MINNESOTA STATE BOARD OF INVESTMENT

STATE BOARD OF INVESTMENT
MEETING
May 25, 2023

Governor Tim Walz

State Auditor Julie Blaha

Secretary of State Steve Simon

Attorney General Keith Ellison

STATE BOARD OF INVESTMENT MEETING

AGENDA

May 25, 2023

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Board Members:
Governor Tim Walz, Chair
State Auditor Julie Blaha
Secretary of State Steve Simon
Attorney General Keith Ellison

Executive Director & Chief Investment Officer:
Jill E. Schurtz

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AGENDA

STATE BOARD OF INVESTMENT MEETING

Thursday, May 25, 2023
10:00 a.m.

G23 Senate Committee Room
State Capitol
75 Rev. Dr. Martin Luther King Jr. Boulevard
St. Paul, MN

	TAB	
1. Call to Order		
2. Approval of Minutes of March 2, 2023		**Motion Needed**
3. Performance Summary (Jill Schurtz)	A	
4. Executive Director's Administrative Report (Jill Schurtz)	B	
5. SBI Administrative Committee Report (Jill Schurtz / Karl Procaccini) a. Executive Director's Proposed Annual Objectives FY24 b. Budget Plan for FY24 and FY25 c. Continuing Fiduciary Education Plan d. Executive Director's Evaluation and Salary Process	C	**Motion Needed**
6. Private Markets Investment Program Report (Jill Schurtz / Gary Martin)	D	**Motion Needed**
7. 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
March 2, 2023
SBI Meeting Minutes

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Minnesota
State Board of Investment

Minutes
State Board of Investment Meeting
March 2, 2023

The State Board of Investment (SBI) met at 10:15 a.m. Thursday, March 2, 2023 in G23 Senate Committee Room, State Capitol, St. Paul, Minnesota. Prior to the quarterly meeting, each Board member reviewed and discussed the material with the Executive Director and investment consultants retained by the SBI.

Members Present:
Governor Tim Walz (Chair)
State Auditor Julie Blaha
Secretary of State Steve Simon
Attorney General Keith Ellison

Call to Order
Governor Tim Walz, Chair, called the meeting to order.

Approval of Minutes
The minutes of the November 30, 2022 SBI meeting were approved.

SBI Organizational Announcements
Executive Director Jill Schurtz announced a number of organizational updates, which included staff promotions, reporting line changes, and the formation of a new team that will be focused on investment operational due diligence.

Performance Summary
Ms. Schurtz referred members to the Quarterly Performance Summary in Tab A of the meeting materials. Ms. Schurtz outlined the following items from the report as of December 31, 2022:

AUM: The SBI was responsible for $123.6 billion in assets, of which the Combined Funds represented $80.1 billion.

Performance: The Combined Funds exceeded its long-term objectives by outperforming its Composite Index for the ten-year time period and provided a real rate of return above inflation over a 20 year time-period.

Asset Allocation and TUCS Ranking: The Combined Funds asset mix was in-line with asset allocation targets and the Combined Funds return compared to other public pension plans with assets greater than $20 billion in the Trust Universe Comparison Service (TUCS) ranked in the 35th and 70th percentile for the quarter and the year, respectively.

Executive Director's Administrative Report
Ms. Schurtz referred members to Tab B of the meeting materials for the Executive Director's Administrative Report, in which the following items were reviewed:

Financial Items: For the time period ending December 31, 2022, the SBI administrative expenses remain below budget. The Office of the Legislative Auditor (OLA) completed its audit of the State of Minnesota's financial statements for the fiscal year ended June 30, 2022 and issued its report with the highest form of opinion and no written findings.

Unauthorized Holdings: The Sudan holding restriction expired and was removed from state statute by the Minnesota Revisor's Office. It will no longer be included in the quarterly screening process of unauthorized holdings.

Private Markets Investment Program Report
Ms. Schurtz referred members to the Private Markets Investment Program Report in Tab C of the meetings materials and outlined the details of the recommendation to determine bands around the private markets target allocation and to update internal guidelines regarding the market value plus unfunded commitment limits. These recommendations were supported by work performed by the SBI's private markets consultant, Albourne, as well as the general consultant, Aon.

Gary Martin, Chair of the Investment Advisory Council, provided a review of the eight private market proposals listed in Tab C of the meeting materials. Mr. Martin stated that the following eight recommendations are for existing managers with whom the SBI has done extensive due diligence: Goldner Hawn Fund VIII, Hellman & Friedman Capital Partner Fund XI, Paine Schwartz Food Chain Fund VI, Windjammer Capital Fund VI, Marathon Fund Distressed Credit Fund II, ECP V, AG Asia Realty Fund V, and Realty Associates Fund XIII.

On the motion of Secretary of State Simon, the following recommendations were approved:

1) Approval of the establishment of an approved range of 20%-32% around the Private Markets target allocation of 25% of the Combined Funds market value: and
2) Confirm the SBI Staff's authority to modify internal guidelines, in this case, to increase the Market Value plus Unfunded Commitments policy limit from 45% to 50% of the Combined Funds' assets: and
3) Approval of the eight investment funds which reads:

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to $100 million to **Goldner Hawn Fund VIII**. It is understood that 1) such a commitment will not exceed 20% of Goldner Hawn Fund VIII and 2) an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing may be required and is approved. 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 none of the State of Minnesota, the Investment Advisory Council, the State Board of Investment, or its Executive Director have any liability for reliance by Goldner Hawn 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 Goldner Hawn or a reduction or termination of the commitment.

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to $200 million to **Hellman & Friedman Capital Partners Fund XI**. It is understood that 1) such a commitment will not exceed 20% of Hellman & Friedman Capital Partners Fund XI and 2) an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing may be required and is approved. 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 none of the State of Minnesota, the Investment Advisory Council, the State Board of Investment, or its Executive Director have any liability for reliance by Hellman & Friedman 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 Hellman & Friedman or a reduction or termination of the commitment.

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to $150 million to **Paine Schwartz Food Chain Fund VI.** It is understood that 1) such a commitment will not exceed 20% of Paine Schwartz Food Chain Fund VI and 2) an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing may be required and is approved. 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 none of the State of Minnesota, the Investment Advisory Council, the State Board of Investment, or its Executive Director have any liability for reliance by Paine Schwartz Partners 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 Paine Schwartz Partners or a reduction or termination of the commitment.

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to $200 million to **Windjammer Capital Fund VI**. It is understood that 1) such a commitment will not exceed 20% of Windjammer Capital Fund VI and 2) an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing may be required and is approved. 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 none of the State of Minnesota, the Investment Advisory Council, the State Board of Investment, or its Executive Director have any liability for reliance by Windjammer Capital Investors 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 Windjammer Capital Investors or a reduction or termination of the commitment.

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to $250 million to **Marathon Distressed Credit Fund II**. It is understood that 1) such a commitment will not exceed 20% of Marathon Distressed Credit Fund II and 2) an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing may be required and is approved. 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 none of the State of Minnesota, the Investment Advisory Council, the State Board of Investment, or its Executive Director have any liability for reliance by Marathon Asset Management 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 Marathon Asset Management or a reduction or termination of the commitment.

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to $200 million to **ECP V**. It is understood that 1) such a commitment will not exceed 20% of ECP V and 2) an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing may be required and is approved. 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 none of the State of Minnesota, the Investment Advisory Council, the State Board of Investment, or its Executive Director have any liability for reliance by ECP 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 ECP or a reduction or termination of the commitment.

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to $100 million to **AG Asia Realty Fund V**. It is understood that 1) such a commitment will not exceed 20% of AG Asia Realty Fund V and 2) an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing may be required and is approved. 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 none of the State of Minnesota, the Investment Advisory Council, the State Board of Investment, or its Executive Director have any liability for reliance by Angelo, Gordon & Co. 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 Angelo, Gordon & Co. or a reduction or termination of the commitment.

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to $200 million to **Realty Associates Fund XIII**. It is understood that 1) such a commitment will not exceed 20% of Realty Associates Fund XIII and 2) an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing may be required and is approved. 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 none of the State of Minnesota, the Investment Advisory Council, the State Board of Investment, or its Executive Director have any liability for reliance by TA Realty 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 TA Realty or a reduction or termination of the commitment.

SBI Administrative Committee Report

Ms. Schurtz referred members to the SBI Administrative Committee Report in Tab D of the meeting material.

On the motion of State Auditor Blaha, the following recommendations were approved:

Adopt Resolution to Establish the SBI Administrative Committee

Ms. Schurtz recommends that the SBI adopt the resolution that establishes the SBI Administrative Committee, which is delegated to review and make recommendations regarding the SBI's fiscal year budget, Executive Director's yearly goals and objectives, Executive Director's performance evaluation process, and other administrative items necessary for the administration of the SBI, as referred by the SBI Administrative Committee or Executive Director (see **Attachment A**).

Approval of the FY2023 SBI Annual Objectives

The SBI Administrative Committee recommends that the Board approve the FY23 SBI Annual Objectives. Further, the SBI Administrative Committee recommends that the Board approve using the FY23 SBI Annual Objectives as the basis for the Executive Director's performance evaluation for FY23.

Executive Director's Performance Evaluation and Salary Process

The SBI Administrative Committee recommends that the Board approve the following Evaluation and salary process for the SBI Executive Director:

- The Evaluation will be primarily based on the results of the SBI Annual Objectives for the fiscal year ending the previous June 30.
- The Executive Director/CIO will complete a self-evaluation based on the SBI Annual Objectives, which will be distributed in a timely manner to the Board Members/Designees.
- The SBI Annual Objectives will also serve as the evaluation form for use by each Board Member/Designee.
- Evaluations by each Board member should be completed by October 1.
- Board Members/Designees will forward completed Evaluations to the Executive Director. Board Members/Designees are encouraged to meet individually with the Executive Director to review their individual Evaluations.

- The Governor's Board designee will provide a letter to the Executive Director confirming the status of the Evaluation results by November 1.
- Upon satisfactory performance evaluations from a majority of responding Board Members/Designees, the Executive Director's annual salary will be adjusted to include:
    - any Cost-of- Living Adjustment (COLA)/Across the Board (ATB)/General Salary Increases and/or any Performance-Based Salary Increases contained in the FY24-25 Managerial Plan, to the extent that the resulting salary is within the Executive Director's salary range.

Adjustments shall be effective on the relevant dates set forth in the FY24-25 Managerial Plan. Generally, it is understood that COLA adjustments will be effective the preceding July and Performance-Based Salary increases on January 1. Retroactive pay, if any, will be determined under the Managerial Plan.

Appoint Individuals to the Investment Advisory Council
The SBI Administrative Committee recommends that the Board reappoint the following individuals as members of the Investment Advisory Council, with terms expiring in 2027:

Dan McConnell
Nancy Orr
Gary Martin

The SBI Administrative Committee also recommends that the Board appoint the following individuals as members to the Investment Advisory Council to fill vacant member positions, with terms expiring as noted below:

Amy Jensen (Exp. January 2027)
Dennis Santos (Exp. January 2027)
Sunil Swami (Exp. January 2024)

SBI Proxy Committee Report
Ms. Schurtz referred members to the SBI Proxy Committee Report in Tab E of the meeting materials.

On a motion from Attorney General Ellison, the following recommendation was approved:

Adopt Resolution to Re-Authorize the SBI Proxy Committee
Ms. Schurtz recommends that the SBI adopt the resolution which re-authorizes the Proxy Committee and delegates proxy voting responsibilities according to established guidelines (see **Attachment B**).

Approve the Revised Proxy Voting Guidelines
The Proxy Committee and the Executive Director recommend that the Board approve the revised Proxy Voting Guidelines.

Public Testimony
Governor Walz recognized the following individuals to speak before the SBI:

Shanika Henderson, Renters United for Justice;
Brandon Schorsch, Anti-War Committee;
Mary Bader, Minnesota BDS Community
Lisa Franchett, Minnesota Divestment Coalition; and

Adjournment of Meeting
State Auditor Blaha moved approval to adjourn the meeting. The motion passed and the meeting adjourned at 11:18 a.m.

Informational Reports included in Quarterly Meeting Material
Public Markets Investment Report
Participant Directed Investment Program and Non-Retirement Investment Program Report
SBI ESG Report
Aon Market Environmental Report
Meketa Capital Markets Outlook & Risk Report
SBI Comprehensive Performance Report

Respectfully submitted,

Jill E. Schurtz
Executive Director and
Chief Investment Officer

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Board Members:
Governor Tim Walz, Chair
State Auditor Julie Blaha
Secretary of State Steve Simon
Attorney General Keith Ellison

Executive Director & Chief Investment Officer:
Jill E. Schurtz

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ATTACHMENT A

RESOLUTION OF THE MINNESOTA STATE BOARD OF INVESTMENT ESTABLISHING THE SBI ADMINISTRATIVE COMMITTEE

WHEREAS, the Minnesota State Board of Investment (SBI) maintains a fiscal year budget; and

WHEREAS, the SBI Executive Director establishes annual goals and objectives, and the SBI evaluates the Executive Director based on such goals and objectives:

NOW THEREFORE, BE IT RESOLVED THAT;

1. The Board establishes the Administrative Committee to review and make recommendations to the SBI regarding the SBI's fiscal year budget; Executive Director's annual goals and objectives; and Executive Director's performance evaluation process.

2. The SBI further authorizes the Administrative Committee to review and make recommendations to the SBI on other items necessary for the administration of the SBI, as referred by the Administrative Committee or Executive Director.

3. Membership in the Administrative Committee shall be comprised of (A) a designee from each board member; (B) two members of the Investment Advisory Council (IAC); and (C) the Executive Directors of MSRS, PERA, and TRA. The following individuals are hereby appointed:

Karl Procaccini, Chair	Governor's designee
Ramona Advani	State Auditor's designee
Bibi Black	Secretary of State's designee
Luz Frias	Attorney General's designee
Gary Martin	Investment Advisory Council
Kim Faust	Investment Advisory Council
Erin Leonard	Executive Director, Minnesota State Retirement System
Doug Anderson	Executive Director, Public Employees Retirement System
Jay Stoffel	Executive Director, Teachers Retirement System

4. Vacancies during the term of the Committee shall be filled in the following manner:

   - In the event of a vacancy with respect to a Board member's designee, the Board member may appoint an individual to fill such vacancy for the remaining term of the Committee.

- In the event of a vacancy with respect to IAC Membership, the Administrative Committee may appoint a member of the IAC to fill such vacancy for the remaining term of the Committee.

- In the event of a vacancy with respect to the Executive Director of MSRS, PERA, or TRA, the successor Executive Director shall serve on the Committee for the remaining term of the Committee.

5. The SBI further directs its staff to advise and assist the Administrative Committee to the extent necessary to carry out the foregoing duties.

6. This resolution shall take effect immediately.

Adopted this 2nd day
of March, 2023

Governor Tim Walz
Chair, Minnesota
State Board of Investment

Board Members:
Governor Tim Walz, Chair
State Auditor Julie Blaha
Secretary of State Steve Simon
Attorney General Keith Ellison

Executive Director & Chief Investment Officer:
Jill E. Schurtz

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ATTACHMENT B

RESOLUTION OF THE MINNESOTA STATE BOARD OF INVESTMENT CONCERNING PROXY VOTING

WHEREAS, as a stockholder, the Minnesota State Board of Investment (SBI) is entitled to sponsor and cosponsor resolutions and participate in corporate annual meetings by casting its votes by proxy or through direct attendance at the meetings; and

WHEREAS, the SBI has previously established a Proxy Committee:

NOW THEREFORE, BE IT RESOLVED THAT;

1. To advise and assist the SBI in the implementation of proxy voting Guidelines previously adopted by the Board, the SBI hereby authorizes and reaffirms the establishment of the SBI Proxy Committee composed of a representative selected by each member of the SBI to be chaired by the designee of the Governor and convened as necessary in accord with the Guidelines.

2. The SBI further authorizes the SBI Proxy Committee to review the Guidelines periodically and report to the SBI as necessary.

3. The SBI further directs its staff to advise and assist the Proxy Committee in the implementation of this resolution and directs its Executive Director to obtain such consulting and reporting services as may be necessary.

4. This resolution shall take effect immediately.

Adopted this 2nd day
of March, 2023

Governor Tim Walz
Chair, Minnesota
State Board of Investment

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TAB A

Quarterly Performance Summary

March 31, 2023

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Performance Summary

March 31, 2023

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

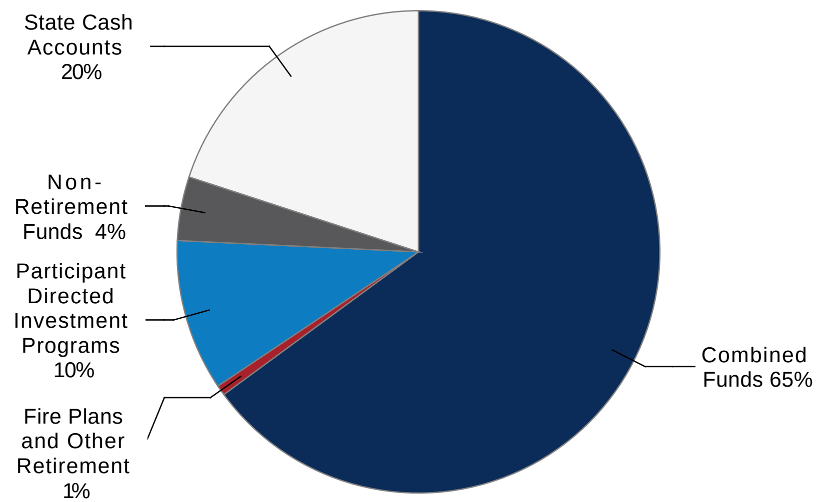
The Non-Retirement Funds are funds established by the State of Minnesota and other government entities for various purposes which include the benefit of public schools, the environment, other post-employment benefits, workers compensation insurance, and other purposes.

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	**$83,246**
Fire Plans + Other Retirement Plans	**881**
Participant Directed Investment Program	**13,001**
State Deferred Compensation Plan	8,906
Health Care Savings Plan	1,715
Unclassified Employees Retirement Plan	342
Hennepin County Supplemental Retirement Plan	158
PERA Defined Contribution Plan	87
Minnesota College Savings Plan	1,759
Minnesota Achieving a Better Life Experience Plan	34
Non-Retirement Funds	**5,489**
Assigned Risk Plan	263
Permanent School Fund	1,820
Environmental Trust Fund	1,536
Closed Landfill Investment Fund	122
Miscellaneous Trust Funds	941
Other Postemployment Benefits Accounts	807
State Cash	**25,605**
Invested Treasurer's Cash	25,515
Other State Cash Accounts	90
TOTAL SBI AUM	**128,223**



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	**8.6%**
Combined Funds - Composite Index	*8.3*
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	**8.9%**
CPI-U	*2.5*
Excess	6.4

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.

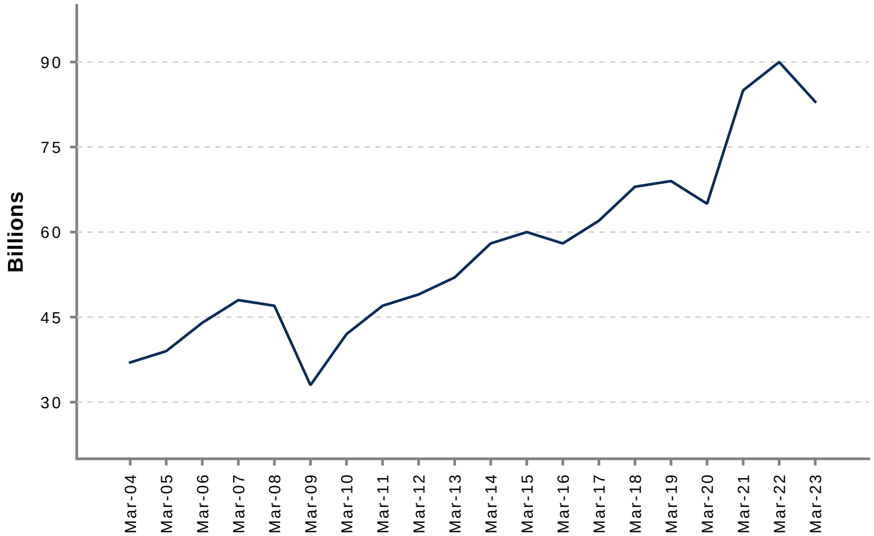
Combined Funds Summary

Combined Funds Change in Market Value ($Millions)

	One Quarter
Combined Funds	
Beginning Market Value	$80,120
Net Contributions	-684
Investment Return	3,811
Ending Market Value	83,246

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

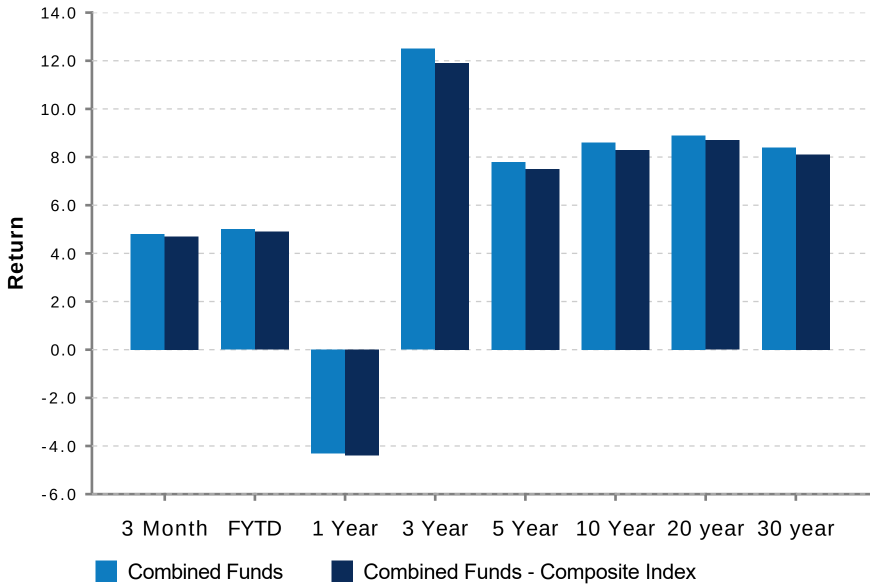
Asset Growth



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	4.8%	5.0%	-4.3%	12.5%	7.8%	8.6%	8.9%	8.4%
Combined Funds - Composite Index	4.7%	4.9%	-4.4%	11.9%	7.5%	8.3%	8.7%	8.1%
Excess	0.1%	0.1%	0.1%	0.6%	0.3%	0.3%	0.2%	0.2%

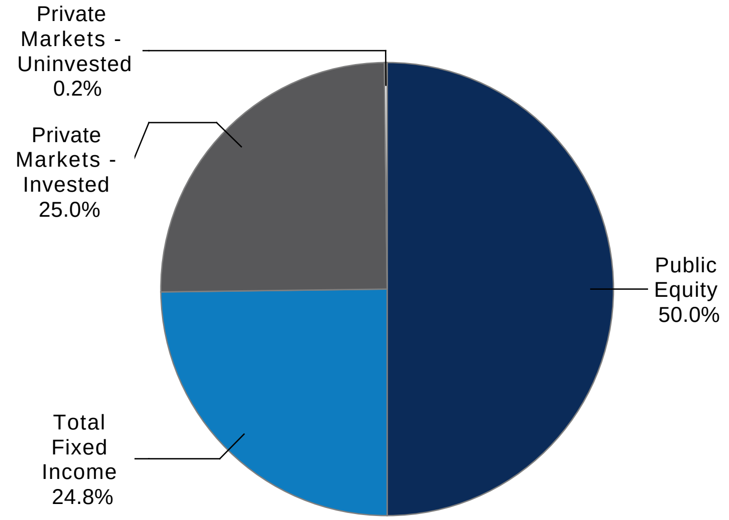


Combined Funds Summary

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.

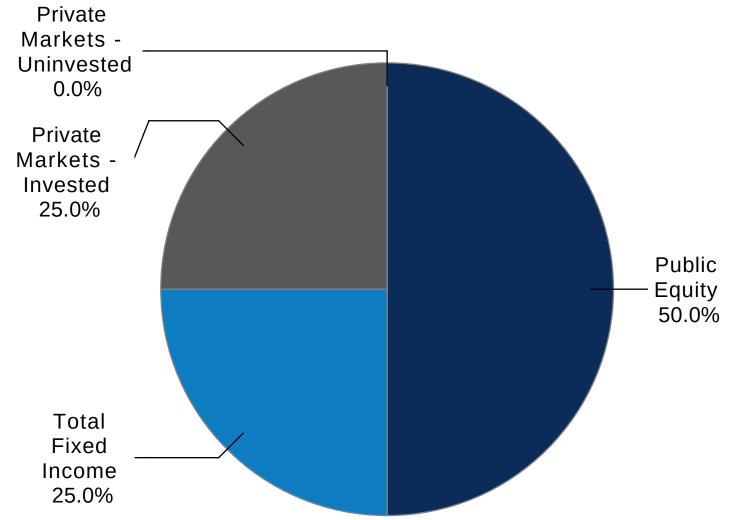
	(Millions)	Actual Mix	Policy Target
Public Equity	$41,657	50.0%	50.0%
Total Fixed Income	20,626	24.8	25.0
Private Markets - Total	20,963	25.2	25.0
Private Markets - Invested	20,788	25.0	
Private Markets - Uninvested	176	0.2	
TOTAL	83,246	100.0	



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	25.0	Private Markets
Private Markets - Uninvested	0.0	ICE BofA US 3-Month Treasury Bill



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	$41.7	50.0%	50.0%	7.1%	10.2%	-6.7%	17.0%	8.1%	9.7%	9.6%	8.6%
Public Equity Benchmark				7.1	10.0	-7.3	16.4	7.8			
Excess				-0.0	0.2	0.6	0.6	0.3			
Domestic Equity	27.5	33.0	33.5	7.2	9.9	-8.6	18.9	10.4	11.7	10.3	9.4
Domestic Equity Benchmark				7.2	9.7	-8.6	18.6	10.4	11.7	10.4	9.5
Excess				-0.0	0.2	0.0	0.3	0.0	0.0	-0.1	-0.1
International Equity	13.2	15.9	16.5	6.5	10.7	-2.5	13.4	3.4	4.9	7.9	6.2
International Equity Benchmark				6.9	10.0	-5.1	11.7	2.4	4.2	7.5	5.5
Excess				-0.4	0.6	2.5	1.7	0.9	0.7	0.4	0.7
Global Equity	0.9	1.1	0.0	12.6	11.4	-7.7					
MSCI AC World Index (net)				7.3	9.7	-7.4					
Excess				5.3	1.7	-0.2					

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	$20.6	24.8%	25.0%	3.7%	0.6%	-5.1%	-2.9%	1.9%	2.1%	3.8%	5.0%
Total Fixed Income Benchmark				3.2%	-0.4%	-5.2%	-3.8%	1.5%	1.7%	3.3%	4.6%
Excess				0.5%	1.0%	0.1%	0.8%	0.3%	0.4%	0.4%	0.4%
Core/Core Plus	$4.5	5.4%	5.0	3.4%	0.7%	-5.0%	-1.4%	1.4%	1.9%	3.7%	4.9%
Core Bonds Benchmark				3.0%	-0.1%	-4.8%	-2.8%	0.9%	1.4%	3.2%	4.5%
Excess				0.5%	0.8%	-0.2%	1.3%	0.5%	0.5%	0.5%	0.4%
Return Seeking Fixed Income	$4.1	5.0%	5.0	3.1%	4.2%	-3.7%					
Bloomberg U.S. Aggregate				3.0%	-0.1%	-4.8%					
Excess				0.2%	4.3%	1.1%					
Treasury Protection	$7.8	9.3%	10.0	5.0%	-2.4%	-9.5%	-7.4%	0.4%			
Bloomberg Treasury 5+ Year				4.5%	-2.3%	-9.4%	-7.5%	0.4%			
Excess				0.6%	-0.0%	-0.1%	0.1%	-0.0%			
Laddered Bond + Cash	$4.2	5.1%	5.0	1.1%	2.5%	2.5%	0.8%	1.3%	0.9%	1.5%	3.1%
ICE BofA US 3-Month Treasury Bill				1.1%	2.4%	2.5%	0.9%	1.4%	0.9%	1.3%	2.4%
Excess				0.1%	0.1%	-0.1%	-0.1%	-0.1%	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	1.5%	-0.7%	3.3%	15.8%	13.4%	13.0%	14.2%	12.7%	13.5%
Private Markets -Uninvested (1)	1.4%	4.0%	-12.6%						
Private Equity	2.1%	-2.0%	-0.8%	18.4%	16.8%	16.4%	16.4%	14.3%	15.8%
Private Credit	0.2%	5.6%	12.7%	12.2%	11.9%	13.2%	12.8%	12.5%	
Resources	0.7%	4.2%	19.3%	9.4%	4.3%	3.0%	13.6%	11.5%	13.0%
Real Estate	-1.3%	-0.9%	12.7%	16.1%	13.6%	13.3%	10.1%	9.6%	9.8%

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 Private Markets Uninvested is currently cash. Prior to 11/02/2022. The Uninvested portion of the Private Markets allocation was invested in a combination of a passively managed S&P 500 Index strategy and a cash overlay strategy invested in equity derivatives and cash.

Source: State Street Bank

SBI Combined Funds Strategic Allocation Category Framework

	03/31/2023 ($ millions)	03/31/2023 Weights	Category Range	
Growth - Appreciation				
Public Equity	$ 41,656.6	50.0%		
Private Equity	$ 14,882.7	17.9%		
Non-Core Real Assets	$ 3,602.2	4.3%		
	$ 60,141.5	**72.2%**	*50%*	*75%*
Growth - Income-oriented				
Core Fixed Income	$ 4,476.5	5.4%		
Private Credit	$ 1,754.0	2.1%		
Return-Seeking Fixed Income	$ 4,137.5	5.0%		
	$ 10,368.1	**12.5%**	*15%*	*30%*
Real Assets				
Core Real Estate		0.0%		
Real Assets	$ 543.3	0.7%		
	$ 543.3	**0.7%**	*0%*	*10%*
Inflation Protection				
TIPS		0.0%		
Commodities		0.0%		
		0.0%	*0%*	*10%*
Protection				
U.S. Treasuries	$ 7,771.9	9.3%		
	$ 7,771.9	**9.3%**	*5%*	*20%*
Liquidity				
Cash	$ 4,421.3	5.3%		
	$ 4,421.3	**5.3%**	*0%*	*5%*
Opportunity				
Opportunity		**0.0%**		
		0.0%	*0%*	*10%*
Total	**$ 83,246.3**	**100%**		
Illiquid Asset Exposure	**$ 20,782.2**	**25.0%**	*0%*	*30%*

Volatility Equivalent Benchmark Comparison

	As of March 31, 2023							
	1-year	*3-year*	*5-year*	*10-year*	*15-year*	*20-year*	*25-year*	*30-year*
SBI Combined Funds Return	**-4.3%**	**12.5%**	**7.8%**	**8.6%**	**7.6%**	**8.9%**	**7.0%**	**8.4%**
Volatility Equivalent Benchmark Return			**4.5%**	**5.3%**	**4.9%**	**6.6%**	**5.3%**	**6.4%**
Value Added			**3.2%**	**3.3%**	**2.7%**	**2.3%**	**1.6%**	**2.0%**
Standard Deviation: Benchmark = Combined Funds			**11.0%**	**9.0%**	**10.2%**	**9.4%**	**9.9%**	**9.5%**
Benchmark Stock Weight			**55%**	**56%**	**56%**	**57%**	**60%**	**60%**
Benchmark Bond Weight			**45%**	**44%**	**44%**	**43%**	**40%**	**40%**

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

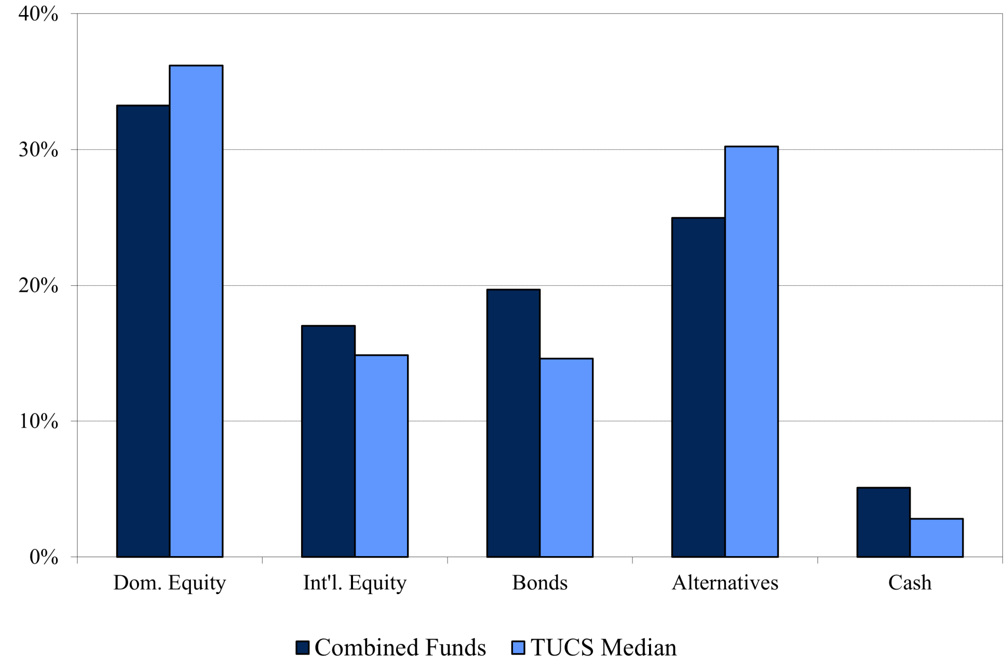
Asset Mix Compared to Other Pension Funds

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	41,657	50.0
Total Fixed Income	20,626	24.8
Private Markets - Invested	20,788	25.0
Private Markets - Uninvested	176	0.2
TOTAL	83,246	100.0



	Domestic Equity	International Equity	Bonds	Alternatives	Cash
Combined Funds	33.2%	17.0%	19.7%	25.0%	5.1%
Median in TUCS	36.2%	14.9%	14.6%	30.2%	2.8%

Combined Funds Summary

Performance Compared to Other Pension Funds

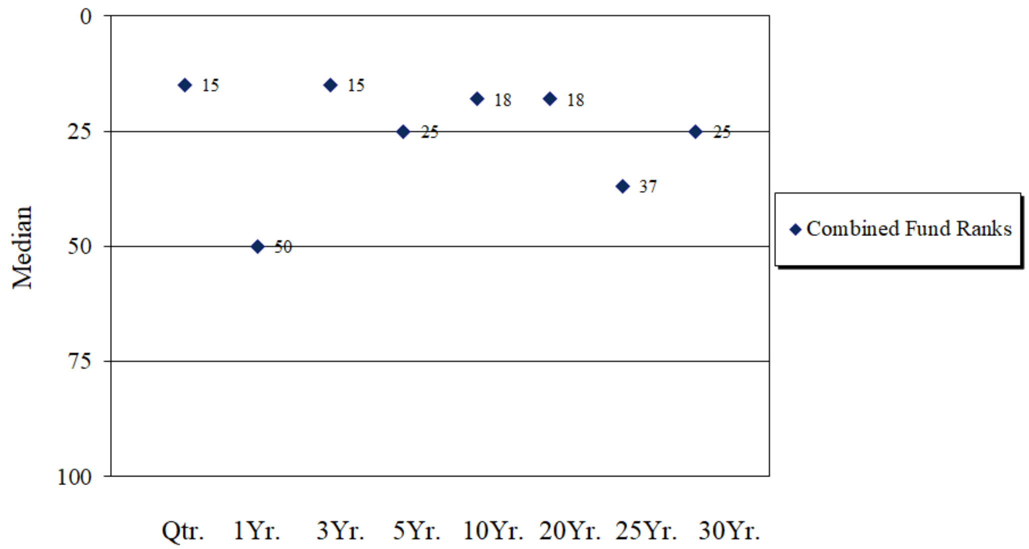
While the SBI is concerned with how its returns compare to other pension investors, universe comparisons should be used with great care. There are several reasons why such comparisons will provide an "apples to oranges" look at performance:

- 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.



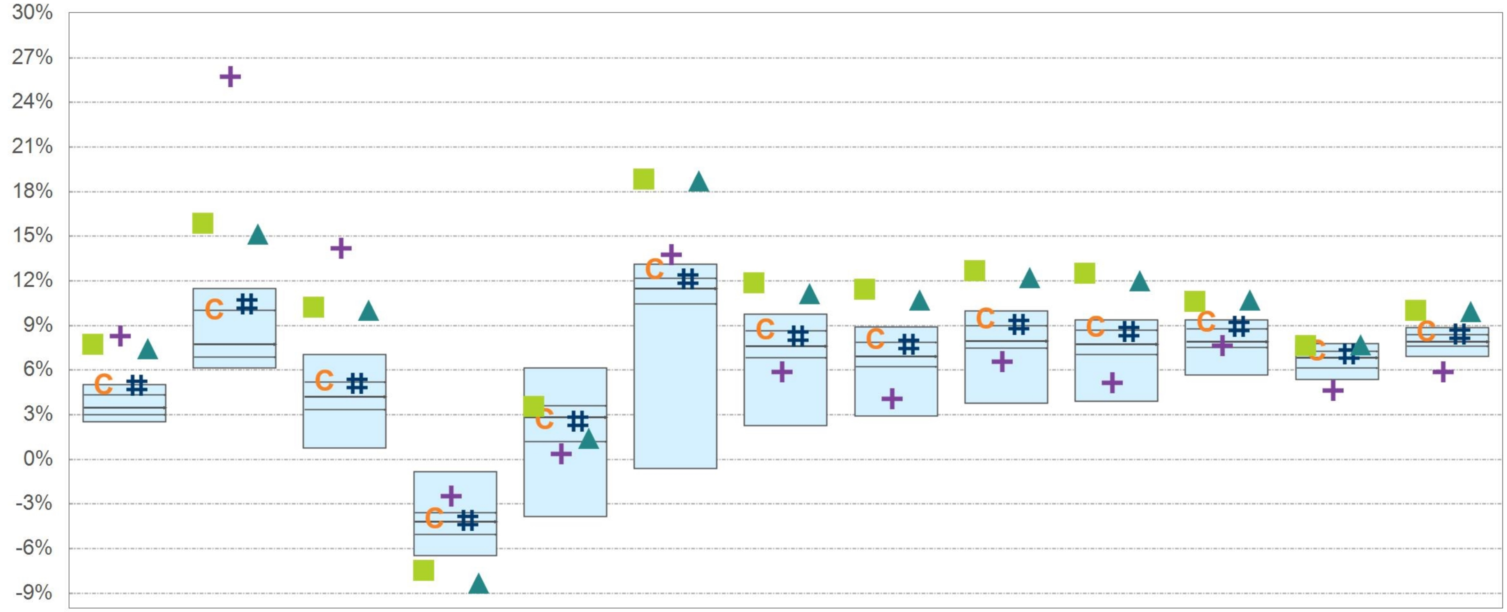
Periods Ended 03/31/2023

	Qtr	1 Yr	3 Yrs	5 Yrs	10 Yrs	20 Yrs	25 Yrs	30 Yrs
Combined Funds Percentile Rank in TUCS	15th	50th	15th	25th	18th	18th	37th	25th

Minnesota State Board of Investments
Performance Comparison

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

Cumulative Periods Ending : March 31, 2023

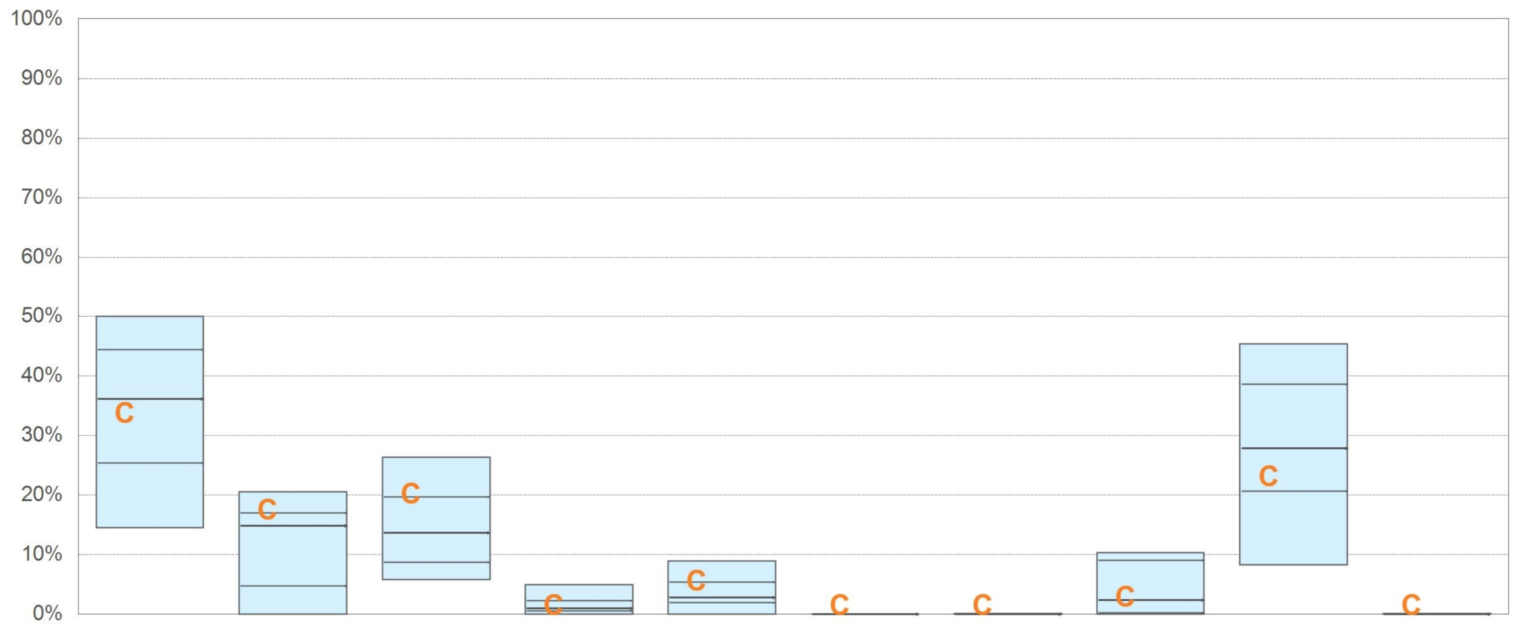


Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years	20 Years	25 Years	30 Years
5th	5.01	11.48	7.04	-0.84	6.16	13.14	9.75	8.89	9.98	9.36	9.36	7.77	8.86
25th	4.35	10.03	5.18	-3.58	3.60	12.19	8.65	7.87	9.00	8.69	8.76	7.26	8.39
50th	3.46	7.73	4.21	-4.17	2.83	11.48	7.61	6.91	7.95	7.74	7.91	6.85	7.90
75th	3.01	6.89	3.33	-5.06	1.21	10.46	6.83	6.25	7.47	7.03	7.51	6.15	7.62
95th	2.54	6.16	0.77	-6.49	-3.83	-0.60	2.25	2.90	3.79	3.89	5.66	5.36	6.90
No. Of Obs	24	24	23	22	22	22	20	20	20	20	19	16	15
C Combined Funds	4.80 (15)	9.83 (29)	5.08 (29)	-4.17 (50)	2.50 (60)	12.56 (15)	8.52 (35)	7.87 (25)	9.24 (18)	8.70 (18)	9.04 (18)	7.09 (37)	8.39 (25)
# SBI Combined Funds Ind	4.73 (15)	10.18 (15)	4.87 (29)	-4.36 (50)	2.33 (60)	11.86 (40)	8.06 (45)	7.50 (35)	8.81 (30)	8.33 (30)	8.68 (25)	6.82 (50)	8.15 (43)
■ S&P 500	7.50 (1)	15.62 (1)	9.98 (1)	-7.73 (99)	3.30 (40)	18.60 (1)	11.61 (1)	11.19 (1)	12.42 (1)	12.24 (1)	10.37 (1)	7.39 (5)	9.75 (1)
▲ Russell 3000	7.18 (1)	14.88 (1)	9.75 (1)	-8.58 (99)	1.15 (75)	18.47 (1)	10.87 (1)	10.45 (1)	11.98 (1)	11.73 (1)	10.44 (1)	7.45 (5)	9.67 (1)
+ MSCI Wld Ex US (Net)	8.02 (1)	25.50 (1)	13.96 (1)	-2.74 (20)	0.11 (84)	13.49 (1)	5.61 (87)	3.80 (93)	6.33 (87)	4.91 (93)	7.40 (75)	4.39 (99)	5.64 (100)

Wilshire Trust Universe Comparison Service® (TUCS®)

Wilshire

Minnesota State Board of Investments
Asset Allocation of Master Trusts - Public : Plans > $20 Billion
Quarter Ending March 31, 2023



Percentile Rankings	US Equity	Non-US Equity	US Fixed	Non-US Fixed	Cash	Convertible	GIC GAC	Real Estate	Alternative Investments	Other
5th	50.05	20.53	26.38	4.99	8.94	0.04	0.14	10.31	45.40	0.09
25th	44.42	17.01	19.68	2.21	5.37	0.00	0.00	9.08	38.63	0.02
50th	36.19	14.85	13.67	0.94	2.80	0.00	0.00	2.39	27.84	0.00
75th	25.45	4.70	8.77	0.53	1.95	0.00	0.00	0.23	20.69	0.00
95th	14.55	0.00	5.83	0.00	0.05	0.00	0.00	0.00	8.34	0.00
C Combined Funds	33.24 (56)	17.01 (25)	19.68 (25)	0.00 (100)	5.09 (31)	0.00 (100)	0.00 (100)	2.39 (50)	22.58 (68)	0.00 (100)

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TAB B

Executive Director's Administrative Report

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EXECUTIVE DIRECTOR'S ADMINISTRATIVE REPORT

DATE: May 18, 2023

TO: Members, State Board of Investment

FROM: Jill E. Schurtz
Executive Director and Chief Investment Officer

1. **Report on SBI's Administrative Budget**

   A report on the SBI's administrative budget for the fiscal year to date through March 31, 2023, is included as **Attachment A**.

2. **Legislative Update**

   A summary of relevant legislation pending before the MN Legislature is included in **Attachment B**.

3. **Russia/Belarus Update**

   Each quarter, staff provides a report to the Board on steps taken to implement *Minnesota Statutes*, section 11A.245 that requires SBI actions concerning companies with operations in Russia and Belarus.

   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 15 months of the effective date.

   SBI utilizes information from data service providers, including MSCI, Factset and Bloomberg, to develop a list of target companies with their principal place of business in Russia or Belarus. Staff receives monthly reports from the SBI's custodian bank concerning SBI holdings of companies on the restricted list.

   In the first quarter, the liquidation manager sold four equity holdings. As of March 31, 2023, 24 holdings remained on the divestment list, with an estimated market value of $359,000.00.

   The liquidation manager indicated that, except for sporadic trading in foreign-listed depository receipts, the market for equity trading remained effectively closed to foreign investors during the quarter due to sanctions imposed by the United States and its allies as well as retaliatory actions taken by the Russian government to restrict foreign capital flows.

On March 23, 2023, staff sent a letter to each applicable external manager containing the most recent restricted list.

4. 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.

At the end of the first quarter, there was one company on the SBI's Iran restricted list held in the Combined Funds portfolio, Russian company Gazprom PJSC. This security was scheduled for 50% divestment by 12/31/22; however, no market currently exists because Russian securities are restricted from trading due to sanctions imposed by the United States, Russia, or other governments. Despite continued efforts, the liquidation manager was unable to find a market to sell this security during the quarter. As a result, no shares of restricted companies held in the portfolio were sold during the first quarter.

On March 23, 2023, staff sent a letter to each applicable external manager containing the most recent restricted list.

5. Thermal Coal Update

The Minnesota State Board of Investment approved a resolution at its May 2020 meeting requiring the removal of any publicly traded company deriving more than 25% of its revenue from thermal coal production (exploration/mining). The SBI has contracted with Moody's ESG and Institutional Shareholder Services, Inc. (ISS) to identify companies that meet the criteria set forth in the resolution.

The resolution required removal of companies initially identified in a prudent and expeditious manner by December 31, 2020. Beginning with the Board's regularly scheduled third quarter 2020 meeting and continuing each quarter thereafter, staff reports to the Board on updates and the status of any action authorized by this resolution.

In the first quarter, the managers sold 1,014,014 shares across 8 companies, completing the removal of the thermal coal companies from the MSBI portfolio.

On March 23, 2023, staff sent a letter to each applicable external manager containing the most recent restricted list.

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 2023 ADMINISTRATIVE BUDGET REPORT
FISCAL YEAR TO DATE THROUGH MARCH 31, 2023

ITEM	FISCAL YEAR 2023 BUDGET	FISCAL YEAR 2023 3/31/2023
PERSONNEL SERVICES		
FULL TIME EMPLOYEES	$ 7,721,000	$ 5,413,042
PART TIME EMPLOYEES	$ 12,000	11,988
	0	0
MISCELLANEOUS PAYROLL	300,000	134,651
SUBTOTAL	**$ 8,033,000**	**$ 5,559,681**
STATE OPERATIONS		
RENTS & LEASES	390,000	234,436
REPAIRS/ALTERATIONS/MAINTENANCE	3,225,000	18,298
PRINTING & BINDING	12,000	1,434
PROFESSIONAL/TECHNICAL SERVICES/IT PROF	429,000	124,429
COMPUTER SYSTEMS SERVICES	223,000	167,284
COMMUNICATIONS	25,000	9,703
TRAVEL, IN-STATE	3,000	207
TRAVEL, OUT-STATE	300,000	108,519
SUPPLIES	50,000	37,141
EQUIPMENT	93,985	8,991
EMPLOYEE DEVELOPMENT	219,000	69,567
OTHER OPERATING COSTS	210,000	131,866
INDIRECT COSTS	300,000	162,737
SUBTOTAL	**$ 5,479,985**	**$ 1,074,612**
TOTAL ADMINISTRATIVE BUDGET	**$ 13,512,985**	**$ 6,634,293**

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ATTACHMENT B

Updated 05.03.2023

BILLS OF INTEREST TO THE MINNESOTA STATE BOARD OF INVESTMENT

Bill No.	Author	Name of Bill	Current Status	Notes
HF0782 SF0413	Becker-Finn, et al. Pappas, et al.	Minnesota Secure Choice Program	05/01: HF0782 was passed, as amended 05/02: HF0782 was received from the house, substituted for SF0413, and was referred to Finance	The bill creates IRA and Roth IRA retirement programs for employees of private companies. The bill provides for auto-enrollment of employees. The SBI would be responsible for choosing the investment options for the plans. The SBI executive director (or designee) would serve on the Secure Choice board responsible for administering the plan. The board would appoint an executive director to oversee the plan's activities, and would also have authority to contract with third party administrators to provide administrative and custodial services to the plan.
HF0159 SF0323 **HF1830**	Freiberg Westlin, et al. **Klevorn/Murphy**	Additional Investment Authority for Qualifying Units of Local Government **Omnibus State Government Finance Bill**	01/09: HF0159 was referred to the State and Local Government Finance and Policy Committee 01/17: SF0323 was referred to the State and Local Government and Veterans Committee **05/03: HF1830 is currently in conference committee**	The bill broadens the definition of local governments that may invest in the SBI's non-retirement equity pool. The bill changes the definition of qualifying governments to those with a bond rating of AA or better. The bill also expands the investment authority of self-insurance pools to include certain securities that are allowable investments under Minn. Stat. §11A.24, and removes the requirement that self-insurance pools invest through indexed mutual funds or the SBI's asset pools.
HF1922 **SF2369**	Hassan, et al. **Champion**	**Omnibus Economic Development Policy Bill**	5/03: The bill was passed by the house and returned to the senate 04/25: The bill was passed by the senate	The bill would create an account for long-term maintenance of the Giants Ridge Recreation Area, which is administered by the Iron Range Resources and Rehabilitation Board. The SBI would be responsible for investing the assets of the account.
SF2904 **HF2310**	Hawj **Hansen**	Omnibus Environment Policy Bill **Omnibus Environment, Natural Resources, Climate, Energy Finance and Policy Bill**	04/26: SF2904 passed the senate and was transmitted to the house **05/03: HF2310 is currently 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.
SF0940	Lucero, et al	The Stop Environmental Social Governance (ESG) and Social Credit Score Discrimination Act	01/30: SF0940 was referred to the State and Local Government and Veterans Committee	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, 2028.

HF0707 SF1225	Koznick, et al. Lucero	State Board of Investment Prohibited from Investment in Companies that Exclude Minnesota Based Energy, Natural Resources, Agricultural, or Livestock Companies	01/23: HF0707 was referred to the State and Local Government Finance and Policy Committee 02/06: SF1225 was referred to the State and Local Government and Veterans Committee	The bill would prohibit the SBI from investing in assets which exclude Minnesota based energy, natural resources, and certain agricultural companies based on ESG factors. The SBI would be required to liquidate its existing holdings within 15 months of the effective date of the law. The bill also makes it illegal for financial institutions to discriminate against a person based on that person's political affiliation or upon other ESG criteria.

TAB C

SBI Administrative Committee Report

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DATE: May 18, 2023

TO: Members, State Board of Investment

FROM: Members, SBI Administrative Committee

Following are the Action items the SBI Administrative Committee is recommending from the Committee's May 16, 2023 meeting.

1. **Review of Executive Director's Proposed Annual Objectives for FY24.**

   The Committee reviewed the Executive Director's Proposed Annual Objectives for FY24.The annual objectives cover broad areas of the Executive Director's responsibilities and a number of initiatives the Executive Director will undertake during the next fiscal year (see **Attachment A**).

   RECOMMENDATION:

   The SBI Administrative Committee recommends that the Board approve the FY24 Executive Director's Annual Objectives. Further, the Committee recommends that the Annual Objectives serve as the basis for the Executive Director's performance evaluation for FY24.

2. **Review of Budget Plan for FY24 and FY25.**

   The Committee reviewed the proposed SBI Administrative Budget (see **Attachment B**). The 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;
   - the directed commissions budget received from the SBI's use of active investment management and securities lending.

   RECOMMENDATION:

   The SBI Administrative Committee recommends that the Board approve the FY24 and FY25 Administrative Budget Plan, as presented to the Committee and subject to

appropriations by the legislature, 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.**

The Committee reviewed the proposed Continuing Fiduciary Education Plan. *Minnesota Statutes,* Chapter 356A requires each public pension plan to establish a continuing education plan for its fiduciaries. Please note that the travel allocation policy for Board members and their designees is included in the plan (see **Attachment C**).

RECOMMENDATION:

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

4. **Review of Executive Director's Evaluation and Salary Process.**

The Committee discussed the process that will be used by the Board to evaluate the Executive Director for FY24. At the Committee's February 23, 2023 meeting, the Committee recommended identical language for Executive Director Schurtz's performance review for FY23. The SBI approved the Committees recommendation at its March 2023 meeting.

RECOMMENDATION

The SBI Administrative Committee recommends that the Board approve the following FY24 evaluation and salary process for the SBI Executive Director:

- **The Evaluation will be primarily based on the results of the SBI Annual Objectives for the fiscal year ending the previous June 30.**
- **The ED/CIO will complete a self-evaluation based on the SBI Annual Objectives, which will be distributed in a timely manner to the Board Members/Designees.**
- **The SBI Annual Objectives will also serve as the evaluation form for use by each Board Member/Designee.**
- **Evaluations by each Board member should be completed by October 1.**
- **Board Members/Designees will forward completed evaluations to the Executive Director. Board Members/Designees are encouraged to meet individually with the Executive Director to review their individual evaluations.**
- **The Governor's Board designee will provide a letter to the Executive Director confirming the status of the Evaluation results by November 1.**
- **Upon satisfactory performance evaluations from a majority of responding Board Members/Designees, the Executive Director's annual salary will adjusted to include:**
  - **Any Cost-of- Living Adjustment (COLA)/Across the Board (ATB)/General Salary Increases and/or any Performance-Based Salary Increases contained in the FY24-25 Managerial Plan, to the extent that the resulting salary is within the Executive Director's salary range.**

Adjustments shall be effective on the relevant dates set forth in the FY24-25 Managerial Plan. Generally, it is understood that COLA adjustments will be effective the preceding July and Performance-Based Salary increases on January 1. Retroactive pay, if any, will be determined under the Managerial Plan.

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ATTACHMENT A

SBI Annual Objectives

FY 2024

Executive Director and Chief Investment Officer

		Executive Director/CIO Comments	Reviewer Comments	Rating
Leadership				
	1. Demonstrate the highest level of integrity, character, and ethical behavior. 2. Actively demonstrate stewardship of the team, mission, and assets. 3. Build a culture of shared vision, engaged collegiality, and common purpose. 4. Ensure that we have an inclusive culture built upon diversity of thought and teams. 5. Clearly communicate goals and expectations. 6. Attract, retain, and invest in talented professionals who understand and embrace the SBI mission.			

RATINGS: Needs Improvement (NI); Successful (S); Highly Successful (HS)

		Executive Director/CIO Comments	Reviewer Comments	Rating
Investment Program Management				
Private Markets Managers	1. Ensure that SBI has access to high quality private markets investment opportunities. 2. Prepare and present private markets recommendations to the IAC and Board. 3. Monitor existing private market manager performance. 4. Continually review private market landscape for attractive managers, structures, fee arrangements, and industry trends that may be additive to the SBI program.			
Public Markets Managers	1. Ensure that SBI has access to high quality public market managers. 2. As necessary, prepare and present public market manager recommendations to the IAC and Board. 3. Continually monitor and evaluate existing public market managers. 4. Continually review public market landscape for attractive managers, structures, fee arrangements, and industry trends that could be additive to the SBI program.			
Internal Management of State Cash and Related Accounts	1. Provide internal investment management services for cash accounts, excess debt service reserve accounts, and other non-retirement portfolios on behalf of the Department of Management and Budget (MMB) and other State agencies. 2. Ensure that 'short-term cash' portfolios are managed within their applicable investment guidelines.			

		Executive Director/CIO Comments	Reviewer Comments	Rating
Participant Directed Investment Program (PDIP)	1. Support participants in their long-term financial wellness goals with a low cost, effective plan design in both the mutual fund and Supplemental Investment Fund (SIF) platforms. 2. Monitor investment managers for appropriate quality and cost. 3. Work closely with MSRS and PERA to review and implement required programs and address participant needs.			
Rebalancing and Transition Management	Ensure that portfolio rebalancing and transitions are handled in a manner that controls for risk and cost.			
Liquidity Management	Ensure that the relevant portfolios maintain sufficient liquidity to satisfy required stakeholder payments and underlying investment program needs.			
Return Objectives	Achieve portfolio return objectives over the relevant investment time periods.			
SBI Investment Beliefs	Ensure that the SBI Investment Beliefs are reflected in the SBI's culture, approach, and investment decisions.			
		Executive Director/CIO Comments	**Reviewer Comments**	**Rating**
Compliance and Audit				
Comply with Applicable State Statutes and Board Resolutions	1. Iran - *Minnesota Statutes*, section 11A.244 a) Identify list of companies. b) Quarterly, send letters to applicable companies owned by SBI. c) As needed, send restricted list of companies to SBI managers. d) Quarterly, include list of applicable companies in Board report, e) Submit any required reports to MN Legislature.			

		Executive Director/CIO Comments	Reviewer Comments	Rating
	2. Russia and Belarus - *Minnesota Statutes*, section 11A.245 a) Annually, identify list of companies. b) Annually, send restricted list of companies to SBI managers. c) Quarterly, include list of applicable companies in Board report, d) Submit any required reports to MN Legislature.			
	3. Northern Ireland - *Minnesota Statutes*, section 11A.241 a) Annually, identify list of companies. b) Determine if action taken to eliminate religious or ethnic discrimination c) Sponsor, cosponsor, or support relevant shareholder resolutions			
	4. Board Resolution re Thermal Coal, May 2020 a) Annually, identify list of companies. b) Annually, send restricted list of companies to SBI managers. c) Quarterly, include list of applicable companies in Board report.			
Investment Manager Contracts	1. Monitor contract status data to ensure managers maintain required certifications and other documentation. 2. Ensure timely renewal of manager contracts, including renegotiation of contract terms and provisions as required.			
Annual Audit	1. Facilitate the annual financial audit by the staff of the Legislative Auditor. 2. Respond promptly to information requests, 3. Respond promptly to recommendations for corrective action. 4. Strive for the highest form of opinion, without written comments.			

RATINGS: Needs Improvement (NI); Successful (S); Highly Successful (HS)

		Executive Director/CIO Comments	Reviewer Comments	Rating
Proxy Comm / Corp Actions				
Provide Staff Support to Proxy Committee	1. Provide the Proxy Committee with necessary information to determine course of action regarding corporate governance, executive compensation, and other relevant issues. 2. Maintain and update Proxy voting guidelines and precedent. 3. Vote shares in accordance with Committee guidance or precedent.			
Provide Staff Support for Corporate Actions and Miscellaneous Legal Issues	Coordinate, monitor and document procedures and actions taken on a variety of corporate actions such as class actions, bankruptcies and miscellaneous legal issues.			

		Executive Director/CIO Comments	Reviewer Comments	Rating
Administrative				
MN Legislature	1. Represent the SBI at the MN Legislature. 2. Appear before the LCPR and other Committees, as requested. 3. Meet with individual legislators as needed 4. Keep the Board informed of any relevant legislation that could impact the SBI. 5. Prepare and seek Board approval for any legislation needed to advance the interests of the SBI.			

RATINGS: Needs Improvement (NI); Successful (S); Highly Successful (HS)

		Executive Director/CIO Comments	Reviewer Comments	Rating
Annual Budget	Prepare an Annual Management and Budget Plan.			
Business Continuity Plan	1. Conduct an annual review of the Business Continuity Plan. Update as needed. 2. Conduct periodic cybersecurity / IT audit.			
		Executive Director/CIO Comments	**Reviewer Comments**	**Rating**
Communication and Reporting				
	1. Prepare Annual Supplemental Investment Fund (SIF) Investment Options Prospectus and Information Booklet for the Statewide Volunteer Firefighter (SVF) Plan			
	2. Prepare Annual Non-Retirement Prospectus for the Trusts and Other Participating Entities; Other Postemployment Benefits (OPEB); and Qualifying Governmental Entities			
	3. Prepare Fiscal Year 2022 Annual Report 4. Prepare Periodic ESG / Stewardship Reports 5. Respond to Minnesota Government Data Practices Act Requests 6. Prepare a comprehensive strategic communications plan.			
		Executive Director/CIO Comments	**Reviewer Comments**	**Rating**
IAC and Board				
	1. Serve as a resource to the IAC and Board, as needed. 2. Ensure that the IAC and Board are informed, in a timely manner, of material information relevant to the SBI.			

RATINGS: Needs Improvement (NI); Successful (S); Highly Successful (HS)

		Executive Director/CIO Comments	Reviewer Comments	Rating
Projects				
Diversity, Equity, and Inclusion (DEI) Policy	1. Work to ensure that the SBI (IAC and Staff) reflects diversity of thought, culture, race, identity, sexual orientation, national original, etc. and is an inclusive place to work. 2. Support the DEI Task Force in its work regarding DEI at the portfolio level.			
Data Project	Work with the internal data task force to review critical systems and data survey findings and establish an appropriate workplan to address key issues. This project is intended to form the foundation for a future risk system project.			
Org Structure	Review the current SBI structure and implement changes as required.			
Operational Due Diligence	Ensure that the newly created Investment Operations group is appropriately resourced, trained, and integrated into the overall SBI due diligence framework.			
Critical Redundancies	Review the SBI organization to ensure that critical functions have: 1) built-in redundancies; 2) sufficient coverage plans; and 3) adequate cross-training. Remedy where necessary.			
Hiring Plan	Review the SBI organization to determine gaps that must be filled. Develop and implement a hiring plan to remedy.			
Fire Relief Funds	Develop and execute on program to provide Fire Relief Plans with periodic live (in person or remote) portfolio updates.			
Review existing fee structures	Review existing investment manager fee structures to determine if appropriate economic arrangements are in place.			

