
INVESTMENT ADVISORY COUNCIL

OF THE MINNESOTA STATE BOARD OF INVESTMENT

**INVESTMENT ADVISORY COUNCIL
MEETING
August 14, 2023**



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

This page intentionally left blank.

**INVESTMENT ADVISORY COUNCIL
MEETING**

AGENDA

August 14, 2023

This page intentionally left blank.

AGENDA
INVESTMENT ADVISORY COUNCIL MEETING

Monday, August 14, 2023
12:00 p.m.
Retirement Systems Building
Room 106 – Main Floor
60 Empire Drive, St. Paul, MN

TAB

- 1. Call to Order**
- 2. Approval of Minutes of May 15, 2023** **Motion Needed**
- 3. Market Strategist Presentation**
- 4. Performance Summary** **A**
- 5. Executive Director’s Administrative Report** **B**
- 6. Private Markets Investment Program Report** **C 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**

This page intentionally left blank.

Approval of
May 15, 2023
IAC Meeting Minutes

This page intentionally left blank.



Minutes Investment Advisory Council Meeting May 15, 2023

The Investment Advisory Council (IAC) met at 12:00 p.m. on Monday, May 15, 2023 in Room 106 of the Retirement Systems Building, 60 Empire Drive, St. Paul, MN 55103.

IAC Members Present: Denise Anderson, Doug Anderson, Kim Faust, Susanna Gibbons, Jennifer Hassemer, Peggy Ingison, Amy Jensen, Erin Leonard, Gary Martin, Dan McConnell, Nancy Orr, Carol Peterfeso, Dennis Santos, Jay Stoffel, Sunil Swami, and Shawn Wischmeier.

IAC Members Absent: None.

SBI Staff Present: Jill Schurtz, Paul Anderson, Nate Blumenshine, Sara Bruggeman, Tammy Brusehaver, Andy Christensen, Mike Clancey, Dan Covich, Stephanie Gleeson, Aaron Griga, Ben Harris, Cathy Hua, Andrew Krech, Todd Lauf, Melissa Mader, Mercy Ndungu, Charlene Olson, Emily Pechacek, Erol Sonderegger, Jonathan Stacy, and Samir Zahar.

Others Present: Katie Comstock, Aon Investments; Ghiane Jones, Sarah Bernstein, and Gordon Latter, Meketa Investment Group; Luz Frias and J. Adam Sorenson, Attorney General's Office; Karl Procaccini and Jake Smith, Governor's Office; Ramona Advani, State Auditor's Office; Tracy Gebhard, Public Employees Retirement Association; Ari Barkan and Pete Stavros, KKR; Steven Smith, Minnesota Divestment Coalition; Arman Vedadi and Enrico Petto, high school interns; and Angela Spranger, Gabriel Richardson and David Tanabe, private citizens.

Call to Order

Gary Martin, Chair of the Investment Advisory Council, called the meeting to order.

New Members to the IAC

Mr. Martin introduced Amy Jensen, Chief Investment Officer of the Lansing Group; Dennis Santos, Senior Vice President and Chief Investment Officer of Okabena Investment Services; and Sunil Swami, Chief Investment Officer of Alerus as new members to the IAC.

Presentation from KKR

Executive Director Jill Schurtz introduced Pete Stavros, Co-head of Global Private Equity, and Ari Barkan, Managing Director, Head of Client and Partner Group of KKR. Mr. Stavros gave a presentation on Ownership Works, an innovative private markets investment strategy that features employee ownership and engagement.

Organizational Updates

Ms. Schurtz and Mr. Christensen provided updates on the following organizational items:

Diversity, Equity, and Inclusion (DEI): The SBI recognizes the importance of this topic and continues to take action to capitalize on the work that's been done while continuing to make

forward progress. Nancy Orr has agreed to assume the role of co-chair of the DEI working group with Ms. Gibbons, given the retirement of the former co-chair. Erin Leonard has also agreed to join as a member. A meeting of the working group will be organized prior to the next IAC meeting. The SBI believes that the overall DEI effort must be integrated within the organization. To that end, the SBI has organized an internal team that includes members representing different asset classes - Nate Blumenshine, Dan Covich, and Mercy Ndungu. Internally, the SBI has taken steps to revise its job postings, widen its recruiting pipeline, and diversify its interview panels. As well, the SBI believes it is important to broaden its human capital pipeline and has established an intern program. With respect to external managers, the SBI considers every manager's approach to human capital and culture as an important overall factor. This evaluation includes a thorough understanding of each firm's philosophy, current status, goals, and investment in progress.

Internship Programs: The SBI is engaging in two different internship programs: one sponsoring two high school students who are part of an internship program within their school, and a college level summer internship program with six interns from various universities. In addition to fostering individual growth for the interns and gaining from their contributions, the SBI is working to build a more robust pipeline of diverse talent.

SBI Staff: New staff hires were announced: Sara Bruggeman, Legal and Policy; Cassie Boll, Co-Director Private Markets; and Tim Johnson, Cash Management.

Private Markets Investment Program Report

Mr. Martin referred members to Tab C of the meeting materials for the Private Markets Investment Program Report. He introduced Jon Stacy and members of the Private Markets team to present on the five investment commitments recommended for investment: CVC Capital Partners Fund IX; KKR Ascendant; Sixth Street TAO Partners, L.P.; Castlake Aviation V Stable Yield, L.P.; and TA Associates Fund XV.

A motion was made that the IAC endorse Staff's recommendation to invest in the five private market investment funds. The motion passed. There was one no vote cast by Ms. Gibbons, who requested that the minutes reflect her intention to vote against future commitments until an agreed upon DEI framework is established for evaluating diversity.

Approval of IAC Minutes

The minutes of the February 21, 2023 meeting were approved.

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 March 31, 2023:

AUM: The SBI was responsible for \$128.2 billion in assets, of which the Combined Funds represented \$83.2 billion.

Performance: The Combined Funds exceeded its long-term objectives by outperforming its Composite Index for the 10-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 is in-line with the asset allocation targets. The Combined Funds ranked in the 15th and 50th percentile for the quarter and year, respectively, compared to other public pension plans with assets greater than \$20 billion in the Trust Universe Comparison Services (TUCS).

Executive Director's Administrative Report

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

Financial Items: The SBI administrative expenses remain below budget for the time-period ending March 31, 2023.

Legislative Update: John Mulé noted that the bills of interest to the SBI include the Minnesota Secure Choice Retirement Program and the Pension Finance bill. These bills have passed both houses and await the Governor's signature.

Recognition: Ms. Schurtz recognized John Mulé who was recently selected by the Council of Institutional Investors to Chair their U.S. Asset Owners Advisory Council for the upcoming term.

Adjournment of Meeting

The motion to adjourn the meeting was approved. The meeting adjourned at 1:47 p.m.

Informational Reports included in Quarterly Meeting Materials:

Public Markets Investment Report

Participant Directed Investment Program and Non-Retirement Investment Program Report

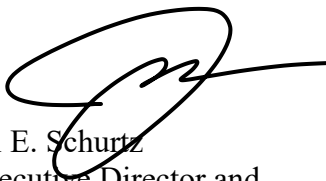
SBI Environmental Social and Governance (ESG) Report

Aon Market Environmental Report

Meketa Capital Markets Outlook & Risk Metrics Report

SBI Comprehensive Performance Report

Respectfully submitted,



Jill E. Schurtz
Executive Director and
Chief Investment Officer

This page intentionally left blank.

TAB A

Quarterly Performance Summary

June 30, 2023

This page intentionally left blank.



Quarterly Report

Performance Summary

June 30, 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.

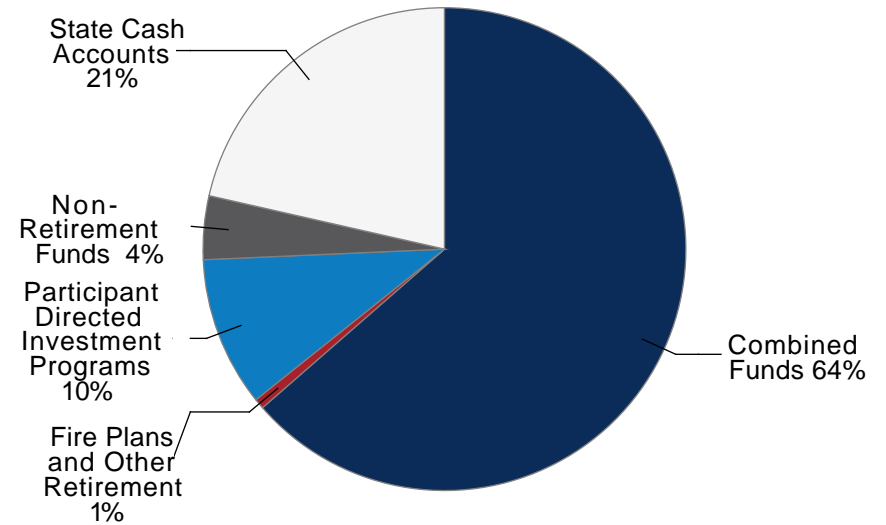
State Cash

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

	<u>\$ Millions</u>
COMBINED FUNDS	\$85,653
Fire Plans + Other Retirement Plans	924
Participant Directed Investment Program	13,507
State Deferred Compensation Plan	9,232
Health Care Savings Plan	1,797
Unclassified Employees Retirement Plan	359
Hennepin County Supplemental Retirement Plan	164
PERA Defined Contribution Plan	88
Minnesota College Savings Plan	1,830
Minnesota Achieving a Better Life Experience Plan	36
Non-Retirement Funds	5,730
Assigned Risk Plan	265
Permanent School Fund	1,890
Environmental Trust Fund	1,620
Closed Landfill Investment Fund	130
Miscellaneous Trust Funds	966
Other Postemployment Benefits Accounts	859
State Cash	28,886
Invested Treasurer's Cash	28,697
Other State Cash Accounts	190
TOTAL SBI AUM	134,701



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
Combined Funds - Composite Index
 Excess

8.8%
 8.6
 0.2

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
CPI-U
 Excess

8.5%
 2.6
 6.0

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)

	<u>One Quarter</u>
Combined Funds	
Beginning Market Value	\$83,246
Net Contributions	-680
Investment Return	3,087
Ending Market Value	85,653

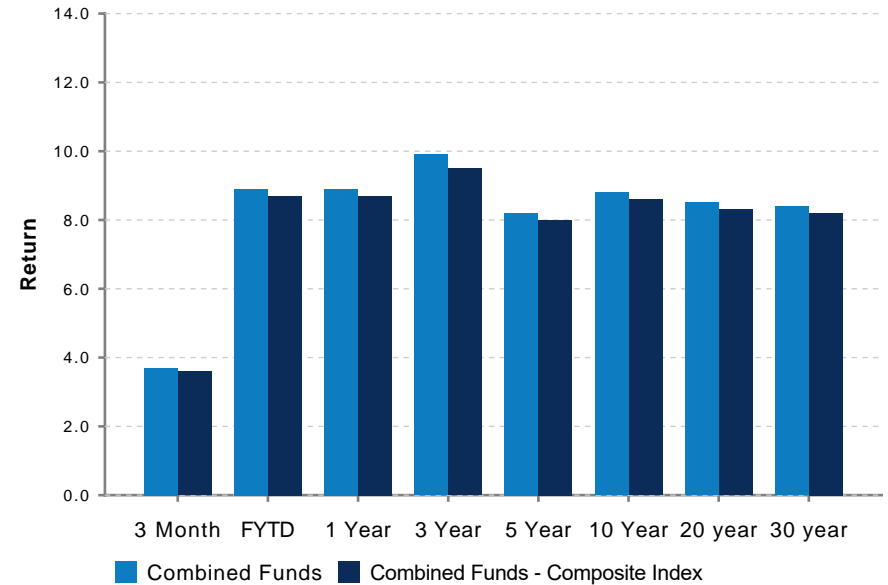
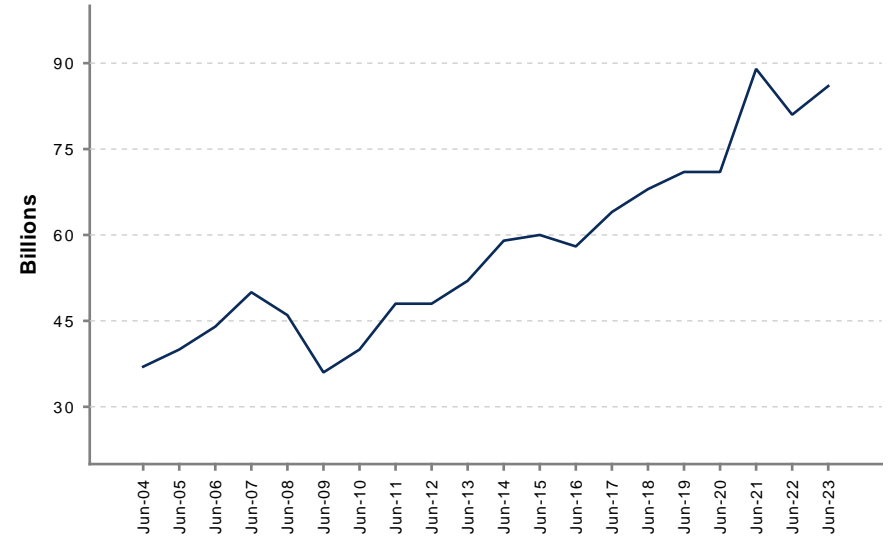
The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

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.

	<u>Qtr</u>	<u>FYTD</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>	<u>20 Yr</u>	<u>30 Yr</u>
Combined Funds	3.7%	8.9%	8.9%	9.9%	8.2%	8.8%	8.5%	8.4%
Combined Funds - Composite Index	3.6%	8.7%	8.7%	9.5%	8.0%	8.6%	8.3%	8.2%
Excess	0.1%	0.3%	0.3%	0.5%	0.3%	0.2%	0.3%	0.2%

Asset Growth



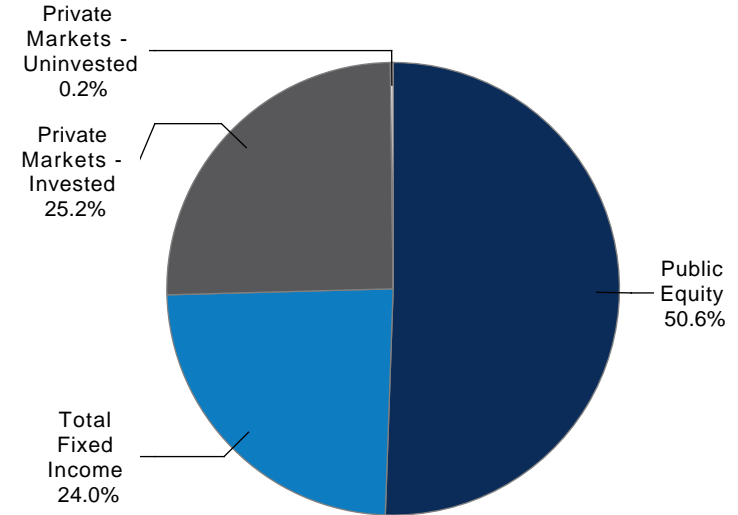


Combined Funds Summary

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.

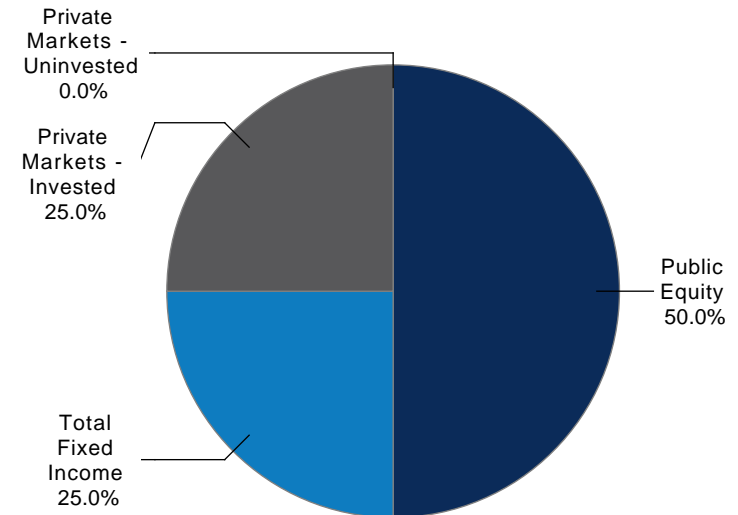
	<u>(Millions)</u>	<u>Actual Mix</u>	<u>Policy Target</u>
Public Equity	\$43,265	50.5%	50.0%
Total Fixed Income	20,597	24.0	25.0
Private Markets - Total	21,791	25.4	25.0
Private Markets - Invested	21,580	25.2	
Private Markets - Uninvested	211	0.2	
TOTAL	85,653	100.0	



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.

	<u>Policy Weight</u>	<u>Market Index</u>
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).

	<u>Market Value</u>	<u>Actual Weight</u>	<u>Policy Weight</u>	<u>Last Qtr</u>	<u>FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>20 Year</u>	<u>30 Year</u>
Public Equity	\$43.3	50.5%	50.0%	6.5%	17.4%	17.4%	12.2%	9.0%	10.2%	9.1%	8.8%
Public Equity Benchmark				6.4	17.0	17.0	11.8	8.8			
Excess				0.1	0.3	0.3	0.4	0.2			
Domestic Equity	28.7	33.5	33.5	8.3	19.1	19.1	14.1	11.3	12.3	10.0	9.6
Domestic Equity Benchmark				8.4	19.0	19.0	14.0	11.3	12.3	10.0	9.8
Excess				-0.1	0.1	0.1	0.1	-0.0	-0.0	-0.1	-0.1
International Equity	13.6	15.9	16.5	3.0	14.0	14.0	8.8	4.5	5.4	7.1	6.0
International Equity Benchmark				2.4	12.7	12.7	7.2	3.5	4.7	6.7	5.3
Excess				0.6	1.3	1.3	1.6	1.0	0.7	0.5	0.8
Global Equity	1.0	1.2	0.0	5.1	17.1	17.1					
MSCI AC World Index (net)				6.2	16.5	16.5					
Excess				-1.0	0.6	0.6					

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.

	<u>Market Value</u>	<u>Actual Weight</u>	<u>Policy Weight</u>	<u>Last Qtr</u>	<u>FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>20 Year</u>	<u>30 Year</u>
Total Fixed Income	\$20.6	24.0%	25.0%	-0.5%	0.1%	0.1%	-4.0%	1.7%	2.3%	3.6%	4.9%
Total Fixed Income Benchmark				-0.9%	-1.3%	-1.3%	-4.6%	1.3%	1.8%	3.2%	4.5%
Excess				0.3%	1.4%	1.4%	0.6%	0.4%	0.5%	0.4%	0.4%
Core/Core Plus	\$4.5	5.2%	5.0	-0.5%	0.3%	0.3%	-3.3%	1.3%	2.0%	3.5%	4.8%
Core Bonds Benchmark				-0.8%	-0.9%	-0.9%	-4.0%	0.8%	1.5%	3.0%	4.4%
Excess				0.4%	1.2%	1.2%	0.6%	0.6%	0.5%	0.5%	0.4%
Return Seeking Fixed Income	\$4.2	4.9%	5.0	0.8%	5.1%	5.1%					
Bloomberg U.S. Aggregate				-0.8%	-0.9%	-0.9%					
Excess				1.7%	6.0%	6.0%					
Treasury Protection	\$8.0	9.3%	10.0	-2.1%	-4.4%	-4.4%	-8.1%	-0.0%			
Bloomberg Treasury 5+ Year				-2.0%	-4.3%	-4.3%	-8.2%	-0.0%			
Excess				-0.1%	-0.1%	-0.1%	0.1%	-0.0%			
Laddered Bond + Cash	\$4.0	4.6%	5.0	1.3%	3.8%	3.8%	1.2%	1.5%	1.0%	1.6%	3.1%
ICE BofA US 3-Month Treasury Bill				1.2%	3.6%	3.6%	1.3%	1.6%	1.0%	1.4%	2.4%
Excess				0.1%	0.2%	0.2%	-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

	<u>Last Qtr</u>	<u>FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>20 Year</u>	<u>25 Year</u>	<u>30 Year</u>
Private Markets - Invested	2.5%	1.8%	1.8%	20.5%	13.5%	12.7%	14.0%	12.4%	13.4%
Private Markets -Uninvested (1)	1.5%	5.6%	5.6%						
Private Equity	3.6%	1.5%	1.5%	22.8%	17.0%	16.3%	16.2%	13.6%	15.6%
Private Credit	3.2%	9.1%	9.1%	16.1%	11.7%	13.1%	12.9%	12.8%	
Resources	-1.4%	2.8%	2.8%	17.1%	3.9%	2.4%	13.0%	11.7%	12.8%
Real Estate	-2.5%	-3.3%	-3.3%	16.7%	12.4%	12.7%	9.7%	9.4%	9.6%

Private Markets

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

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

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

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

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

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

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



SBI Combined Funds Strategic Allocation Category Framework

	<u>06/30/2023</u> <u>(\$ millions)</u>	<u>06/30/2023</u> <u>Weights</u>	<u>Category Range</u>	
<u>Growth - Appreciation</u>				
Public Equity	\$ 43,265.2	50.5%		
Private Equity	\$ 15,585.9	18.2%		
Non-Core Real Assets	\$ 3,601.0	4.2%		
	\$ 62,452.3	72.9%	50%	75%
<u>Growth - Income-oriented</u>				
Core Fixed Income	\$ 4,456.1	5.2%		
Private Credit	\$ 1,884.6	2.2%		
Return-Seeking Fixed Income	\$ 4,170.6	4.9%		
	\$ 10,511.5	12.3%	15%	30%
<u>Real Assets</u>				
Core Real Estate		0.0%		
Real Assets	\$ 515.8	0.6%		
	\$ 515.8	0.6%	0%	10%
<u>Inflation Protection</u>				
TIPS		0.0%		
Commodities		0.0%		
		0.0%	0%	10%
<u>Protection</u>				
U.S. Treasuries	\$ 8,003.4	9.3%		
	\$ 8,003.4	9.3%	5%	20%
<u>Liquidity</u>				
Cash	\$ 4,170.3	4.9%		
	\$ 4,170.3	4.9%	0%	5%
<u>Opportunity</u>				
Opportunity		0.0%		
		0.0%	0%	10%
Total	\$ 85,653.4	100%		
Illiquid Asset Exposure	\$ 21,587.5	25.2%	0%	30%



Volatility Equivalent Benchmark Comparison

	As of June 30, 2023							
	<i>1-year</i>	<i>3-year</i>	<i>5-year</i>	<i>10-year</i>	<i>15-year</i>	<i>20-year</i>	<i>25-year</i>	<i>30-year</i>
SBI Combined Funds Return	8.9%	9.9%	8.2%	8.8%	8.0%	8.5%	7.1%	8.4%
Volatility Equivalent Benchmark Return			5.1%	5.8%	5.2%	6.2%	5.4%	6.4%
Value Added			3.1%	3.1%	2.7%	2.3%	1.6%	2.0%
Standard Deviation: Benchmark = Combined Funds			11.1%	8.9%	10.1%	9.3%	9.9%	9.6%
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

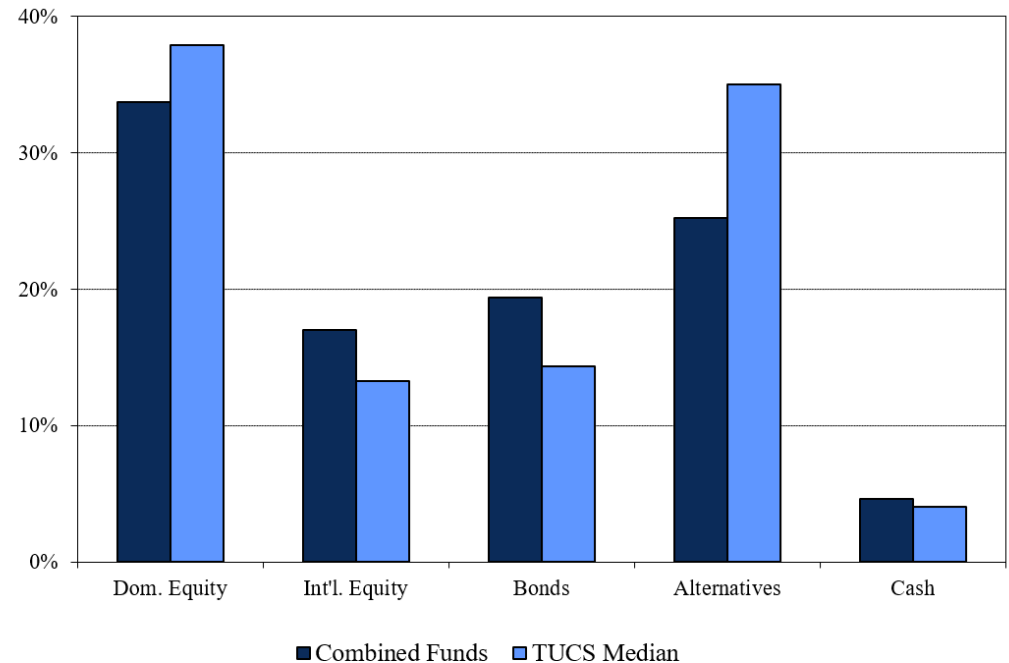
Asset Mix Compared to Other Pension Funds

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

	<u>(\$Millions)</u>	<u>Actual Mix</u>
Public Equity	43,265	50.5
Total Fixed Income	20,597	24.0
Private Markets - Invested	21,580	25.2
Private Markets - Uninvested	211	0.2
TOTAL	85,653	100.0



	<u>Domestic Equity</u>	<u>International Equity</u>	<u>Bonds</u>	<u>Alternatives</u>	<u>Cash</u>
Combined Funds	33.7%	17.1%	19.4%	25.2%	4.6%
Median in TUCS	37.9%	13.3%	14.4%	35.0%	4.1%



Combined Funds Summary

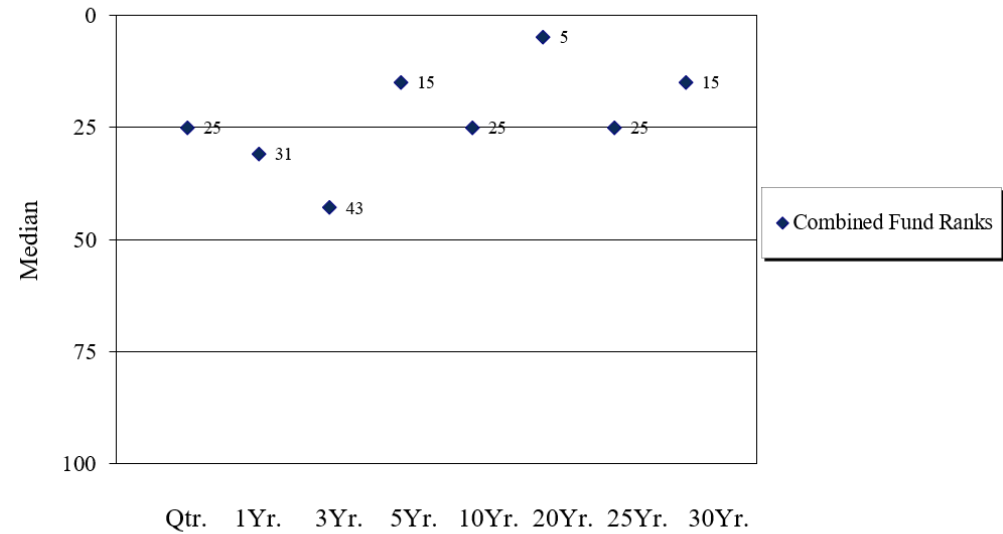
Performance Compared to Other Pension Funds

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.

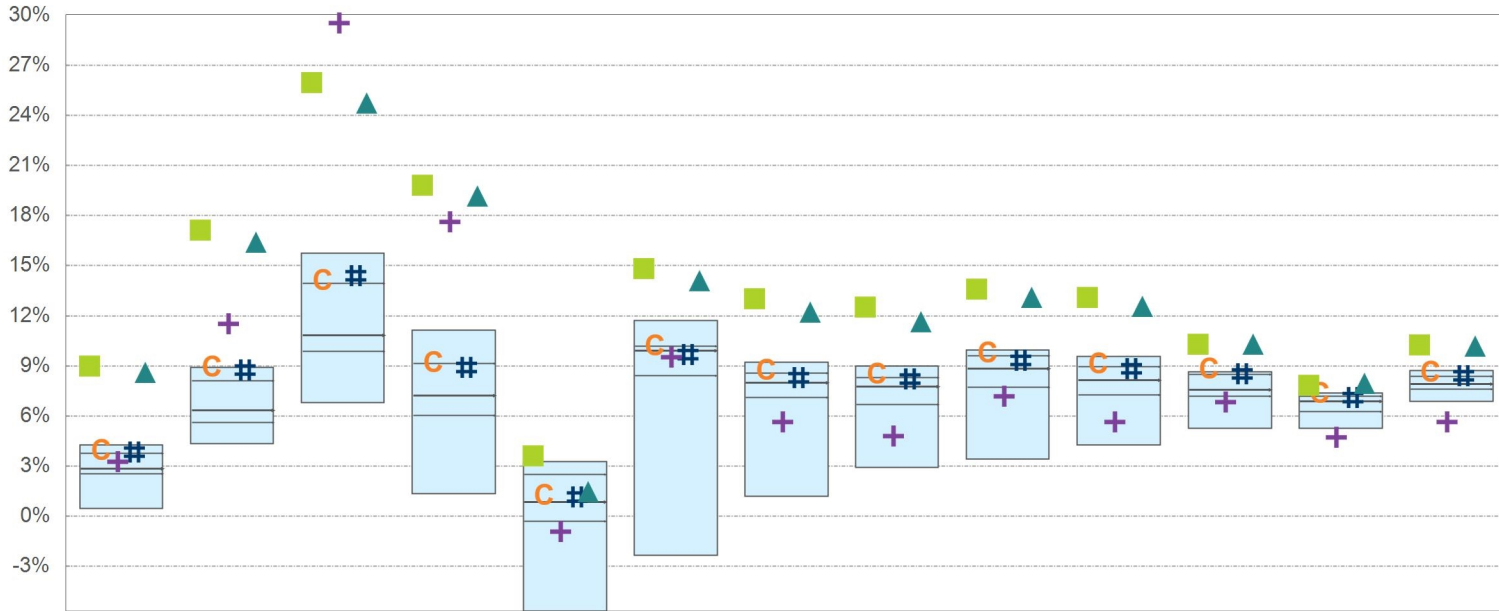


Periods Ended 06/30/2023

	Qtr	1 Yr	3 Yrs	5 Yrs	10 Yrs	20 Yrs	25 Yrs	30 Yrs
Combined Funds	25th	31st	43rd	15th	25th	5th	25th	15th
Percentile Rank in TUCS								

Minnesota State Board of Investments Performance Comparison

Total Returns of Master Trusts - Public : Plans > \$20 Billion
Cumulative Periods Ending : June 30, 2023



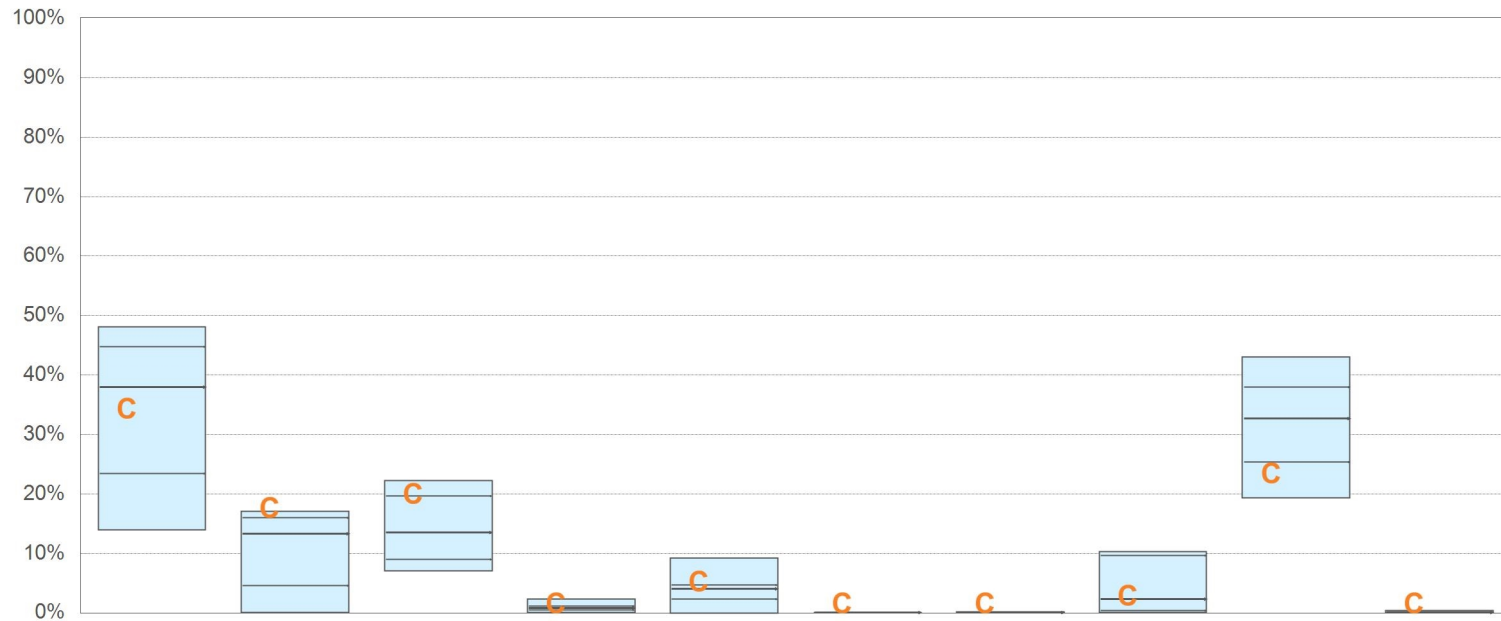
Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years	20 Years	25 Years	30 Years
5th	4.27	8.91	15.74	11.13	3.26	11.71	9.22	8.97	9.96	9.58	8.65	7.36	8.70
25th	3.76	8.09	13.96	9.14	2.48	10.18	8.56	8.29	9.60	8.96	8.47	7.17	8.38
50th	2.84	6.33	10.83	7.23	0.85	9.89	7.97	7.76	8.82	8.13	7.55	6.86	7.92
75th	2.53	5.60	9.88	6.02	-0.30	8.40	7.10	9.88	7.73	7.26	7.18	6.27	7.61
95th	0.44	4.32	6.80	1.33	-5.69	-2.36	1.19	2.92	3.41	4.26	5.27	5.26	6.88

No. Of Obs	18	18	18	18	18	18	17	16	16	16	14	14	13
------------	----	----	----	----	----	----	----	----	----	----	----	----	----

C Combined Funds	3.76 (25)	8.74 (12)	13.96 (25)	9.03 (31)	1.08 (43)	10.02 (43)	8.56 (25)	8.33 (15)	9.60 (25)	8.96 (25)	8.65 (5)	7.17 (25)	8.43 (15)
# SBI Combined Funds Ind	3.61 (25)	8.52 (18)	14.16 (18)	8.66 (31)	0.90 (43)	9.45 (50)	8.06 (43)	7.97 (37)	9.11 (31)	8.62 (31)	8.28 (33)	6.89 (41)	8.18 (41)
■ S&P 500	8.74 (1)	16.89 (1)	25.73 (1)	19.59 (1)	3.39 (1)	14.60 (1)	12.78 (1)	12.30 (1)	13.38 (1)	12.86 (1)	10.05 (1)	7.61 (1)	10.04 (1)
▲ Russell 3000	8.39 (1)	16.17 (1)	24.51 (1)	18.95 (1)	1.21 (37)	13.88 (1)	12.00 (1)	11.39 (1)	12.86 (1)	12.34 (1)	10.05 (1)	7.72 (1)	9.94 (1)
+ MSCI Wld Ex US (Net)	3.03 (37)	11.29 (1)	29.30 (1)	17.41 (1)	-1.14 (87)	9.30 (50)	5.42 (91)	4.58 (91)	6.94 (91)	5.40 (91)	6.62 (83)	4.49 (99)	5.42 (100)

Minnesota State Board of Investments Asset Allocation of Master Trusts - Public : Plans > \$20 Billion

Quarter Ending June 30, 2023



Percentile Rankings	US Equity	Non-US Equity	US Fixed	Non-US Fixed	Cash	Convertible	GIC GAC	Real Estate	Alternative Investments	Other
5th	48.09	17.05	22.28	2.30	9.23	0.04	0.14	10.33	42.97	0.32
25th	44.80	15.97	19.62	1.14	4.63	0.04	0.00	9.59	37.96	0.12
50th	37.94	13.29	13.56	0.79	4.05	0.00	0.00	2.35	32.68	0.00
75th	23.47	4.57	9.04	0.53	2.27	0.00	0.00	0.35	25.35	0.00
95th	13.92	0.00	7.06	0.03	-0.06	0.00	0.00	0.07	19.35	0.00
C Combined Funds	33.71 (58)	17.05 (5)	19.42 (33)	0.00 (100)	4.63 (25)	0.00 (100)	0.00 (100)	2.35 (50)	22.85 (91)	0.00 (99)

This page intentionally left blank.

TAB B

Executive Director's Administrative Report

This page intentionally left blank.

EXECUTIVE DIRECTOR'S ADMINISTRATIVE REPORT

DATE: August 7, 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 June 30, 2023, is included as **Attachment A**.

2. 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 second quarter, the liquidation manager sold four equity holdings. As of June 30, 2023, twenty holdings remained on the divestment list.

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. Due to these sanctions and actions, it was not possible to liquidate 100% of the holdings within 15 months of the effective date. The liquidation manager is selling whenever an opportunity presents itself.

On June 22, 2023, staff sent a letter to each applicable external manager containing the most recent restricted list.

3. Iran Update

Each quarter, staff provides a report to the Board on steps taken to implement *Minnesota Statutes*, section 11A.244, which requires certain 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 undertakes the required communication.

Under the statute, 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 second quarter, there were two companies on the SBI's Iran restricted list held in the Combined Funds portfolio, Gazprom PJSC, and a new addition to the list, PetroChina Company Limited.

Gazprom PJSC was scheduled for divestment; however, no market currently exists as Russian securities are restricted from trading under 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 Gazprom PJSC held in the portfolio were sold during the second quarter.

As required under the statute, staff notified PetroChina that it would be subject to divestment if it did not cease operations in Iran. If PetroChina fails to respond or cease operations, staff will direct liquidation of the company's shares per the statutory requirements.

On June 22, 2023, staff sent a letter to each applicable external manager containing the most recent restricted list.

4. 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 second quarter, the MSBI portfolio held no thermal coal connected assets.

On June 22, 2023, staff sent a letter to each applicable external manager containing the most recent restricted list.

5. Litigation Update

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

This page intentionally left blank.

ATTACHMENT A

**STATE BOARD OF INVESTMENT
FISCAL YEAR 2023 ADMINISTRATIVE BUDGET REPORT
FISCAL YEAR TO DATE THROUGH JUNE 30, 2023**

ITEM	FISCAL YEAR 2023 BUDGET	FISCAL YEAR 2023 6/30/2023
PERSONNEL SERVICES		
FULL TIME EMPLOYEES	\$ 7,140,000	\$ 7,097,886
PART TIME EMPLOYEES	\$ 32,000	24,288
	0	0
MISCELLANEOUS PAYROLL	150,000	135,007
SUBTOTAL	\$ 7,322,000	\$ 7,257,182
STATE OPERATIONS		
RENTS & LEASES	390,000	281,473
REPAIRS/ALTERATIONS/MAINTENANCE	3,235,000	28,406
PRINTING & BINDING	12,000	1,758
PROFESSIONAL/TECHNICAL SERVICES/IT PROF	429,000	220,370
COMPUTER SYSTEMS SERVICES	453,000	331,433
COMMUNICATIONS	25,000	12,928
TRAVEL, IN-STATE	3,000	392
TRAVEL, OUT-STATE	300,000	165,259
SUPPLIES	150,000	104,566
EQUIPMENT	194,985	124,378
EMPLOYEE DEVELOPMENT	219,000	85,415
OTHER OPERATING COSTS	230,000	169,580
INDIRECT COSTS	300,000	221,813
SUBTOTAL	\$ 5,940,985	\$ 1,747,770
TOTAL ADMINISTRATIVE BUDGET	\$ 13,262,985	\$ 9,004,951

This page intentionally left blank.

TAB C

Private Markets Program Report

This page intentionally left blank.

DATE: August 7, 2023

TO: Members, Investment Advisory Council

FROM: 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:

Real Estate	Blackstone Real Estate Partners	Europe Fund VII	up to \$150 million
Real Estate	Brookfield Strategic Real Estate Partners	Fund V	up to \$200 million
Private Equity	Lexington Co-Investment Partners	Fund VI	up to \$300 million

SBI action is required on item B.

A. Status of SBI Current Private Markets Commitments

Minnesota State Board of Investment Combined Funds June 30, 2023

Combined Funds Market Value \$85,653,393,347

	% of Combined Funds	Current Level	Target Level ¹	Difference
Market Value (MV)	25.2%	\$21,580,442,582	\$21,413,348,337	(\$167,094,245)
<i>Policy Target</i>	25%			
<i>Statutory Limit</i>	35%			
MV +Unfunded	38.8%	\$33,229,983,622	\$38,544,027,006	\$5,314,043,384
<i>Policy Limit</i>	50.0%			

Asset Class	% of Combined Funds	Market Value	Unfunded Commitment	Total
Private Equity	18.2%	\$15,585,994,773	\$8,008,449,034	\$23,594,443,807
Private Credit	2.2%	\$1,884,674,414	\$1,332,406,734	\$3,217,081,148
Real Assets	2.5%	\$2,105,772,625	\$581,616,327	\$2,687,388,952
Real Estate	2.3%	\$2,011,060,663	\$1,727,068,945	\$3,738,129,608
Other ²		(\$7,059,894)		(\$7,059,894)
Total		\$21,580,442,581	\$11,649,541,040	\$33,229,983,621

Cash Flows June 30, 2023

Calendar Year	Capital Calls	Distributions	Net Invested
2023	\$1,441,010,159	(\$953,454,995)	\$487,555,164
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 real estate manager, Blackstone Inc., in Blackstone Real Estate Partners Europe Fund VII (“Europe Fund VII”).

Blackstone intends to continue its successful strategy of targeting complicated real estate assets and situations, creating value through hands-on ownership, and selling assets once they achieve their asset management objectives. As one of the largest global owners and operators of virtually all property types, the scale of Blackstone’s holdings allows it to leverage timely insights on changing market conditions and trends. Blackstone believes that its seasoned investment team is able to utilize real-time proprietary market data to identify patterns more rapidly than its competitors and that its scale and team breadth continue to be its greatest competitive advantage, enabling its professionals to execute large, complicated transactions with speed and certainty at attractive pricing.

In addition to reviewing the attractiveness of the Blackstone Real Estate Partners Europe Fund VII 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 Blackstone Real Estate Partners Europe Fund VII is included as **Attachment A beginning on page 7.**

RECOMMENDATION:

Staff is recommending a commitment of up to \$150 million to Blackstone Real Estate Partners Europe Fund VII 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 Blackstone Real Estate Partners Europe Fund VII 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 Blackstone Inc. upon this approval. Until the Executive Director, on behalf of the SBI, executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Blackstone Inc. or a reduction or termination of the commitment.

2) **Investment with an existing real estate manager, Brookfield Asset Management Inc. (“Brookfield”), in Brookfield Strategic Real Estate Partners V.**

Brookfield’s disciplined real estate investment approach is focused on acquiring high-quality investments and adding value through operational enhancements. The Firm concentrates on geographies, sectors, and transaction types where it believes it has informational, operational, financial, or other competitive advantages. Brookfield has a global reach with a local on-the-ground presence in key markets. Brookfield’s knowledge and expertise in these geographies are expected to give the Fund a competitive advantage, enabling it to properly assess risk and implement plans to create value at the asset or capital structure level. BSREP V is expected to invest approximately 60% of the Fund in the Americas, 20% in Europe and the Middle East, and 20% in the Asia-Pacific.

In addition to reviewing the attractiveness of the Brookfield Strategic Real Estate Partners 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 Brookfield Strategic Real Estate Partners is included as **Attachment B beginning on page 11.**

RECOMMENDATION:

Staff is recommending a commitment of up to \$200 million to Brookfield Strategic Real Estate Partners V 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 Brookfield Strategic Real Estate Partners 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 Brookfield Asset Management Inc. upon this approval. Until the Executive Director, on behalf of the SBI, executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Brookfield Asset Management Inc. or a reduction or termination of the commitment.

3) Investment with an existing private equity manager, Lexington Partners (“Lexington”), in Lexington Co-Investment Partners VI, L.P. (“CIP V”).

Lexington’s co-investment program’s (“CIP”) strategy is intended to provide investors with exposure to investments alongside leading private equity sponsors on a highly diversified basis at significantly reduced fees and carry versus traditional primary fund investing. Since 1998, Lexington has structured CIP’s offering to be complementary to institutional investors’ existing private equity programs. Lexington believes CIP’s strategy is differentiated from competitors in the market given the active collaboration and partnership between CIP and its limited partners (“LPs”). CIP’s “club” approach leverages Lexington’s deep and longstanding GP relationships, in partnership with its LPs, to create a robust deal sourcing engine that typically generates incremental opportunities beyond that of any single investor. CIP will partner with buyout sponsors in attractive companies primarily in the United States and Europe, but will also co-invest opportunistically in companies in the growth markets of Asia and Latin America.

In addition to reviewing the attractiveness of the Lexington Co-Investment Partners VI, 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 Lexington Co-Investment Partners VI, L.P., is included as **Attachment C beginning on page 15.**

RECOMMENDATION:

Staff is recommending a commitment of up to \$300 million to Lexington Co-Investment Partners VI, 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 Lexington Co-Investment Partners VI, 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 Lexington 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 Lexington Partners or a reduction or termination of the commitment.

This page intentionally left blank.

ATTACHMENT A

REAL ESTATE MANAGER SUMMARY PROFILE

I. **Background Data**

Name of Fund:	Blackstone Real Estate Partners Europe VII SCSp
Type of Fund:	Real Estate Limited Partnership
Target Fund Size:	€10 billion
Fund Manager:	Blackstone Inc.
Manager Contact:	Grant Murray 345 Park Avenue New York, NY 10154

II. **Organization and Staff**

Blackstone Real Estate, part of Blackstone Inc. (“Blackstone” or the “Firm”), is forming Blackstone Real Estate Partners Europe VII SCSp (“BREPE VII” or the “Fund”) to make a broad range of opportunistic real estate and real estate-related investments. BREPE VII will focus primarily on European opportunities across several property types and countries on an opportunistic basis.

The Firm was founded in 1985 and became a public company in 2007. Within the Blackstone Group, Blackstone’s Real Estate Group was established in 1991 and is the largest owner of commercial real estate globally with \$332 billion of investor capital under management (as of March 31, 2023) and a \$585 billion global real estate portfolio (as of March 31, 2023).¹ Blackstone Real Estate currently has 896 professionals located in 12 offices globally and operates as one integrated business (as of March 31, 2023). The investment committee meets weekly and includes Jon Gray, President and Chief Operating Officer of Blackstone as the Chairman of the Blackstone Real Estate Investment Committee, and Ken Caplan and Kathleen McCarthy, Global Co-Heads of Blackstone Real Estate. The Investment Committee also includes all Senior Managing Directors in the Real Estate group as well as senior executives of Blackstone, including Stephen Schwarzman, Chairman and Chief Executive Officer, and Michael Chae, Chief Financial Officer.

Diversity, Equity, and Inclusion (“DEI”) is critically important to Blackstone’s culture, and it believes diverse teams lead to better decisions and outcomes. Blackstone is highly focused on driving diversity within the Firm and across its portfolios. Approximately one-third of Blackstone’s leadership team is diverse. Blackstone continually increases its efforts and commitment to diversity inside the Firm and in the industry. This commitment takes several forms: internal networks to engage, retain, and develop the existing diverse populations (in the U.S., Blackstone has five networks for women, minorities, LGBTQ individuals, working families, and veterans); targeted recruiting efforts designed to attract qualified, diverse talent to Blackstone; and partnerships with external diversity-focused organizations.

¹ As used herein, “investor capital” includes GP and side-by-side commitments, as applicable.

III. Investment Strategy

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

Once an asset is acquired, Blackstone Real Estate's experienced asset management professionals proactively seek to drive value at the asset level to generate the most value for limited partners. The global team of 226² asset management professionals (as of December 31, 2022) take a hands-on approach while working closely with its portfolio companies and/or operating partners to seek to ensure business plans are executed seamlessly. Blackstone is relentlessly results oriented and hones its business plans through frequent formalized asset management meetings, including weekly asset management updates, detailed monthly review sessions, and multiple meetings surrounding Blackstone's robust quarterly valuation process.

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

- Global logistics: The logistics sector continues to outperform, fueled by rising e-commerce penetration and robust investor demand, trends that have only accelerated as a result of COVID-19. Limited new supply combined with increasing demand for faster delivery times has led to strong absorption and a sharp acceleration in rent growth for logistics assets.
- Rental housing: Strong demographic trends coupled with a chronic undersupply in many major European cities have created a structural housing shortage. Blackstone believes supply will continue to be constrained in today's inflationary environment as costs for raw materials and labor continue to rise. BREP seeks to invest in well-located, affordable apartments in select markets with strong fundamentals, focusing on constrained supply, demographic tailwinds, population and job growth and affordability.
- Hospitality: Blackstone continues to believe in the long-term shift toward experiential spending, driving strength in the hospitality sector. Although hospitality was significantly impacted by COVID-19 disruptions, Blackstone Real Estate believes the sector is poised to rebound given pent-up leisure demand and increasing recreation spend. Blackstone utilizes a targeted investment approach and key areas of focus today include: irreplaceable resorts in supply-constrained locations, select service assets experiencing trends similar to

² Includes Asset Management, Portfolio Management and Capital Markets for Blackstone Real Estate's equity business, as applicable.

those in the rental housing sector, and ‘drive-to’ resorts benefiting from pent-up leisure demand.

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

IV. Investment Performance

Previous fund performance as of March 31, 2023 for Blackstone Real Estate Partners is shown below:

Fund	Vintage Year	Total Commitments	SBI Commitment	Net IRR*	Net MOIC*	Net DPI**
BREP I	1994	\$381 million	--	40%	2.8x	2.4x
BREP II	1996	\$1.2 billion	--	19%	2.1x	1.8x
BREP III	1999	\$1.5 billion	--	21%	2.4x	2.0x
BREP IV	2003	\$2.2 billion	--	12%	1.7x	1.5x
BREP V	2005	\$5.5 billion	\$100 million	11%	2.3x	1.9x
BREP VI	2007	\$11.1 billion	\$100 million	13%	2.5x	2.0x
BREP VII	2011	\$13.5 billion	\$100 million	15%	2.0x	1.5x
BREP VIII	2015	\$16.6 billion	\$150 million	16%	2.0x	1.0x
BREP IX	2019	\$21.3 billion	\$300 million	27%	1.6x	0.3x
BREP X	2022	\$30.4 billion	\$200 million	N/A	1.1x	N/A
BREP Asia I	2013	\$4.3 billion	--	12%	1.8x	1.2x
BREP Asia II	2017	\$7.3 billion	\$75 million	8%	1.3x	0.2x
BREP Asia III	2022	\$7.5 billion	\$100 million	N/A	1.0x	N/A
BREP Int'l	2001	€824 million	--	23%	2.1x	1.8x
BREP Int'l II***	2005	€1.6 billion	--	8%	1.8x	1.7x
BREP Europe III	2008	€3.2 billion	--	14%	2.0x	1.5x
BREP Europe IV	2013	€6.7 billion	--	13%	1.8x	1.3x
BREP Europe V	2016	€8.0 billion	--	11%	1.7x	0.8x
BREP Europe VI	2019	€9.9 billion	--	20%	1.5x	0.5x

* Previous fund investments are not indicative of future results. Net IRR, Net MOIC, and Net DPI were provided by Blackstone Group Inc.

** DPI is represented as Total Realized Proceeds over Total Invested Capital.

*** The 8% Net IRR excludes investors that opted out of the Hilton investment opportunity. Overall BREP International II performance reflects a 7% Net IRR.

V. Investment Period and Term

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

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

ATTACHMENT B

REAL ESTATE MANAGER SUMMARY PROFILE

I. Background Data

Name of Fund:	Brookfield Strategic Real Estate Partners V
Type of Fund:	Real Estate – Opportunistic
Target Fund Size:	\$15 billion
Fund Manager:	Brookfield Asset Management Ltd.
Manager Contact:	Jeff Clarke 250 Vesey Street 15 th Floor New York, NY 10281

II. Organization and Staff

Brookfield Asset Management Inc Ltd. (the “Firm” or “Brookfield”) is forming Brookfield Strategic Real Estate Partners V (the “Fund” or “BSREP V”) to continue Brookfield’s history of making opportunistic real estate investments globally. BSREP V is a continuation of the real estate opportunistic strategy that Brookfield has successfully executed since 2006, having invested over \$35 billion of capital, of which over \$24 billion has been realized to date (as of March 31, 2023).

