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# **INVESTMENT ADVISORY COUNCIL**

## **OF THE MINNESOTA STATE BOARD OF INVESTMENT**

**INVESTMENT ADVISORY COUNCIL  
MEETING  
November 14, 2022**



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

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**INVESTMENT ADVISORY COUNCIL  
MEETING**

**AGENDA**

**November 14, 2022**

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**AGENDA**  
**INVESTMENT ADVISORY COUNCIL MEETING**

**In-Person Meeting**  
**Monday, November 14, 2022**  
**12:00 p.m.**  
**Retirement Systems Building**  
**Room 106 – Main Floor**  
**60 Empire Drive, St. Paul, MN**

**TAB**

**1. Call to Order**

|  |                      |
|--|----------------------|
| <b>2. Approval of Minutes of August 15, 2022</b> | <b>Motion Needed</b> |
|--|----------------------|

|  |          |
|--|----------|
| <b>3. Performance Summary (Jill Schurtz)</b> | <b>A</b> |
|--|----------|

|   |          |
|---|----------|
| <b>4. Executive Director’s Administrative Report (Jill Schurtz)</b> | <b>B</b> |
|---|----------|

1. Executive Director’s First Thirty Days Overview
2. Report on Budget and Travel
3. FY22 Audit Report
4. Draft of FY22 Annual Report
5. Meeting Dates for Calendar 2023
6. Russia/Belarus Update
7. Sudan Update
8. Iran Update
9. Thermal Coal Update
10. Litigation Update

|   |          |
|---|----------|
| <b>5. Private Markets Investment Program Report</b><br>(Jill Schurtz, Andrew Krech, Erol Sonderegger) | <b>C</b> |
|---|----------|

**6. Other Items**

**REPORTS**

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

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Approval of  
August 15, 2022  
IAC Meeting Minutes

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**Minutes  
Investment Advisory Council  
August 15, 2022**

**Notice of Meeting and Call to Order**

The Investment Advisory Council (IAC) met at 12:00 p.m. on Monday, August 15, 2022. The meeting was conducted in person and via Zoom for Government video conferencing software and over the phone. Attendance and all votes were conducted by roll call.

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

**MEMBERS ABSENT:** Denise Anderson, Dennis Duerst, Carol Peterfeso, and Martha Severson Rush.

**SBI STAFF:** Mansco Perry, Patricia Ammann, Paul Anderson, Shirley Baribeau, Nate Blumenshine, Tammy Brusehaver, Andy Christensen, Mike Clancey, Dan Covich, Stephanie Gleeson, Aaron Griga, Ben Harris, Cathy Hua, Keletso Kgari, Andrew Krech, Todd Lauf, Melissa Mader, Sumaya Mohamed, Mercy Ndungu, Kelly Nordstrom, Charlene Olson, S. Emily Pechacek, Iryna Shafir, Erol Sonderegger, Jonathan Stacy, Reece Tolkinen, David Velasquez, and Samir Zahar.

**OTHERS ATTENDING:** Kristen Doyle, Aon Investments; Sarah Bernstein, Gordon Latter, and Ghiane Jones, Meketa Investment Group; Sean Crawford, Albourne America; Luz Frias and J. Adam Sorenson, Attorney General's Office; Karl Procaccini and Jake Smith, Governor's Office; Ramona Advani, State Auditor's Office; Bibi Black, Secretary of State's Office; Edger Hernandez, SEIU; Calvin Bahr and Margaret Martin, Minnesota House of Representatives; and Janet Anderson, Emily Moore, and Steve Smith, Minnesota Divestment Coalition.

Additional members of the public attended the meeting; however due to the meeting being held via virtual teleconference the SBI was unable to track the information.

**Approval of IAC Minutes**

The minutes of the May 16, 2022 meeting were approved by roll call vote. Gary Martin, Chair of the IAC, noted that the minutes approved by the IAC reflect Bibi Black in attendance and that Kim Faust served as Chair of the meeting.

## **Performance Summary**

Executive Director Mansco Perry referred members to the June 30, 2022 Performance Summary provided in Tab A of the meeting materials. Mr. Perry informed the Board that as of June 30, 2022, the SBI was responsible for just under \$125 billion in assets, of which the Combined Funds represent \$81.3 billion. Mr. Perry reported that the Combined Funds continue to exceed its long-term objectives by outperforming its Composite Index for the ten year period ending June 30, 2022 (Combined Funds 9.4% vs. Combined Fund Composite Index 9.0%) and provided a real rate of return above inflation over a 20 year time-period (Combined Funds 8.2% vs CPI-U 2.5%). The Combined Funds slightly underperformed the composite index for the year and matched or exceeded the composite index for all other reporting periods. Mr. Perry noted that the Combined Funds actual asset mix is in-line with the asset allocation targets. He commented that the negative performance for the year is primarily due to public equities in each of the three equity asset groups and from each of the fixed income sub-asset groups. Private markets, which has a quarterly lag, continues to be the strongest asset class in the Combined Funds. The Combined Funds, relative to the Volatility Equivalent Benchmark, has provided additional value for the time-periods listed. Lastly, given the large equity weight in the Combined Funds portfolio, the return ranked in the bottom quartile for the quarter and bottom half for the year relative to peers.

## **Executive Director's Administrative Report**

Mr. Perry referred members to Tab B of the meeting materials for the Executive Director's Administrative Report. He stated that the Administrative Budget is included in the meeting materials as Attachment A and the summary of staff's travel is provided in Attachment B. Mr. Perry also stated that Staff continues to make progress in the liquidation of Russia and Belarus holdings, as outlined in statute; and noted the Sudan and Iran updates. Lastly, Mr. Perry commented that he is unaware of any significant litigation against the SBI.

In response to questions from council members on the performance of the private markets asset group, Mr. Perry and Andrew Krech, Director of Private Markets, noted the private markets returns lag a quarter given the reporting requirements for this asset group. Mr. Krech stated that the disparity in returns between the public and private holdings should lessen as future markdowns are anticipated in private markets.

## **Climate Risk Project and Discussion**

### ***Meketa Climate Risk Project Phase III Update***

Mr. Perry introduced Sarah Bernstein, from Meketa Investment Group, who provided a summary of the reports Meketa generated as part of its Climate Change Investment Analysis project. Ms. Bernstein noted that Phase I of the report was a high-level review of global trends in climate change and that Phase II provided survey results from a subset of peers. Ms. Bernstein explained that Phase III, which is included in Tab C of the meeting materials, provided Meketa's analysis of the SBI's potential current exposure to climate risk and opportunities. Ms. Bernstein stated that the three main points from their analysis are that these issues are very complex and will only get more complicated; there are no best practices with asset owners and asset managers; and there are different ways to approach managing climate risk. Lastly, Ms. Bernstein answered questions from council members with regard to how some peers are approaching climate change in the investment portfolio, costs identified in the planning stage, and that the key assumptions were included in the appendix of the report.

### ***Aon Investments Comments***

Mr. Perry asked Kristen Doyle from Aon Investments to comment on Aon's work and what direction their clients are taking with climate risk. Ms. Doyle noted that Aon has not seen clients make major changes to their asset allocation based on climate risk solutions with forecasts producing a wide range of outcomes and not providing a high degree of confidence in the forward-looking simulations. Instead, Ms. Doyle stated that clients have focused on what they can measure, like what is their climate risk exposure and whether simulations can be incorporated into the asset allocation exercise as a path forward in terms of actionable items.

### **SBI Request for Proposals (RFP) Proposal Recommendations**

Mr. Perry noted that contracts with four of the SBI's service providers are up for renewal and a summary of each RFP process with recommendation is included in Tab D through Tab G of the meeting material. Mr. Perry acknowledged that only the two custodial contracts require Board approval, but given the timeline for his retirement will bring all four contracts to the Board for approval to ensure no issues.

### ***Custodian Services for State's Cash Accounts***

Tab G of the meeting materials provides information on the RFP process from the Custodial Services for State Cash Accounts. Mr. Perry commented that this RFP process is conducted in partnership with Minnesota Management and Budget (MMB); and the current banking custodial services contract with Principal Bank for the State's cash account expires on December 31, 2022. Based on staff's review and evaluation of the RFP responses, SBI Staff recommends the selection of Principal Bank to provide banking custodial services for the State's cash accounts.

### ***Master Custodian Services***

Tab D of the meeting materials provides information on the RFP process for the Master Custodian Services that provides settlement and custody services, income collection, reporting, and performance measurement for assets under the SBI management. This does not include state cash accounts or state sponsored savings plans where custody is with a third-party program manager. In response to questions regarding the lack of response to the SBI RFP, Ms. Doyle noted that State Street is one of best and largest in the industry and has the capability to service a plan of the SBI's size and complexity. The SBI's current contract with State Street Bank for master custodian services expires on April 30, 2023. Based on SBI Staff's review and evaluation of the State Street RFP response, SBI Staff is recommending that State Street Corporation be selected as the SBI's master custodian bank.

### ***Foreign Tax Advisory Services***

The current foreign tax advisory services contract with KPMG expires on March 31, 2023. Based on SBI Staff's review and evaluation of the RFP responses, Staff is recommending that Ernst and Young LLP (EY) be selected as the SBI's foreign tax advisor.

### ***Contact and Document Management Database***

The current document management database contract with Dynamo expires on June 14, 2023. Based on SBI Staff's review and evaluation of the RFP responses, SBI Staff is recommending that Dynamo be selected as the contact and document management database provider for the SBI.

A motion was made that the IAC endorse Staff's recommendations for the Master Custodian Services with State Street Corporation; the Contact and Document Database Management Services with Dynamo Software Company; a Foreign Tax Advisory Services with Ernst and Young; and Custodian Services for State's Cash Accounts with Principal Bank, all for a five-year period. The motion was approved by roll call vote.

**Update from Executive Director Search Committee**

Mr. Martin gave a brief update on the Executive Director Committee Search and noted the timeline for the search. He stated the search committee was established in December of 2021 by a Board resolution and after an RFP process, the committee selected Korn/Ferry during the first quarter of 2022 to identify and provide a qualified list of candidates at a national level. The committee had their first round interviews in June and shortened the list for second round of interviews in July. The committee continues to work through the process and plans to bring a candidate recommendation to the Board for approval.

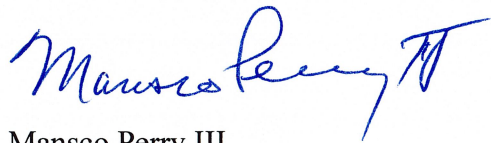
**Message to Executive Director**

Mr. Martin acknowledged that this was Mr. Perry's last IAC meeting due to his planned retirement in October. Mr. Martin and other council members thanked Mr. Perry for his public service and his work that has benefited the State of Minnesota and members and beneficiaries of the retirement systems.

**Adjournment of Meeting**

The motion to adjourn the meeting was seconded and approved by roll call vote. The meeting adjourned at 1:22 p.m.

Respectfully submitted,



Mansco Perry III  
Executive Director and  
Chief Investment Officer



# TAB A

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## Quarterly Performance Summary

September 30, 2022

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## Quarterly Report

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# Performance Summary

## September 30, 2022



## Description of SBI Investment Programs

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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.

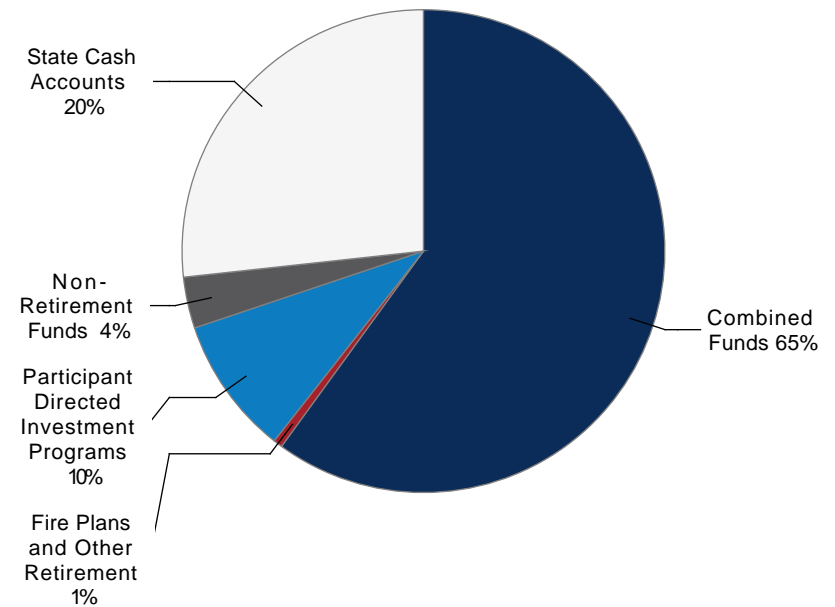
### State Cash

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> |
|---|--------------------|
| <b>Combined Funds</b>                             | <b>\$77,122</b>    |
| <b>Fire Plans + Other Retirement Plans</b>        | <b>781</b>         |
| <b>Participant Directed Investment Program</b>    | <b>11,872</b>      |
| State Deferred Compensation Plan                  | 8,138              |
| Health Care Savings Plan                          | 1,565              |
| Unclassified Employees Retirement Plan            | 311                |
| Hennepin County Supplemental Retirement Plan      | 147                |
| PERA Defined Contribution Plan                    | 79                 |
| Minnesota College Savings Plan                    | 1,604              |
| Minnesota Achieving a Better Life Experience Plan | 28                 |
| <b>Non-Retirement Funds</b>                       | <b>4,412</b>       |
| Assigned Risk Plan                                | 232                |
| Permanent School Fund                             | 1,665              |
| Environmental Trust Fund                          | 1,374              |
| Closed Landfill Investment Fund                   | 109                |
| Miscellaneous Trust Funds                         | 306                |
| Other Postemployment Benefits Accounts            | 727                |
| <b>State Cash</b>                                 | <b>23,747</b>      |
| Invested Treasurer's Cash                         | 23,584             |
| Other State Cash Accounts                         | 163                |
| <b>Total SBI AUM</b>                              | <b>117,934</b>     |



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

8.4%

Combined Funds Composite Index

8.0

Excess

0.4

#### 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

8.6%

CPI-U

2.5

Excess

6.0

Note:

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



## Combined Funds Summary

### Combined Funds Change in Market Value (\$Millions)

|                        | One Quarter |
|------------------------|-------------|
| <b>Combined Funds</b>  |             |
| Beginning Market Value | \$81,320    |
| Net Contributions      | -710        |
| Investment Return      | -3,489      |
| Ending Market Value    | 77,122      |

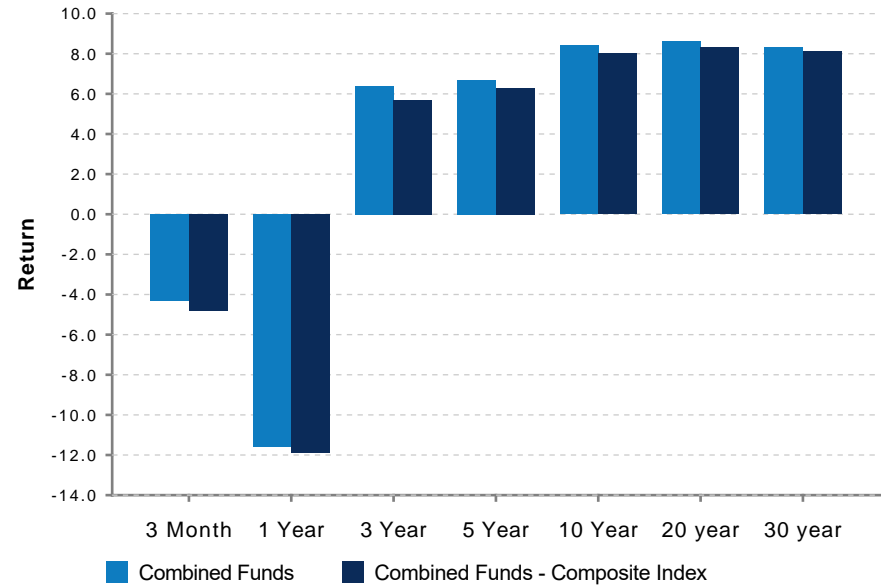
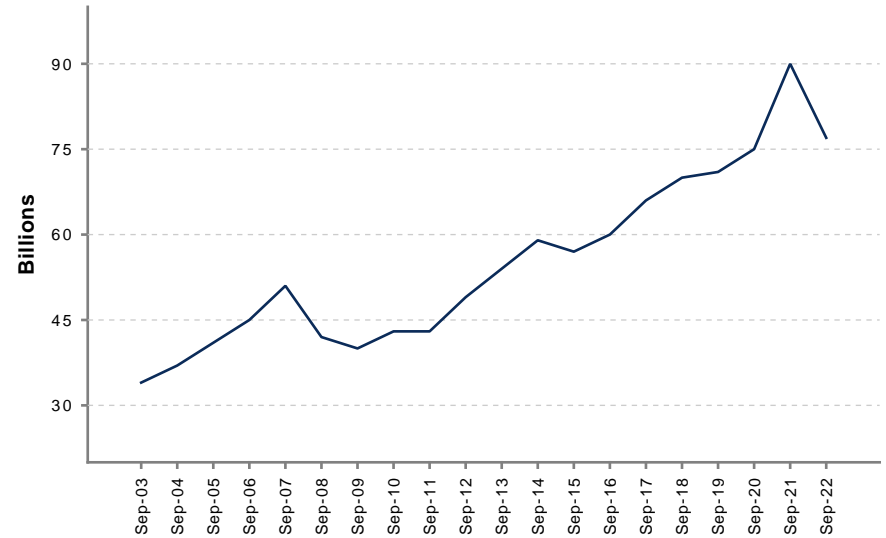
The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

### 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.

|                                  | Qtr   | FYTD  | 1 Yr   | 3 Yr | 5 Yr | 10 Yr | 20 Yr | 30 Yr |
|----------------------------------|-------|-------|--------|------|------|-------|-------|-------|
| Combined Funds                   | -4.3% | -4.3% | -11.6% | 6.4% | 6.7% | 8.4%  | 8.6%  | 8.3%  |
| Combined Funds - Composite Index | -4.8% | -4.8% | -11.9% | 5.7% | 6.3% | 8.0%  | 8.3%  | 8.1%  |
| Excess                           | 0.5%  | 0.5%  | 0.3%   | 0.7% | 0.4% | 0.4%  | 0.3%  | 0.3%  |

### Asset Growth

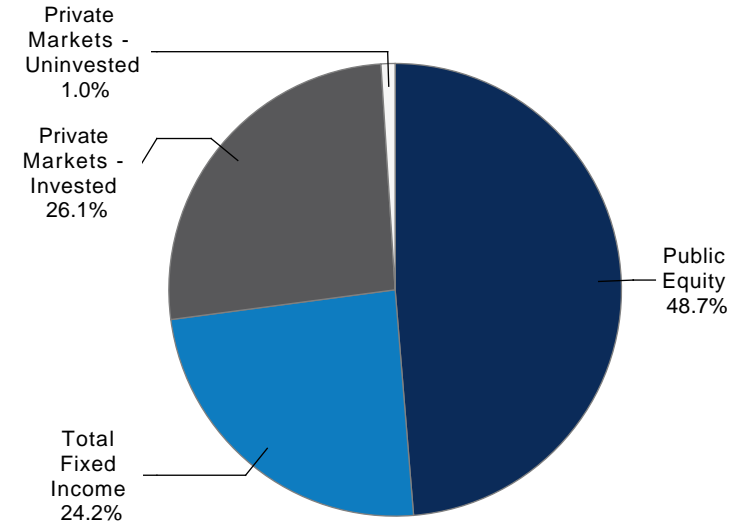


## Combined Funds Summary

### 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.

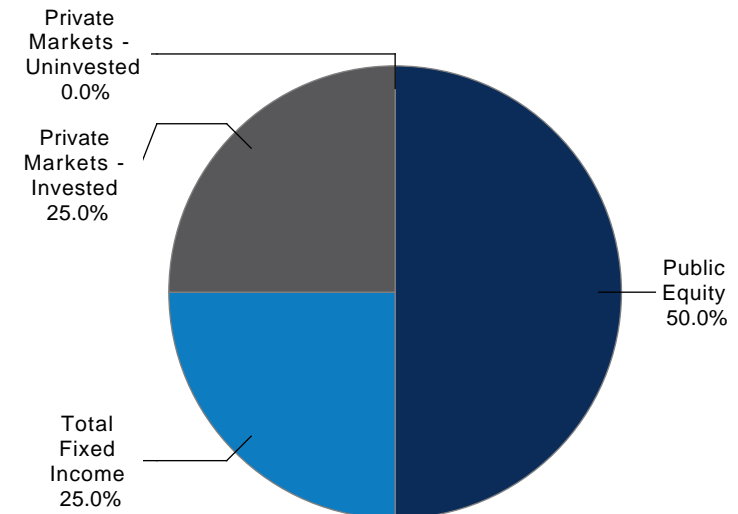
|                              | <u>(Millions)</u> | <u>Actual Mix</u> | <u>Policy Target</u> |
|------------------------------|-------------------|-------------------|----------------------|
| Public Equity                | \$37,572          | 48.7%             | 50.0%                |
| Total Fixed Income           | 18,641            | 24.2              | 25.0                 |
| Private Markets - Total      | 20,908            | 27.1              | 25.0                 |
| Private Markets - Invested   | 20,155            | 26.1              |                      |
| Private Markets - Uninvested | 754               | 1.0               |                      |
| <b>TOTAL</b>                 | <b>77,122</b>     | <b>100.0</b>      |                      |



### 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                  | S&P 500                      |







## Combined Funds Asset Class Performance Summary

### Public Equity

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

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

|                                | <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                  | \$37.6              | 48.7%                | 50.0%                | -5.4%           | -5.4%       | -19.3%        | 5.3%          | 5.9%          | 9.2%           | 9.0%           | 8.5%           |
| Public Equity Benchmark        |                     |                      |                      | -6.3            | -6.3        | -20.1         | 4.6           | 5.4           |                |                |                |
| Excess                         |                     |                      |                      | 0.9             | 0.9         | 0.8           | 0.7           | 0.4           |                |                |                |
|                                |                     |                      |                      |                 |             |               |               |               |                |                |                |
| Domestic Equity                | 25.6                | 33.2                 | 33.5                 | -4.4            | -4.4        | -18.0         | 7.9           | 8.6           | 11.4           | 9.8            | 9.3            |
| Domestic Equity Benchmark      |                     |                      |                      | -4.5            | -4.5        | -17.6         | 7.7           | 8.6           | 11.4           | 9.9            | 9.4            |
| Excess                         |                     |                      |                      | 0.0             | 0.0         | -0.4          | 0.2           | 0.1           | 0.0            | -0.1           | -0.1           |
|                                |                     |                      |                      |                 |             |               |               |               |                |                |                |
| International Equity           | 11.2                | 14.5                 | 16.5                 | -7.2            | -7.2        | -21.3         | 0.6           | 0.5           | 4.1            | 6.9            | 5.9            |
| International Equity Benchmark |                     |                      |                      | -9.9            | -9.9        | -25.2         | -1.6          | -0.8          | 3.0            | 6.3            | 5.1            |
| Excess                         |                     |                      |                      | 2.7             | 2.7         | 3.9           | 2.2           | 1.3           | 1.1            | 0.5            | 0.8            |
|                                |                     |                      |                      |                 |             |               |               |               |                |                |                |
| Global Equity                  | 0.8                 | 1.0                  | 0.0                  | -8.9            | -8.9        | -31.2         |               |               |                |                |                |
| MSCI AC World Index Net        |                     |                      |                      | -6.8            | -6.8        | -20.7         |               |               |                |                |                |
| Excess                         |                     |                      |                      | -2.1            | -2.1        | -10.6         |               |               |                |                |                |

Note:

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



## Combined Funds Asset Class Performance Summary

### Total Fixed Income

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

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

|                                   | <u>Market Value</u> | <u>Actual Weight</u> | <u>Policy Weight</u> | <u>Last Qtr</u> | <u>FYTD</u> | <u>1 Year</u> | <u>3 Year</u> | <u>5 Year</u> | <u>10 Year</u> | <u>20 Year</u> | <u>30 Year</u> |
|-----------------------------------|---------------------|----------------------|----------------------|-----------------|-------------|---------------|---------------|---------------|----------------|----------------|----------------|
| Total Fixed Income                | \$18.6              | 24.2%                | 25.0%                | -4.3%           | -4.3%       | -14.4%        | -2.6%         | 0.7%          | 1.7%           | 3.7%           | 5.0%           |
| Total Fixed Income Benchmark      |                     |                      |                      | -4.6%           | -4.6%       | -13.8%        | -2.9%         |               |                |                |                |
| Excess                            |                     |                      |                      | 0.3%            | 0.3%        | -0.7%         | 0.3%          |               |                |                |                |
|                                   |                     |                      |                      |                 |             |               |               |               |                |                |                |
| Core/Core Plus                    | \$4.1               | 5.3%                 | 5.0                  | -4.7%           | -4.7%       | -16.0%        | -2.8%         | 0.1%          | 1.4%           | 3.6%           | 4.9%           |
| Core Bonds Benchmark              |                     |                      |                      | -4.8%           | -4.8%       | -14.6%        | -3.3%         | -0.3%         | 0.9%           | 3.1%           | 4.5%           |
| Excess                            |                     |                      |                      | 0.1%            | 0.1%        | -1.4%         | 0.4%          | 0.4%          | 0.5%           | 0.5%           | 0.4%           |
|                                   |                     |                      |                      |                 |             |               |               |               |                |                |                |
| Return Seeking Fixed Income       | \$3.8               | 5.0%                 | 5.0                  | -2.6%           | -2.6%       | -14.5%        |               |               |                |                |                |
| Bloomberg U.S. Aggregate          |                     |                      |                      | -4.8%           | -4.8%       | -14.6%        |               |               |                |                |                |
| Excess                            |                     |                      |                      | 2.1%            | 2.1%        | 0.1%          |               |               |                |                |                |
|                                   |                     |                      |                      |                 |             |               |               |               |                |                |                |
| Treasury Protection               | \$7.2               | 9.3%                 | 10.0                 | -6.9%           | -6.9%       | -19.7%        | -5.5%         |               |                |                |                |
| Bloomberg Treasury 5+ Year        |                     |                      |                      | -6.9%           | -6.9%       | -19.6%        | -5.6%         |               |                |                |                |
| Excess                            |                     |                      |                      | -0.0%           | -0.0%       | -0.0%         | 0.1%          |               |                |                |                |
|                                   |                     |                      |                      |                 |             |               |               |               |                |                |                |
| Laddered Bond + Cash              | \$3.6               | 4.6%                 | 5.0                  | 0.4%            | 0.4%        | 0.1%          | 0.4%          | 1.1%          | 0.7%           | 1.5%           | 3.1%           |
| ICE BofA US 3-Month Treasury Bill |                     |                      |                      | 0.5%            | 0.5%        | 0.6%          | 0.6%          | 1.1%          | 0.7%           | 1.3%           | 2.4%           |
| Excess                            |                     |                      |                      | -0.1%           | -0.1%       | -0.5%         | -0.2%         | -0.1%         | 0.1%           | 0.2%           | 0.7%           |

Note:

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



## Combined Funds Asset Class Performance Summary

### Private Markets

|                                  | <u>Last Qtr</u> | <u>FYTD</u> | <u>1 Year</u> | <u>3 Year</u> | <u>5 Year</u> | <u>10 Year</u> | <u>20 Year</u> | <u>25 Year</u> | <u>30 Year</u> |
|----------------------------------|-----------------|-------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|
| Private Markets - Invested       | -2.5%           | -2.5%       | 11.3%         | 17.1%         | 15.0%         | 13.4%          | 14.0%          | 13.2%          | 13.3%          |
| Private Markets - Uninvested (1) | -4.5%           | -4.5%       | -14.8%        |               |               |                |                |                |                |
| Private Equity                   | -4.1%           | -4.1%       | 6.1%          | 20.5%         | 18.8%         | 16.9%          | 15.8%          | 14.6%          | 15.6%          |
| Private Credit                   | 1.1%            | 1.1%        | 16.0%         | 12.9%         | 12.7%         | 13.2%          | 12.8%          | 12.8%          |                |
| Resources                        | 3.3%            | 3.3%        | 29.5%         | 7.7%          | 5.1%          | 3.5%           | 13.4%          | 11.4%          | 13.0%          |
| Real Estate                      | 1.4%            | 1.4%        | 32.2%         | 18.7%         | 15.5%         | 14.0%          | 10.4%          | 10.7%          | 9.6%           |

### Private Markets

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

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

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

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

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

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

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

Source: State Street Bank



## SBI Combined Funds Strategic Allocation Category Framework

|  | <u>9/30/2022</u><br><u>(\$ millions)</u> | <u>9/30/2022</u><br><u>Weights</u> | <u>Category Range</u> |            |
|--|--|------------------------------------|-----------------------|------------|
| <b><u>Growth - Appreciation</u></b>    |  |                                    |                       |            |
| Public Equity                          | \$ 38,325.4                              | 49.7%                              |                       |            |
| Private Equity                         | \$ 14,367.1                              | 18.6%                              |                       |            |
| Non-Core Real Assets                   | \$ 3,585.4                               | 4.6%                               |                       |            |
|  | <b>\$ 56,278.0</b>                       | <b>73.0%</b>                       | <i>50%</i>            | <i>75%</i> |
| <b><u>Growth - Income-oriented</u></b> |  |                                    |                       |            |
| Core Fixed Income                      | \$ 4,095.9                               | 5.3%                               |                       |            |
| Private Credit                         | \$ 1,616.8                               | 2.1%                               |                       |            |
| Return-Seeking Fixed Income            | \$ 3,818.1                               | 5.0%                               |                       |            |
|  | <b>\$ 9,530.9</b>                        | <b>12.4%</b>                       | <i>15%</i>            | <i>30%</i> |
| <b><u>Real Assets</u></b>              |  |                                    |                       |            |
| Core Real Estate                       |  | 0.0%                               |                       |            |
| Real Assets                            | \$ 581.9                                 | 0.8%                               |                       |            |
|  | <b>\$ 581.9</b>                          | <b>0.8%</b>                        | <i>0%</i>             | <i>10%</i> |
| <b><u>Inflation Protection</u></b>     |  |                                    |                       |            |
| TIPS                                   |  | 0.0%                               |                       |            |
| Commodities                            |  | 0.0%                               |                       |            |
|  |  | <b>0.0%</b>                        | <i>0%</i>             | <i>10%</i> |
| <b><u>Protection</u></b>               |  |                                    |                       |            |
| U.S. Treasuries                        | \$ 7,152.1                               | 9.3%                               |                       |            |
|  | <b>\$ 7,152.1</b>                        | <b>9.3%</b>                        | <i>5%</i>             | <i>20%</i> |
| <b><u>Liquidity</u></b>                |  |                                    |                       |            |
| Cash                                   | \$ 3,578.4                               | 4.6%                               |                       |            |
|  | <b>\$ 3,578.4</b>                        | <b>4.6%</b>                        | <i>0%</i>             | <i>5%</i>  |
| <b><u>Opportunity</u></b>              |  |                                    |                       |            |
| Opportunity                            |  | 0.0%                               |                       |            |
|  |  | <b>0.0%</b>                        | <i>0%</i>             | <i>10%</i> |
| <b>Total</b>                           | <b>\$ 77,121.5</b>                       | <b>100%</b>                        |                       |            |
| <b>Illiquid Asset Exposure</b>         | <b>\$ 20,151.3</b>                       | <b>26.1%</b>                       | <i>0%</i>             | <i>30%</i> |



## Volatility Equivalent Benchmark Comparison

|  | As of September 30, 2022 |               |               |                |                |                |                |                |
|--|--------------------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|
|  | <i>1-year</i>            | <i>3-year</i> | <i>5-year</i> | <i>10-year</i> | <i>15-year</i> | <i>20-year</i> | <i>25-year</i> | <i>30-year</i> |
| SBI Combined Funds Return                      | -11.6%                   | 6.4%          | 6.7%          | 8.4%           | 6.5%           | 8.6%           | 7.0%           | 8.3%           |
| Volatility Equivalent Benchmark Return         |                          |               | 2.8%          | 4.8%           | 3.9%           | 6.2%           | 5.2%           | 6.3%           |
| Value Added                                    |                          |               | 4.0%          | 3.6%           | 2.6%           | 2.4%           | 1.8%           | 2.1%           |
| Standard Deviation: Benchmark = Combined Funds |                          |               | 10.7%         | 8.7%           | 10.2%          | 9.4%           | 9.9%           | 9.5%           |
| Benchmark Stock Weight                         |                          |               | 58%           | 58%            | 57%            | 58%            | 61%            | 61%            |
| Benchmark Bond Weight                          |                          |               | 42%           | 42%            | 43%            | 42%            | 39%            | 39%            |

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



## Combined Funds Summary

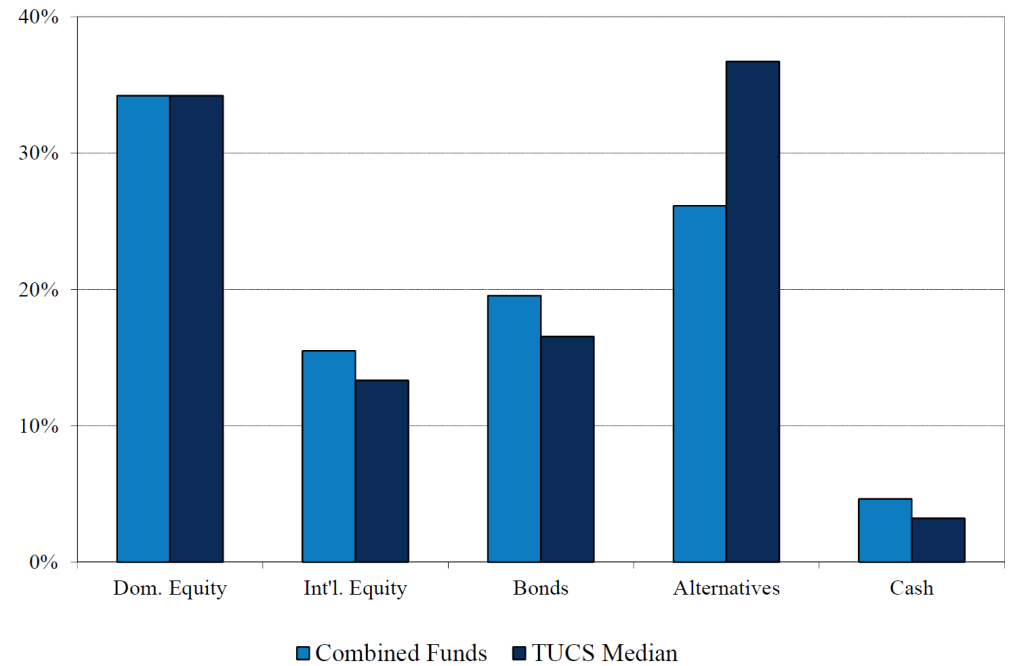
### Asset Mix Compared to Other Pension Funds

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

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

#### Combined Funds Asset Mix

|                              | <u>(\$Millions)</u> | <u>Actual Mix</u> |
|------------------------------|---------------------|-------------------|
| Public Equity                | 37,572              | 48.7              |
| Total Fixed Income           | 18,641              | 24.2              |
| Private Markets - Invested   | 20,155              | 26.1              |
| Private Markets - Uninvested | 754                 | 1.0               |
| <b>TOTAL</b>                 | <b>77,122</b>       | <b>100.0</b>      |



|                | <u>Domestic Equity</u> | <u>International Equity</u> | <u>Bonds</u> | <u>Alternatives</u> | <u>Cash</u> |
|----------------|------------------------|-----------------------------|--------------|---------------------|-------------|
| Combined Funds | 34.2%                  | 15.5%                       | 19.5%        | 26.1%               | 4.6%        |
| Median in TUCS | 34.2%                  | 13.3%                       | 16.5%        | 36.7%               | 3.2%        |



## Combined Funds Summary

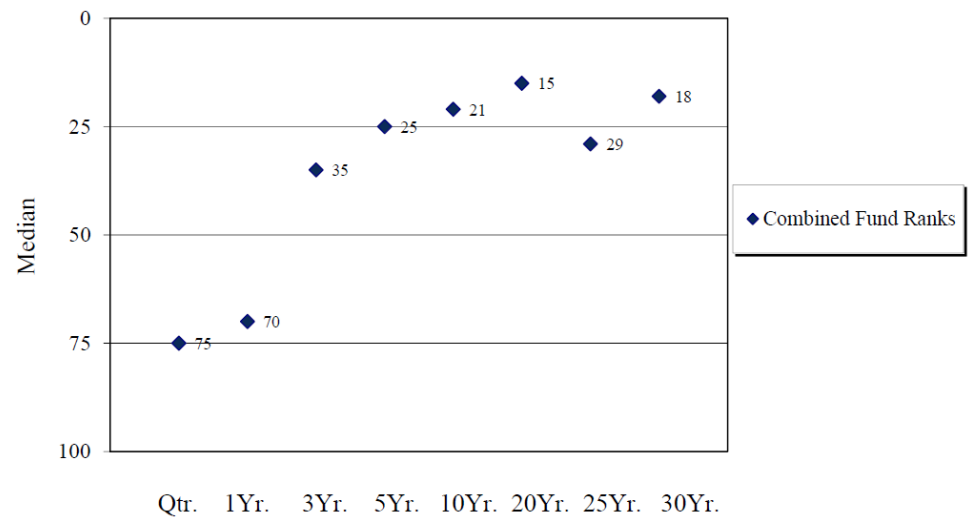
### Performance Compared to Other Pension Funds

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

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

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

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



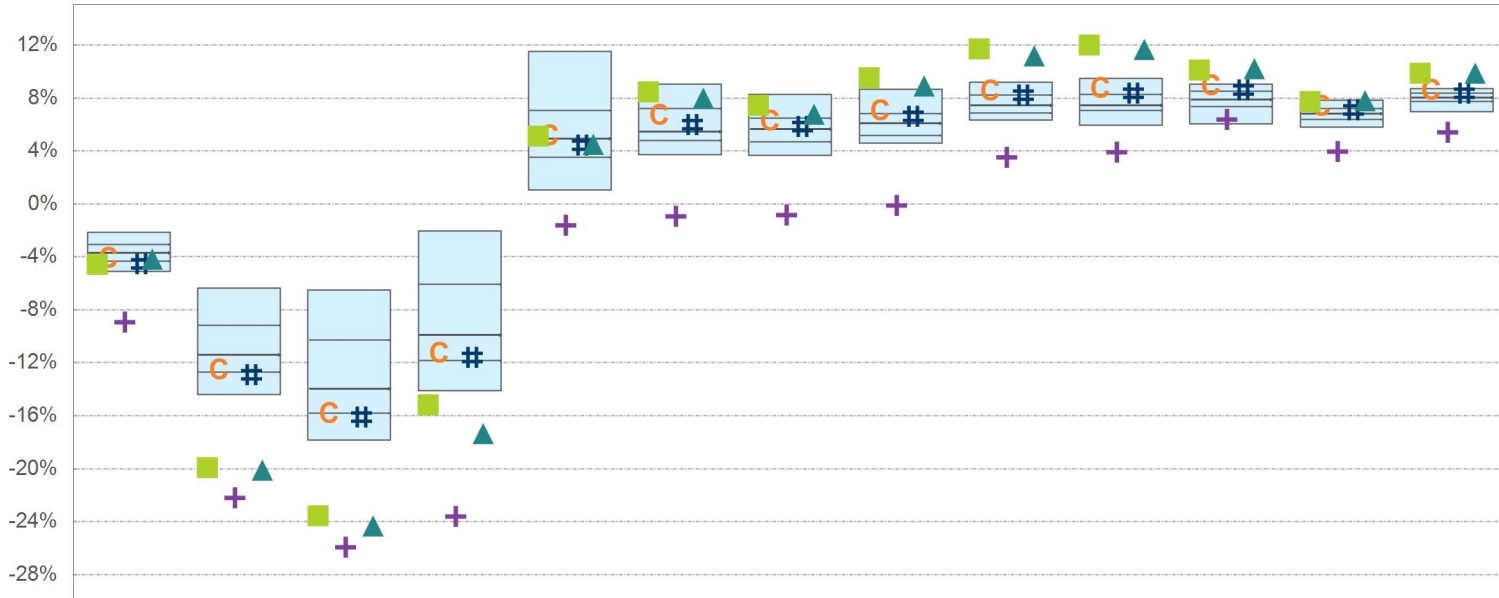
#### Periods Ended 09/30/2022

|                         | Qtr  | 1 Yr | 3 Yrs | 5 Yrs | 10 Yrs | 20 Yrs | 25 Yrs | 30 Yrs |
|-------------------------|------|------|-------|-------|--------|--------|--------|--------|
| Combined Funds          | 75th | 70th | 35th  | 25th  | 21st   | 15th   | 29th   | 18th   |
| Percentile Rank in TUCS |      |      |       |       |        |        |        |        |

## Minnesota State Board of Investments Performance Comparison

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

Cumulative Periods Ending : September 30, 2022



| Percentile Rankings | 1 Qtr | 2 Qtrs | 3 Qtrs | 1 Year | 2 Years | 3 Years | 4 Years | 5 Years | 7 Years | 10 Years | 20 Years | 25 Years | 30 Years |
|---------------------|-------|--------|--------|--------|---------|---------|---------|---------|---------|----------|----------|----------|----------|
| 5th                 | -2.13 | -6.34  | -6.52  | -2.07  | 11.50   | 9.06    | 8.26    | 8.65    | 9.21    | 9.47     | 9.03     | 7.85     | 8.72     |
| 25th                | -3.06 | -9.16  | -10.29 | -6.09  | 7.08    | 7.20    | 6.48    | 6.81    | 8.23    | 8.26     | 8.51     | 7.20     | 8.35     |
| 50th                | -3.71 | -11.38 | -13.96 | -9.90  | 4.91    | 5.46    | 5.65    | 6.08    | 7.42    | 7.46     | 7.89     | 6.80     | 8.01     |
| 75th                | -4.32 | -12.69 | -15.83 | -11.83 | 3.51    | 4.79    | 4.69    | 5.18    | 6.84    | 7.07     | 7.34     | 6.38     | 7.74     |
| 95th                | -5.11 | -14.38 | -17.85 | -14.13 | 1.07    | 3.70    | 3.65    | 4.60    | 6.32    | 5.96     | 6.05     | 5.79     | 6.98     |

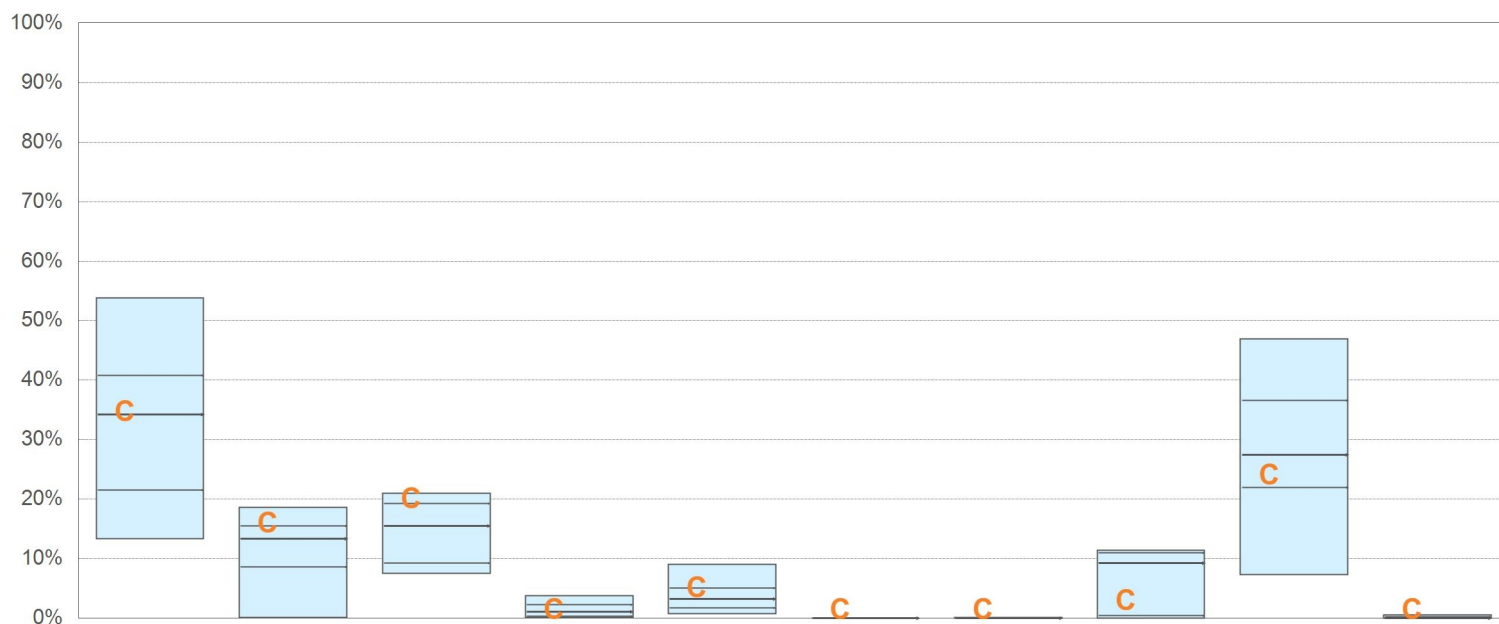
| No. Of Obs   | 28         | 27          | 27          | 27          | 27         | 27         | 26         | 26         | 26        | 26        | 24        | 23        | 19         |
|--|------------|-------------|-------------|-------------|------------|------------|------------|------------|-----------|-----------|-----------|-----------|------------|
| <span style="color: orange;">C</span> Combined Funds       | -4.32 (75) | -12.75 (79) | -16.06 (79) | -11.48 (70) | 4.91 (50)  | 6.47 (35)  | 6.04 (37)  | 6.81 (25)  | 8.32 (21) | 8.52 (21) | 8.69 (15) | 7.13 (29) | 8.36 (18)  |
| <span style="color: blue;">#</span> SBI Combined Funds Ind | -4.82 (87) | -13.20 (87) | -16.41 (79) | -11.89 (75) | 4.16 (62)  | 5.72 (39)  | 5.57 (50)  | 6.31 (41)  | 7.94 (33) | 8.05 (37) | 8.31 (29) | 6.81 (45) | 8.08 (40)  |
| <span style="color: green;">■</span> S&P 500               | -4.88 (87) | -20.20 (99) | -23.87 (99) | -15.48 (95) | 4.83 (54)  | 8.16 (9)   | 7.17 (13)  | 9.24 (1)   | 11.40 (1) | 11.70 (1) | 9.84 (1)  | 7.45 (5)  | 9.56 (1)   |
| <span style="color: green;">▲</span> Russell 3000          | -4.46 (75) | -20.42 (99) | -24.62 (99) | -17.64 (99) | 4.22 (62)  | 7.69 (9)   | 6.48 (25)  | 8.61 (5)   | 10.90 (1) | 11.39 (1) | 9.93 (1)  | 7.48 (5)  | 9.56 (1)   |
| <span style="color: purple;">+</span> MSCI Wld Ex US (Net) | -9.20 (99) | -22.50 (99) | -26.23 (99) | -23.91 (99) | -1.89 (99) | -1.21 (99) | -1.15 (99) | -0.40 (99) | 3.21 (99) | 3.62 (99) | 6.11 (94) | 3.68 (99) | 5.10 (100) |



## Minnesota State Board of Investments

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

*Quarter Ending September 30, 2022*



| Percentile Rankings     | US Equity  | Non-US Equity | US Fixed   | Non-US Fixed | Cash      | Convertible | GIC GAC    | Real Estate | Alternative Investments | Other     |
|-------------------------|------------|---------------|------------|--------------|-----------|-------------|------------|-------------|-------------------------|-----------|
| 5th                     | 53.80      | 18.60         | 20.96      | 3.73         | 9.03      | 0.00        | 0.14       | 11.45       | 46.88                   | 0.50      |
| 25th                    | 40.80      | 15.49         | 19.24      | 2.27         | 5.09      | 0.00        | 0.00       | 10.99       | 36.64                   | 0.20      |
| 50th                    | 34.21      | 13.33         | 15.45      | 1.09         | 3.20      | 0.00        | 0.00       | 9.30        | 27.41                   | 0.00      |
| 75th                    | 21.49      | 8.66          | 9.27       | 0.36         | 1.70      | 0.00        | 0.00       | 0.47        | 21.98                   | 0.00      |
| 95th                    | 13.40      | 0.15          | 7.50       | 0.06         | 0.79      | 0.00        | 0.00       | 0.00        | 7.27                    | 0.00      |
| <b>C Combined Funds</b> | 34.21 (50) | 15.49 (25)    | 19.54 (15) | 0.00 (100)   | 4.64 (31) | 0.00 (100)  | 0.00 (100) | 2.51 (56)   | 23.62 (62)              | 0.00 (99) |

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# TAB B

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## Executive Director's Administrative Report

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## **EXECUTIVE DIRECTOR'S ADMINISTRATIVE REPORT**

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DATE: November 7, 2022

TO: Members, State Board of Investment

FROM: **Jill E. Schurtz**  
**Executive Director & Chief Investment Officer**

### **1. Executive Director's First Thirty Days Overview**

The Executive Director will give a verbal overview regarding the first thirty days in the role.

### **2. Reports on Budget and Travel**

A report on the SBI's administrative budget for the fiscal year to date through September 30, 2022, is included as **Attachment A**.

A report on travel for the period from July 1, 2022 – September 30, 2022 is included as **Attachment B**.

### **3. FY22 Audit Report**

The Legislative Auditor is working on the financial audit of SBI operations for FY22. We will inform you of the results upon completion of the audit.

### **4. Draft of FY22 Annual Report**

A draft of the SBI's annual report for FY22 will be available to the Board Members/Designees and IAC Members upon completion of the FY22 audit. We will notify you when available.

### **5. Meeting Dates for Calendar 2023**

#### **IAC**

Tuesday, February 21, 2023

Monday, May 15, 2023

Monday, August 14, 2023

Monday, November 13, 2023

#### **SBI**

Thursday, March 2, 2023

Thursday, May 25, 2023

Wednesday, August 23, 2023

Wednesday, November 29, 2023

### **6. Russia/Belarus Update**

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

During the 2022 legislative session, the Minnesota Legislature passed a bill requiring the SBI to liquidate its holdings in companies with their principal place of business in Russia or Belarus. The bill was signed into law and became effective on April 2, 2022. The statute prohibits any new investment in target companies and requires the SBI to identify and liquidate, to the extent practicable, 50% of its direct holdings in target companies within nine months of the effective date; and 100% of its holdings within 15 months of the effective date.

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

In the third quarter, the liquidation manager sold 17 bond holdings and one equity holding. The liquidation manager indicated that the market for equity trading remained effectively closed to foreign investors during the quarter due to sanctions imposed by the United States and its allies as well as retaliatory actions taken by the Russian government to restrict foreign capital flows.

On September 23, 2022, staff sent a letter to each applicable external manager (international equity, domestic equity, global equity and fixed income) containing the most recent restricted list.

## **7. Sudan Update**

Each quarter, staff provides a report to the Board on steps taken to implement *Minnesota Statutes*, section 11A.243 that requires SBI actions concerning companies with operations in Sudan. Staff receives periodic reports from the Eiris Conflict Risk Network (CRN) about the status of companies with operations in Sudan.

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

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

- at least 50% shall be sold within nine months after the company appeared on the scrutinized list; and
- 100% shall be sold within fifteen months after the company appeared on the list.

In the third quarter, there were three companies on the SBI restricted list, two companies on the SBI divestment list, and no shares sold.

On September 23, 2022, staff sent a letter to each applicable external manager (international equity, domestic equity and global equity) containing the most recent restricted list and the list of stocks to be divested in compliance with Minnesota law.

## **8. Iran Update**

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

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

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

- at least 50% shall be sold within nine months after the company appeared on the scrutinized list; and
- 100% within fifteen months after the company appeared on the scrutinized list.

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

On September 23, 2022, staff sent a letter to each applicable external manager (international equity, domestic equity, global equity and fixed income) containing the most recent restricted list and the list of companies to be divested in compliance with Minnesota law.

## **9. 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, to identify companies that meet the criteria according to the resolution.

The resolution required removal of identified companies 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 the status of any action authorized by this resolution.

In the third quarter, there was one company on the SBI divestment list, and 4,797,000 shares sold.

On June 23, 2022, staff sent a letter to each applicable external manager (domestic equity, international equity, global equity, fixed income, non-retirement, stable value fund, and invested treasurer's cash) containing the most recent restricted list. This list will be updated annually in June.

## **10. 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 2023 ADMINISTRATIVE BUDGET REPORT  
FISCAL YEAR TO DATE THROUGH SEPTEMBER 30, 2022**

| <b>ITEM</b>                        | <b>FISCAL YEAR<br/>2023<br/>BUDGET</b> | <b>FISCAL YEAR<br/>2023<br/>9/30/2022</b> |
|------------------------------------|--|---|
| <b>PERSONNEL SERVICES</b>          |  |   |
| FULL TIME EMPLOYEES                | \$ 7,723,000                           | \$ 1,677,300                              |
| PART TIME EMPLOYEES                | 10,000                                 | 8,681                                     |
| OVERTIME AND PREMIUM PAY           | 0                                      | 0   |
| MISCELLANEOUS PAYROLL              | 300,000                                | 0   |
| <b>SUBTOTAL</b>                    | <b>\$ 8,033,000</b>                    | <b>\$ 1,685,981</b>                       |
| <b>STATE OPERATIONS</b>            |  |   |
| RENTS & LEASES                     | 390,000                                | 93,464                                    |
| REPAIRS/ALTERATIONS/MAINTENANCE    | 21,000                                 | 1,460                                     |
| PRINTING & BINDING                 | 12,000                                 | 1,089                                     |
| PROFESSIONAL/TECHNICAL SERVICES    | 550,000                                | 33,028                                    |
| COMPUTER SYSTEMS SERVICES          | 191,000                                | 132,909                                   |
| COMMUNICATIONS                     | 25,000                                 | 2,437                                     |
| TRAVEL, IN-STATE                   | 3,000                                  | 0   |
| TRAVEL, OUT-STATE                  | 300,000                                | 18,634                                    |
| SUPPLIES                           | 50,000                                 | 11,139                                    |
| EQUIPMENT                          | 93,985                                 | 3,763                                     |
| EMPLOYEE DEVELOPMENT               | 219,000                                | 10,864                                    |
| OTHER OPERATING COSTS              | 125,000                                | 35,182                                    |
| INDIRECT COSTS                     | 300,000                                | 51,380                                    |
| <b>SUBTOTAL</b>                    | <b>\$ 2,279,985</b>                    | <b>\$ 395,349</b>                         |
| <b>TOTAL ADMINISTRATIVE BUDGET</b> | <b>\$ 10,312,985</b>                   | <b>\$ 2,081,329</b>                       |

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## ATTACHMENT B

### STATE BOARD OF INVESTMENT

#### Travel Summary by Date July 1, 2022 - September 30, 2022

| Purpose   | Name           | Destination / Date                        | Total Cost  |
|---|----------------|---|-------------|
| <b>Conference:</b><br>PPI Summer Roundtable   | A. Christensen | Vancouver, BC, Canada<br>July 13-15, 2022 | \$ 2,516.59 |
| <b>Manager Monitoring</b><br><b>Public Markets Manager:</b><br>Zevenbergen  | T. Bruschaver  | Seattle, WA<br>July 25-26, 2022           | 1,125.58    |
| <b>Manager Monitoring</b><br><b>Public Markets Manager:</b><br>Zevenbergen  | D. Covich      | Seattle, WA<br>July 25-26, 2022           | 1,210.00    |
| <b>Manager Monitoring</b><br><b>Public Markets Manager:</b><br>McKinley   | E. Pechacek    | Chicago, IL<br>August 11, 2022            | 377.71      |
| <b>Manager Monitoring</b><br><b>Public Markets Manager:</b><br>McKinley   | E. Sonderegger | Chicago, IL<br>August 11, 2022            | 534.56      |
| <b>Manager Monitoring</b><br><b>Private Markets Managers:</b><br>Thoma Bravo, KKR<br><b>Manager Search</b><br><b>Private Markets Managers:</b><br>Brighton Park Capital,<br>Atlantic Street Capital | J. Stacy       | New York, NY<br>September 6-8, 2022       | 1,590.54    |
| <b>Manager Monitoring</b><br><b>Private Markets Managers:</b><br>Thoma Bravo, KKR,<br>Lexington Partners  | S. Zahar       | New York, NY<br>September 6-8, 2022       | 1,780.41    |

# STATE BOARD OF INVESTMENT

## Travel Summary by Date July 1, 2022 - September 30, 2022 (Continued)

| Purpose  | Name       | Destination / Date                       | Total Cost  |
|--|------------|--|-------------|
| <b>Manager Monitoring</b><br><b>Private Markets Manager:</b><br>Rockwood Capital<br><b>Manager Search</b><br><b>Private Markets Manager:</b><br>Torchlight AGM<br><b>Conference:</b><br>Rockwood Annual General<br>Partners Conference | M. Ndungu  | New York, NY<br>September 12-15, 2022    | \$ 2,065.31 |
| <b>Manager Monitoring</b><br><b>Private Markets Managers:</b><br>Carlyle Group, Blackstone Group<br><b>Manager Search</b><br><b>Private Markets Manager:</b><br>Wheelock Street Capital  | M. Clancey | New York, NY<br>September 12-14, 2022    | 1,711.71    |
| <b>Manager Monitoring</b><br><b>Private Markets Manager:</b><br>Clearlake<br><b>Manager Search</b><br><b>Private Markets Managers:</b><br>Freeman Spogli,<br>Vance Street Capital  | J. Stacy   | Los Angeles, CA<br>September 13-15, 2022 | 1,323.80    |
| <b>Manager Monitoring</b><br><b>Private Markets Managers:</b><br>Marathon, Hellman & Friedman<br><b>Conference:</b><br>Marathon Investor Summit  | M. Ndungu  | New York, NY<br>September 19-22, 2022    | 1,962.36    |
| <b>Conference:</b><br>2022 National Association of<br>State Investment Officers<br>(NASIO) Annual Conference   | M. Perry   | Seattle, WA<br>September 18-21, 2022     | 3,149.61    |

**STATE BOARD OF INVESTMENT**

**Travel Summary by Date  
July 1, 2022 - September 30, 2022  
(Continued)**

| <b>Purpose</b>  | <b>Name</b>    | <b>Destination / Date</b>                  | <b>Total Cost</b> |
|---|----------------|--|-------------------|
| <b>Manager Monitoring</b><br><b>Public Markets Managers:</b><br>Wellington, Martingale, Acadian,<br>Fidelity, Macquarie<br><b>Manager Search</b><br><b>Public Markets Managers:</b><br>GMO, Arrowstreet | D. Covich      | Boston, MA<br>September 19-22, 2022        | \$ 2,005.00       |
| <b>Manager Monitoring</b><br><b>Public Markets Managers:</b><br>Acadian, Macquarie, Fidelity,<br>Martingale<br><b>Manager Search</b><br><b>Public Markets Managers:</b><br>Arrowstreet                  | E. Pechacek    | Boston, MA<br>September 20-22, 2022        | 1,492.52          |
| <b>Conference:</b><br>Council of Institutional Investors<br>Fall 2022 Conference  | J. Mulé        | Boston, MA<br>September 20-23, 2022        | 2,320.82          |
| <b>Manager Monitoring</b><br><b>Private Markets Manager:</b><br>Asia Alternatives Annual Meeting<br>and Advisory Board Meeting  | M. Perry       | San Francisco, CA<br>September 26-28, 2022 | 1,592.59          |
| <b>Manager Monitoring</b><br><b>Private Markets Manager:</b><br>Asia Alternatives Annual Meeting<br>and Advisory Board Meeting  | A. Christensen | San Francisco, CA<br>September 26-30, 2022 | 2,176.39          |
| <b>Manager Monitoring</b><br><b>Private Markets Manager:</b><br>Asia Alternatives Annual Meeting<br>and Advisory Board Meeting  | A. Krech       | San Francisco, CA<br>September 26-30, 2022 | 1,735.93          |

# STATE BOARD OF INVESTMENT

## Travel Summary by Date July 1, 2022 - September 30, 2022 (Continued)

| Purpose  | Name     | Destination / Date                       | Total Cost  |
|--|----------|--|-------------|
| <b>Manager Monitoring</b><br><b>Private Markets Manager:</b><br>Windjammer<br><b>Manager Search</b><br><b>Private Markets Manager:</b><br>JMI Equity | J. Stacy | Los Angeles, CA<br>September 28-30, 2022 | \$ 1,960.45 |
| <b>Manager Monitoring</b><br><b>Private Markets Manager:</b><br>Merit Capital<br><b>Manager Search</b><br><b>Private Markets Manager:</b><br>CVIC    | S. Zahar | Chicago, IL<br>September 28-29, 2022     | 960.53      |

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## Private Markets Program Report

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DATE: November 7, 2022

TO: Members, Investment Advisory Council

FROM: SBI Staff

**SUBJECT: SBI Private Markets Program Report**

This report provides the current status of the SBI private markets commitments.

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## A. Status of SBI Current Private Markets Commitments

### Minnesota State Board of Investment Combined Funds September 30, 2022

Combined Funds Market Value \$77,121,570,382

|                   | % of<br>Combined<br>Funds | Current Level    | Target Level <sup>1</sup> | Difference      |
|-------------------|---------------------------|------------------|---------------------------|-----------------|
| Market Value (MV) | 26.1%                     | \$20,154,677,487 | \$19,280,392,595          | (\$874,284,891) |
| Policy Target     | 25%                       |                  |                           |                 |
| Statutory Limit   | 35%                       |                  |                           |                 |
| MV +Unfunded      | 41.8%                     | \$32,208,496,839 | \$34,704,706,672          | \$2,496,209,832 |
| Policy Limit      | 45.0%                     |                  |                           |                 |

| Asset Class        | % of Combined<br>Funds | Market Value            | Unfunded<br>Commitment  | Total                   |
|--------------------|------------------------|-------------------------|-------------------------|-------------------------|
| Private Equity     | 18.6%                  | \$14,367,159,093        | \$8,065,128,900         | \$22,432,287,994        |
| Private Credit     | 2.1%                   | \$1,616,841,746         | \$1,612,034,570         | \$3,228,876,316         |
| Real Assets        | 2.9%                   | \$2,228,049,180         | \$609,881,328           | \$2,837,930,508         |
| Real Estate        | 2.5%                   | \$1,939,321,063         | \$1,766,774,555         | \$3,706,095,619         |
| Other <sup>2</sup> |                        | \$3,306,404             |                         | \$3,306,404             |
| <b>Total</b>       |                        | <b>\$20,154,677,487</b> | <b>\$12,053,819,353</b> | <b>\$32,208,496,839</b> |

### Cash Flows September 30, 2022

| Calendar Year | Capital Calls   | Distributions     | Net Invested    |
|---------------|-----------------|-------------------|-----------------|
| 2022          | \$2,797,817,600 | (\$2,544,575,003) | \$253,242,597   |
| 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) |

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

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

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# REPORTS

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

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# REPORT

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## Public Markets Investment Program

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DATE: November 7, 2022

TO: Members, Investment Advisory Council

FROM: SBI Staff

**SUBJECT: SBI Public Markets Program Report**

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

The report includes the following sections:

|  | <b>Page</b> |
|--|-------------|
| • Review of SBI's Public Markets Program         | 3           |
| • Public Markets Managers' Organizational Update | 9           |
| • Manager Meetings                               | 11          |

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## **Review of SBI Public Markets Program Third Quarter 2022**

### **Market Summary**

Global equity markets continued their slide during the third quarter, marking three consecutive quarterly declines, a record not met since the 2007-08 Great Financial Crisis. The MSCI All Country World (ACWI) Index (net) lost -6.8% in U.S. dollar terms. Global bond markets also fell, with the Bloomberg Global Aggregate Bond Index dropping -6.9% over the quarter.

Financial markets were spooked by the potential economic fallout from an increasingly hawkish Fed as it struggled to contain inflation in the U.S. A political crisis in the United Kingdom, which devolved into a full-blown financial crisis for the country's currency and bond markets requiring intervention by the Bank of England, further weighed on investor sentiment during the quarter. Despite investor hopes for a Fed 'pivot' to a slower pace of rate hikes, stubbornly high inflation readings and a resilient job market forced the Fed to maintain its hawkish stance. The Fed raised rates by 150bps over two meetings during the quarter and signaled that it had no intention of stopping until it saw significant progress on inflation, leaving investors to fear that the Fed would ultimately drive the U.S. and global economy into recession. Against this backdrop, the U.S. dollar rallied strongly against most currencies, rising over 7% on a trade-weighted basis. Global commodities fell on expectations for softer industrial demand as well as knock-on effects from the strong dollar.

### **Overall Combined Funds Portfolio - Quarter and One-Year Performance**

The overall Combined Funds portfolio returned -4.3% during the third quarter, outperforming the composite benchmark's return of -4.8%. Positive relative return for the quarter was driven by gains within the portfolio's currency hedging program, an underweight to international equities within the public equity program, and relative outperformance of the portfolio's return-seeking bond managers versus the fixed income policy benchmark. On the negative side, an overweight to public equities overall was a drag, and underperformance of the program's global equity and core plus fixed income managers also detracted from relative performance. The private markets invested portfolio returned -2.5% during the quarter, while the private markets uninvested portfolio, which is invested in S&P 500 Index strategies, declined -4.5%.

For the one-year period ended September 30, 2022, the Combined Funds portfolio posted a return of -11.6%, outperforming the composite benchmark return of -11.9%. While an overweight to equities overall was a drag, this effect was offset by an underweight to international equities maintained during the year as well as strong gains from portfolio's currency hedging program, which offset currency losses in the portfolio's developed international equity portfolio. Active management within the equity portfolio was also a negative contributor as many of the portfolio's growth-oriented managers struggled. The total fixed income portfolio underperformed its policy benchmark for the trailing one-year period (-14.4% Portfolio vs. -13.8% Benchmark) as underperformance from the portfolio's core plus and select return-seeking strategies weighed on returns. The invested private markets portfolio returned +11.3% over the trailing one-year period, while the private markets uninvested portfolio, which is invested in S&P 500 Index strategies, declined -14.8% over the same period.

## Domestic Equity

Domestic equity markets began the quarter strong despite little positive fundamental news. As the bear market rally pushed higher, investors started to believe that the worst of this year's selloff was in the rear-view mirror. The rally continued through mid-August, with previously hard-hit cyclical sectors and growth-oriented stocks benefitting most. But the euphoria reversed in late August and into September as the Fed made it clear there would be no "pivot" to a slower pace of rate hikes until it saw clear indications of falling inflation. With little evidence of slowing inflation at hand and continued strong job market gains, investors were forced to confront the impact of higher-for-longer interest rates on company profitability and valuations, as well as the growing prospect of a Fed-engineered recession. Further global impacts, including continued European supply chain shocks from the Ukraine war and fears of a worsening slowdown in China, weighed on domestic equity valuations. The Russell 3000 finished the third quarter down -4.5%.

In a reversal of the recent trend, small cap stocks outperformed large cap stocks (R2000 -2.2% vs R1000 -4.6%) over the quarter. This was in part due to a sell-off in large technology names in the large cap index (Microsoft -9.1%, Alphabet -12.2%, Meta -15.8%, NVIDIA -19.9%). Within both large cap and small cap, growth stocks outperformed value stocks (R1000G -3.6% vs. R1000 Value -5.6%, R2000G +0.2% vs. R2000 Value -4.6%) following a dismal first half of the calendar year for growth. Mega-cap growth names had very strong performance in the quarter (Apple +1.2%, Tesla +18.2%). Within small cap, growth-oriented healthcare names performed particularly well, especially in pharmaceuticals and biotech. Sector dispersion was pronounced during the quarter. The top-performing sectors, energy (+4.6%) and consumer discretionary (+3.0%), eked out single-digit gains, while the poorest performing sectors, telecommunications (-16.7%) and real estate (-10.6%), posted double-digit losses.

The Combined Funds' domestic equity portfolio fell -4.4% during the quarter, outperforming the Russell 3000 Index, which returned -4.5%. An overweight to small cap stocks in the portfolio modestly aided in relative performance. Active management within domestic equities was a positive contributor during the quarter. Active domestic equity managers fell -3.0%, while the aggregate active domestic equity benchmark returned -3.4%.

Active large cap and all cap growth managers had mixed performance versus their benchmarks during the quarter given the strong dispersion of single-stock performance in the space. The relative outperformance of higher-growth, higher-multiple stocks was generally a boon to large and all-cap growth managers during the quarter. Concentrated all cap growth manager Zevenbergen had the strongest performance (+8.1% Portfolio vs. -3.4% Benchmark) given its concentrated approach and exposures to previously underperforming high growth names with competitive market positioning, such as Trade Desk (+42.6%), MercadoLibre (+30.0%), and Tesla (+18.2%). Concentrated large cap growth manager Sands was in-line with its benchmark during the quarter, while more diversified and conservatively positioned Winslow underperformed given its higher allocation to defensive, higher-cap positions (Sands -3.5% and Winslow -5.6% vs. -3.6% Benchmark).

