**10.3**	**-5.4**	**5.1**	**14.3**	**19.3**	**16.1**	**14.7**	**9.5**	**06/1996**
Semi Passive Domestic Equity Benchmark			-5.1	4.4	13.3	18.7	15.8	14.5	9.4	06/1996
Excess			-0.3	0.7	1.0	0.6	0.3	0.2	0.1	
PASSIVE DOMESTIC EQUITY AGGREGATE (3)	**24,649,137,653**	**79.2**	**-5.2**	**4.2**	**13.1**	**18.6**	**15.7**	**14.4**	**9.6**	**06/1996**
Passive Domestic Equity Benchmark			-5.1	4.3	13.1	18.6	15.7	14.4	9.7	06/1996
Excess			-0.1	-0.1	-0.1	0.0	-0.0	-0.0	-0.1	
TRANSITION AGGREGATE DOMESTIC EQUITY (4)	7	0.0								
TOTAL DOMESTIC EQUITY (5)	**31,112,897,474**	**100.0**	**-5.5**	**3.1**	**11.6**	**18.3**	**15.5**	**14.2**	**11.0**	**01/1984**
Domestic Equity Benchmark			-5.3	3.4	11.9	18.1	15.3	14.3	11.2	01/1984
Excess			-0.2	-0.3	-0.3	0.2	0.1	-0.0	-0.2	

(1) The Active Domestic Equity Benchmark is a weighted composite each of the individual active domestic equity manager's benchmarks.

(2) The current Semi-Passive Domestic Equity Benchmark is the Russell 1000 index.

(3) The current Passive Domestic Equity Benchmark is a weighted average of the Russell 1000, Russell 2000 and Russell 3000.

(4) The Transition Domestic Equity Aggregate will periodically contain residual Domestic Equity securities from transitions.

(5) The current Domestic Equity Benchmark is the Russell 3000.

Note: All aggregates include the performance of terminated managers. For historical benchmark details please refer to the addendum of this report.

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Total Domestic Equity					
ACTIVE DOMESTIC EQUITY AGGREGATE (1)	**18.5%**	**27.3%**	**27.6%**	**-6.5%**	**20.6%**
Active Domestic Equity Benchmark	20.3	19.8	28.2	-8.0	18.3
Excess	-1.7	7.5	-0.6	1.4	2.3
SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)	**28.8**	**21.0**	**30.9**	**-4.9**	**22.5**
Semi Passive Domestic Equity Benchmark	26.5	21.0	31.4	-4.8	21.7
Excess	2.3	0.0	-0.5	-0.1	0.8
PASSIVE DOMESTIC EQUITY AGGREGATE (3)	**26.5**	**20.8**	**31.3**	**-5.0**	**21.3**
Passive Domestic Equity Benchmark	26.4	20.8	31.3	-5.0	21.5
Excess	0.1	0.0	0.0	-0.0	-0.2
TRANSITION AGGREGATE DOMESTIC EQUITY (4)					
TOTAL DOMESTIC EQUITY (5)	**25.8**	**21.7**	**30.7**	**-5.3**	**21.4**
Domestic Equity Benchmark	25.7	20.8	30.8	-5.2	21.1
Excess	0.1	0.9	-0.1	-0.0	0.2

(1) The Active Domestic Equity Benchmark is a weighted composite each of the individual active domestic equity manager's benchmarks.
(2) The current Semi-Passive Domestic Equity Benchmark is the Russell 1000 index.
(3) The current Passive Domestic Equity Benchmark is a weighted average of the Russell 1000, Russell 2000 and Russell 3000.
(4) The Transition Domestic Equity Aggregate will periodically contain residual Domestic Equity securities from transitions.
(5) The current Domestic Equity Benchmark is the Russell 3000.
Note: All aggregates include the performance of terminated managers. For historical benchmark details please refer to the addendum of this report.

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active Large Cap Growth										
SANDS	**$216,151,594**	**0.7%**	**-21.6%**	**-23.8%**	**-15.4%**	**15.5%**	**19.1%**	**15.0%**	**12.2%**	**01/2005**
Russell 1000 Growth			-9.0	2.7	15.0	23.6	20.9	17.0	12.1	01/2005
Excess			-12.5	-26.5	-30.4	-8.1	-1.8	-2.0	0.1	
WINSLOW	**187,646,417**	**0.6**	**-12.8**	**-3.5**	**8.0**	**19.5**	**20.3**	**15.7**	**12.3**	**01/2005**
Russell 1000 Growth			-9.0	2.7	15.0	23.6	20.9	17.0	12.1	01/2005
Excess			-3.7	-6.2	-6.9	-4.1	-0.6	-1.3	0.2	
RUSSELL 1000 GROWTH AGGREGATE (1)	**403,798,011**	**1.3**	**-17.7**	**-15.6**	**-6.0**	**23.2**	**23.6**	**17.9**	**12.2**	**11/2003**
Russell 1000 Growth			-9.0	2.7	15.0	23.6	20.9	17.0	11.9	11/2003
Excess			-8.7	-18.3	-21.0	-0.4	2.8	0.9	0.3	

(1) Prior to 1/1/2021 the Russell 1000 Growth Aggregate included returns from Zevenbergen, which moved to the Russell 3000 Growth benchmark and is now reported separately.

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Active Large Cap Growth					
SANDS	**5.2%**	**71.0%**	**33.5%**	**7.0%**	**35.3%**
Russell 1000 Growth	27.6	38.5	36.4	-1.5	30.2
Excess	-22.4	32.5	-2.8	8.6	5.1
WINSLOW	**24.8**	**37.6**	**34.2**	**4.2**	**33.2**
Russell 1000 Growth	27.6	38.5	36.4	-1.5	30.2
Excess	-2.8	-0.9	-2.2	5.7	3.0
RUSSELL 1000 GROWTH AGGREGATE (1)	**12.8**	**81.3**	**37.3**	**4.7**	**33.4**
Russell 1000 Growth	27.6	38.5	36.4	-1.5	30.2
Excess	-14.8	42.8	0.9	6.2	3.2

(1) Prior to 1/1/2021 the Russell 1000 Growth Aggregate included returns from Zevenbergen, which moved to the Russell 3000 Growth benchmark and is now reported separately.

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Semi-Passive Large Cap										
BLACKROCK	**$1,600,176,535**	**5.1%**	**-5.8%**	**4.4%**	**13.7%**	**18.7%**	**16.3%**	**15.1%**	**10.9%**	**01/1995**
Semi Passive Domestic Equity Benchmark			-5.1	4.4	13.3	18.7	15.8	14.5	10.5	01/1995
Excess			-0.6	0.0	0.4	-0.1	0.5	0.5	0.4	
J.P. MORGAN	**1,592,258,355**	**5.1**	**-5.1**	**5.8**	**15.0**	**19.9**	**16.2**	**15.1**	**10.8**	**01/1995**
Semi Passive Domestic Equity Benchmark			-5.1	4.4	13.3	18.7	15.8	14.5	10.5	01/1995
Excess			0.0	1.4	1.7	1.2	0.4	0.5	0.3	
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE	**3,192,434,890**	**10.3**	**-5.4**	**5.1**	**14.3**	**19.3**	**16.1**	**14.7**	**9.5**	**06/1996**
Semi Passive Domestic Equity Benchmark			-5.1	4.4	13.3	18.7	15.8	14.5	9.4	06/1996
Excess			-0.3	0.7	1.0	0.6	0.3	0.2	0.1	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Semi-Passive Large Cap					
BLACKROCK	**28.3%**	**20.7%**	**30.4%**	**-4.1%**	**24.6%**
Semi Passive Domestic Equity Benchmark	26.5	21.0	31.4	-4.8	21.7
Excess	1.8	-0.3	-1.0	0.7	2.9
J.P. MORGAN	**29.3**	**21.2**	**31.3**	**-5.4**	**21.8**
Semi Passive Domestic Equity Benchmark	26.5	21.0	31.4	-4.8	21.7
Excess	2.8	0.3	-0.1	-0.6	0.1
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE	**28.8**	**21.0**	**30.9**	**-4.9**	**22.5**
Semi Passive Domestic Equity Benchmark	26.5	21.0	31.4	-4.8	21.7
Excess	2.3	0.0	-0.5	-0.1	0.8

Active Large Cap Value

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
BARROW HANLEY	**$371,072,349**	**1.2%**	**2.3%**	**10.3%**	**15.4%**	**15.6%**	**12.1%**	**12.4%**	**9.1%**	**04/2004**
Russell 1000 Value			-0.7	6.1	11.7	13.0	10.3	11.7	8.5	04/2004
Excess			3.0	4.2	3.7	2.6	1.9	0.7	0.6	
LSV	**362,837,601**	**1.2**	**-1.3**	**3.2**	**8.8**	**12.8**	**10.3**	**12.6**	**9.4**	**04/2004**
Russell 1000 Value			-0.7	6.1	11.7	13.0	10.3	11.7	8.5	04/2004
Excess			-0.5	-2.9	-2.9	-0.2	-0.0	0.9	0.9	
RUSSELL 1000 VALUE AGGREGATE	**733,909,950**	**2.4**	**0.5**	**6.7**	**12.0**	**14.5**	**11.8**	**12.4**	**9.3**	**10/2003**
Russell 1000 Value			-0.7	6.1	11.7	13.0	10.3	11.7	9.2	10/2003
Excess			1.2	0.5	0.4	1.5	1.5	0.7	0.1	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Active Large Cap Value					
BARROW HANLEY	**27.7%**	**2.4%**	**26.9%**	**-5.9%**	**14.6%**
Russell 1000 Value	25.2	2.8	26.5	-8.3	13.7
Excess	2.5	-0.4	0.4	2.4	0.9
LSV	**29.7**	**-1.3**	**26.9**	**-11.8**	**18.6**
Russell 1000 Value	25.2	2.8	26.5	-8.3	13.7
Excess	4.5	-4.1	0.4	-3.6	4.9
RUSSELL 1000 VALUE AGGREGATE	**28.8**	**1.6**	**27.4**	**-8.7**	**17.3**
Russell 1000 Value	25.2	2.8	26.5	-8.3	13.7
Excess	3.7	-1.2	0.9	-0.4	3.7

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active Small Cap Growth										
ARROWMARK	**$191,478,519**	**0.6%**	**-8.4%**	**-13.8%**	**-8.1%**	**7.8%**	**11.5%**		**13.4%**	**11/2016**
Russell 2000 Growth			-12.6	-17.6	-14.3	9.9	10.3		12.6	11/2016
Excess			4.3	3.8	6.2	-2.1	1.2		0.8	
HOOD RIVER	**254,796,320**	**0.8**	**-11.2**	**-8.7**	**-1.0**	**23.1**	**18.6**		**20.2**	**11/2016**
Russell 2000 Growth			-12.6	-17.6	-14.3	9.9	10.3		12.6	11/2016
Excess			1.4	8.9	13.3	13.2	8.3		7.6	
RICE HALL JAMES	**203,991,780**	**0.7**	**-11.7**	**-10.2**	**-5.7**	**10.7**	**10.5**		**13.6**	**11/2016**
Russell 2000 Growth			-12.6	-17.6	-14.3	9.9	10.3		12.6	11/2016
Excess			0.9	7.4	8.7	0.8	0.1		1.0	
WELLINGTON	**265,631,937**	**0.9**	**-14.0**	**-14.7**	**-12.0**	**10.3**	**10.7**		**13.0**	**11/2016**
Russell 2000 Growth			-12.6	-17.6	-14.3	9.9	10.3		12.6	11/2016
Excess			-1.3	2.9	2.3	0.4	0.4		0.4	
RUSSELL 2000 GROWTH AGGREGATE	**915,898,556**	**2.9**	**-11.6**	**-11.9**	**-6.8**	**13.1**	**12.6**	**11.0%**	**8.5**	**11/2003**
Russell 2000 Growth			-12.6	-17.6	-14.3	9.9	10.3	11.2	9.2	11/2003
Excess			1.0	5.7	7.5	3.2	2.3	-0.2	-0.8	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Active Small Cap Growth					
ARROWMARK	**6.1%**	**21.9%**	**20.1%**	**0.9%**	**26.2%**
Russell 2000 Growth	2.8	34.6	28.5	-9.3	22.2
Excess	3.2	-12.8	-8.4	10.3	4.1
HOOD RIVER	**24.2**	**61.7**	**24.3**	**-7.0**	**21.3**
Russell 2000 Growth	2.8	34.6	28.5	-9.3	22.2
Excess	21.4	27.0	-4.2	2.3	-0.9
RICE HALL JAMES	**15.6**	**23.8**	**18.0**	**-6.9**	**27.9**
Russell 2000 Growth	2.8	34.6	28.5	-9.3	22.2
Excess	12.8	-10.8	-10.5	2.4	5.8
WELLINGTON	**4.3**	**33.1**	**35.6**	**-11.6**	**22.6**
Russell 2000 Growth	2.8	34.6	28.5	-9.3	22.2
Excess	1.4	-1.5	7.1	-2.3	0.4
RUSSELL 2000 GROWTH AGGREGATE	**12.4**	**35.4**	**24.6**	**-6.2**	**22.0**
Russell 2000 Growth	2.8	34.6	28.5	-9.3	22.2
Excess	9.5	0.8	-3.9	3.2	-0.1

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active Small Cap Value										
GOLDMAN SACHS	**$304,535,146**	**1.0%**	**-3.2%**	**2.3%**	**5.2%**	**11.3%**	**8.2%**	**10.8%**	**9.5%**	**01/2004**
Russell 2000 Value			-2.4	-1.2	3.3	12.7	8.6	10.5	8.4	01/2004
Excess			-0.8	3.5	1.9	-1.5	-0.3	0.3	1.1	
HOTCHKIS AND WILEY	**198,586,492**	**0.6**	**9.1**	**15.6**	**21.6**	**16.8**	**10.2**	**12.3**	**9.3**	**01/2004**
Russell 2000 Value			-2.4	-1.2	3.3	12.7	8.6	10.5	8.4	01/2004
Excess			11.5	16.7	18.3	4.1	1.6	1.8	0.8	
MARTINGALE	**174,521,347**	**0.6**	**-2.7**	**5.8**	**10.9**	**12.6**	**8.1**	**11.6**	**8.3**	**01/2004**
Russell 2000 Value			-2.4	-1.2	3.3	12.7	8.6	10.5	8.4	01/2004
Excess			-0.3	7.0	7.6	-0.2	-0.5	1.1	-0.1	
PEREGRINE	**286,202,286**	**0.9**	**-1.6**	**2.9**	**6.2**	**13.6**	**9.1**	**10.5**	**10.3**	**07/2000**
Russell 2000 Value			-2.4	-1.2	3.3	12.7	8.6	10.5	9.7	07/2000
Excess			0.8	4.1	2.9	0.8	0.5	-0.1	0.6	
RUSSELL 2000 VALUE AGGREGATE	**963,845,271**	**3.1**	**-0.3**	**5.7**	**9.7**	**13.1**	**8.7**	**11.1**	**9.5**	**10/2003**
Russell 2000 Value			-2.4	-1.2	3.3	12.7	8.6	10.5	9.2	10/2003
Excess			2.1	6.9	6.3	0.3	0.1	0.5	0.3	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Active Small Cap Value					
GOLDMAN SACHS	**27.0%**	**2.4%**	**23.2%**	**-13.3%**	**12.6%**
Russell 2000 Value	28.3	4.6	22.4	-12.9	7.8
Excess	-1.3	-2.3	0.8	-0.5	4.7
HOTCHKIS AND WILEY	**36.5**	**-0.2**	**19.7**	**-14.4**	**7.9**
Russell 2000 Value	28.3	4.6	22.4	-12.9	7.8
Excess	8.2	-4.8	-2.7	-1.5	0.0
MARTINGALE	**41.3**	**-4.6**	**21.1**	**-15.0**	**6.9**
Russell 2000 Value	28.3	4.6	22.4	-12.9	7.8
Excess	13.0	-9.2	-1.3	-2.1	-0.9
PEREGRINE	**28.6**	**7.3**	**21.1**	**-16.1**	**12.5**
Russell 2000 Value	28.3	4.6	22.4	-12.9	7.8
Excess	0.3	2.7	-1.3	-3.3	4.7
RUSSELL 2000 VALUE AGGREGATE	**31.8**	**1.5**	**21.3**	**-14.7**	**10.2**
Russell 2000 Value	28.3	4.6	22.4	-12.9	7.8
Excess	3.5	-3.1	-1.1	-1.8	2.3

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active All Cap										
ZEVENBERGEN (1)	**$253,873,137**	**0.8%**	**-19.6%**	**-27.4%**	**-20.9%**	**22.6%**	**23.5%**	**17.7%**	**12.3%**	**04/1994**
Zevenbergen Custom Benchmark			-9.3	1.3	12.9	25.0	21.7	17.4		04/1994
Excess			-10.3	-28.8	-33.8	-2.4	1.8	0.3		
ACTIVE RUSSELL 3000 GROWTH (2)	**253,873,137**	**0.8**	**-19.6**	**-27.4**	**-20.9**				**-22.6**	**01/2021**
Russell 3000 Growth TR			-9.3	1.3	12.9				11.2	01/2021
Excess			-10.3	-28.8	-33.8				-33.9	

(1) Effective 1/1/2021, the SBI changed the Zevenbergen Benchmark to the Russell 3000 Growth. Prior to this date it was the Russell 1000 Growth.
(2) Prior to 1/1/2021, Zevenbergen returns were reported as part of the Russell 1000 Growth Aggregate.

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Active All Cap					
ZEVENBERGEN (1)	**-9.7%**	**126.2%**	**43.0%**	**2.3%**	**35.1%**
Zevenbergen Custom Benchmark	32.3	38.5	36.4	-1.5	30.2
Excess	-42.0	87.7	6.7	3.8	4.9
ACTIVE RUSSELL 3000 GROWTH (2)	**-9.7**				
Russell 3000 Growth TR	25.8				
Excess	-35.6				

(1) Effective 1/1/2021, the SBI changed the Zevenbergen Benchmark to the Russell 3000 Growth. Prior to this date it was the Russell 1000 Growth.
(2) Prior to 1/1/2021, Zevenbergen returns were reported as part of the Russell 1000 Growth Aggregate.

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Total Passive Domestic Equity										
BLACKROCK RUSSELL 1000	**$23,355,344,666**	**75.1%**	**-5.2%**	**4.3%**	**13.2%**	**18.7%**	**15.8%**		**17.0%**	**11/2016**
RUSSELL 1000 (DAILY)			-5.1	4.4	13.3	18.7	15.8		17.0	11/2016
Excess			-0.1	-0.1	-0.1	-0.0	-0.0		-0.0	
BLACKROCK RUSSELL 2000	**196,775,527**	**0.6**	**-6.6**	**-8.8**	**-4.2**	**12.7**			**12.0**	**11/2018**
RUSSELL 2000 (DAILY)			-7.5	-9.7	-5.8	11.7			11.1	11/2018
Excess			0.9	0.8	1.6	1.0			0.9	
BLACKROCK RUSSELL 3000 (1)	**1,097,017,460**	**3.5**	**-5.3**	**3.5**	**12.3**	**18.5**	**15.6**	**14.4%**	**10.2**	**07/1995**
Passive Manager Benchmark			-5.3	3.4	11.9	18.2	15.4	14.3	10.1	07/1995
Excess			0.0	0.1	0.4	0.3	0.2	0.1	0.1	
PASSIVE DOMESTIC EQUITY AGGREGATE (2)	**24,649,137,653**	**79.2**	**-5.2**	**4.2**	**13.1**	**18.6**	**15.7**	**14.4**	**9.6**	**06/1996**
Passive Domestic Equity Benchmark			-5.1	4.3	13.1	18.6	15.7	14.4	9.7	06/1996
Excess			-0.1	-0.1	-0.1	0.0	-0.0	-0.0	-0.1	

(1) The current Passive Manager Benchmark is the Russell 3000. For historical benchmark details please refer to the addendum of this report.

(2) The current Passive Domestic Equity Benchmark is a weighted average of the Russell 1000, Russell 2000 and Russell 3000.

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Total Passive Domestic Equity					
BLACKROCK RUSSELL 1000	**26.5%**	**20.9%**	**31.4%**	**-4.8%**	**21.7%**
RUSSELL 1000 (DAILY)	26.5	21.0	31.4	-4.8	21.7
Excess	0.1	-0.0	0.0	-0.0	-0.0
BLACKROCK RUSSELL 2000	**16.0**	**20.8**	**25.2**		
RUSSELL 2000 (DAILY)	14.8	20.0	25.5		
Excess	1.2	0.8	-0.3		
BLACKROCK RUSSELL 3000 (1)	**26.2**	**21.2**	**31.1**	**-5.2**	**21.1**
Passive Manager Benchmark	25.7	20.9	31.0	-5.2	21.1
Excess	0.5	0.3	0.0	-0.0	0.0
PASSIVE DOMESTIC EQUITY AGGREGATE (2)	**26.5**	**20.8**	**31.3**	**-5.0**	**21.3**
Passive Domestic Equity Benchmark	26.4	20.8	31.3	-5.0	21.5
Excess	0.1	0.0	0.0	-0.0	-0.2

(1) The current Passive Manager Benchmark is the Russell 3000. For historical benchmark details please refer to the addendum of this report.

(2) The current Passive Domestic Equity Benchmark is a weighted average of the Russell 1000, Russell 2000 and Russell 3000.

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International Equity

March 31, 2022

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Total International Equity										
DEVELOPED MARKETS (1)	**$9,445,683,471**	**69.8%**	**-5.1%**	**-2.6%**	**2.9%**	**9.2%**	**7.7%**	**7.0%**	**5.5%**	**01/1997**
BENCHMARK DM			-4.8	-2.5	3.0	8.6	7.1	6.3	2.6	01/1997
Excess			-0.2	-0.1	-0.1	0.6	0.6	0.7	3.0	
EMERGING MARKETS (2)	**3,479,364,833**	**25.7**	**-8.3**	**-16.3**	**-12.6**	**5.3**	**6.0**	**3.4**	**5.7**	**11/1996**
BENCHMARK EM			-7.0	-15.6	-11.4	4.9	6.0	3.4	6.0	11/1996
Excess			-1.3	-0.7	-1.2	0.3	0.0	0.1	-0.3	
ACWI EX-US AGGREGATE	**391,481,899**	**2.9**	**-2.5**	**-1.9**	**5.8**				**7.9**	**01/2021**
MSCI AC WORLD ex US (NET) - DAILY			-5.4	-6.6	-1.5				1.6	01/2021
Excess			2.9	4.7	7.2				6.3	
CHINA ONLY AGGREGATE	**165,717,629**	**1.2**	**-18.7**	**-20.0**	**-15.7**				**-17.3**	**01/2021**
MSCI China A			-14.5	-15.7	-8.0				-9.6	01/2021
Excess			-4.2	-4.3	-7.7				-7.7	
TRANSITION AGGREGATE INTERNATIONAL EQUITY (3)	744,681	0.0								
TOTAL INTERNATIONAL EQUITY (4)	**13,539,456,932**	**100.0**	**-5.7**	**-6.2**	**-1.4**	**8.2**	**7.3**	**6.2**	**6.5**	**10/1992**
International Equity Benchmark			-5.4	-6.6	-1.5	7.5	6.7	5.5	6.1	10/1992
Excess			-0.2	0.4	0.1	0.8	0.5	0.6	0.5	

(1) The current benchmak for Developed Markets, Benchmark DM, is the Standard (large + mid) MSCI World ex USA (net).

