
INVESTMENT ADVISORY COUNCIL

OF THE MINNESOTA STATE BOARD OF INVESTMENT

**INVESTMENT ADVISORY COUNCIL
MEETING
November 13, 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.

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**INVESTMENT ADVISORY COUNCIL
MEETING**

AGENDA

November 13, 2023

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AGENDA
INVESTMENT ADVISORY COUNCIL MEETING

Monday, November 13, 2023
12:00 p.m.
Retirement Systems Building
Room 117 – Main Floor
60 Empire Drive, St. Paul, MN

TAB

1. Call to Order

2. Approval of Minutes of August 14, 2023

Motion Needed

3. Performance Summary

A

4. Executive Director’s Administrative Report

B

- Report on Budget
- FY23 Audit Report
- Draft of FY23 Annual Report
- Meeting Dates for Calendar 2024
- Russia/Belarus Update
- Iran Update
- Thermal Coal
- Litigation Update

5. Private Markets Investment Program Report

C Motion Needed

6. Other Items

REPORTS

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

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Approval of
August 14, 2023
IAC Meeting Minutes

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Minutes Investment Advisory Council Meeting August 14, 2023

The Investment Advisory Council (IAC) met at 12:00 p.m. on Monday, August 14, 2023 in Room 117 of the Retirement Systems Building, 60 Empire Drive, St. Paul, MN 55103.

IAC Members Present: Denise Anderson, Doug Anderson, Kim Faust, Peggy Ingison, Amy Jensen, Erin Leonard, Gary Martin, Ify Onyiah, Nancy Orr, Dennis Santos, Jay Stoffel, Sunil Swami, and Shawn Wischmeier.

IAC Members Absent: Susanna Gibbons, Jennifer Hassemer (for Jim Schowalter), Dan McConnell, and Carol Peterfeso.

SBI Staff Present: Jill Schurtz, Paul Anderson, Patricia Ammann, Cassie Boll, Andy Christensen, Mike Clancey, Dan Covich, Stephanie Gleeson, Andrew Krech, Melissa Mader, John Mulé, Mercy Ndungu, Charlene Olson, Erol Sonderegger, Jonathan Stacy, Reece Tolkinen, David Velasquez, Jeff Weber, and Samir Zahar.

Others Present: Katie Comstock and Ed Bardowski, Aon Investments; Ghiane Jones, and Gordon Latter, Meketa Investment Group; Luz Frias and J. Adam Sorenson, Attorney General's Office; Jake Smith, Governor's Office; Ramona Advani, State Auditor's Office; Bibi Black, Secretary of State's Office; Janet Anderson, Minnesota Divestment Coalition; Edgar Hernandez, SEIU; Sam Logterman, Winthrop and Weinstein; Pat Benner, AFSCME Council 5; and Dr. David Kelly, J.P. Morgan.

Call to Order

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

Approval of IAC Minutes

The minutes of the May 15, 2023 meeting were approved.

New Members to the IAC

Executive Director Jill Schurtz introduced Ify Onyiah, a Public Employee Member who was appointed by the Governor as a new member to the Investment Advisory Council. Ms. Onyiah serves as Chief Financial Officer of the Minnesota Department of Administration. Ms. Schurtz announced that Jim Schowalter, Commissioner of Minnesota Management and Budget is departing and his replacement is Ms. Erin Campbell, who will be introduced at the next meeting of the IAC.

Organizational Updates

Ms. Schurtz announced a number of organizational updates which included staff development opportunities, the addition of new staff, and an update regarding the summer internship program.

Diversity Equity and Inclusion: Nancy Orr provided an update of the DEI working group, which consists of both IAC members and SBI internal staff. The working group convened in July to review projects underway at the SBI and discuss best practices and future efforts.

Performance Summary

Ms. Schurtz referred members to the Quarterly Performance Summary in Tab A of the meeting materials and outlined the following items from the report as of June 30, 2023:

AUM: The SBI was responsible for \$134.7 billion in assets. This represents an increase of \$6.1 billion over the prior quarter and \$9.91 billion over the prior fiscal year. Of the assets under management, the Combined Funds represented \$85.7 billion. This represents an increase of \$2.5 billion from the prior quarter and \$4.3 billion increase from the prior fiscal year.

Performance: The Combined Funds returned 3.7% for the quarter and 8.9% for the fiscal year. The Combined Funds exceeded its long-term objectives by outperforming its Composite Index for the ten-year time period and provided a real rate of return above inflation over a 20-year time-period.

Asset Allocation and TUCS Ranking: The Combined Funds asset mix was in-line with asset allocation targets. When compared to other public pension plans with assets greater than \$20 billion in the Trust Universe Comparison Service (TUCS), the Combined Funds return ranked in the 25th percentile for the quarter and the 31st percentile for the year.

Presentation from J.P. Morgan

Ms. Schurtz introduced Dr. David Kelly, Managing Director, Chief Global Strategist and Head of the Global Market Insights Strategy Team for J.P. Morgan Asset Management. Dr. Kelly provided insight and perspective on the economy and markets.

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 three investment recommendations: Blackstone Real Estate Partners Europe Fund VII; Brookfield Strategic Real Estate Partners V; and Lexington Co-Investment Partners VI, L.P.

A motion was made that the IAC endorse Staff's recommendation to invest in the three private market investment funds. The motion passed.

Informational Reports included in Quarterly Meeting Materials:

Public Markets Investment Report

Participant Directed Investment Program and Non-Retirement Investment Program Report

Aon Market Environmental Report

Meketa Capital Markets Outlook & Risk Metrics Report

SBI Comprehensive Performance Report

Adjournment of Meeting

The motion to adjourn the meeting was approved. The meeting adjourned at 1:22 p.m.

Respectfully submitted,

A handwritten signature in black ink, consisting of a large, stylized loop followed by a long horizontal stroke extending to the right.

Jill E. Schurtz
Executive Director and
Chief Investment Officer

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TAB A

Quarterly Performance Summary

September 30, 2023

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Quarterly Report

Performance Summary

September 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.

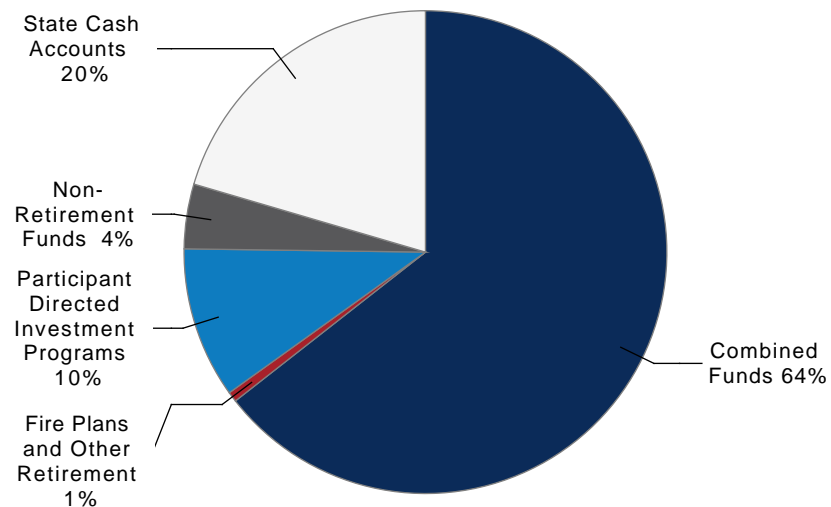
State Cash

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	\$83,036
Fire Plans + Other Retirement Plans	868
Participant Directed Investment Program	13,041
State Deferred Compensation Plan	8,885
Health Care Savings Plan	1,787
Unclassified Employees Retirement Plan	346
Hennepin County Supplemental Retirement Plan	157
PERA Defined Contribution Plan	85
Minnesota College Savings Plan	1,743
Minnesota Achieving a Better Life Experience Plan	37
Non-Retirement Funds	5,582
Assigned Risk Plan	259
Permanent School Fund	1,835
Environmental Trust Fund	1,562
Closed Landfill Investment Fund	124
Miscellaneous Trust Funds	965
Other Postemployment Benefits Accounts	838
State Cash	26,357
Invested Treasurer's Cash	25,407
Other State Cash Accounts	949
TOTAL SBI AUM	128,882



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

8.1%
 7.9
 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

8.3%
 2.6
 5.7

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	\$85,653
Net Contributions	-991
Investment Return	-1,626
Ending Market Value	83,036

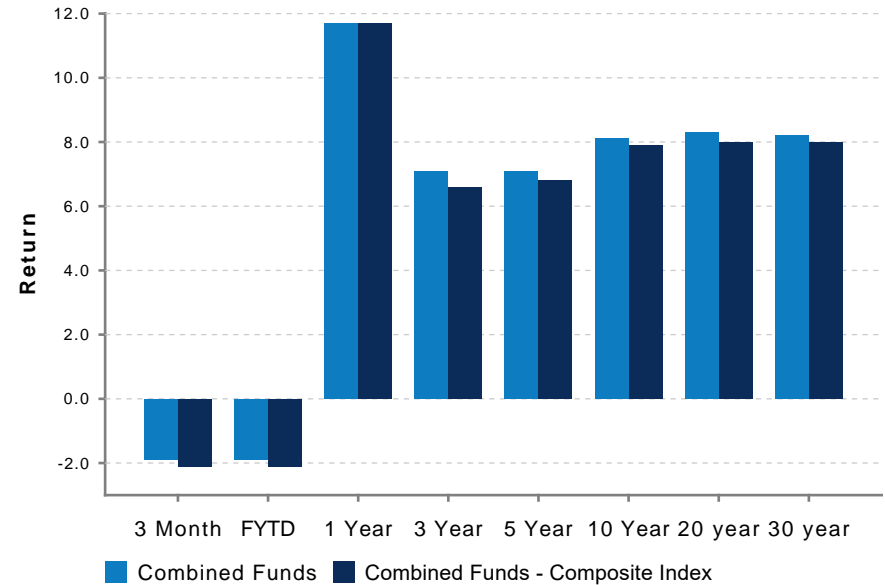
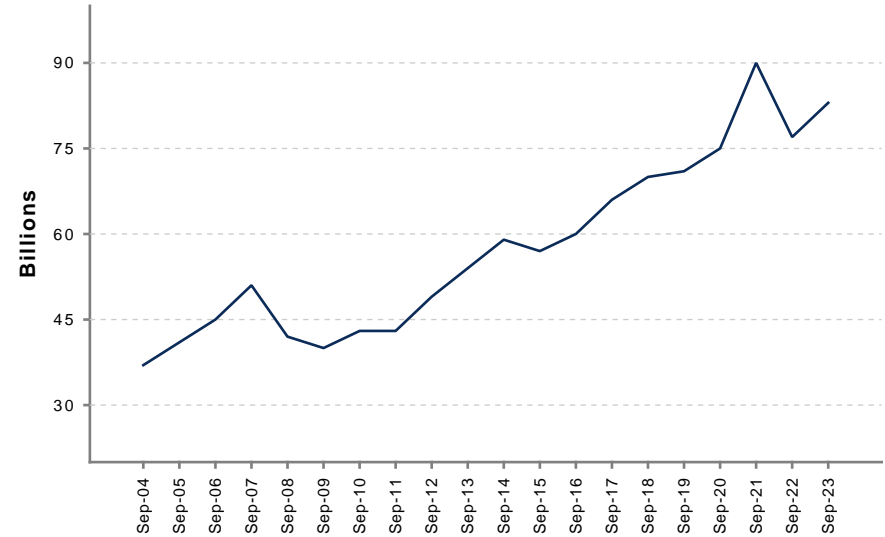
The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

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	-1.9%	-1.9%	11.7%	7.1%	7.1%	8.1%	8.3%	8.2%
Combined Funds - Composite Index	-2.1%	-2.1%	11.7%	6.6%	6.8%	7.9%	8.0%	8.0%
Excess	0.2%	0.2%	-0.0%	0.4%	0.3%	0.2%	0.3%	0.2%

Asset Growth



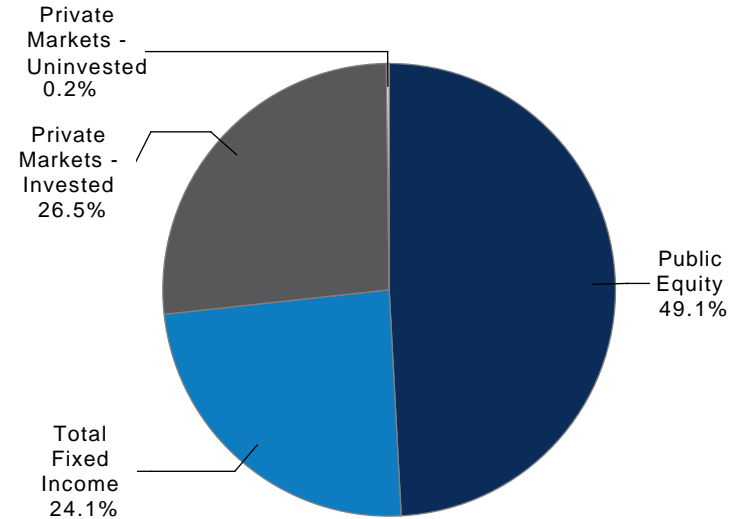


Combined Funds Summary

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 cash.

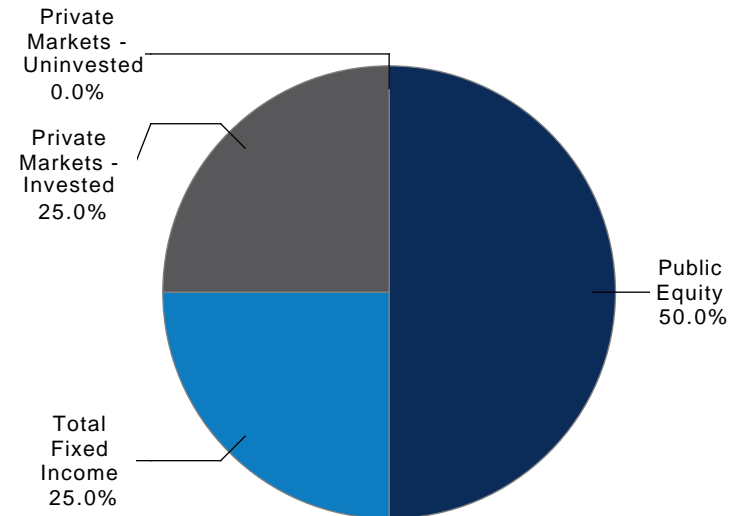
	<u>(Millions)</u>	<u>Actual Mix</u>	<u>Policy Target</u>
Public Equity	\$40,767	49.1%	50.0%
Total Fixed Income	20,027	24.1	25.0
Private Markets - Total	22,242	26.8	25.0
Private Markets - Invested	22,043	26.5	
Private Markets - Uninvested	199	0.2	
TOTAL	83,036	100.0	



Composite Index Comparison

The Combined Funds Composite is set as the Strategic Asset Allocation Policy Target. 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	\$40.8	49.1%	50.0%	-3.3%	-3.3%	20.0%	8.0%	7.2%	9.1%	8.7%	8.6%
Public Equity Benchmark				-3.4	-3.4	20.6	7.7	7.0			
Excess				0.2	0.2	-0.6	0.3	0.3			
Domestic Equity	26.8	32.3	33.5	-3.2	-3.2	20.6	9.6	9.1	11.2	9.6	9.4
Domestic Equity Benchmark				-3.3	-3.3	20.5	9.5	9.1	11.3	9.7	9.5
Excess				0.0	0.0	0.1	0.0	-0.0	-0.1	-0.1	-0.1
International Equity	13.0	15.7	16.5	-3.0	-3.0	19.2	5.4	3.8	4.2	6.5	5.7
International Equity Benchmark				-3.8	-3.8	20.4	3.7	2.6	3.3	6.0	4.9
Excess				0.8	0.8	-1.2	1.6	1.2	0.8	0.5	0.8
Global Equity	0.9	1.1	0.0	-7.6	-7.6	18.8					
MSCI AC World Index (net)				-3.4	-3.4	20.8					
Excess				-4.2	-4.2	-2.0					

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	\$20.0	24.1%	25.0%	-3.6%	-3.6%	0.8%	-5.4%	1.1%	1.8%	3.4%	4.6%
Total Fixed Income Benchmark				-3.9%	-3.9%	-0.6%	-6.0%	0.6%	1.4%	3.0%	4.3%
Excess				0.4%	0.4%	1.4%	0.6%	0.4%	0.5%	0.4%	0.4%
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Core/Core Plus	\$4.3	5.2%	5.0	-3.3%	-3.3%	1.7%	-4.8%	0.6%	1.6%	3.3%	4.6%
Core Bonds Benchmark				-3.2%	-3.2%	0.6%	-5.2%	0.1%	1.1%	2.8%	4.2%
Excess				-0.0%	-0.0%	1.1%	0.4%	0.5%	0.5%	0.5%	0.4%
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Return Seeking Fixed Income	\$4.1	5.0%	5.0	-1.3%	-1.3%	6.5%					
Bloomberg U.S. Aggregate				-3.2%	-3.2%	0.6%					
Excess				1.9%	1.9%	5.8%					
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Treasury Protection	\$7.7	9.3%	10.0	-7.2%	-7.2%	-4.6%	-10.5%	-1.2%			
Bloomberg Treasury 5+ Year				-7.2%	-7.2%	-4.5%	-10.6%	-1.2%			
Excess				-0.0%	-0.0%	-0.1%	0.1%	-0.0%			
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Laddered Bond + Cash	\$3.9	4.7%	5.0	1.4%	1.4%	4.7%	1.6%	1.7%	1.2%	1.6%	3.1%
ICE BofA US 3-Month Treasury Bill				1.3%	1.3%	4.5%	1.7%	1.7%	1.1%	1.4%	2.4%
Excess				0.0%	0.0%	0.3%	-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	2.2%	2.2%	6.6%	19.0%	13.0%	12.7%	14.1%	12.5%	13.5%
Private Markets - Uninvested (1)	1.5%	1.5%	12.3%						
Private Equity	3.0%	3.0%	9.1%	21.0%	16.6%	16.3%	16.4%	13.7%	15.8%
Private Credit	2.8%	2.8%	10.9%	15.7%	11.4%	13.1%	13.0%	12.3%	
Resources	-1.5%	-1.5%	-1.9%	15.7%	3.0%	2.2%	12.9%	12.0%	12.6%
Real Estate	-1.3%	-1.3%	-5.9%	15.2%	11.5%	12.3%	9.6%	9.5%	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 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.

Source: State Street Bank



SBI Combined Funds Strategic Allocation Category Framework

	<u>09/30/2023</u> <u>(\$ millions)</u>	<u>09/30/2023</u> <u>Weights</u>	<u>Category Range</u>	
<u>Growth - Appreciation</u>				
Public Equity	\$ 40,766.9	49.1%		
Private Equity	\$ 16,034.7	19.3%		
Non-Core Real Assets	\$ 3,552.8	4.3%		
	\$ 60,354.5	72.7%	50%	75%
<u>Growth - Income-oriented</u>				
Core Fixed Income	\$ 4,304.5	5.2%		
Private Credit	\$ 1,926.5	2.3%		
Return-Seeking Fixed Income	\$ 4,114.8	5.0%		
	\$ 10,345.9	12.5%	15%	30%
<u>Real Assets</u>				
Core Real Estate		0.0%		
Real Assets	\$ 511.2	0.6%		
	\$ 511.2	0.6%	0%	10%
<u>Inflation Protection</u>				
TIPS		0.0%		
Commodities		0.0%		
		0.0%	0%	10%
<u>Protection</u>				
U.S. Treasuries	\$ 7,713.5	9.3%		
	\$ 7,713.5	9.3%	5%	20%
<u>Liquidity</u>				
Cash	\$ 4,110.3	5.0%		
	\$ 4,110.3	5.0%	0%	5%
<u>Opportunity</u>				
Opportunity		0.0%		
		0.0%	0%	10%
Total	\$ 83,035.6	100%		
Illiquid Asset Exposure	\$ 22,025.3	26.5%	0%	30%



Volatility Equivalent Benchmark Comparison

	As of September 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	11.7%	7.1%	7.1%	8.1%	8.4%	8.3%	7.3%	8.2%
Volatility Equivalent Benchmark Return			4.5%	5.3%	5.9%	6.1%	5.6%	6.3%
Value Added			2.5%	2.8%	2.5%	2.2%	1.7%	1.9%
Standard Deviation: Benchmark = Combined Funds			11.1%	8.9%	9.9%	9.4%	9.7%	9.6%
Benchmark Stock Weight			54%	56%	56%	57%	59%	60%
Benchmark Bond Weight			46%	44%	44%	43%	41%	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.

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Combined Funds Summary

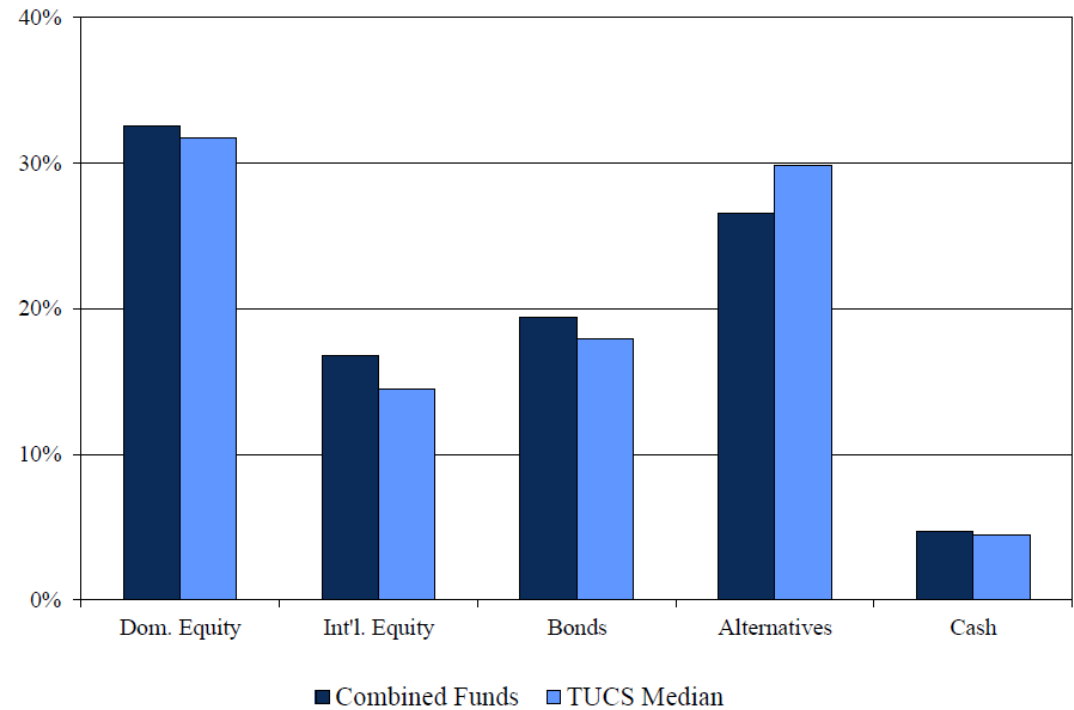
Asset Mix Compared to Other Pension Funds

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	40,767	49.1
Total Fixed Income	20,027	24.1
Private Markets - Invested	22,043	26.5
Private Markets - Uninvested	199	0.2
TOTAL	83,036	100.0



	<u>Domestic Equity</u>	<u>International Equity</u>	<u>Bonds</u>	<u>Alternatives</u>	<u>Cash</u>
Combined Funds	32.5%	16.8%	19.4%	26.6%	4.7%
Median in TUCS	31.7%	14.5%	17.9%	29.8%	4.5%



Combined Funds Summary

Performance Compared to Other Pension Funds

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

- Differing Allocations. Asset allocation will have a dominant effect on return. The allocation to stocks among the funds in TUCS typically ranges from 20-90%, a very wide range for meaningful comparison. This further distorts comparisons among funds.
- Differing Goals/Liabilities. Each pension fund structures its portfolio to meet its own liabilities and risk tolerance. This will result in different asset mix choices. Since asset mix will largely determine investment results, a universe ranking is not relevant to a discussion of how well a plan sponsor is meeting its long-term liabilities.

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

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

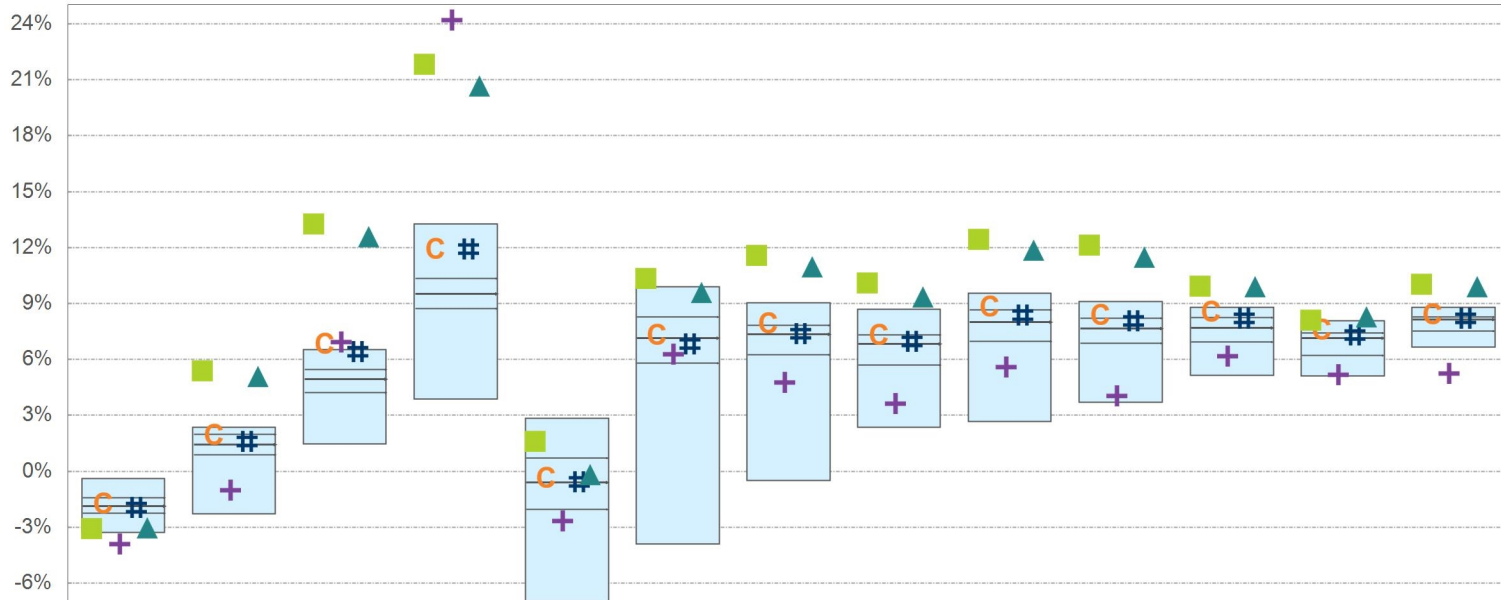


Periods Ended 09/30/2023

	Qtr	1 Yr	3 Yrs	5 Yrs	10 Yrs	20 Yrs	25 Yrs	30 Yrs
Combined Funds	55th	15th	50th	40th	25th	12th	25th	31th
Percentile Rank in TUCS								

Minnesota State Board of Investments Performance Comparison

Total Returns of Master Trusts - Public : Plans > \$20 Billion
Cumulative Periods Ending : September 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	-0.40	2.36	6.51	13.26	2.86	9.90	9.04	8.71	9.54	9.10	8.80	8.07	8.80
25th	-1.42	1.97	5.46	10.36	0.71	8.29	7.84	7.31	8.67	8.20	8.26	7.42	8.29
50th	-1.86	1.45	4.96	9.52	-0.61	7.15	7.35	6.83	8.00	7.66	7.71	7.16	8.15
75th	-2.23	0.88	4.22	8.74	-2.05	5.81	6.24	5.69	6.99	6.87	6.94	6.21	7.52
95th	-3.29	-2.29	1.48	3.89	-6.96	-3.91	-0.50	2.36	2.66	3.72	5.15	5.13	6.66

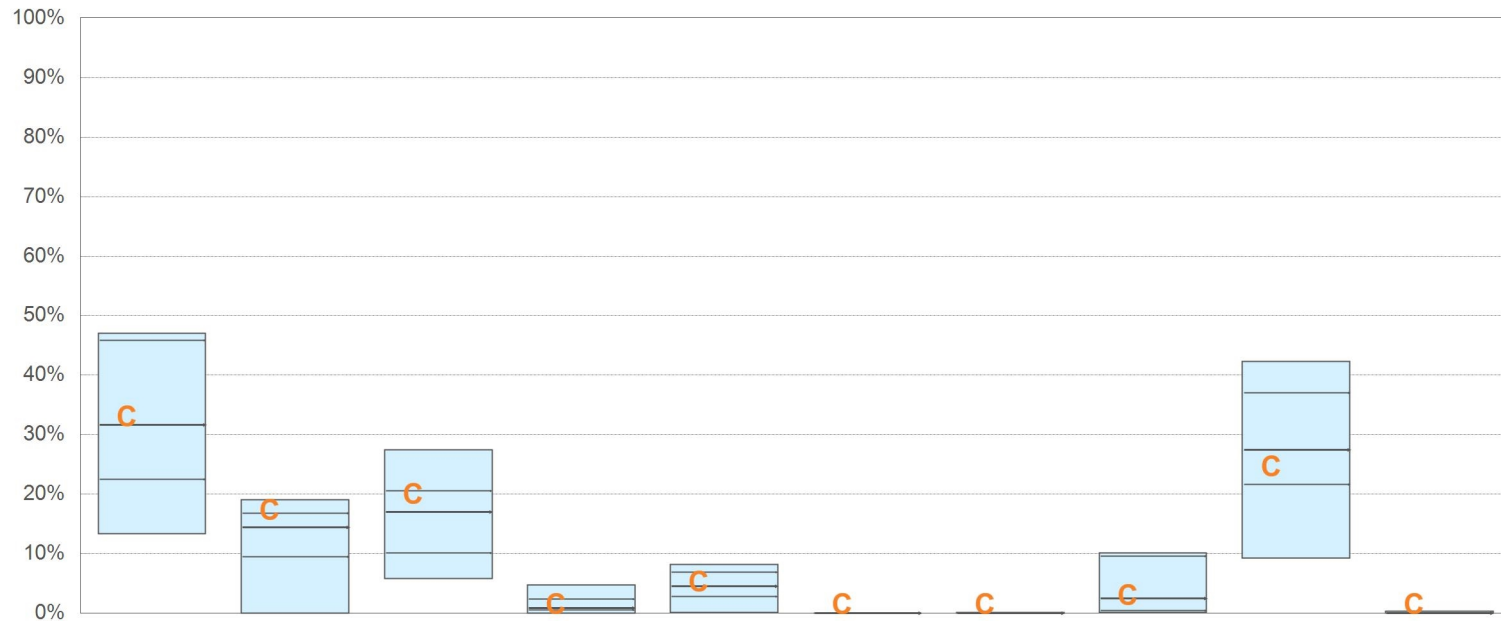
No. Of Obs	22	22	22	22	22	22	22	20	20	20	18	17	16
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C Combined Funds	-1.92 (55)	1.77 (35)	6.66 (1)	11.77 (15)	-0.53 (45)	7.15 (50)	7.77 (35)	7.16 (40)	8.67 (25)	8.20 (25)	8.38 (12)	7.42 (25)	8.24 (31)
# SBI Combined Funds Ind	-2.13 (60)	1.41 (50)	6.21 (10)	11.73 (15)	-0.78 (50)	6.63 (55)	7.19 (55)	6.78 (50)	8.19 (40)	7.88 (30)	8.00 (25)	7.11 (50)	7.99 (56)
■ S&P 500	-3.27 (94)	5.18 (1)	13.07 (1)	21.62 (1)	1.39 (15)	10.15 (1)	11.38 (1)	9.91 (1)	12.24 (1)	11.91 (1)	9.72 (1)	7.91 (5)	9.83 (1)
▲ Russell 3000	-3.25 (94)	4.86 (1)	12.39 (1)	20.46 (1)	-0.40 (35)	9.37 (10)	10.75 (1)	9.14 (1)	11.64 (1)	11.28 (1)	9.68 (1)	8.09 (1)	9.68 (1)
+ MSCI Wld Ex US (Net)	-4.10 (99)	-1.20 (94)	6.73 (1)	24.00 (1)	-2.87 (89)	6.07 (70)	4.56 (89)	3.44 (93)	5.38 (87)	3.84 (93)	5.99 (93)	4.98 (99)	5.06 (100)

Minnesota State Board of Investments

Asset Allocation of Master Trusts - Public : Plans > \$20 Billion

Quarter Ending September 30, 2023



Percentile Rankings	US Equity	Non-US Equity	US Fixed	Non-US Fixed	Cash	Convertible	GIC GAC	Real Estate	Alternative Investments	Other
5th	47.07	19.07	27.46	4.70	8.14	0.05	0.13	10.15	42.29	0.28
25th	45.88	16.81	20.51	2.38	6.90	0.00	0.00	9.61	37.02	0.03
50th	31.69	14.46	17.06	0.86	4.49	0.00	0.00	2.44	27.42	0.00
75th	22.50	9.50	10.11	0.56	2.83	0.00	0.00	0.40	21.63	0.00
95th	13.33	0.00	5.77	0.02	0.09	0.00	0.00	0.07	9.30	0.00
C Combined Funds	32.52 (43)	16.81 (25)	19.43 (43)	0.00 (100)	4.69 (43)	0.00 (100)	0.00 (100)	2.44 (50)	24.11 (62)	0.00 (99)

TAB B

Executive Director's Administrative Report

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DATE: November 6, 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 September 30, 2023, is included as **Attachment A**.

2. FY23 Audit Report

The Legislative Auditor is working on the financial audit of SBI operations for FY23. We will inform you of the results upon completion of the audit.

3. Draft of FY23 Annual Report

A draft of the SBI's annual report for FY23 will be available to the Board Members/Designees and IAC Members upon completion of the FY23 audit. We will notify you when it becomes available.

4. Meeting Dates for Calendar 2024

IAC

Wednesday, February 21, 2024
Wednesday, May 15, 2024
Monday, August 12, 2024
Wednesday, November 13, 2024

SBI

Thursday, February 29, 2024
Thursday, May 23, 2024
Wednesday, August 14, 2024
Thursday, November 21, 2024

5. 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 third quarter, the liquidation manager sold one equity and two fixed income holdings. As of September 30, 2023, sixteen holdings remained on the divestment list.

The liquidation manager indicated that, except for sporadic trading in foreign-listed depository receipts, the market 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 September 21, 2023, staff sent a letter to each applicable external manager containing the most recent restricted list.

6. 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 third quarter, there were two companies on the SBI's Iran restricted list held in the Combined Funds portfolio, Gazprom PJSC, and 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 third quarter.

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

On September 21, 2023, staff sent a letter to each applicable external manager containing the most recent restricted list.

7. 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 third quarter, the MSBI portfolio held no thermal coal connected assets.

On September 21, 2023, staff sent a letter to each applicable external manager containing the most recent restricted list.

8. Litigation Update

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

ATTACHMENT A

**STATE BOARD OF INVESTMENT
FISCAL YEAR 2024 ADMINISTRATIVE BUDGET REPORT
FISCAL YEAR TO DATE THROUGH SEPTEMBER 30, 2023**

ITEM	FISCAL YEAR 2024 BUDGET	FISCAL YEAR 2024 9/30/2023
PERSONNEL SERVICES		
FULL TIME EMPLOYEES	\$ 11,150,000	\$ 2,149,550
PART TIME EMPLOYEES	50,000	19,480
MISCELLANEOUS PAYROLL	200,000	33,425
SUBTOTAL	\$ 11,400,000	\$ 2,202,455
STATE OPERATIONS		
RENTS & LEASES	\$ 365,000	\$ 94,069
REPAIRS/ALTERATIONS/MAINTENANCE	3,595,000	3,464
PRINTING & BINDING	6,000	122
PROFESSIONAL/TECHNICAL SERVICES/IT PROF	555,000	45,306
COMPUTER SYSTEMS SERVICES	357,000	29,144
COMMUNICATIONS	25,000	3,393
TRAVEL, IN-STATE	3,000	396
TRAVEL, OUT-STATE	400,000	31,062
SUPPLIES	75,000	22,257
EQUIPMENT	100,000	24,619
EMPLOYEE DEVELOPMENT	300,000	33,372
OTHER OPERATING COSTS	200,000	53,342
INDIRECT COSTS	300,000	391
SUBTOTAL	\$ 6,281,000	\$ 340,937
TOTAL ADMINISTRATIVE BUDGET	\$ 17,681,000	\$ 2,543,392

TAB C

Private Markets Program Report

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DATE: November 6, 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:

Private Equity	Court Square Capital Partners	Court Square Capital Partners V	up to \$150 million
Private Equity	TPG Capital	TPG Growth VI	up to \$150 million

New Managers:

Private Equity	Stellex Capital	Stellex Fund III	up to \$200 million
Private Credit	Torchlight Investors	Torchlight Debt Opportunity Fund VIII	up to \$150 million
Private Equity	Vance Street Capital	Vance Street Fund IV	up to \$125 million

SBI action is required on item B.

A. Status of SBI Current Private Markets Commitments

Minnesota State Board of Investment Combined Funds September 30, 2023

Combined Funds Market Value \$83,035,651,293

	% of Combined Funds	Current Level	Target Level ¹	Difference
Market Value (MV)	26.5%	\$22,042,806,356	\$20,758,912,823	(\$1,283,893,533)
<i>Policy Target</i>	25%			
<i>Statutory Limit</i>	35%			
MV +Unfunded	40.5%	\$33,649,517,464	\$37,366,043,082	\$3,716,525,618
<i>Policy Limit</i>	50.0%			

Asset Class	% of Combined Funds	Market Value	Unfunded Commitment	Total
Private Equity	19.3%	\$16,034,710,883	\$7,933,680,087	\$23,968,390,970
Private Credit	2.3%	\$1,926,576,005	\$1,380,426,414	\$3,307,002,420
Real Assets	2.5%	\$2,040,334,377	\$540,081,163	\$2,580,415,541
Real Estate	2.4%	\$2,023,745,709	\$1,752,523,443	\$3,776,269,152
Other ²		\$17,439,382		\$17,439,382
Total		\$22,042,806,356	\$11,606,711,108	\$33,649,517,464

Cash Flows September 30, 2023

Calendar Year	Capital Calls	Distributions	Net Invested
2023	\$1,968,358,548	(\$1,509,336,088)	\$459,022,460
2022	\$3,945,092,895	(\$3,140,446,870)	\$804,646,025
2021	\$4,556,450,698	(\$3,672,823,834)	\$883,626,864
2020	\$2,786,134,001	(\$2,318,825,278)	\$467,308,723
2019	\$2,543,614,503	(\$2,080,037,860)	\$463,576,642
2018	\$1,992,000,341	(\$2,049,733,815)	(\$57,733,474)
2017	\$2,021,595,780	(\$2,383,863,711)	(\$362,267,931)

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

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

B. Consideration of New Investment Commitments

ACTION ITEMS:

- 1) Investment with an existing Private Equity manager, Court Square Capital Partners (“Firm” or “Court Square”), in Court Square Capital Partners V (“CSC V”).**

Court Square intends to continue its history of making control investments in North American, middle market, growth companies. The Firm focuses on companies with an enterprise value of between \$150 million and \$1.5 billion in the Business Services, Healthcare, Industrial, and Technology & Telecommunications sectors. Court Square believes middle-market businesses can create significant value by combining strong management with a disciplined business plan. They seek to invest in companies positioned to benefit from favorable market dynamics that can lead to compelling earnings growth.

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

More information on Court Square Capital Partners V is included as **Attachment A beginning on page 7.**

RECOMMENDATION:

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

- 2) Investment with an existing Private Equity manager, TPG Capital (“TPG”), in TPG Growth VI (“Fund”).**

TPG Growth VI intends to invest primarily in growth equity investments, in which the Fund will aim to negotiate stronger governance rights than would normally be accorded to holders of similar equity stakes. In addition, TPG will target control growth buyout investments, where the TPG Growth Team can utilize the resources of the broader TPG platform for

operational value add and to pursue accretive M&A opportunities. The Fund intends to source and invest across sectors in which the TPG Growth Team has developed deep expertise: Business Services, Consumer, Healthcare, Internet, Digital Media & Communications and Software & Enterprise Technology.

In addition to reviewing the attractiveness of the TPG Growth VI 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 TPG Growth VI is included as **Attachment B beginning on page 11.**

RECOMMENDATION:

Staff is recommending a commitment of up to \$150 million to TPG Growth VI 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 TPG Growth VI and 2) an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing may be required and is approved. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and none of the State of Minnesota, the Investment Advisory Council, the State Board of Investment, or its Executive Director have any liability for reliance by TPG Capital 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 TPG Capital or a reduction or termination of the commitment.

3) Investment with a new Private Equity manager, Stellex Capital ("Firm"), in Stellex Fund III ("Fund").

Stellex Capital Partners III seeks to continue Stellex's history of successfully making control-oriented and deep-value investments in middle-market companies in North America and Europe. The Fund is expected to benefit from the Firm's strong history of catalyzing growth and supporting portfolio companies to become leading enterprises through operational transformations. The Firm targets businesses with enterprise values between \$100 – \$500 million experiencing some form of financial, operational, or cyclical underperformance. Upon closing an investment, potential value creation initiatives include hiring additional talent, upgrading infrastructure, instituting KPIs, and creating a culture of safety and compliance.

In addition to reviewing the attractiveness of the Stellex Fund III 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 Stellex Fund III is included as **Attachment C beginning on page 15.**

RECOMMENDATION:

Staff is recommending a commitment of up to \$200 million to Stellex Fund III 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 Stellex Fund III 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 Stellex Capital 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 Stellex Capital or a reduction or termination of the commitment.

4) Investment with a new Private Credit manager, Torchlight Investors ("Torchlight"), in Torchlight Debt Opportunity Fund VIII ("Fund").

The Fund's primary objective is to achieve current income and capital appreciation by investing primarily in a diversified portfolio of commercial real estate related debt and other interests. A secondary objective is targeting a 7% annual distribution rate to investors once the fund is fully invested. The fund will focus on CRE debt investments with critical analysis of the downside risk associated with each investment. Torchlight's investment process considers macroeconomic and submarket factors, and downside analysis examines the potential impact of an increase in interest rates, deteriorating property fundamentals and deteriorating market conditions. Target attributes for portfolio assets include high cashflow, strong control features, and negotiated deals with optionality.

In addition to reviewing the attractiveness of the Torchlight Debt Opportunity Fund VIII 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 Torchlight Debt Opportunity Fund VIII is included as **Attachment D beginning on page 19.**

RECOMMENDATION:

Staff is recommending a commitment of up to \$150 million to Torchlight Debt Opportunity Fund VIII 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 Torchlight Debt Opportunity Fund VIII and 2) an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing may be required and is approved. Approval of this potential commitment is not

intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and none of the State of Minnesota, the Investment Advisory Council, the State Board of Investment, or its Executive Director have any liability for reliance by Torchlight Investors upon this approval. Until the Executive Director, on behalf of the SBI, executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Torchlight Investors or a reduction or termination of the commitment.

5) Investment with a new Private Equity manager, Vance Street Capital (“Firm”), in Vance Street Fund IV (“Fund”).

Vance Street Fund IV seeks to continue the operationally intensive investment strategy utilized in Funds II and III by purchasing control interest in businesses that require meaningful operational support and investment to drive growth during the next ownership phase. The Fund will target investments with complex transaction dynamics, including multi-generational family businesses/founder-owned entities and corporate carve-outs. Historically, the Firm has targeted businesses in the Medical, Life Sciences, Aerospace and Defense, and Industrial Technology sectors. Depending on the business needs and end markets, the Firm leverages different operating partners to drive value creation.

In addition to reviewing the attractiveness of the Vance Street Fund IV 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 Vance Street Fund IV is included as **Attachment E beginning on page 23.**

RECOMMENDATION:

Staff is recommending a commitment of up to \$125 million to Vance Street Fund IV 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 Vance Street Fund IV 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 Vance Street Capital 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 Vance Street Capital or a reduction or termination of the commitment.

ATTACHMENT A

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. **Background Data**

Name of Fund:	Court Square Capital Partners V, L.P.
Type of Fund:	Private Equity – Buyout
Target Fund Size:	\$3 Billion
Fund Manager:	Court Square Capital Management, L.P.
Manager Contact:	Rick Walsh 299 Park Avenue, 35 th Floor New York, NY 10171

II. **Organization and Staff**

Court Square Capital Management (the “Firm” or “Court Square”) is forming Court Square Capital Partners V (the “Fund” or “CSC V”) to continue its history of investing in North American middle market growth companies in the Business Services, Healthcare, Industrial, and Technology & Telecommunications sectors.

Court Square was established in 2001 when the Citigroup Venture Capital team spun out to create the Firm. Court Square is employee-owned, with 41 investment professionals and 63 total employees in its New York office. Across its four funds, Court Square has made 77 platform investments, inclusive of the 19th investment in Fund IV, which is expected to close in the first two weeks of November. Across its four funds, Court Square has invested \$9.9 billion and generated \$17.8 billion in total value.

The Fund’s Investment Committee is comprised of Managing Partners Christopher Bloise, Joseph Silvestri, David Nguyen, Jeff Vogel, John Weber, Kevin White, and Senior Partners David Thomas and Michael Delaney. The Firm’s 6 Managing Partners and 2 Senior Partners have worked together at Court Square for an average of 26 years and share responsibility for corporate governance, strategy, and investment decisions. The 6 Managing Partners manage the day-to-day affairs of the Firm.

Court Square prides itself on its commitment to DEI initiatives, whereby talent is cultivated in accordance with those principles. The Firm believes that encouraging and respecting different perspectives and backgrounds is fundamental in driving innovation, collaboration, and continued success. In 2021, Court Square established a DEI Committee, and in 2022, it appointed Managing Partner David Nguyen as Head of DEI.

III. Investment Strategy

Court Square Capital V will continue the Firm's strategy of making control investments in US middle market companies. The Firm focuses on companies with an enterprise value between \$150 million - \$1.5 billion. Typically, Court Square will make an equity investment of between \$75 million - \$350 million. Company fundamentals which are attractive to Court Square are strong growth, active founder(s), management equity rollover, strong free cash flow generation, and the opportunity for additive acquisitions. Court Square investment professionals have a strong alignment of interest with portfolio company management and limited partners as Firm investment professionals have invested more than 5% in each CSC fund, and collectively, Court Square employees are the second largest Limited Partner in Fund IV, with \$346 million in commitment (13% of total commitments).

Court Square believes middle-market businesses can create significant value by combining strong management with a disciplined business plan. The Firm seeks to invest in companies that benefit from favorable market dynamics that can lead to compelling earnings growth. This growth can be driven by (a) favorable sector trends; (b) disruptive business models, products, or services; or (c) platform companies within fragmented industries where consolidation can lead to significant cost or competitive advantages. In addition to favorable market dynamics, the Firm also looks for situations where significant growth potential is unrecognized or untapped due to limited capital or operational resources, lack of proper incentives, or the current owner's insufficient risk tolerance to pursue an opportunity. Corporate divestitures or entrepreneurially managed businesses can frequently benefit from Court Square's financial, strategic, and managerial expertise and experience.

As part of its investment process, Court Square develops a value-creation plan for each investment and works closely with management post-transaction to refine and implement the customized plans. Court Square often augments management team efforts by leveraging the Firm's Resource Partners as well as its network of executives and specialists to help implement key initiatives. Some examples of value creation plans include opportunities to:

- Capitalize on unrecognized and/or untapped revenue potential;
- Implement sustainable cost reductions;
- Improve working capital;
- Execute accretive acquisitions/disposition; or
- Strategically reposition;
- Enhance management teams where appropriate

Environmental, Social, and Governance ("ESG") evaluation and risk mitigation play a key role in prospective investments' due diligence and potential value creation opportunities. Court Square continues to enhance and develop its ESG program within the Firm and across the portfolio. In 2017, Court Square formalized its ESG policy and has conducted ESG diligence on all new platform investments since. The Firm is a signatory to the ILPA ESG Data Convergence Initiative and the ILPA Diversity in Action Initiative. The ESG Committee is led by Managing Partner John Weber.

IV. Investment Performance

Previous fund performance as of June 30, 2023, is shown below:

Fund	Vintage Year	Total Commitment	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
Court Square Capital Partners	2001	\$2.6 billion	\$100 million	27.8%	2.2x	2.2x
Court Square Capital Partners II	2006	\$3.1 billion	\$175 million	12.3%	1.8x	1.8x
Court Square Capital Partners III	2012	\$3.2 billion	\$175 million	20.6%	2.2x	1.5x
Court Square Capital Partners IV	2019	\$2.7 billion	\$150 million	20.0%	1.4x	0.3x

* Previous Fund investments may be relatively immature and, therefore, returns may not be indicative of future results. Performance data was provided by the General Partner.

V. Investment Period and Term

The investment period will be five years with a ten-year term, subject to potential one-year extensions.

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

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ATTACHMENT B

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. Background Data

Name of Fund:	TPG Growth VI, L.P.
Type of Fund:	Private Equity – Growth
Target Fund Size:	\$4 Billion
Fund Manager:	TPG
Manager Contact:	Joe Buss 345 California Street Suite 3300 San Francisco, CA

II. Organization and Staff

TPG (the “Firm”) is one of the largest global alternative investment firms in the world, with total assets under management of approximately \$139 billion (as of June 30, 2023) and a platform of complementary investment funds that pursue opportunities in private equity, real estate and public equity. The Firm currently has 15 offices worldwide – San Francisco, Fort Worth, New York, London, Hong Kong, Beijing, Luxembourg, Melbourne, Mumbai, Seoul, Singapore, Dubai, Guangdong, Shanghai, and Washington D.C. – and approximately 1,200 employees and advisors, including approximately 380 investment and operations professionals. TPG Growth is able to leverage the broader TPG ecosystem of global professionals, along with a team of over 60 investment and business building professionals dedicated to TPG Growth.¹

In January 2022, TPG closed its initial public offering of Class A shares on the NASDAQ stock exchange. TPG used proceeds from the IPO to reinvest in its business and increase employee retention. In May 2023, TPG announced the acquisition of Angelo Gordon. Founded in 1988, Angelo Gordon is an integrated and scaled multi-strategy platform with more than 650 employees across 12 offices in the U.S., Europe, and Asia. Angelo Gordon’s \$55 billion credit platform offers scaled and diversified capabilities across the credit investing spectrum, including corporate credit, direct lending, and structured credit, and its \$18 billion real estate platform manages dedicated value-add real estate strategies with significant reach in the U.S., Europe, and Asia.

TPG is forming TPG Growth VI, L.P. (the “Fund” or “TPG Growth V”) to serve as the primary TPG investment vehicle for growth equity and control growth buyout investment opportunities requiring an equity investment of \$300 million or less in companies whose principal business operations are in the Developed Markets, and \$150 million or less in India. The management

¹ Note: Personnel and AUM as of June 30, 2023.

of the Fund will be led by senior TPG Growth Professionals (Matthew Hobart, David Trujilo, Mike Stone, Ransom Langford and Scott Gilbertson) as well as TPG Senior Leadership (James Coulter, Jon Winkelried and Jonathan Coslet).

TPG has a strong foundation rooted in Diversity, Equity, and Inclusion. TPG's Diversity, Equity and Inclusion Council was founded in November 2015. TPG believes a diverse and inclusive workplace is necessary at TPG to foster diversity of thought; create an organization reflective of the breadth of the limited partners, portfolio companies and communities they serve; and attract, develop, retain and promote the best talent. The Diversity, Equity and Inclusion Council today comprises the Firm's most senior leadership representing every business unit and region and is committed to the success of every employee at every level of the Firm.

III. *Investment Strategy*

TPG Growth employs an investment strategy that the Firm believes is a fundamentally different approach to middle-market growth investing, hallmarked by diversified portfolio construction with a focus on profitable growth and strong unit economics, control or outsized governance rights, structural protections, and deep business building engagement as they seek to generate compelling risk-adjusted returns. TPG Growth VI intends to leverage its 15-year history of investing in middle-market growth opportunities as well as TPG's substantial institutional resources, including its 30-year history of thematic insights, sourcing capabilities, and investment diligence. TPG Growth VI is expected to pursue two primary types of investments: (i) growth buyout investments with thoughtful capital structures and high growth rates where the TPG Growth Team can execute strategic M&A and utilize the resources of the broader TPG operations platform to enhance operating models; and (ii) growth equity investments focused on profitability and positive unit economics, in which the Fund will aim to have active board involvement and negotiate stronger governance rights than would normally be accorded to holders of similar equity stakes. The Fund expects to invest primarily in North America and India, with a focus on sectors in which TPG and the TPG Growth Professionals have developed deep expertise and experienced historical success: Business Services, Healthcare, Internet, Digital Media & Communications (IDMC), and Software & Enterprise Technology (SET). This approach to portfolio construction allows TPG the flexibility to optimize for risk/reward outcomes.

TPG Growth VI is expected to pursue investments that take advantage of the diverse investing and operating skills of the dedicated TPG Growth team as well as the broader TPG ecosystem of professionals, portfolio companies, and TPG-affiliated network of executives and advisors. Complementing TPG Growth investment professionals is the TPG Growth Business Building Group. This team is tasked with driving shareholder value creation by engaging in the investment due diligence process and identifying and executing revenue growth, operational effectiveness, and profit enhancement initiatives. Examples of how the TPG Growth Business Building Group creates value include, but are not limited to, providing differentiated insight during the diligence process that informs transaction underwriting, identifying opportunities for operational improvement post-investment, guiding human capital initiatives by enhancing

management teams and boards, providing business performance oversight including close monitoring of key performance indicators, and serving as interim executives where necessary.

Additionally, an important element of TPG Growth's investment strategy is to structure downside protection where possible, especially in growth equity and investments in India. TPG Growth intends to seek structured equity investments with more robust governance rights than would normally be provided to holders of similar equity stakes, such as ownership and management rights, preferred equity securities, downside protection ratchets, performance-based profit guarantees, contractual board representation rights, veto rights, redemption rights, other exit rights and other structured provisions that provide TPG Growth with enhanced governance and downside protection, even in minority ownership positions.