RATINGS: Needs Improvement (NI); Successful (S); Highly Successful (HS)

		Executive Director/CIO Comments	Reviewer Comments	Rating
Climate Change and the Energy Transition	1. Undertake an internal review of the Meketa Reports on Climate Change. 2. Develop a strategic roadmap for an SBI investment framework regarding the risks and opportunities presented by climate change and the energy transition.			
Asset Allocation Study	Working with SBI's consultants, plan for and undertake an appropriate asset allocation study.			
Risk Management System	Begin process necessary to implement a third-party risk management system.			
Secure Choice	Serve on board of directors and provide investment support for launch of MN Secure Choice program.			

RATINGS: Needs Improvement (NI); Successful (S); Highly Successful (HS)

ATTACHMENT B

Administrative Budget
Fiscal Year 2024 & 2025 Budget Plan
Overview

The Fiscal Years 2024 and 2025 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 FY2023 the SBI invoices over 400 plans on a quarterly basis.

The Fiscal Year 2024 budget includes 52 Full Time Equivalent (FTE) positions. The 52 budgeted positions is an increase of ten positons from Fiscal Year 2023 budget. As of March 31, 2023 the SBI has 34 full-time staff and we anticipate filling three more by Fiscal Year end. The SBI has included a 3% projected salary increase in the budget for all staff in Fiscal Years 2024 and 2025. 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 2024 and 2025, SBI operating expenses have increased relative to the FY2023 budget, due primarily to the additional positions in FY2024 and for an investment risk system in FY2025. Additionally, the Fiscal Year 2024 and 2025 budgets reflect increases in anticipated IT hardware and software and staff travel.

Administrative Budget
Fiscal Year 2024 & 2025 Budget Plan

	FY2023 Budget	FY2023 Projected	FY2024 Request	FY2025 Request
Personnel Services	$8,333,000	$7,256,100	$11,400,000	$12,168,000
Operating Expense	5,461,300	1,473,000	6,281,000	5,436,000
Total	$13,794,300	$8,729,100	$17,681,000	$17,604,000

Personnel Services: Personnel Services are estimated to account for 64% of the requested Fiscal Year 2024 budget and 69% of the requested Fiscal Year 2025 budget.

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

Operating Expenses: Operating Expenses are estimated to account for 36% of the requested Fiscal Year 2024 budget, and 31% of the requested Fiscal Year 2025 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 2024 & 2025 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 an RFP evaluation process for the Trading/Ticketing and Accounting System.

	FY2023 Budget	**FY2023 Projected**	**FY2024 Request**	**FY2025 Request**
Investment Support	$4,000,000	$2,915,700	$4,000,000	$4,000,000
Total	$4,000,000	$2,915,700	$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 2023 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.

	CY2022 Budget	**CY2022 Actual**	**CY2023 Budget**
Subscription Services	$2,219,655	$1,551,796	$2,020,900

STATE BOARD OF INVESTMENT
ADMINISTRATIVE BUDGET PLAN
FISCAL YEARS 2024 AND 2025

DESCRIPTION	FY2023 PROPOSED	FY2023 PROJECTED	FY2024 PROPOSED	FY2025 PROPOSED
PERSONNEL SERVICES				
FULL TIME EMPLOYEES	$ 8,021,000	7,080,000	11,150,000	11,918,000
PART TIME EMPLOYEES	12,000	41,400	50,000	50,000
OTHER BENEFITS	300,000	134,700	200,000	200,000
SUBTOTAL	$ 8,333,000	7,256,100	11,400,000	12,168,000
STATE OPERATIONS				
RENTS & LEASES	390,000	312,700	365,000	390,000
PRINTING & BINDING	12,000	2,000	6,000	6,000
PROFESSIONAL/TECHNICAL SERVICES	550,000	159,000	555,000	255,000
COMPUTER SYSTEMS SERVICES	191,000	190,000	357,000	3,357,000
COMMUNICATIONS	25,000	13,800	25,000	25,000
TRAVEL, IN-STATE	3,000	300	3,000	3,000
TRAVEL, OUT-STATE	300,000	163,000	400,000	400,000
EMPLOYEE DEVELOPMENT	219,000	108,000	300,000	300,000
SUPPLIES	50,000	50,000	75,000	75,000
REPAIRS/ALTERATIONS/MAINTENANCE	3,221,000	25,000	3,595,000	25,000
INDIRECT COSTS	300,000	222,000	300,000	300,000
OTHER OPERATING COSTS	125,000	181,200	200,000	200,000
EQUIPMENT	75,300	46,000	100,000	100,000
SUBTOTAL	$ 5,461,300	$ 1,473,000	$ 6,281,000	$ 5,436,000
TOTAL MSBI OPERATING FUND	$ 13,794,300	$ 8,729,100	$ 17,681,000	$ 17,604,000

PERCENT INCREASE (DECREASE) OVER PRIOR YEAR BUDGET

STATE BOARD OF INVESTMENT
INVESTMENT SUPPORT SERVICES BUDGET PLAN
FISCAL YEARS 2024 AND 2025

DESCRIPTION	FY2023 BUDGET	FY2023 PROJECTED	FY2024 PROPOSED	FY2025 PROPOSED
STATE OPERATIONS				
PROFESSIONAL/TECHNICAL SERVICES	2,560,000	2,560,000	3,500,000	3,500,000
COMPUTER SYSTEMS SERVICES	1,440,000	355,700	500,000	500,000
TOTAL	$ 4,000,000	$ 2,915,700	$ 4,000,000	$ 4,000,000
PERCENT INCREASE (DECREASE) OVER PRIOR YEAR BUDGET			0.0%	0.0%

STATE BOARD OF INVESTMENT
DIRECTED COMMISSIONS
CALENDAR YEAR 2023

DESCRIPTION	CY2022 BUDGET	CY2022 ACTUAL	CY2023 PROPOSED
DIRECTED COMMISSIONS			
DIRECTED COMMISSIONS	2,219,655	$ 1,551,796	2,020,900
PERCENT INCREASE (DECREASE) OVER PRIOR YEAR BUDGET			-8.95%

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.

2022 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

Private Markets Investment Program Report

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DATE: May 18, 2023

TO: Members, State Board of Investment

FROM: Members, Investment Advisory Council and SBI Staff

SUBJECT: Private Markets Commitments for Consideration

Staff has reviewed the following action agenda item:

A. Status of SBI Current Private Markets Commitments
B. Consideration of New Investment commitments

Existing Managers:

Private Equity	CVC Capital Partners	Fund IX	up to $150 million
Private Equity	Kohlberg Kravis Roberts & Co.	Ascendant	up to $200 million
Private Credit	Sixth Street Partners	TAO Partners	up to $150 million

New Managers:

Private Credit	Castlelake L.P.	Aviation Fund V Stable Yield L.P.	up to $100 million
Private Equity	TA Associates Management	Fund XV	up to $150 million

SBI action is required on item B.

A. Status of SBI Current Private Markets Commitments

Minnesota State Board of Investment

Combined Funds
March 31, 2023

Combined Funds Market Value $83,246,309,637

	% of Combined Funds	Current Level	Target Level [1]	Difference
Market Value (MV)	25.0%	$20,787,670,691	$20,811,577,409	$23,906,718
Policy Target	*25%*			
Statutory Limit	*35%*			
MV +Unfunded	38.1%	$31,729,929,980	$37,460,839,337	$5,730,909,357
Policy Limit	*50.0%*			

Asset Class	% of Combined Funds	Market Value	Unfunded Commitment	Total
Private Equity	17.9%	$14,882,701,700	$7,464,142,375	$22,346,844,075
Private Credit	2.1%	$1,754,065,537	$1,393,853,202	$3,147,918,739
Real Assets	2.6%	$2,155,173,353	$503,208,046	$2,658,381,398
Real Estate	2.4%	$1,990,349,846	$1,581,055,666	$3,571,405,512
Other[2]		$5,380,256		$5,380,256
Total		$20,787,670,691	$10,942,259,289	$31,729,929,980

Cash Flows
March 31, 2023

Calendar Year	Capital Calls	Distributions	Net Invested
2023	$668,366,490	($486,263,399)	$182,103,091
2022	$3,945,092,895	($3,140,446,870)	$804,646,025
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 private equity manager, CVC Capital Partners ("CVC"), in CVC Fund IX ("Fund IX").

CVC Fund IX will seek to make equity investments in upper middle market businesses within Europe and North America. Investments will typically total €250 million-1.5 billion per transaction with overall company enterprise values generally ranging from €1-5 billion. CVC expects the fund will primarily focus on defensive markets, with resilient underlying industries, secular tail winds and low disruption risk. Fund IX investments will be diversified across a number of geographies within Europe and the U.S., and four key sectors, including Financial Services, Technology, Healthcare and Sports & Media.

In addition to reviewing the attractiveness of the CVC Fund IX investment opportunity, staff conducted appropriate due diligence including but not limited to, reference checks, database searches, and, to the extent available, a review of the Fund's potential investor base. Staff's diligence process will continue as additional data and documentation become available.

More information on CVC Fund IX is included as **Attachment A beginning on page 9.**

RECOMMENDATION:

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from SBI's legal counsel, to negotiate and execute a commitment of up to $150 million to CVC Capital Partners Fund IX and requests the IAC's endorsement of this recommendation for the Board's approval. It is understood that 1) such a commitment will not exceed 20% of CVC Capital Partners Fund IX and 2) an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing may be required and is approved. 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 none of the State of Minnesota, the Investment Advisory Council, the State Board of Investment or its Executive Director have any liability for reliance by CVC Capital Partners 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 CVC Capital Partners or a reduction or termination of the commitment.

2) Investment with an existing private equity manager, Kohlberg Kravis Roberts & Co. L.P. ("KKR"), in KKR Ascendant.

KKR intends to create a portfolio of equity investments focusing on high quality, leading middle-market businesses, and creating value during its ownership by serving as an engaged, transformative partner in close cooperation with management. The Ascendant strategy is expected to be integrated with KKR's broader Americas Private Equity platform. KKR Ascendant will target fundamentally strong companies, typically having $200 million to $1 billion in enterprise value and/or less than $75 million in EBITDA. The target portfolio companies are expected to fall within and be diversified across seven core industry verticals where KKR has developed its expertise over decades: Consumer, Financial Services, Health Care, Industrials, and Media, as well as Software and Tech-Enabled Services. The Fund also intends to adopt employee engagement and broad-based equity ownership across all control portfolio companies in KKR Ascendant. At the portfolio company level, the three key components of the employee engagement model have been all-employee ownership, employee engagement and worker voice, and financial inclusion.

In addition to reviewing the attractiveness of the KKR Ascendant investment opportunity, staff conducted appropriate due diligence including but not limited to, reference checks, database searches, and, to the extent available, a review of the Fund's potential investor base. Staff's diligence process will continue as additional data and documentation become available.

More information on KKR Ascendant is included as **Attachment B beginning on page 13.**

RECOMMENDATION:

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from SBI's legal counsel, to negotiate and execute a commitment of up to $200 million to KKR Ascendant and requests the IAC's endorsement of this recommendation for the Board's approval. It is understood that 1) such a commitment will not exceed 20% of KKR Ascendant and 2) an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing may be required and is approved. 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 none of the State of Minnesota, the Investment Advisory Council, the State Board of Investment or its Executive Director have any liability for reliance by KKR 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 KKR or a reduction or termination of the commitment.

3) **Investment with an existing private credit manager, Sixth Street Partners, LLC ("Sixth Street"), in Sixth Street TAO Partners, L.P. ("TAO") (divided between the TAO Contingent Roll and TAO Global vehicles).**

Sixth Street TAO Partners L.P. is a continuation of the team's opportunistic credit strategy employed over several years at Sixth Street. Sixth Street expects to build TAO portfolios across eight platforms with different underlying strategies: (i) Special situations platform, (ii) fundamental strategies platform, (iii) capital solutions platform, (iv) direct lending platform (v) infrastructure special situations platform (vi) agricultural platform, (vii) adjacencies platform and (viii) the par liquid credit platform. As a result, an investor in the Partnership will have exposure across the broad Sixth Street platform and benefit from the full firm's sourcing efforts. TAO generally focuses on opportunities with significant downside protection, cash yield and differentiated portfolio construction with minimal overlap to other GP's and Managers.

In addition to reviewing the attractiveness of the Sixth Street TAO Partners, L.P. investment opportunity, staff conducted appropriate due diligence including but not limited to, reference checks, database searches, and, to the extent available, a review of the Fund's potential investor base. Staff's diligence process will continue as additional data and documentation become available.

More information on Sixth Street TAO Partners, L.P., including the specific features of the TAO Contingent Roll and TAO Global vehicles, is included as **Attachment C beginning on page 17.**

RECOMMENDATION:

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from SBI's legal counsel, to negotiate and execute a commitment of up to $150 million to Sixth Street TAO Partners, L.P., divided in any amounts between the TAO Contingent Roll and TAO Global Vehicles that are described in Attachment C, and requests the IAC's endorsement of this recommendation for the Board's approval. It is understood that 1) such a commitment will not exceed 20% of Sixth Street TAO Partners, L.P. and 2) an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing may be required and is approved. 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 none of the State of Minnesota, the Investment Advisory Council, the State Board of Investment or its Executive Director have any liability for reliance by Sixth Street Partners 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 Sixth Street Partners or a reduction or termination of the commitment.

4) Investment with a new private credit manager, Castlelake L.P. ("Castlelake") in Castlelake Aviation V Stable Yield, L.P. ("Aviation Fund V").

Castlelake Aviation V will seek to continue to execute the Firm's investment strategy is to make stable yield investments in the global aviation finance market. The fund will aim to achieve attractive risk-adjusted rates of return while minimizing downside risk by seeking to invest in or gain exposure to high quality aircraft and aircraft-related assets. Castlelake believes this approach may result in a current yield to investors through quarterly distributions and a risk-appropriate overall investment return over the life of the fund. Core holdings of the Fund will include: (i) bespoke secured debt financing collateralized by cash flowing collateral, (ii) aviation debt, including asset-backed securities (ABS) and enhanced equipment trust certificates (EETCs), via secondary market, (iii) the sale and lease-back of new aircraft (0-3 years old) and younger mid-life aircraft (4-14 years old) to airlines with operating and finance leases and (iv) on-lease aircraft from other investors and lessors.

In addition to reviewing the attractiveness of the Castlelake Aviation Fund V investment opportunity, staff conducted appropriate due diligence including but not limited to, reference checks, database searches, and, to the extent available, a review of the Fund's potential investor base. Staff's diligence process will continue as additional data and documentation become available.

More information on Castlelake Aviation Fund V is included as **Attachment D beginning on page 23.**

RECOMMENDATION:

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from SBI's legal counsel, to negotiate and execute a commitment of <u>up to $100 million</u> to Castlelake Aviation V Stable Yield, L.P. and requests the IAC's endorsement of this recommendation for the Board's approval. It is understood that 1) such a commitment will not exceed 20% of Castlelake Aviation V Stable Yield, L.P. and 2) an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing may be required and is approved. 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 none of the State of Minnesota, the Investment Advisory Council, the State Board of Investment or its Executive Director have any liability for reliance by Castlelake L.P. 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 Castlelake L.P. or a reduction or termination of the commitment.

5) Investment with a new private equity manager, TA Associates Management ("TA"), in The TA Associates Fund XV ("Fund XV").

TA Associates Fund XV will seek to continue the strategy of investing in profitable, high growth companies within its five core sectors: business services, consumer, financial services, healthcare and technology. TA generally seeks to take a majority ownership position in investments but is also comfortable operating as a minority partner with board representation and active engagement with the company. TA aims to invest globally in profitable, stable businesses, typically in the middle-market. TA invests across five core sectors, each with unique trends, end markets, and cyclicality primarily in companies with High-Quality Business Models (HQBMs), which TA believes provides a combination of low capital risk and high returns given their sticky customer base and the ability to cross-sell and upsell products.

In addition to reviewing the attractiveness of TA Associates Fund XV investment opportunity, staff conducted appropriate due diligence including but not limited to, reference checks, database searches, and, to the extent available, a review of the Fund's potential investor base. Staff's diligence process will continue as additional data and documentation become available.

More information on TA Associates Fund XV is included as **Attachment E beginning on page 27.**

RECOMMENDATION:

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from SBI's legal counsel, to negotiate and execute a commitment of up to $150 million to TA Associates Fund XV and requests the IAC's endorsement of this recommendation for the Board's approval. It is understood that 1) such a commitment will not exceed 20% of TA Associates Fund XV and 2) an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing may be required and is approved. 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 none of the State of Minnesota, the Investment Advisory Council, the State Board of Investment or its Executive Director have any liability for reliance by TA Associates Management 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 TA Associates Management or a reduction or termination of the commitment.

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ATTACHMENT A

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. *Background Data*

Name of Fund:	CVC Capital Partners IX
Type of Fund:	Private Equity - Buyout
Target Fund Size:	€26.0 billion
Fund Manager:	CVC Capital Partners, L.P.
Manager Contact:	Jay Bryant CVC Advisors 712 Fifth Avenue, 44th Floor New York, NY 10019

II. *Organization and Staff*

Established in 1981, CVC Capital Partners (or "Firm") is a global leader in the private equity marketplace with one of the most geographically diverse and longest-established office networks of any private equity firm worldwide. As of 31 December 2022, CVC's international network comprised local offices in 24 countries, with 15 offices throughout Europe and North America, and 10 in the Asia-Pacific region. CVC believes that the breadth and depth of this global platform provides the Firm with a strong competitive advantage to originate and bring to bear its collective resources for the benefit of CVC Funds' portfolio company investments.

The Fund will be managed by a highly-experienced and stable senior team, and substantially the same group of senior investment professionals responsible for investing the prior CVC Europe Private Equity Funds. Led by CVC's 78 Managing Partners and Partners, the investment team has sourced, acquired and divested companies in each of the major European geographies and the United States. The Firm believes that the continuity and depth of experience across the CVC investment team is fundamental to its capacity to replicate past investment performance and positions the Firm strongly for the future.

CVC's Diversity, Equity & Inclusion (DE&I) Committee was formed in January 2016. The committee reports into the Board and is chaired by Cathrin Petty (Managing Partner, CVC Healthcare). In 2022, CVC appointed Merary Soto-Saunders as Global Head of Diversity, Equity & Inclusion. Merary has previously held HR roles within both the Credit and PE business. CVC values diversity of thought and experience, not only because greater diversity leads to superior investment performance but it also provides a great place to work. The committee is composed of a representation of investment professionals and business operations professionals globally. CVC and the DE&I committee have set formal diversity targets for Investment Professionals at the firm and each regional office is held accountable to meeting these goals through annual compensation reviews.

III. Investment Strategy

The investment strategy for the Fund is largely consistent with the most recent CVC Europe Private Equity Flagship funds. CVC believes that the CVC Europe Private Equity Funds' strategy is built to deliver compelling returns across multiple market environments, with a conservative approach to investment selection, portfolio diversification and portfolio balance sheet management. CVC will generally seek to target companies with enterprise values between €1 billion and €5 billion. While size targets may vary depending on the market, within this range CVC typically tends to more narrowly focus on opportunities with enterprise values between €1 billion and €2.5 billion. Teams addressing large economies such as the UK, Germany or North America may seek businesses that are larger and can require equity investments of up to €1.5 billion, while teams covering smaller countries may work on equity investments of €200 million to €250 million.

The Fund will primarily seek to focus on defensive markets, with resilient underlying industries, secular tail winds and low disruption risk. The Fund VI, Fund VII and Fund VIII portfolios have shown resilient performance throughout the COVID-19 pandemic, demonstrating CVC's ability to invest in defensive portfolios and to take an active role in guiding value creation in its portfolio, generating strong investment returns across economic, industry and market cycles. Funds VI-VIII maintained a zero-loss ratio throughout this period. The sector exposure for Fund IX is expected to be broadly diversified, although CVC does have dedicated teams in Healthcare, Technology, Financial Services and Sports & Media. Those four core sectors may represent a larger proportion of the fund.

CVC also places great importance on the quality and competence of portfolio companies' management teams and the extent to which their financial and strategic objectives are aligned with the relevant CVC Fund. Management typically must have a demonstrated track record in successfully creating value in the target company or in companies that they have previously managed. In addition, management must be invested alongside the CVC Funds to ensure full alignment of their interest with those of the CVC Funds. CVC is proactive in making changes if required. For example, in the 33 companies in which Fund VII has invested, 20 changes of CEO and 17 changes of other C-level executives have been made.

CVC targets businesses with upside value potential through growth and operational improvements. Businesses are priced in line with the value of their current and forecasted cash flows to seek to achieve CVC's targeted equity returns and to minimize the prospect of a loss of capital. CVC will generally include multiple contraction as part of its underwritten returns base case for the majority of its investments, in order to reduce the potential impact of macro-economic volatility. To further reduce the risk profile, CVC's investment teams seek to ensure that opportunities to improve the business are executed in the early stages of the transaction, engaging the CVC Operations Team throughout the investment process.

CVC is committed to investing in a way that creates sustainable, long-term value in close partnership with management teams and employees. CVC believes Environmental, Social and Governance ("ESG") is an important part of creating sustainable long-term value. CVC's ESG value creation framework aims to provide a systematic and repeatable approach to creating value. Furthermore, ESG is a key part of its investment process, helping us to proactively manage ESG risks and opportunities and accelerate ESG best practices within our portfolio.

IV. Investment Performance

Previous fund performance as of December 31, 2022 for CVC and the SBI's investments with previous funds, where applicable, is shown below:

Fund	Vintage Year	Total Commitments	SBI Commitment	Net IRR*	Net MOIC*	Net DPI*
Fund I	1996	$630 million	--	23.0%	2.5x	2.5x
Fund II	1998	$2.5 billion	--	19.0%	2.4x	2.4x
Fund III	2001	$3.7 billion	--	41.0%	2.9x	2.8x
Fund IV	2005	€6.0 billion	--	17.0%	2.1x	2.1x
Fund V	2008	€10.7 billion	€100 million	20.0%	2.4x	2.4x
Fund VI	2014	€10.9 billion	€250 million	18.0%	2.1x	1.1x
Fund VII	2017	€16.4 billion	--	25.0%	1.7x	0.2x
Fund VIII	2020	€22.3 billion	--	11.0%	1.0x	0.0x

* Previous Fund investments may be relatively immature and, therefore, returns may not be indicative of future results. Net IRR and Multiple of Invested Capital (MOIC) and Net Distributed to Paid In (DPI) were provided by CVC.

V. Investment Period and Term

The Fund will have a term of 10 years, subject to two one-year extensions with Limited Partner Advisory Council approval. The Investment Period will last for a period of six years from the effective date.

This document is a summary of more detailed information provided in the Confidential Private Placement Memorandum (the "PPM"). It is qualified in its entirety by the more detailed information provided in the PPM and any supplemental thereto.

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ATTACHMENT B

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. Background Data

Name of Fund:	KKR Ascendant Fund SCSp
Type of Fund:	Private Equity – Buyout
Target Fund Size:	$4.0 billion
Fund Manager:	Kohlberg Kravis Roberts & Co. L.P.
Manager Contact:	Ari Barkan Kohlberg Kravis Roberts & Co. L.P. 30 Hudson Yards New York, NY 10001

II. Organization and Staff

Kohlberg Kravis Roberts & Co. L.P. (the "Firm" or "KKR") is forming KKR Ascendant Fund SCSp (the "Partnership" or "Fund" or "Strategy") to invest in North America's middle market companies. The fund is the first of its series, although KKR has actively participated in the middle market space through its Americas Private Equity strategies since KKR's founding in 1976.

KKR intends to execute its investment strategy and remain a disciplined investor focusing on high quality, leading middle-market businesses, and creating value during its ownership by serving as an engaged, transformative partner in close cooperation with management. The Ascendant strategy is embedded in KKR's broader Americas Private Equity platform.

The Firm is led by Henry Kravis and George Roberts (the "founders"), and Joe Bae and Scott Nuttall (the "Partners and Co-CEOs"). The Fund is led by Brandon Brahm and Nancy Ford ("Partners and Ascendant Co-Heads"), who have an average of 19 years of industry experience and 9 years at KKR, with oversight by Global Private Equity Co-heads Pete Stavros and Nate Taylor. The Ascendant team is based in New York and Menlo Park. KKR has 23 offices across the globe, including New York, Houston, San Francisco, Menlo Park, and Miami within the United States.

As with the broader Firm, diversity of the Americas private equity team has become an ever greater focus over the years. Since the Firm established KKR's Inclusion & Diversity Council in 2014, it has worked closely with its human capital teams to recruit team members from a far wider variety of backgrounds. With the goal of attracting talent from a greater variety of educational and work experience backgrounds, as well as more diversity in terms of gender and ethnicity, the Firm has partnered with organizations such as SEO, Out on the Street, Toigo, PE WIN, and 100 women in finance.

III. Investment Strategy

KKR is forming KKR Ascendant Fund SCSp to create a unique portfolio of control investments. The Fund generally seeks to take equity positions for control or meaningful influence. The core of the strategy is to find high-quality middle-market companies to optimize through KKR's suite of resources and capabilities, for example, by accelerating growth through operational improvements, strategic M&A, or expansion into new markets. The Fund will target fundamentally strong companies, typically having $200 million to $1 billion in enterprise value and/or less than $75 million in EBITDA. The target portfolio companies are expected to fall within seven core industry verticals where KKR has developed its expertise over decades and be diversified across Consumer, Financial Services, Health Care, Industrials, and Media, as well as Software and Tech-Enabled Services. The Fund is anticipated to pursue opportunities, including:

- High-Quality investments with significant potential for operational improvements
- Complex conglomerates divestitures, where corporates sell businesses that are outside their core competencies and where there are opportunities for more efficient management.
- Leading companies with defensible market positions, which may have been impacted by market dislocations.
- Companies with attractive growth potential, where KKR can partner with strong leadership to add value organically and/or through accretive M&A
- Platforms for industry consolidation

The team has experience investing through multiple market cycles and consistently deploying capital. By leveraging its integrated resources, KKR Ascendant will benefit from the firm's established investment process, attractive deal flow, executive relationships, and industry-specific playbooks. KKR Capstone, the operational consulting arm of the Firm with over ~100 professionals globally, plays an important role in value creation by bringing a wealth of operational experience to the deal team and the portfolio company management teams. The areas in which KKR Capstone and dedicated external partners bring direct operational expertise include, but are not limited to, sales force effectiveness, new market entry, price optimization, M&A support, procurement transformation, capital productivity, and talent management.

The Fund also intends to adopt employee engagement and broad-based equity ownership across all control portfolio companies in KKR Ascendant. The Firm has experience adopting this framework in prior portfolio companies, which KKR believes has created better alignment and outcomes. Expanding employee ownership within portfolio companies began with KKR's Americas Private Equity Industrials group in 2011 and has since been deployed across other industry groups. KKR's established and growing track record in this area demonstrates the approach's effectiveness and has become a core part of KKR's investment philosophy. At the portfolio company level, the three key components of the employee engagement model have been all-employee ownership, employee engagement and worker voice, and financial inclusion. KKR has supported employee engagement by, for example, investing in training, driving improvements in worker safety, and supporting the company's involvement in the community.

Sustainability is a shared responsibility within KKR and is built on close coordination and partnership between investment team members, KKR Capstone, KKR's Public Affairs, and KKR's Legal and Compliance teams. Investment Committees oversee the ESG issues that are material to the investments and have been identified when making investment decisions. KKR has been publicly committed to responsible investing since the Firm became a signatory of the UN-supported Principles for Responsible Investment ("PRI") in 2009. KKR codified the processes and procedures related to responsible investment by developing a global Private Equity ESG Policy, which was published publicly in 2014. In 2020, KKR published its Responsible Investment Policy, which describes its approach to integrating the consideration of ESG risks and value creation opportunities into investment processes across various asset classes.

IV. *Investment Performance (as of December 31, 2022)**

Fund	Vintage Year	Total Commitments	SBI Commitment	Net IRR*	Net MOIC*	Net DPI*
KKR North America Fund XI	2012	$8.7 billion	$0	19.7%	2.2x	1.9x
KKR Americas Fund XII	2017	$12.5 billion	$150m	19.6%	1.6x	0.4x
KKR North America Fund XIII	2021	$18.4 billion	$300m	n/a	1.0	n/a

Fund	Vintage Year	Total Commitments	SBI Commitment	Net IRR*	Net MOIC*	Net DPI
**KKR Ascendant Fund Reference Portfolio	Various	n/a	n/a	29.6%	3.0x	n/a

* Previous Fund investments may not be indicative of future results. Net IRR and Multiple of Invested Capital (MOIC) were provided by KKR.

** KKR Ascendant Fund Reference Portfolio includes investments made by Fund XI and Fund XII that KKR believes to be representative of investments that would be targeted by the Ascendant Fund in light of its investment strategy.

V. Investment Period and Term

The investment period is six years. The term is eleven years from the first investment, subject to two additional one-year extensions with Limited Partner consent.

This document is a summary of more detailed information provided in the Confidential Private Placement Memorandum (the "PPM"). It is qualified in its entirety by the more detailed information provided in the PPM.

ATTACHMENT C

PRIVATE DEBT MANAGER SUMMARY PROFILE

I. Background Data

Name of Fund:	Sixth Street TAO[1] Partners, L.P. ("TAO")
Type of Fund:	Private Credit
Target Fund Size:	~$1.4 billion in TAO Contingent Roll ~$1.0 - $1.5 billion in TAO Global
Fund Manager:	Sixth Street TAO GenPar, L.P.
Manager Contact:	Kevin Deeth 345 California St., Suite 2600 San Francisco, CA 94104

II. Organization and Staff[2]

Sixth Street (or "Firm") is a global investment firm with approximately $65 billion in assets under management. The firm was founded in 2009, in partnership with TPG, one of the largest alternative asset investment firms in the world and formerly operated under the name TPG Sixth Street Partners ("TSSP"). In May 2020, TPG and Sixth Street Partners announced the completion of an agreement to become independent, unaffiliated businesses. TPG has retained a passive minority economic stake in Sixth Street with the substantial majority owned by Sixth Streets group of 30 Managing Partners.

Sixth Street's Managing Partners, oversee ~ 500 people across offices in San Francisco, New York, Houston, Dallas, Boston, London, Hong Kong, and Luxembourg. Prior to forming Sixth Street, the founding partner group worked together in the largest proprietary investment business at Goldman Sachs & Co. ("Goldman Sachs"), where Alan Waxman was Co-Head of the Americas Special Situations Group ("AmSSG").

Sixth Street's Diversity, Equity & Inclusion (DE&I) Committee was formalized in 2020. The Committee is comprised of representatives across functions, levels, and offices, including senior leadership. The committee seeks to promote and advance a culture of diversity and inclusion to better represent and serve communities, investors, and counterparties. Sixth Street believes creating a diverse culture of opinions, perspectives and talents creates a higher likelihood of delivering differentiated investments, portfolios, and ultimately returns for all investors. Sixth Street aims to recruit a diverse team through focused sourcing efforts and inclusive interviewing processes. Their Talent Acquisition team engages with specialized recruiters focused on building diverse candidate pipelines. Hiring managers also work with

[1]TAO means TSSP Adjacent Opportunities Partners. TSSP means TPG Sixth Street Platform.
[2] Headcount stats as of February 28, 2022.

Sixth Street's Talent Acquisition team to utilize diverse interview slates and interviewers across teams and functions. Additionally, Sixth Street sponsors events and internships, and works with external partners who specialize in building pipelines of diverse talent. Their intent is to make sure they are looking beyond the traditional channels for diverse talent.

Sixth Street is a signatory to the United Nations-supported Principles for Responsible Investments. The mission of Sixth Street is to deliver compelling risk-adjusted returns while managing risks and conducting business with high standards of integrity. The Firm believes that environmental, social and governance ("ESG") factors affect performance and assess ESG matters together with financial criteria when making investments. Where possible, they use their influence to promote sustainable business practices in the companies, platforms, and other opportunities in which they invest.

III. Investment Strategy

In 2018, the Minnesota State Board of Investment committed $100 million to the TAO Contingent vehicle. The vehicle, upon activation, had a 3-year commitment period, which expired on March 31, 2023, and thus can no longer participate in new deals. Sixth Street is offering Limited Partners the opportunity to "roll" or convert TAO Contingent commitments into interests similar to a capital commitment to other TAO vehicles (the "TAO Contingent Roll") and include the ability to make periodic elections as to the duration of the commitment period. Management fee and carried interest rates will remain unchanged.

Additionally, Sixth Street is offering an opportunity for the MSBI to contribute additional capital into a traditional TAO vehicle. Sixth Street investment themes often span across multiple funds, and the platform is managed as one large, coordinated team to nurture a culture where cross-platform collaboration is prevalent and intended to be a key differentiator. Ultimately, the nature of an investment, the targeted returns, and the firm's deliberate allocation policy, will dictate which Sixth Street fund(s) will execute the transaction.

TAO Contingent Roll & TAO Global[3]

The TAO vehicles represent a single portfolio of investments which spans the various Sixth Street strategies and themes with an opt-out and evergreen structure. The Fund is a continuation of the team's strategy employed over several years at Sixth Street and Goldman Sachs. Sixth Street expects to build TAO portfolios across eight platforms with different underlying strategies: (i) Special situations platform, (ii) fundamental strategies platform, (iii) capital solutions platform, (iv) direct lending platform (v) infrastructure special situations platform (vi) agricultural platform, (vii) adjacencies platform and (viii) the par liquid credit platform. As a result, an investor in the Partnership will have exposure across the broad Sixth Street platform and benefit from the full firm's sourcing efforts. TAO generally focuses on opportunities with significant downside protection, cash yield and differentiated portfolio construction with minimal overlap to other GP's and Managers.

[3] All data presented from the Confidential Private Placement Memorandum (the "PPM") for TAO 5.0 as April /2022.

The TAO Contingent Roll and TAO Global vehicles will generally participate in all future TAO investments alongside other TAO vehicles pro rata based on relative unfunded commitments. Fees are charged by Sixth Street upon activation. Investors in existing TAO vehicles will keep their existing fee structure.

As noted above, Sixth Street expects TAO Contingent Roll and TAO Global vehicles to target opportunities in the following platforms, among other thematic opportunities experiencing dislocations with attractive risk-adjusted returns:

Special Situations

Special Situations platform focuses on control-oriented, actively managed credit investments where Sixth Street can add value with its operational and asset management capabilities. These include corporate dislocations, corporate distressed for control and asset special situations.

Fundamental Strategies Platform

Fundamental strategies focuses on secondary credit opportunities in large company capital structures experiencing stress or distress. These include stressed public credit, distressed public credit and other opportunistic situations.

Capital Solutions Platform

Capital solutions focuses on structured financing solutions for late state growth companies underwritten as credit but with upside optionality to base case returns. These include growth debt, structured equity and stapled solutions.

Direct lending platform

Direct lending focuses on direct origination at the top of the capital structure with inflation/reinvestment protection. These investments generally include standalone first lien loans, and uni-tranche first lien loans, and may include small upside participation interests taken as part of an overall lending relationship.

Infrastructure Special Situations Platform

Infrastructure special situations platform pursues opportunistic transactions in infrastructure including, but not limited to: power, renewables, energy, transportation, and utilities. These include stressed infrastructure, structurally complex infrastructure and niche infrastructure.

Agriculture Platform

The agriculture platform focuses on developed market (mainly U.S.) cash yielding assets, predominantly in permanent crops. These include uncorrelated return investment in agriculture and cash yielding assets.

Adjacencies Platform

Adjacencies platform is comprised of "between the box" investments outside the mandates of other Sixth Street platforms, as well as participation in larger deals alongside them. These include but are not limited to the following situations: (i) non-control opportunities with attractive risk / reward profiles, (ii) high return but low multiple of money / shorter duration situations and (iii) selected longer duration opportunities with minimal macroeconomic correlations. Sixth Street broadly categorizes the Adjacent Opportunities landscape in three categories: Defensive Yield, Stressed Opportunities, and Distressed Non-Control.

- Defensive Yield – These transactions are non-distressed situations where the outcome has minimal correlation to the macroeconomic environment, will generate current yield and have a relatively longer duration.
- Stressed Opportunities – Stressed Opportunities represent stressed asset and corporate situations where Sixth Street believes it has a differentiated angle.
- Distressed Non-Control – Distressed Non-Control transactions consist of opportunistic purchases of distressed non-control investments at a deep discount to fundamental value, where there is a low probability of gaining a control positions.

Par liquid credit platform
The par liquid credit platform focuses on the broadly syndicated leverage market and collateralized loan obligations ("CLO").

IV. Investment Performance

Previous fund performance as of December 31, 2022 for MSBI's TAO and Opportunities Funds' portfolio are shown below:

Fund	**Vintage Year**	**Total Commitment**	**SBI Investment**	**Net IRR***	**Net MOM***	**Net DPI***
TAO 4.0	2018	$1,921mm	$50mm	11.4%	1.35x	0.37x
Opportunities Fund IV	2019	$3,226mm	$50mm	11.0%	1.24x	0.14x
TAO Contingent	2018 (activated in 2020)	$3,181mm	$100mm	14.0%	1.23x	0.11x
Opportunities Fund V	2022	$4,053mm	$75m	NA	NA	0.00x
Total		**$12,381mm**	**$275mm**	**12.0%**	**1.27x**	**0.18x**

* Unless otherwise noted, information as of 12/31/22. Please refer to Sixth Street's detailed historical performance summary which includes important notes and includes a fund description and important information regarding the calculation of all performance figures presented herein. Past performance is not indicative of future results, which may vary. Net MoM and Net DPI are shown on a recycle-adjusted basis. Previous Fund investments may be relatively immature and, therefore, returns may not be indicative of future results. Performance provided by Sixth Street Partners.

V. Investment Period and Term

TAO Contingent Roll

Limited Partners (LPs) will have the opportunity to elect to terminate their commitment period during a thirty-day window 5.5 years after they elect to "roll". The first termination date is January 1, 2029 (and every two years thereafter).

TAO Global

Each Limited Partner will elect, upon its admission to a New TAO Fund, to be treated as a "Short-Term Limited Partner" or a "Long-Term Limited Partner." Each Short-Term Limited Partner will be subject to a "Minimum Commitment Period" of three and one-half years and each Long-Term Limited Partner will be subject to a Minimum Commitment Period of five and one-half years.
The commitment period with respect to each Capital Commitment of a Limited Partner will commence upon the date such Capital Commitment is accepted by the General Partner and will continue until terminated in accordance with the following procedure:

- Each Limited Partner may elect, at any time after the expiration of its applicable Minimum Commitment Period, to become a "Liquidating Partner: with respect to all of its Capital Commitment or any portion thereof in increments of equal to or greater than $5 million.

- An electing Limited Partner's Termination Election will become effective (and such Limited Partner will be deemed a Liquidating Partner) as of the last day of the calendar quarter in which the twelve-month anniversary of its Termination Election falls, at which point the applicable Commitment Period will terminate. Such Limited Partner will remain a "Committed Partner" with respect to any portion of its interest not so terminated.

This document is a summary of more detailed information provided in the Confidential Private Placement Memorandum (the "PPM"). It is qualified in its entirety by the more detailed information provided in the PPM.

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ATTACHMENT D

PRIVATE CREDIT MANAGER SUMMARY PROFILE

I. Background Data

Name of Fund:	Castlelake Aviation V Stable Yield, L.P.
Type of Fund:	Private Credit
Total Fund Size:	$2.0 billion
Fund Manager:	Castlelake, L.P.
Manager Contact:	Betsy Sylvester 250 Nicollet Mall, Suite 900 Minneapolis, MN 55401

II. Organization and Staff

Castlelake, L.P. ("Castlelake" or the "Firm") was formed in 2005 by Rory O'Neill (Executive Chair & Co-Chief Executive Officer) and Evan Carruthers (Co-Chief Executive Officer & Chief Investment Officer), to seek attractive risk- adjusted returns through investments in aviation, real assets, and specialty financial across the risk spectrum, ranging from value-oriented to income through investment grade credit. Castlelake, L.P. is a global alternative investment manager with approximately $20 billion of capital under management as of March 31, 2023. Castlelake employs approximately 230 experienced professionals globally, approximately 90 of whom are investment professionals. Castlelake is headquartered in Minneapolis with investment offices across seven offices in North America, Europe, and Asia.

Castlelake is owned by the 16 Partners of the Firm. Partners have experience sourcing, identifying, and executing global asset-based opportunities across asset types, capital structures and geographies in addition to driving execution and cross-collaboration and adherence to Castlelake's values.

Castlelake's Diversity, Equity & Inclusion (DEI) Committee was formalized in 2018. The Committee reports to the People and Culture Sub-Committee (PCC) which is comprised of the Castlelake partners group and is chaired by Yen-Wah Lam who serves as the Chief People Officer & President. The Committee is comprised of a representation of investment professionals and business operations professionals globally. The Committee's mission is to promote a work environment that respects, embraces, and leverages diversity by educating employees, setting clear expectations, and adhering to best practices. Castlelake believes that an equal opportunity work environment results in deeper employee engagement and better decision-making that, in turn, drives better performance for stakeholders. Castlelake is a signatory of the ILPA Diversity in Action initiative.

III. Investment Strategy

The fund’s primary objective is to make stable yield investments in the global aviation finance market. The fund will aim to achieve attractive risk-adjusted rates of return while minimizing downside risk by seeking to invest in or gain exposure to high quality aircraft and aircraft-related assets. Castlelake believes this approach will result in an attractive current yield to investors through quarterly distributions and a risk-appropriate overall investment return over the life of the fund. Core holdings of the Fund will include: (i) bespoke secured debt financing collateralized by cash flowing collateral, (ii) aviation debt, including asset-backed securities (ABS) and enhanced equipment trust certificates (EETCs), via secondary market, (iii) the sale and lease-back of new aircraft (0-3 years old) and younger mid-life aircraft (4-14 years old) to airlines with operating and finance leases and (iv) on-lease aircraft from other investors and lessors.

Additionally, the fund is expected to acquire equity exposure to Castlelake Aviation Limited (“CA”), a rated recourse corporate structure that has built a diversified portfolio of primarily next generation, narrowbody aircraft on long-term leases through a combination of secured and unsecured debt instruments. CA was established in 2021 to efficiently finance new technology aircraft. As on-lease aircraft age over time, the firm will effectively manage the aircraft to maximize cash value. The firm possesses experience structuring the appropriate duration and/or determining an optimal time to sell and believes it can leverage this experience to manage debt owned directly by the fund or through CA.

The firm will also seek to capitalize on its 18-year aviation experience, deep industry relationships across airlines, lessors, and original equipment manufacturers (OEMs) and proprietary data sets. Since inception, the firm has raised four dedicated aviation funds within the aviation fund series. Across all aviation investments, the manager has invested $18 billion of capital, realized $15 billion, and generated a 21.3% gross IRR since inception through December 31, 2022.

Castlelake’s aviation team is comprised of approximately 60 dedicated aviation professionals who are organized across eight specialized sub-teams – underwriting, marketing, trading, asset management & technical, finance & operations, aviation legal, capital markets and risk management. The team has extensive experience structuring creative financing solutions and investing in a variety of aircraft assets across the risk-return spectrum. Since inception, the firm has acquired and/or managed more than 650 aircraft, invested $18 billion across all funds, and manages over 200 airline relationships.

Castlelake first adopted an ESG policy in 2014 and has refined and updated the policy since that time. The firm seeks to integrate the consideration of environment, social and governance (ESG) issues across its investment lifecycle and global business operations, which aligns with Castlelake’s values, and addresses a broad range of global challenges. Castlelake is a signatory to the UN Principles for Responsible Investment (PRI). The firm licenses and applies the SASB Materiality Map® General Issue Categories in its ESG process and oversight. Given the breadth of diversity in the investment portfolio, the firm feels that SASB provides a substantive framework to facilitate ESG factor assessment.

IV. Investment Performance

Previous fund performance as of December 31, 2022 is shown below:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
Castlelake Aviation I	2005	$173 Million	-	14%	1.34x	1.34x
Castlelake Aviation II	2010	$605 Million	-	14%	1.69x	1.59x
Castlelake Aviation III SY	2016	$1.0 Billion	-	14%	1.51x	0.55x
Castlelake Aviation IV SY	2019	$1.6 Billion	-	33%	1.24x	0.08x

* Previous fund investments are not indicative of future results. Net IRR, Net MOIC and DPI were provided by Castlelake L.P.

V. Investment Period and Term

The Fund's investment horizon is based on its four-year investment period and 6-year harvest period.

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.

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ATTACHMENT E

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. Background Data

Name of Fund:	TA Associates XV, L.P.
Type of Fund:	Private Equity – Buyout
Target Fund Size:	$15 Billion
Fund Manager:	TA Associates Management
Manager Contact:	Andrew Harris 200 Clarendon Street 56th Floor Boston, MA 02116

II. Organization and Staff

TA Associates Management (the "Firm" or "TA") is forming TA Associates XV, L.P. (the "Partnership" or "Fund XV") to continue TA's history of making equity investments in middle-market growth companies, primarily in opportunities originated and led by TA. The Firm was founded in 1968 as a successor to Tucker, Anthony & Co., Inc, the private investment banking subsidiary of Tucker, Anthony & R.L. Day, a Boston-based regional brokerage firm. At the time of TA's founding, the Firm managed $6 million in capital and invested in multi-stage venture companies in Healthcare and Technology. Since the early 1990's, TA has focused on later-stage growth investments in profitable companies in five core sectors: Business Services, Consumer, Financial Services, Healthcare and Technology. TA currently has 262 employees, including 162 investment professionals[1], across six offices in Boston (1968), Menlo Park (1982), London (2003), Mumbai (2009), Hong Kong (2011) and Austin (2022). TA is focused on a single line of business today – growth private equity.

TA is wholly-owned and operated by its 28 Managing Directors and Senior Advisors. The Firm is led by an Executive Committee that is comprised of Brian Conway (Chairman), Ajit Nedungadi (CEO), Hythem El-Nazer (Managing Director), Jennifer Mulloy (Managing Director), and Jason Werlin (Managing Director). This committee is responsible for establishing operating and investing policies, as well as setting compensation and incentive ownership.

TA believes in a broad definition of diversity, built on a foundation of acceptance and respect. The Firm recognizes that each individual is unique and celebrates these individual differences. TA has a Diversity, Equity and Inclusion Committee (DEI Committee) that drives the Firm's commitment to diversity, equity and inclusion. The DEI Committee, comprised of employees from different functions across the Firm, creates a platform to discuss new initiatives, establish

[1] As of 1/1/23; includes 33 team members of the Strategic Resource Group and Capital Markets Group and also includes Senior Advisors and Advisors.

best practices in recruitment and retention, and align on metrics for success. TA partners with a number of leading organizations committed to recruiting and developing diverse talent, became an ILPA Diversity in Action Signatory in 2021, and in 2022 signed PwC's CEO Action for Diversity & Inclusion pledge.

III. *Investment Strategy*

TA Associates is forming Fund XV to invest in profitable, high growth companies within its five core sectors: business services, consumer, financial services, healthcare and technology. TA generally seeks to take a majority ownership position in investments but is also comfortable operating as a minority partner with board representation and active engagement with the company. TA aims to invest in profitable, stable businesses, typically in the middle-market. TA invests across five core sectors, each with unique trends, end markets and cyclicality primarily in companies with High-Quality Business Models (HQBMs), which TA believes provides a combination of low capital risk and high returns given their sticky customer base and the ability to cross-sell and upsell products. TA discusses the common characteristics of companies which they deem to be HQBMs in the offering materials.

TA's targeted industries can operate on different business cycles, which provides the benefit of diversification to the portfolio. The Firm expects that the TA XV portfolio will be well diversified over a broad number of investments (approximately 50-60) across its five targeted growth industries in similar proportions to previous funds.

In the 1970s, TA pioneered its unique origination capability of sourcing proprietary and semi-proprietary investment opportunities through a systematic and disciplined industry-focused active outreach and visitation program. TA's origination process has three key steps:

1. Sector teams conduct market research to identify emerging trends, growth sub-sectors and subsequent investment theses in their industries;

2. Identify target prospects that get entered into TA's proprietary database; and

3. Active sourcing and outreach program underpinned by visiting and developing relationships with leading companies and management.

TA's approach to value-add spans the full deal lifecycle from the due diligence phase to ownership and exit, and includes involvement from various groups, including the TA investment team, TA's network of industry experts, TA's Strategic Resource Group (SRG), which includes an ESG team, and the Capital Markets Group (CMG). TA's value-add focuses on seven key competencies that are tailored depending on the needs of growth companies: revenue growth, performance improvement, M&A, finance/governance, data science, human capital, and ESG.

TA implemented its ESG Policy in 2013 to formally integrate ESG considerations into its investment process. For all high-probability potential new investments, TA will typically conduct an ESG Risk and Opportunities Screen ("ESG Screen") or equivalent review in conjunction with the due diligence process. Typically, key takeaways from the ESG Screen and any additional ESG diligence are summarized and included in the diligence documentation that is provided to the Investment Committee for each investment opportunity. Material ESG issues identified are then incorporated into the company's 180-Day Plan by the investment sponsor, as is appropriate. TA utilizes its Board role and, in other cases, its general influence to encourage positive changes at portfolio companies and ensure that such portfolio companies consider important ESG factors when applicable.

IV. *Investment Performance*

Previous fund performance as of December 31, 2022 is shown below:

Fund*	Vintage Year	Total Commitments	SBI Commitment	Net IRR**	Net MOIC**	Net DPI**
TA VII	1993	$303	--	56.7%	3.8x	3.8x
TA VIII	1997	$800	--	23.4%	2.3x	2.3x
TA IX	2000	$2,000	--	22.0%	2.4x	2.4x
TA X	2006	$3,500	--	5.2%	1.3x	1.3x
TA XI	2010	$4,000	--	26.8%	3.8x	3.5x
TA XII	2016	$5,300	--	37.6%	3.0x	1.8x
TA XIII	2019	$8,500	--	34.8%	1.6x	0.4x
TA XIV	2021	$12,500	--	-16.2%	0.9x	0.0x

* Only includes the TA/Advent equity funds and does not include the Chestnut and Atlantic and Pacific series funds. Officially named Advent VII and TA/Advent VIII, respectively. Does not include funds prior to 1993 as those funds were differentiated from the current investment funds which now only invest in profitable growth investments.

** Past performance is no guarantee of future results. There can be no assurance that TA XV will invest in companies with the same or similar experiences. Net IRR, Net MOIC, and Net DPI provided by the manager, see PPM for details.

V. *Investment Period and Term*

The investment period is six years and the term is ten years from the date of the first investment, subject to three one-year extensions with approval by a majority-in-interest of the Limited Partners.

This document is a summary of more detailed information provided in the Confidential Private Placement Memorandum (the "PPM"). It is qualified in its entirety by the more detailed information provided in the PPM.

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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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REPORT

Public Markets Investment Program

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DATE: May 18, 2023

TO: Members, State Board of Investment

FROM: Members, Investment Advisory Council and SBI Staff

SUBJECT: SBI Public Markets Program Report

This report provides a brief review of financial markets and the performance of the Combined Funds portfolio for the quarter and 12-month periods ended March 31, 2023. Included in this section are a market commentary and performance summary for the overall Combined Funds portfolio, performance summaries for the portfolio's public markets managers, and a report of any organizational updates for the public markets managers in the SBI portfolio.

The report includes the following sections:

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Review of SBI Combined Funds Performance
First Quarter 2023

Market Summary

Global equity markets continued their upswing during the first quarter of calendar year 2023, with the MSCI All Country World (ACWI) Index of global stocks rising +7.3% in U.S. dollar terms for the quarter. The U.S. dollar fell versus most major currencies during the quarter, providing an added boost to returns on non-U.S. investments for dollar-based investors. Global bond markets also rallied during the quarter, with the Bloomberg Global Aggregate Bond Index gaining +3.0%. For the 12-months ended March 31, 2023, however, global financial markets remained in negative territory, battered by the Fed's aggressive interest rate hikes, stubbornly high inflation, and rising geopolitical tensions between the U.S. and China.

Financial markets rallied strongly to start 2023 as the combination of moderating inflation in the U.S. and Europe and a still-positive outlook for growth led investors to cheer a potential economic "soft landing." Both stocks and bonds rallied on the prospects of a near-term end to the Fed's tightening regime. However, setbacks in the inflation story contained in February's data releases, as well as stronger-than-expected labor market results, drove the Fed to pour cold water on the idea that it would soon pivot to a more accommodative policy stance. In response, stocks fell and bond yields rose sharply through early March, with yields on shorter-term Treasuries setting new cycle highs.

Additionally, stresses in the banking sector emerged in March with the abrupt failures of U.S. regional banks Silicon Valley Bank and Signature Bank, followed swiftly by the demise of Credit Suisse and its hastily arranged sale to Swiss rival UBS. In all three instances, regulators acted decisively to protect depositors and stem systemic risks. In the U.S., the FDIC and U.S. Treasury moved to guarantee all deposits at the failed institutions while the Fed opened the discount window and launched a new funding facility designed to provide significant collateralized funding to all banks in need of liquidity. Markets rallied back as investors gained confidence that the banking system was resilient, particularly among the major U.S. and global systemically important banks, or so-called "G-SIBs." However, fears that ongoing banking stress – if not more outright failures – would reduce the availability of credit and squeeze economic growth drove interest rates significantly lower as investors lowered their expectations for the terminal Fed Funds rate this year and ramped up expectations for Fed rate cuts for later-2023 and into 2024.

Overall Combined Funds Portfolio - Quarter and One-Year Performance

The overall Combined Funds portfolio returned +4.8% during the **calendar first quarter**, outperforming the composite benchmark's return of +4.7%. The positive relative return for the quarter was driven primarily by a positive contribution from active management across most asset classes. Notably, contributions from the portfolio's global equity, domestic equity and core bond managers drove positive outperformance. In addition, the reversal of a timing-related issue with year-end index pricing within the Treasury Protection portfolio aided returns. On the negative side, the portfolio's overweight to U.S. small caps and an underweight to the Treasury Protection portfolio's longer-duration U.S. Treasuries hurt relative performance. The portfolio's underweight to developed international stocks vs. U.S. stocks was a drag. The portfolio's currency hedging program also hurt relative returns as the U.S. dollar weakened over the period and the portfolio's hedges lost value. The private markets invested portfolio gained +1.5% during the quarter.

For the **one-year period ended March 31, 2023**, the Combined Funds portfolio posted a return of -4.3%, outperforming the composite benchmark which returned -4.4% for the same period. The portfolio benefitted from an overweight to the Cash and Laddered Bonds portfolio and an underweight to the long-duration Treasury Protection portfolio, while an underweight to developed international stocks in favor of U.S. equities was a drag. Gains from the portfolio's currency hedging program, which blunted the impact of currency losses in the portfolio's developed international equity portfolio, boosted portfolio performance for the 12-month period. Active management returns were muted during the full year, with positive contributions from the portfolio's emerging markets equity, core bond and return-seeking fixed income managers offset by underperformance across the remaining equity portfolios, including domestic equity, international developed equity, and global equity managers. The invested private markets portfolio returned +3.3% for the 12-months ended March 31, 2023.

Review of Public Markets Managers Performance
First Quarter 2023

Domestic Equity

The opening quarter of 2023 was a mixed bag for domestic equities. However, despite choppy performance, the broad-based Russell 3000 Index surged by +7.2% during the first quarter of 2023. Equity performance started the quarter strongly as growing investor and corporate optimism, fueled by China's reopening, waning concerns over inflation, and general risk-on sentiment all drove equities higher in January. In February, stocks sold off on concerns that the Fed would keep rates higher for longer and consequently depress economic growth. By March, the headlines were dominated by a global banking crisis that saw the collapse of Silicon Valley Bank and other institutions coming under pressure, with the turbulence weighing on stocks. As the market priced in Fed rate cuts and increased likelihood of a recession, investors rotated violently out of value and cyclical stocks in favor of high quality, durable growth names, in particular mega-cap technology. At the same time, swift actions by financial regulators to protect bank depositors and ensure smooth functioning capital markets helped to rebuild investor confidence and equity markets stabilized by the end of March.

For the quarter, technology was the best-performing sector (+24.9%), with large cap names such as Apple (+27.1%), NVIDIA (+90.1%), Microsoft (+20.5%), and Meta (+76.1%) driving much of the category's outperformance. Other cyclical sectors such as consumer discretionary (+14.5%) and telecommunications (+17.1%) also fared well. Inflation-sensitive sectors and those directly or indirectly impacted by the banking crisis struggled. The worst-performing sectors were financials (-5.5%), energy (-4.9%), healthcare (-3.3%), utilities (-2.2%), and consumer staples (-1.2%). Within financials, banking stocks fell -13.0%, marking the worst industry performance for the period.

Large cap stocks outperformed their small cap counterparts (R1000 +7.5% vs. R2000 +2.7%). The large cap cohort benefitted from having greater exposure to technology companies and tech-enabled businesses as well as lower exposure to the struggling financial sector, especially in regional banks and real estate, as compared to small cap indexes. Similarly, growth stocks outperformed value stocks (R3000 Growth +13.9% vs. R3000 Value +0.9%), owing to a higher weighting towards technology, consumer, and tech-enabled firms that investors perceived as being more resilient in the face of a weaker economic environment.

The Combined Funds' domestic equity portfolio gained +7.2% during the quarter, keeping pace with the Russell 3000 Index, which returned +7.2%. An overweight to small cap and value-oriented stocks in the portfolio modestly weighed on relative performance. However, active management helped offset those negative impacts. The portfolio's active domestic equity managers gained +4.9%, outperforming the aggregate active domestic equity benchmark, which returned +4.0%.

The portfolio's large cap and all cap growth managers had widely varied performance versus their benchmarks during the quarter. This was in part due to the concentrated nature of the portfolios and the strong dispersion of growth stock performance. Concentrated all cap growth manager Zevenbergen had the best performance (+32.4% Portfolio vs. +13.9% Benchmark) as its concentrated exposures to stocks that had sold off significantly in 2022 rebounded, and its exposure to lower-profitability companies generally outperformed. Concentrated growth manager Sands also benefitted from exposure to less profitable, higher growth companies which rebounded significantly in the quarter following significant underperformance throughout 2022. Winslow's more defensive and diversified positioning with an emphasis on higher quality and lower growth companies led it to underperform in the current quarter.

Active large cap value managers, Barrow Hanley and LSV, both underperformed during the quarter (Barrow Hanley -2.2% and LSV +0.5% vs. Benchmark +1.0%). Barrow Hanley's bottom-up stock selection was the main driver of its relative performance—less profitable companies at higher valuations, stocks which Barrow Hanley tends to eschew, were the large drivers of index performance even within the value style. Barrow Hanley's performance was also hurt by allocations to selected financials, an underweight to technology stocks, and an overweight to energy stocks. LSV's quantitative, deep-value approach struggled during the quarter, and its selection of lower-priced stocks in the technology and finance sectors (particularly banking) were key drivers of relative underperformance.

Semi-passive large cap managers, Blackrock and J.P. Morgan, both slightly outperformed their benchmarks during the quarter. Quantitative manager Blackrock had strong performance across a range of its signals, while fundamental manager J.P. Morgan's outperformance was attributed entirely too good stock selection in the financials, insurance, and retail sectors.

Small cap growth managers outperformed in aggregate during the quarter (+6.3% Managers vs. +6.1% Benchmark), in part due to an underweight to the energy sector as well as strong selection within the financial and consumer services sectors. Managers' general overweight to larger-cap names was also helpful. Wellington was the only manager to underperform the index (Wellington +4.4% vs. +6.1% Benchmark), mostly due to poor stock selection within the healthcare sector. All other managers outperformed during the quarter.

Small cap value managers outperformed the index, individually and in aggregate (+0.9% Managers vs. -0.7% Benchmark). Fundamental managers Peregrine, Hotchkis & Wiley, and Goldman Sachs outperformed in large part due to an underweight to banks and healthcare, and strong security selection within healthcare, business services, and consumer services. Quantitative manager Martingale's momentum signals contributed most to its positive relative performance, with quality and value signals being modestly additive.

Passive managers tracked their benchmarks overall during the quarter, posting a combined return of +7.4% which was in line with the overall passive benchmark's return of +7.4%.

Global Equity and ACWI ex USA Equity

The MSCI All-Country World Index (ACWI) (net) returned +7.3% in U.S. dollar terms for the quarter. After posting significant declines in 2022, technology stocks came roaring back in the first quarter (+22.0%), led by strong gains in semiconductor stocks, which rallied +31.6% during the period. In terms of country performance, all ten of the index's largest country constituents posted positive returns, including double-digit gains in France, Germany, and Taiwan.

The rebound in technology names was favorable for the Combined Funds' global equity portfolio, which posted outperformance of +5% versus the index to start the new year (+12.6% Portfolio vs.

+7.3% Benchmark). Concentrated growth manager Baillie Gifford finished at the top (+19.8%) with the biggest contributions in its tech-oriented portfolio coming from semiconductor manufacturer NVIDIA (+90.1%), Tesla (+68.4%), and off-benchmark music-streaming platform Spotify (+69.3%). Quality growth manager Martin Currie also strongly outperformed (+17.3% Portfolio vs. +7.3% Benchmark), deriving the most value from technology names, but also gaining from its positions in luxury goods (Moncler +30.7%), personal products (L'Oreal +25.5%), and green building materials (Kingspan +26.9%). Value-focused and contrarian manager Ariel underperformed during the quarter, primarily due to its underweight to semiconductors and broadly defensive positioning.

The portfolio's ACWI ex USA manager, Earnest Partners, modestly outperformed the benchmark during the quarter (+7.3% Portfolio vs. +6.9% Benchmark).

Developed International Equity and Currency Overlay

International developed markets equities, as measured by the MSCI World ex USA Index (net), rose +8.0% during the first quarter in U.S. dollar terms. 19 of 22 countries and 9 of 11 sectors ended the quarter in positive territory. Luxury goods, industrials, and semiconductors were lifted by a stabilized global energy outlook and the prospect of a lift to global growth from China's post-COVID economic re-opening.

The portfolio's active developed markets managers underperformed the MSCI World ex USA Index (net), returning +7.3% versus the benchmark's +8.0% return. Quantitative core manager Acadian (+3.9% Portfolio vs. +8.0% Benchmark) struggled early in the quarter with an overweight to energy and an underweight to technology names (especially semiconductors). Growth-tilted fundamental manager Columbia Threadneedle delivered continued robust performance (+9.0% Portfolio vs. +8.0% Benchmark) with strong stock selection, especially in communication services, consumer discretionary, and consumer staples.

During the quarter, quantitative momentum manager McKinley was terminated from the developed international equity portfolio, effective February 8, 2023, with the underlying assets transferred to three existing managers within the portfolio: Acadian, Fidelity, and Columbia Threadneedle, each of whom received in-kind contributions to their existing portfolios.

The passive developed markets portfolio tracked the MSCI World ex USA Index (net) return for the quarter (+8.2% Portfolio vs. +8.0% Benchmark).