Brookfield is a leading global alternative manager with over \$825 billion of AUM across real estate, infrastructure, private equity, renewable power & transition, and credit and insurance solutions (as of March 31, 2023). Brookfield has well-established operations in more than 30 countries on five continents which enable Brookfield to invest wherever the most attractive opportunities emerge readily. The Fund will be managed by Brookfield’s real estate business (“Brookfield Real Estate”), one of the world’s largest investors in real estate globally. The Investment Team comprises approximately 240 investment professionals globally with diverse and complementary real estate investing skill sets. Following a transaction close, the Portfolio Management Team, comprised of 110 experienced professionals, is responsible for proactively managing value creation initiatives identified during underwriting and incorporated into the investment’s business plans.

In 2019, Brookfield acquired a majority interest in Oaktree Capital Management, a pioneering global credit investor that manages a range of opportunistic credit, performing credit and direct lending strategies.

In 2022, Brookfield Corporation (the “Corporation”) and Brookfield Asset management Ltd. (the “Manager”) announced the completion of the public listing and distribution of a 25% interest in the Corporation’s asset management business, through the Manager, by way of arrangement.

Brookfield's approach to diversity and inclusion has been deliberate and is integrated into its Human Capital Development processes and initiatives. Brookfield supports a number of Employee Resource Groups, which are networks organized by employees around shared interests, characteristics, or experiences. A few examples are Brookfield Women, Brookfield Pride, Brookfield Black Professionals, and Brookfield Next Generation. Brookfield is committed to diversity, equity, and inclusion as it believes more diverse teams lead to a richer culture and better investment performance.

III. Investment Strategy

The Fund will seek to generate opportunistic risk-adjusted returns by acquiring real estate companies, portfolios, distressed loans and securities, and standalone assets. Brookfield believes it has key competitive advantages in sourcing and structuring multi-faceted deals, including scenarios involving complex ownership structures, over-leveraged companies or properties, various situations of dislocation, or other dynamics whereby Brookfield is able to utilize its structuring capability and employ an operations-oriented approach to create value at the property level.

Brookfield's disciplined real estate investment approach is focused on acquiring high-quality investments on a value basis and adding value through operational enhancements. The Firm concentrates on geographies, sectors, and transaction types where it believes it has informational, operational, financial, or other competitive advantages. Brookfield has a global reach with a local on-the-ground presence in key markets. Brookfield's knowledge and expertise in these geographies are expected to give the Fund a competitive advantage, enabling it to properly assess risk and implement plans to create value at the asset or capital structure level. BSREP V is expected to invest approximately 50-60% of the Fund in the Americas, 25-35% in Europe and the Middle East, and 10-20% in Asia-Pacific.

Post-investment, Brookfield will employ an operations-oriented approach to create value through intensive asset management, proactive leasing, redevelopment, ESG management, and repositioning. Some examples include increasing occupancy and rental rates, retaining tenants, modifying properties to increase cash flows, improving sustainability, and reinforcing the competitive positions of properties in their respective markets. The Investment and Portfolio Management teams will draw on Brookfield's real estate operating teams, which have extensive experience creating value at the property level by improving underperforming assets that may have experienced operational mismanagement or capital constraints. Brookfield expects the Fund's investments to benefit from the Real Estate Operating Teams' expertise in capital planning and revenue management, leasing, redevelopment, development, construction, and property management.

Brookfield Real Estate will employ Brookfield's disciplined approach to determining and executing exit strategies to achieve attractive realized returns. Asset-level exit plans are created at acquisition and are periodically reviewed to determine whether a more beneficial exit or sale of the investment is available as part of the asset management process. Exit strategies may vary by investment, but possible exits include individual asset sales, partial or full portfolio sales to strategic buyers or private fund vehicles, or public offerings. As with a

new acquisition, Investment Committee approval is required for all fund-level dispositions and significant strategic transactions.

As an owner, operator, and investor in real assets, Brookfield believes that ESG factors are an important part of the day-to-day management of its portfolio and that value creation and sustainable development are complementary goals. During the initial due diligence phase, Brookfield utilizes its operating expertise to identify any material ESG risks and opportunities relevant to the potential investment. For each acquisition, the investment team and the portfolio management team create a tailored integration plan that, among other things, ensures that any ESG-related matters are prioritized. As long-term investors motivated to drive value creation, Brookfield continually looks for opportunities to improve ESG performance. A step to formalize their commitment to ESG principles and guidelines was becoming a signatory to the United Nations Principles for Responsible Investment (“PRI”) and developing a global ESG Policy that formalizes the firm’s practices for operationalizing its ESG principles. Brookfield is also committed to advancing and monitoring the social components of ESG, including diversity, equity, and inclusion.

IV. Investment Performance

Previous fund performance as of March 31, 2023, is shown below:

Fund	Vintage Year	Total Commitment	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
BSREP I	2012	\$4.4 billion	-	18.2%	2.1x	1.8x
BSREP II	2015	\$9.0 billion	-	12.9%	1.7x	1.0x
BSREP III	2018	\$15.0 billion	-	12.6%	1.3x	0.2x
BSREP IV	2021	\$15.3 billion	\$300 million	27.3%	1.1x	0.0x

* Previous Fund investments may be relatively immature, and returns may not be indicative of future results. Net IRR, Net MOIC, and Net DPI data was provided by Brookfield.

V. Investment Period and Term

The Commitment Period is four years from the last day of the month in which the Final Closing Date occurs, which period may be extended with Advisory Committee Approval. The Fund's Term will be 10 years from the Final Closing Date, subject to extension (a) for one year by the General Partner in its discretion and (b) for one additional year thereafter with Advisory Committee Approval.

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.

This page intentionally left blank.

ATTACHMENT C

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. Background Data

Name of Fund:	Lexington Co-Investment Partners VI, L.P.
Type of Fund:	Private Equity – Co-Investment
Target Fund Size:	\$4 Billion
Fund Manager:	Lexington Partners
Manager Contact:	Bart Osman Lexington Partners 399 Park Avenue, 20 th Floor New York, NY 10022

II. Organization and Staff

Lexington Partners L.P. (the “Firm” or “Lexington”) is forming Lexington Co-Investment Partners VI, L.P. (the “Fund” or “CIP VI”), to continue Lexington’s history of successfully making equity co-investments in transactions alongside leading buyout and growth sponsors in U.S. and European companies. The Fund is expected to benefit from the Firm’s substantial co-investment experience, breadth of relationships, and reputation established in Lexington’s prior co-investment programs.

Lexington is one of the largest independent managers of co-investment and secondary acquisition funds with more than \$68 billion in original committed capital. Lexington’s funds pursue strategies in two principal areas: (i) providing secondary liquidity solutions to owners of private equity and alternative investments, and (ii) making equity co-investments alongside leading buyout and growth capital sponsors. In addition, since 1998, Lexington’s secondary funds have made select commitments to new private equity funds during their initial formation to complement Lexington’s secondary acquisition strategy. Lexington has been at the forefront of private equity innovation since principals of Lexington helped pioneer the development of the secondary market for private equity interests more than 30 years ago and created one of the first co-investment programs 25 years ago.

Partners Bart Osman, John Loverro, David Outcalt, James Pitt, Lutz Fuhrmann, and Craig Stevenson lead Lexington’s co-investment strategy. The CIP team is located in New York City and London, and is complemented by Lexington offices in Menlo Park, Boston, Hong Kong, and Santiago.

In November 2021, Lexington announced that it had entered into an agreement under which Franklin Templeton would acquire 100% of the Firm from the current owners. The transaction closed on April 1, 2022. In connection with the transaction, Lexington’s active team is being granted a 25% ownership stake in Lexington, subject to vesting terms. Subject to limited exceptions, Franklin Templeton has agreed to irrevocably delegate the authority to manage the

day-to-day business and affairs of Lexington Partners to Lexington's Operating Committee until the fifth anniversary of the closing, allowing Lexington to retain its independence and operational control while providing the opportunity to access Franklin Templeton's global platform and capabilities. The Operating Committee currently consists of Tom Giannetti (CFO) and Wil Warren (President).

Lexington believes a talented workforce possessing a wealth of diverse experiences, skills, and perspectives produces superior results, enhanced decision making, continued strong performance for limited partners, and a rich firm culture. Spearheaded by the DEI Committee, the Firm strives to strengthen its core values by attracting, retaining, and advancing diverse talent and engaging with the communities in which they live and work. Jennifer Kheng, Bart Osman, and Victor Wu lead Lexington's DEI Committee.

III. Investment Strategy

The co-investment program's ("CIP") strategy is to provide investors with exposure to deals alongside leading private equity sponsors on a highly diversified basis at significantly reduced fees and carry versus traditional primary fund investing. Since 1998, Lexington has structured CIP's offering to be complementary to institutional investors' existing private equity programs. Lexington believes CIP's strategy is differentiated from competitors in the market given the active collaboration and partnership between CIP and its limited partners ("LPs"). CIP's "club" approach leverages Lexington's deep and longstanding GP relationships, in partnership with its LPs, to create a robust deal sourcing engine that typically generates incremental opportunities beyond that of any single investor. CIP will partner with buyout sponsors in attractive companies primarily in the United States and Europe, but will also co-invest opportunistically in companies in the growth markets of Asia and Latin America.

Lexington has been a consistent co-investor in private equity transactions since 1998, sourcing and analyzing over 2,900 co-investment opportunities from more than 600 private equity sponsors, and investing \$7.9 billion in 485 companies alongside 180 sponsors. Over the past 25 years, co-investment volume has increased considerably and now accounts for a significant share of global private equity transaction volume. Lexington expects that co-investment volume will continue to increase due to the significant benefits to both limited partners and private equity sponsors.

CIP seeks to make passive, minority co-investments alongside lead transaction sponsors. As a result, CIP does not have the same degree of day-to-day portfolio company management responsibilities as the control sponsor. This allows CIP to assemble a more diversified portfolio of investments than traditional primary funds which, Lexington believes, reduces portfolio risk. As in prior CIP funds, CIP VI will seek to assemble a diversified portfolio of co-investments including by sponsor, company, company size, geography, industry, and vintage, and therefore anticipates achieving broad industry exposure.

CIP believes that an experienced, dedicated team is crucial to successful co-investing, which often requires responses in a limited timeframe. CIP has a team of dedicated investment professionals based in New York and London and believes that its investment and decision-

making processes are key elements of its successful track record. CIP has developed a disciplined investment process to source and select the most compelling co-investment opportunities. On average, each transaction team is comprised of one or two partners, one principal or vice president, and one senior associate or associate.

CIP’s due diligence process includes both a rigorous evaluation of company-specific information as well as an in-depth analysis of the lead transaction sponsor and investment team. As a minority investor, partnering with high-quality managers is paramount. Therefore, CIP’s initial due diligence involves a rigorous evaluation of the lead sponsor. CIP’s company-specific due diligence begins with a detailed analysis of information provided by the sponsor and company management. Lexington augments this information by conducting its own industry analysis, visiting facilities, meeting company management, and placing due diligence calls to other sponsors as well as to industry experts and participants. Once detailed due diligence has been completed, the CIP transaction team submits a comprehensive investment memorandum to the investment committee outlining the investment thesis for the proposed co-investment. Moving forward with a co-investment requires the approval of the investment committee; support for an opportunity is typically unanimous. CIP has developed a rigorous investment monitoring and reporting process that provides a high degree of transparency to CIP’s investors.

Lexington defines responsible investment as a strategy and practice to incorporate ESG factors into the Firm's operations and investment analysis and monitoring processes. Lexington’s ESG Policy affirms its commitment to responsible investment as well as its support of the Principles for Responsible Investment (“PRI”). Lexington has a cross-functional ESG steering committee that oversees the Firm’s ESG initiatives, including implementing the ESG strategy and reviewing and tracking, disclosing material ESG concerns to internal committees, and supporting transparency and timely reporting to limited partners on ESG topics.

IV. Investment Performance

Previous fund performance as of March 31, 2023 is shown below. Historical CIP performance is provided here:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
CIP I	1998	\$903 million	-	11.8%	1.8x	1.8x
CIP II	2005	\$950 million	-	5.3%	1.4x	1.4x
CIP III	2012	\$1.6 billion	-	17.5%	1.9x	1.6x
CIP IV	2016	\$2.4 billion	\$200 million	17.6%	1.7x	0.7x
CIP V	2020	\$3.2 billion	\$300 million	20.6%	1.2x	0.1x

Historical performance for Lexington’s global secondary funds is provided here:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
LCP I	1996	\$242 million	-	13.1%	1.3x	1.3x
LCP II	1998	\$1.1 billion	-	8.2%	1.3x	1.3x
LCP III	1999	\$656 million	-	8.7%	1.3x	1.3x
LCP IV	2000	\$606 million	-	19.3%	1.8x	1.8x
LCP V	2002	\$2.0 billion	-	18.9%	1.7x	1.7x
LCP VI	2006	\$3.8 billion	\$100 million	6.9%	1.4x	1.4x
LCP VII	2010	\$7.1 billion	\$200 million	14.8%	1.7x	1.5x
LCP VIII	2014	\$10.1 billion	\$150 million	17.2%	1.7x	1.0x
LCP IX	2018	\$12.0 billion	\$150 million	35.7%	1.5x	0.3x
LCP X	2021	\$15.0 billion	\$100 million	N/A	N/A	N/A

Historical performance for Lexington’s middle market secondary funds is provided here:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
LMMI I	2005	\$556 million	-	11.3%	1.6x	1.6x
LMMI II	2009	\$650 million	-	15.4%	1.9x	1.7x
LMMI III	2013	\$1.1 billion	-	18.6%	1.8x	1.2x
LMMI IV	2017	\$2.7 billion	\$100 million	26.3%	1.5x	0.3x

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

V. Investment Period and Term

The fund will have a five-year investment period and a ten-year term, with the potential of three one-year extension periods.

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.

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

This page intentionally left blank.

REPORT

Public Markets Investment Program

This page intentionally left blank.

DATE: August 7, 2023

TO: Members, Investment Advisory Council

FROM: 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 June 30, 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:

	Page
• Market Review and Combined Funds Performance	3
• Public Markets Managers' Performance	5
• Organizational Updates and Summary of Manager Meeting Activity	10

This page intentionally left blank.

Review of SBI Combined Funds Performance Second Quarter 2023 (CY)

Market Summary

Global equity markets rallied strongly over the second calendar quarter of 2023, with the MSCI All Country World (ACWI) Index of global stocks rising +6.2% in U.S. dollar terms for the quarter. The U.S. dollar rose modestly versus a trade-weighted basket of foreign currencies, most notably versus the Japanese yen and Chinese Renminbi. Fixed income markets fell modestly during the quarter, with the Bloomberg U.S. Aggregate Bond Index declining -0.8%.

Equity markets were pushed higher by a combination of better-than-expected U.S. economic growth and signs of slowing inflation across most regions of the world. Data released in July showed the U.S. economy grew at a +2.4% annualized pace over the second quarter, while headline inflation fell sharply, rising just 3.0% year-on-year in June. In the U.S., exuberance over stocks was further boosted by outsize gains in a handful of mega-cap technology names – coined the “MegaCap-8” – which investors are betting will be key beneficiaries of the broader adoption of generative artificial intelligence (“AI”). Investors also cheered the Federal Reserve’s decision to pause its rate hikes in June following a single 25-basis point hike at its April FOMC meeting. Despite Fed Chair Powell’s attempts to characterize the decision as a “hawkish pause”, with further hikes still likely, markets still read the move as an indication that the Fed was near the end of its tightening cycle.

Returns across fixed income were dampened by an upward move in Treasury yields in response to stronger economic growth and the Fed’s “higher for longer” message regarding its policy rate path. Away from Treasuries, however, credit-sensitive fixed income assets such as corporate bonds, bank loans and securitized credit rallied alongside equities on the outlook for an economic soft-landing scenario.

Overall Combined Funds Portfolio Performance - Quarter and Fiscal Year End

The overall Combined Funds portfolio returned +3.7% during the **calendar second quarter**, slightly outperforming the composite benchmark’s return of +3.6%. The positive relative return for the quarter was driven primarily by a positive contribution from active management within international equities and fixed income. The portfolio’s allocation to return-seeking fixed income also benefitted relative returns as credit-sensitive sectors outperformed the fixed income policy benchmark (Bloomberg U.S. Aggregate Index). The portfolio’s currency hedging program also helped relative returns as the U.S. dollar strengthened over the period, particularly versus the Japanese yen. On the negative side, the portfolio’s overweight to U.S. small caps and a slight underweight to cash relative to policy was a drag on relative performance. The private markets invested portfolio gained +2.5% during the quarter, led by a +3.6% return within the private equity allocation.

For the **one-year period ended June 30, 2023**, the Combined Funds’ fiscal year-end, the portfolio posted a return of +8.9%, outperforming the composite benchmark which returned +8.7% for the same period. The portfolio benefitted from a positive contribution from active management, particularly within domestic and emerging markets equities and core/core plus fixed income. In terms of asset allocation, the portfolio’s modest overweight to domestic equities, an underweight

to international stocks and an underweight to the Treasury Protection portfolio all helped relative performance for the fiscal year. The portfolio's allocation to return-seeking bond managers also benefitted the portfolio performance as this segment of the portfolio significantly outperformed the portfolio's fixed income policy benchmark, the Bloomberg U.S. Aggregate Index, over the period. The invested private markets portfolio returned +1.8% for the 12-months ended June 30, 2023, led by a +9.1% return within the private credit allocation.

Review of Public Markets Manager Performance Second Quarter 2023 (CY)

Domestic Equity

The second quarter of 2023 saw strong resilience in domestic equity markets as fears over the banking crisis abated, economic growth reports exceeded expectations, and inflation showed signs of easing. The Fed paused its rate hikes in June, giving investors hope that the end of the Fed's tightening cycle was near. The broad-based Russell 3000 Index surged by +8.4% and entered bull market territory, having risen more than 24% from the October 2022 lows.

Generative AI emerged as a key theme during the quarter, with company management and investors buzzing about the potential transformative impacts of AI on productivity, efficiency, and the application of technology across all facets of life. Investors piled into mega cap technology names - including NVIDIA, Alphabet, Microsoft and Amazon – expecting these names to benefit most from the ramp in AI adoption. As a result, mega cap technology names were the main drivers of the index's positive performance over the quarter. More broadly, the market favored cyclical and growth-oriented stocks, while defensive and value-oriented sectors had more muted or slightly negative returns.

For the second quarter in a row, technology was the best-performing sector (+18.4%), with mega cap names such as Apple (+17.8%), Microsoft (+18.4%), NVIDIA (+52.3%), and Alphabet (+15.8%) driving much of the category's outperformance. Consumer discretionary fared well, again with mega cap names such as Amazon (+26.2%) and Tesla (+26.2%) driving the outperformance. Inflation-sensitive and defensive sectors struggled. Telecommunications (-1.8%), utilities (-1.7%), and energy (-0.9%) sectors performed worst. Large cap stocks outperformed their small cap counterparts (R1000 +8.6% vs. R2000 +5.2%). Similarly, growth stocks outperformed value stocks (R3000 Growth +12.5% vs. R3000 Value +4.0%), owing to a higher weighting towards technology stocks, consumer stocks, and AI.

The Combined Funds' domestic equity portfolio gained +8.3% during the quarter, slightly underperforming the Russell 3000 Index, which returned +8.4%. An overweight to small cap and value-oriented stocks in the portfolio modestly weighed on relative performance, while the effect from active management was flat. Alpha across active managers was generally muted, and in total, the portfolio's active domestic equity managers gained +6.1%, performing in line with the aggregate active domestic equity benchmark, which also returned +6.1%.

The portfolio's large cap and all cap growth managers all outperformed their benchmarks this quarter, due in part to improving investor sentiment towards high-growth companies, which drove multiple expansion. Concentrated all cap growth manager Zevenbergen had the best performance (+15.3% Manager vs. +12.5% Benchmark) as its concentrated exposures to high-growth stocks that had sold off significantly in 2022 continued to rebound, and its exposure to lower-profitability companies generally outperformed. Concentrated growth manager Sands also benefitted from exposure to higher growth and less profitable companies that rebounded (+13.9% Manager vs. +12.8% Benchmark). Winslow's outperformance was a bit more muted, consistent with that manager's more defensive and diversified positioning.

Active large cap value managers outperformed in aggregate, driven by strong outperformance of fundamental manager Barrow Hanley (+5.7% Manager vs. +4.1% Benchmark). Barrow Hanley was boosted in the quarter by strong performance from the manager's information technology and industrials positions, as well as by an under-allocation to utilities. LSV's quantitative, deep-value approach struggled during the quarter, and its allocation to lower-priced technology and banking stocks were key drivers of relative underperformance.

The portfolio's semi-passive large cap managers had mixed performance versus their benchmark. Quantitative manager BlackRock underperformed (+8.1% Manager vs. +8.6% Benchmark) due to poor performance of sentiment measures, particularly around investor sentiment for weight loss drugs in the healthcare sector. This was slightly offset by positive performance of its fundamental and macro thematic signals. Fundamental manager J.P. Morgan's outperformance (+9.0% Manager vs +8.6% Benchmark) was attributed entirely to good stock selection, particularly within the consumer discretionary sector.

Small cap growth managers underperformed in aggregate during the quarter (+13.2% Managers vs. +13.6% Benchmark), due in large part to an overall preference for higher-quality growth companies at attractive valuations in an environment that favored multiple expansion in higher-growth, sentiment driven stocks. This was particularly the case within healthcare and technology, which drove much of the managers' relative underperformance. Two of the portfolio's four active small cap growth managers outperformed in this environment, while two underperformed.

Small cap value managers underperformed the index in aggregate during the quarter (+2.4% Managers vs. +3.2% Benchmark). The portfolio's managers tend to focus on companies that have lower valuations than the benchmark in more stable businesses, both of which were out of favor during the quarter. This led to aggregate poor stock selection effects within consumer discretionary and healthcare, where an underweight to economically-sensitive names hurt relative performance. Two of the portfolio's four active small cap value managers outperformed over the quarter.

Passive managers tracked their benchmarks overall during the quarter, posting a combined return of +2.5% which was in line with the overall passive benchmark's return.

Global Equity and ACWI ex USA Equity

The MSCI All-Country World Index (ACWI) (net) returned +6.2% in U.S. dollar terms for the quarter. Strong returns within the U.S., India, Brazil, and Japan drove positive index performance, while lackluster performance in Asia ex Japan (particularly China) and Europe weighed on returns. Within sectors, technology and consumer discretionary sectors led the broader market.

The Combined Funds' global equity portfolio underperformed the index for the quarter (+5.1% Portfolio vs. +6.2% Benchmark) following strong outperformance over the prior several quarters.

Value-oriented manager Ariel underperformed for the quarter (+3.8% Manager vs. +6.2% Benchmark) as global value stocks lagged the broader index. Security selection effects drove the underperformance, with stock-picking within communications services being the major detractor. Quality growth manager Martin Currie also underperformed during the quarter (+5.1% Manager vs. +6.2% Benchmark), with stock selection in the healthcare and industrial sectors detracting most from relative performance. Concentrated growth manager Baillie Gifford outperformed (+7.7%

Manager vs. +6.2% Benchmark), boosted by outperformance of key overweights including NVIDIA, Amazon, Tesla, and Shopify.

The portfolio's ACWI ex USA manager, Earnest Partners, benefited during the quarter from positive stock selection effects across both emerging and developed markets, particularly within the technology and industrial sectors (+4.1% Manager vs. +2.4% Benchmark).

Developed International Equity and Currency Overlay

International developed markets equities, as measured by the MSCI World ex USA Index (net), rose +3.0% in U.S. dollar terms during the second quarter, trailing U.S. stocks considerably. Just as China reopening enthusiasm drove international markets higher in the first calendar quarter of 2023, disappointing Chinese economic news depressed international sentiment in the current quarter. Japanese stocks strongly outperformed as corporate reform, a strong capex cycle, and continued low interest rates provided ongoing support to the earnings growth revival story in that market. In total, on the quarter, 12 of the index's 22 markets and eight of 12 economic sectors ended the quarter in positive territory.

The portfolio's active developed markets managers outperformed the MSCI World ex USA Index (net), returning +3.6% versus the benchmark's +3.0% return. The outperformance came mostly from stock selection, especially among financials. Quantitative value manager AQR (+5.2% Portfolio vs. +3.0% Benchmark) led the portfolio; the manager's stock, country, and currency selection models all contributed positively for the quarter. Growth-tilted fundamental manager Columbia Threadneedle outperformed for a fourth consecutive quarter (+4.8% Portfolio vs. +3.0% Benchmark) with strong stock selection, especially in Japan where the portfolio's allocation to companies linked to the AI hardware supply chain strongly outperformed. Conversely, a tilt away from large cap names in Japan dragged down the performance of quantitative core manager Acadian (+1.6% Portfolio vs. +3.0% Benchmark).

The passive developed markets portfolio tracked the MSCI World ex USA Index (net) return for the quarter (+3.2% Portfolio vs. +3.0% Benchmark), with modest outperformance coming largely from positive differences in the portfolio's dividend tax reclaim rates vs. the benchmark.

In currency markets, the U.S. dollar traded relatively flat during the quarter versus a trade-weighted basket of foreign currencies. The portfolio's currency overlay program added +0.5% relative to an unhedged portfolio. Most of this positive value was derived from hedges on the Japanese yen, which continued to depreciate against the U.S. dollar as the Bank of Japan maintained its low interest rate even in the face of rising Japanese inflation. During the quarter, the overlay portfolio's hedge ratio ranged between 15.2% and 43.7%.

Emerging Markets Equity

Emerging markets equities, as measured by the MSCI Emerging Markets Index (net), rose +0.9% in U.S. dollar terms during the quarter, significantly underperforming the U.S. and developed market equities. Strong returns from countries with emerging financial services markets like India (+12.2%) and Brazil (+20.7%) and from tech powerhouses Taiwan (+4.5%) and Korea (+4.4%) were enough to keep the index positive despite disappointing economic news from China (-9.5%). However, China's troubles did reverse the previous quarter's rallies in the consumer discretionary (-6.4%), communications services (-6.6%), and materials (-4.2% sectors).

The portfolio's active emerging markets managers outperformed the MSCI Emerging Markets Index (net), returning +2.1% versus the benchmark's +0.9% return. The portfolio derived excess return primarily from an overall underweight to China and an overweight to semiconductor names. Value manager Pzena (+4.4% Portfolio vs. +0.9% Benchmark) outperformed on an overweight to Brazil, an underweight to China, and strong stock selection effects, especially in AI-related technology names. Quality growth manager Morgan Stanley (+3.1% Portfolio vs. +0.9% Benchmark) also found excess returns in rate-sensitive Brazil stocks, a tilt away from China and a preference for luxury goods companies over mainstream retail. Fund-of-funds manager Rock Creek's portfolio performance was unchanged on the quarter, lagging the benchmark's +0.9% return. While country allocation to the portfolio's underlying country and regionally focused sub-portfolios contributed positively, security selection from the portfolio's underlying managers detracted, particularly in China and Brazil.

Earnest Partners' China A-share strategy underperformed the MSCI China A Index during the quarter (-12.6% Portfolio vs. -10.7% Benchmark). Underperformance was driven primarily by overweight positioning to consumer staples and underweights to financial and utility sectors.

The passive emerging markets portfolio tracked the MSCI Emerging Markets Index (net) within tolerance for the quarter (+0.8% Portfolio vs. +0.9% Benchmark).

Core/Core Plus and Return Seeking Bonds

The Bloomberg U.S. Aggregate Index posted a decline of -0.84% during the quarter. Treasury bond yields rose and credit sensitive sectors rebounded as the banking crisis subsided and measures of economic activity remained robust, quelling recession fears. In the face of strong economic data and continued hawkish language from Federal Reserve (Fed) officials, investors walked back expectations that the Fed would begin cutting rates in late-2023, sending front-end yields back well above 5%.

Against this positive backdrop, within investment grade fixed income, credit-sensitive sectors such as corporate bonds and commercial mortgage-backed securities performed best during the second quarter, followed by Agency MBS and consumer asset-backed securities. Meanwhile, high quality U.S. agency securities posted only modest outperformance versus U.S. Treasuries over the quarter as investors favored riskier assets.

Across the higher risk, so-called "plus" sectors of the fixed income market, high yield bonds, bank loans, and emerging markets debt all posted strong performance relative to U.S. Treasuries during the quarter. High yield spreads tightened sharply as investors turned more positive on the economic environment and thus the outlook for credit. Bank loans experienced similar spread tightening and continued to benefit from elevated short-term rates (most bank loans pay interest rates based on a spread over a base rate of 3-month SOFR, which averaged over 5.10% during the quarter). Emerging markets debt also posted strong performance for the quarter. Credit spreads on dollar-denominated external government and corporate debt tightened, while performance across local currency EM debt was mixed.

The portfolio's core/core plus bond managers outperformed the Bloomberg Aggregate Index during the quarter (-0.5% Portfolio vs. -0.8% Benchmark). Overall, the managers' overweight to spread sectors was positive, while results from duration and yield curve positioning was mixed.

Positive issue selection within investment grade credit and allocations to high yield bonds and bank loans also benefited performance. Core manager Dodge and Cox continued to benefit from a shorter-than-benchmark duration coupled with an overweight to corporate credit.

The portfolio's return-seeking bond managers returned +0.9% during the second quarter, outperforming the policy benchmark's (Bloomberg U.S. Aggregate Bond Index) return of -0.8%. In aggregate, return-seeking managers underperformed the weighted composite of their individual benchmarks, which returned +1.1% for the quarter. Underperformance relative to the composite benchmark for the quarter resulted from relatively defensive credit positioning, poor issue selection from EMD manager Ashmore and a duration overweight held by opportunistic fixed income manager Blackrock. On the positive side, high yield manager KKR outperformed during the quarter (+2.1% Portfolio vs. +1.6% Benchmark). The portfolio was positioned overweight bank loans and lower quality (single-B and triple-C rated credits) and benefitted from positive issue selection.

Treasury Protection Portfolio

The Treasury protection portfolio slightly underperformed the Bloomberg Treasury 5+ Year Index for the quarter (-2.1% Portfolio vs. -2.0% Benchmark). Treasury yields rose modestly during the quarter, with yields on short and intermediate maturities rising the most. The yield on the 5-year Treasury note rose 58 basis points during the quarter, to 4.16%. In contrast, the yield on the 30-year Treasury bond rose just 21 basis points during the quarter, to 3.86%. Portfolio underperformance for the quarter was driven by underperformance from Neuberger Berman. Neuberger's overweight duration position and yield curve positioning favoring 5-year to 20-year maturities versus an underweight to the 30-year maturity bucket both contributing to relative underperformance versus the benchmark.

Laddered Bonds + Cash Portfolio

The combined Laddered Bonds + Cash portfolio returned +1.3% for the second quarter, outperforming the portfolio's benchmark (ICE BofA US 3-Month Treasury Bill) which returned +1.2% over the same period. The laddered bond portfolio's yield advantage over short-term Treasury bills drove outperformance during the quarter. The cash portfolio also exceeded its benchmark over the quarter, aided by allocations to money market instruments issued by high quality global banks.

Public Markets Managers' Organizational Updates Second Quarter 2023 (CY)

Acadian (Developed Markets Equity)

Fanesca Young joined Acadian as Senior Vice President leading the Equity Portfolio Management Team. Portfolio Manager Kurt Livermore departed.

AQR (Developed Markets Equity)

Firm principals Matthew Chilewich and Suzanne Escousse departed AQR as did Lukasz Pomorski, Head of ESG Research. Mr. Pomorski is succeeded by Michele Aghassi and Nicole Carter who have become Head of Sustainable Investing and Head of Sustainability Strategy, respectively.

Ariel (Global Equity)

Pascale Thomas joined as Deputy General Counsel and Chief Compliance Officer. Ms. Thomas's will focus on managing the legal, compliance and risk functions for the broader firm and leading the compliance program of Ariel Alternatives.

Ashmore (Fixed Income)

Cemil Urganci, was promoted to Head of Ashmore's Local Currency Fixed Income Investment Team and became a member of the Ashmore Investment Committee. Cemil has worked at Ashmore since 2006 as an EMD Local Currency Bond Portfolio Manager, and will continue to report to Ricardo Xavier, who remains Deputy Chairman with oversight over Local Currency and Trading.

Baillie Gifford (Global Equity)

Graham Laybourn, a Partner at the firm that oversaw Operations, Legal and Compliance retired in April 2023.

BlackRock (Fixed Income)

Blackrock's Leveraged Finance platform, which consists of the firm's public high yield and bank loan teams, has been combined into the firm's Fundamental Fixed Income platform under the leadership of Rick Reider. Leveraged Finance was previously overseen by Jimmy Keenan, head of Blackrock's Global Credit Platform. Mr. Keenan will continue to oversee Private Credit.

Goldman Sachs (Fixed Income)

Michael Goosay, Managing director and Head of Global Portfolio Management within Fixed Income and Liquidity Solutions left the firm to pursue another opportunity. Lead coverage for the MSBI portfolios was transitioned to Matthew Maciaszek and Paul Seary.

Martin Currie (Global Equity and Emerging Markets Equity)

Martin Currie promoted Michael Browne to a newly created CIO role. All investment teams, including global equity and emerging markets equity, will report to Mr. Browne, who reports to Franklin Templeton's Head of Public Markets, Terrence Murphy. The firm also announced that later this year, pending regulatory approvals, Julian Ide will transition his role as CEO of Martin Currie to Jen Mair, who currently serves as COO. Mr. Ide is expected take on broader executive

responsibilities within Franklin Templeton, and will also remain on as non-executive Chairman of Martin Currie. Martin Currie CFO Stuart Davidson will assume a combined CFO/COO role.

PIMCO (Fixed Income)

Christian Stracke, Managing Director and Global Head of Credit Research, was named President of PIMCO and will assume oversight of the firm's international business. Mr. Strake will continue to lead the Global Credit Research Team.

PGIM (Fixed Income)

Multi-sector Team Portfolio Manager Lindsay Rosner resigned from PGIM to accept a position outside the firm. Ms. Rosner was recently named co-PM to fill the planned retirement of Senior PM Michael Collins in mid-2024. Tom McCartan and Tyler Thorn have been added as sector Portfolio Managers within the Multi-sector team. Both Mr. McCartan and Mr. Thorn joined PGIM in 2015.

Pzena (Emerging Markets Equity)

Research Analyst Matt Wang and ESG Analyst Luke Longinotti departed Pzena. The firm added Research Analysts Elena Shirokikh and Karthik Annaamalai.

Record Currency Management (Currency)

Jan Witte was promoted to CEO of Record Currency Management Ltd, the entity with which SBI contracts. Former CEO Leslie Hill was promoted to CEO of Record plc, the parent company of Record Currency Management Ltd.

TCW (Fixed Income)

Harrison Choi, Portfolio Manager and Head of Securitized Trading, departed the firm. Liza Crawford will continue as a Co-Head of TCW's Securitized team, supported by co-CIO and Generalist Bryan Whalen. TCW is in active discussions with candidates and anticipates naming a replacement in the near term.

Wellington (Domestic Equity)

Following a 29-year career at Wellington Management, Portfolio Manager Mammen Chally has announced his plans to retire effective June 30, 2024. His responsibilities will be transitioned to Portfolio Manager Dave Siegle, who has worked closely with Mr. Chally on the strategy and will become lead Portfolio Manager effective in July 2024. During the quarter, Wellington eliminated approximately 5% of roles at the firm following a strategic business review. Portfolio management and research teams were not materially impacted, and there was no impact on the Disciplined U.S. Small Cap Growth team.

**Manager Meetings
Second Quarter 2023 (CY)**

During the quarter, Staff traveled to New York, Denver, and San Francisco for 6 manager meetings. Staff received 6 visits from managers at our office in St. Paul; staff also completed 3 due diligence visits to managers in the Twin Cities. Staff conducted 46 manager strategy review calls via teleconference or videoconference. Note that while staff met with some 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
Dodge & Cox	Fixed Income
Earnest Partners LLC	International Equity
Goldman Sachs Asset Management, L.P.	Domestic Equity
Goldman Sachs Asset Management, LP	Fixed Income
KKR (Kohlberg, Kravis and Roberts)	Fixed Income
Macquarie Investment Management Advisers	Emerging Markets Equity
Marathon Asset Management LLP	Developed Markets Equity
Martin Currie Inc.	Global Equity
Morgan Stanley Investment Management Inc.	Emerging Markets Equity
Neuberger Berman Investment Advisers LLC	Fixed Income
Neuberger Berman Investment Advisers LLC	Emerging Markets Equity
Oaktree Asset Management	Fixed Income

**Manager Meetings
Second Quarter 2023 (CY), continued**

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 Management Ltd.	Currency Overlay
The Rock Creek Group, LLC	Emerging Markets Equity
Sands Capital Management, LLC	Domestic Equity
TCW	Fixed Income
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

This page intentionally left blank.

REPORT

Participant Directed
Investment Program
and
Non-Retirement
Investment Program

This page intentionally left blank.

DATE: August 7, 2023

TO: Members, Investment Advisory Council

FROM: SBI Staff

SUBJECT: Participant Directed Investment Program and Non-Retirement Program

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

The report includes the following sections:

	Page
• Participant Directed Investment Program Fund Commentaries	3
• Non-Retirement Fund Commentaries	5
• Manager Meetings	6

This page intentionally left blank.

**Participant Directed Investment Program Fund Commentaries
Second Quarter 2023**

Domestic Equities

Vanguard Total Stock Market Index Institutional Plus

The Fund employs an indexing approach designed to track the performance of the CRSP U.S. Total Market Index, which represents approximately 100% of the investable U.S. stock market and includes large-, mid-, small-, and micro-cap stocks. The Fund matched the benchmark's return for the quarter with a return of 8.4%.

Vanguard Institutional Index Plus

The Fund attempts to employ a full replication indexing approach designed to track the S&P 500 Index. Performance for the Fund matched the S&P 500 Index return for the quarter with an 8.7% 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 stocks 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 3.5% return, compared to the benchmark return of 6.0%.

Vanguard Mid-Cap Index

The Fund attempts to employ a full replication indexing approach designed to track the performance of a broadly diversified pool of medium-size U.S. stocks. The Fund matched the CRSP US Mid Cap Index return for the quarter with a 4.8% return.

T. Rowe Price Institutional Small-Cap Stock Fund

The Fund's investment process emphasizes fundamental research and active, bottom-up stock selection. The Fund seeks to provide long-term capital growth by investing primarily in stocks of small companies in both growth and value-oriented securities. The Fund matched the Russell 2000 Index for the quarter with a 5.2% return.

International Equities

Fidelity Diversified International Equity Fund

The Fund's approach actively selects international companies primarily in foreign developed markets based on fundamental analysis, management quality, and attractive valuations over a long-time horizon. The Fund returned 4.6% for the quarter, outperforming the MSCI EAFE benchmark return of 3.0%.

Vanguard Total International Stock Index

The Fund attempts to employ an indexing approach designed to track the FTSE Global All Cap ex US Index, a market-cap weighted pool designed to measure performance of developed and emerging market companies. The Fund slightly outperformed the benchmark for the quarter with a 2.6% return versus the benchmark return of 2.4%.

Fixed Income and Capital Preservation Options

Dodge & Cox Income Fund

The Fund invests in a diversified portfolio that consists primarily of investment-grade debt securities, with a larger allocation to corporate and securitized debt relative to the benchmark. The fixed income fund outperformed the Bloomberg U.S. Aggregate Index for the quarter with a 0.1% return, compared to the benchmark return of -0.8%.

Vanguard Total Bond Market Index

The Fund employs a sampling process to its index investment approach to track the performance of the Bloomberg U.S. Aggregate Index. The Fund returned -0.9% for the quarter, slightly underperforming the benchmark return of -0.8% for same time period.

Stable Value Fund

The Stable Value Fund is managed by Galliard Capital Management in a separately managed account. The portfolio invests in high quality, diversified, short-duration fixed income securities that are combined with investment contracts from financial institutions with features to protect the participant from loss of principal and accrued interest. The portfolio returned 0.7% for the quarter compared to a 1.1% return for its benchmark, the 3-Year Constant Maturity Treasury +45 basis points.

Money Market Fund

State Street Global Advisors manages the cash option in a commingled pool called the short-term investment strategy. The Fund slightly outperformed the ICE BofA 3 Month U.S. T-Bill Index for the quarter with a 1.3% return, compared to the benchmark return of 1.2%.

Multi-Asset Group Option

Vanguard Balanced

The Balanced Fund seeks capital appreciation, current income, and long-term growth of income. The Fund allocation tracks the investment performance of an index with 60% CRSP US Total Stock Market Index and 40% Bloomberg Barclays U.S. Aggregate Float Adjusted Index. The Balanced Fund slightly underperformed the composite benchmark for the quarter with a 4.6% return, compared to the benchmark return of 4.7%.

Non-Retirement Fund Commentaries

Second Quarter 2023

Assigned Risk Plan Fixed Income Manager

RBC Global Asset Management actively manages the fixed income portfolio for the Assigned Risk Plan to the Bloomberg U.S. Government Intermediate benchmark with a focus on security selection and secondarily on sector allocation. The portfolio returned -1.1% for the quarter, matching the benchmark.

Non-Retirement Program Fixed Income Manager

Prudential Global Investment Management (PGIM) actively manages the Non-Retirement Fixed Income portfolio to the Bloomberg U.S. Aggregate in a separately managed portfolio. The fixed income portfolio slightly outperformed for the quarter with a -0.7% return, compared to a benchmark return of -0.8%.

Multi-sector Team Portfolio Manager Lindsay Rosner resigned from PGIM to accept a position outside the firm. Ms. Rosner was recently named co-PM to fill the planned retirement of Senior PM Michael Collins in mid-2024. Tom McCartan and Tyler Thorn have been added as sector Portfolio Managers within the Multi-sector team. Both Mr. McCartan and Mr. Thorn joined PGIM in 2015.

Non-Retirement Program Domestic Equity Manager

Mellon Investments Corporation passively manages the Non-Retirement Domestic Equity portfolio to the S&P 500 Index in a separately managed portfolio. The portfolio matched the benchmark for the quarter, returning 8.7%.

Non-Retirement Program Money Market Manager

State Street Global Advisors manages the Non-Retirement Money Market Fund against the iMoneyNet All Taxable Money Fund Average. The fund slightly outperformed the benchmark for the quarter with a 1.3% return compared to the benchmark return of 1.2%.

2023 Manager Meetings

During the quarter, Staff conducted four on-site visits to managers, with the remaining strategy review calls held via videoconference.

Investment Manager	Management Style/Asset Class	Investment Program
• Ascensus	Multi-Asset Class Platform	PDIP (MN ABLE Plan)
• Dodge & Cox	Active, Fixed Income	PDIP
• Galliard	Stable Value Fund	PDIP
• TIAA-CREF	Multi-Asset Class Platform	PDIP (MN 529 Plan)
• T. Rowe Price	Active, Small Cap Equities	PDIP
• SSGA	Target Date Funds, Money Market	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

REPORT

AON Market Environment Report

This page intentionally left blank.

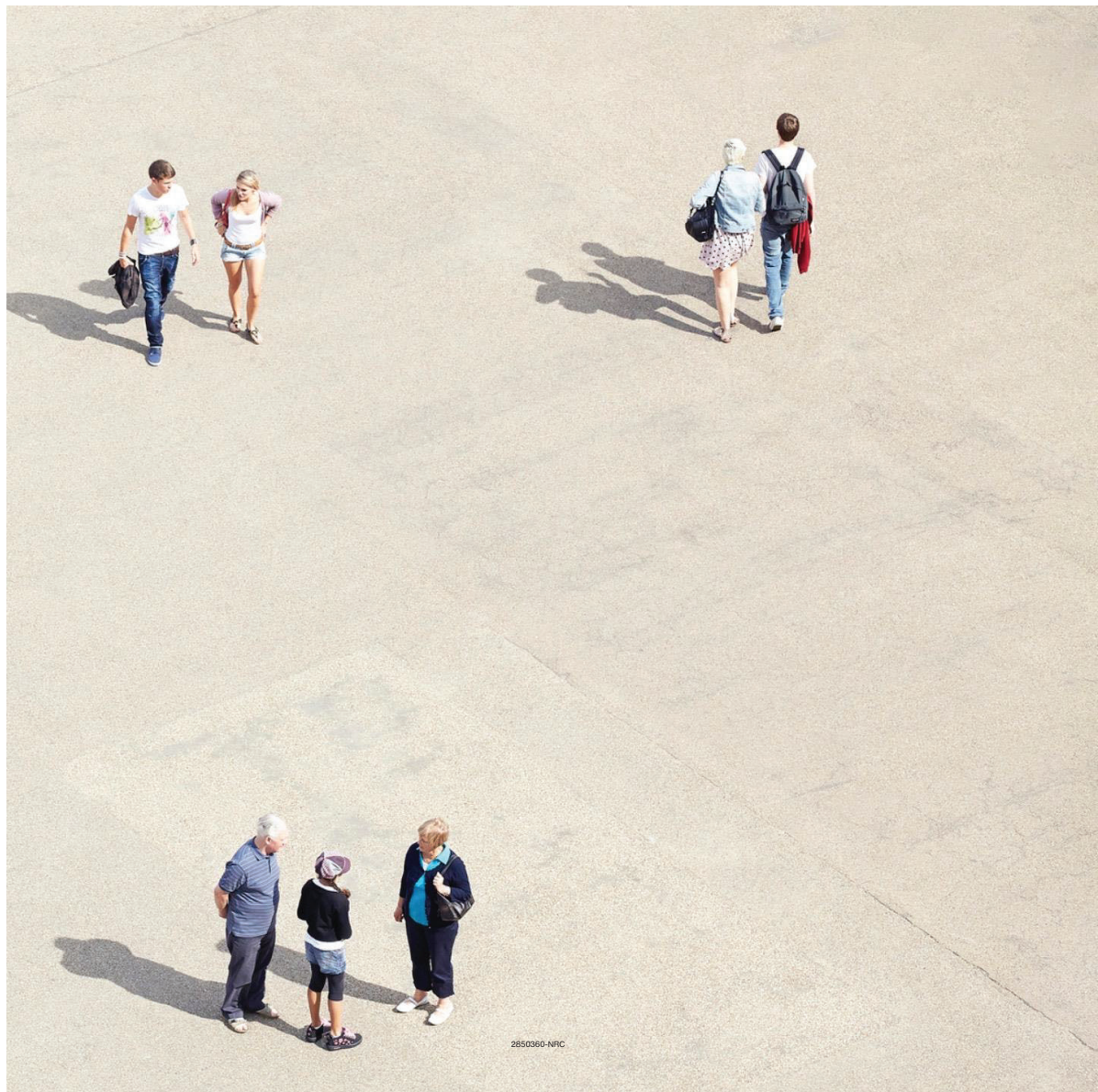


Market Environment

Second Quarter 2023

Investment advice and consulting services provided by Aon Investments USA Inc., an Aon company. Nothing in this document should be construed as legal, tax, or investment advice. Please consult with your independent professional for any such advice. To protect the confidential and proprietary information included in this material, it may not be disclosed or provided to any third parties without the approval of Aon.

Private and Confidential | Investment advice and consulting services provided by Aon Investment USA Inc.

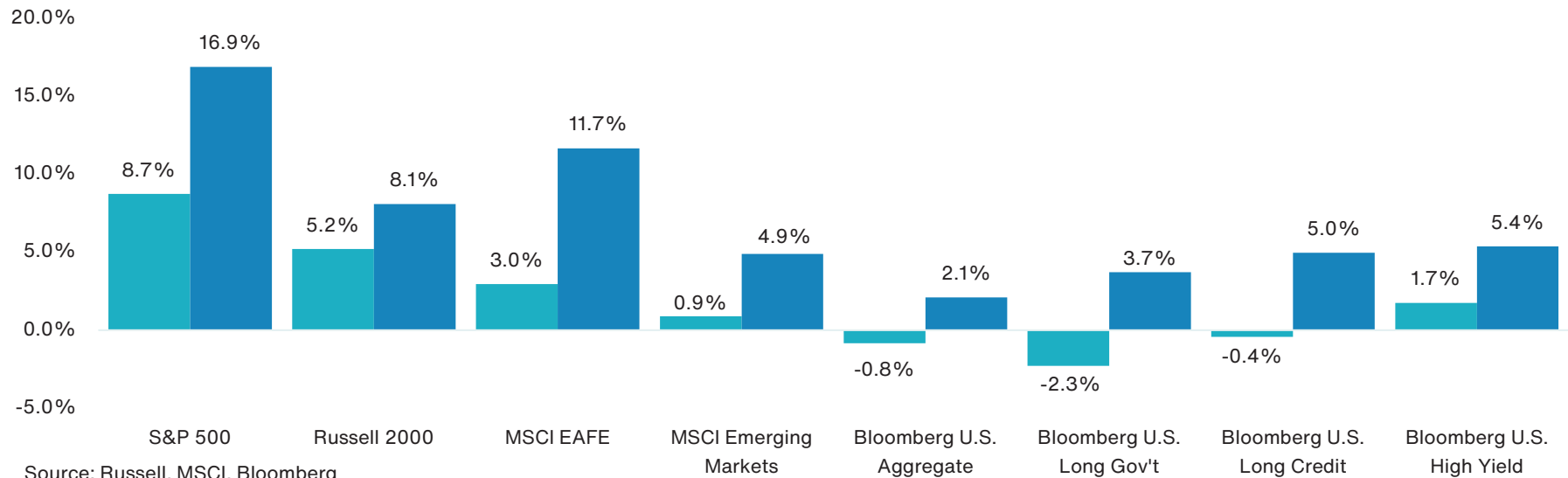


2850360-NPIC

Market Highlights

SHORT TERM RETURNS AS OF 06/30/2023

■ Second Quarter 2023 ■ YTD



Source: Russell, MSCI, Bloomberg

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

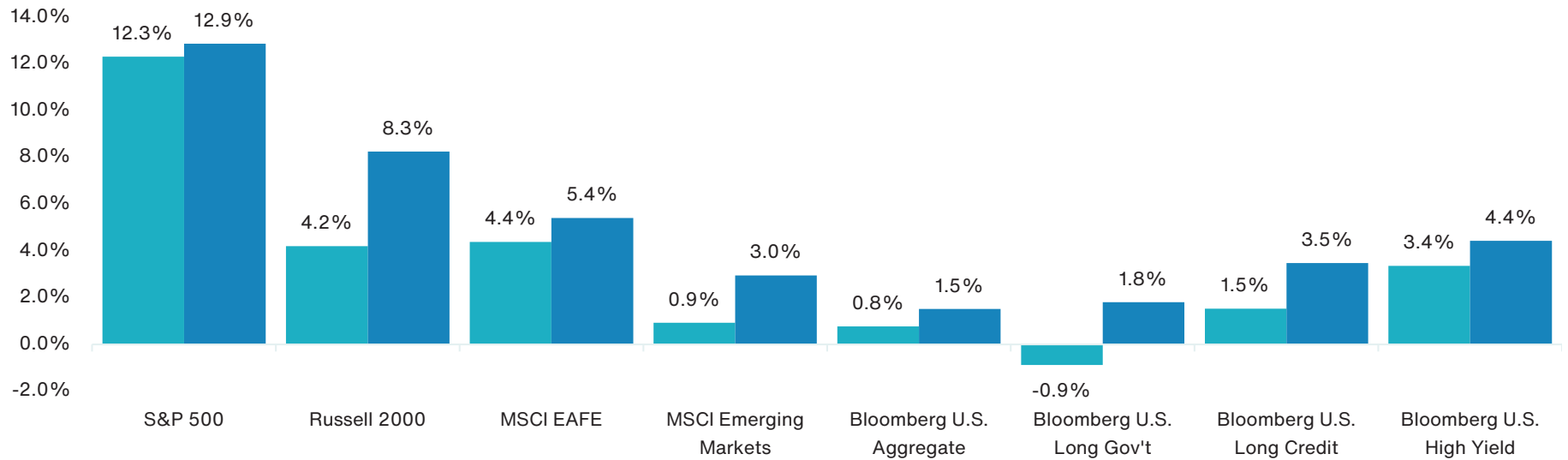
Past performance is no guarantee of future results. Indices cannot be invested in directly. Unmanaged index returns assume reinvestment of any and all distributions and do not reflect fees and expenses. Please see appendix for index definitions and other general disclosures.



Market Highlights

LONG TERM ANNUALIZED RETURNS AS OF 06/30/2023

■ Five-Year ■ Ten-Year



Source: Russell, MSCI, Bloomberg

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.