TPG's global footprint, expert resources, and collaborative culture create an integrated investment platform that spans geographies, skill sets and sectors. TPG Growth draws upon the resources of TPG's platform to help generate high-volume and high-quality deal flow, to make disciplined investment decisions and to improve portfolio company performance after closing, with the goal of achieving attractive investment results. The TPG Senior Leadership has invested across multiple investment cycles and dislocations providing differentiated perspectives and investment insights, which they believe will complement the TPG Growth Team in navigating the current investment environment. TPG believes these advantages position TPG Growth as one of the largest "small check" investment firms in the world based on available resources.

TPG's Sustainability and Environmental, Social, and Governance ("ESG") Program supports the Firm's long-standing commitment to strong ESG performance across its portfolio. Ensuring positive ESG outcomes is a central tenet of how and why TPG invests. Accordingly, all of the firm's senior investment professionals consider ESG impacts alongside financial returns throughout the investment process. TPG invests directly in companies where TPG has the ability to actively engage with companies on ESG-related risks and opportunities. As a part of TPG's standard engagement with portfolio companies, TPG reviews a company's existing ESG-related policies and ethical business guidelines during the due diligence process or during the period of investment. To the extent any gaps or risks are identified, TPG will engage with the company's leadership team to address these and, whenever possible, introduce relevant risk-management, resilience-focused and value-add policies for the company. As a part of TPG's Sustainability and ESG Program, portfolio companies are asked to (i) establish ESG policies; (ii) participate in the TPG Sustainability/ESG Sustainability Leadership Council; (iii) complete an Annual ESG Performance Self-Assessment; and (iv) measure and report on the progress of their goals and action plans.

IV. Investment Performance

Previous fund performance as of June 30, 2023 is shown below:

Fund	Vintage Year	Total Commitment	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
TPG Star	2007	\$1.3 billion	-	6%	1.3x	1.2x
TPG Growth II	2011	\$2.0 billion	-	16%	2.1x	1.7x
TPG Growth III	2015	\$3.1 billion	-	19%	1.8x	1.1x
TPG Growth IV	2017	\$3.7 billion	-	16%	1.5x	0.5x
TPG Growth II Gator	2019	\$726 million	-	27%	1.6x	0.9x
TPG Growth V	2020	\$3.6 billion	\$150 million	22%	1.3x	0.1x

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

V. Investment Period and Term

The investment period is six years from the Effective Date, and the term of the fund extends 10 years from the initial closing date, with up to two additional one-year periods with the consent of the advisory committee.

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

ATTACHMENT C

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. **Background Data**

Name of Fund:	Stellex Capital Partners III, L.P.
Type of Fund:	Private Equity – Buyout
Target Fund Size:	\$2.5 Billion
Fund Manager:	Stellex Capital Management
Manager Contact:	Courtney Mehrotra 900 Third Avenue 25th Floor New York, NY 10022

II. **Organization and Staff**

Stellex Capital Management (the “Firm” or “Stellex”) is forming Stellex Capital Partners III, L.P. (the “Fund” or “Fund III”), to continue its history of making control-oriented and deep value investments in middle market companies in North America and Europe. The Fund is expected to benefit from the Firm’s strong history of supporting portfolio companies to become leading enterprises through operational transformations.

Stellex is controlled and managed by its two co-founders, Raymond Whiteman and Michael Stewart. Prior to forming Stellex, Messrs. Whiteman and Stewart were the Co-Heads and Managing Directors of Carlyle Strategic Partners, a wholly-owned entity of The Carlyle Group, a global alternative investment manager. The Managing Partners resigned from The Carlyle Group in November 2013 to establish Stellex. The Fund marks a continuation of the middle-market deep value, special situations strategy executed by the Managing Partners since 2003.

The Firm is led by Managing Partners Raymond Whiteman, Michael Stewart, and Mark Redman. Messrs. Whiteman and Stewart are based in the firm’s New York office and Mr. Redman is based in London. Stellex also has offices in Detroit and Pittsburgh. The Firm has 34 investment professionals and 44 employees in total.

Stellex is committed to Diversity, Equity, and Inclusion. Over half of the team is female and/or ethnically diverse, from the Managing Partners to entry-level analysts. Recruitment of diverse talent is a core value for Stellex to ensure the Firm fosters an environment that supports and champions diverse perspectives. The firm’s primary pipeline of talent for the investment team is through its Summer Analyst (internship) and Analyst (full time) programs. Since the program’s inception in 2020, the Summer Analyst and Analyst classes have been diverse across ethnicity, gender, and/or LGBTQ+ identities. Additionally, Stellex partners with organizations such as SEO and the Howard School of Business for recruiting efforts. Stellex

is also member of the Toigo Foundation, and NAIC, as well as an ILPA Diversity in Action Signatory. Stellex is also a historic sponsor and supporter of the NASP Southern California chapter.

III. Investment Strategy

With Fund III, Stellex seeks to continue its strategy of making control-oriented and deep value investments in middle market companies in North America and Europe. The Firm targets businesses with enterprise values between \$100 – \$500 million experiencing some form of financial, operational, or cyclical underperformance. Stellex believes that the middle market frequently provides attractive investment opportunities because companies of this size often lack the capability to prevent or contain threats to their business, particularly those that arise from competing with larger, better-capitalized, and better-resourced companies. These conditions may result from poorly executed growth strategies, significant change to operational processes, corporate inertia and inaction, or simply lackluster management, poor executive or ownership succession planning, inappropriate capital structures or pressure from the current economic cycle. These middle-market opportunities, particularly those allowing for control or positions of influence, are expected to be the target of the Fund.

Potential targets for Fund III could be underperforming or undermanaged companies or divisions within larger entities and enterprises, operationally sound businesses that are overlevered, special situations that involve sectors or businesses where Stellex has significant in-house knowledge, or companies or operating assets that are experiencing financial, operational or industry-driven uncertainty. Stellex focuses on businesses in the following sectors: Aerospace, Defense, and Government Services; Transportation and Logistics Manufacturing, Real Economy & Business Services; and Food Processing and Tech-enabled Services.

Stellex's versatility in its approach allows it to offer a variety of transactions to invest in opportunities that it finds attractive. In buyout and special situations investments, the team has experience making investments with control and/or other rights of significant influence over the strategic direction of the business. With platform investments, Stellex has executed buy and build strategies to capitalize on specific dynamics associated within an economic sector. Another opportunity set for Stellex is carve-outs where the Firm targets non-core business divestitures and neglected corporate orphans. The fourth area of expertise is turnarounds and corporate reorganizations. Here, the Firm invests in situations that will necessitate active involvement in the reorganization process, crisis management situations, operational overhauls, and negative cash flow companies.

Complementing the Stellex deal team members is a network of more than 300 operating partners. Beginning with sourcing, deal team members and operating partners utilize the Firm's regional presence to connect with business owners and operators. During diligence, deal team members and operating partners attend management meetings together and formulate the value creation plan. Post-closing, operating partners are involved in the value creation process and

may assume C-suite roles and/or Board seats. Some examples of value creation projects include:

- *Operations*: lean implementation, continuous improvement, capacity planning, creating a culture of safety, and operating efficiency improvements
- *Human resources*: hiring talent, improving policies and procedures, engagement and retention, compliance, and benefits;
- *Information technology*: updating infrastructure, improving applications and cybersecurity, and optimizing scalability;
- *Supply chain management*: vendor managed inventory, cost reductions, and annual negotiations
- *Sales*: competitive positioning, tweaking pricing strategy, and implementing sales incentives; and
- *Finance*: instituting KPIs, upgrading CFO role, improving banking relationships and cash controls, and introducing tax strategies;

Stellex recognizes the importance of integrating ESG factors into its investment process, risk management, operations, and stakeholder engagement, as Stellex believes these best practices can enhance long-term value for its limited partners, employees, and communities. Stellex is also a signatory of the UNPRI. Over the past year Stellex has appointed independent board members at a majority of its portfolio companies in an effort to foster a variety of perspectives and transparency. Moreover, Stellex aims to incorporate certain ESG-related concepts into a majority of its investments from the early stages of deal diligence and seeks to maintain this throughout its ongoing management. The firm believes its approach best supports its portfolio.

IV. Investment Performance

Previous fund performance as of June 30, 2023 is shown below:

Fund	Vintage Year	Total Commitment	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
Stellex Capital Partners	2015	\$870 million	-	24.7%	2.0x	1.0x
Stellex Capital Partners II	2021	\$1.8 billion	-	9.0%	1.1x	0.1x

* Previous fund investments are not indicative of future results. There is no guarantee of returns. Performance must be read in conjunction with the endnotes provided separately by Stellex for important clarifications and information. Net IRR, Net MOIC, and Net DPI were provided by Stellex.

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 that will be provided in the Confidential Private Placement Memorandum (the "PPM"). It is qualified in its entirety by the more detailed information to be provided in the PPM upon launch of the Fund.

ATTACHMENT D

PRIVATE CREDIT MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	Torchlight Debt Fund VIII, L.P.
<i>Type of Fund:</i>	Private Credit
<i>Total Fund Size:</i>	\$2.0 billion
<i>Fund Manager:</i>	Torchlight Debt Fund VIII GP, L.P.
<i>Manager Contact:</i>	Brian Moynihan 280 Park Avenue, 11 Floor New York, NY 10017

II. Organization and Staff

Torchlight Investors, LLC (“Torchlight” or the “Firm”) is forming Torchlight Debt Fund VIII L.P. to achieve significant capital appreciation and current income by investing primarily in a diversified portfolio of commercial real estate (CRE) related investments. Torchlight was formed in 1995 by Daniel Heflin (Co-Chief Executive Officer & Co-Chief Investment Officer), to provide investment management services to institutional clients seeking exposure to commercial real estate (CRE) debt markets. Torchlight has invested across a broad array of commercial real estate investments including, senior mortgages, mezzanine loans, preferred equity, equity, investment grade and non-investment grade CMBS and had \$6.1 billion of assets under management as of June 30, 2023. The investment management group is comprised of an investment team of 26, financial control and compliance team of 25, and an investors relations team of 8. All professionals work out of a New York City office location.

Torchlight is owned and led by an experienced senior management team, which averages over 25 years of experience with expertise in mortgage structuring and origination, portfolio management, asset management, securitization, and distressed debt workout. The management team has created a competitive advantage through broad and established sourcing relationships, a flexible investment strategy with a focus on downside protection and asset management expertise across public and private real estate investments.

Torchlight is committed to developing, encouraging, and preserving a culture of diversity, equity, and inclusion (“DEI”) and maintaining a workplace environment that is free of bias and discrimination of any kind. The firm maintains a written DEI Policy and has established a DEI Committee that is responsible for the oversight and maintenance of the Firm’s DEI program, including the DEI Policy. The Committee is comprised of members from each functional area of the organization and reports to the Firm’s Board of Directors.

III Investment Strategy

The fund's primary objective is to achieve current income and capital appreciation by investing in a diversified portfolio of commercial real estate related debt and other interests. A secondary objective is targeting a 7% annual distribution rate to investors once the fund is fully invested. The fund will focus on CRE debt investments with a particular focus on the downside risk associated with each investment. Torchlight's investment process considers macroeconomic and submarket factors, and its downside analysis examines the potential impact of an increase in interest rates, deteriorating property fundamentals and deteriorating market conditions. Target attributes for portfolio investments include high cashflow, strong control features, and negotiated deals with optionality.

The fund will target a 60% allocation to private market investments and 40% to public market investments. This mandate allows Torchlight the flexibility needed to pursue various strategies as different parts of the real estate capital stack become more attractive at different times in their respective cycles. As such, Torchlight will focus on areas where it sees attractive risk-adjusted opportunities. The management team's expertise in public and private real estate investments is particularly important given the current financial market conditions and the significant amount of CRE debt that is expected to mature. Approximately \$1.5 trillion of CRE debt will mature in the next three years, and Torchlight expects the amount of debt maturing into a higher rate environment will give rise to a wide array of attractive opportunities. Private investments may consist of senior mortgages, mezzanine loans, preferred equity, and equity interests, while public investments may consist of conduit commercial mortgage-backed securities (CMBS), single-asset single-borrower (SASB) CMBS and Freddie Mac K-Series CMBS. The fund will broadly target U.S. assets and will diversify assets across geographies and property types.

Torchlight will seek to capitalize on its 28-year track record of investing in CRE across the capital stack through multiple market cycles. Since inception, the firm has invested approximately \$30 billion in CRE strategies and managed 12 funds for institutional investors. Torchlight has developed strong, long-standing relationships with a broad network of top-tier companies and key individuals within the commercial real estate industry. These include public and private owner/operators of institutional quality real estate; large scale management companies; trading, origination and capital markets desks at major investment and commercial banks; and a wide array of loan sale, investment sale, and debt and equity advisers and intermediaries.

Torchlight has established an Environmental, Social and Governance (ESG) Committee to oversee implementation of the Firm's ESG Policy. The objective of the ESG Committee, in conjunction with the Investment Committee (IC), is to provide guidance and advice to the Firm's investment professionals throughout the Firm's ESG integration process. The ESG Committee reports to the Firm's Board of Directors. Torchlight's consideration and integration of ESG factors filter through several, successive stages of the investment process which include, underwriting & due diligence, IC memo preparation, integration into deal documentation and portfolio monitoring. Torchlight supplements its oversight and management of ESG-related factors in the asset management process in a number of ways, including engaging third-party experts, such as energy consultant OnPeak, to track and reduce properties' energy costs and improve cashflows.

IV. Investment Performance

Previous fund performance as of June 30, 2023 is shown below:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
Torchlight Debt Fund I	2003	\$280 Million	-	25.1%	1.54x	1.54x
Torchlight Debt Fund II	2006	\$730 Million	-	-1.2%	0.91x	0.91x
Torchlight Debt Fund III	2008	\$760 Million	-	13.7%	1.54x	1.54x
Torchlight Debt Fund IV	2012	\$940 Million	-	9.2%	1.43x	1.32x
Torchlight Debt Fund V	2015	\$1.4 Billion	-	10.2%	1.31x	1.19x
Torchlight Debt Fund VI	2017	\$1.7 Billion	-	8.1%	1.29x	0.46x
Torchlight Debt Fund VII	2020	\$2.0 Billion	-	5.0%	1.08x	N/A

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

III. Investment Period and Term

The Fund's investment horizon is based on its three-year investment period and 7-year harvest period.

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

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ATTACHMENT E

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. Background Data

Name of Fund:	Vance Street Capital IV, L.P.
Type of Fund:	Private Equity
Target Fund Size:	\$550 million
Fund Manager:	Vance Street Capital
Manager Contact:	Natalie Yates 15304 Sunset Blvd Suite 200 Pacific Palisades, CA 90272

II. Organization and Staff

Vance Street Capital Management LLC (“Vance Street” or “Firm”) is a Los Angeles, California-based private equity firm focused on control-oriented investments in North American lower middle market companies (\$30 to \$300 million Enterprise Value) that produce highly engineered products. The Firm targets investments in business-to-business (“B2B”) manufacturing companies with “mission critical” products or services that have a strong competitive moat through high barriers to entry and valuable intellectual property. These businesses tend to operate in markets with significant regulatory oversight and serve customers who place a high value on service, speed, and quality. These businesses tend to fall within medical, life sciences, aerospace and defense, and industrial technology sectors. Since its inception in 2007, Vance Street has deployed \$966.7 million of equity across 22 platforms and 35 add-ons.

Vance Street’s team blends deep investment experience with a history of operational value creation. Vance Street is led by its Managing Partners, Brian Martin and Mike Janish. Mr. Martin and Mr. Janish, who joined Vance Street in 2010 and 2016, respectively, have been managing day-to-day responsibilities of the firm since 2016. The Firm’s investment committee (“Investment Partners”) is comprised of Brian Martin, Mike Janish, John LeRosen, Nicholas Janneck and Steve Sandbo. The Investment Partners have been investing together at Vance Street since the inception of Fund II and have worked together for the majority of their respective careers. They collectively have more than 100 years of industry experience and 53 years of working together.

In addition to Investment Partners, Vance Street is supported by robust investment, operations, and accounting teams.

The Firm became a CFA DEI signatory in 2023 and is working to implement best practices according to CFA’s onboarding recommendations. By becoming a CFA DEI signatory, Vance Street has agreed to commit to the six Principals of the CFA DEI code. These Principals include

expanding the diverse talent pipeline, implementing, and maintaining inclusive hiring, promotion and retention practices, promoting DEI initiatives in the investment industry, and measuring and reporting on their progress in driving better DEI results within their firm.

III. Investment Strategy

Vance Street Capital IV will continue the operationally intensive investment strategy utilized in Funds II and III by purchasing control interest in industrial/manufacturing businesses that require meaningful operational support and investment to drive growth during the next phase of ownership. Vance Street typically targets companies that have complex transaction dynamics, including multi-generational family businesses/founder-owned entities and corporate carve-outs. Vance Street will utilize its deep bench of in-house operational professionals and its network of 40+ tactical operating partners and industry experts to resolve many of the issues inherent in these types of transactions (e.g., quality, regulatory, systems, general underinvestment, financial reporting, IT, sales and marketing, human capital). Over the course of their careers, the members of the investment and operations team have developed deep expertise in medical, industrial technology, and aerospace and defense companies.

Vance Street's investment strategy starts with the identification of acquisition targets. Through deep industry knowledge, direct operating experience and relationships, Vance Street is intimately aware of the market players and dynamics in their core end markets. Vance Street targets companies that typically generate strong cash flow due to premium EBITDA margins and moderate use of leverage. Vance Street has a deep bench of operating partners who assist the Firm in evaluating prospective investments and executing post-close operational improvements. These operating partners provide subject matter expertise that are developed for specific value creation tasks including LEAN Six-Sigma, Quality/Regulatory optimization, digital markets, goal development, sales strategy, ERP optimization, HR, engineering/technology recruitment and produce lifecycle. The Firm believes the combination of its operationally focused investment strategy, extensive industry knowledge, and deep operating resources distinguishes Vance Street from its peers.

Vance Street has developed a repeatable value creation strategy over the past 20+ years known as the Playbook. The Playbook is designed to drive operational improvements, enhance growth and create value for Vance Street's portfolio companies. Depending on business' needs and end markets, the Firm leverages different operating partners to implement the Playbook and drive value creations.

Building the Foundation

Post-acquisition, Vance Street’s deal team focuses on operational remediation and building out the talent architecture of the business. These key steps ensure the company is appropriately equipped to support the growth anticipated under Vance Street’s ownership. Post-closing, the Firm will work with management, the operating partners, and industry experts to refine the plan. As part of this onboarding, the Firm will hold a strategy session with management to establish short- and long-term growth objectives and targets for the company. After establishing these targets and goals, the board will monitor progress through weekly KPIs and updates at quarterly board meetings.

As part of the establishment of KPIs and a reporting cadence, Vance Street requires portfolio companies to report standardized ESG metrics annually based upon the ESG Data Convergence Initiative, as well as additional metrics frequently requested by Limited Partners. In 2023, Vance Street performed its first detailed portfolio wide metric collection and published ESG scorecards to assess key metrics and create an actionable implementation plan for 2024.

Accelerated Growth

Vance Street seeks to create strategic assets through repeatable initiatives and improvements that the Firm makes during its ownership. Once the right leadership is in place, the deal team and operating partners begin to optimize operations through lean manufacturing, enhancing sales, driving new product development, and pursuing additive M&A opportunities.

Drive to Exit

Vance Street monitors potential exit strategies throughout its ownership period in order to maximize value. Vance Street’s portfolio companies are often active market participants in their respective markets (e.g., participate in trade shows, service or partner with strategic buyers on projects, etc.) As a result, many of the logical buyers see firsthand the improvements and changes that are made under Vance Street’s ownership, which further drives interest in the marketplace and often results in inbound interest.

IV. Investment Performance

Previous fund performance as of June 30, 2023 is shown below:

Fund	Vintage Year	Total Commitment	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
Vance Street Capital	2008	\$319 million	-	3.9%	1.2x	1.2x
Vance Street Capital II	2016	\$250 million	-	25.2%	2.4x	0.9x
Vance Street Capital III	2020	\$432 million	-	19.4%	1.3x	N/A

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

V. Investment Period and Term

The investment period is five years and the term of the fund extends 10 years from the initial closing date, subject to potential extensions.

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

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REPORT

Public Markets Investment Program

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DATE: November 6, 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 one-year periods ended September 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:

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

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

Market Summary

Global equity markets fell modestly during the third calendar quarter of 2023, with the MSCI All Country World (ACWI) Index of global stocks falling -3.4% in U.S. dollar terms for the quarter. The U.S. dollar rose sharply versus a trade-weighted basket of foreign currencies, most notably versus the British pound and Japanese yen. Most fixed income sectors declined during the quarter as yields on U.S. Treasuries jumped to multi-year highs. The Bloomberg U.S. Aggregate Bond Index fell -3.2% during the quarter.

Equity markets were jolted by the sharp rise in longer-term interest rates and hawkish comments from the U.S. Federal Reserve (Fed) that more rate hikes may be required to bring inflation down to the Fed's 2% target. Oil prices rose sharply during the quarter, benefiting energy producers and refiners. The energy sector rallied +11.8% over the quarter.

Despite expectations that the cumulative impact of the Fed's policy tightening campaign would start to weigh on economic activity, data released in October showed the U.S. economy grew at a rapid +4.9% annualized pace in the third quarter. The pace of hiring also remained strong, averaging 266,000 net new jobs per month over the last three months. Headline inflation accelerated during the quarter, driven by higher costs for energy and shelter. Meanwhile core inflation, which excludes food and energy prices, continued to trend lower, rising at a +4.1% year-over-pace in September, down from +4.8% in June.

Within fixed income, a sharp move higher in yields on long-term U.S. Treasury yields weighed on returns across the broader investment grade fixed income market. Credit-sensitive sectors of the market generally fared better than Treasuries, however, as investors benefitted from the relative yield advantage offered by corporate bonds, high-quality securitized credit, high yield bonds and bank loans.

Overall Combined Funds Portfolio Performance - Quarter and One-Year Periods

The overall Combined Funds portfolio returned -1.9% during the **calendar third quarter**, slightly outperforming the composite benchmark's return of -2.1%. The positive relative return for the quarter was driven primarily by a positive contribution from the portfolio's allocation to return-seeking fixed income, which outperformed the fixed income policy benchmark (Bloomberg U.S. Aggregate Index), and net gains from the portfolio's currency hedging program. Active management within both domestic and international equities also added to relative outperformance. Lastly, a modest overweight to private markets relative to the policy target also helped relative returns. The private markets invested portfolio gained +2.2% during the quarter, led by a +3.0% return within the private equity allocation. On the negative side, underperformance from active managers within the global equity and emerging markets equity segments hurt relative performance, as did the portfolio's slight underweight to cash relative to the policy allocation.

For the **one-year period ended September 30, 2023**, the portfolio posted a return of +11.7%, matching the composite benchmark return 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 over last 12 months. The portfolio's allocation to return-seeking fixed income also benefitted the portfolio as this segment of the portfolio significantly outperformed the portfolio's fixed income policy benchmark, the Bloomberg U.S. Aggregate Index, over the period. On the negative side, an overweight to U.S. small cap stocks, and mark-to-market losses from the portfolio's currency hedging program hurt relative performance for the period. The invested private markets portfolio returned +6.6% for the one-year period ended September 30, 2023, led by a +10.9% return within the private credit allocation.

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

Domestic Equity

Domestic equities, as measured by the Russell 3000 Index, fell -3.3% in the third quarter following three consecutive quarters of positive equity performance. The selloff was fueled in part by a softening in investor sentiment in the face of a sharp rise in longer-term interest rates and growing expectations of higher-for-longer U.S. monetary policy. Unexpected production cuts from the OPEC+ oil producing nations sent energy prices higher and put further pressure on the near-term inflation outlook. Finally, the stock market euphoria that emerged last quarter over the generative AI theme cooled in the third quarter, leading to a decline in valuations for many technology-oriented stocks.

Energy was the best-performing sector in the Russell 3000 Index (+11.8%) as oil prices rose sharply in response to OPEC+ production cuts and a pickup in corporate M&A activity within the sector. Energy refiners such as Phillips 66 (+27.1%) led the sector's gains, followed by exploration and production (E&P) firms like Pioneer Natural Resources (+11.6%). Large integrated producers, such as ExxonMobil (+10.6%), also rallied. Financials also gained during the quarter (+0.7%) as higher interest rates drove expectations for higher net interest margin income.

In contrast, stocks with bond-like characteristics, long-dated cash flows, or high amounts of debt generally lagged. The utilities (-9.5%) and real estate (-8.5%) sectors performed worst, followed by consumer staples (-5.8%) and consumer discretionary (-5.2%). Technology shares also declined (-3.6%), led lower by mega cap names such as Apple (-11.6%) and Microsoft (-7.1%). Small cap stocks lagged large caps during the quarter. Within small caps, value stocks outperformed growth stocks (R2000 Value -3.0% vs. R2000 Growth -7.3%), owing to a higher weighting towards financials and energy stocks and a lower weight to healthcare stocks.

The Combined Funds' domestic equity portfolio declined -3.2% during the quarter, slightly outperforming the Russell 3000 Index, which returned -3.3%. The portfolio's overweight to small cap value stocks positively impacted performance, while overall impact from active management across the portfolio was neutral.

The portfolio's large cap and all cap growth managers underperformed their benchmarks during the quarter. Large cap growth manager Winslow narrowly underperformed (-3.2% Manager vs. -3.1% Benchmark), benefiting from its more defensive and diversified strategy. Concentrated large cap growth manager Sands underperformed the most (-7.9% Manager vs. -3.1% Benchmark), followed by concentrated all cap growth manager Zevenbergen (-5.5% Manager vs. -3.4% Benchmark). Both managers have significant exposure to high-growth stocks with longer duration cash flows, which suffered during the quarter.

Active large cap value managers outperformed during the quarter (-1.4% Managers vs. -3.2% Benchmark). Barrow Hanley was boosted by issue selection favoring industrials tied to the AI infrastructure theme. In addition, the manager benefited from an overweight to energy stocks and an underweight to utilities. LSV's quantitative, deep-value approach benefited from a quarter in which deep value stocks were rewarded. The manager's issue selection was most positive within utilities, energy, and financials.

The portfolio's semi-passive large cap managers both outperformed their benchmark during the quarter (-2.8% Managers vs. -3.1% Benchmark). Quantitative manager Blackrock outperformed due mostly to issue selection driven by fundamental valuation measures that benefitted from higher interest rates, especially those tracking company sales, earnings, and cash flows. Fundamental manager J.P. Morgan also outperformed, led by strong stock selection within healthcare and consumer cyclicals.

Small cap growth managers underperformed in aggregate during the quarter (-8.1% Managers vs. -7.3% Benchmark), due mostly to the cohort's underweight to the energy sector in a quarter that saw small cap energy stocks jump by over +15%. Wellington outperformed during the quarter, boosted by strong issue selection within consumer staples and industrials, while an underweight to financials was a modest drag.

Small cap value managers outperformed the index in aggregate during the quarter (-2.0% Managers vs. -3.0% Benchmark). The portfolio's managers tend to focus on companies that have cheaper valuations than the benchmark, and this deeper-value orientation benefitted the portfolio during the quarter. In particular, managers benefitted from strong stock selection in areas such as technology, consumer cyclicals, and industrials, while an underweight to biopharmaceuticals, which sold off significantly in the quarter, was also additive to relative performance.

The portfolio's passive portfolios tracked their respective benchmarks during the quarter, posting a combined return of -3.2%, 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) fell alongside U.S. indices, returning -3.4% in U.S. dollar terms for the quarter. While most major regions outperformed the U.S. market during the quarter in local currency terms, a broad-based rally in the U.S. dollar dragged down international equity returns from the perspective of dollar-based investors. Most markets ended the quarter lower; only 10 of 47 countries representing just 3.1% of the total index market capitalization were able to eke out positive returns in U.S. dollar terms for the quarter. Sector performance across non-U.S. equities was led by the energy and financial sectors, while information technology, utilities, and consumer discretionary names lagged.

The Combined Funds' global equity managers underperformed the index for the quarter (-7.6% Managers vs. -3.4% Benchmark). Quality growth manager Martin Currie (-11.6% Manager vs. -3.4% Benchmark) was hurt by issue selection within the health care and financial sectors, while bets on consumer luxury stocks also struggled as economic news from China, the world's biggest luxury market, continued to disappoint. Growth manager Baillie Gifford (-8.2% Manager vs. -3.4% Benchmark) also underperformed, hurt by sharp declines in positions such as Adyen (electronic payments), DexCom (medical devices), ASML (semiconductors) and Kering (luxury goods).

The portfolio's ACWI ex USA manager, Earnest Partners, ended the quarter modestly ahead of benchmark (-3.6% Manager vs. -3.8% Benchmark). Earnest benefitted from an overweight to China and positive issue selection within industrials and materials, while poor stock selection within consumer discretionary and consumer staples, and underweights to energy and financials, hurt relative performance.

Developed International Equity and Currency Overlay

International developed markets equities, as measured by the MSCI World ex USA Index (net), fell -4.1% in U.S. dollar terms. Information technology, utilities and consumer discretionary names led the market lower, while energy, financials and healthcare all outperformed the broader market. From a country perspective, energy exporter Norway posted the strongest market return (+11.9%), while core European markets like France (-6.9%) and Netherlands (-13.5%) suffered from a concentration of consumer luxury brands listed in those markets. Luxury brand stocks fell sharply during the quarter on weakening demand from key markets like China.

The portfolio's active developed markets managers outperformed the MSCI World ex USA Index (net), returning -3.7% versus the benchmark's -4.1% return. Quantitative manager Acadian led the portfolio (-2.1% Manager vs. -4.1% Benchmark) with strong performance from their value factor holdings and with good selection in markets that were broadly out of favor. Core manager Marathon (-2.8% Manager vs. -4.1% Benchmark) outperformed in Japan, particularly among industrial names that benefited from a weaker currency, which makes their goods more attractive on export markets. Conversely, quality growth manager J.P. Morgan (-6.1% Manager vs. -4.1% Benchmark) underperformed primarily due to its underweight to Japanese value stocks.

During the quarter, quantitative value manager AQR was terminated from the developed international equity portfolio. A portion of the portfolio was transitioned to emerging markets manager Pzena (which received in-kind contributions into its existing portfolio), while the remainder of the portfolio was liquidated to replenish overall portfolio liquidity. Transition manager State Street Global Markets was utilized for the transition event.

The passive developed markets portfolio tracked the MSCI World ex USA Index (net) return for the quarter (-4.1% Manager vs. -4.1% Benchmark).

After a short dip in July, the U.S. dollar steadily rallied to end the quarter nearly 3% higher versus a trade-weighted basket of foreign currencies. Fed officials sent hawkish messages during the Jackson Hole Symposium held in August and subsequent September FOMC meeting, solidifying the outlook for higher U.S. interest rates and sending the dollar to its highest levels since November 2022. The portfolio's currency overlay program added +1.1% relative to an unhedged portfolio. About half of the quarter's gain were accrued against the euro, which had been less than 20% hedged during the dollar's July dip, but climbed to more than 60% hedged over the subsequent dollar rally. Across the entire program, the hedge ratio varied between 2.9% and 53.9% over the quarter.

Emerging Markets Equity

Emerging markets equities, as measured by the MSCI Emerging Markets Index (net), fell -2.9% in U.S. dollar terms during the quarter. As in the developed markets, the strong dollar was a significant headwind, accounting for half of the index's decline in dollar terms. Asia's tech giants - China, Taiwan, and South Korea - all registered losses from the decline in investor sentiment across the technology sector globally. However, emerging markets overall benefitted from a higher exposure to energy and financials as well as significantly better performance within consumer discretionary, industrials and healthcare sectors relative to developed markets.

The portfolio's active emerging markets managers underperformed the MSCI Emerging Markets Index (net), returning -3.6% versus the benchmark's -2.9% return. Quality growth manager Martin Currie (-7.5% Manager vs. -2.9% Benchmark) suffered from poor issue selection across a range of countries and sectors, with the biggest losses coming from Chinese insurance firm AIA Group and India's HDFC Bank. Core manager Macquarie (-4.8% Manager vs. -2.9% Benchmark) lagged due to a large position in Indian telecom giant Reliance Industries. Reliance traded down during the quarter after spinning-off a digital payments subsidiary, which the market viewed as unfavorable. Quality growth manager Neuberger Berman's losses (-4.3% Manager vs. -2.9% Benchmark) were also concentrated in India, where that portfolio holds both HDFC Bank and Reliance Industries. Value manager Pzena (+1.2% Manager vs. -2.9% Benchmark) significantly outperformed, with its biggest gains coming from issue selection within information technology and financials.

Earnest Partners' China A-share strategy outperformed the MSCI China A Index during the quarter (-0.9% Manager vs. -3.5% Benchmark). Earnest benefitted from strong relative performance within information technology, healthcare and consumer discretionary names. Notably, a position in WuXi AppTec, the manufacturer of Eli Lilly's semaglutide weight loss drug, was a significant positive contributor.

The passive emerging markets portfolio tracked the MSCI Emerging Markets Index (net) within tolerance for the quarter (-3.0% Manager vs. -2.9% Benchmark).

Core/Core Plus and Return Seeking Bonds

The Bloomberg U.S. Aggregate Index posted a decline of -3.2% during the calendar third quarter. Rising yields on U.S. Treasury securities were the primary driver of poor performance across most fixed income sectors for the quarter. Yields rose in response to a confluence of factors, including stronger-than-expected economic data, continued hawkish language from the Fed about the prospect of additional rate hikes, and a pullback of foreign buyers from the market. At the same time, the significant increase in the supply of U.S. Treasuries this year – both from Fed selling to wind-down its balance sheet and the growing Federal budget deficit – also put upward pressure on yields. The sustained rise in Treasury yields was concentrated on the longer end of the maturity curve during the quarter; the 10-year Treasury yield rose 73 basis points to end the quarter at 4.57% and the 30-year Treasury yield rose by 84 basis points and ended the quarter at 4.70%.

Investment grade corporate bonds proved resilient in the face of higher rates. Spreads finished the quarter largely unchanged versus the previous quarter, leading to outperformance versus Treasuries from the sector's yield advantage, or carry. Within the sector, longer maturity and higher quality bonds rated bonds fared best, while lower-rated regional banks were negatively impacted by rating agency downgrades related to their commercial real estate exposures. Renewed interest rate volatility weighed on Agency mortgage-backed securities during the quarter. Performance within the non-agency commercial mortgage-backed sector was mixed; AAA-rated bonds outperformed lower-rated classes as spreads widened in that cohort based on changes in perceived underlying loan quality, office sector exposure and generally lower liquidity.

Across the higher yielding "plus" sectors of the market, high yield bank loans outperformed most other sectors, gaining +3.3% during the quarter as measured by Credit Suisse Leveraged Loan Index. Bank loans generally pay floating rate coupons tied to a short-term reference rate, and

therefore have been insulated from the price pressures which have weighed on fixed-coupon bonds. High yield corporate bonds also outperformed as positive economic data and sound credit fundamentals encouraged investors to reach for yield. In contrast, emerging markets debt posted negative performance for the quarter. Hard currency sovereign bonds sold-off in sympathy with U.S. Treasuries, while EM local currency bonds also faced headwinds from rising local rates and a stronger U.S. dollar. Hard currency EM credit was a relative bright spot, both as a result of generally shorter durations and higher perceived credit quality versus the broader hard currency sovereign market.

The portfolio's core/core plus bond managers slightly underperformed the Bloomberg Aggregate Index during the quarter (-3.3% Managers vs. -3.2% Benchmark). Overall, the managers' overweight to spread sectors was beneficial to relative performance, while results from duration and yield curve positioning were mixed. Positive issue selection within investment grade credit and allocations to high yield bonds and bank loans also benefited performance. Core plus manager Western Asset's long duration and yield curve positioning detracted from performance, while Dodge and Cox continued to benefit from a shorter-than-benchmark duration coupled with a significant overweight to corporate credit.

The portfolio's return-seeking bond managers returned -1.3% during the quarter, significantly outperforming the portfolio's policy benchmark (Bloomberg U.S. Aggregate Bond Index), which returned -3.2%. However, the return-seeking managers underperformed the weighted composite of their individual benchmarks, which returned -0.8% for the quarter. Underperformance relative to the composite benchmark for the quarter was the result of an overall underweight to bank loans, poor issue selection from emerging markets debt manager Ashmore, and a duration overweight held by Columbia within their credit plus mandate. On the positive side, high yield managers KKR and Oaktree both outperformed during the quarter. Both managers were positioned with an overweight to bank loans versus fixed-coupon high yield bonds, while KKR's overweight to lower quality corporate bonds also outperformed the broader high yield market.

Treasury Protection Portfolio

The Treasury Protection Portfolio declined -7.2% during the quarter, as the portfolio's strategy of emphasizing longer maturity U.S. Treasuries was impacted by the significant rise in yields on the long end of the yield curve. On a relative basis, the Protection Portfolio matched the Bloomberg Treasury 5+ Year Index for the quarter (-7.2% Managers vs. -7.2% Benchmark). Relative performance across managers was somewhat mixed for the quarter. Neuberger Berman underperformed as the result of a longer-than-benchmark duration position, while Goldman Sachs benefitted from and overweight to U.S. agencies and yield curve positioning that benefitted from the relative underperformance of the 20–30-year maturity segment versus the 5–10-year part of the curve.

Laddered Bonds + Cash Portfolio

The combined Laddered Bonds + Cash portfolio returned +1.4% for the third quarter, outperforming the portfolio's benchmark (ICE BofA US 3-Month Treasury Bill) which returned +1.3% over the same period. The Laddered Bonds portfolio maintained an average maturity of just five months during the quarter, which allowed the portfolio to quickly translate rising market yields into higher interest earnings. 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 Third Quarter 2023 (CY)

Acadian (Developed Markets Equity)

Brian Buzzelli, SVP, Head of Enterprise Data Management, left the firm.

Ariel (Global Equity)

Portfolio Manager and CIO of Global Equities Rupal Bhansali left Ariel to start her own firm. Ms. Bhansali will serve as a consultant through February 2024. In response to Ms. Bhansali's departure, Henry Mallari-D'Auria, who was hired from Alliance Bernstein earlier in 2023 to lead Ariel's EM Value strategy, was promoted to Chief Investment Officer of Global & Emerging Market Equities. John Rowley, Client Portfolio Manager and Research Analyst on the Global Equity team, also left the firm during the quarter.

Barrow Hanley (Domestic Equity)

After 21 years with Barrow Hanley and 40 years in the investment industry, Lewis Ropp, Portfolio Manager, announced that he will be retiring in June 2024. Mark Giambrone and Dave Ganucheau, who have been co-portfolio managers on the strategy alongside Mr. Ropp since 2006 and 2013, respectively, will continue to co-manage the Large Cap Value strategy. Primary portfolio management responsibilities for the MSBI portfolio will be transitioned to Mr. Ganucheau.

Columbia Threadneedle (Fixed Income)

Steve Harasimowicz, Global Head of Trading, announced his intention to retire from Columbia in March 2024 after 30 years with the firm and 13 years in the role. Mr. Harasimowicz will be succeeded by Matt Waldner, Deputy head of Global Trading, who has been with the firm for 22 years.

Goldman Sachs (Domestic Equity & Fixed Income)

After 25 years at Goldman Sachs, Julian Salisbury, CIO of Asset & Wealth Management, and member of the firm's Management Committee, left the firm.

Goldman (Domestic Equity)

After 34 years at Goldman Sachs and 42 years in the investment industry, Sally Pope Davis, Co-Lead Portfolio Manager for the Small Cap Value Strategy, announced her intention to retire from the firm in early 2024. Rob Crystal, Managing Director and Co-Lead Portfolio Manager, will continue to oversee the Small Cap Value Team. Rob has 26 years of industry experience and has been on the Small Cap Value Team since 2006. Sean Greely has joined Goldman Sachs as Vice President and will become Co-Lead Portfolio Manager for the Small Cap Value Strategy, alongside Mr. Crystal. Mr. Greely has over 20 years of industry experience investing in small cap stocks as an analyst and portfolio manager. He will assume coverage of financials previously covered by Ms. Pope Davis, as well as certain consumer sub-sectors.

Public Markets Managers' Organizational Updates Third Quarter 2023 (CY), continued

Marathon (Developed Markets Equity)

Neil Ostrer, co-founder and Portfolio Manager announced that he will retire in April 2024. Incumbent European Portfolio Managers Charles Carter and Nick Longhurst will assume responsibility for the assets currently managed by Mr. Ostrer. Mr. Ostrer will continue as a Non-Executive Director on Marathon's Board. Separately, Robert Hingley has become Chairman of the Marathon Board of Directors. Mr. Hingley has been a Non-Executive Director of the firm since 2019 and replaces David Stewart who stepped down in August.

PGIM (Fixed Income)

Robert Tipp, CFA will join Greg Peters and Rich Piccirillo as Heads of Multi-Sector, broadening his former role as head of Global Bonds. Mr. Tipp has worked at PGIM since 1991 in a variety of senior investment manager and strategist roles. In addition, Koushiki Bose will join Tyler Thorn as a Portfolio Manager on the Multi-sector team. Ms. Bose joined PGIM in 2018.

TCW (Fixed Income)

Peter Van Gelderen has joined as Co-Head of TCW's Securitized team. Mr. Van Gelderen has 20 years of industry experience, most recently as Head of Securitized Markets at American Century Investments. Prior to his role at American Century, Mr. Van Gelderen was Co-Head Structured Credit at Guggenheim. Separately, as part of the ongoing senior investment leadership transition at the firm, Ruben Hovhannisyann and Jerry Cudzil were promoted to Generalist Portfolio Managers during the quarter, and Generalist PM Laird Landmann announced his plan to retire at the end of 2023 after more than 40 years in the business.

Western Asset (Fixed Income)

Michael Buchanan, CFA, was elevated to Co-Chief Investment Officer in August 2023 alongside longtime CIO Ken Leech. In this role Mr. Buchanan co-leads the Global and U.S. Strategy Committee with Mr. Leech, has direct oversight of Western's Global Credit Teams and leads the Global Credit Committee. Separately, Western also completed a global workforce reduction of approximately 5% of firm headcount. The reductions were focused within operational management teams in the Pasadena, CA office, and are not expected to have an impact on teams with direct oversight of the MSBI portfolio.

Zevenbergen (Domestic Equity)

After 30 years with Zevenbergen Capital, Co-Chief Investment Officer Brooke deBoutray will retire on December 31, 2023. Nancy Zevenbergen will continue to manage the portfolio as Chief Investment Officer, and research responsibilities will be transitioned to other members of the four-person Portfolio Research & Management Team.

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

During the quarter, Staff traveled to Chicago and New York City for two manager meetings. Staff received 10 visits from managers at our office in St. Paul, and 30 manager strategy review calls were held 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
Ashmore Investment Management Limited	Fixed Income
Baillie Gifford Overseas Limited	Global Equity
Barrow, Hanley, Mewhinney & Strauss, LLC	Domestic Equity
Columbia Threadneedle Investments	Developed Markets Equity
Columbia Threadneedle Investments	Fixed Income
Earnest Partners LLC	International Equity
Fidelity Institutional Asset Management LLC	Developed Markets Equity
Goldman Sachs Asset Management, L.P.	Domestic Equity
Goldman Sachs Asset Management, LP	Fixed Income
Hood River Capital Management, LLC	Domestic Equity
Hotchkis and Wiley Capital Management, LLC	Domestic Equity
J.P. Morgan Investment Management Inc.	Domestic Equity
J.P. Morgan Investment Management Inc.	Developed Markets Equity
LSV Asset Management	Domestic Equity
Marathon Asset Management LLP	Developed Markets Equity
Martin Currie Inc.	Emerging Markets Equity
Martin Currie Inc.	Global Equity
Martingale Asset Management, L.P.	Domestic Equity
Morgan Stanley Investment Management Inc.	Emerging Markets Equity

Manager Meetings
Third Quarter 2023 (CY), continued

Neuberger Berman Investment Advisers LLC	Fixed Income
Neuberger Berman Investment Advisers LLC	Emerging Markets Equity
Oaktree Asset Management	Fixed Income
Prudential Global Investment Management (PGIM)	Fixed Income
Peregrine Capital Management	Domestic Equity
Pzena Investment Management, LLC	Emerging Markets Equity
Record Currency LLC	Currency Overlay
Rice Hall James & Associates, LLC	Domestic Equity
Sands Capital Management, LLC	Domestic Equity
TCW	Fixed Income
Zevenbergen Capital Investments LLC	Domestic Equity

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REPORT

Participant Directed
Investment Program
and
Non-Retirement
Investment Program

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DATE: November 6, 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 third quarter.

The report includes the following sections:

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• Manager Meetings	7

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Participant Directed Investment Program Fund Commentaries Third Quarter 2023

Domestic Equities

Vanguard Total Stock Market Index Institutional Plus

The Fund employs an index sampling 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 -3.3%.

Vanguard Institutional Index Plus

The Fund employs a full replication indexing approach designed to track the S&P 500 Index. Performance for the Fund matched the S&P 500 Index for the quarter with a -3.3% 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 -5.5% return, compared to the benchmark return of -3.9%. In general, higher dividend paying stocks have lagged as interest rates have risen, weakening sentiment for these holdings. Relative underperformance to the benchmark was primarily driven by security selection in industrial names, as well as an underweight to the energy sector, which was the best performing benchmark sector for the quarter.

Vanguard Mid-Cap Index

The Fund employs a full replication indexing approach designed to track the performance of a broadly diversified pool of mid-cap U.S. stocks. The Fund matched the CRSP US Mid Cap Index return for the quarter with a -5.1% 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 market segments. The Fund underperformed the Russell 2000 Index for the quarter with a -5.7% return, compared to -5.1% for the benchmark. Relative underperformance for the quarter was driven by an underweight to the energy sector, which was the top performing benchmark sector for the quarter, and from stock selection in real estate and consumer discretionary sectors.

International Equities

Fidelity Diversified International Equity Fund

The Fund actively selects international companies, primarily in foreign developed markets. The Fund focuses on companies with significant long-term earnings potential, durable business models, and attractive growth prospects. The Fund underperformed the MSCI EAFE Index for the quarter with a -6.1% return versus -4.1% for the benchmark. Growth equities, a style that is more aligned with this fund's approach, notably lagged value equities within the MSCI EAFE Index during the

quarter. Relative underperformance for the quarter was primarily due to stock selection, especially in the financial sector, where investments in banks contributed to half of the relative underperformance. Within technology, an overweight in the semiconductor industry detracted from relative performance as this was among the worst-performing industries in the benchmark.

Vanguard Total International Stock Index

The Fund employs a full replication indexing approach designed to track the FTSE Global All Cap ex US Index, a market-cap weighted pool designed to measure performance of developed and emerging market companies. The Fund underperformed the benchmark for the quarter with a -4.0% return versus the benchmark return of -3.4%

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 -2.8% return, compared to the benchmark return of -3.2%. The Fund's shorter-than-benchmark duration positioning and an overweight to corporate credit were the primary drivers of relative outperformance for the quarter.

Vanguard Total Bond Market Index

The Fund employs an index sampling approach designed to track the performance of the Bloomberg U.S. Aggregate Index. The Fund returned -3.1% for the quarter, slightly outperforming the benchmark return of -3.2% for the quarter.

Stable Value Fund

The Stable Value Fund is managed by Galliard Capital Management in a separately managed account. The Fund's assets are invested in short- and intermediate-duration fixed income securities which are combined with investment contracts from financial institutions with features designed to smooth the impact of changes in interest rates on the value of participant accounts and provide a stable net asset value. The Stable Value Fund returned +0.7% for the quarter compared to a +1.2% return for its benchmark, the 3-Year Constant Maturity Treasury Yield +45 basis points. In periods of rapidly rising interest rates, such as has been experienced over the last 18 months, the crediting rate performance of stable value strategies can be expected to lag the change in prevailing market yields. Given current market conditions, the Fund's overall return for the quarter is within expectations.

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 1.4% return, compared to the benchmark return of 1.3%.

Multi-Asset Group Option

Vanguard Balanced Index

The Balanced Fund seeks capital appreciation, current income, and long-term growth of income. The Fund employs an index sampling approach designed to track the investment performance of an index with 60% CRSP US Total Stock Market Index and 40% Bloomberg U.S. Aggregate Float Adjusted Index. The Balanced Fund matched the composite benchmark for the quarter with a -3.2% return.

Non-Retirement Fund Commentaries Third 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 -0.8% for the quarter, matching the benchmark. Absolute return during the quarter was primarily driven by an upward move in Treasury rates. Treasury rates on the longer end of the curve moved higher as investors digested Fed news and expectations of higher-for-longer U.S. monetary policy increased.

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 -3.0% return, compared to a benchmark return of -3.2%. Relative outperformance for the quarter was primarily from security selection, most notably in non-agency commercial mortgage-backed securities (CMBS).

Robert Tipp, CFA will join Greg Peters and Rich Piccirillo as Heads of Multi-Sector, broadening his former role as head of Global Bonds. Mr. Tipp has worked at PGIM since 1991 in a variety of senior investment manager and strategist roles. In addition, Koushiki Bose will join Tyler Thorn as a Portfolio Manager on the Multi-Sector team. Ms. Bose joined PGIM in 2018.

Non-Retirement Program Domestic Equity Manager

Mellon Investments Corporation passively manages the Non-Retirement Domestic Equity portfolio in a separately managed portfolio. The Portfolio employs a full replication indexing approach designed to track the performance of its benchmark, the S&P 500 Index. The portfolio matched the benchmark for the quarter, returning -3.3%.

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 1.4% return compared to the benchmark return of 1.3%.

**Manager Meetings
Third Quarter 2023**

During the quarter, staff held one strategy review meeting at the SBI offices, with the remaining strategy reviews conducted via videoconference.

Investment Manager	Management Style/Asset Class	Investment Program
• Ascensus	Multi-Asset Class Platform	PDIP (MN ABLE Plan)
• TIAA-CREF	Multi-Asset Class Platform	PDIP (MN 529 Plan)
• Galliard	Stable Value Fund	PDIP
• Fidelity	Active, International Equities	PDIP
• T. Rowe Price	Active, Small Cap Equities	PDIP
• PGIM	Active, Fixed Income	Non-Retirement
• RBC	Active, Fixed Income	Non-Retirement
• Mellon	Passive, Domestic Equities	Non-Retirement

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REPORT

SBI Environmental, Social, and Governance (ESG) Report

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Proxy Voting Highlight

In 2022-23, the SBI continued its long history of engagement by voting proxies for approximately 2,100 U.S. corporations. The SBI, along with many other U.S. public pensions and institutional investors, plays an important role in encouraging improved ESG practices that are material to the long-term sustainability of the world’s largest corporations. The SBI continues to support a significant number of ESG-related shareholder proposals. Executive compensation alignment with shareholders is a key area of focus for SBI proxy voting activities. In general, the SBI supports efforts to have executive compensation linked to a company’s long-term performance and to encourage full disclosure of compensation packages for key executives. The SBI has high standards for alignment and transparency. This resulted in votes against approximately 68% of advisory votes on executive compensation in the most recent fiscal year. Other key areas of activity, where appropriate, included fair labor practices, decarbonization, board composition, and reporting/disclosure practices.

In recent years, the number of proxy votes on proposals concerning ESG-related issues has increased. With the increase in the number of important issues related to proxy voting, more staff time dedicated to this area is required. We addressed this in 2023 by elevating the full-time position dedicated to Stewardship and ESG integration to report directly to the Executive Director and Chief Investment Officer. Additional hiring efforts are in progress to provide sufficient resources to support this important work and create a Corporate Governance division within the SBI.

Company Engagement

As a long-term shareholder of publicly traded companies, the SBI is committed to exercising its proxy voting rights and engaging directly with companies to enhance the long-term value of its investments. This September, SBI staff participated in the Engagement Exchange at the Council of Institutional Investors (CII) 2023 Fall Conference. The Engagement Exchange is designed as an efficient way for CII members to meet corporate representatives, build constructive working relationships and engage on a variety of ESG issues. SBI staff met with representatives from multiple companies and discussed a wide range of issues including executive compensation, board diversity, and a just transition for workers in carbon-intensive industries.

United Nations Principles of Responsible Investment (UNPRI) Highlight

This fall the SBI submitted its second UNPRI report. Much of the reporting is focused on incorporating relevant ESG principles into the investment process and the stewardship activities of asset owners. This year, the SBI Senior Leadership used this reporting exercise as a framework to continue to develop and refine the SBI’s approach to addressing ESG investment risks and opportunities throughout its investment portfolio. As SBI engages external managers for all retirement fund assets, we are focused on integrating appropriate ESG evaluation frameworks into the investment due diligence process for new and existing external managers. These efforts will leverage industry standards developed by organizations such as the UNPRI, ILPA, and CFA to evaluate investment managers in all asset classes.



Diversity, Equity, and Inclusion

The SBI recognizes the impact that maximizing talent, opportunity, and investment culture has on generating long-term investment returns for the retirement funds under management. To that end, in 2022 the SBI augmented its Investment Beliefs with the following:

Best Practices are developed by the best teams.

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

In furtherance of our commitment to talent, opportunity, and investment culture, we recognize that continuously examining and improving our internal practices is fundamental. We have undertaken a number of efforts, including: 1) creation of an internal committee, composed of key investment staff, empowered to review current practices and identify continuous improvement pathways; 2) refined our job postings to reflect core skill elements that are aligned with long-term success; 3) expanded our recruiting pipeline; 4) created an internship program; 5) modified our interview process; and 6) expanded our external investment manager interactions around these important topics.

Climate Change

We recognize that complex and evolving issues regarding the risks and opportunities inherent in climate change and the energy transition are among those that must be considered as fiduciaries of long-term pools of capital. Our broad engagement efforts continued in 2023 and expanded to include more extensive engagement with our underlying external managers.

