
MINNESOTA STATE BOARD OF INVESTMENT

**STATE BOARD OF INVESTMENT
MEETING
December 1, 2021**



**Governor Tim Walz
State Auditor Julie Blaha
Secretary of State Steve Simon
Attorney General Keith Ellison**

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**STATE BOARD OF INVESTMENT
MEETING**

AGENDA

December 1, 2021

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AGENDA
STATE BOARD OF INVESTMENT MEETING

Virtual Meeting
Wednesday, December 1, 2021
10:00 a.m.

- | | | |
|-----------|---|------------|
| 1. | Call to Order | TAB |
| 2. | Approval of Minutes of August 25, 2021 | |
| 3. | Performance Summary (Mansco Perry) | A |
| 4. | Executive Director's Administrative Report (Mansco Perry)
1. Report on Budget and Travel
2. FY21 Audit Report
3. Draft of FY21 Annual Report
4. Meeting Dates for Calendar 2022
5. Sudan Update
6. Iran Update
7. Litigation Update | B |
| 5. | Proposed Legislation (John Mulé) | C |
| 6. | Private Markets Investment Program (Gary Martin) | D |
| 7. | Public Markets Investment Program | E |
| 8. | Participant Directed Investment Program and Non-Retirement Investment Program | F |
| 9. | Other Items | |

REPORTS

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 25, 2021
SBI Meeting Minutes

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**Minutes
State Board of Investment Meeting
August 25, 2021**

Notice of Meeting

The State Board of Investment (SBI) met at 10:10 a.m. Wednesday, August 25, 2021. It was determined that an in-person meeting was not practical due to the current COVID-19 Delta Variance Surge. As is permitted under the Open Meeting Law in these conditions, the meeting of the State Board of Investment was conducted via Microsoft Teams video conferencing and over the phone. The meeting was also live streamed on You Tube. Attendance and all votes were conducted with a roll call.

Call to Order

Governor Tim Walz, Chairperson of the SBI, called the meeting to order. Governor Tim Walz, State Auditor Julie Blaha, Secretary of State Steve Simon, and Attorney General Keith Ellison were present.

Approval of Minutes

The minutes of the May 26, 2021 SBI meeting were approved by roll call vote.

Executive Director's Report

Executive Director Mr. Perry referred members to the June 30, 2021 Performance Summary provided in Tab A of the meeting materials. Mr. Perry informed the Board that as of June 30, 2021 the SBI was responsible for just over \$129 billion in assets, of which Combined Funds represented almost \$90 billion of those assets.

For the one-year time-period, the Combined Funds returned 30.3%, which is the second highest return achieved in the history of the SBI. The highest one-year return of 40.3% was reported in 1983 when the Combined Funds assets were only \$4.5 billion. Mr. Perry reported that the Combined Funds was ahead of its long-term objectives by outperforming its Composite Index over the ten-year period ending June 30, 2021 (Combined Funds 10.4% vs. Combined und Composite Index 10.1%) and providing a real rate of return above inflation over the latest 20 year time-period (Combined Funds 8.1% vs CPI-U 2.1%). The Combined Funds also exceeded the composite index for all time-periods reported (Combined Funds returned 6.7% vs. Combined Funds-Composite Index 6.6% for the quarter, and 30.3% vs. 28.8% for the fiscal year).

Mr. Perry noted that the asset mix is in-line with the target asset allocation. Mr. Perry then referred members to the Combined Funds Asset Class Performance Summary and noted the primary contributors to performance for the year were domestic equity and private equity investments. He then referred members the Volatility Equivalent Benchmark Comparison, which continues to show the Combined Funds value added for all time-periods listed were positive compared to a benchmark composed of stocks and bonds weighted to represent a portfolio of similar risk. Lastly, Mr. Perry stated that after this meeting, the SBI will provide the Combined Funds performance comparison in the TUCS universe to public and corporate plans greater than \$20 billion in assets versus using the universe of plans greater than \$1 billion in assets.

Executive Director's Administrative Report

Mr. Perry referred members to Tab B of the meeting materials for the Executive Director's Administrative Report. The administrative budget provided in Attachment A shows the SBI under budget by three million dollars, which will be returned to the retirement systems who provide the initial funding for the SBI's administrative budget. Lastly, Mr. Perry stated that the Administrative Report included the Iran and Sudan summary and that there was no significant litigation during the quarter.

General Investment Consultant Review Report

Mr. Perry referred members to Tab C of the meeting materials for the General Investment Consultant Review as the result of the Request For Proposal (RFP) issued in April of 2021 given that current contracts are scheduled to expire in early 2022 calendar year. As a result, staff, members of the Investment Advisory Council (IAC), and designees of the Board recommended that the Board retain Aon Investments USA Inc. and Meketa Investment Group, LLC. If approved, staff would promptly begin contract negotiations.

Board members noted that quarterly materials are reviewed with staff and consultants prior to the meetings. This allows time for staff to follow up on any questions Board members have on the recommendations and gives them a better understanding of how the Combined Funds portfolio is positioned. Board members also noted the seriousness of their fiduciary responsibility to the people of Minnesota and pension holders.

State Auditor Blaha moved approval of the General Investment Consultant Services recommendation, which reads: **"The Investment Advisory Council endorsed the Executive Director and Staff's recommendation to authorize the Executive Director, with assistance from SBI's legal counsel, to negotiate and execute contracts with Aon Investments USA Inc. and Meketa Investment Group, LLC for investment consulting services. The contracts should cover a period of five years. The contracts will also be subject to the standard termination provisions required by state statute. Approval of this recommendation is not intended to constitute in any way, a binding legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by Aon Investments USA Inc. or Meketa Investment Group, LLC upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on either Aon Investments USA Inc. or Meketa Investment Group, LLC."** The motion passed by roll call vote.

Private Markets Investment Program Report

Mr. Martin, Chairperson of the Investment Advisory Council, delivered the Private Markets Investment Program Report and reviewed eight private markets proposals listed in a revised Tab D of the meeting materials. Mr. Martin stated that the following eight recommendations are with existing managers with whom the SBI has done extensive due diligence: MN Asia Investors, LP (Private Equity), Carlyle Partners VIII (Private Equity), Carlyle/MN Co-Invest (Private Equity), Summit Partners Growth Equity Fund XI (Private Equity), KKR Global Infrastructure Investors Fund IV (Real Assets), Blackstone Real Estate Partners Asia III (Real Assets), KKR Real Estate Partners America III (Real Assets), and Sixth Street Opportunities Partners V (Private Credit).

State Auditor Blaha moved approval of the eight recommendations which reads: **“The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate and execute a commitment of up to an additional \$100 million to MN Asia Investors, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by Asia Alternatives Management upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Asia Alternatives Management or reduction or termination of the commitment.**

The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate and execute a commitment of up to \$150 million, or 20% of Carlyle Partners VIII, whichever is less, and up to \$100 million to Carlyle/MN Co-Invest, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by The Carlyle Group upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on The Carlyle Group or reduction or termination of the commitment.

The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate and execute a commitment of up to \$300 million, or 20% of Summit Partners Growth Equity Fund XI, whichever is less, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by Summit Partners upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Summit Partners or reduction or termination of the commitment.

The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate and execute a commitment of up to \$100 million, or 20% of KKR Global Infrastructure Investors IV, whichever is less, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal

agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by KKR upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on KKR or reduction or termination of the commitment.

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to \$100 million, or 20% of Blackstone Real Estate Partners Asia III, whichever is less, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by The Blackstone Group upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on The Blackstone Group or reduction or termination of the commitment.

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to \$125 million, or 20% of KKR Real Estate Partners Americas III, whichever is less, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by KKR upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on KKR or reduction or termination of the commitment.

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to \$75 million, or 20% of Sixth Street Opportunities Partners V, whichever is less, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by Sixth Street Partners upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Sixth Street Partners or reduction or termination of the commitment. The motion passed by roll call vote.

Reports

Mr. Perry directed members to the remainder of the reports in the meeting materials that included: the Public Markets Investment Program Report in Tab E; the Participant Directed Investment Program and Non-Retirement Program Report in Tab F; the SBI Environmental, Social and Governance (ESG) Report; the Market Environmental Report prepared by AON; the Capital Markets Outlook & Risk Metrics Reports prepared by Meketa; and the SBI Comprehensive Performance Report.

Proxy Voting and Engagement

Lastly, Mr. Perry highlighted the SBI's successful 2021 proxy season, specifically the role that the SBI and other large U.S. public pension plans played in electing new directors to the ExxonMobil Board of Directors. Page one of the SBI's ESG report outlines these accomplishments. Governor Walz noted for members of the public that as fiduciaries, the SBI has elected to use their leverage as a large institutional investor to engage with companies in different ways. One of which was to move away from fossil fuel investments and the other was to use their proxy votes for change. Attorney General Ellison also commended members of the public who have pushed the Board towards a more green future. He stated that although the SBI may not be using the same tactics they are headed towards the same goal. State Auditor Blaha and Secretary of State Simon also thanked the public who are encouraging them to make decisions that consider their full fiduciary duty and believe the SBI is making change through engagement.

Public Testimony

Governor Walz recognized members of the public who requested to speak before the Board: Ms. Jina Penn-Tracy from the Minnesota Divestment Coalition; Lucia Everist from the MN Youth for Climate Justice; and Arianna Anderson, Olaxson Koisee, Takilah Swearegene, Chloe Jackson, and Shanika Henderson with Renters United for Justice. Governor Walz thanked the presenters for their testimony.

Adjournment of Meeting

Attorney General Ellison moved approval to adjourn the meeting. The motion passed by roll call vote. The meeting adjourned at 11:01 a.m.

Respectfully Submitted,



Mansco Perry III
Executive Director and
Chief Investment Officer

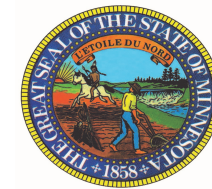
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TAB A

Quarterly Performance Summary

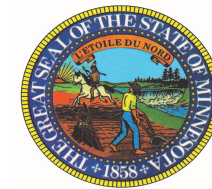
September 30, 2021

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Performance Summary

September 30, 2021



Description of SBI Investment Programs

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

Combined Funds

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

Fire Plans + Other Retirement Plans

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

Participant Directed Investment Program

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

Non-Retirement

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

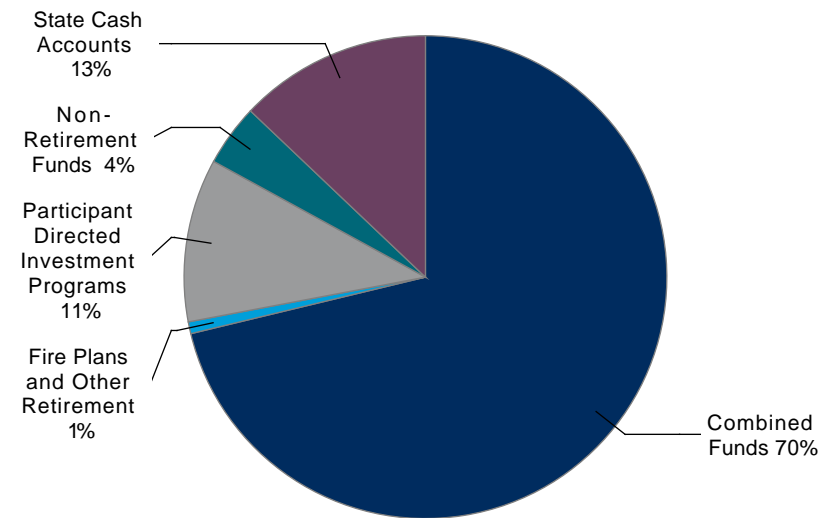
State Cash

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

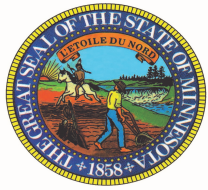


Funds Under Management

	<u>\$ Millions</u>
COMBINED FUNDS	\$89,948
FIRE PLANS + OTHER RETIREMENT	1,003
PARTICIPANT DIRECTED INVESTMENT PROGRAMS	13,802
State Deferred Compensation Plan	9,609
Health Care Savings Plan	1,667
Unclassified Employees Retirement Plan	390
Hennepin County Supplemental Retirement Plan	187
PERA Defined Contribution Plan	98
Minnesota College Savings Plan	1,827
Minnesota Achieve a Better Life Experience	24
NON-RETIREMENT FUNDS	5,215
Assigned Risk Plan	277
Permanent School Fund	1,946
Environmental Trust Fund	1,642
Closed Landfill Investment Fund	130
Miscellaneous Trust Funds	353
Other Postemployment Benefits Accounts	867
STATE CASH ACCOUNTS	17,957
Invested Treasurer's Cash	17,887
Other State Cash Accounts	70
TOTAL SBI AUM	127,925



Note: Differentials within column amounts may occur due to rounding

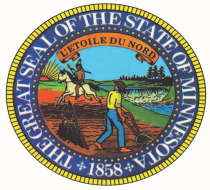


Combined Funds Long Term Objectives

		<u>Comparison to Objective</u>
		<u>10 Year</u>
Match or Exceed Composite Index (10 yr.)	COMBINED FUNDS	11.6%
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.	COMBINED FUNDS - COMPOSITE INDEX	11.2
	Excess	0.4
		<u>20 Year</u>
Provide Real Return (20 yr.)	COMBINED FUNDS	8.7%
Provide returns that are 3-5 percentage points greater than inflation over the latest 20 year period.	CPI-U	2.2
	Excess	6.5

Note:

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



Combined Funds Summary

Combined Funds Change in Market Value (\$Millions)

	<u>One Quarter</u>
COMBINED FUNDS	
Beginning Market Value	\$89,494
Net Contributions	-670
Investment Return	1,124
Ending Market Value	89,948

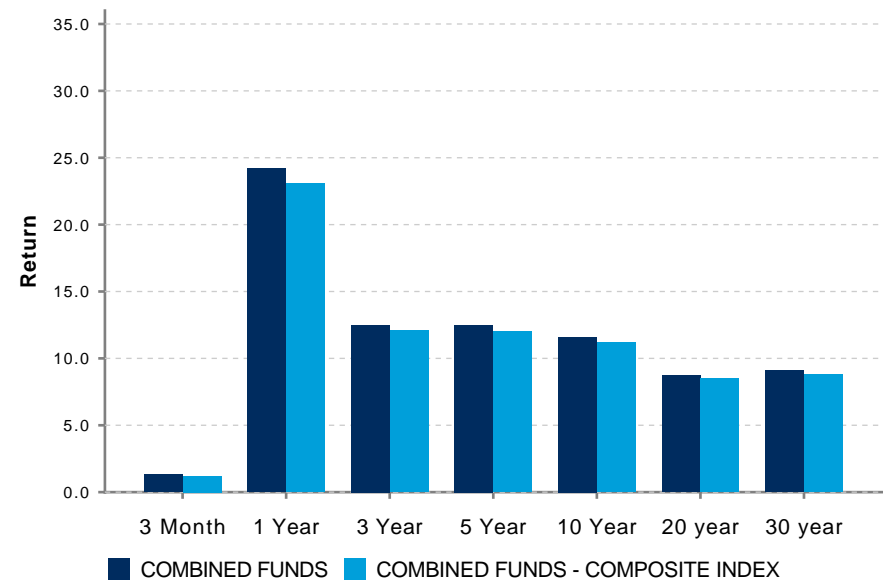
The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

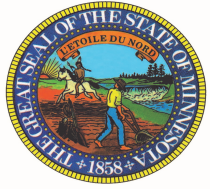
Performance (Net of Fees)

The Combined Funds' performance is evaluated relative to a composite of public market index and private market investment returns. The Composite performance is calculated by multiplying the beginning of month Composite weights and the monthly returns of the asset class benchmarks.

	<u>Qtr</u>	<u>FYTD</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>	<u>20 Yr</u>	<u>30 Yr</u>
COMBINED FUNDS	1.3%	1.3%	24.2%	12.5%	12.5%	11.6%	8.7%	9.1%
COMBINED FUNDS - COMPOSITE INDEX	1.2	1.2	23.1	12.1	12.0	11.2	8.5	8.8
Excess	0.0	0.0	1.1	0.4	0.5	0.4	0.2	0.3

Asset Growth



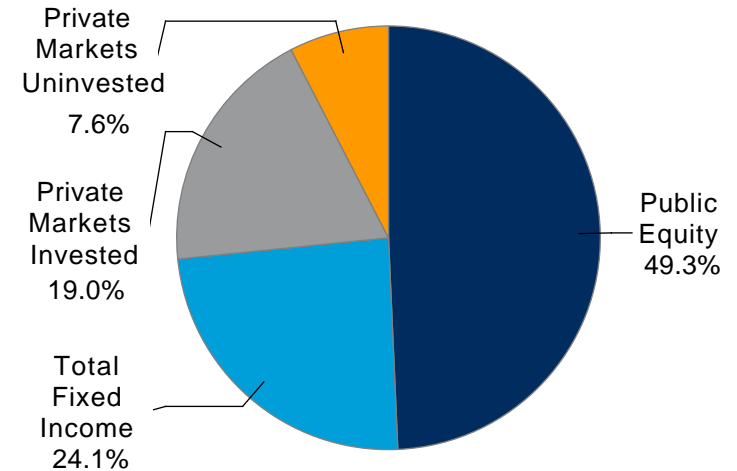


Combined Funds Summary

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.

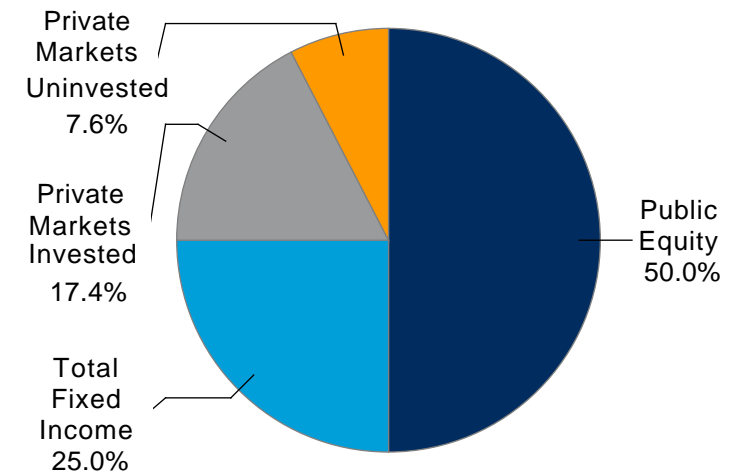
	<u>(Millions)</u>	<u>Actual Mix</u>	<u>Policy Target</u>
Public Equity	\$44,386	49.3%	50.0%
Total Fixed Income	21,681	24.1	25.0
Private Markets - Total	23,881	26.6	25.0
Private Markets - Invested	17,051	19.0	
Private Markets - Uninvested	6,831	7.6	
TOTAL	89,948	100.0	

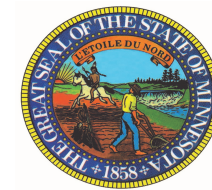


Composite Index Comparison

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

	<u>Policy Weight</u>	<u>Market Index</u>
Public Equity	50.0%	Public Equity Benchmark
Total Fixed Income	25.0	Total Fixed Income Benchmark
Private Markets - Invested	17.4	Private Markets
Private Markets - Uninvested	7.6	S&P 500





Combined Funds Asset Class Performance Summary

Public Equity

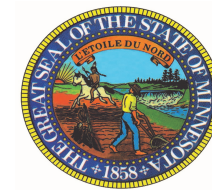
The Combined Funds Public Equity includes Domestic Equity, International Equity and Global Equity.

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	\$44.4	49.3%	50.0%	-0.9%	-0.9%	30.2%	13.6%	14.6%	14.3%	9.1%	9.6%
Public Equity Benchmark				-1.0	-1.0	29.7	13.3	14.3			
Excess				0.1	0.1	0.5	0.3	0.3			
Domestic Equity	29.6	32.9	33.5	0.0	0.0	33.1	16.1	17.1	16.7	9.8	10.4
Domestic Equity Benchmark				-0.1	-0.1	32.5	15.9	16.8	16.6	9.9	10.5
Excess				0.1	0.1	0.6	0.2	0.3	0.1	-0.1	-0.1
International Equity	13.7	15.2	16.5	-2.6	-2.6	24.8	8.6	9.3	8.1	7.5	
International Equity Benchmark				-3.0	-3.0	24.0	8.0	8.9	7.5	7.1	
Excess				0.3	0.3	0.8	0.7	0.4	0.6	0.3	
Global Equity	1.1	1.2	0.0	-4.5	-4.5						
MSCI AC WORLD INDEX NET				-1.1	-1.1						
Excess				-3.4	-3.4						

Note:

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



Combined Funds Asset Class Performance Summary

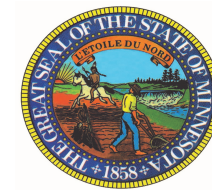
Total Fixed Income

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

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

	<u>Market Value</u>	<u>Actual Weight</u>	<u>Policy Weight</u>	<u>Last Qtr</u>	<u>FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>20 Year</u>	<u>30 year</u>
Total Fixed Income	\$21.7	24.1%	25.0%	0.1%	0.1%	-2.0%	7.0%	4.1%	4.0%	4.9%	6.0%
Total Fixed Income Benchmark				0.1	0.1	-3.1	6.4				
Excess				-0.0	-0.0	1.1	0.5				
Core/Core Plus	4.8	5.4	5.0	0.2	0.2	0.9	6.4	3.9	3.9	4.8	5.9
Core Bonds Benchmark				0.1	0.1	-0.9	5.4	2.9	3.0	4.3	5.5
Excess				0.1	0.1	1.8	1.1	0.9	0.9	0.5	0.5
Return Seeking Fixed Income	4.0	4.5	5.0	-0.1	-0.1						
Bloomberg U.S. Aggregate				0.1	0.1						
Excess				-0.2	-0.2						
Treasury Protection	8.7	9.7	10.0	0.2	0.2	-6.4	7.1				
Bloomberg Treasury 5+ Year				0.2	0.2	-6.8	7.1				
Excess				0.0	0.0	0.4	0.0				
Laddered Bond + Cash	4.1	4.6	5.0	0.0	0.0	0.1	1.2	1.2	0.8	1.6	3.2
ICE BofA US 3-Month Treasury Bill				0.0	0.0	0.1	1.2	1.2	0.6	1.3	2.5
Excess				0.0	0.0	0.1	-0.0	0.1	0.1	0.3	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	9.4%	9.4%	42.1%	15.9%	16.2%	12.9%	13.0%	13.9%	12.8%
Private Markets-Uninvested(1)	0.6	0.6							
Private Equity	10.3%	10.3%	52.9%	23.0%	21.7%	16.8%	14.7%	15.7%	
Private Credit	5.7%	5.7%	20.4%	10.0%	12.3%	12.1%	12.3%	12.6%	
Resources	6.6%	6.6%	21.8%	-3.0%	2.3%	1.7%	12.1%	12.8%	
Real Estate	10.2%	10.2%	22.9%	11.5%	11.3%	11.7%	8.9%	10.2%	

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

SBI Combined Funds Strategic Allocation Category Framework

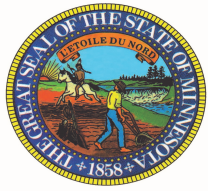
	<u>9/30/21</u> <u>(\$ millions)</u>	<u>9/30/21 Weights</u>	<u>Category Ranges</u>	
<u>Growth - Appreciation</u>				
Public Equity	\$ 51,218.70	56.9%		
Private Equity	\$ 11,176.78	12.4%		
Non-Core Real Assets	\$ 2,912.64	3.2%		
Distressed/Opportunistic	\$ 1,497.69	1.7%		
	\$ 66,805.81	74.3%	50%	75%
<u>Growth - Income-oriented</u>				
Core Fixed Income	\$ 4,823.12	5.4%		
Private Credit	\$ 944.00	1.0%		
Return-Seeking Fixed Income	\$ 4,026.75	4.5%		
	\$ 9,793.87	10.9%	15%	30%
<u>Real Assets</u>				
Core Real Estate		0.0%		
Real Assets	\$ 468.47	0.5%		
	\$ 468.47	0.5%	0%	10%
<u>Inflation Protection</u>				
TIPS		0.0%		
Commodities		0.0%		
		0.0%	0%	10%
<u>Protection</u>				
U.S. Treasuries	\$ 8,702.83	9.7%		
	\$ 8,702.83	9.7%	5%	20%
<u>Liquidity</u>				
Cash	\$ 4,177.28	4.6%		
	\$ 4,177.28	4.6%	0%	5%
<u>Opportunity</u>				
Opportunity		0.0%	0%	10%
Total	\$ 89,948.26	100.0%		
Illiquid Asset Exposure	\$ 16,999.58	18.9%	0%	30%

Volatility Equivalent Benchmark Comparison

Periods Ending 9/30/2021

As of (Date):	9/30/2021							
	1-year	3-year	5-year	10-year	15-year	20-year	25-year	30-year
SBI Combined Funds Return	24.2%	12.5%	12.5%	11.6%	8.5%	8.7%	8.6%	9.1%
Volatility Equivalent Benchmark Return			9.5%	8.6%	6.3%	6.9%	6.8%	7.4%
Value Added			3.0%	3.0%	2.2%	1.7%	1.8%	1.7%
Standard Deviation: Benchmark = Combined Funds			9.2%	8.3%	9.7%	9.3%	9.8%	9.3%
Benchmark Stock Weight			63%	61%	59%	60%	62%	62%
Benchmark Bond Weight			37%	39%	41%	40%	38%	38%

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.



Combined Funds Summary

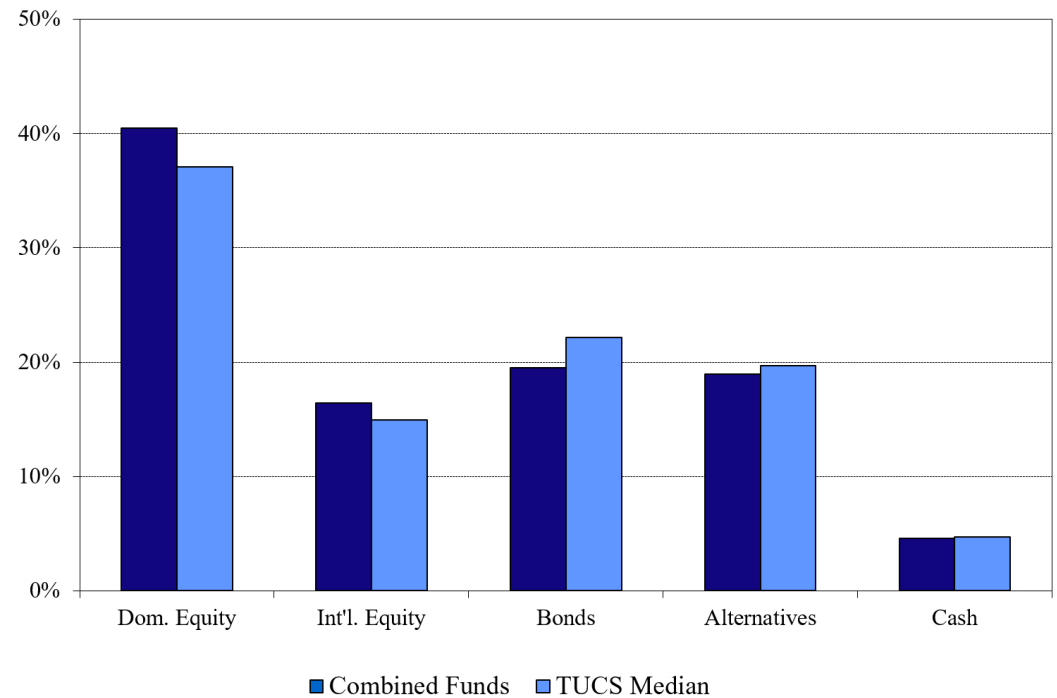
Asset Mix Compared to Other Pension Funds

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

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

Combined Funds Asset Mix

	<u>(\$Millions)</u>	<u>Actual Mix</u>
Public Equity	44,386	49.3
Total Fixed Income	21,681	24.1
Private Markets - Invested	17,051	19.0
Private Markets - Uninvested	6,831	7.6
TOTAL	89,948	100.0



	<u>Domestic Equity</u>	<u>International Equity</u>	<u>Bonds</u>	<u>Alternatives</u>	<u>Cash</u>
Combined Funds	40.5%	16.5%	19.5%	19.0%	4.6%
Median in TUCS	37.1%	14.9%	22.2%	19.7%	4.7%



Combined Funds Summary

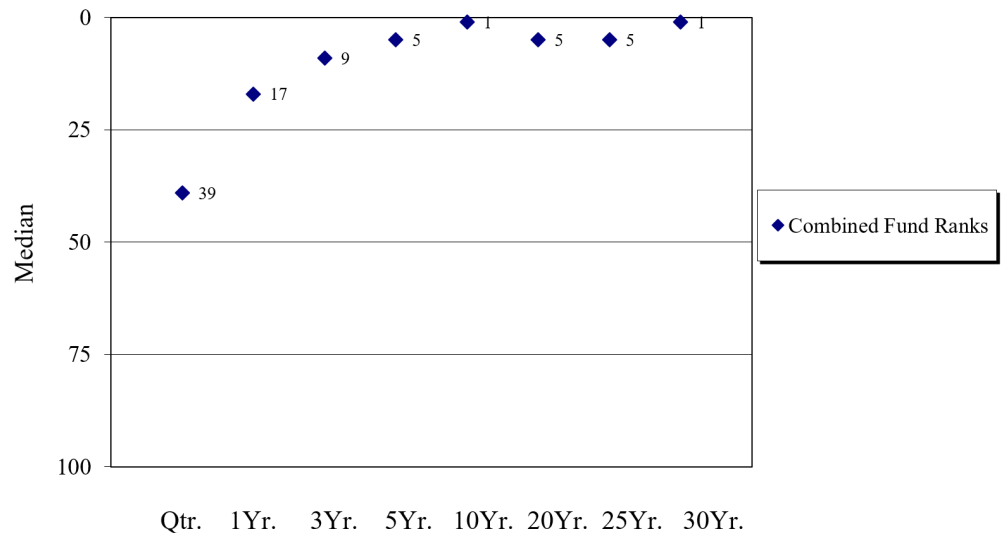
Performance Compared to Other Pension Funds

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 09/30/2021

Qtr. 1 Yr 3 Yrs 5 Yrs 10 Yrs 20 Yrs 25 Yrs 30 Yrs

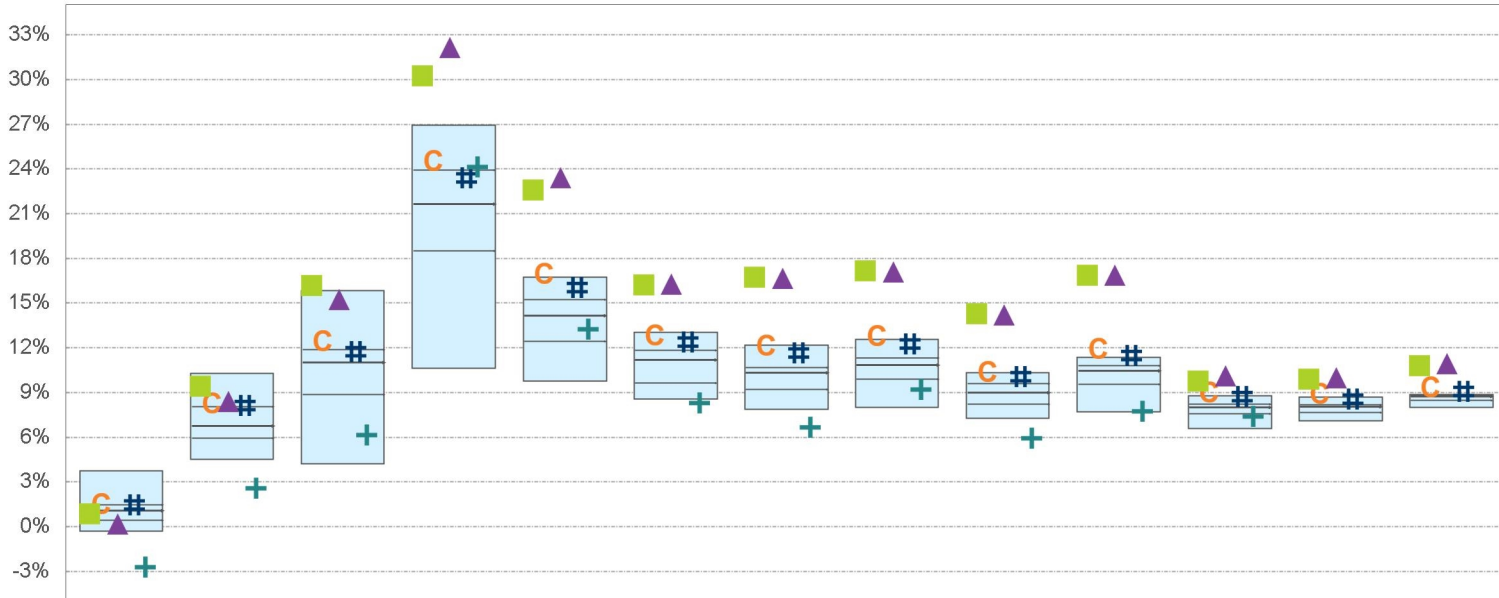
Combined Funds 39th 17th 9th 5th 1st 5th 5th 1st

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, 2021



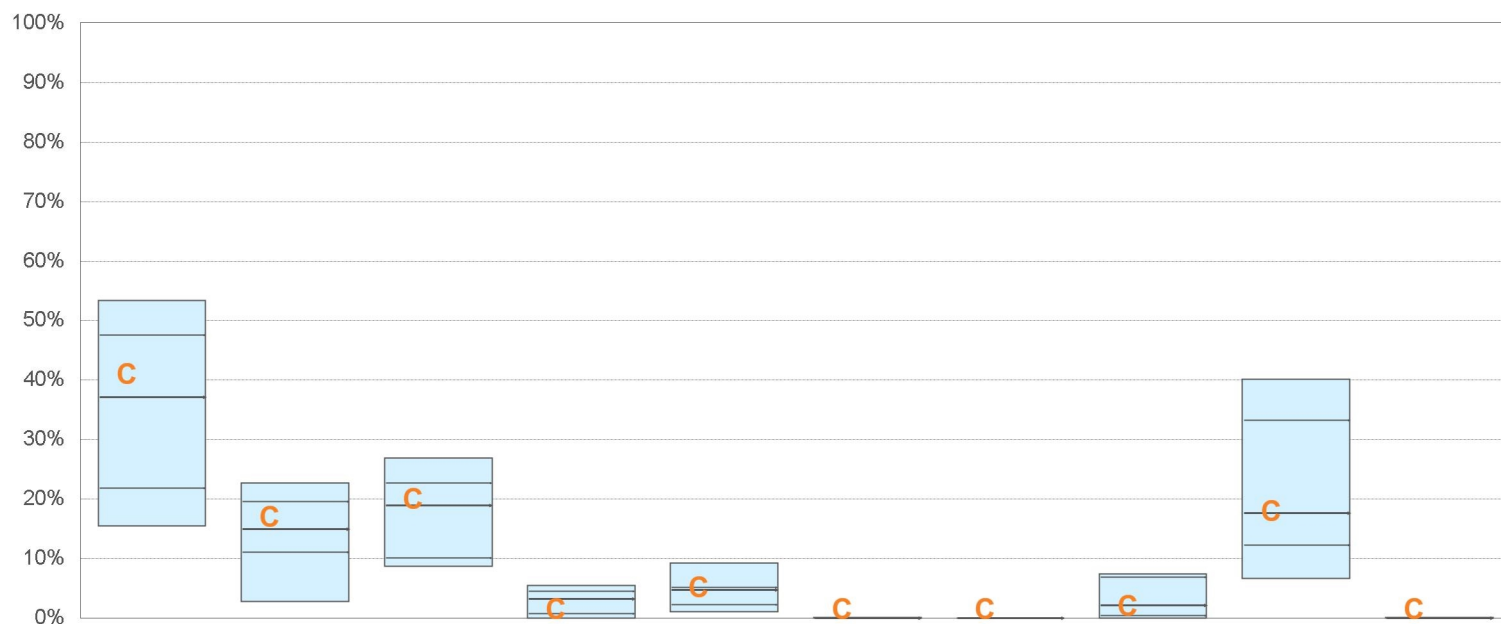
Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years	20 Years	25 Years	30 Years
5th	3.75	10.29	15.83	26.96	16.76	13.05	12.19	12.58	10.32	11.37	8.79	8.68	8.87
25th	1.48	8.06	11.89	23.95	15.23	11.84	10.67	11.32	9.60	10.80	8.24	8.17	8.83
50th	1.08	6.74	11.02	21.66	14.15	11.20	10.31	10.85	8.98	10.45	7.99	8.06	8.73
75th	0.41	5.93	8.85	18.51	12.43	9.66	9.20	9.90	8.24	9.56	7.57	7.65	8.47
95th	-0.29	4.53	4.22	10.64	9.79	8.58	7.88	8.01	7.26	7.71	6.60	7.09	8.00

No. Of Obs	28	28	28	28	28	26	26	26	26	26	23	19	10
C Combined Funds	1.28 (39)	8.06 (25)	12.22 (17)	24.34 (17)	16.76 (5)	12.62 (9)	11.94 (13)	12.58 (5)	10.17 (9)	11.70 (1)	8.79 (5)	8.68 (5)	9.13 (1)
# SBI Combined Funds Ind	1.21 (39)	7.88 (25)	11.51 (35)	23.15 (32)	15.81 (17)	12.13 (13)	11.41 (13)	12.01 (13)	9.80 (13)	11.22 (9)	8.47 (10)	8.31 (18)	8.84 (5)
S S&P 500	0.58 (67)	9.18 (13)	15.92 (1)	30.00 (1)	22.35 (1)	15.99 (1)	16.47 (1)	16.90 (1)	14.01 (1)	16.63 (1)	9.51 (1)	9.65 (1)	10.56 (1)
+ MSCI World Ex US (N)	-2.99 (99)	2.32 (99)	5.90 (87)	23.91 (25)	12.98 (67)	8.03 (99)	6.43 (99)	8.94 (83)	5.68 (99)	7.48 (95)	7.15 (89)		
▲ Russell 3000	-0.10 (87)	8.13 (21)	14.99 (9)	31.88 (1)	23.15 (1)	16.00 (1)	16.39 (1)	16.85 (1)	13.93 (1)	16.61 (1)	9.85 (1)	9.74 (1)	10.67 (1)

Minnesota State Board of Investments

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

Quarter Ending September 30, 2021



Percentile Rankings	US Equity	Non-US Equity	US Fixed	Non-US Fixed	Cash	Convertible	GIC GAC	Real Estate	Alternative Investments	Other
5th	53.40	22.66	26.88	5.45	9.22	0.07	-	7.48	40.17	0.06
25th	47.55	19.64	22.72	4.55	5.20	0.00	-	6.86	33.25	0.00
50th	37.09	14.93	18.94	3.21	4.69	0.00	-	2.10	17.61	0.00
75th	21.88	11.04	10.08	0.71	2.30	0.00	-	0.44	12.27	0.00
95th	15.47	2.81	8.72	0.00	1.03	0.00	-	0.00	6.65	0.00
C Combined Funds	40.49 (37)	16.45 (43)	19.51 (43)	0.00 (100)	4.59 (56)	0.00 (100)	0.00 (1)	1.56 (58)	17.40 (58)	0.00 (100)

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TAB B

Executive Director's Administrative Report

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EXECUTIVE DIRECTOR'S ADMINISTRATIVE REPORT

DATE: November 24, 2021

TO: Members, State Board of Investment

FROM: **Mansco Perry III**
Executive Director and Chief Investment Officer

1. Reports on Budget and Travel

A report on the SBI's administrative budget for the fiscal year to date through September 30, 2021, is included as **Attachment A**.

2. FY21 Audit Report

The Legislative Auditor is working on the financial audit of SBI operations for FY21. We will inform you of the results upon completion of the audit.

3. Draft of the FY21 Annual Report

A draft of the SBI's annual report for FY21 will be distributed to the Board Members/Designees and IAC Members upon completion of the FY21 audit. We will notify you when available.

4. Meeting Dates for Calendar 2022

IAC	SBI
Monday, February 14, 2022	Thursday, February 24, 2022
Monday, May 16, 2022	Wednesday, May 25, 2022
Monday, August 15, 2022	Wednesday, August 24, 2022
Monday, November 14, 2022	Wednesday, November 30, 2022

5. 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 Vigeo 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 was nine restricted companies on the SBI divestment list, and 921,895 shares were sold due to the restriction.

On September 24, 2021, 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.

6. 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 were no restricted companies on the SBI divestment list, therefore no restricted shares to sell.

On September 24, 2021, 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.

7. Litigation Update

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

ATTACHMENT A

**STATE BOARD OF INVESTMENT
FISCAL YEAR 2022 ADMINISTRATIVE BUDGET REPORT
FISCAL YEAR TO DATE THROUGH SEPTEMBER 30, 2021**

ITEM	FISCAL YEAR 2022 BUDGET	FISCAL YEAR 2022 9/30/2021
PERSONNEL SERVICES		
FULL TIME EMPLOYEES	\$ 6,735,800	\$ 1,308,829
PART TIME EMPLOYEES	0	0
MISCELLANEOUS PAYROLL	350,000	0
SUBTOTAL	\$ 7,085,800	\$ 1,308,829
STATE OPERATIONS		
RENTS & LEASES	285,000	93,464
REPAIRS/ALTERATIONS/MAINTENANCE	21,000	6,971
PRINTING & BINDING	12,000	850
PROFESSIONAL/TECHNICAL SERVICES	250,000	13,056
COMPUTER SYSTEMS SERVICES	169,000	97,931
COMMUNICATIONS	25,000	4,010
TRAVEL, IN-STATE	3,000	14
TRAVEL, OUT-STATE	235,000	0
SUPPLIES	50,000	2,783
EQUIPMENT	25,000	6,039
EMPLOYEE DEVELOPMENT	150,000	23,242
OTHER OPERATING COSTS	125,000	37,003
INDIRECT COSTS	300,000	47,608
SUBTOTAL	\$ 1,650,000	\$ 332,972
TOTAL ADMINISTRATIVE BUDGET	\$ 8,735,800	\$ 1,641,801

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TAB C

Proposed Legislation

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DATE: November 24, 2021

TO: Members, State Board of Investment

FROM: Mansco Perry III
Executive Director and Chief Investment Officer

SUBJECT: Proposed Legislation to Fully Implement SBI Salary Plan

SBI staff are recommending that the Board authorize the Executive Director to pursue legislation during the 2022 legislative session that will implement the three Investment Analyst position classifications that were made part of the SBI Investment Salary plan approved in 2019.

As part of the 2019 SBI Investment Salary Plan amendment, the SBI added three classifications for Investment Analysts: Investment Analyst, Junior; Investment Analyst, Intermediate; and Investment Analyst, Senior. The purpose behind adding the classifications was to create a path for development for investment staff from the entry-level. Previous versions of the plan did not contain any entry-level positions, which made it difficult for the SBI to provide a development path for investment staff. The Investment Analyst positions were approved with the 2019 Salary Plan update.

Since the Salary Plan was fully approved, the Executive Director has been able to implement the other classification changes, but not the Investment Analyst classifications. When reviewing Investment Analyst position descriptions with the Office of Management and Budget, an issue arose regarding the relationship between the statutes governing the SBI, the SBI Salary Plan, and Minnesota's collective bargaining statutes. In short, because analyst classifications currently exist in state bargaining units, and there is not currently an exemption from collective bargaining units for SBI Investment Analysts, any proposed positions would need to be hired within the existing state units, not that SBI Salary Plan as was intended in the 2019 update.

The proposed legislation would clarify that SBI Staff who are hired in SBI Salary Plan positions are exempt from coverage by the state's collective bargaining units. This will likely involve technical changes to SBI's operating statutes and the state's collective bargaining statutes. The changes will not impact the current positions held by any SBI staff members; rather the changes will apply to Investment Analysts who are hired to be part of the investment team. The legislation will also clarify language regarding the threshold issue of the types of roles which qualify for SBI Salary Plan coverage.

RESOLUTION:

The Minnesota State Board of Investment authorizes the Executive Director to pursue legislation to exempt SBI employees in SBI Investment Salary Plan classifications from coverage by the State of Minnesota's collective bargaining units and clarify the terms under which an employee qualifies for SBI Investment Salary Plan coverage.

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TAB D

Private Markets Investment Program

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DATE: November 24, 2021

TO: Members, State Board of Investment

FROM: Investment Advisory Council and SBI Staff

SUBJECT: Private Markets Commitments for Consideration

Staff has reviewed the following action agenda item:

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

Existing Managers:

Private Equity	Arsenal	Arsenal Capital Partners VI	\$100 Million
Private Equity	Permira	Permira VIII	€150 Million
Private Equity	Warburg Pincus	Warburg Pincus Global Growth 14	\$300 Million
Private Credit	Marathon	Marathon Secured Private Strategies Fund III	\$100 Million
Private Equity	Blackstone	Strategic Partners IX	\$100 Million
Private Equity	Lexington Partners	LCP X	\$100 Million
Private Equity	Whitehorse	Whitehorse Fund V	\$100 Million
Real Estate	Landmark Partners	LREF IX	\$100 Million

SBI action is required on item B.

A. Status of SBI Current Private Markets Commitments

Minnesota State Board of Investment Combined Funds September 30, 2021

Combined Funds Market Value \$89,948,260,477

Amount Available for Investment **\$5,436,485,374**

	% of Combined Funds	Current Level	Target Level ¹	Difference
Market Value (MV)	19.0%	\$17,050,579,745	\$22,487,065,119	\$5,436,485,374
<i>Policy Target</i>	25%			
<i>Statutory Limit</i>	35%			
MV +Unfunded	32.0%	\$28,785,091,743	\$40,476,717,215	\$11,691,625,472
<i>Policy Limit</i>	45.0%			

Asset Class	% of Combined Funds	Market Value	Unfunded Commitment	Total
Private Equity	12.4%	\$11,176,781,235	\$6,882,257,080	\$18,059,038,315
Private Credit	1.0%	\$944,001,550	\$1,153,496,571	\$2,097,498,121
Real Assets	2.2%	\$1,979,019,922	\$763,972,380	\$2,742,992,302
Real Estate	1.6%	\$1,402,087,611	\$1,896,816,839	\$3,298,904,450
Distressed/Opportunistic	1.7%	\$1,497,688,497	\$1,037,969,128	\$2,535,657,625
Other ²		\$51,000,930		\$51,000,930
Total		\$17,050,579,745	\$11,734,511,998	\$28,785,091,743

Cash Flows September 30, 2021

Calendar Year	Capital Calls	Distributions	Net Invested
2021 (9 months)	\$2,397,904,877	(\$1,943,389,206)	\$454,515,671
2020	\$2,786,134,001	(\$2,318,825,278)	\$467,308,723
2019	\$2,543,614,503	(\$2,080,037,860)	\$463,576,642
2018	\$1,992,000,341	(\$2,049,733,815)	(\$57,733,474)
2017	\$2,021,595,780	(\$2,383,863,711)	(\$362,267,931)

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

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

B. Consideration of New Investment Commitments

ACTION ITEMS:

1) Investment with an existing private equity manager, Arsenal Capital Partners (“Arsenal”), in Arsenal Capital Partners VI (“Fund VI”).

Arsenal is forming Fund VI to make private equity investments in U.S. middle market healthcare and industrials companies. Arsenal specializes in investments in industrials and healthcare sectors due to their attractive growth trends, large number of technology and innovation-rich companies, and opportunities to create value-added solutions. Arsenal seeks businesses that have potential for further value creation and where Arsenal can execute its “Strategic Company Building” strategy that focuses on designing, constructing, and scaling high-growth, technology-rich market leaders. Fund VI will focus on building companies with enterprise values at entry between \$250 million and \$750 million.

In addition to reviewing the attractiveness of the Arsenal Capital Partners VI investment offering, staff conducted due diligence, reference checks, a literature database search, and reviewed the relevant co-investment track record.

More information on Arsenal Capital Partners VI is included as **Attachment A beginning on page 11.**

RECOMMENDATION:

The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate and execute a commitment of up to \$100 million, or 20% to Arsenal Capital Partners VI, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by Arsenal Capital Partners upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Arsenal Capital Partners or reduction or termination of the commitment.

2) Investment with an existing private equity manager, Permira, in Permira VIII (“P8”).

Permira is seeking investors for Permira VIII to invest in transformational growth at scale. It will target market-leading, often market-creating, companies with resilient business models benefitting from strong, underlying secular growth trends. The P8 portfolio is expected to comprise c.20 to 25 investments in businesses with expected enterprise values of between €500m and €5bn. Permira’s four sector teams – Consumer, Healthcare, Services and Technology – develop long-term perspectives on resilient growth themes that are then

developed into investable opportunities. P8 will then seek to help those companies achieve their maximum efficient growth rate – usually an acceleration of revenue – through ambitious, sector-specialized business transformation plans, using well-honed value creation capabilities.

In addition to reviewing the attractiveness of the Permira VIII investment offering, staff conducted due diligence, reference checks, a literature database search, and reviewed the potential investor base for the fund.

More information on Permira VIII is included as **Attachment B beginning on page 15.**

RECOMMENDATION:

The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate and execute a commitment of up to €150 million, or 20% of Permira VIII, whichever is less, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by Permira upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Permira or reduction or termination of the commitment.

3) Investment with an existing private equity manager, Warburg Pincus (“Warburg”), in Warburg Pincus Global Growth 14 (“WPGG 14”).

Warburg is establishing WPGG 14 to continue Warburg’s long history of equity investing in high-growth companies globally. As of June 2021, Warburg has backed more than 940 portfolio companies across the firm’s 20 private equity funds, deploying more than \$94 billion in capital. While Warburg is primarily a growth-oriented investor, it maintains the flexibility to invest in transactions of various sizes and types, from early growth platforms to later-stage transactions, but a common thread in all deals is a focus on growth as a key aspect of the investment thesis. Since the early 1970s, the firm has pursued a specialized approach to investing in industry sectors and companies. The firm’s core industry sectors are: Business Services, Financial Services, Healthcare, Industrials, Technology, Real Estate, and Energy (focusing on power and renewables and decarbonization opportunities).

In addition to reviewing the attractiveness of the Warburg Pincus Global Growth 14 investment offering, staff conducted due diligence, reference checks, a literature database search, and reviewed the potential investor base for the fund.

More information on Warburg Pincus Global Growth 14 is included as **Attachment C beginning on page 19.**

RECOMMENDATION:

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to \$300 million, or 20% of Warburg Pincus Global Growth 14, whichever is less, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by Warburg Pincus upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Warburg Pincus or reduction or termination of the commitment.

4) Investment with an existing private credit manager, Marathon Asset Management ("Marathon"), in Marathon Secured Private Strategies Fund III ("SPS III").

Marathon is forming SPS III to invest in asset-based, cash-flowing investments in the private credit markets. Marathon believes there is an opportunity to earn attractive risk-adjusted returns by providing capital solutions to creditworthy and underserved borrowers and capitalizing on illiquidity and complexity premia found within non-traditional lending channels. Assets sourced for the Fund are generally senior secured asset-based investment opportunities. Areas of expertise and potential sectors of focus for SPS III include the origination and acquisition of residential real estate loans; healthcare loans and royalty-backed credit; transportation loans and leases; the origination and acquisition of commercial real estate loans; secured asset-based corporate credit; and other asset based loans, leases and securitized assets.

In addition to reviewing the attractiveness of the Marathon Secured Private Strategies Fund III investment offering, staff conducted due diligence, reference checks, a literature database search, and reviewed the potential investor base for the fund.

More information on Marathon Secured Private Strategies Fund III is included as **Attachment D beginning on page 23.**

RECOMMENDATION:

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to \$100 million, or 20% of Marathon Secured Private Strategies Fund III, whichever is less, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any

liability for reliance by Marathon Asset Management upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Marathon Asset Management or reduction or termination of the commitment.

5) Investment with an existing private equity manager, The Blackstone Group (“Blackstone”), in Strategic Partners Fund IX (“SP IX”).

Blackstone is forming SP IX to seek capital appreciation primarily through the purchase of secondary interests in mature, high-quality leveraged buyout funds from investors seeking liquidity prior to the termination of these funds, with secondary interests in mezzanine, venture capital, distressed securities, fund of funds and other asset classes also considered. SP IX may also, to a lesser extent, make investments in concentrated general partner led secondaries, primary investments in underlying vehicles and direct equity, equity-like and debt investments. While SP IX will have a global investment mandate, it is anticipated that most of its commitments will be made to funds and assets located in the U.S. and Western Europe.

In addition to reviewing the attractiveness of the Strategic Partners Fund IX investment offering, staff conducted due diligence, reference checks, a literature database search, and reviewed the relevant co-investment track record.

More information on Strategic Partners Fund IX is included as **Attachment E beginning on page 27.**

RECOMMENDATION:

The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate and execute a commitment of up to \$100 million, or 20% to Strategic Partners Fund IX, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by The Blackstone Group upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on The Blackstone Group or reduction or termination of the commitment.

6) Investment with an existing private equity manager, Lexington Partners (“Lexington”), in Lexington Partners X (“LCP X”).

Lexington is seeking investors to continue Lexington’s history of successfully acquiring interests in global private equity funds and other investment vehicles primarily through negotiated secondary market purchases. Lexington intends to construct for LCP X a diversified portfolio of secondary interests in established global private investment funds at attractive discounts to market value. Lexington expects the Fund to provide investors with an opportunity to achieve superior risk-adjusted returns while protecting capital and generating early and frequent cash distributions.

In addition to reviewing the attractiveness of the Lexington Partners X investment offering, staff conducted due diligence, reference checks, a literature database search, and reviewed the potential investor base for the fund.

More information on Lexington Partners X is included as **Attachment F beginning on page 31.**

RECOMMENDATION:

The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate and execute a commitment of up to \$100 million, or 20% of Lexington Partners X, whichever is less, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by Lexington Partners upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Lexington Partners or reduction or termination of the commitment.

7) Investment with an existing private equity manager, Whitehorse Liquidity Partners (“Whitehorse”), in Whitehorse Liquidity Partners V (“Fund V”).

Whitehorse is forming Fund V principally to make preferred equity investments in private equity portfolios. Whitehorse’s strategy is to provide counterparties with flexible liquidity solutions for their private equity portfolios through the creation of preferred securities. Whitehorse has identified four different applications of its strategy: alternatives to a secondary sale, structured secondaries, fund level solutions, and general partner balance sheet solutions. Whitehorse intends to construct a portfolio for the Fund of 15-20 structures generally ranging from \$100 to \$500 million in size that it believes have the potential to provide compelling, risk-adjusted returns.

In addition to reviewing the attractiveness of the Whitehorse Liquidity Partners V investment offering, staff conducted due diligence, reference checks, a literature database search, and reviewed the potential investor base for the fund.

More information on Whitehorse Liquidity Partners V is included as **Attachment G beginning on page 35.**

RECOMMENDATION:

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to \$100 million, or 20% of Whitehorse Liquidity Partners V, whichever is less, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by Whitehorse Liquidity Partners upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Whitehorse Liquidity Partners or reduction or termination of the commitment.

8) Investment with an existing real estate manager, Landmark Partners ("Landmark"), in Landmark Real Estate Partners IX ("LREF IX").

Landmark is establishing LREF IX to continue its history of making secondary investments in various types of real estate and real estate related entities. LREF IX seeks to provide investors attractive returns with lower levels of risk compared with direct primary investments in real estate vehicles. Since 1996, Landmark has established itself as a leading supplier of liquidity to institutional real estate investors, having completed over 180 separate real estate transactions involving over 700 partnership interests managed by over 185 different managers. Landmark has established a record of efficient negotiation and execution of purchase and sale contracts, while maintaining strict confidentiality throughout the process.

In addition to reviewing the attractiveness of the Landmark Real Estate Partners IX investment offering, staff conducted due diligence, reference checks, a literature database search, and reviewed the potential investor base for the fund.

More information on Landmark Real Estate Partners IX is included as **Attachment H beginning on page 39.**

RECOMMENDATION:

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to \$100 million, or 20% of Landmark Real

Estate Partners IX, whichever is less, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by Landmark Partners upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Landmark Partners or reduction or termination of the commitment.

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ATTACHMENT A

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	Arsenal Capital Partners VI LP
<i>Type of Fund:</i>	Private Equity – Buyout
<i>Target Fund Size:</i>	\$3.0 billion
<i>Fund Manager:</i>	Arsenal Capital Partners
<i>Manager Contact:</i>	Patricia Grad 100 Park Avenue 31 st Floor New York, NY 10017

II. Organization and Staff

Arsenal Capital Partners (“Arsenal” or the “Firm”) is forming Arsenal Capital Partners VI LP (“Fund VI” or the “Fund”) to make private equity investments in the U.S. middle market. Since its founding in 2000 through June 30, 2021, Arsenal has raised and invested more than \$4 billion in 46 portfolio companies and has completed more than 170 add-on acquisitions across five funds. The Firm is located in New York City and currently has 68 professionals and a network of over 50 senior advisors, all of whom are focused on one of the two sectors in which Arsenal specializes: Industrial Growth and Healthcare. Arsenal is led by co-Managing Partners and co-Chief Investment Officers, Terry Mullen and Jeff Kovach. Arsenal’s philosophy is to partner with talented management teams, provide them with access to world-class operating resources and patient capital, and develop positive, open, and constructive relationships that foster long-term value creation.

Arsenal’s third annual Responsible Investing Report detailed how the Firm utilizes Environmental, Social, and Governance (“ESG”) considerations to contribute to achieving the Firm’s mission to build strategically important businesses that positively affect and benefit all stakeholders. Beginning in the diligence phase, the deal team evaluates ESG considerations for all potential platform companies. The team engages independent third parties to conduct bespoke due diligence and reviews potential ESG risks and opportunities. Post-acquisition, Arsenal actively engages portfolio companies for potential areas of improvement. Key performance indicators (“KPIs”) are established to ensure goals are met. Regarding Diversity, Equity, and Inclusion (“DEI”), Arsenal’s Managing Partner, Terry Mullen, has become a signatory of CEO Action for Diversity & Inclusion, the largest and only CEO-driven business community pledged to advance both gender and racial diversity and inclusion in the workplace. Internally, Arsenal has continued to improve the gender diversity of its staff and women represent 34% of its 68 professionals. In addition, in 2020 Arsenal chartered a new governance body to focus on accelerating its efforts in DEI, as one of several priorities.

III. Investment Strategy

Arsenal specializes in investments in industrials and healthcare sectors due to their attractive growth trends, large number of technology and innovation-rich companies, and opportunities to create value-added solutions. Arsenal seeks businesses that have potential for further value creation and where Arsenal can execute its “Strategic Company Building” strategy that focuses on designing, constructing, and scaling high-growth, technology-rich market leaders. Fund VI will focus on building companies with enterprise values at entry between \$250 million and \$750 million.

In the industrials sector, Arsenal is committed to building market-leading platforms that provide solutions engineered to meet the growing demand for improved functionality, efficiency, and performance of end products. Arsenal believes that innovation in chemistry and product engineering is integral not only to improving performance and value in product use, but also to improvements in health, safety, and sustainability. The growing demand for innovation across large end markets – including aerospace, building and construction, electronics, consumer products, food and beverage, and healthcare – provides significant opportunity to build solutions-oriented businesses that create value for customers, suppliers, employees, our investors, and society. Within the Industrial Growth team, Arsenal concentrates on crafting strategies to build industrial solutions businesses within specialty chemicals and materials, engineered products and systems, and value-added services that serve diverse end markets.

