
INVESTMENT ADVISORY COUNCIL

OF THE MINNESOTA STATE BOARD OF INVESTMENT

**INVESTMENT ADVISORY COUNCIL
MEETING
February 21, 2024**



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

February 21, 2024

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AGENDA
INVESTMENT ADVISORY COUNCIL MEETING

Wednesday, February 21, 2024
12:00 p.m.
Retirement Systems Building
Room 106 – Main Floor
60 Empire Drive, St. Paul, MN

TAB

1. Call to Order

2. Election of Chair and Vice Chair **Motion Needed**

3. Approval of Minutes of November 13, 2023 **Motion Needed**

4. Report from the Executive Director (J. Schurtz)

A. Quarterly Performance Summary **A**

B. Administrative Report **B**

5. Private Markets Investment Program Report (G. Martin/J. Schurtz) **C Motion Needed**

6. Minnesota College Savings Plan (529 Plan) (J. Schurtz) **D Motion Needed**

7. Participant-Directed Plans (J. Schurtz) **E Motion Needed**

8. Asset Allocation Study Update (J. Schurtz/E. Sonderegger) **F**

9. Other Items

REPORTS

- ❖ **Public Markets Investment Program Report**
- ❖ **Participant Directed Investment Program and Non-Retirement Investment Program Report**
- ❖ **Aon Market Environment Report**
- ❖ **Meketa Capital Markets Outlook & Risk Metrics Report**
- ❖ **SBI Comprehensive Performance Report**

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Approval of
November 13, 2023
IAC Meeting Minutes

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Minutes
Investment Advisory Council Meeting
November 13, 2023

The Investment Advisory Council (IAC) met at 12:00 p.m. on Monday, November 13, 2023 in Room 117 of the Retirement Systems Building, 60 Empire Drive, St. Paul, MN 55103.

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

IAC Members Absent: Kim Faust, Susanna Gibbons, and Jennifer Hassemer (for Erin Campbell).

SBI Staff Present: Jill Schurtz, Paul Anderson, Nate Blumenshine, Cassie Boll, Sara Bruggeman, Andy Christensen, Dan Covich, Andrew Krech, Melissa Mader, John Mulé, Mercy Ndungu, Charlene Olson, Emily, Pechacek, Erol Sonderegger, Jonathan Stacy, David Velasquez, Jeff Weber, David Velasquez, and Samir Zahar.

Others Present: Katie Comstock, Aon Investments; Allan Emkin, Stephanie Sorg, and Gordon Latter, Meketa Investment Group; Dana Mitchell and J. Adam Sorenson, Attorney General's Office; Jake Smith and Mary Fee, Governor's Office; Ramona Advani, State Auditor's Office; Bibi Black and Justin Erickson, Secretary of State's Office; Sam Logterman, Winthrop and Weinstein; and Janet Anderson, Minnesota Divestment Coalition.

Call to Order

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

Approval of IAC Minutes

The minutes of the August 14, 2023 meeting were approved.

IAC Members

Mr. Martin and Executive Director Jill Schurtz announced Commissioner Erin Campbell of Minnesota Management and Budget as a new member and thanked Susanna Gibbons for her service to the IAC, in their absence. Ms. Schurtz stated that the IAC membership committee would meet to review four renewing applicants and applications for one open IAC seat. Lastly, Ms. Schurtz mentioned the intention to call for the election of IAC Officers at the next quarterly meeting.

Organizational Updates

Ms. Schurtz announced a number of organizational updates which included SBI staff promotions, development opportunities, and the addition of new staff members.

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 September 30, 2023:

AUM: The SBI was responsible for \$128.9 billion in assets. Of the assets under management, the Combined Funds represented \$83 billion.

Performance: The Combined Funds returned -1.9% for the quarter and fiscal year to date. The Combined Funds returned 11.7% for the one-year period ending September 30, 2023. 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 55th percentile for the quarter and the 15th percentile for the year.

Private Markets Investment Program Report

Ms. Schurtz referred members to Tab C of the meeting materials for the Private Markets Investment Program Report. She introduced Cassie Boll, Jon Stacy, and members of the Private Markets team to present five investment recommendations: Court Square Capital Partners V; TPG Growth VI; Stellex Fund III; Torchlight Debt Opportunity Fund VIII; and Vance Street Fund IV.

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

Asset Allocation Study

Ms. Schurtz introduced Erol Sonderegger and David Velasquez to present an update regarding the Combined Funds asset allocation study. Additional updates will be provided at each quarterly meeting ahead of the final recommendation in the third quarter of 2024.

Informational Reports included in Quarterly Meeting Materials:

Public Markets Investment Report

Participant Directed Investment Program and Non-Retirement Investment Program Report

SBI Environmental, Social, and Governance (ESG) Report

Aon Market Environmental Report

Meketa Capital Markets Outlook & Risk Metrics Report SBI

Comprehensive Performance Report

Adjournment of Meeting

The motion to adjourn the meeting was approved. The meeting adjourned at 12:55 p.m.

Respectfully submitted,

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

Jill E. Schurtz
Executive Director and
Chief Investment Officer

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TAB A

Quarterly Performance Summary

December 31, 2023

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Quarterly Report

Performance Summary

December 31, 2023



Description of SBI Investment Programs

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

Combined Funds

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

Fire Plans + Other Retirement Plans

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

Participant Directed Investment Program

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

Non-Retirement Funds

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

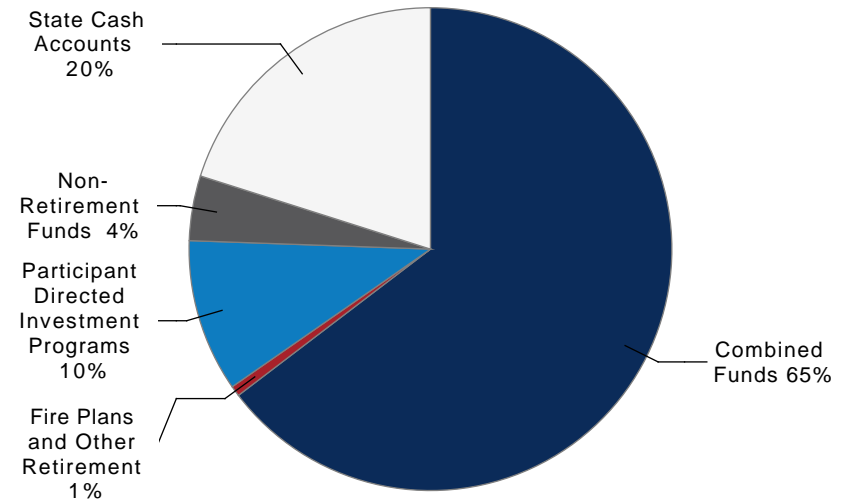
State Cash

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



Funds Under Management

	<u>\$ Millions</u>
COMBINED FUNDS	\$89,307
Fire Plans + Other Retirement Plans	972
Participant Directed Investment Program	14,118
State Deferred Compensation Plan	9,627
Health Care Savings Plan	1,917
Unclassified Employees Retirement Plan	379
Hennepin County Supplemental Retirement Plan	169
PERA Defined Contribution Plan	94
Minnesota College Savings Plan	1,890
Minnesota Achieving a Better Life Experience Plan	42
Non-Retirement Funds	5,998
Assigned Risk Plan	273
Permanent School Fund	1,995
Environmental Trust Fund	1,714
Closed Landfill Investment Fund	136
Miscellaneous Trust Funds	981
Other Postemployment Benefits Accounts	899
State Cash	27,766
Invested Treasurer's Cash	26,851
Other State Cash Accounts	915
TOTAL SBI AUM	138,161



Note: Differentials within column amounts may occur due to rounding



Quarterly Report

Comparison to Objective

Match or Exceed Composite Index (10 yr.)

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

10 Year

Combined Funds	8.2%
<i>Combined Funds - Composite Index</i>	8.1
Excess	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	8.2%
<i>CPI-U</i>	2.6
Excess	5.6

Note:

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



Combined Funds Summary

Combined Funds Change in Market Value (\$Millions)

	<u>One Quarter</u>
Combined Funds	
Beginning Market Value	\$83,036
Net Contributions	46
Investment Return	6,225
Ending Market Value	89,307

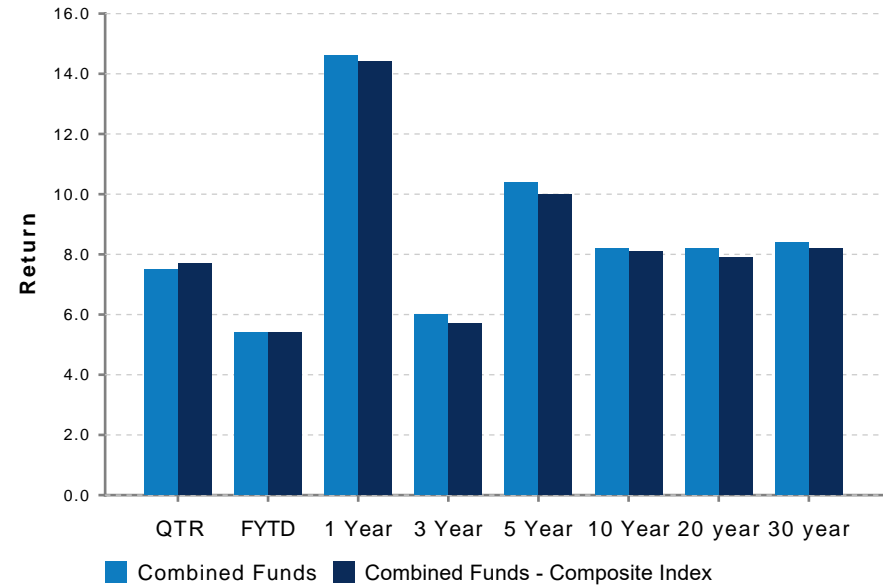
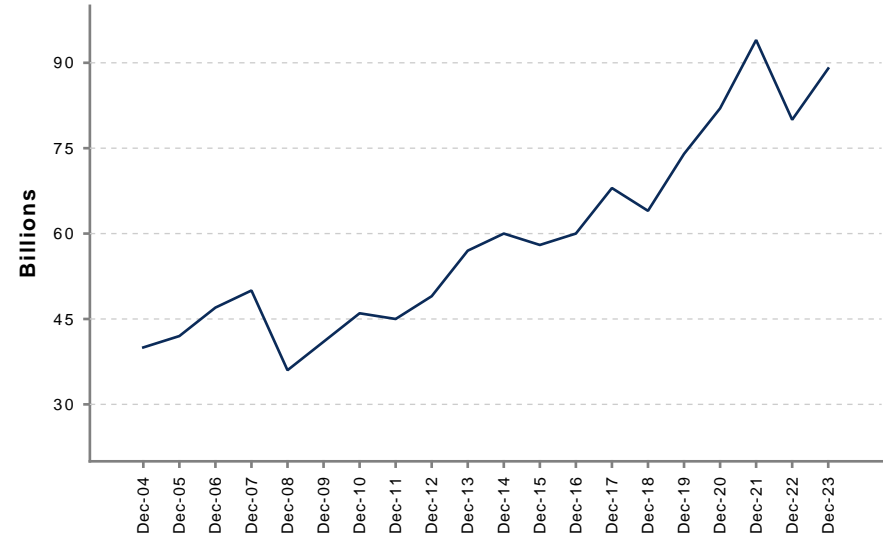
The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

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	7.5%	5.4%	14.6%	6.0%	10.4%	8.2%	8.2%	8.4%
Combined Funds - Composite Index	7.7%	5.4%	14.4%	5.7%	10.0%	8.1%	7.9%	8.2%
Excess	-0.2%	0.0%	0.2%	0.3%	0.4%	0.2%	0.2%	0.2%

Asset Growth



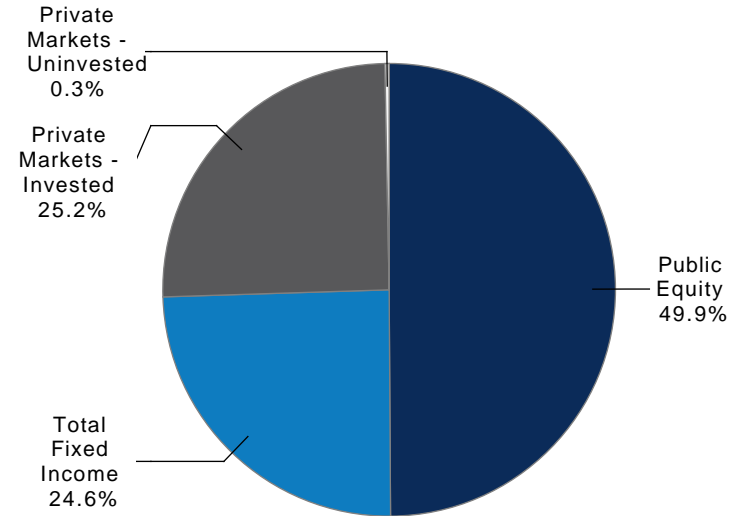


Combined Funds Summary

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.

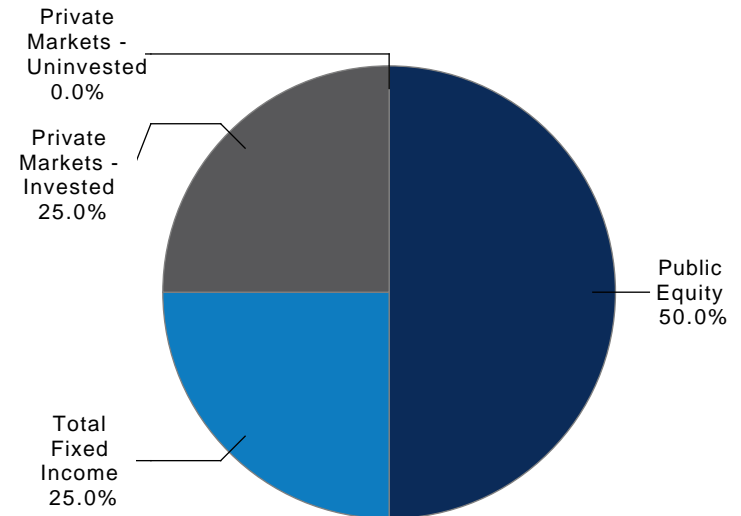
	<u>(Millions)</u>	<u>Actual Mix</u>	<u>Policy Target</u>
Public Equity	\$44,605	49.9%	50.0%
Total Fixed Income	21,933	24.6	25.0
Private Markets - Total	22,768	25.5	25.0
Private Markets - Invested	22,544	25.2	
Private Markets - Uninvested	224	0.3	
TOTAL	89,307	100.0	



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	\$44.6	49.9%	50.0%	11.0%	7.4%	22.5%	6.5%	12.8%	9.3%	8.6%	8.9%
Public Equity Benchmark				11.3	7.5	22.5	6.3	12.5			
Excess				-0.3	-0.1	-0.0	0.2	0.4			
Domestic Equity	29.5	33.1	33.5	12.2	8.6	26.0	8.5	15.3	11.4	9.6	9.7
Domestic Equity Benchmark				12.1	8.4	26.0	8.5	15.1	11.5	9.7	9.9
Excess				0.1	0.1	0.1	-0.0	0.1	-0.1	-0.1	-0.1
International Equity	14.1	15.7	16.5	8.6	5.3	15.6	2.8	8.2	4.5	6.2	5.9
International Equity Benchmark				9.8	5.6	15.6	1.5	7.1	3.8	5.7	5.2
Excess				-1.1	-0.3	-0.1	1.3	1.1	0.6	0.5	0.7
Global Equity	1.0	1.1	0.0	12.0	3.5	22.6	-1.0				
MSCI AC World Index (net)				11.0	7.3	22.2	5.7				
Excess				1.0	-3.8	0.4	-6.7				

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	\$21.9	24.6%	25.0%	6.9%	3.1%	6.3%	-3.3%	2.0%	2.5%	3.7%	4.9%
Total Fixed Income Benchmark				6.6%	2.4%	4.8%	-3.8%	1.5%	2.0%	3.3%	4.5%
Excess				0.3%	0.7%	1.5%	0.5%	0.6%	0.5%	0.4%	0.4%
Core/Core Plus	\$4.6	5.1%	5.0	7.4%	3.9%	7.0%	-3.1%	1.8%	2.4%	3.6%	4.8%
Core Bonds Benchmark				6.8%	3.4%	5.5%	-3.3%	1.1%	1.8%	3.2%	4.4%
Excess				0.6%	0.5%	1.5%	0.2%	0.7%	0.5%	0.5%	0.4%
Return Seeking Fixed Income	\$4.3	4.8%	5.0	7.0%	5.6%	9.8%	-0.7%				
Bloomberg U.S. Aggregate				6.8%	3.4%	5.5%	-3.3%				
Excess				0.1%	2.2%	4.2%	2.7%				
Treasury Protection	\$8.8	9.8%	10.0	9.1%	1.3%	4.2%	-7.3%	-0.2%			
Bloomberg Treasury 5+ Year				9.0%	1.2%	3.7%	-7.4%	-0.2%			
Excess				0.1%	0.1%	0.5%	0.1%	0.0%			
Laddered Bond + Cash	\$4.3	4.8%	5.0	1.4%	2.8%	5.2%	2.1%	1.8%	1.3%	1.7%	3.1%
ICE BofA US 3-Month Treasury Bill				1.4%	2.7%	5.0%	2.2%	1.9%	1.3%	1.5%	2.5%
Excess				0.0%	0.1%	0.2%	-0.1%	-0.0%	0.1%	0.2%	0.7%

Note:

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



Combined Funds Asset Class Performance Summary

Private Markets

	<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	1.6%	3.8%	8.0%	16.4%	12.6%	12.3%	14.0%	13.0%	13.4%
Private Markets -Uninvested(1)	1.3%	2.9%	5.9%	3.9%					
Private Equity	1.7%	4.8%	10.8%	17.1%	16.1%	15.9%	16.2%	14.6%	15.5%
Private Credit	2.1%	4.9%	8.5%	15.8%	11.3%	12.8%	12.9%	12.5%	
Resources	4.6%	3.1%	2.4%	16.8%	3.0%	2.0%	13.0%	12.7%	12.9%
Real Estate	-2.2%	-3.5%	-7.2%	12.9%	10.5%	11.3%	9.3%	9.3%	9.5%

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>12/31/2023</u> (\$ millions)	<u>12/31/2023</u> Weights	<u>Category Range</u>	
<u>Growth - Appreciation</u>				
Public Equity	\$ 44,646.9	50.0%		
Private Equity	\$ 16,403.8	18.4%		
Non-Core Real Assets	\$ 3,606.7	4.0%		
	\$ 64,657.4	72.4%	50%	75%
<u>Growth - Income-oriented</u>				
Core Fixed Income	\$ 4,557.4	5.1%		
Private Credit	\$ 1,992.6	2.2%		
Return-Seeking Fixed Income	\$ 4,327.8	4.8%		
	\$ 10,877.9	12.2%	15%	30%
<u>Real Assets</u>				
Core Real Estate		0.0%		
Real Assets	\$ 527.2	0.6%		
	\$ 527.2	0.6%	0%	10%
<u>Inflation Protection</u>				
TIPS		0.0%		
Commodities		0.0%		
		0.0%	0%	10%
<u>Protection</u>				
U.S. Treasuries	\$ 8,751.0	9.8%		
	\$ 8,751.0	9.8%	5%	20%
<u>Liquidity</u>				
Cash	\$ 4,493.4	5.0%		
	\$ 4,493.4	5.0%	0%	5%
<u>Opportunity</u>				
Opportunity		0.0%		
		0.0%	0%	10%
Total	\$ 89,307.0	100%		
Illiquid Asset Exposure	\$ 22,530.3	25.2%	0%	30%



Volatility Equivalent Benchmark Comparison

	As of December 31, 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	14.6%	6.0%	10.4%	8.2%	10.0%	8.2%	7.1%	8.4%
Volatility Equivalent Benchmark Return			6.8%	5.4%	7.1%	5.9%	5.4%	6.5%
Value Added			3.6%	2.8%	3.0%	2.3%	1.7%	2.0%
Standard Deviation: Benchmark = Combined Funds			11.0%	9.1%	9.4%	9.4%	9.7%	9.6%
Benchmark Stock Weight			51%	55%	55%	56%	59%	60%
Benchmark Bond Weight			49%	45%	45%	44%	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

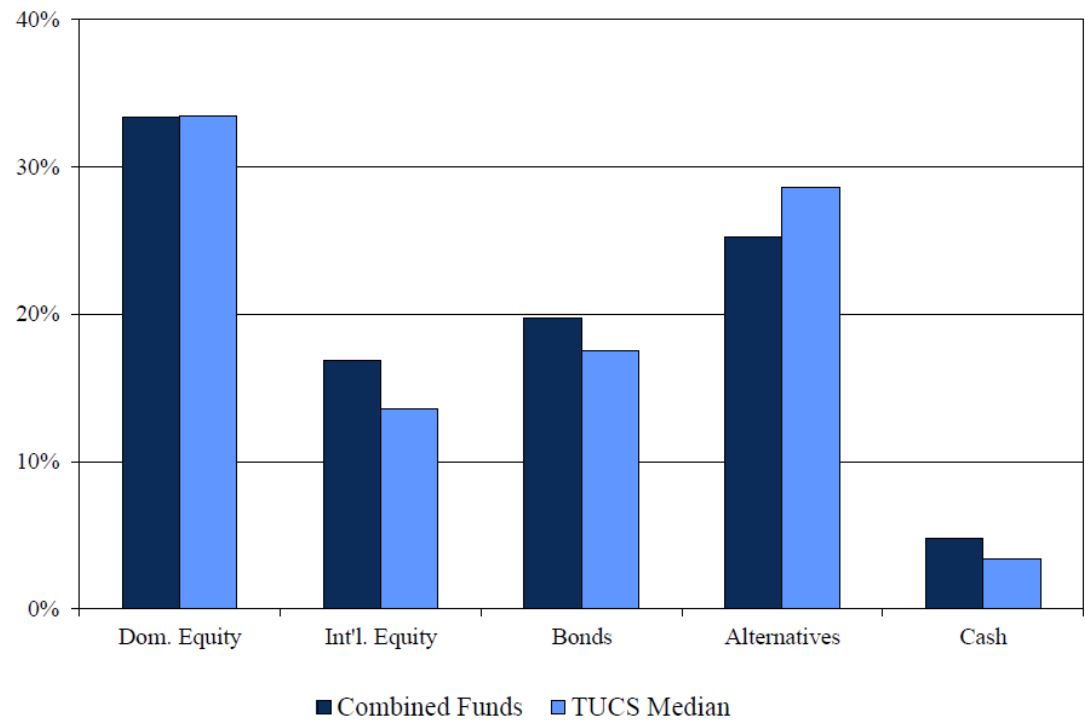
Asset Mix Compared to Other Pension Funds

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	44,605	49.9
Total Fixed Income	21,933	24.6
Private Markets - Invested	22,544	25.2
Private Markets - Uninvested	224	0.3
TOTAL	89,307	100.0



	<u>Domestic Equity</u>	<u>International Equity</u>	<u>Bonds</u>	<u>Alternatives</u>	<u>Cash</u>
Combined Funds	33.3%	16.9%	19.8%	25.3%	4.8%
Median in TUCS	34.4%	13.6%	17.5%	28.6%	3.4%

Differences in totals can occur due to rounding.



Combined Funds Summary

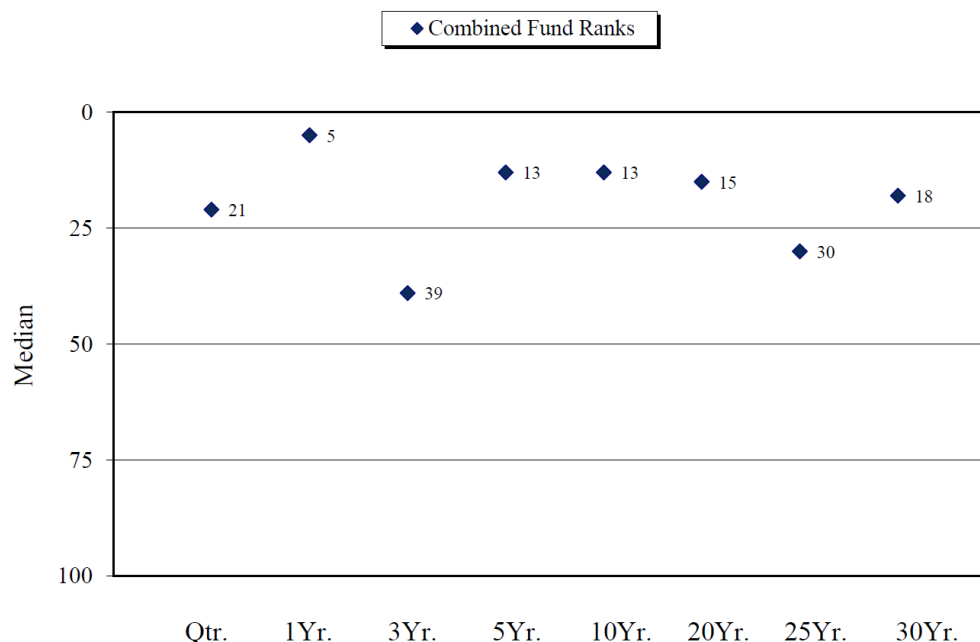
Performance Compared to Other Pension Funds

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.

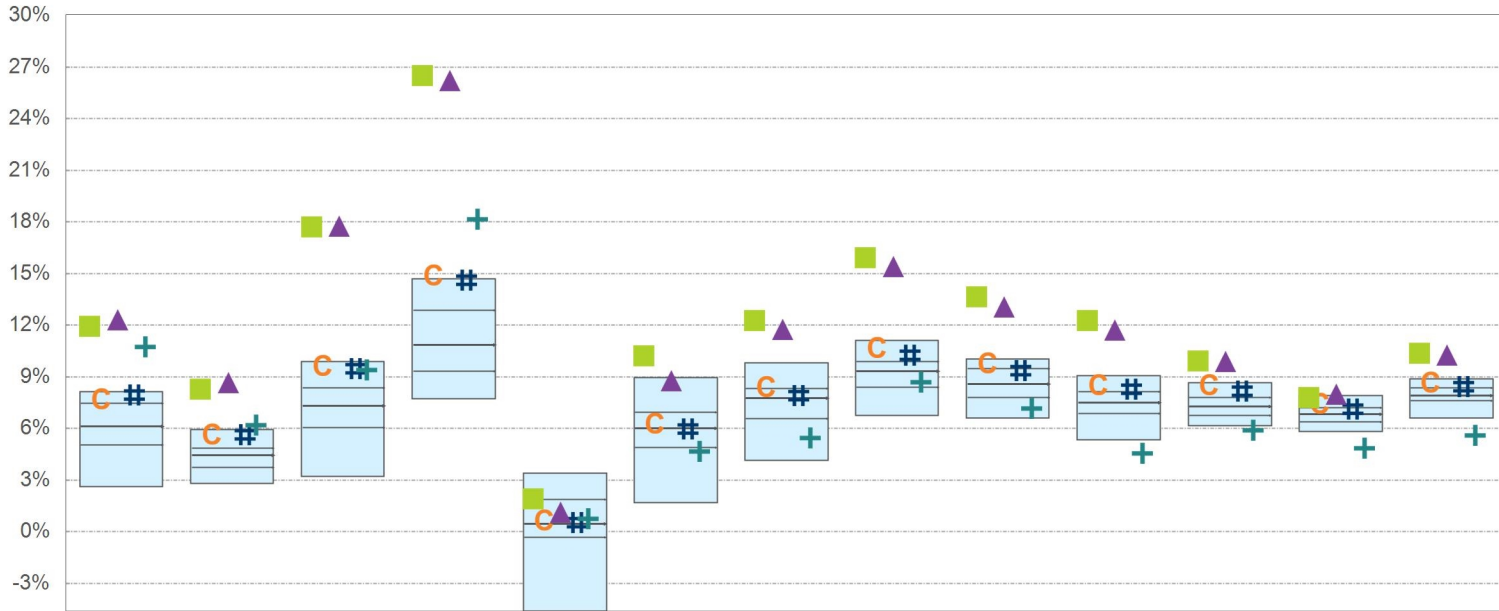


Periods Ended 12/31/2023

	Qtr	1 Yr	3 Yrs	5 Yrs	10 Yrs	20 Yrs	25 Yrs	30 Yrs
Combined Funds	21st	5th	39th	13th	13th	15th	30th	18th
Percentile Rank in TUCS								

Minnesota State Board of Investments Performance Comparison

*Total Returns of Master Trusts - Public : Plans > \$10 Billion
Cumulative Periods Ending : December 31, 2023*



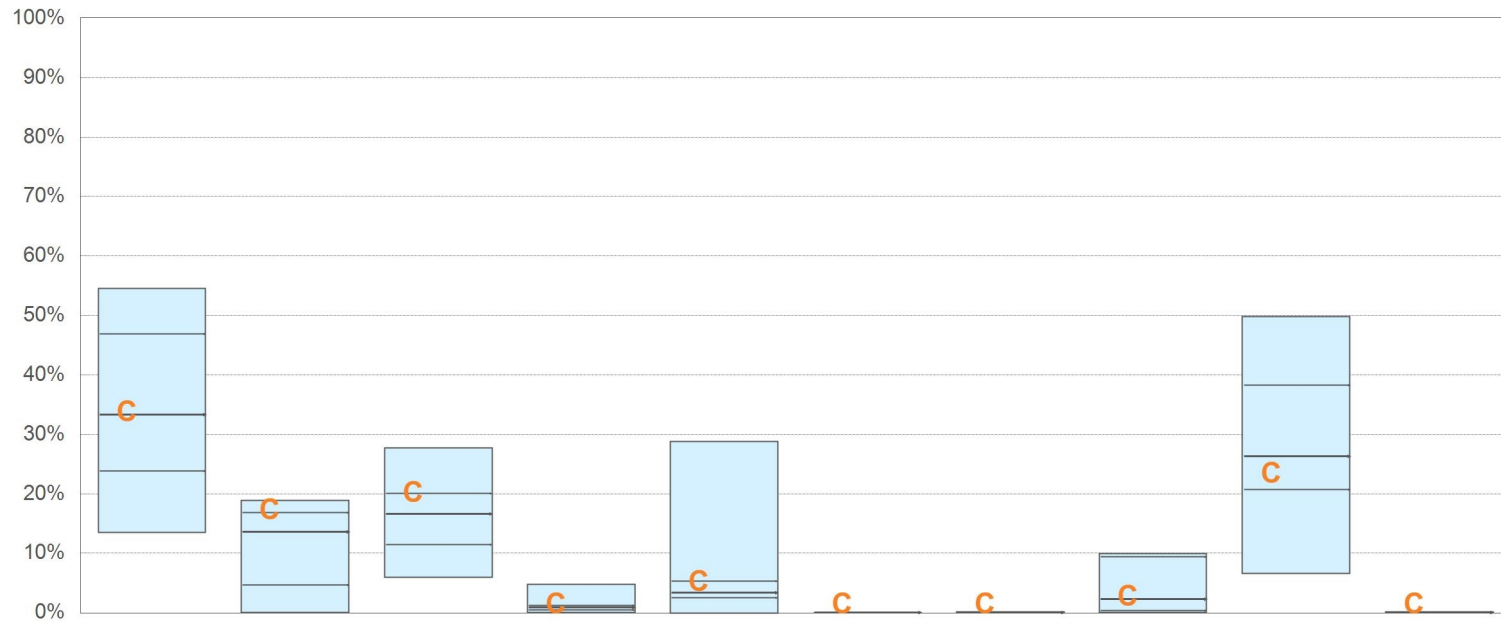
Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years	20 Years	25 Years	30 Years
5th	8.13	5.93	9.86	14.67	3.38	8.93	9.81	11.12	10.01	9.04	8.66	7.90	8.87
25th	7.46	4.86	8.35	12.86	1.88	6.93	8.30	9.88	9.46	8.14	7.79	7.19	8.35
50th	6.10	4.45	7.30	10.83	0.43	6.01	7.74	9.30	8.57	7.48	7.28	6.83	7.91
75th	5.02	3.73	6.04	9.30	-0.33	4.90	6.57	8.40	7.80	6.84	6.75	6.37	7.60
95th	2.61	2.81	3.21	7.70	-4.62	1.69	4.12	6.73	6.61	5.34	6.16	5.82	6.60

No. Of Obs	41	41	41	38	37	37	37	35	35	35	29	27	23
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C Combined Funds	7.51 (20)	5.45 (12)	9.42 (10)	14.67 (5)	0.43 (52)	6.08 (44)	8.19 (30)	10.48 (16)	9.56 (16)	8.31 (14)	8.30 (12)	7.22 (21)	8.45 (15)
# SBI Combined Funds Ind	7.72 (14)	5.42 (12)	9.23 (14)	14.40 (5)	0.30 (58)	5.74 (52)	7.68 (50)	10.03 (22)	9.12 (25)	8.06 (25)	7.94 (18)	6.90 (46)	8.21 (33)
■ S&P 500	11.69 (1)	8.04 (1)	17.48 (1)	26.29 (1)	1.69 (25)	10.00 (1)	12.04 (1)	15.68 (1)	13.41 (1)	12.03 (1)	9.70 (1)	7.56 (9)	10.15 (1)
+ MSCI Wld Ex US (Net)	10.51 (1)	5.97 (1)	9.18 (14)	17.94 (1)	0.54 (44)	4.42 (84)	5.20 (93)	8.45 (71)	6.95 (90)	4.32 (96)	5.68 (95)	4.61 (99)	5.36 (100)
▲ Russell 3000	12.07 (1)	8.43 (1)	17.52 (1)	25.96 (1)	0.88 (38)	8.54 (5)	11.50 (1)	15.16 (1)	12.81 (1)	11.48 (1)	9.67 (1)	7.74 (9)	10.03 (1)

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

Quarter Ending December 31, 2023



Percentile Rankings	US Equity	Non-US Equity	US Fixed	Non-US Fixed	Cash	Convertible	GIC GAC	Real Estate	Alternative Investments	Other
5th	54.50	18.92	27.70	4.79	28.79	0.04	0.13	9.95	49.81	0.15
25th	46.89	16.86	20.03	1.20	5.34	0.00	0.00	9.43	38.24	0.01
50th	33.34	13.57	16.64	0.84	3.41	0.00	0.00	2.31	26.31	0.00
75th	23.88	4.61	11.48	0.50	2.50	0.00	0.00	0.36	20.69	0.00
95th	13.52	0.00	5.96	0.00	-0.08	0.00	0.00	0.00	6.57	0.00
C Combined Funds	33.34 (50)	16.86 (25)	19.75 (35)	0.00 (100)	4.81 (40)	0.00 (100)	0.00 (100)	2.31 (50)	22.94 (60)	0.00 (99)

TAB B

Executive Director's Administrative Report

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DATE: February 14, 2024

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 December 31, 2023, is included as **Attachment A**.

2. FY23 Audit Report

The Office of the Legislative Auditor (OLA) issued a letter dated December 27, 2023 reflecting the results of the financial audit of the State Board of Investment for Fiscal Year 2023, which is included in **Attachment B**. The OLA issued an unqualified (clean) opinion, with no written findings or recommendations.

3. FY23 Annual Report

The Fiscal Year 2023 Annual Report will be distributed in the first quarter of 2024.

4. 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 fourth quarter, the liquidation manager sold one equity holding. As of December 31, 2023, fifteen holdings and Russian currency remained on the divestment list.

The liquidation manager indicated that, except for sporadic trading in foreign-listed depository receipts, the market for equity trading remained effectively closed to foreign investors during the quarter due to sanctions imposed by the United States and its allies as well as retaliatory actions taken by the Russian government to restrict foreign capital flows. Due to these sanctions and actions, it was not possible to liquidate 100% of the holdings within 15 months of the effective date. The liquidation manager is selling whenever an opportunity presents itself.

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

5. 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 fourth 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 fourth 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 December 21, 2023, staff sent a letter to each applicable external manager containing the most recent restricted list.

6. 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 fourth quarter, the MSBI portfolio held no thermal coal connected assets.

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

7. 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 DECEMBER 31, 2023**

ITEM	FISCAL YEAR 2024 BUDGET	FISCAL YEAR 2024 12/31/2023
PERSONNEL SERVICES		
FULL TIME EMPLOYEES	\$ 11,150,000	\$ 3,893,367
PART TIME EMPLOYEES	50,000	19,542
MISCELLANEOUS PAYROLL	200,000	58,455
SUBTOTAL	\$ 11,400,000	\$ 3,971,364
STATE OPERATIONS		
RENTS & LEASES	\$ 365,000	\$ 164,613
REPAIRS/ALTERATIONS/MAINTENANCE	3,595,000	5,863
PRINTING & BINDING	6,000	243
PROFESSIONAL/TECHNICAL SERVICES/IT PROF	555,000	150,189
COMPUTER SYSTEMS SERVICES	357,000	51,976
COMMUNICATIONS	25,000	6,674
TRAVEL, IN-STATE	3,000	505
TRAVEL, OUT-STATE	400,000	85,890
SUPPLIES	75,000	34,271
EQUIPMENT	100,000	45,901
EMPLOYEE DEVELOPMENT	300,000	63,049
OTHER OPERATING COSTS	200,000	106,370
INDIRECT COSTS	300,000	72,500
SUBTOTAL	\$ 6,281,000	\$ 788,044
TOTAL ADMINISTRATIVE BUDGET	\$ 17,681,000	\$ 4,759,408



Judy Randall, Legislative Auditor
State of Minnesota

December 27, 2023

Jill Schurtz, Executive Director and Chief Investment Officer
Minnesota State Board of Investment
60 Empire Drive, Suite 355
Saint Paul, MN 55103

Dear Executive Director Schurtz:

The Office of the Legislative Auditor has completed its audit of certain financial activities at the Minnesota State Board of Investment (SBI). This work supports our audit of the State of Minnesota's financial statements for the fiscal year ended June 30, 2023. The primary objective of the audit was to render an opinion on the State of Minnesota's financial statements, which is included in the *Annual Comprehensive Financial Report*, prepared by Minnesota Management and Budget. The work in your department also supported our audit opinions on the financial statements of the three state retirement systems: Minnesota State Retirement System, Public Employees Retirement Association, and Teachers Retirement Association. This was not a comprehensive audit of the Minnesota State Board of Investment.

In planning and performing this audit, we considered SBI's internal control system to determine the appropriate audit procedures. We gained an understanding of, but did not test, SBI's internal controls. As part of this audit, we also reviewed certain investment-related financial activity presented in the financial statements and notes to the financial statements for the State of Minnesota and the three state retirement systems. This activity included, but was not limited to, investment balances, investment fees, and securities lending.

On December 15, 2023, we issued an unqualified (clean) opinion on the State of Minnesota's *Annual Comprehensive Financial Report* for the fiscal year ended June 30, 2023. Following that, we issued an unqualified (clean) opinion on the financial statements of each of the three state retirement systems. For the fiscal year ending June 30, 2023, we had no written findings or recommendations directed toward the Minnesota State Board of Investment.

We appreciate the cooperation and assistance provided by the staff and administration of the Minnesota State Board of Investment throughout our audit process.

Sincerely,

A handwritten signature in black ink, appearing to read "Lori Leysen", with a stylized flourish at the end.

Lori Leysen, CPA
Deputy Legislative Auditor

cc: Members, Minnesota State Board of Investment
Paul Anderson, Director, Financial Services and Operations

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TAB C

Private Markets Investment Program Report

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DATE: February 14, 2024

TO: Members, Investment Advisory Council

FROM: SBI Staff

SUBJECT: Private Markets Commitments for Consideration

Staff has reviewed the following action agenda item:

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

Existing Managers:

Real Assets	Blackstone Group	Blackstone Energy Transition Partners IV	up to \$150 million
Private Equity	Bridgepoint Group	Bridgepoint Development Capital V	up to \$125 million
Real Estate	Oaktree Capital Management	Oaktree Real Estate Opportunities Fund IX	up to \$175 million
Private Equity	Whitehorse Liquidity Partners	Whitehorse Liquidity Partners VI	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 December 31, 2023

Combined Funds Market Value \$89,307,018,722

	% of Combined Funds	Current Level	Target Level ¹	Difference
Market Value (MV)	25.2%	\$22,543,725,140	\$22,326,754,681	(\$216,970,459)
<i>Policy Target</i>	25%			
<i>Statutory Limit</i>	35%			
MV +Unfunded	38.3%	\$34,243,172,201	\$44,653,509,361	\$10,410,337,160
<i>Policy Limit</i>	50.0%			

Asset Class	% of Combined Funds	Market Value	Unfunded Commitment	Total
Private Equity	18.4%	\$16,403,809,246	\$7,990,314,831	\$24,394,124,077
Private Credit	2.2%	\$1,992,625,531	\$1,462,899,465	\$3,455,524,996
Real Assets	2.3%	\$2,075,244,472	\$500,427,429	\$2,575,671,901
Real Estate	2.3%	\$2,058,672,907	\$1,745,805,336	\$3,804,478,243
Other ²		\$13,372,984		\$13,372,984
Total		\$22,543,725,140	\$11,699,447,061	\$34,243,172,201

Cash Flows December 31, 2023

Calendar Year	Capital Calls	Distributions	Net Invested
2023	\$2,744,167,005	(\$2,162,823,326)	\$581,343,680
2022	\$3,945,092,895	(\$3,140,446,870)	\$804,646,025
2021	\$4,556,450,698	(\$3,672,823,834)	\$883,626,864
2020	\$2,786,134,001	(\$2,318,825,278)	\$467,308,723
2019	\$2,543,614,503	(\$2,080,037,860)	\$463,576,642
2018	\$1,992,000,341	(\$2,049,733,815)	(\$57,733,474)
2017	\$2,021,595,780	(\$2,383,863,711)	(\$362,267,931)

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

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

B. Consideration of New Investment Commitments

ACTION ITEMS:

- 1) **Investment with an existing Real Assets manager, Blackstone Group (“Blackstone”), in Blackstone Energy Transition Partners IV (“Fund”).**

Blackstone intends to make control and control-oriented investments in the energy transition and climate solutions sectors on a global basis. The Fund’s focus is expected to primarily be on sourcing investments that are primary or secondary beneficiaries of significant energy transition trends, including renewable energy penetration, electrification, energy efficiency, and decarbonization. In addition to pursuing an opportunistic strategy that seeks compelling opportunities across the full range of energy transition and climate solutions landscape, the Fund expects to make investments across a range of company lifecycle stages and structures. Blackstone believes the resulting diversification can enhance returns, reduce risk, and allow the team to fully capitalize on their deal flow.

In addition to reviewing the attractiveness of the Blackstone Energy Transition Partners 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 Blackstone Energy Transition Partners IV is included as **Attachment A beginning on page 7.**

RECOMMENDATION:

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

2) **Investment with an existing Private Equity manager, Bridgepoint Group (“Bridgepoint”), in Bridgepoint Development Capital V (“Fund” or “BDC V”).**

Bridgepoint Development Capital V will continue pursuing the opportunity to create and realize value from investment in Europe’s large and diverse lower middle market companies (defined as companies generating revenues between €30 and €300 million). BDC V intends to make both control and non-control equity investments typically targeting companies within sectors experiencing structural growth of 5-15% per annum where Bridgepoint sees the potential to grow revenue and EBITDA at rates of 15-20% per annum or more. BDC V will aim to drive growth through a range of operational levers, including organic revenue initiatives, international expansion, add-on acquisitions, use of technology, business professionalization, and strategic repositioning. BDC V will also benefit from access to the origination and support functions of the broader Bridgepoint Group, which provides access to a global platform with deep sector knowledge across eight complementary investment strategies that allows BDC to leverage resources not typically available to firms operating in the lower middle market.

In addition to reviewing the attractiveness of the BDC 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 Bridgepoint Development Capital V is included as **Attachment B beginning on page 11.**

RECOMMENDATION:

Staff is recommending a commitment of up to \$125 million to Bridgepoint Development Capital 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 Bridgepoint Development Capital 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 Bridgepoint Group 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 Bridgepoint Group or a reduction or termination of the commitment.

3) Investment with an existing Real Estate manager, Oaktree Capital Management (“Oaktree”), in Oaktree Real Estate Opportunities Fund IX (“Fund”).

Oaktree’s opportunistic real estate strategy seeks to achieve attractive risk-adjusted returns through investments in real estate and real estate-related debt, companies, securities, and other real estate-related assets on a global basis. Oaktree employs an investment philosophy that seeks to adapt to all stages of the credit-driven market cycle by shifting from distressed securities to rescue capital to distressed private transactions to value-oriented and growth opportunities as the cycle evolves. As with prior funds, the Fund can pivot amongst the five areas of investment focus—Opportunistic Credit, Commercial, Residential, Corporate Platforms and Global Ex-U.S. real estate opportunities—depending on what Oaktree believes are the most attractive risk-adjusted growth and distress opportunities throughout a market cycle. Throughout the cycle, Oaktree will seek to manage risk by constructing an appropriately leveraged, diversified portfolio of investments across asset types, markets, cash flow profiles, and operating partners.

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

More information on Oaktree Real Estate Opportunities Fund IX is included as **Attachment C beginning on page 15.**

RECOMMENDATION:

Staff is recommending a commitment of up to \$175 million to Oaktree Real Estate Opportunities Fund IX and requests the IAC’s endorsement of this recommendation for the Board’s approval. It is understood that 1) such a commitment will not exceed 20% of Oaktree Real Estate Opportunities Fund IX and 2) an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing may be required and is approved. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and none of the State of Minnesota, the Investment Advisory Council, the State Board of Investment, or its Executive Director have any liability for reliance by Oaktree Capital Management upon this approval. Until the Executive Director, on behalf of the SBI, executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Oaktree Capital Management or a reduction or termination of the commitment.

4) **Investment with an existing Private Equity manager, Whitehorse Liquidity Partners (“Whitehorse”), in Whitehorse Liquidity Partners VI (“Fund”).**

Whitehorse Liquidity Partners VI’s strategy involves creating structured liquidity solutions for limited partners and general partners. By creating structured financing solutions, the Fund can capitalize on market demand for flexible alternatives to traditional financing arrangements. The structured financing solutions range from creating a preferred equity structure on limited partners’ private equity portfolios, to purchasing limited partner private equity stakes, to providing financing solutions to general partners. Whitehorse will seek to construct a portfolio for the Fund of 15 to 20 structures, generally ranging from \$100 million to \$750 million in size. The Fund seeks to provide resilient returns, muted volatility, and consistent cash flows through structures that benefit from strong asset coverage, liquidation preference, and upside sharing.

More information on Whitehorse Liquidity Partners VI is included as **Attachment D beginning on page 19.**

RECOMMENDATION:

Staff is recommending a commitment of up to \$125 million to Whitehorse Liquidity Partners 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 Whitehorse Liquidity Partners 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 Whitehorse Liquidity 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 Whitehorse Liquidity Partners or a reduction or termination of the commitment.

ATTACHMENT A

REAL ASSET MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	Blackstone Energy Transition Partners IV, L.P.
<i>Type of Fund:</i>	Energy Infrastructure
<i>Target Fund Size:</i>	\$5.0 billion
<i>Fund Manager:</i>	The Blackstone Group L.P.
<i>Manager Contact:</i>	Sarah Foster 345 Park Avenue New York, NY 10154

II. Organization and Staff

The Blackstone Group (together with its affiliates “Blackstone” or the “Firm”) is sponsoring Blackstone Energy Transition Partners IV L.P. (“BETP IV” or the “Fund”), a private investment fund that will seek to make control and control-oriented private equity investments in the energy transition, and climate solutions sectors on a global basis. The Fund’s focus is expected to be on sourcing investments that are primary or secondary beneficiaries of the energy transition mega trends of renewable energy penetration, electrification, energy efficiency and decarbonization, among others.

Blackstone was founded in 1985 by Stephen A. Schwarzman and Peter G. Peterson and is headquartered in New York, NY. Blackstone’s alternative asset management businesses include investment vehicles focused on private equity, real estate, hedge fund solutions, credit, secondary funds, opportunistic, growth, infrastructure, insurance solutions and life sciences. As of December 31, 2023, Blackstone had 240 Senior Managing Directors, and approximately 4,700 employees across 28 offices globally, and the Firm’s total assets under management was approximately \$1,040 billion.

All investment and disposition decisions of BETP IV are expected be made by an Investment Committee comprised of senior members of the Firm and the Private Equity Group and Include Stephen A. Schwartzman, Jon Gray, David Foley, Dr. Jean Rogers, Joe Baratta, Prakash Melwani, Bilal Khan, JP Munfa, and select Senior Managing Directors.

Blackstone’s commitment to DEI is reflected at all levels of the organization. The Firm aims to drive value by supporting their portfolio companies in the recruitment, development, and advancement of top talent at all levels from a broad range of talent networks. Blackstone partners with and provides direct support to multiple diversity focused organizations such as Sponsors for Educational Opportunity (“SEO”), Toigo Foundation, Year Up, Girls Who Invest, Ladders for Leaders, Cristo Rey Brooklyn, 30 Percent Coalition, Declare, and Level 20.

III. Investment Strategy

As with its predecessor funds, BETP IV is expected to continue a long-standing strategy of originating proprietary investment opportunities via proactive, thematic investing; creatively structuring transactions to mitigate risk while preserving upside; and partnering with experienced management teams to build, develop and acquire a portfolio of high-quality companies. The Firm's investment strategy is intended to be opportunistic, broad, and flexible, allowing the Fund to seek compelling opportunities across the full range of energy transition and climate solutions landscape primarily in the U.S.

Blackstone Energy Transition Partners believe that several core strengths have allowed the Firm to differentiate itself and consistently execute its private equity energy investment strategy over more than 24 years:

- **Thematic Sourcing:** Blackstone has a history of identifying industry trends and investing ahead of growth. The team will proactively undertake expansive sector mapping to identify companies well positioned to grow share in their respective end markets.
- **Flexible Scale and Scope:** The mandate is driven by the team's significant prior experience in greenfield project development, late-stage venture and growth opportunities, structured securities, corporate joint-ventures, as well as mature leveraged buyouts. Through partnership with Blackstone's generalist private equity funds, the team can also underwrite billion dollar-plus equity commitments, enabling the pursuit of very large-scale investments where the potential buyer universe tends to be more limited.
- **Experienced Energy Transition Investment Team:** The investment team's deep sector expertise informs their rigorous and disciplined approach to new deal origination, diligence, and underwriting. The team has a long track record of investing through economic and commodity cycles and maintaining a high bar for new investments and focusing on business quality and competitive positioning through diligence, while also maintaining strict value discipline.
- **Operational and ESG Focus:** The investment team will integrate the Firm's Portfolio Operations and ESG resources at the early stages of new deal evaluations, with the objective of incorporating key recommendations in their underwriting process. Upon closing a new control investment, the Portfolio Operations and ESG teams will continue to work alongside the deal teams and management to implement operating initiatives identified during diligence which may include plans to reduce energy usage and emissions.
- **Private Equity Group Domain Expertise and Network:** The team expects to benefit from the resources and insights across the Private Equity Group's sector expertise in software, services, and industrials. Blackstone's longstanding Private Equity team and network will provide complementary capabilities and work in close

partnership with the energy transition team on certain investment opportunities where their expertise may provide a competitive advantage.

BETP intends to primarily focus on the following subsectors that are primary and secondary beneficiaries of energy transition mega trends of renewable energy penetration, electrification, energy efficiency and decarbonization with the notable exclusion of oil and gas exploration and production:

- Clean power generation (development of battery storage capacity, solar and battery equipment, and services)
- Electric transmission (development of transmission in load-constrained areas, services, and equipment for the transmission value chain)
- Energy technology, services, and efficiency (digitalization, data analytics, software for grid & batteries, equipment and services solutions and consulting and engineering)
- Critical energy infrastructure (more efficient power generation, repurposing midstream assets, green hydrogen, and carbon capture)
- Decarbonized transport & natural resources (low carbon, renewable fuels, fleet charging stations, essential materials supply chain for renewables and batteries, recycling and water-related services and equipment).

BETP anticipates that Fund IV will make between 10-15 investments, with an average equity commitment per transaction of \$300 million to \$500 million, consistent with prior energy funds.

BETP expects Fund IV to make investments across a range of company lifecycle stages and structures, including development of greenfield energy assets, growth equity, buy & build, minority and/or structured equity positions in both private and publicly traded companies, joint ventures and corporate carveouts, as well as leveraged buyouts. The team's ability to not just buy existing, large-scale companies, but also to start with a smaller platform and deploy additional capital to build or acquire additional assets at relatively lower set up valuation multiples, gives them the flexibility to build world scale companies and potentially realize a premium upon exit when the public markets are offering significant premiums for size or a pure business model. The resulting diversification of investments can enhance returns, reduce risk, and allow the team to fully capitalize on their deal flow.

A key component of BETP's strategy is to seek to mitigate the risks inherent in the energy sector, especially during the transition, while preserving upside potential. Risk mitigation strategies will include limited use of financial leverage, maintaining valuation discipline, preserving control and optionality related to exits, utilizing resources and expertise of Blackstone's Portfolio Operations group, leveraging the expertise of Blackstone's Capital Markets group, and incorporating ESG assessments throughout the investment process. Consistent with Blackstone's ESG policy, the energy transition team will focus their efforts on three key areas: carbon emissions reduction, governance, and diversity, equity and inclusion.

Blackstone takes a comprehensive approach to ESG by integrating it in the management of their portfolios and assets. Each business vertical at the Firm has a dedicated Head of ESG and the teams utilize data during the diligence and ownership phases to provide transparency and accountability through annual reporting. Blackstone will seek to encourage and implement appropriate governance structures, policies, controls, and processes across all their portfolios and assets to strengthen them and enhance returns.

IV. Investment Performance

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

Fund	Vintage Year	Total Commitment	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
BEP I	2011	\$2.4 billion	--	11.4%	1.6x	1.5x
BEP II	2015	\$4.9 billion	--	8.2%	1.4x	0.7x
BEP III	2020	\$4.2 billion	--	34.4%	1.6x	0.3x

* Previous Fund investments may be relatively immature and, therefore, returns may not be indicative of future results. Net Internal Rate of Return (IRR) and Multiple of Invested Capital (MOIC) provided by Blackstone Energy Transition Partners.

V. Investment Period and Term

The Investment Period is expected to last for a period of six years from the commencement date of the Fund. The term of the fund is expected to be eleven years, subject to two one-year extensions if approved by the Advisory Committee.

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

ATTACHMENT B

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. **Background Data**

Name of Fund:	Bridgepoint Development Capital V
Type of Fund:	Private Equity
Target Fund Size:	€2 billion
Fund Manager:	Bridgepoint Advisers II Limited
Manager Contact:	Martin Dunn 5 Marble Arch London, England, W1H 7EJ

II. **Organization and Staff**

Bridgepoint Group Plc (“Bridgepoint” or “Firm”) is forming Bridgepoint Development Capital V (“BDC V” or “Fund”) to continue Bridgepoint’s opportunity to create and realize value from investments in Europe’s large and diverse lower middle market companies. The Fund will benefit from the highly experienced BDC team’s long and consistent track record of top quartile performance since the strategy’s inception in 2009.

Bridgepoint is one of the world’s leading middle-market alternative asset managers, specializing in private equity, private debt, and infrastructure. With €63 billion of assets under management across eight complementary investment strategies, and a range of offices in Europe, the U.S. and China, Bridgepoint combines global scale with local market expertise.

From its establishment in 1984 until 2000, Bridgepoint operated as a subsidiary of European banking group NatWest. In June 2000, Bridgepoint Partners and its employees completed the acquisition of the management company of the business from NatWest and became an employee-owned business. Bridgepoint subsequently launched complementary strategies including Bridgepoint Development Capital (lower middle-market buyouts), Bridgepoint Growth (growth capital investments), and Bridgepoint Credit. In October 2020, the Firm accelerated the growth of its credit platform with the acquisition of EQT Credit. The transaction provided two additional credit strategies, an enlarged team of experienced investment professionals, and materially enhanced credit assets under management. In July 2021, Bridgepoint listed on the London Stock Exchange. Most recently, Bridgepoint agreed to the acquisition of ECP, a leading global value-added infrastructure investor with €22bn of AUM, in September 2023.

