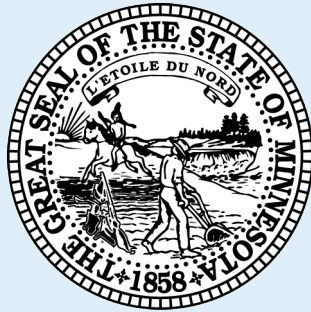

MINNESOTA STATE BOARD OF INVESTMENT

MINNESOTA STATE BOARD
OF INVESTMENT
MEETING
December 2, 2020



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 2, 2020

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**AGENDA
STATE BOARD OF INVESTMENT
MEETING**

**Teleconference
Wednesday, December 2, 2020
10:00 a.m.**

Participant (Public Listener) Dial In: 1-866-726-7736

Conference ID: 6474237

- | | |
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| 1. Call to Order | TAB |
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| 2. Approval of Minutes of August 26, 2020 | |
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| 3. Performance Summary | A |
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| 4. Executive Director's Administrative Report | B |
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| 5. Update on Investments Associated with Thermal Coal Production | C |
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| 6. Private Markets Commitments for Consideration | D |
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| 7. Public Markets Investment Program | E |
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| 8. Participant Directed Investment Program and
Non-Retirement Program | F |
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 | |
| 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 26, 2020
SBI Board
Meeting Minutes

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**Minutes
State Board of Investment Meeting
August 26, 2020**

Notice of Meeting

The State Board of Investment (SBI) met at 10:14 a.m. Wednesday, August 26, 2020 via Teleconference. It was determined that an in-person meeting was not practical due to the current health pandemic and on-going peacetime emergency declared under Chapter 12 of the Minnesota Statutes. As is permitted under the Open Meeting Law in these conditions, this meeting of the State Board of Investment is being conducted over the phone and attendance and all votes 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 28, 2020 and May 29, 2020 SBI meetings were approved unanimously by roll call vote.

Executive Director's Administrative Report

Executive Director Mr. Perry referred members to the June 30, 2020 Performance Report in Tab A of the meeting materials. Mr. Perry informed the Board that at the end of the fiscal year, the SBI was responsible for \$102.4 billion of assets under management and that the Combined Funds represented \$71 billion of those assets. As of today, Mr. Perry reported that the Combined Funds assets have grown to \$75 billion, which is at an all-time high. On a ten-year period ending June 30, 2020, the Combined Funds outperformed its Composite Index (Combined Funds 9.7% vs Combined Funds-Composite Index 9.5%) and had provided a real rate of return of 4.3% above inflation over the last twenty-year period (Combined Funds 6.3% vs CPI-U 2.0%).

Mr. Perry stated that the combined public equity performance outperformed its benchmark for the quarter and fiscal year with a 20.8% return and 2.7% return, respectively. Mr. Perry continued that the combined fixed income portfolio was a strong contributor to performance and that Treasuries reported the highest return in the portfolio with a 16.7% return for the fiscal year. Lastly, Mr. Perry stated that Private Market investments had a one-quarter lag when reporting their financials so the returns reflect March 31, 2020 earnings. The poor performance in Resources is primarily due to the supply shock in the oil markets from the Russia-Saudi Arabia oil war. At the same time, the industry experienced a huge demand shock from the impact of COVID-19 with people using less gasoline to drive cars and the airline industry temporarily shut down.

Mr. Perry noted that as of June 30, 2020, the Combined Funds return ranked in the 26th percentile for the quarter and 39th percentile for the year compared to other public and corporate pension fund returns with assets over \$1 billion. In a universe of public pension plans over \$50 billion in assets, the Combined Funds return ranked in the first percentile for the quarter and ten-year period and 15th percentile for the three and five year time period ending June 30, 2020.

Mr. Perry referred members to Tab B of the meeting materials for the Executive Director's Administrative Report, which included the administrative budget. Mr. Perry noted that the SBI is under budget for the fiscal year and will return over \$1.5 million back to the Statewide Retirement Systems. He also stated that the SBI has executed the responsibilities with the Sudan and Iran restrictions and reported there was no significant litigation the SBI was involved in for the quarter.

Update on Resolution Concerning Reduction of Investments Associated with Thermal Coal Production

Mr. Perry referred members to Tab C of the meeting materials with reference to the resolution adopted at the May 29, 2020 meeting concerning the reduction of investments associated with Thermal Coal production. The resolution requires removal of any publicly traded company deriving more than 25% of its revenue from thermal coal production (exploration/mining). The SBI identified forty such companies in the investable universe that met the criteria, of which ten companies are in the Combined Funds portfolio. Managers have until December 31, 2020 to liquidate out of the position. Mr. Perry stated that this listing will be updated on an annual basis.

Response to Resolution Concerning Management of Combined Funds Asset Allocation and Liquidity

Mr. Perry referred members to Tab D of the meeting materials, which included Staff's response to the resolution adopted at the May 29, 2020 meeting Concerning the Management of the Combined Funds Asset Allocation and Liquidity. Mr. Perry outlined six actionable items for the Board's approval that were endorsed by the Investment Advisory Council and the SBI's consultants.

The first item is the restructuring of the fixed income portfolio into three segments: Cash and Short Duration Treasury Ladder portfolio, Core/Core Plus and Return Seeking Fixed Income portfolio, and the current Treasury portfolio. Mr. Perry stated that the Cash plus Short Duration Ladder Treasury portfolio would provide for better liquidity and mitigate the SBI's portion of the pension benefit payments every month, which is currently a \$200 million shortfall. The additional yield from a Return Seeking Fixed Income mandate will counterbalance the low expected returns given the amount of treasury and cash securities in the fixed income portfolio. Mr. Perry emphasized these changes are for liquidity, protection and return. As part of this restructuring, staff reviewed and recommended hiring six Return Seeking Fixed Income managers for this mandate.

The second item is an increase in the fixed income allocation from 20% to 25%. Mr. Perry stated that three percent would come from the Public Equities allocation (decrease from 53% to 50%) and 2% from transitioning the cash allocation to fixed income. Within public equity, Staff reviewed the domestic equity and foreign equity mandates and recommended hiring three global equity managers. Staff also proposed to add a currency overlay manager to assist in the management of the non-dollar currency exposure in the Combined Fund's portfolio.

The third item pertains to the allocation target for Private Markets. The Board approved a resolution allowing the Combined Funds portfolio to hold private market investments up to the statutory maximum of market value level of 35%, despite retaining a target allocation of a market value level of 25%. In addition, the Board set a temporary policy for Market Value plus Unfunded

Commitments to increase to a maximum of 45% from the current limit of 35%. Staff will present a recommendation for a permanent policy level by the end of the Fiscal Year 2021.

The fourth item is a restructuring of the uninvested portion of the private markets allocation. This will be a separate distinct portfolio with asset management and a cash overlay manager to facilitate cash payments to the private market commitments. Subsequently, the overlay manager will assist in total portfolio rebalancing.

The fifth item is to allow for contractual and guideline amendments with respect to SBI's existing investment managers, where appropriate, and benchmark changes that are deemed to be necessary. This effort will enable Staff to better manage the Combined Funds Portfolio, to facilitate risk management, and will provide for improved operational efficiency and overall management effectiveness.

Lastly, Mr. Perry and Staff will bring before the IAC and Board recommendations for any additional managers and vendors necessary to expeditiously implement these strategies.

Governor Walz noted that the recommendations of Staff, as laid out, are in response to the resolution passed by the Board at the May 29, 2020 meeting. State Auditor Blaha moved approval of the recommendations, which reads: **“The Investment Advisory Council concurs with Staff’s Response to the Resolution Concerning Management of Combined Funds Asset Allocation and Liquidity including its proposed implementation plan including the recommendation to retain the managers listed in paragraphs a) through d) below, and that the SBI authorize the Executive Director, with assistance from SBI’s legal counsel, to negotiate fees and execute a contract with each firm.**

a) the following six Return Seeking Fixed Income investment managers for the Fixed Income portfolio:

- *Ashmore Investment Management – Emerging Markets Debt*
- *Kohlberg, Kravis, and Roberts – High Yield Debt*
- *Oaktree Capital – High Yield Debt*
- *Payden & Rygel – Multi-Asset Credit*
- *Prudential Global Investment Management – Multi-Asset Credit*
- *TCW Group – Securitized Credit*

b) the following three Global Equity investment managers for the Public Equity portfolio:

- *Ariel Investments, LLC*
- *Baillie Gifford & Co*
- *Martin Currie Inc.*

- c) **The following Cash Overlay Manager:**
- *NISA Investment Advisors, LLC*
- d) **The following Currency Overlay Manager:**
- *Record Currency Management.”*

The motion passed by roll call vote.

Private Markets Commitments for Consideration

Mr. Martin, Chairperson of the Investment Advisory Council, delivered the Private Markets Commitments for Consideration Report and reviewed seven private markets proposals listed in Tab E of the meeting materials. He stated that one recommendation is with a new manager and six are with existing managers with whom the SBI has done extensive due diligence: Canyon Distressed Opportunity Fund III; Merit Capital Fund VII, MN Asia Investors, LP; Dyal Capital Partners Fund V; Nordic Capital Fund X; Thoma Bravo Fund XIV; and Whitehorse Liquidity Partners Fund IV. Attorney General Ellison moved approval of the seven 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 \$125 million, or 20% of Canyon Distressed Opportunity 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 Canyon 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 Canyon 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 Merit Capital Fund VII, 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 Merit 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 Merit 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 total commitment of up to \$200 million to MN Asia Investors, LP, 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 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 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 \$200 million, or 20% of Dyal Capital 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 Dyal 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 Dyal 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 Nordic Capital 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 Nordic 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 Nordic 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 Thoma Bravo XIV, 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 Thoma Bravo 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 Thoma Bravo 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 Whitehorse Liquidity Partners 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 Whitehorse 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 or reduction or termination of the commitment." The motion passed unanimously by roll call vote.