As part of our ongoing efforts to analyze the complex issues associated with climate change and the associated investment landscape, in May 2023, Meketa Investment Group (“Meketa”) led an all-staff education session discussing key investment considerations related to the Inflation Reduction Act and the developing opportunities in carbon markets. The SBI is currently engaged, with the support of Meketa and other external advisors, in the next phase of our efforts, which focus principally on 1) continued integration throughout our investment process and 2) constructing our investment roadmap for climate change and the energy transition.



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REPORT

AON Market Environment Report

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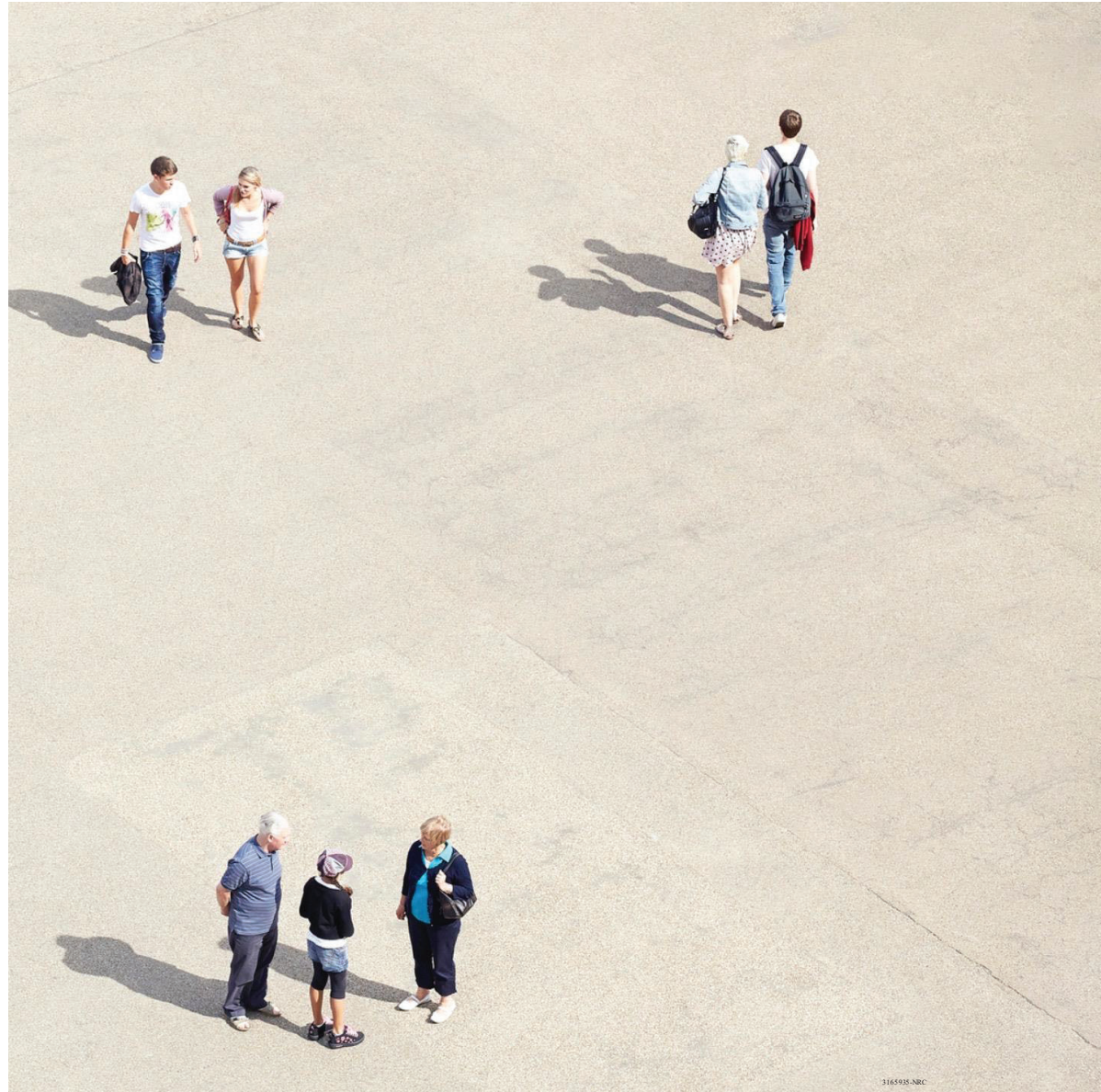


Market Environment

Third Quarter 2023

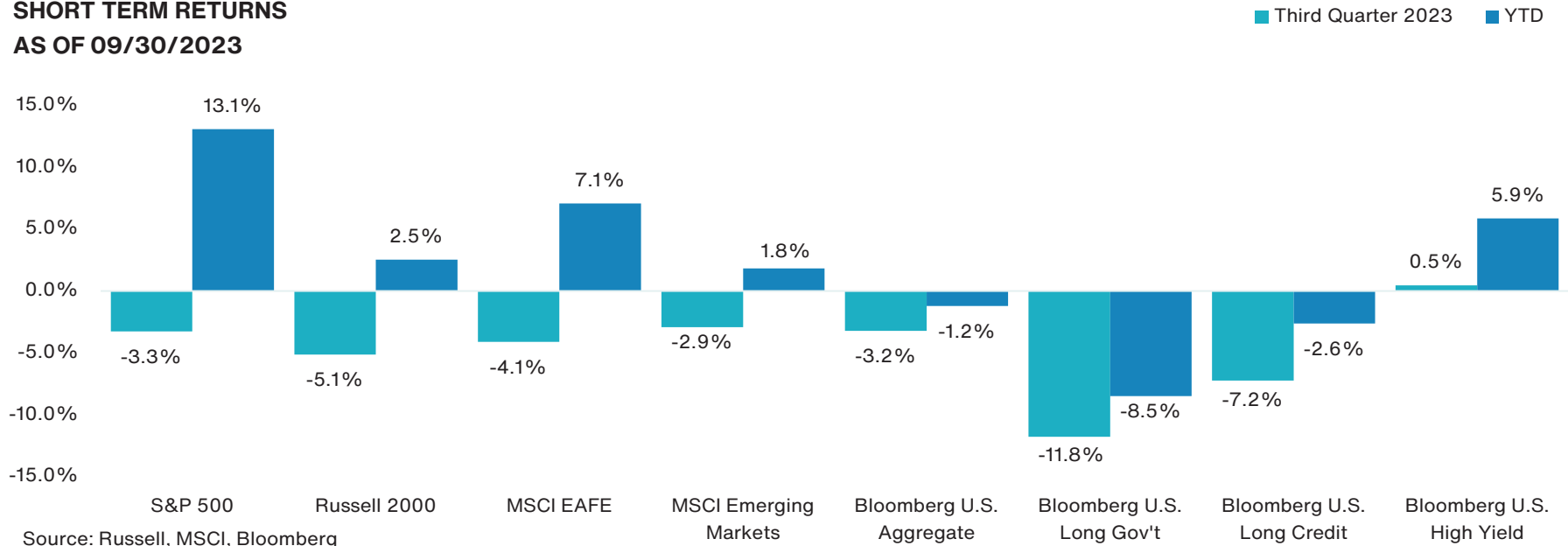
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Market Highlights

SHORT TERM RETURNS AS OF 09/30/2023



Source: Russell, MSCI, Bloomberg

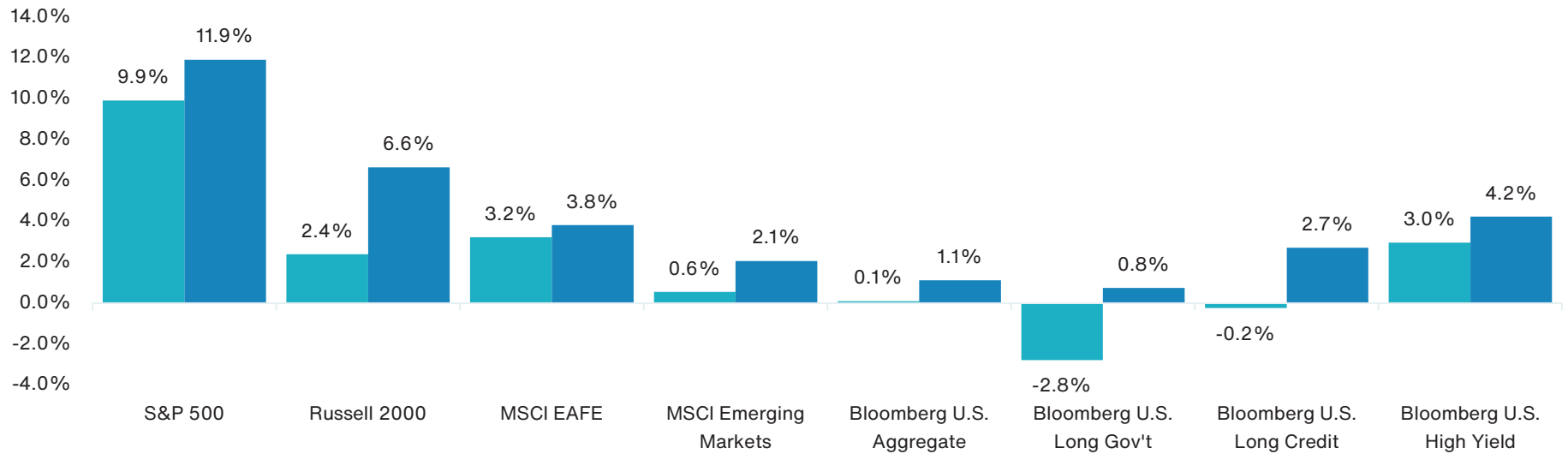
MSCI Indices show net total returns throughout this report. All other indices show gross total returns.

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

Market Highlights

LONG TERM ANNUALIZED RETURNS AS OF 09/30/2023

■ Five-Year ■ Ten-Year



Source: Russell, MSCI, Bloomberg

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Market Highlights

Returns of the Major Capital Markets

	Period Ending 09/30/2023					
	Third Quarter	YTD	1-Year	3-Year ¹	5-Year ¹	10-Year ¹
Equity						
MSCI All Country World IMI	-3.40%	9.39%	20.16%	6.88%	6.09%	7.39%
MSCI All Country World	-3.40%	10.06%	20.80%	6.89%	6.46%	7.56%
Dow Jones U.S. Total Stock Market	-3.29%	12.42%	20.49%	9.27%	9.01%	11.19%
Russell 3000	-3.25%	12.39%	20.46%	9.38%	9.14%	11.28%
S&P 500	-3.27%	13.07%	21.62%	10.15%	9.92%	11.91%
Russell 2000	-5.13%	2.54%	8.93%	7.16%	2.40%	6.65%
MSCI All Country World ex-U.S. IMI	-3.49%	5.30%	20.19%	3.77%	2.57%	3.48%
MSCI All Country World ex-U.S.	-3.77%	5.34%	20.39%	3.74%	2.58%	3.35%
MSCI EAFE	-4.11%	7.08%	25.65%	5.75%	3.24%	3.82%
MSCI EAFE (Local Currency)	-1.27%	10.67%	20.32%	10.81%	5.65%	6.75%
MSCI Emerging Markets	-2.93%	1.82%	11.70%	-1.73%	0.55%	2.07%
Equity Factors						
MSCI World Minimum Volatility (USD)	-2.80%	1.22%	11.43%	3.72%	4.62%	7.70%
MSCI World High Dividend Yield	-1.52%	2.76%	17.77%	8.85%	5.77%	6.65%
MSCI World Quality	-2.83%	18.15%	30.27%	8.75%	11.01%	11.95%
MSCI World Momentum	-2.96%	0.07%	13.22%	1.69%	5.87%	9.93%
MSCI World Enhanced Value	-0.22%	11.05%	29.22%	12.90%	3.96%	6.12%
MSCI World Index Growth	-4.86%	21.09%	26.86%	5.50%	9.70%	10.75%
MSCI USA Minimum Volatility (USD)	-2.04%	1.85%	11.84%	6.17%	6.98%	10.38%
MSCI USA High Dividend Yield	-2.09%	-1.37%	12.62%	8.24%	5.74%	9.48%
MSCI USA Quality	-1.40%	21.67%	32.96%	9.73%	12.11%	13.78%
MSCI USA Momentum	-2.84%	-2.89%	8.92%	-0.31%	4.88%	11.62%
MSCI USA Enhanced Value	-2.52%	1.89%	14.53%	10.30%	3.69%	8.41%
MSCI USA Equal Weighted	-4.03%	4.38%	14.51%	8.88%	6.85%	9.45%
MSCI USA Growth	-3.45%	29.07%	29.83%	7.65%	12.74%	14.51%

Returns of the Major Capital Markets

	Period Ending 09/30/2023					
	Third Quarter	YTD	1-Year	3-Year ¹	5-Year ¹	10-Year ¹
Fixed Income						
Bloomberg Global Aggregate	-3.59%	-2.21%	2.24%	-6.93%	-1.62%	-0.44%
Bloomberg U.S. Aggregate	-3.23%	-1.21%	0.64%	-5.21%	0.10%	1.13%
Bloomberg U.S. Long Gov't	-11.79%	-8.50%	-9.04%	-15.66%	-2.78%	0.75%
Bloomberg U.S. Long Credit	-7.23%	-2.62%	2.54%	-8.97%	-0.23%	2.71%
Bloomberg U.S. Long Gov't/Credit	-9.37%	-5.40%	-2.93%	-11.90%	-1.21%	1.94%
Bloomberg U.S. TIPS	-2.60%	-0.78%	1.25%	-1.98%	2.12%	1.74%
Bloomberg U.S. High Yield	0.46%	5.86%	10.28%	1.76%	2.96%	4.24%
Bloomberg Global Treasury ex U.S.	-4.70%	-4.62%	1.92%	-9.65%	-3.74%	-2.01%
JP Morgan EMBI Global (Emerging Market)	-2.63%	1.09%	8.61%	-4.27%	-0.09%	2.24%
Commodities						
Bloomberg Commodity Index	4.71%	-3.44%	-1.30%	16.23%	6.13%	-0.75%
Goldman Sachs Commodity Index	15.98%	7.24%	10.93%	29.49%	5.57%	-2.53%
Hedge Funds						
HFRF Fund-Weighted Composite ²	0.84%	4.27%	6.69%	6.89%	5.03%	4.57%
HFRF Fund of Funds ²	0.69%	2.99%	4.77%	3.83%	3.42%	3.29%
Real Estate						
NAREIT U.S. Equity REITS	-7.13%	-2.14%	2.99%	5.76%	2.77%	5.96%
FTSE Global Core Infrastructure Index	-7.93%	-8.83%	-0.94%	2.77%	4.11%	6.25%
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.

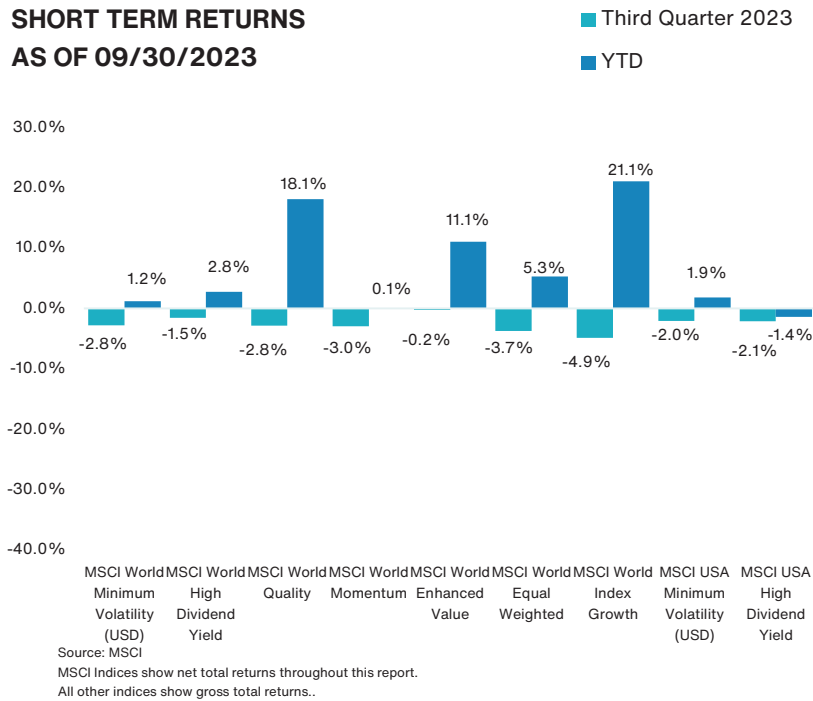
² Latest 5 months of HFR data are estimated by HFR and may change in the future.

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

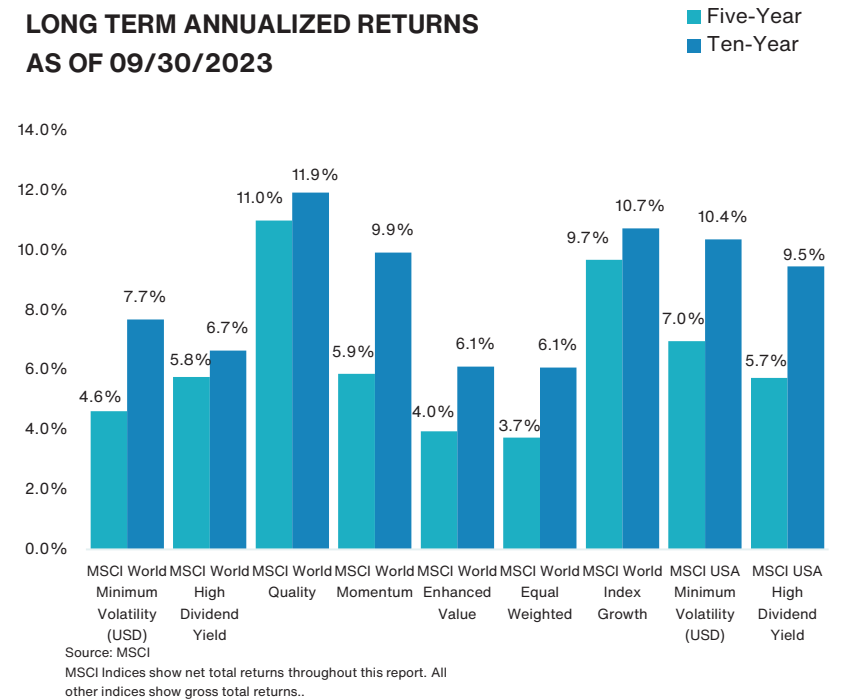
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Factor Indices

SHORT TERM RETURNS AS OF 09/30/2023



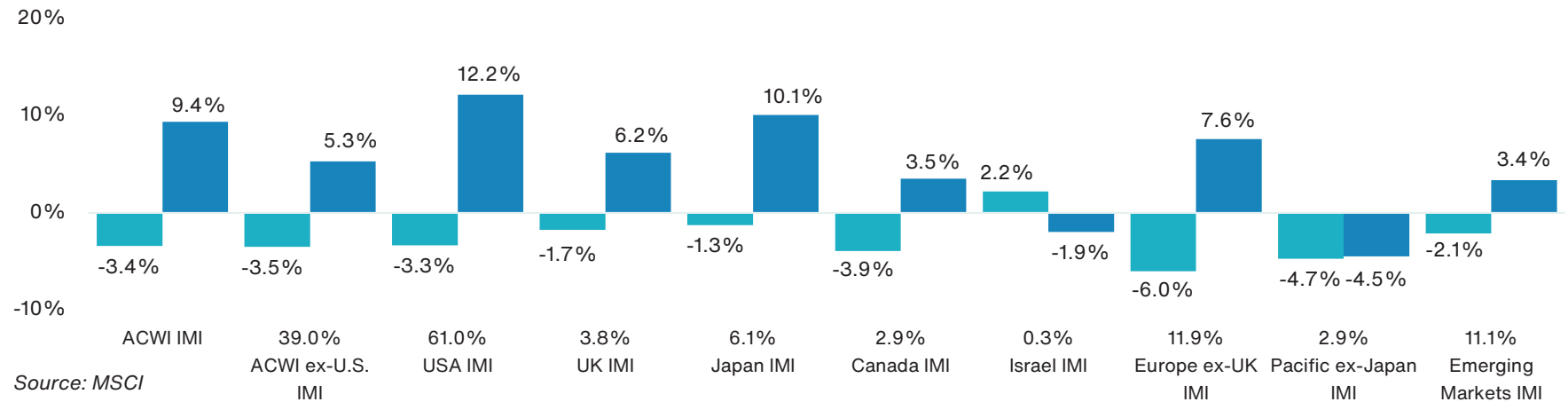
LONG TERM ANNUALIZED RETURNS AS OF 09/30/2023



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Global Equity Markets

GLOBAL MSCI IMI INDEX RETURNS (USD) AS OF 09/30/2023

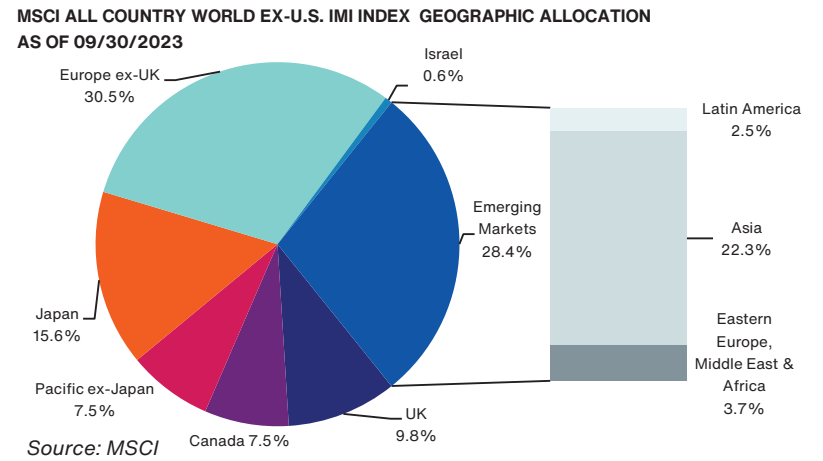
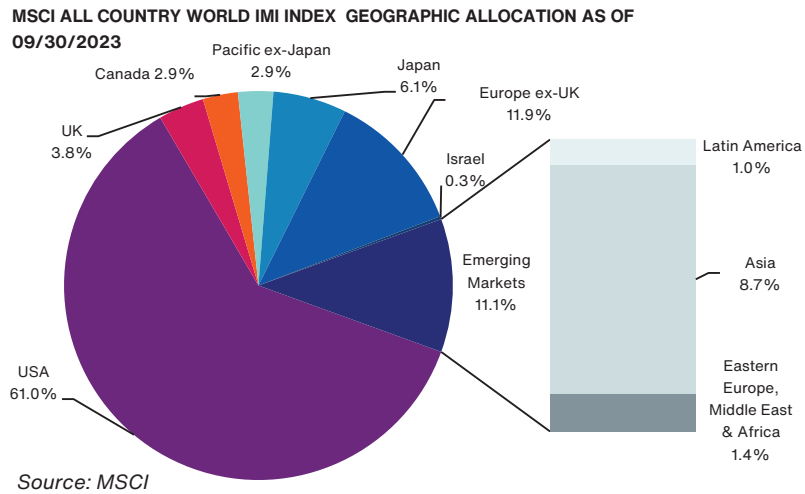


- In Q3 2023, global equity markets fell. Sovereign bond yields increased amidst expectations of interest rates staying higher for longer. Volatility rose over the quarter as the CBOE Volatility Index (VIX) rose to 17.5 in Q3 from 13.6 in the previous quarter, staying below its 20-year average of 19.1. The MSCI All Country World Investable Market Index (ACWI IMI) returned -3.4% for the quarter. However, it's up 9.4% on a YTD basis.
- Across international markets, all regions apart from Israel posted negative returns.
- Europe ex-UK IMI equities were the worst regional performer with a return of -6.0%. Economically sensitive sectors including Industrials and Consumer Discretionary underperformed during the quarter.

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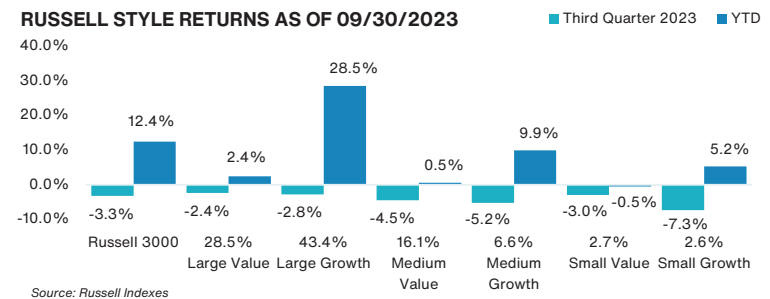
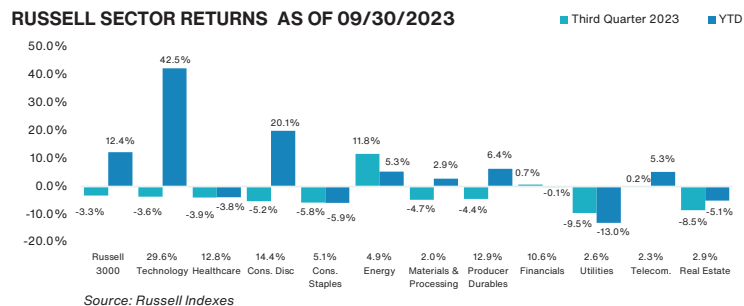
Global Equity Markets

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



U.S. Equity Markets

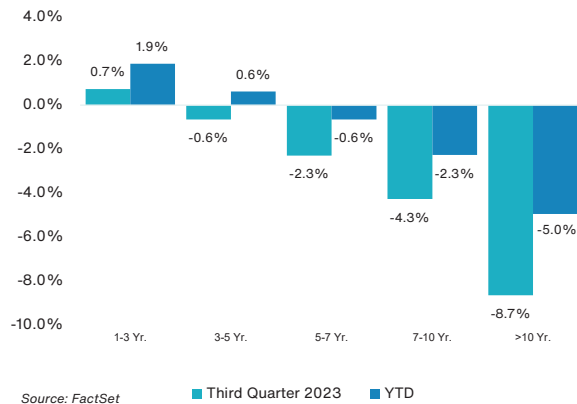
- U.S. equities had weak performance during the quarter with the S&P 500 index falling by 3.3% amidst expectations of interest rates staying higher for a longer duration.
- The U.S. Congress averted a government shutdown in a last-minute deal which saw U.S. lawmakers agree to pass a short-term deal to keep the government funded until mid-November. This deal however excludes aid for Ukraine, which House Speaker Kevin McCarthy pledged earlier this year. The House of Representatives voted 335-91 and the Senate voted 88-9 to pass the bill. The agreement marks a dramatic turnabout as the U.S. avoided a shutdown that would have furloughed hundreds of thousands of workers and stopped basic government functions.
- Earlier, Fitch downgraded the U.S. debt rating from AAA to AA+, citing “erosion of governance” over the past two decades. Fitch blamed worsening fiscal conditions for the U.S. government’s repeated debt limit stand-offs and last-minute resolutions.
- U.S. economic growth was relatively healthy as the economy expanded by an annualized rate of 2.1% in the second quarter, meeting economists’ expectations and slightly lower than the upwardly revised 2.2% growth recorded in the previous quarter. Despite a slowdown in consumer spending, strong business investment in inventories and fixed assets and encouraging government spending supported economic growth.
- The Russell 3000 Index fell 3.3% during the third quarter but rose 12.4% on a YTD basis. Energy (11.8%) and Financials (0.7%) were the best performers while Utilities (-9.5%) and Real Estate (-8.5%) were the worst performers.
- Medium-cap stocks underperformed in value whilst Small-cap stocks underperformed in growth over the quarter. On a style basis, growth underperformed value across market capitalization over the quarter.



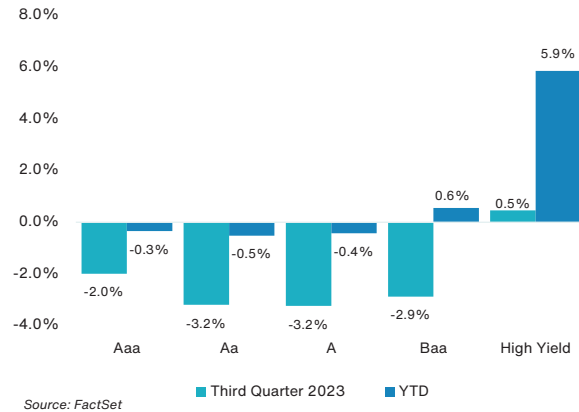
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U.S. Fixed Income Markets

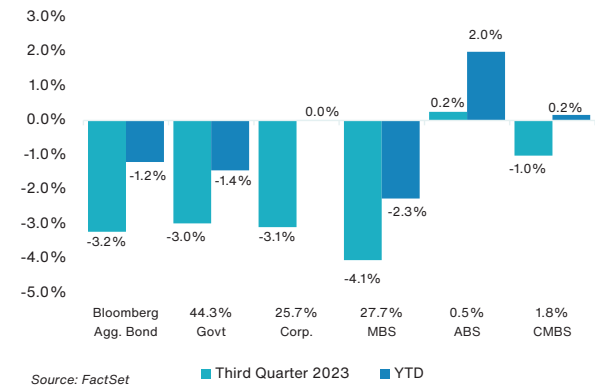
BLOOMBERG AGGREGATE RETURNS BY MATURITY AS OF 09/30/2023



BLOOMBERG AGGREGATE RETURNS BY QUALITY AND HIGH YIELD RETURNS AS OF 09/30/2023



BLOOMBERG AGGREGATE RETURNS BY SECTOR AS OF 09/30/2023

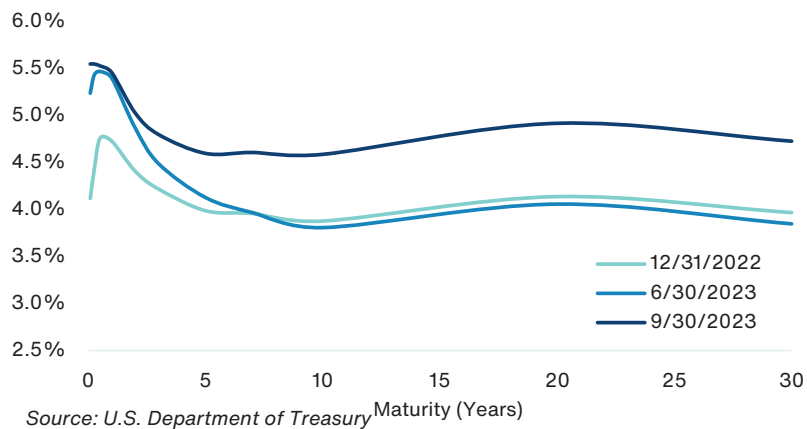


- The U.S. Federal Reserve (Fed) increased its benchmark interest rate by 25bps to a range of 5.25%-5.5% over the quarter, representing the highest level in more than 22 years. The Federal Open Market Committee (FOMC) indicated that inflation remained “elevated” and that the economy was growing at a “moderate pace”. Fed chair Jerome Powell signaled that future Fed decisions would be based on “careful assessments” on a “meeting by meeting” basis.
- The Bloomberg U.S. Aggregate Bond Index was down 3.2% over the quarter and down 1.2% on a YTD basis.
- Across durations, all maturities finished the quarter in negative territory except the short-term maturities.
- Within investment-grade bonds, higher credit quality generally outperformed lower-quality issues, with Aaa bonds comparatively falling less. High-yield bonds rose by 0.5%.

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U.S. Fixed Income Markets

U.S. TREASURY YIELD CURVE



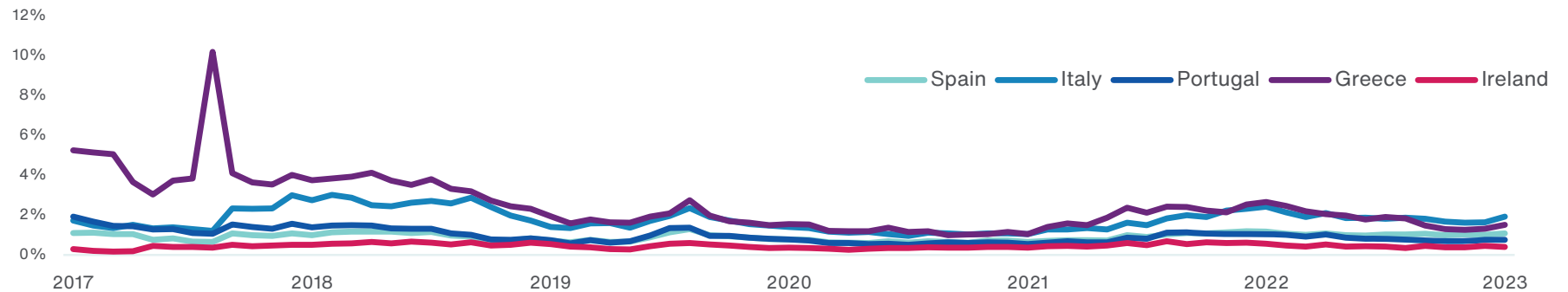
U.S. 10-YEAR TREASURY AND TIPS YIELDS



- 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 78bps to 4.59%, and the 30-year Treasury yield was up by 88bps to 4.73% over the quarter.
- U.S. inflation rose more than expected as the U.S. annual consumer price index (CPI) increased by 3.7% in August, up from the 3.2% recorded in July and slightly higher than economists' expectation of a 3.6% increase. Higher price pressure was driven by rising fuel and housing costs. However, core CPI, which excludes food and energy costs, rose 4.3% year-on-year in August, slowing from the 4.7% recorded in July.
- The 10-year TIPS yield rose by 65bps over the quarter to 2.24%.

European Fixed Income Markets

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



- European government bond spreads over 10-year German bunds widened across the Euro Area. The European Central Bank (ECB) raised its deposit rates by 50bps to 4%, touching an all-time high with its tenth consecutive rate increase. The Governing Council signalled that interest rates could have peaked and might be held for a sufficiently longer duration to bring inflation down to the 2% target.
- Greek and Italian government bond yields rose by 63bps and 66bps to 4.34% and 4.74% respectively over the quarter whilst Irish and Spanish government bond yields rose by 42bps and 50bps to 3.22% and 3.90% respectively.
- German bund yields rose by 41bps to 2.82% over the quarter.
- Eurozone headline inflation touched its lowest level since October 2021 as the consumer price index rose 4.3% in September, below the previous month's rate of 5.2% and lower than economists' expectations of 4.5%. Core inflation, which excludes volatile energy and food prices, fell sharply to 4.5% in the year to September, down from 5.3% in August, and below economists' expectations of 4.8%.

Credit Spreads

Spread (bps)	9/30/2023	6/30/2023	3/31/2023	Quarterly Change (bps)	YTD
U.S. Aggregate	52	49	51	3	1
Long Gov't	0	1	2	-1	-2
Long Credit	133	148	157	-15	-24
Long Gov't/Credit	71	79	87	-8	-16
MBS	66	52	51	14	15
CMBS	130	134	120	-4	10
ABS	67	68	76	-1	-9
Corporate	121	123	130	-2	-9
High Yield	394	390	469	4	-75
Global Emerging Markets	313	320	332	-7	-19

Source: FactSet, Bloomberg

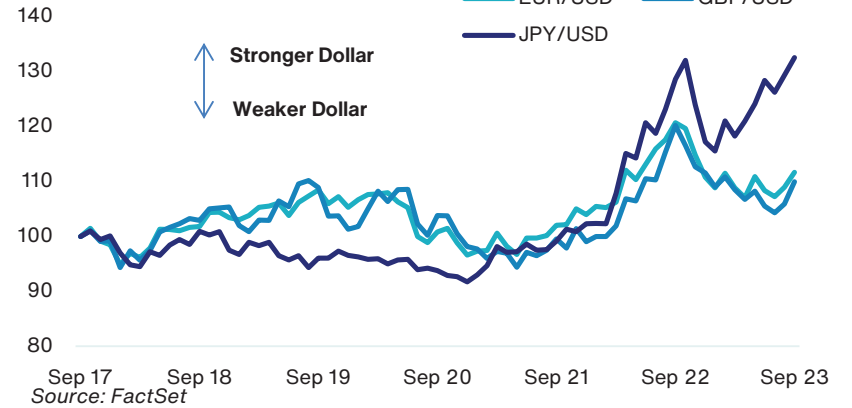
- Credit markets fell amid risk-averse sentiment during the quarter, with spreads mixed.
- MBS and High Yield spreads widened by 14bps and 4bps respectively. Meanwhile, Long Credit and Long Gov't/ Credit spreads narrowed by 15bps and 8bps respectively.

Currency

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



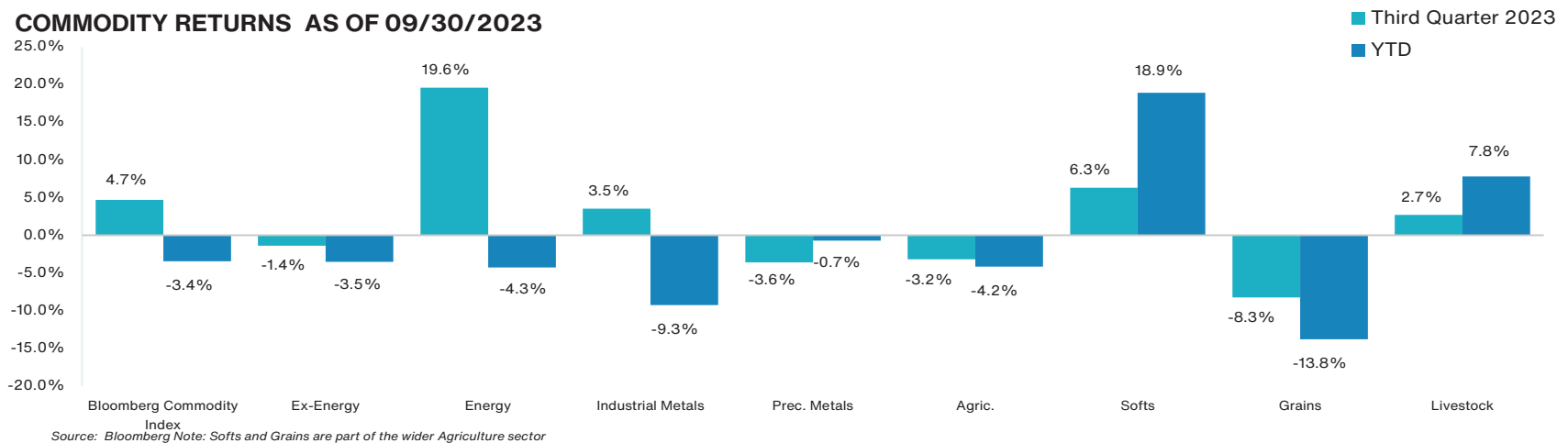
**U.S. DOLLAR RELATIVE TO EUR, GBP AND JPY
REBASED TO 100 AT 09/30/2017**



- The U.S. Dollar strengthened against all major currencies over the quarter. On a trade-weighted basis, the U.S. dollar appreciated by 2.4%.
- Sterling depreciated by 4.2% against the U.S. dollar. The Bank of England (BoE) raised its benchmark interest rate by 25bps to 5.25% over the quarter. Andrew Bailey, the BoE governor, indicated that any future interest rate increase would be based on evidence of persistent inflationary pressures. The BoE agreed to increase its current quantitative tightening pace of £80bn to £100bn in 2023-24.
- The U.S. dollar appreciated by 3.0% against the Euro and by 3.2% against the yen.

Commodities

COMMODITY RETURNS AS OF 09/30/2023



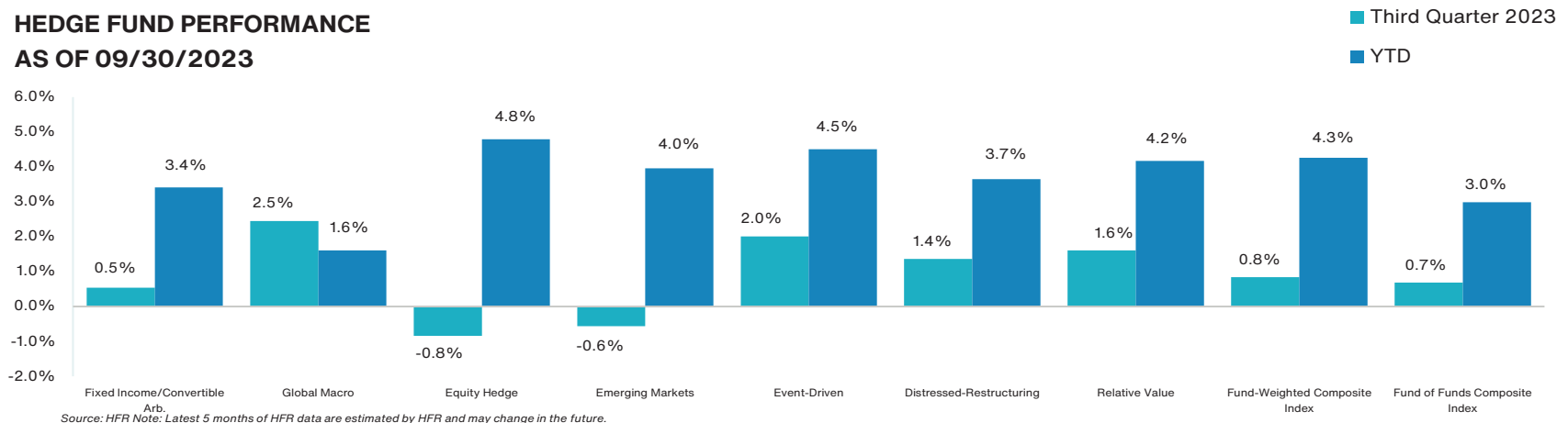
Source: Bloomberg Note: Softs and Grains are part of the wider Agriculture sector

- Commodity prices rose over the quarter with the Bloomberg Commodity Index rising by 4.7% for the quarter.
- The energy sector outperformed as it rose 19.6% over the quarter but fell 4.3% on a YTD basis. The price of WTI crude oil was significantly up by 28.5% to U.S.\$91/BBL.
- Precious Metals fell the most over the quarter at -3.6%.
- Meanwhile, Opec+ member Russia announced “voluntary” additional oil production cuts of 500,000 b/d in August while Saudi Arabia extended its 1mn b/d production cut for another month. Oil prices reached above \$90 a barrel for the first time since the start of the year, after Saudi Arabia and Russia extended their production and export cuts to the end of the year.

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Hedge Funds Market Overview

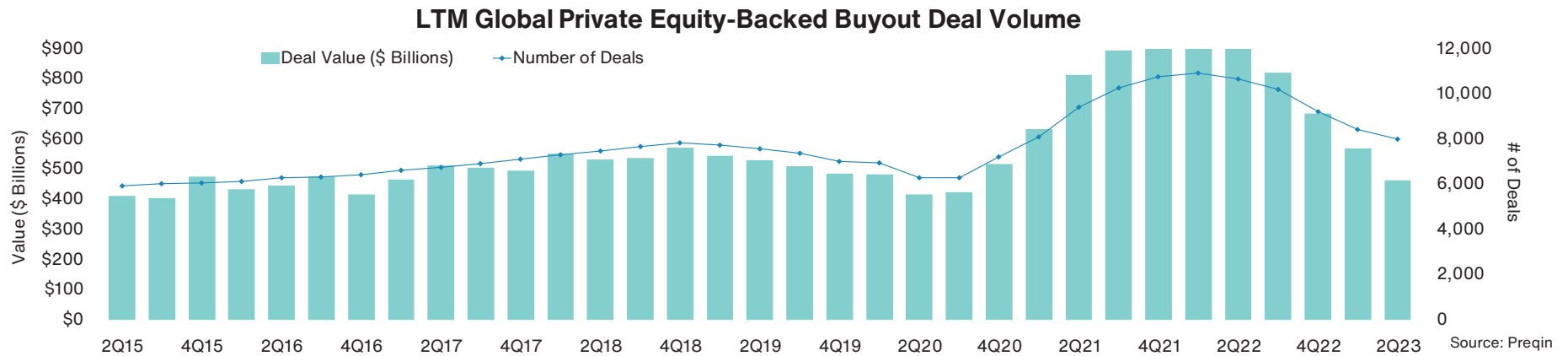
HEDGE FUND PERFORMANCE AS OF 09/30/2023



- Hedge fund performance was positive over the quarter except for Equity Hedge and Emerging Markets.
- The HFRI Fund-Weighted Composite and HFRI Fund of Funds Composite Index produced returns of 0.8% and 0.7% over the quarter, respectively.
- Over the quarter, the Global Macro strategy was the best performer with a return of 2.5%.
- Equity Hedge was the worst performer with a return of -0.8% over the quarter.
- On a YTD basis, Equity Hedge has outperformed all other strategies whilst Global Macro has performed the worst.

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Private Equity Overview – Second Quarter 2023

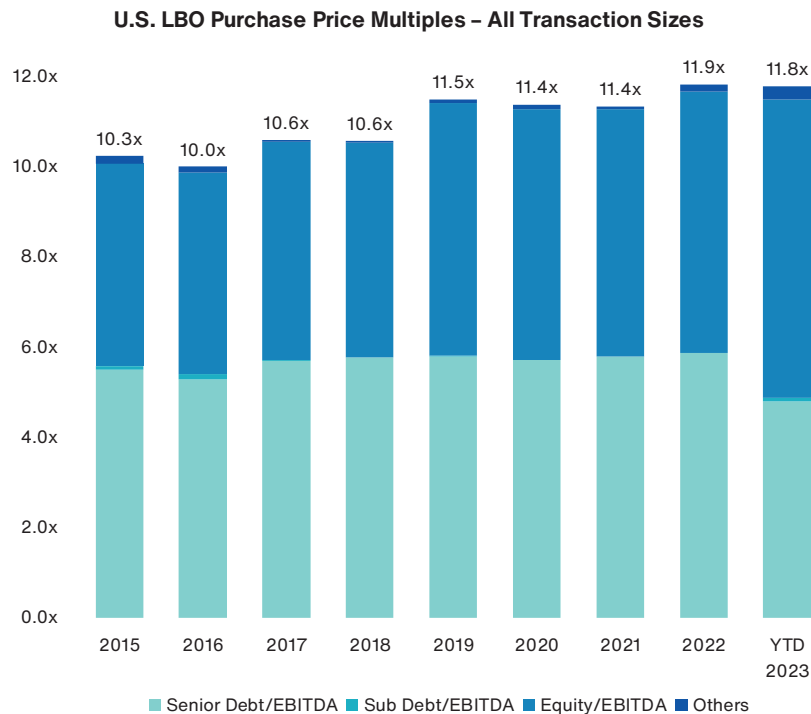


- **Fundraising:** In Q2 2023, \$228.1 billion was raised by 553 funds, which was a decrease of 23.7% on a capital basis but an increase of 3.6% by number of funds from the prior quarter. Dry powder stood at \$3.1 trillion at the end of the quarter, an increase of 4.1% and 30.9% compared to year-end 2022 and the five-year average, respectively.¹
- **Buyout:** Global private equity-backed buyout deals totaled \$107.3 billion in Q2 2023, which was a decrease on a capital basis of 17.1% compared to Q1 2023 and a decrease of 32.6% compared to the five-year quarterly average.¹ During the quarter, the average purchase price multiple for all U.S. LBOs was 11.3x EBITDA, down from Q1 2023's average of 12.4x and equal to the five-year average (11.3x). The YTD average purchase price multiple ended Q2 2023 at 11.8x. Large cap purchase price multiples stood at 11.3x, down compared to the full-year 2022 level of 11.8x. The average purchase price multiple across European transactions greater than €1B averaged 10.3x EBITDA on an LTM basis as of Q2 2023, down from the 10.7x multiple seen at the end of Q1 2023. Purchase prices for transactions of €500M or greater decreased from 10.1x at Q1 2023 to 9.6x on an LTM basis ending Q2 2023.² Globally, buyout exit value totaled \$106.2 billion across 440 deals during the quarter, significantly higher than the \$29.6 billion in value from 383 deals during Q1 2023.¹
- **Venture:** During the quarter, 3,011 venture-backed transactions totaling \$39.8 billion were completed, which was a decrease on both a capital and deal count basis over the prior quarter's total of \$45.8 billion across 3,503 deals. This was also a decrease of 26.1% compared to the five-year quarterly average of \$53.9 billion. Total U.S. venture-backed exit value continued to fall, totaling approximately \$5.5 billion across an estimated 279 completed transactions in Q2 2023, down from \$18.0 billion across 380 exits in Q2 2022.³

Sources: 1 Preqin 2 Standard & Poor's 3 PitchBook/NVCA Venture Monitor 4 Fitch Ratings 5 Jefferies

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

Private Equity Overview



Source: S&P

- Mezzanine:** 7 funds closed on \$18.1 billion during the quarter. This was a decrease from the prior quarter's total of \$21.0 billion raised by 8 funds but represented an increase of 189.5% from the five-year quarterly average of \$6.2 billion. Estimated dry powder was \$66.0 billion at the end of Q2 2023, up from \$63.8 billion at the end of the prior quarter.¹
- Distressed Debt:** The TTM U.S. high-yield default rate was 2.6% as of June 2023, which was up from March 2023's TTM rate of 1.8%. Fitch expects the high-yield default rate to continue trending higher through 2023.⁴ During the quarter, \$7.3 billion was raised by 11 funds, down from the \$11.2 billion raised by 15 funds during Q1 2023. Dry powder was estimated at \$156.6 billion at the end of Q2 2023, which was up 4.5% from Q1 2023. This remained above the five-year annual average level of \$140.3 billion.¹
- Secondaries:** 11 funds raised \$5.6 billion during Q2 2023, down substantially from the \$36.7 billion raised by 18 funds in Q1 2023. This was a decrease of 53.4% compared to the five-year quarterly average of \$11.9 billion.¹ The average discount rate for LP buyout and venture capital portfolios finished the quarter at 10.0% and 31.0%, respectively.⁵
- Infrastructure:** \$4.5 billion of capital was raised by 11 funds in Q2 2023 compared to \$4.5 billion of capital raised by 16 partnerships in Q1 2023. This was a significant decrease from the \$55.8 billion raised by 40 funds in Q2 2022. Infrastructure managers completed 443 deals for an aggregate deal value of \$49.5 billion in the second quarter compared to 470 deals totaling \$72.0 billion in Q1 2023.¹
- Natural Resources:** During Q2 2023, 3 funds closed on \$1.9 billion compared to 6 funds totaling \$1.1 billion in Q1 2023. Energy and utilities industry managers completed 49 deals totaling \$6.7 billion in Q2 2023, an increase, on a value basis, compared to 50 deals totaling \$3.4 billion completed in Q1 2023.¹

Sources: 1 Preqin 2 Standard & Poor's 3 PitchBook/NVCA Venture Monitor 4 Fitch Ratings 5 Jefferies

Appendix

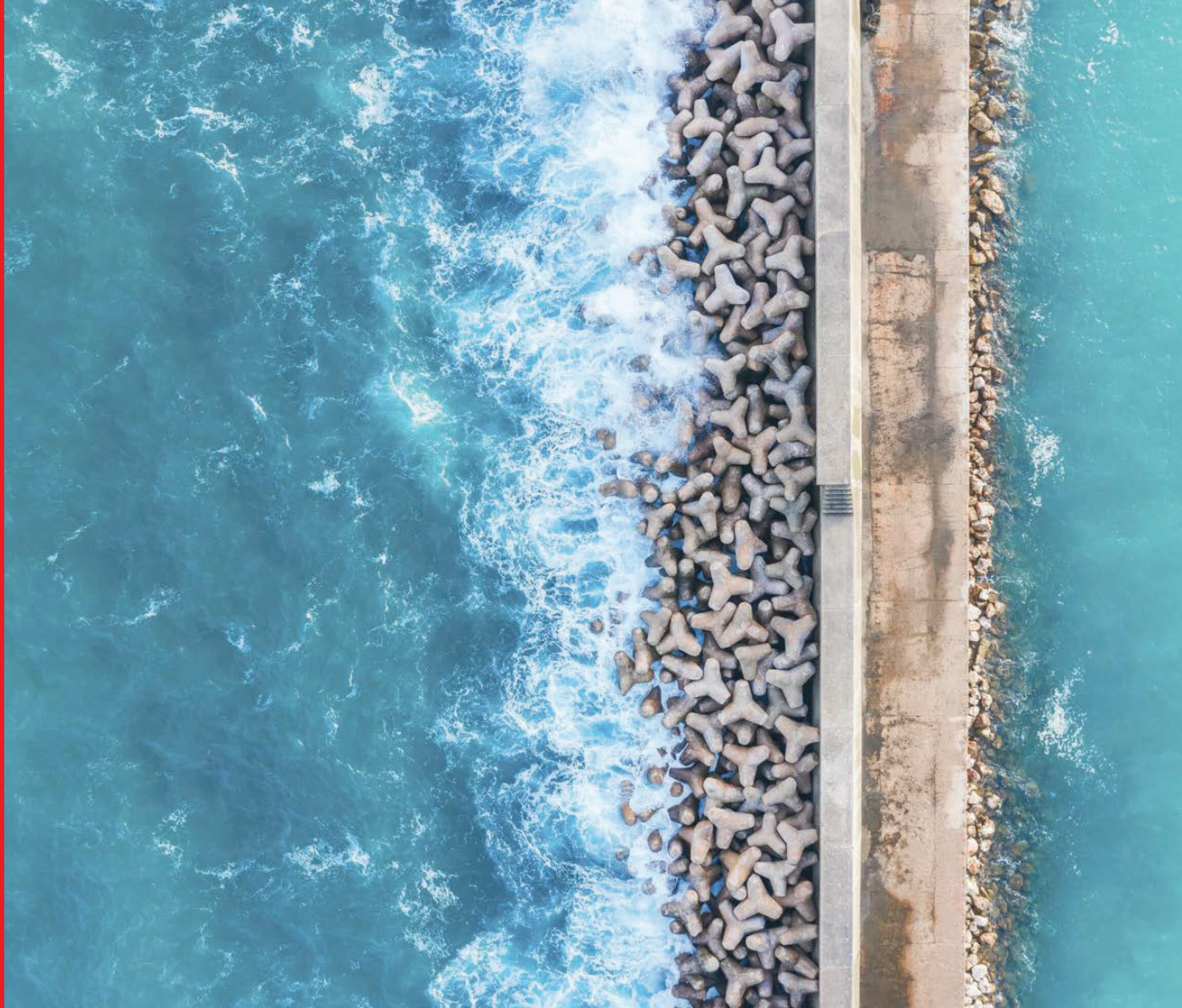
Index Definitions

Index	Definition
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.