(2) The current benchmark for Emerging Markets, Benchmark EM, is the Standard (large + mid) MSCI Emerging Markets Free (net).

(3) The Transition Aggregate International Equity contains International Equity securities that are being transitioned to a different manager.

(4) The current International Equity Benchmark is the MSCI ACWI ex USA (net). Does not includes impact of currency overlay on the passive EAFE portfolio from 12/1/95-10/31/00. This impact is included in the return for the Combined Funds portion of the International Equity portfolio.

Note: All aggregates include the performance of terminated managers. For historical benchmark details please refer to the addendum of this report.

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Total International Equity					
DEVELOPED MARKETS (1)	**12.9%**	**9.1%**	**23.3%**	**-14.2%**	**24.9%**
BENCHMARK DM	12.6	7.6	22.5	-14.1	24.2
Excess	0.3	1.5	0.8	-0.1	0.7
EMERGING MARKETS (2)	**-1.5**	**17.9**	**20.3**	**-15.4**	**37.7**
BENCHMARK EM	-2.5	18.3	18.4	-14.6	37.3
Excess	1.1	-0.4	1.9	-0.8	0.4
ACWI EX-US AGGREGATE	**12.8**				
MSCI AC WORLD ex US (NET) - DAILY	7.8				
Excess	4.9				
CHINA ONLY AGGREGATE	**-2.9**				
MSCI China A	3.2				
Excess	-6.1				
TRANSITION AGGREGATE INTERNATIONAL EQUITY (3)					
TOTAL INTERNATIONAL EQUITY (4)	**8.9**	**11.4**	**22.4**	**-14.5**	**27.6**
International Equity Benchmark	7.8	10.5	21.5	-14.2	27.2
Excess	1.1	0.8	0.9	-0.3	0.4

(1) The current benchmak for Developed Markets, Benchmark DM, is the Standard (large + mid) MSCI World ex USA (net).

(2) The current benchmark for Emerging Markets, Benchmark EM, is the Standard (large + mid) MSCI Emerging Markets Free (net).

(3) The Transition Aggregate International Equity contains International Equity securities that are being transitioned to a different manager.

(4) The current International Equity Benchmark is the MSCI ACWI ex USA (net). Does not includes impact of currency overlay on the passive EAFE portfolio from 12/1/95-10/31/00. This impact is included in the return for the Combined Funds portion of the International Equity portfolio.

Note: All aggregates include the performance of terminated managers. For historical benchmark details please refer to the addendum of this report.

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active Developed Markets										
ACADIAN	**$386,362,310**	**2.9%**	**-3.5%**	**-2.6%**	**3.7%**	**9.9%**	**9.4%**	**9.7%**	**7.0%**	**07/2005**
BENCHMARK DM			-4.8	-2.5	3.0	8.6	7.1	6.3	5.3	07/2005
Excess			1.3	-0.1	0.7	1.4	2.2	3.4	1.7	
COLUMBIA	**394,861,031**	**2.9**	**-8.1**	**-4.1**	**1.1**	**11.3**	**10.5**	**8.1**	**3.9**	**03/2000**
BENCHMARK DM			-4.8	-2.5	3.0	8.6	7.1	6.3	3.9	03/2000
Excess			-3.3	-1.6	-1.9	2.8	3.4	1.8	-0.0	
FIDELITY	**394,913,634**	**2.9**	**-6.9**	**-3.8**	**1.4**	**11.3**	**9.3**	**8.0**	**7.0**	**07/2005**
BENCHMARK DM			-4.8	-2.5	3.0	8.6	7.1	6.3	5.3	07/2005
Excess			-2.1	-1.3	-1.7	2.8	2.2	1.8	1.7	
JP MORGAN	**342,102,274**	**2.5**	**-9.6**	**-5.1**	**1.0**	**9.9**	**8.2**	**6.7**	**5.7**	**07/2005**
BENCHMARK DM			-4.8	-2.5	3.0	8.6	7.1	6.3	5.3	07/2005
Excess			-4.7	-2.6	-2.1	1.4	1.1	0.4	0.3	
MARATHON	**377,458,102**	**2.8**	**-4.0**	**-2.9**	**2.1**	**9.4**	**7.6**	**7.8**	**8.0**	**11/1993**
BENCHMARK DM			-4.8	-2.5	3.0	8.6	7.1	6.3	5.3	11/1993
Excess			0.8	-0.4	-0.9	0.9	0.5	1.5	2.7	
MCKINLEY	**284,109,259**	**2.1**	**-7.6**	**-2.5**	**1.3**	**10.5**	**8.8**	**7.4**	**5.4**	**07/2005**
BENCHMARK DM			-4.8	-2.5	3.0	8.6	7.1	6.3	5.3	07/2005
Excess			-2.8	-0.1	-1.7	1.9	1.6	1.1	0.1	
AQR CAPITAL MANAGEMENT	**358,610,515**	**2.6**	**-4.3**	**-5.4**	**-2.8**	**5.9**	**4.8**	**6.0**	**5.1**	**07/2005**
BENCHMARK DM			-4.8	-2.5	3.0	8.6	7.1	6.3	5.3	07/2005
Excess			0.5	-3.0	-5.8	-2.7	-2.3	-0.2	-0.2	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Active Developed Markets					
ACADIAN	**13.6%**	**11.7%**	**19.1%**	**-13.5%**	**37.0%**
BENCHMARK DM	12.6	7.6	22.5	-14.1	24.2
Excess	0.9	4.2	-3.4	0.6	12.8
COLUMBIA	**14.2**	**15.0**	**28.9**	**-14.9**	**32.7**
BENCHMARK DM	12.6	7.6	22.5	-14.1	24.2
Excess	1.6	7.4	6.4	-0.8	8.5
FIDELITY	**13.0**	**15.4**	**27.1**	**-14.6**	**25.9**
BENCHMARK DM	12.6	7.6	22.5	-14.1	24.2
Excess	0.4	7.8	4.6	-0.5	1.7
JP MORGAN	**13.3**	**14.2**	**28.5**	**-17.3**	**28.3**
BENCHMARK DM	12.6	7.6	22.5	-14.1	24.2
Excess	0.7	6.6	6.0	-3.3	4.1
MARATHON	**12.8**	**7.6**	**23.5**	**-13.4**	**23.1**
BENCHMARK DM	12.6	7.6	22.5	-14.1	24.2
Excess	0.2	0.1	1.0	0.7	-1.1
MCKINLEY	**11.6**	**16.4**	**25.6**	**-15.9**	**28.5**
BENCHMARK DM	12.6	7.6	22.5	-14.1	24.2
Excess	-1.0	8.8	3.1	-1.9	4.3
AQR CAPITAL MANAGEMENT	**8.1**	**6.5**	**20.8**	**-18.2**	**25.1**
BENCHMARK DM	12.6	7.6	22.5	-14.1	24.2
Excess	-4.5	-1.1	-1.7	-4.1	0.9

Total Developed Markets

	Ending Market Value	Portfolio Weight	1 Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active Developed Markets Aggregate (1)	**$2,538,417,126**	**18.7%**	**-6.3%**	**-3.8%**	**1.1%**	**9.7%**	**8.1%**	**7.5%**	**5.8%**	**06/1996**
BENCHMARK DM			-4.8%	-2.5%	3.0%	8.6%	7.1%	6.3%	2.5%	06/1996
Excess			-1.4%	-1.3%	-1.9%	1.2%	1.0%	1.2%	3.3%	
SSgA DEVELOPED MARKETS PASSIVE	**$6,907,266,345**	**51.0%**	**-4.6%**	**-2.2%**	**3.6%**	**9.0%**	**7.6%**	**6.7%**	**6.4%**	**10/1992**
BENCHMARK DM			-4.8%	-2.5%	3.0%	8.6%	7.1%	6.3%	6.0%	10/1992
Excess			0.2%	0.3%	0.6%	0.5%	0.4%	0.4%	0.3%	
RECORD CURRENCY (2)	**$56,464,420**	**0.4%**	**0.7%**	**1.2%**	**0.7%**					
DM PASSIVE EQUITY WITH CURRENCY MGMT	**$6,963,730,765**	**51.4%**	**-3.9%**	**-1.0%**	**4.3%**	**9.5%**	**7.8%**	**6.7%**	**5.4%**	**06/1996**
BENCHMARK DM			-4.8%	-2.5%	3.0%	8.6%	7.1%	6.3%	2.5%	06/1996
Excess			0.9%	1.4%	1.3%	1.0%	0.7%	0.5%	2.9%	
DEVELOPED MARKETS TOTAL	**$9,445,683,471**	**69.8%**	**-5.1%**	**-2.6%**	**2.9%**	**9.2%**	**7.7%**	**7.0%**	**5.5%**	**01/1997**
BENCHMARK DM			-4.8%	-2.5%	3.0%	8.6%	7.1%	6.3%	2.6%	01/1997
Excess			-0.2%	-0.1%	-0.1%	0.6%	0.6%	0.7%	3.0%	

(1) Includes the historical returns of AQR and terminated managers previously classified as "Semi-Passive Developed Markets"

(2) Return for Record Currency is the difference between the DM Passive Account with Currency Management and without.

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Total Developed Markets					
Active Developed Markets Aggregate (1)	**12.5%**	**12.2%**	**24.4%**	**-15.1%**	**26.8%**
BENCHMARK DM	12.6%	7.6%	22.5%	-14.1%	24.2%
Excess	-0.1%	4.6%	1.9%	-1.0%	2.6%
SSgA DEVELOPED MARKETS PASSIVE	**13.0%**	**8.2%**	**23.0%**	**-13.9%**	**24.7%**
BENCHMARK DM	12.6%	7.6%	22.5%	-14.1%	24.2%
Excess	0.4%	0.6%	0.5%	0.2%	0.5%
DM PASSIVE EQUITY WITH CURRENCY MGMT	**13.9%**	**8.0%**	**23.0%**	**-13.9%**	**23.8%**
BENCHMARK DM	12.6%	7.6%	22.5%	-14.1%	24.2%
Excess	1.3%	0.4%	0.5%	0.2%	-0.4%
DEVELOPED MARKETS TOTAL	**12.9%**	**9.1%**	**23.3%**	**-14.2%**	**24.9%**
BENCHMARK DM	12.6%	7.6%	22.5%	-14.1%	24.2%
Excess	0.3%	1.5%	0.8%	-0.1%	0.7%

(1) Includes the historical returns of AQR and terminated managers previously classified as "Semi-Passive Developed Markets"

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active Emerging Markets										
MARTIN CURRIE	**$422,580,982**	**3.1%**	**-11.8%**	**-20.9%**	**-16.8%**	**6.7%**	**8.4%**		**8.4%**	**04/2017**
BENCHMARK EM			-7.0	-15.6	-11.4	4.9	6.0		6.0	04/2017
Excess			-4.8	-5.3	-5.4	1.8	2.5		2.5	
MACQUARIE	**395,537,143**	**2.9**	**-11.1**	**-18.9**	**-15.8**	**6.4**	**7.2**		**7.2**	**04/2017**
BENCHMARK EM			-7.0	-15.6	-11.4	4.9	6.0		6.0	04/2017
Excess			-4.2	-3.3	-4.4	1.5	1.3		1.3	
MORGAN STANLEY	**499,225,462**	**3.7**	**-11.4**	**-15.4**	**-9.9**	**5.9**	**5.5**	**4.0%**	**8.7**	**01/2001**
BENCHMARK EM			-7.0	-15.6	-11.4	4.9	6.0	3.4	8.5	01/2001
Excess			-4.4	0.2	1.4	1.0	-0.4	0.6	0.2	
NEUBERGER BERMAN	**359,387,321**	**2.7**	**-10.8**	**-19.9**	**-18.1**	**1.2**	**3.8**		**3.8**	**04/2017**
BENCHMARK EM			-7.0	-15.6	-11.4	4.9	6.0		6.0	04/2017
Excess			-3.9	-4.3	-6.7	-3.8	-2.2		-2.2	
PZENA	**374,972,705**	**2.8**	**1.4**	**-4.3**	**-1.1**	**8.1**	**6.9**		**6.9**	**04/2017**
BENCHMARK EM			-7.0	-15.6	-11.4	4.9	6.0		6.0	04/2017
Excess			8.4	11.4	10.3	3.1	0.9		0.9	
ROCK CREEK	**400,967,662**	**3.0**	**-6.3**	**-17.1**	**-13.7**	**6.5**	**5.4**		**5.4**	**04/2017**
BENCHMARK EM			-7.0	-15.6	-11.4	4.9	6.0		6.0	04/2017
Excess			0.7	-1.5	-2.3	1.6	-0.6		-0.6	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Active Emerging Markets					
MARTIN CURRIE	**-3.5%**	**26.5%**	**27.3%**	**-16.6%**	
BENCHMARK EM	-2.5	18.3	18.4	-14.6	
Excess	-1.0	8.2	8.8	-2.0	
MACQUARIE	**-2.2**	**24.2**	**23.2**	**-13.3**	
BENCHMARK EM	-2.5	18.3	18.4	-14.6	
Excess	0.3	5.9	4.7	1.3	
MORGAN STANLEY	**3.5**	**15.7**	**20.4**	**-16.7**	**37.9%**
BENCHMARK EM	-2.5	18.3	18.4	-14.6	37.3
Excess	6.0	-2.6	1.9	-2.2	0.6
NEUBERGER BERMAN	**-5.6**	**14.2**	**19.7**	**-17.1**	
BENCHMARK EM	-2.5	18.3	18.4	-14.6	
Excess	-3.1	-4.1	1.3	-2.6	
PZENA	**9.3**	**7.7**	**13.4**	**-10.8**	
BENCHMARK EM	-2.5	18.3	18.4	-14.6	
Excess	11.8	-10.6	-5.1	3.8	
ROCK CREEK	**-5.2**	**22.0**	**22.3**	**-17.6**	
BENCHMARK EM	-2.5	18.3	18.4	-14.6	
Excess	-2.7	3.7	3.9	-3.1	

Total Emerging Markets

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
ACTIVE EMERGING MARKETS AGGREGATE	**$2,452,671,275**	**18.1%**	**-8.8%**	**-16.5%**	**-12.8%**	**5.5%**	**6.0%**	**3.2%**	**4.4%**	**01/2012**
BENCHMARK EM			-7.0	-15.6	-11.4	4.9	6.0	3.4	4.6	01/2012
Excess			-1.8	-0.8	-1.5	0.6	0.1	-0.1	-0.2	
SSGA EMERGING MARKETS PASSIVE	**1,026,693,559**	**7.6**	**-7.2**	**-16.1**	**-11.9**	**4.6**	**5.8**	**3.4**	**4.6**	**01/2012**
BENCHMARK EM			-7.0	-15.6	-11.4	4.9	6.0	3.4	4.6	01/2012
Excess			-0.2	-0.4	-0.6	-0.3	-0.1	0.0	-0.0	
EMERGING MARKETS TOTAL	**3,479,364,833**	**25.7**	**-8.3**	**-16.3**	**-12.6**	**5.3**	**6.0**	**3.4**	**5.7**	**11/1996**
BENCHMARK EM			-7.0	-15.6	-11.4	4.9	6.0	3.4	6.0	11/1996
Excess			-1.3	-0.7	-1.2	0.3	0.0	0.1	-0.3	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Total Emerging Markets					
ACTIVE EMERGING MARKETS AGGREGATE	**-0.9%**	**17.6%**	**21.4%**	**-15.6%**	**37.2%**
BENCHMARK EM	-2.5	18.3	18.4	-14.6	37.3
Excess	1.6	-0.7	3.0	-1.0	-0.1
SSGA EMERGING MARKETS PASSICE	**-2.9**	**18.3**	**18.1**	**-14.7**	**37.4**
BENCHMARK EM	-2.5	18.3	18.4	-14.6	37.3
Excess	-0.3	0.0	-0.3	-0.1	0.1
EMERGING MARKETS TOTAL	**-1.5**	**17.9**	**20.3**	**-15.4**	**37.7**
BENCHMARK EM	-2.5	18.3	18.4	-14.6	37.3
Excess	1.1	-0.4	1.9	-0.8	0.4

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active ACWI ex-US										
EARNEST PARTNERS ACWI EX US	**$391,481,899**	**2.9%**	**-2.5%**	**-1.9%**	**5.8%**				**7.9%**	**01/2021**
MSCI AC WORLD ex US (NET) - DAILY			-5.4%	-6.6%	-1.5%				1.6%	01/2021
Excess			2.9%	4.7%	7.2%				6.3%	
TOTAL ACWI EX-US AGGREGATE	**$391,481,899**	**2.9%**	**-2.5%**	**-1.9%**	**5.8%**				**7.9%**	**01/2021**
MSCI AC WORLD ex US (NET) - DAILY			-5.4%	-6.6%	-1.5%				1.6%	01/2021
Excess			2.9%	4.7%	7.2%				6.3%	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Active ACWI ex-US					
EARNEST PARTNERS ACWI EX US	**12.8%**				
MSCI AC WORLD ex US (NET) - DAILY	7.8				
Excess	4.9				
TOTAL ACWI EX-US AGGREGATE	**12.8**				
MSCI AC WORLD ex US (NET) - DAILY	7.8				
Excess	4.9				

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
China Only Managers										
EARNEST PARTNERS CHINA	**$165,717,629**	**1.2%**	**-18.7%**	**-20.0%**	**-15.7%**				**-17.3%**	**01/2021**
MSCI China A			-14.5	-15.7	-8.0				-9.6	01/2021
Excess			-4.2	-4.3	-7.7				-7.7	
CHINA ONLY AGGREGATE	**165,717,629**	**1.2**	**-18.7**	**-20.0**	**-15.7**				**-17.3**	**01/2021**
MSCI China A			-14.5	-15.7	-8.0				-9.6	01/2021
Excess			-4.2	-4.3	-7.7				-7.7	

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	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
China Only Managers					
EARNEST PARTNERS CHINA	**-2.9%**				
MSCI China A	3.2				
Excess	-6.1				
CHINA ONLY AGGREGATE	**-2.9**				
MSCI China A	3.2				
Excess	-6.1				

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Global Equity
March 31, 2022

Global Equity Managers

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
ARIEL INVESTMENTS	**$390,316,925**	**38.3%**	**1.1%**	**3.4%**	**9.0%**				**10.6%**	**01/2021**
MSCI AC WORLD NET USD DAILY			-5.4	-0.1	7.3				9.7	01/2021
Excess			6.5	3.5	1.7				0.9	
BAILLIE GIFFORD	**253,888,417**	**24.9**	**-22.0**	**-28.2**	**-17.9**				**-16.1**	**01/2021**
MSCI AC WORLD NET USD DAILY			-5.4	-0.1	7.3				9.7	01/2021
Excess			-16.7	-28.1	-25.2				-25.8	
MARTIN CURRIE INVESTMENTS - GLOBAL EQ	**374,412,825**	**36.8**	**-15.6**	**-14.8**	**-3.9**				**-3.9**	**01/2021**
MSCI AC WORLD NET USD DAILY			-5.4	-0.1	7.3				9.7	01/2021
Excess			-10.2	-14.6	-11.2				-13.5	
GLOBAL EQUITY	**1,018,618,168**	**100.0**	**-11.8**	**-12.9**	**-3.6**				**-2.7**	**01/2021**
MSCI AC WORLD NET USD DAILY			-5.4	-0.1	7.3				9.7	01/2021
Excess			-6.5	-12.8	-10.9				-12.3	

Global Equity Managers

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
ARIEL INVESTMENTS	**12.1%**				
MSCI AC WORLD NET USD DAILY	18.5				
Excess	-6.5				
BAILLIE GIFFORD	**3.1**				
MSCI AC WORLD NET USD DAILY	18.5				
Excess	-15.5				
MARTIN CURRIE INVESTMENTS - GLOBAL EQ	**12.8**				
MSCI AC WORLD NET USD DAILY	18.5				
Excess	-5.8				
GLOBAL EQUITY	**9.6**				
MSCI AC WORLD NET USD DAILY	18.5				
Excess	-8.9				

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Core/Core Plus Bonds
March 31, 2022

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Bonds										
CORE (1)	**$1,895,581,596**	**40.2%**	**-5.7%**	**-5.7%**	**-3.8%**				**-3.4%**	**11/2020**
Bloomberg U.S. Aggregate			-5.9	-5.9	-4.2				-4.5	11/2020
Excess			0.3	0.2	0.4				1.1	
CORE PLUS (1)	**2,819,074,878**	**59.8**	**-7.0**	**-6.9**	**-4.9**				**-4.2**	**11/2020**
Bloomberg U.S. Aggregate			-5.9	-5.9	-4.2				-4.5	11/2020
Excess			-1.0	-1.0	-0.7				0.4	
TRANSITION AGGREGATE CORE BONDS (2)	19,062	0.0								
TOTAL CORE/CORE PLUS BONDS (3)	**4,714,675,536**	**100.0**	**-6.5**	**-6.4**	**-4.4**	**2.5%**	**2.8%**	**2.9%**	**7.1**	**07/1984**
Bloomberg U.S. Aggregate			-5.9	-5.9	-4.2	1.7	2.1	2.2	6.7	07/1984
Excess			-0.5	-0.5	-0.3	0.8	0.7	0.7	0.4	

(1) Prior to 12/1/2020 the Core and Core Plus managers were categorized as Active or Semi-Passive. For historical performance of each manager, see the following pages in this report. For information on the historical performance of the previous groupings refer to the 9/30/2020 Comprehensive Performance Report.

(2) The Transition Aggregate Core Bonds includes core bonds securities that are being transition to a different manager.

(3) The current Core Bonds Benchmark is the Bloomberg U.S. Aggregate calculated daily. For historical benchmark details please refer to the addendum of this report.

Note: All aggregates include the performance of terminated managers. Inception refers to the date of retention by the SBI.

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Bonds					
CORE (1)	**-1.0%**				
Bloomberg U.S. Aggregate	-1.5				
Excess	0.5				
CORE PLUS (1)	**-1.1**				
Bloomberg U.S. Aggregate	-1.5				
Excess	0.4				
TRANSITION AGGREGATE CORE BONDS (2)					
TOTAL CORE/CORE PLUS BONDS (3)	**-1.1**	**9.7%**	**9.7%**	**-0.0%**	**4.2%**
Bloomberg U.S. Aggregate	-1.5	7.5	8.7	0.0	3.5
Excess	0.5	2.2	1.0	-0.1	0.7

(1) Prior to 12/1/2020 the Core and Core Plus managers were categorized as Active or Semi-Passive. For historical performance of each manager, see the following pages in this report. For information on the historical performance of the previous groupings refer to the 9/30/2020 Comprehensive Performance Report.

(2) The Transition Aggregate Core Bonds includes core bonds securities that are being transition to a different manager.

(3) The current Core Bonds Benchmark is the Bloomberg U.S. Aggregate calculated daily. For historical benchmark details please refer to the addendum of this report.

Note: All aggregates include the performance of terminated managers. Inception refers to the date of retention by the SBI.