Market Highlights

Returns of the Major Capital Markets						
	Period Ending 06/30/2023					
	Second Quarter	YTD	1-Year	3-Year ¹	5-Year ¹	10-Year ¹
Equity						
MSCI All Country World IMI	5.89%	13.25%	16.14%	10.97%	7.65%	8.62%
MSCI All Country World	6.18%	13.93%	16.53%	10.99%	8.10%	8.75%
Dow Jones U.S. Total Stock Market	8.39%	16.24%	18.90%	13.74%	11.26%	12.24%
Russell 3000	8.39%	16.17%	18.95%	13.89%	11.39%	12.34%
S&P 500	8.74%	16.89%	19.59%	14.60%	12.31%	12.86%
Russell 2000	5.21%	8.09%	12.31%	10.82%	4.21%	8.26%
MSCI All Country World ex-U.S. IMI	2.38%	9.10%	12.47%	7.33%	3.38%	4.88%
MSCI All Country World ex-U.S.	2.44%	9.47%	12.72%	7.22%	3.52%	4.75%
MSCI EAFE	2.95%	11.67%	18.77%	8.93%	4.39%	5.41%
MSCI EAFE (Local Currency)	4.28%	12.10%	17.50%	11.73%	6.42%	7.67%
MSCI Emerging Markets	0.90%	4.89%	1.75%	2.32%	0.93%	2.95%
Equity Factors						
MSCI World Minimum Volatility (USD)	1.79%	4.13%	7.44%	6.35%	6.48%	8.41%
MSCI World High Dividend Yield	2.37%	4.35%	9.03%	10.62%	7.13%	7.58%
MSCI World Quality	9.83%	21.58%	24.60%	13.11%	13.19%	12.99%
MSCI World Momentum	4.34%	3.13%	10.14%	6.44%	8.16%	10.96%
MSCI World Enhanced Value	5.21%	11.30%	16.04%	13.07%	4.76%	7.22%
MSCI World Index Growth	10.50%	27.27%	26.66%	11.31%	12.08%	12.29%
MSCI USA Minimum Volatility (USD)	2.65%	3.98%	7.99%	8.92%	9.06%	10.92%
MSCI USA High Dividend Yield	1.46%	0.73%	6.35%	10.70%	7.78%	10.00%
MSCI USA Quality	11.70%	23.40%	24.90%	13.73%	14.31%	14.62%
MSCI USA Momentum	4.35%	-0.06%	8.70%	4.72%	7.29%	12.58%
MSCI USA Enhanced Value	1.95%	4.52%	7.18%	12.27%	5.64%	9.28%
MSCI USA Equal Weighted	4.56%	8.76%	13.66%	13.09%	8.85%	10.70%
MSCI USA Growth	13.87%	33.68%	29.69%	13.56%	15.47%	15.87%

Returns of the Major Capital Markets						
	Period Ending 06/30/2023					
	Second Quarter	YTD	1-Year	3-Year ¹	5-Year ¹	10-Year ¹
Fixed Income						
Bloomberg Global Aggregate	-1.53%	1.43%	-1.32%	-4.96%	-1.09%	0.20%
Bloomberg U.S. Aggregate	-0.84%	2.09%	-0.94%	-3.96%	0.77%	1.52%
Bloomberg U.S. Long Gov't	-2.29%	3.73%	-6.79%	-12.02%	-0.88%	1.81%
Bloomberg U.S. Long Credit	-0.42%	4.97%	1.06%	-6.06%	1.53%	3.48%
Bloomberg U.S. Long Gov't/Credit	-1.29%	4.39%	-2.56%	-8.60%	0.66%	2.86%
Bloomberg U.S. TIPS	-1.42%	1.87%	-1.40%	-0.12%	2.49%	2.08%
Bloomberg U.S. High Yield	1.75%	5.38%	9.06%	3.13%	3.36%	4.43%
Bloomberg Global Treasury ex U.S.	-2.93%	0.09%	-2.77%	-7.04%	-3.23%	-1.13%
JP Morgan EMBI Global (Emerging Market)	1.53%	3.81%	6.85%	-2.68%	0.82%	2.60%
Commodities						
Bloomberg Commodity Index	-2.56%	-7.79%	-9.61%	17.82%	4.73%	-0.99%
Goldman Sachs Commodity Index	-2.73%	-7.54%	-14.22%	25.11%	2.76%	-3.52%
Hedge Funds						
HFRF Fund-Weighted Composite ²	2.24%	3.45%	5.09%	8.16%	4.98%	4.71%
HFRF Fund of Funds ²	1.52%	2.27%	3.67%	5.04%	3.32%	3.39%
Real Estate						
NAREIT U.S. Equity REITS	2.62%	5.37%	-0.13%	8.91%	4.55%	6.42%
FTSE Global Core Infrastructure Index	0.06%	-0.98%	-1.42%	6.89%	6.36%	7.45%
Private Equity						
Burgiss Private iQ Global Private Equity ³			-1.81%	19.78%	17.13%	15.20%

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

¹ Periods are annualized.

² Latest 5 months of HFR data are estimated by HFR and may change in the future.

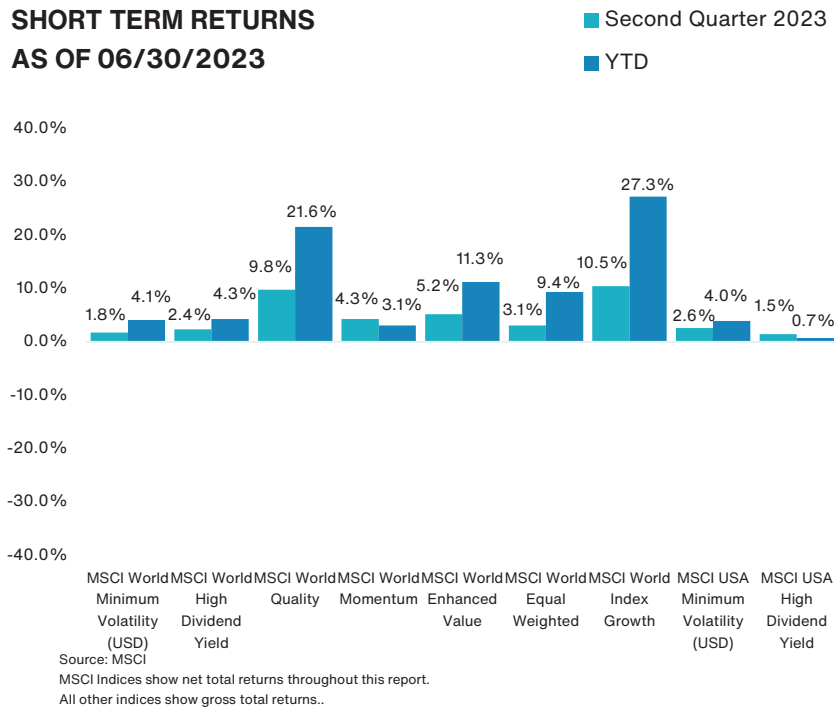
³ Burgiss Private iQ Global Private Equity data is as at September 30, 2022



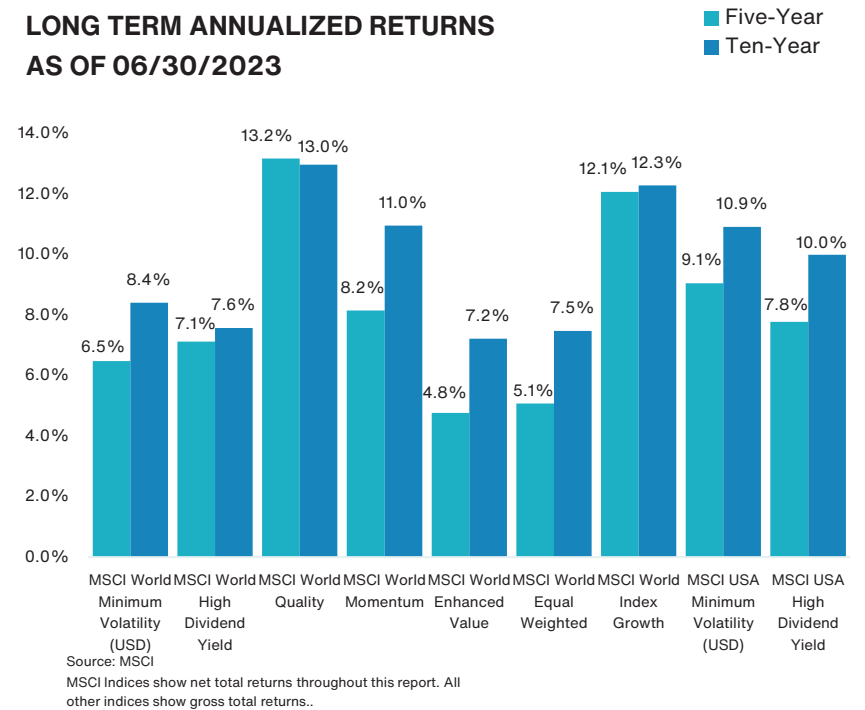
Past performance is no guarantee of future results. Indices cannot be invested in directly. Unmanaged index returns assume reinvestment of any and all distributions and do not reflect fees and expenses. Please see appendix for index definitions and other general disclosures.

Factor Indices

SHORT TERM RETURNS AS OF 06/30/2023



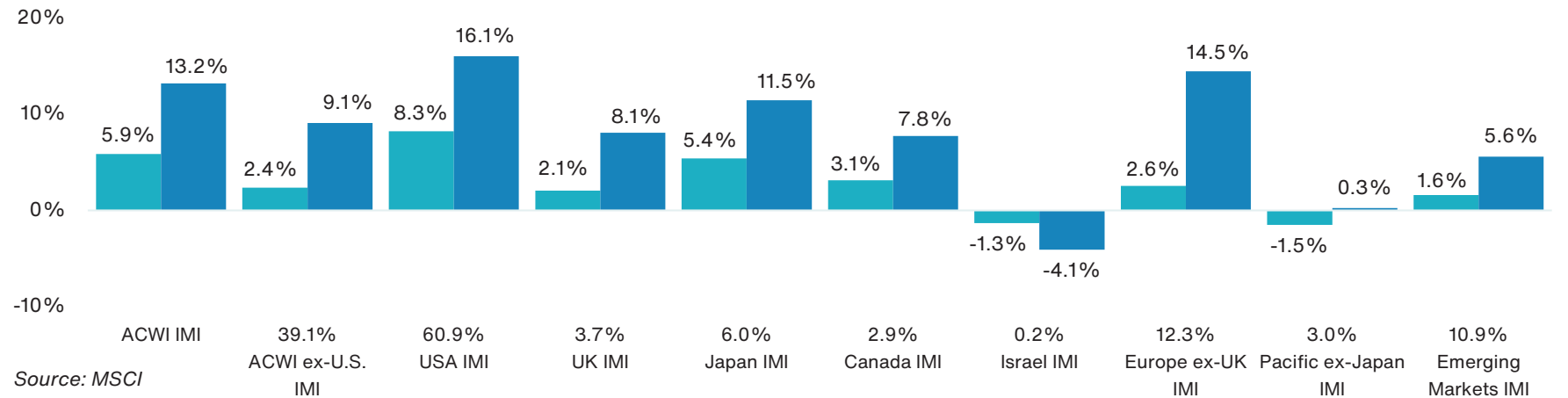
LONG TERM ANNUALIZED RETURNS AS OF 06/30/2023



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.

Global Equity Markets

GLOBAL MSCI IMI INDEX RETURNS (USD) AS OF 06/30/2023



- In Q2 2023, equity markets rose as high-interest rate concerns abated, with inflation also cooling down in major economies. Volatility fell throughout the quarter as the CBOE Volatility Index (VIX) fell to 13.6 in June from 18.7 in the previous quarter, staying below its 20-year average of 19.2. Yields trended higher as major central banks indicated higher interest rates to bring inflation down to around a 2% target. The MSCI All Country World Investable Market Index (ACWI IMI) returned 5.9% for the quarter and was also up 13.2% on a YTD basis.
- Across international markets, generally all the regions were strong over the quarter. All regions apart from Israel and Pacific ex-Japan posted positive returns.
- US IMI equities were the best regional performer with a return of 8.3%. Economically sensitive sectors including Information Technology and Consumer Discretionary outperformed.



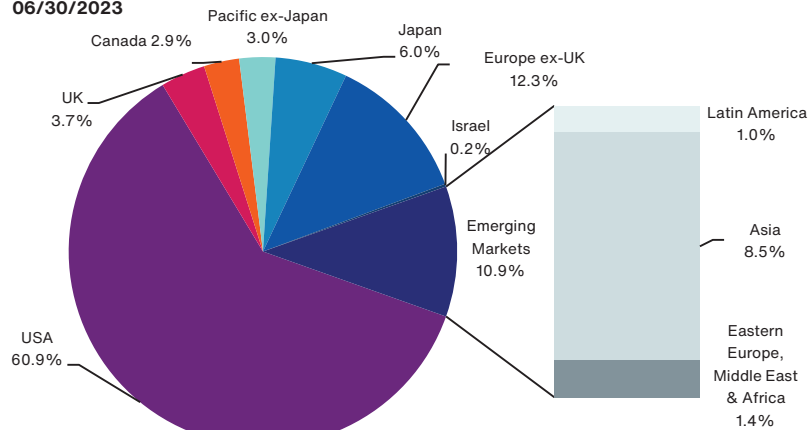
Past performance is no guarantee of future results. Indices cannot be invested in directly. Unmanaged index returns assume reinvestment of any and all distributions and do not reflect fees and expenses. Please see appendix for index definitions and other general disclosures.

Private and Confidential | Investment advice and consulting services provided by Aon Investment USA Inc. 2850360-NRC

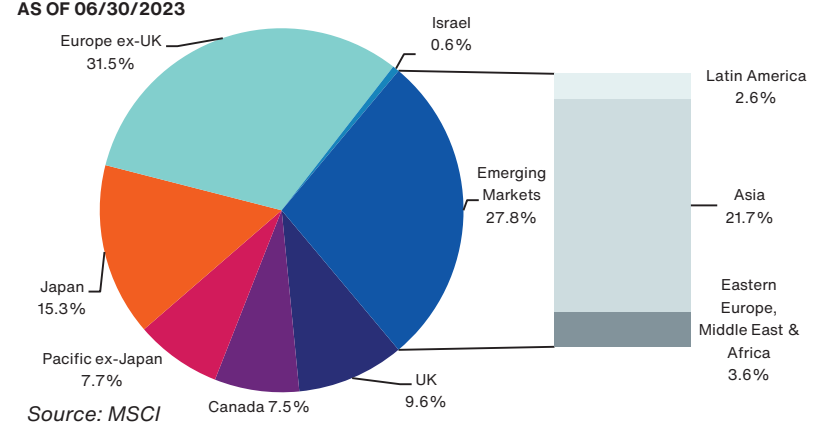
Global Equity Markets

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 06/30/2023



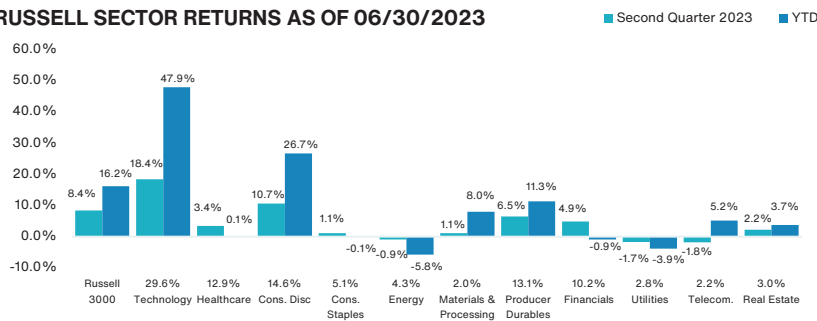
MSCI ALL COUNTRY WORLD EX-U.S. IMI INDEX GEOGRAPHIC ALLOCATION AS OF 06/30/2023



U.S. Equity Markets

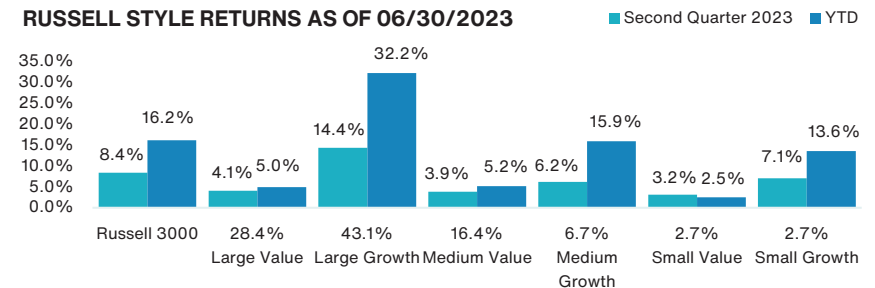
- U.S. equities had a strong quarter with the S&P 500 index rising by 8.7% as high-interest rate concerns abated, with inflation also cooling down in major economies.
- The U.S. Senate passed the debt ceiling bill with strong bipartisan support of 63-36 votes to avoid a default in the world's largest economy. Previously, the bill was passed in the House of Representatives with a margin of 314-117 votes. The agreement imposes restrictions on government spending, introduces new welfare reforms, and reins in perceived government overreach, whilst not including any new taxes.
- The Cyberspace Administration of China banned U.S.-based chipmaker Micron Technology's products, in China's biggest measure against a U.S. semiconductor group, citing "security risks to China's critical information infrastructure supply chain".
- The U.S. economy expanded by 2.0% year-on-year in the first quarter, higher than economists' forecasts of 1.4% but lower than the 2.6% recorded in the previous quarter. Increased consumer spending fueled by a strong labor market and rising wages helped offset business investment and housing declines.
- The Russell 3000 Index rose 8.4% during the second quarter and rose 16.2% on a YTD basis. Technology (18.4%) and Consumer Discretionary (10.7%) were the best performers while Telecommunication Services (-1.8%) and Utilities (-1.7%) were the worst performers.
- Large-cap stocks outperformed both in growth and value. On a style basis, growth outperformed value across market capitalizations over the quarter.

RUSSELL SECTOR RETURNS AS OF 06/30/2023



Source: Russell Indexes

RUSSELL STYLE RETURNS AS OF 06/30/2023



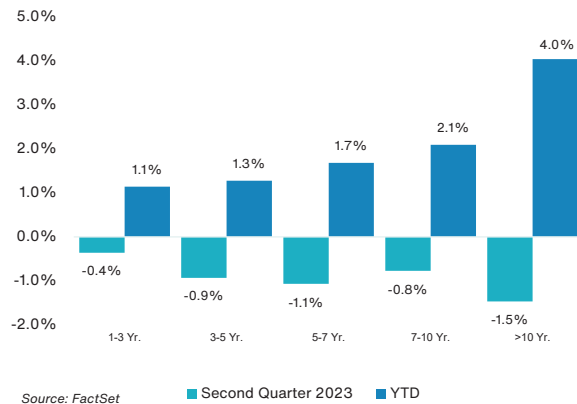
Source: Russell Indexes



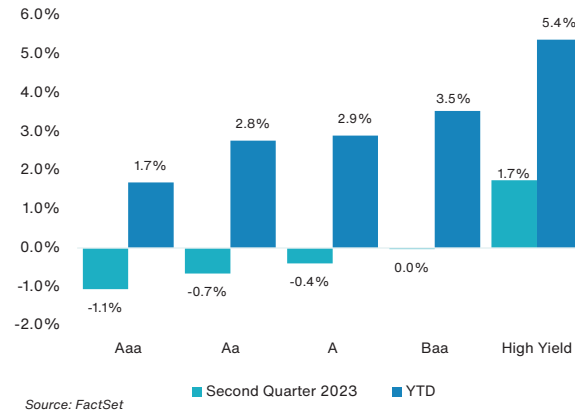
Past performance is no guarantee of future results. Indices cannot be invested in directly. Unmanaged index returns assume reinvestment of any and all distributions and do not reflect fees and expenses. Please see appendix for index definitions and other general disclosures.

U.S. Fixed Income Markets

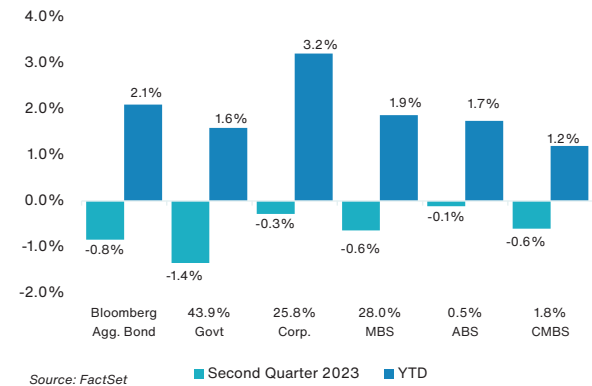
BLOOMBERG AGGREGATE RETURNS BY MATURITY AS OF 06/30/2023



BLOOMBERG AGGREGATE RETURNS BY QUALITY AND HIGH YIELD RETURNS AS OF 06/30/2023



BLOOMBERG AGGREGATE RETURNS BY SECTOR AS OF 06/30/2023



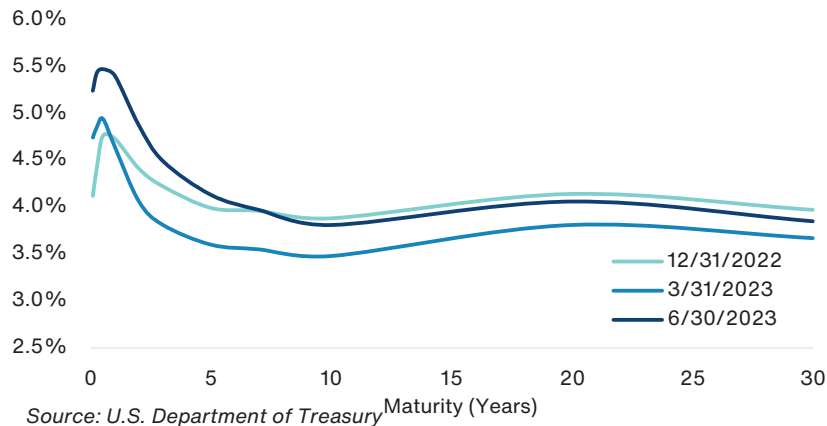
- The U.S. Federal Reserve (Fed) increased its benchmark interest rate by 25bps to a range of 5.0%-5.25% over the quarter, the highest level since 2007. Fed Chair Jerome Powell indicated that the central bank intends to carry out further monetary tightening to bring persistently high inflation under control but defended the current pause citing "potential headwinds" from the banking crisis.
- The Bloomberg U.S. Aggregate Bond Index was down 0.8% over the quarter but was up 2.1% on a YTD basis.
- Across durations, all maturities finished the quarter in negative territory.
- Within investment-grade bonds, lower-credit quality generally outperformed higher-quality issues, with Baa bonds remaining flat. High-yield bonds rose by 1.7%.



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.

U.S. Fixed Income Markets

U.S. TREASURY YIELD CURVE



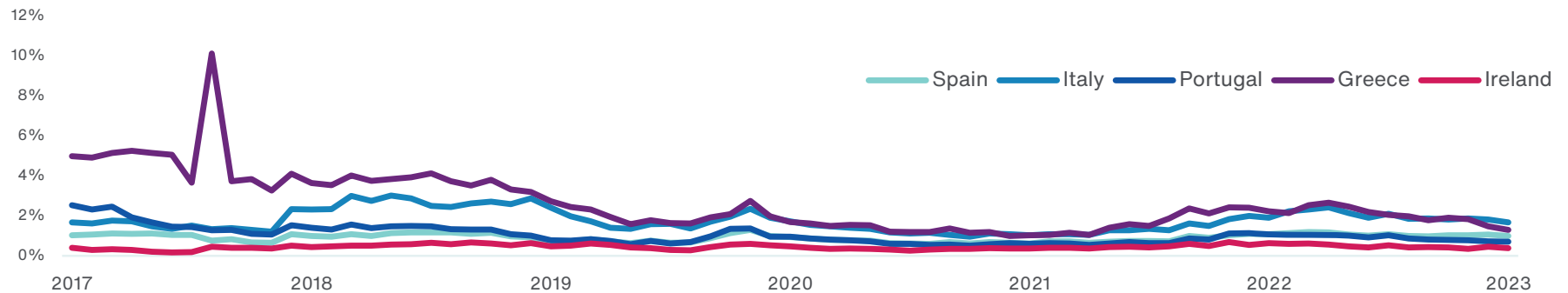
U.S. 10-YEAR TREASURY AND TIPS YIELDS



- U.S. Treasury yields rose significantly across maturities as the yield curve shifted upwards over the quarter. The 10-year Treasury yield was up by 33bps to 3.81%, and the 30-year Treasury yield was up by 18bps to 3.85% over the quarter.
- The U.S. annual consumer price index (CPI) eased to its lowest level since March 2021 as it rose by 4.0% in May, sharply down from the 4.9% recorded in April and coming in lower than economists' expectations of a 4.1% increase.
- The 10-year TIPS yield rose by 43bps over the quarter to 1.59%.

European Fixed Income Markets

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



- 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 50bps to 3.5% over the quarter, its highest level since 2001, and indicated another potential rate increase in July. The ECB president Christine Lagarde indicated that policymakers "still have ground to cover" and that the inflation outlook remains "to remain too high for too long", with inflation not returning to its target level of 2% even by 2025.
- Greek and Italian government bond yields fell by 52bps and 5bps to 3.71% and 4.09% respectively over the quarter whilst Irish and Spanish government bond yields rose by 5bps and 4bps to 2.80% and 3.40% respectively.
- German bund yields rose by 8bps to 2.41% over the quarter.
- Eurozone inflation fell to 5.5% year-on-year in June, the slowest pace since January 2022, decelerating from the 6.1% recorded in May and lower than economists' expectations of a 5.6% increase. Sharp falls in energy prices, along with a slowdown in food, alcohol, tobacco, and industrial goods inflation were the main drivers.

Credit Spreads

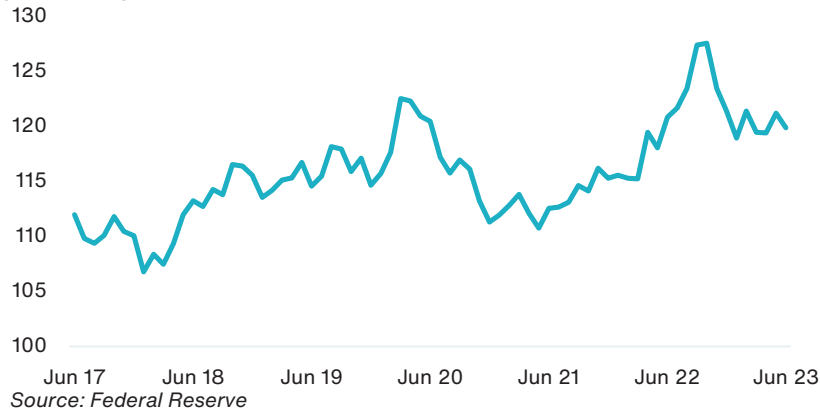
Spread (bps)	6/30/2023	3/31/2023	12/31/2022	Quarterly Change (bps)	YTD
U.S. Aggregate	49	57	51	-8	-2
Long Gov't	1	2	2	-1	-1
Long Credit	148	159	157	-11	-9
Long Gov't/Credit	79	86	87	-7	-8
MBS	52	63	51	-11	1
CMBS	134	142	120	-8	14
ABS	68	85	76	-17	-8
Corporate	123	138	130	-15	-7
High Yield	390	455	469	-65	-79
Global Emerging Markets	320	352	332	-32	-12

Source: FactSet, Bloomberg

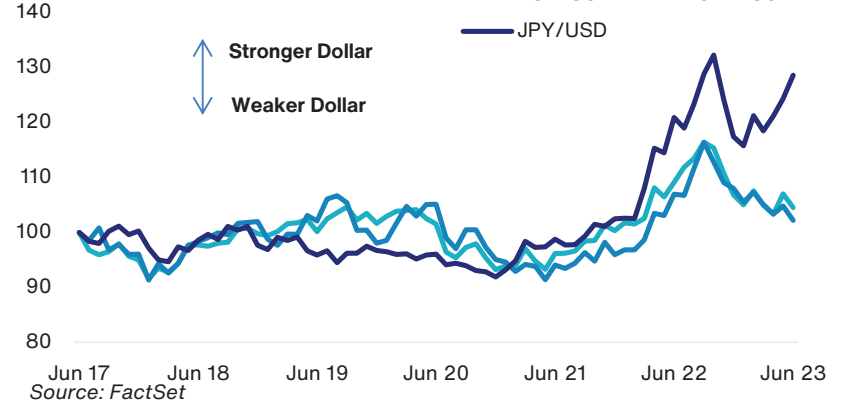
- Credit markets rose amid risk-taking sentiment during the quarter, with spreads narrowing.
- High Yield and Global Emerging Markets spreads narrowed by 65bps and 32bps respectively. Meanwhile, Long Gov't/Credit and Long Gov't spreads narrowed by 7bps and 1bp respectively.

Currency

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



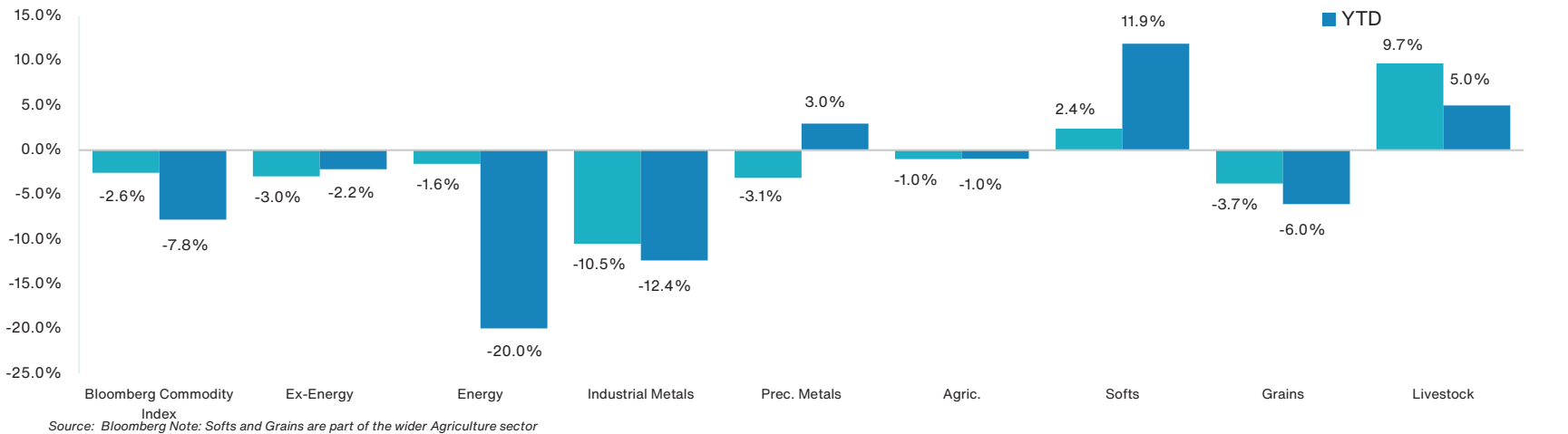
**U.S. DOLLAR RELATIVE TO EUR, GBP AND JPY
REBASED TO 100 AT 06/30/2017**



- The U.S. Dollar weakened against all major currencies (except for yen) over the quarter. On a trade-weighted basis, the U.S. dollar appreciated by 0.3% as a sharp appreciation against the yen offset the losses against the sterling and the euro.
- Sterling appreciated by 2.7% against the U.S. dollar. The Bank of England (BoE) raised its benchmark interest rate by 75bps to 5.0% over the quarter, touching its highest level since 2008. Andrew Bailey, the BoE governor, indicated that the central bank is "committed to returning inflation to the 2 percent target and will make the decisions necessary to achieve that."
- The U.S. dollar depreciated by 0.4% against the Euro but appreciated by 8.6% against the yen.

Commodities

COMMODITY RETURNS AS OF 06/30/2023



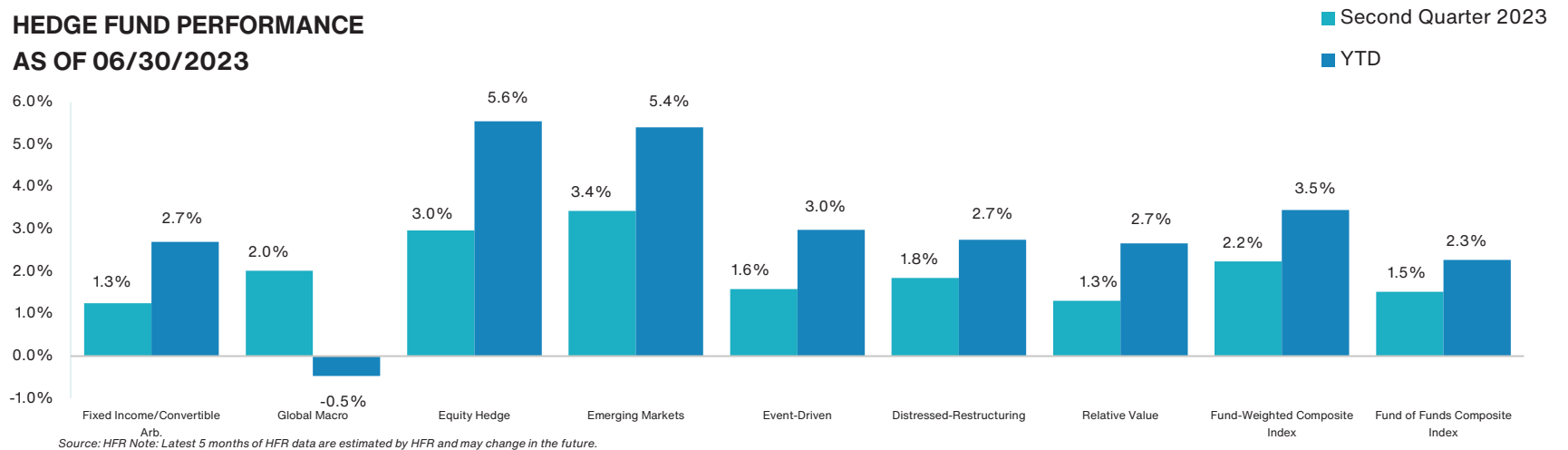
- Commodity prices fell over the quarter with the Bloomberg Commodity Index falling by 2.6% for the quarter.
- The energy sector fell 1.6% over the quarter and 20.0% on a YTD basis. The price of WTI crude oil was down by 6.6% to U.S.\$71/BBL. .
- Industrial Metals fell the most over the quarter at -10.5%.
- Meanwhile, Opec+ announced a surprise oil production cut of 1mn barrels a day in July, which could be extended further. Saudi Arabia will lead the entire production cut to boost oil prices as other Opec+ members were spared from making additional cuts this year. The production quotas of several African nations and Russia are set to be lowered from January 2024.



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.

Hedge Funds Market Overview

HEDGE FUND PERFORMANCE AS OF 06/30/2023



- Hedge fund performance was positive over the quarter.
- The HFRI Fund-Weighted Composite and HFRI Fund of Funds Composite Index produced returns of 2.2% and 1.5% over the quarter, respectively.
- Over the quarter, the Emerging Markets strategy was the best performer with a return of 3.4%.
- Fixed income/ Convertible Arb. was the worst performer with a return of 1.25% over the quarter.
- On a YTD basis, Equity Hedge has outperformed all other strategies whilst Global Macro have performed the worst.

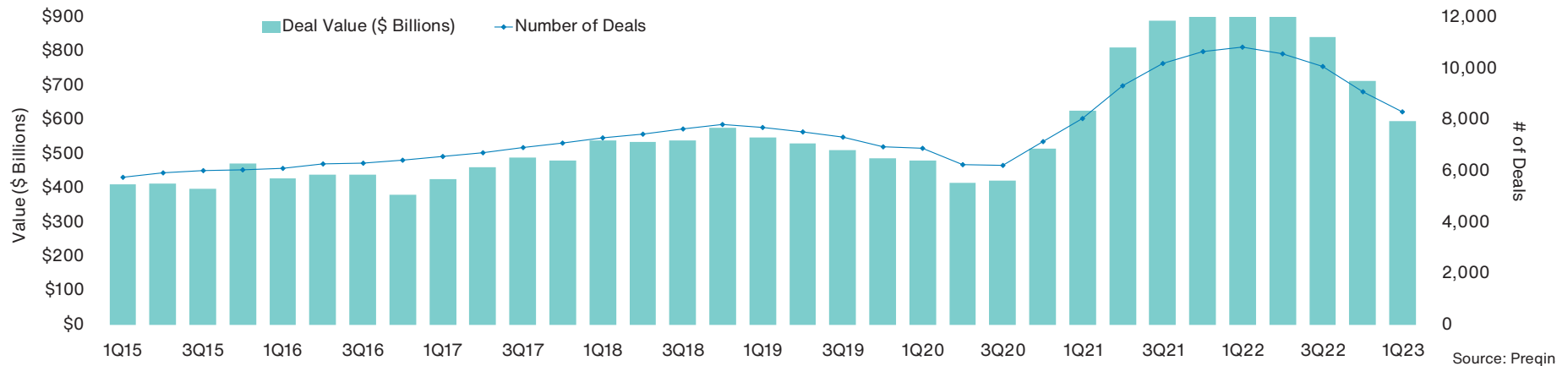


Past performance is no guarantee of future results. Indices cannot be invested in directly. Unmanaged index returns assume reinvestment of any and all distributions and do not reflect fees and expenses. Please see appendix for index definitions and other general disclosures.

Private and Confidential | Investment advice and consulting services provided by Aon Investment USA Inc.
2850360-NRC

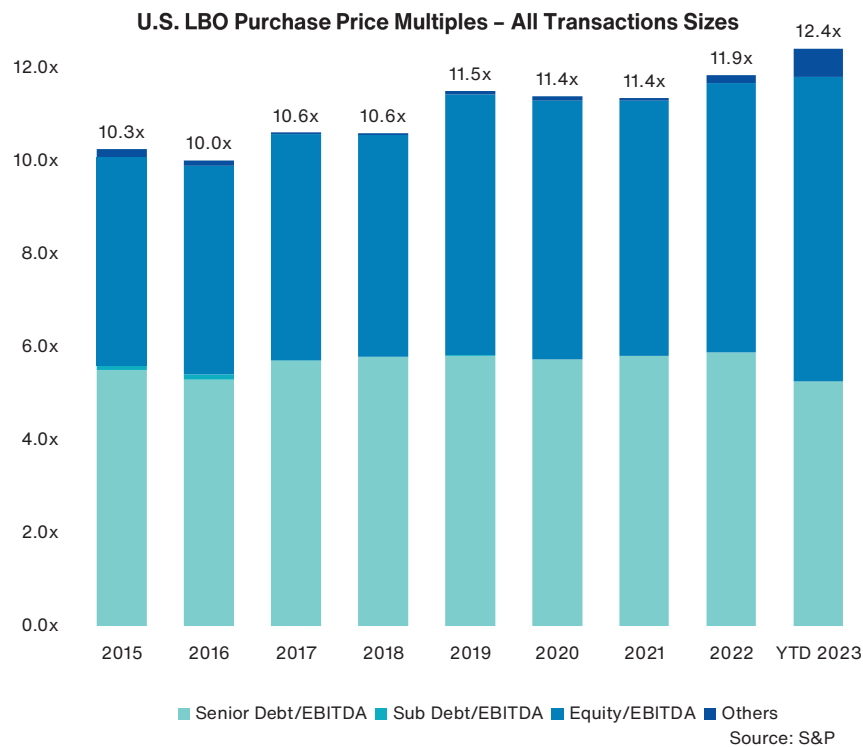
Private Equity Overview – 1Q 2023

LTM Global Private Equity-Backed Buyout Deal Volume



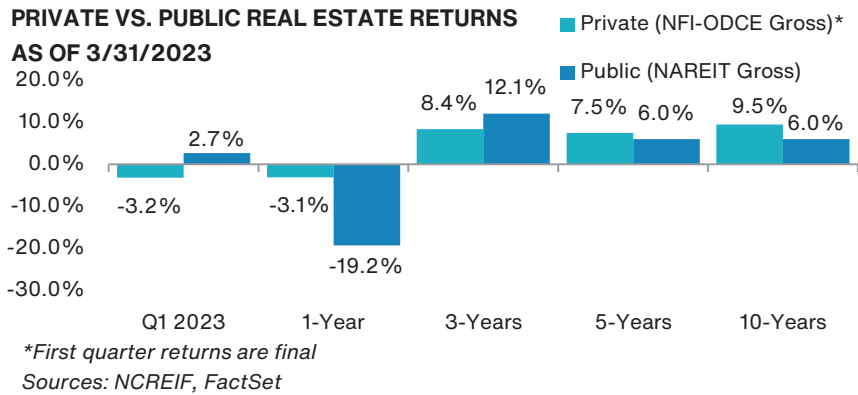
- Fundraising:** In Q1 2023, \$232.9 billion was raised by 470 funds, which was a decrease of 5.1% on a capital basis and a decrease of 36.9% by number of funds from the prior quarter. Dry powder stood at \$3.1 trillion at the end of the quarter, an increase of 1.0% and 27.4% compared to year-end 2022 and the five-year average, respectively.¹
- Buyout:** Global private equity-backed buyout deals totaled \$126.2 billion in Q1 2023, which was an increase on a capital basis of 9.0% compared to Q4 2022 but a decrease of 21.6% compared to the five-year quarterly average.¹ At the end of the quarter, the average purchase price multiple for all U.S. LBOs was 12.4x EBITDA, up from year-end 2022's average of 11.9x and up from the five-year average (11.3x). Large cap purchase price multiples stood at 12.4x, up compared to the full-year 2022 level of 11.8x. The average purchase price multiple across European transactions greater than €1B averaged 10.7x EBITDA on an LTM basis as of Q1 2023, down from the 11.1x multiple seen at year-end 2022. Purchase prices for transactions of €500M or greater decreased from 10.7x in 2022 to 10.1x on an LTM basis ending Q1 2023.² Globally, buyout exit value totaled \$27.3 billion across 379 deals during the quarter, significantly lower than the \$113.2 billion in value from 460 deals during Q1 2022.¹
- Venture:** During the quarter, 2,856 venture-backed transactions totaling \$37.0 billion were completed, which was a decrease on both a capital and deal count basis over the prior quarter's total of \$41.1 billion across 3,586 deals. This was also a decrease of 30.1% compared to the five-year quarterly average of \$53.0 billion. Total U.S. venture-backed exit value continued to slow, totaling approximately \$5.8 billion across an estimated 300 completed transactions in Q1 2023, down substantially from \$32.2 billion across 397 exits in Q1 2022.³

Private Equity Overview (cont.)



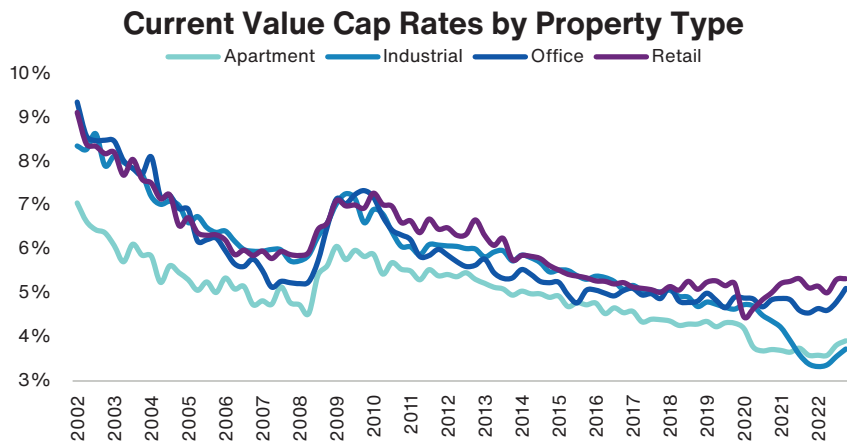
- Mezzanine:** 8 funds closed on \$25.7 billion during the year. This was an increase from the prior quarter's total of \$4.3 billion raised by 10 funds and represented an increase of 285.9% from the five-year quarterly average of \$5.4 billion. Estimated dry powder was \$63.8 billion at the end of Q1 2023, down from \$66.6 billion at the end of the prior quarter.¹
- Distressed Debt:** The TTM U.S. high-yield default rate was 1.8% as of March 2023, which was up from December 2022's TTM rate of 1.3%. Fitch expects the high-yield default rate to trend higher through 2023.⁴ During the quarter, \$9.1 billion was raised by 12 funds, down from the \$15.8 billion raised by 21 funds during Q4 2022. Dry powder was estimated at \$149.8 billion at the end of Q1 2023, which was up 2.0% from Q4 2022. This remained above the five-year annual average level of \$140.2 billion.¹
- Secondaries:** 15 funds raised \$33.4 billion during Q1 2023, up substantially from the \$11.8 billion raised by 22 funds in Q1 2022. This was an increase of 218.6% compared to the five-year average of \$10.5 billion.¹ The average discount rate for LP buyout and venture capital portfolios finished the year at 10.0% and 30.0%, respectively. Buyout pricing improved by 200 basis points while venture pricing was flat compared to year-end 2022.⁵
- Infrastructure:** \$2.7 billion of capital was raised by 10 funds in Q1 2023 compared to \$33.3 billion of capital raised by 32 partnerships in Q4 2022. At the end of the quarter, dry powder stood at \$309.0 billion, down from Q4 2022's total of \$325.7 billion. Infrastructure managers completed 453 deals for an aggregate deal value of \$71.0 billion in the first quarter compared to 649 deals totaling \$110.0 billion in Q4 2022.¹
- Natural Resources:** During Q1 2023, 3 funds closed on \$1.0 billion compared to 9 funds totaling \$2.2 billion in Q1 2022. Energy and utilities industry managers completed 50 deals totaling \$3.4 billion in Q1 2023, an increase, on a volume basis, compared to 47 deals totaling \$7.8 billion completed in Q4 2022.¹

U.S. Commercial Real Estate Markets (TO BE UPDATED)



- U.S. Core Real Estate returned -3.2%* gross return in the first quarter 2023, resulting in a -3.1% total gross return for the trailing one-year, including a 3.4% income return. Real estate capital markets have been impacted by the higher inflation and interest rate environment and resulting increased cost of capital. During the first quarter of 2023, 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 1.0% (USD) in aggregate during the first quarter and experienced a cumulative decline of 20.6% over the trailing 1-year period. REIT market performance during the quarter was driven by North America (+2.7% USD), with Europe (-2.8% USD) and Asia Pacific (-2.2% USD) lagging the global Index. The U.S. REIT markets (FTSE NAREIT Equity REITs Index) returned 2.7% in the first quarter.
- In the first quarter of 2023, U.S. private real estate transaction volumes declined 56% from the first quarter of 2022 to \$85 billion. 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 (TO BE UPDATED)



- 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. Even in the midst of moderating rent growth, Multifamily properties continue to experience near record-high occupancy and may be a net beneficiary of the eroding affordability of homeownership in this high interest rate environment. Industrial vacancy rates are amongst the lowest which supports continued NOI growth, helping offset pricing pressure as a result of rising cap rates.
- 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.

Appendix: Index Definitions

MSCI AC World Index - The MSCI ACWI Index, MSCI's flagship global equity index, is designed to represent performance of the full opportunity set of large- and mid-cap stocks across 23 developed and 24 emerging markets. As of May 2022, it covers more than 2,933 constituents across 11 sectors and approximately 85% of the free float-adjusted market capitalization in each market.

S&P 500 - The S&P 500® is widely regarded as the best single gauge of large-cap U.S. equities and serves as the foundation for a wide range of investment products. The index includes 500 leading companies and captures approximately 80% coverage of available market capitalization.

HFRI Fund Weighted Composite - The HFRI Fund Weighted Composite Index is a global, equal-weighted index of single-manager funds that report to HFR Database. Constituent funds report monthly net of all fees performance in US Dollar and have a minimum of \$50 Million under management or \$10 Million under management and a twelve (12) month track record of active performance. The HFRI Fund Weighted Composite Index does not include Funds of Hedge Funds.

Russell 3000 Index - The Russell 3000 Index is a market-capitalization-weighted equity index that seeks to track 3000 of the largest U.S.-traded stocks.

Russell 2000 Index - The Russell 2000 Index measures the performance of the small-cap segment of the U.S. equity universe. The Russell 2000 Index is a subset of the Russell 3000® Index representing approximately 10% of the total market capitalization of that index. It includes approximately 2000 of the smallest securities based on a combination of their market cap and current index membership.

MSCI All Country World Investable Market Index - A capitalization-weighted index of stocks representing approximately 49 developed and emerging countries, including the U.S. and Canadian markets and covering all investable large-, mid- and small-cap securities.

MSCI Emerging Markets Investable Market Index - A capitalization-weighted index of stocks representing approximately 26 emerging countries, and covering all investable large-, mid- and small-cap securities.

Dow Jones U.S. Total Stock Market Index - A capitalization-weighted index of stocks representing all U.S. equity eligible securities.

MSCI World Index - A free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets, representing 24 developed market country indices.

MSCI USA Value/Growth - The MSCI USA Value/Growth Index captures U.S. large and mid cap securities exhibiting overall value/growth style characteristics. The value investment style characteristics for index construction are defined using three variables: book value to price, 12-month forward earnings to price and dividend yield. The growth investment style characteristics for index construction are defined using five variables: long-term forward EPS growth rate, short-term forward EPS growth rate, current internal growth rate and long-term historical EPS growth trend and long-term historical sales per share growth trend.

Bank of America Merrill Lynch U.S. Corporate Index - An unmanaged index considered representative of fixed-income obligations issued by U.S. corporates.

Bank of America Merrill Lynch U.S. High Yield Index - An unmanaged index considered representative of sub-investment grade fixed-income obligations issued by U.S. corporates.

Bloomberg U.S. Government Index - An unmanaged index considered representative of fixed-income obligations issued by the U.S. government.

Bloomberg Long Credit Index - An unmanaged index considered representative of long duration fixed-income obligations issued by U.S. corporates.

S&P GSCI - A world-production weighted index that is based on the average quantity of production of each commodity in the index.

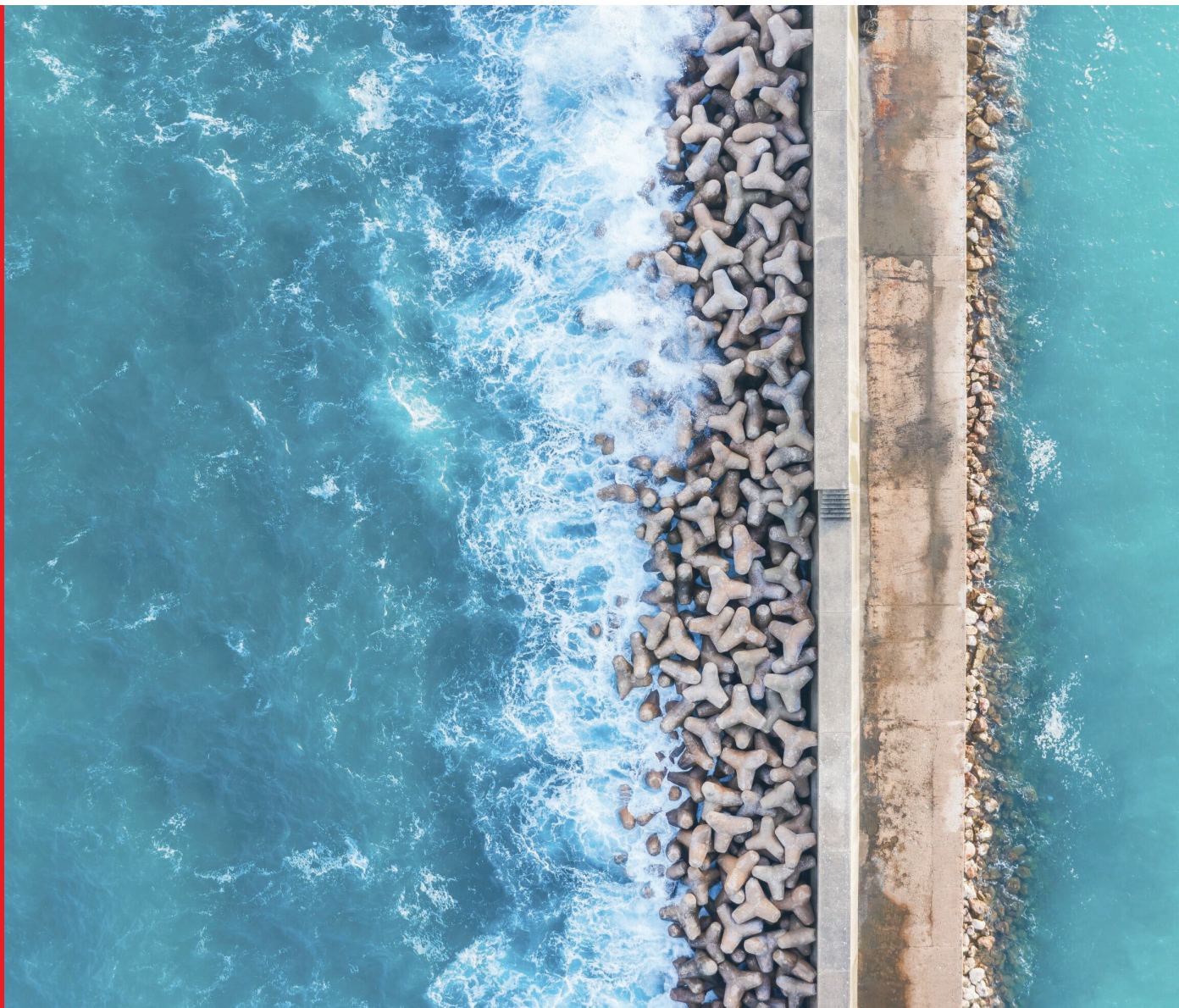
MSCI factor indexes - are rules-based indexes that capture the returns of systematic factors that have historically earned a persistent premium over long periods of time—such as Value, Low Size, Low Volatility, High Yield, Quality and Momentum and Growth.