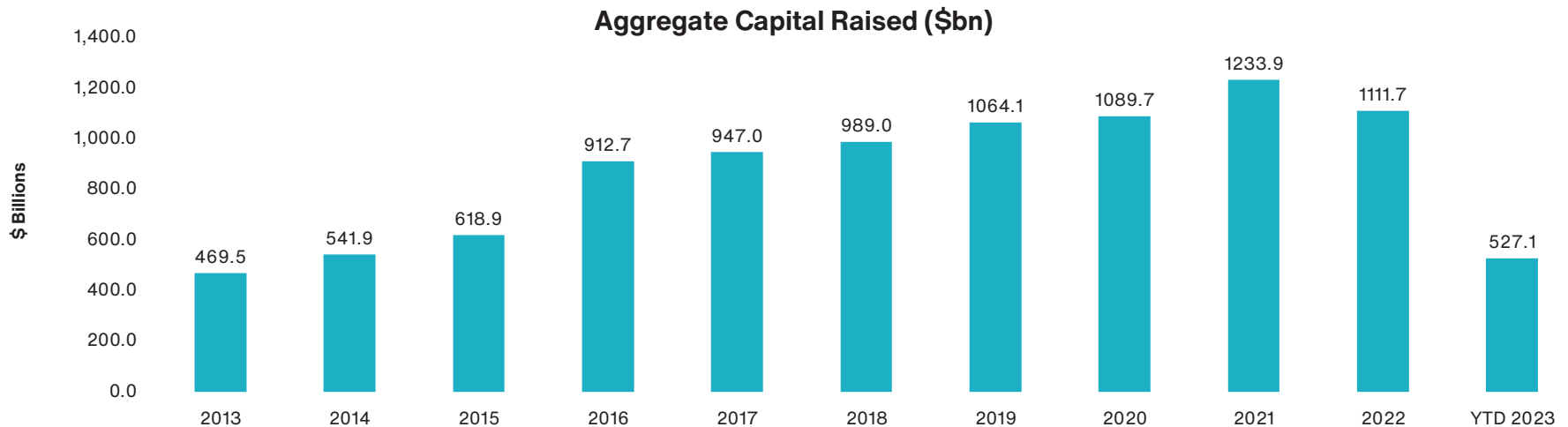
AON

Q2 2023 Global Private Equity Market Overview

October 2023



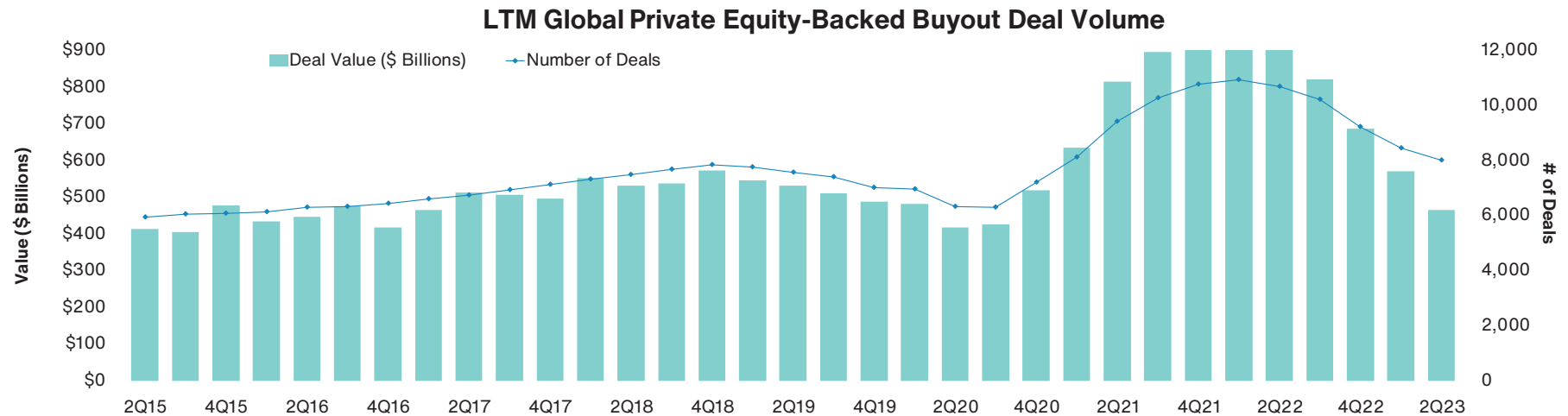
Private Equity Overview



Fundraising

- In Q2 2023, \$228.1 billion was raised by 553 funds, which was a decrease of 23.7% on a capital basis but an increase of 3.6% by number of funds from the prior quarter. Capital raised through Q2 2023 represented 47.4% of capital raised during calendar year 2022.¹
 - Q2 2023 fundraising was 24.9% lower, on a capital basis, than capital raised in Q2 2022 and 44.9% lower by number of funds raised.
 - The majority of capital was raised by funds located in North America, comprising 70.4% of the quarter's total. This was up from 56.5% in Q1 2023. Capital raised by European managers made up 22.0% of the total funds raised during the quarter, an increase from 19.8% in Q1 2023. The remainder was attributable to managers located in Asia and other parts of the world.
- Dry powder stood at \$3.1 trillion at the end of the quarter, an increase of 4.1% and 30.9% compared to year-end 2022 and the five-year average, respectively.¹

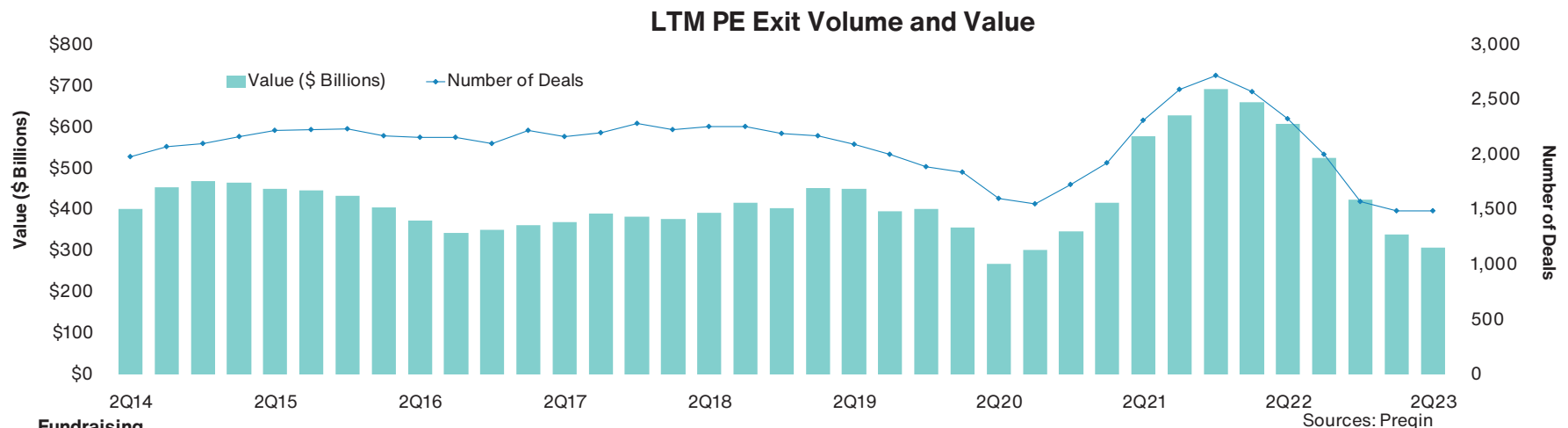
Private Equity Overview (cont.)



Activity

- Global private equity-backed buyout deals totaled \$107.3 billion in Q2 2023, which was a decrease on a capital basis of 17.1% compared to Q1 2023.¹
 - This was a decrease of 32.6% compared to the five-year quarterly average.
 - Average deal size was \$383.3 million in Q2 2023. This was down 22.2% compared to Q1 2023 and down 16.4% relative to the five-year quarterly average.
- Through Q2 2023, the average purchase price multiple for all U.S. LBOs was 11.8x EBITDA, down from Q1 2023's average of 12.4x but up compared to the five-year average (11.3x). YTD large cap purchase price multiples stood at 12.2x at the end the quarter, up compared to full-year 2022's level of 11.8x.²
 - Average purchase price multiples for all U.S. LBOs were 0.5x and 1.2x 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 9.6x EBITDA on an LTM basis, down from 10.1x at the end of Q1 2023.³
- 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 Q2 2023 was 4.9x compared to the five and ten-year averages of 5.8x and 5.7x, respectively.³
 - In Europe, the average debt/EBITDA on an LTM basis ended Q2 2023 at 5.5x, slightly lower than that observed at the end of Q1 2023 (5.8x).

Buyouts / Corporate Finance



Fundraising

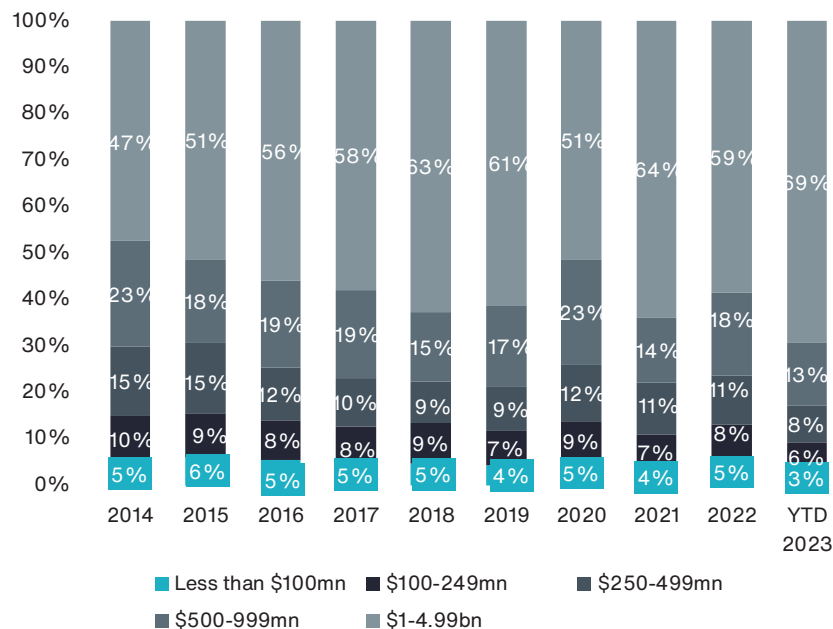
- \$119.1 billion was closed on by 149 buyout and growth funds in Q2 2023, compared to \$126.8 billion raised by 131 funds in Q1 2023. Both the number of funds and capital raised was lower than Q2 2022, which saw 233 funds close on \$129.4 billion.¹
 - This was lower, on a capital and number of funds basis, than the five-year quarterly average of \$121.7 billion raised by 225 funds.
 - TA XV was the largest fund raised during the quarter, closing on \$16.5 billion of commitments.
- Buyout and growth equity dry powder was estimated at \$1.3 trillion, equal to Q1 2023.¹
 - An estimated 60.0% of buyout dry powder was targeted for North America, while European dry powder comprised 21.9% and Asia/Rest of World accounted for the remainder.

Activity

- Globally, buyout exit value totaled \$106.2 billion across 440 deals during the quarter, significantly higher than the \$29.6 billion in value from 383 deals during Q1 2023.¹

Buyouts / Corporate Finance

M&A Deal Value by Deal Size



Sources: Preqin

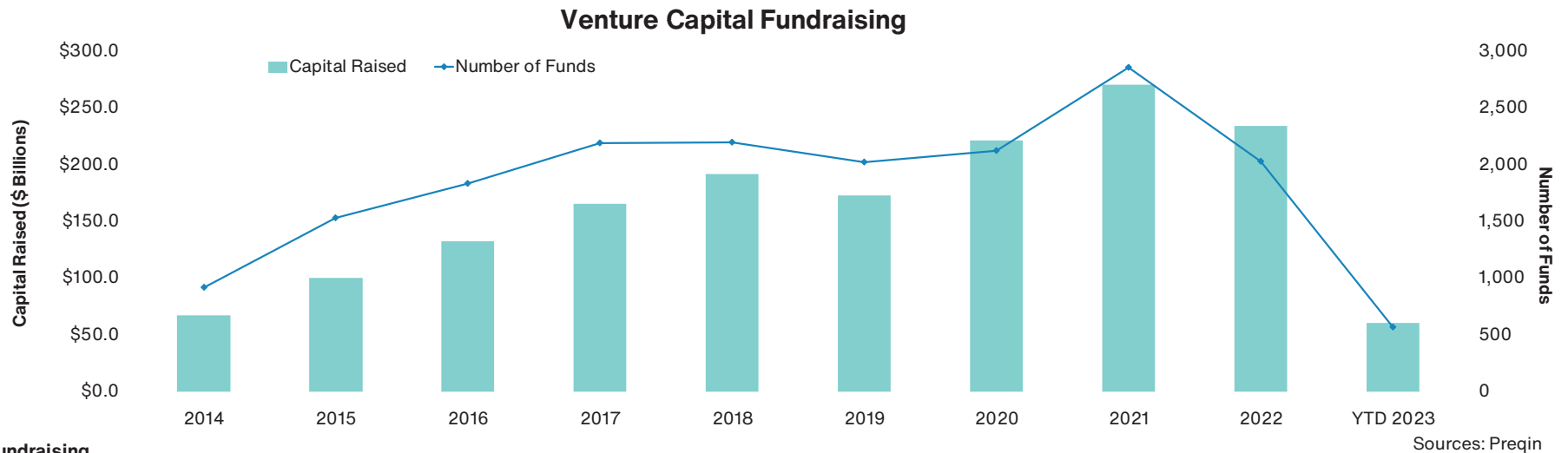
Activity

- Global private equity-backed buyout deals totaled \$107.3 billion in Q2 2023, which was a decrease on a capital basis of 17.1% compared to Q1 2023 and a decrease of 32.6% compared to the five-year quarterly average.¹
- Through Q2 2023, total deal value accounted for 34.5% of 2022's total.¹
 - Of deals less than \$5.0 billion in size, deals valued between \$1.0 billion - \$4.9 billion accounted for an estimated 69.5% of total deal value compared to 58.5% in 2022. Deals valued between \$500.0 million to \$999.9 million represented 13.4% of total deal value through the second quarter.
 - By geography, North American deals accounted for the largest percentage of total deal value at an estimated 50.1% in Q2 2023, while Healthcare deals accounted for the largest percentage by industry at 24.7% of total deal value.
- During Q2 2023, the average purchase price multiple for all U.S. LBOs was 11.3x EBITDA, down from year-end 2022's average of 11.9x and equal to the five-year average (11.3x).³
 - Large cap purchase price multiples stood at 11.3x, down compared to the full-year 2022 level of 11.8x.
- The average purchase price multiple across European transactions greater than €1B averaged 10.3x EBITDA on an LTM basis as of Q2 2023, down from the 10.7x multiple seen at the end of Q1 2023. Purchase prices for transactions of €500M or greater decreased from 10.1x at Q1 2023 to 9.6x on an LTM basis ending Q2 2023.³
- The portion of average purchase prices financed by equity for all deals was 56.0% through Q2 2023, up from 52.7% in Q1 2023. 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

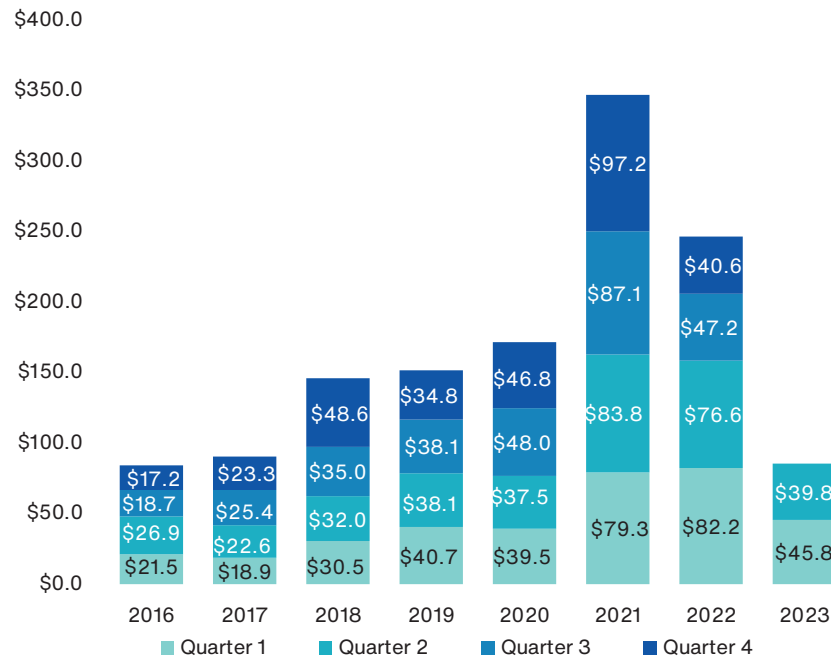


Fundraising

- \$29.8 billion of capital was raised by 291 funds in Q2 2023, lower, on a capital basis, from the prior quarter's total of \$31.2 billion raised by 280 managers. This was down from Q2 2022's amount of \$58.9 billion raised by 549 funds. Through Q2 2023, capital raised represented 26.0% of 2022's total.¹
 - Q2 2023 fundraising was 45.1% lower, on a capital basis, compared to the five-year quarterly average of \$54.3 billion.
 - Lux Ventures VIII was the largest fund raised during the quarter, closing on \$1.2 billion.
- At the end of Q2 2023, there were an estimated 6,076 funds in market targeting \$433.1 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 \$614.3 billion at the end of Q2 2023, up from Q1 2023.¹

Venture Capital

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



Source: Pitchbook / NVCA

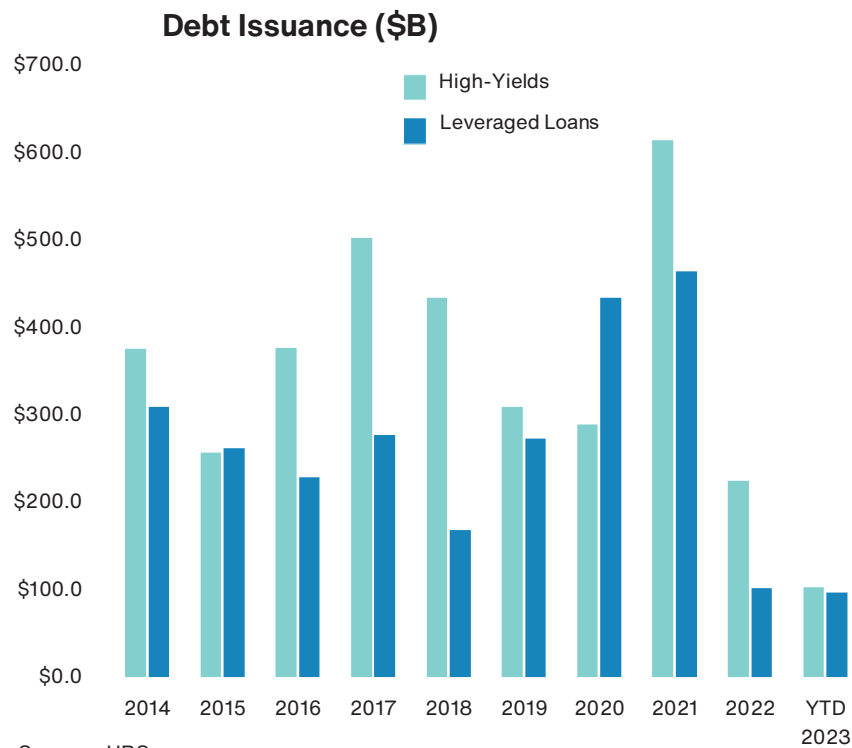
Activity

- During the quarter, 3,011 venture-backed transactions totaling \$39.8 billion were completed, which was a decrease on both a capital and deal count basis over the prior quarter's total of \$45.8 billion across 3,503 deals. This was also a decrease of 26.1% compared to the five-year quarterly average of \$53.9 billion.⁷
 - In Q2 2023, there were 58 U.S.-based deals involving unicorn companies, representing roughly \$13.0 billion in deal value. This was down by value compared to Q1 2023, which saw 49 unicorn-related deals close at a deal value of \$15.8 billion. This was below the five-year quarterly average of \$18.4 billion.⁷
- According to Pitchbook, median pre-money valuations decreased across all series, with the exception of Seed valuations, through Q2 2023. Compared to 2022, Seed transactions increased from a median pre-money valuation of \$10.5 million to \$10.9 million. Angel valuations decreased from \$4.9 million to \$4.4 million, early-stage VC from \$50.0 million to \$39.8 million, late-stage VC from \$62.8 million to \$55.0 million, and venture growth valuations decreased from \$336.0 million to \$126.3 million.⁷
- Total U.S. venture-backed exit value continued to fall, totaling approximately \$5.5 billion across an estimated 279 completed transactions in Q2 2023, down from \$18.0 billion across 380 exits in Q2 2022. Through Q2 2023, U.S. exit activity represented only 15.9% of 2022's total.⁷
 - The number of U.S. venture-backed initial public offerings decreased over Q1 2023, with only 8 IPOs completed in Q2 2023 at a value of \$3.4 billion. 151 exits occurred by acquisition, marking a decrease over the prior quarter's 189, and accounted for \$2.0 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 \$55.0 billion through Q2 2023, compared to \$73.0 billion through the same period in 2022.²
- High-yield debt issuance totaled \$97.4 billion through Q2 2023, compared to \$67.9 billion during the same period in 2022.²
- Through Q2 2023, leveraged loan mutual fund net flows ended at a net outflow of \$14.0 billion, compared to \$8.5 billion of outflows in all of 2022.²

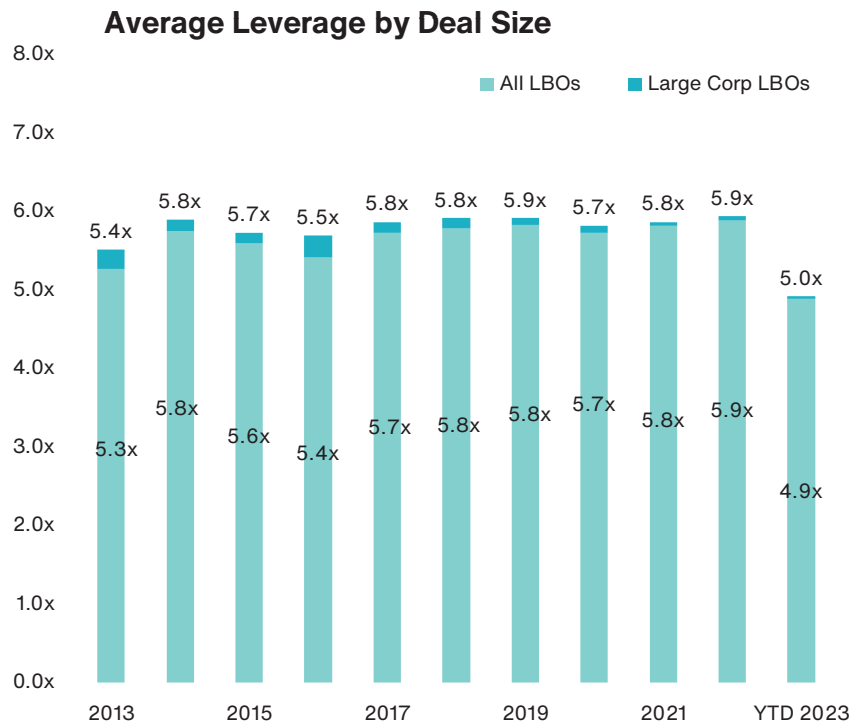
Activity

- YTD institutional leveraged loan issuances totaled \$102.9 billion, compared to \$168.2 billion through the same period in 2022.²
- European sponsored loan issuance totaled €5.7 billion during Q2 2023 compared to €7.1 billion during Q1 2023. This was 61.0% lower than the five-year quarterly average level of €14.6 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 Q2 was 4.9x, down from 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 5.0x through the quarter, lower than that seen at year-end 2022 (5.9x).³
- The amount of debt issued supporting new transactions increased slightly over the prior quarter, moving from 37.4% to 39.1%, however this was substantially lower than the 80.4% seen at the end of 2022. This was also lower than the five-year average of 72.3%.³

Mezzanine Fundraising

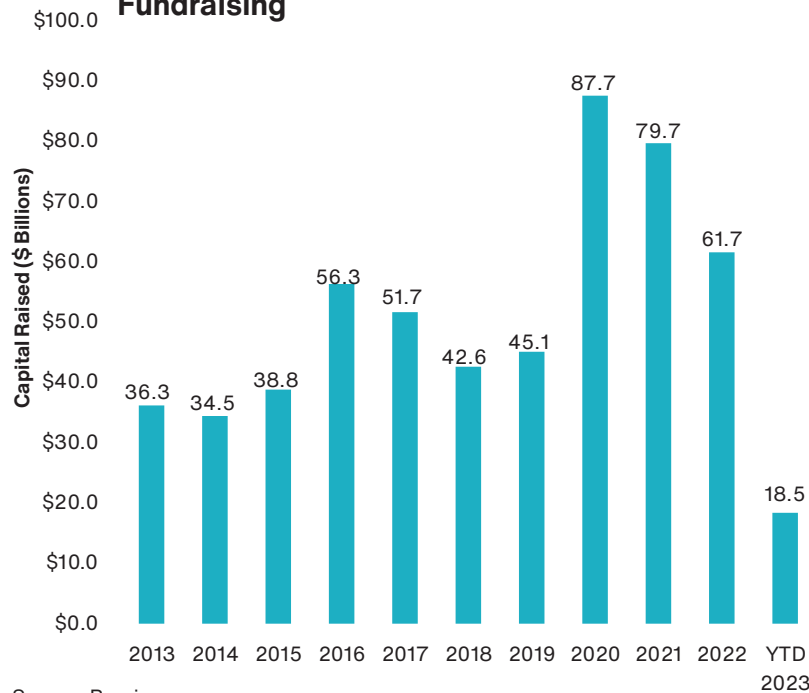
- 7 funds closed on \$18.1 billion during the quarter. This was a decrease from the prior quarter's total of \$21.0 billion raised by 8 funds but represented an increase of 189.5% compared to the five-year quarterly average of \$6.2 billion.¹
- Estimated dry powder was \$66.0 billion at the end of Q2 2023, up from \$63.8 billion at the end of the prior quarter.¹
- An estimated 119 funds were in market targeting \$24.7 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

Distressed Debt, Turnaround, & Special Situations Fundraising

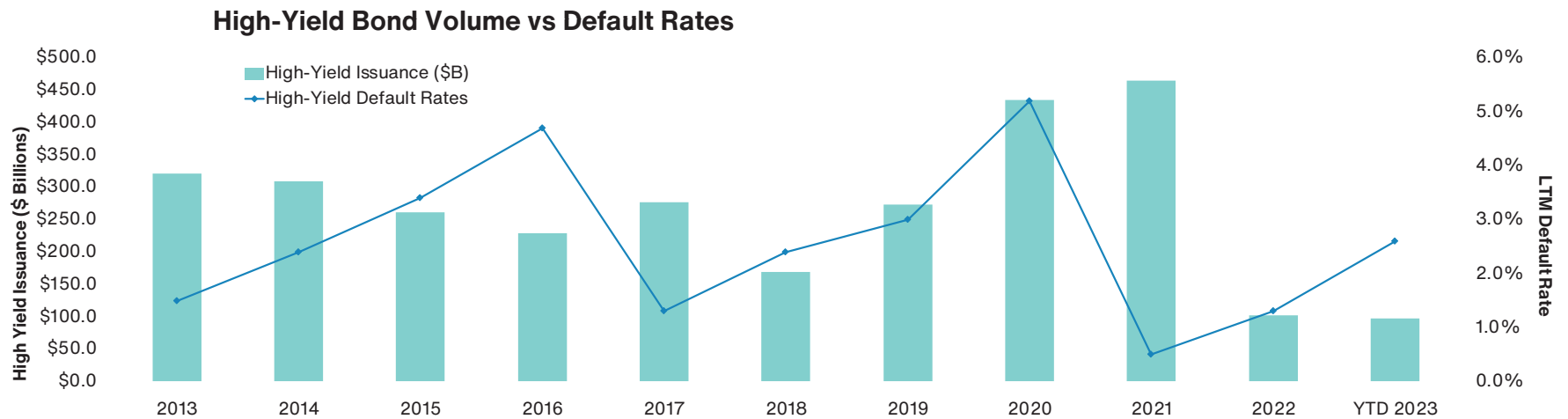


Source: Prequin

Fundraising

- During the quarter, \$7.3 billion was raised by 11 funds, down from the \$11.2 billion raised by 15 funds during Q1 2023. Distressed funds have raised 29.9% of 2022's total through Q2 2023.¹
 - Q2 2023's fundraising was 54.4% lower than the five-year quarterly average.
 - Capital raised in Q2 2023 represented a notable decrease compared to the \$27.7 billion raised in Q2 2022.
 - LCM Credit Opportunities Strategy 4 was the largest fund closed during the quarter, closing on \$4.5 billion.
- Dry powder was estimated at \$156.6 billion at the end of Q2 2023, which was up 4.5% from Q1 2023. This remained above the five-year annual average level of \$140.3 billion.¹
- Roughly 239 funds were in the market at the end of Q2 2023 seeking \$122.4 billion in capital commitments.¹
 - Special situations managers were targeting the most capital, seeking \$62.0 billion in commitments, followed by distressed debt managers seeking \$57.8 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

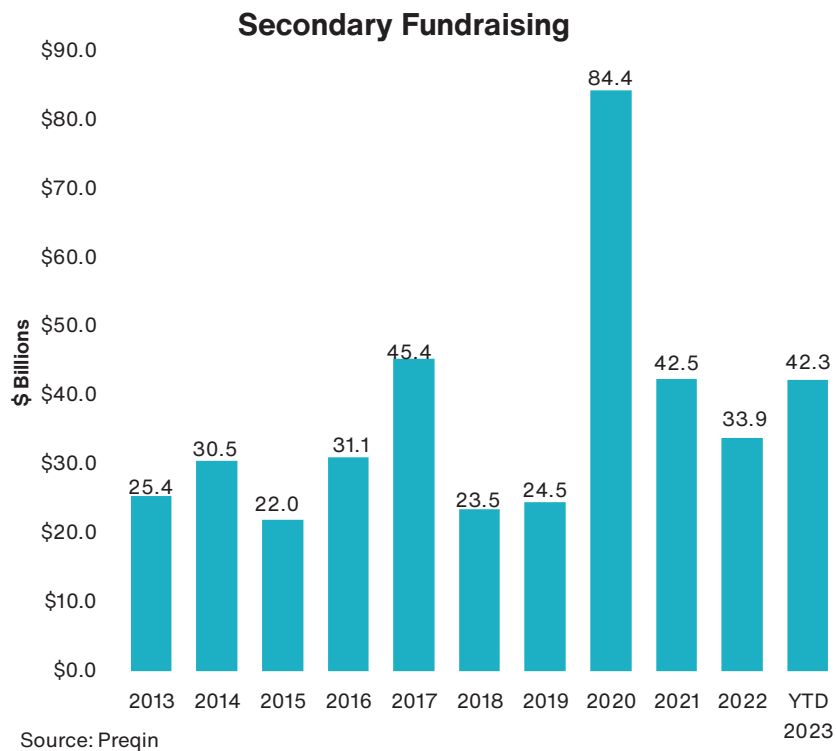
Activity

- The TTM U.S. high-yield default rate was 2.6% as of June 2023, which was up from March 2023's TTM rate of 1.8%. Fitch expects the high-yield default rate to continue trending higher through 2023.⁶
- Continued market dislocations 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



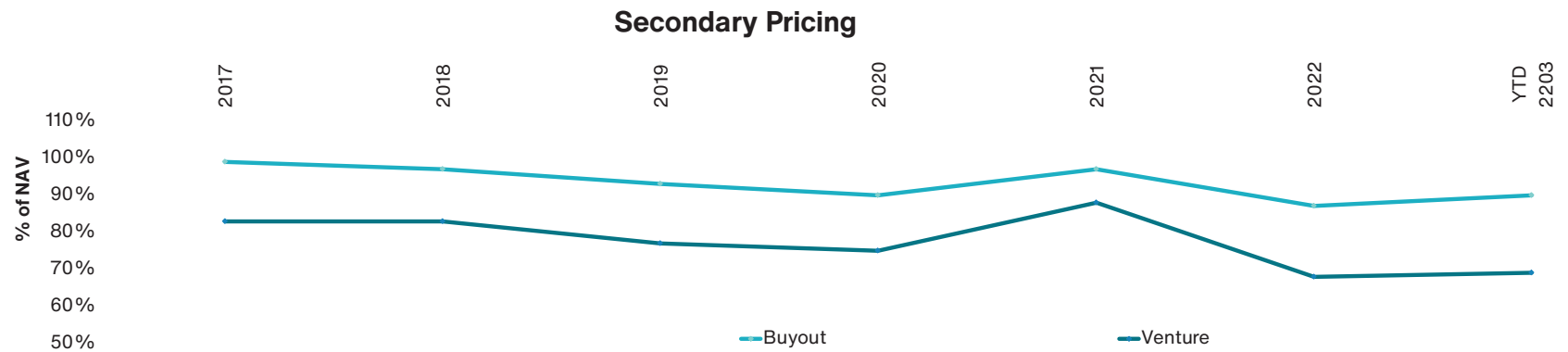
Fundraising

- 11 funds raised \$5.6 billion during Q2 2023, down substantially from the \$36.7 billion raised by 18 funds in Q1 2023. This was a decrease of 53.4% compared to the five-year quarterly average of \$11.9 billion.¹
 - Adams Street Global Secondary Fund 7 was the largest fund raised during the quarter, closing on \$3.2 billion.
- At the end of Q2 2023, there were an estimated 148 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 1H 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. Compared to the prior year, LP-led activity has increased as a percentage of total deal volume however GP-activity remains relatively robust.¹⁶
- PJT Partners noted investors shifting preferences from industries impacted by the public market volatility to less cyclical industries. Further, 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



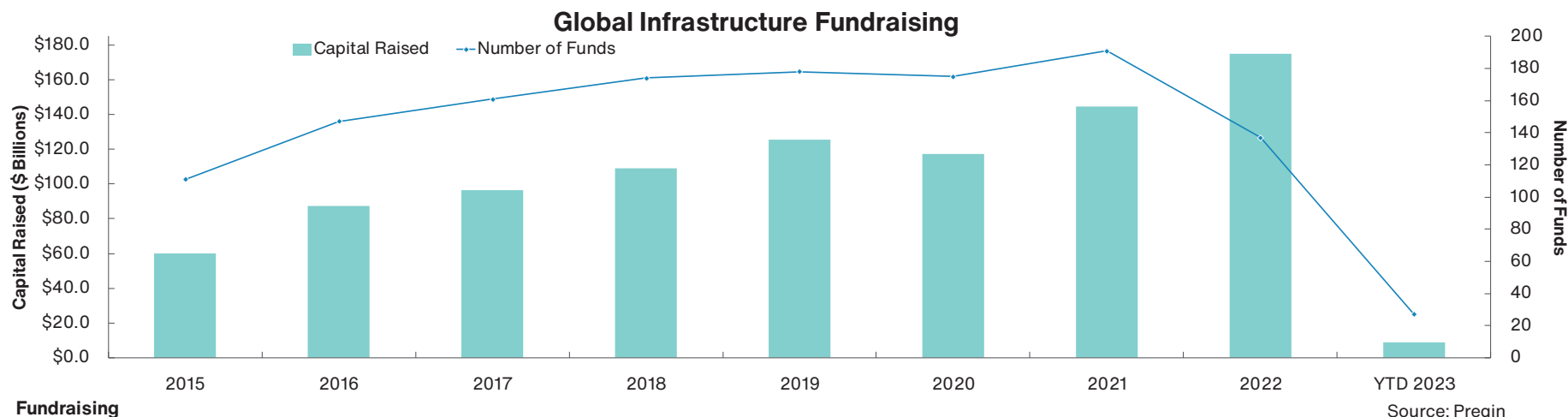
Activity

- 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
- 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
- Pricing has improved relative to the lows seen in H2 2022 given public market price momentum and more aggressive buyer activity. The average discount rate for LP buyout and venture capital portfolios finished the quarter at 10.0% and 31.0%, respectively.¹⁷

Opportunity⁴

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

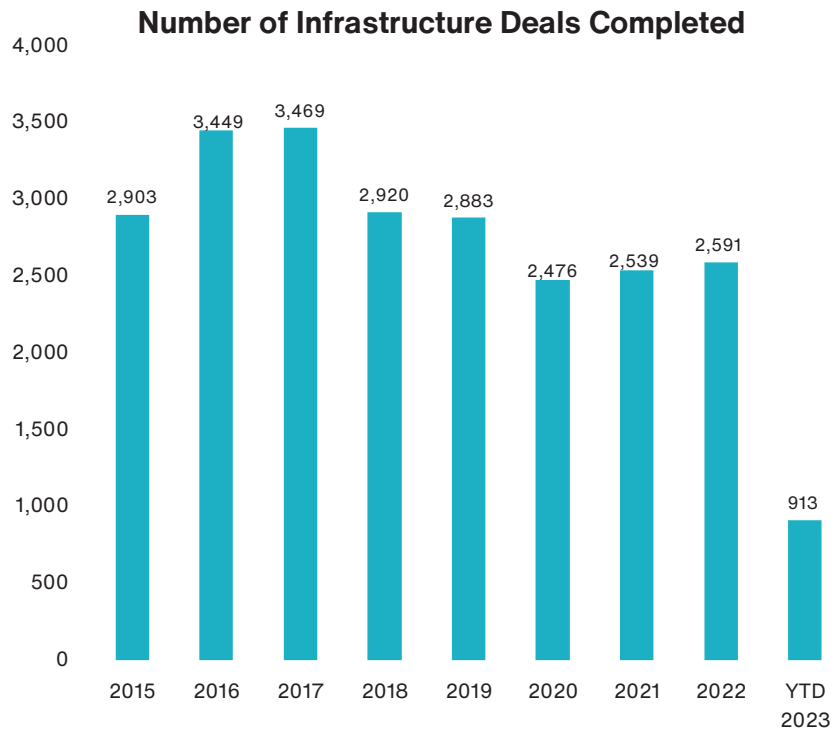
Infrastructure



Fundraising

- \$4.5 billion of capital was raised by 11 funds in Q2 2023 compared to \$4.5 billion of capital raised by 16 partnerships in Q1 2023. This was a significant decrease from the \$55.8 billion raised by 40 funds in Q2 2022. This was a decline of 86.3% compared to the five-year quarterly average of \$32.8 billion.¹
 - GCI Senior Infrastructure Debt II was the largest fund raised during the quarter, closing on \$1.7 billion.
- As of the end of Q2 2023, there were an estimated 527 funds in the market seeking roughly \$489.7 billion.¹
 - The largest funds currently in market each have target fund sizes of \$25.0 billion, including Brookfield Infrastructure V and Global Infrastructure Partners V.
 - The ten largest funds are seeking an estimated 33% of the total capital being raised.
- 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



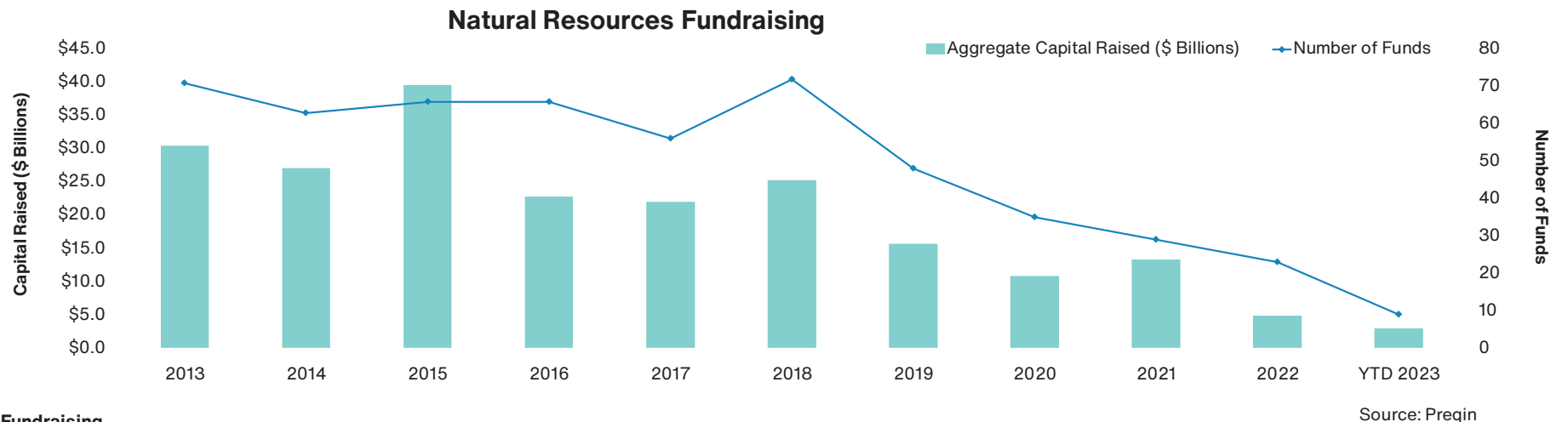
Activity

- Infrastructure managers completed 443 deals for an aggregate deal value of \$49.5 billion in the second quarter compared to 470 deals totaling \$72.0 billion in Q1 2023.¹
 - By region, Europe saw the largest number of deals, with 45.0% of deals being completed in the region, followed by North America at 27.0%. Asia amassed 15.2% of activity through the end of Q2 2023.

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



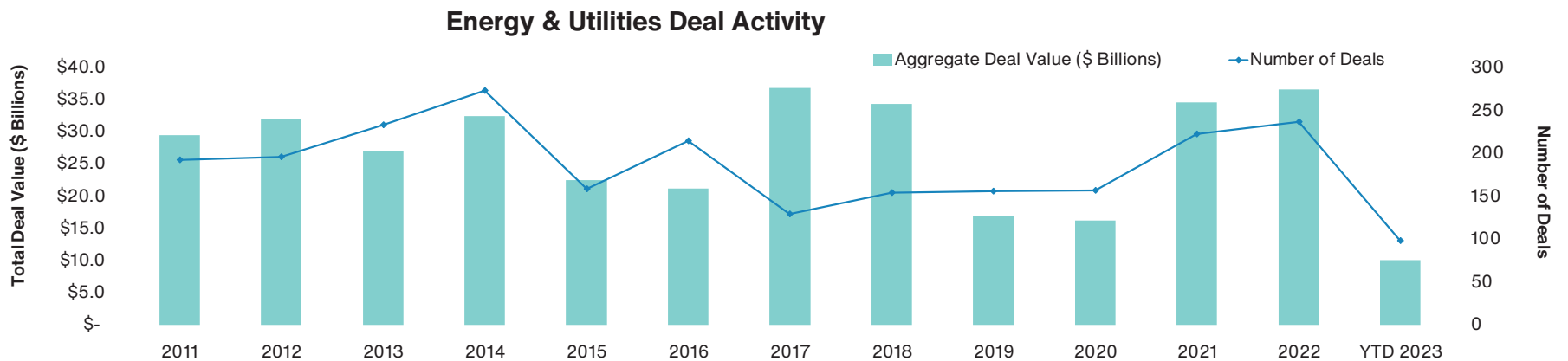
Fundraising

- During Q2 2023, 3 funds closed on \$1.9 billion compared to 6 funds totaling \$1.1 billion in Q1 2023.¹
- Dry powder stood at roughly \$28.7 billion at the end of Q2 2023, which was lower than Q4 2022's level of \$30.2 billion and down from the five-year average level by 31.0%.¹

Activity

- Crude oil prices decreased during the quarter.
 - WTI crude oil prices decreased 4.1% during the quarter to \$70.25 per bbl. This was also a decrease of 38.8% compared to Q2 2022.¹⁰
 - Brent crude oil prices ended the quarter at \$74.84/bbl, down 4.6% compared to the prior quarter. This was a decrease of 39.0% from Q2 2022.¹⁰
 - Natural gas prices (Henry Hub) finished Q2 2023 at \$2.18 per MMBtu, which was down 5.6% from the prior quarter and down 71.7% from Q2 2022.¹⁰

Natural Resources



Source: Prequin

Activity

- 49 energy and utilities industry related deals were completed totaling \$6.7 billion in Q2 2023, an increase, on a value basis, compared to 50 deals totaling \$3.4 billion completed in Q1 2023.¹
- A total of 674 crude oil and natural gas rotary rigs were in operation in the U.S. at the end of the quarter. This was down by 10.7% from the prior quarter and down 10.1% over Q2 2022.¹³
 - Crude oil rigs represented 80.9% of the total rigs in operation. 61.7% of the 545 active oil rigs were in the Permian basin.
 - At the end of Q2 2023, 35.5% and 27.4% of natural gas rigs were operating in the Haynesville and Marcellus basins, respectively.
- The price of iron ore (Tianjin Port) ended the quarter at \$113.45 per dry metric ton, down from \$128.37 at the end of Q1 2023.¹⁰

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 Lutyens
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

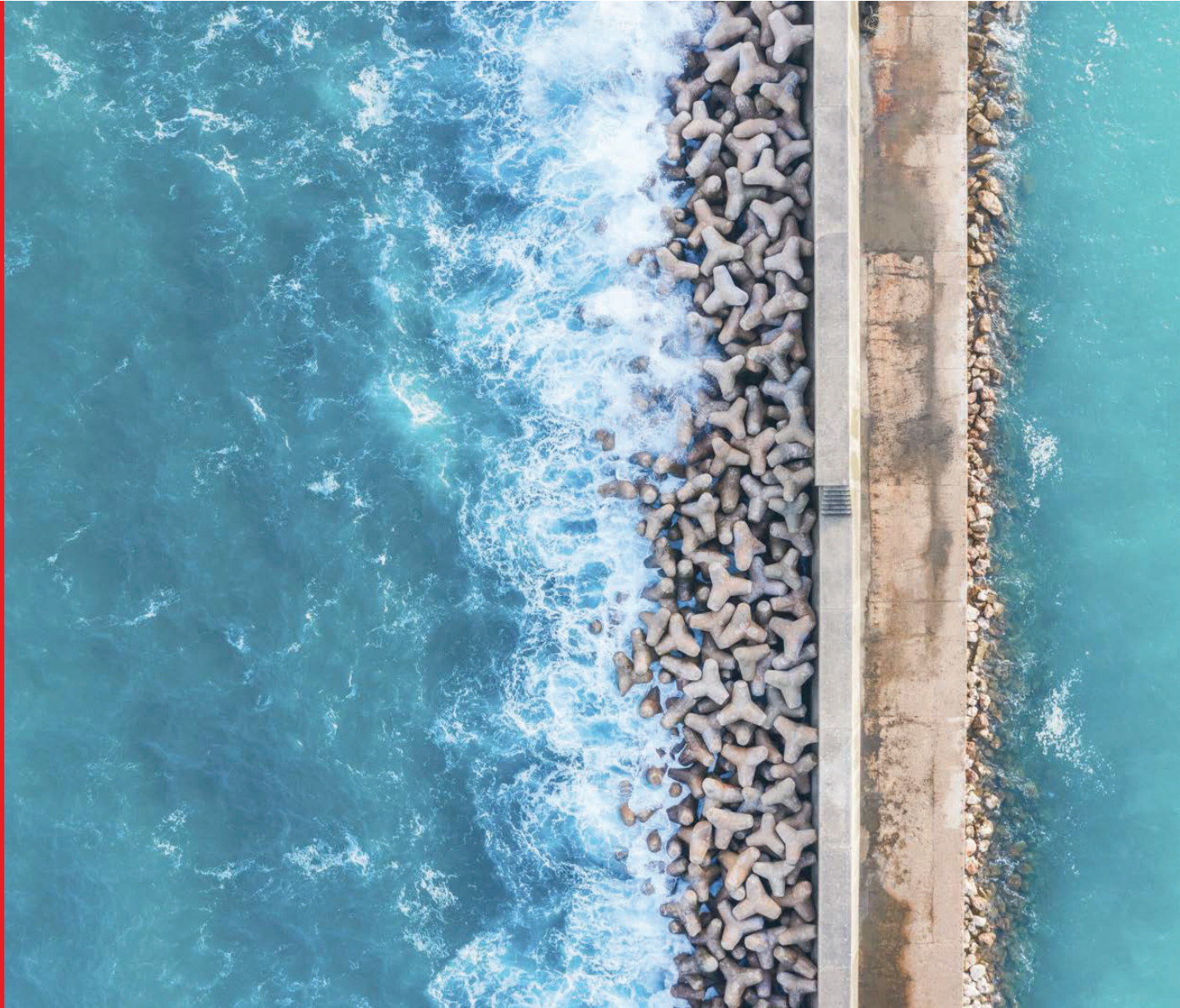
MMBtu: Price per million British thermal units

AON

2Q 2023 Real Estate Market Update

October 2023

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



United States Real Estate Market Update (2Q23)

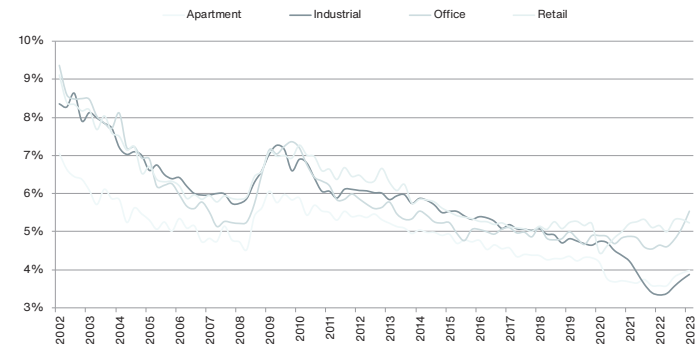
General

- 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 10.5% continuing the positive returns from the start of 2023. The MSCI US REIT index held a steady pace in the second quarter, posting a gross return of 2.7%.
- During the first quarter, GDP increased at an annualized rate of 2.4%. 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 four in the first half of 2023 totaling an increase of 525 basis points since March 2022..

Commercial Real Estate

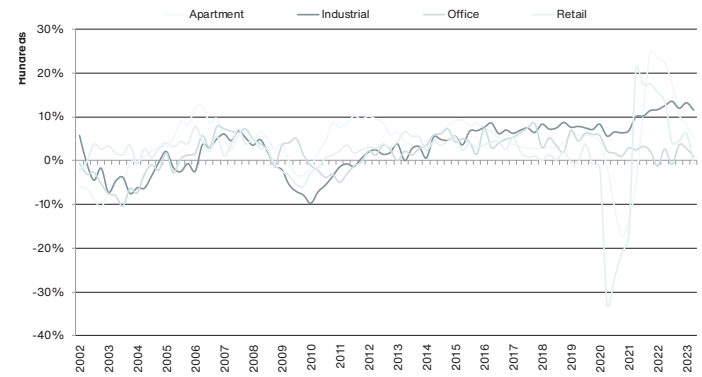
- After surpassing the first half of 2023, total CRE transaction activity for the quarter decreased by -63% YoY, with the first half of 2023 transaction activity down -58% YoY. The office sector transaction volumes in the U.S. have notably not recovered to pre-pandemic levels. Although the office sector 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 (5.4%) contracted, moving in 24 bps during the quarter. This decrease comes after cap rates have risen sharply since 4Q21. Current valuation cap rates expanded for all major property sectors, led by office (+46 bps), and followed by industrial (+10 bps), apartment (+10 bps) and retail (-13 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 (+5%) YoY. Industrial NOI expanded (+11%) YoY on the back of companies' investments in direct-to-customer distribution.
- 10-year treasury bond yields increased, ending the quarter at 3.8%. As economists expected, rates moved significantly higher throughout the first half 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 (2Q23)



INDUSTRIAL	MULTIFAMILY
<ul style="list-style-type: none"> In 2Q23, industrial properties returned -0.75% and outperformed the NPI by 123 bps. Transaction volumes decreased to \$22 billion in the second quarter of the year, resulting in an 47% decrease year-over-year. Individual asset sales decreased 46% year-over-year, while portfolio purchases turned in a year-over-year volume decrease of 64%. At \$22 billion, the industrial sector slightly increased by \$2 billion quarter-over-quarter. The industrial sector turned in NOI growth of 11.6% over the past year. NOI continues to reach all time highs for the sector. Vacancy increased by 34 bps year-over-year to 1.8%. Vacancy in the sector increased 18 bps year over year, reaching all-time historic lows. E-commerce continues to drive demand across the sector. Industrial cap rates expanded approximately 54 bps from a year ago, to 3.87%. Industrial overall fundamentals still top all property sectors. 	<ul style="list-style-type: none"> The apartment sector delivered a -1.04% return during the quarter, outperforming the NPI by 94 bps. Transaction volume in the second quarter of 2023 slightly increased to \$28 billion, resulting in a decrease of 72% year-over-year. Transaction volume for the sector slightly increased from the first quarter by nearly 3%. This volume continues to make multifamily the most actively traded sector for the twenty first straight quarter. Cap rates remained steady at 4.0% quarter-over-quarter, increasing 40 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 20 bps through the second 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 -5.79% in 2Q23, 381 bps below the NPI return over the period. Transaction volumes decreased by 58% year-over-year in the second quarter. Transaction volume equated to \$12 billion for the quarter, remaining flat 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 13.07%, increasing by 40 bps from last quarter. NOI growth in the office sector increased quarter-over-quarter by 50 bps to 1.97% 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 5.5%. 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 2Q23, the retail sector delivered a quarterly return of -0.17%, outperforming 181 bps compared to the NPI. Transaction volumes totaled \$10 billion in the second quarter, decreasing 66% year-over-year. Single asset transactions accounted for just over 95% 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 compressed quarter-over-quarter by 9 bps due to valuation adjustments made across the sector in general. NOI growth decreased from the prior quarter to -2.55% as of the second quarter. Retail has begun its slow recovery as a large portion of stores nationally have opened and operate safely but has continued to experience volatility due to the current market environment. Retail vacancy rates remained steady over the quarter at 7.58%, down 114 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 (2Q23)

- The challenges correlated to increasing interest rates, elevated inflation, sparse availability of debt, and pricing uncertainty have resulted in a continued decline in global transaction volume in the second quarter. Year over year, deal volumes have contracted by 47% with capital markets activity hampered by uncertainty. This marks the third consecutive quarter of deal volumes regressing 50% or more. This stagnation is extensive, as not one of the top 10 largest markets and none of the major sectors recorded an increase in investment activity versus the same period 12 months ago.
- US markets endured the largest lapse relative to other regions, with a 62% decrease in deal volume being its lowest since the onset of the pandemic. Apartments experienced the largest shortfall in investment capital, as deal volumes fell by \$66B from the previous year to just \$28B.