Within the healthcare sector, Arsenal is committed to improving the efficiency and efficacy of the healthcare industry and thereby patient outcomes. Arsenal believes that the combination of advances in biomedical science and information technology provides a unique opportunity to build important companies while making a significant improvement in the quality of care available to patients around the world. Central to Arsenal's mission is the creation of value for all our constituencies: its portfolio company clients, management teams and employees, its investors, and society. The subsectors within healthcare in which Arsenal currently focuses are i) business services to pharmaceutical companies, ii) specialty care delivery, and iii) hospitals and hospital systems. Most healthcare companies and institutions are seeking to optimize or restructure their organization or workflows to improve efficiency and better serve their markets and patients. Arsenal's technology-enabled business service companies serve as catalysts of these critical endeavors and strategically important operational partners.

Arsenal's approach to company building entails creating “multiple ways to win” by manufacturing growth and value across market conditions. Investment professionals begin by focusing on companies within their respective verticals that are domain leaders and dedicated to innovation. Once an investment is made, Arsenal looks to improve the business by helping with firm strategy, strengthening management teams, locating and integrating complementary add-ons, improving operations, and/or by managing complexity and risk. When the time comes to sell their stake, Arsenal typically has created a robust and durable business with high growth and cash flow, has realized valuable synergies, and has constructed a world-class management team.

IV. Investment Performance

Previous fund performance as of June 30, 2021 is shown below:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
Arsenal Fund I	2002	\$300 million	--	17.5%	1.7x	1.7x
Arsenal Fund II	2006	\$500 million	--	12.1%	2.0x	2.0x
Arsenal Fund III	2012	\$875 million	--	25.0%	2.5x	2.2x
Arsenal Fund IV	2016	\$1.3 billion	--	24.0%	1.9x	0.5x
Arsenal Fund V	2019	\$2.4 billion	\$75 million	22.8%	1.3x	0.0x

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

V. Investment Period and Term

The Fund will have a five-year investment period and a twelve-year term, with two additional, one-year extension periods with the consent of the Advisory Board.

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

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ATTACHMENT B

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	Permira VIII
<i>Type of Fund:</i>	Private Equity – Buyout
<i>Target Fund Size:</i>	€15 billion
<i>Fund Manager:</i>	Permira VIII G.P. S.à r.l.
<i>Manager Contact:</i>	Jay Brupbacher 320 Park Avenue New York, NY 10022

II. Organization and Staff

Permira (the “Firm”) has been engaging in growth buyout transactions for over thirty-five years. With its roots tracing back to country-specific funds in Europe beginning in 1985, Permira raised its first pan-European fund in 1997 and opened its first office in the United States in 2002. In addition, the Firm has been an active investor in Asia dating back to 2005. Today, there are more than 150 investment professionals located in 11 investing offices globally that operate as a matrix by combining local, sector, and functional expertise.

Over the past 36 years, the firm has undertaken four leadership successions without disruption. In January 2021, Kurt Björklund transitioned from Co-Managing Partner, a role he held since January 2008, to sole Managing Partner. Tom Lister, formerly Co-Managing Partner with Kurt since January 2008, stepped down as Co-Managing Partner in December 2020, although he continues to serve on the P7 Investment Committee until the activation of P8 and remains active in the business. Mr. Lister is expected to retire from the Partnership at the end of 2022.

In April 2020, Goldman Sachs’s Petershill (“GSP”) program agreed to acquire a single-digit minority stake in the firm. GSP has no voting control other than with respect to certain matters relating to its investment and has no legal ownership of Permira. The transaction provides the firm with significant permanent capital which will enable it to support the continued growth of the business. The transaction further strengthens the firm’s balance sheet while the Partners retain full control, and it is expected to provide significant long-term benefits both to investors and employees. The public listing of GSP in September 2021 does not include GSP’s investment into the firm.

Permira has maintained a longstanding commitment to integrating Environmental, Social, and Governance (“ESG”) considerations into their values-based investing framework. The Firm has been a UNPRI signatory for more than 10 years and was recently graded A+ for 2019/2020. Adinah Shackleton, Permira’s dedicated Head of ESG, joined the Firm in September 2015 and has further improved the ESG process that begins during asset diligence, implements action-

oriented key performance indicators (“KPIs”) upon investment, and are monitored until monetization. Permira recently helped to lead the efforts to create the “ESG Data Convergence Project” to advance an initial standardized set of ESG metrics and mechanism for comparative reporting. Regarding Diversity, Equity, & Inclusion (“DEI”), Permira has always believed that its decision-making is best carried out amongst a group that is both diverse and cohesive. Currently, 33% of the firm’s professionals are women, and 21% of investment professionals are women; 36% of 2020-2021 new hires were women. In an effort to continually improve, Permira sponsors several networks to reach differentiated pools of talent, including Out Investors, Sponsors for Educational Opportunity, #100blackinterns, Career Ready, Teach First, and Minds Matter.

III. *Investment Strategy*

Permira VIII (the “Fund” or “P8”) will invest in transformational growth at scale. It will target market-leading, often market-creating, companies with resilient business models benefitting from strong, underlying secular growth trends. Permira’s long-established, sector-thematic approach will identify businesses that are operating on the right side of disruption, typically leveraging Permira’s core expertise in enterprise technology and digital businesses, plus a continued focus on iconic consumer brands, and extending capabilities into scale growers in the healthcare and services sectors. The fund will then seek to help those companies achieve their maximum efficient growth rate – usually an acceleration of revenue – through ambitious, sector-specialized business transformation plans, using well-honed value creation capabilities.

The fund will take a broad approach across sectors and geographies to ensure that the capital will be deployed into the most attractive risk-adjusted opportunities at any point, with no pressure to invest in geographies or sectors that are at a less attractive stage in the cycle, and no pre-allocation of capital. The P8 portfolio is currently expected to comprise c.20 to 25 investments in businesses with an expected enterprise value of between €500m and €5bn. Permira’s four sector teams – Consumer, Healthcare, Services and Technology – develop long-term perspectives on resilient growth themes that are then developed into investable opportunities. Investment teams work to identify what they consider to be particularly rich veins of investment opportunity within their themes, and establish a dedicated origination effort and resource around them. This enables development of strong pattern recognition of what a ‘best-in-class’ business model looks like in each theme, focusing on market positioning, growth enablers, unit economics, and prior analogous investments.

An ambition to amplify and accelerate growth through business transformation is at the core of Permira’s investment philosophy. Over the last decade, the firm has significantly invested into its dedicated Portfolio Group to support the investment teams in delivering on growth initiatives throughout the portfolio. The team, led by Elisabetta Frontini (Operating Partner), now comprises 17 senior professionals, supplemented by three sector-specialized resources within sector teams, with individual specialisms and global coverage, and is fully integrated with the investment team. The investment into the Portfolio Group has produced an increasingly systematized and effective set of value creation toolkits to drive repeatability, much more intensive engagement with the portfolio companies, more sophisticated

performance tracking, and more effective knowledge sharing. Examples of value creation toolkits include:

- Commercial levers: Pricing, channel management, strategy, marketing & brand
- Operational levers: Supply chain optimization, procurement, process improvement, manufacturing optimization, M&A and postmerger integration, carve-out support, IT
- Two centers of excellence: Digital and Advanced Analytics

P8 will follow a robust and well-established investment process, refined through multiple cycles, and coordinated by a strong Investment Committee (“IC”) process. The process is characterized by a high level of integration and collaboration between the sectors, local offices and functional groups. Importantly, the investment team driving the origination of a deal maintains responsibility through to exit, with support throughout the investment lifecycle from dedicated internal specialists and expert external networks. Teams begin detailed work on an exit once the investment they support is considered to have materially completed its value creation plan or has attracted meaningful interest from a potential buyer. The IC will discuss exit options first in the form of a Preliminary Exit Recommendation and thereafter in a Final Exit Recommendation, before making an exit recommendation to the Portfolio Manager.

IV. Investment Performance

Previous fund performance as of June 30, 2021 is shown below:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR²	Net MOIC²	Net DPI²
Permira I	1997	€890 million	--	84%	2.5	2.5
Permira II	2000	€3.3 billion	--	17%	1.7	1.7
Permira III	2003	€5.0 billion	--	23%	1.7	1.7
Permira IV ¹	2006	€9.4 billion	--	11%	2.0	1.7
Permira V	2014	€5.0 billion	€150 million	28%	3.3	1.7
Permira VI	2016	€7.3 billion	€120 million	28%	2.0	0.3
Permira VII	2019	€10.6 billion	€135 million	12%	1.1	0.0

1. In December 2008, Permira IV was reorganized to meet the desire of certain investors to limit their capital commitments. The fund size here is for all investors but the returns are shown for Continuing Limited Partners ("CLPs") only (including investors that elected to increase their commitments during the reorganization) and reflect the benefit of reallocation amounts. Excluding the reallocation amounts, the Gross Realized Multiple is 2.0x, the Gross Realized IRR is 13%, the Gross Multiple over invested is 2.2x and Gross IRR for all deals is 13%; the DPI is 1.6x, TVPI is 1.9x and Net IRR is 10%.
2. Previous fund investments are not indicative of future results. Net IRR, Net MOIC, and Net DPI were provided by Permira

V. Investment Period and Term

The fund will have a six-year investment period and a ten-year term, with the potential of three one-year extension periods with the consent of investors representing at least a majority of total commitments

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

ATTACHMENT C

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	Warburg Pincus Global Growth 14, L.P.
<i>Type of Fund:</i>	Private Equity – Growth Equity
<i>Target Fund Size:</i>	\$16 Billion
<i>Fund Manager:</i>	Warburg Pincus LLC
<i>Manager Contact:</i>	James W. Wilson 450 Lexington Ave. New York, NY 10017

II. Organization and Staff

Warburg Pincus was founded in 1966 and raised its first institutional fund in 1971 (EMW Ventures). Since that time, Warburg Pincus has raised 20 private equity funds which collectively have deployed over \$94 billion in capital. Warburg Pincus was founded in New York where it remains headquartered today; the firm also has ten additional investing offices around the world.

All of the firm's investment activities are coordinated by an executive leadership team led by Chief Executive Officer Charles R. Kaye; the firm's President, Timothy F. Geithner; and Chief Operating Officer and Chief Financial Officer Steven G. Glenn. The members of the executive leadership team have an average tenure of 15 years with the firm. The Firm comprises more than 740 professionals, including approximately 75 Managing Directors and more than 190 other investment professionals who help manage the large scale of the firm. Warburg Pincus' senior, investment-focused Managing Directors have an average tenure of 14 years with the Firm. More than 200 professionals participate in the firm's carried interest program, including Managing Directors, principals and other senior staff.

III. Investment Strategy

The Firm's predominant focus is on global growth investing. Over the years, Warburg Pincus has successfully invested in growth companies as well as companies at other stages of development, from early growth platforms to later-stage buyout transactions and special situations. Common to all deals is a focus on growth as a key aspect of the investment thesis. Warburg Pincus pursues a strategy of thesis-driven growth investing at scale, pursuing extensively researched themes and ideas. The firm also prefers to invest with accomplished management teams who are investing in the transactions alongside the firm. While to a lesser extent, when situations arise, Warburg Pincus can leverage its experience lifting out single business units or intellectual property to form new stand-alone companies with the backing of a management team.

The firm expects the Partnership to have a diversified portfolio of approximately 75-90 portfolio companies. The average equity commitment to a portfolio company since WP XI (2012)—a time period spanning the firm’s three most recent Global Funds—has been approximately \$175 million. The firm has no pre-determined, fixed allocations to any industry sector or geographic area, and the mix of investments in any one fund will reflect with the firm views as the best opportunities on a risk-adjusted basis at that time.

As is the case with prior Warburg Pincus funds, WPGG 14 will focus on the firm’s core industry sectors:

- Business Services
- Financial Services
- Healthcare
- Industrials
- Technology
- Real Estate
- Energy

While the firm maintains the flexibility to invest across geographic regions, it anticipates that WPGG will be 50% to 60% invested in North America, 15% to 20% in Europe and 15% to 30% in Asia and other developing markets. However, the firm will continue to be opportunistic with its investment practices, and to the extent global markets create unforeseen investment opportunities or as a result of timing, allocation or other considerations, it is possible that the ultimate diversification of the portfolio may be different than the allocation delineated above.

In early 2020, Warburg Pincus announced that it is transitioning away from hydrocarbon investing. The return volatility of these investments was inconsistent with the Warburg Pincus core fund objectives. This transition is also in keeping with the Firm’s continued focus on ESG and climate change issues.

There are three significant themes, apart from specific industries or geographies, that have guided the firm’s investment approach in the past and the firm believes will continue to be significant areas of focus in the foreseeable future:

- **Innovation/Technology:** The firm believes the world is experiencing a technology revolution that is picking up speed and will create significant investment opportunities for many years affecting most sectors of the economy. The firm’s focus in technology is generally more business-focused vs consumer-focused with an emphasis on business models which are understandable and profitable over time. These companies are principally focused on the migration to SaaS models and cloud architecture, anchored around a core set of business attributes and metrics, including revenue retention, paybacks, sales efficiency and margins. For Warburg Pincus, investing in innovation includes investing in businesses that meet an unmet need as well as integrating and applying existing technology to traditional businesses. This includes, for example, using the Internet and the cloud to deliver services and products more efficiently and using better information technology to drive logistics businesses. Innovation is also one of the key components of the firm’s Financial Services and

Healthcare investing activities. Within both financial services and healthcare, cost efficiency and improved customer experience are key components of investing. Warburg Pincus anticipates that innovation will remain a clear investment theme for the firm in the future.

- **Platforms for Consolidation:** In more mature sectors, such as industrials and business services, the firm is looking to create growth through both M&A and increasing operational engagement. The firm's franchises in these areas combine domain expertise across a variety of sub-sectors with business attributes that the firm believes creates more sustainable, more resilient investments. Warburg Pincus targets large market opportunities that have clear organic growth prospects but are already – or can be turned into – interesting platforms for growth through consolidation.
- **Growth in Developing Markets:** Over the last 20 years, markets such as China, India, Southeast Asia, Brazil and other developing areas have seen remarkable growth in GDP, the creation of middle class consumers, the rise of technology and communications usage and rapid urbanization. Warburg Pincus' investment focus in these markets has been particularly centered on consumer growth and spending trends (retail, healthcare, financial services, the Internet and housing), global supply chain (including services businesses and technology-enabled businesses) and earlier-stage infrastructure (consistent with the firm's focus on growth investing). Investing in the entrepreneurs who are building growth companies to meet these demands is expected to be one of the firm's principal areas of focus for years to come. The firm expanded, and continues to expand, its presence in China, India, Southeast Asia and other developing markets, including by opening an office in Singapore in 2016.

While the firm's investments generally follow these themes, Warburg Pincus has – throughout its history – made selective opportunistic, even contrarian, investments. While not the predominant focus, the firm's Special Situations team pursues these types of investments when such opportunities arise, such as market changes, episodic events and innovative investment structures. These opportunities are generally confined to the financial services sector.

Warburg Pincus is committed to responsible investing that encourages environmental sustainability, social responsibility and effective corporate governance. The firm has an ESG policy, which it reviews annually, and seeks to abide by the Guidelines for Responsible Investment which were developed by the American Investment Council. Warburg Pincus believes it has a well-established ESG program, both internally and with respect to portfolio companies, that supports the implementation of these guidelines. The firm believes that an effective ESG program helps Warburg Pincus and its portfolio companies identify investment opportunities, better manage risk, improve efficiency, reduce environmental impacts and ultimately build more valuable, competitive and sustainable enterprises. Consistent with the values and culture that are part of the history of Warburg Pincus, the firm believes that responsible ESG practices contribute positively to its long-term investment returns.

Warburg Pincus is committed to creating, cultivating and sustaining a culture of diversity, equity and inclusion. Formed in 2020, the firm's Council on Diversity, Equity & Inclusion, and its sub-committees, focus on a wide range of topics including the firm's recruiting practices, as well as the firm's approach to inclusion and enhancing the diversity of portfolio company boards and portfolio company management teams.

IV. Investment Performance

Previous fund performance is shown below:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI
EMW Ventures Inc.	1971	\$41 Million	N/A	14.9%	3.3x	3.3X
Warburg Pincus Associates	1980	\$101 Million	N/A	19.0%	3.3x	3.3x
Warburg Pincus Capital Partners	1983	\$341 Million	N/A	14.6%	2.8x	2.8x
Warburg Pincus Capital Company	1986	\$1.2 Billion	N/A	18.4%	4.4x	4.4x
Warburg Pincus Investors	1989	\$1.8 Billion	N/A	14.8%	2.4x	2.4x
Warburg Pincus Ventures	1994	\$2.0 Billion	\$50 Million	49.5%	5.2x	5.2x
Warburg Pincus Ventures International	1997	\$800 Million	N/A	11.0%	1.9x	1.9x
Warburg Pincus Equity Partners	1998	\$5.0 Billion	\$100 Million	10.3%	1.7x	1.7x
Warburg Pincus International Partners	2000	\$2.5 Billion	N/A	10.5%	1.9x	1.9x
Warburg Pincus VIII	2001	\$5.3 Billion	\$100 Million	14.6%	2.3x	2.3x
Warburg Pincus IX	2005	\$8.0 Billion	\$100 Million	9.6%	1.7x	1.7x
Warburg Pincus X	2007	\$15.1 Billion	\$150 Million	9.5%	1.8x	1.8x
Warburg Pincus XI	2012	\$11.2 Billion	\$200 Million	13.5%	1.8x	1.2x
Warburg Pincus Energy	2014	\$4.0 Billion	N/A	-4.7%	0.8x	0.2x
Warburg Pincus XII	2015	\$13.4 Billion	\$131 Million	21.7%	1.9x	0.4x
Warburg Pincus China	2016	\$2.2 Billion	\$45 Million	21.2%	1.7x	0.2x
Warburg Pincus Financial Sector	2017	\$2.5 Billion	\$90 Million	25.2%	1.5x	0.1x
Warburg Pincus Global Growth	2019	\$15.0 Billion	\$250 Million	24.5%	1.2x	NM
Warburg Pincus China-Southeast Asia II	2019	\$4.5 Billion	\$50 Million	43.5%	1.4x	NM

* Previous Fund investments may be relatively immature and, therefore, returns may not be indicative of future results. Net IRR and Net MOIC for all funds provided by the manager as of 6/30/2021.

V. Investment Period and Term

The Partnership's investment period will be six years and the Partnership's term will be 12 years subject to extension for up to two years with the approval of the Advisory Committee.

This document is a summary of more detailed information provided in the Confidential Private Placement Memorandum (the "PPM"). It is qualified in its entirety by the more detailed information provided in the PPM. All terms summarized in this document are subject to negotiation between the Minnesota State Board of Investment and the General Partner.

ATTACHMENT D

PRIVATE CREDIT MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	Marathon Secured Private Strategies Fund III, L.P.
<i>Type of Fund:</i>	Private Credit
<i>Total Fund Size:</i>	\$1.25 Billion
<i>Fund Manager:</i>	Marathon Asset Management, L.P.
<i>Manager Contact:</i>	James Atwater One Bryant Park, 38th Floor New York, New York 10036

II. Organization and Staff

Marathon Asset Management is a global credit manager with approximately \$23 billion of capital under management as of July 31, 2021. Marathon began investment management operations in 1998 and as of September 30, 2021, employs approximately 160 employees globally, 86 of whom are investment professionals. Marathon is headquartered in New York with additional offices in London and Tokyo.

From its founding in 1998 through 2008, Marathon was owned solely by its co-founding partners, Bruce Richards (Chairman and Chief Executive Officer), and Louis Hanover (Chief Investment Officer). In 2008, the partnership expanded to welcome Marathon's senior leaders as Partners and co-owners of the Firm. Marathons Partners are: Bruce Richards, Louis Hanover, Jamie Raboy (Chief Operating Officer & Risk Officer), Andy Springer (Head of Structured Credit Group), Gabriel Szpigiel (Head of Emerging Market), Andrew Brady (Head of Performing Credit), Jeff Jacob (Head of Opportunistic Credit), Jason Friedman (Head of Global Business Development) and Blackstone Alternative Asset Management. Bruce Richards and Louis Hanover are the managing members of the General Partner and remain the majority owners with full operating control of Marathon.

Marathon promotes a diverse and inclusive workplace through strategies and practices that empower individuals to demonstrate their strengths and achieve their professional goals. Marathon's Diversity and Inclusion approach includes partnering with organizations to increase their recruiting and hiring pool of diverse candidates, engaging outside firms for valuable career development programs and mentoring programs that partner senior employees with less experienced team members. In the past three years approximately half of their new hires have been ethnic or gender diverse.

In 2010, Marathon created Socially Responsible Interests which endorses a socially responsible mandate generally focused on evaluating where an issuer manages its affairs in a

consistent manner to that of the investor's own underlying values. Marathon became signatories to the UN Principles on Responsible Investment and implemented a comprehensive internal ESG policy.

III. *Investment Strategy*

The core strategy of Marathon Secured Private Strategies III is to invest in asset-based, cash-flowing investments in the private credit markets. Marathon believes there is an opportunity to earn attractive risk-adjusted returns by providing capital solutions to creditworthy and underserved borrowers and capitalizing on illiquidity and complexity premia found within non-traditional lending channels. Assets sourced for the Fund are generally senior, secured asset-based investment opportunities. Investments are sourced across a diversified range of market sectors and asset types in which Marathon has developed differentiated competitive advantages. The investment team uses Marathon's cross-platform asset valuation and capital structure expertise to originate customized solutions for borrowers while protecting against downside risks through protective loan covenants, conservative collateral valuation, and active asset management.

The Fund's investment program may include, but is not limited to: the origination and acquisition of residential real estate loans; housing-focused commercial real estate; healthcare loans and royalty-backed credit secured by revenue, intellectual property rights and royalty streams on FDA-approved drugs devices; transportation loans and leases; the origination and acquisition of commercial real estate loans; secured asset-based corporate credit; and other asset based loans, leases and securitized assets.

Residential Real Estate

The partnership expects to purchase and aggregate whole loan pools, originate non-government backed non-qualified mortgages and selectively originate secured loans collateralized by real estate assets. In particular, the Partnership will focus on underwriting performing and sub-performing loans where the Investment manager believes the borrower has demonstrated the ability to service their mortgage payments. The senior investment team members have been investing in residential real estate credit for over 20 years and worked together prior to and through the 2008 Financial Crisis, demonstrating the ability to invest throughout economic and interest rate cycles.

Healthcare Loans and Royalty-Backed Credit

Marathon has been investing in Healthcare since 2006. The current Healthcare team is comprised of 10 in-house healthcare professionals who have extensive experience across all healthcare verticals and therapeutic categories, especially within the biotech and pharmaceutical subsectors. The investment team is supported by the Firm's Medical Advisory Board, which is made up of five highly distinguished experts that provide insight for critical scientific and medical analysis. The Fund's strategy is expected to focus on providing capital solutions to biotech and pharmaceuticals subsectors, drawing on the investment team's expertise, professional network, and prior success in the same sectors.

Transportation Finance

Marathon has a longstanding presence in transportation finance, investing in the sector for over 15 years. The investment teams are comprised of highly experienced and dedicated professionals who focus on sourcing, underwriting and asset management of transportation assets. The Fund will focus on a combination of secured lending and structured asset-based investments backed by cash flows and conservative asset valuations in order to reduce capital at risk in historically cyclical industry.

Commercial Real Estate

Marathon expects to deploy capital in the commercial real estate debt sector by originating or purchasing loans secured by commercial properties, including loans collateralized by office buildings, hotel/hospitality, multifamily apartments, logistics/industrial and retail shopping properties. In addition to originating commercial real estate loans and purchasing commercial real estate loans in the secondary market, the Partnership may also purchase mezzanine loans, B-notes and preferred equity interests. Marathon's real estate investment and asset management team is currently comprised of approximately 30 dedicated professionals, with experience that includes senior and mezzanine commercial real estate lending, real property acquisition, structured commercial real estate credit investing, and property asset management and capital markets transactions.

Asset-Based Corporate Credit

Marathon has deep roots in the global corporate credit market, beginning with its inception in 1998. The investment team has a successful track record investing in private credit transactions over many cycles. The Fund intends to originate asset-based loans to both private and public companies secured by valuable collateral packages such as real estate, equipment, receivables, inventory, and intellectual property. The investment team will utilize a rigorous sourcing, diligence, underwriting, and execution process that allows them to capitalize on these complex investment opportunities.

Consumer Credit

Marathon expects to invest in opportunities across the consumer credit marketplace with strong credit profiles and the potential for high cash flow yields. Consumer credit encompasses all forms of non-mortgage household debt, including student loans, unsecured consumer loans (credit cards and personal installment loans), automobile loans, boat loans and recreational vehicle loans, among others. The Investment Manager's long standing presence in the consumer sector has allowed it to develop proprietary databases and analytical models that are actively used by its investment analysts to identify, source, value and structure investments.

IV. Investment Performance

Previous fund performance as of June 30, 2021 for is shown below:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
MSPS I	2014	\$370 Million	-	10.6%	1.5x	0.81
MSPS II	2019	\$897 Million	100 Million	20.0%	1.2x	

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

V. Investment Period and Term

The commitment period will be three years from the final close, subject to extension of up to six months. The term will be 6 years from final close, subject to two one-year extensions.

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

ATTACHMENT E

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	Strategic Partners Fund IX, L.P.
<i>Type of Fund:</i>	Private Equity
<i>Target Fund Size:</i>	\$13.5 billion
<i>Fund Manager:</i>	Blackstone Strategic Partners
<i>Administrative Contact:</i>	Josh Blaine Blackstone Strategic Partners The Blackstone Group L.P. 345 Park Avenue New York, NY 10154

II. Organization and Staff

Blackstone Strategic Partners was established in 2000 as Donaldson, Lufkin and Jenrette's ("DLJ") dedicated secondary private equity manager prior to the acquisition of DLJ by Credit Suisse. Since its founding in 2000, Blackstone Strategic Partners has raised over \$38 billion dedicated to secondary private equity investing. Strategic Partners IX will be the fourth secondary private equity fund sponsored by Blackstone and the ninth managed and led by the Strategic Partners team members. With over 20 years of experience, Blackstone Strategic Partners is recognized as an innovative and market-leading secondary private equity investor, with broad transaction capabilities on a global scale through its network of strong relationships, as well as a leading reputation for executing transactions on a fair, timely and confidential basis.

In 2013, Blackstone acquired the Strategic Partners business from Credit Suisse. Blackstone has created an independent division for Strategic Partners to focus on its core business. Strategic Partners expects Blackstone's global capabilities, relationships and expertise to provide significant competitive advantages in sourcing and executing secondary transactions and ultimately strengthen Strategic Partners' investment platform. Strategic Partners believes that leveraging its partnership with Blackstone, while still preserving its investment philosophy and focus, should translate into enhanced investment returns for its limited partners.

Blackstone Strategic Partners is headquartered in New York and also has offices in London, Los Angeles and San Francisco. The team is comprised of 77 dedicated investment professionals and is led by Verdun Perry, who has been with Strategic Partners since its inception in 2000. In addition to the dedicated investment professionals, Strategic Partners is supported by the full resources and infrastructure of Blackstone's central corporate functions.

Environmental Social & Governance (ESG) Program

Since its founding in 1985, Blackstone has committed itself to being a careful steward of capital and responsible corporate citizen. Blackstone believes that adequate consideration of relevant environmental, social and governance (“ESG”) factors for each potential investment enhances its assessment of risk and helps them identify opportunities to drive value and enhance returns. Blackstone believes that understanding ESG factors helps to them to understand trends and how they will shape demand and markets in years to come.

Blackstone looks to continually increase its efforts and commitment to diversity inside the firm and in the industry. This commitment takes several forms: internal networks to engage, retain and develop their existing diverse populations; targeted recruiting efforts designed to attract qualified, diverse talent to Blackstone; and partnerships with external diversity-focused organizations. Blackstone employs dedicated professionals who are focused on environmental and sustainability initiatives across Blackstone and help to educate investment and asset management teams on potential risks as well as best practices.

Blackstone Strategic Partners strives to incorporate elements of Blackstone’s ESG framework into their own investment process including due diligence on sellers, assets and underlying general partner’s ESG policies and report any material findings within their investment committee memorandums prior to making any investment decisions.

III. Investment Strategy

Like its predecessor funds, SP IX will seek significant capital appreciation primarily through the purchase of secondary interests in mature, high-quality leveraged buyout funds from investors seeking liquidity prior to the termination of these funds, with secondary interests in mezzanine, venture capital, distressed securities, fund of funds and other asset classes also considered. The Fund may also, to a lesser extent, make investments in concentrated general partner led secondaries, primary investments in underlying vehicles and direct equity, equity-like and debt investments. SP IX will invest opportunistically in cases where a prospective seller’s original commitment ranges in size from \$100,000 for a single fund holding to \$2 billion or more for a portfolio of funds. While SP IX will have a global investment mandate, it is anticipated that most of its commitments will be made to funds and assets located in the U.S. and Western Europe.

Blackstone Strategic Partners is able to underwrite wide-ranging and complex transactions comprised of multi-asset portfolios across leveraged buyout, venture/growth capital, fund of funds, real estate and infrastructure funds. Blackstone Strategic Partners’ consistent and cohesive team intends to leverage its extensive database and investment experience to re-price complex transactions, which can often contain 50-100 or more underlying funds with speed and accuracy.

SP IX expects to seek opportunities in both non-competitive and competitive transactions. Strategic Partners believes that the team’s in-depth secondary market expertise and relationships with both limited partners and fund managers will enable it to source, evaluate

and close attractive secondary investments for the Fund. Historically, only 5% of the capital invested by the SP Funds has been invested in competitive, broadly auctioned transactions. Roughly 40-50% of completed deals are from repeat sellers.

Blackstone is one of the world's largest alternatives managers across private equity, real estate, credit, secondary funds, tactical opportunities, infrastructure, insurance solutions, hedge fund solutions and close-ended mutual funds. Blackstone Strategic Partners believes that it benefits significantly from the position that Blackstone occupies as a leading global alternative asset manager. Blackstone's scale and institutional reputation and franchise should allow Strategic Partners to gain access to incremental and proprietary opportunities.

IV. Investment Performance

Previous fund performance as of March 31, 2021 for Strategic Partners and the SBI's investments with previous funds and SBI's specific performance is shown below:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
SP I	2001	\$832 million	\$100 million	17%	1.6x	1.6x
SP II	2003	\$ 1,625 million	\$100 million	35%	1.8x	1.8x
SP III	2005	\$ 1,900 million	\$100 million	6%	1.4x	1.4x
SP IV	2008	\$ 2,073 million	\$100 million	13%	1.6x	1.5x
SP V	2011	\$ 2,429 million	\$100 million	19%	1.6x	1.5x
SP VI	2014	\$ 4,363 million	\$150 million	15%	1.5x	1.1x
SP VII	2016	\$ 7,490 million	\$150 million	21%	1.6x	0.5x
SP VIII	2019	\$11,190 million	\$150 million	59%	1.7x	0.1x

* Previous Fund investments may be relatively immature and, therefore, returns may not be indicative of future results. Net IRR and Multiple of Invested Capital (MOIC) were provided by the General Partner for SBI's specific fund performance.

V. Investment Period and Term

The fund will have a four year investment period from the final closing subject to a one year extension with the consent of the Advisory Committee. The term of the fund will be ten years after the final closing, subject to two, one-year extensions at the discretion of the General Partner and two additional one-year extensions with the consent of the Advisory Committee or a majority in interest of Combined Limited Partners.

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

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ATTACHMENT F

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	Lexington Partners X, L.P.
<i>Type of Fund:</i>	Private Equity – Secondaries
<i>Target Fund Size:</i>	\$15 billion
<i>Fund Manager:</i>	Lexington Partners, L.P.
<i>Manager Contact:</i>	Jennifer Kheng 3000 Sand Hill Road Menlo Park, CA 94025

II. Organization and Staff

Lexington Partners, L.P. (“Lexington” or the “Firm”) is forming Lexington Partners X, L.P., (the “Fund” or “LCP X”), to continue Lexington’s history of successfully acquiring interests in global private equity funds and other investment vehicles primarily through negotiated secondary market purchases.

Lexington is one of the largest independent managers of secondary acquisition and co-investment funds with more than \$55 billion in total committed capital. Lexington is a global firm with offices strategically located in major centers for private equity and alternative investing – New York, Boston, Menlo Park, London, Hong Kong, Santiago, São Paulo, and Luxembourg. In addition, Lexington has senior advisors supporting our professionals globally, including in Asia and Brazil. The Firm is comprised of 57 investment professionals and 135 employees in total and is led by 18 accomplished partners who average 22 years of private equity experience and 18 years together at Lexington.

Lexington firmly believes that a commitment to strong ESG policies and practices can create lasting value for our limited partners, enhance long-term investment performance, and create alignment with our investors, employees, and underlying sponsors. Lexington has been a PRI signatory since 2014 and, on an ongoing basis, seeks to improve its approach towards management of ESG factors in accordance with industry best practices. Lexington has a cross-functional responsible investment (“RI”) steering committee across three offices in order to provide diverse perspectives: secondary, co-investment, investor relations, legal and compliance, and fund administration. As part of the Firm’s rigorous investment analysis, Lexington’s secondary and co-investment professionals evaluate all aspects of a transaction, including short-term and long-term ESG risks and opportunities that may materially impact the future financial performance of the transaction. This process combines detailed “bottoms-up” analysis with a qualitative assessment of the sponsor’s strategy and reputation. As an investor in interests managed by over 800 sponsors, Lexington is well-positioned to evaluate a sponsor’s ESG record and ability to mitigate ESG risk.

III. Investment Strategy

In continuing with the prior nine LCP secondary funds, Lexington intends to construct for LCP X a diversified portfolio of secondary interests in established global private investment funds at attractive discounts to market value. Lexington expects the Fund to provide investors with an opportunity to achieve superior risk-adjusted returns while protecting capital and generating early and frequent cash distributions.

The global secondary market has grown over the past three decades primarily as a result of the increased supply of capital committed to private investment funds, the trend towards more active management of these commitments, the desire among select investors for earlier liquidity, and the expansion of the sponsor-led opportunity set. From 2002-2020 the compound annual growth rate of global secondary market transactions was 19%. Lexington expects secondary activity to continue at high levels – approximately \$90-\$110 billion per annum – during the investment period of the Fund.

Lexington has been a leading participant in the global secondary market since 1990 and, through more than 590 secondary transactions, has acquired over 3,700 private investment fund interests with a total value of \$59 billion on a gross basis, including \$16 billion of syndications to Co-Investors. Along with its established global platform and experienced team, a key advantage for Lexington is its informational advantage. The Firm has invested in over 1,800 private investment funds and has assembled a proprietary database of information on more than 800 sponsors and 40,000 underlying portfolio companies. Another key advantage for Lexington is its institutional investor relationships. Lexington has investment relationships with more than 1,000 investors from over 40 countries. Lexington's experience, capital, sponsor relationships, and access to information make Lexington an attractive manager for investors seeking to participate in the global secondary market as well as a highly desirable replacement-LP in funds whose interests are sold. Lexington has received GP transfer consent to acquire over 3,700 secondary interests in more than 1,800 private investment funds, thereby significantly mitigating transfer and closing risk.

Lexington's disciplined investment process remains another key advantage for the Firm. Lexington adheres to a rigorous and disciplined investment process that has continued to be refined over the past 31 years. Lexington's investment process begins with high-quality deal flow generated from the Firm's established sourcing networks and reputation as a leader in the global secondary market. Lexington has analyzed thousands of secondary opportunities, completing more than 590 secondary transactions and acquiring over 3,700 interests in more than 1,800 private investment funds. This investment experience allows Lexington to compare transactions with those seen in the past and provides the Firm with a value perspective when assessing new secondary opportunities. Due diligence combines detailed company-level analysis with a qualitative assessment of the sponsor's strategy and reputation. Lexington's experienced investment committee reviews all transactions to ensure that new secondary commitments meet the Partnership's investment criteria. The investment committee members have, on average, 19 years of private equity and alternative investment experience and have worked together at Lexington for 17 years on average.

IV. Investment Performance

Previous fund performance as of December 31, 2020 is shown below:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
LCP I	1996	\$242 million	-	13.1	1.3x	1.3x
LCP II	1998	\$1,111 million	-	8.2	1.3x	1.3x
LCP III	1999	\$657 million	-	8.7	1.3x	1.3x
LCP IV	2000	\$606 million	-	19.3	1.8x	1.8x
LCP V	2002	\$2,004 million	-	18.9	1.7x	1.7x
LCP VI	2006	\$3,774 million	\$100 million	6.9	1.4x	1.3x
LCP VII	2010	\$7,054 million	\$200 million	15.0	1.6x	1.4x
LCP VIII	2014	\$10,117 million	\$150 million	20.0	1.5x	0.6x
LCP IX	2018	\$13,912 million	\$150 million	n/a	1.7x	0.2x

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

V. Investment Period and Term

The investment period is five years from the final closing date, and the term of the fund extends ten years from the effective date, subject to three one-year extensions unless a majority in interest of investors objects.

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

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ATTACHMENT G

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	Whitehorse Liquidity Partners V LP
<i>Type of Fund:</i>	Private Equity – Secondaries
<i>Target Fund Size:</i>	\$5.0 billion
<i>Fund Manager:</i>	Whitehorse Liquidity Partners Inc.
<i>Manager Contact:</i>	Josh Booth 79 Wellington St. West, Suite 2100, P.O. Box 92 Toronto, Ontario M5K 1G8 Canada

II. Organization and Staff

Whitehorse Liquidity Partners Inc. (“Whitehorse” or “the Firm”) is seeking commitments for Whitehorse Liquidity Partners V LP (the “Fund”), which is being formed principally to make preferred equity investments in private equity portfolios.

Whitehorse was founded in 2015 and is headquartered in Toronto. Since its founding, the Firm has raised four funds and is currently raising the Fund to make preferred equity investments. As of June 30, 2021, the Firm has closed on 95 transactions for a total of \$8.3 billion invested, committed or reserved capital (subject to syndication). The Whitehorse team has grown to 94 professionals with experience in investing, managing and administering private equity investments, including the structuring and execution of complex secondary transactions. The Senior Leadership Team at Whitehorse includes: Yann Robard, Michael Gubbels, Giorgio Riva, Rob Gavin, and Leah Boyd. Firm founder Yann Robard was previously at Canada Pension Plan Investment Board for 13 years where his most recent position was Managing Director, Head of Secondaries and Co-Investments.

Whitehorse follows an ESG policy based on the ten principles of the United Nations Global Compact which it applies to its general business and investment considerations. While the Firm is working to improve its gender diversity among its investment professionals, the 94-person team includes people from a variety of ethnic backgrounds. In addition, as part of its efforts to promote social responsibility and foster a positive culture at the Firm, Whitehorse has committed to donate 1% of its revenue to charities chosen by its employees.

III. Investment Strategy

Whitehorse’s strategy is to provide counterparties with flexible liquidity solutions for their private equity portfolios through the creation of preferred securities. Whitehorse has identified what it believes to be a significant and untapped market opportunity in the utilization of

structures to accelerate liquidity on private equity portfolios and/or finance the acquisition of private equity portfolios, which are designed to provide attractive, risk-adjusted returns for its investors.

Whitehorse has identified four different applications of its strategy: alternatives to a secondary sale, structured secondaries, fund level solutions and general partner balance sheet solutions. As an alternative to a secondary sale, Whitehorse enables a limited partner to generate liquidity on its existing private equity portfolio, while retaining ownership, investment upside and flexibility. Through structured secondaries, Whitehorse will execute an outright purchase of the portfolio and subsequently tranche the acquired portfolio into two classes of securities: a preferred equity security, the substantial majority of which will be held by the Fund, and a common equity security, a portion of which will typically be held by the Fund and other Whitehorse vehicles and the rest of which will be syndicated to co-investors. With fund level liquidity solutions, Whitehorse provides a general partner with the ability to accelerate liquidity back to its investors or access follow-on capital for the fund's portfolio companies. Finally, by creating a general partner balance sheet liquidity solution, Whitehorse allows a general partner to unlock liquidity in existing investments, make a larger commitment to its fund, and/or pursue other strategic initiatives.

Whitehorse completes fulsome due diligence on each potential transaction with an underwriting methodology driven by the level of concentration in the portfolios. In more concentrated portfolios, Whitehorse utilizes a single asset approach leveraging the team's prior experience in direct private equity transactions. In highly diversified portfolios, Whitehorse utilizes portfolio-level metrics to benchmark and project future cash flows, leveraging the team's prior experience in secondary transactions. Each deal is also subject to an ESG assessment, the results of which are reviewed by the Investment Committee.

In general, Whitehorse will provide some portion of the value of a portfolio of assets to its counterparty in exchange for receiving priority cash flows generated by that portfolio until an internal rate of return and multiple return hurdle is met. Once the return hurdle is reached, residual cash flows are shared with the counterparty so that both groups retain exposure to the upside. This structure provides investors in Whitehorse the potential for attractive downside protection and for additional upside above the return requirement. Whitehorse also believes that this product is attractive to counterparties because they often receive early liquidity without timing the market, crystalizing a loss, or giving up all potential future upside. Whitehorse seeks to support every transaction with a quality portfolio. Whether the counterparty is a seller, buyer or a general partner of private equity funds, the preferred equity solution is structured in a similar manner.

While Whitehorse targets private equity-like returns with credit-like characteristics, its main competitors for transactions are secondary funds. Whitehorse believes that sharing some upside with a prospective seller of LP interests is more attractive to the seller than a complete sale and allows Whitehorse to create a preferred equity structure with attractive risk-adjusted return characteristics.

For investors, the Whitehorse strategy combines diversification and regular distributions with asset-level liquidation preference to provide capital preservation and protection against downside risk, all while retaining exposure to potential upside through a back-end profit share. To achieve these goals, Whitehorse focuses on four main factors in structuring an investment, namely: (i) portfolio selection; (ii) preferred equity to value ratio; (iii) terms of cash sweep on portfolio distributions to meet a minimum preferred return hurdle; and (iv) the terms of the residual profit share.

Utilizing this strategy, Whitehorse intends to construct a portfolio for the Fund of 15-20 structures generally ranging from \$100 to \$500 million in size that it believes have the potential to provide compelling, risk-adjusted returns. The Fund's objective is to seek investments with the potential to generate gross IRR of 12-14% while maintaining exposure to upside that could increase gross returns to high teens.

IV. Investment Performance

Previous fund performance as of March 31, 2021 is shown below:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
Whitehorse Liquidity Partners I	2017	\$400 Million	-	10.7%	1.23x	0.80x
Whitehorse Liquidity Partners II	2018	\$1,000 Million	-	8.4%	1.13x	0.43x
Whitehorse Liquidity Partners III	2019	\$2,000 Million	\$100 Million	27.5%	1.28x	0.45x
Whitehorse Liquidity Partners IV	2020	\$3,827 Million	\$100 Million	NM	1.23x	0.15x

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

V. Investment Period and Term

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

This document is a summary of more detailed information provided in the Confidential Private Placement Memorandum dated June 2021 (as supplemented from time to time, the "PPM"). It is qualified in its entirety by the more detailed information provided in the PPM.

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ATTACHMENT H

REAL ESTATE MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	Landmark Real Estate Partners IX, L.P.
<i>Type of Fund:</i>	Real Estate - Secondaries
<i>Target Fund Size:</i>	\$3.5 billion
<i>Fund Manager:</i>	Landmark Partners, an Ares Company
<i>Manager Contact:</i>	Geoff Mullen 437 Madison Avenue New York, NY 10022

II. Organization and Staff

Landmark Partners (“Landmark”) has formed Landmark Real Estate Partners IX, L.P. (the “Fund” or LREF IX”) to continue Landmark’s history of making secondary investments in various types of real estate and real estate related entities. The Fund seeks to provide investors attractive returns with lower levels of risk compared with direct primary investments in real estate vehicles.

Since 1996, Landmark has established itself as a leading supplier of liquidity to institutional real estate investors, having completed over 180 separate real estate transactions involving over 700 partnership interests managed by over 185 different managers. Landmark has established a record of efficient negotiation and execution of purchase and sale contracts, while maintaining strict confidentiality throughout the process. As of June 30, 2021 the Landmark team is comprised of over 145 professionals and support staff located in six offices across the US, Europe, and Asia.

On June 2, 2021, Ares Management Corporation (“Ares”) completed the acquisition of Landmark Partners. Landmark will now operate in a newly formed Ares investment group named Secondary Solutions and will be branded “Landmark Partners, an Ares company.” Ares’ new Secondary Solutions Group will be overseen by Francisco Borges and Timothy Haviland as Co-Heads.

Landmark believes that effectively integrating environmental, social and governance (“ESG”) considerations into the investment process supports its mission to deliver consistent and strong risk-adjusted returns. Landmark is a signatory to the United Nations-supported Principles for Responsible Investment (PRI) and strive to apply this set of best practices to its real estate investment activities. Landmark provides all active underlying GPs with its ESG Manager Survey on an annual basis and will engage with the GP on any specific ESG issues. In accordance with its commitment to the PRI, Landmark reports on its approach to ESG integration and ESG progress and achievements annually.

III. Investment Strategy

Landmark seeks to continue its history of providing investors attractive returns with lower levels of risk compared with direct primary investments in real estate vehicles. Investing in the secondary market achieves lower levels of risk through:

- Opportunities to make secondary acquisitions at favorable valuations and/or through favorable financial structures;
- Reduced timelines to investment realization;
- Broad diversification across vintage years, geographies, managers and investment strategies; and
- Exposure to investments that are mature and have the potential to begin generating distributions almost immediately, producing current cash flow and minimizing the impact of the “J-curve”.

The real estate secondary market is in the midst of an expansion that has seen approximately 60% annual growth in global secondary trading volume since 2009. Building up to the onset of the COVID-19 pandemic, the global real estate secondary market saw strong levels of transaction activity through 2019 and despite the sharp decline of transactional activities amid volatility in the broader capital markets early in 2020, secondary activities rebounded strongly during the remainder of the year. A notable trend reflected in the recent transaction activity for the real estate secondary market is the continued growth in the volume of transactions related to partnership recapitalizations. This market segment has grown in recent years as General Partner (“GP”) fund sponsors have more proactively looked to the real estate secondary market as a means to address liquidity and capital needs of their funds and partnerships. For this reason, partnership recapitalizations are often referred to as “GP-led” liquidity solutions. Landmark has capitalized on this trend by committing \$2.0 billion to fund and partnership recapitalizations annually over the past 5 years.

Landmark’s investment process begins by generating deal flow through an extensive network in the investment and real estate communities along with its experience in completing customized transactions. Landmark believes it is known within the industry as a reliable source for secondary market liquidity. Landmark endeavors to leverage relationships with investors, general partner sponsors, advisors, bankers, consultants and other parties to identify assets that may be for sale. When a potential investment is moved to deeper due diligence, Landmark generally performs a review of the following: (i) financial statements and investment reporting; (ii) the manager’s business plan; (iii) the manager’s historical investment record; (iv) local market research, including economic conditions, and supply and demand dynamics; (v) comparable sales analyses; (vi) liquidity expectations (by investment and by year); (vii) capital needs; (viii) leverage terms and compliance with loan covenants; (ix) an estimated timetable for any future capital calls; and (x) investment vehicle legal documents and structural terms. Upon reaching agreement on price and terms, Landmark and the seller execute a letter of intent and negotiate the definitive purchase agreement. Landmark believes that it has established a record of efficient negotiations and transaction documentation, and that it has the ability to work quickly and with confidentiality. Post-closing, once the portfolio is assembled,

Landmark will work proactively, on a cooperative basis, with the managers of the underlying investment vehicles. The goal is to assure optimal operating results, disposition values and disposition timing for properties.

IV. Investment Performance

Previous fund performance as of December 30, 2020 is shown below:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
LREF I	1996	\$210 million	-	45.0%	2.1x	2.1x
LREF II	1997	\$335 million	-	16.6%	1.5x	1.5x
LREF III	2001	\$119 million	-	19.4%	1.6x	1.6x
LREF IV	2005	\$368 million	-	-4.4%	0.8x	0.7x
LREF V	2010	\$718 million	-	18.5%	1.5x	1.5x
LREF VI	2014	\$1,616 billion	-	7.3%	1.2x	0.9x
LREF VII	2017	\$3,333 billion	\$150 million	13.9%	1.2x	0.4x

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

V. Investment Period and Term

The investment period is four years from the final admission date, and the term of the fund extends 10 years from the final admission date, with extensions at the consent of the advisory committee.

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

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TAB E

Public Markets Investment Program

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DATE: November 24, 2021

TO: Members, State Board of Investment

FROM: Members, Investment Advisory Council and SBI Staff

SUBJECT: SBI Public Markets Program Report

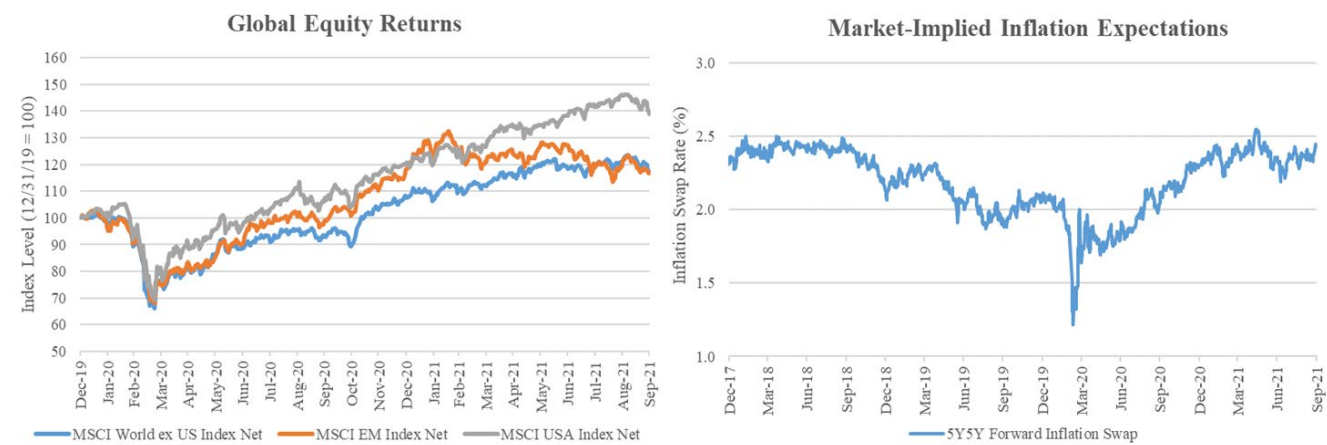
This report provides a brief performance review of the SBI Public Markets portfolio through the third quarter. Included in this section are a short market commentary, manager performance summaries and a report of any organizational updates for the public equity and fixed income managers in the SBI portfolio.

The report includes the following sections:

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• Public Markets Managers' Organizational Update	11
• Manager Meetings	13

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Review of SBI Public Markets Program Third Quarter 2021



Source: Bloomberg, MSCI

Market Summary

Global capital markets posted mixed results during the third quarter of 2021, with the MSCI All Country World (ACWI) Index (net) falling back -1.1% in U.S. dollar terms for the quarter. Within the U.S., the broad Russell 3000 Index fell -0.1%, weighed down by underperformance of cyclicals and smaller cap names. The Russell 1000 Growth Index gained +1.2%, helped by strength in the technology and communications services sectors. During the quarter, economic activity slowed in response to a resurgence in cases of COVID-19 caused by the global spread of the delta variant of the virus. The unexpected and dramatic re-escalation in new infections dealt a setback to the broad-based economic reopening and post-COVID return to normalcy that many – particularly those in the developed economies – had expected by early fall. Marking the slower growth trajectory, the IMF recently lowered its forecast for 2021 GDP growth in the developed economies by -0.4% to 5.2% (IMF World Economic Outlook October 2021).

While economic growth has moderated, inflation levels remained elevated with little sign of relief from a wearing-off of transitory effects. In the U.S., headline consumer prices rose +5.4% year-over-year in September while producer prices, a measure of input costs, rose a whopping +8.3% in September from a year earlier. Labor market conditions continued to improve. During the quarter, companies added 1.6 million jobs back to payrolls and the unemployment rate fell to 4.8%. Recent survey data shows employers still have a record 10.4 million unfilled positions (JOLTs Job Openings August 2021). The strong demand for workers has fueled a rebound in wage growth; average hourly earnings rose +4.6% year on year in September, and the Atlanta Fed's wage growth tracker showed a +4.2% rise over the same period.

In global markets, Chinese stocks significantly underperformed the broader market, with the MSCI China Index (net) falling -18.2% in U.S. dollar terms on the quarter. Investor sentiment in China was battered during the quarter by the Chinese government's escalation of its regulatory crackdown across a range of industries where, in its view, excesses have emerged which pose a threat to the country's long-term economic, cultural and political stability. Markets were rattled by

the scope of the regulatory agenda, as well as the potential for continued regulatory action to negatively affect revenue growth and profit margins within targeted industries.

U.S. interest rates were little changed point-to-point over the quarter. However, persistently higher-than-expected inflation readings and a slightly more hawkish tone from the Fed at its September FOMC meeting put rates on an upward path at the end of the quarter. Commodities rallied overall during the quarter, led by gains in energy. Crude oil gained 4% (West Texas Intermediate) and Natural Gas jumped over 58%. Industrial metals declined on the prospect of weaker growth, particularly from China. The U.S. dollar rallied about 2% during the quarter on a trade-weighted basis as global growth prospects dimmed and investors sought the relative safety of U.S. dollar-denominated assets.

Overall Combined Funds Portfolio - Quarter and One-Year Performance

The overall Combined Funds portfolio returned +1.3% during the third quarter of 2021, slightly outperforming the composite benchmark, which returned +1.2% over the same period. Portfolio outperformance during the quarter was driven primarily by the portfolio's modest overweight to equities and a corresponding underweight to fixed income. Positive performance from active managers within the public equity portfolio also helped relative performance. The private markets invested portfolio returned +9.4%, significantly outpacing the broader market, led by strong performance from the private equity and real estate portfolios.

Public equity performance benefitted from strong relative outperformance from the portfolio's U.S. large cap growth and small cap managers, as well as the portfolio's international equity managers (both developed and emerging markets). The portfolio's global equity and U.S. large cap value managers detracted from relative performance. Within the portfolio's fixed income allocation, return seeking bond strategies detracted slightly relative to the portfolio's broad policy benchmark, as an allocation to emerging markets local currency sovereign and emerging markets corporate bonds came under pressure during the quarter. The core/core plus portfolio outperformed the Bloomberg Barclays U.S. Aggregate Index return for the quarter, as the portfolio's credit overweight was rewarded by the continued positive environment for credit.

For the year ending September 30, 2021, the Combined Funds portfolio outperformed the composite benchmark return by +1.1%, or 110 basis points (+24.2% Combined Funds vs. +23.1% Composite Benchmark). Performance was aided by both strong underlying performance at the asset class level as well as an overweight to equities – and corresponding underweight to fixed income – maintained for most of the period.

Overall, the public equity portfolio posted strong results (+30.2% Portfolio vs. +29.7% Benchmark), helped by active manager outperformance within both the domestic equity and international equity portfolios. Within the fixed income portfolio, the core/core plus portfolio outperformed the Bloomberg Barclays U.S. Aggregate Index return (+0.9% Portfolio vs. -0.9% Benchmark) and the Treasury protection portfolio outperformed the Bloomberg Barclays Treasury 5+ Year Index (Portfolio -6.4% vs. Benchmark -6.8%). The newer return-seeking bond portfolio allocation also contributed positively to overall performance. The invested private markets portfolio returned +42.1% for the year, led by the private equity and real estate portfolios which gained +52.9% and +22.9% for the period, respectively.

Domestic Equity

During the first two months of the third quarter, domestic equity markets continued their ascent, driven by positive earnings surprises and expectations for continued strong consumer demand. In September, however, investor sentiment dipped as a global resurgence of COVID-19 cases further stressed supply chains and renewed fears of both a global growth slowdown and higher inflation. As a result, the Russell 3000 Index ended the quarter lower by -0.1%.

The September selloff drove cyclical stocks lower and gave “work from home” stocks a modest boost. Cyclical sectors such as industrials and consumer discretionary sold off, while investors rotated into highly-valued growth sectors with positive earnings such as technology and healthcare. This rotation was a boon to large cap growth stocks. Businesses with low earnings and low cash generation were eschewed, hurting small cap stocks relative to large caps (R2000 -4.4% vs. R1000 +0.2%). Growth names overall outperformed value names (R3000G +0.7% vs. R3000V -0.9%), though this wasn’t the case for the small cap space, where growth lagged value by a wide margin (R2000G -5.7% vs. R2000V -3.0%).

Financials (+2.8%), technology (+2.0%), and utilities (+1.0%) led index sector performance during the quarter, while basic materials (-4.9%), industrials (-3.3%), and telecommunications were the laggards. Within technology, mega cap growth names outperformed (e.g. Microsoft, Apple). Within healthcare (+0.2%), large cap medical equipment and service names such as Thermo Fisher, Abbott, and Medtronic outperformed, while healthcare providers and biotech names underperformed.

The Combined Funds’ domestic equity portfolio was unchanged for the quarter, slightly outperforming the Russell 3000 Index, which returned -0.1%. An overweight to small cap stocks in the portfolio modestly detracted from relative performance; this was partially offset by modest outperformance from the portfolio’s active domestic equity managers versus their benchmark, particularly within active small cap. Small cap managers significantly outperformed (-1.0% Portfolio vs. -4.4% Benchmark). Large cap active managers underperformed, albeit modestly (-0.1% Portfolio vs. +0.2% Benchmark). In aggregate, the passive managers tracked their benchmarks closely.

Within active large and all-cap growth managers, performance was mixed. Active large cap growth managers both outperformed (Sands Capital +4.1% and Winslow Capital +2.5% vs. Benchmark +1.2%), while active all-cap manager Zevenbergen underperformed (-4.3% Portfolio vs. +0.7% Benchmark). Sands and Winslow performed well due to overweight positions in higher-growth names such as Atlassian, while both managers were somewhat offset by an underweight to strong-performing mega-cap technology names (Microsoft, Apple). Sands was further boosted by strong out-of-benchmark selection, including an overweight position in Sea Ltd. (+16.1%) and strong selection across healthcare. Zevenbergen’s relative underperformance was concentrated in a few names, with idiosyncratic losses from overweights to Teladoc Health, Exact Sciences, Zillow, Peloton, and Zoom. Given Zevenbergen’s concentration and differentiated portfolio expression versus the other growth managers, their performance is not out of line with expectations.

Active large cap value managers underperformed during the quarter (Barrow Hanley -1.2% and LSV -2.2% vs. Benchmark -0.8%). LSV's quantitative, deep value approach was out of favor in a quarter that favored growth and sentiment. In addition, the portfolio is overweight smaller-cap names, which also held back relative performance. Performance of fundamental manager Barrow Hanley was more driven by mixed security selection than style factors, with strong selection from industrials and financials offset by poor selection in telecommunications and energy.

Semi-passive large cap managers were mixed during in the quarter, straying little from the benchmark, even given their respective low tracking errors. BlackRock detracted modestly, due in part to ESG insights meant to identify transition economy beneficiaries that came under pressure with the rally in energy prices and value style underperformance. JP Morgan was in-line with the index (+0.2% Portfolio vs. +0.2% Benchmark), with stock selection gains in consumer discretionary and technology offset by losses in healthcare.

Active small cap growth managers performed best on a relative basis during the quarter, with all of the portfolio's managers (Arrowmark, Hood River, Rice Hall James, and Wellington) each outperforming by over +3.0%. Arrowmark was the strongest outperformer over the quarter (-1.0% Portfolio vs. -5.7% Benchmark) followed by Wellington (-1.3% Portfolio vs. -5.7% Benchmark). Across all four managers, strong relative performance was driven by a tilt to larger cap companies and strong security selection within biotech, pharmaceuticals, industrials, and financials.