AON

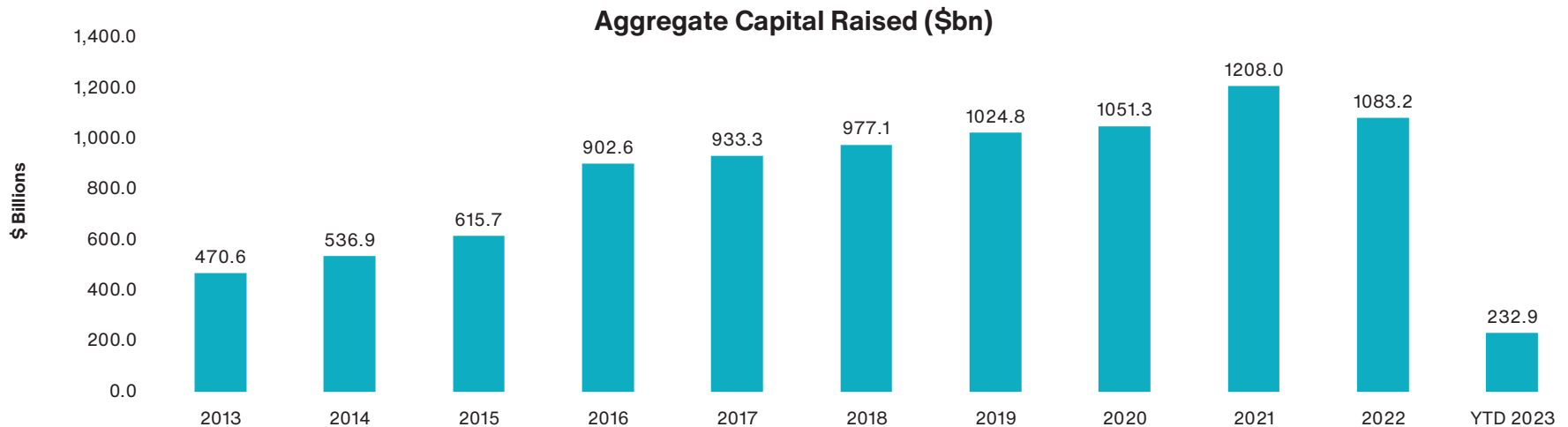
Q1 2023 Global Private Equity Market Overview

July 2023

Private and Confidential | Investment advice and consulting services provided by Aon Investment USA Inc.



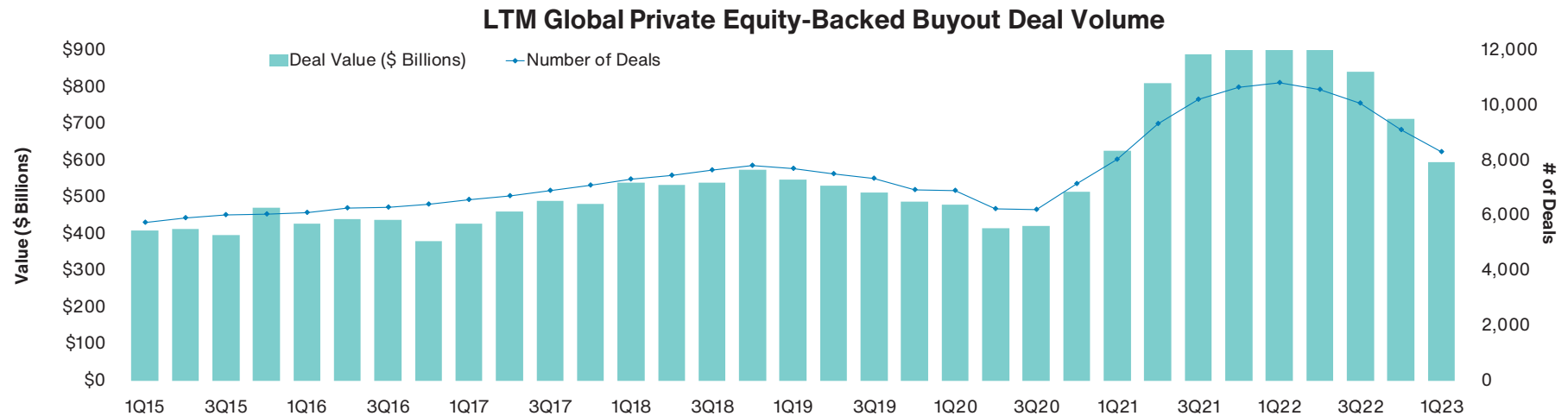
Private Equity Overview



Fundraising

- In Q1 2023, \$232.9 billion was raised by 470 funds, which was a decrease of 5.1% on a capital basis and a decrease of 36.9% by number of funds from the prior quarter. Capital raised through Q1 2023 represented 21.5% of capital raised during calendar year 2022.¹
 - Q1 2023 fundraising was 21.3% lower, on a capital basis, than capital raised in Q1 2022 and 48.3% lower by number of funds raised.
 - The majority of capital was raised by funds located in North America, comprising 70.7% of the quarter's total. This was up from 67.1% in Q4 2022. Capital targeted for Europe made up 24.2% of the total funds raised during the quarter, an increase from 23.0% in Q4 2022. The remainder was attributable to managers targeting Asia and other parts of the world.
- Dry powder stood at \$3.1 trillion at the end of the quarter, an increase of 1.0% and 27.4% compared to year-end 2022 and the five-year average, respectively.¹

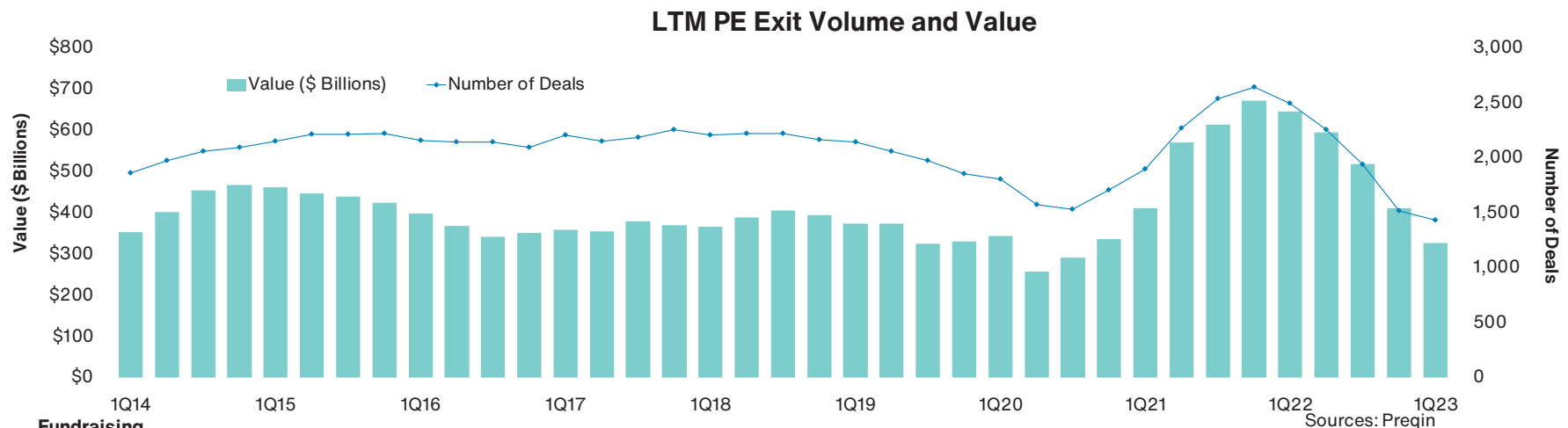
Private Equity Overview (cont.)



Activity

- Global private equity-backed buyout deals totaled \$126.2 billion in Q1 2023, which was an increase on a capital basis of 9.0% compared to Q4 2022.¹
 - This was a decrease of 21.6% compared to the five-year quarterly average.
 - Average deal size was \$500.9 million in Q1 2023. This was down 13.7% compared to Q1 2022 but up 7.5% relative to the five-year quarterly average.
- During the quarter, the average purchase price multiple for all U.S. LBOs was 12.4x EBITDA, up from Q4 2022's average of 11.9x and up from the five-year average (11.3x). Large cap purchase price multiples stood at 12.4x during the quarter, up compared to full-year 2022's level of 11.8x.²
 - Average purchase price multiples for all U.S. LBOs were 1.1x and 1.8x turns (multiple of EBITDA) above the five- and ten-year average levels, respectively.
- In Europe, the average purchase price multiple across transactions of greater than €500M averaged 10.1x EBITDA on an LTM basis, down from 10.7x at the end of Q4 2022.³
- Availability of debt has contracted, but GPs were still able to obtain debt financing for the best deals.
 - The average leverage for U.S. deals through Q1 2023 was 5.3x compared to the five and ten-year averages of 5.8x and 5.7x, respectively.³
 - In Europe, the average senior debt/EBITDA on an LTM basis ended Q1 2023 at 5.8x, slightly lower than that observed at the end of Q4 2022 (5.9x).

Buyouts / Corporate Finance



Fundraising

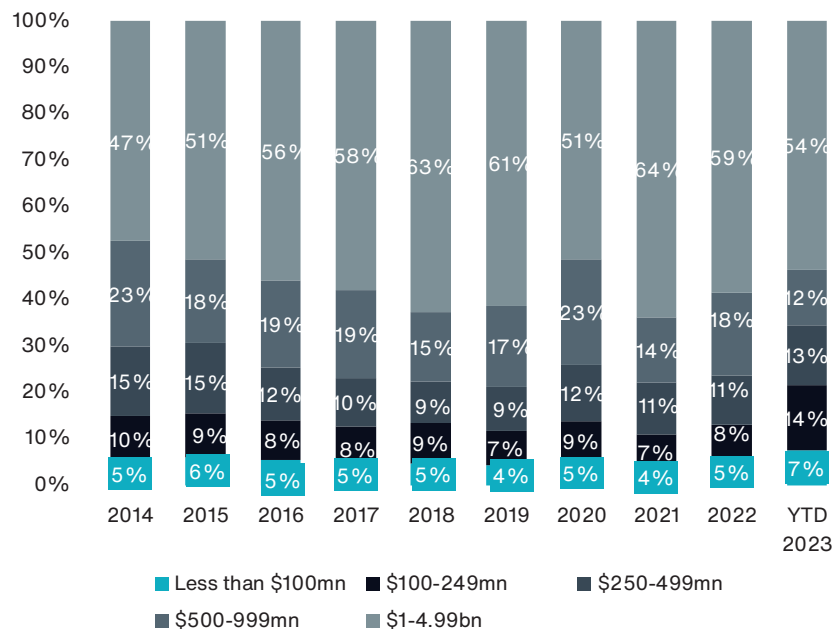
- \$120.5 billion was closed on by 124 buyout and growth funds in Q1 2023, compared to \$131.0 billion raised by 179 funds in Q4 2022. Capital raised was flat with Q1 2022, but lower by number of funds as 212 funds closed in the first quarter of 2022 .¹
 - This was higher, on a capital basis, than the five-year quarterly average of \$119.7 billion but significantly lower by number of funds (208).
 - Permira VIII was the largest fund raised during the quarter, closing on \$17.7 billion of commitments.
- Buyout and growth equity dry powder was estimated at \$1.3 trillion, up from Q4 2022.¹
 - An estimated 58.6% of buyout dry powder was targeted for North America, while European dry powder comprised 22.9% and Asia/Rest of World accounted for the remainder.

Activity

- Globally, buyout exit value totaled \$27.3 billion across 379 deals during the quarter, significantly lower than the \$113.2 billion in value from 460 deals during Q1 2022.¹

Buyouts / Corporate Finance

M&A Deal Value by Deal Size



Sources: Preqin

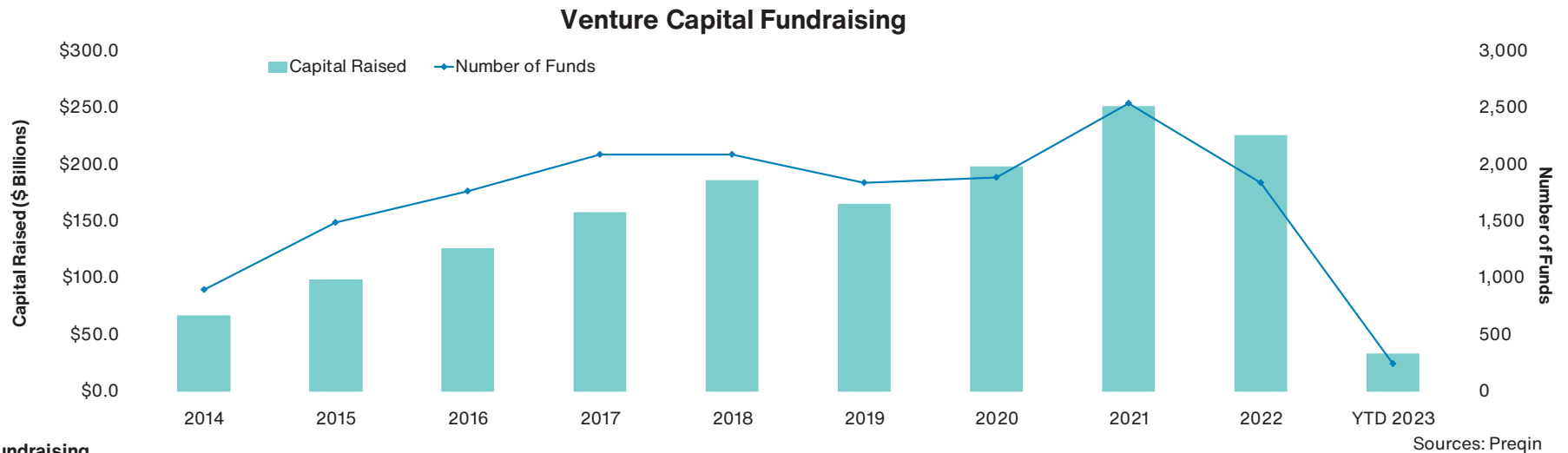
Activity

- Global private equity-backed buyout deals totaled \$126.2 billion in Q1 2023, which was an increase on a capital basis of 9.0% compared to Q4 2022 but a decrease of 48.3% compared to Q1 2022.¹
- Through Q1 2023, total deal value accounted for 17.7% of 2022's total.¹
 - Of deals less than \$5.0 billion in size, Q1 2023 deals valued between \$1.0 billion - \$4.9 billion accounted for an estimated 53.5% of total deal value compared to 58.5% in 2022. Deals valued between \$100.0 million to \$249.9 million represented 14.0% of total deal value through the first quarter.
 - By geography, North American deals accounted for the largest percentage of total deal value at an estimated 65.6% in Q1 2023, while Information Technology deals accounted for the largest percentage by industry at 25.8% of total deal value.
- Through Q1 2023, the average purchase price multiple for all U.S. LBOs was 12.4x EBITDA, up from year-end 2022's average of 11.9x and up from the five-year average (11.3x).³
 - Large cap purchase price multiples stood at 12.4x, up compared to the full-year 2022 level of 11.8x.
- The average purchase price multiple across European transactions greater than €1B averaged 10.7x EBITDA on an LTM basis as of Q1 2023, down from the 11.1x multiple seen at year-end 2022. Purchase prices for transactions of €500M or greater decreased from 10.7x in 2022 to 10.1x on an LTM basis ending Q1 2023.³
- The portion of average purchase prices financed by equity for all deals was 52.7% through Q1 2023, up from 48.9% in Q4 2022. This was above the five- and ten-year average levels of 48.0% and 45.6%, respectively.³

Opportunity⁴

- Mid-market managers targeting growing companies operating within large markets with value-creation expertise across business cycles.

Venture Capital

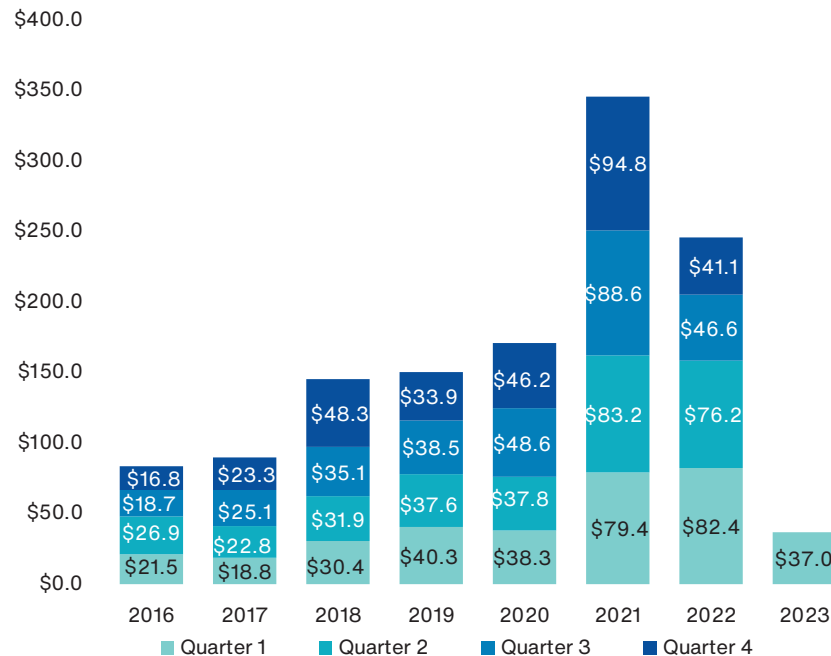


Fundraising

- \$33.6 billion of capital was raised by 244 funds in Q1 2023, higher, on a capital basis, from the prior quarter's total of \$28.7 billion raised by 409 managers. This was down from Q1 2022's amount of \$81.2 billion raised by 556 funds. Through Q1 2023, capital raised represented 14.8% of 2022's total.¹
 - Q1 2023 fundraising was 34.8% lower, on a capital basis, compared to the five-year quarterly average of \$51.5 billion.
 - Primavera Capital Fund IV was the largest fund raised during the quarter, closing on \$4.0 billion.
- At the end of Q1 2023, there were an estimated 5,755 funds in market targeting \$423.9 billion.¹
 - G42 Expansion Fund was the largest venture fund in market, targeting an estimated \$10.0 billion.
 - The majority of funds in market are seeking commitments of \$200.0 million or less.
- Dry powder was estimated at \$562.6 billion at the end of Q1 2023, roughly flat with Q4 2022.¹

Venture Capital

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



Source: Pitchbook / NVCA

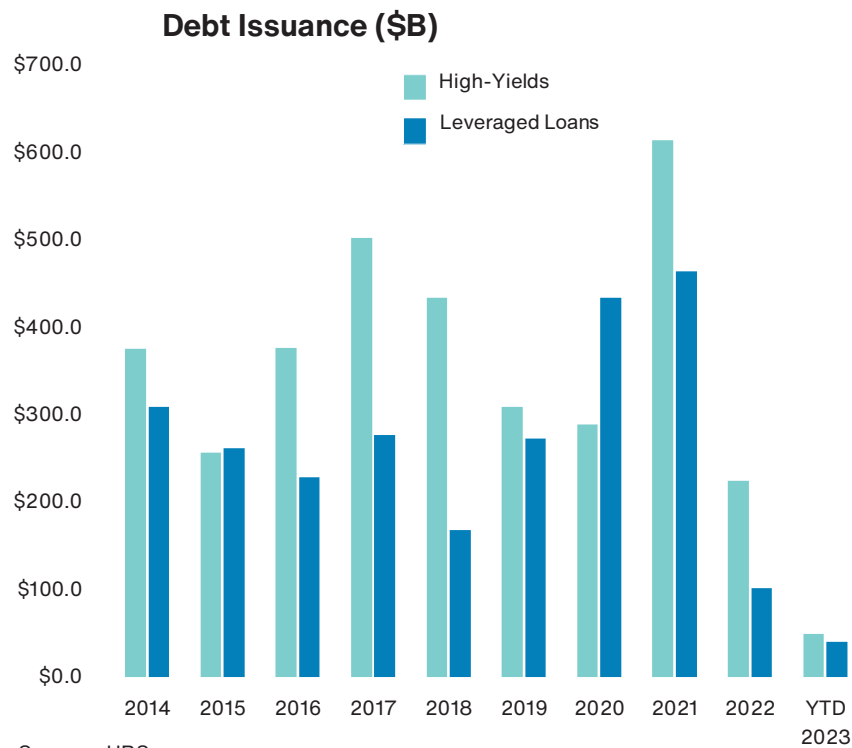
Activity

- During the quarter, 2,856 venture-backed transactions totaling \$37.0 billion were completed, which was a decrease on both a capital and deal count basis over the prior quarter's total of \$41.1 billion across 3,586 deals. This was also a decrease of 30.1% compared to the five-year quarterly average of \$53.0 billion.⁷
 - In Q1 2023, there were 38 U.S.-based deals involving unicorn companies, representing roughly \$10.1 billion in deal value. This was up by value compared to Q4 2022, which saw 69 unicorn-related deals close at a deal value of \$8.9 billion. However, this was below the five-year quarterly average of \$17.6 billion.⁷
- At the end of Q1 2023, median pre-money valuations increased across all series. Compared to Q4 2022, Seed transactions increased from a median pre-money valuation of \$14.8 million to \$15.4 million, Series A increased from \$39.2 million to \$40.0 million, Series B increased from \$90.0 million to \$140.0 million, Series C increased from \$228.0 million to \$543.5 million, and Series D+ median pre-money valuations increased from \$426.6 million to \$1.9 billion.⁸
- Total U.S. venture-backed exit value continued to slow, totaling approximately \$5.8 billion across an estimated 300 completed transactions in Q1 2023, down substantially from \$32.2 billion across 397 exits in Q1 2022. This was the lowest quarterly total since Q1 2013. Through Q1 2023, U.S. exit activity represented only 8.0% of 2022's total.⁷
 - The number of U.S. venture-backed initial public offerings decreased over Q4 2022, with only 20 IPOs completed in Q1 2023 at a value of \$2.1 billion. 162 exits occurred by acquisition, marking a decrease over the prior quarter's 167, and accounted for \$3.7 billion in exit value.⁷

Opportunity⁴

- Early stage continues to be attractive, although we continue to monitor valuations
- Smaller end of growth equity
- Technology sector, with emerging AI, digital health, and potential for new energy & climate-related innovation

Leveraged Loans & Mezzanine



Leveraged Loans Fundraising

- New CLO issuance totaled \$33.5 billion through Q1 2023.²
- High-yield debt issuance totaled \$40.6 billion in Q1 2023, compared to \$43.3 billion during the same period in 2022.²
- Through Q1 2023, leveraged loan mutual fund net flows ended at a net outflow of \$8.2 billion, compared to \$8.5 billion of outflows in all of 2022.²

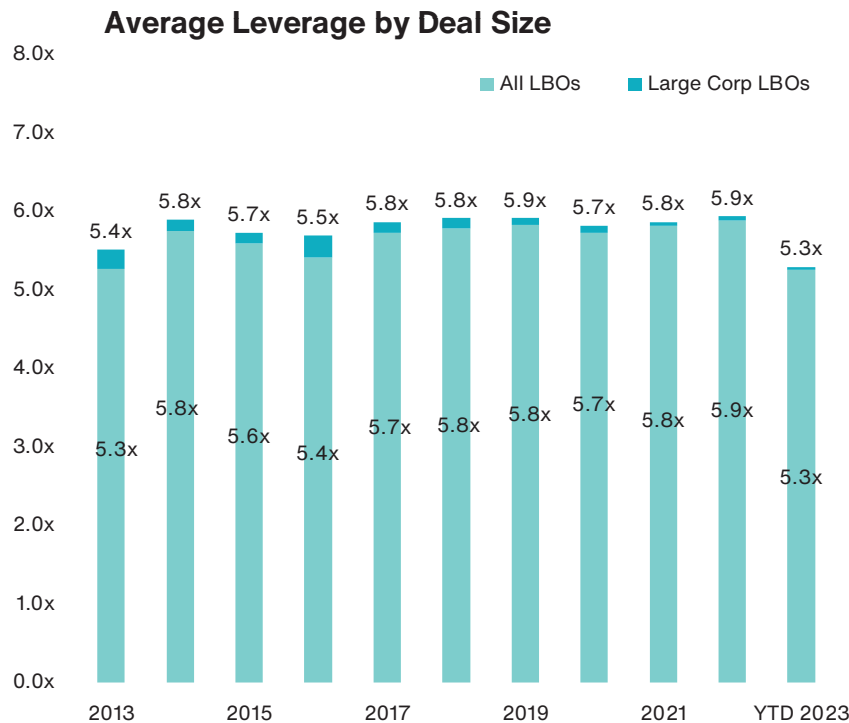
Activity

- In Q1 2023, institutional leveraged loan issuances totaled \$49.7 billion, compared to \$35.7 billion in Q4 2022. However, this was significantly lower than the \$112.3 billion of issuance in Q1 2022.²
- European sponsored loan issuance totaled €7.1 billion during Q1 2023 compared to €15.1 billion during Q1 2022. This was 55.6% lower than the five-year quarterly average level of €15.9 billion.³

Opportunity⁴

- 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

Leveraged Loans & Mezzanine



Sources: S&P

Activity

- Leverage for all U.S. LBO transactions through Q1 was 5.3x, down from Q4 2022's leverage level of 5.9x. Leverage continues to be comprised almost entirely of senior debt. The average leverage level for large cap LBOs was also 5.3x through the quarter, lower than that seen at year-end 2022 (5.9x).³
- The amount of debt issued supporting new transactions decreased substantially compared to the prior quarter, moving from 80.4% to 37.4%, and was lower than the five-year average of 72.3%.³

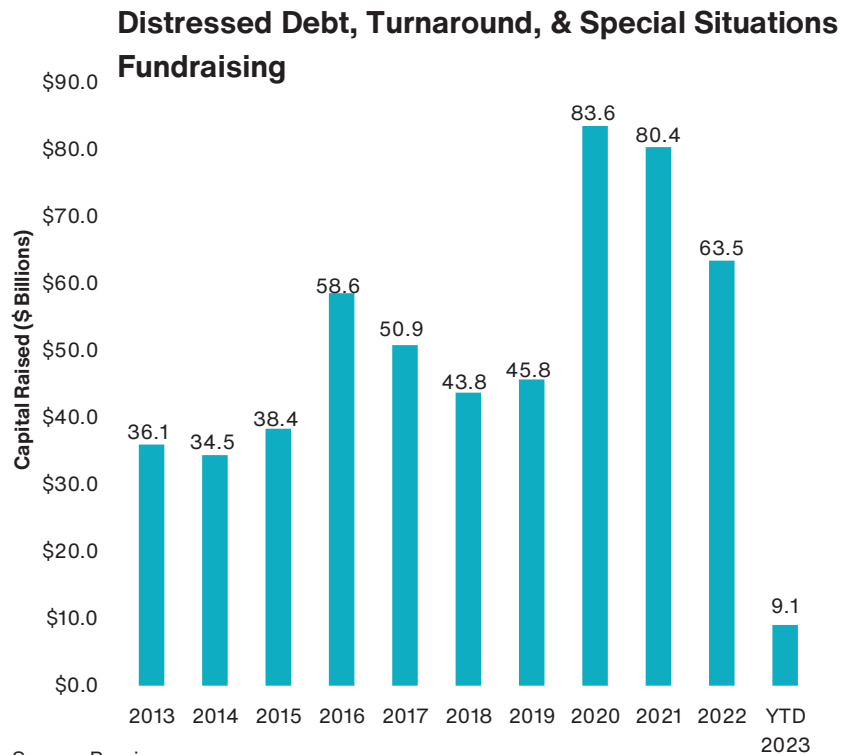
Mezzanine Fundraising

- 8 funds closed on \$21.0 billion during the quarter. This was a significant increase from the prior quarter's total of \$4.3 billion raised by 10 funds and also a significant increase from the five-year quarterly average of \$5.4 billion.¹
- Estimated dry powder was \$63.8 billion at the end of Q1 2023, down from \$66.6 billion at the end of Q4 2022.¹
- An estimated 117 funds were in market targeting \$24.3 billion of commitments. ICG North American Private Debt Fund III is the largest fund in market targeting commitments of \$2.0 billion.¹

Opportunity⁴

- Funds with the capacity to scale for large sponsored deals

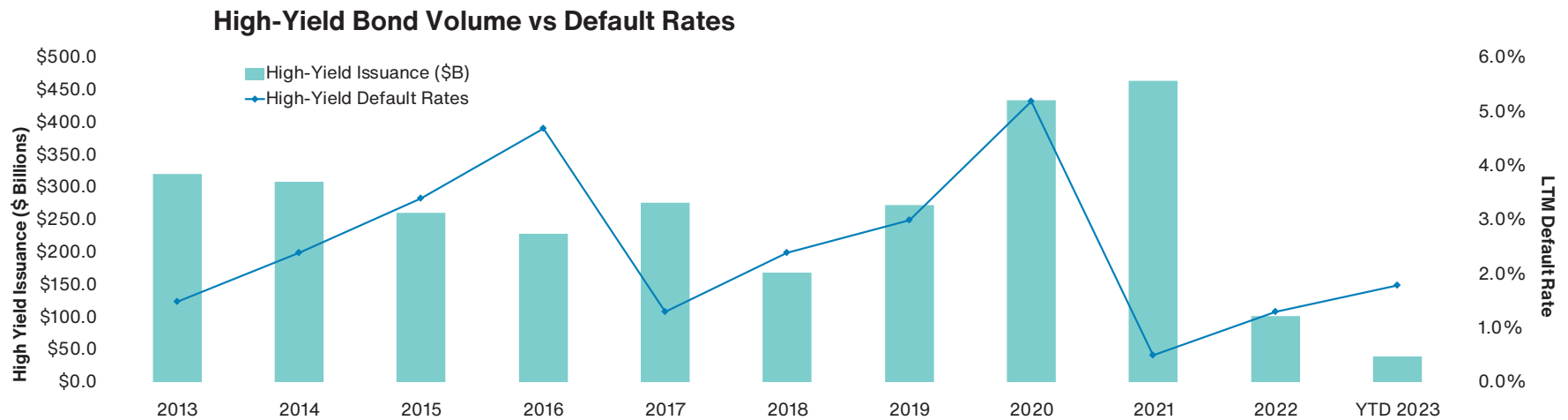
Distressed Private Markets



Fundraising

- During the quarter, \$9.1 billion was raised by 12 funds, down from \$15.8 billion raised by 21 funds during Q4 2022. Distressed funds have raised 14.4% of 2022's total through Q1 2023.¹
 - Q1 2023's fundraising was 42.4% lower than the five-year quarterly average.
 - Capital raised in Q1 2023 represented an increase compared to the \$1.3 billion raised in Q1 2022.
 - Arrow Credit Opportunities II was the largest fund closed during the quarter, closing on \$2.9 billion.
- Dry powder was estimated at \$149.8 billion at the end of Q1 2023, which was up 2.0% from Q4 2022. This remained above the five-year annual average level of \$140.2 billion.¹
- Roughly 226 funds were in the market at the end of Q1 2023 seeking \$124.0 billion in capital commitments.¹
 - Distressed debt managers were targeting the most capital, seeking an aggregate \$66.5 billion, followed by special situations managers at \$54.1 billion.
 - Oaktree Opportunities Fund XII was the largest fund in market with a target fund size of \$18.0 billion.

Distressed Private Markets



Sources: UBS / Fitch Ratings

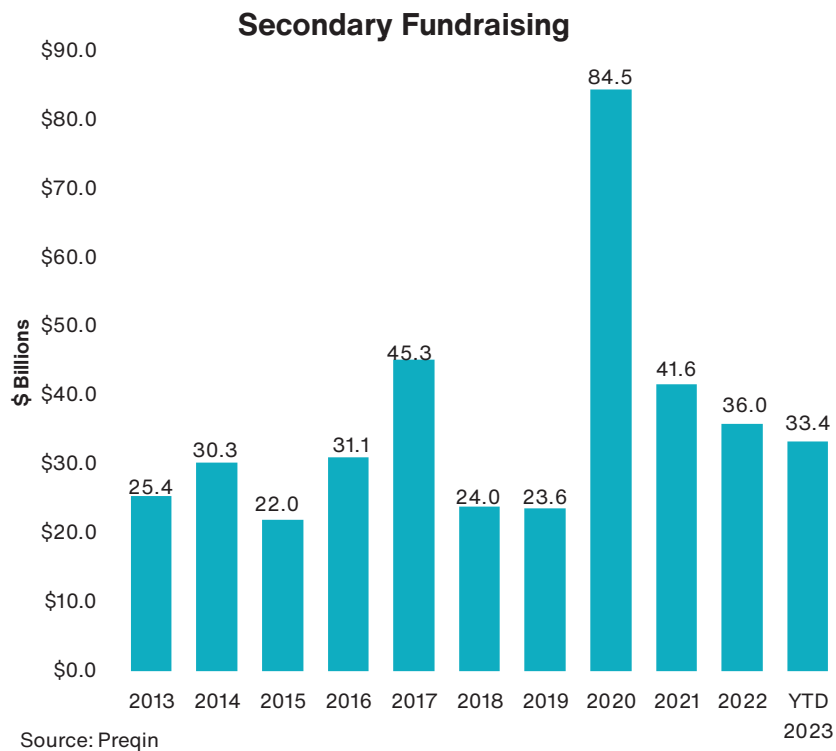
Activity

- The TTM U.S. high-yield default rate was 1.8% as of March 2023, which was up from December 2022's TTM rate of 1.3%. 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.

Opportunity⁴

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

Secondaries



Fundraising

- 15 funds raised \$33.4 billion during Q1 2023, up substantially from the \$11.8 billion raised by 22 funds in Q1 2022. This was an increase of 218.6% compared to the five-year average of \$10.5 billion.¹
 - Strategic Partners IX was the largest fund raised during the quarter, closing on \$22.2 billion.
- At the end of Q1 2023, there were an estimated 127 secondary and direct secondary funds in market targeting roughly \$98.8 billion. The majority of secondary funds are targeting North American investments.¹
 - ASF IX and Lexington Capital Partners X are the largest funds being raised, each seeking \$15.0 billion in commitments.

Activity

- 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.²
- Jefferies identified several trends in Q1 2023 including increased demand and activity related to secondary transactions, notably within the buyout segment, and peak capital availability given the fundraising environment over the last several quarters.¹⁶
- 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.¹⁷
- 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 2023.²

Secondaries



Source: Jefferies

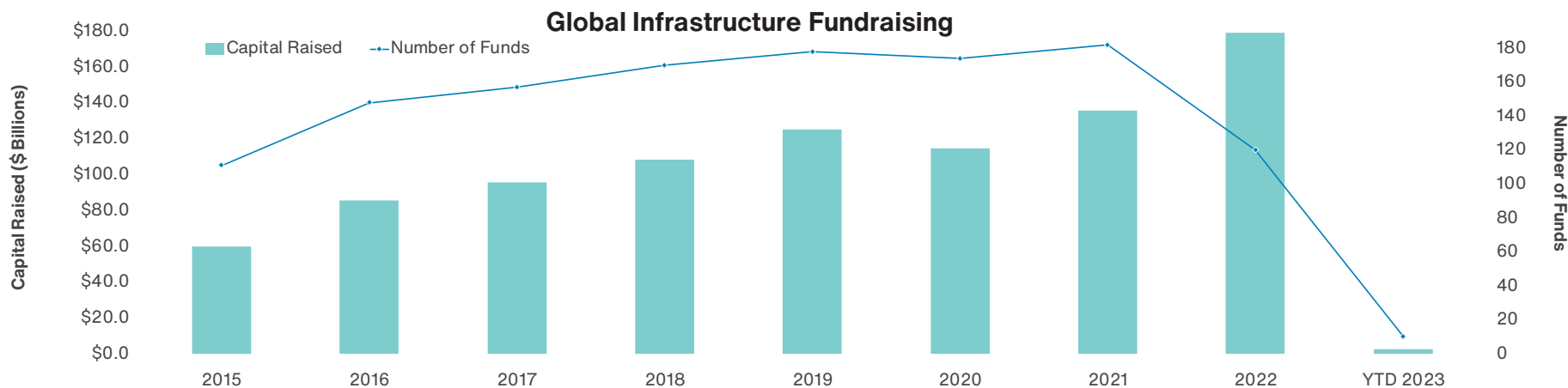
Activity

- 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.¹⁴
- Payment deferrals and structured equity solutions, notably mosaic structures, 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
- Given recent public market conditions, buyers are wanting to purchase assets based off NAVs that reflect the volatility.²
- Jefferies expects pricing to improve as demand increases and markets stabilize. This, coupled with secondary dry powder available to invest, is expected to drive strong transaction volume in the second half of 2023.¹⁷
- The average discount rate for LP buyout and venture capital portfolios finished the year at 12.0% and 30.0%, respectively. Buyout pricing improved by 100 basis points while venture pricing was flat compared to year-end 2022.¹⁷

Opportunity⁴

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

Infrastructure

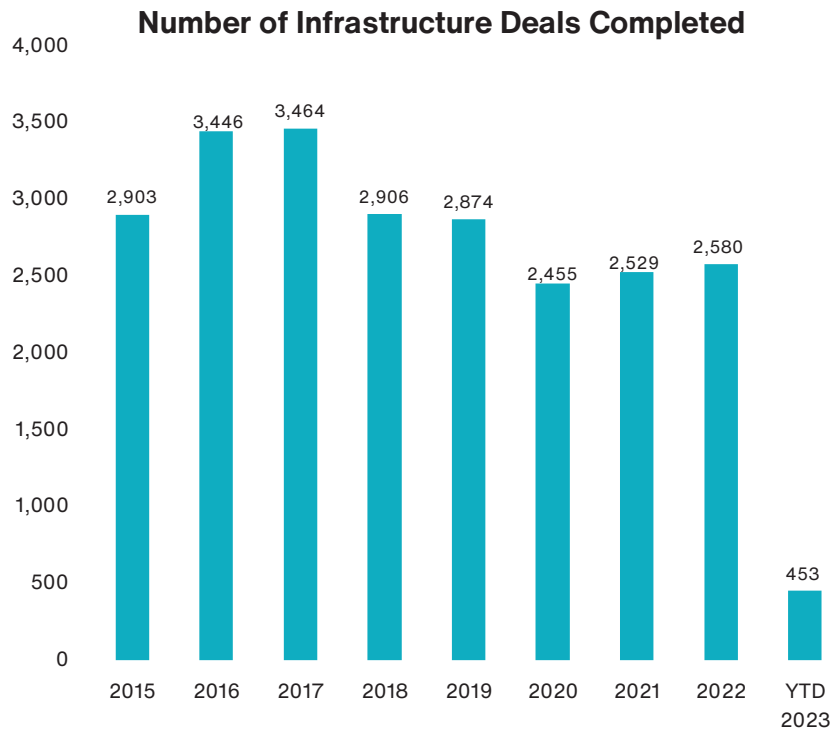


Source: Preqin

Fundraising

- \$2.7 billion of capital was raised by 10 funds in Q1 2023 compared to \$33.3 billion of capital raised by 32 partnerships in Q4 2022. This was a decline of 91.9% compared to the five-year average of \$33.2 billion.¹
 - SAF Annex Fund was the largest fund raised during the quarter, closing on \$700.0 million.
- As of the end of Q1 2023, there were an estimated 482 funds in the market seeking roughly \$438.2 billion.¹
 - Three funds in market have target fund sizes of \$25.0 billion, including Brookfield Infrastructure V, Global Infrastructure Partners V, and Stonepeak Infrastructure Partners V.
- At the end of the quarter, dry powder stood at \$309.0 billion, down from Q4 2022's total of \$325.7 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

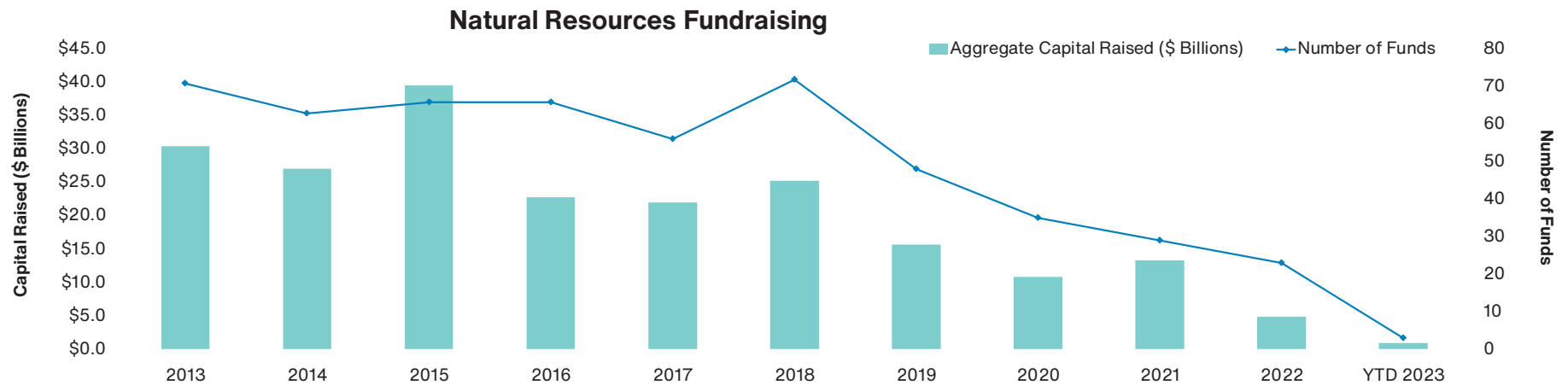
Activity

- Infrastructure managers completed 453 deals for an aggregate deal value of \$71.0 billion in the first quarter compared to 649 deals totaling \$110.0 billion in Q4 2022.¹
 - By region, Europe saw the largest number of deals, with 44.9% of deals being completed in the region, followed by North America at 27.0%. Asia amassed 11.8% of activity through the end of Q1 2023.
 - Renewable energy was the dominant industry during the quarter, making up 62.9% of transactions, followed by the conventional energy sector which accounted for 14.0% of deals. The telecom sector accounted for 7.1% of deals in the first quarter.

Opportunity⁴

- 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

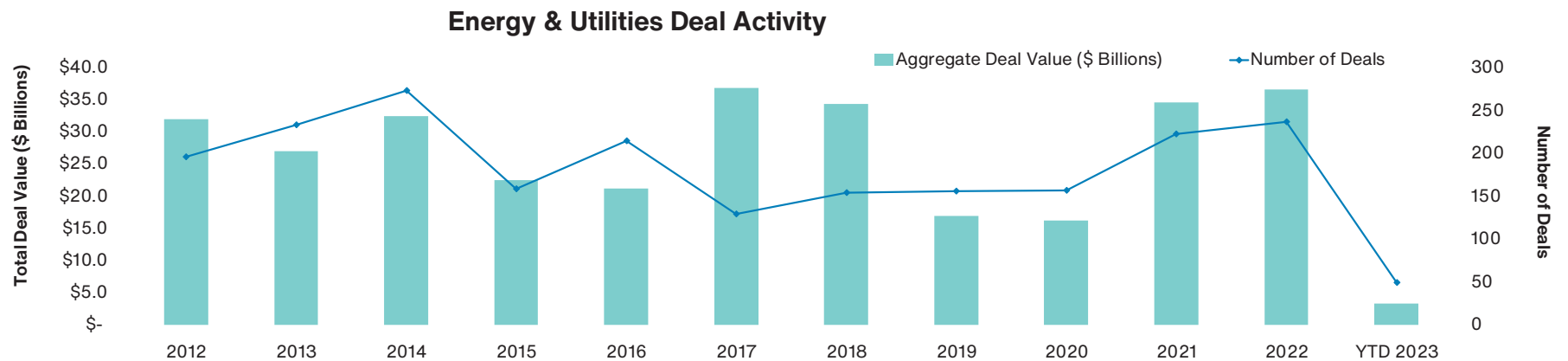
Fundraising

- During Q1 2023, 3 funds closed on \$1.0 billion compared to 9 funds totaling \$2.2 billion in Q1 2022.¹
- Dry powder stood at roughly \$30.6 billion at the end of Q1 2023, which was 1.0% higher than Q4 2022's level of \$30.3 billion but down from the five-year average level by 26.3%.¹

Activity

- Crude oil prices decreased during the quarter.
 - WTI crude oil prices decreased 4.1% during the quarter to \$73.28 per bbl. This was also a decrease of 32.5% compared to Q1 2022.¹⁰
 - Brent crude oil prices ended the quarter at \$78.43/bbl, down 3.1% compared to the prior quarter. This was a decrease of 33.1% from Q1 2022.¹⁰
 - Natural gas prices (Henry Hub) finished Q1 2023 at \$2.31 per MMBtu, which was down 58.2% from the prior quarter and down 52.9% from Q1 2022.¹⁰

Natural Resources



Source: Preqin

Activity

- Energy and utilities industry managers completed 50 deals totaling \$3.4 billion in Q1 2023, an increase, on a volume basis, compared to 47 deals totaling \$7.8 billion completed in Q4 2022.¹
- A total of 755 crude oil and natural gas rotary rigs were in operation in the U.S. at the end of the quarter. This was down by 3.1% from the prior quarter but up 12.2% over Q1 2022.¹³
 - Crude oil rigs represented 78.4% of the total rigs in operation. 58.6% of the 592 active oil rigs were in the Permian basin.
 - At the end of Q1 2023, 41.3% and 25.0% of natural gas rigs were operating in the Haynesville and Marcellus basins, respectively.
- The price of iron ore (Tianjin Port) ended the quarter at \$128.37 per dry metric ton, up from \$111.84 at the end of Q4 2022.¹⁰

Opportunity⁴

- 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. UBS
3. Standard & Poor's
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

/bb: Price per barrel

MMBtu: Price per million British thermal units

AON

1Q 2023 Real Estate Market Update

August 2023

Private and Confidential | Investment advice and consulting services provided by Aon Investment USA Inc.



United States Real Estate Market Update (1Q23)

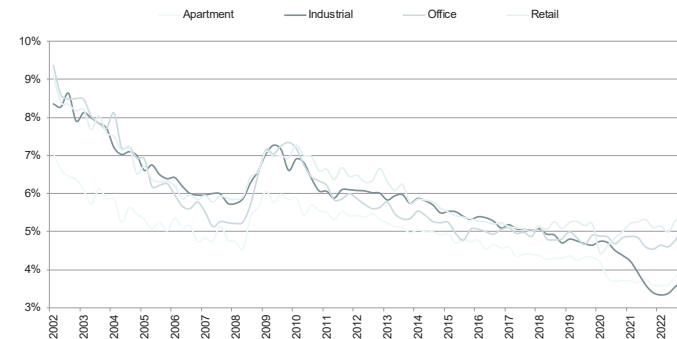
General

- The economy continues to face headwinds stemming from an increasingly aggressive federal funds rate, continuous inflation, and geopolitical events. The S&P 500 has returned a positive quarter coming in at 7.5% despite the underperformance in 2022. The MSCI US REIT index continued its upward trend after a challenging 2022, posting a gross first quarter return of 2.8%.
- During the first quarter, GDP increased at an annualized rate of 1.1%. This positive growth was primarily due to government spending, consumer spending, and strong job market growth. As a result of geopolitical events such as the atrocities of the Russia-Ukraine war, Saudi-Iranian oil concerns, and increased protectionist measures, commodity pricing has remained elevated in tandem with persistent inflation, which may persist throughout 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, and two in the first quarter of 2023 totaling an increase of 500 basis points since March 2022.

Commercial Real Estate

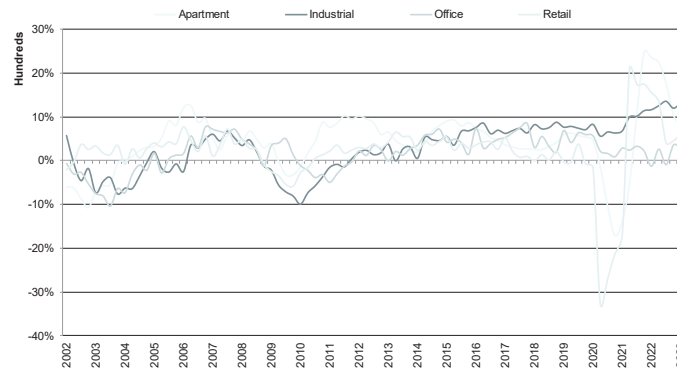
- To start off 2023, total CRE transaction activity for the quarter decreased by -56% YoY, with annual transaction activity down -32% YoY. The office sector transaction volumes in the U.S. have notably not recovered to pre-pandemic levels. Although the office sector has seen minor improvements, transaction volumes for the office sector in the U.S. have continued to fall due to the increase in the cost of debt and loose return to office requirements.
- Transaction cap rates (5.6%) continued to expand, moving out 77 bps during the quarter. This increase comes after historic low cap rates experienced in 4Q21 and 2Q22. Current valuation cap rates expanded for all major property sectors, led by office (+31 bps), and followed by industrial (+17 bps), apartment (+10 bps) and retail (+2 bps).
- NOI growth has continued to diverge between property sectors. Apartment sector fundamentals continue to show strength. With the cost of debt for homes continuing to become more expensive, Apartment NOI expanded (+8%) YoY. Industrial NOI expanded (+13%) YoY on the back of companies' investments in direct-to-customer distribution.
- 10-year treasury bond yields declined slightly, ending the quarter at 3.5%. As economists expected, rates moved significantly higher throughout the first quarter of 2023, with the potential to climb further.

Current Value Cap Rates by Property Type



Source: NCREIF

4 Qtr Rolling NOI Growth



Source: NCREIF



United States Property Matrix (1Q23)



INDUSTRIAL	MULTIFAMILY
<ul style="list-style-type: none"> In 1Q23, industrial properties returned -0.82% and outperformed the NPI by 99 bps. Transaction volumes decreased to \$18 billion in the first quarter of the year, resulting in a 54% decrease year-over-year. Individual asset sales decreased 65% year-over-year, while portfolio purchases turned in a year-over-year volume decrease of 30%. At \$18 billion, the industrial sector decreased by \$15 billion quarter-over-quarter. The industrial sector turned in NOI growth of 13.3% over the past year. NOI continues to reach all time highs for the sector. Vacancy decreased by 30 bps year-over-year to 1.5%. Vacancy in the sector decreased 2 bps from last quarter, reaching all-time historic lows. E-commerce continues to drive demand across the sector. Industrial cap rates slightly compressed approximately 18 bps from a year ago, to 3.5%. Industrial overall fundamentals still top all property sectors. 	<ul style="list-style-type: none"> The apartment sector delivered a -2.1% return during the quarter, underperforming the NPI by 31 bps. Transaction volume in the first quarter of 2023 decreased to \$25 billion, resulting in a decrease of 64% year-over-year. Transaction volume for the sector decreased from the fourth quarter by nearly 50%. This volume continues to make multifamily the most actively traded sector for the twentieth straight quarter. Cap rates remained steady at 3.7% quarter-over-quarter, increasing 6 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. Throughout 2021 and 2022, the sector appeared to have shaken that trend although vacancy rates remained steady. Vacancy rates increased during fourth quarter of 2022 but have decreased by 12 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	RETAIL
<ul style="list-style-type: none"> The office sector returned -4.06% in 1Q23, 225 bps below the NPI return over the period. Transaction volumes decreased by 68% year-over-year in the first quarter. Transaction volume equated to \$11 billion for the quarter, a decrease of \$10 billion quarter-over-quarter. Office transaction levels have regressed since 4Q21 and are now at 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 12.68%, slightly decreasing by 10 bps from last quarter. NOI growth in the office sector decreased quarter-over-quarter by 75 bps to 2.91% 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. 	<ul style="list-style-type: none"> As of 1Q23, the retail sector delivered a quarterly return of 0.52%, outperforming 129 bps compared to the NPI. Transaction volumes totaled \$17 billion in the first quarter, decreasing 27% year-over-year. Single asset transactions accounted for just over 53% of all sales volume for the quarter. Cap rates have remained fairly steady within the sector over the last year at 5.2%. Current valuation cap rates expanded quarter-over-quarter by 5 bps due to valuation adjustments made across the sector in general. NOI growth increased from the prior quarter to 6.17% as of the first quarter. Retail has begun its slow recovery as a large portion of stores nationally have opened and operate safely. Retail vacancy rates remained steady over the quarter at 7.85%, down 122 bps over the past year. 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 (1Q23)

- Headwinds related to elevating interest rates, stringent lending standards, and a looming moderate recession remain present entering 2023. Year over year, deal volumes have contracted by 52% with capital markets activity hampered by uncertainty. These difficulties crystallized in the US, in which two of the largest bank collapses in history were felt throughout the property markets. The resulting \$66 B in capital invested in commercial real estate priced at \$10M or greater was the lowest since Q3 2020, amid the pandemic.
- US markets endured relative to the EMEA region, whose deal volume fell to its lowest since 2012. YOY Transaction activity in the U.K. was down 60%, in Germany by 76% and in France by 43%. Pockets of encouragement can be seen with large retail warehouse and grocery-anchored properties trading. This further illuminates the resilience and preference for the asset type which emerged during the pandemic.

Global Total Commercial Real Estate Volume - 2022 - 2023

\$ US Billions	Q1 2023	Q1 2022	% Change	Full Year	Full Year	% Change
			Q1 23 - Q1 22	Ending 1Q23	Ending 1Q22	Full Year
Americas	78	186	-58%	579	877	-34%
EMEA	38	105	-64%	266	474	-44%
Asia Pacific	95	148	-36%	795	903	-12%
Total	211	439	-52%	1639	2254	-27%

Source: Real Capital Analytics, Inc., Q1' 23

- Despite strong investment activity in Japan and mainland China, Asia Pacific deal volume fell by 36% YOY in Q1. The tandem accounted for the bulk of office investment in Q1 with investors preferring Tier 1 cities in those countries with higher rates of return to office work. Hospitality is foreseen to have significant growth with the return of Chinese tourism in 2023. Regional tourism should be bolstered by investment in prime retail assets in Hong Kong and Singapore. Logistics leasing demand in the region is expected to recede due to limited availability of prime assets and a slowdown in e-commerce growth. Markets with low vacancy, such as Japan and Australia, likely will attract investor interest throughout the year.
- Consumer demand softened in several major retail markets globally during Q1 as pressure mounts on disposable incomes particularly in Europe and North America. Retail fundamentals have started to pull back because of sustained inflation and banking troubles. Absorption in Q1 was lower but positive in the U.S., leasing was healthy across Asia Pacific, and demand rose in several European cities. Discount and online retailers will increase consumer market share as disposable income wanes.
- In the first quarter, demand for logistics and industrial in the US in Europe had declines in leasing activity. Amid climbing interest rates coupled with an uncertain global economic outlook, the stagnation in decision-making timelines will persist as GP's strategically weigh their options when executing deals. Tenants that are time sensitive to supply chain delays will increase nearshoring operations to have better access to their end-users. E-commerce related demand has continued to rise past peak pandemic levels globally and this will drive additional demand for warehouse space, particularly in emerging Asia where e-commerce levels are still materializing.
- Investment in U.S. multifamily declined 65% since Q1 2022, despite record levels of dry power indicating latent demand pending an interest rate decrease. 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 first quarter. Bucking the trend, Asia Pacific multifamily investment continues to be encouraging, with China particularly active post-lockdown.