BDC benefits from an autonomous management structure within Bridgepoint, allowing for the efficient evaluation of investment opportunities whilst maintaining investment standards, processes and disciplines with those of Bridgepoint. BDC has a dedicated Investment Team of 37 professionals located across offices in London, Paris, Stockholm and Frankfurt. The

team is led by Michael Black (Chair of BDC), Olivier Nemsguern (Head of BDC), Alan Payne (Deputy Head of BDC), and Johan Dahlfors (Head of BDC Nordics), along with five other Partners. These nine BDC Partners have an average private equity experience of 20 years, and an average of 13 years at Bridgepoint. The team's extensive local insight and expertise is supported by industrial relationships and a network of advisors experienced in working with the wider Bridgepoint private equity portfolio, which employs 70,000 people globally.

Bridgepoint is committed to a diverse and inclusive working environment both at the Firm itself and at its portfolio companies. The Firm is a signatory to ILPA's 'Diversity in Action' initiative which aims to advance diversity, equality and inclusion, and is actively involved with a range of other initiatives including 'Level 20', which aims to promote gender diversity in the European private equity industry. Bridgepoint also partners with organizations such as the 10,000 Black Interns.

III. *Investment Strategy*

Bridgepoint's leading lower middle-market buyout strategy, BDC, is raising its fifth fund to capitalize on the continuing opportunity to create and realize value from investment in Europe's large and diverse lower middle market companies (defined as companies generating revenue of between €30 and €300 million). BDC V will aim to make both control and non-control equity investments where attractive opportunities arise to invest in compelling, high-growth businesses and where favorable alignment dynamics and governance rights can be structured. BDC V will benefit from the powerful origination and support functions of the broader Bridgepoint Group. Access to a global platform with deep sector knowledge across eight complementary investment strategies is a compelling differentiation in a competitive environment, allowing BDC to leverage resources not typically available to firms operating in the lower middle market.

BDC typically targets companies within sectors experiencing structural growth of 5-15% per annum and those where BDC sees the potential to grow revenue and EBITDA at rates of 15-20% per annum or more. BDC will target European companies, with a focus on those headquartered in the UK, France, Nordic region and DACH region. BDC funds are flexible in their deployment of capital and seek to capture relative return opportunities as conditions differ across the different regions where Bridgepoint has successfully invested in the past.

BDC V will continue its thematic approach to target investments in three priority sectors – Technology, Services and Healthcare. BDC will continue to leverage the Firm's powerful sector expertise, drawing on the insights and knowledge of its sector teams and Bridgepoint's global footprint in Europe, the U.S. and Asia.

Bridgepoint has dedicated teams allocated to lead origination and transaction execution in each sector. These teams regularly carry out detailed sector mapping exercises which help to determine core investment themes within their targeted investment area. This work then informs long-term origination plans that identify companies with the potential, over time, to

be Bridgepoint fund investments. Local origination remains a priority to generate compelling new investment opportunities. Bridgepoint believes the BDC team’s immersion in its core markets and sectors also allows it to identify emerging growth trends which have historically underpinned some of BDC’s strongest returns in areas such as pharma services, fintech, digital programmatic advertising, and health and wellness.

Value creation lies at the heart of BDC and has been a key pillar of the strategy’s success. BDC aims to drive growth through a range of operational levers including:

- Organic revenue development initiatives, including investment in sales and marketing resources, improved go-to-market strategies, optimized pricing policies, launching new products, driving internationalism and cross-or up-selling to support top line growth.
- International expansion by leveraging relationships, expertise and local resources afforded to the Firm through its global office network across Europe, Asia and North America.
- Add-on acquisitions to support market consolidation or accelerated growth into new markets or verticals.
- Use of technology to enhance marketing efficiency, support revenue growth, facilitate new market entry and inform M&A activity at its portfolio companies.
- Business professionalization through management strengthening, investment in infrastructure and enhanced governance.
- Strategic repositioning which offers the potential to shape more attractive assets for acquirers and thereby secure premium valuations at exit.

When assessing the attractiveness of an investment opportunity, BDC considers material sustainability aspects as part of its early transaction screening and subsequent due diligence. The outcome of the sustainability analysis is documented in the investment paper presented to the Investment Advisory Committee, which then considers the information as part of the ultimate decision. In addition, an assessment is also made of the owner of the company to ensure its governance and policies align with BDC’s ESG standards, including DEI.

IV. Investment Performance

Previous fund performance as of September 30, 2023 for Bridgepoint and the SBI's investments with previous funds, where applicable, is shown below:

Fund	Vintage Year	Total Commitment	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
BDC I	2009	£300 million	--	21%	2.5x	2.5x
BDC II	2012	€353 million	--	28%	2.2x	2.2x
BDC III	2016	£605 million	--	41%	3.1x	1.8x
BDC IV	2021	£1.6 billion	--	n/m	n/m	n/m

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

V. *Investment Period and Term*

BDC V has an investment period of five years, but will aim to deploy capital over a four-year investment period. The term is ten years from the final close, with one additional one-year period at the discretion of the Manager (after consultation with the LPAC) and up to two further one-year periods by the Manager with the approval of a majority in interest of the Limited Partners.

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

ATTACHMENT C

REAL ESTATE MANAGER SUMMARY PROFILE

I. **Background Data**

Name of Fund:	Oaktree Real Estate Opportunities Fund IX, L.P.
Type of Fund:	Real Estate – Opportunistic
Target Fund Size:	\$5 billion
Fund Manager:	Oaktree Capital Management
Manager Contact:	Michael Trefz 1301 Avenue of the Americas New York, NY 10019

II. **Organization and Staff**

Oaktree Capital Management (“Oaktree” or “Firm”) is forming Oaktree Real Estate Opportunities Fund IX (“ROF IX” or the “Fund”) to continue Oaktree’s risk-controlled investment philosophy across its real estate focus areas: commercial, residential, corporate platforms, opportunistic credit, and global ex-U.S. As of September 2023, the Real Estate Opportunities fund series has committed over \$16.0 billion and currently has \$8.6 billion in assets under management.

Oaktree was formed in April 1995 and since inception has emphasized an opportunistic, value-oriented and risk-controlled approach to investments in credit, real assets, private equity and listed equities. Oaktree’s primary firm-wide goal is to achieve attractive returns while bearing less-than-commensurate risk.

Headquartered in Los Angeles, California, Oaktree has over 1,200 employees across 21 cities globally¹ and approximately \$183 billion in assets². The Real Estate Group consists of 68 investment professionals in six offices globally. Since joining the firm in 2007, John Brady has led the Real Estate Group as Managing Director and Global Head of Real Estate. The Real Estate group operates on a highly collaborative basis across debt and equity products and is organized using a matrixed coverage model that combines the benefits of global credit capabilities with local market knowledge and relationships, and property type expertise. The team members are assigned to strategic areas of investment focus, geographies and product types to optimize opportunity coverage and specialize expertise. This allows Oaktree to form strong internal teams and external relationships with a wide range of established industry participants, while developing deep, focused knowledge across investment area, market and product type.

¹ Includes offices of affiliates of Oaktree-managed funds.

² Includes Oaktree’s proportionate amount of DoubleLine Capital AUM resulting from its 20% minority interest therein.

On September 30, 2019, Brookfield Asset Management Inc. (“Brookfield”) completed the acquisition of up to 62% of the business of OCG, an indirect controlling parent of Oaktree, which together with certain related transactions resulted in Brookfield owning a majority economic interest in Oaktree’s business. Brookfield is a leading global alternative asset manager with over \$350 billion in assets under management. It is expected that both Brookfield and Oaktree will continue to operate their respective investment businesses largely independently, with each remaining under its current brand and led by its existing management and investment teams, and Brookfield and Oaktree generally managing their investment operations independently of each other pursuant to an information barrier.

Oaktree is committed to increasing diversity and inclusion at the firm. Guided by clear expectations and responsibilities set by executive leadership, it is dedicated to enhancing diversity by increasing the representation of women and individuals from underrepresented groups within investment teams and officer-level positions across the firm. Oaktree employs a four-pillar approach to achieve its goals related to Diversity, Equity, and Inclusion (“DEI”). This approach begins with innovative and proactive recruitment efforts, targeting women and diverse talent. Moving beyond recruitment, programs and employment benefits are strategically employed to retain and develop Oaktree’s diverse populations. Next, a focus on awareness and education includes training programs centered around inclusive leadership, highlighting the benefits of diversity. Lastly, Oaktree has a commitment to accountability through clear communication, increased transparency, and a drive for tangible results in support of its DEI efforts. This integrated strategy underscores Oaktree’s dedication to fostering a diverse and inclusive culture at every level of the organization.

III. Investment Strategy

Oaktree’s opportunistic real estate strategy will focus on targeting attractive risk-adjusted opportunities in value and growth investments. Investment team members are designated with geographically-based coverage organized by focus area in order to develop deep, focused expertise and relationships. They are complemented by a dedicated asset management team that works in concert with the investment teams and Oaktree’s operating partners to provide asset-level support and oversight for each investment in the real estate portfolio. Oaktree’s all-weather real estate investing strategy seeks to achieve attractive risk-adjusted returns through investments in real estate and real estate-related debt, companies, securities, and other real estate-related assets on a global basis. To implement the strategy, Oaktree will employ an investment philosophy that seeks to adapt to all stages of the credit-driven market cycle. The opportunity set will seek to shift from distressed securities to rescue capital to distressed private transactions to value-oriented and growth opportunities as the cycle evolves. Oaktree plans to target opportunities at all stages of the credit-driven market cycle utilizing its five areas of investment focus. Oaktree intends to pivot its deployment of capital between Opportunistic Credit, Commercial, Residential, Corporate Platforms and Global Ex-U.S. real estate opportunities as the environment and opportunity sets shift. Throughout the cycle, Oaktree will seek to manage risk by constructing an appropriately leveraged, diversified portfolio of investments across asset types, markets, cash flow profiles, and operating partners.

Complementing Oaktree's investment team are strategic relationships with over 130 specialized sophisticated operating partners, which it believes is a critical element to successful and differentiated real estate investment results. Oaktree investment professionals have developed strong relationships with operating partners, industry experts, brokers, lawyers, and consultants throughout the world, particularly in high-growth markets. In addition, the real estate team will leverage the broader Oaktree platform and collaborate with other Oaktree strategies to source, evaluate and make investments globally. Oaktree benefits from the breadth and depth of experience that exists across its entire platform, including a centralized trading desk, which provides real time market insights and informs the teams decision making process particularly for securities and opportunistic credit investments. Moreover, because Oaktree has industry-focused investment professionals across a variety of asset classes, it has access to cross-strategy industry expertise and company knowledge, which enhances sourcing, underwriting and valuation insight.

As with prior funds, ROF IX has the ability to pivot amongst the five areas of investment focus depending on what Oaktree believes are the most attractive risk-adjusted growth and distress opportunities throughout a market cycle. Within the commercial property type, the team focuses primarily on individual asset or portfolio transactions across all types of commercial real estate on a highly opportunistic basis, usually working in concert with lenders, borrowers or operating partners. This includes, but is not limited to, equity investments, debt acquisitions, and restructurings involving various asset types, such as office, industrial, multifamily, hospitality and retail. Within residential, the team focuses on opportunistic investments in single-family land development, single-family land banking, master-planned communities, distressed second home resort communities, short term lending to fix-and-flip investors, and homebuilding on single-asset, joint-venture and corporate bases. The corporate platform investment area focuses on a variety of channels to source investment opportunities with real estate and real estate-related companies, including relationships with management teams and boards of directors, investment banks, commercial banks, and real estate brokers. This can involve IPOs, REITs or corporate mergers and acquisitions, recapitalizations, corporate joint ventures, acquisitions of securities, or off-balance sheet investments with strategic partners. The team focused on opportunistic credit opportunities targets investments in real estate structured credit such as CMBS, real estate-related debt and corporate debt.

Throughout the life cycle of an investment, Oaktree incorporates environmental, social and governance ("ESG") topics into the investment, analysis, and decision-making process. Oaktree has a Socially Responsible Investing ("SRI") policy informed by the principles set in the U.N. Principles for Responsible Investment (the "UN PRI"). Oaktree's real estate team recognizes that ESG issues are the focus of socially responsible investing and can directly impact investment performance, particularly within the real estate industry. The team believes that adherence to ESG principles can serve as a significant risk mitigant and value-enhancer. The team seeks to integrate and prioritize ESG best practices as part of its investment process by establishing and monitoring key performance indicators ("KPIs") and incorporating ESG factors into its investment reviews.

IV. Investment Performance

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

Fund	Vintage Year	Total Commitment	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
ROF A	1996	\$304 million	--	8.4%	1.7	1.7
ROF B	1997	\$286 million	--	7.1%	1.6	1.6
ROF II	1998	\$464 million	--	11.1%	1.5	1.5
ROF III/III A	2002	\$707 million	--	11.3%	1.7	1.7
ROF IV	2008	\$450 million	--	10.5%	1.7	1.7
ROF V	2011	\$1.3 billion	--	12.2%	1.6	1.6
ROF VI	2012	\$2.7 billion	--	6.8%	1.3	1.1
ROF VII	2015	\$2.9 billion	--	11.1%	1.3	0.7
ROF VIII	2019	\$4.6 billion	\$200 million	10.1%	1.1	0.2

* Previous Fund investments may be relatively immature and, therefore, returns may not be indicative of future results. Fund returns were provided by the manager.

V. Investment Period and Term

The term of the fund is 10 years, with the option to extend the term for up to five years in the General Partner's sole discretion and thereafter with the consent of the Advisory Board. The investment period will last for four years from the commencement date of the Fund.

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

ATTACHMENT D

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. Background Data

Name of Fund:	Whitehorse Liquidity Partners VI LP
Type of Fund:	Private Equity – Secondaries
Target Fund Size:	US\$6.0 billion
Fund Manager:	Whitehorse Liquidity Partners VI GP Inc.
Manager Contact:	Giorgio Riva 79 Wellington St. West, Suite 2100, P.O. Box 92 Toronto, Ontario M5K 1G8 Canada

II. Organization and Staff

Whitehorse Liquidity Partners Inc. (“Whitehorse” or “the Firm”) is seeking commitments for Whitehorse Liquidity Partners VI LP (the “Fund”), which is being formed principally to provide portfolio financing through structured liquidity solutions for Limited Partners (“LPs”) and General Partners (“GPs”).

Whitehorse was established in 2015 and, as of November 30, 2023, has raised \$14.8 billion in commitments, deployed \$19.1 billion into transactions, and distributed \$5.7 billion. The team comprises over 170 professionals with headquarters in Toronto, Canada, and an office in London, United Kingdom. Managing Partner Yann Robard leads the Firm alongside Partners Giorgio Riva, Michael Gubbels, Rob Gavin, Julian Mirsky, Josh Booth, Derek Miners (Chief Operating Officer), and Marilia Bothamley (Chief Financial Officer). In addition to the aforementioned Managing Partner and Partners, the broader leadership team also includes Chief Compliance Officer Jenn McGoey, Chief Technology Officer Chris Englert, and General Counsel Matthew Kuchinsky. The Leadership Team has extensive experience investing, managing, and administering private equity investments, including structuring and executing complex secondary transactions. Whitehorse is employee-owned.

Whitehorse endeavors to have an employee base that reflects the gender and cultural diversity of the cities in which it operates. The firm is a founding signatory of the Institutional Limited Partners Association (ILPA) Diversity in Action Initiative and is committed to fostering an inclusive and supportive culture that respects and values the backgrounds, differences, and traditions of all team members.

III. Investment Strategy

Whitehorse's strategy provides Limited Partners and General Partners with flexible liquidity solutions for their private equity portfolios by creating preferred securities. Consistent with the prior funds in the flagship series, the Fund seeks to provide resilient returns, muted volatility, and consistent cash flows through structures that benefit from strong asset coverage, liquidation preference, and upside sharing. Whitehorse has identified what it believes to be a significant and untapped market opportunity in using structures to accelerate liquidity on private equity portfolios and/or finance the acquisition of private equity portfolios, which are designed to provide attractive, credit-like risk-adjusted returns for its investors.

Whitehorse has identified three different applications of its strategy:

- *Limited Partner Financing Solution:* This solution enables an LP to generate liquidity on its existing private equity portfolios while (i) retaining an interest in future upside potential and (ii) avoiding the potential discount on an outright sale. Given these dynamics, Whitehorse believes this solution represents an attractive alternative to a secondary sale or traditional debt financing. The collateral pool of LP Financing Solution transactions is typically comprised of a combination of multiple LP interests in private equity funds and/or co-investments. In LP Financing Solution transactions, most, if not all, of the Preferred Equity security is held by the Fund, and the LP counterparty retains the Common Equity security.
- *Limited Partner Purchase Solution:* When an LP would prefer to sell its private equity position outright, Whitehorse can execute an outright purchase of the position and aggregate it with other transactions into a single SPV. The collateral pool of the transactions typically comprises combinations of secondary transactions, co-investments/continuation vehicles, and select primaries. Once the transactions are aggregated into a single SPV, Whitehorse subsequently tranches the acquired portfolios into a Preferred Equity security, the substantial majority of which will be held by the Fund, and a Common Equity security, for which a portion is syndicated to third parties with the remainder held in the Flagship Fund, as well as the Equity Fund which has a higher risk adjusted return profile.
- *General Partner Financing Solution:* Whitehorse will provide a General Partner financing to (i) enable outsized GP commitments, (ii) manage the GP's own balance sheet, (iii) solve for liquidity requirements at the GP's management companies, and/or (iv) pursue other strategic initiatives. These transactions represent a flexible alternative to an outright minority equity stake sale in a management company or the use of a more traditional commercial funding source, if available to a GP. As a result, a GP can make a larger commitment to its funds, unlock liquidity in existing investments, and/or pursue other strategic initiatives. In GP Financing Solutions, the collateral pool typically contains an existing or future GP commitment and may include cash flows from management fees and/or carried interest earned by the GP. In GP Financing Solution transactions, most, if not all, of the Preferred Equity security is held by the Fund and the Common Equity security is held by the GP counterparty.

Each potential transaction is subject to rigorous diligence focusing on asset coverage and downside protection, while not losing sight of upside potential. Potential transactions are analyzed by the team throughout their evolution and reviewed by the Whitehorse investment committee in a multi-stage investment committee process before final approvals are received. Following the close of a transaction, Whitehorse actively monitors each investment throughout its life and seeks to identify opportunities to add value for investors through liquidity management transactions.

Whitehorse will seek to construct a portfolio for the Fund of 15 to 20 structures, generally ranging from \$100 million to \$750 million in size, that it believes have the potential to provide compelling risk-adjusted returns. Whitehorse will seek to complete 5 to 10 transactions annually during the Fund’s investment period. Whitehorse creates collateral pools in all transactions containing private equity portfolios diversified across managers, fund sizes, vintages, funds, strategies, geographies, and/or sectors.

The Firm established an ESG policy in November 2018, which is based on the ten principles of the United Nations Global Compact and is fully integrated into the Firm’s culture, general business practices, and investment considerations. Whitehorse is also a signatory of the United Nations Principles for Responsible Investment and incorporates ESG considerations into its investment committee process.

IV. Investment Performance

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

Fund	Vintage Year	Total Commitment	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
Whitehorse Liquidity Partners I	2016/17	\$0.4 billion	--	4.7%	1.1x	0.9x
Whitehorse Liquidity Partners II	2018	\$1 billion	--	7.7%	1.2x	0.7x
Whitehorse Liquidity Partners III	2019	\$2 billion	\$100 million	15.8%	1.3x	0.8x
Whitehorse Liquidity Partners IV	2021	\$4 billion	\$100 million	16.3%	1.2x	0.6x
Whitehorse Liquidity Partners V	2023	\$5 billion	\$100 million	17.9%	1.1x	0.3x

* Past performance is not indicative of future results. Net returns provided by the manager.

V. Investment Period and Term

The Investment Period will end 3 years after the initial closing date. The Term will end 6 years after the initial closing date, subject to three one-year extensions with the consent of the LP Advisory Committee.

This document is a summary of more detailed information provided in the Confidential Private Placement Memorandum dated June 2023 (as supplemented from time to time, the “PPM”). It is qualified in its entirety by the more detailed information provided in the PPM.

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TAB D

Minnesota College Savings Plan (529 Plan) Action Item

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DATE: February 14, 2024

TO: Members, Investment Advisory Council

FROM: SBI Staff

SUBJECT: Minnesota College Savings Plan (529 Plan)

The Minnesota State Board of Investment (SBI) is responsible for assisting the Office of Higher Education (OHE) in the selection of a Program Manager for the state's College Savings Plan (the Plan), an Internal Revenue Code (IRC) Section 529 plan. The current contract with TIAA-CREF Tuition Financing Inc. (TFI), an affiliate of TIAA, expires on August 31, 2024.

The Plan was launched in September 2001 with TIAA-CREF Tuition Financing, Inc. (TFI) as the Program Manager to provide all services for the Plan. OHE has overall responsibility for the 529 Plan and serves as the state's primary contact with the Program Manager. The SBI is responsible for the selection and monitoring of the investment options. OHE and the SBI have identified several goals during the next contract term, including maintaining or improving Morningstar's current Silver rating.

Summary of the RFP process and response:

SBI worked with OHE on the writing and scoring of the investment section of the Request for Proposal (RFP). Three responses were received from:

TFI
Fidelity
Vestwell

Upon evaluation of the responses, TFI scored the highest based in part on the following:

- TFI has a significant presence in the 529 market; currently working with seven states to service more than 1.5 million families, helping them save over \$42 billion in assets as of December 31, 2023. TFI has over 25 years of managing customized, state-centric 529 programs with a dedicated team of 50 employees who provide a full suite of program management services, including investment management, marketing, and distribution services to each state.
- TFI promotes a culture of partnership and demonstrates a willingness to accommodate increased oversight practices of the SBI. This includes quarterly investment portfolio updates and market outlook discussions, an annual review of the enrollment plan glide path and the suite of investment options available, and annual due diligence reviews with fund managers.

On the operational side, TFI provides exceptional service in the administration and marketing of the Plan with OHE.

- TFI's proposal includes a 30% fee reduction on its administration fee (Plan Management fee), from 10 to 7 bps. Underlying Investment fund fees are also competitive, with passively managed funds approximately five bps and actively managed funds ranging from 12 to 18 basis points.
- TFI offers a robust investment menu that is simple to navigate with diversified options in the enrollment-based glide path, three target risk allocation options, and eight static options with broad asset class exposure to help the account owner build a portfolio based on their risk and return objectives.

The SBI and OHE recommend that a new five-year contract be entered into with TFI as Program Manager for the Minnesota 529 College Savings Plan. TFI has an experienced team that provides excellent service, competitively priced program fees and investment fund expenses, a continued focus on performance and service, and a well-researched asset allocation approach.

RECOMMENDATION:

Staff is asking the Investment Advisory Council to endorse its recommendation to the Board that the Executive Director, with assistance from legal counsel, work with the Office of Higher Education to negotiate and execute a new five-year contract with TIAA CREF Tuition Financing Inc. (TFI) as Plan Manager for the Minnesota College Savings Plan.

TAB E

Participant-Directed Plans Action Item

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DATE: February 14, 2024

TO: Members, Investment Advisory Council

FROM: SBI Staff

SUBJECT: Lower Cost Investment Option in Participant-Directed Plans

Minnesota State Retirement System (MSRS) is the plan administrator for the Minnesota Deferred Compensation Plan (MNDCP), the Unclassified Retirement Plan, the Health Care Savings Plan (HCSP), and the Hennepin County Supplemental Retirement Plan. The State Board of Investment (SBI) is responsible for selecting the investment options for these Participant Directed Plans. The SBI and MSRS Staff work together to maintain a well-structured and competitively-priced investment lineup that offers an appropriate range of investment options aligned with participants' needs and investment goals.

Proposed Transition to Separate Account for Dodge & Cox Fixed Income Option

The Participant-Directed plans have utilized the Dodge & Cox Income Fund mutual fund as an actively-managed core fixed income investment option since 1999. As of December 31, 2023, the Plans have over \$300 million invested in the Income Fund. The Income Fund's total expenses, net of rebates, are currently 0.33% per annum.

Following negotiations with SBI Staff, Dodge & Cox has agreed to an in-kind transfer of the participant-directed plans' assets from the mutual fund into a dedicated separate account with a more competitive fee structure. Under the new separate account structure, fund expenses would be approximately 0.16% per annum, versus 0.33% per annum currently. Importantly, the investment strategy, team, and process will remain unchanged.

The SBI has long-term experience with Dodge & Cox managing separate account portfolios; Dodge & Cox has managed assets of the Combined Funds fixed income program in a separate account with a similar investment strategy since 2000. The assets in the Combined Funds separate account were approximately \$1 billion as of December 31, 2023.

Working closely with MSRS, SBI Staff have reviewed the operational considerations involved with the transition from a mutual fund to a separate account structure and are satisfied that the Plans' current operational infrastructure can fully support the proposed separate account structure.

RECOMMENDATION:

SBI Staff requests the Investment Advisory Council endorse the recommendation to transition the current Dodge & Cox Income Fund investment to a dedicated separately managed account managed in the same strategy. Until the Executive Director, on behalf of the SBI, executes an investment management agreement with Dodge & Cox, staff will continue to conduct further due diligence, and negotiations may result in additional terms and conditions. The timing of the transition is additionally subject to coordination with MSRS, Dodge & Cox, and key service providers including State Street (custodian) and Empower (recordkeeper).

TAB F

Asset Allocation Study Update

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DATE: February 14, 2024

TO: Members, Investment Advisory Council

FROM: SBI Staff

SUBJECT: Update on Asset Allocation Study

Staff will provide an update on the Asset Allocation Study currently underway at the Investment Advisory Council meeting on February 21, 2024.

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REPORTS

- ❖ Public Markets Investment Program Report
- ❖ Participant Directed Investment Program and Non-Retirement Investment Program 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: February 14, 2024

TO: Members, Investment Advisory Council

FROM: SBI Staff

SUBJECT: SBI Public Markets Program Report

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

The report includes the following sections:

	Page
• Market Review and Combined Funds Performance	3
• Public Markets Managers' Performance	5
• Organizational Updates and Summary of Manager Meeting Activity	11

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

Market Summary

Global equity markets rallied strongly during the final calendar quarter of 2023, with the MSCI All Country World (ACWI) Index of global stocks rising +11.0% in U.S. dollar terms for the quarter. The U.S. dollar fell over -4.5% versus a trade-weighted basket of foreign currencies, most notably versus the Swiss franc and Japanese yen. Interest rates declined sharply during the quarter, buoying returns across most fixed income sectors. The Bloomberg U.S. Aggregate Bond Index rallied +6.8% during the quarter, notching the best three-month return in over 30 years.

Both equity and bond markets cheered the end to the Federal Reserve's policy tightening cycle and the prospect of significant policy loosening in 2024 in response to falling inflation. Within equities, sector participation in the rally broadened during the quarter, with both cyclical and defensive sectors posting strong gains alongside technology and consumer discretionary names. Despite rising tensions in the Middle East region and signs of an economic soft-landing in the U.S., oil prices fell sharply during the quarter as the U.S. continued to boost production and the global energy market remained well-supplied.

In the U.S., economic data continued to point to a goldilocks scenario of solid employment gains, growth in real wages and moderating inflation. Employers added an average of 227,000 net new jobs per month in the fourth quarter of 2023. Wage growth, as measured by the Atlanta Federal Reserve's Wage Growth Tracker, rose +5.2% in the fourth quarter, while inflation measured continued to moderate. Headline inflation rose at a +3.4% annualized pace in December, while core inflation, which excludes food and energy prices, rose +3.9% year-on-year in December, down from +4.1% in September.

Within fixed income, a sharp move lower in yields across the U.S. Treasury market – driven by the prospect of the Fed pivoting from on-hold to easing its policy rate stance – sparked a rally across the broader fixed income market. Credit-sensitive sectors also benefitted from a risk-on sentiment fueled by the prospect of an economic soft-landing, which investors viewed as supportive of credit fundamentals.

Overall Combined Funds Portfolio Performance – Quarter and Last 12 Months

The overall Combined Funds portfolio returned +7.5% during the **calendar fourth quarter**, slightly trailing the composite benchmark's return of +7.7%. Portfolio underperformance for the quarter was driven by mark-to-market losses from the portfolio's currency hedging program, which was impacted by a sharp decline in the value of the U.S. dollar versus other currencies. The portfolio's slight overweight to private markets relative to the policy target was also a drag during the period, as the performance of the private markets allocation lagged the broader market rally. The private markets invested portfolio gained +1.6% during the quarter, led by a +4.6% return within the Resources portfolio. On the positive side, the Combined Funds portfolio benefitted from active manager outperformance within the domestic equity and fixed income portfolios. Within fixed income, the allocation to return-seeking strategies benefitted both from falling interest rates and the rally in credit spreads over the quarter.

For the **one-year period ended December 31, 2023**, the portfolio posted a return of +14.6%, outperforming the composite benchmark return of +14.4% 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 underweight to the Treasury protection portfolio and emerging market stocks helped relative performance over last 12 months as these sectors lagged the broader market. The portfolio's allocation to return-seeking strategies 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, modest mark-to-market losses from the portfolio's currency hedging program, and an overweight to the private markets portfolio relative to the policy target during the period all detracted from relative performance over the last 12 months. The invested private markets portfolio returned +8.0% for the 12 months ended December 31, 2023, led by a +10.8% return within the Private Equity allocation.

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

Domestic Equity

Domestic equities, as measured by the Russell 3000 Index, surged +12.1% in the fourth quarter. Over most of 2023, equity valuations had been tempered by concerns over inflation and recession. However, the combination of continued strong economic data and easing inflation fueled optimism in the fourth quarter that the Fed had successfully engineered a soft landing for the U.S. economy and would begin to cut its policy rate in early 2024. The resulting sharp decline in long-term interest rates helped propel equity valuations, especially economically sensitive stocks and stocks with longer-term growth prospects. Additionally, developments in generative AI technologies and the market's evolving assessment of the potential impacts of GLP-1 weight loss drugs on the healthcare ecosystem were important themes during the quarter. Technology stocks viewed as AI plays continued to command massive valuation premiums to the rest of the market, while the GLP-1 phenomenon drove notable dispersion within the healthcare space.

Seven of the largest stocks by market capitalization (Microsoft, Apple, Alphabet, Amazon, Nvidia, Meta, and Tesla), dubbed the "Magnificent Seven" or "Mag 7", rose nearly +117% collectively in 2023, driving much of the gains of the entire equity market for the year. During the fourth quarter, however, sector participation in the rally broadened beyond the Mag 7, with both cyclical and defensive sectors posting strong gains alongside technology and consumer discretionary names.

In the fourth quarter, real estate was the best-performing sector (+18.2%), followed by technology (+16.4%), financials (+15.3%), and consumer discretionary (+13.5%). Energy was the only sector to decline (-6.4%), while other lagging sectors included consumer staples (+4.0%), telecommunications (+6.9%), and healthcare (+7.0%).

Small cap stocks experienced a strong relief rally in the fourth quarter following four consecutive quarters of underperforming large cap stocks (Russell 2000 Index +14.0% vs. Russell 1000 Index +12.0%). The rally was strongest within small cap value (Russell 2000 Value Index +15.3% vs. Russell 2000 Growth Index +12.7%), in part due to large rebound in small cap financials, particularly within fintech. Within large caps, growth stocks outperformed value stocks (Russell 1000 Growth Index +14.2% vs. Russell 1000 Value Index +9.5%), due partly to a sentiment-fueled rebound in companies with long-duration cash flows and the large cap growth index's lower exposure to the underperforming energy sector.

The Combined Funds domestic equity portfolio gained +12.2% during the quarter, outperforming the Russell 3000 Index, which returned +12.1%. The effect of the portfolio's slight underweight to large cap growth modestly detracted from relative performance, but this was more than offset by positive effects of the portfolio's slight overweight to small cap stocks and positive contributions from active management.

The portfolio's large cap and all cap growth managers all outperformed their benchmarks during the quarter. These managers tend to eschew the significant concentration of their market-cap weighted benchmarks, leading to an underweight in the largest index names. While this was a headwind to performance over the course of 2023 (the Mag 7 comprised 47% of the Russell 3000

Growth Index at the end of 2023 and returned +117%), the broad-based rally experienced in the fourth quarter provided a better backdrop for active manager security selection. In particular, managers posted strong security selection within the technology and consumer discretionary sectors. The portfolio's two large cap growth managers posted the strongest relative performance (+20.3% Managers vs. +14.2% Benchmark), while all cap growth manager Zevenbergen modestly outperformed (+15.6% Manager vs. +14.1% Benchmark).

Active large cap value managers underperformed during the quarter (+9.1% Managers vs. +9.5% Benchmark). Barrow Hanley performed in-line with the benchmark, as the manager's strong stock selection within the technology, energy, and healthcare sectors was offset by weak stock selection in consumer discretionary and communication services. An underweight to consumer staples also helped. LSV's quantitative, deep-value approach was out of favor in a quarter that rewarded higher-valuation, lower-quality stocks. LSV's security selection was weakest in technology and healthcare, due partly to avoiding higher-priced names in those sectors.

The portfolio's semi-passive large cap managers both outperformed their benchmark during the quarter (+12.3% Managers vs. +12.0% Benchmark). Quantitative manager Blackrock outperformed due to security selection driven by macro insights and sentiment signals that correctly identified beneficiaries of stronger-than-expected economic conditions. This led to successful overweight positioning in areas such as luxury goods, communications, and electronics equipment stocks. Fundamental manager J.P. Morgan also outperformed, led by strong stock selection in consumer discretionary and financials.

Small cap growth managers outperformed their benchmark in aggregate during the quarter (+14.1% Managers vs. +12.7% Benchmark), due in part to the cohort's underweight to the energy sector, which saw a steep decline following last quarter's strong gains. Overall, strong security selection within healthcare, energy, and industrials helped drive manager outperformance versus the benchmark.

Small cap value managers all underperformed their benchmark during the quarter (+12.7% Managers vs. +15.3% Benchmark). As a group, the managers tend to focus on companies that have cheaper valuations than the benchmark, as well as those with higher quality metrics, such as lower leverage. Both attributes were out of favor during the quarter, as higher-priced and sentiment-oriented names in the index appreciated the most. This particularly hurt the managers' stock selection within the healthcare sector, where manager selection strongly favors companies with stable, profitable businesses at the expense of more speculative businesses. Aggregate stock selection within industrials and technology also hurt relative performance.

The portfolio's passive portfolios tracked their respective benchmarks during the quarter, posting a combined return of +12.0%, 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) posted a strong gain of +11.0% in the fourth quarter. In a reversal from the previous quarter, gains were experienced across most markets, and only 4 of 47 countries posted negative returns. One notable laggard was China (-4.3%), the fourth largest weight in the index and therefore a meaningful contributor to the index's underperformance

vs. the U.S. market. A decline in the value of the U.S. dollar relative to most foreign currencies buoyed the performance of non-U.S. stocks, contributing +1.7% to the index return in USD terms. In a reversal from last quarter, the energy sector declined following last quarter's index-leading rally, and was the only global sector to end the fourth quarter in negative territory (-2.9%).

The Combined Funds' global equity managers outperformed the MSCI All-Country World Index (ACWI) (net) for the quarter (+12.0% Managers vs. +11.0% Benchmark) as the managers' collective growth tilt capitalized on the strong performance of growth names, especially in the U.S. market. Growth manager Baillie Gifford (+16.4 Manager vs. +11.0% Benchmark) strongly outperformed the benchmark, aided by issue selection within technology and fintech. Quality growth manager Martin Currie (+13.6% Manager vs. +11.0% Benchmark) was also lifted by technology, industrial technology, and fintech names; its zero weight to the energy sector additionally contributed to relative performance. Value manager Ariel (+8.3% Manager vs. +11.0% Benchmark) underperformed for the quarter, hurt by an overweight to underperforming healthcare names and poor issue selection within technology. The manager's currency hedging activity also detracted from relative performance.

The portfolio's ACWI ex USA manager, Earnest Partners, ended the quarter modestly behind benchmark (+9.5% Manager vs. +9.8% Benchmark).

Developed International Equity and Currency Overlay

International developed markets equities, as measured by the MSCI World ex USA Index (net), rose +10.5% in U.S. dollar terms during the quarter. Almost half the return (+5.2%) was attributable to a weakening U.S. dollar, which boosted the value of assets denominated in foreign currencies. This meaningful currency tailwind lifted every country and sector in the index into positive territory.

The portfolio's active developed markets managers underperformed the MSCI World ex USA Index (net), returning +9.0% versus the benchmark's +10.5% return. Core quantitative manager Acadian (+8.7% Manager vs. +10.5% Benchmark) struggled with an overweight to energy names; during the quarter, energy prices fell sharply despite solid economic growth globally. Fundamental manager Marathon modestly underperformed (+9.3% Manager vs. +10.5% Benchmark), hurt by weak issue selection among banks. Quality manager J.P. Morgan had the strongest performance (+11.6% Manager vs. +10.5% Benchmark); it generated most of its excess return from strong issue selection in Japan.

The passive developed markets portfolio tracked the MSCI World ex USA Index (net) return for the quarter (+10.6% Manager vs. +10.5% Benchmark).

After holding relatively steady the first six weeks of the quarter, during late-November and December the U.S. dollar fell more than -4% versus a trade-weighted basket of foreign currencies. Continued moderation in inflation readings and dovish Fed comments indicating an expectation for significant policy easing in 2024 drove the dollar lower. The portfolio's currency overlay program subtracted -1.5% relative to an unhedged portfolio. Mark-to-market losses accrued across all currencies roughly in accordance with their index weight. Across the entire program, the hedge ratio varied between 0% and 51.2% over the quarter.

Emerging Markets Equity

Emerging markets equities, as measured by the MSCI Emerging Markets Index (net), rose +7.9% in U.S. dollar terms during the quarter, lagging developed markets, especially the U.S. However, emerging market (EM) currencies appreciated less against the U.S. dollar than developed currencies, and as such, EM equities received only half the performance boost from a the weak dollar (+2.3%) relative to developed markets during the quarter. In local currency terms, emerging markets slightly outperformed developed markets (+5.6% MSCI EM vs. +5.3% MSCI World ex U.S.). Four of the five largest countries in the index; India, Taiwan, Korea, and Brazil, notched returns above +10% for the quarter, driven by strong performance in their information technology and financial services sectors. However, continued weakness in China's economy, including weak consumer sentiment and continued concerns about government intervention in the private sector, led to underperformance (-4.3%) in that market and dragged down EM returns overall (China represented over 26% of the EM index as of the end of December 2023).

The portfolio's active emerging markets managers performed in-line with the MSCI Emerging Markets Index (net), returning +7.8% versus the benchmark's +7.9% return. Core manager Macquarie outperformed (+12.2% Manager vs. +7.9% Benchmark) with its significant overweight to rallying semiconductor names. Quality growth manager Morgan Stanley also outperformed (+9.1% Manager vs. +7.9% Benchmark) thanks to an underweight to China and an outsized return from Polish apparel company LPP (+38.3%). On the other hand, growth fund of funds manager Rock Creek lagged for the quarter (+5.4% Manager vs. +7.9% Benchmark). Rock Creek's underperformance was concentrated in information technology names across China, India, and Taiwan. Value manager Pzena ended an eight-quarter outperformance streak (+6.2% Manager vs. +7.9% Benchmark). Finally, quality growth manager Neuberger Berman lagged (+6.6% Manager vs. +7.9% Benchmark) due to an underweight to India and weak issue selection within that country.

Earnest Partners' China A-share strategy outperformed the MSCI China A Index during the quarter (-2.4% Manager vs. -4.1% Benchmark). Earnest benefitted from strong relative performance within information technology and financial names. The portfolio also benefitted from active allocations to health care and consumer staples.

The passive emerging markets portfolio tracked the MSCI Emerging Markets Index (net) within tolerance for the quarter (+7.6% Manager vs. +7.9% Benchmark).

Core/Core Plus and Return Seeking Bonds

U.S. investment grade fixed income, as measured by the Bloomberg U.S. Aggregate Index, posted a gain of +6.8% during the fourth quarter. Performance across the fixed income market was fueled by expectations that the Fed would begin cutting its policy rate in early 2024 based on cooling inflation readings. Credit markets cheered the prospect of a goldilocks scenario of an economic soft landing characterized by continued positive economic growth, including sufficient job and wage growth, and falling inflation. The resulting rally across U.S. Treasuries, corporate bonds and mortgage-backed securities produced the strongest quarterly performance for the Aggregate Index

since 1989, and was strong enough to pull the index into positive territory for the full year, thereby sparing bond investors from a third consecutive annual loss.

Investment-grade corporate bonds performed well during the quarter, buoyed by continued strong economic data, solid corporate fundamentals and the prospect an economic soft landing supported by Fed rate cuts beginning in early 2024. Corporate spreads rallied 29 basis points during the quarter, generating significant outperformance over similar-maturity Treasuries. Corporate spreads ended the year at +100 bps over U.S. Treasuries, well below their 20-year average level of +150bps. Within the Agency mortgage-backed security (MBS) sector, a decline in interest rate volatility boosted relative performance, while investors also leaned into the sector during the quarter based on historically cheap valuations and an expectation that the Fed would begin to taper the runoff in its balance sheet, including its holdings of Agency MBS.

Across the higher yielding sectors of the market, high yield corporate bonds rallied significantly in the final two months of the year as positive economic data and sound credit fundamentals supported a risk-on sentiment. The rally in U.S. Treasury yields provided an added boost to higher-quality high yield bonds, which tend to be more sensitive to broader interest rate moves than lower quality (CCC-rated) bonds. Meanwhile, high yield bank loans lagged, returning only +2.8% for the quarter. Emerging market debt posted strong performance for the quarter.

Hard currency sovereign bonds were supported by the rally in U.S. Treasuries and the prospect of rate cuts from the Federal Reserve. Also, EM local currency bonds benefited from central banks' policy rate cuts and were further supported by a weakening U.S. dollar. Non-agency mortgage credit performed well, supported by strong home price appreciation and strong borrower credit fundamentals. Performance within the commercial mortgage-backed sector was mixed; AAA-rated bonds outperformed lower-rated classes, while office and retail sector prices continued to soften as fundamentals remain weak and low transaction volume on underlying properties has hindered adequate price discovery.

The portfolio's core/core plus bond managers outperformed the Bloomberg Aggregate Index during the quarter (+7.4% Managers vs. +6.8% Benchmark). Overall, managers benefitted from an overweight to the higher-yielding spread sectors of the market, funded by an underweight to U.S. Treasuries. While overall portfolio results from manager duration and yield curve positioning were mixed, notably Dodge & Cox benefited from a well-timed duration extension to neutral from a long-held underweight position and Western Asset's duration overweight contributed to significant outperformance for the quarter. Positive issue selection within investment grade credit and allocations to high yield bonds, particularly among core plus managers, also benefited relative performance.

The portfolio's return-seeking bond managers returned +7.0% during the quarter, outperforming the portfolio's policy benchmark (Bloomberg U.S. Aggregate Bond Index), which returned +6.8%. The return-seeking managers also outperformed the weighted composite of their individual benchmarks, which returned +6.0% for the quarter. Outperformance relative to the composite benchmark was the result of strong absolute return from the opportunistic credit and structured credit strategies relative to their cash benchmark, and positive performance from Emerging Market Debt manager Ashmore, which benefitted from positive issue selection across both hard currency

sovereign and local currency sovereign sectors. On the negative side, high yield managers KKR and Oaktree both underperformed during the quarter. Both managers' exposure to floating rate bank loans versus fixed-coupon high yield bonds weighed on relative returns, while KKR's overweight to the lower quality (CCC-rated) segment of the high yield market hurt as this segment underperformed the broader market.

Treasury Protection Portfolio

The Treasury Protection Portfolio gained +9.1% during the quarter, benefiting from the dramatic decline in yields during the quarter. On a relative basis, the Protection Portfolio slightly outperformed the Bloomberg Treasury 5+ Year Index for the quarter (+9.1% Managers vs. +9.0% Benchmark).

Laddered Bonds + Cash Portfolio

The Combined Funds Laddered Bonds + Cash portfolio returned +1.4% for the fourth quarter, matching the portfolio's benchmark (ICE BofA U.S. 3-Month Treasury Bill) over the same period. Both the Laddered Bond portfolio and the Cash portfolio benefitted from allocations to money market instruments issued by high quality global banks. During the quarter, the SBI added net funds to the Laddered Bond portfolio and modestly extended the effective maturity of the Ladder Portfolio's custom cashflow benchmark, allowing the managers to invest in higher-yielding assets in the six-month to nine-month maturity range.

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

Acadian (Developed Markets Equity)

Acadian CEO Ross Dowd left the firm. He was replaced by former Chief Marketing Officer Kelly Young.

Fidelity (Developed Markets Equity)

European sleeve PM Cedric de la Chase announced he will retire in April 2024. He will be replaced by long-time Fidelity PMs Sam Morse and Aruna Karunathilake.

Goldman Sachs (Domestic Equity, Fixed Income)

After 28 years of service, Chris Kojima, co-head of the Client Solutions Group in Asset & Wealth Management (AWM), will leave the firm at the end of 2023. Matt Gibson will continue to serve as sole global head of the Client Solutions Group in AWM. Effective January 2024, Will Bousquette assumes the role and responsibilities of chief operating officer of Asset & Wealth Management.

After 16 years of service, Arthur Leiz, chief risk officer (CRO) of Asset Management's public investing business, will leave Goldman Sachs at the end of 2023. Patrick den Besten, CRO of GSAM B.V., will be appointed CRO of Asset Management's public investing business in addition to his current role.

Winslow (Domestic Equity)

Roger Mendel, Sector PM/Analyst with a focus on Industrials and Materials, announced that he will retire in April 2024, after 16 years with Winslow and 32 years in the investment industry. During the quarter, Winslow hired Don Porter as a Sector PM/Analyst with a focus on Industrials and Materials, reporting to Pat Burton. Mr. Porter has 21 years of investment industry experience and will act as an additional resource for the Growth Capital Strategy, assessing private companies.

Record Currency (Currency Overlay)

Record plc CEO Leslie Hill announced she will retire in April 2024. She will be succeeded by Jan Witte, the CEO of affiliate Record Currency Management.

TCW (Fixed Income)

Mitch Flack, Portfolio Manager and Head of Agency MBS, retired at year end 2023. The group will continue to be guided by Co-heads of Global Securitized, Liza Crawford and Peter Van Gelderen.

PGIM (Fixed Income)

PGIM announced in December that Thomas Chang retired at year end, after managing CMBS portfolios since 2006. His position is currently open, with remaining staff supporting the asset class in the interim. In addition, Hugo Barth will retire in January 2024; he manages credit derivative strategies across a range of fixed income strategies. His responsibilities will be jointly assumed by Rajat Shah and David Del Vecchio. Lastly, Michael Lillard, Head of PGIM Fixed

Income will retire in April 2024 after more than 36 years with the firm. Effective at the start of 2024, John Vibert will become President and CEO.

KKR (Fixed Income)

During Q4 2023, KKR announced it would be acquiring the remaining portion of Global Atlantic which it did not already own. As a result of the consolidation of that business, John Reed, Co-Portfolio Manager of High Yield is leaving his current role to become PM of Global Atlantic's liquid credit portfolio. To support the High Yield product, Jeremiah Lane, Head of US Leveraged Credit at KKR will join as Co-head of High Yield strategy alongside Terry Ing.

Q4 2023 Manager Meetings

During the quarter, Staff traveled to Boston for three manager meetings. Staff received five visits from managers at our office in St. Paul, and conducted 30 manager strategy review calls via teleconference or videoconference. Note that while staff met with some managers multiple times during the quarter, each manager/strategy is listed only once below.

Investment Manager	Asset Class
Acadian Asset Management LLC	Developed Markets Equity
Baillie Gifford Overseas Limited	Global Equity
Barrow, Hanley, Mewhinney & Strauss, LLC	Domestic Equity
BlackRock Financial Management, Inc.	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
J.P. Morgan Investment Management Inc.	Domestic Equity
J.P. Morgan Investment Management Inc.	Developed Markets Equity
Marathon Asset Management	Developed Markets Equity
Martin Currie Inc.	Global Equity
Martingale Asset Management, L.P.	Domestic Equity
Morgan Stanley Investment Management Inc.	Emerging Markets Equity
Neuberger Berman Investment Advisers LLC	Fixed Income
Neuberger Berman Investment Advisers LLC	Emerging Markets Equity
Oaktree Asset Management	Fixed Income
Payden & Rygel	Fixed Income
Prudential Global Investment Management (PGIM)	Fixed Income
Pacific Investment Management Company LLC (PIMCO)	Fixed Income
Pzena Investment Management, LLC	Emerging Markets Equity
Record Currency LLC	Currency Overlay
The Rock Creek Group, LLC	Emerging Markets Equity
Sands Capital Management, LLC	Domestic Equity

2023 Manager Meetings (cont.)

TCW	Fixed Income
Wellington Management Company, LLP	Domestic Equity
Western Asset Management Company, LLC	Fixed Income
Zevenbergen Capital Investments LLC	Domestic Equity

REPORT

Participant Directed
Investment Program
and
Non-Retirement
Investment Program

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DATE: February 14, 2024

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 fourth quarter.

The report includes the following sections:

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• Participant Directed Investment Program Fund Commentaries	3
• Non-Retirement Fund Commentaries	6
• Manager Meetings	7

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Participant Directed Investment Program Fund Commentaries Fourth 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 returned +12.2% for the quarter, slightly outperforming the benchmark return of +12.1%.

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 +11.7% return. *Note: This option is only available to the Minnesota Deferred Compensation Plan (MNDCP).*

Vanguard Dividend Growth Fund

Wellington Management actively manages the Fund 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 returned +10.4% for the quarter, slightly outperforming the S&P U.S. Dividend Growers Index return of +10.3%. Over the quarter, the Fund benefited from an underweight allocation to the energy and services sectors, and an overweight allocation to the real estate sector.

As part of a transition that began in March 2023, Donald Kilbride will step down as Portfolio Manager for the Fund on January 1, 2024. Current co-Portfolio Manager Peter Fisher will assume leadership for the Fund. Mr. Fisher joined Wellington in 2005 and is a named co-PM on six strategies. Mr. Kilbride, who joined Wellington in 2002, will remain on the Dividend Growth team and will continue to manage several sub-advisory mandates.

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 U.S. Mid Cap Index return for the quarter with a +12.3% 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 outperformed the Russell 2000 Index for the quarter with a +14.6% return, compared to +14.0% for the benchmark. Relative outperformance for the quarter was driven by security selection in the consumer services and healthcare sectors. The portfolio also benefited from security selection and an underweight position to the energy sector, the worst-performing sector in the index for the quarter.

As planned, Associate Portfolio Manager Alex Roik will become the Lead Portfolio Manager on January 1, 2024, as Frank Alonso steps down. Mr. Roik has been with T. Rowe Price since 2013, focusing on small- and mid-cap value companies. He is an Investment Advisory Committee member on various small-cap strategies. Mr. Alonso, who has been with T. Rowe Price since 2000,

will remain with the firm as an Associate Director of Analyst Development. He is also a Vice President and member of the Small-Cap and Mid-Cap Growth Investment Advisory Committees.

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 +10.2% return versus +10.4% for the benchmark. Relative underperformance was primarily attributed to security selection within business services, non-energy materials, and finance sectors.

Vanguard Total International Stock Index

The Fund employs a full replication indexing approach designed to track the FTSE Global All Cap ex U.S. Index, a market-cap weighted index designed to measure the performance of developed and emerging market companies. The Fund outperformed the benchmark for the quarter with a +10.0% return versus the benchmark's return of +9.7%.

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 more significant allocation to corporate and securitized debt relative to the benchmark. The Fund outperformed the Bloomberg U.S. Aggregate Index for the quarter with a +7.3% return, compared to the benchmark return of +6.8%. Relative outperformance for the quarter was primarily attributed to an underweight position in U.S. Treasuries, and an overweight position in corporate bonds and Agency mortgage-backed securities. Issue selection, most notably within financials and industrials, also contributed to relative performance 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 +6.7% for the quarter, slightly underperforming the benchmark return of +6.8% for the same period.

Stable Value Fund

Galliard Capital Management manages the Stable Value Fund 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. The contracts have 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 +0.8% 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 was experienced in 2023, 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 quarterly return 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 returned +1.4% for the quarter, matching its benchmark, the ICE BofA 3 Month U.S. T-Bill Index.

Multi-Asset Group Option**Vanguard Balanced Index**

The Balanced Fund seeks capital appreciation, current income, and long-term income growth. The Fund employs an index sampling approach designed to track the investment performance of composite index of 60% CRSP U.S. 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 +10.0% return.

Non-Retirement Fund Commentaries Fourth Quarter 2023

Assigned Risk Plan Fixed Income Manager

RBC Global Asset Management actively manages the fixed income portfolio for the Assigned Risk Plan relative to the Bloomberg U.S. Government Intermediate Index with a focus on security selection, and secondarily on sector allocation. The portfolio returned +4.0% for the quarter, matching the benchmark's return. For the quarter, positive performance from a modest overweight to spread sectors, including Agency mortgage-backed securities, was offset by a modest underweight to duration position relative to the benchmark, which hurt performance as interest rates fell sharply on the quarter.

Non-Retirement Program Fixed Income Manager

Prudential Global Investment Management (PGIM) actively manages the Non-Retirement Fixed Income Portfolio relative to the Bloomberg U.S. Aggregate Index in a separately managed portfolio. The Portfolio slightly outperformed for the quarter with a +7.0% return, compared to a benchmark return of +6.8%. Relative outperformance was primarily attributed to asset allocation favoring investment grade corporate bonds, emerging markets debt and commercial mortgage-backed securities.

Michael Lillard, Head of PGIM Fixed Income, will retire in April 2024 after more than 36 years with the firm. Effective January 1, 2024, John Vibert will become President and CEO of PGIM Fixed Income.

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 +11.7%.

Non-Retirement Program Money Market Manager

State Street Global Advisors manages the Non-Retirement Money Market Fund against the iMoneyNet All Taxable Money Fund Average. The Fund matched the benchmark for the quarter with a +1.4% return.