Investment Advisory Council Discussion on Diversity and Inclusion

Mr. Perry referred members to Tab H of the meeting materials regarding the IAC discussion on Diversity and Inclusion and asked Mr. Martin to give a brief update on the discussion. Mr. Martin stated that a memo written by IAC member, Ms. Gibbons, prompted a discussion with members of what actionable items they are taking to support diversity and inclusion more broadly in the investment environment. Staff and Board Designees discussed efforts the SBI has taken to address diversity and inclusion with its investment managers and in the SBI's investment portfolios. IAC members encouraged Staff to continue its efforts and consider expanding its evaluation of managers and investment holdings with respect to diversity and inclusion.

Other Items and Reports

Mr. Perry stated that he wanted to acknowledge his Staff for the exemplary job with the extraordinary amount of work the staff did during the last three months despite working from home. Lastly, Mr. Perry stated the remainder of the reports included the Public Markets Investment Program Report; Participant Directed Investment Program and Non-Retirement Program Report; SBI Environmental, Social, and Governance (ESG) Report; Market Environment Report prepared by AON; the Capital Markets Outlook & Risk Metrics Report prepared by Meketa; and the SBI's Comprehensive Performance Report.

Public Testimony

Governor Walz recognized individuals of the public who requested to speak before the Board: Mari Mansfield with Minnesota Immigration Rights Action Committee; Wade Luneberg with UNITE HERE Local 17; Melissa Wenzel is the Built Environment Sustainability Administrator at the Minnesota Pollution Control Agency; Jina Penn-Tracy is the SRI Investment Advisor and Owner of Centered-Wealth; Geetu Sharma, Founder and Portfolio Manager at AlphasFuture; Juwaria Jama, environmental justice organizer and State Lead of Minnesota Youth for Climate Justice; Edgar Hernandez with Service Employees International Union (SEIU); and Antonio Rodriquez, a former employee of the Terranea Hotel in Rancho Palos Verdes. Governor Walz and State Auditor Blaha thanked everyone for their availability for the meeting.

Adjournment of Meeting

Secretary of State Simon moved approval to adjourn the meeting. The motion passed by roll call vote. The meeting adjourned at 11:23 a.m.

Respectfully submitted,

A handwritten signature in cursive script, reading "Mansco Perry III".

Mansco Perry III
Executive Director and
Chief Investment Officer

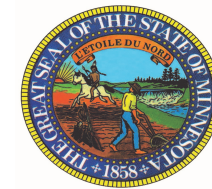
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TAB A

Quarterly Performance Summary

September 30, 2020

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Performance Summary

September 30, 2020



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.

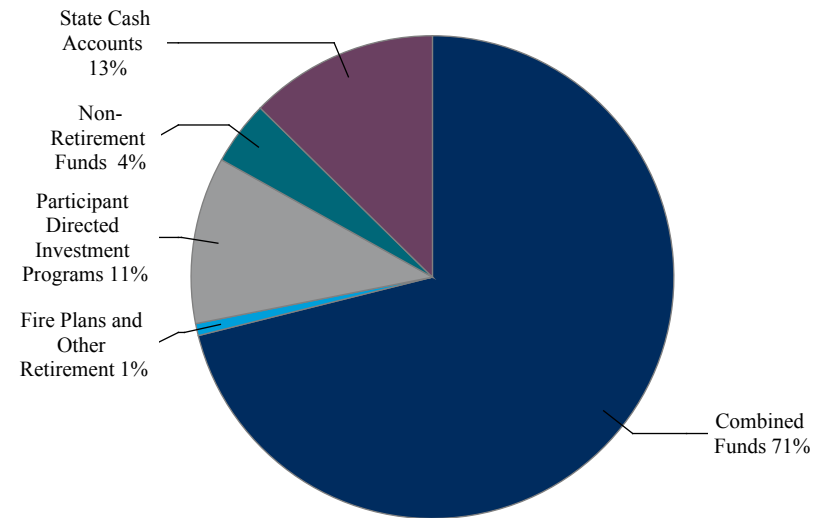
State Cash

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.

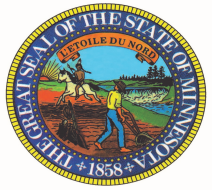


Funds Under Management

	<u>\$ Millions</u>
COMBINED FUNDS	\$74,762
FIRE PLANS + OTHER RETIREMENT	850
PARTICIPANT DIRECTED INVESTMENT PROGRAMS	11,745
State Deferred Compensation Plan	8,145
Health Care Savings Plan	1,376
Unclassified Employees Retirement Plan	339
Hennepin County Supplemental Retirement Plan	167
PERA Defined Contribution Plan	83
Minnesota College Savings Plan	1,622
Minnesota Achieve a Better Life Experience	14
NON-RETIREMENT FUNDS	4,494
Assigned Risk Plan	292
Permanent School Fund	1,700
Environmental Trust Fund	1,373
Closed Landfill Investment Fund	109
Miscellaneous Trust Funds	296
Other Postemployment Benefits Accounts	723
STATE CASH ACCOUNTS	13,297
Invested Treasurer's Cash	13,214
Other State Cash Accounts	83
TOTAL SBI AUM	105,148



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	9.5%
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	9.2
	Excess	0.3
		<u>20 Year</u>
Provide Real Return (20 yr.)	COMBINED FUNDS	6.6%
Provide returns that are 3-5 percentage points greater than inflation over the latest 20 year period.	CPI-U	2.0
	Excess	4.5

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)

	One Quarter
COMBINED FUNDS	
Beginning Market Value	\$71,053
Net Contributions	-651
Investment Return	4,360
Ending Market Value	74,762

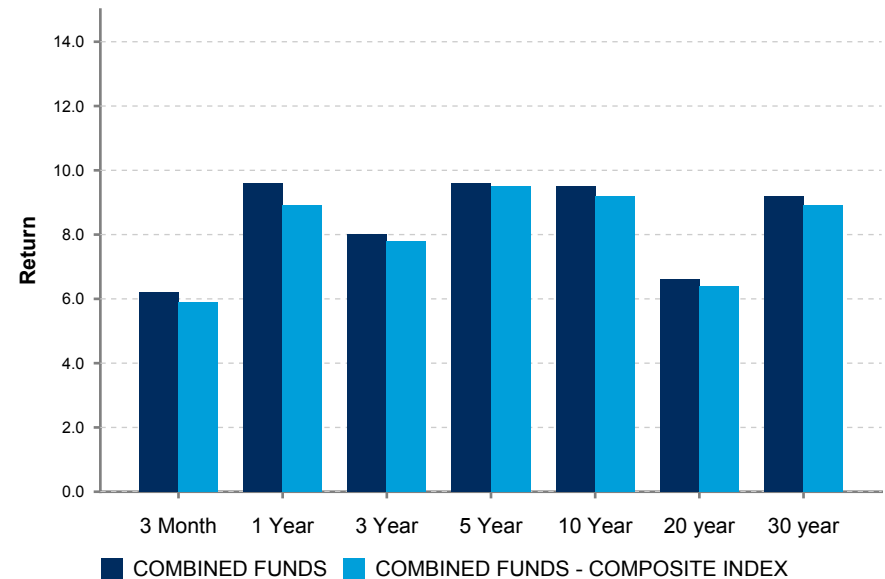
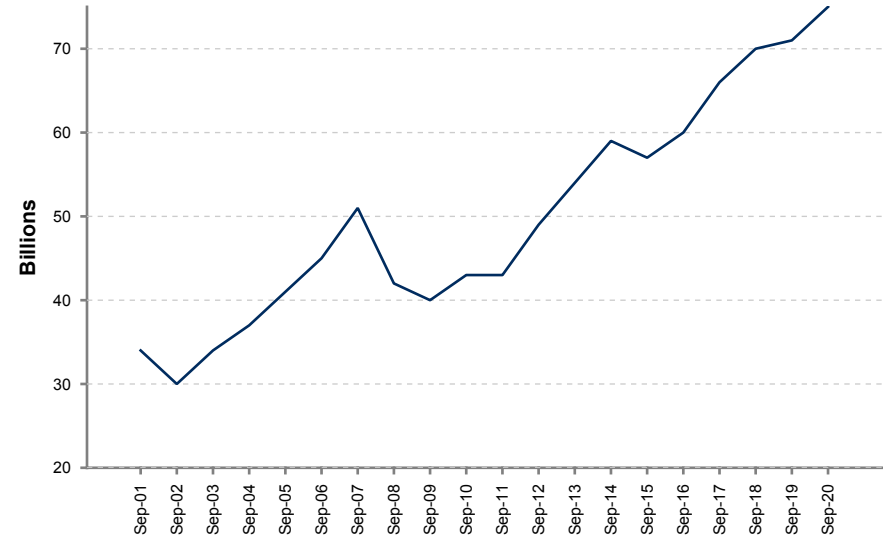
The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

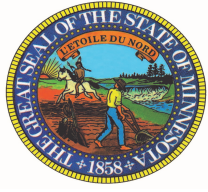
Performance (Net of Fees)

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

	Qtr	FYTD	1 Yr	3 Yr	5 Yr	10 Yr	20 Yr	30 Yr
COMBINED FUNDS	6.2%	6.2%	9.6%	8.0%	9.6%	9.5%	6.6%	9.2%
COMBINED FUNDS - COMPOSITE INDEX	5.9	5.9	8.9	7.8	9.5	9.2	6.4	8.9
Excess	0.3	0.3	0.7	0.2	0.1	0.3	0.2	0.3

Asset Growth



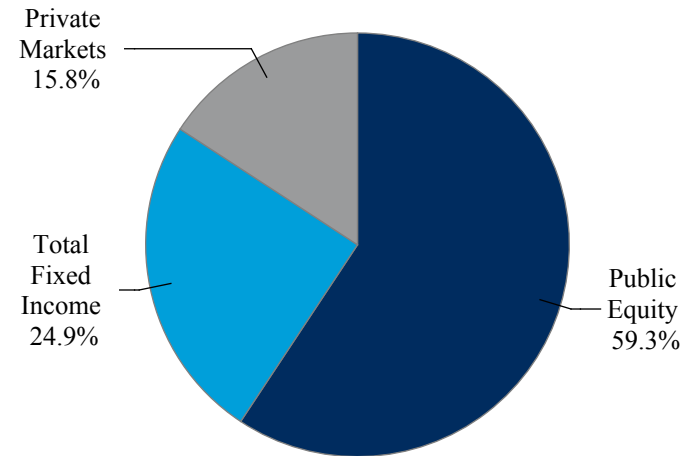


Combined Funds Summary

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.