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active Core										
DODGE & COX	**$1,006,197,717**	**21.3%**	**-5.4%**	**-5.5%**	**-3.6%**	**2.8%**	**3.0%**	**3.3%**	**5.5%**	**02/2000**
Bloomberg U.S. Aggregate			-5.9	-5.9	-4.2	1.7	2.1	2.2	4.5	02/2000
Excess			0.5	0.4	0.5	1.1	0.9	1.1	1.0	
BLACKROCK	**889,383,879**	**18.9**	**-5.9**	**-5.8**	**-4.0**	**2.1**	**2.4**	**2.5**	**4.8**	**04/1996**
Bloomberg U.S. Aggregate			-5.9	-5.9	-4.2	1.7	2.1	2.2	4.7	04/1996
Excess			0.0	0.0	0.2	0.4	0.3	0.3	0.1	
CORE (1)	**1,895,581,596**	**40.2**	**-5.7**	**-5.7**	**-3.8**				**-3.4**	**11/2020**
Bloomberg U.S. Aggregate			-5.9	-5.9	-4.2				-4.5	11/2020
Excess			0.3	0.2	0.4				1.1	

(1) Prior to 12/1/2020 the Core managers were categorized as Active or Semi-Passive. For information on the historical performance of the previous groupings refer to the 9/30/2020 Comprehensive Performance Report.

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Active Core					
DODGE & COX	**-0.7%**	**9.4%**	**9.6%**	**-0.0%**	**4.2%**
Bloomberg U.S. Aggregate	-1.5	7.5	8.7	0.0	3.5
Excess	0.8	1.8	0.9	-0.1	0.7
BLACKROCK	**-1.3**	**8.3**	**9.3**	**-0.1**	**3.7**
Bloomberg U.S. Aggregate	-1.5	7.5	8.7	0.0	3.5
Excess	0.2	0.8	0.6	-0.2	0.1
CORE	**-1.0**				
Bloomberg U.S. Aggregate	-1.5				
Excess	0.5				

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Core Plus Bonds										
GOLDMAN SACHS	**$847,138,398**	**18.0%**	**-6.0%**	**-5.7%**	**-3.6%**	**2.3%**	**2.6%**	**2.7%**	**5.1%**	**07/1993**
Bloomberg U.S. Aggregate			-5.9	-5.9	-4.2	1.7	2.1	2.2	4.8	07/1993
Excess			-0.1	0.2	0.5	0.6	0.5	0.4	0.4	
NEUBERGER	**933,890,039**	**19.8**	**-5.8**	**-5.6**	**-3.7**	**2.9**	**2.9**	**2.7**	**6.0**	**07/1988**
Bloomberg U.S. Aggregate			-5.9	-5.9	-4.2	1.7	2.1	2.2	5.7	07/1988
Excess			0.1	0.3	0.5	1.2	0.7	0.5	0.3	
WESTERN	**1,038,046,441**	**22.0**	**-8.8**	**-8.9**	**-6.9**	**2.3**	**2.9**	**3.3**	**7.8**	**07/1984**
Bloomberg U.S. Aggregate			-5.9	-5.9	-4.2	1.7	2.1	2.2	6.7	07/1984
Excess			-2.8	-3.0	-2.7	0.6	0.8	1.1	1.1	
CORE PLUS (1)	**2,819,074,878**	**59.8**	**-7.0**	**-6.9**	**-4.9**				**-4.2**	**11/2020**
Bloomberg U.S. Aggregate			-5.9	-5.9	-4.2				-4.5	11/2020
Excess			-1.0	-1.0	-0.7				0.4	

(1) Prior to 12/1/2020 the Core Plus managers were categorized as Active or Semi-Passive. For information on the historical performance of the previous groupings refer to the 9/30/2020 Comprehensive Performance Report.

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Core Plus Bonds					
GOLDMAN SACHS	**-1.5%**	**9.0%**	**9.6%**	**-0.0%**	**3.9%**
Bloomberg U.S. Aggregate	-1.5	7.5	8.7	0.0	3.5
Excess	0.0	1.5	0.9	-0.0	0.4
NEUBERGER	**-0.6**	**9.9**	**9.0**	**-0.1**	**3.6**
Bloomberg U.S. Aggregate	-1.5	7.5	8.7	0.0	3.5
Excess	1.0	2.4	0.3	-0.1	0.0
WESTERN	**-1.3**	**10.9**	**11.1**	**-0.2**	**5.6**
Bloomberg U.S. Aggregate	-1.5	7.5	8.7	0.0	3.5
Excess	0.3	3.4	2.4	-0.3	2.1
CORE PLUS	**-1.1**				
Bloomberg U.S. Aggregate	-1.5				
Excess	0.4				

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Return Seeking Bonds
March 31, 2022

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Return Seeking Bonds Managers										
COLUMBIA CREDIT PLUS	**$877,501,860**	**22.9%**	**-6.3%**	**-6.3%**	**-4.1%**				**-3.2%**	**12/2020**
Credit Plus Benchmark			-6.5	-6.3	-4.0				-4.8	12/2020
Excess			0.2	-0.0	-0.1				1.7	
PIMCO CREDIT PLUS	**765,697,106**	**20.0**	**-6.3**	**-5.8**	**-3.4**				**-3.6**	**12/2020**
Credit Plus Benchmark			-6.5	-6.3	-4.0				-4.8	12/2020
Excess			0.2	0.4	0.5				1.2	
CREDIT PLUS	**1,643,198,966**	**43.0**	**-6.3**	**-6.1**	**-3.8**				**-3.4**	**12/2020**
Credit Plus Benchmark			-6.5	-6.3	-4.0				-4.8	12/2020
Excess			0.2	0.2	0.2				1.5	
BLACKROCK OPPORTUNISTIC	**490,377,478**	**12.8**	**-3.0**	**-2.9**	**-2.0**				**-1.5**	**12/2020**
ICE BofA US 3-Month Treasury Bill			0.0	0.1	0.1				0.1	12/2020
Excess			-3.0	-3.0	-2.1				-1.6	
ASHMORE EMERGING MARKET	**249,525,609**	**6.5**	**-8.3**	**-15.9**	**-12.3**				**-14.3**	**01/2021**
JPM JEMB Sovereign-only 50-50			-8.2	-11.3	-8.0				-10.7	01/2021
Excess			-0.0	-4.6	-4.4				-3.6	
TCW SECURITIZED CREDIT	**300,306,815**	**7.9**	**-0.7**	**0.1**					**0.1**	**07/2021**
ICE BofA US 3-Month Treasury Bill			0.0	0.1					0.1	07/2021
Excess			-0.7	0.1					0.1	

Return Seeking Bonds Managers	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
COLUMBIA CREDIT PLUS	**1.1%**				
Credit Plus Benchmark	0.0				
Excess	1.1				
PIMCO CREDIT PLUS	**0.8**				
Credit Plus Benchmark	0.0				
Excess	0.7				
CREDIT PLUS	**0.9**				
Credit Plus Benchmark	0.0				
Excess	0.9				
BLACKROCK OPPORTUNISTIC	**0.3**				
ICE BofA US 3-Month Treasury Bill	0.0				
Excess	0.2				
ASHMORE EMERGING MARKET	**-10.1**				
JPM JEMB Sovereign-only 50-50	-5.3				
Excess	-4.8				
TCW SECURITIZED CREDIT					
ICE BofA US 3-Month Treasury Bill					
Excess					

Return Seeking Bonds Managers	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
PAYDEN RYGEL	**$294,229,132**	**7.7%**	**-4.6%**	**-4.2%**	**-1.4%**				**-1.7%**	**01/2021**
Multi-Asset Credit Benchmark			-5.0	-4.2	-1.6				-1.9	01/2021
Excess			0.4	0.0	0.3				0.2	
PGIM	**292,374,374**	**7.6**	**-5.9**	**-4.0**	**-1.2**				**-2.4**	**01/2021**
Multi-Asset Credit Benchmark			-5.0	-4.2	-1.6				-1.9	01/2021
Excess			-1.0	0.2	0.4				-0.4	
MULTI-ASSET CREDIT	**586,603,506**	**15.3**	**-5.3**	**-4.1**	**-1.3**				**-2.0**	**01/2021**
Multi-Asset Credit Benchmark			-5.0	-4.2	-1.6				-1.9	01/2021
Excess			-0.3	0.1	0.3				-0.1	
KKR	**302,319,631**	**7.9**	**-4.1**	**-2.3**	**0.2**				**0.3**	**01/2021**
ICE BofA US Cash Pay HY Constrained			-4.5	-2.9	-0.3				0.4	01/2021
Excess			0.4	0.7	0.5				-0.1	
OAKTREE	**252,814,888**	**6.6**	**-3.9**	**-2.3**	**0.2**				**0.3**	**01/2021**
ICE BofA US Cash Pay HY Constrained			-4.5	-2.9	-0.3				0.4	01/2021
Excess			0.6	0.6	0.5				-0.1	
HIGH YIELD	**555,134,519**	**14.5**	**-4.0**	**-2.3**	**0.2**				**0.3**	**01/2021**
ICE BofA US Cash Pay HY Constrained			-4.5	-2.9	-0.3				0.4	01/2021
Excess			0.5	0.6	0.5				-0.1	

Return Seeking Bonds Managers	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
PAYDEN RYGEL	**2.6%**				
Multi-Asset Credit Benchmark	2.7				
Excess	-0.1				
PGIM	**3.2**				
Multi-Asset Credit Benchmark	2.7				
Excess	0.5				
MULTI-ASSET CREDIT	**2.9**				
Multi-Asset Credit Benchmark	2.7				
Excess	0.2				
KKR	**4.7**				
ICE BofA US Cash Pay HY Constrained	5.3				
Excess	-0.6				
OAKTREE	**4.5**				
ICE BofA US Cash Pay HY Constrained	5.3				
Excess	-0.8				
HIGH YIELD	**4.6**				
ICE BofA US Cash Pay HY Constrained	5.3				
Excess	-0.7				

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Return Seeking Bonds										
CREDIT PLUS	**$1,643,198,966**	**43.0%**	**-6.3%**	**-6.1%**	**-3.8%**				**-3.4%**	**12/2020**
Credit Plus Benchmark			-6.5	-6.3	-4.0				-4.8	12/2020
Excess			0.2	0.2	0.2				1.5	
OPPORTUNISTIC FI	**490,377,478**	**12.8**	**-3.0**	**-2.9**	**-2.0**				**-1.5**	**12/2020**
ICE BofA US 3-Month Treasury Bill			0.0	0.1	0.1				0.1	12/2020
Excess			-3.0	-3.0	-2.1				-1.6	
EMERGING MARKET DEBT	**249,525,609**	**6.5**	**-8.3**	**-15.9**	**-12.3**				**-14.3**	**01/2021**
JPM JEMB Sovereign-only 50-50			-8.2	-11.3	-8.0				-10.7	01/2021
Excess			-0.0	-4.6	-4.4				-3.6	
SECURITIZED CREDIT	**300,323,500**	**7.9**	**-0.7**	**0.1**					**0.1**	**06/2021**
ICE BofA US 3-Month Treasury Bill			0.0	0.1					0.1	06/2021
Excess			-0.7	0.1					0.0	
MULTI-ASSET CREDIT	**586,603,506**	**15.3**	**-5.3**	**-4.1**	**-1.3**				**-2.0**	**01/2021**
Multi-Asset Credit Benchmark			-5.0	-4.2	-1.6				-1.9	01/2021
Excess			-0.3	0.1	0.3				-0.1	
HIGH YIELD	**555,134,519**	**14.5**	**-4.0**	**-2.3**	**0.2**				**0.3**	**01/2021**
ICE BofA US Cash Pay HY Constrained			-4.5	-2.9	-0.3				0.4	01/2021
Excess			0.5	0.6	0.5				-0.1	
RETURN SEEKING BONDS	**3,825,146,893**	**100.0**	**-5.1**	**-5.1**	**-2.8**				**-2.6**	**12/2020**
Return Seeking Fixed Income Benchmark			-4.8	-4.6	-2.4				-2.6	12/2020
Excess			-0.3	-0.5	-0.4				0.1	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Return Seeking Bonds					
CREDIT PLUS	**0.9%**				
Credit Plus Benchmark	0.0				
Excess	0.9				
OPPORTUNISTIC FI	**0.3**				
ICE BofA US 3-Month Treasury Bill	0.0				
Excess	0.2				
EMERGING MARKET DEBT	**-10.1**				
JPM JEMB Sovereign-only 50-50	-5.3				
Excess	-4.8				
SECURITIZED CREDIT					
ICE BofA US 3-Month Treasury Bill					
Excess					
MULTI-ASSET CREDIT	**2.9**				
Multi-Asset Credit Benchmark	2.7				
Excess	0.2				
HIGH YIELD	**4.6**				
ICE BofA US Cash Pay HY Constrained	5.3				
Excess	-0.7				
RETURN SEEKING BONDS	**0.9**				
Return Seeking Fixed Income Benchmark	0.8				
Excess	0.1				

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Treasuries

March 31, 2022

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Treasuries Managers										
BLACKROCK	**$2,573,447,386**	**31.0%**	**-7.9%**	**-6.8%**	**-3.1%**	**2.0%**			**2.8%**	**02/2018**
Bloomberg Treasury 5+ Year			-8.1	-6.8	-3.1	2.2			2.9	02/2018
Excess			0.2	-0.0	-0.0	-0.1			-0.1	
GOLDMAN SACHS	**2,750,416,441**	**33.2**	**-7.9**	**-6.8**	**-3.2**	**2.2**			**3.0**	**02/2018**
Bloomberg Treasury 5+ Year			-8.1	-6.8	-3.1	2.2			2.9	02/2018
Excess			0.2	-0.1	-0.1	0.0			0.0	
NEUBERGER	**2,969,172,427**	**35.8**	**-7.6**	**-6.4**	**-2.8**	**2.4**			**3.1**	**02/2018**
Bloomberg Treasury 5+ Year			-8.1	-6.8	-3.1	2.2			2.9	02/2018
Excess			0.5	0.4	0.3	0.3			0.2	
TOTAL TREASURIES	**8,293,036,254**	**100.0**	**-7.8**	**-6.7**	**-3.1**	**2.2**			**3.0**	**02/2018**
Bloomberg Treasury 5+ Year			-8.1	-6.8	-3.1	2.2			2.9	02/2018
Excess			0.3	0.1	0.1	0.1			0.0	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Treasuries Managers					
BLACKROCK	**-4.0%**	**12.5%**	**10.4%**		
Bloomberg Treasury 5+ Year	-3.8	12.8	10.4		
Excess	-0.2	-0.3	-0.1		
GOLDMAN SACHS	**-3.9**	**12.7**	**10.6**		
Bloomberg Treasury 5+ Year	-3.8	12.8	10.4		
Excess	-0.1	-0.1	0.1		
NEUBERGER	**-3.4**	**12.8**	**10.4**		
Bloomberg Treasury 5+ Year	-3.8	12.8	10.4		
Excess	0.4	-0.1	-0.0		
TOTAL TREASURIES	**-3.7**	**12.7**	**10.4**		
Bloomberg Treasury 5+ Year	-3.8	12.8	10.4		
Excess	0.0	-0.2	0.0		

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Laddered Bonds + Cash

March 31, 2022

	Ending Market Value	Portfolio Weight	Last Qtr	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Laddered Bond and Cash Managers									
Neuberger Berman Ladder Bond	**$1,485,720,323**	**28.4%**	**-0.3%**	**-0.3%**				**-0.2%**	**11/2020**
ICE BofA US 3-Month Treasury Bill			0.0	0.1				0.1	11/2020
Excess			-0.4	-0.4				-0.2	
Goldman Sachs Ladder Bond	**1,486,574,358**	**28.4**	**-0.3**	**-0.3**				**-0.1**	**11/2020**
ICE BofA US 3-Month Treasury Bill			0.0	0.1				0.1	11/2020
Excess			-0.3	-0.3				-0.2	
Treasury Ladder Aggregate	**2,972,294,681**	**56.7**	**-0.3**	**-0.3**				**-0.2**	**11/2020**
ICE BofA US 3-Month Treasury Bill			0.0	0.1				0.1	11/2020
Excess			-0.4	-0.4				-0.2	
Combined Funds STIF	**2,239,247,574**	**42.7**	**0.0**	**0.1**	**0.8%**	**1.1%**	**0.7%**	**1.4**	**01/2004**
iMoneyNet Money Fund Average-All Taxable			0.0	0.0	0.6	0.8	0.4	1.1	01/2004
Excess			0.0	0.1	0.2	0.3	0.2	0.4	
TEACHERS RETIREMENT CD REPO	**27,061,401**	**0.5**	**0.0**	**0.1**	**1.0**	**1.3**	**0.8**	**0.8**	**02/2012**
ICE BofA US 3-Month Treasury Bill			0.0	0.1	0.8	1.1	0.6	0.6	02/2012
Excess			0.0	0.0	0.2	0.2	0.2	0.2	
Laddered Bond + Cash	**5,238,608,074**	**100.0**	**-0.2**	**-0.2**	**0.7**	**1.1**	**0.7**	**4.2**	**12/1977**
ICE BofA US 3-Month Treasury Bill			0.0	0.1	0.8	1.1	0.6	4.4	12/1977
Excess			-0.3	-0.3	-0.1	-0.0	0.1	-0.2	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Laddered Bond and Cash Managers					
Neuberger Berman Ladder Bond	**0.0%**				
ICE BofA US 3-Month Treasury Bill	0.0				
Excess	-0.0				
Goldman Sachs Ladder Bond	**0.1**				
ICE BofA US 3-Month Treasury Bill	0.0				
Excess	0.0				
Treasury Ladder Aggregate	**0.0**				
ICE BofA US 3-Month Treasury Bill	0.0				
Excess	-0.0				
Combined Funds STIF	**0.1**	**0.5%**	**2.3%**	**2.0%**	**0.9%**
iMoneyNet Money Fund Average-All Taxable	0.0	0.3	1.9	1.5	0.5
Excess	0.1	0.2	0.5	0.5	0.4
TEACHERS RETIREMENT CD REPO	**0.1**	**1.0**	**2.5**	**1.8**	**1.3**
ICE BofA US 3-Month Treasury Bill	0.0	0.7	2.3	1.9	0.9
Excess	0.0	0.4	0.2	-0.0	0.5
Laddered Bond + Cash	**0.0**	**0.6**	**2.3**	**1.9**	**1.1**
ICE BofA US 3-Month Treasury Bill	0.0	0.7	2.3	1.9	0.9
Excess	-0.0	-0.1	0.1	0.0	0.2

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Uninvested Private Markets

March 31, 2022

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Uninvested Private Markets Managers										
NISA PRIVATE MKT UNINV OVERLAY	**$746,315,898**	**21.3%**	**-4.5%**	**6.8%**	**15.6%**				**17.6%**	**01/2021**
S&P 500 INDEX (DAILY)			-4.6	6.5	15.6				17.9	01/2021
Excess			0.1	0.3	-0.1				-0.3	
BLACKROCK SP INDEX	**2,758,331,824**	**78.7**	**-4.4**	**6.9**	**16.1**				**18.3**	**01/2021**
S&P 500 INDEX (DAILY)			-4.6	6.5	15.6				17.9	01/2021
Excess			0.2	0.3	0.4				0.4	
UNINVESTED PRIVATE MARKETS	**3,504,647,721**	**100.0**	**-4.4**	**6.8**	**15.9**				**18.1**	**01/2021**
S&P 500 INDEX (DAILY)			-4.6	6.5	15.6				17.9	01/2021
Excess			0.2	0.3	0.3				0.2	

	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return
Uninvested Private Markets Managers					
NISA PRIVATE MKT UNINV OVERLAY	**28.1%**				
S&P 500 INDEX (DAILY)	28.7				
Excess	-0.6				
BLACKROCK SP INDEX	**28.9**				
S&P 500 INDEX (DAILY)	28.7				
Excess	0.2				
UNINVESTED PRIVATE MARKETS	**28.6**				
S&P 500 INDEX (DAILY)	28.7				
Excess	-0.1				

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Private Markets

March 31, 2022

Combined Funds Asset Class Performance Summary

Private Markets

	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	25 Year	30 Year
Private Markets - Invested	3.0%	19.9%	31.8%	18.3%	16.5%	13.9%	13.8%	13.8%	13.0%
Private Markets -Uninvested (1)	-4.2%	7.0%	16.1%						
Private Equity	3.3%	20.7%	33.9%	25.1%	21.9%	18.0%	15.9%	15.4%	15.3%
Private Credit	0.2%	13.7%	22.7%	11.3%	12.0%	12.9%	12.4%	12.6%	
Resources	2.8%	16.8%	27.8%	-0.3%	2.2%	2.2%	12.8%	12.5%	12.3%
Real Estate	4.8%	26.4%	32.3%	15.6%	13.6%	12.9%	9.7%	10.6%	9.1%

Private Markets

The time-weighted rates of return for the Private Markets portfolio are shown here. Private Markets included Private Equity, Private Credit, Resources, and Real Estate. Some of the existing investments are relatively immature and returns may not be indicative of future results.

Private Equity Investments - The objectives of the Private Equity portfolio, which may include leveraged buyouts, growth equity, venture capital and special situations, are to achieve attractive returns and to provide overall portfolio diversification to the total plan.

Private Credit Investments - The objectives of the Private Credit portfolio, which may include mezzanine debt, direct lending, and other forms of non-investment grade fixed income instruments, are to achieve a high total return over a full market cycle and to provide some degree of downside protection and typically provide current income in the form of a coupon. In certain situations, investments in the Private Credit portfolio also provide an equity component of return in the form of warrants or re-organized equity.

Resource Investments - The objectives of the Resources portfolio, which may include energy, infrastructure, and other hard assets, are to provide protection against the risks associated with inflation and to provide overall portfolio diversification to the total plan.

Real Estate Investments - The objectives of the Real Estate portfolio, which may include core and non-core real estate investments, are to achieve attractive returns, preserve capital, provide protection against risks associated with inflation, and provide overall portfolio diversification to the total plan.

The SBI also monitors Private Markets performance using money-weighted return metrics such as Internal Rate of Return and Multiple of Invested Capital. For money-weighted return metrics please refer to the Combined Funds Performance Report.