In currency markets, the U.S. dollar traded in a +/-4% range during the quarter and ultimately finished the period about 1% lower versus a trade-weighted basket of foreign currencies. Following a rally in February and early March, the dollar fell sharply as concerns over the health of the U.S. banking sector led to growing sentiment that the Fed would be compelled to aggressively cut interest rates by late-2023. Meanwhile, other global central banks maintained their hawkish stance during the period, and overall global growth showed stronger momentum versus perceptions of a slowing U.S. economy. As the result of the dollar's weakness and continued volatility, the portfolio's currency overlay program detracted –0.8% relative to an unhedged portfolio. During the quarter, the overlay portfolio's hedge ratio ranged between 6.6% and 49.6%.

Emerging Markets Equity
Emerging markets equities, as measured by the MSCI Emerging Markets Index (net), rose +4.0% in U.S. dollar terms in 1Q2023, significantly underperforming developed market equities. Within emerging markets, technology and growth-oriented industries were the best performers, including semiconductors (+20.3%) and interactive media (+19.2%). Unlike the developed markets, however, emerging market stocks saw a sharper rotation away from traditional value sectors like utilities (-10.5%) and healthcare (-4.9%). In terms of country performance, thirteen markets saw gains over the quarter, most notably tech-oriented Taiwan (+14.8%), Korea (+9.6%), and China (+4.5%), while twelve countries finished lower on the quarter, including India (-6.4%) and Brazil (-3.2%).

The portfolio's active emerging markets managers modestly outperformed the MSCI Emerging Markets Index (net), returning +4.4% versus the benchmark's +4.0% return. The portfolio's tilt away from and selection within out-of-favor value sectors like utilities, industrials, healthcare, and financials contributed the most. After struggling in 2022, core manager Macquarie's large overweight to semiconductors drove outperformance for the quarter (+7.8% Portfolio vs. +4.0% Benchmark). Value manager Pzena (+6.7% Portfolio vs. +4.0% Benchmark) extended its winning streak through an underweight to India and strong selection in Chinese technology names. Quality growth manager Morgan Stanley (+2.6% Portfolio vs. +4.0% Benchmark) underperformed as South Africa's energy crisis crippled the country's mining operations including Anglo American Platinum (-33.6%). Rock Creek's underweight to China mega-cap technology names and exposure in the Latin American banking sector hurt relative performance (+2.5% Portfolio vs. +4.0% Benchmark).

Earnest Partners' China A-share strategy outperformed the MSCI China A Index during the quarter (+6.4% Portfolio vs. +4.7% Benchmark). Outperformance was driven primarily by security selection in the consumer staples, consumer discretionary, and healthcare sectors.

The passive emerging markets portfolio tracked the MSCI Emerging Markets Index (net) within tolerance for the quarter (+4.1% Portfolio vs. +4.0% Benchmark).

Core/Core Plus and Return Seeking Bonds
The Bloomberg U.S. Aggregate Index posted a gain of +3.0% during the first calendar quarter of 2023. During the quarter, bond yields declined and credit sensitive sectors were mixed as the collapse of U.S. regional banks Silicon Valley Bank and Signature Bank increased recession fears and led investors to boost expectations for the Fed to begin cutting rates by mid-2023.

Inflation declined over the quarter, with headline CPI rising at a 5.0% year-on-year pace in March, down from 6.5% in December. Meanwhile the core measure, which excludes food and energy, rose at a 5.6% year-on-year pace, down just -0.1% from December's 5.7% pace. Measures of economic activity, including ISM purchasing manager survey data, showed that economic growth moderated during the quarter, while payroll growth remained strong and the unemployment rate, at 3.5% in March, remained near a multi-decade low.

The Fed hiked its policy rate by 25 basis points at both the February and March FOMC meetings, citing continued elevated inflation readings, a strong labor market and still-strong consumer spending. At its March meeting, however, the Fed acknowledged that ongoing banking sector stress would result in tighter credit conditions and signaled that a pause in its tightening cycle might soon be warranted.

Spread sectors rallied in January and February on the positive inflation news and expectations for a Fed pause and economic soft-landing scenario. The crisis in the banking sector upended the rally, however, and investors sold bonds of financial issuers as well as assets viewed as likely to be under selling pressure from bank balance sheets, including non-agency commercial mortgage-backed securities (CMBS) and Agency MBS. Agency MBS were further impacted by a spike in interest rate volatility, which drove higher hedging costs and reduced investor demand for the asset class.

Investment grade credit spreads widened modestly during the quarter, with the spread on the Bloomberg U.S. Credit Index rising to +138 bps over comparable-maturity Treasuries from +130 bps at the start of the quarter. High yield spreads tightened, buoyed by continued strong credit fundamentals. Credit sensitive CCC-rated and B-rated bonds outperformed the broader market, defying concerns that the banks might pullback on lending to riskier credits. High yield bank loans also posted strong performance as rising short-term interest rates and continued low defaults drove investor appetite for the sector.

Emerging markets debt performance was mixed during the quarter. Credit spreads on dollar-denominated external debt widened modestly in sympathy with corporate spreads and a general flight to quality. However, local currency EM debt benefitted from declining local market yields and positive currency effects as most EM currencies rose versus the U.S. dollar.

The portfolio's core/core plus bond managers outperformed the Bloomberg Aggregate Index during the quarter (+3.4% Portfolio vs. +3.0% Benchmark). Overall, the managers' overweight to spread sectors and yield curve positioning benefited relative performance. Positive issue selection within investment grade credit and allocations to high yield bonds and bank loans also benefited performance. Core plus manager Western Asset benefitted from a longer-than-benchmark duration, an overweight to high yield credit and strong issue selection within corporate credit.

The portfolio's return-seeking bond managers returned +3.0% during the first quarter, matching the policy benchmark's (Bloomberg U.S. Aggregate Bond Index) return of +3.0%. The managers outperformed the weighted composite of the managers' individual benchmarks, which returned +2.7%. Manager outperformance was driven by positive issue selection within investment grade credit as well as positioning within high yield bonds, floating rate bank loans, and emerging markets debt. High yield manager KKR benefitted from an overweight to CCC-rated and B-rated bonds and strong issue selection, while TCW (securitized credit) and Blackrock (opportunistic Fixed Income) benefitted from longer-than-benchmark duration positioning as well as significant holdings in CLOs, securitized credit and, in Blackrock's case, allocations to US and European corporate credit.

Treasury Protection Portfolio

The Treasury protection portfolio outperformed the Bloomberg Treasury 5+ Year Index for the quarter (+5.0% Portfolio vs. +4.5% Benchmark) due to the reversal of pricing differences between the index provider and the portfolio's custodian observed in the prior quarter. Adjusting for the pricing effect, manager performance was in-line with the benchmark. Managers benefitted from duration and yield curve strategies while an overweight to U.S. agencies was a modest drag.

Laddered Bonds + Cash Portfolio

The combined Laddered Bonds + Cash portfolio returned +1.13% in the first quarter, modestly outperforming the portfolio's benchmark (ICE BofA US 3-Month Treasury Bill) which returned +1.07% over the same period. The laddered bond portfolio's slightly longer maturity exposure and spread sector exposure versus its Treasury benchmark drove outperformance, as high quality corporate and ABS credit spreads tightened during the quarter. The cash portfolio also exceeded the benchmark over the quarter. Over time, the laddered bond portfolio is expected to benefit from a yield advantage versus cash.

Public Markets Managers Organizational Updates
First Quarter 2023

AQR (Developed Markets Equity)
Scott Carter, Head of Trading and Financing, transitioned to the U.S. Wealth leadership team. Ashwin Thapar, a Principal within the Research and Portfolio Management team, departed the firm during the quarter.

Baillie Gifford (Global Equity)
Graham Laybourn, the Partner overseeing Operations, Legal and Compliance will retire in April 2023.

Columbia Threadneedle (Developed Markets Equity)
Natasha Ebtehadj, Deputy Portfolio Manager, announced her resignation during the quarter. Nitisha Bosamia, a member of the Global Equities Team, will succeed Ms. Ebtehadj as Deputy Portfolio Manager.

BlackRock (Developed Markets Equity)
Raffaele Savi, Global Head of BlackRock Systematic and Co-CIO/Co-Head of Systematic Active Equity, was among those added to the BlackRock Global Executive Committee during the quarter.

BlackRock (Fixed Income)
Rick Rieder, CIO of Global Fixed Income, Head of Fundamental Fixed Income, and Head of Global Allocation Strategy was among those added to the BlackRock Global Executive Committee during the quarter.

Goldman Sachs (Fixed Income)
Sam Finkelstein, Chief Investment Officer of Fixed Income and Liquidity Solutions, will retire from the firm in June 2023. Upon Mr. Finkelstein's departure, senior investment leaders Whitney Watson and Kay Haigh will assume the roles of co-Head and co-CIO of Fixed Income and Liquidity Solutions.

J.P. Morgan (Developed Markets Equity)
Misha Lozovik was hired to the Core Research Team where he will cover the health services and medical technology sectors. Mr. Lozovik holds a bachelor's degree in Biochemistry and Philosophy from the University of California at Berkeley and an MBA with a dual concentration in finance and healthcare systems from the Wharton School at the University of Pennsylvania.

Neuberger Berman (Emerging Markets Equity)
Patrick Ru, Associate Portfolio Manager, left the team. His coverage was transferred to Associate Portfolio Manager Eileen Furukawa, who joined the team in October. Prasenjit Bhuiya, Research Analyst, joined the team in February. Yevgeny Ruzhitsky, Research Analyst, also left the team.

PIMCO (Fixed Income)
Andrew Jessop, Managing Director and Portfolio Manager specializing in high yield bonds and the broader leveraged finance market, will retire from the firm in June 2023. David Forgash, Executive Vice President and Portfolio Manager, will oversee PIMCO's leveraged finance efforts.

PGIM (Fixed Income)
After more than 35 years with the firm, Terence Wheat, Co-Head of U.S. Investment Grade Corporate Bonds, will retire in April 2024. Current Co-Head David Del Vecchio will maintain his responsibilities, and Rajat Shah, Senior Portfolio Manager, U.S. Investment Grade Corporate Bonds will be appointed as Co-Head effective January 1, 2024.

Record Currency Management (Currency)
Founder and Board Chair Neil Record will retire from the Record plc Board in July 2023. David Morrison will replace him as a non-executive Director and Chair.

Sands (Domestic Equity)
Chief Compliance Officer Lisa Grozio retired on March 31, 2023. Alexandra Fulk assumed the role of Chief Compliance Officer of Sands Capital Management while continuing to serve as Chief Compliance Officer of Sands Capital Ventures, the firm's private growth equity business.

Winslow (Domestic Equity)
During the quarter, Steve Hamill was promoted from Sector PM/Analyst to Portfolio Manager on the U.S. Large Cap Growth Strategy and its product extensions.

First Quarter 2023 Manager Meetings

After two years in which travel was restricted due to the COVID-19 pandemic, SBI staff has fully resumed in-person meetings with managers – both onsite and at the SBI. Staff will also continue to utilize teleconference and videoconference technologies to remain in communication with managers between visits.

During the quarter, Staff traveled to Los Angeles, Atlanta, Edinburgh, and London for 12 manager meetings. Staff received four visits from managers at our office in St. Paul; staff also attended one due diligence onsite in the Twin Cities. Forty-seven manager strategy review calls were held via teleconference or videoconference. Note that while staff met with certain managers multiple times during the quarter, each manager/strategy is listed only once below.

Investment Manager	**Asset Class**
Acadian Asset Management LLC	Developed Markets Equity
Ariel Investments, LLC	Global 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
Earnest Partners LLC	International Equity
Fidelity Institutional Asset Management LLC	Developed Markets Equity
Goldman Sachs Asset Management, L.P.	Domestic Equity
Goldman Sachs Asset Management, L.P.	Fixed Income
J.P. Morgan Investment Management Inc.	Domestic Equity
J.P. Morgan Investment Management Inc.	Developed Markets 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

2023 Manager Meetings (cont.)

Morgan Stanley Investment Management Inc.	Emerging Markets Equity
Neuberger Berman Investment Advisers LLC	Fixed Income
Neuberger Berman Investment Advisers LLC	Emerging Markets Equity
NISA Investment Advisors, LLC	Cash Overlay
Payden & Rygel	Fixed Income
Prudential Global Investment Management (PGIM)	Fixed Income
Pacific Investment Management Company LLC (PIMCO)	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
Wellington Management Company, LLP	Domestic Equity
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 18, 2023

TO: Members, State Board of Investment

FROM: Members, Investment Advisory Council and 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 first quarter.

The report includes the following sections:

Page

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Participant Directed Investment Program Fund Commentaries

First Quarter 2023

Domestic Equities

Vanguard Total Stock Market Index Institutional Plus

The Fund employs an indexing approach designed to track the performance of the Center for Research in Security Prices (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 returns of 7.2% and -8.8%, respectively.

Vanguard Institutional Index Plus

The Fund attempts to replicate the index by employing a passive investment approach to closely match key characteristics and track the performance of the S&P 500 Index. Performance for the Fund matched the S&P 500 Index return for the quarter with a 7.5% return and for the year with a -7.7% 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. The Fund underperformed the S&P U.S. Dividend Growers Index for the quarter with a 0.1% return, compared to the benchmark return of 1.9%. For the year, the Fund slightly outperformed with a -2.8% return compared to a -2.9% return for the benchmark. Sector allocations result from individual stock selection and weightings, and are not constructed on a benchmark-relative basis.

Donald Kilbride of Wellington Management Company will step down as portfolio manager of Vanguard Dividend Growth Fund on or about January 1, 2024. Mr. Kilbride will be succeeded by Peter C. Fisher, co-portfolio manager of the strategy since 2022.

Vanguard Mid-Cap Index

The Fund attempts to replicate the index by employing a passive investment approach to closely match key characteristics and 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 3.9% and -9.8% returns, respectively.

T. Rowe Price Institutional Small-Cap Stock Fund

The Fund invests primarily in the stock of value and growth-oriented small cap companies, based on fundamental, bottom-up research. The Fund outperformed the Russell 2000 for the quarter and the year, with returns of 3.4% and -10.6%, compared to 2.7% and -11.6%, respectively.

Frank Alonso, portfolio manager for the U.S. small-cap strategy, has decided to step away from portfolio management and will take on a new role next year mentoring equity analysts within T. Rowe Price Investment Management (TRPIM). Alex Roik, Associate Portfolio Manager for the

U.S. small-cap strategy, will join Frank Alonso as co-portfolio manager on July 1, 2023, then transition to sole portfolio manager on January 1, 2024.

International Equities

Fidelity Diversified International Equity Fund
The Fund invests in international companies in developed markets, based on an analysis of company fundamentals, management quality, and relative valuation. The Fund returned 8.8% for the quarter, outperforming the Morgan Stanley Capital International Europe Australasia and the Far East (MSCI EAFE) benchmark return of 8.5%. For the year, the Fund returned -5.4%, underperforming the benchmark return of -1.4%.

Vanguard Total International Stock Index
The Fund attempts to replicate the index by employing a passive investment approach to closely match key characteristics and track the Financial Times Stock Exchange Group (FTSE) Global All Cap ex US Index, a market-cap weighted pool designed to track performance of international developed and emerging market companies. The Fund outperformed the benchmark for the quarter and the year with returns of 6.7% and -4.6% relative to 6.4% and -5.9%, 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 slightly outperformed the Bloomberg U.S. Aggregate Index for the quarter with a 3.1% return, compared to the benchmark of 3.0%. For the year, the Fund outperformed with a -3.0% return compared to the benchmark return of -4.8%.

Tom Dugan, Director of Fixed Income, announced his retirement effective at the end of 2023. Mr. Dugan will be succeeded by Lucy John, VP and Associate Director of Fixed Income. Ms. John is currently a member of the firm’s U.S. Fixed Income Investment Committee.

Vanguard Total Bond Market Index
The Fund employs a sampling technique in a passive investment approach to closely match key characteristics and track the performance of the Bloomberg U.S. Aggregate Index. The Fund returned 3.2% for the quarter, slightly outperforming the benchmark return of 3.0%, and slightly outperformed the benchmark for the year with a -4.7% return vs the benchmark return of -4.8%.

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 resulting in a diversified, low risk fixed income portfolio. Relative to the benchmark (the 3-Year Constant Maturity Treasury + 45 basis points) the Fund underperformed for the quarter and the year at 0.6% and 2.3% vs. 1.1% and 4.1%, respectively.

Money Market Fund
State Street Global Advisors manages the cash option in a commingled pool that focuses on capital preservation and invests in short-term, liquid, US Agency and Treasury securities. The Fund outperformed the Intercontinental Exchange Bank of America (ICE BofA) 3 Month U.S. T-Bill Index for the quarter and for the year with returns of 1.2% and a 3.0% vs. 1.1% and 2.5%, respectively.

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 comprised of 60% CRSP US Total Stock Market Index and 40% Bloomberg U.S. Aggregate Float Adjusted Index. The Balanced Fund slightly outperformed the composite benchmark for the quarter with a 5.6% return, compared to the benchmark return of 5.5%. The fund slightly underperformed for the year with a -7.0% return, compared to -6.9% for the benchmark.

Non-Retirement Fund Commentaries
First Quarter 2023

Assigned Risk Plan Fixed Income Manager
RBC Global Asset Management actively manages the fixed income portfolio for the Assigned Risk Plan. The portfolio is managed against the Bloomberg U.S. Governmental Intermediate benchmark with a focus on security selection and secondarily on sector allocation. The portfolio returned 2.4% for the quarter, slightly outperforming the benchmark return of 2.3%. For the year, the portfolio returned -1.4%, slightly outperforming the benchmark return of -1.5%.

Non-Retirement Program Fixed Income Manager
Prudential Global Investment Management (PGIM) actively manages the Non-Retirement Fixed Income portfolio in a separately managed account, benchmarked to the Bloomberg U.S. Aggregate. The Fund slightly outperformed for the quarter with a 3.1% return, compared to a benchmark return of 3.0%, and underperformed for the year, with a -5.1% return, compared to -4.8% for the benchmark.

After more than 35 years with the firm, Co-Head of U.S. Investment Grade Corporate Bonds, Terence Wheat will retire in April 2024. Current Co-Head David Del Vecchio will maintain his responsibilities, and Rajat Shah, Senior Portfolio Manager, U.S. Investment Grade Corporate Bonds will be appointed as Co-Head effective January 1, 2024.

Non-Retirement Program Domestic Equity Manager
Mellon Investments Corporation manages the Non-Retirement Domestic Equity portfolio in a passive strategy tracking the S&P 500. The portfolio matched the benchmark for the quarter and for the year, returning 7.5% and -7.7%, respectively.

Non-Retirement Program Money Market Manager
State Street Global Advisors manages the Non-Retirement Money Market Fund and uses the iMoneyNet All Taxable Money Fund Average for its benchmark. The Fund slightly outperformed the benchmark for the quarter and the year, with returns of 1.2% and 2.6% vs. 1.1% and 2.4% over the respective time-periods.

2023 Manager Meetings

Coming off a two year period of very limited travel and in-person meetings during the COVID-19 pandemic, MSBI Staff resumed travel in April of 2022, and now utilizes a hybrid approach of in-person and remote meetings in its due diligence processes.

During the quarter, Staff visited with one manager at the St. Paul office and the remaining strategy review calls were held via videoconference.

Investment Manager	Management Style/Asset Class	Investment Program
• Ascensus	Multi-Asset Class Platform	PDIP (MN ABLE Plan)
• Fidelity	Active, International Equity Option	PDIP
• Galliard	Stable Value Fund	PDIP
• PGIM	Active, Fixed Income	Non-Retirement Program
• Mellon	Passive, Equity Index	Non-Retirement Program
• RBC	Active, Intermediate 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
• 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

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REPORT

SBI Environmental, Social, and Governance (ESG) Report

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MINNESOTA STATE BOARD OF INVESTMENT

ENVIRONMENTAL, SOCIAL, GOVERNANCE REPORT

2023 Proxy Voting

Background

Since 1982, the Minnesota State Board of Investment (MSBI) has relied on the Proxy Committee to carry out the MSBI's proxy voting responsibilities. The Proxy Committee is comprised of a representative selected by each member of the MSBI and chaired by the designee of the Governor. The Committee has formulated guidelines by which it votes on a wide range of corporate governance, social and environmental issues. In effect, as a shareholder, the MSBI is a part owner of many companies and has the right to participate in shaping corporate policies and practices through proxy voting.

The MSBI currently uses the proxy advisory services firm Glass Lewis to compile large amounts of disparate data and make researching ballot items more efficient. MSBI staff and the Proxy Committee use research material provided by Glass Lewis to gain a better understanding of the many proposals but do not necessarily rely on the voting recommendations provided. Proxy advisory services are integral to the MSBI's ability to conduct due diligence on companies and proxy ballot items.

The 2023 Proxy Voting Season is underway!

Proxy Voting Highlights

During the period from April 1 - June 30 each year, close to 2000 public companies in the U.S. hold annual meetings for shareholders and the MSBI votes by proxy on thousands of items at these meetings. While every proposal is unique, the MSBI votes for a significant number of shareholder proposals that request the disclosure of environmental, social, or governance information.

For example:

- A shareholder proposal at IBM's April 25 annual meeting requested a report on the effectiveness of efforts to prevent harassment and discrimination.

In some cases, the MSBI votes in favor of proposals that encourage a company to adopt policies that it believes would benefit the company and the MSBI's portfolio.

For example:

- A shareholder proposal at Lockheed Martin's April 27 annual meeting requested information on how the company intends to reduce its greenhouse gas (GHG) emissions to be in alignment with the Paris Agreement. In light of the U.S. government's proposed rules related to GHG for federal suppliers, and the fact that the U.S. government is an important client for the company, the company's future sales could be impacted by how well it plans for compliance with these potential rules.

The MSBI also votes on many corporate governance items proposed by company management. In general, the MSBI evaluates management proposals based on their impact to shareholder rights, and votes accordingly.

For example:

- This year, the Proxy Committee established a precedent to vote against management proposals to exculpate corporate officers for breaches of the duty of care. This was necessary because in August 2022, the Delaware General Assembly amended Section 102(b)(7) of the Delaware General Corporation Law ("DGCL") to authorize corporations to adopt this type of provision in their certificate of incorporation, and many companies have proposed amendments to do so. Previously, the DGCL only allowed exculpation of corporate directors from breach of fiduciary duty of care.

Public Company Highlight

In many cases, the environmental, social, and governance information provided by companies related to their business activities is robust and includes commitments to improving environmental practices.

For example:

- Apple has achieved carbon neutrality for its direct operations and has committed to achieve carbon neutrality for its entire footprint by 2030, including in its supply chain and customers' use of its products. Apple plans to reduce emissions by 75% compared to 2015 and invest in carbon removal for the remaining emissions. In the last year alone, Apple and its suppliers brought online over 10 GW of renewable energy. The Company reported that these environmental initiatives avoided over 23 million metric tons of emissions across all scopes, which is a 40% reduction since 2015. As of March 31, 2023, the MSBI's equity investment in Apple was worth $1.8 billion. Overall, close to 50% of the value of MSBI's public equity portfolio is invested in companies that, like Apple, have set targets to reduce GHG emissions.

Coalition Highlight

Council of Institutional Investors (CII)

We are pleased to announce that the SBI's Director of Legal and Policy Services, John Mulé, was appointed Chair of the U.S. Asset Owners Advisory Council for the CII.

CII promotes policies that enhance long-term value for U.S. institutional asset owners and their beneficiaries. CII believes the involvement of defined benefit plans, particularly state and local government and union pension systems, in corporate governance issues has benefited investors at large in the U.S. capital markets and contributed to the vitality of the U.S. economy and U.S. corporations.

CII is a leading voice for effective corporate governance, strong shareowner rights and sensible financial regulations that foster fair, vibrant capital markets. Pension fund advocacy has resulted in regulatory and legislative reforms to strengthen rights for shareowners, improved corporate governance standards for U.S. companies and boards, increased accountability of corporate directors and executives and enhanced transparency of governance activities and financial accounting.

The SBI has been a member of CII since it was founded in 1985. This year, three SBI staff members attended the 2023 Spring Conference titled "Governance as the Linchpin: The "G" is Key." Speakers included SEC Chair Gary Gensler, Jeffrey Smith, Bob Prince and directors from several major public companies. Topics ranged from updates on key SEC rulemaking activities to the future of China as an investible market.

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The Minnesota State Board of Investment is an Equal Opportunity Employer

REPORT

AON Market Environment Report

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Market Environment

First Quarter 2023

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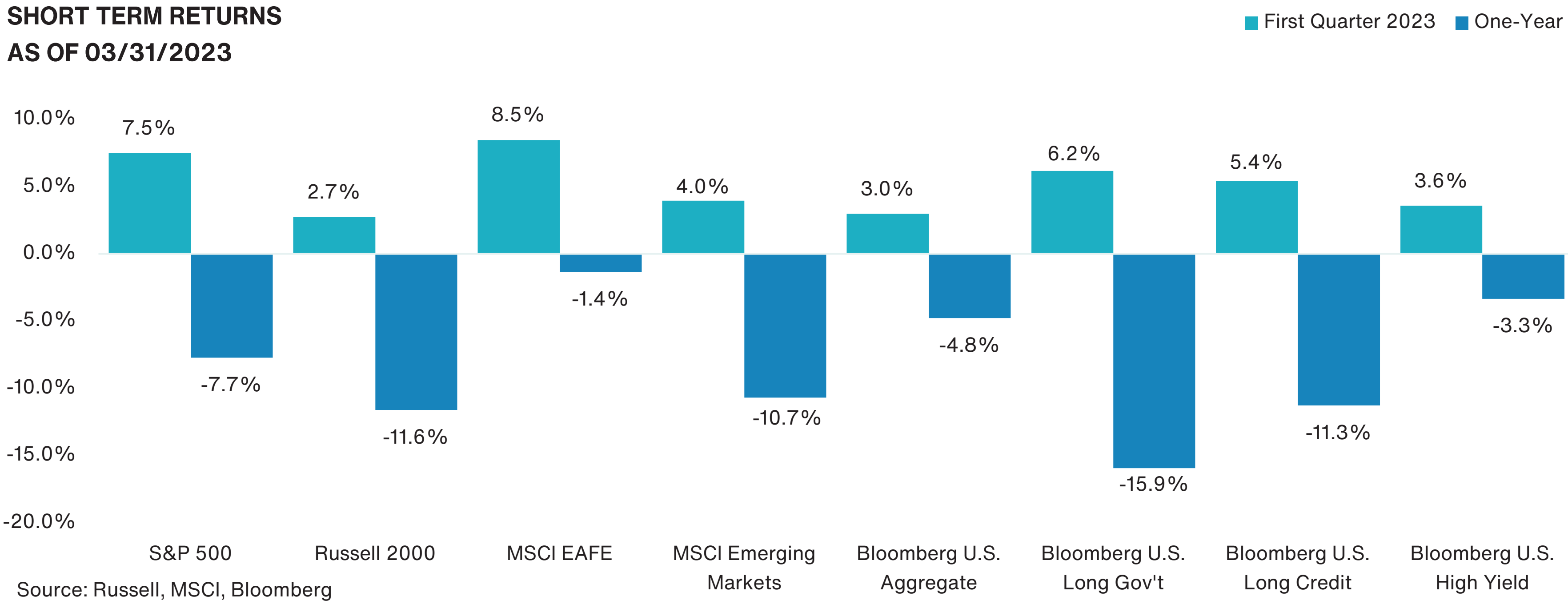
Market Highlights

SHORT TERM RETURNS
AS OF 03/31/2023



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

Past performance is no guarantee of future results. Indices cannot be invested in directly. Unmanaged index returns assume reinvestment of any and all distributions and do not reflect fees and expenses. Please see appendix for index definitions and other general disclosures.

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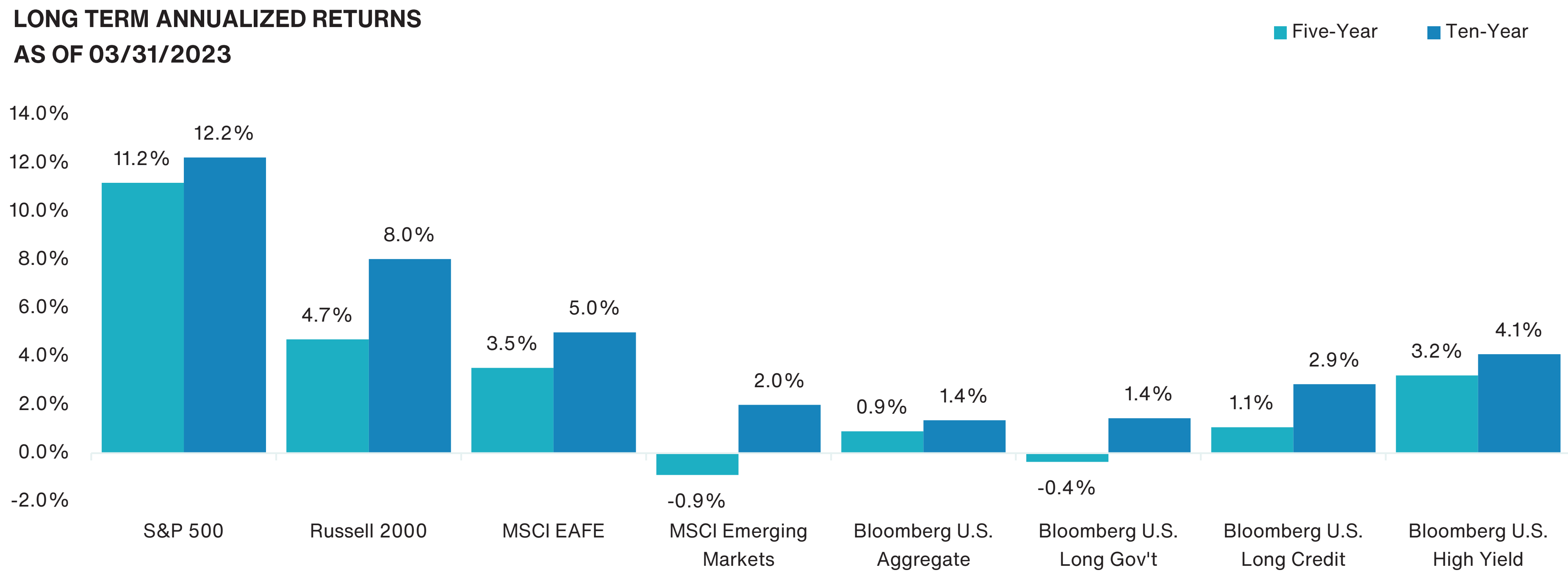
Market Highlights



Source: Russell, MSCI, Bloomberg

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Market Highlights

Returns of the Major Capital Markets						Period Ending 03/31/2023
	First Quarter	YTD	1-Year	3-Year[1]	5-Year[1]	10-Year[1]
Equity						
MSCI All Country World IMI	6.95%	6.95%	-7.68%	15.64%	6.58%	7.95%
MSCI All Country World	7.31%	7.31%	-7.44%	15.36%	6.93%	8.06%
Dow Jones U.S. Total Stock Market	7.24%	7.24%	-8.77%	18.34%	10.32%	11.64%
Russell 3000	7.18%	7.18%	-8.58%	18.48%	10.45%	11.73%
S&P 500	7.50%	7.50%	-7.73%	18.60%	11.19%	12.24%
Russell 2000	2.74%	2.74%	-11.61%	17.51%	4.71%	8.04%
MSCI All Country World ex-U.S. IMI	6.56%	6.56%	-5.84%	12.20%	2.35%	4.28%
MSCI All Country World ex-U.S.	6.87%	6.87%	-5.07%	11.80%	2.47%	4.17%
MSCI EAFE	8.47%	8.47%	-1.38%	12.99%	3.52%	5.00%
MSCI EAFE (Local Currency)	7.49%	7.49%	3.84%	14.63%	6.25%	7.34%
MSCI Emerging Markets	3.96%	3.96%	-10.70%	7.83%	-0.91%	2.00%
Equity Factors						
MSCI World Minimum Volatility (USD)	2.30%	2.30%	-4.52%	9.17%	6.34%	7.97%
MSCI World High Dividend Yield	1.93%	1.93%	-2.52%	13.77%	6.65%	7.21%
MSCI World Quality	10.70%	10.70%	-5.61%	16.41%	11.63%	12.01%
MSCI World Momentum	-1.16%	-1.16%	-13.43%	12.17%	8.01%	10.76%
MSCI World Enhanced Value	5.79%	5.79%	-2.91%	15.20%	3.23%	7.04%
MSCI World Equal Weighted	6.10%	6.10%	-6.51%	14.95%	4.56%	7.19%
MSCI World Index Growth	15.18%	15.18%	-9.61%	16.18%	10.66%	11.17%
MSCI USA Minimum Volatility (USD)	1.30%	1.30%	-4.42%	12.42%	9.11%	10.62%
MSCI USA High Dividend Yield	-0.72%	-0.72%	-2.99%	14.60%	7.69%	10.06%
MSCI USA Quality	10.48%	10.48%	-6.28%	16.40%	12.38%	13.61%
MSCI USA Momentum	-4.22%	-4.22%	-14.60%	10.80%	7.25%	12.31%
MSCI USA Enhanced Value	2.52%	2.52%	-8.37%	17.09%	5.51%	9.68%
MSCI USA Equal Weighted	4.01%	4.01%	-9.18%	19.37%	8.49%	10.50%
MSCI USA Growth	17.40%	17.40%	-12.23%	18.63%	13.75%	14.52%

Returns of the Major Capital Markets						Period Ending 03/31/2023
	First Quarter	YTD	1-Year	3-Year[1]	5-Year[1]	10-Year[1]
Fixed Income						
Bloomberg Global Aggregate	3.01%	3.01%	-8.07%	-3.43%	-1.34%	0.07%
Bloomberg U.S. Aggregate	2.96%	2.96%	-4.78%	-2.77%	0.91%	1.36%
Bloomberg U.S. Long Gov't	6.16%	6.16%	-15.94%	-11.25%	-0.36%	1.44%
Bloomberg U.S. Long Credit	5.42%	5.42%	-11.28%	-2.57%	1.07%	2.85%
Bloomberg U.S. Long Gov't/Credit	5.76%	5.76%	-13.40%	-6.33%	0.63%	2.35%
Bloomberg U.S. TIPS	3.34%	3.34%	-6.06%	1.75%	2.94%	1.49%
Bloomberg U.S. High Yield	3.57%	3.57%	-3.34%	5.91%	3.21%	4.10%
Bloomberg Global Treasury ex U.S.	3.11%	3.11%	-11.29%	-5.37%	-3.62%	-1.20%
JP Morgan EMBI Global (Emerging Market	2.25%	2.25%	-5.86%	0.31%	-0.20%	1.81%
Commodities						
Bloomberg Commodity Index	-5.36%	-5.36%	-12.49%	20.82%	5.36%	-1.72%
Goldman Sachs Commodity Index	-4.94%	-4.94%	-10.04%	30.53%	4.93%	-3.84%
Hedge Funds						
HFRI Fund-Weighted Composite[2]	1.18%	1.18%	-2.06%	10.55%	4.69%	4.44%
HFRI Fund of Funds[2]	1.57%	1.57%	-1.10%	7.47%	3.27%	3.33%
Real Estate						
NAREIT U.S. Equity REITS	2.68%	2.68%	-19.22%	12.08%	6.02%	5.97%
FTSE Global Core Infrastructure Index	-1.05%	-1.05%	-10.00%	9.95%	7.25%	7.32%
Private Equity						
Burgiss Private iQ Global Private Equity[3]			6.18%	21.00%	18.52%	15.82%

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 June 30, 2022

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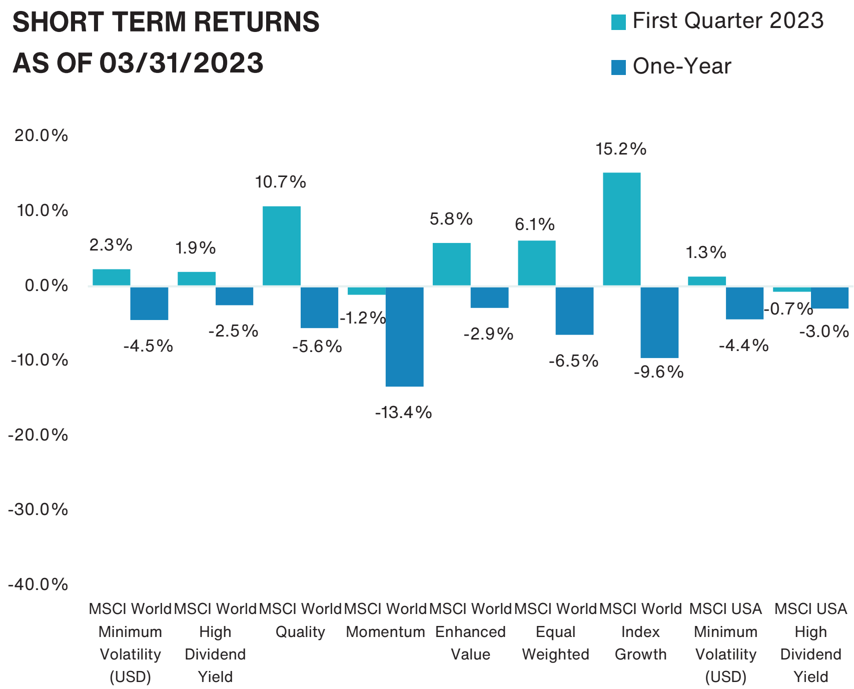
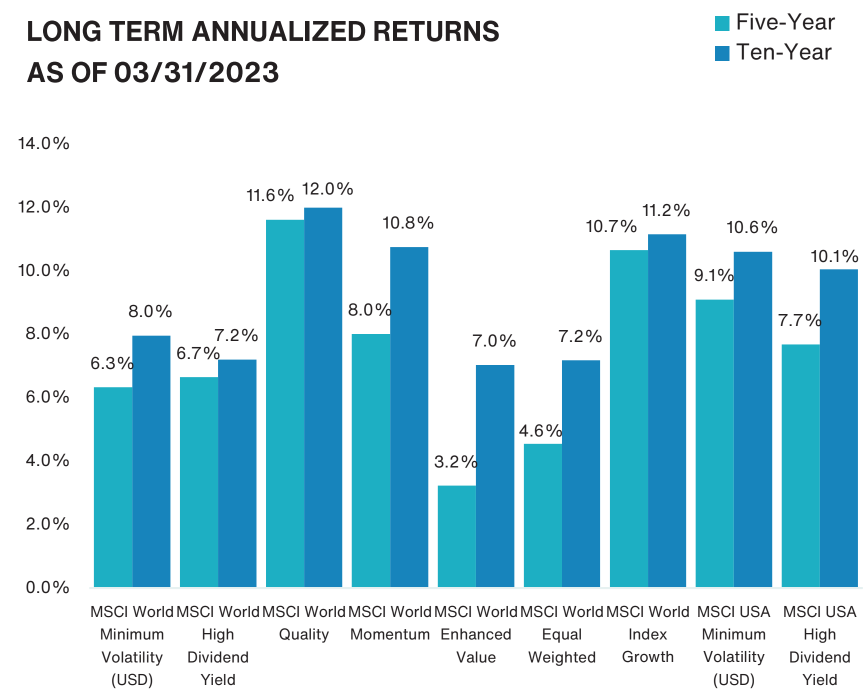
Factor Indices

SHORT TERM RETURNS
AS OF 03/31/2023



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

LONG TERM ANNUALIZED RETURNS
AS OF 03/31/2023



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

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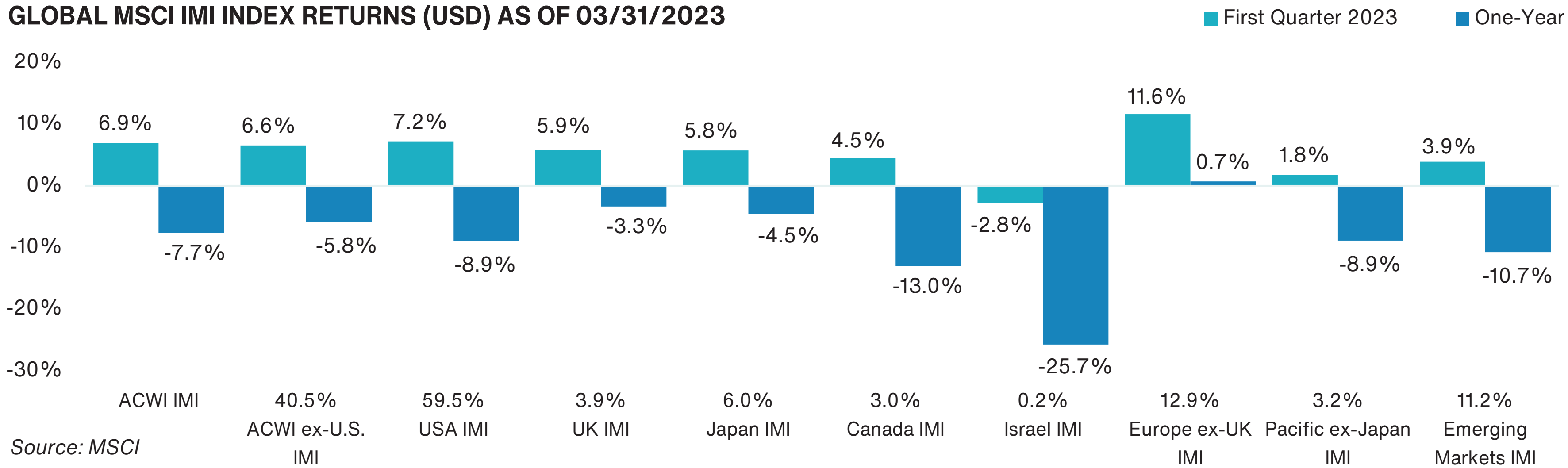
Global Equity Markets

GLOBAL MSCI IMI INDEX RETURNS (USD) AS OF 03/31/2023



Source: MSCI

- In Q1 2023, equity markets rose as high-interest rate concerns abated against the back drop of contagion within the banking sector. Volatility fell throughout the quarter as the CBOE Volatility Index (VIX) fell to 18.7 in March from 21.7 in the previous quarter, falling below its 20-year average of 19.3. Yields trended lower, with major central banks slowing the pace of monetary tightening. The MSCI All Country World Investable Market Index (ACWI IMI) returned 6.9% for the quarter but was down 7.7% on a one-year basis.
- Across international markets, generally all the regions were strong over the quarter. All regions apart from Israel posted a positive return.
- Europe ex-UK equities were the best regional performer with a return of 11.6% in US dollar terms due to sharp euro appreciation against the dollar. Economically sensitive sectors including industrials and consumer discretionary outperformed.

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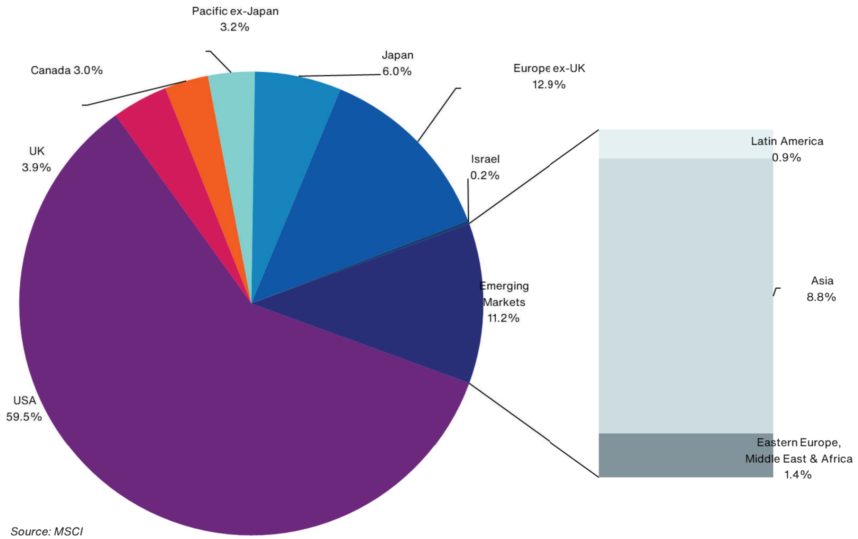
Global Equity Markets

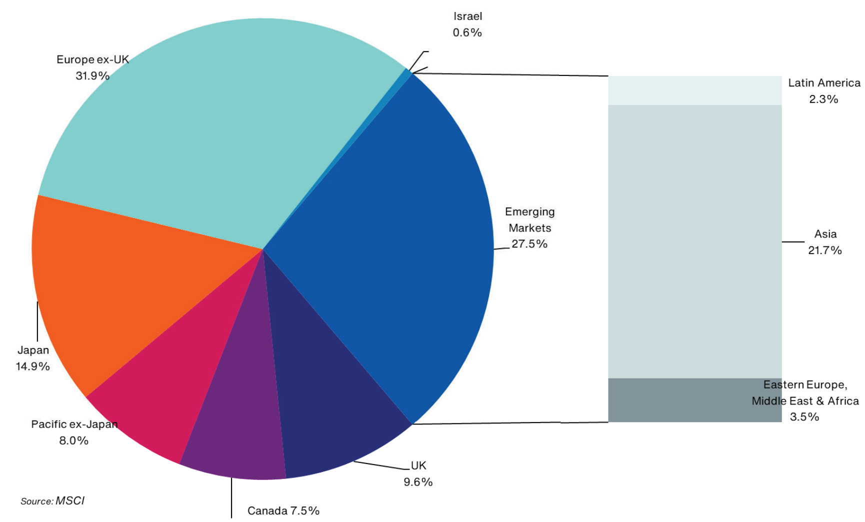
Below is the country/region breakdown of the global and international equity markets as measured by the MSCI All Country World IMI Index and the MSCI All Country World ex-U.S. IMI Index, respectively.

MSCI ALL COUNTRY WORLD IMI INDEX GEOGRAPHIC ALLOCATION AS OF 3/31/2023



Source: MSCI

MSCI ALL COUNTRY WORLD EX-U.S. IMI INDEX GEOGRAPHIC ALLOCATION AS OF 3/31/2023

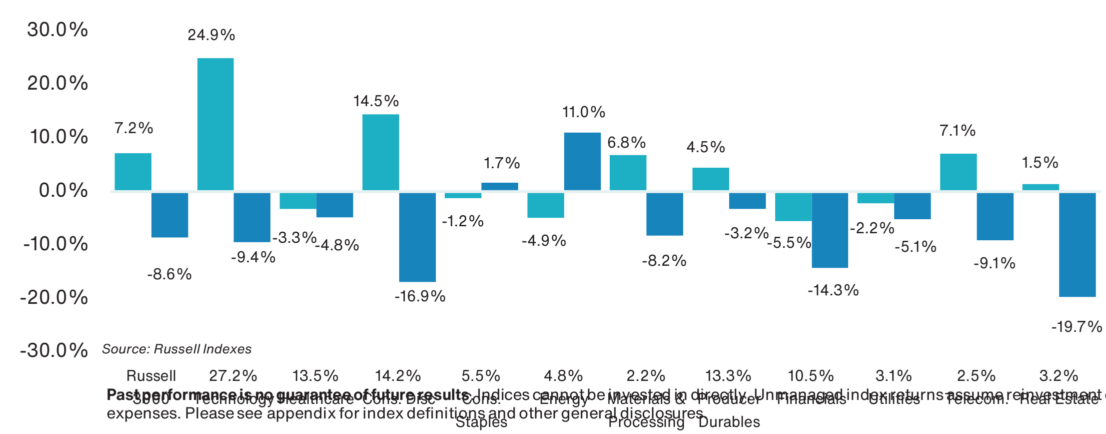


Source: MSCI

U.S. Equity Markets

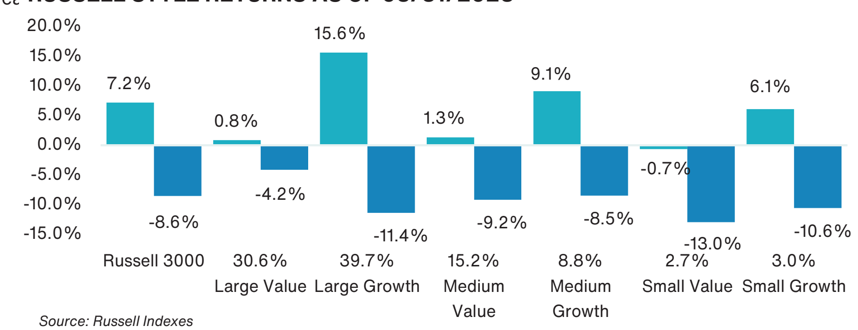
- U.S. equities had a strong quarter with the S&P 500 index rising by 7.5% despite the collapse of Silicon Valley Bank, which had sent jitters throughout the financial system. Rate expectations fell due to the expectation of tighter credit conditions.
- The U.S. unveiled fresh sanctions on more than 200 entities throughout Europe, Asia, and the Middle East "that are supporting Russia's war effort", whilst imposing a ban on five Chinese entities from acquiring U.S. technology. U.S.-China trade tensions saw further escalation as Japan and the Netherlands entered into a trilateral agreement with the U.S. that restricts exports of chip manufacturing tools to China. The agreement is designed to hinder the Chinese military's ability to develop advanced weapons.
- The U.S. economy expanded by 2.9% year-on-year in Q4 2022, slightly higher than economists' forecasts of 2.6% but lower than the 3.2% recorded in the previous quarter. Increased business inventories, especially across the manufacturing and utilities sectors, combined with steady consumer spending, contributed to the economy's expansion.
- The Russell 3000 Index rose 7.2% during the first quarter but was down 8.6% on a one-year basis. Sectoral performance was mixed. Technology (24.9%) and Consumer Discretionary (14.5%) were the best performers while Financials (-5.5%) and Energy (-4.9%) were the worst performers.
- Large-cap stocks outperformed in growth and Medium-cap stocks outperformed in value.
- On a style basis, growth outperformed value across market capitalizations over the quarter.

RUSSELL SECTOR RETURNS AS OF 03/31/2023



Source: Russell Indexes

RUSSELL STYLE RETURNS AS OF 03/31/2023



Source: Russell Indexes

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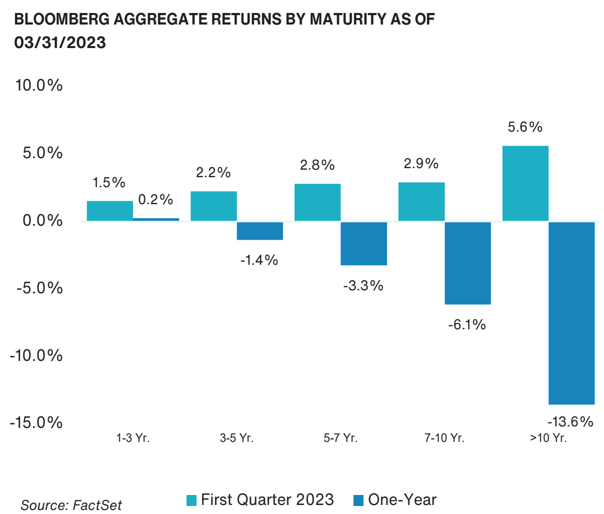
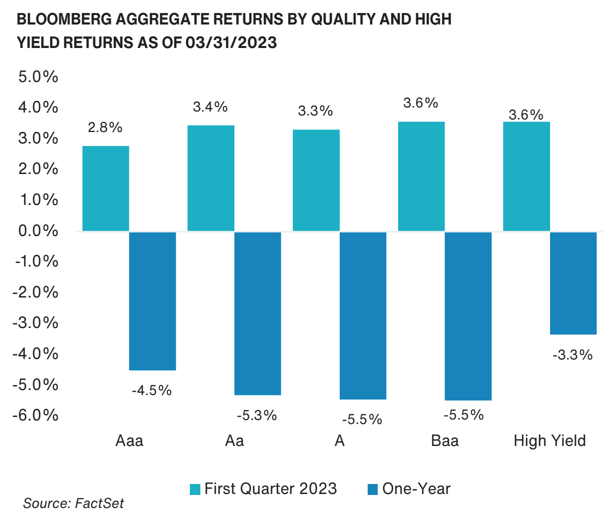
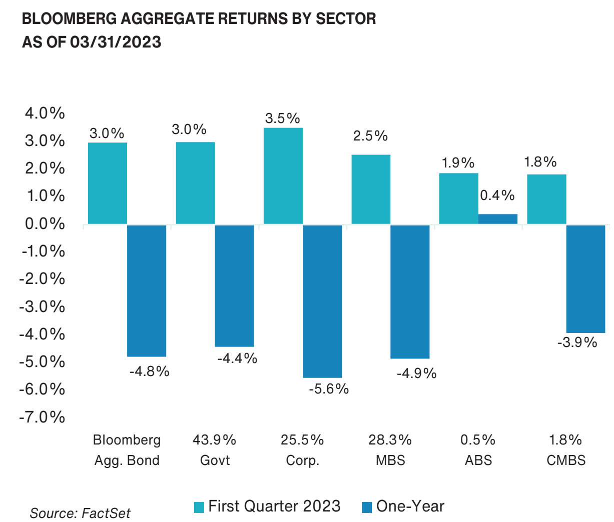
U.S. Fixed Income Markets







- The U.S. Federal Reserve (Fed) increased its benchmark interest rate by 50bps to a range of 4.75%-5% over the quarter, the highest level since 2007. The Federal Open Market Committee (FOMC) dropped its previous warning that "ongoing increases" would be needed to bring soaring inflation under control, instead noting that “some additional policy firming may be appropriate".
- The Bloomberg U.S. Aggregate Bond Index was up 3.0% over the quarter but was down 4.8% on a one-year basis.
- Across durations, all maturities finished the quarter in positive territory.
- Within investment-grade bonds, lower-credit quality generally outperformed higher-quality issues, with Baa bonds rising by 3.6%. High-yield bonds also rose by 3.6%.

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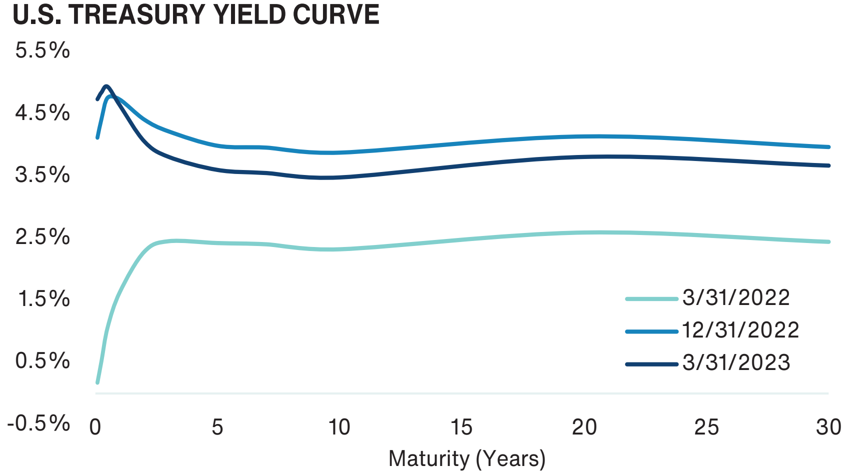
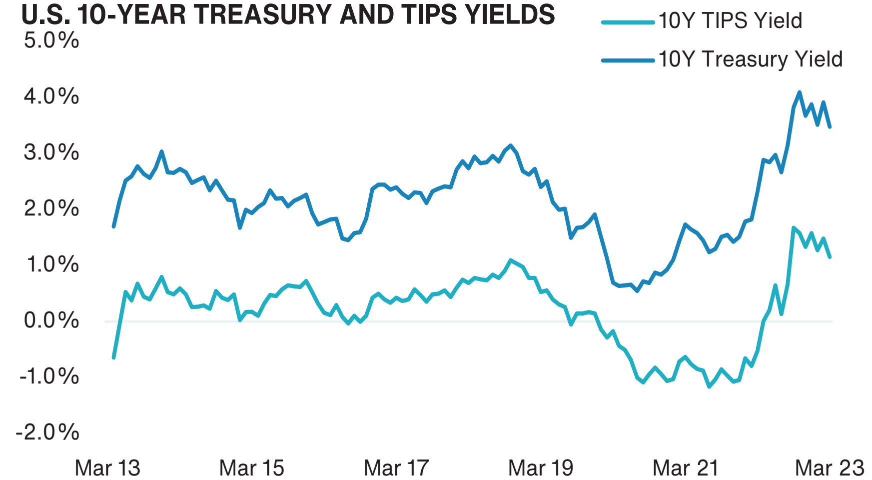
U.S. Fixed Income Markets



Source: U.S. Department of Treasury

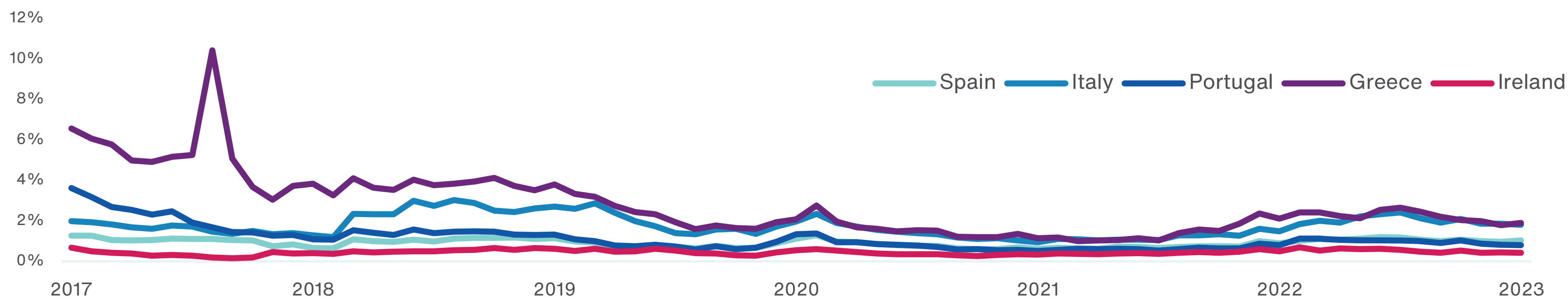


Source: U.S. Department of Treasury

- U.S. Treasury yields fell significantly across maturities except at the shortest end of the curve. The 10-year Treasury yield was down 40bps to 3.48%, and the 30-year Treasury yield was down 30bps to 3.67% over the quarter.
- U.S. CPI inflation declined to 6.0% in February, down from the 6.4% recorded in January, meeting economists' expectations. U.S. core CPI declined to 5.5% from January's 5.6% and was also in-line with economists' expectations.
- The 10-year TIPS yield fell by 42bps over the quarter to 1.16%.

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 narrowed across the Euro Area. The European Central Bank (ECB) raised its benchmark interest rates by 100bps to 3% over the quarter.
- Italian and Portuguese government bond yields fell sharply, down 50bps and 45bps to 4.14% and 3.12% respectively over the quarter.
- German bund yields fell by 21bps to 2.33% over the quarter.
- Eurozone headline inflation eased slightly, slowing to 8.5% in February from 8.6% in January, although the decline was less than economists' expectations of 8.2%.

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Credit Spreads

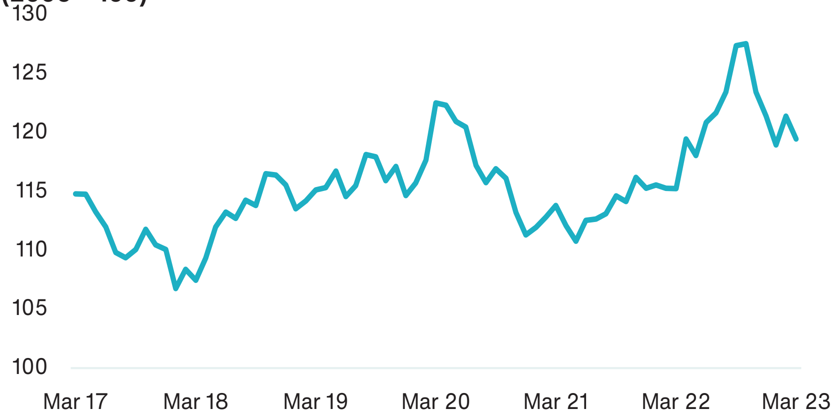
Spread (bps)	3/31/2023	12/31/2022	9/30/2022	Quarterly Change (bps)	6M Change (bps)
U.S. Aggregate	57	51	41	6	16
Long Gov't	2	2	3	0	-1
Long Credit	159	157	155	2	4
Long Gov't/Credit	86	87	88	-1	-2
MBS	63	51	24	12	39
CMBS	142	120	85	22	57
ABS	85	76	57	9	28
Corporate	138	130	116	8	22
High Yield	455	469	325	-14	130
Global Emerging Markets	352	332	313	20	39

Source: FactSet, Bloomberg

- Credit markets rose amid risk-taking sentiment during the quarter, with spreads being mixed.
- High Yield and Long Govt/Credit spreads narrowed by 14bps and 1bp respectively while CMBS and Global Emerging Markets spreads widened by 22bps and 20bps, respectively.

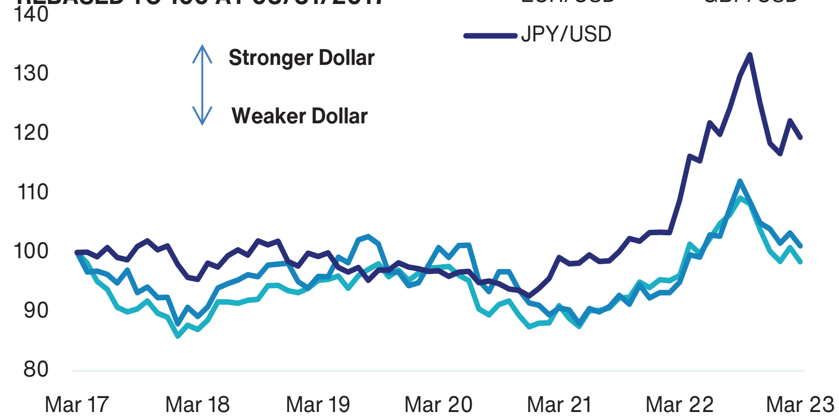
Currency

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



Source: Federal Reserve

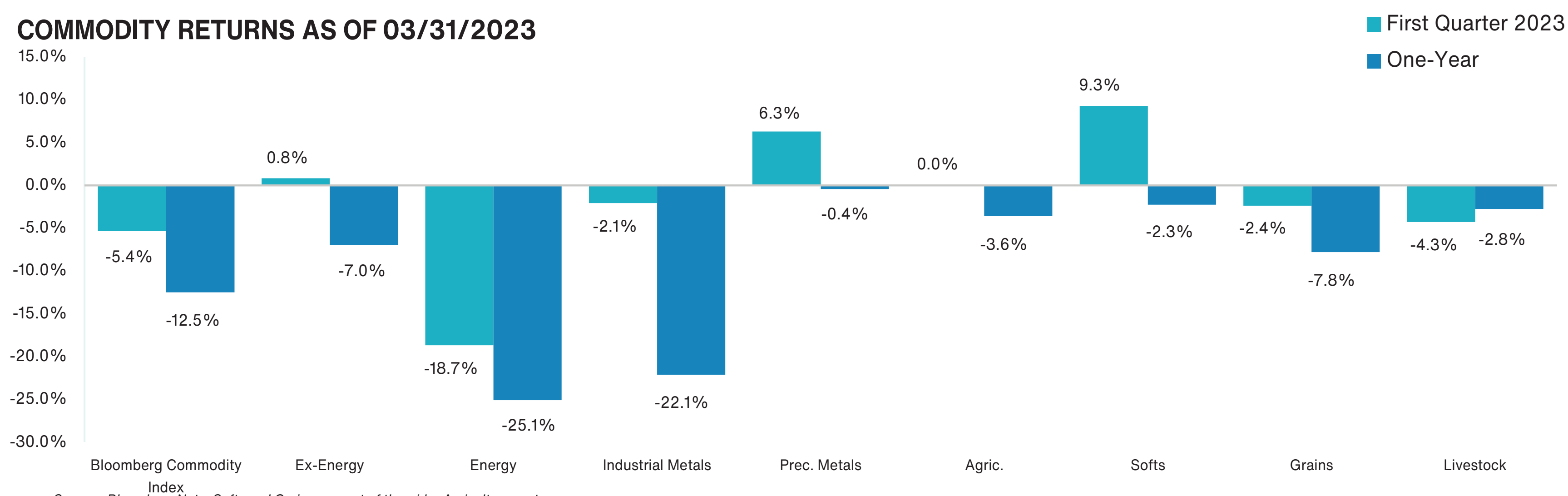
U.S. DOLLAR RELATIVE TO EUR, GBP AND JPY REBASED TO 100 AT 03/31/2017



Source: FactSet

- The U.S. Dollar weakened against all major currencies (except for yen) over the quarter as the combination of weakening US growth and falling inflation led to expectations that the Fed would cut policy rates this year faster than previously anticipated. On a trade-weighted basis, the U.S. dollar depreciated by 1.6%.
- Sterling appreciated by 2.7% against the U.S. dollar. The Bank of England (BoE) raised its benchmark interest rate by 75bps to 4.25% over the quarter. The BoE noted that the need for further monetary policy tightening would depend on future evidence concerning the persistence of price pressures.
- The U.S. dollar depreciated by 1.8% against the Euro but appreciated by 0.9% against the yen. The Bank of Japan's new governor, Kazuo Ueda, indicated maintaining the central bank's yield curve control policy for the time being, given the prevailing economic, inflationary, and financial conditions.