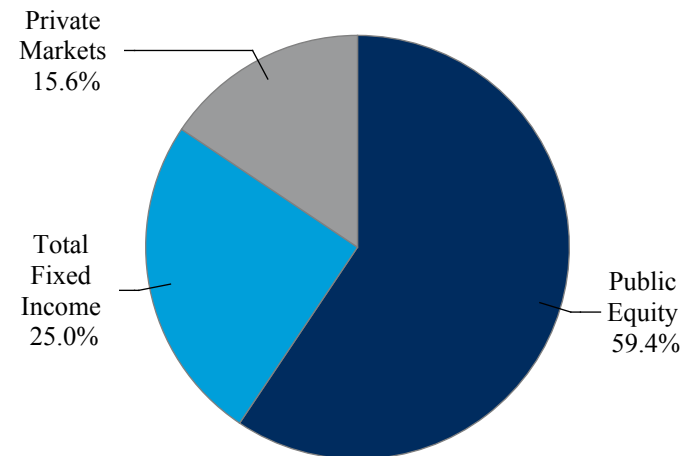
	<u>(Millions)</u>	<u>Actual Mix</u>	<u>Policy Target</u>
Public Equity	\$44,357	59.3%	50.0%
Total Fixed Income	18,582	24.9	25.0
Private Markets	11,823	15.8	25.0
TOTAL	74,762	100.0	

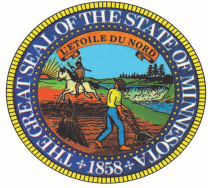


Composite Index Comparison

The Combined Funds Composite is set as the Strategic Asset Allocation Policy Target with the uninvested portion of Private Markets allocated to Public Equity. Asset class weights for Public Equity and Private Markets 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	59.4%	Public Equity Benchmark
Total Fixed Income	25.0	Total Fixed Income Benchmark
Private Markets	15.6	Private Markets





Combined Funds Asset Class Performance Summary

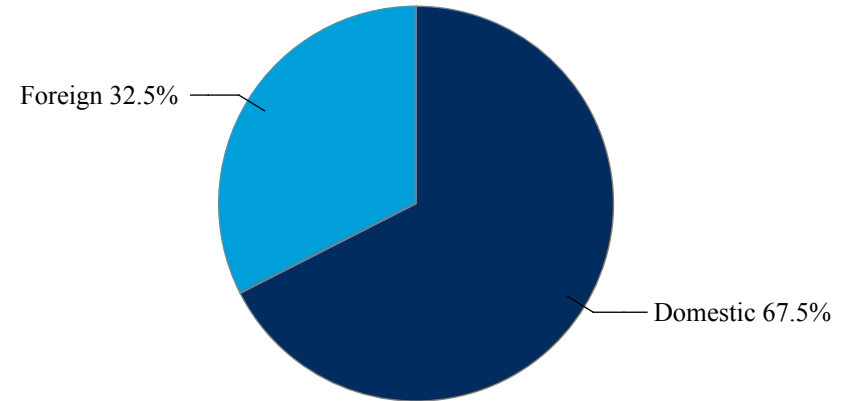
Public Equity

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

The Public Equity benchmark is 60.3% Russell 1000, 6.7% Russell 2000, 24.75% MSCI World ex US (net), and 8.25% MSCI EM (net).

The Russell 1000 and Russell 2000 measure the performance of the 1000 largest and 2000 next largest U.S. companies based on total market capitalization.

The MSCI World ex US index is composed of large and mid cap companies that capture approximately 85% of the total market capitalization in 22 of the 23 developed markets. The MSCI Emerging Markets index is composed of large and mid cap companies that capture approximately 85% of the total market capitalization across 24 Emerging Markets countries.



	<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	8.4%	8.4%	11.3%	8.2%	11.2%	11.0%	5.8%	9.7%
Public Equity Benchmark	8.1	8.1	10.5	8.0				
Excess	0.3	0.3	0.8	0.2				
Domestic Equity	9.2	9.2	15.1	11.5	13.4	13.4	6.4	10.4
Domestic Equity Benchmark	9.0	9.0	14.4	11.4	13.5	13.4	6.5	10.5
Excess	0.2	0.2	0.6	0.1	-0.2	0.0	-0.1	-0.1
International Equity	6.7	6.7	3.7	1.4	6.3	4.5	4.5	
International Equity Benchmark	6.1	6.1	2.8	1.1	6.2	4.0	4.2	
Excess	0.6	0.6	1.0	0.3	0.1	0.5	0.3	

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

The Core Bonds benchmark is the Bloomberg Barclays U.S. Aggregate Index.

The Treasuries benchmark is the Bloomberg Barclays Treasury 5+ Years Index.

The Cash benchmark is the ICE BofA US 3-Month Treasury Bill.

	<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	0.8%	0.8%	10.2%	7.3%	5.7%	4.7%	5.7%	6.6%
Total Fixed Income Benchmark	0.4	0.4	9.6					
Excess	0.4	0.4	0.6					
Core Bonds	1.3	1.3	8.2	5.9	4.9	4.3	5.4	6.5
Core Bonds Benchmark	0.6	0.6	7.0	5.2	4.2	3.6	5.0	6.0
Excess	0.7	0.7	1.2	0.6	0.7	0.7	0.4	0.4
Treasury Protection	0.4	0.4	12.1					
BBG BARC 5Y + Us Tsy Idx	0.2	0.2	12.4					
Excess	0.2	0.2	-0.3					
Laddered Bond + Cash	0.0	0.0	1.0	1.7	1.3	0.8	1.9	3.4
ICE BofA US 3-Month Treasury Bill	0.0	0.0	1.1	1.7	1.2	0.6	1.6	2.8
Excess	0.0	0.0	-0.1	-0.0	0.1	0.2	0.3	0.7

Note:

Since 7/1/2020 the Total Fixed Income includes the allocations to Core Bonds, Treasuries and Cash. From 2/1/2018-6/30/20 Total Fixed Income includes the allocations to Core Bonds and Treasuries. Prior to 2/1/2018, Total Fixed Income includes the allocation to 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	6.1%	6.1%	1.5%	8.4%	8.9%	11.1%	11.3%	13.1%	12.1%
Private Equity	7.9%	7.9%	7.9%	13.4%	13.6%	14.2%	12.1%	15.2%	
Private Credit	4.0	4.0	2.9	9.2	10.4	12.0	11.3		
Resources	2.3	2.3	-20.9	-6.7	-5.6	1.6	11.6	12.7	
Real Estate	2.5	2.5	2.9	8.2	8.0	11.3	8.4	9.3	

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.

SBI Combined Funds Strategic Allocation Category Framework

	<u>9/30/20</u> <u>(\$ millions)</u>	<u>9/30/20 Weights</u>	<u>Category Ranges</u>	
<u>Growth - Appreciation</u>				
Public Equity	\$ 44,356.55	59.3%		
Private Equity	\$ 7,072.65	9.5%		
Non-Core Real Assets	\$ 2,365.80	3.2%		
Distressed/Opportunistic	\$ 1,179.16	1.6%		
	\$ 54,974.15	73.5%	50%	75%
<u>Growth - Income-oriented</u>				
Core Fixed Income	\$ 7,367.74	9.9%		
Private Credit	\$ 767.54	1.0%		
Return-Seeking Fixed Income		0.0%		
	\$ 8,135.28	10.9%	15%	30%
<u>Real Assets</u>				
Core Real Estate		0.0%		
Real Assets	\$ 431.36	0.6%		
	\$ 431.36	0.6%	0%	10%
<u>Inflation Protection</u>				
TIPS		0.0%		
Commodities		0.0%		
		0.0%	0%	10%
<u>Protection</u>				
U.S. Treasuries	\$ 7,218.10	9.7%		
	\$ 7,218.10	9.7%	5%	20%
<u>Liquidity</u>				
Cash	\$ 3,996.62	5.3%		
	\$ 3,996.62	5.3%	0%	5%
<u>Opportunity</u>				
Opportunity		0.0%	0%	10%
Total	\$ 74,761.93	100.0%		
Illiquid Asset Exposure	\$ 11,816.51	15.8%	0%	30%

Volatility Equivalent Benchmark Comparison

Periods Ending 9/30/2020

As of (Date):	9/30/2020							
	1-year	3-year	5-year	10-year	15-year	20-year	25-year	30-year
SBI Combined Funds Return	9.6%	8.0%	9.6%	9.5%	7.7%	6.6%	8.2%	9.2%
Volatility Equivalent Benchmark Return			8.2%	6.8%	6.0%	5.4%	6.5%	7.7%
Value Added			1.4%	2.7%	1.7%	1.2%	1.7%	1.5%
Standard Deviation: Benchmark = Combined Funds			8.8%	8.2%	9.5%	9.5%	9.6%	9.3%
Benchmark Stock Weight			61%	60%	58%	60%	62%	62%
Benchmark Bond Weight			39%	40%	42%	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