Global Outlook - GDP (Real) Growth % pa, 2023-2025

	2023	2024	2025
Global	2.6	2.7	3.2
Asia Pacific	4.4	4.2	4.2
Australia	1.7	1.6	2.4
China	5.5	4.9	4.7
India	7.0	6.0	6.3
Japan	1.0	1.1	1.1
North America	1.1	0.8	2.0
US	1.1	0.8	2.0
Middle East	2.9	3.5	-
European Union	0.7	1.4	1.9
France	0.6	1.0	1.5
Germany	0.0	1.1	1.6
UK	0.2	0.9	1.7

Source: Bloomberg

Legal Disclosures and Disclaimers

Investment advice and consulting services provided by Aon Investments USA Inc. The information contained herein is given as of the date hereof and does not purport to give information as of any other date. The delivery at any time shall not, under any circumstances, create any implication that there has been a change in the information set forth herein since the date hereof or any obligation to update or provide amendments hereto.

This document does not constitute an offer of securities or solicitation of any kind and may not be treated as such, i) in any jurisdiction where such an offer or solicitation is against the law; ii) to anyone to whom it is unlawful to make such an offer or solicitation; or iii) if the person making the offer or solicitation is not qualified to do so. If you are unsure as to whether the investment products and services described within this document are suitable for you, we strongly recommend that you seek professional advice from a financial adviser registered in the jurisdiction in which you reside. We have not considered the suitability and/or appropriateness of any investment you may wish to make with us. It is your responsibility to be aware of and to observe all applicable laws and regulations of any relevant jurisdiction, including the one in which you reside.

This document is not intended to provide, and shall not be relied upon for, accounting, legal or tax advice. Any accounting, legal, or taxation position described in this presentation is a general statement and shall only be used as a guide. It does not constitute accounting, legal, and tax advice and is based on Aon Investments' understanding of current laws and interpretation.

Aon Investments disclaims any legal liability to any person or organization for loss or damage caused by or resulting from any reliance placed on that content. Aon Investments reserves all rights to the content of this document. No part of this document may be reproduced, stored, or transmitted by any means without the express written consent of Aon Investments.

Aon Investments USA Inc. is a federally registered investment advisor with the U.S. Securities and Exchange Commission. Aon Investments is also registered with the Commodity Futures Trading Commission as a commodity pool operator and a commodity trading advisor, and is a member of the National Futures Association. The Aon Investments ADV Form Part 2A disclosure statement is available upon written request to:

Aon Investments USA Inc.

200 E. Randolph Street

Suite 700

Chicago, IL 60601

ATTN: Aon Investments Compliance Officer

© Aon plc 2023. All rights reserved.



This page intentionally left blank.

REPORT

Meketa Capital Markets Outlook & Risk Metrics

This page intentionally left blank.

Capital Markets Outlook & Risk Metrics
As of June 30, 2023

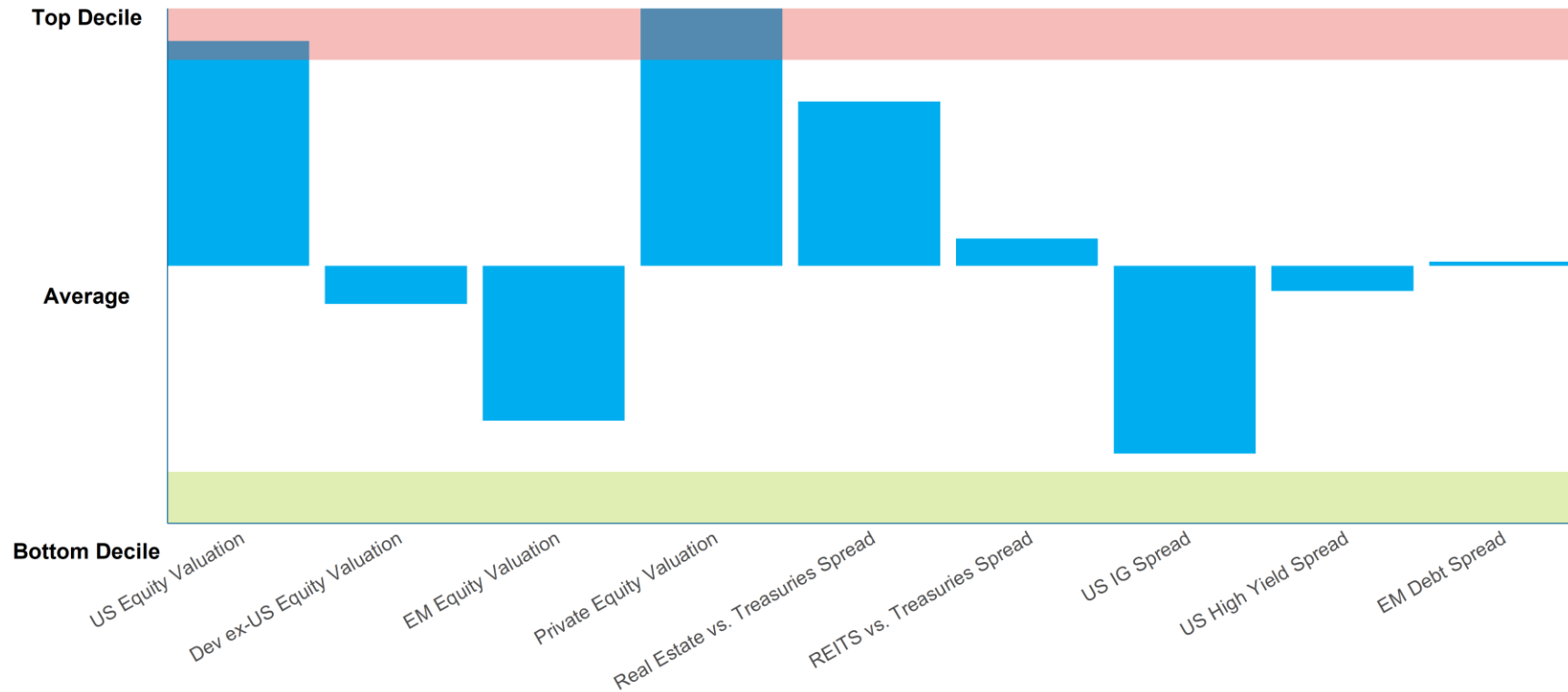
Capital Markets Outlook

- The Fed kept rates unchanged in June, arguing that the skip was consistent with their moderating pace of policy hikes, but they signaled that further rate increases may be forthcoming. Other central banks continued to raise rates in June. In general, global inflation indicators have continued to fall though they remain above policy targets.
- Economic data appears to indicate continued strong demand and tight labor markets that may imply the need for still higher rates in the future.
- Most equity markets posted strong performance in June, with many of these markets delivering strong Q2 returns in aggregate. However, fixed income markets experienced mixed results in June and Q2 due to elevated inflation and expectations for further rate increases.
- Chinese equities rallied in June, but negative performance for the second quarter reflect investors' shaken confidence in China's reopening.
- In spite of sputtering Chinese economic growth there were other bright spots in emerging markets. Emerging market equities and emerging market debt posted positive returns in June and year-to-date as dollar weakness earlier in the year and optimism on India's economic prospects boosted returns.
- US equities rallied in June and delivered one of the strongest starts to a year on modern record with large cap stocks leading the way.
- While higher quality bonds suffered negative returns in the second quarter, bank loan and high yield markets produced gains.

Capital Markets Outlook

- Although a deteriorating growth outlook weighed on commodities and natural resource stocks in early 2023, natural resource stock returns turned positive in June. Likewise, public real estate benefited from a reversal in investor sentiment, posting strong returns in June and the second quarter.
- After a strong retrenchment in share prices in 2023, US stocks are now trading well-above their long-run cyclically adjusted price-to-earnings ratio while non-US stocks continue to trade at a discount.

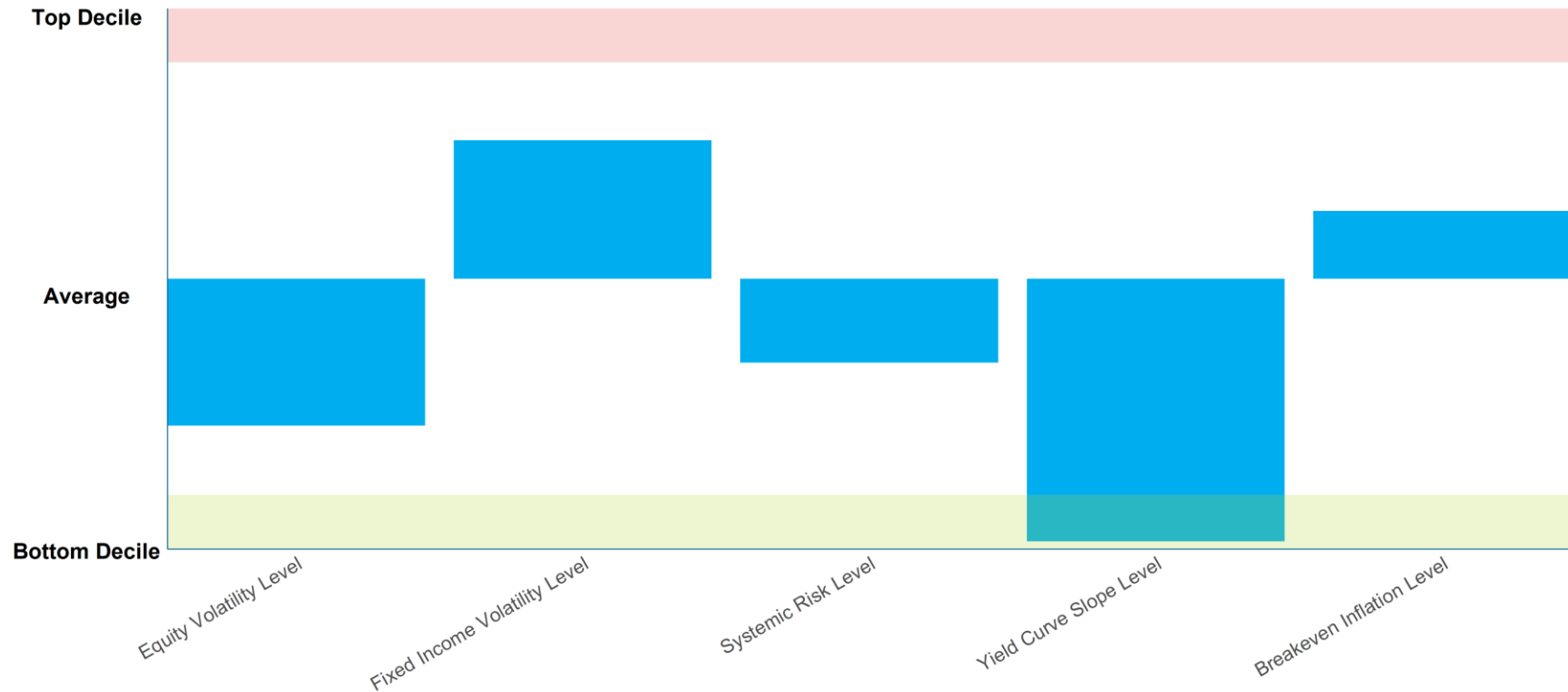
Risk Overview/Dashboard (1) (As of June 30, 2023)¹



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

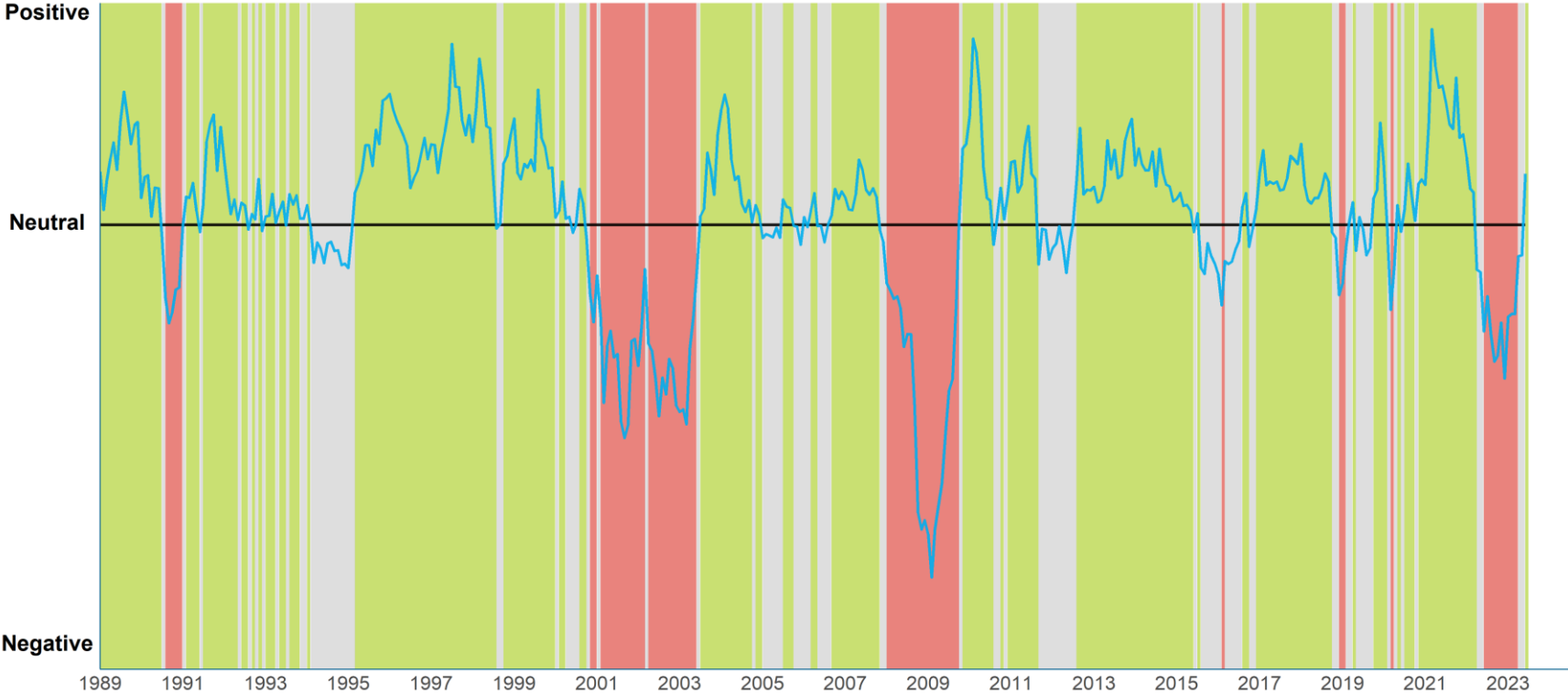
¹ With the exception of Private Equity Valuation, that is YTD as of December 31, 2022.

Risk Overview/Dashboard (2) (As of June 30, 2023)

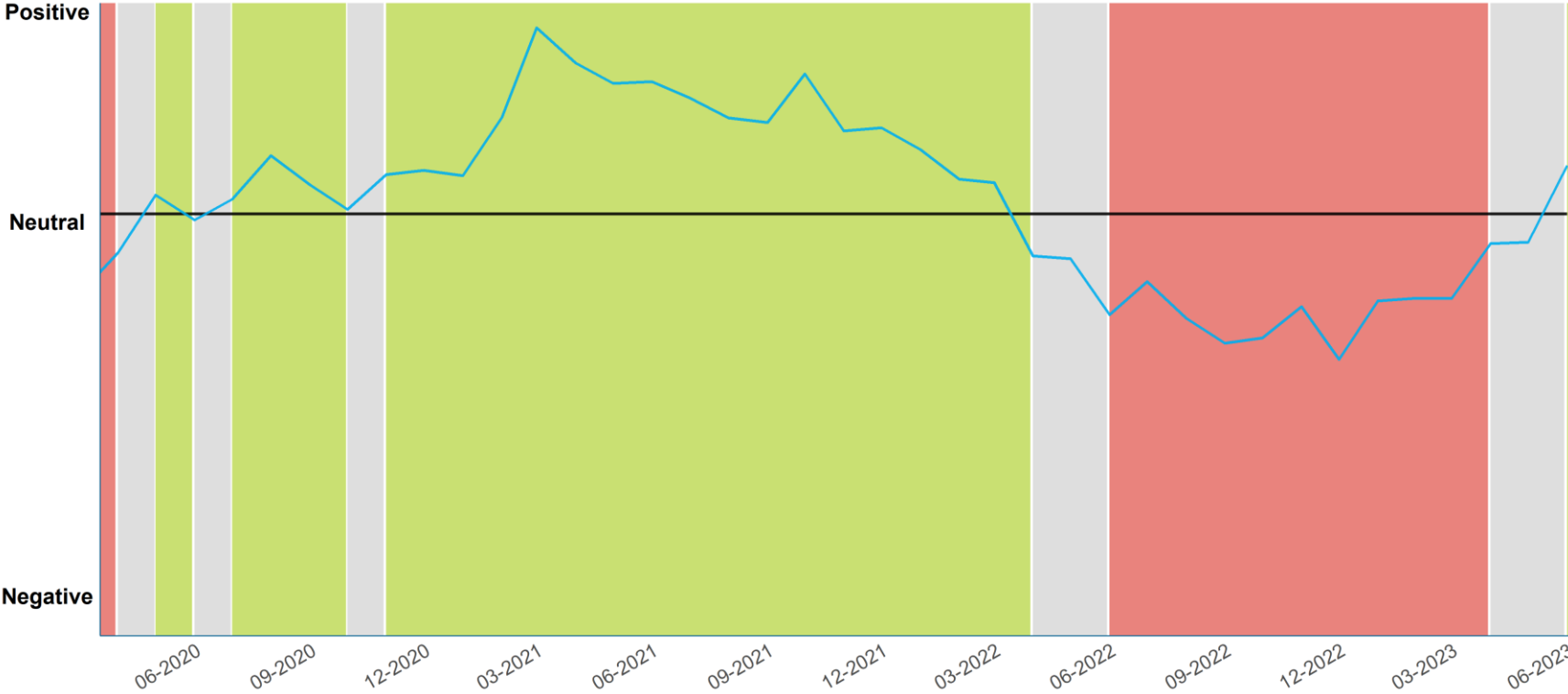


→ Dashboard (2) shows how the current level of each indicator compares to its respective history.

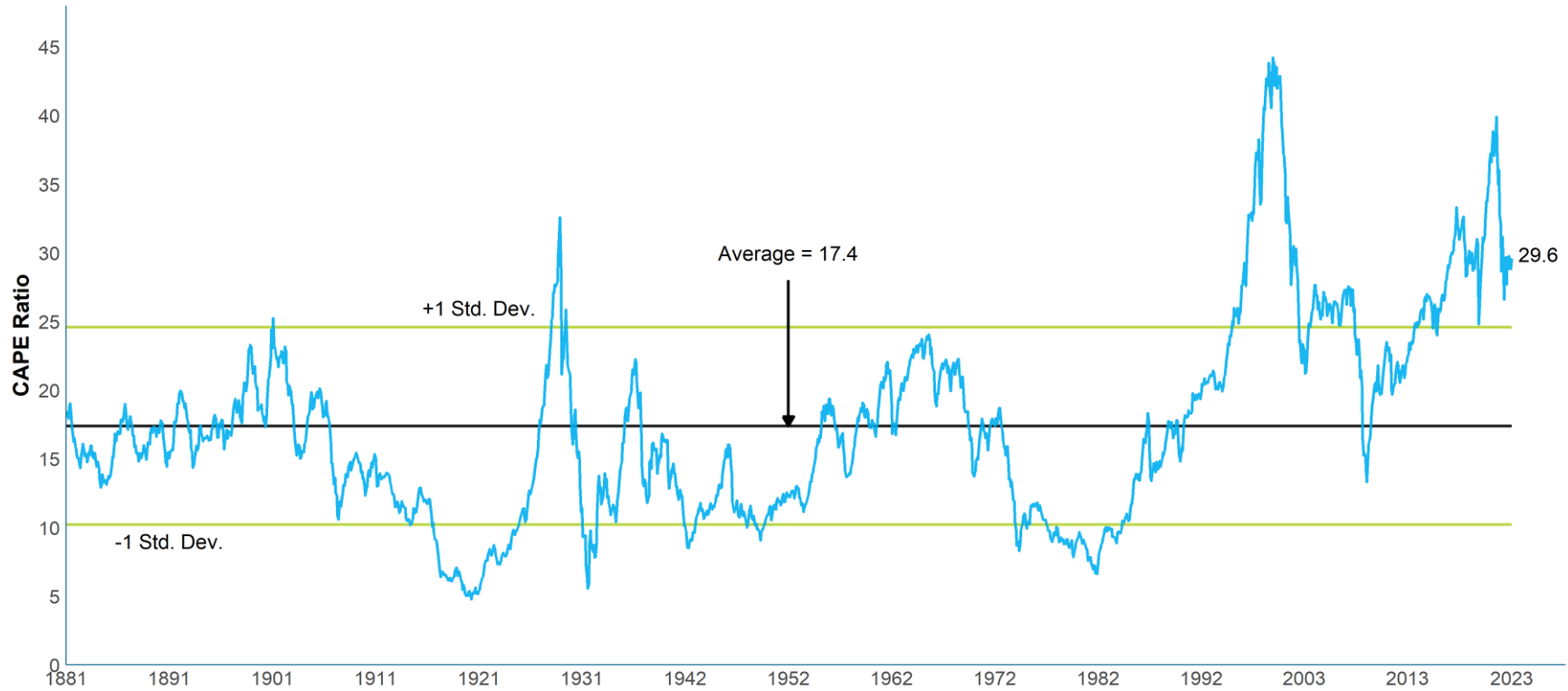
Market Sentiment Indicator (All History)
(As of June 30, 2023)



Market Sentiment Indicator (Last Three Years)
(As of June 30, 2023)



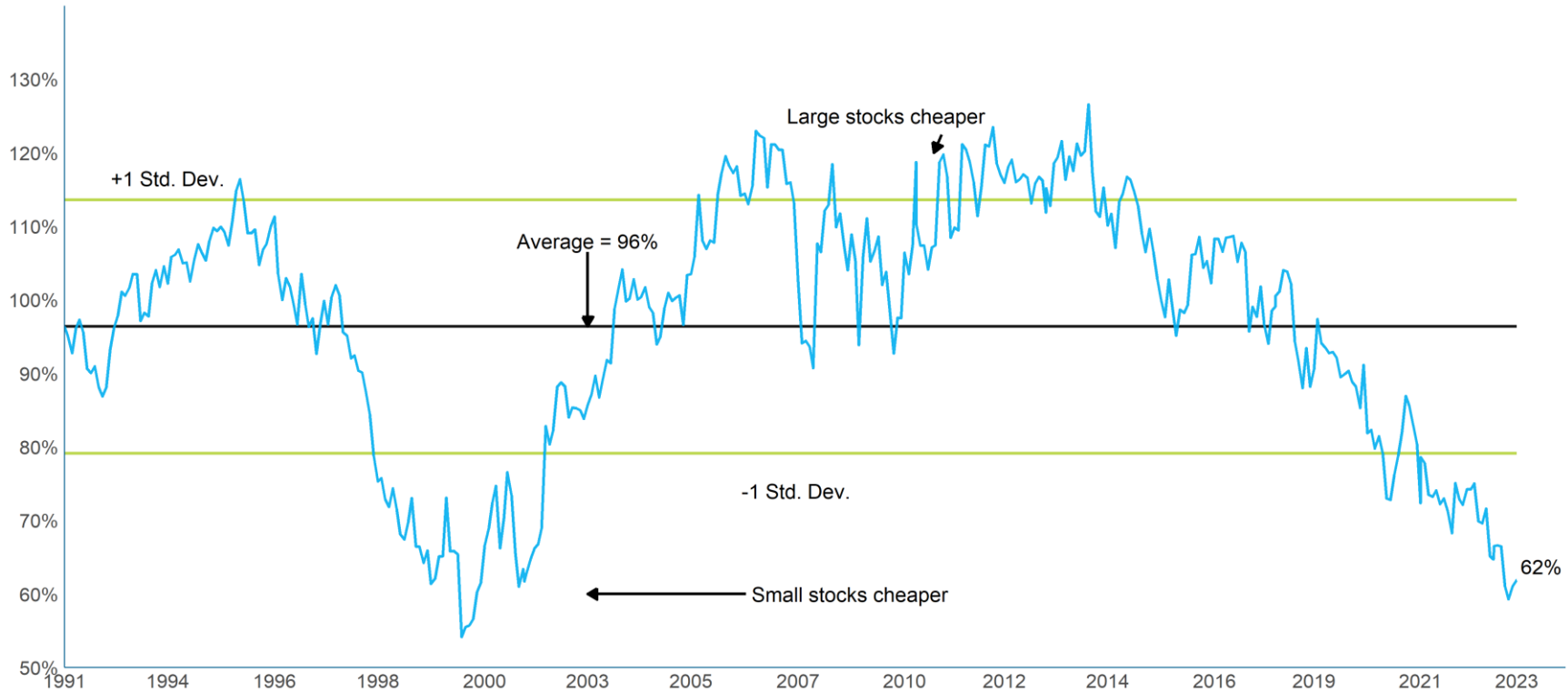
US Equity Cyclically Adjusted P/E¹
(As of June 30, 2023)



→ 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/E¹ (As of June 30, 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/E¹ (As of June 30, 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.

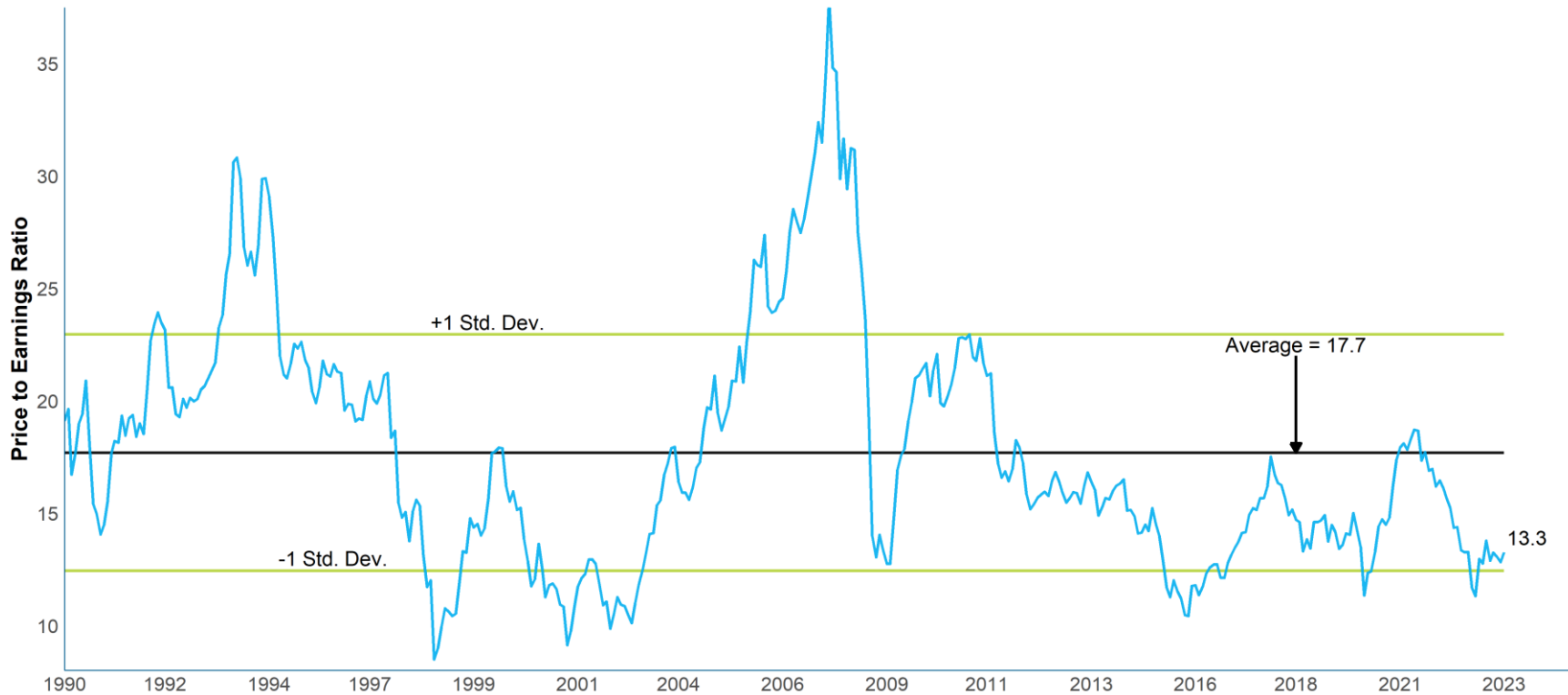
Developed International Equity Cyclically Adjusted P/E¹ (As of June 30, 2023)



→ 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.

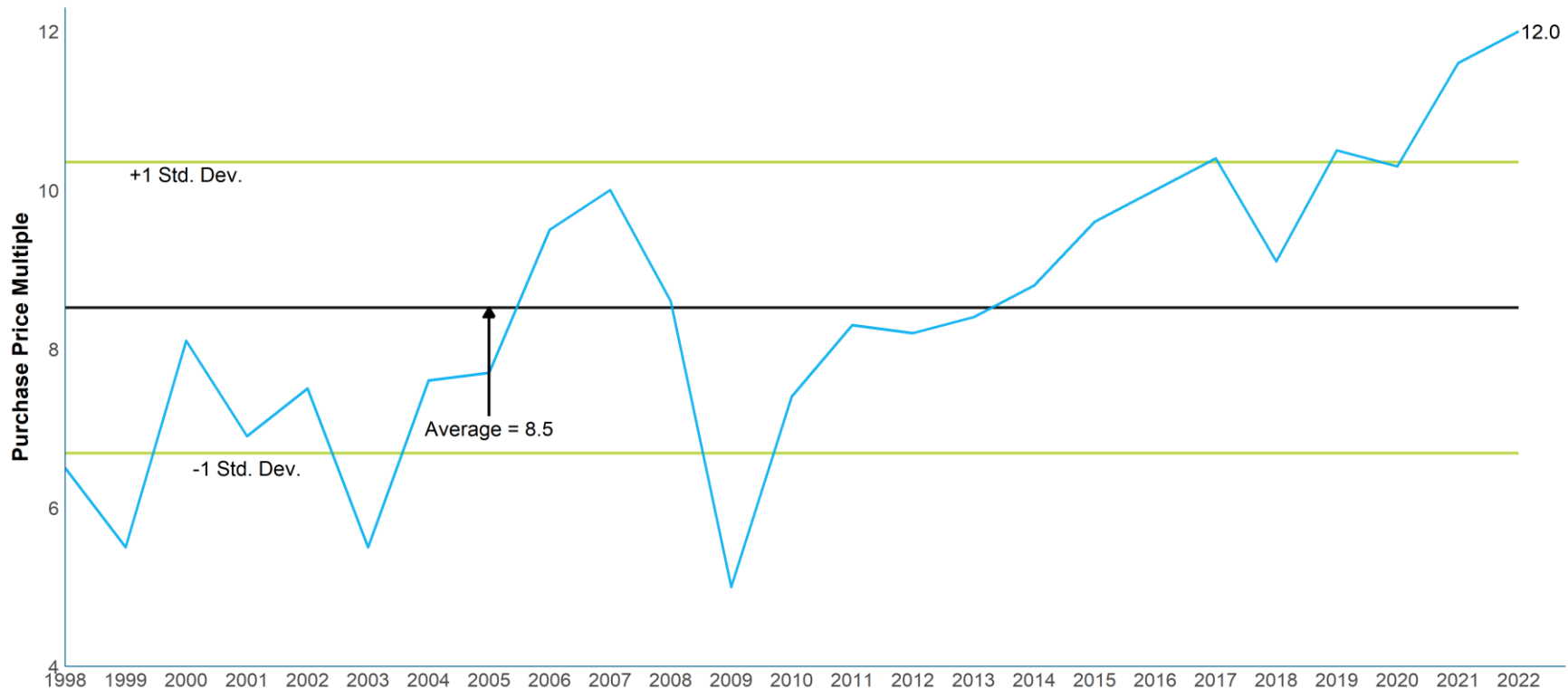
Emerging Market Equity Cyclically Adjusted P/E¹
 (As of June 30, 2023)



→ 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.

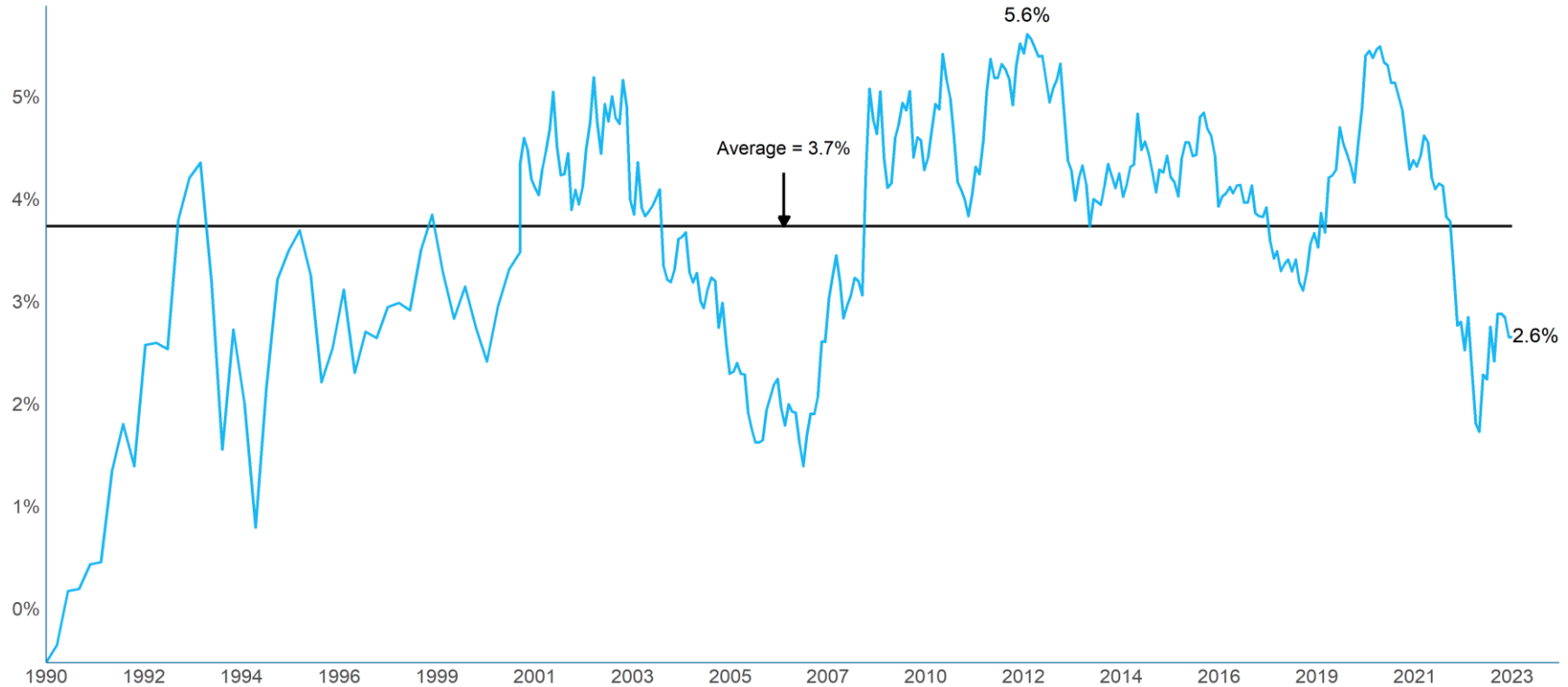
Private Equity Multiples¹ (As of June 30, 2023)



→ 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: Prequin Median EBITDA Multiples Paid in All LBOs.

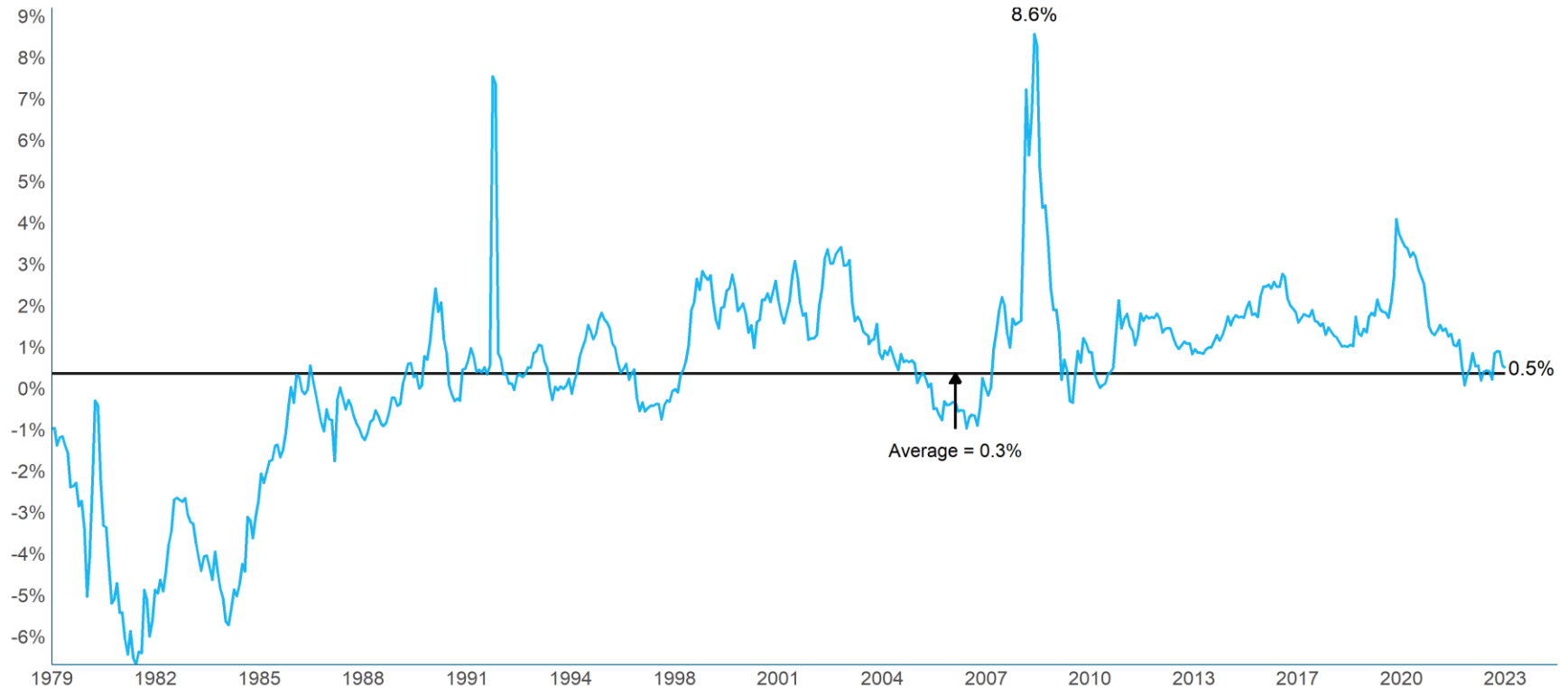
Core Real Estate Spread vs. Ten-Year Treasury¹
 (As of June 30, 2023)



→ 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.

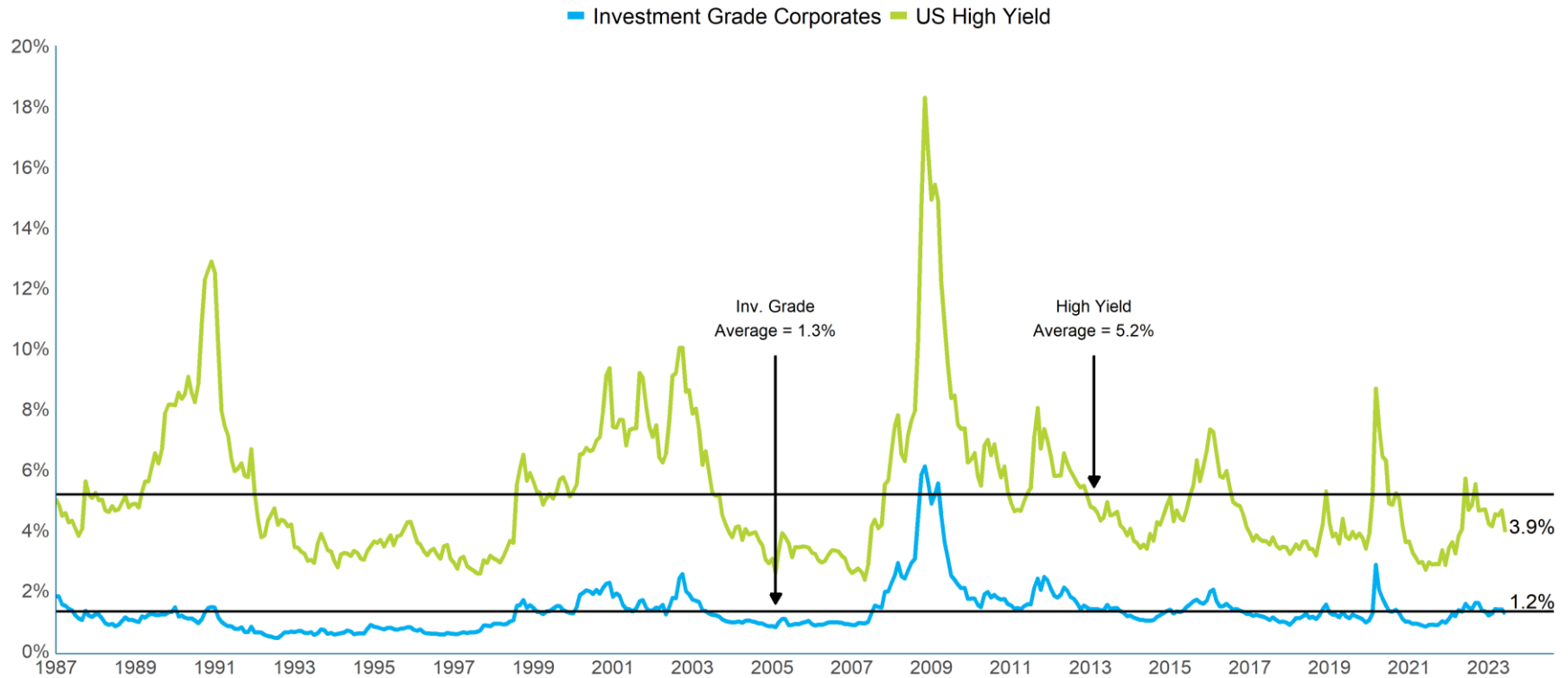
REITs Dividend Yield Spread vs. Ten-Year Treasury¹
 (As of June 30, 2023)



→ 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.

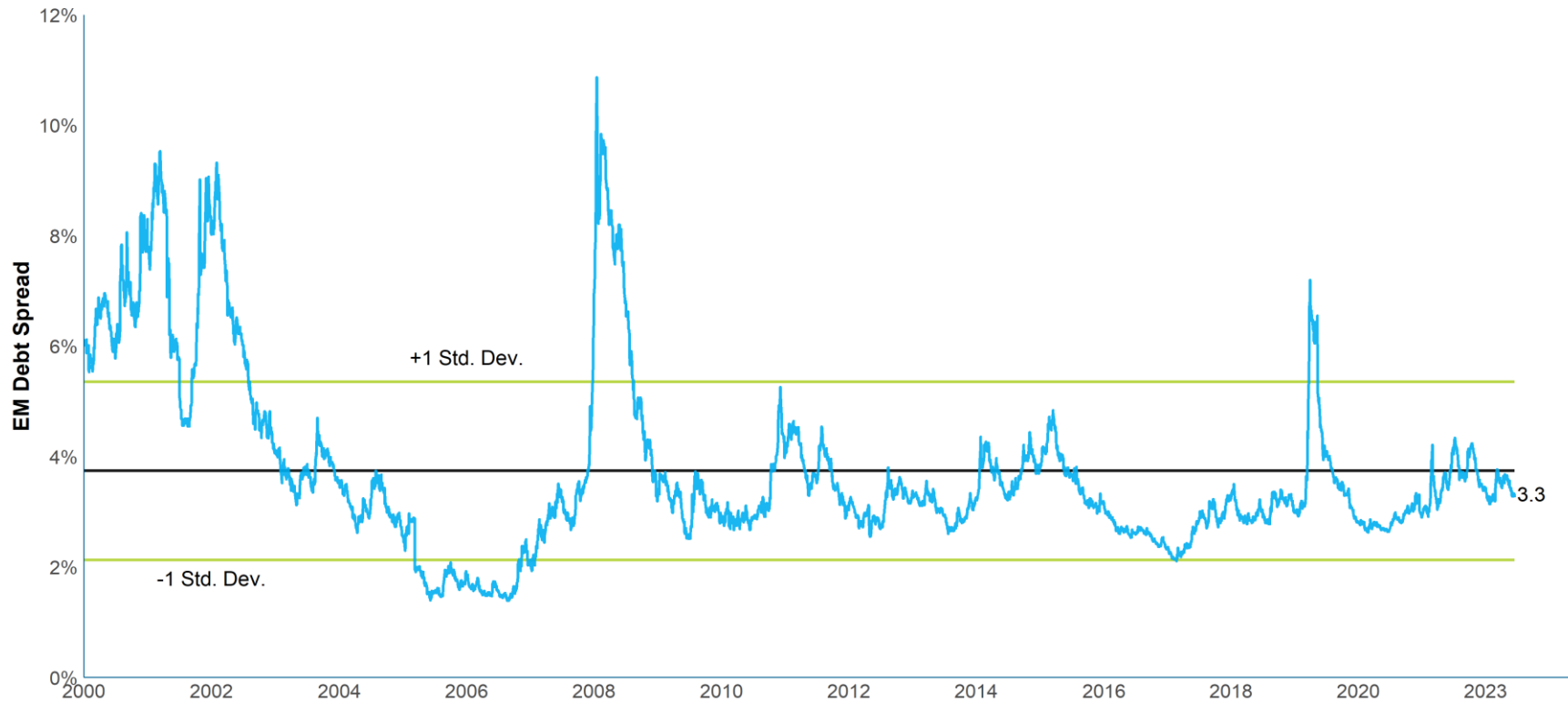
Credit Spreads¹
(As of June 30, 2023)



→ 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.

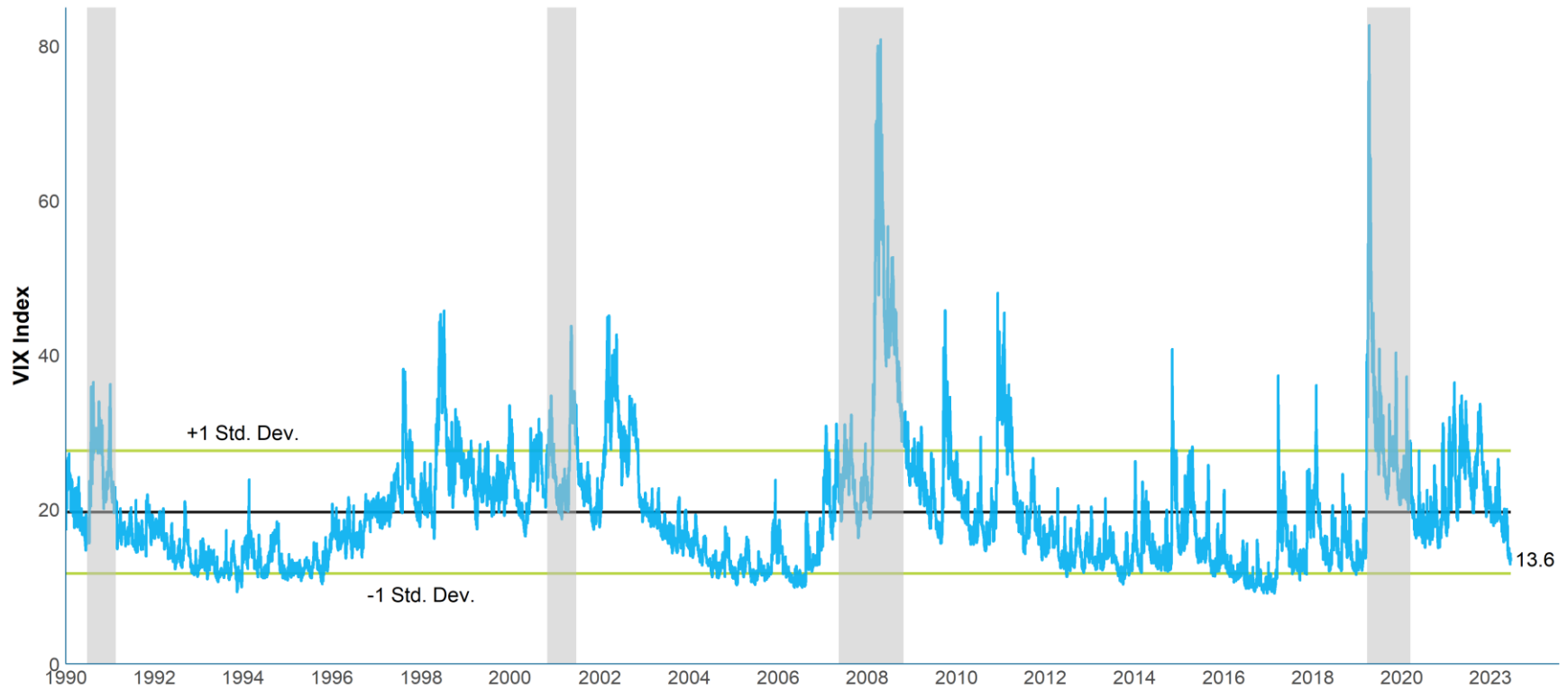
Emerging Market Debt Spreads¹ (As of June 30, 2023)



→ 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.

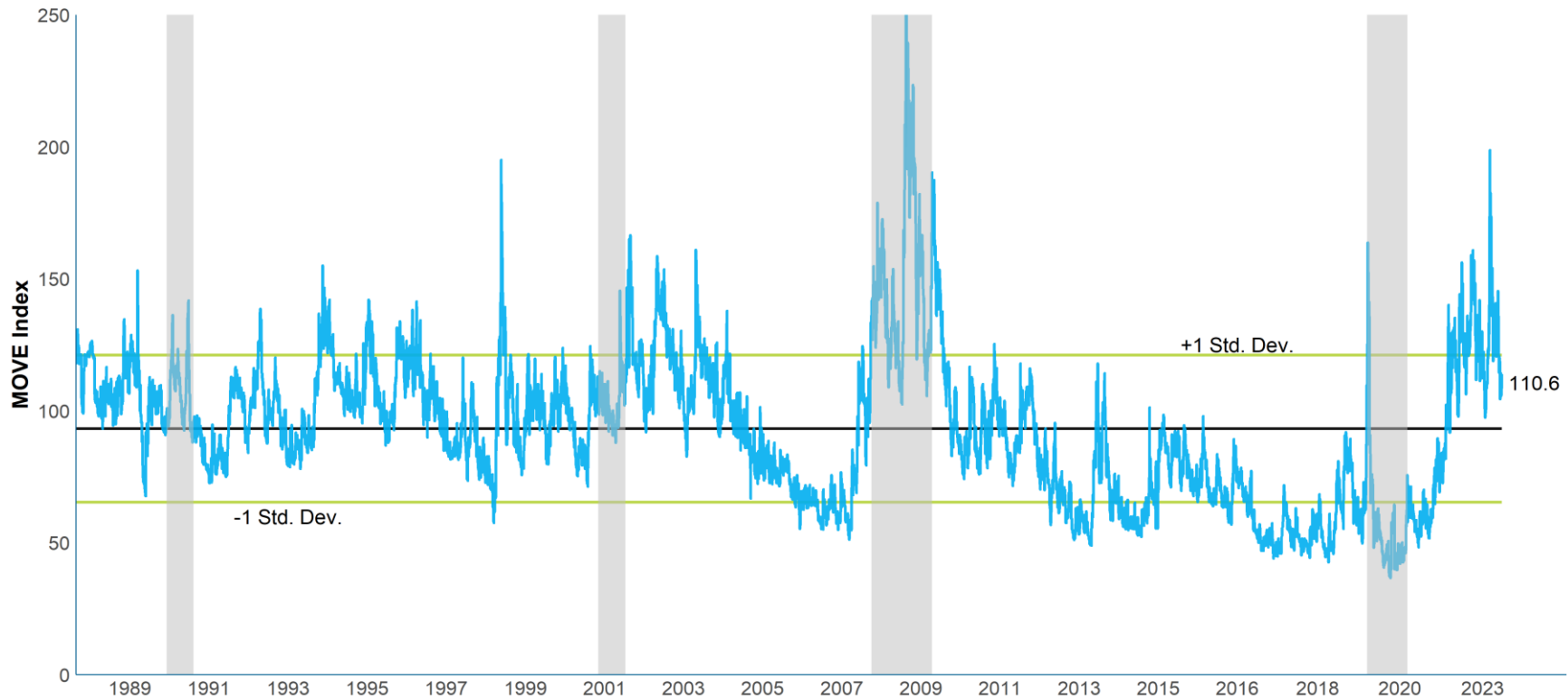
Equity Volatility¹
(As of June 30, 2023)



→ 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.