Global Total Commercial Real Estate Volume - 2022 - 2023

\$ US Billions	Q2 2023	Q2 2022	% Change		H1 2023	H1 2022	% Change
			Q2 23 - Q2 22	H1 23- H2 22			
Americas	76	201	-62%		159	388	-59%
EMEA	36	85	-57%		78	194	-60%
Asia Pacific	156	223	-30%		256	370	-31%
Total	269	509	-47%		492	953	-48%

Source: Real Capital Analytics, Inc., Q2' 23

- Global office vacancy rose to a new record high of 15.6% in the second quarter, with the US experiencing the largest amount of distress, followed by Asia Pacific. The sector currently is plagued by compounding issues of the cyclical slowdown and the shift to hybrid/remote work. Acquisitions in the second quarter have dropped to their lowest since 2009, as tenants and investors alike are seeking to offload their office portfolios. An uptick in return-to-office mandates, upcoming lease expirations and lower renewal rates will provide additional incentive to provide for new, amenity rich, high-quality space.
- There is reason for cautious optimism for major retail markets globally with a resilient labor market, rising earnings, along with consumer spending proving more resilient than anticipated. This boost in sentiment is also linked with the rise in international tourism, motivating retailers to secure locations in tourist saturated areas and pronounced shopping centers. Focuses have shifted towards neighborhood centers and offering necessity goods as consumers have become more discerning with discretionary purchases.
- In the second quarter, leasing activity for logistics and industrial in the US and Europe moderated with slower economic growth and limited vacant stock. A new wave of supply has elevated absorption levels in the Asia Pacific region. Record amounts of new inventory are expected by year end, especially in the U.S. and Asia Pacific, causing vacancy rates to expand going forward. With continued healthy fundamentals, rents continue to increase globally but this will be marginal relative to their post-pandemic highs: rents in Q2 climbed by 18.4% year-over-year in the U.S., by 10.8% in Europe and by 6.4% across Asia Pacific.
- Investment in U.S. multifamily declined 69% since Q2 2022, despite record levels of dry power indicating latent demand pending an interest rate decrease. The global housing market continue to experience a fundamental undersupply of new homes to meet ever-increasing demand. This coupled with rising construction costs and limited financing have added to the shortfall. Across Europe, the depth and variety present in the housing market has lent itself to attracting capital with an 18% increase in transaction volume since the previous quarter. Asia Pacific investors are following suit, expanding multifamily investment to markets such as Australia and China to offset the continued slowdown in Japan.

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

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REPORT

Meketa Capital Markets Outlook & Risk Metrics

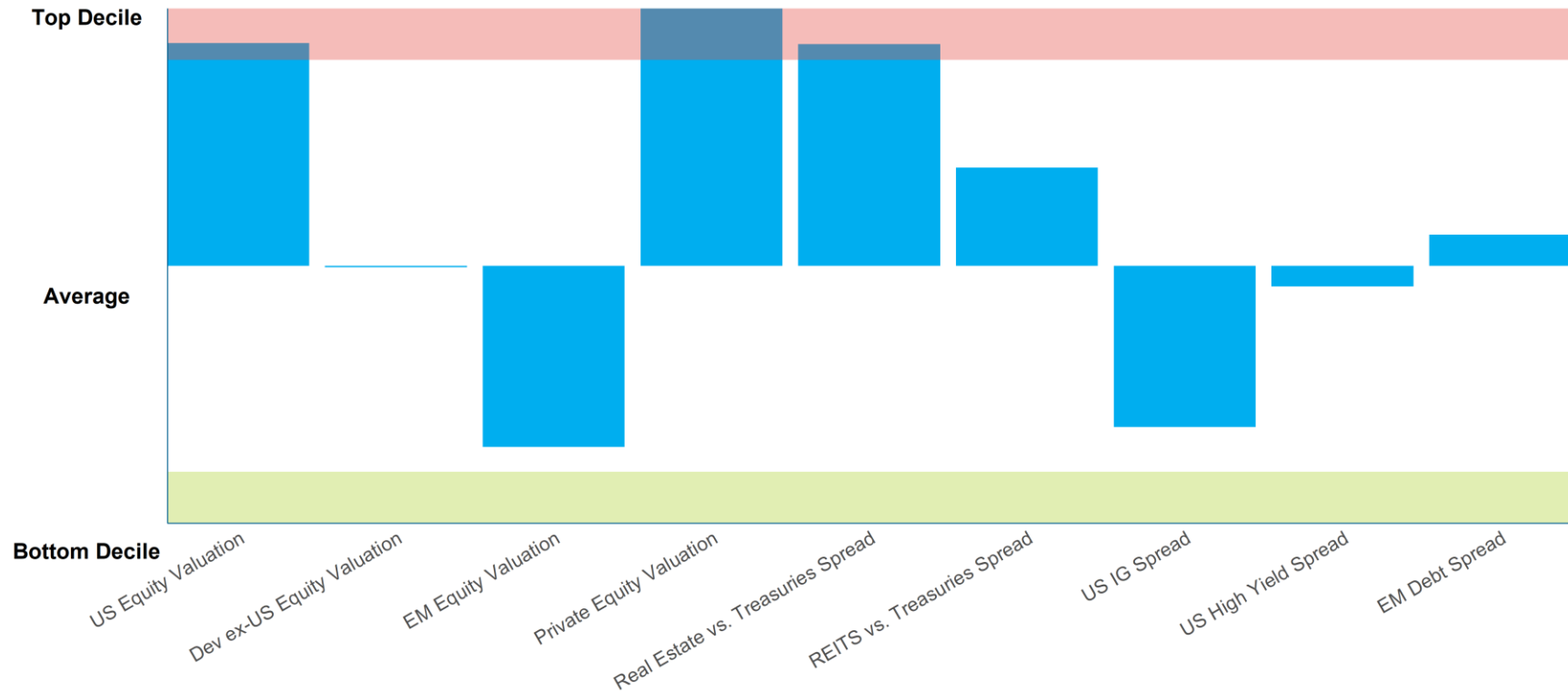
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Capital Markets Outlook & Risk Metrics
As of September 30, 2023

Capital Markets Outlook

- In September, the Federal Reserve held interest rates steady (5.25 – 5.50%) while verbally indicating a willingness to hike rates again before the end of the year. Headline inflation reaccelerated slightly (to 3.7%) while core inflation remained elevated (at 4.3%).
- In general, bond and equity markets sold-off in September as markets re-priced deteriorating sentiment on slowing global growth and persistent inflation and higher interest rates.
- US stocks declined more than non-US equities, though they remain ahead year to date. Value stocks outperformed growth stocks on a relative basis, and large cap fared better than small cap stocks.
- After a strong start to the year, developed market stocks lagged emerging market stocks on a relative basis in September. However, on a year-to-date basis, developed markets have soundly outperformed emerging market stocks.
- Concerns about China's economy and its troubled real estate sector continue to weigh on Chinese stocks despite a series of policy support initiatives from the People's Bank of China which has cut lending rates and stabilized the RmB.
- Perceived hawkishness from the Fed and the ECB put pressure on global bond markets across most sectors in September as yields rose. Threats of a government shutdown in the US also contributed to bond market turmoil.
- Infrastructure, public real estate, and natural resource stocks declined in September, driven by higher interest rates and slowing growth prospects.

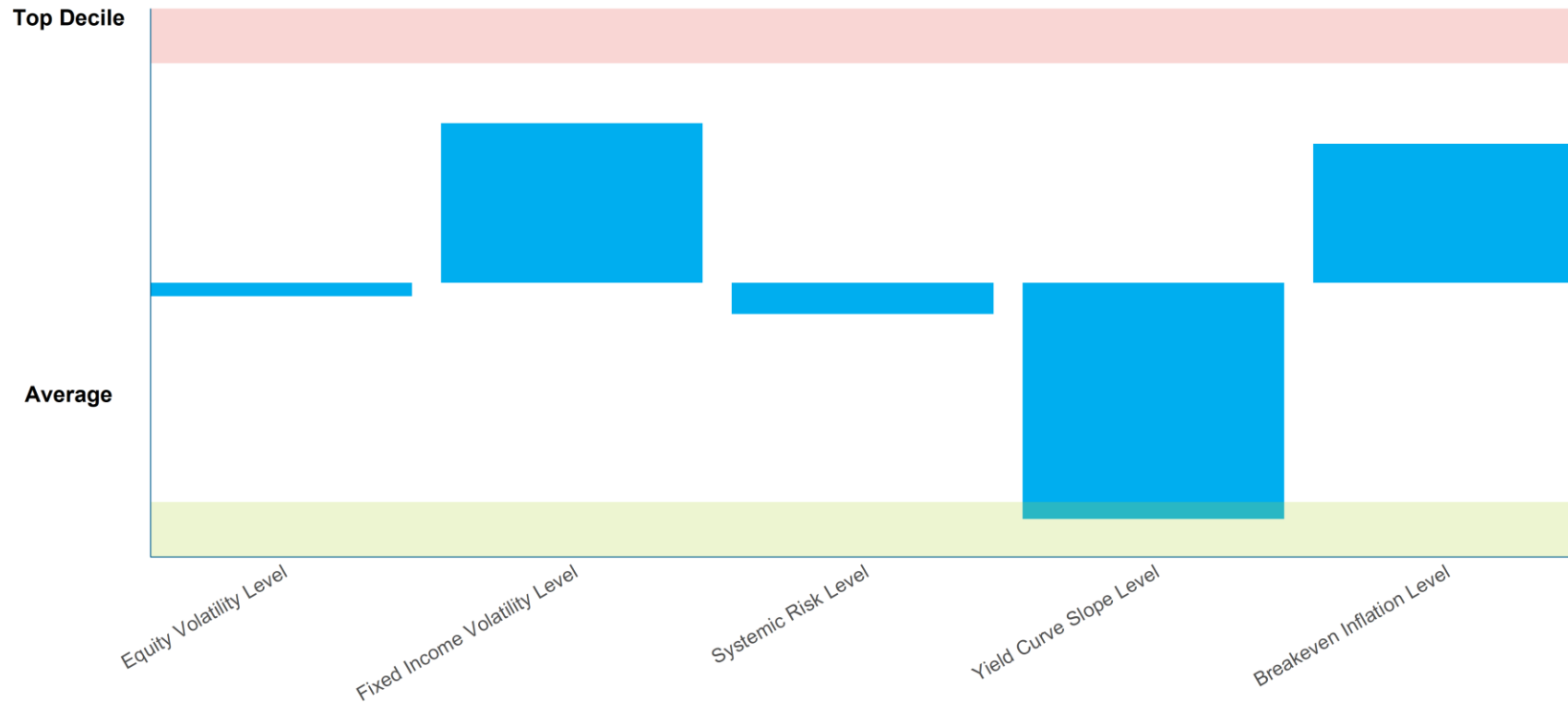
Risk Overview/Dashboard (1) (As of September 30, 2023)¹



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

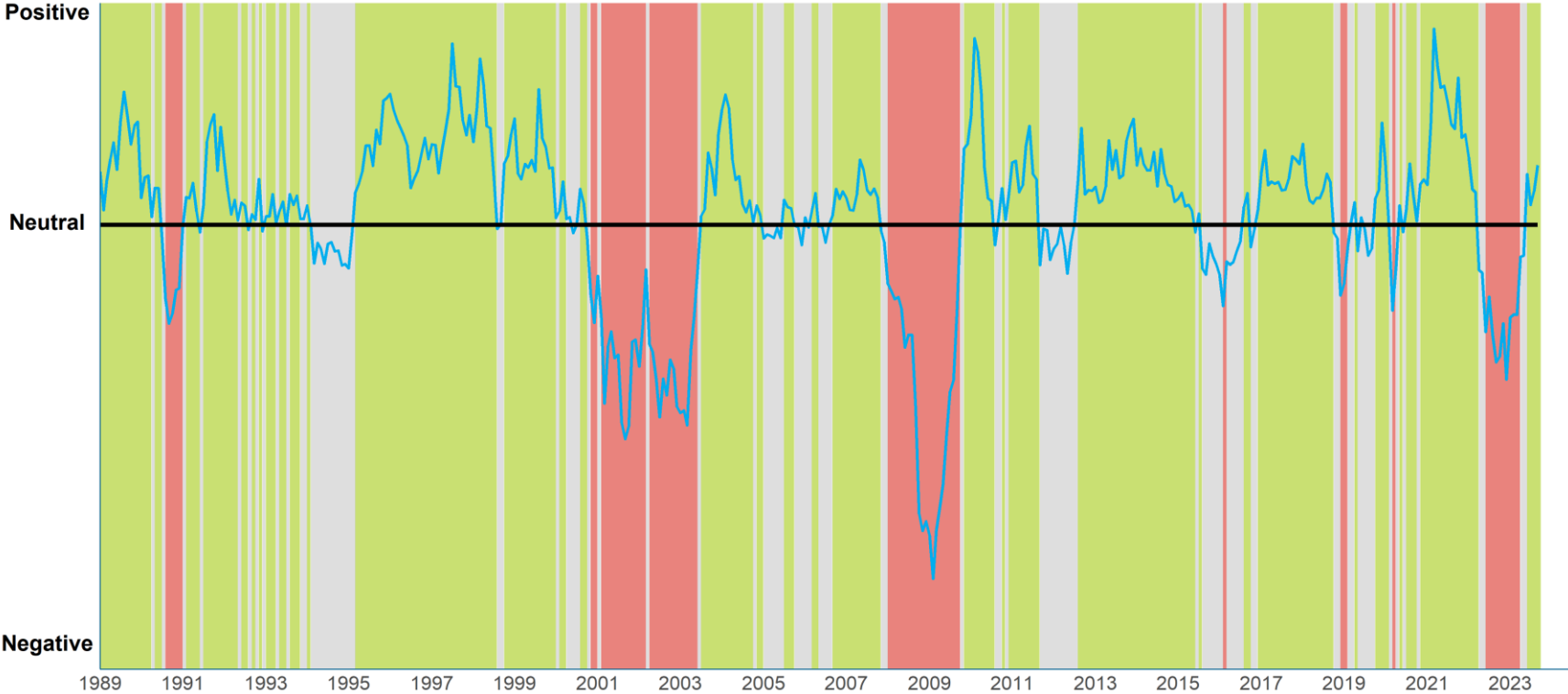
¹ With the exception of Private Equity Valuation, that is YTD as of December 31, 2022.

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

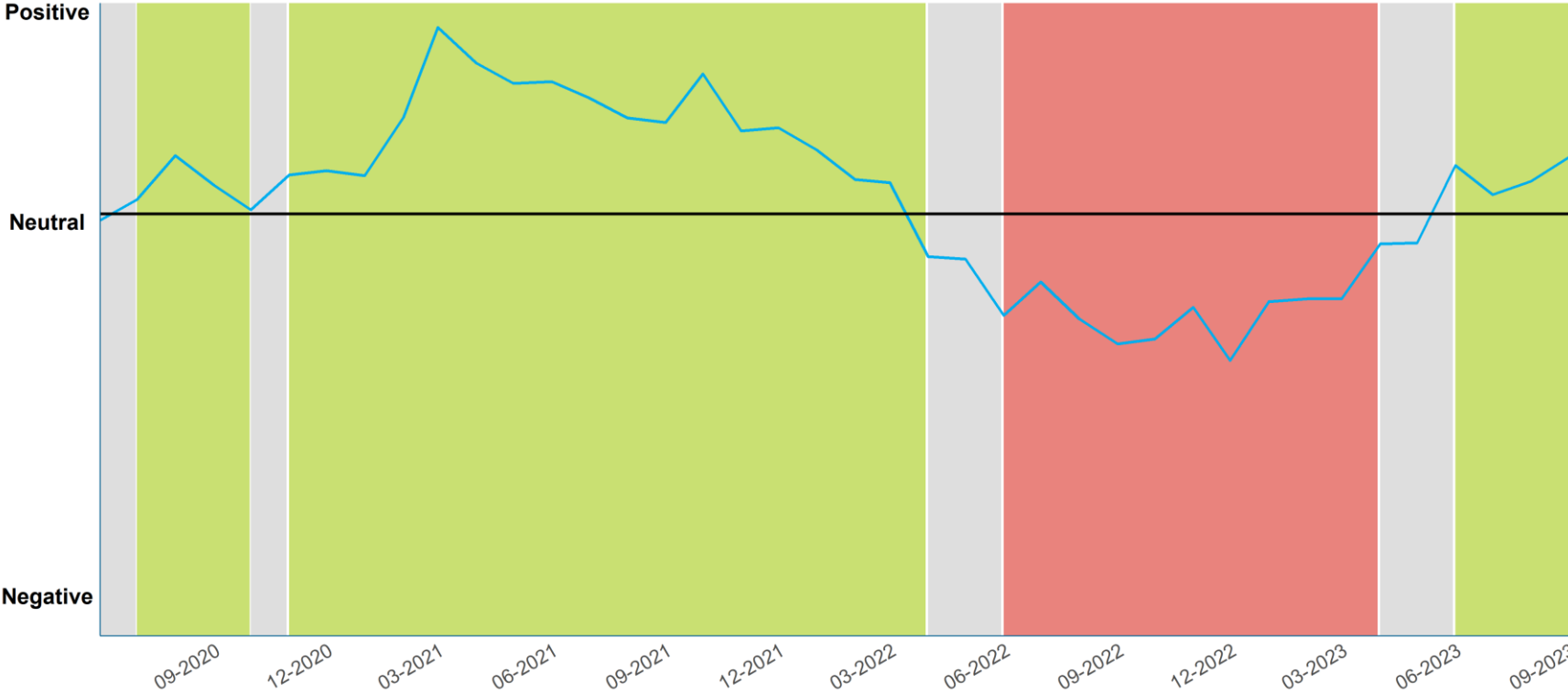


→ Dashboard (2) shows how the current level of each indicator compares to its respective history.

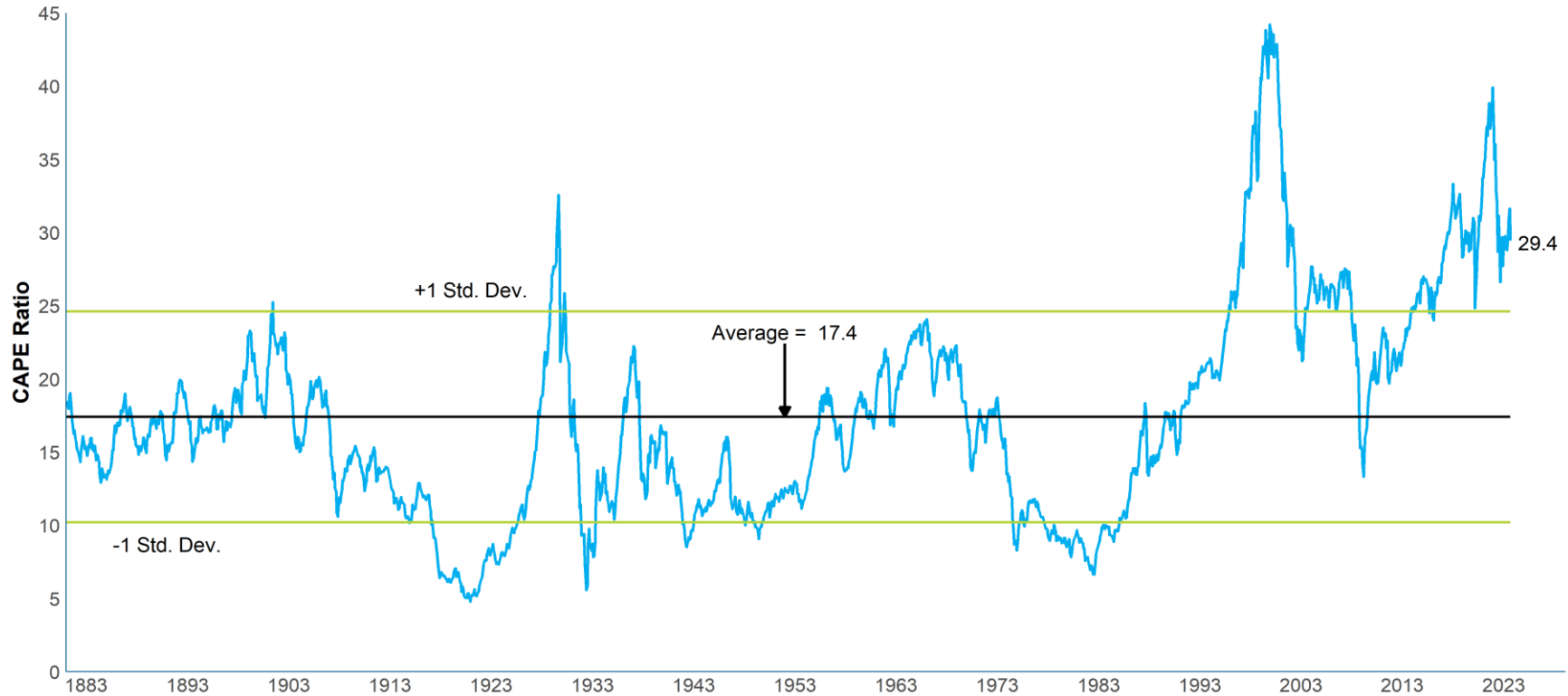
Market Sentiment Indicator (All History)
(As of September 30, 2023)



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



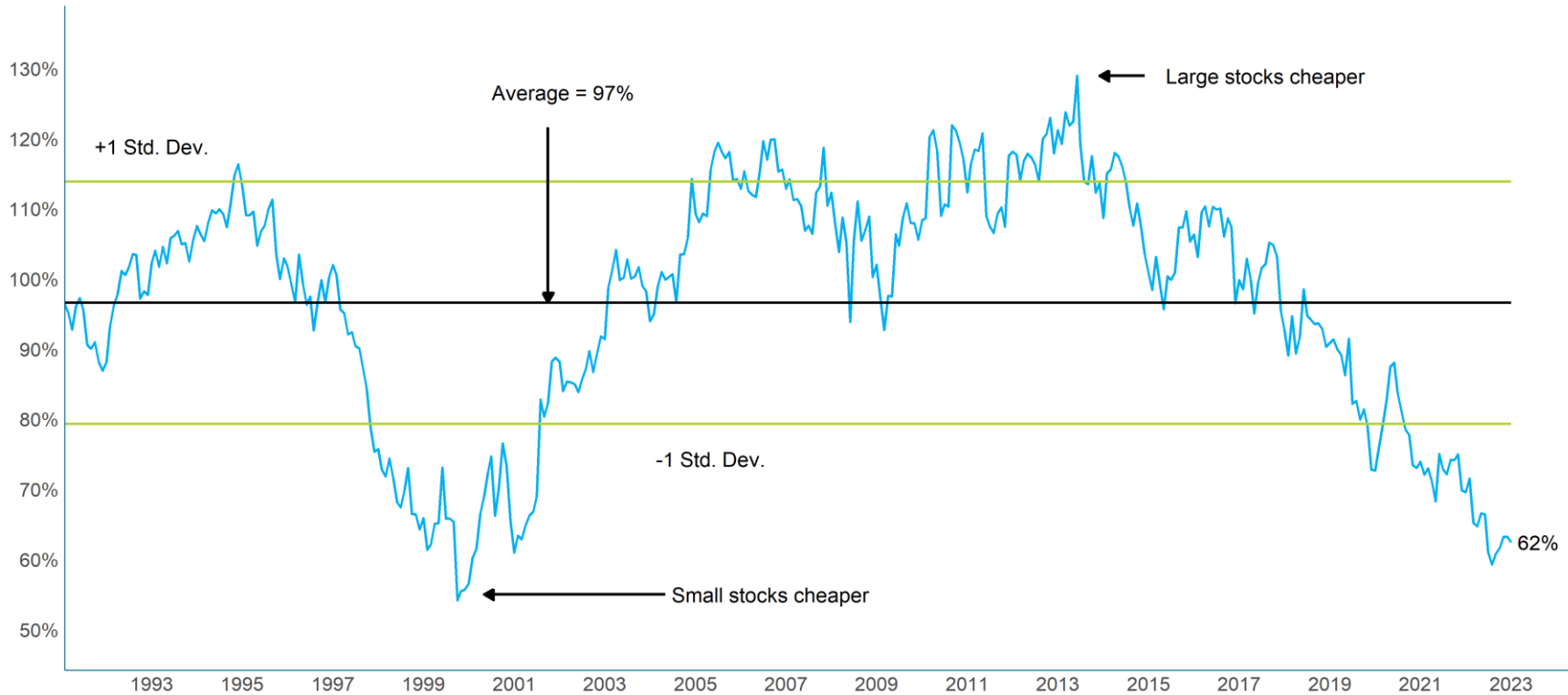
US Equity Cyclically Adjusted P/E¹
(As of September 30, 2023)



→ 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.

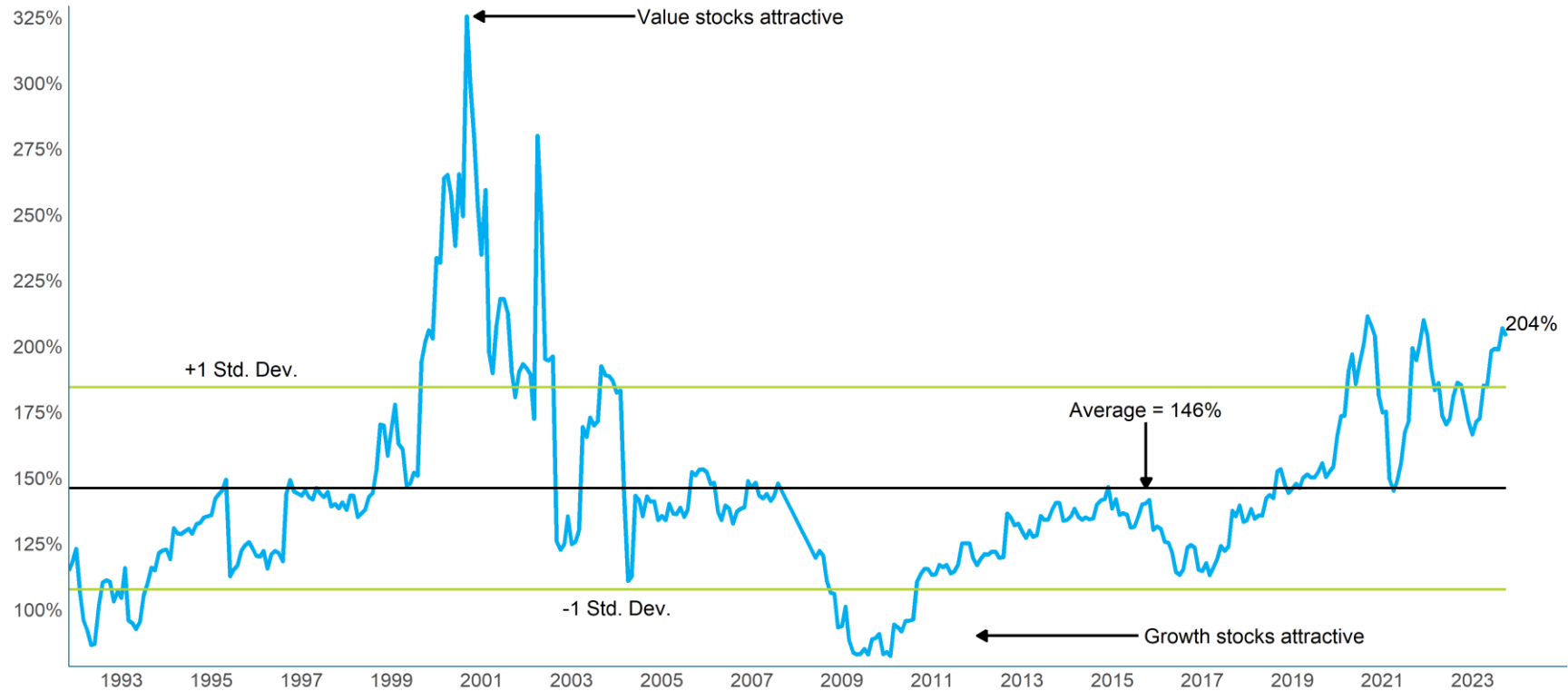
Small Cap P/E vs. Large Cap P/E¹ (As of September 30, 2023)



→ 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 September 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.

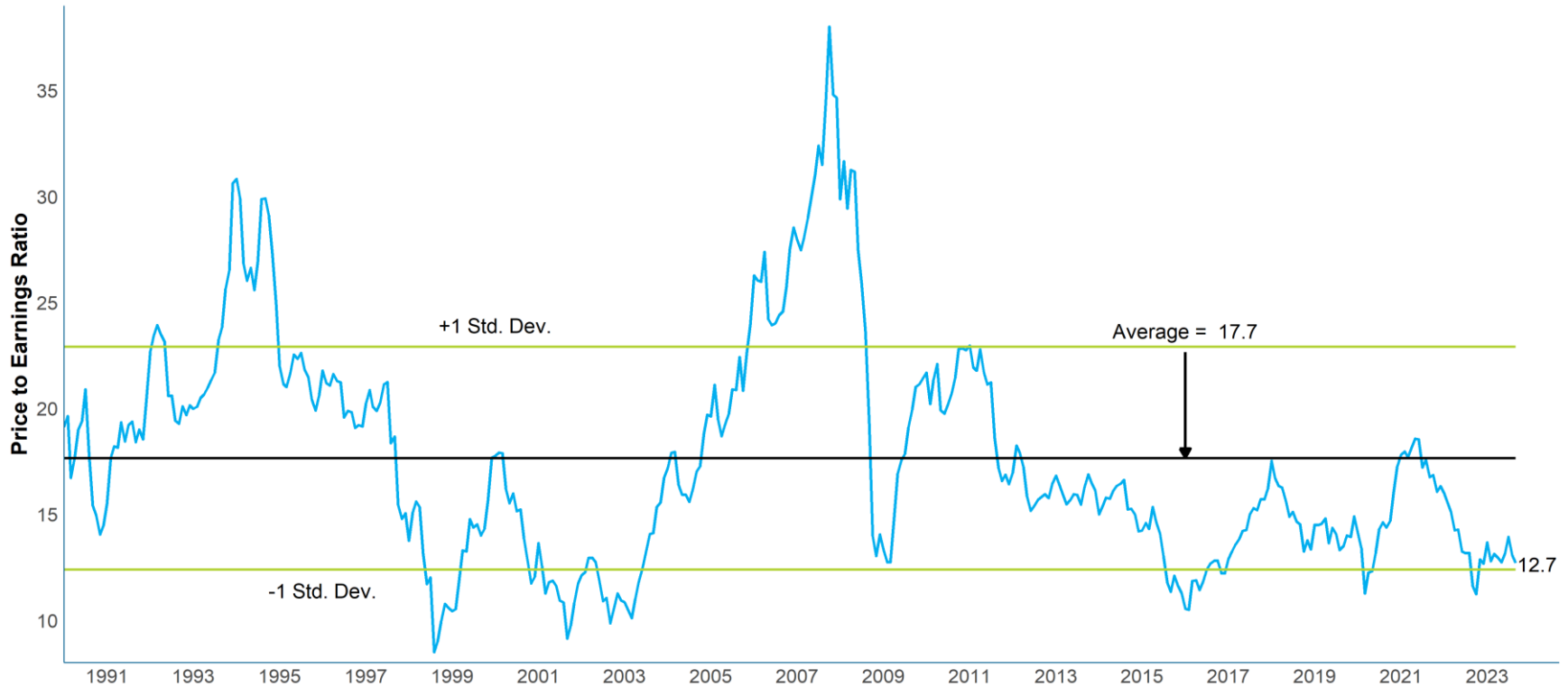
Developed International Equity Cyclically Adjusted P/E¹ (As of September 30, 2023)



→ 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.

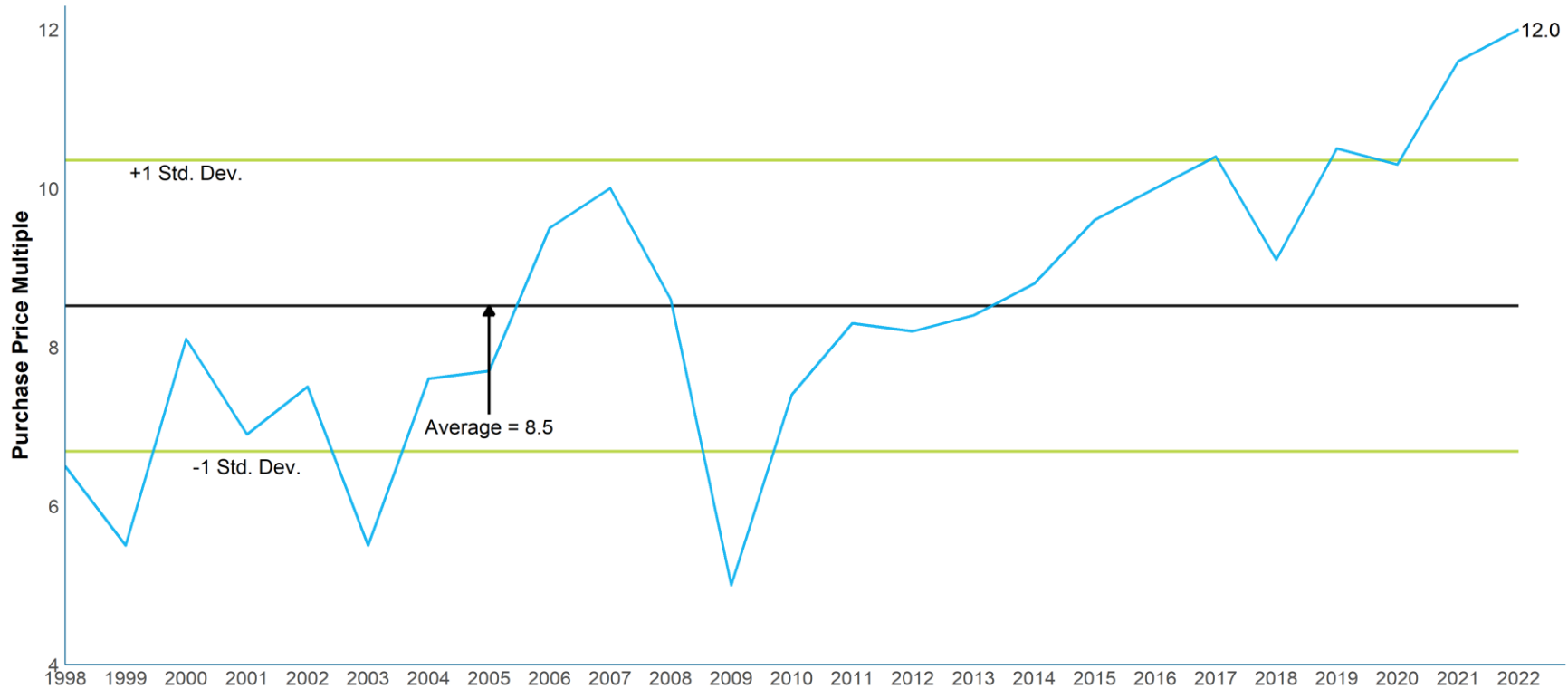
Emerging Market Equity Cyclically Adjusted P/E¹
 (As of September 30, 2023)



→ 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.

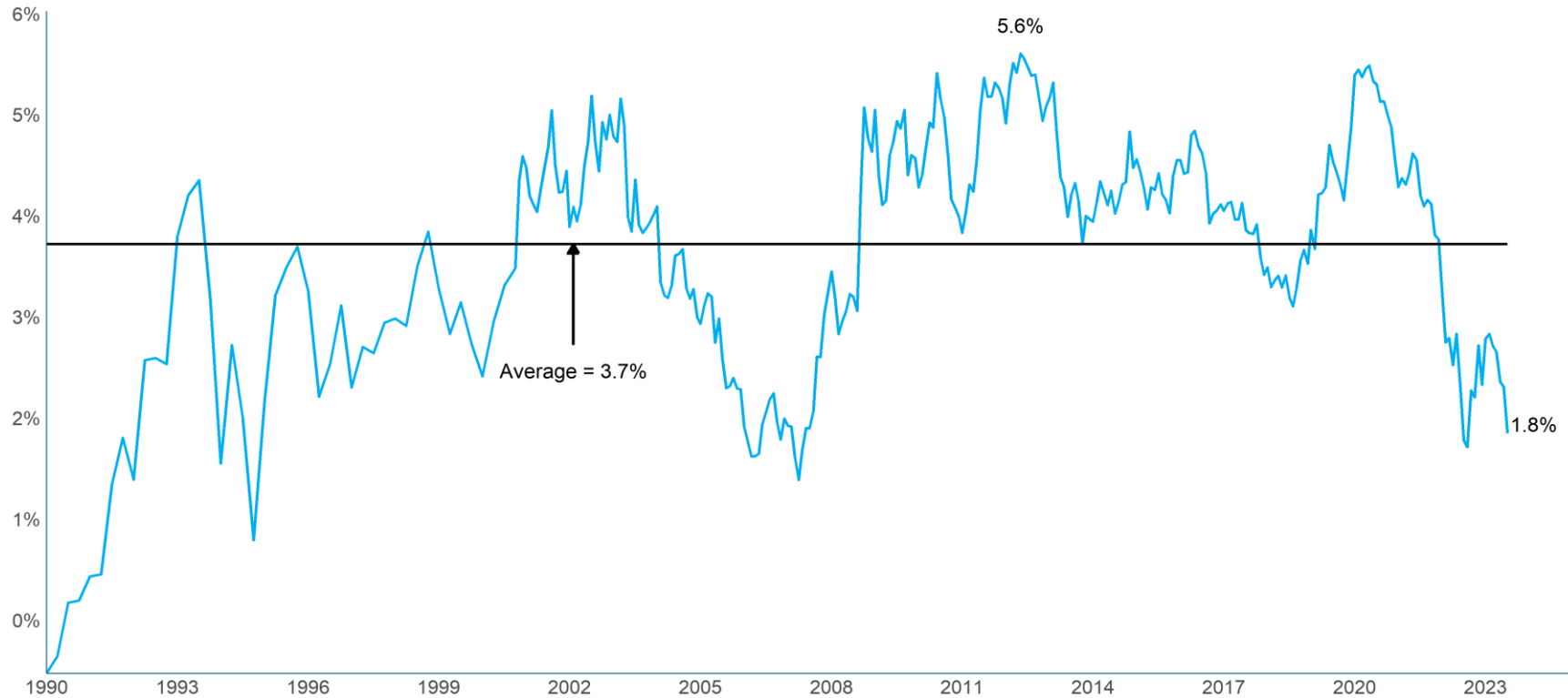
Private Equity Multiples¹ (As of September 30, 2023)



→ 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: Preqin Median EBITDA Multiples Paid in All LBOs.

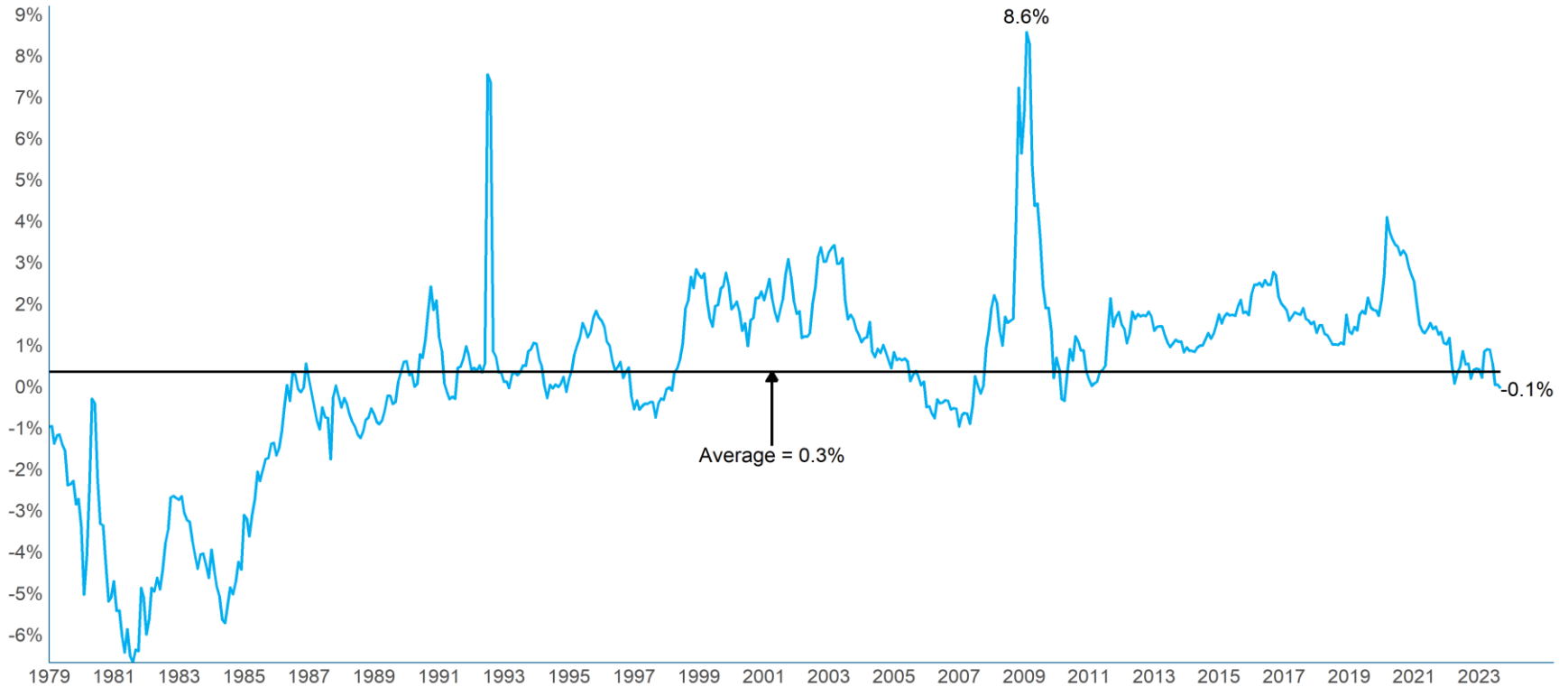
Core Real Estate Spread vs. Ten-Year Treasury¹
 (As of September 30, 2023)



→ 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, FRED, Bloomberg, and Meketa Investment Group. Core Real Estate is proxied by weighted sector transaction-based indices from Real Capital Analytics and Meketa Investment Group.

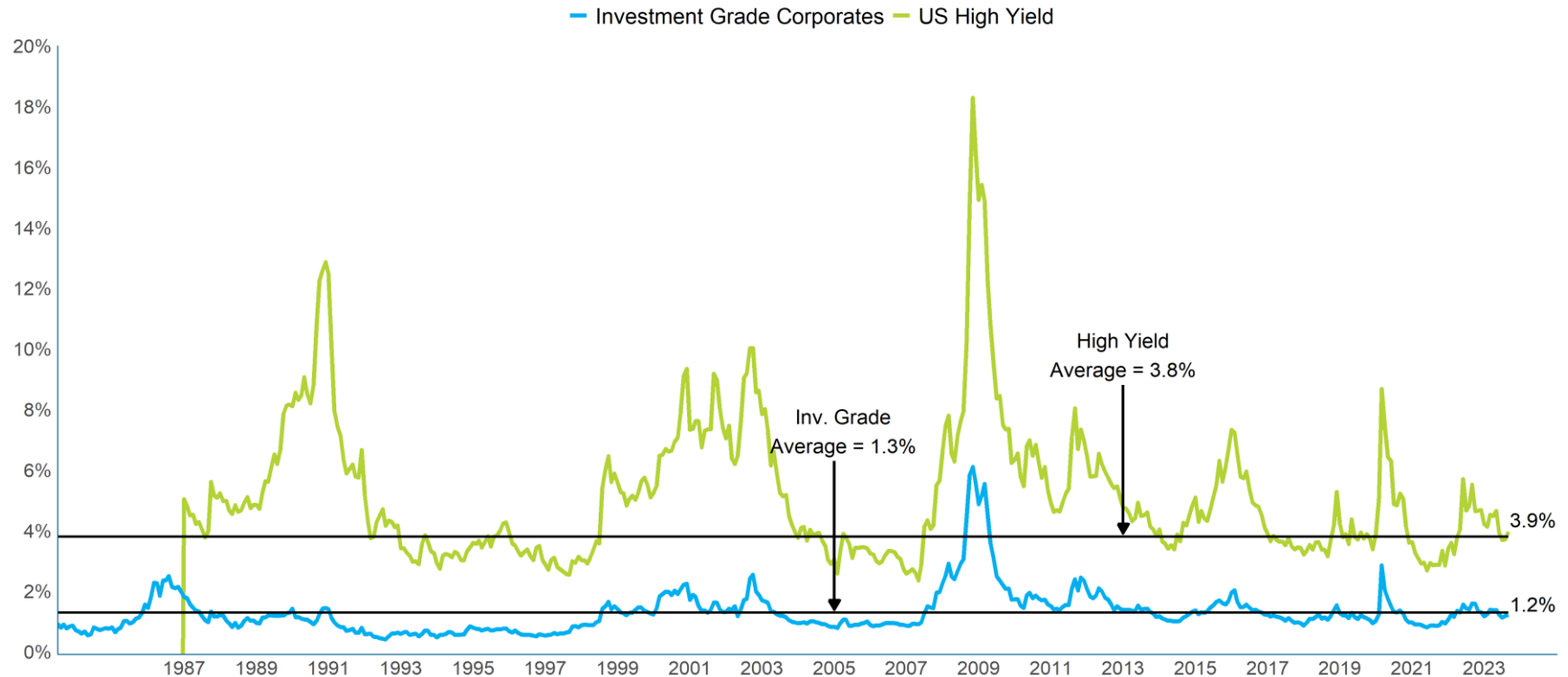
REITs Dividend Yield Spread vs. Ten-Year Treasury¹
 (As of September 30, 2023)



→ 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, Bloomberg, US Treasury. REITs are proxied by the yield for the NAREIT Equity Index.

Credit Spreads¹ (As of September 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.

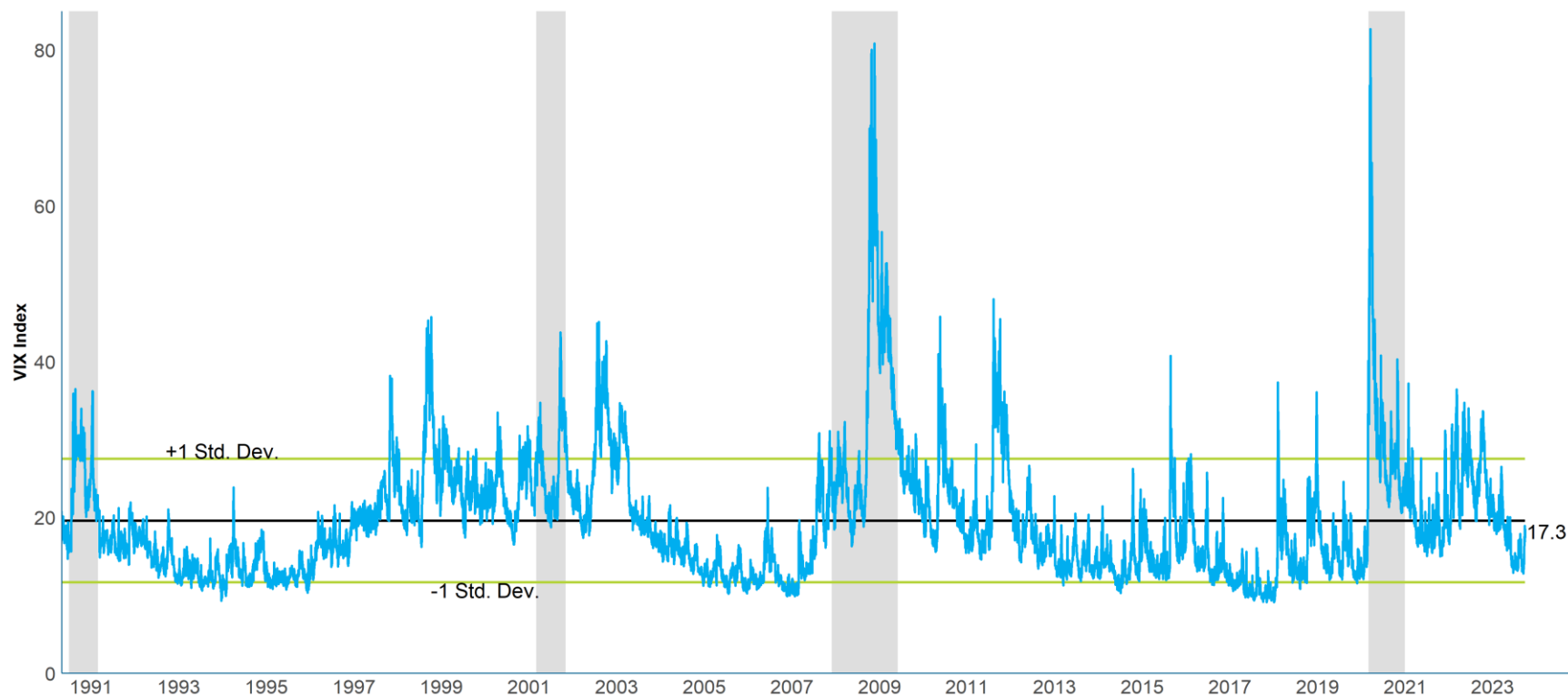
Emerging Market Debt Spreads¹ (As of September 30, 2023)



→ 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.

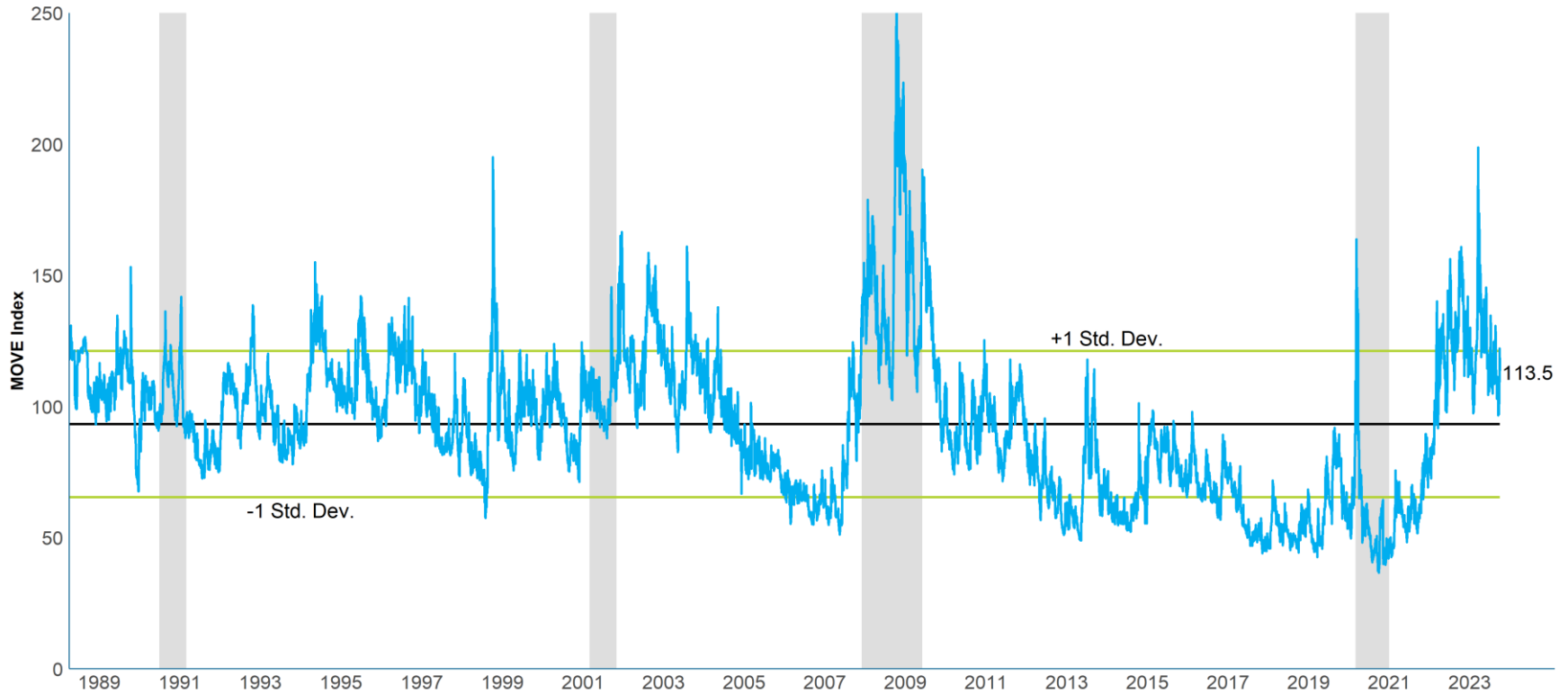
Equity Volatility¹ (As of September 30, 2023)



→ 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: FRED, and Meketa Investment Group. Equity Volatility proxied by VIX Index, a Measure of implied option volatility for US equity markets.