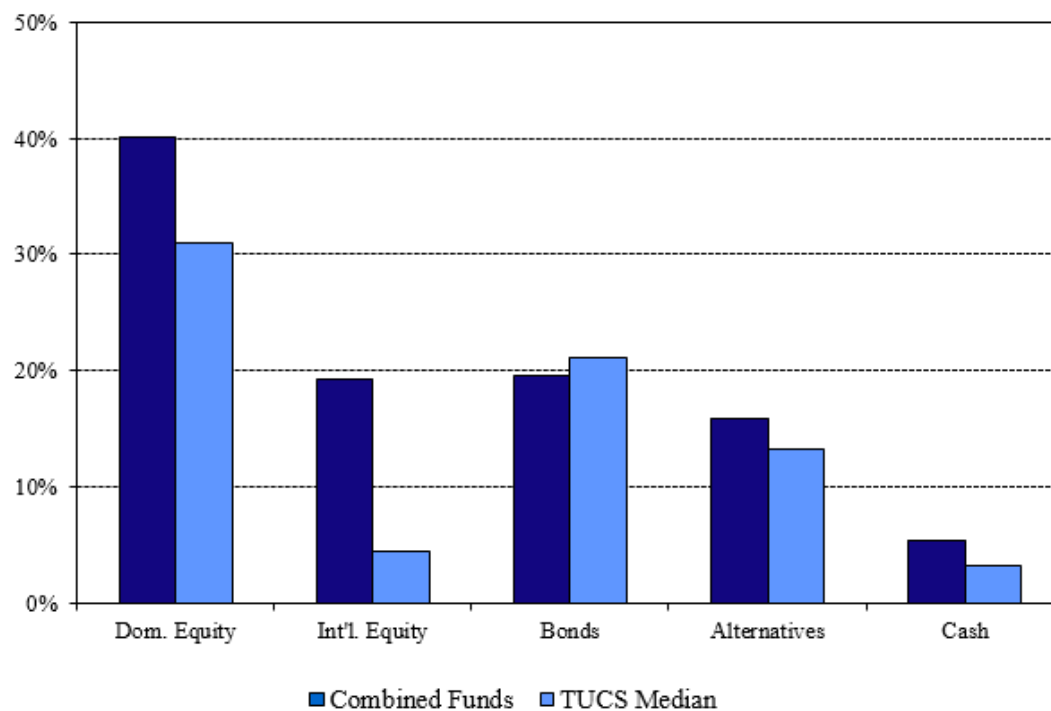
Asset Mix Compared to Other Pension Funds

The comparison universe used by the SBI is the Trust Universe Comparison Service (TUCS). Only funds with assets over \$1 billion are included in the comparisons shown in this section.

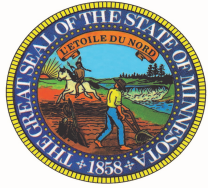
Comparisons of the Combined Funds' asset mix to the median allocation to stocks, bonds and other assets of the public and corporate funds in TUCS over \$1 billion are shown below:

Combined Funds Asset Mix

	<u>(\$Millions)</u>	<u>Actual Mix</u>
Public Equity	44,357	59.3
Total Fixed Income	18,582	24.9
Private Markets	11,823	15.8
TOTAL	74,762	100.0



	<u>Domestic Equity</u>	<u>International Equity</u>	<u>Bonds</u>	<u>Alternatives</u>	<u>Cash</u>
Combined Funds	40.1%	19.3%	19.6%	15.8%	5.3%
Median in TUCS	31.0%	4.4%	21.1%	13.3%	3.2%



Combined Funds Summary

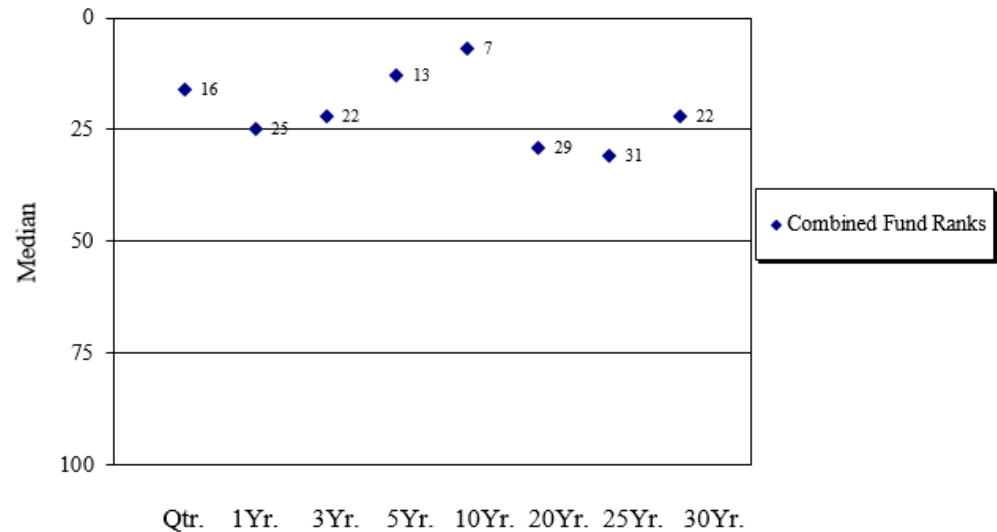
Performance Compared to Other Pension Funds

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

- Differing Allocations. Asset allocation will have a dominant effect on return. The allocation to stocks among the funds in TUCS typically ranges from 20-90%, a very wide range for meaningful comparison. In addition, it appears that many funds do not include alternative asset holdings in their reports to TUCS. 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 and corporate pension funds in Trust Universe Comparison Service (TUCS) are shown below.

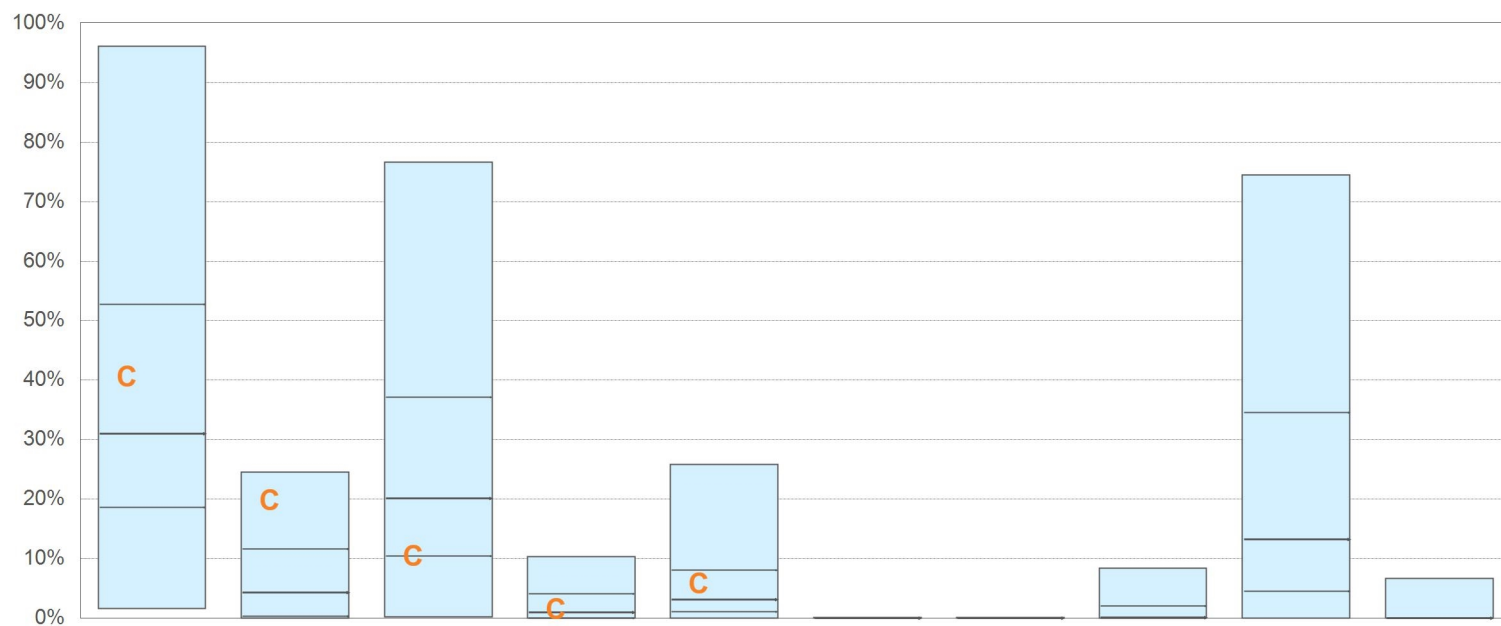
The SBI's returns are ranked against public and corporate plans with over \$1 billion in assets. All funds in TUCS report their returns gross of fees.