**Manager Meetings
Fourth Quarter 2023**

During the quarter, Staff traveled to Boston for three due diligence meetings and held two portfolio review meetings at the SBI offices, with the remaining portfolio 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
• SSGA	Passive, Target Retirement Fund	PDIP
• Vanguard	Passive, Total Stock Market Fund	PDIP
	Passive, Institutional S&P 500 Index	PDIP
	Passive, Mid Cap Index Fund	PDIP
	Passive, Total International Equity	PDIP
	Passive, Bond Fund	PDIP
	Passive, Balanced Fund	PDIP
	Active, Dividend Growth Fund	PDIP
• Wellington	Active, Domestic Equities	PDIP
	Vanguard sub-advisory relationship	

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REPORT

AON Market Environment Report

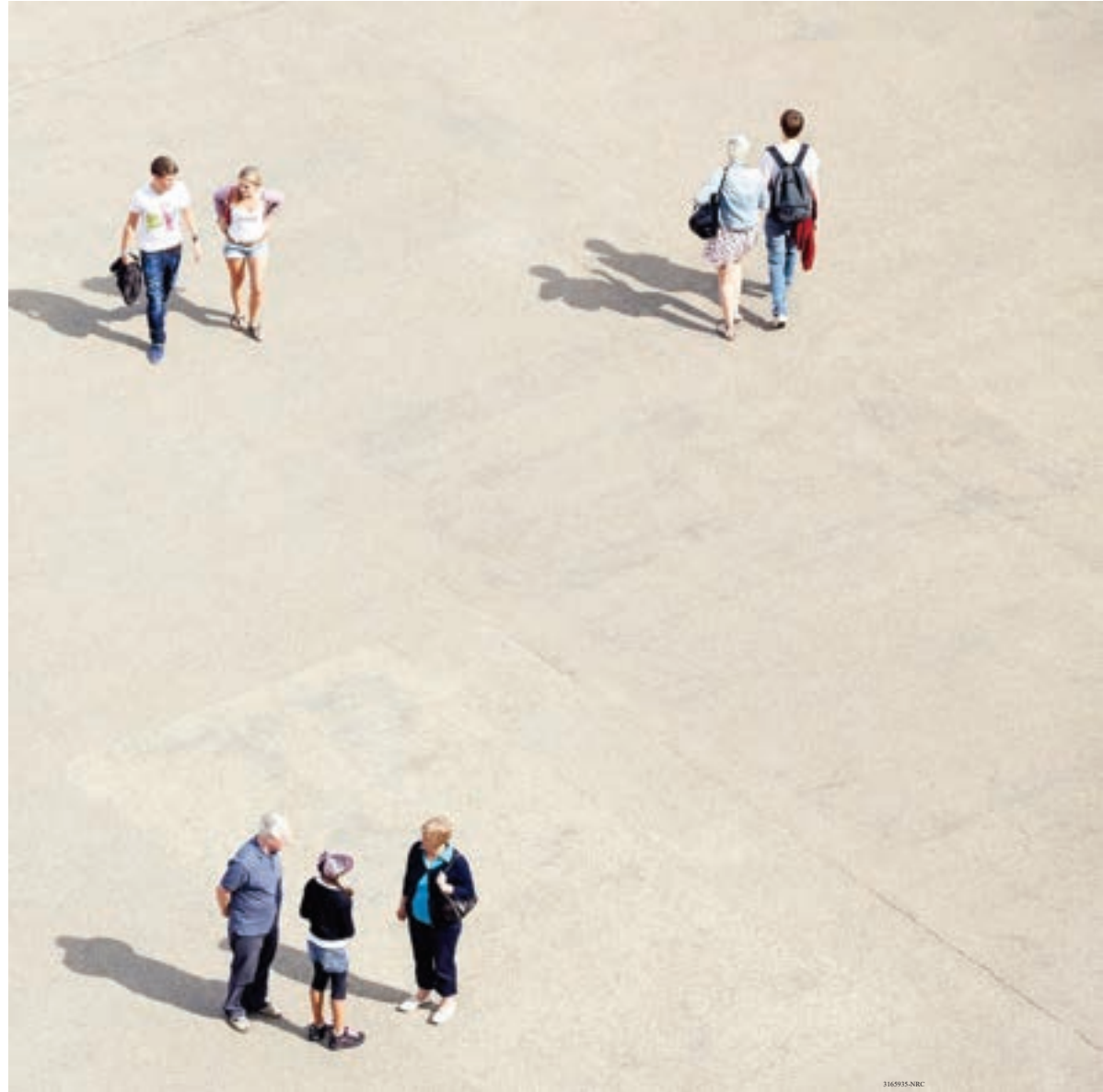
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Market Environment

Fourth Quarter 2023

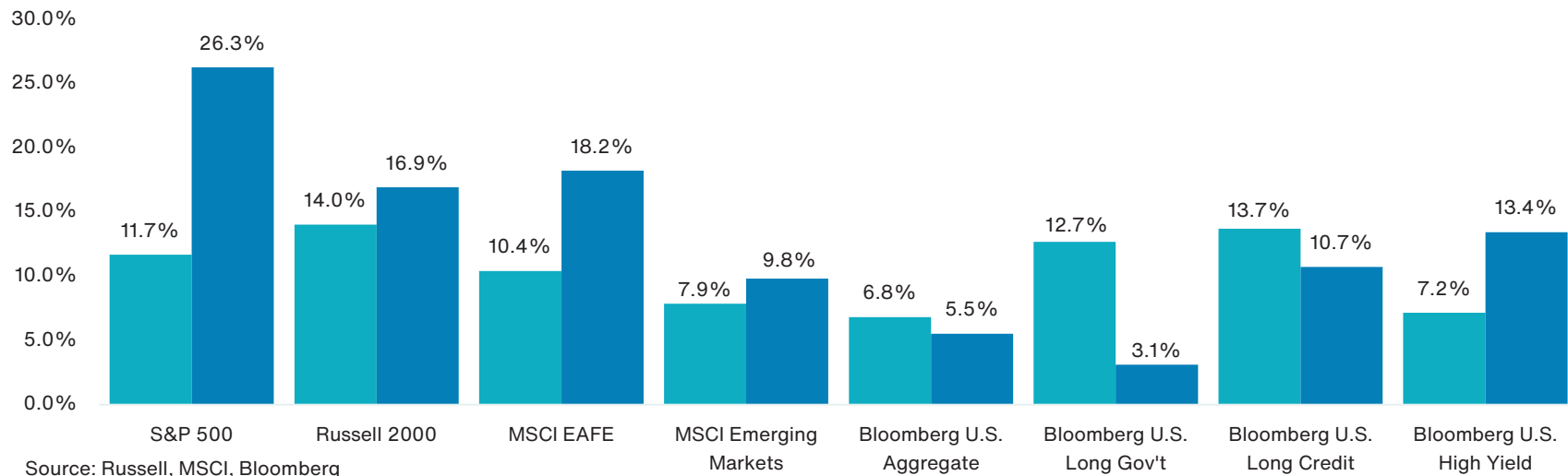
Investment advice and consulting services provided by Aon Investments USA Inc. Nothing in this document should be construed as legal, tax, or investment advice. Please consult with your independent professional for any such advice. To protect the confidential and proprietary information included in this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



Market Highlights

SHORT TERM RETURNS AS OF 12/31/2023

■ Fourth Quarter 2023 ■ YTD



Source: Russell, MSCI, Bloomberg

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

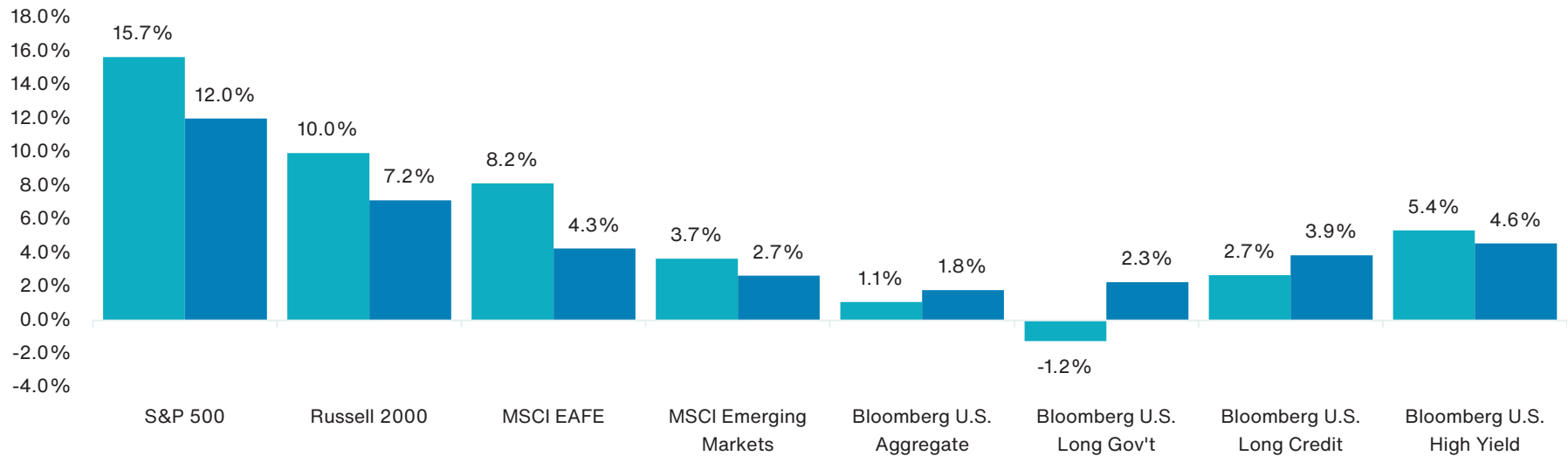
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Market Highlights

LONG TERM ANNUALIZED RETURNS AS OF 12/31/2023

■ Five-Year ■ Ten-Year



Source: Russell, MSCI, Bloomberg

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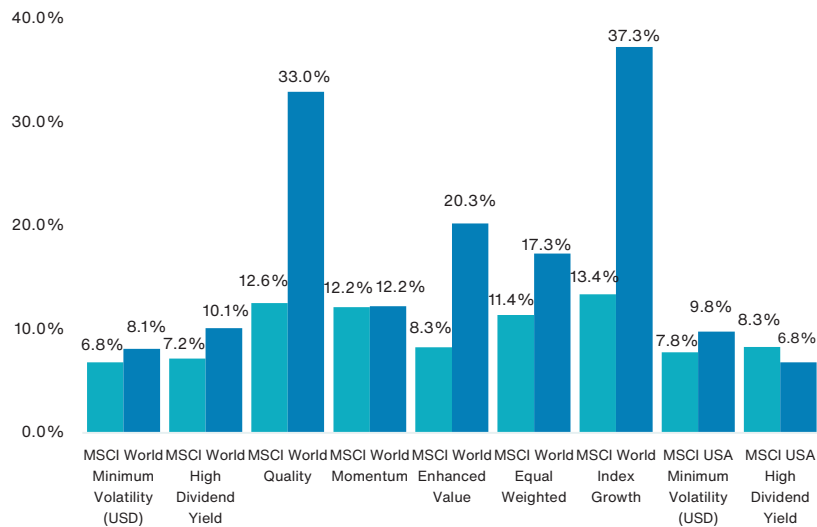
Market Highlights

Returns of the Major Capital Markets							Returns of the Major Capital Markets						
	Period Ending 12/31/2023							Period Ending 12/31/2023					
	Fourth Quarter	YTD	1-Year	3-Year ¹	5-Year ¹	10-Year ¹		Fourth Quarter	YTD	1-Year	3-Year ¹	5-Year ¹	10-Year ¹
Equity							Fixed Income						
MSCI All Country World IMI	11.14%	21.58%	21.58%	5.46%	11.49%	7.77%	Bloomberg Global Aggregate	8.10%	5.72%	5.72%	-5.51%	-0.32%	0.38%
MSCI All Country World	11.03%	22.20%	22.20%	5.75%	11.72%	7.93%	Bloomberg U.S. Aggregate	6.82%	5.53%	5.53%	-3.31%	1.10%	1.81%
Dow Jones U.S. Total Stock Market	12.13%	26.06%	26.06%	8.43%	15.05%	11.40%	Bloomberg U.S. Long Gov't	12.69%	3.11%	3.11%	-11.35%	-1.23%	2.27%
Russell 3000	12.07%	25.96%	25.96%	8.54%	15.16%	11.48%	Bloomberg U.S. Long Credit	13.71%	10.73%	10.73%	-6.50%	2.70%	3.88%
S&P 500	11.69%	26.29%	26.29%	10.00%	15.69%	12.03%	Bloomberg U.S. Long Gov't/Credit	13.24%	7.13%	7.13%	-8.68%	1.12%	3.22%
Russell 2000	14.03%	16.93%	16.93%	2.22%	9.97%	7.16%	Bloomberg U.S. TIPS	4.71%	3.90%	3.90%	-1.00%	3.15%	2.42%
MSCI All Country World ex-U.S. IMI	9.81%	15.62%	15.62%	1.53%	7.18%	3.97%	Bloomberg U.S. High Yield	7.16%	13.45%	13.45%	1.98%	5.37%	4.60%
MSCI All Country World ex-U.S.	9.75%	15.62%	15.62%	1.55%	7.08%	3.83%	Bloomberg Global Treasury ex U.S.	9.29%	4.24%	4.24%	-8.34%	-2.39%	-0.99%
MSCI EAFE	10.42%	18.24%	18.24%	4.02%	8.16%	4.28%	JP Morgan EMBI Global (Emerging Market)	9.26%	10.45%	10.45%	-3.14%	1.94%	3.06%
MSCI EAFE (Local Currency)	4.96%	16.16%	16.16%	8.64%	9.49%	6.61%	Commodities						
MSCI Emerging Markets	7.86%	9.83%	9.83%	-5.08%	3.68%	2.66%	Bloomberg Commodity Index	-4.63%	-7.91%	-7.91%	10.76%	7.23%	-1.11%
Equity Factors							Goldman Sachs Commodity Index						
MSCI World Minimum Volatility (USD)	6.84%	8.14%	8.14%	4.05%	7.60%	7.97%	Hedge Funds						
MSCI World High Dividend Yield	7.18%	10.14%	10.14%	7.32%	9.18%	6.73%	HFRI Fund-Weighted Composite ²	3.59%	7.52%	7.52%	4.32%	7.00%	4.53%
MSCI World Quality	12.55%	32.97%	32.97%	9.41%	17.05%	12.18%	HFRI Fund of Funds ²	3.41%	6.35%	6.35%	2.25%	5.14%	3.25%
MSCI World Momentum	12.17%	12.25%	12.25%	2.17%	11.98%	10.32%	Real Estate						
MSCI World Enhanced Value	8.30%	20.27%	20.27%	9.66%	8.84%	6.05%	NAREIT U.S. Equity REITS	16.22%	13.73%	13.73%	7.21%	7.39%	7.65%
MSCI World Index Growth	13.40%	37.31%	37.31%	5.75%	16.31%	11.28%	FTSE Global Core Infrastructure Index	11.42%	1.58%	1.58%	4.09%	7.18%	7.01%
MSCI USA Minimum Volatility (USD)	7.79%	9.79%	9.79%	6.46%	10.30%	10.41%	Private Equity						
MSCI USA High Dividend Yield	8.31%	6.83%	6.83%	7.83%	9.32%	9.39%	Burgiss Private IQ Global Private Equity ³			2.47%	19.41%	15.14%	14.53%
MSCI USA Quality	12.03%	36.30%	36.30%	10.39%	18.13%	13.81%	MSCI Indices show net total returns throughout this report. All other indices show gross total returns.						
MSCI USA Momentum	12.76%	9.50%	9.50%	0.70%	11.13%	11.72%	¹ Periods are annualized.						
MSCI USA Enhanced Value	12.30%	14.42%	14.42%	8.34%	10.12%	8.44%	² Latest 5 months of HFR data are estimated by HFR and may change in the future.						
MSCI USA Equal Weighted	12.70%	17.63%	17.63%	7.07%	12.97%	9.80%	³ Burgiss Private IQ Global Private Equity data is as at June 30, 2023						
MSCI USA Growth	13.68%	46.72%	46.72%	8.01%	19.94%	14.83%							

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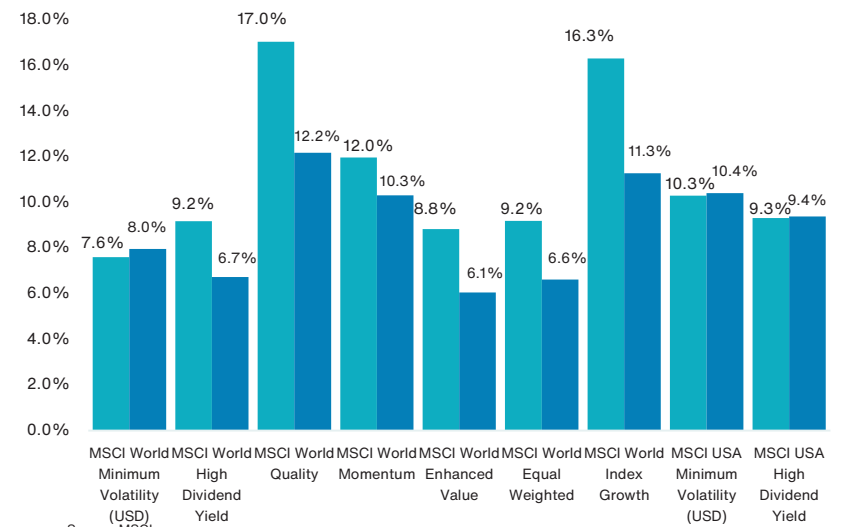
Factor Indices

SHORT TERM RETURNS AS OF 12/31/2023 ■ Fourth Quarter 2023 ■ YTD



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

LONG TERM ANNUALIZED RETURNS AS OF 12/31/2023 ■ Five-Year ■ Ten-Year

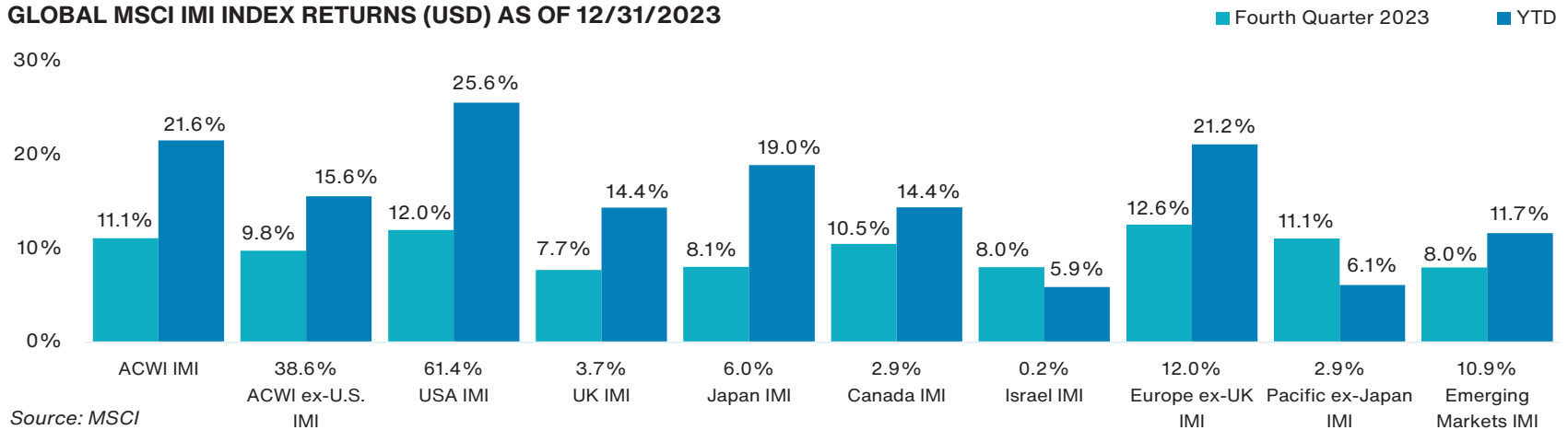


Source: MSCI
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Global Equity Markets

GLOBAL MSCI IMI INDEX RETURNS (USD) AS OF 12/31/2023

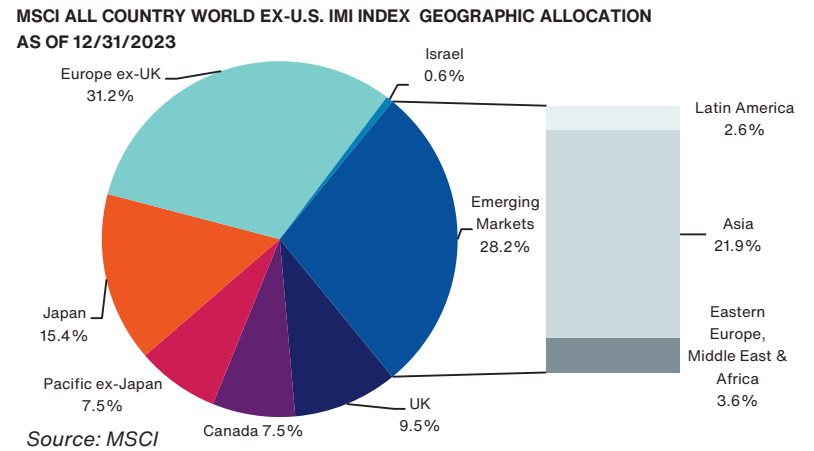
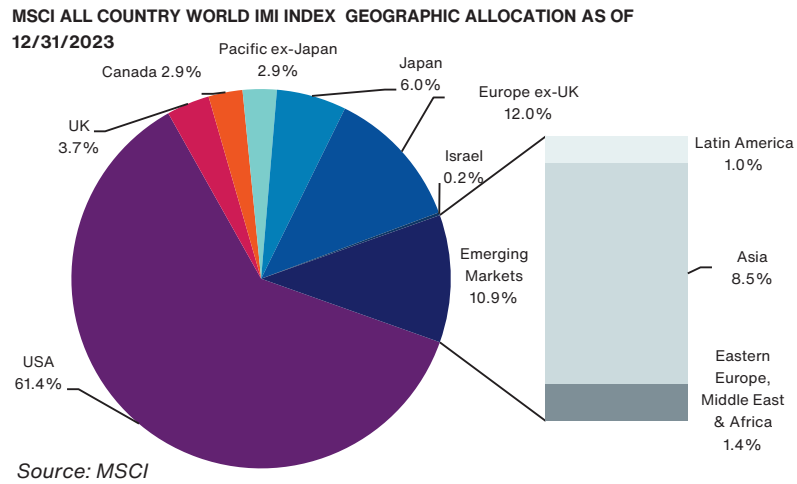


- In Q4 2023, global equity markets rose due to a strong rally in November and December as market participants anticipated a higher probability of interest rate cuts in 2024. The MSCI ACWI posted its strongest annual performance in USD terms, (22.8%) since 2019 (27.3%). Volatility fell sharply throughout the quarter as the CBOE Volatility Index (VIX) fell to 12.5 in Q4 from 17.5 in the previous quarter, well below its 20-year average of 19.1. The MSCI All Country World Investable Market Index (ACWI IMI) returned 11.1% for the quarter and was up 21.6% on the year.
- Across international markets, all regions posted positive returns. US equities posted strong returns over the quarter and in 2023 with major contribution coming from the Information Technology sector.
- Europe ex-UK IMI equities were the best regional performer with a return of 12.6%. Economically sensitive sectors including Financials and Industrials outperformed.

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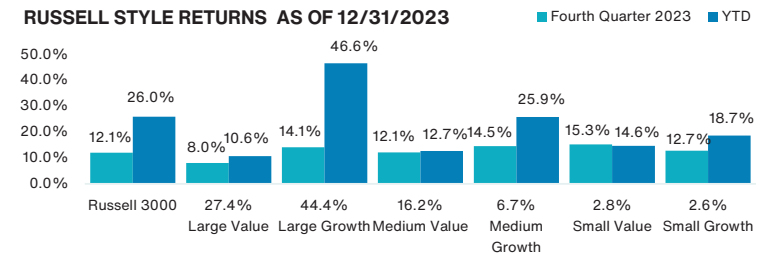
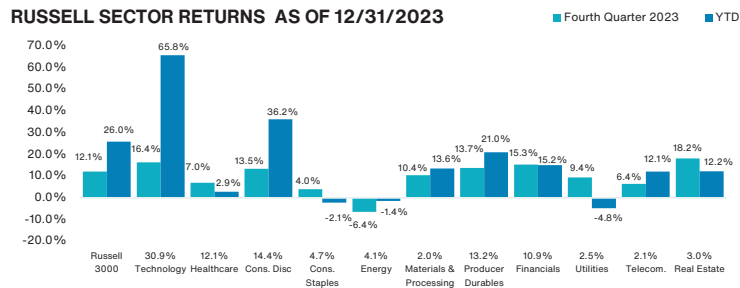
Global Equity Markets

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



U.S. Equity Markets

- U.S. equities had positive performance during the quarter with the S&P 500 index rising by 11.7% amidst anticipated interest rate cuts in 2024.
- The speaker of the U.S. House of Representatives, Kevin McCarthy, became the first leader in the history of the lower chamber of Congress to be removed from the position after infighting within the Republican party. McCarthy lost a no-confidence vote 216-210, as eight Republicans sided with 208 Democrats to remove him as a speaker. Mike Johnson, a Louisiana Republican, was elected as the new Speaker of the House in the fourth round of voting. Johnson received the unanimous backing of all 220 Republicans, surpassing the 215-majority mark. Following this, the U.S. Congress averted a government shutdown as lawmakers approved a short-term stop-gap funding bill to keep the government funded until early next year.
- Meanwhile, Moody's downgraded their U.S. credit outlook from 'stable' to 'negative' amidst sharp rises in debt service costs. Moody's updated outlook highlighted increasing downside risks to U.S. fiscal strength and added that the drastic rise in Treasury yields this year "has increased pre-existing pressure on U.S. debt affordability".
- U.S. economic growth exceeded expectations as the economy expanded by an annualized rate of 4.9% over the third quarter, higher than the 2.1% higher than recorded in the previous quarter but below the forecasted 5.2%. A sharp rise in consumer spending and business spending on inventories helped to boost the economy in the third quarter.
- The Russell 3000 Index rose 12.1% during the fourth quarter and 26% on a YTD basis. Real estate (18.2%) and Technology (16.4%) were the best performers while Energy (-6.4%) and Consumer Staples (4.0%) were the worst performers.
- On a style basis, growth outperformed value across market capitalization except for small-cap stocks over the quarter.

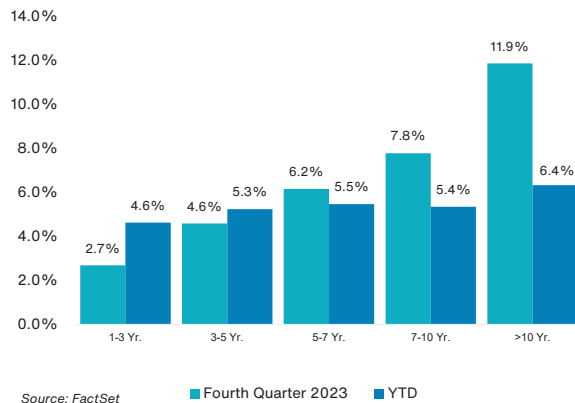


Source: Russell Indexes

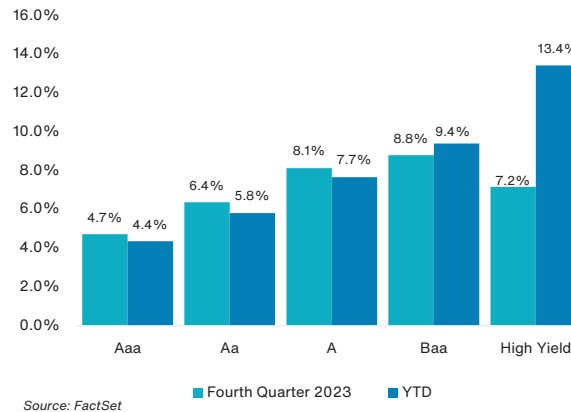
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U.S. Fixed Income Markets

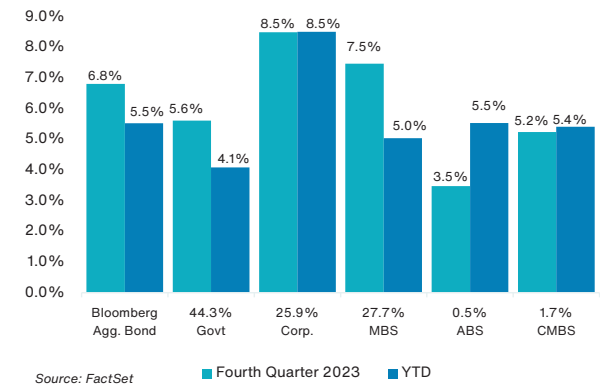
BLOOMBERG AGGREGATE RETURNS BY MATURITY AS OF 12/31/2023



BLOOMBERG AGGREGATE RETURNS BY QUALITY AND HIGH YIELD RETURNS AS OF 12/31/2023



BLOOMBERG AGGREGATE RETURNS BY SECTOR AS OF 12/31/2023

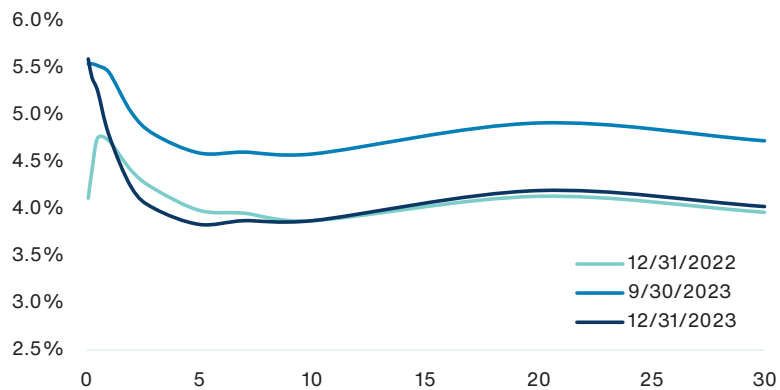


- The U.S. Federal Reserve (Fed) kept its benchmark policy rate unchanged at 5.25%–5.5% for the third consecutive meeting. Fed chair Jerome Powell commented that the interest rate is now “likely at or near its peak for this tightening cycle”.
- The Bloomberg U.S. Aggregate Bond Index was up 6.8% over the quarter and 5.5% on a YTD basis.
- Across durations, all maturities finished the quarter in positive territory with longer maturities rising more.
- Within investment-grade bonds, lower credit quality generally outperformed higher-quality issues, with Baa bonds comparatively rising more. High-yield bonds rose by 7.2%. On a YTD basis, High Yield bonds outperformed indicating an increase in risk appetite.

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U.S. Fixed Income Markets

U.S. TREASURY YIELD CURVE



Source: U.S. Department of Treasury Maturity (Years)

U.S. 10-YEAR TREASURY AND TIPS YIELDS

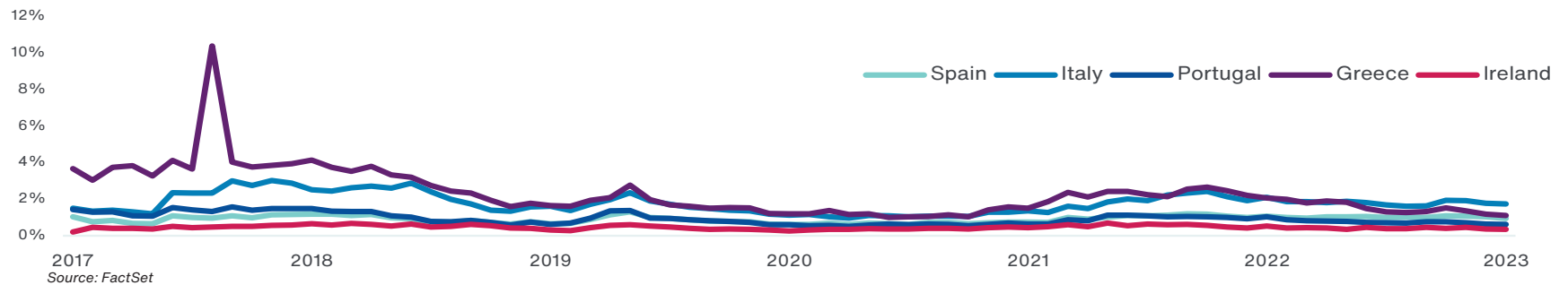


Source: U.S. Department of Treasury

- U.S. Treasury yields fell significantly across maturities except at the shortest end of the curve as the yield curve shifted downwards over the quarter and the yield curve continues to be inverted. The 10-year Treasury yield fell by 71bps to 3.88%, and the 30-year Treasury yield fell by 70bps to 4.03% over the quarter.
- The U.S. headline consumer price index (CPI) edged lower to 3.1% year-on-year in November, meeting economists' expectations and marginally down from the 3.2% increase recorded in the previous month. US Core inflation, which excludes food and energy costs, remained unchanged from the previous month at 4% year-on-year in November.
- The 10-year TIPS yield fell by 52bps over the quarter to 1.72%.

European Fixed Income Markets

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



- European government bond spreads over 10-year German bunds narrowed across the Euro Area. The European Central Bank (ECB) kept its interest rate unchanged at 4.0% for the second consecutive meeting. ECB policymakers signalled interest rates will be kept at “sufficiently restrictive levels for as long as necessary”. The ECB also announced it would reduce the reinvestments of maturing securities by €7.5bn a month from July 2024 before ending the program at the end of next year.
- Greek and Italian government bond yields fell by 124bps and 100bps to 3.10% and 3.74% respectively over the quarter whilst Irish and Spanish government bond yields fell by 87bps and 95bps to 2.35% and 2.95% respectively.
- German bund yields fell by 81bps to 2.0% over the quarter.
- Eurozone headline inflation rose at the slowest pace since July 2021 as the CPI fell to 2.4% year-on-year in November, down from the previous month’s rate of 2.9% and lower than economists’ expectations of 2.7%. Falls in energy prices and a slower pace of growth in food and services prices proved to be primary factors. Core inflation also slowed to 3.6% in the year to November, down from October’s 4.2%.

Credit Spreads

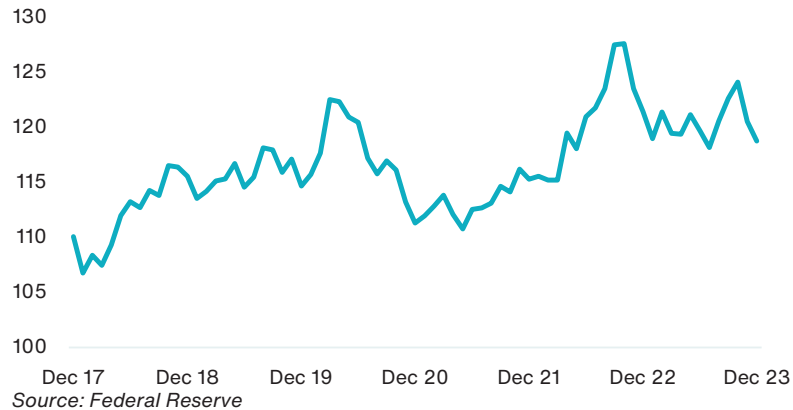
Spread (bps)	12/31/2023	9/30/2023	6/30/2023	Quarterly Change (bps)	YTD
U.S. Aggregate	42	52	51	-10	-9
Long Gov't	2	0	2	2	0
Long Credit	117	133	157	-16	-40
Long Gov't/Credit	62	71	87	-9	-25
MBS	47	66	51	-19	-4
CMBS	126	130	120	-4	6
ABS	68	67	76	1	-8
Corporate	99	121	130	-22	-31
High Yield	323	394	469	-71	-146
Global Emerging Markets	294	313	332	-19	-38

Source: FactSet, Bloomberg

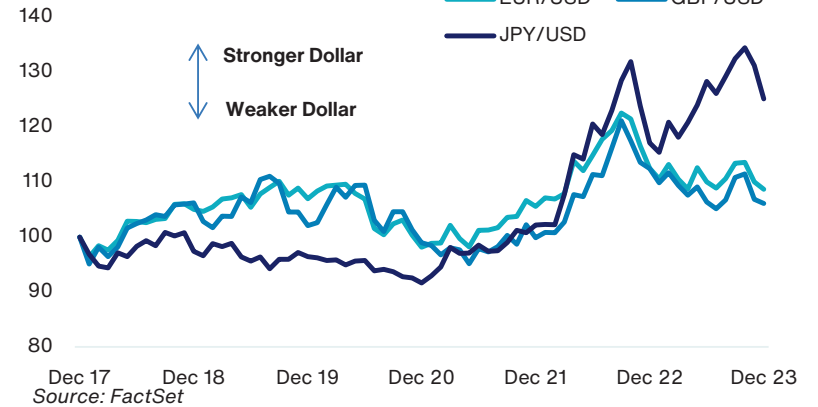
- Credit markets rose amid increasing risk tolerance sentiment, with spreads narrowing.
- High Yield and Corporate spreads narrowed by 71bps and 22bps respectively. Meanwhile, Long Gov't and ABS Credit spreads widened by 2bps and 1bp, respectively.

Currency

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



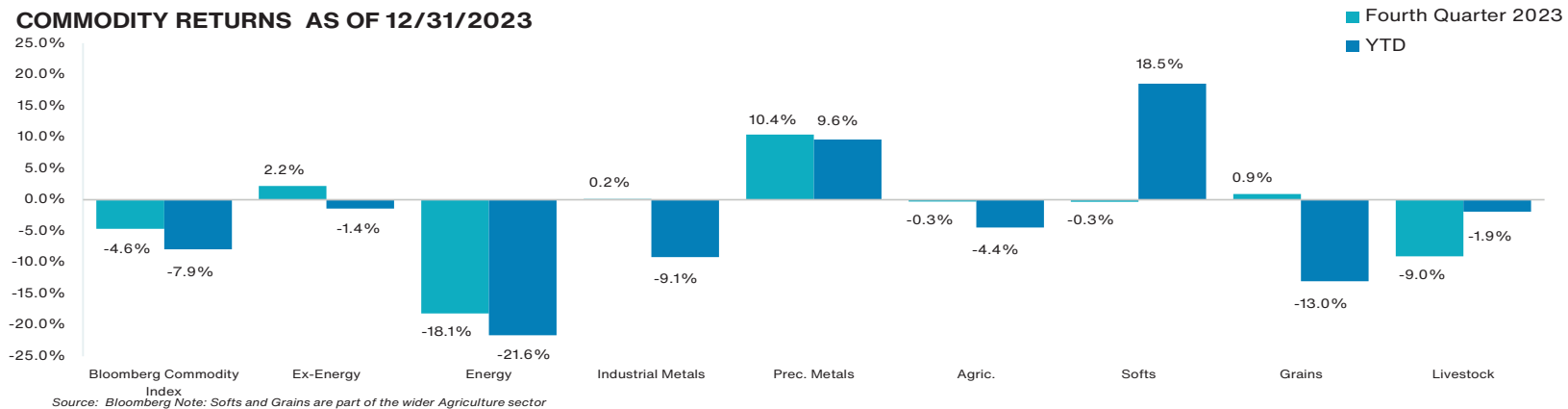
**U.S. DOLLAR RELATIVE TO EUR, GBP AND JPY
REBASED TO 100 AT 12/31/2017**



- The U.S. Dollar depreciated against all major currencies over the quarter. On a trade-weighted basis, the U.S. dollar depreciated by 3.2%.
- Sterling appreciated by 4.3% against the U.S. dollar. The Bank of England (BoE) kept its interest rate unchanged at 5.25% for the third consecutive meeting. The Monetary Policy Committee (MPC) voted six to three in favour of maintaining the current interest rate, with three members preferring a 25bps increase. The MPC indicated that interest rates would likely need to be kept high for an “extended period of time” and kept the option open for further rate rises “if there were evidence of more persistent inflationary pressures”.
- The U.S. dollar depreciated by 4.2% against the Euro and by 5.5% against the yen.

Commodities

COMMODITY RETURNS AS OF 12/31/2023

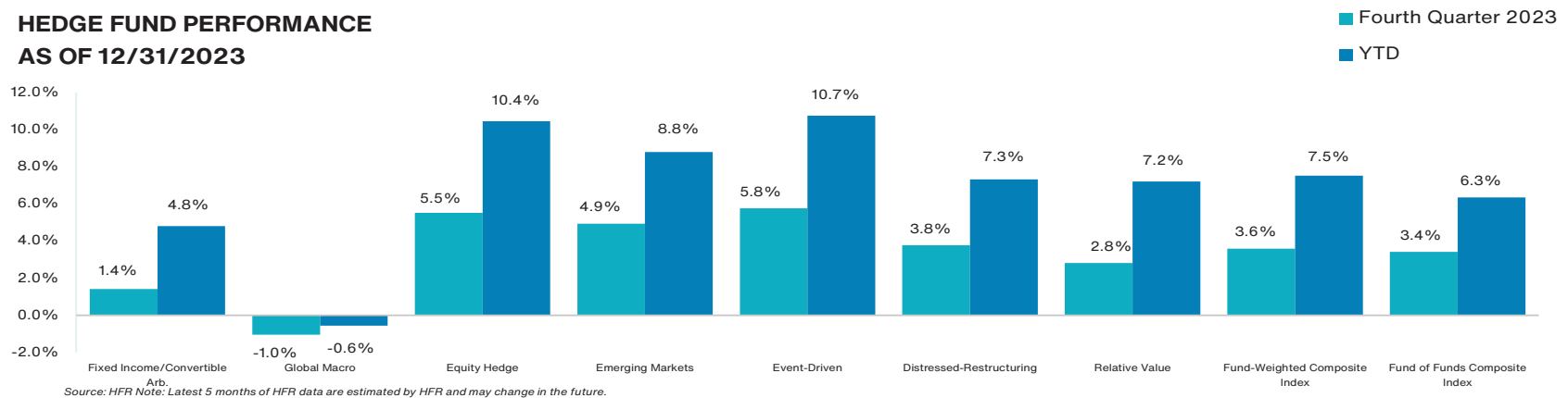


- Commodity prices fell over the quarter with the Bloomberg Commodity Index falling by 4.6% for the quarter.
- The energy sector was the worst performer as it fell 18.1% over the quarter and 21.6% on a YTD basis. The price of WTI crude oil was significantly down by 21.1% to U.S.\$72/B.
- Precious Metals rose the most over the quarter at 10.4%.
- Meanwhile, Opec+ members announced voluntary oil production cuts until Q1 2024. Saudi Arabia pledged to extend an ongoing 1mn barrels per day (bpd) production cut whilst Russia will increase its export reduction from the current 300,000 bpd to 500,000 bpd. Opec+ aims for a total of 2M bpd production cut with the help of other members.

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Hedge Funds Market Overview

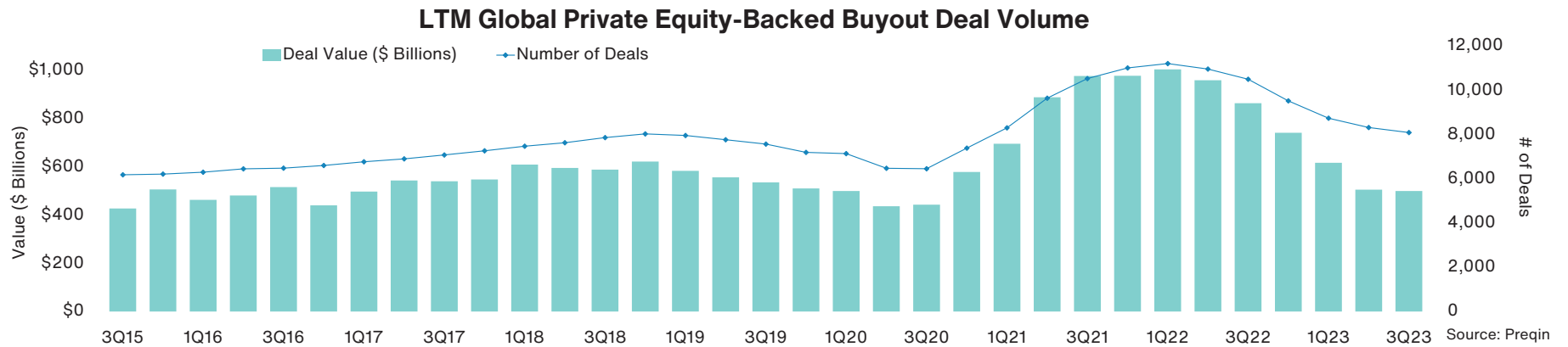
HEDGE FUND PERFORMANCE AS OF 12/31/2023



- Hedge fund performance was positive over the quarter except for Global Macro.
- The HFRI Fund-Weighted Composite and HFRI Fund of Funds Composite Index produced returns of 3.6% and 3.4% over the quarter, respectively.
- Over the quarter, Event Driven was the best performer with a return of 5.8%.
- Global Macro was the worst performer with a return of -1.0% over the quarter.
- On a YTD basis, Event Driven has outperformed all other strategies whilst Fixed Income/Convertible Arb has performed the worst.

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Private Equity Overview – Third Quarter 2023

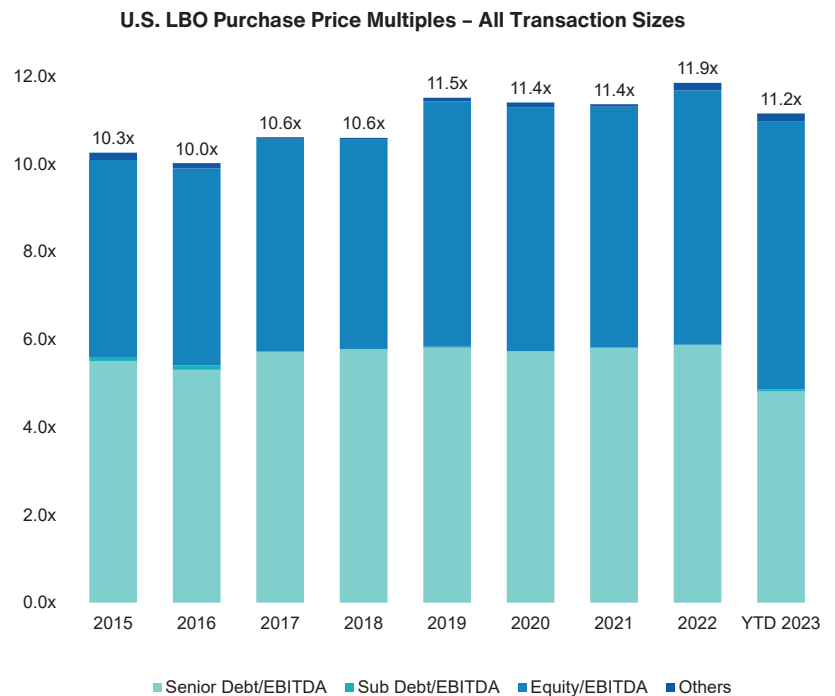


- **Fundraising:** In Q3 2023, \$250.1B was raised by 489 funds, which was an increase of 14.8% on a capital basis but a decrease of 22.0% by number of funds over the prior quarter. Dry powder stood at \$3.3T at the end of the quarter, an increase of 10.3% and 38.7% compared to year-end 2022 and the five-year average, respectively.¹
- **Buyout:** Global private equity-backed buyout deals totaled \$113.4B in Q3 2023, which was an increase on a capital basis of 6.3% compared to Q2 2023 but a decrease of 32.2% compared to the five-year quarterly average.¹ During the quarter, the average purchase price multiple for all U.S. LBOs was 9.5x EBITDA, down substantially from Q2 2023's average of 11.3x and the five-year average (11.3x). The YTD average purchase price multiple ended Q3 2023 at 11.2x. Large cap purchase price multiples stood at 11.4x YTD, down compared to 11.8x at the end of 2022. The average purchase price multiple across European transactions greater than €1B averaged 10.1x EBITDA on an LTM basis as of Q3 2023, down from the 10.3x multiple seen at the end of Q2 2023. Purchase prices for transactions of €500M or greater increased, on an LTM basis, from 9.6x at Q2 2023 to 10.1x at Q3 2023.² Globally, buyout exit value totaled \$107.7B across 552 deals during the quarter, down from \$113.2B in value from 474 deals during Q2 2023.¹
- **Venture:** During the quarter, 2,716 venture-backed transactions totaling \$36.7B were completed, which was a decrease on both a capital and deal count basis over the prior quarter's total of \$37.0B across 3,560 deals. This was also a decrease of 32.3% compared to the five-year quarterly average of \$54.4B. Total U.S. venture-backed exit value increased meaningfully during the quarter, totaling approximately \$35.8B across an estimated 284 completed transactions, compared to \$6.6B across 298 exits in Q2 2023.³

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

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

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

- **Mezzanine:** 5 funds closed on \$1.6B during the quarter. This was a decrease from the prior quarter's total of \$19.4B raised by 9 funds and represented a decrease of 75.7% from the five-year quarterly average of \$6.6B. Estimated dry powder was \$66.7B at the end of Q3 2023, up from \$66.0B at the end of the prior quarter.¹
- **Distressed Debt:** The TTM U.S. high-yield default rate was 3.1% as of November 2023, which was up from June 2023's TTM rate of 2.6%. Fitch expects the high-yield default rate to continue trending higher through the end of 2023.⁴ During the quarter, \$8.1B was raised by 13 funds, up from the \$7.3B raised by 11 funds during Q2 2023. Dry powder was estimated at \$159.6B at the end of Q3 2023, which was up 1.9% from Q2 2023. This remained above the five-year annual average level of \$138.8B.¹
- **Secondaries:** 16 funds raised \$23.8B during Q3 2023, up substantially from the \$5.7B raised by 15 funds in Q2 2023. This was an increase compared to the five-year quarterly average of \$11.9B.¹ The average discount rate for LP buyout and venture capital portfolios finished the quarter at 8.0% and 32.0%, respectively.⁵
- **Infrastructure:** \$5.1B of capital was raised by 14 funds in Q3 2023 compared to \$9.7B of capital raised by 21 partnerships in Q2 2023. Capital raised through Q3 2023 represented only 11.3% of full-year 2022's total. Infrastructure managers completed 541 deals for an aggregate deal value of \$90.1B in the third quarter compared to 465 deals totaling \$52.1B in Q2 2023.¹
- **Natural Resources:** During Q3 2023, 5 funds closed on \$2.5B compared to 6 funds totaling \$1.9B in Q2 2023. 26 energy and utilities deals were completed in Q3 2023 totaling \$9.5B, an increase, on a value basis, compared to 49 completed deals totaling \$6.7B in Q2 2023.¹

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	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.

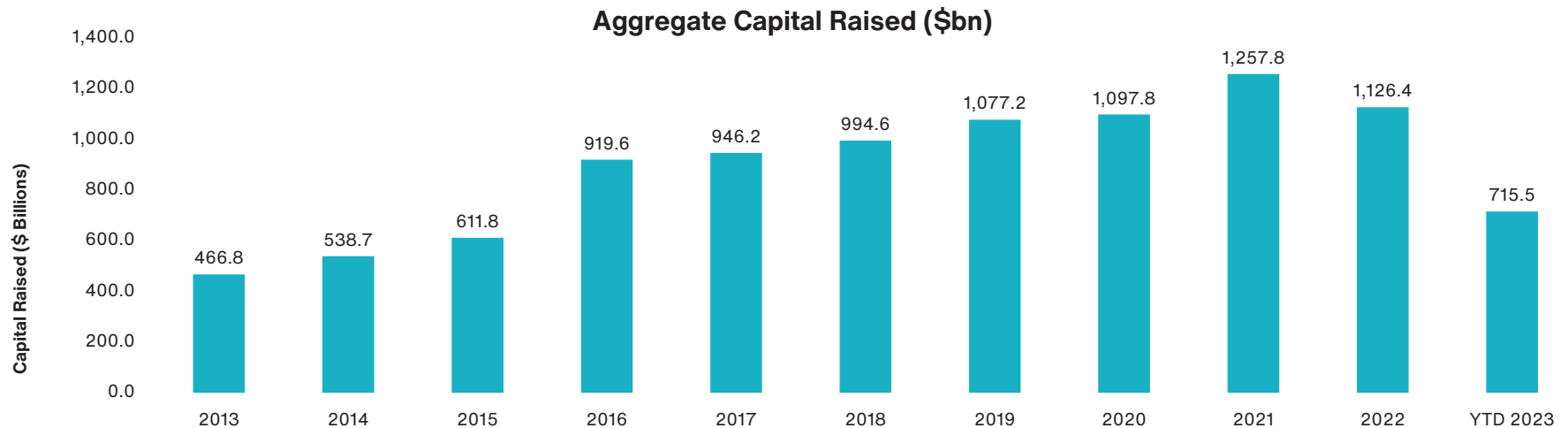
AON

Q3 2023 Global Private Equity Market Overview

January 2024



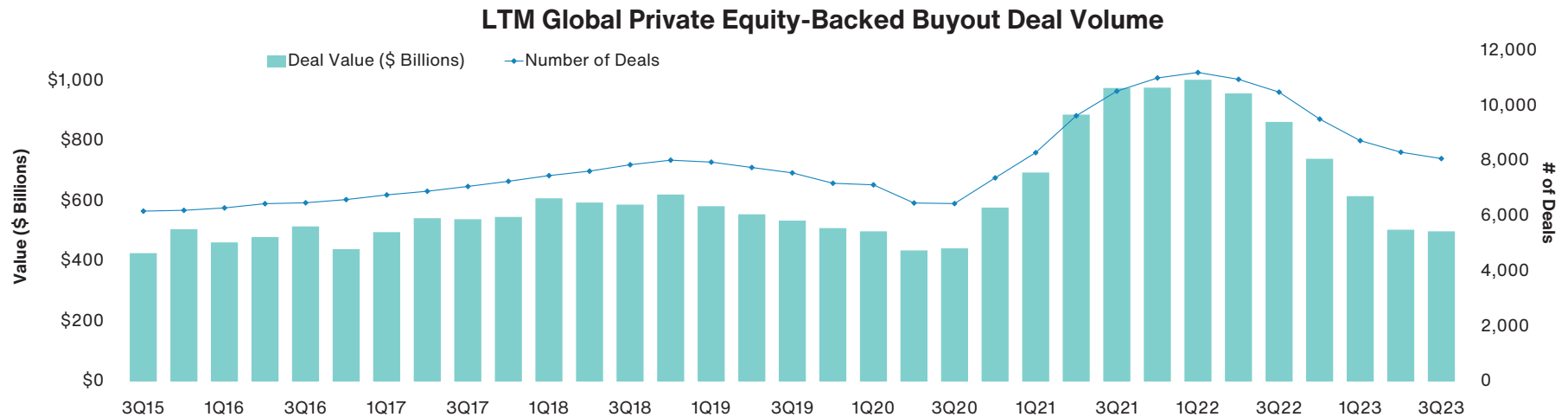
Private Equity Overview



Fundraising

- In Q3 2023, \$250.1 billion was raised by 489 funds, which was an increase of 14.8% on a capital basis but a decrease of 22.0% by number of funds over the prior quarter. Capital raised through Q3 2023 represented 63.5% of capital raised during calendar year 2022.¹
 - Q3 2023 fundraising was 9.6% higher, on a capital basis, than capital raised in Q3 2022, but 34.7% lower by number of funds raised.
 - The majority of capital was raised by funds located in North America, comprising 60.1% of the quarter's total. This was down from 64.3% in Q2 2023. Capital raised by European managers accounted for 23.5% of the total capital raised during the quarter, a decrease from 26.3% in Q2 2023. The remainder was attributable to managers located in Asia and other parts of the world.
- Dry powder stood at \$3.3 trillion at the end of the quarter, an increase of 10.3% and 38.7% compared to year-end 2022 and the five-year average, respectively.¹

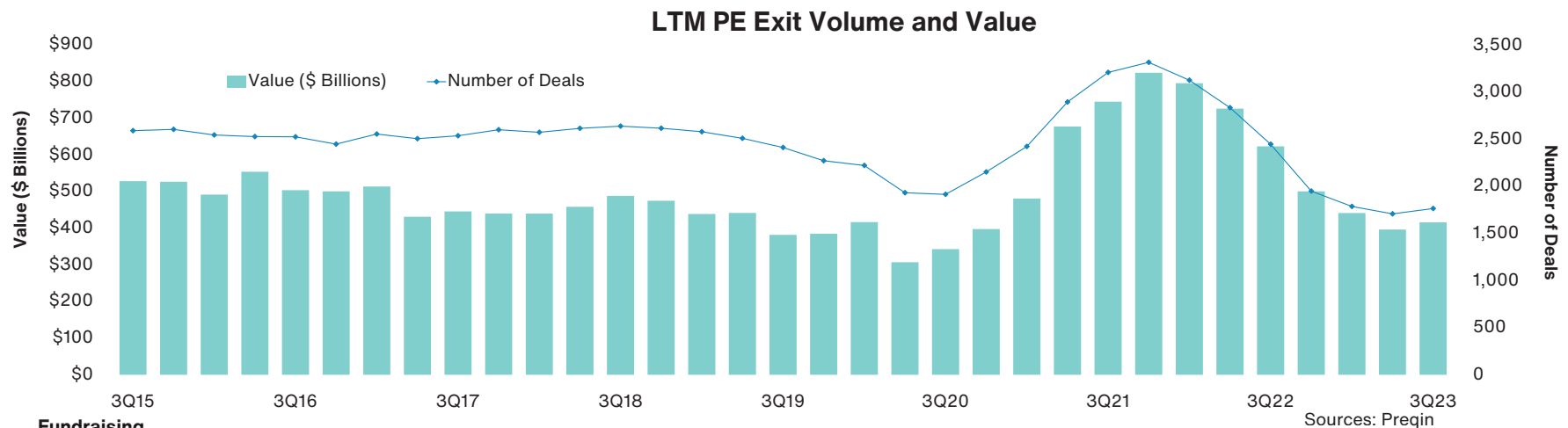
Private Equity Overview (cont.)