Commodities



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

- Commodity prices fell over the quarter with the Bloomberg Commodity Index falling by 5.4% for quarter.
- The energy sector fell 18.7% over the quarter and 25.1% on a one-year basis. The price of WTI crude oil was down by 5.7% to U.S.$76/BBL.
- Precious Metals rose the most over the quarter at 6.3%.
- Meanwhile, OPEC+ announced surprise oil production cuts in excess of 1 million barrels a day (b/d), including a 500,000 b/d cut by Saudi Arabia. The timing of the announcement was unusual as it wasn't made during a formal OPEC+ meeting.

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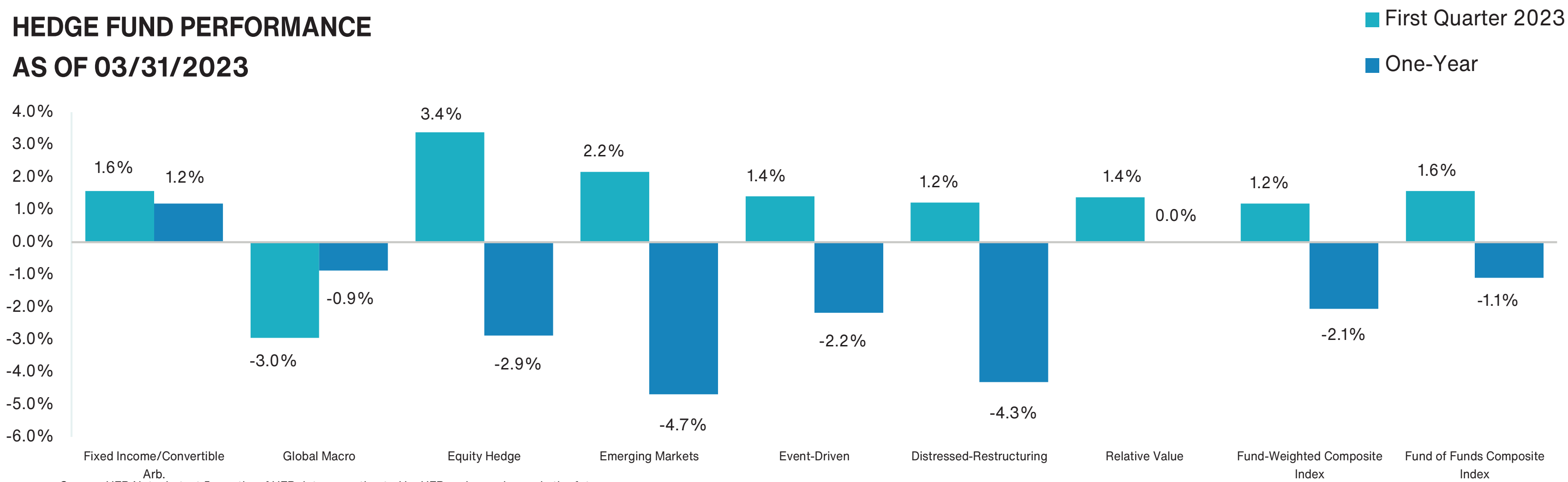
Hedge Funds Market Overview

HEDGE FUND PERFORMANCE
AS OF 03/31/2023



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

- Hedge fund performance was generally positive over the quarter.
- The HFRI Fund-Weighted Composite and HFRI Fund of Funds Composite Index produced returns of 1.2% and 1.6% over the quarter, respectively.
- Over the quarter, Equity Hedge strategy was the best performer with a return of 3.4%.
- Global Macro was the worst performer and the only strategy with a negative return (-3.0%) over the quarter.
- On a one-year basis, Fixed Income/Convertible Arbitrage has outperformed all other strategies whilst Emerging Markets have performed the worst.

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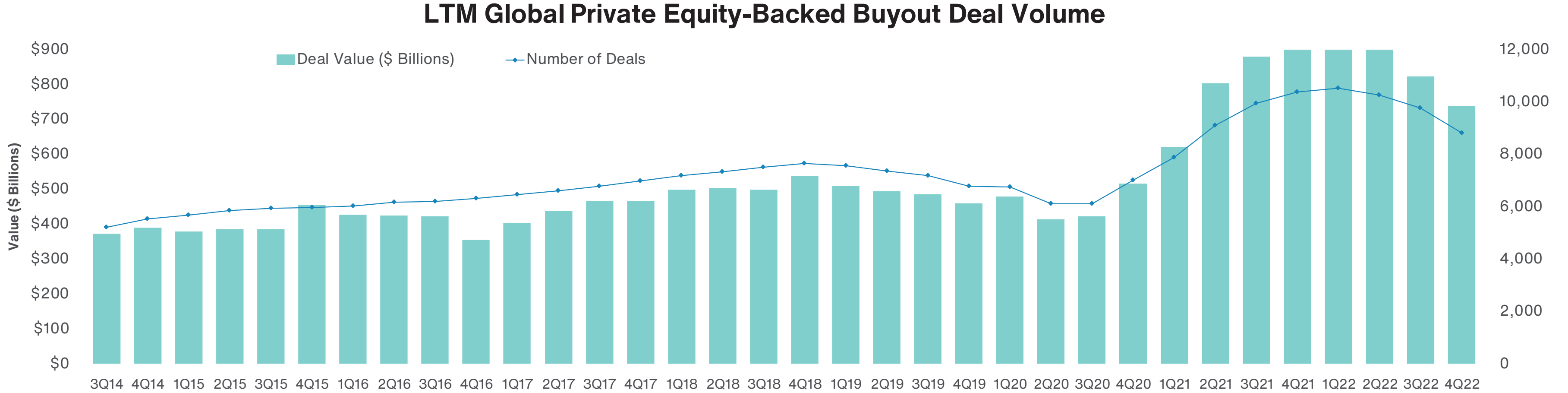
Private Equity Overview – 4Q 2022

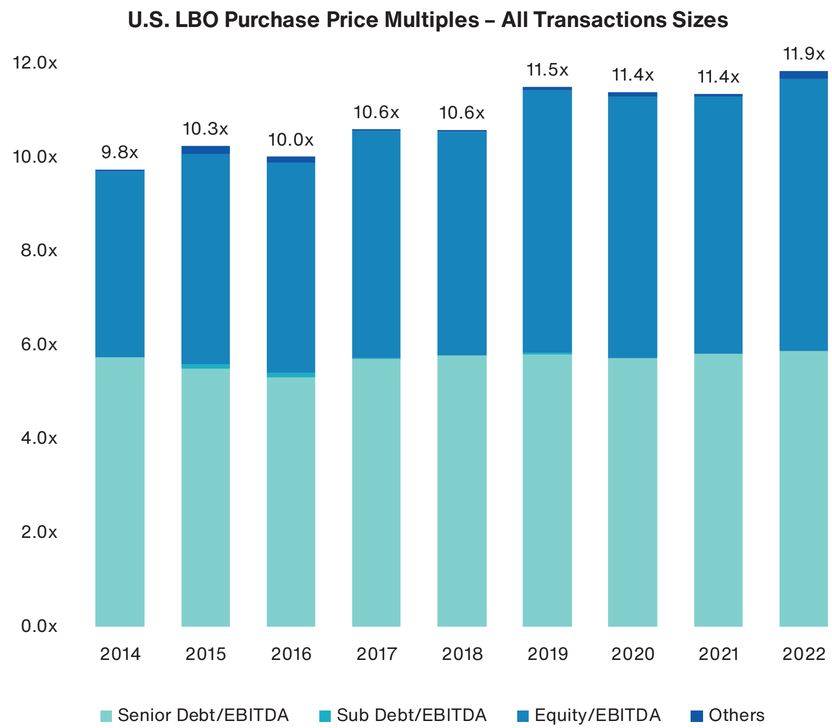


Source: Preqin

- **Fundraising:** In 2022, $1.0 trillion was raised by 2,518 funds, which was a decrease of 10.7% on a capital basis and 38.9% by number of funds from the prior year. Dry powder stood at $3.1 trillion at the end of the year, an increase of 18.6% and 42.9% compared to year-end 2021 and the five-year average, respectively.[1]
- **Buyout:** Global private equity-backed buyout deals totaled $738.8 billion in 2022, which was a decrease on a capital basis of 19.2% compared to 2021 and an increase of 27.4% compared to the five-year average.[1] At the end of 2022, the average purchase price multiple for all U.S. LBOs was 11.9x EBITDA, up from year-end 2021's average of 11.4x and up from the five-year average (11.1x). Large cap purchase price multiples stood at 11.8x, up compared to the full-year 2021 level of 11.2x. The average purchase price multiple across European transactions greater than €1B averaged 11.1x EBITDA at year-end 2022, down from the 11.6x multiple seen at year-end 2021. Purchase prices for transactions of €500M or greater decreased from 11.5x in 2021 to 10.7x in 2022.[2] Globally, buyout exit value totaled $390.1 billion across 1,431 deals during the year, lower than the $666.6 billion in value from 2,588 deals during 2021.[1]
- **Venture:** During the year, 17,990 venture-backed transactions totaling $238.3 billion were completed, which was a decrease on both a capital and deal count basis over the prior year's total of $344.7 billion across 18,521 deals. However, this was an increase of 32.1% compared to the five-year average of $180.4 billion. Total U.S. venture-backed exit value totaled approximately $71.4 billion across an estimated 1,391 completed transactions in 2022, down substantially from $753.2 billion across 1,925 exits in 2021.[3]

Sources: 1 Preqin 2 Standard & Poor's 3 PitchBook/NVCA Venture Monitor 4 Fitch Ratings
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.

Private Equity Overview (cont.)

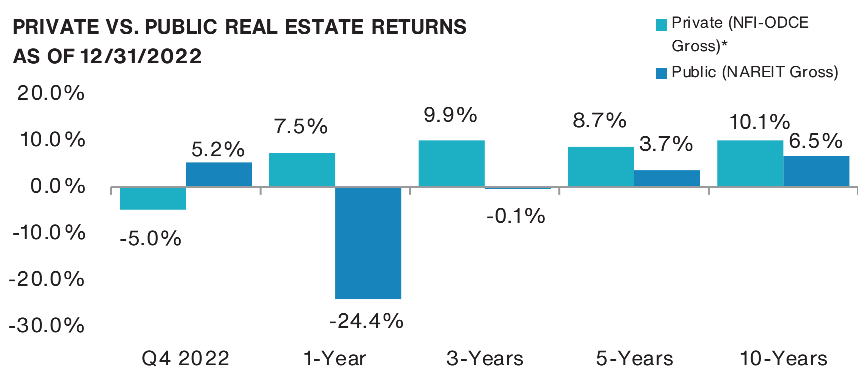


Sources: 1 Preqin 2 Standard & Poor's 3 PitchBook/NVCA Venture Monitor 4 Fitch Ratings

- **Mezzanine:** 39 funds closed on $25.7 billion during the year. This was an increase from the prior year's total of $17.8 billion raised by 38 funds and represented an increase of 33.1% from the five-year average of $19.3 billion. Estimated dry powder was $66.6 billion at the end of 2022, up from $43.7 billion during the prior year.[1]
- **Distressed Debt:** The TTM U.S. high-yield default rate was 1.3% as of December 2022, which up from December 2021's TTM rate of 0.5%. Fitch expects the high-yield default rate to trend higher through 2023.[4] During the year, $65.9 billion was raised by 59 funds, down from the $78.1 billion raised by 111 funds during 2021. Dry powder was estimated at $146.8 billion at the end of 2022, which was down 9.5% from year-end 2021. This remained above the five-year annual average level of $130.4 billion.[1]
- **Secondaries:** 59 funds raised $32.7 billion during the year, down from the $44.2 billion raised by 85 funds in 2021. This was 26.4% lower than the five-year average of $44.5 billion.[1] The average discount rate for LP buyout and venture capital portfolios finished the year at 13.0% and 32.0%, respectively, an increase from the 3.0% and 12.0% discounts, respectively, at the end of 2021.[5]
- **Infrastructure:** $162.2 billion of capital was raised by 90 funds in 2022 compared to $132.9 billion of capital raised by 152 partnerships in 2021. At the end of the year, dry powder stood at $346.2 billion, up from last year's total of $297.7 billion. Infrastructure managers completed 2,521 deals for an aggregate deal value of $381.4 billion in 2022 compared to 2,503 deals totaling $526.1 billion in 2021.[1]
- **Natural Resources:** During 2022, 23 funds closed on $4.2 billion compared to 29 funds totaling $13.0 billion in 2021. Energy and utilities industry managers completed 237 deals totaling $36.7 billion in 2022, an increase compared to 223 deals totaling $34.7 billion in 2021.[1]

U.S. Commercial Real Estate Markets

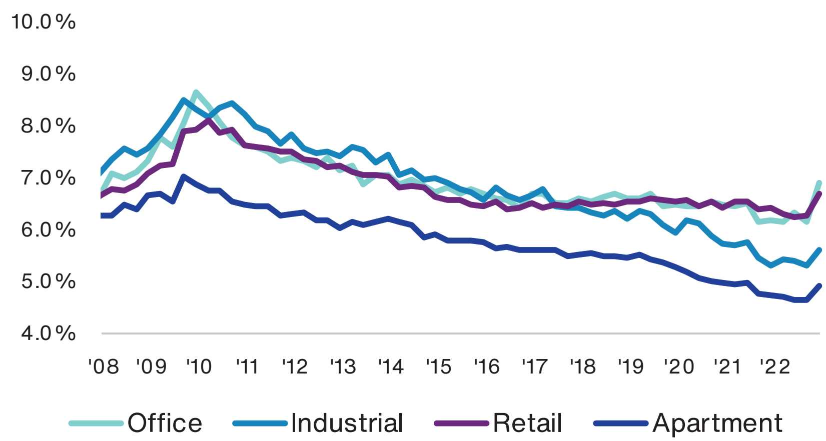
PRIVATE VS. PUBLIC REAL ESTATE RETURNS AS OF 12/31/2022



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

- U.S. Core Real Estate returned -5.0%* in fourth quarter 2022, resulting in a 7.5% total gross return in 2022, including a 3.4% income return. Real estate capital markets have been impacted by the higher interest rate environment and resulting increased cost of capital. During the fourth quarter of 2022, REITs rebounded as inflationary pressures appeared to settle, and the perceived probability of fed funds rate cuts in 2023 increased.
- Global property markets, as measured by the FTSE EPRA/NAREIT Developed Real Estate Index, returned 7.1% (USD) in aggregate during the fourth quarter and experienced a cumulative decline of 24.4% over the trailing 1-year period. REIT market outperformance for the fourth quarter was driven by Europe (14.0% USD), Asia Pacific (10.0% USD) and North America (5.2% USD). The U.S. REIT markets (FTSE NAREIT Equity REITs Index) returned 5.2% in the fourth quarter.
- In the fourth quarter of 2022, U.S. private real estate transaction volumes declined 62% year-over-year to $138 billion, albeit from a record high in 2021. This decline is the culmination of rising interest rates, the availability of capital, and a perceived bid-ask spread.

U.S. Commercial Real Estate Markets



- While capital markets have created significant near-term headwinds for nearly every asset class, we believe real estate fundamentals have remained generally promising, but also highly bifurcated. Multifamily properties continue to experience near record-high occupancy and rents and may be a net beneficiary of the eroding affordability of homeownership in this high interest rate environment. Industrial supply has outpaced demand for the first time since the Third Quarter of 2020, but increased financing costs and elevated construction costs are anticipated to stifle new development. Meanwhile, demand for industrial has remained healthy as companies continue to invest in direct-to-customer distribution.
- The retail and office sectors are facing significant headwinds over the near term. Retail real estate demand has seen modest recovery from occupiers, but the sector faces declining consumer confidence and purchasing power. Additionally, work-from-home trends and a cooling labor market are impacting office space needs. Weakening demand and increasing sublease inventory have pushed occupancy rates down across the sector—although demand for high-quality assets in well-located markets has been more resilient than commodity product.
- 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.

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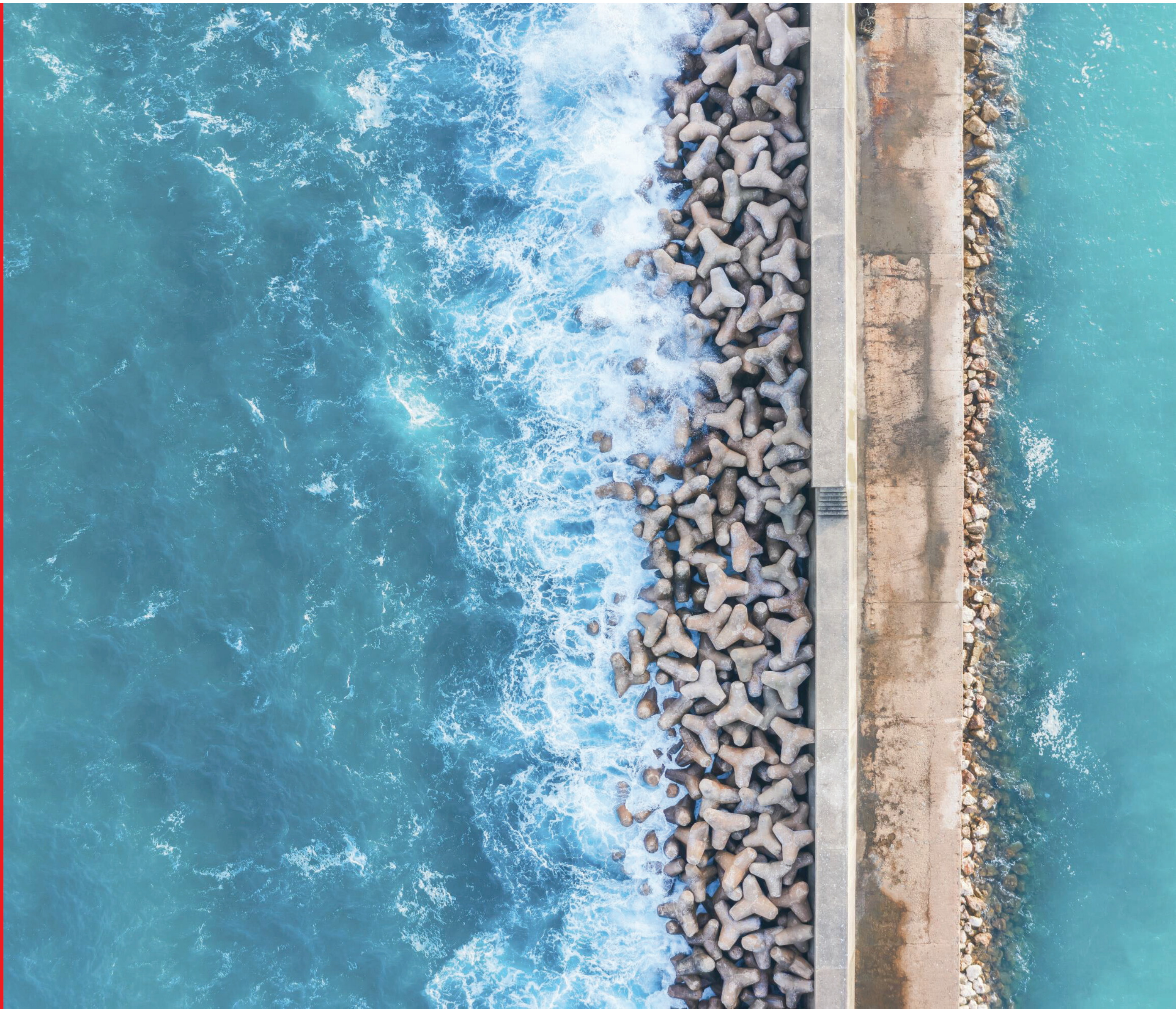
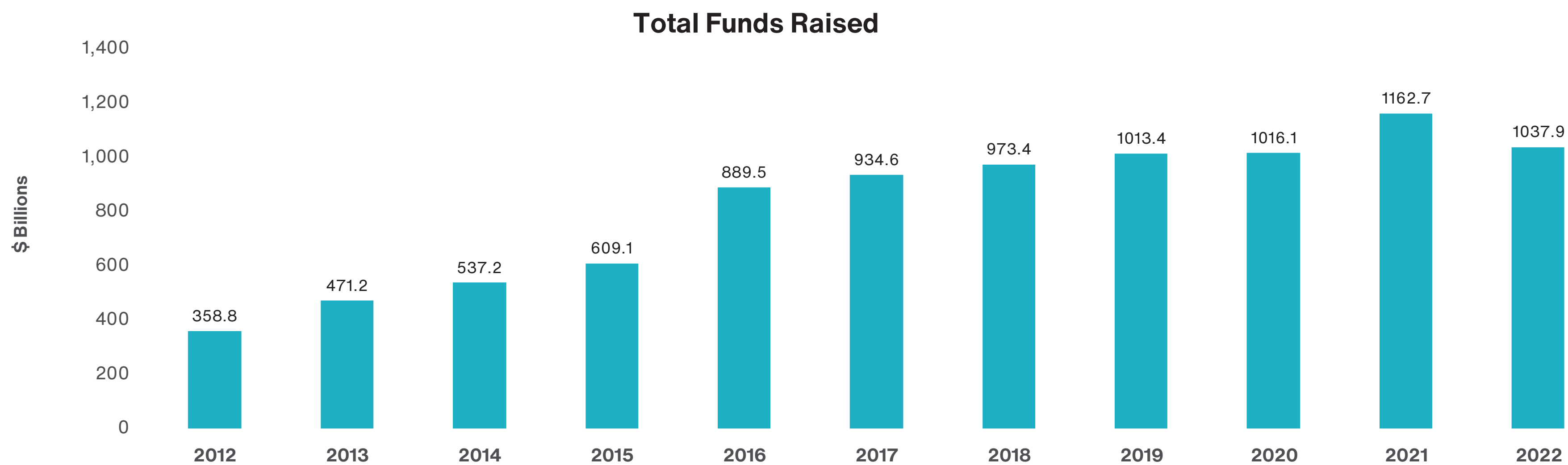
4Q 2022 Global Private Equity Market Overview

April 2023



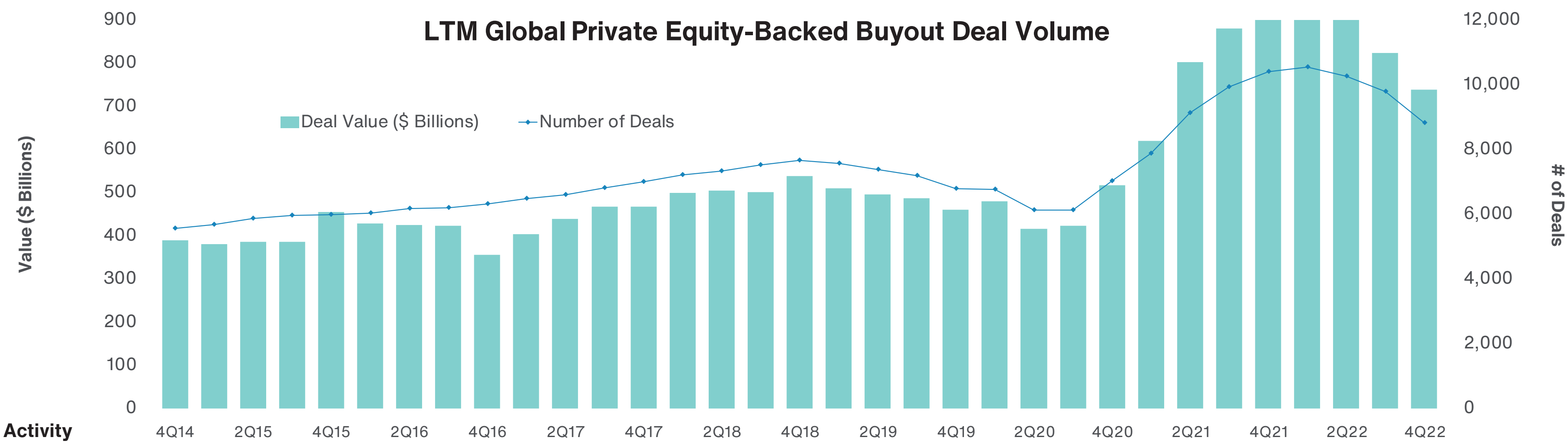
Private Equity Overview



Fundraising

- In 2022, $1.0 trillion was raised by 2,518 funds, which was a decrease of 10.7% on a capital basis and 38.9% by number of funds from the prior year.[1]
  - 2022 fundraising was 0.3% lower, on a capital basis, than the five-year average and 29.6% lower by number of funds raised.[1]
  - The majority of 2022 capital was raised by funds with target geographies in North America, comprising 66.2% of the annual total. Capital targeted for Europe made up 18.5% of the total funds raised during the year, while the remainder was attributable to managers targeting Asia and other parts of the world.[1]
- Dry powder stood at $3.1 trillion at the end of the year, an increase of 18.6% and 42.9% compared to year-end 2021 and the five-year average, respectively.[1]

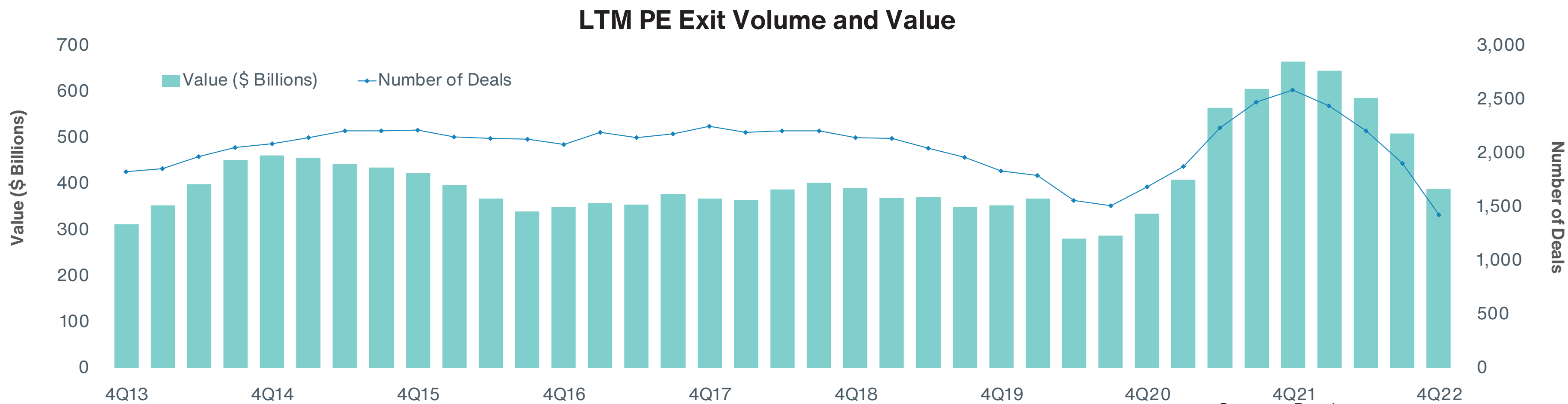
Private Equity Overview (cont.)



Activity

- Global private equity-backed buyout deals totaled $738.7 billion in 2022, which was a decrease on a capital basis of 19.2% compared to 2021.[1]
  - This was 27.4% higher than the five-year average deal volume of $579.7 billion.[1]
  - Average deal size was $83.6 million in Q4 2022. This was down 4.9% compared to Q4 2021, but up 11.6% relative to the five-year quarterly average.[1]
- At the end of 2022, the average purchase price multiple for all U.S. LBOs was 11.9x EBITDA, up from year-end 2021 (11.4x) and up from the five-year average (11.1x).[2]
  - This was 0.8x and 1.6x turns (multiple of EBITDA) above the five and ten-year average levels, respectively.[2]
  - Large-cap purchase price multiples stood at 11.9x, up from the 11.2x observed at year-end 2021.[2]
- The average purchase price multiple across European transactions greater than €1B averaged 11.1x EBITDA for year-end 2022, down from the 11.6x multiple seen at year-end 2021. Purchase prices for transactions of €500M million or more decreased from 11.5x in 2021 to 10.7x in 2022.[2]
- Availability of debt has contracted, but GPs were still able to obtain debt financing for the strongest deals.
  - U.S. average leverage level in 2022 was 5.9x compared to the five and ten-year averages of 5.8x and 5.6x, respectively.[2]
  - In Europe, average senior debt/EBITDA in 2022 was 5.9x, up from 5.8x observed in 2021. This was up over the five- and ten-year average of 5.6x and 5.3x, respectively.[2]

Buyouts / Corporate Finance



Sources: Preqin

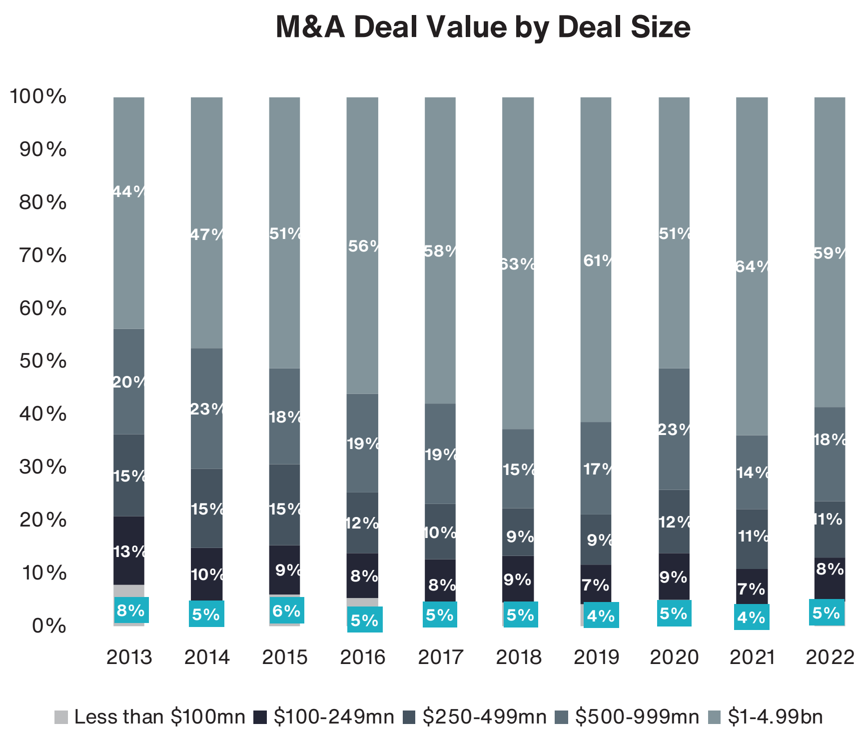
Fundraising

- $191.8 billion was closed on by 420 buyout and growth funds in 2022, compared to $252.6 billion raised by 533 funds during the prior year. This was lower, on a capital basis, than the five-year average of $192.7 billion by 417 funds.[1]
  - Advent International GPE X was the largest fund raised during the year, closing on $26.0 billion.[1]
- Buyout and growth equity dry powder was estimated at $1.3 trillion, which was above the $1.1 trillion seen at the end of 2021. This was substantially higher than the five-year average level of $992.7 billion.[1]
  - Small, mid-cap and mega funds increased in dry powder year-over-year by 0.2%, 1.3%, and 1.6% respectively. Small cap funds ended the year with $155.0 billion of dry powder, mid-cap funds ended with $209.7 billion of dry powder, while mega funds ended 2022 with $415.4 billion in dry powder. Dry powder held by large cap funds was the only category that experienced a decrease, ending the year at $272.2 billion, down 6.4% from the prior year.[1]
  - An estimated 59.1% of buyout dry powder was targeted for North America, while European and Asian dry powder comprised 22.0% and 14.2% of the total, respectively.[1]

Activity

- Globally, buyout exit value totaled $390.8 billion across 1,432 deals in 2022 compared to $666.6 billion across 2,588 deals in the prior year. This marked a decrease of 7.7% compared to the five-year average.[1]

Buyouts / Corporate Finance



Source: Preqin

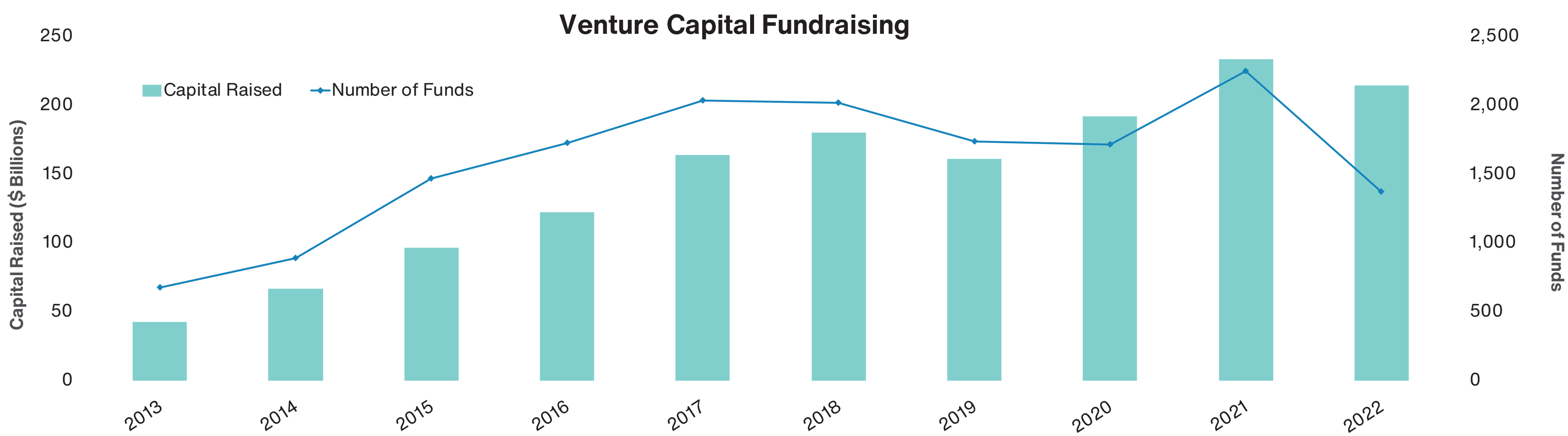
Activity

- Global private equity-backed buyout deals totaled $738.7 billion in 2022, which was a decrease on a capital basis of 19.3% from 2021, but an increase of 27.4% compared to the five-year average.[1]
  - $156.5 billion in deal value was completed during Q4 2022, which was down 35.3% from 4Q 2021 but up 0.4% compared to the five-year quarterly average.[1]
  - By value, the IT sector accounted for the highest aggregate deal value at 30.9% of total value, followed by the healthcare sector at 15.1% of total value. By region, North America was the strongest performer during the year, accounting for 62.2% of total deal value, followed by Europe at 16.2% of total value.[1]
- Entry purchase price multiples for all U.S. transaction sizes in 2022 stood at 11.9x EBITDA, up from 2021's level (11.4x).[3]
  - Large-cap purchase price multiples stood at 11.9x, up compared to 11.2x in 2021.[3]
  - The average purchase price multiple across European transactions greater than €1.0 billion averaged 11.1x EBITDA for year-end 2022, down from the 11.6x multiple seen at year-end 2021. Purchase prices for transactions of €500 million or more decreased from 11.5x in 2021 to 10.7x in 2022.[3]
  - The portion of average purchase prices financed by equity for all deals was 47.3% in 2022, down slightly from 48.3% in 2021. This remained above the five and ten-year average levels of 46.2% and 43.2%, respectively.[3]

Opportunity[4]

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

Venture Capital



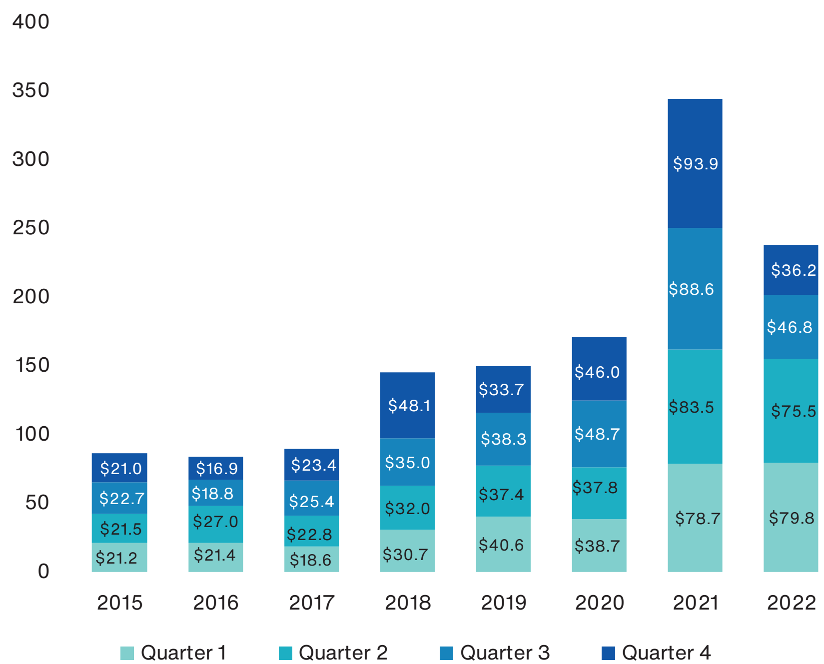
Sources: Preqin

Fundraising

- $214.4 billion of capital was raised by 1,371 funds in 2022, down from the prior year's total of $233.7 billion raised by 2,249 managers.[1]
  - 2022 fundraising was up by 15.2% on a capital basis compared to the five-year average of $186.2 billion.[1]
  - Tiger Private Investment Partners XV was the largest fund raised during the year, closing on $12.7 billion.[1]
  - During the year, the average fund size was $179.0 million, an increase compared to the $114.0 million average witnessed at year-end 2021. This represented an increase of 67.6% compared to the five-year average fund size of $106.8 million.[1]
- At the end of 2022, there were an estimated 5,555 funds in market targeting $433.3 billion.[1]
  - G42 Expansion Fund was the largest venture fund in market, targeting an estimated $10.0 billion.[1]
  - The majority of funds in market are seeking commitments of $250.0 million or less.[1]
- Dry powder was estimated at $562.9 billion at the end of 2022, which was up from 2021's total of $378.7 billion. This was 104.7% higher than the five-year average.[1]

Venture Capital

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



Source: Pitchbook / NVCA

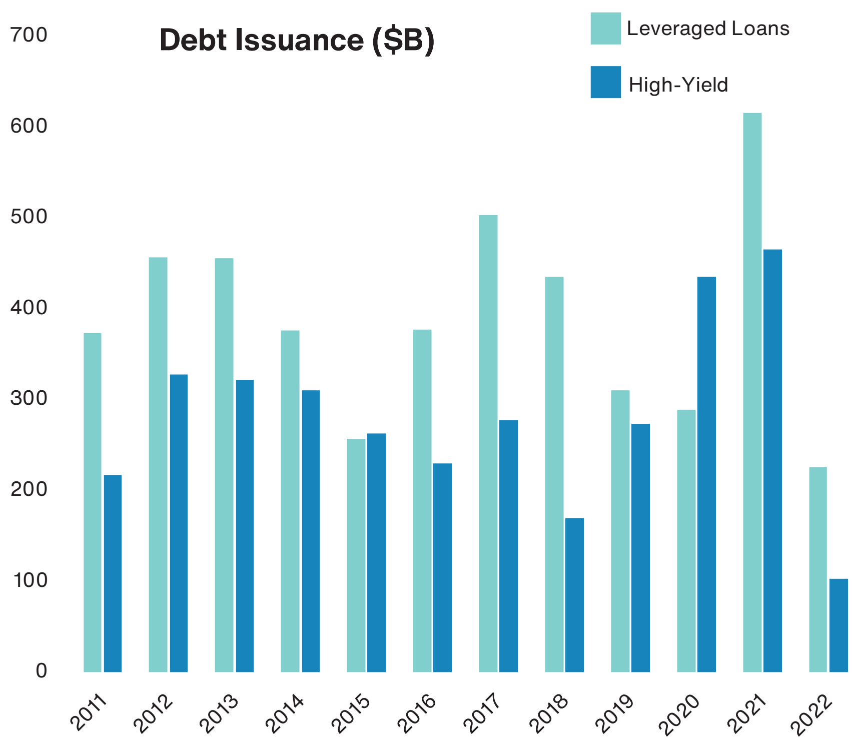
Activity

- During the year, 17,990 venture-backed transactions totaling $238.3 billion were completed, which was a decrease on both a capital and deal count basis over the prior year's total of $344.7 billion across 18,521 deals. However, this was an increase of 32.1% compared to the five-year average of $180.4 billion.[7]
  - In 2022, there were 372 U.S.-based deals involving unicorn companies, representing roughly $72.7 billion in deal value. This was down substantially by number compared to 2021, which saw 584 unicorn deals closed, and lower on a deal value basis (down from $140.0 billion). U.S. unicorn deal activity represented 2.3% of total VC activity.[7]
- At the end of 2022, median pre-money valuations decreased across all transaction stages. Compared to year-end 2021, Seed, Series A, Series B, Series C and Series D+ transactions decreased by 20.0%, 21.6%, 45.7%, 59.8%, and 84.4%, respectively, during 2022.[8]
- Total U.S. venture-backed exit value totaled approximately $71.4 billion across an estimated 1,391 completed transactions in 2022, down substantially from $753.2 billion across 1,925 exits in 2021.[7]
  - The number of U.S. venture-backed initial public offerings decreased over 2021, with 76 public listings completed in 2022. On a value basis, 2022 IPOs totaled only $34.4 billion, far shy of the $637.9 billion in IPO value during the prior year.[7]

Opportunity[4]

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

Leveraged Loans & Mezzanine



Sources: UBS

Leveraged Loans

Fundraising

- New CLO issuance totaled $129.3 billion in 2022, down substantially from the $187.1 billion seen in 2021.[3]
- High-yield debt issuance totaled $102.0 billion in 2022, down from $465.0 billion in 2021. This marked the lowest issuance volume since 2008.[3]
- Leveraged loan mutual fund net flows ended 2022 with a net outflow of $8.5 billion, compared to a net inflow of $33.9 billion in 2021.[3]

Activity

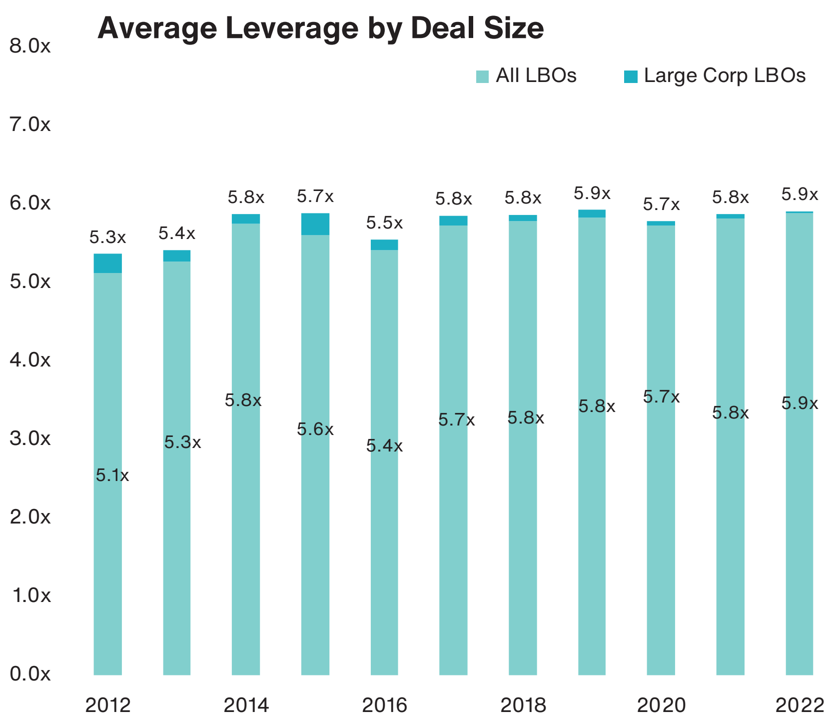
- Institutional new leveraged loan issuances totaled $225.1 billion in 2022, down significantly from $615.3 billion in 2021. This was substantially lower than the five-year average of $430.1 billion.[3]
- European leveraged loan issuance decreased by 62.8% year-over-year to €38.1 billion. This was below the five-year average level of €66.2 billion and below the ten-year average level of and €55.6 billion.[2]

Opportunity [4]

- 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

27

Leveraged Loans & Mezzanine



Sources: S&P

Activity

- Leverage for all LBO transactions ended the year at 5.9x, up slightly from 2021's level of 5.8x. 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 5.8x witnessed in 2021.[2]
- 80.4% of new leveraged loans were used to support M&A and growth activity in 2022, up from 61.9% in 2021. This was above the five-year average of 65.0%.[2]

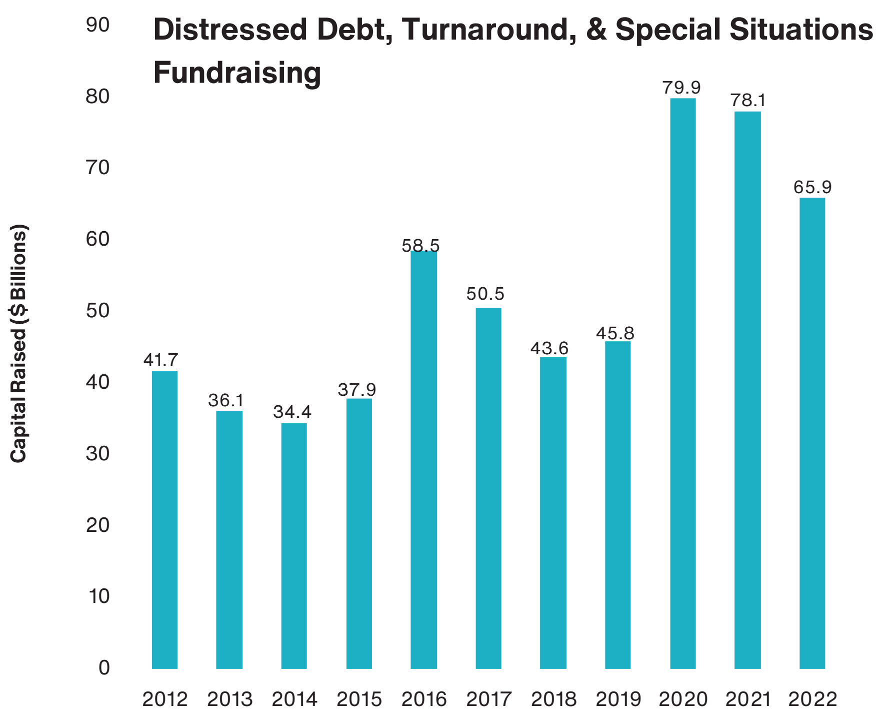
Mezzanine
Fundraising

- 39 funds closed on $25.7 billion during the year. This was an increase from the prior year's total of $17.8 billion raised by 38 funds and represented an increase of 33.1% from the five-year average of $19.3 billion.[1]
- Estimated dry powder was $66.6 billion at the end of 2022, up from $43.7 billion during the prior year.[1]
- Fundraising activity has decelerated compared to the prior year with an estimated 116 funds in market targeting $37.0 billion of commitments, compared to 118 funds in market at the end of 2021 targeting $65.5 billion of commitments. ICG North American Private Debt Fund III was the largest fund in market, targeting commitments of $2.0 billion.[1]

Opportunity[4]

- Funds with the capacity to scale for large sponsored deals

Distressed Private Markets

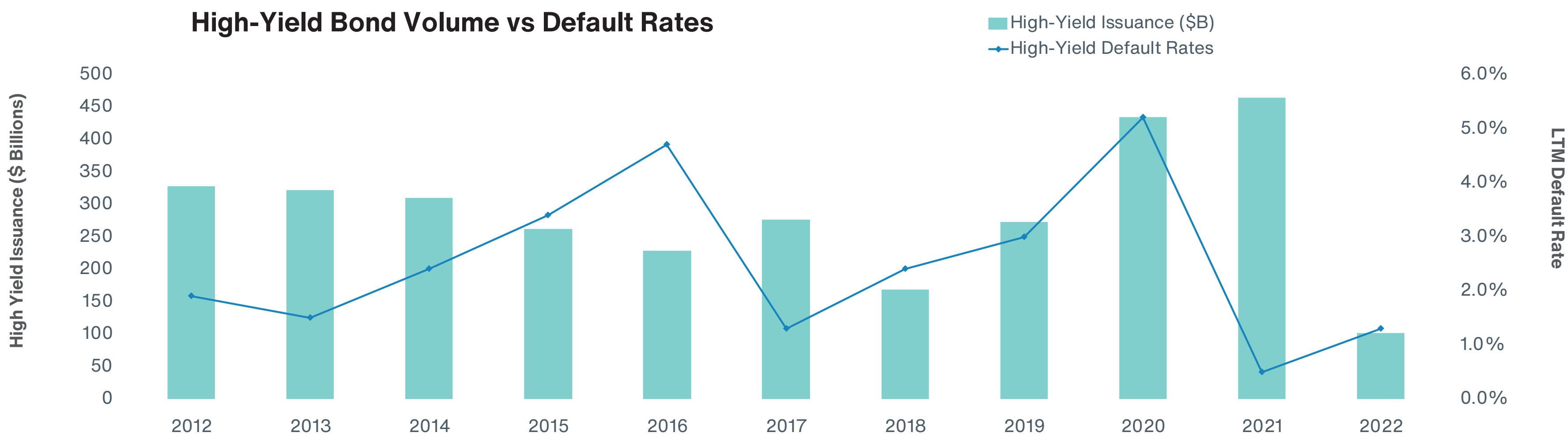


Source: Preqin

Fundraising

- During the year, $65.9 billion was raised by 59 funds, down from the $78.1 billion raised by 111 funds during 2021.[1]
  - 2022 fundraising was 10.6% higher than the prior five-year average.[1]
  - Clearlake Capital Partners VII was the largest partnership raised during the year, closing on $14.1 billion.[1]
- Dry powder was estimated at $146.8 billion at the end of 2022, which was down 9.5% from year-end 2021. This remained above the five-year annual average level of $130.4 billion.[1]
- An estimated 197 funds were in the market at the end of 2022, seeking $87.6 billion in capital commitments.[1]
  - Special situation managers were targeting the most capital as at year-end 2022, seeking an aggregate $53.8 billion, followed by distressed debt managers ($31.4 billion).[1]
  - KKR Opportunities II was the largest fund in market with a target fund size of $5.0 billion.[1]

Distressed Private Markets



Sources: UBS / Fitch Ratings

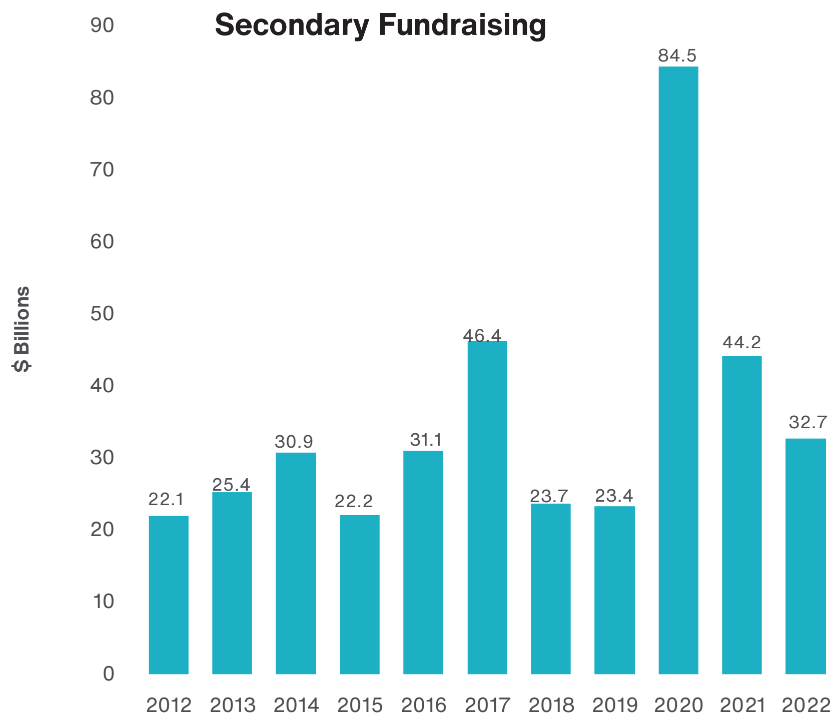
Activity

- The TTM U.S. high-yield default rate was 1.3% as of December 2022, which up from December 2021's TTM rate of 0.5%. Fitch expects the high-yield default rate to trend higher through 2023.[6]
- The market dislocation caused by current macroeconomic factors may supply additional distressed opportunities in the next several months.

Opportunity[4]

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

Secondaries



Source: Preqin

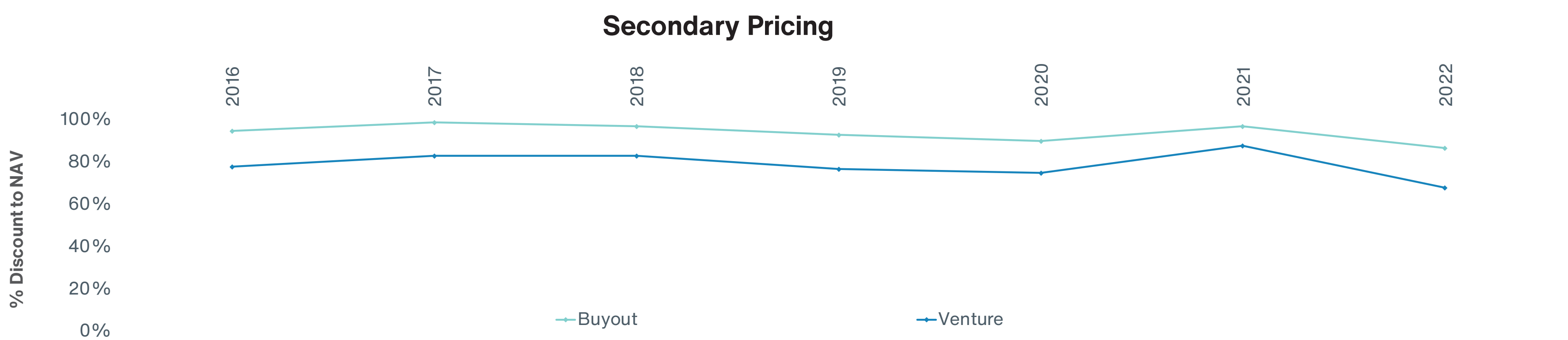
Fundraising

- 59 funds raised $32.7 billion during the year, down from the $44.2 billion raised by 85 funds in 2021. This was 26.4% lower than the five-year average of $44.5 billion.[1]
  - ICG Strategic Equity Fund IV was the largest fund raised during the year, closing with capital commitments of $5.3 billion.[1]
- Through 4Q 2022, there were an estimated 120 secondary and direct secondary funds in market, targeting approximately $80.0 billion. The majority of secondary funds are targeting North American investments.[1]
  - As of year-end 2022, Lexington Capital Partners X and ASF IX were the largest funds in market, each seeking aggregate commitments of $15.0 billion.[1]
- As of year-end 2022, dry powder was estimated to be $134.3 billion, which was lower than Q4 2021's level of $149.0 billion.[1]

Activity

- According to Jefferies, annual secondary volume was $108.0 billion, a decrease of 18.0% compared to the prior year's total of $132.0 billion. Of the $108.0 billion in volume, $56.0 billion stemmed from LP-led transactions while $52.0 billion stemmed from GP-led transactions.[17]
- The market continues to have participation from a broad base of buyers and sellers with opportunistic selling activity being seen from public and private pensions, financial institutions and insurance companies.[3]
  - Pensions and sovereign wealth funds accounted for the majority of LP-led transactions at 63.0% of total volume, followed by financial institutions (16.0%), and fund-of-funds (9.0%).[17]
- PJT Partners noted investors shifting preferences from industries impacted by the public market volatility to less cyclical industries. Investors are now focusing their demand on a select group of managers.[16]
- According to UBS, the number of GP-led situations brought to market continued to increase with varying quality and strategies, along with more household GP names utilizing the secondary market. This is expected to continue throughout 2023.[3]

Secondaries



Source: Jefferies

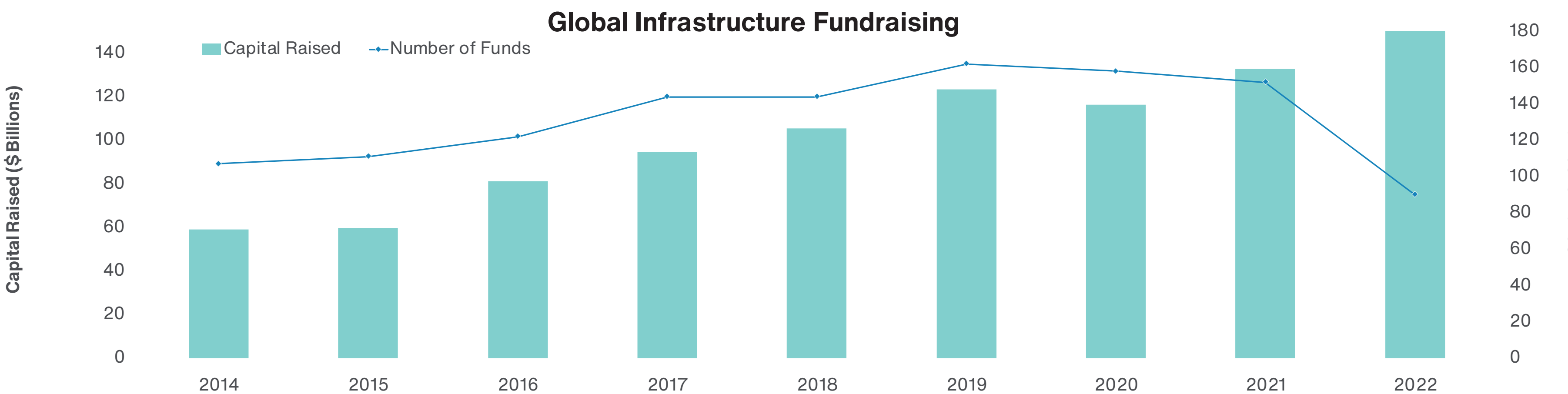
Activity

- Campbell Lutyens expects LP-led secondary sales to continue as more investors use these transactions to crystalize gains, trim their GP rosters, and manage balance sheet risk.[16]
- Payment deferrals and structured equity solutions continue to be prevalent in the LP portfolio market and are used as a means to improve pricing and deal returns in an increasingly competitive environment.[16]
- Recent market volatility may create a widening gap over the course of the year between bid and ask prices for secondary transactions.[15]
- Given the current public market conditions, buyers are wanting to purchase assets based off NAVs that reflect the volatility.[3]
- The average discount rate for LP buyout and venture capital portfolios finished the year at 13.0% and 32.0%, respectively, an increase from the 3.0% and 12.0% discounts, respectively, at the end of 2021.[17]

Opportunity[4]

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

Infrastructure

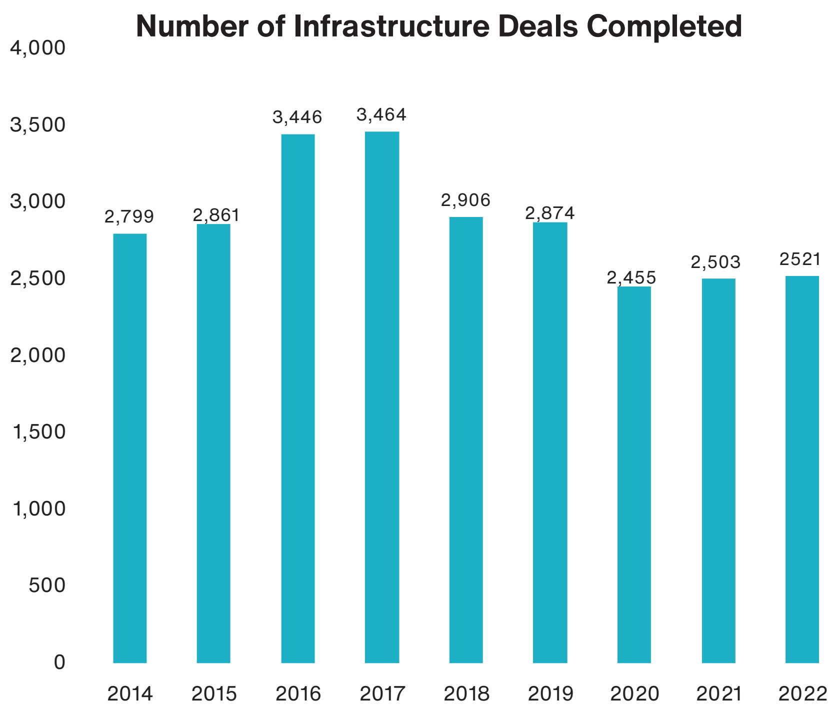


Source: Preqin

Fundraising

- $162.2 billion of capital was raised by 90 funds in 2022 compared to $132.8 billion of capital raised by 152 partnerships in 2021.[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 2022, there were an estimated 444 funds in the market seeking roughly $341.9 billion.[1]
  - Global Infrastructure Partners V was the largest fund in market and was seeking commitments of $25.0 billion.[1]
- At the end of the year, dry powder stood at $346.2 billion, up from last year's total of $297.7 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 strong levels of dry powder and increased investment activity from strategic and corporate buyers as well as institutional investors.