Active small cap value managers had strong performance during the quarter, and all four managers (Goldman Sachs, Hotchkis & Wiley, Martingale, and Peregrine) outperformed the benchmark. An overall underweight position in meme stocks was a boon to relative performance during the quarter, as profit-taking in these names drove negative price action. Notably, AMC Entertainment lost -32.8%, and Bed Bath & Beyond lost -48.1%. Together, these stocks contributed -0.7% of the Russell 2000 Value Index's -3.0% overall decline; neither name was held across the managers' portfolios. Hotchkis & Wiley performed best during the quarter (up +2.2% vs. -3.0% Benchmark), aided by a tilt to larger cap names, strong performance of deep value names in the healthcare and consumer discretionary sectors, and overall strong security selection in energy and technology sectors. Peregrine had the smallest outperformance during the quarter (-2.0% Portfolio vs. -3.0% Benchmark), with broad-based gains across most sectors offset by losses in higher-beta sectors such as energy and technology.

Global Equity and ACWI ex USA Equity

The portfolio's global equity managers returned -4.5% in the third quarter, underperforming the MSCI All Country World (ACWI) Index (net), which returned -1.1%. All three global managers utilize a bottom-up, fundamental investment approach, with concentrated portfolios and a high degree of active share, or differentiation from the benchmark. During the quarter, the global managers' performance was negatively impacted by overweights to Chinese internet stocks including Alibaba, Tencent, Baidu and online food delivery giant Meituan. These names were impacted by the Chinese government's broadening regulatory crackdown on data collection practices, worker safety, anti-competitive pricing practices, and online gaming. The government's push to address growing income inequality through a focus on "common prosperity" also weighed on key portfolio overweights in the luxury consumer goods sector, including Kering SA and Farfetch. On the positive side, an overweight to the healthcare sector and good issue selection

within the sector – including biotech names Moderna and BioNtech and medical technology stocks Masimo and DexCom – helped relative performance, as did good issue selection within industrials and materials.

The portfolio's ACWI ex USA manager (Earnest Partners) outperformed its benchmark during the quarter (-1.1% Portfolio vs. -3.0% Benchmark). Good issue selection within China, the United Kingdom and Europe, and overweights to the energy and information technology sectors helped relative performance, as did a significant underweight to the communications services sector, particularly within China.

Developed International Equity and Currency Overlay

International developed markets equities, as measured by the MSCI World ex USA index (net), fell -0.7% during the second quarter. While the index gained +1.2% in local terms, a broad-based appreciation in the U.S. dollar versus other currencies dragged down international equity returns when measured in U.S. dollar terms. During the quarter, the prospect of fresh lockdowns as the result of a global spread of the delta variant of the COVID-19 virus cooled the outlook for a post-COVID recovery. At the same time, a spike in energy prices and supply chain bottlenecks led to a significant rise in inflation expectations, particularly in the UK and Europe. The Bank of England has responded to faster-than expected inflation with a change in policy stance towards tightening, while in contrast the ECB declined to signal that it would consider any near-term increase in interest rates to manage inflation.

Index performance on a country basis among major markets was led by a rebound in Japan (+4.6%), Netherlands (+3.4%) and Denmark (+2.7%). The rest of Asia, Europe, and Canada were flat or modestly negative in U.S. dollar terms. In Japan, strong showings from electronic equipment, healthcare equipment and consumer durables led that market out of its slump of the previous quarter. Performance for the quarter was positive across information technology, financials, energy, healthcare and industrials. The technology sector benefitted from the rotation back to “COVID-resilient” growth names and continued strong pricing power within the semiconductor sector resulting from demand-driven chip shortages. On the negative side, there was broad weakness in the consumer discretionary and materials sectors. Both sectors were weighed down by negative sentiment regarding the outlook for growth in China, which represents a major share of global demand for both luxury consumer goods and raw materials such as iron ore, copper and other industrial metals.

The portfolio's active developed markets managers outperformed the MSCI World ex USA index (net), returning -0.5% versus the benchmark's -0.7% return. Good issue selection across markets such as Japan, France, and Canada and within sectors including financials, healthcare, and materials were the primary drivers of relative performance for the period. Country selection favoring strong-performing markets Netherlands and Denmark helped, as did an underweight to Germany, which lagged the broader market. Sector allocation effects were largely muted, although overweights to materials and consumer discretionary names hurt relative performance.

Growth-oriented manager McKinley outperformed the benchmark by +3.3% on the quarter, led by strong issue selection in finance, healthcare and consumer discretionary names. Meanwhile, quantitative factor-driven managers Acadian and AQR detracted from relative performance the portfolio (lagging the benchmark by -2.5% and -2.4%, respectively). Acadian's performance was

hurt by an underweight to Japan and poor stock selection across Japan, the UK, and Switzerland, particularly within the consumer discretionary and industrial sectors. AQR's strategy, which emphasizes value, momentum and quality factors, suffered from poor stock selection, particularly within Japan, as value underperformed growth. Overweight to the Australian dollar and Japanese yen, poor selection in Europe and an overweight to Hong Kong also contributed to AQR's underperformance during the quarter.

The passive developed markets portfolio tracked the MSCI World ex USA index (net) within guideline tolerance for the quarter (-0.6% Portfolio vs. -0.7% Benchmark).

The portfolio's currency hedging program, which seeks to protect the passive developed markets portfolio from a decline in value of foreign currencies relative to the U.S. dollar, had a net positive impact during the period (+0.2%) as the dollar experienced a broad-based rally. Hedges on the euro and Australian dollar contributed positively, while the Japanese yen hedge detracted and others were flat. The program's overall hedge ratio ended the quarter at 45.9%, a high for the period; it had fallen as low as 23.3% in early September.

Emerging Markets Equity

Emerging market equities, as measured by MSCI Emerging Markets index (net), posted losses of -8.1% in the third quarter. China led the index down (-18.2%) while South Korea (-13.2%) and Brazil (-20.2%) also significantly detracted. Only India (+12.6%), Russia (+10.9%) and Saudi Arabia (+8.2%) made significant positive contributions to index performance.

During the quarter, several rounds of Chinese government regulatory action targeting a range of sectors (for-profit education, internet services, online gaming, and real estate development) shook equity markets and led to a dramatic de-rating of investors' outlook for the growth and profit potential of once high-flying internet names (e.g. Alibaba, Tencent, Baidu), for-profit education stocks (TAL Education, New Oriental Education) and property developers including China Evergrande. Liquidity stress within the Chinese property sector, ongoing lockdowns in response to the spread of the delta variant, as well as power rationing across key manufacturing areas as the government enforces limits on coal-fired power to meet its CO2 emissions targets have led to concerns over a significant growth slowdown. These concerns hit China's top trading partners during the quarter, including South Korea, and key commodity exporter Brazil. Meanwhile, oil and natural gas producers including Saudi Arabia and Russia benefited from Europe's energy squeeze and a resulting spike in crude oil and natural gas prices.

The portfolio's active emerging markets managers outperformed the MSCI Emerging Markets index (net) (-7.6% Portfolio versus -8.1% Benchmark). An underweight to China (especially tech names like Alibaba, down -35.5% on the quarter) gave the portfolio a lift, while country underweights to India, Saudi Arabia and a sector underweights to financials detracted. Stock selection within markets was broadly positive.

Pzena and Morgan Stanley posted the strongest relative performance for the quarter, outperforming the benchmark by +4.7% and +3.1% respectively. Both managers benefited from significant underweights to China's top tech names. Pzena's value-oriented approach led them to favor top-performing sectors including financials and utilities, while Morgan Stanley's China underweight

was driven by their macro view that the risks to growth were not fully reflected in market prices. Macquarie's performance lagged the index by -2.3% during the quarter. Positive impacts from sector allocations (overweight energy, underweight consumer discretionary) were more than offset by poor issue selection in key markets including China, Brazil and South Africa and country positioning (overweight South Korea, Brazil vs. underweight Saudi Arabia, India).

Earnest Partners' dedicated China A-share strategy underperformed the MSCI China A Index during the quarter (-6.1% Portfolio vs. -4.4% Benchmark). As China's megacap tech names retreated, the biggest beneficiaries within the mainland China-focused A Share market were energy, utilities and materials and industrials, sectors which Earnest was underweight. In addition, overweights to consumer staples and healthcare lagged the broader market, while issue selection within materials and industrials helped.

The passive emerging markets portfolio experienced slight negative tracking error relative to the MSCI Emerging Markets index (net) within guideline tolerance for the quarter (-8.3% Portfolio vs. -8.1% Benchmark).

Core/Core Plus and Return Seeking Bonds

The Bloomberg Barclays Aggregate Bond Index gained +0.1% during the quarter. Interest rates rallied in July and August as the spike in COVID-19 caused by the delta variant eroded the outlook for U.S. growth and the market pushed back its expected timing for the Fed to begin tapering its asset purchases and begin hiking its policy rate. However, by September, an improvement in the trajectory of COVID-19 infection rates, persistently higher-than-expected inflation readings and a slightly more hawkish tone from the Fed at its September FOMC meeting put rates on an upward path to end the quarter little changed overall.

Sector performance across high-grade fixed income was also largely flat. TIPS outperformed nominal Treasuries during the quarter as current inflation remained elevated and expectations for future inflation also rose modestly. With the generally positive environment for credit still intact, high yield corporate bonds, bank loans and securitized credit all posted modestly positive excess returns. Meanwhile, emerging markets sovereign debt (both dollar-denominated and local currency) and EM corporate debt lagged, hit by both a dimming of global growth expectations and continued high inflation across many emerging economies. Deteriorating growth sentiment in China, exacerbated by a brewing liquidity crisis within China's heavily indebted property development sector, also weighed on investor sentiment within EMD.

The portfolio's core/core plus bond managers outperformed the Bloomberg Barclays Aggregate benchmark during the quarter (+0.2% Portfolio vs. +0.1% Benchmark). Core plus managers maintained an allocation to high yield and securitized credit, both of which contributed to portfolio outperformance. In addition, positions in Agency MBS also benefited performance as that sector saw gains as the Fed provided clarity on its plans to begin tapering asset purchases. On the negative side, modest off-benchmark allocations to emerging market debt detracted from returns.

The portfolio's return seeking bond managers modestly underperformed the Barclays Aggregate Index over the third quarter (-0.1% Portfolio vs. +0.1% Benchmark). Underperformance during the quarter was driven by poor relative performance of the portfolio's dedicated emerging markets

debt manager, Ashmore, which was negatively impacted by positions in distressed property firms China Evergrande and Fantasia Holdings. Away from emerging markets debt, the return seeking managers' allocations to high yield credit, bank loans and securitized credit all benefitted performance.

Treasury Protection Portfolio

U.S. Treasury yields across all maturities rallied during July and August as the growth outlook weakened, only to give back those gains in September as investors reacted to rising inflation and confirmation from the Fed at its September FOMC meeting that it was on-track to begin reducing its asset purchases in November, somewhat earlier than expected. The 10-year U.S. Treasury yield ended the quarter at 1.46%, slightly higher than where it started the quarter, while the 30-year U.S. Treasury yield ended the quarter at 2.06%, four basis points (0.04%) lower on the quarter. At the margin, longer-term interest rates benefitted from the slightly more hawkish Fed, which bolstered the market's perception that the Fed would act as needed to keep inflation well-controlled.

For the three months ending in September, the Treasury protection portfolio matched the return of the Bloomberg Barclays Treasury 5+ Year Index (+0.2% Portfolio vs. +0.2% Benchmark). Overall, the portfolio was positioned slightly short duration versus the benchmark, resulting in modestly negative relative performance as long-end rates fell slightly. However, the portfolio's modest yield advantage resulting from positions in U.S. Agencies and TIPS offset the impact of the portfolio's short duration positioning during the quarter.

Laddered Bonds + Cash Portfolio

Yields across the front-end of the yield curve were little changed on the quarter as the Fed kept its policy rate near zero and investor demand for short maturity paper remained very strong. Over the quarter, the relative lack of supply of short-term paper relative to continued strong demand resulted in a further steady grind towards low single-digit yields in overnight and very short-term rates at the front end of the market. Demand for the Fed's overnight reverse repo program, which is pegged at a yield of 0.05%, rose to a record \$1.6 trillion by the end of the quarter, evidence of ample excess liquidity in the system.

For the quarter ending September 30, 2021, the combined Laddered Bonds + Cash portfolio exceeded the benchmark return (ICE BofA US 3 Month Treasury Bill) by one basis point, or +0.01%. The Laddered Bond portfolio returned +0.03% during the quarter, benefitting from non-Treasury holdings, particularly high quality corporate and asset-backed securities. These securities bolstered the portfolio's yield and also benefitted from a modest tightening of credit spreads during the quarter. Meanwhile, the more constrained cash portfolio returned +0.02% over the quarter.

Public Markets Managers' Organizational Update

Third Quarter 2021

Hotchkis & Wiley (Domestic Equity)

Effective October 1, 2021, Scott McBride was appointed CEO of Hotchkis & Wiley, and former CEO George Davis transitioned to the role of Executive Chairman. Scott was previously President, serving in that capacity since January 2016. Mr. Davis will continue to be involved in the investment process and maintain his portfolio management responsibilities in large cap, which does not affect the day-to-day management of the SBI's Small Cap Value strategy.

KKR (Fixed Income)

In late September, KKR announced a widely anticipated CEO succession, with Joe Bae and Scott Nuttall (co-presidents and Chief Operating Officers since 2017) being appointed Co-Chief Executive Officers. Co-Founders Henry Kravis and George Roberts will transition to the roles of Executive Co-Chairmen of KKR's Board of Directors.

Marathon (Developed International Equity)

Portfolio Manager Michael Nickson departed Marathon in October. He had previously managed a subset of Japanese equity amounting to 5% of SBI's total investment in the strategy. Portfolio Managers Bill Arah (also a firm founder) and Simon Somerville will absorb this subset.

Martin Currie (Global Equity)

Roberto Venanzio, Investment Analyst, will leave Martin Currie in the fourth Quarter to take up another opportunity outside of the investment industry. Yulia Hofstede, who has shared coverage responsibility for the sectors, will assume primary responsibility until a replacement analyst is hired.

PGIM (Fixed Income)

Craig Dewling and Gregory Peters, both Managing Directors, will become Co-Chief Investment Officers, taking over the duties of Mr. Michael Lillard, current CIO and Head of PGIM Fixed Income. Mr. Peters is co-head of the Multi-Sector strategy team which manages SBI's Multi-Asset Credit strategy, and will remain active in that role. Also, John Vibert, Managing Director will move to the newly created role of President. Mr. Vibert previously served as Head of Securitized Products from 2014.

Pzena (Emerging Markets Equity)

During the third quarter of 2021, Nicolas Raele joined the firm as a Research Analyst covering emerging markets banks. The transition should be minimally disruptive as Jason Doctor, who formerly covered the space, is still with the firm.

Sands (Domestic Equity)

Ian Ratcliffe, Managing Partner, was appointed to the firm's Executive Management Team in September 2021.

TCW (Fixed Income)

Tad Rivelle, CIO announced his retirement from TCW Fixed Income at the end of 2021 and CEO David Lippman will not be renewing his employment contract at the end of 2022, following a senior leadership dispute regarding succession planning and the role of the CEO/CIO. Staff met with TCW during the quarter to review the changes and will be closely monitoring the transition for further turnover in the senior leadership team at TCW.

2021 Manager Meetings

As a result of the ongoing COVID-19 pandemic and continued restrictions on business travel on the part of managers' and MSBI Staff policies, there were no in-person meetings conducted with Public Markets managers during the third quarter of 2021.

Throughout the quarter, however, Staff utilized teleconference and videoconference technologies to remain in communication with managers as needed. During the quarter, Staff held 29 manager strategy review calls via teleconference or videoconference.

Investment Manager

Asset Class

Acadian Asset Management	Developed Markets Equity
Ashmore Investment Management Limited	Fixed Income
AQR Capital Management, LLC	Developed Markets Equity
Baillie Gifford Overseas Limited	Global Equity
BlackRock Financial Management, Inc.	Fixed Income
BlackRock Institutional Trust Company, N.A.	Domestic Equity
Columbia Threadneedle	Developed Markets Equity
Goldman Sachs Asset Management, L.P.	Domestic Equity Fixed Income
Hood River Capital Management, LLC	Domestic Equity
J.P. Morgan	Domestic Equity
LSV Asset Management	Domestic Equity
Marathon Asset Management LLP	Developed Markets Equity
Macquarie Investment Management Advisers	Emerging Markets Equity
Martingale Asset Management, L.P.	Domestic Equity
McKinley Capital Management	Developed Markets Equity
Neuberger Berman Investment Advisers LLC	Fixed Income 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
Pzena Investment Management, LLC	Emerging Markets Equity

2021 Manager Meetings (cont.)

Record Currency Management Limited	Currency Overlay
The Rock Creek Group, LP	Emerging Markets Equity
Wellington Management Company, LLP	Domestic Equity
Western Asset Management Company	Fixed Income
Zevenbergen Capital, Inc.	Domestic Equity

TAB F

Participant Directed
Investment Program
and
Non-Retirement
Investment Program

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DATE: November 24, 2021

TO: Members, State Board of Investment

FROM: Members, Investment Advisory Council and SBI Staff

SUBJECT: Participant Directed Investment Program and Non-Retirement Program

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

The report includes the following sections:

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• Participant Directed Investment Program Fund Commentaries	2
• Non-Retirement Fund Commentaries	4
• Manager Meetings	5

Participant Directed Investment Program Fund Commentaries

Third Quarter 2021

Domestic Equities

Vanguard Total Stock Market Index Institutional Plus

The Fund employs an indexing approach designed to track the performance of the CRSP U.S. Total Market Index, which represents approximately 100% of the investable U.S. stock market and includes large-, mid-, small-, and micro-cap stocks. The Fund matched its benchmark return with a -0.1% return for the quarter and for the year with a +32.1% return.

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 0.6% return and for the year with a +30.0% return. *This option is only available to the Minnesota Deferred Compensation Plan (MNDPC).*

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. Performance for the fund outperformed the benchmark for the quarter with a +0.7% return compared to a -0.2% return for the NASDAQ US Dividend Achievers Select Index. For the year, the Fund reported a +21.9% return compared to a +21.7% return 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 returned +0.0% for the quarter and +36.1% for the year, matching the CRSP US Mid Cap Index return for the quarter and slightly underperforming for the year.

T. Rowe Price Institutional Small-Cap Stock Fund

The Fund's investment process emphasizes fundamental research and active, bottom-up stock selection. The Fund outperformed the Russell 2000 for the quarter with a -1.2% return compared to the benchmark return of -4.4% and underperformed for the year with a +40.9% return compared to the benchmark return of +47.7%.

International Equities

Fidelity Diversified International Equity Fund

The Fund's approach actively selects companies based on fundamental analysis, management quality, and attractive valuations over a long time horizon. The Fund returned +1.7% for the quarter, outperforming the MSCI EAFE benchmark return of -0.4%. For the year, the Fund returned +21.6%, underperforming the benchmark return of +25.7%.

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 return for the quarter with a -3.0% versus the benchmark return of -2.5% and for the year with a +24.4% return compared to the benchmark return of +25.2%.

Fixed Income**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 reported positive relative returns compared to the Bloomberg Barclays U.S. Aggregate Index for the quarter and the year. The fund matched the return of the benchmark for the quarter with a +0.1% return and outperformed for the year with a +2.0% compared to the benchmark return of -0.9%.

Vanguard Total Bond Market Index

The Fund employs a sampling process to its index investment approach to track the performance of the Bloomberg Barclays U.S. Aggregate Index. The Fund matched the benchmark return for the quarter with a +0.1% return and outperformed for the year with a -0.8% return compared to a -0.9% return for the benchmark.

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 +0.2% return by its benchmark, the 3-Year Constant Maturity Treasury +45 basis points. For the year, the portfolio returned +2.0% compared to the benchmark return of +0.8%.

Money Market Fund

State Street Global Advisors manages the money market fund in a commingled pool vs. ICE BofA U.S. 3 Month T-Bill benchmark. In a very low yield environment within short duration fixed income, the Fund earned 0.0% for the quarter and for the year returned +0.2% compared to a +0.1% return for the benchmark.

Asset Allocation 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 benchmark for the quarter with a 0.0% return and slightly underperformed for the year with a +18.0% return.

Non-Retirement Fund Commentaries

Third Quarter 2021

Assigned Risk Plan Fixed Income Manager

RBC Global Asset Management actively manages the fixed income portfolio for the Assigned Risk Plan to the Bloomberg Barclays U.S. Governmental Intermediate benchmark with a focus on security selection and secondarily on sector allocation. The portfolio matched the benchmark return for the quarter with a 0.0% return and outperformed for the year with a -1.1% return compared to a benchmark return of -1.3%.

Non-Retirement Program Fixed Income Manager

Prudential Global Investment Management (PGIM) actively manages the Non-Retirement Fixed Income portfolio to the Bloomberg Barclays U.S. Aggregate in a separately managed portfolio. The fixed income portfolio outperformed for the quarter with a +0.2% return compared to the benchmark return of +0.1%. For the year, the portfolio outperformed with a +0.2% return compared to the benchmark return of -0.9%.

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 with a +0.6% return and a +30.0% return, 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 matched the benchmark for the quarter with a +0.0% return and for the year with a +0.1%.

2021 Manager Meetings

As a result of the ongoing COVID-19 pandemic and continued restrictions on business travel on the part of managers' and MSBI Staff policies, there were no in-person meetings conducted during the third quarter of 2021.

Throughout the quarter, however, Staff utilized teleconference and videoconference technologies to remain in communication with managers as needed. During the third quarter staff met with the investment funds noted below.

Investment Manager	Management Style/Asset Class	Investment Program
• Ascensus	Multi-Asset Class Platform	PDIP (MN ABLE Plan)
• Dodge & Cox	Active, Fixed Income	PDIP
• Galliard	Stable Value Fund	PDIP
• PGIM	Active, Fixed Income	Non-Retirement Program
• RBC Global Asset Mgmt	Active, Fixed Income	Assigned Risk Plan Non-Retirement
• State Street Global Advisors	Target Date Fund Money Market Fund	PDIP PDIP
• TIAA-CREF	Multi-Asset Class Platform	PDIP (MN 529 Plan)
• T. Rowe Price	Active, Small Cap Equities Stable Value Fund	PDIP Bench List
• Vanguard	Passive, Fixed Income Passive, Domestic Equities Passive, International Equities Passive, Balanced Fund Active, U.S. Large Cap Equity	PDIP PDIP PDIP PDIP PDIP

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REPORT

SBI Environmental, Social, and Governance (ESG) Report

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MINNESOTA STATE BOARD OF INVESTMENT

ENVIRONMENTAL, SOCIAL, GOVERNANCE REPORT

Stewardship Report

In 2021, the SBI will publish its first Stewardship Report, which will be available on the SBI website and also included in the SBI's 2021 Annual Report. This report is a comprehensive review of the SBI's work related to Stewardship and ESG Incorporation over the past several years.

Given that the Stewardship Report will cover ESG broadly, the focus of the November 2021 ESG Report is the SBI's most recent activities related to diversity, equity and inclusion (DEI).



Diversity, Equity, Inclusion Initiatives

DEI Task Force



In October 2021, the members of the SBI's Diversity, Equity and Inclusion (DEI) Task Force met for the first time.

The objective of the task force is to make recommendations to the SBI Executive Director related to the increasing the diversity of SBI investment managers, consultants and staff.

The Task Force will meet multiple times over the next 18 months to develop recommendations based on an analysis of the SBI's portfolio, most up to date diversity research and review of institutional investor best practices.



SBI Supports the Russell 3000 Board Diversity Disclosure Initiative

The SBI continues to support the Russell 3000 Board Diversity Disclosure Initiative, which is led by the Illinois State Treasurer's office.

In October 2021, letters signed by the SBI and 26 investor organizations were sent to companies in the Russell 3000 index. These letters follow similar letters from 2020 encouraging companies to report the racial/ethnic and gender composition of their boards of directors.

The 2021 letters are customized based on the company's current level of disclosure. One hundred seventeen companies were commended for their exemplary disclosure, 926 firms with partial disclosure were recognized and encouraged to enhance reporting, and 1,847 firms with no disclosure were urged to begin reporting.

The letter notes that there is broad consensus that diversity enhances performance and also mentions the regulatory efforts underway to accelerate progress on board diversity.

- In August 2021, the SEC approved NASDAQ's proposed board diversity rule.

- Federal legislation has been introduced to require disclosure of board diversity.
- California and Washington have passed legislation mandating minimum board diversity thresholds and others may follow like Hawaii, Illinois, Massachusetts, Michigan and New Jersey.

SBI signs the 2021 Investor Statement Regarding the Need for Corporate Workplace Equity Transparency

The 2021 investor statement regarding the need for workplace equity transparency asks that companies increase investors' accessibility to information related to their workplace equity policies, practices, and program outcomes. Data on recruitment, retention, and promotion rates broken down by race and gender, remains very low.

In 2019, the SBI signed a similar statement that encouraged companies to increase disclosure of their EEO-1 data. EEO-1 is a form all companies with more than 100 employees are required to file with the Equal Employment Opportunity Commission that contains data about gender and race by some type of job grouping. This effort had a tangible impact. Seventy-eight companies now disclose EEO-1 data, compared to 23 that did in 2019. Thirty-five companies have set explicit diversity goals, compared to 9 in 2019.



Engagements

Through its involvement in the Midwest Investors Diversity Initiative (MIDI), the SBI is planning to lead several diversity related engagements in the fall of 2021 with target companies in the Midwest region.



The SBI will ask companies to voluntarily report board diversity, EEO-1 data and adopt diverse board candidate recruitment practices like the Rooney Rule. 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.



MINNESOTA STATE BOARD OF INVESTMENT

Contact

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St. Paul, MN 55103



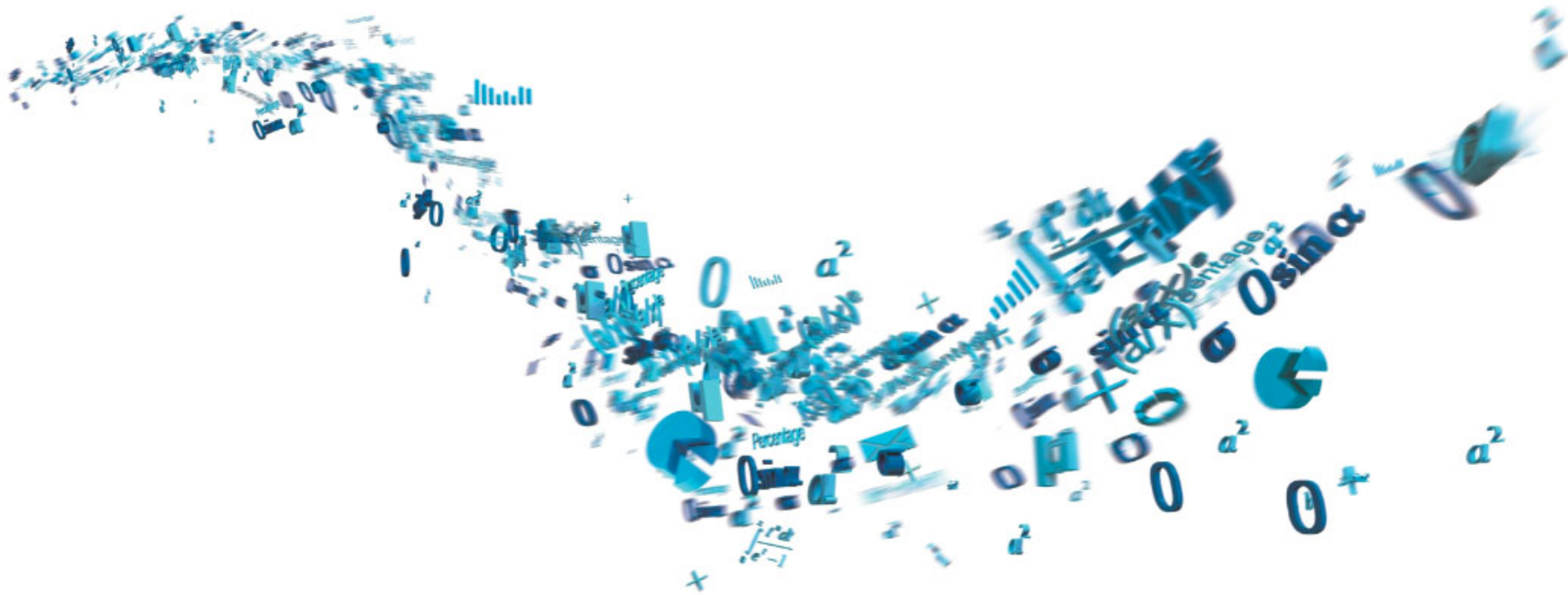
Phone: (651) 296-3328
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REPORT

AON Market Environment Report

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Market Environment

Third Quarter 2021

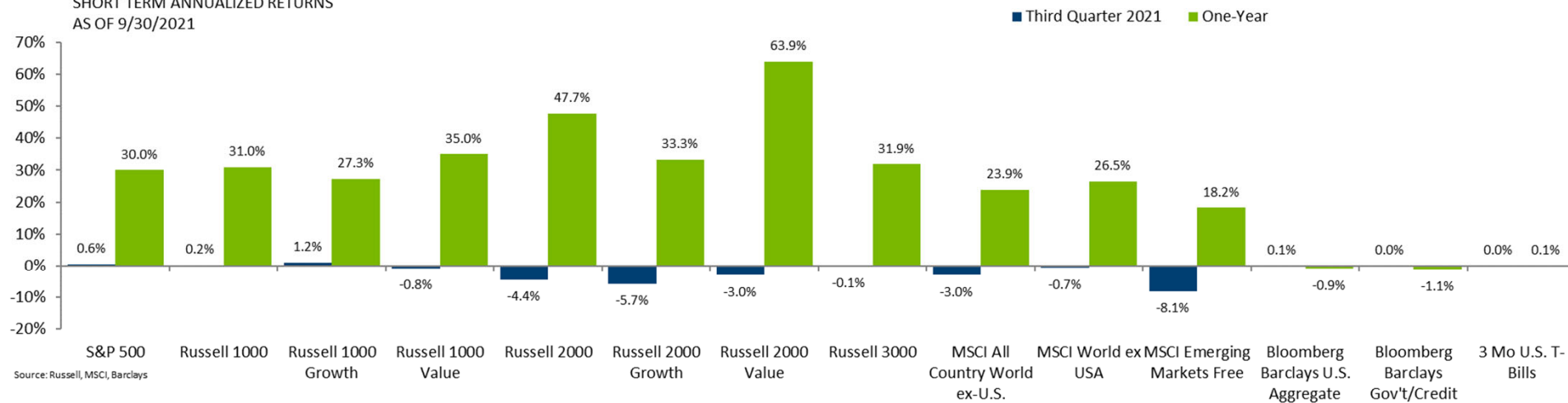
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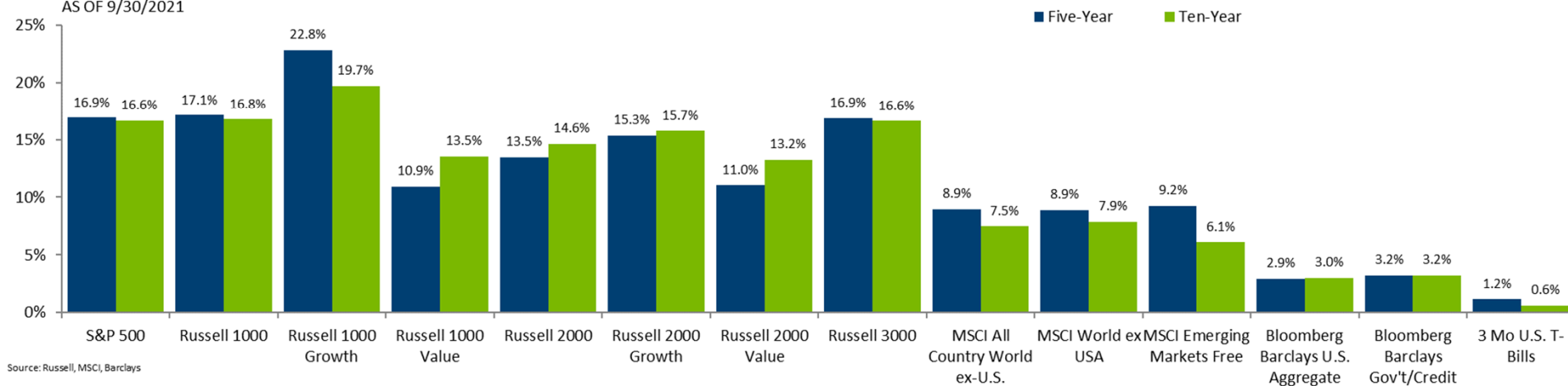
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Market Highlights

SHORT TERM ANNUALIZED RETURNS
AS OF 9/30/2021



LONG TERM ANNUALIZED RETURNS
AS OF 9/30/2021



Market Highlights

Returns of the Major Capital Markets						
	Periods Ending 9/30/2021					
	Third Quarter	Year-to-Date	1-Year	3-Year ¹	5-Year ¹	10-Year ¹
Domestic Equity						
S&P 500	0.6%	15.9%	30.0%	16.0%	16.9%	16.6%
Russell 1000	0.2%	15.2%	31.0%	16.4%	17.1%	16.8%
Russell 1000 Growth	1.2%	14.3%	27.3%	22.0%	22.8%	19.7%
Russell 1000 Value	-0.8%	16.1%	35.0%	10.1%	10.9%	13.5%
Russell 2000	-4.4%	12.4%	47.7%	10.5%	13.5%	14.6%
Russell 2000 Growth	-5.7%	2.8%	33.3%	11.7%	15.3%	15.7%
Russell 2000 Value	-3.0%	22.9%	63.9%	8.6%	11.0%	13.2%
Russell 3000	-0.1%	15.0%	31.9%	16.0%	16.9%	16.6%
International Equity						
MSCI All Country World ex-U.S.	-3.0%	5.9%	23.9%	8.0%	8.9%	7.5%
MSCI World ex USA	-0.7%	9.2%	26.5%	7.9%	8.9%	7.9%
MSCI Emerging Markets Free	-8.1%	-1.2%	18.2%	8.6%	9.2%	6.1%
Fixed Income						
Bloomberg Barclays U.S. Aggregate	0.1%	-1.6%	-0.9%	5.4%	2.9%	3.0%
Bloomberg Barclays Gov't/Credit	0.0%	-1.9%	-1.1%	5.9%	3.2%	3.2%
3 Mo U.S. T-Bills	0.0%	0.0%	0.1%	1.2%	1.2%	0.6%
Inflation						
CPI-U	1.2%	4.8%	5.4%	2.8%	2.6%	1.9%

MSCI Indices show net returns.

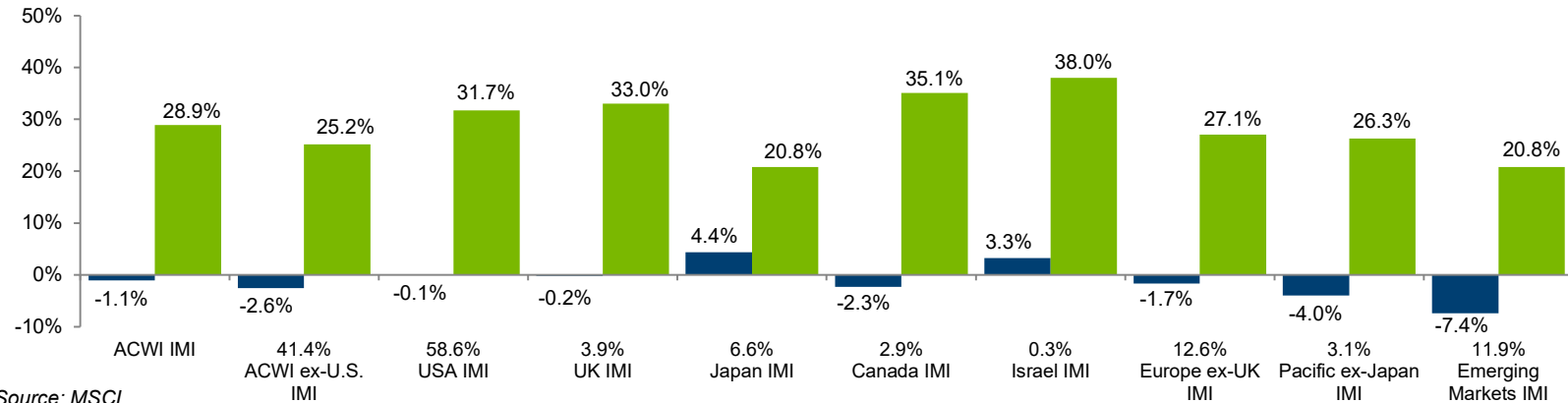
All other indices show total returns.

¹ Periods are annualized.

Global Equity Markets

**GLOBAL MSCI IMI INDEX RETURNS (USD)
AS OF 09/30/2021**

■ Third Quarter 2021 ■ One-Year



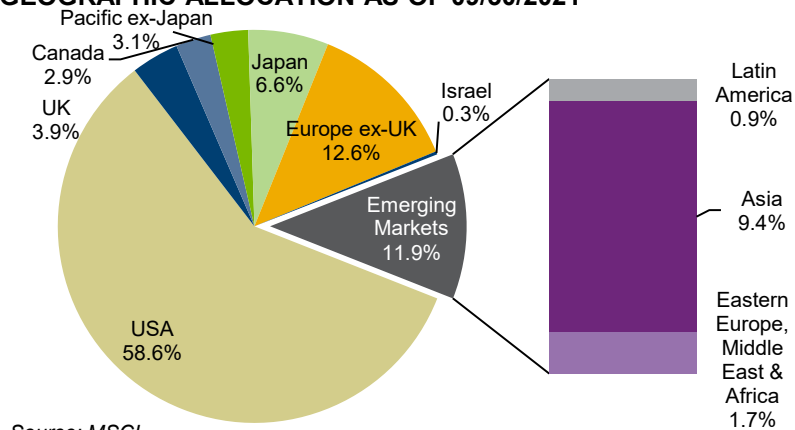
Source: MSCI

- The prospect of lower growth expectations and tighter monetary policy weighed on equities, with major markets falling over the month. The MSCI All Country World Investable Market Index (ACWI IMI) returned -1.1% for the quarter.
- Japanese equities led, returning 4.4%, while most of Europe ended the quarter in negative territory.
- Emerging Markets fared the worst, returning -7.4% for the third quarter, as poor returns from Brazil and China weighed on the region. In China, equity markets suffered a major setback due to regulatory crackdowns on technology companies, along with looming issues surrounding the country's indebted property developers. China's economy recorded an annual growth rate of 7.9% in Q2 2021, nearly cut in half from the previous quarter.

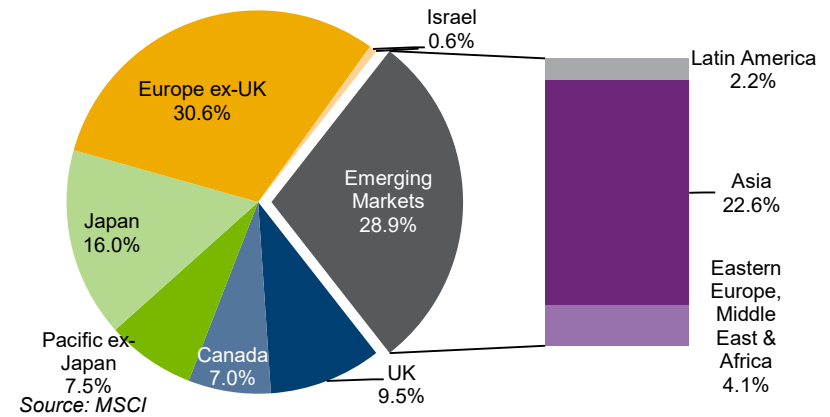
Global Equity Markets

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 09/30/2021**



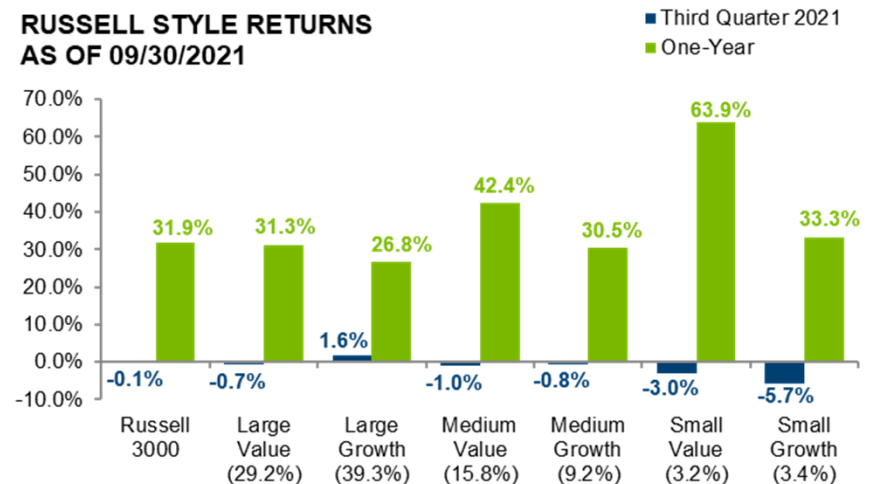
**MSCI ALL COUNTRY WORLD EX-U.S. IMI INDEX
GEOGRAPHIC ALLOCATION AS OF 09/30/2021**



U.S. Equity Markets

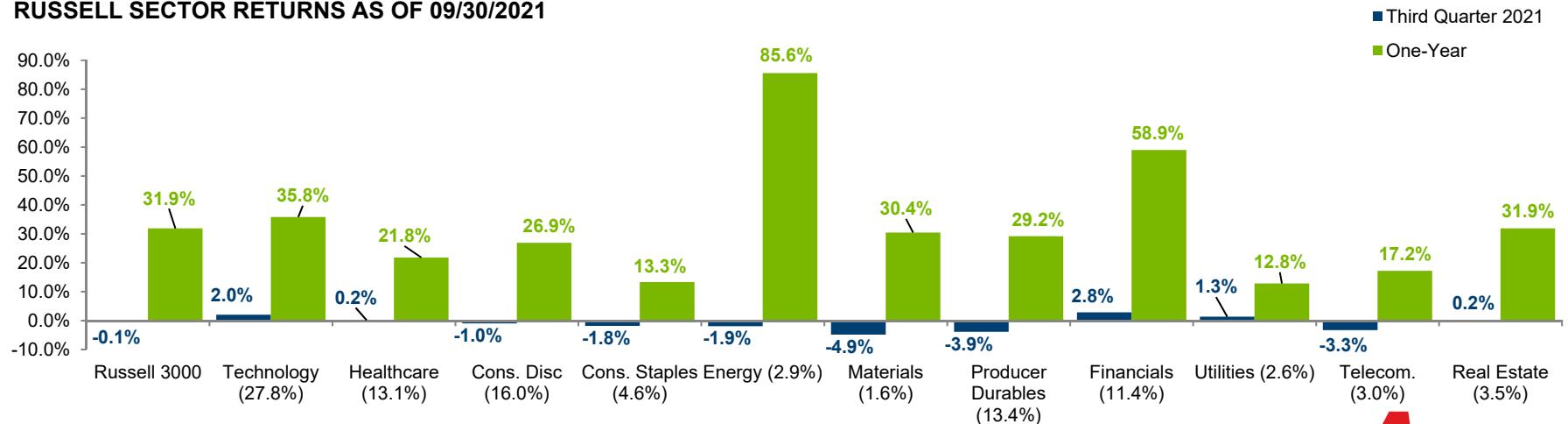
- U.S. equities were marginally up over the quarter with the S&P 500 index rising by 0.6%, giving up almost all of the quarter's gains during the final weeks of September.
- The Russell 3000 Index fell 0.1% during the third quarter but was up 31.9% over the trailing one-year period. Performance among sectors was mixed, with six out of the eleven sectors down for the quarter. Financials and Technology were the best performers while the Materials sector was the worst performer at -4.9%.
- Large and medium cap stocks outperformed small caps over the quarter, and growth outperformed value within large and medium cap stocks. However, over the trailing one-year period, value has eclipsed growth over all market capitalizations.

**RUSSELL STYLE RETURNS
AS OF 09/30/2021**



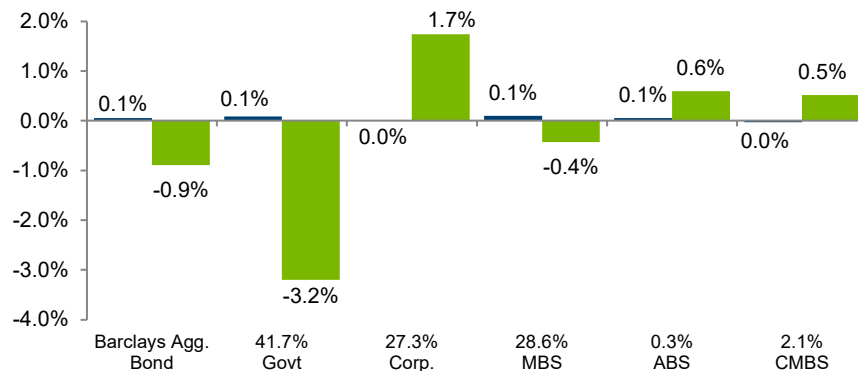
Source: Russell Indexes

RUSSELL SECTOR RETURNS AS OF 09/30/2021



U.S. Fixed Income Markets

**BLOOMBERG BARCLAYS AGGREGATE RETURNS BY SECTOR
AS OF 09/30/2021**

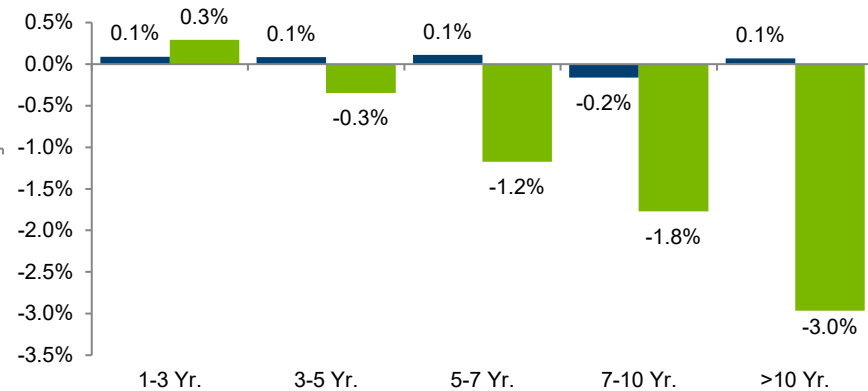


Source: FactSet

■ Third Quarter 2021 ■ One-Year

- The Bloomberg Barclays U.S. Aggregate Bond Index rose by 0.1% over the quarter.
- Risk sentiment waned over the quarter, weighing on credit markets, with most sectors posting muted quarterly returns.
- Across durations, 7-10 years maturity bonds finished the quarter in negative territory while all other maturities were marginally positive.
- Within investment grade bonds, higher-credit quality outperformed lower quality issues on the margin, with Aaa bonds rising by 0.1%. High yield bonds rose by 0.9% as spreads widened slightly.

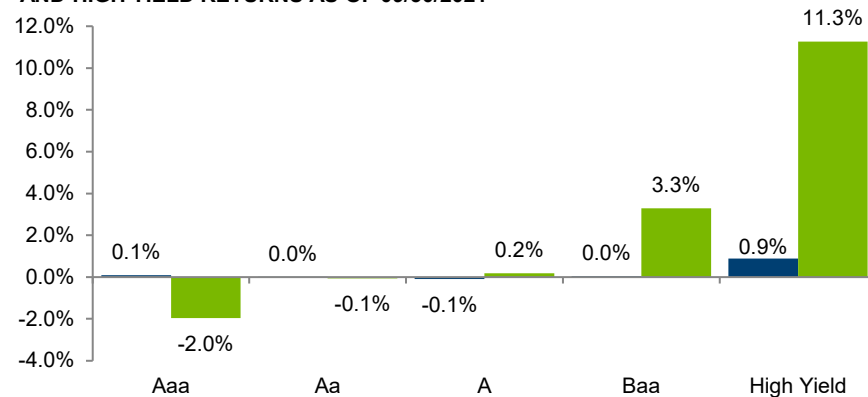
**BLOOMBERG BARCLAYS AGGREGATE RETURNS BY MATURITY
AS OF 09/30/2021**



Source: FactSet

■ Third Quarter 2021 ■ One-Year

**BLOOMBERG BARCLAYS AGGREGATE RETURNS BY QUALITY
AND HIGH YIELD RETURNS AS OF 09/30/2021**

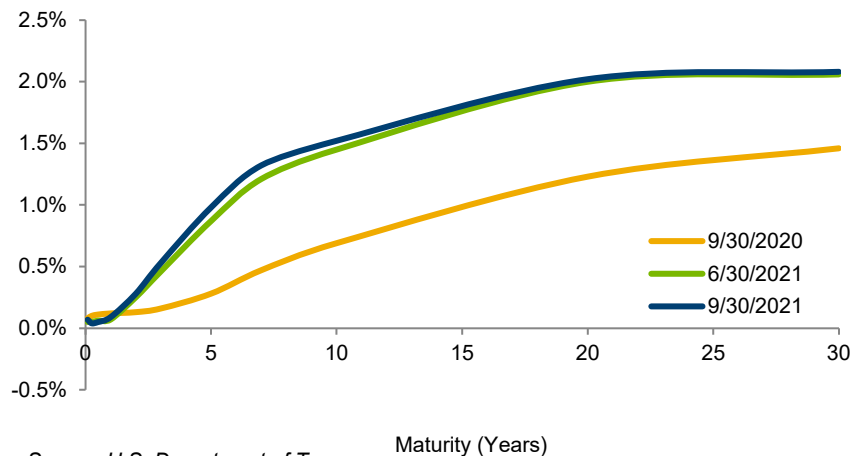


Source: FactSet

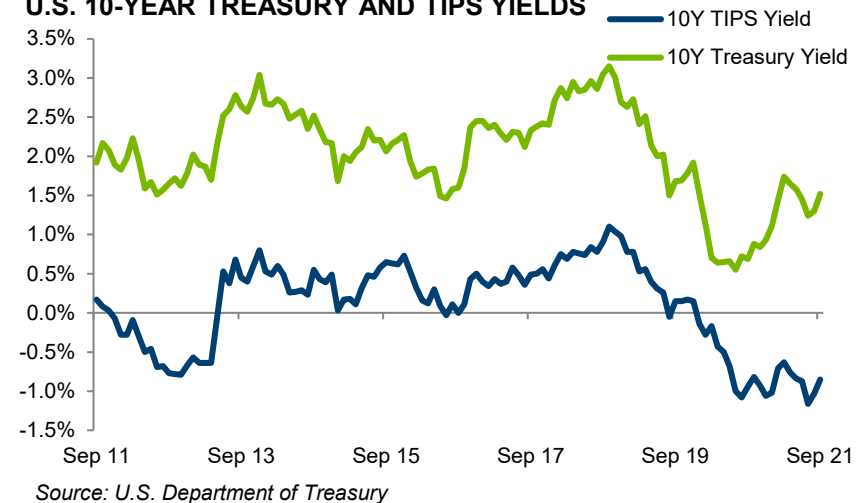
■ Third Quarter 2021 ■ One-Year

U.S. Fixed Income Markets

U.S. TREASURY YIELD CURVE



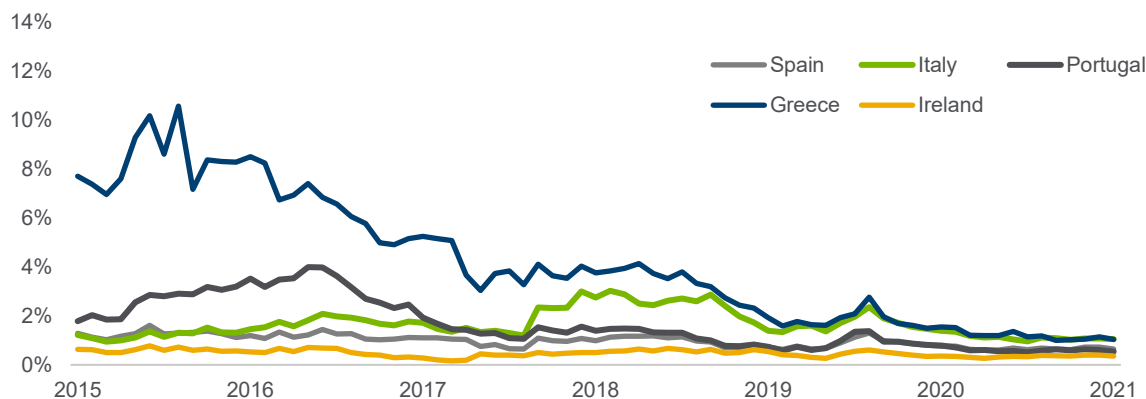
U.S. 10-YEAR TREASURY AND TIPS YIELDS



- The U.S. Treasury yield curve was largely unchanged, with yields rising across the belly of the curve. The Federal Reserve signaled that tighter monetary policy is on the horizon with plans to announce a formal tapering of monthly asset purchases, currently locked in at \$120bn per month, in November. The Fed September meeting also revealed that more policy makers than last quarter are forecasting interest rate hikes starting in 2022.
- Headline inflation accelerated to 5.3% year-over-year in August. Core CPI, excluding food and energy, increased by 4% over the same period.
- The 10-year U.S. Treasury yield ended the quarter 7bps higher at 1.52% and the 30-year yield increased by 2bps to 2.08%.
- The 10-year TIPS yield rose by 2bps over the quarter to -0.85%.

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 was mixed across the Euro Area but still remain low. The European Central Bank (ECB) decided to 'moderately' slow the pace of its Pandemic Emergency Purchase Programme (PEPP) over the next quarter, citing a strong rebound in Eurozone growth and inflation. The ECB also changed its yearly inflation target to 2% with the flexibility to fluctuate above or below the target for a temporary period.
- German government bund yields rose by 2bps to -0.19% over the quarter. The preliminary results of the German national elections indicated that the SPD (Social Democratic Party of Germany) secured a narrow victory over the outgoing chancellor Angela Merkel's CDU (Christian Democratic Union) and its ally CSU (Christian Social Union in Bavaria). However, uncertainty around forming a government continues as it depends on the coalition negotiations between SPD and CDU/CSU with smaller parties like the Greens and FDP (Free Democratic Party).
- The Eurozone continued to see economic activity rebound in Q2 2021, recording quarter-on-quarter GDP growth of 2.2%. The accelerating vaccination program helped boost consumer and business confidence.

Credit Spreads

Spread (bps)	9/30/2021	6/30/2021	9/30/2020	Quarterly Change (bps)	1-Year Change (bps)
U.S. Aggregate	33	32	60	1	-27
Gov't	0	0	0	0	0
Credit	80	77	188	3	-108
Gov't/Credit	34	34	111	0	-77
MBS	27	27	61	0	-34
CMBS	61	59	106	2	-45
ABS	29	22	41	7	-12
Corporate	84	80	136	4	-52
High Yield	289	268	517	21	-228
Global Emerging Markets	287	257	334	30	-47

Source: Barclays Live

- High Yield credit spreads and Global Emerging Markets spreads increased the most in Q3 2021, increasing by 21bps and 30 bps over the quarter.

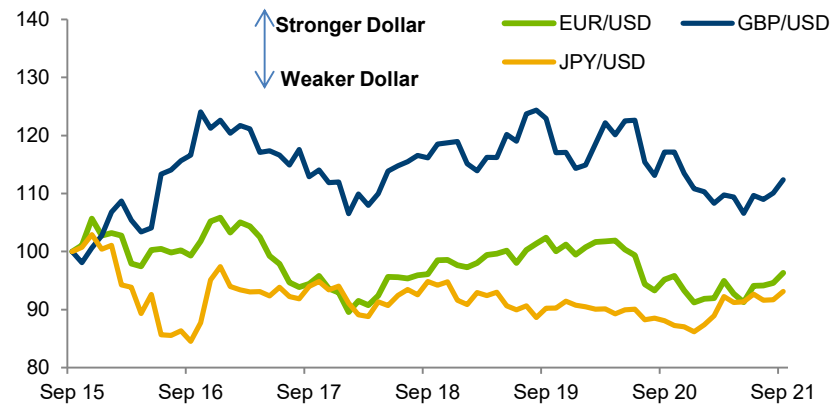
Currency

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



Source: Federal Reserve

**U.S. DOLLAR RELATIVE TO EUR, GBP AND JPY
REBASED TO 100 AT 09/30/2015**

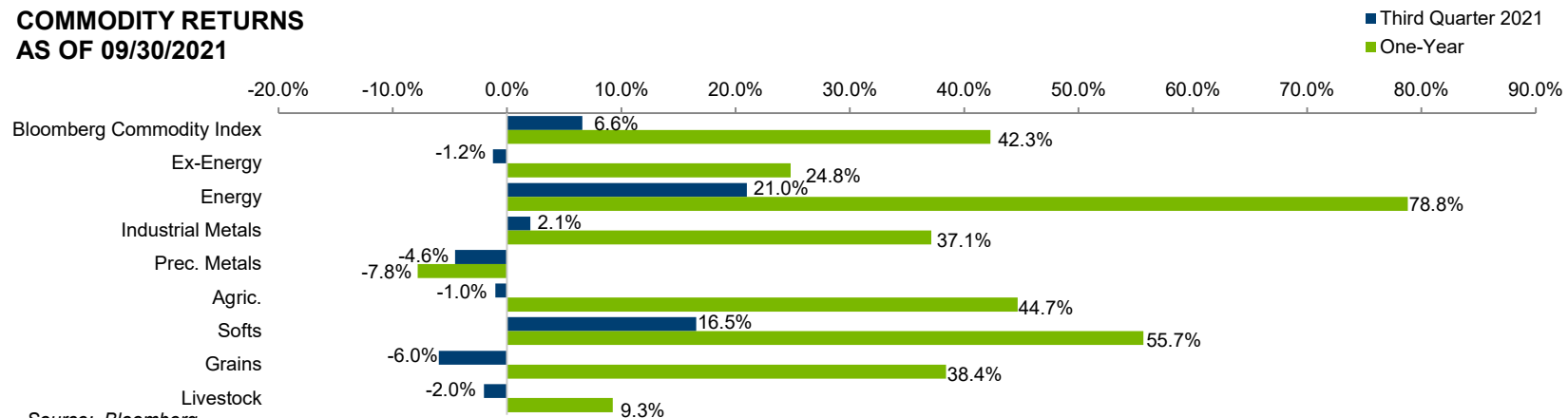


Source: FactSet

- The U.S. Dollar appreciated against major currencies over the quarter. The U.S. dollar rose 1.9% on a trade-weighted basis.
- Sterling fell by 0.9% on a trade-weighted basis over the quarter. The Bank of England (BoE) kept its interest rate unchanged but two members out of the nine-member Monetary Policy Committee voted to end its quantitative easing programme immediately. The Sterling depreciated by 2.5% against the U.S. dollar.
- The U.S. dollar appreciated by 2.3% against the Euro and by 0.5% against the Yen.