	Periods Ended 09/30/2020							
	<u>Qtr</u>	<u>1 Yr</u>	<u>3 Yrs</u>	<u>5 Yrs</u>	<u>10 Yrs</u>	<u>20 Yrs</u>	<u>25 Yrs</u>	<u>30 Yrs</u>
Combined Funds	16th	25th	22nd	13th	7th	29th	31st	22nd
Percentile Rank in TUCS								

Minnesota State Board of Investments Asset Allocation of Master Trusts - Plans > \$1 Billion

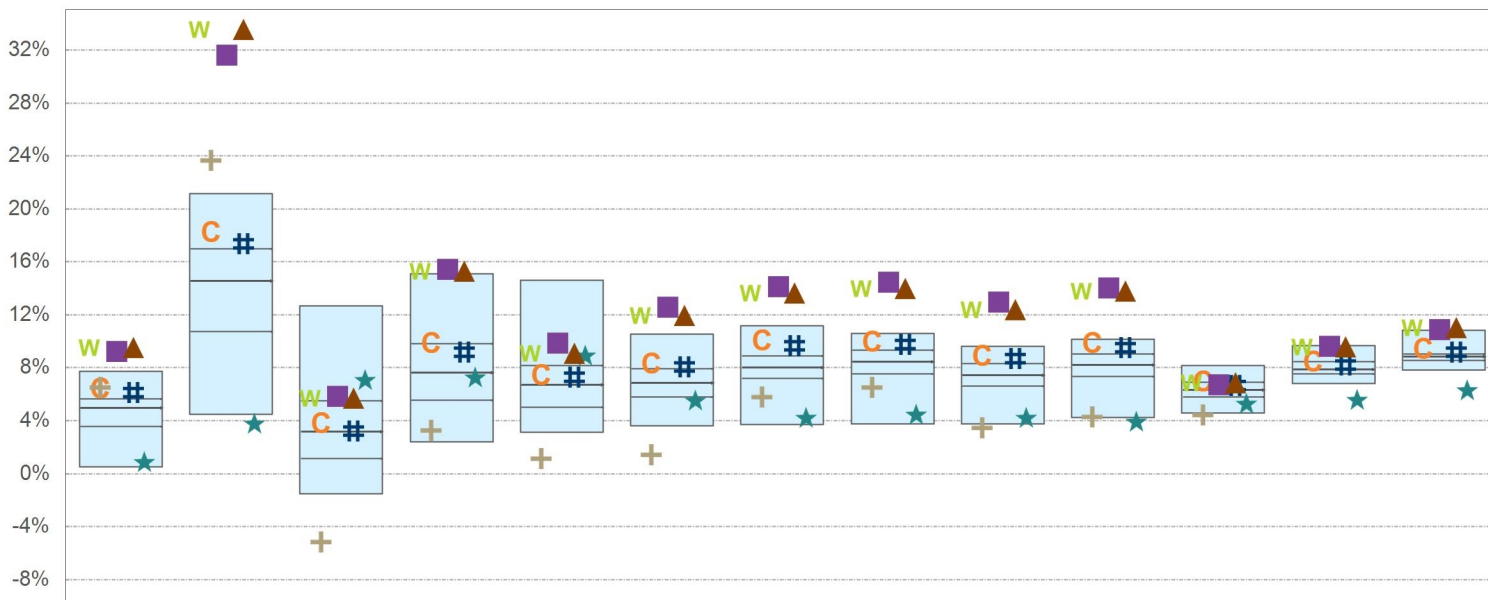
Quarter Ending September 30, 2020



Percentile Rankings	US Equity	Non-US Equity	US Fixed	Non-US Fixed	Cash	Convertible	GIC GAC	Real Estate	Alternative Investments	Other
5th	96.10	24.51	76.63	10.31	25.84	0.10	0.15	8.40	74.51	6.72
25th	52.78	11.58	37.11	4.09	8.03	0.00	0.00	2.01	34.55	0.00
50th	30.95	4.35	20.15	0.97	3.15	0.00	0.00	0.13	13.19	0.00
75th	18.67	0.30	10.42	0.05	1.09	0.00	0.00	0.00	4.47	0.00
95th	1.62	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C Combined Funds	40.06 (35)	19.27 (9)	9.85 (76)	0.00 (100)	5.28 (31)			1.42 (30)		2.32 (6)

Minnesota State Board of Investments Performance Comparison

Total Returns of Master Trusts - Plans > \$1 Billion
Cumulative Periods Ending : September 30, 2020

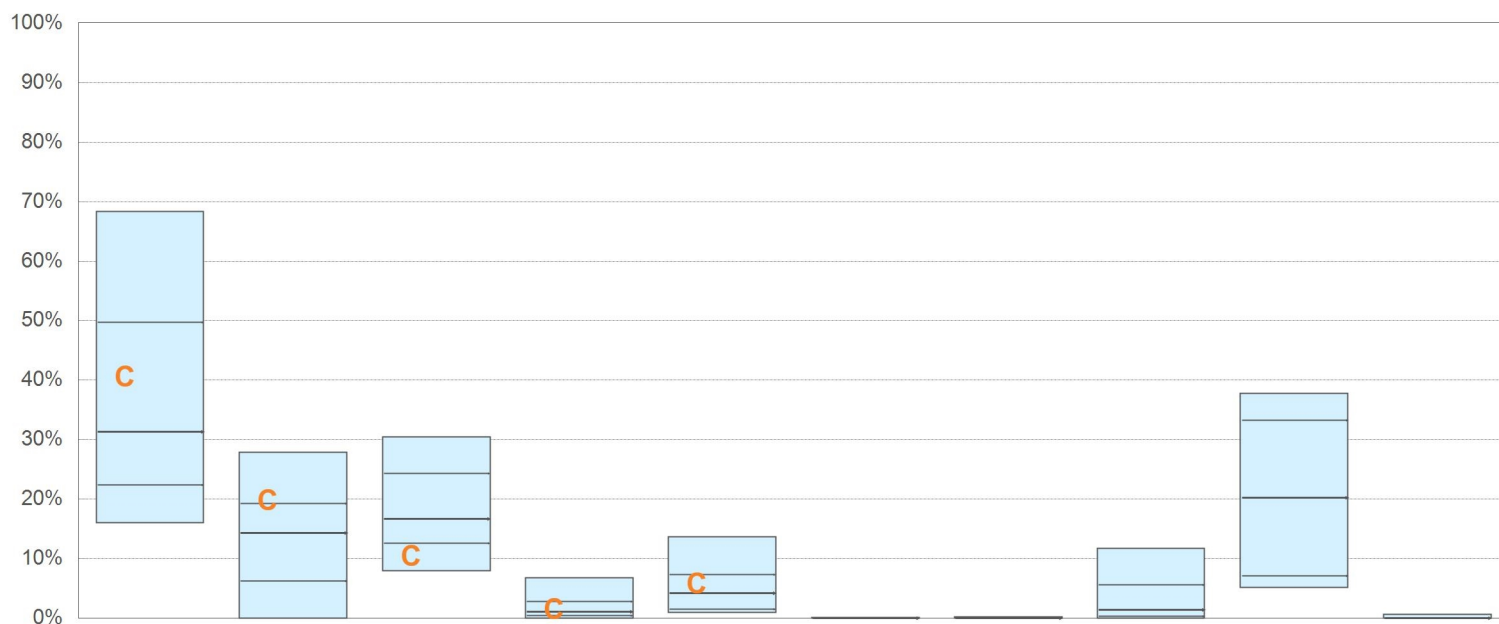


Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years	20 Years	25 Years	30 Years
5th	7.73	21.17	12.66	15.08	14.62	10.55	11.15	10.59	9.62	10.17	8.17	9.69	10.85
25th	5.65	16.97	5.49	9.83	8.18	7.93	8.87	9.33	8.32	9.04	6.91	8.47	9.04
50th	4.97	14.58	3.16	7.61	6.69	6.86	8.02	8.44	7.44	8.22	6.31	7.86	8.83
75th	3.57	10.74	1.14	5.57	5.04	5.77	7.18	7.52	6.63	7.35	5.78	7.54	8.54
95th	0.49	4.47	-1.52	2.39	3.14	3.60	3.70	3.76	3.76	4.24	4.59	6.83	7.81
No. Of Obs	148	147	140	135	123	121	120	120	120	119	101	75	36
C Combined Funds	6.19 (16)	17.98 (18)	3.57 (44)	9.64 (25)	7.18 (38)	8.09 (22)	9.82 (11)	9.71 (13)	8.65 (17)	9.63 (7)	6.72 (29)	8.21 (31)	9.18 (22)
# SBI Combined Funds Ind	5.86 (20)	17.07 (24)	2.95 (51)	8.91 (32)	7.00 (42)	7.76 (29)	9.38 (14)	9.49 (20)	8.42 (19)	9.23 (18)	6.39 (44)	7.94 (44)	8.90 (41)
W SBI Domestic Equity Tar	9.21 (3)	33.26 (1)	5.41 (26)	15.00 (5)	8.79 (22)	11.65 (3)	13.37 (1)	13.69 (1)	12.11 (1)	13.48 (1)	6.58 (37)	9.29 (9)	10.74 (5)
★ SBI Fixed Income Tar	0.62 (94)	3.53 (95)	6.79 (18)	6.98 (57)	8.63 (23)	5.24 (83)	3.93 (94)	4.18 (94)	3.97 (94)	3.64 (95)	5.01 (92)	5.30 (100)	6.02 (100)
S S&P 500	8.93 (3)	31.31 (1)	5.57 (23)	15.15 (4)	9.57 (16)	12.28 (2)	13.83 (1)	14.15 (1)	12.68 (1)	13.74 (1)	6.42 (43)	9.31 (9)	10.59 (5)
+ MSCI World Ex US (N)	6.25 (14)	23.38 (3)	-5.44 (99)	3.00 (92)	0.86 (99)	1.16 (99)	5.49 (92)	6.23 (88)	3.18 (95)	4.00 (95)	4.16 (95)		
▲ Russell 3000	9.21 (3)	33.26 (1)	5.41 (26)	15.00 (5)	8.79 (22)	11.65 (3)	13.37 (1)	13.69 (1)	12.11 (1)	13.49 (1)	6.58 (37)	9.29 (9)	10.74 (5)