Infrastructure



Source: Preqin

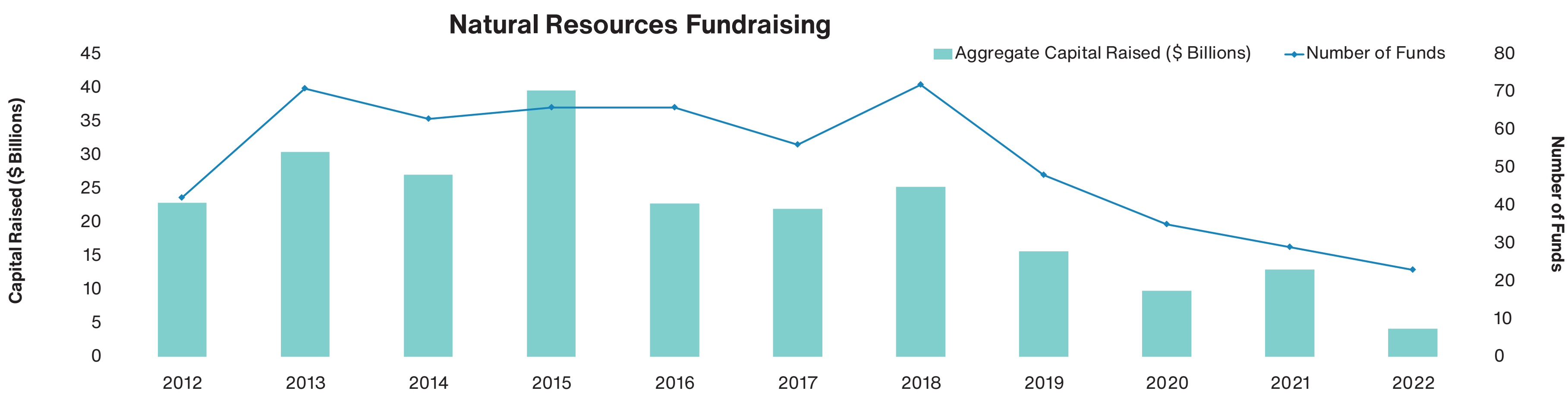
Activity

- Infrastructure managers completed 2,521 deals for an aggregate deal value of $381.4 billion in 2022 compared to 2,503 deals totaling $526.1 billion in 2021.[1]
  - By region, Europe saw the highest number of deals completed, with 39.3% of deals being invested in the region, followed by North America at 27.9%. Asia amassed 12.9% of activity during the year.[1]
  - By sector, renewable energy was the dominant industry during the year with 53.6% of deals completed, followed by transportation, which accounted for 12.0% of 2022's deal activity. Conventional energy accounted for 10.6% of activity during 2022.[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



Source: Preqin

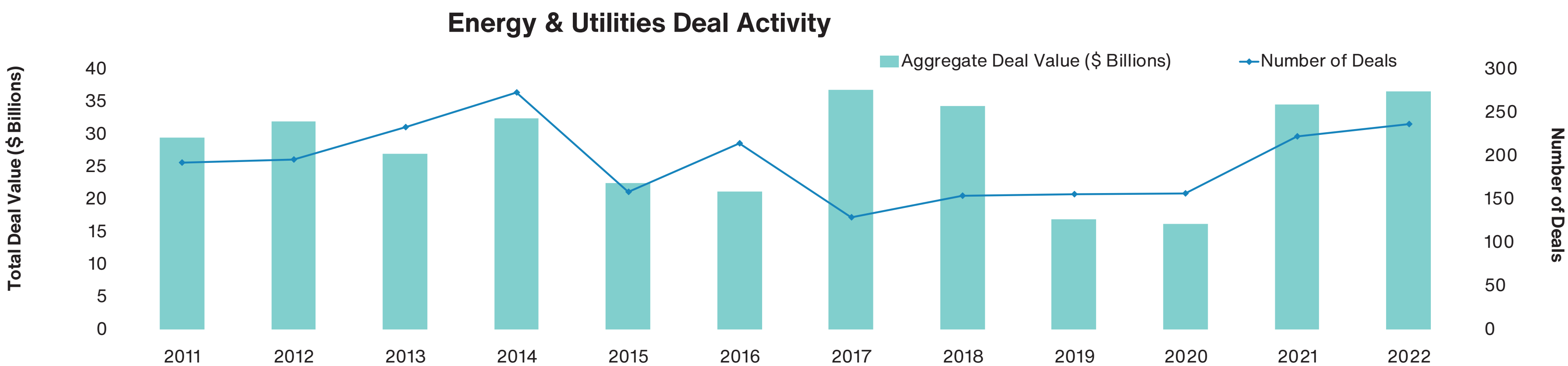
Fundraising

- During 2022, 23 funds closed on $4.2 billion compared to 29 funds totaling $13.0 billion in 2021.[1]
- Dry powder stood at $30.3 billion at the end of 2022, which was down 12.2% from Q4 2021's level of $34.5 billion and down from the five-year average level by 34.3%.[1]

Activity

- Crude oil prices increased during the quarter.
  - WTI crude oil prices increased 6.6% during the year to $76.44 per bbl.[10]
  - Brent crude oil prices ended the year at $80.92/bbl, up 9.1% from Q4 2021.[10]
- Natural gas prices (Henry Hub) finished 2022 at $5.53 per MMBtu, which was up 47.1% from Q4 2021.[11]

Natural Resources



Source: Preqin

Activity

- Energy and utilities industry managers completed 237 deals totaling $36.7 billion in 2022, an increase compared to 223 deals totaling $34.7 billion in 2021.[1]
- A total of 779 crude oil and natural gas rotary rigs were in operation in the U.S. at the end of 2022. This was up by 1.8% from the prior quarter and up 32.9% year-over-year.[13]
  – Crude oil rigs represented 79.7% of the total rigs in operation. 56.4% of the 621 active oil rigs were in the Permian basin.[13]
  – 46.2% and 25.0% of natural gas rigs were operating in the Haynesville and Marcellus basins, respectively.[13]
- The price of iron ore (Tianjin Port) ended the year at $111.84 per dry metric ton, down from $116.96 at year-end 2021.[10]

Opportunity[4]

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

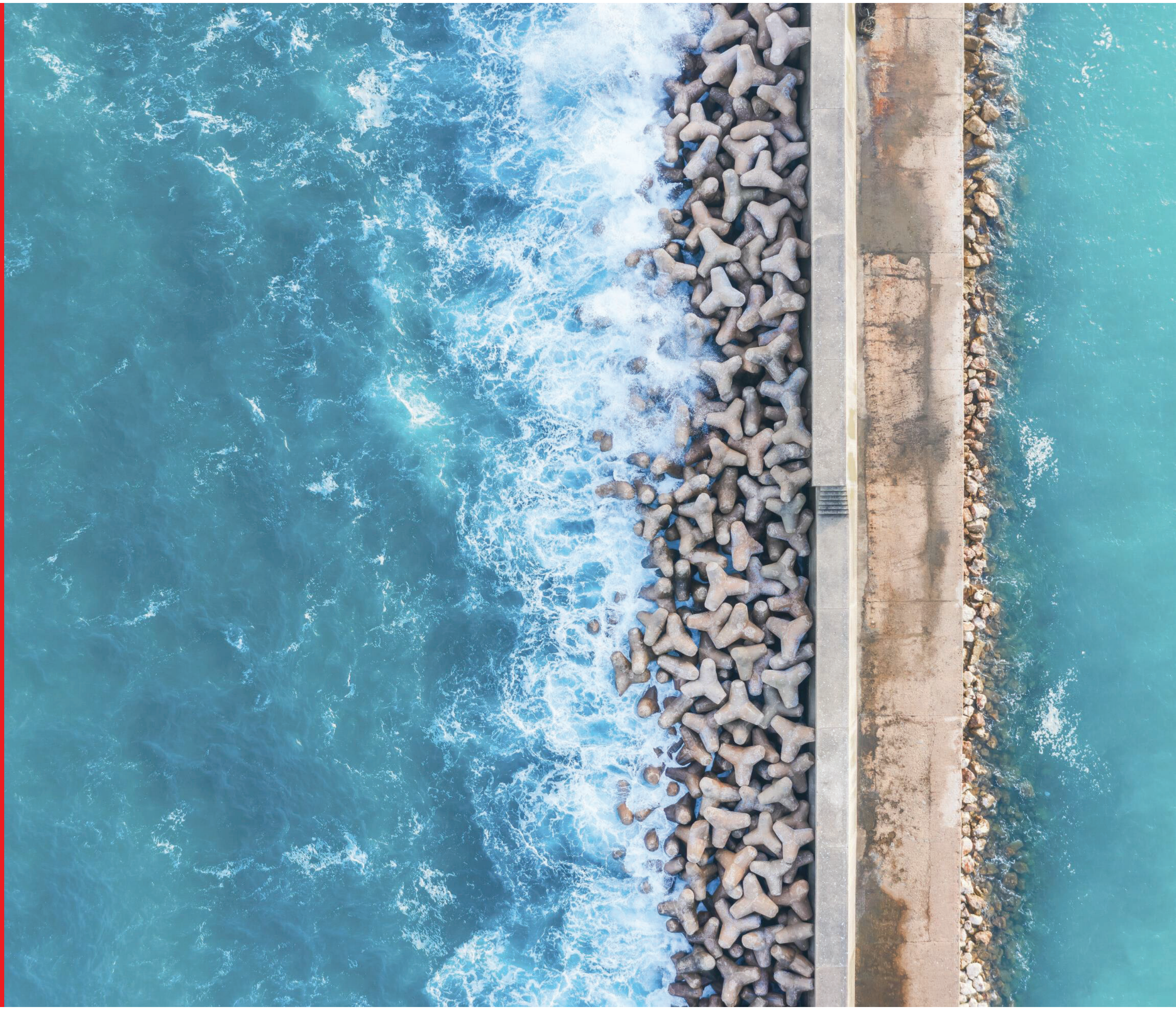
Notes

1. Preqin
2. Standard & Poor's
3. UBS
4. Aon Investments USA Inc.
5. Moody's
6. Fitch Ratings
7. PitchBook/National Venture Capital Association Venture Monitor
8. Cooley Venture Financing Report
9. U.S. Energy Information Administration
10. Bloomberg
11. Setter Capital Volume Report: Secondary Market
12. KPMG and CB Insights
13. Baker Hughes
14. Evercore
15. Campbell Lyutens
16. PJT Partners
17. Jefferies

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

4Q 2022 Real Estate Market Update

May 2023



United States Real Estate Market Update (4Q22)

General

- An array of headwinds have emerged including the potential for "higher for longer" interest rates, persistent inflation, various geopolitical events, and widespread global supply chain struggles. The S&P 500 was offered a reprieve, returning 7.6% during the fourth quarter despite locking in its worst annual performance since 2008, producing a total return of -18.1%. The MSCI US REIT index broke its losing streak of three consecutive down quarters, posting a gross fourth quarter return of 5.2%.

- During the fourth quarter, GDP increased at an annualized rate of 2.7%. This positive growth was propped up by government spending, a resilient labor market and consumer spending. As a result of the atrocities of the Russia-Ukraine war, Saudi-Iranian oil concerns, and a rise in protectionist measures, commodity pricing has skyrocketed in lockstep with persistent inflation, which is anticipated to carry over well into 2023. Federal reserve officials remain committed to taming inflation and reducing the central bank's balance sheet for the foreseeable future, approving seven interest rate hikes throughout 2022, with more anticipated during 2023.

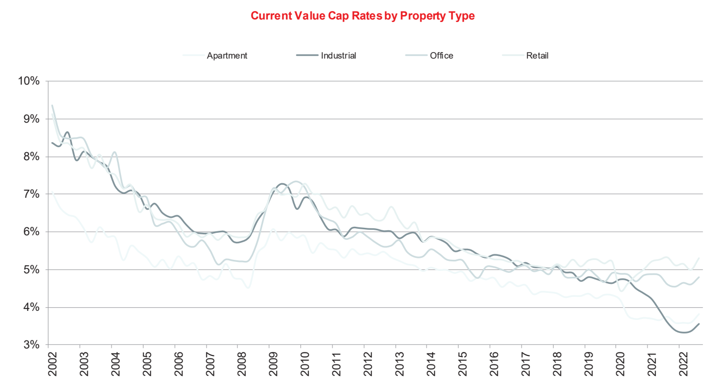
Commercial Real Estate

- To wrap up 2022, total CRE transaction activity for the quarter decreased by -62% YoY, with annual transaction activity down -15% YoY. The office sector transaction volumes in the U.S. have notably not recovered to pre-pandemic levels. While office sector fundamentals signaled mild improvement, the sector faces significant headwinds in the capital markets, driven by a dramatic increase in the cost of debt and the evolving nature of white-collar employers' stance on return-to-office.

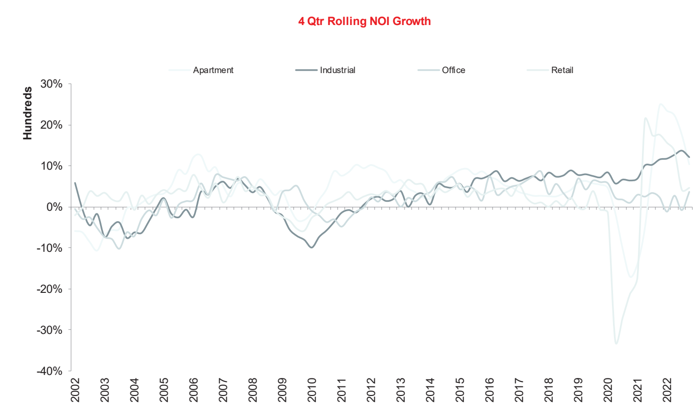
- Transaction cap rates (4.9%) remained relatively flat, expanding only 2 bps during the quarter. This increase comes after historic low cap rates in experienced in 4Q21 and 2Q22. Current valuation cap rates expanded for all major property sectors, led by retail (+30 bps), and followed by apartment (+23 bps), industrial (+19 bps) and office (+19 bps).

- NOI growth has substantially diverged between property sectors. Apartment sector fundamentals are as strong as ever. With the affordability of home ownership seemingly eroded, Apartment NOI expanded (+10%) YoY. Industrial NOI expanded (+12%) YoY on the back of companies' investments in direct-to-customer distribution.

- 10-year treasury bond yields remained elevated, ending the quarter at 3.9%. As economists expected rates moved significantly higher throughout 2022, with the potential to climb further in 2023.



Source: NCREIF



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 (4Q22)

INDUSTRIAL	MULTIFAMILY

INDUSTRIAL

- In 4Q22, industrial properties returned -3.56% and underperformed the NPI by 6 bps.
- Transaction volumes decreased to $33 billion in the fourth quarter of the year, resulting in an 58% decrease year-over-year. Individual asset sales decreased 46% year-over-year, while portfolio purchases turned in a year-over-year volume decrease of 88%. At $33 billion, the industrial sector decreased by $4 billion quarter-over-quarter.
- The industrial sector turned in NOI growth of 12.0% over the past year. NOI continues to reach all time highs for the sector.
- Vacancy decreased by 61 bps year-over-year to 1.5%. Vacancy in the sector decreased 4 bps from last quarter, reaching all-time historic lows. E-commerce continues to drive demand across the sector.
- Industrial cap rates slightly compressed approximately 4 bps from a year ago, to 3.6%. Industrial overall fundamentals still top all property sectors.

MULTIFAMILY

- The apartment sector delivered a -3.21% return during the quarter, outperforming the NPI by 29 bps.
- Transaction volume in the fourth quarter of 2022 decreased to $50 billion, resulting in an decrease of 69% year-over-year. Transaction volume for the sector decreased from the third quarter but it still high relative to historical levels. This volume continues to make multifamily the most actively traded sector for the nineteenth straight quarter.
- Cap rates remained steady at 3.8% quarter-over-quarter, increasing 7 bps year-over-year. Multifamily cap rates remain at low levels relative to prior 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 appeared to have shaken that trend although vacancy rates remained steady during the last 3 quarters. Vacancy rates increased by 43 bps quarter-over-quarter. 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 -4.80% in 4Q22, 130 bps below the NPI return over the period.
- Transaction volumes decreased by 65% year-over-year in the fourth quarter. Transaction volume equated to $20 billion for the quarter, a decrease of $10 billion quarter-over-quarter. Office transaction levels have regressed from 3Q22 but not quite to levels seen during 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 12.79%, slightly decreasing by 18 bps from last quarter.
- NOI growth in the office sector increased quarter-over-quarter by 477 bps to 1.15% and appears to be in the midst of its recovery to pre-pandemic levels.
- Office cap rates expanded from a year ago, sitting at approximately 4.8%. 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 4Q22, the retail sector delivered a quarterly return of -1.61%, outperforming 190 bps compared to the NPI.
- Transaction volumes totaled $16 billion in the fourth quarter, decreasing 57% year-over-year. Single asset transactions accounted for just over 82% of all sales volume for the quarter.
- Cap rates have remained fairly steady within the sector over the last year at 5.3%. Current valuation cap rates expanded quarter-over-quarter by 30 bps due to valuation adjustments made across the sector in general.
- NOI growth increased from the prior quarter to 4.89% as of the fourth quarter. Retail has begun its slow recovery as a large portion of stores nationally have opened and operate safely.
- Retail vacancy rates decreased over the quarter by 20 bps, and down 113 bps over the past year to 7.8%. 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 (4Q22)

- Prolonged high inflation, discouraging interest rates, escalating debt costs and pessimistic views on economic growth have all contributed to property acquisitions plunging in the final quarter. Year over year, deal volumes have contracted by 47%. Capital is expected to remain on the sidelines , as sellers are apprehensive towards taking a significant haircut on asking prices. Inversely, buyers are standing pat awaiting a further decrease in valuations that are accretive.

- Tangible effects of these challenges can be witnessed in the EMEA region, with deal volume falling 70% YOY. Transaction activity in the U.K. was down 64%, in Germany by 85% and in France by 45%. Germany was the most affected of the top 10 global markets, particularly hampered with sanctions on Russian energy exports and spikes in financing costs resulting in yield compression. These headwinds have seen the number of completed deals at its lowest in a decade.

Global Total Commercial Real Estate Volume - 2021 - 2022

$ US Billions	Q4 2022	Q4 2021	% Change Q4 22 - Q4 21	2022	2021	% Change Full Year
Americas	126	341	-63%	674	784	-14%
EMEA	55	178	-69%	305	442	-31%
Asia Pacific	253	302	-16%	831	903	-8%
Total	435	820	-47%	1810	2130	-15%

Source: Real Capital Analytics, Inc., Q4' 22

- The U.S. experienced a 63% decline in transaction activity with multifamily and industrial remaining the top remaining sectors with sturdy fundamentals. Despite this, investment volume in these property types have decreased by 70% and 58% YOY.

- The Asia Pacific market is expected to have regional inflationary pressures decline in 2023, with limited interest hikes foreseen in the future . Mainland China, despite several lockdown periods, has led the recovery with escalated office and retail leasing demand. Hospitality is foreseen to have modest growth with the return of Chinese tourism in 2023, before returning pre-pandemic levels. Logistics leasing demand in the region is expected to subside with the moderation of e-commerce sales growth. Additionally, cost saving initiatives from occupiers can see outsourcing operations to third-parties.

- Global retail sales are expected to soften in the first half of 2023 as pressure mounts on disposable incomes particularly in Europe and North America. Many retailers have prioritized profitability and operational costs, but the rebasing of rents over recent years in mature markets, geographic diversification by well-capitalized operators, and experimentation with new formats should provide support for the best locations.
- In the fourth quarter, demand for logistics and industrial in the US remained widespread with strong fundamentals. Nevertheless, rent growth is expected to moderate relative to the 2022 record highs. This healthy demand is correlated to larger acquisitions to capitalize on the strength of the market. Roughly 20% of projects under construction into next year are larger than 500,000sf, compared to roughly 5% of existing inventory. This new delivery of supply will alleviate pressure to markets experiencing vacancy rates less than 1%.

- Investment into U.S. multifamily declined and cap rates have expanded by around 100-150 bps since their peak in Q1 2022. Across Europe, house price growth eased or began to fall as mortgage rates increased and sentiment declined, while transaction volumes also softened in the region during the fourth quarter. Bucking the trend, Asia Pacific multifamily investment volumes bounced back, with China particularly active post-lockdown.

Global Outlook - GDP (Real) Growth % pa, 2022-2024

	2022	2023	2024
Global	**5.9**	**4.3**	**3.6**
Asia Pacific	**4.4**	**4.6**	**4.4**
Australia	4.1	2.8	2.5
China	4.5	5.2	5.1
India	8.7	7.3	6.5
Japan	1.8	1.8	1.1
North America	**2.7**	**2.0**	**1.9**
US	2.6	2.0	1.9
Middle East	**4.1**	**4.4**	**4.5**
European Union	**3.0**	**2.1**	**2.0**
France	2.7	1.8	1.7
Germany	1.8	2.3	2.0
UK	3.7	1.2	1.7

Source: Bloomberg

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

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ATTN: Aon Investments Compliance Officer

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REPORT

Meketa Capital Markets Outlook & Risk Metrics

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Capital Markets Outlook & Risk Metrics

As of March 31, 2023

Capital Markets Outlook

→ Despite banking turmoil in the US and Switzerland, most global markets posted positive returns in the month of March and for the first quarter of 2023.

→ Chinese equities outperformed emerging and developed markets in March although the performance of on-shore markets lagged Hong Kong and US-listed Chinese securities.

→ Developed market equities lagged US and emerging market equities with growth stocks outperforming value stocks in March.

→ US stocks posted a strong start to the year in the first quarter with large cap and growth stocks outperforming small cap and value stocks.

→ Commodities turned negative in the first quarter weighing on natural resource stocks in the month of March.

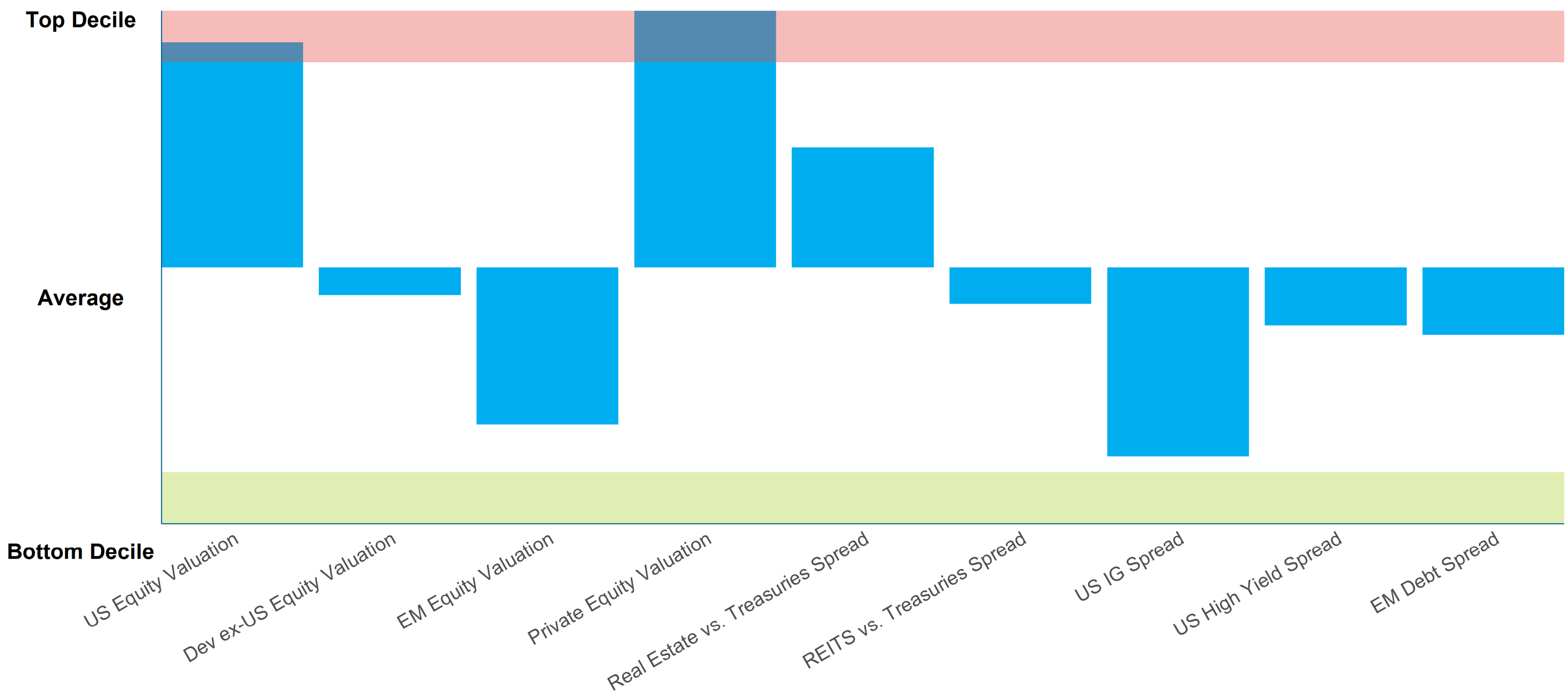
→ Most fixed income markets posted positive returns in March and for the first quarter, despite their sell-off in February.

→ The US yield curve remains steeply inverted with short-duration bond yields rising whereas longer dated bond yields fell with long-duration credit and government indices posting strong returns in the first quarter.

→ Undeterred from bank turmoil, the Fed and the ECB raised interest rates in February. While they appear focused on fighting inflation with higher interest rates, markets appear unconvinced.

→ The drive to fight inflation may stall economic growth and increase downward pressure on corporate earnings, stock valuations, and bond returns.

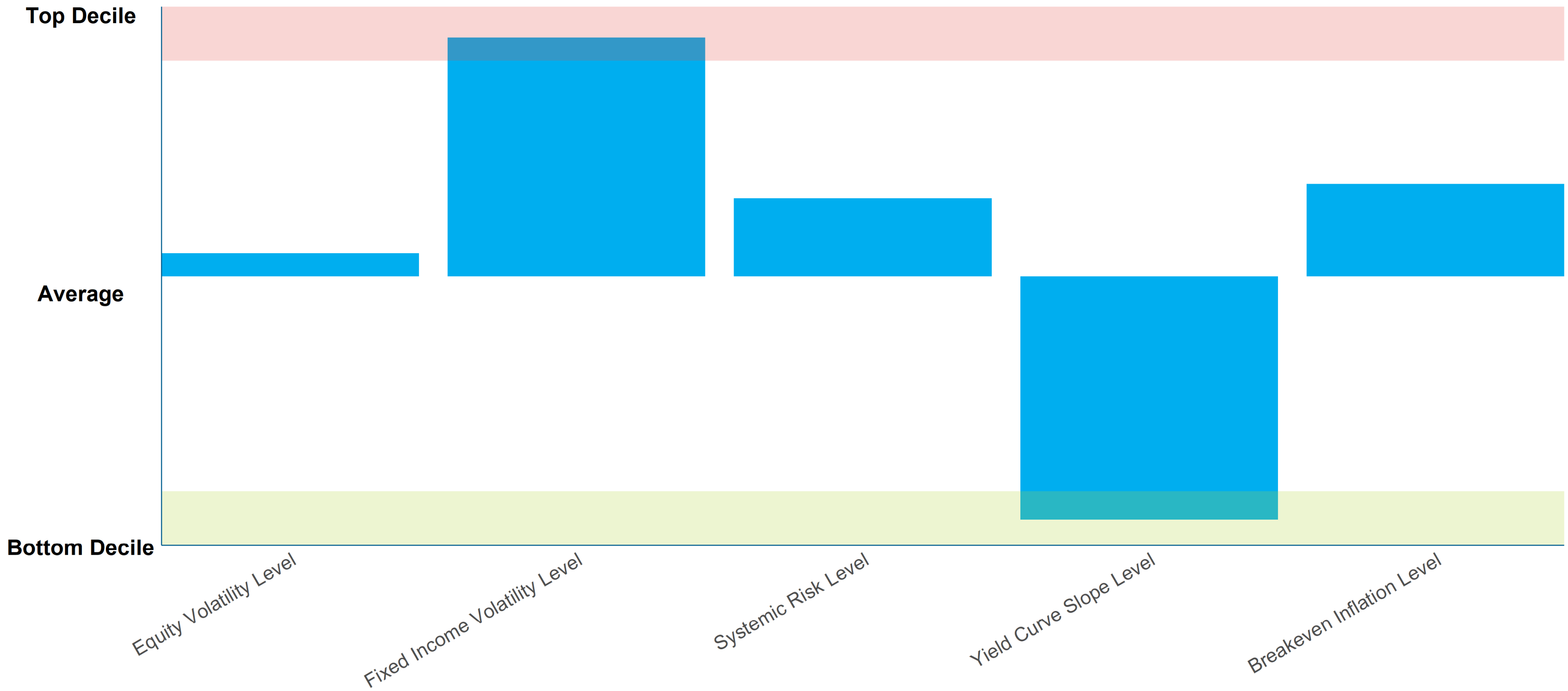
Risk Overview/Dashboard (1)
(As of March 31, 2023)[1]



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

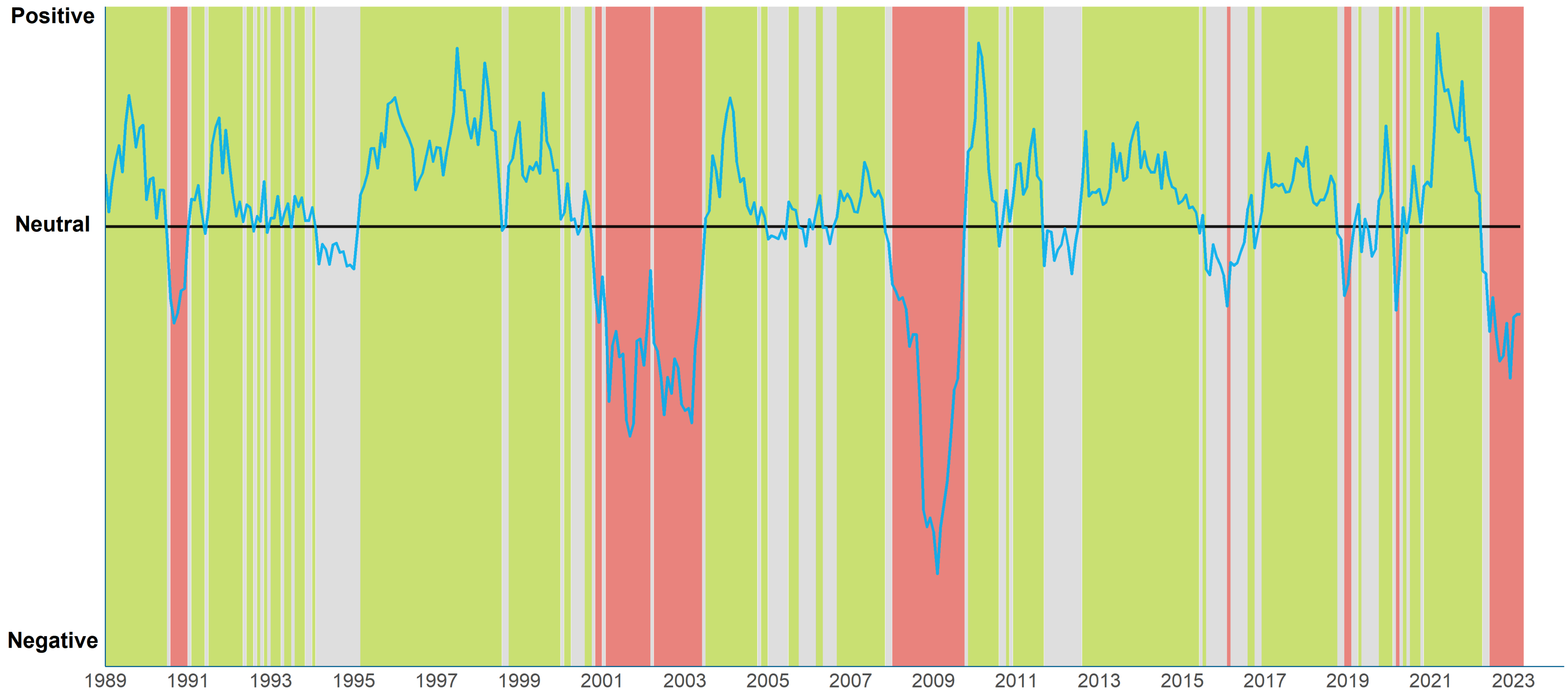
[1] With the exception of Private Equity Valuation, that is YTD as of December 31, 2022.

Risk Overview/Dashboard (2)
(As of March 31, 2023)

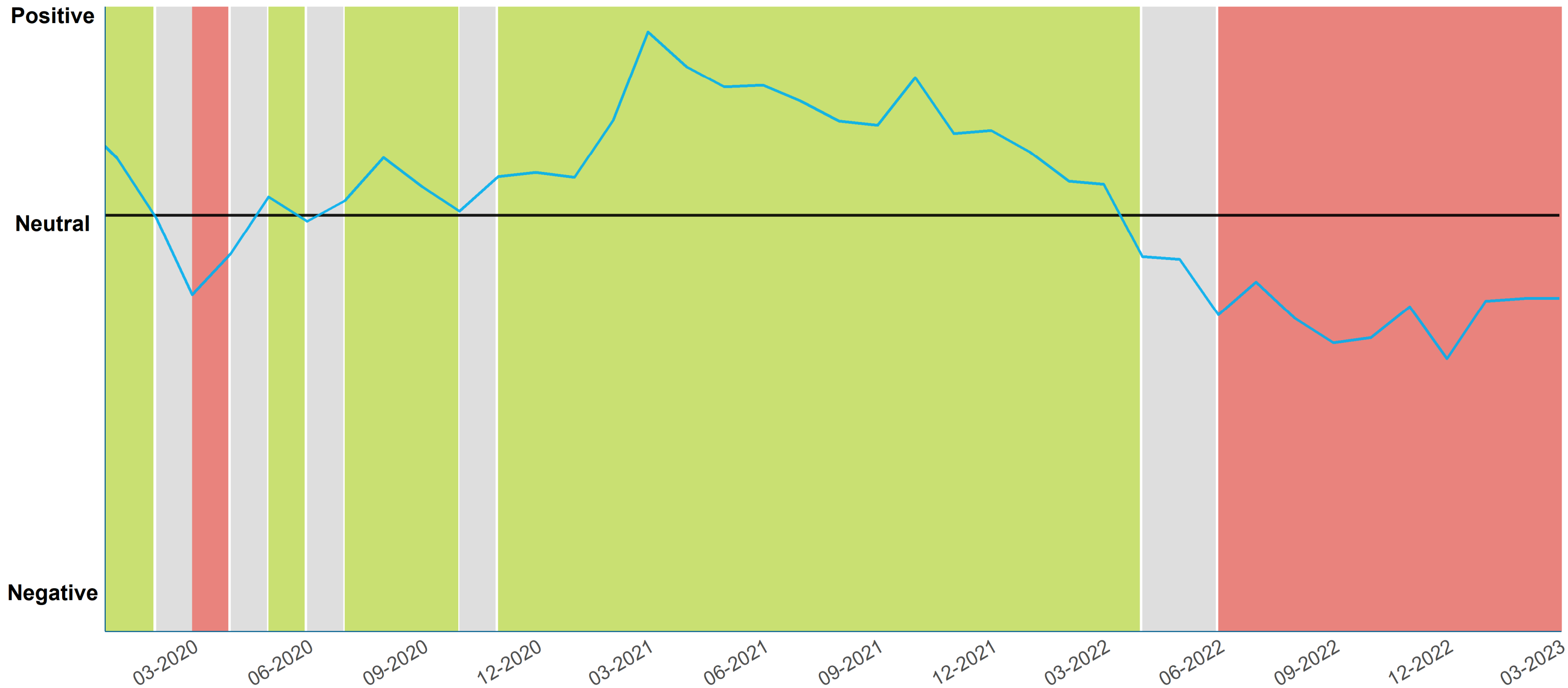


→ Dashboard (2) shows how the current level of each indicator compares to its respective history.

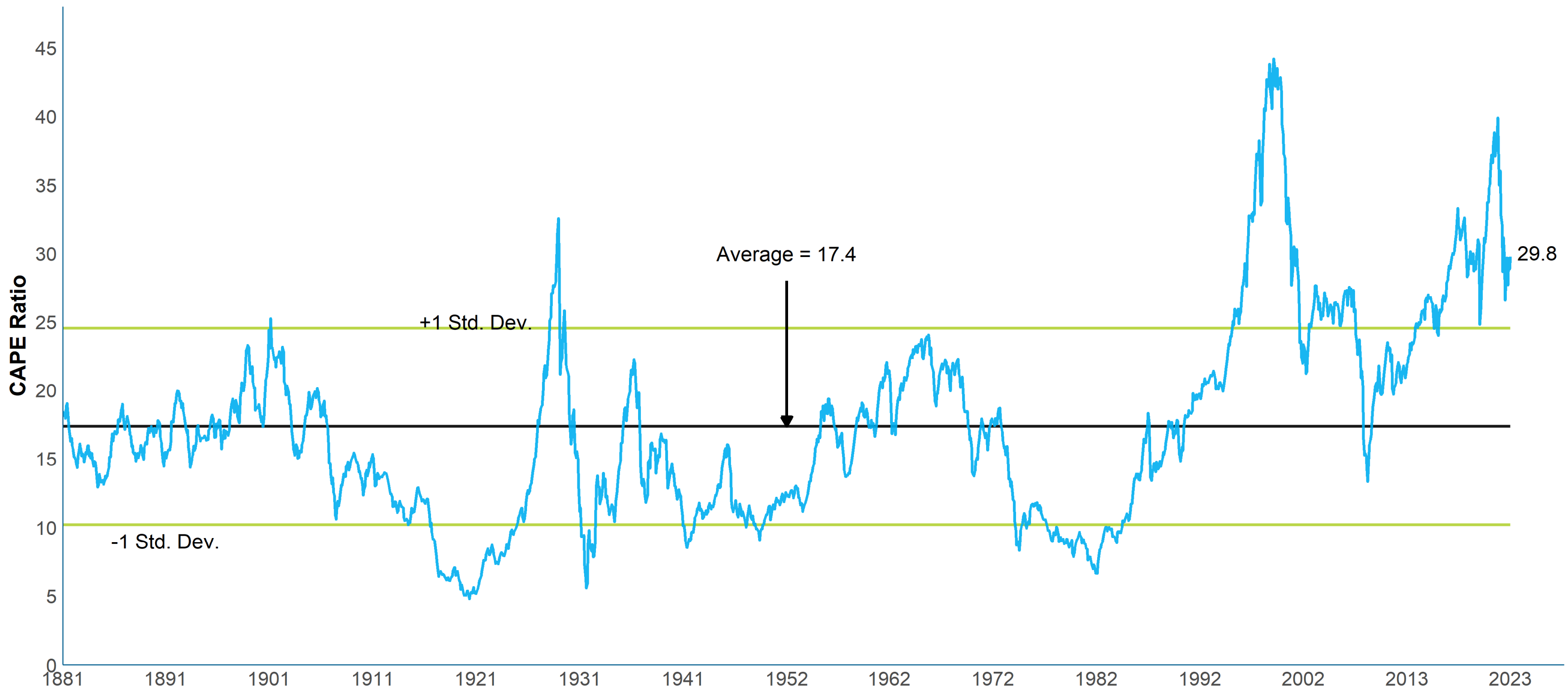
Market Sentiment Indicator (All History)
(As of March 31, 2023)



Market Sentiment Indicator (Last Three Years)
(As of March 31, 2023)



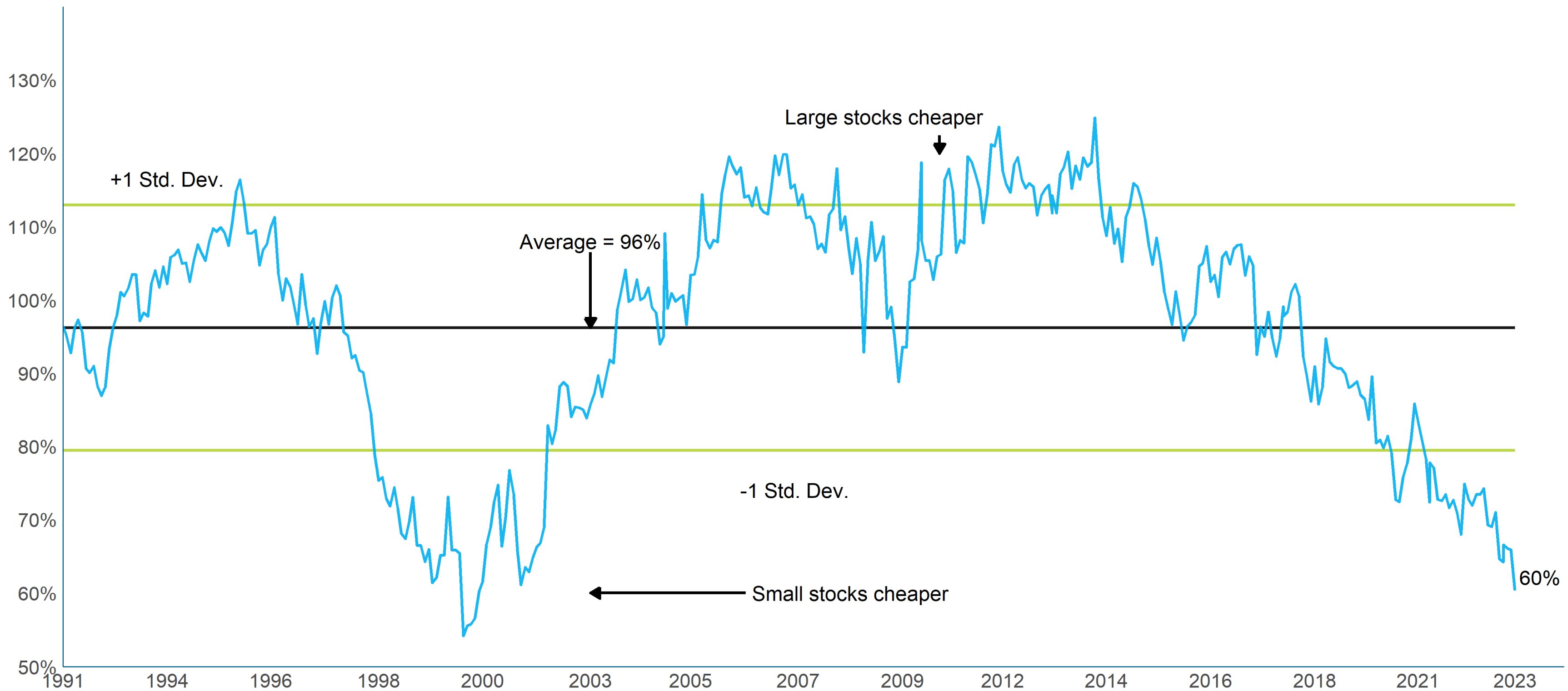
US Equity Cyclically Adjusted P/E[1]
(As of March 31, 2023)



→ 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, 2023)



→ 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.

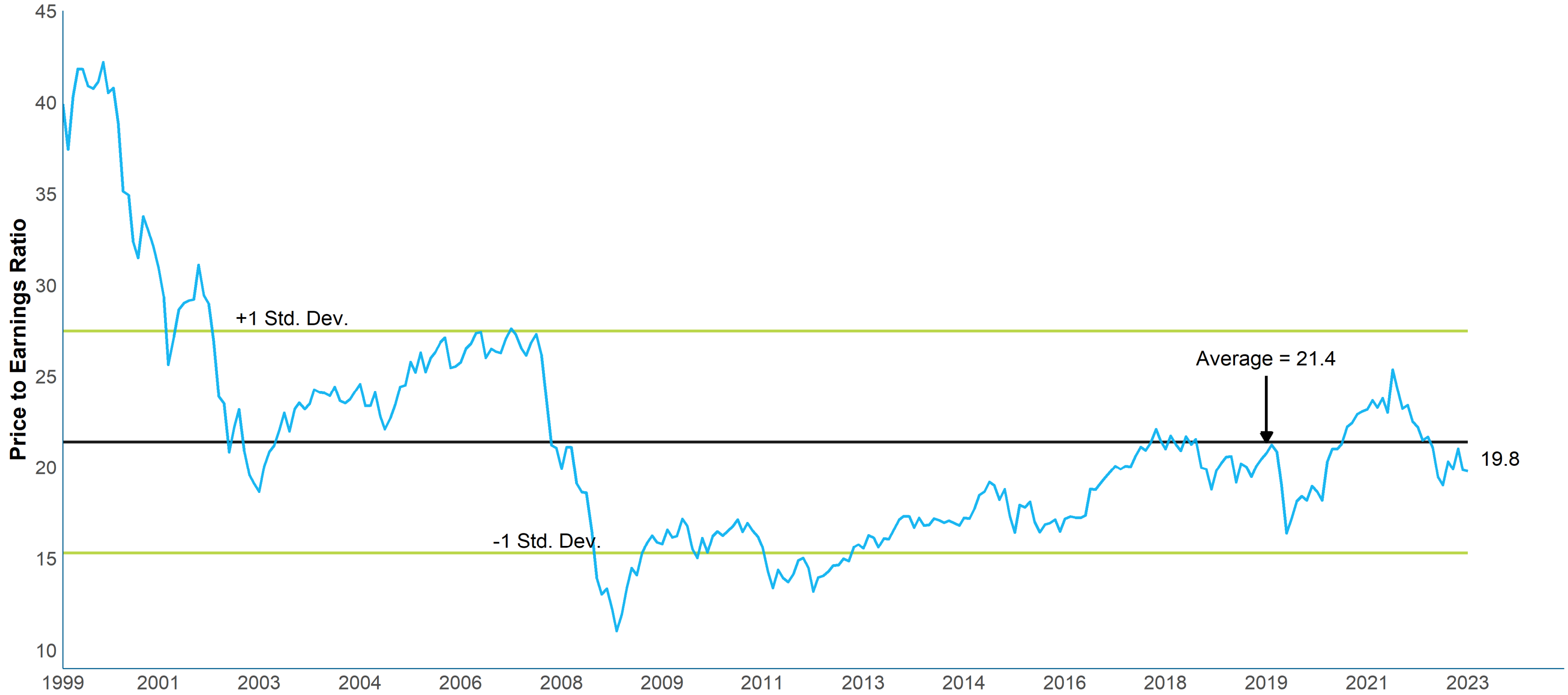
[1] Small Cap P/E (Russell 2000 Index) vs. Large Cap P/E (Russell 1000 Index) - Source: Russell Investments and Bloomberg. Prior months unavailable on Bloomberg are backfilled with last reported earnings. Earnings figures represent 12-month "as reported" earnings.

Growth P/E vs. Value P/E[1]
(As of March 31, 2023)

→ 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.

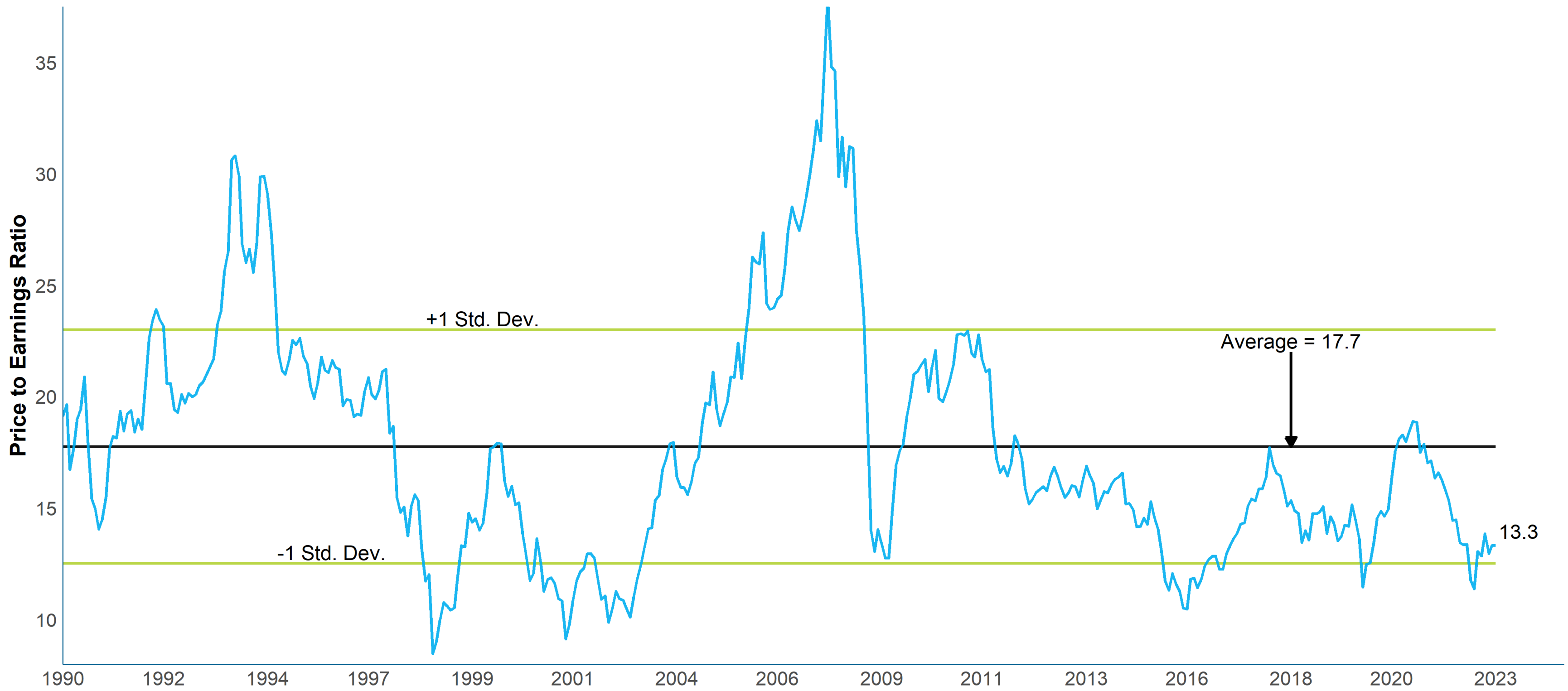
Developed International Equity Cyclically Adjusted P/E[1]
(As of March 31, 2023)



→ 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.

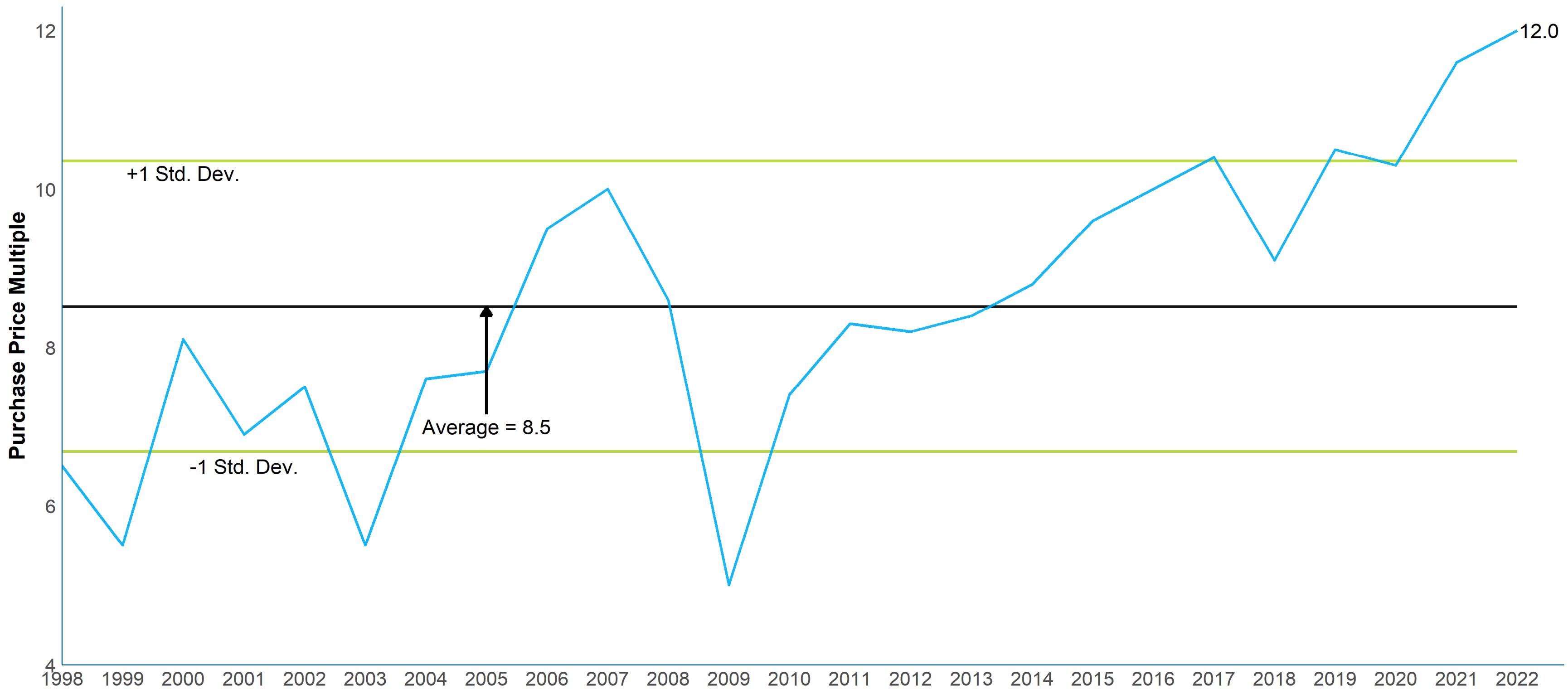
Emerging Market Equity Cyclically Adjusted P/E[1]
(As of March 31, 2023)



→ 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.

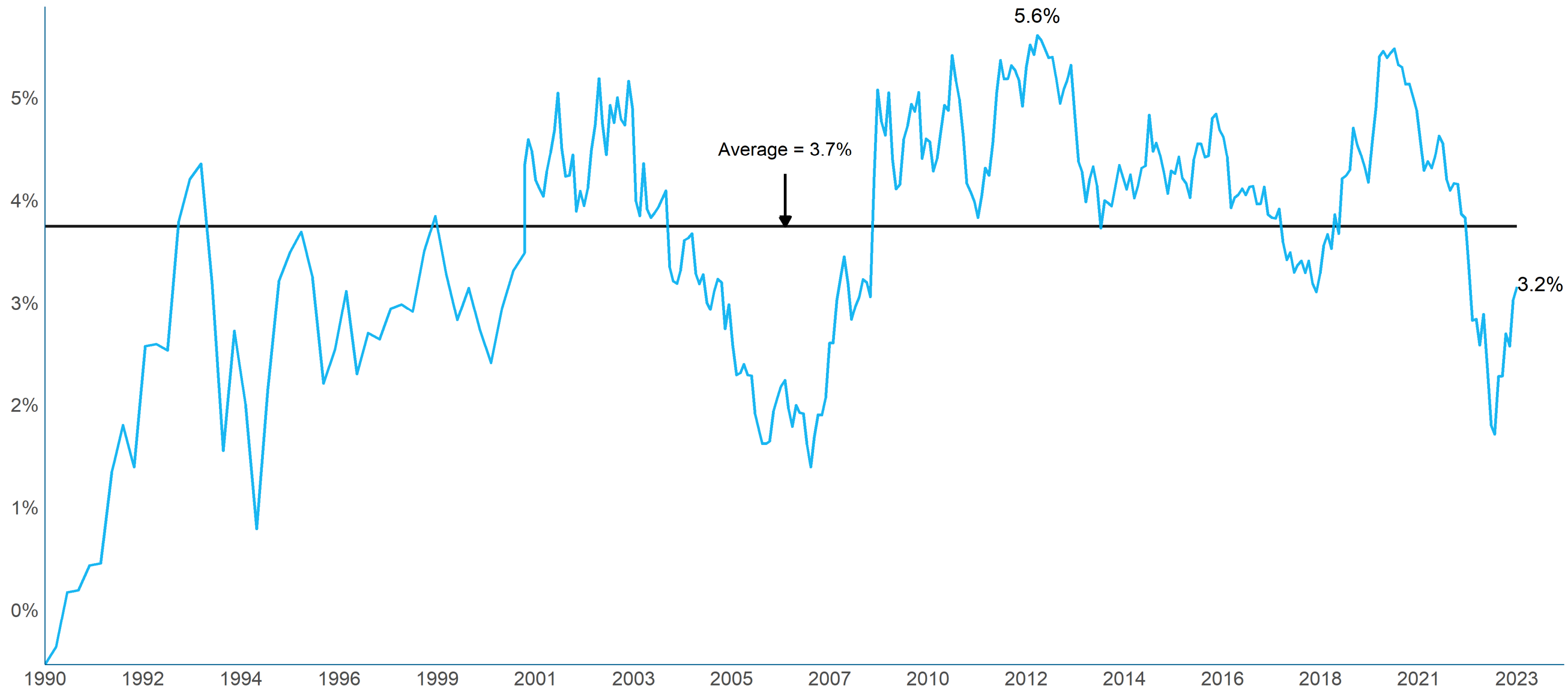
Private Equity Multiples[1]
(As of March 31, 2023)



→ 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: Preqin Median EBITDA Multiples Paid in All LBOs.

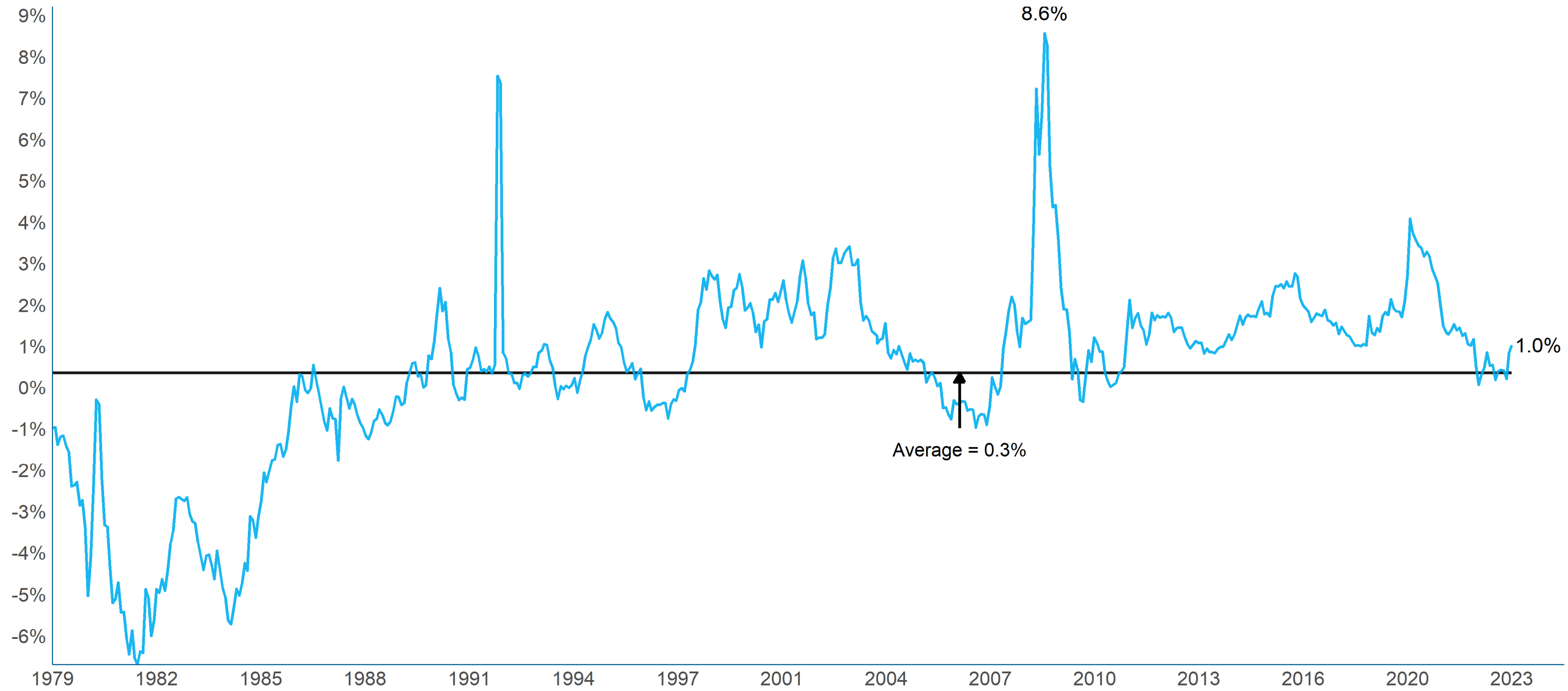
Core Real Estate Spread vs. Ten-Year Treasury[1]
(As of March 31, 2023)



→ 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.