Commodities

COMMODITY RETURNS AS OF 09/30/2021



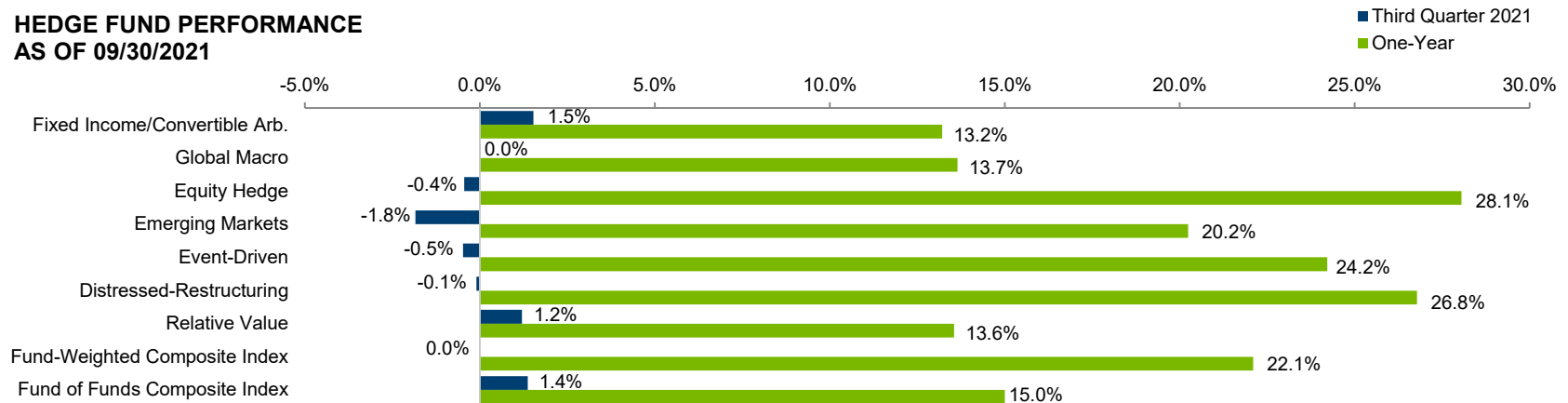
Source: Bloomberg

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

- Commodities continued their upward momentum over the quarter with the Bloomberg Commodity Index up 6.6%. Energy prices continued to rise higher demand has exacerbated supply issues, particularly in China and parts of Europe.
- Energy was the best performing sector, returning 21.0% over the quarter and 78.8% over the trailing one-year period. OPEC+ reached an agreement to increase crude oil production by 400,000 barrels a day each month from August until the end of 2022. OPEC+ also targeted the end of 2022 to start restoring output back to pre-pandemic levels.
- The price of Brent crude oil rose by 4.5% to \$79/bbl. while WTI crude oil spot prices rose by 2.1% to \$75/bbl.

Hedge Fund Markets Overview

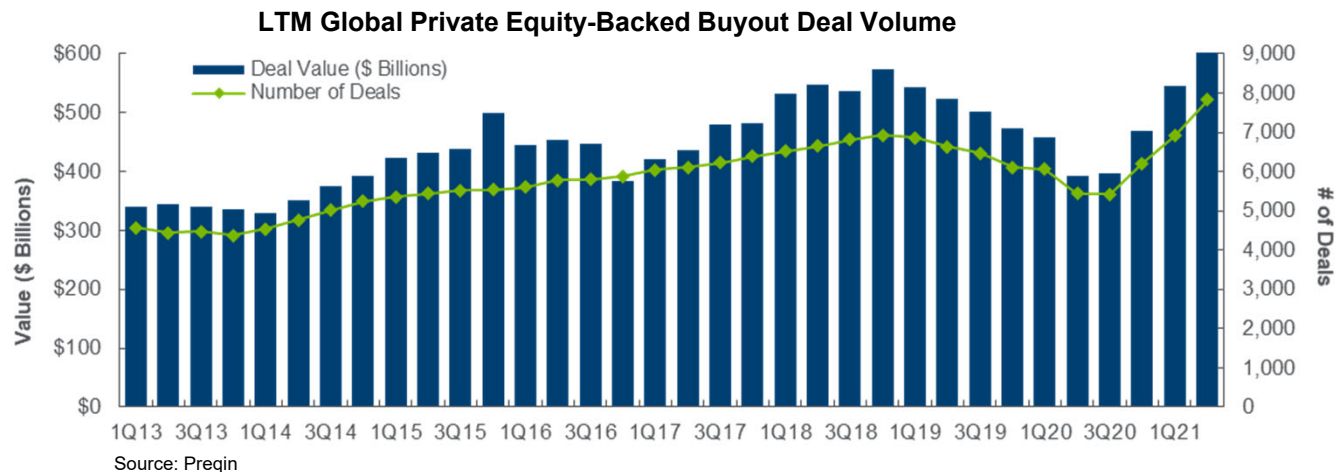
HEDGE FUND PERFORMANCE AS OF 09/30/2021



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

- Hedge fund performance was mixed across all strategies in the third quarter.
- HFRI Fund-Weighted Composite Index remained flat whilst HFRI Fund of Funds Composite Index produced returns of 1.4% over the quarter.
- Over the quarter, Fixed Income/Convertible Arbitrage and Relative Value strategies were the best performers with returns of 1.5% and 1.2% respectively.
- Emerging Markets and Event-Driven strategies were the worst performers with a return of -1.8% and -0.5% respectively.

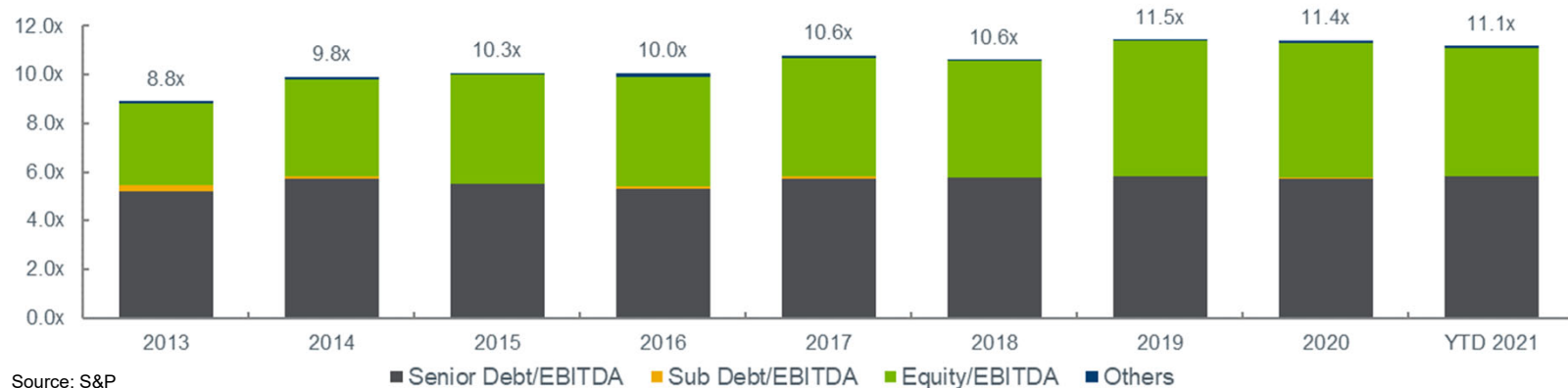
Private Equity Market Overview – 2Q 2021



- **Fundraising:** In 2Q 2021, \$321.0 billion was raised by 750 funds, which was an increase of 34.1% on a capital basis and 26.6% by number of funds over the prior quarter. Dry powder stood at nearly \$2.1 trillion at the end of the quarter, an increase compared to year-end 2020's total of \$2.0 trillion.¹
- **Buyout:** Global private equity-backed buyout deals totaled \$225.9 billion in 2Q 2021, which was up 22.6% on a capital basis and down 9.0% by number of deals from 1Q 2021.¹ Through 2Q 2021, the average purchase price multiple for all U.S. LBOs was 11.1x EBITDA, a decrease of 0.3x over 2020's average but higher than the five-year average (10.8x).² Large cap purchase price multiples stood at 11.0x through 2Q 2021, down compared to 2020's level of 11.3x.² In Europe, the average purchase price multiple across European transactions of greater than €500M averaged 12.6x EBITDA on an LTM basis as of 2Q 2021, equal to the 12.6x multiple seen at the end of 4Q 2020. Purchase prices for transactions of greater than €1.0 billion decreased to 12.9x EBITDA on an LTM basis compared to the 13.1x seen at the end of 2020. Globally, exit value totaled \$249.7 billion from 792 deals during the second quarter, up from the \$188.2 billion in exits from 748 deals during 1Q 2021. 2Q 2021's totals were significantly higher than Q2 2020's total of \$40.7 billion in value across 339 deals.¹
- **Venture:** During the second quarter, an estimated 3,296 venture-backed transactions totaling \$75.0 billion were completed in the U.S., which was equal to the prior quarter on a capital basis but a decrease compared to the 3,762 completed deals. Q2's transaction value was 122.6% higher than the five-year quarterly average of \$33.7 billion and marked the strongest quarter on record.³ Total U.S. venture-backed exit activity totaled approximately \$241.3 billion across an estimated 448 completed transactions in 2Q 2021, up from the \$130.9 billion across 435 exits in 1Q 2021. Through 2Q 2021, U.S. exit activity represented 129.5% of 2020's total.³
- **Mezzanine:** 11 funds closed on \$6.9 billion during the second quarter. This was up significantly from the prior quarter's total of \$510 million raised by three funds and up from 2Q 2020's total of \$3.7 billion raised by seven funds. Estimated dry powder was \$51.9 billion at the end of 2Q 2021, up slightly from the \$51.3 billion seen at the end of 1Q 2021.¹

Private Equity Market Overview – 2Q 2021

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



- **Distressed Debt:** The TTM U.S. high-yield default rate was expected to be 2.0% at the end of June 2021, which was a decrease from the 4.5% seen at year-end 2020.⁴ During the quarter, \$14.9 billion was raised by 16 funds, a slight decrease from the \$15.9 billion raised by 20 funds in 1Q 2021. Distressed funds have raised 41.7% of 2020's total through 2Q 2021.¹ Dry powder was estimated at \$152.4 billion at the end of 2Q 2021, which was up from the \$143.6 billion seen at the end of 1Q 2021. This was 32.7% higher than the five-year annual average level of \$114.8 billion.¹
- **Secondaries:** 16 funds raised \$12.6 billion during the quarter, down from the \$20.6 billion raised by 18 funds in 1Q 2021. This was also down 46.7% from 2Q 2020.¹ At the end of 2Q 2021, there were an estimated 101 secondary and direct secondary funds in market targeting roughly \$40.3 billion.¹ The average discount rate for all private equity sectors finished the quarter at 8.2%, continuing the rebound from the 9.1% discount at the end of 1Q 2021 and from the 11.8% discount at the end of 4Q 2020.⁵
- **Infrastructure:** \$37.8 billion of capital was raised by 39 funds in 2Q 2021 compared to \$23.8 billion of capital raised by 32 partnerships in 1Q 2021. Through 2Q 2021, infrastructure funds have raised 56.5% of 2020's total. At the end of the quarter, dry powder stood at an estimated \$270.6 billion, up from 1Q 2021's total of \$262.2 billion. Infrastructure managers completed 443 deals with an estimated aggregate deal value of \$97.9 billion in 2Q 2021 compared to 560 deals totaling \$81.4 billion a quarter ago.¹
- **Natural Resources:** During 2Q 2021, seven funds closed on \$2.4 billion compared to five funds totaling \$1.4 billion in 1Q 2021. Energy and utilities industry managers completed approximately 83 deals totaling an estimated \$17.0 billion through 2Q 2021, which represented 104.4% of energy and utilities deal value during all of 2020.¹

Sources: ¹ Preqin ² Standard & Poor's ³ PwC/CB Insights MoneyTree Report ⁴ PitchBook/NVCA Venture Monitor ⁵ Fitch Ratings ⁶ Thomson Reuters ⁷ 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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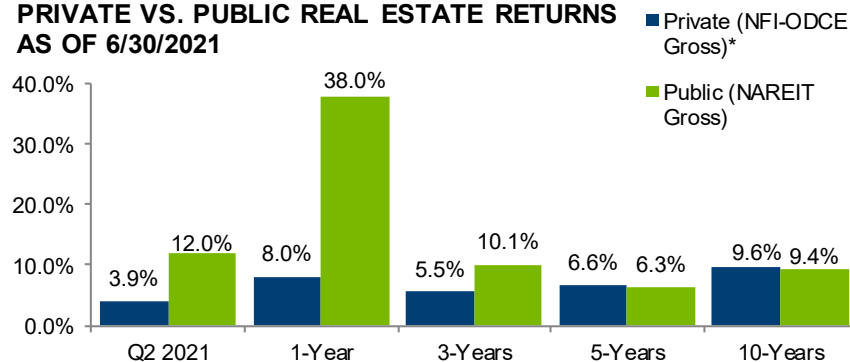
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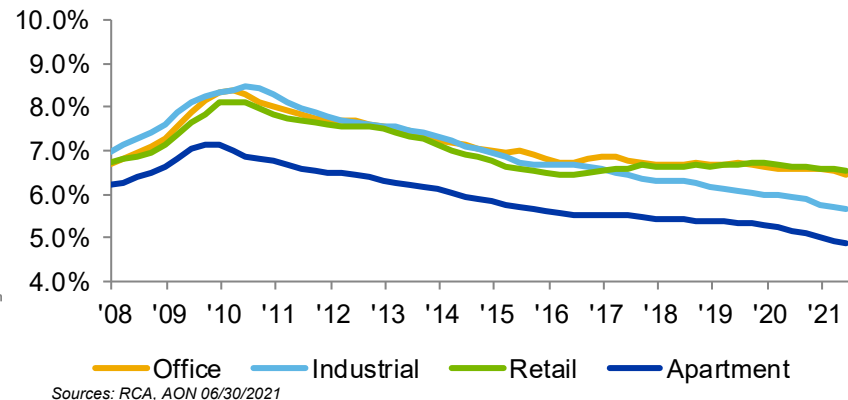
U.S. Commercial Real Estate Markets

PRIVATE VS. PUBLIC REAL ESTATE RETURNS AS OF 6/30/2021



*Second quarter returns are preliminary
Sources: NCREIF, FactSet

CAP RATES BY SECTOR



- U.S. Core Real Estate returned 3.9%* in the second quarter, equating to an 8.0% total gross return year-over-year, including a 3.9% income return. Limited distressed sales have been witnessed thus far, although plenty of capital has been raised to capitalize on any potential opportunities coming out of COVID-19. Following a sharp contraction in GDP of -3.3% in 2020, the IMF now projects the global economy to expand by 6.0% in 2021. The recovery is forecasted to be swifter and more resilient than the recovery following the 2008 global financial crisis thanks to unprecedented fiscal and monetary policy responses. Real estate capital markets are liquid with transaction volumes picking back up, led in part by ample debt availability.
- Global property markets, as measured by the FTSE EPRA/NAREIT Developed Real Estate Index, returned 6.1% (USD) in aggregate during the second quarter and experienced a cumulative increase of 34.8% over the trailing 1-year period. REIT market performance was driven by Asia Pacific (5.3% USD), North America (11.4% USD), and Europe (8.8% USD). The U.S. REIT markets (FTSE NAREIT Equity REITs Index) returned 12.0% in the second quarter. The U.S. 10-year treasury bond yields decreased 29 bps to 1.45% during the quarter.
- There are now overarching and compelling dynamics benefitting the overall real estate market. Bonds have repriced to record low yields, and now real estate yields present an attractive spread to risk free rates. Rising costs for key real estate construction inputs are driving up replacement costs and are anticipated to quell near-term supply.
- Technology is changing consumption trends and lifestyle preferences globally, driving demand for certain property sectors consistently across regions. The acute circumstances of a recession driven by a virus magnified this effect in 2020. Looking forward, investors should assess what changes to our routines/habits may stick, what regions will they most impact, and how do those impact property specific demand drivers. Townsend is forecasting certain changes to persist post-COVID and has actively re-evaluated our investment strategy to align with the changing economy.
- Townsend has identified high conviction investment themes that are predicated on secular growth trends and strong underlying real estate market fundamentals. These investment themes have commonalities such as anticipated tenant demand growth, natural barriers to supply, and operating complexity that are anticipated to persist medium to long-term.

*Indicates preliminary NFI-ODCE data gross of fees

Notes

1. Preqin
2. Standard & Poors
3. PriceWaterhouseCoopers/CB Insights MoneyTree Report
4. PitchBook/National Venture Capital Association Venture Monitor
5. Fitch Ratings
6. UBS

Notes:

FY: Fiscal year ended 12/31

YTD: Year to date

YE: Year end

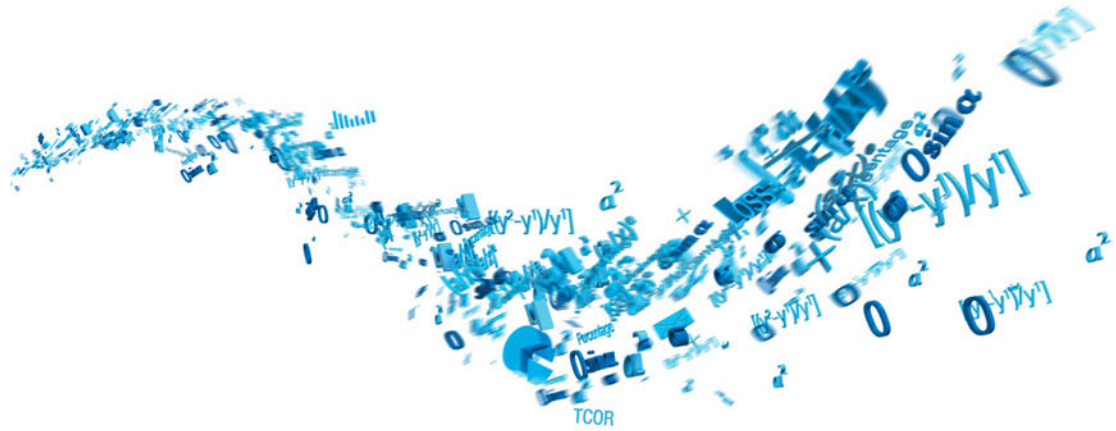
LTM: Last twelve months (aka trailing twelve months or TTM)

PPM: Purchase Price Multiples: Total Purchase Price / EBITDA

/bbl: Price per barrel

MMBtu: Price per million British thermal units

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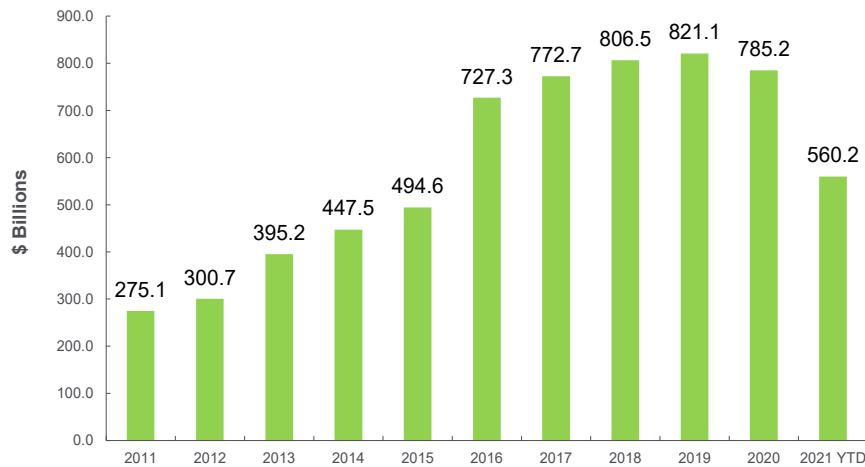
Appendix A:

Global Private Equity Market Overview

2Q 2021

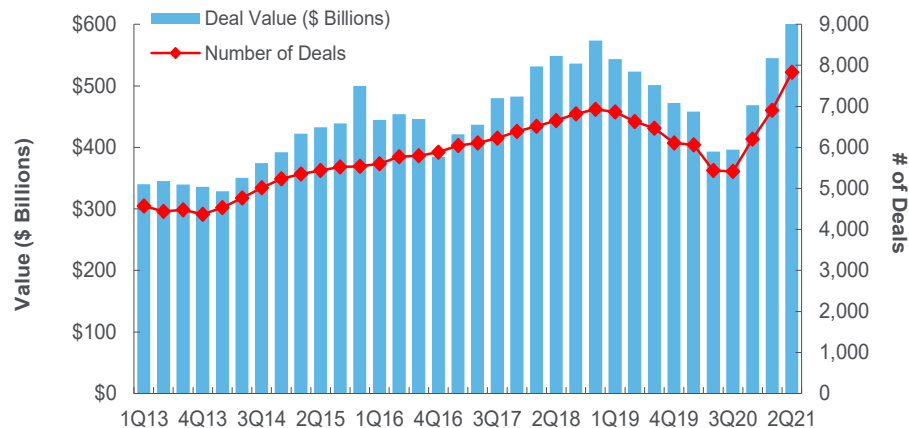
Private Equity Overview

Total Funds Raised



Source: Preqin

LTM Global Private Equity-Backed Buyout Deal Volume



Source: Preqin

Fundraising

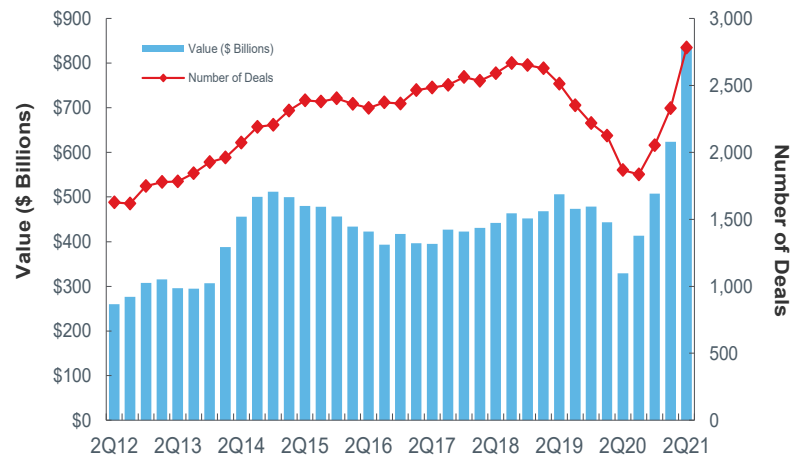
- In Q2 2021, \$321.0 billion was raised by 750 funds, which was an increase of 34.1% on a capital basis and 26.6% by number of funds over the prior quarter. Capital raised through Q2 2021 represented 71.3% of capital raised during calendar year 2020.¹
 - Q2 2021 fundraising was 54.6% higher, on a capital basis, than the five-year quarterly average, and 9.4% higher by number of funds raised.
 - The majority of capital was raised by funds with target geographies in North America, comprising 58.5% of the quarter's total. This was down from 66.8% in Q1 2021. Capital targeted for Europe made up 19.8% of the total funds raised during the quarter, an increase from 18.6% in Q1 2021. The remainder was attributable to managers targeting Asia and other parts of the world.
- Dry powder stood at nearly \$2.1 trillion at the end of the quarter, an increase compared to year-end 2020's total of \$2.0 trillion.¹

Activity

- Global private equity-backed buyout deals totaled \$225.9 billion in Q2 2021, which was up 22.6% on a capital basis and down 9.0% by number of deals from Q1 2021.¹
 - This was 73.3% higher than the five-year quarterly average deal volume of \$130.4 billion.
 - Average deal size was \$113.4 million in Q2 2021. This was up 88.8% compared to Q2 2020 and up 43.8% relative to the five-year quarterly average.
- European sponsored loan issuance increased slightly to €32.5 during the second quarter compared to €32.0 during Q1 2021. This was 101.5% higher than the five-year quarterly average level of €16.1 billion.³
- Through Q2 2021, the average purchase price multiple for all U.S. LBOs was 11.1x EBITDA, a decrease of 0.3x over 2020's average.² Large cap purchase price multiples stood at 11.0x through Q2 2021, down compared to 2020's level of 11.3x.³
 - Average purchase price multiples for all U.S. LBOs were 0.1x and 0.3x turns (multiple of EBITDA) above the five- and ten-year average levels, respectively.
- In Europe, the average purchase price multiple across European transactions of greater than €500M averaged 12.6x EBITDA on an LTM basis as of 2Q 2021, equal to the 12.6x multiple seen at the end of 4Q 2020. Purchase prices for transactions of greater than €1.0 billion decreased to 12.9x EBITDA on an LTM basis compared to the 13.1x seen at the end of 2020.³
- Debt remained broadly available in the U.S.
 - The average leverage for U.S. deals through Q2 2021 was 5.8x compared to the five and ten-year averages of 5.7x and 5.5x, respectively.³
 - The amount of debt issued supporting new transactions increased compared to the prior quarter, moving from 54.5% to 58.8%, but was lower than the five-year average of 64.3%.³
- In Europe, the average senior debt/EBITDA on an LTM basis ended Q 2021 at 5.8x, up slightly from the 5.7x observed at Q1 2021.

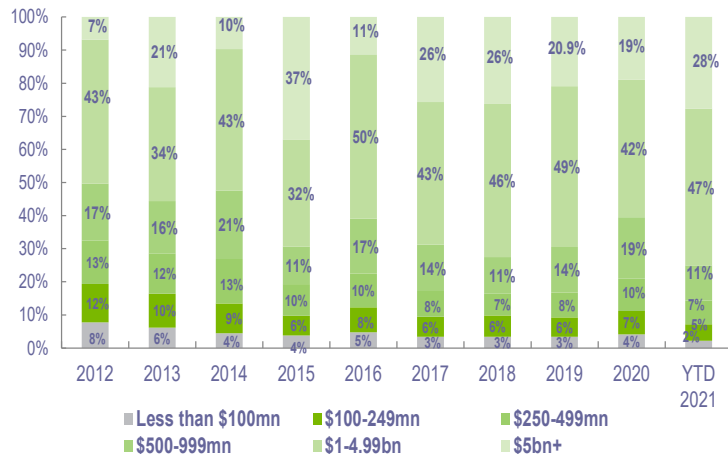
Buyouts / Corporate Finance

LTM PE Exit Volume and Value



Source: Preqin

M&A Deal Value by Deal Size



Source: Preqin

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Fundraising

- \$177.6 billion was closed on by 195 buyout and growth funds in Q2 2021, compared to \$115.2 billion raised by 186 funds in Q1 2021. This was substantially higher than the \$70.2 billion raised by 109 funds in Q2 2020.¹
 - This was above the five-year quarterly average of \$106.6 billion and 184 funds.
 - Hellman & Friedman Capital Partners X was the largest fund raised during the quarter, closing on \$24.4 billion of commitments.¹
- Buyout and growth equity dry powder was estimated at \$1.1 trillion, equal to Q4 2020.¹
- Mega, large, and mid cap buyout funds increased in dry powder compared to Q4 2020 by 13.9%, 12.8% and 5.9%, respectively. Mega cap buyout funds had amassed \$436.1 billion in dry powder at the end of the quarter. Small cap dry powder exhibited the only decrease compared to Q4 2020, decreasing to \$89.2 billion or a decrease of 50.5% over the period.¹
 - An estimated 59.6% of buyout dry powder was targeted for North America, while European dry powder comprised 27.6% and Asia/Rest of World accounted for the remainder.¹

Activity

- Global private equity-backed buyout deals totaled \$225.9 billion in Q2 2021, which was up 22.6% on a capital basis and down 9.0% by number of deals from Q1 2021.¹ This was 73.3% higher than the five-year quarterly average deal volume of \$130.4 billion.
- Through Q2 2021, deal value accounted for 87.5% of 2020's total buyout activity and was 237.8% higher than the same period in 2020.
 - Through Q2 2021, deals valued at \$5.0 billion or greater accounted for an estimated 27.7% of total deal value compared to 18.9% through 2020 and 20.9% in 2019.¹ Deals valued between \$1.0 billion to \$4.99 billion represented 47.3% of total deal value through the second quarter.
 - By geography, North American deals accounted for the largest percentage of total deal value at an estimated 60.1% through Q2 2021, while Information Technology deals accounted for the largest percentage by industry at 26.2% of total deal value.
- U.S. Entry multiples for all transaction sizes in Q2 2021 stood at 11.1x EBITDA, down from Q1 2021's level (11.9x).³
 - Large cap purchase price multiples stood at 11.0x through Q2 2021, down compared to 11.3x through Q4 2020.³
 - In Europe, the average purchase price multiple across European transactions of greater than €500M averaged 12.6x EBITDA on an LTM basis as of 2Q 2021, equal to the 12.6x multiple seen at the end of 4Q 2020. Purchase prices for transactions of greater than €1.0 billion decreased to 12.9x EBITDA on an LTM basis compared to the 13.1x seen at the end of 2020.³
 - The portion of average purchase prices financed by equity for all deals was 47.0% through Q2 2021, down slightly from 47.2% in Q1 2021. This remained above the five- and ten-year average levels of 46.7% and 44.1%, respectively.³
- Globally, exit value totaled \$249.7 billion from 792 deals during the second quarter, up from the \$188.2 billion in exits from 748 deals during 1Q 2021. Q2 2021's totals were significantly higher than Q2 2020's total of \$40.7 billion in value across 339 deals.¹

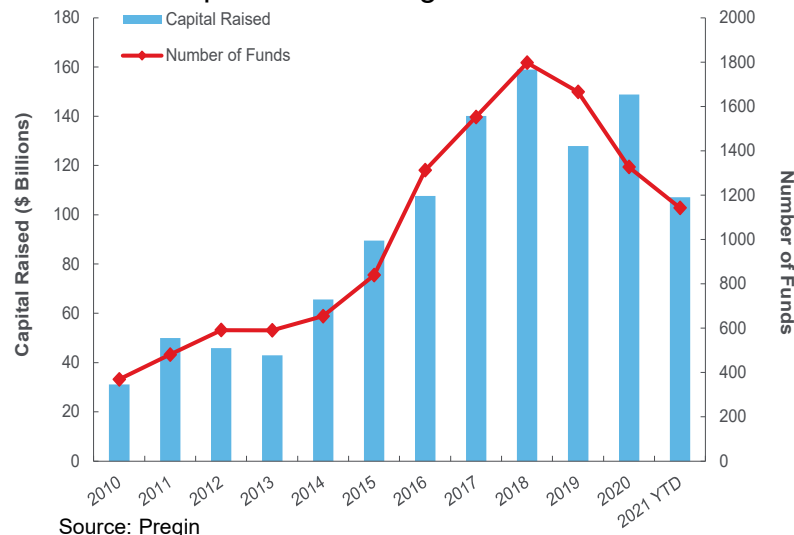
Opportunity⁴

- Managers targeting the middle market with expertise across business cycles.

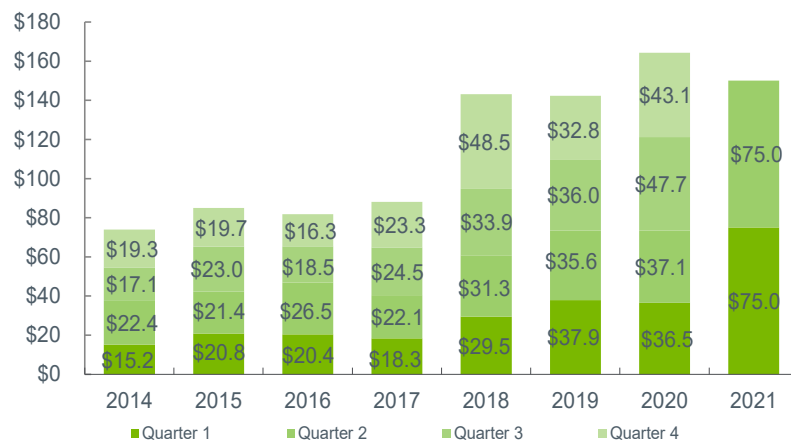


Venture Capital

Venture Capital Fundraising



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



Fundraising

- \$52.0 billion of capital was raised by 425 funds in Q2 2021, down from the prior quarter's total of \$55.1 billion raised by 370 managers. The average fund size decreased during the quarter to \$129.0 million from \$157.0 million.¹
 - Q2 2021 fundraising was 33.7% higher on a capital basis compared to the five-year quarterly average of \$38.9 billion.
 - Pioneering Fund VII was the largest fund raised during the quarter, closing on \$3.4 billion.
- At the end of Q2 2021, there were an estimated 3,112 funds in market targeting \$239.4 billion.¹
 - Softbank Vision Fund – Latin America was the largest venture fund in market, targeting an estimated \$5.0 billion.
 - The majority of funds in market are seeking commitments of \$200.0 million or less.
- Dry powder was estimated at \$383.3 billion at the end of Q2 2021, up from Q1 2021's total of \$366.0 billion and 64.9% higher than the five-year average.¹

Activity

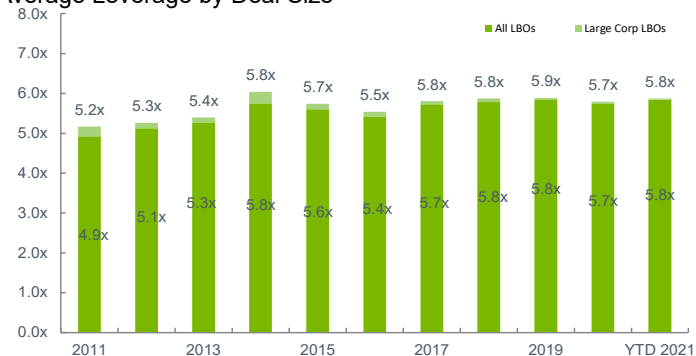
- During the second quarter, an estimated 3,296 venture-backed transactions totaling \$75.0 billion were completed in the U.S., which was equal to the prior quarter on a capital basis but a decrease compared to the 3,762 completed deals. Q2's transaction value was 122.6% higher than the five-year quarterly average of \$33.7 billion and marked the strongest quarter on record.⁷
 - In Q2 2021, there were 141 U.S.-based deals involving unicorn companies, representing roughly \$31.5 billion in deal value. This was up by number and value compared to Q1 2021, which saw 125 unicorn-related deals close at a deal value of \$31.0 billion. Q2 2021 marked a new record for unicorn-related activity by deal value and number of deals.⁷
- At the end of Q2 2021, median pre-money valuations increased across all series. Compared to Q1 2021, Seed transactions increased to a median pre-money valuation of \$15.0 million from \$13.7 million, Series A transactions increased from \$38.8 million to \$48.6 million, Series B increased from \$145.0 million to \$253.3 million, and Series C from \$450.0 million to \$500.0 million, while Series D+ increased from \$1.4 billion to \$1.6 billion.⁸
- Total U.S. venture-backed exit activity totaled approximately \$241.3 billion across an estimated 448 completed transactions in 2Q 2021, up from the \$130.9 billion across 435 exits in 1Q 2021. Through 2Q 2021, U.S. exit activity represented 129.5% of 2020's total.⁷
 - The number of U.S. venture-backed initial public offerings increased over Q1 2021, with 71 IPOs completed in Q2 2021. 197 exits occurred by acquisition, marking a decrease over the prior quarter, but accounted for only \$18.0 billion in exit value. IPOs accounted for \$217.2 billion in value compared to \$116.7 billion in the prior quarter.⁷

Opportunity⁴

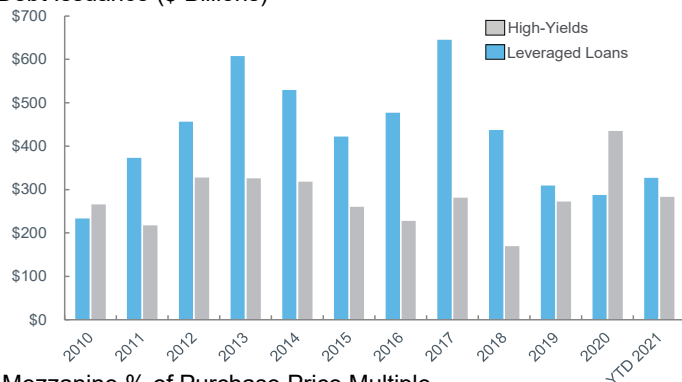
- Early stage continues to be attractive, although we continue to monitor valuations
- Smaller end of growth equity
- Technology sector

Leveraged Loans & Mezzanine

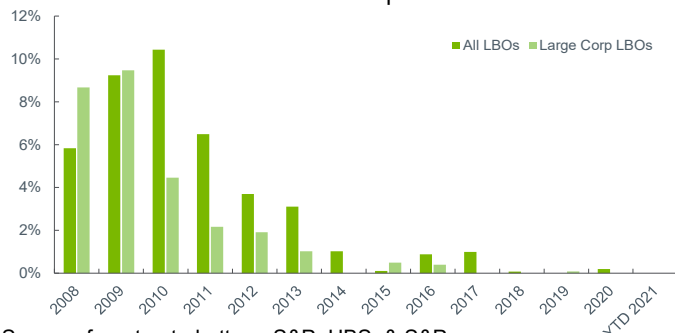
Average Leverage by Deal Size



Debt Issuance (\$ Billions)



Mezzanine % of Purchase Price Multiple



Sources from top to bottom: S&P, UBS, & S&P

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Leveraged Loans

Fundraising

- New CLO issuance totaled \$63.1 billion through Q2 2021, increasing from \$28.1 billion in Q1 2021.²
- High-yield debt issuance totaled \$283.1 billion through Q2 2021. 2021's YTD total is 21.1% greater than the same period's total of \$233.9 billion in 2020.²
- Through Q2 2021, leveraged loan mutual fund net flows ended at a net inflow of \$19.7 billion.²

Activity

- Leverage for all U.S. LBO transactions through Q2 was 5.8x, up from Q4 2020's leverage of 5.7x. Leverage continues to be comprised almost entirely of senior debt. The average leverage level for large cap LBOs was 5.8x through the quarter, up from the 5.7x witnessed at year-end 2020.³
- Through Q2 2021, institutional leveraged loan issuances totaled \$327.2 billion, 161.4% greater than the \$125.2 billion issued in the same period during 2020.²
- 58.8% of new leveraged loans were used to support M&A and growth activity through Q2 2021, up from 54.5% in Q1 2021. This was also below the five-year average of 64.3%.³
- European sponsored loan issuance increased slightly to €32.5 during the second quarter compared to €32.0 during Q1 2021. This was 101.5% higher than the five-year quarterly average level of €16.1 billion.³

Opportunity

- 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

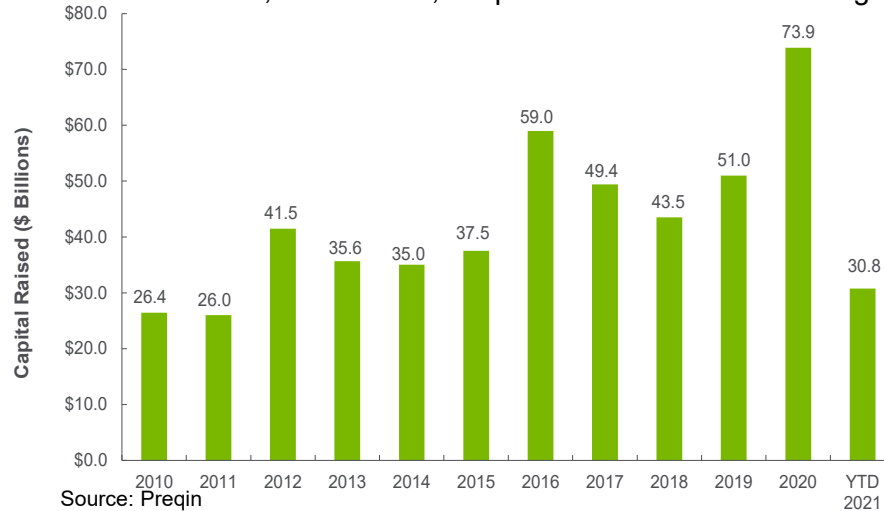
- Eleven funds closed on \$6.9 billion during the second quarter. This was up significantly from the prior quarter's total of \$510 million raised by three funds and up from 2Q 2020's total of \$3.7 billion raised by seven funds. Through Q2, mezzanine funds have raised only 28.1% of 2020's total of \$26.2 billion.¹
- Estimated dry powder was \$51.9 billion at the end of 2Q 2021, up slightly from the \$51.3 billion seen at the end of 1Q 2021.¹
- An estimated 89 funds are in market targeting \$40.2 billion of commitments. ICG Europe Fund VIII is the largest fund in market targeting commitments of €7.0 billion.¹

Opportunity⁴

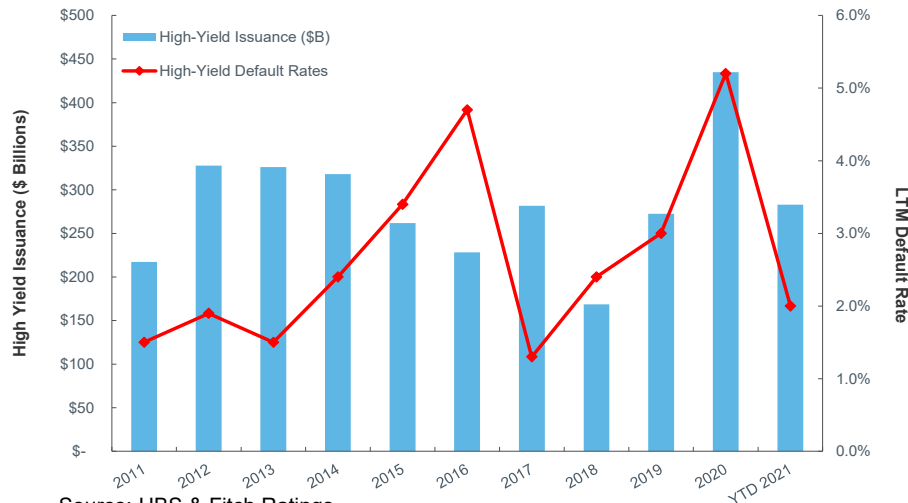
- Funds with the capacity to scale for large sponsored deals

Distressed Private Markets

Distressed Debt, Turnaround, & Special Situations Fundraising



High-Yield Bond Volume vs Default Rates



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Fundraising

- During the quarter, \$14.9 billion was raised by 16 funds, a slight decrease from the \$15.9 billion raised by 20 funds in 1Q 2021. Distressed funds have raised 41.7% of 2020's total through 2Q 2021.¹
 - Q2 2021's fundraising was 2.7% higher than the five-year quarterly average.
 - Capital raised in Q2 2021 represented a decrease of 44.3% compared to the \$26.8 billion raised in Q2 2020.
 - PIMCO Corporate Opportunities Fund III was the largest fund closed during the quarter, closing on \$4.0 billion.
- Dry powder was estimated at \$152.4 billion at the end of 2Q 2021, which was up from the \$143.6 billion seen at the end of 1Q 2021. This was 32.7% higher than the five-year annual average level of \$114.8 billion.¹
- Roughly 166 funds were in the market at the end of Q2 2021 seeking \$87.5 billion in capital commitments.¹
 - Distressed debt managers were targeting the most capital, seeking an aggregate \$44.8 billion, followed by special situation managers at \$39.3 billion.
 - Oaktree Opportunities Fund XI was the largest fund in market with a target fund size of \$15.0 billion.

Activity

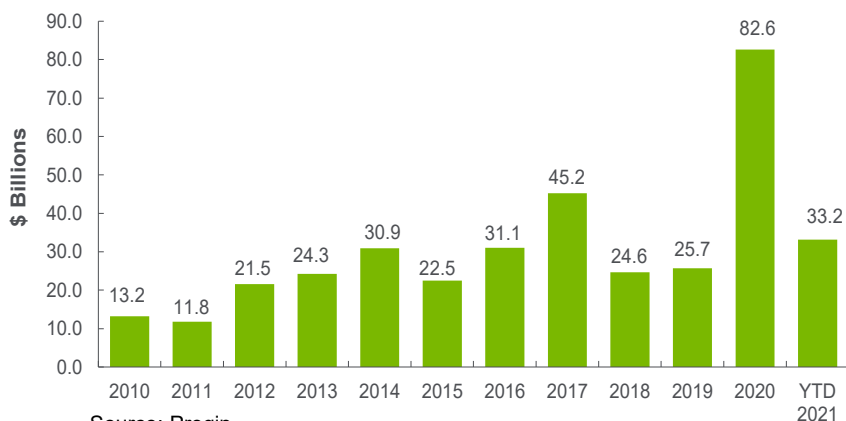
- The TTM U.S. high-yield default rate was expected to be 2.0% at the end of June 2021, which was a decrease from the 4.5% seen at year-end 2020.⁶
- The market dislocation caused by COVID-19 is expected to supply additional distressed opportunities in the next several months.

Opportunity⁴

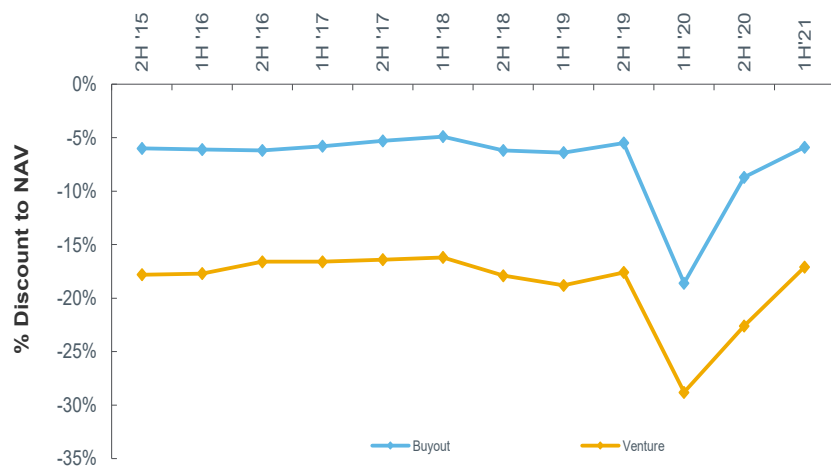
- Funds capable of performing operational turnarounds
- Funds with the flexibility to invest globally

Secondaries

Secondary Fundraising



Secondary Pricing



Fundraising

- 16 funds raised \$12.6 billion during the quarter, down from the \$20.6 billion raised by 18 funds in 1Q 2021. This was also down 46.7% from 2Q 2020.¹
 - Crown Global Secondaries V was the largest fund raised during the quarter, closing on \$4.5 billion.
- At the end of 2Q 2021, there were an estimated 101 secondary and direct secondary funds in market targeting roughly \$40.3 billion. The majority of secondary funds are targeting North American investments.¹
 - Five funds are currently in market targeting \$3.0 billion or greater in capital commitments. Together, these six funds account for \$19.5 billion of the \$40.3 billion of capital being raised.
 - Landmark Equity Partners XVII is the largest fund being raised, seeking \$6.0 billion in commitments.¹

Activity

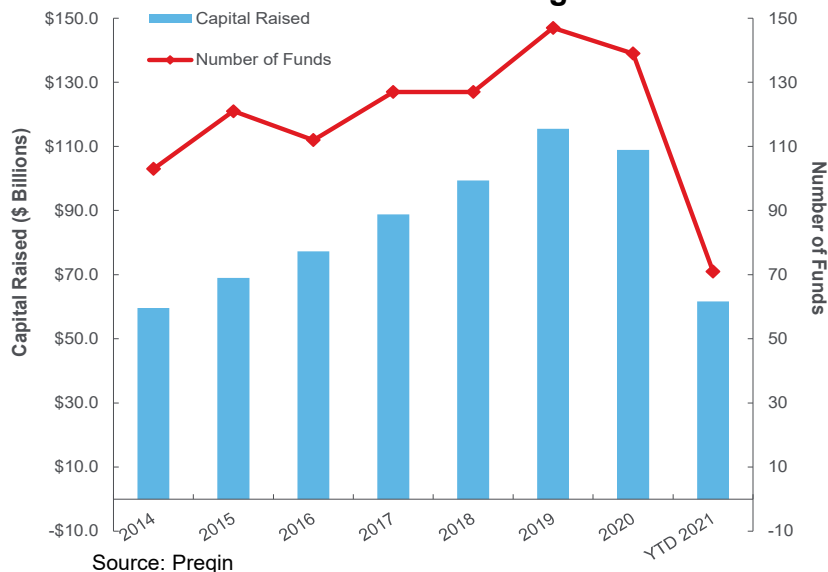
- The market continues to have participation from a broad base of buyers and sellers with opportunistic selling activity from public and private pensions, financial institutions and insurance companies.
- The average discount rate for all private equity sectors finished the quarter at 8.2%, continuing the rebound from the 9.1% discount at the end of Q1 2021 and from the 11.8% discount at the end of Q4 2020. The average buyout pricing discount rebounded to 5.9%, while venture ended at a discount of 17.1%. The average buyout pricing discount for Q2 was up from Q1 2021's 6.6% discount, while the venture discount was up from 18.7%.²
- Pricing improvements may continue given the current scarcity of sale portfolios of LP interests combined with the strong fundraising in recent quarters and the pressure to deploy capital.²
- Pricing is also expected to strengthen as buyers become more comfortable with the stability of the NAVs used in secondary transactions. Steep discounts may continue for assets of less experienced GPs or for assets in sectors that were more severely impacted by Covid-19.²

Opportunity⁴

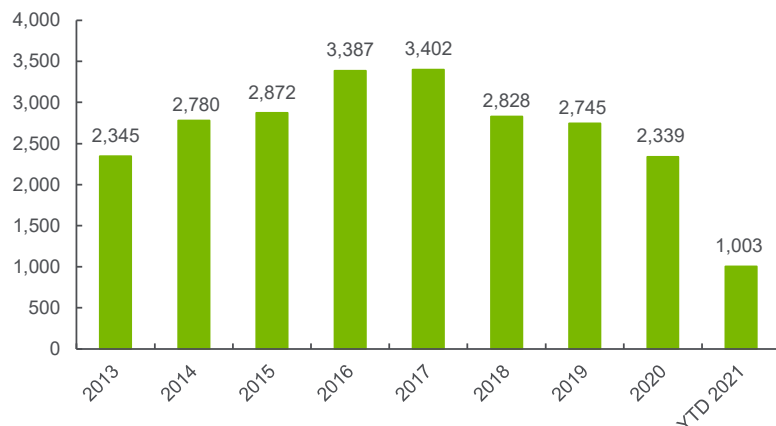
- Funds that are able to execute complex and structured transactions
- Niche strategies

Infrastructure

Global Infrastructure Fundraising



Number of Deals Completed



Fundraising

- \$37.8 billion of capital was raised by 39 funds in Q2 2021 compared to \$23.8 billion of capital raised by 32 partnerships in Q1 2021. Through Q2 2021, infrastructure funds have raised 56.5% of 2020's total.¹
 - Copenhagen Infrastructure Partners IV was the largest fund raised during the quarter, closing on €7.0 billion.¹
- As of the end of Q2 2021, there were an estimated 320 funds in the market seeking roughly \$228.1 billion.¹
 - EQT Infrastructure V was the largest fund in market and was seeking commitments of €12.5 billion.
- At the end of the quarter, dry powder stood at an estimated \$270.6 billion, up from Q1 2021's total of \$262.2 billion.¹
- Concerns surrounding the relative availability and pricing of assets remain. Fundraising continues to be very competitive given the number of funds and aggregate target level of funds in market. Investor appetite for the asset class persists despite the record levels of dry powder and increased investment activity from strategic and corporate buyers as well as institutional investors.

Activity

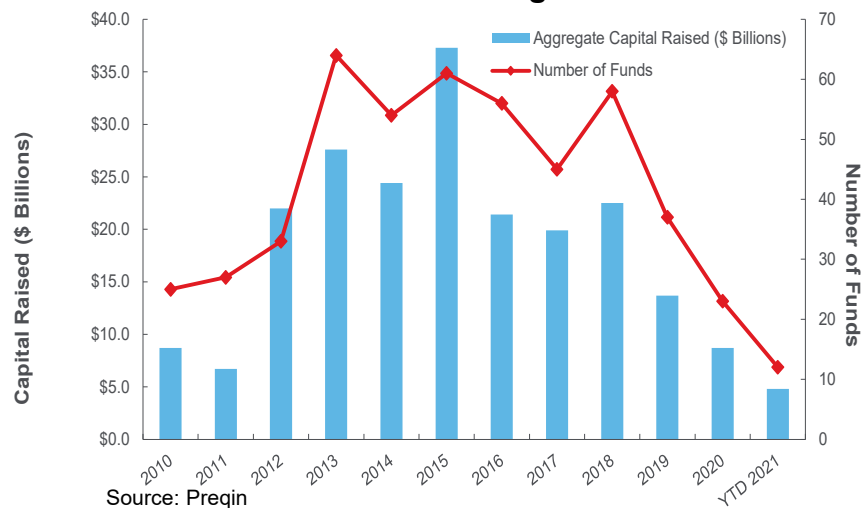
- Infrastructure managers completed 443 deals with an estimated aggregate deal value of \$97.9 billion in Q2 2021 compared to 560 deals totaling \$81.4 billion a quarter ago.¹
 - By region, Europe saw the largest number of deals completed, with 37.4% of deals being invested in the region, followed by North America at 27.4%. Asia amassed 11.3% of activity during the quarter.
 - Renewable energy was the dominant industry during the quarter making up 54.8% of transactions, followed by the telecoms and conventional energy sectors, which accounted for 12.9% and 12.4% of deals, respectively. The transport sector accounted for 10.6% of deals during the second quarter.¹

Opportunity⁴

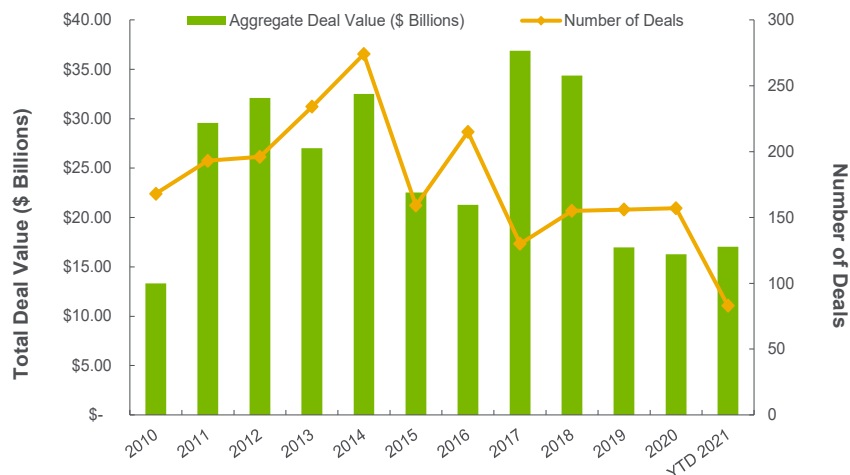
- Mid-market core+ and value-add infrastructure as well as a platform investing approach continue to offer the best relative value
- Assess funds with pre-specified assets with caution due to possible lag in and uncertainty around valuation impact
- Blind-pool funds may be better positioned to take advantage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

Natural Resources

Natural Resources Fundraising



Energy & Utilities Deal Activity



Fundraising

- During Q2 2021, seven funds closed on \$2.4 billion compared to five funds totaling \$2.4 billion in Q1 2021.¹ Through Q2 2021, 55.2% of 2020's total has been raised.
 - EnCap Energy Transition Fund was the largest fund raised during the quarter, securing commitments of \$1.2 billion.
- At the end of the first quarter, there were roughly 104 funds in the market targeting an estimated \$39.9 billion in capital.¹
 - Quantum Energy Partners VIII was the largest fund raising capital with a target fund size of \$5.5 billion.
- Dry powder stood at roughly \$40.0 billion at the end of Q2 2021, which was 2.5% lower than Q1 2021's level of \$40.9 billion and down from the five-year average level by 21.9%.¹

Activity

- Energy and utilities industry managers completed approximately 83 deals totaling an estimated \$17.0 billion through Q2 2021, which represented 104.6% of energy and utilities deal value during all of 2020.¹
- Crude oil prices increased during the quarter.
 - WTI crude oil prices increased 14.5% during the quarter to \$71.38 per bbl. This was an increase of 86.3% compared to Q2 2020.¹⁰
 - Brent crude oil prices ended the quarter at \$73.16/bbl, up 11.8% compared to the prior quarter, and up 81.7% from Q2 2020.¹⁰
- Natural gas prices (Henry Hub) finished Q2 2021 at \$3.26 per MMBtu, which was up 24.4% from Q1 2021 and up 100.0% from Q2 2020.¹⁰
- A total of 475 crude oil and natural gas rotary rigs were in operation in the U.S. at the end of the quarter. This was up by 10.5% from the prior quarter and up 80.6% over Q2 2020.¹³
 - Crude oil rigs represented 79.2% of the total rigs in operation. 63.0% of the 376 active oil rigs were in the Permian basin.
 - 49.5% and 28.2% of natural gas rigs at the end of Q2 2021 were operating in the Haynesville and Marcellus basins, respectively.
- The price of iron ore (Tianjin Port) ended the quarter at \$214.43 per dry metric ton, up from \$168.18 at the end of Q1 2021.¹⁰

Opportunity⁴

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

Notes

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

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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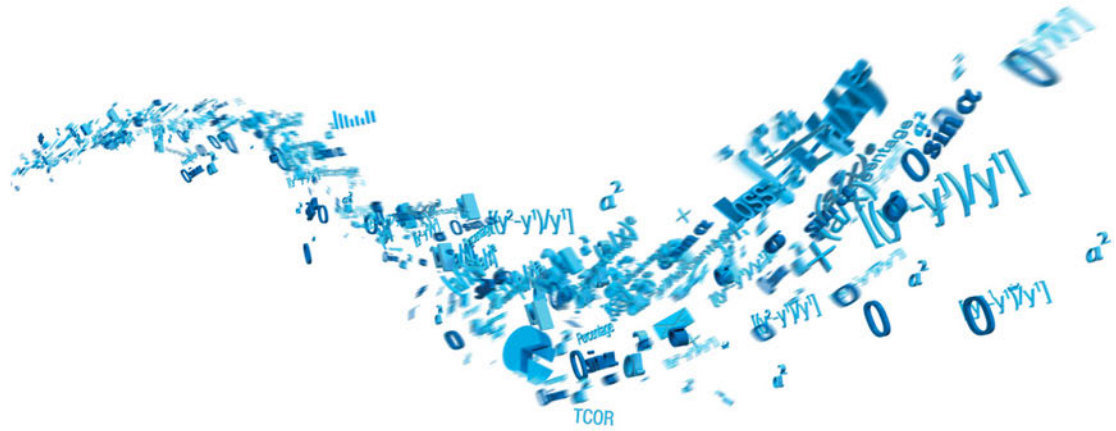
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Appendix B:

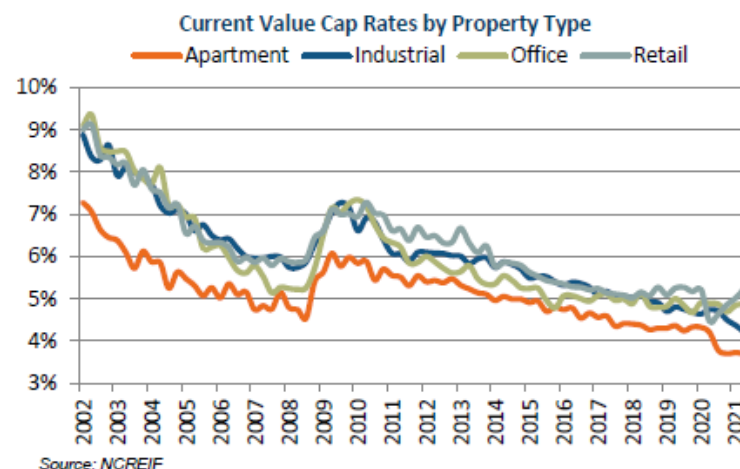
Real Estate Market Update

2Q 2021

United States Real Estate Market Update (2Q21)

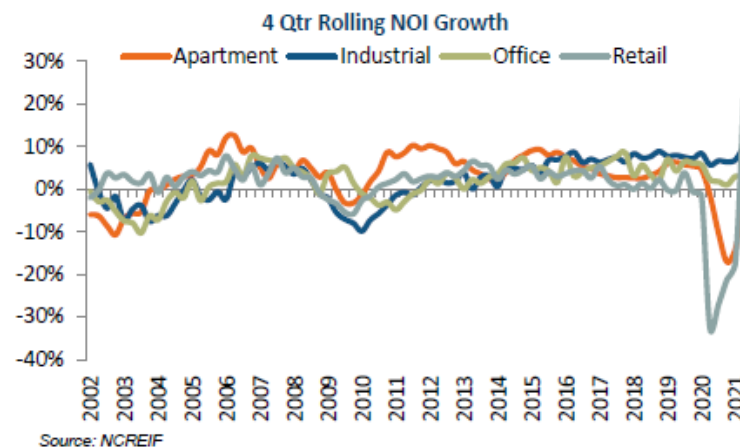
General

- As a result of the COVID-19 pandemic, national, state and local governments across the world implemented stay-at-home orders, which caused a near complete halt of the world economy in the 1st half 2020. Governments dramatically expanded expenditures in order to protect people and businesses from large-scale disruption. In 2Q21, equity markets continued to bounce back from the March 2020 rout and continued to exceed prior highs, the S&P 500 produced a gross total return of 8.6%, bringing the first half of 2021 total return to 15.3%. The MSCI US REIT index continued to rebound and produced a return of 8.7% and returned to pre-COVID levels.
- The U.S. entered a recession in February 2020, but the economy has since rebounded with the accelerated development and continued rollout of vaccines. In the 2nd quarter, U.S. GDP grew at an annualized rate of 6.5%. The unemployment rate peaked in April at 14.7% and has since declined to 5.9% at quarter end 2Q21, falling an additional 10 bps from the end of 1Q21. The Federal Reserve continues to act aggressively, thus far financial markets have stabilized. The world economy shrunk by -3.5% in 2020 but is forecasted to grow 6.1% in 2021.