Minnesota State Board of Investments

Asset Allocation of Master Trusts - Public : Plans > \$10 Billion

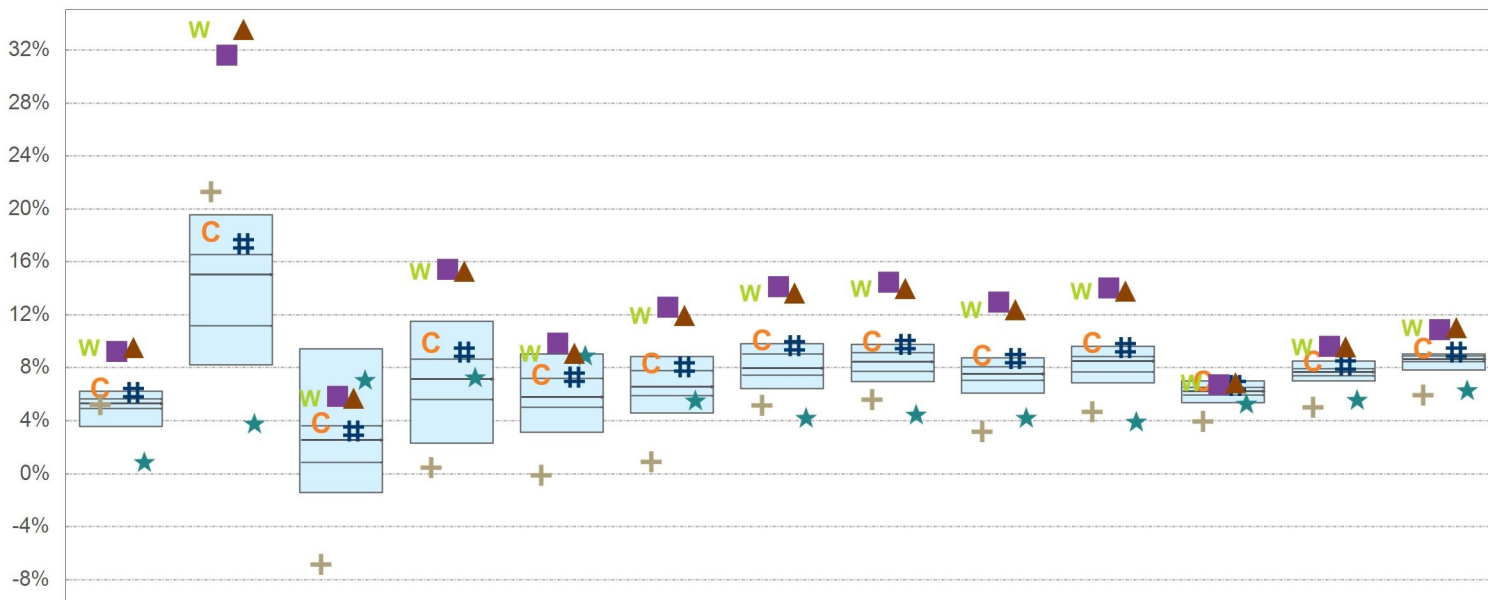
Quarter Ending September 30, 2020



Percentile Rankings	US Equity	Non-US Equity	US Fixed	Non-US Fixed	Cash	Convertible	GIC GAC	Real Estate	Alternative Investments	Other
5th	68.37	27.87	30.46	6.74	13.68	0.07	0.19	11.69	37.75	0.68
25th	49.77	19.27	24.30	2.76	7.31	0.02	0.00	5.57	33.27	0.01
50th	31.28	14.31	16.65	1.07	4.16	0.00	0.00	1.42	20.25	0.00
75th	22.34	6.25	12.55	0.46	1.49	0.00	0.00	0.27	7.14	0.00
95th	16.01	0.00	8.01	0.00	1.02	0.00	0.00	0.00	5.18	0.00
C Combined Funds	40.06 (35)	19.27 (25)	9.85 (91)	0.00 (100)	5.28 (32)			1.42 (50)		2.32 (1)

Minnesota State Board of Investments Performance Comparison

Total Returns of Master Trusts - Public : Plans > \$10 Billion
Cumulative Periods Ending : September 30, 2020



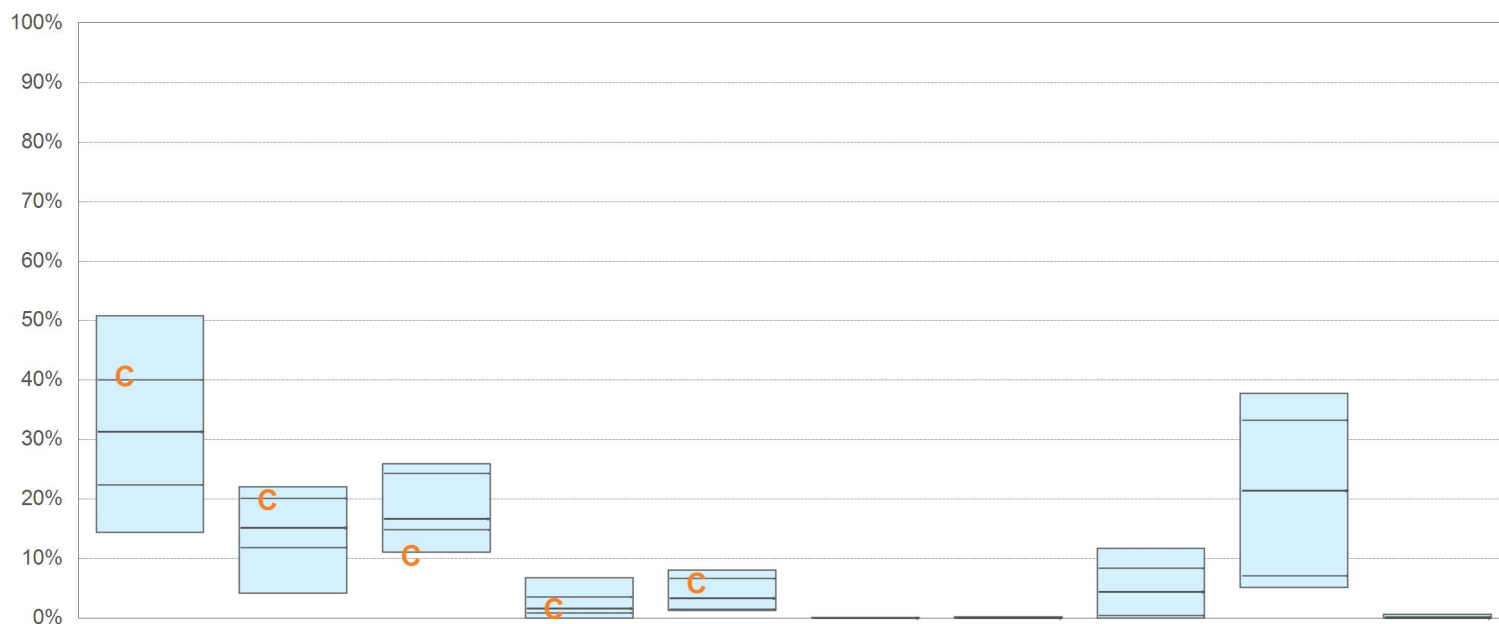
Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years	20 Years	25 Years	30 Years
5th	6.24	19.57	9.42	11.51	9.04	8.85	9.82	9.74	8.77	9.63	7.02	8.50	9.04
25th	5.67	16.53	3.63	8.67	7.18	7.76	9.02	9.15	8.09	8.85	6.50	7.91	8.91
50th	5.31	15.03	2.55	7.17	5.81	6.58	7.99	8.44	7.55	8.48	6.21	7.69	8.65
75th	4.93	11.15	0.84	5.59	5.01	5.91	7.42	7.73	7.05	7.68	5.95	7.40	8.47
95th	3.57	8.22	-1.42	2.32	3.11	4.59	6.41	6.97	6.08	6.85	5.35	7.00	7.81

No. Of Obs	46	46	46	45	43	43	43	43	43	43	38	33	21
C Combined Funds SBI	6.19 (11)	17.98 (11)	3.57 (27)	9.64 (15)	7.18 (25)	8.09 (12)	9.82 (5)	9.71 (8)	8.65 (8)	9.63 (5)	6.72 (13)	8.21 (11)	9.18 (1)
# Combined Funds	5.86 (15)	17.07 (15)	2.95 (34)	8.91 (23)	7.00 (27)	7.76 (25)	9.38 (12)	9.49 (12)	8.42 (10)	9.23 (12)	6.39 (30)	7.94 (22)	8.90 (30)
W SBI Domestic Equity TA	9.21 (1)	33.26 (1)	5.41 (7)	15.00 (1)	8.79 (10)	11.65 (1)	13.37 (1)	13.69 (1)	12.11 (1)	13.48 (1)	6.58 (20)	9.29 (1)	10.74 (1)
★ SBI Fixed Income TA	0.62 (99)	3.53 (99)	6.79 (5)	6.98 (52)	8.63 (10)	5.24 (89)	3.93 (99)	4.18 (99)	3.97 (99)	3.64 (100)	5.01 (100)	5.30 (100)	6.02 (100)
C S&P 500	8.93 (1)	31.31 (1)	5.57 (7)	15.15 (1)	9.57 (1)	12.28 (1)	13.83 (1)	14.15 (1)	12.68 (1)	13.74 (1)	6.42 (30)	9.31 (1)	10.59 (1)
# MSCI Wld Ex US (Net)	4.92 (75)	21.02 (1)	-7.13 (99)	0.16 (99)	-0.39 (99)	0.62 (99)	4.87 (99)	5.32 (99)	2.90 (100)	4.37 (100)	3.64 (100)	4.71 (100)	5.65 (100)
W Russell 3000	9.21 (1)	33.26 (1)	5.41 (7)	15.00 (1)	8.79 (10)	11.65 (1)	13.37 (1)	13.69 (1)	12.11 (1)	13.49 (1)	6.58 (20)	9.29 (1)	10.74 (1)