Active large cap value managers were mixed during the quarter (Barrow Hanley -4.7% and LSV -6.7% vs. Benchmark -5.6%). Barrow Hanley's fundamental bottom-up stock selection was the key driver of its relative outperformance this quarter, while an overweight to high quality energy names was an additional key driver of performance. LSV's quantitative, deep-value

approach was out of favor, and its selection of lower-priced stocks detracted from stock selection results.

Semi-passive large cap managers were in line with their benchmark in aggregate (BlackRock -5.0% and J.P. Morgan -4.2% vs. Benchmark -4.6%). Quantitative manager BlackRock had negative performance in part due to fundamental signals underperforming in an environment in which sentiment was a primary driver of stock returns. Sentiment signals did offset negative performance, somewhat, particularly analyst-related equity measures. J.P. Morgan's outperformance was attributed entirely to good stock selection during the quarter given that the strategy doesn't take sector bets. Stock selection was the strongest in the healthcare and consumer cyclicals sectors.

Small cap managers in aggregate underperformed slightly, driven by underperformance of small cap growth managers (-0.9% vs +0.2% Benchmark) and outperformance of small cap value managers (-4.1% vs -4.6% Benchmark). Small cap growth managers trailed their benchmark in part due to their quality growth and large cap tilts, both of which hurt in an environment that favored small cap and growth companies. Hood River was the only outperformer in the cohort (+4.2% vs +0.2% Benchmark) due to strong selection within the technology, healthcare, and consumer non-cyclicals sectors. Small cap value managers outperformed in aggregate despite their deep value bias being out of favor. Hotchkis & Wiley was the largest driver of this outperformance (-0.7% vs -4.1% Benchmark) due to its tilt towards the energy sector and into companies with higher longer-term economic sensitivity. Quantitative manager Martingale outperformed in part due to strong performance from its momentum signals, while fundamental managers Goldman Sachs and Peregrine underperformed modestly.

Passive managers largely tracked their benchmarks during the quarter, with the Passive Domestic Equity aggregate falling -4.6% versus the Passive Domestic Equity Benchmark return of -4.6%.

### **Global Equity and ACWI ex USA Equity**

The early-quarter rally and late-quarter retreat evidenced in U.S. equities was mirrored across global equity markets in the third quarter as the MSCI All-Country World Index (ACWI) (net) returned -6.8%. Although the U.S. outperformed the broad index (-4.8%), it was still the largest negative contributor because it now accounts for 62.1% of index weight. Meanwhile, China, the sole survivor of the second quarter collapse, caught up with the rest of the world, falling -22.5% in the third quarter. Other major economies including Japan (-7.7%), the U.K. (-10.6%), and Canada (-7.5%) also pulled the index down. Only India (+6.5%) and Brazil (+8.5%) escaped the negative swirl. On a sector basis, all sectors in the ACWI Index ended down for the quarter, led once again by technology names, especially within semiconductors and software.

The Combined Funds' global equity portfolio trailed the benchmark for the third quarter (-9.5% Portfolio vs. -6.8% Benchmark). Active managers were hurt by a significant overweight to China (9.3% Portfolio weight vs. 3.5% Benchmark weight). Quality growth manager Martin Currie ended the quarter down -10.6%. Underperformance came from significant losses in a half-dozen highly diversified names, many of whom issued profit warnings, struggled with too much inventory, or experienced other idiosyncratic difficulties: Chinese outsourced pharmacy researcher Wuxi Biologics (-34.0%), Irish green insulation manufacturer Kingspan (-24.0%), Chinese insurance provider AIA (-22.7%), American software company Adobe (-24.8%), German athletic

manufacturer Adidas (-34.0%), and American semiconductor specialist NVIDIA (-19.9%). Meanwhile value manager Ariel (-9.2%) gave up some of its relative gains from the first half. Ariel was hurt by positions in U.K. pharmaceutical giant GSK (-32.8%) and Chinese internet company Baidu (-21.0%); a big tilt away from the U.S. didn't help. On the other hand, long-term growth manager Baillie Gifford scored its first outperforming quarter of calendar year 2022 (-5.0%), as beaten-down U.S. technology holdings recouped some of their losses: Tesla (+18.2%), Trade Desk (+42.6%), Netflix (+34.6%), Atlassian (+12.4%), and Cloudflare (+26.4%).

The portfolio's ACWI ex USA manager, Earnest Partners, modestly outperformed the benchmark during the quarter (-9.3% Portfolio vs. -9.9% Benchmark). An allocation to Indian banks was the biggest relative contributor to outperformance.

### **Developed International Equity and Currency Overlay**

International developed markets equities, as measured by the MSCI World ex USA Index (net), fell -9.2% during the third quarter in U.S. dollar terms, underperforming the broad U.S. markets. However, in local currency terms, which excludes the impact of the strengthening dollar over the period, the index fell just -3.4%, slightly outperforming broad U.S. equities.

The portfolio's active developed markets managers modestly beat the MSCI World ex USA Index (net), returning -9.0% versus the benchmark's -9.2% return. Quantitative manager Acadian (-7.9%) and quality growth manager Columbia Threadneedle (-7.9%) both outperformed on strong stock selection, and in Columbia's case, a defensive allocation to cash. Quantitative value manager AQR underperformed (-10.4%) as its value factor struggled, especially among industrials, and its currency strategy lost on an outsized bet on Norwegian krone. Fidelity (-10.6%) had the most difficulties in stock selection within its Asian portfolio, particularly in the consumer discretionary and financial sectors. Fidelity's high-beta Japan portfolio is also more sensitive to weakness in Japanese yen.

The passive developed markets portfolio tracked the MSCI World ex USA Index (net) return for the quarter (-9.2% Portfolio vs. -9.2% Benchmark).

The portfolio's currency hedging program provided strong gains during the quarter as the dollar rallied against all hedged currencies. For the quarter, the impact of hedging on the developed international portfolio resulted in a +3.5% boost to performance versus a fully unhedged portfolio. During the third quarter, the program's hedge against the euro currency contributed most to performance as the likelihood of gas shortages cast a pall over the continent's economy and drove the euro lower. The British pound also lost significant ground as the U.K. was hobbled by a cost-of-living crisis and fiscal policy missteps, and the Japanese yen continued its decline as the BoJ maintained its commitment to yield curve control despite dramatically rising rates elsewhere across the globe. The program's overall hedge ratio moved between 27.6% and 86.5%, partially due to tactical interventions initiated by the manager to secure gains and reduce value at risk.

### **Emerging Markets Equity**

Emerging markets equities, as measured by MSCI Emerging Markets Index (net), posted a loss of -11.6% in U.S. dollar terms during the third quarter. While declining currency values worsened performance across for emerging markets when measured in U.S. dollars, the index still lost -8.2% in local currency terms. Most of the equity drag came from greater China (H-shares -22.5%,

Taiwan -14.5%) and Korea (-16.4%). Technology names lost considerable ground, especially semiconductors (TSMC -16.6%) and Chinese internet giants (Alibaba -30.4%, Tencent -24.9%). Chinese financials also tumbled (China Construction Bank -13.9%) as uncertainty continued to roil the real estate market.

The portfolio's active emerging markets managers outperformed the MSCI Emerging Markets Index (net) (-9.3% Portfolio vs. -11.6% Benchmark). In a reversal from last quarter, the portfolio's significant underweight to China (19.6% Portfolio weight vs. 31.1% Benchmark weight) aided relative performance. Strong selection in the technology, consumer discretionary, and financials sectors also generated alpha. Morgan Stanley (-6.9%) led the outperformance, helped most by a large tilt away from China and toward India. Value manager Pzena (-7.6%) extended its streak of positive relative performance to a third quarter. Most of Pzena's outperformance was generated by positive issue selection in greater China where the strategy outpaced the index by +8.8%. Growth fund-of-funds manager Rock Creek (-9.7%) also outperformed the benchmark, benefitting from a tilt away from China in favor of India, Indonesia, and Vietnam. However, fundamental core manager Macquarie (-12.9%) underperformed. Macquarie's was hurt by an overweight to semiconductor names as well as a position in Indian energy and telecommunications conglomerate Reliance Industries, which was hit by the Indian government's announcement of new windfall taxes on oil.

Earnest Partners' dedicated China A-share strategy underperformed the MSCI China A Index during the quarter (-19.3% Portfolio vs. -18.3% Benchmark). Once again, sector allocation was the major driver of performance. Energy, real estate, and utility names led the index for the quarter, and Earnest has no holdings in those industries.

The passive emerging markets portfolio tracked the MSCI Emerging Markets Index (net) for the quarter (-11.7% Portfolio vs. -11.6% Benchmark).

### **Core/Core Plus and Return Seeking Bonds**

Bond investors faced continued headwinds during the third quarter as interest rates rose and credit spreads for most non-Treasury sectors widened. The Bloomberg Aggregate Bond Index fell -4.8% during the quarter, bringing its 2022 calendar year-to-date performance to -14.6%. In response to faster-than-expected Fed policy rate hikes and tough talk on inflation from Fed officials, interest rates rose to cycle highs across the yield curve during the quarter. Intermediate Treasuries returned -3.1% over the quarter while the long end of the Treasury market (10+ year maturities) fell -9.7%.

Within the spread sectors of the bond market, Agency mortgage-backed securities (MBS) lagged the most, underperforming duration-matched Treasuries by nearly -1.7% during the quarter. Interest rate volatility and dramatically higher interest rates soured investor demand for the sector. Investment grade credit also underperformed Treasuries for the quarter, driven by underperformance of long credit. On the positive side, high yield credit (bonds and loans) strongly outperformed as the sector's carry advantage proved sufficient to offset any spread widening. Emerging markets debt total return performance was hurt by its longer duration profile, but spread widening was modest and generally offset by the sector's spread advantage vs. Treasuries.

The portfolio's core/core plus bond managers slightly outperformed the Bloomberg Aggregate Index during the quarter (-4.7% Portfolio vs. -4.8% Benchmark). Overall, managers benefitted

from a yield advantage relative to the benchmark, as well as positive security selection within investment grade credit and exposure to out-of-benchmark high yield credit and securitized credit. These positives were partially offset by negative effects of duration and curve positioning, as well as an overweight to the underperforming Agency mortgage-backed sector.

The portfolio's return-seeking bond managers returned -2.6% during the third quarter, outperforming the policy benchmark (Bloomberg U.S. Aggregate Bond Index) return of -4.8%, though modestly underperforming the weighted composite of the managers' individual benchmarks, which returned -2.3%. A lower overall duration helped the portfolio's return relative to the policy benchmark as interest rates rose sharply during the quarter, as did allocations to high yield bonds and bank loans, which outperformed. Manager performance relative to underlying benchmarks was mixed. Higher beta emerging markets debt manager Ashmore underperformed its benchmark. The portfolio's opportunistic managers (Blackrock multi-sector and TCW securitized credit) both experienced modest underperformance relative to their "T-Bill plus spread" benchmarks as credit spreads widened and interest rates rose sharply.

### **Treasury Protection Portfolio**

The Treasury Protection portfolio matched the performance of the Bloomberg Treasury 5+ Year Index for the third quarter (-6.9% Portfolio vs. -6.9% Benchmark). Managers' active yield curve positioning and yield advantage from an emphasis on the 20-year portion of the yield curve both generated positive relative performance over the quarter. However, this impact was offset by negative effects from a slight overweight to duration as well as weak performance from out-of-benchmark allocations to Treasury Inflation Protected Securities and U.S. Agencies.

### **Laddered Bonds + Cash Portfolio**

The combined Laddered Bonds + Cash portfolio returned +0.40% for the third quarter, slightly underperforming the portfolio's benchmark (ICE BofA US 3-Month Treasury Bill) which returned +0.46% over the same period. The underperformance was concentrated in the Laddered Bonds portfolio, which, on a stand-alone basis, posted a return of +0.30%. The Laddered Bond portfolio's slightly longer duration versus its benchmark (0.36 years vs 0.24 years) was a drag as the Fed raised its policy rate more than expected during the quarter, sending yields on short-term securities higher (and prices lower). The Cash portfolio returned +0.56%, exceeding the benchmark. The Cash portfolio also benefitted from wider credit spreads during the quarter, which boosted reinvestment rates. On a yield basis, the Laddered portfolio continues to provide a solid yield advantage over cash (Ladder portfolio yielded 3.75% at quarter-end versus Cash portfolio yield of 3.06%). Over time, this persistent yield advantage is expected to drive relative outperformance vs. cash.



## **Public Markets Managers' Organizational Update Third Quarter 2022**

### **Columbia Threadneedle (Developed Markets Equity)**

Richard Colwell, Head of UK Equities at Columbia Threadneedle will retire in November 2022. Jeremy Smith and Catherine Stanley will become Co-Heads of UK Equities. Though not a direct contributor to SBI's Developed Markets mandate, Mr. Colwell was a colleague and resource for the EAFE team.

### **Goldman Sachs Asset Management (Fixed Income, Domestic Markets Equity)**

Kathryn (Katie) Koch, Partner and Chief Investment Officer of Goldman's public equity business, left the firm to join TCW as its President and CEO (See further information below under TCW). Partly to address Ms. Koch's departure, Goldman announced a series of promotions as part of a re-organization of its Asset Management business, including the promotion of Ashish Shah to Chief Investment Officer for all public markets investing.

Sector portfolio manager for the Small Cap Value strategy Sean Butkus departed the firm during the quarter. Co-Lead Portfolio Manager Rob Crystal will assume Mr. Butkus' industrials coverage, and Mr. Crystal will work with existing research analysts on the team to cover the consumer and communications services sectors. Yogendar Bisht will assume Mr. Butkus' materials sector coverage.

### **Marathon (Developed Markets Equity)**

Toma Kobayashi has been promoted to Portfolio Manager, managing a sleeve of Japanese stocks. Mr. Kobayashi has also become a member of Marathon's Partners Group.

### **Martin Currie (Global Equity)**

Zoe Hutchinson, Investment Analyst for the industrials sector, left the Global team for a new position with the firm during the quarter. Portfolio Manager Ken Hughes will cover the sector until a new analyst is hired.

### **Martingale (Domestic Equity)**

Martingale added a Quantitative Developer, Jimei Shen, to the Investment Team in September. She will be responsible for developing analytical tools to enhance research and portfolio management processes and will collaborate on research.

### **McKinley (Developed Markets Equity)**

Elias (Eli) Krauklis joined McKinley in August 2022 as Director of Quantitative Research, Portfolio Manager. Most recently, Mr. Krauklis was a Senior Analyst and Director of U.S. Equity Strategy at Barclays Capital. Joe Dobryzynski, Director of Trading and Trade Operations left McKinley during the quarter, as the firm moved to partner with an external trading partner. Claudia Jackson was promoted to Head Trader.

**Morgan Stanley (Emerging Markets Equity)**

Morgan Stanley added Aaron Zhao to the team as a China analyst. Mr. Zhao will cover consumer staples, consumer discretionary, and health care.

**Neuberger Berman (Emerging Markets Equity)**

Eileen Furukawa joined the Emerging Markets Equity team as an Associate Portfolio Manager. Ms. Furukawa will focus on North Asian large cap information technology and internet stocks.

**PGIM (Fixed Income)**

PGIM hired Diane L. Parker as Head of Diversity, Equity & Inclusion (DEI). Ms. Parker reports to John Vibert, Managing Director and President of PGIM Fixed Income.

**TCW (Fixed Income)**

As planned, CEO David Lippman will depart the firm at year-end. Mr. Lippman will exit following nine years as the CEO of TCW and more than 20 years as part of MetWest and TCW investment and executive leadership. To succeed Mr. Lippman, TCW announced the appointment of Kathryn (Katie) Koch as TCW's new President and CEO. Ms. Koch joins TCW from Goldman Sachs, where she was a Partner and most recently served as Chief Investment Officer of Goldman's Public Equity business and was a member of the Asset Management Division's executive committee.

**Pzena (Emerging Markets Equity)**

During the quarter, Pzena Investment Management, LLC ("PIM") announced its intention to become a privately held company through the acquisition of its publicly traded holding company, Pzena Investment Management, Inc. (NYSE:PZN) ("PIM Inc."). The transaction is targeted to close in the fourth quarter of 2022, subject to shareholder approval.

**Sands (Domestic Equity)**

One of the four Co-Portfolio Managers for the MSBI's Select Growth Strategy, Mike Sramek, began a medical leave of absence during the quarter. The strategy continues to be managed by co-managers Wes Johnson, Tom Trentman, and Frank Sands.

**State Street Global Advisors (Developed and Emerging Markets Equity)**

In September 2022, Yie-Hsin Hung was named President and Chief Executive Officer of State Street Global Advisors.

**Zevenbergen (Domestic Equity)**

Effective July 25, 2022, Zevenbergen Capital Investments LLC took over management of the Virtus Technology Fund as subadviser; Virtus Investment Advisers, Inc. continues to serve as investment adviser. The Fund was renamed the Virtus Zevenbergen Technology Fund at that time. As of 09/30/22, the Fund had \$1,165.7 million in assets under management.

### **Third Quarter 2022 Manager Meetings**

After two years in which travel was restricted due to the COVID-19 pandemic, MSBI staff began traveling to and accepting visits from managers in April 2022. Staff will also continue to utilize teleconference and videoconference technologies to remain in communication with managers between in-person visits.

During the quarter, Staff traveled to Seattle, Chicago, Boston, and New York for 8 manager meetings. Staff received 6 visits from managers at our office in St. Paul. A further 42 manager strategy review calls were held via teleconference or videoconference. Note that while staff met with some managers multiple times during the quarter, each manager/strategy is listed only once below.

#### **Investment Manager**

#### **Asset Class**

|   |                          |
|---|--------------------------|
| Acadian Asset Management LLC                | Developed Markets Equity |
| AQR Capital Management, LLC                 | Developed Markets Equity |
| Ariel Investments, LLC                      | Global Equity            |
| Ashmore Investment Management Limited       | Fixed Income             |
| Baillie Gifford Overseas Limited            | Global Equity            |
| Barrow, Hanley, Mewhinney & Strauss, LLC    | Domestic Equity          |
| BlackRock Financial Management, Inc.        | Fixed Income             |
| Columbia Threadneedle Investments           | Developed Markets Equity |
| Columbia Threadneedle Investments           | Fixed Income             |
| Fidelity Institutional Asset Management LLC | Developed Markets Equity |
| Goldman Sachs Asset Management, L.P.        | Domestic Equity          |
| Goldman Sachs Asset Management, L.P.        | Fixed Income             |
| Hood River Capital Management, LLC          | Domestic Equity          |
| J.P. Morgan Investment Management Inc.      | Domestic Equity          |
| J.P. Morgan Investment Management Inc.      | Developed Markets Equity |
| Macquarie Investment Management Advisers    | Emerging Markets Equity  |
| Marathon Asset Management LLP               | Developed Markets Equity |
| Martin Currie Inc.                          | Emerging Markets Equity  |
| Martin Currie Inc.                          | Global Equity            |
| Martingale Asset Management, L.P.           | Domestic Equity          |
| McKinley Capital Management, LLC            | Developed Markets Equity |

### **Third Quarter 2022 Manager Meetings (cont.)**

| <b>Investment Manager</b>                         | <b>Asset Class</b>                                  |
|---|---|
| Morgan Stanley Investment Management Inc.         | Emerging Markets Equity                             |
| Neuberger Berman Investment Advisers LLC          | Fixed Income  |
| Neuberger Berman Investment Advisers LLC          | Emerging Markets Equity                             |
| NISA Investment Advisors, LLC                     | Cash Overlay  |
| Oaktree Asset Management                          | Fixed Income  |
| Payden & Rygel                                    | Fixed Income  |
| Prudential Global Investment Management (PGIM)    | Fixed Income  |
| Pacific Investment Management Company LLC (PIMCO) | Fixed Income  |
| Peregrine Capital Management                      | Domestic Equity                                     |
| Pzena Investment Management, LLC                  | Emerging Markets Equity                             |
| Record Currency Management LLC                    | Currency Overlay                                    |
| Rice Hall James & Associates, LLC                 | Domestic Equity                                     |
| The Rock Creek Group, LLC                         | Emerging Markets Equity                             |
| Sands Capital Management, LLC                     | Domestic Equity                                     |
| State Street Global Advisors                      | Developed Markets Equity<br>Emerging Markets Equity |
| Wellington Management Company, LLP                | Domestic Equity                                     |
| Western Asset Management Company, LLC             | Fixed Income  |
| Winslow Capital Management, LLC                   | Domestic Equity                                     |
| Zevenbergen Capital Investments LLC               | Domestic Equity                                     |

# REPORT

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## Participant Directed Investment Program and Non-Retirement Investment Program

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DATE: November 7, 2022

TO: Members, Investment Advisory Committee

FROM: SBI Staff

**SUBJECT: Participant Directed Investment Program and Non-Retirement Program**

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

The report includes the following sections:

|   | <b>Page</b> |
|---|-------------|
| • Participant Directed Investment Program Fund Commentaries | 3           |
| • Non-Retirement Fund Commentaries                          | 5           |
| • Manager Meetings  | 6           |

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## **Participant Directed Investment Program Fund Commentaries**

### **Third Quarter 2022**

#### **Domestic Equities**

##### **Vanguard Total Stock Market Index Institutional Plus**

The Fund employs an indexing approach designed to track the performance of the CRSP U.S. Total Market Index, which represents approximately 100% of the investable U.S. stock market and includes large-, mid-, small-, and micro-cap stocks. The Fund slightly underperformed its benchmark return for the quarter with a return of -4.5% compared to the benchmark return of -4.4% and matched the benchmark performance for the year with a return of -18.0%.

##### **Vanguard Institutional Index Plus**

The Fund attempts to employ a full replication indexing approach designed to track the S&P 500 Index. Performance for the Fund matched the S&P 500 Index return for the quarter with a -4.9% return and for the year with a -15.5% return. *This option is only available to the Minnesota Deferred Compensation Plan (MNDCCP).*

##### **Vanguard Dividend Growth Fund**

The Fund is actively managed by Wellington Management and invests in large- and mid- cap equity holdings with an emphasis on high-quality companies with a history of paying stable or increasing dividends. The Fund underperformed the S&P U.S. Dividend Growers Index for the quarter with a -5.5% return compared to a -5.3% return for the benchmark. For the year, the Fund outperformed with a -6.2% return compared to a -10.3% for the benchmark. The Fund does not consider its benchmark sector positioning when constructing the portfolio; weightings result from stock selection.

##### **Vanguard Mid-Cap Index**

The Fund attempts to employ a full replication indexing approach designed to track the performance of a broadly diversified pool of medium-size U.S. stocks. The Fund matched the CRSP US Mid Cap Index return for the quarter and for the year with a -4.1% return and a -19.5% return, respectively.

##### **T. Rowe Price Institutional Small-Cap Stock Fund**

The Fund's investment process emphasizes fundamental research and active, bottom-up stock selection. The Fund seeks to provide long-term capital growth by investing primarily in stocks of small companies in both growth and value-oriented securities. The Fund matched the Russell 2000 for the quarter with a -2.2% and underperformed for the year with a -23.9% return compared to the benchmark return of -23.5%.

#### **International Equities**

##### **Fidelity Diversified International Equity Fund**

The Fund's approach actively selects international companies primarily in foreign developed markets based on fundamental analysis, management quality, and attractive valuations over a long-time horizon. The Fund returned -8.7% for the quarter, outperforming the MSCI EAFE benchmark

return of -9.4%. For the year, the Fund returned -30.6%, underperforming the benchmark return of -25.1%.

### **Vanguard Total International Stock Index**

The Fund attempts to employ an indexing approach designed to track the FTSE Global All Cap ex US Index, a market-cap weighted pool designed to measure performance of developed and emerging market companies. The Fund underperformed the benchmark for the quarter with a -10.5% return versus the benchmark return of -9.7% and outperformed for the year with a -25.2% return compared to -25.3% for the benchmark, respectively.

### **Fixed Income and Capital Preservation Options**

#### **Dodge & Cox Income Fund**

The Fund invests in a diversified portfolio that consists primarily of investment-grade debt securities with a larger allocation to corporate and securitized debt relative to the benchmark. The fixed income fund outperformed the Bloomberg U.S. Aggregate Index for the quarter with a -4.0% return, compared to the benchmark of -4.8%. For the year, the Fund outperformed with a -13.6% return compared to the benchmark return of -14.6%.

#### **Vanguard Total Bond Market Index**

The Fund employs a sampling process to its index investment approach to track the performance of the Bloomberg U.S. Aggregate Index. The Fund returned -4.6% for the quarter, outperforming the benchmark return of -4.8% and matched the benchmark for the year with -14.6% return.

#### **Stable Value Fund**

Galliard Asset Management manages the stable value portfolio in a separate account and invests in investment contracts issued by high quality financial institutions and in a diversified, high quality fixed income portfolio. The portfolio returned +0.5% for the quarter compared to a +0.9% return for its benchmark, the 3-Year Constant Maturity Treasury +45 basis points. For the year, the portfolio returned +1.9% compared to the benchmark return of +2.6%.

#### **Money Market Fund**

State Street Global Advisors manages the cash option in a commingled pool called the short-term investment strategy. The Fund outperformed the ICE BofA 3 Month U.S. T-Bill Index for the quarter and for the year with a +0.6% and a +0.9% return, respectively. The benchmark returned +0.5% and +0.6% over the respective time-periods.

### **Model Portfolio Option**

#### **Vanguard Balanced**

The Balanced Fund seeks capital appreciation, current income, and long-term growth of income. The Fund allocation tracks the investment performance of an index with 60% CRSP US Total Stock Market Index and 40% Bloomberg Barclays U.S. Aggregate Float Adjusted Index. The Balanced Fund matched the composite benchmark for the quarter and for the year with a -4.5% return and a -16.4% return, respectively.

## **Non-Retirement Fund Commentaries**

### **Third Quarter 2022**

#### **Assigned Risk Plan Fixed Income Manager**

RBC Global Asset Management actively manages the fixed income portfolio for the Assigned Risk Plan to the Bloomberg U.S. Governmental Intermediate benchmark with a focus on security selection and secondarily on sector allocation. The portfolio returned -3.0% for the quarter, slightly outperforming the benchmark return of -3.1%. For the year, the portfolio returned -9.1%, outperforming the benchmark return of -9.2%.

#### **Non-Retirement Program Fixed Income Manager**

Prudential Global Investment Management (PGIM) actively manages the Non-Retirement Fixed Income portfolio to the Bloomberg U.S. Aggregate in a separately managed portfolio. The fixed income portfolio outperformed for the quarter with a -4.7% return compared to the benchmark return of -4.8%. For the year, the portfolio underperformed the benchmark with a -15.4% return, compared to -14.6% for the benchmark.

#### **Non-Retirement Program Domestic Equity Manager**

Mellon Investments Corporation passively manages the Non-Retirement Domestic Equity portfolio to the S&P 500 Index in a separately managed portfolio. The portfolio matched the benchmark return for the quarter and the year returning -4.9% and -15.5% respectively.

#### **Non-Retirement Program Money Market Manager**

State Street Global Advisors manages the Non-Retirement Money Market Fund against the iMoneyNet All Taxable Money Fund Average. The fund slightly outperformed the benchmark for the quarter with a +0.6% return, and for the year with a +0.8% return. The benchmark returned 0.5% and 0.6% over the respective time-periods.

## 2022 Manager Meetings

MSBI Staff has incorporated a hybrid process to its manager due diligence process. As of April of 2022 Staff begun to travel to and accept visits from managers after a two-year pause in travel due to the pandemic. MSBI Staff will continue to use teleconference and videoconference technology to remain in communication with managers between visits.

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

| <b>Investment Manager</b>      | <b>Management Style/Asset Class</b>   | <b>Investment Program</b> |
|--------------------------------|---------------------------------------|---------------------------|
| • Ascensus                     | Multi-Asset Class Platform            | PDIP (MN ABLE Plan)       |
| • Dodge & Cox                  | Active, Fixed Income Option           | PDIP                      |
| • Fidelity                     | Active, International Equity Option   | PDIP                      |
| • Galliard                     | Stable Value Fund                     | PDIP                      |
| • Mellon Capital               | Passive, S&P 500 Index Fund           | Non-Retirement Program    |
| • PGIM                         | Active, Fixed Income                  | Non-Retirement Program    |
| • RBC                          | Active, Intermediate Fixed Income     | Non-Retirement Program    |
| • State Street Global Advisors | Target Date Fund<br>Money Market Fund | PDIP<br>PDIP              |
| • TIAA-CREF                    | Multi-Asset Class Platform            | PDIP (MN 529 Plan)        |
| • T. Rowe Price                | Active, Small Cap Equities            | PDIP                      |
| • Vanguard                     | Passive, Total Stock Market Fund      | PDIP                      |
|                                | Passive, Institutional S&P 500 Index  | PDIP                      |
|                                | Passive, Mid Cap Index Fund           | PDIP                      |
|                                | Passive, Total International Equity   | PDIP                      |
|                                | Passive, Bond Fund                    | PDIP                      |
|                                | Passive, Balanced Fund                | PDIP                      |
|                                | Active, Dividend Growth Fund          | PDIP                      |

# REPORT

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## SBI Environmental, Social, and Governance (ESG) Report

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### Coalition Highlights

#### Fair Proxy Voting Rights

As mentioned in last quarter's report, the SBI recently participated in the launch of the Investor Coalition for Equal Votes (ICEV).

In July 2022, the SBI supported ICEV's letter in response to the Financial Conduct Authority's Primary Markets Effectiveness Review (published in May 2022). The goal of the letter was to encourage the adoption of "one share, one vote" structures or reasonable sunset periods as a requirement under the United Kingdom's listing regime.

In October 2022, ICEV sent out letters to companies and their advisors in the United States, sharing the concern that dual-class share structures dampen the ability of investors to act as effective stewards and encouraging companies to adopt single-class share structures or reasonable sunset periods when going public.

#### Diversity

Through its involvement in the Midwest Investors Diversity Initiative (MIDI), the SBI is planning to lead several diversity related engagements in the fall of 2022 with target companies in the Midwest region.

The SBI will ask companies to voluntarily report board diversity, EEO-1 data and adopt board candidate recruitment best practices. If a company is unresponsive, the SBI will sponsor or co-sponsor a shareholder proposal at the company's next annual meeting related to improving diversity disclosure to investors.

### UPDATE ON ESG INTEGRATION AT THE SBI

The SBI continues to improve how it integrates ESG information into its investment process. ESG integration as defined by the CFA Institute is *"the explicit and systematic inclusion of Environmental, Social and Governance factors in investment analysis and investment decisions."* While the materiality of a specific ESG factor depends on entity, asset class, geography and strategy, in general, organizations that do not take ESG factors into consideration, may jeopardize their financial viability and fail to maximize their potential.

As a primarily externally managed plan, the SBI relies heavily on its managers to implement investment best practices, including ESG integration. For both public and private investments, SBI staff reviews ESG information as part of its due diligence and monitoring practices for its external investment managers. There are several reasons why the SBI pays attention to ESG information:

1. **Enterprise Level Materiality** – ESG information can influence company level financials or valuations and the SBI's returns depend on the value of the individual assets it owns.
2. **Systemic Risk** – ESG information can indicate changes in global systems. As a large, long-term and diversified investor, the SBI effectively owns a slice of the overall market and the SBI's investment returns depend on the continuing good health of the overall economy.

At both the enterprise level and at the systemic level, the SBI has focused on information gathering. In doing so, the SBI has requested ESG information from all of its managers through RFIs, DDQs, and during meetings. In fiscal year 2022, the SBI's consultants and data providers conducted several portfolio wide surveys to gather ESG information from managers with a particular focus on climate change risk management and diversity. The intention of these data gathering efforts is to establish a baseline so that the SBI can better monitor changes to its long-term risk exposures.

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# REPORT

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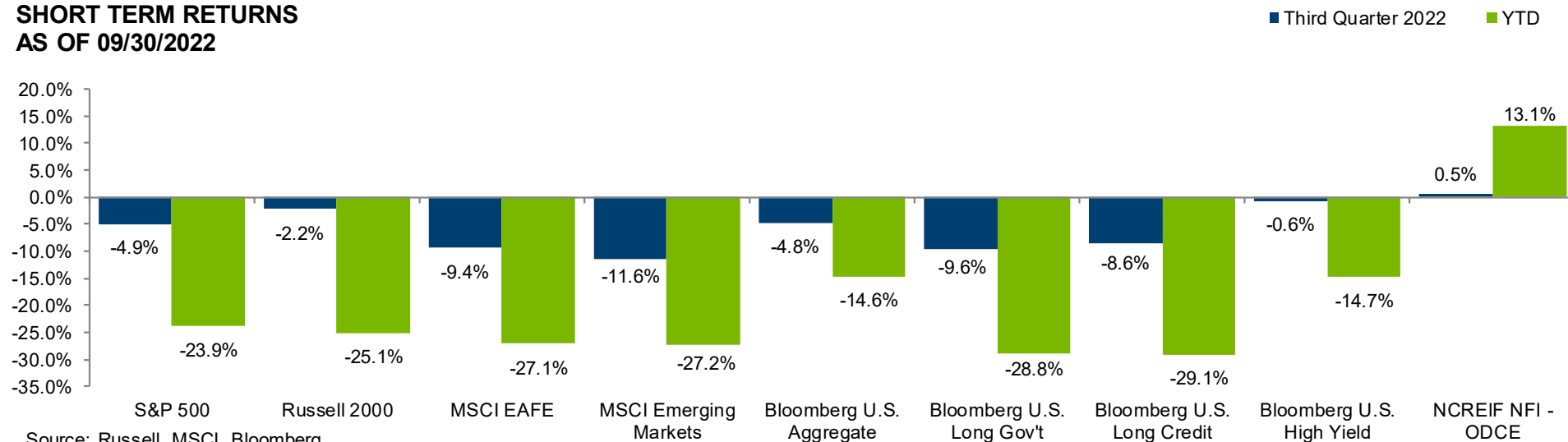
## AON Market Environment Report

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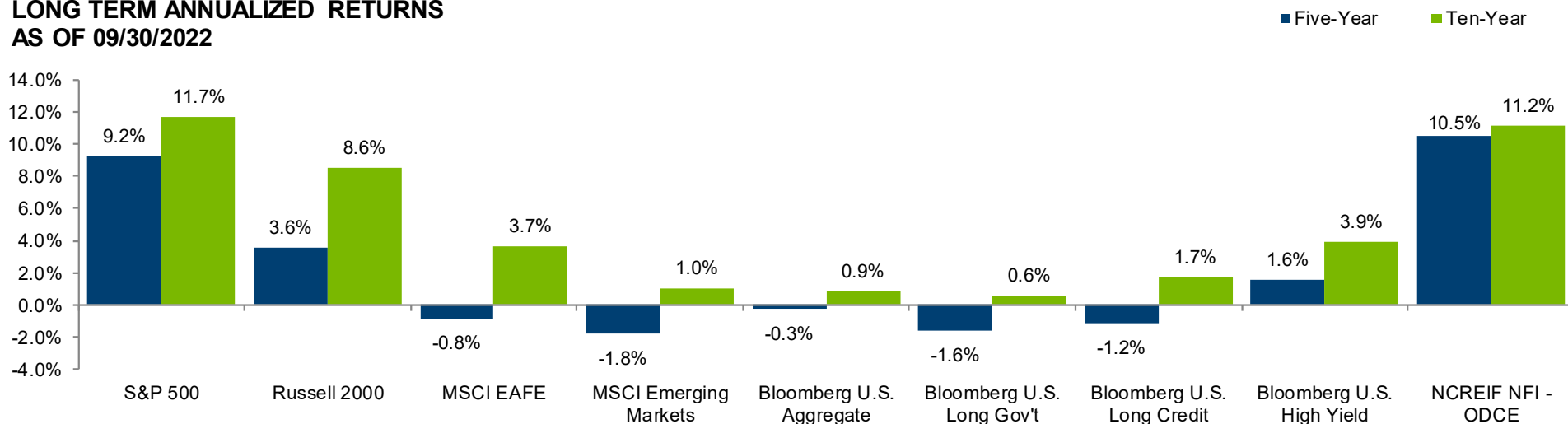
# Market Highlights

## SHORT TERM RETURNS AS OF 09/30/2022



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

## LONG TERM ANNUALIZED RETURNS AS OF 09/30/2022



Source: Russell, MSCI, Bloomberg

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

# Market Highlights

| Returns of the Major Capital Markets                  |               |         |         |                     |                     |                      |
|---|---------------|---------|---------|---------------------|---------------------|----------------------|
| Period Ending 09/30/2022                              |               |         |         |                     |                     |                      |
|   | Third Quarter | YTD     | 1-Year  | 3-Year <sup>1</sup> | 5-Year <sup>1</sup> | 10-Year <sup>1</sup> |
| <b>Equity</b>   |               |         |         |                     |                     |                      |
| MSCI All Country World IMI                            | -6.64%        | -25.72% | -21.18% | 3.64%               | 4.16%               | 7.25%                |
| MSCI All Country World                                | -6.82%        | -25.63% | -20.66% | 3.75%               | 4.44%               | 7.28%                |
| Dow Jones U.S. Total Stock Market                     | -4.56%        | -24.92% | -18.05% | 7.51%               | 8.48%               | 11.28%               |
| Russell 3000  | -4.46%        | -24.62% | -17.63% | 7.70%               | 8.62%               | 11.39%               |
| S&P 500   | -4.88%        | -23.87% | -15.47% | 8.16%               | 9.24%               | 11.70%               |
| Russell 2000  | -2.19%        | -25.10% | -23.50% | 4.29%               | 3.55%               | 8.55%                |
| MSCI All Country World ex-U.S. IMI                    | -9.69%        | -26.92% | -25.72% | -1.27%              | -0.78%              | 3.19%                |
| MSCI All Country World ex-U.S.                        | -9.91%        | -26.50% | -25.17% | -1.52%              | -0.81%              | 3.01%                |
| MSCI EAFE   | -9.36%        | -27.09% | -25.13% | -1.83%              | -0.84%              | 3.67%                |
| MSCI EAFE (Local Currency)                            | -3.59%        | -14.46% | -11.11% | 2.51%               | 2.83%               | 7.44%                |
| MSCI Emerging Markets                                 | -11.57%       | -27.16% | -28.11% | -2.07%              | -1.81%              | 1.05%                |
| <b>Equity Factors</b>                                 |               |         |         |                     |                     |                      |
| MSCI World Minimum Volatility (USD)                   | -6.28%        | -11.83% | 17.60%  | 0.26%               | 4.54%               | 7.83%                |
| MSCI World High Dividend Yield                        | -8.82%        | -16.17% | -10.16% | 1.98%               | 3.52%               | 6.67%                |
| MSCI World Quality                                    | -7.06%        | -29.17% | -21.86% | 6.92%               | 8.81%               | 10.45%               |
| MSCI World Momentum                                   | -5.60%        | -26.94% | -22.67% | 4.82%               | 7.67%               | 10.46%               |
| MSCI World Enhanced Value                             | -10.39%       | -21.97% | -18.70% | -0.11%              | 0.25%               | 6.19%                |
| MSCI World Equal Weighted                             | -7.55%        | -25.97% | -23.68% | 0.61%               | 1.77%               | 6.64%                |
| MSCI World Index Growth                               | -5.01%        | -32.28% | -26.74% | 6.60%               | 8.08%               | 10.10%               |
| MSCI USA Minimum Volatility (USD)                     | -5.41%        | -17.29% | -8.68%  | 2.94%               | 7.70%               | 10.66%               |
| MSCI USA High Dividend Yield                          | -7.54%        | -15.71% | -7.28%  | 3.23%               | 5.89%               | 9.80%                |
| MSCI USA Quality                                      | -7.38%        | -29.23% | -21.40% | 7.36%               | 10.36%              | 12.34%               |
| MSCI USA Momentum                                     | -3.03%        | -26.34% | -23.57% | 4.50%               | 7.97%               | 12.58%               |
| MSCI USA Enhanced Value                               | -8.77%        | -23.48% | -16.17% | 2.82%               | 4.01%               | 10.01%               |
| MSCI USA Equal Weighted                               | -4.74%        | -24.34% | -18.75% | 5.71%               | 6.84%               | 10.70%               |
| MSCI USA Growth                                       | -3.55%        | -32.37% | -25.59% | 10.62%              | 12.10%              | 13.50%               |
| <b>Fixed Income</b>                                   |               |         |         |                     |                     |                      |
| Bloomberg Global Aggregate                            | -6.94%        | -19.89% | -20.43% | -5.74%              | -2.32%              | -0.93%               |
| Bloomberg U.S. Aggregate                              | -4.75%        | -14.61% | -14.60% | -3.26%              | -0.27%              | 0.89%                |
| Bloomberg U.S. Long Gov't                             | -9.60%        | -28.77% | -26.60% | -8.48%              | -1.62%              | 0.60%                |
| Bloomberg U.S. Long Credit                            | -8.57%        | -29.05% | -27.98% | -7.02%              | -1.17%              | 1.73%                |
| Bloomberg U.S. Long Gov't/Credit                      | -9.03%        | -28.94% | -27.41% | -7.35%              | -1.17%              | 1.35%                |
| Bloomberg U.S. TIPS                                   | -5.14%        | -13.61% | -11.57% | 0.79%               | 1.95%               | 0.98%                |
| Bloomberg U.S. High Yield                             | -0.65%        | -14.74% | -14.14% | -0.45%              | 1.57%               | 3.94%                |
| Bloomberg Global Treasury ex U.S.                     | -9.08%        | -24.71% | -25.80% | -8.85%              | -4.36%              | -2.78%               |
| JP Morgan EMBI Global (Emerging Markets)              | -4.20%        | -22.24% | -22.23% | -6.10%              | -2.31%              | 0.95%                |
| <b>Commodities</b>                                    |               |         |         |                     |                     |                      |
| Bloomberg Commodity Index                             | -4.11%        | 13.57%  | 11.80%  | 13.45%              | 6.96%               | -2.14%               |
| Goldman Sachs Commodity Index                         | -10.31%       | 21.80%  | 23.64%  | 12.19%              | 7.75%               | -3.95%               |
| <b>Hedge Funds</b>                                    |               |         |         |                     |                     |                      |
| HFR Fund-Weighted Composite <sup>2</sup>              | -0.57%        | -6.18%  | -5.77%  | 6.18%               | 4.52%               | 4.61%                |
| HFR Fund of Funds <sup>2</sup>                        | 0.72%         | -5.92%  | -5.51%  | 4.52%               | 3.30%               | 3.57%                |
| <b>Real Estate</b>                                    |               |         |         |                     |                     |                      |
| NAREIT U.S. Equity REITS                              | -9.94%        | -28.13% | -16.41% | -2.05%              | 2.93%               | 6.26%                |
| NCREIF NFI - ODCE                                     | 0.52%         | 13.08%  | 22.10%  | 12.37%              | 10.24%              | 10.92%               |
| FTSE Global Core Infrastructure Index                 | -8.37%        | -13.29% | -4.60%  | 1.74%               | 5.30%               | 7.86%                |
| <b>Private Equity</b>                                 |               |         |         |                     |                     |                      |
| Burgiss Private iQ Global Private Equity <sup>3</sup> |               |         | 22.21%  | 23.77%              | 20.18%              | 16.03%               |

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

<sup>1</sup> Periods are annualized.

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

<sup>3</sup> Burgiss Private iQ Global Private Equity data is as at March 31, 2022

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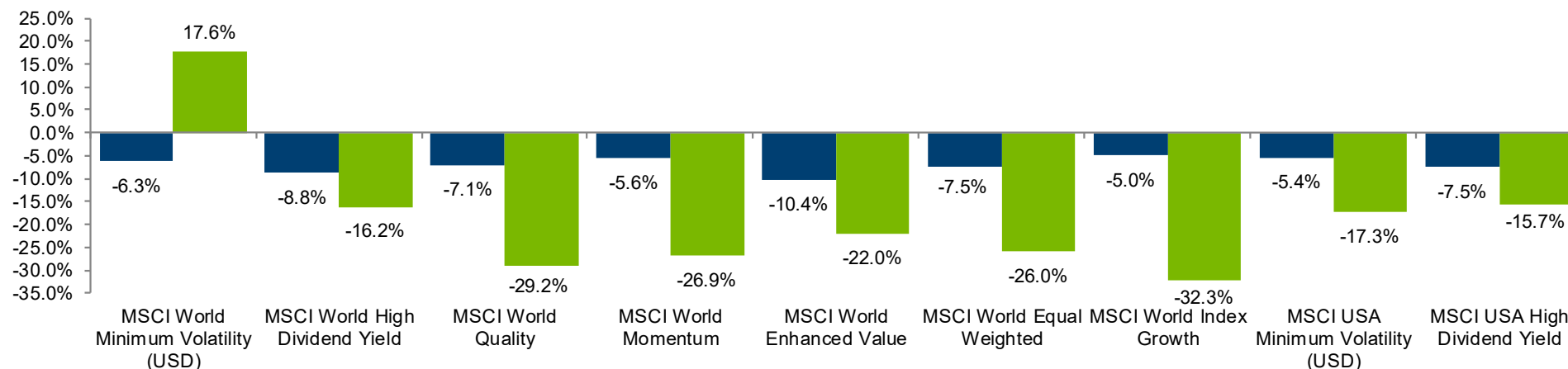
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# Factor Indices

## SHORT TERM RETURNS AS OF 09/30/2022

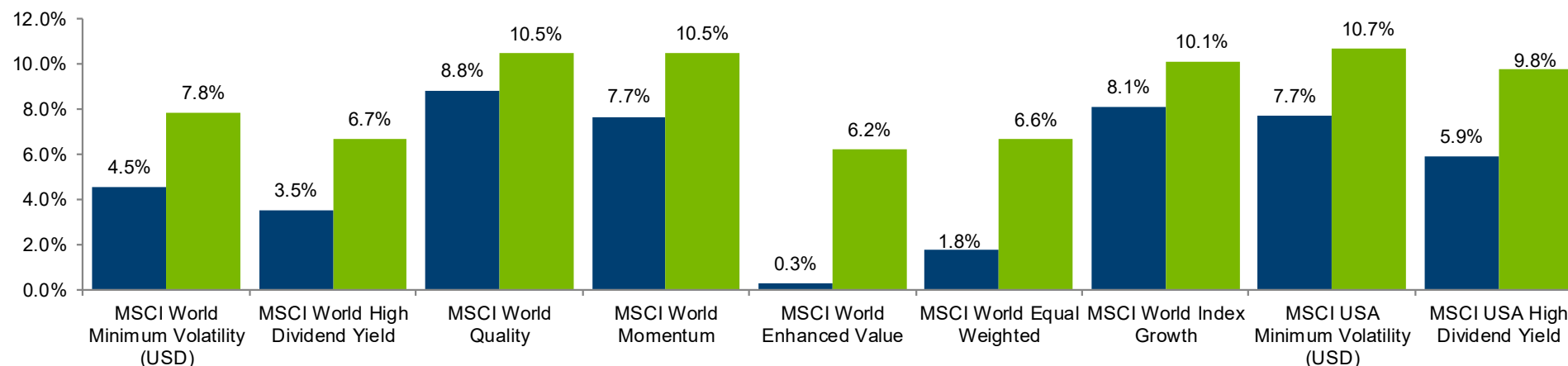
■ Third Quarter 2022 ■ YTD



Source: MSCI

## LONG TERM ANNUALIZED RETURNS AS OF 9/30/2022

■ Five-Year ■ Ten-Year



Source: MSCI

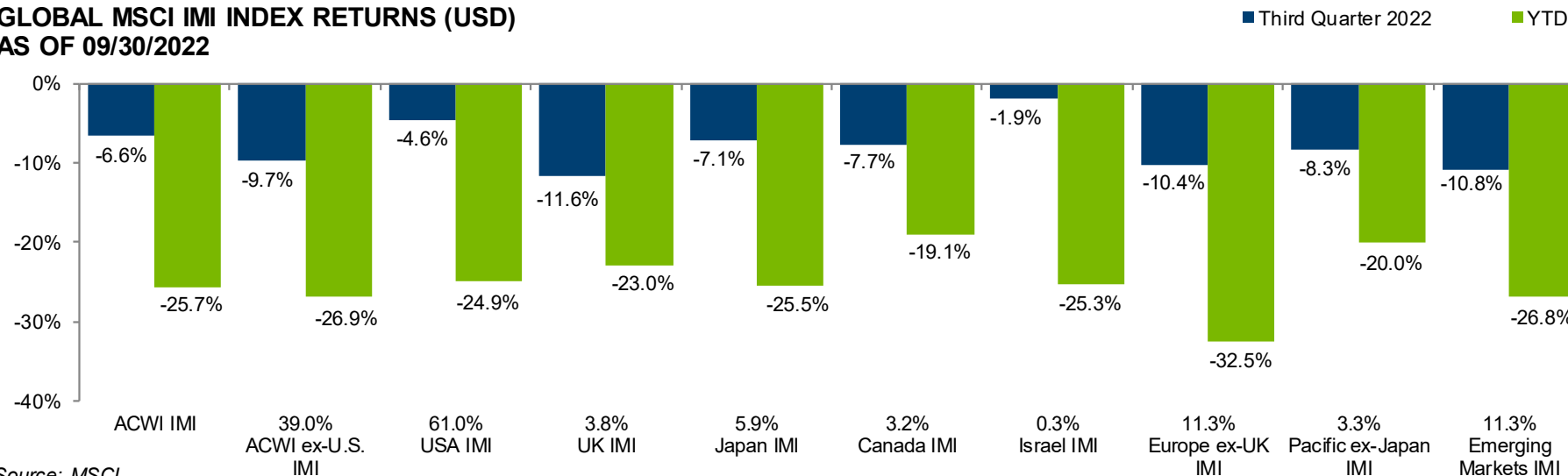
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# Global Equity Markets

## GLOBAL MSCI IMI INDEX RETURNS (USD) AS OF 09/30/2022



Source: MSCI

- In Q3 2022 capital markets were dominated by geopolitical uncertainty and higher interest rates amidst soaring inflation. Volatility remained elevated throughout the quarter. Yields trended higher with major central banks indicating an aggressive monetary policy stance to control rising inflation. The MSCI All Country World Investable Market Index (ACWI IMI) returned -6.6% for the quarter and was down 25.7% on a year-to-date basis.
- Across international markets, all the regions were weak over the quarter.
- UK equities were the worst regional performer with a return of -11.6% in US dollar terms due to sharp sterling depreciation against the dollar. Index heavyweights like Financials and Consumer Staples underperformed. Former UK foreign secretary, Liz Truss, became the new UK prime minister as she beat former chancellor Rishi Sunak by a 57-43 margin in a ballot of Conservative party members.
- Emerging Markets was the second worst performer at -10.8% with Chinese and Korean equities weighing on the region. U.S.-China tensions escalated after the U.S. House of Representatives Speaker, Nancy Pelosi, visited Taiwan and pledged U.S. commitment to the country. The U.S. Senate committee passed the Taiwan Policy Act (TPA) to provide a \$6.5bn fund that would enhance U.S. military support for Taiwan to counter increasing Chinese military activity around the country.

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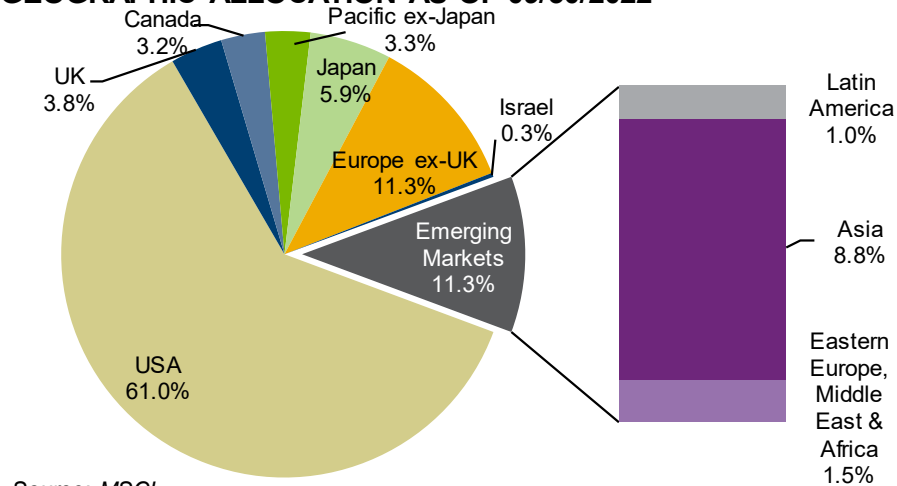
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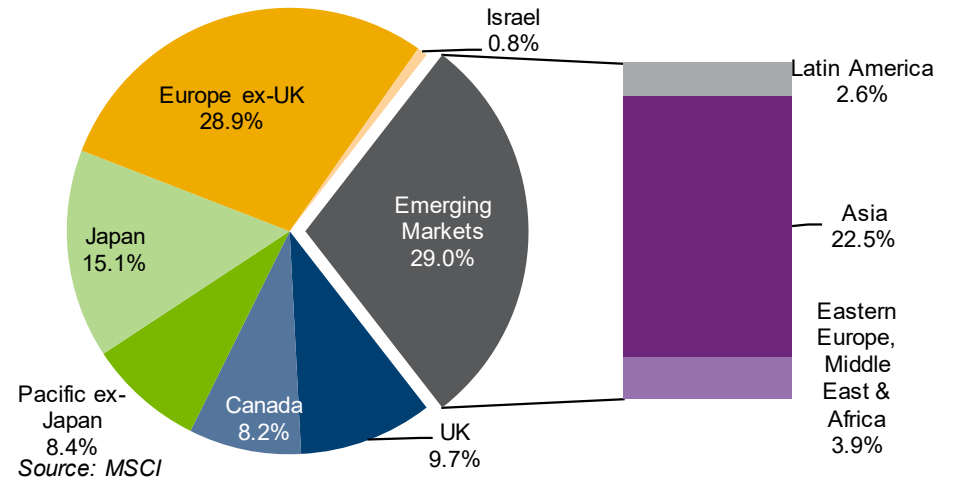
# Global Equity Markets

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

**MSCI ALL COUNTRY WORLD IMI INDEX  
GEOGRAPHIC ALLOCATION AS OF 09/30/2022**



**MSCI ALL COUNTRY WORLD EX-U.S. IMI INDEX  
GEOGRAPHIC ALLOCATION AS OF 09/30/2022**

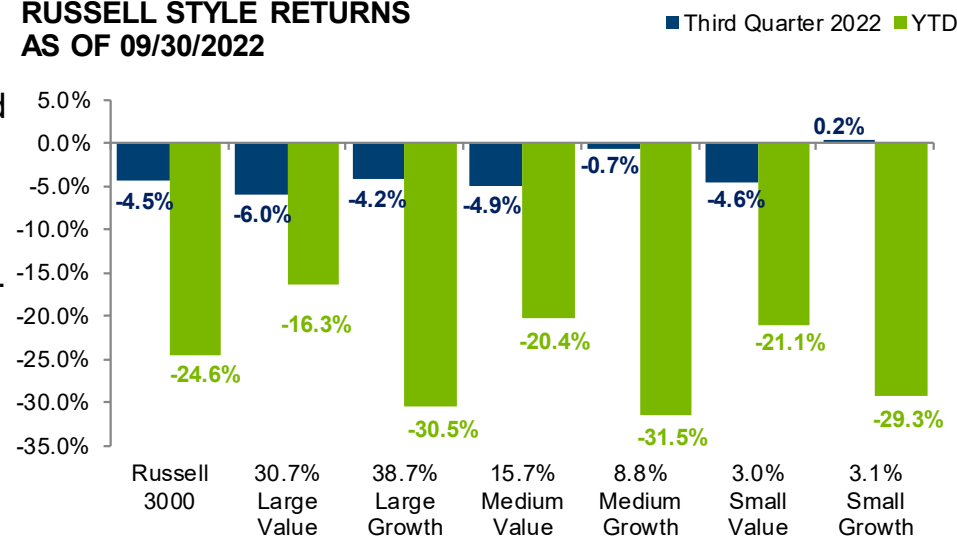




# U.S. Equity Markets

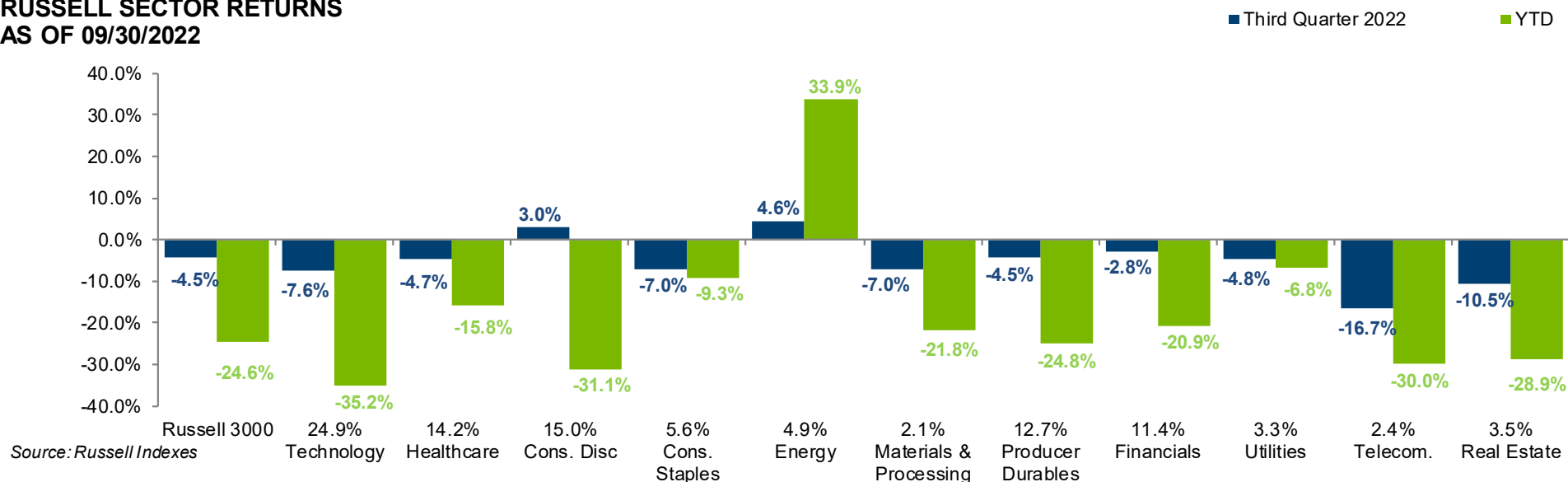
- U.S. equities had a weak quarter with the S&P 500 index falling by 4.9%.
- The Russell 3000 Index fell 4.5% during the third quarter and was down 24.6% on a year-to-date basis. Performance among sectors was generally negative. Energy and Consumer Discretionary were the best performers while the Telecom and Real Estate sectors were the worst performers.
- Small cap stocks have outperformed large and medium cap stocks over the quarter. On a style basis, growth outperformed value across market capitalizations over the quarter, however, value outperformed growth on a year-to-date basis.

## RUSSELL STYLE RETURNS AS OF 09/30/2022



Source: Russell Indexes

## RUSSELL SECTOR RETURNS AS OF 09/30/2022



Source: Russell Indexes

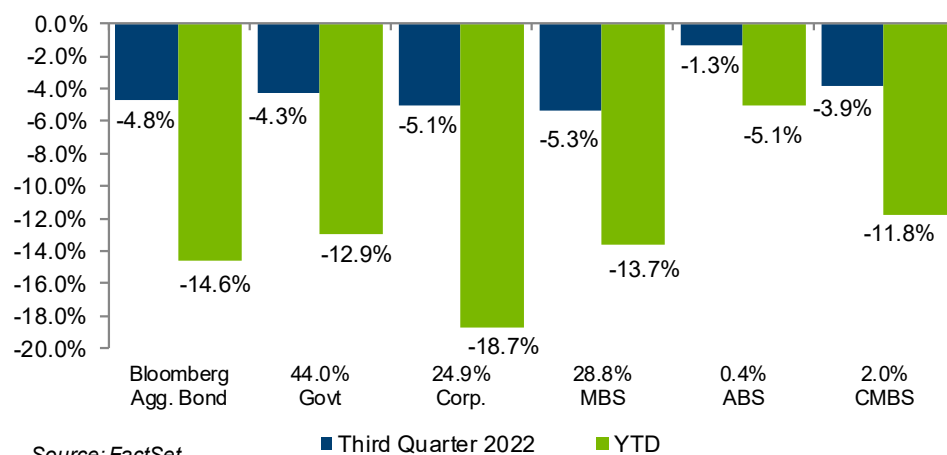
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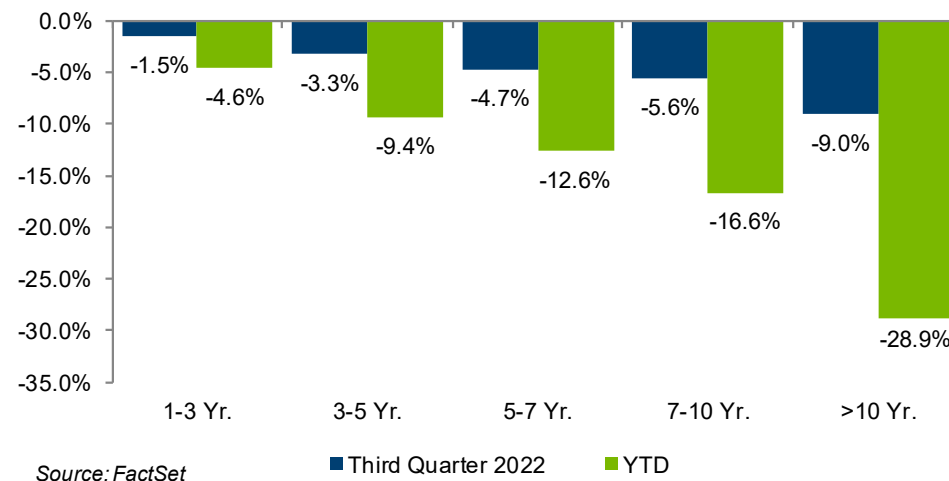
# U.S. Fixed Income Markets

**BLOOMBERG AGGREGATE RETURNS BY SECTOR  
AS OF 09/30/2022**

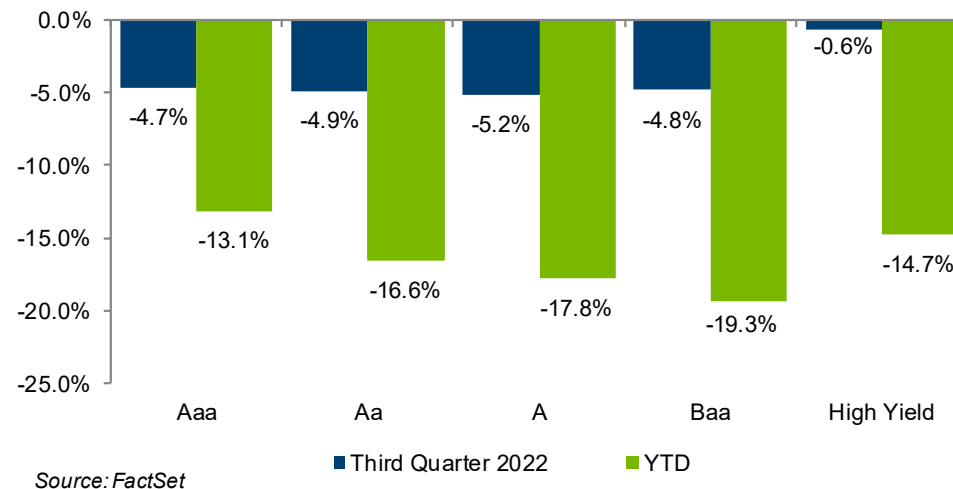


- The Bloomberg U.S. Aggregate Bond Index was down 4.8% over the quarter and 14.6% on a year-to-date basis.
- Across durations, all maturities finished the quarter in negative territory.
- Within investment-grade bonds, lower-credit quality generally outperformed higher-quality issues, with Baa bonds falling by 4.8%. High-yield bonds fell by 0.6%.

**BLOOMBERG AGGREGATE RETURNS BY MATURITY AS OF  
09/30/2022**

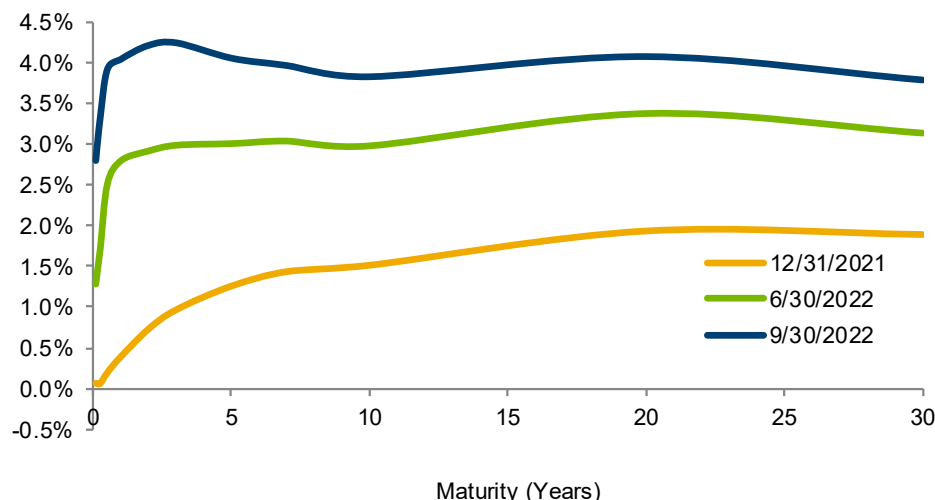


**BLOOMBERG AGGREGATE RETURNS BY QUALITY AND HIGH  
YIELD RETURNS AS OF 09/30/2022**

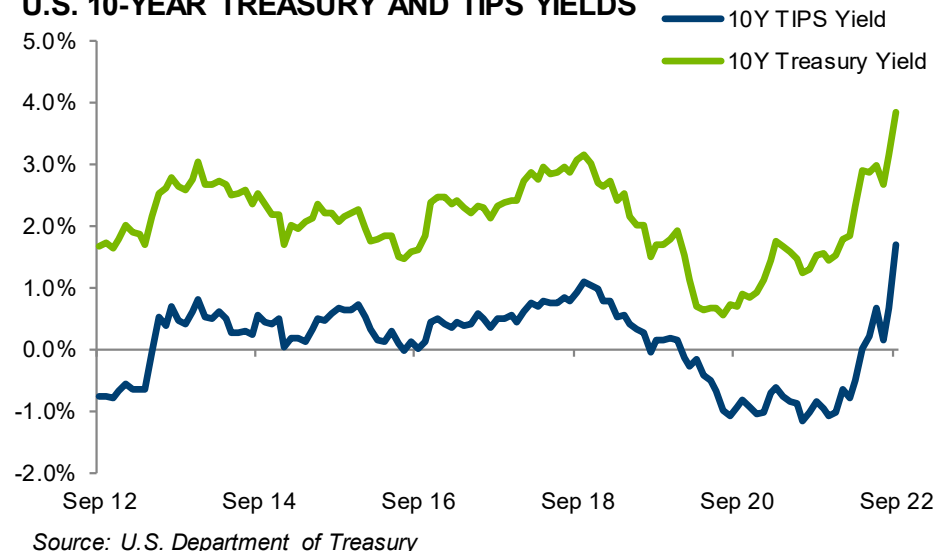


# U.S. Fixed Income Markets

**U.S. TREASURY YIELD CURVE**



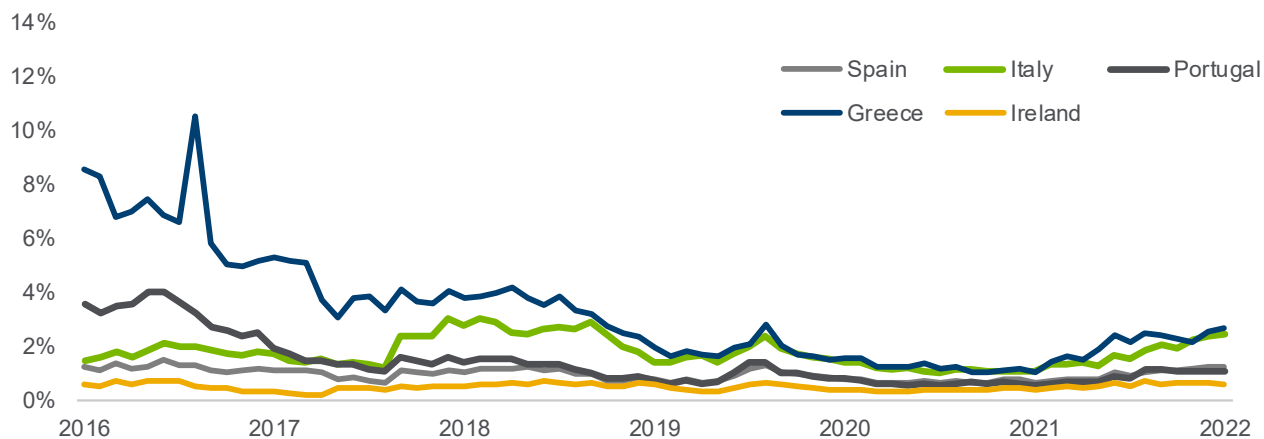
**U.S. 10-YEAR TREASURY AND TIPS YIELDS**



- U.S. Treasury yields saw notable increases across the maturities which moved the yield curve upwards over the quarter. The 10-year Treasury yield was up 85bps to 3.83%, and the 30-year Treasury yield was up 65bps to 3.79% over the quarter.
- The U.S. Federal Reserve (Fed) increased its benchmark interest rate by 150bps to a range of 3-3.25% over the quarter. Fed chair Jerome Powell indicated that monetary policy needs to be “more restrictive or restrictive for longer” to contain soaring inflation and also refused to rule out a recession. According to the median estimate on the Fed dot plot, officials expect the interest rate to reach 4.4% by the end of the year, before peaking at 4.6% next year. The central bank downgraded its U.S. annual GDP growth forecast to 0.2% for 2022 and expects core inflation to fall to 3.1% from 4.5% by the end of next year.
- Inflation slowed down but still remained high historically as food prices continued to accelerate. The U.S. annual consumer price index (CPI) rose 8.3% year on year in August, down from 8.5% recorded in the previous month.
- The 10-year TIPS yield rose by 103bps over the quarter to 1.68%.