(1) The Uninvested portion of the Private Markets allocation is invested in a combination of a passively managed S&P 500 Index strategy and a cash overlay strategy invested in equity derivatives and cash

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Private Equity	**23,388,949,384**	**17,779,749,700**	**15,175,249,075**	**7,250,665,433**	**14,312,041,911**	**1.66**	**13.95**	
Adams Street Partners, LLC	285,445,000	152,314,692	104,979,266	133,130,308	135,801,539	1.58	13.86	
Adams Street Global Secondary Fund 5 LP	100,000,000	77,114,692	69,712,308	22,885,308	35,718,577	1.37	7.01	2012
Adams Street Global Secondary Fund 6	100,000,000	75,200,000	35,266,958	24,800,000	95,292,295	1.74	41.90	2017
Adams Street Global Secondary Fund 7	85,445,000	0	0	85,445,000	4,790,668	0.00		2021
Advent International Group	355,000,000	317,330,921	324,631,020	44,428,441	361,826,373	2.16	20.31	
Advent International GPE VI-A, L.P.	50,000,000	52,993,313	103,400,194	0	5,763,322	2.06	16.65	2008
Advent International GPE VII, L.P.	90,000,000	84,690,641	138,972,935	5,400,000	24,210,404	1.93	14.61	2012
Advent International GPE VIII-B	100,000,000	100,000,000	73,062,483	0	138,682,093	2.12	23.38	2016
Advent International GPE IX	115,000,000	79,646,967	9,195,408	39,028,441	193,170,555	2.54	90.79	2019
Affinity Ventures	9,000,000	9,000,000	3,590,011	0	857,493	0.49	-11.88	
Affinity Ventures IV, L.P.	4,000,000	4,000,000	1,541,970	0	3,279	0.39	-38.00	2004
Affinity Ventures V, L.P.	5,000,000	5,000,000	2,048,042	0	854,215	0.58	-8.50	2008
Apax Partners	500,000,000	459,211,228	471,921,450	108,631,757	396,528,946	1.89	19.93	
APAX VIII - USD	200,000,000	233,892,465	335,200,854	11,285,376	80,376,312	1.78	15.40	2013
Apax IX USD L.P.	150,000,000	153,213,918	136,889,929	19,620,560	229,345,321	2.39	32.26	2016
Apax X USD L.P.	150,000,000	72,104,846	-169,333	77,725,821	86,807,313	1.20	30.60	2019
Arsenal Capital Partners	175,000,000	59,579,360	2,572,916	117,872,804	75,118,508	1.30	15.17	
Arsenal Capital Partners V, L.P.	75,000,000	59,579,360	2,572,916	17,872,804	75,118,508	1.30	15.17	2019
Arsenal Capital Partners VI LP	100,000,000	0	0	100,000,000	0	0.00		2021
Asia Alternatives	399,000,000	113,540,058	10,593,484	293,094,201	121,330,674	1.16	11.00	
Asia Alternatives Capital Partners V	99,000,000	86,558,091	10,585,653	20,076,168	96,478,745	1.24	12.93	2017
MN Asia Investors	300,000,000	26,981,967	7,831	273,018,033	24,851,930	0.92	-19.19	2020
Banc Fund	276,801,387	285,710,477	246,820,430	0	223,401,491	1.65	11.09	
Banc Fund VIII, L.P.	98,250,000	98,250,000	211,093,311	0	33,216	2.15	12.74	2008
Banc Fund IX, L.P.	107,205,932	107,205,932	32,414,449	0	128,277,794	1.50	8.08	2014
Banc Fund X, L.P.	71,345,455	80,254,545	3,312,670	0	95,090,481	1.23	10.08	2018
BlackRock	951,774,870	956,392,392	4,457,327	0	1,133,328,402	1.19	28.52	
BlackRock Tempus Fund	1,774,870	1,774,870	1,796,583	0	193,102	1.12	5.96	2015
BlackRock Long Term Capital, SCSP	950,000,000	954,617,522	2,660,745	0	1,133,135,300	1.19	28.87	2019

Minnesota State Board of Investment
Private Markets Investments as of March 31, 2022

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Blackstone Group L.P.	1,235,000,000	746,672,516	667,382,204	578,032,180	501,901,948	1.57	16.26	
Blackstone Capital Partners Asia II	270,000,000	0	0	270,000,000	0	0.00		2021
Blackstone Capital Partners IV, L.P.	70,000,000	84,459,884	200,562,452	1,832,302	1,037,563	2.39	37.02	2002
Blackstone Capital Partners V L.P.	140,000,000	152,406,707	243,424,491	7,027,560	2,870,917	1.62	8.01	2006
Blackstone Capital Partners VI, L.P.	100,000,000	106,525,984	141,756,833	11,175,309	45,073,387	1.75	12.46	2008
Blackstone Capital Partners VII	130,000,000	136,409,143	63,223,915	10,977,430	159,685,572	1.63	18.79	2015
Blackstone Capital Partners VIII LP	150,000,000	55,015,810	2,643,004	100,251,159	66,096,915	1.25	38.09	2019
Blackstone Growth	250,000,000	170,104,989	15,771,509	93,518,419	184,020,699	1.17	33.15	2020
Blackstone Supplemental Account - M	125,000,000	41,750,000	0	83,250,000	43,116,895	1.03	5.36	2021
Blackstone Strategic Partners	915,500,000	669,435,312	778,840,047	339,379,420	288,995,192	1.60	12.08	
Strategic Partners III VC, L.P.	25,000,000	25,059,678	33,874,990	1,008,025	284,606	1.36	5.98	2004
Strategic Partners III-B, L.P.	100,000,000	79,629,077	118,509,586	12,304,709	210,560	1.49	6.35	2004
Strategic Partners IV VC, L.P.	40,500,000	42,142,465	61,953,059	2,280,277	2,738,468	1.54	9.21	2008
Strategic Partners IV-B	100,000,000	99,356,038	152,338,242	11,669,115	4,017,394	1.57	12.22	2008
Strategic Partners V, LP	100,000,000	87,009,825	133,189,178	21,248,872	10,287,127	1.65	18.70	2011
Strategic Partners VI, L.P.	150,000,000	102,888,265	123,778,116	53,777,842	37,433,499	1.57	15.67	2014
Strategic Partners VII, L.P.	150,000,000	111,312,073	100,123,559	54,749,514	97,831,046	1.78	22.11	2016
Strategic Partners VIII	150,000,000	106,675,490	54,771,177	97,524,399	121,311,299	1.65	54.94	2018
Strategic Partners IX	100,000,000	15,362,402	302,140	84,816,667	14,881,193	0.99	-1.71	2022
Bridgepoint	170,225,574	124,495,376	13,311,036	45,730,198	144,340,693	1.27	19.23	
Bridgepoint Europe VI L.P.	170,225,574	124,495,376	13,311,036	45,730,198	144,340,693	1.27	19.23	2018
Brookfield Asset Management Inc.	350,000,000	283,080,988	176,225,320	102,691,928	319,343,466	1.75	40.14	
Brookfield Capital Partners Fund IV	100,000,000	106,575,350	160,931,912	13,781,784	107,495,876	2.52	47.97	2015
Brookfield Capital Partners V L.P.	250,000,000	176,505,638	15,293,408	88,910,143	211,847,590	1.29	19.21	2018
CVC Capital Partners	391,543,037	435,638,955	540,973,576	26,286,458	326,118,406	1.99	17.72	
CVC European Equity Partners V, L.P.	133,905,392	153,884,098	294,886,647	1,589,130	5,992,031	1.96	16.81	2008
CVC Capital Partners VI	257,637,644	281,754,857	246,086,929	24,697,327	320,126,374	2.01	18.93	2013
Canyon Partners	125,000,000	85,000,000	21,475,843	61,475,843	83,519,536	1.24	19.62	
Canyon Distressed Opportunity Fund III	125,000,000	85,000,000	21,475,843	61,475,843	83,519,536	1.24	19.62	2020

Minnesota State Board of Investment
Private Markets Investments as of March 31, 2022

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
CarVal Investors	900,000,000	772,703,333	883,121,710	127,500,000	283,979,993	1.51	10.69	
CarVal Credit Value Fund I	100,000,000	95,000,000	213,688,163	5,000,000	181,229	2.25	18.71	2010
CVI Credit Value Fund A II	150,000,000	142,500,000	199,242,174	7,500,000	4,122,553	1.43	8.32	2012
CVI Credit Value Fund A III	150,000,000	142,500,000	149,290,605	7,500,000	42,347,084	1.34	8.61	2015
CVI Credit Value Fund IV	150,000,000	135,203,333	60	15,000,000	167,204,520	1.24	7.55	2017
CVI Credit Value Fund V	150,000,000	67,500,000	154,566	82,500,000	70,024,973	1.04	7.02	2020
CVI Global Value Fund, L.P.	200,000,000	190,000,000	320,746,143	10,000,000	99,635	1.69	9.53	2007
Cardinal Partners	10,000,000	10,000,000	39,196,082	0	30,414	3.92	10.61	
DSV Partners IV	10,000,000	10,000,000	39,196,082	0	30,414	3.92	10.61	1985
Carlyle Group	400,000,000	264,275,015	57,102,334	185,288,820	242,667,156	1.13	9.68	
Carlyle Partners VII, L.P.	150,000,000	146,080,022	4,889,664	8,809,642	165,855,463	1.17	11.24	2017
Carlyle Partners VIII	150,000,000	4,860,867	0	145,139,133	4,860,867	1.00		2021
Carlyle Strategic Partners IV, L.P.	100,000,000	113,334,126	52,212,670	31,340,045	71,950,826	1.10	7.50	2016
Chicago Growth Partners	60,000,000	58,347,626	123,371,040	1,652,374	479,452	2.12	19.54	
Chicago Growth Partners II, L.P.	60,000,000	58,347,626	123,371,040	1,652,374	479,452	2.12	19.54	2008
Court Square	500,000,000	453,812,764	557,899,719	95,272,061	230,479,922	1.74	14.44	
Court Square Capital Partners II, L.P.	175,000,000	170,029,204	295,744,454	16,757,741	9,237,662	1.79	12.53	2006
Court Square Capital Partners III, L.P.	175,000,000	187,850,200	225,585,707	8,332,182	140,637,217	1.95	19.22	2012
Court Square Capital Partners IV, L.P.	150,000,000	95,933,360	36,569,558	70,182,138	80,605,043	1.22	17.35	2018
Crescendo	101,500,000	103,101,226	57,982,654	0	305,177	0.57	-4.60	
Crescendo Ventures IV	101,500,000	103,101,226	57,982,654	0	305,177	0.57	-4.60	2000
GTCR	210,000,000	211,174,635	421,341,248	14,989,866	238,769,141	3.13	28.61	
GTCR Fund X	100,000,000	105,821,208	214,751,215	6,751,396	572,846	2.03	21.36	2010
GTCR XI	110,000,000	105,353,427	206,590,033	8,238,470	238,196,294	4.22	40.90	2013
Goldman, Sachs & Co.	549,800,000	433,807,976	465,690,007	162,105,051	278,425,436	1.72	15.42	
GS Capital Partners V, L.P.	100,000,000	74,319,006	191,435,136	1,041,099	588,782	2.58	18.23	2005
GS Capital Partners VI, L.P.	100,000,000	110,260,752	140,595,269	2,551,356	5,228,548	1.32	7.23	2007
GS China-US Cooperation Fund	99,800,000	30,114,445	0	69,860,000	35,357,523	1.17	9.87	2018
GS Vintage VII	100,000,000	83,084,919	47,850,126	57,182,047	96,212,612	1.73	21.19	2016
West Street Capital Partners VII, L.P.	150,000,000	136,028,854	85,809,476	31,470,549	141,037,971	1.67	22.91	2016
Goldner Hawn Johnson & Morrison	77,755,138	48,661,159	51,364,283	29,265,945	37,447,597	1.83	18.35	
GHJM TrailHead Fund	20,000,000	16,652,130	51,364,283	3,354,486	6,344,667	3.47	20.45	2012
Goldner Hawn Fund VII, L.P.	57,755,138	32,009,029	0	25,911,460	31,102,930	0.97	-2.47	2018

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Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Green Equity Investors	325,000,000	320,933,278	232,611,638	40,854,141	371,077,815	1.88	17.00	
Green Equity Investors VI, L.P.	200,000,000	224,217,021	232,474,764	12,433,524	268,002,434	2.23	17.17	2012
Green Equity Investors VIII	125,000,000	96,716,257	136,874	28,420,617	103,075,380	1.07	9.70	2020
HarbourVest	21,646,198	20,932,251	25,040,966	801,154	7,877,632	1.57	13.38	
Dover Street VII Cayman Fund L.P.	2,198,112	2,074,080	1,787,970	132,416	112,487	0.92	-3.59	2014
HarbourVest Intl PE Partners V-Cayman US	3,518,629	3,346,005	4,413,905	178,024	201,016	1.38	14.13	2014
Harbourvest Intl PE Partners VI-Cayman	4,231,848	4,039,458	4,971,855	194,714	3,193,521	2.02	16.97	2014
HarbourVest Partners VIII Cayman Buyout	4,506,711	4,387,189	5,574,478	156,000	698,592	1.43	13.65	2014
HarbourVest Partners VIII-Cayman Venture	7,190,898	7,085,519	8,292,759	140,000	3,672,015	1.69	13.36	2014
Hellman & Friedman	650,000,000	519,209,616	472,749,884	134,461,132	353,760,587	1.59	14.97	
Hellman & Friedman Capital Partners VI, L.P.	175,000,000	171,037,755	315,233,005	5,062,369	3,216,013	1.86	12.90	2007
Hellman & Friedman Capital Partners VII, L.P.	50,000,000	49,883,520	153,358,750	2,218,442	10,467,521	3.28	25.02	2009
Hellman & Friedman Investors IX, L.P.	175,000,000	162,951,891	4,158,129	12,516,771	205,169,756	1.28	21.16	2018
Hellman & Friedman Capital Partners X	250,000,000	135,336,450	0	114,663,550	134,907,298	1.00	-0.51	2021
IK Limited	505,953,564	437,724,366	429,343,125	80,581,637	301,293,646	1.67	16.17	
IK Fund VII	180,147,137	179,315,195	294,196,910	8,438,643	48,784,443	1.91	14.89	2013
IK Fund VIII	170,789,497	175,535,613	135,146,215	0	165,619,498	1.71	19.88	2016
IK Fund IX	155,016,929	82,873,558	0	72,142,995	86,889,705	1.05	7.20	2019
Kohlberg, Kravis, Roberts & Co.	1,547,000,000	863,303,831	891,964,248	738,026,097	650,409,781	1.79	14.26	
KKR Millennium Fund	200,000,000	205,167,570	424,946,028	0	161,924	2.07	16.37	2002
KKR 2006 Fund L.P.	200,000,000	218,137,965	368,112,101	3,300,979	25,698,178	1.81	9.15	2006
KKR Americas Fund XII L.P.	150,000,000	143,538,496	48,461,294	18,268,516	261,861,199	2.16	38.22	2016
KKR Asian Fund III	100,000,000	86,962,596	35,096,983	22,311,397	137,186,939	1.98	35.99	2017
KKR Asian Fund IV	150,000,000	27,282,329	0	122,717,671	27,201,737	1.00	-0.38	2020
KKR Europe V	100,000,000	77,068,576	12,333,301	25,858,673	88,182,220	1.30	24.30	2018
KKR European Fund VI (USD) SCSp	100,000,000	0	0	100,000,000	0	0.00		2022
KKR Core Investments Partnership	97,000,000	66,972,529	3,014,541	33,742,631	71,683,050	1.12	17.14	2021
KKR MN Partnership L.P.	150,000,000	38,173,770	0	111,826,230	38,434,535	1.01	1.08	2021
KKR North America Fund XIII	300,000,000	0	0	300,000,000	0	0.00		2021

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Lexington Partners	1,345,000,000	885,657,998	671,521,816	524,639,149	720,649,270	1.57	14.58	
Lexington Capital Partners VI-B, L.P.	100,000,000	98,374,022	145,572,539	1,634,703	1,037,400	1.49	7.92	2005
Lexington Capital Partners VII, L.P.	200,000,000	172,714,663	256,813,708	37,812,041	34,900,322	1.69	14.80	2009
Lexington Capital Partners VIII, L.P.	150,000,000	136,386,669	123,036,465	32,663,555	107,900,215	1.69	19.21	2014
Lexington Capital Partners IX, L.P.	150,000,000	93,876,748	24,409,751	67,786,205	127,552,893	1.62	65.55	2018
Lexington Capital Partners X	100,000,000	0	0	100,000,000	0	0.00		2021
Lexington Co-Investment Partners IV	200,000,000	210,596,275	94,558,993	9,135,940	260,275,498	1.68	21.56	2017
Lexington Co-Investment Partners V	300,000,000	90,788,493	2,732,981	212,688,743	97,740,325	1.11	18.07	2020
Lexington Co-Investment Partners V Overage	45,000,000	13,959,000	839,090	31,880,090	13,362,825	1.02	2.69	2021
Lexington Middle Market Investors IV	100,000,000	68,962,128	23,558,289	31,037,872	77,879,792	1.47	33.29	2016
MHR Institutional Partners	75,000,000	74,809,392	19,816,608	19,948,636	79,622,880	1.33	9.91	
MHR Institutional Partners IV LP	75,000,000	74,809,392	19,816,608	19,948,636	79,622,880	1.33	9.91	2014
Madison Dearborn Capital Partners LLC	200,000,000	128,416,166	48,044,278	93,259,724	150,923,927	1.55	16.46	
Madison Dearborn Capital Partners VII, L.P.	100,000,000	96,197,320	40,418,834	19,120,947	114,208,418	1.61	15.00	2015
Madison Dearborn Capital Partners VIII-A, L.P	100,000,000	32,218,846	7,625,444	74,138,777	36,715,509	1.38	41.27	2019
Marathon	200,000,000	115,906,171	6,185,200	90,000,000	140,885,470	1.27	33.33	
Marathon Distressed Credit Fund	200,000,000	115,906,171	6,185,200	90,000,000	140,885,470	1.27	33.33	2020
Merced Capital	278,737,500	288,144,755	269,214,922	0	74,339,007	1.19	3.94	
Merced Partners III	100,000,000	103,878,468	133,823,596	0	2,268,886	1.31	5.65	2010
Merced Partners IV	125,000,000	124,968,390	111,222,539	0	26,882,913	1.11	2.17	2013
Merced Partners V	53,737,500	59,297,897	24,168,787	0	45,187,209	1.17	3.86	2017
Neuberger Berman LLC	625,000,000	371,776,639	261,563,913	455,025,815	408,683,689	1.80	38.71	
Dyal Capital Partners III	175,000,000	197,750,746	186,355,275	109,247,334	141,277,874	1.66	27.65	2015
Dyal Capital Partners IV	250,000,000	139,025,893	74,785,724	180,778,481	198,220,370	1.96	71.44	2018
Dyal Capital Partners V	200,000,000	35,000,000	422,914	165,000,000	69,185,445	1.99	123.01	2020
Nordic Capital	497,110,476	414,071,352	319,818,820	165,726,069	447,580,428	1.85	21.50	
Nordic Capital Fund VIII	175,618,762	220,988,400	281,663,208	27,026,140	125,741,940	1.84	16.86	2013
Nordic Capital Fund X	151,157,043	32,715,027	0	118,442,017	42,589,481	1.30	61.99	2020
Nordic Capital IX Beta, L.P.	170,334,671	160,367,925	38,155,612	20,257,912	279,249,006	1.98	45.15	2017
North Sky Capital	2,454,339	1,998,089	2,491,492	456,250	432,881	1.46	13.54	
North Sky Capital LBO Fund III, LP	1,070,259	720,259	1,026,684	350,000	72,681	1.53	14.50	2014
North Sky Capital Venture Fund III, LP	1,384,080	1,277,830	1,464,808	106,250	360,200	1.43	12.94	2014

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Oak Hill Capital Management, Inc.	250,000,000	235,060,192	217,994,544	39,374,232	158,610,697	1.60	34.77	
Oak Hill Capital Partners IV Onshore LP	150,000,000	146,342,776	217,959,501	28,091,648	59,433,320	1.90	35.75	2016
Oak Hill Capital Partners V	100,000,000	88,717,416	35,043	11,282,584	99,177,376	1.12	22.62	2018
Oaktree Capital Management, LLC	200,000,000	151,409,623	44,435,451	84,289,598	169,961,996	1.42	13.39	
Oaktree Special Situations Fund, L.P.	100,000,000	101,678,436	20,335,451	10,241,294	99,490,425	1.18	4.90	2014
Oaktree Special Situations Fund II, L.P.	100,000,000	49,731,187	24,100,000	74,048,304	70,471,571	1.90	93.58	2018
Paine & Partners, LLC	225,000,000	158,648,399	44,088,663	75,071,883	149,159,291	1.22	9.23	
Paine Schwartz Food Chain Fund IV	75,000,000	64,832,786	35,397,971	11,240,368	55,401,715	1.40	9.01	2014
Paine Schwartz Food Chain Fund V, L.P.	150,000,000	93,815,613	8,690,692	63,831,515	93,757,576	1.09	10.15	2018
Permal PE	5,337,098	4,382,196	4,150,751	1,090,000	871,981	1.15	4.73	
Glouston Private Equity Opportunities IV	5,337,098	4,382,196	4,150,751	1,090,000	871,981	1.15	4.73	2014
Permira	624,656,344	427,912,039	397,104,996	245,797,772	538,143,036	2.19	23.50	
Permira V, L.P.	177,530,156	183,115,856	313,545,638	12,995,017	243,902,462	3.04	24.24	2013
Permira VI, L.P.	136,552,206	125,857,463	72,333,687	29,941,821	174,549,986	1.96	23.21	2016
Permira VII L.P.1	143,676,441	118,938,719	11,225,671	35,963,393	119,690,587	1.10	8.95	2019
Permira VIII	166,897,542	0	0	166,897,542	0	0.00		2022
Public Pension Capital Management	175,000,000	123,131,239	83,202,694	67,726,741	146,253,453	1.86	24.23	
Public Pension Capital, LLC	175,000,000	123,131,239	83,202,694	67,726,741	146,253,453	1.86	24.23	2014
Silver Lake Partners	335,000,000	338,699,804	347,011,275	19,880,158	407,303,148	2.16	16.06	
Silver Lake Partners III, L.P.	100,000,000	93,771,585	191,856,230	9,528,468	27,585,910	2.34	18.60	2007
Silver Lake Partners IV	100,000,000	115,120,604	118,395,169	2,857,721	190,800,553	2.69	26.59	2012
Silver Lake Partners V, L.P.	135,000,000	129,807,615	36,759,876	7,493,969	188,916,685	1.74	26.21	2017
Split Rock	110,000,000	107,055,906	125,392,564	2,944,094	25,247,380	1.41	4.91	
Split Rock Partners LP	50,000,000	47,890,906	58,794,192	2,109,094	2,633,279	1.28	3.05	2005
Split Rock Partners II, LP	60,000,000	59,165,000	66,598,372	835,000	22,614,101	1.51	7.28	2008
Summit Partners	600,000,000	365,407,107	392,983,953	437,990,808	358,840,491	2.06	30.59	
Summit Partners Growth Equity Fund VIII	100,000,000	116,727,192	229,442,550	23,129,320	73,777,717	2.60	27.98	2011
Summit Partners Growth Equity Fund IX	100,000,000	131,274,916	141,424,991	110,150,075	157,908,845	2.28	40.18	2015
Summit Partners Growth Equity Fund X-A	150,000,000	117,404,999	22,116,412	54,711,413	127,153,929	1.27	30.31	2019
Summit Partners Growth Equity Fund XI	250,000,000	0	0	250,000,000	0	0.00		2021