Minnesota State Board of Investments

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

Quarter Ending September 30, 2020

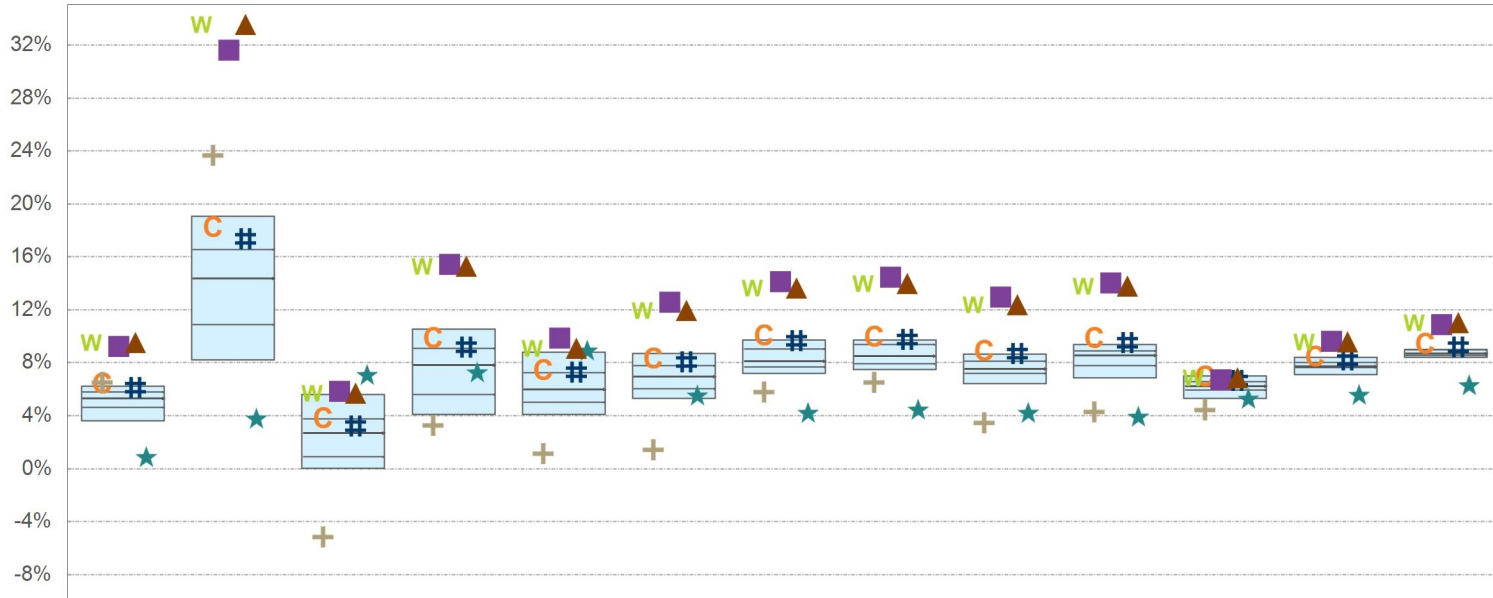


Percentile Rankings	US Equity	Non-US Equity	US Fixed	Non-US Fixed	Cash	Convertible	GIC GAC	Real Estate	Alternative Investments	Other
5th	50.85	22.08	25.90	6.74	8.05	0.07	0.19	11.69	37.75	0.68
25th	40.06	20.16	24.30	3.55	6.63	0.02	0.00	8.40	33.27	0.18
50th	31.28	15.18	16.65	1.60	3.32	0.00	0.00	4.43	21.44	0.00
75th	22.34	11.82	14.88	0.88	1.49	0.00	0.00	0.45	7.14	0.00
95th	14.43	4.23	11.08	0.00	1.27	0.00	0.00	0.00	5.20	0.00
C Combined Funds	40.06 (25)	19.27 (31)	9.85 (100)	0.00 (100)	5.28 (31)			1.42 (56)		2.32 (1)

Minnesota State Board of Investments Performance Comparison

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

Cumulative Periods Ending : September 30, 2020

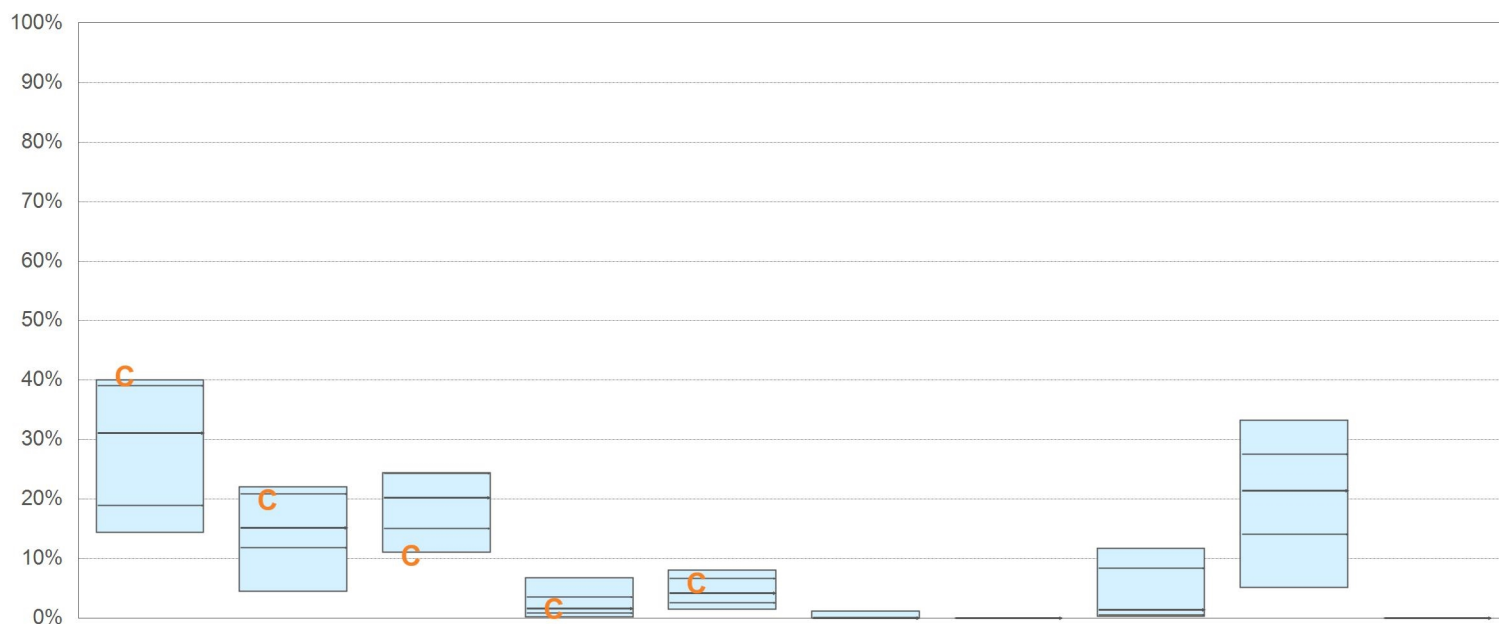


Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years	20 Years	25 Years	30 Years
5th	6.21	19.04	5.58	10.55	8.80	8.69	9.71	9.71	8.65	9.38	7.02	8.39	9.01
25th	5.79	16.53	3.75	9.10	7.23	7.79	9.02	9.37	8.10	8.89	6.59	8.01	8.97
50th	5.31	14.35	2.67	7.82	5.97	6.96	8.13	8.48	7.55	8.56	6.24	7.73	8.70
75th	4.64	10.90	0.90	5.61	5.01	6.04	7.69	7.92	7.18	7.80	5.96	7.62	8.57
95th	3.60	8.22	0.02	4.12	4.12	5.29	7.18	7.48	6.43	6.85	5.33	7.10	8.42
No. Of Obs	29	29	29	29	28	28	28	28	28	28	25	22	15
C Combined Funds	6.19 (9)	17.98 (9)	3.57 (32)	9.64 (15)	7.18 (28)	8.09 (9)	9.82 (1)	9.71 (5)	8.65 (5)	9.63 (1)	6.72 (13)	8.21 (10)	9.18 (1)
# SBI Combined Funds	5.86 (12)	17.07 (15)	2.95 (42)	8.91 (25)	7.00 (32)	7.76 (28)	9.38 (9)	9.49 (13)	8.42 (9)	9.23 (13)	6.39 (33)	7.94 (25)	8.90 (37)
W SBI Domestic Equity Ta	9.21 (1)	33.26 (1)	5.41 (5)	15.00 (1)	8.79 (5)	11.65 (1)	13.37 (1)	13.69 (1)	12.11 (1)	13.48 (1)	6.58 (25)	9.29 (1)	10.74 (1)
★ SBI Fixed Income Ta	0.62 (99)	3.53 (99)	6.79 (1)	6.98 (57)	8.63 (5)	5.24 (95)	3.93 (99)	4.18 (99)	3.97 (99)	3.64 (100)	5.01 (100)	5.30 (100)	6.02 (100)
C S&P 500	8.93 (1)	31.31 (1)	5.57 (5)	15.15 (1)	9.57 (1)	12.28 (1)	13.83 (1)	14.15 (1)	12.68 (1)	13.74 (1)	6.42 (33)	9.31 (1)	10.59 (1)
# MSCI World Ex US (N)	6.25 (1)	23.38 (1)	-5.44 (99)	3.00 (99)	0.86 (99)	1.16 (99)	5.49 (99)	6.23 (99)	3.18 (100)	4.00 (100)	4.16 (100)		
W Russell 3000	9.21 (1)	33.26 (1)	5.41 (5)	15.00 (1)	8.79 (5)	11.65 (1)	13.37 (1)	13.69 (1)	12.11 (1)	13.49 (1)	6.58 (25)	9.29 (1)	10.74 (1)