# European Fixed Income Markets

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



Source: FactSet

- European government bond spreads over 10-year German bunds were mixed across the Euro Area. The European Central Bank (ECB) raised its benchmark interest rates by 125bps to 0.75% over the quarter, the highest level since 2011, to tackle surging inflation. The ECB president, Christine Lagarde, signaled several interest rate increases in the coming months to bring inflation down to the bank's target of 2%.
- German government bund yields rose sharply, up 75bps to 2.13% over the quarter.
- Eurozone inflation hit an all-time high of 9.1% over the year to August.

# Credit Spreads

| Spread (bps)            | 09/30/2022 | 06/30/2022 | 03/31/2022 | Quarterly Change (bps) | YTD Change (bps) |
|-------------------------|------------|------------|------------|------------------------|------------------|
| U.S. Aggregate          | 62         | 55         | 36         | 7                      | 26               |
| Long Govt               | 1          | -1         | 0          | 2                      | 1                |
| Long Credit             | 196        | 184        | 130        | 12                     | 66               |
| Long Govt/Credit        | 107        | 101        | 74         | 6                      | 33               |
| MBS                     | 69         | 46         | 31         | 23                     | 38               |
| CMBS                    | 105        | 101        | 68         | 4                      | 37               |
| ABS                     | 53         | 75         | 38         | -22                    | 15               |
| Corporate               | 159        | 155        | 92         | 4                      | 67               |
| High Yield              | 552        | 569        | 283        | -17                    | 269              |
| Global Emerging Markets | 403        | 404        | 285        | -1                     | 118              |

Source: FactSet, Bloomberg

- Credit markets declined from risk-averse sentiment during the quarter, with spreads generally widening.
- MBS and Long Credit spreads widened by 23bps and 12bps respectively while ABS and High Yield spreads narrowed by 22bps and 17bps, respectively.

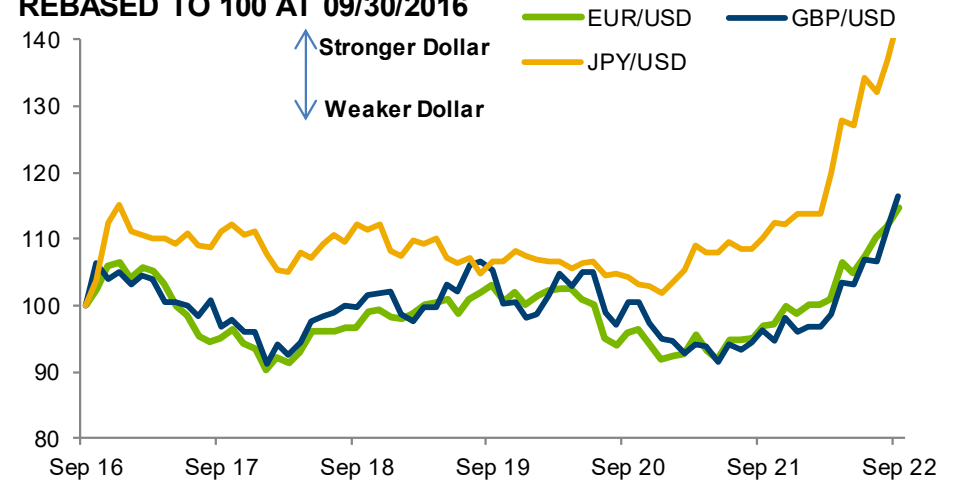
# Currency

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



Source: Federal Reserve

**U.S. DOLLAR RELATIVE TO EUR, GBP AND JPY  
REBASED TO 100 AT 09/30/2016**

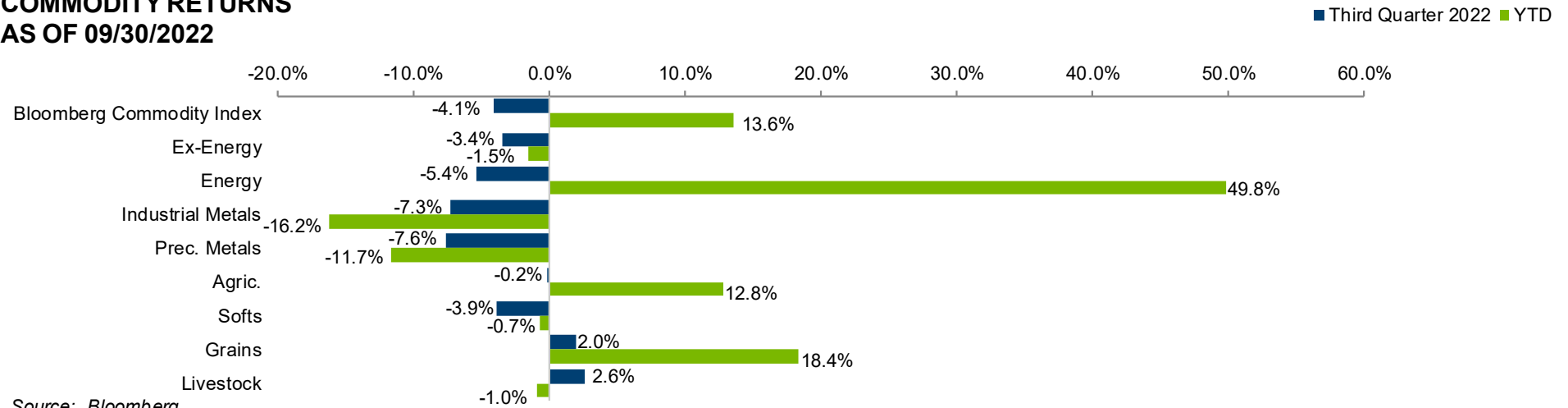


Source: FactSet

- The U.S. Dollar strengthened against all major currencies over the quarter. On a trade-weighted basis, the U.S. dollar appreciated by 5.4%.
- Sterling depreciated by 8.8% against the U.S. dollar. The Bank of England (BoE) raised its benchmark interest rate by 100bps to 2.25% over the quarter, its highest level since 2008. The BoE now expects the UK economy to contract by 0.1% in Q3 2022 and inflation to fall back in the short term due to the government's energy price guarantee.
- The U.S. dollar appreciated by 6.7% against the Euro.
- The U.S. dollar appreciated by 6.5% against the yen as the Bank of Japan continued to maintain its ultra-loose monetary policy stance as compared to the current monetary tightening stance of other major central banks. The BoJ sold U.S. dollars for the first time since 1998 after the yen hit a low of ¥145.89 against the dollar.

# Commodities

## COMMODITY RETURNS AS OF 09/30/2022



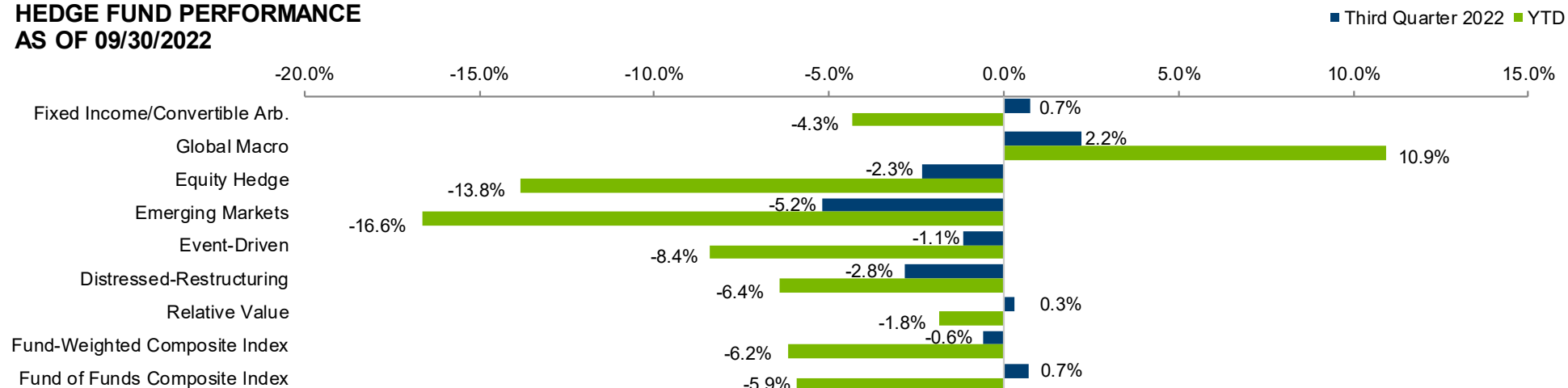
Source: Bloomberg

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

- Commodity prices fell sharply over the quarter amid growing fears of recession and weak oil demand from China due to Covid-19 lockdowns, with the Bloomberg Commodity Index falling by 4.1% for the quarter.
- The energy sector fell 5.4% over the quarter but has risen by 49.8% on a year-to-date basis. The price of WTI crude oil was down by 24.8% to U.S.\$79/BBL.
- Precious Metals fell the most over the quarter at -7.6%.
- Meanwhile, OPEC+ agreed to a 100,000 barrels a day oil production cut from October to lift oil prices.

# Hedge Fund Markets Overview

## HEDGE FUND PERFORMANCE AS OF 09/30/2022



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

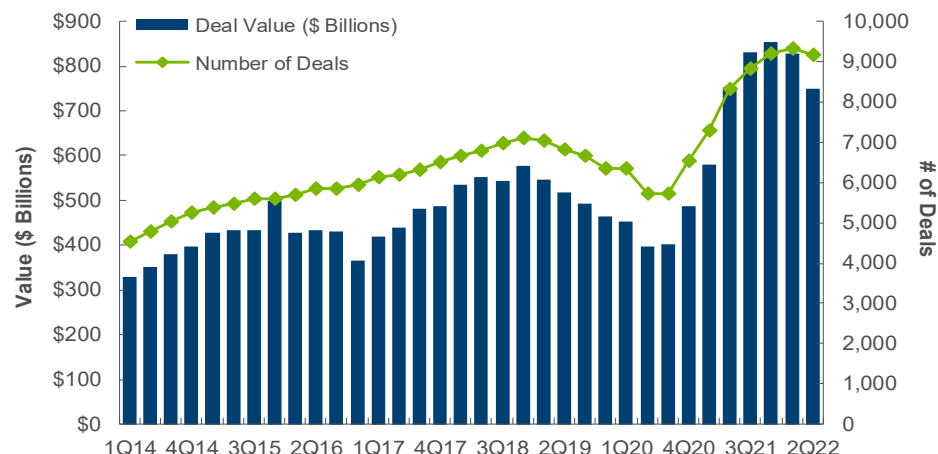
Source: HFR

- Hedge fund performance was mixed over the quarter.
- The HFRI Fund-Weighted Composite and HFRI Fund of Funds Composite Index produced returns of -0.6% and 0.7% over the quarter, respectively.
- Over the quarter, Global Macro was the best performer with a return of 2.2%.
- Emerging Markets and Distressed-Restructuring strategies were the worst performers with returns of -5.2% and -2.8% respectively.
- On a year-to-date basis, Global Macro has outperformed all other strategies.



# Private Equity Market Overview – 2Q 2022

**LTM Global Private Equity-Backed Buyout Deal Volume**

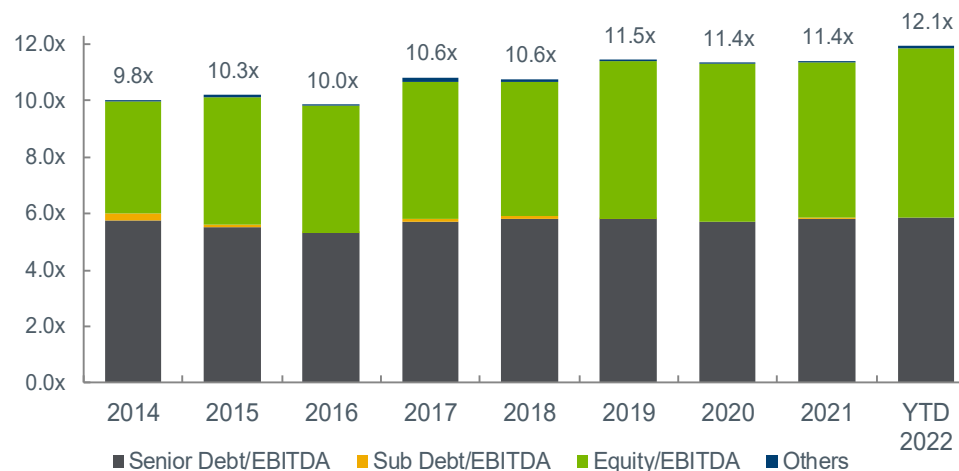


Source: Preqin

- **Fundraising:** During Q2 2022, \$278.1 billion was raised by 553 funds, which was down 6.7% by number of funds raised but up 1.5% by capital raised compared to Q1 2022. This represented a decrease of 23.3% on a capital basis compared to Q2 2021. Dry powder stood at \$3.0 trillion at the end of the quarter, an increase of 5.5% and 35.2% compared to Q1 2022 and the five-year average, respectively.<sup>1</sup>
- **Buyout:** Global private equity-backed buyout deals totaled \$159.2 billion in Q2 2022, which was a decrease on a capital basis of 9.5% compared to Q1 2022, but an increase of 8.2% compared to the five-year quarterly average.<sup>1</sup> During the quarter, the average purchase price multiple for all U.S. LBOs was 11.5x EBITDA, down from Q1 2022's average of 12.2x but up from the five-year average (11.1x). Large cap purchase price multiples stood at 11.5x during the quarter, up compared to full-year 2021's level of 11.2x. The LTM average purchase price multiple across European transactions greater than €1B averaged 11.3x EBITDA at the end of Q2 2022, down from 11.6x at year-end 2021. Purchase prices for transactions of €500M million or more averaged 11.2x EBITDA on an LTM basis, lower than the 11.5x seen at the end of 2021.<sup>2</sup> Globally, exit value totaled \$153.1 billion on 503 deals during the quarter, higher than the \$118.5 billion across 586 deals during Q1 2022.<sup>1</sup>
- **Venture:** During the quarter, an estimated 3,374 venture-backed transactions totaling \$62.3 billion were completed, which was a decrease on a capital and deal count basis over the prior quarter's total of \$81.9 billion across 4,467 deals. This was an increase of 30.9% compared to the five-year quarterly average of \$47.6 billion. Total U.S. venture-backed exit value totaled approximately \$13.1 billion across an estimated 379 completed transactions in Q2 2022, down substantially from \$267.6 billion across 447 exits in Q2 2021.<sup>3</sup>
- **Mezzanine:** 7 funds closed on \$3.8 billion during the quarter. This was a significant decrease from the prior quarter's total of \$11.7 billion raised by 10 funds and a decrease from \$7.0 billion raised by 11 funds in Q2 2021. Estimated dry powder was \$50.6 billion at the end of Q2 2022, up from \$50.0 billion at the end of Q1 2022.<sup>1</sup>

# Private Equity Market Overview – 2Q 2022

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



Source: S&P

- **Distressed Debt:** The TTM U.S. high-yield default rate was 0.8% as of May 2022, which was up from 0.5% as of March 2022. Fitch predicted the default rate may rise to 1.0% by August. The high-yield default rate is projected to trend higher through 2022 and into 2023.<sup>4</sup> During the quarter, \$27.4 billion was raised by 15 funds, up significantly from the \$4.4 billion raised by 9 funds during Q1 2022. Dry powder was estimated at \$160.3 billion at the end of Q2 2022, which was up 10.3% from Q1 2022. This remained above the five-year annual average level of \$130.6 billion.<sup>1</sup>
- **Secondaries:** 18 funds raised \$13.8 billion during the quarter, up from the \$8.3 billion raised by 14 funds in Q1 2022. This was 26.7% higher than the five-year quarterly average of \$10.9 billion. Secondary dry powder was estimated at \$131.6 billion at the end of the quarter.<sup>1</sup>
- **Infrastructure:** \$50.2 billion of capital was raised by 15 funds in Q2 2022 compared to \$72.4 billion of capital raised by 24 partnerships in Q1 2022. At the end of the quarter, dry powder stood at \$319.5 billion, up from year-end 2021's total of \$282.3 billion. Infrastructure managers completed 544 deals for an aggregate deal value of \$104.8 billion in Q2 2022 compared to 634 deals totaling \$88.4 billion in Q1 2022.<sup>1</sup>
- **Natural Resources:** Through Q2 2022, an estimated 19 funds closed on \$3.4 billion compared to 29 funds totaling \$13.0 billion in 2021. Energy and utilities industry managers completed 53 deals totaling \$11.6 billion in Q2 2022, compared to \$33.0 billion across 55 deals in Q1 2022.<sup>1</sup>

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

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

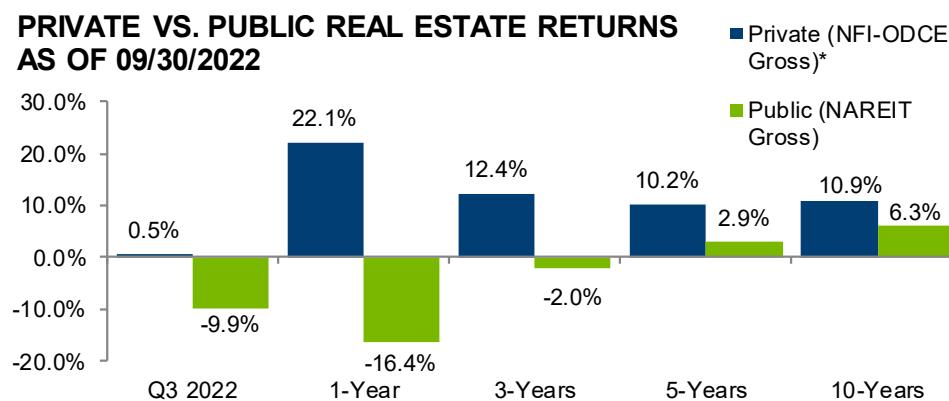
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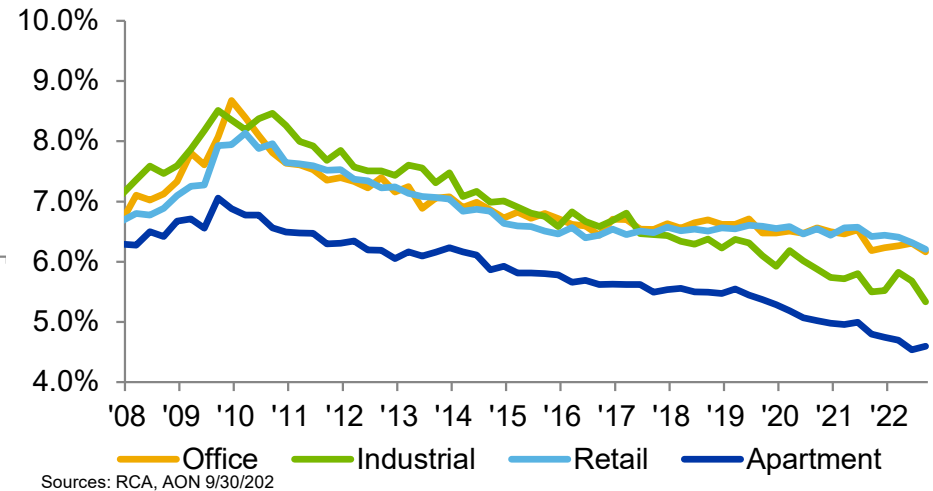
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# U.S. Commercial Real Estate Markets

## PRIVATE VS. PUBLIC REAL ESTATE RETURNS AS OF 09/30/2022



\*Third quarter returns are preliminary  
Sources: NCREIF, FactSet



- U.S. Core Real Estate returned 0.5%\* in third quarter 2022, equating to a 22.1% total gross return year-over-year. The US real estate markets experienced a robust recovery in 2021, although momentum has begun to moderate through the first half of 2022. During the third quarter 2022, REITs continued to decline driven by increasing volatility in the public market and rising interest rates.
- Global property markets, as measured by the FTSE EPRA/NAREIT Developed Real Estate Index, returned -11.4% (USD) in aggregate during the third quarter and experienced a cumulative decline of 22.1% over the trailing 1-year period. REIT market underperformance was driven by North America (-10.2% USD), Asia Pacific (-11.5% USD), and Europe (-21.6% USD). The U.S. REIT markets (FTSE NAREIT Equity REITs Index) returned -9.9% in the third quarter.
- In the third quarter of 2022, U.S. private real estate transaction volumes declined 21% year-over-year to \$172 billion. The office sector transaction volumes in the U.S. have notably not recovered to pre pandemic levels. While office sector fundamentals signaled mild improvement, the sector faces significant headwinds in the capital markets, driven by a dramatic increase in the cost of debt.
- Recent action from the Federal Reserve to tighten monetary policy has led to deterioration in the capital markets. Recent bank stress tests have increased capital requirements for borrowers and caused banks to tighten borrowing terms or pause lending. This has led to reduced liquidity levels and increased financing costs across every property type, though there still remains significantly better demand and liquidity for multifamily and industrial compared to office and retail assets.
- In the US, rising mortgage rates coupled with elevated costs for labor and materials have resulted in decreased affordability of new homes and a slowdown in new construction. Most would-be buyers continue to be priced out of the housing market which has caused many to remain renters. Durable rent collections and record low vacancy across the US have prompted continued institutional investment in the multifamily sector.

\*Indicates preliminary NFI-ODCE data gross of fees

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# Notes

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

**Notes:**

FY: Fiscal year ended 12/31

YTD: Year to date

YE: Year end

LTM: Last twelve months (aka trailing twelve months or TTM)

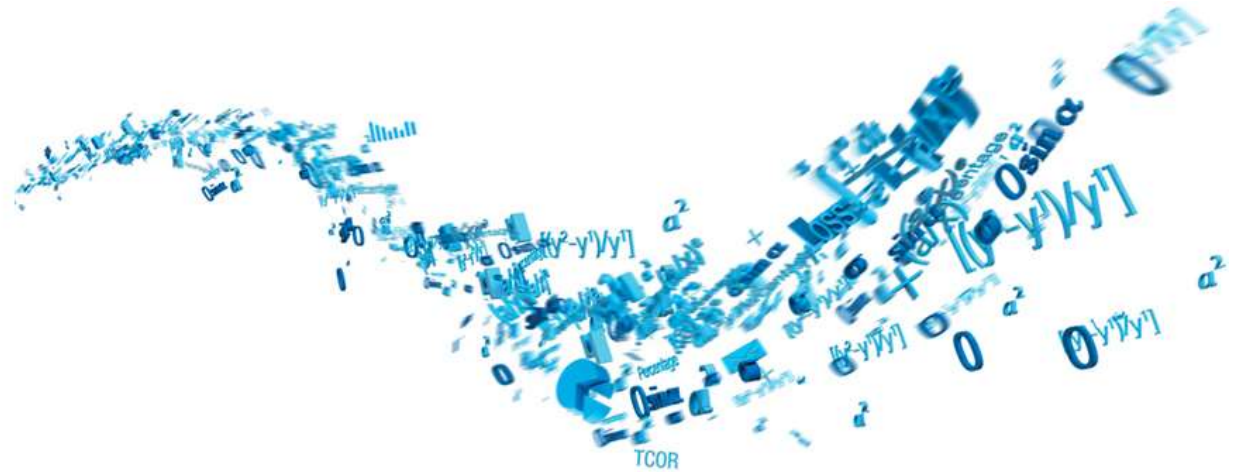
PPM: Purchase Price Multiples: Total Purchase Price / EBITDA

/bbl: Price per barrel

MMBtu: Price per million British thermal units

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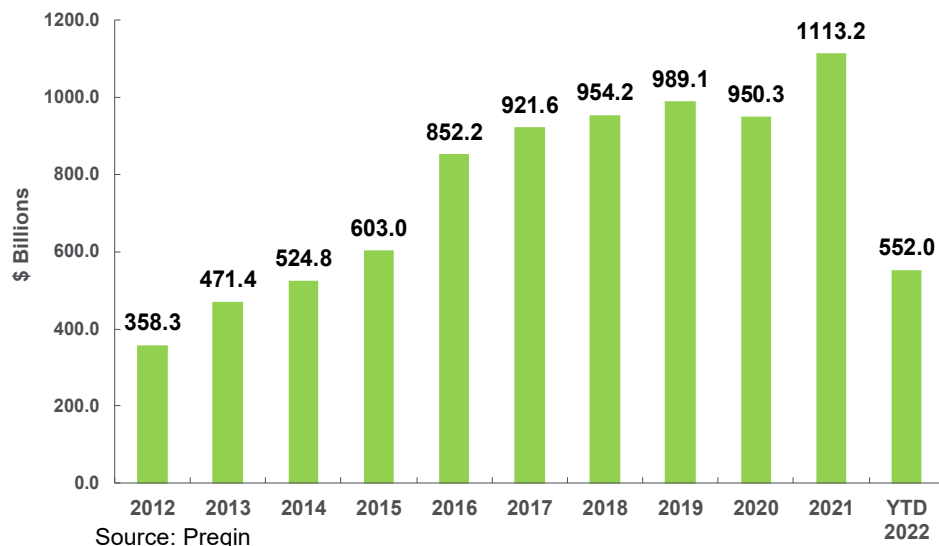
## Appendix A:

# Global Private Equity Market Overview

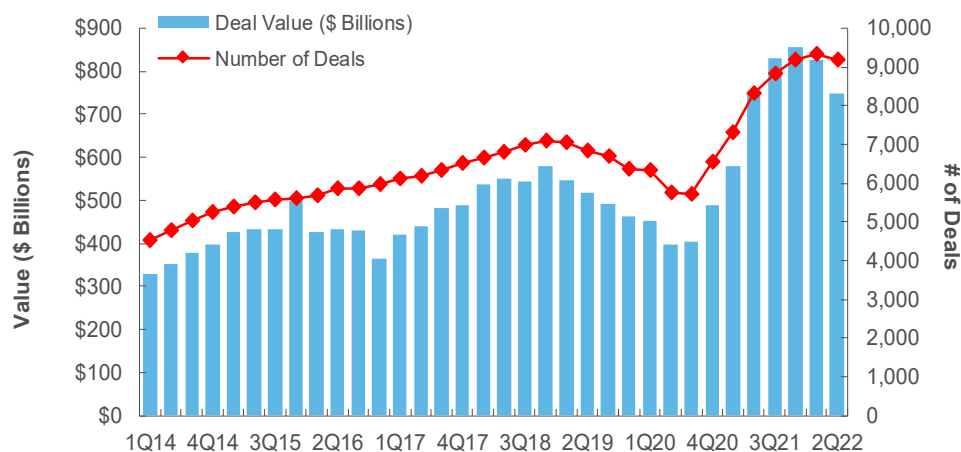
2Q 2022

# Private Equity Overview

## Total Funds Raised



## LTM Global Private Equity-Backed Buyout Deal Volume



Source: Preqin

## Fundraising

- During Q2 2022, \$278.1 billion was raised by 553 funds, which was down 6.7% by number of funds raised but up 1.5% by capital raised compared to Q1 2022. Capital raised through Q2 2022 represented 49.6% of capital raised during calendar year 2021.<sup>1</sup>
  - Q2 2022 fundraising was 23.3% lower, on a capital basis, than capital raised in Q2 2021 and 43.5% lower by number of funds raised.
  - The majority of capital was raised by funds with target geographies in North America, comprising 78.7% of the quarter's total. This was up from 72.7% in Q1 2022. Capital targeted for Europe made up 11.7% of the total funds raised during the quarter, a decrease from 22.4% in Q1 2022. The remainder was attributable to managers targeting Asia and other parts of the world.
- Dry powder stood at \$3.0 trillion at the end of the quarter, an increase of 5.5% and 35.2% compared to Q1 2022 and the five-year average, respectively.<sup>1</sup>

## Activity

- Global private equity-backed buyout deals totaled \$159.2 billion in Q2 2022, which was a decrease on a capital basis of 9.5% compared to Q1 2022.<sup>1</sup>
  - This was 8.2% higher than the five-year quarterly average deal value of \$147.1 billion.
  - Average deal size was \$509.0 million in Q2 2022. This was up 12.8% compared to Q1 2022 and up 11.4% relative to the five-year quarterly average.
- European sponsored loan issuance decreased to €6.4 during Q2 2022 compared to €15.1 during Q2 2021. This was 64.2% lower than the five-year quarterly average level of €17.8 billion.<sup>3</sup>
- During the quarter, the average purchase price multiple for all U.S. LBOs was 11.5x EBITDA, down from Q1 2022's average of 12.2x but up from the five-year average (11.1x). Large cap purchase price multiples stood at 11.5x during the quarter, up compared to full-year 2021's level of 11.2x.<sup>2</sup>
  - Average purchase price multiples for all U.S. LBOs were 0.4x and 1.2x turns (multiple of EBITDA) above the five- and ten-year average levels, respectively.
- In Europe, the average purchase price multiple across transactions of greater than €500M averaged 11.2x EBITDA on an LTM basis, down from 11.6x at the end of Q4 2021.<sup>3</sup>
- Debt remained broadly available in the U.S.
  - The average leverage for U.S. deals through Q2 2022 was 5.9x compared to the five and ten-year averages of 5.8x and 5.6x, respectively.<sup>3</sup>
  - The amount of debt issued supporting new transactions increased compared to the prior quarter, moving from 78.2% to 80.4%, and was higher than the five-year average of 65.0%.<sup>3</sup>
- In Europe, the average senior debt/EBITDA on an LTM basis ended Q2 2022 at 5.9x, equal to that observed at Q1 2022.

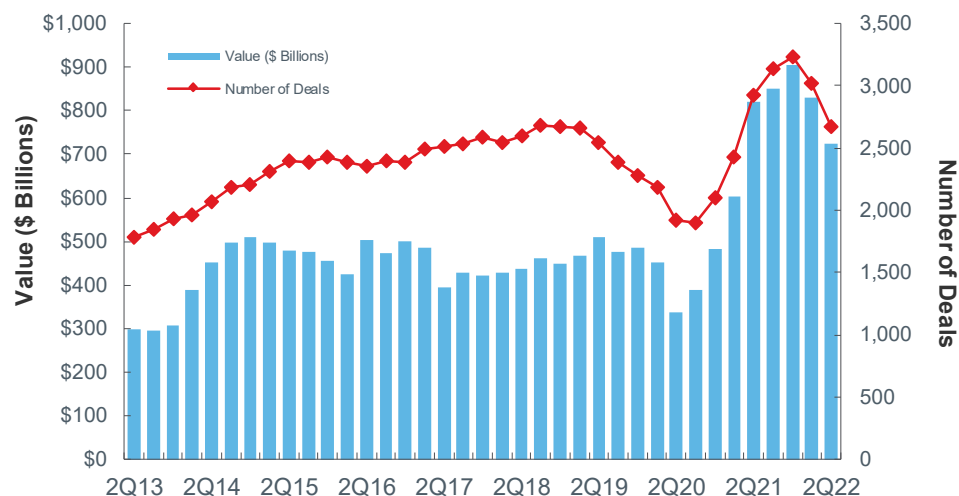
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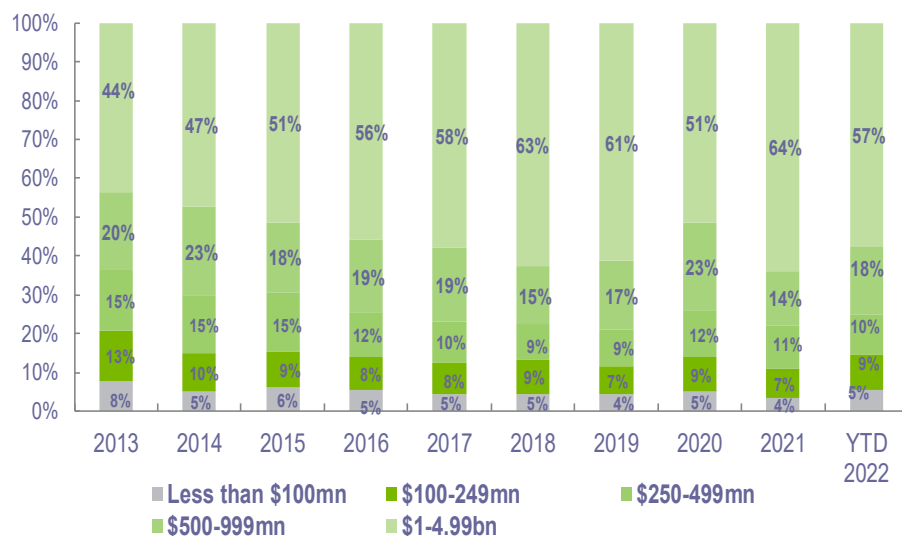
# Buyouts / Corporate Finance

## LTM PE Exit Volume and Value



Source: Preqin

## M&A Deal Value by Deal Size



Source: Preqin

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## Fundraising

- \$114.3 billion was closed on by 135 buyout and growth funds in Q2 2022, compared to \$112.3 billion raised by 150 funds in Q1 2022. This was lower than the \$173.0 billion raised by 244 funds in Q2 2021.<sup>1</sup>
  - This was slightly higher, on a capital basis, than the five-year quarterly average of \$113.8 billion and lower by number of funds (191 funds).
  - Advent International GPE X was the largest fund raised during the quarter, closing on \$26.0 billion of commitments.<sup>1</sup>
- Buyout and growth equity dry powder was estimated at \$1.3 trillion, up from Q4 2021.<sup>1</sup>
  - An estimated 56.5% of buyout dry powder was targeted for North America, while European dry powder comprised 21.9% and Asia/Rest of World accounted for the remainder.<sup>1</sup>

## Activity

- Global private equity-backed buyout deals totaled \$159.2 billion in Q2 2022, which was a decrease on a capital basis of 9.5% compared to Q1 2022 and a decrease of 33.0% compared to Q2 2021.<sup>1</sup>
- Through Q2 2022, deal value accounted for 39.2% of 2021's total and represented 76.1% of deal value during the same period in 2021.<sup>1</sup>
  - In Q2 2022, deals valued at \$5.0 billion or greater accounted for an estimated 35.0% of total deal value compared to 43.7% in Q1 2022 and 29.6% in 2021.<sup>1</sup> Deals valued between \$1.0 billion to \$4.99 billion represented 35.6% of total deal value during the second quarter.<sup>1</sup>
  - By geography, North American deals accounted for the largest percentage of total deal value at an estimated 55.2% in Q2 2022, while Information Technology deals accounted for the largest percentage by industry at 37.8% of total deal value.<sup>1</sup>
- Through Q2 2022, the average purchase price multiple for all U.S. LBOs was 12.1x EBITDA, up from year-end 2021's average of 11.4x and up from the five-year average (11.1x).<sup>3</sup>
  - Large cap purchase price multiples stood at 12.1x, up compared to the full-year 2021 level of 11.2x.<sup>3</sup>
  - In Europe, the average purchase price multiple across transactions of greater than €500M averaged 11.2x EBITDA on an LTM basis, down from 11.6x at the end of Q4 2021 and down from the multiple seen at the end of Q4 2021 (11.6x).
  - The portion of average purchase prices financed by equity for all deals was 49.2% through Q2 2022, down slightly from 50.0% through Q1 2022. This remained above the five- and ten-year average levels of 47.4% and 44.8%, respectively.<sup>3</sup>
- Globally, exit value totaled \$153.1 billion on 503 deals during the quarter, higher than the \$118.5 billion across 586 deals during Q1 2022. Q2 2022's totals were significantly lower than Q2 2021's totals of \$257.5 billion in value across 853 deals.<sup>1</sup>

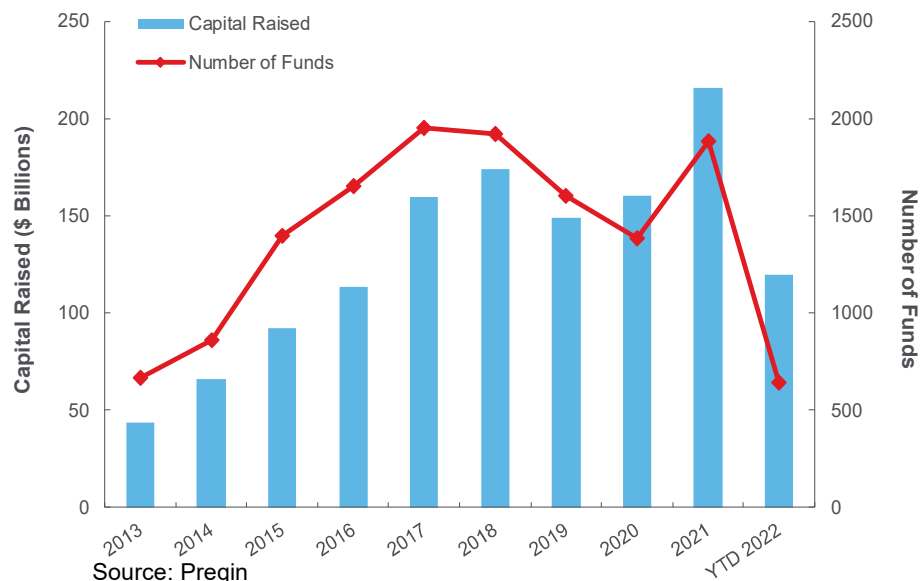
## Opportunity<sup>4</sup>

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

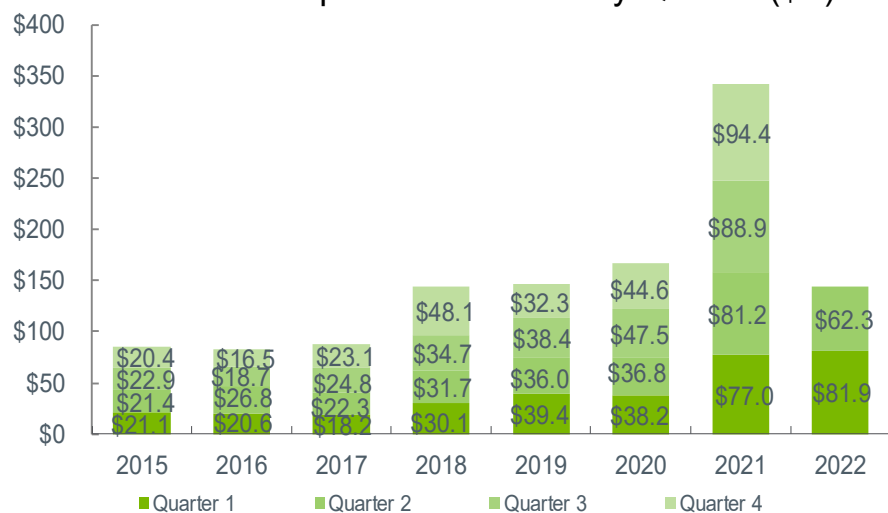


# Venture Capital

## Venture Capital Fundraising



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



## Fundraising

- \$57.7 billion of capital was raised by 305 funds in Q2 2022, down from the prior quarter's total of \$61.8 billion raised by 335 managers. This was down from Q1 2021's amount of \$59.6 billion raised by 514 funds. Through Q2 2022, capital raised represented 55.3% of 2021's total.<sup>1</sup>
  - Q2 2022 fundraising was 29.4% higher, on a capital basis, compared to the five-year quarterly average of \$44.5 billion.
  - A16z Crypto IV was the largest fund raised during the quarter, closing on \$4.5 billion.
- At the end of Q2 2022, there were an estimated 4,459 funds in market targeting \$335.1 billion.<sup>1</sup>
  - Alpha Wave Ventures II 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 \$523.0 billion at the end of Q2 2022, up from Q4 2021's total of \$438.4 billion.<sup>1</sup>

## Activity

- During the quarter, an estimated 3,374 venture-backed transactions totaling \$62.3 billion were completed, which was a decrease on a capital and deal count basis over the prior quarter's total of \$81.9 billion across 4,467 deals. This was an increase of 30.9% compared to the five-year quarterly average of \$47.6 billion.<sup>7</sup>
  - In Q2 2022, there were 107 U.S.-based deals involving unicorn companies, representing roughly \$22.3 billion in deal value. This was down by value and by number compared to Q1 2022, which saw 149 unicorn-related deals close at a deal value of \$31.1 billion. Q1 2022 represented the lowest quarter by value and number since Q4 2020.<sup>7</sup>
- At the end of Q2 2022, median pre-money valuations decreased across Seed, Series A, Series B, and Series C. Compared to Q2 2022, Seed transactions decreased to a median pre-money valuation of \$17.1 million from \$20.0 million, Series A decreased from \$79.0 million to \$60.0 million, Series B decreased from \$285.2 million to \$164.4 million, and Series C decreased from \$600.0 million to \$502.1 million. Series D+ median pre-money valuations increased substantially during the quarter, moving from \$1.3 billion to \$4.3 billion.<sup>8</sup>
- Total U.S. venture-backed exit value totaled approximately \$13.1 billion across an estimated 379 completed transactions in Q2 2022, down substantially from \$267.6 billion across 447 exits in Q2 2021. Through Q2 2022, U.S. exit activity represented only 6.3% of 2021's total.<sup>7</sup>
  - The number of U.S. venture-backed initial public offerings decreased over Q1 2022, with only 11 IPOs completed in Q2 2022 at a value of \$5.0 billion. 202 exits occurred by acquisition, marking a decrease over the prior quarter's 259, and accounted for only \$7.8 billion in exit value.<sup>7</sup>

## Opportunity<sup>4</sup>

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

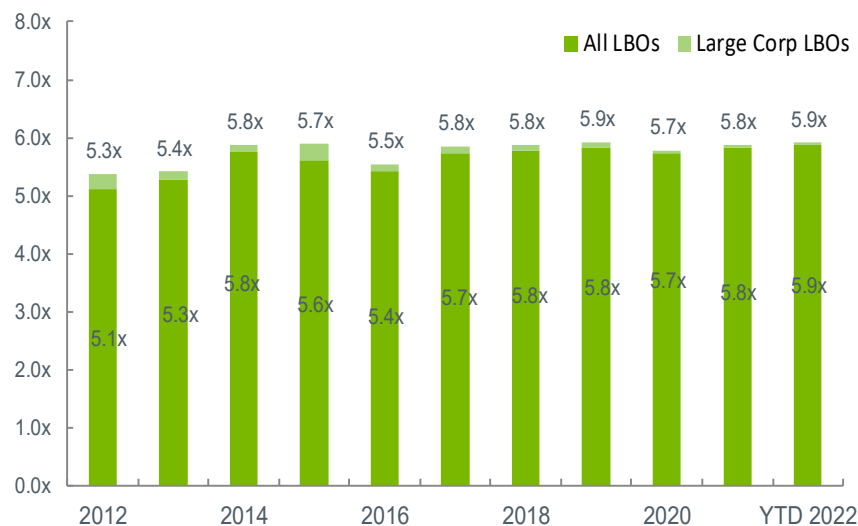
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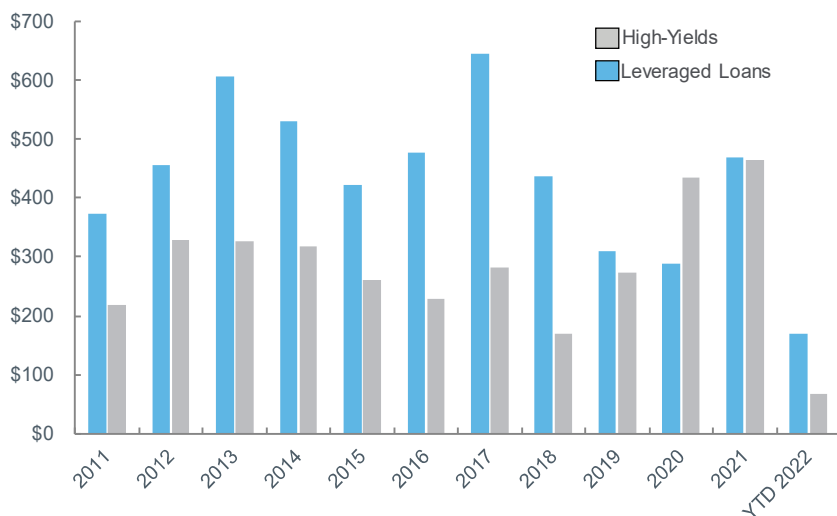
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# Leveraged Loans & Mezzanine

## Average Leverage by Deal Size



## Debt Issuance (\$ Billions)



Sources from top to bottom: S&P, UBS

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## Leveraged Loans

### Fundraising

- New CLO issuance totaled \$70.0 billion through Q2 2022, an increase from the \$63.1 billion seen through Q2 2021.<sup>2</sup>
- High-yield debt issuance totaled \$67.9 billion through Q2 2022. 2022's YTD total is 77.2% less than the same period's total of \$298.3 billion in 2021.<sup>2</sup>
- Through Q2 2022, leveraged loan mutual fund net flows ended at a net inflow of \$12.9 billion.<sup>2</sup>

### Activity

- Leverage for all U.S. LBO transactions through Q2 was 5.9x, equal to 2021's leverage level. Leverage continues to be comprised almost entirely of senior debt. The average leverage level for large cap LBOs was 5.9x through the quarter, also equal to year-end 2021.<sup>3</sup>
- Through Q2 2022, institutional leveraged loan issuances totaled \$168.3 billion, 49.1% less than the \$330.3 billion issued in the same period during 2021.<sup>2</sup>
- 80.4% of new leveraged loans were used to support M&A and growth activity through Q2 2022, up from 61.9% in Q4 2021. This was above the five-year average of 65.0%.<sup>3</sup>
- European sponsored loan issuance decreased to €6.4 during Q2 2022 compared to €15.1 during Q2 2022. This was 64.2% lower than the five-year quarterly average level of €17.8 billion.<sup>3</sup>

### Opportunity <sup>4</sup>

- 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

## Mezzanine

### Fundraising

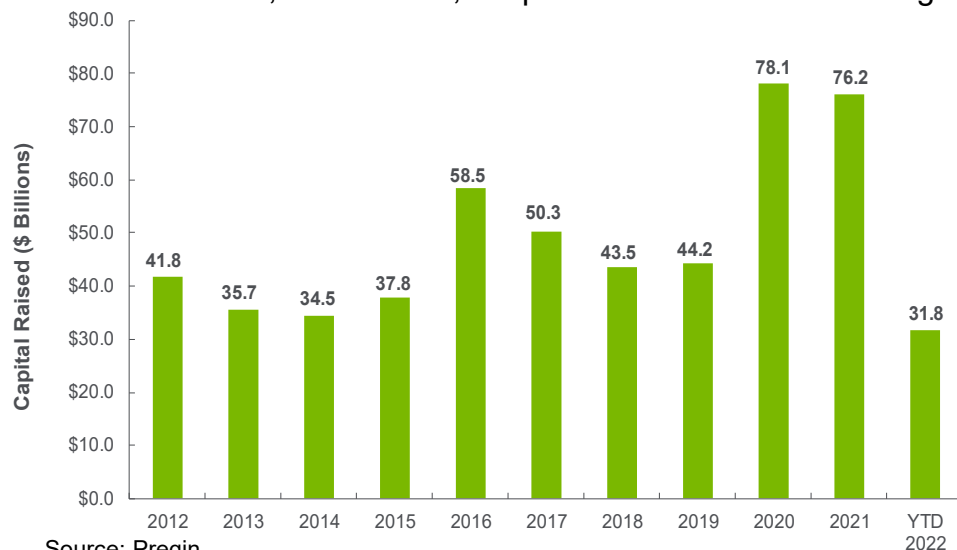
- 7 funds closed on \$3.8 billion during the quarter. This was a significant decrease from the prior quarter's total of \$11.7 billion raised by 10 funds and a decrease from \$7.0 billion raised by 11 funds in Q2 2021.<sup>1</sup>
- Estimated dry powder was \$50.6 billion at the end of Q2 2022, up from \$50.0 billion at the end of Q1 2022.<sup>1</sup>
- An estimated 101 funds were in market targeting \$56.8 billion of commitments. GS Mezzanine Partners VIII is the largest fund in market targeting commitments of \$12.0 billion.<sup>1</sup>

### Opportunity <sup>4</sup>

- Funds with the capacity to scale for large sponsored deals

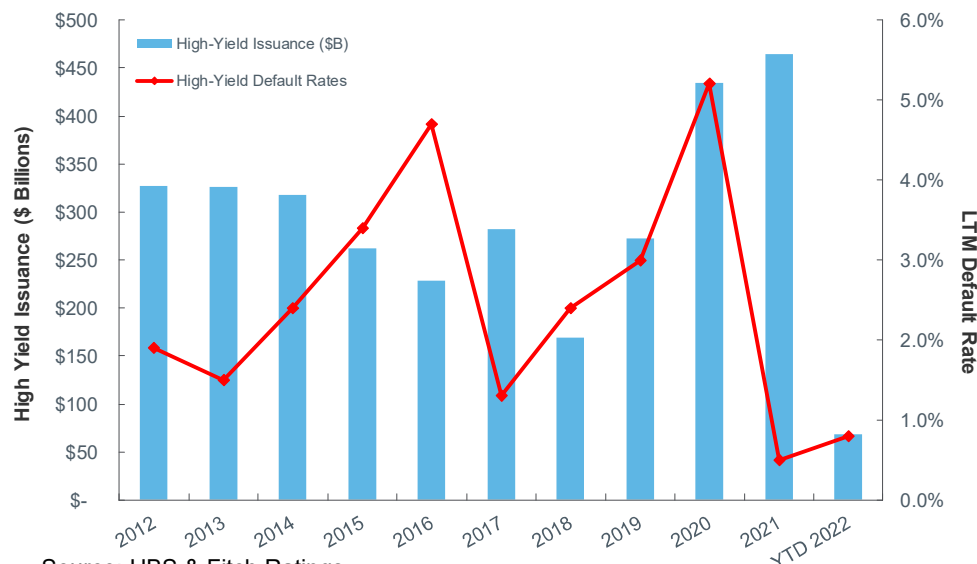
# Distressed Private Markets

## Distressed Debt, Turnaround, & Special Situations Fundraising



Source: Preqin

## High-Yield Bond Volume vs Default Rates



Source: UBS & Fitch Ratings

## Fundraising

- During the quarter, \$24.7 billion was raised by 15 funds, up significantly from the \$4.4 billion raised by 9 funds during Q1 2022. Distressed funds have raised 41.7% of 2021's total through Q2 2022.<sup>1</sup>
  - Q2 2022's fundraising was 91.6% higher than the five-year quarterly average.
  - Capital raised in Q2 2022 represented an increase compared to the \$16.1 billion raised in Q2 2021.
  - Clearlake Capital Partners VII was the largest fund closed during the quarter, closing on \$14.1 billion.
- Dry powder was estimated at \$160.3 billion at the end of Q2 2022, which was up 10.3% from Q1 2022. This remained above the five-year annual average level of \$130.6 billion.<sup>1</sup>
- Roughly 191 funds were in the market at the end of Q2 2022 seeking \$80.5 billion in capital commitments.<sup>1</sup>
  - Special situations managers were targeting the most capital, seeking an aggregate \$49.6 billion, followed by distressed debt managers at \$28.4 billion.
  - KKR Opportunities Fund II was the largest fund in market with a target fund size of \$5.0 billion.

## Activity

- The TTM U.S. high-yield default rate was 0.8% as of May 2022, which was up from 0.5% as of March 2022. Fitch predicted the default rate may rise to 1.0% by August. The high-yield default rate is projected to trend higher through 2022 and into 2023.<sup>6</sup>
- The market dislocation caused by current macroeconomic factors is expected to supply additional distressed opportunities in the next several months.

## Opportunity<sup>4</sup>

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

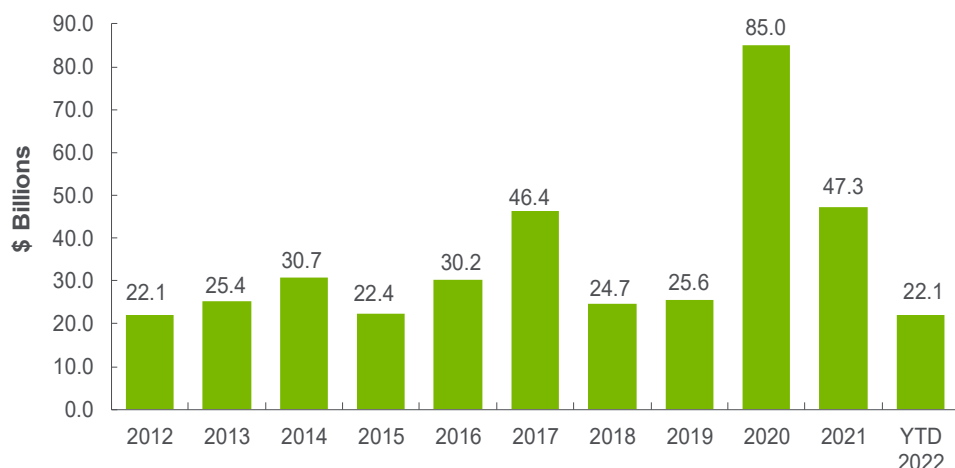
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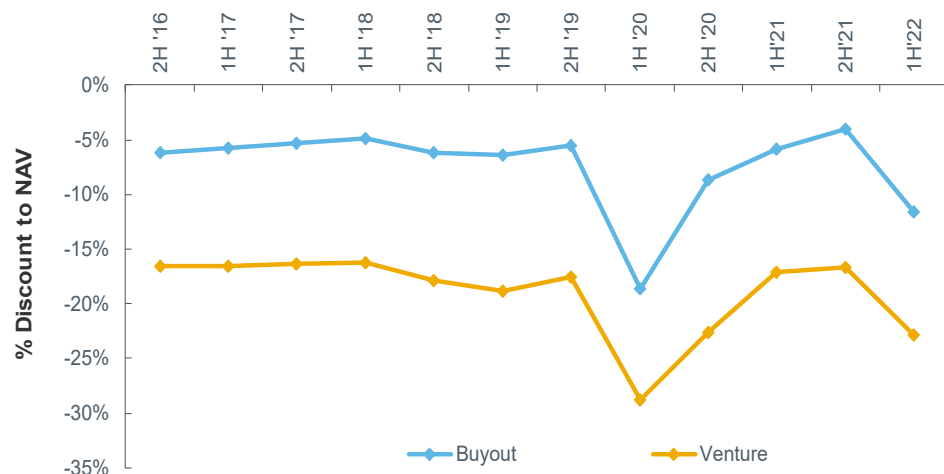
# Secondaries

## Secondary Fundraising



Source: Preqin

## Secondary Pricing



Source: UBS

## Fundraising

- 18 funds raised \$13.8 billion during the quarter, up from the \$8.3 billion raised by 14 funds in Q1 2022. This was 26.7% higher than the five-year quarterly average of \$10.9 billion.<sup>1</sup>
  - ICG Strategic Equity Fund IV was the largest fund raised during the quarter, closing on \$5.3 billion.
- At the end of Q2 2022, there were an estimated 125 secondary and direct secondary funds in market targeting roughly \$86.5 billion. The majority of secondary funds are targeting North American investments.<sup>1</sup>
  - Lexington Capital Partners X and ASF IX are the largest funds being raised, each seeking \$15.0 billion in commitments.<sup>1</sup>

## Activity

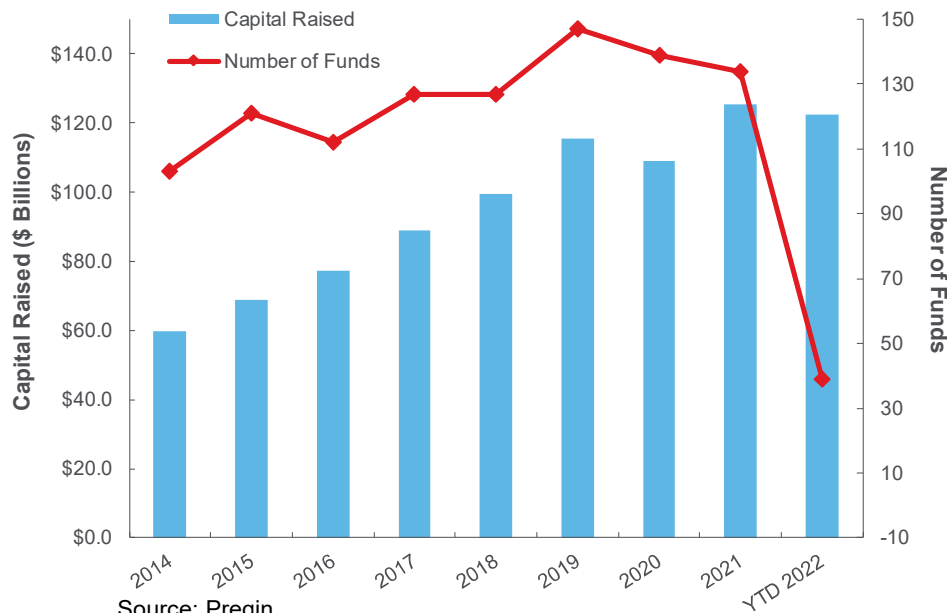
- The market continues to have participation from a broad base of buyers and sellers with opportunistic selling activity being seen from public and private pensions, financial institutions and insurance companies.<sup>2</sup>
- Transaction fund leverage and deferred payment structures continue to be prevalent and are used as a means to improve pricing and deal returns in an increasingly competitive environment.<sup>2</sup>
- 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 2022.<sup>2</sup>
- Campbell Lutyens expects LP-led secondary sales to grow even stronger as more investors use these transactions to crystalize gains, trim their GP rosters, and manage balance sheet risk.<sup>15</sup> According to Evercore, secondary deals involving LP positions increased to 51% of total deal volume as GP-related deals saw a meaningful contraction.<sup>14</sup>
- Recent market volatility may create a widening gap over the course of the year between bid and ask prices for secondary transactions.<sup>15</sup>
- Given the current public market conditions, buyers are wanting to purchase assets based off NAVs that reflect the volatility.<sup>2</sup>
- The average discount rate for all private equity sectors finished the quarter at 13.6%, a larger discount compared to the 11.4% discount seen at the end of Q1 2022. The average buyout pricing discount ended the quarter at 11.6%, while the average venture discount increased to 22.9%.<sup>2</sup>

## Opportunity<sup>4</sup>

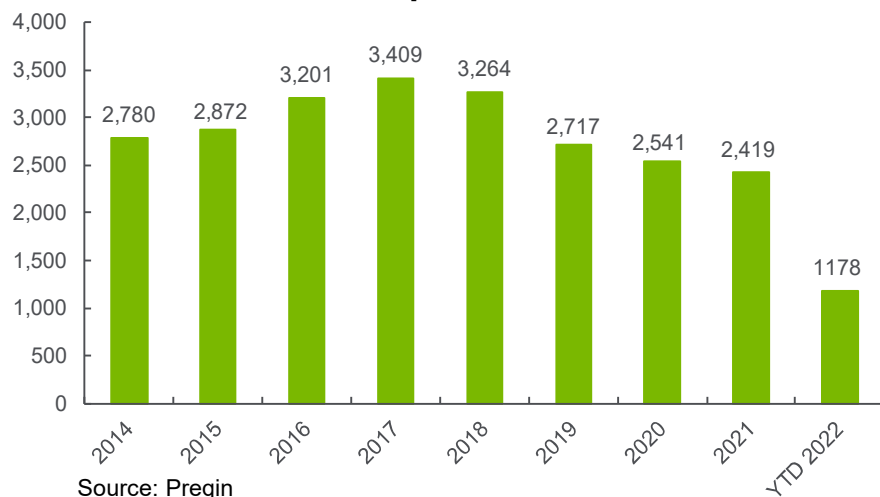
- Funds that are able to execute complex and structured transactions
- Niche strategies

# Infrastructure

## Global Infrastructure Fundraising



## Number of Deals Completed



### Fundraising

- \$50.2 billion of capital was raised by 15 funds in Q2 2022 compared to \$72.4 billion of capital raised by 24 partnerships in Q1 2022. Through Q2 2022, infrastructure funds have raised 97.9% of 2021's total.<sup>1</sup>
  - ISQ Global Infrastructure Fund III was the largest fund raised during the quarter, closing on \$15.3 billion.<sup>1</sup>
- As of the end of Q2 2022, there were an estimated 382 funds in the market seeking roughly \$220.0 billion.<sup>1</sup>
  - Brookfield Infrastructure Fund V was the largest fund in market and was seeking commitments of \$25.0 billion.
- At the end of the quarter, dry powder stood at \$319.5 billion, up from year-end 2021's total of \$282.3 billion.<sup>1</sup>
- Concerns surrounding the relative availability and pricing of assets remain. Fundraising continues to be very competitive given the number of funds and aggregate target level of funds in market. Investor appetite for the asset class persists despite the record levels of dry powder and increased investment activity from strategic and corporate buyers as well as institutional investors.

### Activity

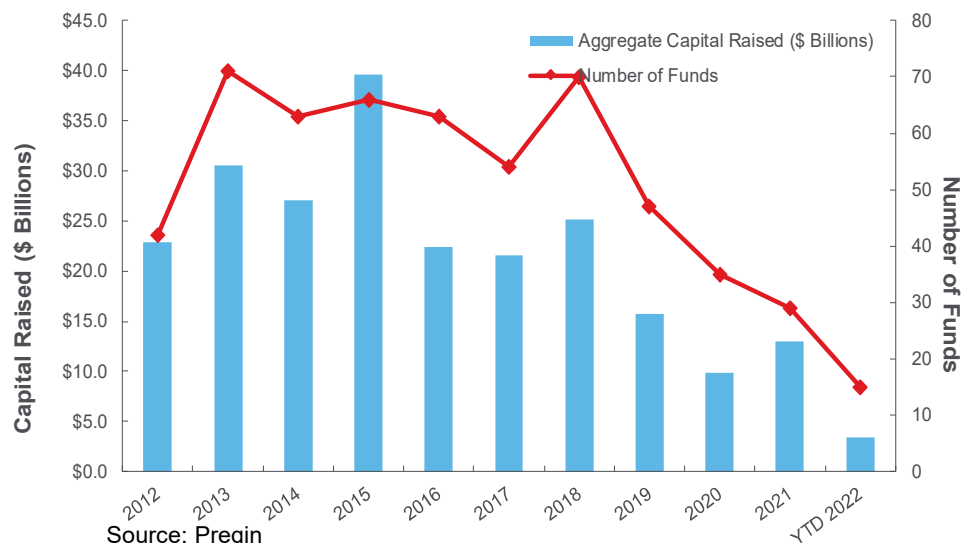
- Infrastructure managers completed 544 deals for an aggregate deal value of \$104.8 billion in Q2 2022 compared to 634 deals totaling \$88.4 billion in Q1 2022.<sup>1</sup>
  - By region, Europe saw the largest number of deals, with 39.9% of deals being completed in the region, followed by North America at 29.8%. Asia amassed 13.0% of activity during the quarter.
  - Renewable energy was the dominant industry during the quarter making up 51.1% of transactions, followed by the transportation sector which accounted for 13.6% of deals. The conventional energy sector accounted for 11.6% of deals during the second quarter.<sup>1</sup>

### Opportunity<sup>4</sup>

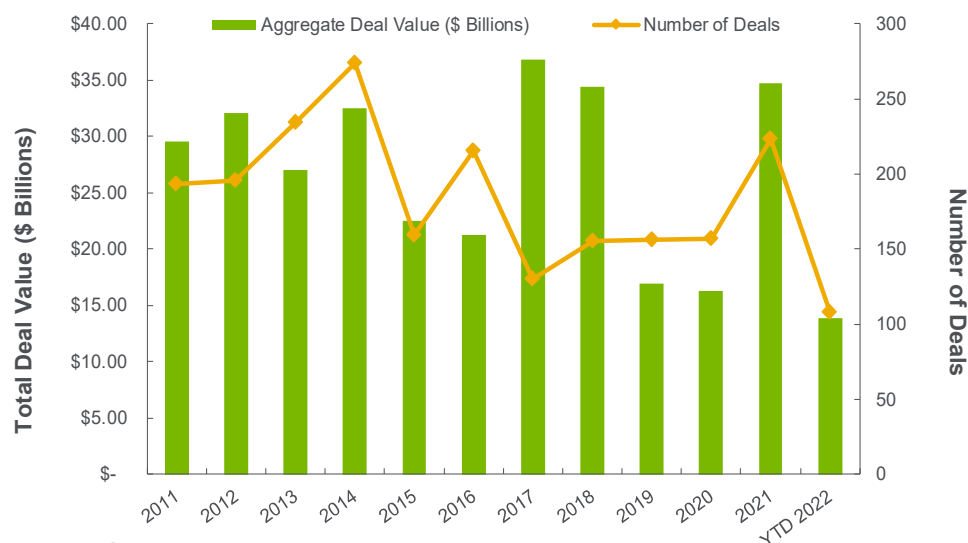
- Mid-market core+ and value-add infrastructure as well as a platform investing approach continue to offer the best relative value
- Assess funds with pre-specified assets with caution due to possible lag in and uncertainty around valuation impact
- Blind-pool funds may be better positioned to take advantage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

# Natural Resources

## Natural Resources Fundraising



## Energy & Utilities Deal Activity



### Fundraising

- During Q2 2022, an estimated 6 funds closed on \$1.3 billion compared to 9 funds totaling \$2.1 billion in Q1 2022.<sup>1</sup>
- Dry powder stood at roughly \$38.0 billion at the end of Q2 2022, which was 6.7% lower than 4Q 2021's level of \$40.8 billion and down from the five-year average level by 25.2%.<sup>1</sup>

### Activity

- Energy and utilities industry managers completed 53 deals totaling \$11.6 billion in Q2 2022, compared to \$2.3 billion across 55 deals in Q1 2022.
- Crude oil prices increased during the quarter.
  - WTI crude oil prices increased 5.8% during the quarter to \$114.84 per bbl. This was also an increase of 60.9% compared to Q2 2021.<sup>10</sup>
  - Brent crude oil prices ended the quarter at \$122.71/bbl, up 4.7% compared to the prior quarter, and up 67.7% from Q2 2021.<sup>10</sup>
- Natural gas prices (Henry Hub) finished Q2 2022 at \$7.70 per MMBtu, which was up 57.1% from the prior quarter and up 136.2% from Q2 2021.<sup>10</sup>
- A total of 750 crude oil and natural gas rotary rigs were in operation in the U.S. at the end of the quarter. This was up by 11.4% from the prior quarter and up 57.9% over Q2 2021.<sup>13</sup>
  - Crude oil rigs represented 79.3% of the total rigs in operation. 58.5% of the 595 active oil rigs were in the Permian basin.
  - At the end of Q2 2022, 44.4% and 24.8% of natural gas rigs were operating in the Haynesville and Marcellus basins, respectively.
- The price of iron ore (Tianjin Port) ended the quarter at \$130.75 per dry metric ton, down from \$152.07 at the end of Q2 2022.<sup>10</sup>

### Opportunity<sup>4</sup>

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

# Notes

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

## Notes:

FY: Fiscal year ended 12/31

YTD: Year to date

YE: Year end

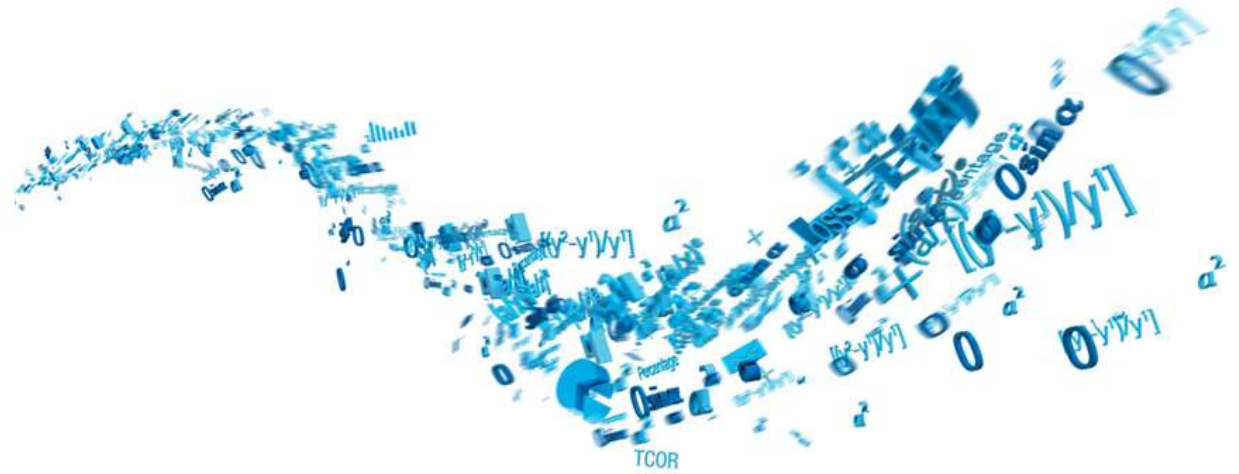
LTM: Last twelve months (aka trailing twelve months or TTM)

PPM: Purchase Price Multiples: Total Purchase Price / EBITDA

/bbl: Price per barrel

MMBtu: Price per million British thermal units





# Appendix B:

## Real Estate Market Update

2Q 2022



# United States Real Estate Market Update (2Q22)

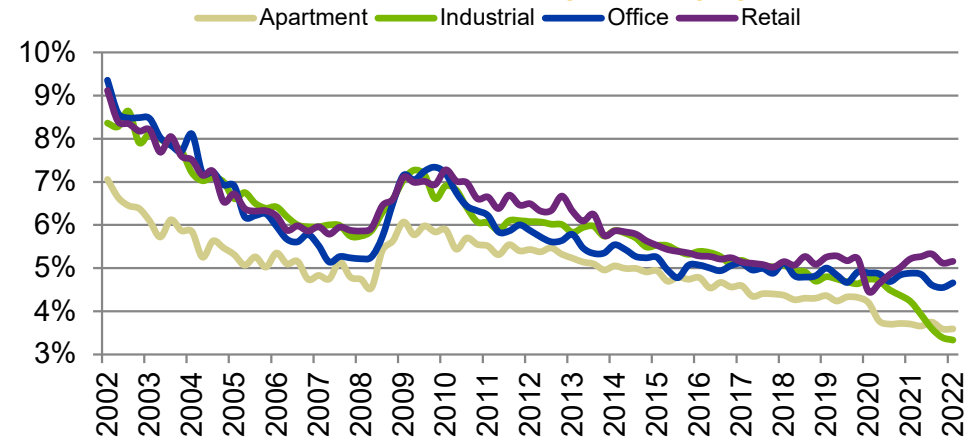
## General

- Townsend witnessed a robust recovery across the U.S. economy and U.S. real estate markets in 2021 but begun to moderate in 2022. The post-pandemic economic recovery has remained generally on track; however, an array of headwinds have emerged including rising interest rates, persistent inflation, various geopolitical events, and widespread global supply chain struggles. In first half 2022, tightening federal reserve policy and market volatility sent public markets plummeting. The S&P 500 produced a gross total return of -20.6% during the first six months of the year. The MSCI US REIT index also continued its cool off following a strong 2021, posting a gross second quarter return of -17.0%.
- Based on some definitions, the U.S. entered into a recession during second quarter 2022, as GDP decreased for a second straight quarter, at an annualized rate of 0.9%. Slowing economic growth is attributable to decreased federal, state and government spending, and decreased exports. As a result of the atrocities of the Russian-Ukraine war, prolonged lockdowns in Shanghai, and a rise in protectionist measures, commodity pricing has skyrocketed, in lockstep with inflation. Federal reserve officials remain committed to taming inflation and reducing the central bank's balance sheet, approving a 75-bps hike during its June session.