Commercial Real Estate

- Through the second quarter of 2021, total transaction activity for the quarter was up 199% YoY, after significantly rebounding from a broad-based COVID-19 induced slowdown. Transaction volume has been the strongest in the apartment and industrial sectors.
- Transaction cap rates (5.2%) compressed -68 bps during the quarter. Current valuation cap rates declined for industrial (-15 bps) and apartment (-2 bps). The office (+4 bps) and retail (+21 bps) property sectors experienced cap rate expansion.
- NOI growth has substantially diverged between property sectors due to the impacts of COVID-19. Retail NOI has expanded substantially (+21%) YoY as the sector recovers from decreased rent collections and retailer shutdowns early last year. Apartment NOI contracted (-5%) YoY, primarily driven by declines in CBD effective market rents, though slowly recovering.
- In the second quarter of 2021, \$24 bn of aggregate capital was raised by real estate funds. There continues to be substantial dry powder, ~\$363 billion, seeking exposure to private real estate.
- 10-year treasury bond yields dropped 30 bps to 1.45% during the quarter, signaling disinflation rather than inflation which many expected to observe.



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

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United States Property Matrix (2Q21)

INDUSTRIAL	MULTIFAMILY
<ul style="list-style-type: none"> In 2Q21, industrial properties were the highest returning sector at 8.8% and outperformed the NPI by 520 bps. Transaction volumes rose to \$32.1 billion in the second quarter of the year, resulting in a 156% increase year-over-year. Individual asset sales increased 174% year-over-year, while portfolio purchases turned in a year-over-year volume increase of 111%. At slightly over \$32.1 billion, the industrial sector increased a significant \$9.7 billion quarter-over-quarter. The industrial sector turned in NOI growth of 10.0% over the past year, a substantial increase from the prior periods TTM growth of 6.8% in 1Q21. Vacancy decreased by 30 bps year-over-year to 3.1%. Vacancy in the sector decreased 40 bps from last quarter, reaching all-time historic lows. E-commerce continues to drive demand across the sector. Industrial cap rates compressed approximately 50 bps from a year ago, to 4.2%. Industrial overall fundamentals still top all property sectors. 	<ul style="list-style-type: none"> The apartment sector delivered a 3.6% return during the quarter, performing in line with the NPI. Transaction volume in the second quarter of 2021 rose to \$57.9 billion, resulting in an increase of 271% year-over-year. This volume continues to make multifamily the most actively traded sector for the sixteenth straight quarter. Cap rates remained steady at 3.7% quarter-over-quarter, compressing 50 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. Halfway through 2021, the sector appears to have shaken the trend as vacancy rates decreased 140 bps quarter-over-quarter, now 170 bps lower than a year ago and back to 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	RETAIL
<ul style="list-style-type: none"> The office sector returned 1.4% in 2Q21, 220 bps below the NPI return over the period. Transaction volumes increased by 105% year-over-year in the second quarter. Transaction volume equaled \$27.8 billion for the quarter, an increase of \$6.2 billion quarter-over-quarter. Single asset transactions accounted for 75.4% of volume. 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 close to 12.7%, expanding 30 bps from last quarter. NOI growth in the office sector fell quarter-over-quarter by 40 bps but appears to have begun its slow recovery to pre-pandemic values as it has increased 20 bps since the same period last year. Office cap rates remained flat from a year ago, sitting at approximately 4.8%. Office-using job growth was stunted significantly through out 2020 due to many work from home orders. Though we are observing a slow but steady flow back to in-office work, there is still uncertainty in the sector as many companies remain hesitant. 	<ul style="list-style-type: none"> As of 2Q21, the retail sector delivered a quarterly return of 0.9%, performing 270 bps below the NPI. Transaction volumes totaled \$15.0 billion in the second quarter, increasing 177% year-over-year. Single asset transactions accounted for just over 86.5% of all sales volume for the quarter. Cap rates have expanded approximately 80 bps within the sector over the last year, to 5.2%. The current valuation cap rate did expand quarter-over-quarter by 20 bps due to slight downward valuation adjustments made across the sector in general. NOI growth significantly increased, +21.1% over the last year. This is a 38.4% increase from last quarter. Retail has begun its slow recovery as vaccine rollouts increase store openings and foot traffic. Retail vacancy rates compressed over the quarter by 20 bps, though still up 180 bps over the past year to 9.7%. 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.

Sources: Real Capital Analytics, Green Street, NCREIF

Sources: Real Capital Analytics, Green Street, NCREIF

Global Real Estate Market Update (2Q21)

- With vaccinations ramping up and economies reopening worldwide, global investment activity during the second quarter of 2021 has experienced a robust rebound 2Q21 to US \$260.4 billion, a 98% growth year over year. During 2Q21, transaction volumes recovered significantly in the APAC regions while the emerging markets continued to experience significant depression.

- Increased availability of the vaccine has driven an uptick in investor appetite, specifically in regions that were among the first to be affected by the virus such as APAC. Interest in the quarter was concentrated primarily in industrial and multifamily properties.

- Investment activity in the Americas witnessed an extreme surge to by 161% year-over-year. Transaction volume in the US increased 176% relative to 1Q21.

- In the Asia Pacific region, volumes grew by 99% year-over-year with vaccination rates picking up in the region and activity largely returning to normal. Mainland China (+117%), India (+354%), and Hong Kong (+270%) saw the most improvements in deal activity year over year in 2Q21.

- Large ticket transactions contributed greatly to investment activity dropped in the EMEA region. Deals of US \$1 billion or more accounted for 25% of the region's investment volume. Additionally, cross-border transactions grew 65% year over year in Q2

- In the office sector, global leasing activity improved by 44% year-over-year and vacancy rates increased by 60 bps to 14.3%. Office re-entry rates have varied significantly by country and a multi-speed recovery is emerging dependent on vaccination rates, outbreaks and societal restrictions in place. This adds to the long-term uncertainty with long term space planning for occupiers. US coastal markets have been more affected than lower-cost and high-growth markets. Across the main European markets, office rents across Europe grew (+0.3%) over the quarter. On an annual basis rents are now just (-0.2%) year over year. In the APAC region, net absorption increased by 20% year over year.

- Globally, retail foot traffic and sales continue to increase from COVID-19 pandemic lows with increased vaccination rates and easing of restrictions. Retailers have expanded omnichannel strategies such as click-and-collect, curbside pickup and ship-from-store. In many cases, retailers are implementing a hybrid store model that fully integrates retail with logistics. As online sales grow, retailers will reevaluate their store portfolios in terms of store size, location and use. The overall level of occupied retail space will continue to shrink in some U.S. and European markets, while APAC markets will be relatively unchanged.

- With the multifamily market recording the quarter's only increase in investments globally, the sector remains the most liquid in commercial real estate highlighting its attractiveness. Throughout the world, the re-opening of businesses and returns to the office has contributed to a pickup in urban demand, leading to a growth in asking rents, as the number of tours and leases increased during the quarter.

- Industrial yields continued to compress due to strong market fundamentals and heightened demand. US vacancy rates fell to 4.8% in 2Q21. EMEA vacancy rates declined to 3.6% for the quarter, while the Asia Pacific region saw a rise to 18.0%.

Global Total Commercial Real Estate Volume - 2020 - 2021

\$ US Billions	Q2 2021	Q2 2020	% Change		H1 2021	H1 2020	% Change
			Q2 21 - Q2 20				H1 21 - H1 20
Americas	260	132	98%		459	399	15%
EMEA	83	58	42%		41	46	-11%
Asia Pacific	41	21	99%		69	46	51%
Total	384	211	83%		569	491	16%

Source: Real Capital Analytics, Inc., Q2' 21

Global Outlook - GDP (Real) Growth % pa, 2021-2023

	2021	2022	2023
Global	6.0	4.5	3.4
Asia Pacific	6.4	5.1	4.6
Australia	5.0	3.2	3.0
China	8.5	5.6	5.5
India	9.3	7.0	
Japan	2.6	2.7	1.2
North America	6.5	4.0	2.3
US	6.6	4.1	2.3
Middle East	2.9	4.3	3.3
European Union	4.8	4.5	2.2
France	5.7	4.0	2.1
Germany	3.4	4.5	1.9
UK	4.0	3.8	3.6

Source: Bloomberg

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REPORT

Meketa Capital Markets Outlook & Risk Metrics

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Capital Markets Outlook & Risk Metrics

As of September 30, 2021

Capital Markets Outlook

Markets

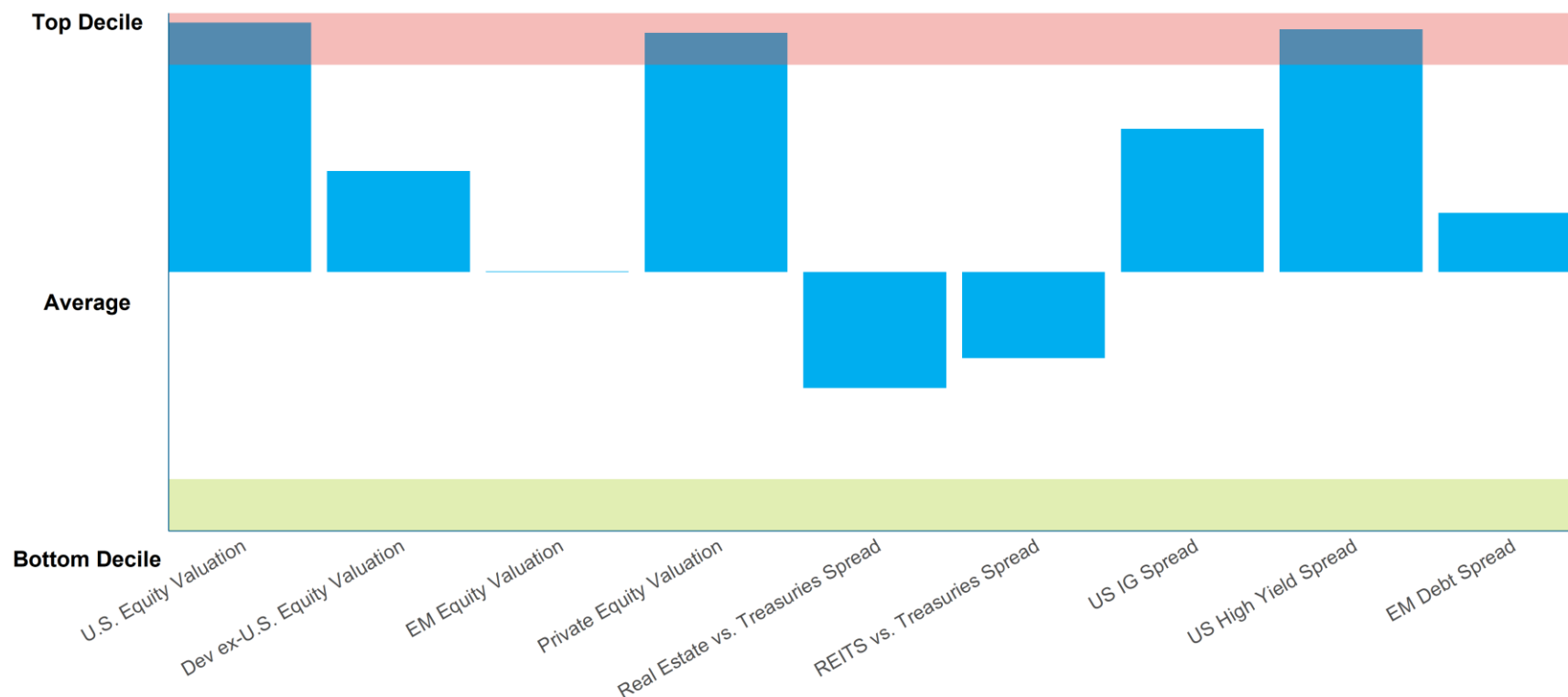
- Equity markets across the globe suffered negative returns in September with US Equity lagging all other major regions. Across regions, styles, and market capitalizations, equity markets generally produced returns in the -1% to -6% range. Year-to-date returns remain strong for the majority of regions with the exception of emerging markets (and China specifically).
- Value outperformed growth across equity markets in the US, Non-US Developed, and Emerging Markets. Similarly, smaller capitalization outperformed larger capitalization equity markets.
- In the fixed income markets, most bond indices posted negative returns and only Short-Duration TIPS and Leveraged Loans posting positive returns.
- Commodities returned 5% in the month while the S&P Global Natural Resources and S&P Global LargeMid Cap Commodities & Resource indices returned -1.0% and 1.0%, respectively.
- Global Infrastructure struggled in the month with the S&P Global Infrastructure and DJ Brookfield Global Infrastructure indices returning -1.3% and -3.1%, respectively.
- US and Global Public REIT indices posted negative monthly returns in excess of -5.0%.

Capital Markets Outlook

Overview

- In the US, rising inflation and slowing growth expectations weighed on market sentiment. Supply chain challenges (e.g., microchips, shipping, etc.) continue to plague several industries throughout the globe.
- The potential for a US default re-emerged in the expiration of the debt ceiling in August and the US Treasury indicating that it will run out of cash by mid-October.
- Uncertainty regarding future growth in China weighed on emerging markets assets as markets responded to recent governmental interventions and the mega default of ~\$400 billion in debt of the Chinese property developer Evergrande.
- Global uncertainty regarding COVID vaccine efficacy, and the rollout of booster-shot programs could weigh on reopening of the global economy. Relatedly, there has been a divergence in the continued response to the pandemic as certain nations (e.g., Norway) have recently completely re-opened whereas others (e.g., Australia) continue to implement severe lockdowns.

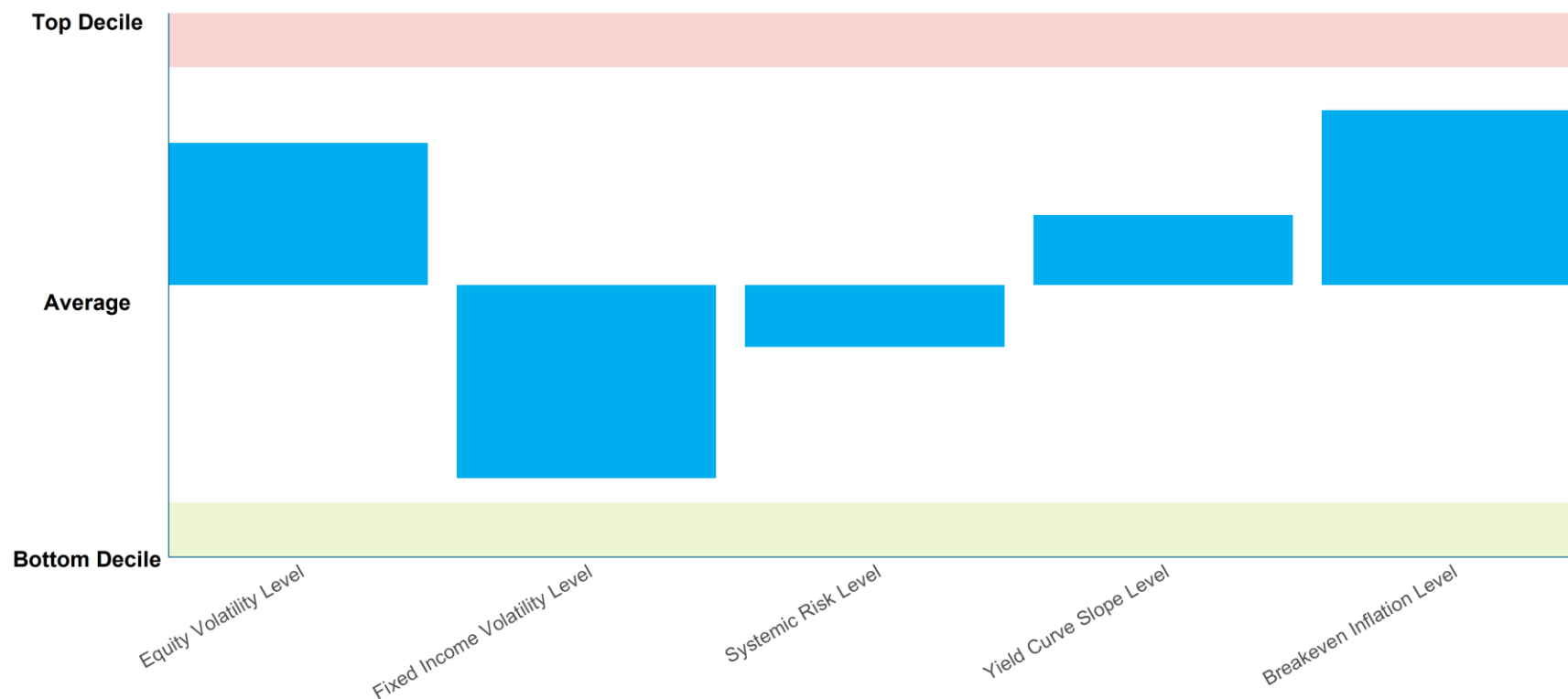
Risk Overview/Dashboard (1) (As of September 30, 2021)¹



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

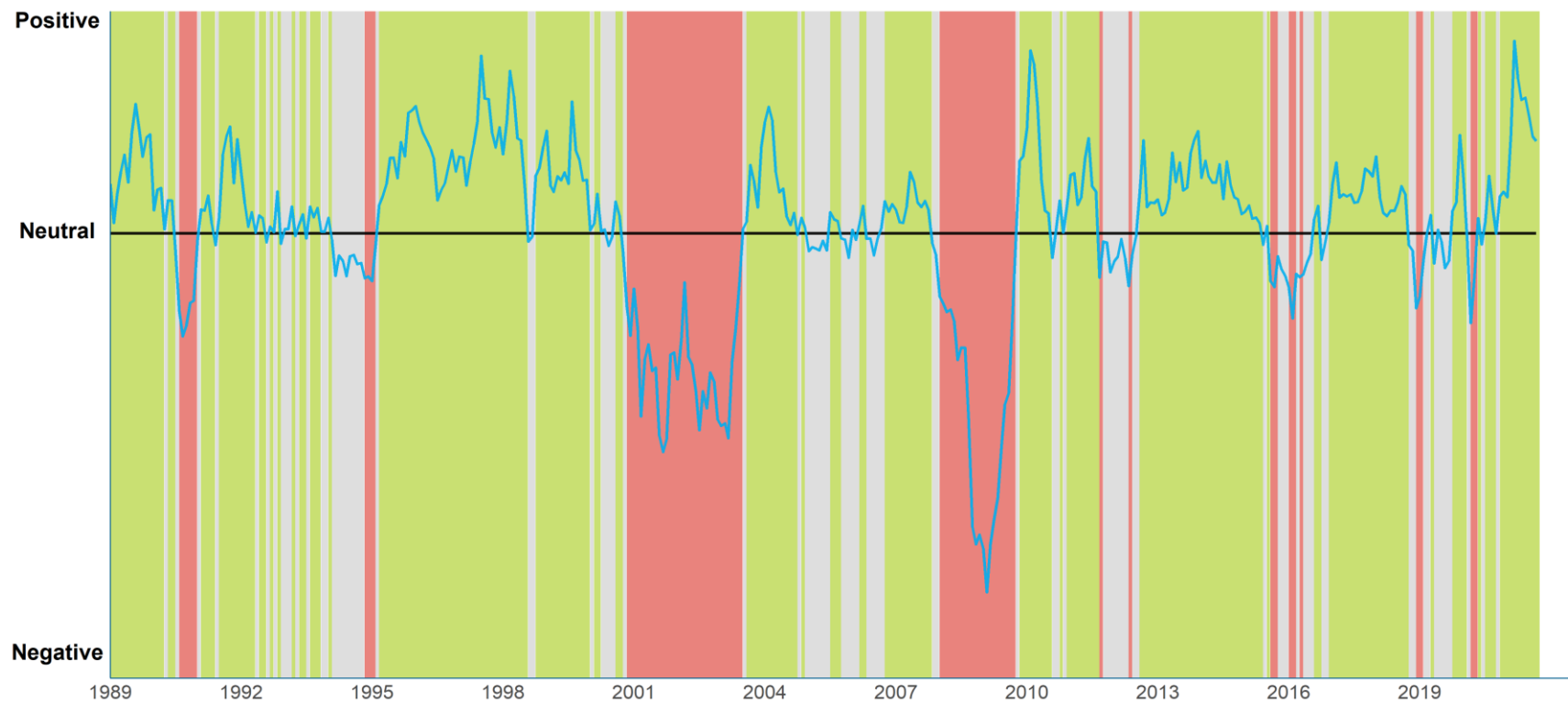
¹ With the exception of Private Equity Valuation, that is YTD as of December 31, 2020.

Risk Overview/Dashboard (2) (As of September 30, 2021)

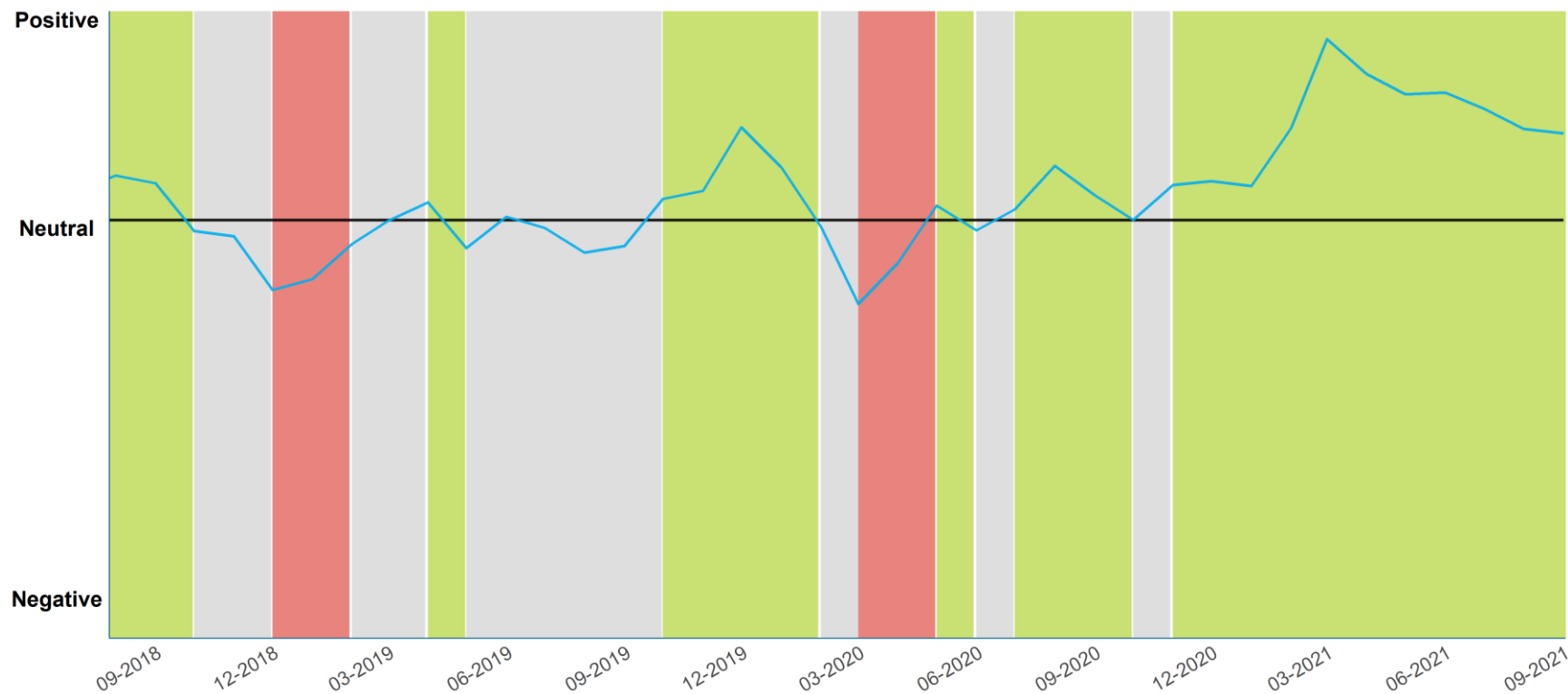


- Dashboard (2) shows how the current level of each indicator compares to its respective history.

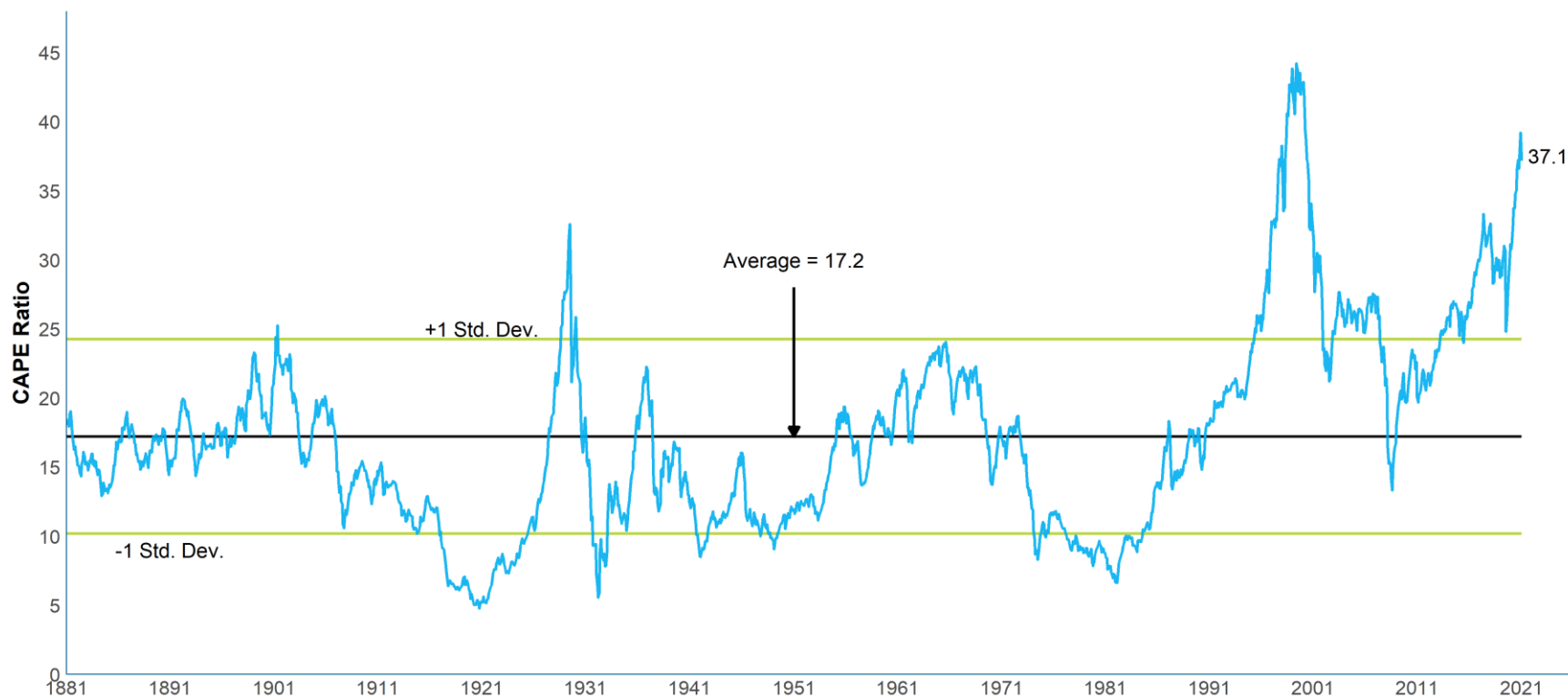
Market Sentiment Indicator (All History)
(As of September 30, 2021)



Market Sentiment Indicator (Last Three Years)
(As of September 30, 2021)



US Equity Cyclically Adjusted P/E¹ (As of September 30, 2021)



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

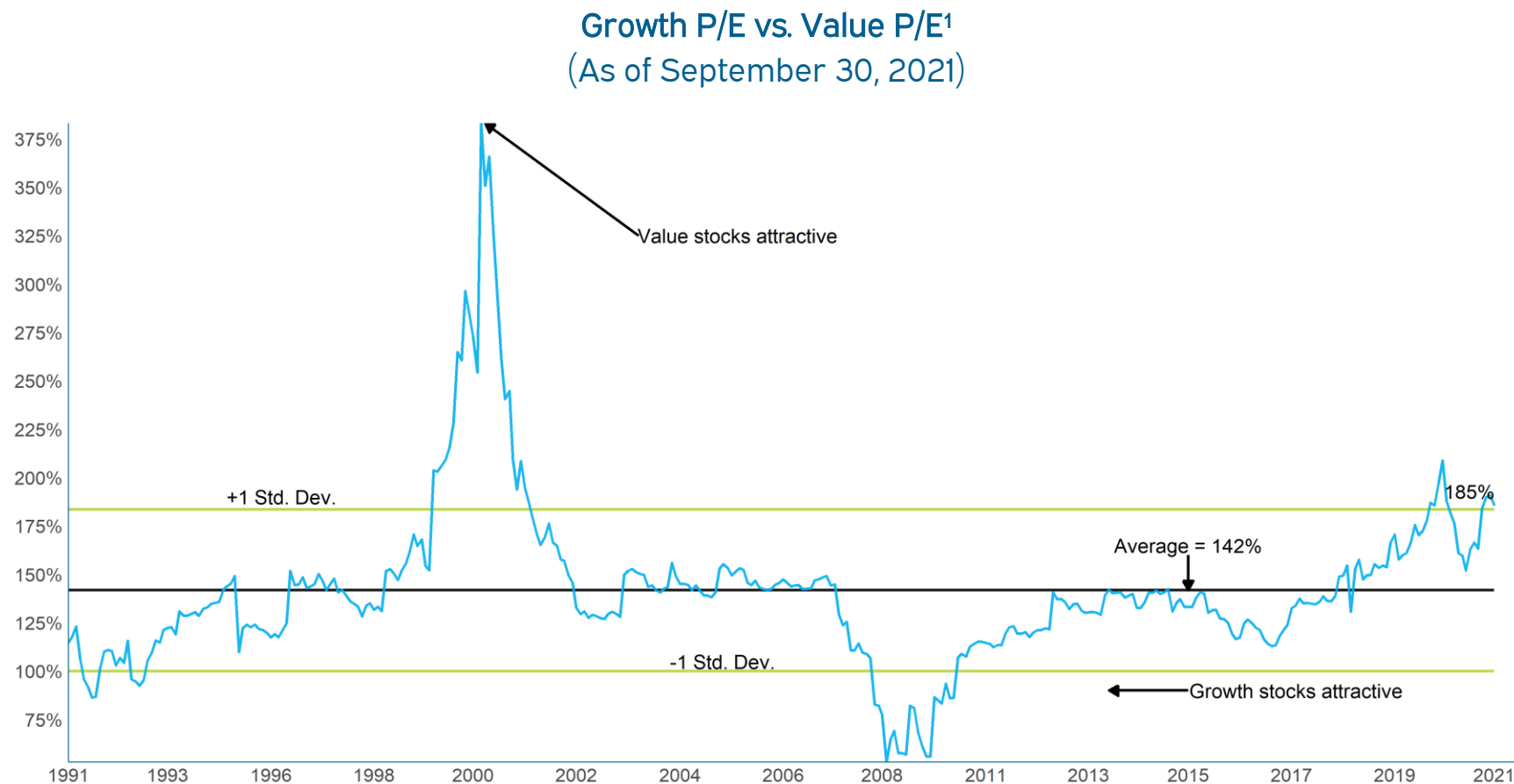
¹ US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group.

Small Cap P/E vs. Large Cap P/E¹ (As of September 30, 2021)



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

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



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

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

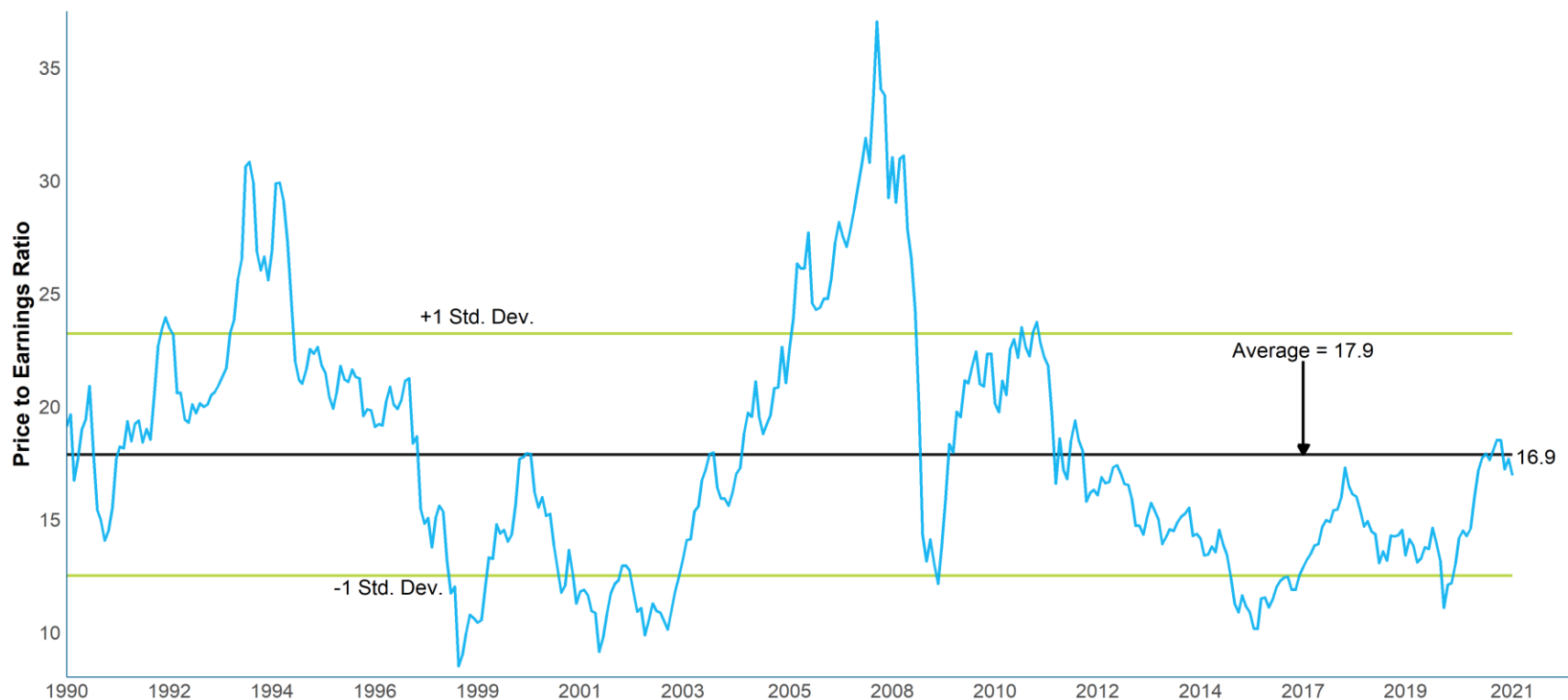
Developed International Equity Cyclically Adjusted P/E¹ (As of September 30, 2021)



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

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

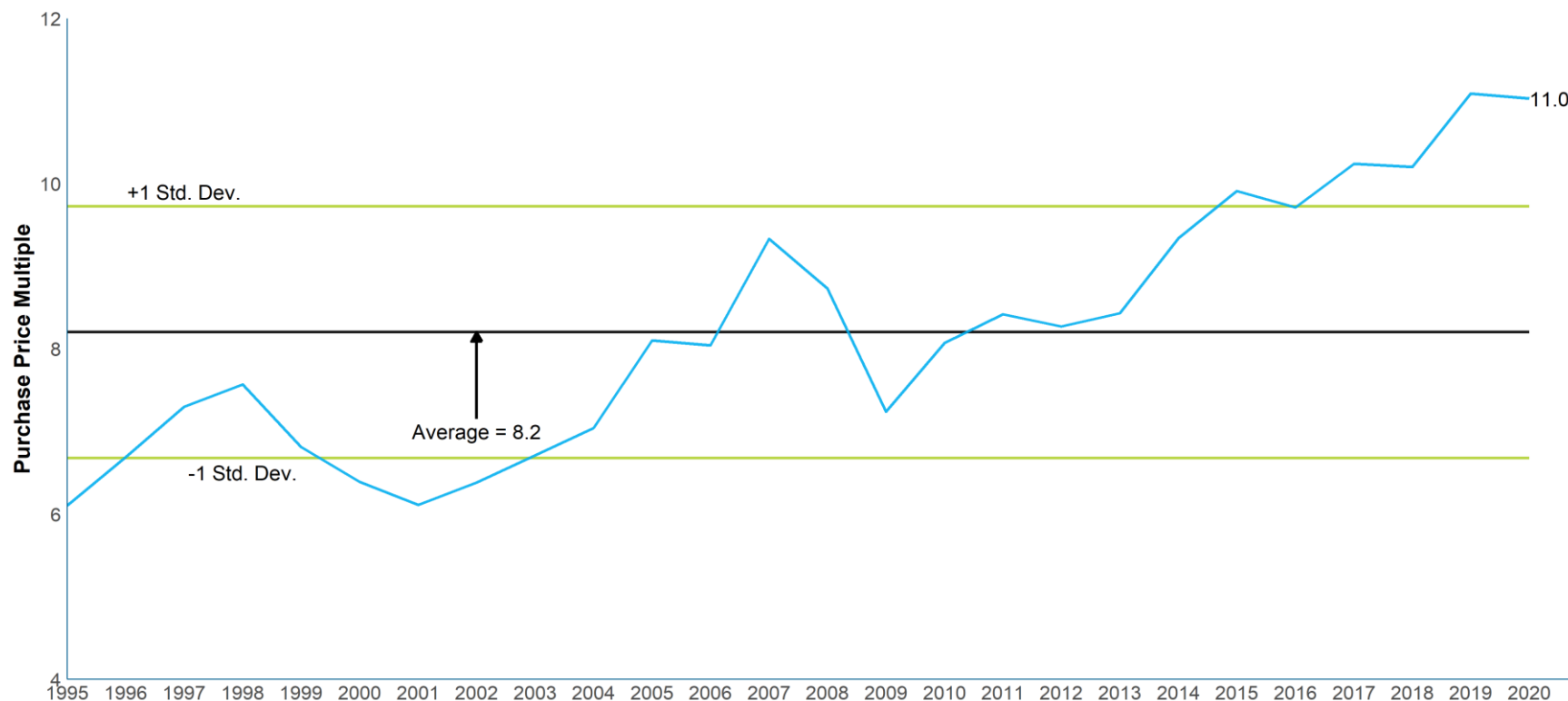
Emerging Market Equity Cyclically Adjusted P/E¹ (As of September 30, 2021)



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

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

Private Equity Multiples¹ (As of February 28, 2021)²

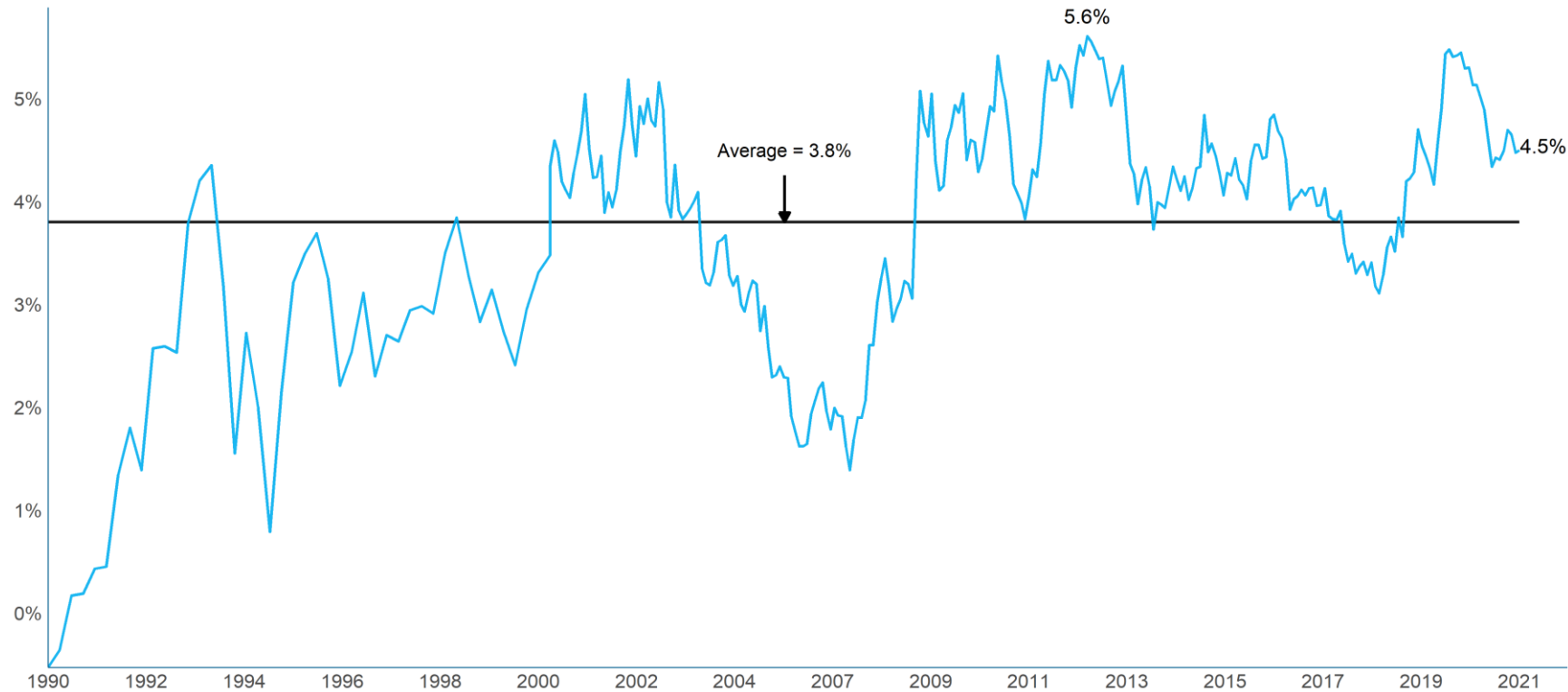


- This chart details one valuation metric for the private equity market. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

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

² Annual Data, as of December 31, 2020

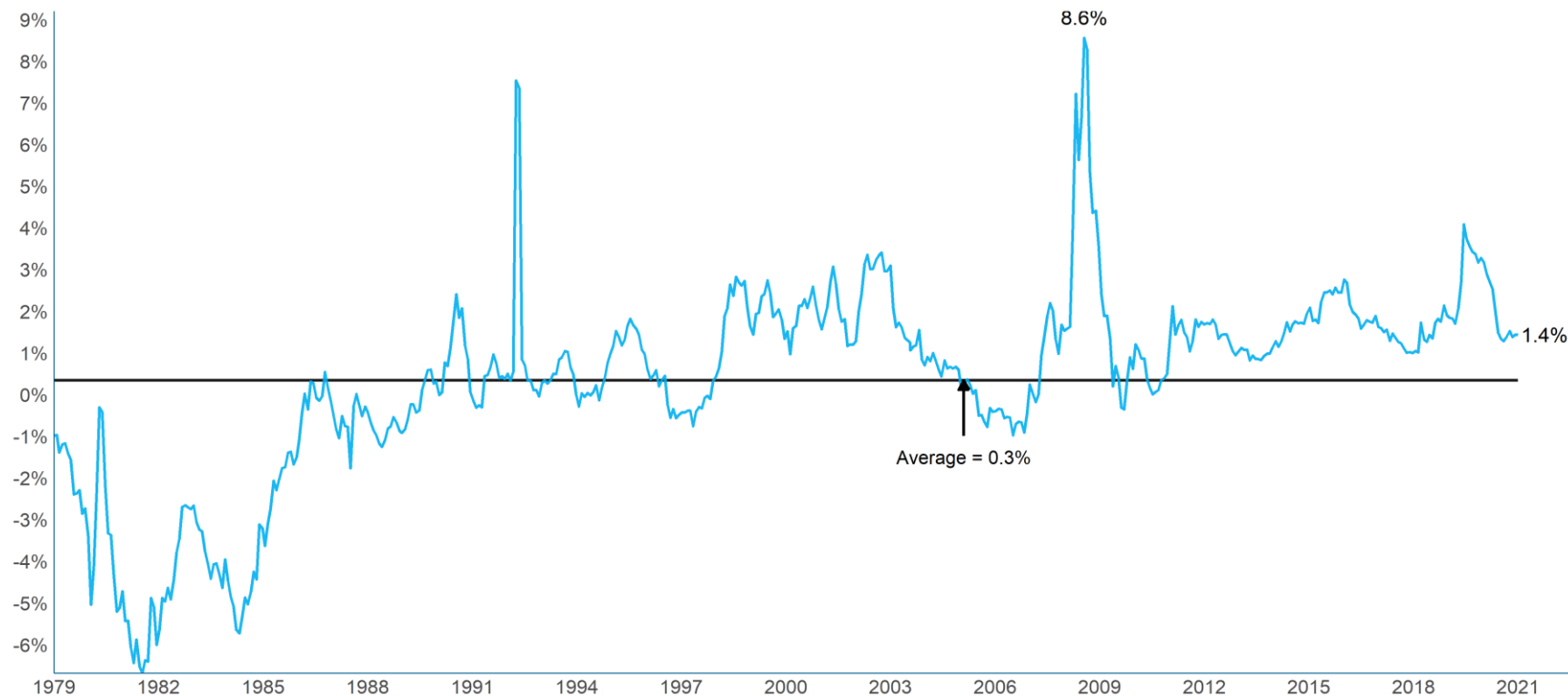
Core Real Estate Spread vs. Ten-Year Treasury¹ (As of September 30, 2021)



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

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

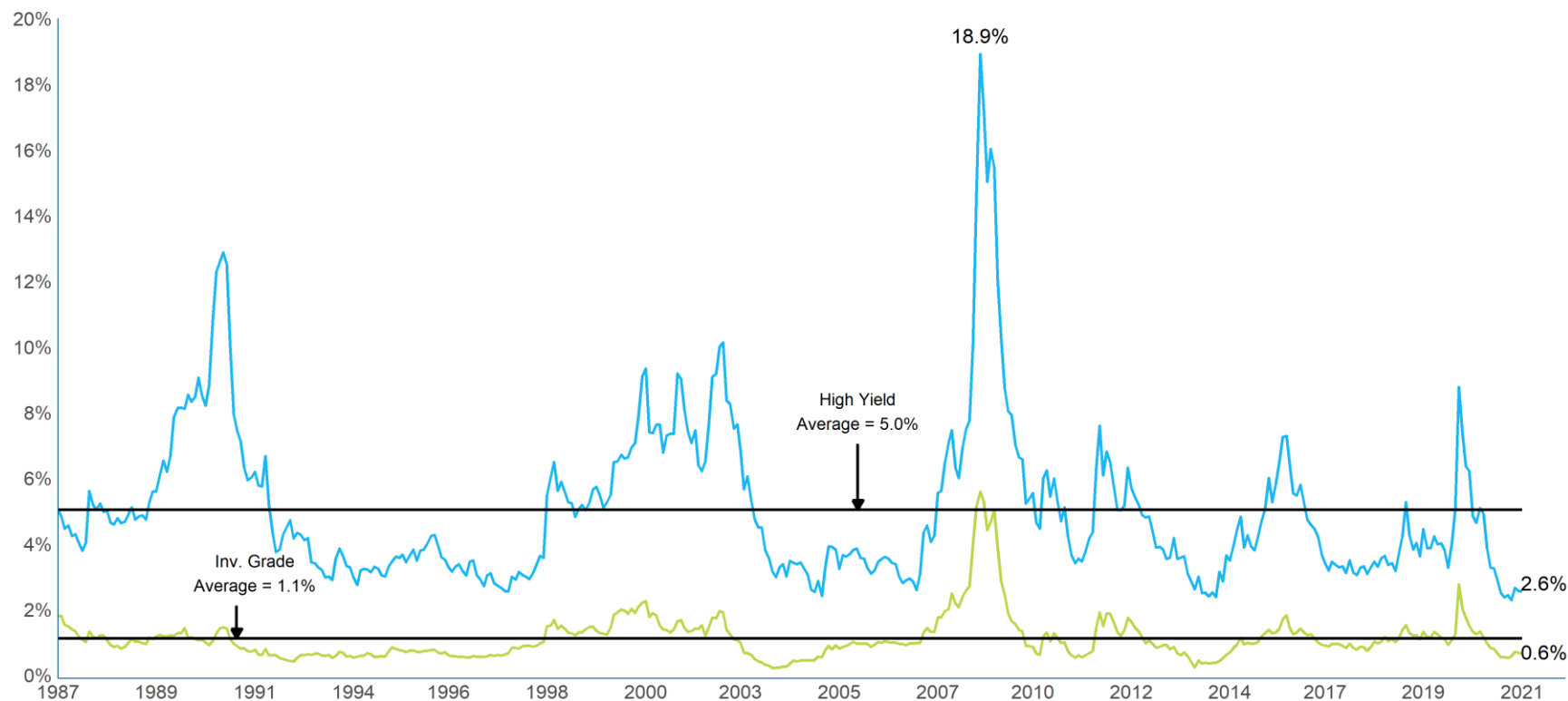
REITs Dividend Yield Spread vs. Ten-Year Treasury¹ (As of September 30, 2021)



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

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

Credit Spreads¹ (As of September 30, 2021)



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

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

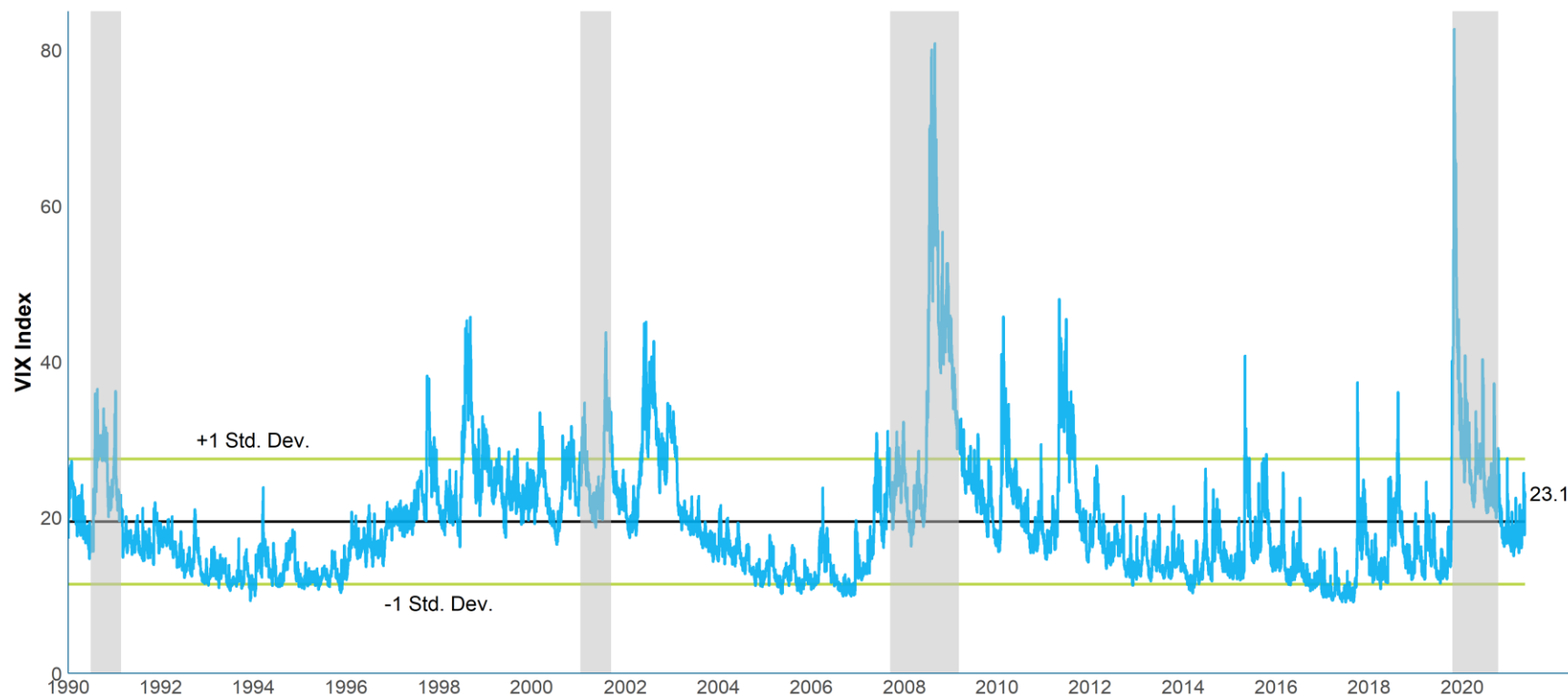
Emerging Market Debt Spreads¹ (As of September 30, 2021)



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

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

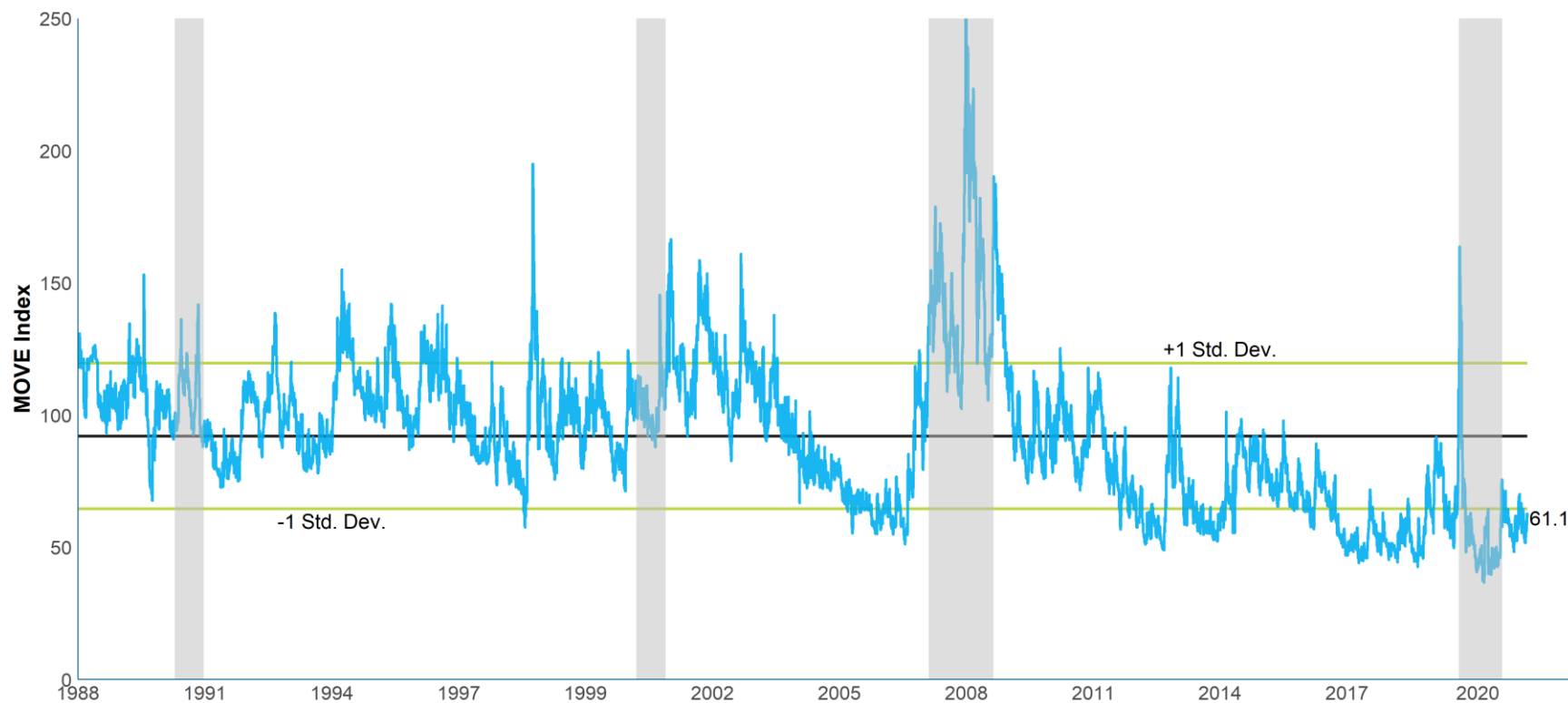
Equity Volatility¹ (As of September 30, 2021)



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

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

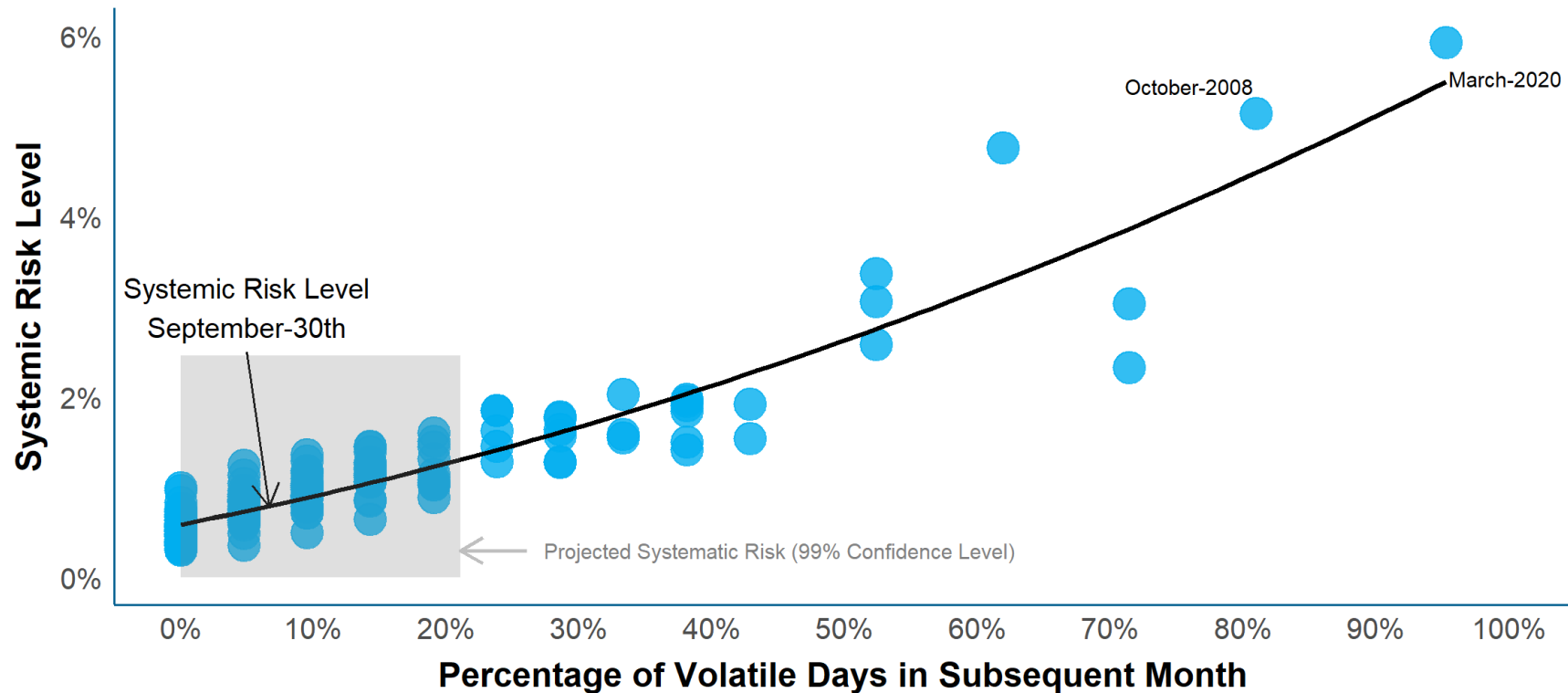
Fixed Income Volatility¹ (As of September 30, 2021)



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

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

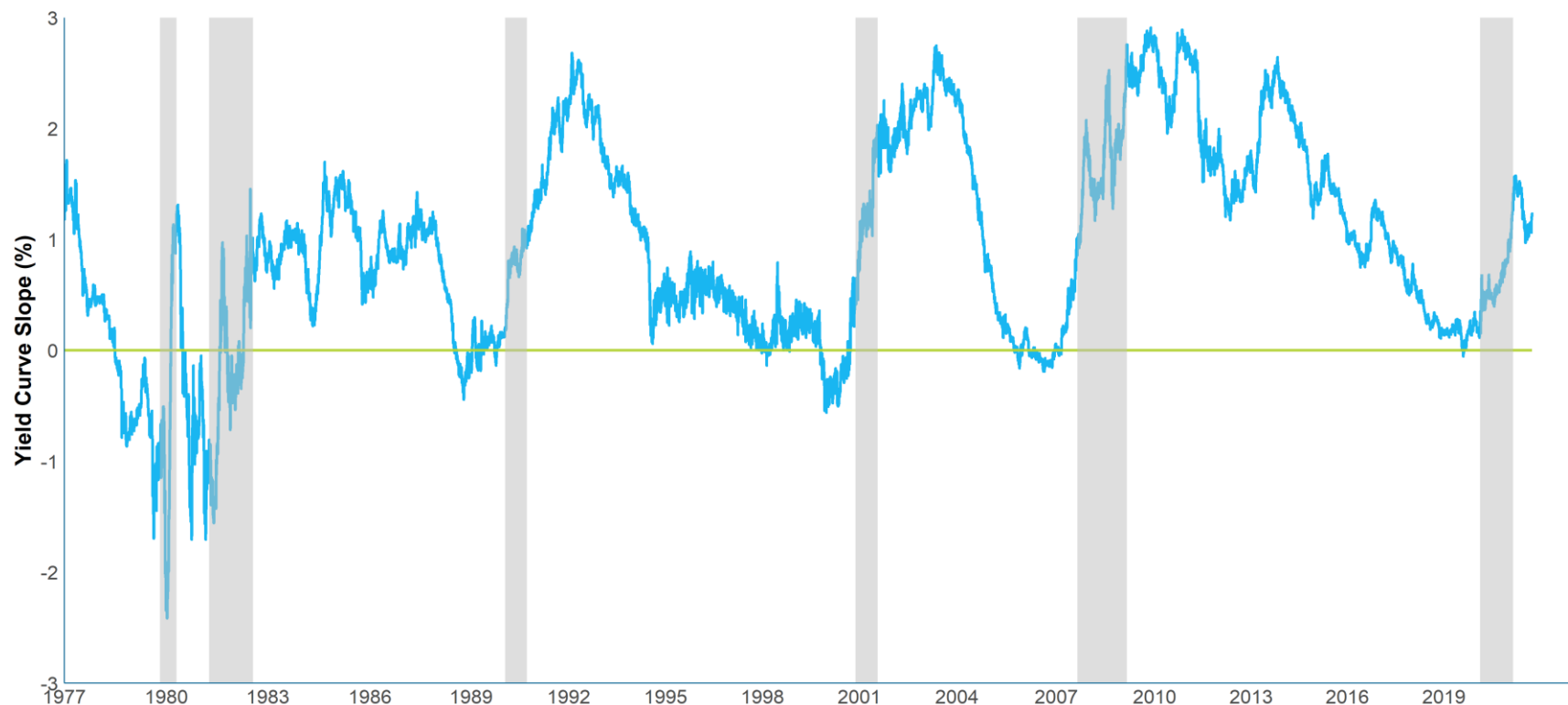
Systemic Risk and Volatile Market Days¹ (As of September 30, 2021)



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

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

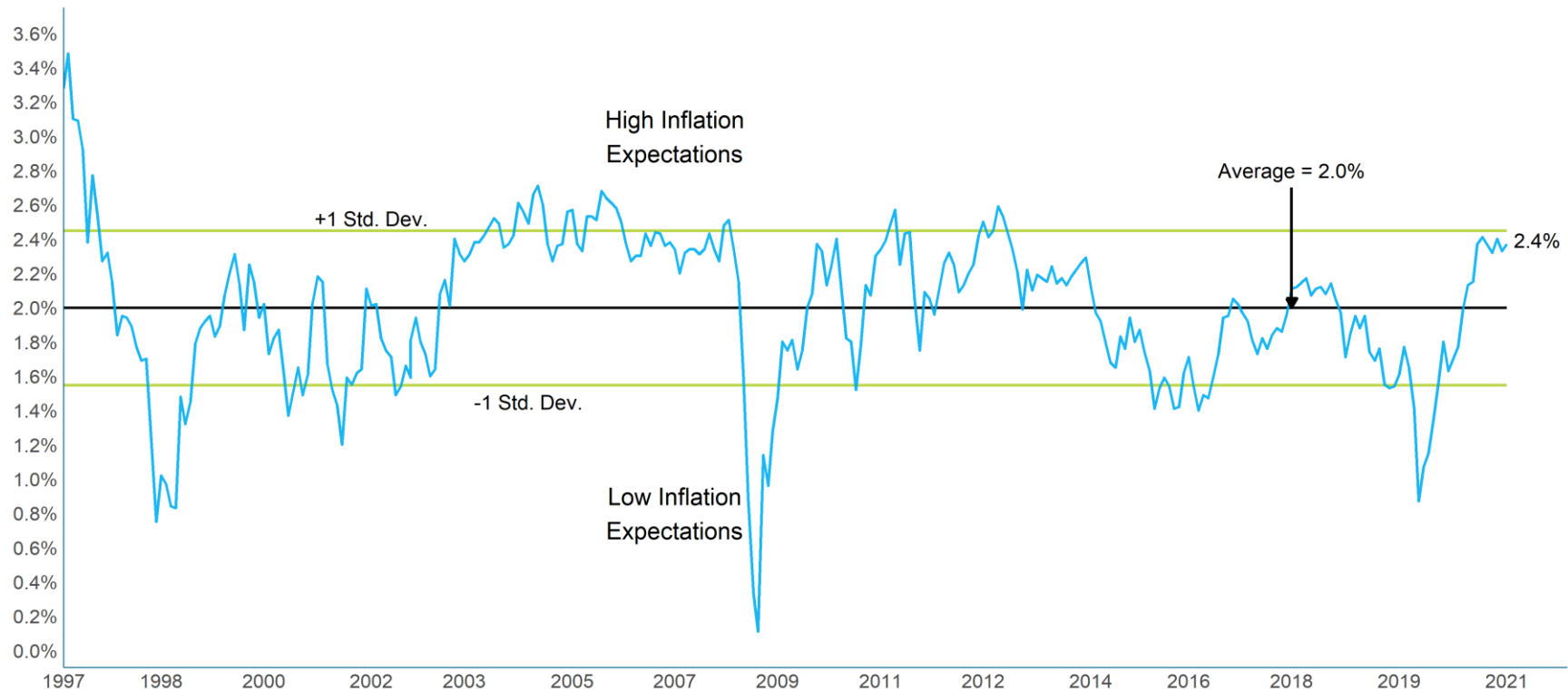
Yield Curve Slope (Ten Minus Two)¹
(As of September 30, 2021)



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

¹ Yield Curve Slope (Ten Minus Two) – Source: Bloomberg, and Meketa Investment Group. Yield curve slope is calculated as the difference between the 10-Year US Treasury Yield and 2-Year US Treasury Yield.