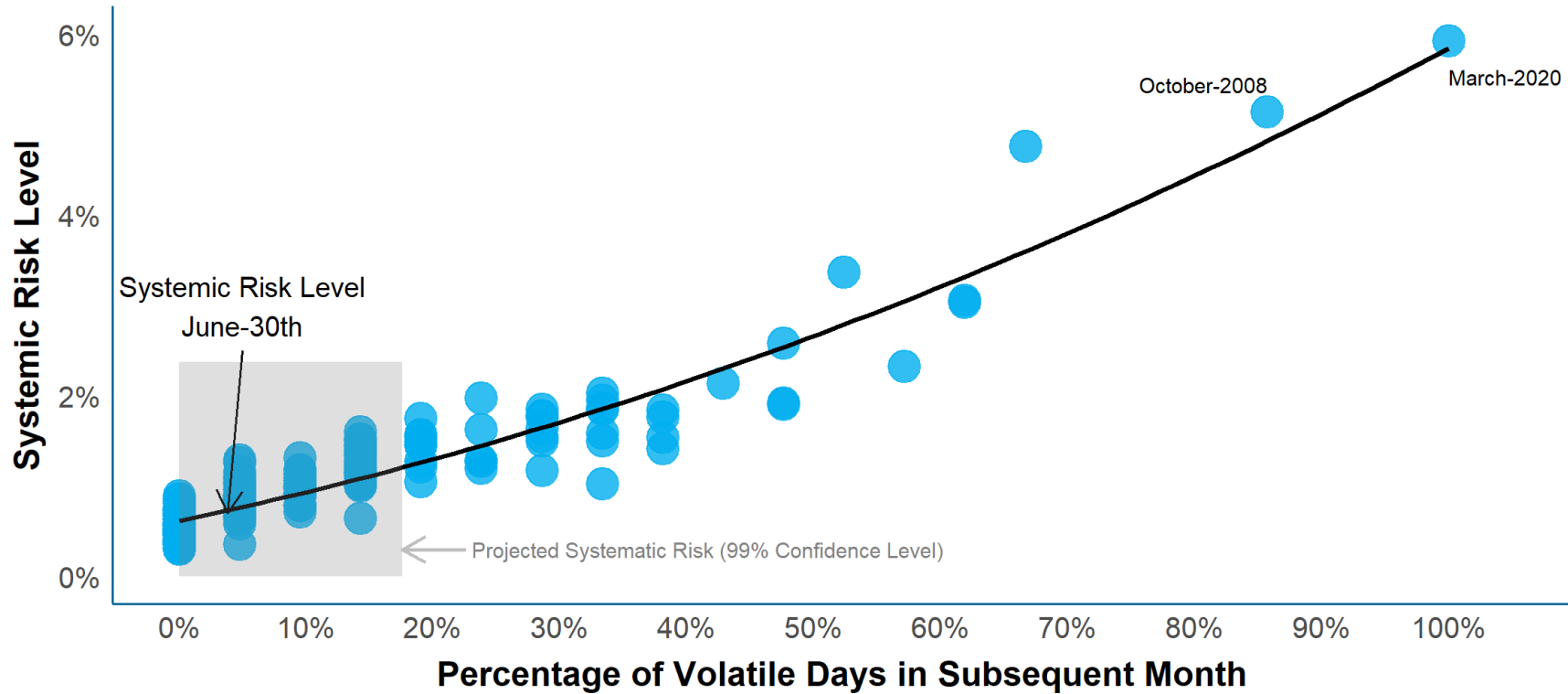
Fixed Income Volatility¹ (As of June 30, 2023)



→ 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.

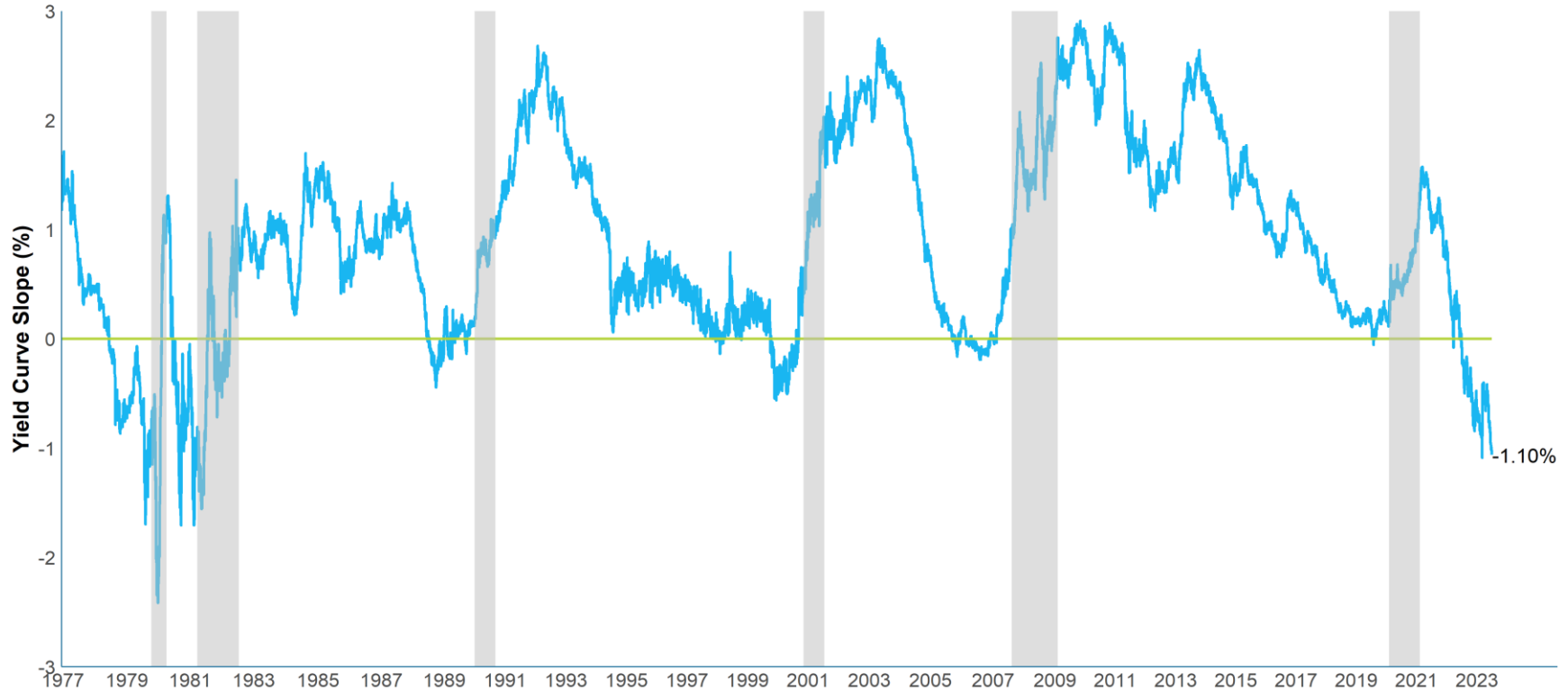
Systemic Risk and Volatile Market Days¹
(As of June 30, 2023)



→ 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.

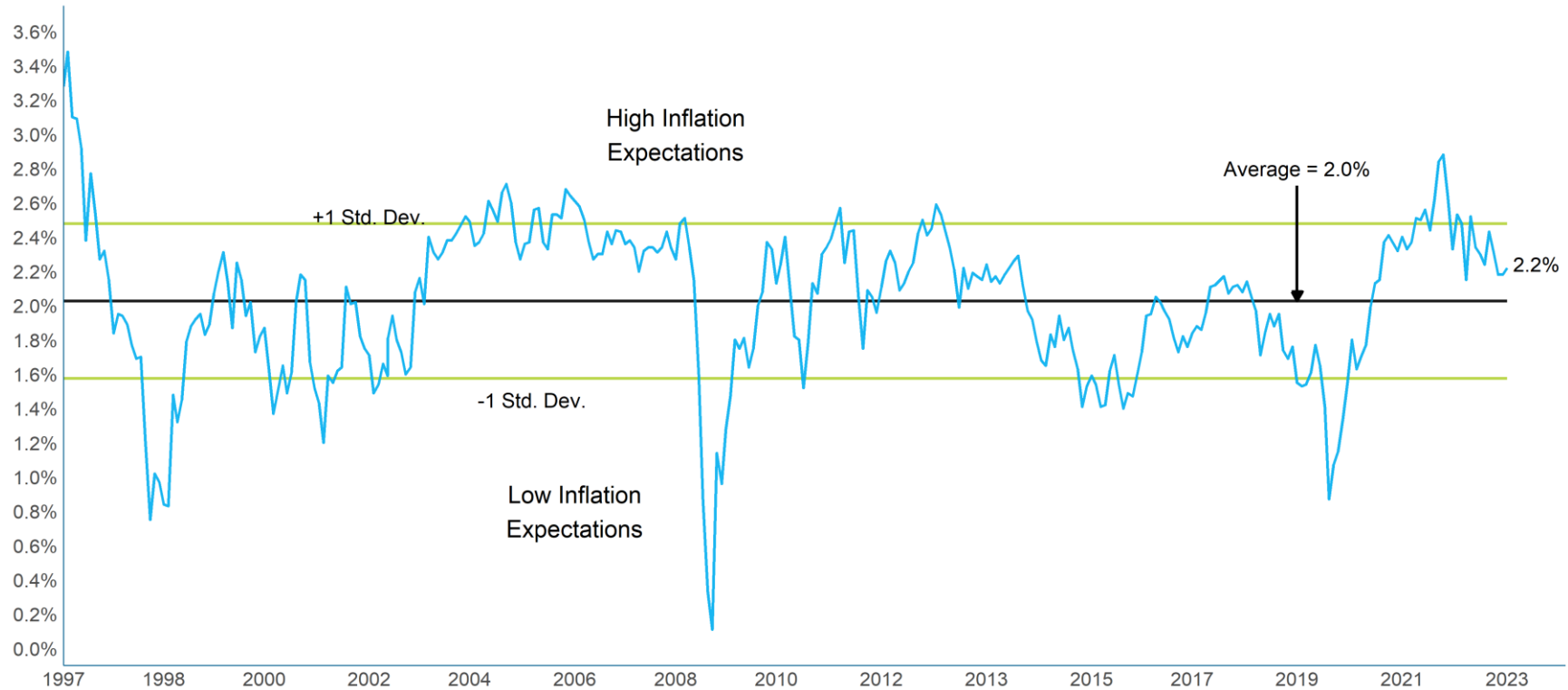
Yield Curve Slope (Ten Minus Two)¹
(As of June 30, 2023)



→ 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.

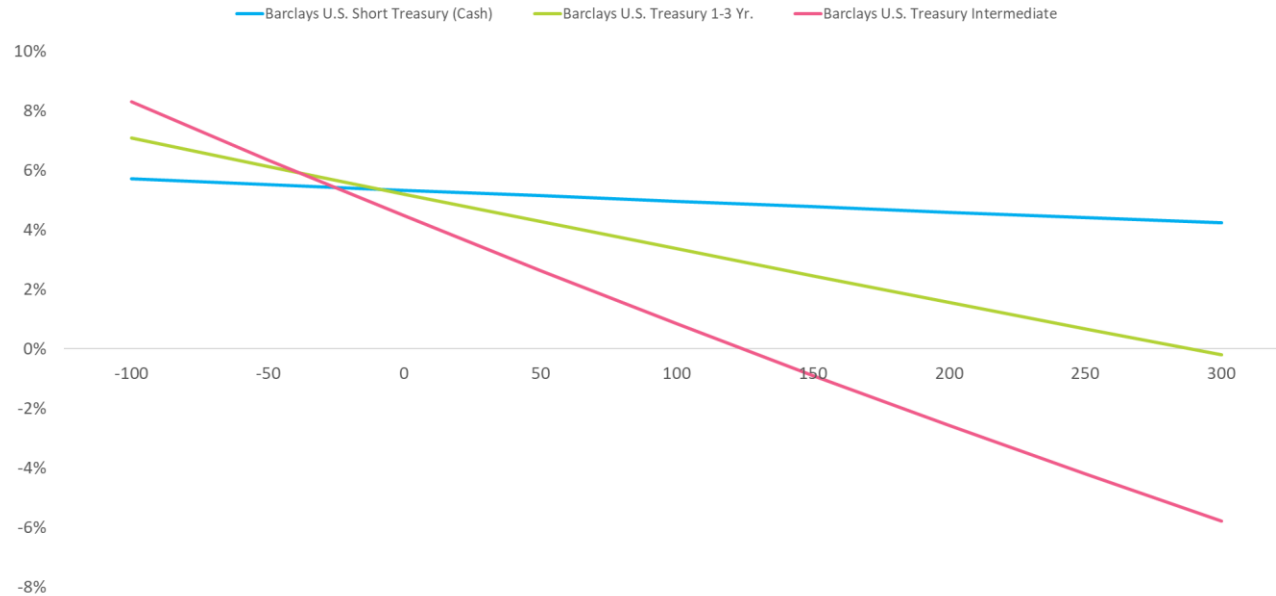
Ten-Year Breakeven Inflation¹
(As of June 30, 2023)



→ 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).

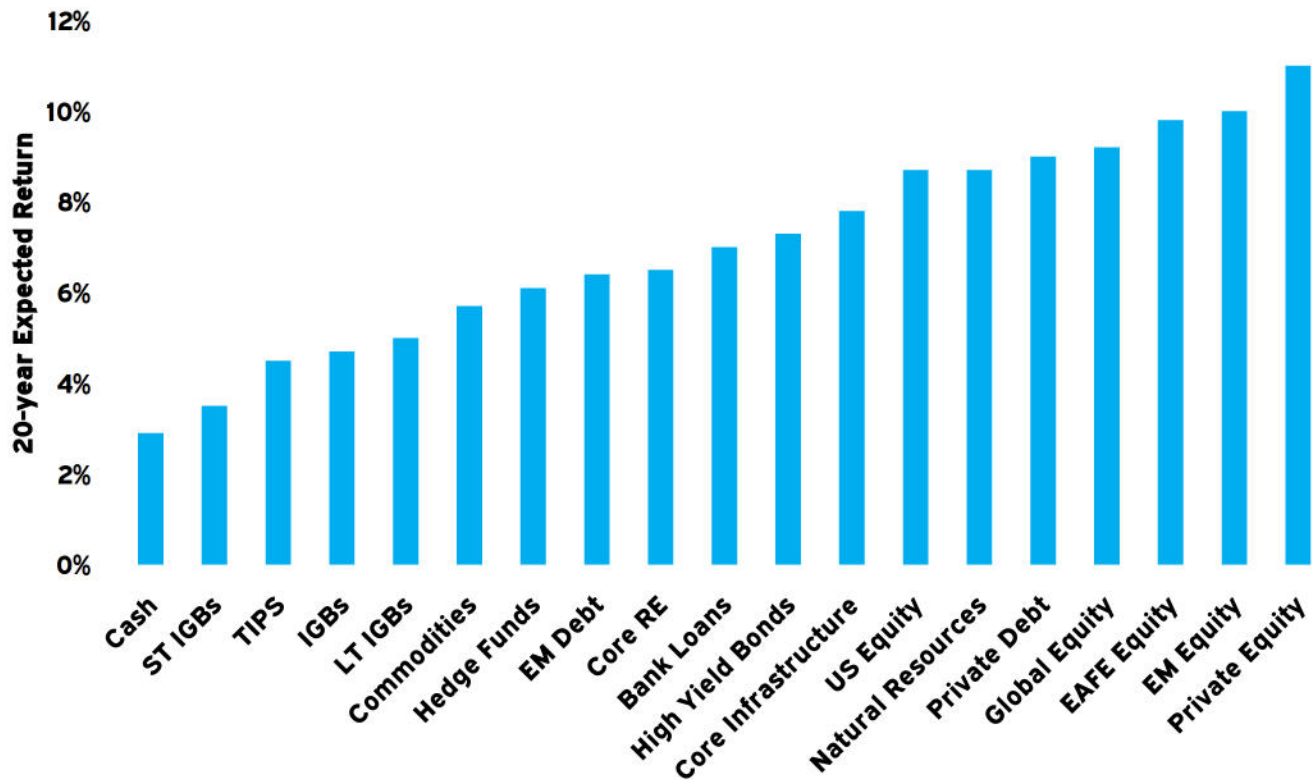
Total Return Given Changes in Interest Rates (bps)¹ (As of June 30, 2023)



	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)	5.7%	5.5%	5.3%	5.1%	5.0%	4.8%	4.6%	4.4%	4.2%	0.37	5.33%
Barclays US Treasury 1-3 Yr.	7.1%	6.1%	5.2%	4.3%	3.4%	2.5%	1.6%	0.7%	-0.2%	1.86	5.20%
Barclays US Treasury Intermediate	8.3%	6.4%	4.5%	2.6%	0.8%	-0.9%	-2.6%	-4.2%	-5.8%	3.73	4.47%
Barclays US Treasury Long	21.6%	12.4%	4.0%	-3.6%	-10.3%	-16.2%	-21.3%	-25.6%	-29.0%	15.97	3.97%

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 Returns¹



→ 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 Explanations¹

- 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 Explanations¹

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

¹ All Data as of March 31, 2023, unless otherwise noted.

Appendix

Data Sources and Explanations¹

- 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:

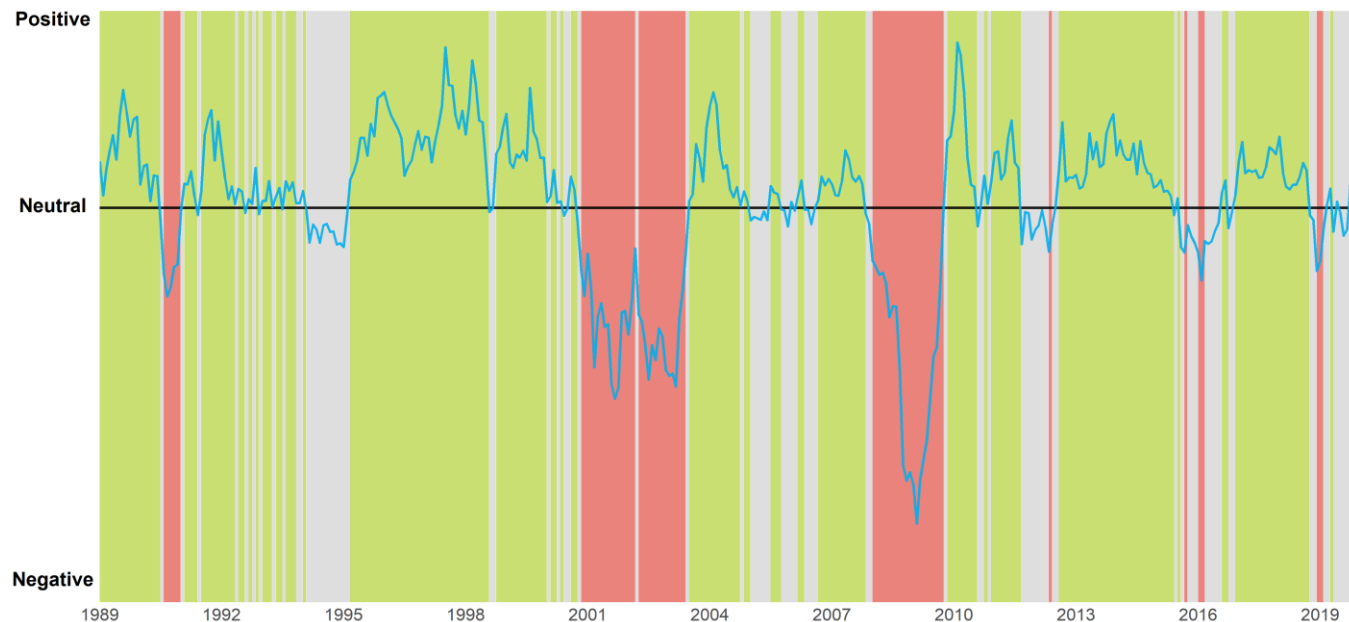
What is the Meketa Market Sentiment Indicator (MIG-MSI)?

→ 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 measure¹. 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.

Disclaimer Information

This material is provided by Meketa Investment Group, Inc. ("Meketa") for informational purposes only and may contain information that is not suitable for all clients. No portion of this commentary is to be construed as a solicitation or recommendations to buy or sell a security, or the provision of personalized investment advice, tax, or legal advice. Past performance may not be indicative of future results and may have been impacted by market events and economic conditions that will not prevail in the future. There can be no assurance that any particular investment or strategy will prove profitable, and the views, opinions, and projects expressed herein may not come to pass. Any direct or indirect reference to a market index is included for illustrative purposes only, as an index is not a security in which an investment can be made. Indices are benchmarks that serve as market or sector indicators and do not account for the deduction of management fees, transaction costs and other expenses associated with investable products. Meketa does not make any representation as to the accuracy, timeliness, suitability, completeness, or relevance of any information prepared by any unaffiliated third party and takes no responsibility, therefore. Any data provided regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of futures results. Investing involves risk, including the potential loss of principal and clients should be guided accordingly.

REPORT

SBI Comprehensive Performance Report

June 30, 2023

This page intentionally left blank.



Quarterly Report

Comprehensive Performance Report

June 30, 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.

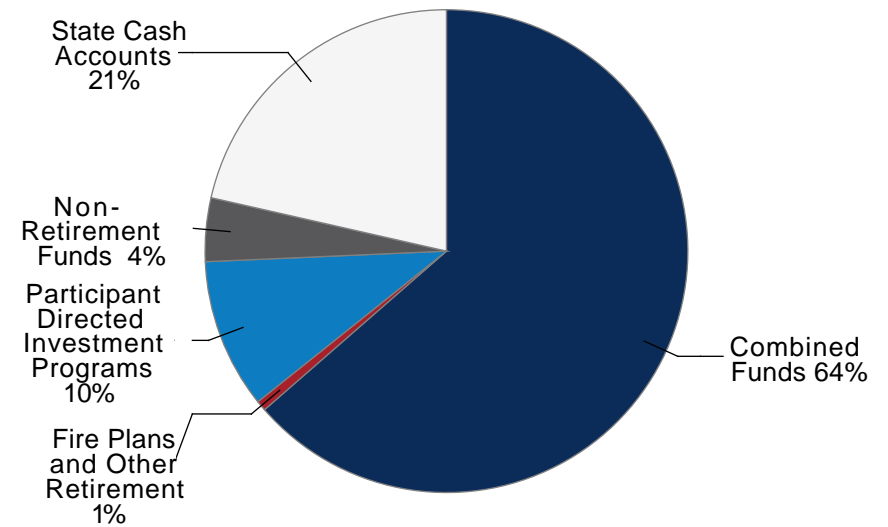
State Cash

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

	<u>\$ Millions</u>
COMBINED FUNDS	\$85,653
Fire Plans + Other Retirement Plans	924
Participant Directed Investment Program	13,507
State Deferred Compensation Plan	9,232
Health Care Savings Plan	1,797
Unclassified Employees Retirement Plan	359
Hennepin County Supplemental Retirement Plan	164
PERA Defined Contribution Plan	88
Minnesota College Savings Plan	1,830
Minnesota Achieving a Better Life Experience Plan	36
Non-Retirement Funds	5,730
Assigned Risk Plan	265
Permanent School Fund	1,890
Environmental Trust Fund	1,620
Closed Landfill Investment Fund	130
Miscellaneous Trust Funds	966
Other Postemployment Benefits Accounts	859
State Cash	28,886
Invested Treasurer's Cash	28,697
Other State Cash Accounts	190
TOTAL SBI AUM	134,701



Note: Differentials within column amounts may occur due to rounding



Quarterly Report

Table of Contents

Performance Reporting Legend

Combined Funds	5
Domestic Equity	
International Equity	
Fixed Income	
Private Markets	
Treasuries	
Participant Directed Investment Program	95
Supplemental Investment Fund	
Deferred Compensation Program	
Minnesota College Savings Plan	
Minnesota Achieve a Better Life Experience	
Non-Retirement Funds	111
Assigned Risk Plan	
Permanent School Fund	
Environmental Trust Fund	
Closed Landfill Investment Fund	
Non-Retirement Managers	
State Cash Accounts	119
Invested Treasurer's Cash	
Other State Cash Accounts	
Addendum	121

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.



Quarterly Report

Combined Funds

June 30, 2023



Combined Funds Summary

Combined Funds Change in Market Value (\$Millions)

	<u>One Quarter</u>
Combined Funds	
Beginning Market Value	\$83,246
Net Contributions	-680
Investment Return	3,087
Ending Market Value	85,653

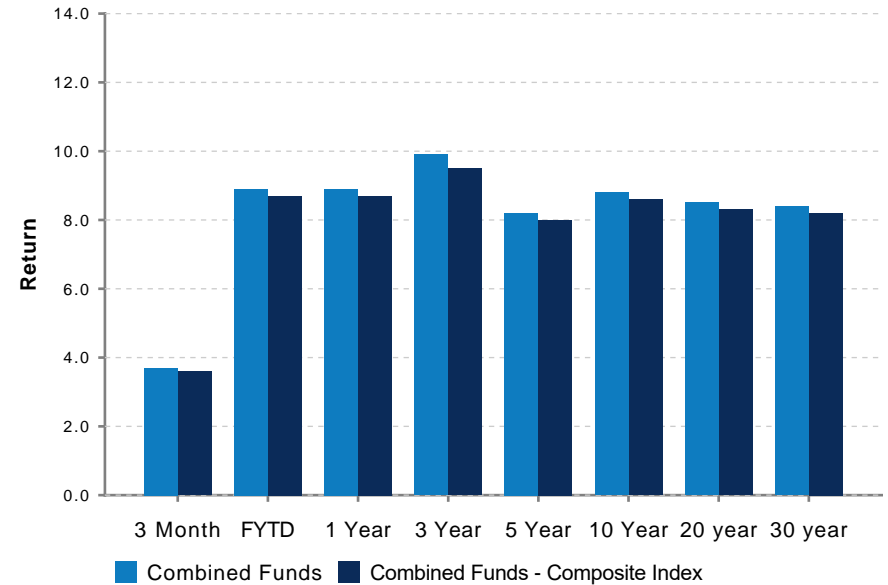
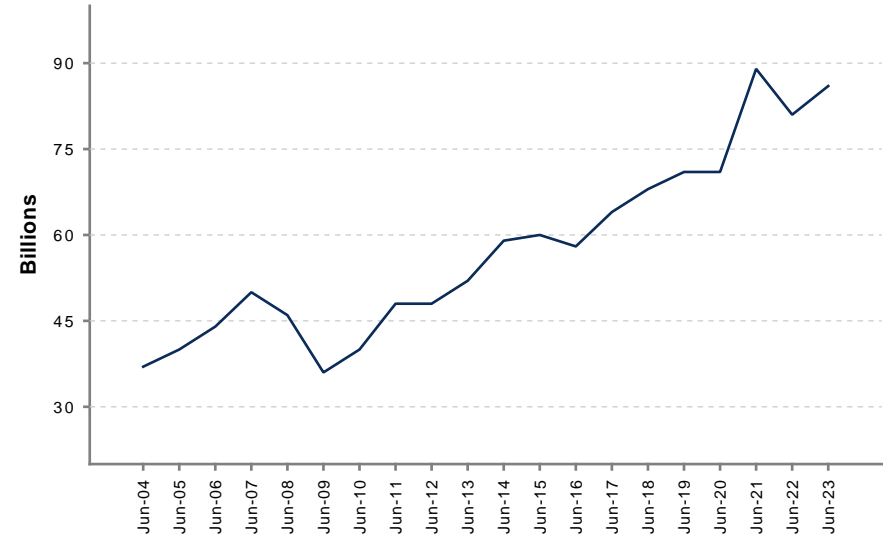
The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

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.

	<u>Qtr</u>	<u>FYTD</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>	<u>20 Yr</u>	<u>30 Yr</u>
Combined Funds	3.7%	8.9%	8.9%	9.9%	8.2%	8.8%	8.5%	8.4%
Combined Funds - Composite Index	3.6%	8.7%	8.7%	9.5%	8.0%	8.6%	8.3%	8.2%
Excess	0.1%	0.3%	0.3%	0.5%	0.3%	0.2%	0.3%	0.2%

Asset Growth



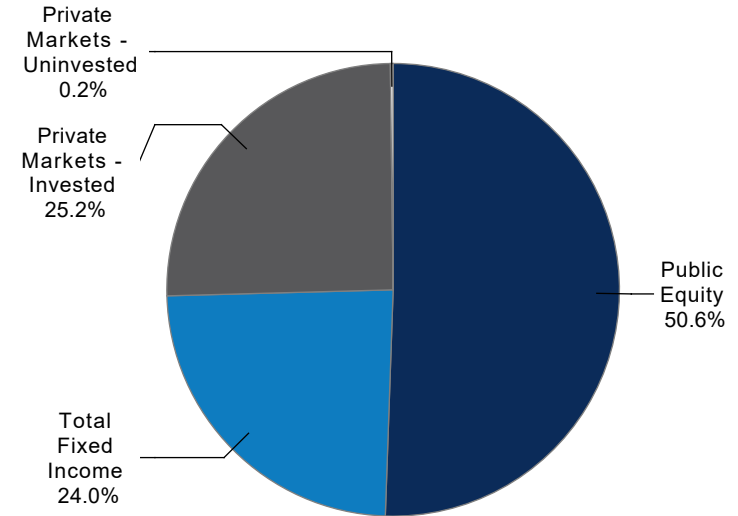


Combined Funds Summary

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.

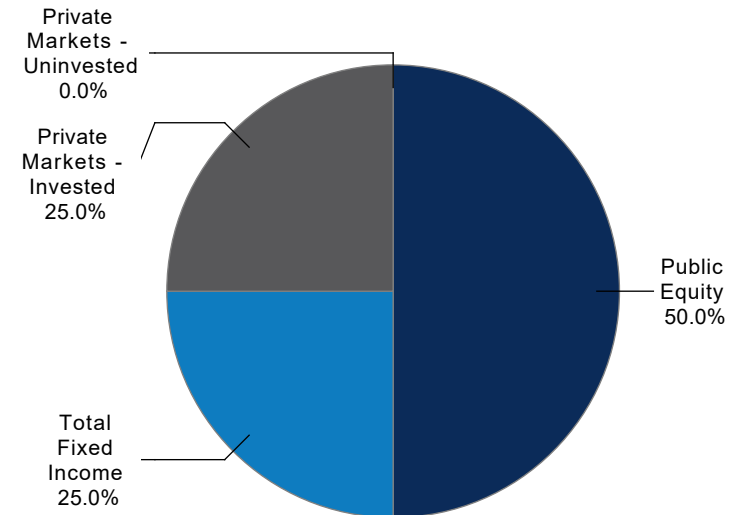
	<u>(Millions)</u>	<u>Actual Mix</u>	<u>Policy Target</u>
Public Equity	\$43,265	50.5%	50.0%
Total Fixed Income	20,597	24.0	25.0
Private Markets - Total	21,791	25.4	25.0
Private Markets - Invested	21,580	25.2	
Private Markets - Uninvested	211	0.2	
TOTAL	85,653	100.0	



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.

	<u>Policy Weight</u>	<u>Market Index</u>
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).

	<u>Market Value</u>	<u>Actual Weight</u>	<u>Policy Weight</u>	<u>Last Qtr</u>	<u>FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>20 Year</u>	<u>30 Year</u>
Public Equity	\$43.3	50.5%	50.0%	6.5%	17.4%	17.4%	12.2%	9.0%	10.2%	9.1%	8.8%
Public Equity Benchmark				6.4	17.0	17.0	11.8	8.8			
Excess				0.1	0.3	0.3	0.4	0.2			
Domestic Equity	28.7	33.5	33.5	8.3	19.1	19.1	14.1	11.3	12.3	10.0	9.6
Domestic Equity Benchmark				8.4	19.0	19.0	14.0	11.3	12.3	10.0	9.8
Excess				-0.1	0.1	0.1	0.1	-0.0	-0.0	-0.1	-0.1
International Equity	13.6	15.9	16.5	3.0	14.0	14.0	8.8	4.5	5.4	7.1	6.0
International Equity Benchmark				2.4	12.7	12.7	7.2	3.5	4.7	6.7	5.3
Excess				0.6	1.3	1.3	1.6	1.0	0.7	0.5	0.8
Global Equity	1.0	1.2	0.0	5.1	17.1	17.1					
MSCI AC World Index (net)				6.2	16.5	16.5					
Excess				-1.0	0.6	0.6					

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.

	<u>Market Value</u>	<u>Actual Weight</u>	<u>Policy Weight</u>	<u>Last Qtr</u>	<u>FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>20 Year</u>	<u>30 Year</u>
Total Fixed Income	\$20.6	24.0%	25.0%	-0.5%	0.1%	0.1%	-4.0%	1.7%	2.3%	3.6%	4.9%
Total Fixed Income Benchmark				-0.9%	-1.3%	-1.3%	-4.6%	1.3%	1.8%	3.2%	4.5%
Excess				0.3%	1.4%	1.4%	0.6%	0.4%	0.5%	0.4%	0.4%
Core/Core Plus	\$4.5	5.2%	5.0	-0.5%	0.3%	0.3%	-3.3%	1.3%	2.0%	3.5%	4.8%
Core Bonds Benchmark				-0.8%	-0.9%	-0.9%	-4.0%	0.8%	1.5%	3.0%	4.4%
Excess				0.4%	1.2%	1.2%	0.6%	0.6%	0.5%	0.5%	0.4%
Return Seeking Fixed Income	\$4.2	4.9%	5.0	0.8%	5.1%	5.1%					
Bloomberg U.S. Aggregate				-0.8%	-0.9%	-0.9%					
Excess				1.7%	6.0%	6.0%					
Treasury Protection	\$8.0	9.3%	10.0	-2.1%	-4.4%	-4.4%	-8.1%	-0.0%			
Bloomberg Treasury 5+ Year				-2.0%	-4.3%	-4.3%	-8.2%	-0.0%			
Excess				-0.1%	-0.1%	-0.1%	0.1%	-0.0%			
Laddered Bond + Cash	\$4.0	4.6%	5.0	1.3%	3.8%	3.8%	1.2%	1.5%	1.0%	1.6%	3.1%
ICE BofA US 3-Month Treasury Bill				1.2%	3.6%	3.6%	1.3%	1.6%	1.0%	1.4%	2.4%
Excess				0.1%	0.2%	0.2%	-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

	<u>Last Qtr</u>	<u>FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>20 Year</u>	<u>25 Year</u>	<u>30 Year</u>
Private Markets - Invested	2.5%	1.8%	1.8%	20.5%	13.5%	12.7%	14.0%	12.4%	13.4%
Private Markets -Uninvested (1)	1.5%	5.6%	5.6%						
Private Equity	3.6%	1.5%	1.5%	22.8%	17.0%	16.3%	16.2%	13.6%	15.6%
Private Credit	3.2%	9.1%	9.1%	16.1%	11.7%	13.1%	12.9%	12.8%	
Resources	-1.4%	2.8%	2.8%	17.1%	3.9%	2.4%	13.0%	11.7%	12.8%
Real Estate	-2.5%	-3.3%	-3.3%	16.7%	12.4%	12.7%	9.7%	9.4%	9.6%

Private Markets

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

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

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

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

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

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

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



Quarterly Report

Asset Class & Manager Performance

June 30, 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.

This page intentionally left blank.



Domestic Equity

June 30, 2023



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Total Domestic Equity										
ACTIVE DOMESTIC EQUITY AGGREGATE (1)	\$2,959,475,600	10.1%	6.1%	16.2%	16.2%	12.0%	7.7%	10.8%	8.1%	06/1996
Active Domestic Equity Benchmark			6.1	14.3	14.3	12.1	7.6	10.4	8.7	06/1996
Excess			0.0	1.9	1.9	-0.1	0.1	0.4	-0.6	
SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)	3,206,359,138	10.9	8.6	19.8	19.8	14.8	12.4	12.9	9.0	06/1996
Semi Passive Domestic Equity Benchmark			8.6	19.4	19.4	14.1	11.9	12.6	8.9	06/1996
Excess			-0.0	0.5	0.5	0.7	0.5	0.2	0.1	
PASSIVE DOMESTIC EQUITY AGGREGATE (3)	23,119,226,235	78.9	8.6	19.4	19.4	14.1	11.8	12.5	9.2	06/1996
Passive Domestic Equity Benchmark			8.6	19.3	19.3	14.1	11.8	12.5	9.2	06/1996
Excess			0.0	0.0	0.0	0.0	0.0	-0.0	-0.1	
TRANSITION AGGREGATE DOMESTIC EQUITY (4)	47									
TOTAL DOMESTIC EQUITY (5)	29,285,061,021	100.0	8.3	19.1	19.1	14.1	11.3	12.3	10.6	01/1984
Domestic Equity Benchmark			8.4	19.0	19.0	14.0	11.3	12.3	10.8	01/1984
Excess			-0.1	0.1	0.1	0.1	-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.



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
Total Domestic Equity					
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.



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Large Cap Growth										
SANDS	\$187,615,203	0.6%	13.9%	31.7%	31.7%	-0.8%	7.6%	12.5%	10.5%	01/2005
Russell 1000 Growth			12.8	27.1	27.1	13.7	15.1	15.7	11.3	01/2005
Excess			1.1	4.6	4.6	-14.5	-7.6	-3.3	-0.8	
WINSLOW	187,065,837	0.6	13.2	27.9	27.9	10.0	12.8	14.8	11.4	01/2005
Russell 1000 Growth			12.8	27.1	27.1	13.7	15.1	15.7	11.3	01/2005
Excess			0.4	0.7	0.7	-3.7	-2.3	-0.9	0.1	
RUSSELL 1000 GROWTH AGGREGATE (1)	374,681,040	1.3	13.6	29.8	29.8	6.0	13.1	15.8	11.0	11/2003
Russell 1000 Growth			12.8	27.1	27.1	13.7	15.1	15.7	11.2	11/2003
Excess			0.8	2.7	2.7	-7.7	-2.1	0.1	-0.2	

(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.



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
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.



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Semi-Passive Large Cap										
BLACKROCK	\$1,595,041,726	5.4%	8.1%	18.9%	18.9%	14.0%	11.9%	13.1%	10.3%	01/1995
Semi Passive Domestic Equity Benchmark			8.6	19.4	19.4	14.1	11.9	12.6	10.0	01/1995
Excess			-0.5	-0.4	-0.4	-0.1	-0.0	0.5	0.4	
J.P. MORGAN	1,611,317,413	5.5	9.0	20.7	20.7	15.5	12.9	13.2	10.4	01/1995
Semi Passive Domestic Equity Benchmark			8.6	19.4	19.4	14.1	11.9	12.6	10.0	01/1995
Excess			0.5	1.3	1.3	1.4	0.9	0.6	0.4	
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE	3,206,359,138	10.9	8.6	19.8	19.8	14.8	12.4	12.9	9.0	06/1996
Semi Passive Domestic Equity Benchmark			8.6	19.4	19.4	14.1	11.9	12.6	8.9	06/1996
Excess			-0.0	0.5	0.5	0.7	0.5	0.2	0.1	



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
Semi-Passive Large Cap					
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					
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					
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



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Large Cap Value										
BARROW HANLEY	\$378,953,944	1.3%	5.7%	13.4%	13.4%	18.3%	10.2%	10.4%	8.6%	04/2004
Russell 1000 Value			4.1	11.5	11.5	14.3	8.1	9.2	7.8	04/2004
Excess			1.6	1.8	1.8	4.0	2.1	1.2	0.8	
LSV	357,059,105	1.2	3.1	10.6	10.6	16.5	7.1	9.8	8.7	04/2004
Russell 1000 Value			4.1	11.5	11.5	14.3	8.1	9.2	7.8	04/2004
Excess			-0.9	-1.0	-1.0	2.1	-1.0	0.5	0.8	
RUSSELL 1000 VALUE AGGREGATE	736,013,050	2.5	4.4	12.0	12.0	17.2	9.1	10.2	8.7	10/2003
Russell 1000 Value			4.1	11.5	11.5	14.3	8.1	9.2	8.5	10/2003
Excess			0.3	0.5	0.5	2.9	1.0	1.0	0.2	



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
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					
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					
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



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Small Cap Growth										
ARROWMARK	\$183,643,976	0.6%	6.0%	20.0%	20.0%	8.7%	3.9%		10.1%	11/2016
Russell 2000 Growth			7.1	18.5	18.5	6.1	4.2		9.4	11/2016
Excess			-1.0	1.4	1.4	2.6	-0.3		0.7	
HOOD RIVER	208,728,361	0.7	8.3	19.6	19.6	15.8	11.9		15.0	11/2016
Russell 2000 Growth			7.1	18.5	18.5	6.1	4.2		9.4	11/2016
Excess			1.2	1.1	1.1	9.7	7.7		5.6	
RICE HALL JAMES	192,031,105	0.7	2.8	8.3	8.3	7.0	2.8		9.9	11/2016
Russell 2000 Growth			7.1	18.5	18.5	6.1	4.2		9.4	11/2016
Excess			-4.2	-10.2	-10.2	0.9	-1.5		0.5	
WELLINGTON	239,817,360	0.8	8.2	16.8	16.8	5.6	4.4		9.4	11/2016
Russell 2000 Growth			7.1	18.5	18.5	6.1	4.2		9.4	11/2016
Excess			1.1	-1.7	-1.7	-0.5	0.1		0.0	
RUSSELL 2000 GROWTH AGGREGATE	824,220,802	2.8	6.5	16.2	16.2	9.3	5.9	8.7%	7.6	11/2003
Russell 2000 Growth			7.1	18.5	18.5	6.1	4.2	8.8	8.4	11/2003
Excess			-0.5	-2.4	-2.4	3.2	1.6	-0.2	-0.8	



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
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



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Small Cap Value										
GOLDMAN SACHS	\$233,593,198	0.8%	1.3%	5.7%	5.7%	14.3%	3.4%	7.5%	8.3%	01/2004
Russell 2000 Value			3.2	6.0	6.0	15.4	3.5	7.3	7.3	01/2004
Excess			-1.9	-0.3	-0.3	-1.1	-0.1	0.2	1.0	
HOTCHKIS AND WILEY	183,626,713	0.6	3.6	20.7	20.7	28.1	7.8	9.6	8.7	01/2004
Russell 2000 Value			3.2	6.0	6.0	15.4	3.5	7.3	7.3	01/2004
Excess			0.4	14.7	14.7	12.7	4.2	2.3	1.4	
MARTINGALE	152,827,715	0.5	4.8	13.7	13.7	21.1	5.4	9.2	7.8	01/2004
Russell 2000 Value			3.2	6.0	6.0	15.4	3.5	7.3	7.3	01/2004
Excess			1.6	7.7	7.7	5.6	1.9	1.9	0.5	
PEREGRINE	241,363,452	0.8	1.4	4.7	4.7	16.9	3.4	7.3	9.2	07/2000
Russell 2000 Value			3.2	6.0	6.0	15.4	3.5	7.3	8.6	07/2000
Excess			-1.8	-1.3	-1.3	1.5	-0.1	0.1	0.6	
RUSSELL 2000 VALUE AGGREGATE	811,411,078	2.8	2.4	9.8	9.8	19.0	4.5	8.1	8.5	10/2003
Russell 2000 Value			3.2	6.0	6.0	15.4	3.5	7.3	8.0	10/2003
Excess			-0.8	3.8	3.8	3.5	1.0	0.8	0.5	



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
Active Small Cap Value					
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



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active All Cap										
ZEVENBERGEN (1)	\$213,149,630	0.7%	15.3%	43.4%	43.4%	-3.1%	10.1%	14.3%	11.0%	04/1994
Zevenbergen Custom Benchmark			12.5	26.6	26.6	14.9	15.8	16.1		04/1994
Excess			2.8	16.8	16.8	-18.0	-5.7	-1.8		
ACTIVE RUSSELL 3000 GROWTH (2)										
ACTIVE RUSSELL 3000 GROWTH (2)	213,149,630	0.7	15.3	43.4	43.4				-18.0	01/2021
Russell 3000 Growth TR			12.5	26.6	26.6				5.6	01/2021
Excess			2.8	16.8	16.8				-23.5	

(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.



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
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)					
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.



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Total Passive Domestic Equity										
BLACKROCK RUSSELL 1000	\$22,286,292,500	76.1%	8.6%	19.4%	19.4%	14.1%	11.9%		13.5%	11/2016
RUSSELL 1000 (DAILY)			8.6	19.4	19.4	14.1	11.9		13.5	11/2016
Excess			0.0	0.0	0.0	-0.0	-0.0		-0.0	
BLACKROCK RUSSELL 2000	71,085,589	0.2	5.2	11.9	11.9	11.4			6.9	11/2018
RUSSELL 2000 (DAILY)			5.2	12.3	12.3	10.8			6.3	11/2018
Excess			-0.0	-0.4	-0.4	0.5			0.5	
BLACKROCK RUSSELL 3000 (1)	761,848,146	2.6	8.4	19.0	19.0	14.1	11.6	12.4%	9.7	07/1995
Passive Manager Benchmark			8.4	19.0	19.0	13.9	11.4	12.3	9.6	07/1995
Excess			0.0	0.1	0.1	0.2	0.2	0.1	0.1	
PASSIVE DOMESTIC EQUITY AGGREGATE (2)	23,119,226,235	78.9	8.6	19.4	19.4	14.1	11.8	12.5	9.2	06/1996
Passive Domestic Equity Benchmark			8.6	19.3	19.3	14.1	11.8	12.5	9.2	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.



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
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.

This page intentionally left blank.



International Equity

June 30, 2023



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Total International Equity										
DEVELOPED MARKETS (1)	\$9,973,747,662		3.7%	18.1%	18.1%	11.2%	5.8%	6.4%	5.2%	01/1997
BENCHMARK DM			3.0	17.4	17.4	9.3	9.3	5.4	4.5	01/1997
Excess			0.7	0.7	0.7	1.9	1.9	1.3	0.6	
EMERGING MARKETS (2)	3,262,596,777	23.7%	1.4	4.2	4.2	2.9%	1.3%	2.8%	5.1	11/1996
BENCHMARK EM			0.9	1.7	1.7	2.3	0.9	3.0	5.3	11/1996
Excess			0.5	2.5	2.5	0.5	0.4	-0.1	-0.2	
ACWI EX-US AGGREGATE	392,424,534	2.8	4.1	15.7	15.7				4.0	01/2021
MSCI AC WORLD ex US (NET) - DAILY			2.4	12.7	12.7				-0.3	01/2021
Excess			1.7	3.0	3.0				4.3	
CHINA ONLY AGGREGATE	143,245,861	1.0	-12.6	-16.5	-16.5				-14.2	01/2021
MSCI China A			-10.7	-20.3	-20.3				-12.6	01/2021
Excess			-2.0	3.8	3.8				-1.6	
TRANSITION AGGREGATE INTERNATIONAL EQUITY (3)	602,347	0.0								
TOTAL INTERNATIONAL EQUITY (4)	13,772,617,181	100.0	3.0	14.0	14.0	8.8	4.5	5.4	6.3	10/1992
International Equity Benchmark			2.4	12.7	12.7	7.2	3.5	4.7	5.7	10/1992
Excess			0.6	1.3	1.3	1.6	1.0	0.7	0.6	

(1) The current benchmark for Developed Markets, Benchmark DM, is the Standard (large + mid) MSCI World ex USA (net).

(2) The current benchmark for Emerging Markets, Benchmark EM, is the Standard (large + mid) MSCI Emerging Markets Free (net).

(3) The Transition Aggregate International Equity contains International Equity securities that are being transitioned to a different manager.

(4) The current International Equity Benchmark is the MSCI ACWI ex USA (net). Does not includes impact of currency overlay on the passive EAFE portfolio from 12/1/95-10/31/00. This impact is included in the return for the Combined Funds portion of the International Equity portfolio.

Note: All aggregates include the performance of terminated managers. For historical benchmark details please refer to the addendum of this report.



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
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)					
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					
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					
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).

(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.



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Developed Markets										
ACADIAN	\$521,941,310	3.8%	1.6%	12.0%	12.0%	8.6%	3.7%	7.8%	6.2%	07/2005
BENCHMARK DM			3.0	17.4	17.4	9.3	4.6	5.4	5.0	07/2005
Excess			-1.4	-5.4	-5.4	-0.7	-0.8	2.5	1.3	
COLUMBIA	459,810,798	3.3	4.8	23.9	23.9	11.7	7.2	7.5	3.9	03/2000
BENCHMARK DM			3.0	17.4	17.4	9.3	4.6	5.4	3.7	03/2000
Excess			1.8	6.5	6.5	2.4	2.6	2.1	0.2	
FIDELITY	455,511,267	3.3	3.4	17.0	17.0	9.2	5.9	6.5	6.5	07/2005
BENCHMARK DM			3.0	17.4	17.4	9.3	4.6	5.4	5.0	07/2005
Excess			0.4	-0.4	-0.4	-0.1	1.3	1.1	1.5	
JP MORGAN	342,139,011	2.5	3.1	18.2	18.2	8.3	5.2	5.8	5.3	07/2005
BENCHMARK DM			3.0	17.4	17.4	9.3	4.6	5.4	5.0	07/2005
Excess			0.1	0.8	0.8	-1.0	0.6	0.4	0.3	
MARATHON	384,545,077	2.8	3.4	18.6	18.6	11.5	5.1	6.5	7.7	11/1993
BENCHMARK DM			3.0	17.4	17.4	9.3	4.6	5.4	5.1	11/1993
Excess			0.4	1.2	1.2	2.2	0.5	1.1	2.7	
AQR CAPITAL MANAGEMENT	265,411,038	1.9	5.2	18.4	18.4	9.3	3.4	4.9	5.0	07/2005
BENCHMARK DM			3.0	17.4	17.4	9.3	4.6	5.4	5.0	07/2005
Excess			2.2	1.0	1.0	0.0	-1.2	-0.5	-0.0	



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
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



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>1 Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Total Developed Markets										
Active Developed Markets Aggregate (1)	\$2,430,863,090	17.6%	3.4%	17.4%	17.4%	9.5%	5.0%	6.2%	5.5%	06/1996
BENCHMARK DM			3.0%	17.4%	17.4%	9.3%	4.6%	5.4%	2.4%	06/1996
Excess			0.4%	0.0%	0.0%	0.2%	0.4%	0.8%	3.1%	
SSgA DEVELOPED MARKETS PASSIVE	\$7,592,042,439	55.1%	3.2%	17.8%	17.8%	9.8%	5.0%	5.8%		
BENCHMARK DM			3.0%	17.4%	17.4%	9.3%	4.6%	5.4%		
Excess			0.2%	0.4%	0.4%	0.5%	0.4%	0.4%		
RECORD CURRENCY (2)	-\$49,157,867	-0.4%	.5%	0.4%	0.4%					10/2020
DEVELOPED MARKETS TOTAL (4)	\$9,973,747,662		3.7%	18.1%	18.1%	11.2%	5.8%	6.4%	5.2%	01/1997
BENCHMARK DM			3.0%	17.4%	17.4%	9.3	9.3	5.4	4.5	01/1997
Excess			0.7%	0.7%	0.7%	1.9	1.9	1.3	0.6	

(1) Includes the historical returns of AQR and terminated managers previously classified as "Semi-Passive Developed Markets."