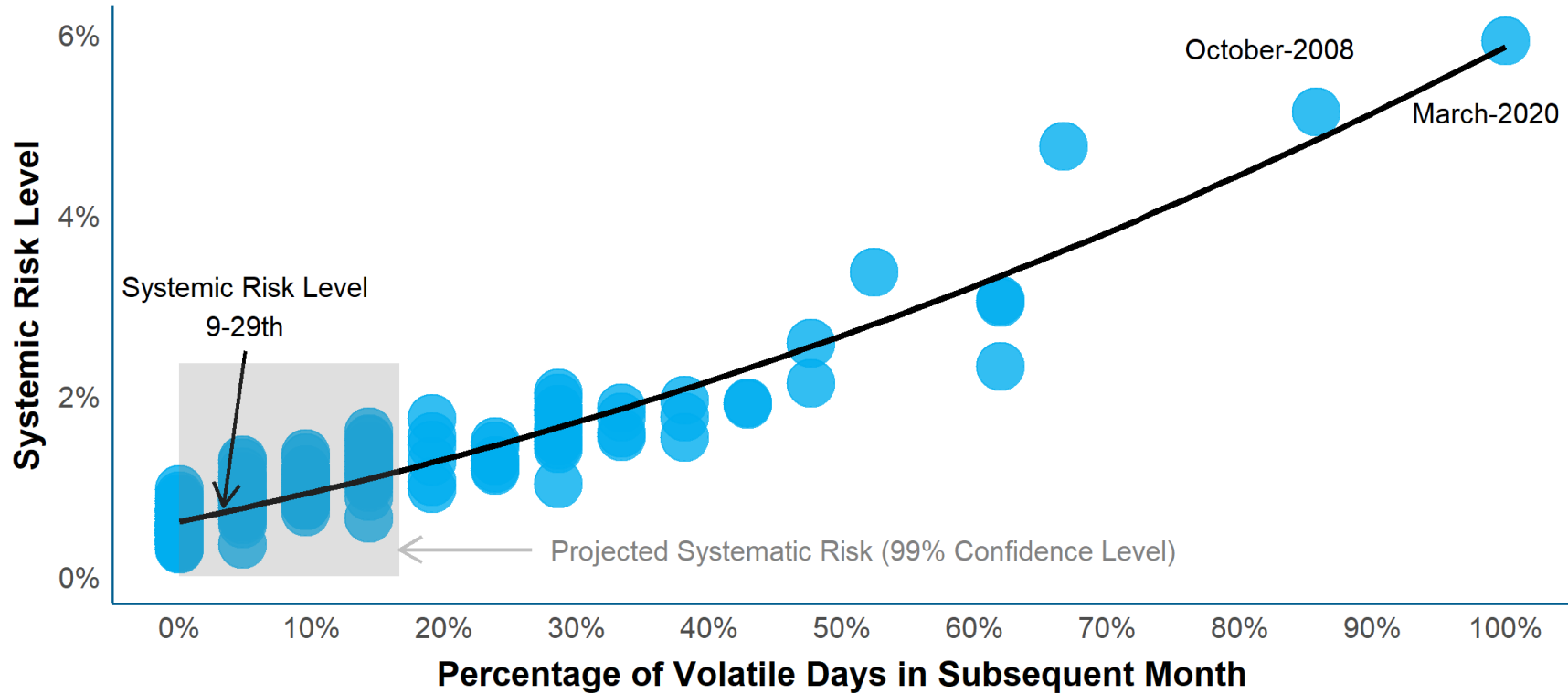
Fixed Income Volatility¹
(As of September 30, 2023)



→ 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.

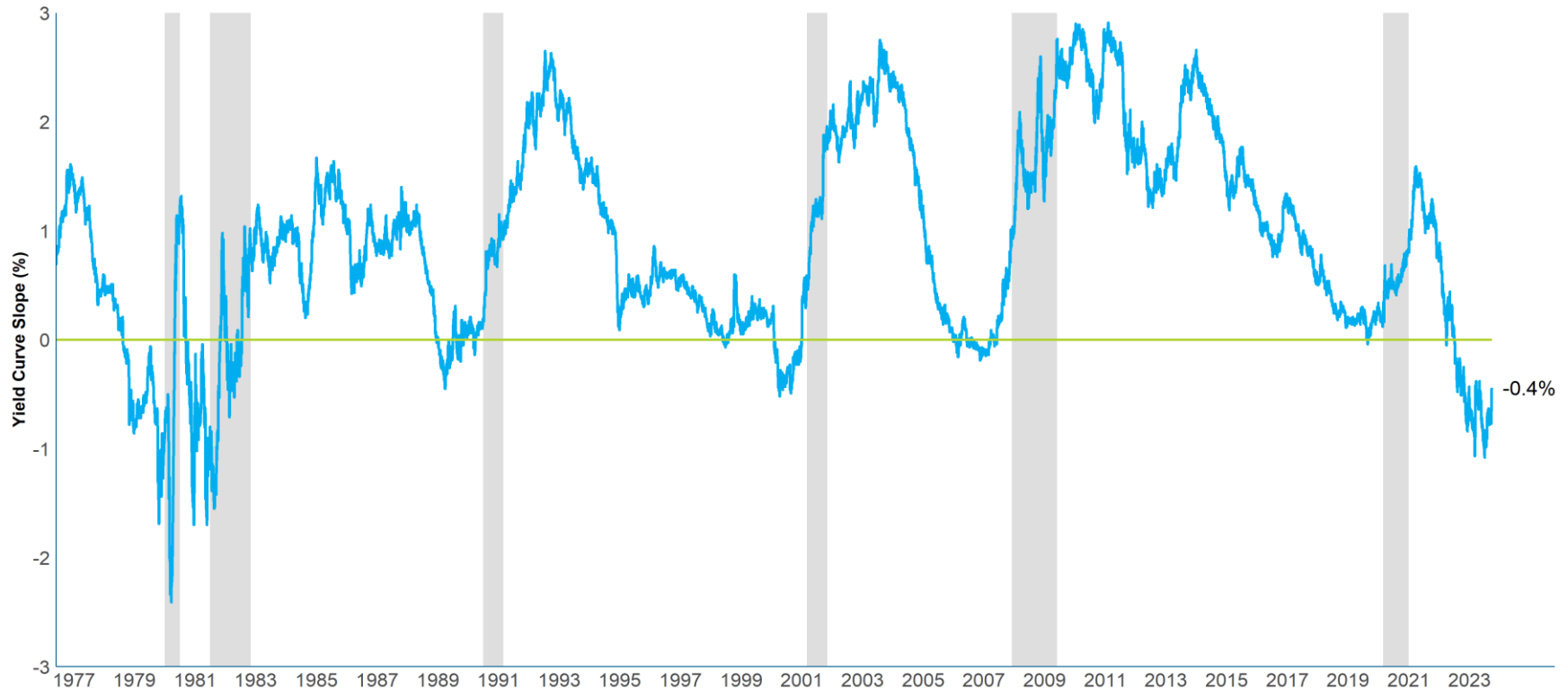
Systemic Risk and Volatile Market Days¹
 (As of September 30, 2023)



→ 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.

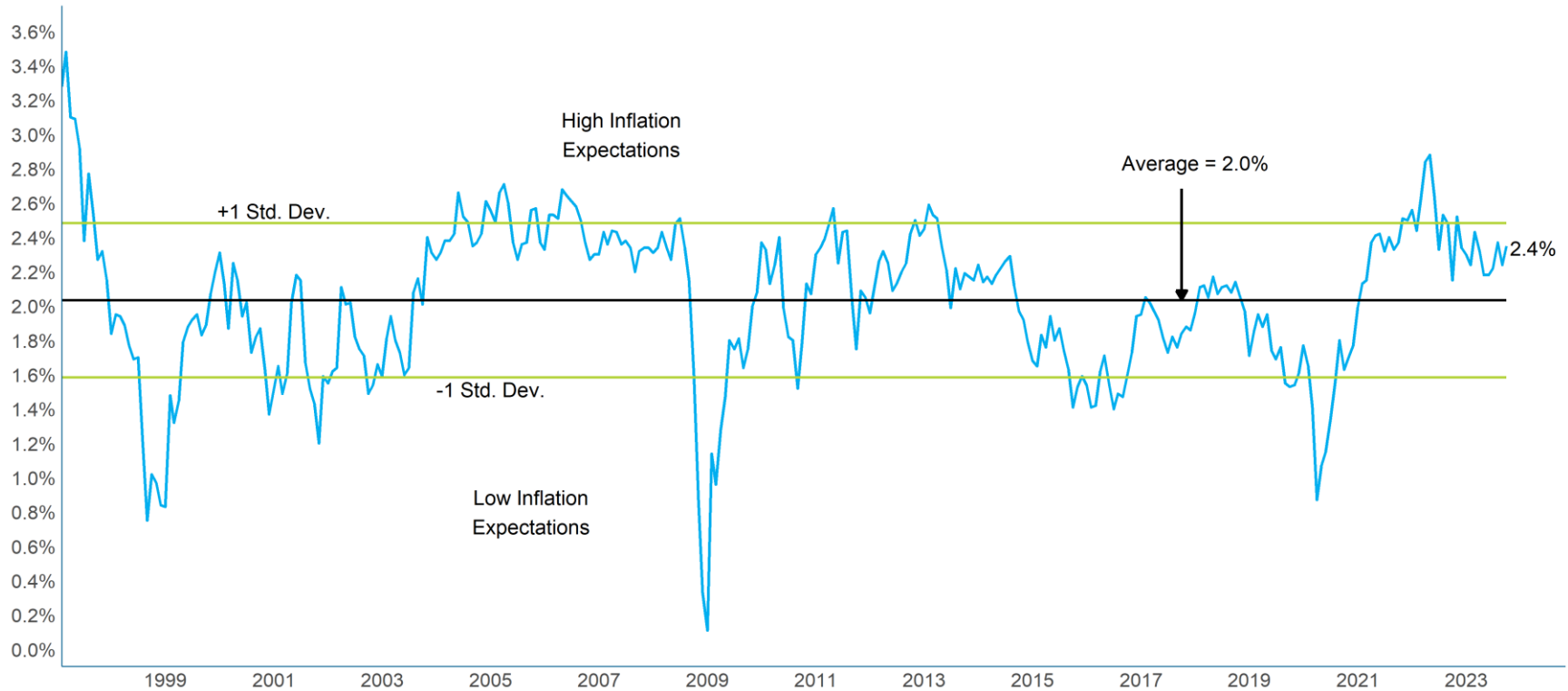
Yield Curve Slope (Ten Minus Two)¹
(As of September 30, 2023)



→ 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: FRED. Yield curve slope is calculated as the difference between the 10-Year US Treasury Yield and 2-Year US Treasury Yield.

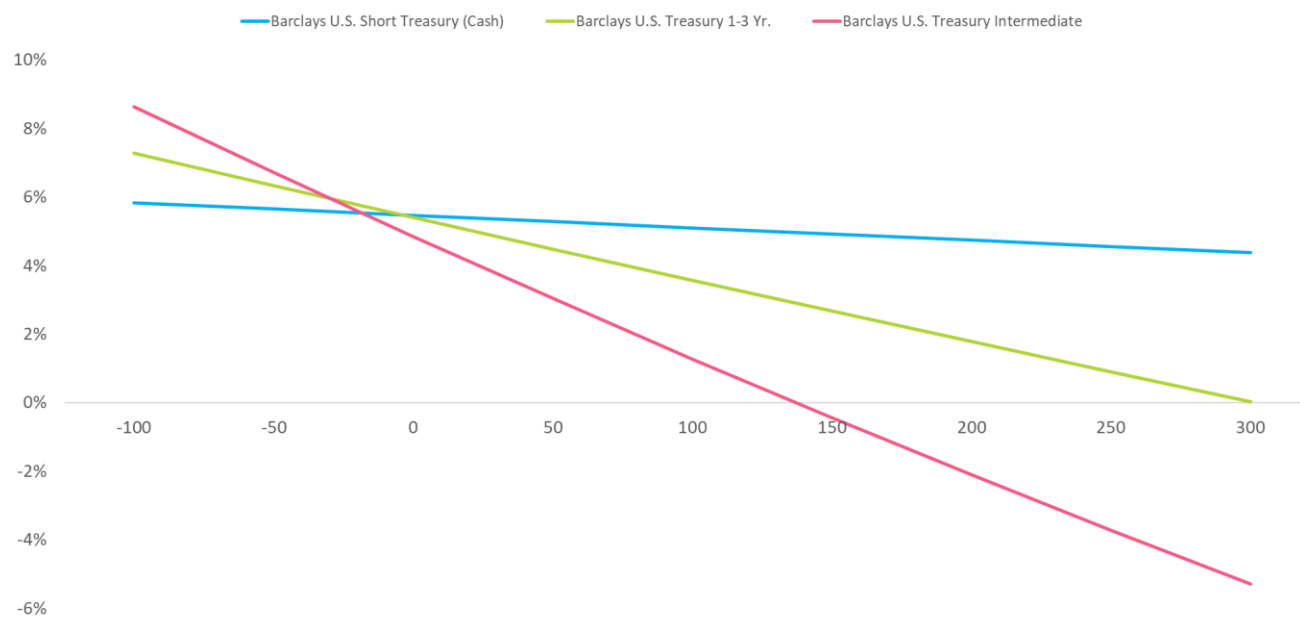
Ten-Year Breakeven Inflation¹
(As of September 30, 2023)



→ 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).

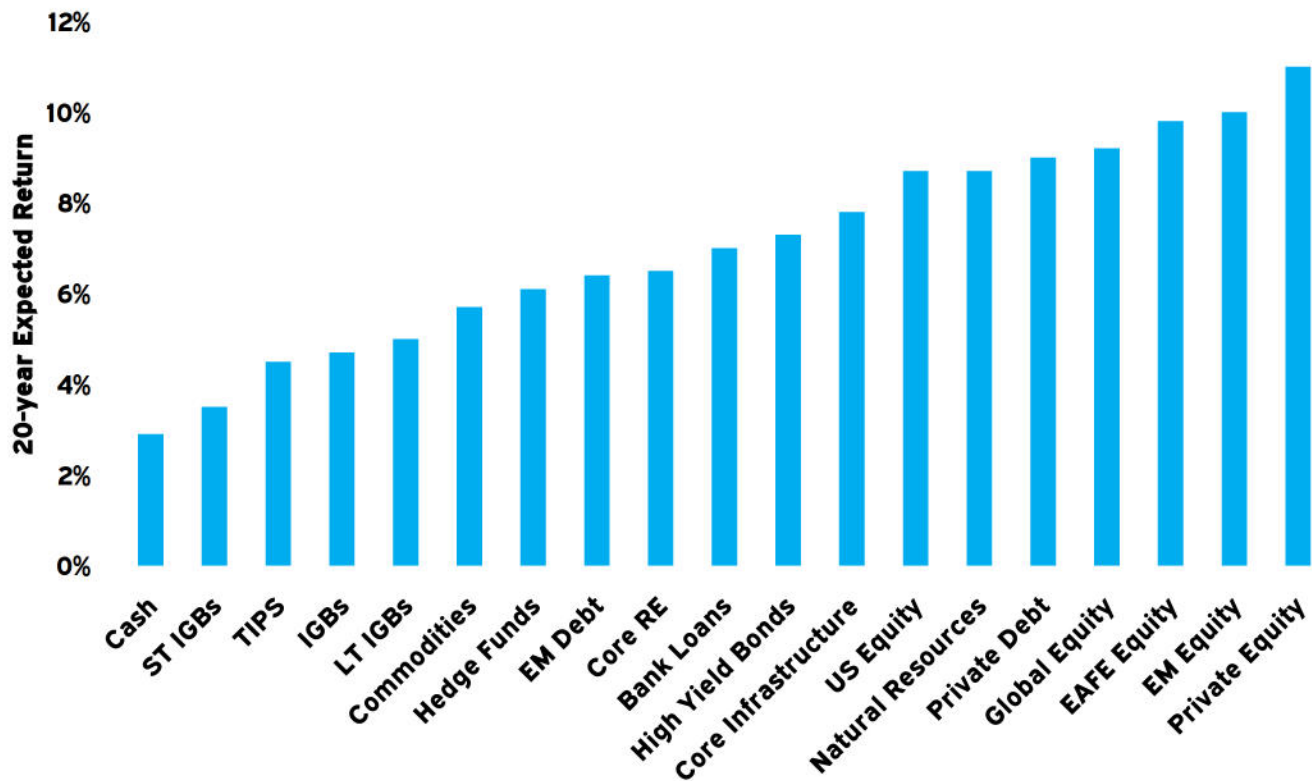
Total Return Given Changes in Interest Rates (bps)¹ (As of September 30, 2023)



	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)	6.0%	5.8%	5.6%	5.5%	5.3%	5.1%	4.9%	4.7%	4.6%	4.4%	0.37
Barclays US Treasury 1-3 Yr.	8.2%	7.3%	6.3%	5.4%	4.5%	3.6%	2.7%	1.8%	0.9%	0.0%	1.85
Barclays US Treasury Intermediate	10.6%	8.6%	6.7%	4.9%	3.0%	1.3%	-0.4%	-2.1%	-3.7%	-5.3%	3.68
Barclays US Treasury Long	31.2%	21.7%	12.9%	4.9%	-2.4%	-8.8%	-14.5%	-19.4%	-23.6%	-26.9%	15.25

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 September 30, 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 September 30, 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 September 30, 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:

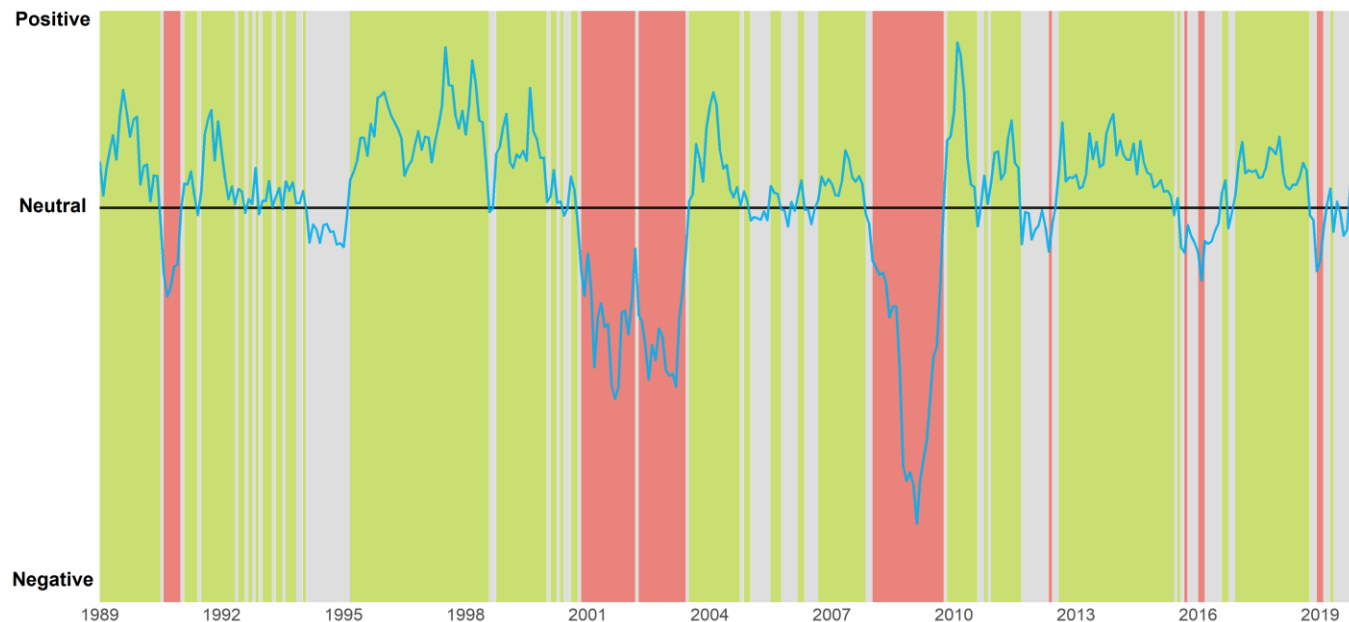
What is the Meketa Market Sentiment Indicator (MIG-MSI)?

→ 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

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REPORT

SBI Comprehensive Performance Report

September 30, 2023

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Quarterly Report

Comprehensive Performance Report

September 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.

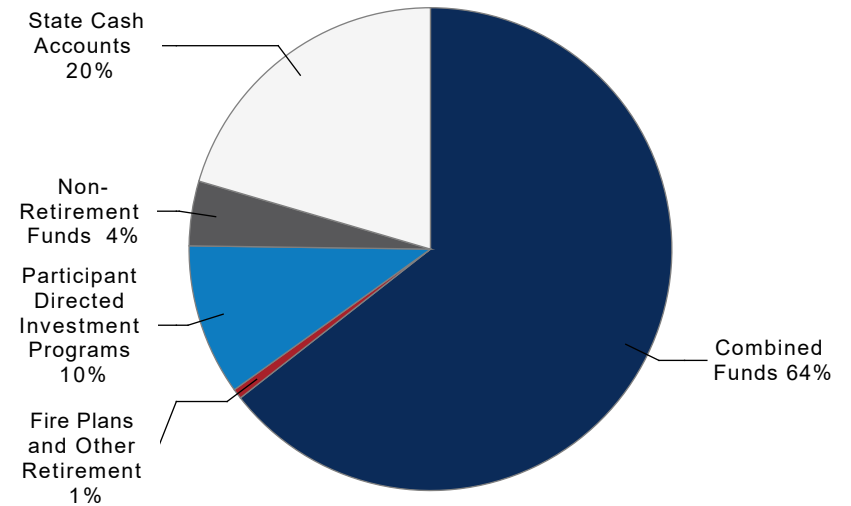
State Cash

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	\$83,036
Fire Plans + Other Retirement Plans	868
Participant Directed Investment Program	13,041
State Deferred Compensation Plan	8,885
Health Care Savings Plan	1,787
Unclassified Employees Retirement Plan	346
Hennepin County Supplemental Retirement Plan	157
PERA Defined Contribution Plan	85
Minnesota College Savings Plan	1,743
Minnesota Achieving a Better Life Experience Plan	37
Non-Retirement Funds	5,582
Assigned Risk Plan	259
Permanent School Fund	1,835
Environmental Trust Fund	1,562
Closed Landfill Investment Fund	124
Miscellaneous Trust Funds	965
Other Postemployment Benefits Accounts	838
State Cash	26,357
Invested Treasurer's Cash	25,407
Other State Cash Accounts	949
TOTAL SBI AUM	128,882



Note: Differentials within column amounts may occur due to rounding



Quarterly Report

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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

September 30, 2023



Combined Funds Summary

Combined Funds Change in Market Value (\$Millions)

	<u>One Quarter</u>
Combined Funds	
Beginning Market Value	\$85,653
Net Contributions	-991
Investment Return	-1,626
Ending Market Value	83,036

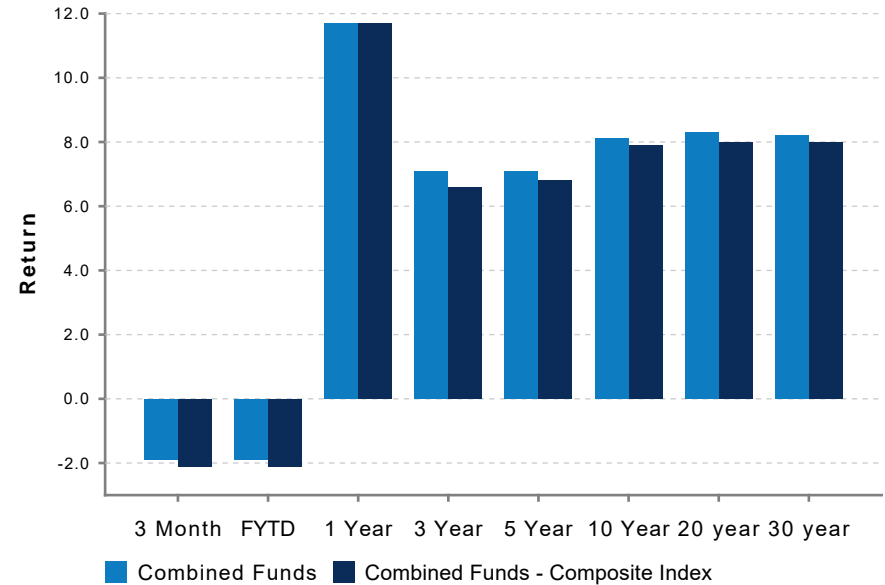
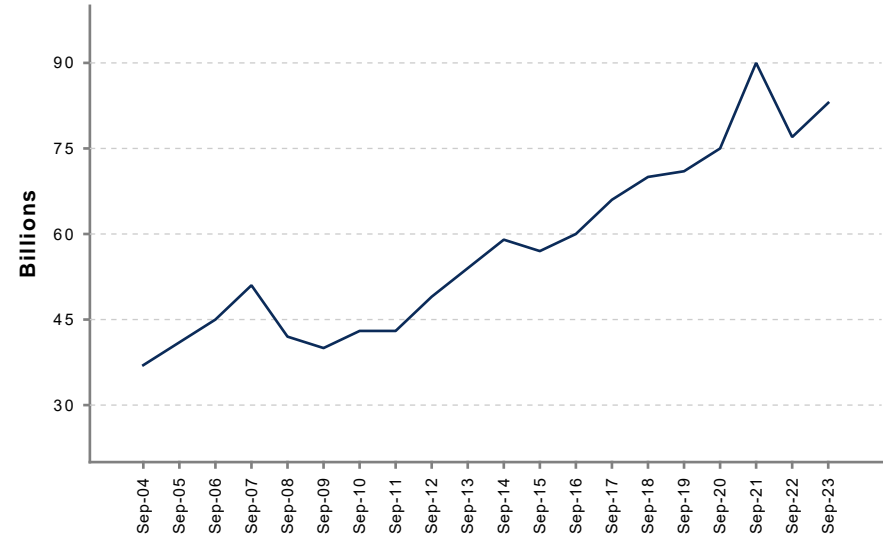
The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

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	-1.9%	-1.9%	11.7%	7.1%	7.1%	8.1%	8.3%	8.2%
Combined Funds - Composite Index	-2.1%	-2.1%	11.7%	6.6%	6.8%	7.9%	8.0%	8.0%
Excess	0.2%	0.2%	-0.0%	0.4%	0.3%	0.2%	0.3%	0.2%

Asset Growth



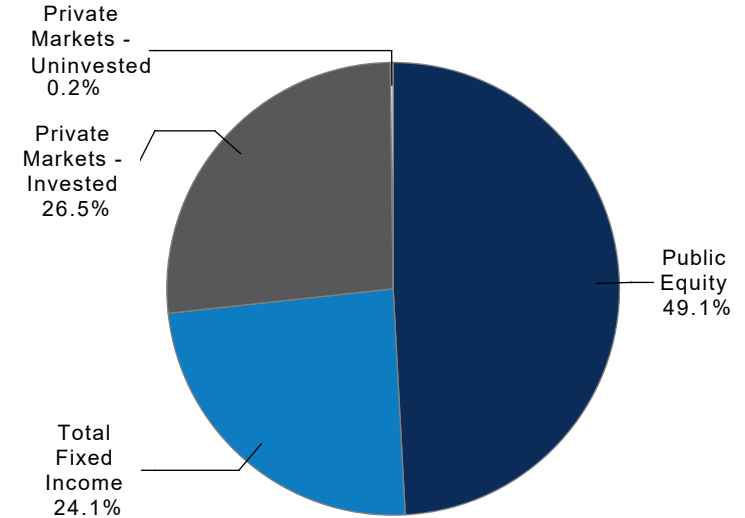


Combined Funds Summary

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.

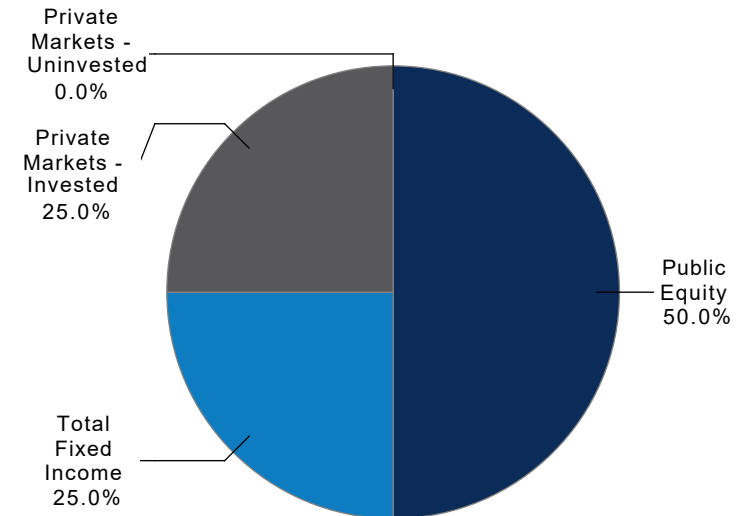
	<u>(Millions)</u>	<u>Actual Mix</u>	<u>Policy Target</u>
Public Equity	\$40,767	49.1%	50.0%
Total Fixed Income	20,027	24.1	25.0
Private Markets - Total	22,242	26.8	25.0
Private Markets - Invested	22,043	26.5	
Private Markets - Uninvested	199	0.2	
TOTAL	83,036	100.0	



Composite Index Comparison

The Combined Funds Composite is set as the Strategic Asset Allocation Policy Target. 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	\$40.8	49.1%	50.0%	-3.3%	-3.3%	20.0%	8.0%	7.2%	9.1%	8.7%	8.6%
Public Equity Benchmark				-3.4	-3.4	20.6	7.7	7.0			
Excess				0.2	0.2	-0.6	0.3	0.3			
Domestic Equity	26.8	32.3	33.5	-3.2	-3.2	20.6	9.6	9.1	11.2	9.6	9.4
Domestic Equity Benchmark				-3.3	-3.3	20.5	9.5	9.1	11.3	9.7	9.5
Excess				0.0	0.0	0.1	0.0	-0.0	-0.1	-0.1	-0.1
International Equity	13.0	15.7	16.5	-3.0	-3.0	19.2	5.4	3.8	4.2	6.5	5.7
International Equity Benchmark				-3.8	-3.8	20.4	3.7	2.6	3.3	6.0	4.9
Excess				0.8	0.8	-1.2	1.6	1.2	0.8	0.5	0.8
Global Equity	0.9	1.1	0.0	-7.6	-7.6	18.8					
MSCI AC World Index (net)				-3.4	-3.4	20.8					
Excess				-4.2	-4.2	-2.0					

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	\$20.0	24.1%	25.0%	-3.6%	-3.6%	0.8%	-5.4%	1.1%	1.8%	3.4%	4.6%
Total Fixed Income Benchmark				-3.9%	-3.9%	-0.6%	-6.0%	0.6%	1.4%	3.0%	4.3%
Excess				0.4%	0.4%	1.4%	0.6%	0.4%	0.5%	0.4%	0.4%
Core/Core Plus	\$4.3	5.2%	5.0	-3.3%	-3.3%	1.7%	-4.8%	0.6%	1.6%	3.3%	4.6%
Core Bonds Benchmark				-3.2%	-3.2%	0.6%	-5.2%	0.1%	1.1%	2.8%	4.2%
Excess				-0.0%	-0.0%	1.1%	0.4%	0.5%	0.5%	0.5%	0.4%
Return Seeking Fixed Income	\$4.1	5.0%	5.0	-1.3%	-1.3%	6.5%					
Bloomberg U.S. Aggregate				-3.2%	-3.2%	0.6%					
Excess				1.9%	1.9%	5.8%					
Treasury Protection	\$7.7	9.3%	10.0	-7.2%	-7.2%	-4.6%	-10.5%	-1.2%			
Bloomberg Treasury 5+ Year				-7.2%	-7.2%	-4.5%	-10.6%	-1.2%			
Excess				-0.0%	-0.0%	-0.1%	0.1%	-0.0%			
Laddered Bond + Cash	\$3.9	4.7%	5.0	1.4%	1.4%	4.7%	1.6%	1.7%	1.2%	1.6%	3.1%
ICE BofA US 3-Month Treasury Bill				1.3%	1.3%	4.5%	1.7%	1.7%	1.1%	1.4%	2.4%
Excess				0.0%	0.0%	0.3%	-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	2.2%	2.2%	6.6%	19.0%	13.0%	12.7%	14.1%	12.5%	13.5%
Private Markets -Uninvested(1)	1.5%	1.5%	12.3%						
Private Equity	3.0%	3.0%	9.1%	21.0%	16.6%	16.3%	16.4%	13.7%	15.8%
Private Credit	2.8%	2.8%	10.9%	15.7%	11.4%	13.1%	13.0%	12.3%	
Resources	-1.5%	-1.5%	-1.9%	15.7%	3.0%	2.2%	12.9%	12.0%	12.6%
Real Estate	-1.3%	-1.3%	-5.9%	15.2%	11.5%	12.3%	9.6%	9.5%	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 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.

Source: State Street Bank



Quarterly Report

Asset Class & Manager Performance

September 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.

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Domestic Equity

September 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)	\$2,622,943,215	9.6%	-4.2%	-4.2%	14.7%	7.5%	5.6%	9.2%	7.9%	06/1996
Active Domestic Equity Benchmark			-4.2	-4.2	13.3	8.0	5.5	9.2	8.4	06/1996
Excess			-0.0	-0.0	1.4	-0.5	0.1	0.0	-0.6	
SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)	3,116,538,406	11.4	-2.8	-2.8	22.1	10.3	10.1	12.0	8.8	06/1996
Semi Passive Domestic Equity Benchmark			-3.1	-3.1	21.2	9.5	9.6	11.6	8.7	06/1996
Excess			0.3	0.3	0.9	0.8	0.5	0.3	0.1	
PASSIVE DOMESTIC EQUITY AGGREGATE (3)	21,640,072,430	79.0	-3.2	-3.2	21.1	9.6	9.5	11.5	8.9	06/1996
Passive Domestic Equity Benchmark			-3.2	-3.2	21.1	9.6	9.5	11.5	9.0	06/1996
Excess			0.0	0.0	0.0	0.0	0.0	-0.0	-0.1	
TRANSITION AGGREGATE DOMESTIC EQUITY (4)	438									
TOTAL DOMESTIC EQUITY (5)	27,379,554,488	100.0	-3.2	-3.2	20.6	9.6	9.1	11.2	10.4	01/1984
Domestic Equity Benchmark			-3.3	-3.3	20.5	9.5	9.1	11.3	10.6	01/1984
Excess			0.0	0.0	0.1	0.0	-0.0	-0.1	-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	\$172,864,725	0.6%	-7.9%	-7.9%	25.8%	-8.0%	4.4%	9.6%	9.8%	01/2005
Russell 1000 Growth			-3.1	-3.1	27.7	8.0	12.4	14.5	10.9	01/2005
Excess			-4.7	-4.7	-1.9	-15.9	-8.0	-4.9	-1.1	
WINSLOW	181,045,478	0.7	-3.2	-3.2	31.1	4.8	10.3	13.3	11.0	01/2005
Russell 1000 Growth			-3.1	-3.1	27.7	8.0	12.4	14.5	10.9	01/2005
Excess			-0.1	-0.1	3.3	-3.2	-2.1	-1.2	0.1	
RUSSELL 1000 GROWTH AGGREGATE (1)	353,910,204	1.3	-5.5	-5.5	28.4	-1.3	10.2	13.7	10.5	11/2003
Russell 1000 Growth			-3.1	-3.1	27.7	8.0	12.4	14.5	10.8	11/2003
Excess			-2.4	-2.4	0.7	-9.3	-2.2	-0.8	-0.3	

(1) Prior to 1/1/2021 the Russell 1000 Growth Aggregate included returns from Zevenbergen, which moved to the Russell 3000 Growth benchmark and is now reported separately.



	<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	\$1,547,433,682	5.7%	-3.0%	-3.0%	21.5%	9.6%	9.5%	12.1%	10.1%	01/1995
Semi Passive Domestic Equity Benchmark			-3.1	-3.1	21.2	9.5	9.6	11.6	9.8	01/1995
Excess			0.2	0.2	0.3	0.1	-0.1	0.5	0.4	
J.P. MORGAN	1,569,104,723	5.7	-2.6	-2.6	22.6	11.0	10.6	12.4	10.2	01/1995
Semi Passive Domestic Equity Benchmark			-3.1	-3.1	21.2	9.5	9.6	11.6	9.8	01/1995
Excess			0.5	0.5	1.4	1.5	1.0	0.7	0.4	
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE	3,116,538,406	11.4	-2.8	-2.8	22.1	10.3	10.1	12.0	8.8	06/1996
Semi Passive Domestic Equity Benchmark			-3.1	-3.1	21.2	9.5	9.6	11.6	8.7	06/1996
Excess			0.3	0.3	0.9	0.8	0.5	0.3	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	\$342,489,992	1.3%	-0.9%	-0.9%	18.0%	15.8%	8.5%	9.8%	8.4%	04/2004
Russell 1000 Value			-3.2	-3.2	14.4	11.1	6.2	8.4	7.5	04/2004
Excess			2.3	2.3	3.5	4.8	2.3	1.4	0.9	
LSV	302,152,723	1.1	-2.0	-2.0	16.2	14.0	5.8	8.9	8.4	04/2004
Russell 1000 Value			-3.2	-3.2	14.4	11.1	6.2	8.4	7.5	04/2004
Excess			1.2	1.2	1.7	2.9	-0.5	0.5	0.9	
RUSSELL 1000 VALUE AGGREGATE	644,642,716	2.4	-1.4	-1.4	17.1	14.8	7.5	9.5	8.5	10/2003
Russell 1000 Value			-3.2	-3.2	14.4	11.1	6.2	8.4	8.2	10/2003
Excess			1.7	1.7	2.6	3.7	1.2	1.0	0.3	



	<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 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	\$166,111,866	0.6%	-9.5%	-9.5%	11.9%	3.5%	0.3%		8.1%	11/2016
Russell 2000 Growth			-7.3	-7.3	9.6	1.1	1.6		7.9	11/2016
Excess			-2.2	-2.2	2.3	2.4	-1.3		0.2	
HOOD RIVER	172,001,711	0.6	-8.7	-8.7	4.8	7.3	7.5		13.0	11/2016
Russell 2000 Growth			-7.3	-7.3	9.6	1.1	1.6		7.9	11/2016
Excess			-1.4	-1.4	-4.7	6.2	6.0		5.1	
RICE HALL JAMES	157,851,033	0.6	-8.3	-8.3	3.9	2.1	0.0		8.1	11/2016
Russell 2000 Growth			-7.3	-7.3	9.6	1.1	1.6		7.9	11/2016
Excess			-1.0	-1.0	-5.7	1.0	-1.5		0.3	
WELLINGTON	201,135,164	0.7	-6.2	-6.2	10.9	1.4	2.1		8.1	11/2016
Russell 2000 Growth			-7.3	-7.3	9.6	1.1	1.6		7.9	11/2016
Excess			1.1	1.1	1.3	0.3	0.6		0.2	
RUSSELL 2000 GROWTH AGGREGATE	697,099,774	2.5	-8.1	-8.1	7.7	3.6	2.6	6.1%	7.0	11/2003
Russell 2000 Growth			-7.3	-7.3	9.6	1.1	1.6	6.7	7.9	11/2003
Excess			-0.8	-0.8	-1.9	2.5	1.1	-0.6	-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	\$180,356,850	0.7%	-3.0%	-3.0%	8.2%	12.0%	2.1%	6.2%	8.0%	01/2004
Russell 2000 Value			-3.0	-3.0	7.8	13.3	2.6	6.2	7.0	01/2004
Excess			-0.1	-0.1	0.3	-1.3	-0.4	0.1	1.0	
HOTCHKIS AND WILEY	184,265,651	0.7	0.3	0.3	21.9	27.5	7.4	8.8	8.6	01/2004
Russell 2000 Value			-3.0	-3.0	7.8	13.3	2.6	6.2	7.0	01/2004
Excess			3.3	3.3	14.1	14.2	4.8	2.6	1.6	
MARTINGALE	151,758,329	0.6	-0.7	-0.7	17.3	20.5	5.1	8.2	7.6	01/2004
Russell 2000 Value			-3.0	-3.0	7.8	13.3	2.6	6.2	7.0	01/2004
Excess			2.3	2.3	9.5	7.2	2.5	2.0	0.6	
PEREGRINE	209,487,174	0.8	-3.8	-3.8	6.6	14.3	2.7	6.1	8.9	07/2000
Russell 2000 Value			-3.0	-3.0	7.8	13.3	2.6	6.2	8.4	07/2000
Excess			-0.8	-0.8	-1.2	1.0	0.1	-0.1	0.5	
RUSSELL 2000 VALUE AGGREGATE	725,868,004	2.7	-2.0	-2.0	12.3	17.3	3.8	7.0	8.3	10/2003
Russell 2000 Value			-3.0	-3.0	7.8	13.3	2.6	6.2	7.7	10/2003
Excess			1.0	1.0	4.5	4.0	1.2	0.8	0.6	



	<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>
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)	\$201,422,518	0.7%	-5.5%	-5.5%	25.4%	-10.8%	7.3%	11.3%	10.7%	04/1994
Zevenbergen Custom Benchmark			-3.3	-3.3	26.6	9.0	13.1	14.8		04/1994
Excess			-2.2	-2.2	-1.3	-19.8	-5.8	-3.5		
ACTIVE RUSSELL 3000 GROWTH (2)										
ACTIVE RUSSELL 3000 GROWTH (2)	201,422,518	0.7	-5.5	-5.5	25.4				-18.2	01/2021
Russell 3000 Growth TR			-3.3	-3.3	26.6				3.7	01/2021
Excess			-2.2	-2.2	-1.3				-21.9	

(1) Effective 1/1/2021, the SBI changed the Zevenbergen Benchmark to the Russell 3000 Growth. Prior to this date it was the Russell 1000 Growth.

(2) Prior to 1/1/2021, Zevenbergen returns were reported as part of the Russell 1000 Growth Aggregate.



	<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	\$20,835,603,144	76.1%	-3.1%	-3.1%	21.2%	9.5%	9.6%		12.5%	11/2016
RUSSELL 1000 (DAILY)			-3.1	-3.1	21.2	9.5	9.6		12.5	11/2016
Excess			0.0	0.0	0.0	-0.0	-0.0		-0.0	
BLACKROCK RUSSELL 2000	67,334,310	0.2	-5.3	-5.3	8.4	7.7			5.3	11/2018
RUSSELL 2000 (DAILY)			-5.1	-5.1	8.9	7.2			4.9	11/2018
Excess			-0.1	-0.1	-0.6	0.5			0.5	
BLACKROCK RUSSELL 3000 (1)	737,134,976	2.7	-3.2	-3.2	20.5	9.6	9.3	11.4%	9.5	07/1995
Passive Manager Benchmark			-3.3	-3.3	20.5	9.4	9.1	11.3	9.4	07/1995
Excess			0.0	0.0	0.0	0.2	0.2	0.1	0.1	
PASSIVE DOMESTIC EQUITY AGGREGATE (2)	21,640,072,430	79.0	-3.2	-3.2	21.1	9.6	9.5	11.5	8.9	06/1996
Passive Domestic Equity Benchmark			-3.2	-3.2	21.1	9.6	9.5	11.5	9.0	06/1996
Excess			0.0	0.0	0.0	0.0	0.0	-0.0	-0.1	

(1) The current Passive Manager Benchmark is the Russell 3000. For historical benchmark details please refer to the addendum of this report.

(2) The current Passive Domestic Equity Benchmark is a weighted average of the Russell 1000, Russell 2000 and Russell 3000.



	<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.

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International Equity

September 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)	\$9,431,041,672		-2.8%	-2.8%	21.7%	8.2%	5.0%	5.0%	5.0%	01/1997
BENCHMARK DM			-4.1	-4.1	24.0	6.1	3.4	3.8	4.3	01/1997
Excess			1.3	1.3	-2.3	2.1	1.6	1.1	0.7	
EMERGING MARKETS (2)	3,247,578,657	24.6%	-3.4	-3.4	12.4	-1.4%	0.9%	1.9%	4.9	11/1996
BENCHMARK EM			-2.9	-2.9	11.7	-1.7	0.6	2.1	5.2	11/1996
Excess			-0.5	-0.5	0.7	0.3	0.4	-0.1	-0.2	
ACWI EX-US AGGREGATE	378,276,288	2.9	-3.6	-3.6	23.0				2.2	01/2021
MSCI AC WORLD ex US (NET) - DAILY			-3.8	-3.8	20.4				-1.7	01/2021
Excess			0.2	0.2	2.6				3.9	
CHINA ONLY AGGREGATE	142,078,843	1.1	-0.8	-0.8	2.6				-13.2	01/2021
MSCI China A			-3.5	-3.5	-5.9				-12.6	01/2021
Excess			2.7	2.7	8.5				-0.6	
TRANSITION AGGREGATE INTERNATIONAL EQUITY (3)	1,123,998	0.0								
TOTAL INTERNATIONAL EQUITY (4)	13,200,099,458	100.0	-3.0	-3.0	19.2	5.4	3.8	4.1	6.1	10/1992
International Equity Benchmark			-3.8	-3.8	20.4	3.7	2.6	3.3	5.5	10/1992
Excess			0.8	0.8	-1.2	1.6	1.2	0.8	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)					
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	\$511,072,475	3.9%	-2.1%	-2.1%	19.1%	5.3%	3.1%	6.6%	6.0%	07/2005
BENCHMARK DM			-4.1	-4.1	24.0	6.1	3.4	3.8	4.7	07/2005
Excess			2.0	2.0	-4.9	-0.8	-0.3	2.8	1.4	
COLUMBIA	437,892,952	3.3	-4.8	-4.8	28.1	6.9	6.0	5.9	3.7	03/2000
BENCHMARK DM			-4.1	-4.1	24.0	6.1	3.4	3.8	3.5	03/2000
Excess			-0.7	-0.7	4.1	0.8	2.6	2.1	0.2	
FIDELITY	435,230,607	3.3	-4.5	-4.5	24.6	4.9	4.7	4.9	6.1	07/2005
BENCHMARK DM			-4.1	-4.1	24.0	6.1	3.4	3.8	4.7	07/2005
Excess			-0.3	-0.3	0.6	-1.2	1.2	1.1	1.5	
JP MORGAN	321,226,446	2.4	-6.1	-6.1	21.1	3.7	4.0	4.0	4.8	07/2005
BENCHMARK DM			-4.1	-4.1	24.0	6.1	3.4	3.8	4.7	07/2005
Excess			-2.0	-2.0	-2.9	-2.4	0.6	0.2	0.2	
MARATHON	373,882,625	2.8	-2.8	-2.8	26.4	7.9	4.3	5.1	7.6	11/1993
BENCHMARK DM			-4.1	-4.1	24.0	6.1	3.4	3.8	4.9	11/1993
Excess			1.3	1.3	2.4	1.8	0.8	1.3	2.7	



	<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



	<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)	\$2,083,783,021	15.8%	-3.7%	-3.7%	24.2%	5.4%	4.0%	4.8%	5.3%	06/1996
BENCHMARK DM			-4.1%	-4.1%	24.0%	6.1%	3.4%	3.8%	2.2%	06/1996
Excess			0.4%	0.4%	0.2%	-0.6%	0.6%	0.9%	3.1%	
SSgA DEVELOPED MARKETS PASSIVE	\$7,263,128,597	55.0%	-4.1%	-4.1%	24.5%	6.6%	3.9%	4.3%		
BENCHMARK DM			-4.1%	-4.1%	24.0%	6.1%	3.4%	3.8%		
Excess			0.0%	0.0%	0.5%	0.5%	0.4%	0.4%		
RECORD CURRENCY (2)	\$84,130,054	0.6%	1.1%	1.1%	-2.7%					10/2020
DEVELOPED MARKETS TOTAL (4)	\$9,431,041,672		-2.8%	-2.8%	21.7%	8.2%	5.0%	5.0%	5.0%	01/1997
BENCHMARK DM			-4.1%	-4.1%	24.0%	6.1	3.4	3.8	4.3	01/1997
Excess			1.3%	1.3%	-2.3%	2.1	1.6	1.1	0.7	

(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	\$349,628,823	2.6%	-7.5%	-7.5%	8.9%	-5.1%	0.6%		3.4%	04/2017
BENCHMARK EM			-2.9	-2.9	11.7	-1.7	0.6		2.4	04/2017
Excess			-4.6	-4.6	-2.8	-3.3	0.1		0.9	
MACQUARIE	338,315,277	2.6	-4.8	-4.8	12.0	-4.6	0.9		3.0	04/2017
BENCHMARK EM			-2.9	-2.9	11.7	-1.7	0.6		2.4	04/2017
Excess			-1.9	-1.9	0.3	-2.9	0.3		0.6	
MORGAN STANLEY	436,233,854	3.3	-3.9	-3.9	12.4	-1.8	1.0	2.1%	7.5	01/2001
BENCHMARK EM			-2.9	-2.9	11.7	-1.7	0.6	2.1	7.3	01/2001
Excess			-1.0	-1.0	0.7	-0.1	0.4	-0.0	0.2	
NEUBERGER BERMAN	311,974,558	2.4	-4.3	-4.3	8.9	-5.0	-1.3		0.7	04/2017
BENCHMARK EM			-2.9	-2.9	11.7	-1.7	0.6		2.4	04/2017
Excess			-1.3	-1.3	-2.8	-3.3	-1.8		-1.8	
PZENA	532,151,863	4.0	1.1	1.1	26.1	13.6	5.2		5.7	04/2017
BENCHMARK EM			-2.9	-2.9	11.7	-1.7	0.6		2.4	04/2017
Excess			4.1	4.1	14.4	15.3	4.7		3.3	
ROCK CREEK	296,092,713	2.2	-2.7	-2.7	8.0	-3.0	1.0		1.7	04/2017
BENCHMARK EM			-2.9	-2.9	11.7	-1.7	0.6		2.4	04/2017
Excess			0.2	0.2	-3.7	-1.2	0.5		-0.7	



	<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	\$2,264,397,089	17.2%	-3.6%	-3.6%	12.8%	-1.2%	1.2%	1.8%	2.7%	01/2012
BENCHMARK EM			-2.9	-2.9	11.7	-1.7	0.6	2.1	2.8	01/2012
Excess			-0.6	-0.6	1.1	0.6	0.6	-0.3	-0.1	
SSGA EMERGING MARKETS PASSIVE	983,181,567	7.4	-3.0	-3.0	11.4	-2.1	0.3	2.0	2.8	01/2012
BENCHMARK EM			-2.9	-2.9	11.7	-1.7	0.6	2.1	2.8	01/2012
Excess			-0.1	-0.1	-0.3	-0.4	-0.2	-0.1	-0.0	
EMERGING MARKETS TOTAL	3,247,578,657	24.6	-3.4	-3.4	12.4	-1.4	0.9	1.9	4.9	11/1996
BENCHMARK EM			-2.9	-2.9	11.7	-1.7	0.6	2.1	5.2	11/1996
Excess			-0.5	-0.5	0.7	0.3	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					
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					
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	\$378,276,288	2.9%	-3.6%	-3.6%	23.0%				2.2%	01/2021
MSCI AC WORLD ex US (NET) - DAILY			-3.8%	-3.8%	20.4%				-1.7%	01/2021
Excess			0.2%	0.2%	2.6%				3.9%	
TOTAL ACWI EX-US AGGREGATE										
TOTAL ACWI EX-US AGGREGATE	\$378,276,288	2.9%	-3.6%	-3.6%	23.0%				2.2%	01/2021
MSCI AC WORLD ex US (NET) - DAILY			-3.8%	-3.8%	20.4%				-1.7%	01/2021
Excess			0.2%	0.2%	2.6%				3.9%	



	<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	\$142,078,843	1.1%	-0.8%	-0.8%	2.6%				-13.2%	01/2021
MSCI China A			-3.5	-3.5	-5.9				-12.6	01/2021
Excess			2.7	2.7	8.5				-0.6	
CHINA ONLY AGGREGATE	142,078,843	1.1	-0.8	-0.8	2.6				-13.2	01/2021
MSCI China A			-3.5	-3.5	-5.9				-12.6	01/2021
Excess			2.7	2.7	8.5				-0.6	



	<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			

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Global Equity

September 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	\$383,977,768	42.0%	-3.7%	-3.7%	15.4%				4.0%	01/2021
MSCI AC WORLD NET USD DAILY			-3.4	-3.4	20.8				2.3	01/2021
Excess			-0.3	-0.3	-5.4				1.7	
BAILLIE GIFFORD	205,044,469	22.5	-8.2	-8.2	20.3				-14.6	01/2021
MSCI AC WORLD NET USD DAILY			-3.4	-3.4	20.8				2.3	01/2021
Excess			-4.8	-4.8	-0.5				-16.9	
MARTIN CURRIE INVESTMENTS - GLOBAL EQ	324,295,441	35.5	-11.6	-11.6	22.0				-6.8	01/2021
MSCI AC WORLD NET USD DAILY			-3.4	-3.4	20.8				2.3	01/2021
Excess			-8.2	-8.2	1.2				-9.1	
GLOBAL EQUITY	913,317,677	100.0	-7.6	-7.6	18.8				-5.1	01/2021
MSCI AC WORLD NET USD DAILY			-3.4	-3.4	20.8				2.3	01/2021
Excess			-4.2	-4.2	-2.0				-7.4	



	<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>
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			

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Core/Core Plus Bonds

September 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)	\$1,863,862,789	41.4%	-2.8%	-2.8%	2.3%				-4.1%	11/2020
Bloomberg U.S. Aggregate			-3.2	-3.2	0.6				-5.2	11/2020
Excess			0.4	0.4	1.6				1.1	
CORE PLUS (1)	2,642,802,974	58.6	-3.6	-3.6	1.4				-5.4	11/2020
Bloomberg U.S. Aggregate			-3.2	-3.2	0.6				-5.2	11/2020
Excess			-0.4	-0.4	0.7				-0.1	
TRANSITION AGGREGATE CORE BONDS (2)	19,844	0.0								
TOTAL CORE/CORE PLUS BONDS (3)	4,506,685,607	100.0	-3.3	-3.3	1.7	-4.8%	0.6%	1.6%	6.6	07/1984
Bloomberg U.S. Aggregate			-3.2	-3.2	0.6	-5.2	0.1	1.1	6.2	07/1984
Excess			-0.0	-0.0	1.1	0.4	0.5	0.5	0.3	

(1) Prior to 12/1/2020 the Core and Core Plus managers were categorized as Active or Semi-Passive. For historical performance of each manager, see the following pages in this report. For information on the historical performance of the previous groupings refer to the 9/30/2020 Comprehensive Performance Report.