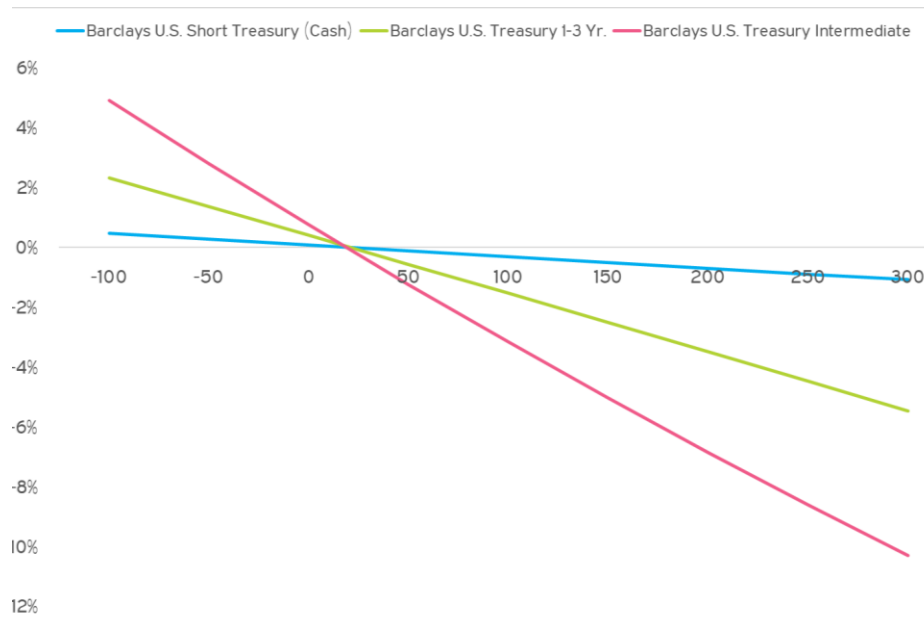
Ten-Year Breakeven Inflation¹ (As of September 30, 2021)



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

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

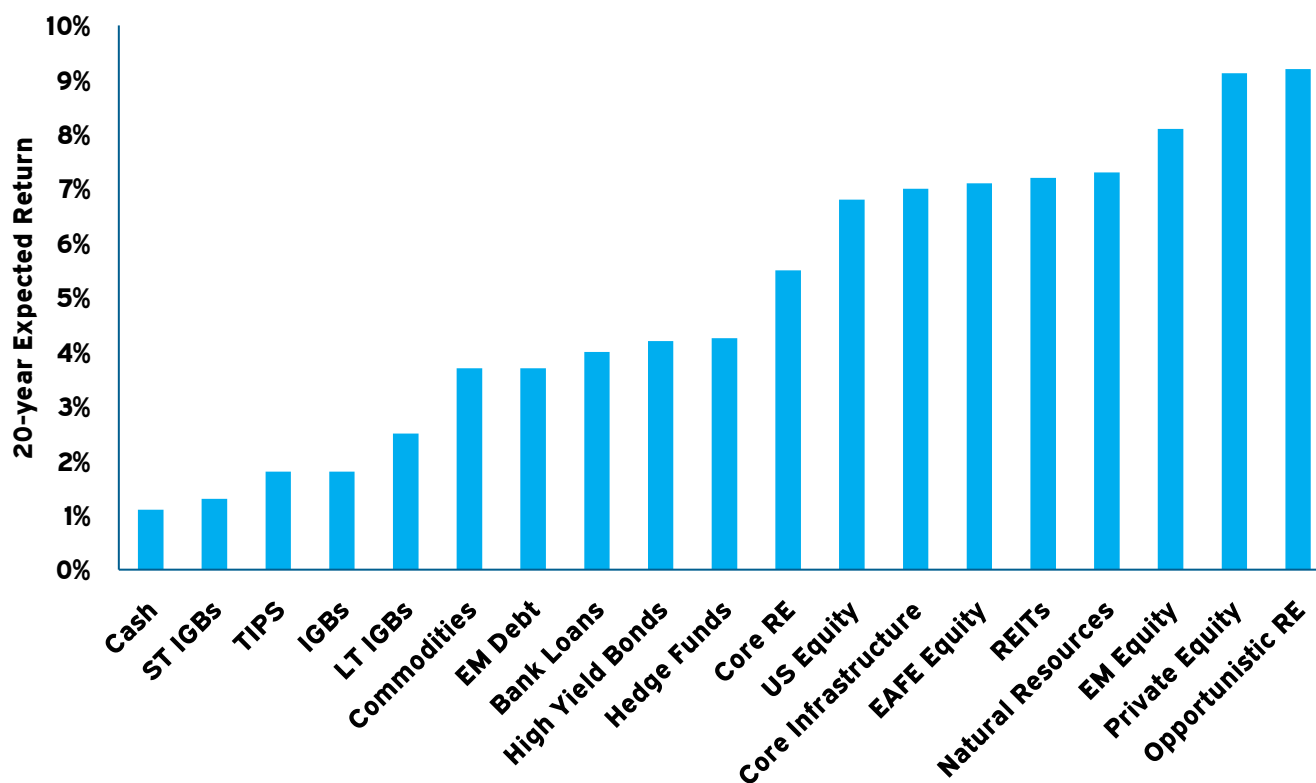
Total Return Given Changes in Interest Rates (bps)¹ (As of September 30, 2021)



	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)	0.4%	0.3%	0.1%	-0.1%	-0.3%	-0.5%	-0.7%	-0.9%	-1.1%	0.39	0.06%
Barclays US Treasury 1-3 Yr.	2.3%	1.4%	0.4%	-0.6%	-1.5%	-2.5%	-3.5%	-4.5%	-5.5%	1.93	0.39%
Barclays US Treasury Intermediate	4.9%	2.8%	0.7%	-1.3%	-3.2%	-5.1%	-6.9%	-8.6%	-10.3%	4.04	0.74%
Barclays US Treasury Long	22.9%	11.9%	2.0%	-6.8%	-14.5%	-21.2%	-26.7%	-31.2%	-34.7%	18.68	2.03%

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

Long-Term Outlook – 20-Year Annualized Expected Returns¹



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

¹ Source: Meketa Investment Group’s 2021 Annual Asset Study.

Appendix

Data Sources and Explanations¹

- US Equity Cyclically Adjusted P/E on S&P 500 Index – Source: Robert Shiller and Yale University.
- Small Cap P/E (Russell 2000 Index) vs. Large Cap P/E (Russell 1000 Index) – Source: Russell Investments. Earnings figures represent 12-month “as reported” earnings.
- Growth P/E (Russell 3000 Growth Index) vs. Value (Russell 3000 Value Index) P/E – Source: Bloomberg, MSCI, and Meketa Investment Group. Earnings figures represent 12-month “as reported” earnings.
- Developed International Equity (MSCI EAFE) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years.
- Emerging Market Equity (MSCI Emerging Markets Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years.
- Private Equity Multiples – Source: S&P LCD Average EBITDA Multiples Paid in All LBOs.
- Core Real Estate Spread vs. Ten-Year Treasury – Source: Real Capital Analytics, US Treasury, Bloomberg, and Meketa Investment Group. Core Real Estate is proxied by weighted sector transaction-based indices from Real Capital Analytics and Meketa Investment Group.

¹ All Data as of September 30, 2021 unless otherwise noted.

Appendix

Data Sources and Explanations¹

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

¹ All Data as of September 30, 2021 unless otherwise noted.

Appendix

Data Sources and Explanations¹

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

¹ All Data as of September 30, 2021 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.

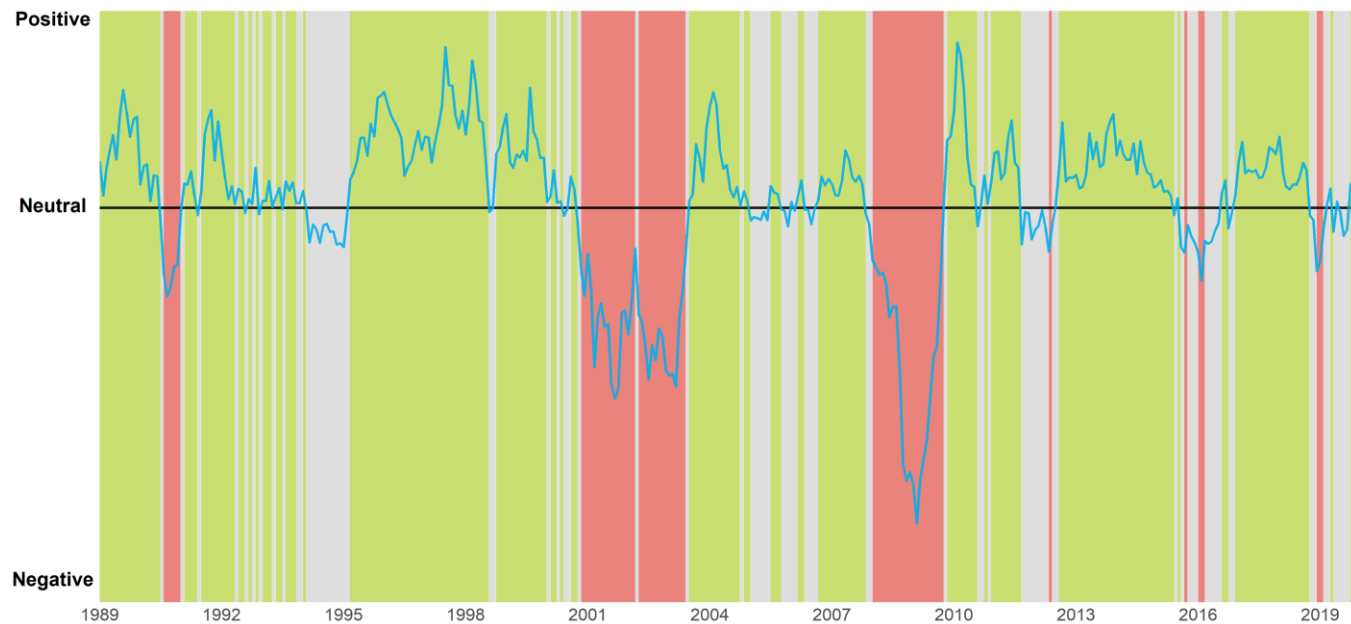
- Meketa's Risk Metrics, which rely significantly on standard market measures of relative valuation, often provide valid early signals of increasing long-term risk levels in the global investment markets. However, as is the case with numerous valuation measures, the Risk Metrics may convey such risk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

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

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

How do I read the Meketa Market Sentiment Indicator graph?

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



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

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

¹ Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.

“Time Series Momentum” Moskowitz, Ooi, Pedersen, August 2010. <http://pages.stern.nyu.edu/~lpedersen/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. In particular, across an extensive array of asset classes, the sign of the trailing 12-month return (positive or negative) is indicative of future returns (positive or negative) over the next 12-month period. The MIG-MSI is constructed to measure this momentum in stocks and corporate bond spreads. A reading of green or red is agreement of both the equity and bond measures, indicating that it is likely that this trend (positive or negative) will continue over the next 12 months. When the measures disagree, the indicator turns gray. A gray reading does not necessarily mean a new trend is occurring, as the indicator may move back to green, or into the red from there. The level of the reading (black line) and the number of months at the red or green reading, gives the user additional information on which to form an opinion, and potentially take action.

Disclaimer Information

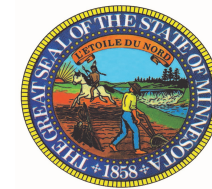
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REPORT

SBI Comprehensive Performance Report

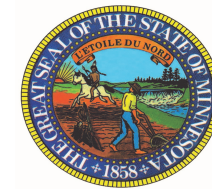
September 30, 2021

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Comprehensive Performance Report

September 30, 2021



Description of SBI Investment Programs

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

Combined Funds

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

Fire Plans + Other Retirement Plans

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

Participant Directed Investment Program

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

Non-Retirement

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

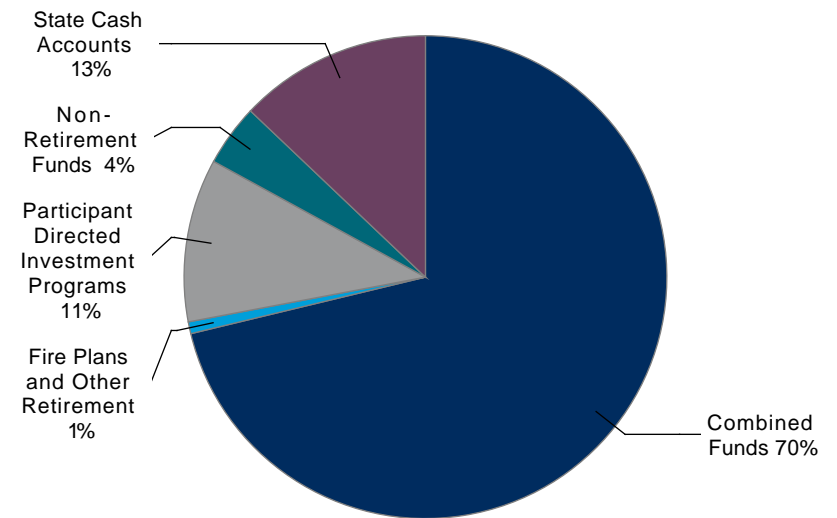
State Cash

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

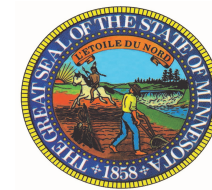


Funds Under Management

	<u>\$ Millions</u>
COMBINED FUNDS	\$89,948
FIRE PLANS + OTHER RETIREMENT	1,003
PARTICIPANT DIRECTED INVESTMENT PROGRAMS	13,802
State Deferred Compensation Plan	9,609
Health Care Savings Plan	1,667
Unclassified Employees Retirement Plan	390
Hennepin County Supplemental Retirement Plan	187
PERA Defined Contribution Plan	98
Minnesota College Savings Plan	1,827
Minnesota Achieve a Better Life Experience	24
NON-RETIREMENT FUNDS	5,215
Assigned Risk Plan	277
Permanent School Fund	1,946
Environmental Trust Fund	1,642
Closed Landfill Investment Fund	130
Miscellaneous Trust Funds	353
Other Postemployment Benefits Accounts	867
STATE CASH ACCOUNTS	17,957
Invested Treasurer's Cash	17,887
Other State Cash Accounts	70
TOTAL SBI AUM	127,925



Note: Differentials within column amounts may occur due to rounding



Quarterly Report

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Performance Reporting Legend

Manager Level Data

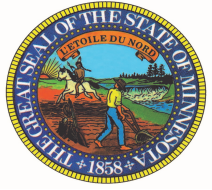
Aggregate Level Data

Sub-Asset Class Level Data

Asset Class Level Data

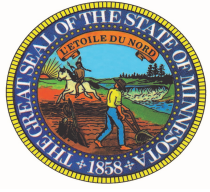
Note:

Throughout this report performance is calculated net of investment management fees, 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. Inception to date return information is included for manager accounts and total asset class but not other aggregates because of portfolio management decisions to group managers in different aggregates over time.



Combined Funds

September 30, 2021



Combined Funds Summary

Combined Funds Change in Market Value (\$Millions)

	<u>One Quarter</u>
COMBINED FUNDS	
Beginning Market Value	\$89,494
Net Contributions	-670
Investment Return	1,124
Ending Market Value	89,948

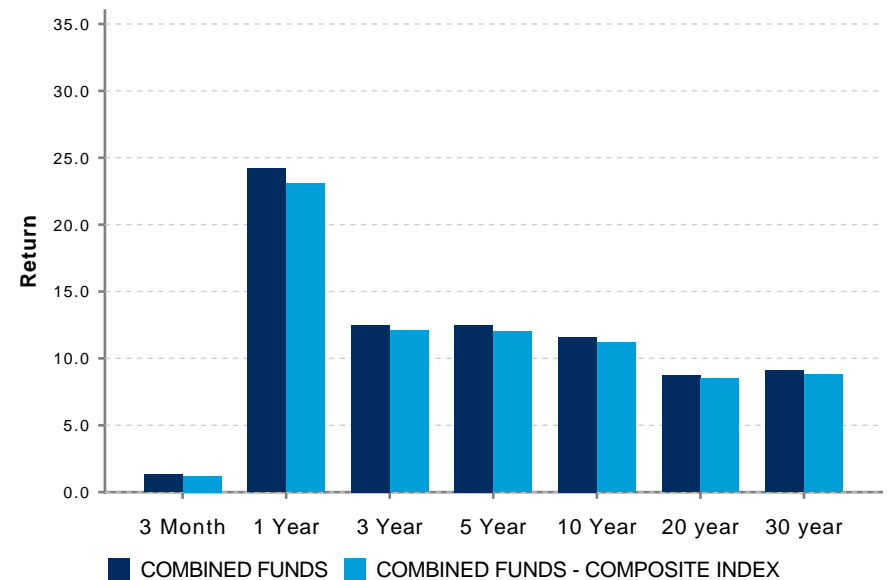
The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

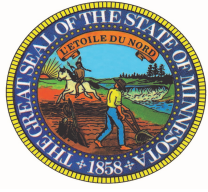
Performance (Net of Fees)

The Combined Funds' performance is evaluated relative to a composite of public market index and private market investment returns. The Composite performance is calculated by multiplying the beginning of month Composite weights and the monthly returns of the asset class benchmarks.

	<u>Qtr</u>	<u>FYTD</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>	<u>20 Yr</u>	<u>30 Yr</u>
COMBINED FUNDS	1.3%	1.3%	24.2%	12.5%	12.5%	11.6%	8.7%	9.1%
COMBINED FUNDS - COMPOSITE INDEX	1.2	1.2	23.1	12.1	12.0	11.2	8.5	8.8
Excess	0.0	0.0	1.1	0.4	0.5	0.4	0.2	0.3

Asset Growth



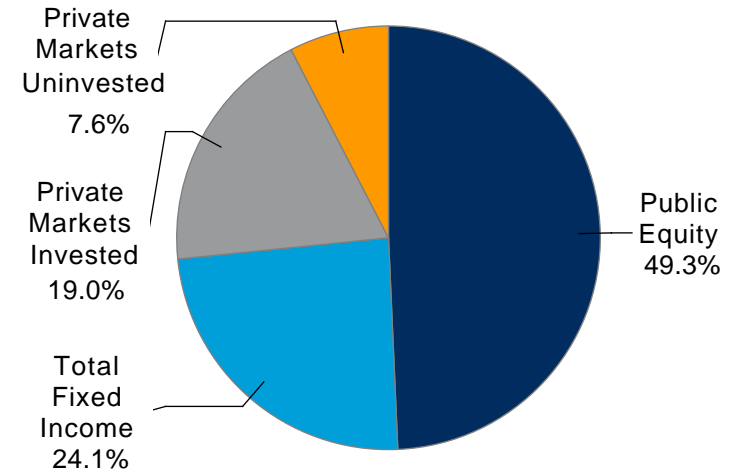


Combined Funds Summary

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.

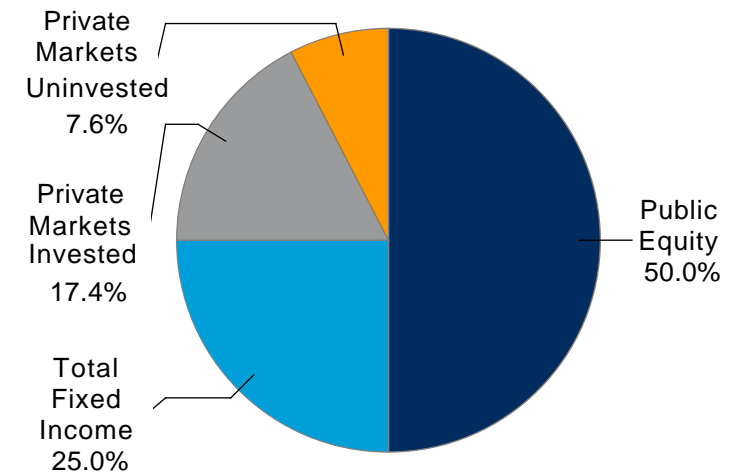
	<u>(Millions)</u>	<u>Actual Mix</u>	<u>Policy Target</u>
Public Equity	\$44,386	49.3%	50.0%
Total Fixed Income	21,681	24.1	25.0
Private Markets - Total	23,881	26.6	25.0
Private Markets - Invested	17,051	19.0	
Private Markets - Uninvested	6,831	7.6	
TOTAL	89,948	100.0	



Composite Index Comparison

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

	<u>Policy Weight</u>	<u>Market Index</u>
Public Equity	50.0%	Public Equity Benchmark
Total Fixed Income	25.0	Total Fixed Income Benchmark
Private Markets - Invested	17.4	Private Markets
Private Markets - Uninvested	7.6	S&P 500





Combined Funds Asset Class Performance Summary

Public Equity

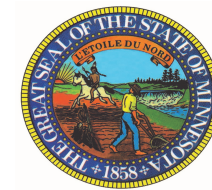
The Combined Funds Public Equity includes Domestic Equity, International Equity and Global Equity.

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	\$44.4	49.3%	50.0%	-0.9%	-0.9%	30.2%	13.6%	14.6%	14.3%	9.1%	9.6%
Public Equity Benchmark				-1.0	-1.0	29.7	13.3	14.3			
Excess				0.1	0.1	0.5	0.3	0.3			
Domestic Equity	29.6	32.9	33.5	0.0	0.0	33.1	16.1	17.1	16.7	9.8	10.4
Domestic Equity Benchmark				-0.1	-0.1	32.5	15.9	16.8	16.6	9.9	10.5
Excess				0.1	0.1	0.6	0.2	0.3	0.1	-0.1	-0.1
International Equity	13.7	15.2	16.5	-2.6	-2.6	24.8	8.6	9.3	8.1	7.5	
International Equity Benchmark				-3.0	-3.0	24.0	8.0	8.9	7.5	7.1	
Excess				0.3	0.3	0.8	0.7	0.4	0.6	0.3	
Global Equity	1.1	1.2	0.0	-4.5	-4.5						
MSCI AC WORLD INDEX NET				-1.1	-1.1						
Excess				-3.4	-3.4						

Note:

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



Combined Funds Asset Class Performance Summary

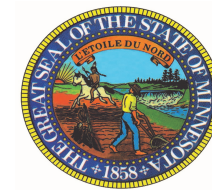
Total Fixed Income

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

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

	<u>Market Value</u>	<u>Actual Weight</u>	<u>Policy Weight</u>	<u>Last Qtr</u>	<u>FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>20 Year</u>	<u>30 year</u>
Total Fixed Income	\$21.7	24.1%	25.0%	0.1%	0.1%	-2.0%	7.0%	4.1%	4.0%	4.9%	6.0%
Total Fixed Income Benchmark				0.1	0.1	-3.1	6.4				
Excess				-0.0	-0.0	1.1	0.5				
Core/Core Plus	4.8	5.4	5.0	0.2	0.2	0.9	6.4	3.9	3.9	4.8	5.9
Core Bonds Benchmark				0.1	0.1	-0.9	5.4	2.9	3.0	4.3	5.5
Excess				0.1	0.1	1.8	1.1	0.9	0.9	0.5	0.5
Return Seeking Fixed Income	4.0	4.5	5.0	-0.1	-0.1						
Bloomberg U.S. Aggregate				0.1	0.1						
Excess				-0.2	-0.2						
Treasury Protection	8.7	9.7	10.0	0.2	0.2	-6.4	7.1				
Bloomberg Treasury 5+ Year				0.2	0.2	-6.8	7.1				
Excess				0.0	0.0	0.4	0.0				
Laddered Bond + Cash	4.1	4.6	5.0	0.0	0.0	0.1	1.2	1.2	0.8	1.6	3.2
ICE BofA US 3-Month Treasury Bill				0.0	0.0	0.1	1.2	1.2	0.6	1.3	2.5
Excess				0.0	0.0	0.1	-0.0	0.1	0.1	0.3	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	9.4%	9.4%	42.1%	15.9%	16.2%	12.9%	13.0%	13.9%	12.8%
Private Markets-Uninvested(1)	0.6	0.6							
Private Equity	10.3%	10.3%	52.9%	23.0%	21.7%	16.8%	14.7%	15.7%	
Private Credit	5.7%	5.7%	20.4%	10.0%	12.3%	12.1%	12.3%	12.6%	
Resources	6.6%	6.6%	21.8%	-3.0%	2.3%	1.7%	12.1%	12.8%	
Real Estate	10.2%	10.2%	22.9%	11.5%	11.3%	11.7%	8.9%	10.2%	

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.

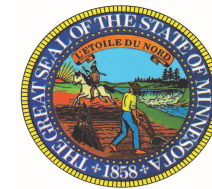
Private Credit Investments - The objectives of the Private Credit portfolio, which may include mezzanine debt, direct lending, and other forms of non-investment grade fixed income instruments, are to achieve a high total return over a full market cycle and to provide some degree of downside protection 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



Quarterly Report

Asset Class & Manager Performance

September 30, 2021

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.

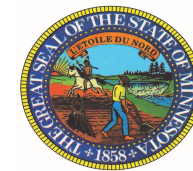
The performance information presented on the following pages for Public Equity and Fixed Income includes both the Combined Funds and Supplemental Investment Fund. The Private Markets is Combined Funds only. All assets in the Combined Funds are managed externally by investment management firms retained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

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Domestic Equity

September 30, 2021



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Total Domestic Equity										
ACTIVE DOMESTIC EQUITY AGGREGATE (1)	\$4,005,216,245	13.2%	-0.8%	-0.8%	43.6%	14.9%	17.3%	16.5%		
Active Domestic Equity Benchmark			-2.2	-2.2	39.7	13.2	15.1	15.7		
Excess			1.3	1.3	3.9	1.7	2.1	0.8		
SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)	3,225,383,035	10.7	0.1	0.1	31.1	16.4	17.3	17.0		
Semi Passive Domestic Equity Benchmark			0.2	0.2	31.0	16.4	17.1	16.8		
Excess			-0.1	-0.1	0.1	0.0	0.2	0.2		
PASSIVE DOMESTIC EQUITY AGGREGATE (3)	23,030,355,270	76.1	0.2	0.2	31.4	16.3	17.0	16.7		
Passive Domestic Equity Benchmark			0.2	0.2	31.3	16.2	17.0	16.7		
Excess			0.0	0.0	0.1	0.0	-0.0	0.0		
TRANSITION AGGREGATE DOMESTIC EQUITY (4)	36	0.0								
TOTAL DOMESTIC EQUITY (5)	30,260,954,586	100.0	0.0	0.0	33.1	16.1	17.1	16.7	11.0	01/1984
Domestic Equity Benchmark			-0.1	-0.1	32.5	15.9	16.8	16.6	11.2	01/1984
Excess			0.1	0.1	0.6	0.2	0.3	0.1	-0.2	

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

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

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

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

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

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



	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>
Total Domestic Equity					
ACTIVE DOMESTIC EQUITY AGGREGATE (1)	27.3%	27.6%	-6.5%	20.6%	10.9%
Active Domestic Equity Benchmark	19.8	28.2	-8.0	18.3	15.7
Excess	7.5	-0.6	1.4	2.3	-4.8
SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)	21.0	30.9	-4.9	22.5	11.1
Semi Passive Domestic Equity Benchmark	21.0	31.4	-4.8	21.7	12.1
Excess	0.0	-0.5	-0.1	0.8	-1.0
PASSIVE DOMESTIC EQUITY AGGREGATE (3)	20.8	31.3	-5.0	21.3	12.6
Passive Domestic Equity Benchmark	20.8	31.3	-5.0	21.5	12.5
Excess	0.0	0.0	-0.0	-0.2	0.1
TRANSITION AGGREGATE DOMESTIC EQUITY (4)					
TOTAL DOMESTIC EQUITY (5)	21.7%	30.7%	-5.3%	21.4%	11.5
Domestic Equity Benchmark	20.8%	30.8%	-5.2%	21.1%	12.7
Excess	0.9%	-0.1%	-0.0%	0.2%	-1.3

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

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

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

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

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

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



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Large Cap Growth										
SANDS	\$391,644,834	1.3%	4.1%	4.1%	33.1%	28.5%	28.1%	22.3%	14.7%	01/2005
Russell 1000 Growth			1.2	1.2	27.3	22.0	22.8	19.7	12.4	01/2005
Excess			2.9	2.9	5.8	6.5	5.3	2.6	2.3	
WINSLOW	245,199,237	0.8	2.5	2.5	26.8	21.6	23.4	19.4	13.1	01/2005
Russell 1000 Growth			1.2	1.2	27.3	22.0	22.8	19.7	12.4	01/2005
Excess			1.4	1.4	-0.5	-0.4	0.6	-0.3	0.7	
RUSSELL 1000 GROWTH AGGREGATE (1)	636,844,070	2.1	3.5	3.5	34.6	31.5	30.9	23.4		
Russell 1000 Growth			1.2	1.2	27.3	22.0	22.8	19.7		
Excess			2.3	2.3	7.2	9.5	8.1	3.7		

(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>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>
Active Large Cap Growth					
SANDS	71.0%	33.5%	7.0%	35.3%	-6.9%
Russell 1000 Growth	38.5	36.4	-1.5	30.2	7.1
Excess	32.5	-2.8	8.6	5.1	-13.9
WINSLOW	37.6	34.2	4.2	33.2	-1.9
Russell 1000 Growth	38.5	36.4	-1.5	30.2	7.1
Excess	-0.9	-2.2	5.7	3.0	-9.0
RUSSELL 1000 GROWTH AGGREGATE (1)	81.3%	37.3%	4.7%	33.4%	1.0
Russell 1000 Growth	38.5%	36.4%	-1.5%	30.2%	7.1
Excess	42.8%	0.9%	6.2%	3.2%	-6.1

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



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Semi-Passive Large Cap										
BLACKROCK	\$1,624,873,726	5.4%	-0.0%	-0.0%	30.5%	16.0%	17.8%	17.5%	10.9%	01/1995
Semi Passive Domestic Equity Benchmark			0.2	0.2	31.0	16.4	17.1	16.8	10.5	01/1995
Excess			-0.2	-0.2	-0.4	-0.4	0.7	0.7	0.4	
J.P. MORGAN	1,600,509,309	5.3	0.2	0.2	31.5	16.8	17.4	17.1	10.8	01/1995
Semi Passive Domestic Equity Benchmark			0.2	0.2	31.0	16.4	17.1	16.8	10.5	01/1995
Excess			0.0	0.0	0.6	0.4	0.2	0.4	0.3	
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE	3,225,383,035	10.7	0.1	0.1	31.1	16.4	17.3	17.0		
Semi Passive Domestic Equity Benchmark			0.2	0.2	31.0	16.4	17.1	16.8		
Excess			-0.1	-0.1	0.1	0.0	0.2	0.2		



	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>
Semi-Passive Large Cap					
BLACKROCK	20.7%	30.4%	-4.1%	24.6%	12.5%
Semi Passive Domestic Equity Benchmark	21.0	31.4	-4.8	21.7	12.1
Excess	-0.3	-1.0	0.7	2.9	0.5
J.P. MORGAN	21.2	31.3	-5.4	21.8	12.3
Semi Passive Domestic Equity Benchmark	21.0	31.4	-4.8	21.7	12.1
Excess	0.3	-0.1	-0.6	0.1	0.2
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE	21.0%	30.9%	-4.9%	22.5%	11.1
Semi Passive Domestic Equity Benchmark	21.0%	31.4%	-4.8%	21.7%	12.1
Excess	0.0%	-0.5%	-0.1%	0.8%	-1.0



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Large Cap Value										
BARROW HANLEY	\$391,323,579	1.3%	-1.2%	-1.2%	37.5%	10.0%	11.6%	13.7%	8.7%	04/2004
Russell 1000 Value			-0.8	-0.8	35.0	10.1	10.9	13.5	8.3	04/2004
Excess			-0.4	-0.4	2.5	-0.1	0.6	0.2	0.3	
LSV	404,636,222	1.3	-2.2	-2.2	45.4	9.1	11.9	15.0	9.3	04/2004
Russell 1000 Value			-0.8	-0.8	35.0	10.1	10.9	13.5	8.3	04/2004
Excess			-1.4	-1.4	10.4	-0.9	0.9	1.5	1.0	
RUSSELL 1000 VALUE AGGREGATE	795,959,800	2.6	-1.7	-1.7	40.8	10.1	12.5	14.2		
Russell 1000 Value			-0.8	-0.8	35.0	10.1	10.9	13.5		
Excess			-0.9	-0.9	5.8	0.0	1.5	0.7		



	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>
Active Large Cap Value					
BARROW HANLEY	2.4%	26.9%	-5.9%	14.6%	12.8%
Russell 1000 Value	2.8	26.5	-8.3	13.7	17.3
Excess	-0.4	0.4	2.4	0.9	-4.5
LSV					
LSV	-1.3	26.9	-11.8	18.6	17.0
Russell 1000 Value	2.8	26.5	-8.3	13.7	17.3
Excess	-4.1	0.4	-3.6	4.9	-0.4
RUSSELL 1000 VALUE AGGREGATE					
RUSSELL 1000 VALUE AGGREGATE	1.6%	27.4%	-8.7%	17.3%	15.3
Russell 1000 Value	2.8%	26.5%	-8.3%	13.7%	17.3
Excess	-1.2%	0.9%	-0.4%	3.7%	-2.1



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Small Cap Growth										
ARROWMARK	\$219,828,356	0.7%	-1.0%	-1.0%	46.6%	10.3%			18.1%	11/2016
Russell 2000 Growth			-5.7	-5.7	33.3	11.7			17.1	11/2016
Excess			4.7	4.7	13.3	-1.4			1.0	
HOOD RIVER	274,059,895	0.9	-1.7	-1.7	55.3	21.7			24.3	11/2016
Russell 2000 Growth			-5.7	-5.7	33.3	11.7			17.1	11/2016
Excess			3.9	3.9	22.0	10.0			7.2	
RICE HALL JAMES	221,227,116	0.7	-2.6	-2.6	33.8	7.9			17.0	11/2016
Russell 2000 Growth			-5.7	-5.7	33.3	11.7			17.1	11/2016
Excess			3.1	3.1	0.5	-3.8			-0.2	
WELLINGTON	307,374,584	1.0	-1.3	-1.3	36.6	13.4			17.9	11/2016
Russell 2000 Growth			-5.7	-5.7	33.3	11.7			17.1	11/2016
Excess			4.4	4.4	3.4	1.7			0.7	
RUSSELL 2000 GROWTH AGGREGATE	1,022,489,950	3.4	-1.6	-1.6	43.2	13.6	17.3	15.3		
Russell 2000 Growth			-5.7	-5.7	33.3	11.7	15.3	15.7		
Excess			4.0	4.0	9.9	1.9	2.0	-0.5		



	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>
Active Small Cap Growth					
ARROWMARK	21.9%	20.1%	0.9%	26.2%	
Russell 2000 Growth	34.6	28.5	-9.3	22.2	
Excess	-12.8	-8.4	10.3	4.1	
HOOD RIVER	61.7	24.3	-7.0	21.3	
Russell 2000 Growth	34.6	28.5	-9.3	22.2	
Excess	27.0	-4.2	2.3	-0.9	
RICE HALL JAMES	23.8	18.0	-6.9	27.9	
Russell 2000 Growth	34.6	28.5	-9.3	22.2	
Excess	-10.8	-10.5	2.4	5.8	
WELLINGTON	33.1	35.6	-11.6	22.6	
Russell 2000 Growth	34.6	28.5	-9.3	22.2	
Excess	-1.5	7.1	-2.3	0.4	
RUSSELL 2000 GROWTH AGGREGATE	35.4%	24.6%	-6.2%	22.0%	4.7
Russell 2000 Growth	34.6%	28.5%	-9.3%	22.2%	11.3
Excess	0.8%	-3.9%	3.2%	-0.1%	-6.6



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Small Cap Value										
GOLDMAN SACHS	\$372,359,454	1.2%	-1.2%	-1.2%	55.8%	7.2%	10.2%	13.6%	9.6%	01/2004
Russell 2000 Value			-3.0	-3.0	63.9	8.6	11.0	13.2	8.6	01/2004
Excess			1.8	1.8	-8.1	-1.3	-0.9	0.4	1.0	
HOTCHKIS AND WILEY	225,499,410	0.7	2.2	2.2	81.4	7.7	11.3	14.2	8.8	01/2004
Russell 2000 Value			-3.0	-3.0	63.9	8.6	11.0	13.2	8.6	01/2004
Excess			5.2	5.2	17.5	-0.9	0.3	0.9	0.2	
MARTINGALE	224,194,350	0.7	0.2	0.2	66.5	6.9	9.5	14.3	8.2	01/2004
Russell 2000 Value			-3.0	-3.0	63.9	8.6	11.0	13.2	8.6	01/2004
Excess			3.2	3.2	2.6	-1.7	-1.5	1.0	-0.3	
PEREGRINE	323,386,650	1.1	-2.0	-2.0	64.3	7.8	10.9	13.3	10.3	07/2000
Russell 2000 Value			-3.0	-3.0	63.9	8.6	11.0	13.2	9.8	07/2000
Excess			1.0	1.0	0.4	-0.8	-0.2	0.1	0.4	
RUSSELL 2000 VALUE AGGREGATE	1,145,439,864	3.8	-0.5	-0.5	65.1	7.2	10.3	13.6		
Russell 2000 Value			-3.0	-3.0	63.9	8.6	11.0	13.2		
Excess			2.5	2.5	1.1	-1.4	-0.7	0.4		



	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>
Active Small Cap Value					
GOLDMAN SACHS	2.4%	23.2%	-13.3%	12.6%	24.6%
Russell 2000 Value	4.6	22.4	-12.9	7.8	31.7
Excess	-2.3	0.8	-0.5	4.7	-7.1
HOTCHKIS AND WILEY	-0.2	19.7	-14.4	7.9	19.9
Russell 2000 Value	4.6	22.4	-12.9	7.8	31.7
Excess	-4.8	-2.7	-1.5	0.0	-11.8
MARTINGALE	-4.6	21.1	-15.0	6.9	34.3
Russell 2000 Value	4.6	22.4	-12.9	7.8	31.7
Excess	-9.2	-1.3	-2.1	-0.9	2.5
PEREGRINE	7.3	21.1	-16.1	12.5	27.8
Russell 2000 Value	4.6	22.4	-12.9	7.8	31.7
Excess	2.7	-1.3	-3.3	4.7	-3.9
RUSSELL 2000 VALUE AGGREGATE	1.5%	21.3%	-14.7%	10.2%	26.5
Russell 2000 Value	4.6%	22.4%	-12.9%	7.8%	31.7
Excess	-3.1%	-1.1%	-1.8%	2.3%	-5.2



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active All Cap										
ZEVENBERGEN (1)	\$404,482,561	1.3%	-4.3%	-4.3%	17.9%	33.2%	33.0%	23.9%	13.6%	04/1994
Zevenbergen Custom Benchmark			0.7	0.7	32.9	23.7	23.9	20.2		04/1994
Excess			-5.0	-5.0	-15.0	9.4	9.1	3.7		
ACTIVE RUSSELL 3000 GROWTH (2)										
ACTIVE RUSSELL 3000 GROWTH (2)	404,482,561		-4.3	-4.3						
Russell 3000 Growth TR			0.7	0.7						
Excess			-5.0	-5.0						

(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>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>
Active All Cap					
ZEVENBERGEN (1)	126.2%	43.0%	2.3%	35.1%	-2.8%
Zevenbergen Custom Benchmark	38.5	36.4	-1.5	30.2	7.1
Excess	87.7	6.7	3.8	4.9	-9.9

**ACTIVE RUSSELL 3000
GROWTH (2)**

Russell 3000 Growth TR

Excess

(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.

Minnesota State Board of Investment
Quarter Ending September 30, 2021
Domestic Equity Managers



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Total Passive Domestic Equity										
BLACKROCK RUSSELL 1000	\$21,872,401,661	72.3%	0.2%	0.2%	31.0%	16.4%			17.9%	11/2016
RUSSELL 1000 (DAILY)			0.2	0.2	31.0	16.4			17.9	11/2016
Excess			0.0	0.0	0.1	-0.0			-0.0	
BLACKROCK RUSSELL 2000	98,047,158	0.3	-4.4	-4.4	49.2				16.0	11/2018
RUSSELL 2000 (DAILY)			-4.4	-4.4	47.7				15.3	11/2018
Excess			-0.0	-0.0	1.5				0.7	
BLACKROCK RUSSELL 3000 (1)	1,059,906,451	3.5	0.0	0.0	32.6	16.3	17.0%	16.7%	10.3	07/1995
Passive Manager Benchmark			-0.1	-0.1	31.9	16.0	16.9	16.6	10.2	07/1995
Excess			0.1	0.1	0.7	0.3	0.2	0.1	0.1	
PASSIVE DOMESTIC EQUITY AGGREGATE (2)	23,030,355,270	76.1	0.2	0.2	31.4	16.3	17.0	16.7		
Passive Domestic Equity Benchmark			0.2	0.2	31.3	16.2	17.0	16.7		
Excess			0.0	0.0	0.1	0.0	-0.0	0.0		

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

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

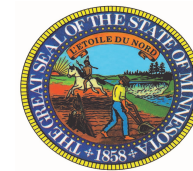


	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>
Total Passive Domestic Equity					
BLACKROCK RUSSELL 1000	20.9%	31.4%	-4.8%	21.7%	
RUSSELL 1000 (DAILY)	21.0	31.4	-4.8	21.7	
Excess	-0.0	0.0	-0.0	-0.0	
BLACKROCK RUSSELL 2000	20.8	25.2			
RUSSELL 2000 (DAILY)	20.0	25.5			
Excess	0.8	-0.3			
BLACKROCK RUSSELL 3000 (1)	21.2	31.1	-5.2	21.1	12.7%
Passive Manager Benchmark	20.9	31.0	-5.2	21.1	12.7
Excess	0.3	0.0	-0.0	0.0	0.0
PASSIVE DOMESTIC EQUITY AGGREGATE (2)	20.8%	31.3%	-5.0%	21.3%	12.6
Passive Domestic Equity Benchmark	20.8%	31.3%	-5.0%	21.5%	12.5
Excess	0.0%	0.0%	-0.0%	-0.2%	0.1

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

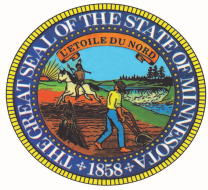
(2) The current Passive Domestic Equity Benchmark is a weighted average of the Russell 1000, Russell 2000 and Russell 3000.

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International Equity

September 30, 2021



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Total International Equity										
DEVELOPED MARKETS (1)	\$9,480,513,249	68.4%	-0.6%	-0.6%	26.7%	8.5%	9.4%	8.7%		
BENCHMARK DM			-0.7	-0.7	26.5	7.9	8.9	7.9		
Excess			0.1	0.1	0.2	0.6	0.5	0.8		
EMERGING MARKETS (2)	3,761,278,383	27.1	-7.8	-7.8	19.8	9.4	9.0	6.0		
BENCHMARK EM			-8.1	-8.1	18.2	8.6	9.2	6.1		
Excess			0.3	0.3	1.6	0.9	-0.2	-0.1		
ACWI EX-US AGGREGATE	394,798,603	2.8	-1.1	-1.1						
MSCI AC WORLD ex US (NET) - DAILY			-3.0	-3.0						
Excess			1.9	1.9						
CHINA ONLY AGGREGATE	194,161,159	1.4	-6.3	-6.3						
MSCI China A			-4.4	-4.4						
Excess			-2.0	-2.0						
TOTAL INTERNATIONAL EQUITY (4)	13,856,978,987	100.0	-2.6	-2.6	24.8	8.6	9.3	8.1	6.8	10/1992
International Equity Benchmark			-3.0	-3.0	24.0	8.0	8.9	7.5	6.3	10/1992
Excess			0.3	0.3	0.8	0.7	0.4	0.6	0.5	

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

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

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

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

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



	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>
Total International Equity					
DEVELOPED MARKETS (1)	9.1%	23.3%	-14.2%	24.9%	1.3%
BENCHMARK DM	7.6	22.5	-14.1	24.2	2.7
Excess	1.5	0.8	-0.1	0.7	-1.5
EMERGING MARKETS (2)					
EMERGING MARKETS (2)	17.9	20.3	-15.4	37.7	7.5
BENCHMARK EM	18.3	18.4	-14.6	37.3	11.2
Excess	-0.4	1.9	-0.8	0.4	-3.7
ACWI EX-US AGGREGATE					
MSCI AC WORLD ex US (NET) - DAILY					
Excess					
CHINA ONLY AGGREGATE					
MSCI China A					
Excess					
TOTAL INTERNATIONAL EQUITY (4)	11.4%	22.4%	-14.5%	27.6%	2.6
International Equity Benchmark	10.5%	21.5%	-14.2%	27.2%	4.5
Excess	0.8%	0.9%	-0.3%	0.4%	-1.8

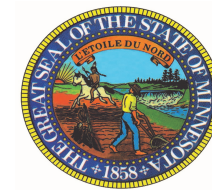
(1) The current benchmark for Developed Markets, Benchmark DM, is the Standard (large + mid) MSCI World ex USA (net).

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

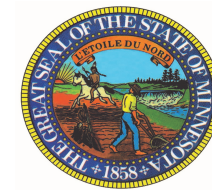
(3) The Transition Aggregate International Equity contains International Equity securities that are being transitioned to a different manager.

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

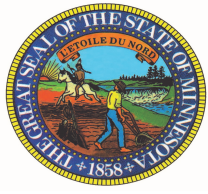
Note: All aggregates include the performance of terminated managers. For historical benchmark details please refer to the addendum of this report.