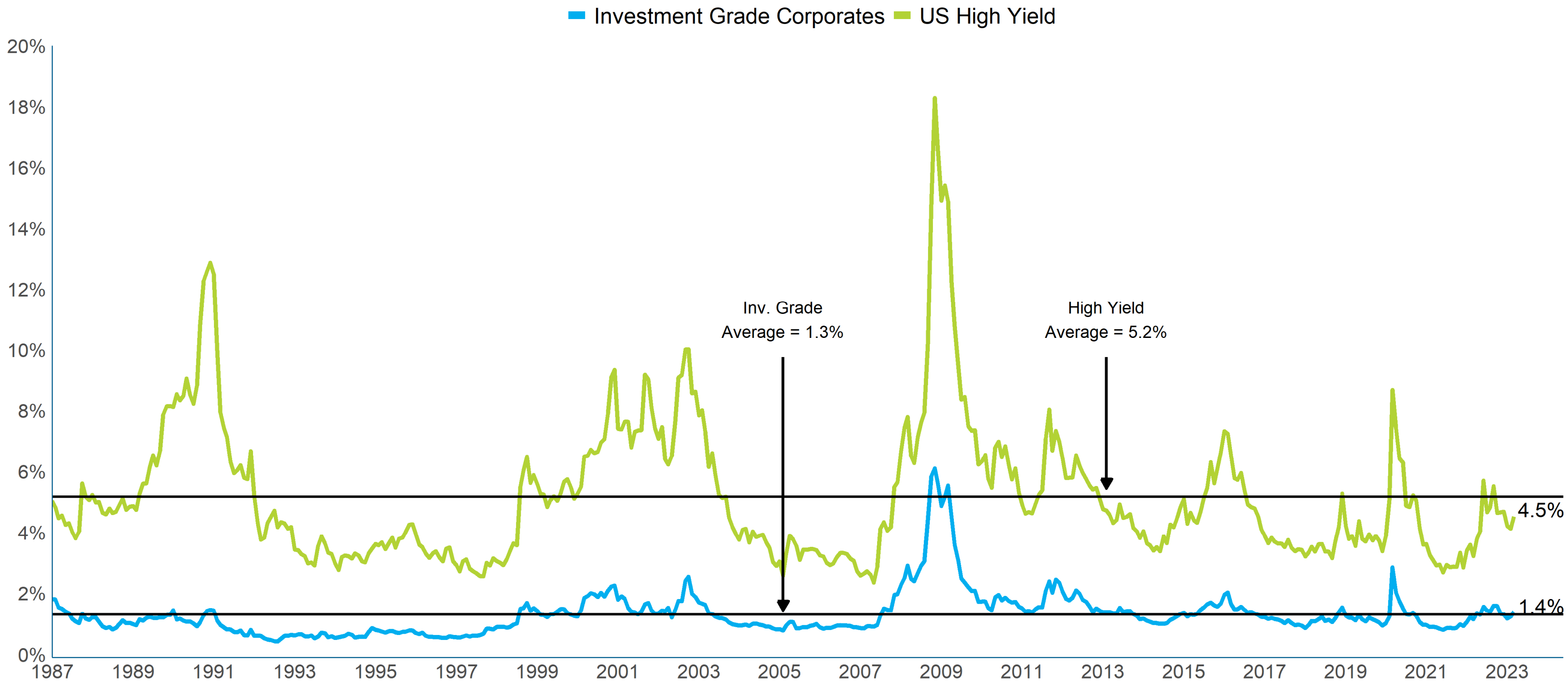
REITs Dividend Yield Spread vs. Ten-Year Treasury[1]
(As of March 31, 2023)



→ 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, 2023)



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

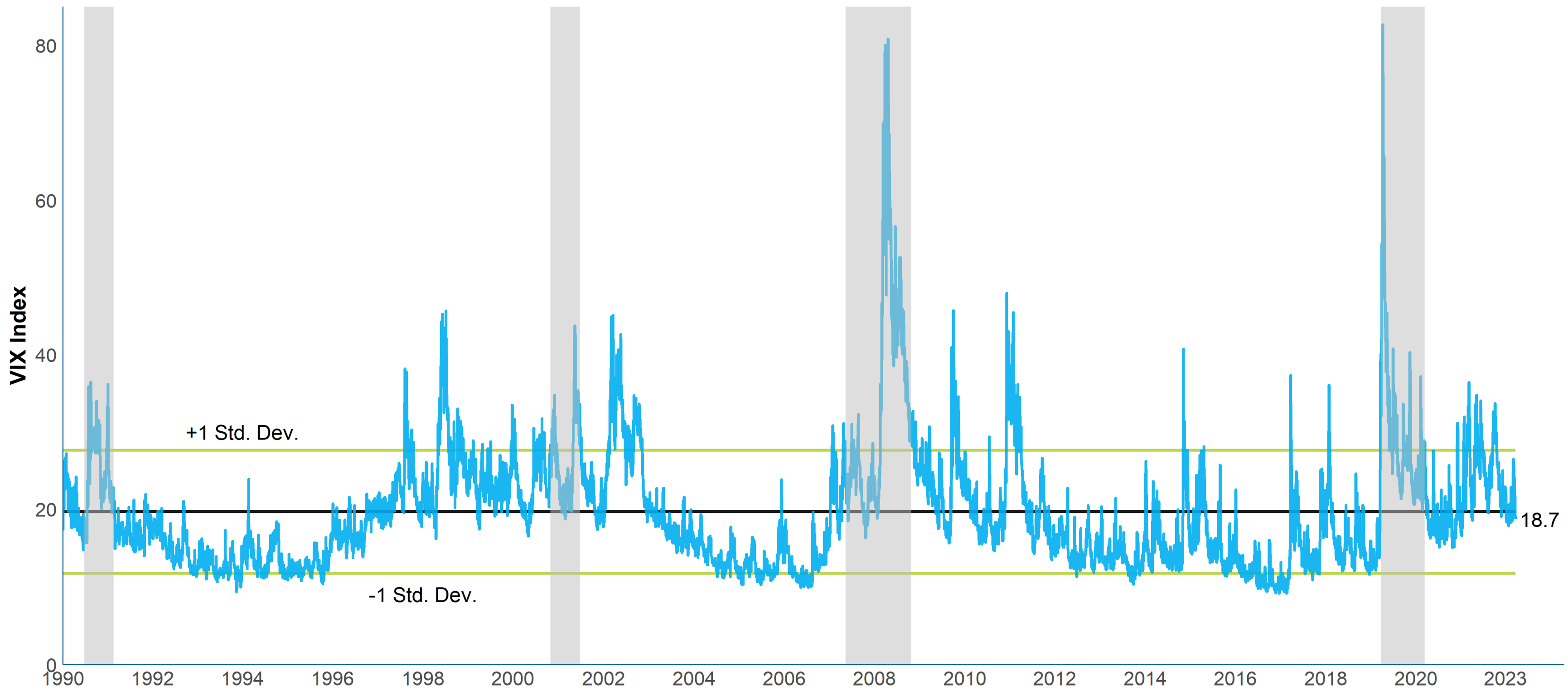
[1] Credit Spreads – Source: Bloomberg. High Yield is proxied by the Bloomberg High Yield Index and Investment Grade Corporates are proxied by the Bloomberg US Corporate Investment Grade Index. Spread is calculated as the difference between the Yield to Worst of the respective index and the 10-Year US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

Emerging Market Debt Spreads[1]
(As of March 31, 2023)

→ 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.

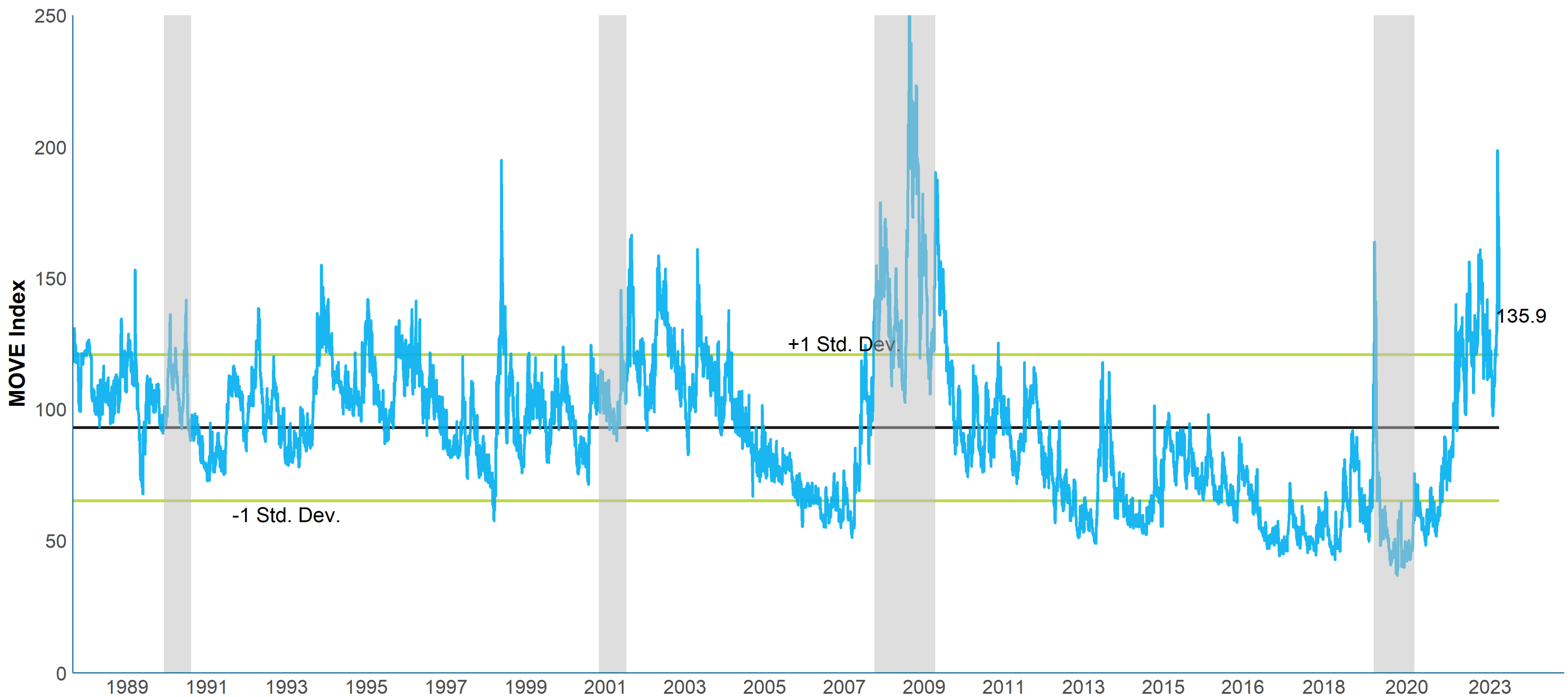
Equity Volatility[1]
(As of March 31, 2023)



→ 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.

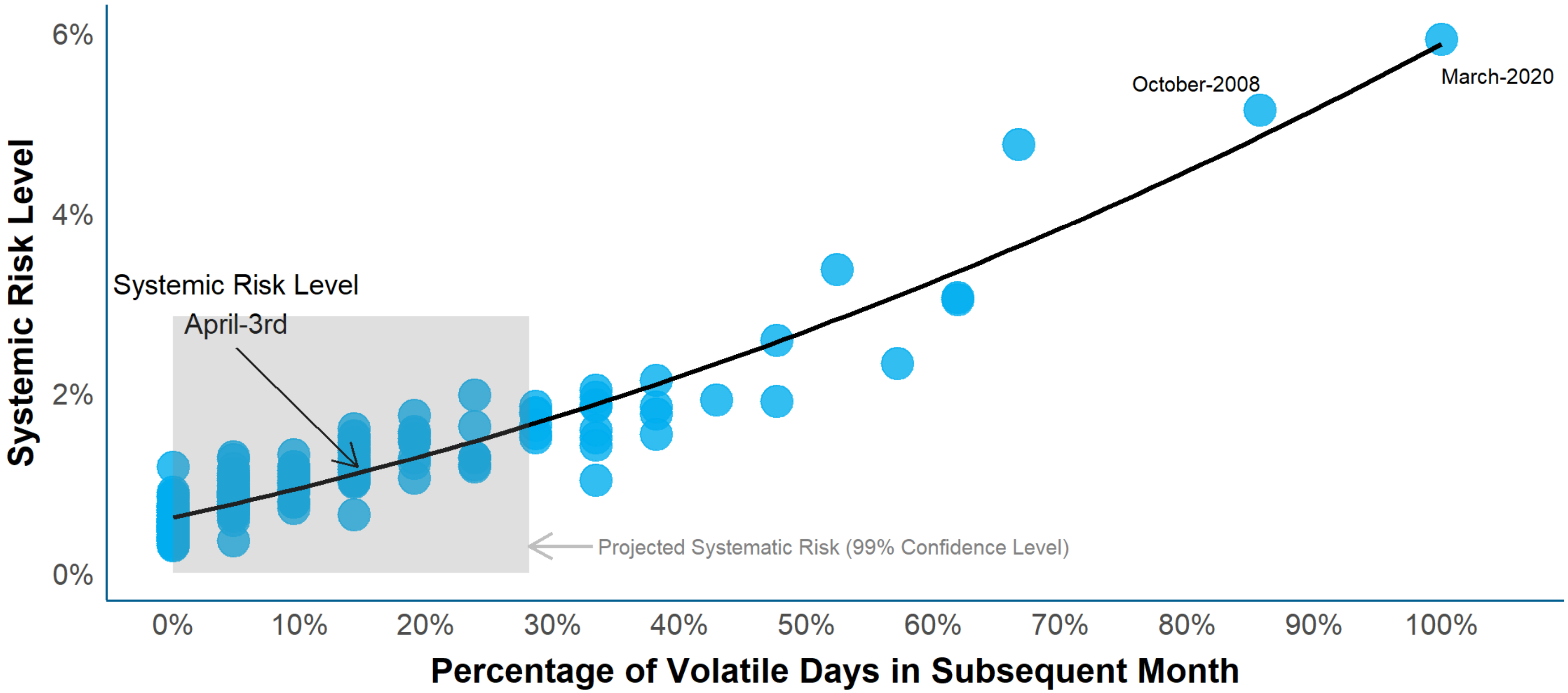
Fixed Income Volatility[1]
(As of March 31, 2023)



→ 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.

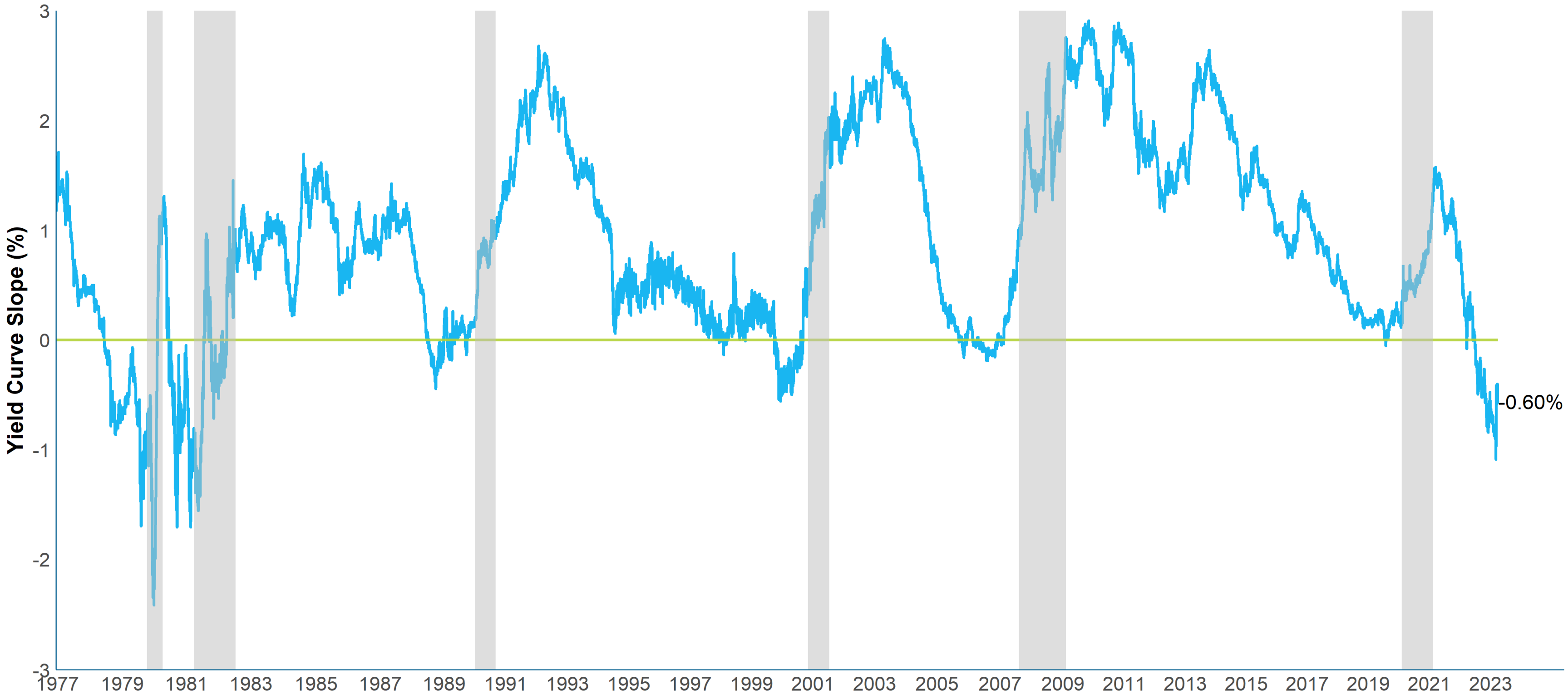
Systemic Risk and Volatile Market Days[1]
(As of March 31, 2023)



→ 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.

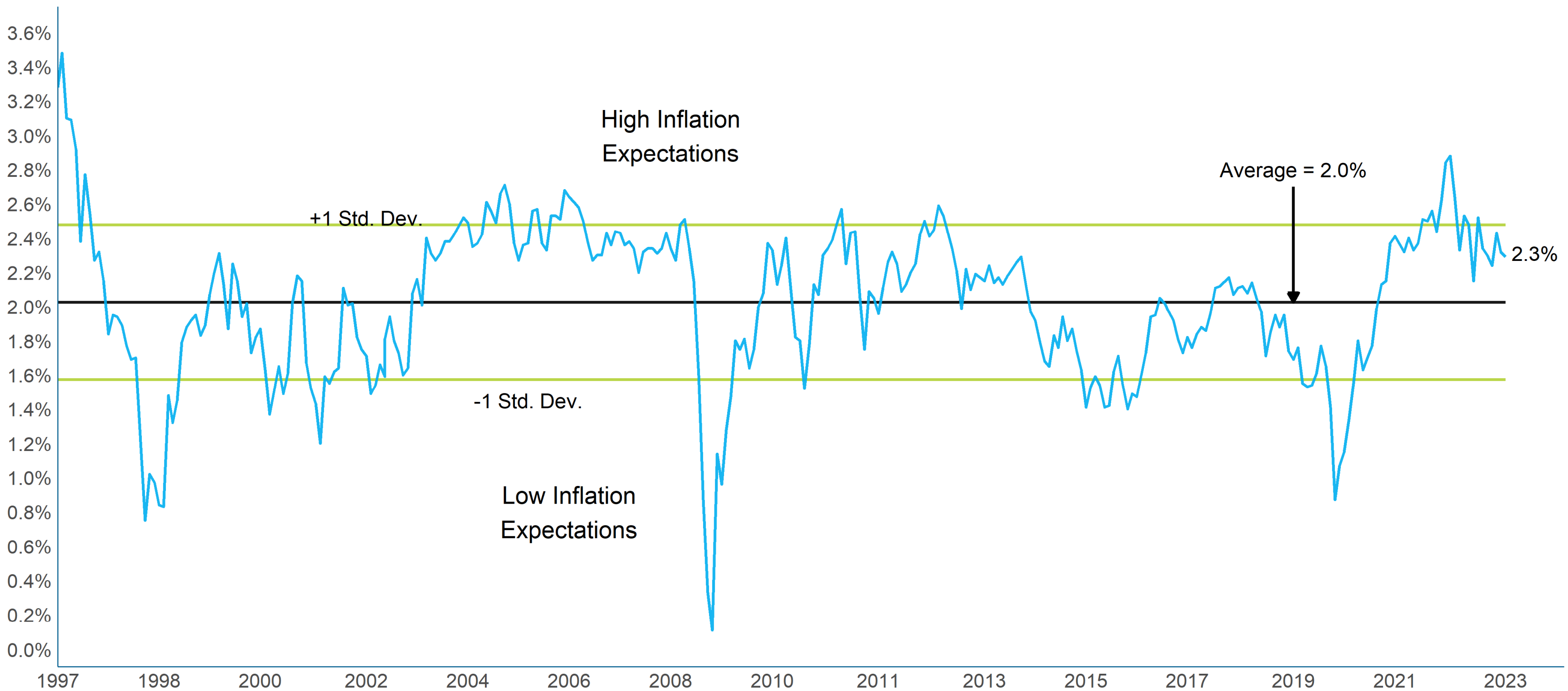
Yield Curve Slope (Ten Minus Two)[1]
(As of March 31, 2023)



→ 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.

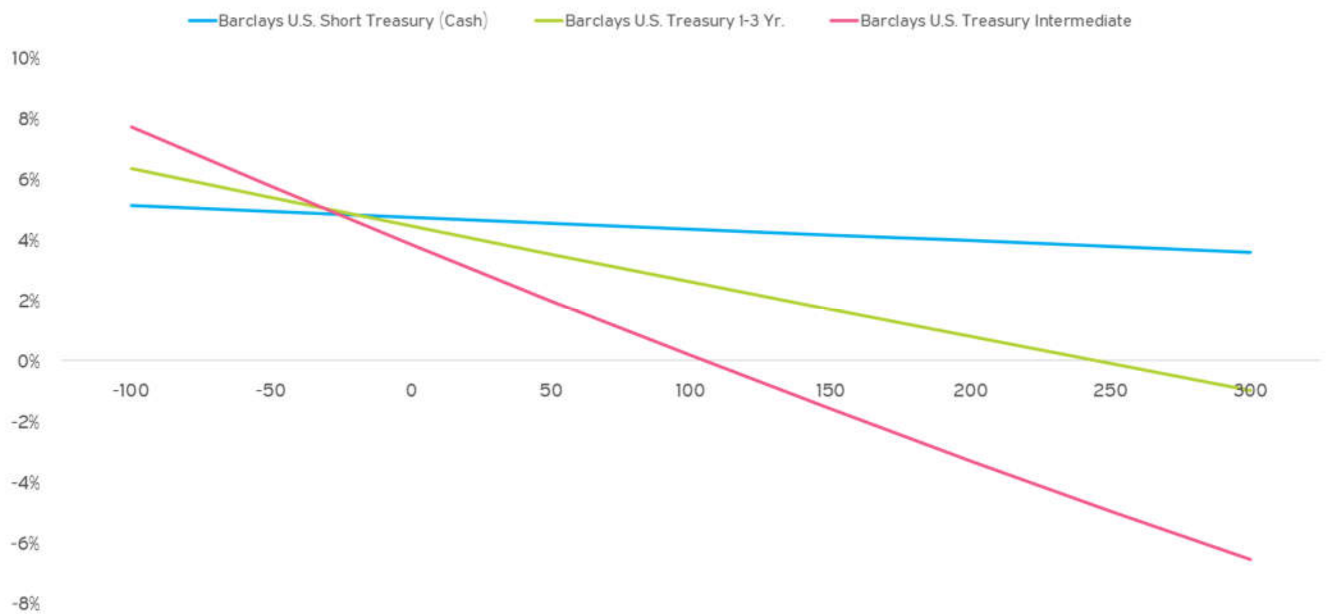
Ten-Year Breakeven Inflation[1]
(As of March 31, 2023)



→ 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).

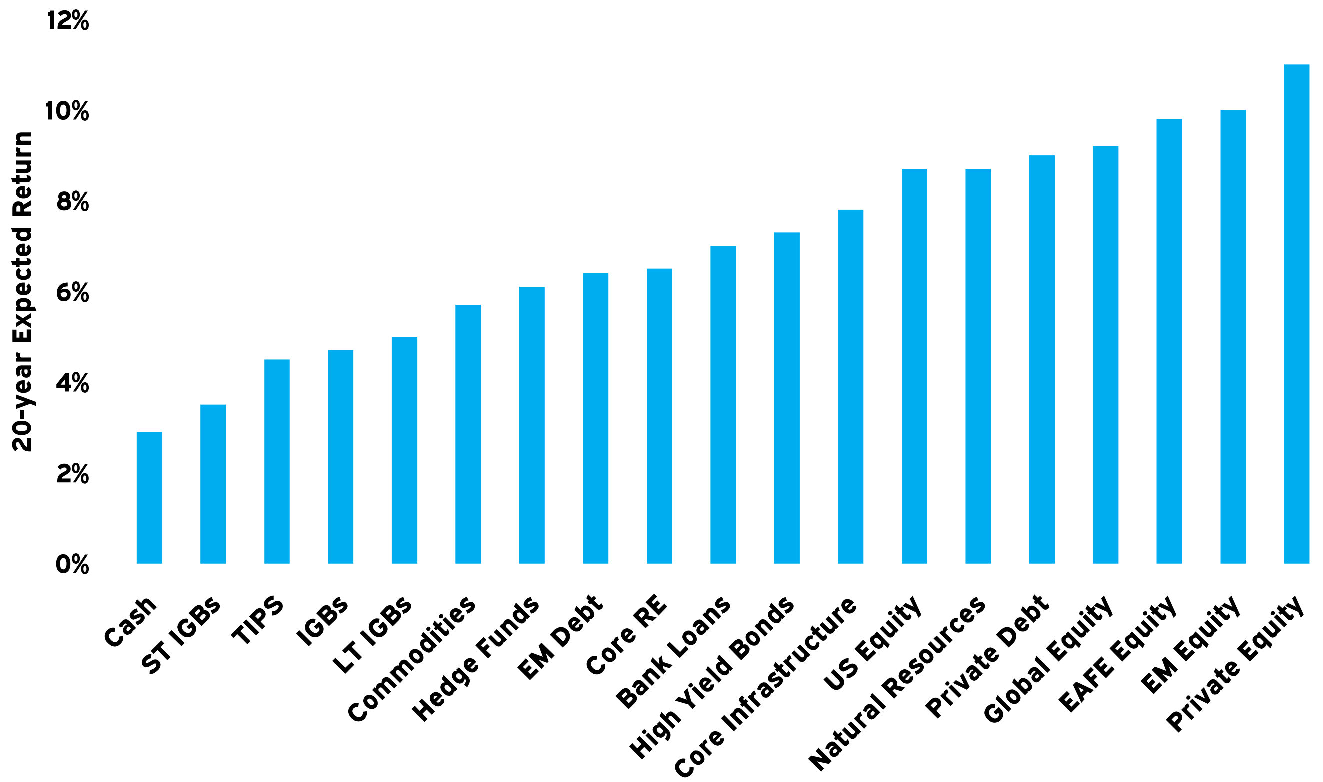
Total Return Given Changes in Interest Rates (bps)[1]
(As of March 31, 2023)



	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)	5.1%	4.9%	4.7%	4.5%	4.4%	4.2%	4.0%	3.8%	3.6%	0.39	4.74%
Barclays US Treasury 1-3 Yr.	6.3%	5.4%	4.5%	3.5%	2.6%	1.7%	0.8%	-0.1%	-1.0%	1.87	4.46%
Barclays US Treasury Intermediate	7.7%	5.8%	3.8%	2.0%	0.2%	-1.6%	-3.3%	-5.0%	-6.6%	3.78	3.84%
Barclays US Treasury Long	21.9%	12.4%	3.8%	-4.0%	-10.9%	-16.9%	-22.0%	-26.3%	-29.7%	16.36	3.77%

[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 2023 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, 2023, 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.

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[1] All Data as of March 31, 2023, 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, 2023, 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:

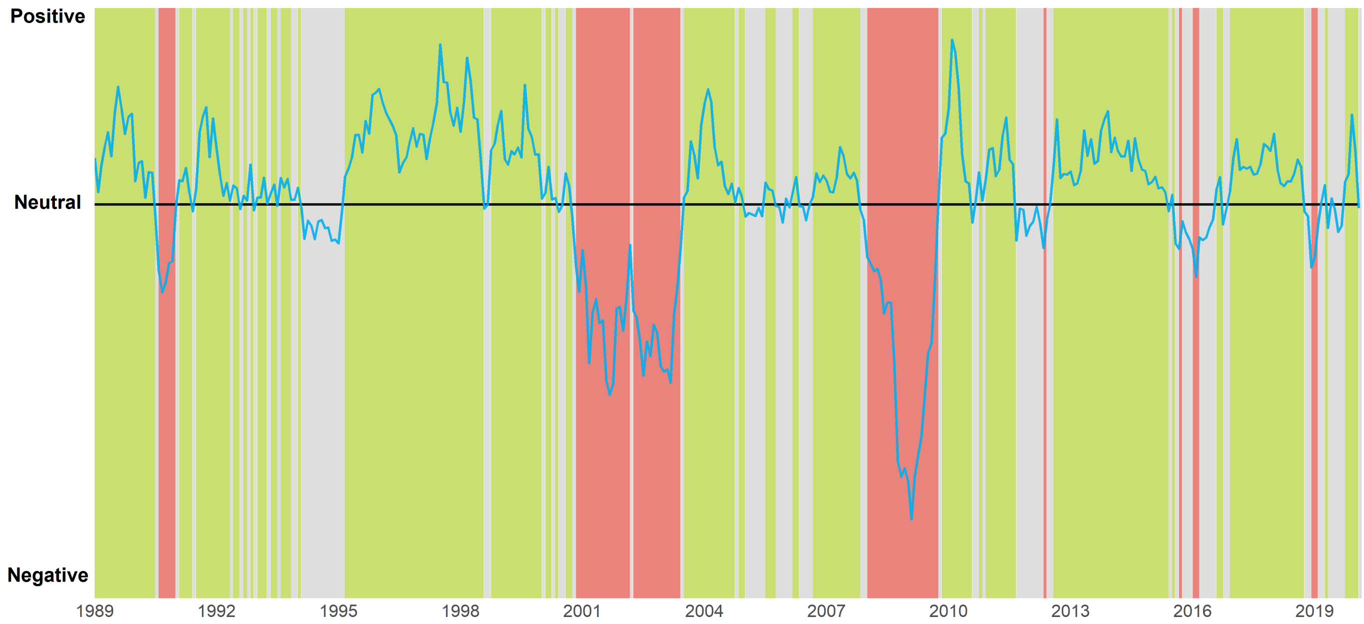
What is the Meketa Market Sentiment Indicator (MIG-MSI)?

→ 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, 2023

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Comprehensive Performance Report

March 31, 2023

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

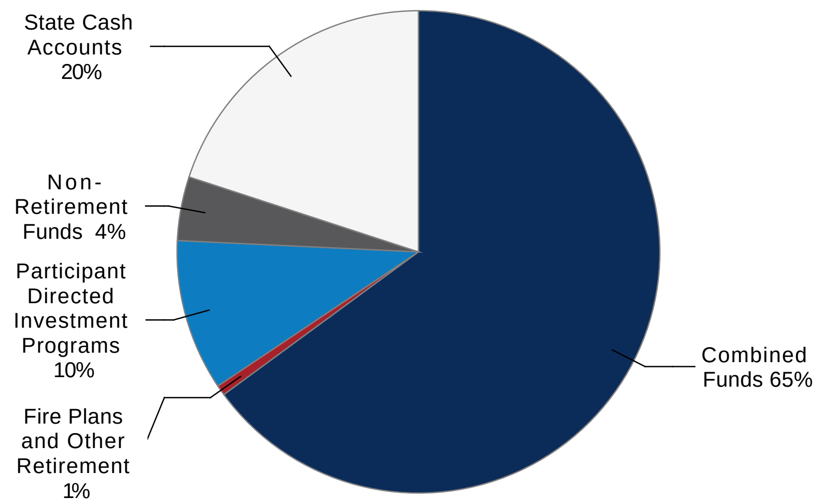
The Non-Retirement Funds are funds established by the State of Minnesota and other government entities for various purposes which include the benefit of public schools, the environment, other post-employment benefits, workers compensation insurance, and other purposes.

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	**$83,246**
Fire Plans + Other Retirement Plans	**881**
Participant Directed Investment Program	**13,001**
State Deferred Compensation Plan	8,906
Health Care Savings Plan	1,715
Unclassified Employees Retirement Plan	342
Hennepin County Supplemental Retirement Plan	158
PERA Defined Contribution Plan	87
Minnesota College Savings Plan	1,759
Minnesota Achieving a Better Life Experience Plan	34
Non-Retirement Funds	**5,489**
Assigned Risk Plan	263
Permanent School Fund	1,820
Environmental Trust Fund	1,536
Closed Landfill Investment Fund	122
Miscellaneous Trust Funds	941
Other Postemployment Benefits Accounts	807
State Cash	**25,605**
Invested Treasurer's Cash	25,515
Other State Cash Accounts	90
TOTAL SBI AUM	**128,223**



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.

Combined Funds

March 31, 2023

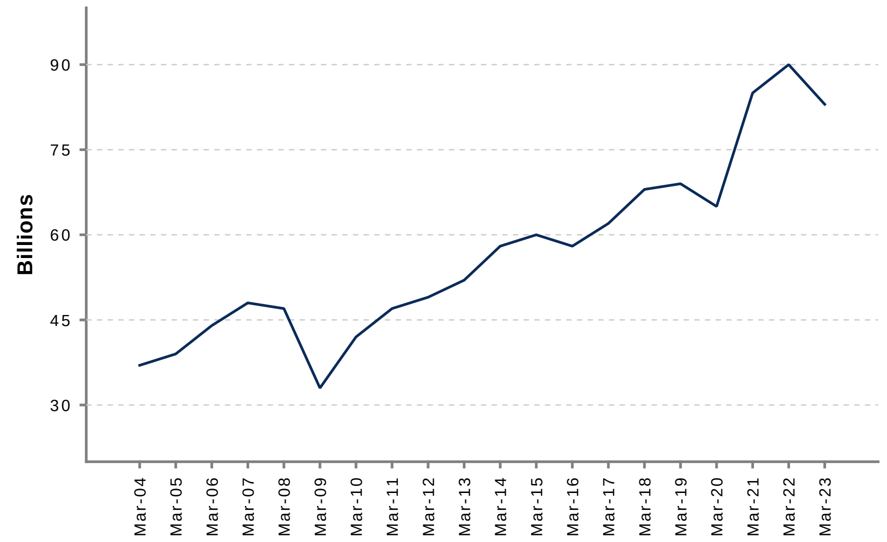
Combined Funds Summary

Combined Funds Change in Market Value ($Millions)

	One Quarter
Combined Funds	
Beginning Market Value	$80,120
Net Contributions	-684
Investment Return	3,811
Ending Market Value	83,246

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

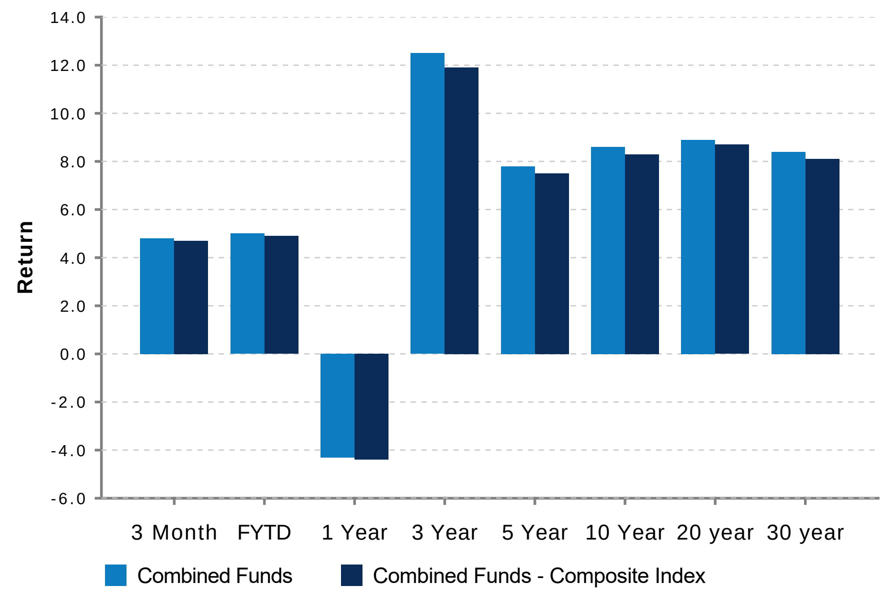
Asset Growth



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	4.8%	5.0%	-4.3%	12.5%	7.8%	8.6%	8.9%	8.4%
Combined Funds - Composite Index	4.7%	4.9%	-4.4%	11.9%	7.5%	8.3%	8.7%	8.1%
Excess	0.1%	0.1%	0.1%	0.6%	0.3%	0.3%	0.2%	0.2%

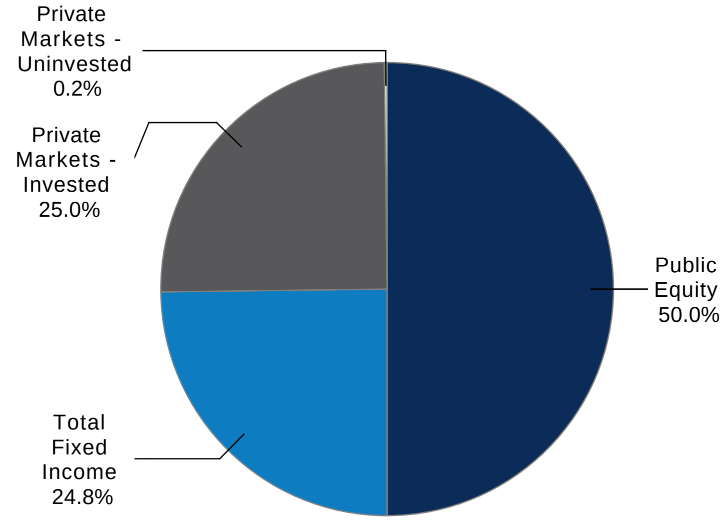


Combined Funds Summary

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.

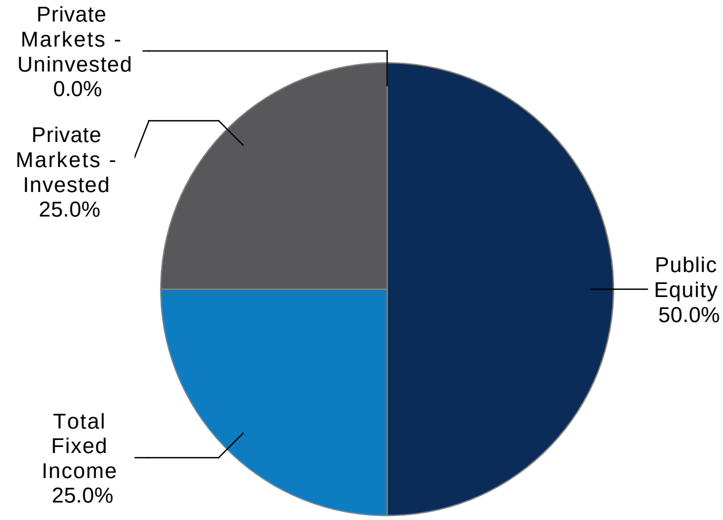
	(Millions)	Actual Mix	Policy Target
Public Equity	$41,657	50.0%	50.0%
Total Fixed Income	20,626	24.8	25.0
Private Markets - Total	20,963	25.2	25.0
Private Markets - Invested	20,788	25.0	
Private Markets - Uninvested	176	0.2	
TOTAL	83,246	100.0	



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	25.0	Private Markets
Private Markets - Uninvested	0.0	



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	$41.7	50.0%	50.0%	7.1%	10.2%	-6.7%	17.0%	8.1%	9.7%	9.6%	8.6%
Public Equity Benchmark				7.1	10.0	-7.3	16.4	7.8			
Excess				-0.0	0.2	0.6	0.6	0.3			
Domestic Equity	27.5	33.0	33.5	7.2	9.9	-8.6	18.9	10.4	11.7	10.3	9.4
Domestic Equity Benchmark				7.2	9.7	-8.6	18.6	10.4	11.7	10.4	9.5
Excess				-0.0	0.2	0.0	0.3	0.0	0.0	-0.1	-0.1
International Equity	13.2	15.9	16.5	6.5	10.7	-2.5	13.4	3.4	4.9	7.9	6.2
International Equity Benchmark				6.9	10.0	-5.1	11.7	2.4	4.2	7.5	5.5
Excess				-0.4	0.6	2.5	1.7	0.9	0.7	0.4	0.7
Global Equity	0.9	1.1	0.0	12.6	11.4	-7.7					
MSCI AC World Index (net)				7.3	9.7	-7.4					
Excess				5.3	1.7	-0.2					

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	$20.6	24.8%	25.0%	3.7%	0.6%	-5.1%	-2.9%	1.9%	2.1%	3.8%	5.0%
Total Fixed Income Benchmark				3.2%	-0.4%	-5.2%	-3.8%	1.5%	1.7%	3.3%	4.6%
Excess				0.5%	1.0%	0.1%	0.8%	0.3%	0.4%	0.4%	0.4%
Core/Core Plus	$4.5	5.4%	5.0	3.4%	0.7%	-5.0%	-1.4%	1.4%	1.9%	3.7%	4.9%
Core Bonds Benchmark				3.0%	-0.1%	-4.8%	-2.8%	0.9%	1.4%	3.2%	4.5%
Excess				0.5%	0.8%	-0.2%	1.3%	0.5%	0.5%	0.5%	0.4%
Return Seeking Fixed Income	$4.1	5.0%	5.0	3.1%	4.2%	-3.7%					
Bloomberg U.S. Aggregate				3.0%	-0.1%	-4.8%					
Excess				0.2%	4.3%	1.1%					
Treasury Protection	$7.8	9.3%	10.0	5.0%	-2.4%	-9.5%	-7.4%	0.4%			
Bloomberg Treasury 5+ Year				4.5%	-2.3%	-9.4%	-7.5%	0.4%			
Excess				0.6%	-0.0%	-0.1%	0.1%	-0.0%			
Laddered Bond + Cash	$4.2	5.1%	5.0	1.1%	2.5%	2.5%	0.8%	1.3%	0.9%	1.5%	3.1%
ICE BofA US 3-Month Treasury Bill				1.1%	2.4%	2.5%	0.9%	1.4%	0.9%	1.3%	2.4%
Excess				0.1%	0.1%	-0.1%	-0.1%	-0.1%	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	1.5%	-0.7%	3.3%	15.8%	13.4%	13.0%	14.2%	12.7%	13.5%
Private Markets - Uninvested (1)	1.4%	4.0%	-12.6%						
Private Equity	2.1%	-2.0%	-0.8%	18.4%	16.8%	16.4%	16.4%	14.3%	15.8%
Private Credit	0.2%	5.6%	12.7%	12.2%	11.9%	13.2%	12.8%	12.5%	
Resources	0.7%	4.2%	19.3%	9.4%	4.3%	3.0%	13.6%	11.5%	13.0%
Real Estate	-1.3%	-0.9%	12.7%	16.1%	13.6%	13.3%	10.1%	9.6%	9.8%

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 Private Markets Uninvested is currently cash. Prior to 11/02/2022. The Uninvested portion of the Private Markets allocation was invested in a combination of a passively managed S&P 500 Index strategy and a cash overlay strategy invested in equity derivatives and cash.

Source: State Street Bank

Asset Class & Manager Performance

March 31, 2023

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, 2023

	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)	**$2,915,252,321**	**10.4%**	**4.9%**	**9.5%**	**-10.9%**	**19.3%**	**7.8%**	**10.6%**	**8.0%**	**06/1996**
Active Domestic Equity Benchmark			4.0	7.7	-10.4	17.7	7.5	10.1	8.5	06/1996
Excess			0.9	1.8	-0.5	1.5	0.3	0.5	-0.6	
SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)	**2,953,412,417**	**10.5**	**7.6**	**10.4**	**-7.5**	**19.4**	**11.3**	**12.3**	**8.8**	**06/1996**
Semi Passive Domestic Equity Benchmark			7.5	9.9	-8.4	18.6	10.9	12.0	8.7	06/1996
Excess			0.1	0.4	0.9	0.9	0.4	0.2	0.1	
PASSIVE DOMESTIC EQUITY AGGREGATE (3)	**22,210,978,492**	**79.1**	**7.4**	**10.0**	**-8.4**	**18.6**	**10.8**	**11.9**	**8.9**	**06/1996**
Passive Domestic Equity Benchmark			7.4	9.9	-8.4	18.6	10.7	11.9	9.0	06/1996
Excess			-0.0	0.0	0.0	-0.0	0.0	-0.0	-0.1	
TOTAL DOMESTIC EQUITY (5)	**28,079,643,229**	**100.0**	**7.2**	**9.9**	**-8.6**	**18.9**	**10.4**	**11.7**	**10.4**	**01/1984**
Domestic Equity Benchmark			7.2	9.7	-8.6	18.6	10.4	11.7	10.6	01/1984
Excess			-0.0	0.2	0.0	0.3	0.0	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.

Total Domestic Equity

	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
ACTIVE DOMESTIC EQUITY AGGREGATE (1)	**-21.3%**	**18.5%**	**27.3%**	**27.6%**	**-6.5%**
Active Domestic Equity Benchmark	-19.4	20.3	19.8	28.2	-8.0
Excess	-1.9	-1.7	7.5	-0.6	1.4
SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)	**-18.7**	**28.8**	**21.0**	**30.9**	**-4.9**
Semi Passive Domestic Equity Benchmark	-19.1	26.5	21.0	31.4	-4.8
Excess	0.4	2.3	0.0	-0.5	-0.1
PASSIVE DOMESTIC EQUITY AGGREGATE (3)	**-19.2**	**26.5**	**20.8**	**31.3**	**-5.0**
Passive Domestic Equity Benchmark	-19.1	26.4	20.8	31.3	-5.0
Excess	-0.0	0.1	0.0	0.0	-0.0
TOTAL DOMESTIC EQUITY (5)	**-19.4**	**25.8**	**21.7**	**30.7**	**-5.3**
Domestic Equity Benchmark	-19.2	25.7	20.8	30.8	-5.2
Excess	-0.2	0.1	0.9	-0.1	-0.0

(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	**$164,661,523**	**0.6%**	**17.8%**	**15.6%**	**-23.8%**	**5.7%**	**7.0%**	**11.2%**	**9.8%**	**01/2005**
Russell 1000 Growth			14.4	12.7	-10.9	18.6	13.7	14.6	10.7	01/2005
Excess			3.5	3.0	-12.9	-12.9	-6.7	-3.4	-0.9	
WINSLOW	**165,216,703**	**0.6**	**11.3**	**12.9**	**-12.0**	**14.6**	**11.7**	**13.6**	**10.8**	**01/2005**
Russell 1000 Growth			14.4	12.7	-10.9	18.6	13.7	14.6	10.7	01/2005
Excess			-3.1	0.2	-1.1	-4.0	-2.0	-1.0	0.1	
RUSSELL 1000 GROWTH AGGREGATE (1)	**329,878,227**	**1.2**	**14.4**	**14.3**	**-18.3**	**14.0**	**12.7**	**14.8**	**10.4**	**11/2003**
Russell 1000 Growth			14.4	12.7	-10.9	18.6	13.7	14.6	10.6	11/2003
Excess			0.1	1.6	-7.4	-4.6	-1.0	0.2	-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.

	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
Active Large Cap Growth					
SANDS	**-49.3%**	**5.2%**	**71.0%**	**33.5%**	**7.0%**
Russell 1000 Growth	-29.1	27.6	38.5	36.4	-1.5
Excess	-20.2	-22.4	32.5	-2.8	8.6
WINSLOW	**-31.0**	**24.8**	**37.6**	**34.2**	**4.2**
Russell 1000 Growth	-29.1	27.6	38.5	36.4	-1.5
Excess	-1.8	-2.8	-0.9	-2.2	5.7
RUSSELL 1000 GROWTH AGGREGATE (1)	**-41.3**	**12.8**	**81.3**	**37.3**	**4.7**
Russell 1000 Growth	-29.1	27.6	38.5	36.4	-1.5
Excess	-12.1	-14.8	42.8	0.9	6.2

(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	**$1,475,720,777**	**5.3%**	**7.6%**	**10.1%**	**-7.8%**	**18.8%**	**10.9%**	**12.6%**	**10.1%**	**01/1995**
Semi Passive Domestic Equity Benchmark			7.5	9.9	-8.4	18.6	10.9	12.0	9.7	01/1995
Excess			0.2	0.1	0.6	0.3	0.0	0.6	0.4	
J.P. MORGAN	**1,477,691,640**	**5.3**	**7.5**	**10.7**	**-7.2**	**20.0**	**11.7**	**12.6**	**10.1**	**01/1995**
Semi Passive Domestic Equity Benchmark			7.5	9.9	-8.4	18.6	10.9	12.0	9.7	01/1995
Excess			0.1	0.8	1.2	1.5	0.8	0.6	0.4	
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE	**2,953,412,417**	**10.5**	**7.6**	**10.4**	**-7.5**	**19.4**	**11.3**	**12.3**	**8.8**	**06/1996**
Semi Passive Domestic Equity Benchmark			7.5	9.9	-8.4	18.6	10.9	12.0	8.7	06/1996
Excess			0.1	0.4	0.9	0.9	0.4	0.2	0.1	

Semi-Passive Large Cap

	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
BLACKROCK	**-19.2%**	**28.3%**	**20.7%**	**30.4%**	**-4.1%**
Semi Passive Domestic Equity Benchmark	-19.1	26.5	21.0	31.4	-4.8
Excess	-0.1	1.8	-0.3	-1.0	0.7
J.P. MORGAN	**-18.1**	**29.3**	**21.2**	**31.3**	**-5.4**
Semi Passive Domestic Equity Benchmark	-19.1	26.5	21.0	31.4	-4.8
Excess	1.0	2.8	0.3	-0.1	-0.6
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE	**-18.7**	**28.8**	**21.0**	**30.9**	**-4.9**
Semi Passive Domestic Equity Benchmark	-19.1	26.5	21.0	31.4	-4.8
Excess	0.4	2.3	0.0	-0.5	-0.1

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active Large Cap Value										
BARROW HANLEY	**$358,616,833**	**1.3%**	**-2.2%**	**7.3%**	**-3.4%**	**23.2%**	**9.8%**	**10.4%**	**8.4%**	**04/2004**
Russell 1000 Value			1.0	7.2	-5.9	17.9	7.5	9.1	7.7	04/2004
Excess			-3.2	0.1	2.6	5.3	2.3	1.3	0.7	
LSV	**346,239,583**	**1.2**	**0.5**	**7.2**	**-4.6**	**21.4**	**6.5**	**10.0**	**8.6**	**04/2004**
Russell 1000 Value			1.0	7.2	-5.9	17.9	7.5	9.1	7.7	04/2004
Excess			-0.5	0.1	1.3	3.5	-1.0	0.9	0.9	
RUSSELL 1000 VALUE AGGREGATE	**704,856,416**	**2.5**	**-0.9**	**7.3**	**-4.0**	**22.2**	**8.5**	**10.3**	**8.6**	**10/2003**
Russell 1000 Value			1.0	7.2	-5.9	17.9	7.5	9.1	8.4	10/2003
Excess			-1.9	0.1	2.0	4.3	1.0	1.1	0.2	

	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
Active Large Cap Value					
BARROW HANLEY	**1.1%**	**27.7%**	**2.4%**	**26.9%**	**-5.9%**
Russell 1000 Value	-7.5	25.2	2.8	26.5	-8.3
Excess	8.6	2.5	-0.4	0.4	2.4
LSV	**-6.3**	**29.7**	**-1.3**	**26.9**	**-11.8**
Russell 1000 Value	-7.5	25.2	2.8	26.5	-8.3
Excess	1.3	4.5	-4.1	0.4	-3.6
RUSSELL 1000 VALUE AGGREGATE	**-2.6**	**28.8**	**1.6**	**27.4**	**-8.7**
Russell 1000 Value	-7.5	25.2	2.8	26.5	-8.3
Excess	4.9	3.7	-1.2	0.9	-0.4

	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	**$173,222,662**	**0.6%**	**8.0%**	**13.1%**	**-9.5%**	**16.4%**	**4.8%**		**9.5%**	**11/2016**
Russell 2000 Growth			6.1	10.7	-10.6	13.4	4.3		8.6	11/2016
Excess			2.0	2.4	1.1	3.1	0.5		0.9	
HOOD RIVER	**220,630,567**	**0.8**	**6.3**	**10.5**	**-13.4**	**25.9**	**11.9**		**14.2**	**11/2016**
Russell 2000 Growth			6.1	10.7	-10.6	13.4	4.3		8.6	11/2016
Excess			0.3	-0.2	-2.8	12.5	7.7		5.6	
RICE HALL JAMES	**186,788,435**	**0.7**	**6.9**	**5.3**	**-8.4**	**17.8**	**3.5**		**9.8**	**11/2016**
Russell 2000 Growth			6.1	10.7	-10.6	13.4	4.3		8.6	11/2016
Excess			0.8	-5.4	2.2	4.4	-0.8		1.2	
WELLINGTON	**230,953,189**	**0.8**	**4.6**	**8.0**	**-13.1**	**12.1**	**3.9**		**8.5**	**11/2016**
Russell 2000 Growth			6.1	10.7	-10.6	13.4	4.3		8.6	11/2016
Excess			-1.5	-2.8	-2.5	-1.2	-0.3		-0.1	
RUSSELL 2000 GROWTH AGGREGATE	**811,594,853**	**2.9**	**6.3**	**9.1**	**-11.4**	**18.0**	**6.1**	**8.5%**	**7.3**	**11/2003**
Russell 2000 Growth			6.1	10.7	-10.6	13.4	4.3	8.5	8.1	11/2003
Excess			0.2	-1.6	-0.8	4.6	1.8	0.0	-0.8	

	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
Active Small Cap Growth					
ARROWMARK	**-23.3%**	**6.1%**	**21.9%**	**20.1%**	**0.9%**
Russell 2000 Growth	-26.4	2.8	34.6	28.5	-9.3
Excess	3.1	3.2	-12.8	-8.4	10.3
HOOD RIVER	**-27.7**	**24.2**	**61.7**	**24.3**	**-7.0**
Russell 2000 Growth	-26.4	2.8	34.6	28.5	-9.3
Excess	-1.4	21.4	27.0	-4.2	2.3
RICE HALL JAMES	**-24.4**	**15.6**	**23.8**	**18.0**	**-6.9**
Russell 2000 Growth	-26.4	2.8	34.6	28.5	-9.3
Excess	2.0	12.8	-10.8	-10.5	2.4
WELLINGTON	**-28.5**	**4.3**	**33.1**	**35.6**	**-11.6**
Russell 2000 Growth	-26.4	2.8	34.6	28.5	-9.3
Excess	-2.1	1.4	-1.5	7.1	-2.3
RUSSELL 2000 GROWTH AGGREGATE	**-26.3**	**12.4**	**35.4**	**24.6**	**-6.2**
Russell 2000 Growth	-26.4	2.8	34.6	28.5	-9.3
Excess	0.0	9.5	0.8	-3.9	3.2

Active Small Cap Value

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
GOLDMAN SACHS	**$269,935,098**	**1.0%**	**0.2%**	**4.3%**	**-11.4%**	**20.1%**	**3.9%**	**7.7%**	**8.3%**	**01/2004**
Russell 2000 Value			-0.7	2.7	-13.0	21.0	4.5	7.2	7.2	01/2004
Excess			0.9	1.6	1.6	-0.9	-0.6	0.5	1.1	
HOTCHKIS AND WILEY	**193,254,179**	**0.7**	**3.0**	**16.5**	**-2.7**	**35.3**	**8.9**	**9.6**	**8.6**	**01/2004**
Russell 2000 Value			-0.7	2.7	-13.0	21.0	4.5	7.2	7.2	01/2004
Excess			3.7	13.8	10.3	14.3	4.4	2.4	1.4	
MARTINGALE	**166,866,764**	**0.6**	**1.3**	**8.6**	**-4.2**	**27.1**	**5.7**	**9.1**	**7.6**	**01/2004**
Russell 2000 Value			-0.7	2.7	-13.0	21.0	4.5	7.2	7.2	01/2004
Excess			2.0	5.8	8.7	6.0	1.1	1.9	0.4	
PEREGRINE	**253,930,852**	**0.9**	**-0.2**	**3.2**	**-11.3**	**24.9**	**4.4**	**7.7**	**9.2**	**07/2000**
Russell 2000 Value			-0.7	2.7	-13.0	21.0	4.5	7.2	8.6	07/2000
Excess			0.4	0.5	1.7	3.9	-0.2	0.5	0.6	
RUSSELL 2000 VALUE AGGREGATE	**883,986,893**	**3.1**	**0.9**	**7.2**	**-8.3**	**25.7**	**5.3**	**8.2**	**8.5**	**10/2003**
Russell 2000 Value			-0.7	2.7	-13.0	21.0	4.5	7.2	7.9	10/2003
Excess			1.6	4.5	4.7	4.7	0.7	1.0	0.6	

Active Small Cap Value

	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
GOLDMAN SACHS	**-14.4%**	**27.0%**	**2.4%**	**23.2%**	**-13.3%**
Russell 2000 Value	-14.5	28.3	4.6	22.4	-12.9
Excess	0.1	-1.3	-2.3	0.8	-0.5
HOTCHKIS AND WILEY	**3.1**	**36.5**	**-0.2**	**19.7**	**-14.4**
Russell 2000 Value	-14.5	28.3	4.6	22.4	-12.9
Excess	17.6	8.2	-4.8	-2.7	-1.5
MARTINGALE	**-8.0**	**41.3**	**-4.6**	**21.1**	**-15.0**
Russell 2000 Value	-14.5	28.3	4.6	22.4	-12.9
Excess	6.4	13.0	-9.2	-1.3	-2.1
PEREGRINE	**-12.5**	**28.6**	**7.3**	**21.1**	**-16.1**
Russell 2000 Value	-14.5	28.3	4.6	22.4	-12.9
Excess	2.0	0.3	2.7	-1.3	-3.3
RUSSELL 2000 VALUE AGGREGATE	**-9.4**	**31.8**	**1.5**	**21.3**	**-14.7**
Russell 2000 Value	-14.5	28.3	4.6	22.4	-12.9
Excess	5.1	3.5	-3.1	-1.1	-1.8

	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)	**$184,935,933**	**0.7%**	**32.4%**	**24.4%**	**-27.2%**	**6.7%**	**10.0%**	**13.8%**	**10.6%**	**04/1994**
Zevenbergen Custom Benchmark			13.9	12.6	-10.9	19.9	14.4	15.0		04/1994
Excess			18.5	11.8	-16.3	-13.2	-4.5	-1.2		
ACTIVE RUSSELL 3000 GROWTH (2)	**184,935,933**	**0.7**	**32.4**	**24.4**	**-27.2**				**-24.7**	**01/2021**
Russell 3000 Growth TR			13.9	12.6	-10.9				0.8	01/2021
Excess			18.5	11.8	-16.3				-25.5	

(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.

	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
Active All Cap					
ZEVENBERGEN (1)	**-55.7%**	**-9.7%**	**126.2%**	**43.0%**	**2.3%**
Zevenbergen Custom Benchmark	-29.0	32.3	38.5	36.4	-1.5
Excess	-26.8	-42.0	87.7	6.7	3.8
ACTIVE RUSSELL 3000 GROWTH (2)	**-55.7**	**-9.7**			
Russell 3000 Growth TR	-29.0	25.8			
Excess	-26.8	-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	**$21,430,888,300**	**76.3%**	**7.5%**	**10.0%**	**-8.4%**	**18.5%**	**10.9%**		**12.6%**	**11/2016**
RUSSELL 1000 (DAILY)			7.5	9.9	-8.4	18.6	10.9		12.6	11/2016
Excess			-0.0	0.0	0.0	-0.0	-0.0		-0.0	
BLACKROCK RUSSELL 2000	**77,223,730**	**0.3**	**2.7**	**6.4**	**-11.9**	**18.1**			**6.0**	**11/2018**
RUSSELL 2000 (DAILY)			2.7	6.8	-11.6	17.5			5.5	11/2018
Excess			-0.0	-0.4	-0.3	0.6			0.6	
BLACKROCK RUSSELL 3000 (1)	**702,866,462**	**2.5**	**7.2**	**9.8**	**-8.5**	**18.7**	**10.6**	**11.8%**	**9.5**	**07/1995**
Passive Manager Benchmark			7.2	9.7	-8.6	18.5	10.5	11.7	9.4	07/1995
Excess			0.0	0.0	0.1	0.3	0.2	0.1	0.1	
PASSIVE DOMESTIC EQUITY AGGREGATE (2)	**22,210,978,492**	**79.1**	**7.4**	**10.0**	**-8.4**	**18.6**	**10.8**	**11.9**	**8.9**	**06/1996**
Passive Domestic Equity Benchmark			7.4	9.9	-8.4	18.6	10.7	11.9	9.0	06/1996
Excess			-0.0	0.0	0.0	-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.

	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
Total Passive Domestic Equity					
BLACKROCK RUSSELL 1000	**-19.2%**	**26.5%**	**20.9%**	**31.4%**	**-4.8%**
RUSSELL 1000 (DAILY)	-19.1	26.5	21.0	31.4	-4.8
Excess	-0.0	0.1	-0.0	0.0	-0.0
BLACKROCK RUSSELL 2000	**-19.9**	**16.0**	**20.8**	**25.2**	
RUSSELL 2000 (DAILY)	-20.4	14.8	20.0	25.5	
Excess	0.6	1.2	0.8	-0.3	
BLACKROCK RUSSELL 3000 (1)	**-19.2**	**26.2**	**21.2**	**31.1**	**-5.2**
Passive Manager Benchmark	-19.2	25.7	20.9	31.0	-5.2
Excess	0.0	0.5	0.3	0.0	-0.0
PASSIVE DOMESTIC EQUITY AGGREGATE (2)	**-19.2**	**26.5**	**20.8**	**31.3**	**-5.0**
Passive Domestic Equity Benchmark	-19.1	26.4	20.8	31.3	-5.0
Excess	-0.0	0.1	0.0	0.0	-0.0

(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, 2023

	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)	**$9,614,643,277**		**7.2%**	**13.9%**	**0.3%**	**15.4%**	**5.0%**	**55.9%**	**5.5%**	**1/1997**
BENCHMARK DM			8.0	14.0	-2.7	13.5	3.8	4.9	4.9	1/1997
Excess			-0.8	-0.1	3.0	2.0	1.2	1.0	0.6	
EMERGING MARKETS (2)	**3,217,258,782**	**24.1%**	**4.4**	**2.8**	**-10.1**	**8.5**	**-0.7**	**1.9**	**5.1**	**11/1996**
BENCHMARK EM			4.0	0.8	-10.7	7.8	-0.9	2.0	5.3	11/1996
Excess			0.4	1.9	0.6	0.7	0.2	-0.1	-0.3	
ACWI EX-US AGGREGATE	**376,942,204**	**2.8**	**7.3**	**11.2**	**-3.7**				**2.5**	**01/2021**
MSCI AC WORLD ex US (NET) - DAILY			6.9	10.0	-5.1				-1.4	01/2021
Excess			0.5	1.1	1.4				4.0	
CHINA ONLY AGGREGATE	**163,983,063**	**1.2**	**6.4**	**-4.4**	**-1.0**				**-10.4**	**01/2021**
MSCI China A			4.7	-10.8	-9.2				-9.4	01/2021
Excess			1.8	6.4	8.2				-1.0	
TRANSITION AGGREGATE INTERNATIONAL EQUITY (3)	2,474,748	0.0								
TOTAL INTERNATIONAL EQUITY (4)	**13,375,289,004**	**100.0**	**6.5**	**10.7**	**-2.5**	**13.4**	**3.4**	**4.9**	**6.2**	**10/1992**
International Equity Benchmark			6.9	10.0	-5.1	11.7	2.4	4.2	5.7	10/1992
Excess			-0.4	0.7	2.5	1.7	0.9	0.7	0.6	

(1) The current benchmark for Developed Markets, Benchmark DM, is the Standard (large + mid) MSCI World ex USA (net). Performance includes terminated manager McKinley, which terminated in February 2023.

(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.

	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
Total International Equity					
DEVELOPED MARKETS (1)	**-10.7%**	**13.5%**	**8.9%**	**23.3%**	**-14.2%**
BENCHMARK DM	-14.3%	12.6%	7.6%	22.5%	-14.1%
Excess	3.6%	0.9%	1.3%	0.8%	-0.1%
EMERGING MARKETS (2)	**-21.1**	**-1.5**	**17.9**	**20.3**	**-15.4**
BENCHMARK EM	-20.1	-2.5	18.3	18.4	-14.6
Excess	-1.0	1.1	-0.4	1.9	-0.8
ACWI EX-US AGGREGATE	**-12.6**	**12.8**			
MSCI AC WORLD ex US (NET) - DAILY	-16.0	7.8			
Excess	3.4	4.9			
CHINA ONLY AGGREGATE	**-24.5**	**-2.9**			
MSCI China A	-25.9	3.2			
Excess	1.4	-6.1			
TRANSITION AGGREGATE INTERNATIONAL EQUITY (3)					
TOTAL INTERNATIONAL EQUITY (4)	**-13.7**	**8.9**	**11.4**	**22.4**	**-14.5**
International Equity Benchmark	-16.0	7.8	10.5	21.5	-14.2
Excess	2.3	1.1	0.8	0.9	-0.3

(1) The current benchmark for Developed Markets, Benchmark DM, is the Standard (large + mid) MSCI World ex USA (net). Performance includes terminated manager McKinley, which terminated in February 2023.

(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.