(2) The Transition Aggregate Core Bonds includes core bonds securities that are being transition to a different manager.

(3) The current Core Bonds Benchmark is the Bloomberg U.S. Aggregate calculated daily. For historical benchmark details please refer to the addendum of this report.

Note: All aggregates include the performance of terminated managers. Inception refers to the date of retention by the SBI.



	<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	\$999,903,313	22.2%	-2.5%	-2.5%	3.1%	-3.2%	1.3%	2.2%	4.9%	02/2000
Bloomberg U.S. Aggregate			-3.2	-3.2	0.6	-5.2	0.1	1.1	3.8	02/2000
Excess			0.7	0.7	2.4	2.0	1.2	1.1	1.1	
BLACKROCK	863,959,476	19.2	-3.2	-3.2	1.3	-5.0	0.4	1.3	4.2	04/1996
Bloomberg U.S. Aggregate			-3.2	-3.2	0.6	-5.2	0.1	1.1	4.1	04/1996
Excess			0.0	0.0	0.7	0.2	0.3	0.2	0.1	
CORE	1,863,862,789	41.4	-2.8	-2.8	2.3				-4.1	11/2020
Bloomberg U.S. Aggregate			-3.2	-3.2	0.6				-5.2	11/2020
Excess			0.4	0.4	1.6				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	\$865,434,216	19.2%	-3.4%	-3.4%	1.3%	-5.1%	0.4%	1.4%	4.6%	07/1993
Bloomberg U.S. Aggregate			-3.2	-3.2	0.6	-5.2	0.1	1.1	4.2	07/1993
Excess			-0.2	-0.2	0.7	0.1	0.3	0.3	0.3	
NEUBERGER	848,644,829	18.8	-3.2	-3.2	1.3	-4.5	0.7	1.5	5.5	07/1988
Bloomberg U.S. Aggregate			-3.2	-3.2	0.6	-5.2	0.1	1.1	5.2	07/1988
Excess			0.0	0.0	0.6	0.7	0.6	0.4	0.3	
WESTERN	928,723,929	20.6	-4.1	-4.1	1.5	-6.1	0.1	1.7	7.2	07/1984
Bloomberg U.S. Aggregate			-3.2	-3.2	0.6	-5.2	0.1	1.1	6.2	07/1984
Excess			-0.8	-0.8	0.9	-0.9	-0.0	0.6	1.0	
CORE PLUS	2,642,802,974	58.6	-3.6	-3.6	1.4				-5.4	11/2020
Bloomberg U.S. Aggregate			-3.2	-3.2	0.6				-5.2	11/2020
Excess			-0.4	-0.4	0.7				-0.1	

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

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Return Seeking Bonds

September 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	\$841,855,437	20.5%	-3.4%	-3.4%	3.8%				-4.8%	12/2020
Credit Plus Benchmark			-2.6	-2.6	4.3				-4.9	12/2020
Excess			-0.7	-0.7	-0.5				0.1	
PIMCO CREDIT PLUS	802,541,461	19.5	-2.7	-2.7	4.1				-4.3	12/2020
Credit Plus Benchmark			-2.6	-2.6	4.3				-4.9	12/2020
Excess			-0.0	-0.0	-0.3				0.6	
CREDIT PLUS	1,644,396,898	40.0	-3.0	-3.0	3.9				-4.6	12/2020
Credit Plus Benchmark			-2.6	-2.6	4.3				-4.9	12/2020
Excess			-0.4	-0.4	-0.4				0.3	
BLACKROCK OPPORTUNISTIC	540,717,972	13.1	0.3	0.3	5.4				-0.7	12/2020
ICE BofA US 3-Month Treasury Bill			1.3	1.3	4.5				1.8	12/2020
Excess			-1.0	-1.0	0.9				-2.5	
ASHMORE EMERGING MARKET	280,405,107	6.8	-3.8	-3.8	9.6				-9.9	01/2021
JPM JEMB Sovereign-only 50-50			-2.7	-2.7	11.6				-6.5	01/2021
Excess			-1.0	-1.0	-1.9				-3.4	
TCW SECURITIZED CREDIT	401,112,897	9.7	0.5	0.5	3.3				-0.0	07/2021
ICE BofA US 3-Month Treasury Bill			1.3	1.3	4.5				2.2	07/2021
Excess			-0.8	-0.8	-1.2				-2.3	



	<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>
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	\$292,554,737	7.1%	0.3%	0.3%	11.4%				-1.0%	01/2021
Multi-Asset Credit Benchmark			0.4	0.4	10.7				-0.9	01/2021
Excess			-0.2	-0.2	0.6				-0.1	
PGIM	337,699,196	8.2	0.2	0.2	10.7				-1.5	01/2021
Multi-Asset Credit Benchmark			0.4	0.4	10.7				-0.9	01/2021
Excess			-0.3	-0.3	-0.0				-0.6	
MULTI-ASSET CREDIT	630,253,933	15.3	0.2	0.2	11.0				-1.3	01/2021
Multi-Asset Credit Benchmark			0.4	0.4	10.7				-0.9	01/2021
Excess			-0.2	-0.2	0.3				-0.4	
KKR	310,851,331	7.6	0.6	0.6	10.9				-0.2	01/2021
ICE BofA US Cash Pay HY Constrained			0.5	0.5	10.2				-0.3	01/2021
Excess			0.1	0.1	0.6				0.2	
OAKTREE	306,992,985	7.5	0.6	0.6	10.3				-0.2	01/2021
ICE BofA US Cash Pay HY Constrained			0.5	0.5	10.2				-0.3	01/2021
Excess			0.1	0.1	0.0				0.2	
HIGH YIELD	617,844,316	15.0	0.6	0.6	10.6				-0.2	01/2021
ICE BofA US Cash Pay HY Constrained			0.5	0.5	10.2				-0.3	01/2021
Excess			0.1	0.1	0.3				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	\$1,644,396,898	40.0%	-3.0%	-3.0%	3.9%				-4.6%	12/2020
Credit Plus Benchmark			-2.6	-2.6	4.3				-4.9	12/2020
Excess			-0.4	-0.4	-0.4				0.3	
OPPORTUNISTIC FI	540,717,972	13.1	0.3	0.3	5.4				-0.7	12/2020
ICE BofA US 3-Month Treasury Bill			1.3	1.3	4.5				1.8	12/2020
Excess			-1.0	-1.0	0.9				-2.5	
EMERGING MARKET DEBT	280,405,107	6.8	-3.8	-3.8	9.6				-9.9	01/2021
JPM JEMB Sovereign-only 50-50			-2.7	-2.7	11.6				-6.5	01/2021
Excess			-1.0	-1.0	-1.9				-3.4	
SECURITIZED CREDIT	401,112,897	9.7	0.5	0.5	3.3				-0.0	06/2021
ICE BofA US 3-Month Treasury Bill			1.3	1.3	4.5				2.2	06/2021
Excess			-0.8	-0.8	-1.2				-2.2	
MULTI-ASSET CREDIT	630,253,933	15.3	0.2	0.2	11.0				-1.3	01/2021
Multi-Asset Credit Benchmark			0.4	0.4	10.7				-0.9	01/2021
Excess			-0.2	-0.2	0.3				-0.4	
HIGH YIELD	617,844,316	15.0	0.6	0.6	10.6				-0.2	01/2021
ICE BofA US Cash Pay HY Constrained			0.5	0.5	10.2				-0.3	01/2021
Excess			0.1	0.1	0.3				0.1	
RETURN SEEKING BONDS (1)	4,114,868,652	100.0	-1.3	-1.3	6.5				-2.7	12/2020
Return Seeking Fixed Income Benchmark			-0.8	-0.8	6.7				-2.1	12/2020
Excess			-0.5	-0.5	-0.2				-0.6	



	<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>
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			

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Treasuries

September 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	\$2,680,322,462	34.7%	-7.3%	-7.3%	-4.5%	-10.6%	-1.3%		-1.4%	02/2018
Bloomberg Treasury 5+ Year			-7.2	-7.2	-4.5	-10.6	-1.2		-1.3	02/2018
Excess			-0.1	-0.1	-0.0	-0.1	-0.1		-0.1	
GOLDMAN SACHS	2,372,398,696	30.8	-7.0	-7.0	-4.4	-10.4	-1.1		-1.2	02/2018
Bloomberg Treasury 5+ Year			-7.2	-7.2	-4.5	-10.6	-1.2		-1.3	02/2018
Excess			0.2	0.2	0.1	0.1	0.0		0.0	
NEUBERGER	2,660,809,777	34.5	-7.2	-7.2	-4.9	-10.4	-1.2		-1.3	02/2018
Bloomberg Treasury 5+ Year			-7.2	-7.2	-4.5	-10.6	-1.2		-1.3	02/2018
Excess			-0.1	-0.1	-0.4	0.2	0.0		0.0	
TOTAL TREASURIES	7,713,530,936	100.0	-7.2	-7.2	-4.6	-10.5	-1.2		-1.3	02/2018
Bloomberg Treasury 5+ Year			-7.2	-7.2	-4.5	-10.6	-1.2		-1.3	02/2018
Excess			-0.0	-0.0	-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	

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Laddered Bonds + Cash

September 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	\$1,122,638,922	28.8%	1.3%	4.7%				1.6%	11/2020
ICE BofA US 3-Month Treasury Bill			1.3	4.5				1.7	11/2020
Excess			0.0	0.2				-0.2	
Goldman Sachs Ladder Bond	1,124,056,038	28.9	1.3	4.7				1.6	11/2020
ICE BofA US 3-Month Treasury Bill			1.3	4.5				1.7	11/2020
Excess			0.0	0.3				-0.1	
Treasury Ladder Aggregate	2,246,694,960	57.7	1.3	4.7				1.6	11/2020
ICE BofA US 3-Month Treasury Bill			1.3	4.5				1.7	11/2020
Excess			0.0	0.2				-0.1	
Combined Funds STIF	1,578,909,132	40.5	1.4	4.8	1.9%	1.8%	1.2%	1.6	01/2004
iMoneyNet Money Fund Average-All Taxable			1.3	4.3	1.6	1.5	0.9	1.2	01/2004
Excess			0.1	0.5	0.3	0.3	0.3	0.4	
TEACHERS RETIREMENT CD REPO	68,218,398	1.8	1.3	4.6	1.8	1.9	1.3	1.2	02/2012
ICE BofA US 3-Month Treasury Bill			1.3	4.5	1.7	1.7	1.1	1.0	02/2012
Excess			0.0	0.1	0.1	0.2	0.2	0.2	
Laddered Bond + Cash	3,894,121,627	100.0	1.4	4.7	1.6	1.7	1.2	4.2	12/1977
ICE BofA US 3-Month Treasury Bill			1.3	4.5	1.7	1.7	1.1	4.4	12/1977
Excess			0.0	0.3	-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

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Uninvested Private Markets

September 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)	198,786,779	100.0	1.5	1.5	12.3				3.8	01/2021
Uninvested Private Markets BM			1.3	1.3	12.3				3.5	01/2021
Excess			0.2	0.2	0.0				0.3	

(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.

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Private Markets

September 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	2.2%	2.2%	6.6%	19.0%	13.0%	12.7%	14.1%	12.5%	13.5%
Private Markets -Uninvested(1)	1.5%	1.5%	12.3%						
Private Equity	3.0%	3.0%	9.1%	21.0%	16.6%	16.3%	16.4%	13.7%	15.8%
Private Credit	2.8%	2.8%	10.9%	15.7%	11.4%	13.1%	13.0%	12.3%	
Resources	-1.5%	-1.5%	-1.9%	15.7%	3.0%	2.2%	12.9%	12.0%	12.6%
Real Estate	-1.3%	-1.3%	-5.9%	15.2%	11.5%	12.3%	9.6%	9.5%	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 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.

Source: State Street Bank

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



Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Private Equity	25,402,399,761	19,538,755,656	15,105,604,972	7,933,680,087	16,034,710,883	1.59	13.7	
Adams Street Partners, LLC	465,355,000	231,296,684	120,113,440	234,867,675	211,563,520	1.43	12.2	
Adams Street Global Secondary Fund 5 LP	100,000,000	77,114,692	77,395,843	22,885,308	27,105,871	1.36	6.3	2012
Adams Street Global Secondary Fund 6	100,000,000	80,400,008	42,717,597	19,599,992	84,950,206	1.59	21.9	2017
Adams Street Global Secondary Fund 7	265,355,000	73,781,984	0	192,382,375	99,507,443	1.35	60.0	2021
Advent International Group	505,000,000	392,016,302	355,574,763	116,067,652	319,995,656	1.72	16.0	
Advent International GPE VI-A, L.P.	50,000,000	52,993,313	103,400,194	0	3,993,506	2.03	16.4	2008
Advent International GPE VII, L.P.	90,000,000	86,490,641	143,472,935	3,600,000	13,406,762	1.81	13.4	2012
Advent International GPE VIII-B	100,000,000	100,000,000	97,206,226	0	110,251,584	2.07	18.0	2016
Advent International GPE IX	115,000,000	107,532,348	11,495,408	7,467,652	149,128,279	1.49	19.8	2019
Advent International GPE X	150,000,000	45,000,000	0	105,000,000	43,215,525	0.96	-9.6	2022
Affinity Ventures	9,000,000	9,000,000	3,590,011	0	788,645	0.49	-11.3	
Affinity Ventures IV, L.P.	4,000,000	4,000,000	1,541,970	0	3,279	0.39	-34.9	2004
Affinity Ventures V, L.P.	5,000,000	5,000,000	2,048,042	0	785,366	0.57	-8.2	2008
Apax Partners	600,000,000	531,152,087	562,525,922	159,134,261	321,334,425	1.66	16.1	
APAX VIII - USD	200,000,000	240,451,261	364,650,169	7,966,190	33,197,427	1.65	13.7	2013
Apax IX USD L.P.	150,000,000	162,024,715	183,103,826	15,072,256	142,783,006	2.01	21.8	2016
Apax X USD L.P.	150,000,000	128,676,111	14,771,927	36,095,815	145,353,992	1.24	15.2	2019
Apax XI	100,000,000	0	0	100,000,000	0		0.0	2022
Arsenal Capital Partners	175,000,000	102,279,759	13,903,312	81,440,684	99,762,470	1.11	4.6	
Arsenal Capital Partners V, L.P.	75,000,000	72,853,782	13,616,281	10,598,693	75,257,800	1.22	7.2	2019
Arsenal Capital Partners VI LP	100,000,000	29,425,977	287,031	70,841,991	24,504,670	0.84	-15.8	2021
Asia Alternatives	649,000,000	177,787,167	18,807,242	485,401,180	182,067,218	1.13	6.2	
Asia Alternatives Capital Partners V	99,000,000	102,570,125	17,649,075	10,618,222	114,076,710	1.28	9.7	2017
MN Asia Investors	550,000,000	75,217,042	1,158,167	474,782,958	67,990,508	0.92	-7.5	2020
Banc Fund	178,551,387	187,460,477	54,011,636	0	165,025,531	1.17	3.1	
Banc Fund IX, L.P.	107,205,932	107,205,932	46,686,239	0	90,769,933	1.28	4.1	2014
Banc Fund X, L.P.	71,345,455	80,254,545	7,325,397	0	74,255,598	1.02	0.5	2018
BlackRock	951,774,870	956,392,392	4,593,604	0	1,797,867,529	1.88	33.3	
BlackRock Long Term Capital, SCSP	950,000,000	954,617,522	2,660,745	0	1,797,851,250	1.89	33.4	2019
BlackRock Tempus Fund	1,774,870	1,774,870	1,932,859	0	16,279	1.10	4.9	2015

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Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Blackstone Group L.P.	1,535,000,000	921,966,530	727,695,528	719,056,359	582,956,857	1.42	14.4	
Blackstone Capital Partners Asia II	270,000,000	67,509,678	997	202,490,322	66,556,103	0.99	-2.6	2021
Blackstone Capital Partners IV, L.P.	70,000,000	84,459,887	201,361,236	1,765,384	251,821	2.39	37.0	2002
Blackstone Capital Partners V L.P.	140,000,000	152,408,625	245,685,920	7,027,560	1,226,894	1.62	8.0	2006
Blackstone Capital Partners VI, L.P.	100,000,000	106,861,279	160,243,953	10,975,597	33,275,450	1.81	12.4	2008
Blackstone Capital Partners VII	130,000,000	139,730,208	90,511,335	9,306,402	128,519,580	1.57	13.0	2015
Blackstone Capital Partners VIII LP	150,000,000	99,750,744	6,202,841	62,130,457	108,350,277	1.15	9.6	2019
Blackstone Capital Partners IX	150,000,000	0	0	150,000,000	0		0.0	2022
Blackstone Growth	250,000,000	206,007,459	23,689,245	65,441,696	179,009,130	0.98	-0.9	2020
Blackstone Growth Equity II	150,000,000	0	0	150,000,000	0		0.0	2022
Blackstone Supplemental Account - M	125,000,000	65,238,651	0	59,918,939	65,767,601	1.01	0.5	2021
Blackstone Strategic Partners	915,500,000	704,835,393	861,331,315	273,968,248	241,957,165	1.57	11.5	
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	9.1	2008
Strategic Partners IV-B	100,000,000	99,541,961	155,239,588	6,656,298	1,047,269	1.57	12.2	2008
Strategic Partners V, LP	100,000,000	87,497,031	141,091,599	11,706,005	2,324,077	1.64	18.4	2011
Strategic Partners VI, L.P.	150,000,000	104,319,217	133,274,950	31,350,277	24,886,394	1.52	14.0	2014
Strategic Partners VII, L.P.	150,000,000	122,913,746	128,966,485	44,177,540	76,852,211	1.67	17.9	2016
Strategic Partners VIII	150,000,000	117,486,626	83,901,365	88,046,490	107,028,613	1.63	31.5	2018
Strategic Partners IX	100,000,000	26,197,082	3,642,681	77,379,994	27,478,396	1.19	19.5	2022
Bridgepoint	262,299,491	159,330,724	14,957,084	112,368,330	220,268,644	1.48	18.2	
Bridgepoint Europe VI L.P.	158,812,506	159,330,724	14,957,084	8,881,345	220,268,644	1.48	18.2	2018
Bridgepoint Europe VII	103,486,985	0	0	103,486,985	0		0.0	2022
Brookfield Asset Management Inc.	500,000,000	387,190,864	203,384,237	159,287,939	453,589,765	1.70	30.6	
Brookfield Capital Partners Fund IV	100,000,000	112,445,274	174,977,804	8,880,337	99,371,349	2.44	43.3	2015
Brookfield Capital Partners V L.P.	250,000,000	245,678,311	28,311,500	29,474,882	315,246,432	1.40	15.5	2018
Brookfield Capital Partners Fund VI	150,000,000	29,067,280	94,933	120,932,720	38,971,985	1.34	37.0	2022
Canyon Partners	125,000,000	128,095,847	21,475,843	18,379,996	139,050,604	1.25	12.3	
Canyon Distressed Opportunity Fund III	125,000,000	128,095,847	21,475,843	18,379,996	139,050,604	1.25	12.3	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	337,096,602	70,587,486	128,503,114	316,415,547	1.15	6.7	
Carlyle Strategic Partners IV, L.P.	100,000,000	119,848,374	53,429,269	32,306,465	84,225,163	1.15	6.9	2016
Carlyle Partners VII, L.P.	150,000,000	154,627,392	17,067,398	8,816,709	171,108,712	1.22	7.4	2017
Carlyle Partners VIII	150,000,000	62,620,836	90,819	87,379,940	61,081,673	0.98	-4.5	2021
CarVal Investors	600,000,000	500,195,400	419,747,661	97,659,071	248,509,491	1.34	7.9	
CVI Credit Value Fund A II	150,000,000	142,500,000	199,242,174	7,500,000	3,995,207	1.43	8.3	2012
CVI Credit Value Fund A III	150,000,000	142,500,000	168,545,561	7,500,000	25,367,183	1.36	8.3	2015
CVI Credit Value Fund IV	150,000,000	117,695,400	51,805,361	30,159,071	113,523,302	1.40	7.6	2017
CVI Credit Value Fund V	150,000,000	97,500,000	154,566	52,500,000	105,623,798	1.08	4.9	2020

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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	10,752	2.12	19.5	
Chicago Growth Partners II, L.P.	60,000,000	58,347,626	123,930,240	1,652,374	10,752	2.12	19.5	2008
Clearlake Capital	100,000,000	57,849,852	268,947	42,308,461	59,908,567	1.04	3.9	
Clearlake Capital Partners VII	100,000,000	57,849,852	268,947	42,308,461	59,908,567	1.04	3.9	2022
Court Square	489,419,132	486,791,840	623,000,686	59,114,128	276,713,328	1.85	14.8	
Court Square Capital Partners II, L.P.	164,419,132	170,245,229	295,744,454	5,681,078	3,120,795	1.76	12.3	2006
Court Square Capital Partners III, L.P.	175,000,000	189,661,714	283,583,858	6,528,524	139,282,244	2.23	20.2	2012
Court Square Capital Partners IV, L.P.	150,000,000	126,884,897	43,672,374	46,904,526	134,310,289	1.40	18.6	2018
CVC Capital Partners	449,968,767	439,217,183	659,719,100	127,320,322	210,423,704	1.98	16.6	
CVC Capital Partners VI	238,218,759	285,333,085	364,160,873	19,933,172	207,626,338	2.00	16.5	2013
CVC Capital Partners IX	105,875,004	0	0	105,875,002	0		0.0	2023
CVC European Equity Partners V, L.P.	105,875,004	153,884,098	295,558,227	1,512,148	2,797,366	1.94	16.7	2008
Goldman, Sachs & Co.	449,800,000	382,005,486	346,237,950	163,730,787	233,274,983	1.52	11.3	
GS Capital Partners VI, L.P.	100,000,000	110,285,035	143,299,966	2,551,356	1,626,161	1.31	7.1	2007
GS China-US Cooperation Fund	99,800,000	40,727,812	523,330	59,480,800	51,345,510	1.27	9.8	2018
GS Vintage VII	100,000,000	88,753,437	77,017,824	60,824,619	65,937,955	1.61	15.1	2016
West Street Capital Partners VII, L.P.	150,000,000	142,239,202	125,396,830	40,874,012	114,365,358	1.69	18.7	2016
Goldner Hawn Johnson & Morrison	144,941,388	61,940,728	71,964,283	82,712,627	64,095,899	2.20	22.0	
GHJM TrailHead Fund	20,000,000	16,652,130	51,364,283	2,894,486	5,668,386	3.42	20.0	2012
Goldner Hawn Fund VII, L.P.	57,755,138	39,121,401	20,600,000	18,799,087	52,260,317	1.86	31.3	2018
Goldner Hawn VIII	67,186,250	6,167,196	0	61,019,054	6,167,196	1.00	0.0	2023
Green Equity Investors	325,000,000	344,406,449	239,279,297	18,949,050	367,992,182	1.76	13.7	
Green Equity Investors VI, L.P.	200,000,000	232,549,897	237,599,043	4,125,348	239,243,994	2.05	14.2	2012
Green Equity Investors VIII	125,000,000	111,856,552	1,680,254	14,823,702	128,748,188	1.17	7.8	2020
GTCR	110,000,000	108,261,050	239,444,420	10,416,556	121,596,621	3.33	33.1	
GTCR XI	110,000,000	108,261,050	239,444,420	10,416,556	121,596,621	3.33	33.1	2013
HarbourVest	21,151,783	20,940,767	26,750,518	783,097	4,535,806	1.49	11.6	
Dover Street VII Cayman Fund L.P.	2,198,112	2,074,235	1,845,767	132,416	17,992	0.90	-4.5	2014
HarbourVest Intl PE Partners V-Cayman US	3,286,645	3,346,199	4,508,944	169,400	27,089	1.36	13.5	2014
Harbourvest Intl PE Partners VI-Cayman	3,969,417	4,039,473	5,729,484	185,281	2,013,990	1.92	14.7	2014
HarbourVest Partners VIII Cayman Buyout	4,506,711	4,390,673	5,849,345	156,000	350,229	1.41	13.0	2014
HarbourVest Partners VIII-Cayman Venture	7,190,898	7,090,187	8,816,978	140,000	2,126,505	1.54	10.8	2014
Hellman & Friedman	575,000,000	411,550,907	169,808,700	180,345,348	438,098,536	1.48	19.1	
Hellman & Friedman Capital Partners VII, L.P.	50,000,000	49,914,704	154,063,260	2,183,886	10,895,837	3.30	24.9	2009
Hellman & Friedman Investors IX, L.P.	175,000,000	175,254,062	8,333,237	7,131,400	236,556,046	1.40	13.4	2018
Hellman & Friedman Capital Partners X	250,000,000	186,382,141	7,412,203	71,030,062	190,646,653	1.06	4.4	2021
Hellman & Friedman Capital Partners XI	100,000,000	0	0	100,000,000	0		0.0	2023

Minnesota State Board of Investment
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Private Markets Investments



Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
IK Limited	564,043,252	483,040,234	505,290,760	144,902,607	278,411,829	1.62	14.5	
IK Fund VII	158,812,506	179,393,652	322,286,061	8,029,848	13,196,826	1.87	14.2	2013
IK Fund VIII	158,812,506	177,056,244	183,004,699	8,128,001	135,534,942	1.80	17.8	2016
IK Fund IX	142,931,255	126,590,339	0	25,257,773	129,680,061	1.02	1.4	2019
IK Fund X	103,486,985	0	0	103,486,985	0		0.0	2022
Kohlberg, Kravis, Roberts & Co.	1,797,000,000	1,161,979,342	981,169,386	709,953,986	810,444,438	1.54	13.0	
KKR 2006 Fund L.P.	200,000,000	218,137,965	392,492,978	3,300,979	62,576	1.80	9.1	2006
KKR Americas Fund XII L.P.	150,000,000	147,160,604	86,477,212	17,931,609	169,597,339	1.74	18.4	2016
KKR Ascendant Strategy	150,000,000	0	0	150,000,000	0		0.0	2023
KKR Asian Fund III	100,000,000	95,426,962	52,594,068	16,019,039	116,489,485	1.77	21.2	2017
KKR Asian Fund IV	150,000,000	71,229,508	1,640,757	83,932,694	72,652,681	1.04	3.2	2020
KKR Core Investments Partnership	97,000,000	102,078,443	5,416,200	1,522,803	116,820,261	1.20	11.2	2021
KKR Core Investments Fund II	100,000,000	0	0	100,000,000	411,004		0.0	2022
KKR Europe V	100,000,000	93,160,199	16,882,045	12,028,893	96,889,779	1.22	9.6	2018
KKR European Fund VI (USD) SCSp	100,000,000	16,320,027	0	83,679,973	12,602,472	0.77	-22.8	2022
KKR Millennium Fund	200,000,000	205,167,570	424,946,028	0	161,992	2.07	16.4	2002
KKR MN Partnership L.P.	150,000,000	80,563,632	720,098	69,436,368	86,478,372	1.08	5.7	2021
KKR North America Fund XIII	300,000,000	132,734,432	0	172,101,628	138,278,476	1.04	4.7	2021
Lexington Partners	1,345,000,000	1,116,259,240	780,674,715	299,576,854	894,705,524	1.50	13.2	
Lexington Capital Partners VI-B, L.P.	100,000,000	98,374,022	145,958,371	1,634,703	518,223	1.49	7.9	2005
Lexington Capital Partners VII, L.P.	200,000,000	173,297,773	268,037,134	30,670,593	21,603,910	1.67	14.4	2009
Lexington Capital Partners VIII, L.P.	150,000,000	136,614,631	141,338,458	32,435,593	86,826,778	1.67	16.0	2014
Lexington Capital Partners IX, L.P.	150,000,000	120,801,264	36,390,257	42,151,230	142,710,099	1.48	24.3	2018
Lexington Capital Partners X	100,000,000	15,000,000	0	85,000,000	18,873,405	1.26	38.8	2021
Lexington Co-Investment Partners IV	200,000,000	217,604,004	145,102,376	4,876,834	223,645,881	1.69	16.2	2017
Lexington Co-Investment Partners V	300,000,000	237,692,751	11,199,526	73,506,775	272,321,414	1.19	15.0	2020
Lexington Co-Investment Partners V Overage	45,000,000	32,976,900	1,265,648	13,199,021	36,089,297	1.13	9.2	2021
Lexington Middle Market Investors IV	100,000,000	83,897,895	31,382,945	16,102,105	92,116,516	1.47	19.8	2016
Madison Dearborn Capital Partners LLC	200,000,000	177,522,826	76,945,924	53,450,893	156,006,843	1.31	9.4	
Madison Dearborn Capital Partners VII, L.P.	100,000,000	99,909,716	60,112,099	16,966,707	87,684,064	1.48	9.9	2015
Madison Dearborn Capital Partners VIII-A, L.P.	100,000,000	77,613,110	16,833,825	36,484,186	68,322,779	1.10	6.8	2019
Marathon	400,000,000	161,906,171	6,185,200	244,000,000	184,948,296	1.18	9.2	
Marathon Distressed Credit Fund	200,000,000	161,906,171	6,185,200	44,000,000	184,948,296	1.18	9.2	2020
Marathon Distressed Credit Fund II	200,000,000	0	0	200,000,000	0		0.0	2023
Merced Capital	178,737,500	184,266,287	157,295,389	0	61,190,295	1.19	3.4	
Merced Partners IV	125,000,000	124,968,390	123,722,539	0	14,978,125	1.11	2.2	2013
Merced Partners V	53,737,500	59,297,897	33,572,850	0	46,212,170	1.35	5.9	2017
MHR Institutional Partners	75,000,000	83,022,509	26,033,416	11,735,519	94,050,849	1.45	9.9	
MHR Institutional Partners IV LP	75,000,000	83,022,509	26,033,416	11,735,519	94,050,849	1.45	9.9	2014

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Neuberger Berman LLC	625,000,000	448,415,246	372,061,494	461,005,175	409,615,802	1.74	29.5	
Dyal Capital Partners III	175,000,000	212,783,584	213,288,776	108,355,278	168,447,163	1.79	26.0	2015
Dyal Capital Partners IV	250,000,000	178,538,132	125,879,198	178,327,969	200,702,210	1.83	41.5	2018
Dyal Capital Partners V	200,000,000	57,093,530	32,893,520	174,321,928	40,466,428	1.28	18.2	2020
Nordic Capital	564,043,252	529,517,829	356,820,051	169,309,378	431,810,943	1.49	14.2	
Nordic Capital Fund VIII	158,812,506	225,322,480	295,912,941	14,154,861	53,610,336	1.55	12.4	2013
Nordic Capital IX Beta, L.P.	158,812,506	180,204,637	60,907,110	29,965,694	228,033,142	1.60	18.4	2017
Nordic Capital Fund X	142,931,255	114,276,381	0	31,346,817	142,275,180	1.25	19.5	2020
Nordic Capital Fund XI	103,486,985	9,714,332	0	93,842,005	7,892,284	0.81	-18.8	2022
Oak Hill Capital Management, Inc.	250,000,000	246,752,679	238,587,803	10,794,620	179,825,976	1.70	29.0	
Oak Hill Capital Partners IV Onshore LP	150,000,000	153,245,546	219,478,696	4,299,116	77,057,793	1.94	33.1	2016
Oak Hill Capital Partners V	100,000,000	93,507,133	19,109,107	6,495,504	102,768,183	1.30	14.3	2018
Oaktree Capital Management, LLC	387,000,000	203,254,046	64,370,664	237,320,535	195,482,232	1.28	8.3	
Oaktree Special Situations Fund, L.P.	100,000,000	103,812,382	21,791,423	7,741,294	80,716,452	0.99	-0.3	2014
Oaktree Special Situations Fund II, L.P.	100,000,000	99,441,664	42,579,241	42,579,241	114,765,780	1.58	41.5	2018
Oaktree Special Situations Fund III	187,000,000	0	0	187,000,000	0	0.0	0.0	2022
Paine & Partners, LLC	325,000,000	222,439,239	88,798,649	126,213,642	214,901,613	1.37	12.1	
Paine Schwartz Food Chain Fund IV	75,000,000	69,915,101	35,397,971	13,943,520	61,147,842	1.38	7.5	2014
Paine Schwartz Food Chain Fund V, L.P.	150,000,000	128,316,549	53,257,921	36,110,348	132,136,256	1.44	21.8	2018
Paine Schwartz Food Chain VI	100,000,000	24,207,589	142,757	76,159,774	21,617,514	0.90	-11.0	2023
Permal PE	5,337,098	4,401,655	4,672,751	1,090,000	372,412	1.15	4.5	
Glouston Private Equity Opportunities IV	5,337,098	4,401,655	4,672,751	1,090,000	372,412	1.15	4.5	2014
Permira	587,606,272	485,751,195	471,350,933	181,651,368	427,817,102	1.85	18.0	
Permira V, L.P.	158,812,506	184,652,677	384,903,043	4,457,110	107,444,673	2.67	20.8	2013
Permira VI, L.P.	127,050,005	128,354,778	75,222,218	27,208,779	160,959,598	1.84	16.1	2016
Permira VII L.P.1	142,931,255	147,198,277	11,225,671	16,331,887	135,923,538	1.00	0.0	2019
Permira VIII	158,812,506	25,545,463	0	133,653,592	23,489,293	0.92	-8.0	2022
Public Pension Capital Management	285,000,000	162,847,264	103,037,390	142,444,407	209,227,460	1.92	22.8	
Public Pension Capital, LLC	285,000,000	162,847,264	103,037,390	142,444,407	209,227,460	1.92	22.8	2014
Silver Lake Partners	335,000,000	345,824,244	375,075,877	30,936,107	349,831,696	2.10	18.7	
Silver Lake Partners III, L.P.	100,000,000	93,881,275	192,945,926	9,528,468	27,782,492	2.35	18.4	2007
Silver Lake Partners IV	100,000,000	116,267,955	127,803,434	2,881,307	170,902,220	2.57	22.1	2012
Silver Lake Partners V, L.P.	135,000,000	135,675,014	54,326,517	18,526,332	151,146,984	1.51	13.3	2017
Siris Capital Group	67,875,000	0	0	67,875,000	0	0.0	0.0	
Siris V	67,875,000	0	0	67,875,000	0	0.0	0.0	2022
Split Rock	110,000,000	107,055,906	125,392,564	2,944,094	28,391,832	1.44	5.0	
Split Rock Partners LP	50,000,000	47,890,906	58,794,192	2,109,094	3,049,215	1.29	3.1	2005
Split Rock Partners II, LP	60,000,000	59,165,000	66,598,372	835,000	25,342,617	1.55	7.3	2008

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Summit Partners	600,000,000	454,788,281	415,618,004	283,817,213	424,416,328	1.85	26.2	
Summit Partners Growth Equity Fund VIII	100,000,000	116,727,192	237,084,364	23,129,320	47,912,270	2.44	26.1	2011
Summit Partners Growth Equity Fund IX	100,000,000	133,092,794	145,487,452	32,610,000	150,938,595	2.23	30.8	2015
Summit Partners Growth Equity Fund X-A	150,000,000	141,151,520	33,046,188	41,894,668	158,677,569	1.36	17.0	2019
Summit Partners Growth Equity Fund XI	250,000,000	63,816,775	0	186,183,225	66,887,893	1.05	7.4	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		0.0	2023
Thoma Bravo LLC	525,000,000	532,458,175	284,137,643	65,267,015	548,191,905	1.56	21.9	
Thoma Cressey Fund VII, L.P.	50,000,000	50,000,000	107,057,940	0	397,316	2.15	23.6	2000
Thoma Bravo Fund XII, L.P.	75,000,000	81,949,004	84,992,456	18,452,144	81,112,894	2.03	16.1	2016
Thoma Bravo Fund XIII, L.P.	150,000,000	184,783,234	92,067,654	12,475,387	239,278,875	1.79	27.4	2018
Thoma Bravo Fund XIV	150,000,000	147,759,334	37	2,240,666	160,409,749	1.09	4.1	2020
Thoma Bravo Fund XV LP	100,000,000	67,966,603	19,556	32,098,818	66,993,072	0.99	-1.6	2021
Thomas H. Lee Partners	400,000,000	313,647,181	290,760,031	115,885,100	233,763,653	1.67	25.1	
Thomas H. Lee Equity Fund VII, LP.	100,000,000	99,643,507	137,891,993	10,518,650	43,846,569	1.82	20.6	2015
Thomas H. Lee Equity Fund VIII, L.P.	150,000,000	147,832,088	152,868,038	21,538,036	128,854,473	1.91	37.8	2018
Thomas H. Lee Equity Fund IX	150,000,000	66,171,586	0	83,828,414	61,062,610	0.92	-9.2	2021
TPG Capital	650,000,000	420,209,462	198,853,460	274,960,109	419,218,448	1.47	20.0	
TPG Growth V	150,000,000	114,079,435	9,350,280	44,834,827	137,419,650	1.29	18.5	2021
TPG Partners VII, L.P.	100,000,000	101,140,861	156,773,574	16,747,992	41,578,029	1.96	19.6	2015
TPG Partners VIII	150,000,000	147,805,765	32,439,011	20,560,691	181,207,013	1.45	25.7	2018
TPG Partners IX, L.P.	100,000,000	3,158,534	0	96,841,466	2,973,599	0.94	-5.9	2022
TPG Tech Adjacencies II, L.P.	150,000,000	54,024,867	290,595	95,975,133	56,040,157	1.04	3.8	2021
Varde Fund	631,286,710	618,560,068	730,670,341	12,726,642	204,606,955	1.51	9.4	
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	5,213,492	1.73	10.0	2010
Varde Fund XI, LP	200,000,000	200,000,000	227,185,961	0	33,029,569	1.30	4.3	2013
Varde Fund XIII, L.P.	150,000,000	144,000,000	33,005,156	6,000,000	140,867,006	1.21	7.6	2018
Varde Fund XIV	31,286,710	24,560,068	0	6,726,642	25,496,887	1.04	6.3	2022
Vestar Capital Partners	325,000,000	313,110,158	288,485,240	35,480,280	193,705,890	1.54	9.8	
Vestar Capital Partners V, L.P.	75,000,000	76,797,458	100,961,586	0	148,804	1.32	3.9	2005
Vestar Capital Partners VI, LP	100,000,000	108,816,906	154,279,912	0	70,099,866	2.06	23.6	2011
Vestar Capital Partners VII, L.P.	150,000,000	127,495,794	33,243,742	35,480,280	123,457,220	1.23	9.3	2017
Vista Equity Partners	200,000,000	160,275,547	77,223	40,937,356	185,963,000	1.16	5.9	
Vista Equity Partners Perennial	200,000,000	160,275,547	77,223	40,937,356	185,963,000	1.16	5.9	2020

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Warburg Pincus	1,416,000,000	1,140,400,707	1,117,289,694	281,198,500	757,649,406	1.64	11.0	
Warburg Pincus China, L.P.	45,000,000	46,935,000	19,177,200	0	45,146,352	1.37	7.9	2016
Warburg Pincus China-Southeast Asia II	50,000,000	26,000,000	4,097,500	24,000,000	23,845,144	1.07	4.1	2019
Warburg Pincus Financial Sector	90,000,000	90,547,022	38,367,900	3,555,000	129,007,923	1.85	19.8	2017
Warburg Pincus Global Growth, L.P.	250,000,000	225,842,735	22,202,391	23,875,000	297,495,692	1.42	13.5	2018
Warburg Pincus Global Growth 14, L.P.	300,000,000	71,501,998	0	228,000,000	73,967,688	1.03	3.6	2022
Warburg Pincus Equity Partners, LP	100,000,000	100,000,000	163,986,349	0	0	1.64	10.0	1998
Warburg Pincus Private Equity IX, L.P.	100,000,000	100,000,000	172,072,950	0	112,205	1.72	9.6	2005
Warburg Pincus Private Equity X, LP	150,000,000	150,000,000	266,806,541	0	2,745,729	1.80	9.5	2007
Warburg Pincus Private Equity XI, LP	200,000,000	200,342,452	280,618,184	0	71,638,950	1.76	12.0	2012
Warburg Pincus Private Equity XII, LP	131,000,000	129,231,500	149,960,678	1,768,500	113,689,725	2.04	17.2	2015
Wayzata Investment Partners	150,000,000	68,415,000	53,255,290	15,000,000	17,566,585	1.04	0.7	
Wayzata Opportunities Fund III	150,000,000	68,415,000	53,255,290	15,000,000	17,566,585	1.04	0.7	2012
Wellspring Capital Partners	125,000,000	152,108,535	57,804,878	12,973,229	167,822,285	1.48	17.8	
Wellspring Capital Partners VI, L.P.	125,000,000	152,108,535	57,804,878	12,973,229	167,822,285	1.48	17.8	2016
Welsh, Carson, Anderson & Stowe	650,000,000	494,365,057	474,651,929	155,634,943	388,899,098	1.75	17.5	
Welsh, Carson, Anderson & Stowe XI, L.P.	100,000,000	100,000,000	161,464,441	0	6,860,939	1.68	11.7	2008
Welsh, Carson, Anderson & Stowe XII, L.P.	150,000,000	150,000,000	223,398,784	0	135,820,383	2.39	25.4	2014
Welsh, Carson, Anderson & Stowe XIII, L.P.	250,000,000	223,784,823	89,788,704	26,215,177	231,325,733	1.43	22.9	2018
Welsh, Carson, Anderson & Stowe XIV	150,000,000	20,580,234	0	129,419,766	14,892,043	0.72	-33.3	2022
Whitehorse Capital	300,000,000	262,953,218	168,962,563	101,660,962	153,645,508	1.23	16.1	
Whitehorse Liquidity Partners III	100,000,000	104,399,300	87,921,425	13,545,388	48,738,432	1.31	15.9	2019
Whitehorse Liquidity Partners IV	100,000,000	98,738,091	56,377,098	25,708,339	62,768,694	1.21	16.0	2020
Whitehorse Liquidity Partners V	100,000,000	59,815,828	24,664,040	62,407,235	42,138,381	1.12	17.4	2021
Wind Point Partners	200,000,000	143,493,782	7,792,341	64,303,162	182,508,279	1.33	19.7	
Wind Point Partners IX	100,000,000	95,116,394	7,792,341	12,680,550	130,794,931	1.46	20.3	2019
Wind Point Partners X	100,000,000	48,377,388	0	51,622,612	51,713,348	1.07	11.6	2022
Windjammer Capital Investors	441,708,861	232,306,454	291,584,064	225,164,132	151,884,731	1.91	12.5	
Windjammer Capital Fund VI	175,000,000	0	0	175,000,000	0		0.0	2023
Windjammer Mezzanine & Equity Fund II	66,708,861	55,215,684	85,449,570	10,139,363	237,869	1.55	9.0	2000
Windjammer Senior Equity Fund IV, L.P.	100,000,000	94,740,728	166,415,656	21,167,914	72,511,706	2.52	17.6	2012
Windjammer Senior Equity Fund V, L.P.	100,000,000	82,350,042	39,718,838	18,856,855	79,135,156	1.44	18.0	2017

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Private Credit	4,180,010,084	3,302,073,981	2,487,183,893	1,380,426,414	1,926,576,005	1.34	10.5	
Audax Group	350,000,000	228,977,462	217,398,193	143,863,280	73,044,012	1.27	10.4	
Audax Mezzanine Fund III, L.P.	100,000,000	105,207,316	133,977,984	0	5,438,999	1.33	9.8	2010
Audax Mezzanine Fund IV-A, L.P.	100,000,000	89,410,665	79,037,405	27,067,129	32,842,773	1.25	11.4	2015
Audax Mezzanine Fund V	150,000,000	34,359,481	4,382,805	116,796,151	34,762,240	1.14	18.2	2020
Avenue Capital Partners	200,000,000	200,977,328	183,908,393	0	156,286,486	1.69	9.8	
Avenue Energy Opportunities Fund, L.P.	100,000,000	100,977,328	82,538,314	0	69,991,472	1.51	6.6	2014
Avenue Energy Opportunities Fund II	100,000,000	100,000,000	101,370,079	0	86,295,014	1.88	14.6	2017
BlackRock	97,500,000	93,899,899	32,420,560	3,600,101	103,281,156	1.45	11.8	
BlackRock Middle Market Senior Fund	97,500,000	93,899,899	32,420,560	3,600,101	103,281,156	1.45	11.8	2018
Brookfield Asset Management Inc.	200,000,000	75,536,438	27,272,847	146,318,749	58,007,854	1.13	15.2	
Brookfield Real Estate Finance Fund VI	200,000,000	75,536,438	27,272,847	146,318,749	58,007,854	1.13	15.2	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		0.0	2023
Energy Capital Partners	28,087,500	37,189,231	16,823,059	7,721,328	24,086,829	1.10	7.2	
Energy Capital Credit Solutions II-A	28,087,500	37,189,231	16,823,059	7,721,328	24,086,829	1.10	7.2	2018
Gold Hill	65,852,584	65,852,584	113,654,899	0	2,853,376	1.77	11.8	
Gold Hill Venture Lending	40,000,000	40,000,000	65,261,602	0	296,653	1.64	10.7	2004
Gold Hill 2008	25,852,584	25,852,584	48,393,297	0	2,556,723	1.97	14.4	2008
HPS Investment Partners	200,000,000	126,341,393	35,193,080	99,442,717	117,151,083	1.21	10.4	
HPS Mezzanine Partners 2019, L.P.	100,000,000	95,382,125	30,801,952	26,010,856	88,532,228	1.25	10.5	2019
HPS Strategic Investment Partners V	100,000,000	30,959,268	4,391,128	73,431,861	28,618,854	1.07	9.2	2022
Kohlberg, Kravis, Roberts & Co.	274,000,000	381,327,068	344,086,559	80,601,499	104,504,932	1.18	9.5	
KKR Lending Partner II L.P.	75,000,000	87,059,946	84,914,571	8,802,924	4,884,105	1.03	1.5	2015
KKR Lending Partners III L.P.	199,000,000	294,267,122	259,171,988	71,798,575	99,620,826	1.22	13.5	2017
LBC Credit Partners	200,000,000	209,124,424	166,695,084	61,614,942	84,627,934	1.20	10.5	
LBC Credit Partners IV, L.P.	100,000,000	120,067,673	121,268,495	27,043,046	21,451,800	1.19	8.6	2016
LBC Credit Partners V, L.P.	100,000,000	89,056,751	45,426,590	34,571,896	63,176,134	1.22	15.3	2019
Marathon	200,000,000	133,522,008	6,041,232	72,500,000	159,315,345	1.24	9.9	
Marathon Secured Private Strategies Fund II	100,000,000	96,022,008	5,858,534	10,000,000	121,476,420	1.33	10.2	2019
Marathon Secured Private Strategies Fund III	100,000,000	37,500,000	182,698	62,500,000	37,838,925	1.01	3.5	2022
Merit Capital Partners	350,000,000	261,659,244	350,219,996	88,273,956	87,001,421	1.67	11.7	
Merit Mezzanine Fund IV, L.P.	75,000,000	70,178,571	139,120,463	4,821,429	1,112,861	2.00	11.6	2004
Merit Mezzanine Fund V, LP	75,000,000	72,306,122	108,565,889	2,693,878	11,295,379	1.66	9.9	2009
Merit Mezzanine Fund VI	100,000,000	92,629,096	102,533,644	7,304,104	50,068,340	1.65	16.6	2016
Merit Mezzanine Fund VII	100,000,000	26,545,455	0	73,454,545	24,524,841	0.92	-12.4	2020
Oaktree Capital Management, LLC	650,000,000	491,640,920	72,513,527	171,900,000	532,203,338	1.23	10.8	
Oaktree Opportunities Fund X, L.P.	50,000,000	46,500,021	42,044,660	8,500,000	27,069,370	1.49	9.2	2015
Oaktree Opportunities Fund Xb, L.P.	100,000,000	75,000,000	0	25,000,000	112,660,875	1.50	13.3	2015
Oaktree Real Estate Debt III	200,000,000	115,140,899	28,272,091	93,400,000	99,797,745	1.11	8.4	2020
Oaktree Opportunities Fund XI	300,000,000	255,000,000	2,196,776	45,000,000	292,675,348	1.16	11.0	2020

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Private Markets Investments



Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
PIMCO BRAVO	5,000,000	4,501,479	5,714,432	0	248,042	1.32	5.9	
PIMCO Bravo Fund OnShore Feeder II	5,000,000	4,501,479	5,714,432	0	248,042	1.32	5.9	2014
Prudential Global Investment Mgmt	600,000,000	538,564,118	570,829,167	119,163,807	181,894,213	1.40	10.4	
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	2,614,968	1.73	14.1	2009
Prudential Capital Partners IV	100,000,000	113,143,330	133,421,700	1,948,707	21,164,444	1.37	8.8	2012
Prudential Capital Partners V, L.P.	150,000,000	155,543,064	107,691,937	9,214,818	84,906,317	1.24	7.4	2016
PGIM Capital Partners VI, L.P.	150,000,000	69,076,504	9,204,909	83,364,307	72,719,760	1.19	21.3	2020
Summit Partners	95,000,000	100,002,497	137,062,090	22,177,023	2,096,874	1.39	9.1	
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	1,559,621	1.36	9.8	2008
TCW	189,570,000	174,519,135	158,607,192	61,326,852	64,645,146	1.28	8.8	
TCW Direct Lending LLC	89,570,000	83,599,652	88,959,322	14,899,409	19,478,473	1.30	8.3	2014
TCW Direct Lending VII	100,000,000	90,919,484	69,647,870	46,427,443	45,166,672	1.26	9.5	2018
TSSP	375,000,000	178,438,753	48,743,584	201,922,161	175,327,964	1.26	10.7	
Sixth Street TAO Partners (B), L.P.	50,000,000	47,792,516	21,343,712	22,779,296	42,493,937	1.34	10.5	2018
Sixth Street TAO Partners (D), L.P.	100,000,000	61,073,149	16,220,703	24,755,519	62,325,883	1.29	13.3	2018
TSSP Opportunities Partners IV (A), L.P.	50,000,000	40,386,311	10,466,797	7,870,950	42,878,817	1.32	10.9	2018
Sixth Street Opportunities Partners V	75,000,000	29,186,777	712,372	46,516,396	27,629,328	0.97	-3.4	2021
Sixth Street TAO Partners (B) Vintage 2023	100,000,000	0	0	100,000,000	0	0.0	0.0	2023

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Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Real Assets	4,197,571,518	3,975,729,722	2,895,925,506	540,081,163	2,040,334,377	1.24	4.9	
BlackRock	198,500,000	167,035,921	71,583,086	42,276,038	128,687,633	1.20	7.0	
BlackRock Global Renewable Power Fund II	98,500,000	104,674,253	68,717,826	2,843,682	60,472,213	1.23	6.3	2017
BlackRock Global Renewable Power Infrastructure III	100,000,000	62,361,668	2,865,259	39,432,356	68,215,420	1.14	10.7	2019
EIG Global Energy Partners	450,000,000	470,613,496	386,533,145	77,704,481	131,559,927	1.10	2.2	
EIG Energy Fund XIV	100,000,000	113,459,470	95,309,310	2,761,129	3,546,122	0.87	-5.0	2007
EIG Energy Fund XV	150,000,000	161,497,867	157,372,838	22,871,323	16,550,492	1.08	1.8	2010
EIG Energy Fund XVI	200,000,000	195,656,159	133,850,997	52,072,029	111,463,313	1.25	5.2	2013
Encap Energy	300,000,000	322,310,920	343,024,681	8,326,109	129,663,811	1.47	8.4	
EnCap Energy Capital Fund VIII, L.P.	100,000,000	103,358,528	67,987,234	0	39,006,844	1.04	0.6	2010
Encap Energy Fund IX	100,000,000	113,725,245	135,756,692	3,890,055	31,330,147	1.47	10.4	2012
EnCap Energy Capital Fund X, L.P.	100,000,000	105,227,147	139,280,755	4,436,053	59,326,820	1.89	15.6	2015
Energy & Minerals Group	680,000,000	692,989,392	422,759,082	44,221,087	524,123,221	1.37	6.5	
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	105,365,280	1.97	11.8	2011
The Energy & Minerals Group Fund III, L.P.	200,000,000	207,635,331	37,373,504	1,219,725	107,912,313	0.70	-4.9	2014
The Energy & Minerals Group Fund IV, LP	150,000,000	163,745,339	92,365,501	14,023,899	144,509,833	1.45	8.2	2015
The Energy & Minerals Group Fund V	112,500,000	92,332,817	3,658,916	23,199,538	136,383,670	1.52	12.4	2019
The Energy & Minerals Group Fund V Accordion, LP	17,500,000	17,175,810	1,202,967	5,589,703	25,426,343	1.55	13.3	2019
Energy Capital Partners	500,000,000	432,339,711	344,743,682	155,190,146	266,839,432	1.41	12.1	
Energy Capital Partners III, L.P.	200,000,000	235,844,231	302,156,801	30,959,867	51,376,351	1.50	11.0	2013
Energy Capital Partners IV-A, LP	150,000,000	141,502,455	42,428,686	28,311,088	157,601,429	1.41	15.6	2017
Energy Capital Partners V	150,000,000	54,993,025	158,195	95,919,191	57,861,652	1.06	5.2	2023
Enervest Management Partners	100,000,000	99,538,995	101,510,847	8,554,703	54,387,465	1.57	9.8	
EnerVest Energy Institutional Fund XIV-A, L.P.	100,000,000	99,538,995	101,510,847	8,554,703	54,387,465	1.57	9.8	2015
First Reserve	500,000,000	554,272,050	311,200,198	11,058,656	83,423,650	0.71	-7.8	
First Reserve Fund XI, L.P.	150,000,000	150,292,121	100,059,903	0	47,299	0.67	-8.8	2006
First Reserve Fund XII, L.P.	150,000,000	165,617,044	85,669,271	0	157,160	0.52	-17.9	2008
First Reserve Fund XIII, L.P.	200,000,000	238,362,885	125,471,024	11,058,656	83,219,191	0.88	-4.0	2013