Activity

- Global private equity-backed buyout deals totaled \$113.4 billion in Q3 2023, which was an increase of 6.3% on a capital basis compared to Q2 2023.¹
 - This was a decrease of 32.2% compared to the five-year quarterly average.
 - Average deal size was \$395.1 million in Q3 2023. This was up 8.9% compared to Q2 2023, but down 15.4% relative to the five-year quarterly average.
- Through Q3 2023, the average purchase price multiple for all U.S. LBOs was 11.2x EBITDA, down from Q2 2023's average of 11.8x and down compared to the five-year average (11.3x). YTD large cap purchase price multiples stood at 11.4x at the end the quarter, down compared to full-year 2022's level of 11.8x.²
 - Average purchase price multiples for all U.S. LBOs were 0.5x (multiple of EBITDA) above the ten-year average, but 0.2x lower than the five-year average.
- In Europe, the average purchase price multiple across transactions of greater than €500M averaged 10.1x EBITDA on an LTM basis, up from 9.6x at the end of Q2 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 Q3 2023 was 4.9x compared to the five-year and ten-year averages of 5.8x and 5.7x, respectively.³
 - In Europe, the average debt/EBITDA on an LTM basis ended Q3 2023 at 5.7x, slightly higher than that observed at the end of Q2 2023 (5.5x).³

Buyouts / Corporate Finance



Fundraising

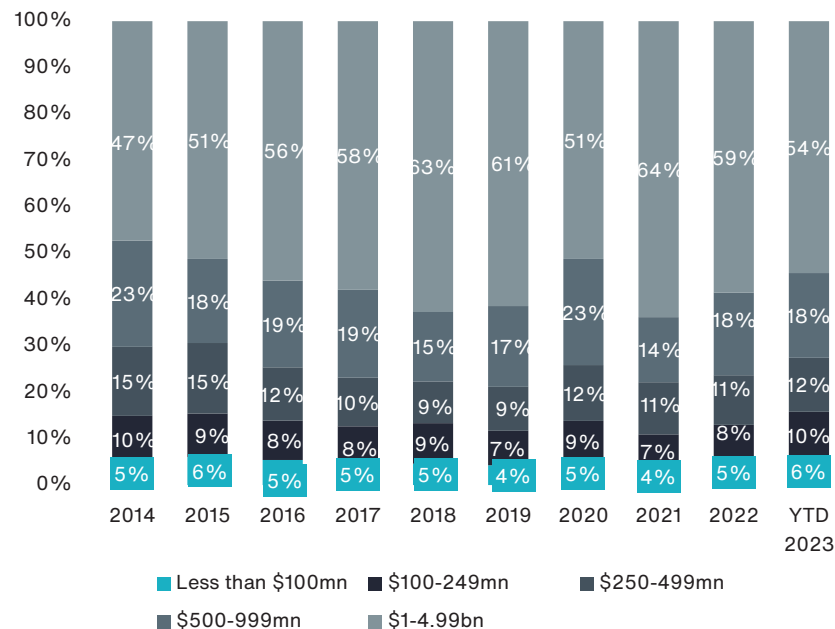
- \$168.3 billion was closed on by 139 buyout and growth funds in Q3 2023, compared to \$124.7 billion raised by 163 funds in Q2 2023. Capital raised during the quarter was higher than Q3 2022, which saw 163 funds close on \$97.3 billion.¹
 - This was higher, on a capital basis, than the five-year quarterly average of \$125.0 billion raised, but lower by average number of funds raised (232).
 - CVC Capital Partners Fund IX was the largest fund raised during the quarter, closing on \$28.9 billion of commitments.
- Buyout and growth equity dry powder was estimated at \$1.4 trillion, up from \$1.3 trillion in Q2 2023.¹
 - An estimated 58.6% of buyout dry powder was targeted for North America, while European dry powder comprised 22.9% and Asia/Rest of World accounted for the remainder.

Activity

- Globally, buyout exit value totaled \$107.7 billion across 552 deals during the quarter, down from \$113.2 billion in value from 474 deals during Q2 2023.¹

Buyouts / Corporate Finance

M&A Deal Value by Deal Size



Sources: Preqin

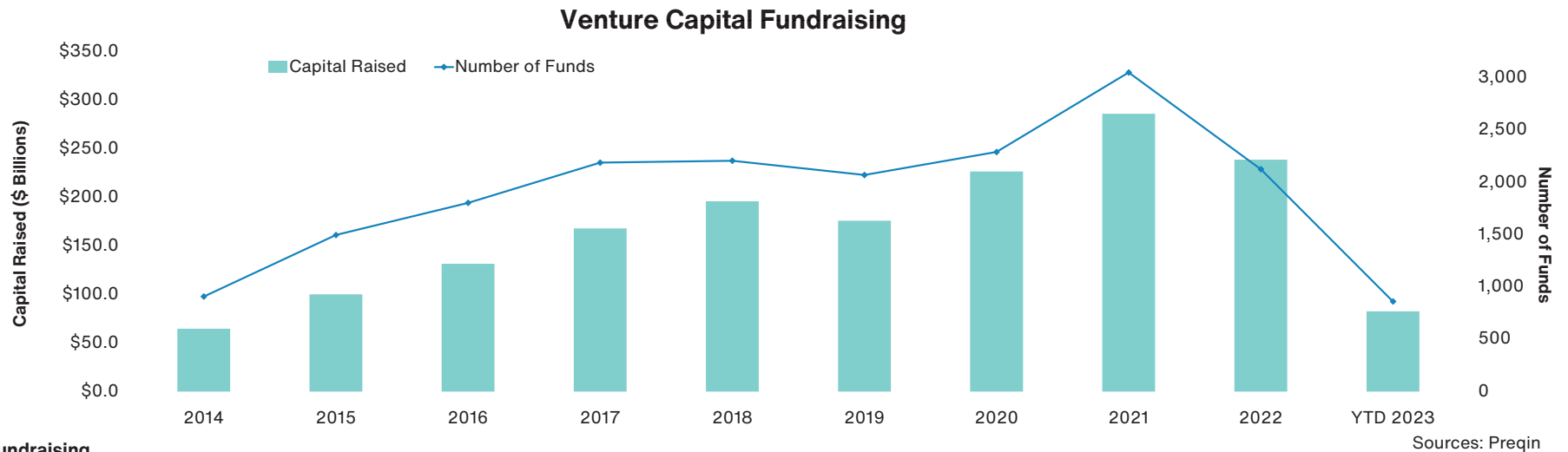
Activity

- Global private equity-backed buyout deals totaled \$113.4 billion in Q3 2023, which was an increase on a capital basis of 6.3% compared to Q2 2023 but a decrease of 32.2% compared to the five-year quarterly average.¹
 - By geography, North American deals accounted for the largest percentage of total deal value at an estimated 62.6% in Q3 2023, while business services deals accounted for the largest percentage by industry at 35.9% of total deal value.
- Through Q3 2023, total deal value accounted for 48.3% 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 54.3% of total deal value compared to 58.5% in 2022. Deals valued between \$500.0 million to \$999.9 million represented 18.3% of total deal value through the third quarter.
- During the quarter, the average purchase price multiple for all U.S. LBOs was 9.5x EBITDA. U.S. LBOs averaged 11.2x EBITDA on a YTD basis, down from Q2 2023's average of 11.3x and the five-year average (11.3x).³
 - Large cap purchase price multiples stood at 11.4x on a YTD basis, down compared to the full-year 2022 level of 11.8x.
- The average purchase price multiple across European transactions greater than €1B averaged 10.1x EBITDA on an LTM basis as of Q3 2023, down from the 10.3x multiple seen at the end of Q2 2023. Purchase prices for transactions of €500M or greater increased from 9.6x at Q2 2023 to 10.1x on an LTM basis ending Q3 2023.³
- The equity contribution for LBO transactions stood at 50.8% on a YTD basis. This was above the five- and ten-year average levels of 44.4% and 41.7%, respectively.³

Opportunity⁴

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

Venture Capital

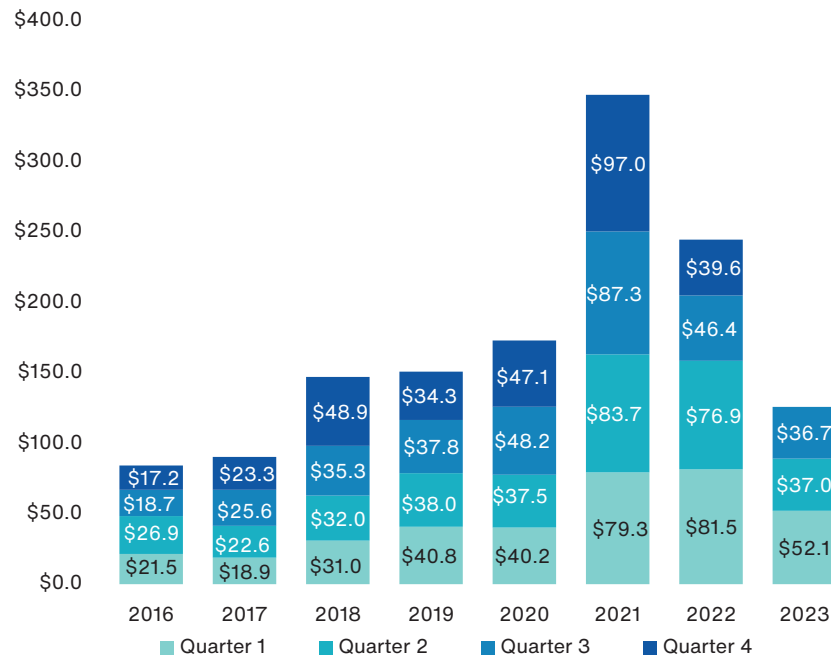


Fundraising

- \$22.4 billion of capital was raised by 246 funds in Q3 2023, lower, on a capital and number of funds basis, from the prior quarter's total of \$31.2 billion raised by 313 managers. This was down from Q3 2022's total of \$63.8 billion raised by 437 funds. Through Q3 2023, capital raised represented 34.6% of 2022's total.¹
 - Q3 2023 fundraising was 58.4% lower, on a capital basis, compared to the five-year quarterly average of \$53.8 billion.
 - True Light Fund I was the largest fund raised during the quarter, closing on \$3.3 billion.
- At the end of Q3 2023, there were an estimated 6,234 funds in market targeting \$428.3 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 \$599.4 billion at the end of Q3 2023, up from year-end 2022's total of \$548.3 billion.¹

Venture Capital

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



Source: Pitchbook / NVCA

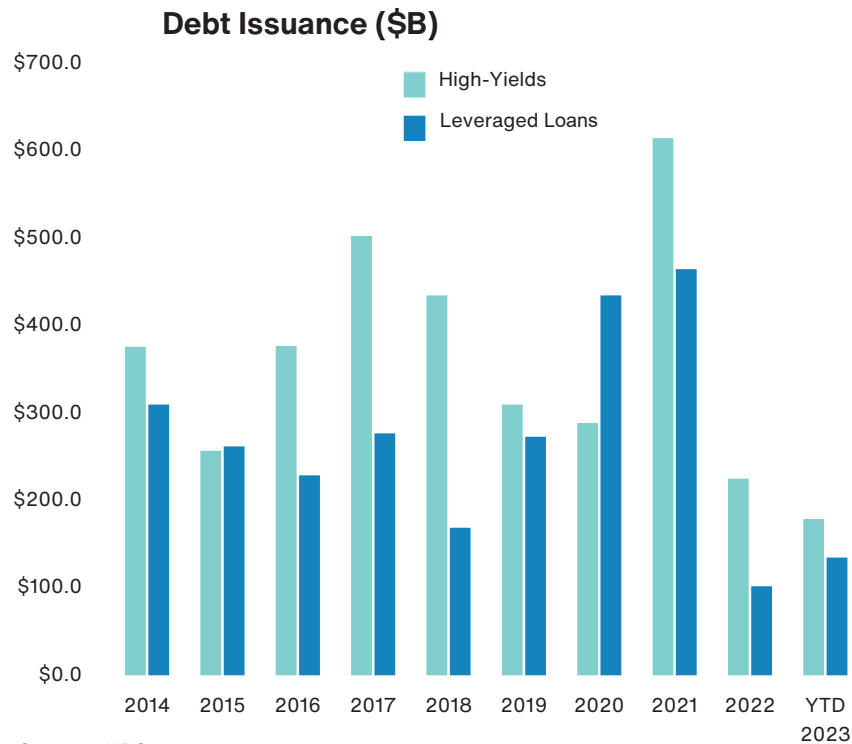
Activity

- During the quarter, 2,716 venture-backed transactions totaling \$36.7 billion were completed, which was a decrease on both a capital and deal count basis over the prior quarter's total of \$37.0 billion across 3,560 deals. This was also a decrease of 32.3% compared to the five-year quarterly average of \$54.4 billion.⁷
 - In Q3 2023, there were 52 U.S.-based deals involving unicorn companies, representing roughly \$11.7 billion in deal value. This was up by value compared to Q2 2023, which saw 56 unicorn-related deals close at a deal value of \$6.5 billion. This was below the five-year quarterly average of \$18.8 billion.⁷
- According to Pitchbook, median YTD pre-money valuations remained below valuations seen at year-end 2022, with the exception of seed stage valuations. Compared to 2022, seed valuations increased from a median pre-money valuation of \$11.1 million to \$12.0 million. Pre-seed valuations decreased from \$6.0 million to \$5.7 million, early-stage VC from \$46.2 million to \$40.0 million, late-stage VC from \$61.1 million to \$52.2 million, and venture growth valuations decreased from \$275.0 million to \$129.8 million.⁷
- Total U.S. venture-backed exit value increased meaningfully during the quarter, totaling approximately \$35.8 billion across an estimated 284 completed transactions, compared to \$6.6 billion across 298 exits in Q2 2023. Through Q3 2023, U.S. exit activity represented 67.2% of 2022's total.⁷
 - The number of U.S. venture-backed initial public offerings increased over Q2 2023, with 25 IPOs completed in Q3 2023 at a value of \$23.1 billion. 147 exits occurred by acquisition, marking a decrease over the prior quarter's 186, and accounted for \$7.5 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 \$83.9 billion through Q3 2023, compared to \$104.5 billion through the same period in 2022.²
- High-yield debt issuance totaled \$134.7 billion through Q3 2023, compared to \$86.9 billion during the same period in 2022.²
- Through Q3 2023, leveraged loan mutual fund net flows ended at a net outflow of \$13.5 billion, compared to \$8.5 billion of outflows in all of 2022.²

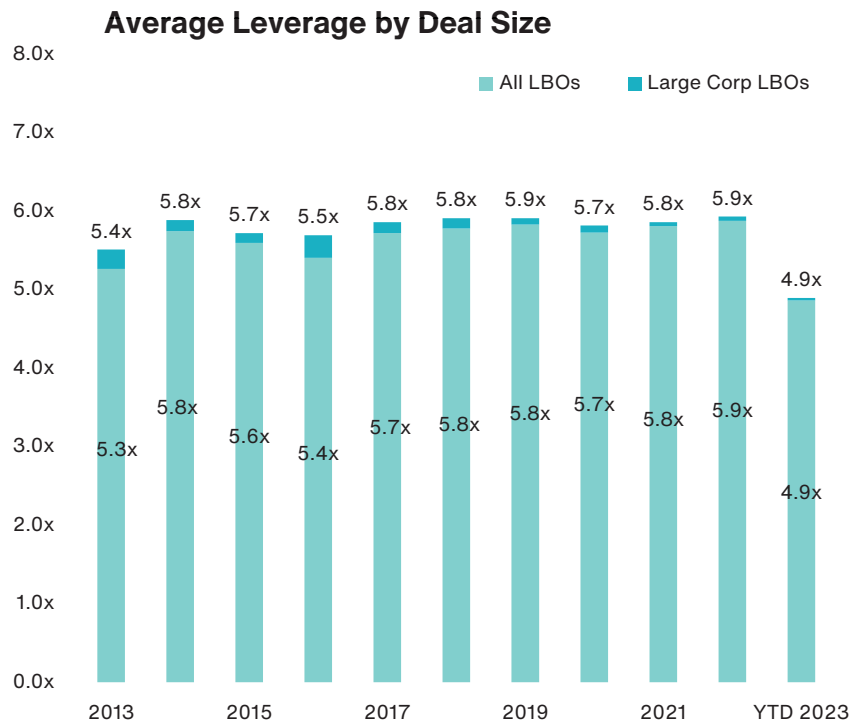
Activity

- YTD institutional leveraged loan issuances totaled \$178.9 billion, compared to \$189.3 billion through the same period in 2022.²
- European sponsored loan issuance totaled €7.2 billion during Q3 2023 compared to €5.7 billion during Q2 2023. This was 49.2% lower than the five-year quarterly average level of €14.2 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 Q3 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 4.9x 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 39.1% to 43.8%, 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

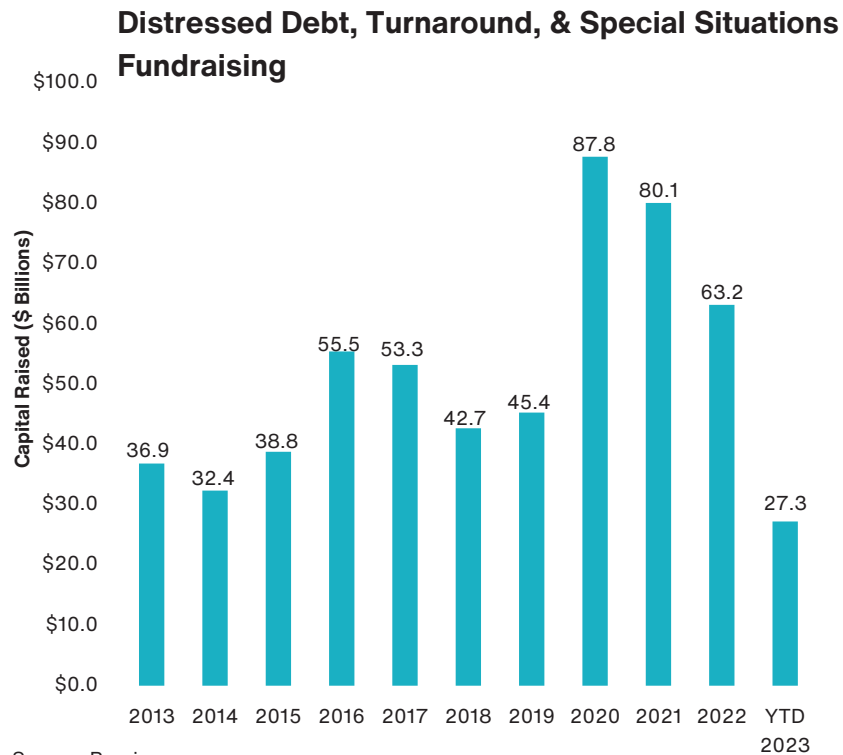
Mezzanine Fundraising

- 5 funds closed on \$1.6 billion during the quarter. This was a decrease from the prior quarter's total of \$19.4 billion raised by 9 funds and represented a decrease of 75.7% from the five-year quarterly average of \$6.6 billion.¹
- Estimated dry powder was \$66.7 billion at the end of Q3 2023, up from \$66.0 billion at the end of the prior quarter.¹
- An estimated 117 funds were in market targeting \$27.6 billion of commitments. ICG North American Credit Partners Fund III and North Haven Credit Partners IV were the largest funds in market targeting commitments of \$2.0 billion each.¹

Opportunity⁴

- Funds with the capacity to scale for large sponsored deals

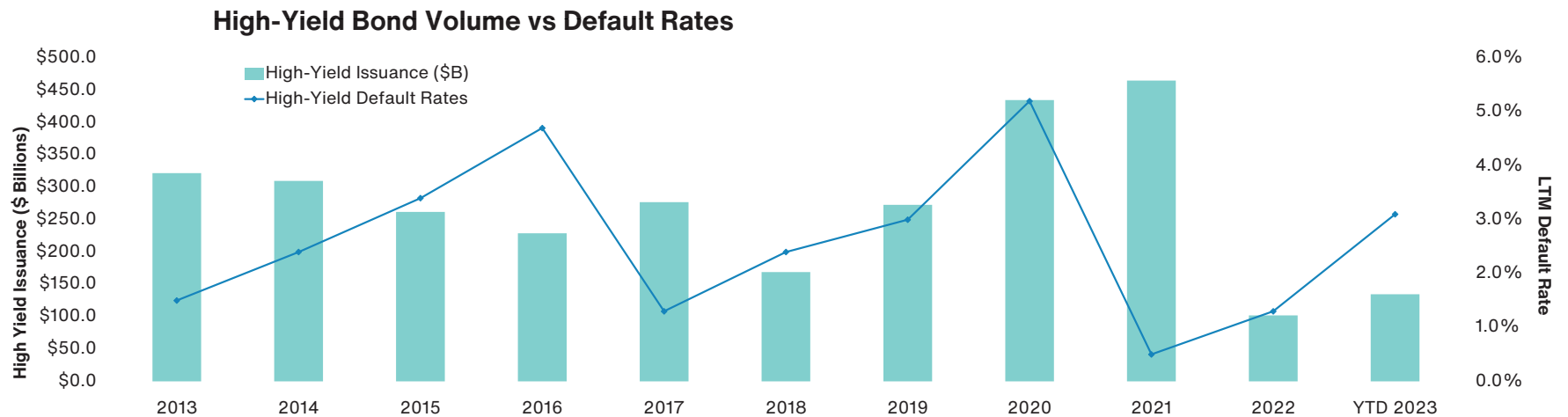
Distressed Private Markets



Fundraising

- During the quarter, \$8.1 billion was raised by 13 funds, up from the \$7.3 billion raised by 11 funds during Q2 2023. Distressed funds have raised 43.1% of 2022's total through Q3 2023.¹
 - Q3 2023's fundraising was 47.9% lower than the five-year quarterly average.
 - Capital raised in Q3 2023 represented a decrease compared to the \$16.8 billion raised in Q3 2022.
 - Davidson Kempner Opportunities Fund VI was the largest fund closed during the quarter, closing on \$3.0 billion.
- Dry powder was estimated at \$159.6 billion at the end of Q3 2023, which was up 1.9% from Q2 2023. This remained above the five-year annual average level of \$138.8 billion.¹
- Roughly 254 funds were in the market at the end of Q3 2023 seeking \$128.5 billion in capital commitments.¹
 - Special situations managers were targeting the most capital, seeking \$64.5 billion in commitments, followed by distressed debt managers seeking \$61.6 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

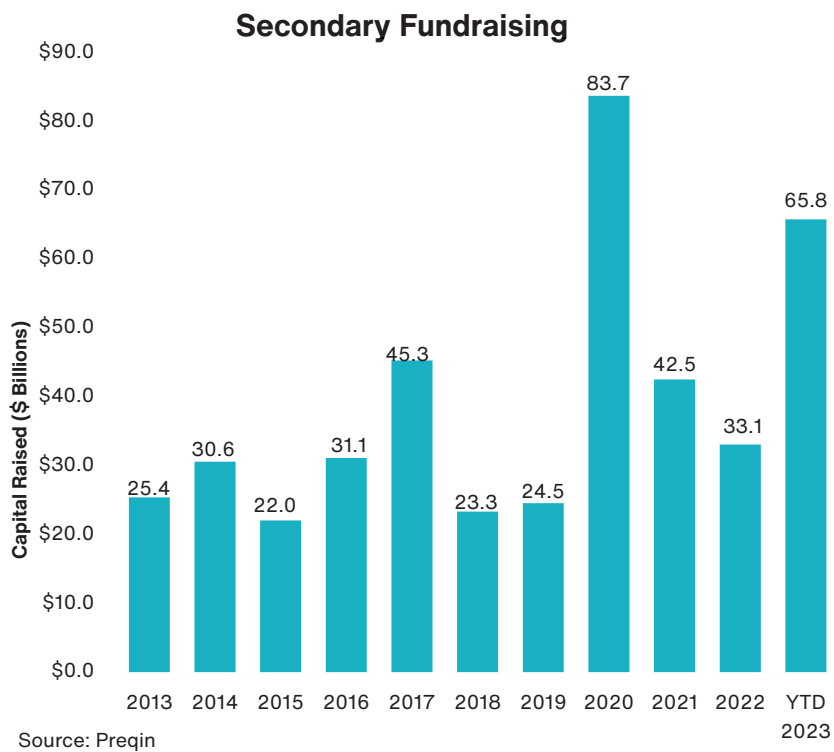
Activity

- The TTM U.S. high-yield default rate was 3.1% as of November 2023, which was up from June 2023's TTM rate of 2.6%. Fitch expects the high-yield default rate to continue trending higher through the end of 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



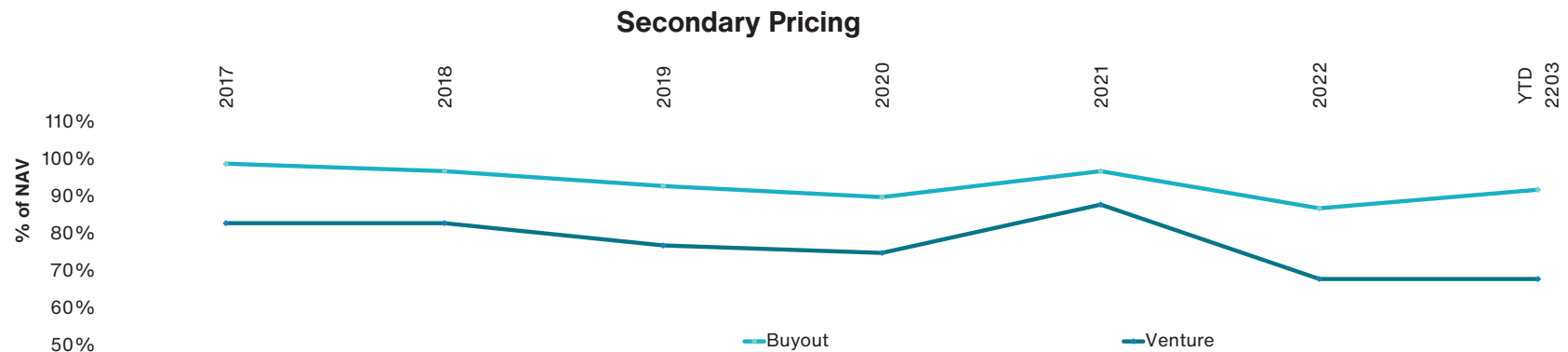
Fundraising

- 16 funds raised \$23.8 billion during Q3 2023, up substantially from the \$5.7 billion raised by 15 funds in Q2 2023. This was an increase compared to the five-year quarterly average of \$11.9 billion.¹
 - Goldman Sachs Vintage Fund IX was the largest fund raised during the quarter, closing on \$14.2 billion.
- At the end of Q3 2023, there were an estimated 157 secondary and direct secondary funds in market targeting roughly \$136.4 billion. The majority of secondary funds are targeting North American investments.¹
 - ASF IX is the largest fund being raised, seeking \$25.0 billion in commitments. There are currently five funds in market seeking \$10.0 billion or more in capital 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
- Evercore notes limited partner selling volume is increasing, with more LPs coming to market to take advantage of supportive market conditions. Given the substantial amount of dry powder available, large buyers have started writing larger checks to purchase sizable, diversified LP portfolios.¹⁴
- Jefferies identified several trends in 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 and Evercore note investors continue to focus on well-known assets, with demand increasing for a select group of managers.¹⁷
- According to UBS, the number of GP-led situations brought to market continued to increase with varying quality and strategies, along with more household GP names utilizing the secondary market. This is expected to continue throughout 2023.²

Secondaries



Source: Jefferies

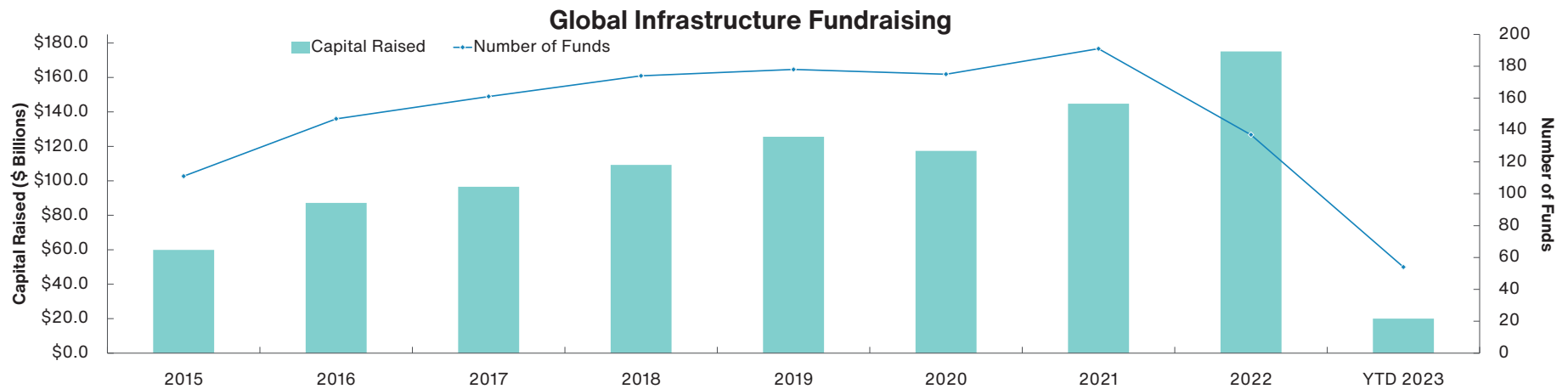
Activity

- Campbell Lutyens expects LP-led secondary sales to continue as more investors use these transactions to crystalize gains, trim their GP rosters, and manage balance sheet risk.¹⁴
- Payment deferrals and structured equity solutions, notably mosaic structures, continue to be prevalent in the LP portfolio market and are used as a means to improve pricing and deal returns in an increasingly competitive environment.¹⁶
- 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 Similarly, Evercore highlights the narrowing public-private valuation gap is expected to produce stronger pricing for most strategies.¹⁶
- 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 8.0% and 32.0%, respectively.¹⁷

Opportunity⁴

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

Infrastructure

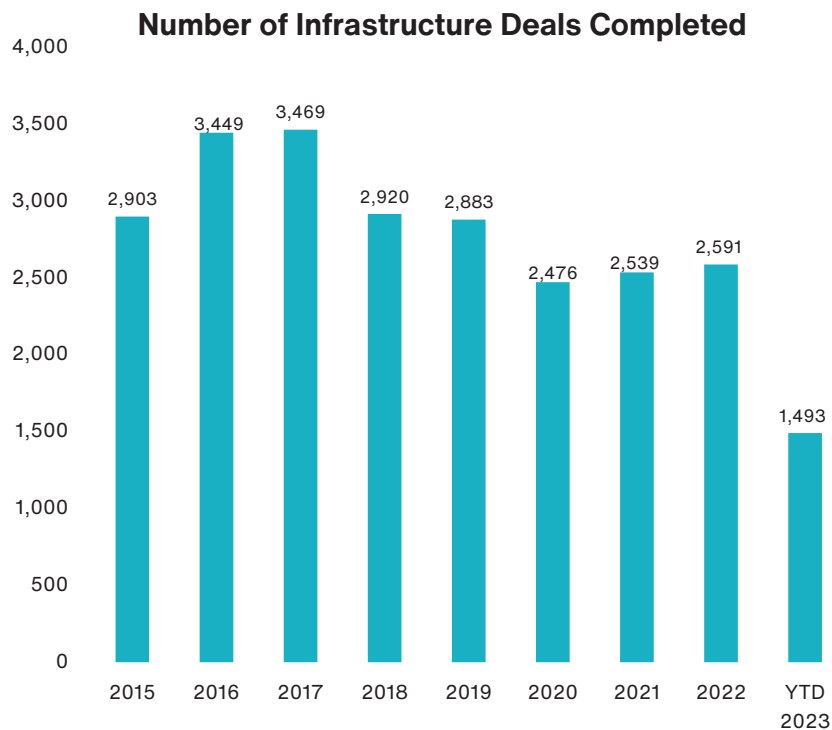


Source: Preqin

Fundraising

- \$5.1 billion of capital was raised by 14 funds in Q3 2023 compared to \$9.7 billion of capital raised by 21 partnerships in Q2 2023 and \$15.0 billion raised by 28 funds in Q3 2022. This was a decline of 84.3% compared to the five-year quarterly average of \$32.6 billion. Capital raised through Q3 2023 represented only 11.3% of full-year 2022's total.¹
 - Cube Infrastructure Fund III was the largest fund raised during the quarter, closing on \$1.5 billion.
- As of the end of Q3 2023, there were an estimated 577 funds in the market seeking roughly \$532.7 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 each seeking \$10.0 billion or more of LP commitments.
- Concerns surrounding the relative availability and pricing of assets remain. Fundraising continues to be very competitive given the number of funds and aggregate target level of funds in market. Investor appetite for the asset class persists despite the strong levels of dry powder and increased investment activity from strategic and corporate buyers as well as institutional investors.

Infrastructure



Source: Preqin

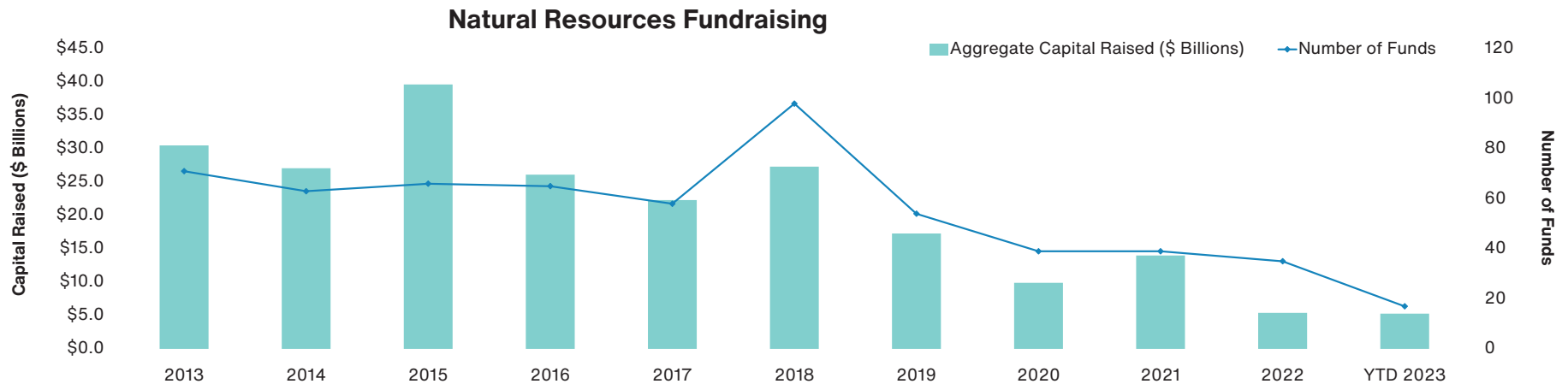
Activity

- Infrastructure managers completed 541 deals for an aggregate deal value of \$90.1 billion in the third quarter, compared to 465 deals totaling \$52.1 billion in Q2 2023.¹
 - By region, Europe saw the largest number of deals, with 44.9% of deals being completed in the region, followed by North America at 23.3%. APAC amassed 15.0% of activity through the end of Q3 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



Source: Preqin

Fundraising

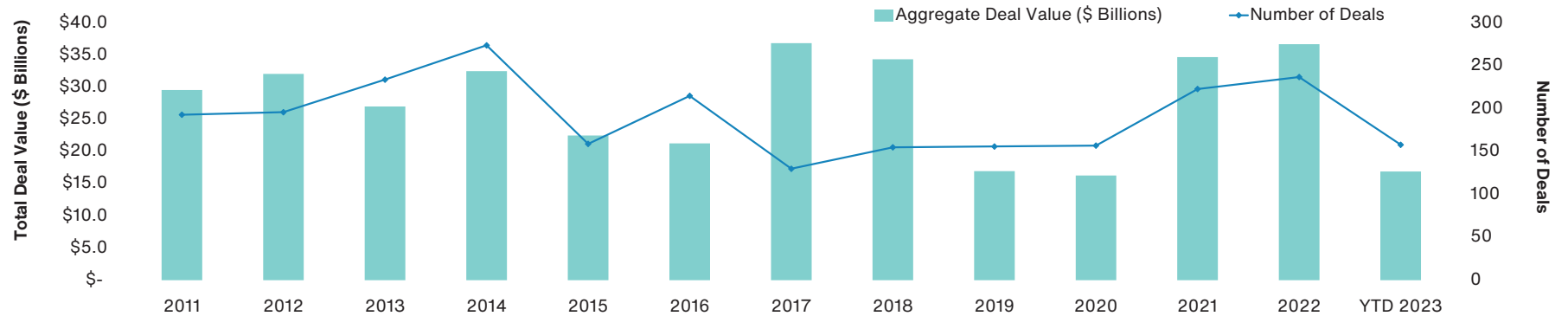
- During Q3 2023, 5 funds closed on \$2.3 billion compared to 6 funds totaling \$1.9 billion in Q2 2023.¹
- Dry powder stood at roughly \$33.7 billion at the end of Q3 2023, which was higher than Q4 2022's level of \$31.9 billion, but down from the five-year average level by 20.3%.¹

Activity

- Crude oil prices increased during the quarter.
 - WTI crude oil prices increased 27.3% during the quarter to \$89.43 per bbl. This was also an increase of 6.1% compared to Q3 2022.¹⁰
 - Brent crude oil prices ended the quarter at \$93.72/bbl, up 25.2% compared to the prior quarter. This was an increase of 4.4% from Q3 2022.¹⁰
 - Natural gas prices (Henry Hub) finished Q3 2023 at \$2.64 per MMBtu, which was up 21.1% from the prior quarter but down 66.5% from Q3 2022.¹⁰

Natural Resources

Energy & Utilities Deal Activity



Source: Preqin

Activity

- 26 energy and utilities-related deals were completed in Q3 2023 totaling \$9.5 billion, an increase, on a value basis, compared to 49 completed deals totaling \$6.7 billion in Q2 2023.¹
- A total of 623 crude oil and natural gas rotary rigs were in operation in the U.S. at the end of the quarter. This was down by 7.6% from the prior quarter and down 18.6% over Q3 2022.¹³
 - Crude oil rigs represented 80.6% of the total rigs in operation. 61.4% of the 502 active oil rigs were in the Permian basin.
 - At the end of Q3 2023, 33.6% and 24.1% of natural gas rigs were operating in the Haynesville and Marcellus basins, respectively.
- The price of iron ore (Tianjin Port) ended the quarter at \$120.98 per dry metric ton, up from \$113.45 at the end of Q2 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

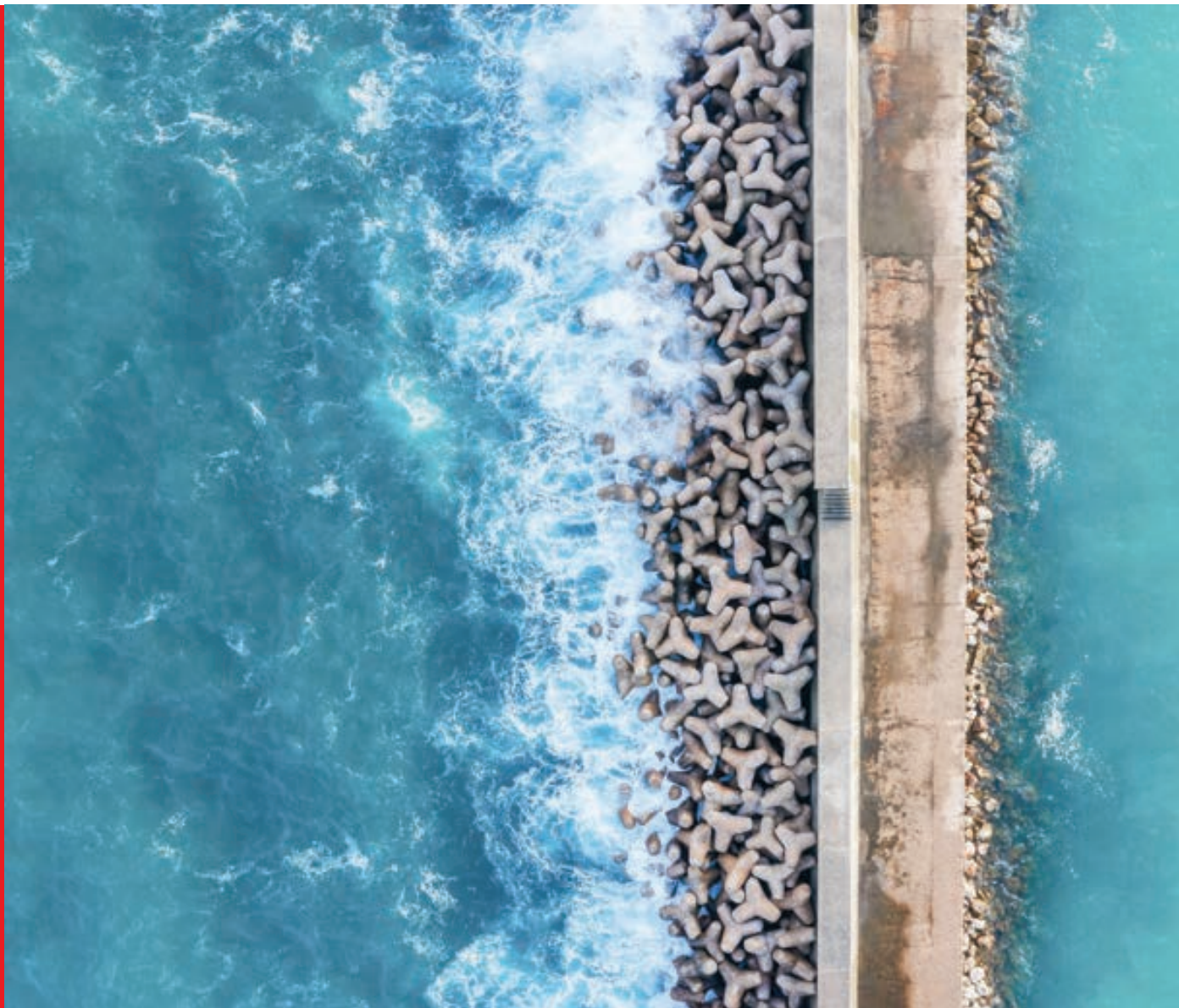
/bb: Price per barrel

MMBtu: Price per million British thermal units

AON

3Q 2023 Real Estate Market Update

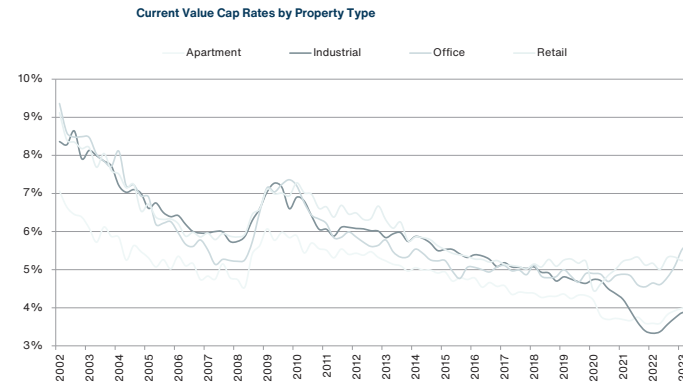
January 2024



United States Real Estate Market Update (3Q23)

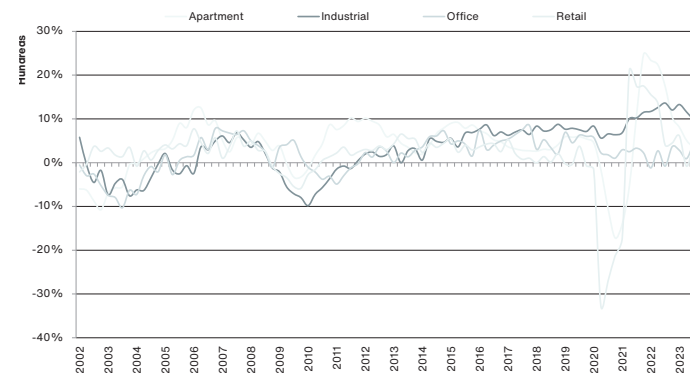
General

- 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 negative quarter coming in at -3.27% slowing down after a steady start in the first half of 2023. The MSCI US REIT index held a steady pace in the second quarter, posting a gross return of -7.0%.
- During the third quarter, GDP increased at an annualized rate of 4.9%. 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. The Fed has approved 11 consecutive interest rate hikes since March 2022, pausing only at the end of the third quarter, increasing the Fed Rate by 525 basis points.



Source: NCREIF

4 Qtr Rolling NOI Growth



Source: NCREIF

Commercial Real Estate

- After closing out the third quarter of 2023, total CRE transaction activity for the third quarter decreased by -53% YoY, with the 2023 transaction activity down -55% Year-To-Date. 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 (5.0%) contracted, moving in 18 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 (+23 bps), and followed by retail (+8 bps), industrial (+6 bps), and apartment (+5 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 contracted (-9%) YoY. Industrial NOI continued to expand (+19%) YoY with the continued investments into direct-to-customer distribution by companies.
- 10-year treasury bond yields increased, ending the quarter at 4.6%. As economists expected, rates moved significantly higher throughout 2023, with the potential to climb further in efforts to slow the economy down.



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

United States Property Matrix (3Q23)



INDUSTRIAL	MULTIFAMILY
<ul style="list-style-type: none"> In 3Q23, industrial properties returned -0.26% and outperformed the NPI by 111 bps. Transaction volumes decreased to \$21 billion in the third quarter of the year, resulting in a 45% decrease year-over-year. Individual asset sales decreased 65% year-over-year, while portfolio purchases turned in a year-over-year volume decrease of 71%. At \$21 billion, the industrial sector slightly decreased by \$1 billion quarter-over-quarter. The industrial sector turned in NOI growth of 15.8% over the past year. NOI continues to reach all time highs for the sector. Vacancy increased by 51 bps year-over-year to 2.0%. Vacancy in the sector increased 19 bps from the prior quarter, reaching all-time historic lows. E-commerce continues to drive demand across the sector. Industrial cap rates expanded approximately 49 bps from a year ago, to 3.86%. Industrial overall fundamentals still top all property sectors. 	<ul style="list-style-type: none"> The apartment sector delivered a -1.41% return during the quarter, underperforming the NPI by 4 bps. Transaction volume in the third quarter of 2023 slightly decreased to \$30 billion, resulting in a decrease of 62% year-over-year. Transaction volume for the sector slightly decreased from the second quarter by nearly 6%. This volume continues to make multifamily the most actively traded sector for the twenty second straight quarter. Cap rates remained steady at 4.06% quarter-over-quarter, increasing 47 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 and have remained steady through the second quarter at 6.3%. 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 -3.67% in 3Q23, 230 bps below the NPI return over the period. Transaction volumes decreased by 65% year-over-year in the third quarter. Transaction volume equated to \$11 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 13.59%, increasing by 52 bps from last quarter. NOI growth in the office sector decreased quarter-over-quarter by 200 bps to 0.00% and is still experiencing volatility given the current market environment. Office cap rates expanded from a year ago, sitting at approximately 5.6%. Office-using job growth was stunted significantly through out 2020 due to work from home orders. Though we are observing a slow but steady flow back to in-office work, there is still uncertainty in the sector as many companies remain hesitant. 	<ul style="list-style-type: none"> As of 3Q23, the retail sector delivered a quarterly return of -0.13%, outperforming 124 bps compared to the NPI. Transaction volumes totaled \$15 billion in the third quarter, decreasing 31% year-over-year. Single asset transactions accounted for just over 60% of all sales volume for the quarter. Cap rates have remained fairly steady within the sector over the last year at 5.4%. Current valuation cap rates expanded quarter-over-quarter by 17 bps due to valuation adjustments made across the sector in general. NOI growth increased from the prior quarter to 0.43% as of the third quarter. Retail has begun its slow recovery but has continued to experience volatility due to the current market environment. Retail vacancy rates remained steady over the quarter at 7.6%, down 45 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 (3Q23)

- Despite persistent challenges present in the market, macroeconomic growth has shown resilience in the face of widespread tightening of monetary policy. Headline inflationary pressure has begun to wane related to the easing energy and food costs. Sustained excess demand across several economies and sectors have reflected in sticky underlying price pressures. Year over year, deal volumes have contracted by 44% with capital markets activity stymied with prevalent pricing uncertainty.
- US markets have exhibited pronounced deterioration with transaction volumes decreasing 53% since the third quarter of last year. This drawback in activity has outgrown the period in decline at the onset of the pandemic. Significant distress, up to \$42 billion in office alone, is expected to materialize in the coming months. The refinancing and discounted sales to offset these losses should compound as the year progresses.

Global Total Commercial Real Estate Volume - 2022 - 2023

\$ US Billions	Q3 2023	Q3 2022	% Change Q3 23 - Q3 22	YTD 2023	Q1-Q3 2023	% Change
						YTD 2023/ Q1-Q3 23
Americas	80	170	-53%	255	579	-56%
EMEA	35	74	-53%	123	268	-54%
Asia Pacific	145	219	-34%	410	594	-31%
Total	259	463	-44%	788	1442	-45%

Source: Real Capital Analytics, Inc., Q3' 23

- China's expected economic rebound following an impassioned reopening effort has proven to be fleeting with subdued rates of activity. Office occupancy rates in Asian markets have elevated in part due to certain structural factors: a swifter return to office post-Covid, smaller living quarters per individual, and more affordable and efficient office commutes in key Asian cities. New ESG-Compliant buildings along with "Flight to Quality" has been the focus as a 20 year high 18% vacancy rate gives occupiers numerous options to upgrade.
- Europe experienced a widespread decrease in transaction volume, receding 8% during the quarter and 53% year over year. A product of expensive debt financing, European banks have become risk adverse to large and highly levered transactions which were once the primary driver of the market's growth. Declining capital values have driven returns in the European markets to be extracted from income, opposed to pure appreciation as valuation corrections are ongoing. Notably, occupier markets with senior housing, hotel and retail have remained resilient connected to high rent growth potential, a tight labor market, and consumer spending proving steadier than presumed.
- In the third quarter, US logistics and industrial markets have continued their recoil as manufactures are pausing future accumulation of inventory due to economic headwinds. 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. The resulting moderate increase in vacancy from new construction however does not dramatically shift the market in tenants' favor. With continued healthy fundamentals, rents continue to increase globally but this will be marginal relative to their post-pandemic highs.
- Economic resilience found in the labor market, in conjunction with costly single-family mortgages have contributed to robust demand for US Multifamily. Despite demand raising 11% this quarter (600% increase year over year) rent and occupancy growth have slowed. Across Europe, stable re-pricing has been more prevalent in multifamily assets than in other sectors. The impact on valuations has been offset by rental growth and indexation from CPI as well. Asia Pacific investors are following suit, pursuing opportunities in Japan and Australia where occupier fundamentals and recent tax changes to have been implemented to encourage new developments

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

	2023	2024	2025
Global	2.8	2.6	3.0
Asia Pacific	4.0	4.0	4.1
Australia	1.8	1.5	2.2
China	5.2	4.5	4.5
India	7.0	6.2	6.3
Japan	1.9	1.0	1
North America	2.3	1.0	1.8
US	2.3	1.0	1.8
Middle East	2.0	3.5	3.6
European Union	0.6	1.1	1.8
France	0.8	0.8	1.4
Germany	-0.4	0.5	1.5
UK	0.4	0.4	1.3

Source: Bloomberg

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REPORT

Meketa Capital Markets Outlook & Risk Metrics

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Capital Markets Outlook & Risk Metrics
As of December 31, 2023

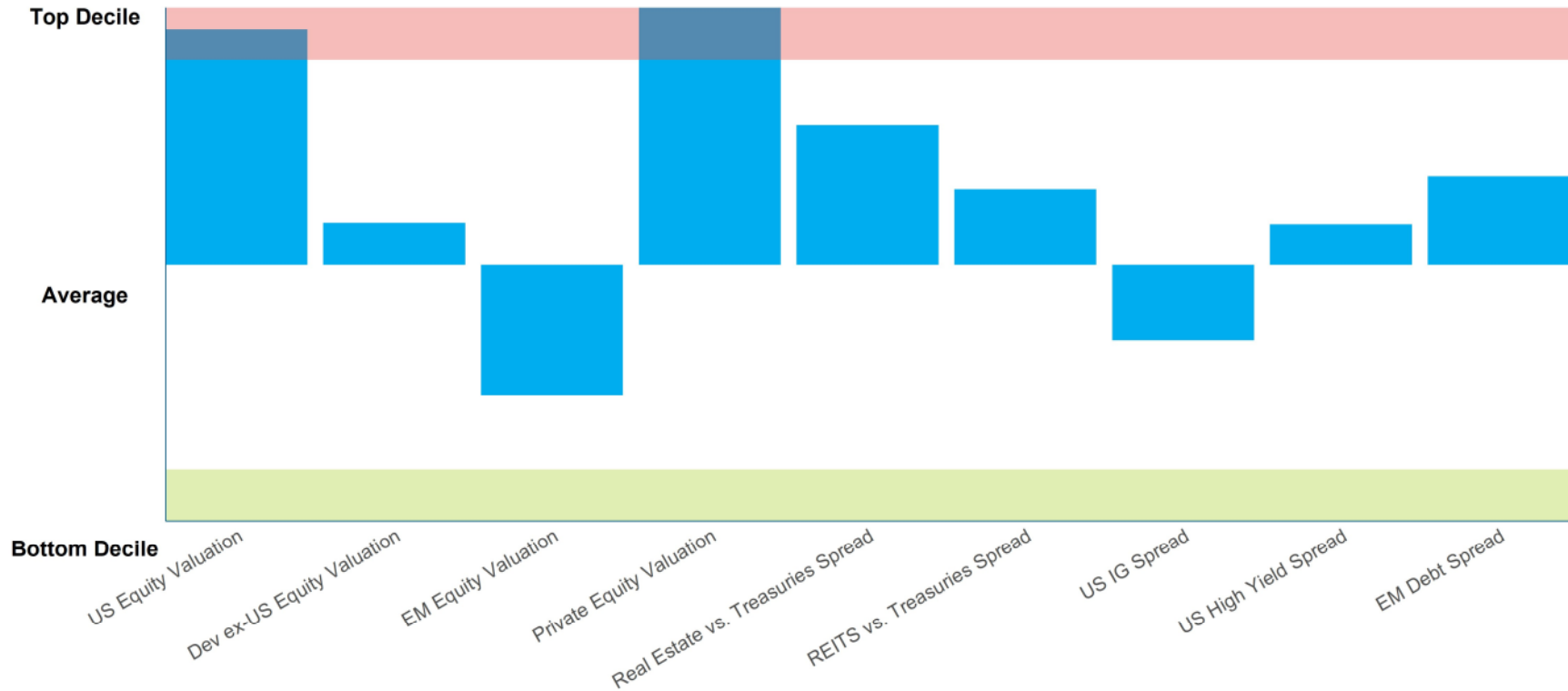
Capital Markets Outlook

- With the notable exception of China's markets, global bond and equity markets rallied at the end of the year, posting strong gains as inflation pressures eased and central banks appeared to be turning more dovish.
- Both the Russell 3000 and the MSCI EAFE gained 5.3% in December. For the year, the broad US market gained 26.0%
- Large cap growth stocks were the big winners for the year, with the Russell 1000 Growth index gaining 42.7%.
- US small cap stocks – both growth and value – posted double digit returns in December, and the Russell 2000 index finished up 16.9% for the year.
- Non-US developed equities benefitted from a slight currency tailwind in 2023, with the MSCI EAFE posting a one-year return of 18.2%.
- While positive, emerging market equities lagged developed markets in December and for the full year. The MSCI EM index returned 9.8% for the year, with Chinese stocks serving as a drag on performance. The MSCI Emerging Market ex-China index returned 20% for the full year.
- China's stock markets were one of very few markets that suffered losses for 2023. The MSCI China index returned -11.2% for the calendar year as investors' lack of confidence in the economy and CCP policies continued to weigh on asset prices.