Active Developed Markets

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
ACADIAN	**$513,679,385**	**3.8%**	**3.9%**	**10.3%**	**-5.8%**	**14.1%**	**3.6%**	**7.6%**	**6.2%**	**07/2005**
BENCHMARK DM			8.0	14.0	-2.7	13.5	3.8	4.9	4.9	07/2005
Excess			-4.1	-3.7	-3.1	0.6	-0.2	2.7	1.4	
COLUMBIA	**438,800,564**	**3.3**	**9.0**	**18.2**	**0.9**	**15.4**	**6.1**	**7.0**	**3.8**	**03/2000**
BENCHMARK DM			8.0	14.0	-2.7	13.5	3.8	4.9	3.6	03/2000
Excess			1.0	4.3	3.6	1.9	2.3	2.1	0.2	
FIDELITY	**440,606,811**	**3.3**	**8.5**	**13.2**	**-3.7**	**14.4**	**5.3**	**6.2**	**6.4**	**07/2005**
BENCHMARK DM			8.0	14.0	-2.7	13.5	3.8	4.9	4.9	07/2005
Excess			0.5	-0.8	-1.0	1.0	1.5	1.3	1.5	
JP MORGAN	**331,746,034**	**2.5**	**8.3**	**14.6**	**-3.0**	**13.2**	**4.3**	**5.3**	**5.2**	**07/2005**
BENCHMARK DM			8.0	14.0	-2.7	13.5	3.8	4.9	4.9	07/2005
Excess			0.3	0.7	-0.3	-0.3	0.5	0.4	0.3	
MARATHON	**371,748,780**	**2.8**	**7.6**	**14.7**	**-1.5**	**15.3**	**4.6**	**6.2**	**7.7**	**11/1993**
BENCHMARK DM			8.0	14.0	-2.7	13.5	3.8	4.9	5.0	11/1993
Excess			-0.5	0.7	1.2	1.8	0.8	1.3	2.7	
AQR CAPITAL MANAGEMENT	**252,229,703**	**1.9**	**7.4**	**12.5**	**-2.1**	**13.3**	**1.6**	**4.3**	**4.7**	**07/2005**
BENCHMARK DM			8.0	14.0	-2.7	13.5	3.8	4.9	4.9	07/2005
Excess			-0.6	-1.4	0.7	-0.2	-2.2	-0.6	-0.1	

	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
Active Developed Markets					
ACADIAN	**-12.5%**	**13.6%**	**11.7%**	**19.1%**	**-13.5%**
BENCHMARK DM	-14.3	12.6	7.6	22.5	-14.1
Excess	1.8	0.9	4.2	-3.4	0.6
COLUMBIA	**-15.0**	**14.2**	**15.0**	**28.9**	**-14.9**
BENCHMARK DM	-14.3	12.6	7.6	22.5	-14.1
Excess	-0.7	1.6	7.4	6.4	-0.8
FIDELITY	**-17.4**	**13.0**	**15.4**	**27.1**	**-14.6**
BENCHMARK DM	-14.3	12.6	7.6	22.5	-14.1
Excess	-3.2	0.4	7.8	4.6	-0.5
JP MORGAN	**-19.0**	**13.3**	**14.2**	**28.5**	**-17.3**
BENCHMARK DM	-14.3	12.6	7.6	22.5	-14.1
Excess	-4.7	0.7	6.6	6.0	-3.3
MARATHON	**-12.1**	**12.8**	**7.6**	**23.5**	**-13.4**
BENCHMARK DM	-14.3	12.6	7.6	22.5	-14.1
Excess	2.2	0.2	0.1	1.0	0.7
AQR CAPITAL MANAGEMENT	**-12.7**	**8.1**	**6.5**	**20.8**	**-18.2**
BENCHMARK DM	-14.3	12.6	7.6	22.5	-14.1
Excess	1.6	-4.5	-1.1	-1.7	-4.1

	Ending Market Value	Portfolio Weight	1 Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Total Developed Markets										
Active Developed Markets Aggregate (1)	**$2,350,596,152**	**17.6%**	**7.3%**	**13.5%**	**-2.9%**	**14.3%**	**4.3%**	**5.9%**	**5.5%**	**06/1996**
BENCHMARK DM			8.0%	14.0%	-2.7%	13.5%	3.8%	4.9%	2.3%	06/1996
Excess			-0.7%	-0.4%	-0.2%	0.8%	0.5%	1.0%	3.1%	
SSgA DEVELOPED MARKETS PASSIVE	**$7,348,999,390**	**54.9%**	**8.2%**	**14.2%**	**-2.3%**	**14.0%**	**4.3%**	**5.4%**		
BENCHMARK DM			8.0%	14.0%	-2.7%	13.5%	3.8%	4.9%		
Excess			0.1%	0.2%	0.4%	0.5%	0.5%	0.4%		
RECORD CURRENCY (2)	**-$84,965,335**	**-0.6%**	**-0.8%**	**-0.1%**	**2.8%**					**10/2020**
DEVELOPED MARKETS (1)	**$9,614,643,277**		**7.2%**	**13.9%**	**0.3%**	**15.4%**	**5.0%**	**55.9%**	**5.5%**	**1/1997**
BENCHMARK DM			8.0	14.0	-2.7	13.5	3.8	4.9	4.9	1/1997
Excess			-0.8	-0.1	3.0	2.0	1.2	1.0	0.6	

(1) Includes the historical returns of AQR and terminated managers previously classified as "Semi-Passive Developed Markets."Performance includes terminated manager McKinley, which terminated in February 2023.

(2) Return for Record Currency is the difference between the DM Equity with Currency Management and without.

STATE STREET.

	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
Total Developed Markets					
Active Developed Markets Aggregate (1)	**-15.2%**	**12.5%**	**12.2%**	**24.4%**	**-15.1%**
BENCHMARK DM	-14.3%	12.6%	7.6%	22.5%	-14.1%
Excess	-0.9%	-0.1%	4.6%	1.9%	-1.0%
SSgA DEVELOPED MARKETS PASSIVE	**-13.8%**	**13.0%**	**8.2%**	**23.0%**	**-13.9%**
BENCHMARK DM	-14.3%	12.6%	7.6%	22.5%	-14.1%
Excess	0.5%	0.4%	0.6%	0.5%	0.2%
DEVELOPED MARKETS	**-10.7%**	**13.5%**	**8.9%**	**23.3%**	**-14.2%**
BENCHMARK DM	-14.3%	12.6%	7.6%	22.5%	-14.1%
Excess	3.6%	0.9%	1.3%	0.8%	-0.1%

(1) Includes the historical returns of AQR and terminated managers previously classified as "Semi-Passive Developed Markets"erformance includes terminated manager McKinley, which terminated in February 2023.

Active Emerging Markets

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
MARTIN CURRIE	**$372,552,441**	**2.8%**	**4.6%**	**2.8%**	**-11.8%**	**6.9%**	**-0.1%**		**4.8%**	**04/2017**
BENCHMARK EM			4.0	0.8	-10.7	7.8	-0.9		3.0	04/2017
Excess			0.7	2.0	-1.1	-0.9	0.8		1.8	
MACQUARIE	**352,932,560**	**2.6**	**7.8**	**1.8**	**-10.8**	**8.6**	**0.4**		**4.0**	**04/2017**
BENCHMARK EM			4.0	0.8	-10.7	7.8	-0.9		3.0	04/2017
Excess			3.9	1.0	-0.1	0.8	1.3		1.0	
MORGAN STANLEY	**440,483,401**	**3.3**	**2.6**	**5.7**	**-11.8**	**8.1**	**-1.5**	**1.9%**	**7.7**	**01/2001**
BENCHMARK EM			4.0	0.8	-10.7	7.8	-0.9	2.0	7.6	01/2001
Excess			-1.4	4.9	-1.1	0.3	-0.6	-0.1	0.1	
NEUBERGER BERMAN	**325,510,282**	**2.4**	**3.7**	**1.5**	**-9.4**	**4.2**	**-3.1**		**1.5**	**04/2017**
BENCHMARK EM			4.0	0.8	-10.7	7.8	-0.9		3.0	04/2017
Excess			-0.3	0.6	1.3	-3.6	-2.2		-1.5	
PZENA	**365,260,805**	**2.7**	**6.7**	**10.3**	**-2.6**	**19.3**	**3.2**		**5.3**	**04/2017**
BENCHMARK EM			4.0	0.8	-10.7	7.8	-0.9		3.0	04/2017
Excess			2.7	9.4	8.1	11.4	4.1		2.3	
ROCK CREEK	**354,384,350**	**2.6**	**2.5**	**0.3**	**-11.9**	**7.8**	**-1.0**		**2.3**	**04/2017**
BENCHMARK EM			4.0	0.8	-10.7	7.8	-0.9		3.0	04/2017
Excess			-1.5	-0.5	-1.2	0.0	-0.1		-0.7	

Active Emerging Markets

	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
MARTIN CURRIE	**-25.7%**	**-3.5%**	**26.5%**	**27.3%**	**-16.6%**
BENCHMARK EM	-20.1	-2.5	18.3	18.4	-14.6
Excess	-5.6	-1.0	8.2	8.8	-2.0
MACQUARIE	**-26.5**	**-2.2**	**24.2**	**23.2**	**-13.3**
BENCHMARK EM	-20.1	-2.5	18.3	18.4	-14.6
Excess	-6.4	0.3	5.9	4.7	1.3
MORGAN STANLEY	**-23.8**	**3.5**	**15.7**	**20.4**	**-16.7**
BENCHMARK EM	-20.1	-2.5	18.3	18.4	-14.6
Excess	-3.7	6.0	-2.6	1.9	-2.2
NEUBERGER BERMAN	**-22.1**	**-5.6**	**14.2**	**19.7**	**-17.1**
BENCHMARK EM	-20.1	-2.5	18.3	18.4	-14.6
Excess	-2.0	-3.1	-4.1	1.3	-2.6
PZENA	**-7.4**	**9.3**	**7.7**	**13.4**	**-10.8**
BENCHMARK EM	-20.1	-2.5	18.3	18.4	-14.6
Excess	12.7	11.8	-10.6	-5.1	3.8
ROCK CREEK	**-19.4**	**-5.2**	**22.0**	**22.3**	**-17.6**
BENCHMARK EM	-20.1	-2.5	18.3	18.4	-14.6
Excess	0.7	-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	**$2,211,123,839**	**16.5%**	**4.5%**	**3.8%**	**-9.9%**	**8.9%**	**-0.6%**	**1.7%**	**3.1%**	**01/2012**
BENCHMARK EM			4.0	0.8	-10.7	7.8	-0.9	2.0	3.1	01/2012
Excess			0.6	2.9	0.8	1.1	0.3	-0.3	-0.1	
SSGA EMERGING MARKETS PASSIVE	**1,006,134,943**	**7.5**	**4.1**	**0.7**	**-10.7**	**7.5**	**-1.1**	**2.0**	**3.1**	**01/2012**
BENCHMARK EM			4.0	0.8	-10.7	7.8	-0.9	2.0	3.1	01/2012
Excess			0.1	-0.2	0.0	-0.3	-0.1	0.0	-0.0	
EMERGING MARKETS TOTAL	**3,217,258,782**	**24.1**	**4.4**	**2.8**	**-10.1**	**8.5**	**-0.7**	**1.9**	**5.1**	**11/1996**
BENCHMARK EM			4.0	0.8	-10.7	7.8	-0.9	2.0	5.3	11/1996
Excess			0.4	1.9	0.6	0.7	0.2	-0.1	-0.3	

Total Emerging Markets

	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
ACTIVE EMERGING MARKETS AGGREGATE	**-21.4%**	**-0.9%**	**17.6%**	**21.4%**	**-15.6%**
BENCHMARK EM	-20.1	-2.5	18.3	18.4	-14.6
Excess	-1.3	1.6	-0.7	3.0	-1.0
SSGA EMERGING MARKETS PASSIVE	**-20.4**	**-2.9**	**18.3**	**18.1**	**-14.7**
BENCHMARK EM	-20.1	-2.5	18.3	18.4	-14.6
Excess	-0.3	-0.3	0.0	-0.3	-0.1
EMERGING MARKETS TOTAL	**-21.1**	**-1.5**	**17.9**	**20.3**	**-15.4**
BENCHMARK EM	-20.1	-2.5	18.3	18.4	-14.6
Excess	-1.0	1.1	-0.4	1.9	-0.8

	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	**$376,942,204**	**2.8%**	**7.3%**	**11.2%**	**-3.7%**				**2.5%**	**01/2021**
MSCI AC WORLD ex US (NET) - DAILY			6.9%	10.0%	-5.1%				-1.4%	01/2021
Excess			0.5%	1.1%	1.4%				4.0%	
TOTAL ACWI EX-US AGGREGATE	**$376,942,204**	**2.8%**	**7.3%**	**11.2%**	**-3.7%**				**2.5%**	**01/2021**
MSCI AC WORLD ex US (NET) - DAILY			6.9%	10.0%	-5.1%				-1.4%	01/2021
Excess			0.5%	1.1%	1.4%				4.0%	

	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
Active ACWI ex-US					
EARNEST PARTNERS ACWI EX US	**-12.6%**	**12.8%**			
MSCI AC WORLD ex US (NET) - DAILY	-16.0	7.8			
Excess	3.4	4.9			
TOTAL ACWI EX-US AGGREGATE	**-12.6**	**12.8**			
MSCI AC WORLD ex US (NET) - DAILY	-16.0	7.8			
Excess	3.4	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	**$163,983,063**	**1.2%**	**6.4%**	**-4.4%**	**-1.0%**				**-10.4%**	**01/2021**
MSCI China A			4.7	-10.8	-9.2				-9.4	01/2021
Excess			1.8	6.4	8.2				-1.0	
CHINA ONLY AGGREGATE	**163,983,063**	**1.2**	**6.4**	**-4.4**	**-1.0**				**-10.4**	**01/2021**
MSCI China A			4.7	-10.8	-9.2				-9.4	01/2021
Excess			1.8	6.4	8.2				-1.0	

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	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
China Only Managers					
EARNEST PARTNERS CHINA	**-24.5%**	**-2.9%**			
MSCI China A	-25.9	3.2			
Excess	1.4	-6.1			
CHINA ONLY AGGREGATE	**-24.5**	**-2.9**			
MSCI China A	-25.9	3.2			
Excess	1.4	-6.1			

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Global Equity

March 31, 2023

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	**$384,279,933**	**40.9%**	**5.5%**	**4.6%**	**-1.5%**				**5.0%**	**01/2021**
MSCI AC WORLD NET USD DAILY			7.3	9.7	-7.4				1.7	01/2021
Excess			-1.8	-5.1	5.9				3.3	
BAILLIE GIFFORD	**207,273,679**	**22.0**	**19.8**	**15.4**	**-18.4**				**-17.1**	**01/2021**
MSCI AC WORLD NET USD DAILY			7.3	9.7	-7.4				1.7	01/2021
Excess			12.5	5.6	-10.9				-18.8	
MARTIN CURRIE INVESTMENTS - GLOBAL EQ	**348,915,024**	**37.1**	**17.3**	**17.4**	**-6.8**				**-5.2**	**01/2021**
MSCI AC WORLD NET USD DAILY			7.3	9.7	-7.4				1.7	01/2021
Excess			10.0	7.6	0.6				-6.9	
GLOBAL EQUITY	**940,468,636**	**100.0**	**12.6**	**11.4**	**-7.7**				**-4.9**	**01/2021**
MSCI AC WORLD NET USD DAILY			7.3	9.7	-7.4				1.7	01/2021
Excess			5.3	1.7	-0.2				-6.6	

Global Equity Managers

	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
ARIEL INVESTMENTS	**-5.6%**	**12.1%**			
MSCI AC WORLD NET USD DAILY	-18.4	18.5			
Excess	12.8	-6.5			
BAILLIE GIFFORD	**-46.9**	**3.1**			
MSCI AC WORLD NET USD DAILY	-18.4	18.5			
Excess	-28.5	-15.5			
MARTIN CURRIE INVESTMENTS - GLOBAL EQ	**-32.9**	**12.8**			
MSCI AC WORLD NET USD DAILY	-18.4	18.5			
Excess	-14.5	-5.8			
GLOBAL EQUITY	**-27.7**	**9.6**			
MSCI AC WORLD NET USD DAILY	-18.4	18.5			
Excess	-9.4	-8.9			

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Core/Core Plus Bonds

March 31, 2023

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Bonds										
CORE (1)	**$1,924,369,026**	**41.1%**	**3.3%**	**1.1%**	**-3.9%**				**-3.7%**	**11/2020**
Bloomberg U.S. Aggregate			3.0	-0.1	-4.8				-4.6	11/2020
Excess			0.4	1.2	0.8				1.0	
CORE PLUS (1)	**2,756,281,076**	**58.9**	**3.5**	**0.5**	**-5.7**				**-4.8**	**11/2020**
Bloomberg U.S. Aggregate			3.0	-0.1	-4.8				-4.6	11/2020
Excess			0.6	0.6	-0.9				-0.2	
TRANSITION AGGREGATE CORE BONDS (2)	19,278	0.0								
TOTAL CORE/CORE PLUS BONDS (3)	**4,680,669,380**	**100.0**	**3.4**	**0.7**	**-5.0**	**-1.4%**	**1.4%**	**1.9%**	**6.8**	**07/1984**
Bloomberg U.S. Aggregate			3.0	-0.1	-4.8	-2.8	0.9	1.4	6.4	07/1984
Excess			0.5	0.8	-0.2	1.3	0.5	0.5	0.3	

(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.

	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
Bonds					
CORE (1)	**-12.3%**	**-1.0%**			
Bloomberg U.S. Aggregate	-13.0	-1.5			
Excess	0.7	0.5			
CORE PLUS (1)	**-15.2**	**-1.1**			
Bloomberg U.S. Aggregate	-13.0	-1.5			
Excess	-2.2	0.4			
TRANSITION AGGREGATE CORE BONDS (2)					
TOTAL CORE/CORE PLUS BONDS (3)	**-14.1**	**-1.1**	**9.7%**	**9.7%**	**-0.0%**
Bloomberg U.S. Aggregate	-13.0	-1.5	7.5	8.7	0.0
Excess	-1.1	0.5	2.2	1.0	-0.1

(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	**$1,025,667,172**	**21.9%**	**3.2%**	**1.7%**	**-3.2%**	**-0.2%**	**1.9%**	**2.4%**	**5.1%**	**02/2000**
Bloomberg U.S. Aggregate			3.0	-0.1	-4.8	-2.8	0.9	1.4	4.1	02/2000
Excess			0.3	1.8	1.6	2.6	1.0	1.0	1.0	
BLACKROCK	**898,701,854**	**19.2**	**3.4**	**0.4**	**-4.8**	**-2.2**	**1.2**	**1.6**	**4.4**	**04/1996**
Bloomberg U.S. Aggregate			3.0	-0.1	-4.8	-2.8	0.9	1.4	4.3	04/1996
Excess			0.5	0.5	0.0	0.6	0.3	0.2	0.1	
CORE	**1,924,369,026**	**41.1**	**3.3**	**1.1**	**-3.9**				**-3.7**	**11/2020**
Bloomberg U.S. Aggregate			3.0	-0.1	-4.8				-4.6	11/2020
Excess			0.4	1.2	0.8				1.0	

(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.

	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
Active Core					
DODGE & COX	**-11.3%**	**-0.7%**	**9.4%**	**9.6%**	**-0.0%**
Bloomberg U.S. Aggregate	-13.0	-1.5	7.5	8.7	0.0
Excess	1.7	0.8	1.8	0.9	-0.1
BLACKROCK	**-13.4**	**-1.3**	**8.3**	**9.3**	**-0.1**
Bloomberg U.S. Aggregate	-13.0	-1.5	7.5	8.7	0.0
Excess	-0.4	0.2	0.8	0.6	-0.2
CORE	**-12.3**	**-1.0**			
Bloomberg U.S. Aggregate	-13.0	-1.5			
Excess	0.7	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	**$900,937,805**	**19.2%**	**3.4%**	**0.2%**	**-5.2%**	**-2.0%**	**1.2%**	**1.7%**	**4.8%**	**07/1993**
Bloomberg U.S. Aggregate			3.0	-0.1	-4.8	-2.8	0.9	1.4	4.5	07/1993
Excess			0.5	0.3	-0.4	0.8	0.3	0.3	0.3	
NEUBERGER	**881,579,310**	**18.8**	**3.2**	**0.6**	**-5.6**	**-1.9**	**1.4**	**1.7**	**5.7**	**07/1988**
Bloomberg U.S. Aggregate			3.0	-0.1	-4.8	-2.8	0.9	1.4	5.4	07/1988
Excess			0.2	0.7	-0.8	0.9	0.5	0.3	0.3	
WESTERN	**973,763,960**	**20.8**	**4.0**	**0.5**	**-6.1**	**-1.7**	**1.0**	**2.0**	**7.4**	**07/1984**
Bloomberg U.S. Aggregate			3.0	-0.1	-4.8	-2.8	0.9	1.4	6.4	07/1984
Excess			1.0	0.6	-1.4	1.1	0.1	0.7	1.0	
CORE PLUS	**2,756,281,076**	**58.9**	**3.5**	**0.5**	**-5.7**				**-4.8**	**11/2020**
Bloomberg U.S. Aggregate			3.0	-0.1	-4.8				-4.6	11/2020
Excess			0.6	0.6	-0.9				-0.2	

(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.

	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
Core Plus Bonds					
GOLDMAN SACHS	**-13.9%**	**-1.5%**	**9.0%**	**9.6%**	**-0.0%**
Bloomberg U.S. Aggregate	-13.0	-1.5	7.5	8.7	0.0
Excess	-0.9	0.0	1.5	0.9	-0.0
NEUBERGER	**-13.8**	**-0.6**	**9.9**	**9.0**	**-0.1**
Bloomberg U.S. Aggregate	-13.0	-1.5	7.5	8.7	0.0
Excess	-0.8	1.0	2.4	0.3	-0.1
WESTERN	**-17.6**	**-1.3**	**10.9**	**11.1**	**-0.2**
Bloomberg U.S. Aggregate	-13.0	-1.5	7.5	8.7	0.0
Excess	-4.6	0.3	3.4	2.4	-0.3
CORE PLUS	**-15.2**	**-1.1**			
Bloomberg U.S. Aggregate	-13.0	-1.5			
Excess	-2.2	0.4			

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Return Seeking Bonds
March 31, 2023

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
COLUMBIA CREDIT PLUS	**$872,655,878**	**21.1%**	**4.1%**	**2.8%**	**-5.9%**				**-4.4%**	**12/2020**
Credit Plus Benchmark			3.1	2.4	-4.9				-4.9	12/2020
Excess			1.1	0.3	-1.0				0.5	
PIMCO CREDIT PLUS	**823,420,868**	**19.9**	**3.2**	**2.7**	**-4.9**				**-4.1**	**12/2020**
Credit Plus Benchmark			3.1	2.4	-4.9				-4.9	12/2020
Excess			0.1	0.2	0.0				0.7	
CREDIT PLUS	**1,696,076,747**	**41.0**	**3.7**	**2.7**	**-5.4**				**-4.2**	**12/2020**
Credit Plus Benchmark			3.1	2.4	-4.9				-4.9	12/2020
Excess			0.6	0.3	-0.5				0.6	
BLACKROCK OPPORTUNISTIC	**535,282,897**	**12.9**	**1.6**	**2.9**	**-0.9**				**-1.3**	**12/2020**
ICE BofA US 3-Month Treasury Bill			1.1	2.4	2.5				1.1	12/2020
Excess			0.5	0.5	-3.4				-2.4	
ASHMORE EMERGING MARKET	**287,866,075**	**7.0**	**3.5**	**5.8**	**-6.6**				**-11.0**	**01/2021**
JPM JEMB Sovereign-only 50-50			3.5	6.9	-3.8				-7.7	01/2021
Excess			-0.1	-1.1	-2.8				-3.3	
TCW SECURITIZED CREDIT	**393,710,976**	**9.5**	**2.0**	**0.2**	**-2.0**				**-1.1**	**07/2021**
ICE BofA US 3-Month Treasury Bill			1.1	2.4	2.5				1.5	07/2021
Excess			0.9	-2.2	-4.5				-2.5	

Return Seeking Bonds Managers	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
COLUMBIA CREDIT PLUS	**-15.3%**	**1.1%**			
Credit Plus Benchmark	-13.7	0.0			
Excess	-1.6	1.1			
PIMCO CREDIT PLUS	**-13.6**	**0.8**			
Credit Plus Benchmark	-13.7	0.0			
Excess	0.1	0.7			
CREDIT PLUS	**-14.5**	**0.9**			
Credit Plus Benchmark	-13.7	0.0			
Excess	-0.7	0.9			
BLACKROCK OPPORTUNISTIC	**-5.4**	**0.3**			
ICE BofA US 3-Month Treasury Bill	1.5	0.0			
Excess	-6.8	0.2			
ASHMORE EMERGING MARKET	**-17.2**	**-10.1**			
JPM JEMB Sovereign-only 50-50	-14.8	-5.3			
Excess	-2.4	-4.8			
TCW SECURITIZED CREDIT	**-4.6**				
ICE BofA US 3-Month Treasury Bill	1.5				
Excess	-6.1				

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	**$285,437,255**	**6.9%**	**2.5%**	**6.6%**	**-3.0%**				**-2.3%**	**01/2021**
Multi-Asset Credit Benchmark			2.9	6.4	-2.6				-2.2	01/2021
Excess			-0.4	0.2	-0.4				-0.0	
PGIM	**330,352,580**	**8.0**	**2.7**	**6.8**	**-3.4**				**-2.8**	**01/2021**
Multi-Asset Credit Benchmark			2.9	6.4	-2.6				-2.2	01/2021
Excess			-0.2	0.4	-0.8				-0.6	
MULTI-ASSET CREDIT	**615,789,834**	**14.9**	**2.6**	**6.7**	**-3.2**				**-2.6**	**01/2021**
Multi-Asset Credit Benchmark			2.9	6.4	-2.6				-2.2	01/2021
Excess			-0.3	0.3	-0.6				-0.3	
KKR	**302,683,220**	**7.3**	**4.1**	**7.8**	**-3.4**				**-1.4**	**01/2021**
ICE BofA US Cash Pay HY Constrained			3.7	7.2	-3.5				-1.3	01/2021
Excess			0.5	0.7	0.1				-0.0	
OAKTREE	**300,599,341**	**7.3**	**3.0**	**7.3**	**-3.0**				**-1.1**	**01/2021**
ICE BofA US Cash Pay HY Constrained			3.7	7.2	-3.5				-1.3	01/2021
Excess			-0.7	0.1	0.5				0.2	
HIGH YIELD	**603,282,560**	**14.6**	**3.6**	**7.6**	**-3.2**				**-1.3**	**01/2021**
ICE BofA US Cash Pay HY Constrained			3.7	7.2	-3.5				-1.3	01/2021
Excess			-0.1	0.4	0.3				0.1	

Return Seeking Bonds Managers	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
PAYDEN RYGEL	**-9.6%**	**2.6%**			
Multi-Asset Credit Benchmark	-10.0	2.7			
Excess	0.4	-0.1			
PGIM	**-11.5**	**3.2**			
Multi-Asset Credit Benchmark	-10.0	2.7			
Excess	-1.5	0.5			
MULTI-ASSET CREDIT	**-10.6**	**2.9**			
Multi-Asset Credit Benchmark	-10.0	2.7			
Excess	-0.6	0.2			
KKR	**-11.0**	**4.7**			
ICE BofA US Cash Pay HY Constrained	-11.1	5.3			
Excess	0.1	-0.6			
OAKTREE	**-9.5**	**4.5**			
ICE BofA US Cash Pay HY Constrained	-11.1	5.3			
Excess	1.6	-0.8			
HIGH YIELD	**-10.3**	**4.6**			
ICE BofA US Cash Pay HY Constrained	-11.1	5.3			
Excess	0.8	-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	**$1,696,076,747**	**41.0%**	**3.7%**	**2.7%**	**-5.4%**				**-4.2%**	**12/2020**
Credit Plus Benchmark			3.1	2.4	-4.9				-4.9	12/2020
Excess			0.6	0.3	-0.5				0.6	
OPPORTUNISTIC FI	**535,282,897**	**13.0**	**1.6**	**2.9**	**-0.9**				**-1.3**	**12/2020**
ICE BofA US 3-Month Treasury Bill			1.1	2.4	2.5				1.1	12/2020
Excess			0.5	0.5	-3.4				-2.4	
EMERGING MARKET DEBT	**287,866,075**	**7.0**	**3.5**	**5.8**	**-6.6**				**-11.0**	**01/2021**
JPM JEMB Sovereign-only 50-50			3.5	6.9	-3.8				-7.7	01/2021
Excess			-0.1	-1.1	-2.8				-3.3	
SECURITIZED CREDIT	**393,717,359**	**9.5**	**2.0**	**0.2**	**-2.0**				**-1.1**	**06/2021**
ICE BofA US 3-Month Treasury Bill			1.1	2.4	2.5				1.4	06/2021
Excess			0.9	-2.2	-4.5				-2.4	
MULTI-ASSET CREDIT	**615,789,834**	**14.9**	**2.6**	**6.7**	**-3.2**				**-2.6**	**01/2021**
Multi-Asset Credit Benchmark			2.9	6.4	-2.6				-2.2	01/2021
Excess			-0.3	0.3	-0.6				-0.3	
HIGH YIELD	**603,282,560**	**14.6**	**3.6**	**7.6**	**-3.2**				**-1.3**	**01/2021**
ICE BofA US Cash Pay HY Constrained			3.7	7.2	-3.5				-1.3	01/2021
Excess			-0.1	0.4	0.3				0.1	
RETURN SEEKING BONDS (1)	**4,133,162,425**	**100.0**	**3.0**	**4.1**	**-3.8**				**-3.1**	**12/2020**
Return Seeking Fixed Income Benchmark			2.7	4.0	-2.7				-2.6	12/2020
Excess			0.3	0.1	-1.1				-0.4	

(1) Includes Return Seeking Bonds transition account.

STATE STREET.

	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
Return Seeking Bonds					
CREDIT PLUS	**-14.5%**	**0.9%**			
Credit Plus Benchmark	-13.7	0.0			
Excess	-0.7	0.9			
OPPORTUNISTIC FI	**-5.4**	**0.3**			
ICE BofA US 3-Month Treasury Bill	1.5	0.0			
Excess	-6.8	0.2			
EMERGING MARKET DEBT	**-17.2**	**-10.1**			
JPM JEMB Sovereign-only 50-50	-14.8	-5.3			
Excess	-2.4	-4.8			
SECURITIZED CREDIT	**-4.6**				
ICE BofA US 3-Month Treasury Bill	1.5				
Excess	-6.1				
MULTI-ASSET CREDIT	**-10.6**	**2.9**			
Multi-Asset Credit Benchmark	-10.0	2.7			
Excess	-0.6	0.2			
HIGH YIELD	**-10.3**	**4.6**			
ICE BofA US Cash Pay HY Constrained	-11.1	5.3			
Excess	0.8	-0.7			
RETURN SEEKING BONDS (1)	**-11.3**	**0.9**			
Return Seeking Fixed Income Benchmark	-9.8	0.8			
Excess	-1.6	0.1			

(1) Includes Return Seeking Bonds transition account.

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Treasuries
March 31, 2023

Treasuries Managers

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
BLACKROCK	**$2,634,601,316**	**33.9%**	**5.0%**	**-2.4%**	**-9.5%**	**-7.6%**	**0.3%**		**0.3%**	**02/2018**
Bloomberg Treasury 5+ Year			4.5	-2.3	-9.4	-7.5	0.4		0.4	02/2018
Excess			0.5	-0.0	-0.1	-0.1	-0.1		-0.1	
GOLDMAN SACHS	**2,602,114,809**	**33.5**	**5.0**	**-2.3**	**-9.4**	**-7.4**	**0.4**		**0.4**	**02/2018**
Bloomberg Treasury 5+ Year			4.5	-2.3	-9.4	-7.5	0.4		0.4	02/2018
Excess			0.6	0.1	-0.0	0.1	0.0		0.0	
NEUBERGER	**2,535,206,241**	**32.6**	**5.1**	**-2.5**	**-9.7**	**-7.2**	**0.5**		**0.5**	**02/2018**
Bloomberg Treasury 5+ Year			4.5	-2.3	-9.4	-7.5	0.4		0.4	02/2018
Excess			0.6	-0.1	-0.3	0.3	0.1		0.1	
TOTAL TREASURIES	**7,771,922,366**	**100.0**	**5.0**	**-2.4**	**-9.5**	**-7.4**	**0.4**		**0.4**	**02/2018**
Bloomberg Treasury 5+ Year			4.5	-2.3	-9.4	-7.5	0.4		0.4	02/2018
Excess			0.6	-0.0	-0.1	0.1	0.0		-0.0	

Treasuries Managers

	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
BLACKROCK	**-20.6%**	**-4.0%**	**12.5%**	**10.4%**	
Bloomberg Treasury 5+ Year	-20.3	-3.8	12.8	10.4	
Excess	-0.3	-0.2	-0.3	-0.1	
GOLDMAN SACHS	**-20.6**	**-3.9**	**12.7**	**10.6**	
Bloomberg Treasury 5+ Year	-20.3	-3.8	12.8	10.4	
Excess	-0.3	-0.1	-0.1	0.1	
NEUBERGER	**-20.5**	**-3.4**	**12.8**	**10.4**	
Bloomberg Treasury 5+ Year	-20.3	-3.8	12.8	10.4	
Excess	-0.2	0.4	-0.1	-0.0	
TOTAL TREASURIES	**-20.6**	**-3.7**	**12.7**	**10.4**	
Bloomberg Treasury 5+ Year	-20.3	-3.8	12.8	10.4	
Excess	-0.3	0.0	-0.2	0.0	

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Laddered Bonds + Cash

March 31, 2023

	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	**$989,224,428**	**23.3%**	**1.2%**	**2.3%**				**0.9%**	**11/2020**
ICE BofA US 3-Month Treasury Bill			1.1	2.5				1.1	11/2020
Excess			0.1	-0.2				-0.2	
Goldman Sachs Ladder Bond	**990,136,545**	**23.4**	**1.1**	**2.3**				**0.9**	**11/2020**
ICE BofA US 3-Month Treasury Bill			1.1	2.5				1.1	11/2020
Excess			0.0	-0.2				-0.2	
Treasury Ladder Aggregate	**1,979,360,973**	**46.7**	**1.1**	**2.3**				**0.9**	**11/2020**
ICE BofA US 3-Month Treasury Bill			1.1	2.5				1.1	11/2020
Excess			0.1	-0.2				-0.2	
Combined Funds STIF	**2,208,033,838**	**52.1**	**1.2**	**2.9**	**1.0%**	**1.5%**	**0.9%**	**1.5**	**01/2004**
iMoneyNet Money Fund Average- All Taxable			1.0	2.4	0.8	1.2	0.7	1.1	01/2004
Excess			0.1	0.4	0.2	0.3	0.3	0.4	
TEACHERS RETIREMENT CD REPO	**52,723,074**	**1.2**	**1.1**	**2.6**	**1.1**	**1.5**	**1.1**	**1.0**	**02/2012**
ICE BofA US 3-Month Treasury Bill			1.1	2.5	0.9	1.4	0.9	0.8	02/2012
Excess			0.0	0.1	0.2	0.1	0.2	0.2	
Laddered Bond + Cash	**4,240,322,367**	**100.0**	**1.1**	**2.5**	**0.8**	**1.3**	**0.9**	**4.2**	**12/1977**
ICE BofA US 3-Month Treasury Bill			1.1	2.5	0.9	1.4	0.9	4.4	12/1977
Excess			0.1	-0.1	-0.1	-0.1	0.1	-0.2	

	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
Laddered Bond and Cash Managers					
Neuberger Berman Ladder Bond	**0.8%**	**0.0%**			
ICE BofA US 3-Month Treasury Bill	1.5	0.0			
Excess	-0.6	-0.0			
Goldman Sachs Ladder Bond	**0.9**	**0.1**			
ICE BofA US 3-Month Treasury Bill	1.5	0.0			
Excess	-0.5	0.0			
Treasury Ladder Aggregate	**0.9**	**0.0**			
ICE BofA US 3-Month Treasury Bill	1.5	0.0			
Excess	-0.6	-0.0			
Combined Funds STIF	**1.7**	**0.1**	**0.5%**	**2.3%**	**2.0%**
iMoneyNet Money Fund Average-All Taxable	1.4	0.0	0.3	1.9	1.5
Excess	0.4	0.1	0.2	0.5	0.5
TEACHERS RETIREMENT CD REPO	**1.5**	**0.1**	**1.0**	**2.5**	**1.8**
ICE BofA US 3-Month Treasury Bill	1.5	0.0	0.7	2.3	1.9
Excess	0.1	0.0	0.4	0.2	-0.0
Laddered Bond + Cash	**1.1**	**0.0**	**0.6**	**2.3**	**1.9**
ICE BofA US 3-Month Treasury Bill	1.5	0.0	0.7	2.3	1.9
Excess	-0.4	-0.0	-0.1	0.1	0.0

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Uninvested Private Markets

March 31, 2023

	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										
UNINVESTED PRIVATE MARKETS 1	**175,651,029**	**100.0**	**1.4**	**4.0**	**-12.6**				**3.3**	**01/2021**
Uninvested Private Markets BM			1.0	4.2	-12.6				3.2	01/2021
Excess			0.3	-0.2	0.0				0.1	

(1) The Uninvested Private Markets is currently cash. Prior to 11/02/2022. The Uninvested portion of the Private Markets allocation was invested in a combination of a passively managed S&P 500 Index strategy and a cash overlay strategy invested in equity derivatives and cash. The benchmark is ICE BofA US 3-Month Treasury Bill, prior to 11/02/2022 it was S&P 500.

Uninvested Private Markets Managers	2022 Calendar Return	2021 Calendar Return	2020 Calendar Return	2019 Calendar Return	2018 Calendar Return
UNINVESTED PRIVATE MARKETS 1	**-17.6**	**28.6**			
Uninvested Private Markets BM	-17.5	28.7			
Excess	-0.1	-0.1			

(1) The Uninvested Private Markets is currently cash. Prior to 11/02/2022. The Uninvested portion of the Private Markets allocation was invested in a combination of a passively managed S&P 500 Index strategy and a cash overlay strategy invested in equity derivatives and cash. The benchmark is ICE BofA US 3-Month Treasury Bill, prior to 11/02/2022 it was S&P 500.

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Private Markets

March 31, 2023

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	1.5%	-0.7%	3.3%	15.8%	13.4%	13.0%	14.2%	12.7%	13.5%
Private Markets -Uninvested (1)	1.4%	4.0%	-12.6%						
Private Equity	2.1%	-2.0%	-0.8%	18.4%	16.8%	16.4%	16.4%	14.3%	15.8%
Private Credit	0.2%	5.6%	12.7%	12.2%	11.9%	13.2%	12.8%	12.5%	
Resources	0.7%	4.2%	19.3%	9.4%	4.3%	3.0%	13.6%	11.5%	13.0%
Real Estate	-1.3%	-0.9%	12.7%	16.1%	13.6%	13.3%	10.1%	9.6%	9.8%

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 Private Markets Uninvested is currently cash. Prior to 11/02/2022. The Uninvested portion of the Private Markets allocation was invested in a combination of a passively managed S&P 500 Index strategy and a cash overlay strategy invested in equity derivatives and cash.

Source: State Street Bank

STATE STREET.

Minnesota State Board of Investment
Quarter Ending March 31, 2023
Private Markets Investments

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Private Equity	**24,515,978,536**	**18,990,818,030**	**14,855,828,544**	**7,464,142,375**	**14,882,701,700**	**1.57**	**13.69**	
Adams Street Partners, LLC	398,191,000	195,342,092	117,846,307	203,020,010	164,844,652	1.45	11.97	
Adams Street Global Secondary Fund 5 LP	100,000,000	77,114,692	75,128,710	22,885,308	29,025,416	1.35	6.38	2012
Adams Street Global Secondary Fund 6	100,000,000	80,400,008	42,717,597	19,599,992	83,030,576	1.56	24.50	2017
Adams Street Global Secondary Fund 7	198,191,000	37,827,392	0	160,534,710	52,788,660	1.40	69.26	2021
Advent International Group	505,000,000	355,391,326	326,931,020	152,692,628	300,893,574	1.77	16.30	
Advent International GPE IX	115,000,000	104,657,372	11,495,408	10,342,628	143,499,360	1.48	23.99	2019
Advent International GPE VI-A, L.P.	50,000,000	52,993,313	103,400,194	0	5,079,696	2.05	16.52	2008
Advent International GPE VII, L.P.	90,000,000	86,490,641	138,972,935	3,600,000	18,157,723	1.82	13.53	2012
Advent International GPE VIII-B	100,000,000	100,000,000	73,062,483	0	123,255,343	1.96	17.90	2016
Advent International GPE X	150,000,000	11,250,000	0	138,750,000	10,901,453	0.97	-4.68	2022
Affinity Ventures	9,000,000	9,000,000	3,590,011	0	818,406	0.49	-11.47	
Affinity Ventures IV, L.P.	4,000,000	4,000,000	1,541,970	0	3,279	0.39	-35.89	2004
Affinity Ventures V, L.P.	5,000,000	5,000,000	2,048,042	0	815,127	0.57	-8.26	2008
Apax Partners	600,000,000	523,062,755	538,261,900	161,066,025	325,167,415	1.65	16.35	
Apax IX USD L.P.	150,000,000	162,024,715	180,896,534	14,420,230	149,158,749	2.04	23.44	2016
APAX VIII - USD	200,000,000	240,451,261	348,098,981	7,966,190	46,355,355	1.64	13.65	2013
Apax X USD L.P.	150,000,000	120,586,779	9,266,385	38,679,605	129,653,312	1.15	12.92	2019
Apax XI	100,000,000	0	0	100,000,000	0	0.00		2022
Arsenal Capital Partners	175,000,000	102,279,759	13,903,312	81,440,684	97,739,465	1.09	4.72	
Arsenal Capital Partners V, L.P.	75,000,000	72,853,782	13,616,281	10,598,693	71,627,682	1.17	6.63	2019
Arsenal Capital Partners VI LP	100,000,000	29,425,977	287,031	70,841,991	26,111,782	0.90	-16.98	2021
Asia Alternatives	399,000,000	160,305,508	17,851,277	252,112,005	158,611,594	1.10	5.60	
Asia Alternatives Capital Partners V	99,000,000	99,689,009	16,719,934	12,728,504	106,413,772	1.24	9.46	2017
MN Asia Investors	300,000,000	60,616,499	1,131,343	239,383,501	52,197,822	0.88	-14.77	2020
Banc Fund	178,551,387	187,460,477	47,378,269	0	209,129,012	1.37	6.78	
Banc Fund IX, L.P.	107,205,932	107,205,932	40,052,872	0	119,854,658	1.49	6.94	2014
Banc Fund X, L.P.	71,345,455	80,254,545	7,325,397	0	89,274,354	1.20	6.27	2018
BlackRock	951,774,870	956,392,392	4,517,603	0	1,413,979,899	1.48	26.43	
BlackRock Long Term Capital, SCSP	950,000,000	954,617,522	2,660,745	0	1,413,906,522	1.48	26.57	2019
BlackRock Tempus Fund	1,774,870	1,774,870	1,856,858	0	73,377	1.09	4.48	2015

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Blackstone Group L.P.	1,535,000,000	862,461,407	706,711,530	771,266,541	532,012,652	1.44	14.76	
Blackstone Capital Partners Asia II	270,000,000	29,246,803	0	240,753,197	25,165,441	0.86	-19.12	2021
Blackstone Capital Partners IV, L.P.	70,000,000	84,459,884	201,361,236	1,832,302	243,593	2.39	37.02	2002
Blackstone Capital Partners IX	150,000,000	0	0	150,000,000	0	0.00		2022
Blackstone Capital Partners V L.P.	140,000,000	152,406,707	245,675,051	7,027,560	1,080,889	1.62	8.03	2006
Blackstone Capital Partners VI, L.P.	100,000,000	106,736,238	151,468,407	10,975,597	40,593,437	1.80	12.46	2008
Blackstone Capital Partners VII	130,000,000	139,199,091	83,886,681	9,306,402	124,562,868	1.50	12.72	2015
Blackstone Capital Partners VIII LP	150,000,000	84,797,929	5,014,030	74,769,532	92,665,912	1.15	12.08	2019
Blackstone Growth	250,000,000	202,357,166	19,306,124	64,701,951	185,416,900	1.01	0.88	2020
Blackstone Growth Equity II	150,000,000	0	0	150,000,000	0	0.00		2022
Blackstone Supplemental Account - M	125,000,000	63,257,591	0	61,900,000	62,283,612	0.98	-1.34	2021
Blackstone Strategic Partners	915,500,000	693,650,726	840,093,687	311,825,191	249,600,941	1.57	11.66	
Strategic Partners III VC, L.P.	25,000,000	25,075,239	34,045,314	99,607	109,523	1.36	5.97	2004
Strategic Partners III-B, L.P.	100,000,000	79,629,077	118,509,586	12,304,709	214,664	1.49	6.35	2004
Strategic Partners IV VC, L.P.	40,500,000	42,158,499	62,465,109	2,264,243	2,326,359	1.54	9.19	2008
Strategic Partners IV-B	100,000,000	99,439,438	153,094,848	11,585,489	2,921,062	1.57	12.16	2008
Strategic Partners IX	100,000,000	19,862,402	3,027,047	80,875,867	20,450,432	1.18	23.88	2022
Strategic Partners V, LP	100,000,000	87,151,025	135,416,710	15,878,130	8,067,259	1.65	18.51	2011
Strategic Partners VI, L.P.	150,000,000	103,952,264	128,689,646	52,730,060	28,906,071	1.52	14.26	2014
Strategic Partners VII, L.P.	150,000,000	119,822,968	123,074,062	47,260,596	79,248,532	1.69	18.76	2016
Strategic Partners VIII	150,000,000	116,559,813	81,771,365	88,826,490	107,357,039	1.62	36.46	2018
Bridgepoint	266,501,216	141,291,722	14,615,268	125,209,494	201,316,860	1.53	22.27	
Bridgepoint Europe VI L.P.	168,720,729	141,291,722	14,615,268	27,429,006	201,316,860	1.53	22.27	2018
Bridgepoint Europe VII	97,780,487	0	0	97,780,487	0	0.00		2022
Brookfield Asset Management Inc.	500,000,000	368,225,087	198,661,598	174,827,878	384,376,023	1.58	30.74	
Brookfield Capital Partners Fund IV	100,000,000	109,806,883	172,956,949	10,864,417	95,755,286	2.45	44.34	2015
Brookfield Capital Partners Fund VI	150,000,000	28,106,154	13,079	121,893,846	29,510,028	1.05	5.50	2022
Brookfield Capital Partners V L.P.	250,000,000	230,312,050	25,691,569	42,069,615	259,110,708	1.24	11.47	2018
CVC Capital Partners	390,819,625	438,437,319	609,343,979	22,764,682	261,870,831	1.99	16.90	
CVC Capital Partners VI	256,951,653	284,553,221	313,929,854	21,212,972	259,094,564	2.01	17.15	2013
CVC European Equity Partners V, L.P.	133,867,972	153,884,098	295,414,125	1,551,710	2,776,267	1.94	16.70	2008

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Canyon Partners	125,000,000	128,095,847	21,475,843	18,379,996	127,824,374	1.17	10.68	
Canyon Distressed Opportunity Fund III	125,000,000	128,095,847	21,475,843	18,379,996	127,824,374	1.17	10.68	2020
CarVal Investors	600,000,000	517,703,333	399,152,205	126,561,916	280,983,923	1.31	8.08	
CVI Credit Value Fund A II	150,000,000	142,500,000	199,242,174	7,500,000	4,185,181	1.43	8.30	2012
CVI Credit Value Fund A III	150,000,000	142,500,000	155,693,490	7,500,000	37,927,732	1.36	8.43	2015
CVI Credit Value Fund IV	150,000,000	135,203,333	44,061,975	59,061,916	134,528,850	1.32	7.65	2017
CVI Credit Value Fund V	150,000,000	97,500,000	154,566	52,500,000	104,342,160	1.07	5.89	2020
Cardinal Partners	10,000,000	10,000,000	39,196,082	0	30,270	3.92	10.61	
DSV Partners IV	10,000,000	10,000,000	39,196,082	0	30,270	3.92	10.61	1985
Carlyle Group	400,000,000	296,405,757	67,112,119	169,002,763	269,489,076	1.14	6.67	
Carlyle Partners VII, L.P.	150,000,000	154,437,535	13,658,272	8,816,146	167,981,704	1.18	7.30	2017
Carlyle Partners VIII	150,000,000	22,119,848	24,578	127,880,152	20,096,833	0.91	-13.22	2021
Carlyle Strategic Partners IV, L.P.	100,000,000	119,848,374	53,429,269	32,306,465	81,410,539	1.13	6.88	2016
Chicago Growth Partners	60,000,000	58,347,626	123,930,240	1,652,374	18,263	2.12	19.54	
Chicago Growth Partners II, L.P.	60,000,000	58,347,626	123,930,240	1,652,374	18,263	2.12	19.54	2008
Clearlake Capital	100,000,000	51,373,445	2,434	48,626,555	50,794,826	0.99	-1.67	
Clearlake Capital Partners VII	100,000,000	51,373,445	2,434	48,626,555	50,794,826	0.99	-1.67	2022
Court Square	489,419,132	480,698,874	613,283,355	63,697,385	251,791,128	1.80	14.71	
Court Square Capital Partners II, L.P.	164,419,132	170,029,204	295,744,454	6,176,873	3,198,779	1.76	12.32	2006
Court Square Capital Partners III, L.P.	175,000,000	189,298,685	276,934,903	6,891,452	129,856,561	2.15	20.01	2012
Court Square Capital Partners IV, L.P.	150,000,000	121,370,985	40,603,998	50,629,060	118,735,788	1.31	17.72	2018
GTCR	210,000,000	214,082,258	435,489,638	16,665,460	125,777,961	2.62	25.60	
GTCR Fund X	100,000,000	105,821,208	214,751,215	6,751,396	652,278	2.04	21.36	2010
GTCR XI	110,000,000	108,261,050	220,738,423	9,914,064	125,125,683	3.19	33.19	2013
Goldman, Sachs & Co.	449,800,000	379,007,260	339,685,203	163,683,992	229,921,135	1.50	11.53	
GS Capital Partners VI, L.P.	100,000,000	110,285,035	143,299,966	2,551,356	1,642,503	1.31	7.10	2007
GS China-US Cooperation Fund	99,800,000	39,430,412	523,330	60,544,033	53,194,034	1.36	14.92	2018
GS Vintage VII	100,000,000	87,052,611	70,465,077	61,810,828	67,137,120	1.58	15.31	2016
West Street Capital Partners VII, L.P.	150,000,000	142,239,202	125,396,830	38,777,775	107,947,478	1.64	19.17	2016

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Goldner Hawn Johnson & Morrison	77,755,138	55,773,532	71,964,283	22,153,573	50,510,066	2.20	21.71	
GHJM TrailHead Fund	20,000,000	16,652,130	51,364,283	3,354,486	6,532,145	3.48	20.23	2012
Goldner Hawn Fund VII, L.P.	57,755,138	39,121,401	20,600,000	18,799,087	43,977,921	1.65	29.76	2018
Green Equity Investors	325,000,000	333,851,922	237,861,791	28,836,069	329,583,852	1.70	13.50	
Green Equity Investors VI, L.P.	200,000,000	224,914,839	236,849,045	11,760,406	210,963,115	1.99	14.00	2012
Green Equity Investors VIII	125,000,000	108,937,083	1,012,746	17,075,663	118,620,737	1.10	6.10	2020
HarbourVest	21,637,421	20,940,767	26,553,379	792,377	5,327,927	1.52	12.13	
Dover Street VII Cayman Fund L.P.	2,198,112	2,074,235	1,845,767	132,416	17,333	0.90	-4.48	2014
HarbourVest Intl PE Partners V-Cayman US	3,514,437	3,346,199	4,508,944	173,832	44,519	1.36	13.65	2014
Harbourvest Intl PE Partners VI-Cayman	4,227,263	4,039,473	5,532,345	190,129	2,445,021	1.97	15.51	2014
HarbourVest Partners VIII Cayman Buyout	4,506,711	4,390,673	5,849,345	156,000	441,494	1.43	13.42	2014
HarbourVest Partners VIII-Cayman Venture	7,190,898	7,090,187	8,816,978	140,000	2,379,560	1.58	11.43	2014
Hellman & Friedman	475,000,000	409,746,690	165,276,173	77,974,457	401,799,617	1.38	18.96	
Hellman & Friedman Capital Partners VII, L.P.	50,000,000	49,900,888	153,705,841	2,197,702	9,911,576	3.28	24.85	2009
Hellman & Friedman Capital Partners X	250,000,000	186,382,141	7,412,203	71,030,062	174,952,421	0.98	-2.32	2021
Hellman & Friedman Investors IX, L.P.	175,000,000	173,463,661	4,158,129	4,746,693	216,935,620	1.27	11.73	2018
IK Limited	600,311,818	472,935,898	501,147,462	150,057,705	284,896,797	1.66	15.41	
IK Fund IX	152,183,013	116,486,003	0	35,696,635	120,827,936	1.04	2.76	2019
IK Fund VII	179,948,426	179,393,652	318,142,763	8,239,931	32,221,476	1.95	14.93	2013
IK Fund VIII	170,399,891	177,056,244	183,004,699	8,340,652	131,847,386	1.78	18.47	2016
IK Fund X	97,780,487	0	0	97,780,487	0	0.00		2022
Kohlberg, Kravis, Roberts & Co.	1,647,000,000	1,078,710,495	946,468,408	632,355,417	718,670,475	1.54	13.04	
KKR 2006 Fund L.P.	200,000,000	218,137,965	392,492,978	3,300,979	129,265	1.80	9.10	2006
KKR Americas Fund XII L.P.	150,000,000	146,459,730	58,705,089	16,909,238	175,574,394	1.60	17.52	2016
KKR Asian Fund III	100,000,000	95,023,847	48,897,408	15,211,669	112,226,034	1.70	22.07	2017
KKR Asian Fund IV	150,000,000	55,326,357	415,503	98,610,591	56,761,295	1.03	2.91	2020
KKR Core Investments Fund II	100,000,000	0	0	100,000,000	0	0.00		2022
KKR Core Investments Partnership	97,000,000	92,524,782	4,092,567	9,689,508	104,756,966	1.18	12.77	2021
KKR Europe V	100,000,000	88,059,677	16,882,045	16,643,999	88,362,779	1.20	10.07	2018
KKR European Fund VI (USD) SCSp	100,000,000	0	0	100,000,000	0	0.00		2022
KKR Millennium Fund	200,000,000	205,167,570	424,946,028	0	161,924	2.07	16.36	2002
KKR MN Partnership L.P.	150,000,000	77,488,217	36,790	72,511,783	81,451,197	1.05	5.41	2021
KKR North America Fund XIII	300,000,000	100,522,350	0	199,477,650	99,246,621	0.99	-1.83	2021

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Lexington Partners	1,345,000,000	1,042,303,261	749,571,879	370,041,295	809,049,712	1.50	13.37	
Lexington Capital Partners IX, L.P.	150,000,000	119,793,422	32,333,684	42,878,271	145,202,358	1.48	31.02	2018
Lexington Capital Partners VI-B, L.P.	100,000,000	98,374,022	145,572,539	1,634,703	949,472	1.49	7.90	2005
Lexington Capital Partners VII, L.P.	200,000,000	173,199,401	265,364,603	30,768,965	24,982,858	1.68	14.51	2009
Lexington Capital Partners VIII, L.P.	150,000,000	136,614,631	135,444,044	32,435,593	92,402,702	1.67	16.71	2014
Lexington Capital Partners X	100,000,000	0	0	100,000,000	2,872,815	0.00		2021
Lexington Co-Investment Partners IV	200,000,000	214,959,692	132,540,232	5,815,392	216,096,569	1.62	16.18	2017
Lexington Co-Investment Partners V	300,000,000	185,467,198	10,031,374	124,564,176	202,243,651	1.14	13.82	2020
Lexington Co-Investment Partners V Overage	45,000,000	29,997,000	839,090	15,842,090	30,441,762	1.04	4.09	2021
Lexington Middle Market Investors IV	100,000,000	83,897,895	27,446,313	16,102,105	93,857,524	1.45	22.88	2016
MHR Institutional Partners	75,000,000	82,309,392	23,154,284	12,448,636	97,391,655	1.46	11.20	
MHR Institutional Partners IV LP	75,000,000	82,309,392	23,154,284	12,448,636	97,391,655	1.46	11.20	2014
Madison Dearborn Capital Partners LLC	200,000,000	165,203,250	67,860,601	58,680,092	173,971,565	1.46	13.66	
Madison Dearborn Capital Partners VII, L.P.	100,000,000	98,553,226	59,938,858	17,549,186	110,231,111	1.73	14.53	2015
Madison Dearborn Capital Partners VIII-A, L.P	100,000,000	66,650,024	7,921,743	41,130,906	63,740,454	1.08	6.56	2019
Marathon	200,000,000	149,906,171	6,185,200	56,000,000	161,588,304	1.12	7.73	
Marathon Distressed Credit Fund	200,000,000	149,906,171	6,185,200	56,000,000	161,588,304	1.12	7.73	2020
Merced Capital	278,737,500	288,144,755	283,963,672	0	67,083,610	1.22	4.19	
Merced Partners III	100,000,000	103,878,468	133,823,596	0	1,373,642	1.30	5.53	2010
Merced Partners IV	125,000,000	124,968,390	120,597,539	0	18,000,435	1.11	2.18	2013
Merced Partners V	53,737,500	59,297,897	29,542,537	0	47,709,532	1.30	5.64	2017
Neuberger Berman LLC	625,000,000	425,930,399	335,709,726	453,721,799	393,969,196	1.71	30.80	
Dyal Capital Partners III	175,000,000	206,392,267	200,464,173	108,505,538	153,915,301	1.72	25.73	2015
Dyal Capital Partners IV	250,000,000	178,538,132	125,879,198	178,327,969	189,307,252	1.77	46.31	2018
Dyal Capital Partners V	200,000,000	41,000,000	9,366,355	166,888,292	50,746,643	1.47	27.58	2020
Nordic Capital	589,153,178	495,682,920	332,164,135	170,019,745	407,880,324	1.49	14.79	
Nordic Capital Fund VIII	176,052,242	224,335,867	294,008,523	13,200,684	70,120,920	1.62	13.50	2013
Nordic Capital Fund X	146,189,732	96,771,399	0	49,418,333	113,909,502	1.18	20.87	2020
Nordic Capital Fund XI	97,780,487	0	0	97,780,487	0	0.00		2022
Nordic Capital IX Beta, L.P.	169,130,717	174,575,654	38,155,612	9,620,240	223,849,902	1.50	18.15	2017
Oak Hill Capital Management, Inc.	250,000,000	246,282,642	219,213,126	11,268,440	182,882,522	1.63	29.96	
Oak Hill Capital Partners IV Onshore LP	150,000,000	153,245,546	219,173,712	4,305,536	65,509,900	1.86	32.89	2016
Oak Hill Capital Partners V	100,000,000	93,037,096	39,414	6,962,904	117,372,623	1.26	16.72	2018

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Oaktree Capital Management, LLC	387,000,000	193,505,587	62,914,692	247,268,839	195,517,543	1.34	10.51	
Oaktree Special Situations Fund II, L.P.	100,000,000	89,571,187	42,579,241	52,527,545	99,784,347	1.59	51.23	2018
Oaktree Special Situations Fund III	187,000,000	0	0	187,000,000	0	0.00		2022
Oaktree Special Situations Fund, L.P.	100,000,000	103,934,400	20,335,451	7,741,294	95,733,196	1.12	2.71	2014
Paine & Partners, LLC	325,000,000	194,117,225	52,575,684	154,168,293	217,254,857	1.39	12.96	
Paine Schwartz Food Chain Fund IV	75,000,000	69,629,785	35,397,971	14,228,836	56,842,708	1.32	7.00	2014
Paine Schwartz Food Chain Fund V, L.P.	150,000,000	124,487,440	17,177,713	39,939,457	160,412,149	1.43	25.74	2018
Paine Schwartz Food Chain VI	100,000,000	0	0	100,000,000	0	0.00		2023
Permal PE	5,337,098	4,398,274	4,605,251	1,090,000	472,871	1.15	4.78	
Glouston Private Equity Opportunities IV	5,337,098	4,398,274	4,605,251	1,090,000	472,871	1.15	4.78	2014
Permira	628,618,583	481,373,398	464,912,255	189,591,673	434,374,483	1.87	18.96	
Permira V, L.P.	177,443,907	184,423,912	380,461,905	4,573,720	113,477,042	2.68	21.14	2013
Permira VI, L.P.	135,779,971	127,426,427	73,224,679	27,920,636	161,038,625	1.84	17.39	2016
Permira VII L.P.1	152,698,903	143,977,595	11,225,671	19,946,979	134,041,674	1.01	0.51	2019
Permira VIII	162,695,802	25,545,463	0	137,150,338	25,817,142	1.01	1.06	2022
Public Pension Capital Management	240,000,000	153,972,427	100,362,143	104,738,878	199,508,178	1.95	24.50	
Public Pension Capital, LLC	240,000,000	153,972,427	100,362,143	104,738,878	199,508,178	1.95	24.50	2014
Silver Lake Partners	335,000,000	344,616,621	367,720,105	31,467,130	324,117,193	2.01	18.69	
Silver Lake Partners III, L.P.	100,000,000	93,848,011	192,228,927	9,528,468	23,896,286	2.30	18.31	2007
Silver Lake Partners IV	100,000,000	115,930,280	125,809,482	2,881,307	154,535,989	2.42	21.94	2012
Silver Lake Partners V, L.P.	135,000,000	134,838,330	49,681,696	19,057,355	145,684,918	1.45	13.26	2017
Siris Capital Group	67,875,000	0	0	67,875,000	0	0.00		
Siris V	67,875,000	0	0	67,875,000	0	0.00		2022
Split Rock	110,000,000	107,055,906	125,392,564	2,944,094	25,222,542	1.41	4.82	
Split Rock Partners II, LP	60,000,000	59,165,000	66,598,372	835,000	23,314,988	1.52	7.14	2008
Split Rock Partners LP	50,000,000	47,890,906	58,794,192	2,109,094	1,907,553	1.27	2.91	2005
Summit Partners	600,000,000	431,383,090	411,555,543	382,944,601	386,192,444	1.85	27.00	
Summit Partners Growth Equity Fund IX	100,000,000	132,014,916	141,424,991	109,410,075	147,533,178	2.19	32.36	2015
Summit Partners Growth Equity Fund VIII	100,000,000	116,727,192	237,084,364	23,129,320	49,472,627	2.45	26.45	2011
Summit Partners Growth Equity Fund X-A	150,000,000	137,116,520	33,046,188	45,929,668	142,184,362	1.28	16.73	2019
Summit Partners Growth Equity Fund XI	250,000,000	45,524,462	0	204,475,538	47,002,277	1.03	5.45	2021

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Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
TPG Capital	650,000,000	382,118,087	194,457,046	311,965,812	358,240,910	1.45	20.60	
TPG Growth V	150,000,000	93,576,832	8,437,171	64,424,321	111,300,669	1.28	21.73	2021
TPG Partners IX, L.P.	100,000,000	0	0	100,000,000	0	0.00		2022
TPG Partners VII, L.P.	100,000,000	100,923,051	156,482,102	16,965,802	39,327,007	1.94	19.73	2015
TPG Partners VIII	150,000,000	126,581,475	29,532,864	41,612,418	149,671,921	1.42	28.29	2018
TPG Tech Adjacencies II, L.P.	150,000,000	61,036,729	4,909	88,963,271	57,941,312	0.95	-8.53	2021
Thoma Bravo LLC	525,000,000	518,226,615	284,137,643	79,498,575	489,226,296	1.49	22.03	
Thoma Bravo Fund XII, L.P.	75,000,000	81,949,004	84,992,456	18,452,144	76,975,635	1.98	16.31	2016
Thoma Bravo Fund XIII, L.P.	150,000,000	184,783,234	92,067,654	12,475,387	218,844,430	1.68	28.52	2018
Thoma Bravo Fund XIV	150,000,000	147,759,334	37	2,240,666	141,269,596	0.96	-2.86	2020
Thoma Bravo Fund XV LP	100,000,000	53,735,043	19,556	46,330,378	51,726,299	0.96	-4.47	2021
Thoma Cressey Fund VII, L.P.	50,000,000	50,000,000	107,057,940	0	410,337	2.15	23.58	2000
Thomas H. Lee Partners	400,000,000	292,811,321	262,678,078	136,720,960	220,665,590	1.65	25.65	
Thomas H. Lee Equity Fund IX	150,000,000	45,959,284	0	104,040,716	45,294,805	0.99	-2.74	2021
Thomas H. Lee Equity Fund VII, LP.	100,000,000	99,643,507	137,891,993	10,518,650	47,730,949	1.86	21.70	2015
Thomas H. Lee Equity Fund VIII, L.P.	150,000,000	147,208,530	124,786,085	22,161,594	127,639,836	1.71	36.31	2018
Varde Fund	631,286,710	608,861,188	709,771,958	22,425,522	213,388,070	1.52	9.55	
Varde Fund IX, L.P.	100,000,000	100,000,000	216,448,853	0	0	2.16	15.01	2008
Varde Fund X, LP	150,000,000	150,000,000	253,555,170	0	5,639,341	1.73	9.97	2010
Varde Fund XI, LP	200,000,000	200,000,000	227,185,961	0	38,055,302	1.33	4.60	2013
Varde Fund XIII, L.P.	150,000,000	144,000,000	12,581,974	6,000,000	155,345,991	1.17	7.46	2018
Varde Fund XIV	31,286,710	14,861,188	0	16,425,522	14,347,437	0.97	-6.15	2022
Vestar Capital Partners	325,000,000	309,339,949	286,732,906	24,974,147	179,459,607	1.51	9.69	
Vestar Capital Partners V, L.P.	75,000,000	76,797,458	100,961,586	0	147,408	1.32	3.88	2005
Vestar Capital Partners VI, LP	100,000,000	107,516,638	152,527,578	0	62,991,813	2.00	23.59	2011
Vestar Capital Partners VII, L.P.	150,000,000	125,025,853	33,243,742	24,974,147	116,320,385	1.20	9.56	2017
Vista Equity Partners	200,000,000	147,738,030	77,223	53,474,873	160,983,054	1.09	3.88	
Vista Equity Partners Perennial	200,000,000	147,738,030	77,223	53,474,873	160,983,054	1.09	3.88	2020