## Commercial Real Estate

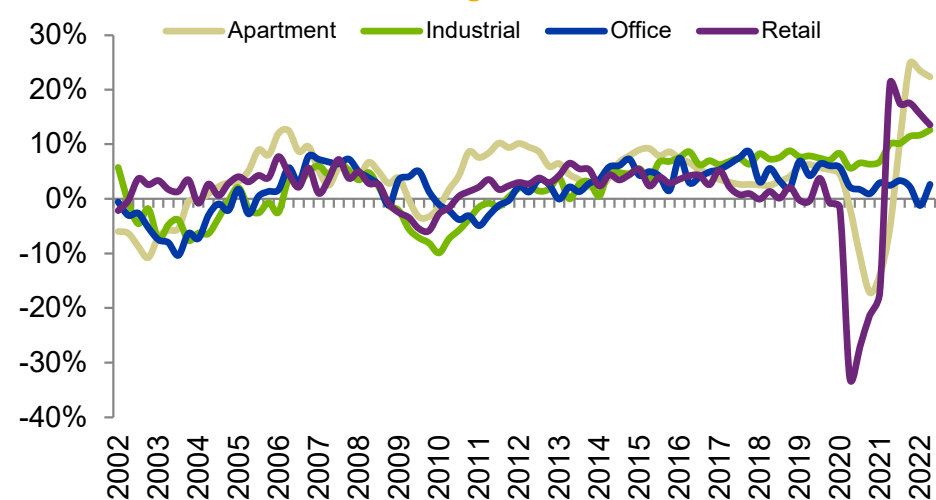
- Through the second quarter of 2022, total CRE transaction activity for the quarter was up 17% YoY, with annual transaction activity up 86% YoY. In 2Q22, U.S. private real estate deal volumes across all sectors remained strong but moderated from a historic high witnessed in fourth quarter 2021. Transaction volume has been the strongest in the apartment and industrial sectors.
- Transaction cap rates (4.6%) compressed during the quarter, to the tune of 35 bps. This decrease comes after a +74 bps quarter-over-quarter increase in 1Q22. Current valuation cap rates increased for retail (+21 bps) and office (+5 bps), while the industrial (-15 bps) and apartment (-2 bps) property sectors experienced slight cap rate compression.
- NOI growth has substantially diverged between property sectors due to the impacts of COVID-19. Retail NOI has expanded substantially (+14%) YoY as the sector continues to recover from decreased rent collections and retailer shutdowns. Apartment sector fundamentals remain strong, as many millennials seek out a more opportune time to purchase their first home. Apartment NOI expanded (+22%) YoY.
- 10-year treasury bond yields soared to nearly 3.5% intra-quarter; however, closed the quarter at 3.0% an increase of 70 basis points quarter-over-quarter. As economists expected rates have moved modestly higher throughout 2022.

### Current Value Cap Rates by Property Type



Source: NCREIF

### 4 Qtr Rolling NOI Growth



Source: NCREIF

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Sources: Investment Economics and Analytics, S&P 500, MSCI US REIT Index, Federal Reserve, Bloomberg LP., Preqin.

# United States Property Matrix (2Q22)

## INDUSTRIAL

- In 2Q22, industrial properties were the highest returning sector at 5.9% and outperformed the NPI by 263 bps.
- Transaction volumes decreased to \$35 billion in the second quarter of the year, resulting in an 8% increase year-over-year. Individual asset sales increased 4% year-over-year, while portfolio purchases turned in a year-over-year volume increase of 25%. At \$35 billion, the industrial sector decreased by \$4 billion quarter-over-quarter.
- The industrial sector turned in NOI growth of 12.6% over the past year. NOI continues to reach all time highs for the sector.
- Vacancy decreased by 144 bps year-over-year to 1.7%. Vacancy in the sector decreased 14 bps from last quarter, reaching all-time historic lows. E-commerce continues to drive demand across the sector.
- Industrial cap rates compressed approximately 89 bps from a year ago, to 3.3%. Industrial overall fundamentals still top all property sectors.

## MULTIFAMILY

- The apartment sector delivered a 3.9% return during the quarter, underperforming the NPI by 63 bps.
- Transaction volume in the second quarter of 2022 increased to \$86 billion, resulting in an increase of 42% year-over-year. Transaction volume for the sector is near historical levels. This volume continues to make multifamily the most actively traded sector for the eighteenth straight quarter.
- Cap rates remained steady at 3.6% quarter-over-quarter, decreasing 11 bps year-over-year. Multifamily cap rates remain at the lowest level observed in years, driven by continued increases in valuation.
- The multifamily sector saw increasing vacancy rates throughout the entirety of 2020 due to the global pandemic. Through 2021, the sector appeared to have shaken that trend although vacancy rates remained steady during the last 3 quarters. Vacancy rates slightly decreased by 22 bps quarter-over-quarter and are back to slightly below pre-pandemic levels. The aging millennials have begun shifting their desires to suburban living, but continued home price appreciation has deterred the full effect of this migratory trend.

## OFFICE

- The office sector returned 0.6% in 2Q22, 266 bps below the NPI return over the period.
- Transaction volumes decreased by 9% year-over-year in the second quarter. Transaction volume equated to \$25 billion for the quarter, a decrease of \$6 billion quarter-over-quarter. Office transaction levels have regressed from 1Q22 but not quite to levels seen during the COVID-19 pandemic.
- Office sector vacancy rates have expanded since the beginning of the pandemic due to work from home orders and uncertainty revolving around the future of office space. Office continues to be the highest vacancy property type at 12.9%, increasing 6 bps from last quarter.
- NOI growth in the office sector expanded quarter-over-quarter by 148 bps and appears to be in the midst of its recovery to pre-pandemic levels.
- Office cap rates compressed from a year ago, sitting at approximately 4.6%. Office-using job growth was stunted significantly through out 2020 due to work from home orders. Though we are observing a slow but steady flow back to in-office work, there is still uncertainty in the sector as many companies remain hesitant.

## RETAIL

- As of 2Q22, the retail sector delivered a quarterly return of 1.7%, underperforming 155 bps below the NPI.
- Transaction volumes totaled \$23 billion in the second quarter, increasing 46% year-over-year. Single asset transactions accounted for just over 81% of all sales volume for the quarter.
- Cap rates have compressed approximately 6 bps within the sector over the last year, to 5.2%. Current valuation cap rates compressed quarter-over-quarter by 4 bps due to valuation adjustments made across the sector in general.
- NOI growth slightly decreased, 2.0% over the last year. Retail has begun its slow recovery as vaccine rollouts have allowed a large portion of store nationally to open and operate safely.
- Retail vacancy rates decreased over the quarter by 35 bps, and down 102 bps over the past year to 8.7%. 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.

# Global Real Estate Market Update (2Q22)

- Significant headwinds have materialized in rising inflation, energy costs, and interest rates significantly impacting the global investment landscape in the first half of 2022. Rising debt costs have seen the number of traded properties recede, impacting pricing and bidding dynamics around the global market. This has culminated in the impending threat of a recession in some of the world's largest economies.

- Tangible effects of these challenges can be witnessed in the EMEA region, with deal volume falling 26% YOY. European markets, specifically Germany, have experienced liquidity issues with their economy being vulnerable due to its dependence on Russian energy supplies and global export markets. The UK market has remained steadfast, with demand remaining strong in the multifamily and industrial sector sustaining deal flow.

- That withstanding, the U.S. was at the forefront of this growth in deal volume improving 27% YOY reaching \$180.5B. This was the third best recorded quarter based on transactions \$10M or more. This was led by its multifamily sector, with rising demand in the Sun Belt Region resulting in record deal volumes and double-digit price growth.
- Inversely, the Asia Pacific market had an 8% decline YOY. A major proponent was China's continued widespread lockdowns in major cities to quell the spread of Covid-19 which has hampered deal activity (just \$1B in spent on income producing properties in April 2022, lowest since 2018).
- The hotel sector continued its strong recovery in Q2, despite global economic turbulence and labor shortages across travel/tourism industries. With consumers shifting their priorities towards experiences rather than material goods this favors leisure and resort destinations. Performance in luxury hotels across major European markets (Paris, Barcelona, London, Milan) is aiding in expediting the regions recovery. Asian markets with very little border or quarantine restrictions such as Bali and the Maldives have become more in favor.
- In Q2 demand for logistics and industrial space slowed year-over-year across all three regions. However, transaction activity was hampered by a lack of available supply in many markets and Q2 2021 leasing volumes were very high. Demand this year has become more broad-based with supply chain restructuring increasing demand from Logistics & Distribution and 3PL operators.
- Vacancy rates have remained broadly stable across the regions, and in the case of both the U.S. and Europe is at all-time lows. In the short term, high inflation should subdue consumer spending through the end of the year which may delay expansion plans for online retailers, with grocery delivery likely to be the only online sector that will continue to expand in the immediate future.

**Global Total Commercial Real Estate Volume - 2021 - 2022**

| \$ US Billions | Q2 2022    | Q2 2021    | % Change<br>Q2 22 - Q2 21 | H1 2022    | H1 2021    | % Change<br>H1 22 - H2 21 |
|----------------|------------|------------|---------------------------|------------|------------|---------------------------|
| Americas       | 181        | 142        | 27%                       | 355        | 238        | 49%                       |
| EMEA           | 65         | 89         | -27%                      | 154        | 167        | -8%                       |
| Asia Pacific   | 212        | 231        | -8%                       | 347        | 377        | -8%                       |
| <b>Total</b>   | <b>458</b> | <b>462</b> | <b>-1%</b>                | <b>856</b> | <b>783</b> | <b>9%</b>                 |

Source: Real Capital Analytics, Inc., Q2' 22

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

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

Source: Bloomberg

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ATTN: Aon Investments Compliance Officer

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# REPORT

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## Meketa Capital Markets Outlook & Risk Metrics

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## Capital Markets Outlook & Risk Metrics

As of September 30, 2022

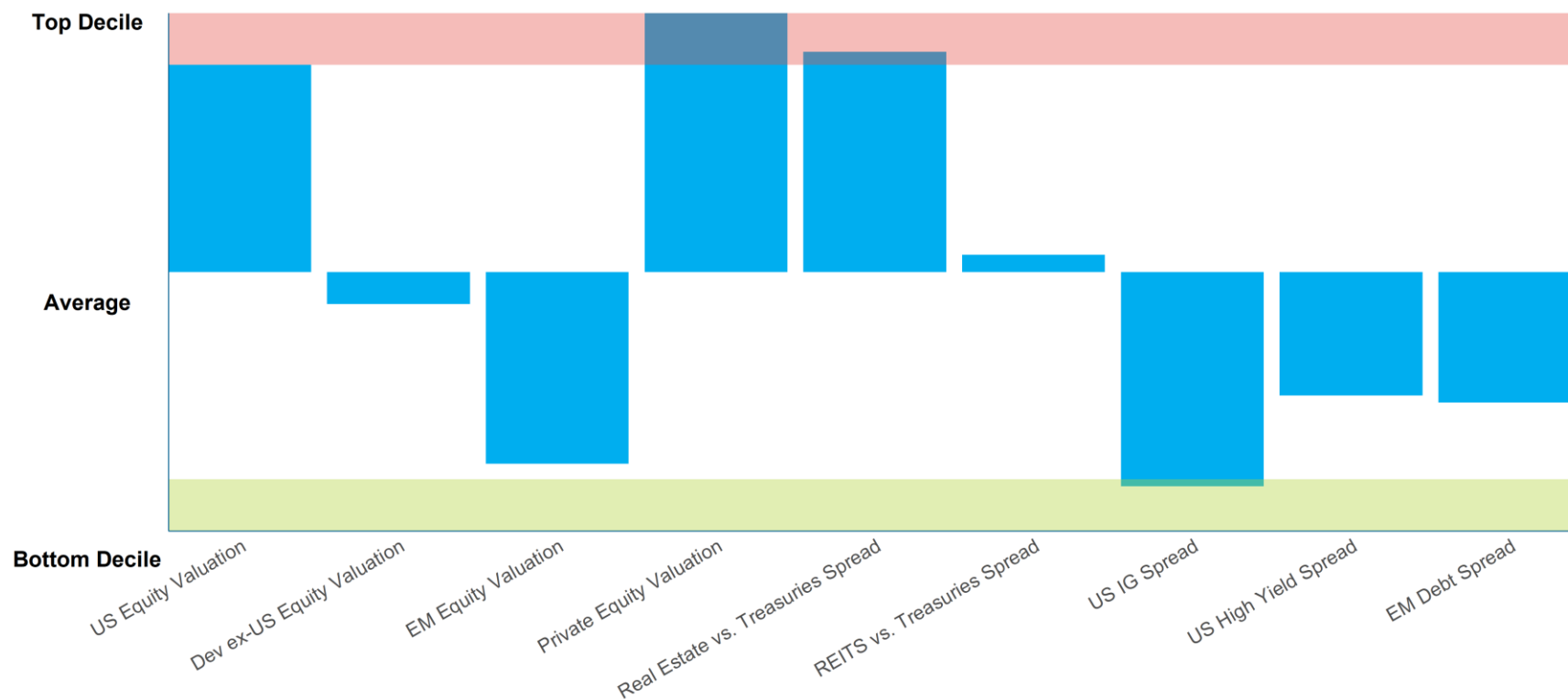
## Capital Markets Outlook

### Markets

- Global equities and bonds sold-off in September reflecting the deteriorating economic outlook as major central banks hiked interest rates, effectively threatening to tip the global economy into recession in order to suppress inflationary pressures.
- The Russian-Ukrainian war continued to drive natural gas prices higher, and incremental political escalation of hostilities between Russia and the west cumulated in considerable damage to the vital Nordstream 1 pipeline.
- China stands out in its efforts to ease policy to support the floundering real estate sector and bolster domestic demand as it has been forced to slow the rapid depreciation of the renminbi against major trade partners. Despite these efforts, they have yet to boost domestic spending or resolve the real estate crisis.
- US equities posted negative returns in September but outperformed developed non-US and emerging market indices, and value outperformed growth in most regions.
- Broad emerging market equities outperformed Chinese equities. Buffeted by a strong US dollar, rising inflation, and falling global growth, investors repriced equities based on deteriorating fundamentals.
- The UK suffered a brief but severe dislocation in its bond market requiring the new government to retreat from its fiscal reform package and for the Bank of England to intervene in the bond markets.
- US fixed income markets posted losses, although high yield and short-duration TIPS fared better than the Bloomberg Aggregate.
- After benefiting from higher commodity prices earlier in the year, commodities and public natural resources suffered negative returns as deteriorating economic growth outlook repriced estimates for future demand for energy, industrial metals, and lumber.



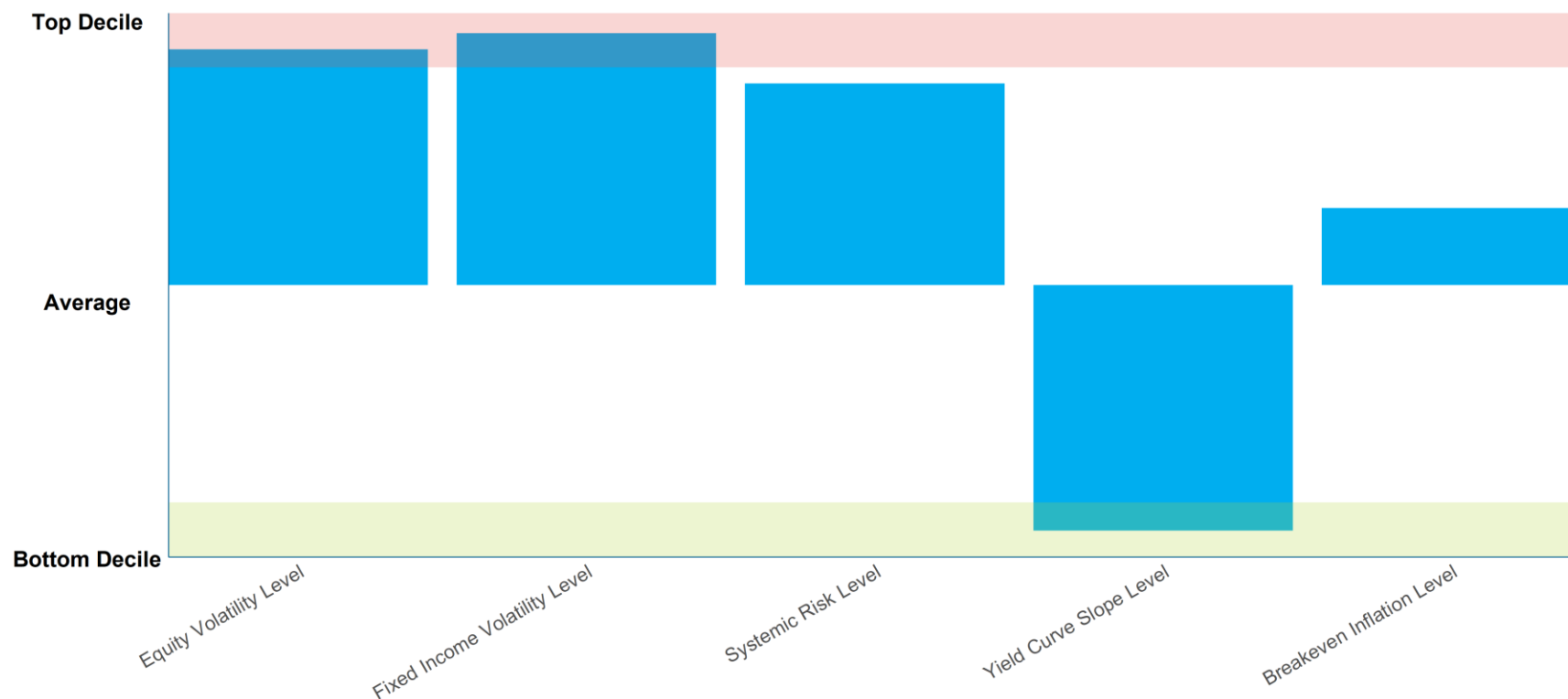
### Risk Overview/Dashboard (1) (As of September 30, 2022)<sup>1</sup>



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

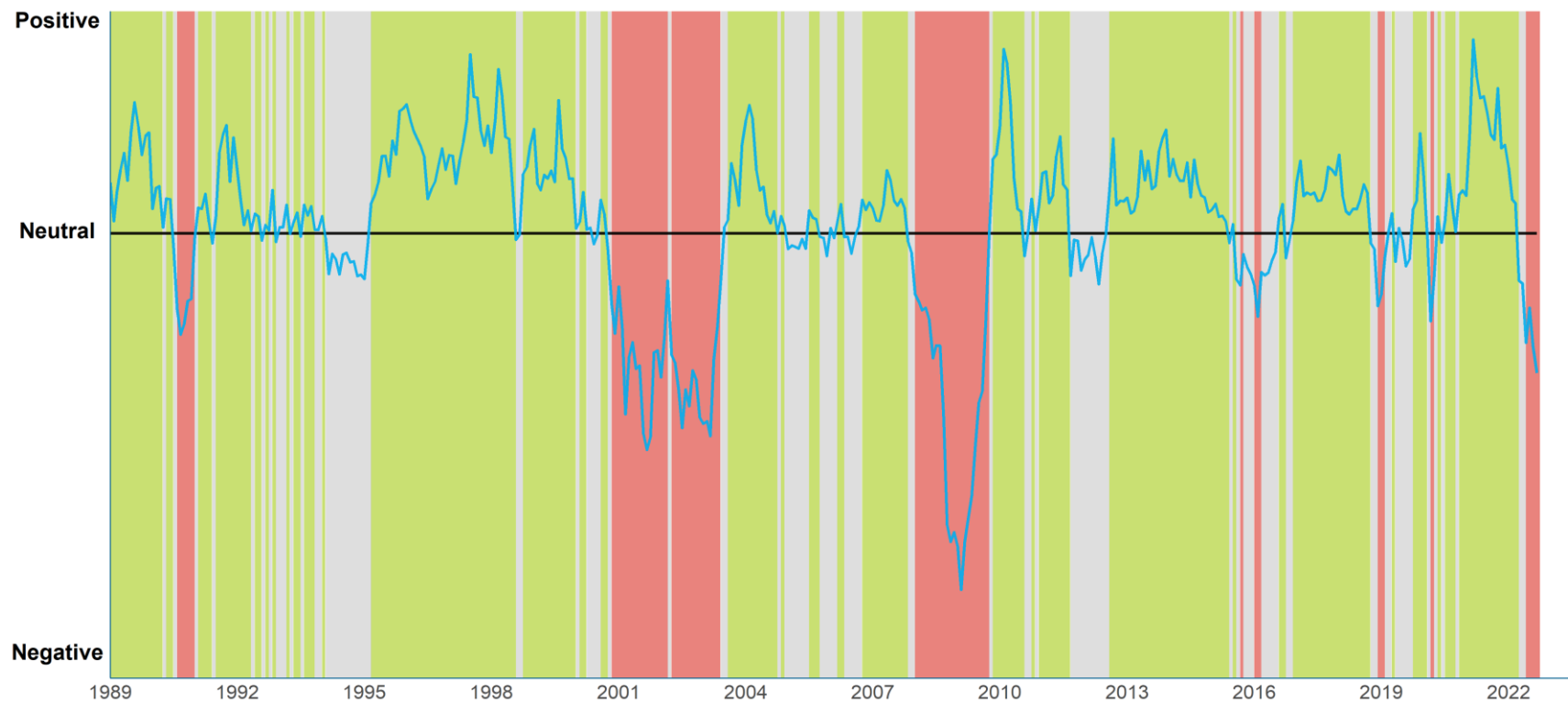
<sup>1</sup> With the exception of Private Equity Valuation, that is YTD as of December 31, 2021.

### Risk Overview/Dashboard (2) (As of September 30, 2022)

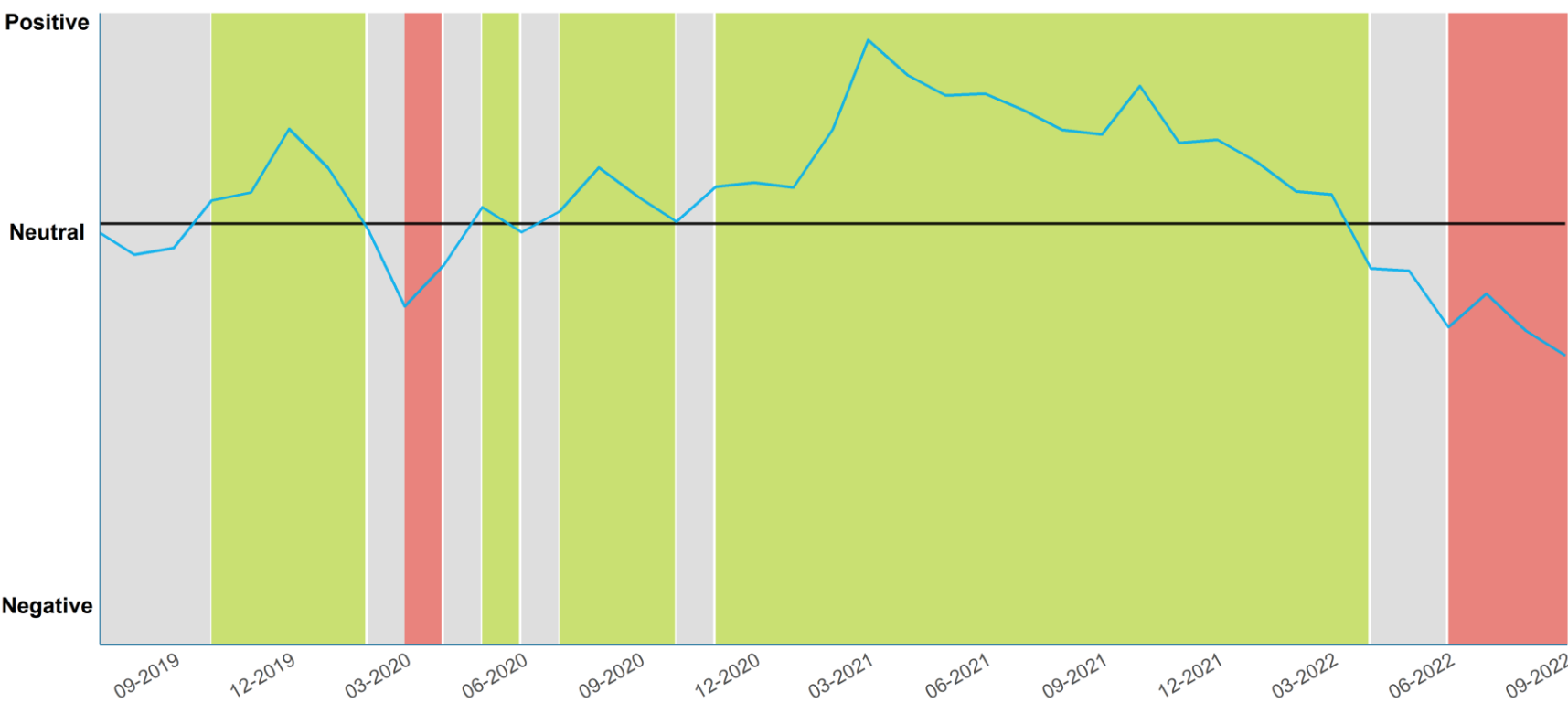


→ Dashboard (2) shows how the current level of each indicator compares to its respective history.

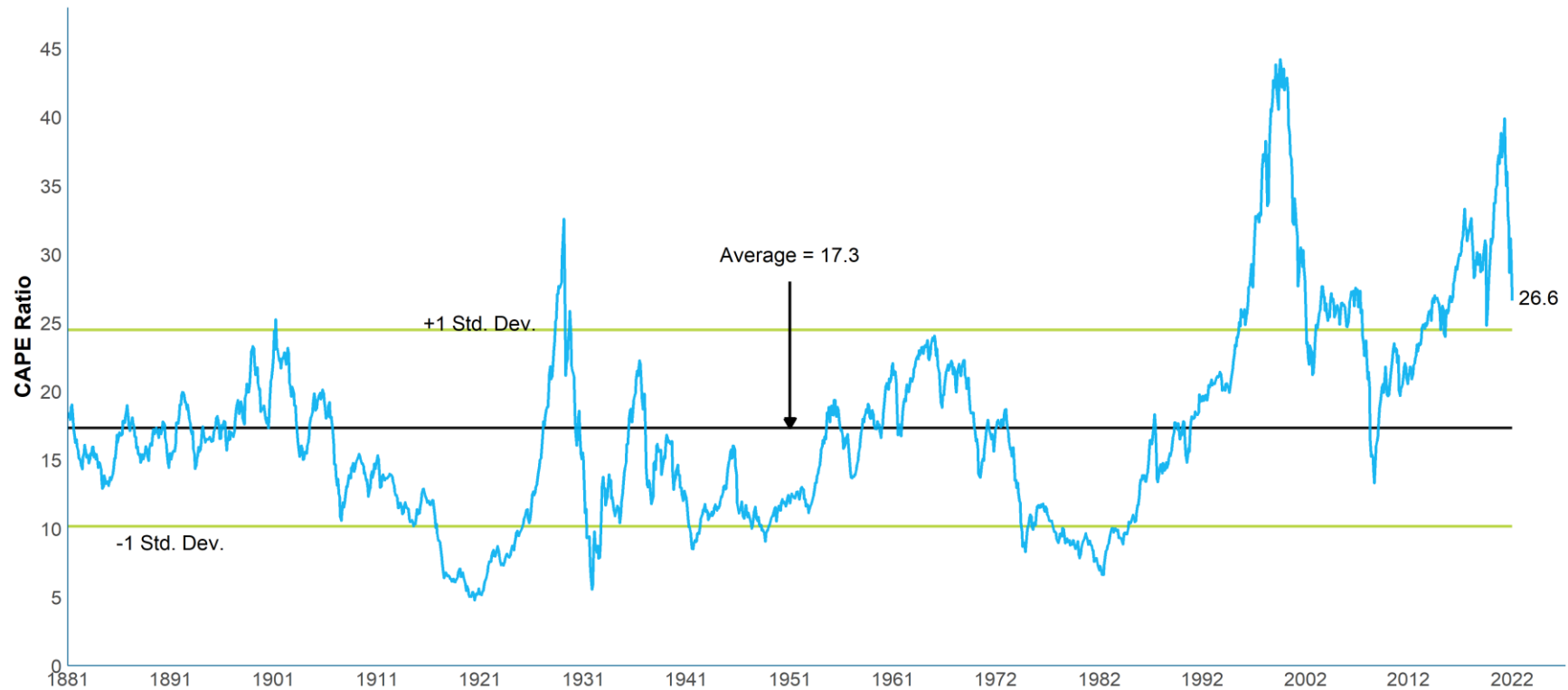
### Market Sentiment Indicator (All History) (As of September 30, 2022)



Market Sentiment Indicator (Last Three Years)  
(As of September 30, 2022)



### US Equity Cyclically Adjusted P/E<sup>1</sup> (As of September 30, 2022)



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

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

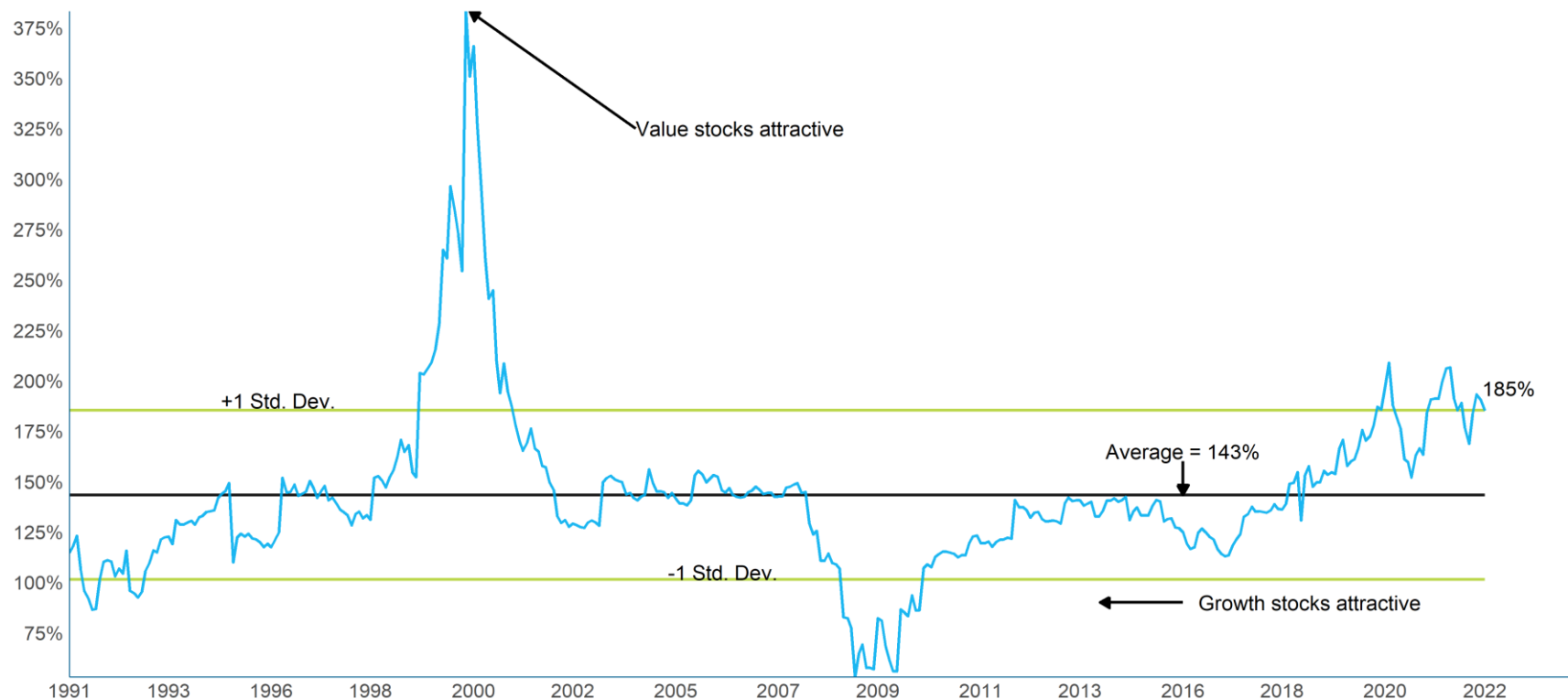
### Small Cap P/E vs. Large Cap P/E<sup>1</sup> (As of September 30, 2022)



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

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

### Growth P/E vs. Value P/E<sup>1</sup> (As of September 30, 2022)



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

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

### Developed International Equity Cyclically Adjusted P/E<sup>1</sup> (As of September 30, 2022)



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

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



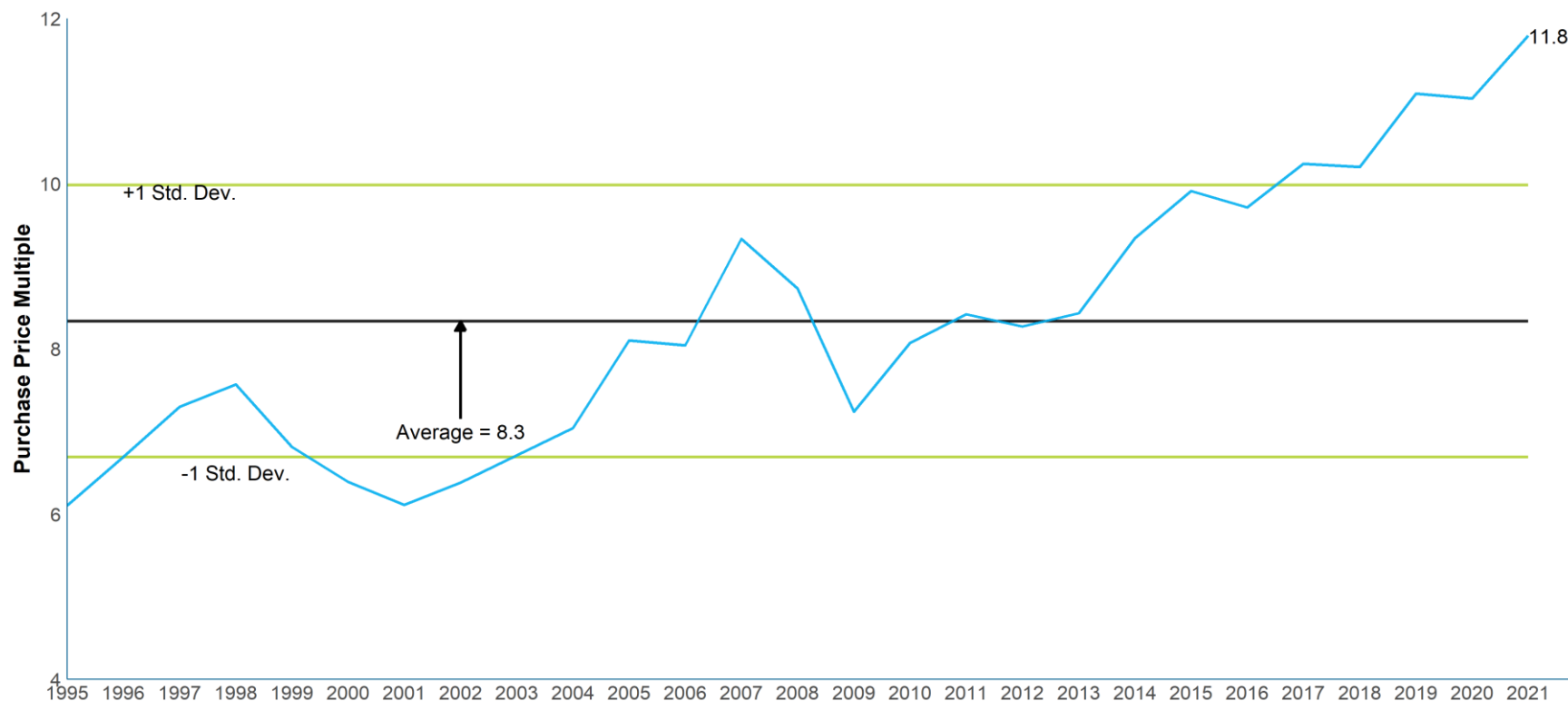
### Emerging Market Equity Cyclically Adjusted P/E<sup>1</sup> (As of September 30, 2022)



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

<sup>1</sup> 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<sup>1</sup> (As of September 30, 2022)<sup>2</sup>

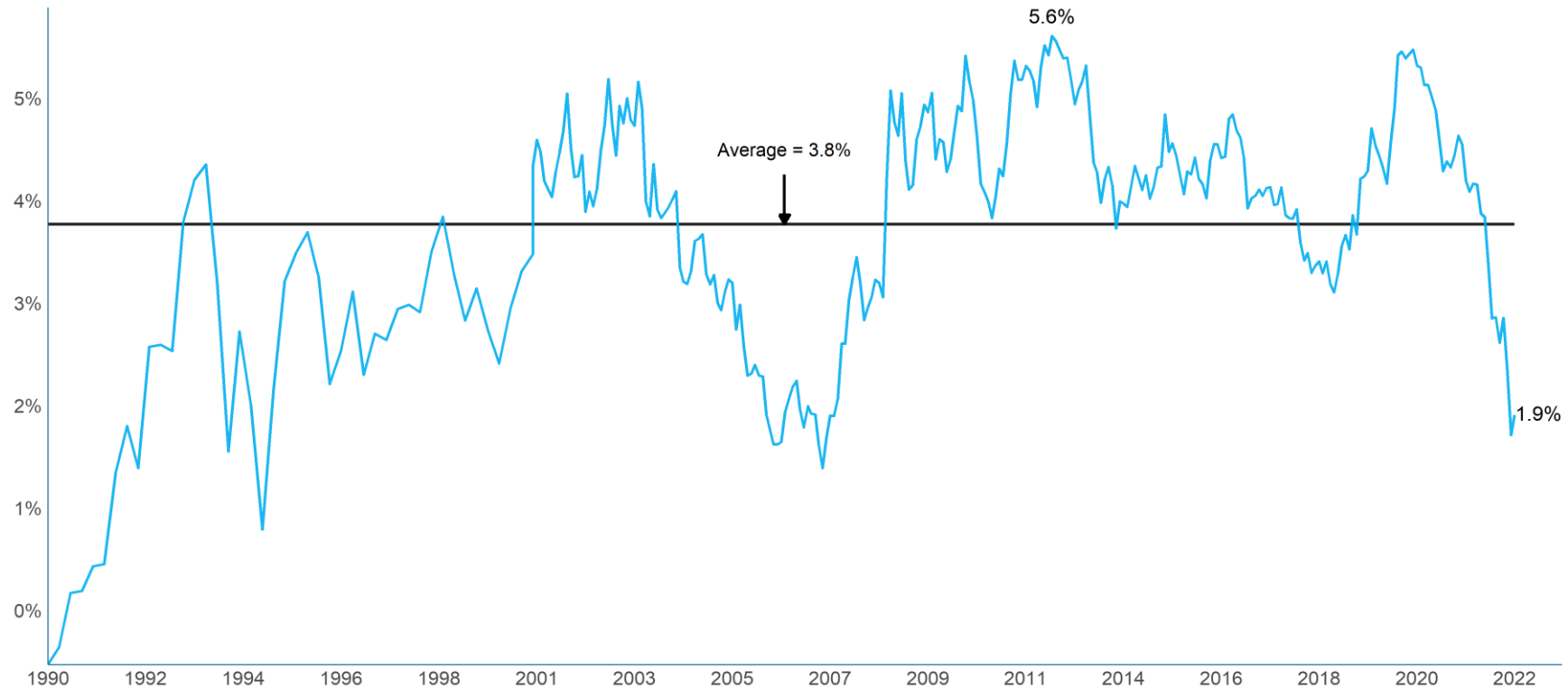


→ This chart details one valuation metric for the private equity market. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

<sup>1</sup> Private Equity Multiples – Source: S&P LCD Average EBITDA Multiples Paid in All LBOs.

<sup>2</sup> Annual Data, as of December 31, 2021

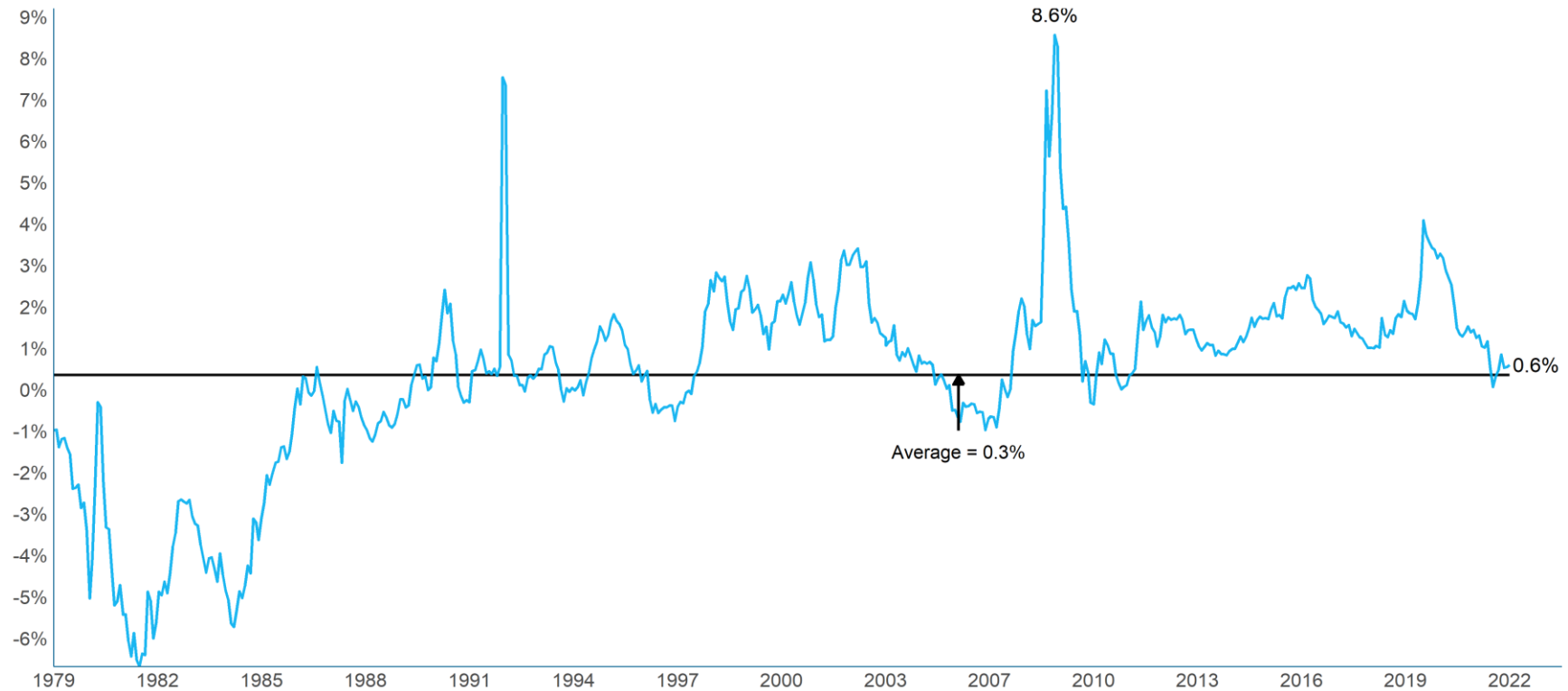
### Core Real Estate Spread vs. Ten-Year Treasury<sup>1</sup> (As of September 30, 2022)



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

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

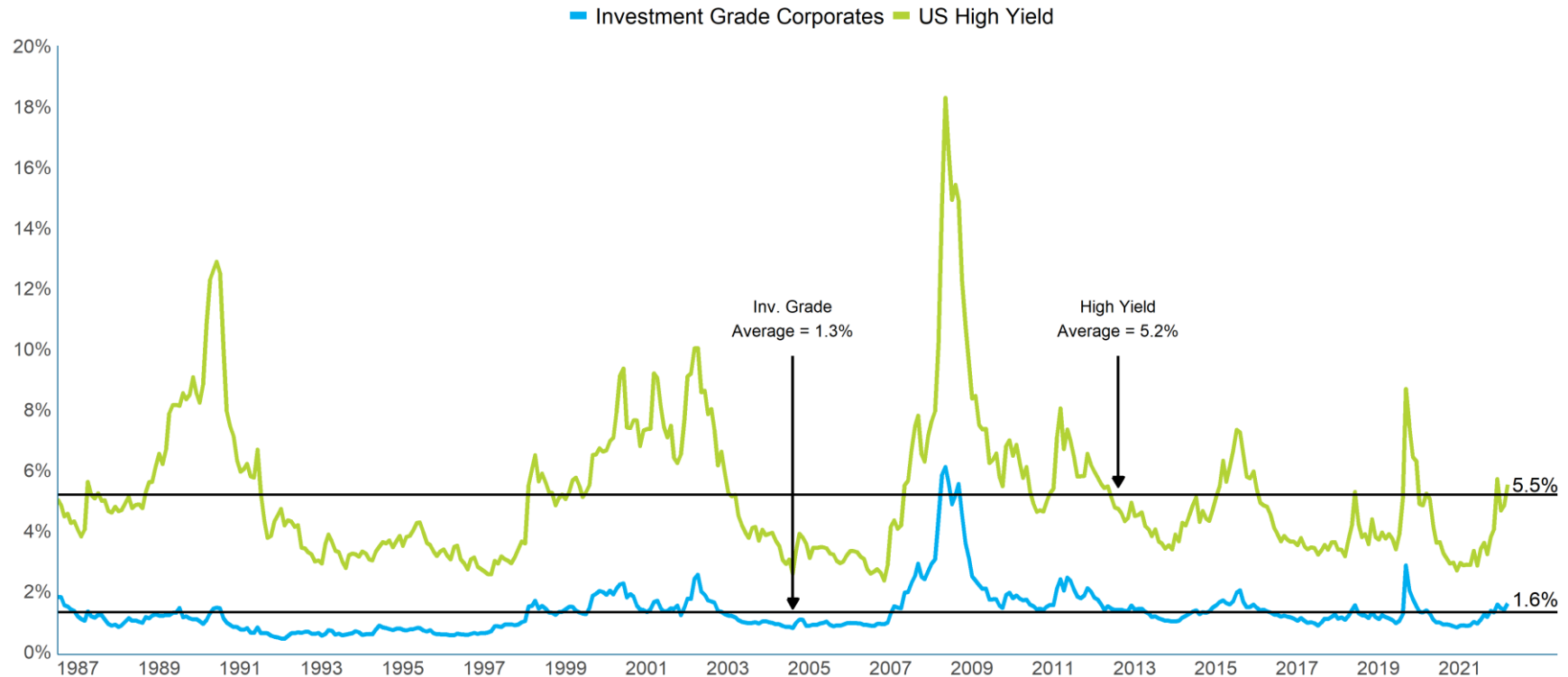
### REITs Dividend Yield Spread vs. Ten-Year Treasury<sup>1</sup> (As of September 30, 2022)



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

<sup>1</sup> 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<sup>1</sup> (As of September 30, 2022)



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

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

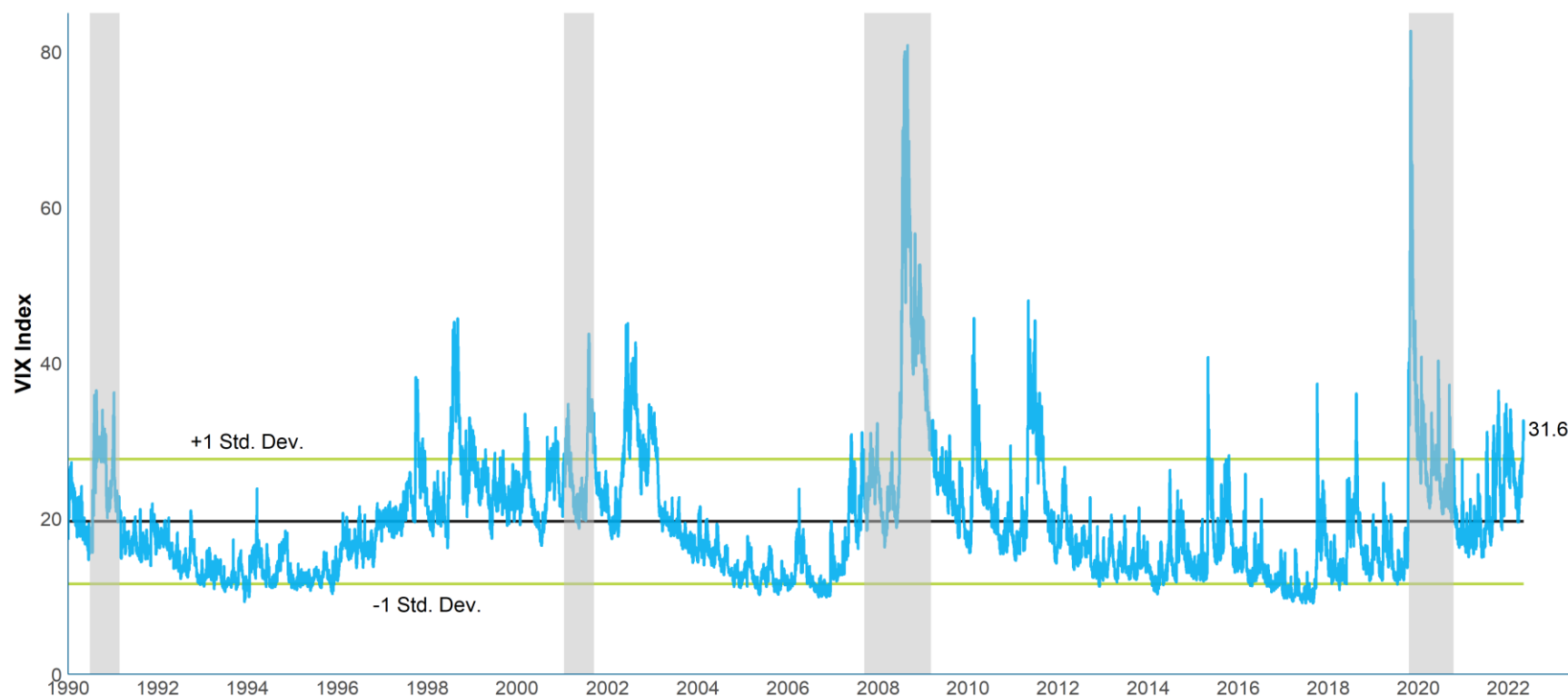
### Emerging Market Debt Spreads<sup>1</sup> (As of September 30, 2022)



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

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

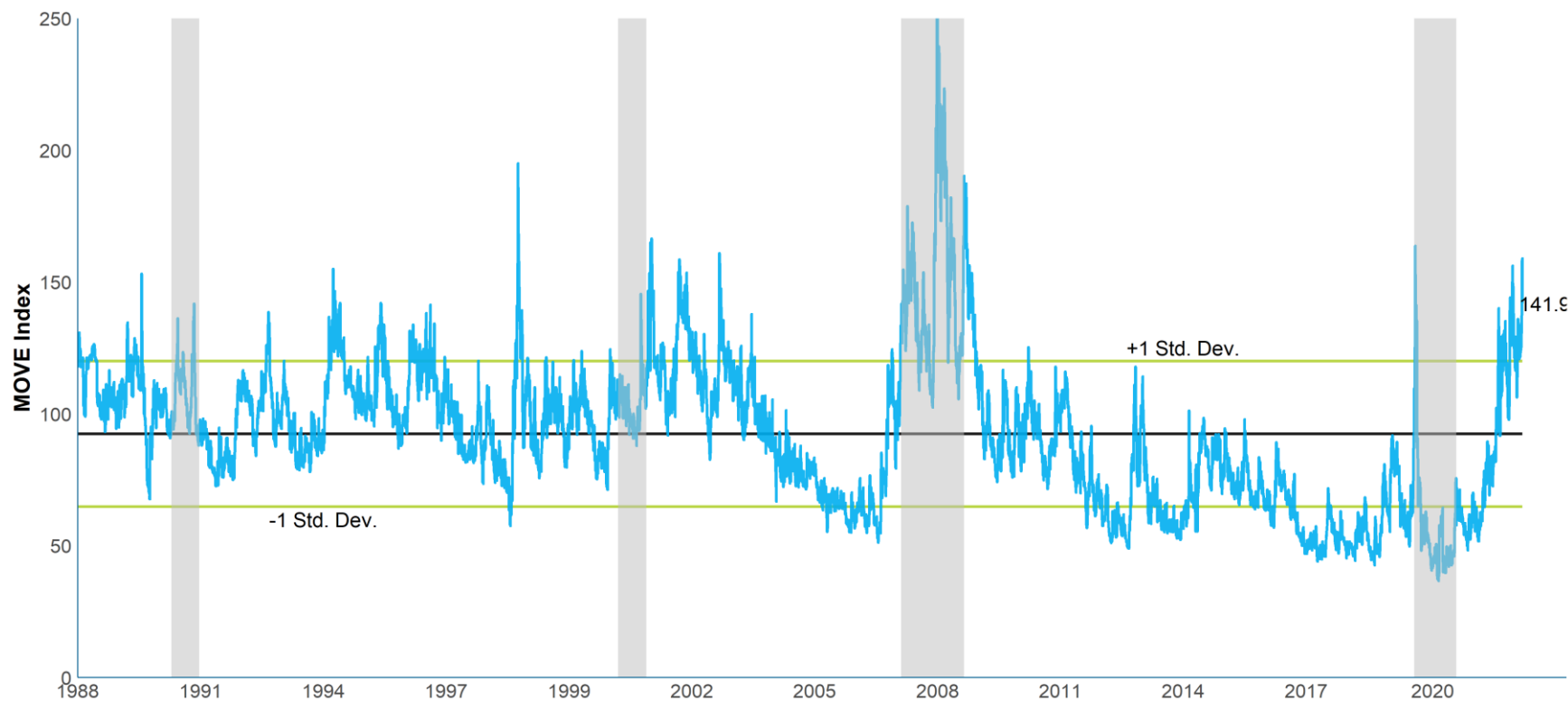
### Equity Volatility<sup>1</sup> (As of September 30, 2022)



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

<sup>1</sup> 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<sup>1</sup> (As of September 30, 2022)

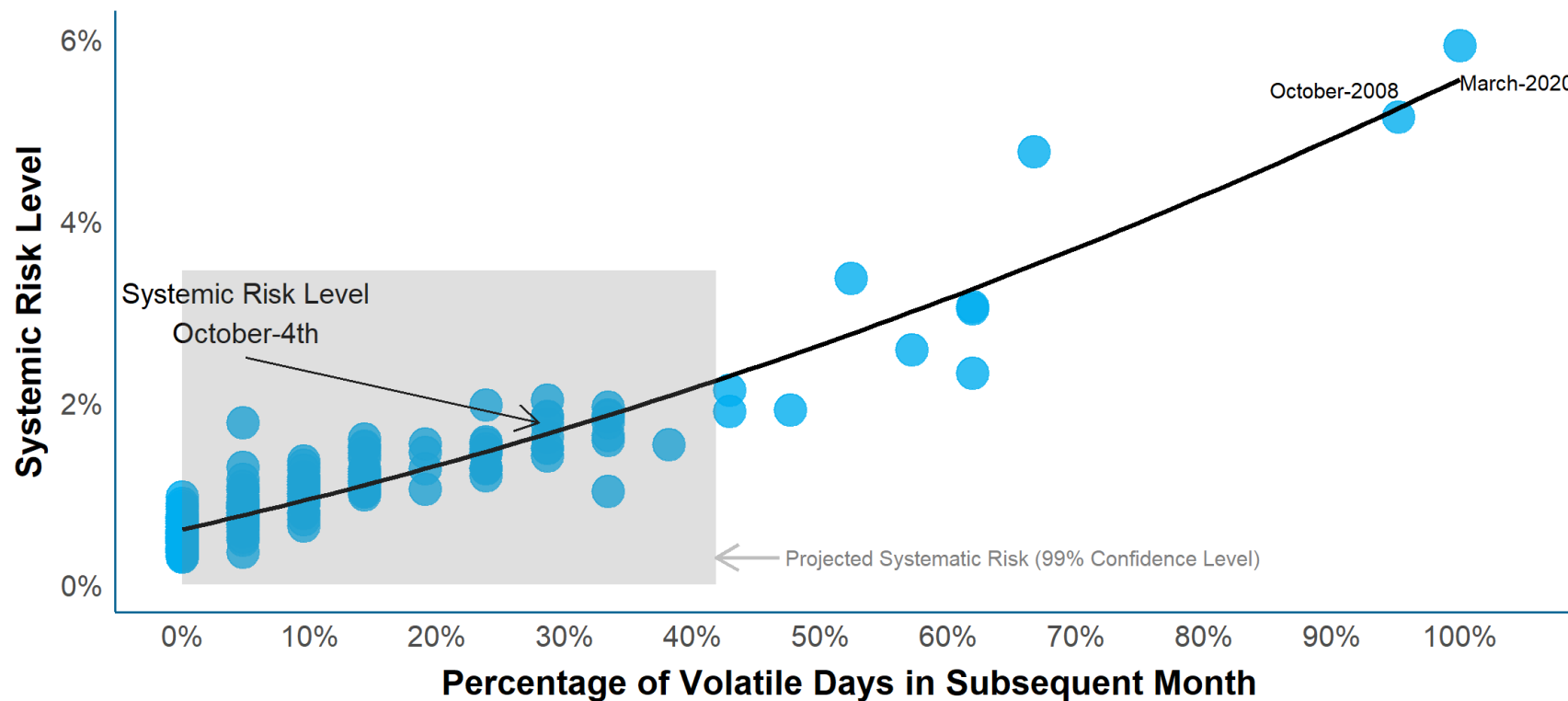


→ This chart details historical implied fixed income market volatility. This metric tends to increase during times of stress/fear and while declining during more benign periods.

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



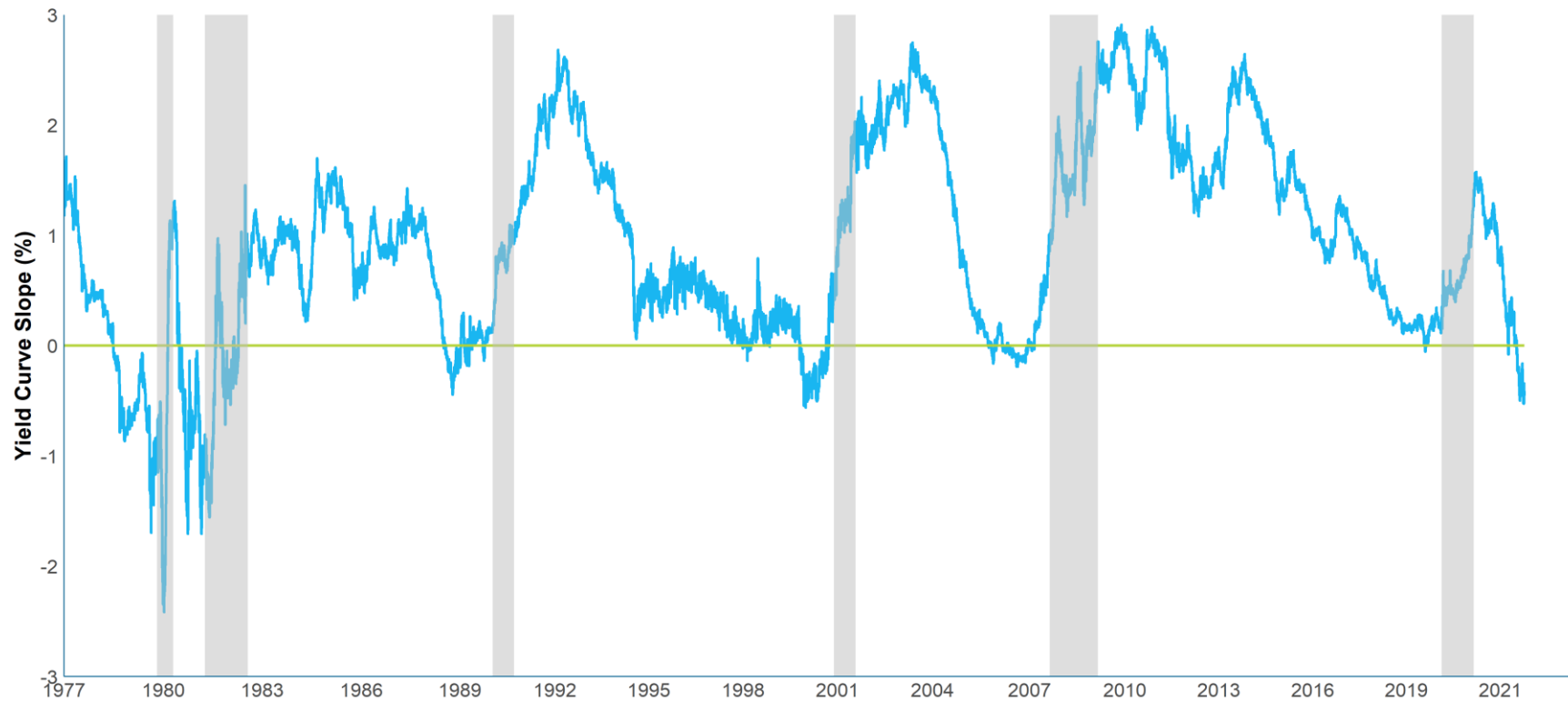
### Systemic Risk and Volatile Market Days<sup>1</sup> (As of September 30, 2022)



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

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

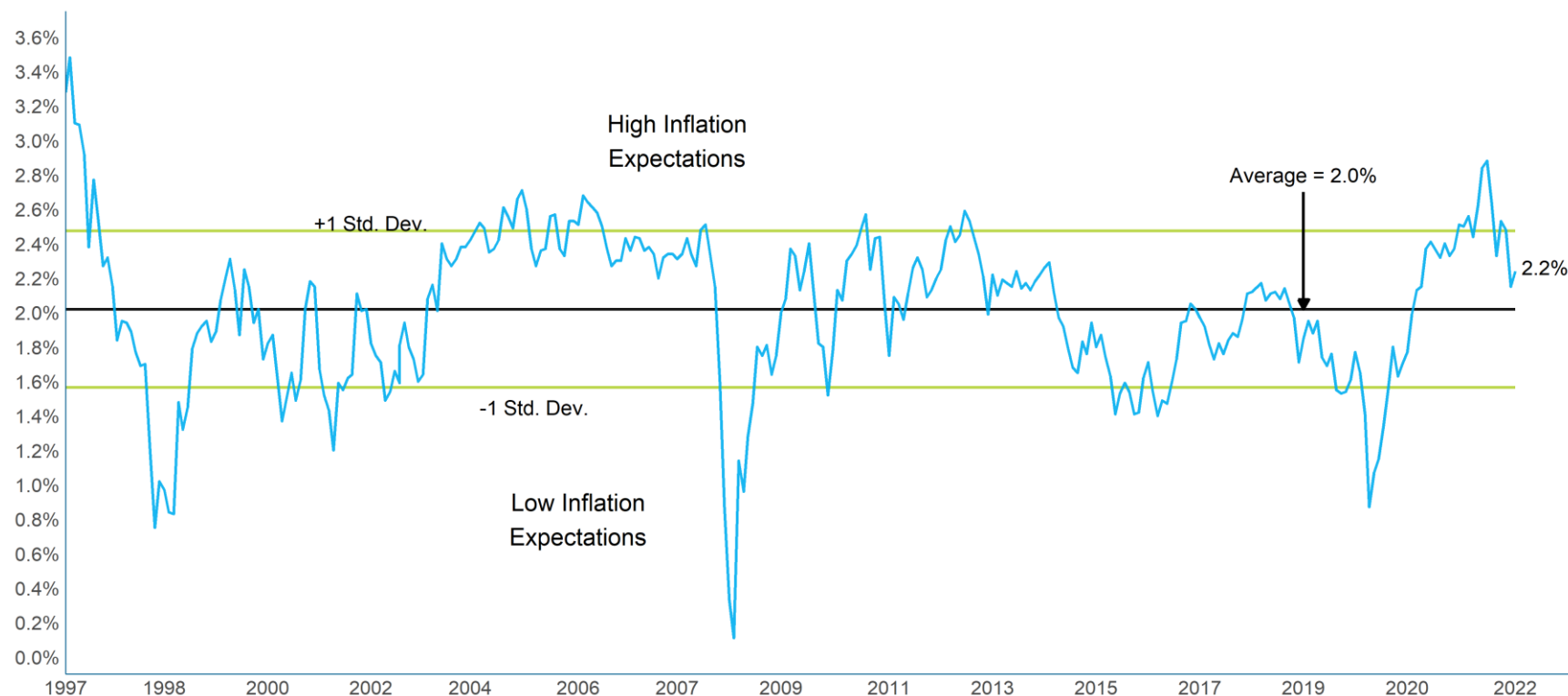
Yield Curve Slope (Ten Minus Two)<sup>1</sup>  
(As of September 30, 2022)



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

<sup>1</sup> 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.