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Developed Markets										
ACADIAN	\$383,980,240	2.8%	-3.2%	-3.2%	23.8%	7.4%	11.6%	11.1%	7.2%	07/2005
BENCHMARK DM			-0.7	-0.7	26.5	7.9	8.9	7.9	5.6	07/2005
Excess			-2.5	-2.5	-2.7	-0.5	2.7	3.2	1.6	
COLUMBIA	415,914,154	3.0	1.0	1.0	27.8	11.9	12.3	10.5	4.2	03/2000
BENCHMARK DM			-0.7	-0.7	26.5	7.9	8.9	7.9	4.1	03/2000
Excess			1.7	1.7	1.3	4.1	3.4	2.6	0.2	
FIDELITY	411,483,166	3.0	0.3	0.3	26.5	11.3	11.4	10.1	7.5	07/2005
BENCHMARK DM			-0.7	-0.7	26.5	7.9	8.9	7.9	5.6	07/2005
Excess			0.9	0.9	-0.0	3.4	2.6	2.3	1.9	
JP MORGAN	358,807,271	2.6	-0.4	-0.4	24.5	10.8	10.9	9.0	6.2	07/2005
BENCHMARK DM			-0.7	-0.7	26.5	7.9	8.9	7.9	5.6	07/2005
Excess			0.2	0.2	-2.0	3.0	2.1	1.1	0.5	
MARATHON	388,248,433	2.8	-0.1	-0.1	30.5	8.5	9.3	9.6	8.3	11/1993
BENCHMARK DM			-0.7	-0.7	26.5	7.9	8.9	7.9	5.4	11/1993
Excess			0.6	0.6	4.0	0.7	0.4	1.7	2.8	
MCKINLEY	299,184,637	2.2	2.6	2.6	22.4	9.8	10.7	9.6	5.9	07/2005
BENCHMARK DM			-0.7	-0.7	26.5	7.9	8.9	7.9	5.6	07/2005
Excess			3.3	3.3	-4.1	2.0	1.8	1.7	0.3	
AQR CAPITAL MANAGEMENT	367,604,704	2.7	-3.0	-3.0	21.9	5.4	6.8	7.9	5.5	07/2005
BENCHMARK DM			-0.7	-0.7	26.5	7.9	8.9	7.9	5.6	07/2005
Excess			-2.4	-2.4	-4.6	-2.5	-2.1	-0.0	-0.1	



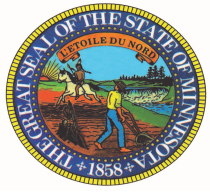
	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>
Active Developed Markets					
ACADIAN	11.7%	19.1%	-13.5%	37.0%	8.1%
BENCHMARK DM	7.6	22.5	-14.1	24.2	2.7
Excess	4.2	-3.4	0.6	12.8	5.4
COLUMBIA	15.0	28.9	-14.9	32.7	-5.6
BENCHMARK DM	7.6	22.5	-14.1	24.2	2.7
Excess	7.4	6.4	-0.8	8.5	-8.3
FIDELITY	15.4	27.1	-14.6	25.9	1.2
BENCHMARK DM	7.6	22.5	-14.1	24.2	2.7
Excess	7.8	4.6	-0.5	1.7	-1.5
JP MORGAN	14.2	28.5	-17.3	28.3	4.0
BENCHMARK DM	7.6	22.5	-14.1	24.2	2.7
Excess	6.6	6.0	-3.3	4.1	1.2
MARATHON	7.6	23.5	-13.4	23.1	-1.1
BENCHMARK DM	7.6	22.5	-14.1	24.2	2.7
Excess	0.1	1.0	0.7	-1.1	-3.8
MCKINLEY	16.4	25.6	-15.9	28.5	-7.5
BENCHMARK DM	7.6	22.5	-14.1	24.2	2.7
Excess	8.8	3.1	-1.9	4.3	-10.2
AQR CAPITAL MANAGEMENT	6.5	20.8	-18.2	25.1	0.8
BENCHMARK DM	7.6	22.5	-14.1	24.2	2.7
Excess	-1.1	-1.7	-4.1	0.9	-2.0



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Total Developed Markets										
Active Developed Markets Aggregate (1)	\$2,625,222,604		-0.5%	-0.5%	25.5%	9.2%	10.2%	9.4%		
BENCHMARK DM			-0.7	-0.7	26.5	7.9	8.9	7.9		
Excess			0.2	0.2	-1.0	1.4	1.3	1.5		
SSgA DEVELOPED MARKETS PASSIVE	\$6,855,290,645	49.5%	-0.6%	-0.6%	27.1%	8.3%	9.3%	8.3%	6.5%	10/1992
BENCHMARK DM			-0.7%	-0.7%	26.5%	7.9%	8.9%	7.9%	6.2%	10/1992
Excess			0.1%	0.1%	0.6%	0.4%	0.4%	0.4%	0.3%	
RECORD CURRENCY (2)	\$25,421,648	0.2%	0.2%	0.2%	0.4%					10/2020
DM PASSIVE EQUITY WITH CURRENCY MGMT	\$6,880,712,293	49.7%	-0.4%	-0.4%	27.5%	8.4%	9.2%	8.3%		10/1992
BENCHMARK DM			-0.7%	-0.7%	26.5%	7.9%	8.9%	7.9%		10/1992
Excess			0.3%	0.3%	1.0%	0.6%	0.4%	0.4%		
DEVELOPED MARKETS TOTAL	9,480,513,249	68.4	-0.6	-0.6	26.7	8.5	9.4	8.7		
BENCHMARK DM			-0.7	-0.7	26.5	7.9	8.9	7.9		
Excess			0.1	0.1	0.2	0.6	0.5	0.8		

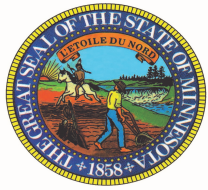
(1) Includes the historical returns of AQR and terminated managers previously classified as "Semi-Passive Developed Markets"

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



	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>
Total Developed Markets					
Active Developed Markets Aggregate (1)	12.2%	24.4%	-15.1%	26.8%	-0.3%
BENCHMARK DM	7.6	22.5	-14.1	24.2	2.7
Excess	4.6	1.9	-1.0	2.6	-3.0
SSgA DEVELOPED MARKETS PASSIVE	8.2%	23.0%	-13.9%	24.7%	3.2
BENCHMARK DM	7.6%	22.5%	-14.1%	24.2%	2.7
Excess	0.6%	0.5%	0.2%	0.5%	0.4
DM PASSIVE EQUITY WITH CURRENCY MGMT	8.0%	23.0%	-13.9%	23.8%	3.3
BENCHMARK DM	7.6%	22.5%	-14.1%	24.2%	2.7
Excess	0.4%	0.5%	0.2%	-0.4%	0.5
DEVELOPED MARKETS TOTAL	9.1%	23.3%	-14.2%	24.9%	1.3
BENCHMARK DM	7.6%	22.5%	-14.1%	24.2%	2.7
Excess	1.5%	0.8%	-0.1%	0.7%	-1.5

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



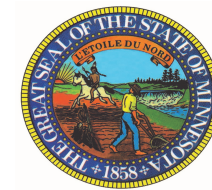
	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Emerging Markets										
MARTIN CURRIE	\$486,657,009	3.5%	-8.9%	-8.9%	19.1%	12.8%			12.9%	04/2017
BENCHMARK EM			-8.1	-8.1	18.2	8.6			8.7	04/2017
Excess			-0.8	-0.8	0.9	4.2			4.2	
MACQUARIE	436,808,931	3.2	-10.4	-10.4	11.9	10.5			10.5	04/2017
BENCHMARK EM			-8.1	-8.1	18.2	8.6			8.7	04/2017
Excess			-2.3	-2.3	-6.3	1.9			1.8	
MORGAN STANLEY	560,762,251	4.0	-5.0	-5.0	21.7	10.5	8.7%	6.7%	9.6	01/2001
BENCHMARK EM			-8.1	-8.1	18.2	8.6	9.2	6.1	9.2	01/2001
Excess			3.1	3.1	3.5	2.0	-0.6	0.6	0.4	
NEUBERGER BERMAN	407,537,947	2.9	-9.2	-9.2	12.0	7.0			7.2	04/2017
BENCHMARK EM			-8.1	-8.1	18.2	8.6			8.7	04/2017
Excess			-1.1	-1.1	-6.2	-1.6			-1.5	
PZENA	378,344,672	2.7	-3.4	-3.4	43.7	8.2			7.9	04/2017
BENCHMARK EM			-8.1	-8.1	18.2	8.6			8.7	04/2017
Excess			4.7	4.7	25.5	-0.4			-0.8	
ROCK CREEK	442,126,169	3.2	-8.6	-8.6	17.6	10.6			8.4	04/2017
BENCHMARK EM			-8.1	-8.1	18.2	8.6			8.7	04/2017
Excess			-0.5	-0.5	-0.6	2.0			-0.3	



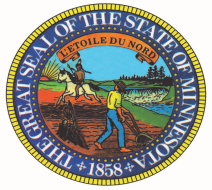
	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>
Active Emerging Markets					
MARTIN CURRIE	26.5%	27.3%	-16.6%		
BENCHMARK EM	18.3	18.4	-14.6		
Excess	8.2	8.8	-2.0		
MACQUARIE	24.2	23.2	-13.3		
BENCHMARK EM	18.3	18.4	-14.6		
Excess	5.9	4.7	1.3		
MORGAN STANLEY	15.7	20.4	-16.7	37.9%	6.1%
BENCHMARK EM	18.3	18.4	-14.6	37.3	11.2
Excess	-2.6	1.9	-2.2	0.6	-5.1
NEUBERGER BERMAN	14.2	19.7	-17.1		
BENCHMARK EM	18.3	18.4	-14.6		
Excess	-4.1	1.3	-2.6		
PZENA	7.7	13.4	-10.8		
BENCHMARK EM	18.3	18.4	-14.6		
Excess	-10.6	-5.1	3.8		
ROCK CREEK	22.0	22.3	-17.6		
BENCHMARK EM	18.3	18.4	-14.6		
Excess	3.7	3.9	-3.1		



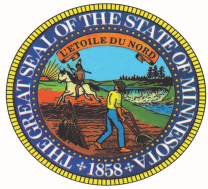
	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Total Emerging Markets										
ACTIVE EMERGING MARKETS AGGREGATE	\$2,712,236,980	19.6%	-7.6%	-7.6%	20.8%	9.9%	8.7%	5.8%		
BENCHMARK EM			-8.1	-8.1	18.2	8.6	9.2	6.1		
Excess			0.5	0.5	2.6	1.3	-0.5	-0.3		
SSGA EMERGING MARKETS PASSIVE	1,049,041,403	7.6	-8.3	-8.3	17.5	8.4	9.0		5.8	01/2012
BENCHMARK EM			-8.1	-8.1	18.2	8.6	9.2		5.8	01/2012
Excess			-0.2	-0.2	-0.7	-0.2	-0.2		0.0	
EMERGING MARKETS TOTAL	3,761,278,383	27.1	-7.8	-7.8	19.8	9.4	9.0	6.0		
BENCHMARK EM			-8.1	-8.1	18.2	8.6	9.2	6.1		
Excess			0.3	0.3	1.6	0.9	-0.2	-0.1		



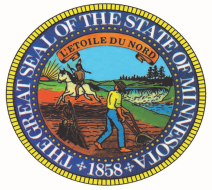
	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>
Total Emerging Markets					
ACTIVE EMERGING MARKETS AGGREGATE	17.6%	21.4%	-15.6%	37.2%	5.3%
BENCHMARK EM	18.3	18.4	-14.6	37.3	11.2
Excess	-0.7	3.0	-1.0	-0.1	-5.9
SSGA EMERGING MARKETS PASSIVE	18.3%	18.1%	-14.7%	37.4%	11.1
BENCHMARK EM	18.3%	18.4%	-14.6%	37.3%	11.2
Excess	0.0%	-0.3%	-0.1%	0.1%	-0.1
EMERGING MARKETS TOTAL	17.9%	20.3%	-15.4%	37.7%	7.5
BENCHMARK EM	18.3%	18.4%	-14.6%	37.3%	11.2
Excess	-0.4%	1.9%	-0.8%	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>
Active ACWI ex-US										
EARNEST PARTNERS ACWI EX US	\$394,798,603	2.8%	-1.1%	-1.1%					10.8%	01/2021
MSCI AC WORLD ex US (NET) - DAILY			-3.0%	-3.0%					5.9%	01/2021
Excess			1.9%	1.9%					4.9%	
TOTAL ACWI EX-US AGGREGATE										
MSCI AC WORLD ex US (NET) - DAILY			-3.0%	-3.0%						
Excess			1.9%	1.9%						



	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>
Active ACWI ex-US					
EARNEST PARTNERS ACWI EX US					
MSCI AC WORLD ex US (NET) - DAILY					
Excess					
TOTAL ACWI EX-US AGGREGATE					
MSCI AC WORLD ex US (NET) - DAILY					
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>
China Only Managers										
EARNEST PARTNERS CHINA	\$194,161,159		-6.3%	-6.3%					-7.5%	01/2021
MSCI China A			-4.4	-4.4					0.0	01/2021
Excess			-2.0	-2.0					-7.6	
CHINA ONLY AGGREGATE	\$194,161,159		-6.3%	-6.3%						
MSCI China A			-4.4%	-4.4%						
Excess			-2.0%	-2.0%						



	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>
China Only Managers					
EARNEST PARTNERS CHINA					
MSCI China A					
Excess					
CHINA ONLY AGGREGATE					
MSCI China A					
Excess					

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Global Equity

September 30, 2021

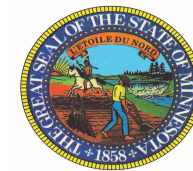


	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Global Equity Managers										
ARIEL INVESTMENTS	\$364,821,293	32.6%	-3.3%	-3.3%					5.9%	01/2021
MSCI AC WORLD NET USD DAILY			-1.1	-1.1					11.1	01/2021
Excess			-2.3	-2.3					-5.2	
BAILLIE GIFFORD	334,806,081	30.0	-5.3	-5.3					5.9	01/2021
MSCI AC WORLD NET USD DAILY			-1.1	-1.1					11.1	01/2021
Excess			-4.3	-4.3					-5.2	
MARTIN CURRIE INVESTMENTS - GLOBAL EQ	418,253,801	37.4	-4.8	-4.8					6.4	01/2021
MSCI AC WORLD NET USD DAILY			-1.1	-1.1					11.1	01/2021
Excess			-3.7	-3.7					-4.8	
GLOBAL EQUITY	1,117,881,175	100.0	-4.5	-4.5					6.1	01/2021
MSCI AC WORLD NET USD DAILY			-1.1	-1.1					11.1	01/2021
Excess			-3.4	-3.4					-5.0	



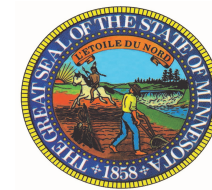
	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>
Global Equity Managers					
ARIEL INVESTMENTS					
MSCI AC WORLD NET USD DAILY					
Excess					
BAILLIE GIFFORD					
MSCI AC WORLD NET USD DAILY					
Excess					
MARTIN CURRIE INVESTMENTS - GLOBAL EQ					
MSCI AC WORLD NET USD DAILY					
Excess					
GLOBAL EQUITY					
MSCI AC WORLD NET USD DAILY					
Excess					

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Core/Core Plus Bonds

September 30, 2021



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Bonds										
CORE (1)	\$2,012,583,996	39.9%	0.2%	0.2%						
Bloomberg U.S. Aggregate			0.1	0.1						
Excess			0.1	0.1						
CORE PLUS (1)	3,033,437,767	60.1	0.2	0.2						
Bloomberg U.S. Aggregate			0.1	0.1						
Excess			0.2	0.2						
TRANSITION AGGREGATE CORE BONDS (2)	19,116	0.0								
TOTAL CORE/CORE PLUS BONDS (3)	5,046,040,879	100.0	0.2	0.2	0.9	6.4	3.9	3.9	7.4	07/1984
Bloomberg U.S. Aggregate			0.1	0.1	-0.9	5.4	2.9	3.0	7.0	07/1984
Excess			0.1	0.1	1.8	1.1	0.9	0.9	0.4	

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

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

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

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



	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>
Bonds					
CORE (1)					
Bloomberg U.S. Aggregate					
Excess					
CORE PLUS (1)					
Bloomberg U.S. Aggregate					
Excess					
TRANSITION AGGREGATE CORE BONDS (2)					
TOTAL CORE/CORE PLUS BONDS (3)	9.7%	9.7%	-0.0%	4.2%	3.6
Bloomberg U.S. Aggregate	7.5%	8.7%	0.0%	3.5%	2.6
Excess	2.2%	1.0%	-0.1%	0.7%	0.9

(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.

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



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Core										
DODGE & COX	\$1,066,408,698	21.1%	0.2%	0.2%	1.8%	6.2%	4.2%	4.4%	5.9%	02/2000
Bloomberg U.S. Aggregate			0.1	0.1	-0.9	5.4	2.9	3.0	4.9	02/2000
Excess			0.1	0.1	2.7	0.8	1.2	1.4	1.0	
BLACKROCK	946,175,298	18.8	0.2	0.2	-0.5	5.8	3.3	3.3	5.2	04/1996
Bloomberg U.S. Aggregate			0.1	0.1	-0.9	5.4	2.9	3.0	5.1	04/1996
Excess			0.1	0.1	0.4	0.5	0.3	0.3	0.1	
CORE	2,012,583,996	39.9	0.2	0.2						
Bloomberg U.S. Aggregate			0.1	0.1						
Excess			0.1	0.1						



	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>
Active Core					
DODGE & COX	9.4%	9.6%	-0.0%	4.2%	4.8%
Bloomberg U.S. Aggregate	7.5	8.7	0.0	3.5	2.6
Excess	1.8	0.9	-0.1	0.7	2.2
BLACKROCK					
BLACKROCK	8.3	9.3	-0.1	3.7	2.8
Bloomberg U.S. Aggregate	7.5	8.7	0.0	3.5	2.6
Excess	0.8	0.6	-0.2	0.1	0.1

CORE

Bloomberg U.S. Aggregate

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>
Core Plus Bonds										
GOLDMAN SACHS	\$900,937,153	17.9%	0.3%	0.3%	-0.3%	6.0%	3.5%	3.5%	5.5%	07/1993
Bloomberg U.S. Aggregate			0.1	0.1	-0.9	5.4	2.9	3.0	5.1	07/1993
Excess			0.2	0.2	0.6	0.6	0.5	0.5	0.4	
NEUBERGER	991,640,853	19.7	0.2	0.2	1.6	6.5	3.7	3.6	6.3	07/1988
Bloomberg U.S. Aggregate			0.1	0.1	-0.9	5.4	2.9	3.0	6.0	07/1988
Excess			0.2	0.2	2.5	1.2	0.7	0.6	0.3	
WESTERN	1,140,859,761	22.6	0.1	0.1	1.7	7.2	4.6	4.6	8.2	07/1984
Bloomberg U.S. Aggregate			0.1	0.1	-0.9	5.4	2.9	3.0	7.0	07/1984
Excess			0.0	0.0	2.5	1.9	1.7	1.6	1.2	
CORE PLUS	3,033,437,767	60.1	0.2	0.2						
Bloomberg U.S. Aggregate			0.1	0.1						
Excess			0.2	0.2						



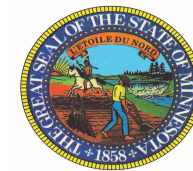
	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>
Core Plus Bonds					
GOLDMAN SACHS	9.0%	9.6%	-0.0%	3.9%	3.0%
Bloomberg U.S. Aggregate	7.5	8.7	0.0	3.5	2.6
Excess	1.5	0.9	-0.0	0.4	0.3
NEUBERGER	9.9	9.0	-0.1	3.6	2.7
Bloomberg U.S. Aggregate	7.5	8.7	0.0	3.5	2.6
Excess	2.4	0.3	-0.1	0.0	0.1
WESTERN ASSET MANAGEMENT	10.9	11.1	-0.2	5.6	4.9
Bloomberg U.S. Aggregate	7.5	8.7	0.0	3.5	2.6
Excess	3.4	2.4	-0.3	2.1	2.2

CORE PLUS

Bloomberg U.S. Aggregate

Excess

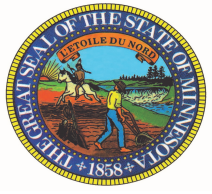
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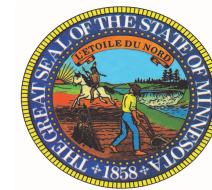
Return Seeking Bonds

September 30, 2021

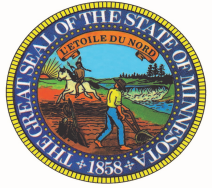
Minnesota State Board of Investment
Quarter Ending September 30, 2021
Return Seeking Bonds Managers



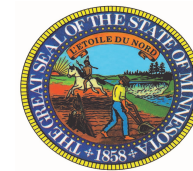
	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Return Seeking Bonds Managers										
COLUMBIA CREDIT PLUS	\$935,281,601		-0.1%	-0.1%					2.1%	12/2020
Credit Plus Benchmark			0.2	0.2					0.0	12/2020
Excess			-0.3	-0.3					2.1	
PIMCO CREDIT PLUS	815,681,827		0.3	0.3					1.4	12/2020
Credit Plus Benchmark			0.2	0.2					0.0	12/2020
Excess			0.2	0.2					1.4	
CREDIT PLUS	1,750,963,428	43.5%	0.1	0.1					1.8	12/2020
Credit Plus Benchmark			0.2	0.2					0.0	12/2020
Excess			-0.1	-0.1					1.8	
BLACKROCK OPPORTUNISTIC	505,509,515	12.6	0.1	0.1					1.0	12/2020
ICE BofA US 3-Month Treasury Bill			0.0	0.0					0.1	12/2020
Excess			0.0	0.0					1.0	
ASHMORE EMERGING MARKET	282,203,685	7.0	-4.9	-4.9					-6.7	01/2021
JPM JEMB Sovereign-only 50-50			-1.9	-1.9					-3.9	01/2021
Excess			-3.0	-3.0					-2.8	
TCW SECURITIZED CREDIT	300,529,924		0.2	0.2					0.2	07/2021
ICE BofA US 3-Month Treasury Bill			0.0	0.0					0.0	07/2021
Excess			0.2	0.2					0.2	



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Return Seeking Bonds Managers										
PAYDEN RYDEL	\$308,186,586	7.7%	0.4%	0.4%					2.5%	01/2021
Multi-Asset Credit Benchmark			0.5	0.5					2.3	01/2021
Excess			-0.1	-0.1					0.2	
PGIM	306,003,072	7.6	0.5	0.5					1.6	01/2021
Multi-Asset Credit Benchmark			0.5	0.5					2.3	01/2021
Excess			0.0	0.0					-0.8	
MULTI-ASSET CREDIT	614,189,658	15.3	0.4	0.4					2.1	01/2021
Multi-Asset Credit Benchmark			0.5	0.5					2.3	01/2021
Excess			-0.0	-0.0					-0.3	
KKR	312,468,384	7.8	1.0	1.0					3.7	01/2021
ICE BofA US Cash Pay HY Constrained			0.9	0.9					4.6	01/2021
Excess			0.0	0.0					-0.8	
OAKTREE	260,886,055	6.5	0.8	0.8					3.6	01/2021
ICE BofA US Cash Pay HY Constrained			0.9	0.9					4.6	01/2021
Excess			-0.1	-0.1					-0.9	
HIGH YIELD	573,354,439	14.2	0.9	0.9					3.7	01/2021
ICE BofA US Cash Pay HY Constrained			0.9	0.9					4.6	01/2021
Excess			-0.0	-0.0					-0.9	

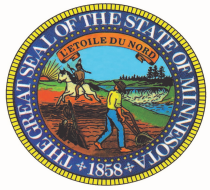


	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Return Seeking Bonds										
CREDIT PLUS	\$1,750,963,428	43.5%	0.1%	0.1%					1.8%	12/2020
Credit Plus Benchmark			0.2	0.2					0.0	12/2020
Excess			-0.1	-0.1					1.8	
OPPORTUNISTIC FI	505,509,515	12.6	0.1	0.1					1.0	12/2020
ICE BofA US 3-Month Treasury Bill			0.0	0.0					0.1	12/2020
Excess			0.0	0.0					1.0	
EMERGING MARKET DEBT	282,203,685	7.0	-4.9	-4.9					-6.7	01/2021
JPM JEMB Sovereign-only 50-50			-1.9	-1.9					-3.9	01/2021
Excess			-3.0	-3.0					-2.8	
SECURITIZED CREDIT	300,529,924		0.2	0.2					0.2	06/2021
ICE BofA US 3-Month Treasury Bill			0.0	0.0					0.0	06/2021
Excess			0.2	0.2					0.2	
MULTI-ASSET CREDIT	614,189,658	15.3	0.4	0.4					2.1	01/2021
Multi-Asset Credit Benchmark			0.5	0.5					2.3	01/2021
Excess			-0.0	-0.0					-0.3	
HIGH YIELD	573,354,439	14.2	0.9	0.9					3.7	01/2021
ICE BofA US Cash Pay HY Constrained			0.9	0.9					4.6	01/2021
Excess			-0.0	-0.0					-0.9	
RETURN SEEKING BONDS	4,026,750,649	100.0	-0.1	-0.1					1.7	12/2020
Return Seeking Fixed Income Benchmark			0.1	0.1					1.3	12/2020
Excess			-0.2	-0.2					0.4	



Treasuries

September 30, 2021

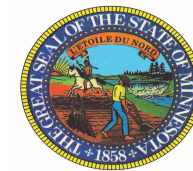


	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Treasuries Managers										
BLACKROCK	\$2,765,292,498	31.8%	0.1%	0.1%	-6.7%	7.0%			5.3%	02/2018
Bloomberg Treasury 5+ Year			0.2	0.2	-6.8	7.1			5.4	02/2018
Excess			-0.0	-0.0	0.1	-0.1			-0.1	
GOLDMAN SACHS	2,957,162,678	34.0	0.2	0.2	-6.4	7.1			5.4	02/2018
Bloomberg Treasury 5+ Year			0.2	0.2	-6.8	7.1			5.4	02/2018
Excess			-0.0	-0.0	0.3	0.0			0.0	
NEUBERGER	2,980,377,091	34.2	0.2	0.2	-6.0	7.2			5.5	02/2018
Bloomberg Treasury 5+ Year			0.2	0.2	-6.8	7.1			5.4	02/2018
Excess			0.1	0.1	0.8	0.1			0.1	
TREASURIES TRANSITION ACCOUNT	0	0.0								03/2018
TOTAL TREASURIES	8,702,832,267	100.0	0.2	0.2	-6.4	7.1			5.4%	02/2018
Bloomberg Treasury 5+ Year			0.2	0.2	-6.8	7.1			5.4%	02/2018
Excess			0.0	0.0	0.4	0.0			0.0%	



	<u>2020 Calendar Return</u>	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>
Treasuries Managers					
BLACKROCK	12.5%	10.4%			
Bloomberg Treasury 5+ Year	12.8	10.4			
Excess	-0.3	-0.1			
GOLDMAN SACHS	12.7	10.6			
Bloomberg Treasury 5+ Year	12.8	10.4			
Excess	-0.1	0.1			
NEUBERGER	12.8	10.4			
Bloomberg Treasury 5+ Year	12.8	10.4			
Excess	-0.1	-0.0			
TOTAL TREASURIES	12.7%	10.4%			
Bloomberg Treasury 5+ Year	12.8%	10.4%			
Excess	-0.2%	0.0%			

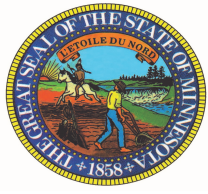
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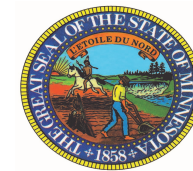
Laddered Bonds + Cash

September 30, 2021

Minnesota State Board of Investment
Quarter Ending September 30, 2021
Laddered Bond + Cash Managers



	<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>
Laddered Bond and Cash Managers										
Neuberger Berman Ladder Bond	\$1,552,689,328	37.6%	0.0%	0.0%					0.2%	11/2020
ICE BofA US 3-Month Treasury Bill			0.0	0.0					0.1	11/2020
Excess			0.0	0.0					0.1	
Goldman Sachs Ladder Bond	1,552,468,039	37.6	0.0	0.0					0.2	11/2020
ICE BofA US 3-Month Treasury Bill			0.0	0.0					0.1	11/2020
Excess			0.0	0.0					0.1	
Treasury Ladder Aggregate	3,105,157,367	75.2	0.0	0.0					0.2	11/2020
ICE BofA US 3-Month Treasury Bill			0.0	0.0					0.1	11/2020
Excess			0.0	0.0					0.1	
Combined Funds STIF	997,845,743		0.0	0.0	0.1%	1.2%	1.2%	0.7%		
iMoneyNet Money Fund Average-All Taxable			0.0	0.0	0.0	0.9	0.8	0.4		
Excess			0.0	0.0	0.1	0.3	0.3	0.3		
TEACHERS RETIREMENT CD REPO	25,313,563	0.6	0.0	0.0	0.1	1.4	1.4			
ICE BofA US 3-Month Treasury Bill			0.0	0.0	0.1	1.2	1.2			
Excess			-0.0	-0.0	0.0	0.2	0.2			
Laddered Bond + Cash	4,128,317,478		0.0	0.0						
ICE BofA US 3-Month Treasury Bill			0.0	0.0						
Excess			0.0	0.0						



Uninvested Private Markets

September 30, 2021

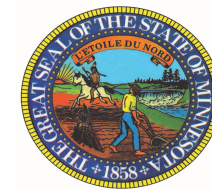


	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Uninvested Private Markets Managers										
NISA PRIVATE MKT UNINV OVERLAY	\$953,838,228	14.0%	0.5%	0.5%					15.2%	01/2021
S&P 500 INDEX (DAILY)			0.6	0.6					15.9	01/2021
Excess			-0.0	-0.0					-0.7	
BLACKROCK SP INDEX	5,876,868,566	86.0	0.6	0.6					16.0	01/2021
S&P 500 INDEX (DAILY)			0.6	0.6					15.9	01/2021
Excess			-0.0	-0.0					0.1	
UNINVESTED PRIVATE PMARKETS	6,830,706,794	100.0	0.6	0.6					15.8	01/2021
S&P 500 INDEX (DAILY)			0.6	0.6					15.9	01/2021
Excess			-0.0	-0.0					-0.1	



Private Markets

September 30, 2021



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	9.4%	9.4%	42.1%	15.9%	16.2%	12.9%	13.0%	13.9%	12.8%
Private Equity	10.3%	10.3%	52.9%	23.0%	21.7%	16.8%	14.7%	15.7%	
Private Credit	5.7%	5.7%	20.4%	10.0%	12.3%	12.1%	12.3%	12.6%	
Resources	6.6%	6.6%	21.8%	-3.0%	2.3%	1.7%	12.1%	12.8%	
Real Estate	10.2%	10.2%	22.9%	11.5%	11.3%	11.7%	8.9%	10.2%	

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.

Minnesota State Board of Investment
Private Markets Investments as of September 30, 2021

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Private Equity	18,910,359,015	13,358,584,344	11,688,681,374	6,882,257,080	11,176,781,235	1.71	14.22	
Adams Street Partners, LLC	285,440,000	145,814,692	77,062,705	139,625,308	135,926,510	1.46	12.35	
Adams Street Global Secondary Fund 5 LP	100,000,000	77,114,692	58,327,647	22,885,308	46,428,413	1.36	7.15	2012
Adams Street Global Secondary Fund 6	100,000,000	68,700,000	18,735,058	31,300,000	89,498,097	1.58	42.66	2017
Adams Street Global Secondary Fund 7	85,440,000	0	0	85,440,000	0	0.00		2021
Advent International Group	355,000,000	289,233,913	296,337,992	72,525,449	300,271,483	2.06	19.43	
Advent International GPE IX	115,000,000	56,649,957	9,195,408	62,025,451	92,950,121	1.80	60.29	2019
Advent International GPE VI-A, L.P.	50,000,000	52,993,313	103,400,194	0	5,187,822	2.05	16.63	2008
Advent International GPE VII, L.P.	90,000,000	84,690,641	116,171,875	5,400,000	56,948,762	2.04	15.94	2012
Advent International GPE VIII-B	100,000,000	94,900,002	67,570,515	5,099,998	145,184,778	2.24	26.77	2016
Affinity Ventures	9,000,000	9,000,000	3,590,011	0	1,092,682	0.52	-10.85	
Affinity Ventures IV, L.P.	4,000,000	4,000,000	1,541,970	0	3,279	0.39	-39.15	2004
Affinity Ventures V, L.P.	5,000,000	5,000,000	2,048,042	0	1,089,403	0.63	-7.24	2008
Apax Partners	500,000,000	434,112,910	419,708,668	130,062,027	391,971,870	1.87	20.09	
Apax IX USD L.P.	150,000,000	150,222,938	88,277,534	18,943,491	236,875,093	2.16	31.74	2016
APAX VIII - USD	200,000,000	233,434,305	331,600,467	11,743,535	92,792,201	1.82	16.18	2013
Apax X USD L.P.	150,000,000	50,455,667	(169,333)	99,375,000	62,304,576	1.23	75.15	2019
Arsenal Capital Partners	75,000,000	59,060,290	2,514,287	18,341,088	72,780,700	1.27	18.67	
Arsenal Capital Partners V, L.P.	75,000,000	59,060,290	2,514,287	18,341,088	72,780,700	1.27	18.67	2019
Asia Alternatives	399,000,000	89,824,007	7,515,717	313,740,316	102,246,194	1.22	16.33	
Asia Alternatives Capital Partners V	99,000,000	79,681,721	7,515,717	23,882,602	93,034,382	1.26	17.61	2017
MN Asia Investors	300,000,000	10,142,286	0	289,857,714	9,211,812	0.91	-13.62	2020
Banc Fund	276,801,387	285,710,477	231,329,941	0	184,207,223	1.45	9.18	
Banc Fund IX, L.P.	107,205,932	107,205,932	25,178,049	0	103,545,707	1.20	3.95	2014
Banc Fund VIII, L.P.	98,250,000	98,250,000	205,046,223	0	0	2.09	12.40	2008
Banc Fund X, L.P.	71,345,455	80,254,545	1,105,670	0	80,661,516	1.02	1.17	2018
BlackRock	500,000,000	288,941,529	2,660,745	250,000,000	446,011,393	1.55	41.28	
BlackRock Long Term Capital, SCSP	500,000,000	288,941,529	2,660,745	250,000,000	446,011,393	1.55	41.28	2019
Blackstone Group L.P.	1,235,000,000	634,879,646	635,273,563	684,211,324	401,876,427	1.63	16.44	
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	1,030,024	2.39	37.02	2002
Blackstone Capital Partners V L.P.	140,000,000	152,349,646	242,729,411	7,027,560	3,166,481	1.61	8.00	2006
Blackstone Capital Partners VI, L.P.	100,000,000	106,387,331	129,461,960	11,175,309	56,734,196	1.75	12.70	2008
Blackstone Capital Partners VII	130,000,000	135,757,428	50,455,192	10,977,430	157,798,796	1.53	18.76	2015
Blackstone Capital Partners VIII LP	150,000,000	47,986,959	1,647,045	105,491,598	50,858,489	1.09	22.07	2019
Blackstone Growth	250,000,000	92,938,398	10,417,503	167,707,125	117,381,263	1.38	82.87	2020
Blackstone Supplemental Account - M	125,000,000	15,000,000	0	110,000,000	14,907,180	0.99	-0.62	2021
Blackstone Strategic Partners	815,500,000	624,208,887	719,798,507	262,497,496	283,584,823	1.61	12.03	
Strategic Partners III VC, L.P.	25,000,000	25,059,678	33,874,990	1,008,025	287,459	1.36	5.99	2004
Strategic Partners III-B, L.P.	100,000,000	79,629,077	118,509,586	12,304,709	218,388	1.49	6.35	2004
Strategic Partners IV VC, L.P.	40,500,000	42,135,370	61,361,824	2,287,372	3,422,062	1.54	9.26	2008

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Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Strategic Partners IV-B	100,000,000	99,315,462	151,411,043	11,712,268	4,656,931	1.57	12.22	2008
Strategic Partners V, LP	100,000,000	86,903,910	129,878,803	21,348,547	13,349,532	1.65	18.80	2011
Strategic Partners VI, L.P.	150,000,000	101,728,787	114,355,823	54,622,199	44,135,224	1.56	15.90	2014
Strategic Partners VII, L.P.	150,000,000	106,744,102	76,656,438	58,400,494	112,683,996	1.77	23.43	2016
Strategic Partners VIII	150,000,000	82,692,502	33,750,000	100,813,882	104,831,231	1.68	65.12	2018
Bridgepoint	172,787,854	96,406,200	13,311,036	76,381,654	100,391,038	1.18	15.08	
Bridgepoint Europe VI L.P.	172,787,854	96,406,200	13,311,036	76,381,654	100,391,038	1.18	15.08	2018
Brookfield Asset Management Inc.	350,000,000	233,258,930	163,785,962	148,580,897	263,487,014	1.83	43.83	
Brookfield Capital Partners Fund IV	100,000,000	99,945,063	152,347,702	20,456,504	100,047,680	2.53	49.19	2015
Brookfield Capital Partners V L.P.	250,000,000	133,313,867	11,438,260	128,124,393	163,439,335	1.31	23.69	2018
CVC Capital Partners	392,957,252	424,349,523	495,577,889	38,919,052	312,854,110	1.91	17.28	
CVC Capital Partners VI	258,985,732	270,536,478	203,135,805	37,263,795	306,360,526	1.88	18.01	2013
CVC European Equity Partners V, L.P.	133,971,519	153,813,045	292,442,084	1,655,257	6,493,584	1.94	16.76	2008
Cardinal Partners	10,000,000	10,000,000	39,196,082	0	30,547	3.92	10.61	
DSV Partners IV	10,000,000	10,000,000	39,196,082	0	30,547	3.92	10.61	1985
Carlyle Group	150,000,000	98,839,478	4,405,323	55,565,845	106,090,388	1.12	8.14	
Carlyle Partners VII, L.P.	150,000,000	98,839,478	4,405,323	55,565,845	106,090,388	1.12	8.14	2017
Chicago Growth Partners	60,000,000	58,347,626	123,371,040	1,652,374	503,560	2.12	19.54	
Chicago Growth Partners II, L.P.	60,000,000	58,347,626	123,371,040	1,652,374	503,560	2.12	19.54	2008
Court Square	500,000,000	433,692,538	472,755,497	103,239,013	258,882,712	1.69	14.07	
Court Square Capital Partners II, L.P.	175,000,000	170,029,204	295,744,454	16,757,741	9,241,961	1.79	12.55	2006
Court Square Capital Partners III, L.P.	175,000,000	187,074,280	172,980,330	9,108,102	162,204,400	1.79	18.08	2012
Court Square Capital Partners IV, L.P.	150,000,000	76,589,054	4,030,713	77,373,170	87,436,350	1.19	18.20	2018
Crescendo	101,500,000	103,101,226	57,982,654	0	312,067	0.57	-4.60	
Crescendo Ventures IV	101,500,000	103,101,226	57,982,654	0	312,067	0.57	-4.60	2000
GTCR	210,000,000	210,287,523	409,209,666	14,989,866	246,229,749	3.12	29.19	
GTCR Fund X	100,000,000	104,934,096	202,619,633	6,751,396	9,493,338	2.02	21.26	2010
GTCR XI	110,000,000	105,353,427	206,590,033	8,238,470	236,736,411	4.21	42.93	2013
Goldman, Sachs & Co.	549,800,000	416,028,949	401,123,746	176,372,275	279,781,784	1.64	14.99	
GS Capital Partners V, L.P.	100,000,000	74,319,006	191,435,136	1,041,099	591,600	2.58	18.24	2005
GS Capital Partners VI, L.P.	100,000,000	110,258,192	135,798,673	2,551,356	9,364,289	1.32	7.18	2007
GS China-US Cooperation Fund	99,800,000	18,637,445	0	81,337,000	24,146,465	1.30	14.11	2018
GS Vintage VII	100,000,000	81,915,314	38,138,683	56,376,033	86,433,750	1.52	18.17	2016
West Street Capital Partners VII, L.P.	150,000,000	130,898,992	35,751,254	35,066,787	159,245,681	1.49	20.53	2016
Goldner Hawn Johnson & Morrison	77,755,138	37,908,603	42,884,283	40,018,501	34,102,403	2.03	18.80	
GHJM TrailHead Fund	20,000,000	16,652,130	42,884,283	3,354,486	13,491,442	3.39	20.26	2012
Goldner Hawn Fund VII, L.P.	57,755,138	21,256,473	0	36,664,016	20,610,961	0.97	-2.78	2018
Green Equity Investors	325,000,000	272,362,128	203,646,660	89,274,157	350,585,646	2.03	18.04	
Green Equity Investors VI, L.P.	200,000,000	221,071,637	203,646,660	15,564,648	297,572,462	2.27	18.15	2012
Green Equity Investors VIII	125,000,000	51,290,491	0	73,709,509	53,013,185	1.03	6.18	2020
HarbourVest*	21,661,708	20,931,524	23,732,172	816,664	9,350,990	1.58	13.90	

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Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Dover Street VII Cayman Fund L.P.	2,198,112	2,073,906	1,709,090	132,416	181,481	0.91	-3.90	2014
HarbourVest Intl PE Partners V-Cayman US	3,526,037	3,345,452	4,313,009	185,432	346,312	1.39	14.53	2014
Harbourvest Intl PE Partners VI-Cayman	4,239,950	4,039,458	4,372,499	202,816	4,003,440	2.07	18.24	2014
HarbourVest Partners VIII Cayman Buyout	4,506,711	4,387,189	5,365,194	156,000	853,100	1.42	13.63	2014
HarbourVest Partners VIII-Cayman Venture	7,190,898	7,085,519	7,972,380	140,000	3,966,656	1.68	13.75	2014
Hellman & Friedman	650,000,000	369,712,622	452,420,324	281,110,594	210,501,211	1.79	15.05	
Hellman & Friedman Capital Partners VI, L.P.	175,000,000	171,037,755	315,233,005	5,062,369	3,205,215	1.86	12.91	2007
Hellman & Friedman Capital Partners VII, L.P.	50,000,000	49,879,178	136,824,497	2,222,784	26,297,552	3.27	25.11	2009
Hellman & Friedman Capital Partners X	250,000,000	0	0	250,000,000	0	0.00		2021
Hellman & Friedman Investors IX, L.P.	175,000,000	148,795,689	362,822	23,825,441	180,998,444	1.22	24.52	2018
IK Limited	509,959,032	408,800,804	405,872,216	109,358,508	260,263,556	1.63	15.57	
IK Fund IX	158,664,828	58,266,527	0	100,397,925	55,402,286	0.95	-12.35	2019
IK Fund VII	180,498,287	178,677,647	278,779,914	8,789,792	56,414,823	1.88	14.67	2013
IK Fund VIII	170,795,917	171,856,630	127,092,302	170,792	148,446,447	1.60	18.87	2016
Kohlberg, Kravis, Roberts & Co.	1,447,000,000	784,279,995	842,919,333	713,588,385	527,978,328	1.75	13.88	
KKR 2006 Fund L.P.	200,000,000	218,137,965	359,132,173	3,300,979	34,491,091	1.80	9.18	2006
KKR Americas Fund XII L.P.	150,000,000	117,279,730	35,344,279	43,990,593	205,705,817	2.06	37.30	2016
KKR Asian Fund III	100,000,000	82,935,260	17,498,017	25,882,034	116,254,779	1.61	29.41	2017
KKR Asian Fund IV	150,000,000	21,440,529	0	128,559,471	21,750,816	1.01	2.00	2020
KKR Core Investments Partnership	97,000,000	58,144,510	546,381	40,102,490	61,321,306	1.06	11.52	2021
KKR Europe V	100,000,000	61,174,431	5,452,455	41,752,818	68,292,593	1.21	20.68	2018
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	20,000,000	0	130,000,000	20,000,000	1.00		2021
KKR North America Fund XIII	300,000,000	0	0	300,000,000	0	0.00		2021
Lexington Partners	1,245,000,000	778,720,052	616,007,869	523,092,160	602,770,047	1.57	14.28	
Lexington Capital Partners IX, L.P.	150,000,000	71,194,090	16,090,030	87,758,517	91,295,044	1.51	77.12	2018
Lexington Capital Partners VI-B, L.P.	100,000,000	98,374,022	142,232,413	1,634,703	4,917,651	1.50	7.97	2005
Lexington Capital Partners VII, L.P.	200,000,000	172,466,709	248,233,348	38,059,995	38,961,064	1.67	14.70	2009
Lexington Capital Partners VIII, L.P.	150,000,000	136,386,669	109,161,545	32,663,555	108,975,311	1.60	18.70	2014
Lexington Co-Investment Partners IV	200,000,000	207,975,865	85,759,031	10,050,002	254,372,242	1.64	23.36	2017
Lexington Co-Investment Partners V	300,000,000	30,262,831	0	269,985,254	35,787,632	1.18	18.26	2020
Lexington Co-Investment Partners V Overage	45,000,000	8,217,000	0	36,783,000	8,269,466	1.01	0.87	2021
Lexington Middle Market Investors IV	100,000,000	53,842,866	14,531,502	46,157,134	60,191,637	1.39	31.89	2016
Madison Dearborn Capital Partners LLC	200,000,000	117,610,615	29,747,955	97,401,270	148,795,866	1.52	16.88	
Madison Dearborn Capital Partners VII, L.P.	100,000,000	94,768,587	29,704,657	20,200,000	116,722,984	1.55	15.31	2015
Madison Dearborn Capital Partners VIII-A, L.P	100,000,000	22,842,028	43,298	77,201,270	32,072,881	1.41	53.10	2019
Neuberger Berman LLC	625,000,000	346,496,665	232,369,089	465,834,546	356,341,826	1.70	39.33	
Dyal Capital Partners III	175,000,000	194,883,930	168,197,251	108,382,050	143,678,555	1.60	28.34	2015
Dyal Capital Partners IV	250,000,000	116,612,734	64,035,859	192,452,496	143,172,766	1.78	72.91	2018
Dyal Capital Partners V	200,000,000	35,000,000	135,979	165,000,000	69,490,505	1.99	281.05	2020

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Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Nordic Capital	504,926,043	373,284,125	248,222,314	208,404,434	434,365,916	1.83	21.54	
Nordic Capital Fund VIII	176,743,376	220,988,400	239,081,565	28,150,754	156,380,385	1.79	16.83	2013
Nordic Capital Fund X	156,817,017	8,507,976	0	148,309,041	7,365,023	0.87	-13.43	2020
Nordic Capital IX Beta, L.P.	171,365,651	143,787,749	9,140,749	31,944,639	270,620,507	1.95	55.52	2017
North Sky Capital*	2,454,339	1,998,089	2,407,407	456,250	428,956	1.42	12.98	
North Sky Capital LBO Fund III, LP	1,070,259	720,259	942,598	350,000	151,519	1.52	14.54	2014
North Sky Capital Venture Fund III, LP	1,384,080	1,277,830	1,464,808	106,250	277,437	1.36	11.96	2014
Oak Hill Capital Management, Inc.	250,000,000	183,062,153	141,429,898	91,366,551	133,078,090	1.50	28.87	
Oak Hill Capital Partners IV Onshore LP	150,000,000	146,337,056	141,394,855	28,091,648	91,878,371	1.59	28.80	2016
Oak Hill Capital Partners V	100,000,000	36,725,097	35,043	63,274,903	41,199,719	1.12	24.44	2018
Paine & Partners, LLC	225,000,000	141,900,926	37,556,227	85,920,076	130,238,456	1.18	8.46	
Paine Schwartz Food Chain Fund IV	75,000,000	64,832,786	35,397,971	11,240,368	52,686,864	1.36	8.89	2014
Paine Schwartz Food Chain Fund V, L.P.	150,000,000	77,068,140	2,158,256	74,679,708	77,551,592	1.03	5.61	2018
Permal PE*	5,337,098	4,382,196	4,150,751	1,090,000	689,420	1.10	3.64	
Gloustone Private Equity Opportunities IV	5,337,098	4,382,196	4,150,751	1,090,000	689,420	1.10	3.64	2014
Permira	460,770,303	395,476,653	323,720,166	103,857,228	583,415,007	2.29	25.30	
Permira V, L.P.	178,117,492	181,954,007	287,672,383	17,012,408	277,251,240	3.10	25.50	2013
Permira VI, L.P.	137,798,147	124,325,040	36,047,783	31,187,762	210,124,171	1.98	26.57	2016
Permira VII L.P.1	144,854,664	89,197,606	0	55,657,058	96,039,596	1.08	8.72	2019
Public Pension Capital Management	175,000,000	104,145,502	82,007,631	85,397,202	123,364,365	1.97	25.64	
Public Pension Capital, LLC	175,000,000	104,145,502	82,007,631	85,397,202	123,364,365	1.97	25.64	2014
Silver Lake Partners	435,000,000	423,222,591	493,123,490	33,350,680	389,029,671	2.08	15.96	
Silver Lake Partners II, L.P.	100,000,000	90,200,747	171,694,975	11,771,953	43,679	1.90	11.02	2004
Silver Lake Partners III, L.P.	100,000,000	93,744,021	191,855,140	9,528,468	28,198,533	2.35	18.72	2007
Silver Lake Partners IV	100,000,000	114,635,026	104,751,684	2,914,956	169,720,399	2.39	25.49	2012
Silver Lake Partners V, L.P.	135,000,000	124,642,797	24,821,691	9,135,303	191,067,060	1.73	30.90	2017
Split Rock	110,000,000	107,055,906	125,392,564	2,944,094	26,463,304	1.42	5.06	
Split Rock Partners II, LP	60,000,000	59,165,000	66,598,372	835,000	22,652,176	1.51	7.42	2008
Split Rock Partners LP	50,000,000	47,890,906	58,794,192	2,109,094	3,811,128	1.31	3.26	2005
Summit Partners	350,000,000	329,742,399	338,161,571	168,833,134	333,327,282	2.04	30.61	
Summit Partners Growth Equity Fund IX	100,000,000	124,860,208	88,814,878	63,954,670	186,541,470	2.21	42.02	2015
Summit Partners Growth Equity Fund VIII	100,000,000	116,727,192	229,442,550	23,129,320	53,464,413	2.42	27.27	2011
Summit Partners Growth Equity Fund X-A	150,000,000	88,154,999	19,904,143	81,749,144	93,321,399	1.28	42.88	2019
TPG Capital	550,000,000	204,501,251	102,460,308	358,647,840	216,259,525	1.56	23.68	
TPG Growth V, L.P.	150,000,000	44,093,302	526,470	107,034,034	42,965,966	0.99	-0.94	2021
TPG Partners VII, L.P.	100,000,000	96,842,016	97,775,747	11,021,648	84,542,553	1.88	20.89	2015
TPG Partners VIII	150,000,000	63,565,933	4,158,091	90,592,158	88,751,006	1.46	65.36	2018
TPG Tech Adjacencies II, L.P.	150,000,000	0	0	150,000,000	0	0.00		2021
Thoma Bravo LLC	425,000,000	391,877,935	208,638,702	102,753,742	424,619,774	1.62	24.27	
Thoma Bravo Fund XII, L.P.	75,000,000	81,455,833	22,548,786	16,164,188	126,055,701	1.82	18.43	2016
Thoma Bravo Fund XIII, L.P.	150,000,000	166,084,959	79,031,939	30,926,697	204,101,948	1.70	49.92	2018

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Thoma Bravo Fund XIV	150,000,000	94,337,143	37	55,662,857	94,021,774	1.00	-0.67	2020
Thoma Cressey Fund VII, L.P.	50,000,000	50,000,000	107,057,940	0	440,351	2.15	23.58	2000
Thomas H. Lee Partners	400,000,000	218,577,249	163,478,285	205,098,611	238,296,219	1.84	33.35	
Thomas H. Lee Equity Fund IX	150,000,000	0	0	150,000,000	0	0.00		2021
Thomas H. Lee Equity Fund VII, LP.	100,000,000	99,213,840	132,495,294	10,948,317	51,530,596	1.85	23.96	2015
Thomas H. Lee Equity Fund VIII, L.P.	150,000,000	119,363,409	30,982,991	44,150,294	186,765,623	1.82	73.85	2018
Thomas, McNerney & Partners	80,000,000	78,125,000	123,481,847	1,875,000	6,370,453	1.66	8.46	
Thomas, McNerney & Partners I, L.P.	30,000,000	30,000,000	15,087,143	0	3,028,284	0.60	-7.34	2002
Thomas, McNerney & Partners II, L.P.	50,000,000	48,125,000	108,394,704	1,875,000	3,342,169	2.32	16.54	2006
Vestar Capital Partners	380,000,000	320,187,006	351,018,794	68,872,294	157,565,138	1.59	11.60	
Vestar Capital Partners IV, L.P.	55,000,000	55,652,024	102,293,320	57,313	374,168	1.84	14.63	1999
Vestar Capital Partners V, L.P.	75,000,000	76,797,458	98,533,182	0	3,421,462	1.33	3.99	2005
Vestar Capital Partners VI, LP	100,000,000	106,516,978	150,071,483	35,527	50,918,615	1.89	24.04	2011
Vestar Capital Partners VII, L.P.	150,000,000	81,220,546	120,808	68,779,454	102,850,893	1.27	18.04	2017
Vista Equity Partners	200,000,000	153,344,282	77,223	47,868,621	155,445,561	1.01	1.94	
Vista Equity Partners Perennial	200,000,000	153,344,282	77,223	47,868,621	155,445,561	1.01	1.94	2020
Warburg Pincus	1,116,000,000	1,003,252,402	929,518,579	119,436,000	705,934,121	1.63	11.33	
Warburg Pincus China-Southeast Asia II	50,000,000	12,325,000	960,000	37,675,000	15,165,751	1.31	32.23	2019
Warburg Pincus China, L.P.	45,000,000	44,460,000	13,952,700	2,475,000	61,897,449	1.71	19.53	2016
Warburg Pincus Financial Sector	90,000,000	80,796,829	8,930,700	13,455,000	111,232,835	1.49	22.16	2017
Warburg Pincus Global Growth, L.P.	250,000,000	186,096,621	2,625,000	64,062,500	217,760,955	1.18	18.47	2018
Warburg Pincus Private Equity IX, L.P.	100,000,000	100,000,000	170,819,101	0	1,103,979	1.72	9.60	2005
Warburg Pincus Private Equity X, LP	150,000,000	150,000,000	265,629,491	0	3,669,469	1.80	9.52	2007
Warburg Pincus Private Equity XI, LP	200,000,000	200,342,452	245,212,748	0	110,810,893	1.78	13.31	2012
Warburg Pincus Private Equity XII, LP	131,000,000	129,231,500	57,846,587	1,768,500	183,900,317	1.87	20.34	2015
Warburg, Pincus Equity Partners, L.P.	100,000,000	100,000,000	163,542,253	0	392,472	1.64	10.02	1998
Wellspring Capital Partners	125,000,000	96,843,578	0	28,156,422	128,442,572	1.33	21.27	
Wellspring Capital Partners VI, L.P.	125,000,000	96,843,578	0	28,156,422	128,442,572	1.33	21.27	2016
Welsh, Carson, Anderson & Stowe	500,000,000	355,548,178	297,066,432	144,451,822	338,486,815	1.79	18.26	
Welsh, Carson, Anderson & Stowe XI, L.P.	100,000,000	100,000,000	137,471,465	0	29,128,229	1.67	11.68	2008
Welsh, Carson, Anderson & Stowe XII, L.P.	150,000,000	145,877,897	155,322,366	4,122,103	189,462,928	2.36	30.12	2014
Welsh, Carson, Anderson & Stowe XIII, L.P.	250,000,000	109,670,281	4,272,601	140,329,719	119,895,658	1.13	18.37	2018
Whitehorse Capital	200,000,000	161,866,626	76,236,906	73,650,202	124,268,045	1.24	28.43	
Whitehorse Liquidity Partners III	100,000,000	95,979,279	53,589,365	21,915,409	68,895,007	1.28	24.86	2019
Whitehorse Liquidity Partners IV	100,000,000	65,887,348	22,647,542	51,734,793	55,373,038	1.18	36.40	2020
Wind Point Partners	100,000,000	36,610,199	1,912,585	65,306,989	34,912,861	1.01	0.62	
Wind Point Partners IX	100,000,000	36,610,199	1,912,585	65,306,989	34,912,861	1.01	0.62	2019
Windjammer Capital Investors	266,708,861	191,658,745	212,508,759	77,321,119	102,557,538	1.64	10.81	
Windjammer Mezzanine & Equity Fund II	66,708,861	55,215,684	84,876,800	1,013,936	65,256	1.54	8.94	2000
Windjammer Senior Equity Fund IV, L.P.	100,000,000	94,740,728	126,425,062	16,802,619	57,571,100	1.94	14.42	2012

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Windjammer Senior Equity Fund V, L.P.	100,000,000	41,702,333	1,206,897	59,504,564	44,921,182	1.11	6.95	2017
Private Credit	2,980,672,584	2,204,152,749	1,937,348,517	1,153,496,571	944,001,550	1.31	9.96	
Audax Group	300,000,000	182,018,767	171,251,503	132,412,853	57,021,928	1.25	9.86	
Audax Mezzanine Fund III, L.P.	100,000,000	101,768,375	122,301,403	782	11,435,033	1.31	9.57	2010
Audax Mezzanine Fund IV-A, L.P.	100,000,000	80,250,391	48,950,100	32,412,071	45,586,894	1.18	10.92	2015
Audax Mezzanine Fund V	100,000,000	0	0	100,000,000	0	0.00		2020
BlackRock	97,500,000	69,802,405	7,742,530	27,697,595	73,924,168	1.17	7.86	
BlackRock Middle Market Senior Fund	97,500,000	69,802,405	7,742,530	27,697,595	73,924,168	1.17	7.86	2018
Brookfield Asset Management Inc.	200,000,000	0	0	200,000,000	0	0.00		
Brookfield Real Estate Finance Fund VI	200,000,000	0	0	200,000,000	0	0.00		2021
Energy Capital Partners	28,087,500	16,205,916	6,416,949	18,298,533	9,353,784	0.97	-3.37	
Energy Capital Credit Solutions II-A	28,087,500	16,205,916	6,416,949	18,298,533	9,353,784	0.97	-3.37	2018
Gold Hill	65,852,584	65,852,584	113,654,899	0	5,268,542	1.81	11.99	
Gold Hill 2008	25,852,584	25,852,584	48,393,297	0	4,769,981	2.06	14.98	2008
Gold Hill Venture Lending	40,000,000	40,000,000	65,261,602	0	498,561	1.64	10.72	2004
Goldman, Sachs & Co.	250,000,000	261,176,828	315,988,287	47,422,591	1,207,189	1.21	6.80	
GS Mezzanine Partners 2006 Institutional	100,000,000	113,458,168	135,137,487	9,858,563	554,151	1.20	5.00	2006
GS Mezzanine Partners V, L.P.	150,000,000	147,718,660	180,850,800	37,564,028	653,038	1.23	9.08	2007
HPS Investment Partners	100,000,000	79,605,826	10,224,483	28,099,456	78,674,941	1.12	15.23	
HPS Mezzanine Partners 2019, L.P.	100,000,000	79,605,826	10,224,483	28,099,456	78,674,941	1.12	15.23	2019
Kohlberg, Kravis, Roberts & Co.	274,000,000	312,944,732	243,400,062	109,388,462	118,617,175	1.16	9.88	
KKR Lending Partner II L.P.	75,000,000	86,818,578	82,124,706	8,802,924	10,469,621	1.07	3.26	2015
KKR Lending Partners III L.P.	199,000,000	226,126,154	161,275,356	100,585,538	108,147,554	1.19	15.01	2017
LBC Credit Partners	200,000,000	131,881,426	77,682,111	115,398,320	79,386,344	1.19	10.56	
LBC Credit Partners IV, L.P.	100,000,000	89,570,964	74,074,951	57,898,320	35,181,754	1.22	9.15	2016
LBC Credit Partners V, L.P.	100,000,000	42,310,462	3,607,161	57,500,000	44,204,590	1.13	30.22	2019
Marathon	100,000,000	76,022,008	858,534	25,000,000	88,470,375	1.18	14.42	
Marathon Secured Private Strategies Fund II	100,000,000	76,022,008	858,534	25,000,000	88,470,375	1.18	14.42	2019
Merit Capital Partners	320,232,500	226,693,050	268,154,119	93,472,650	104,079,649	1.64	11.39	
Merit Mezzanine Fund IV, L.P.	75,000,000	70,178,571	139,120,463	4,821,429	691,519	1.99	11.58	2004
Merit Mezzanine Fund V, LP	75,000,000	71,044,898	79,266,865	3,955,102	32,912,876	1.58	9.66	2009
Merit Mezzanine Fund VI	100,000,000	85,469,581	49,766,791	14,463,619	70,475,254	1.41	15.01	2016
Merit Mezzanine Fund VII	70,232,500	0	0	70,232,500	0	0.00		2020
Oaktree Capital Management, LLC	200,000,000	42,600,000	1,941,336	157,400,000	48,017,941	1.17	15.96	
Oaktree Real Estate Debt III	200,000,000	42,600,000	1,941,336	157,400,000	48,017,941	1.17	15.96	2020
Prudential Global Investment Mgmt	550,000,000	464,827,575	471,080,249	128,653,155	179,747,647	1.40	10.44	
PGIM Capital Partners VI, L.P.	100,000,000	5,795,036	0	94,204,964	5,788,349	1.00	-0.12	2020
Prudential Capital Partners II, L.P.	100,000,000	97,418,748	136,427,860	11,049,052	9,831,350	1.50	9.07	2005
Prudential Capital Partners III, L.P.	100,000,000	102,459,875	173,394,232	13,834,730	2,660,473	1.72	14.08	2009
Prudential Capital Partners IV	100,000,000	112,244,869	110,841,593	2,136,397	36,148,993	1.31	8.40	2012

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Prudential Capital Partners V, L.P.	150,000,000	146,909,047	50,416,564	7,428,012	125,318,482	1.20	8.71	2016
Summit Partners	95,000,000	100,002,497	133,679,035	22,177,023	6,965,137	1.41	9.28	
Summit Subordinated Debt Fund III, L.P.	45,000,000	44,088,494	60,443,093	2,250,000	3,858,770	1.46	8.83	2004
Summit Subordinated Debt Fund IV, L.P.	50,000,000	55,914,003	73,235,942	19,927,023	3,106,367	1.37	10.00	2008
TCW	200,000,000	174,519,135	115,274,419	48,075,934	93,266,731	1.19	8.42	
TCW Direct Lending LLC	100,000,000	83,599,652	84,886,750	25,329,409	19,277,195	1.25	7.90	2014
TCW Direct Lending VII	100,000,000	90,919,484	30,387,669	22,746,525	73,989,535	1.15	9.57	2018
Real Assets	4,247,571,518	3,756,493,214	2,294,231,512	763,972,380	1,979,019,922	1.14	3.52	
BlackRock	198,500,000	105,495,067	32,323,466	99,968,077	77,050,204	1.04	1.49	
BlackRock Global Renewable Power Fund II	98,500,000	94,413,824	32,142,498	11,049,320	66,700,744	1.05	1.77	2017
BlackRock Global Renewable Power Infrastructure III	100,000,000	11,081,243	180,968	88,918,757	10,349,460	0.95	-5.13	2019
EIG Global Energy Partners	450,000,000	468,204,323	346,187,077	77,704,481	149,589,269	1.06	1.54	
EIG Energy Fund XIV	100,000,000	113,459,470	95,309,310	2,761,129	4,597,654	0.88	-4.66	2007
EIG Energy Fund XV	150,000,000	161,870,879	146,523,239	22,871,323	25,613,814	1.06	1.55	2010
EIG Energy Fund XVI	200,000,000	192,873,974	104,354,527	52,072,029	119,377,801	1.16	4.30	2013
Encap Energy	400,000,000	422,788,810	327,371,795	12,270,701	165,905,956	1.17	5.51	
EnCap Energy Capital Fund VII, L.P.	100,000,000	105,406,230	137,949,713	0	3,335,097	1.34	14.50	2007
EnCap Energy Capital Fund VIII, L.P.	100,000,000	103,335,766	56,609,079	470,044	30,314,661	0.84	-4.21	2010
EnCap Energy Capital Fund X, L.P.	100,000,000	100,750,308	37,845,326	7,481,862	87,084,998	1.24	6.85	2015
Encap Energy Fund IX	100,000,000	113,296,505	94,967,677	4,318,795	45,171,201	1.24	7.20	2012
Energy & Minerals Group	680,000,000	664,387,858	361,544,797	54,240,318	507,211,176	1.31	6.87	
NGP Midstream & Resources, L.P.	100,000,000	103,565,615	179,560,149	17,857	7,245,871	1.80	13.42	2007
The Energy & Minerals Group Fund II, L.P.	100,000,000	106,674,084	104,295,500	170,365	104,862,651	1.96	13.35	2011
The Energy & Minerals Group Fund III, L.P.	200,000,000	201,327,783	22,410,545	1,284,543	95,866,540	0.59	-9.07	2014
The Energy & Minerals Group Fund IV, LP	150,000,000	159,228,226	54,004,206	14,558,323	155,105,940	1.31	8.28	2015
The Energy & Minerals Group Fund V	112,500,000	79,270,469	1,115,700	34,782,014	121,111,266	1.54	23.69	2019
The Energy & Minerals Group Fund V Accordion, LP	17,500,000	14,321,681	158,697	3,427,216	23,018,908	1.62	26.88	2019
Energy Capital Partners	450,000,000	393,058,100	304,274,939	148,170,029	223,747,762	1.34	9.72	
Energy Capital Partners II-A	100,000,000	85,722,480	112,434,332	29,749,110	6,136,377	1.38	9.12	2010
Energy Capital Partners III, L.P.	200,000,000	232,270,611	171,863,054	30,058,269	135,318,714	1.32	8.90	2013
Energy Capital Partners IV-A, LP	150,000,000	75,065,009	19,977,553	88,362,650	82,292,671	1.36	16.81	2017
Enervest Management Partners	100,000,000	98,317,203	60,655,607	9,776,495	70,760,205	1.34	7.70	
EnerVest Energy Institutional Fund XIV-A, L.P.	100,000,000	98,317,203	60,655,607	9,776,495	70,760,205	1.34	7.70	2015
First Reserve	500,000,000	538,658,177	255,655,542	8,611,580	142,967,941	0.74	-7.81	
First Reserve Fund XI, L.P.	150,000,000	150,292,121	100,059,903	0	0	0.67	-8.80	2006
First Reserve Fund XII, L.P.	150,000,000	165,617,044	83,625,426	0	8,738,878	0.56	-13.65	2008
First Reserve Fund XIII, L.P.	200,000,000	222,749,012	71,970,213	8,611,580	134,229,063	0.93	-3.25	2013
Kohlberg, Kravis, Roberts & Co.	249,850,000	89,750,058	7,453,309	169,713,248	84,063,654	1.02	1.36	
KKR Global Infrastructure Investors III	149,850,000	89,750,058	7,453,309	69,713,248	84,063,654	1.02	1.36	2018