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Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
TPG Capital	550,000,000	260,289,616	153,697,933	315,403,489	235,702,086	1.50	22.42	
TPG Growth V	150,000,000	57,953,251	526,470	93,174,085	71,411,423	1.24	24.72	2021
TPG Partners VII, L.P.	100,000,000	100,055,640	134,533,100	7,815,513	52,706,706	1.87	19.96	2015
TPG Partners VIII	150,000,000	93,814,641	18,638,363	72,879,975	103,862,593	1.31	35.57	2018
TPG Tech Adjacencies II, L.P.	150,000,000	8,466,084	0	141,533,916	7,721,365	0.91	-8.80	2021
Thoma Bravo LLC	425,000,000	438,757,156	217,066,288	58,655,648	483,438,191	1.60	23.79	
Thoma Bravo Fund XII, L.P.	75,000,000	81,455,833	30,976,372	18,945,315	123,414,132	1.90	17.50	2016
Thoma Bravo Fund XIII, L.P.	150,000,000	166,084,959	79,031,939	30,926,697	217,593,289	1.79	42.48	2018
Thoma Bravo Fund XIV	150,000,000	141,216,364	37	8,783,636	141,999,550	1.01	0.88	2020
Thoma Cressey Fund VII, L.P.	50,000,000	50,000,000	107,057,940	0	431,220	2.15	23.58	2000
Thomas H. Lee Partners	400,000,000	240,963,597	185,570,700	188,568,684	279,018,058	1.93	33.75	
Thomas H. Lee Equity Fund VII, LP.	100,000,000	99,416,381	132,589,381	10,745,776	52,729,935	1.86	23.19	2015
Thomas H. Lee Equity Fund VIII, L.P.	150,000,000	135,570,240	52,981,319	33,799,884	220,311,147	2.02	67.38	2018
Thomas H. Lee Equity Fund IX	150,000,000	5,976,976	0	144,023,024	5,976,976	1.00		2021
Thomas, McNerney & Partners	80,000,000	78,125,000	123,961,847	1,875,000	2,140,216	1.61	8.16	
Thomas, McNerney & Partners I, L.P.	30,000,000	30,000,000	15,087,143	0	1,026,945	0.54	-10.48	2002
Thomas, McNerney & Partners II, L.P.	50,000,000	48,125,000	108,874,704	1,875,000	1,113,271	2.29	16.40	2006
Varde Fund	600,000,000	564,750,000	676,476,918	35,250,000	202,550,715	1.56	9.87	
Varde Fund IX, L.P.	100,000,000	100,000,000	216,221,047	0	0	2.16	15.01	2008
Varde Fund X, LP	150,000,000	150,000,000	251,421,642	0	10,205,919	1.74	10.11	2010
Varde Fund XI, LP	200,000,000	200,000,000	208,814,191	0	59,100,424	1.34	4.89	2013
Varde Fund XIII, L.P.	150,000,000	114,750,000	20,038	35,250,000	133,244,372	1.16	10.61	2018
Vestar Capital Partners	380,000,000	333,277,631	352,742,923	56,184,822	188,410,386	1.62	11.82	
Vestar Capital Partners IV, L.P.	55,000,000	55,652,024	102,293,320	57,313	376,534	1.84	14.63	1999
Vestar Capital Partners V, L.P.	75,000,000	76,797,458	99,818,631	0	1,639,877	1.32	3.93	2005
Vestar Capital Partners VI, LP	100,000,000	106,955,659	150,510,164	0	57,910,087	1.95	24.16	2011
Vestar Capital Partners VII, L.P.	150,000,000	93,872,491	120,808	56,127,509	128,483,888	1.37	19.66	2017
Vista Equity Partners	200,000,000	147,617,149	77,223	53,595,754	159,750,896	1.08	6.41	
Vista Equity Partners Perennial	200,000,000	147,617,149	77,223	53,595,754	159,750,896	1.08	6.41	2020

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Warburg Pincus	1,416,000,000	1,051,107,343	979,066,914	371,373,500	790,223,489	1.68	11.63	
Warburg Pincus China, L.P.	45,000,000	45,585,000	16,711,200	1,350,000	60,748,534	1.70	17.35	2016
Warburg Pincus China-Southeast Asia II	50,000,000	17,200,000	1,715,000	32,800,000	20,391,466	1.29	25.40	2019
Warburg Pincus Financial Sector	90,000,000	80,756,774	12,207,600	13,455,000	131,294,799	1.78	26.26	2017
Warburg Pincus Global Growth 14, L.P.	300,000,000	14,951,507	0	285,000,000	15,000,000	1.00	0.32	2022
Warburg Pincus Global Growth, L.P.	250,000,000	213,040,110	2,625,000	37,000,000	278,448,607	1.32	22.29	2018
Warburg Pincus Private Equity IX, L.P.	100,000,000	100,000,000	170,824,150	0	1,125,760	1.72	9.60	2005
Warburg Pincus Private Equity X, LP	150,000,000	150,000,000	266,203,541	0	3,116,240	1.80	9.52	2007
Warburg Pincus Private Equity XI, LP	200,000,000	200,342,452	259,415,748	0	97,068,379	1.78	12.99	2012
Warburg Pincus Private Equity XII, LP	131,000,000	129,231,500	85,822,423	1,768,500	182,637,208	2.08	21.44	2015
Warburg, Pincus Equity Partners, L.P.	100,000,000	100,000,000	163,542,253	0	392,497	1.64	10.02	1998
Wayzata Investment Partners	300,000,000	243,165,000	379,022,482	15,750,000	18,861,791	1.64	14.38	
Wayzata Opportunities Fund II, LLC	150,000,000	174,750,000	333,882,672	750,000	263,564	1.91	16.57	2007
Wayzata Opportunities Fund III	150,000,000	68,415,000	45,139,810	15,000,000	18,598,227	0.93	-1.68	2012
Wellspring Capital Partners	125,000,000	149,192,072	55,485,810	14,724,724	149,187,769	1.37	25.29	
Wellspring Capital Partners VI, L.P.	125,000,000	149,192,072	55,485,810	14,724,724	149,187,769	1.37	25.29	2016
Welsh, Carson, Anderson & Stowe	500,000,000	403,698,490	365,218,998	96,301,510	372,904,882	1.83	18.97	
Welsh, Carson, Anderson & Stowe XI, L.P.	100,000,000	100,000,000	161,464,441	0	6,855,659	1.68	11.74	2008
Welsh, Carson, Anderson & Stowe XII, L.P.	150,000,000	145,877,897	177,480,040	4,122,103	185,658,273	2.49	29.65	2014
Welsh, Carson, Anderson & Stowe XIII, L.P.	250,000,000	157,820,593	26,274,517	92,179,407	180,390,950	1.31	33.07	2018
Whitehorse Capital	300,000,000	190,583,586	106,198,956	157,659,147	159,486,548	1.39	36.53	
Whitehorse Liquidity Partners III	100,000,000	97,043,131	62,503,282	20,851,557	68,171,075	1.35	24.56	2019
Whitehorse Liquidity Partners IV	100,000,000	77,239,319	37,024,848	46,580,530	63,557,194	1.30	44.45	2020
Whitehorse Liquidity Partners V	100,000,000	16,301,137	6,670,826	90,227,061	27,758,279	2.11	74.45	2021
Wind Point Partners	100,000,000	65,571,472	1,912,585	36,345,716	64,281,979	1.01	1.03	
Wind Point Partners IX	100,000,000	65,571,472	1,912,585	36,345,716	64,281,979	1.01	1.03	2019
Windjammer Capital Investors	266,708,861	204,775,169	247,174,686	64,204,695	119,159,463	1.79	11.85	
Windjammer Mezzanine & Equity Fund II	66,708,861	55,215,684	85,036,800	1,013,936	63,347	1.54	8.95	2000
Windjammer Senior Equity Fund IV, L.P.	100,000,000	94,740,728	160,930,989	16,802,619	47,006,017	2.19	16.38	2012
Windjammer Senior Equity Fund V, L.P.	100,000,000	54,818,757	1,206,897	46,388,140	72,090,099	1.34	19.01	2017

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Private Credit	**4,119,641,781**	**2,981,180,391**	**2,266,830,332**	**1,619,683,727**	**1,612,732,496**	**1.30**	**9.90**	
Audax Group	350,000,000	188,061,140	193,657,146	180,730,052	46,259,292	1.28	10.27	
Audax Mezzanine Fund III, L.P.	100,000,000	105,200,312	133,917,489	782	4,320,090	1.31	9.69	2010
Audax Mezzanine Fund IV-A, L.P.	100,000,000	82,860,828	59,739,657	30,729,270	41,642,696	1.22	12.04	2015
Audax Mezzanine Fund V	150,000,000	0	0	150,000,000	296,506	0.00		2020
Avenue Capital Partners	200,000,000	200,977,328	72,265,702	0	201,309,688	1.36	6.68	
Avenue Energy Opportunities Fund II	100,000,000	100,000,000	23,841,487	0	125,583,458	1.49	11.25	2017
Avenue Energy Opportunities Fund, L.P.	100,000,000	100,977,328	48,424,215	0	75,726,230	1.23	3.75	2014
BlackRock	97,500,000	92,646,829	11,145,751	4,853,171	98,597,905	1.18	8.76	
BlackRock Middle Market Senior Fund	97,500,000	92,646,829	11,145,751	4,853,171	98,597,905	1.18	8.76	2018
Brookfield Asset Management Inc.	200,000,000	34,157,840	0	165,842,160	34,549,938	1.01	1.81	
Brookfield Real Estate Finance Fund VI	200,000,000	34,157,840	0	165,842,160	34,549,938	1.01	1.81	2021
Energy Capital Partners	28,087,500	23,046,496	9,451,244	14,492,248	14,010,056	1.02	2.19	
Energy Capital Credit Solutions II-A	28,087,500	23,046,496	9,451,244	14,492,248	14,010,056	1.02	2.19	2018
Gold Hill	65,852,584	65,852,584	113,654,899	0	3,586,688	1.78	11.86	
Gold Hill 2008	25,852,584	25,852,584	48,393,297	0	3,198,224	2.00	14.60	2008
Gold Hill Venture Lending	40,000,000	40,000,000	65,261,602	0	388,464	1.64	10.70	2004
Goldman, Sachs & Co.	250,000,000	261,176,828	315,988,287	47,422,591	1,226,215	1.21	6.80	
GS Mezzanine Partners 2006 Institutional	100,000,000	113,458,168	135,137,487	9,858,563	567,940	1.20	5.00	2006
GS Mezzanine Partners V, L.P.	150,000,000	147,718,660	180,850,800	37,564,028	658,275	1.23	9.08	2007
HPS Investment Partners	100,000,000	90,928,301	12,918,177	17,732,370	94,457,390	1.18	16.08	
HPS Mezzanine Partners 2019, L.P.	100,000,000	90,928,301	12,918,177	17,732,370	94,457,390	1.18	16.08	2019
Kohlberg, Kravis, Roberts & Co.	274,000,000	349,064,594	283,731,195	109,388,462	114,839,324	1.14	9.11	
KKR Lending Partner II L.P.	75,000,000	86,884,685	82,467,685	8,802,924	7,745,789	1.04	1.93	2015
KKR Lending Partners III L.P.	199,000,000	262,179,909	201,263,510	100,585,538	107,093,535	1.18	13.81	2017
LBC Credit Partners	200,000,000	180,644,269	121,268,226	76,870,495	88,552,856	1.16	10.46	
LBC Credit Partners IV, L.P.	100,000,000	110,979,717	103,956,027	36,445,534	26,875,711	1.18	8.69	2016
LBC Credit Partners V, L.P.	100,000,000	69,664,552	17,312,199	40,424,961	61,677,145	1.13	22.04	2019
Marathon	200,000,000	96,022,008	858,534	205,000,000	119,783,125	1.26	17.08	
Marathon Secured Private Strategies Fund II	100,000,000	96,022,008	858,534	5,000,000	119,783,125	1.26	17.08	2019
Marathon Secured Private Strategies Fund III	100,000,000	0	0	100,000,000	0	0.00		2022

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Merit Capital Partners	325,000,000	233,926,126	270,271,490	91,007,074	113,225,289	1.64	11.33	
Merit Mezzanine Fund IV, L.P.	75,000,000	70,178,571	139,120,463	4,821,429	787,345	1.99	11.58	2004
Merit Mezzanine Fund V, LP	75,000,000	71,902,041	79,877,706	3,097,959	33,107,721	1.57	9.43	2009
Merit Mezzanine Fund VI	100,000,000	91,845,514	51,273,321	8,087,687	79,330,223	1.42	14.61	2016
Merit Mezzanine Fund VII	75,000,000	0	0	75,000,000	0	0.00		2020
Oaktree Capital Management, LLC	650,000,000	277,040,920	41,856,555	377,959,101	310,137,405	1.27	14.55	
Oaktree Opportunities Fund X, L.P.	50,000,000	46,500,021	29,669,660	8,500,000	36,138,933	1.42	9.61	2015
Oaktree Opportunities Fund Xb, L.P.	100,000,000	60,000,000	0	40,000,000	85,821,900	1.43	17.02	2015
Oaktree Opportunities Fund XI	300,000,000	135,000,000	1,010,971	165,000,000	153,591,088	1.15	25.53	2020
Oaktree Real Estate Debt III	200,000,000	35,540,899	11,175,924	164,459,101	34,585,485	1.29	15.55	2020
PIMCO BRAVO	9,201,697	8,673,551	9,133,949	7,735,883	1,022,710	1.17	4.95	
PIMCO BRAVO Fund Onshore Feeder I	3,958,027	3,958,027	4,016,443	2,385,880	6,522	1.02	1.60	2014
PIMCO Bravo Fund OnShore Feeder II	5,243,670	4,715,524	5,117,506	5,350,003	1,016,187	1.30	5.52	2014
Prudential Global Investment Mgmt	600,000,000	474,509,486	518,132,781	170,020,341	149,848,868	1.41	10.43	
Prudential Capital Partners II, L.P.	100,000,000	97,930,132	145,671,152	11,049,052	3,907,329	1.53	9.26	2005
Prudential Capital Partners III, L.P.	100,000,000	102,823,075	174,159,760	13,686,991	2,171,871	1.71	14.06	2009
Prudential Capital Partners IV	100,000,000	112,567,121	114,554,739	2,136,397	33,625,394	1.32	8.30	2012
Prudential Capital Partners V, L.P.	150,000,000	147,909,672	83,338,088	6,427,387	96,894,985	1.22	8.46	2016
PGIM Capital Partners VI, L.P.	150,000,000	13,279,486	409,042	136,720,514	13,249,288	1.03	5.25	2020
Summit Partners	95,000,000	100,002,497	133,679,035	22,177,023	5,861,092	1.40	9.13	
Summit Subordinated Debt Fund III, L.P.	45,000,000	44,088,494	60,443,093	2,250,000	2,658,348	1.43	8.59	2004
Summit Subordinated Debt Fund IV, L.P.	50,000,000	55,914,003	73,235,942	19,927,023	3,202,744	1.37	9.98	2008
TCW	200,000,000	174,519,135	127,915,880	56,449,308	84,211,709	1.22	8.44	
TCW Direct Lending LLC	100,000,000	83,599,652	87,196,196	25,329,409	18,441,018	1.26	8.12	2014
TCW Direct Lending VII	100,000,000	90,919,484	40,719,684	31,119,899	65,770,691	1.17	9.05	2018
TSSP	275,000,000	129,930,459	30,901,480	172,003,448	131,252,948	1.25	15.23	
Sixth Street TAO Partners (B), L.P.	50,000,000	41,404,568	15,734,243	24,329,675	38,637,188	1.31	13.05	2018
Sixth Street TAO Partners (D), L.P.	100,000,000	48,479,942	11,437,722	59,000,036	48,348,973	1.23	21.35	2018
TSSP Opportunities Partners IV (A), L.P.	50,000,000	40,045,949	3,729,515	13,673,737	44,266,788	1.20	13.83	2018
Sixth Street Oppotunties Partners V	75,000,000	0	0	75,000,000	0	0.00		2021

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Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Real Assets	**4,247,571,518**	**3,864,247,805**	**2,512,706,784**	**669,691,250**	**2,051,984,859**	**1.18**	**4.31**	
BlackRock	198,500,000	117,938,492	54,055,910	90,476,554	77,179,552	1.11	4.25	
BlackRock Global Renewable Power Fund II	98,500,000	97,789,849	53,874,942	10,625,197	57,929,176	1.14	4.74	2017
BlackRock Global Renewable Power Infrastructure III	100,000,000	20,148,643	180,968	79,851,357	19,250,376	0.96	-3.73	2019
EIG Global Energy Partners	450,000,000	469,824,722	362,577,470	77,704,481	155,413,945	1.10	2.46	
EIG Energy Fund XIV	100,000,000	113,459,470	95,309,310	2,761,129	3,869,868	0.87	-5.00	2007
EIG Energy Fund XV	150,000,000	161,871,503	154,367,874	22,871,323	20,296,990	1.08	1.87	2010
EIG Energy Fund XVI	200,000,000	194,493,749	112,900,285	52,072,029	131,247,087	1.26	6.07	2013
Encap Energy	400,000,000	425,060,550	361,443,656	9,997,731	176,995,186	1.27	7.54	
EnCap Energy Capital Fund VII, L.P.	100,000,000	105,406,230	137,949,713	0	3,449,229	1.34	14.49	2007
EnCap Energy Capital Fund VIII, L.P.	100,000,000	103,335,766	56,609,079	470,044	39,758,140	0.93	-1.52	2010
Encap Energy Fund IX	100,000,000	113,453,645	104,719,458	4,161,655	42,352,123	1.30	8.20	2012
EnCap Energy Capital Fund X, L.P.	100,000,000	102,864,908	62,165,406	5,366,031	91,435,694	1.49	11.71	2015
Energy & Minerals Group	680,000,000	664,573,978	368,250,697	57,575,279	531,200,944	1.35	7.18	
NGP Midstream & Resources, L.P.	100,000,000	103,565,615	179,560,149	17,857	7,256,874	1.80	13.40	2007
The Energy & Minerals Group Fund II, L.P.	100,000,000	106,674,084	104,295,500	170,365	106,206,612	1.97	12.97	2011
The Energy & Minerals Group Fund III, L.P.	200,000,000	201,327,783	22,410,545	1,284,543	104,430,794	0.63	-7.33	2014
The Energy & Minerals Group Fund IV, LP	150,000,000	161,141,907	57,504,938	14,023,899	167,361,031	1.40	9.19	2015
The Energy & Minerals Group Fund V	112,500,000	77,017,651	3,658,916	38,514,704	122,334,568	1.64	21.06	2019
The Energy & Minerals Group Fund V Accordion, LP	17,500,000	14,846,938	820,649	3,563,911	23,611,066	1.65	22.60	2019
Energy Capital Partners	450,000,000	429,874,485	348,079,647	111,761,226	244,802,848	1.38	10.56	
Energy Capital Partners II-A	100,000,000	85,722,480	112,434,332	29,749,110	5,417,029	1.37	8.98	2010
Energy Capital Partners III, L.P.	200,000,000	232,678,193	208,991,750	30,058,269	116,015,108	1.40	9.98	2013
Energy Capital Partners IV-A, LP	150,000,000	111,473,812	26,653,565	51,953,847	123,370,711	1.35	18.66	2017
Enervest Management Partners	100,000,000	98,604,267	79,512,622	9,489,431	56,035,412	1.37	7.94	
EnerVest Energy Institutional Fund XIV-A, L.P.	100,000,000	98,604,267	79,512,622	9,489,431	56,035,412	1.37	7.94	2015
First Reserve	500,000,000	542,680,886	267,253,431	8,157,276	130,112,751	0.73	-7.78	
First Reserve Fund XI, L.P.	150,000,000	150,292,121	100,059,903	0	181,296	0.67	-8.72	2006
First Reserve Fund XII, L.P.	150,000,000	165,617,044	84,745,180	0	5,831,982	0.55	-14.33	2008
First Reserve Fund XIII, L.P.	200,000,000	226,771,721	82,448,348	8,157,276	124,099,472	0.91	-3.54	2013

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Kohlberg, Kravis, Roberts & Co.	249,850,000	121,836,140	25,139,605	138,247,500	107,234,373	1.09	5.90	
KKR Global Infrastructure Investors III	149,850,000	121,836,140	25,139,605	38,247,500	107,234,373	1.09	5.90	2018
KKR Global Infrastructure Investors IV	100,000,000	0	0	100,000,000	0	0.00		2021
Merit Energy Partners	519,721,518	384,644,480	158,357,629	94,599,899	305,266,564	1.21	3.42	
Merit Energy Partners F-II, L.P.	100,000,000	59,522,861	32,619,000	0	6,060,301	0.65	-6.44	2006
Merit Energy Partners H	100,000,000	100,000,000	29,668,582	0	48,967,492	0.79	-3.73	2011
Merit Energy Partners I, L.P.	169,721,518	169,721,518	84,039,059	0	176,268,499	1.53	9.65	2014
Merit Energy Partners K, L.P.	150,000,000	55,400,101	12,030,988	94,599,899	73,970,272	1.55	28.45	2019
NGP	599,500,000	574,856,800	462,936,117	58,181,874	235,711,287	1.22	6.56	
Natural Gas Partners IX, LP	150,000,000	173,962,921	249,243,688	605,481	637,368	1.44	12.06	2007
NGP Natural Resources X, L.P.	150,000,000	148,720,924	125,225,975	1,279,076	18,195,012	0.96	-1.04	2011
NGP Natural Resources XI, L.P.	150,000,000	153,020,254	75,292,614	6,290,493	113,625,061	1.23	5.79	2014
NGP Natural Resources XII, L.P.	149,500,000	99,152,701	13,173,840	50,006,824	103,253,845	1.17	6.20	2017
Sheridan	100,000,000	34,353,005	25,100,000	13,500,000	32,031,997	1.66	13.64	
Sheridan Production Partners III-B, L.P.	100,000,000	34,353,005	25,100,000	13,500,000	32,031,997	1.66	13.64	2014

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Real Estate	**3,973,147,868**	**2,374,579,244**	**1,696,276,846**	**1,807,883,548**	**1,617,014,503**	**1.40**	**9.67**	
Angelo, Gordon & Co.	550,000,000	413,086,988	155,415,815	157,070,000	372,450,724	1.28	10.67	
AG Asia Realty Fund III, L.P.	50,000,000	47,587,261	46,125,000	6,196,250	19,754,008	1.38	12.47	2016
AG Asia Realty Fund IV, L.P.	100,000,000	65,621,099	7,250,000	35,937,500	69,821,398	1.17	11.06	2018
AG Europe Realty Fund II, L.P.	75,000,000	68,859,240	12,028,384	12,768,750	80,070,958	1.34	10.66	2018
AG Europe Realty Fund III	75,000,000	26,937,885	0	46,687,500	28,908,620	1.07	6.56	2020
AG Realty Fund IX	100,000,000	92,141,126	66,000,000	11,650,000	64,516,858	1.42	9.05	2014
AG Realty Fund X, L.P.	150,000,000	111,940,377	24,012,431	43,830,000	109,378,882	1.19	14.64	2018
Blackstone	924,500,000	774,255,724	801,286,782	296,577,701	471,047,364	1.64	13.30	
Blackstone Real Estate Partners Asia II	74,500,000	61,213,758	6,220,869	21,515,151	67,764,217	1.21	11.31	2017
Blackstone Real Estate Partners Asia III	100,000,000	0	0	100,000,000	0	0.00		2021
Blackstone Real Estate Partners V	100,000,000	104,213,007	208,836,456	4,174,052	171,203	2.01	10.83	2006
Blackstone Real Estate Partners VI, L.P.	100,000,000	109,477,567	217,516,529	4,907,906	2,823,126	2.01	13.08	2007
Blackstone Real Estate Partners VII, LP	100,000,000	111,942,457	151,495,470	11,131,179	49,328,662	1.79	15.32	2011
Blackstone Real Estate VIII.TE.1 L.P.	150,000,000	171,712,292	145,137,172	21,760,728	138,924,647	1.65	17.19	2015
Blackstone Real Estate Partners IX, L.P.	300,000,000	215,696,643	72,080,287	133,088,685	212,035,510	1.32	25.18	2018
Blackstone Strategic Partners	75,000,000	77,552,724	65,750,877	1,002,022	1,514,016	0.87	-2.08	
Strategic Partners III RE, L.P.	25,000,000	25,987,864	15,252,523	9,006	92,349	0.59	-6.46	2005
Strategic Partners IV RE, L.P.	50,000,000	51,564,860	50,498,354	993,016	1,421,668	1.01	0.11	2008
Brookfield Asset Management Inc.	300,000,000	0	0	300,000,000	0	0.00		
Brookfield Strategic Real Estate Partners IV	300,000,000	0	0	300,000,000	0	0.00		2021
Carlyle Group	450,000,000	95,296,372	71,739,971	408,163,883	65,451,302	1.44	28.11	
Carlyle Realty Partners VIII, L.P.	150,000,000	95,296,372	71,739,971	108,163,883	65,451,302	1.44	28.11	2017
Carlyle Realty Partners IX	300,000,000	0	0	300,000,000	0	0.00		2021
Kohlberg, Kravis, Roberts & Co.	125,000,000	41,441,473	318,759	83,558,527	43,607,246	1.06	7.37	
KKR Real Estate Partners Americas III	125,000,000	41,441,473	318,759	83,558,527	43,607,246	1.06	7.37	2021
Landmark Partners	249,500,000	79,444,165	45,886,041	175,882,096	61,831,917	1.36	17.49	
Landmark Real Estate Partners VIII, L.P.	149,500,000	79,444,165	45,886,041	75,882,096	61,831,917	1.36	17.49	2016
Landmark Real Estate Partners IX	100,000,000	0	0	100,000,000	0	0.00		2021
Lubert Adler	174,147,868	92,982,744	72,128,675	82,414,787	52,078,032	1.34	14.76	
Lubert-Adler Real Estate Fund VII-B, L.P.	74,147,868	67,585,213	72,128,675	7,414,787	27,145,882	1.47	15.52	2017
Lubert-Adler Recovery and Enhancement Capital Fund	100,000,000	25,397,530	0	75,000,000	24,932,150	0.98	-4.25	2021