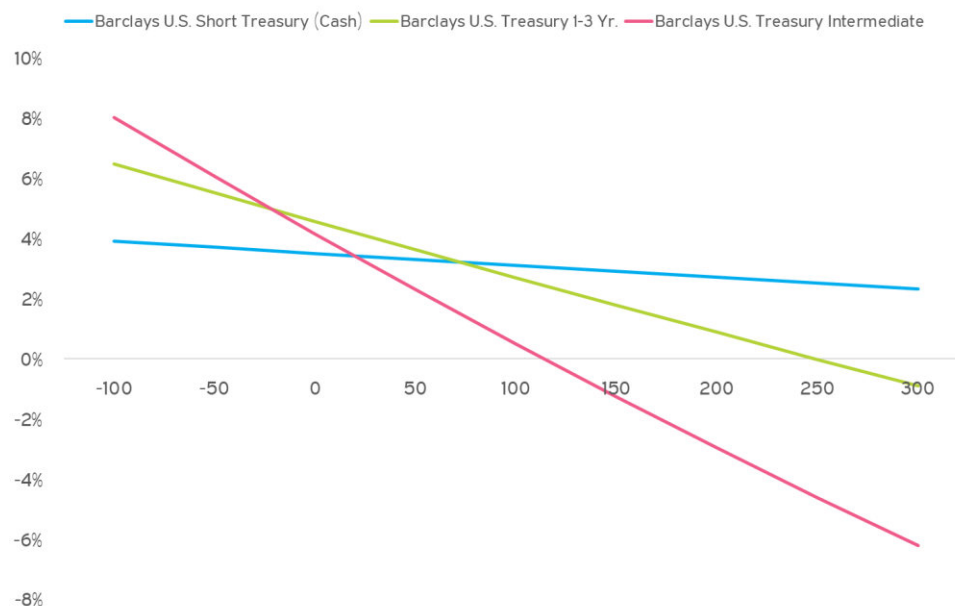
### Ten-Year Breakeven Inflation<sup>1</sup> (As of September 30, 2022)



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

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

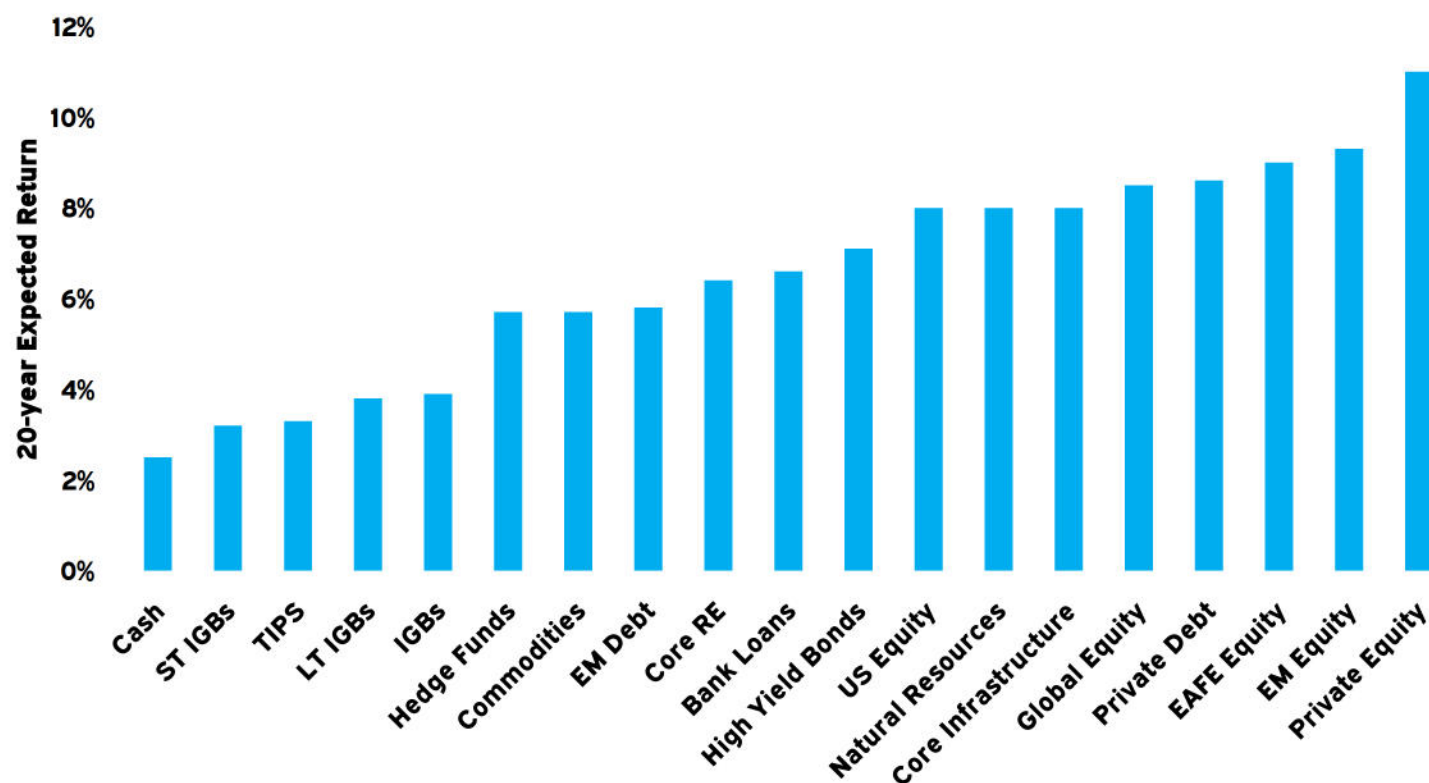
### Total Return Given Changes in Interest Rates (bps)<sup>1</sup> (As of September 30, 2022)



|                                   | Total Return for Given Changes in Interest Rates (bps) |       |      |       |        |        |        |        |        | Statistics |       |
|-----------------------------------|--|-------|------|-------|--------|--------|--------|--------|--------|------------|-------|
|                                   | -100   | -50   | 0    | 50    | 100    | 150    | 200    | 250    | 300    | Duration   | YTW   |
| Barclays US Short Treasury (Cash) | 3.9%   | 3.7%  | 3.5% | 3.3%  | 3.1%   | 2.9%   | 2.7%   | 2.5%   | 2.3%   | 0.40       | 3.51% |
| Barclays US Treasury 1-3 Yr.      | 6.5%   | 5.5%  | 4.6% | 3.6%  | 2.7%   | 1.8%   | 0.9%   | 0.0%   | -0.9%  | 1.89       | 4.57% |
| Barclays US Treasury Intermediate | 8.0%   | 6.1%  | 4.2% | 2.3%  | 0.5%   | -1.3%  | -3.0%  | -4.6%  | -6.2%  | 3.77       | 4.16% |
| Barclays US Treasury Long         | 22.1%  | 12.6% | 4.0% | -3.7% | -10.6% | -16.6% | -21.8% | -26.0% | -29.4% | 16.35      | 4.00% |

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

### Long-Term Outlook – 20-Year Annualized Expected Returns<sup>1</sup>



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

<sup>1</sup> Source: Meketa Investment Group's 2022 Intra-year Asset Study.

## Appendix

### Data Sources and Explanations<sup>1</sup>

- 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.

<sup>1</sup> All Data as of September 30, 2022, unless otherwise noted.

## Appendix

### Data Sources and Explanations<sup>1</sup>

- 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.

<sup>1</sup> All Data as of September 30, 2022, unless otherwise noted.

## Appendix

### Data Sources and Explanations<sup>1</sup>

- 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).

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<sup>1</sup> All Data as of September 30, 2022, unless otherwise noted.



## Meketa Market Sentiment Indicator

### Explanation, Construction and Q&A

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

### This appendix explores:

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

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

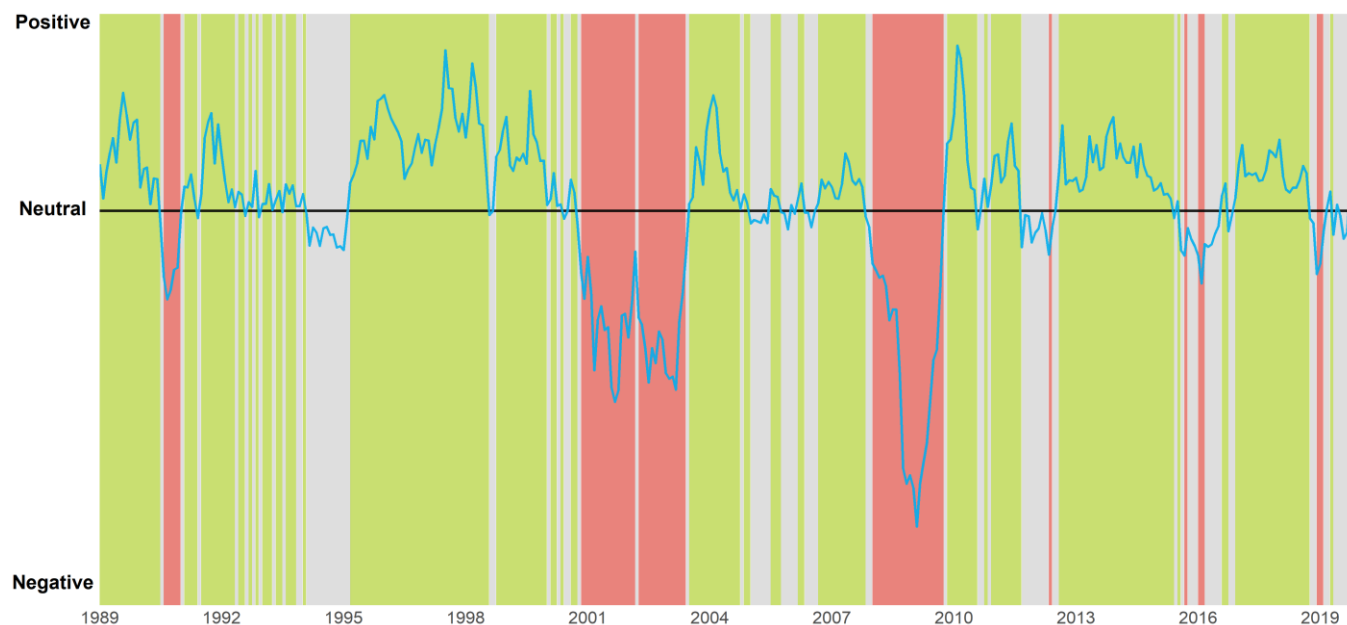
→ Meketa's Risk Metrics, which rely significantly on standard market measures of relative valuation, often provide valid early signals of increasing long-term risk levels in the global investment markets. However, as is the case with numerous valuation measures, the Risk Metrics may convey such risk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

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

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

### How do I read the Meketa Market Sentiment Indicator graph?

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



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

- The MIG-MSI is constructed from two sub-elements representing investor sentiment in stocks and bonds:
- Stock return momentum: Return momentum for the S&P 500 Equity Index (trailing 12-months).
  - Bond yield spread momentum: Momentum of bond yield spreads (excess of the measured bond yield over the identical duration US Treasury bond yield) for corporate bonds (trailing 12-months) for both investment grade bonds (75% weight) and high yield bonds (25% weight).
  - Both measures are converted to Z-scores and then combined to get an “apples to apples” comparison without the need of re-scaling.
- The black line reading on the graph is calculated as the average of the stock return momentum measure and the bonds spread momentum measure<sup>1</sup>. 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).

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

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

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

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# REPORT

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## SBI Comprehensive Performance Report

September 30, 2022

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## Quarterly Report

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# Comprehensive Performance Report

September 30, 2022



## Description of SBI Investment Programs

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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.

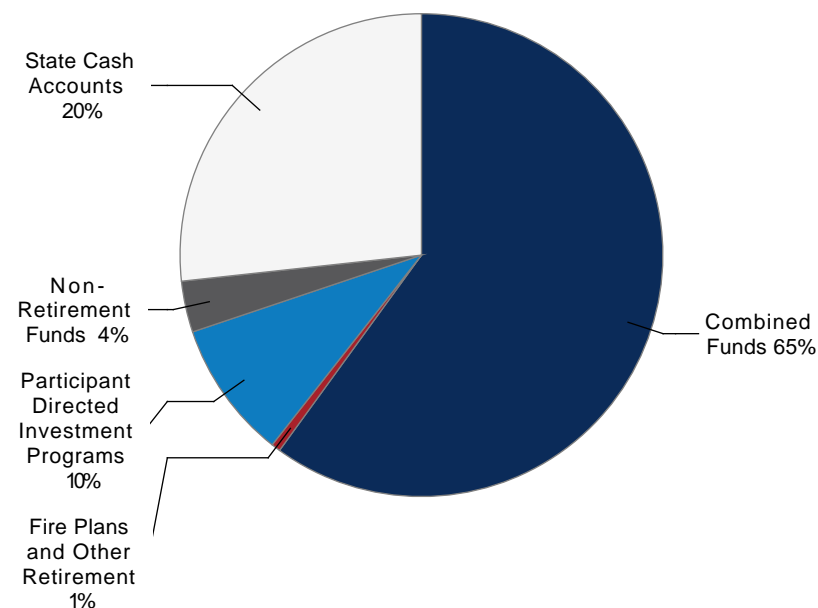
### State Cash

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> |
|---|--------------------|
| <b>Combined Funds</b>                             | <b>\$77,122</b>    |
| <b>Fire Plans + Other Retirement Plans</b>        | <b>781</b>         |
| <b>Participant Directed Investment Program</b>    | <b>11,872</b>      |
| State Deferred Compensation Plan                  | 8,138              |
| Health Care Savings Plan                          | 1,565              |
| Unclassified Employees Retirement Plan            | 311                |
| Hennepin County Supplemental Retirement Plan      | 147                |
| PERA Defined Contribution Plan                    | 79                 |
| Minnesota College Savings Plan                    | 1,604              |
| Minnesota Achieving a Better Life Experience Plan | 28                 |
| <b>Non-Retirement Funds</b>                       | <b>4,412</b>       |
| Assigned Risk Plan                                | 232                |
| Permanent School Fund                             | 1,665              |
| Environmental Trust Fund                          | 1,374              |
| Closed Landfill Investment Fund                   | 109                |
| Miscellaneous Trust Funds                         | 306                |
| Other Postemployment Benefits Accounts            | 727                |
| <b>State Cash</b>                                 | <b>23,747</b>      |
| Invested Treasurer's Cash                         | 23,584             |
| Other State Cash Accounts                         | 163                |
| <b>Total SBI AUM</b>                              | <b>117,934</b>     |



Note: Differentials within column amounts may occur due to rounding



## Quarterly Report

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### Performance Reporting Legend

**Manager Level Data**

**Aggregate Level Data**

**Sub-Asset Class Level Data**

**Asset Class Level Data**

#### Note:

Throughout this report performance is calculated net of investment management fees, gross of administrative fees. Aggregates include terminated managers, and returns for all periods greater than one year are annualized. Inception Date and Since Inception Returns refer to the date of retention by the SBI. FYTD refers to the return generated by an account since July 1 of the most recent year. For historical benchmark details, please refer to the addendum of this report. Some aggregate inception to date return are based portfolio management decisions to re-group manager accounts in different or newly created aggregates.



## Quarterly Report

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# Combined Funds

September 30, 2022



## Combined Funds Summary

### Combined Funds Change in Market Value (\$Millions)

|                        | One Quarter |
|------------------------|-------------|
| <b>Combined Funds</b>  |             |
| Beginning Market Value | \$81,320    |
| Net Contributions      | -710        |
| Investment Return      | -3,489      |
| Ending Market Value    | 77,122      |

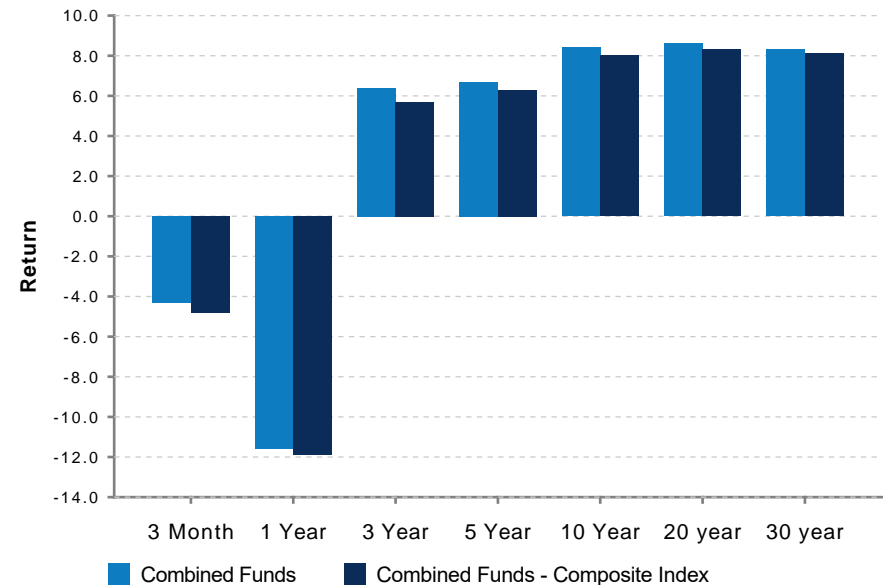
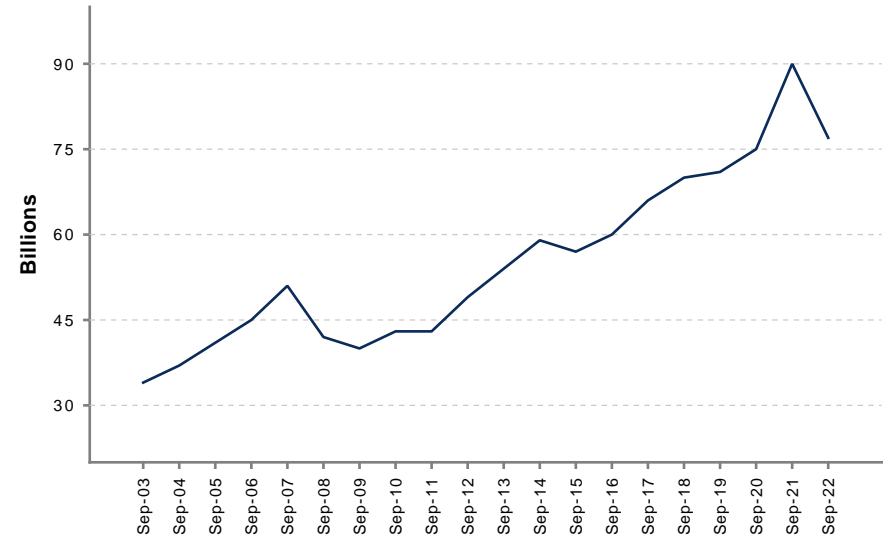
The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

### 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.

|                                  | Qtr   | FYTD  | 1 Yr   | 3 Yr | 5 Yr | 10 Yr | 20 Yr | 30 Yr |
|----------------------------------|-------|-------|--------|------|------|-------|-------|-------|
| Combined Funds                   | -4.3% | -4.3% | -11.6% | 6.4% | 6.7% | 8.4%  | 8.6%  | 8.3%  |
| Combined Funds - Composite Index | -4.8% | -4.8% | -11.9% | 5.7% | 6.3% | 8.0%  | 8.3%  | 8.1%  |
| Excess                           | 0.5%  | 0.5%  | 0.3%   | 0.7% | 0.4% | 0.4%  | 0.3%  | 0.3%  |

### Asset Growth



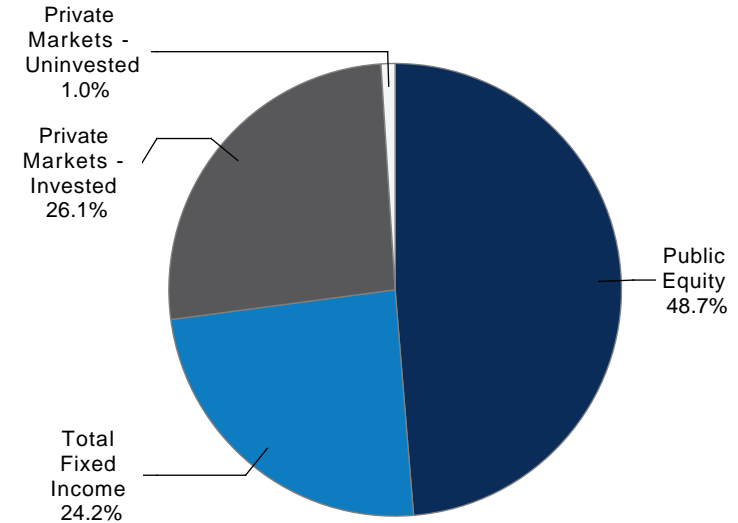


## Combined Funds Summary

### 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.

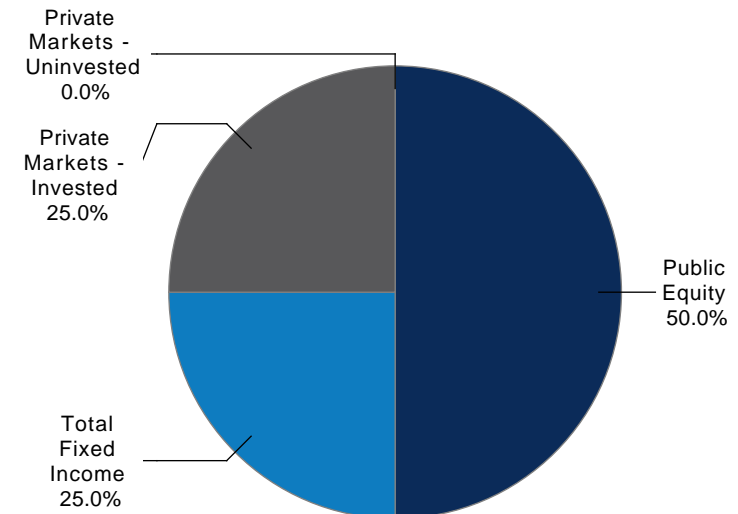
|                              | <u>(Millions)</u> | <u>Actual Mix</u> | <u>Policy Target</u> |
|------------------------------|-------------------|-------------------|----------------------|
| Public Equity                | \$37,572          | 48.7%             | 50.0%                |
| Total Fixed Income           | 18,641            | 24.2              | 25.0                 |
| Private Markets - Total      | 20,908            | 27.1              | 25.0                 |
| Private Markets - Invested   | 20,155            | 26.1              |                      |
| Private Markets - Uninvested | 754               | 1.0               |                      |
| <b>TOTAL</b>                 | <b>77,122</b>     | <b>100.0</b>      |                      |



### 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                  | S&P 500                      |





## Combined Funds Asset Class Performance Summary

### Public Equity

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

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

|                                | <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                  | \$37.6              | 48.7%                | 50.0%                | -5.4%           | -5.4%       | -19.3%        | 5.3%          | 5.9%          | 9.2%           | 9.0%           | 8.5%           |
| Public Equity Benchmark        |                     |                      |                      | -6.3            | -6.3        | -20.1         | 4.6           | 5.4           |                |                |                |
| Excess                         |                     |                      |                      | 0.9             | 0.9         | 0.8           | 0.7           | 0.4           |                |                |                |
|                                |                     |                      |                      |                 |             |               |               |               |                |                |                |
| Domestic Equity                | 25.6                | 33.2                 | 33.5                 | -4.4            | -4.4        | -18.0         | 7.9           | 8.6           | 11.4           | 9.8            | 9.3            |
| Domestic Equity Benchmark      |                     |                      |                      | -4.5            | -4.5        | -17.6         | 7.7           | 8.6           | 11.4           | 9.9            | 9.4            |
| Excess                         |                     |                      |                      | 0.0             | 0.0         | -0.4          | 0.2           | 0.1           | 0.0            | -0.1           | -0.1           |
|                                |                     |                      |                      |                 |             |               |               |               |                |                |                |
| International Equity           | 11.2                | 14.5                 | 16.5                 | -7.2            | -7.2        | -21.3         | 0.6           | 0.5           | 4.1            | 6.9            | 5.9            |
| International Equity Benchmark |                     |                      |                      | -9.9            | -9.9        | -25.2         | -1.6          | -0.8          | 3.0            | 6.3            | 5.1            |
| Excess                         |                     |                      |                      | 2.7             | 2.7         | 3.9           | 2.2           | 1.3           | 1.1            | 0.5            | 0.8            |
|                                |                     |                      |                      |                 |             |               |               |               |                |                |                |
| Global Equity                  | 0.8                 | 1.0                  | 0.0                  | -8.9            | -8.9        | -31.2         |               |               |                |                |                |
| MSCI AC World Index Net        |                     |                      |                      | -6.8            | -6.8        | -20.7         |               |               |                |                |                |
| Excess                         |                     |                      |                      | -2.1            | -2.1        | -10.6         |               |               |                |                |                |

Note:

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



## Combined Funds Asset Class Performance Summary

### Total Fixed Income

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

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

|                                   | <u>Market Value</u> | <u>Actual Weight</u> | <u>Policy Weight</u> | <u>Last Qtr</u> | <u>FYTD</u> | <u>1 Year</u> | <u>3 Year</u> | <u>5 Year</u> | <u>10 Year</u> | <u>20 Year</u> | <u>30 Year</u> |
|-----------------------------------|---------------------|----------------------|----------------------|-----------------|-------------|---------------|---------------|---------------|----------------|----------------|----------------|
| Total Fixed Income                | \$18.6              | 24.2%                | 25.0%                | -4.3%           | -4.3%       | -14.4%        | -2.6%         | 0.7%          | 1.7%           | 3.7%           | 5.0%           |
| Total Fixed Income Benchmark      |                     |                      |                      | -4.6%           | -4.6%       | -13.8%        | -2.9%         |               |                |                |                |
| Excess                            |                     |                      |                      | 0.3%            | 0.3%        | -0.7%         | 0.3%          |               |                |                |                |
|                                   |                     |                      |                      |                 |             |               |               |               |                |                |                |
| Core/Core Plus                    | \$4.1               | 5.3%                 | 5.0                  | -4.7%           | -4.7%       | -16.0%        | -2.8%         | 0.1%          | 1.4%           | 3.6%           | 4.9%           |
| Core Bonds Benchmark              |                     |                      |                      | -4.8%           | -4.8%       | -14.6%        | -3.3%         | -0.3%         | 0.9%           | 3.1%           | 4.5%           |
| Excess                            |                     |                      |                      | 0.1%            | 0.1%        | -1.4%         | 0.4%          | 0.4%          | 0.5%           | 0.5%           | 0.4%           |
|                                   |                     |                      |                      |                 |             |               |               |               |                |                |                |
| Return Seeking Fixed Income       | \$3.8               | 5.0%                 | 5.0                  | -2.6%           | -2.6%       | -14.5%        |               |               |                |                |                |
| Bloomberg U.S. Aggregate          |                     |                      |                      | -4.8%           | -4.8%       | -14.6%        |               |               |                |                |                |
| Excess                            |                     |                      |                      | 2.1%            | 2.1%        | 0.1%          |               |               |                |                |                |
|                                   |                     |                      |                      |                 |             |               |               |               |                |                |                |
| Treasury Protection               | \$7.2               | 9.3%                 | 10.0                 | -6.9%           | -6.9%       | -19.7%        | -5.5%         |               |                |                |                |
| Bloomberg Treasury 5+ Year        |                     |                      |                      | -6.9%           | -6.9%       | -19.6%        | -5.6%         |               |                |                |                |
| Excess                            |                     |                      |                      | -0.0%           | -0.0%       | -0.0%         | 0.1%          |               |                |                |                |
|                                   |                     |                      |                      |                 |             |               |               |               |                |                |                |
| Laddered Bond + Cash              | \$3.6               | 4.6%                 | 5.0                  | 0.4%            | 0.4%        | 0.1%          | 0.4%          | 1.1%          | 0.7%           | 1.5%           | 3.1%           |
| ICE BofA US 3-Month Treasury Bill |                     |                      |                      | 0.5%            | 0.5%        | 0.6%          | 0.6%          | 1.1%          | 0.7%           | 1.3%           | 2.4%           |
| Excess                            |                     |                      |                      | -0.1%           | -0.1%       | -0.5%         | -0.2%         | -0.1%         | 0.1%           | 0.2%           | 0.7%           |

Note:

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



## Combined Funds Asset Class Performance Summary

### Private Markets

|                                  | <u>Last Qtr</u> | <u>FYTD</u> | <u>1 Year</u> | <u>3 Year</u> | <u>5 Year</u> | <u>10 Year</u> | <u>20 Year</u> | <u>25 Year</u> | <u>30 Year</u> |
|----------------------------------|-----------------|-------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|
| Private Markets - Invested       | -2.5%           | -2.5%       | 11.3%         | 17.1%         | 15.0%         | 13.4%          | 14.0%          | 13.2%          | 13.3%          |
| Private Markets - Uninvested (1) | -4.5%           | -4.5%       | -14.8%        |               |               |                |                |                |                |
| Private Equity                   | -4.1%           | -4.1%       | 6.1%          | 20.5%         | 18.8%         | 16.9%          | 15.8%          | 14.6%          | 15.6%          |
| Private Credit                   | 1.1%            | 1.1%        | 16.0%         | 12.9%         | 12.7%         | 13.2%          | 12.8%          | 12.8%          |                |
| Resources                        | 3.3%            | 3.3%        | 29.5%         | 7.7%          | 5.1%          | 3.5%           | 13.4%          | 11.4%          | 13.0%          |
| Real Estate                      | 1.4%            | 1.4%        | 32.2%         | 18.7%         | 15.5%         | 14.0%          | 10.4%          | 10.7%          | 9.6%           |

### Private Markets

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

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

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

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

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

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

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

Source: State Street Bank



## Quarterly Report

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# Asset Class & Manager Performance

## September 30, 2022

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

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

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

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

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## Domestic Equity

### September 30, 2022



|   | <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> |
|---|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Total Domestic Equity</b>                      |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>ACTIVE DOMESTIC EQUITY AGGREGATE (1)</b>       | <b>\$2,583,514,602</b>     | <b>9.9%</b>             | <b>-3.0%</b>    | <b>-3.0%</b>      | <b>-24.5%</b> | <b>6.5%</b>   | <b>6.6%</b>   | <b>10.4%</b>   | <b>7.6%</b>            | <b>06/1996</b>        |
| Active Domestic Equity Benchmark                  |                            |                         | -3.4            | -3.4              | -20.5         | 5.9           | 6.1           | 10.1           | 8.3                    | 06/1996               |
| Excess  |                            |                         | 0.4             | 0.4               | -4.1          | 0.7           | 0.5           | 0.3            | -0.6                   |                       |
| <b>SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)</b> | <b>2,553,432,038</b>       | <b>9.8</b>              | <b>-4.6</b>     | <b>-4.6</b>       | <b>-16.0</b>  | <b>8.6</b>    | <b>9.4</b>    | <b>11.8</b>    | <b>8.4</b>             | <b>06/1996</b>        |
| Semi Passive Domestic Equity Benchmark            |                            |                         | -4.6            | -4.6              | -17.2         | 7.9           | 9.0           | 11.6           | 8.3                    | 06/1996               |
| Excess  |                            |                         | 0.0             | 0.0               | 1.2           | 0.7           | 0.4           | 0.2            | 0.1                    |                       |
| <b>PASSIVE DOMESTIC EQUITY AGGREGATE (3)</b>      | <b>20,993,923,038</b>      | <b>80.3</b>             | <b>-4.6</b>     | <b>-4.6</b>       | <b>-17.3</b>  | <b>7.9</b>    | <b>8.9</b>    | <b>11.5</b>    | <b>8.5</b>             | <b>06/1996</b>        |
| Passive Domestic Equity Benchmark                 |                            |                         | -4.6            | -4.6              | -17.3         | 7.9           | 8.9           | 11.5           | 8.6                    | 06/1996               |
| Excess  |                            |                         | 0.0             | 0.0               | -0.0          | 0.0           | -0.0          | -0.0           | -0.1                   |                       |
| TRANSITION AGGREGATE DOMESTIC EQUITY (4)          | 10                         | 0.0                     |                 |                   |               |               |               |                |                        |                       |
| <b>TOTAL DOMESTIC EQUITY (5)</b>                  | <b>26,130,869,688</b>      | <b>100.0</b>            | <b>-4.4</b>     | <b>-4.4</b>       | <b>-18.0</b>  | <b>7.9</b>    | <b>8.6</b>    | <b>11.4</b>    | <b>10.2</b>            | <b>01/1984</b>        |
| Domestic Equity Benchmark                         |                            |                         | -4.5            | -4.5              | -17.6         | 7.7           | 8.6           | 11.4           | 10.4                   | 01/1984               |
| Excess  |                            |                         | 0.0             | 0.0               | -0.4          | 0.2           | 0.1           | 0.0            | -0.2                   |                       |

(1) The Active Domestic Equity Benchmark is a weighted composite each of the individual active domestic equity manager's benchmarks.

(2) The current Semi-Passive Domestic Equity Benchmark is the Russell 1000 index.

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

(4) The Transition Domestic Equity Aggregate will periodically contain residual Domestic Equity securities from transitions.

(5) The current Domestic Equity Benchmark is the Russell 3000.

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





|   | <u>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Total Domestic Equity</b>                      |                             |                             |                             |                             |                             |
| <b>ACTIVE DOMESTIC EQUITY AGGREGATE (1)</b>       | <b>18.5%</b>                | <b>27.3%</b>                | <b>27.6%</b>                | <b>-6.5%</b>                | <b>20.6%</b>                |
| Active Domestic Equity Benchmark                  | 20.3                        | 19.8                        | 28.2                        | -8.0                        | 18.3                        |
| Excess  | -1.7                        | 7.5                         | -0.6                        | 1.4                         | 2.3                         |
| <b>SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)</b> | <b>28.8</b>                 | <b>21.0</b>                 | <b>30.9</b>                 | <b>-4.9</b>                 | <b>22.5</b>                 |
| Semi Passive Domestic Equity Benchmark            | 26.5                        | 21.0                        | 31.4                        | -4.8                        | 21.7                        |
| Excess  | 2.3                         | 0.0                         | -0.5                        | -0.1                        | 0.8                         |
| <b>PASSIVE DOMESTIC EQUITY AGGREGATE (3)</b>      | <b>26.5</b>                 | <b>20.8</b>                 | <b>31.3</b>                 | <b>-5.0</b>                 | <b>21.3</b>                 |
| Passive Domestic Equity Benchmark                 | 26.4                        | 20.8                        | 31.3                        | -5.0                        | 21.5                        |
| Excess  | 0.1                         | 0.0                         | 0.0                         | -0.0                        | -0.2                        |
| <b>TRANSITION AGGREGATE DOMESTIC EQUITY (4)</b>   |                             |                             |                             |                             |                             |
| <b>TOTAL DOMESTIC EQUITY (5)</b>                  | <b>25.8</b>                 | <b>21.7</b>                 | <b>30.7</b>                 | <b>-5.3</b>                 | <b>21.4</b>                 |
| Domestic Equity Benchmark                         | 25.7                        | 20.8                        | 30.8                        | -5.2                        | 21.1                        |
| Excess  | 0.1                         | 0.9                         | -0.1                        | -0.0                        | 0.2                         |

(1) The Active Domestic Equity Benchmark is a weighted composite each of the individual active domestic equity manager's benchmarks.

(2) The current Semi-Passive Domestic Equity Benchmark is the Russell 1000 index.

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

(4) The Transition Domestic Equity Aggregate will periodically contain residual Domestic Equity securities from transitions.

(5) The current Domestic Equity Benchmark is the Russell 3000.

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



|  | <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> |
|--|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Active Large Cap Growth</b>               |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>SANDS</b>                                 | <b>\$137,408,851</b>       | <b>0.5%</b>             | <b>-3.5%</b>    | <b>-3.5%</b>      | <b>-53.4%</b> | <b>-0.3%</b>  | <b>5.9%</b>   | <b>9.9%</b>    | <b>9.0%</b>            | <b>01/2005</b>        |
| Russell 1000 Growth                          |                            |                         | -3.6            | -3.6              | -22.6         | 10.7          | 12.2          | 13.7           | 10.1                   | 01/2005               |
| Excess                                       |                            |                         | 0.1             | 0.1               | -30.9         | -11.0         | -6.3          | -3.8           | -1.1                   |                       |
| <b>WINSLOW</b>                               | <b>138,143,111</b>         | <b>0.5</b>              | <b>-5.6</b>     | <b>-5.6</b>       | <b>-30.7</b>  | <b>6.4</b>    | <b>10.3</b>   | <b>12.4</b>    | <b>10.0</b>            | <b>01/2005</b>        |
| Russell 1000 Growth                          |                            |                         | -3.6            | -3.6              | -22.6         | 10.7          | 12.2          | 13.7           | 10.1                   | 01/2005               |
| Excess                                       |                            |                         | -2.0            | -2.0              | -8.1          | -4.3          | -1.9          | -1.3           | -0.1                   |                       |
| <b>RUSSELL 1000 GROWTH<br/>AGGREGATE (1)</b> | <b>275,551,963</b>         | <b>1.1</b>              | <b>-4.6</b>     | <b>-4.6</b>       | <b>-44.3</b>  | <b>8.7</b>    | <b>11.5</b>   | <b>13.6</b>    | <b>9.6</b>             | <b>11/2003</b>        |
| Russell 1000 Growth                          |                            |                         | -3.6            | -3.6              | -22.6         | 10.7          | 12.2          | 13.7           | 10.0                   | 11/2003               |
| Excess                                       |                            |                         | -1.0            | -1.0              | -21.8         | -2.0          | -0.7          | -0.1           | -0.4                   |                       |

(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>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Active Large Cap Growth</b>               |                             |                             |                             |                             |                             |
| <b>SANDS</b>                                 | <b>5.2%</b>                 | <b>71.0%</b>                | <b>33.5%</b>                | <b>7.0%</b>                 | <b>35.3%</b>                |
| Russell 1000 Growth                          | 27.6                        | 38.5                        | 36.4                        | -1.5                        | 30.2                        |
| Excess                                       | -22.4                       | 32.5                        | -2.8                        | 8.6                         | 5.1                         |
| <b>WINSLOW</b>                               | <b>24.8</b>                 | <b>37.6</b>                 | <b>34.2</b>                 | <b>4.2</b>                  | <b>33.2</b>                 |
| Russell 1000 Growth                          | 27.6                        | 38.5                        | 36.4                        | -1.5                        | 30.2                        |
| Excess                                       | -2.8                        | -0.9                        | -2.2                        | 5.7                         | 3.0                         |
| <b>RUSSELL 1000 GROWTH<br/>AGGREGATE (1)</b> | <b>12.8</b>                 | <b>81.3</b>                 | <b>37.3</b>                 | <b>4.7</b>                  | <b>33.4</b>                 |
| Russell 1000 Growth                          | 27.6                        | 38.5                        | 36.4                        | -1.5                        | 30.2                        |
| Excess                                       | -14.8                       | 42.8                        | 0.9                         | 6.2                         | 3.2                         |

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



|   | <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> |
|---|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Semi-Passive Large Cap</b>                 |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>BLACKROCK</b>                              | <b>\$1,273,778,487</b>     | <b>4.9%</b>             | <b>-5.0%</b>    | <b>-5.0%</b>      | <b>-16.9%</b> | <b>8.0%</b>   | <b>9.2%</b>   | <b>12.1%</b>   | <b>9.7%</b>            | <b>01/1995</b>        |
| Semi Passive Domestic Equity Benchmark        |                            |                         | -4.6            | -4.6              | -17.2         | 7.9           | 9.0           | 11.6           | 9.4                    | 01/1995               |
| Excess  |                            |                         | -0.4            | -0.4              | 0.3           | 0.0           | 0.2           | 0.5            | 0.4                    |                       |
| <b>J.P. MORGAN</b>                            | <b>1,279,653,551</b>       | <b>4.9</b>              | <b>-4.2</b>     | <b>-4.2</b>       | <b>-15.2</b>  | <b>9.3</b>    | <b>9.6</b>    | <b>12.2</b>    | <b>9.7</b>             | <b>01/1995</b>        |
| Semi Passive Domestic Equity Benchmark        |                            |                         | -4.6            | -4.6              | -17.2         | 7.9           | 9.0           | 11.6           | 9.4                    | 01/1995               |
| Excess  |                            |                         | 0.5             | 0.5               | 2.0           | 1.4           | 0.6           | 0.6            | 0.4                    |                       |
| <b>SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE</b> | <b>2,553,432,038</b>       | <b>9.8</b>              | <b>-4.6</b>     | <b>-4.6</b>       | <b>-16.0</b>  | <b>8.6</b>    | <b>9.4</b>    | <b>11.8</b>    | <b>8.4</b>             | <b>06/1996</b>        |
| Semi Passive Domestic Equity Benchmark        |                            |                         | -4.6            | -4.6              | -17.2         | 7.9           | 9.0           | 11.6           | 8.3                    | 06/1996               |
| Excess  |                            |                         | 0.0             | 0.0               | 1.2           | 0.7           | 0.4           | 0.2            | 0.1                    |                       |



|   | <u>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Semi-Passive Large Cap</b>                 |                             |                             |                             |                             |                             |
| <b>BLACKROCK</b>                              | <b>28.3%</b>                | <b>20.7%</b>                | <b>30.4%</b>                | <b>-4.1%</b>                | <b>24.6%</b>                |
| Semi Passive Domestic Equity Benchmark        | 26.5                        | 21.0                        | 31.4                        | -4.8                        | 21.7                        |
| Excess  | 1.8                         | -0.3                        | -1.0                        | 0.7                         | 2.9                         |
| <b>J.P. MORGAN</b>                            | <b>29.3</b>                 | <b>21.2</b>                 | <b>31.3</b>                 | <b>-5.4</b>                 | <b>21.8</b>                 |
| Semi Passive Domestic Equity Benchmark        | 26.5                        | 21.0                        | 31.4                        | -4.8                        | 21.7                        |
| Excess  | 2.8                         | 0.3                         | -0.1                        | -0.6                        | 0.1                         |
| <b>SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE</b> | <b>28.8</b>                 | <b>21.0</b>                 | <b>30.9</b>                 | <b>-4.9</b>                 | <b>22.5</b>                 |
| Semi Passive Domestic Equity Benchmark        | 26.5                        | 21.0                        | 31.4                        | -4.8                        | 21.7                        |
| Excess  | 2.3                         | 0.0                         | -0.5                        | -0.1                        | 0.8                         |



|                                     | <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> |
|-------------------------------------|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Active Large Cap Value</b>       |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>BARROW HANLEY</b>                | <b>\$318,476,697</b>       | <b>1.2%</b>             | <b>-4.7%</b>    | <b>-4.7%</b>      | <b>-4.2%</b>  | <b>6.6%</b>   | <b>7.7%</b>   | <b>10.4%</b>   | <b>7.9%</b>            | <b>04/2004</b>        |
| Russell 1000 Value                  |                            |                         | -5.6            | -5.6              | -11.4         | 4.4           | 5.3           | 9.2            | 7.2                    | 04/2004               |
| Excess                              |                            |                         | 0.9             | 0.9               | 7.2           | 2.2           | 2.4           | 1.3            | 0.8                    |                       |
| <b>LSV</b>                          | <b>301,255,478</b>         | <b>1.2</b>              | <b>-6.7</b>     | <b>-6.7</b>       | <b>-12.4</b>  | <b>4.7</b>    | <b>4.7</b>    | <b>10.3</b>    | <b>8.0</b>             | <b>04/2004</b>        |
| Russell 1000 Value                  |                            |                         | -5.6            | -5.6              | -11.4         | 4.4           | 5.3           | 9.2            | 7.2                    | 04/2004               |
| Excess                              |                            |                         | -1.1            | -1.1              | -1.0          | 0.3           | -0.6          | 1.1            | 0.8                    |                       |
| <b>RUSSELL 1000 VALUE AGGREGATE</b> | <b>619,732,175</b>         | <b>2.4</b>              | <b>-5.7</b>     | <b>-5.7</b>       | <b>-8.3</b>   | <b>6.3</b>    | <b>6.7</b>    | <b>10.3</b>    | <b>8.1</b>             | <b>10/2003</b>        |
| Russell 1000 Value                  |                            |                         | -5.6            | -5.6              | -11.4         | 4.4           | 5.3           | 9.2            | 7.9                    | 10/2003               |
| Excess                              |                            |                         | -0.1            | -0.1              | 3.0           | 1.9           | 1.4           | 1.1            | 0.2                    |                       |



|                                     | <u>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|-------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Active Large Cap Value</b>       |                             |                             |                             |                             |                             |
| <b>BARROW HANLEY</b>                | <b>27.7%</b>                | <b>2.4%</b>                 | <b>26.9%</b>                | <b>-5.9%</b>                | <b>14.6%</b>                |
| Russell 1000 Value                  | 25.2                        | 2.8                         | 26.5                        | -8.3                        | 13.7                        |
| Excess                              | 2.5                         | -0.4                        | 0.4                         | 2.4                         | 0.9                         |
| <b>LSV</b>                          |                             |                             |                             |                             |                             |
| <b>LSV</b>                          | <b>29.7</b>                 | <b>-1.3</b>                 | <b>26.9</b>                 | <b>-11.8</b>                | <b>18.6</b>                 |
| Russell 1000 Value                  | 25.2                        | 2.8                         | 26.5                        | -8.3                        | 13.7                        |
| Excess                              | 4.5                         | -4.1                        | 0.4                         | -3.6                        | 4.9                         |
| <b>RUSSELL 1000 VALUE AGGREGATE</b> |                             |                             |                             |                             |                             |
| <b>RUSSELL 1000 VALUE AGGREGATE</b> | <b>28.8</b>                 | <b>1.6</b>                  | <b>27.4</b>                 | <b>-8.7</b>                 | <b>17.3</b>                 |
| Russell 1000 Value                  | 25.2                        | 2.8                         | 26.5                        | -8.3                        | 13.7                        |
| Excess                              | 3.7                         | -1.2                        | 0.9                         | -0.4                        | 3.7                         |



|                                      | <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> |
|--------------------------------------|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Active Small Cap Growth</b>       |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>ARROWMARK</b>                     | <b>\$148,399,301</b>       | <b>0.6%</b>             | <b>-3.1%</b>    | <b>-3.1%</b>      | <b>-32.5%</b> | <b>1.3%</b>   | <b>3.0%</b>   |                | <b>7.5%</b>            | <b>11/2016</b>        |
| Russell 2000 Growth                  |                            |                         | 0.2             | 0.2               | -29.3         | 2.9           | 3.6           |                | 7.6                    | 11/2016               |
| Excess                               |                            |                         | -3.3            | -3.3              | -3.2          | -1.6          | -0.6          |                | -0.1                   |                       |
| <b>HOOD RIVER</b>                    | <b>208,083,901</b>         | <b>0.8</b>              | <b>4.2</b>      | <b>4.2</b>        | <b>-24.1</b>  | <b>16.9</b>   | <b>11.5</b>   |                | <b>14.4</b>            | <b>11/2016</b>        |
| Russell 2000 Growth                  |                            |                         | 0.2             | 0.2               | -29.3         | 2.9           | 3.6           |                | 7.6                    | 11/2016               |
| Excess                               |                            |                         | 4.0             | 4.0               | 5.2           | 14.0          | 7.9           |                | 6.8                    |                       |
| <b>RICE HALL JAMES</b>               | <b>169,468,099</b>         | <b>0.6</b>              | <b>-4.4</b>     | <b>-4.4</b>       | <b>-23.4</b>  | <b>4.8</b>    | <b>4.6</b>    |                | <b>8.9</b>             | <b>11/2016</b>        |
| Russell 2000 Growth                  |                            |                         | 0.2             | 0.2               | -29.3         | 2.9           | 3.6           |                | 7.6                    | 11/2016               |
| Excess                               |                            |                         | -4.7            | -4.7              | 5.9           | 1.8           | 1.0           |                | 1.3                    |                       |
| <b>WELLINGTON</b>                    | <b>211,197,258</b>         | <b>0.8</b>              | <b>-1.3</b>     | <b>-1.3</b>       | <b>-31.3</b>  | <b>2.4</b>    | <b>3.4</b>    |                | <b>7.6</b>             | <b>11/2016</b>        |
| Russell 2000 Growth                  |                            |                         | 0.2             | 0.2               | -29.3         | 2.9           | 3.6           |                | 7.6                    | 11/2016               |
| Excess                               |                            |                         | -1.5            | -1.5              | -2.0          | -0.5          | -0.2          |                | 0.0                    |                       |
| <b>RUSSELL 2000 GROWTH AGGREGATE</b> | <b>737,148,560</b>         | <b>2.8</b>              | <b>-0.9</b>     | <b>-0.9</b>       | <b>-27.9</b>  | <b>6.5</b>    | <b>5.6</b>    | <b>8.7%</b>    | <b>7.0</b>             | <b>11/2003</b>        |
| Russell 2000 Growth                  |                            |                         | 0.2             | 0.2               | -29.3         | 2.9           | 3.6           | 8.8            | 7.8                    | 11/2003               |
| Excess                               |                            |                         | -1.2            | -1.2              | 1.4           | 3.6           | 2.0           | -0.1           | -0.8                   |                       |





|                                      | <u>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|--------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Active Small Cap Growth</b>       |                             |                             |                             |                             |                             |
| <b>ARROWMARK</b>                     | <b>6.1%</b>                 | <b>21.9%</b>                | <b>20.1%</b>                | <b>0.9%</b>                 | <b>26.2%</b>                |
| Russell 2000 Growth                  | 2.8                         | 34.6                        | 28.5                        | -9.3                        | 22.2                        |
| Excess                               | 3.2                         | -12.8                       | -8.4                        | 10.3                        | 4.1                         |
| <b>HOOD RIVER</b>                    | <b>24.2</b>                 | <b>61.7</b>                 | <b>24.3</b>                 | <b>-7.0</b>                 | <b>21.3</b>                 |
| Russell 2000 Growth                  | 2.8                         | 34.6                        | 28.5                        | -9.3                        | 22.2                        |
| Excess                               | 21.4                        | 27.0                        | -4.2                        | 2.3                         | -0.9                        |
| <b>RICE HALL JAMES</b>               | <b>15.6</b>                 | <b>23.8</b>                 | <b>18.0</b>                 | <b>-6.9</b>                 | <b>27.9</b>                 |
| Russell 2000 Growth                  | 2.8                         | 34.6                        | 28.5                        | -9.3                        | 22.2                        |
| Excess                               | 12.8                        | -10.8                       | -10.5                       | 2.4                         | 5.8                         |
| <b>WELLINGTON</b>                    | <b>4.3</b>                  | <b>33.1</b>                 | <b>35.6</b>                 | <b>-11.6</b>                | <b>22.6</b>                 |
| Russell 2000 Growth                  | 2.8                         | 34.6                        | 28.5                        | -9.3                        | 22.2                        |
| Excess                               | 1.4                         | -1.5                        | 7.1                         | -2.3                        | 0.4                         |
| <b>RUSSELL 2000 GROWTH AGGREGATE</b> | <b>12.4</b>                 | <b>35.4</b>                 | <b>24.6</b>                 | <b>-6.2</b>                 | <b>22.0</b>                 |
| Russell 2000 Growth                  | 2.8                         | 34.6                        | 28.5                        | -9.3                        | 22.2                        |
| Excess                               | 9.5                         | 0.8                         | -3.9                        | 3.2                         | -0.1                        |



|                                     | <u>Ending Market Value</u> | <u>Portfolio Weight</u> | <u>Last Qtr</u> | <u>Fiscal YTD</u> | <u>1 Year</u> | <u>3 Year</u> | <u>5 Year</u> | <u>10 Year</u> | <u>Since Inception</u> | <u>Inception Date</u> |
|-------------------------------------|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Active Small Cap Value</b>       |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>GOLDMAN SACHS</b>                | <b>\$245,235,319</b>       | <b>0.9%</b>             | <b>-5.2%</b>    | <b>-5.2%</b>      | <b>-16.7%</b> | <b>2.7%</b>   | <b>2.4%</b>   | <b>8.2%</b>    | <b>8.0%</b>            | <b>01/2004</b>        |
| Russell 2000 Value                  |                            |                         | -4.6            | -4.6              | -17.7         | 4.7           | 2.9           | 7.9            | 7.0                    | 01/2004               |
| Excess                              |                            |                         | -0.6            | -0.6              | 1.0           | -2.0          | -0.5          | 0.3            | 1.0                    |                       |
| <b>HOTCHKIS AND WILEY</b>           | <b>164,721,367</b>         | <b>0.6</b>              | <b>-0.7</b>     | <b>-0.7</b>       | <b>-6.2</b>   | <b>10.2</b>   | <b>5.2</b>    | <b>10.0</b>    | <b>7.9</b>             | <b>01/2004</b>        |
| Russell 2000 Value                  |                            |                         | -4.6            | -4.6              | -17.7         | 4.7           | 2.9           | 7.9            | 7.0                    | 01/2004               |
| Excess                              |                            |                         | 3.9             | 3.9               | 11.5          | 5.4           | 2.3           | 2.1            | 1.0                    |                       |
| <b>MARTINGALE</b>                   | <b>147,985,031</b>         | <b>0.6</b>              | <b>-3.7</b>     | <b>-3.7</b>       | <b>-10.3</b>  | <b>6.4</b>    | <b>3.2</b>    | <b>9.6</b>     | <b>7.1</b>             | <b>01/2004</b>        |
| Russell 2000 Value                  |                            |                         | -4.6            | -4.6              | -17.7         | 4.7           | 2.9           | 7.9            | 7.0                    | 01/2004               |
| Excess                              |                            |                         | 0.9             | 0.9               | 7.4           | 1.7           | 0.3           | 1.7            | 0.2                    |                       |
| <b>PEREGRINE</b>                    | <b>232,478,629</b>         | <b>0.9</b>              | <b>-5.5</b>     | <b>-5.5</b>       | <b>-14.7</b>  | <b>5.2</b>    | <b>3.5</b>    | <b>8.4</b>     | <b>9.0</b>             | <b>07/2000</b>        |
| Russell 2000 Value                  |                            |                         | -4.6            | -4.6              | -17.7         | 4.7           | 2.9           | 7.9            | 8.4                    | 07/2000               |
| Excess                              |                            |                         | -0.9            | -0.9              | 3.0           | 0.5           | 0.6           | 0.4            | 0.6                    |                       |
| <b>RUSSELL 2000 VALUE AGGREGATE</b> | <b>790,420,345</b>         | <b>3.0</b>              | <b>-4.1</b>     | <b>-4.1</b>       | <b>-12.9</b>  | <b>5.5</b>    | <b>3.2</b>    | <b>8.8</b>     | <b>8.1</b>             | <b>10/2003</b>        |
| Russell 2000 Value                  |                            |                         | -4.6            | -4.6              | -17.7         | 4.7           | 2.9           | 7.9            | 7.7                    | 10/2003               |
| Excess                              |                            |                         | 0.5             | 0.5               | 4.8           | 0.7           | 0.4           | 0.9            | 0.4                    |                       |



|                                     | <u>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|-------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Active Small Cap Value</b>       |                             |                             |                             |                             |                             |
| <b>GOLDMAN SACHS</b>                | <b>27.0%</b>                | <b>2.4%</b>                 | <b>23.2%</b>                | <b>-13.3%</b>               | <b>12.6%</b>                |
| Russell 2000 Value                  | 28.3                        | 4.6                         | 22.4                        | -12.9                       | 7.8                         |
| Excess                              | -1.3                        | -2.3                        | 0.8                         | -0.5                        | 4.7                         |
| <b>HOTCHKIS AND WILEY</b>           | <b>36.5</b>                 | <b>-0.2</b>                 | <b>19.7</b>                 | <b>-14.4</b>                | <b>7.9</b>                  |
| Russell 2000 Value                  | 28.3                        | 4.6                         | 22.4                        | -12.9                       | 7.8                         |
| Excess                              | 8.2                         | -4.8                        | -2.7                        | -1.5                        | 0.0                         |
| <b>MARTINGALE</b>                   | <b>41.3</b>                 | <b>-4.6</b>                 | <b>21.1</b>                 | <b>-15.0</b>                | <b>6.9</b>                  |
| Russell 2000 Value                  | 28.3                        | 4.6                         | 22.4                        | -12.9                       | 7.8                         |
| Excess                              | 13.0                        | -9.2                        | -1.3                        | -2.1                        | -0.9                        |
| <b>PEREGRINE</b>                    | <b>28.6</b>                 | <b>7.3</b>                  | <b>21.1</b>                 | <b>-16.1</b>                | <b>12.5</b>                 |
| Russell 2000 Value                  | 28.3                        | 4.6                         | 22.4                        | -12.9                       | 7.8                         |
| Excess                              | 0.3                         | 2.7                         | -1.3                        | -3.3                        | 4.7                         |
| <b>RUSSELL 2000 VALUE AGGREGATE</b> | <b>31.8</b>                 | <b>1.5</b>                  | <b>21.3</b>                 | <b>-14.7</b>                | <b>10.2</b>                 |
| Russell 2000 Value                  | 28.3                        | 4.6                         | 22.4                        | -12.9                       | 7.8                         |
| Excess                              | 3.5                         | -3.1                        | -1.1                        | -1.8                        | 2.3                         |



|                                       | <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> |
|---------------------------------------|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Active All Cap</b>                 |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>ZEVENBERGEN (1)</b>                | <b>\$160,661,558</b>       | <b>0.6%</b>             | <b>8.1%</b>     | <b>8.1%</b>       | <b>-52.0%</b> | <b>6.1%</b>   | <b>9.6%</b>   | <b>13.4%</b>   | <b>10.2%</b>           | <b>04/1994</b>        |
| Zevenbergen Custom Benchmark          |                            |                         | -3.4            | -3.4              | -23.0         | 12.0          | 13.0          | 14.1           |                        | 04/1994               |
| Excess                                |                            |                         | 11.4            | 11.4              | -29.0         | -5.9          | -3.4          | -0.7           |                        |                       |
| <b>ACTIVE RUSSELL 3000 GROWTH (2)</b> | <b>160,661,558</b>         | <b>0.6</b>              | <b>8.1</b>      | <b>8.1</b>        | <b>-52.0</b>  |               |               |                | <b>-35.9</b>           | <b>01/2021</b>        |
| Russell 3000 Growth TR                |                            |                         | -3.4            | -3.4              | -23.0         |               |               |                | -7.4                   | 01/2021               |
| Excess                                |                            |                         | 11.4            | 11.4              | -29.0         |               |               |                | -28.5                  |                       |

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

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



|                                       | <u>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|---------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Active All Cap</b>                 |                             |                             |                             |                             |                             |
| <b>ZEVENBERGEN (1)</b>                | <b>-9.7%</b>                | <b>126.2%</b>               | <b>43.0%</b>                | <b>2.3%</b>                 | <b>35.1%</b>                |
| Zevenbergen Custom Benchmark          | 32.3                        | 38.5                        | 36.4                        | -1.5                        | 30.2                        |
| Excess                                | -42.0                       | 87.7                        | 6.7                         | 3.8                         | 4.9                         |
| <b>ACTIVE RUSSELL 3000 GROWTH (2)</b> |                             |                             |                             |                             |                             |
| ACTIVE RUSSELL 3000 GROWTH (2)        | -9.7                        |                             |                             |                             |                             |
| Russell 3000 Growth TR                | 25.8                        |                             |                             |                             |                             |
| Excess                                | -35.6                       |                             |                             |                             |                             |

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

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



|  | <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> |
|--|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Total Passive Domestic Equity</b>         |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>BLACKROCK RUSSELL 1000</b>                | <b>\$19,961,191,388</b>    | <b>76.4%</b>            | <b>-4.6%</b>    | <b>-4.6%</b>      | <b>-17.3%</b> | <b>7.9%</b>   | <b>9.0%</b>   |                | <b>11.0%</b>           | <b>11/2016</b>        |
| RUSSELL 1000 (DAILY)                         |                            |                         | -4.6            | -4.6              | -17.2         | 7.9           | 9.0           |                | 11.1                   | 11/2016               |
| Excess                                       |                            |                         | 0.0             | 0.0               | -0.1          | -0.0          | -0.0          |                | -0.0                   |                       |
| <b>BLACKROCK RUSSELL 2000</b>                | <b>159,395,389</b>         | <b>0.6</b>              | <b>-2.2</b>     | <b>-2.2</b>       | <b>-22.7</b>  | <b>5.2</b>    |               |                | <b>4.6</b>             | <b>11/2018</b>        |
| RUSSELL 2000 (DAILY)                         |                            |                         | -2.2            | -2.2              | -23.5         | 4.3           |               |                | 3.8                    | 11/2018               |
| Excess                                       |                            |                         | -0.0            | -0.0              | 0.8           | 0.9           |               |                | 0.7                    |                       |
| <b>BLACKROCK RUSSELL 3000 (1)</b>            | <b>873,336,261</b>         | <b>3.3</b>              | <b>-4.4</b>     | <b>-4.4</b>       | <b>-17.6</b>  | <b>8.0</b>    | <b>8.8</b>    | <b>11.5%</b>   | <b>9.1</b>             | <b>07/1995</b>        |
| Passive Manager Benchmark                    |                            |                         | -4.5            | -4.5              | -17.6         | 7.7           | 8.6           | 11.4           | 9.0                    | 07/1995               |
| Excess                                       |                            |                         | 0.0             | 0.0               | 0.0           | 0.3           | 0.2           | 0.1            | 0.1                    |                       |
| <b>PASSIVE DOMESTIC EQUITY AGGREGATE (2)</b> | <b>20,993,923,038</b>      | <b>80.3</b>             | <b>-4.6</b>     | <b>-4.6</b>       | <b>-17.3</b>  | <b>7.9</b>    | <b>8.9</b>    | <b>11.5</b>    | <b>8.5</b>             | <b>06/1996</b>        |
| Passive Domestic Equity Benchmark            |                            |                         | -4.6            | -4.6              | -17.3         | 7.9           | 8.9           | 11.5           | 8.6                    | 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>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Total Passive Domestic Equity</b>         |                             |                             |                             |                             |                             |
| <b>BLACKROCK RUSSELL 1000</b>                | <b>26.5%</b>                | <b>20.9%</b>                | <b>31.4%</b>                | <b>-4.8%</b>                | <b>21.7%</b>                |
| RUSSELL 1000 (DAILY)                         | 26.5                        | 21.0                        | 31.4                        | -4.8                        | 21.7                        |
| Excess                                       | 0.1                         | -0.0                        | 0.0                         | -0.0                        | -0.0                        |
| <b>BLACKROCK RUSSELL 2000</b>                | <b>16.0</b>                 | <b>20.8</b>                 | <b>25.2</b>                 |                             |                             |
| RUSSELL 2000 (DAILY)                         | 14.8                        | 20.0                        | 25.5                        |                             |                             |
| Excess                                       | 1.2                         | 0.8                         | -0.3                        |                             |                             |
| <b>BLACKROCK RUSSELL 3000 (1)</b>            | <b>26.2</b>                 | <b>21.2</b>                 | <b>31.1</b>                 | <b>-5.2</b>                 | <b>21.1</b>                 |
| Passive Manager Benchmark                    | 25.7                        | 20.9                        | 31.0                        | -5.2                        | 21.1                        |
| Excess                                       | 0.5                         | 0.3                         | 0.0                         | -0.0                        | 0.0                         |
| <b>PASSIVE DOMESTIC EQUITY AGGREGATE (2)</b> | <b>26.5</b>                 | <b>20.8</b>                 | <b>31.3</b>                 | <b>-5.0</b>                 | <b>21.3</b>                 |
| Passive Domestic Equity Benchmark            | 26.4                        | 20.8                        | 31.3                        | -5.0                        | 21.5                        |
| Excess                                       | 0.1                         | 0.0                         | 0.0                         | -0.0                        | -0.2                        |

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

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

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# International Equity

## September 30, 2022



|   | <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> |
|---|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Total International Equity</b>             |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>DEVELOPED MARKETS (1)</b>                  | <b>\$8,055,539,170</b>     | <b>71.2%</b>            | <b>-5.7%</b>    | <b>-5.7%</b>      | <b>-18.2%</b> | <b>1.9%</b>   | <b>1.5%</b>   | <b>5.1%</b>    | <b>4.7%</b>            | <b>01/1997</b>        |
| BENCHMARK DM                                  |                            |                         | -9.2            | -9.2              | -23.9         | -1.2          | -0.4          | 3.6            | 1.5                    | 01/1997               |
| Excess  |                            |                         | 3.5             | 3.5               | 5.8           | 3.1           | 2.0           | 1.5            | 3.2                    |                       |
| <b>EMERGING MARKETS (2)</b>                   | <b>2,804,289,080</b>       | <b>24.8</b>             | <b>-10.4</b>    | <b>-10.4</b>      | <b>-28.9</b>  | <b>-2.2</b>   | <b>-2.0</b>   | <b>1.1</b>     | <b>4.6</b>             | <b>11/1996</b>        |
| BENCHMARK EM                                  |                            |                         | -11.6           | -11.6             | -28.1         | -2.1          | -1.8          | 1.0            | 4.9                    | 11/1996               |
| Excess  |                            |                         | 1.2             | 1.2               | -0.8          | -0.2          | -0.2          | 0.0            | -0.3                   |                       |
| <b>ACWI EX-US AGGREGATE</b>                   | <b>307,635,835</b>         | <b>2.7</b>              | <b>-9.3</b>     | <b>-9.3</b>       | <b>-22.1</b>  |               |               |                | <b>-8.0</b>            | <b>01/2021</b>        |
| MSCI AC WORLD ex US (NET) - DAILY             |                            |                         | -9.9            | -9.9              | -25.2         |               |               |                | -12.5                  | 01/2021               |
| Excess  |                            |                         | 0.6             | 0.6               | 3.1           |               |               |                | 4.4                    |                       |
| <b>CHINA ONLY AGGREGATE</b>                   | <b>138,429,929</b>         | <b>1.2</b>              | <b>-19.3</b>    | <b>-19.3</b>      | <b>-28.7</b>  |               |               |                | <b>-21.2</b>           | <b>01/2021</b>        |
| MSCI China A                                  |                            |                         | -18.3           | -18.3             | -26.7         |               |               |                | -16.3                  | 01/2021               |
| Excess  |                            |                         | -1.0            | -1.0              | -2.0          |               |               |                | -4.9                   |                       |
| TRANSITION AGGREGATE INTERNATIONAL EQUITY (3) | 1,142,429                  | 0.0                     |                 |                   |               |               |               |                |                        |                       |
| <b>TOTAL INTERNATIONAL EQUITY (4)</b>         | <b>11,307,036,443</b>      | <b>100.0</b>            | <b>-7.2</b>     | <b>-7.2</b>       | <b>-21.3</b>  | <b>0.6</b>    | <b>0.5</b>    | <b>4.1</b>     | <b>5.7</b>             | <b>10/1992</b>        |
| International Equity Benchmark                |                            |                         | -9.9            | -9.9              | -25.2         | -1.6          | -0.8          | 3.0            | 5.1                    | 10/1992               |
| Excess  |                            |                         | 2.7             | 2.7               | 3.9           | 2.2           | 1.3           | 1.1            | 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.



|  | <u>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Total International Equity</b>                    |                             |                             |                             |                             |                             |
| <b>DEVELOPED MARKETS (1)</b>                         | <b>13.5%</b>                | <b>8.9%</b>                 | <b>23.3%</b>                | <b>-14.2%</b>               | <b>24.9%</b>                |
| BENCHMARK DM   | 12.6                        | 7.6                         | 22.5                        | -14.1                       | 24.2                        |
| Excess   | 0.9                         | 1.3                         | 0.8                         | -0.1                        | 0.7                         |
| <b>EMERGING MARKETS (2)</b>                          |                             |                             |                             |                             |                             |
| <b>EMERGING MARKETS (2)</b>                          | <b>-1.5</b>                 | <b>17.9</b>                 | <b>20.3</b>                 | <b>-15.4</b>                | <b>37.7</b>                 |
| BENCHMARK EM   | -2.5                        | 18.3                        | 18.4                        | -14.6                       | 37.3                        |
| Excess   | 1.1                         | -0.4                        | 1.9                         | -0.8                        | 0.4                         |
| <b>ACWI EX-US AGGREGATE</b>                          |                             |                             |                             |                             |                             |
| <b>ACWI EX-US AGGREGATE</b>                          | <b>12.8</b>                 |                             |                             |                             |                             |
| MSCI AC WORLD ex US (NET) - DAILY                    | 7.8                         |                             |                             |                             |                             |
| Excess   | 4.9                         |                             |                             |                             |                             |
| <b>CHINA ONLY AGGREGATE</b>                          |                             |                             |                             |                             |                             |
| <b>CHINA ONLY AGGREGATE</b>                          | <b>-2.9</b>                 |                             |                             |                             |                             |
| MSCI China A   | 3.2                         |                             |                             |                             |                             |
| Excess   | -6.1                        |                             |                             |                             |                             |
| <b>TRANSITION AGGREGATE INTERNATIONAL EQUITY (3)</b> |                             |                             |                             |                             |                             |
| <b>TOTAL INTERNATIONAL EQUITY (4)</b>                | <b>8.9</b>                  | <b>11.4</b>                 | <b>22.4</b>                 | <b>-14.5</b>                | <b>27.6</b>                 |
| International Equity Benchmark                       | 7.8                         | 10.5                        | 21.5                        | -14.2                       | 27.2                        |
| Excess   | 1.1                         | 0.8                         | 0.9                         | -0.3                        | 0.4                         |

(1) The current 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.