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



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
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 TOTAL	-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"



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Emerging Markets										
MARTIN CURRIE	\$377,916,204	2.7%	1.4%	4.3%	4.3%	1.5%	1.5%		4.8%	04/2017
BENCHMARK EM			0.9	1.7	1.7	2.3	0.9		3.0	04/2017
Excess			0.5	2.6	2.6	-0.8	0.5		1.8	
MACQUARIE	355,431,575	2.6	0.7	2.5	2.5	1.0	1.9		4.0	04/2017
BENCHMARK EM			0.9	1.7	1.7	2.3	0.9		3.0	04/2017
Excess			-0.2	0.8	0.8	-1.4	1.0		0.9	
MORGAN STANLEY	454,059,224	3.3	3.1	9.0	9.0	3.0	1.3	2.8%	7.8	01/2001
BENCHMARK EM			0.9	1.7	1.7	2.3	0.9	3.0	7.5	01/2001
Excess			2.2	7.2	7.2	0.7	0.4	-0.1	0.2	
NEUBERGER BERMAN	325,865,611	2.4	0.1	1.6	1.6	-1.2	-1.5		1.4	04/2017
BENCHMARK EM			0.9	1.7	1.7	2.3	0.9		3.0	04/2017
Excess			-0.8	-0.2	-0.2	-3.5	-2.4		-1.6	
PZENA	381,418,061	2.8	4.4	15.2	15.2	14.9	5.7		5.8	04/2017
BENCHMARK EM			0.9	1.7	1.7	2.3	0.9		3.0	04/2017
Excess			3.5	13.4	13.4	12.6	4.7		2.8	
ROCK CREEK	354,099,394	2.6	-0.0	0.3	0.3	1.2	0.7		2.2	04/2017
BENCHMARK EM			0.9	1.7	1.7	2.3	0.9		3.0	04/2017
Excess			-0.9	-1.5	-1.5	-1.1	-0.2		-0.8	



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
Active Emerging Markets					
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



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Total Emerging Markets										
ACTIVE EMERGING MARKETS AGGREGATE	\$2,248,790,068	16.3%	1.7%	5.5%	5.5%	3.3%	1.5%	2.7%	3.1%	01/2012
BENCHMARK EM			0.9	1.7	1.7	2.3	0.9	3.0	3.2	01/2012
Excess			0.8	3.8	3.8	0.9	0.6	-0.3	-0.0	
SSGA EMERGING MARKETS PASSIVE	1,013,806,709	7.4	0.8	1.4	1.4	1.9	0.7	2.9	3.1	01/2012
BENCHMARK EM			0.9	1.7	1.7	2.3	0.9	3.0	3.2	01/2012
Excess			-0.1	-0.3	-0.3	-0.4	-0.2	-0.0	-0.0	
EMERGING MARKETS TOTAL	3,262,596,777	23.7	1.4	4.2	4.2	2.9	1.3	2.8	5.1	11/1996
BENCHMARK EM			0.9	1.7	1.7	2.3	0.9	3.0	5.3	11/1996
Excess			0.5	2.5	2.5	0.5	0.4	-0.1	-0.2	



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
Total Emerging Markets					
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



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active ACWI ex-US										
EARNEST PARTNERS ACWI EX US	\$392,424,534	2.8%	4.1%	15.7%	15.7%				4.0%	01/2021
MSCI AC WORLD ex US (NET) - DAILY			2.4%	12.7%	12.7%				-0.3%	01/2021
Excess			1.7%	3.0%	3.0%				4.3%	
TOTAL ACWI EX-US AGGREGATE										
TOTAL ACWI EX-US AGGREGATE	\$392,424,534	2.8%	4.1%	15.7%	15.7%				4.0%	01/2021
MSCI AC WORLD ex US (NET) - DAILY			2.4%	12.7%	12.7%				-0.3%	01/2021
Excess			1.7%	3.0%	3.0%				4.3%	



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
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					
MSCI AC WORLD ex US (NET) - DAILY	-16.0	7.8			
Excess	3.4	4.9			



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
China Only Managers										
EARNEST PARTNERS CHINA	\$143,245,861	1.0%	-12.6%	-16.5%	-16.5%				-14.2%	01/2021
MSCI China A			-10.7	-20.3	-20.3				-12.6	01/2021
Excess			-2.0	3.8	3.8				-1.6	
CHINA ONLY AGGREGATE										
	143,245,861	1.0	-12.6	-16.5	-16.5				-14.2	01/2021
MSCI China A			-10.7	-20.3	-20.3				-12.6	01/2021
Excess			-2.0	3.8	3.8				-1.6	



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
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			

This page intentionally left blank.



Global Equity

June 30, 2023



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Global Equity Managers										
ARIEL INVESTMENTS	\$398,672,982	40.3%	3.7%	8.5%	8.5%				6.0%	01/2021
MSCI AC WORLD NET USD DAILY			6.2	16.5	16.5				4.0	01/2021
Excess			-2.4	-8.0	-8.0				2.1	
BAILLIE GIFFORD	223,247,521	22.6	7.7	24.3	24.3				-13.0	01/2021
MSCI AC WORLD NET USD DAILY			6.2	16.5	16.5				4.0	01/2021
Excess			1.5	7.7	7.7				-17.0	
MARTIN CURRIE INVESTMENTS - GLOBAL EQ	366,839,831	37.1	5.1	23.4	23.4				-2.7	01/2021
MSCI AC WORLD NET USD DAILY			6.2	16.5	16.5				4.0	01/2021
Excess			-1.0	6.9	6.9				-6.7	
GLOBAL EQUITY	988,760,334	100.0	5.1	17.1	17.1				-2.5	01/2021
MSCI AC WORLD NET USD DAILY			6.2	16.5	16.5				4.0	01/2021
Excess			-1.0	0.6	0.6				-6.5	



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
Global Equity Managers					
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			

This page intentionally left blank.



Core/Core Plus Bonds

June 30, 2023



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Bonds										
CORE (1)	\$1,918,526,886	41.2%	-0.3%	0.8%	0.8%				-3.4%	11/2020
Bloomberg U.S. Aggregate			-0.8	-0.9	-0.9				-4.5	11/2020
Excess			0.5	1.7	1.7				1.1	
CORE PLUS (1)	2,741,017,433	58.8	-0.6	-0.1	-0.1				-4.5	11/2020
Bloomberg U.S. Aggregate			-0.8	-0.9	-0.9				-4.5	11/2020
Excess			0.3	0.8	0.8				-0.0	
TRANSITION AGGREGATE CORE BONDS (2)	19,614	0.0								
TOTAL CORE/CORE PLUS BONDS (3)	4,659,563,933	100.0	-0.5	0.3	0.3	-3.3%	1.3%	2.0%	6.7	07/1984
Bloomberg U.S. Aggregate			-0.8	-0.9	-0.9	-4.0	0.8	1.5	6.3	07/1984
Excess			0.4	1.2	1.2	0.6	0.6	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.



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
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.



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Core										
DODGE & COX	\$1,025,990,581	22.0%	0.0%	1.7%	1.7%	-1.9%	1.9%	2.6%	5.1%	02/2000
Bloomberg U.S. Aggregate			-0.8	-0.9	-0.9	-4.0	0.8	1.5	4.0	02/2000
Excess			0.9	2.7	2.7	2.0	1.2	1.1	1.1	
BLACKROCK	892,536,305	19.2	-0.7	-0.3	-0.3	-3.7	1.1	1.7	4.4	04/1996
Bloomberg U.S. Aggregate			-0.8	-0.9	-0.9	-4.0	0.8	1.5	4.3	04/1996
Excess			0.2	0.7	0.7	0.3	0.3	0.2	0.1	
CORE	1,918,526,886	41.2	-0.3	0.8	0.8				-3.4	11/2020
Bloomberg U.S. Aggregate			-0.8	-0.9	-0.9				-4.5	11/2020
Excess			0.5	1.7	1.7				1.1	

(1) Prior to 12/1/2020 the Core managers were categorized as Active or Semi-Passive. For information on the historical performance of the previous groupings refer to the 9/30/2020 Comprehensive Performance Report.



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
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					
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					
CORE	-12.3	-1.0			
Bloomberg U.S. Aggregate	-13.0	-1.5			
Excess	0.7	0.5			



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Core Plus Bonds										
GOLDMAN SACHS	\$896,206,185	19.2%	-0.5%	-0.3%	-0.3%	-3.7%	1.1%	1.8%	4.7%	07/1993
Bloomberg U.S. Aggregate			-0.8	-0.9	-0.9	-4.0	0.8	1.5	4.4	07/1993
Excess			0.3	0.7	0.7	0.3	0.3	0.3	0.3	
NEUBERGER	876,857,015	18.8	-0.5	0.0	0.0	-3.3	1.4	1.9	5.6	07/1988
Bloomberg U.S. Aggregate			-0.8	-0.9	-0.9	-4.0	0.8	1.5	5.4	07/1988
Excess			0.3	1.0	1.0	0.7	0.6	0.4	0.3	
WESTERN	967,954,233	20.8	-0.6	-0.1	-0.1	-4.2	1.0	2.2	7.4	07/1984
Bloomberg U.S. Aggregate			-0.8	-0.9	-0.9	-4.0	0.8	1.5	6.3	07/1984
Excess			0.2	0.9	0.9	-0.2	0.2	0.7	1.0	
CORE PLUS	2,741,017,433	58.8	-0.6	-0.1	-0.1				-4.5	11/2020
Bloomberg U.S. Aggregate			-0.8	-0.9	-0.9				-4.5	11/2020
Excess			0.3	0.8	0.8				-0.0	

(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.



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
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			

This page intentionally left blank.



Return Seeking Bonds

June 30, 2023



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Return Seeking Bonds Managers										
COLUMBIA CREDIT PLUS	\$871,323,678	20.9%	-0.2%	2.6%	2.6%				-4.0%	12/2020
Credit Plus Benchmark			0.2	2.6	2.6				-4.3	12/2020
Excess			-0.3	-0.0	-0.0				0.3	
PIMCO CREDIT PLUS	824,575,078	19.8	0.1	2.8	2.8				-3.7	12/2020
Credit Plus Benchmark			0.2	2.6	2.6				-4.3	12/2020
Excess			-0.0	0.2	0.2				0.6	
CREDIT PLUS	1,695,898,756	40.7	-0.0	2.7	2.7				-3.8	12/2020
Credit Plus Benchmark			0.2	2.6	2.6				-4.3	12/2020
Excess			-0.2	0.1	0.1				0.5	
BLACKROCK OPPORTUNISTIC	539,280,869	12.9	0.7	3.7	3.7				-0.9	12/2020
ICE BofA US 3-Month Treasury Bill			1.2	3.6	3.6				1.5	12/2020
Excess			-0.4	0.1	0.1				-2.3	
ASHMORE EMERGING MARKET	291,432,925	7.0	1.2	7.2	7.2				-9.5	01/2021
JPM JEMB Sovereign-only 50-50			2.3	9.4	9.4				-6.1	01/2021
Excess			-1.1	-2.2	-2.2				-3.4	
TCW SECURITIZED CREDIT	399,034,399	9.6	1.4	1.6	1.6				-0.3	07/2021
ICE BofA US 3-Month Treasury Bill			1.2	3.6	3.6				1.9	07/2021
Excess			0.2	-2.0	-2.0				-2.2	



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
Return Seeking Bonds Managers					
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				



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Return Seeking Bonds Managers										
PAYDEN RYGEL	\$291,809,204	7.0%	2.2%	9.0%	9.0%				-1.2%	01/2021
Multi-Asset Credit Benchmark			2.2	8.7	8.7				-1.2	01/2021
Excess			0.0	0.2	0.2				-0.0	
PGIM	337,180,551	8.1	2.1	9.0	9.0				-1.7	01/2021
Multi-Asset Credit Benchmark			2.2	8.7	8.7				-1.2	01/2021
Excess			-0.1	0.2	0.2				-0.6	
MULTI-ASSET CREDIT	628,989,755	15.1	2.1	9.0	9.0				-1.5	01/2021
Multi-Asset Credit Benchmark			2.2	8.7	8.7				-1.2	01/2021
Excess			-0.0	0.2	0.2				-0.3	
KKR	308,945,688	7.4	2.1	10.0	10.0				-0.4	01/2021
ICE BofA US Cash Pay HY Constrained			1.6	8.9	8.9				-0.6	01/2021
Excess			0.5	1.2	1.2				0.1	
OAKTREE	305,180,046	7.3	1.5	8.9	8.9				-0.4	01/2021
ICE BofA US Cash Pay HY Constrained			1.6	8.9	8.9				-0.6	01/2021
Excess			-0.1	0.1	0.1				0.1	
HIGH YIELD	614,125,735	14.7	1.8	9.5	9.5				-0.4	01/2021
ICE BofA US Cash Pay HY Constrained			1.6	8.9	8.9				-0.6	01/2021
Excess			0.2	0.6	0.6				0.1	



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
Return Seeking Bonds Managers					
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			



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Return Seeking Bonds										
CREDIT PLUS	\$1,695,898,756	40.7%	-0.0%	2.7%	2.7%				-3.8%	12/2020
Credit Plus Benchmark			0.2	2.6	2.6				-4.3	12/2020
Excess			-0.2	0.1	0.1				0.5	
OPPORTUNISTIC FI	539,280,869	12.9	0.7	3.7	3.7				-0.9	12/2020
ICE BofA US 3-Month Treasury Bill			1.2	3.6	3.6				1.5	12/2020
Excess			-0.4	0.1	0.1				-2.3	
EMERGING MARKET DEBT	291,432,925	7.0	1.2	7.2	7.2				-9.5	01/2021
JPM JEMB Sovereign-only 50-50			2.3	9.4	9.4				-6.1	01/2021
Excess			-1.1	-2.2	-2.2				-3.4	
SECURITIZED CREDIT	399,034,399	9.6	1.4	1.6	1.6				-0.3	06/2021
ICE BofA US 3-Month Treasury Bill			1.2	3.6	3.6				1.8	06/2021
Excess			0.2	-2.0	-2.0				-2.1	
MULTI-ASSET CREDIT	628,989,755	15.1	2.1	9.0	9.0				-1.5	01/2021
Multi-Asset Credit Benchmark			2.2	8.7	8.7				-1.2	01/2021
Excess			-0.0	0.2	0.2				-0.3	
HIGH YIELD	614,125,735	14.7	1.8	9.5	9.5				-0.4	01/2021
ICE BofA US Cash Pay HY Constrained			1.6	8.9	8.9				-0.6	01/2021
Excess			0.2	0.6	0.6				0.1	
RETURN SEEKING BONDS (1)	4,170,679,184	100.0	0.9	5.1	5.1				-2.4	12/2020
Return Seeking Fixed Income Benchmark			1.1	5.1	5.1				-2.0	12/2020
Excess			-0.1	-0.0	-0.0				-0.4	



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
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			

This page intentionally left blank.



Treasuries

June 30, 2023



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Treasuries Managers										
BLACKROCK	\$2,788,862,089	34.8%	-2.0%	-4.3%	-4.3%	-8.3%	-0.1%		-0.1%	02/2018
Bloomberg Treasury 5+ Year			-2.0	-4.3	-4.3	-8.2	-0.0		0.0	02/2018
Excess			-0.0	-0.0	-0.0	-0.0	-0.1		-0.1	
GOLDMAN SACHS	2,551,072,643	31.9	-2.0	-4.2	-4.2	-8.1	-0.0		0.0	02/2018
Bloomberg Treasury 5+ Year			-2.0	-4.3	-4.3	-8.2	-0.0		0.0	02/2018
Excess			0.0	0.1	0.1	0.2	-0.0		0.0	
NEUBERGER	2,663,490,988	33.3	-2.2	-4.7	-4.7	-8.0	0.0		0.1	02/2018
Bloomberg Treasury 5+ Year			-2.0	-4.3	-4.3	-8.2	-0.0		0.0	02/2018
Excess			-0.3	-0.4	-0.4	0.3	0.0		0.0	
TOTAL TREASURIES	8,003,425,721	100.0	-2.1	-4.4	-4.4	-8.1	-0.0		0.0	02/2018
Bloomberg Treasury 5+ Year			-2.0	-4.3	-4.3	-8.2	-0.0		0.0	02/2018
Excess			-0.1	-0.1	-0.1	0.1	-0.0		-0.0	



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
Treasuries Managers					
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	

This page intentionally left blank.



Laddered Bonds + Cash

June 30, 2023



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Laddered Bond and Cash Managers									
Neuberger Berman Ladder Bond	\$779,414,951	19.7%	1.2%	3.6%				1.2%	11/2020
ICE BofA US 3-Month Treasury Bill			1.2	3.6				1.4	11/2020
Excess			0.0	0.0				-0.2	
Goldman Sachs Ladder Bond	780,852,293	19.7	1.3	3.7				1.3	11/2020
ICE BofA US 3-Month Treasury Bill			1.2	3.6				1.4	11/2020
Excess			0.1	0.1				-0.1	
Treasury Ladder Aggregate	1,560,267,244	39.3	1.2	3.6				1.3	11/2020
ICE BofA US 3-Month Treasury Bill			1.2	3.6				1.4	11/2020
Excess			0.1	0.1				-0.2	
Combined Funds STIF	2,342,690,489	59.1	1.3	4.0	1.4%	1.6%	1.1%	1.5	01/2004
iMoneyNet Money Fund Average-All Taxable			1.2	3.5	1.2	1.3	0.8	1.2	01/2004
Excess			0.1	0.5	0.3	0.3	0.3	0.4	
TEACHERS RETIREMENT CD REPO	63,082,815	1.6	1.2	3.7	1.4	1.7	1.2	1.1	02/2012
ICE BofA US 3-Month Treasury Bill			1.2	3.6	1.3	1.6	1.0	0.9	02/2012
Excess			0.1	0.1	0.1	0.1	0.2	0.2	
Laddered Bond + Cash	3,966,297,972	100.0	1.3	3.8	1.2	1.5	1.0	4.2	12/1977
ICE BofA US 3-Month Treasury Bill			1.2	3.6	1.3	1.6	1.0	4.4	12/1977
Excess			0.1	0.2	-0.1	-0.1	0.1	-0.2	



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
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

This page intentionally left blank.



Uninvested Private Markets

June 30, 2023



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Uninvested Private Markets										
UNINVESTED PRIVATE MARKETS (1)	211,047,257	100.0	1.5	5.6	5.6				3.6	01/2021
Uninvested Private Markets BM			1.2	5.4	5.4				3.6	01/2021
Excess			0.3	0.2	0.2				0.0	

(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.



	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>
Uninvested Private Markets					
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.

This page intentionally left blank.



Private Markets

June 30, 2023



Combined Funds Asset Class Performance Summary

Private Markets

	<u>Last Qtr</u>	<u>FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>20 Year</u>	<u>25 Year</u>	<u>30 Year</u>
Private Markets - Invested	2.5%	1.8%	1.8%	20.5%	13.5%	12.7%	14.0%	12.4%	13.4%
Private Markets -Uninvested (1)	1.5%	5.6%	5.6%						
Private Equity	3.6%	1.5%	1.5%	22.8%	17.0%	16.3%	16.2%	13.6%	15.6%
Private Credit	3.2%	9.1%	9.1%	16.1%	11.7%	13.1%	12.9%	12.8%	
Resources	-1.4%	2.8%	2.8%	17.1%	3.9%	2.4%	13.0%	11.7%	12.8%
Real Estate	-2.5%	-3.3%	-3.3%	16.7%	12.4%	12.7%	9.7%	9.4%	9.6%

Private Markets

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

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

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

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

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

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

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

Minnesota State Board of Investment
Quarter Ending June 30, 2023
Private Markets Investments



Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Private Equity	25,300,314,217	19,326,073,314	14,984,509,521	8,008,449,034	15,585,994,773	1.58	12.0	
Adams Street Partners, LLC	398,191,000	215,375,384	120,113,440	183,624,975	189,470,312	1.44	35.6	
Adams Street Global Secondary Fund 5 LP	100,000,000	77,114,692	77,395,843	22,885,308	26,941,830	1.35	6.3	2012
Adams Street Global Secondary Fund 6	100,000,000	80,400,008	42,717,597	19,599,992	83,844,149	1.57	23.1	2017
Adams Street Global Secondary Fund 7	198,191,000	57,860,684	0	141,139,675	78,684,333	1.36	77.3	2021
Advent International Group	505,000,000	381,891,302	333,962,703	126,192,652	325,279,553	1.73	10.6	
Advent International GPE VI-A, L.P.	50,000,000	52,993,313	103,400,194	0	5,126,420	2.05	16.5	2008
Advent International GPE VII, L.P.	90,000,000	86,490,641	140,322,935	3,600,000	17,132,078	1.82	13.5	2012
Advent International GPE VIII-B	100,000,000	100,000,000	78,744,166	0	122,799,547	2.02	17.9	2016
Advent International GPE IX	115,000,000	107,532,348	11,495,408	7,467,652	147,403,122	1.48	21.6	2019
Advent International GPE X	150,000,000	34,875,000	0	115,125,000	32,818,386	0.94	-16.4	2022
Affinity Ventures	9,000,000	9,000,000	3,590,011	0	818,406	0.49	-21.8	
Affinity Ventures IV, L.P.	4,000,000	4,000,000	1,541,970	0	3,279	0.39	-35.4	2004
Affinity Ventures V, L.P.	5,000,000	5,000,000	2,048,042	0	815,127	0.57	-8.1	2008
Apax Partners	600,000,000	523,062,755	554,813,088	161,066,025	318,744,416	1.67	13.1	
APAX VIII - USD	200,000,000	240,451,261	364,650,169	7,966,190	33,039,893	1.65	13.8	2013
Apax IX USD L.P.	150,000,000	162,024,715	180,896,534	14,420,230	145,962,086	2.02	22.5	2016
Apax X USD L.P.	150,000,000	120,586,779	9,266,385	38,679,605	139,742,437	1.24	16.3	2019
Apax XI	100,000,000	0	0	100,000,000	0			2022
Arsenal Capital Partners	175,000,000	102,279,759	13,903,312	81,440,684	103,482,483	1.15	3.4	
Arsenal Capital Partners VI LP	100,000,000	29,425,977	287,031	70,841,991	29,028,183	1.00	-0.5	2021
Arsenal Capital Partners V, L.P.	75,000,000	72,853,782	13,616,281	10,598,693	74,454,300	1.21	7.4	2019
Asia Alternatives	649,000,000	160,690,397	18,009,584	501,727,116	165,768,102	1.14	0.5	
Asia Alternatives Capital Partners V	99,000,000	100,073,898	16,878,241	12,343,615	112,351,313	1.29	10.5	2017
MN Asia Investors	550,000,000	60,616,499	1,131,343	489,383,501	53,416,789	0.90	-9.5	2020
Banc Fund	178,551,387	187,460,477	50,694,952	0	179,397,736	1.23	3.6	
Banc Fund IX, L.P.	107,205,932	107,205,932	43,369,555	0	100,877,893	1.35	5.0	2014
Banc Fund X, L.P.	71,345,455	80,254,545	7,325,397	0	78,519,843	1.07	2.1	2018
BlackRock	951,774,870	956,392,392	4,527,649	0	1,586,226,231	1.66	17.3	
BlackRock Long Term Capital, SCSP	950,000,000	954,617,522	2,660,745	0	1,586,162,750	1.66	30.1	2019
BlackRock Tempus Fund	1,774,870	1,774,870	1,866,904	0	63,481	1.09	4.5	2015

Minnesota State Board of Investment
Quarter Ending June 30, 2023
Private Markets Investments



Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Blackstone Group L.P.	1,535,000,000	879,614,137	720,258,885	756,712,863	539,645,070	1.43	5.3	
Blackstone Capital Partners IV, L.P.	70,000,000	84,459,884	201,361,236	1,832,302	251,377	2.39	37.0	2002
Blackstone Capital Partners V L.P.	140,000,000	152,408,625	245,685,920	7,027,560	1,214,275	1.62	8.0	2006
Blackstone Capital Partners VI, L.P.	100,000,000	106,834,851	157,913,327	10,975,597	34,587,690	1.80	12.4	2008
Blackstone Capital Partners VII	130,000,000	139,510,319	89,353,422	9,306,402	125,434,966	1.54	13.0	2015
Blackstone Capital Partners VIII LP	150,000,000	99,188,279	6,202,841	62,130,457	106,674,327	1.14	10.6	2019
Blackstone Capital Partners Asia II	270,000,000	29,246,803	0	240,753,197	21,965,314	0.75	-29.2	2021
Blackstone Capital Partners IX	150,000,000	0	0	150,000,000	0			2022
Blackstone Growth	250,000,000	204,707,785	19,742,139	62,787,347	185,649,824	1.00	0.2	2020
Blackstone Growth Equity II	150,000,000	0	0	150,000,000	0			2022
Blackstone Supplemental Account - M	125,000,000	63,257,591	0	61,900,000	63,867,296	1.01	0.7	2021
Blackstone Strategic Partners	915,500,000	698,078,955	846,963,050	303,580,567	248,040,832	1.57	15.0	
Strategic Partners III VC, L.P.	25,000,000	25,075,239	34,045,314	99,607	93,376	1.36	6.0	2004
Strategic Partners III-B, L.P.	100,000,000	79,629,077	118,509,586	12,304,709	214,476	1.49	6.3	2004
Strategic Partners IV VC, L.P.	40,500,000	42,175,414	62,659,747	2,247,328	2,032,353	1.53	9.2	2008
Strategic Partners IV-B	100,000,000	99,445,314	153,252,273	11,580,657	2,937,936	1.57	12.2	2008
Strategic Partners V, LP	100,000,000	87,190,444	135,892,900	12,012,592	7,216,190	1.64	18.5	2011
Strategic Partners VI, L.P.	150,000,000	104,075,534	130,882,448	52,606,791	27,049,176	1.52	14.2	2014
Strategic Partners VII, L.P.	150,000,000	121,382,805	126,292,370	45,708,481	77,995,386	1.68	18.3	2016
Strategic Partners VIII	150,000,000	116,665,772	82,401,365	88,721,490	107,853,609	1.63	34.0	2018
Strategic Partners IX	100,000,000	22,439,356	3,027,047	78,298,913	22,648,330	1.14	16.4	2022
Bridgepoint	270,289,324	159,330,724	14,957,084	115,791,151	223,178,903	1.49	10.4	
Bridgepoint Europe VI L.P.	163,650,051	159,330,724	14,957,084	9,151,877	223,178,903	1.49	20.9	2018
Bridgepoint Europe VII	106,639,274	0	0	106,639,274	0			2022
Brookfield Asset Management Inc.	500,000,000	384,069,284	201,329,386	159,862,205	440,605,614	1.67	28.8	
Brookfield Capital Partners Fund IV	100,000,000	109,806,883	172,956,949	10,864,417	96,282,305	2.45	43.8	2015
Brookfield Capital Partners V L.P.	250,000,000	245,678,311	28,311,500	27,581,880	308,799,115	1.37	16.3	2018
Brookfield Capital Partners Fund VI	150,000,000	28,584,091	60,937	121,415,909	35,524,194	1.24	26.4	2022
Canyon Partners	125,000,000	128,095,847	21,475,843	18,379,996	127,503,778	1.16	9.2	
Canyon Distressed Opportunity Fund III	125,000,000	128,095,847	21,475,843	18,379,996	127,503,778	1.16	9.2	2020
Cardinal Partners	10,000,000	10,000,000	39,196,082	0	30,226	3.92	10.6	
DSV Partners IV	10,000,000	10,000,000	39,196,082	0	30,226	3.92	10.6	1985
Carlyle Group	400,000,000	315,774,884	69,472,567	149,824,832	291,864,007	1.14	1.9	
Carlyle Strategic Partners IV, L.P.	100,000,000	119,848,374	53,429,269	32,306,465	83,488,532	1.14	7.2	2016
Carlyle Partners VII, L.P.	150,000,000	154,627,392	15,998,919	8,816,709	169,100,132	1.20	7.4	2017
Carlyle Partners VIII	150,000,000	41,299,118	44,379	108,701,658	39,275,343	0.95	-9.0	2021
CarVal Investors	600,000,000	512,272,032	410,233,542	92,592,247	265,806,708	1.32	7.2	
CVI Credit Value Fund A II	150,000,000	142,500,000	199,242,174	7,500,000	4,188,427	1.43	8.3	2012
CVI Credit Value Fund A III	150,000,000	142,500,000	162,113,881	7,500,000	31,555,279	1.36	8.4	2015
CVI Credit Value Fund IV	150,000,000	129,772,032	48,722,922	25,092,247	126,206,003	1.35	7.6	2017
CVI Credit Value Fund V	150,000,000	97,500,000	154,566	52,500,000	103,857,000	1.07	4.5	2020

Minnesota State Board of Investment
Quarter Ending June 30, 2023
Private Markets Investments



Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Chicago Growth Partners	60,000,000	58,347,626	123,930,240	1,652,374	10,706	2.12	19.5	
Chicago Growth Partners II, L.P.	60,000,000	58,347,626	123,930,240	1,652,374	10,706	2.12	19.5	2008
Clearlake Capital	100,000,000	51,373,445	2,434	48,626,555	53,225,355	1.04	4.1	
Clearlake Capital Partners VII	100,000,000	51,373,445	2,434	48,626,555	53,225,355	1.04	4.1	2022
Court Square	489,419,132	482,022,506	619,932,310	63,498,854	262,613,845	1.83	16.8	
Court Square Capital Partners II, L.P.	164,419,132	170,029,204	295,744,454	6,176,873	3,187,331	1.76	12.3	2006
Court Square Capital Partners III, L.P.	175,000,000	189,497,317	283,583,858	6,692,921	134,662,199	2.21	20.3	2012
Court Square Capital Partners IV, L.P.	150,000,000	122,495,985	40,603,998	50,629,060	124,764,315	1.35	17.7	2018
CVC Capital Partners	454,575,110	438,451,735	658,197,845	122,860,030	215,395,804	1.99	16.8	
CVC Capital Partners VI	245,475,076	284,567,637	362,639,619	21,301,821	212,682,651	2.02	16.9	2013
CVC Capital Partners IX	100,000,000	0	0	100,000,000	0			2023
CVC European Equity Partners V, L.P.	109,100,034	153,884,098	295,558,227	1,558,209	2,713,153	1.94	16.7	2008
Goldman, Sachs & Co.	449,800,000	379,183,244	341,861,187	163,683,992	236,524,485	1.53	13.7	
GS Capital Partners VI, L.P.	100,000,000	110,285,035	143,299,966	2,551,356	1,618,843	1.31	7.1	2007
GS China-US Cooperation Fund	99,800,000	39,430,412	523,330	60,544,033	52,858,552	1.35	13.2	2018
GS Vintage VII	100,000,000	87,228,595	72,641,061	61,810,828	66,767,869	1.60	15.2	2016
West Street Capital Partners VII, L.P.	150,000,000	142,239,202	125,396,830	38,777,775	115,279,221	1.69	19.5	2016
Goldner Hawn Johnson & Morrison	144,941,388	55,773,532	71,964,283	89,339,823	59,316,508	2.35	18.2	
GHJM TrailHead Fund	20,000,000	16,652,130	51,364,283	3,354,486	6,518,138	3.48	20.2	2012
Goldner Hawn Fund VII, L.P.	57,755,138	39,121,401	20,600,000	18,799,087	52,798,370	1.88	34.5	2018
Goldner Hawn VIII	67,186,250	0	0	67,186,250	0			2023
Green Equity Investors	325,000,000	336,771,391	238,381,912	25,916,600	339,554,719	1.72	10.7	
Green Equity Investors VI, L.P.	200,000,000	224,914,839	237,369,166	11,760,406	213,165,082	2.00	13.9	2012
Green Equity Investors VIII	125,000,000	111,856,552	1,012,746	14,156,194	126,389,637	1.14	7.6	2020
GTCR	210,000,000	214,082,258	454,867,110	16,665,460	122,510,750	2.70	27.5	
GTCR Fund X	100,000,000	105,821,208	215,422,690	6,751,396	0	2.04	21.4	2010
GTCR XI	110,000,000	108,261,050	239,444,420	9,914,064	122,510,750	3.34	33.6	2013
HarbourVest	21,372,808	20,940,767	26,666,665	793,901	4,807,920	1.50	9.7	
Dover Street VII Cayman Fund L.P.	2,198,112	2,074,235	1,845,767	132,416	17,043	0.90	-4.5	2014
HarbourVest Intl PE Partners V-Cayman US	3,386,759	3,346,199	4,508,944	174,560	25,307	1.36	13.6	2014
Harbourvest Intl PE Partners VI-Cayman	4,090,328	4,039,473	5,645,630	190,925	2,176,784	1.94	15.0	2014
HarbourVest Partners VIII Cayman Buyout	4,506,711	4,390,673	5,849,345	156,000	410,861	1.43	13.3	2014
HarbourVest Partners VIII-Cayman Venture	7,190,898	7,090,187	8,816,978	140,000	2,177,925	1.55	11.0	2014
Hellman & Friedman	575,000,000	409,760,506	165,633,592	177,960,641	424,848,527	1.44	10.0	
Hellman & Friedman Capital Partners VII, L.P.	50,000,000	49,914,704	154,063,260	2,183,886	10,193,452	3.29	24.9	2009
Hellman & Friedman Capital Partners X	250,000,000	186,382,141	7,412,203	71,030,062	182,565,086	1.02	1.6	2021
Hellman & Friedman Capital Partners XI	100,000,000	0	0	100,000,000	0			2023
Hellman & Friedman Investors IX, L.P.	175,000,000	173,463,661	4,158,129	4,746,693	232,089,989	1.36	13.5	2018

Minnesota State Board of Investment
Quarter Ending June 30, 2023
Private Markets Investments



Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
IK Limited	581,224,421	472,935,898	502,315,911	159,135,449	285,440,729	1.67	9.0	
IK Fund VII	163,650,051	179,393,652	319,311,212	8,274,443	20,910,568	1.90	14.4	2013
IK Fund VIII	163,650,051	177,056,244	183,004,699	8,375,586	143,196,157	1.84	19.0	2016
IK Fund IX	147,285,046	116,486,003	0	35,846,146	121,334,005	1.04	2.6	2019
IK Fund X	106,639,274	0	0	106,639,274	0			2022
Kohlberg, Kravis, Roberts & Co.	1,797,000,000	1,126,419,814	962,399,113	744,369,771	749,624,507	1.52	6.8	
KKR 2006 Fund L.P.	200,000,000	218,137,965	392,492,978	3,300,979	147,966	1.80	9.1	2006
KKR Americas Fund XII L.P.	150,000,000	146,879,040	68,761,699	17,931,609	159,572,755	1.55	15.6	2016
KKR Ascendant Strategy	150,000,000	0	0	150,000,000	0			2023
KKR Asian Fund III	100,000,000	95,239,707	51,539,308	16,019,039	109,435,599	1.69	20.7	2017
KKR Asian Fund IV	150,000,000	69,241,077	1,640,757	85,921,125	72,976,854	1.08	6.7	2020
KKR Core Investments Partnership	97,000,000	100,504,008	5,416,200	2,662,724	113,529,736	1.18	12.0	2021
KKR Core Investments Fund II	100,000,000	0	0	100,000,000	0			2022
KKR Europe V	100,000,000	88,425,065	16,882,045	16,523,617	90,453,343	1.21	9.9	2018
KKR European Fund VI (USD) SCSp	100,000,000	16,320,027	0	83,679,973	14,484,203	0.89	-11.2	2022
KKR Millennium Fund	200,000,000	205,167,570	424,946,028	0	162,060	2.07	16.4	2002
KKR MN Partnership L.P.	150,000,000	80,488,217	720,098	69,511,783	85,635,841	1.07	6.2	2021
KKR North America Fund XIII	300,000,000	106,017,138	0	198,818,922	103,226,150	0.97	-3.1	2021
Lexington Partners	1,345,000,000	1,092,847,474	758,872,552	319,653,935	879,493,962	1.50	19.2	
Lexington Capital Partners VI-B, L.P.	100,000,000	98,374,022	145,958,371	1,634,703	523,842	1.49	7.9	2005
Lexington Capital Partners VII, L.P.	200,000,000	173,199,401	266,823,840	30,768,965	22,893,500	1.67	14.5	2009
Lexington Capital Partners VIII, L.P.	150,000,000	136,614,631	138,342,403	32,435,593	89,640,768	1.67	16.3	2014
Lexington Capital Partners IX, L.P.	150,000,000	119,793,422	34,752,512	43,035,124	143,116,602	1.48	27.3	2018
Lexington Capital Partners X	100,000,000	7,500,000	0	92,500,000	10,681,193	1.42	42.4	2021
Lexington Co-Investment Partners IV	200,000,000	215,808,686	132,540,232	4,966,398	229,124,906	1.68	16.5	2017
Lexington Co-Investment Partners V	300,000,000	226,573,417	10,031,374	83,457,957	255,974,374	1.17	16.0	2020
Lexington Co-Investment Partners V Overage	45,000,000	31,086,000	839,090	14,753,090	34,304,170	1.13	10.2	2021
Lexington Middle Market Investors IV	100,000,000	83,897,895	29,584,730	16,102,105	93,234,607	1.46	21.4	2016
Madison Dearborn Capital Partners LLC	200,000,000	176,176,809	68,213,581	48,398,262	179,134,911	1.40	8.2	
Madison Dearborn Capital Partners VII, L.P.	100,000,000	99,647,695	60,112,099	16,966,707	108,011,412	1.69	13.5	2015
Madison Dearborn Capital Partners VIII-A, L.P.	100,000,000	76,529,114	8,101,482	31,431,555	71,123,499	1.04	2.9	2019
Marathon	200,000,000	161,906,171	6,185,200	44,000,000	177,937,188	1.14	8.2	
Marathon Distressed Credit Fund	200,000,000	161,906,171	6,185,200	44,000,000	177,937,188	1.14	8.2	2020
Merced Capital	178,737,500	184,266,287	150,140,076	0	64,807,334	1.17	3.7	
Merced Partners IV	125,000,000	124,968,390	120,597,539	0	17,777,882	1.11	2.1	2013
Merced Partners V	53,737,500	59,297,897	29,542,537	0	47,029,452	1.29	5.3	2017
MHR Institutional Partners	75,000,000	83,022,509	24,307,372	11,735,519	98,668,144	1.48	11.0	
MHR Institutional Partners IV LP	75,000,000	83,022,509	24,307,372	11,735,519	98,668,144	1.48	11.0	2014

Minnesota State Board of Investment
Quarter Ending June 30, 2023
Private Markets Investments



Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Neuberger Berman LLC	625,000,000	447,321,716	350,805,313	440,842,523	428,758,461	1.74	30.5	
Dyal Capital Partners III	175,000,000	212,783,584	213,288,776	108,355,278	168,447,163	1.79	26.8	2015
Dyal Capital Partners IV	250,000,000	178,538,132	125,879,198	178,327,969	200,702,210	1.83	44.9	2018
Dyal Capital Partners V	200,000,000	56,000,000	11,637,339	154,159,276	59,609,088	1.27	19.7	2020
Nordic Capital	581,224,421	521,941,309	334,068,552	155,014,509	444,153,094	1.49	13.6	
Nordic Capital Fund VIII	163,650,051	225,322,480	295,912,941	14,170,797	60,260,060	1.58	12.9	2013
Nordic Capital IX Beta, L.P.	163,650,051	177,781,572	38,155,612	6,457,844	239,309,604	1.56	18.6	2017
Nordic Capital Fund X	147,285,046	118,837,256	0	27,746,595	144,583,430	1.22	23.1	2020
Nordic Capital Fund XI	106,639,274	0	0	106,639,274	0			2022
Oak Hill Capital Management, Inc.	250,000,000	246,282,642	219,518,109	11,268,440	185,719,671	1.65	23.4	
Oak Hill Capital Partners IV Onshore LP	150,000,000	153,245,546	219,478,696	4,305,536	68,444,366	1.88	32.7	2016
Oak Hill Capital Partners V	100,000,000	93,037,096	39,414	6,962,904	117,275,306	1.26	14.1	2018
Oaktree Capital Management, LLC	387,000,000	203,352,882	62,914,692	237,320,535	206,634,799	1.33	16.1	
Oaktree Special Situations Fund, L.P.	100,000,000	103,873,391	20,335,451	7,741,294	94,796,329	1.11	2.4	2014
Oaktree Special Situations Fund II, L.P.	100,000,000	99,479,491	42,579,241	42,579,241	111,838,470	1.55	45.9	2018
Oaktree Special Situations Fund III	187,000,000	0	0	187,000,000	0			2022
Paine & Partners, LLC	325,000,000	222,272,128	79,724,950	126,393,601	222,497,341	1.36	7.2	
Paine Schwartz Food Chain Fund IV	75,000,000	69,747,990	35,397,971	14,110,631	60,185,286	1.37	7.5	2014
Paine Schwartz Food Chain Fund V, L.P.	150,000,000	128,316,549	44,184,222	36,110,348	140,253,898	1.44	24.0	2018
Paine Schwartz Food Chain VI	100,000,000	24,207,589	142,757	76,172,622	22,058,157	0.92	-9.8	2023
Permal PE	5,337,098	4,401,655	4,672,751	1,090,000	372,412	1.15	4.6	
Glouston Private Equity Opportunities IV	5,337,098	4,401,655	4,672,751	1,090,000	372,412	1.15	4.6	2014
Permira	605,505,188	485,522,430	466,909,794	187,184,601	445,390,454	1.88	8.6	
Permira V, L.P.	163,650,051	184,423,912	380,461,905	4,592,876	115,259,247	2.69	21.0	2013
Permira VI, L.P.	130,920,041	128,354,778	75,222,218	28,037,579	165,862,544	1.88	17.3	2016
Permira VII L.P.1	147,285,046	147,198,277	11,225,671	16,829,368	140,063,869	1.03	1.4	2019
Permira VIII	163,650,051	25,545,463	0	137,724,778	24,204,794	0.95	-5.2	2022
Public Pension Capital Management	285,000,000	162,322,320	102,191,267	142,256,138	203,144,265	1.88	23.2	
Public Pension Capital, LLC	285,000,000	162,322,320	102,191,267	142,256,138	203,144,265	1.88	23.2	2014
Silver Lake Partners	335,000,000	345,266,133	368,178,778	30,892,072	337,877,204	2.04	18.0	
Silver Lake Partners III, L.P.	100,000,000	93,866,167	192,376,979	9,528,468	25,008,127	2.32	18.3	2007
Silver Lake Partners IV	100,000,000	115,939,897	126,010,284	2,881,307	158,908,523	2.46	21.7	2012
Silver Lake Partners V, L.P.	135,000,000	135,460,069	49,791,515	18,482,297	153,960,554	1.50	13.8	2017
Siris Capital Group	67,875,000	0	0	67,875,000	0		0.0	
Siris V	67,875,000	0	0	67,875,000	0			2022
Split Rock	110,000,000	107,055,906	125,392,564	2,944,094	25,119,022	1.41	5.0	
Split Rock Partners LP	50,000,000	47,890,906	58,794,192	2,109,094	2,302,648	1.28	3.0	2005
Split Rock Partners II, LP	60,000,000	59,165,000	66,598,372	835,000	22,816,374	1.51	7.0	2008

Minnesota State Board of Investment
Quarter Ending June 30, 2023
Private Markets Investments



Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Summit Partners	600,000,000	447,825,237	411,555,543	366,502,454	415,298,147	1.85	20.7	
Summit Partners Growth Equity Fund VIII	100,000,000	116,727,192	237,084,364	23,129,320	48,728,283	2.45	26.3	2011
Summit Partners Growth Equity Fund IX	100,000,000	132,784,916	141,424,991	108,640,075	151,081,688	2.20	31.5	2015
Summit Partners Growth Equity Fund X-A	150,000,000	137,296,520	33,046,188	45,749,668	152,158,183	1.35	18.2	2019
Summit Partners Growth Equity Fund XI	250,000,000	61,016,609	0	188,983,391	63,329,993	1.04	6.7	2021
TA Associates	80,000,000	0	0	80,000,000	0		0.0	
TA XV	80,000,000	0	0	80,000,000	0			2023
Thoma Bravo LLC	525,000,000	532,458,175	284,137,643	65,267,015	519,362,216	1.51	13.2	
Thoma Bravo Fund XII, L.P.	75,000,000	81,949,004	84,992,456	18,452,144	78,591,206	2.00	16.1	2016
Thoma Bravo Fund XIII, L.P.	150,000,000	184,783,234	92,067,654	12,475,387	225,660,160	1.72	27.5	2018
Thoma Bravo Fund XIV	150,000,000	147,759,334	37	2,240,666	147,112,296	1.00	-0.2	2020
Thoma Bravo Fund XV LP	100,000,000	67,966,603	19,556	32,098,818	67,593,318	0.99	-0.8	2021
Thoma Cressey Fund VII, L.P.	50,000,000	50,000,000	107,057,940	0	405,237	2.15	23.6	2000
Thomas H. Lee Partners	400,000,000	311,822,415	262,678,078	117,709,866	243,433,331	1.62	15.8	
Thomas H. Lee Equity Fund VII, LP.	100,000,000	99,643,507	137,891,993	10,518,650	47,113,559	1.86	21.3	2015
Thomas H. Lee Equity Fund VIII, L.P.	150,000,000	147,208,530	124,786,085	22,161,594	135,076,029	1.77	35.7	2018
Thomas H. Lee Equity Fund IX	150,000,000	64,970,378	0	85,029,622	61,243,742	0.94	-9.6	2021
TPG Capital	650,000,000	402,633,473	196,922,580	291,622,989	390,197,040	1.46	13.1	
TPG Growth V	150,000,000	104,342,948	8,437,171	53,658,205	122,659,194	1.26	18.2	2021
TPG Partners VII, L.P.	100,000,000	101,004,041	156,773,574	16,884,812	41,128,594	1.96	19.8	2015
TPG Partners VIII	150,000,000	147,426,581	31,421,240	20,939,875	177,075,370	1.41	27.8	2018
TPG Partners IX, L.P.	100,000,000	0	0	100,000,000	0			2022
TPG Tech Adjacencies II, L.P.	150,000,000	49,859,903	290,595	100,140,097	49,333,881	1.00	-0.5	2021
Varde Fund	631,286,710	608,861,188	723,333,846	22,425,522	199,804,111	1.52	8.2	
Varde Fund IX, L.P.	100,000,000	100,000,000	216,671,921	0	0	2.17	15.0	2008
Varde Fund X, LP	150,000,000	150,000,000	253,807,303	0	5,098,221	1.73	10.0	2010
Varde Fund XI, LP	200,000,000	200,000,000	227,185,961	0	34,089,875	1.31	4.4	2013
Varde Fund XIII, L.P.	150,000,000	144,000,000	25,668,661	6,000,000	145,303,299	1.19	7.6	2018
Varde Fund XIV	31,286,710	14,861,188	0	16,425,522	15,312,715	1.03	4.0	2022
Vestar Capital Partners	325,000,000	310,640,217	287,092,671	24,974,147	183,644,749	1.52	12.1	
Vestar Capital Partners V, L.P.	75,000,000	76,797,458	100,961,586	0	147,707	1.32	3.9	2005
Vestar Capital Partners VI, LP	100,000,000	108,816,906	152,887,343	0	66,608,922	2.02	23.5	2011
Vestar Capital Partners VII, L.P.	150,000,000	125,025,853	33,243,742	24,974,147	116,888,120	1.20	8.9	2017
Vista Equity Partners	200,000,000	147,738,030	77,223	53,474,873	166,298,546	1.13	4.8	
Vista Equity Partners Perennial	200,000,000	147,738,030	77,223	53,474,873	166,298,546	1.13	4.8	2020

Minnesota State Board of Investment
Quarter Ending June 30, 2023
Private Markets Investments



Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Warburg Pincus	1,416,000,000	1,128,515,379	1,063,252,893	293,198,500	778,845,102	1.63	10.2	
Warburg Pincus China, L.P.	45,000,000	46,935,000	17,602,200	0	46,742,452	1.37	8.2	2016
Warburg Pincus China-Southeast Asia II	50,000,000	26,000,000	4,097,500	24,000,000	22,854,271	1.04	2.3	2019
Warburg, Pincus Equity Partners, L.P.	100,000,000	100,000,000	163,542,253	0	400,857	1.64	10.0	1998
Warburg Pincus Financial Sector	90,000,000	90,562,652	34,617,600	3,555,000	129,362,847	1.81	20.3	2017
Warburg Pincus Global Growth, L.P.	250,000,000	225,866,992	5,789,114	23,875,000	305,969,705	1.38	13.8	2018
Warburg Pincus Global Growth 14, L.P.	300,000,000	59,576,783	0	240,000,000	58,771,140	0.99	-1.5	2022
Warburg Pincus Private Equity IX, L.P.	100,000,000	100,000,000	172,072,950	0	38,831	1.72	9.6	2005
Warburg Pincus Private Equity X, LP	150,000,000	150,000,000	266,806,541	0	2,757,041	1.80	9.5	2007
Warburg Pincus Private Equity XI, LP	200,000,000	200,342,452	262,255,748	0	85,348,886	1.74	11.9	2012
Warburg Pincus Private Equity XII, LP	131,000,000	129,231,500	136,468,988	1,768,500	126,599,072	2.04	17.6	2015
Wayzata Investment Partners	150,000,000	68,415,000	51,516,408	15,000,000	19,776,761	1.04	0.9	
Wayzata Opportunities Fund III	150,000,000	68,415,000	51,516,408	15,000,000	19,776,761	1.04	0.9	2012
Wellspring Capital Partners	125,000,000	152,361,431	57,804,878	12,973,229	168,005,231	1.48	19.2	
Wellspring Capital Partners VI, L.P.	125,000,000	152,361,431	57,804,878	12,973,229	168,005,231	1.48	19.2	2016
Welsh, Carson, Anderson & Stowe	650,000,000	484,046,168	474,651,929	165,953,832	368,832,405	1.74	7.5	
Welsh, Carson, Anderson & Stowe XI, L.P.	100,000,000	100,000,000	161,464,441	0	6,926,327	1.68	11.7	2008
Welsh, Carson, Anderson & Stowe XII, L.P.	150,000,000	150,000,000	223,398,784	0	135,017,233	2.39	25.8	2014
Welsh, Carson, Anderson & Stowe XIII, L.P.	250,000,000	213,945,620	89,788,704	36,054,380	211,508,407	1.41	23.3	2018
Welsh, Carson, Anderson & Stowe XIV	150,000,000	20,100,548	0	129,899,452	15,380,437	0.77	-30.9	2022
Whitehorse Capital	300,000,000	254,605,880	165,212,572	109,335,177	155,343,421	1.26	18.1	
Whitehorse Liquidity Partners III	100,000,000	104,256,456	87,372,605	13,688,231	55,924,578	1.37	19.4	2019
Whitehorse Liquidity Partners IV	100,000,000	95,855,329	54,465,430	28,591,101	63,139,766	1.23	18.8	2020
Whitehorse Liquidity Partners V	100,000,000	54,494,095	23,374,537	67,055,845	36,279,077	1.09	16.2	2021
Wind Point Partners	200,000,000	130,434,841	3,109,544	72,679,306	169,012,779	1.32	16.6	
Wind Point Partners IX	100,000,000	93,964,209	3,109,544	9,149,938	129,870,527	1.42	21.1	2019
Wind Point Partners X	100,000,000	36,470,632	0	63,529,368	39,142,252	1.07	12.2	2022
Windjammer Capital Investors	441,708,861	232,306,454	291,414,378	225,164,132	148,696,442	1.89	11.3	
Windjammer Capital Fund VI	175,000,000	0	0	175,000,000	0			2023
Windjammer Senior Equity Fund IV, L.P.	100,000,000	94,740,728	166,415,656	21,167,914	71,635,844	2.51	17.8	2012
Windjammer Senior Equity Fund V, L.P.	100,000,000	82,350,042	39,549,152	18,856,855	76,891,947	1.41	18.4	2017
Windjammer Mezzanine & Equity Fund II	66,708,861	55,215,684	85,449,570	10,139,363	168,651	1.55	9.0	2000

Minnesota State Board of Investment
Quarter Ending June 30, 2023
Private Markets Investments



Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Private Credit	4,080,253,754	3,233,031,688	2,408,877,849	1,332,406,734	1,884,674,414	1.33	9.3	
Audax Group	350,000,000	228,179,634	215,424,996	144,327,429	73,508,734	1.27	13.9	
Audax Mezzanine Fund III, L.P.	100,000,000	105,207,316	133,977,984	0	5,457,799	1.33	9.8	2010
Audax Mezzanine Fund IV-A, L.P.	100,000,000	88,946,795	78,137,566	27,531,278	33,655,730	1.26	12.0	2015
Audax Mezzanine Fund V	150,000,000	34,025,524	3,309,446	116,796,151	34,395,204	1.11	20.1	2020
Avenue Capital Partners	200,000,000	200,977,328	178,946,043	0	159,214,186	1.68	10.7	
Avenue Energy Opportunities Fund, L.P.	100,000,000	100,977,328	80,568,142	0	71,899,947	1.51	6.7	2014
Avenue Energy Opportunities Fund II	100,000,000	100,000,000	98,377,901	0	87,314,240	1.86	14.7	2017
BlackRock	97,500,000	93,275,368	17,419,531	4,224,632	99,963,119	1.26	7.8	
BlackRock Middle Market Senior Fund	97,500,000	93,275,368	17,419,531	4,224,632	99,963,119	1.26	7.8	2018
Brookfield Asset Management Inc.	200,000,000	72,071,352	21,878,738	144,389,725	59,230,525	1.13	17.9	
Brookfield Real Estate Finance Fund VI	200,000,000	72,071,352	21,878,738	144,389,725	59,230,525	1.13	17.9	2021
Castlelake L.P.	100,000,000	0	0	100,000,000	0		0.0	
Castlelake Aviation V Stable Yield	100,000,000	0	0	100,000,000	0			2023
Energy Capital Partners	28,087,500	34,513,848	11,074,135	4,647,787	25,236,255	1.05	4.0	
Energy Capital Credit Solutions II-A	28,087,500	34,513,848	11,074,135	4,647,787	25,236,255	1.05	4.0	2018
Gold Hill	65,852,584	65,852,584	113,654,899	0	2,886,179	1.77	12.6	
Gold Hill 2008	25,852,584	25,852,584	48,393,297	0	2,582,274	1.97	14.4	2008
Gold Hill Venture Lending	40,000,000	40,000,000	65,261,602	0	303,906	1.64	10.7	2004
HPS Investment Partners	200,000,000	123,410,483	35,193,080	102,373,626	110,462,783	1.18	7.2	
HPS Mezzanine Partners 2019, L.P.	100,000,000	95,382,125	30,801,952	26,010,856	86,030,137	1.22	10.3	2019
HPS Strategic Investment Partners V	100,000,000	28,028,358	4,391,128	76,362,770	24,432,646	1.03	4.0	2022
Kohlberg, Kravis, Roberts & Co.	274,000,000	371,969,233	331,200,572	89,442,728	105,267,602	1.17	7.6	
KKR Lending Partner II L.P.	75,000,000	87,050,313	84,852,023	8,802,924	4,863,101	1.03	1.5	2015
KKR Lending Partners III L.P.	199,000,000	284,918,920	246,348,549	80,639,804	100,404,501	1.22	13.6	2017
LBC Credit Partners	200,000,000	209,243,000	163,074,779	61,614,942	84,674,904	1.18	11.7	
LBC Credit Partners IV, L.P.	100,000,000	120,079,392	120,475,586	27,043,046	21,265,192	1.18	8.5	2016
LBC Credit Partners V, L.P.	100,000,000	89,163,607	42,599,193	34,571,896	63,409,712	1.19	15.0	2019
Marathon	200,000,000	124,234,784	5,929,184	81,787,224	148,358,165	1.24	6.9	
Marathon Secured Private Strategies Fund II	100,000,000	96,022,008	5,858,534	10,000,000	119,976,930	1.31	10.7	2019
Marathon Secured Private Strategies Fund III	100,000,000	28,212,776	70,649	71,787,224	28,381,235	1.01	3.1	2022
Merit Capital Partners	350,000,000	252,931,972	349,468,068	97,001,229	78,683,124	1.69	5.0	
Merit Mezzanine Fund IV, L.P.	75,000,000	70,178,571	139,120,463	4,821,429	1,112,906	2.00	11.6	2004
Merit Mezzanine Fund V, LP	75,000,000	72,306,122	108,565,889	2,693,878	11,901,338	1.67	10.0	2009
Merit Mezzanine Fund VI	100,000,000	92,629,096	101,781,716	7,304,104	50,021,363	1.64	16.8	2016
Merit Mezzanine Fund VII	100,000,000	17,818,182	0	82,181,818	15,647,517	0.88	-18.4	2020
Oaktree Capital Management, LLC	650,000,000	475,840,920	60,716,754	180,700,000	523,111,177	1.23	11.5	
Oaktree Opportunities Fund X, L.P.	50,000,000	46,500,021	38,544,660	8,500,000	30,516,736	1.49	9.4	2015
Oaktree Opportunities Fund Xb, L.P.	100,000,000	75,000,000	0	25,000,000	110,834,325	1.48	13.9	2015
Oaktree Real Estate Debt III	200,000,000	99,340,899	19,975,318	102,200,000	93,673,905	1.14	10.7	2020
Oaktree Opportunities Fund XI	300,000,000	255,000,000	2,196,776	45,000,000	288,086,211	1.14	12.0	2020