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Oaktree Capital Management, LLC	200,000,000	54,475,519	34,370,464	180,000,000	31,582,394	1.21	112.91	
Oaktree Real Estate Opportunities Fund VIII	200,000,000	54,475,519	34,370,464	180,000,000	31,582,394	1.21	112.91	2020
Rockpoint	200,000,000	161,481,122	42,520,337	54,752,152	150,881,818	1.20	7.97	
Rockpoint Real Estate Fund V, L.P.	100,000,000	98,906,242	42,509,110	17,327,032	80,199,236	1.24	6.93	2014
Rockpoint Real Estate Fund VI, L.P.	100,000,000	62,574,880	11,227	37,425,120	70,682,582	1.13	16.04	2019
Rockwood	200,000,000	140,704,192	56,213,821	60,960,204	120,431,972	1.26	9.56	
Rockwood Capital RE Partners X, L.P.	100,000,000	94,027,411	56,119,269	7,657,118	65,610,355	1.29	8.72	2015
Rockwood Capital RE Partners XI	100,000,000	46,676,781	94,552	53,303,086	54,821,617	1.18	15.44	2019
Silverpeak Real Estate Partners	225,000,000	143,858,221	106,300,929	7,502,176	8,106,491	0.80	-3.59	
Silverpeak Legacy Pension Partners II, L.P.	75,000,000	73,062,894	92,027,822	7,502,176	482,839	1.27	4.18	2005
Silverpeak Legacy Pension Partners III, L.P.	150,000,000	70,795,327	14,273,108	0	7,623,652	0.31	-11.51	2008
TA Associates Realty	300,000,000	300,000,000	244,344,375	0	238,031,228	1.61	15.03	
Realty Associates Fund X	100,000,000	100,000,000	161,064,353	0	852,454	1.62	12.65	2012
Realty Associates Fund XI	100,000,000	100,000,000	79,982,296	0	98,747,074	1.79	15.01	2015
Realty Associates Fund XII	100,000,000	100,000,000	3,297,726	0	138,431,700	1.42	35.81	2018
Total	**35,729,310,551**	**26,999,757,140**	**21,651,063,036**	**11,347,923,958**	**19,593,773,769**	**1.53**	**12.20**	
Difference*					65,232,765			
Private Markets Total with Difference					**19,659,006,534**			

Private Markets Portfolio Status	Managers	Funds
PRIVATE EQUITY	59	182
PRIVATE CREDIT	18	41
REAL ASSETS	11	33
REAL ESTATE	13	33
Total	**101**	**289**

Notes

None of the data presented herein has been reviewed or approved by either the general partner or investment manager. The performance and valuation data presented herein is not a guarantee or prediction of future results. Ultimately, the actual performance and value of any investment is not known until final liquidation. Because there is no industry-standardized method for valuation or reporting comparisons of performance and valuation data among different investments is difficult.

Data presented in this report is made public pursuant to Minn. Stat. Chs. 13 and 13D, and Minn. Stat. § 11A.24, subd. 6(c). Additional information on private markets investments may be classified as non-public and not subject to disclosure.

*Partnership interests transferred to the MSBI during 1Q2015. All data presented as of the transfer date.

** Difference is from an in-kind stock distribution liquidating account, cash transactions posted to next day and distributions received in foreign currency during the month.

Participant Directed Investment Program

March 31, 2022

Participant Directed Investment Program

The Participant Directed Investment Program (PDIP) provides investment vehicles for a variety of retirement or other tax-advantaged savings plans. The objective of the Plan is to be competitive in the marketplace by providing quality investment options with low fees to its participants. Investment goals among the PDIP's many participants are varied.

- The Supplemental Investment Fund (SIF) is an investment platform that provides participants with the option to invest in many of the same pools as the Combined Fund in addition to a Stable Value Fund and a Money Market Fund. The Volunteer Firefighter Account is an option in the SIF for local firefighter entities that join the Statewide Voluntary Firefighter Plan administered by PERA. The investment vehicles are structured much like a family of mutual funds where participating entities buy or sell units in each fund. Participants may allocate their investments among one or more funds that are appropriate for their needs and are within statutory requirements and rules established by the participating organizations.
- The Mutual Fund Line-up is an investment platform that offers participants three sets of investment options. The first is a set of actively and passively managed mutual funds, a Stable Value Fund and a Money Market Fund. The second is a set of target date funds called Minnesota Target Retirement Funds. The third is a self-directed brokerage account window which offers thousands of mutual funds. The SBI has no direct management responsibilities for funds within the self-directed brokerage account window. Participants may allocate their investments among one or more accounts that are appropriate for their needs within the statutory requirements and rules established by the participating organizations.
- The SBI is responsible for the investment options provided in the two State Sponsored Savings Plans established under provisions of the Internal Revenue Code 529, the Minnesota College Savings Plan and Minnesota Achieving a Better Life Experience Plan (ABLE). The Minnesota College Savings Plan is an educational savings plan designed to help families save for qualified nationwide college costs. The SBI is responsible for the investments and the Minnesota Office of Higher Education (OHE) is responsible for the overall administration of the Plan. The SBI and OHE have contracted jointly with TIAA-CREF Tuition Financing, Inc. to provide administrative, marketing, communication, recordkeeping and investment management services. The ABLE Plan is a savings plan designed to help individuals save for qualified disability expenses without losing eligibility for certain assistance programs. The plan is administered by the Department of Human Services (DHS). The SBI and DHS have jointly contracted with Ascensus to provide recordkeeping, administrative, and investment management services for the plan.

The investment returns shown in this report are calculated using a time-weighted rate of return formula. These returns are net of investment management fees and transaction costs. They do not, however, reflect administrative expenses that may be deducted by the retirement systems or other agencies to defray administrative costs.

Supplemental Investment Fund Summary

The Minnesota Supplemental Investment Fund (SIF) is a multi-purpose investment platform that offers a range of investment options to state and local public employees. This investment platform provides some or all of the investment options to the Public Employees Retirement Association (PERA) Defined Contribution Plan, local pension plans and the Statewide Volunteer Firefighter plan.

A wide diversity of investment goals exists among the Fund's participants. In order to meet those needs, the Fund has been structured much like a "family of mutual funds." Participants may allocate their investments among one or more accounts that are appropriate for their needs, within the statutory requirements and rules established by the participating organizations. Participation in the Fund is accomplished through the purchase or sale of shares in each account. All returns are net of investment management fees.

Investment Option Descriptions

- Balanced Fund - a balanced portfolio utilizing both common stocks and bonds
- U.S. Stock Actively Managed Fund - an actively managed, U.S. common stock portfolio.
- U.S. Stock Index Fund - a passively managed, common stock portfolio designed to broadly track the performance of the U.S. stock market.
- Broad International Stock Fund - a portfolio of non-U.S. stocks that incorporates both active and passive management.
- Bond Fund - an actively managed, bond portfolio.
- Money Market Fund - a portfolio utilizing short-term, liquid debt securities.
- Stable Value Fund - a portfolio of stable value instruments, including security backed contracts and insurance company and bank investment contracts.
- Volunteer Firefighter Account - a balanced portfolio only used by the Statewide Volunteer Firefighter Plan.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year	Option Since
BALANCED FUND	$112,686,711	-5.4%	5.8%	12.3%	10.7%	9.9%	01/1980
U.S. ACTIVELY MANAGED FUND	92,682,216	-6.6	8.8	18.7	16.3	14.6	07/1986
U.S. STOCK INDEX FUND	443,997,301	-5.3	12.3	18.5	15.6	14.4	07/1986
BROAD INTERNATIONAL STOCK FUND	151,924,804	-5.7	-1.4	8.2	7.3	6.2	09/1994
BOND FUND	107,328,254	-6.5	-4.4	2.5	2.8	2.9	07/1986
MONEY MARKET FUND	618,545,249	0.0	0.1	0.9	1.2	0.8	07/1986
STABLE VALUE FUND	1,707,365,891	0.4	1.9	2.3	2.3	2.2	11/1994
VOLUNTEER FIREFIGHTER ACCOUNT	148,881,216	-5.6	2.0	9.2	8.1	7.5	01/2010

Note:
The Market Values for the Money Market Fund, the Stable Value Fund, and the Total Supplemental Investment Fund also include assets held through other plans.

Supplemental Investment Fund Performance

Balanced Fund

The primary investment objective of the Balanced Fund is to gain exposure to publicly traded U.S. equities, bond and cash in a diversified investment portfolio. The Fund seeks to maximize long-term real rates of return, while limiting short-run portfolio return volatility. The Balanced Fund is invested in a balanced portfolio of common stocks and bonds. Common stocks provide the potential for significant capital appreciation, while bonds act as a deflation hedge and provide portfolio diversification. The benchmark is a blend of 60% Russell 3000/35% Bloomberg U.S. Aggregate/5% 3 Month T-Bills.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
BALANCED FUND	**$112,686,711**	**-5.4%**	**5.8%**	**12.3%**	**10.7%**	**9.9%**
SIF BALANCED FUND BENCHMARK		-5.2%	5.6%	11.7%	10.2%	9.5%
Excess		-0.2%	0.2%	0.6%	0.4%	0.4%

U.S. Actively Managed Fund

The U.S. Stock Actively Managed Fund's investment objective is to generate above-average returns from capital appreciation on common stocks. The U.S. Stock Actively Managed Fund is invested primarily in the common stocks of U.S. companies. The managers in the account also hold varying levels of cash.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
U.S. ACTIVELY MANAGED FUND	**92,682,216**	**-6.6**	**8.8**	**18.7**	**16.3**	**14.6**
Russell 3000		-5.3	11.9	18.2	15.4	14.3
Excess		-1.3	-3.2	0.4	0.9	0.3

Supplemental Investment Fund Performance

U.S. Stock Index Fund

The investment objective of the U.S. Stock Index Fund is to generate returns that track those of the U.S. stock market as a whole. The Fund is designed to track the performance of the Russell 3000 Index, a broad-based equity market indicator. The Fund is invested 100% in common stock.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
U.S. STOCK INDEX FUND	**$443,997,301**	**-5.3%**	**12.3%**	**18.5%**	**15.6%**	**14.4%**
Russell 3000		-5.3%	11.9%	18.2%	15.4%	14.3%
Excess		0.0%	0.4%	0.3%	0.2%	0.1%

Broad International Stock Fund

The investment objective of the Broad International Stock Fund is to earn a high rate of return by investing in the stock of companies outside the U.S. Portions of the Fund are passively managed and semi-passively managed. These portions of the Fund are designed to track and modestly outperform, respectively, the return of developed markets included in the MSCI World ex USA Index. A portion of the Fund is "actively managed" by several international managers and emerging markets specialists who buy and sell stocks in an attempt to maximize market value. The International Equity Benchmark is currently the MSCI ACWI ex USA (net).

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
BROAD INTERNATIONAL STOCK FUND	**151,924,804**	**-5.7**	**-1.4**	**8.2**	**7.3**	**6.2**
International Equity Benchmark		-5.4	-1.5	7.5	6.7	5.5
Excess		-0.2	0.1	0.8	0.5	0.6

Supplemental Investment Fund Performance

Bond Fund

The investment objective of the Bond Fund is to exceed the return of the broad domestic bond market by investing in fixed income securities. The Bond Fund invests primarily in high-quality, government and corporate bonds that have intermediate to long-term maturities, usually 3 to 20 years. The Bond Fund benchmark is the Bloomberg U.S. Aggregate.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
BOND FUND	**$107,328,254**	**-6.5%**	**-4.4%**	**2.5%**	**2.8%**	**2.9%**
Bloomberg U.S. Aggregate		-5.9%	-4.2%	1.7%	2.1%	2.2%
Excess		-0.5%	-0.3%	0.8%	0.7%	0.7%

Money Market Fund

The investment objective of the Money Market Fund is to protect principal by investing in short-term, liquid U.S. Government securities. The Fund is invested entirely in high-quality, short-term U.S. Treasury and Agency securities. The average maturity of the portfolios is less than 90 days. Please note that the Market Value for the Money Market Fund reflects assets held through the Deferred Compensation Plan as well.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
MONEY MARKET FUND	**618,545,249**	**0.0**	**0.1**	**0.9**	**1.2**	**0.8**
ICE BofA US 3-Month Treasury Bill		0.0	0.1	0.8	1.1	0.6
Excess		0.0	0.1	0.1	0.1	0.1

STATE STREET.

Supplemental Investment Fund Performance

Stable Value Fund

The investment objectives of the Stable Value Fund are to protect investors from loss of their original investment and to provide competitive interest rates using somewhat longer-term investments than typically found in a money market fund. The Fund is invested in a well-diversified portfolio of high-quality fixed income securities with strong credit ratings. The Fund also invests in contracts issued by highly rated insurance companies and banks which are structured to provide principal protection for the Fund's diversified bond portfolios, regardless of daily market changes. The Stable Value Fund Benchmark is the 3-year Constant Maturity Treasury Bill +45 basis points. Please note that the Market Value for the Stable Value Fund reflects assets held through the Deferred Compensation Plan as well.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
STABLE VALUE FUND	**$1,707,365,891**	**0.4%**	**1.9%**	**2.3%**	**2.3%**	**2.2%**
Fixed Interest Blended Benchmark		0.5%	1.3%	1.3%	1.8%	1.6%
Excess		-0.1%	0.6%	1.0%	0.5%	0.7%

Volunteer Firefighter Account

The Volunteer Firefighter Account is different than other SIF program options. It is available only to the local entities that participate in the Statewide Volunteer Firefighter Plan (administered by PERA) and have all of their assets invested in the Volunteer Firefighter Account. There are other volunteer firefighter plans that are not eligible to be consolidated that may invest their assets through other SIF program options. The investment objective of the Volunteer Firefighter Account is to maximize long-term returns while limiting short-term portfolio return volatility. The account is invested in a balanced portfolio of domestic equity, international equity, fixed income and cash. The benchmark for this account is 35% Russell 3000, 15% MSCI ACWI ex USA (net), 45% Bloomberg U.S. Aggregate, 5% 3 Month T-Bills.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
VOLUNTEER FIREFIGHTER ACCOUNT	**148,881,216**	**-5.6**	**2.0**	**9.2**	**8.1**	**7.5**
SIF Volunteer Firefighter Account BM		-5.3	2.0	8.5	7.6	7.0
Excess		-0.3	-0.0	0.7	0.5	0.5

Mutual Funds

The mutual fund investment line-up provides investment options to the Minnesota Deferred Compensation Plan (MNDCP), Unclassified Retirement Plan, Health Care Savings Plan, and the Hennepin County Retirement Plan. The MNDCP is a tax-sheltered retirement savings plan that is supplemental to public employees primary retirement plan. (In most cases, the primary plan is a defined benefit plan administered by TRA, PERA, or MSRS.) Participants can choose from active and passively managed stock and bond funds, a Stable Value Fund, a Money Market Fund, a set of 10 target date retirement fund options, and a brokerage window where participants can choose from hundreds of mutual funds.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year	Option Since
VANGUARD TOTAL STOCK MARKET INSTITUTIONAL INDEX PLUS	$732,939,298	-5.5%	11.7%				07/2019
VANGUARD INSTITUTIONAL INDEX PLUS	1,847,653,714	-4.6	15.6	18.9%	16.0%	14.6%	07/1999
VANGUARD DIVIDEND GROWTH	982,820,722	-2.0	17.3	16.4	15.2		10/2016
VANGUARD MID CAP INDEX	774,829,552	-6.3	8.8	15.7	13.0	13.0	01/2004
T. ROWE PRICE SMALL-CAP STOCK	958,063,712	-11.3	-4.5	13.8	13.4	13.4	04/2000
FIDELITY DIVERSIFIED INTERNATIONAL	352,020,614	-11.9	-0.4	11.7	9.1	7.9	07/1999
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	351,169,473	-6.1	-1.8	7.8	6.8	5.8	07/2011
VANGUARD BALANCED INDEX	1,463,401,447	-5.6	5.3	11.7	10.2	9.5	12/2003
DODGE & COX INCOME	310,311,684	-5.2	-3.6	2.8	3.0	3.2	07/1999
VANGUARD TOTAL BOND MARKET INDEX	345,185,963	-6.0	-4.2	1.7	2.1	2.2	12/2003
2025 FUND	240,700,361	-3.5	4.1	8.4	7.4	7.1	07/2011
2030 FUND	207,037,348	-4.7	3.7	10.1	8.8	8.2	07/2011
2035 FUND	162,775,858	-5.8	3.1	11.0	9.5	8.8	07/2011
2040 FUND	124,922,941	-6.1	3.1	11.6	10.0	9.2	07/2011
2045 FUND	117,430,193	-6.2	3.5	12.2	10.5	9.6	07/2011
2050 FUND	96,853,069	-6.3	3.6	12.6	10.8	9.8	07/2011
2055 FUND	62,372,999	-6.3	3.7	12.9	11.0	9.9	07/2011
2060 FUND	50,336,602	-6.3	3.7	12.9	11.0	9.9	07/2011
2065 FUND	4,485,314	-6.3	3.7				04/2020
INCOME FUND	242,870,140	-3.2	3.2	7.0	6.0	5.0	07/2011
TD Ameritrade SDB	88,737,842						
TD Ameritrade SDB Roth	2,861,305						

Mutual Funds

LARGE CAP EQUITY

Vanguard Total Stock Market Institutional Index Plus (passive)

A passive domestic stock portfolio of large and small companies that tracks the CRSP US Total Market Index.

Vanguard Index Institutional Plus (passive)

A passive domestic stock portfolio that tracks the S&P 500.

Vanguard Dividend Growth (active) (1)

A fund of large cap stocks which is expected to outperform the S&P U.S. Dividend Growers Index, over time.

MID CAP EQUITY

Vanguard Mid Cap Index (passive) (2)

A fund that passively invests in companies with medium market capitalizations that tracks the CRSP US Mid-Cap Index.

SMALL CAP EQUITY

T Rowe Price Small Cap (active)

A fund that invests primarily in companies with small market capitalizations and is expected to outperform the Russell 2000 Index.

INTERNATIONAL EQUITY

Fidelity Diversified International (active)

A fund that invests primarily in stocks of companies located outside of the United States and is expected to outperform the MSCI index of Europe, Australasia and the Far East (EAFE), over time.

Vanguard Total International Stock Index (passive) (3)

A fund that seeks to track the investment performance of the FTSE Global All Cap ex US Index, an index designed to measure equity market performance in developed and emerging markets, excluding the United States.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
Large Cap US Equity						
VANGUARD TOTAL STOCK MARKET INSTITUTIONAL INDEX PLUS	**$732,939,298**	**-5.5%**	**11.7%**			**07/2019**
CRSP US Total Market Index		-5.4	11.7			07/2019
Excess		-0.0	-0.0			
VANGUARD INSTITUTIONAL INDEX PLUS	**1,847,653,714**	**-4.6**	**15.6**	**18.9%**	**16.0%**	**07/1999**
S&P 500		-4.6	15.6	18.9	16.0	07/1999
Excess		-0.0	-0.0	-0.0	-0.0	
VANGUARD DIVIDEND GROWTH	**982,820,722**	**-2.0**	**17.3**	**16.4**	**15.2**	**10/2016**
DIVIDEND GROWTH SPLICED INDEX		-5.2	12.3	16.1	14.7	10/2016
Excess		3.2	5.0	0.3	0.5	
Mid Cap US Equity						
VANGUARD MID CAP INDEX	**774,829,552**	**-6.3**	**8.8**	**15.7**	**13.0**	**01/2004**
CRSP US Mid Cap Index		-6.3	8.9	15.7	13.0	01/2004
Excess		-0.0	-0.0	0.0	-0.0	
Small Cap US Equity						
T. ROWE PRICE SMALL-CAP STOCK	**958,063,712**	**-11.3**	**-4.5**	**13.8**	**13.4**	**04/2000**
Russell 2000		-7.5	-5.8	11.7	9.7	04/2000
Excess		-3.7	1.3	2.1	3.6	
International Equity						
FIDELITY DIVERSIFIED INTERNATIONAL	**352,020,614**	**-11.9**	**-0.4**	**11.7**	**9.1**	**07/1999**
MSCI EAFE FREE (NET)		-5.9	1.2	7.8	6.7	07/1999
Excess		-6.0	-1.6	3.9	2.3	
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	**351,169,473**	**-6.1**	**-1.8**	**7.8**	**6.8**	**07/2011**
FTSE Global All Cap ex US Index Net		-5.3	-0.9	8.0	6.9	07/2011
Excess		-0.7	-0.9	-0.2	-0.1	

Mutual Funds

BALANCED

Vanguard Balanced Index (passive) (4)

A fund that passively invests in a mix of domestic stocks and bonds. The fund is expected to track a weighted benchmark of 60% CRSP US Total Market Index/40% Bloomberg U.S. Aggregate.

FIXED INCOME

Dodge & Cox Income Fund (active)

A fund that invests primarily in investment grade securities in the U.S. bond market which is expected to outperform the Bloomberg U.S. Aggregate, over time.

Vanguard Total Bond Market Index (passive)

A fund that passively invests in a broad, market weighted bond index that is expected to track the Bloomberg U.S. Aggregate.

Money Market Fund (5)

A fund that invests in short-term debt instruments which is expected to outperform the return on 3 Month T-Bills.