|                                 | <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> |
|---------------------------------|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Active Developed Markets</b> |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>ACADIAN</b>                  | <b>\$303,885,376</b>       | <b>2.7%</b>             | <b>-7.9%</b>    | <b>-7.9%</b>      | <b>-20.9%</b> | <b>1.1%</b>   | <b>0.9%</b>   | <b>7.0%</b>    | <b>5.3%</b>            | <b>07/2005</b>        |
| BENCHMARK DM                    |                            |                         | -9.2            | -9.2              | -23.9         | -1.2          | -0.4          | 3.6            | 3.6                    | 07/2005               |
| Excess                          |                            |                         | 1.3             | 1.3               | 3.1           | 2.3           | 1.3           | 3.4            | 1.7                    |                       |
| <b>COLUMBIA</b>                 | <b>310,203,687</b>         | <b>2.7</b>              | <b>-7.9</b>     | <b>-7.9</b>       | <b>-25.4</b>  | <b>0.9</b>    | <b>2.1</b>    | <b>5.3</b>     | <b>2.7</b>             | <b>03/2000</b>        |
| BENCHMARK DM                    |                            |                         | -9.2            | -9.2              | -23.9         | -1.2          | -0.4          | 3.6            | 2.7                    | 03/2000               |
| Excess                          |                            |                         | 1.3             | 1.3               | -1.5          | 2.2           | 2.5           | 1.7            | 0.1                    |                       |
| <b>FIDELITY</b>                 | <b>301,385,654</b>         | <b>2.7</b>              | <b>-10.3</b>    | <b>-10.3</b>      | <b>-26.8</b>  | <b>0.2</b>    | <b>1.0</b>    | <b>5.0</b>     | <b>5.1</b>             | <b>07/2005</b>        |
| BENCHMARK DM                    |                            |                         | -9.2            | -9.2              | -23.9         | -1.2          | -0.4          | 3.6            | 3.6                    | 07/2005               |
| Excess                          |                            |                         | -1.1            | -1.1              | -2.8          | 1.5           | 1.4           | 1.4            | 1.5                    |                       |
| <b>JP MORGAN</b>                | <b>265,271,763</b>         | <b>2.3</b>              | <b>-8.3</b>     | <b>-8.3</b>       | <b>-26.1</b>  | <b>-0.7</b>   | <b>0.3</b>    | <b>4.0</b>     | <b>4.0</b>             | <b>07/2005</b>        |
| BENCHMARK DM                    |                            |                         | -9.2            | -9.2              | -23.9         | -1.2          | -0.4          | 3.6            | 3.6                    | 07/2005               |
| Excess                          |                            |                         | 0.9             | 0.9               | -2.2          | 0.6           | 0.7           | 0.4            | 0.3                    |                       |
| <b>MARATHON</b>                 | <b>295,777,253</b>         | <b>2.6</b>              | <b>-8.8</b>     | <b>-8.8</b>       | <b>-23.8</b>  | <b>-0.1</b>   | <b>0.2</b>    | <b>5.1</b>     | <b>7.0</b>             | <b>11/1993</b>        |
| BENCHMARK DM                    |                            |                         | -9.2            | -9.2              | -23.9         | -1.2          | -0.4          | 3.6            | 4.3                    | 11/1993               |
| Excess                          |                            |                         | 0.4             | 0.4               | 0.1           | 1.1           | 0.6           | 1.5            | 2.7                    |                       |
| <b>MCKINLEY</b>                 | <b>218,528,969</b>         | <b>1.9</b>              | <b>-9.8</b>     | <b>-9.8</b>       | <b>-27.1</b>  | <b>-0.1</b>   | <b>0.3</b>    | <b>4.5</b>     | <b>3.6</b>             | <b>07/2005</b>        |
| BENCHMARK DM                    |                            |                         | -9.2            | -9.2              | -23.9         | -1.2          | -0.4          | 3.6            | 3.6                    | 07/2005               |
| Excess                          |                            |                         | -0.6            | -0.6              | -3.2          | 1.1           | 0.7           | 0.8            | 0.0                    |                       |
| <b>AQR CAPITAL MANAGEMENT</b>   | <b>279,757,691</b>         | <b>2.5</b>              | <b>-10.4</b>    | <b>-10.4</b>      | <b>-23.9</b>  | <b>-2.1</b>   | <b>-2.6</b>   | <b>3.4</b>     | <b>3.5</b>             | <b>07/2005</b>        |
| BENCHMARK DM                    |                            |                         | -9.2            | -9.2              | -23.9         | -1.2          | -0.4          | 3.6            | 3.6                    | 07/2005               |
| Excess                          |                            |                         | -1.2            | -1.2              | 0.0           | -0.9          | -2.2          | -0.3           | -0.1                   |                       |



|                                 | <u>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|---------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Active Developed Markets</b> |                             |                             |                             |                             |                             |
| <b>ACADIAN</b>                  | <b>13.6%</b>                | <b>11.7%</b>                | <b>19.1%</b>                | <b>-13.5%</b>               | <b>37.0%</b>                |
| BENCHMARK DM                    | 12.6                        | 7.6                         | 22.5                        | -14.1                       | 24.2                        |
| Excess                          | 0.9                         | 4.2                         | -3.4                        | 0.6                         | 12.8                        |
| <b>COLUMBIA</b>                 | <b>14.2</b>                 | <b>15.0</b>                 | <b>28.9</b>                 | <b>-14.9</b>                | <b>32.7</b>                 |
| BENCHMARK DM                    | 12.6                        | 7.6                         | 22.5                        | -14.1                       | 24.2                        |
| Excess                          | 1.6                         | 7.4                         | 6.4                         | -0.8                        | 8.5                         |
| <b>FIDELITY</b>                 | <b>13.0</b>                 | <b>15.4</b>                 | <b>27.1</b>                 | <b>-14.6</b>                | <b>25.9</b>                 |
| BENCHMARK DM                    | 12.6                        | 7.6                         | 22.5                        | -14.1                       | 24.2                        |
| Excess                          | 0.4                         | 7.8                         | 4.6                         | -0.5                        | 1.7                         |
| <b>JP MORGAN</b>                | <b>13.3</b>                 | <b>14.2</b>                 | <b>28.5</b>                 | <b>-17.3</b>                | <b>28.3</b>                 |
| BENCHMARK DM                    | 12.6                        | 7.6                         | 22.5                        | -14.1                       | 24.2                        |
| Excess                          | 0.7                         | 6.6                         | 6.0                         | -3.3                        | 4.1                         |
| <b>MARATHON</b>                 | <b>12.8</b>                 | <b>7.6</b>                  | <b>23.5</b>                 | <b>-13.4</b>                | <b>23.1</b>                 |
| BENCHMARK DM                    | 12.6                        | 7.6                         | 22.5                        | -14.1                       | 24.2                        |
| Excess                          | 0.2                         | 0.1                         | 1.0                         | 0.7                         | -1.1                        |
| <b>MCKINLEY</b>                 | <b>11.6</b>                 | <b>16.4</b>                 | <b>25.6</b>                 | <b>-15.9</b>                | <b>28.5</b>                 |
| BENCHMARK DM                    | 12.6                        | 7.6                         | 22.5                        | -14.1                       | 24.2                        |
| Excess                          | -1.0                        | 8.8                         | 3.1                         | -1.9                        | 4.3                         |
| <b>AQR CAPITAL MANAGEMENT</b>   | <b>8.1</b>                  | <b>6.5</b>                  | <b>20.8</b>                 | <b>-18.2</b>                | <b>25.1</b>                 |
| BENCHMARK DM                    | 12.6                        | 7.6                         | 22.5                        | -14.1                       | 24.2                        |
| Excess                          | -4.5                        | -1.1                        | -1.7                        | -4.1                        | 0.9                         |



|  | <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> |
|--|----------------------------|-------------------------|--------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Total Developed Markets</b>         |                            |                         |              |                   |               |               |               |                |                        |                       |
| Active Developed Markets Aggregate (1) | \$1,974,810,392            | 17.5%                   | -9.0%        | -9.0%             | -24.8%        | -0.1%         | 0.2%          | 4.8%           | 4.7%                   | 06/1996               |
| BENCHMARK DM                           |                            |                         | -9.2%        | -9.2%             | -23.9%        | -1.2%         | -0.4%         | 3.6%           | 1.5%                   | 06/1996               |
| Excess                                 |                            |                         | 0.2%         | 0.2%              | -0.9%         | 1.1%          | 0.6%          | 1.1%           | 3.2%                   |                       |
|  |                            |                         |              |                   |               |               |               |                |                        |                       |
| SSgA DEVELOPED MARKETS PASSIVE         | \$5,653,285,586            | 50.0%                   | -9.2%        | -9.2%             | -23.5%        | -0.7%         | 0.0%          | 4.0%           |                        |                       |
| BENCHMARK DM                           |                            |                         | -9.2%        | -9.2%             | -23.9%        | -1.2%         | -0.4%         | 3.6%           |                        |                       |
| Excess                                 |                            |                         | -0.0%        | -0.0%             | 0.4%          | 0.5%          | 0.4%          | 0.4%           |                        |                       |
|  |                            |                         |              |                   |               |               |               |                |                        |                       |
| RECORD CURRENCY (2)                    | \$427,443,191              | 3.8%                    | 3.5%         | 3.5%              | 5.7%          |               |               |                |                        | 10/2020               |
|  |                            |                         |              |                   |               |               |               |                |                        |                       |
| DEVELOPED MARKETS                      | \$8,055,539,170            | 71.2%                   | -5.7%        | -5.7%             | -18.2%        | 1.9%          | 1.5%          | 5.1%           | 4.7%                   | 01/1997               |
| BENCHMARK DM                           |                            |                         | -9.2         | -9.2              | -23.9         | -1.2          | -0.4          | 3.6            | 1.5                    | 01/1997               |
| Excess                                 |                            |                         | 3.5          | 3.5               | 5.8           | 3.1           | 2.0           | 1.5            | 3.2                    |                       |

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

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



|   | <u>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Total Developed Markets</b>                |                             |                             |                             |                             |                             |
| <b>Active Developed Markets Aggregate (1)</b> | <b>12.5%</b>                | <b>12.2%</b>                | <b>24.4%</b>                | <b>-15.1%</b>               | <b>26.8%</b>                |
| BENCHMARK DM                                  | 12.6%                       | 7.6%                        | 22.5%                       | -14.1%                      | 24.2%                       |
| Excess  | -0.1%                       | 4.6%                        | 1.9%                        | -1.0%                       | 2.6%                        |
| <b>SSgA DEVELOPED MARKETS PASSIVE</b>         | <b>13.0%</b>                | <b>8.2%</b>                 | <b>23.0%</b>                | <b>-13.9%</b>               | <b>24.7%</b>                |
| BENCHMARK DM                                  | 12.6%                       | 7.6%                        | 22.5%                       | -14.1%                      | 24.2%                       |
| Excess  | 0.4%                        | 0.6%                        | 0.5%                        | 0.2%                        | 0.5%                        |
| <b>DEVELOPED MARKETS</b>                      | <b>13.5%</b>                | <b>8.9%</b>                 | <b>23.3%</b>                | <b>-14.2%</b>               | <b>24.9%</b>                |
| BENCHMARK DM                                  | 12.6                        | 7.6                         | 22.5                        | -14.1                       | 24.2                        |
| Excess  | 0.9                         | 1.3                         | 0.8                         | -0.1                        | 0.7                         |

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



|                                | <u>Ending Market Value</u> | <u>Portfolio Weight</u> | <u>Last Qtr</u> | <u>Fiscal YTD</u> | <u>1 Year</u> | <u>3 Year</u> | <u>5 Year</u> | <u>10 Year</u> | <u>Since Inception</u> | <u>Inception Date</u> |
|--------------------------------|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Active Emerging Markets</b> |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>MARTIN CURRIE</b>           | <b>\$321,010,919</b>       | <b>2.8%</b>             | <b>-11.4%</b>   | <b>-11.4%</b>     | <b>-34.0%</b> | <b>-2.3%</b>  | <b>-1.3%</b>  |                | <b>2.4%</b>            | <b>04/2017</b>        |
| BENCHMARK EM                   |                            |                         | -11.6           | -11.6             | -28.1         | -2.1          | -1.8          |                | 0.8                    | 04/2017               |
| Excess                         |                            |                         | 0.2             | 0.2               | -5.9          | -0.2          | 0.5           |                | 1.6                    |                       |
| <b>MACQUARIE</b>               | <b>302,149,489</b>         | <b>2.7</b>              | <b>-12.8</b>    | <b>-12.8</b>      | <b>-30.8</b>  | <b>-2.1</b>   | <b>-2.0</b>   |                | <b>1.5</b>             | <b>04/2017</b>        |
| BENCHMARK EM                   |                            |                         | -11.6           | -11.6             | -28.1         | -2.1          | -1.8          |                | 0.8                    | 04/2017               |
| Excess                         |                            |                         | -1.3            | -1.3              | -2.7          | 0.0           | -0.2          |                | 0.6                    |                       |
| <b>MORGAN STANLEY</b>          | <b>388,043,196</b>         | <b>3.4</b>              | <b>-6.9</b>     | <b>-6.9</b>       | <b>-30.8</b>  | <b>-2.9</b>   | <b>-2.7</b>   | <b>1.2%</b>    | <b>7.3</b>             | <b>01/2001</b>        |
| BENCHMARK EM                   |                            |                         | -11.6           | -11.6             | -28.1         | -2.1          | -1.8          | 1.0            | 7.1                    | 01/2001               |
| Excess                         |                            |                         | 4.7             | 4.7               | -2.7          | -0.8          | -0.9          | 0.2            | 0.2                    |                       |
| <b>NEUBERGER BERMAN</b>        | <b>286,590,009</b>         | <b>2.5</b>              | <b>-10.7</b>    | <b>-10.7</b>      | <b>-29.7</b>  | <b>-5.7</b>   | <b>-3.9</b>   |                | <b>-0.7</b>            | <b>04/2017</b>        |
| BENCHMARK EM                   |                            |                         | -11.6           | -11.6             | -28.1         | -2.1          | -1.8          |                | 0.8                    | 04/2017               |
| Excess                         |                            |                         | 0.9             | 0.9               | -1.6          | -3.6          | -2.1          |                | -1.6                   |                       |
| <b>PZENA</b>                   | <b>306,009,678</b>         | <b>2.7</b>              | <b>-7.6</b>     | <b>-7.6</b>       | <b>-19.1</b>  | <b>3.0</b>    | <b>0.6</b>    |                | <b>2.4</b>             | <b>04/2017</b>        |
| BENCHMARK EM                   |                            |                         | -11.6           | -11.6             | -28.1         | -2.1          | -1.8          |                | 0.8                    | 04/2017               |
| Excess                         |                            |                         | 4.0             | 4.0               | 9.0           | 5.1           | 2.4           |                | 1.6                    |                       |
| <b>ROCK CREEK</b>              | <b>318,125,025</b>         | <b>2.8</b>              | <b>-9.7</b>     | <b>-9.7</b>       | <b>-28.0</b>  | <b>-1.3</b>   | <b>-1.7</b>   |                | <b>0.6</b>             | <b>04/2017</b>        |
| BENCHMARK EM                   |                            |                         | -11.6           | -11.6             | -28.1         | -2.1          | -1.8          |                | 0.8                    | 04/2017               |
| Excess                         |                            |                         | 1.9             | 1.9               | 0.1           | 0.8           | 0.1           |                | -0.2                   |                       |





|                                | <u>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|--------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Active Emerging Markets</b> |                             |                             |                             |                             |                             |
| <b>MARTIN CURRIE</b>           | <b>-3.5%</b>                | <b>26.5%</b>                | <b>27.3%</b>                | <b>-16.6%</b>               |                             |
| BENCHMARK EM                   | -2.5                        | 18.3                        | 18.4                        | -14.6                       |                             |
| Excess                         | -1.0                        | 8.2                         | 8.8                         | -2.0                        |                             |
| <b>MACQUARIE</b>               | <b>-2.2</b>                 | <b>24.2</b>                 | <b>23.2</b>                 | <b>-13.3</b>                |                             |
| BENCHMARK EM                   | -2.5                        | 18.3                        | 18.4                        | -14.6                       |                             |
| Excess                         | 0.3                         | 5.9                         | 4.7                         | 1.3                         |                             |
| <b>MORGAN STANLEY</b>          | <b>3.5</b>                  | <b>15.7</b>                 | <b>20.4</b>                 | <b>-16.7</b>                | <b>37.9%</b>                |
| BENCHMARK EM                   | -2.5                        | 18.3                        | 18.4                        | -14.6                       | 37.3                        |
| Excess                         | 6.0                         | -2.6                        | 1.9                         | -2.2                        | 0.6                         |
| <b>NEUBERGER BERMAN</b>        | <b>-5.6</b>                 | <b>14.2</b>                 | <b>19.7</b>                 | <b>-17.1</b>                |                             |
| BENCHMARK EM                   | -2.5                        | 18.3                        | 18.4                        | -14.6                       |                             |
| Excess                         | -3.1                        | -4.1                        | 1.3                         | -2.6                        |                             |
| <b>PZENA</b>                   | <b>9.3</b>                  | <b>7.7</b>                  | <b>13.4</b>                 | <b>-10.8</b>                |                             |
| BENCHMARK EM                   | -2.5                        | 18.3                        | 18.4                        | -14.6                       |                             |
| Excess                         | 11.8                        | -10.6                       | -5.1                        | 3.8                         |                             |
| <b>ROCK CREEK</b>              | <b>-5.2</b>                 | <b>22.0</b>                 | <b>22.3</b>                 | <b>-17.6</b>                |                             |
| BENCHMARK EM                   | -2.5                        | 18.3                        | 18.4                        | -14.6                       |                             |
| Excess                         | -2.7                        | 3.7                         | 3.9                         | -3.1                        |                             |



|  | <u>Ending Market Value</u> | <u>Portfolio Weight</u> | <u>Last Qtr</u> | <u>Fiscal YTD</u> | <u>1 Year</u> | <u>3 Year</u> | <u>5 Year</u> | <u>10 Year</u> | <u>Since Inception</u> | <u>Inception Date</u> |
|--|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Total Emerging Markets</b>            |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>ACTIVE EMERGING MARKETS AGGREGATE</b> | <b>\$1,921,928,315</b>     | <b>17.0%</b>            | <b>-9.8%</b>    | <b>-9.8%</b>      | <b>-29.1%</b> | <b>-2.3%</b>  | <b>-2.0%</b>  | <b>0.9%</b>    | <b>1.9%</b>            | <b>01/2012</b>        |
| BENCHMARK EM                             |                            |                         | -11.6           | -11.6             | -28.1         | -2.1          | -1.8          | 1.0            | 2.0                    | 01/2012               |
| Excess                                   |                            |                         | 1.8             | 1.8               | -1.0          | -0.2          | -0.2          | -0.2           | -0.2                   |                       |
| <b>SSGA EMERGING MARKETS PASSIVE</b>     | <b>882,360,765</b>         | <b>7.8</b>              | <b>-11.7</b>    | <b>-11.7</b>      | <b>-28.3</b>  | <b>-2.3</b>   | <b>-2.0</b>   | <b>1.1</b>     | <b>2.0</b>             | <b>01/2012</b>        |
| BENCHMARK EM                             |                            |                         | -11.6           | -11.6             | -28.1         | -2.1          | -1.8          | 1.0            | 2.0                    | 01/2012               |
| Excess                                   |                            |                         | -0.1            | -0.1              | -0.2          | -0.2          | -0.2          | 0.0            | -0.0                   |                       |
| <b>EMERGING MARKETS TOTAL</b>            | <b>2,804,289,080</b>       | <b>24.8</b>             | <b>-10.4</b>    | <b>-10.4</b>      | <b>-28.9</b>  | <b>-2.2</b>   | <b>-2.0</b>   | <b>1.1</b>     | <b>4.6</b>             | <b>11/1996</b>        |
| BENCHMARK EM                             |                            |                         | -11.6           | -11.6             | -28.1         | -2.1          | -1.8          | 1.0            | 4.9                    | 11/1996               |
| Excess                                   |                            |                         | 1.2             | 1.2               | -0.8          | -0.2          | -0.2          | 0.0            | -0.3                   |                       |



|  | <u>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Total Emerging Markets</b>            |                             |                             |                             |                             |                             |
| <b>ACTIVE EMERGING MARKETS AGGREGATE</b> | <b>-0.9%</b>                | <b>17.6%</b>                | <b>21.4%</b>                | <b>-15.6%</b>               | <b>37.2%</b>                |
| BENCHMARK EM                             | -2.5                        | 18.3                        | 18.4                        | -14.6                       | 37.3                        |
| Excess                                   | 1.6                         | -0.7                        | 3.0                         | -1.0                        | -0.1                        |
| <b>SSGA EMERGING MARKETS PASSIVE</b>     | <b>-2.9</b>                 | <b>18.3</b>                 | <b>18.1</b>                 | <b>-14.7</b>                | <b>37.4</b>                 |
| BENCHMARK EM                             | -2.5                        | 18.3                        | 18.4                        | -14.6                       | 37.3                        |
| Excess                                   | -0.3                        | 0.0                         | -0.3                        | -0.1                        | 0.1                         |
| <b>EMERGING MARKETS TOTAL</b>            | <b>-1.5</b>                 | <b>17.9</b>                 | <b>20.3</b>                 | <b>-15.4</b>                | <b>37.7</b>                 |
| BENCHMARK EM                             | -2.5                        | 18.3                        | 18.4                        | -14.6                       | 37.3                        |
| Excess                                   | 1.1                         | -0.4                        | 1.9                         | -0.8                        | 0.4                         |



|                                   | <u>Ending Market Value</u> | <u>Portfolio Weight</u> | <u>Last Qtr</u> | <u>Fiscal YTD</u> | <u>1 Year</u> | <u>3 Year</u> | <u>5 Year</u> | <u>10 Year</u> | <u>Since Inception</u> | <u>Inception Date</u> |
|-----------------------------------|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Active ACWI ex-US</b>          |                            |                         |                 |                   |               |               |               |                |                        |                       |
| EARNEST PARTNERS ACWI EX US       | \$307,635,835              | 2.7%                    | -9.3%           | -9.3%             | -22.1%        |               |               |                | -8.0%                  | 01/2021               |
| MSCI AC WORLD ex US (NET) - DAILY |                            |                         | -9.9%           | -9.9%             | -25.2%        |               |               |                | -12.5%                 | 01/2021               |
| Excess                            |                            |                         | 0.6%            | 0.6%              | 3.1%          |               |               |                | 4.4%                   |                       |
| <b>TOTAL ACWI EX-US AGGREGATE</b> |                            |                         |                 |                   |               |               |               |                |                        |                       |
| TOTAL ACWI EX-US AGGREGATE        | \$307,635,835              | 2.7%                    | -9.3%           | -9.3%             | -22.1%        |               |               |                | -8.0%                  | 01/2021               |
| MSCI AC WORLD ex US (NET) - DAILY |                            |                         | -9.9%           | -9.9%             | -25.2%        |               |               |                | -12.5%                 | 01/2021               |
| Excess                            |                            |                         | 0.6%            | 0.6%              | 3.1%          |               |               |                | 4.4%                   |                       |



|                                   | <u>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|-----------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Active ACWI ex-US</b>          |                             |                             |                             |                             |                             |
| EARNEST PARTNERS ACWI EX US       | 12.8%                       |                             |                             |                             |                             |
| MSCI AC WORLD ex US (NET) - DAILY | 7.8                         |                             |                             |                             |                             |
| Excess                            | 4.9                         |                             |                             |                             |                             |
| <b>TOTAL ACWI EX-US AGGREGATE</b> |                             |                             |                             |                             |                             |
| MSCI AC WORLD ex US (NET) - DAILY | 7.8                         |                             |                             |                             |                             |
| Excess                            | 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> |
|-------------------------------|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>China Only Managers</b>    |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>EARNEST PARTNERS CHINA</b> | <b>\$138,429,929</b>       | <b>1.2%</b>             | <b>-19.3%</b>   | <b>-19.3%</b>     | <b>-28.7%</b> |               |               |                | <b>-21.2%</b>          | <b>01/2021</b>        |
| MSCI China A                  |                            |                         | -18.3           | -18.3             | -26.7         |               |               |                | -16.3                  | 01/2021               |
| Excess                        |                            |                         | -1.0            | -1.0              | -2.0          |               |               |                | -4.9                   |                       |
| <b>CHINA ONLY AGGREGATE</b>   | <b>138,429,929</b>         | <b>1.2</b>              | <b>-19.3</b>    | <b>-19.3</b>      | <b>-28.7</b>  |               |               |                | <b>-21.2</b>           | <b>01/2021</b>        |
| MSCI China A                  |                            |                         | -18.3           | -18.3             | -26.7         |               |               |                | -16.3                  | 01/2021               |
| Excess                        |                            |                         | -1.0            | -1.0              | -2.0          |               |               |                | -4.9                   |                       |



|                               | <u>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|-------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>China Only Managers</b>    |                             |                             |                             |                             |                             |
| <b>EARNEST PARTNERS CHINA</b> | <b>-2.9%</b>                |                             |                             |                             |                             |
| MSCI China A                  | 3.2                         |                             |                             |                             |                             |
| Excess                        | -6.1                        |                             |                             |                             |                             |
| <b>CHINA ONLY AGGREGATE</b>   |                             |                             |                             |                             |                             |
| MSCI China A                  | 3.2                         |                             |                             |                             |                             |
| Excess                        | -6.1                        |                             |                             |                             |                             |

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# Global Equity

## September 30, 2022



|  | <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> |
|--|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Global Equity Managers</b>                |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>ARIEL INVESTMENTS</b>                     | <b>\$332,698,772</b>       | <b>43.3%</b>            | <b>-9.4%</b>    | <b>-9.4%</b>      | <b>-8.8%</b>  |               |               |                | <b>-2.0%</b>           | <b>01/2021</b>        |
| MSCI AC WORLD NET USD DAILY                  |                            |                         | -6.8            | -6.8              | -20.7         |               |               |                | -7.0                   | 01/2021               |
| Excess                                       |                            |                         | -2.6            | -2.6              | 11.9          |               |               |                | 5.0                    |                       |
| <b>BAILLIE GIFFORD</b>                       | <b>170,496,187</b>         | <b>22.2</b>             | <b>-5.1</b>     | <b>-5.1</b>       | <b>-49.1</b>  |               |               |                | <b>-29.7</b>           | <b>01/2021</b>        |
| MSCI AC WORLD NET USD DAILY                  |                            |                         | -6.8            | -6.8              | -20.7         |               |               |                | -7.0                   | 01/2021               |
| Excess                                       |                            |                         | 1.7             | 1.7               | -28.4         |               |               |                | -22.8                  |                       |
| <b>MARTIN CURRIE INVESTMENTS - GLOBAL EQ</b> | <b>265,711,599</b>         | <b>34.6</b>             | <b>-10.6</b>    | <b>-10.6</b>      | <b>-36.5</b>  |               |               |                | <b>-20.1</b>           | <b>01/2021</b>        |
| MSCI AC WORLD NET USD DAILY                  |                            |                         | -6.8            | -6.8              | -20.7         |               |               |                | -7.0                   | 01/2021               |
| Excess                                       |                            |                         | -3.8            | -3.8              | -15.8         |               |               |                | -13.1                  |                       |
| <b>GLOBAL EQUITY</b>                         | <b>768,906,558</b>         | <b>100.0</b>            | <b>-8.9</b>     | <b>-8.9</b>       | <b>-31.2</b>  |               |               |                | <b>-16.5</b>           | <b>01/2021</b>        |
| MSCI AC WORLD NET USD DAILY                  |                            |                         | -6.8            | -6.8              | -20.7         |               |               |                | -7.0                   | 01/2021               |
| Excess                                       |                            |                         | -2.1            | -2.1              | -10.6         |               |               |                | -9.5                   |                       |



|  | <u>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Global Equity Managers</b>                |                             |                             |                             |                             |                             |
| <b>ARIEL INVESTMENTS</b>                     | <b>12.1%</b>                |                             |                             |                             |                             |
| MSCI AC WORLD NET USD DAILY                  | 18.5                        |                             |                             |                             |                             |
| Excess                                       | -6.5                        |                             |                             |                             |                             |
| <b>BAILLIE GIFFORD</b>                       | <b>3.1</b>                  |                             |                             |                             |                             |
| MSCI AC WORLD NET USD DAILY                  | 18.5                        |                             |                             |                             |                             |
| Excess                                       | -15.5                       |                             |                             |                             |                             |
| <b>MARTIN CURRIE INVESTMENTS - GLOBAL EQ</b> | <b>12.8</b>                 |                             |                             |                             |                             |
| MSCI AC WORLD NET USD DAILY                  | 18.5                        |                             |                             |                             |                             |
| Excess                                       | -5.8                        |                             |                             |                             |                             |
| <b>GLOBAL EQUITY</b>                         | <b>9.6</b>                  |                             |                             |                             |                             |
| MSCI AC WORLD NET USD DAILY                  | 18.5                        |                             |                             |                             |                             |
| Excess                                       | -8.9                        |                             |                             |                             |                             |

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## Core/Core Plus Bonds

### September 30, 2022



|   | <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> |
|---|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Bonds</b>                              |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>CORE (1)</b>                           | <b>\$1,724,634,157</b>     | <b>40.3%</b>            | <b>-4.2%</b>    | <b>-4.2%</b>      | <b>-14.3%</b> |               |               |                | <b>-7.2%</b>           | <b>11/2020</b>        |
| Bloomberg U.S. Aggregate                  |                            |                         | -4.8            | -4.8              | -14.6         |               |               |                | -8.1                   | 11/2020               |
| Excess                                    |                            |                         | 0.5             | 0.5               | 0.3           |               |               |                | 0.9                    |                       |
| <b>CORE PLUS (1)</b>                      | <b>2,558,840,126</b>       | <b>59.7</b>             | <b>-5.0</b>     | <b>-5.0</b>       | <b>-17.1</b>  |               |               |                | <b>-8.7</b>            | <b>11/2020</b>        |
| Bloomberg U.S. Aggregate                  |                            |                         | -4.8            | -4.8              | -14.6         |               |               |                | -8.1                   | 11/2020               |
| Excess                                    |                            |                         | -0.2            | -0.2              | -2.5          |               |               |                | -0.6                   |                       |
| TRANSITION AGGREGATE<br>CORE BONDS (2)    | 19,085                     | 0.0                     |                 |                   |               |               |               |                |                        |                       |
| <b>TOTAL CORE/CORE PLUS<br/>BONDS (3)</b> | <b>4,283,493,368</b>       | <b>100.0</b>            | <b>-4.7</b>     | <b>-4.7</b>       | <b>-16.0</b>  | <b>-2.8%</b>  | <b>0.1%</b>   | <b>1.4%</b>    | <b>6.7</b>             | <b>07/1984</b>        |
| Bloomberg U.S. Aggregate                  |                            |                         | -4.8            | -4.8              | -14.6         | -3.3          | -0.3          | 0.9            | 6.4                    | 07/1984               |
| Excess                                    |                            |                         | 0.1             | 0.1               | -1.4          | 0.4           | 0.4           | 0.5            | 0.3                    |                       |

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

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

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

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



|   | <u>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Bonds</b>                              |                             |                             |                             |                             |                             |
| <b>CORE (1)</b>                           | <b>-1.0%</b>                |                             |                             |                             |                             |
| Bloomberg U.S. Aggregate                  | -1.5                        |                             |                             |                             |                             |
| Excess                                    | 0.5                         |                             |                             |                             |                             |
| <b>CORE PLUS (1)</b>                      | <b>-1.1</b>                 |                             |                             |                             |                             |
| Bloomberg U.S. Aggregate                  | -1.5                        |                             |                             |                             |                             |
| Excess                                    | 0.4                         |                             |                             |                             |                             |
| TRANSITION AGGREGATE<br>CORE BONDS (2)    |                             |                             |                             |                             |                             |
| <b>TOTAL CORE/CORE PLUS<br/>BONDS (3)</b> | <b>-1.1</b>                 | <b>9.7%</b>                 | <b>9.7%</b>                 | <b>-0.0%</b>                | <b>4.2%</b>                 |
| Bloomberg U.S. Aggregate                  | -1.5                        | 7.5                         | 8.7                         | 0.0                         | 3.5                         |
| Excess                                    | 0.5                         | 2.2                         | 1.0                         | -0.1                        | 0.7                         |

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

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

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

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



|                          | <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> |
|--------------------------|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Active Core</b>       |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>DODGE &amp; COX</b>   | <b>\$921,025,985</b>       | <b>21.5%</b>            | <b>-3.8%</b>    | <b>-3.8%</b>      | <b>-13.6%</b> | <b>-1.8%</b>  | <b>0.7%</b>   | <b>2.0%</b>    | <b>5.0%</b>            | <b>02/2000</b>        |
| Bloomberg U.S. Aggregate |                            |                         | -4.8            | -4.8              | -14.6         | -3.3          | -0.3          | 0.9            | 4.0                    | 02/2000               |
| Excess                   |                            |                         | 0.9             | 0.9               | 1.0           | 1.5           | 1.0           | 1.1            | 1.0                    |                       |
| <b>BLACKROCK</b>         | <b>803,608,172</b>         | <b>18.8</b>             | <b>-4.7</b>     | <b>-4.7</b>       | <b>-15.1</b>  | <b>-3.1</b>   | <b>-0.1</b>   | <b>1.1</b>     | <b>4.3</b>             | <b>04/1996</b>        |
| Bloomberg U.S. Aggregate |                            |                         | -4.8            | -4.8              | -14.6         | -3.3          | -0.3          | 0.9            | 4.2                    | 04/1996               |
| Excess                   |                            |                         | 0.0             | 0.0               | -0.5          | 0.2           | 0.2           | 0.2            | 0.1                    |                       |
| <b>CORE</b>              | <b>1,724,634,157</b>       | <b>40.3</b>             | <b>-4.2</b>     | <b>-4.2</b>       | <b>-14.3</b>  |               |               |                | <b>-7.2</b>            | <b>11/2020</b>        |
| Bloomberg U.S. Aggregate |                            |                         | -4.8            | -4.8              | -14.6         |               |               |                | -8.1                   | 11/2020               |
| Excess                   |                            |                         | 0.5             | 0.5               | 0.3           |               |               |                | 0.9                    |                       |

(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>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|--------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Active Core</b>       |                             |                             |                             |                             |                             |
| <b>DODGE &amp; COX</b>   | <b>-0.7%</b>                | <b>9.4%</b>                 | <b>9.6%</b>                 | <b>-0.0%</b>                | <b>4.2%</b>                 |
| Bloomberg U.S. Aggregate | -1.5                        | 7.5                         | 8.7                         | 0.0                         | 3.5                         |
| Excess                   | 0.8                         | 1.8                         | 0.9                         | -0.1                        | 0.7                         |
| <b>BLACKROCK</b>         |                             |                             |                             |                             |                             |
| <b>BLACKROCK</b>         | <b>-1.3</b>                 | <b>8.3</b>                  | <b>9.3</b>                  | <b>-0.1</b>                 | <b>3.7</b>                  |
| Bloomberg U.S. Aggregate | -1.5                        | 7.5                         | 8.7                         | 0.0                         | 3.5                         |
| Excess                   | 0.2                         | 0.8                         | 0.6                         | -0.2                        | 0.1                         |
| <b>CORE</b>              |                             |                             |                             |                             |                             |
| <b>CORE</b>              | <b>-1.0</b>                 |                             |                             |                             |                             |
| Bloomberg U.S. Aggregate | -1.5                        |                             |                             |                             |                             |
| Excess                   | 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> |
|--------------------------|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Core Plus Bonds</b>   |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>GOLDMAN SACHS</b>     | <b>\$805,763,251</b>       | <b>18.8%</b>            | <b>-5.0%</b>    | <b>-5.0%</b>      | <b>-15.5%</b> | <b>-3.1%</b>  | <b>-0.0%</b>  | <b>1.1%</b>    | <b>4.7%</b>            | <b>07/1993</b>        |
| Bloomberg U.S. Aggregate |                            |                         | -4.8            | -4.8              | -14.6         | -3.3          | -0.3          | 0.9            | 4.4                    | 07/1993               |
| Excess                   |                            |                         | -0.2            | -0.2              | -0.9          | 0.1           | 0.2           | 0.3            | 0.3                    |                       |
| <b>NEUBERGER</b>         | <b>838,095,857</b>         | <b>19.6</b>             | <b>-4.4</b>     | <b>-4.4</b>       | <b>-15.5</b>  | <b>-2.5</b>   | <b>0.2</b>    | <b>1.2</b>     | <b>5.6</b>             | <b>07/1988</b>        |
| Bloomberg U.S. Aggregate |                            |                         | -4.8            | -4.8              | -14.6         | -3.3          | -0.3          | 0.9            | 5.3                    | 07/1988               |
| Excess                   |                            |                         | 0.4             | 0.4               | -0.9          | 0.7           | 0.5           | 0.3            | 0.3                    |                       |
| <b>WESTERN</b>           | <b>914,981,018</b>         | <b>21.4</b>             | <b>-5.5</b>     | <b>-5.5</b>       | <b>-19.8</b>  | <b>-3.8</b>   | <b>-0.3</b>   | <b>1.5</b>     | <b>7.4</b>             | <b>07/1984</b>        |
| Bloomberg U.S. Aggregate |                            |                         | -4.8            | -4.8              | -14.6         | -3.3          | -0.3          | 0.9            | 6.4                    | 07/1984               |
| Excess                   |                            |                         | -0.8            | -0.8              | -5.2          | -0.6          | -0.0          | 0.6            | 1.0                    |                       |
| <b>CORE PLUS</b>         | <b>2,558,840,126</b>       | <b>59.7</b>             | <b>-5.0</b>     | <b>-5.0</b>       | <b>-17.1</b>  |               |               |                | <b>-8.7</b>            | <b>11/2020</b>        |
| Bloomberg U.S. Aggregate |                            |                         | -4.8            | -4.8              | -14.6         |               |               |                | -8.1                   | 11/2020               |
| Excess                   |                            |                         | -0.2            | -0.2              | -2.5          |               |               |                | -0.6                   |                       |

(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>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|--------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Core Plus Bonds</b>   |                             |                             |                             |                             |                             |
| <b>GOLDMAN SACHS</b>     | <b>-1.5%</b>                | <b>9.0%</b>                 | <b>9.6%</b>                 | <b>-0.0%</b>                | <b>3.9%</b>                 |
| Bloomberg U.S. Aggregate | -1.5                        | 7.5                         | 8.7                         | 0.0                         | 3.5                         |
| Excess                   | 0.0                         | 1.5                         | 0.9                         | -0.0                        | 0.4                         |
| <b>NEUBERGER</b>         | <b>-0.6</b>                 | <b>9.9</b>                  | <b>9.0</b>                  | <b>-0.1</b>                 | <b>3.6</b>                  |
| Bloomberg U.S. Aggregate | -1.5                        | 7.5                         | 8.7                         | 0.0                         | 3.5                         |
| Excess                   | 1.0                         | 2.4                         | 0.3                         | -0.1                        | 0.0                         |
| <b>WESTERN</b>           | <b>-1.3</b>                 | <b>10.9</b>                 | <b>11.1</b>                 | <b>-0.2</b>                 | <b>5.6</b>                  |
| Bloomberg U.S. Aggregate | -1.5                        | 7.5                         | 8.7                         | 0.0                         | 3.5                         |
| Excess                   | 0.3                         | 3.4                         | 2.4                         | -0.3                        | 2.1                         |
| <b>CORE PLUS</b>         | <b>-1.1</b>                 |                             |                             |                             |                             |
| Bloomberg U.S. Aggregate | -1.5                        |                             |                             |                             |                             |
| Excess                   | 0.4                         |                             |                             |                             |                             |

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# Return Seeking Bonds

## September 30, 2022



|                                      | <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> |
|--------------------------------------|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Return Seeking Bonds Managers</b> |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>COLUMBIA CREDIT PLUS</b>          | <b>\$810,649,024</b>       | <b>21.2%</b>            | <b>-4.5%</b>    | <b>-4.5%</b>      | <b>-18.0%</b> |               |               |                | <b>-9.2%</b>           | <b>12/2020</b>        |
| Credit Plus Benchmark                |                            |                         | -4.2            | -4.2              | -16.8         |               |               |                | -9.5                   | 12/2020               |
| Excess                               |                            |                         | -0.3            | -0.3              | -1.2          |               |               |                | 0.3                    |                       |
| <b>PIMCO CREDIT PLUS</b>             | <b>771,268,460</b>         | <b>20.2</b>             | <b>-3.8</b>     | <b>-3.8</b>       | <b>-16.3</b>  |               |               |                | <b>-8.6</b>            | <b>12/2020</b>        |
| Credit Plus Benchmark                |                            |                         | -4.2            | -4.2              | -16.8         |               |               |                | -9.5                   | 12/2020               |
| Excess                               |                            |                         | 0.4             | 0.4               | 0.4           |               |               |                | 1.0                    |                       |
| <b>CREDIT PLUS</b>                   | <b>1,581,917,483</b>       | <b>41.4</b>             | <b>-4.2</b>     | <b>-4.2</b>       | <b>-17.2</b>  |               |               |                | <b>-8.9</b>            | <b>12/2020</b>        |
| Credit Plus Benchmark                |                            |                         | -4.2            | -4.2              | -16.8         |               |               |                | -9.5                   | 12/2020               |
| Excess                               |                            |                         | 0.0             | 0.0               | -0.4          |               |               |                | 0.6                    |                       |
| <b>BLACKROCK OPPORTUNISTIC</b>       | <b>513,031,504</b>         | <b>13.4</b>             | <b>-1.4</b>     | <b>-1.4</b>       | <b>-7.9</b>   |               |               |                | <b>-3.9</b>            | <b>12/2020</b>        |
| ICE BofA US 3-Month Treasury Bill    |                            |                         | 0.5             | 0.5               | 0.6           |               |               |                | 0.4                    | 12/2020               |
| Excess                               |                            |                         | -1.9            | -1.9              | -8.5          |               |               |                | -4.2                   |                       |
| <b>ASHMORE EMERGING MARKET</b>       | <b>248,269,489</b>         | <b>6.5</b>              | <b>-6.0</b>     | <b>-6.0</b>       | <b>-26.6</b>  |               |               |                | <b>-19.5</b>           | <b>01/2021</b>        |
| JPM JEMB Sovereign-only 50-50        |                            |                         | -4.6            | -4.6              | -22.5         |               |               |                | -15.5                  | 01/2021               |
| Excess                               |                            |                         | -1.3            | -1.3              | -4.2          |               |               |                | -4.0                   |                       |
| <b>TCW SECURITIZED CREDIT</b>        | <b>338,564,449</b>         | <b>8.9</b>              | <b>-1.1</b>     | <b>-1.1</b>       | <b>-3.4</b>   |               |               |                | <b>-2.6</b>            | <b>07/2021</b>        |
| ICE BofA US 3-Month Treasury Bill    |                            |                         | 0.5             | 0.5               | 0.6           |               |               |                | 0.5                    | 07/2021               |
| Excess                               |                            |                         | -1.6            | -1.6              | -4.0          |               |               |                | -3.1                   |                       |



|                                      | <u>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|--------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Return Seeking Bonds Managers</b> |                             |                             |                             |                             |                             |
| <b>COLUMBIA CREDIT PLUS</b>          | <b>1.1%</b>                 |                             |                             |                             |                             |
| Credit Plus Benchmark                | 0.0                         |                             |                             |                             |                             |
| Excess                               | 1.1                         |                             |                             |                             |                             |
| <b>PIMCO CREDIT PLUS</b>             | <b>0.8</b>                  |                             |                             |                             |                             |
| Credit Plus Benchmark                | 0.0                         |                             |                             |                             |                             |
| Excess                               | 0.7                         |                             |                             |                             |                             |
| <b>CREDIT PLUS</b>                   | <b>0.9</b>                  |                             |                             |                             |                             |
| Credit Plus Benchmark                | 0.0                         |                             |                             |                             |                             |
| Excess                               | 0.9                         |                             |                             |                             |                             |
| <b>BLACKROCK OPPORTUNISTIC</b>       | <b>0.3</b>                  |                             |                             |                             |                             |
| ICE BofA US 3-Month Treasury Bill    | 0.0                         |                             |                             |                             |                             |
| Excess                               | 0.2                         |                             |                             |                             |                             |
| <b>ASHMORE EMERGING MARKET</b>       | <b>-10.1</b>                |                             |                             |                             |                             |
| JPM JEMB Sovereign-only 50-50        | -5.3                        |                             |                             |                             |                             |
| Excess                               | -4.8                        |                             |                             |                             |                             |
| <b>TCW SECURITIZED CREDIT</b>        |                             |                             |                             |                             |                             |
| ICE BofA US 3-Month Treasury Bill    |                             |                             |                             |                             |                             |
| Excess                               |                             |                             |                             |                             |                             |



|                                      | <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> |
|--------------------------------------|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Return Seeking Bonds Managers</b> |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>PAYDEN RYCEL</b>                  | <b>\$262,654,494</b>       | <b>6.9%</b>             | <b>-1.9%</b>    | <b>-1.9%</b>      | <b>-14.7%</b> |               |               |                | <b>-7.4%</b>           | <b>01/2021</b>        |
| Multi-Asset Credit Benchmark         |                            |                         | -1.4            | -1.4              | -13.9         |               |               |                | -7.0                   | 01/2021               |
| Excess                               |                            |                         | -0.5            | -0.5              | -0.8          |               |               |                | -0.4                   |                       |
| <b>PGIM</b>                          | <b>304,948,079</b>         | <b>8.0</b>              | <b>-1.4</b>     | <b>-1.4</b>       | <b>-14.8</b>  |               |               |                | <b>-7.9</b>            | <b>01/2021</b>        |
| Multi-Asset Credit Benchmark         |                            |                         | -1.4            | -1.4              | -13.9         |               |               |                | -7.0                   | 01/2021               |
| Excess                               |                            |                         | -0.1            | -0.1              | -0.9          |               |               |                | -0.9                   |                       |
| <b>MULTI-ASSET CREDIT</b>            | <b>567,602,573</b>         | <b>14.9</b>             | <b>-1.7</b>     | <b>-1.7</b>       | <b>-14.8</b>  |               |               |                | <b>-7.7</b>            | <b>01/2021</b>        |
| Multi-Asset Credit Benchmark         |                            |                         | -1.4            | -1.4              | -13.9         |               |               |                | -7.0                   | 01/2021               |
| Excess                               |                            |                         | -0.3            | -0.3              | -0.9          |               |               |                | -0.7                   |                       |
| <b>KKR</b>                           | <b>280,420,895</b>         | <b>7.3</b>              | <b>-0.1</b>     | <b>-0.1</b>       | <b>-13.4</b>  |               |               |                | <b>-6.0</b>            | <b>01/2021</b>        |
| ICE BofA US Cash Pay HY Constrained  |                            |                         | -0.7            | -0.7              | -14.0         |               |               |                | -5.9                   | 01/2021               |
| Excess                               |                            |                         | 0.6             | 0.6               | 0.6           |               |               |                | -0.1                   |                       |
| <b>OAKTREE</b>                       | <b>278,437,328</b>         | <b>7.3</b>              | <b>-0.6</b>     | <b>-0.6</b>       | <b>-12.9</b>  |               |               |                | <b>-5.7</b>            | <b>01/2021</b>        |
| ICE BofA US Cash Pay HY Constrained  |                            |                         | -0.7            | -0.7              | -14.0         |               |               |                | -5.9                   | 01/2021               |
| Excess                               |                            |                         | 0.1             | 0.1               | 1.1           |               |               |                | 0.2                    |                       |
| <b>HIGH YIELD</b>                    | <b>558,858,223</b>         | <b>14.6</b>             | <b>-0.4</b>     | <b>-0.4</b>       | <b>-13.2</b>  |               |               |                | <b>-5.8</b>            | <b>01/2021</b>        |
| ICE BofA US Cash Pay HY Constrained  |                            |                         | -0.7            | -0.7              | -14.0         |               |               |                | -5.9                   | 01/2021               |
| Excess                               |                            |                         | 0.3             | 0.3               | 0.8           |               |               |                | 0.0                    |                       |





|                                      | <u>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|--------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Return Seeking Bonds Managers</b> |                             |                             |                             |                             |                             |
| <b>PAYDEN RYGEL</b>                  | <b>2.6%</b>                 |                             |                             |                             |                             |
| Multi-Asset Credit Benchmark         | 2.7                         |                             |                             |                             |                             |
| Excess                               | -0.1                        |                             |                             |                             |                             |
| <b>PGIM</b>                          | <b>3.2</b>                  |                             |                             |                             |                             |
| Multi-Asset Credit Benchmark         | 2.7                         |                             |                             |                             |                             |
| Excess                               | 0.5                         |                             |                             |                             |                             |
| <b>MULTI-ASSET CREDIT</b>            | <b>2.9</b>                  |                             |                             |                             |                             |
| Multi-Asset Credit Benchmark         | 2.7                         |                             |                             |                             |                             |
| Excess                               | 0.2                         |                             |                             |                             |                             |
| <b>KKR</b>                           | <b>4.7</b>                  |                             |                             |                             |                             |
| ICE BofA US Cash Pay HY Constrained  | 5.3                         |                             |                             |                             |                             |
| Excess                               | -0.6                        |                             |                             |                             |                             |
| <b>OAKTREE</b>                       | <b>4.5</b>                  |                             |                             |                             |                             |
| ICE BofA US Cash Pay HY Constrained  | 5.3                         |                             |                             |                             |                             |
| Excess                               | -0.8                        |                             |                             |                             |                             |
| <b>HIGH YIELD</b>                    | <b>4.6</b>                  |                             |                             |                             |                             |
| ICE BofA US Cash Pay HY Constrained  | 5.3                         |                             |                             |                             |                             |
| Excess                               | -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> |
|---------------------------------------|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Return Seeking Bonds</b>           |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>CREDIT PLUS</b>                    | <b>\$1,581,917,483</b>     | <b>41.4%</b>            | <b>-4.2%</b>    | <b>-4.2%</b>      | <b>-17.2%</b> |               |               |                | <b>-8.9%</b>           | <b>12/2020</b>        |
| Credit Plus Benchmark                 |                            |                         | -4.2            | -4.2              | -16.8         |               |               |                | -9.5                   | 12/2020               |
| Excess                                |                            |                         | 0.0             | 0.0               | -0.4          |               |               |                | 0.6                    |                       |
| <b>OPPORTUNISTIC FI</b>               | <b>513,031,504</b>         | <b>13.4</b>             | <b>-1.4</b>     | <b>-1.4</b>       | <b>-7.9</b>   |               |               |                | <b>-3.9</b>            | <b>12/2020</b>        |
| ICE BofA US 3-Month Treasury Bill     |                            |                         | 0.5             | 0.5               | 0.6           |               |               |                | 0.4                    | 12/2020               |
| Excess                                |                            |                         | -1.9            | -1.9              | -8.5          |               |               |                | -4.2                   |                       |
| <b>EMERGING MARKET DEBT</b>           | <b>248,269,489</b>         | <b>6.5</b>              | <b>-6.0</b>     | <b>-6.0</b>       | <b>-26.6</b>  |               |               |                | <b>-19.5</b>           | <b>01/2021</b>        |
| JPM JEMB Sovereign-only 50-50         |                            |                         | -4.6            | -4.6              | -22.5         |               |               |                | -15.5                  | 01/2021               |
| Excess                                |                            |                         | -1.3            | -1.3              | -4.2          |               |               |                | -4.0                   |                       |
| <b>SECURITIZED CREDIT</b>             | <b>338,564,449</b>         | <b>8.9</b>              | <b>-1.1</b>     | <b>-1.1</b>       | <b>-3.4</b>   |               |               |                | <b>-2.4</b>            | <b>06/2021</b>        |
| ICE BofA US 3-Month Treasury Bill     |                            |                         | 0.5             | 0.5               | 0.6           |               |               |                | 0.5                    | 06/2021               |
| Excess                                |                            |                         | -1.6            | -1.6              | -4.0          |               |               |                | -2.9                   |                       |
| <b>MULTI-ASSET CREDIT</b>             | <b>567,602,573</b>         | <b>14.9</b>             | <b>-1.7</b>     | <b>-1.7</b>       | <b>-14.8</b>  |               |               |                | <b>-7.7</b>            | <b>01/2021</b>        |
| Multi-Asset Credit Benchmark          |                            |                         | -1.4            | -1.4              | -13.9         |               |               |                | -7.0                   | 01/2021               |
| Excess                                |                            |                         | -0.3            | -0.3              | -0.9          |               |               |                | -0.7                   |                       |
| <b>HIGH YIELD</b>                     | <b>558,858,223</b>         | <b>14.6</b>             | <b>-0.4</b>     | <b>-0.4</b>       | <b>-13.2</b>  |               |               |                | <b>-5.8</b>            | <b>01/2021</b>        |
| ICE BofA US Cash Pay HY Constrained   |                            |                         | -0.7            | -0.7              | -14.0         |               |               |                | -5.9                   | 01/2021               |
| Excess                                |                            |                         | 0.3             | 0.3               | 0.8           |               |               |                | 0.0                    |                       |
| <b>RETURN SEEKING BONDS (1)</b>       | <b>3,818,142,248</b>       | <b>100.0</b>            | <b>-2.6</b>     | <b>-2.6</b>       | <b>-14.5</b>  |               |               |                | <b>-7.3</b>            | <b>12/2020</b>        |
| Return Seeking Fixed Income Benchmark |                            |                         | -2.3            | -2.3              | -12.8         |               |               |                | -6.6                   | 12/2020               |
| Excess                                |                            |                         | -0.3            | -0.3              | -1.7          |               |               |                | -0.8                   |                       |

(1) Includes Return Seeking Bonds transition account.



|                                       | <u>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|---------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Return Seeking Bonds</b>           |                             |                             |                             |                             |                             |
| <b>CREDIT PLUS</b>                    | <b>0.9%</b>                 |                             |                             |                             |                             |
| Credit Plus Benchmark                 | 0.0                         |                             |                             |                             |                             |
| Excess                                | 0.9                         |                             |                             |                             |                             |
| <b>OPPORTUNISTIC FI</b>               | <b>0.3</b>                  |                             |                             |                             |                             |
| ICE BofA US 3-Month Treasury Bill     | 0.0                         |                             |                             |                             |                             |
| Excess                                | 0.2                         |                             |                             |                             |                             |
| <b>EMERGING MARKET DEBT</b>           | <b>-10.1</b>                |                             |                             |                             |                             |
| JPM JEMB Sovereign-only 50-50         | -5.3                        |                             |                             |                             |                             |
| Excess                                | -4.8                        |                             |                             |                             |                             |
| <b>SECURITIZED CREDIT</b>             |                             |                             |                             |                             |                             |
| ICE BofA US 3-Month Treasury Bill     |                             |                             |                             |                             |                             |
| Excess                                |                             |                             |                             |                             |                             |
| <b>MULTI-ASSET CREDIT</b>             | <b>2.9</b>                  |                             |                             |                             |                             |
| Multi-Asset Credit Benchmark          | 2.7                         |                             |                             |                             |                             |
| Excess                                | 0.2                         |                             |                             |                             |                             |
| <b>HIGH YIELD</b>                     | <b>4.6</b>                  |                             |                             |                             |                             |
| ICE BofA US Cash Pay HY Constrained   | 5.3                         |                             |                             |                             |                             |
| Excess                                | -0.7                        |                             |                             |                             |                             |
| <b>RETURN SEEKING BONDS (1)</b>       | <b>0.9</b>                  |                             |                             |                             |                             |
| Return Seeking Fixed Income Benchmark | 0.8                         |                             |                             |                             |                             |
| Excess                                | 0.1                         |                             |                             |                             |                             |

(1) Includes Return Seeking Bonds transition account.

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# Treasuries

## September 30, 2022



|                            | <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> |
|----------------------------|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Treasuries Managers</b> |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>BLACKROCK</b>           | <b>\$2,216,472,743</b>     | <b>31.0%</b>            | <b>-7.1%</b>    | <b>-7.1%</b>      | <b>-19.8%</b> | <b>-5.7%</b>  |               |                | <b>-0.7%</b>           | <b>02/2018</b>        |
| Bloomberg Treasury 5+ Year |                            |                         | -6.9            | -6.9              | -19.6         | -5.6          |               |                | -0.6                   | 02/2018               |
| Excess                     |                            |                         | -0.1            | -0.1              | -0.2          | -0.1          |               |                | -0.1                   |                       |
| <b>GOLDMAN SACHS</b>       | <b>2,376,269,903</b>       | <b>33.2</b>             | <b>-6.8</b>     | <b>-6.8</b>       | <b>-19.6</b>  | <b>-5.5</b>   |               |                | <b>-0.5</b>            | <b>02/2018</b>        |
| Bloomberg Treasury 5+ Year |                            |                         | -6.9            | -6.9              | -19.6         | -5.6          |               |                | -0.6                   | 02/2018               |
| Excess                     |                            |                         | 0.1             | 0.1               | -0.0          | 0.0           |               |                | 0.0                    |                       |
| <b>NEUBERGER</b>           | <b>2,559,414,950</b>       | <b>35.8</b>             | <b>-7.0</b>     | <b>-7.0</b>       | <b>-19.5</b>  | <b>-5.3</b>   |               |                | <b>-0.4</b>            | <b>02/2018</b>        |
| Bloomberg Treasury 5+ Year |                            |                         | -6.9            | -6.9              | -19.6         | -5.6          |               |                | -0.6                   | 02/2018               |
| Excess                     |                            |                         | -0.0            | -0.0              | 0.1           | 0.3           |               |                | 0.1                    |                       |
| <b>TOTAL TREASURIES</b>    | <b>7,152,157,596</b>       | <b>100.0</b>            | <b>-6.9</b>     | <b>-6.9</b>       | <b>-19.7</b>  | <b>-5.5</b>   |               |                | <b>-0.6</b>            | <b>02/2018</b>        |
| Bloomberg Treasury 5+ Year |                            |                         | -6.9            | -6.9              | -19.6         | -5.6          |               |                | -0.6                   | 02/2018               |
| Excess                     |                            |                         | -0.0            | -0.0              | -0.0          | 0.1           |               |                | -0.0                   |                       |



|                            | <u>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Treasuries Managers</b> |                             |                             |                             |                             |                             |
| <b>BLACKROCK</b>           | <b>-4.0%</b>                | <b>12.5%</b>                | <b>10.4%</b>                |                             |                             |
| Bloomberg Treasury 5+ Year | -3.8                        | 12.8                        | 10.4                        |                             |                             |
| Excess                     | -0.2                        | -0.3                        | -0.1                        |                             |                             |
| <b>GOLDMAN SACHS</b>       | <b>-3.9</b>                 | <b>12.7</b>                 | <b>10.6</b>                 |                             |                             |
| Bloomberg Treasury 5+ Year | -3.8                        | 12.8                        | 10.4                        |                             |                             |
| Excess                     | -0.1                        | -0.1                        | 0.1                         |                             |                             |
| <b>NEUBERGER</b>           | <b>-3.4</b>                 | <b>12.8</b>                 | <b>10.4</b>                 |                             |                             |
| Bloomberg Treasury 5+ Year | -3.8                        | 12.8                        | 10.4                        |                             |                             |
| Excess                     | 0.4                         | -0.1                        | -0.0                        |                             |                             |
| <b>TOTAL TREASURIES</b>    | <b>-3.7</b>                 | <b>12.7</b>                 | <b>10.4</b>                 |                             |                             |
| Bloomberg Treasury 5+ Year | -3.8                        | 12.8                        | 10.4                        |                             |                             |
| Excess                     | 0.0                         | -0.2                        | 0.0                         |                             |                             |

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## Laddered Bonds + Cash

### September 30, 2022



|  | <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> |
|--|----------------------------|-------------------------|-----------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Laddered Bond and Cash Managers</b>   |                            |                         |                 |               |               |               |                |                        |                       |
| <b>Neuberger Berman Ladder Bond</b>      | <b>\$1,048,416,620</b>     | <b>29.3%</b>            | <b>0.3%</b>     | <b>-0.2%</b>  |               |               |                | <b>-0.0%</b>           | <b>11/2020</b>        |
| ICE BofA US 3-Month Treasury Bill        |                            |                         | 0.5             | 0.6           |               |               |                | 0.4                    | 11/2020               |
| Excess                                   |                            |                         | -0.2            | -0.8          |               |               |                | -0.4                   |                       |
| <b>Goldman Sachs Ladder Bond</b>         | <b>1,049,532,214</b>       | <b>29.4</b>             | <b>0.3</b>      | <b>-0.1</b>   |               |               |                | <b>0.0</b>             | <b>11/2020</b>        |
| ICE BofA US 3-Month Treasury Bill        |                            |                         | 0.5             | 0.6           |               |               |                | 0.4                    | 11/2020               |
| Excess                                   |                            |                         | -0.2            | -0.7          |               |               |                | -0.3                   |                       |
| <b>Treasury Ladder Aggregate</b>         | <b>2,097,948,835</b>       | <b>58.7</b>             | <b>0.3</b>      | <b>-0.1</b>   |               |               |                | <b>0.0</b>             | <b>11/2020</b>        |
| ICE BofA US 3-Month Treasury Bill        |                            |                         | 0.5             | 0.6           |               |               |                | 0.4                    | 11/2020               |
| Excess                                   |                            |                         | -0.2            | -0.8          |               |               |                | -0.3                   |                       |
| <b>Combined Funds STIF</b>               | <b>1,447,351,649</b>       | <b>40.5</b>             | <b>0.6</b>      | <b>0.8</b>    | <b>0.6%</b>   | <b>1.2%</b>   | <b>0.7%</b>    | <b>1.4</b>             | <b>01/2004</b>        |
| iMoneyNet Money Fund Average-All Taxable |                            |                         | 0.4             | 0.5           | 0.4           | 0.9           | 0.5            | 1.1                    | 01/2004               |
| Excess                                   |                            |                         | 0.1             | 0.3           | 0.2           | 0.3           | 0.3            | 0.4                    |                       |
| <b>TEACHERS RETIREMENT CD REPO</b>       | <b>29,747,027</b>          | <b>0.8</b>              | <b>0.5</b>      | <b>0.7</b>    | <b>0.8</b>    | <b>1.3</b>    | <b>0.9</b>     | <b>0.9</b>             | <b>02/2012</b>        |
| ICE BofA US 3-Month Treasury Bill        |                            |                         | 0.5             | 0.6           | 0.6           | 1.1           | 0.7            | 0.6                    | 02/2012               |
| Excess                                   |                            |                         | 0.1             | 0.1           | 0.2           | 0.1           | 0.2            | 0.2                    |                       |
| <b>Laddered Bond + Cash</b>              | <b>3,575,107,145</b>       | <b>100.0</b>            | <b>0.4</b>      | <b>0.1</b>    | <b>0.4</b>    | <b>1.1</b>    | <b>0.7</b>     | <b>4.2</b>             | <b>12/1977</b>        |
| ICE BofA US 3-Month Treasury Bill        |                            |                         | 0.5             | 0.6           | 0.6           | 1.1           | 0.7            | 4.4                    | 12/1977               |
| Excess                                   |                            |                         | -0.1            | -0.5          | -0.2          | -0.1          | 0.1            | -0.2                   |                       |



|  | <u>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Laddered Bond and Cash Managers</b>   |                             |                             |                             |                             |                             |
| <b>Neuberger Berman Ladder Bond</b>      | <b>0.0%</b>                 |                             |                             |                             |                             |
| ICE BofA US 3-Month Treasury Bill        | 0.0                         |                             |                             |                             |                             |
| Excess                                   | -0.0                        |                             |                             |                             |                             |
| <b>Goldman Sachs Ladder Bond</b>         | <b>0.1</b>                  |                             |                             |                             |                             |
| ICE BofA US 3-Month Treasury Bill        | 0.0                         |                             |                             |                             |                             |
| Excess                                   | 0.0                         |                             |                             |                             |                             |
| <b>Treasury Ladder Aggregate</b>         | <b>0.0</b>                  |                             |                             |                             |                             |
| ICE BofA US 3-Month Treasury Bill        | 0.0                         |                             |                             |                             |                             |
| Excess                                   | -0.0                        |                             |                             |                             |                             |
| <b>Combined Funds STIF</b>               | <b>0.1</b>                  | <b>0.5%</b>                 | <b>2.3%</b>                 | <b>2.0%</b>                 | <b>0.9%</b>                 |
| iMoneyNet Money Fund Average-All Taxable | 0.0                         | 0.3                         | 1.9                         | 1.5                         | 0.5                         |
| Excess                                   | 0.1                         | 0.2                         | 0.5                         | 0.5                         | 0.4                         |
| <b>TEACHERS RETIREMENT CD REPO</b>       | <b>0.1</b>                  | <b>1.0</b>                  | <b>2.5</b>                  | <b>1.8</b>                  | <b>1.3</b>                  |
| ICE BofA US 3-Month Treasury Bill        | 0.0                         | 0.7                         | 2.3                         | 1.9                         | 0.9                         |
| Excess                                   | 0.0                         | 0.4                         | 0.2                         | -0.0                        | 0.5                         |
| <b>Laddered Bond + Cash</b>              | <b>0.0</b>                  | <b>0.6</b>                  | <b>2.3</b>                  | <b>1.9</b>                  | <b>1.1</b>                  |
| ICE BofA US 3-Month Treasury Bill        | 0.0                         | 0.7                         | 2.3                         | 1.9                         | 0.9                         |
| Excess                                   | -0.0                        | -0.1                        | 0.1                         | 0.0                         | 0.2                         |

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# Uninvested Private Markets

## September 30, 2022



|  | <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> |
|--|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>Uninvested Private Markets Managers</b> |                            |                         |                 |                   |               |               |               |                |                        |                       |
| <b>NISA PRIVATE MKT UNINV OVERLAY</b>      | <b>\$209,614,501</b>       | <b>27.8%</b>            | <b>-3.3%</b>    | <b>-3.3%</b>      | <b>-13.5%</b> |               |               |                | <b>-0.2%</b>           | <b>01/2021</b>        |
| S&P 500 INDEX (DAILY)                      |                            |                         | -4.9            | -4.9              | -15.5         |               |               |                | -1.2                   | 01/2021               |
| Excess                                     |                            |                         | 1.6             | 1.6               | 2.0           |               |               |                | 1.0                    |                       |
| <b>BLACKROCK SP INDEX</b>                  | <b>543,923,384</b>         | <b>72.2</b>             | <b>-4.9</b>     | <b>-4.9</b>       | <b>-15.2</b>  |               |               |                | <b>-0.9</b>            | <b>01/2021</b>        |
| S&P 500 INDEX (DAILY)                      |                            |                         | -4.9            | -4.9              | -15.5         |               |               |                | -1.2                   | 01/2021               |
| Excess                                     |                            |                         | 0.0             | 0.0               | 0.3           |               |               |                | 0.2                    |                       |
| <b>UNINVESTED PRIVATE MARKETS</b>          | <b>753,537,885</b>         | <b>100.0</b>            | <b>-4.5</b>     | <b>-4.5</b>       | <b>-14.8</b>  |               |               |                | <b>-0.7</b>            | <b>01/2021</b>        |
| S&P 500 INDEX (DAILY)                      |                            |                         | -4.9            | -4.9              | -15.5         |               |               |                | -1.2                   | 01/2021               |
| Excess                                     |                            |                         | 0.4             | 0.4               | 0.7           |               |               |                | 0.4                    |                       |



|  | <u>2021 Calendar Return</u> | <u>2020 Calendar Return</u> | <u>2019 Calendar Return</u> | <u>2018 Calendar Return</u> | <u>2017 Calendar Return</u> |
|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Uninvested Private Markets Managers</b> |                             |                             |                             |                             |                             |
| <b>NISA PRIVATE MKT UNINV OVERLAY</b>      | <b>28.1%</b>                |                             |                             |                             |                             |
| S&P 500 INDEX (DAILY)                      | 28.7                        |                             |                             |                             |                             |
| Excess                                     | -0.6                        |                             |                             |                             |                             |
| <b>BLACKROCK SP INDEX</b>                  | <b>28.9</b>                 |                             |                             |                             |                             |
| S&P 500 INDEX (DAILY)                      | 28.7                        |                             |                             |                             |                             |
| Excess                                     | 0.2                         |                             |                             |                             |                             |
| <b>UNINVESTED PRIVATE MARKETS</b>          | <b>28.6</b>                 |                             |                             |                             |                             |
| S&P 500 INDEX (DAILY)                      | 28.7                        |                             |                             |                             |                             |
| Excess                                     | -0.1                        |                             |                             |                             |                             |