Capital Markets Outlook

- The Fed's dovish communication at the December FOMC meeting helped to fuel a widespread rally in US bond markets, with the Bloomberg US Aggregate index returning 3.8% in December and finishing up 5.5% for the year. Long-duration government bonds capped a volatile year with an 8.6% gain in December, pushing them into positive territory for the year.
- Public credit finished a solid year, with both the high yield and bank loan indices posting gains of roughly 13%.
- REIT indices returned over 9% in December, leading to double-digit returns for the full year, while natural resource indices experienced more modest gains.
- Commodity indices were an outlier, with negative returns in December (-2.7%) and for 2023 (-7.9%).

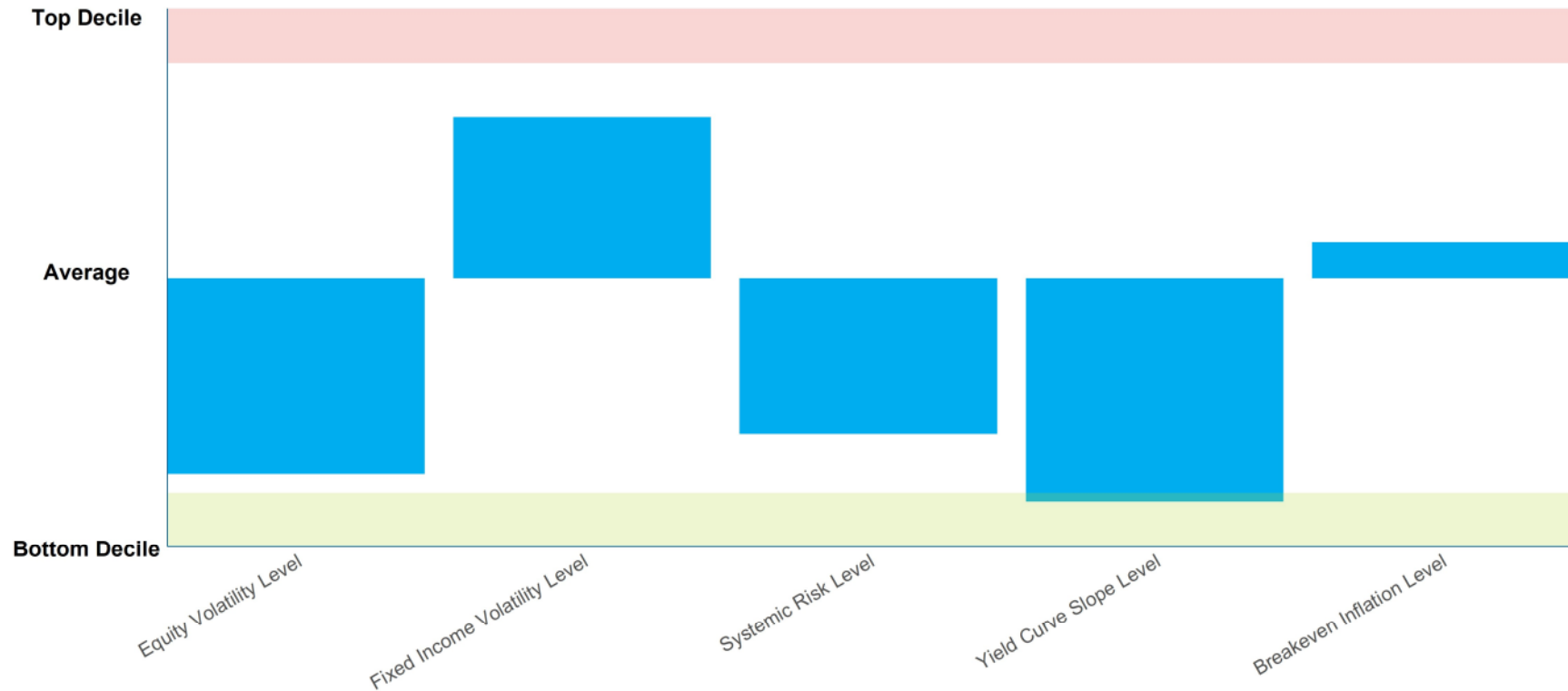
Risk Overview/Dashboard (1) (As of December 31, 2023)¹



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

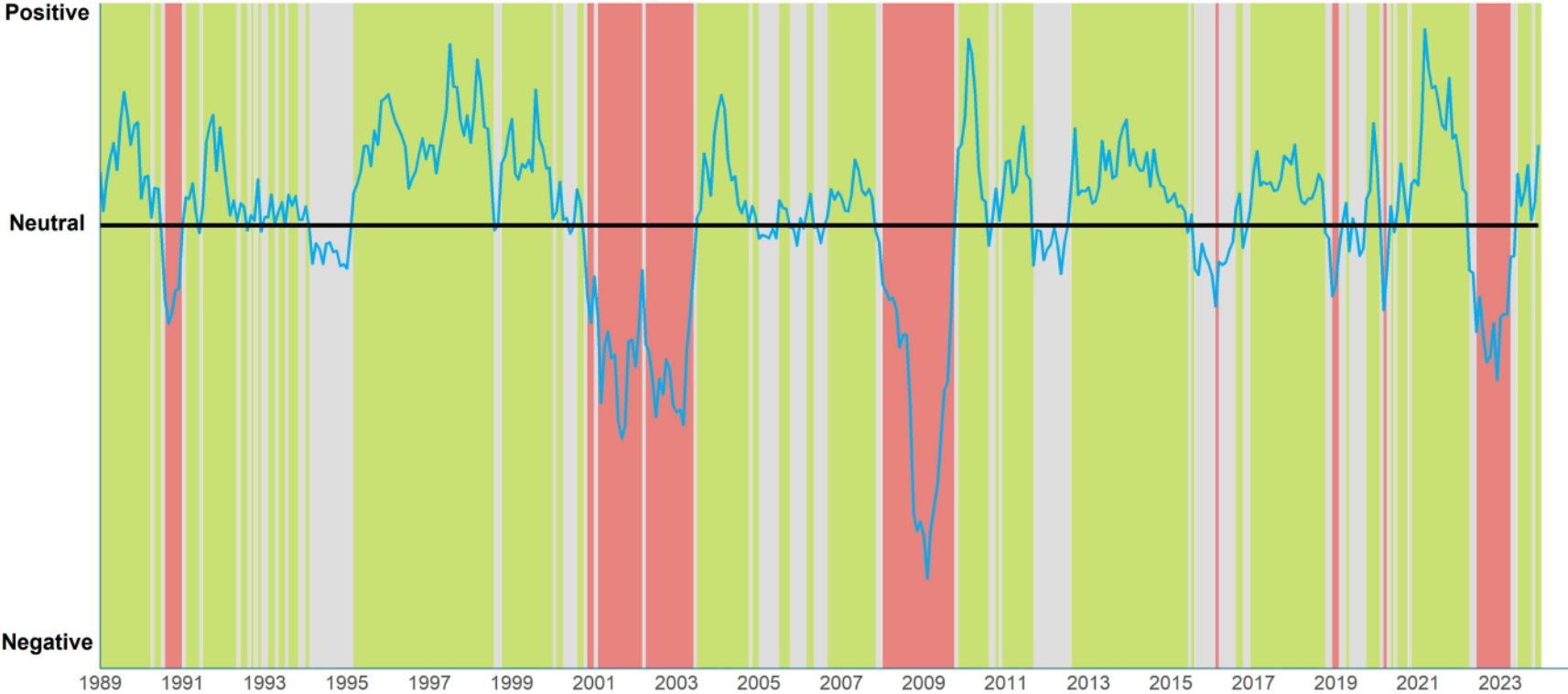
¹ With the exception of Private Equity Valuation, that is YTD as of December 31, 2022.

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

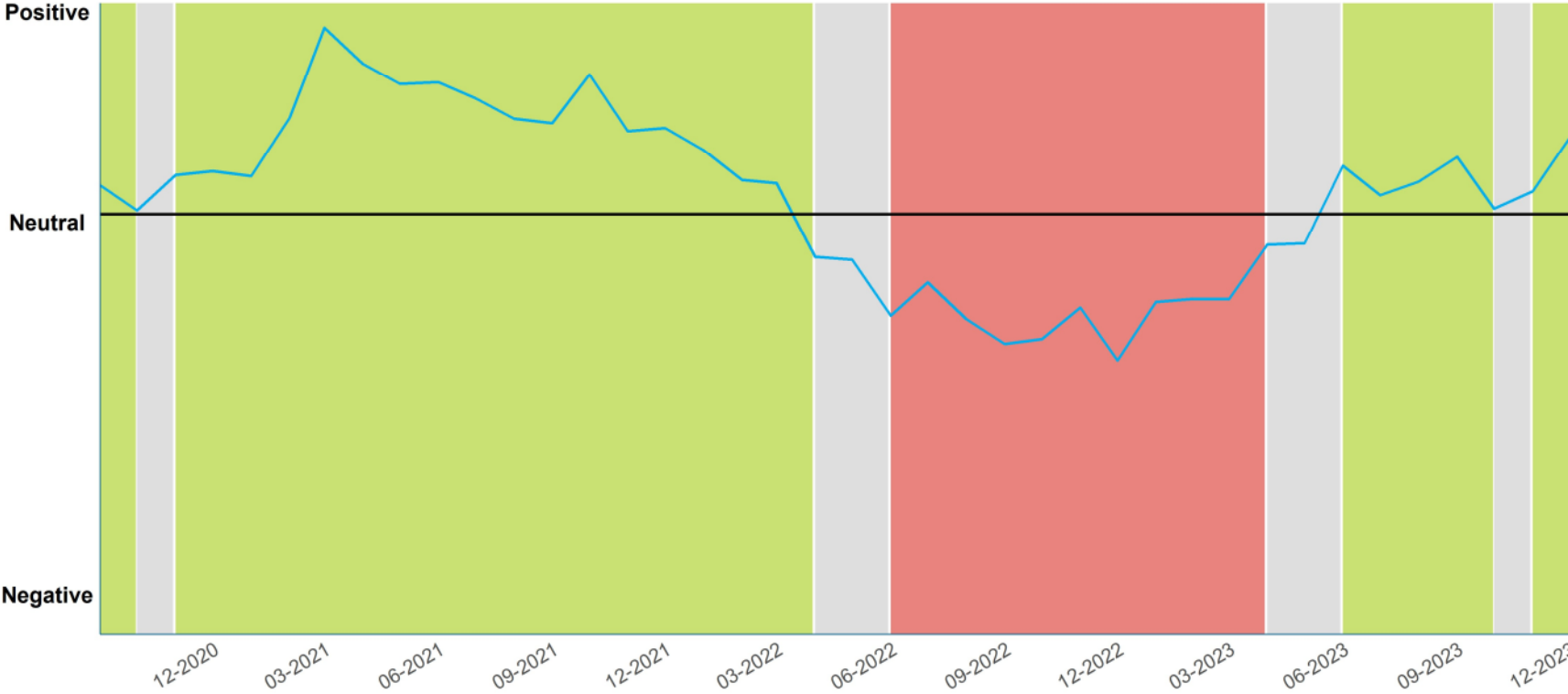


→ Dashboard (2) shows how the current level of each indicator compares to its respective history.

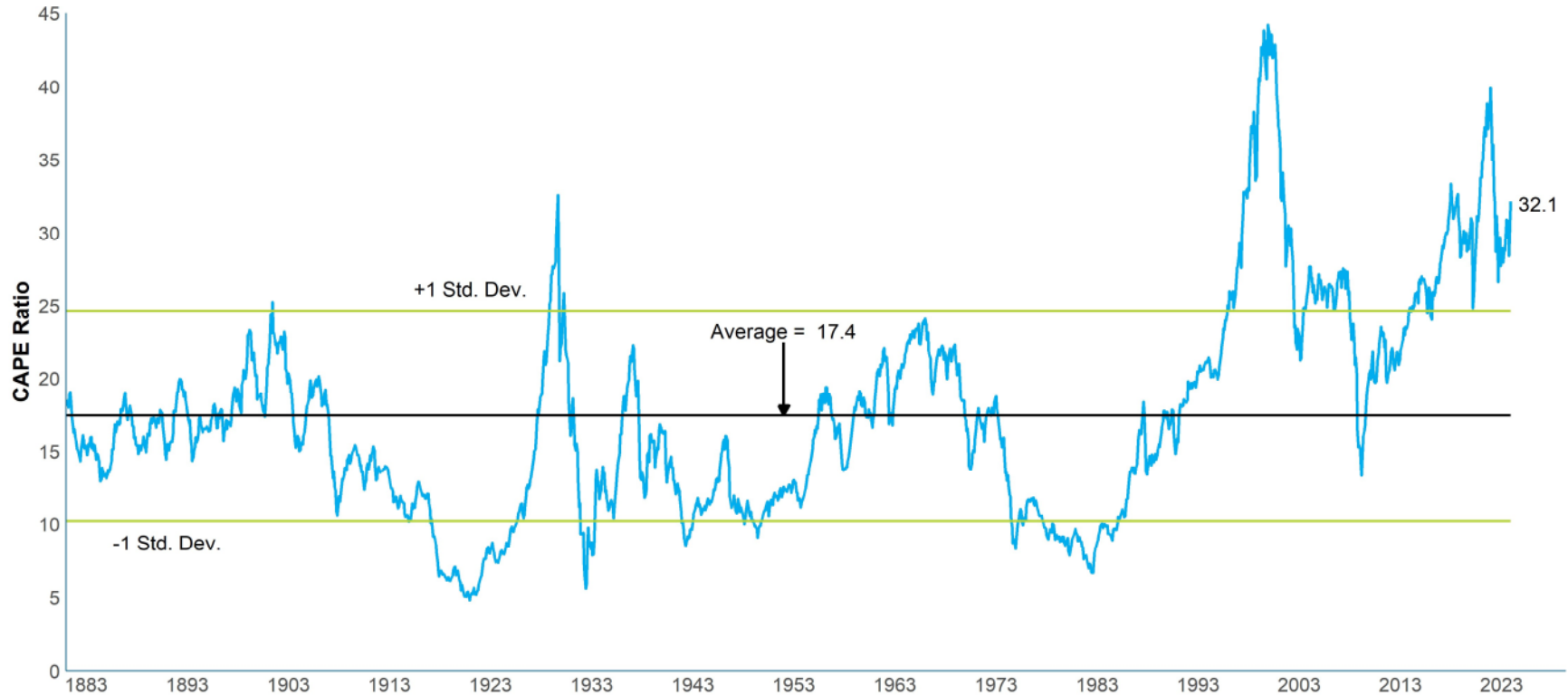
Market Sentiment Indicator (All History)
(As of December 31, 2023)



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



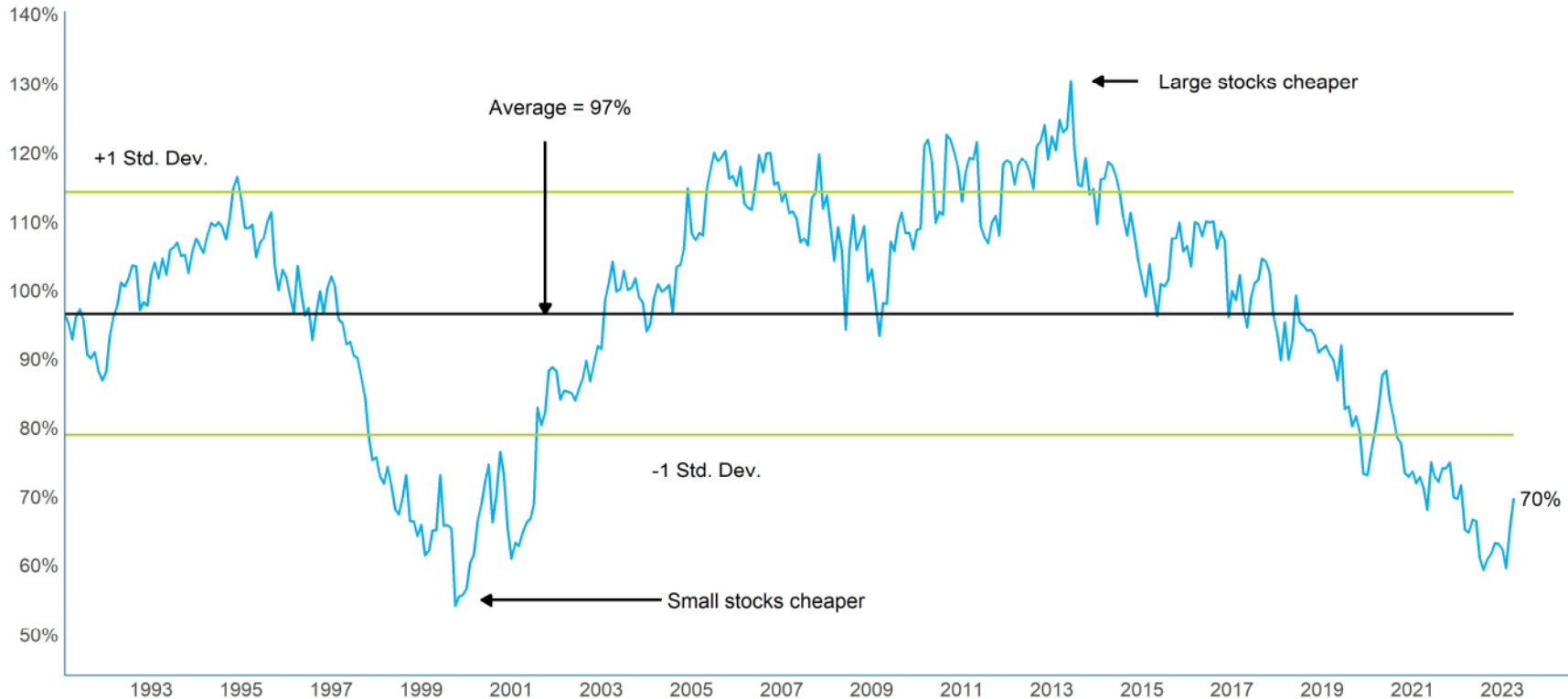
US Equity Cyclically Adjusted P/E¹
 (As of December 31, 2023)



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

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

Small Cap P/E vs. Large Cap P/E¹ (As of December 31, 2023)



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

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

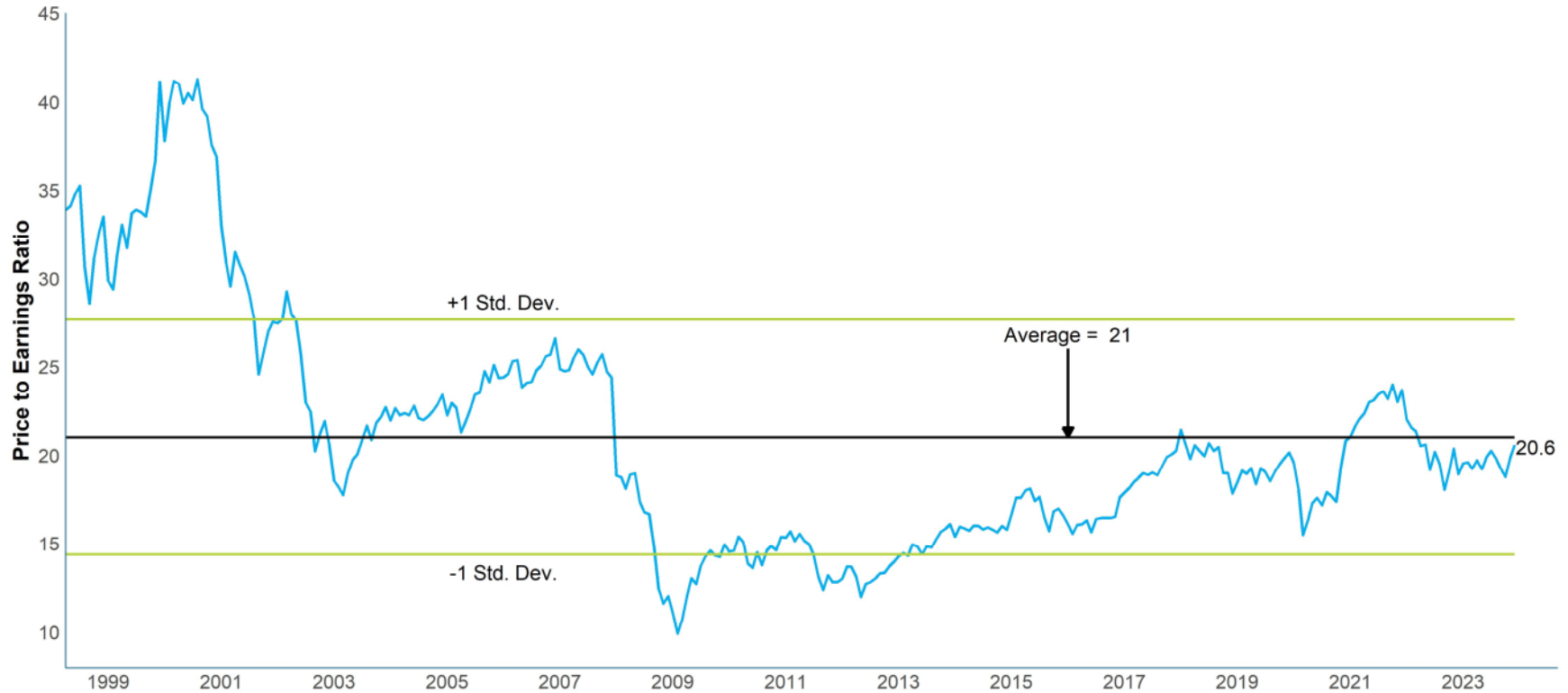
Growth P/E vs. Value P/E¹
(As of December 31, 2023)



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

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

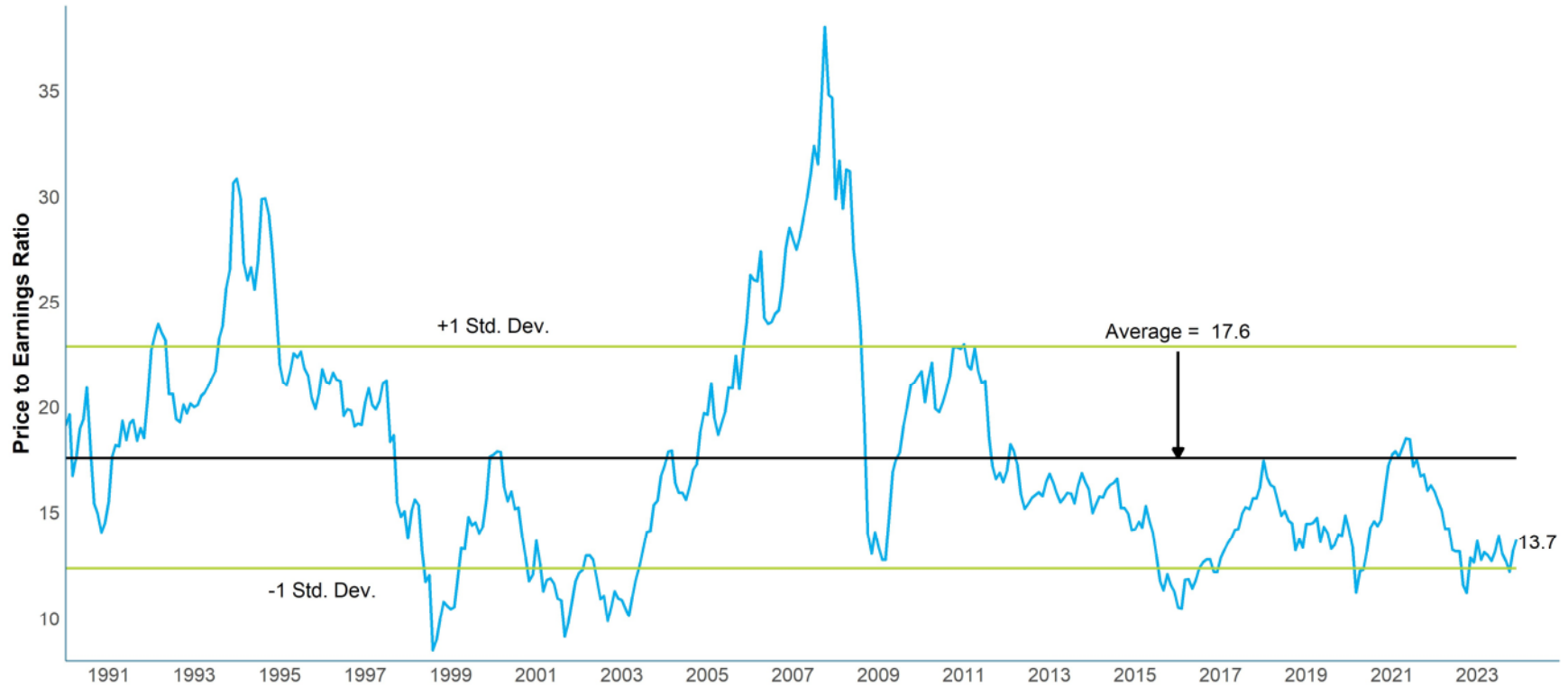
Developed International Equity Cyclically Adjusted P/E¹
(As of December 31, 2023)



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

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

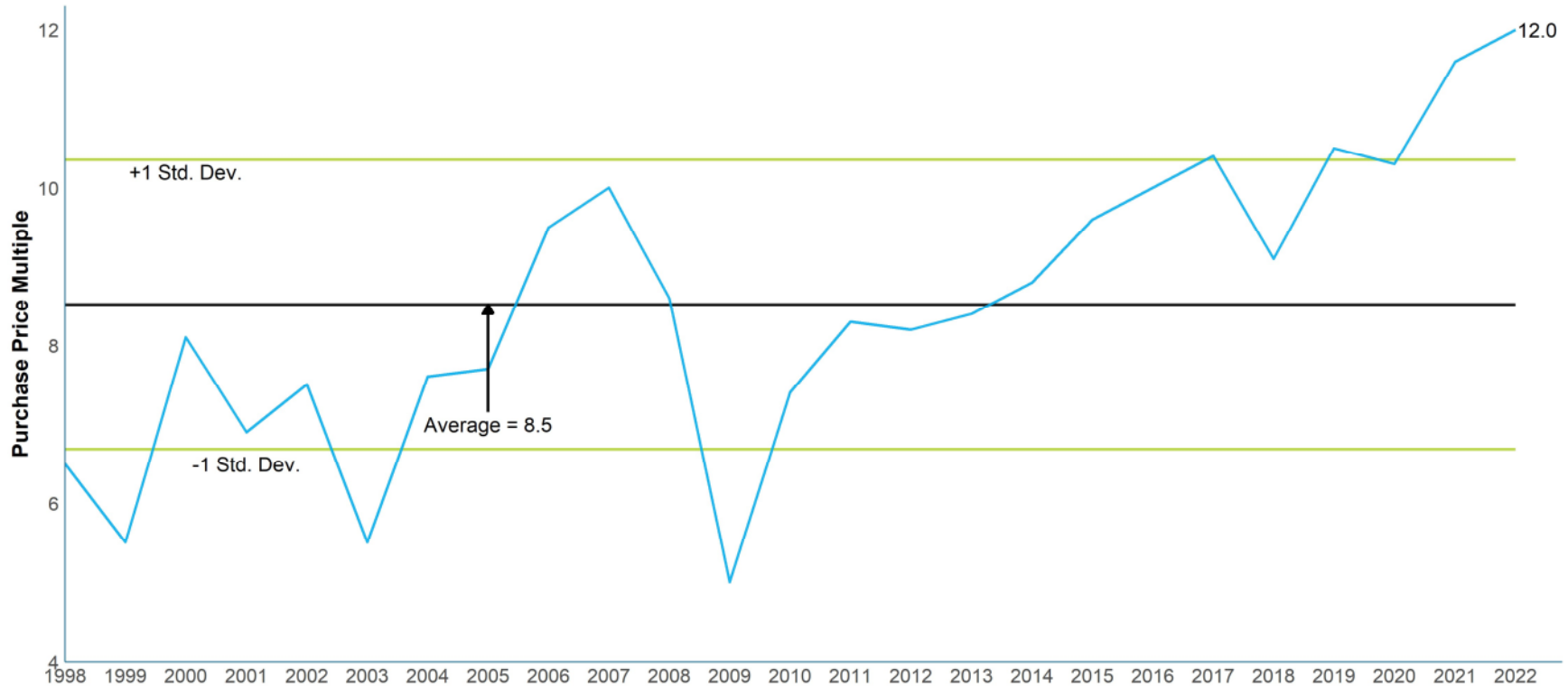
Emerging Market Equity Cyclically Adjusted P/E¹
 (As of December 31, 2023)



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

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

Private Equity Multiples¹ (As of December 31, 2023)



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

¹ Private Equity Multiples – Source: Preqin Median EBITDA Multiples Paid in All LBOs.

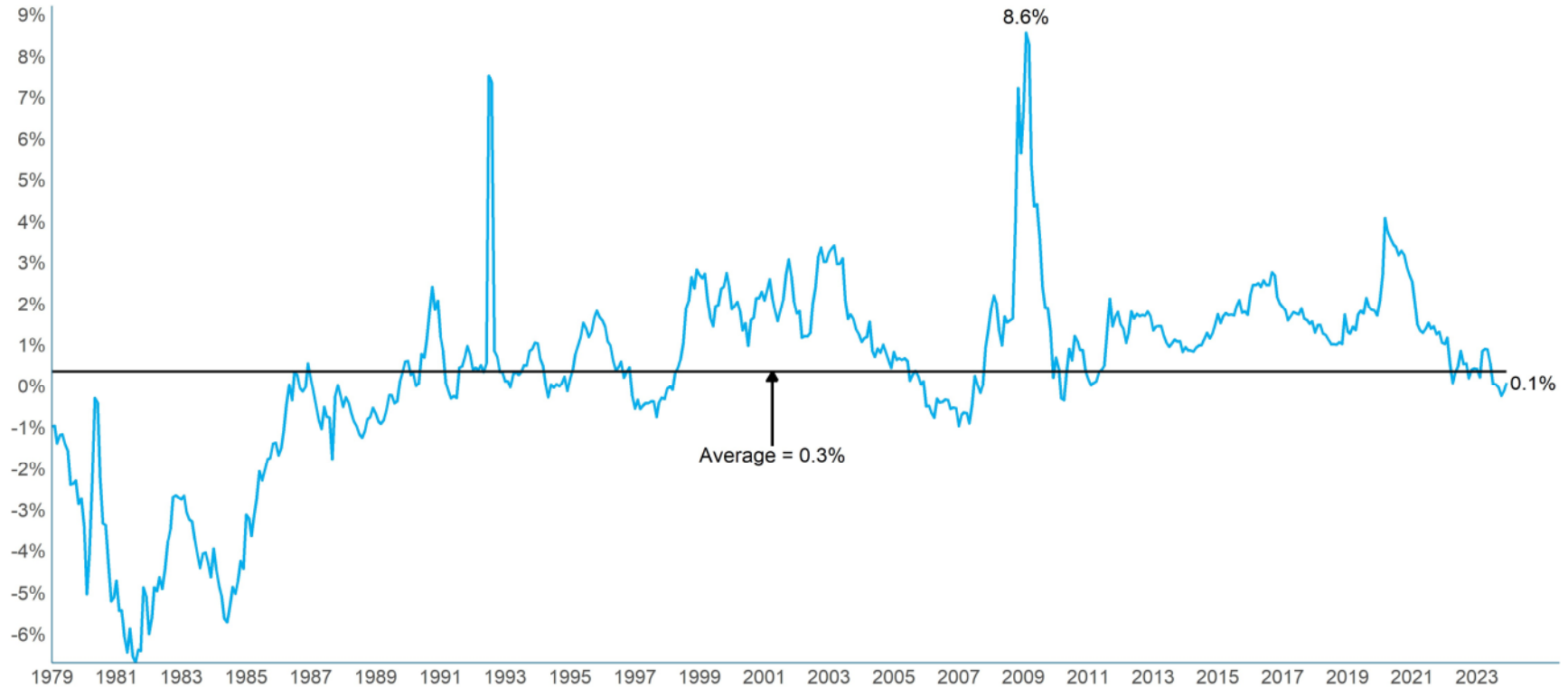
Core Real Estate Spread vs. Ten-Year Treasury¹
(As of December 31, 2023)



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

¹ Core Real Estate Spread vs. Ten-Year Treasury – Source: Real Capital Analytics, 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.

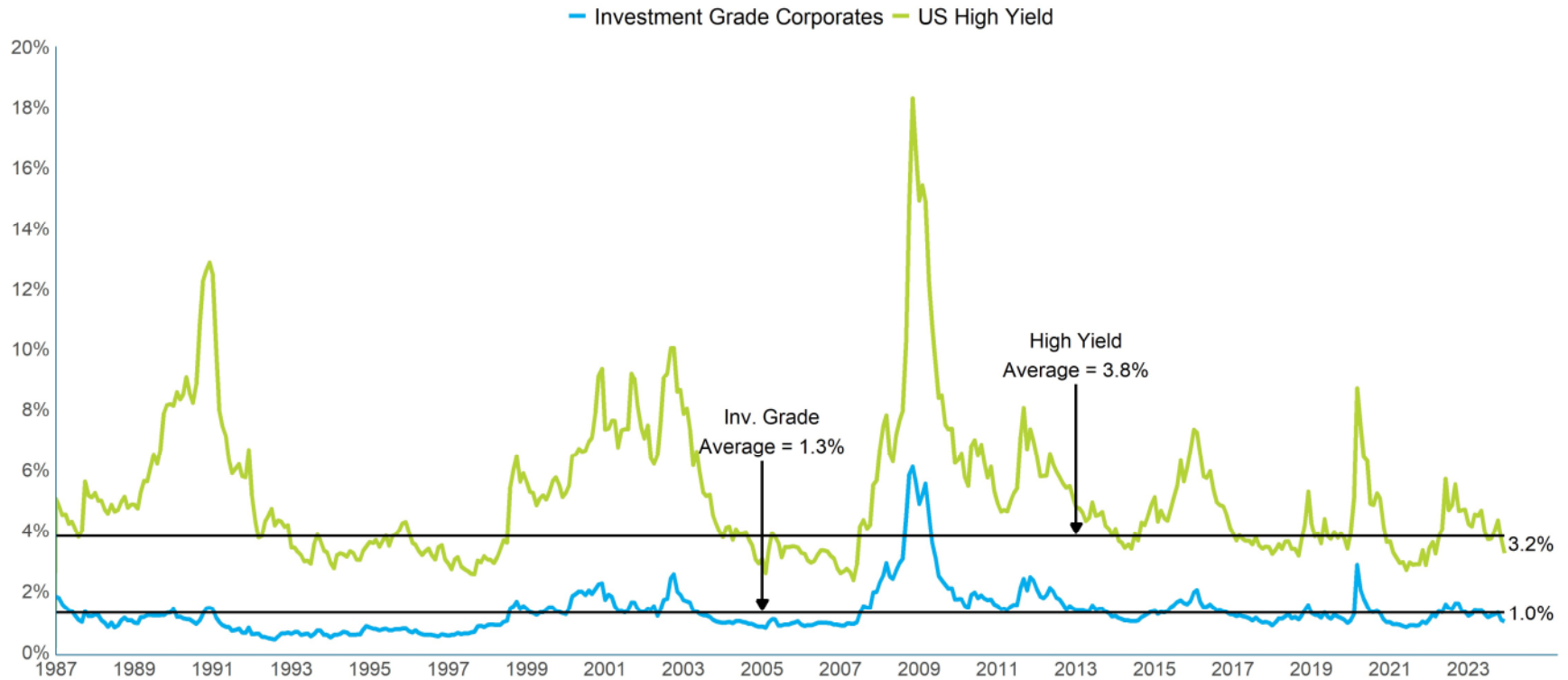
REITs Dividend Yield Spread vs. Ten-Year Treasury¹
 (As of December 31, 2023)



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

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

Credit Spreads¹
(As of December 31, 2023)



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

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

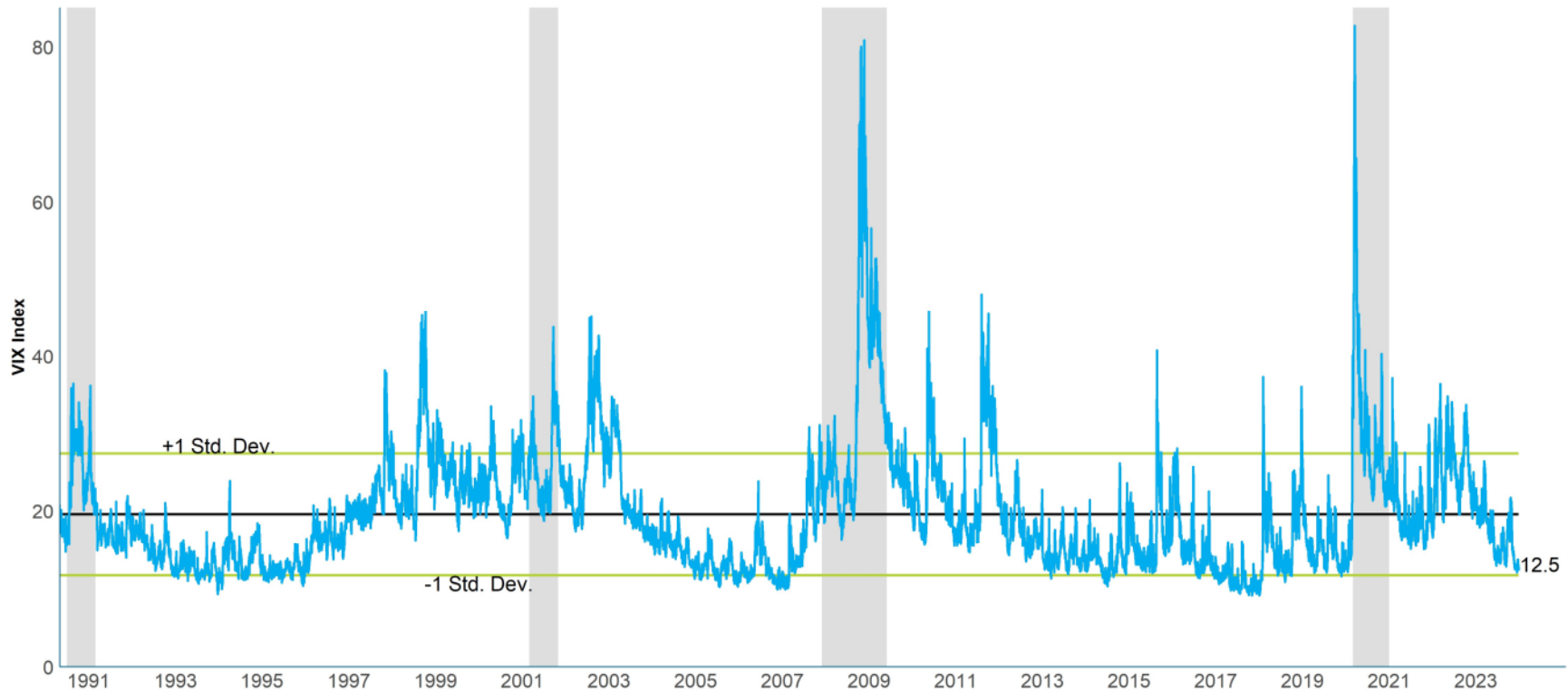
Emerging Market Debt Spreads¹
(As of December 31, 2023)



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

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

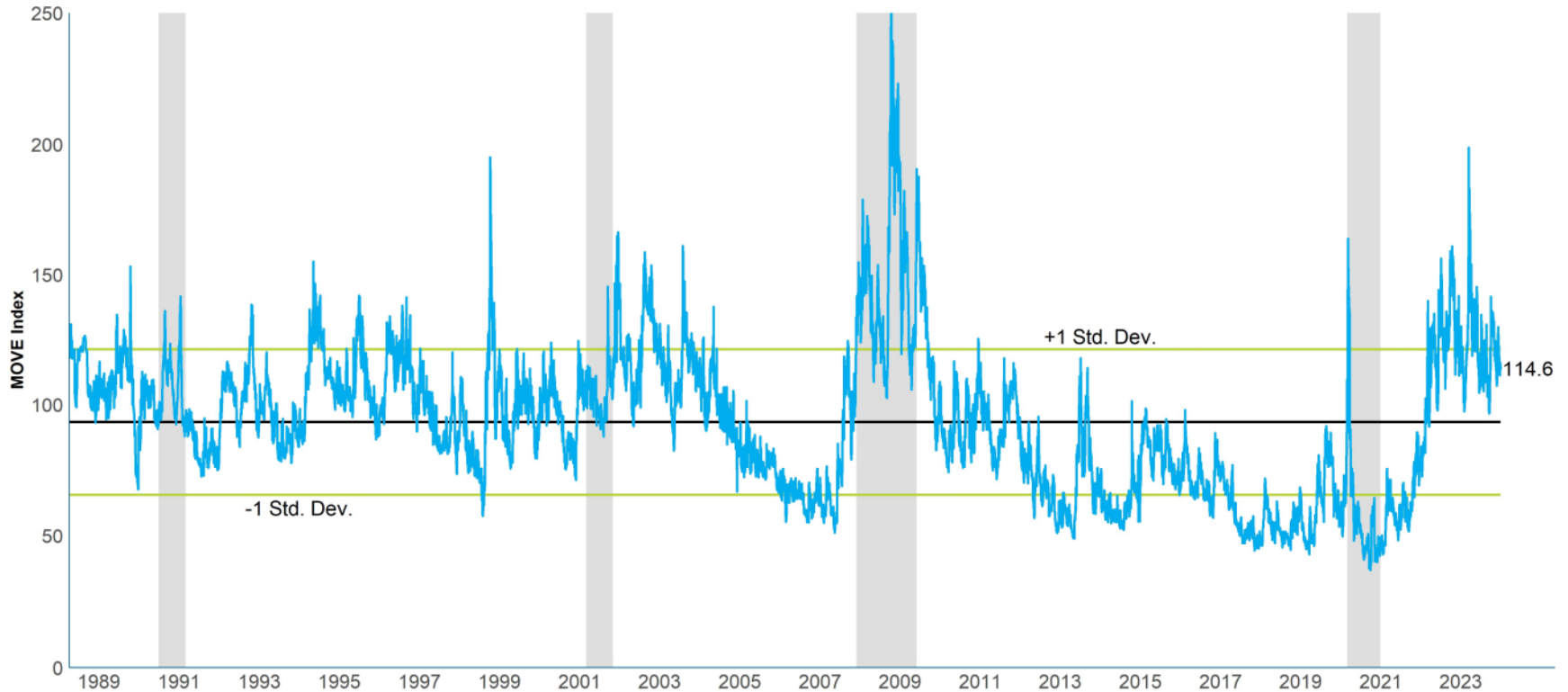
Equity Volatility¹
(As of December 31, 2023)



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

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

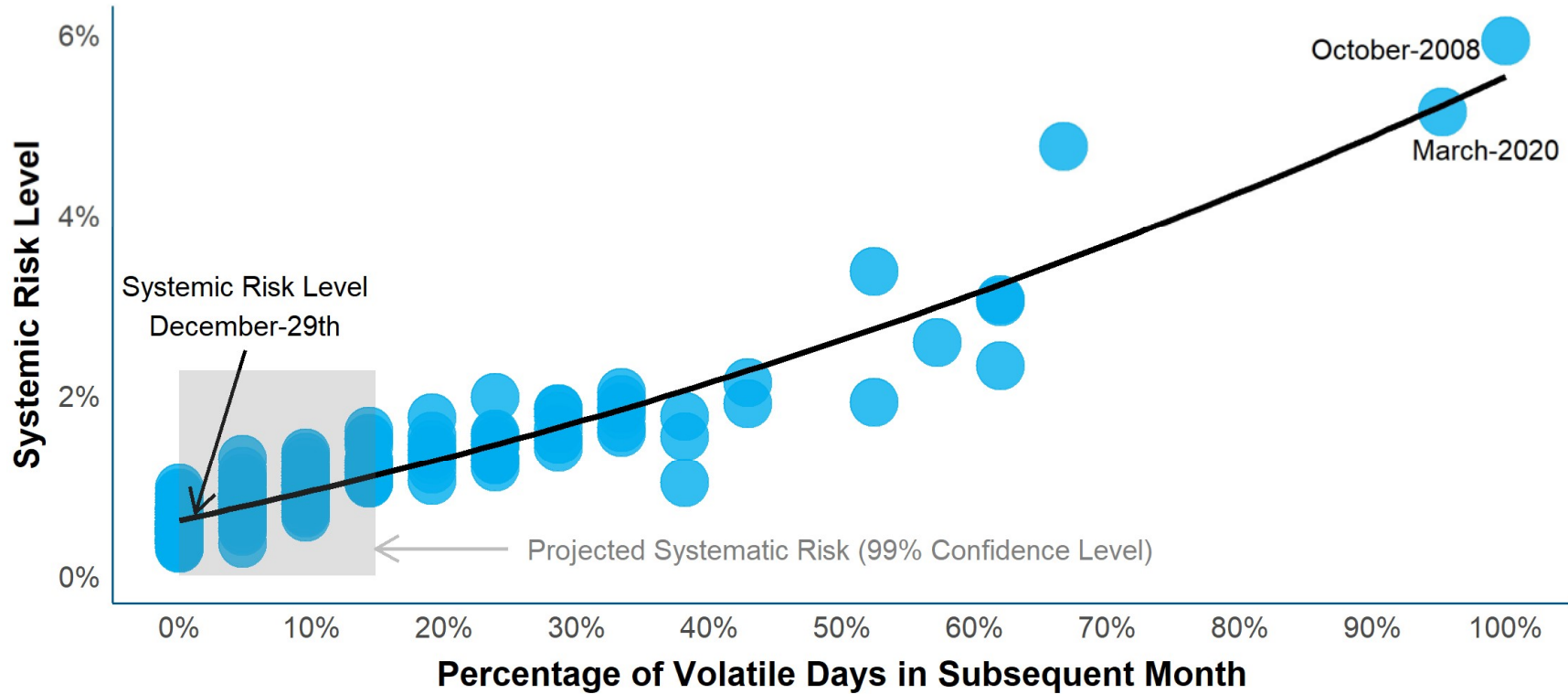
Fixed Income Volatility¹
(As of December 31, 2023)



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

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

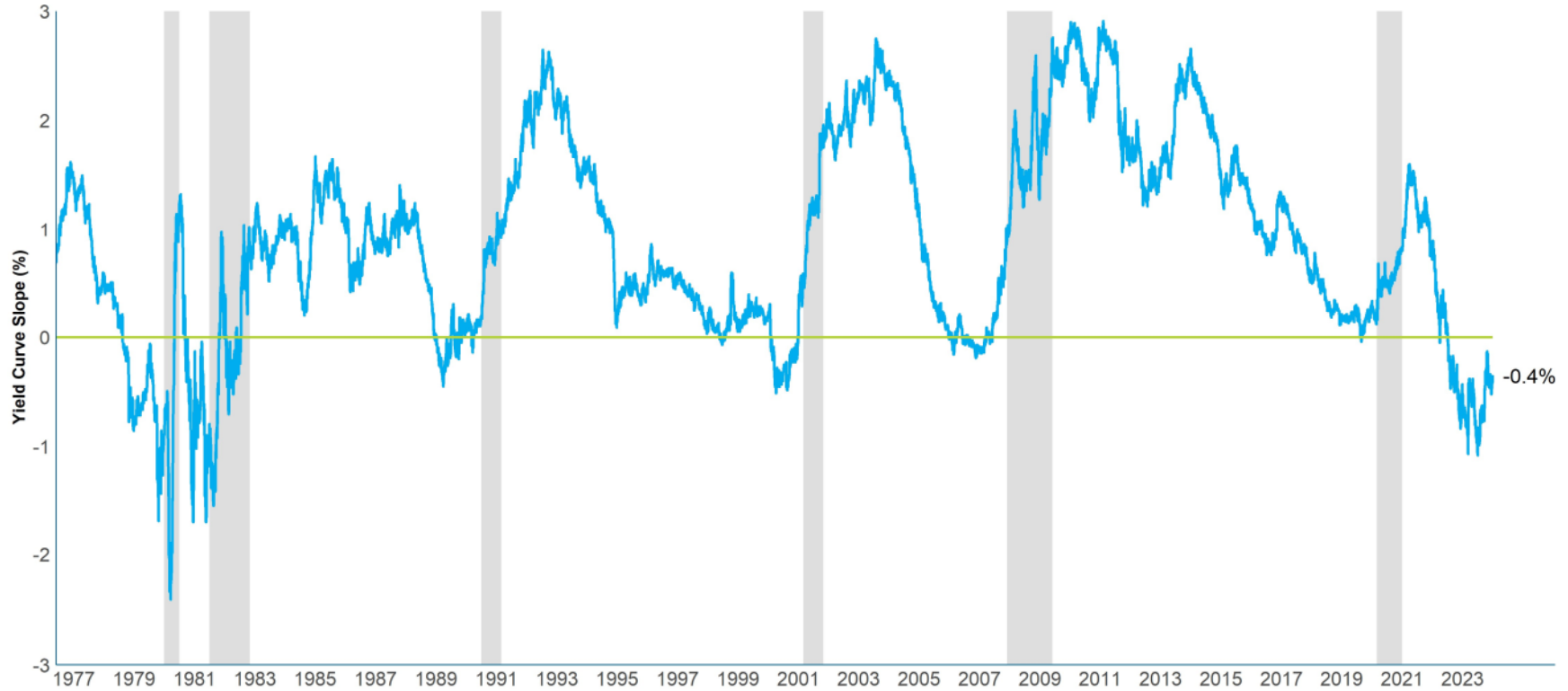
Systemic Risk and Volatile Market Days¹
(As of December 31, 2023)



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

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

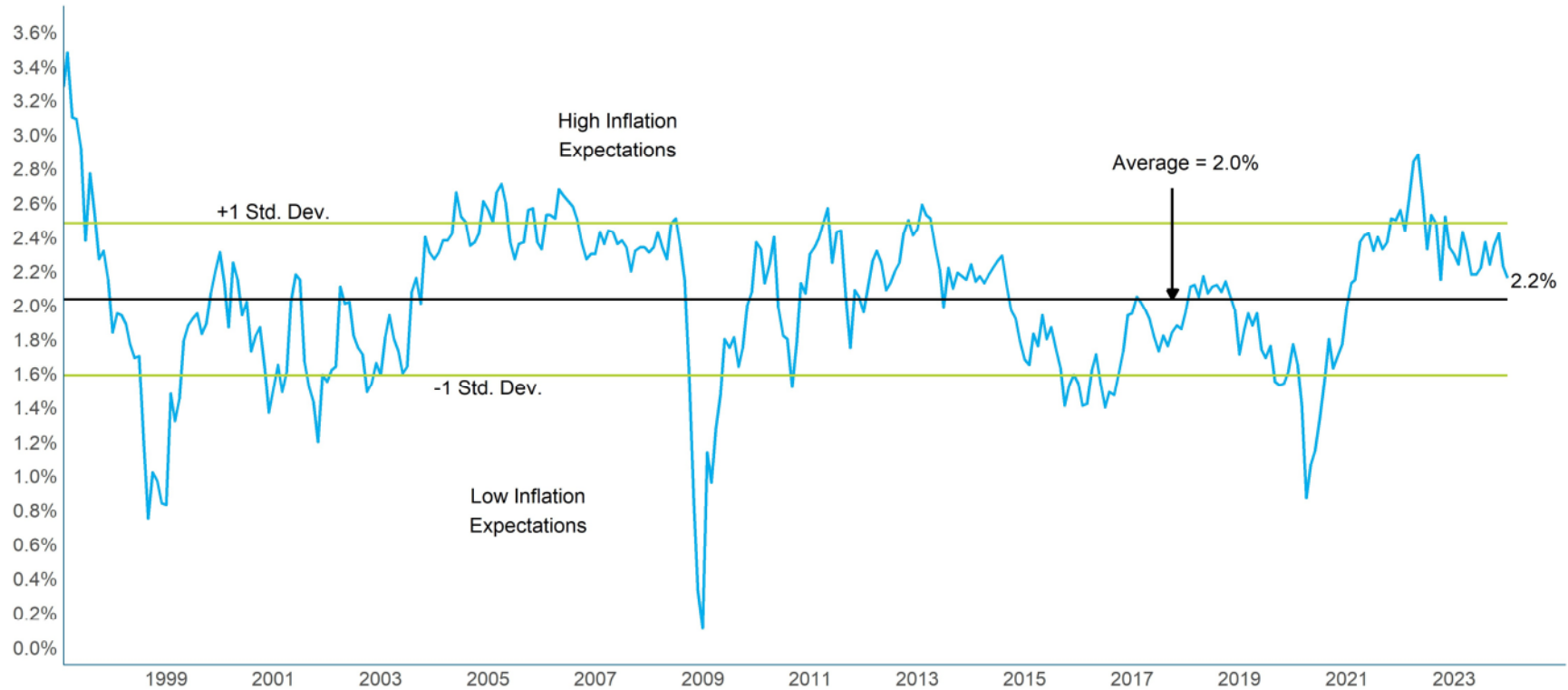
Yield Curve Slope (Ten Minus Two)¹
(As of December 31, 2023)



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

¹ Yield Curve Slope (Ten Minus Two) – Source: 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 December 31, 2023)



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

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

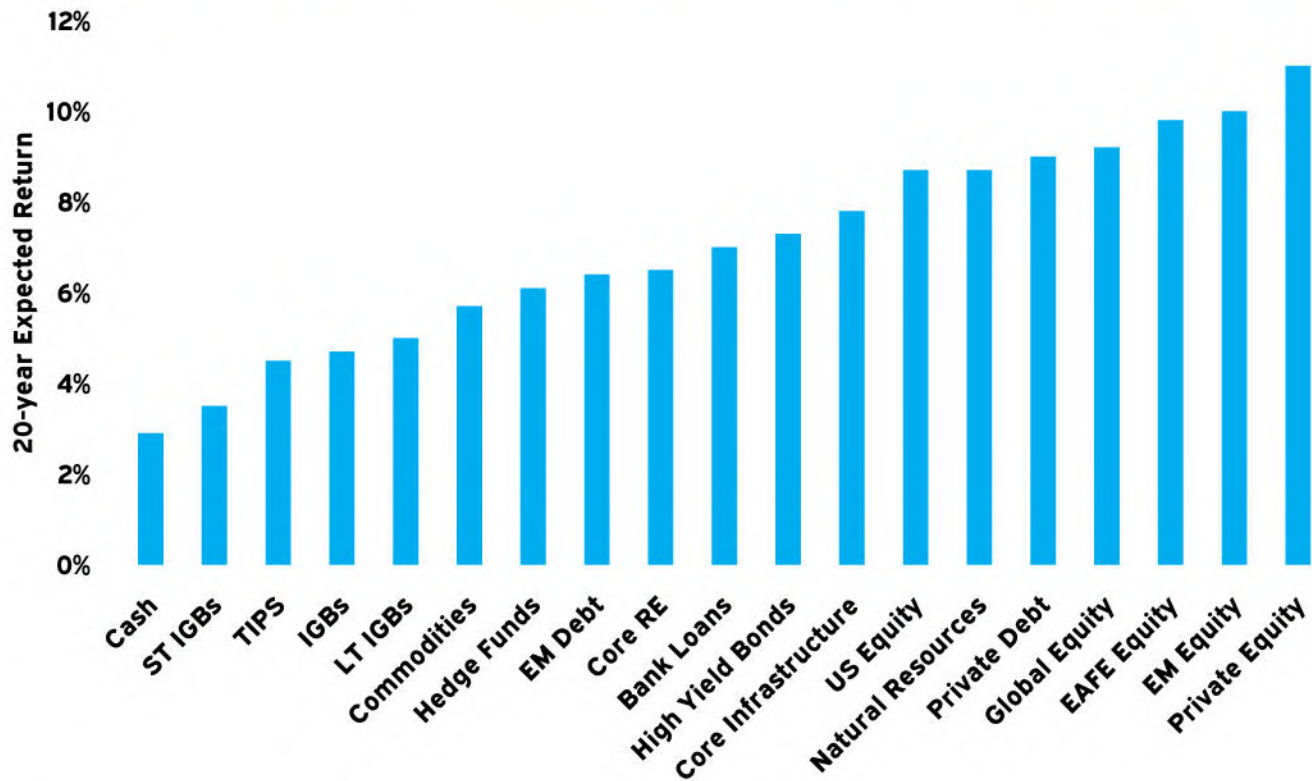
**Total Return Given Changes in Interest Rates (bps)¹
(As of December 31, 2023)**



	Total Return for Given Changes in Interest Rates (bps)									Statistics	
	-100	-50	0	50	100	150	200	250	300	Duration	YTW
Barclays US Short Treasury (Cash)	5.6%	5.4%	5.2%	5.0%	4.8%	4.7%	4.5%	4.3%	4.1%	0.36	5.20%
Barclays US Treasury 1-3 Yr.	6.4%	5.5%	4.6%	3.7%	2.7%	1.8%	0.9%	0.0%	-1.0%	1.84	4.58%
Barclays US Treasury Intermediate	7.9%	5.9%	4.1%	2.2%	0.4%	-1.3%	-3.0%	-4.6%	-6.2%	3.72	4.06%
Barclays US Treasury Long	21.4%	12.4%	4.1%	-3.3%	-9.9%	-15.8%	-20.8%	-25.0%	-28.4%	15.69	4.14%

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 December 31, 2023, unless otherwise noted.