STABLE VALUE

Stable Value Fund (5)

A portfolio composed of stable value instruments which are primarily investment contracts and security backed contracts. The fund is expected to outperform the return of the 3 year Constant Maturity Treasury +45 basis points, over time.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
Balanced Funds						
VANGUARD BALANCED INDEX	**$1,463,401,447**	**-5.6%**	**5.3%**	**11.7%**	**10.2%**	**12/2003**
Vanguard Balanced Fund Benchmark		-5.6	5.3	11.8	10.3	12/2003
Excess		0.0	0.0	-0.1	-0.0	
Fixed Income						
DODGE & COX INCOME	**310,311,684**	**-5.2**	**-3.6**	**2.8**	**3.0**	**07/1999**
Bloomberg U.S. Aggregate		-5.9	-4.2	1.7	2.1	07/1999
Excess		0.7	0.5	1.2	0.9	
VANGUARD TOTAL BOND MARKET INDEX	**345,185,963**	**-6.0**	**-4.2**	**1.7**	**2.1**	**12/2003**
Bloomberg U.S. Aggregate		-5.9	-4.2	1.7	2.1	12/2003
Excess		-0.0	-0.1	0.0	-0.0	
MONEY MARKET FUND	**618,545,249**	**0.0**	**0.1**	**0.9**	**1.2**	**07/1986**
ICE BofA US 3-Month Treasury Bill		0.0	0.1	0.8	1.1	07/1986
Excess		0.0	0.1	0.1	0.1	
Stable Value						
STABLE VALUE FUND	**1,707,365,891**	**0.4**	**1.9**	**2.3**	**2.3**	**11/1994**
Fixed Interest Blended Benchmark		0.5	1.3	1.3	1.8	11/1994
Excess		-0.1	0.6	1.0	0.5	

(1) Prior to 09/20/2021 the benchmark was the NASDAQ US Dividend Achievers Select Index.

(2) Prior to 02/01/2013 the benchmark was the MSCI US Mid-Cap 450 Index.

(3) Prior to 06/01/2013 the benchmark was MSCI ACWI ex USA IMI.

(4) Prior to 01/01/2013 the benchmark was 60% MSCI US Broad Market Index and 40% Bloomberg U.S. Aggregate.

(5) Money Market and Stable Value are Supplemental Investment Fund options which are also offered to eligible plans that invest through other plans.

Mutual Funds

MN TARGET RETIREMENT ACCOUNTS

Target retirement funds offer a mix of investments that are adjusted over time to reduce risk and become more conservative as the target retirement date approaches. A participant only needs to make one investment decison by investing their assets in the fund that is closest to their anticipated retirement date.

Target Date Retirement Funds

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
SSgA						
2025 FUND	**$240,700,361**	**-3.5%**	**4.1%**	**8.4%**	**7.4%**	**07/2011**
2025 FUND BENCHMARK		-3.4	4.2	8.4	7.5	07/2011
Excess		-0.1	-0.1	-0.0	-0.0	
2030 FUND	**207,037,348**	**-4.7**	**3.7**	**10.1**	**8.8**	**07/2011**
2030 FUND BENCHMARK		-4.6	3.8	10.1	8.8	07/2011
Excess		-0.1	-0.1	-0.0	-0.0	
2035 FUND	**162,775,858**	**-5.8**	**3.1**	**11.0**	**9.5**	**07/2011**
2035 FUND BENCHMARK		-5.7	3.3	11.0	9.6	07/2011
Excess		-0.1	-0.2	-0.0	-0.0	
2040 FUND	**124,922,941**	**-6.1**	**3.1**	**11.6**	**10.0**	**07/2011**
2040 FUND BENCHMARK		-5.9	3.4	11.6	10.1	07/2011
Excess		-0.2	-0.2	-0.1	-0.0	
2045 FUND	**117,430,193**	**-6.2**	**3.5**	**12.2**	**10.5**	**07/2011**
2045 FUND BENCHMARK		-6.0	3.7	12.2	10.5	07/2011
Excess		-0.2	-0.2	-0.1	-0.0	

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
2050 FUND	**$96,853,069**	**-6.3%**	**3.6%**	**12.6%**	**10.8%**	**07/2011**
2050 FUND BENCHMARK		-6.0	3.9	12.7	10.9	07/2011
Excess		-0.2	-0.3	-0.1	-0.1	
2055 FUND	**62,372,999**	**-6.3**	**3.7**	**12.9**	**11.0**	**07/2011**
2055 FUND BENCHMARK		-6.1	4.0	13.0	11.1	07/2011
Excess		-0.2	-0.3	-0.1	-0.1	
2060 FUND	**50,336,602**	**-6.3**	**3.7**	**12.9**	**11.0**	**07/2011**
2060 FUND BENCHMARK		-6.1	4.0	13.0	11.1	07/2011
Excess		-0.2	-0.2	-0.1	-0.1	
2065 FUND	**4,485,314**	**-6.3**	**3.7**			**04/2020**
2065 FUND BENCHMARK		-6.1	4.0			04/2020
Excess		-0.2	-0.3			
INCOME FUND	**242,870,140**	**-3.2**	**3.2**	**7.0**	**6.0**	**07/2011**
INCOME FUND BENCHMARK		-3.1	3.3	7.0	6.0	07/2011
Excess		-0.0	-0.1	0.0	-0.0	

Note: Each SSgA Fund benchmark is the aggregate of the returns of the Fund's underlying index funds weighted by the Fund's asset allocation

MN College Savings Plan Options

The Minnesota College Savings Plan is an education savings plan designed to help families set aside funds for future college costs. The SBI is responsible for the investments and the Minnesota Office of Higher Education (OHE) is responsible for the overall administration of the Plan.

The SBI and OHE contract jointly with TIAA to provide administrative, marketing, communication, recordkeeping and investment management services. Please see the next page for the performance as reported by TIAA.

ENROLLMENT-BASED MANAGED ALLOCATIONS - The Enrollment Year Investment Option is a set of single fund options representing the date your future student needs their college savings. The asset allocation adjusts automatically to a more conservative investment objective and level of risk as the enrollment year approaches. The managed allocation changed from Age-Based to Enrollment-Based on October 28, 2019.

RISK BASED ALLOCATIONS - The Risk Based Allocation Option offers three separate allocation investment options - Aggressive, Moderate and Conservative, each of which has a fixed risk level that does not change as the Beneficiary ages.

ASSET CLASS BASED ALLOCATIONS

U.S. LARGE CAP EQUITY INDEX - A passive domestic stock portfolio that tracks the S&P 500.

INTERNATIONAL EQUITY INDEX - A fund that passively invests in a mix of developed and emerging market equities. The fund is expected to track a weighted benchmark of 80% MSCI ACWI World ex USA and 20% MSCI Emerging Markets Free Index.

U.S. AND INTERNATIONAL EQUITY INDEX - A fund that invests in a mix of equities, both U.S. and international, across all capitalization ranges and real estate-related securities. The fund is expected to track a weighted benchmark of 60% Russell 3000, 24% International, 6% Emerging Markets, and 10% Real Estate Securities Fund.

PRINCIPAL PLUS INTEREST OPTION - A passive fund where contributions are invested in a Funding Agreement issued by TIAA-CREF Life. The funding agreement provides for a return of principal plus a guaranteed rate of interest which is made by the insurance company to the policyholder, not the account owners. The account is expected to outperform the return of the 3-month T-Bill.

EQUITY AND INTEREST ACCUMULATION - A fund that passively invests half of the portfolio in U.S. equities across all capitalization ranges and the other half in the same Funding Agreement issued by TIAA-CREF Life as described above. The fund is expected to track a weighted benchmark of 50% Russell 3000 and 50% 3-month T-Bill.

100% FIXED INCOME - A fund that passively invests in fixed income holdings that tracks the Bloomberg U.S. Aggregate and two active funds that invest in inflation-linked bonds and high yield securities. The fund is expected to track a weighted benchmark of 70% Bloomberg U.S. Aggregate, 20% inflation-linked bond, and 10% high yield.

MONEY MARKET - An active fund that invests in high-quality, short-term money market instruments of both domestic and foreign issuers that tracks the iMoneyNet Average All Taxable benchmark.

SOCIAL CHOICE EQUITY ALLOCATION – An actively managed fund that seeks to provide a favorable long-term total return that reflects the investment performance of the overall U.S. equity market while giving special consideration to companies whose activities are consistent with certain environmental, social and governance criteria.

MINNESOTA COLLEGE SAVINGS PLAN
Performance Statistics for the Period Ending: March 31, 2022

Total = $1,847 Million

Fund Name	Ending Market	3 Months	1 Year	Annualized 3 Years	5 Years	10 Years	Since Inception	Inception Date
2038/2039 Enrollment Option	$7,623,630	-5.39%					0.00%	6/11/2021
2038-2039 Custom Benchmark		-4.94%					0.67%	
2036/2037 Enrollment Option	$57,250,489	-5.37%	6.44%				12.16%	10/28/2019
2036-2037 Custom Benchmark		-4.93%	7.21%				12.20%	
2034/2035 Enrollment Option	$48,725,406	-5.30%	6.01%				11.56%	10/28/2019
2034-2035 Custom Benchmark		-4.92%	6.74%				11.62%	
2032/2033 Enrollment Option	$55,336,560	-5.28%	5.56%				11.07%	10/28/2019
2032-2033 Custom Benchmark		-4.91%	6.22%				11.10%	
2030/2031 Enrollment Option	$67,202,071	-5.11%	4.81%				10.11%	10/28/2019
2030-2031 Custom Benchmark		-4.83%	5.41%				10.10%	
2028/2029 Enrollment Option	$84,834,041	-4.82%	3.81%				8.70%	10/28/2019
2028-2029 Custom Benchmark		-4.57%	4.25%				8.56%	
2026/2027 Enrollment Option	$117,016,716	-4.42%	2.85%				7.41%	10/28/2019
2026-2027 Custom Benchmark		-4.25%	3.21%				7.24%	
2024/2025 Enrollment Option	$162,124,018	-3.65%	2.38%				6.29%	10/28/2019
2024-2025 Custom Benchmark		-3.59%	2.41%				5.92%	
2022/2023 Enrollment Option	$189,175,842	-2.53%	1.82%				4.69%	10/28/2019
2022-2023 Custom Benchmark		-2.54%	1.47%				4.09%	
In School Option	$281,285,005	-2.14%	1.29%				3.84%	10/28/2019
In School Custom Benchmark		-2.17%	0.88%				3.01%	

MINNESOTA COLLEGE SAVINGS PLAN
Performance Statistics for the Period Ending: March 31, 2022

Fund Name	Ending Market	3 Months	1 Year	Annualized				Inception Date
				3 Years	5 Years	10 Years	Since Inception	
U.S. and International Equity Option	$318,227,818	-5.68%	8.83%	14.23%	12.33%	11.28%	7.97%	10/ 1/2001
BB: U.S. and International Equity Option		-5.26%	9.62%	14.27%	12.25%	11.37%	8.71%	
Moderate Allocation Option	$95,069,614	-5.23%	4.46%	9.87%	8.64%	7.74%	6.13%	8/ 2/2007
BB: Moderate Allocation Option		-5.02%	4.90%	9.85%	8.63%	7.92%	6.66%	
100% Fixed-Income Option	$19,365,819	-4.71%	-2.20%	2.36%	2.42%	2.04%	3.26%	8/16/2007
BB: 100% Fixed-Income Option		-4.77%	-2.18%	2.67%	2.72%	2.43%	3.83%	
International Equity Index Option	$8,996,724	-6.67%	-1.65%	7.03%	6.46%		5.13%	6/18/2013
BB: International Equity Index Option		-6.11%	-1.40%	7.31%	6.64%		5.35%	
Money Market Option	$13,976,616	0.00%	0.00%	0.63%	0.90%	0.47%	0.50%	11/ 1/2007
BB: Money Market Option		0.01%	0.02%	0.53%	0.78%	0.41%	0.45%	
Principal Plus Interest Option	$123,810,671	0.25%	1.25%	1.66%	1.69%	1.52%	2.38%	10/10/2001
Citigroup 3-Month U.S. Treasury Bill		0.03%	0.06%	0.76%	1.09%	0.60%	1.23%	
Aggressive Allocation Option	$73,189,586	-5.45%	6.58%	11.99%	10.49%		8.85%	8/12/2014
BB: Aggressive Allocation Option		-5.13%	7.26%	12.10%	10.47%		8.84%	
Conservative Allocation Option	$17,429,916	-3.72%	2.04%	5.90%	5.37%		4.51%	8/18/2014
BB: Conservative Allocation Option		-3.69%	1.95%	5.86%	5.33%		4.54%	
Equity and Interest Accumulation Option	$7,448,242	-2.45%	6.54%	9.90%	8.50%		7.30%	8/18/2014
BB: Equity and Interest Accumulation Option		-2.60%	6.06%	9.64%	8.39%		7.19%	
U.S. Large Cap Equity Option	$96,260,004	-4.64%	15.46%	18.75%	15.78%		13.75%	8/12/2014
BB: U.S. Large Cap Equity Option		-4.60%	15.65%	18.92%	15.99%		13.87%	
Social Choice Equity Option	$668,824	-6.62%					3.00%	6/11/2021
BB: Social Choice Equity Option		-5.28%					4.57%	
Matching Grant	$1,778,357	0.25%	1.25%	1.66%	1.69%	1.52%	2.38%	3/22/2002
Citigroup 3-Month U.S. Treasury Bill		0.03%	0.06%	0.76%	1.09%	0.60%	1.23%	

MINNESOTABLEplan
A member of The National ABLE Alliance

Performance as of
03/31/22

Total Market Value: **$ 27,513,293**

Fund Name	Market Value	% of Plan	1 Month	3 Months	YTD	1 Year	3 Year	5 Year	10 Year	Inception	Inception Date
Aggressive Option	$ 2,289,569	8.32%	1.65	(6.21)	(6.21)	4.17	12.08	10.46		10.81	12/15/16
ABLE Aggressive Custom Benchmark			1.81	(6.08)	(6.08)	4.74	12.53	10.88		11.33	
Variance			**(0.16)**	**(0.13)**	**(0.13)**	**(0.57)**	**(0.45)**	**(0.42)**		**(0.52)**	
Moderately Aggressive Option	$ 2,564,280	9.32%	1.13	(5.66)	(5.66)	3.32	10.64	9.21		9.50	12/15/16
ABLE Moderately Aggressive Custom Benchmark			1.20	(5.60)	(5.60)	3.78	11.01	9.58		9.96	
Variance			**(0.07)**	**(0.06)**	**(0.06)**	**(0.46)**	**(0.37)**	**(0.37)**		**(0.46)**	
Growth Option	$ 3,640,604	13.23%	0.53	(5.21)	(5.21)	2.37	9.06	7.86		8.11	12/15/16
ABLE Growth Custom Benchmark			0.59	(5.14)	(5.14)	2.79	9.43	8.23		8.56	
Variance			**(0.06)**	**(0.07)**	**(0.07)**	**(0.42)**	**(0.37)**	**(0.37)**		**(0.45)**	
Moderate Option	$ 3,216,016	11.69%	0.00	(4.66)	(4.66)	1.44	7.46	6.48		6.72	12/15/16
ABLE Moderate Custom Benchmark			(0.01)	(4.68)	(4.68)	1.79	7.78	6.83		7.11	
Variance			**0.01**	**0.02**	**0.02**	**(0.35)**	**(0.32)**	**(0.35)**		**(0.39)**	
Moderately Conservative Option	$ 3,135,523	11.40%	(0.15)	(3.37)	(3.37)	0.94	5.42	4.78		4.94	12/15/16
ABLE Moderately Conservative Custom Benchmark			(0.16)	(3.40)	(3.40)	1.13	5.63	5.06		5.24	
Variance			**0.01**	**0.03**	**0.03**	**(0.19)**	**(0.21)**	**(0.28)**		**(0.30)**	
Conservative Option	$ 4,736,104	17.21%	(0.26)	(1.55)	(1.55)	0.18	2.58	2.45		2.51	12/15/16
ABLE Conservative Custom Benchmark			(0.32)	(1.62)	(1.62)	0.22	2.66	2.61		2.68	
Variance			**0.06**	**0.07**	**0.07**	**(0.04)**	**(0.08)**	**(0.16)**		**(0.17)**	
Checking Option	$ 7,931,197	28.83%									03/30/17

MINNESOTA ACHIEVE A BETTER LIFE EXPERIENCE

The Minnesota Achieve a Better Life Experience Plan (ABLE)
The plan is administered by the Department of Human Services (DHS).

The SBI and DHS have jointly contracted with Ascensus to provide recordkeeping, administrative, and investment management services for the plan.

RISK BASED ALLOCATIONS

The plan offers seven different allocation investment options: Aggressive, Moderately Aggressive, Growth, Moderate, Moderately Conservative, Conservative, and Checking. Each allocation is based on a fixed risk level.

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Quarterly Report

Non-Retirement

March 31, 2022

Non-Retirement Funds

The SBI manages funds for trusts and programs created by the Minnesota State Constitution and Legislature.

- The Permanent School Fund is a trust established for the benefit of Minnesota public schools.
- The Environmental Trust Fund is a trust established for the protection and enhancement of Minnesota's environment. It is funded with a portion of the proceeds from the state's lottery.
- The Minnesota Workers Compensation Assigned Risk Plan provides worker compensation insurance for companies unable to obtain coverage through private carriers.
- The Closed Landfill Investment Fund is a trust created by the Legislature to invest money to pay for the long-term costs of maintaining the integrity of landfills in Minnesota once they are closed.
- Other Post-Employment Benefits Accounts (OPEB) are the assets set aside by local units of government for the payment of retiree benefits trusteed by the Public Employees Retirement Association.
- Miscellanous Trust Accounts are other small funds managed by the SBI for a variety of purposes.

All equity, fixed income, and cash assets for these accounts are managed externally by investment management firms retained by the SBI.

Non-Retirement

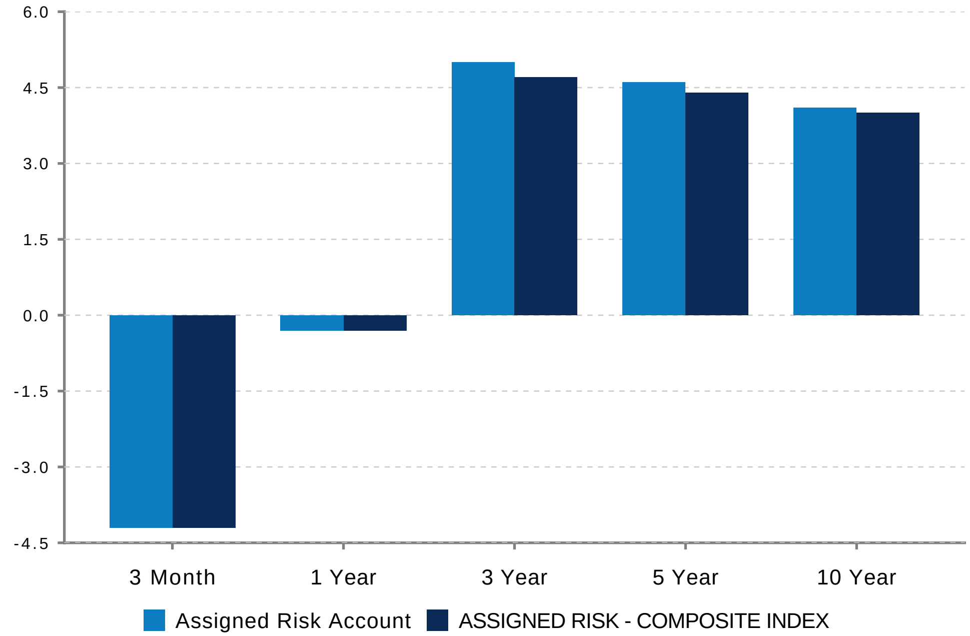
Assigned Risk Plan

The Assigned Risk plan has two investment objectives: to minimize the mismatch between assets and liabilities and to provide sufficient liquidity for the payment of ongoing claims and operating expenses.

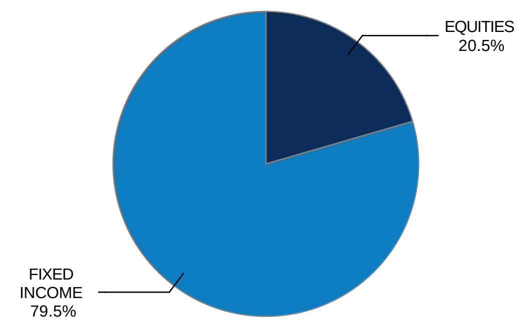
The Assigned Risk Plan is invested in a portfolio of common stocks and bonds

The equity segment is passively managed to track the performance of the S&P 500.

The fixed income benchmark is the Bloomberg U.S. Government Intermediate Index. The total fund benchmark is a combination of the fixed income and equity benchmarks, weighted according to the total fund asset allocation targets of 80% fixed income and 20% equities. The actual asset mix will fluctuate and is shown in the graph below.



	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
Assigned Risk Account	$267,323,372	-4.2%	-0.3%	5.0%	4.6%	4.1%
EQUITIES	54,895,136	-4.6	15.6	18.9	16.0	14.2
FIXED INCOME	212,428,236	-4.1	-4.2	1.2	1.5	1.4
ASSIGNED RISK - COMPOSITE INDEX		-4.2	-0.3	4.7	4.4	4.0
Excess		0.0	0.0	0.3	0.3	0.1
S&P 500		-4.6	15.6	18.9	16.0	14.6
Bloomberg U.S. Government: Intermediate		-4.2	-4.2	1.0	1.3	1.3



Note: Since 12/1/2017 the Assigned Risk equity segment has been managed by Mellon. From 1/17/2017-11/30/2017 it was managed internally by SBI staff. Prior to 1/17/2017 the equity segment was managed by SSgA (formerly GE Investment Mgmt.). RBC manages the fixed income segment of the Fund.

STATE STREET.

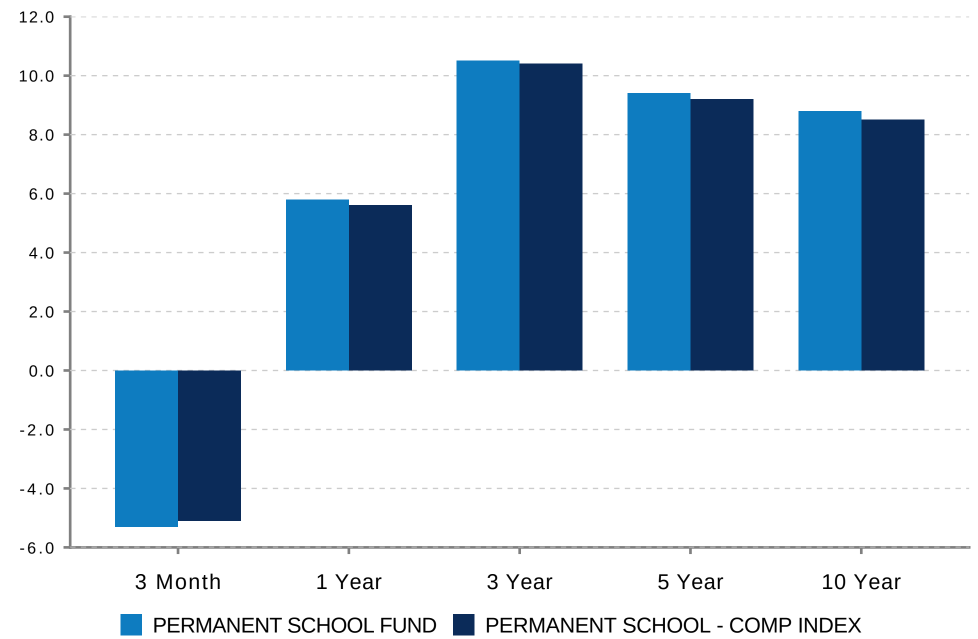
Non-Retirement

Permanent School Fund

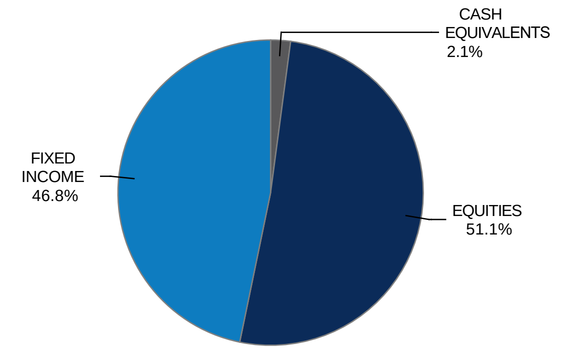
The investment objective of the Permanent School Fund is to produce a growing level of spendable income, within the constraints of maintaining adequate portfolio quality and liquidity. The income from the portfolio is transferred to the school endowment fund and distributed to Minnesota's public schools.