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# Private Markets

## September 30, 2022



## Combined Funds Asset Class Performance

### Private Markets

|                                  | <u>Last Qtr</u> | <u>FYTD</u> | <u>1 Year</u> | <u>3 Year</u> | <u>5 Year</u> | <u>10 Year</u> | <u>20 Year</u> | <u>25 Year</u> | <u>30 Year</u> |
|----------------------------------|-----------------|-------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|
| Private Markets - Invested       | -2.5%           | -2.5%       | 11.3%         | 17.1%         | 15.0%         | 13.4%          | 14.0%          | 13.2%          | 13.3%          |
| Private Markets - Uninvested (1) | -4.5%           | -4.5%       | -14.8%        |               |               |                |                |                |                |
| Private Equity                   | -4.1%           | -4.1%       | 6.1%          | 20.5%         | 18.8%         | 16.9%          | 15.8%          | 14.6%          | 15.6%          |
| Private Credit                   | 1.1%            | 1.1%        | 16.0%         | 12.9%         | 12.7%         | 13.2%          | 12.8%          | 12.8%          |                |
| Resources                        | 3.3%            | 3.3%        | 29.5%         | 7.7%          | 5.1%          | 3.5%           | 13.4%          | 11.4%          | 13.0%          |
| Real Estate                      | 1.4%            | 1.4%        | 32.2%         | 18.7%         | 15.5%         | 14.0%          | 10.4%          | 10.7%          | 9.6%           |

### Private Markets

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

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

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

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

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

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

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

Source: State Street Bank

**Minnesota State Board of Investment**  
**Private Markets Investments as of September 30, 2022**

| Investments                               | Commitments           | Contributions         | Distributions         | Remaining Commitment | Market Value          | Investment Multiple | IRR          | Vintage Year |
|---|-----------------------|-----------------------|-----------------------|----------------------|-----------------------|---------------------|--------------|--------------|
| <b>Private Equity</b>                     | <b>24,571,785,758</b> | <b>18,329,183,255</b> | <b>14,620,582,659</b> | <b>8,065,128,900</b> | <b>14,367,159,093</b> | <b>1.58</b>         | <b>13.41</b> |              |
| Adams Street Partners, LLC                | 349,120,500           | 167,226,742           | 114,158,737           | 181,893,758          | 136,057,633           | 1.50                | 12.39        |              |
| Adams Street Global Secondary Fund 5 L.P. | 100,000,000           | 77,114,692            | 75,128,710            | 22,885,308           | 29,228,761            | 1.35                | 6.59         | 2012         |
| Adams Street Global Secondary Fund 6 L.P. | 100,000,000           | 75,200,000            | 39,030,027            | 24,800,000           | 82,333,428            | 1.61                | 29.39        | 2017         |
| Adams Street Global Secondary Fund 7 L.P. | 149,120,500           | 14,912,050            | 0                     | 134,208,450          | 24,495,445            | 1.64                | 64.27        | 2021         |
| Advent International Group                | 505,000,000           | 344,792,247           | 324,631,020           | 163,291,707          | 309,160,662           | 1.84                | 17.44        |              |
| Advent International GPE VI-A, L.P.       | 50,000,000            | 52,993,313            | 103,400,194           | 0                    | 4,564,779             | 2.04                | 16.51        | 2008         |
| Advent International GPE VII, L.P.        | 90,000,000            | 86,490,641            | 138,972,935           | 3,600,000            | 19,462,331            | 1.83                | 13.78        | 2012         |
| Advent International GPE VIII-B L.P.      | 100,000,000           | 100,000,000           | 73,062,483            | 0                    | 119,627,001           | 1.93                | 18.80        | 2016         |
| Advent International GPE IX L.P.          | 115,000,000           | 100,058,293           | 9,195,408             | 14,941,707           | 160,256,552           | 1.69                | 41.69        | 2019         |
| Advent International GPE X L.P.           | 150,000,000           | 5,250,000             | 0                     | 144,750,000          | 5,250,000             | 1.00                |              | 2022         |
| Affinity Ventures                         | 9,000,000             | 9,000,000             | 3,590,011             | 0                    | 826,375               | 0.49                | -11.74       |              |
| Affinity Ventures IV, L.P.                | 4,000,000             | 4,000,000             | 1,541,970             | 0                    | 3,279                 | 0.39                | -36.91       | 2004         |
| Affinity Ventures V, L.P.                 | 5,000,000             | 5,000,000             | 2,048,042             | 0                    | 823,096               | 0.57                | -8.46        | 2008         |
| Apax Partners                             | 600,000,000           | 480,494,877           | 495,261,954           | 200,394,294          | 336,825,570           | 1.73                | 17.41        |              |
| APAX VIII - USD                           | 200,000,000           | 233,892,465           | 335,200,854           | 11,285,376           | 64,269,105            | 1.71                | 14.38        | 2013         |
| Apax IX USD L.P.                          | 150,000,000           | 162,024,715           | 150,794,715           | 14,420,230           | 178,791,406           | 2.03                | 25.07        | 2016         |
| Apax X USD L.P.                           | 150,000,000           | 84,577,697            | 9,266,385             | 74,688,688           | 93,765,059            | 1.22                | 21.27        | 2019         |
| Apax XI                                   | 100,000,000           | 0                     | 0                     | 100,000,000          | 0                     | 0.00                |              | 2022         |
| Arsenal Capital Partners                  | 175,000,000           | 83,300,653            | 2,579,409             | 94,151,511           | 91,878,261            | 1.13                | 7.20         |              |
| Arsenal Capital Partners V, L.P.          | 75,000,000            | 68,574,422            | 2,579,409             | 8,877,742            | 77,152,030            | 1.16                | 7.43         | 2019         |
| Arsenal Capital Partners VI LP            | 100,000,000           | 14,726,231            | 0                     | 85,273,769           | 14,726,231            | 1.00                |              | 2021         |
| Asia Alternatives                         | 399,000,000           | 133,564,841           | 14,230,050            | 275,588,799          | 140,318,034           | 1.16                | 9.27         |              |
| Asia Alternatives Capital Partners V      | 99,000,000            | 90,995,539            | 13,100,628            | 18,158,101           | 102,944,737           | 1.28                | 12.22        | 2017         |
| MN Asia Investors                         | 300,000,000           | 42,569,302            | 1,129,422             | 257,430,698          | 37,373,297            | 0.90                | -15.19       | 2020         |
| Banc Fund                                 | 178,551,387           | 187,460,477           | 40,882,282            | 0                    | 209,348,056           | 1.33                | 6.84         |              |
| Banc Fund IX, L.P.                        | 107,205,932           | 107,205,932           | 35,362,612            | 0                    | 120,678,180           | 1.46                | 6.96         | 2014         |
| Banc Fund X, L.P.                         | 71,345,455            | 80,254,545            | 5,519,670             | 0                    | 88,669,877            | 1.17                | 6.39         | 2018         |
| BlackRock                                 | 951,774,870           | 956,392,392           | 4,487,465             | 0                    | 1,218,749,684         | 1.28                | 23.37        |              |
| BlackRock Long Term Capital, SCSP         | 950,000,000           | 954,617,522           | 2,660,745             | 0                    | 1,218,613,450         | 1.28                | 23.51        | 2019         |
| BlackRock Tempus Fund*                    | 1,774,870             | 1,774,870             | 1,826,720             | 0                    | 136,234               | 1.11                | 5.27         | 2015         |

**Minnesota State Board of Investment**  
**Private Markets Investments as of September 30, 2022**

| Investments                            | Commitments   | Contributions | Distributions | Remaining Commitment | Market Value | Investment Multiple | IRR   | Vintage Year |
|--|---------------|---------------|---------------|----------------------|--------------|---------------------|-------|--------------|
| Blackstone Group L.P.                  | 1,535,000,000 | 810,766,101   | 679,547,837   | 817,069,670          | 510,914,776  | 1.47                | 15.27 |              |
| Blackstone Capital Partners Asia II    | 270,000,000   | 0             | 0             | 270,000,000          | 0            | 0.00                |       | 2021         |
| Blackstone Capital Partners IV, L.P.   | 70,000,000    | 84,459,884    | 200,562,452   | 1,832,302            | 1,014,899    | 2.39                | 37.02 | 2002         |
| Blackstone Capital Partners V L.P.     | 140,000,000   | 152,406,707   | 245,675,051   | 7,027,560            | 882,780      | 1.62                | 8.02  | 2006         |
| Blackstone Capital Partners VI, L.P.   | 100,000,000   | 106,536,126   | 146,006,935   | 11,175,309           | 40,030,012   | 1.75                | 12.16 | 2008         |
| Blackstone Capital Partners VII        | 130,000,000   | 136,931,901   | 67,474,338    | 10,977,430           | 141,856,051  | 1.53                | 14.53 | 2015         |
| Blackstone Capital Partners VIII LP    | 150,000,000   | 68,141,811    | 2,843,116     | 88,450,212           | 77,115,269   | 1.17                | 17.35 | 2019         |
| Blackstone Capital Partners IX         | 150,000,000   | 0             | 0             | 150,000,000          | 0            | 0.00                |       | 2022         |
| Blackstone Growth                      | 250,000,000   | 199,032,081   | 16,985,944    | 65,706,856           | 186,736,497  | 1.02                | 2.63  | 2020         |
| Blackstone Growth Equity II            | 150,000,000   | 0             | 0             | 150,000,000          | 0            | 0.00                |       | 2022         |
| Blackstone Supplemental Account - M    | 125,000,000   | 63,257,591    | 0             | 61,900,000           | 63,279,267   | 1.00                | 0.05  | 2021         |
| Blackstone Strategic Partners          | 915,500,000   | 681,773,427   | 814,525,354   | 322,846,753          | 272,009,679  | 1.59                | 11.95 |              |
| Strategic Partners III VC, L.P.        | 25,000,000    | 25,059,678    | 33,874,990    | 115,168              | 273,106      | 1.36                | 5.97  | 2004         |
| Strategic Partners III-B, L.P.         | 100,000,000   | 79,629,077    | 118,509,586   | 12,304,709           | 226,553      | 1.49                | 6.35  | 2004         |
| Strategic Partners IV VC, L.P.         | 40,500,000    | 42,142,465    | 61,953,059    | 2,280,277            | 2,914,555    | 1.54                | 9.22  | 2008         |
| Strategic Partners IV-B                | 100,000,000   | 99,369,278    | 152,721,770   | 11,657,975           | 3,237,649    | 1.57                | 12.18 | 2008         |
| Strategic Partners V, LP               | 100,000,000   | 87,094,418    | 134,154,655   | 15,934,286           | 9,468,041    | 1.65                | 18.61 | 2011         |
| Strategic Partners VI, L.P.            | 150,000,000   | 103,469,306   | 126,170,186   | 53,202,770           | 33,011,506   | 1.54                | 14.88 | 2014         |
| Strategic Partners VII, L.P.           | 150,000,000   | 116,175,419   | 114,306,781   | 50,685,502           | 86,545,403   | 1.73                | 20.27 | 2016         |
| Strategic Partners VIII                | 150,000,000   | 112,971,385   | 72,021,177    | 92,349,399           | 116,224,186  | 1.67                | 45.33 | 2018         |
| Strategic Partners IX                  | 100,000,000   | 15,862,402    | 813,150       | 84,316,667           | 20,108,680   | 1.32                | 34.39 | 2022         |
| Bridgepoint                            | 253,708,396   | 135,728,894   | 13,311,036    | 117,979,502          | 167,412,864  | 1.33                | 18.39 |              |
| Bridgepoint Europe VI L.P.             | 165,539,921   | 135,728,894   | 13,311,036    | 29,811,026           | 167,412,864  | 1.33                | 18.39 | 2018         |
| Bridgepoint Europe VII                 | 88,168,475    | 0             | 0             | 88,168,475           | 0            | 0.00                |       | 2022         |
| Brookfield Asset Management Inc.       | 500,000,000   | 334,908,062   | 189,061,751   | 204,104,511          | 358,282,166  | 1.63                | 35.19 |              |
| Brookfield Capital Partners Fund IV    | 100,000,000   | 107,053,430   | 168,651,562   | 13,303,704           | 96,006,340   | 2.47                | 45.72 | 2015         |
| Brookfield Capital Partners V L.P.     | 250,000,000   | 227,854,632   | 20,410,189    | 40,800,807           | 262,275,826  | 1.24                | 15.08 | 2018         |
| Brookfield Capital Partners Fund VI    | 150,000,000   | 0             | 0             | 150,000,000          | 0            | 0.00                |       | 2022         |
| CVC Capital Partners                   | 388,400,887   | 435,638,955   | 567,695,326   | 23,144,308           | 275,340,819  | 1.94                | 16.82 |              |
| CVC Capital Partners VI                | 254,685,451   | 281,754,857   | 272,281,201   | 21,745,134           | 271,360,590  | 1.93                | 16.92 | 2013         |
| CVC European Equity Partners V, L.P.   | 133,715,436   | 153,884,098   | 295,414,125   | 1,399,174            | 3,980,230    | 1.95                | 16.75 | 2008         |
| Canyon Partners                        | 125,000,000   | 115,269,703   | 21,475,843    | 31,206,140           | 112,857,747  | 1.17                | 13.24 |              |
| Canyon Distressed Opportunity Fund III | 125,000,000   | 115,269,703   | 21,475,843    | 31,206,140           | 112,857,747  | 1.17                | 13.24 | 2020         |

**Minnesota State Board of Investment**  
**Private Markets Investments as of September 30, 2022**

| Investments                             | Commitments | Contributions | Distributions | Remaining Commitment | Market Value | Investment Multiple | IRR    | Vintage Year |
|---|-------------|---------------|---------------|----------------------|--------------|---------------------|--------|--------------|
| CarVal Investors                        | 600,000,000 | 487,703,333   | 376,367,163   | 140,179,759          | 259,949,793  | 1.30                | 7.96   |              |
| CVI Credit Value Fund A II              | 150,000,000 | 142,500,000   | 199,242,174   | 7,500,000            | 4,111,097    | 1.43                | 8.30   | 2012         |
| CVI Credit Value Fund A III             | 150,000,000 | 142,500,000   | 149,290,605   | 7,500,000            | 42,540,586   | 1.35                | 8.41   | 2015         |
| CVI Credit Value Fund IV                | 150,000,000 | 135,203,333   | 27,679,818    | 42,679,759           | 144,567,585  | 1.27                | 7.42   | 2017         |
| CVI Credit Value Fund V                 | 150,000,000 | 67,500,000    | 154,566       | 82,500,000           | 68,730,525   | 1.02                | 1.93   | 2020         |
| Cardinal Partners                       | 10,000,000  | 10,000,000    | 39,196,082    | 0                    | 30,380       | 3.92                | 10.61  |              |
| DSV Partners IV                         | 10,000,000  | 10,000,000    | 39,196,082    | 0                    | 30,380       | 3.92                | 10.61  | 1985         |
| Carlyle Group                           | 400,000,000 | 296,145,335   | 63,674,055    | 167,454,513          | 272,474,591  | 1.14                | 8.31   |              |
| Carlyle Strategic Partners IV, L.P.     | 100,000,000 | 119,316,692   | 52,212,670    | 32,838,147           | 80,111,166   | 1.11                | 7.22   | 2016         |
| Carlyle Partners VII, L.P.              | 150,000,000 | 154,442,314   | 11,445,009    | 7,002,695            | 171,178,548  | 1.18                | 9.49   | 2017         |
| Carlyle Partners VIII                   | 150,000,000 | 22,386,329    | 16,376        | 127,613,671          | 21,184,877   | 0.95                | -16.90 | 2021         |
| Chicago Growth Partners                 | 60,000,000  | 58,347,626    | 123,371,040   | 1,652,374            | 624,099      | 2.13                | 19.54  |              |
| Chicago Growth Partners II, L.P.        | 60,000,000  | 58,347,626    | 123,371,040   | 1,652,374            | 624,099      | 2.13                | 19.54  | 2008         |
| Clearlake Capital                       | 100,000,000 | 34,482,593    | 2,434         | 65,517,407           | 33,449,184   | 0.97                | -3.64  |              |
| Clearlake Capital Partners VII          | 100,000,000 | 34,482,593    | 2,434         | 65,517,407           | 33,449,184   | 0.97                | -3.64  | 2022         |
| Court Square                            | 489,419,132 | 470,839,925   | 595,262,817   | 71,133,749           | 260,832,354  | 1.82                | 14.98  |              |
| Court Square Capital Partners II, L.P.  | 164,419,132 | 170,029,204   | 295,744,454   | 6,176,873            | 6,247,839    | 1.78                | 12.42  | 2006         |
| Court Square Capital Partners III, L.P. | 175,000,000 | 188,280,408   | 259,017,390   | 7,909,729            | 142,949,611  | 2.13                | 20.41  | 2012         |
| Court Square Capital Partners IV, L.P.  | 150,000,000 | 112,530,313   | 40,500,973    | 57,047,147           | 111,634,904  | 1.35                | 23.37  | 2018         |
| Crescendo                               | 101,500,000 | 103,101,226   | 57,982,654    | 0                    | 305,374      | 0.57                | -4.60  |              |
| Crescendo Ventures IV                   | 101,500,000 | 103,101,226   | 57,982,654    | 0                    | 305,374      | 0.57                | -4.60  | 2000         |
| GTCR                                    | 210,000,000 | 211,677,127   | 424,264,809   | 16,665,460           | 196,161,532  | 2.93                | 27.25  |              |
| GTCR Fund X                             | 100,000,000 | 105,821,208   | 214,751,215   | 6,751,396            | 546,249      | 2.03                | 21.36  | 2010         |
| GTCR XI                                 | 110,000,000 | 105,855,919   | 209,513,594   | 9,914,064            | 195,615,283  | 3.83                | 37.32  | 2013         |
| Goldman, Sachs & Co.                    | 549,800,000 | 440,661,231   | 513,095,460   | 173,148,295          | 235,846,002  | 1.70                | 15.10  |              |
| GS Capital Partners V, L.P.             | 100,000,000 | 74,319,006    | 191,435,136   | 1,041,099            | 430,862      | 2.58                | 18.23  | 2005         |
| GS Capital Partners VI, L.P.            | 100,000,000 | 110,260,752   | 141,316,354   | 2,551,356            | 3,511,088    | 1.31                | 7.10   | 2007         |
| GS China-US Cooperation Fund            | 99,800,000  | 30,613,445    | 0             | 69,361,000           | 42,866,026   | 1.40                | 16.33  | 2018         |
| GS Vintage VII                          | 100,000,000 | 86,023,145    | 63,054,247    | 59,320,828           | 76,118,739   | 1.62                | 17.22  | 2016         |
| West Street Capital Partners VII, L.P.  | 150,000,000 | 139,444,883   | 117,289,723   | 40,874,012           | 112,919,286  | 1.65                | 20.68  | 2016         |
| Goldner Hawn Johnson & Morrison         | 77,755,138  | 57,009,055    | 51,364,283    | 20,918,050           | 65,416,570   | 2.05                | 21.39  |              |
| GHJM TrailHead Fund                     | 20,000,000  | 16,652,130    | 51,364,283    | 3,354,486            | 6,606,331    | 3.48                | 20.37  | 2012         |
| Goldner Hawn Fund VII, L.P.             | 57,755,138  | 40,356,924    | 0             | 17,563,564           | 58,810,239   | 1.46                | 28.27  | 2018         |

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| Investments                                   | Commitments   | Contributions | Distributions | Remaining Commitment | Market Value | Investment Multiple | IRR    | Vintage Year |
|---|---------------|---------------|---------------|----------------------|--------------|---------------------|--------|--------------|
| Green Equity Investors                        | 325,000,000   | 333,548,416   | 234,641,442   | 28,263,703           | 340,844,555  | 1.73                | 14.59  |              |
| Green Equity Investors VI, L.P.               | 200,000,000   | 224,611,333   | 234,504,568   | 12,063,912           | 225,221,388  | 2.05                | 14.99  | 2012         |
| Green Equity Investors VIII                   | 125,000,000   | 108,937,083   | 136,874       | 16,199,791           | 115,623,167  | 1.06                | 5.76   | 2020         |
| HarbourVest                                   | 21,601,643    | 20,932,406    | 25,785,301    | 756,599              | 6,268,607    | 1.53                | 12.48  |              |
| Dover Street VII Cayman Fund L.P.*            | 2,198,112     | 2,074,235     | 1,818,289     | 132,416              | 48,183       | 0.90                | -4.41  | 2014         |
| HarbourVest Intl PE Partners V-Cayman US*     | 3,497,349     | 3,346,005     | 4,413,905     | 156,744              | 116,636      | 1.35                | 13.56  | 2014         |
| Harbourvest Intl PE Partners VI-Cayman*       | 4,208,573     | 4,039,458     | 5,299,990     | 171,439              | 2,305,160    | 1.88                | 15.04  | 2014         |
| HarbourVest Partners VIII Cayman Buyout*      | 4,506,711     | 4,387,189     | 5,782,540     | 156,000              | 545,337      | 1.44                | 13.70  | 2014         |
| HarbourVest Partners VIII-Cayman Venture*     | 7,190,898     | 7,085,519     | 8,470,577     | 140,000              | 3,253,292    | 1.65                | 12.59  | 2014         |
| Hellman & Friedman                            | 475,000,000   | 364,060,123   | 165,276,173   | 123,661,024          | 340,689,254  | 1.39                | 20.17  |              |
| Hellman & Friedman Capital Partners VII, L.P. | 50,000,000    | 49,896,546    | 153,705,841   | 2,202,044            | 9,503,556    | 3.27                | 24.89  | 2009         |
| Hellman & Friedman Investors IX, L.P.         | 175,000,000   | 171,414,924   | 4,158,129     | 6,795,430            | 205,769,545  | 1.22                | 12.50  | 2018         |
| Hellman & Friedman Capital Partners X         | 250,000,000   | 142,748,653   | 7,412,203     | 114,663,550          | 125,416,153  | 0.93                | -8.60  | 2021         |
| IK Limited                                    | 495,892,068   | 451,391,705   | 448,476,352   | 65,583,059           | 274,330,463  | 1.60                | 14.70  |              |
| IK Fund VII                                   | 179,138,425   | 179,315,195   | 295,129,855   | 7,429,930            | 42,136,703   | 1.88                | 14.43  | 2013         |
| IK Fund VIII                                  | 169,579,989   | 175,535,613   | 153,346,498   | 7,520,749            | 142,801,538  | 1.69                | 17.81  | 2016         |
| IK Fund IX                                    | 147,173,654   | 96,540,897    | 0             | 50,632,380           | 89,392,222   | 0.93                | -7.05  | 2019         |
| Kohlberg, Kravis, Roberts & Co.               | 1,647,000,000 | 1,008,560,544 | 924,861,973   | 701,029,568          | 680,183,277  | 1.59                | 13.41  |              |
| KKR 2006 Fund L.P.                            | 200,000,000   | 218,137,965   | 379,638,388   | 3,300,979            | 11,455,830   | 1.79                | 9.07   | 2006         |
| KKR Americas Fund XII L.P.                    | 150,000,000   | 145,210,855   | 50,557,068    | 17,494,569           | 201,958,726  | 1.74                | 23.45  | 2016         |
| KKR Asian Fund III                            | 100,000,000   | 91,981,007    | 48,897,408    | 17,930,332           | 119,743,889  | 1.83                | 28.15  | 2017         |
| KKR Asian Fund IV                             | 150,000,000   | 48,213,535    | 415,503       | 105,723,413          | 43,434,633   | 0.91                | -12.09 | 2020         |
| KKR Core Investments Partnership              | 97,000,000    | 82,904,883    | 3,598,448     | 19,309,407           | 88,934,950   | 1.12                | 11.80  | 2021         |
| KKR Core Investments Fund II                  | 100,000,000   | 0             | 0             | 100,000,000          | 0            | 0.00                |        | 2022         |
| KKR Europe V                                  | 100,000,000   | 87,571,598    | 16,809,130    | 16,643,999           | 86,571,058   | 1.18                | 12.05  | 2018         |
| KKR European Fund VI (USD) SCSp               | 100,000,000   | 0             | 0             | 100,000,000          | 0            | 0.00                |        | 2022         |
| KKR Millennium Fund                           | 200,000,000   | 205,167,570   | 424,946,028   | 0                    | 161,924      | 2.07                | 16.37  | 2002         |
| KKR MN Partnership L.P.                       | 150,000,000   | 62,923,770    | 0             | 87,076,230           | 63,769,528   | 1.01                | 2.15   | 2021         |
| KKR North America Fund XIII                   | 300,000,000   | 66,449,361    | 0             | 233,550,639          | 64,152,738   | 0.97                | -4.28  | 2021         |

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| Investments                                   | Commitments   | Contributions | Distributions | Remaining Commitment | Market Value | Investment Multiple | IRR   | Vintage Year |
|---|---------------|---------------|---------------|----------------------|--------------|---------------------|-------|--------------|
| Lexington Partners                            | 1,345,000,000 | 965,473,522   | 707,737,528   | 443,669,866          | 793,663,344  | 1.56                | 14.30 |              |
| Lexington Capital Partners VI-B, L.P.         | 100,000,000   | 98,374,022    | 145,572,539   | 1,634,703            | 967,171      | 1.49                | 7.91  | 2005         |
| Lexington Capital Partners VII, L.P.          | 200,000,000   | 172,937,068   | 261,232,851   | 31,031,298           | 30,208,880   | 1.69                | 14.66 | 2009         |
| Lexington Capital Partners VIII, L.P.         | 150,000,000   | 136,386,669   | 129,077,425   | 32,663,555           | 103,660,595  | 1.71                | 18.27 | 2014         |
| Lexington Capital Partners IX, L.P.           | 150,000,000   | 101,383,471   | 27,468,456    | 60,529,544           | 140,570,991  | 1.66                | 49.12 | 2018         |
| Lexington Capital Partners X                  | 100,000,000   | 0             | 0             | 100,000,000          | 0            | 0.00                |       | 2021         |
| Lexington Co-Investment Partners IV           | 200,000,000   | 213,209,165   | 111,670,988   | 7,565,919            | 241,341,236  | 1.66                | 18.57 | 2017         |
| Lexington Co-Investment Partners V            | 300,000,000   | 150,757,999   | 7,588,884     | 156,830,885          | 168,397,661  | 1.17                | 23.75 | 2020         |
| Lexington Co-Investment Partners V Overage    | 45,000,000    | 23,463,000    | 839,090       | 22,376,090           | 24,751,327   | 1.09                | 11.74 | 2021         |
| Lexington Middle Market Investors IV          | 100,000,000   | 68,962,128    | 24,287,295    | 31,037,872           | 83,765,484   | 1.57                | 29.96 | 2016         |
| MHR Institutional Partners                    | 75,000,000    | 78,934,392    | 21,072,878    | 15,823,636           | 84,880,198   | 1.34                | 9.47  |              |
| MHR Institutional Partners IV LP              | 75,000,000    | 78,934,392    | 21,072,878    | 15,823,636           | 84,880,198   | 1.34                | 9.47  | 2014         |
| Madison Dearborn Capital Partners LLC         | 200,000,000   | 155,940,244   | 55,621,857    | 67,308,990           | 173,341,822  | 1.47                | 14.82 |              |
| Madison Dearborn Capital Partners VII, L.P.   | 100,000,000   | 99,217,693    | 47,919,636    | 16,470,133           | 116,110,357  | 1.65                | 14.67 | 2015         |
| Madison Dearborn Capital Partners VIII-A, L.P | 100,000,000   | 56,722,551    | 7,702,221     | 50,838,857           | 57,231,465   | 1.14                | 16.54 | 2019         |
| Marathon                                      | 200,000,000   | 149,906,171   | 6,185,200     | 56,000,000           | 162,686,016  | 1.13                | 12.12 |              |
| Marathon Distressed Credit Fund               | 200,000,000   | 149,906,171   | 6,185,200     | 56,000,000           | 162,686,016  | 1.13                | 12.12 | 2020         |
| Merced Capital                                | 278,737,500   | 288,144,755   | 274,839,922   | 0                    | 74,190,848   | 1.21                | 4.16  |              |
| Merced Partners III                           | 100,000,000   | 103,878,468   | 133,823,596   | 0                    | 1,065,950    | 1.30                | 5.50  | 2010         |
| Merced Partners IV                            | 125,000,000   | 124,968,390   | 116,847,539   | 0                    | 22,892,906   | 1.12                | 2.37  | 2013         |
| Merced Partners V                             | 53,737,500    | 59,297,897    | 24,168,787    | 0                    | 50,231,992   | 1.25                | 5.18  | 2017         |
| Neuberger Berman LLC                          | 625,000,000   | 405,942,357   | 291,293,999   | 447,384,588          | 420,614,738  | 1.75                | 34.63 |              |
| Dyal Capital Partners III                     | 175,000,000   | 204,704,818   | 195,810,158   | 108,834,364          | 147,383,936  | 1.68                | 26.57 | 2015         |
| Dyal Capital Partners IV                      | 250,000,000   | 166,237,540   | 94,769,114    | 173,550,224          | 223,163,792  | 1.91                | 61.02 | 2018         |
| Dyal Capital Partners V                       | 200,000,000   | 35,000,000    | 714,726       | 165,000,000          | 50,067,010   | 1.45                | 32.53 | 2020         |
| Nordic Capital                                | 569,804,749   | 459,529,281   | 321,629,558   | 186,824,956          | 390,916,197  | 1.55                | 16.26 |              |
| Nordic Capital Fund VIII                      | 174,667,976   | 222,197,616   | 283,473,946   | 13,954,670           | 86,343,920   | 1.66                | 14.24 | 2013         |
| Nordic Capital IX Beta, L.P.                  | 167,523,058   | 165,466,149   | 38,155,612    | 17,122,087           | 221,549,102  | 1.57                | 23.47 | 2017         |
| Nordic Capital Fund X                         | 139,445,239   | 71,865,516    | 0             | 67,579,723           | 83,023,175   | 1.16                | 27.24 | 2020         |
| Nordic Capital Fund XI                        | 88,168,475    | 0             | 0             | 88,168,475           | 0            | 0.00                |       | 2022         |
| North Sky Capital                             | 2,454,339     | 1,998,089     | 2,491,492     | 456,250              | 131,173      | 1.31                | 10.59 |              |
| North Sky Capital LBO Fund III, LP*           | 1,070,259     | 720,259       | 1,026,684     | 350,000              | 56,613       | 1.50                | 14.07 | 2014         |
| North Sky Capital Venture Fund III, LP*       | 1,384,080     | 1,277,830     | 1,464,808     | 106,250              | 74,560       | 1.20                | 7.98  | 2014         |

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|---|-------------|---------------|---------------|----------------------|--------------|---------------------|-------|--------------|
| Oak Hill Capital Management, Inc.         | 250,000,000 | 245,996,037   | 217,994,544   | 11,555,045           | 175,290,082  | 1.60                | 31.97 |              |
| Oak Hill Capital Partners IV Onshore LP   | 150,000,000 | 153,245,546   | 217,959,501   | 4,305,536            | 64,131,587   | 1.84                | 33.84 | 2016         |
| Oak Hill Capital Partners V               | 100,000,000 | 92,750,491    | 35,043        | 7,249,509            | 111,158,495  | 1.20                | 19.64 | 2018         |
| Oaktree Capital Management, LLC           | 295,000,000 | 171,207,605   | 50,714,692    | 165,568,839          | 186,246,798  | 1.38                | 12.10 |              |
| Oaktree Special Situations Fund, L.P.     | 100,000,000 | 101,556,418   | 20,335,451    | 10,241,294           | 94,450,569   | 1.13                | 3.26  | 2014         |
| Oaktree Special Situations Fund II, L.P.  | 100,000,000 | 69,651,187    | 30,379,241    | 60,327,545           | 91,796,229   | 1.75                | 71.89 | 2018         |
| Oaktree Special Situations Fund III, L.P. | 95,000,000  | 0             | 0             | 95,000,000           | 0            | 0.00                |       | 2022         |
| Paine & Partners, LLC                     | 225,000,000 | 175,378,161   | 52,218,491    | 72,907,357           | 191,660,867  | 1.39                | 13.75 |              |
| Paine Schwartz Food Chain Fund IV         | 75,000,000  | 65,810,296    | 35,397,971    | 18,048,325           | 59,617,458   | 1.44                | 9.20  | 2014         |
| Paine Schwartz Food Chain Fund V, L.P.    | 150,000,000 | 109,567,865   | 16,820,520    | 54,859,032           | 132,043,410  | 1.36                | 27.53 | 2018         |
| Permal PE                                 | 5,337,098   | 4,387,326     | 4,339,751     | 1,090,000            | 765,140      | 1.16                | 5.08  |              |
| Glouston Private Equity Opportunities IV* | 5,337,098   | 4,387,326     | 4,339,751     | 1,090,000            | 765,140      | 1.16                | 5.08  | 2014         |
| Permira                                   | 606,844,191 | 445,526,506   | 453,870,823   | 202,499,503          | 387,832,494  | 1.89                | 19.31 |              |
| Permira V, L.P.                           | 176,994,302 | 183,579,256   | 370,311,465   | 4,124,114            | 130,033,186  | 2.73                | 21.75 | 2013         |
| Permira VI, L.P.                          | 133,035,318 | 127,106,413   | 72,333,687    | 25,175,983           | 148,209,354  | 1.74                | 17.25 | 2016         |
| Permira VII L.P.1                         | 149,867,112 | 134,840,837   | 11,225,671    | 26,251,947           | 109,589,953  | 0.90                | -7.73 | 2019         |
| Permira VIII, L.P.                        | 146,947,458 | 0             | 0             | 146,947,458          | 0            | 0.00                |       | 2022         |
| Public Pension Capital Management         | 240,000,000 | 125,676,230   | 86,272,572    | 131,537,479          | 171,858,399  | 2.05                | 25.28 |              |
| Public Pension Capital, LLC               | 240,000,000 | 125,676,230   | 86,272,572    | 131,537,479          | 171,858,399  | 2.05                | 25.28 | 2014         |
| Silver Lake Partners                      | 335,000,000 | 343,238,591   | 354,127,678   | 30,570,834           | 336,001,447  | 2.01                | 19.27 |              |
| Silver Lake Partners III, L.P.            | 100,000,000 | 93,819,921    | 192,077,429   | 9,528,468            | 24,492,811   | 2.31                | 18.40 | 2007         |
| Silver Lake Partners IV, L.P.             | 100,000,000 | 115,620,904   | 123,865,628   | 2,881,307            | 154,935,755  | 2.41                | 22.96 | 2012         |
| Silver Lake Partners V, L.P.              | 135,000,000 | 133,797,766   | 38,184,621    | 18,161,059           | 156,572,880  | 1.46                | 15.30 | 2017         |
| Siris Capital Group                       | 67,875,000  | 0             | 0             | 67,875,000           | 0            | 0.00                |       |              |
| Siris V                                   | 67,875,000  | 0             | 0             | 67,875,000           | 0            | 0.00                |       | 2022         |
| Split Rock                                | 110,000,000 | 107,055,906   | 125,392,564   | 2,944,094            | 28,852,657   | 1.44                | 5.14  |              |
| Split Rock Partners, L.P.                 | 50,000,000  | 47,890,906    | 58,794,192    | 2,109,094            | 1,686,379    | 1.26                | 2.87  | 2005         |
| Split Rock Partners II, L.P.              | 60,000,000  | 59,165,000    | 66,598,372    | 835,000              | 27,166,278   | 1.58                | 7.84  | 2008         |
| Summit Partners                           | 600,000,000 | 380,278,627   | 395,684,665   | 423,119,288          | 353,092,799  | 1.97                | 28.48 |              |
| Summit Partners Growth Equity Fund VIII   | 100,000,000 | 116,727,192   | 232,143,262   | 23,129,320           | 62,185,298   | 2.52                | 27.13 | 2011         |
| Summit Partners Growth Equity Fund IX     | 100,000,000 | 131,564,916   | 141,424,991   | 109,860,075          | 152,032,235  | 2.23                | 35.74 | 2015         |
| Summit Partners Growth Equity Fund X-A    | 150,000,000 | 131,986,519   | 22,116,412    | 40,129,893           | 138,875,267  | 1.22                | 17.75 | 2019         |
| Summit Partners Growth Equity Fund XI     | 250,000,000 | 0             | 0             | 250,000,000          | 0            | 0.00                |       | 2021         |



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|--------------------------------------|-------------|---------------|---------------|----------------------|--------------|---------------------|--------|--------------|
| TPG Capital                          | 650,000,000 | 321,969,073   | 171,711,154   | 372,114,826          | 304,704,508  | 1.48                | 22.18  |              |
| TPG Growth V                         | 150,000,000 | 80,865,259    | 8,437,171     | 77,135,894           | 88,952,428   | 1.20                | 22.02  | 2021         |
| TPG Partners VII, L.P.               | 100,000,000 | 101,117,808   | 135,130,268   | 16,771,045           | 67,576,664   | 2.00                | 21.23  | 2015         |
| TPG Partners VIII, L.P.              | 150,000,000 | 111,741,390   | 28,138,806    | 56,452,503           | 121,778,507  | 1.34                | 30.37  | 2018         |
| TPG Partners IX, L.P.                | 100,000,000 | 0             | 0             | 100,000,000          | 0            | 0.00                |        | 2022         |
| TPG Tech Adjacencies II, L.P.        | 150,000,000 | 28,244,616    | 4,909         | 121,755,384          | 26,396,910   | 0.93                | -11.00 | 2021         |
| Thoma Bravo LLC                      | 525,000,000 | 488,606,164   | 263,591,065   | 109,119,026          | 478,688,092  | 1.52                | 22.84  |              |
| Thoma Cressey Fund VII, L.P.         | 50,000,000  | 50,000,000    | 107,057,940   | 0                    | 422,288      | 2.15                | 23.58  | 2000         |
| Thoma Bravo Fund XII, L.P.           | 75,000,000  | 81,949,004    | 64,465,434    | 18,452,144           | 92,043,449   | 1.91                | 16.34  | 2016         |
| Thoma Bravo Fund XIII, L.P.          | 150,000,000 | 184,783,234   | 92,067,654    | 12,475,387           | 218,967,371  | 1.68                | 33.89  | 2018         |
| Thoma Bravo Fund XIV, L.P.           | 150,000,000 | 141,216,364   | 37            | 8,783,636            | 136,662,842  | 0.97                | -2.92  | 2020         |
| Thoma Bravo Fund XV, L.P.            | 100,000,000 | 30,657,562    | 0             | 69,407,859           | 30,592,141   | 1.00                | -0.21  | 2021         |
| Thomas H. Lee Partners               | 400,000,000 | 259,452,809   | 238,530,930   | 170,079,472          | 219,709,933  | 1.77                | 28.53  |              |
| Thomas H. Lee Equity Fund VII, LP.   | 100,000,000 | 99,558,385    | 137,442,415   | 10,603,772           | 49,307,193   | 1.88                | 22.57  | 2015         |
| Thomas H. Lee Equity Fund VIII, L.P. | 150,000,000 | 144,609,695   | 101,088,515   | 24,760,429           | 155,776,263  | 1.78                | 44.80  | 2018         |
| Thomas H. Lee Equity Fund IX, L.P.   | 150,000,000 | 15,284,729    | 0             | 134,715,271          | 14,626,477   | 0.96                | -5.81  | 2021         |
| Thomas, McNerney & Partners          | 80,000,000  | 78,125,000    | 125,838,499   | 1,875,000            | 426,589      | 1.62                | 8.17   |              |
| Thomas, McNerney & Partners I, L.P.  | 30,000,000  | 30,000,000    | 16,170,973    | 0                    | 30,599       | 0.54                | -10.23 | 2002         |
| Thomas, McNerney & Partners II, L.P. | 50,000,000  | 48,125,000    | 109,667,526   | 1,875,000            | 395,990      | 2.29                | 16.41  | 2006         |
| Varde Fund                           | 600,000,000 | 494,000,000   | 464,600,624   | 106,000,000          | 226,144,076  | 1.40                | 7.38   |              |
| Varde Fund X, L.P.                   | 150,000,000 | 150,000,000   | 252,548,040   | 0                    | 8,690,928    | 1.74                | 10.07  | 2010         |
| Varde Fund XI, L.P.                  | 200,000,000 | 200,000,000   | 212,032,546   | 0                    | 54,797,516   | 1.33                | 4.75   | 2013         |
| Varde Fund XIII, L.P.                | 150,000,000 | 144,000,000   | 20,038        | 6,000,000            | 162,655,632  | 1.13                | 7.67   | 2018         |
| Varde Fund XIV, L.P.                 | 100,000,000 | 0             | 0             | 100,000,000          | 0            | 0.00                |        | 2022         |
| Vestar Capital Partners              | 380,000,000 | 333,838,610   | 389,026,227   | 56,184,822           | 150,782,151  | 1.62                | 11.58  |              |
| Vestar Capital Partners IV, L.P.     | 55,000,000  | 55,652,024    | 102,293,320   | 57,313               | 381,043      | 1.84                | 14.62  | 1999         |
| Vestar Capital Partners V, L.P.      | 75,000,000  | 76,797,458    | 100,961,586   | 0                    | 105,795      | 1.32                | 3.88   | 2005         |
| Vestar Capital Partners VI, L.P.     | 100,000,000 | 107,516,638   | 152,527,578   | 0                    | 59,073,251   | 1.97                | 23.81  | 2011         |
| Vestar Capital Partners VII, L.P.    | 150,000,000 | 93,872,491    | 33,243,742    | 56,127,509           | 91,222,063   | 1.33                | 13.86  | 2017         |
| Vista Equity Partners                | 200,000,000 | 147,667,435   | 77,223        | 53,545,468           | 155,957,674  | 1.06                | 3.16   |              |
| Vista Equity Partners Perennial      | 200,000,000 | 147,667,435   | 77,223        | 53,545,468           | 155,957,674  | 1.06                | 3.16   | 2020         |

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| Investments                                | Commitments   | Contributions | Distributions | Remaining Commitment | Market Value | Investment Multiple | IRR   | Vintage Year |
|--|---------------|---------------|---------------|----------------------|--------------|---------------------|-------|--------------|
| Warburg Pincus                             | 1,416,000,000 | 1,088,366,066 | 1,029,214,757 | 333,798,500          | 766,196,212  | 1.65                | 11.29 |              |
| Warburg Pincus China, L.P.                 | 45,000,000    | 45,585,000    | 17,602,200    | 1,350,000            | 55,297,118   | 1.60                | 13.73 | 2016         |
| Warburg Pincus China-Southeast Asia II     | 50,000,000    | 23,000,000    | 3,300,000     | 27,000,000           | 23,201,375   | 1.15                | 12.80 | 2019         |
| Warburg Pincus Financial Sector            | 90,000,000    | 90,616,765    | 34,617,600    | 3,555,000            | 117,893,865  | 1.68                | 21.73 | 2017         |
| Warburg Pincus Global Growth, L.P.         | 250,000,000   | 219,788,842   | 2,625,000     | 30,125,000           | 287,224,511  | 1.32                | 16.40 | 2018         |
| Warburg Pincus Global Growth 14, L.P.      | 300,000,000   | 29,801,507    | 0             | 270,000,000          | 29,231,850   | 0.98                | -2.44 | 2022         |
| Warburg Pincus Equity Partners, L.P.       | 100,000,000   | 100,000,000   | 163,542,253   | 0                    | 392,595      | 1.64                | 10.02 | 1998         |
| Warburg Pincus Private Equity IX, L.P.     | 100,000,000   | 100,000,000   | 171,872,950   | 0                    | 237,414      | 1.72                | 9.60  | 2005         |
| Warburg Pincus Private Equity X, L.P.      | 150,000,000   | 150,000,000   | 266,203,541   | 0                    | 3,140,616    | 1.80                | 9.51  | 2007         |
| Warburg Pincus Private Equity XI, L.P.     | 200,000,000   | 200,342,452   | 262,255,748   | 0                    | 85,964,976   | 1.74                | 12.31 | 2012         |
| Warburg Pincus Private Equity XII, L.P.    | 131,000,000   | 129,231,500   | 107,195,466   | 1,768,500            | 163,611,892  | 2.10                | 19.97 | 2015         |
| Wayzata Investment Partners                | 300,000,000   | 243,165,000   | 379,322,944   | 15,750,000           | 19,632,433   | 1.64                | 14.38 |              |
| Wayzata Opportunities Fund II, LLC         | 150,000,000   | 174,750,000   | 334,183,134   | 750,000              | 0            | 1.91                | 16.57 | 2007         |
| Wayzata Opportunities Fund III             | 150,000,000   | 68,415,000    | 45,139,810    | 15,000,000           | 19,632,433   | 0.95                | -1.24 | 2012         |
| Wellspring Capital Partners                | 125,000,000   | 149,192,072   | 55,485,810    | 14,724,724           | 155,951,545  | 1.42                | 22.10 |              |
| Wellspring Capital Partners VI, L.P.       | 125,000,000   | 149,192,072   | 55,485,810    | 14,724,724           | 155,951,545  | 1.42                | 22.10 | 2016         |
| Welsh, Carson, Anderson & Stowe            | 650,000,000   | 459,823,517   | 365,218,998   | 190,176,483          | 426,616,274  | 1.72                | 18.03 |              |
| Welsh, Carson, Anderson & Stowe XI, L.P.   | 100,000,000   | 100,000,000   | 161,464,441   | 0                    | 7,136,609    | 1.69                | 11.74 | 2008         |
| Welsh, Carson, Anderson & Stowe XII, L.P.  | 150,000,000   | 145,877,897   | 177,480,040   | 4,122,103            | 175,780,424  | 2.42                | 27.37 | 2014         |
| Welsh, Carson, Anderson & Stowe XIII, L.P. | 250,000,000   | 213,945,620   | 26,274,517    | 36,054,380           | 243,699,241  | 1.26                | 23.84 | 2018         |
| Welsh, Carson, Anderson & Stowe XIV, L.P.  | 150,000,000   | 0             | 0             | 150,000,000          | 0            | 0.00                |       | 2022         |
| Whitehorse Capital                         | 300,000,000   | 226,200,694   | 133,582,794   | 131,987,566          | 151,649,793  | 1.26                | 23.32 |              |
| Whitehorse Liquidity Partners III          | 100,000,000   | 99,860,190    | 70,528,418    | 18,084,498           | 63,276,535   | 1.34                | 20.95 | 2019         |
| Whitehorse Liquidity Partners IV           | 100,000,000   | 89,088,701    | 46,792,821    | 35,204,706           | 64,164,225   | 1.25                | 28.09 | 2020         |
| Whitehorse Liquidity Partners V            | 100,000,000   | 37,251,803    | 16,261,554    | 78,698,362           | 24,209,034   | 1.09                | 22.10 | 2021         |
| Wind Point Partners                        | 200,000,000   | 87,447,711    | 1,912,585     | 114,469,477          | 106,638,686  | 1.24                | 20.13 |              |
| Wind Point Partners IX                     | 100,000,000   | 87,447,711    | 1,912,585     | 14,469,477           | 106,638,686  | 1.24                | 20.13 | 2019         |
| Wind Point Partners X                      | 100,000,000   | 0             | 0             | 100,000,000          | 0            | 0.00                |       | 2022         |
| Windjammer Capital Investors               | 266,708,861   | 221,937,286   | 251,920,723   | 60,533,300           | 164,647,745  | 1.88                | 12.49 |              |
| Windjammer Mezzanine & Equity Fund II      | 66,708,861    | 55,215,684    | 85,036,800    | 10,139,363           | 342,959      | 1.55                | 8.97  | 2000         |
| Windjammer Senior Equity Fund IV, L.P.     | 100,000,000   | 94,740,728    | 165,677,026   | 21,167,914           | 67,150,658   | 2.46                | 17.98 | 2012         |
| Windjammer Senior Equity Fund V, L.P.      | 100,000,000   | 71,980,874    | 1,206,897     | 29,226,023           | 97,154,128   | 1.37                | 19.28 | 2017         |

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| Investments                                  | Commitments          | Contributions        | Distributions        | Remaining Commitment | Market Value         | Investment Multiple | IRR          | Vintage Year |
|--|----------------------|----------------------|----------------------|----------------------|----------------------|---------------------|--------------|--------------|
| <b>Private Credit</b>                        | <b>4,222,141,781</b> | <b>3,133,299,562</b> | <b>2,509,027,378</b> | <b>1,612,034,570</b> | <b>1,616,841,746</b> | <b>1.32</b>         | <b>10.01</b> |              |
| Audax Group                                  | 350,000,000          | 201,298,458          | 210,748,006          | 170,386,931          | 46,073,836           | 1.28                | 10.45        |              |
| Audax Mezzanine Fund III, L.P.               | 100,000,000          | 105,207,316          | 133,977,984          | 0                    | 4,991,064            | 1.32                | 9.78         | 2010         |
| Audax Mezzanine Fund IV-A, L.P.              | 100,000,000          | 85,592,246           | 75,886,788           | 30,885,827           | 28,505,755           | 1.22                | 11.27        | 2015         |
| Audax Mezzanine Fund V, L.P.                 | 150,000,000          | 10,498,895           | 883,234              | 139,501,105          | 12,577,016           | 1.28                | 41.63        | 2020         |
| Avenue Capital Partners                      | 200,000,000          | 200,977,328          | 158,744,651          | 0                    | 156,180,358          | 1.57                | 9.17         |              |
| Avenue Energy Opportunities Fund, L.P.       | 100,000,000          | 100,977,328          | 77,640,191           | 0                    | 64,257,640           | 1.41                | 5.90         | 2014         |
| Avenue Energy Opportunities Fund II, L.P.    | 100,000,000          | 100,000,000          | 81,104,460           | 0                    | 91,922,718           | 1.73                | 14.25        | 2017         |
| BlackRock                                    | 97,500,000           | 92,646,829           | 11,145,751           | 4,853,171            | 98,657,199           | 1.19                | 7.17         |              |
| BlackRock Middle Market Senior Fund          | 97,500,000           | 92,646,829           | 11,145,751           | 4,853,171            | 98,657,199           | 1.19                | 7.17         | 2018         |
| Brookfield Asset Management Inc.             | 200,000,000          | 34,157,840           | 0                    | 165,842,160          | 35,735,454           | 1.05                | 5.27         |              |
| Brookfield Real Estate Finance Fund VI       | 200,000,000          | 34,157,840           | 0                    | 165,842,160          | 35,735,454           | 1.05                | 5.27         | 2021         |
| Energy Capital Partners                      | 28,087,500           | 29,002,111           | 9,769,268            | 8,854,657            | 20,069,318           | 1.03                | 3.04         |              |
| Energy Capital Credit Solutions II-A         | 28,087,500           | 29,002,111           | 9,769,268            | 8,854,657            | 20,069,318           | 1.03                | 3.04         | 2018         |
| Gold Hill                                    | 65,852,584           | 65,852,584           | 113,654,899          | 0                    | 3,103,152            | 1.77                | 11.81        |              |
| Gold Hill Venture Lending                    | 40,000,000           | 40,000,000           | 65,261,602           | 0                    | 330,531              | 1.64                | 10.69        | 2004         |
| Gold Hill 2008                               | 25,852,584           | 25,852,584           | 48,393,297           | 0                    | 2,772,621            | 1.98                | 14.48        | 2008         |
| Goldman, Sachs & Co.                         | 227,500,000          | 261,176,828          | 316,186,144          | 24,922,591           | 967,476              | 1.21                | 6.79         |              |
| GS Mezzanine Partners 2006 Institutional     | 100,000,000          | 113,458,168          | 135,335,344          | 9,858,563            | 395,383              | 1.20                | 5.00         | 2006         |
| GS Mezzanine Partners V, L.P.                | 127,500,000          | 147,718,660          | 180,850,800          | 15,064,028           | 572,093              | 1.23                | 9.07         | 2007         |
| HPS Investment Partners                      | 200,000,000          | 113,870,340          | 19,367,489           | 100,957,581          | 108,905,855          | 1.13                | 9.95         |              |
| HPS Mezzanine Partners 2019, L.P.            | 100,000,000          | 93,859,334           | 19,367,489           | 20,968,587           | 88,894,849           | 1.15                | 10.01        | 2019         |
| HPS Strategic Investment Partners V, L.P.    | 100,000,000          | 20,011,006           | 0                    | 79,988,994           | 20,011,006           | 1.00                |              | 2022         |
| Kohlberg, Kravis, Roberts & Co.              | 274,000,000          | 358,961,070          | 304,858,382          | 100,892,678          | 112,100,957          | 1.16                | 9.59         |              |
| KKR Lending Partner II L.P.                  | 75,000,000           | 87,050,313           | 82,467,685           | 8,802,924            | 7,089,379            | 1.03                | 1.45         | 2015         |
| KKR Lending Partners III L.P.                | 199,000,000          | 271,910,757          | 222,390,697          | 92,089,754           | 105,011,577          | 1.20                | 14.35        | 2017         |
| LBC Credit Partners                          | 200,000,000          | 192,917,328          | 140,704,880          | 75,767,387           | 83,495,632           | 1.16                | 9.88         |              |
| LBC Credit Partners IV, L.P.                 | 100,000,000          | 110,943,649          | 107,939,239          | 36,220,071           | 22,931,896           | 1.18                | 8.34         | 2016         |
| LBC Credit Partners V, L.P.                  | 100,000,000          | 81,973,679           | 32,765,641           | 39,547,316           | 60,563,736           | 1.14                | 16.33        | 2019         |
| Marathon                                     | 200,000,000          | 101,022,008          | 858,534              | 100,000,000          | 129,425,490          | 1.29                | 14.69        |              |
| Marathon Secured Private Strategies Fund II  | 100,000,000          | 96,022,008           | 858,534              | 5,000,000            | 124,425,490          | 1.30                | 14.72        | 2019         |
| Marathon Secured Private Strategies Fund III | 100,000,000          | 5,000,000            | 0                    | 95,000,000           | 5,000,000            | 1.00                |              | 2022         |

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|--|-------------|---------------|---------------|----------------------|--------------|---------------------|-------|--------------|
| Merit Capital Partners                   | 350,000,000 | 235,618,799   | 301,890,077   | 114,314,401          | 93,384,234   | 1.68                | 11.48 |              |
| Merit Mezzanine Fund IV, L.P.            | 75,000,000  | 70,178,571    | 139,120,463   | 4,821,429            | 787,345      | 1.99                | 11.58 | 2004         |
| Merit Mezzanine Fund V, LP               | 75,000,000  | 71,902,041    | 85,750,024    | 3,097,959            | 27,628,909   | 1.58                | 9.28  | 2009         |
| Merit Mezzanine Fund VI, L.P.            | 100,000,000 | 92,629,096    | 77,019,590    | 7,304,104            | 64,967,980   | 1.53                | 16.16 | 2016         |
| Merit Mezzanine Fund VII, L.P.           | 100,000,000 | 909,091       | 0             | 99,090,909           | 0            | 0.00                |       | 2020         |
| Oaktree Capital Management, LLC          | 650,000,000 | 311,040,920   | 48,825,156    | 345,500,000          | 350,494,545  | 1.28                | 13.33 |              |
| Oaktree Opportunities Fund X, L.P.       | 50,000,000  | 46,500,021    | 33,294,660    | 8,500,000            | 34,042,832   | 1.45                | 9.58  | 2015         |
| Oaktree Opportunities Fund Xb, L.P.      | 100,000,000 | 65,000,000    | 0             | 35,000,000           | 94,290,300   | 1.45                | 15.32 | 2015         |
| Oaktree Opportunities Fund XI, L.P.      | 300,000,000 | 150,000,000   | 1,447,206     | 150,000,000          | 173,161,604  | 1.16                | 16.34 | 2020         |
| Oaktree Real Estate Debt III, L.P.       | 200,000,000 | 49,540,899    | 14,083,290    | 152,000,000          | 48,999,809   | 1.27                | 15.73 | 2020         |
| PIMCO BRAVO                              | 9,201,697   | 8,673,551     | 9,384,185     | 7,735,883            | 717,418      | 1.16                | 4.75  |              |
| PIMCO BRAVO Fund Onshore Feeder I*       | 3,958,027   | 3,958,027     | 4,016,443     | 2,385,880            | 6,492        | 1.02                | 1.60  | 2014         |
| PIMCO Bravo Fund OnShore Feeder II*      | 5,243,670   | 4,715,524     | 5,367,742     | 5,350,003            | 710,926      | 1.29                | 5.28  | 2014         |
| Prudential Global Investment Mgmt        | 600,000,000 | 492,598,611   | 549,229,177   | 158,186,739          | 142,307,789  | 1.40                | 10.39 |              |
| Prudential Capital Partners II, L.P.     | 100,000,000 | 97,930,132    | 145,671,152   | 11,049,052           | 492,778      | 1.49                | 9.02  | 2005         |
| Prudential Capital Partners III, L.P.    | 100,000,000 | 102,848,928   | 174,817,309   | 13,609,083           | 2,911,175    | 1.73                | 14.14 | 2009         |
| Prudential Capital Partners IV, L.P.     | 100,000,000 | 112,954,214   | 126,259,041   | 1,948,707            | 24,015,312   | 1.33                | 8.40  | 2012         |
| Prudential Capital Partners V, L.P.      | 150,000,000 | 151,673,251   | 97,165,645    | 8,771,398            | 87,150,495   | 1.22                | 7.75  | 2016         |
| PGIM Capital Partners VI, L.P.           | 150,000,000 | 27,192,086    | 5,316,029     | 122,808,500          | 27,738,028   | 1.22                | 46.79 | 2020         |
| Summit Partners                          | 95,000,000  | 100,002,497   | 136,040,168   | 22,177,023           | 3,137,688    | 1.39                | 9.07  |              |
| Summit Subordinated Debt Fund III, L.P.  | 45,000,000  | 44,088,494    | 62,804,226    | 2,250,000            | 795,707      | 1.44                | 8.66  | 2004         |
| Summit Subordinated Debt Fund IV, L.P.   | 50,000,000  | 55,914,003    | 73,235,942    | 19,927,023           | 2,341,981    | 1.35                | 9.74  | 2008         |
| TCW                                      | 200,000,000 | 174,519,135   | 141,229,309   | 65,284,484           | 77,923,032   | 1.26                | 9.06  |              |
| TCW Direct Lending LLC                   | 100,000,000 | 83,599,652    | 88,204,406    | 25,329,409           | 20,423,214   | 1.30                | 8.71  | 2014         |
| TCW Direct Lending VII                   | 100,000,000 | 90,919,484    | 53,024,903    | 39,955,075           | 57,499,819   | 1.22                | 9.68  | 2018         |
| TSSP                                     | 275,000,000 | 158,963,325   | 36,391,303    | 146,358,883          | 154,162,315  | 1.20                | 11.60 |              |
| Sixth Street TAO Partners (B), L.P.      | 50,000,000  | 44,875,278    | 19,122,544    | 24,247,266           | 38,809,129   | 1.29                | 11.27 | 2018         |
| Sixth Street TAO Partners (D), L.P.      | 100,000,000 | 57,755,197    | 11,437,722    | 49,724,781           | 56,297,649   | 1.17                | 13.34 | 2018         |
| TSSP Opportunities Partners IV (A), L.P. | 50,000,000  | 40,045,949    | 5,821,838     | 13,673,737           | 43,522,312   | 1.23                | 12.01 | 2018         |
| Sixth Street Opportunities Partners V    | 75,000,000  | 16,286,901    | 9,199         | 58,713,099           | 15,533,225   | 0.95                | -4.87 | 2021         |

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|---|----------------------|----------------------|----------------------|----------------------|----------------------|---------------------|-------------|--------------|
| <b>Real Assets</b>                                  | <b>4,247,571,518</b> | <b>3,950,138,278</b> | <b>2,789,730,930</b> | <b>609,881,328</b>   | <b>2,228,049,180</b> | <b>1.27</b>         | <b>5.74</b> |              |
| BlackRock   | 198,500,000          | 127,308,805          | 69,845,379           | 83,178,672           | 80,763,700           | 1.18                | 6.38        |              |
| BlackRock Global Renewable Power Fund II            | 98,500,000           | 98,312,626           | 67,224,489           | 10,625,197           | 54,335,669           | 1.24                | 6.91        | 2017         |
| BlackRock Global Renewable Power Infrastructure III | 100,000,000          | 28,996,179           | 2,620,889            | 72,553,475           | 26,428,031           | 1.00                | 0.17        | 2019         |
| EIG Global Energy Partners                          | 450,000,000          | 469,824,847          | 377,940,969          | 77,704,481           | 144,948,146          | 1.11                | 2.60        |              |
| EIG Energy Fund XIV                                 | 100,000,000          | 113,459,470          | 95,309,310           | 2,761,129            | 3,840,512            | 0.87                | -4.97       | 2007         |
| EIG Energy Fund XV                                  | 150,000,000          | 161,871,503          | 155,101,139          | 22,871,323           | 23,854,090           | 1.11                | 2.38        | 2010         |
| EIG Energy Fund XVI                                 | 200,000,000          | 194,493,874          | 127,530,520          | 52,072,029           | 117,253,544          | 1.26                | 5.78        | 2013         |
| Encap Energy  | 400,000,000          | 425,807,746          | 403,709,359          | 9,599,414            | 199,361,004          | 1.42                | 9.83        |              |
| EnCap Energy Capital Fund VII, L.P.                 | 100,000,000          | 105,420,704          | 141,245,195          | 0                    | 340,893              | 1.34                | 14.50       | 2007         |
| EnCap Energy Capital Fund VIII, L.P.                | 100,000,000          | 103,335,766          | 61,441,166           | 470,044              | 44,723,548           | 1.03                | 0.54        | 2010         |
| Encap Energy Fund IX, L.P.                          | 100,000,000          | 113,725,245          | 116,232,152          | 3,890,055            | 46,201,192           | 1.43                | 10.34       | 2012         |
| EnCap Energy Capital Fund X, L.P.                   | 100,000,000          | 103,326,031          | 84,790,846           | 5,239,315            | 108,095,370          | 1.87                | 16.74       | 2015         |
| Energy & Minerals Group                             | 680,000,000          | 674,508,697          | 391,082,398          | 55,288,094           | 544,042,578          | 1.39                | 7.33        |              |
| NGP Midstream & Resources, L.P.                     | 100,000,000          | 103,565,615          | 179,560,149          | 17,857               | 5,159,402            | 1.78                | 13.27       | 2007         |
| The Energy & Minerals Group Fund II, L.P.           | 100,000,000          | 108,534,480          | 107,280,051          | 170,365              | 107,131,932          | 1.98                | 12.66       | 2011         |
| The Energy & Minerals Group Fund III, L.P.          | 200,000,000          | 206,324,535          | 31,531,563           | 1,219,725            | 111,058,363          | 0.69                | -5.65       | 2014         |
| The Energy & Minerals Group Fund IV, LP             | 150,000,000          | 161,997,111          | 68,231,070           | 14,023,899           | 165,727,953          | 1.44                | 9.29        | 2015         |
| The Energy & Minerals Group Fund V, L.P.            | 112,500,000          | 79,240,018           | 3,658,916            | 36,292,337           | 130,578,640          | 1.69                | 19.23       | 2019         |
| The Energy & Minerals Group Fund V Accordion, L.P.  | 17,500,000           | 14,846,938           | 820,649              | 3,563,911            | 24,386,287           | 1.70                | 19.83       | 2019         |
| Energy Capital Partners                             | 450,000,000          | 431,289,179          | 423,031,175          | 111,761,226          | 193,126,878          | 1.43                | 10.97       |              |
| Energy Capital Partners II-A, L.P.                  | 100,000,000          | 85,856,131           | 117,653,952          | 29,749,110           | 382,394              | 1.37                | 8.97        | 2010         |
| Energy Capital Partners III, L.P.                   | 200,000,000          | 233,928,871          | 269,236,271          | 30,058,269           | 73,297,401           | 1.46                | 10.84       | 2013         |
| Energy Capital Partners IV-A, LP                    | 150,000,000          | 111,504,177          | 36,140,952           | 51,953,847           | 119,447,083          | 1.40                | 17.07       | 2017         |
| Enervest Management Partners                        | 100,000,000          | 98,886,249           | 90,621,759           | 9,207,449            | 57,755,885           | 1.50                | 9.57        |              |
| EnerVest Energy Institutional Fund XIV-A, L.P.      | 100,000,000          | 98,886,249           | 90,621,759           | 9,207,449            | 57,755,885           | 1.50                | 9.57        | 2015         |
| First Reserve                                       | 500,000,000          | 563,609,956          | 277,587,915          | 0                    | 144,593,530          | 0.75                | -7.03       |              |
| First Reserve Fund XI, L.P.                         | 150,000,000          | 150,292,121          | 100,059,903          | 0                    | 78,695               | 0.67                | -8.76       | 2006         |
| First Reserve Fund XII, L.P.                        | 150,000,000          | 165,617,044          | 85,669,271           | 0                    | 267,894              | 0.52                | -17.84      | 2008         |
| First Reserve Fund XIII, L.P.                       | 200,000,000          | 247,700,791          | 91,858,741           | 0                    | 144,246,941          | 0.95                | -1.75       | 2013         |
| Kohlberg, Kravis, Roberts & Co.                     | 249,850,000          | 156,701,499          | 33,081,810           | 103,875,517          | 141,220,309          | 1.11                | 7.25        |              |
| KKR Global Infrastructure Investors III             | 149,850,000          | 130,608,003          | 32,723,340           | 29,610,543           | 115,199,353          | 1.13                | 7.36        | 2018         |
| KKR Global Infrastructure Investors IV              | 100,000,000          | 26,093,496           | 358,470              | 74,264,974           | 26,020,956           | 1.01                | 1.56        | 2021         |

**Minnesota State Board of Investment**  
**Private Markets Investments as of September 30, 2022**

| Investments                              | Commitments | Contributions | Distributions | Remaining<br>Commitment | Market Value | Investment<br>Multiple | IRR   | Vintage<br>Year |
|--|-------------|---------------|---------------|-------------------------|--------------|------------------------|-------|-----------------|
| Merit Energy Partners                    | 519,721,518 | 384,644,480   | 174,023,812   | 94,599,899              | 404,963,919  | 1.51                   | 6.74  |                 |
| Merit Energy Partners F-II, L.P.         | 100,000,000 | 59,522,861    | 33,278,569    | 0                       | 9,139,922    | 0.71                   | -4.62 | 2006            |
| Merit Energy Partners H, L.P.            | 100,000,000 | 100,000,000   | 29,668,582    | 0                       | 64,090,520   | 0.94                   | -0.93 | 2011            |
| Merit Energy Partners I, L.P.            | 169,721,518 | 169,721,518   | 94,039,059    | 0                       | 227,853,469  | 1.90                   | 13.37 | 2014            |
| Merit Energy Partners K, L.P.            | 150,000,000 | 55,400,101    | 17,037,602    | 94,599,899              | 103,880,008  | 2.18                   | 41.92 | 2019            |
| NGP                                      | 599,500,000 | 583,203,814   | 520,256,355   | 51,166,576              | 278,835,229  | 1.37                   | 9.17  |                 |
| Natural Gas Partners IX, L.P.            | 150,000,000 | 173,962,921   | 249,243,688   | 605,481                 | 547,202      | 1.44                   | 12.06 | 2007            |
| NGP Natural Resources X, L.P.            | 150,000,000 | 148,935,849   | 126,358,808   | 1,064,151               | 22,173,919   | 1.00                   | -0.07 | 2011            |
| NGP Natural Resources XI, L.P.           | 150,000,000 | 153,765,092   | 106,385,572   | 6,290,493               | 130,659,293  | 1.54                   | 10.86 | 2014            |
| NGP Natural Resources XII, L.P.          | 149,500,000 | 106,539,952   | 38,268,287    | 43,206,451              | 125,454,815  | 1.54                   | 15.33 | 2017            |
| Sheridan                                 | 100,000,000 | 34,353,005    | 28,550,000    | 13,500,000              | 38,438,003   | 1.95                   | 16.39 |                 |
| Sheridan Production Partners III-B, L.P. | 100,000,000 | 34,353,005    | 28,550,000    | 13,500,000              | 38,438,003   | 1.95                   | 16.39 | 2014            |

**Minnesota State Board of Investment**  
**Private Markets Investments as of September 30, 2022**

| Investments  | Commitments          | Contributions        | Distributions        | Remaining Commitment | Market Value         | Investment Multiple | IRR          | Vintage Year |
|--|----------------------|----------------------|----------------------|----------------------|----------------------|---------------------|--------------|--------------|
| <b>Real Estate</b>                                 | <b>4,173,147,868</b> | <b>2,669,836,393</b> | <b>1,913,800,079</b> | <b>1,766,774,555</b> | <b>1,939,321,063</b> | <b>1.44</b>         | <b>10.56</b> |              |
| Angelo, Gordon & Co.                               | 550,000,000          | 441,270,745          | 213,907,407          | 142,110,000          | 399,545,989          | 1.39                | 13.13        |              |
| AG Asia Realty Fund III, L.P.                      | 50,000,000           | 47,587,261           | 47,125,000           | 6,196,250            | 18,917,254           | 1.39                | 12.01        | 2016         |
| AG Asia Realty Fund IV, L.P.                       | 100,000,000          | 74,470,736           | 22,250,000           | 36,727,500           | 78,687,010           | 1.36                | 18.26        | 2018         |
| AG Europe Realty Fund II, L.P.                     | 75,000,000           | 68,779,896           | 30,019,976           | 12,768,750           | 70,332,759           | 1.46                | 12.33        | 2018         |
| AG Europe Realty Fund III, L.P.                    | 75,000,000           | 36,687,885           | 0                    | 36,937,500           | 41,460,073           | 1.13                | 9.66         | 2020         |
| AG Realty Fund IX, L.P.                            | 100,000,000          | 92,141,126           | 83,000,000           | 11,650,000           | 50,654,842           | 1.45                | 9.17         | 2014         |
| AG Realty Fund X, L.P.                             | 150,000,000          | 121,603,841          | 31,512,431           | 37,830,000           | 139,494,051          | 1.41                | 23.09        | 2018         |
| <b>Blackstone</b>                                  | <b>1,124,500,000</b> | <b>873,254,152</b>   | <b>883,946,123</b>   | <b>410,557,733</b>   | <b>574,056,397</b>   | <b>1.67</b>         | <b>13.87</b> |              |
| Blackstone Real Estate Partners Asia II            | 74,500,000           | 67,011,785           | 8,179,128            | 16,845,788           | 71,152,664           | 1.18                | 8.60         | 2017         |
| Blackstone Real Estate Partners Asia III           | 100,000,000          | 10,395,941           | 0                    | 89,604,059           | 10,395,941           | 1.00                |              | 2021         |
| Blackstone Real Estate Partners V, L.P.            | 100,000,000          | 104,213,007          | 208,932,593          | 4,174,052            | 176,399              | 2.01                | 10.84        | 2006         |
| Blackstone Real Estate Partners VI, L.P.           | 100,000,000          | 109,477,567          | 217,992,298          | 4,907,906            | 2,604,105            | 2.01                | 13.09        | 2007         |
| Blackstone Real Estate Partners VII, LP            | 100,000,000          | 112,077,521          | 179,728,358          | 11,131,179           | 23,686,333           | 1.81                | 15.32        | 2011         |
| Blackstone Real Estate VIII.TE.1 L.P.              | 150,000,000          | 172,415,817          | 175,271,994          | 21,918,437           | 122,802,294          | 1.73                | 17.53        | 2015         |
| Blackstone Real Estate Partners IX, L.P.           | 300,000,000          | 297,662,514          | 93,841,752           | 61,976,312           | 343,238,661          | 1.47                | 34.67        | 2018         |
| Blackstone Real Estate Partners X, L.P.            | 200,000,000          | 0                    | 0                    | 200,000,000          | 0                    | 0.00                |              | 2022         |
| <b>Blackstone Strategic Partners</b>               | <b>75,000,000</b>    | <b>77,559,576</b>    | <b>66,169,437</b>    | <b>990,056</b>       | <b>1,110,239</b>     | <b>0.87</b>         | <b>-2.07</b> |              |
| Strategic Partners III RE, L.P.                    | 25,000,000           | 25,981,820           | 15,252,523           | 9,006                | 102,375              | 0.59                | -6.44        | 2005         |
| Strategic Partners IV RE, L.P.                     | 50,000,000           | 51,577,756           | 50,916,914           | 981,050              | 1,007,864            | 1.01                | 0.11         | 2008         |
| <b>Brookfield Asset Management Inc.</b>            | <b>300,000,000</b>   | <b>47,855,710</b>    | <b>0</b>             | <b>252,144,290</b>   | <b>49,325,120</b>    | <b>1.03</b>         | <b>3.07</b>  |              |
| Brookfield Strategic Real Estate Partners IV       | 300,000,000          | 47,855,710           | 0                    | 252,144,290          | 49,325,120           | 1.03                | 3.07         | 2021         |
| <b>Carlyle Group</b>                               | <b>450,000,000</b>   | <b>109,319,068</b>   | <b>83,493,461</b>    | <b>397,442,484</b>   | <b>88,569,826</b>    | <b>1.57</b>         | <b>32.77</b> |              |
| Carlyle Realty Partners VIII, L.P.                 | 150,000,000          | 109,319,068          | 83,493,461           | 97,442,484           | 88,569,826           | 1.57                | 32.77        | 2017         |
| Carlyle Realty Partners IX, L.P.                   | 300,000,000          | 0                    | 0                    | 300,000,000          | 0                    | 0.00                |              | 2021         |
| <b>Kohlberg, Kravis, Roberts &amp; Co.</b>         | <b>125,000,000</b>   | <b>70,568,370</b>    | <b>4,811,467</b>     | <b>56,053,828</b>    | <b>73,025,303</b>    | <b>1.10</b>         | <b>15.15</b> |              |
| KKR Real Estate Partners Americas III              | 125,000,000          | 70,568,370           | 4,811,467            | 56,053,828           | 73,025,303           | 1.10                | 15.15        | 2021         |
| <b>Landmark Partners</b>                           | <b>249,500,000</b>   | <b>93,382,274</b>    | <b>59,445,883</b>    | <b>178,829,556</b>   | <b>71,378,651</b>    | <b>1.40</b>         | <b>19.04</b> |              |
| Landmark Real Estate Partners VIII, L.P.           | 149,500,000          | 93,382,274           | 59,445,883           | 78,829,556           | 71,378,651           | 1.40                | 19.04        | 2016         |
| Landmark Real Estate Partners IX, L.P.             | 100,000,000          | 0                    | 0                    | 100,000,000          | 0                    | 0.00                |              | 2021         |
| <b>Lubert Adler</b>                                | <b>174,147,868</b>   | <b>102,857,744</b>   | <b>78,860,685</b>    | <b>72,414,787</b>    | <b>60,244,801</b>    | <b>1.35</b>         | <b>15.12</b> |              |
| Lubert-Adler Real Estate Fund VII-B, L.P.          | 74,147,868           | 67,585,213           | 78,860,685           | 7,414,787            | 22,228,641           | 1.50                | 15.54        | 2017         |
| Lubert-Adler Recovery and Enhancement Capital Fund | 100,000,000          | 35,272,530           | 0                    | 65,000,000           | 38,016,160           | 1.08                | 10.56        | 2021         |

**Minnesota State Board of Investment**  
**Private Markets Investments as of September 30, 2022**

| Investments                                  | Commitments           | Contributions         | Distributions         | Remaining Commitment  | Market Value          | Investment Multiple | IRR          | Vintage Year |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------|--------------|--------------|
| Oaktree Capital Management, LLC              | 200,000,000           | 84,475,519            | 36,062,552            | 150,000,000           | 59,790,702            | 1.13                | 50.91        |              |
| Oaktree Real Estate Opportunities Fund VIII  | 200,000,000           | 84,475,519            | 36,062,552            | 150,000,000           | 59,790,702            | 1.13                | 50.91        | 2020         |
| Rockpoint                                    | 200,000,000           | 174,169,960           | 69,882,159            | 45,669,129            | 156,700,379           | 1.30                | 10.56        |              |
| Rockpoint Real Estate Fund V, L.P.           | 100,000,000           | 99,329,459            | 58,755,434            | 17,327,032            | 72,319,068            | 1.32                | 8.15         | 2014         |
| Rockpoint Real Estate Fund VI, L.P.          | 100,000,000           | 74,840,501            | 11,126,725            | 28,342,097            | 84,381,311            | 1.28                | 23.51        | 2019         |
| Rockwood                                     | 200,000,000           | 151,114,069           | 60,396,117            | 53,066,634            | 131,544,638           | 1.27                | 9.40         |              |
| Rockwood Capital RE Partners X, L.P.         | 100,000,000           | 94,027,411            | 56,119,269            | 7,657,118             | 67,312,051            | 1.31                | 8.45         | 2015         |
| Rockwood Capital RE Partners XI, L.P.        | 100,000,000           | 57,086,658            | 4,276,848             | 45,409,516            | 64,232,587            | 1.20                | 14.26        | 2019         |
| Silverpeak Real Estate Partners              | 225,000,000           | 144,009,207           | 106,451,402           | 7,496,058             | 6,737,281             | 0.79                | -3.81        |              |
| Silverpeak Legacy Pension Partners II, L.P.  | 75,000,000            | 73,069,012            | 92,033,940            | 7,496,058             | 429,689               | 1.27                | 4.18         | 2005         |
| Silverpeak Legacy Pension Partners III, L.P. | 150,000,000           | 70,940,195            | 14,417,463            | 0                     | 6,307,592             | 0.29                | -12.07       | 2008         |
| TA Associates Realty                         | 300,000,000           | 300,000,000           | 250,373,386           | 0                     | 267,291,737           | 1.73                | 15.83        |              |
| Realty Associates Fund X                     | 100,000,000           | 100,000,000           | 161,064,353           | 0                     | 99,304                | 1.61                | 12.56        | 2012         |
| Realty Associates Fund XI                    | 100,000,000           | 100,000,000           | 81,342,630            | 0                     | 110,741,077           | 1.92                | 15.78        | 2015         |
| Realty Associates Fund XII                   | 100,000,000           | 100,000,000           | 7,966,403             | 0                     | 156,451,356           | 1.64                | 35.91        | 2018         |
| <b>Total</b>                                 | <b>37,214,646,925</b> | <b>28,082,457,488</b> | <b>21,833,141,046</b> | <b>12,053,819,353</b> | <b>20,151,371,083</b> | <b>1.50</b>         | <b>11.82</b> |              |
| <i>Difference**</i>                          |                       |                       |                       |                       | 3,306,404             |                     |              |              |
| <b>Private Markets Total with Difference</b> |                       |                       |                       |                       | <b>20,154,677,487</b> |                     |              |              |

| <i>Private Markets Portfolio Status</i> | Managers   | Funds      |
|---|------------|------------|
| PRIVATE EQUITY                          | 61         | 193        |
| PRIVATE CREDIT                          | 18         | 43         |
| REAL ASSETS                             | 11         | 33         |
| REAL ESTATE                             | 13         | 34         |
| <b>Total</b>                            | <b>103</b> | <b>303</b> |

**Notes**

None of the data presented herein has been reviewed or approved by either the general partner or investment manager. The performance and valuation data presented herein is not a guarantee or prediction of future results and may slightly differ from final fiscal year end report. Ultimately, the actual performance and value of any investment is not known until final liquidation. Because there is no industry-standardized method for valuation or reporting comparisons of performance and valuation data among different investments is difficult. Data presented in this report is made public pursuant to Minn. Stat. Chs. 13 and 13D, and Minn. Stat. § 11A.24, subd. 6(c). Additional information on private markets investments may be classified as non-public and not subject to disclosure.