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Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Kohlberg, Kravis, Roberts & Co.	249,850,000	198,152,170	41,106,379	66,522,668	192,956,505	1.18	8.7	
KKR Global Infrastructure Investors III	149,850,000	137,945,643	39,367,445	23,457,806	132,894,029	1.25	9.5	2018
KKR Global Infrastructure Investors IV	100,000,000	60,206,527	1,738,934	43,064,862	60,062,477	1.03	3.0	2021
Merit Energy Partners	519,721,518	407,944,488	208,453,712	71,299,891	303,947,025	1.26	3.8	
Merit Energy Partners F-II, L.P.	100,000,000	59,522,861	34,229,124	0	5,443,382	0.67	-5.7	2006
Merit Energy Partners H	100,000,000	100,000,000	29,668,582	0	42,680,840	0.72	-4.4	2011
Merit Energy Partners I, L.P.	169,721,518	169,721,518	114,039,060	0	150,311,023	1.56	8.3	2014
Merit Energy Partners K, L.P.	150,000,000	78,700,109	30,516,946	71,299,891	105,511,779	1.73	27.2	2019
NGP	599,500,000	596,179,574	631,210,695	41,407,385	200,506,708	1.40	9.1	
Natural Gas Partners IX, LP	150,000,000	174,005,353	249,411,654	605,481	281,339	1.43	12.0	2007
NGP Natural Resources X, L.P.	150,000,000	149,453,733	134,061,091	546,267	14,336,522	0.99	-0.2	2011
NGP Natural Resources XI, L.P.	150,000,000	155,018,759	141,097,692	6,121,762	104,445,331	1.58	10.4	2014
NGP Natural Resources XII, L.P.	149,500,000	117,701,729	106,640,258	34,133,875	81,443,516	1.60	14.8	2017
Sheridan	100,000,000	34,353,005	33,800,000	13,520,000	24,239,000	1.69	12.1	
Sheridan Production Partners III-B, L.P.	100,000,000	34,353,005	33,800,000	13,520,000	24,239,000	1.69	12.1	2014

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Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Real Estate	4,523,147,868	3,102,116,460	2,145,479,150	1,752,523,443	2,023,745,709	1.34	9.0	
Angelo, Gordon & Co.	650,000,000	467,562,691	279,782,407	235,655,000	348,233,169	1.34	10.2	
AG Asia Realty Fund III, L.P.	50,000,000	47,587,261	47,125,000	6,196,250	15,753,329	1.32	9.7	2016
AG Asia Realty Fund IV, L.P.	100,000,000	79,350,334	33,500,000	36,797,500	72,856,745	1.34	13.1	2018
AG Asia Realty Fund V	100,000,000	0	0	100,000,000	0		0.0	2023
AG Europe Realty Fund II, L.P.	75,000,000	68,635,121	33,769,976	12,768,750	66,480,945	1.46	10.2	2018
AG Europe Realty Fund III	75,000,000	45,713,586	3,000,000	29,437,500	52,396,009	1.21	10.4	2020
AG Realty Fund IX	100,000,000	92,141,126	89,250,000	11,650,000	33,217,901	1.33	6.6	2014
AG Realty Fund X, L.P.	150,000,000	134,135,263	73,137,431	38,805,000	107,528,239	1.35	15.4	2018
Blackstone	1,124,500,000	919,179,776	912,071,183	379,653,810	578,944,608	1.62	13.1	
Blackstone Real Estate Partners Asia II	74,500,000	71,364,889	15,661,080	13,180,625	69,193,751	1.19	6.5	2017
Blackstone Real Estate Partners Asia III	100,000,000	16,299,930	2,368	85,271,960	13,864,137	0.85	-16.0	2021
Blackstone Real Estate Partners V	100,000,000	104,217,981	209,143,624	4,174,052	115,917	2.01	10.8	2006
Blackstone Real Estate Partners VI, L.P.	100,000,000	109,528,873	218,686,894	4,907,906	1,282,383	2.01	13.1	2007
Blackstone Real Estate Partners VII, LP	100,000,000	112,390,951	181,803,934	10,855,329	17,408,243	1.77	14.8	2011
Blackstone Real Estate VIII, L.P.	150,000,000	174,957,764	179,007,465	20,688,271	113,547,945	1.67	15.3	2015
Blackstone Real Estate Partners IX, L.P.	300,000,000	321,138,934	107,765,817	48,039,452	356,096,159	1.44	21.6	2018
Blackstone Real Estate Partners X	200,000,000	9,280,453	0	192,536,214	7,436,073	0.80	-27.8	2022
Blackstone Strategic Partners	75,000,000	77,489,811	66,234,275	916,710	848,605	0.87	-2.1	
Strategic Partners III RE, L.P.	25,000,000	25,981,820	15,252,523	9,006	85,914	0.59	-6.5	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.	400,000,000	179,792,065	9,938,993	230,080,121	182,532,637	1.07	11.6	
Brookfield Strategic Real Estate Partners IV	300,000,000	179,792,065	9,938,993	130,080,121	182,532,637	1.07	11.6	2021
Brookfield Strategic Real Estate Partners V	100,000,000	0	0	100,000,000	0		0.0	2023
Carlyle Group	450,000,000	168,295,359	110,866,382	353,687,878	115,087,149	1.34	22.7	
Carlyle Realty Partners VIII, L.P.	150,000,000	125,783,301	110,866,382	96,199,936	78,524,271	1.51	25.9	2017
Carlyle Realty Partners IX	300,000,000	42,512,058	0	257,487,942	36,562,878	0.86	-23.9	2021
Kohlberg, Kravis, Roberts & Co.	125,000,000	84,667,369	6,636,723	47,565,174	69,849,620	0.90	-7.6	
KKR Real Estate Partners Americas III	125,000,000	84,667,369	6,636,723	47,565,174	69,849,620	0.90	-7.6	2021
Landmark Partners	249,500,000	106,417,751	68,477,957	165,795,648	82,671,178	1.42	17.1	
Landmark Real Estate Partners VIII, L.P.	149,500,000	106,417,751	68,477,957	65,795,648	82,671,178	1.42	17.1	2016
Landmark Real Estate Partners IX	100,000,000	0	0	100,000,000	0		0.0	2021
Lubert Adler	174,147,868	145,107,744	89,073,212	31,986,552	101,198,109	1.31	14.6	
Lubert-Adler Real Estate Fund VII-B, L.P.	74,147,868	67,585,213	82,515,205	7,414,787	21,400,136	1.54	15.5	2017
Lubert-Adler Recovery and Enhancement Capital Fund	100,000,000	77,522,530	6,558,008	24,571,765	79,797,972	1.11	10.8	2021
Oaktree Capital Management, LLC	200,000,000	150,475,519	36,992,552	84,000,000	124,115,968	1.07	10.0	
Oaktree Real Estate Opportunities Fund VIII	200,000,000	150,475,519	36,992,552	84,000,000	124,115,968	1.07	10.0	2020
Rockpoint	200,000,000	187,539,300	69,882,159	33,085,489	140,421,853	1.12	4.0	
Rockpoint Real Estate Fund V, L.P.	100,000,000	103,224,362	58,755,434	14,217,829	51,778,175	1.07	1.9	2014
Rockpoint Real Estate Fund VI, L.P.	100,000,000	84,314,938	11,126,725	18,867,660	88,643,679	1.18	9.6	2019

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Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Rockwood	200,000,000	171,579,701	61,784,022	32,601,002	124,544,528	1.09	2.9	
Rockwood Capital RE Partners X, L.P.	100,000,000	96,754,684	57,507,174	4,929,845	49,645,091	1.11	2.9	2015
Rockwood Capital RE Partners XI	100,000,000	74,825,018	4,276,848	27,671,157	74,899,436	1.06	3.0	2019
Silverpeak Real Estate Partners	225,000,000	144,009,375	109,295,624	7,496,058	3,691,966	0.78	-3.8	
Silverpeak Legacy Pension Partners II, L.P.	75,000,000	73,069,012	92,033,940	7,496,058	416,950	1.27	4.2	2005
Silverpeak Legacy Pension Partners III, L.P.	150,000,000	70,940,363	17,261,685	0	3,275,016	0.29	-11.8	2008
TA Associates Realty	450,000,000	300,000,000	324,443,661	150,000,000	151,606,319	1.59	12.8	
Realty Associates Fund X	100,000,000	100,000,000	161,165,518	0	19,366	1.61	12.6	2012
Realty Associates Fund XI	100,000,000	100,000,000	144,706,386	0	18,086,752	1.63	11.2	2015
Realty Associates Fund XII	100,000,000	100,000,000	18,571,757	0	133,500,201	1.52	18.2	2018
Realty Associates Fund XIII	150,000,000	0	0	150,000,000	0		0.0	2023
Total	38,303,129,231	29,918,675,818	22,634,193,522	11,606,711,108	22,025,366,974	1.49	11.7	
					<i>Difference**</i>		17,439,382	
Private Markets Total with Difference							22,042,806,356	

Private Markets Portfolio Status	Managers	Funds
Private Equity	59	193
Private Credit	18	42
Real Assets	11	32
Real Estate	13	37
Total	101	304

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.

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Quarterly Report

Participant Directed Investment Program

September 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	\$105,507,520	-3.0%	13.0%	4.2%	6.2%	7.6%	01/1980
U.S. EQUITY ACTIVELY MANAGED FUND	80,360,701	-3.0	21.1	8.5	9.2	11.5	07/1986
U.S. EQUITY INDEX FUND	376,625,875	-3.2	20.5	9.6	9.3	11.4	07/1986
BROAD INTERNATIONAL EQUITY FUND	131,047,952	-3.0	19.2	5.4	3.8	4.2	09/1994
BOND FUND	97,968,718	-3.3	1.7	-4.8	0.6	1.6	07/1986
MONEY MARKET FUND	730,157,553	1.4	5.0	2.0	1.9	1.3	07/1986
STABLE VALUE FUND	1,656,746,933	0.7	2.7	2.2	2.4	2.2	11/1994
VOLUNTEER FIREFIGHTER ACCOUNT	149,039,315	-3.0	10.7	2.0	4.5	5.6	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	\$105,507,520	-3.0%	13.0%	4.2%	6.2%	7.6%
SIF BALANCED FUND BENCHMARK		-3.0%	12.6%	4.0%	5.9%	7.4%
Excess		-0.0%	0.4%	0.2%	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	80,360,701	-3.0	21.1	8.5	9.2	11.5
Russell 3000		-3.3	20.5	9.4	9.1	11.3
Excess		0.2	0.7	-0.8	0.0	0.2



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	\$376,625,875	-3.2%	20.5%	9.6%	9.3%	11.4%
Russell 3000		-3.3%	20.5%	9.4%	9.1%	11.3%
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	131,047,952	-3.0	19.2	5.4	3.8	4.2
International Equity Benchmark		-3.8	20.4	3.7	2.6	3.3
Excess		0.8	-1.2	1.6	1.2	0.8



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	\$97,968,718	-3.3%	1.7%	-4.8%	0.6%	1.6%
Bloomberg U.S. Aggregate		-3.2%	0.6%	-5.2%	0.1%	1.1%
Excess		-0.0%	1.1%	0.4%	0.5%	0.5%

Money Market Fund

The investment objective of the Money Market Fund is to protect principal by investing in short-term, liquid U.S. Government securities. The Fund is invested entirely in high-quality, short-term U.S. Treasury and Agency securities. The average maturity of the portfolios is less than 90 days. Please note that the Market Value for the Money Market Fund reflects assets held through the Deferred Compensation Plan as well.

	<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	730,157,553	1.4	5.0	2.0	1.9	1.3
ICE BofA US 3-Month Treasury Bill		1.3	4.5	1.7	1.7	1.1
Excess		0.1	0.5	0.3	0.2	0.2



Supplemental Investment Fund Performance

Stable Value Fund

The investment objectives of the Stable Value Fund are to protect investors from loss of their original investment and to provide competitive interest rates using somewhat longer-term investments than typically found in a money market fund. The Fund is invested in a well-diversified portfolio of high-quality fixed income securities with strong credit ratings. The Fund also invests in contracts issued by highly rated insurance companies and banks which are structured to provide principal protection for the Fund's diversified bond portfolios, regardless of daily market changes. The Stable Value Fund Benchmark is the 3-year Constant Maturity Treasury Bill +45 basis points. Please note that the Market Value for the Stable Value Fund reflects assets held through the Deferred Compensation Plan as well.

	<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	\$1,656,746,933	0.7%	2.7%	2.2%	2.4%	2.2%
Fixed Interest Blended Benchmark		1.2%	4.7%	2.7%	2.4%	2.1%
Excess		-0.5%	-2.0%	-0.5%	0.0%	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	149,039,315	-3.0	10.7	2.0	4.5	5.6
SIF Volunteer Firefighter Account BM		-3.1	10.6	1.7	4.1	5.2
Excess		0.0	0.1	0.3	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	\$722,400,339	-3.3%	20.4%	9.3%			07/2019
VANGUARD INSTITUTIONAL INDEX PLUS	1,722,545,109	-3.3	21.6	10.1	9.9%	11.9%	07/1999
VANGUARD DIVIDEND GROWTH	915,402,356	-5.5	10.8	8.2	9.2		10/2016
VANGUARD MID CAP INDEX	686,577,832	-5.1	12.6	7.3	6.5	9.1	01/2004
T. ROWE PRICE SMALL-CAP STOCK	801,290,806	-5.7	6.9	4.7	5.2	8.8	04/2000
FIDELITY DIVERSIFIED INTERNATIONAL	314,276,040	-6.1	22.6	1.2	4.3	5.0	07/1999
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	340,766,358	-4.0	20.5	3.9	2.8	3.6	07/2011
VANGUARD BALANCED INDEX	1,290,692,377	-3.2	12.1	3.4	5.7	7.3	12/2003
DODGE & COX INCOME	290,519,438	-2.8	3.1	-3.2	1.3	2.2	07/1999
VANGUARD TOTAL BOND MARKET INDEX	305,144,595	-3.1	0.7	-5.2	0.1	1.1	12/2003
2025 FUND	205,966,192	-1.9	8.0	2.3	3.9	5.0	07/2011
2030 FUND	212,977,611	-2.6	10.5	2.6	4.6	5.9	07/2011
2035 FUND	171,053,352	-3.6	12.9	2.7	4.9	6.3	07/2011
2040 FUND	141,994,004	-4.1	14.0	3.1	5.0	6.6	07/2011
2045 FUND	135,728,711	-4.3	15.0	3.6	5.2	6.8	07/2011
2050 FUND	121,297,720	-4.3	15.9	4.2	5.4	7.1	07/2011
2055 FUND	80,428,615	-4.3	16.8	4.5	5.6	7.1	07/2011
2060 FUND	61,011,255	-4.3	16.8	4.5	5.6	7.1	07/2011
2065 FUND	11,514,606	-4.3	16.8	4.5			04/2020
INCOME FUND	199,936,036	-1.7	7.1	1.6	3.4	3.6	07/2011
Charles Schwab SDB TD	78,756,291						
Charles Schwab SDB Roth	3,179,253						



Mutual Funds

LARGE CAP EQUITY

Vanguard Total Stock Market Institutional Index Plus (passive)

A passive domestic stock portfolio of large and small companies that tracks the CRSP US Total Market Index.

Vanguard Index Institutional Plus (passive)

A passive domestic stock portfolio that tracks the S&P 500.

Vanguard Dividend Growth (active) (1)

A fund of large cap stocks which is expected to outperform the S&P U.S. Dividend Growers Index, over time.

MID CAP EQUITY

Vanguard Mid Cap Index (passive) (2)

A fund that passively invests in companies with medium market capitalizations that tracks the CRSP US Mid-Cap Index.

SMALL CAP EQUITY

T Rowe Price Small Cap (active)

A fund that invests primarily in companies with small market capitalizations and is expected to outperform the Russell 2000 Index.

INTERNATIONAL EQUITY

Fidelity Diversified International (active)

A fund that invests primarily in stocks of companies located outside of the United States and is expected to outperform the MSCI index of Europe, Australasia and the Far East (EAFE), over time.

Vanguard Total International Stock Index (passive) (3)

A fund that seeks to track the investment performance of the FTSE Global All Cap ex US Index, an index designed to measure equity market performance in developed and emerging markets, excluding the United States.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
Large Cap US Equity						
VANGUARD TOTAL STOCK MARKET INSTITUTIONAL INDEX PLUS	\$722,400,339	-3.3%	20.4%	9.3%		07/2019
CRSP US Total Market Index		-3.3	20.4	9.3		07/2019
Excess		0.0	0.0	0.0		
VANGUARD INSTITUTIONAL INDEX PLUS	1,722,545,109	-3.3	21.6	10.1	9.9%	07/1999
S&P 500		-3.3	21.6	10.2	9.9	07/1999
Excess		-0.0	-0.0	-0.0	-0.0	
VANGUARD DIVIDEND GROWTH	915,402,356	-5.5	10.8	8.2	9.2	10/2016
VANGUARD DIVIDEND GROWTH INDEX		-3.9	17.4	8.6	9.1	10/2016
Excess		-1.6	-6.6	-0.4	0.1	
Mid Cap US Equity						
VANGUARD MID CAP INDEX	686,577,832	-5.1	12.6	7.3	6.5	01/2004
CRSP US Mid Cap Index		-5.1	12.6	7.3	6.5	01/2004
Excess		-0.0	0.0	-0.0	0.0	
Small Cap US Equity						
T. ROWE PRICE SMALL-CAP STOCK	801,290,806	-5.7	6.9	4.7	5.2	04/2000
Russell 2000		-5.1	8.9	7.2	2.4	04/2000
Excess		-0.6	-2.0	-2.5	2.8	
International Equity						
FIDELITY DIVERSIFIED INTERNATIONAL	314,276,040	-6.1	22.6	1.2	4.3	07/1999
MSCI EAFE FREE (NET)		-4.1	25.6	5.8	3.2	07/1999
Excess		-2.0	-3.1	-4.6	1.1	
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	340,766,358	-4.0	20.5	3.9	2.8	07/2011
FTSE Global All Cap ex US Index Net		-3.4	20.2	4.0	2.7	07/2011
Excess		-0.7	0.3	-0.1	0.1	



Mutual Funds

BALANCED

Vanguard Balanced Index (passive) (4)

A fund that passively invests in a mix of domestic stocks and bonds. The fund is expected to track a weighted benchmark of 60% CRSP US Total Market Index/40% Bloomberg U.S. Aggregate.

FIXED INCOME

Dodge & Cox Income Fund (active)

A fund that invests primarily in investment grade securities in the U.S. bond market which is expected to outperform the Bloomberg U.S. Aggregate, over time.

Vanguard Total Bond Market Index (passive)

A fund that passively invests in a broad, market weighted bond index that is expected to track the Bloomberg U.S. Aggregate.

Money Market Fund (5)

A fund that invests in short-term debt instruments which is expected to outperform the return on 3 Month T-Bills.

STABLE VALUE

Stable Value Fund (5)

A portfolio composed of stable value instruments which are primarily investment contracts and security backed contracts. The fund is expected to outperform the return of the 3 year Constant Maturity Treasury +45 basis points, over time.

Ending Market Value **Last Qtr** **1 Year** **3 Year** **5 Year** **Option Since**

Balanced Funds

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
VANGUARD BALANCED INDEX	\$1,290,692,377	-3.2%	12.1%	3.4%	5.7%	12/2003
Vanguard Balanced Fund Benchmark		-3.2	12.4	3.5	5.8	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	290,519,438	-2.8	3.1	-3.2	1.3	07/1999
Bloomberg U.S. Aggregate		-3.2	0.6	-5.2	0.1	07/1999
Excess		0.5	2.5	2.0	1.2	

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
VANGUARD TOTAL BOND MARKET INDEX	305,144,595	-3.1	0.7	-5.2	0.1	12/2003
Bloomberg U.S. Aggregate		-3.2	0.6	-5.2	0.1	12/2003
Excess		0.1	0.1	0.0	0.0	

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
MONEY MARKET FUND	730,157,553	1.4	5.0	2.0	1.9	07/1986
ICE BofA US 3-Month Treasury Bill		1.3	4.5	1.7	1.7	07/1986
Excess		0.1	0.5	0.3	0.2	

Stable Value

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
STABLE VALUE FUND	1,656,746,933	0.7	2.7	2.2	2.4	11/1994
Fixed Interest Blended Benchmark		1.2	4.7	2.7	2.4	11/1994
Excess		-0.5	-2.0	-0.5	0.0	

(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	\$205,966,192	-1.9%	8.0%	2.3%	3.9%	07/2011	2050 FUND	\$121,297,720	-4.3%	15.9%	4.2%	5.4%	07/2011
2025 FUND BENCHMARK		-1.9%	8.0%	2.3%	3.9%	07/2011	2050 FUND BENCHMARK		-4.2%	15.7%	4.2%	5.4%	07/2011
Excess		-0.0%	0.0%	-0.0%	0.0%		Excess		-0.1%	0.2%	-0.0%	0.0%	
2030 FUND	\$212,977,611	-2.6%	10.5%	2.6%	4.6%	07/2011	2055 FUND	\$80,428,615	-4.3%	16.8%	4.5%	5.6%	07/2011
2030 FUND BENCHMARK		-2.6%	10.5%	2.6%	4.6%	07/2011	2055 FUND BENCHMARK		-4.2%	16.6%	4.5%	5.6%	07/2011
Excess		-0.1%	0.1%	-0.0%	0.0%		Excess		-0.1%	0.3%	-0.0%	0.0%	
2035 FUND	\$171,053,352	-3.6%	12.9%	2.7%	4.9%	07/2011	2060 FUND	\$61,011,255	-4.3%	16.8%	4.5%	5.6%	07/2011
2035 FUND BENCHMARK		-3.5%	12.8%	2.7%	4.9%	07/2011	2060 FUND BENCHMARK		-4.2%	16.6%	4.5%	5.6%	07/2011
Excess		-0.1%	0.1%	-0.0%	0.0%		Excess		-0.1%	0.2%	-0.0%	-0.0%	
2040 FUND	\$141,994,004	-4.1%	14.0%	3.1%	5.0%	07/2011	2065 FUND	\$11,514,606	-4.3%	16.8%	4.5%		04/2020
2040 FUND BENCHMARK		-4.0%	13.8%	3.1%	5.0%	07/2011	2065 FUND BENCHMARK		-4.2%	16.6%	4.5%		04/2020
Excess		-0.1%	0.2%	-0.0%	0.0%		Excess		-0.1%	0.2%	-0.0%		
2045 FUND	\$135,728,711	-4.3%	15.0%	3.6%	5.2%	07/2011	INCOME FUND	\$199,936,036	-1.7%	7.1%	1.6%	3.4%	07/2011
2045 FUND BENCHMARK		-4.2%	14.8%	3.7%	5.2%	07/2011	INCOME FUND BENCHMARK		-1.7%	7.1%	1.6%	3.4%	07/2011
Excess		-0.1%	0.2%	-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: September 30, 2023

Total = \$1,743 Million

Fund Name	Ending Market	3 Months	1 Year	Annualized				Inception Date
				3 Years	5 Years	10 Years	Since Inception	
2040/2041 Enrollment Option	\$2,940,217	-3.65%					0.40%	5/12/2023
2040-2041 Custom Benchmark		-3.42%					1.13%	
2038/2039 Enrollment Option	\$27,600,612	-3.69%	15.06%				-2.65%	6/11/2021
2038-2039 Custom Benchmark		-3.38%	15.62%				-2.50%	
2036/2037 Enrollment Option	\$73,876,794	-3.58%	14.50%	5.01%			5.62%	10/28/2019
2036-2037 Custom Benchmark		-3.31%	14.99%	5.41%			5.59%	
2034/2035 Enrollment Option	\$60,192,805	-3.47%	13.85%	4.65%			5.30%	10/28/2019
2034-2035 Custom Benchmark		-3.24%	14.30%	5.03%			5.27%	
2032/2033 Enrollment Option	\$65,769,003	-3.28%	12.77%	4.15%			4.97%	10/28/2019
2032-2033 Custom Benchmark		-3.11%	13.20%	4.54%			4.93%	
2030/2031 Enrollment Option	\$75,217,132	-2.95%	11.06%	3.53%			4.41%	10/28/2019
2030-2031 Custom Benchmark		-2.76%	11.63%	3.92%			4.40%	
2028/2029 Enrollment Option	\$93,320,123	-2.62%	9.28%	2.71%			3.71%	10/28/2019
2028-2029 Custom Benchmark		-2.41%	10.01%	3.11%			3.68%	
2026/2027 Enrollment Option	\$124,396,600	-2.25%	7.63%	1.96%			3.13%	10/28/2019
2026-2027 Custom Benchmark		-1.88%	8.64%	2.41%			3.17%	
2024/2025 Enrollment Option	\$164,860,077	-1.33%	5.88%	1.67%			2.85%	10/28/2019
2024-2025 Custom Benchmark		-0.85%	7.42%	2.20%			2.94%	
In School Option	\$317,735,774	-1.01%	4.34%	0.97%			2.02%	10/28/2019
In School Custom Benchmark		-0.45%	5.70%	1.17%			1.79%	

MINNESOTA COLLEGE SAVINGS PLAN
Performance Statistics for the Period Ending: September 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	\$266,683,560	-4.10%	18.77%	7.26%	6.68%	8.44%	7.10%	10/1/2001
BB: U.S. and International Equity Option		-3.76%	19.38%	7.77%	6.67%	8.50%	7.77%	
Moderate Allocation Option	\$92,631,548	-3.27%	11.80%	3.16%	4.65%	5.81%	5.13%	8/2/2007
BB: Moderate Allocation Option		-3.06%	12.41%	3.53%	4.74%	5.93%	5.62%	
100% Fixed-Income Option	\$17,175,600	-2.09%	1.97%	-3.29%	0.86%	1.37%	2.54%	8/16/2007
BB: 100% Fixed-Income Option		-2.06%	2.22%	-3.09%	1.11%	1.66%	3.06%	
International Equity Index Option	\$9,715,128	-4.28%	22.81%	4.47%	2.89%	3.50%	4.00%	6/18/2013
BB: International Equity Index Option		-3.86%	22.86%	4.33%	2.79%	3.56%	4.08%	
Money Market Option	\$19,901,710	1.26%	4.44%	1.65%	1.56%	0.96%	0.77%	11/1/2007
BB: Money Market Option		1.24%	4.28%	1.59%	1.46%	0.88%	0.70%	
Principal Plus Interest Option	\$105,865,883	0.48%	1.84%	1.47%	1.69%	1.54%	2.33%	10/10/2001
Citigroup 3-Month U.S. Treasury Bill		1.38%	4.71%	1.78%	1.74%	1.12%	1.39%	
Aggressive Allocation Option	\$86,461,967	-3.70%	15.29%	5.22%	5.68%		6.61%	8/12/2014
BB: Aggressive Allocation Option		-3.41%	15.88%	5.67%	5.76%		6.62%	
Conservative Allocation Option	\$15,797,248	-2.04%	6.83%	1.17%	3.02%		3.30%	8/18/2014
BB: Conservative Allocation Option		-1.69%	7.97%	1.55%	3.24%		3.43%	
Equity and Interest Accumulation Option	\$8,337,236	-1.39%	10.74%	5.54%	5.55%		6.01%	8/18/2014
BB: Equity and Interest Accumulation Option		-0.91%	12.67%	5.94%	5.89%		6.12%	
U.S. Large Cap Equity Option	\$111,695,387	-3.32%	21.43%	9.98%	9.76%		10.98%	8/12/2014
BB: U.S. Large Cap Equity Option		-3.27%	21.62%	10.15%	9.92%		11.10%	
Social Choice Equity Option	\$1,437,731	-3.43%	19.13%				-0.70%	6/11/2021
BB: Social Choice Equity Option		-3.25%	20.46%				0.11%	
Matching Grant	\$1,159,142	0.48%	1.84%	1.47%	1.69%	1.54%	2.33%	3/22/2002
Citigroup 3-Month U.S. Treasury Bill		1.38%	4.71%	1.78%	1.74%	1.12%	1.39%	

MINNESOTABLE *plan*

A member of The National ABLE Alliance

Performance as of
09/30/23

Total Market Value: \$37,459,078

<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	\$2,676,013	7.14%	(4.19)	(3.72)	6.62	14.60	5.13	4.96		6.95	12/15/16
ABLE Aggressive Custom Benchmark			(4.12)	(3.46)	6.89	15.06	5.46	5.24		7.35	
Variance			(0.07)	(0.26)	(0.27)	(0.46)	(0.33)	(0.28)		(0.40)	
Moderately Aggressive Option	\$3,046,131	8.13%	(3.67)	(3.30)	5.58	12.41	4.03	4.49		6.10	12/15/16
ABLE Moderately Aggressive Custom Benchmark			(3.65)	(3.09)	5.86	12.87	4.34	4.77		6.48	
Variance			(0.02)	(0.21)	(0.28)	(0.46)	(0.31)	(0.28)		(0.38)	
Growth Option	\$4,519,336	12.06%	(3.09)	(2.75)	4.75	10.40	2.95	3.97		5.21	12/15/16
ABLE Growth Custom Benchmark			(3.05)	(2.52)	5.00	10.86	3.24	4.25		5.57	
Variance			(0.04)	(0.23)	(0.25)	(0.46)	(0.29)	(0.28)		(0.36)	
Moderate Option	\$4,270,114	11.40%	(2.57)	(2.28)	3.75	8.22	1.79	3.37		4.28	12/15/16
ABLE Moderate Custom Benchmark			(2.53)	(2.08)	4.01	8.72	2.05	3.64		4.60	
Variance			(0.04)	(0.20)	(0.26)	(0.50)	(0.26)	(0.27)		(0.32)	
Moderately Conservative Option	\$3,994,994	10.66%	(1.81)	(1.34)	3.30	6.65	1.51	2.81		3.35	12/15/16
ABLE Moderately Conservative Custom Benchmark			(1.69)	(1.14)	3.73	7.23	1.75	3.07		3.65	
Variance			(0.12)	(0.20)	(0.43)	(0.58)	(0.24)	(0.26)		(0.30)	
Conservative Option	\$6,909,819	18.45%	(0.61)	0.00	2.78	4.37	1.01	1.92		2.03	12/15/16
ABLE Conservative Custom Benchmark			(0.49)	0.20	3.36	5.22	1.29	2.18		2.28	
Variance			(0.12)	(0.20)	(0.58)	(0.85)	(0.28)	(0.26)		(0.25)	
Checking Account Option	\$12,042,671	32.15%									03/30/17

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Quarterly Report

Non-Retirement

September 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

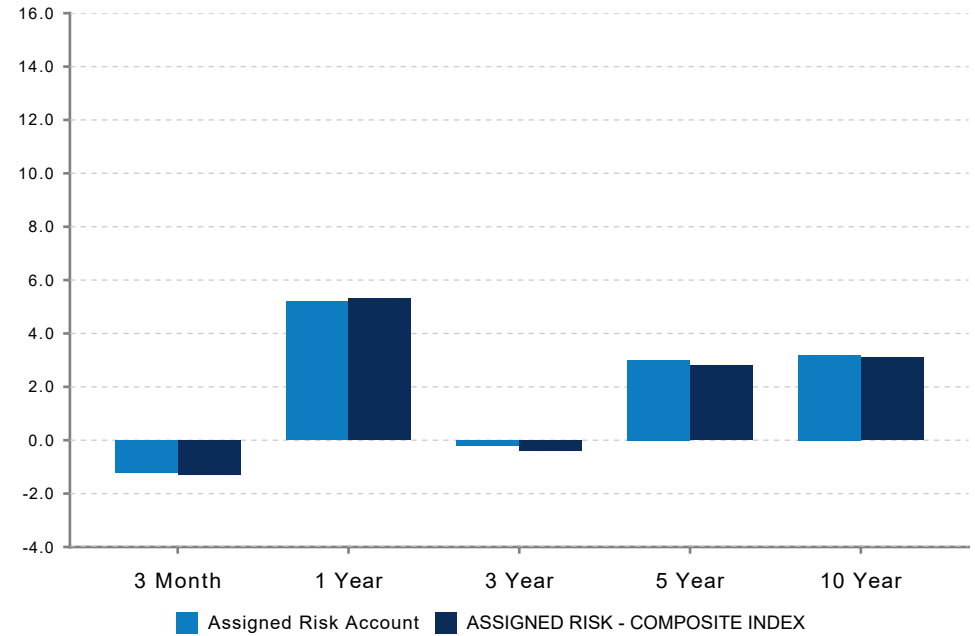
Assigned Risk Plan

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.

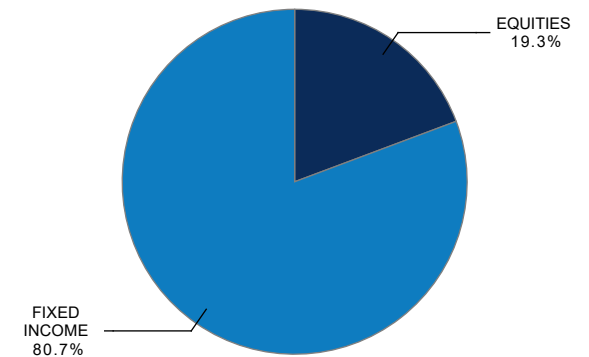
The Assigned Risk Plan is invested in a portfolio of common stocks and bonds

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	\$258,649,445	-1.2%	5.2%	-0.2%	3.0%	3.2%
EQUITIES	\$49,965,555	-3.3%	21.7%	10.2%	9.9%	11.3%
FIXED INCOME	\$208,683,890	-0.8%	1.4%	-3.0%	0.8%	0.9%
ASSIGNED RISK - COMPOSITE INDEX		-1.3%	5.3%	-0.4%	2.8%	3.1%
Excess		0.0%	-0.1%	0.2%	0.3%	0.1%
S&P 500		-3.3%	21.6%	10.2%	9.9%	11.9%
Bloomberg U.S. Government: Intermediate		-0.8%	1.3%	-3.2%	0.7%	0.8%



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.



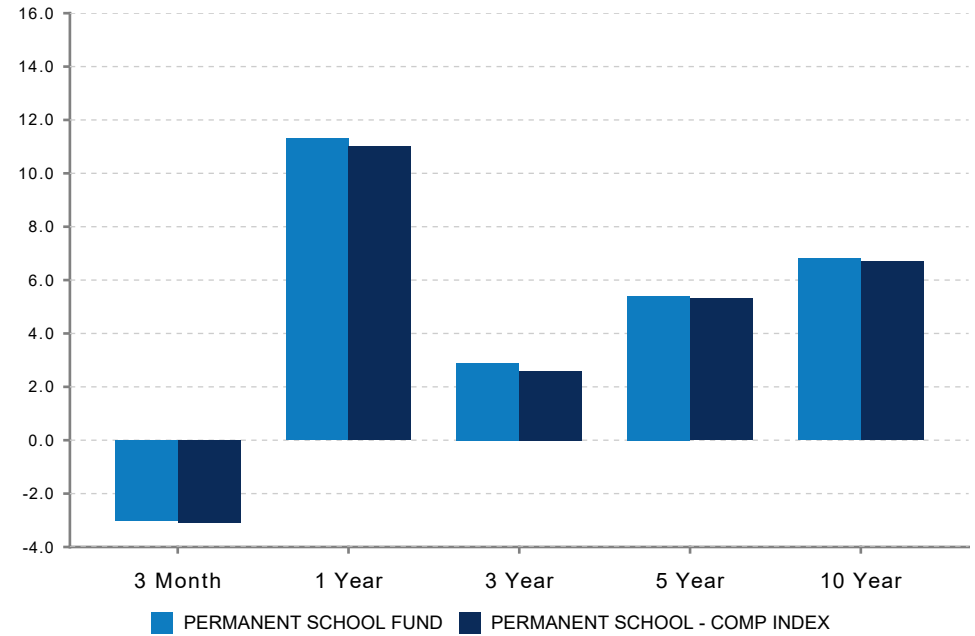
Non-Retirement

Permanent School Fund

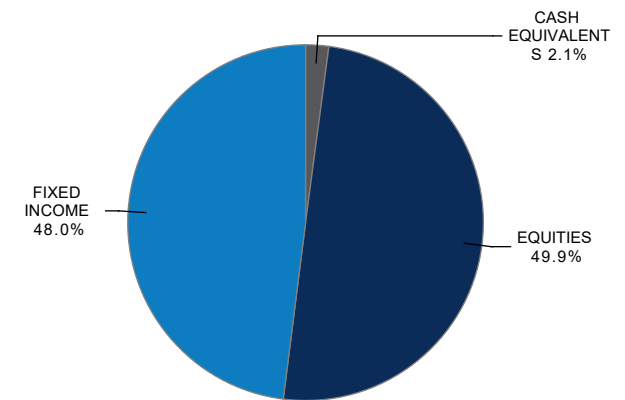
The investment objective of the Permanent School Fund is to produce a growing level of spendable income, within the constraints of maintaining adequate portfolio quality and liquidity. The income from the portfolio is transferred to the school endowment fund and distributed to Minnesota's public schools.

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.



	<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>
PERMANENT SCHOOL FUND	\$1,834,630,550	-3.0%	11.3%	2.9%	5.4%	6.8%
CASH EQUIVALENTS	38,193,755	1.4	4.8	1.9	1.8	1.2
EQUITIES	915,044,050	-3.3	21.7	10.2	9.9	11.9
FIXED INCOME	881,392,745	-3.0	1.2	-5.0	0.3	1.4
PERMANENT SCHOOL - COMP INDEX		-3.1	11.0	2.6	5.3	6.7
Excess		0.1	0.3	0.3	0.0	0.2
S&P 500		-3.3	21.6	10.2	9.9	11.9
Bloomberg U.S. Aggregate		-3.2	0.6	-5.2	0.1	1.1



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.



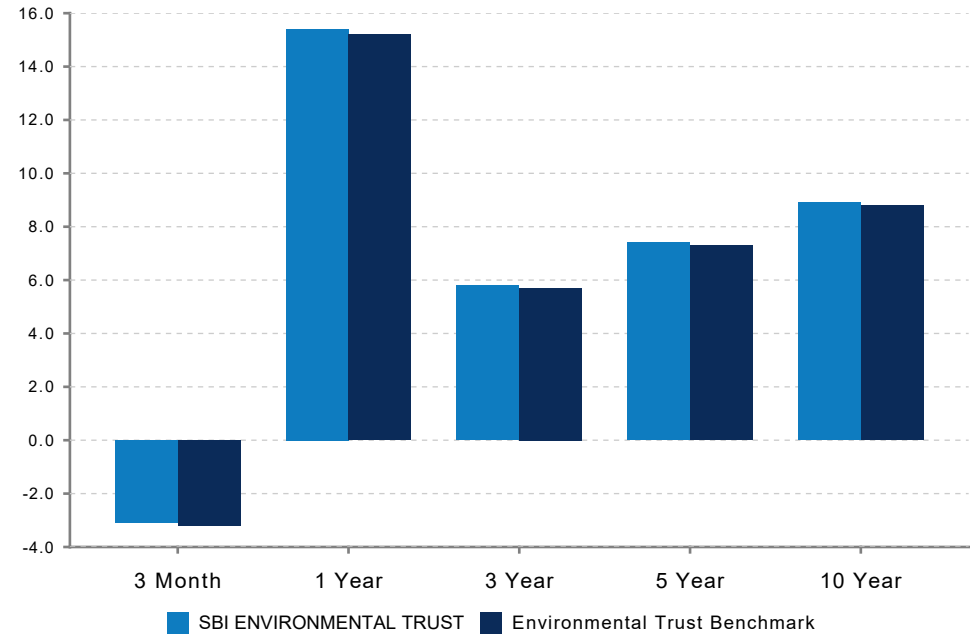
Non-Retirement

Environmental Trust Fund

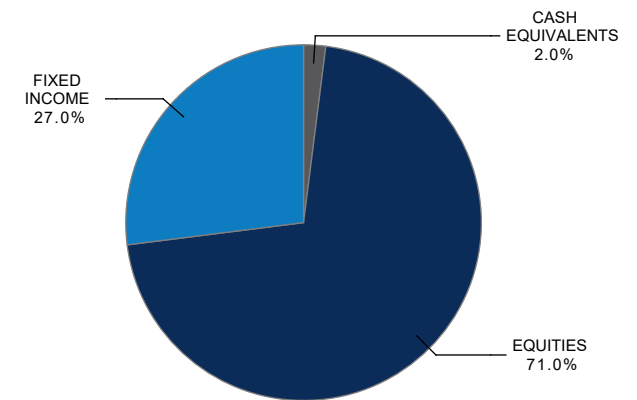
The objective of the Environmental Trust Fund is to increase the market value of the Fund over time in order to increase the annual amount made available for spending within the constraints of maintaining adequate portfolio quality and liquidity.

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	\$1,562,055,765	-3.1%	15.4%	5.8%	7.4%	8.9%
CASH EQUIVALENTS	31,108,759	1.4	4.8	1.9	1.8	1.2
EQUITIES	1,109,678,562	-3.3	21.7	10.2	9.9	11.9
FIXED INCOME	421,268,444	-3.0	1.2	-5.0	0.3	1.4
Environmental Trust Benchmark		-3.2	15.2	5.7	7.3	8.8
Excess		0.1	0.2	0.1	0.1	0.1
S&P 500		-3.3	21.6	10.2	9.9	11.9
Bloomberg U.S. Aggregate		-3.2	0.6	-5.2	0.1	1.1



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.

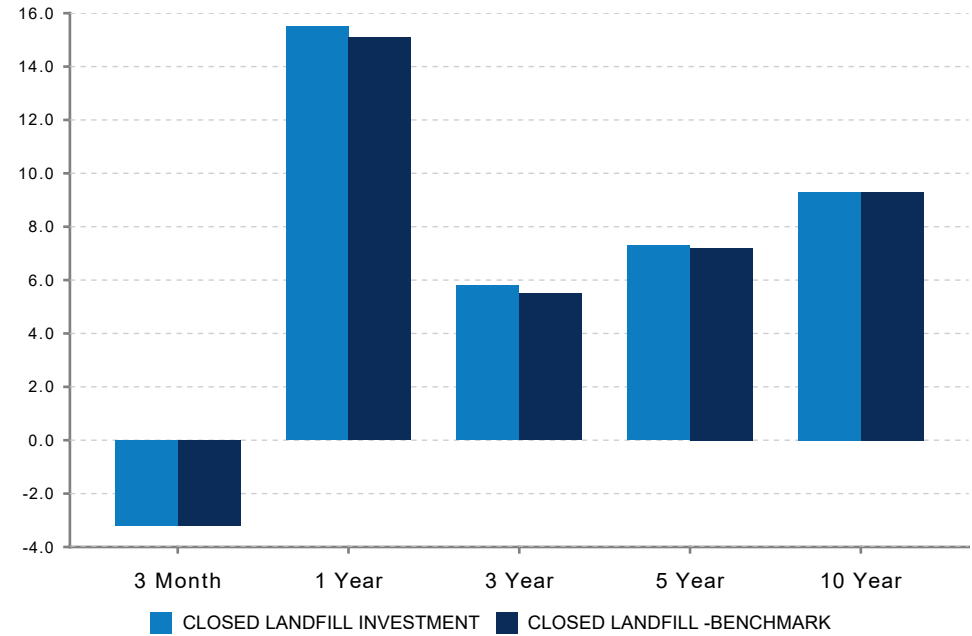


Non-Retirement

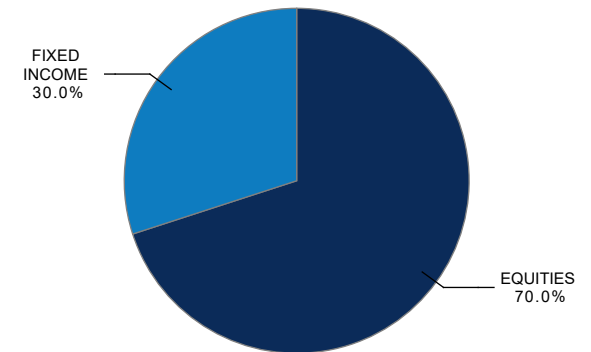
Closed Landfill Investment Fund

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	\$123,699,820	-3.2%	15.5%	5.8%	7.3%	9.3%
EQUITIES	86,611,607	-3.3	21.7	10.2	9.9	11.9
FIXED INCOME	37,088,213	-3.0	1.2	-5.0	0.3	
CLOSED LANDFILL -BENCHMARK		-3.2	15.1	5.5	7.2	9.3
Excess		0.1	0.3	0.3	0.0	0.1
S&P 500		-3.3	21.6	10.2	9.9	11.9
Bloomberg U.S. Aggregate		-3.2	0.6	-5.2	0.1	1.1



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	2,988,711,440	-3.3	-3.3	21.6	10.1	9.9	11.9	9.9	07/1993
S&P 500 INDEX (DAILY)		-3.3	-3.3	21.6	10.2	9.9	11.9	9.8	07/1993
Excess		0.0	0.0	-0.0	-0.0	-0.0	-0.0	0.1	
NON RETIREMENT FIXED INCOME - PRUDENTIAL	1,527,352,722	-3.0	-3.0	1.2	-5.0	0.3	1.4	4.9	07/1994
Bloomberg U.S. Aggregate		-3.2	-3.2	0.6	-5.2	0.1	1.1	4.4	07/1994
Excess		0.3	0.3	0.5	0.2	0.2	0.3	0.4	
RBC	208,683,795	-0.8	-0.8	1.4	-3.0	0.8	0.9	4.2	07/1991
RBC Custom Benchmark		-0.8	-0.8	1.3	-3.2	0.7	0.8	4.2	07/1991
Excess		-0.0	-0.0	0.1	0.2	0.1	0.1	-0.1	
MET COUNCIL OPEB BOND POOL	116,424,015	-0.2	-0.2	1.9	-1.8	0.7			02/2009
NON RETIREMENT CASH ACCOUNT	732,684,376	1.4	1.4	4.8	1.9	1.8		1.8	12/2017
ICE BofA US 3-Month Treasury Bill		1.3	1.3	4.5	1.7	1.7		1.7	12/2017
Excess		0.1	0.1	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.

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Quarterly Report

State Cash

September 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	25,407,330,156	1.4	4.8	1.3	1.6	1.0
iMoneyNet Money Fund Average-All Taxable		1.3	4.3	1.6	1.5	0.9

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	100,338,937	-3.2	5.8	-0.3	2.0	1.2
Housing Finance (1)	849,046,451	1.2				



Addendum

Benchmark Definitions

Active Domestic Equity Benchmark:

A weighted composite each of the individual active domestic equity managers' benchmarks. Effective 3/1/2017 the calculation uses the average weight of the manager relative to the total group of active managers during the month. Prior to 3/1/2017 the beginning of the month weight relative to the total group was used.

Benchmark DM:

Since 6/1/08 the developed markets managers' benchmark, "Benchmark DM," is the Standard (large + mid) MSCI World ex USA (net). From 10/1/07 through 5/31/08 the benchmark was the Provisional Standard MSCI World ex USA (net). From 10/1/03 to 9/30/07 the benchmark was the MSCI World ex USA (net). Prior to that date, it was the MSCI EAFE Free (net), including from 10/1/01 to 5/31/02 when it was the Provisional MSCI EAFE Free (net).

Benchmark EM:

Since 6/1/08 the emerging markets managers' benchmark, "Benchmark EM," is the Standard (large + mid) MSCI Emerging Markets Free (net). From 10/1/07 through 5/31/08 the benchmark was the Provisional Standard MSCI Emerging Markets Free (net). From 1/1/01 to 9/30/07 the benchmark was the MSCI Emerging Markets Free (net), including from 10/1/01 to 5/31/02 when it was the Provisional MSCI Emerging Markets Free (net). Prior to 1/1/01, it was the MSCI Emerging Markets Free (gross).

Combined Funds Composite Index:

The Composite Index performance is calculated by multiplying the beginning of month Composite weights by the monthly returns of the asset class benchmarks. Asset class weights for Private Markets - Invested and Private Markets - Uninvested are reset at the start of each month. From 1/1/2018-2/28/2019 the Transitional Policy Target was used to reflect the addition of Treasuries to the Fixed Income portfolio. From 7/1/2016-12/31/2016 the composite weights were set to match actual allocation as the portfolio was brought into line with the new Strategic Asset Allocation Policy Target. 7/1/2016 to 12/1/2020 the uninvested portion of Private Markets allocated to Public Equity. Prior to 7/1/2016 the uninvested portion of the Private Markets was invested in Fixed Income and the Composite Index was adjusted accordingly. When the Strategic Asset Allocation Policy Target changes, so does the Composite Index.

Core Bonds Benchmark:

The Core Bonds Benchmark is the Bloomberg U.S. Aggregate. Prior to 2016 this index was called the Barclays Agg. Prior to 9/18/2008 this index was called the Lehman Brothers Aggregate Bond Index. From 7/1/84-6/30/94 the asset class benchmark was the Salomon Brothers Broad Investment Grade Index. The SBI name for this benchmark changed from Fixed Income to Core Bonds on March 31, 2020.

Credit Plus Benchmark:

40% Bloomberg US Corporate Bond Index, 30% Bloomberg US Mortgage Backed Index, 20% BofA ML US High Yield BB-B Cash Pay Constrained Index, and 10% JPM EMBI Global Diversified Index.



Addendum

Domestic Equity Benchmark:

Since 12/1/2020 the benchmark is the Russell 3000. From 1/1/2019-11/30/2020 the benchmark was 90% Russell 1000 and 10% Russell 2000. From 10/1/2003 to 12/31/2018 it was the Russell 3000. From 7/1/1999 to 9/30/2003, it was the Wilshire 5000 Investable Index. From 11/1/1993 to 6/30/1999, the target was the Wilshire 5000 as reported with no adjustments. Prior to 11/1/1993, the Wilshire 5000 was adjusted to reflect SBI mandated restrictions, which included liquor and tobacco, American Home Products and South Africa.

Fixed Interest Blended Benchmark: Since 6/1/2002, equals 3 Year Constant Maturity Treasury Yield + 45 bps. Prior to this change it was the 3 Year Constant Maturity Treasury Yield + 30 bps.

International Equity Benchmark:

Since 12/1/2020 equals the MSCI ACWI ex-US(Net). From 1/1/2018 to 1/1/2019 it was 75% MSCI World ex USA Index (net) and 25% MSCI Emerging Markets Index (net). From 6/1/08 to 12/31/2018 the International Equity asset class target was the Standard (large + mid) MSCI ACWI ex U.S. (net). From 10/1/07 through 5/31/08 the benchmark was the Provisional Standard MSCI ACWI ex U.S. (net). From 10/1/03 to 9/30/07 the target was MSCI ACWI ex U.S. (net). From 1/1/01 to 9/30/03, the target was MSCI EAFE Free (net) plus Emerging Markets Free (net), and from 7/1/99 to 12/31/00 the target was MSCI EAFE Free (net) plus Emerging Markets Free (gross). From 7/1/99 to 9/30/03, the weighting of each index fluctuated with market capitalization. From 10/1/01 to 5/31/02 all international benchmarks being reported were the MSCI Provisional indices. From 12/31/96 to 6/30/99 the benchmark was fixed at 87% EAFE Free (net)/13% Emerging Markets Free (gross). On 5/1/96, the portfolio began transitioning from 100% EAFE Free (net) to the 12/31/96 fixed weights. Prior to 5/1/96 it was 100% the EAFE Free (net).

Multi-Asset Credit Benchmark:

33.33% ICE BofA High Yield, 33.33% S&P LSTA Leveraged Loan, and 33.33% JPM EMBI Global Diversified Index.

Passive Domestic Equity Benchmark:

A weighted average of the Russell 1000, Russell 2000 and Russell 3000 effective 11/1/2018. From 10/1/2016 to 11/1/2018 it was a weighted average of the Russell 1000 and Russell 3000. From 10/1/2003 to 10/1/2016 it was equal to the Russell 3000. From 7/1/2000 to 9/30/2003, it was the Wilshire 5000 Investable Index. From 11/1/1993 to 6/30/2000, the target was the Wilshire 5000 as reported with no adjustments. Prior to 11/1/1993, the Wilshire 5000 was adjusted to reflect SBI mandated restrictions, which included liquor and tobacco, American Home Products and South Africa.

Passive Manager Benchmark:

Russell 3000 effective 10/1/2003. From 7/1/2000 to 9/30/2003, it was the Wilshire 5000 Investable Index. From 11/1/1993 to 6/30/2000, the target was the Wilshire 5000 as reported with no adjustments. Prior to 11/1/1993, the Wilshire 5000 was adjusted to reflect SBI mandated restrictions, which included liquor and tobacco, American Home Products and South Africa.



Addendum

Public Equity Benchmark:

Since 12/1/2020 it is 67% Russell 3000 and 33% MSCI ACWI ex-US(net). From 1/1/2019 to 12/1/2020 it was 60.3% Russell 1000, 6.7% Russell 2000, 24.75% MSCI World Ex US (net), and 8.25% MSCI EM (net). From 7/1/2017 thru 12/31/2018 it was 67% Russell 3000 and 33% MSCI ACWI ex USA. Prior to 6/30/16 the returns of Domestic and International Equity were not reported as a total Public Equity return. From 6/30/16-6/30/17 the Public Equity benchmark adjusted by 2% each quarter from 75% Russell 3000 and 25% MSCI ACWI ex USA until it reached 67% and 33%.

Return Seeking BM:

A weighted composite of each individual return seeking fixed income managers' benchmarks. The calculation uses the average weight of the manager relative to the total group of active managers during the month.

Semi-Passive Domestic Equity Benchmark: Russell 1000 index effective 1/1/2004. Prior to 1/1/2004 it was the Completeness Fund benchmark.

Total Fixed Income Benchmark:

Since 7/1/2020 the Total Fixed Income benchmark is 40% Bloomberg U.S. Aggregate Index/ 40% Bloomberg Treasury 5+ Years Index/ 20% ICE BofA US 3-Month Treasury Bill. From 4/1/2019-6/30/2020 it was 50% Bloomberg Aggregate and 50% Bloomberg Treasury 5+ Years Index. From 2/1/2018-3/31/19 the weighting of this benchmark reflected the relative weights of the Core Bonds and Treasuries allocations in the Combined Funds Composite.

Zevenbergen Benchmark: Russell 3000 Growth index effective 1/1/2021. Prior to 1/1/2021 it was the Russell 1000 Growth Index.