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KKR Global Infrastructure Investors IV	100,000,000	0	0	100,000,000	0	0.00		2021
Merit Energy Partners	519,721,518	375,497,783	139,364,186	103,746,596	293,666,317	1.15	2.74	
Merit Energy Partners F-II, L.P.	100,000,000	59,522,861	32,069,360	0	6,273,606	0.64	-6.74	2006
Merit Energy Partners H	100,000,000	100,000,000	29,668,582	0	51,201,727	0.81	-3.46	2011
Merit Energy Partners I, L.P.	169,721,518	169,721,518	69,639,059	0	173,380,085	1.43	8.77	2014
Merit Energy Partners K, L.P.	150,000,000	46,253,404	7,987,185	103,746,596	62,810,899	1.53	31.66	2019
NGP	599,500,000	565,982,830	435,725,795	66,270,855	237,063,442	1.19	6.17	
Natural Gas Partners IX, LP	150,000,000	173,921,032	245,366,339	605,481	4,403,059	1.44	12.07	2007
NGP Natural Resources X, L.P.	150,000,000	148,227,297	121,328,310	1,772,703	20,345,982	0.96	-1.34	2011
NGP Natural Resources XI, L.P.	150,000,000	151,773,764	64,839,147	6,793,883	112,935,654	1.17	4.72	2014
NGP Natural Resources XII, L.P.	149,500,000	92,060,737	4,191,999	57,098,788	99,378,746	1.13	5.08	2017
Sheridan	100,000,000	34,353,005	23,675,000	13,500,000	26,993,997	1.47	11.37	
Sheridan Production Partners III-B, L.P.	100,000,000	34,353,005	23,675,000	13,500,000	26,993,997	1.47	11.37	2014
Real Estate	3,873,147,868	2,119,697,368	1,450,340,233	1,896,816,839	1,402,087,611	1.35	8.72	
Angelo, Gordon & Co.	550,000,000	351,811,390	111,165,815	211,856,250	345,805,637	1.30	11.46	
AG Asia Realty Fund III, L.P.	50,000,000	47,587,261	44,875,000	6,196,250	20,465,320	1.37	12.84	2016
AG Asia Realty Fund IV, L.P.	100,000,000	50,536,100	7,250,000	51,187,500	54,382,592	1.22	14.65	2018
AG Europe Realty Fund II, L.P.	75,000,000	68,898,968	7,153,384	10,380,000	84,758,694	1.33	12.54	2018
AG Europe Realty Fund III	75,000,000	17,272,318	0	56,625,000	18,380,384	1.06	6.13	2020
AG Realty Fund IX	100,000,000	92,141,126	41,000,000	11,650,000	86,724,268	1.39	9.13	2014
AG Realty Fund X, L.P.	150,000,000	75,375,617	10,887,431	75,817,500	81,094,380	1.22	16.26	2018
Blackstone	924,500,000	731,000,349	723,437,491	308,800,820	426,783,945	1.57	12.67	
Blackstone Real Estate Partners Asia II	74,500,000	54,293,939	5,150,328	27,210,575	56,457,567	1.13	8.93	2017
Blackstone Real Estate Partners Asia III	100,000,000	0	0	100,000,000	0	0.00		2021
Blackstone Real Estate Partners IX, L.P.	300,000,000	183,059,575	22,188,134	136,871,470	202,225,218	1.23	23.36	2018
Blackstone Real Estate Partners V	100,000,000	104,213,007	203,428,550	4,174,052	4,131,779	1.99	10.78	2006
Blackstone Real Estate Partners VI, L.P.	100,000,000	109,477,567	216,624,912	4,907,906	3,749,083	2.01	13.09	2007
Blackstone Real Estate Partners VII, LP	100,000,000	111,609,734	147,705,951	11,217,447	40,776,833	1.69	14.52	2011
Blackstone Real Estate VIII.TE.1 L.P.	150,000,000	168,346,528	128,339,616	24,419,370	119,443,465	1.47	14.31	2015
Blackstone Strategic Partners	75,000,000	77,547,437	65,193,764	1,007,266	1,838,638	0.86	-2.14	
Strategic Partners III RE, L.P.	25,000,000	25,987,864	15,252,523	9,006	94,424	0.59	-6.46	2005
Strategic Partners IV RE, L.P.	50,000,000	51,559,574	49,941,241	998,260	1,744,214	1.00	0.04	2008
Brookfield Asset Management	300,000,000	0	0	300,000,000	0	0.00		
Brookfield Strategic Real Estate Partners IV	300,000,000	0	0	300,000,000	0	0.00		2021
Carlyle Group	450,000,000	87,577,972	50,711,036	403,182,256	57,171,130	1.23	18.18	
Carlyle Realty Partners IX	300,000,000	0	0	300,000,000	0	0.00		2021
Carlyle Realty Partners VIII, L.P.	150,000,000	87,577,972	50,711,036	103,182,256	57,171,130	1.23	18.18	2017
Kohlberg, Kravis, Roberts & Co.	125,000,000	0	0	125,000,000	0	0.00		
KKR Real Estate Partners Americas III	125,000,000	0	0	125,000,000	0	0.00		2021
Landmark Partners	149,500,000	71,985,646	38,201,701	83,340,615	47,453,432	1.19	10.98	

Minnesota State Board of Investment
Private Markets Investments as of September 30, 2021

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Landmark Real Estate Partners VIII, L.P.	149,500,000	71,985,646	38,201,701	83,340,615	47,453,432	1.19	10.98	2016
Lubert Adler	174,147,868	75,197,162	46,547,038	99,923,264	53,320,299	1.33	13.36	
Lubert-Adler Real Estate Fund VII-B, L.P.	74,147,868	67,585,213	46,547,038	7,414,787	45,600,936	1.36	13.48	2017
Lubert-Adler Recovery & Enhancement Capital Fund	100,000,000	7,611,949	0	92,508,477	7,719,363	1.01	1.63	2021
Oaktree Capital Management, LLC	200,000,000	29,475,519	19,000,000	190,000,000	20,526,822	1.34	199.50	
Oaktree Real Estate Opportunities Fund VIII	200,000,000	29,475,519	19,000,000	190,000,000	20,526,822	1.34	199.50	2020
Rockpoint	200,000,000	122,644,863	38,514,466	93,138,604	110,984,930	1.22	8.04	
Rockpoint Real Estate Fund V, L.P.	100,000,000	97,067,931	38,503,239	18,715,536	79,446,219	1.22	6.85	2014
Rockpoint Real Estate Fund VI, L.P.	100,000,000	25,576,932	11,227	74,423,068	31,538,710	1.23	25.37	2019
Rockwood	200,000,000	128,612,446	41,197,640	73,051,950	110,653,448	1.18	7.56	
Rockwood Capital RE Partners X, L.P.	100,000,000	89,481,956	41,103,088	12,202,573	67,978,525	1.22	7.09	2015
Rockwood Capital RE Partners XI	100,000,000	39,130,490	94,552	60,849,377	42,674,923	1.09	12.52	2019
Silverpeak Real Estate Partners	225,000,000	143,844,584	106,287,292	7,515,813	8,196,098	0.80	-3.60	
Silverpeak Legacy Pension Partners II, L.P.	75,000,000	73,049,257	92,014,185	7,515,813	498,914	1.27	4.19	2005
Silverpeak Legacy Pension Partners III, L.P.	150,000,000	70,795,327	14,273,108	0	7,697,184	0.31	-11.74	2008
TA Associates Realty	300,000,000	300,000,000	210,083,990	0	219,353,233	1.43	12.80	
Realty Associates Fund X	100,000,000	100,000,000	155,852,681	0	5,253,160	1.61	12.57	2012
Realty Associates Fund XI	100,000,000	100,000,000	51,522,920	0	103,708,573	1.55	12.23	2015
Realty Associates Fund XII	100,000,000	100,000,000	2,708,389	0	110,391,500	1.13	21.27	2018
Distressed/Opportunistic	3,639,714,067	2,712,070,025	2,374,235,378	1,037,969,128	1,497,688,497	1.43	10.21	
Avenue Capital Partners	200,000,000	200,977,328	56,309,273	0	208,009,694	1.32	6.43	
Avenue Energy Opportunities Fund II	100,000,000	100,000,000	10,455,797	0	132,407,856	1.43	11.25	2017
Avenue Energy Opportunities Fund, L.P.	100,000,000	100,977,328	45,853,476	0	75,601,838	1.20	3.54	2014
BlackRock*	1,774,870	1,774,870	1,796,583	0	186,435	1.12	5.93	
BlackRock Tempus Fund	1,774,870	1,774,870	1,796,583	0	186,435	1.12	5.93	2015
Canyon Partners	125,000,000	71,250,000	8,750,000	62,500,000	76,708,986	1.20	22.83	
Canyon Distressed Opportunity Fund III	125,000,000	71,250,000	8,750,000	62,500,000	76,708,986	1.20	22.83	2020
CarVal Investors	900,000,000	720,203,333	873,781,532	180,000,000	231,102,825	1.53	10.72	
CarVal Credit Value Fund I	100,000,000	95,000,000	213,343,831	5,000,000	498,998	2.25	18.71	2010
CVI Credit Value Fund A II	150,000,000	142,500,000	199,242,174	7,500,000	3,403,076	1.42	8.27	2012
CVI Credit Value Fund A III	150,000,000	142,500,000	140,449,325	7,500,000	48,298,032	1.32	8.48	2015
CVI Credit Value Fund IV	150,000,000	120,203,333	60	30,000,000	146,416,080	1.22	7.42	2017
CVI Credit Value Fund V	150,000,000	30,000,000	0	120,000,000	32,382,990	1.08	11.50	2020
CVI Global Value Fund, L.P.	200,000,000	190,000,000	320,746,143	10,000,000	103,649	1.69	9.53	2007
Carlyle Group	100,000,000	81,070,745	44,726,105	63,603,426	45,594,020	1.11	7.91	
Carlyle Strategic Partners IV, L.P.	100,000,000	81,070,745	44,726,105	63,603,426	45,594,020	1.11	7.91	2016
MHR Institutional Partners	75,000,000	67,121,892	13,730,244	21,549,772	72,476,585	1.28	9.15	
MHR Institutional Partners IV LP	75,000,000	67,121,892	13,730,244	21,549,772	72,476,585	1.28	9.15	2014
Marathon	200,000,000	85,906,171	6,185,200	120,000,000	102,405,520	1.26	50.68	
Marathon Distressed Credit Fund	200,000,000	85,906,171	6,185,200	120,000,000	102,405,520	1.26	50.68	2020

Minnesota State Board of Investment
Private Markets Investments as of September 30, 2021

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Merced Capital	278,737,500	288,144,755	247,664,959	0	86,832,728	1.16	3.47	
Merced Partners III	100,000,000	103,878,468	132,676,445	0	2,194,410	1.30	5.51	2010
Merced Partners IV	125,000,000	124,968,390	105,597,539	0	32,828,498	1.11	2.27	2013
Merced Partners V	53,737,500	59,297,897	9,390,975	0	51,809,820	1.03	0.85	2017
Oaktree Capital Management, LLC	650,000,000	307,111,662	65,680,111	381,489,598	334,631,524	1.30	12.78	
Oaktree Opportunities Fund X, L.P.	50,000,000	46,500,021	23,544,660	8,500,000	39,443,026	1.35	9.11	2015
Oaktree Opportunities Fund Xb, L.P.	100,000,000	60,000,000	0	40,000,000	77,184,300	1.29	15.25	2015
Oaktree Opportunities Fund XI	300,000,000	60,000,000	0	240,000,000	70,978,800	1.18	33.75	2020
Oaktree Special Situations Fund II, L.P.	100,000,000	41,811,187	21,800,000	79,748,304	42,133,188	1.53	82.87	2018
Oaktree Special Situations Fund, L.P.	100,000,000	98,800,454	20,335,451	13,241,294	104,892,210	1.27	7.79	2014
PIMCO BRAVO*	9,201,697	8,657,372	8,827,308	7,735,883	1,248,372	1.16	4.84	
PIMCO BRAVO Fund Onshore Feeder I	3,958,027	3,958,027	4,016,443	2,385,880	6,553	1.02	1.60	2014
PIMCO Bravo Fund OnShore Feeder II	5,243,670	4,699,345	4,810,865	5,350,003	1,241,820	1.29	5.41	2014
TSSP	200,000,000	111,686,897	25,118,007	110,340,449	112,668,829	1.23	16.81	
TSSP Adjacent Opportunities GenPar, L.P	50,000,000	40,884,168	11,729,716	20,845,548	39,582,695	1.26	12.98	2018
TSSP Adjacent Opportunities Partners (B)	100,000,000	39,921,568	9,658,776	66,656,376	38,601,451	1.21	24.92	2018
TSSP Opportunities Partners IV (A), L.P.	50,000,000	30,881,161	3,729,515	22,838,525	34,484,683	1.24	18.51	2018
Varde Fund	600,000,000	525,000,000	652,264,324	75,000,000	200,472,973	1.62	10.25	
Varde Fund IX, L.P.	100,000,000	100,000,000	216,097,236	0	127,065	2.16	15.01	2008
Varde Fund X, LP	150,000,000	150,000,000	251,421,642	0	17,592,732	1.79	10.47	2010
Varde Fund XI, LP	200,000,000	200,000,000	184,725,408	0	89,082,001	1.37	5.34	2013
Varde Fund XIII, L.P.	150,000,000	75,000,000	20,038	75,000,000	93,671,175	1.25	14.50	2018
Wayzata Investment Partners	300,000,000	243,165,000	369,401,733	15,750,000	25,350,005	1.62	14.34	
Wayzata Opportunities Fund II, LLC	150,000,000	174,750,000	330,332,963	750,000	1,396,776	1.90	16.51	2007
Wayzata Opportunities Fund III	150,000,000	68,415,000	39,068,770	15,000,000	23,953,229	0.92	-2.04	2012
Total	33,651,465,051	24,150,997,699	19,744,837,014	11,734,511,997	16,999,578,816	1.52	11.90	
<i>Difference**</i>					51,000,930			
Private Markets Total with Difference					17,050,579,745			

<i>Private Markets Portfolio Status</i>	Managers	Funds
PRIVATE EQUITY	51	152
PRIVATE CREDIT	15	30
REAL ASSETS	11	33
REAL ESTATE	13	32
DISTRESSED / OPPORTUNISTIC	13	32
Total	103	279

Minnesota State Board of Investment
Private Markets Investments as of September 30, 2021

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
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Notes

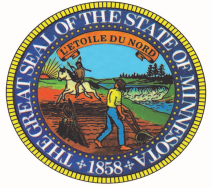
None of the data presented herein has been reviewed or approved by either the general partner or investment manager. The performance and valuation data presented herein is not a guarantee or prediction of future results. Ultimately, the actual performance and value of any investment is not known until final liquidation. Because there is no industry-standardized method for valuation or reporting comparisons of performance and valuation data among different investments is difficult.

Data presented in this report is made public pursuant to Minn. Stat. Chs. 13 and 13D, and Minn. Stat. § 11A.24, subd. 6(c). Additional information on private markets investments may be classified as non-public and not subject to disclosure.

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

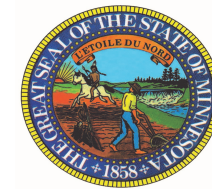
** Difference is from an in-kind stock distribution liquidating account, cash transactions posted to next day and distributions received in foreign currency during the month.

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Participant Directed Investment Program

September 30, 2021



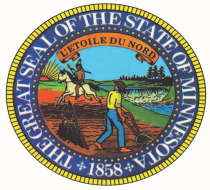
Quarterly Report

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 Fund 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.

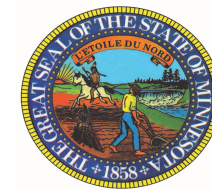
Investment Option Descriptions

- Balanced Fund - a balanced portfolio utilizing both common stocks and bonds
- U.S. Stock Actively Managed Fund - an actively managed, U.S. common stock portfolio.
- U.S. Stock Index Fund - a passively managed, common stock portfolio designed to broadly track the performance of the U.S. stock market.
- Broad International Stock 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	\$114,553,093	0.1%	19.4%	12.6%	11.9%	11.6%	01/1980
U.S. ACTIVELY MANAGED FUND	94,077,840	-0.2	32.9	17.3	18.5	17.4	07/1986
U.S. STOCK INDEX FUND	459,385,212	0.0	32.6	16.3	17.0	16.7	07/1986
BROAD INTERNATIONAL STOCK FUND	155,562,381	-2.6	24.8	8.6	9.3	8.1	09/1994
BOND FUND	118,751,193	0.2	0.9	6.4	3.9	3.9	07/1986
MONEY MARKET FUND	606,042,306	0.0	0.2	1.3	1.3	0.8	07/1986
STABLE VALUE FUND	1,693,175,974	0.5	2.0	2.4	2.3	2.3	11/1994
VOLUNTEER FIREFIGHTER ACCOUNT	143,316,887	-0.3	14.9	10.4	9.5	9.0	01/2010

Note:

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



Supplemental Investment Fund Performance

Balanced Fund

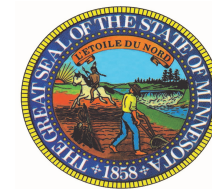
The primary investment objective of the Balanced Fund is to gain exposure to publicly traded U.S. equities, bond and cash in a diversified investment portfolio. The Fund seeks to maximize long-term real rates of return, while limiting short-run portfolio return volatility. The Balanced Fund is invested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

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
BALANCED FUND	\$114,553,093	0.1%	19.4%	12.6%	11.9%	11.6%
SIF BALANCED FUND BENCHMARK		-0.0	18.0	11.9	11.3	11.1
Excess		0.1	1.4	0.7	0.6	0.5

U.S. Actively Managed Fund

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

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
U.S. ACTIVELY MANAGED FUND	94,077,840	-0.2	32.9	17.3	18.5	17.4
Russell 3000		-0.1	31.9	16.0	16.9	16.6
Excess		-0.1	1.1	1.3	1.7	0.8



Supplemental Investment Fund Performance

U.S. Stock Index Fund

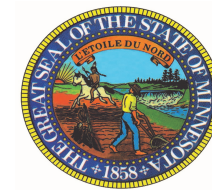
The investment objective of the U.S. Stock Index Fund is to generate returns that track those of the U.S. stock market as a whole. The Fund is designed to track the performance of the Russell 3000 Index, a broad-based equity market indicator. The Fund is invested 100% in common stock.

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
U.S. STOCK INDEX FUND	\$459,385,212	0.0%	32.6%	16.3%	17.0%	16.7%
Russell 3000		-0.1	31.9	16.0	16.9	16.6
Excess		0.1	0.7	0.3	0.2	0.1

Broad International Stock Fund

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

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
BROAD INTERNATIONAL STOCK FUND	155,562,381	-2.6	24.8	8.6	9.3	8.1
International Equity Benchmark		-3.0	24.0	8.0	8.9	7.5
Excess		0.3	0.8	0.7	0.4	0.6



Supplemental Investment Fund Performance

Bond Fund

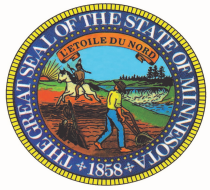
The investment objective of the Bond Fund is to exceed the return of the broad domestic bond market by investing in fixed income securities. The Bond Fund invests primarily in high-quality, government and corporate bonds that have intermediate to long-term maturities, usually 3 to 20 years. The Bond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

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
BOND FUND	\$118,751,193	0.2%	0.9%	6.4%	3.9%	3.9%
Bloomberg U.S. Aggregate		0.1	-0.9	5.4	2.9	3.0
Excess		0.1	1.8	1.1	0.9	0.9

Money Market Fund

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

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
MONEY MARKET FUND	606,042,306	0.0	0.2	1.3	1.3	0.8
ICE BofA US 3-Month Treasury Bill		0.0	0.1	1.2	1.2	0.6
Excess		0.0	0.1	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>
STABLE VALUE FUND	\$1,693,175,974	0.5%	2.0%	2.4%	2.3%	2.3%
Fixed Interest Blended Benchmark		0.2	0.8	1.6	1.9	1.5
Excess		0.2	1.3	0.9	0.5	0.8

Volunteer Firefighter Account

The Volunteer Firefighter Account is different than other SIF program options. It is available only to the local entities that participate in the Statewide Volunteer Firefighter Plan (administered by PERA) and have all of their assets invested in the Volunteer Firefighter Account. There are other volunteer firefighter plans that are not eligible to be consolidated that may invest their assets through other SIF program options. The investment objective of the Volunteer Firefighter Account is to maximize long-term returns while limiting short-term portfolio return volatility. The account is invested in a balanced portfolio of domestic equity, international equity, fixed income and cash. The benchmark for this account is 35% Russell 3000, 15% MSCI ACWI ex USA (net), 45% Bloomberg U.S. Aggregate, 5% 3 Month T-Bills.

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
VOLUNTEER FIREFIGHTER ACCOUNT	143,316,887	-0.3	14.9	10.4	9.5	9.0
SIF Volunteer Firefighter Account BM		-0.4	13.6	9.7	8.8	8.4
Excess		0.2	1.3	0.8	0.7	0.5



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 Country 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	\$697,566,991	-0.1%	32.1%				07/2019
VANGUARD INSTITUTIONAL INDEX PLUS	1,787,870,805	0.6	30.0	16.0%	16.9%	16.6%	07/1999
VANGUARD DIVIDEND GROWTH	909,527,541	0.7	21.9	14.3	14.7		10/2016
VANGUARD MID CAP INDEX	767,730,792	0.0	36.1	14.8	14.6	15.6	01/2004
T. ROWE PRICE SMALL-CAP STOCK	1,074,876,622	-1.2	40.9	16.6	17.9	17.6	04/2000
FIDELITY DIVERSIFIED INTERNATIONAL	381,328,125	1.7	21.6	13.2	11.6	10.7	07/1999
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	372,355,823	-3.0	24.4	8.4	9.1	7.9	07/2011
VANGUARD BALANCED INDEX	1,503,156,898	-0.0	18.0	12.1	11.4	11.2	12/2003
DODGE & COX INCOME	338,708,125	0.1	2.0	6.2	4.2	4.3	07/1999
VANGUARD TOTAL BOND MARKET INDEX	377,625,313	0.1	-0.8	5.5	3.0	3.0	12/2003
2025 FUND	241,145,234	0.1	14.7	9.1	8.3	8.8	07/2011
2030 FUND	197,132,017	-0.4	17.1	10.7	10.0	10.1	07/2011
2035 FUND	157,608,140	-0.8	18.7	11.6	11.0	10.9	07/2011
2040 FUND	122,253,385	-1.0	20.5	12.1	11.6	11.4	07/2011
2045 FUND	110,143,620	-1.2	22.4	12.4	12.1	11.9	07/2011
2050 FUND	90,009,529	-1.3	24.1	12.7	12.6	12.1	07/2011
2055 FUND	57,769,533	-1.4	25.1	12.9	12.7	12.2	07/2011
2060 FUND	47,049,273	-1.4	25.1	12.9	12.7	12.2	07/2011
2065 FUND	3,496,836	-1.4	25.1				04/2020
INCOME FUND	249,795,331	0.2	11.7	8.0	6.5	6.1	07/2011
TD Ameritrade SDB	91,759,806						
TD Ameritrade SDB Roth	2,778,473						



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 Nasdaq US Dividend Achievers Select Index, over time.

MID CAP EQUITY

Vanguard Mid Cap Index (passive) (2)

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

SMALL CAP EQUITY

T Rowe Price Small Cap (active)

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

INTERNATIONAL EQUITY

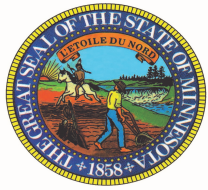
Fidelity Diversified International (active)

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

Vanguard Total International Stock Index (passive) (3)

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

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
Large Cap US Equity						
VANGUARD TOTAL STOCK MARKET INSTITUTIONAL INDEX PLUS	\$697,566,991	-0.1%	32.1%			07/2019
CRSP US Total Market Index		-0.1	32.1			07/2019
Excess		-0.0	-0.0			
VANGUARD INSTITUTIONAL INDEX PLUS	1,787,870,805	0.6	30.0	16.0%	16.9%	07/1999
S&P 500		0.6	30.0	16.0	16.9	07/1999
Excess		-0.0	-0.0	-0.0	-0.0	
VANGUARD DIVIDEND GROWTH	909,527,541	0.7	21.9	14.3	14.7	10/2016
NASDAQ US Dividend Achievers Select		-0.2	21.7	13.8	15.2	10/2016
Excess		0.9	0.2	0.6	-0.5	
Mid Cap US Equity						
VANGUARD MID CAP INDEX	767,730,792	0.0	36.1	14.8	14.6	01/2004
CRSP US Mid Cap Index		0.0	36.1	14.8	14.6	01/2004
Excess		0.0	-0.0	0.0	0.0	
Small Cap US Equity						
T. ROWE PRICE SMALL-CAP STOCK	1,074,876,622	-1.2	40.9	16.6	17.9	04/2000
Russell 2000		-4.4	47.7	10.5	13.5	04/2000
Excess		3.2	-6.7	6.1	4.4	
International Equity						
FIDELITY DIVERSIFIED INTERNATIONAL	381,328,125	1.7	21.6	13.2	11.6	07/1999
MSCI EAFE FREE (NET)		-0.4	25.7	7.6	8.8	07/1999
Excess		2.1	-4.1	5.6	2.8	
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	372,355,823	-3.0	24.4	8.4	9.1	07/2011
FTSE Global All Cap ex US Index Net		-2.5	25.2	8.4	9.1	07/2011
Excess		-0.5	-0.8	-0.0	-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% BB Barclays U.S. Aggregate.

FIXED INCOME

Dodge & Cox Income Fund (active)

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

Vanguard Total Bond Market Index (passive)

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

Money Market Fund (5)

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

STABLE VALUE

Stable Value Fund (5)

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

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

Balanced Funds

VANGUARD BALANCED INDEX	\$1,503,156,898	-0.0%	18.0%	12.1%	11.4%	12/2003
Vanguard Balanced Fund Benchmark		0.0	18.1	12.2	11.5	12/2003
Excess		-0.0	-0.1	-0.1	-0.1	

Fixed Income

DODGE & COX INCOME	338,708,125	0.1	2.0	6.2	4.2	07/1999
Bloomberg U.S. Aggregate		0.1	-0.9	5.4	2.9	07/1999
Excess		0.0	2.9	0.9	1.3	

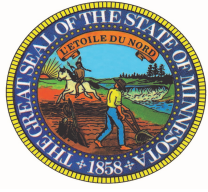
VANGUARD TOTAL BOND MARKET INDEX	377,625,313	0.1	-0.8	5.5	3.0	12/2003
Bloomberg U.S. Aggregate		0.1	-0.9	5.4	2.9	12/2003
Excess		0.1	0.1	0.1	0.0	

MONEY MARKET FUND	606,042,306	0.0	0.2	1.3	1.3	07/1986
ICE BofA US 3-Month Treasury Bill		0.0	0.1	1.2	1.2	07/1986
Excess		0.0	0.1	0.1	0.1	

Stable Value

STABLE VALUE FUND	1,693,175,974	0.5	2.0	2.4	2.3	11/1994
Fixed Interest Blended Benchmark		0.2	0.8	1.6	1.9	11/1994
Excess		0.2	1.3	0.9	0.5	

- (1) Vanguard Dividend Growth replaced the Janus Twenty Fund in the third quarter of 2016.
- (2) Prior to 02/01/2013 the benchmark was the MSCI US Mid-Cap 450 Index
- (3) Prior to 06/01/2013 the benchmark was MSCI ACWI ex USA IMI.
- (4) Prior to 01/01/2013 the benchmark was 60% MSCI US Broad Market Index and 40% Bloomberg U.S. Aggregate.
- (5) Money Market and Stable Value are Supplemental Investment Fund options which are also offered to eligible plans that invest through other plans.



Mutual Funds

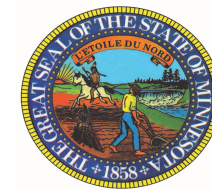
MN TARGET RETIREMENT ACCOUNTS

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

Target Date Retirement Funds

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>Option Since</u>		<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>Option Since</u>	
SSgA														
2025 FUND	\$241,145,234	0.1%	14.7%	9.1%	8.3%	07/2011		2050 FUND	\$90,009,529	-1.3%	24.1%	12.7%	12.6%	07/2011
2025 FUND BENCHMARK		0.2	14.8	9.1	8.3	07/2011		2050 FUND BENCHMARK		-1.1	24.5	12.7	12.6	07/2011
Excess		-0.1	-0.1	-0.0	-0.0			Excess		-0.2	-0.3	-0.1	-0.0	
2030 FUND	197,132,017	-0.4	17.1	10.7	10.0	07/2011		2055 FUND	57,769,533	-1.4	25.1	12.9	12.7	07/2011
2030 FUND BENCHMARK		-0.3	17.3	10.7	10.0	07/2011		2055 FUND BENCHMARK		-1.2	25.5	13.0	12.8	07/2011
Excess		-0.1	-0.2	-0.0	-0.0			Excess		-0.2	-0.3	-0.1	-0.1	
2035 FUND	157,608,140	-0.8	18.7	11.6	11.0	07/2011		2060 FUND	47,049,273	-1.4	25.1	12.9	12.7	07/2011
2035 FUND BENCHMARK		-0.7	18.9	11.7	11.0	07/2011		2060 FUND BENCHMARK		-1.2	25.5	13.0	12.8	07/2011
Excess		-0.1	-0.2	-0.0	-0.0			Excess		-0.2	-0.3	-0.1	-0.1	
2040 FUND	122,253,385	-1.0	20.5	12.1	11.6	07/2011		2065 FUND	3,496,836	-1.4	25.1			04/2020
2040 FUND BENCHMARK		-0.9	20.8	12.1	11.6	07/2011		2065 FUND BENCHMARK		-1.2	25.5			04/2020
Excess		-0.2	-0.3	-0.0	-0.0			Excess		-0.2	-0.4			
2045 FUND	110,143,620	-1.2	22.4	12.4	12.1	07/2011		INCOME FUND	249,795,331	0.2	11.7	8.0	6.5	07/2011
2045 FUND BENCHMARK		-1.0	22.7	12.5	12.2	07/2011		INCOME FUND BENCHMARK		0.3	11.8	8.0	6.5	07/2011
Excess		-0.2	-0.3	-0.1	-0.0			Excess		-0.1	-0.1	0.0	-0.0	

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



MN College Savings Plan Options

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

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

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

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

ASSET CLASS BASED ALLOCATIONS

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

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

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

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

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

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

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

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



MINNESOTA COLLEGE SAVINGS PLAN
Performance Statistics for the Period Ending: September 30, 2021

Total = \$1,827 Million

Fund Name	Ending Market	3 Months	1 Year	Annualized				Inception Date
				3 Years	5 Years	10 Years	Since Inception	
2038/2039 Enrollment Option	\$1,429,136	-0.50%					-0.60%	6/11/2021
2038-2039 Custom Benchmark		-0.30%					-0.12%	
2036/2037 Enrollment Option	\$47,169,286	-0.38%	22.97%				15.31%	10/28/2019
2036-2037 Custom Benchmark		-0.28%	23.23%				14.70%	
2034/2035 Enrollment Option	\$42,792,231	-0.38%	21.89%				14.68%	10/28/2019
2034-2035 Custom Benchmark		-0.24%	22.23%				14.13%	
2032/2033 Enrollment Option	\$50,069,423	-0.31%	20.73%				14.22%	10/28/2019
2032-2033 Custom Benchmark		-0.20%	21.06%				13.65%	
2030/2031 Enrollment Option	\$61,886,150	-0.24%	19.01%				13.21%	10/28/2019
2030-2031 Custom Benchmark		-0.13%	19.29%				12.67%	
2028/2029 Enrollment Option	\$80,321,372	-0.16%	16.15%				11.63%	10/28/2019
2028-2029 Custom Benchmark		-0.06%	16.40%				11.02%	
2026/2027 Enrollment Option	\$112,451,339	0.00%	13.24%				10.18%	10/28/2019
2026-2027 Custom Benchmark		0.02%	13.43%				9.61%	
2024/2025 Enrollment Option	\$157,253,701	0.09%	10.54%				8.70%	10/28/2019
2024-2025 Custom Benchmark		0.08%	10.54%				8.00%	
2022/2023 Enrollment Option	\$186,207,533	0.18%	7.43%				6.43%	10/28/2019
2022-2023 Custom Benchmark		0.07%	7.06%				5.61%	
In School Option	\$322,886,965	0.18%	5.14%				5.30%	10/28/2019
In School Custom Benchmark		0.06%	4.62%				4.24%	



MINNESOTA COLLEGE SAVINGS PLAN
Performance Statistics for the Period Ending: September 30, 2021

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 BB: U.S. and International Equity Option	\$322,939,899	-0.67% -0.41%	29.43% 30.59%	13.16% 12.95%	13.62% 13.49%	13.48% 13.53%	8.09% 8.81%	10/ 1/2001
Moderate Allocation Option BB: Moderate Allocation Option	\$95,511,370	-0.25% -0.07%	17.74% 18.36%	10.43% 10.38%	9.71% 9.61%	9.32% 9.46%	6.41% 6.93%	8/ 2/2007
100% Fixed-Income Option BB: 100% Fixed-Income Option	\$21,117,684	0.42% 0.39%	1.09% 1.51%	5.27% 5.64%	3.06% 3.39%	2.74% 3.10%	3.72% 4.31%	8/16/2007
International Equity Index Option BB: International Equity Index Option	\$8,771,790	-2.23% -1.98%	23.69% 24.36%	7.75% 7.92%	8.72% 8.97%		6.03% 6.25%	6/18/2013
Money Market Option BB: Money Market Option	\$13,560,577	0.00% 0.00%	0.00% 0.01%	0.95% 0.84%	0.92% 0.80%	0.47% 0.41%	0.52% 0.46%	11/ 1/2007
Principal Plus Interest Option Citigroup 3-Month U.S. Treasury Bill	\$128,456,181	0.31% 0.01%	1.45% 0.06%	1.82% 1.14%	1.72% 1.13%	1.58% 0.60%	2.41% 1.26%	10/10/2001
Aggressive Allocation Option BB: Aggressive Allocation Option	\$65,512,765	-0.47% -0.24%	23.36% 24.37%	11.76% 11.73%	11.68% 11.58%		9.42% 9.35%	8/12/2014
Conservative Allocation Option BB: Conservative Allocation Option	\$17,411,149	0.14% 0.08%	9.16% 9.34%	6.95% 6.99%	6.03% 5.98%		5.03% 5.05%	8/18/2014
Equity and Interest Accumulation Option BB: Equity and Interest Accumulation Option	\$6,940,794	0.12% -0.01%	15.75% 15.22%	8.87% 8.86%	9.19% 9.07%		7.52% 7.42%	8/18/2014
U.S. Large Cap Equity Option BB: U.S. Large Cap Equity Option	\$82,262,468	0.56% 0.58%	29.79% 30.00%	15.83% 15.99%	16.69% 16.90%		13.88% 13.98%	8/12/2014
Social Choice Equity Option BB: Social Choice Equity Option	\$88,519	-0.40% -0.10%					0.80% 1.02%	6/11/2021
Matching Grant Citigroup 3-Month U.S. Treasury Bill	\$1,839,817	0.31% 0.01%	1.45% 0.06%	1.82% 1.14%	1.72% 1.13%	1.58% 0.60%	2.41% 1.26%	3/22/2002



Performance as of
09/30/21

Total Market Value: \$ 24,032,301

<u>Fund Name</u>	<u>Market Value</u>	<u>% of Plan</u>	<u>1 Month</u>	<u>3 Months</u>	<u>YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Inception</u>	<u>Inception Date</u>
Aggressive Option	\$ 1,969,596	8.20%	(3.86)	(1.25)	11.37	28.42	12.07			12.30	12/15/16
ABLE Aggressive Custom Benchmark			(3.83)	(1.07)	11.61	29.15	12.44			12.82	
Variance			(0.03)	(0.18)	(0.24)	(0.73)	(0.37)			(0.52)	
Moderately Aggressive Option	\$ 2,278,269	9.48%	(3.36)	(1.03)	9.47	23.57	11.00			10.89	12/15/16
ABLE Moderately Aggressive Custom Benchmark			(3.27)	(0.80)	9.76	24.26	11.35			11.36	
Variance			(0.09)	(0.23)	(0.29)	(0.69)	(0.35)			(0.47)	
Growth Option	\$ 3,169,243	13.19%	(2.72)	(0.71)	7.70	18.93	9.82			9.41	12/15/16
ABLE Growth Custom Benchmark			(2.71)	(0.52)	7.93	19.51	10.18			9.87	
Variance			(0.01)	(0.19)	(0.23)	(0.58)	(0.36)			(0.46)	
Moderate Option	\$ 2,713,208	11.29%	(2.17)	(0.41)	5.88	14.37	8.57			7.92	12/15/16
ABLE Moderate Custom Benchmark			(2.15)	(0.26)	6.12	14.87	8.93			8.32	
Variance			(0.02)	(0.15)	(0.24)	(0.50)	(0.36)			(0.40)	
Moderately Conservative Option	\$ 2,839,583	11.82%	(1.50)	(0.23)	4.04	9.70	6.41			5.83	12/15/16
ABLE Moderately Conservative Custom Benchmark			(1.47)	(0.12)	4.13	9.93	6.67			6.15	
Variance			(0.03)	(0.11)	(0.09)	(0.23)	(0.26)			(0.32)	
Conservative Option	\$ 4,239,482	17.64%	(0.52)	0.00	1.50	3.51	3.37			2.98	12/15/16
ABLE Conservative Custom Benchmark			(0.56)	0.05	1.50	3.53	3.52			3.16	
Variance			0.04	(0.05)	0.00	(0.02)	(0.15)			(0.18)	
Checking Option	\$ 6,822,920	28.39%									03/30/17

MINNESOTA ACHIEVE A BETTER LIFE EXPERIENCE

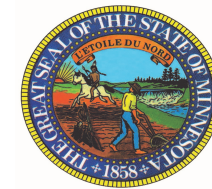
The Minnesota Achieve a Better Life Experience Plan (ABLE) is a savings plan designed to help individuals save for qualified disability expenses without losing eligibility for certain assistance programs. The plan is administered by the Department of Human Services (DHS).

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

RISK BASED ALLOCATIONS

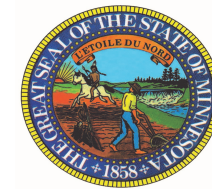
The plan offers seven different allocation investment options: Aggressive, Moderately Aggressive, Growth, Moderate, Moderately Conservative, Conservative, and Checking. Each allocation is based on a fixed risk level.

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Non-Retirement

September 30, 2021



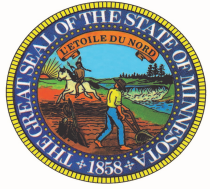
Quarterly Report

Non-Retirement Funds

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

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

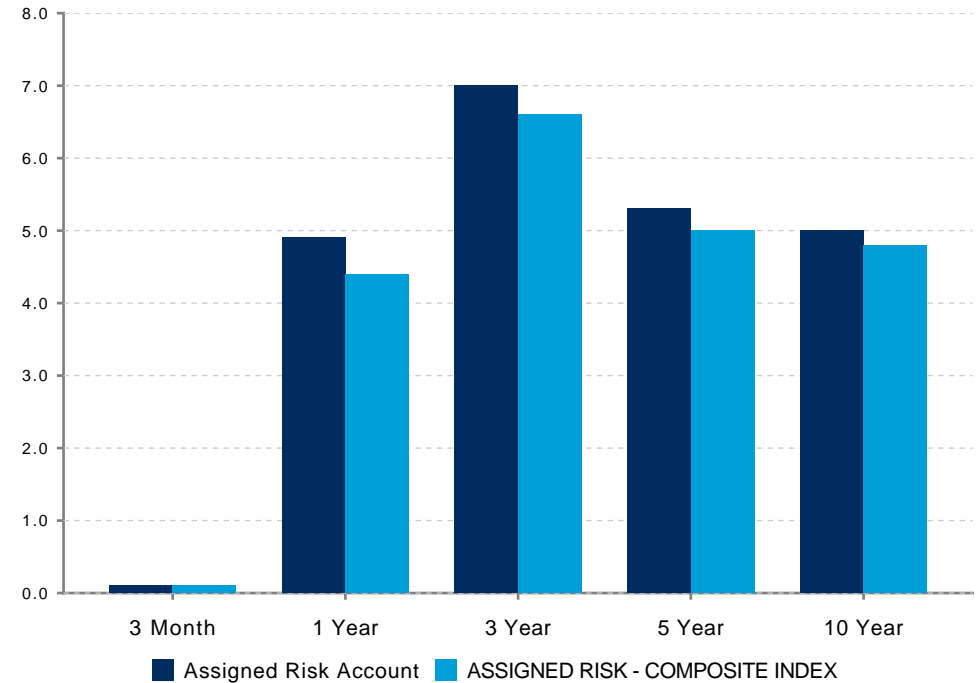
The Assigned Risk plan has two investment objectives: to minimize the mismatch between assets and liabilities and to provide sufficient liquidity for the payment of ongoing claims and operating expenses.

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

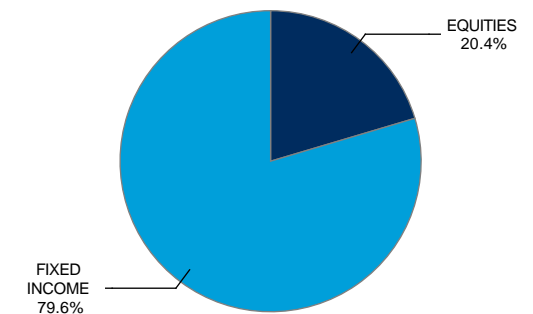
The equity segment is passively managed to track the performance of the S&P 500.

The fixed income benchmark is the Bloomberg U.S. Government Intermediate Index.

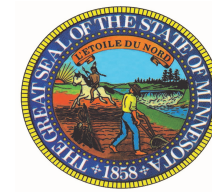
The total fund benchmark is a combination of the fixed income and equity benchmarks, weighted according to the total fund asset allocation targets of 80% fixed income and 20% equities. The actual asset mix will fluctuate and is shown in the graph below.



	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
Assigned Risk Account	\$276,905,215	0.1%	4.9%	7.0%	5.3%	5.0%
EQUITIES	56,400,515	0.6	30.0	16.0	16.8	16.4
FIXED INCOME	220,504,699	-0.0	-1.1	4.1	2.1	1.9
ASSIGNED RISK - COMPOSITE INDEX		0.1	4.4	6.6	5.0	4.8
Excess		-0.0	0.4	0.4	0.3	0.2
S&P 500		0.6	30.0	16.0	16.9	16.6
Bloomberg U.S. Government: Intermediate		-0.0	-1.3	4.0	2.0	1.8



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



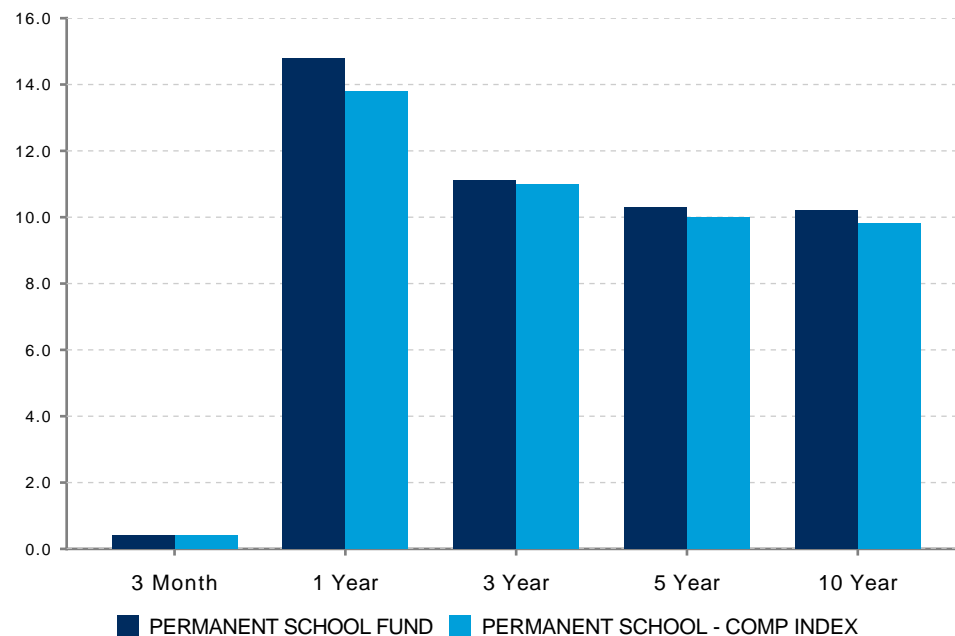
Non-Retirement

Permanent School Fund

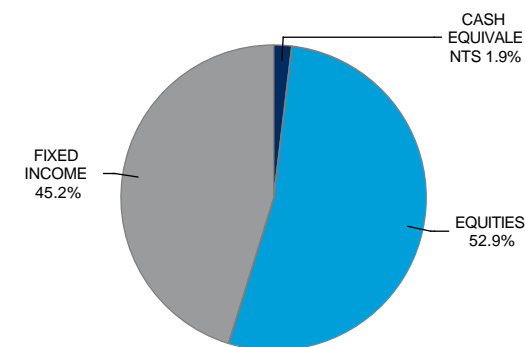
The investment objective of the Permanent School Fund is to produce a growing level of spendable income, within the constraints of maintaining adequate portfolio quality and liquidity. The income from the portfolio is transferred to the school endowment fund and distributed to Minnesota's public schools.

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

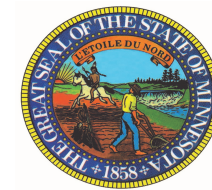
The stock segment is passively managed to track the performance of the S&P 500. The bond segment is actively managed to add incremental value through sector, security and yield curve decisions. The fixed income benchmark is the Bloomberg U.S. Aggregate. The total fund benchmark is a combination of the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



	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
PERMANENT SCHOOL FUND	\$1,946,098,864	0.4%	14.8%	11.1%	10.3%	10.2%
CASH EQUIVALENTS	36,308,384	0.0	0.1	1.2	1.2	0.7
EQUITIES	1,029,496,675	0.6	30.0	16.0	16.9	16.6
FIXED INCOME	880,293,805	0.2	0.2	5.9	3.5	3.7
PERMANENT SCHOOL - COMP INDEX		0.4	13.8	11.0	10.0	9.8
Excess		0.0	1.0	0.1	0.3	0.3
S&P 500		0.6	30.0	16.0	16.9	16.6
Bloomberg U.S. Aggregate		0.1	-0.9	5.4	2.9	3.0



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



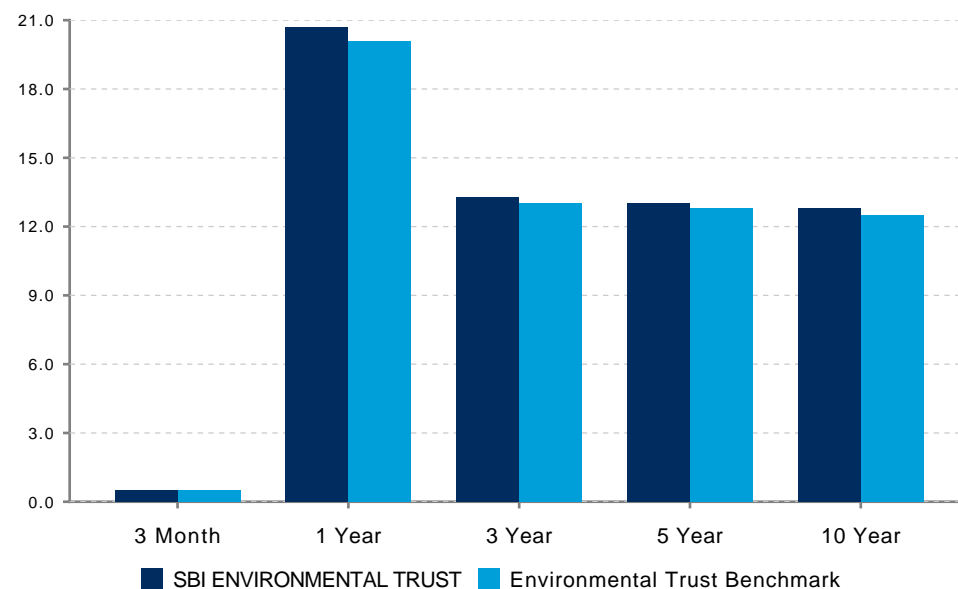
Non-Retirement

Environmental Trust Fund

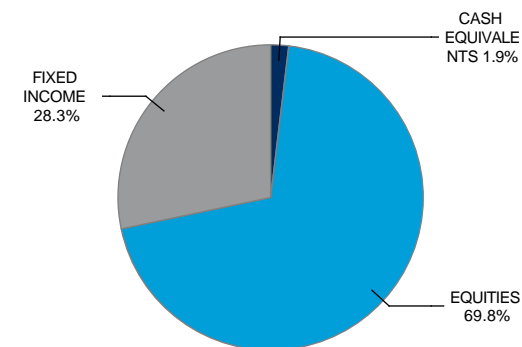
The objective of the Environmental Trust Fund is to increase the market value of the Fund over time in order to increase the annual amount made available for spending within the constraints of maintaining adequate portfolio quality and liquidity.

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

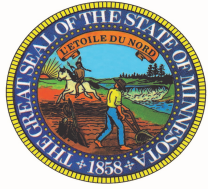
The bond segment is actively managed to add incremental value through sector, security and yield curve decisions. The stock segment is passively managed to track the performance of the S&P 500. The fixed income benchmark is the Bloomberg U.S. Aggregate. The total fund benchmark is a combination of the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



	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
SBI ENVIRONMENTAL TRUST	\$1,641,750,888	0.5%	20.7%	13.3%	13.0%	12.8%
CASH EQUIVALENTS	31,915,549	0.0	0.1	1.2	1.2	0.7
EQUITIES	1,145,368,416	0.6	30.0	16.0	16.9	16.6
FIXED INCOME	464,466,923	0.2	0.2	5.9	3.5	3.7
Environmental Trust Benchmark		0.5	20.1	13.0	12.8	12.5
Excess		0.0	0.6	0.3	0.3	0.2
S&P 500		0.6	30.0	16.0	16.9	16.6
Bloomberg U.S. Aggregate		0.1	-0.9	5.4	2.9	3.0



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.

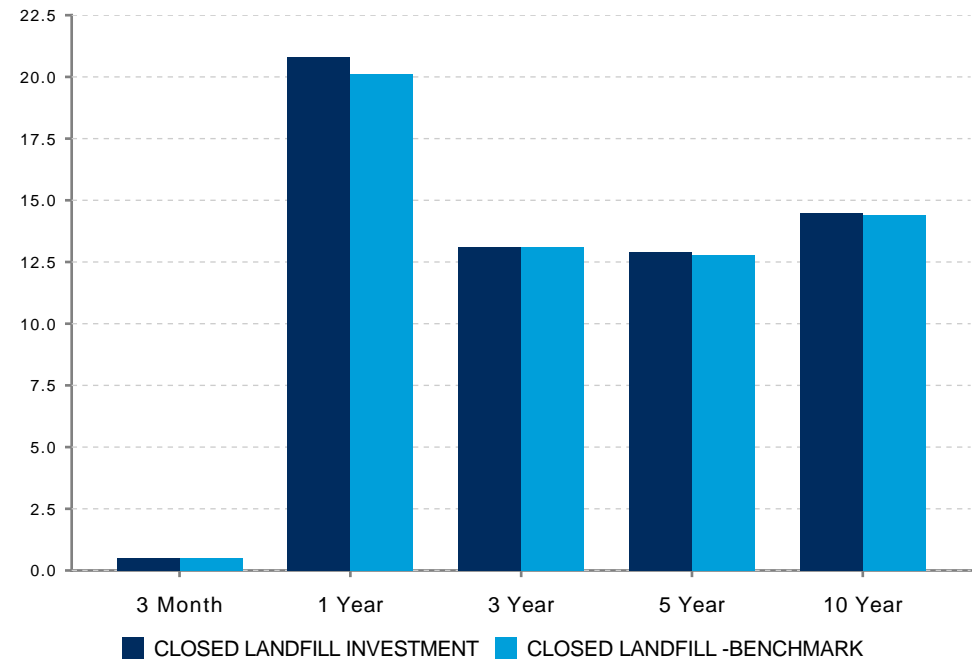


Non-Retirement

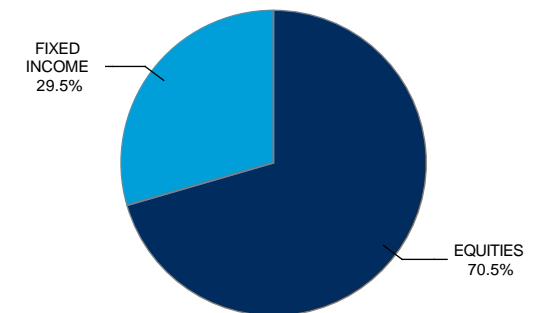
Closed Landfill Investment Fund

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 are unavailable for expenditure until after the fiscal year 2020 to pay for long-term costs of maintaining the integrity of landfills in Minnesota once they are closed. In FY 2011, \$48 million was transferred out of the general fund leaving a balance of \$1 million in the account. Legislation was enacted in 2013 to replenish the principal and earnings back into the fund and in FY 2014 a repayment was made in the amount of \$64.2 million. In 2015, legislation was passed which repealed any further repayments.

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



	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
CLOSED LANDFILL INVESTMENT	\$130,197,249	0.5%	20.8%	13.1%	12.9%	14.5%
EQUITIES	91,776,138	0.6	30.0	16.0	16.9	16.6
FIXED INCOME	38,421,111	0.2	0.2	5.9	3.5	
CLOSED LANDFILL -BENCHMARK		0.5	20.1	13.1	12.8	14.4
Excess		0.0	0.7	0.0	0.1	0.0
S&P 500		0.6	30.0	16.0	16.9	16.6
Bloomberg U.S. Aggregate		0.1	-0.9	5.4	2.9	3.0



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



	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
NON RETIREMENT EQUITY INDEX - MELLON	3,207,711,927	0.6	0.6	30.0	16.0	16.9	16.6	10.5	07/1993
S&P 500 INDEX (DAILY)		0.6	0.6	30.0	16.0	16.9	16.6	10.5	07/1993
Excess		-0.0	-0.0	-0.0	0.0	-0.0	-0.0	0.1	
NON RETIREMENT FIXED INCOME - PRUDENTIAL	1,578,901,961	0.2	0.2	0.2	5.9	3.5	3.7	5.9	07/1994
Bloomberg U.S. Aggregate		0.1	0.1	-0.9	5.4	2.9	3.0	5.4	07/1994
Excess		0.1	0.1	1.1	0.5	0.5	0.7	0.5	
RBC	220,504,777	-0.0	-0.0	-1.1	4.1	2.1	1.9	4.7	07/1991
RBC Custom Benchmark		-0.0	-0.0	-1.3	4.0	2.0	1.8	4.8	07/1991
Excess		-0.0	-0.0	0.3	0.1	0.1	0.1	-0.1	
MET COUNCIL OPEB BOND POOL	101,903,153	-0.0	-0.0	0.2	3.0				
NON RETIREMENT CASH ACCOUNT	101,187,850	0.0	0.0	0.1	1.2				
ICE BofA US 3-Month Treasury Bill		0.0	0.0	0.1	1.2				
Excess		0.0	0.0	0.0	-0.0				

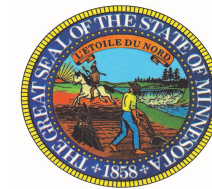
Note:

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.

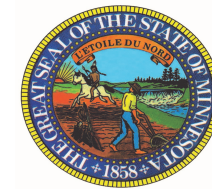
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Quarterly Report

State Cash

September 30, 2021



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.

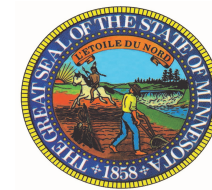
Beginning in January 2003, the Treasurer's Cash Pool is measured against the iMoneyNet, All Taxable Money Fund Report Average.

	<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	17,887,300,149	0.0	0.2	1.4	1.4	1.0
iMoneyNet Money Fund Average-All Taxable		0.0	0.0	0.9	0.8	0.4

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	69,562,870	-0.1	0.9	3.9	2.7	
Housing Finance	0					
Public Facilities Authority	464,998					



Addendum

Benchmark Definitions

Active Domestic Equity Benchmark:

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

Benchmark DM:

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

Benchmark EM:

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

Combined Funds Composite Index:

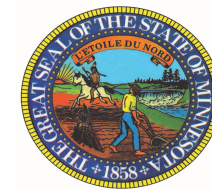
The Composite Index performance is calculated by multiplying the beginning of month Composite weights by the monthly returns of the asset class benchmarks. Asset class weights for Private Markets - Invested and Private Markets - Uninvested are reset at the start of each month. From 1/1/2018-2/28/2019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

Core Bonds Benchmark:

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

Credit Plus Benchmark:

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



Addendum

Domestic Equity Benchmark:

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

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

International Equity Benchmark:

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

Multi-Asset Credit Benchmark:

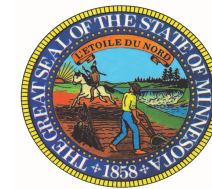
33.33% ICE BofA High Yield, 33.33% S&P LSTA Leveraged Loan, and 33.33% JPM EMBI Global Diversified Index.

Passive Domestic Equity Benchmark:

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

Passive Manager Benchmark:

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



Addendum

Public Equity Benchmark:

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

Return Seeking BM:

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

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

Total Fixed Income Benchmark:

Since 7/1/2020 the Total Fixed Income benchmark is 40% Bloomberg U.S. Aggregate Index/ 40% Bloomberg Treasury 5+ Years Index/ 20% ICE BofA US 3-Month Treasury Bill. From 4/1/2019-6/30/2020 it was 50% Bloomberg Barclays Agg and 50% Bloomberg Barclays 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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