\*Partnership interests transferred to the MSBI during 1Q2015. All data presented as of the transfer date.

\*\* Difference is from an in-kind stock distribution liquidating account, cash transactions posted to next day and distributions received in foreign currency during the month.





## Quarterly Report

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# Participant Directed Investment Program

## September 30, 2022



## 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                     | \$96,098,406               | -4.3%           | -16.2%        | 4.2%          | 5.7%          | 7.6%           | 01/1980             |
| U.S. EQUITY ACTIVELY MANAGED FUND | 68,232,597                 | -4.2            | -20.6         | 8.3           | 9.1           | 11.7           | 07/1986             |
| U.S. EQUITY INDEX FUND            | 335,636,970                | -4.4            | -17.6         | 8.0           | 8.8           | 11.5           | 07/1986             |
| BROAD INTERNATIONAL EQUITY FUND   | 112,934,733                | -7.2            | -21.3         | 0.6           | 0.5           | 4.1            | 09/1994             |
| BOND FUND                         | 95,982,913                 | -4.7            | -16.0         | -2.8          | 0.1           | 1.4            | 07/1986             |
| MONEY MARKET FUND                 | 658,371,801                | 0.6             | 0.9           | 0.7           | 1.3           | 0.8            | 07/1986             |
| STABLE VALUE FUND                 | 1,745,228,425              | 0.5             | 1.9           | 2.2           | 2.3           | 2.2            | 11/1994             |
| VOLUNTEER FIREFIGHTER ACCOUNT     | 124,619,957                | -4.7            | -16.6         | 2.0           | 3.6           | 5.5            | 01/2010             |

Note:

The Market Values for the Money Market Fund, the Stable Value Fund, and the Total Supplemental Investment Fund also include assets held through other plans.



## Supplemental Investment Fund Performance

### Balanced Fund

The primary investment objective of the Balanced Fund is to gain exposure to publicly traded U.S. equities, bond and cash in a diversified investment portfolio. The Fund seeks to maximize long-term real rates of return, while limiting short-run portfolio return volatility. The Balanced Fund is invested in a balanced portfolio of common stocks and bonds. Common stocks provide the potential for significant capital appreciation, while bonds act as a deflation hedge and provide portfolio diversification. The benchmark is a blend of 60% Russell 3000/35% Bloomberg U.S. Aggregate/5% 3 Month T-Bills.

|                                | <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> |
|--------------------------------|----------------------------|-----------------|---------------|---------------|---------------|----------------|
| <b>BALANCED FUND</b>           | <b>\$96,098,406</b>        | <b>-4.3%</b>    | <b>-16.2%</b> | <b>4.2%</b>   | <b>5.7%</b>   | <b>7.6%</b>    |
| SIF BALANCED FUND<br>BENCHMARK |                            | -4.2%           | -15.4%        | 3.8%          | 5.4%          | 7.3%           |
| Excess                         |                            | -0.0%           | -0.7%         | 0.4%          | 0.3%          | 0.3%           |

### U.S. Equity Actively Managed Fund

The U.S. Equity Actively Managed Fund's investment objective is to generate above-average returns from capital appreciation on common stocks. The U.S. Stock Actively Managed Fund is invested primarily in the common stocks of U.S. companies. The managers in the account also hold varying levels of cash.

|  | <u>Ending Market Value</u> | <u>Last Qtr</u> | <u>1 Year</u> | <u>3 Year</u> | <u>5 Year</u> | <u>10 Year</u> |
|--|----------------------------|-----------------|---------------|---------------|---------------|----------------|
| <b>U.S. EQUITY ACTIVELY<br/>MANAGED FUND</b> | <b>68,232,597</b>          | <b>-4.2</b>     | <b>-20.6</b>  | <b>8.3</b>    | <b>9.1</b>    | <b>11.7</b>    |
| Russell 3000                                 |                            | -4.5            | -17.6         | 7.7           | 8.6           | 11.4           |
| Excess                                       |                            | 0.3             | -3.0          | 0.6           | 0.5           | 0.3            |



## Supplemental Investment Fund Performance

### U.S. Equity Index Fund

The investment objective of the U.S. Equity Index Fund is to generate returns that track those of the U.S. stock market as a whole. The Fund is designed to track the performance of the Russell 3000 Index, a broad-based equity market indicator. The Fund is invested 100% in common stock.

|                               | <u>Ending Market Value</u> | <u>Last Qtr</u> | <u>1 Year</u> | <u>3 Year</u> | <u>5 Year</u> | <u>10 Year</u> |
|-------------------------------|----------------------------|-----------------|---------------|---------------|---------------|----------------|
| <b>U.S. EQUITY INDEX FUND</b> | <b>\$335,636,970</b>       | <b>-4.4%</b>    | <b>-17.6%</b> | <b>8.0%</b>   | <b>8.8%</b>   | <b>11.5%</b>   |
| Russell 3000                  |                            | -4.5%           | -17.6%        | 7.7%          | 8.6%          | 11.4%          |
| Excess                        |                            | 0.0%            | 0.0%          | 0.3%          | 0.2%          | 0.1%           |

### Broad International Equity Fund

The investment objective of the Broad International Equity Fund is to earn a high rate of return by investing in the stock of companies outside the U.S. Portions of the Fund are passively managed and semi-passively managed. These portions of the Fund are designed to track and modestly outperform, respectively, the return of developed markets included in the MSCI World ex USA Index. A portion of the Fund is "actively managed" by several international managers and emerging markets specialists who buy and sell stocks in an attempt to maximize market value. The International Equity Benchmark is currently the MSCI ACWI ex USA (net).

|  | <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> |
|--|----------------------------|-----------------|---------------|---------------|---------------|----------------|
| <b>BROAD INTERNATIONAL EQUITY FUND</b> | <b>112,934,733</b>         | <b>-7.2</b>     | <b>-21.3</b>  | <b>0.6</b>    | <b>0.5</b>    | <b>4.1</b>     |
| International Equity Benchmark         |                            | -9.9            | -25.2         | -1.6          | -0.8          | 3.0            |
| Excess                                 |                            | 2.7             | 3.9           | 2.2           | 1.3           | 1.1            |



## 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> |
|--------------------------|----------------------------|-----------------|---------------|---------------|---------------|----------------|
| <b>BOND FUND</b>         | <b>\$95,982,913</b>        | <b>-4.7%</b>    | <b>-16.0%</b> | <b>-2.8%</b>  | <b>0.1%</b>   | <b>1.4%</b>    |
| Bloomberg U.S. Aggregate |                            | -4.8%           | -14.6%        | -3.3%         | -0.3%         | 0.9%           |
| Excess                   |                            | 0.1%            | -1.4%         | 0.4%          | 0.4%          | 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> |
|-----------------------------------|----------------------------|-----------------|---------------|---------------|---------------|----------------|
| <b>MONEY MARKET FUND</b>          | <b>658,371,801</b>         | <b>0.6</b>      | <b>0.9</b>    | <b>0.7</b>    | <b>1.3</b>    | <b>0.8</b>     |
| ICE BofA US 3-Month Treasury Bill |                            | 0.5             | 0.6           | 0.6           | 1.1           | 0.7            |
| Excess                            |                            | 0.1             | 0.3           | 0.1           | 0.1           | 0.1            |



## 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> |
|----------------------------------|----------------------------|-----------------|---------------|---------------|---------------|----------------|
| <b>STABLE VALUE FUND</b>         | <b>\$1,745,228,425</b>     | <b>0.5%</b>     | <b>1.9%</b>   | <b>2.2%</b>   | <b>2.3%</b>   | <b>2.2%</b>    |
| Fixed Interest Blended Benchmark |                            | 0.9%            | 2.6%          | 1.5%          | 2.0%          | 1.7%           |
| Excess                           |                            | -0.4%           | -0.7%         | 0.7%          | 0.3%          | 0.5%           |

### 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> |
|--------------------------------------|----------------------------|-----------------|---------------|---------------|---------------|----------------|
| <b>VOLUNTEER FIREFIGHTER ACCOUNT</b> | <b>124,619,957</b>         | <b>-4.7</b>     | <b>-16.6</b>  | <b>2.0</b>    | <b>3.6</b>    | <b>5.5</b>     |
| SIF Volunteer Firefighter Account BM |                            | -5.1            | -16.4         | 1.4           | 3.1           | 5.1            |
| Excess                               |                            | 0.4             | -0.2          | 0.7           | 0.4           | 0.4            |



## Mutual Funds

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

|  | <u>Ending Market Value</u> | <u>Last Qtr</u> | <u>1 Year</u> | <u>3 Year</u> | <u>5 Year</u> | <u>10 Year</u> | <u>Option Since</u> |
|--|----------------------------|-----------------|---------------|---------------|---------------|----------------|---------------------|
| VANGUARD TOTAL STOCK MARKET INSTITUTIONAL INDEX PLUS | \$582,376,038              | -4.5%           | -18.0%        | 7.7%          |               |                | 07/2019             |
| VANGUARD INSTITUTIONAL INDEX PLUS                    | 1,450,102,412              | -4.9            | -15.5         | 8.2           | 9.2%          | 11.7%          | 07/1999             |
| VANGUARD DIVIDEND GROWTH                             | 848,332,740                | -5.5            | -6.2          | 7.1           | 10.3          |                | 10/2016             |
| VANGUARD MID CAP INDEX                               | 616,513,864                | -4.1            | -19.5         | 5.5           | 6.7           | 10.5           | 01/2004             |
| T. ROWE PRICE SMALL-CAP STOCK                        | 780,878,559                | -2.2            | -23.9         | 4.9           | 7.6           | 11.0           | 04/2000             |
| FIDELITY DIVERSIFIED INTERNATIONAL                   | 262,769,989                | -8.7            | -30.6         | -0.2          | 0.6           | 4.9            | 07/1999             |
| VANGUARD TOTAL INTERNATIONAL STOCK INDEX             | 282,267,156                | -10.5           | -25.2         | -1.1          | -0.7          | 3.4            | 07/2011             |
| VANGUARD BALANCED INDEX                              | 1,192,586,444              | -4.5            | -16.4         | 3.5           | 5.3           | 7.3            | 12/2003             |
| DODGE & COX INCOME                                   | 269,285,575                | -4.0            | -13.6         | -1.7          | 0.7           | 1.9            | 07/1999             |
| VANGUARD TOTAL BOND MARKET INDEX                     | 308,094,207                | -4.6            | -14.6         | -3.3          | -0.3          | 0.9            | 12/2003             |
| 2025 FUND  | 203,549,967                | -4.9            | -13.6         | 2.2           | 3.3           | 5.2            | 07/2011             |
| 2030 FUND  | 179,423,766                | -5.6            | -16.5         | 2.6           | 3.8           | 6.0            | 07/2011             |
| 2035 FUND  | 138,223,172                | -6.1            | -19.2         | 2.4           | 3.8           | 6.3            | 07/2011             |
| 2040 FUND  | 109,729,584                | -6.4            | -20.3         | 2.6           | 3.9           | 6.6            | 07/2011             |
| 2045 FUND  | 102,521,425                | -6.7            | -20.9         | 2.8           | 4.0           | 6.9            | 07/2011             |
| 2050 FUND  | 86,216,160                 | -6.7            | -21.5         | 3.1           | 4.2           | 7.1            | 07/2011             |
| 2055 FUND  | 55,891,568                 | -6.8            | -22.0         | 3.1           | 4.2           | 7.1            | 07/2011             |
| 2060 FUND  | 43,633,012                 | -6.8            | -22.0         | 3.1           | 4.2           | 7.1            | 07/2011             |
| 2065 FUND  | 5,079,679                  | -6.8            | -22.0         |               |               |                | 04/2020             |
| INCOME FUND  | 203,941,653                | -4.5            | -12.5         | 1.5           | 2.6           | 3.3            | 07/2011             |
| TD Ameritrade SDB                                    | 72,947,704                 |                 |               |               |               |                |                     |
| TD Ameritrade SDB Roth                               | 2,588,781                  |                 |               |               |               |                |                     |





## Mutual Funds

### LARGE CAP EQUITY

#### **Vanguard Total Stock Market Institutional Index Plus (passive)**

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

#### **Vanguard Index Institutional Plus (passive)**

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

#### **Vanguard Dividend Growth (active) (1)**

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

### MID CAP EQUITY

#### **Vanguard Mid Cap Index (passive) (2)**

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

### SMALL CAP EQUITY

#### **T Rowe Price Small Cap (active)**

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

### INTERNATIONAL EQUITY

#### **Fidelity Diversified International (active)**

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

#### **Vanguard Total International Stock Index (passive) (3)**

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

|   | Ending Market Value  | Last Qtr     | 1 Year        | 3 Year      | 5 Year      | Option Since   |
|---|----------------------|--------------|---------------|-------------|-------------|----------------|
| <b>Large Cap US Equity</b>                                  |                      |              |               |             |             |                |
| <b>VANGUARD TOTAL STOCK MARKET INSTITUTIONAL INDEX PLUS</b> | <b>\$582,376,038</b> | <b>-4.5%</b> | <b>-18.0%</b> | <b>7.7%</b> |             | <b>07/2019</b> |
| CRSP US Total Market Index                                  |                      | -4.4         | -18.0         | 7.6         |             | 07/2019        |
| Excess  |                      | -0.0         | -0.0          | 0.1         |             |                |
| <b>VANGUARD INSTITUTIONAL INDEX PLUS</b>                    | <b>1,450,102,412</b> | <b>-4.9</b>  | <b>-15.5</b>  | <b>8.2</b>  | <b>9.2%</b> | <b>07/1999</b> |
| S&P 500   |                      | -4.9         | -15.5         | 8.2         | 9.2         | 07/1999        |
| Excess  |                      | -0.0         | -0.0          | -0.0        | -0.0        |                |
| <b>VANGUARD DIVIDEND GROWTH</b>                             | <b>848,332,740</b>   | <b>-5.5</b>  | <b>-6.2</b>   | <b>7.1</b>  | <b>10.3</b> | <b>10/2016</b> |
| VANGUARD DIVIDEND GROWTH INDEX                              |                      | -5.3         | -10.3         | 6.2         | 9.4         | 10/2016        |
| Excess  |                      | -0.2         | 4.1           | 0.9         | 0.8         |                |
| <b>Mid Cap US Equity</b>                                    |                      |              |               |             |             |                |
| <b>VANGUARD MID CAP INDEX</b>                               | <b>616,513,864</b>   | <b>-4.1</b>  | <b>-19.5</b>  | <b>5.5</b>  | <b>6.7</b>  | <b>01/2004</b> |
| CRSP US Mid Cap Index                                       |                      | -4.1         | -19.5         | 5.5         | 6.7         | 01/2004        |
| Excess  |                      | 0.0          | -0.0          | 0.0         | 0.0         |                |
| <b>Small Cap US Equity</b>                                  |                      |              |               |             |             |                |
| <b>T. ROWE PRICE SMALL-CAP STOCK</b>                        | <b>780,878,559</b>   | <b>-2.2</b>  | <b>-23.9</b>  | <b>4.9</b>  | <b>7.6</b>  | <b>04/2000</b> |
| Russell 2000  |                      | -2.2         | -23.5         | 4.3         | 3.6         | 04/2000        |
| Excess  |                      | 0.0          | -0.4          | 0.6         | 4.0         |                |
| <b>International Equity</b>                                 |                      |              |               |             |             |                |
| <b>FIDELITY DIVERSIFIED INTERNATIONAL</b>                   | <b>262,769,989</b>   | <b>-8.7</b>  | <b>-30.6</b>  | <b>-0.2</b> | <b>0.6</b>  | <b>07/1999</b> |
| MSCI EAFE FREE (NET)  |                      | -9.4         | -25.1         | -1.8        | -0.8        | 07/1999        |
| Excess  |                      | 0.6          | -5.4          | 1.7         | 1.5         |                |
| <b>VANGUARD TOTAL INTERNATIONAL STOCK INDEX</b>             | <b>282,267,156</b>   | <b>-10.5</b> | <b>-25.2</b>  | <b>-1.1</b> | <b>-0.7</b> | <b>07/2011</b> |
| FTSE Global All Cap ex US Index Net                         |                      | -9.7         | -25.3         | -1.1        | -0.7        | 07/2011        |
| Excess  |                      | -0.8         | 0.1           | -0.1        | -0.0        |                |



## Mutual Funds

### BALANCED

#### **Vanguard Balanced Index (passive) (4)**

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

### FIXED INCOME

#### **Dodge & Cox Income Fund (active)**

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

#### **Vanguard Total Bond Market Index (passive)**

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

#### **Money Market Fund (5)**

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

### STABLE VALUE

#### **Stable Value Fund (5)**

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

|  | Ending Market Value | Last Qtr | 1 Year | 3 Year | 5 Year | Option Since |
|--|---------------------|----------|--------|--------|--------|--------------|
|--|---------------------|----------|--------|--------|--------|--------------|

#### **Balanced Funds**

|                                  |                        |              |               |             |             |                |
|----------------------------------|------------------------|--------------|---------------|-------------|-------------|----------------|
| <b>VANGUARD BALANCED INDEX</b>   | <b>\$1,192,586,444</b> | <b>-4.5%</b> | <b>-16.4%</b> | <b>3.5%</b> | <b>5.3%</b> | <b>12/2003</b> |
| Vanguard Balanced Fund Benchmark |                        | -4.5         | -16.4         | 3.6         | 5.3         | 12/2003        |
| Excess                           |                        | -0.0         | -0.0          | -0.0        | -0.0        |                |

#### **Fixed Income**

|                               |                    |             |              |             |            |                |
|-------------------------------|--------------------|-------------|--------------|-------------|------------|----------------|
| <b>DODGE &amp; COX INCOME</b> | <b>269,285,575</b> | <b>-4.0</b> | <b>-13.6</b> | <b>-1.7</b> | <b>0.7</b> | <b>07/1999</b> |
| Bloomberg U.S. Aggregate      |                    | -4.8        | -14.6        | -3.3        | -0.3       | 07/1999        |
| Excess                        |                    | 0.8         | 1.0          | 1.5         | 0.9        |                |

|   |                    |             |              |             |             |                |
|---|--------------------|-------------|--------------|-------------|-------------|----------------|
| <b>VANGUARD TOTAL BOND MARKET INDEX</b> | <b>308,094,207</b> | <b>-4.6</b> | <b>-14.6</b> | <b>-3.3</b> | <b>-0.3</b> | <b>12/2003</b> |
| Bloomberg U.S. Aggregate                |                    | -4.8        | -14.6        | -3.3        | -0.3        | 12/2003        |
| Excess                                  |                    | 0.1         | -0.0         | -0.0        | 0.0         |                |

|                                   |                    |            |            |            |            |                |
|-----------------------------------|--------------------|------------|------------|------------|------------|----------------|
| <b>MONEY MARKET FUND</b>          | <b>658,371,801</b> | <b>0.6</b> | <b>0.9</b> | <b>0.7</b> | <b>1.3</b> | <b>07/1986</b> |
| ICE BofA US 3-Month Treasury Bill |                    | 0.5        | 0.6        | 0.6        | 1.1        | 07/1986        |
| Excess                            |                    | 0.1        | 0.3        | 0.1        | 0.1        |                |

#### **Stable Value**

|                                  |                      |            |            |            |            |                |
|----------------------------------|----------------------|------------|------------|------------|------------|----------------|
| <b>STABLE VALUE FUND</b>         | <b>1,745,228,425</b> | <b>0.5</b> | <b>1.9</b> | <b>2.2</b> | <b>2.3</b> | <b>11/1994</b> |
| Fixed Interest Blended Benchmark |                      | 0.9        | 2.6        | 1.5        | 2.0        | 11/1994        |
| Excess                           |                      | -0.4       | -0.7       | 0.7        | 0.3        |                |

- (1) Prior to 09/20/2021 the benchmark was the NASDAQ US Dividend Achievers Select Index and S&P U.S. Dividend Growers Index thereafter.
- (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 IML.
- (4) Prior to 01/01/2013 the benchmark was 60% MSCI US Broad Market Index and 40% Bloomberg U.S. Aggregate.
- (5) Money Market and Stable Value are Supplemental Investment Fund options which are also offered to eligible plans that invest through other plans.



## Mutual Funds

### MN TARGET RETIREMENT ACCOUNTS

Target retirement funds offer a mix of investments that are adjusted over time to reduce risk and become more conservative as the target retirement date approaches. A participant only needs to make one investment decision by investing their assets in the fund that is closest to their anticipated retirement date.

#### Target Date Retirement Funds

|                     | <u>Ending Market Value</u> | <u>Last Qtr</u> | <u>1 Year</u> | <u>3 Year</u> | <u>5 Year</u> | <u>Option Since</u> |                       | <u>Ending Market Value</u> | <u>Last Qtr</u> | <u>1 Year</u> | <u>3 Year</u> | <u>5 Year</u> | <u>Option Since</u> |
|---------------------|----------------------------|-----------------|---------------|---------------|---------------|---------------------|-----------------------|----------------------------|-----------------|---------------|---------------|---------------|---------------------|
| <b>SSgA</b>         |                            |                 |               |               |               |                     |                       |                            |                 |               |               |               |                     |
| <b>2025 FUND</b>    | <b>\$203,549,967</b>       | <b>-4.9%</b>    | <b>-13.6%</b> | <b>2.2%</b>   | <b>3.3%</b>   | <b>07/2011</b>      | <b>2050 FUND</b>      | <b>\$86,216,160</b>        | <b>-6.7%</b>    | <b>-21.5%</b> | <b>3.1%</b>   | <b>4.2%</b>   | <b>07/2011</b>      |
| 2025 FUND BENCHMARK |                            | -4.8%           | -13.6%        | 2.2%          | 3.3%          | 07/2011             | 2050 FUND BENCHMARK   |                            | -6.6%           | -21.5%        | 3.1%          | 4.2%          | 07/2011             |
| Excess              |                            | -0.1%           | 0.0%          | -0.0%         | -0.0%         |                     | Excess                |                            | -0.2%           | 0.0%          | -0.1%         | -0.0%         |                     |
| <b>2030 FUND</b>    | <b>\$179,423,766</b>       | <b>-5.6%</b>    | <b>-16.5%</b> | <b>2.6%</b>   | <b>3.8%</b>   | <b>07/2011</b>      | <b>2055 FUND</b>      | <b>\$55,891,568</b>        | <b>-6.8%</b>    | <b>-22.0%</b> | <b>3.1%</b>   | <b>4.2%</b>   | <b>07/2011</b>      |
| 2030 FUND BENCHMARK |                            | -5.5%           | -16.6%        | 2.6%          | 3.8%          | 07/2011             | 2055 FUND BENCHMARK   |                            | -6.6%           | -22.0%        | 3.2%          | 4.2%          | 07/2011             |
| Excess              |                            | -0.1%           | 0.0%          | -0.0%         | -0.0%         |                     | Excess                |                            | -0.2%           | 0.0%          | -0.1%         | -0.0%         |                     |
| <b>2035 FUND</b>    | <b>\$138,223,172</b>       | <b>-6.1%</b>    | <b>-19.2%</b> | <b>2.4%</b>   | <b>3.8%</b>   | <b>07/2011</b>      | <b>2060 FUND</b>      | <b>\$43,633,012</b>        | <b>-6.8%</b>    | <b>-22.0%</b> | <b>3.1%</b>   | <b>4.2%</b>   | <b>07/2011</b>      |
| 2035 FUND BENCHMARK |                            | -6.0%           | -19.2%        | 2.5%          | 3.8%          | 07/2011             | 2060 FUND BENCHMARK   |                            | -6.6%           | -22.0%        | 3.2%          | 4.2%          | 07/2011             |
| Excess              |                            | -0.1%           | 0.0%          | -0.0%         | -0.0%         |                     | Excess                |                            | -0.2%           | 0.0%          | -0.1%         | -0.0%         |                     |
| <b>2040 FUND</b>    | <b>\$109,729,584</b>       | <b>-6.4%</b>    | <b>-20.3%</b> | <b>2.6%</b>   | <b>3.9%</b>   | <b>07/2011</b>      | <b>2065 FUND</b>      | <b>\$5,079,679</b>         | <b>-6.8%</b>    | <b>-22.0%</b> |               |               | <b>04/2020</b>      |
| 2040 FUND BENCHMARK |                            | -6.3%           | -20.3%        | 2.6%          | 3.9%          | 07/2011             | 2065 FUND BENCHMARK   |                            | -6.6%           | -22.0%        |               |               | 04/2020             |
| Excess              |                            | -0.2%           | 0.0%          | -0.0%         | -0.0%         |                     | Excess                |                            | -0.2%           | 0.0%          |               |               |                     |
| <b>2045 FUND</b>    | <b>\$102,521,425</b>       | <b>-6.7%</b>    | <b>-20.9%</b> | <b>2.8%</b>   | <b>4.0%</b>   | <b>07/2011</b>      | <b>INCOME FUND</b>    | <b>\$203,941,653</b>       | <b>-4.5%</b>    | <b>-12.5%</b> | <b>1.5%</b>   | <b>2.6%</b>   | <b>07/2011</b>      |
| 2045 FUND BENCHMARK |                            | -6.5%           | -21.0%        | 2.9%          | 4.1%          | 07/2011             | INCOME FUND BENCHMARK |                            | -4.5%           | -12.5%        | 1.5%          | 2.6%          | 07/2011             |
| Excess              |                            | -0.2%           | 0.0%          | -0.1%         | -0.0%         |                     | Excess                |                            | -0.1%           | 0.0%          | 0.0%          | 0.0%          |                     |

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



## MN College Savings Plan Options

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

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

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

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

### **ASSET CLASS BASED ALLOCATIONS**

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

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

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

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

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

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

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

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



# MINNESOTA COLLEGE SAVINGS PLAN

Performance Statistics for the Period Ending: September 30, 2022

Total = \$1,604 Million

| Fund Name                   | Ending Market | 3 Months | 1 Year  | Annualized |         |          |                 | Inception Date |
|-----------------------------|---------------|----------|---------|------------|---------|----------|-----------------|----------------|
|                             |               |          |         | 3 Years    | 5 Years | 10 Years | Since Inception |                |
| 2038/2039 Enrollment Option | \$10,554,386  | -6.20%   | -17.81% |            |         |          | -14.37%         | 6/11/2021      |
| 2038-2039 Custom Benchmark  |               | -6.08%   | -18.24% |            |         |          | -14.58%         |                |
| 2036/2037 Enrollment Option | \$52,096,735  | -6.15%   | -17.77% |            |         |          | 2.76%           | 10/28/2019     |
| 2036-2037 Custom Benchmark  |               | -5.98%   | -17.99% |            |         |          | 2.49%           |                |
| 2034/2035 Enrollment Option | \$43,651,185  | -6.03%   | -17.42% |            |         |          | 2.53%           | 10/28/2019     |
| 2034-2035 Custom Benchmark  |               | -5.87%   | -17.68% |            |         |          | 2.28%           |                |
| 2032/2033 Enrollment Option | \$49,649,857  | -5.79%   | -17.01% |            |         |          | 2.43%           | 10/28/2019     |
| 2032-2033 Custom Benchmark  |               | -5.70%   | -17.22% |            |         |          | 2.18%           |                |
| 2030/2031 Enrollment Option | \$60,145,777  | -5.41%   | -16.05% |            |         |          | 2.24%           | 10/28/2019     |
| 2030-2031 Custom Benchmark  |               | -5.30%   | -16.25% |            |         |          | 1.99%           |                |
| 2028/2029 Enrollment Option | \$76,340,881  | -4.86%   | -14.63% |            |         |          | 1.88%           | 10/28/2019     |
| 2028-2029 Custom Benchmark  |               | -4.79%   | -14.85% |            |         |          | 1.55%           |                |
| 2026/2027 Enrollment Option | \$107,072,197 | -4.29%   | -13.02% |            |         |          | 1.64%           | 10/28/2019     |
| 2026-2027 Custom Benchmark  |               | -4.17%   | -13.23% |            |         |          | 1.32%           |                |
| 2024/2025 Enrollment Option | \$150,631,753 | -3.21%   | -10.21% |            |         |          | 1.84%           | 10/28/2019     |
| 2024-2025 Custom Benchmark  |               | -3.05%   | -10.41% |            |         |          | 1.42%           |                |
| 2022/2023 Enrollment Option | \$167,727,211 | -2.24%   | -7.09%  |            |         |          | 1.61%           | 10/28/2019     |
| 2022-2023 Custom Benchmark  |               | -2.12%   | -7.40%  |            |         |          | 1.04%           |                |
| In School Option            | \$229,844,651 | -1.98%   | -6.15%  |            |         |          | 1.25%           | 10/28/2019     |
| In School Custom Benchmark  |               | -1.89%   | -6.48%  |            |         |          | 0.49%           |                |



# MINNESOTA COLLEGE SAVINGS PLAN

Performance Statistics for the Period Ending: September 30, 2022

| Fund Name                                   | Ending Market | 3 Months | 1 Year  | Annualized |         |          |                 | Inception Date |
|---|---------------|----------|---------|------------|---------|----------|-----------------|----------------|
|   |               |          |         | 3 Years    | 5 Years | 10 Years | Since Inception |                |
| U.S. and International Equity Option        | \$244,516,779 | -6.88%   | -19.72% | 3.98%      | 5.35%   | 8.46%    | 6.57%           | 10/ 1/2001     |
| BB: U.S. and International Equity Option    |               | -6.55%   | -19.71% | 3.90%      | 5.22%   | 8.51%    | 7.25%           |                |
| Moderate Allocation Option                  | \$79,749,441  | -5.64%   | -16.60% | 2.06%      | 3.69%   | 5.62%    | 4.71%           | 8/ 2/2007      |
| BB: Moderate Allocation Option              |               | -5.41%   | -16.59% | 1.94%      | 3.63%   | 5.72%    | 5.19%           |                |
| 100% Fixed-Income Option                    | \$16,227,240  | -3.86%   | -12.25% | -2.00%     | 0.33%   | 0.81%    | 2.58%           | 8/16/2007      |
| BB: 100% Fixed-Income Option                |               | -3.86%   | -12.29% | -1.79%     | 0.56%   | 1.15%    | 3.12%           |                |
| International Equity Index Option           | \$7,522,004   | -10.43%  | -24.94% | -1.67%     | -0.93%  |          | 2.16%           | 6/18/2013      |
| BB: International Equity Index Option       |               | -9.76%   | -25.68% | -1.78%     | -0.95%  |          | 2.24%           |                |
| Money Market Option                         | \$13,154,153  | 0.46%    | 0.56%   | 0.47%      | 0.95%   | 0.52%    | 0.52%           | 11/ 1/2007     |
| BB: Money Market Option                     |               | 0.42%    | 0.53%   | 0.38%      | 0.84%   | 0.46%    | 0.47%           |                |
| Principal Plus Interest Option              | \$123,193,575 | 0.25%    | 1.12%   | 1.52%      | 1.65%   | 1.50%    | 2.35%           | 10/10/2001     |
| Citigroup 3-Month U.S. Treasury Bill        |               | 0.45%    | 0.63%   | 0.57%      | 1.13%   | 0.66%    | 1.23%           |                |
| Aggressive Allocation Option                | \$65,211,388  | -6.26%   | -18.10% | 3.05%      | 4.54%   |          | 5.59%           | 8/12/2014      |
| BB: Aggressive Allocation Option            |               | -5.97%   | -18.13% | 2.97%      | 4.47%   |          | 5.53%           |                |
| Conservative Allocation Option              | \$15,398,673  | -3.67%   | -11.21% | 0.97%      | 2.40%   |          | 2.88%           | 8/18/2014      |
| BB: Conservative Allocation Option          |               | -3.50%   | -11.30% | 0.84%      | 2.37%   |          | 2.89%           |                |
| Equity and Interest Accumulation Option     | \$7,512,664   | -1.98%   | -8.29%  | 4.97%      | 5.32%   |          | 5.44%           | 8/18/2014      |
| BB: Equity and Interest Accumulation Option |               | -1.80%   | -8.41%  | 4.64%      | 5.26%   |          | 5.34%           |                |
| U.S. Large Cap Equity Option                | \$81,469,686  | -4.90%   | -15.59% | 8.01%      | 9.05%   |          | 9.76%           | 8/12/2014      |
| BB: U.S. Large Cap Equity Option            |               | -4.88%   | -15.47% | 8.16%      | 9.24%   |          | 9.87%           |                |
| Social Choice Equity Option                 | \$727,194     | -4.51%   | -18.06% |            |         |          | -13.65%         | 6/11/2021      |
| BB: Social Choice Equity Option             |               | -4.46%   | -17.63% |            |         |          | -13.15%         |                |
| Matching Grant                              | \$1,382,084   | 0.25%    | 1.12%   | 1.52%      | 1.65%   | 1.50%    | 2.35%           | 3/22/2002      |
| Citigroup 3-Month U.S. Treasury Bill        |               | 0.45%    | 0.63%   | 0.57%      | 1.13%   | 0.66%    | 1.23%           |                |

# MINNESOTABLE<sup>plan</sup>

A member of The National ABLE Alliance

Performance as of  
09/30/22

Total Market Value: \$ 28,229,835

| <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>Date</u> |
|---|---------------------|------------------|----------------|-----------------|-------------|---------------|---------------|---------------|----------------|------------------|-------------|
| Aggressive Option                             | \$ 1,952,208        | 6.92%            | (9.17)         | (6.01)          | (25.00)     | (21.04)       | 2.87          | 4.14          |                | 5.68             | 12/15/16    |
| ABLE Aggressive Custom Benchmark              |                     |                  | (9.28)         | (5.72)          | (25.09)     | (21.06)       | 3.12          | 4.44          |                | 6.07             |             |
| <b>Variance</b>                               |                     |                  | <b>0.11</b>    | <b>(0.29)</b>   | <b>0.09</b> | <b>0.02</b>   | <b>(0.25)</b> | <b>(0.30)</b> |                | <b>(0.39)</b>    |             |
| Moderately Aggressive Option                  | \$ 2,228,226        | 7.89%            | (8.15)         | (5.47)          | (22.40)     | (18.95)       | 2.47          | 3.76          |                | 5.05             | 12/15/16    |
| ABLE Moderately Aggressive Custom Benchmark   |                     |                  | (8.27)         | (5.28)          | (22.52)     | (19.00)       | 2.68          | 4.02          |                | 5.41             |             |
| <b>Variance</b>                               |                     |                  | <b>0.12</b>    | <b>(0.19)</b>   | <b>0.12</b> | <b>0.05</b>   | <b>(0.21)</b> | <b>(0.26)</b> |                | <b>(0.36)</b>    |             |
| Growth Option                                 | \$ 3,454,175        | 12.24%           | (7.12)         | (4.98)          | (19.76)     | (16.89)       | 1.98          | 3.29          |                | 4.34             | 12/15/16    |
| ABLE Growth Custom Benchmark                  |                     |                  | (7.25)         | (4.84)          | (19.90)     | (16.95)       | 2.16          | 3.54          |                | 4.68             |             |
| <b>Variance</b>                               |                     |                  | <b>0.13</b>    | <b>(0.14)</b>   | <b>0.14</b> | <b>0.06</b>   | <b>(0.18)</b> | <b>(0.25)</b> |                | <b>(0.34)</b>    |             |
| Moderate Option                               | \$ 3,099,116        | 10.98%           | (6.04)         | (4.51)          | (17.03)     | (14.78)       | 1.42          | 2.75          |                | 3.61             | 12/15/16    |
| ABLE Moderate Custom Benchmark                |                     |                  | (6.24)         | (4.43)          | (17.25)     | (14.90)       | 1.56          | 2.98          |                | 3.90             |             |
| <b>Variance</b>                               |                     |                  | <b>0.20</b>    | <b>(0.08)</b>   | <b>0.22</b> | <b>0.12</b>   | <b>(0.14)</b> | <b>(0.23)</b> |                | <b>(0.29)</b>    |             |
| Moderately Conservative Option                | \$ 3,093,618        | 10.96%           | (4.32)         | (3.22)          | (12.20)     | (10.59)       | 1.13          | 2.22          |                | 2.79             | 12/15/16    |
| ABLE Moderately Conservative Custom Benchmark |                     |                  | (4.37)         | (3.06)          | (12.30)     | (10.62)       | 1.23          | 2.43          |                | 3.04             |             |
| <b>Variance</b>                               |                     |                  | <b>0.05</b>    | <b>(0.16)</b>   | <b>0.10</b> | <b>0.03</b>   | <b>(0.10)</b> | <b>(0.21)</b> |                | <b>(0.25)</b>    |             |
| Conservative Option                           | \$ 5,290,544        | 18.74%           | (1.79)         | (1.35)          | (5.18)      | (4.60)        | 0.65          | 1.43          |                | 1.63             | 12/15/16    |
| ABLE Conservative Custom Benchmark            |                     |                  | (1.82)         | (1.24)          | (5.25)      | (4.60)        | 0.65          | 1.56          |                | 1.78             |             |
| <b>Variance</b>                               |                     |                  | <b>0.03</b>    | <b>(0.11)</b>   | <b>0.07</b> | <b>0.00</b>   | <b>0.00</b>   | <b>(0.13)</b> |                | <b>(0.15)</b>    |             |
| Checking Option                               | \$ 9,111,948        | 32.28%           |                |                 |             |               |               |               |                |                  | 03/30/17    |

## MINNESOTA ACHIEVE A BETTER LIFE EXPERIENCE

The Minnesota Achieve a Better Life Experience Plan (ABLE).  
The plan is administered by the Department of Human Services (DHS).

The SBI and DHS have jointly contracted with Ascensus to provide recordkeeping, administrative, and investment management services for the plan.

## RISK BASED ALLOCATIONS

The plan offers seven different allocation investment options: Aggressive, Moderately Aggressive, Growth, Moderate, Moderately Conservative, Conservative, and Checking. Each allocation is based on a fixed risk level.

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## Quarterly Report

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# Non-Retirement

## September 30, 2022



## Quarterly Report

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# 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

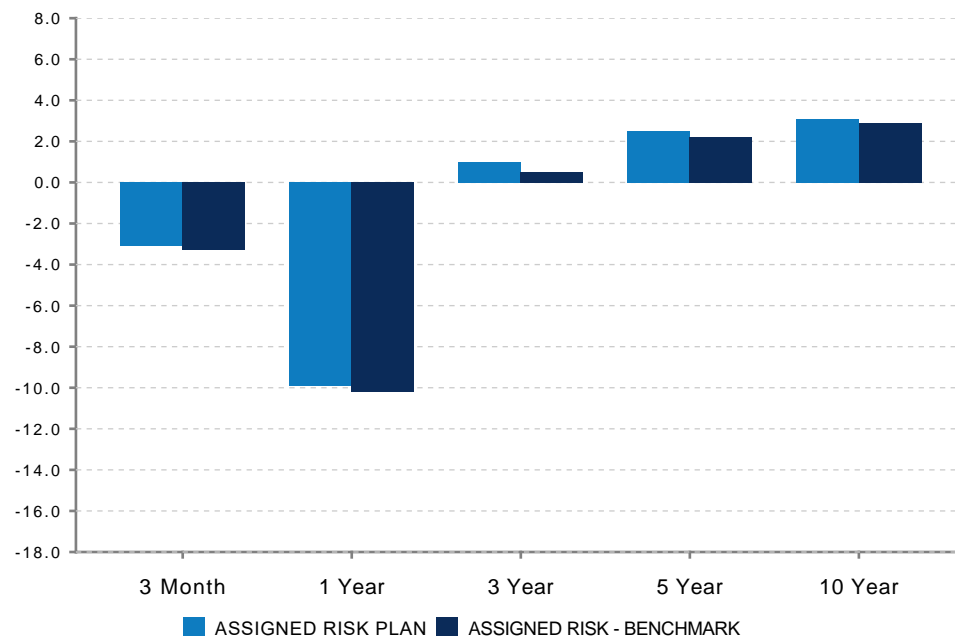
### Assigned Risk Plan

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.

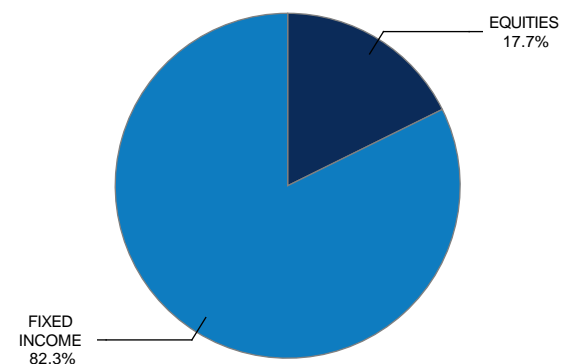
The Assigned Risk Plan is invested in a portfolio of common stocks and bonds

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.



|   | Ending Market Value | Last Qtr | 1 Year | 3 Year | 5 Year | 10 Year |
|---|---------------------|----------|--------|--------|--------|---------|
| ASSIGNED RISK PLAN                      | \$231,514,790       | -3.1%    | -9.9%  | 1.0%   | 2.5%   | 3.1%    |
| EQUITIES                                | \$40,954,372        | -4.9%    | -15.5% | 8.2%   | 9.2%   | 11.4%   |
| FIXED INCOME                            | \$190,560,418       | -3.0%    | -9.1%  | -1.5%  | 0.3%   | 0.7%    |
| ASSIGNED RISK - BENCHMARK               |                     | -3.3%    | -10.2% | 0.5%   | 2.2%   | 2.9%    |
| Excess                                  |                     | 0.3%     | 0.3%   | 0.5%   | 0.3%   | 0.2%    |
| S&P 500                                 |                     | -4.9%    | -15.5% | 8.2%   | 9.2%   | 11.7%   |
| Bloomberg U.S. Government: Intermediate |                     | -3.1%    | -9.2%  | -1.7%  | 0.2%   | 0.6%    |



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.



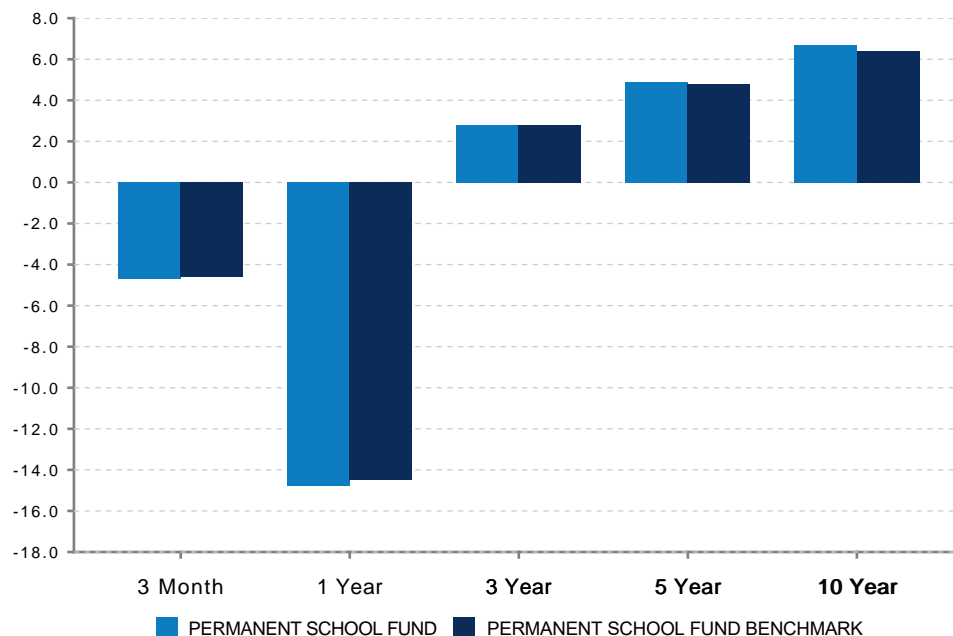
## Non-Retirement

### Permanent School Fund

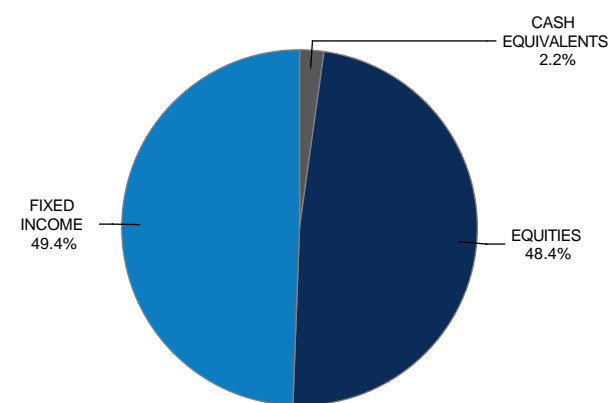
The investment objective of the Permanent School Fund is to produce a growing level of spendable income, within the constraints of maintaining adequate portfolio quality and liquidity. The income from the portfolio is transferred to the school endowment fund and distributed to Minnesota's public schools.

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        | \$1,664,884,547     | -4.7%    | -14.8% | 2.8%   | 4.9%   | 6.7%    |
| CASH EQUIVALENTS             | 37,177,782          | 0.6      | 0.7    | 0.6    | 1.2    | 0.7     |
| EQUITIES                     | 806,020,163         | -4.9     | -15.5  | 8.2    | 9.2    | 11.7    |
| FIXED INCOME                 | 821,686,602         | -4.7     | -15.4  | -3.2   | -0.1   | 1.4     |
| PERMANENT SCHOOL - BENCHMARK |                     | -4.6     | -14.5  | 2.8    | 4.8    | 6.4     |
| Excess                       |                     | -0.0     | -0.3   | -0.0   | 0.1    | 0.2     |
| S&P 500                      |                     | -4.9     | -15.5  | 8.2    | 9.2    | 11.7    |
| Bloomberg U.S. Aggregate     |                     | -4.8     | -14.6  | -3.3   | -0.3   | 0.9     |



Note: Since 12/1/2017 the equity segment has been managed by Mellon and the fixed income segment by Prudential. Prior to 12/1/2017 both segments were managed internally by SBI staff. Prior to 7/1/97 the Fund allocation was 100% fixed income.



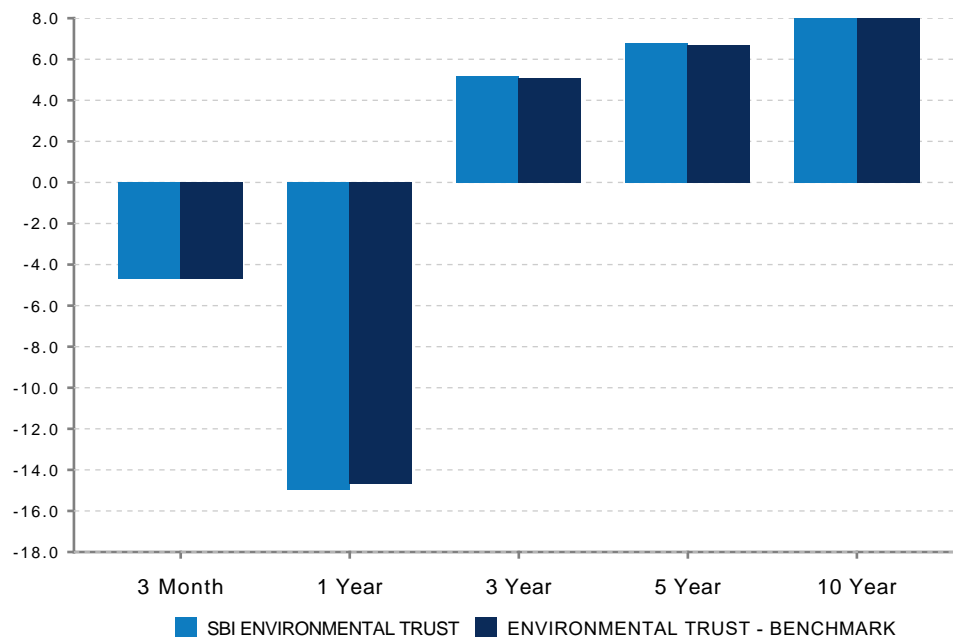
## Non-Retirement

### Environmental Trust Fund

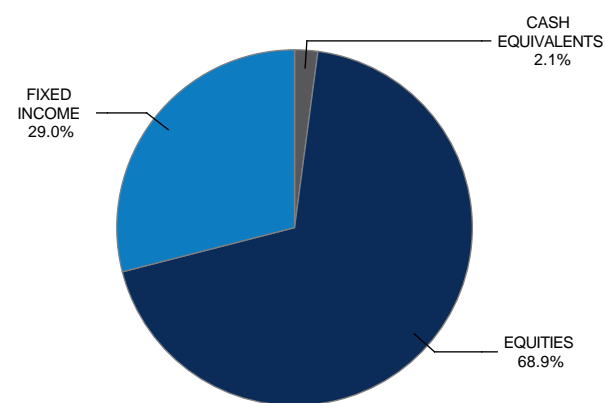
The objective of the Environmental Trust Fund is to increase the market value of the Fund over time in order to increase the annual amount made available for spending within the constraints of maintaining adequate portfolio quality and liquidity.

The Environmental Trust Fund is invested in a balanced portfolio of common stocks and bonds. Common stocks provide the potential for significant capital appreciation, while bonds act as a deflation hedge and provide portfolio diversification.

The bond segment is actively managed to add incremental value through sector, security and yield curve decisions. The stock segment is passively managed to track the performance of the S&P 500. The fixed income benchmark is the Bloomberg U.S. Aggregate. The total fund benchmark is a combination of the fixed income and equity benchmarks, weighted according to the total fund asset allocation targets of 2% cash, 70% equities, and 28% fixed income. The actual asset mix will fluctuate and is shown in the graph below.



|                                 | Ending Market Value | Last Qtr | 1 Year | 3 Year | 5 Year | 10 Year |
|---------------------------------|---------------------|----------|--------|--------|--------|---------|
| SBI ENVIRONMENTAL TRUST         | \$1,373,981,999     | -4.7%    | -15.0% | 5.2%   | 6.8%   | 8.7%    |
| CASH EQUIVALENTS                | 28,982,434          | 0.6      | 0.7    | 0.6    | 1.2    | 0.7     |
| EQUITIES                        | 946,522,290         | -4.9     | -15.5  | 8.2    | 9.2    | 11.7    |
| FIXED INCOME                    | 398,477,276         | -4.7     | -15.4  | -3.2   | -0.1   | 1.4     |
| ENVIRONMENTAL TRUST - BENCHMARK |                     | -4.7     | -14.7  | 5.1    | 6.7    | 8.6     |
| Excess                          |                     | -0.0     | -0.4   | 0.1    | 0.1    | 0.2     |
| S&P 500                         |                     | -4.9     | -15.5  | 8.2    | 9.2    | 11.7    |
| Bloomberg U.S. Aggregate        |                     | -4.8     | -14.6  | -3.3   | -0.3   | 0.9     |



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

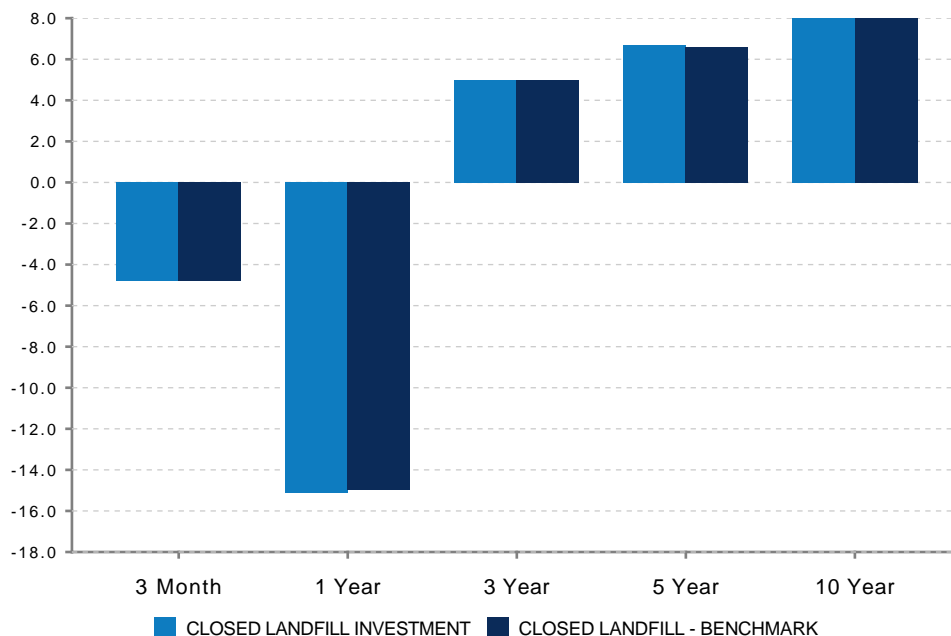


## Non-Retirement

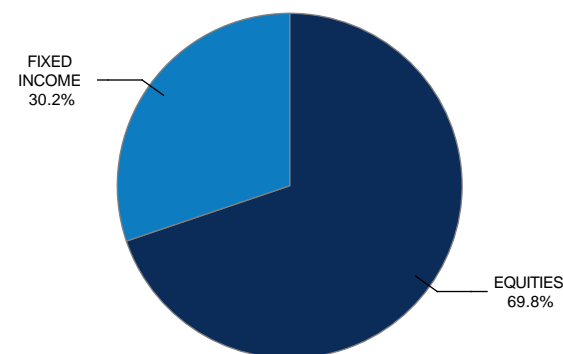
### Closed Landfill Investment Fund

The investment objective of the Closed Landfill Investment Fund is to increase the market value of the Fund and to reduce volatility to meet future expenditures. By statute, the assets of the Fund were unavailable for expenditure until after the fiscal year 2020 to pay for long-term costs of maintaining the integrity of landfills in Minnesota once they are closed. In FY 2011, \$48 million was transferred out of the general fund leaving a balance of \$1 million in the account. Legislation was enacted in 2013 to replenish the principal and earnings back into the fund and in FY 2014 a repayment was made in the amount of \$64.2 million. In 2015, legislation was passed which repealed any further repayments.

The bond segment is actively managed to add incremental value through sector, security and yield curve decisions. The stock segment is managed to passively track the performance of the S&P 500. The fixed income benchmark is the Bloomberg U.S. Aggregate. The total fund benchmark is a combination of the fixed income and equity benchmarks, weighted according to the total fund asset allocation targets of 70% equities and 30% fixed income. The actual asset mix will fluctuate and is shown in the graph below.



|                             | Ending Market Value | Last Qtr | 1 Year | 3 Year | 5 Year | 10 Year |
|-----------------------------|---------------------|----------|--------|--------|--------|---------|
| CLOSED LANDFILL INVESTMENT  | \$108,800,490       | -4.8%    | -15.1% | 5.0%   | 6.7%   | 9.7%    |
| EQUITIES                    | 75,980,632          | -4.9     | -15.5  | 8.2    | 9.2    | 11.7    |
| FIXED INCOME                | 32,819,858          | -4.7     | -15.4  | -3.2   | -0.1   |         |
| CLOSED LANDFILL - BENCHMARK |                     | -4.8     | -15.0  | 5.0    | 6.6    | 9.7     |
| Excess                      |                     | 0.0      | -0.1   | -0.0   | 0.0    | 0.0     |
| S&P 500                     |                     | -4.9     | -15.5  | 8.2    | 9.2    | 11.7    |
| Bloomberg U.S. Aggregate    |                     | -4.8     | -14.6  | -3.3   | -0.3   | 0.9     |



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> |
|---|----------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| <b>NON RETIREMENT EQUITY INDEX - MELLON</b>     | <b>2,570,848,557</b>       | <b>-4.9</b>     | <b>-4.9</b>       | <b>-15.5</b>  | <b>8.2</b>    | <b>9.2</b>    | <b>11.7</b>    | <b>9.5</b>             | <b>07/1993</b>        |
| S&P 500 INDEX (DAILY)                           |                            | -4.9            | -4.9              | -15.5         | 8.2           | 9.2           | 11.7           | 9.5                    | 07/1993               |
| Excess  |                            | 0.0             | 0.0               | -0.0          | -0.0          | -0.0          | -0.0           | 0.1                    |                       |
| <b>NON RETIREMENT FIXED INCOME - PRUDENTIAL</b> | <b>1,443,300,779</b>       | <b>-4.7</b>     | <b>-4.7</b>       | <b>-15.4</b>  | <b>-3.2</b>   | <b>-0.1</b>   | <b>1.4</b>     | <b>5.0</b>             | <b>07/1994</b>        |
| Bloomberg U.S. Aggregate                        |                            | -4.8            | -4.8              | -14.6         | -3.3          | -0.3          | 0.9            | 4.6                    | 07/1994               |
| Excess  |                            | 0.1             | 0.1               | -0.8          | 0.0           | 0.2           | 0.5            | 0.4                    |                       |
| <b>RBC</b>                                      | <b>190,560,401</b>         | <b>-3.0</b>     | <b>-3.0</b>       | <b>-9.1</b>   | <b>-1.5</b>   | <b>0.3</b>    | <b>0.7</b>     | <b>4.3</b>             | <b>07/1991</b>        |
| RBC Custom Benchmark                            |                            | -3.1            | -3.1              | -9.2          | -1.7          | 0.2           | 0.6            | 4.3                    | 07/1991               |
| Excess  |                            | 0.0             | 0.0               | 0.1           | 0.2           | 0.1           | 0.1            | -0.1                   |                       |
| MET COUNCIL OPEB BOND POOL                      | 94,677,504                 | -2.5            | -2.5              | -7.1          | -1.3          |               |                |                        | 02/2009               |
| <b>NON RETIREMENT CASH ACCOUNT</b>              | <b>105,167,654</b>         | <b>0.6</b>      | <b>0.6</b>        | <b>0.8</b>    | <b>0.6</b>    |               |                |                        | <b>05/2009</b>        |
| ICE BofA US 3-Month Treasury Bill               |                            | 0.5             | 0.5               | 0.6           | 0.6           |               |                |                        | 05/2009               |
| Excess  |                            | 0.1             | 0.1               | 0.2           | 0.0           |               |                |                        |                       |

Note:

RBC is the manager for the fixed income portion of the Assigned Risk Account. RBC changed its name from Voyageur Asset Management on 1/1/2010. The current benchmark is the Bloomberg U.S. Government Intermediate Index. Prior to 7/1/11 the Voyageur Custom Index was 10% 90 day T-Bill, 25% Merrill 1-3 Government, 15% Merrill 3-5 Government, 25% Merrill 5-10 Government, 25% Merrill Mortgage Master.

Prior to 12/1/17 the Non Retirement Equity Index and Non Retirement Fixed Income accounts were managed internally by SBI staff.

In addition to the Non-Retirement Funds listed on the previous pages, the Non Retirement Equity Index and the Non Retirement Fixed Income accounts also include the assets of various smaller Miscellaneous Trust Accounts and Other Post Employment Benefits.

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## Quarterly Report

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# State Cash

## September 30, 2022



## State Cash Accounts

### Invested Treasurer's Cash

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

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

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

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

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

|  | <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                         | 23,583,991,358             | 0.3             | -0.9          | 0.3           | 0.9           | 0.6            |
| iMoneyNet Money Fund Average-All Taxable |                            | 0.4             | 0.5           | 0.4           | 0.9           | 0.5            |

### 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        | 87,956,178                 | -3.0            | -6.9          | -0.7          | 0.9           |                |
| Housing Finance (1) | 75,005,897                 |                 |               |               |               |                |

(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

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### **Public Equity Benchmark:**

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

### **Return Seeking BM:**

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

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

### **Total Fixed Income Benchmark:**

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

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

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