Appendix

Data Sources and Explanations¹

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

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

Appendix

Data Sources and Explanations¹

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

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

Meketa Market Sentiment Indicator Explanation, Construction and Q&A

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

This appendix explores:

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

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

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

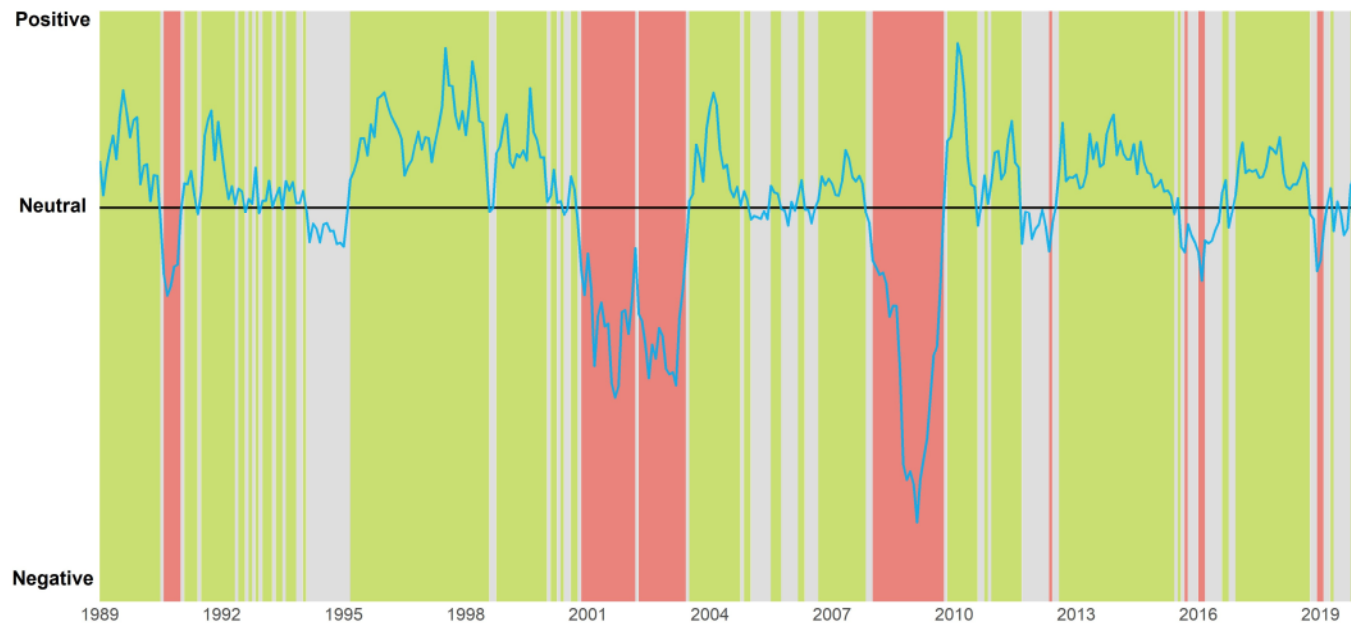
What is the Meketa Market Sentiment Indicator (MIG-MSI)?

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

How do I read the Meketa Market Sentiment Indicator graph?

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

→ Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.



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

- The MIG-MSI is constructed from two sub-elements representing investor sentiment in stocks and bonds:
- Stock return momentum: Return momentum for the S&P 500 Equity Index (trailing 12-months).
 - Bond yield spread momentum: Momentum of bond yield spreads (excess of the measured bond yield over the identical duration US Treasury bond yield) for corporate bonds (trailing 12-months) for both investment grade bonds (75% weight) and high yield bonds (25% weight).
 - Both measures are converted to Z-scores and then combined to get an “apples to apples” comparison without the need of re-scaling.
- The black line reading on the graph is calculated as the average of the stock return momentum measure and the bonds spread momentum measure¹. The color reading on the graph is determined as follows:
- If both stock return momentum and bond spread momentum are positive = GREEN (positive).
 - If one of the momentum indicators is positive, and the other negative = GRAY (inconclusive).
 - If both stock return momentum and bond spread momentum are negative = RED (negative).

¹ Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.
“Time Series Momentum” Moskowitz, Ooi, Pedersen, August 2010. <http://pages.stern.nyu.edu/~lpederse/papers/TimeSeriesMomentum.pdf>

What does the Meketa Market Sentiment Indicator (MIG-MSI) mean? Why might it be useful?

→ There is strong evidence that time series momentum is significant and persistent. Across an extensive array of asset classes, the sign of the trailing 12-month return (positive or negative) is indicative of future returns (positive or negative) over the next 12-month period. The MIG-MSI is constructed to measure this momentum in stocks and corporate bond spreads. A reading of green or red is agreement of both the equity and bond measures, indicating that it is likely that this trend (positive or negative) will continue over the next 12 months. When the measures disagree, the indicator turns gray. A gray reading does not necessarily mean a new trend is occurring, as the indicator may move back to green, or into the red from there. The level of the reading (black line) and the number of months at the red or green reading, gives the user additional information on which to form an opinion, and potentially take action.

Disclaimer Information

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REPORT

SBI Comprehensive Performance Report

December 31, 2023

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Quarterly Report

Comprehensive Performance Report

December 31, 2023



Description of SBI Investment Programs

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

Combined Funds

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

Fire Plans + Other Retirement Plans

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

Participant Directed Investment Program

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

Non-Retirement Funds

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

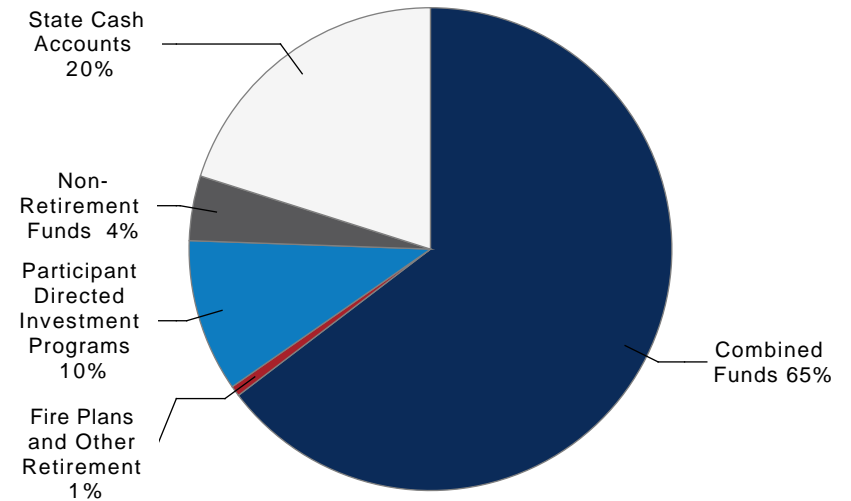
State Cash

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



Funds Under Management

	<u>\$ Millions</u>
COMBINED FUNDS	\$89,307
Fire Plans + Other Retirement Plans	972
Participant Directed Investment Program	14,118
State Deferred Compensation Plan	9,627
Health Care Savings Plan	1,917
Unclassified Employees Retirement Plan	379
Hennepin County Supplemental Retirement Plan	169
PERA Defined Contribution Plan	94
Minnesota College Savings Plan	1,890
Minnesota Achieving a Better Life Experience Plan	42
Non-Retirement Funds	5,998
Assigned Risk Plan	273
Permanent School Fund	1,995
Environmental Trust Fund	1,714
Closed Landfill Investment Fund	136
Miscellaneous Trust Funds	981
Other Postemployment Benefits Accounts	899
State Cash	27,766
Invested Treasurer's Cash	26,851
Other State Cash Accounts	915
TOTAL SBI AUM	138,161



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

December 31, 2023



Combined Funds Summary

Combined Funds Change in Market Value (\$Millions)

	<u>One Quarter</u>
Combined Funds	
Beginning Market Value	\$83,036
Net Contributions	46
Investment Return	6,225
Ending Market Value	89,307

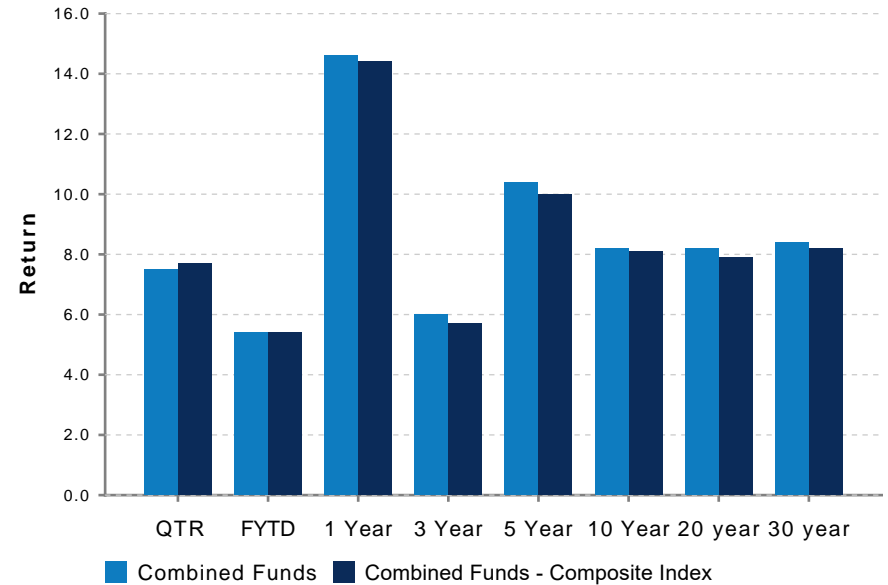
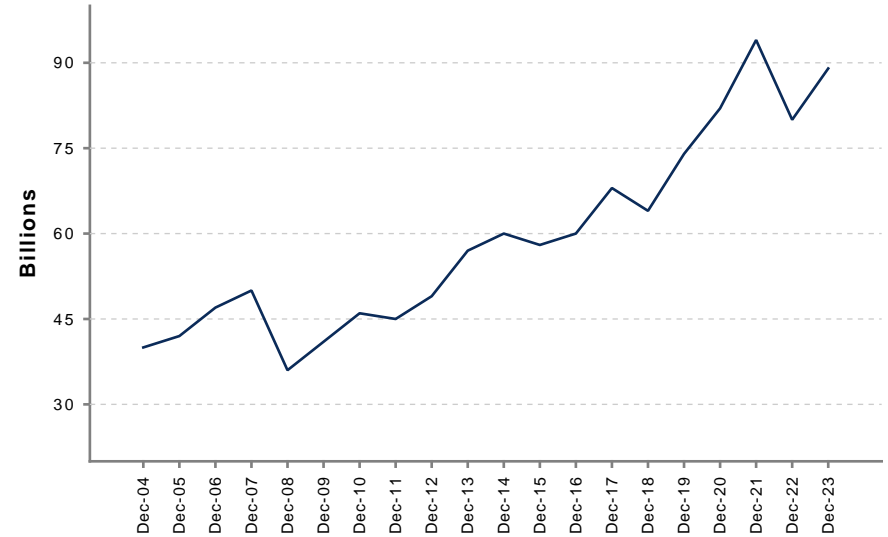
The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

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	7.5%	5.4%	14.6%	6.0%	10.4%	8.2%	8.2%	8.4%
Combined Funds - Composite Index	7.7%	5.4%	14.4%	5.7%	10.0%	8.1%	7.9%	8.2%
Excess	-0.2%	0.0%	0.2%	0.3%	0.4%	0.2%	0.2%	0.2%

Asset Growth



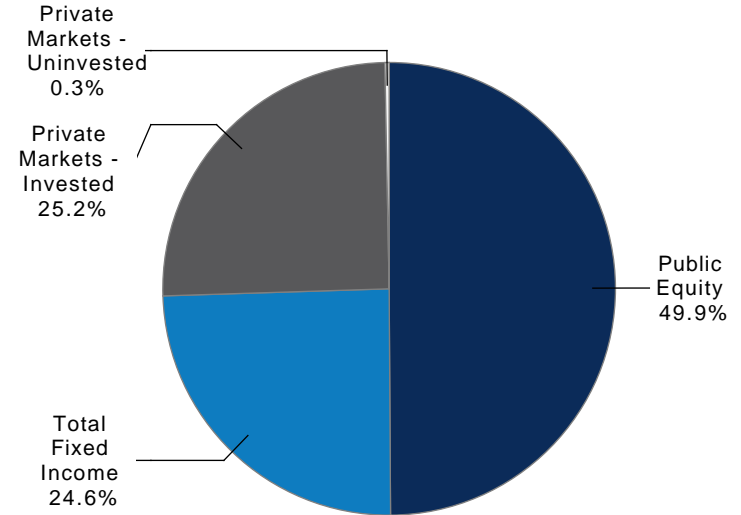


Combined Funds Summary

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.

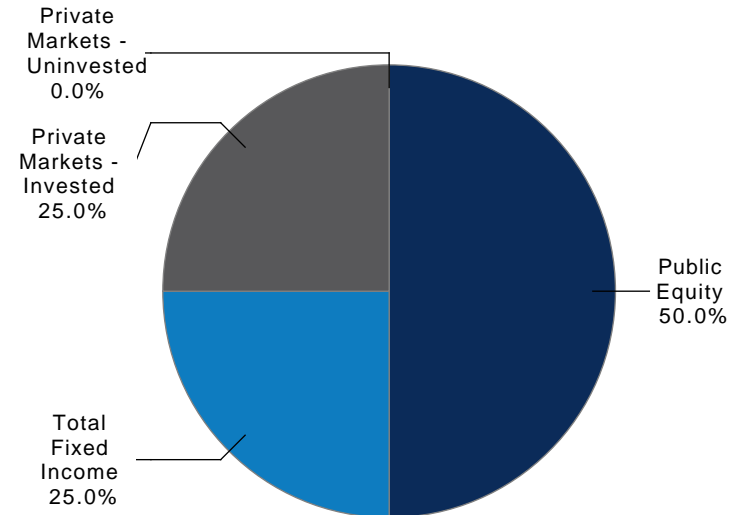
	<u>(Millions)</u>	<u>Actual Mix</u>	<u>Policy Target</u>
Public Equity	\$44,605	49.9%	50.0%
Total Fixed Income	21,933	24.6	25.0
Private Markets - Total	22,768	25.5	25.0
Private Markets - Invested	22,544	25.2	
Private Markets - Uninvested	224	0.3	
TOTAL	89,307	100.0	



Composite Index Comparison

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

	<u>Policy Weight</u>	<u>Market Index</u>
Public Equity	50.0%	Public Equity Benchmark
Total Fixed Income	25.0	Total Fixed Income Benchmark
Private Markets - Invested	25.0	Private Markets
Private Markets - Uninvested	0.0	





Combined Funds Asset Class Performance Summary

Public Equity

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

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

	<u>Market Value</u>	<u>Actual Weight</u>	<u>Policy Weight</u>	<u>Last Qtr</u>	<u>FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>20 Year</u>	<u>30 Year</u>
Public Equity	\$44.6	49.9%	50.0%	11.0%	7.4%	22.5%	6.5%	12.8%	9.3%	8.6%	8.9%
Public Equity Benchmark				11.3	7.5	22.5	6.3	12.5			
Excess				-0.3	-0.1	-0.0	0.2	0.4			
Domestic Equity	29.5	33.1	33.5	12.2	8.6	26.0	8.5	15.3	11.4	9.6	9.7
Domestic Equity Benchmark				12.1	8.4	26.0	8.5	15.1	11.5	9.7	9.9
Excess				0.1	0.1	0.1	-0.0	0.1	-0.1	-0.1	-0.1
International Equity	14.1	15.7	16.5	8.6	5.3	15.6	2.8	8.2	4.5	6.2	5.9
International Equity Benchmark				9.8	5.6	15.6	1.5	7.1	3.8	5.7	5.2
Excess				-1.1	-0.3	-0.1	1.3	1.1	0.6	0.5	0.7
Global Equity	1.0	1.1	0.0	12.0	3.5	22.6	-1.0				
MSCI AC World Index (net)				11.0	7.3	22.2	5.7				
Excess				1.0	-3.8	0.4	-6.7				

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	\$21.9	24.6%	25.0%	6.9%	3.1%	6.3%	-3.3%	2.0%	2.5%	3.7%	4.9%
Total Fixed Income Benchmark				6.6%	2.4%	4.8%	-3.8%	1.5%	2.0%	3.3%	4.5%
Excess				0.3%	0.7%	1.5%	0.5%	0.6%	0.5%	0.4%	0.4%
Core/Core Plus	\$4.6	5.1%	5.0	7.4%	3.9%	7.0%	-3.1%	1.8%	2.4%	3.6%	4.8%
Core Bonds Benchmark				6.8%	3.4%	5.5%	-3.3%	1.1%	1.8%	3.2%	4.4%
Excess				0.6%	0.5%	1.5%	0.2%	0.7%	0.5%	0.5%	0.4%
Return Seeking Fixed Income	\$4.3	4.8%	5.0	7.0%	5.6%	9.8%	-0.7%				
Bloomberg U.S. Aggregate				6.8%	3.4%	5.5%	-3.3%				
Excess				0.1%	2.2%	4.2%	2.7%				
Treasury Protection	\$8.8	9.8%	10.0	9.1%	1.3%	4.2%	-7.3%	-0.2%			
Bloomberg Treasury 5+ Year				9.0%	1.2%	3.7%	-7.4%	-0.2%			
Excess				0.1%	0.1%	0.5%	0.1%	0.0%			
Laddered Bond + Cash	\$4.3	4.8%	5.0	1.4%	2.8%	5.2%	2.1%	1.8%	1.3%	1.7%	3.1%
ICE BofA US 3-Month Treasury Bill				1.4%	2.7%	5.0%	2.2%	1.9%	1.3%	1.5%	2.5%
Excess				0.0%	0.1%	0.2%	-0.1%	-0.0%	0.1%	0.2%	0.7%

Note:

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



Combined Funds Asset Class Performance Summary

Private Markets

	<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	1.6%	3.8%	8.0%	16.4%	12.6%	12.3%	14.0%	13.0%	13.4%
Private Markets -Uninvested(1)	1.3%	2.9%	5.9%	3.9%					
Private Equity	1.7%	4.8%	10.8%	17.1%	16.1%	15.9%	16.2%	14.6%	15.5%
Private Credit	2.1%	4.9%	8.5%	15.8%	11.3%	12.8%	12.9%	12.5%	
Resources	4.6%	3.1%	2.4%	16.8%	3.0%	2.0%	13.0%	12.7%	12.9%
Real Estate	-2.2%	-3.5%	-7.2%	12.9%	10.5%	11.3%	9.3%	9.3%	9.5%

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

December 31, 2023

The assets of the Combined Funds are allocated to public equity, fixed income, private markets, and cash. Each asset class may be further differentiated by geography, management style, and/or strategy. Managers are hired to manage the assets accordingly. This diversification is intended to reduce wide fluctuations in investment returns on a year-to-year basis and enhances the Funds' ability to meet or exceed the actuarial return target over the long-term.

The Combined Funds consist of the assets of active employees and retired members of the statewide retirement plans. The SBI commingles the assets of these plans into the Combined Funds to capture investment efficiencies. This sharing is accomplished by grouping managers by asset class, geography, and management style, into several Investment Pools. The individual funds participate in the Investment Pools by purchasing units which function much like the shares of a mutual fund.

While the vast majority of the units of these pools are owned by the Combined Funds, the Supplemental Investment Fund also owns units of these pools. The Supplemental Investment Funds are mutual fund-like investment vehicles which are used by investors in the Participant Directed Investment Program. Please refer to the Participant Directed Investment Program report for more information.

The performance information presented on the following pages for Public Equity and Fixed Income includes both the Combined Funds and Supplemental Investment Fund. The Private Markets is Combined Funds only. All assets in the Combined Funds are managed externally by investment management firms retained by contract.

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Domestic Equity

December 31, 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)	\$2,919,480,806	9.7%	13.4%	8.6%	20.9%	4.1%	12.9%	9.6%	8.3%	06/1996
Active Domestic Equity Benchmark			12.9	8.2	19.4	5.0	12.2	9.5	8.8	06/1996
Excess			0.5	0.4	1.5	-0.9	0.7	0.1	-0.5	
SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)	3,499,808,751	11.6	12.3	9.2	27.5	10.1	16.1	12.1	9.2	06/1996
Semi Passive Domestic Equity Benchmark			12.0	8.4	26.5	9.0	15.5	11.8	9.1	06/1996
Excess			0.3	0.7	1.0	1.1	0.6	0.3	0.1	
PASSIVE DOMESTIC EQUITY AGGREGATE (3)	23,772,051,104	78.7	12.0	8.5	26.5	9.0	15.5	11.7	9.3	06/1996
Passive Domestic Equity Benchmark			12.0	8.4	26.5	8.9	15.4	11.7	9.4	06/1996
Excess			0.0	0.0	0.0	0.0	0.0	0.0	-0.1	
TRANSITION AGGREGATE DOMESTIC EQUITY (4)	70									
TOTAL DOMESTIC EQUITY (5)	30,191,340,731	100.0	12.2	8.6	26.0	8.5	15.3	11.4	10.7	01/1984
Domestic Equity Benchmark			12.1	8.4	26.0	8.5	15.1	11.5	10.8	01/1984
Excess			0.1	0.1	0.1	-0.0	0.2	-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>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Total Domestic Equity					
ACTIVE DOMESTIC EQUITY AGGREGATE (1)	20.9%	-21.3%	18.5%	27.3%	27.6%
Active Domestic Equity Benchmark	19.4	-19.4	20.3	19.8	28.2
Excess	1.5	-1.9	-1.7	7.5	-0.6
SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)	27.5	-18.7	28.8	21.0	30.9
Semi Passive Domestic Equity Benchmark	26.5	-19.1	26.5	21.0	31.4
Excess	1.0	0.4	2.3	0.0	-0.5
PASSIVE DOMESTIC EQUITY AGGREGATE (3)	26.5	-19.2	26.5	20.8	31.3
Passive Domestic Equity Benchmark	26.5	-19.1	26.4	20.8	31.3
Excess	0.0	-0.0	0.1	0.0	0.0
TRANSITION AGGREGATE DOMESTIC EQUITY (4)					
TOTAL DOMESTIC EQUITY (5)	26.0	-19.4	25.8	21.7	30.7
Domestic Equity Benchmark	26.0	-19.2	25.7	20.8	30.8
Excess	0.1	-0.2	0.1	0.9	-0.1

(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	\$212,437,294	0.7%	22.9%	13.2%	52.0%	-6.8%	13.1%	10.9%	10.9%	01/2005
Russell 1000 Growth			14.2	10.6	42.7	8.9	19.5	14.9	11.6	01/2005
Excess			8.7	2.6	9.3	-15.6	-6.4	-4.0	-0.7	
WINSLOW	213,433,529	0.7	17.9	14.1	43.7	7.4	18.0	13.9	11.8	01/2005
Russell 1000 Growth			14.2	10.6	42.7	8.9	19.5	14.9	11.6	01/2005
Excess			3.7	3.5	1.0	-1.5	-1.5	-0.9	0.3	
RUSSELL 1000 GROWTH AGGREGATE (1)	425,870,823	1.4	20.3	13.7	47.7	-0.7	19.5	14.7	11.4	11/2003
Russell 1000 Growth			14.2	10.6	42.7	8.9	19.5	14.9	11.4	11/2003
Excess			6.2	3.1	5.1	-9.6	-0.0	-0.2	-0.1	

(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>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Active Large Cap Growth					
SANDS	52.0%	-49.3%	5.2%	71.0%	33.5%
Russell 1000 Growth	42.7	-29.1	27.6	38.5	36.4
Excess	9.3	-20.2	-22.4	32.5	-2.8
WINSLOW	43.7	-31.0	24.8	37.6	34.2
Russell 1000 Growth	42.7	-29.1	27.6	38.5	36.4
Excess	1.0	-1.8	-2.8	-0.9	-2.2
RUSSELL 1000 GROWTH AGGREGATE (1)	47.7	-41.3	12.8	81.3	37.3
Russell 1000 Growth	42.7	-29.1	27.6	38.5	36.4
Excess	5.1	-12.1	-14.8	42.8	0.9

(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	\$1,739,898,232	5.8%	12.4%	9.1%	26.9%	9.5%	15.7%	12.3%	10.5%	01/1995
Semi Passive Domestic Equity Benchmark			12.0	8.4	26.5	9.0	15.5	11.8	10.1	01/1995
Excess			0.5	0.6	0.4	0.6	0.1	0.5	0.4	
J.P. MORGAN	1,759,910,519	5.8	12.2	9.2	28.1	10.7	16.6	12.5	10.5	01/1995
Semi Passive Domestic Equity Benchmark			12.0	8.4	26.5	9.0	15.5	11.8	10.1	01/1995
Excess			0.2	0.8	1.6	1.7	1.1	0.7	0.4	
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE	3,499,808,751	11.6	12.3	9.2	27.5	10.1	16.1	12.1	9.2	06/1996
Semi Passive Domestic Equity Benchmark			12.0	8.4	26.5	9.0	15.5	11.8	9.1	06/1996
Excess			0.3	0.7	1.0	1.1	0.6	0.3	0.1	



	<u>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Semi-Passive Large Cap					
BLACKROCK	26.9%	-19.2%	28.3%	20.7%	30.4%
Semi Passive Domestic Equity Benchmark	26.5	-19.1	26.5	21.0	31.4
Excess	0.4	-0.1	1.8	-0.3	-1.0
J.P. MORGAN					
J.P. MORGAN	28.1	-18.1	29.3	21.2	31.3
Semi Passive Domestic Equity Benchmark	26.5	-19.1	26.5	21.0	31.4
Excess	1.6	1.0	2.8	0.3	-0.1
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE					
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE	27.5	-18.7	28.8	21.0	30.9
Semi Passive Domestic Equity Benchmark	26.5	-19.1	26.5	21.0	31.4
Excess	1.0	0.4	2.3	0.0	-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>
Active Large Cap Value										
BARROW HANLEY	\$374,482,057	1.2%	9.3%	8.4%	12.0%	13.1%	13.4%	9.7%	8.8%	04/2004
Russell 1000 Value			9.5	6.0	11.5	8.9	10.9	8.4	7.9	04/2004
Excess			-0.2	2.4	0.5	4.2	2.5	1.3	0.9	
LSV	328,843,058	1.1	8.8	6.7	10.5	10.3	11.0	8.7	8.8	04/2004
Russell 1000 Value			9.5	6.0	11.5	8.9	10.9	8.4	7.9	04/2004
Excess			-0.7	0.6	-0.9	1.5	0.1	0.3	0.8	
RUSSELL 1000 VALUE AGGREGATE	703,325,114	2.3	9.1	7.6	11.3	11.8	12.6	9.3	8.9	10/2003
Russell 1000 Value			9.5	6.0	11.5	8.9	10.9	8.4	8.6	10/2003
Excess			-0.4	1.5	-0.2	2.9	1.7	0.9	0.3	



	<u>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Active Large Cap Value					
BARROW HANLEY	12.0%	1.1%	27.7%	2.4%	26.9%
Russell 1000 Value	11.5	-7.5	25.2	2.8	26.5
Excess	0.5	8.6	2.5	-0.4	0.4
LSV					
LSV	10.5	-6.3	29.7	-1.3	26.9
Russell 1000 Value	11.5	-7.5	25.2	2.8	26.5
Excess	-0.9	1.3	4.5	-4.1	0.4
RUSSELL 1000 VALUE AGGREGATE					
RUSSELL 1000 VALUE AGGREGATE	11.3	-2.6	28.8	1.6	27.4
Russell 1000 Value	11.5	-7.5	25.2	2.8	26.5
Excess	-0.2	4.9	3.7	-1.2	0.9



	<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>
Active Small Cap Growth										
ARROWMARK	\$192,262,598	0.6%	15.7%	4.7%	19.9%	-0.8%	7.4%		10.0%	11/2016
Russell 2000 Growth			12.7	4.5	18.7	-3.5	9.2		9.4	11/2016
Excess			3.0	0.2	1.3	2.7	-1.8		0.6	
HOOD RIVER	199,425,859	0.7	15.9	5.9	21.9	3.1	17.1		14.8	11/2016
Russell 2000 Growth			12.7	4.5	18.7	-3.5	9.2		9.4	11/2016
Excess			3.2	1.4	3.3	6.6	7.8		5.4	
RICE HALL JAMES	179,144,462	0.6	13.5	4.0	14.3	-0.0	7.9		9.8	11/2016
Russell 2000 Growth			12.7	4.5	18.7	-3.5	9.2		9.4	11/2016
Excess			0.7	-0.4	-4.3	3.5	-1.3		0.4	
WELLINGTON	224,701,635	0.7	11.7	4.8	18.5	-4.0	9.8		9.5	11/2016
Russell 2000 Growth			12.7	4.5	18.7	-3.5	9.2		9.4	11/2016
Excess			-1.0	0.3	-0.1	-0.5	0.6		0.1	
RUSSELL 2000 GROWTH AGGREGATE	795,534,555	2.6	14.1	4.8	18.7	-0.6	10.6	6.9%	7.6	11/2003
Russell 2000 Growth			12.7	4.5	18.7	-3.5	9.2	7.2	8.4	11/2003
Excess			1.4	0.3	0.1	2.9	1.4	-0.3	-0.8	



	<u>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Active Small Cap Growth					
ARROWMARK	19.9%	-23.3%	6.1%	21.9%	20.1%
Russell 2000 Growth	18.7	-26.4	2.8	34.6	28.5
Excess	1.3	3.1	3.2	-12.8	-8.4
HOOD RIVER	21.9	-27.7	24.2	61.7	24.3
Russell 2000 Growth	18.7	-26.4	2.8	34.6	28.5
Excess	3.3	-1.4	21.4	27.0	-4.2
RICE HALL JAMES	14.3	-24.4	15.6	23.8	18.0
Russell 2000 Growth	18.7	-26.4	2.8	34.6	28.5
Excess	-4.3	2.0	12.8	-10.8	-10.5
WELLINGTON	18.5	-28.5	4.3	33.1	35.6
Russell 2000 Growth	18.7	-26.4	2.8	34.6	28.5
Excess	-0.1	-2.1	1.4	-1.5	7.1
RUSSELL 2000 GROWTH AGGREGATE	18.7	-26.3	12.4	35.4	24.6
Russell 2000 Growth	18.7	-26.4	2.8	34.6	28.5
Excess	0.1	0.0	9.5	0.8	-3.9



	<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>
Active Small Cap Value										
GOLDMAN SACHS	\$204,847,210	0.7%	13.6%	10.1%	11.9%	6.7%	8.9%	6.6%	8.6%	01/2004
Russell 2000 Value			15.3	11.8	14.6	7.9	10.0	6.8	7.7	01/2004
Excess			-1.7	-1.7	-2.8	-1.2	-1.1	-0.1	0.9	
HOTCHKIS AND WILEY	204,514,884	0.7	11.0	11.4	18.8	18.7	14.8	8.6	9.0	01/2004
Russell 2000 Value			15.3	11.8	14.6	7.9	10.0	6.8	7.7	01/2004
Excess			-4.3	-0.5	4.2	10.7	4.8	1.9	1.4	
MARTINGALE	173,784,044	0.6	14.5	13.7	20.7	16.2	12.6	8.4	8.3	01/2004
Russell 2000 Value			15.3	11.8	14.6	7.9	10.0	6.8	7.7	01/2004
Excess			-0.7	1.9	6.1	8.2	2.6	1.7	0.6	
PEREGRINE	206,731,316	0.7	12.1	7.9	9.2	7.1	9.8	6.5	9.3	07/2000
Russell 2000 Value			15.3	11.8	14.6	7.9	10.0	6.8	9.0	07/2000
Excess			-3.1	-3.9	-5.4	-0.8	-0.2	-0.3	0.4	
RUSSELL 2000 VALUE AGGREGATE	789,877,454	2.6	12.7	10.5	14.2	10.9	10.9	7.2	8.9	10/2003
Russell 2000 Value			15.3	11.8	14.6	7.9	10.0	6.8	8.4	10/2003
Excess			-2.6	-1.4	-0.5	3.0	0.9	0.5	0.5	



	<u>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Active Small Cap Value					
GOLDMAN SACHS	11.9%	-14.4%	27.0%	2.4%	23.2%
Russell 2000 Value	14.6	-14.5	28.3	4.6	22.4
Excess	-2.8	0.1	-1.3	-2.3	0.8
HOTCHKIS AND WILEY	18.8	3.1	36.5	-0.2	19.7
Russell 2000 Value	14.6	-14.5	28.3	4.6	22.4
Excess	4.2	17.6	8.2	-4.8	-2.7
MARTINGALE	20.7	-8.0	41.3	-4.6	21.1
Russell 2000 Value	14.6	-14.5	28.3	4.6	22.4
Excess	6.1	6.4	13.0	-9.2	-1.3
PEREGRINE	9.2	-12.5	28.6	7.3	21.1
Russell 2000 Value	14.6	-14.5	28.3	4.6	22.4
Excess	-5.4	2.0	0.3	2.7	-1.3
RUSSELL 2000 VALUE AGGREGATE	14.2	-9.4	31.8	1.5	21.3
Russell 2000 Value	14.6	-14.5	28.3	4.6	22.4
Excess	-0.5	5.1	3.5	-3.1	-1.1



	<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 All Cap										
ZEVENBERGEN (1)	\$204,872,859	0.7%	15.6%	9.2%	66.6%	-12.7%	16.6%	12.3%	11.2%	04/1994
Zevenbergen Custom Benchmark			14.1	10.3	41.2	9.9	20.2	15.2		04/1994
Excess			1.5	-1.1	25.4	-22.6	-3.6	-2.9		
ACTIVE RUSSELL 3000 GROWTH (2)										
ACTIVE RUSSELL 3000 GROWTH (2)	204,872,859	0.7	15.6	9.2	66.6	-12.7			-12.7	01/2021
Russell 3000 Growth TR			14.1	10.3	41.2	8.1			8.1	01/2021
Excess			1.5	-1.1	25.4	-20.8			-20.8	

(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>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Active All Cap					
ZEVENBERGEN (1)	66.6%	-55.7%	-9.7%	126.2%	43.0%
Zevenbergen Custom Benchmark	41.2	-29.0	32.3	38.5	36.4
Excess	25.4	-26.8	-42.0	87.7	6.7
ACTIVE RUSSELL 3000 GROWTH (2)					
ACTIVE RUSSELL 3000 GROWTH (2)	66.6	-55.7	-9.7		
Russell 3000 Growth TR	41.2	-29.0	25.8		
Excess	25.4	-26.8	-35.6		

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

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



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Total Passive Domestic Equity										
BLACKROCK RUSSELL 1000	\$22,868,764,961	75.7%	12.0%	8.5%	26.6%	9.0%	15.5%		13.8%	11/2016
RUSSELL 1000 (DAILY)			12.0	8.4	26.5	9.0	15.5		13.8	11/2016
Excess			0.0	0.0	0.0	0.0	-0.0		-0.0	
BLACKROCK RUSSELL 2000	76,791,749	0.3	14.0	8.0	16.7	2.7	10.4		7.8	11/2018
RUSSELL 2000 (DAILY)			14.0	8.2	16.9	2.2	10.0		7.3	11/2018
Excess			0.0	-0.2	-0.3	0.5	0.4		0.5	
BLACKROCK RUSSELL 3000 (1)	826,494,395	2.7	12.1	8.5	26.0	8.7	15.4	11.6%	9.9	07/1995
Passive Manager Benchmark			12.1	8.4	26.0	8.5	15.2	11.5	9.8	07/1995
Excess			0.1	0.1	0.1	0.2	0.2	0.1	0.1	
PASSIVE DOMESTIC EQUITY AGGREGATE (2)	23,772,051,104	78.7	12.0	8.5	26.5	9.0	15.5	11.7	9.3	06/1996
Passive Domestic Equity Benchmark			12.0	8.4	26.5	8.9	15.4	11.7	9.4	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>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Total Passive Domestic Equity					
BLACKROCK RUSSELL 1000	26.6%	-19.2%	26.5%	20.9%	31.4%
RUSSELL 1000 (DAILY)	26.5	-19.1	26.5	21.0	31.4
Excess	0.0	-0.0	0.1	-0.0	0.0
BLACKROCK RUSSELL 2000	16.7	-19.9	16.0	20.8	25.2
RUSSELL 2000 (DAILY)	16.9	-20.4	14.8	20.0	25.5
Excess	-0.3	0.6	1.2	0.8	-0.3
BLACKROCK RUSSELL 3000 (1)	26.0	-19.2	26.2	21.2	31.1
Passive Manager Benchmark	26.0	-19.2	25.7	20.9	31.0
Excess	0.1	0.0	0.5	0.3	0.0
PASSIVE DOMESTIC EQUITY AGGREGATE (2)	26.5	-19.2	26.5	20.8	31.3
Passive Domestic Equity Benchmark	26.5	-19.1	26.4	20.8	31.3
Excess	0.0	-0.0	0.1	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

December 31, 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)	\$10,174,601,074		9.0%	5.9%	17.8%	6.1%	9.9	5.2	5.2	01/1997
BENCHMARK DM			10.5	6.0	17.9	4.4	8.5	4.3	4.3	01/1997
Excess			-1.5	-0.0	-0.1	1.7	1.4	0.9	0.9	
EMERGING MARKETS (2)	3,499,725,746	24.6%	7.8	4.1	10.2	-5.0	4.0%	2.5%	5.2	11/1996
BENCHMARK EM			7.9	4.7	9.8	-5.1	3.7	2.7	5.4	11/1996
Excess			-0.1	-0.6	0.4	0.1	0.3	-0.2	-0.2	
ACWI EX-US AGGREGATE	414,108,580	2.9	9.5	5.5	17.9	5.1			5.1	01/2021
MSCI AC WORLD ex US (NET) - DAILY			9.8	5.6	15.6	1.5			1.5	01/2021
Excess			-0.3	-0.1	2.3	3.6			3.6	
CHINA ONLY AGGREGATE	138,720,682	1.0	-2.4	-3.2	-10.0	-12.9			-12.9	01/2021
MSCI China A			-4.1	-7.5	-13.5	-12.9			-12.9	01/2021
Excess			1.7	4.3	3.5	-0.0			-0.0	
TRANSITION AGGREGATE INTERNATIONAL EQUITY (3)	1,813,312	0.0								
TOTAL INTERNATIONAL EQUITY (4)	14,228,969,394	100.0	8.6	5.3	15.6	2.8	8.2	4.4	6.4	10/1992
International Equity Benchmark			9.8	5.6	15.6	1.5	7.1	3.8	5.8	10/1992
Excess			-1.1	-0.3	-0.1	1.3	1.1	0.6	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>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Total International Equity					
DEVELOPED MARKETS (1)	17.8%	-10.7%	13.5%	8.9	23.3
BENCHMARK DM	17.9	-14.3	12.6	7.6	22.5
Excess	-0.1	3.6	0.9	1.3	0.8
EMERGING MARKETS (2)	10.2	-21.1	-1.5	17.9%	20.3%
BENCHMARK EM	9.8	-20.1	-2.5	18.3	18.4
Excess	0.4	-1.0	1.1	-0.4	1.9
ACWI EX-US AGGREGATE	17.9	-12.6	12.8		
MSCI AC WORLD ex US (NET) - DAILY	15.6	-16.0	7.8		
Excess	2.3	3.4	4.9		
CHINA ONLY AGGREGATE	-10.0	-24.5	-2.9		
MSCI China A	-13.5	-25.9	3.2		
Excess	3.5	1.4	-6.1		
TRANSITION AGGREGATE INTERNATIONAL EQUITY (3)					
TOTAL INTERNATIONAL EQUITY (4)	15.6	-13.7	8.9	11.4	22.4
International Equity Benchmark	15.6	-16.0	7.8	10.5	21.5
Excess	-0.1	2.3	1.1	0.8	0.9

(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	\$555,513,346	3.9%	8.7%	6.4%	12.4%	3.7%	8.2%	6.7%	6.4%	07/2005
BENCHMARK DM			10.5	6.0	17.9	4.4	8.5	4.3	5.2	07/2005
Excess			-1.8	0.5	-5.5	-0.7	-0.2	2.4	1.3	
COLUMBIA	487,497,135	3.4	11.3	6.0	21.1	5.6	11.8	6.4	4.1	03/2000
BENCHMARK DM			10.5	6.0	17.9	4.4	8.5	4.3	3.9	03/2000
Excess			0.8	0.0	3.2	1.1	3.3	2.1	0.2	
FIDELITY	478,960,182	3.4	10.0	5.1	18.0	3.3	10.1	5.2	6.6	07/2005
BENCHMARK DM			10.5	6.0	17.9	4.4	8.5	4.3	5.2	07/2005
Excess			-0.5	-0.8	0.1	-1.2	1.6	0.9	1.4	
JP MORGAN	358,561,738	2.5	11.6	4.8	17.1	2.4	9.5	4.6	5.4	07/2005
BENCHMARK DM			10.5	6.0	17.9	4.4	8.5	4.3	5.2	07/2005
Excess			1.1	-1.2	-0.9	-2.0	1.1	0.3	0.2	
MARATHON	408,562,394	2.9	9.3	6.2	18.2	5.4	9.3	5.3	7.8	11/1993
BENCHMARK DM			10.5	6.0	17.9	4.4	8.5	4.3	5.2	11/1993
Excess			-1.2	0.3	0.3	1.0	0.8	1.0	2.6	



	<u>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Active Developed Markets					
ACADIAN	12.4%	-12.5%	13.6%	11.7%	19.1%
BENCHMARK DM	17.9	-14.3	12.6	7.6	22.5
Excess	-5.5	1.8	0.9	4.2	-3.4
COLUMBIA	21.1	-15.0	14.2	15.0	28.9
BENCHMARK DM	17.9	-14.3	12.6	7.6	22.5
Excess	3.2	-0.7	1.6	7.4	6.4
FIDELITY	18.0	-17.4	13.0	15.4	27.1
BENCHMARK DM	17.9	-14.3	12.6	7.6	22.5
Excess	0.1	-3.2	0.4	7.8	4.6
JP MORGAN	17.1	-19.0	13.3	14.2	28.5
BENCHMARK DM	17.9	-14.3	12.6	7.6	22.5
Excess	-0.9	-4.7	0.7	6.6	6.0
MARATHON	18.2	-12.1	12.8	7.6	23.5
BENCHMARK DM	17.9	-14.3	12.6	7.6	22.5
Excess	0.3	2.2	0.2	0.1	1.0



	<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)	\$2,293,019,553	16.1%	10.1%	6.0%	17.6%	3.9%	9.4%	5.1%	5.7%	06/1996
BENCHMARK DM			10.5%	6.0%	17.9%	4.4%	8.5%	4.3%	2.6%	06/1996
Excess			-0.4%	-0.0%	-0.4%	-0.5%	0.9%	0.8%	3.1%	
SSgA DEVELOPED MARKETS PASSIVE	\$7,894,476,655	55.5%	10.6%	6.1%	18.5%	4.9%	9.0%	4.8%		
BENCHMARK DM			10.5%	6.0%	17.9%	4.4%	8.5%	4.3%		
Excess			0.1%	0.1%	0.5%	0.5%	0.5%	0.4%		
RECORD CURRENCY (2)	-\$12,895,135	-0.1%	-1.5%	-0.2%	-0.5%	1.5%				10/2020
DEVELOPED MARKETS TOTAL (3)	\$10,174,601,074		9.0%	5.9%	17.8%	6.1%	9.9	5.2	5.2	01/1997
BENCHMARK DM			10.5%	6.0%	17.9%	4.4%	8.5	4.3	4.3	01/1997
Excess			-1.5%	-0.0%	-0.1%	1.7%	1.4	0.9	0.9	

(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.

(3) 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.



	<u>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Total Developed Markets					
Active Developed Markets Aggregate	17.6%	-15.2%	12.5%	12.2%	24.4%
BENCHMARK DM	17.9%	-14.3%	12.6%	7.6%	22.5%
Excess	-0.4%	-0.9%	-0.1%	4.6%	1.9%
SSgA DEVELOPED MARKETS PASSIVE	18.5%	-13.8%	13.0%	8.2%	23.0%
BENCHMARK DM	17.9%	-14.3%	12.6%	7.6%	22.5%
Excess	0.5%	0.5%	0.4%	0.6%	0.5%
DEVELOPED MARKETS TOTAL	17.8%	-10.7%	13.5%	8.9	23.3
BENCHMARK DM	17.9%	-14.3%	12.6%	7.6	22.5
Excess	-0.1%	3.6%	0.9%	1.3	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 Emerging Markets										
MARTIN CURRIE	\$376,655,404	2.6%	7.7%	-0.3%	5.8%	-8.8%	4.1%		4.4%	04/2017
BENCHMARK EM			7.9	4.7	9.8	-5.1	3.7		3.5	04/2017
Excess			-0.1	-5.0	-4.1	-3.7	0.4		0.9	
MACQUARIE	379,543,361	2.7	12.2	6.8	16.0	-5.9	5.0		4.7	04/2017
BENCHMARK EM			7.9	4.7	9.8	-5.1	3.7		3.5	04/2017
Excess			4.3	2.1	6.1	-0.8	1.3		1.2	
MORGAN STANLEY	475,929,265	3.3	9.1	4.8	10.8	-4.4	4.0	2.7%	7.8	01/2001
BENCHMARK EM			7.9	4.7	9.8	-5.1	3.7	2.7	7.6	01/2001
Excess			1.2	0.1	1.0	0.7	0.3	0.1	0.2	
NEUBERGER BERMAN	332,604,648	2.3	6.6	2.1	5.9	-8.0	1.3		1.6	04/2017
BENCHMARK EM			7.9	4.7	9.8	-5.1	3.7		3.5	04/2017
Excess			-1.3	-2.6	-3.9	-2.9	-2.4		-1.9	
PZENA	565,292,788	4.0	6.2	7.4	19.7	6.6	8.1		6.5	04/2017
BENCHMARK EM			7.9	4.7	9.8	-5.1	3.7		3.5	04/2017
Excess			-1.6	2.7	9.9	11.7	4.4		3.0	
ROCK CREEK	311,939,089	2.2	5.4	2.5	5.0	-7.1	3.6		2.4	04/2017
BENCHMARK EM			7.9	4.7	9.8	-5.1	3.7		3.5	04/2017
Excess			-2.5	-2.2	-4.9	-2.0	-0.0		-1.1	



	<u>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Active Emerging Markets					
MARTIN CURRIE	5.8%	-25.7%	-3.5%	26.5%	27.3%
BENCHMARK EM	9.8	-20.1	-2.5	18.3	18.4
Excess	-4.1	-5.6	-1.0	8.2	8.8
MACQUARIE	16.0	-26.5	-2.2	24.2	23.2
BENCHMARK EM	9.8	-20.1	-2.5	18.3	18.4
Excess	6.1	-6.4	0.3	5.9	4.7
MORGAN STANLEY	10.8	-23.8	3.5	15.7	20.4
BENCHMARK EM	9.8	-20.1	-2.5	18.3	18.4
Excess	1.0	-3.7	6.0	-2.6	1.9
NEUBERGER BERMAN	5.9	-22.1	-5.6	14.2	19.7
BENCHMARK EM	9.8	-20.1	-2.5	18.3	18.4
Excess	-3.9	-2.0	-3.1	-4.1	1.3
PZENA	19.7	-7.4	9.3	7.7	13.4
BENCHMARK EM	9.8	-20.1	-2.5	18.3	18.4
Excess	9.9	12.7	11.8	-10.6	-5.1
ROCK CREEK	5.0	-19.4	-5.2	22.0	22.3
BENCHMARK EM	9.8	-20.1	-2.5	18.3	18.4
Excess	-4.9	0.7	-2.7	3.7	3.9



	<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>
Total Emerging Markets										
ACTIVE EMERGING MARKETS AGGREGATE	\$2,441,964,554	17.2%	7.8%	4.0%	10.6%	-4.8%	4.2%	2.3%	3.3%	01/2012
BENCHMARK EM			7.9	4.7	9.8	-5.1	3.7	2.7	3.4	01/2012
Excess			-0.0	-0.7	0.8	0.2	0.6	-0.4	-0.1	
SSGA EMERGING MARKETS PASSIVE	1,057,761,192	7.4	7.6	4.3	9.4	-5.4	3.4	2.6	3.4	01/2012
BENCHMARK EM			7.9	4.7	9.8	-5.1	3.7	2.7	3.4	01/2012
Excess			-0.3	-0.4	-0.4	-0.3	-0.3	-0.1	-0.1	
EMERGING MARKETS TOTAL	3,499,725,746	24.6	7.8	4.1	10.2	-5.0	4.0	2.5	5.2	11/1996
BENCHMARK EM			7.9	4.7	9.8	-5.1	3.7	2.7	5.4	11/1996
Excess			-0.1	-0.6	0.4	0.1	0.3	-0.2	-0.2	



	<u>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Total Emerging Markets					
ACTIVE EMERGING MARKETS AGGREGATE	10.6%	-21.4%	-0.9%	17.6%	21.4%
BENCHMARK EM	9.8	-20.1	-2.5	18.3	18.4
Excess	0.8	-1.3	1.6	-0.7	3.0
SSGA EMERGING MARKETS PASSIVE	9.4	-20.4	-2.9	18.3	18.1
BENCHMARK EM	9.8	-20.1	-2.5	18.3	18.4
Excess	-0.4	-0.3	-0.3	0.0	-0.3
EMERGING MARKETS TOTAL	10.2	-21.1	-1.5	17.9	20.3
BENCHMARK EM	9.8	-20.1	-2.5	18.3	18.4
Excess	0.4	-1.0	1.1	-0.4	1.9



	<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>
Active ACWI ex-US										
EARNEST PARTNERS ACWI EX US	\$414,108,580	2.9%	9.5%	5.5%	17.9%	5.1%			5.1%	01/2021
MSCI AC WORLD ex US (NET) - DAILY			9.8%	5.6%	15.6%	1.5%			1.5%	01/2021
Excess			-0.3%	-0.1%	2.3%	3.6%			3.6%	
TOTAL ACWI EX-US AGGREGATE										
TOTAL ACWI EX-US AGGREGATE	\$414,108,580	2.9%	9.5%	5.5%	17.9%	5.1%			5.1%	01/2021
MSCI AC WORLD ex US (NET) - DAILY			9.8%	5.6%	15.6%	1.5%			1.5%	01/2021
Excess			-0.3%	-0.1%	2.3%	3.6%			3.6%	



	<u>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Active ACWI ex-US					
EARNEST PARTNERS ACWI EX US	17.9%	-12.6%	12.8%		
MSCI AC WORLD ex US (NET) - DAILY	15.6	-16.0	7.8		
Excess	2.3	3.4	4.9		
TOTAL ACWI EX-US AGGREGATE	17.9	-12.6	12.8		
MSCI AC WORLD ex US (NET) - DAILY	15.6	-16.0	7.8		
Excess	2.3	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	\$138,720,682	1.0%	-2.4%	-3.2%	-10.0%	-12.9%			-12.9%	01/2021
MSCI China A			-4.1	-7.5	-13.5	-12.9			-12.9	01/2021
Excess			1.7	4.3	3.5	-0.0			-0.0	
CHINA ONLY AGGREGATE	138,720,682	1.0	-2.4	-3.2	-10.0	-12.9			-12.9	01/2021
MSCI China A			-4.1	-7.5	-13.5	-12.9			-12.9	01/2021
Excess			1.7	4.3	3.5	-0.0			-0.0	



	<u>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
China Only Managers					
EARNEST PARTNERS CHINA	-10.0%	-24.5%	-2.9%		
MSCI China A	-13.5	-25.9	3.2		
Excess	3.5	1.4	-6.1		
CHINA ONLY AGGREGATE					
	-10.0	-24.5	-2.9		
MSCI China A	-13.5	-25.9	3.2		
Excess	3.5	1.4	-6.1		

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Global Equity

December 31, 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	\$389,706,885	39.1%	8.3%	4.3%	14.1%	6.5%			6.5%	01/2021
MSCI AC WORLD NET USD DAILY			11.0	7.3	22.2	5.7			5.7	01/2021
Excess			-2.7	-2.9	-8.1	0.7			0.7	
BAILLIE GIFFORD	238,692,422	23.9	16.4	6.9	38.0	-8.9			-8.9	01/2021
MSCI AC WORLD NET USD DAILY			11.0	7.3	22.2	5.7			5.7	01/2021
Excess			5.4	-0.3	15.8	-14.7			-14.7	
MARTIN CURRIE INVESTMENTS - GLOBAL EQ	368,490,804	37.0	13.6	0.5	23.8	-2.1			-2.1	01/2021
MSCI AC WORLD NET USD DAILY			11.0	7.3	22.2	5.7			5.7	01/2021
Excess			2.6	-6.8	1.6	-7.9			-7.9	
GLOBAL EQUITY	996,890,111	100.0	12.0	3.5	22.6	-1.0			-1.0	01/2021
MSCI AC WORLD NET USD DAILY			11.0	7.3	22.2	5.7			5.7	01/2021
Excess			1.0	-3.8	0.4	-6.7			-6.7	



	<u>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Global Equity Managers					
ARIEL INVESTMENTS	14.1%	-5.6%	12.1%		
MSCI AC WORLD NET USD DAILY	22.2	-18.4	18.5		
Excess	-8.1	12.8	-6.5		
BAILLIE GIFFORD	38.0	-46.9	3.1		
MSCI AC WORLD NET USD DAILY	22.2	-18.4	18.5		
Excess	15.8	-28.5	-15.5		
MARTIN CURRIE INVESTMENTS - GLOBAL EQ	23.8	-32.9	12.8		
MSCI AC WORLD NET USD DAILY	22.2	-18.4	18.5		
Excess	1.6	-14.5	-5.8		
GLOBAL EQUITY	22.6	-27.7	9.6		
MSCI AC WORLD NET USD DAILY	22.2	-18.4	18.5		
Excess	0.4	-9.4	-8.9		