Minnesota State Board of Investment
Quarter Ending June 30, 2023
Private Markets Investments



Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
PIMCO BRAVO	5,243,670	4,745,149	5,714,432	5,350,003	255,959	1.26	4.8	
PIMCO Bravo Fund OnShore Feeder II	5,243,670	4,745,149	5,714,432	5,350,003	255,959	1.26	4.8	2014
Prudential Global Investment Mgmt	600,000,000	530,422,039	563,891,070	123,726,938	174,686,519	1.39	12.3	
Prudential Capital Partners II, L.P.	100,000,000	97,930,132	145,671,152	11,049,052	488,725	1.49	9.0	2005
Prudential Capital Partners III, L.P.	100,000,000	102,871,088	174,839,469	13,586,923	2,849,084	1.73	14.1	2009
Prudential Capital Partners IV	100,000,000	113,143,330	133,421,700	1,948,707	19,458,486	1.35	8.6	2012
Prudential Capital Partners V, L.P.	150,000,000	152,783,202	102,178,772	8,439,070	85,846,049	1.23	7.4	2016
PGIM Capital Partners VI, L.P.	150,000,000	63,694,287	7,779,977	88,703,186	66,044,175	1.16	22.4	2020
Summit Partners	95,000,000	100,002,497	137,062,090	22,177,023	2,097,439	1.39	9.2	
Summit Subordinated Debt Fund III, L.P.	45,000,000	44,088,494	62,804,226	2,250,000	537,254	1.44	8.6	2004
Summit Subordinated Debt Fund IV, L.P.	50,000,000	55,914,003	74,257,864	19,927,023	1,560,186	1.36	9.8	2008
TCW	189,570,000	174,519,135	154,180,226	59,157,056	69,930,532	1.28	9.3	
TCW Direct Lending LLC	89,570,000	83,599,652	88,959,322	14,899,409	19,330,558	1.30	8.3	2014
TCW Direct Lending VII	100,000,000	90,919,484	65,220,904	44,257,647	50,599,973	1.27	10.2	2018
TSSP	275,000,000	170,842,362	44,049,254	111,486,392	167,107,212	1.24	6.9	
Sixth Street Opportunities Partners V	75,000,000	21,628,194	712,372	53,606,350	19,682,670	0.94	-6.6	2021
Sixth Street TAO Partners (B), L.P.	50,000,000	47,754,708	20,556,001	22,817,104	42,097,400	1.31	10.4	2018
Sixth Street TAO Partners (D), L.P.	100,000,000	61,073,149	15,951,628	26,425,007	60,480,239	1.25	13.2	2018
TSSP Opportunities Partners IV (A), L.P.	50,000,000	40,386,311	6,829,253	8,637,931	44,846,904	1.28	10.5	2018

Minnesota State Board of Investment
Quarter Ending June 30, 2023
Private Markets Investments



Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Real Assets	4,197,571,518	3,924,883,304	2,808,514,500	581,616,327	2,105,772,625	1.25	6.3	
BlackRock	198,500,000	162,397,309	71,583,086	46,914,650	120,800,312	1.18	8.1	
BlackRock Global Renewable Power Fund II	98,500,000	104,674,253	68,717,826	2,843,682	59,416,751	1.22	6.3	2017
BlackRock Global Renewable Power Infrastructure III	100,000,000	57,723,056	2,865,259	44,070,968	61,383,561	1.11	10.0	2019
EIG Global Energy Partners	450,000,000	470,613,496	385,532,797	77,704,481	136,881,092	1.11	0.8	
EIG Energy Fund XIV	100,000,000	113,459,470	95,309,310	2,761,129	3,585,109	0.87	-5.0	2007
EIG Energy Fund XV	150,000,000	161,497,867	156,372,490	22,871,323	18,473,639	1.08	1.9	2010
EIG Energy Fund XVI	200,000,000	195,656,159	133,850,997	52,072,029	114,822,343	1.27	5.6	2013
Encap Energy	300,000,000	322,304,990	322,894,964	8,326,109	145,865,069	1.45	8.9	
EnCap Energy Capital Fund VIII, L.P.	100,000,000	103,352,598	67,325,767	0	40,782,541	1.05	0.8	2010
Encap Energy Fund IX	100,000,000	113,725,245	132,573,789	3,890,055	33,980,909	1.46	10.5	2012
EnCap Energy Capital Fund X, L.P.	100,000,000	105,227,147	122,995,408	4,436,053	71,101,618	1.84	15.3	2015
Energy & Minerals Group	680,000,000	692,602,709	421,349,474	44,221,087	534,173,071	1.38	9.7	
NGP Midstream & Resources, L.P.	100,000,000	103,565,615	179,560,149	17,857	4,525,782	1.78	13.2	2007
The Energy & Minerals Group Fund II, L.P.	100,000,000	108,534,480	108,598,045	170,365	105,971,883	1.98	12.1	2011
The Energy & Minerals Group Fund III, L.P.	200,000,000	207,635,331	37,373,504	1,219,725	110,433,882	0.71	-4.8	2014
The Energy & Minerals Group Fund IV, LP	150,000,000	163,358,656	90,955,893	14,023,899	147,363,583	1.46	8.6	2015
The Energy & Minerals Group Fund V	112,500,000	92,332,817	3,658,916	23,199,538	139,979,769	1.56	14.2	2019
The Energy & Minerals Group Fund V Accordion, LP	17,500,000	17,175,810	1,202,967	5,589,703	25,898,171	1.58	14.9	2019
Energy Capital Partners	500,000,000	421,489,500	343,310,881	159,684,838	248,363,043	1.40	8.6	
Energy Capital Partners III, L.P.	200,000,000	235,844,231	302,156,801	30,959,867	47,429,617	1.48	10.9	2013
Energy Capital Partners IV-A, LP	150,000,000	126,963,783	41,154,080	36,494,241	143,164,156	1.45	16.5	2017
Energy Capital Partners V	150,000,000	58,681,486	0	92,230,730	57,769,270	0.98	-1.6	2023
Enervest Management Partners	100,000,000	99,324,433	101,510,847	8,769,265	54,941,381	1.58	10.1	
EnerVest Energy Institutional Fund XIV-A, L.P.	100,000,000	99,324,433	101,510,847	8,769,265	54,941,381	1.58	10.1	2015
First Reserve	500,000,000	554,272,050	310,314,749	10,330,243	95,881,827	0.73	-9.7	
First Reserve Fund XI, L.P.	150,000,000	150,292,121	100,059,903	0	67,614	0.67	-8.8	2006
First Reserve Fund XII, L.P.	150,000,000	165,617,044	85,669,271	0	182,952	0.52	-17.9	2008
First Reserve Fund XIII, L.P.	200,000,000	238,362,885	124,585,575	10,330,243	95,631,261	0.92	-2.4	2013

Minnesota State Board of Investment
Quarter Ending June 30, 2023
Private Markets Investments



Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Kohlberg, Kravis, Roberts & Co.	249,850,000	192,495,060	39,665,685	71,866,523	186,473,377	1.17	5.2	
KKR Global Infrastructure Investors III	149,850,000	135,517,819	37,946,283	25,591,907	131,106,935	1.25	10.1	2018
KKR Global Infrastructure Investors IV	100,000,000	56,977,241	1,719,402	46,274,616	55,366,443	1.00	0.3	2021
Merit Energy Partners	519,721,518	384,644,480	204,431,097	94,599,899	312,361,532	1.34	8.2	
Merit Energy Partners F-II, L.P.	100,000,000	59,522,861	34,132,129	0	6,067,920	0.68	-5.5	2006
Merit Energy Partners H	100,000,000	100,000,000	29,668,582	0	47,306,974	0.77	-3.6	2011
Merit Energy Partners I, L.P.	169,721,518	169,721,518	112,039,060	0	166,200,476	1.64	9.5	2014
Merit Energy Partners K, L.P.	150,000,000	55,400,101	28,591,326	94,599,899	92,786,162	2.19	32.4	2019
NGP	599,500,000	590,386,271	574,770,920	45,679,233	242,322,922	1.38	9.1	
Natural Gas Partners IX, LP	150,000,000	174,005,353	249,411,654	605,481	358,049	1.44	12.1	2007
NGP Natural Resources X, L.P.	150,000,000	149,357,872	132,217,257	642,128	15,607,343	0.99	-0.3	2011
NGP Natural Resources XI, L.P.	150,000,000	154,850,028	133,858,376	6,290,493	112,784,534	1.59	10.8	2014
NGP Natural Resources XII, L.P.	149,500,000	112,173,018	59,283,633	38,141,131	113,572,996	1.54	13.7	2017
Sheridan	100,000,000	34,353,005	33,150,000	13,520,000	27,708,999	1.77	13.3	
Sheridan Production Partners III-B, L.P.	100,000,000	34,353,005	33,150,000	13,520,000	27,708,999	1.77	13.3	2014

Minnesota State Board of Investment
Quarter Ending June 30, 2023
Private Markets Investments



Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Real Estate	4,423,147,868	3,013,187,974	2,091,932,132	1,727,068,945	2,011,060,663	1.36	5.8	
Angelo, Gordon & Co.	650,000,000	467,562,691	277,532,407	235,655,000	354,421,320	1.35	10.0	
AG Asia Realty Fund III, L.P.	50,000,000	47,587,261	47,125,000	6,196,250	16,132,122	1.33	10.1	2016
AG Asia Realty Fund IV, L.P.	100,000,000	79,350,334	33,500,000	36,797,500	73,441,747	1.35	14.4	2018
AG Asia Realty Fund V	100,000,000	0	0	100,000,000	0			2023
AG Europe Realty Fund II, L.P.	75,000,000	68,635,121	33,769,976	12,768,750	68,504,804	1.49	11.2	2018
AG Europe Realty Fund III	75,000,000	45,713,586	3,000,000	29,437,500	50,854,357	1.18	10.1	2020
AG Realty Fund IX	100,000,000	92,141,126	87,000,000	11,650,000	36,238,982	1.34	6.9	2014
AG Realty Fund X, L.P.	150,000,000	134,135,263	73,137,431	38,805,000	109,249,309	1.36	17.1	2018
Blackstone	1,124,500,000	906,880,264	904,240,574	387,382,886	576,449,772	1.63	3.4	
Blackstone Real Estate Partners Asia II	74,500,000	69,529,328	15,431,181	15,016,187	68,578,113	1.21	7.5	2017
Blackstone Real Estate Partners Asia III	100,000,000	14,930,124	2,368	86,266,767	12,888,941	0.86	-17.2	2021
Blackstone Real Estate Partners V	100,000,000	104,217,981	209,143,624	4,174,052	117,456	2.01	10.8	2006
Blackstone Real Estate Partners VI, L.P.	100,000,000	109,528,873	218,606,081	4,907,906	1,426,967	2.01	13.1	2007
Blackstone Real Estate Partners VII, LP	100,000,000	112,390,951	181,590,498	10,855,329	18,783,571	1.78	14.9	2011
Blackstone Real Estate VIII.TE.1 L.P.	150,000,000	174,197,714	178,468,578	21,143,177	113,957,717	1.68	15.7	2015
Blackstone Real Estate Partners IX, L.P.	300,000,000	313,554,841	100,998,244	52,483,254	353,956,678	1.45	23.9	2018
Blackstone Real Estate Partners X	200,000,000	8,530,453	0	192,536,214	6,740,329	0.79	-41.4	2022
Blackstone Strategic Partners	75,000,000	77,489,811	66,234,275	916,710	858,620	0.87	-3.2	
Strategic Partners III RE, L.P.	25,000,000	25,981,820	15,252,523	9,006	95,929	0.59	-6.4	2005
Strategic Partners IV RE, L.P.	50,000,000	51,507,991	50,981,752	907,704	762,691	1.00	0.1	2008
Brookfield Asset Management Inc.	300,000,000	154,495,186	7,380,906	152,818,913	159,458,689	1.08	15.3	
Brookfield Strategic Real Estate Partners IV	300,000,000	154,495,186	7,380,906	152,818,913	159,458,689	1.08	15.3	2021
Carlyle Group	450,000,000	154,446,202	106,572,205	366,882,668	102,221,650	1.35	-5.0	
Carlyle Realty Partners IX	300,000,000	29,317,268	0	270,682,732	22,334,247	0.76	-36.6	2021
Carlyle Realty Partners VIII, L.P.	150,000,000	125,128,934	106,572,205	96,199,936	79,887,403	1.49	26.6	2017
Kohlberg, Kravis, Roberts & Co.	125,000,000	74,887,791	6,247,764	52,949,756	66,195,441	0.97	-2.7	
KKR Real Estate Partners Americas III	125,000,000	74,887,791	6,247,764	52,949,756	66,195,441	0.97	-2.7	2021
Landmark Partners	249,500,000	104,789,284	63,819,374	167,424,115	79,772,301	1.37	8.1	
Landmark Real Estate Partners VIII, L.P.	149,500,000	104,789,284	63,819,374	67,424,115	79,772,301	1.37	16.3	2016
Landmark Real Estate Partners IX	100,000,000	0	0	100,000,000	0			2021
Lubert Adler	174,147,868	132,670,244	86,217,291	42,414,787	86,952,038	1.31	11.6	
Lubert-Adler Real Estate Fund VII-B, L.P.	74,147,868	67,585,213	82,515,205	7,414,787	20,629,218	1.53	15.5	2017
Lubert-Adler Recovery and Enhancement Capital Fund	100,000,000	65,085,030	3,702,087	35,000,000	66,322,820	1.08	7.7	2021
Oaktree Capital Management, LLC	200,000,000	150,475,519	36,760,052	84,000,000	122,005,853	1.06	10.8	
Oaktree Real Estate Opportunities Fund VIII	200,000,000	150,475,519	36,760,052	84,000,000	122,005,853	1.06	10.8	2020
Rockpoint	200,000,000	179,256,674	69,882,159	41,172,282	144,368,259	1.20	8.2	
Rockpoint Real Estate Fund V, L.P.	100,000,000	99,919,326	58,755,434	17,327,032	59,402,863	1.18	4.5	2014
Rockpoint Real Estate Fund VI, L.P.	100,000,000	79,337,348	11,126,725	23,845,250	84,965,396	1.21	11.8	2019

Minnesota State Board of Investment
Quarter Ending June 30, 2023
Private Markets Investments



Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Rockwood	200,000,000	166,224,934	61,784,022	37,955,769	130,839,942	1.16	6.0	
Rockwood Capital RE Partners X, L.P.	100,000,000	95,391,047	57,507,174	6,293,482	54,972,654	1.18	4.7	2015
Rockwood Capital RE Partners XI	100,000,000	70,833,887	4,276,848	31,662,288	75,867,288	1.13	7.2	2019
Silverpeak Real Estate Partners	225,000,000	144,009,375	109,295,624	7,496,058	3,734,216	0.78	-3.9	
Silverpeak Legacy Pension Partners II, L.P.	75,000,000	73,069,012	92,033,940	7,496,058	420,285	1.27	4.2	2005
Silverpeak Legacy Pension Partners III, L.P.	150,000,000	70,940,363	17,261,685	0	3,313,931	0.29	-11.9	2008
TA Associates Realty	450,000,000	300,000,000	295,965,478	150,000,000	183,782,561	1.60	11.2	
Realty Associates Fund X	100,000,000	100,000,000	161,146,171	0	109,451	1.61	12.6	2012
Realty Associates Fund XI	100,000,000	100,000,000	116,669,552	0	47,285,369	1.64	11.4	2015
Realty Associates Fund XII	100,000,000	100,000,000	18,149,755	0	136,387,741	1.55	20.9	2018
Realty Associates Fund XIII	150,000,000	0	0	150,000,000	0			2023
Total	38,001,287,357	29,497,176,279	22,293,834,002	11,649,541,040	21,587,502,476	1.49	10.3	
					<i>Difference**</i>			
								(7,059,894)
Private Markets Total with Difference								21,580,442,582

Private Markets Portfolio Status	Managers	Funds
Private Equity	59	192
Private Credit	18	41
Real Assets	11	32
Real Estate	13	36
Total	101	301

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.

This page intentionally left blank.



Quarterly Report

Participant Directed Investment Program

June 30, 2023



Quarterly Report

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.

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Option Since</u>
BALANCED FUND	\$113,546,025	5.0%	11.6%	7.4%	7.8%	8.4%	01/1980
U.S. EQUITY ACTIVELY MANAGED FUND	83,715,159	8.3	19.7	13.2	11.4	12.6	07/1986
U.S. EQUITY INDEX FUND	414,971,997	8.4	19.0	14.1	11.6	12.4	07/1986
BROAD INTERNATIONAL EQUITY FUND	135,374,766	3.0	14.0	8.8	4.5	5.4	09/1994
BOND FUND	100,682,881	-0.5	0.3	-3.3	1.3	2.0	07/1986
MONEY MARKET FUND	699,382,002	1.3	4.2	1.5	1.8	1.2	07/1986
STABLE VALUE FUND	1,699,071,788	0.7	2.5	2.2	2.4	2.2	11/1994
VOLUNTEER FIREFIGHTER ACCOUNT	151,720,613	3.3	8.7	4.7	5.7	6.3	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.

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
BALANCED FUND	\$113,546,025	5.0%	11.6%	7.4%	7.8%	8.4%
SIF BALANCED FUND BENCHMARK		4.8%	11.2%	7.0%	7.5%	8.1%
Excess		0.2%	0.4%	0.4%	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.

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
U.S. EQUITY ACTIVELY MANAGED FUND	83,715,159	8.3	19.7	13.2	11.4	12.6
Russell 3000		8.4	19.0	13.9	11.4	12.3
Excess		-0.1	0.8	-0.7	-0.0	0.3



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.

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
U.S. EQUITY INDEX FUND	\$414,971,997	8.4%	19.0%	14.1%	11.6%	12.4%
Russell 3000		8.4%	19.0%	13.9%	11.4%	12.3%
Excess		0.0%	0.0%	0.2%	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).

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
BROAD INTERNATIONAL EQUITY FUND	135,374,766	3.0	14.0	8.8	4.5	5.4
International Equity Benchmark		2.4	12.7	7.2	3.5	4.7
Excess		0.6	1.3	1.6	1.0	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.

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
BOND FUND	\$100,682,881	-0.5%	0.3%	-3.3%	1.3%	2.0%
Bloomberg U.S. Aggregate		-0.8%	-0.9%	-4.0%	0.8%	1.5%
Excess		0.4%	1.2%	0.6%	0.6%	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.

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
MONEY MARKET FUND	699,382,002	1.3	4.2	1.5	1.8	1.2
ICE BofA US 3-Month Treasury Bill		1.2	3.6	1.3	1.6	1.0
Excess		0.1	0.6	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.

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
STABLE VALUE FUND	\$1,699,071,788	0.7%	2.5%	2.2%	2.4%	2.2%
Fixed Interest Blended Benchmark		1.1%	4.4%	2.3%	2.3%	2.0%
Excess		-0.4%	-1.9%	-0.1%	0.1%	0.2%

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.

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
VOLUNTEER FIREFIGHTER ACCOUNT	151,720,613	3.3	8.7	4.7	5.7	6.3
SIF Volunteer Firefighter Account BM		3.0	8.3	4.3	5.3	6.0
Excess		0.3	0.4	0.4	0.4	0.4



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.

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Option Since</u>
VANGUARD TOTAL STOCK MARKET INSTITUTIONAL INDEX PLUS	\$732,338,865	8.4%	18.9%	13.8%			07/2019
VANGUARD INSTITUTIONAL INDEX PLUS	1,785,476,763	8.7	19.6	14.6	12.3%	12.9%	07/1999
VANGUARD DIVIDEND GROWTH	983,811,264	3.5	10.7	13.8	12.2		10/2016
VANGUARD MID CAP INDEX	726,378,200	4.8	13.7	12.0	8.6	10.5	01/2004
T. ROWE PRICE SMALL-CAP STOCK	859,711,020	5.2	11.0	9.6	7.8	10.5	04/2000
FIDELITY DIVERSIFIED INTERNATIONAL	334,559,367	4.6	19.2	6.3	5.9	6.7	07/1999
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	353,779,214	2.6	12.3	7.5	3.7	5.1	07/2011
VANGUARD BALANCED INDEX	1,339,480,629	4.6	10.7	6.5	7.3	8.1	12/2003
DODGE & COX INCOME	297,141,157	0.1	1.8	-1.8	2.0	2.5	07/1999
VANGUARD TOTAL BOND MARKET INDEX	317,676,352	-0.9	-0.9	-4.0	0.8	1.5	12/2003
2025 FUND	214,242,288	1.4	4.8	4.5	4.7	5.7	07/2011
2030 FUND	212,832,803	2.3	7.2	5.3	5.6	6.7	07/2011
2035 FUND	173,485,277	3.4	10.0	6.0	6.2	7.3	07/2011
2040 FUND	143,032,658	3.9	11.3	6.7	6.5	7.7	07/2011
2045 FUND	137,636,283	4.3	12.2	7.5	6.8	8.0	07/2011
2050 FUND	120,212,466	4.6	13.0	8.2	7.0	8.2	07/2011
2055 FUND	80,451,086	4.9	13.8	8.6	7.2	8.3	07/2011
2060 FUND	60,843,313	4.9	13.8	8.6	7.2	8.3	07/2011
2065 FUND	10,006,630	4.9	13.8	8.6			04/2020
INCOME FUND	205,519,630	1.1	4.0	3.3	4.0	4.1	07/2011
TD Ameritrade SDB	83,609,730						08/2017
TD Ameritrade SDB Roth	3,372,746						08/2017



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.

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>Option Since</u>
Large Cap US Equity						
VANGUARD TOTAL STOCK MARKET INSTITUTIONAL INDEX PLUS	\$732,338,865	8.4%	18.9%	13.8%		07/2019
CRSP US Total Market Index		8.4	18.9	13.8		07/2019
Excess		0.0	0.0	0.1		
VANGUARD INSTITUTIONAL INDEX PLUS	1,785,476,763	8.7	19.6	14.6	12.3%	07/1999
S&P 500		8.7	19.6	14.6	12.3	07/1999
Excess		-0.0	-0.0	-0.0	-0.0	
VANGUARD DIVIDEND GROWTH	983,811,264	3.5	10.7	13.8	12.2	10/2016
VANGUARD DIVIDEND GROWTH INDEX		6.0	15.7	13.7	12.0	10/2016
Excess		-2.5	-5.0	0.1	0.1	
Mid Cap US Equity						
VANGUARD MID CAP INDEX	726,378,200	4.8	13.7	12.0	8.6	01/2004
CRSP US Mid Cap Index		4.8	13.7	12.0	8.6	01/2004
Excess		0.0	0.0	0.0	0.0	
Small Cap US Equity						
T. ROWE PRICE SMALL-CAP STOCK	859,711,020	5.2	11.0	9.6	7.8	04/2000
Russell 2000		5.2	12.3	10.8	4.2	04/2000
Excess		0.0	-1.4	-1.2	3.6	
International Equity						
FIDELITY DIVERSIFIED INTERNATIONAL	334,559,367	4.6	19.2	6.3	5.9	07/1999
MSCI EAFE FREE (NET)		3.0	18.8	8.9	4.4	07/1999
Excess		1.6	0.4	-2.6	1.5	
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	353,779,214	2.6	12.3	7.5	3.7	07/2011
FTSE Global All Cap ex US Index Net		2.4	12.3	7.4	3.5	07/2011
Excess		0.2	0.0	0.1	0.2	



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

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
VANGUARD BALANCED INDEX	\$1,339,480,629	4.6%	10.7%	6.5%	7.3%	12/2003
Vanguard Balanced Fund Benchmark		4.7	10.9	6.6	7.4	12/2003
Excess		-0.0	-0.2	-0.1	-0.1	

Fixed Income

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
DODGE & COX INCOME	297,141,157	0.1	1.8	-1.8	2.0	07/1999
Bloomberg U.S. Aggregate		-0.8	-0.9	-4.0	0.8	07/1999
Excess		0.9	2.8	2.2	1.2	

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
VANGUARD TOTAL BOND MARKET INDEX	317,676,352	-0.9	-0.9	-4.0	0.8	12/2003
Bloomberg U.S. Aggregate		-0.8	-0.9	-4.0	0.8	12/2003
Excess		-0.1	0.0	-0.0	0.0	

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
MONEY MARKET FUND	699,382,002	1.3	4.2	1.5	1.8	07/1986
ICE BofA US 3-Month Treasury Bill		1.2	3.6	1.3	1.6	07/1986
Excess		0.1	0.6	0.3	0.2	

Stable Value

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
STABLE VALUE FUND	1,699,071,788	0.7	2.5	2.2	2.4	11/1994
Fixed Interest Blended Benchmark		1.1	4.4	2.3	2.3	11/1994
Excess		-0.4	-1.9	-0.1	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 decision by investing their assets in the fund that is closest to their anticipated retirement date.

Target Date Retirement Funds

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>Option Since</u>		<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>Option Since</u>
SSgA													
2025 FUND	\$214,242,288	1.4%	4.8%	4.5%	4.7%	07/2011	2050 FUND	\$120,212,466	4.6%	13.0%	8.2%	7.0%	07/2011
2025 FUND BENCHMARK		1.4%	4.7%	4.5%	4.7%	07/2011	2050 FUND BENCHMARK		4.5%	12.9%	8.2%	7.0%	07/2011
Excess		0.0%	0.0%	-0.0%	0.0%		Excess		0.0%	0.1%	-0.0%	0.0%	
2030 FUND	\$212,832,803	2.3%	7.2%	5.3%	5.6%	07/2011	2055 FUND	\$80,451,086	4.9%	13.8%	8.6%	7.2%	07/2011
2030 FUND BENCHMARK		2.3%	7.2%	5.3%	5.6%	07/2011	2055 FUND BENCHMARK		4.8%	13.7%	8.6%	7.2%	07/2011
Excess		0.0%	0.0%	-0.0%	0.0%		Excess		0.0%	0.1%	0.0%	0.0%	
2035 FUND	\$173,485,277	3.4%	10.0%	6.0%	6.2%	07/2011	2060 FUND	\$60,843,313	4.9%	13.8%	8.6%	7.2%	07/2011
2035 FUND BENCHMARK		3.4%	10.0%	6.0%	6.2%	07/2011	2060 FUND BENCHMARK		4.8%	13.7%	8.6%	7.2%	07/2011
Excess		0.0%	0.1%	-0.0%	0.0%		Excess		0.0%	0.1%	0.0%	0.0%	
2040 FUND	\$143,032,658	3.9%	11.3%	6.7%	6.5%	07/2011	2065 FUND	\$10,006,630	4.9%	13.8%	8.6%		04/2020
2040 FUND BENCHMARK		3.9%	11.2%	6.7%	6.5%	07/2011	2065 FUND BENCHMARK		4.8%	13.7%	8.6%		04/2020
Excess		0.0%	0.1%	-0.0%	0.0%		Excess		0.0%	0.1%	0.0%		
2045 FUND	\$137,636,283	4.3%	12.2%	7.5%	6.8%	07/2011	INCOME FUND	\$205,519,630	1.1%	4.0%	3.3%	4.0%	07/2011
2045 FUND BENCHMARK		4.2%	12.1%	7.5%	6.8%	07/2011	INCOME FUND BENCHMARK		1.1%	4.1%	3.4%	4.0%	07/2011
Excess		0.0%	0.1%	-0.0%	0.0%		Excess		0.0%	-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: June 30, 2023

Total = \$1,830 Million

Fund Name	Ending Market	3 Months	1 Year	Annualized				Inception Date
				3 Years	5 Years	10 Years	Since Inception	
2040/2041 Enrollment Option	\$1,130,264						4.20%	5/12/2023
2040-2041 Custom Benchmark							4.71%	
2038/2039 Enrollment Option	\$26,158,234	4.50%	12.06%				-1.18%	6/11/2021
2038-2039 Custom Benchmark		4.63%	12.53%				-1.16%	
2036/2037 Enrollment Option	\$73,684,498	4.21%	11.44%	8.35%			7.07%	10/28/2019
2036-2037 Custom Benchmark		4.37%	11.95%	8.71%			6.96%	
2034/2035 Enrollment Option	\$59,991,687	3.93%	10.83%	7.87%			6.68%	10/28/2019
2034-2035 Custom Benchmark		4.10%	11.32%	8.23%			6.59%	
2032/2033 Enrollment Option	\$66,434,044	3.47%	9.83%	7.22%			6.27%	10/28/2019
2032-2033 Custom Benchmark		3.63%	10.29%	7.60%			6.18%	
2030/2031 Enrollment Option	\$76,051,394	2.78%	8.24%	6.32%			5.57%	10/28/2019
2030-2031 Custom Benchmark		2.99%	8.80%	6.72%			5.51%	
2028/2029 Enrollment Option	\$93,792,369	2.16%	6.76%	5.19%			4.72%	10/28/2019
2028-2029 Custom Benchmark		2.42%	7.41%	5.57%			4.63%	
2026/2027 Enrollment Option	\$125,586,963	1.67%	5.38%	4.06%			3.99%	10/28/2019
2026-2027 Custom Benchmark		1.93%	6.17%	4.43%			3.92%	
2024/2025 Enrollment Option	\$167,302,954	1.16%	3.85%	3.23%			3.42%	10/28/2019
2024-2025 Custom Benchmark		1.57%	5.08%	3.62%			3.38%	
In School Option	\$366,211,592	1.02%	3.31%	1.87%			2.44%	10/28/2019
In School Custom Benchmark		1.44%	4.17%	1.83%			2.04%	

MINNESOTA COLLEGE SAVINGS PLAN
Performance Statistics for the Period Ending: June 30, 2023

Fund Name	Ending Market	3 Months	1 Year	Annualized				Inception Date
				3 Years	5 Years	10 Years	Since Inception	
U.S. and International Equity Option	\$287,922,567	5.99%	15.33%	11.32%	8.56%	9.59%	7.39%	10/ 1/2001
BB: U.S. and International Equity Option		6.09%	15.93%	11.75%	8.47%	9.62%	8.06%	
Moderate Allocation Option	\$96,056,505	3.29%	9.07%	5.96%	5.95%	6.60%	5.44%	8/ 2/2007
BB: Moderate Allocation Option		3.42%	9.68%	6.29%	5.99%	6.70%	5.92%	
100% Fixed-Income Option	\$18,066,815	-0.71%	0.13%	-2.21%	1.33%	1.63%	2.72%	8/16/2007
BB: 100% Fixed-Income Option		-0.56%	0.33%	-2.01%	1.57%	1.93%	3.25%	
International Equity Index Option	\$10,344,434	2.76%	14.92%	7.87%	3.98%	4.98%	4.56%	6/18/2013
BB: International Equity Index Option		2.56%	15.33%	7.70%	3.78%	5.00%	4.59%	
Money Market Option	\$18,039,937	1.18%	3.62%	1.26%	1.40%	0.84%	0.70%	11/ 1/2007
BB: Money Market Option		1.15%	3.43%	1.17%	1.28%	0.76%	0.63%	
Principal Plus Interest Option	\$114,659,028	0.43%	1.60%	1.45%	1.67%	1.53%	2.33%	10/10/2001
Citigroup 3-Month U.S. Treasury Bill		1.25%	3.75%	1.33%	1.57%	0.98%	1.34%	
Aggressive Allocation Option	\$87,082,047	4.66%	12.22%	8.63%	7.26%		7.26%	8/12/2014
BB: Aggressive Allocation Option		4.75%	12.81%	9.03%	7.28%		7.23%	
Conservative Allocation Option	\$17,256,170	1.55%	5.05%	2.82%	3.77%		3.64%	8/18/2014
BB: Conservative Allocation Option		1.88%	5.98%	3.07%	3.92%		3.73%	
Equity and Interest Accumulation Option	\$8,462,348	4.35%	10.08%	7.74%	6.65%		6.35%	8/18/2014
BB: Equity and Interest Accumulation Option		4.81%	11.65%	7.88%	6.87%		6.40%	
U.S. Large Cap Equity Option	\$113,692,636	8.73%	19.44%	14.43%	12.14%		11.73%	8/12/2014
BB: U.S. Large Cap Equity Option		8.74%	19.59%	14.60%	12.31%		11.85%	
Social Choice Equity Option	\$1,306,801	6.37%	17.80%				0.92%	6/11/2021
BB: Social Choice Equity Option		8.39%	18.95%				1.75%	
Matching Grant	\$1,248,380	0.43%	1.60%	1.45%	1.67%	1.53%	2.33%	3/22/2002
Citigroup 3-Month U.S. Treasury Bill		1.25%	3.75%	1.33%	1.57%	0.98%	1.34%	

MINNESOTABLE^{plan}

A member of The National ABLE Alliance

Performance as of
06/30/23

Total Market Value: **\$36,254,473**

<u>Fund Name</u>	<u>Market Value</u>	<u>% of Plan</u>	<u>1 Month</u>	<u>3 Months</u>	<u>YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Inception</u>	<u>Inception Date</u>
Aggressive Option	\$2,703,553	7.46%	5.54	4.53	10.74	11.88	8.93	6.52		7.84	12/15/16
ABLE Aggressive Custom Benchmark			5.55	4.58	10.72	12.36	9.21	6.78		8.23	
Variance			(0.01)	(0.05)	0.02	(0.48)	(0.28)	(0.26)		(0.39)	
Moderately Aggressive Option	\$3,105,969	8.57%	4.60	3.69	9.18	9.88	7.26	5.84		6.89	12/15/16
ABLE Moderately Aggressive Custom Benchmark			4.59	3.72	9.24	10.32	7.57	6.09		7.25	
Variance			0.01	(0.03)	(0.06)	(0.44)	(0.31)	(0.25)		(0.36)	
Growth Option	\$4,580,138	12.63%	3.57	2.83	7.72	7.88	5.63	5.07		5.87	12/15/16
ABLE Growth Custom Benchmark			3.56	2.83	7.72	8.22	5.88	5.31		6.21	
Variance			0.01	0.00	0.00	(0.34)	(0.25)	(0.24)		(0.34)	
Moderate Option	\$4,090,609	11.28%	2.56	1.87	6.17	5.75	3.92	4.24		4.81	12/15/16
ABLE Moderate Custom Benchmark			2.58	1.95	6.22	6.12	4.17	4.48		5.12	
Variance			(0.02)	(0.08)	(0.05)	(0.37)	(0.25)	(0.24)		(0.31)	
Moderately Conservative Option	\$3,778,385	10.42%	1.77	1.44	4.71	4.62	2.89	3.36		3.70	12/15/16
ABLE Moderately Conservative Custom Benchmark			1.81	1.59	4.92	5.14	3.10	3.60		3.97	
Variance			(0.04)	(0.15)	(0.21)	(0.52)	(0.21)	(0.24)		(0.27)	
Conservative Option	\$6,512,305	17.96%	0.70	0.88	2.78	2.96	1.37	2.06		2.10	12/15/16
ABLE Conservative Custom Benchmark			0.79	1.10	3.16	3.70	1.60	2.28		2.34	
Variance			(0.09)	(0.22)	(0.38)	(0.74)	(0.23)	(0.22)		(0.24)	
Checking Account Option	\$11,483,513	31.67%									03/30/17

This page intentionally left blank.



Quarterly Report

Non-Retirement

June 30, 2023



Quarterly Report

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 trusted 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.

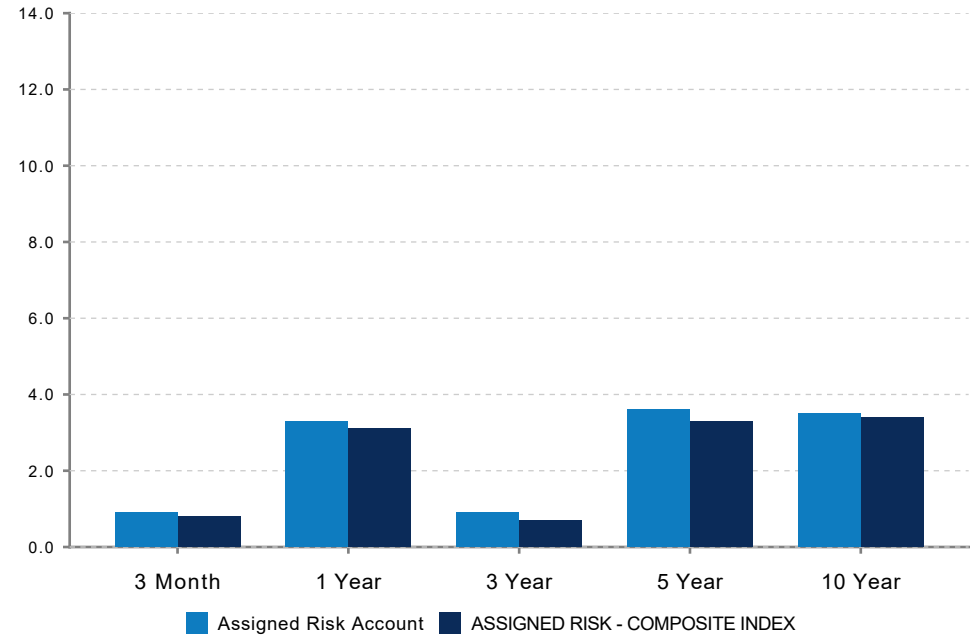


Non-Retirement

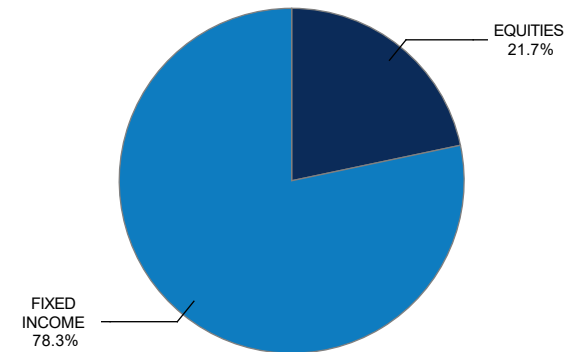
Assigned Risk Plan

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.



	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
ASSIGNED RISK PLAN	\$264,902,781	0.9%	3.3%	0.9%	3.6%	3.5%
EQUITIES	\$57,467,349	8.7%	19.7%	14.6%	12.3%	12.4%
FIXED INCOME	\$207,435,432	-1.1%	-0.9%	-2.7%	0.9%	1.0%
ASSIGNED RISK - COMPOSITE INDEX		0.8%	3.1%	0.7%	3.3%	3.4%
Excess		0.1%	0.2%	0.3%	0.3%	0.1%
S&P 500		8.7%	19.6%	14.6%	12.3%	12.9%
Bloomberg U.S. Government: Intermediate		-1.1%	-1.0%	-2.8%	0.8%	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.



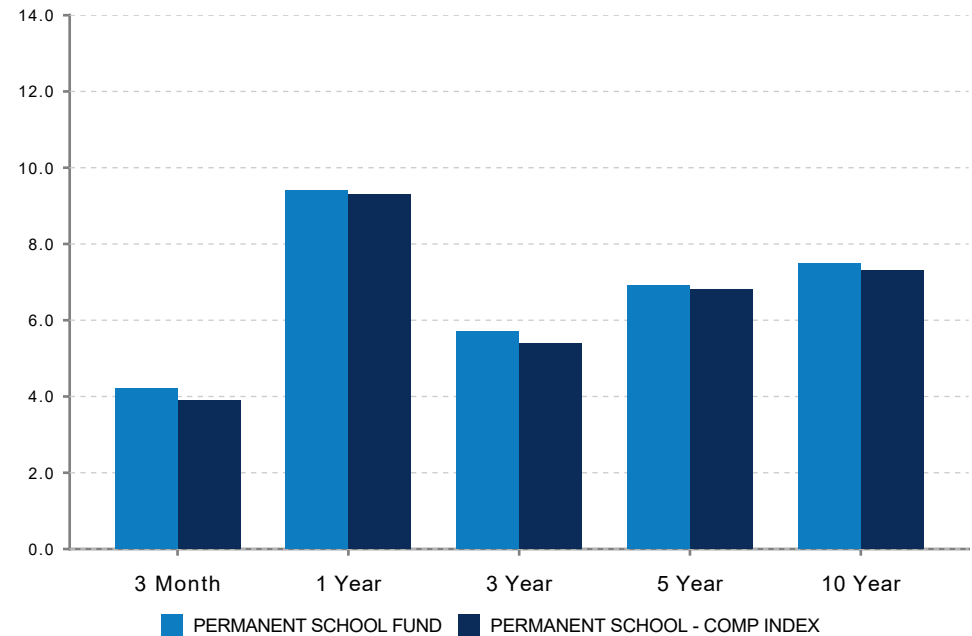
Non-Retirement

Permanent School Fund

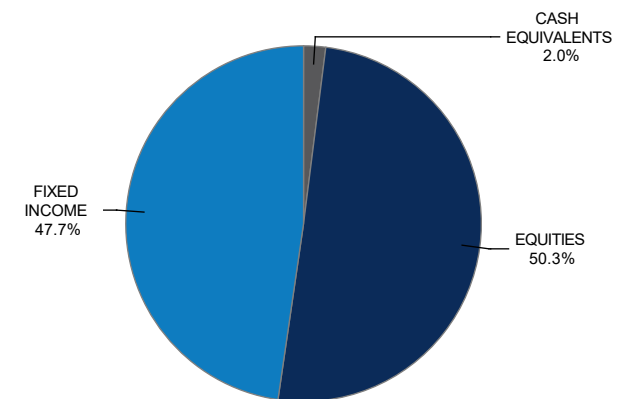
The investment objective of the Permanent School Fund is to produce a growing level of spendable income, within the constraints of maintaining adequate portfolio quality and liquidity. The income from the portfolio is transferred to the school endowment fund and distributed to Minnesota's public schools.

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	\$1,889,599,161	4.2%	9.4%	5.7%	6.9%	7.5%
CASH EQUIVALENTS	37,725,361	1.3	4.0	1.4	1.6	1.1
EQUITIES	949,806,989	8.7	19.7	14.6	12.3	12.9
FIXED INCOME	902,066,812	-0.7	-0.6	-3.6	1.0	1.8
PERMANENT SCHOOL - COMP INDEX		3.9	9.3	5.4	6.8	7.3
Excess		0.2	0.1	0.3	0.1	0.2
S&P 500		8.7	19.6	14.6	12.3	12.9
Bloomberg U.S. Aggregate		-0.8	-0.9	-4.0	0.8	1.5



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.



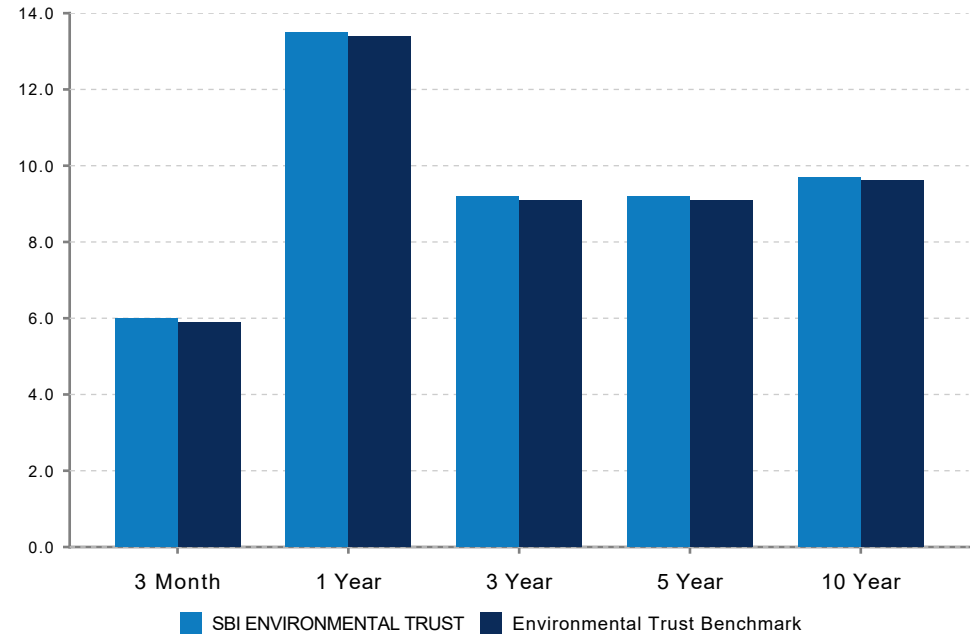
Non-Retirement

Environmental Trust Fund

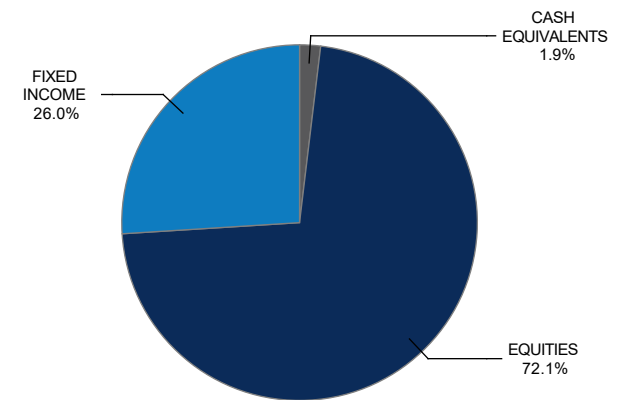
The objective of the Environmental Trust Fund is to increase the market value of the Fund over time in order to increase the annual amount made available for spending within the constraints of maintaining adequate portfolio quality and liquidity.

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.



	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
SBI ENVIRONMENTAL TRUST	\$1,619,749,370	6.0%	13.5%	9.2%	9.2%	9.7%
CASH EQUIVALENTS	30,723,193	1.3	4.0	1.4	1.6	1.1
EQUITIES	1,167,141,528	8.7	19.7	14.6	12.3	12.9
FIXED INCOME	421,884,649	-0.7	-0.6	-3.6	1.0	1.8
Environmental Trust Benchmark		5.9	13.4	9.1	9.1	9.6
Excess		0.1	0.0	0.1	0.1	0.1
S&P 500		8.7	19.6	14.6	12.3	12.9
Bloomberg U.S. Aggregate		-0.8	-0.9	-4.0	0.8	1.5



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.

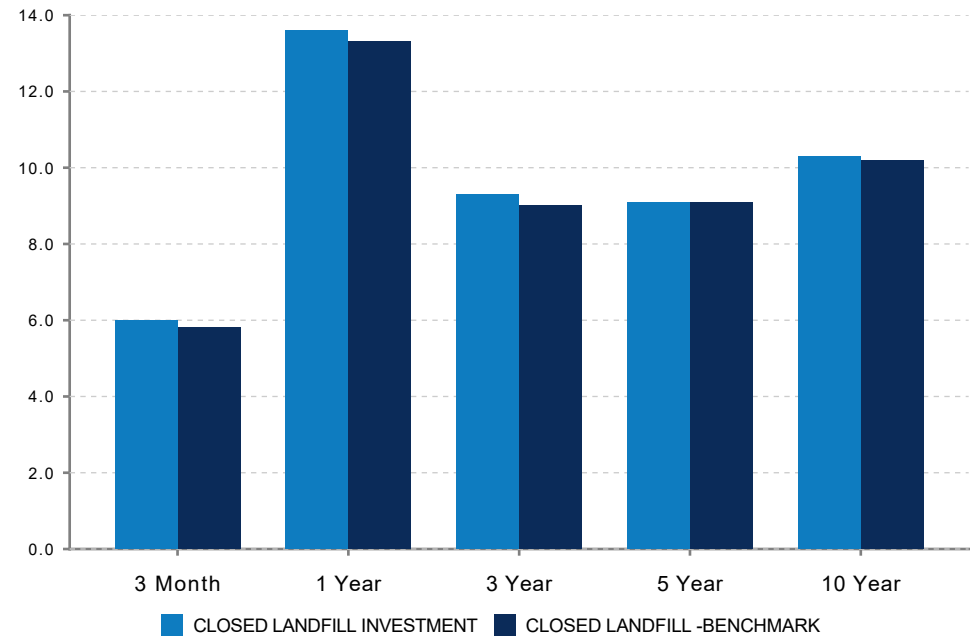


Non-Retirement

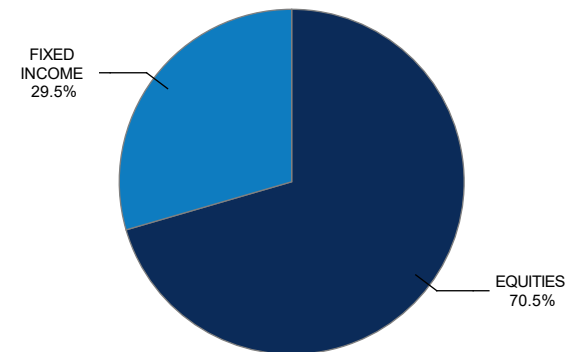
Closed Landfill Investment Fund

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.



	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
CLOSED LANDFILL INVESTMENT	\$129,730,724	6.0%	13.6%	9.3%	9.1%	10.3%
EQUITIES	91,502,947	8.7	19.7	14.6	12.3	12.9
FIXED INCOME	38,227,777	-0.7	-0.6	-3.6	1.0	
CLOSED LANDFILL -BENCHMARK		5.8	13.3	9.0	9.1	10.2
Excess		0.2	0.2	0.3	0.0	0.1
S&P 500		8.7	19.6	14.6	12.3	12.9
Bloomberg U.S. Aggregate		-0.8	-0.9	-4.0	0.8	1.5



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.



	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
NON RETIREMENT EQUITY INDEX - MELLON	3,138,570,745	8.7	19.6	19.6	14.6	12.3	12.9	10.1	07/1993
S&P 500 INDEX (DAILY)		8.7	19.6	19.6	14.6	12.3	12.9	10.0	07/1993
Excess		-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	0.1	
NON RETIREMENT FIXED INCOME - PRUDENTIAL	1,554,644,961	-0.7	-0.6	-0.6	-3.6	1.0	1.8	5.0	07/1994
Bloomberg U.S. Aggregate		-0.8	-0.9	-0.9	-4.0	0.8	1.5	4.6	07/1994
Excess		0.1	0.4	0.4	0.3	0.2	0.3	0.4	
RBC	207,435,394	-1.1	-0.9	-0.9	-2.7	0.9	1.0	4.2	07/1991
RBC Custom Benchmark		-1.1	-1.0	-1.0	-2.8	0.8	0.9	4.3	07/1991
Excess		0.1	0.1	0.1	0.2	0.1	0.1	-0.1	
MET COUNCIL OPEB BOND POOL	99,598,171	-0.8	-0.5	-0.5	-1.7	0.7			02/2009
NON RETIREMENT CASH ACCOUNT	722,953,638	1.3	3.9	3.9	1.4	1.6		1.6	12/2017
ICE BofA US 3-Month Treasury Bill		1.2	3.6	3.6	1.3	1.6		1.6	12/2017
Excess		0.1	0.3	0.3	0.2	0.1		0.1	

Note:

RBC is the manager for the fixed income portion of the Assigned Risk Account. RBC changed its name from Voyager Asset Management on 1/1/2010. The current benchmark is the Bloomberg U.S. Government Intermediate Index. Prior to 7/1/11 the Voyager 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.

This page intentionally left blank.



Quarterly Report

State Cash

June 30, 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.

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
Treasurer's Cash	28,696,820,507	1.2	3.6	0.9	1.5	0.9
iMoneyNet Money Fund Average-All Taxable		1.2	3.5	1.2	1.3	0.8

Other State Cash Accounts

Due to differing investment objectives, strategies, and time horizons, some State agencies' accounts are invested separately. 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.

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
Debt Service	115,724,656	2.9	5.9	1.0	2.7	1.5
Housing Finance	73,870,546	0.7				



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.

This page intentionally left blank.

This page intentionally left blank.