The Permanent School Fund is invested in a balanced portfolio of common stocks and bonds. Common stocks provide the potential for significant capital appreciation, while bonds provide portfolio diversification and a more stable stream of current income.

The stock segment is passively managed to track the performance of the S&P 500. The bond segment is actively managed to add incremental value through sector, security and yield curve decisions. The fixed income benchmark is the Bloomberg U.S. Aggregate. The total fund benchmark is a combination of the fixed income and equity benchmarks, weighted according to the total fund asset allocation targets of 2% cash, 50% equity, and 48% fixed income. The actual asset mix will fluctuate and is shown in the graph below.



	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
PERMANENT SCHOOL FUND	$1,951,583,074	-5.3%	5.8%	10.5%	9.4%	8.8%
CASH EQUIVALENTS	40,258,448	0.0	0.1	0.8	1.1	0.7
EQUITIES	998,459,779	-4.6	15.6	18.9	16.0	14.6
FIXED INCOME	912,864,847	-6.2	-4.2	2.0	2.4	2.8
PERMANENT SCHOOL - COMP INDEX		-5.1	5.6	10.4	9.2	8.5
Excess		-0.2	0.2	0.1	0.2	0.3
S&P 500		-4.6	15.6	18.9	16.0	14.6
Bloomberg U.S. Aggregate		-5.9	-4.2	1.7	2.1	2.2



Note: Since 12/1/2017 the equity segment has been managed by Mellon and the fixed income segment by Prudential. Prior to 12/1/2017 both segments were managed internally by SBI staff. Prior to 7/1/97 the Fund allocation was 100% fixed income.

STATE STREET

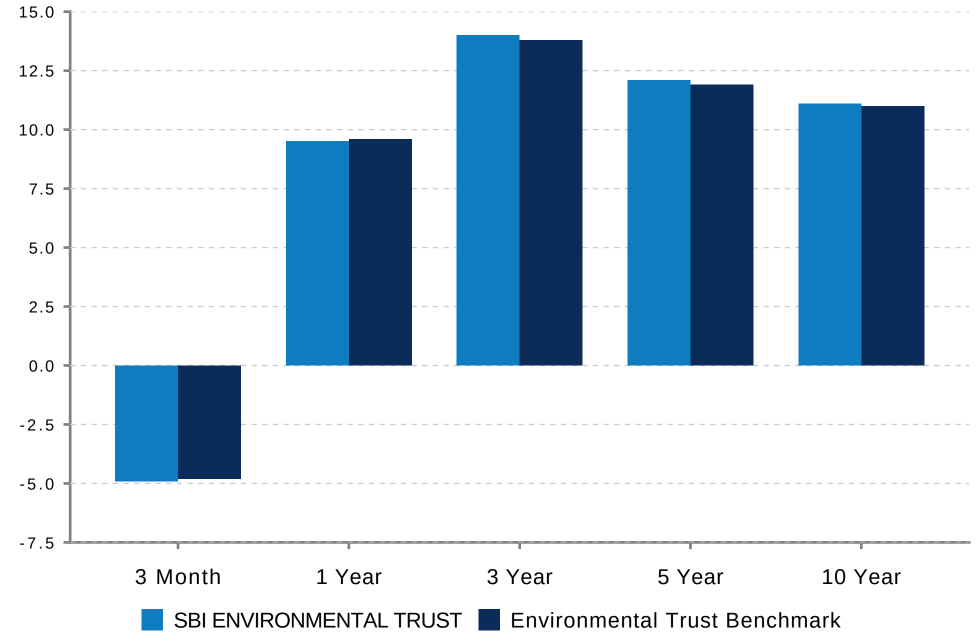
Non-Retirement

Environmental Trust Fund

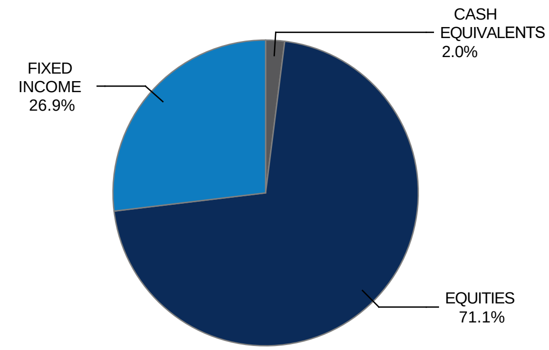
The objective of the Environmental Trust Fund is to increase the market value of the Fund over time in order to increase the annual amount made available for spending within the constraints of maintaining adequate portfolio quality and liquidity.

The Environmental Trust Fund is invested in a balanced portfolio of common stocks and bonds. Common stocks provide the potential for significant capital appreciation, while bonds act as a deflation hedge and provide portfolio diversification.

The bond segment is actively managed to add incremental value through sector, security and yield curve decisions. The stock segment is passively managed to track the performance of the S&P 500. The fixed income benchmark is the Bloomberg U.S. Aggregate. The total fund benchmark is a combination of the fixed income and equity benchmarks, weighted according to the total fund asset allocation targets of 2% cash, 70% equities, and 28% fixed income. The actual asset mix will fluctuate and is shown in the graph below.



	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
SBI ENVIRONMENTAL TRUST	$1,667,041,621	-4.9%	9.5%	14.0%	12.1%	11.1%
CASH EQUIVALENTS	33,534,587	0.0	0.1	0.8	1.1	0.7
EQUITIES	1,185,329,608	-4.6	15.6	18.9	16.0	14.6
FIXED INCOME	448,177,425	-6.2	-4.2	2.0	2.4	2.8
Environmental Trust Benchmark		-4.8	9.6	13.8	11.9	11.0
Excess		-0.1	-0.1	0.2	0.2	0.2
S&P 500		-4.6	15.6	18.9	16.0	14.6
Bloomberg U.S. Aggregate		-5.9	-4.2	1.7	2.1	2.2



Note: Since 12/1/2017 the equity segment has been managed by Mellon and the fixed income segment by Prudential. Prior to 12/1/2017 both segments were managed internally by SBI staff. From 7/1/94 to 7/1/99, the Fund's target allocation and benchmark was 50% fixed income and 50% stock. Prior to 7/1/94 the Fund was invested entirely in short-term instruments as part of the Invested Treasurer's Cash pool.

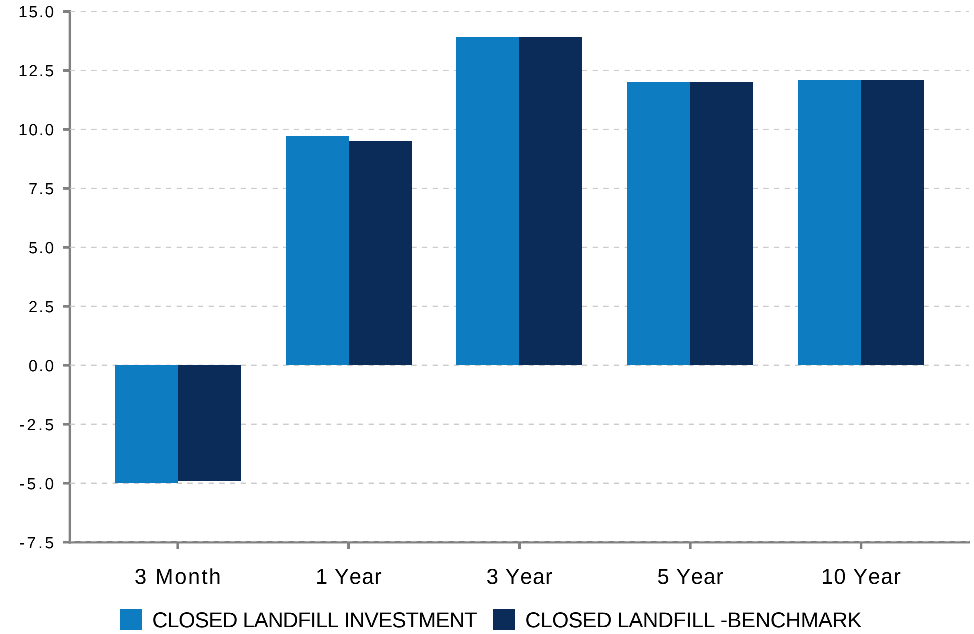
STATE STREET.

Non-Retirement

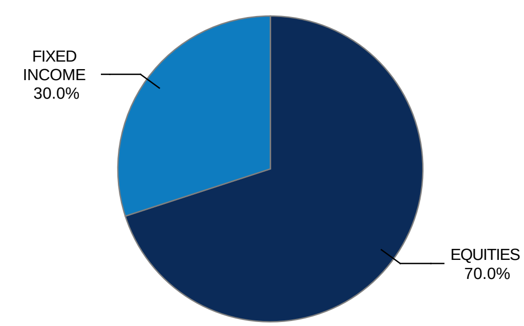
Closed Landfill Investment Fund

The investment objective of the Closed Landfill Investment Fund is to increase the market value of the Fund and to reduce volatility to meet future expenditures. By statute, the assets of the Fund were unavailable for expenditure until after the fiscal year 2020 to pay for long-term costs of maintaining the integrity of landfills in Minnesota once they are closed. In FY 2011, $48 million was transferred out of the general fund leaving a balance of $1 million in the account. Legislation was enacted in 2013 to replenish the principal and earnings back into the fund and in FY 2014 a repayment was made in the amount of $64.2 million. In 2015, legislation was passed which repealed any further repayments.

The bond segment is actively managed to add incremental value through sector, security and yield curve decisions. The stock segment is managed to passively track the performance of the S&P 500. The fixed income benchmark is the Bloomberg U.S. Aggregate. The total fund benchmark is a combination of the fixed income and equity benchmarks, weighted according to the total fund asset allocation targets of 70% equities and 30% fixed income. The actual asset mix will fluctuate and is shown in the graph below.



	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
CLOSED LANDFILL INVESTMENT	$133,223,205	-5.0%	9.7%	13.9%	12.0%	12.1%
EQUITIES	93,244,106	-4.6	15.6	18.9	16.0	14.6
FIXED INCOME	39,979,099	-6.2	-4.2	2.0	2.4	
CLOSED LANDFILL -BENCHMARK		-4.9	9.5	13.9	12.0	12.1
Excess		-0.1	0.2	0.0	0.1	0.0
S&P 500		-4.6	15.6	18.9	16.0	14.6
Bloomberg U.S. Aggregate		-5.9	-4.2	1.7	2.1	2.2



Note: Since 12/1/2017 the equity segment has been managed by Mellon and the fixed income segment by Prudential. Prior to 12/1/2017 both segments were managed internally by SBI staff. Prior to 9/10/14 the Fund's target allocation and benchmark was 100% domestic equity.

STATE STREET

	Ending Market Value	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
NON RETIREMENT EQUITY INDEX - MELLON	**3,231,199,995**	**-4.6**	**6.5**	**15.6**	**18.9**	**16.0**	**14.6**	**10.5**	**07/1993**
S&P 500 INDEX (DAILY)		-4.6	6.5	15.6	18.9	16.0	14.6	10.5	07/1993
Excess		-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	0.1	
NON RETIREMENT FIXED INCOME - PRUDENTIAL	**1,612,095,149**	**-6.2**	**-6.2**	**-4.2**	**2.0**	**2.4**	**2.8**	**5.5**	**07/1994**
Bloomberg U.S. Aggregate		-5.9	-5.9	-4.2	1.7	2.1	2.2	5.0	07/1994
Excess		-0.2	-0.3	-0.1	0.3	0.3	0.5	0.5	
RBC	**212,428,285**	**-4.1**	**-4.8**	**-4.2**	**1.2**	**1.5**	**1.4**	**4.5**	**07/1991**
RBC Custom Benchmark		-4.2	-4.7	-4.2	1.0	1.3	1.3	4.5	07/1991
Excess		0.1	-0.0	-0.0	0.1	0.1	0.1	-0.1	
MET COUNCIL OPEB BOND POOL	98,070,669	-3.2	-3.8	-3.0	0.8			1.4	02/2018
NON RETIREMENT CASH ACCOUNT	**106,566,090**	**0.0**	**0.1**	**0.1**	**0.8**			**1.2**	**12/2017**
ICE BofA US 3-Month Treasury Bill		0.0	0.1	0.1	0.8			1.2	12/2017
Excess		-0.0	0.0	0.0	-0.0			0.0	

Note:

RBC is the manager for the fixed income portion of the Assigned Risk account. RBC changed its name from Voyageur Asset Management on 1/1/2010. The current benchmark is the Bloomberg U.S. Government Intermediate Index. Prior to 7/1/11 the Voyageur Custom Index was 10% 90 day T-Bill, 25% Merrill 1-3 Government, 15% Merrill 3-5 Government, 25% Merrill 5-10 Government, 25% Merrill Mortgage Master.

Prior to 12/1/17 the Non Retirement Equity Index and Non Retirement Fixed Income accounts were managed internally by SBI staff.

In addition to the Non-Retirement Funds listed on the previous pages, the Non Retirement Equity Index and the Non Retirement Fixed Income accounts also include the assets of various smaller Miscellaneous Trust Accounts and Other Post Employment Benefits.

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Quarterly Report

State Cash

March 31, 2022

State Cash Accounts

Invested Treasurer's Cash

The Invested Treasurer's Cash Pool (ITC) represents the balances in more than 400 separate accounts that flow through the Minnesota State Treasury. These accounts vary greatly in size. The ITC contains the cash balances of certain State agencies and non-dedicated cash in the State Treasury.

The investment objectives of the ITC, in order of priority, are as follows:

- Safety of Principal. To preserve capital.
- Liquidity. To meet cash needs without the forced sale of securities at a loss.
- Competitive Rate of Return. To provide a level of current income consistent with the goal of preserving capital.

The SBI seeks to provide safety of principal by investing all cash accounts in high quality, liquid, short term investments. These include U.S. Treasury and Agency issues, repurchase agreements, bankers acceptances, commercial paper, and certificates of deposit.

Beginning in January 2003, the Treasurer's Cash Pool is measured against the iMoneyNet, All Taxable Money Fund Report Average.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
Treasurer's Cash	$21,424,184,469	-1.0	-1.1	0.6	1.0	0.6
iMoneyNet Money Fund Average-All Taxable		0.0	0.0	0.6	0.8	0.4

Other State Cash Accounts

Due to differing investment objectives, strategies, and time horizons, some State agencies' accounts are invested seperately. These agencies direct the investments or provide the SBI with investment guidelines and the SBI executes on their behalf. Consequently, returns are shown for informational purposes only and there are no benchmarks for these accounts.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
Debt Service	$68,028,654	-2.9	-1.8	1.7	2.3	

Addendum

Benchmark Definitions

Active Domestic Equity Benchmark:

A weighted composite each of the individual active domestic equity managers' benchmarks. Effective 3/1/2017 the calculation uses the average weight of the manager relative to the total group of active managers during the month. Prior to 3/1/2017 the beginning of the month weight relative to the total group was used.

Benchmark DM:

Since 6/1/08 the developed markets managers' benchmark, "Benchmark DM," is the Standard (large + mid) MSCI World ex USA (net). From 10/1/07 through 5/31/08 the benchmark was the Provisional Standard MSCI World ex USA (net). From 10/1/03 to 9/30/07 the benchmark was the MSCI World ex USA (net). Prior to that date, it was the MSCI EAFE Free (net), including from 10/1/01 to 5/31/02 when it was the Provisional MSCI EAFE Free (net).

Benchmark EM:

Since 6/1/08 the emerging markets managers' benchmark, "Benchmark EM,"is the Standard (large + mid) MSCI Emerging Markets Free (net). From 10/1/07 through 5/31/08 the benchmark was the Provisional Standard MSCI Emerging Markets Free (net). From 1/1/01 to 9/30/07 the benchmark was the MSCI Emerging Markets Free (net), including from 10/1/01 to 5/31/02 when it was the Provisional MSCI Emerging Markets Free (net). Prior to 1/1/01, it was the MSCI Emerging Markets Free (gross).

Combined Funds Composite Index:

The Composite Index performance is calculated by multiplying the beginning of month Composite weights by the monthly returns of the asset class benchmarks. Asset class weights for Private Markets - Invested and Private Markets - Uninvested are reset at the start of each month. From 1/1/2018-2/28/2019 the Transitional Policy Target was used to reflect the addition of Treasuries to the Fixed Income portfolio. From 7/1/2016-12/31/2016 the composite weights were set to match actual allocation as the portfolio was brought into line with the new Strategic Asset Allocation Policy Target. 7/1/2016 to 12/1/2020 the uninvested portion of Private Markets allocated to Public Equity. Prior to 7/1/2016 the uninvested portion of the Private Markets was invested in Fixed Income and the Composite Index was adjusted accordingly. When the Strategic Asset Allocation Policy Target changes, so does the Composite Index.

Core Bonds Benchmark:

The Core Bonds Benchmark is the Bloomberg U.S. Aggregate. Prior to 2016 this index was called the Barclays Agg. Prior to 9/18/2008 this index was called the Lehman Brothers Aggregate Bond Index. From 7/1/84-6/30/94 the asset class benchmark was the Salomon Brothers Broad Investment Grade Index. The SBI name for this benchmark changed from Fixed Income to Core Bonds on March 31, 2020.

Credit Plus Benchmark:

40% Bloomberg US Corporate Bond Index, 30% Bloomberg US Mortgage Backed Index, 20% BofA ML US High Yield BB-B Cash Pay Constrained Index, and 10% JPM EMBI Global Diversified Index.

Addendum

Domestic Equity Benchmark:

Since 12/1/2020 the benchmark is the Russell 3000. From 1/1/2019-11/30/2020 the benchmark was 90% Russell 1000 and 10% Russell 2000. From 10/1/2003 to 12/31/2018 it was the Russell 3000. From 7/1/1999 to 9/30/2003, it was the Wilshire 5000 Investable Index. From 11/1/1993 to 6/30/1999, the target was the Wilshire 5000 as reported with no adjustments. Prior to 11/1/1993, the Wilshire 5000 was adjusted to reflect SBI mandated restrictions, which included liquor and tobacco, American Home Products and South Africa.

Fixed Interest Blended Benchmark: Since 6/1/2002, equals 3 Year Constant Maturity Treasury Yield + 45 bps. Prior to this change it was the 3 Year Constant Maturity Treasury Yield + 30 bps.

International Equity Benchmark:

Since 12/1/2020 equals the MSCI ACWI ex-US(Net). From 1/1/2018 to 1/1/2019 it was 75% MSCI World ex USA Index (net) and 25% MSCI Emerging Markets Index (net). From 6/1/08 to 12/31/2018 the International Equity asset class target was the Standard (large + mid) MSCI ACWI ex U.S. (net). From 10/1/07 through 5/31/08 the benchmark was the Provisional Standard MSCI ACWI ex U.S. (net). From 10/1/03 to 9/30/07 the target was MSCI ACWI ex U.S. (net). From 1/1/01 to 9/30/03, the target was MSCI EAFE Free (net) plus Emerging Markets Free (net), and from 7/1/99 to 12/31/00 the target was MSCI EAFE Free (net) plus Emerging Markets Free (gross). From 7/1/99 to 9/30/03, the weighting of each index fluctuated with market capitalization. From 10/1/01 to 5/31/02 all international benchmarks being reported were the MSCI Provisional indices. From 12/31/96 to 6/30/99 the benchmark was fixed at 87% EAFE Free (net)/13% Emerging Markets Free (gross). On 5/1/96, the portfolio began transitioning from 100% EAFE Free (net) to the 12/31/96 fixed weights. Prior to 5/1/96 it was 100% the EAFE Free (net).

Multi-Asset Credit Benchmark:

33.33% ICE BofA High Yield, 33.33% S&P LSTA Leveraged Loan, and 33.33% JPM EMBI Global Diversified Index.

Passive Domestic Equity Benchmark:

A weighted average of the Russell 1000, Russell 2000 and Russell 3000 effective 11/1/2018. From 10/1/2016 to 11/1/2018 it was a weighted average of the Russell 1000 and Russell 3000. From 10/1/2003 to 10/1/2016 it was equal to the Russell 3000. From 7/1/2000 to 9/30/2003, it was the Wilshire 5000 Investable Index. From 11/1/1993 to 6/30/2000, the target was the Wilshire 5000 as reported with no adjustments. Prior to 11/1/1993, the Wilshire 5000 was adjusted to reflect SBI mandated restrictions, which included liquor and tobacco, American Home Products and South Africa.

Passive Manager Benchmark:

Russell 3000 effective 10/1/2003. From 7/1/2000 to 9/30/2003, it was the Wilshire 5000 Investable Index. From 11/1/1993 to 6/30/2000, the target was the Wilshire 5000 as reported with no adjustments. Prior to 11/1/1993, the Wilshire 5000 was adjusted to reflect SBI mandated restrictions, which included liquor and tobacco, American Home Products and South Africa.

Addendum

Public Equity Benchmark:

Since 12/1/2020 it is 67% Russell 3000 and 33% MSCI ACWI ex-US(net). From 1/1/2019 to 12/1/2020 it was 60.3% Russell 1000, 6.7% Russell 2000, 24.75% MSCI World Ex US (net), and 8.25% MSCI EM (net). From 7/1/2017 thru 12/31/2018 it was 67% Russell 3000 and 33% MSCI ACWI ex USA. Prior to 6/30/16 the returns of Domestic and International Equity were not reported as a total Public Equity return. From 6/30/16-6/30/17 the Public Equity benchmark adjusted by 2% each quarter from 75% Russell 3000 and 25% MSCI ACWI ex USA until it reached 67% and 33%.

Return Seeking BM:

A weighted composite of each individual return seeking fixed income managers' benchmarks. The calculation uses the average weight of the manager relative to the total group of active managers during the month.

Semi-Passive Domestic Equity Benchmark: Russell 1000 index effective 1/1/2004. Prior to 1/1/2004 it was the Completeness Fund benchmark.

Total Fixed Income Benchmark:

Since 7/1/2020 the Total Fixed Income benchmark is 40% Bloomberg U.S. Aggregate Index/ 40% Bloomberg Treasury 5+ Years Index/ 20% ICE BofA US 3-Month Treasury Bill. From 4/1/2019-6/30/2020 it was 50% Bloomberg Aggregate and 50% Bloomberg Treasury 5+ Years Index. From 2/1/2018-3/31/19 the weighting of this benchmark reflected the relative weights of the Core Bonds and Treasuries allocations in the Combined Funds Composite.

Zevenbergen Benchmark: Russell 3000 Growth index effective 1/1/2021. Prior to 1/1/2021 it was the Russell 1000 Growth Index.

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