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Core/Core Plus Bonds

December 31, 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)	\$1,961,099,372	41.0%	7.2%	4.1%	7.3%	-2.3%			-1.6%	11/2020
Bloomberg U.S. Aggregate			6.8	3.4	5.5	-3.3			-2.8	11/2020
Excess			0.4	0.8	1.7	1.0			1.2	
CORE PLUS (1)	2,822,495,254	59.0	7.6	3.7	6.8	-3.6			-2.7	11/2020
Bloomberg U.S. Aggregate			6.8	3.4	5.5	-3.3			-2.8	11/2020
Excess			0.8	0.4	1.3	-0.3			0.1	
TRANSITION AGGREGATE CORE BONDS (2)	20,155									
TOTAL CORE/CORE PLUS BONDS (3)	4,783,614,781	100.0	7.4	3.9	7.0	-3.1	1.8%	2.4%	6.7	07/1984
Bloomberg U.S. Aggregate			6.8	3.4	5.5	-3.3	1.1	1.8	6.4	07/1984
Excess			0.6	0.5	1.5	0.2	0.7	0.5	0.4	

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

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

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

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



	<u>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Bonds					
CORE (1)	7.3%	-12.3%	-1.0%		
Bloomberg U.S. Aggregate	5.5	-13.0	-1.5		
Excess	1.7	0.7	0.5		
CORE PLUS (1)	6.8	-15.2	-1.1		
Bloomberg U.S. Aggregate	5.5	-13.0	-1.5		
Excess	1.3	-2.2	0.4		
TRANSITION AGGREGATE CORE BONDS (2)					
TOTAL CORE/CORE PLUS BONDS (3)	7.0	-14.1	-1.1	9.7%	9.7%
Bloomberg U.S. Aggregate	5.5	-13.0	-1.5	7.5	8.7
Excess	1.5	-1.1	0.5	2.2	1.0

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

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

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

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



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Core										
DODGE & COX	\$1,036,339,307	21.7%	7.3%	4.6%	8.0%	-1.7%	2.7%	2.8%	5.2%	02/2000
Bloomberg U.S. Aggregate			6.8	3.4	5.5	-3.3	1.1	1.8	4.1	02/2000
Excess			0.5	1.2	2.5	1.6	1.5	1.0	1.1	
BLACKROCK	924,760,065	19.3	7.0	3.6	6.4	-3.1	1.5	2.0	4.4	04/1996
Bloomberg U.S. Aggregate			6.8	3.4	5.5	-3.3	1.1	1.8	4.3	04/1996
Excess			0.2	0.2	0.9	0.2	0.4	0.2	0.1	
CORE	1,961,099,372	41.0	7.2	4.1	7.3	-2.3			-1.6	11/2020
Bloomberg U.S. Aggregate			6.8	3.4	5.5	-3.3			-2.8	11/2020
Excess			0.4	0.8	1.7	1.0			1.2	

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



	<u>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Active Core					
DODGE & COX	8.0%	-11.3%	-0.7%	9.4%	9.6%
Bloomberg U.S. Aggregate	5.5	-13.0	-1.5	7.5	8.7
Excess	2.5	1.7	0.8	1.8	0.9
BLACKROCK					
BLACKROCK	6.4	-13.4	-1.3	8.3	9.3
Bloomberg U.S. Aggregate	5.5	-13.0	-1.5	7.5	8.7
Excess	0.9	-0.4	0.2	0.8	0.6
CORE					
CORE	7.3	-12.3	-1.0		
Bloomberg U.S. Aggregate	5.5	-13.0	-1.5		
Excess	1.7	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	\$926,360,733	19.4%	7.0%	3.4%	6.3%	-3.4%	1.5%	2.1%	4.8%	07/1993
Bloomberg U.S. Aggregate			6.8	3.4	5.5	-3.3	1.1	1.8	4.4	07/1993
Excess			0.2	-0.0	0.8	-0.1	0.4	0.3	0.3	
NEUBERGER	912,010,266	19.1	7.5	4.0	6.7	-2.9	1.8	2.2	5.7	07/1988
Bloomberg U.S. Aggregate			6.8	3.4	5.5	-3.3	1.1	1.8	5.4	07/1988
Excess			0.6	0.6	1.2	0.4	0.7	0.4	0.3	
WESTERN	984,124,254	20.6	8.3	3.9	7.4	-4.4	1.5	2.5	7.4	07/1984
Bloomberg U.S. Aggregate			6.8	3.4	5.5	-3.3	1.1	1.8	6.4	07/1984
Excess			1.4	0.5	1.8	-1.1	0.4	0.7	1.0	
CORE PLUS	2,822,495,254	59.0	7.6	3.7	6.8	-3.6			-2.7	11/2020
Bloomberg U.S. Aggregate			6.8	3.4	5.5	-3.3			-2.8	11/2020
Excess			0.8	0.4	1.3	-0.3			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>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Core Plus Bonds					
GOLDMAN SACHS	6.3%	-13.9%	-1.5%	9.0%	9.6%
Bloomberg U.S. Aggregate	5.5	-13.0	-1.5	7.5	8.7
Excess	0.8	-0.9	0.0	1.5	0.9
NEUBERGER	6.7	-13.8	-0.6	9.9	9.0
Bloomberg U.S. Aggregate	5.5	-13.0	-1.5	7.5	8.7
Excess	1.2	-0.8	1.0	2.4	0.3
WESTERN	7.4	-17.6	-1.3	10.9	11.1
Bloomberg U.S. Aggregate	5.5	-13.0	-1.5	7.5	8.7
Excess	1.8	-4.6	0.3	3.4	2.4
CORE PLUS	6.8	-15.2	-1.1		
Bloomberg U.S. Aggregate	5.5	-13.0	-1.5		
Excess	1.3	-2.2	0.4		

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Return Seeking Bonds

December 31, 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	\$892,503,085	20.6%	8.5%	4.9%	9.0%	-2.2%			-1.9%	12/2020
Credit Plus Benchmark			8.0	5.1	8.6	-2.2			-2.1	12/2020
Excess			0.6	-0.3	0.5	-0.1			0.2	
PIMCO CREDIT PLUS	865,499,769	20.0	7.8	5.0	8.4	-1.9			-1.6	12/2020
Credit Plus Benchmark			8.0	5.1	8.6	-2.2			-2.1	12/2020
Excess			-0.2	-0.2	-0.1	0.3			0.5	
CREDIT PLUS	1,758,002,854	40.6	8.2	4.9	8.7	-2.1			-1.7	12/2020
Credit Plus Benchmark			8.0	5.1	8.6	-2.2			-2.1	12/2020
Excess			0.2	-0.2	0.2	0.1			0.3	
BLACKROCK OPPORTUNISTIC	515,804,123	11.9	4.9	5.2	7.7	0.7			0.9	12/2020
ICE BofA US 3-Month Treasury Bill			1.4	2.7	5.0	2.2			2.1	12/2020
Excess			3.6	2.5	2.7	-1.4			-1.2	
ASHMORE EMERGING MARKET	308,703,213	7.1	10.1	5.9	10.9	-6.2			-6.2	01/2021
JPM JEMB Sovereign-only 50-50			8.6	5.6	11.9	-3.3			-3.3	01/2021
Excess			1.5	0.3	-1.0	-2.8			-2.8	
TCW SECURITIZED CREDIT	413,525,572	9.6	3.1	3.6	7.1				1.2	07/2021
ICE BofA US 3-Month Treasury Bill			1.4	2.7	5.0				2.6	07/2021
Excess			1.7	0.9	2.1				-1.4	



	<u>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Return Seeking Bonds Managers					
COLUMBIA CREDIT PLUS	9.0%	-15.3%	1.1%		
Credit Plus Benchmark	8.6	-13.7	0.0		
Excess	0.5	-1.6	1.1		
PIMCO CREDIT PLUS	8.4	-13.6	0.8		
Credit Plus Benchmark	8.6	-13.7	0.0		
Excess	-0.1	0.1	0.7		
CREDIT PLUS	8.7	-14.5	0.9		
Credit Plus Benchmark	8.6	-13.7	0.0		
Excess	0.2	-0.7	0.9		
BLACKROCK OPPORTUNISTIC	7.7	-5.4	0.3		
ICE BofA US 3-Month Treasury Bill	5.0	1.5	0.0		
Excess	2.7	-6.8	0.2		
ASHMORE EMERGING MARKET	10.9	-17.2	-10.1		
JPM JEMB Sovereign-only 50-50	11.9	-14.8	-5.3		
Excess	-1.0	-2.4	-4.8		
TCW SECURITIZED CREDIT	7.1	-4.6			
ICE BofA US 3-Month Treasury Bill	5.0	1.5			
Excess	2.1	-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	\$311,090,629	7.2%	6.3%	6.6%	11.7%	1.2%			1.2%	01/2021
Multi-Asset Credit Benchmark			6.4	6.8	12.3	1.2			1.2	01/2021
Excess			-0.0	-0.2	-0.6	-0.1			-0.1	
PGIM	361,264,587	8.3	7.0	7.1	12.3	0.8			0.8	01/2021
Multi-Asset Credit Benchmark			6.4	6.8	12.3	1.2			1.2	01/2021
Excess			0.6	0.3	-0.0	-0.4			-0.4	
MULTI-ASSET CREDIT	672,355,216	15.5	6.7	6.9	12.0	1.0			1.0	01/2021
Multi-Asset Credit Benchmark			6.4	6.8	12.3	1.2			1.2	01/2021
Excess			0.3	0.1	-0.3	-0.2			-0.2	
KKR	331,183,873	7.7	6.5	7.2	13.9	2.0			2.0	01/2021
ICE BofA US Cash Pay HY Constrained			7.1	7.7	13.4	2.0			2.0	01/2021
Excess			-0.5	-0.5	0.5	-0.0			-0.0	
OAKTREE	328,143,182	7.6	6.9	7.5	12.4	2.1			2.1	01/2021
ICE BofA US Cash Pay HY Constrained			7.1	7.7	13.4	2.0			2.0	01/2021
Excess			-0.2	-0.1	-1.0	0.1			0.1	
HIGH YIELD	659,327,055	15.2	6.7	7.4	13.2	2.0			2.0	01/2021
ICE BofA US Cash Pay HY Constrained			7.1	7.7	13.4	2.0			2.0	01/2021
Excess			-0.4	-0.3	-0.2	0.0			0.0	



	<u>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Return Seeking Bonds Managers					
PAYDEN RYGEL	11.7%	-9.6%	2.6%		
Multi-Asset Credit Benchmark	12.3	-10.0	2.7		
Excess	-0.6	0.4	-0.1		
PGIM	12.3	-11.5	3.2		
Multi-Asset Credit Benchmark	12.3	-10.0	2.7		
Excess	-0.0	-1.5	0.5		
MULTI-ASSET CREDIT	12.0	-10.6	2.9		
Multi-Asset Credit Benchmark	12.3	-10.0	2.7		
Excess	-0.3	-0.6	0.2		
KKR	13.9	-11.0	4.7		
ICE BofA US Cash Pay HY Constrained	13.4	-11.1	5.3		
Excess	0.5	0.1	-0.6		
OAKTREE	12.4	-9.5	4.5		
ICE BofA US Cash Pay HY Constrained	13.4	-11.1	5.3		
Excess	-1.0	1.6	-0.8		
HIGH YIELD	13.2	-10.3	4.6		
ICE BofA US Cash Pay HY Constrained	13.4	-11.1	5.3		
Excess	-0.2	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	\$1,758,002,854	40.6%	8.2%	4.9%	8.7%	-2.1%			-1.7%	12/2020
Credit Plus Benchmark			8.0	5.1	8.6	-2.2			-2.1	12/2020
Excess			0.2	-0.2	0.2	0.1			0.3	
OPPORTUNISTIC FI	515,804,123	11.9	4.9	5.2	7.7	0.7			0.9	12/2020
ICE BofA US 3-Month Treasury Bill			1.4	2.7	5.0	2.2			2.1	12/2020
Excess			3.6	2.5	2.7	-1.4			-1.2	
EMERGING MARKET DEBT	308,703,213	7.1	10.1	5.9	10.9	-6.2			-6.2	01/2021
JPM JEMB Sovereign-only 50-50			8.6	5.6	11.9	-3.3			-3.3	01/2021
Excess			1.5	0.3	-1.0	-2.8			-2.8	
SECURITIZED CREDIT	413,525,572	9.6	3.1	3.6	7.1				1.2	06/2021
ICE BofA US 3-Month Treasury Bill			1.4	2.7	5.0				2.5	06/2021
Excess			1.7	0.9	2.1				-1.3	
MULTI-ASSET CREDIT	672,355,216	15.5	6.7	6.9	12.0	1.0			1.0	01/2021
Multi-Asset Credit Benchmark			6.4	6.8	12.3	1.2			1.2	01/2021
Excess			0.3	0.1	-0.3	-0.2			-0.2	
HIGH YIELD	659,327,055	15.2	6.7	7.4	13.2	2.0			2.0	01/2021
ICE BofA US Cash Pay HY Constrained			7.1	7.7	13.4	2.0			2.0	01/2021
Excess			-0.4	-0.3	-0.2	0.0			0.0	
RETURN SEEKING BONDS (1)	4,327,863,749	100.0	7.0	5.6	9.8	-0.6			-0.3	12/2020
Return Seeking Fixed Income Benchmark			6.2	5.3	9.3	-0.2			-0.0	12/2020
Excess			0.8	0.3	0.5	-0.4			-0.3	



	<u>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Return Seeking Bonds					
CREDIT PLUS	8.7%	-14.5%	0.9%		
Credit Plus Benchmark	8.6	-13.7	0.0		
Excess	0.2	-0.7	0.9		
OPPORTUNISTIC FI	7.7	-5.4	0.3		
ICE BofA US 3-Month Treasury Bill	5.0	1.5	0.0		
Excess	2.7	-6.8	0.2		
EMERGING MARKET DEBT	10.9	-17.2	-10.1		
JPM JEMB Sovereign-only 50-50	11.9	-14.8	-5.3		
Excess	-1.0	-2.4	-4.8		
SECURITIZED CREDIT	7.1	-4.6			
ICE BofA US 3-Month Treasury Bill	5.0	1.5			
Excess	2.1	-6.1			
MULTI-ASSET CREDIT	12.0	-10.6	2.9		
Multi-Asset Credit Benchmark	12.3	-10.0	2.7		
Excess	-0.3	-0.6	0.2		
HIGH YIELD	13.2	-10.3	4.6		
ICE BofA US Cash Pay HY Constrained	13.4	-11.1	5.3		
Excess	-0.2	0.8	-0.7		
RETURN SEEKING BONDS (1)	9.8	-11.3	0.9		
Return Seeking Fixed Income Benchmark	9.3	-9.8	0.8		
Excess	0.5	-1.6	0.1		

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Treasuries

December 31, 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	\$2,925,486,669	33.4%	9.1%	1.2%	4.1%	-7.4%	-0.3%		0.1%	02/2018
Bloomberg Treasury 5+ Year			9.0	1.2	3.7	-7.4	-0.2		0.2	02/2018
Excess			0.1	-0.0	0.5	-0.1	-0.1		-0.1	
GOLDMAN SACHS	2,585,630,620	29.5	9.0	1.4	4.4	-7.3	-0.1		0.3	02/2018
Bloomberg Treasury 5+ Year			9.0	1.2	3.7	-7.4	-0.2		0.2	02/2018
Excess			-0.1	0.1	0.7	0.1	0.1		0.0	
NEUBERGER	3,239,904,238	37.0	9.2	1.3	4.1	-7.2	-0.1		0.3	02/2018
Bloomberg Treasury 5+ Year			9.0	1.2	3.7	-7.4	-0.2		0.2	02/2018
Excess			0.2	0.1	0.4	0.1	0.1		0.0	
TOTAL TREASURIES	8,751,021,526	100.0	9.1	1.3	4.2	-7.3	-0.2		0.2	02/2018
Bloomberg Treasury 5+ Year			9.0	1.2	3.7	-7.4	-0.2		0.2	02/2018
Excess			0.1	0.1	0.5	0.1	0.0		-0.0	



	<u>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Treasuries Managers					
BLACKROCK	4.1%	-20.6%	-4.0%	12.5%	10.4%
Bloomberg Treasury 5+ Year	3.7	-20.3	-3.8	12.8	10.4
Excess	0.5	-0.3	-0.2	-0.3	-0.1
GOLDMAN SACHS	4.4	-20.6	-3.9	12.7	10.6
Bloomberg Treasury 5+ Year	3.7	-20.3	-3.8	12.8	10.4
Excess	0.7	-0.3	-0.1	-0.1	0.1
NEUBERGER	4.1	-20.5	-3.4	12.8	10.4
Bloomberg Treasury 5+ Year	3.7	-20.3	-3.8	12.8	10.4
Excess	0.4	-0.2	0.4	-0.1	-0.0
TOTAL TREASURIES	4.2	-20.6	-3.7	12.7	10.4
Bloomberg Treasury 5+ Year	3.7	-20.3	-3.8	12.8	10.4
Excess	0.5	-0.3	0.0	-0.2	0.0

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Laddered Bonds + Cash

December 31, 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	\$1,016,979,108	23.7%	1.4%	5.2%	2.0%			1.9%	11/2020
ICE BofA US 3-Month Treasury Bill			1.4	5.0	2.2			2.0	11/2020
Excess			0.0	0.2	-0.2			-0.1	
Goldman Sachs Ladder Bond	1,018,166,263	23.7	1.4	5.2	2.0			1.9	11/2020
ICE BofA US 3-Month Treasury Bill			1.4	5.0	2.2			2.0	11/2020
Excess			0.0	0.2	-0.1			-0.1	
Treasury Ladder Aggregate	2,035,145,371	47.4	1.4	5.2	2.0			1.9	11/2020
ICE BofA US 3-Month Treasury Bill			1.4	5.0	2.2			2.0	11/2020
Excess			0.0	0.2	-0.1			-0.1	
Combined Funds STIF	2,187,391,700	50.9	1.4	5.3	2.4	2.0%	1.3%	1.6	01/2004
iMoneyNet Money Fund Average-All Taxable			1.3	4.8	2.0	1.7	1.0	1.3	01/2004
Excess			0.1	0.5	0.3	0.3	0.3	0.4	
TEACHERS RETIREMENT CD REPO	74,286,623	1.7	1.4	5.2	2.2	2.0	1.4	1.3	02/2012
ICE BofA US 3-Month Treasury Bill			1.4	5.0	2.2	1.9	1.3	1.1	02/2012
Excess			0.1	0.2	0.1	0.2	0.2	0.2	
Laddered Bond + Cash	4,297,180,710	100.0	1.4	5.2	2.1	1.8	1.3	4.2	12/1977
ICE BofA US 3-Month Treasury Bill			1.4	5.0	2.2	1.9	1.3	4.4	12/1977
Excess			0.0	0.2	-0.1	-0.0	0.1	-0.2	



	<u>2023 Calendar Return</u>	<u>2022 Calendar Return</u>	<u>2021 Calendar Return</u>	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>
Laddered Bond and Cash Managers					
Neuberger Berman Ladder Bond	5.2%	0.8%	0.0%		
ICE BofA US 3-Month Treasury Bill	5.0	1.5	0.0		
Excess	0.2	-0.6	-0.0		
Goldman Sachs Ladder Bond	5.2	0.9	0.1		
ICE BofA US 3-Month Treasury Bill	5.0	1.5	0.0		
Excess	0.2	-0.5	0.0		
Treasury Ladder Aggregate	5.2	0.9	0.0		
ICE BofA US 3-Month Treasury Bill	5.0	1.5	0.0		
Excess	0.2	-0.6	-0.0		
Combined Funds STIF	5.3	1.7	0.1	0.5%	2.3%
iMoneyNet Money Fund Average-All Taxable	4.8	1.4	0.0	0.3	1.9
Excess	0.5	0.4	0.1	0.2	0.5
TEACHERS RETIREMENT CD REPO	5.2	1.5	0.1	1.0	2.5
ICE BofA US 3-Month Treasury Bill	5.0	1.5	0.0	0.7	2.3
Excess	0.2	0.1	0.0	0.4	0.2
Laddered Bond + Cash	5.2	1.1	0.0	0.6	2.3
ICE BofA US 3-Month Treasury Bill	5.0	1.5	0.0	0.7	2.3
Excess	0.2	-0.4	-0.0	-0.1	0.1

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Private Markets

December 31, 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	1.6%	3.8%	8.0%	16.4%	12.6%	12.3%	14.0%	13.0%	13.4%
Private Markets -Uninvested(1)	1.3%	2.9%	5.9%	3.9%					
Private Equity	1.7%	4.8%	10.8%	17.1%	16.1%	15.9%	16.2%	14.6%	15.5%
Private Credit	2.1%	4.9%	8.5%	15.8%	11.3%	12.8%	12.9%	12.5%	
Resources	4.6%	3.1%	2.4%	16.8%	3.0%	2.0%	13.0%	12.7%	12.9%
Real Estate	-2.2%	-3.5%	-7.2%	12.9%	10.5%	11.3%	9.3%	9.3%	9.5%

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 December 31, 2023
Private Markets Investments



Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Private Equity	25,876,542,848	19,997,728,995	15,449,055,540	7,990,314,831	16,403,809,246	1.59	13.7	
Adams Street Partners, LLC	465,355,000	257,832,184	126,363,040	208,332,175	234,397,742	1.40	11.9	
Adams Street Global Secondary Fund 5 LP	100,000,000	77,114,692	80,333,805	22,885,308	23,950,648	1.35	6.2	2012
Adams Street Global Secondary Fund 6	100,000,000	80,400,008	46,029,235	19,599,992	80,590,980	1.57	20.1	2017
Adams Street Global Secondary Fund 7	265,355,000	100,317,484	0	165,846,875	129,856,114	1.29	46.1	2021
Advent International Group	505,000,000	401,034,845	358,976,635	107,049,109	311,988,395	1.67	15.3	
Advent International GPE VI-A, L.P.	50,000,000	52,993,313	103,400,194	0	3,887,369	2.02	16.4	2008
Advent International GPE VII, L.P.	90,000,000	86,490,641	143,472,935	3,600,000	12,681,091	1.81	13.3	2012
Advent International GPE VIII-B	100,000,000	100,000,000	100,608,098	0	107,241,987	2.08	17.6	2016
Advent International GPE IX	115,000,000	107,532,348	11,495,408	7,467,652	137,381,503	1.38	14.4	2019
Advent International GPE X	150,000,000	54,018,543	0	95,981,457	50,796,445	0.94	-10.6	2022
Affinity Ventures	9,000,000	9,000,000	3,590,011	0	788,645	0.49	-11.2	
Affinity Ventures IV, L.P.	4,000,000	4,000,000	1,541,970	0	3,279	0.39	-34.5	2004
Affinity Ventures V, L.P.	5,000,000	5,000,000	2,048,042	0	785,366	0.57	-8.1	2008
Apax Partners	600,000,000	544,244,758	571,473,413	147,250,312	309,839,307	1.62	15.4	
APAX VIII - USD	200,000,000	240,451,261	364,650,169	7,966,190	31,007,221	1.65	13.6	2013
Apax IX USD L.P.	150,000,000	162,660,807	190,842,594	14,436,164	123,311,203	1.93	20.2	2016
Apax X USD L.P.	150,000,000	141,132,691	15,980,649	24,847,958	155,520,883	1.22	12.7	2019
Apax XI	100,000,000	0	0	100,000,000	0			2022
Arsenal Capital Partners	175,000,000	102,510,142	13,903,312	81,210,301	95,913,332	1.07	2.8	
Arsenal Capital Partners V, L.P.	75,000,000	72,853,782	13,616,281	10,598,693	74,085,067	1.20	6.2	2019
Arsenal Capital Partners VI LP	100,000,000	29,656,360	287,031	70,611,608	21,828,265	0.75	-21.2	2021
Asia Alternatives	649,000,000	211,231,211	20,599,678	453,194,230	208,138,763	1.08	4.3	
Asia Alternatives Capital Partners V	99,000,000	104,637,948	19,441,511	9,787,493	112,942,232	1.27	8.6	2017
MN Asia Investors	550,000,000	106,593,263	1,158,167	443,406,737	95,196,532	0.90	-10.1	2020
Banc Fund	178,551,387	187,460,477	57,328,319	0	167,128,140	1.20	3.5	
Banc Fund IX, L.P.	107,205,932	107,205,932	50,002,922	0	90,549,413	1.31	4.3	2014
Banc Fund X, L.P.	71,345,455	80,254,545	7,325,397	0	76,578,727	1.05	1.2	2018
BlackRock	951,774,870	956,392,392	4,593,050	0	1,931,629,300	2.02	33.2	
BlackRock Long Term Capital, SCSP	950,000,000	954,617,522	2,660,745	0	1,931,629,300	2.03	33.4	2019
BlackRock Tempus Fund	1,774,870	1,774,870	1,932,305	0	0	1.09	4.5	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	926,122,448	737,420,275	717,938,462	568,521,972	1.41	14.1	
Blackstone Capital Partners Asia II	270,000,000	67,509,678	997	202,490,322	68,468,585	1.01	2.0	2021
Blackstone Capital Partners IV, L.P.	70,000,000	84,459,887	201,361,236	1,765,384	183,227	2.39	37.0	2002
Blackstone Capital Partners V L.P.	140,000,000	152,408,625	245,685,920	7,027,560	612,129	1.62	8.0	2006
Blackstone Capital Partners VI, L.P.	100,000,000	106,861,279	164,328,632	10,975,597	29,578,996	1.81	12.4	2008
Blackstone Capital Partners VII	130,000,000	139,943,971	93,973,762	9,306,402	119,732,158	1.53	11.9	2015
Blackstone Capital Partners VIII LP	150,000,000	100,313,209	6,249,186	62,176,802	110,947,651	1.17	9.4	2019
Blackstone Capital Partners IX	150,000,000	0	0	150,000,000	0			2022
Blackstone Growth	250,000,000	209,072,886	24,986,270	63,673,295	175,654,694	0.96	-2.1	2020
Blackstone Growth Equity II	150,000,000	0	0	150,000,000	0			2022
Blackstone Supplemental Account - M	125,000,000	65,552,913	834,272	60,523,099	63,344,533	0.98	-1.1	2021
Blackstone Strategic Partners	915,500,000	709,416,762	871,883,038	270,209,907	235,708,759	1.56	11.4	
Strategic Partners III VC, L.P.	25,000,000	25,088,565	34,142,783	86,254	6,429	1.36	6.0	2004
Strategic Partners III-B, L.P.	100,000,000	79,714,850	118,768,862	12,219,010	34,841	1.49	6.3	2004
Strategic Partners IV VC, L.P.	40,500,000	42,325,414	63,954,747	2,097,328	883,792	1.53	9.1	2008
Strategic Partners IV-B	100,000,000	99,541,961	155,239,588	6,656,298	1,104,451	1.57	12.2	2008
Strategic Partners V, LP	100,000,000	87,497,031	141,091,599	11,706,005	2,539,625	1.64	18.4	2011
Strategic Partners VI, L.P.	150,000,000	104,513,129	134,999,409	31,158,892	23,331,990	1.51	13.9	2014
Strategic Partners VII, L.P.	150,000,000	124,802,104	132,392,004	43,109,636	75,503,024	1.67	17.5	2016
Strategic Partners VIII	150,000,000	119,736,626	87,651,365	85,796,490	104,797,517	1.61	29.2	2018
Strategic Partners IX	100,000,000	26,197,082	3,642,681	77,379,994	27,507,091	1.19	15.8	2022
Bridgepoint	273,670,986	159,330,724	14,957,084	117,239,845	238,953,434	1.59	19.8	
Bridgepoint Europe VI L.P.	165,697,520	159,330,724	14,957,084	9,266,379	238,953,434	1.59	19.8	2018
Bridgepoint Europe VII	107,973,466	0	0	107,973,466	0			2022
Brookfield Asset Management Inc.	500,000,000	405,100,856	256,619,686	151,591,189	438,499,686	1.72	30.1	
Brookfield Capital Partners Fund IV	100,000,000	115,002,304	216,029,739	6,604,408	61,018,172	2.41	42.8	2015
Brookfield Capital Partners V L.P.	250,000,000	261,031,272	40,495,014	24,054,060	339,260,367	1.45	16.6	2018
Brookfield Capital Partners Fund VI	150,000,000	29,067,280	94,933	120,932,720	38,221,148	1.32	26.3	2022
Canyon Partners	125,000,000	146,475,843	21,475,843	0	157,464,814	1.22	11.0	
Canyon Distressed Opportunity Fund III	125,000,000	146,475,843	21,475,843	0	157,464,814	1.22	11.0	2020
Cardinal Partners	10,000,000	10,000,000	39,196,082	0	30,099	3.92	10.6	
DSV Partners IV	10,000,000	10,000,000	39,196,082	0	30,099	3.92	10.6	1985
Carlyle Group	400,000,000	354,729,419	77,853,313	117,800,401	328,293,578	1.14	6.3	
Carlyle Strategic Partners IV, L.P.	100,000,000	119,848,374	53,429,269	32,306,465	80,963,737	1.12	5.4	2016
Carlyle Partners VII, L.P.	150,000,000	154,897,553	17,422,357	8,564,696	174,450,634	1.24	7.4	2017
Carlyle Partners VIII	150,000,000	79,983,492	7,001,687	76,929,240	72,879,207	1.00	-0.2	2021
CarVal Investors	600,000,000	503,380,828	422,247,389	96,479,827	253,972,502	1.34	7.9	
CVI Credit Value Fund A II	150,000,000	142,500,000	199,735,718	7,500,000	3,518,938	1.43	8.3	2012
CVI Credit Value Fund A III	150,000,000	142,500,000	168,545,561	7,500,000	25,740,177	1.36	8.3	2015
CVI Credit Value Fund IV	150,000,000	113,380,828	53,811,544	36,479,827	109,539,517	1.44	7.6	2017
CVI Credit Value Fund V	150,000,000	105,000,000	154,566	45,000,000	115,173,870	1.10	5.2	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	123,940,459	1,652,374	532	2.12	19.5	
Chicago Growth Partners II, L.P.	60,000,000	58,347,626	123,940,459	1,652,374	532	2.12	19.5	2008
Clearlake Capital	100,000,000	57,849,852	268,947	42,308,461	60,303,697	1.05	3.7	
Clearlake Capital Partners VII	100,000,000	57,849,852	268,947	42,308,461	60,303,697	1.05	3.7	2022
Court Square	489,419,132	498,674,744	629,312,317	48,980,142	289,924,804	1.84	14.8	
Court Square Capital Partners II, L.P.	164,419,132	170,245,229	295,744,454	5,681,078	3,130,843	1.76	12.3	2006
Court Square Capital Partners III, L.P.	175,000,000	190,097,845	289,828,116	6,147,077	145,088,509	2.29	20.4	2012
Court Square Capital Partners IV, L.P.	150,000,000	138,331,670	43,739,747	37,151,987	141,705,451	1.34	15.8	2018
CVC Capital Partners	469,476,307	441,472,337	664,283,461	130,561,068	215,191,485	1.99	16.6	
CVC Capital Partners VI	248,546,280	287,588,239	368,725,234	18,518,350	212,272,844	2.02	16.4	2013
CVC Capital Partners IX	110,465,014	0	0	110,465,014	0			2023
CVC European Equity Partners V, L.P.	110,465,014	153,884,098	295,558,227	1,577,704	2,918,640	1.94	16.7	2008
Goldman, Sachs & Co.	449,800,000	384,104,821	351,170,668	162,759,590	233,558,111	1.52	11.3	
GS Capital Partners VI, L.P.	100,000,000	110,285,035	143,299,966	2,551,356	1,627,138	1.31	7.1	2007
GS China-US Cooperation Fund	99,800,000	40,727,812	523,330	59,480,800	51,317,650	1.27	8.9	2018
GS Vintage VII	100,000,000	88,944,389	78,908,776	60,834,712	65,594,178	1.62	14.9	2016
West Street Capital Partners VII, L.P.	150,000,000	144,147,585	128,438,596	39,892,722	115,019,146	1.69	18.3	2016
Goldner Hawn Johnson & Morrison	150,510,266	66,974,255	73,796,563	83,247,978	68,341,547	2.12	21.7	
GHJM TrailHead Fund	20,000,000	17,112,130	52,080,283	2,434,486	4,948,539	3.33	19.8	2012
Goldner Hawn Fund VII, L.P.	57,755,138	43,455,692	21,716,280	14,464,797	56,873,322	1.81	29.8	2018
Goldner Hawn VIII	72,755,128	6,406,433	0	66,348,695	6,519,686	1.02	1.8	2023
Green Equity Investors	325,000,000	347,017,276	251,752,082	18,949,050	332,050,514	1.68	12.6	
Green Equity Investors VI, L.P.	200,000,000	235,160,724	250,071,828	4,125,348	200,297,655	1.92	13.0	2012
Green Equity Investors VIII	125,000,000	111,856,552	1,680,254	14,823,702	131,752,859	1.19	8.0	2020
GTCR	110,000,000	108,261,050	239,444,420	10,416,556	111,291,322	3.24	32.4	
GTCR XI	110,000,000	108,261,050	239,444,420	10,416,556	111,291,322	3.24	32.4	2013
HarbourVest	21,466,356	20,945,021	27,523,580	798,474	3,842,241	1.50	11.5	
Dover Street VII Cayman Fund L.P.	2,198,112	2,074,270	1,856,658	132,416	3,796	0.90	-4.5	2014
HarbourVest Intl PE Partners V-Cayman US	3,429,131	3,346,199	4,530,727	176,744	6,271	1.36	13.5	2014
Harbourvest Intl PE Partners VI-Cayman	4,141,503	4,039,473	5,861,536	193,314	2,028,557	1.95	14.8	2014
HarbourVest Partners VIII Cayman Buyout	4,506,711	4,393,997	6,084,996	156,000	101,073	1.41	12.9	2014
HarbourVest Partners VIII-Cayman Venture	7,190,898	7,091,082	9,189,664	140,000	1,702,544	1.54	10.6	2014
Hellman & Friedman	575,000,000	412,376,471	172,692,267	182,403,351	446,036,069	1.50	18.6	
Hellman & Friedman Capital Partners VII, L.P.	50,000,000	49,914,704	154,063,260	2,183,886	11,732,317	3.32	24.9	2009
Hellman & Friedman Investors IX, L.P.	175,000,000	175,174,084	10,750,120	9,628,261	236,086,455	1.41	12.5	2018
Hellman & Friedman Capital Partners X	250,000,000	187,287,683	7,878,887	70,591,204	198,217,297	1.10	6.0	2021
Hellman & Friedman Capital Partners XI	100,000,000	0	0	100,000,000	0			2023

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Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
IK Limited	588,496,275	505,149,589	560,239,017	130,955,437	259,856,501	1.62	14.6	
IK Fund VII	165,697,520	179,393,652	322,286,061	8,377,967	13,768,950	1.87	14.2	2013
IK Fund VIII	165,697,520	179,209,717	237,952,956	8,480,375	90,466,013	1.83	18.0	2016
IK Fund IX	149,127,768	146,546,221	0	6,123,628	155,621,538	1.06	3.6	2019
IK Fund X	107,973,466	0	0	107,973,466	0			2022
Kohlberg, Kravis, Roberts & Co.	1,797,000,000	1,189,093,379	991,778,615	691,798,633	849,902,817	1.55	13.0	
KKR 2006 Fund L.P.	200,000,000	218,137,965	392,503,725	3,300,979	64,550	1.80	9.1	2006
KKR Americas Fund XII L.P.	150,000,000	147,420,509	87,038,632	17,874,818	180,775,398	1.82	18.9	2016
KKR Ascendant Strategy	150,000,000	0	0	150,000,000	0			2023
KKR Asian Fund III	100,000,000	97,000,499	60,735,918	14,730,983	114,772,392	1.81	21.1	2017
KKR Asian Fund IV	150,000,000	73,139,660	3,535,969	84,375,855	78,789,149	1.13	7.8	2020
KKR Core Investments Partnership	97,000,000	102,078,443	5,416,200	1,522,803	119,477,694	1.22	10.9	2021
KKR Core Investments Fund II	100,000,000	0	0	100,000,000	754,709			2022
KKR Europe V	100,000,000	93,373,427	16,882,045	11,934,883	98,226,925	1.23	9.2	2018
KKR European Fund VI (USD) SCSp	100,000,000	23,428,692	0	78,501,649	17,262,251	0.74	-34.1	2022
KKR Millennium Fund	200,000,000	205,167,570	424,946,028	0	162,941	2.07	16.4	2002
KKR MN Partnership L.P.	150,000,000	93,838,019	720,098	57,573,936	99,827,451	1.07	4.8	2021
KKR North America Fund XIII	300,000,000	135,508,595	0	171,982,727	139,789,357	1.03	2.8	2021
Lexington Partners	1,645,000,000	1,164,323,588	799,217,840	556,623,837	942,976,098	1.50	13.1	
Lexington Capital Partners VI-B, L.P.	100,000,000	98,374,022	145,958,371	1,634,703	516,502	1.49	7.9	2005
Lexington Capital Partners VII, L.P.	200,000,000	173,297,773	269,316,010	30,670,593	20,551,457	1.67	14.4	2009
Lexington Capital Partners VIII, L.P.	150,000,000	138,682,457	142,559,675	30,367,767	87,858,249	1.66	15.7	2014
Lexington Capital Partners IX, L.P.	150,000,000	129,405,518	37,902,022	33,829,311	152,712,247	1.47	22.6	2018
Lexington Capital Partners X	100,000,000	30,000,000	0	70,000,000	37,166,220	1.24	59.5	2021
Lexington Co-Investment Partners IV	200,000,000	219,011,365	148,641,504	3,469,473	222,930,180	1.70	15.7	2017
Lexington Co-Investment Partners V	300,000,000	256,598,658	15,991,030	59,392,372	290,752,070	1.20	13.5	2020
Lexington Co-Investment Partners V Overage	45,000,000	35,055,900	1,265,648	11,157,513	39,189,098	1.15	9.5	2021
Lexington Co-Investment Partners VI	300,000,000	0	0	300,000,000	0			2023
Lexington Middle Market Investors IV	100,000,000	83,897,895	37,583,580	16,102,105	91,300,075	1.54	20.2	2016
Madison Dearborn Capital Partners LLC	200,000,000	179,821,723	77,240,155	52,094,159	160,760,720	1.32	9.3	
Madison Dearborn Capital Partners VII, L.P.	100,000,000	100,303,020	60,172,303	16,735,885	89,917,647	1.50	9.9	2015
Madison Dearborn Capital Partners VIII-A, L.P.	100,000,000	79,518,703	17,067,852	35,358,274	70,843,073	1.11	6.6	2019
Marathon	400,000,000	161,906,171	14,240,074	244,000,000	179,459,361	1.20	8.8	
Marathon Distressed Credit Fund	200,000,000	161,906,171	14,240,074	44,000,000	179,459,361	1.20	8.8	2020
Marathon Distressed Credit Fund II	200,000,000	0	0	200,000,000	0			2023
Merced Capital	178,737,500	184,266,287	157,295,389	0	62,985,977	1.20	3.5	
Merced Partners IV	125,000,000	124,968,390	123,722,539	0	15,545,717	1.11	2.2	2013
Merced Partners V	53,737,500	59,297,897	33,572,850	0	47,440,260	1.37	6.1	2017
MHR Institutional Partners	75,000,000	83,022,509	26,033,416	11,735,519	95,932,097	1.47	9.8	
MHR Institutional Partners IV LP	75,000,000	83,022,509	26,033,416	11,735,519	95,932,097	1.47	9.8	2014

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Neuberger Berman LLC	625,000,000	491,468,073	397,547,193	439,718,161	448,922,436	1.72	29.1	
Dyal Capital Partners III	175,000,000	215,743,153	219,434,359	108,261,804	168,447,093	1.80	25.4	2015
Dyal Capital Partners IV	250,000,000	202,631,390	143,712,786	171,627,902	227,200,189	1.83	41.5	2018
Dyal Capital Partners V	200,000,000	73,093,530	34,400,049	159,828,456	53,275,155	1.20	14.7	2020
Nordic Capital	588,496,275	535,548,589	357,819,253	171,536,097	456,551,097	1.52	14.4	
Nordic Capital Fund VIII	165,697,520	225,322,480	296,912,142	15,774,489	48,885,330	1.53	12.1	2013
Nordic Capital IX Beta, L.P.	165,697,520	180,204,637	60,907,110	31,264,800	240,368,402	1.67	18.7	2017
Nordic Capital Fund X	149,127,768	120,307,140	0	26,586,460	159,704,288	1.33	22.0	2020
Nordic Capital Fund XI	107,973,466	9,714,332	0	97,910,347	7,593,076	0.78	-21.8	2022
Oak Hill Capital Management, Inc.	250,000,000	247,394,722	238,587,803	10,152,576	195,651,824	1.76	29.3	
Oak Hill Capital Partners IV Onshore LP	150,000,000	153,245,546	219,478,696	4,299,116	84,500,048	1.98	33.3	2016
Oak Hill Capital Partners V	100,000,000	94,149,176	19,109,107	5,853,461	111,151,776	1.38	16.0	2018
Oaktree Capital Management, LLC	400,000,000	253,154,864	68,970,664	200,320,535	232,131,583	1.19	6.8	
Oaktree Special Situations Fund, L.P.	100,000,000	103,751,429	22,391,423	7,741,294	69,137,329	0.88	-2.7	2014
Oaktree Special Situations Fund II, L.P.	100,000,000	99,403,435	46,579,241	42,579,241	112,994,254	1.61	37.7	2018
Oaktree Special Situations Fund III	200,000,000	50,000,000	0	150,000,000	50,000,000	1.00		2022
Paine & Partners, LLC	325,000,000	226,811,571	88,839,960	121,808,407	218,889,704	1.36	11.4	
Paine Schwartz Food Chain Fund IV	75,000,000	70,121,139	35,397,971	13,737,482	61,432,504	1.38	7.2	2014
Paine Schwartz Food Chain Fund V, L.P.	150,000,000	129,291,820	53,257,921	35,135,077	131,695,531	1.43	19.4	2018
Paine Schwartz Food Chain VI	100,000,000	27,398,612	184,068	72,935,848	25,761,668	0.95	-6.3	2023
Permal PE	5,337,098	4,406,696	4,794,251	1,090,000	258,246	1.15	4.5	
Glouston Private Equity Opportunities IV	5,337,098	4,406,696	4,794,251	1,090,000	258,246	1.15	4.5	2014
Permira	613,080,825	505,055,428	483,467,012	170,269,177	486,090,802	1.92	18.7	
Permira V, L.P.	165,697,520	184,936,895	392,772,099	4,650,339	117,904,233	2.76	21.1	2013
Permira VI, L.P.	132,558,016	129,712,367	79,469,242	27,357,751	169,437,592	1.92	16.6	2016
Permira VII L.P.1	149,127,768	147,198,277	11,225,671	17,039,925	154,066,204	1.12	4.9	2019
Permira VIII	165,697,520	43,207,888	0	121,221,162	44,682,773	1.03	5.1	2022
Public Pension Capital Management	285,000,000	168,015,592	103,490,733	138,143,232	217,932,960	1.91	22.2	
Public Pension Capital, LLC	285,000,000	168,015,592	103,490,733	138,143,232	217,932,960	1.91	22.2	2014
Silver Lake Partners	335,000,000	347,209,500	441,557,220	30,056,156	289,264,309	2.10	18.6	
Silver Lake Partners III, L.P.	100,000,000	93,894,552	210,187,409	9,528,468	15,959,956	2.41	18.5	2007
Silver Lake Partners IV	100,000,000	116,267,955	158,959,886	2,881,307	138,506,320	2.56	21.5	2012
Silver Lake Partners V, L.P.	135,000,000	137,046,993	72,409,925	17,646,381	134,798,034	1.51	12.7	2017
Siris Capital Group	67,875,000	0	0	67,875,000	0			
Siris V	67,875,000	0	0	67,875,000	0			2022
Split Rock	110,000,000	107,055,906	125,392,564	2,944,094	27,788,345	1.43	4.9	
Split Rock Partners LP	50,000,000	47,890,906	58,794,192	2,109,094	2,484,055	1.28	3.0	2005
Split Rock Partners II, LP	60,000,000	59,165,000	66,598,372	835,000	25,304,290	1.55	7.2	2008

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Summit Partners	600,000,000	457,653,637	417,080,009	282,413,862	413,804,160	1.82	25.2	
Summit Partners Growth Equity Fund VIII	100,000,000	116,727,192	237,084,364	23,129,320	47,686,089	2.44	26.0	2011
Summit Partners Growth Equity Fund IX	100,000,000	134,554,799	146,949,457	32,610,000	134,734,550	2.09	28.1	2015
Summit Partners Growth Equity Fund X-A	150,000,000	142,186,520	33,046,188	40,859,668	162,090,220	1.37	16.0	2019
Summit Partners Growth Equity Fund XI	250,000,000	64,185,126	0	185,814,874	69,293,299	1.08	8.9	2021
TA Associates	80,000,000	0	0	80,000,000	0			
TA XV	80,000,000	0	0	80,000,000	0			2023
Thoma Bravo LLC	525,000,000	535,875,048	339,723,510	81,384,995	516,386,772	1.60	21.8	
Thoma Cressey Fund VII, L.P.	50,000,000	50,000,000	107,057,940	0	394,496	2.15	23.6	2000
Thoma Bravo Fund XII, L.P.	75,000,000	81,949,004	84,992,456	18,452,144	83,791,527	2.06	16.0	2016
Thoma Bravo Fund XIII, L.P.	150,000,000	184,783,234	128,118,668	12,475,387	212,430,168	1.84	26.8	2018
Thoma Bravo Fund XIV	150,000,000	147,759,334	19,534,890	21,775,519	144,989,037	1.11	4.8	2020
Thoma Bravo Fund XV LP	100,000,000	71,383,476	19,556	28,681,945	74,781,545	1.05	4.4	2021
Thomas H. Lee Partners	400,000,000	324,825,815	298,977,445	104,706,466	206,188,877	1.56	22.2	
Thomas H. Lee Equity Fund VII, LP.	100,000,000	99,643,507	137,891,993	10,518,650	44,789,269	1.83	20.5	2015
Thomas H. Lee Equity Fund VIII, L.P.	150,000,000	150,506,365	161,085,452	18,863,759	91,604,559	1.68	30.1	2018
Thomas H. Lee Equity Fund IX	150,000,000	74,675,943	0	75,324,057	69,795,049	0.93	-6.7	2021
TPG Capital	800,000,000	484,992,441	204,559,926	361,067,896	476,435,293	1.40	18.4	
TPG Growth V	150,000,000	139,185,010	11,838,826	20,620,018	159,924,168	1.23	15.3	2021
TPG Growth VI, L.P.	150,000,000	0	0	150,000,000	0			2023
TPG Partners VII, L.P.	100,000,000	101,140,861	157,120,286	16,747,992	40,490,571	1.95	19.3	2015
TPG Partners VIII	150,000,000	148,640,367	34,272,017	19,726,089	179,150,413	1.44	22.3	2018
TPG Partners IX, L.P.	100,000,000	25,115,367	7,014	74,884,633	25,298,558	1.01	1.2	2022
TPG Tech Adjacencies II, L.P.	150,000,000	70,910,836	1,321,783	79,089,164	71,571,583	1.03	2.5	2021
Varde Fund	631,286,710	620,124,403	732,954,090	11,162,307	210,573,663	1.52	9.5	
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	5,142,969	1.73	9.9	2010
Varde Fund XI, LP	200,000,000	200,000,000	229,469,710	0	31,067,511	1.30	4.3	2013
Varde Fund XIII, L.P.	150,000,000	144,000,000	33,005,156	6,000,000	146,503,231	1.25	8.3	2018
Varde Fund XIV	31,286,710	26,124,403	0	5,162,307	27,859,952	1.07	9.7	2022
Vestar Capital Partners	325,000,000	326,088,390	318,485,998	23,309,251	189,349,268	1.56	10.0	
Vestar Capital Partners V, L.P.	75,000,000	76,797,458	101,183,748	0	34,579	1.32	3.9	2005
Vestar Capital Partners VI, LP	100,000,000	109,624,110	184,058,508	0	51,625,475	2.15	24.1	2011
Vestar Capital Partners VII, L.P.	150,000,000	139,666,823	33,243,742	23,309,251	137,689,214	1.22	9.1	2017

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Vista Equity Partners	200,000,000	160,275,547	77,223	40,937,356	195,620,807	1.22	7.3	
Vista Equity Partners Perennial	200,000,000	160,275,547	77,223	40,937,356	195,620,807	1.22	7.3	2020
Warburg Pincus	1,316,000,000	1,066,415,082	974,762,679	255,055,000	761,761,731	1.63	11.2	
Warburg Pincus China, L.P.	45,000,000	46,935,000	19,177,200	0	43,929,238	1.34	7.1	2016
Warburg Pincus China-Southeast Asia II	50,000,000	26,000,000	4,097,500	24,000,000	24,643,579	1.11	5.1	2019
Warburg Pincus Financial Sector	90,000,000	90,529,341	42,534,900	3,555,000	124,663,639	1.85	18.7	2017
Warburg Pincus Global Growth, L.P.	250,000,000	235,180,860	32,152,289	14,500,000	302,702,376	1.42	13.1	2018
Warburg Pincus Global Growth 14, L.P.	300,000,000	86,427,428	2,313,000	213,000,000	87,535,584	1.04	3.8	2022
Warburg Pincus Private Equity IX, L.P.	100,000,000	100,000,000	172,072,950	0	113,667	1.72	9.6	2005
Warburg Pincus Private Equity X, LP	150,000,000	150,000,000	266,806,541	0	2,749,907	1.80	9.5	2007
Warburg Pincus Private Equity XI, LP	200,000,000	200,342,452	283,315,821	0	67,058,925	1.75	11.9	2012
Warburg Pincus Private Equity XII, LP	131,000,000	131,000,000	152,292,478	0	108,364,815	1.99	16.5	2015
Wayzata Investment Partners	150,000,000	68,415,000	54,124,640	15,000,000	15,011,062	1.01	0.2	
Wayzata Opportunities Fund III	150,000,000	68,415,000	54,124,640	15,000,000	15,011,062	1.01	0.2	2012
Wellspring Capital Partners	125,000,000	153,950,798	57,804,878	11,130,966	169,288,316	1.48	16.5	
Wellspring Capital Partners VI, L.P.	125,000,000	153,950,798	57,804,878	11,130,966	169,288,316	1.48	16.5	2016
Welsh, Carson, Anderson & Stowe	650,000,000	518,456,145	489,825,785	131,543,855	409,058,550	1.73	17.4	
Welsh, Carson, Anderson & Stowe XI, L.P.	100,000,000	100,000,000	161,464,441	0	6,992,252	1.68	11.7	2008
Welsh, Carson, Anderson & Stowe XII, L.P.	150,000,000	150,000,000	238,572,640	0	124,016,130	2.42	25.2	2014
Welsh, Carson, Anderson & Stowe XIII, L.P.	250,000,000	229,328,036	89,788,704	20,671,964	245,865,303	1.46	22.3	2018
Welsh, Carson, Anderson & Stowe XIV	150,000,000	39,128,109	0	110,871,891	32,184,865	0.82	-32.5	2022
Whitehorse Capital	300,000,000	267,619,683	174,339,293	97,329,501	151,519,835	1.22	14.6	
Whitehorse Liquidity Partners III	100,000,000	104,878,566	89,975,165	13,066,122	46,922,221	1.31	15.1	2019
Whitehorse Liquidity Partners IV	100,000,000	99,941,149	58,407,586	24,505,281	61,618,395	1.20	14.3	2020
Whitehorse Liquidity Partners V	100,000,000	62,799,969	25,956,541	59,758,098	42,979,219	1.10	12.5	2021
Wind Point Partners	200,000,000	144,995,646	25,350,842	80,359,799	173,027,899	1.37	19.1	
Wind Point Partners IX	100,000,000	96,618,258	25,350,842	28,737,187	121,315,326	1.52	20.4	2019
Wind Point Partners X	100,000,000	48,377,388	0	51,622,612	51,712,574	1.07	8.9	2022
Windjammer Capital Investors	441,708,861	234,050,830	291,813,128	223,419,756	148,619,346	1.88	12.3	
Windjammer Capital Fund VI	175,000,000	0	0	175,000,000	0			2023
Windjammer Senior Equity Fund V, L.P.	100,000,000	84,094,418	39,718,838	17,112,479	78,522,563	1.41	15.9	2017
Windjammer Mezzanine & Equity Fund II	66,708,861	55,215,684	85,678,634	10,139,363	297,022	1.56	9.0	2000
Windjammer Senior Equity Fund IV, L.P.	100,000,000	94,740,728	166,415,656	21,167,914	69,799,761	2.49	17.3	2012