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Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Warburg Pincus	1,416,000,000	1,119,406,375	1,060,088,779	302,448,500	757,214,055	1.62	10.97	
Warburg Pincus China-Southeast Asia II	50,000,000	23,000,000	4,097,500	27,000,000	20,069,274	1.05	3.24	2019
Warburg Pincus China, L.P.	45,000,000	46,935,000	17,602,200	0	48,379,688	1.41	9.28	2016
Warburg Pincus Financial Sector	90,000,000	90,580,867	34,617,600	3,555,000	127,978,525	1.80	21.28	2017
Warburg Pincus Global Growth 14, L.P.	300,000,000	59,651,507	0	240,000,000	58,532,640	0.98	-2.87	2022
Warburg Pincus Global Growth, L.P.	250,000,000	219,665,049	2,625,000	30,125,000	291,458,630	1.34	13.46	2018
Warburg Pincus Private Equity IX, L.P.	100,000,000	100,000,000	172,072,950	0	39,577	1.72	9.60	2005
Warburg Pincus Private Equity X, LP	150,000,000	150,000,000	266,806,541	0	2,762,384	1.80	9.52	2007
Warburg Pincus Private Equity XI, LP	200,000,000	200,342,452	262,255,748	0	75,830,613	1.69	11.59	2012
Warburg Pincus Private Equity XII, LP	131,000,000	129,231,500	136,468,988	1,768,500	131,765,923	2.08	18.51	2015
Warburg, Pincus Equity Partners, L.P.	100,000,000	100,000,000	163,542,253	0	396,800	1.64	10.02	1998
Wayzata Investment Partners	150,000,000	68,415,000	49,197,752	15,000,000	21,284,453	1.03	0.63	
Wayzata Opportunities Fund III	150,000,000	68,415,000	49,197,752	15,000,000	21,284,453	1.03	0.63	2012
Wellspring Capital Partners	125,000,000	150,530,185	57,804,878	14,804,475	165,720,597	1.48	20.81	
Wellspring Capital Partners VI, L.P.	125,000,000	150,530,185	57,804,878	14,804,475	165,720,597	1.48	20.81	2016
Welsh, Carson, Anderson & Stowe	650,000,000	477,512,506	468,840,007	172,487,494	363,186,245	1.74	17.82	
Welsh, Carson, Anderson & Stowe XI, L.P.	100,000,000	100,000,000	161,464,441	0	6,977,966	1.68	11.69	2008
Welsh, Carson, Anderson & Stowe XII, L.P.	150,000,000	150,000,000	217,586,862	0	142,727,763	2.40	26.39	2014
Welsh, Carson, Anderson & Stowe XIII, L.P.	250,000,000	213,945,620	89,788,704	36,054,380	203,448,429	1.37	23.97	2018
Welsh, Carson, Anderson & Stowe XIV	150,000,000	13,566,886	0	136,433,114	10,032,088	0.74	-31.17	2022
Whitehorse Capital	300,000,000	252,991,922	151,632,142	109,809,879	156,638,251	1.22	17.92	
Whitehorse Liquidity Partners III	100,000,000	103,347,359	77,944,223	14,597,329	56,234,472	1.30	16.97	2019
Whitehorse Liquidity Partners IV	100,000,000	93,240,914	52,085,997	31,205,515	60,783,977	1.21	19.23	2020
Whitehorse Liquidity Partners V	100,000,000	56,403,648	21,601,923	64,007,034	39,619,802	1.09	20.74	2021
Wind Point Partners	200,000,000	124,962,915	2,830,518	77,872,206	150,028,001	1.22	17.57	
Wind Point Partners IX	100,000,000	93,118,042	2,830,518	9,717,079	115,753,810	1.27	16.64	2019
Wind Point Partners X	100,000,000	31,844,873	0	68,155,127	34,274,191	1.08	17.49	2022
Windjammer Capital Investors	266,708,861	230,744,344	291,414,378	51,726,242	142,408,557	1.88	12.50	
Windjammer Mezzanine & Equity Fund II	66,708,861	55,215,684	85,449,570	10,139,363	410,640	1.55	9.01	2000
Windjammer Senior Equity Fund IV, L.P.	100,000,000	94,740,728	166,415,656	21,167,914	69,240,831	2.49	17.79	2012
Windjammer Senior Equity Fund V, L.P.	100,000,000	80,787,932	39,549,152	20,418,965	72,757,086	1.39	18.69	2017

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Private Credit	**4,218,183,754**	**3,359,932,384**	**2,671,668,817**	**1,393,853,202**	**1,754,065,537**	**1.32**	**9.98**	
Audax Group	350,000,000	219,906,406	213,510,553	152,372,202	64,491,216	1.26	10.43	
Audax Mezzanine Fund III, L.P.	100,000,000	105,207,316	133,977,984	0	5,663,391	1.33	9.85	2010
Audax Mezzanine Fund IV-A, L.P.	100,000,000	86,409,049	77,037,814	30,069,024	29,884,618	1.24	11.34	2015
Audax Mezzanine Fund V	150,000,000	28,290,042	2,494,755	122,303,177	28,943,208	1.11	24.06	2020
Avenue Capital Partners	200,000,000	200,977,328	174,121,190	0	162,902,517	1.68	10.04	
Avenue Energy Opportunities Fund II	100,000,000	100,000,000	93,553,048	0	90,193,558	1.84	14.88	2017
Avenue Energy Opportunities Fund, L.P.	100,000,000	100,977,328	80,568,142	0	72,708,960	1.52	6.93	2014
BlackRock	97,500,000	93,275,368	17,419,531	4,224,632	96,097,134	1.22	7.10	
BlackRock Middle Market Senior Fund	97,500,000	93,275,368	17,419,531	4,224,632	96,097,134	1.22	7.10	2018
Brookfield Asset Management Inc.	200,000,000	57,356,055	18,935,605	142,643,945	43,249,701	1.08	12.19	
Brookfield Real Estate Finance Fund VI	200,000,000	57,356,055	18,935,605	142,643,945	43,249,701	1.08	12.19	2021
Energy Capital Partners	28,087,500	34,513,848	11,074,135	4,647,787	25,506,335	1.06	5.32	
Energy Capital Credit Solutions II-A	28,087,500	34,513,848	11,074,135	4,647,787	25,506,335	1.06	5.32	2018
Gold Hill	65,852,584	65,852,584	113,654,899	0	2,841,706	1.77	11.78	
Gold Hill 2008	25,852,584	25,852,584	48,393,297	0	2,521,976	1.97	14.40	2008
Gold Hill Venture Lending	40,000,000	40,000,000	65,261,602	0	319,730	1.64	10.69	2004
Goldman, Sachs & Co.	227,500,000	261,181,928	316,656,514	24,922,591	550,891	1.21	6.79	
GS Mezzanine Partners 2006 Institutional	100,000,000	113,458,168	135,467,496	9,858,563	276,352	1.20	5.00	2006
GS Mezzanine Partners V, L.P.	127,500,000	147,723,760	181,189,018	15,064,028	274,539	1.23	9.07	2007
HPS Investment Partners	200,000,000	119,205,222	29,481,968	101,871,763	109,522,831	1.17	10.06	
HPS Mezzanine Partners 2019, L.P.	100,000,000	94,908,198	25,090,840	21,777,658	90,197,870	1.21	10.88	2019
HPS Strategic Investment Partners V	100,000,000	24,297,023	4,391,128	80,094,105	19,324,961	0.98	-2.95	2022
Kohlberg, Kravis, Roberts & Co.	274,000,000	371,459,248	327,364,307	89,442,728	103,069,356	1.16	9.10	
KKR Lending Partner II L.P.	75,000,000	87,050,313	84,852,023	8,802,924	5,209,557	1.03	1.69	2015
KKR Lending Partners III L.P.	199,000,000	284,408,935	242,512,284	80,639,804	97,859,798	1.20	13.12	2017
LBC Credit Partners	200,000,000	200,186,432	149,275,741	70,791,967	85,686,448	1.17	9.77	
LBC Credit Partners IV, L.P.	100,000,000	110,915,994	109,281,076	36,220,071	21,837,779	1.18	8.14	2016
LBC Credit Partners V, L.P.	100,000,000	89,270,438	39,994,664	34,571,896	63,848,669	1.16	14.91	2019
Marathon	200,000,000	99,663,621	907,660	101,358,387	128,625,214	1.30	11.71	
Marathon Secured Private Strategies Fund II	100,000,000	96,022,008	858,534	5,000,000	124,881,490	1.31	11.78	2019
Marathon Secured Private Strategies Fund III	100,000,000	3,641,613	49,125	96,358,387	3,743,724	1.04	3.20	2022

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Merit Capital Partners	350,000,000	248,931,972	349,468,068	101,001,229	66,258,146	1.67	11.56	
Merit Mezzanine Fund IV, L.P.	75,000,000	70,178,571	139,120,463	4,821,429	1,112,906	2.00	11.59	2004
Merit Mezzanine Fund V, LP	75,000,000	72,306,122	108,565,889	2,693,878	12,431,028	1.67	10.11	2009
Merit Mezzanine Fund VI	100,000,000	92,629,096	101,781,716	7,304,104	40,932,927	1.54	15.26	2016
Merit Mezzanine Fund VII	100,000,000	13,818,182	0	86,181,818	11,781,285	0.85	-20.01	2020
Oaktree Capital Management, LLC	650,000,000	415,040,920	57,227,557	241,500,000	463,206,098	1.25	12.62	
Oaktree Opportunities Fund X, L.P.	50,000,000	46,500,021	36,794,660	8,500,000	32,022,729	1.48	9.58	2015
Oaktree Opportunities Fund Xb, L.P.	100,000,000	75,000,000	0	25,000,000	109,022,175	1.45	14.49	2015
Oaktree Opportunities Fund XI	300,000,000	210,000,000	1,930,511	90,000,000	241,773,417	1.16	14.31	2020
Oaktree Real Estate Debt III	200,000,000	83,540,899	18,502,386	118,000,000	80,387,777	1.18	13.14	2020
PIMCO BRAVO	5,243,670	4,745,149	5,714,432	5,350,003	254,061	1.26	4.82	
PIMCO Bravo Fund OnShore Feeder II	5,243,670	4,745,149	5,714,432	5,350,003	254,061	1.26	4.82	2014
Prudential Global Investment Mgmt	600,000,000	525,012,178	562,691,521	126,688,846	164,871,279	1.39	10.29	
PGIM Capital Partners VI, L.P.	150,000,000	58,335,492	6,631,494	91,665,094	58,426,152	1.12	21.23	2020
Prudential Capital Partners II, L.P.	100,000,000	97,930,132	145,671,152	11,049,052	492,778	1.49	9.01	2005
Prudential Capital Partners III, L.P.	100,000,000	102,871,088	174,839,469	13,586,923	3,022,104	1.73	14.13	2009
Prudential Capital Partners IV	100,000,000	113,092,265	133,370,634	1,948,707	18,448,600	1.34	8.50	2012
Prudential Capital Partners V, L.P.	150,000,000	152,783,202	102,178,772	8,439,070	84,481,645	1.22	7.38	2016
Summit Partners	95,000,000	100,002,497	136,746,526	22,177,023	2,442,584	1.39	9.06	
Summit Subordinated Debt Fund III, L.P.	45,000,000	44,088,494	62,804,226	2,250,000	536,366	1.44	8.61	2004
Summit Subordinated Debt Fund IV, L.P.	50,000,000	55,914,003	73,942,300	19,927,023	1,906,218	1.36	9.78	2008
TCW	200,000,000	174,519,135	145,912,466	67,578,060	73,212,788	1.26	8.57	
TCW Direct Lending LLC	100,000,000	83,599,652	88,264,004	25,329,409	19,210,680	1.29	8.22	2014
TCW Direct Lending VII	100,000,000	90,919,484	57,648,462	42,248,651	54,002,109	1.23	9.12	2018
TSSP	275,000,000	168,102,494	41,506,145	137,282,040	161,277,231	1.21	10.11	
Sixth Street Opportunities Partners V	75,000,000	21,628,194	9,199	53,371,806	19,914,982	0.92	-10.34	2021
Sixth Street TAO Partners (B), L.P.	50,000,000	45,791,570	19,138,671	23,362,912	40,884,097	1.31	10.66	2018
Sixth Street TAO Partners (D), L.P.	100,000,000	60,296,419	15,529,022	47,183,559	57,295,875	1.21	12.27	2018
TSSP Opportunities Partners IV (A), L.P.	50,000,000	40,386,311	6,829,253	13,363,763	43,182,278	1.24	9.97	2018

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Real Assets	**4,047,571,518**	**3,841,796,661**	**2,705,033,174**	**503,208,046**	**2,155,173,353**	**1.27**	**5.34**	
BlackRock	198,500,000	148,376,381	71,583,086	62,411,528	105,100,057	1.19	6.84	
BlackRock Global Renewable Power Fund II	98,500,000	101,030,503	68,717,826	7,963,383	55,844,247	1.23	6.54	2017
BlackRock Global Renewable Power Infrastructure III	100,000,000	47,345,878	2,865,259	54,448,146	49,255,810	1.10	9.15	2019
EIG Global Energy Partners	450,000,000	470,613,496	381,892,767	77,704,481	143,725,503	1.12	2.60	
EIG Energy Fund XIV	100,000,000	113,459,470	95,309,310	2,761,129	3,653,093	0.87	-5.02	2007
EIG Energy Fund XV	150,000,000	161,497,867	156,372,490	22,871,323	19,561,025	1.09	2.03	2010
EIG Energy Fund XVI	200,000,000	195,656,159	130,210,966	52,072,029	120,511,385	1.28	5.91	2013
Encap Energy	300,000,000	321,392,774	281,250,522	8,626,429	184,992,493	1.45	8.38	
EnCap Energy Capital Fund VIII, L.P.	100,000,000	103,335,766	66,190,547	470,044	43,519,488	1.06	1.13	2010
EnCap Energy Capital Fund X, L.P.	100,000,000	104,331,762	94,244,146	4,266,330	97,454,041	1.84	15.50	2015
Encap Energy Fund IX	100,000,000	113,725,245	120,815,829	3,890,055	44,018,964	1.45	10.37	2012
Energy & Minerals Group	680,000,000	690,660,633	417,356,115	40,962,715	540,285,593	1.39	7.08	
NGP Midstream & Resources, L.P.	100,000,000	103,565,615	179,560,149	17,857	5,084,486	1.78	13.25	2007
The Energy & Minerals Group Fund II, L.P.	100,000,000	108,534,480	108,598,045	170,365	107,726,494	1.99	12.37	2011
The Energy & Minerals Group Fund III, L.P.	200,000,000	207,189,833	35,213,172	1,219,725	111,468,094	0.71	-5.00	2014
The Energy & Minerals Group Fund IV, LP	150,000,000	162,851,575	89,122,866	14,023,899	148,299,252	1.46	8.86	2015
The Energy & Minerals Group Fund V	112,500,000	91,343,320	3,658,916	24,189,035	141,263,641	1.59	15.89	2019
The Energy & Minerals Group Fund V Accordion, LP	17,500,000	17,175,810	1,202,967	1,341,834	26,443,626	1.61	16.86	2019
Energy Capital Partners	350,000,000	361,800,518	338,767,451	66,552,510	190,668,810	1.46	12.14	
Energy Capital Partners III, L.P.	200,000,000	234,836,735	297,613,371	30,058,269	53,553,622	1.50	11.13	2013
Energy Capital Partners IV-A, LP	150,000,000	126,963,783	41,154,080	36,494,241	137,115,188	1.40	16.37	2017
Enervest Management Partners	100,000,000	99,177,808	101,227,299	8,915,890	47,022,182	1.49	9.18	
EnerVest Energy Institutional Fund XIV-A, L.P.	100,000,000	99,177,808	101,227,299	8,915,890	47,022,182	1.49	9.18	2015
First Reserve	500,000,000	564,086,967	278,557,281	0	135,603,724	0.73	-7.29	
First Reserve Fund XI, L.P.	150,000,000	150,292,121	100,059,903	0	70,487	0.67	-8.77	2006
First Reserve Fund XII, L.P.	150,000,000	165,617,044	85,669,271	0	195,791	0.52	-17.90	2008
First Reserve Fund XIII, L.P.	200,000,000	248,177,802	92,828,107	0	135,337,447	0.92	-2.79	2013
Kohlberg, Kravis, Roberts & Co.	249,850,000	177,192,898	35,198,913	84,139,813	162,417,010	1.12	6.49	
KKR Global Infrastructure Investors III	149,850,000	135,210,843	34,668,952	25,591,907	122,116,210	1.16	7.38	2018
KKR Global Infrastructure Investors IV	100,000,000	41,982,055	529,961	58,547,906	40,300,800	0.97	-4.21	2021

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Merit Energy Partners	519,721,518	384,644,480	198,400,406	94,599,899	358,997,397	1.45	5.87	
Merit Energy Partners F-II, L.P.	100,000,000	59,522,861	33,989,869	0	7,485,317	0.70	-4.93	2006
Merit Energy Partners H	100,000,000	100,000,000	29,668,582	0	54,842,361	0.85	-2.34	2011
Merit Energy Partners I, L.P.	169,721,518	169,721,518	109,039,060	0	190,482,964	1.76	11.17	2014
Merit Energy Partners K, L.P.	150,000,000	55,400,101	25,702,895	94,599,899	106,186,755	2.38	38.93	2019
NGP	599,500,000	589,497,701	568,649,335	45,794,780	254,169,584	1.40	9.31	
Natural Gas Partners IX, LP	150,000,000	173,962,921	249,243,688	605,481	547,456	1.44	12.06	2007
NGP Natural Resources X, L.P.	150,000,000	149,242,325	130,193,097	757,675	18,629,591	1.00	-0.08	2011
NGP Natural Resources XI, L.P.	150,000,000	154,119,437	129,928,917	6,290,493	121,134,232	1.63	11.51	2014
NGP Natural Resources XII, L.P.	149,500,000	112,173,018	59,283,633	38,141,131	113,858,304	1.54	14.40	2017
Sheridan	100,000,000	34,353,005	32,150,000	13,500,000	32,191,001	1.87	14.74	
Sheridan Production Partners III-B, L.P.	100,000,000	34,353,005	32,150,000	13,500,000	32,191,001	1.87	14.74	2014

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Real Estate	**4,173,147,868**	**2,897,045,931**	**2,046,768,709**	**1,581,055,666**	**1,990,349,846**	**1.39**	**9.87**	
Angelo, Gordon & Co.	550,000,000	459,180,611	263,532,407	142,680,000	370,853,330	1.38	12.01	
AG Asia Realty Fund III, L.P.	50,000,000	47,587,261	47,125,000	6,196,250	18,875,353	1.39	11.51	2016
AG Asia Realty Fund IV, L.P.	100,000,000	77,350,334	29,750,000	37,072,500	73,863,544	1.34	14.97	2018
AG Europe Realty Fund II, L.P.	75,000,000	68,779,896	30,019,976	12,768,750	70,212,416	1.46	11.07	2018
AG Europe Realty Fund III	75,000,000	40,686,731	3,000,000	34,687,500	44,359,391	1.16	9.55	2020
AG Realty Fund IX	100,000,000	92,141,126	85,000,000	11,650,000	47,095,228	1.43	8.54	2014
AG Realty Fund X, L.P.	150,000,000	132,635,263	68,637,431	40,305,000	116,447,398	1.40	19.89	2018
Blackstone	1,124,500,000	892,028,690	897,494,130	398,401,431	571,894,146	1.65	13.46	
Blackstone Real Estate Partners Asia II	74,500,000	68,685,494	11,886,722	15,595,777	70,293,179	1.20	7.68	2017
Blackstone Real Estate Partners Asia III	100,000,000	13,828,482	2,368	86,909,018	12,029,827	0.87	-16.47	2021
Blackstone Real Estate Partners IX, L.P.	300,000,000	309,119,037	99,316,551	55,211,477	351,063,972	1.46	26.78	2018
Blackstone Real Estate Partners V	100,000,000	104,217,981	209,143,624	4,174,052	90,449	2.01	10.84	2006
Blackstone Real Estate Partners VI, L.P.	100,000,000	109,500,200	218,445,629	4,907,906	1,724,372	2.01	13.07	2007
Blackstone Real Estate Partners VII, LP	100,000,000	112,168,482	181,154,417	11,077,798	20,147,386	1.79	15.04	2011
Blackstone Real Estate Partners X	200,000,000	748,990	0	199,251,010	422,185	0.56	-30.03	2022
Blackstone Real Estate VIII.TE.1 L.P.	150,000,000	173,760,024	177,544,819	21,274,393	116,122,776	1.69	16.19	2015
Blackstone Strategic Partners	75,000,000	77,489,811	66,234,275	916,710	920,164	0.87	-2.08	
Strategic Partners III RE, L.P.	25,000,000	25,981,820	15,252,523	9,006	99,363	0.59	-6.44	2005
Strategic Partners IV RE, L.P.	50,000,000	51,507,991	50,981,752	907,704	820,801	1.01	0.09	2008
Brookfield Asset Management Inc.	300,000,000	108,976,262	5,209,164	196,166,095	113,186,958	1.09	14.66	
Brookfield Strategic Real Estate Partners IV	300,000,000	108,976,262	5,209,164	196,166,095	113,186,958	1.09	14.66	2021
Carlyle Group	450,000,000	140,700,159	101,953,851	376,545,578	95,434,811	1.40	26.11	
Carlyle Realty Partners IX	300,000,000	16,783,149	0	283,216,851	11,334,567	0.68	-40.20	2021
Carlyle Realty Partners VIII, L.P.	150,000,000	123,917,010	101,953,851	93,328,727	84,100,244	1.50	28.41	2017
Kohlberg, Kravis, Roberts & Co.	125,000,000	74,326,002	5,580,419	52,935,309	68,935,642	1.00	0.25	
KKR Real Estate Partners Americas III	125,000,000	74,326,002	5,580,419	52,935,309	68,935,642	1.00	0.25	2021
Landmark Partners	249,500,000	99,205,389	61,444,855	173,008,010	76,771,567	1.39	17.32	
Landmark Real Estate Partners IX	100,000,000	0	0	100,000,000	0	0.00		2021
Landmark Real Estate Partners VIII, L.P.	149,500,000	99,205,389	61,444,855	73,008,010	76,771,567	1.39	17.32	2016
Lubert Adler	174,147,868	122,732,744	86,217,291	52,414,787	81,119,371	1.36	16.08	
Lubert-Adler Real Estate Fund VII-B, L.P.	74,147,868	67,585,213	82,515,205	7,414,787	20,284,791	1.52	15.62	2017
Lubert-Adler Recovery and Enhancement Capital Fund	100,000,000	55,147,530	3,702,087	45,000,000	60,834,581	1.17	18.98	2021

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Oaktree Capital Management, LLC	200,000,000	134,475,519	36,527,552	100,000,000	108,395,699	1.08	20.08	
Oaktree Real Estate Opportunities Fund VIII	200,000,000	134,475,519	36,527,552	100,000,000	108,395,699	1.08	20.08	2020
Rockpoint	200,000,000	179,060,071	69,882,159	41,172,282	154,026,381	1.25	8.21	
Rockpoint Real Estate Fund V, L.P.	100,000,000	99,722,723	58,755,434	17,327,032	67,292,604	1.26	6.47	2014
Rockpoint Real Estate Fund VI, L.P.	100,000,000	79,337,348	11,126,725	23,845,250	86,733,778	1.23	14.92	2019
Rockwood	200,000,000	164,861,297	61,784,022	39,319,406	138,650,635	1.22	7.38	
Rockwood Capital RE Partners X, L.P.	100,000,000	94,027,411	57,507,174	7,657,118	61,211,868	1.26	6.76	2015
Rockwood Capital RE Partners XI	100,000,000	70,833,887	4,276,848	31,662,288	77,438,767	1.15	9.66	2019
Silverpeak Real Estate Partners	225,000,000	144,009,375	109,295,624	7,496,058	3,792,782	0.79	-3.81	
Silverpeak Legacy Pension Partners II, L.P.	75,000,000	73,069,012	92,033,940	7,496,058	414,065	1.27	4.17	2005
Silverpeak Legacy Pension Partners III, L.P.	150,000,000	70,940,363	17,261,685	0	3,378,717	0.29	-11.91	2008
TA Associates Realty	300,000,000	300,000,000	281,612,959	0	206,368,360	1.63	13.86	
Realty Associates Fund X	100,000,000	100,000,000	161,064,353	0	111,028	1.61	12.56	2012
Realty Associates Fund XI	100,000,000	100,000,000	111,735,946	0	61,115,238	1.73	12.76	2015
Realty Associates Fund XII	100,000,000	100,000,000	8,812,660	0	145,142,094	1.54	23.12	2018
Total	**36,954,881,676**	**29,089,593,006**	**22,279,299,243**	**10,942,259,289**	**20,782,290,436**	**1.48**	**11.77**	
Difference**					5,380,256			
Private Markets Total with Difference					**20,787,670,691**			

Private Markets Portfolio Status	Managers	Funds
PRIVATE EQUITY	58	188
PRIVATE CREDIT	18	42
REAL ASSETS	11	31
REAL ESTATE	13	34
Total	**100**	**295**

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 and may slightly differ from final fiscal year end report. 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, 2023

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 Funds 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. Equity Actively Managed Fund - an actively managed, U.S. common stock portfolio.
- U.S. Equity Index Fund - a passively managed, common stock portfolio designed to broadly track the performance of the U.S. stock market.
- Broad International Equity 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	$106,490,693	5.6%	-6.7%	10.7%	7.3%	8.0%	01/1980
U.S. EQUITY ACTIVELY MANAGED FUND	77,876,906	7.2	-9.0	19.0	10.7	12.1	07/1986
U.S. EQUITY INDEX FUND	387,886,083	7.2	-8.5	18.7	10.6	11.8	07/1986
BROAD INTERNATIONAL EQUITY FUND	131,522,055	6.5	-2.5	13.4	3.4	4.9	09/1994
BOND FUND	101,333,687	3.4	-5.0	-1.4	1.4	1.9	07/1986
MONEY MARKET FUND	672,123,560	1.2	3.0	1.1	1.6	1.0	07/1986
STABLE VALUE FUND	1,722,287,109	0.6	2.3	2.2	2.3	2.2	11/1994
VOLUNTEER FIREFIGHTER ACCOUNT	149,860,637	5.1	-5.6	7.7	5.2	5.9	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	**$106,490,693**	**5.6%**	**-6.7%**	**10.7%**	**7.3%**	**8.0%**
SIF BALANCED FUND BENCHMARK		5.4%	-6.4%	10.1%	7.0%	7.7%
Excess		0.2%	-0.4%	0.7%	0.3%	0.3%

U.S. Equity Actively Managed Fund

The U.S. Equity 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. EQUITY ACTIVELY MANAGED FUND	**77,876,906**	**7.2**	**-9.0**	**19.0**	**10.7**	**12.1**
Russell 3000		7.2	-8.6	18.5	10.5	11.7
Excess		0.0	-0.4	0.5	0.3	0.4

Supplemental Investment Fund Performance

U.S. Equity Index Fund

The investment objective of the U.S. Equity 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. EQUITY INDEX FUND	**$387,886,083**	**7.2%**	**-8.5%**	**18.7%**	**10.6%**	**11.8%**
Russell 3000		7.2%	-8.6%	18.5%	10.5%	11.7%
Excess		0.0%	0.1%	0.3%	0.2%	0.1%

Broad International Equity Fund

The investment objective of the Broad International Equity 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 EQUITY FUND	**131,522,055**	**6.5**	**-2.5**	**13.4**	**3.4**	**4.9**
International Equity Benchmark		6.9	-5.1	11.7	2.4	4.2
Excess		-0.4	2.5	1.7	0.9	0.7

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	**$101,333,687**	**3.4%**	**-5.0%**	**-1.4%**	**1.4%**	**1.9%**
Bloomberg U.S. Aggregate		3.0%	-4.8%	-2.8%	0.9%	1.4%
Excess		0.5%	-0.2%	1.3%	0.5%	0.5%

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	**672,123,560**	**1.2**	**3.0**	**1.1**	**1.6**	**1.0**
ICE BofA US 3-Month Treasury Bill		1.1	2.5	0.9	1.4	0.9
Excess		0.1	0.5	0.3	0.2	0.2

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	**$1,722,287,109**	**0.6%**	**2.3%**	**2.2%**	**2.3%**	**2.2%**
Fixed Interest Blended Benchmark		1.1%	4.1%	2.0%	2.2%	1.9%
Excess		-0.5%	-1.8%	0.2%	0.1%	0.3%

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	**149,860,637**	**5.1**	**-5.6**	**7.7**	**5.2**	**5.9**
SIF Volunteer Firefighter Account BM		4.9	-5.4	7.0	4.8	5.6
Excess		0.2	-0.1	0.8	0.4	0.3

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	$669,879,366	7.2%	-8.8%	18.4%			07/2019
VANGUARD INSTITUTIONAL INDEX PLUS	1,648,437,826	7.5	-7.7	18.6	11.2%	12.2%	07/1999
VANGUARD DIVIDEND GROWTH	962,686,059	0.1	-2.8	17.2	12.1		10/2016
VANGUARD MID CAP INDEX	694,359,408	3.9	-9.8	18.7	8.2	10.2	01/2004
T. ROWE PRICE SMALL-CAP STOCK	827,537,496	3.4	-10.6	16.2	8.1	10.3	04/2000
FIDELITY DIVERSIFIED INTERNATIONAL	320,243,805	8.8	-5.4	11.8	4.8	6.2	07/1999
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	343,539,324	6.7	-4.6	12.7	2.5	4.5	07/2011
VANGUARD BALANCED INDEX	1,288,887,670	5.6	-7.0	9.7	6.8	7.7	12/2003
DODGE & COX INCOME	293,772,995	3.1	-3.0	0.1	1.9	2.4	07/1999
VANGUARD TOTAL BOND MARKET INDEX	322,723,472	3.2	-4.7	-2.8	0.9	1.3	12/2003
2025 FUND	213,124,657	3.8	-5.6	7.6	4.6	5.4	07/2011
2030 FUND	204,009,295	4.7	-6.5	9.1	5.3	6.3	07/2011
2035 FUND	164,471,815	5.8	-6.9	9.9	5.7	6.8	07/2011
2040 FUND	133,086,762	6.2	-7.2	10.9	5.9	7.2	07/2011
2045 FUND	126,742,068	6.5	-7.4	11.9	6.2	7.5	07/2011
2050 FUND	109,361,722	6.6	-7.6	12.9	6.3	7.7	07/2011
2055 FUND	72,199,423	6.8	-7.8	13.4	6.5	7.8	07/2011
2060 FUND	55,165,154	6.8	-7.8	13.4	6.5	7.8	07/2011
2065 FUND	8,153,590	6.8	-7.8	14.7			04/2020
INCOME FUND	209,799,518	3.5	-4.9	5.7	3.9	3.7	07/2011
TD Ameritrade SDB	80,461,033						
TD Ameritrade SDB Roth	2,963,335						

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	**$669,879,366**	**7.2%**	**-8.8%**	**18.4%**		**07/2019**
CRSP US Total Market Index		7.2	-8.8	18.4		07/2019
Excess		0.0	0.0	0.1		
VANGUARD INSTITUTIONAL INDEX PLUS	**1,648,437,826**	**7.5**	**-7.7**	**18.6**	**11.2%**	**07/1999**
S&P 500		7.5	-7.7	18.6	11.2	07/1999
Excess		-0.0	-0.0	-0.0	-0.0	
VANGUARD DIVIDEND GROWTH	**962,686,059**	**0.1**	**-2.8**	**17.2**	**12.1**	**10/2016**
VANGUARD DIVIDEND GROWTH INDEX		1.9	-2.9	16.5	11.0	10/2016
Excess		-1.8	0.1	0.7	1.1	
Mid Cap US Equity						
VANGUARD MID CAP INDEX	**694,359,408**	**3.9**	**-9.8**	**18.7**	**8.2**	**01/2004**
CRSP US Mid Cap Index		3.9	-9.8	18.8	8.1	01/2004
Excess		0.0	0.0	-0.0	0.0	
Small Cap US Equity						
T. ROWE PRICE SMALL-CAP STOCK	**827,537,496**	**3.4**	**-10.6**	**16.2**	**8.1**	**04/2000**
Russell 2000		2.7	-11.6	17.5	4.7	04/2000
Excess		0.7	1.0	-1.3	3.4	
International Equity						
FIDELITY DIVERSIFIED INTERNATIONAL	**320,243,805**	**8.8**	**-5.4**	**11.8**	**4.8**	**07/1999**
MSCI EAFE FREE (NET)		8.5	-1.4	13.0	3.5	07/1999
Excess		0.3	-4.0	-1.2	1.3	
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	**343,539,324**	**6.7**	**-4.6**	**12.7**	**2.5**	**07/2011**
FTSE Global All Cap ex US Index Net		6.4	-5.9	12.3	2.4	07/2011
Excess		0.3	1.3	0.4	0.1	

STATE STREET.

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	**$1,288,887,670**	**5.6%**	**-7.0%**	**9.7%**	**6.8%**	**12/2003**
Vanguard Balanced Fund Benchmark		5.5	-6.9	9.8	6.9	12/2003
Excess		0.1	-0.2	-0.1	-0.1	
Fixed Income						
DODGE & COX INCOME	**293,772,995**	**3.1**	**-3.0**	**0.1**	**1.9**	**07/1999**
Bloomberg U.S. Aggregate		3.0	-4.8	-2.8	0.9	07/1999
Excess		0.2	1.7	2.9	1.0	
VANGUARD TOTAL BOND MARKET INDEX	**322,723,472**	**3.2**	**-4.7**	**-2.8**	**0.9**	**12/2003**
Bloomberg U.S. Aggregate		3.0	-4.8	-2.8	0.9	12/2003
Excess		0.2	0.1	0.0	0.0	
MONEY MARKET FUND	**672,123,560**	**1.2**	**3.0**	**1.1**	**1.6**	**07/1986**
ICE BofA US 3-Month Treasury Bill		1.1	2.5	0.9	1.4	07/1986
Excess		0.1	0.5	0.3	0.2	
Stable Value						
STABLE VALUE FUND	**1,722,287,109**	**0.6**	**2.3**	**2.2**	**2.3**	**11/1994**
Fixed Interest Blended Benchmark		1.1	4.1	2.0	2.2	11/1994
Excess		-0.5	-1.8	0.2	0.1	

(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	**$213,124,657**	**3.8%**	**-5.6%**	**7.6%**	**4.6%**	**07/2011**
2025 FUND BENCHMARK		3.7%	-5.7%	7.5%	4.6%	07/2011
Excess		0.1%	0.1%	0.1%	0.0%	
2030 FUND	**$204,009,295**	**4.7%**	**-6.5%**	**9.1%**	**5.3%**	**07/2011**
2030 FUND BENCHMARK		4.6%	-6.6%	9.0%	5.3%	07/2011
Excess		0.1%	0.1%	0.1%	0.0%	
2035 FUND	**$164,471,815**	**5.8%**	**-6.9%**	**9.9%**	**5.7%**	**07/2011**
2035 FUND BENCHMARK		5.6%	-7.1%	9.8%	5.7%	07/2011
Excess		0.1%	0.2%	0.1%	0.0%	
2040 FUND	**$133,086,762**	**6.2%**	**-7.2%**	**10.9%**	**5.9%**	**07/2011**
2040 FUND BENCHMARK		6.0%	-7.4%	10.8%	5.9%	07/2011
Excess		0.2%	0.2%	0.1%	0.0%	
2045 FUND	**$126,742,068**	**6.5%**	**-7.4%**	**11.9%**	**6.2%**	**07/2011**
2045 FUND BENCHMARK		6.3%	-7.7%	11.8%	6.1%	07/2011
Excess		0.2%	0.3%	0.1%	0.0%	

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
2050 FUND	**$109,361,722**	**6.6%**	**-7.6%**	**12.9%**	**6.3%**	**07/2011**
2050 FUND BENCHMARK		6.5%	-8.0%	12.8%	6.3%	07/2011
Excess		0.2%	0.3%	0.1%	0.0%	
2055 FUND	**$72,199,423**	**6.8%**	**-7.8%**	**13.4%**	**6.5%**	**07/2011**
2055 FUND BENCHMARK		6.6%	-8.1%	13.2%	6.5%	07/2011
Excess		0.2%	0.3%	0.1%	0.0%	
2060 FUND	**$55,165,154**	**6.8%**	**-7.8%**	**13.4%**	**6.5%**	**07/2011**
2060 FUND BENCHMARK		6.6%	-8.1%	13.2%	6.5%	07/2011
Excess		0.2%	0.3%	0.1%	-0.0%	
2065 FUND	**$8,153,590**	**6.8%**	**-7.8%**	**14.7%**		**04/2020**
2065 FUND BENCHMARK		6.6%	-8.1%	13.2%		04/2020
Excess		0.2%	0.3%	1.5%		
INCOME FUND	**$209,799,518**	**3.5%**	**-4.9%**	**5.7%**	**3.9%**	**07/2011**
INCOME FUND BENCHMARK		3.4%	-5.0%	5.7%	3.9%	07/2011
Excess		0.1%	0.0%	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, 2023

Total = $1,759 Million

Fund Name	Ending Market	3 Months	1 Year	Annualized 3 Years	5 Years	10 Years	Since Inception	Inception Date
2038/2039 Enrollment Option	$21,651,574	6.02%	-6.60%				-3.72%	6/11/2021
2038-2039 Custom Benchmark		5.98%	-7.10%				-3.76%	
2036/2037 Enrollment Option	$67,734,440	7.66%	-6.66%	12.31%			6.32%	10/28/2019
2036-2037 Custom Benchmark		6.12%	-7.01%	12.48%			6.16%	
2034/2035 Enrollment Option	$55,310,441	5.71%	-6.44%	11.79%			5.99%	10/28/2019
2034-2035 Custom Benchmark		5.68%	-6.82%	11.94%			5.84%	
2032/2033 Enrollment Option	$61,821,538	5.41%	-6.35%	11.08%			5.68%	10/28/2019
2032-2033 Custom Benchmark		5.43%	-6.65%	11.25%			5.54%	
2030/2031 Enrollment Option	$71,938,506	4.95%	-6.01%	10.19%			5.15%	10/28/2019
2030-2031 Custom Benchmark		4.95%	-6.23%	10.32%			5.02%	
2028/2029 Enrollment Option	$89,469,478	4.41%	-5.31%	8.79%			4.42%	10/28/2019
2028-2029 Custom Benchmark		4.47%	-5.41%	8.89%			4.24%	
2026/2027 Enrollment Option	$121,509,309	3.84%	-4.54%	7.21%			3.78%	10/28/2019
2026-2027 Custom Benchmark		3.92%	-4.54%	7.31%			3.63%	
2024/2025 Enrollment Option	$163,461,699	2.75%	-3.53%	5.98%			3.33%	10/28/2019
2024-2025 Custom Benchmark		3.07%	-3.17%	6.03%			3.16%	
2022/2023 Enrollment Option	$166,469,504	2.24%	-1.88%	4.73%			2.73%	10/28/2019
2022-2023 Custom Benchmark		2.60%	-1.37%	4.60%			2.46%	
In School Option	$203,713,082	2.08%	-1.28%	2.97%			2.32%	10/28/2019
In School Custom Benchmark		2.39%	-1.20%	2.64%			1.76%	

MINNESOTA 529 COLLEGE SAVINGS PLAN

MINNESOTA COLLEGE SAVINGS PLAN
Performance Statistics for the Period Ending: March 31, 2023

				Annualized				
Fund Name	**Ending Market**	**3 Months**	**1 Year**	**3 Years**	**5 Years**	**10 Years**	**Since Inception**	**Inception Date**
U.S. and International Equity Option	$276,058,829	6.75%	-7.76%	15.89%	7.77%	9.06%	7.18%	10/ 1/2001
BB: U.S. and International Equity Option		6.81%	-8.13%	16.06%	7.74%	9.07%	7.86%	
Moderate Allocation Option	$91,687,972	5.24%	-5.98%	9.14%	5.57%	6.16%	5.31%	8/ 2/2007
BB: Moderate Allocation Option		5.26%	-6.10%	9.35%	5.60%	6.25%	5.79%	
100% Fixed-Income Option	$17,171,150	3.01%	-3.63%	-0.89%	1.51%	1.32%	2.81%	8/16/2007
BB: 100% Fixed-Income Option		2.91%	-3.66%	-0.64%	1.70%	1.62%	3.34%	
International Equity Index Option	$10,082,560	7.49%	-1.93%	12.57%	2.73%		4.39%	6/18/2013
BB: International Equity Index Option		7.57%	-3.18%	12.07%	2.72%		4.44%	
Money Market Option	$14,824,691	1.10%	2.51%	0.86%	1.24%	0.72%	0.63%	11/ 1/2007
BB: Money Market Option		1.02%	2.35%	0.79%	1.12%	0.64%	0.57%	
Principal Plus Interest Option	$116,121,407	0.43%	1.48%	1.48%	1.66%	1.51%	2.34%	10/10/2001
Citigroup 3-Month U.S. Treasury Bill		1.12%	2.61%	0.95%	1.40%	0.85%	1.29%	
Aggressive Allocation Option	$81,371,233	6.01%	-6.75%	12.44%	6.63%		6.91%	8/12/2014
BB: Aggressive Allocation Option		6.04%	-7.08%	12.70%	6.72%		6.87%	
Conservative Allocation Option	$16,606,335	3.44%	-3.36%	4.70%	3.60%		3.56%	8/18/2014
BB: Conservative Allocation Option		3.66%	-3.15%	4.82%	3.72%		3.62%	
Equity and Interest Accumulation Option	$7,926,142	3.83%	-3.33%	9.87%	6.21%		6.01%	8/18/2014
BB: Equity and Interest Accumulation Option		4.17%	-2.50%	9.90%	6.32%		6.02%	
U.S. Large Cap Equity Option	$102,033,996	7.46%	-7.85%	18.41%	11.02%		11.01%	8/12/2014
BB: U.S. Large Cap Equity Option		7.50%	-7.73%	18.60%	11.19%		11.13%	
Social Choice Equity Option	$1,087,645	5.74%	-6.99%				-2.35%	6/11/2021
BB: Social Choice Equity Option		7.18%	-8.58%				-2.47%	
Matching Grant	$1,333,935	0.43%	1.48%	1.48%	1.66%	1.51%	2.34%	3/22/2002
Citigroup 3-Month U.S. Treasury Bill		1.12%	2.61%	0.95%	1.40%	0.85%	1.29%	

MINNESOTABLEplan
A member of The National ABLE Alliance

Performance as of
3/31/2023

Total Market Value: **$34,158,326**

Fund Name	Market Value	% of Plan	1 Month	3 Months	YTD	1 Year	3 Year	5 Year	10 Year	Inception	Inception Date
Aggressive Option	$2,530,482	7.41%	1.03	5.95	5.95	(8.94)	13.76	6.12		7.41	12/15/16
ABLE Aggressive Custom Benchmark			0.94	5.87	5.87	(9.10)	14.14	6.42		7.80	
Variance			**0.09**	**0.08**	**0.08**	**0.16**	**(0.38)**	**(0.30)**		**(0.39)**	
Moderately Aggressive Option	$2,811,184	8.23%	1.15	5.30	5.30	(7.79)	11.38	5.52		6.55	12/15/16
ABLE Moderately Aggressive Custom Benchmark			1.15	5.32	5.32	(7.84)	11.81	5.81		6.92	
Variance			**0.00**	**(0.02)**	**(0.02)**	**0.05**	**(0.43)**	**(0.29)**		**(0.37)**	
Growth Option	$4,298,647	12.58%	1.36	4.75	4.75	(6.55)	9.04	4.86		5.64	12/15/16
ABLE Growth Custom Benchmark			1.36	4.75	4.75	(6.62)	9.46	5.13		5.99	
Variance			**0.00**	**(0.00)**	**(0.00)**	**0.07**	**(0.42)**	**(0.27)**		**(0.35)**	
Moderate Option	$3,791,855	11.10%	1.60	4.22	4.22	(5.39)	6.76	4.12		4.70	12/15/16
ABLE Moderate Custom Benchmark			1.57	4.18	4.18	(5.45)	7.10	4.39		5.01	
Variance			**0.03**	**0.04**	**0.04**	**0.06**	**(0.34)**	**(0.27)**		**(0.31)**	
Moderately Conservative Option	$3,573,890	10.46%	1.30	3.22	3.22	(3.18)	4.83	3.27		3.61	12/15/16
ABLE Moderately Conservative Custom Benchmark			1.33	3.28	3.28	(3.07)	5.02	3.51		3.87	
Variance			**(0.03)**	**(0.06)**	**(0.06)**	**(0.11)**	**(0.19)**	**(0.24)**		**(0.26)**	
Conservative Option	$6,282,194	18.39%	0.89	1.88	1.88	(0.35)	2.05	1.98		2.05	12/15/16
ABLE Conservative Custom Benchmark			0.99	2.03	2.03	0.04	2.17	2.19		2.25	
Variance			**(0.10)**	**(0.15)**	**(0.15)**	**(0.39)**	**(0.12)**	**(0.21)**		**(0.20)**	
Checking Account Option	$10,870,073	31.82%									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

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Non-Retirement

March 31, 2023

Non-Retirement Funds

The SBI manages funds for trusts and programs created by the Minnesota State Constitution and Legislature.

- The Minnesota Workers Compensation Assigned Risk Plan provides worker compensation insurance for companies unable to obtain coverage through private carriers.
- 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 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.
- Miscellaneous 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

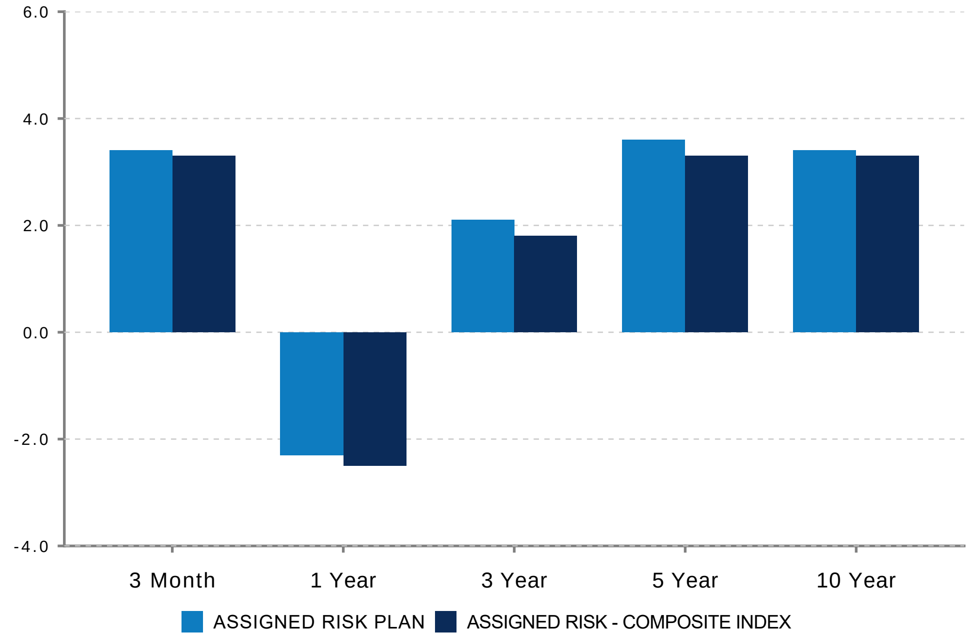
Assigned Risk Plan

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.

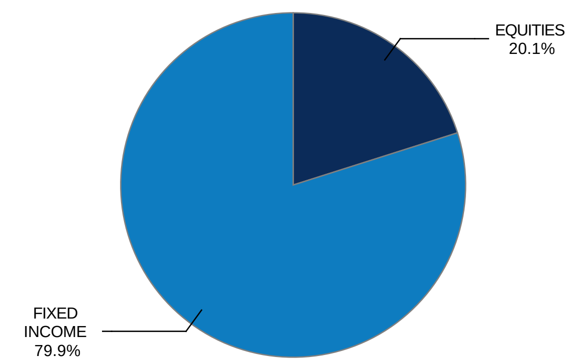
The Assigned Risk Plan is invested in a portfolio of common stocks and bonds

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 PLAN	$262,503,263	3.4%	-2.3%	2.1%	3.6%	3.4%
EQUITIES	$52,852,160	7.5%	-7.7%	18.6%	11.2%	11.9%
FIXED INCOME	$209,651,103	2.4%	-1.4%	-2.1%	1.2%	1.0%
ASSIGNED RISK - COMPOSITE INDEX		3.3%	-2.5%	1.8%	3.3%	3.3%
Excess		0.1%	0.2%	0.2%	0.3%	0.1%
S&P 500		7.5%	-7.7%	18.6%	11.2%	12.2%
Bloomberg U.S. Government: Intermediate		2.3%	-1.5%	-2.3%	1.1%	0.9%



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.

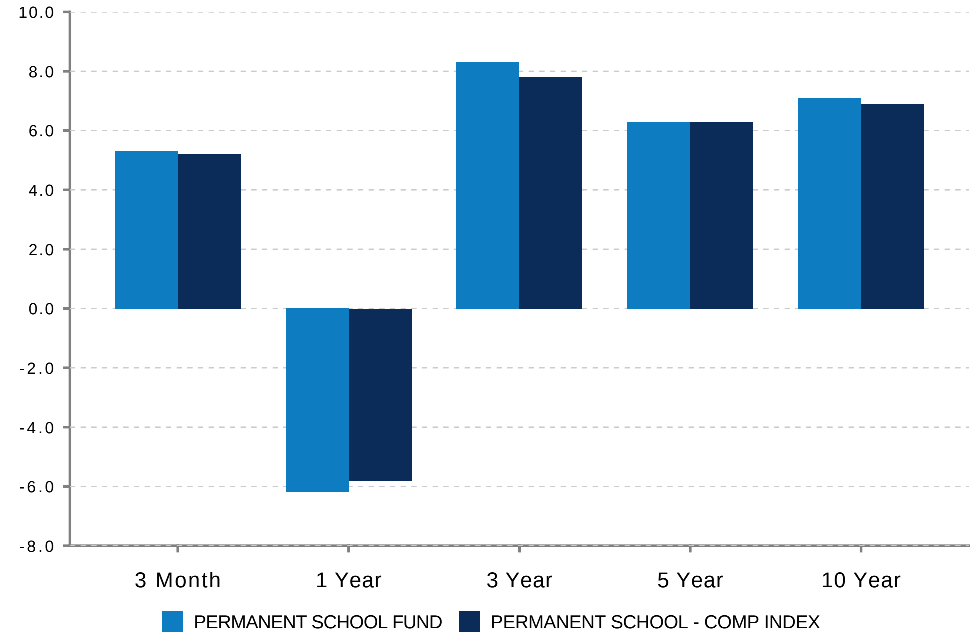
Non-Retirement

Permanent School Fund

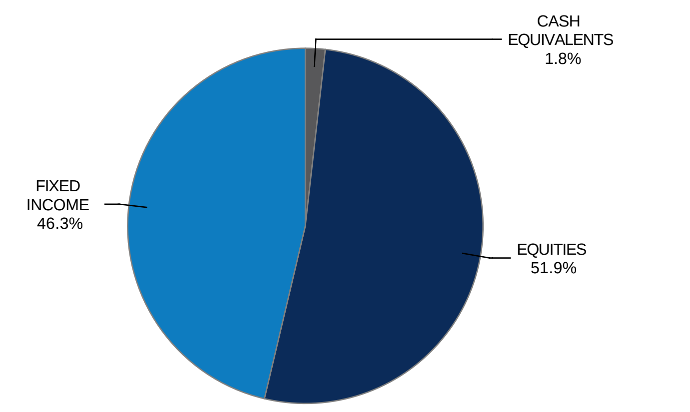
The investment objective of the Permanent School Fund is to produce a growing level of spendable income, within the constraints of maintaining adequate portfolio quality and liquidity. The income from the portfolio is transferred to the school endowment fund and distributed to Minnesota's public schools.

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	$1,820,282,840	5.3%	-6.2%	8.3%	6.3%	7.1%
CASH EQUIVALENTS	33,268,089	1.2	2.8	1.0	1.5	0.9
EQUITIES	944,912,225	7.5	-7.7	18.6	11.2	12.2
FIXED INCOME	842,102,526	3.1	-5.1	-1.8	1.1	1.7
PERMANENT SCHOOL - COMP INDEX		5.2	-5.8	7.8	6.3	6.9
Excess		0.1	-0.4	0.5	0.0	0.2
S&P 500		7.5	-7.7	18.6	11.2	12.2
Bloomberg U.S. Aggregate		3.0	-4.8	-2.8	0.9	1.4



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.

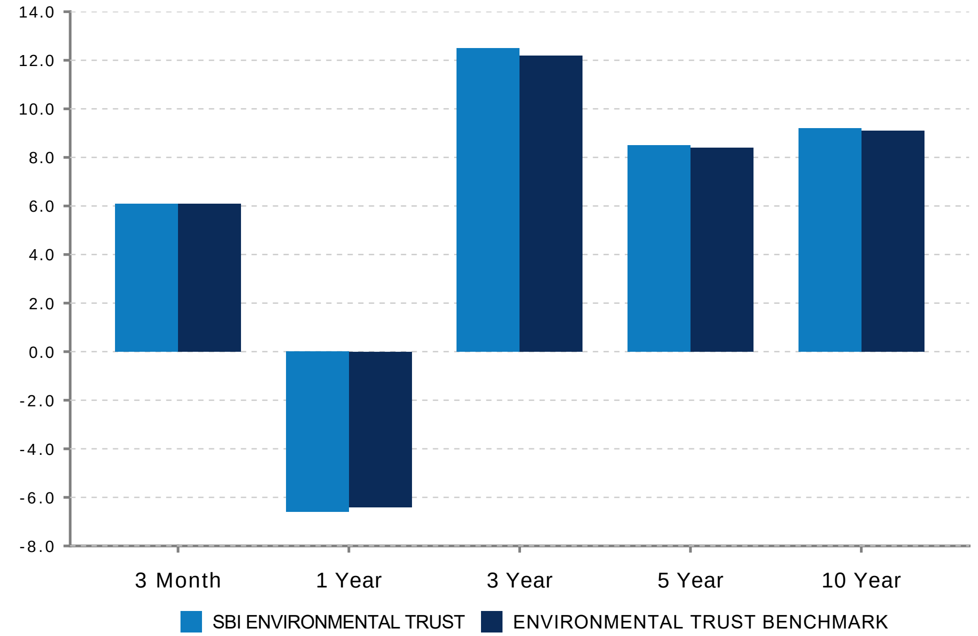
Non-Retirement

Environmental Trust Fund

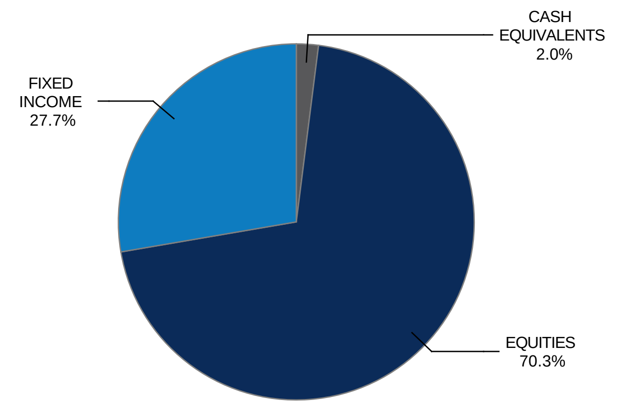
The objective of the Environmental Trust Fund is to increase the market value of the Fund over time in order to increase the annual amount made available for spending within the constraints of maintaining adequate portfolio quality and liquidity.

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	$1,535,594,939	6.1%	-6.6%	12.5%	8.5%	9.2%
CASH EQUIVALENTS	30,364,312	1.2	2.8	1.0	1.5	0.9
EQUITIES	1,079,719,472	7.5	-7.7	18.6	11.2	12.2
FIXED INCOME	425,511,155	3.1	-5.1	-1.8	1.1	1.7
ENVIRONMENTAL TRUST BENCHMARK		6.1	-6.4	12.2	8.4	9.1
Excess		0.0	-0.2	0.4	0.1	0.1
S&P 500		7.5	-7.7	18.6	11.2	12.2
Bloomberg U.S. Aggregate		3.0	-4.8	-2.8	0.9	1.4



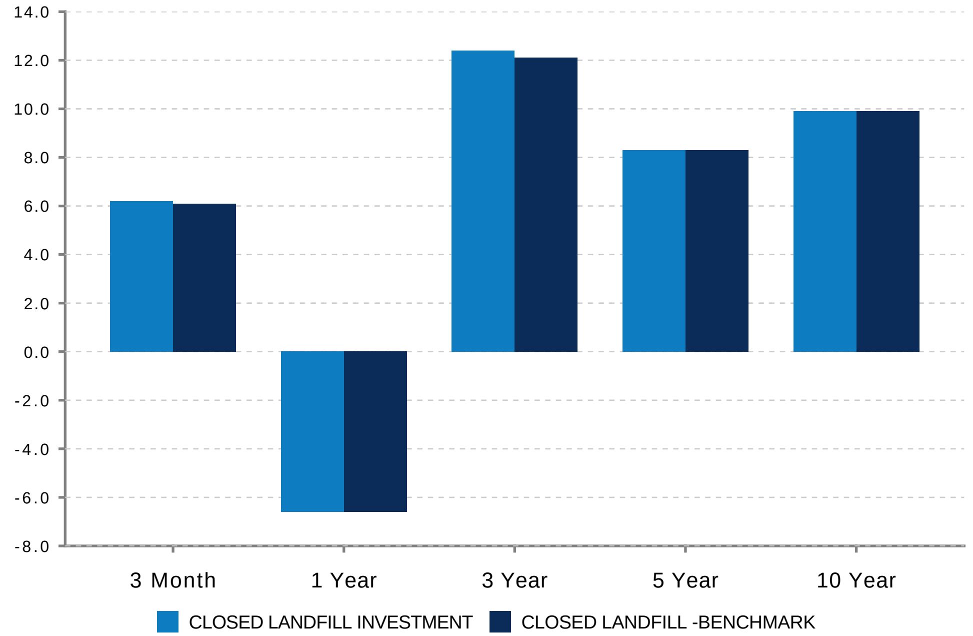
Note: Since 12/1/2017 the equity segment has been managed by Mellon and the fixed income segment by Prudential. Prior to 12/1/2017 both segments were managed internally by SBI staff. From 7/1/94 to 7/1/99, the Fund's target allocation and benchmark was 50% fixed income and 50% stock. Prior to 7/1/94 the Fund was invested entirely in short-term instruments as part of the Invested Treasurer's Cash pool.

Non-Retirement

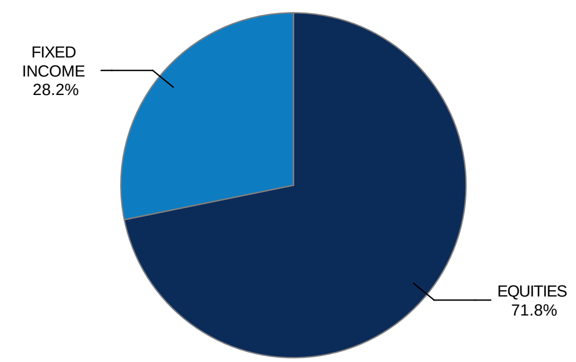
Closed Landfill Investment Fund

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	$122,366,619	6.2%	-6.6%	12.4%	8.3%	9.9%
EQUITIES	87,891,993	7.5	-7.7	18.6	11.2	12.2
FIXED INCOME	34,474,626	3.1	-5.1	-1.8	1.1	
CLOSED LANDFILL -BENCHMARK		6.1	-6.6	12.1	8.3	9.9
Excess		0.1	-0.1	0.3	0.0	0.0
S&P 500		7.5	-7.7	18.6	11.2	12.2
Bloomberg U.S. Aggregate		3.0	-4.8	-2.8	0.9	1.4



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.

	Ending Market Value	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
NON RETIREMENT EQUITY INDEX - MELLON	**2,963,712,714**	**7.5**	**10.0**	**-7.7**	**18.6**	**11.2**	**12.2**	**9.9**	**07/1993**
S&P 500 INDEX (DAILY)		7.5	10.0	-7.7	18.6	11.2	12.2	9.8	07/1993
Excess		-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	0.1	
NON RETIREMENT FIXED INCOME - PRUDENTIAL	**1,496,846,788**	**3.1**	**0.1**	**-5.1**	**-1.8**	**1.1**	**1.7**	**5.1**	**07/1994**
Bloomberg U.S. Aggregate		3.0	-0.1	-4.8	-2.8	0.9	1.4	4.7	07/1994
Excess		0.2	0.2	-0.3	0.9	0.2	0.4	0.4	
RBC	**209,651,156**	**2.4**	**0.2**	**-1.4**	**-2.1**	**1.2**	**1.0**	**4.3**	**07/1991**
RBC Custom Benchmark		2.3	0.1	-1.5	-2.3	1.1	0.9	4.3	07/1991
Excess		0.1	0.0	0.1	0.2	0.1	0.1	-0.1	
MET COUNCIL OPEB BOND POOL	100,371,957	1.8	0.3	-0.7	-1.3	1.0		1.0	02/2018
NON RETIREMENT CASH ACCOUNT	**709,835,335**	**1.2**	**2.6**	**2.8**	**1.0**	**1.5**		**1.5**	**12/2017**
ICE BofA US 3-Month Treasury Bill		1.1	2.4	2.5	0.9	1.4		1.4	12/2017
Excess		0.1	0.2	0.3	0.1	0.1		0.1	

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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State Cash

March 31, 2023

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	25,515,216,936	1.2	2.4	0.7	1.2	0.8
iMoneyNet Money Fund Average-All Taxable		1.0	2.4	0.8	1.2	0.7

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	89,789,249	2.3	1.3	0.9	2.2	

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.