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Private Credit	4,330,010,084	3,380,222,525	2,546,488,294	1,462,899,465	1,992,625,531	1.34	10.5	
Audax Group	350,000,000	234,623,228	219,279,727	138,529,551	78,271,899	1.27	10.4	
Audax Mezzanine Fund III, L.P.	100,000,000	105,207,316	133,977,984	0	5,209,754	1.32	9.7	2010
Audax Mezzanine Fund IV-A, L.P.	100,000,000	89,886,994	79,726,522	26,590,800	32,815,723	1.25	11.2	2015
Audax Mezzanine Fund V	150,000,000	39,528,917	5,575,221	111,938,751	40,246,423	1.16	18.0	2020
Avenue Capital Partners	200,000,000	200,977,328	185,986,243	0	163,131,378	1.74	10.1	
Avenue Energy Opportunities Fund, L.P.	100,000,000	100,977,328	82,538,314	0	73,327,159	1.54	6.8	2014
Avenue Energy Opportunities Fund II	100,000,000	100,000,000	103,447,929	0	89,804,219	1.93	14.9	2017
BlackRock	97,500,000	93,899,899	32,420,560	3,600,101	92,283,319	1.33	8.6	
BlackRock Middle Market Senior Fund	97,500,000	93,899,899	32,420,560	3,600,101	92,283,319	1.33	8.6	2018
Brookfield Asset Management Inc.	200,000,000	89,956,644	30,598,088	135,223,783	69,624,857	1.11	13.2	
Brookfield Real Estate Finance Fund VI	200,000,000	89,956,644	30,598,088	135,223,783	69,624,857	1.11	13.2	2021
Castlelake L.P.	100,000,000	0	0	100,000,000	0			
Castlelake Aviation V Stable Yield	100,000,000	0	0	100,000,000	0			2023
Energy Capital Partners	28,087,500	38,526,304	18,996,994	8,558,190	23,088,920	1.09	6.2	
Energy Capital Credit Solutions II-A	28,087,500	38,526,304	18,996,994	8,558,190	23,088,920	1.09	6.2	2018
Gold Hill	65,852,584	65,852,584	113,842,999	0	2,750,182	1.77	11.8	
Gold Hill Venture Lending	40,000,000	40,000,000	65,449,702	0	203,165	1.64	10.7	2004
Gold Hill 2008	25,852,584	25,852,584	48,393,297	0	2,547,016	1.97	14.4	2008
HPS Investment Partners	200,000,000	132,895,892	36,561,599	93,344,502	126,928,399	1.23	10.9	
HPS Mezzanine Partners 2019, L.P.	100,000,000	96,080,275	32,170,470	25,768,991	90,251,471	1.27	10.5	2019
HPS Strategic Investment Partners V	100,000,000	36,815,617	4,391,128	67,575,511	36,676,928	1.12	14.2	2022
Kohlberg, Kravis, Roberts & Co.	274,000,000	381,810,465	348,273,550	80,601,499	105,571,633	1.19	9.8	
KKR Lending Partner II L.P.	75,000,000	87,059,946	85,209,374	8,802,924	4,984,672	1.04	1.7	2015
KKR Lending Partners III L.P.	199,000,000	294,750,519	263,064,176	71,798,575	100,586,961	1.23	13.7	2017
LBC Credit Partners	200,000,000	209,010,637	172,441,498	61,614,942	82,550,406	1.22	10.8	
LBC Credit Partners IV, L.P.	100,000,000	120,057,350	123,958,474	27,043,046	19,744,726	1.20	8.8	2016
LBC Credit Partners V, L.P.	100,000,000	88,953,287	48,483,024	34,571,896	62,805,680	1.25	15.6	2019
Marathon	200,000,000	133,522,008	17,053,544	72,500,000	162,218,708	1.34	12.4	
Marathon Secured Private Strategies Fund II	100,000,000	96,022,008	16,870,847	10,000,000	123,739,920	1.46	12.9	2019
Marathon Secured Private Strategies Fund III	100,000,000	37,500,000	182,698	62,500,000	38,478,788	1.03	4.8	2022
Merit Capital Partners	350,000,000	280,145,608	351,159,793	69,787,592	109,491,555	1.64	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	11,921,965	1.67	10.0	2009
Merit Mezzanine Fund VI	100,000,000	92,629,096	103,473,441	7,304,104	52,482,979	1.68	16.8	2016
Merit Mezzanine Fund VII	100,000,000	45,031,818	0	54,968,182	43,973,751	0.98	-3.9	2020
Oaktree Capital Management, LLC	650,000,000	507,440,920	76,672,311	156,100,000	550,557,588	1.24	10.2	
Oaktree Opportunities Fund X, L.P.	50,000,000	46,500,021	44,294,660	8,500,000	24,800,034	1.49	9.0	2015
Oaktree Opportunities Fund Xb, L.P.	100,000,000	75,000,000	0	25,000,000	113,642,175	1.52	12.6	2015
Oaktree Real Estate Debt III	200,000,000	130,940,899	29,603,810	77,600,000	116,060,638	1.11	8.3	2020
Oaktree Opportunities Fund XI	300,000,000	255,000,000	2,773,841	45,000,000	296,054,742	1.17	10.2	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	255,530	1.33	5.9	
PIMCO Bravo Fund OnShore Feeder II	5,000,000	4,501,479	5,714,432	0	255,530	1.33	5.9	2014
Prudential Global Investment Mgmt	600,000,000	541,345,253	580,989,028	117,205,089	177,074,157	1.40	10.3	
Prudential Capital Partners II, L.P.	100,000,000	97,930,132	145,671,152	11,049,052	488,725	1.49	9.0	2005
Prudential Capital Partners III, L.P.	100,000,000	102,884,014	174,852,395	13,573,997	2,382,207	1.72	14.1	2009
Prudential Capital Partners IV	100,000,000	113,143,330	133,421,700	1,948,707	22,003,691	1.37	8.8	2012
Prudential Capital Partners V, L.P.	150,000,000	158,311,274	116,127,983	7,244,881	79,654,059	1.24	7.2	2016
PGIM Capital Partners VI, L.P.	150,000,000	69,076,504	10,915,798	83,388,453	72,545,475	1.21	18.8	2020
Summit Partners	95,000,000	100,002,497	137,062,090	22,177,023	2,166,831	1.39	9.1	
Summit Subordinated Debt Fund III, L.P.	45,000,000	44,088,494	62,804,226	2,250,000	543,916	1.44	8.6	2004
Summit Subordinated Debt Fund IV, L.P.	50,000,000	55,914,003	74,257,864	19,927,023	1,622,915	1.36	9.8	2008
TCW	189,570,000	174,519,135	162,648,948	62,018,565	62,058,608	1.29	8.8	
TCW Direct Lending LLC	89,570,000	83,599,652	90,598,283	14,899,409	19,819,049	1.32	8.6	2014
TCW Direct Lending VII	100,000,000	90,919,484	72,050,665	47,119,156	42,239,559	1.26	9.0	2018
Torchlight Investors	150,000,000	0	0	150,000,000	0			
Torchlight Debt Fund VIII	150,000,000	0	0	150,000,000	0			2023
TSSP	375,000,000	191,192,643	56,786,890	191,638,626	184,601,561	1.26	10.7	
Sixth Street Opportunities Partners V	75,000,000	38,550,071	712,372	37,153,102	37,689,051	1.00	-0.4	2021
Sixth Street TAO Partners (B) Vintage 2023	100,000,000	37,808	0	99,962,192	0	0.00		2023
Sixth Street TAO Partners (B), L.P.	50,000,000	51,145,304	21,811,423	20,681,930	46,576,713	1.34	10.5	2018
Sixth Street TAO Partners (D), L.P.	100,000,000	61,073,149	17,435,636	25,970,452	62,814,392	1.31	13.1	2018
TSSP Opportunities Partners IV (A), L.P.	50,000,000	40,386,311	16,827,459	7,870,950	37,521,405	1.35	10.9	2018

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Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Real Assets	4,197,571,518	4,027,160,089	2,981,142,865	500,427,429	2,075,244,472	1.26	5.1	
BlackRock	198,500,000	179,390,563	81,887,133	31,385,542	132,118,772	1.19	6.9	
BlackRock Global Renewable Power Fund II	98,500,000	108,982,081	79,021,873	0	53,815,608	1.22	6.0	2017
BlackRock Global Renewable Power Infrastructure III	100,000,000	70,408,481	2,865,259	31,385,542	78,303,164	1.15	10.8	2019
EIG Global Energy Partners	450,000,000	473,254,572	396,022,932	75,356,663	129,094,323	1.11	2.4	
EIG Energy Fund XIV	100,000,000	113,459,470	95,309,310	2,761,129	3,513,933	0.87	-5.0	2007
EIG Energy Fund XV	150,000,000	161,570,371	159,449,534	22,871,323	14,916,067	1.08	1.8	2010
EIG Energy Fund XVI	200,000,000	198,224,731	141,264,088	49,724,211	110,664,324	1.27	5.4	2013
Encap Energy	300,000,000	322,809,150	348,920,598	7,836,632	134,656,015	1.50	8.6	
EnCap Energy Capital Fund VIII, L.P.	100,000,000	103,367,281	68,667,631	0	39,358,230	1.05	0.8	2010
Encap Energy Fund IX	100,000,000	113,725,245	137,819,497	3,890,055	35,156,084	1.52	11.0	2012
EnCap Energy Capital Fund X, L.P.	100,000,000	105,716,624	142,433,470	3,946,576	60,141,701	1.92	15.7	2015
Energy & Minerals Group	680,000,000	695,713,079	428,515,213	43,953,880	534,473,059	1.38	6.6	
NGP Midstream & Resources, L.P.	100,000,000	103,565,615	179,560,149	17,857	4,535,966	1.78	13.2	2007
The Energy & Minerals Group Fund II, L.P.	100,000,000	109,697,789	110,462,562	170,365	107,089,865	1.98	11.8	2011
The Energy & Minerals Group Fund III, L.P.	200,000,000	208,719,926	39,535,987	952,518	107,781,410	0.71	-4.7	2014
The Energy & Minerals Group Fund IV, LP	150,000,000	164,163,548	93,746,740	14,023,899	147,504,748	1.47	8.3	2015
The Energy & Minerals Group Fund V	112,500,000	92,332,817	3,658,916	23,199,538	141,617,669	1.57	12.6	2019
The Energy & Minerals Group Fund V Accordion, LP	17,500,000	17,233,384	1,550,859	5,589,703	25,943,401	1.60	13.3	2019
Energy Capital Partners	500,000,000	437,008,066	363,815,620	155,978,594	271,357,407	1.45	12.5	
Energy Capital Partners III, L.P.	200,000,000	237,909,919	310,409,050	30,959,867	58,398,210	1.55	11.7	2013
Energy Capital Partners IV-A, LP	150,000,000	144,066,071	53,107,452	29,138,587	153,462,908	1.43	15.2	2017
Energy Capital Partners V	150,000,000	55,032,076	299,118	95,880,140	59,496,289	1.09	8.4	2023
Enervest Management Partners	100,000,000	99,686,719	101,510,847	8,406,979	56,399,284	1.58	9.9	
EnerVest Energy Institutional Fund XIV-A, L.P.	100,000,000	99,686,719	101,510,847	8,406,979	56,399,284	1.58	9.9	2015
First Reserve	500,000,000	554,490,997	311,903,432	11,058,656	87,775,709	0.72	-7.2	
First Reserve Fund XI, L.P.	150,000,000	150,292,121	100,059,903	0	45,042	0.67	-8.8	2006
First Reserve Fund XII, L.P.	150,000,000	165,617,044	85,669,271	0	144,665	0.52	-17.9	2008
First Reserve Fund XIII, L.P.	200,000,000	238,581,832	126,174,258	11,058,656	87,586,001	0.90	-3.2	2013
Kohlberg, Kravis, Roberts & Co.	249,850,000	199,563,149	42,869,867	66,679,415	198,603,097	1.21	9.1	
KKR Global Infrastructure Investors III	149,850,000	138,289,492	40,922,272	23,442,771	137,037,972	1.29	10.0	2018
KKR Global Infrastructure Investors IV	100,000,000	61,273,657	1,947,595	43,236,644	61,565,125	1.04	3.3	2021
Merit Energy Partners	519,721,518	431,244,496	212,266,510	47,999,883	314,164,620	1.22	3.4	
Merit Energy Partners F-II, L.P.	100,000,000	59,522,861	34,597,707	0	3,204,515	0.64	-6.6	2006
Merit Energy Partners H	100,000,000	100,000,000	29,668,582	0	44,578,552	0.74	-4.0	2011
Merit Energy Partners I, L.P.	169,721,518	169,721,518	116,039,060	0	154,912,995	1.60	8.6	2014
Merit Energy Partners K, L.P.	150,000,000	102,000,117	31,961,161	47,999,883	111,468,558	1.41	19.3	2019
NGP	599,500,000	599,646,294	658,880,714	38,251,185	192,089,185	1.42	9.4	
Natural Gas Partners IX, LP	150,000,000	174,005,353	249,411,654	605,481	235,370	1.43	12.0	2007
NGP Natural Resources X, L.P.	150,000,000	149,697,949	135,379,508	302,051	13,012,218	0.99	-0.2	2011
NGP Natural Resources XI, L.P.	150,000,000	156,714,100	162,634,950	4,736,941	93,641,136	1.64	11.0	2014
NGP Natural Resources XII, L.P.	149,500,000	119,228,892	111,454,602	32,606,712	85,200,461	1.65	15.4	2017
Sheridan	100,000,000	34,353,005	34,550,000	13,520,000	24,513,000	1.72	12.2	
Sheridan Production Partners III-B, L.P.	100,000,000	34,353,005	34,550,000	13,520,000	24,513,000	1.72	12.2	2014

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Private Markets Investments



Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Real Estate	4,523,147,868	3,114,963,185	2,010,805,358	1,745,805,336	2,058,672,907	1.31	8.4	
Angelo, Gordon & Co.	650,000,000	479,651,682	287,532,407	223,155,000	345,992,737	1.32	9.5	
AG Asia Realty Fund III, L.P.	50,000,000	47,587,261	47,125,000	6,196,250	14,236,356	1.29	8.9	2016
AG Asia Realty Fund IV, L.P.	100,000,000	81,350,334	36,750,000	34,797,500	74,958,847	1.37	13.5	2018
AG Asia Realty Fund V	100,000,000	9,000,000	0	91,000,000	9,000,000	1.00	0.0	2023
AG Europe Realty Fund II, L.P.	75,000,000	68,635,121	33,769,976	12,768,750	63,696,831	1.42	9.0	2018
AG Europe Realty Fund III	75,000,000	45,713,586	3,000,000	29,437,500	52,200,091	1.21	9.0	2020
AG Realty Fund IX	100,000,000	92,141,126	89,250,000	11,650,000	28,799,448	1.28	5.8	2014
AG Realty Fund X, L.P.	150,000,000	135,224,254	77,637,431	37,305,000	103,101,165	1.34	14.1	2018
Blackstone	1,224,500,000	927,430,511	914,558,369	474,629,042	568,670,548	1.60	12.8	
Blackstone Real Estate Partners Asia II	74,500,000	72,124,702	16,187,862	12,679,199	67,611,042	1.16	5.3	2017
Blackstone Real Estate Partners Asia III	100,000,000	17,276,242	2,368	84,670,648	13,076,029	0.76	-22.3	2021
Blackstone Real Estate Partners Europe Fund VII	100,000,000	0	0	100,000,000	0			2023
Blackstone Real Estate Partners V	100,000,000	104,217,981	209,143,624	4,174,052	123,090	2.01	10.8	2006
Blackstone Real Estate Partners VI, L.P.	100,000,000	109,529,000	219,180,462	4,907,906	869,173	2.01	13.1	2007
Blackstone Real Estate Partners VII, L.P.	100,000,000	113,719,433	182,119,958	9,529,411	16,901,507	1.75	14.6	2011
Blackstone Real Estate VIII.TE.1 L.P.	150,000,000	175,911,544	179,135,559	20,084,336	111,352,503	1.65	14.7	2015
Blackstone Real Estate Partners IX, L.P.	300,000,000	323,714,309	108,788,537	46,870,545	350,501,943	1.42	18.8	2018
Blackstone Real Estate Partners X	200,000,000	10,937,299	0	191,712,945	8,235,261	0.75	-34.3	2022
Blackstone Strategic Partners	75,000,000	77,489,832	66,308,764	916,710	355,309	0.86	-2.2	
Strategic Partners III RE, L.P.	25,000,000	25,981,841	15,327,012	9,006	9,924	0.59	-6.5	2005
Strategic Partners IV RE, L.P.	50,000,000	51,507,991	50,981,752	907,704	345,386	1.00	-0.1	2008
Brookfield Asset Management Inc.	400,000,000	190,043,233	11,337,228	221,227,189	194,198,979	1.08	10.0	
Brookfield Strategic Real Estate Partners IV	300,000,000	190,043,233	11,337,228	121,227,189	194,198,979	1.08	10.0	2021
Brookfield Strategic Real Estate Partners V	100,000,000	0	0	100,000,000	0			2023
Carlyle Group	450,000,000	184,717,563	115,558,418	338,623,353	128,419,835	1.32	21.3	
Carlyle Realty Partners VIII, L.P.	150,000,000	127,140,980	115,558,418	96,199,936	75,017,612	1.50	24.6	2017
Carlyle Realty Partners IX	300,000,000	57,576,583	0	242,423,417	53,402,223	0.93	-11.1	2021
Kohlberg, Kravis, Roberts & Co.	125,000,000	85,874,703	6,701,036	46,779,146	76,519,003	0.97	-2.1	
KKR Real Estate Partners Americas III	125,000,000	85,874,703	6,701,036	46,779,146	76,519,003	0.97	-2.1	2021
Landmark Partners	249,500,000	112,738,434	69,314,246	159,474,965	79,653,570	1.32	13.8	
Landmark Real Estate Partners VIII, L.P.	149,500,000	112,738,434	69,314,246	59,474,965	79,653,570	1.32	13.8	2016
Landmark Real Estate Partners IX	100,000,000	0	0	100,000,000	0			2021
Lubert Adler	174,147,868	155,045,244	89,073,212	21,986,552	108,359,655	1.27	13.1	
Lubert-Adler Real Estate Fund VII-B, L.P.	74,147,868	67,585,213	82,515,205	7,414,787	20,773,051	1.53	15.1	2017
Lubert-Adler Recovery and Enhancement Capital Fund	100,000,000	87,460,030	6,558,008	14,571,765	87,586,604	1.08	6.6	2021
Oaktree Capital Management, LLC	200,000,000	150,475,519	37,225,052	84,000,000	123,721,901	1.07	7.7	
Oaktree Real Estate Opportunities Fund VIII	200,000,000	150,475,519	37,225,052	84,000,000	123,721,901	1.07	7.7	2020



Quarterly Report

Participant Directed Investment Program

December 31, 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	\$115,785,128	9.9%	18.1%	4.3%	10.2%	8.0%	01/1980
U.S. EQUITY ACTIVELY MANAGED FUND	89,767,566	12.6	26.8	7.5	15.8	11.7	07/1986
U.S. EQUITY INDEX FUND	421,284,700	12.1	26.0	8.7	15.4	11.6	07/1986
BROAD INTERNATIONAL EQUITY FUND	142,179,980	8.6	15.6	2.8	8.2	4.5	09/1994
BOND FUND	105,530,588	7.4	7.0	-3.1	1.8	2.4	07/1986
MONEY MARKET FUND	770,256,101	1.4	5.4	2.5	2.1	1.4	07/1986
STABLE VALUE FUND	1,607,461,214	0.8	2.9	2.3	2.4	2.2	11/1994
VOLUNTEER FIREFIGHTER ACCOUNT	177,538,490	8.9	14.7	2.2	7.7	6.0	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	\$115,785,128	9.9%	18.1%	4.3%	10.2%	8.0%
SIF BALANCED FUND BENCHMARK		9.7%	17.5%	4.2%	9.8%	7.8%
Excess		0.2%	0.6%	0.2%	0.4%	0.2%

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	89,767,566	12.6	26.8	7.5	15.8	11.7
Russell 3000		12.1	26.0	8.5	15.2	11.5
Excess		0.6	0.9	-1.1	0.6	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	\$421,284,700	12.1%	26.0%	8.7%	15.4%	11.6%
Russell 3000		12.1%	26.0%	8.5%	15.2%	11.5%
Excess		0.1%	0.1%	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	142,179,980	8.6	15.6	2.8	8.2	4.5
International Equity Benchmark		9.8	15.6	1.5	7.1	3.8
Excess		-1.1	-0.1	1.3	1.1	0.6



Supplemental Investment Fund Performance

Bond Fund

The investment objective of the Bond Fund is to exceed the return of the broad domestic bond market by investing in fixed income securities. The Bond Fund invests primarily in high-quality, government and corporate bonds that have intermediate to long-term maturities, usually 3 to 20 years. The Bond Fund benchmark is the Bloomberg U.S. Aggregate.

	<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	\$105,530,588	7.4%	7.0%	-3.1%	1.8%	2.4%
Bloomberg U.S. Aggregate		6.8%	5.5%	-3.3%	1.1%	1.8%
Excess		0.6%	1.5%	0.2%	0.7%	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	770,256,101	1.4	5.4	2.5	2.1	1.4
ICE BofA US 3-Month Treasury Bill		1.4	5.0	2.2	1.9	1.3
Excess		0.1	0.4	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	\$1,607,461,214	0.8%	2.9%	2.3%	2.4%	2.2%
Fixed Interest Blended Benchmark		1.2%	4.8%	3.0%	2.5%	2.2%
Excess		-0.5%	-1.9%	-0.8%	-0.1%	0.1%

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	177,538,490	8.9	14.7	2.2	7.7	6.0
SIF Volunteer Firefighter Account BM		8.8	14.0	2.0	7.2	5.7
Excess		0.1	0.7	0.2	0.5	0.3



Mutual Funds

The mutual fund investment line-up provides investment options to the Minnesota Deferred Compensation Plan (MNDCP), Unclassified Retirement Plan, Health Care Savings Plan, and the Hennepin County Retirement Plan. The MNDCP is a tax-sheltered retirement savings plan that is supplemental to public employees primary retirement plan. (In most cases, the primary plan is a defined benefit plan administered by TRA, PERA, or MSRS.) Participants can choose from active and passively managed stock and bond funds, a Stable Value Fund, a Money Market Fund, a set of 10 target date retirement fund options, and a brokerage window where participants can choose from hundreds of mutual funds.

	<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	\$833,118,978	12.2%	26.0%	8.5%			07/2019
VANGUARD INSTITUTIONAL INDEX PLUS	1,916,139,064	11.7	26.3	10.0	15.7%	12.0%	07/1999
VANGUARD DIVIDEND GROWTH	988,155,929	10.4	8.1	8.7	13.5		10/2016
VANGUARD MID CAP INDEX	761,445,320	12.3	16.0	5.5	12.7	9.4	01/2004
T. ROWE PRICE SMALL-CAP STOCK	897,030,129	14.6	17.6	1.7	12.0	9.4	04/2000
FIDELITY DIVERSIFIED INTERNATIONAL	345,145,350	10.2	17.7	0.7	9.7	5.1	07/1999
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	377,438,715	10.0	15.5	1.8	7.4	4.1	07/2011
VANGUARD BALANCED INDEX	1,409,870,209	10.0	17.6	3.7	9.6	7.7	12/2003
DODGE & COX INCOME	303,607,707	7.3	7.7	-1.7	2.7	2.8	07/1999
VANGUARD TOTAL BOND MARKET INDEX	328,651,632	6.7	5.7	-3.3	1.1	1.8	12/2003
2025 FUND	213,755,675	7.0	10.4	2.1	6.7	5.2	07/2011
2030 FUND	235,337,238	8.2	12.9	2.2	8.0	6.1	07/2011
2035 FUND	194,431,387	9.8	15.8	2.3	8.9	6.7	07/2011
2040 FUND	161,202,183	10.6	16.9	2.6	9.4	7.0	07/2011
2045 FUND	155,728,176	10.9	17.8	2.9	9.9	7.3	07/2011
2050 FUND	140,248,899	11.2	18.6	3.2	10.4	7.5	07/2011
2055 FUND	94,318,277	11.5	19.4	3.4	10.6	7.6	07/2011
2060 FUND	71,556,519	11.5	19.5	3.5	10.6	7.6	07/2011
2065 FUND	14,627,666	11.5	19.5	3.5			04/2020
INCOME FUND	208,927,497	6.7	9.7	1.8	5.5	4.1	07/2011
Charles Schwab SDB	86,021,769						
Charles Schwab SDB Roth	3,553,763						



Mutual Funds

LARGE CAP EQUITY

Vanguard Total Stock Market Institutional Index Plus (passive)

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

Vanguard Index Institutional Plus (passive)

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

Vanguard Dividend Growth (active) (1)

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

MID CAP EQUITY

Vanguard Mid Cap Index (passive) (2)

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

SMALL CAP EQUITY

T Rowe Price Small Cap (active)

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

INTERNATIONAL EQUITY

Fidelity Diversified International (active)

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

Vanguard Total International Stock Index (passive) (3)

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

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>Option Since</u>
Large Cap US Equity						
VANGUARD TOTAL STOCK MARKET INSTITUTIONAL INDEX PLUS	\$833,118,978	12.2%	26.0%	8.5%		07/2019
CRSP US Total Market Index		12.1	26.0	8.4		07/2019
Excess		0.0	0.1	0.0		
VANGUARD INSTITUTIONAL INDEX PLUS	1,916,139,064	11.7	26.3	10.0	15.7%	07/1999
S&P 500		11.7	26.3	10.0	15.7	07/1999
Excess		-0.0	-0.0	-0.0	-0.0	
VANGUARD DIVIDEND GROWTH	988,155,929	10.4	8.1	8.7	13.5	10/2016
VANGUARD DIVIDEND GROWTH INDEX		10.3	14.5	8.6	13.9	10/2016
Excess		0.1	-6.4	0.1	-0.4	
Mid Cap US Equity						
VANGUARD MID CAP INDEX	761,445,320	12.3	16.0	5.5	12.7	01/2004
CRSP US Mid Cap Index		12.3	16.0	5.5	12.7	01/2004
Excess		0.0	0.0	0.0	0.0	
Small Cap US Equity						
T. ROWE PRICE SMALL-CAP STOCK	897,030,129	14.6	17.6	1.7	12.0	04/2000
Russell 2000		14.0	16.9	2.2	10.0	04/2000
Excess		0.6	0.6	-0.5	2.0	
International Equity						
FIDELITY DIVERSIFIED INTERNATIONAL	345,145,350	10.2	17.7	0.7	9.7	07/1999
MSCI EAFE FREE (NET)		10.4	18.2	4.0	8.2	07/1999
Excess		-0.2	-0.5	-3.4	1.5	
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	377,438,715	10.0	15.5	1.8	7.4	07/2011
FTSE Global All Cap ex US Index Net		9.7	15.6	1.7	7.3	07/2011
Excess		0.2	-0.0	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.

(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.

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	\$1,409,870,209	10.0%	17.6%	3.7%	9.6%	12/2003
Vanguard Balanced Fund Benchmark		10.0	17.5	3.8	9.7	12/2003
Excess		0.0	0.0	-0.1	-0.1	

Fixed Income

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
DODGE & COX INCOME	303,607,707	7.3	7.7	-1.7	2.7	07/1999
Bloomberg U.S. Aggregate		6.8	5.5	-3.3	1.1	07/1999
Excess		0.5	2.2	1.7	1.6	

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
VANGUARD TOTAL BOND MARKET INDEX	328,651,632	6.7	5.7	-3.3	1.1	12/2003
Bloomberg U.S. Aggregate		6.8	5.5	-3.3	1.1	12/2003
Excess		-0.1	0.2	-0.0	0.0	

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
MONEY MARKET FUND	770,256,101	1.4	5.4	2.5	2.1	07/1986
ICE BofA US 3-Month Treasury Bill		1.4	5.0	2.2	1.9	07/1986
Excess		0.1	0.4	0.3	0.2	

Stable Value

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
STABLE VALUE FUND	1,607,461,214	0.8	2.9	2.3	2.4	11/1994
Fixed Interest Blended Benchmark		1.2	4.8	3.0	2.5	11/1994
Excess		-0.5	-1.9	-0.8	-0.1	



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	\$213,755,675	7.0%	10.4%	2.1%	6.7%	07/2011	2050 FUND	\$140,248,899	11.2%	18.6%	3.2%	10.4%	07/2011
2025 FUND BENCHMARK		7.0%	10.4%	2.1%	6.7%	07/2011	2050 FUND BENCHMARK		11.2%	18.6%	3.2%	10.4%	07/2011
Excess		-0.0%	0.0%	-0.0%	-0.0%		Excess		-0.0%	0.1%	0.0%	0.0%	
2030 FUND	\$235,337,238	8.2%	12.9%	2.2%	8.0%	07/2011	2055 FUND	\$94,318,277	11.5%	19.4%	3.4%	10.6%	07/2011
2030 FUND BENCHMARK		8.3%	12.9%	2.2%	8.0%	07/2011	2055 FUND BENCHMARK		11.5%	19.4%	3.4%	10.6%	07/2011
Excess		-0.0%	0.0%	-0.0%	0.0%		Excess		-0.0%	0.1%	0.0%	-0.0%	
2035 FUND	\$194,431,387	9.8%	15.8%	2.3%	8.9%	07/2011	2060 FUND	\$71,556,519	11.5%	19.5%	3.5%	10.6%	07/2011
2035 FUND BENCHMARK		9.9%	15.7%	2.3%	8.9%	07/2011	2060 FUND BENCHMARK		11.5%	19.4%	3.4%	10.7%	07/2011
Excess		-0.0%	0.0%	-0.0%	0.0%		Excess		-0.0%	0.1%	0.0%	-0.0%	
2040 FUND	\$161,202,183	10.6%	16.9%	2.6%	9.4%	07/2011	2065 FUND	\$14,627,666	11.5%	19.5%	3.5%		04/2020
2040 FUND BENCHMARK		10.6%	16.9%	2.6%	9.4%	07/2011	2065 FUND BENCHMARK		11.5%	19.4%	3.4%		04/2020
Excess		-0.0%	0.1%	-0.0%	0.0%		Excess		-0.0%	0.1%	0.0%		
2045 FUND	\$155,728,176	10.9%	17.8%	2.9%	9.9%	07/2011	INCOME FUND	\$208,927,497	6.7%	9.7%	1.8%	5.5%	07/2011
2045 FUND BENCHMARK		10.9%	17.8%	2.9%	9.9%	07/2011	INCOME FUND BENCHMARK		6.7%	9.7%	1.8%	5.5%	07/2011
Excess		-0.0%	0.1%	-0.0%	-0.0%		Excess		-0.0%	0.0%	-0.0%	-0.0%	

Note: Each SSgA Fund benchmark is the aggregate of the returns of the Fund's underlying index funds weighted by the Fund's asset allocation



MN College Savings Plan Options

The Minnesota College Savings Plan is an education savings plan designed to help families set aside funds for future college costs. The SBI is responsible for the investments and the Minnesota Office of Higher Education (OHE) is responsible for the overall administration of the Plan.

The SBI and OHE contract jointly with TIAA to provide administrative, marketing, communication, recordkeeping and investment management services. Please see the next page for the performance as reported by TIAA.

ENROLLMENT-BASED MANAGED ALLOCATIONS - The Enrollment Year Investment Option is a set of single fund options representing the date your future student needs their college savings. The asset allocation adjusts automatically to a more conservative investment objective and level of risk as the enrollment year approaches. The managed allocation changed from Age-Based to Enrollment-Based on October 28, 2019.

RISK BASED ALLOCATIONS - The Risk Based Allocation Option offers three separate allocation investment options - Aggressive, Moderate and Conservative, each of which has a fixed risk level that does not change as the Beneficiary ages.

ASSET CLASS BASED ALLOCATIONS

U.S. LARGE CAP EQUITY INDEX - A passive domestic stock portfolio that tracks the S&P 500.

INTERNATIONAL EQUITY INDEX - A fund that passively invests in a mix of developed and emerging market equities. The fund is expected to track a weighted benchmark of 80% MSCI ACWI World ex USA and 20% MSCI Emerging Markets Free Index.

U.S. AND INTERNATIONAL EQUITY INDEX - A fund that invests in a mix of equities, both U.S. and international, across all capitalization ranges and real estate-related securities. The fund is expected to track a weighted benchmark of 60% Russell 3000, 24% International, 6% Emerging Markets, and 10% Real Estate Securities Fund.

PRINCIPAL PLUS INTEREST OPTION - A passive fund where contributions are invested in a Funding Agreement issued by TIAA-CREF Life. The funding agreement provides for a return of principal plus a guaranteed rate of interest which is made by the insurance company to the policyholder, not the account owners. The account is expected to outperform the return of the 3-month T-Bill.

EQUITY AND INTEREST ACCUMULATION - A fund that passively invests half of the portfolio in U.S. equities across all capitalization ranges and the other half in the same Funding Agreement issued by TIAA-CREF Life as described above. The fund is expected to track a weighted benchmark of 50% Russell 3000 and 50% 3-month T-Bill.

100% FIXED INCOME - A fund that passively invests in fixed income holdings that tracks the Bloomberg U.S. Aggregate and two active funds that invest in inflation-linked bonds and high yield securities. The fund is expected to track a weighted benchmark of 70% Bloomberg U.S. Aggregate, 20% inflation-linked bond, and 10% high yield.

MONEY MARKET - An active fund that invests in high-quality, short-term money market instruments of both domestic and foreign issuers that tracks the iMoneyNet Average All Taxable benchmark.

SOCIAL CHOICE EQUITY ALLOCATION – An actively managed fund that seeks to provide a favorable long-term total return that reflects the investment performance of the overall U.S. equity market while giving special consideration to companies whose activities are consistent with certain environmental, social and governance criteria.

MINNESOTA COLLEGE SAVINGS PLAN

Performance Statistics for the Period Ending: December 31, 2023

Total = \$1,890 Million

Fund Name	Ending Market	3 Months	1 Year	Annualized			Since Inception	Inception Date
				3 Years	5 Years	10 Years		
2040/2041 Enrollment Option	\$7,014,979	10.76%					11.20%	5/12/2023
2040-2041 Custom Benchmark		10.62%					11.87%	
2038/2039 Enrollment Option	\$35,272,505	10.64%	18.05%				1.55%	6/11/2021
2038-2039 Custom Benchmark		10.48%	18.37%				1.64%	
2036/2037 Enrollment Option	\$86,736,590	10.40%	17.41%	4.64%			7.80%	10/28/2019
2036-2037 Custom Benchmark		10.25%	17.75%	4.83%			7.74%	
2034/2035 Enrollment Option	\$69,634,914	10.12%	16.80%	4.36%			7.42%	10/28/2019
2034-2035 Custom Benchmark		10.00%	17.09%	4.51%			7.36%	
2032/2033 Enrollment Option	\$75,037,348	9.59%	15.61%	3.85%			6.98%	10/28/2019
2032-2033 Custom Benchmark		9.53%	15.95%	4.05%			6.93%	
2030/2031 Enrollment Option	\$84,981,233	8.69%	13.78%	3.17%			6.24%	10/28/2019
2030-2031 Custom Benchmark		8.67%	14.23%	3.41%			6.22%	
2028/2029 Enrollment Option	\$103,901,644	7.71%	11.88%	2.48%			5.34%	10/28/2019
2028-2029 Custom Benchmark		7.83%	12.59%	2.76%			5.34%	
2026/2027 Enrollment Option	\$135,432,531	6.55%	9.96%	1.81%			4.52%	10/28/2019
2026-2027 Custom Benchmark		6.69%	10.88%	2.16%			4.58%	
2024/2025 Enrollment Option	\$174,993,111	4.57%	7.25%	1.32%			3.78%	10/28/2019
2024-2025 Custom Benchmark		4.99%	8.98%	1.88%			3.96%	
In School Option	\$312,002,866	3.88%	6.04%	1.37%			2.83%	10/28/2019
In School Custom Benchmark		4.35%	7.89%	1.72%			2.72%	

MINNESOTA COLLEGE SAVINGS PLAN
Performance Statistics for the Period Ending: December 31, 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	\$291,573,430	12.00%	21.52%	6.50%	12.12%	8.87%	7.56%	10/1/2001
BB: U.S. and International Equity Option		11.78%	21.90%	6.75%	12.08%	8.93%	8.22%	
Moderate Allocation Option	\$101,769,522	9.53%	15.17%	3.28%	8.30%	6.33%	5.64%	8/2/2007
BB: Moderate Allocation Option		9.46%	15.52%	3.50%	8.31%	6.46%	6.12%	
100% Fixed-Income Option	\$17,890,112	5.87%	6.02%	-1.80%	1.92%	2.02%	2.86%	8/16/2007
BB: 100% Fixed-Income Option		5.95%	6.19%	-1.66%	2.14%	2.31%	3.38%	
International Equity Index Option	\$10,761,266	9.95%	16.24%	2.60%	7.44%	3.99%	4.84%	6/18/2013
BB: International Equity Index Option		9.91%	16.56%	2.22%	7.35%	4.04%	4.92%	
Money Market Option	\$23,355,952	1.33%	4.95%	2.10%	1.73%	1.09%	0.84%	11/1/2007
BB: Money Market Option		1.27%	4.76%	2.02%	1.62%	1.01%	0.77%	
Principal Plus Interest Option	\$101,404,548	0.72%	2.08%	1.58%	1.73%	1.58%	2.33%	10/10/2001
Citigroup 3-Month U.S. Treasury Bill		1.41%	5.26%	2.25%	1.91%	1.26%	1.43%	
Aggressive Allocation Option	\$97,961,999	10.75%	18.33%	4.92%	10.19%		7.60%	8/12/2014
BB: Aggressive Allocation Option		10.62%	18.70%	5.15%	10.23%		7.59%	
Conservative Allocation Option	\$16,847,638	6.39%	9.49%	1.66%	5.10%		3.90%	8/18/2014
BB: Conservative Allocation Option		6.58%	10.65%	2.02%	5.29%		4.04%	
Equity and Interest Accumulation Option	\$9,544,631	6.29%	13.56%	5.22%	8.41%		6.53%	8/18/2014
BB: Equity and Interest Accumulation Option		6.74%	15.49%	5.75%	8.84%		6.69%	
U.S. Large Cap Equity Option	\$130,769,027	11.66%	26.12%	9.85%	15.52%		11.98%	8/12/2014
BB: U.S. Large Cap Equity Option		11.69%	26.29%	10.00%	15.69%		12.10%	
Social Choice Equity Option	\$2,228,875	12.70%	22.41%				4.14%	6/11/2021
BB: Social Choice Equity Option		12.07%	25.96%				4.66%	
Matching Grant	\$1,131,978	0.72%	2.08%	1.58%	1.73%	1.58%	2.33%	3/22/2002
Citigroup 3-Month U.S. Treasury Bill		1.41%	5.26%	2.25%	1.91%	1.26%	1.43%	

MINNESOTABLE *plan*

A member of The National ABLE Alliance

Performance as of
12/31/23

Total Market Value: **\$41,754,202**

<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	\$3,211,052	7.69%	6.27	11.72	19.12	19.12	4.03	10.13		8.38	12/15/16
ABLE Aggressive Custom Benchmark			6.27	11.75	19.45	19.45	4.25	10.46		8.78	
Variance			(0.00)	(0.03)	(0.33)	(0.33)	(0.22)	(0.33)		(0.40)	
Moderately Aggressive Option	\$3,614,603	8.66%	5.69	10.57	16.74	16.74	3.31	8.91		7.40	12/15/16
ABLE Moderately Aggressive Custom Benchmark			5.72	10.66	17.15	17.15	3.55	9.21		7.78	
Variance			(0.03)	(0.09)	(0.41)	(0.41)	(0.24)	(0.30)		(0.38)	
Growth Option	\$5,196,677	12.45%	4.90	9.14	14.32	14.32	2.55	7.59		6.33	12/15/16
ABLE Growth Custom Benchmark			4.89	9.21	14.67	14.67	2.77	7.87		6.69	
Variance			0.01	(0.07)	(0.35)	(0.35)	(0.22)	(0.28)		(0.36)	
Moderate Option	\$4,908,069	11.75%	4.22	7.90	11.94	11.94	1.76	6.21		5.25	12/15/16
ABLE Moderate Custom Benchmark			4.23	8.00	12.32	12.32	1.97	6.50		5.58	
Variance			(0.01)	(0.10)	(0.38)	(0.38)	(0.21)	(0.29)		(0.33)	
Moderately Conservative Option	\$4,551,399	10.90%	3.11	6.00	9.50	9.50	1.69	4.80		4.09	12/15/16
ABLE Moderately Conservative Custom Benchmark			3.13	6.09	10.04	10.04	1.92	5.07		4.39	
Variance			(0.02)	(0.09)	(0.54)	(0.54)	(0.23)	(0.27)		(0.30)	
Conservative Option	\$7,580,951	18.16%	1.55	3.23	6.10	6.10	1.42	2.75		2.41	12/15/16
ABLE Conservative Custom Benchmark			1.63	3.41	6.89	6.89	1.75	3.03		2.68	
Variance			(0.08)	(0.18)	(0.79)	(0.79)	(0.33)	(0.28)		(0.27)	
Checking Account Option	\$12,691,450	30.40%									03/30/17

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Quarterly Report

Non-Retirement

December 31, 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.

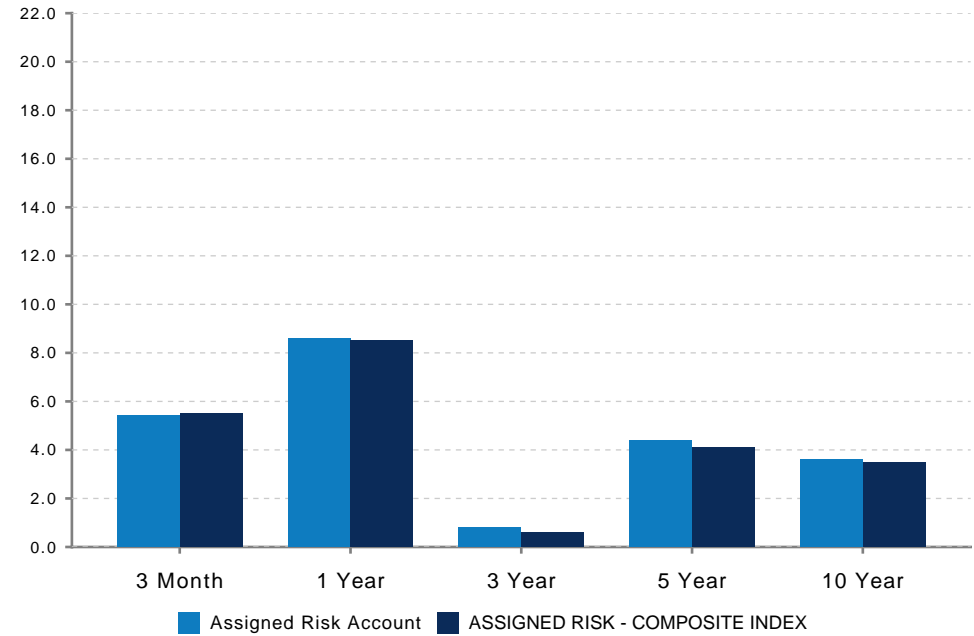


Non-Retirement

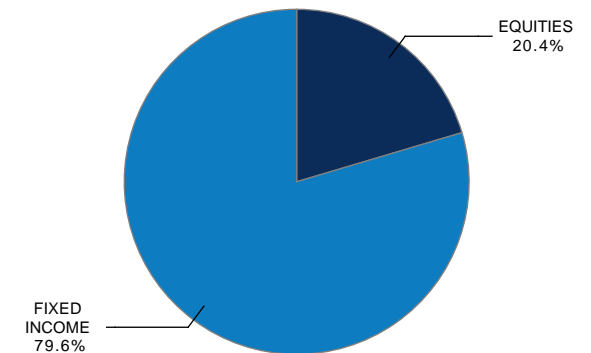
Assigned Risk Plan

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	\$272,689,618	5.4%	8.6%	0.8%	4.4%	3.6%
EQUITIES	\$55,764,515	11.6%	26.2%	10.0%	15.7%	11.6%
FIXED INCOME	\$216,925,103	3.9%	4.5%	-1.7%	1.1%	1.3%
ASSIGNED RISK - COMPOSITE INDEX		5.5%	8.5%	0.6%	4.1%	3.5%
Excess		-0.1%	0.1%	0.2%	0.3%	0.1%
S&P 500		11.7%	26.3%	10.0%	15.7%	12.0%
Bloomberg U.S. Government: Intermediate		4.0%	4.3%	-1.8%	1.0%	1.2%



Note: Since 12/1/2017 the Assigned Risk equity segment has been managed by Mellon. From 1/17/2017-11/30/2017 it was managed internally by SBI staff. Prior to 1/17/2017 the equity segment was managed by SSgA (formerly GE Investment Mgmt.). RBC manages the fixed income segment of the Fund.



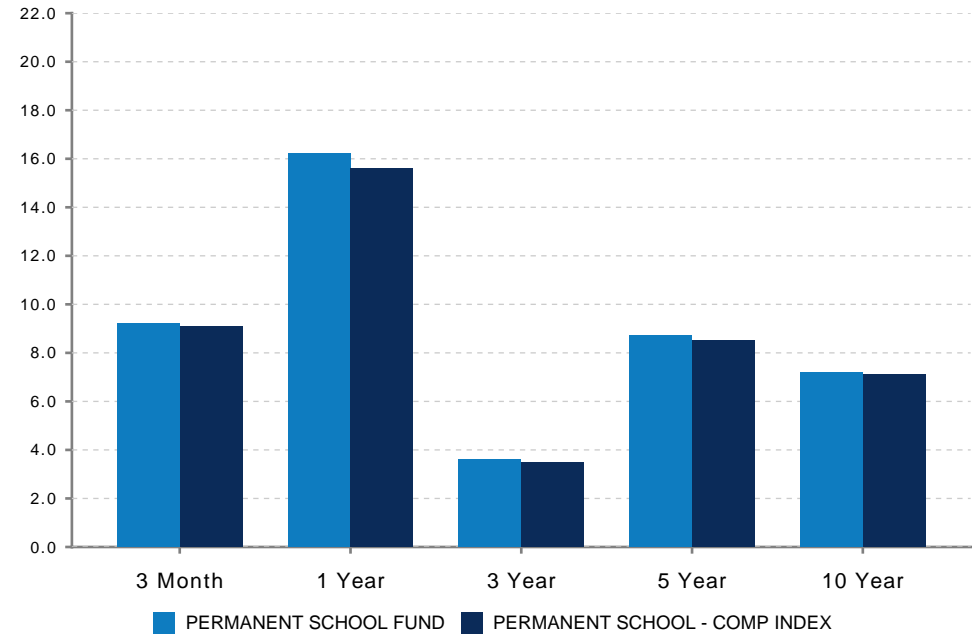
Non-Retirement

Permanent School Fund

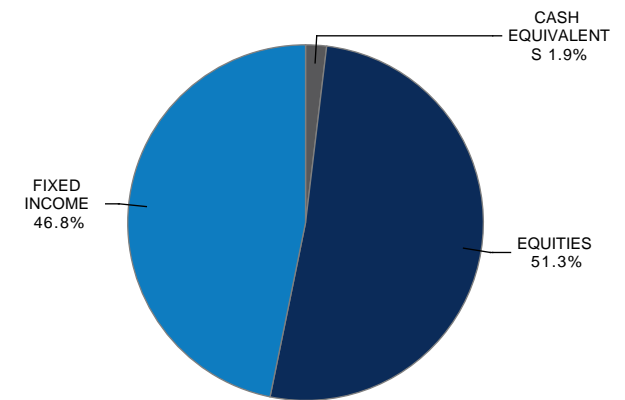
The investment objective of the Permanent School Fund is to produce a growing level of spendable income, within the constraints of maintaining adequate portfolio quality and liquidity. The income from the portfolio is transferred to the school endowment fund and distributed to Minnesota's public schools.

The Permanent School Fund is invested in a balanced portfolio of common stocks and bonds. Common stocks provide the potential for significant capital appreciation, while bonds provide portfolio diversification and a more stable stream of current income.

The stock segment is passively managed to track the performance of the S&P 500. The bond segment is actively managed to add incremental value through sector, security and yield curve decisions. The fixed income benchmark is the Bloomberg U.S. Aggregate. The total fund benchmark is a combination of the fixed income and equity benchmarks, weighted according to the total fund asset allocation targets of 2% cash, 50% equity, and 48% fixed income. The actual asset mix will fluctuate and is shown in the graph below.



	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
PERMANENT SCHOOL FUND	\$1,995,210,457	9.2%	16.2%	3.6%	8.7%	7.2%
CASH EQUIVALENTS	38,157,162	1.4	5.3	2.3	2.0	1.3
EQUITIES	1,022,645,150	11.6	26.2	10.0	15.7	12.0
FIXED INCOME	934,408,145	7.0	6.3	-3.3	1.4	2.1
PERMANENT SCHOOL - COMP INDEX		9.1	15.6	3.5	8.5	7.1
Excess		0.1	0.6	0.1	0.1	0.1
S&P 500		11.7	26.3	10.0	15.7	12.0
Bloomberg U.S. Aggregate		6.8	5.5	-3.3	1.1	1.8



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.



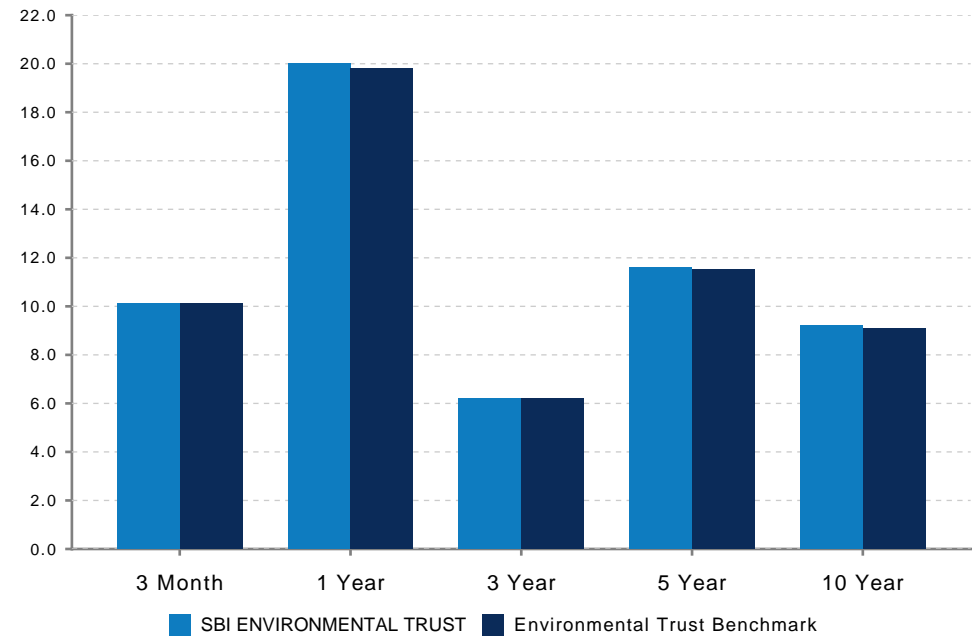
Non-Retirement

Environmental Trust Fund

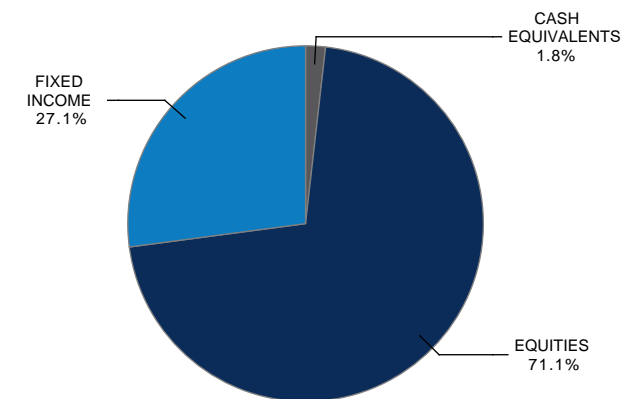
The objective of the Environmental Trust Fund is to increase the market value of the Fund over time in order to increase the annual amount made available for spending within the constraints of maintaining adequate portfolio quality and liquidity.

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	\$1,714,230,977	10.1%	20.0%	6.2%	11.6%	9.2%
CASH EQUIVALENTS	31,507,498	1.4	5.3	2.3	2.0	1.3
EQUITIES	1,218,771,198	11.6	26.2	10.0	15.7	12.0
FIXED INCOME	463,952,280	7.0	6.3	-3.3	1.4	2.1
Environmental Trust Benchmark		10.1	19.8	6.2	11.5	9.1
Excess		0.0	0.2	0.0	0.2	0.1
S&P 500		11.7	26.3	10.0	15.7	12.0
Bloomberg U.S. Aggregate		6.8	5.5	-3.3	1.1	1.8



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.

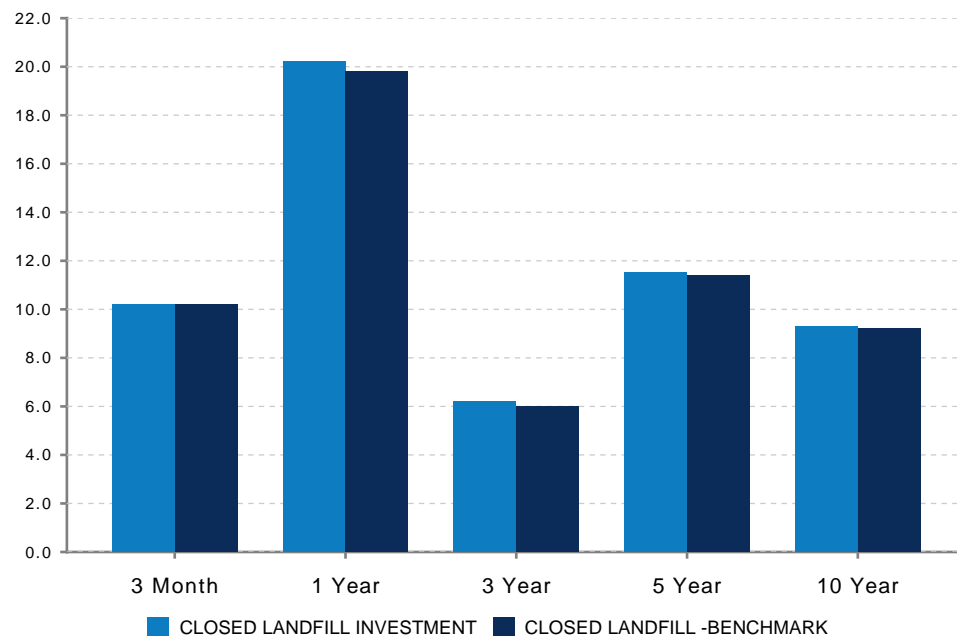


Non-Retirement

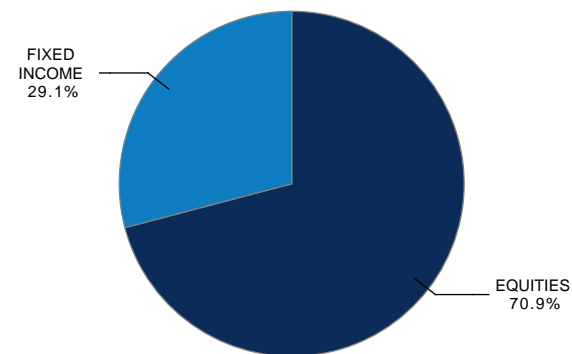
Closed Landfill Investment Fund

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	\$136,357,799	10.2%	20.2%	6.2%	11.5%	9.3%
EQUITIES	96,662,769	11.6	26.2	10.0	15.7	12.0
FIXED INCOME	39,695,030	7.0	6.3	-3.3	1.4	
CLOSED LANDFILL -BENCHMARK		10.2	19.8	6.0	11.4	9.2
Excess		0.0	0.4	0.2	0.1	0.1
S&P 500		11.7	26.3	10.0	15.7	12.0
Bloomberg U.S. Aggregate		6.8	5.5	-3.3	1.1	1.8



Note: Since 12/1/2017 the equity segment has been managed by Mellon and the fixed income segment by Prudential. Prior to 12/1/2017 both segments were managed internally by SBI staff. Prior to 9/10/14 the Fund's target allocation and benchmark was 100% domestic equity.



	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
NON RETIREMENT EQUITY INDEX - MELLON	3,294,929,831	11.7	8.0	26.3	10.0	15.7	12.0	10.2	07/1993
S&P 500 INDEX (DAILY)		11.7	8.0	26.3	10.0	15.7	12.0	10.1	07/1993
Excess		-0.0	0.0	-0.0	-0.0	-0.0	0.0	0.1	
NON RETIREMENT FIXED INCOME - PRUDENTIAL	1,627,972,799	7.0	3.8	6.3	-3.3	1.4	2.1	5.1	07/1994
Bloomberg U.S. Aggregate		6.8	3.4	5.5	-3.3	1.1	1.8	4.6	07/1994
Excess		0.2	0.5	0.8	0.0	0.3	0.3	0.5	
RBC	216,925,172	4.0	3.1	4.5	-1.7	1.1	1.3	4.3	07/1991
RBC Custom Benchmark		4.0	3.2	4.3	-1.8	1.0	1.2	4.3	07/1991
Excess		-0.0	-0.0	0.2	0.1	0.1	0.1	-0.1	
MET COUNCIL OPEB BOND POOL	119,628,938	3.2	3.0	4.1	-0.7	1.0			02/2009
NON RETIREMENT CASH ACCOUNT	729,764,009	1.4	2.8	5.3	2.3	2.0		2.0	12/2017
ICE BofA US 3-Month Treasury Bill		1.4	2.7	5.0	2.2	1.9		1.9	12/2017
Excess		0.0	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

December 31, 2023



State Cash Accounts

Invested Treasurer's Cash

The Invested Treasurer's Cash Pool (ITC) represents the balances in more than 400 separate accounts that flow through the Minnesota State Treasury. These accounts vary greatly in size. The ITC contains the cash balances of certain State agencies and non-dedicated cash in the State Treasury.

The investment objectives of the ITC, in order of priority, are as follows:

- Safety of Principal. To preserve capital.
- Liquidity. To meet cash needs without the forced sale of securities at a loss.
- Competitive Rate of Return. To provide a level of current income consistent with the goal of preserving capital.

The SBI seeks to provide safety of principal by investing all cash accounts in high quality, liquid, short term investments. These include U.S. Treasury and Agency issues, repurchase agreements, bankers acceptances, commercial paper, and certificates of deposit.

Beginning in January 2003, the Treasurer's Cash Pool is measured against the iMoneyNet, All Taxable Money Fund Report Average.

	<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	26,851,099,428	1.6	5.4	1.8	1.8	1.2
iMoneyNet Money Fund Average-All Taxable		1.3	4.8	2.0	1.7	1.0

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	93,966,457	5.7	7.7	1.3	2.8	1.7
Housing Finance (1)	820,696,226	1.8	9.7			

1. Housing Finance performance will be shown with first full quarter of performance.



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.