Minnesota State Board of Investments

Asset Allocation of Master Trusts - Public : Plans > \$50 Billion

Quarter Ending September 30, 2020

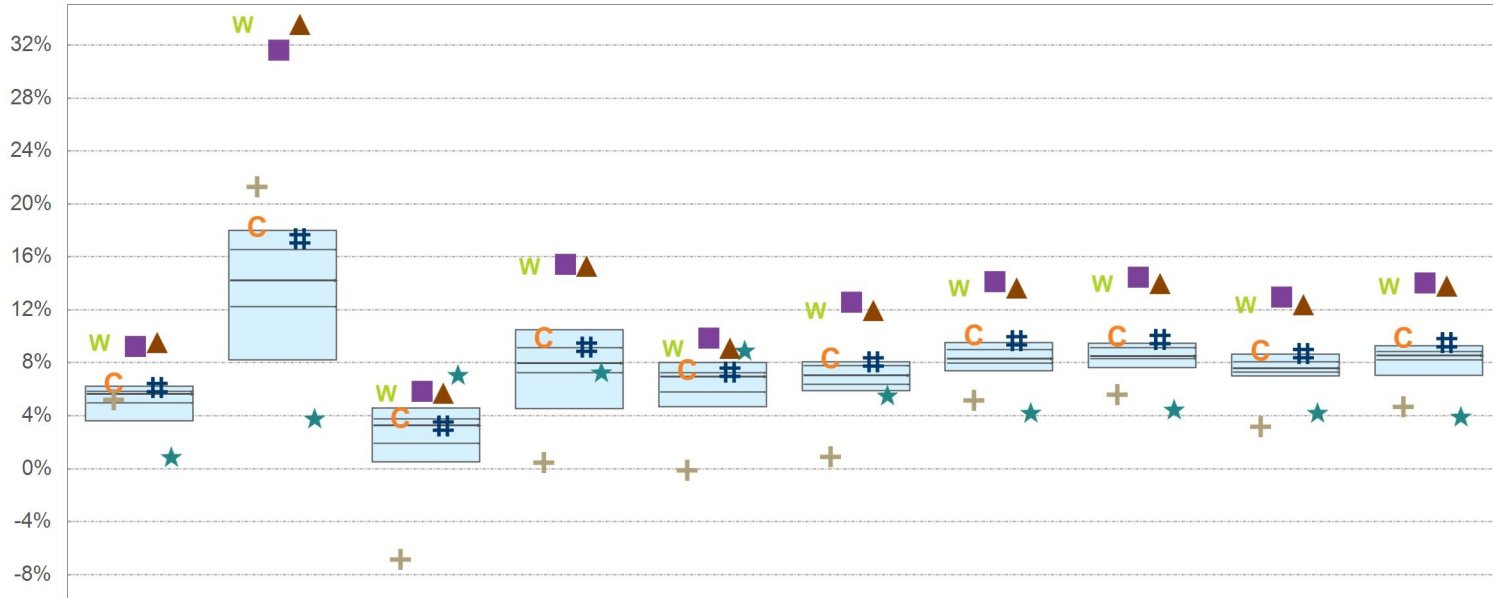


Percentile Rankings	US Equity	Non-US Equity	US Fixed	Non-US Fixed	Cash	Convertible	GIC GAC	Real Estate	Alternative Investments	Other
5th	40.06	22.08	24.45	6.74	8.03	1.17	-	11.69	33.27	-
25th	39.06	20.84	24.30	3.58	6.63	0.07	-	8.40	27.59	-
50th	31.10	15.18	20.20	1.60	4.22	0.00	-	1.42	21.44	-
75th	18.92	11.82	15.07	0.90	2.60	0.00	-	0.51	14.07	-
95th	14.43	4.52	11.08	0.22	1.49	0.00	-	0.27	5.20	-
C Combined Funds	40.06 (5)	19.27 (33)	9.85 (100)	0.00 (100)	5.28 (33)			1.42 (50)		2.32 (1)

Minnesota State Board of Investments Performance Comparison

Total Returns of Master Trusts - Public : Plans > \$50 Billion

Cumulative Periods Ending : September 30, 2020



Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th	6.21	17.98	4.59	10.49	8.02	8.09	9.52	9.49	8.65	9.29
25th	5.85	16.53	3.75	9.11	7.23	7.80	9.01	9.15	8.09	8.85
50th	5.65	14.22	3.29	7.99	6.93	7.04	8.31	8.51	7.57	8.56
75th	4.99	12.22	1.93	7.24	5.81	6.35	7.97	8.29	7.28	8.22
95th	3.60	8.22	0.51	4.54	4.69	5.91	7.40	7.65	7.02	7.03

No. Of Obs	18	18	18	18	18	18	18	18	18	18
C Combined Funds	6.19 (12)	17.98 (5)	3.57 (37)	9.64 (18)	7.18 (31)	8.09 (5)	9.82 (1)	9.71 (1)	8.65 (5)	9.63 (1)
# SBI Combined Funds Ind	5.86 (18)	17.07 (12)	2.95 (50)	8.91 (25)	7.00 (37)	7.76 (31)	9.38 (5)	9.49 (5)	8.42 (5)	9.23 (12)
W SBI Domestic Equity Ta	9.21 (1)	33.26 (1)	5.41 (1)	15.00 (1)	8.79 (1)	11.65 (1)	13.37 (1)	13.69 (1)	12.11 (1)	13.48 (1)
★ SBI Fixed Income Tarq	0.62 (100)	3.53 (100)	6.79 (1)	6.98 (75)	8.63 (1)	5.24 (100)	3.93 (100)	4.18 (100)	3.97 (100)	3.64 (100)
■ S&P 500	8.93 (1)	31.31 (1)	5.57 (1)	15.15 (1)	9.57 (1)	12.28 (1)	13.83 (1)	14.15 (1)	12.68 (1)	13.74 (1)
+ MSCI Wld Ex US (Net)	4.92 (81)	21.02 (1)	-7.13 (100)	0.16 (100)	-0.39 (100)	0.62 (100)	4.87 (100)	5.32 (100)	2.90 (100)	4.37 (100)
▲ Russell 3000	9.21 (1)	33.26 (1)	5.41 (1)	15.00 (1)	8.79 (1)	11.65 (1)	13.37 (1)	13.69 (1)	12.11 (1)	13.49 (1)

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TAB B

Executive Director's Administrative Report

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EXECUTIVE DIRECTOR'S ADMINISTRATIVE REPORT

DATE: November 25, 2020

TO: Members, State Board of Investment

FROM: Mansco Perry III

1. Reports on Budget and Travel

A report on the SBI's administrative budget for the fiscal year to date through September 30, 2020, is included as **Attachment A**.

2. FY20 Audit Report

The Legislative Auditor is working on the financial audit of SBI operations for FY20. We will inform you of the results upon completion of the audit.

3. Draft of the FY20 Annual Report

A draft of the SBI's annual report for FY20 will be distributed to the Board members/designees and IAC members upon completion of the FY20 audit. We would anticipate distribution in December or January.

4. Update on Implementation of Combined Funds Asset Allocation and Liquidity

Executive Director will provide a brief update of the implementation changes of the Combined Funds at the meeting.

5. Meeting Dates for Calendar 2021

IAC	SBI
Tuesday, February 16, 2021	Wednesday, February 24, 2021
Monday, May 17, 2021	Wednesday, May 26, 2021
Monday, August 16, 2021	Wednesday, August 25, 2021
Monday, November 15, 2021	Wednesday, December 1, 2021

6. 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 one restricted company on the SBI divestment list, and no shares were sold due to the restriction.

On September 22, 2020, staff sent a letter to each international equity manager and domestic equity manager containing the most recent restricted list and the list of stocks to be divested in compliance with Minnesota law.

7. 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 22, 2020, staff sent a letter to each international equity manager, domestic equity manager and fixed income manager containing the most recent restricted list and the list of companies to be divested in compliance with Minnesota law.

8. Litigation Update

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

ATTACHMENT A

**STATE BOARD OF INVESTMENT
FISCAL YEAR 2021 ADMINISTRATIVE BUDGET REPORT
FISCAL YEAR TO DATE THROUGH SEPTEMBER 30, 2020**

ITEM	FISCAL YEAR 2021 BUDGET	FISCAL YEAR 2021 9/30/2020
PERSONNEL SERVICES		
FULL TIME EMPLOYEES	\$ 6,721,000	\$ 1,160,566
PART TIME EMPLOYEES	0	0
MISCELLANEOUS PAYROLL	125,000	0
SUBTOTAL	\$ 6,846,000	\$ 1,160,566
STATE OPERATIONS		
RENTS & LEASES	285,000	93,464
REPAIRS/ALTERATIONS/MAINTENANCE	21,000	429
PRINTING & BINDING	12,000	122
PROFESSIONAL/TECHNICAL SERVICES	360,000	17,580
COMPUTER SYSTEMS SERVICES	150,000	96,456
COMMUNICATIONS	25,000	3,700
TRAVEL, IN-STATE	3,000	0
TRAVEL, OUT-STATE	235,000	0
SUPPLIES	150,000	3,276
EQUIPMENT	188,000	1,402
EMPLOYEE DEVELOPMENT	150,000	20,211
OTHER OPERATING COSTS	125,000	28,449
INDIRECT COSTS	300,000	52,809
SUBTOTAL	\$ 2,004,000	\$ 317,898
TOTAL ADMINISTRATIVE BUDGET	\$ 8,850,000	\$ 1,478,463

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TAB C

Update on Investments
Associated with
Thermal Coal
Production

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EXECUTIVE DIRECTOR'S REPORT

DATE: November 25, 2020

TO: Members, State Board of Investment
Members, Investment Advisory Council

FROM: SBI Staff

SUBJECT: Update on Removal of Companies Producing Thermal Coal from Authorized Investments

At its May 29, 2020 meeting, the Board approved a resolution requiring removal from the Combined Funds authorized investments any publicly traded company deriving more than 25% of its revenue from thermal coal production (exploration/mining). In addition, the SBI Staff determined to apply the same restrictions to the SBI's non-retirement portfolio. As of September 30, 2020, SBI Staff have notified all public markets managers for the Combined Funds and non-retirement portfolios regarding the restriction, including providing a list of companies subject to the restriction.

As of June 30, 2020, the SBI held securities in the ten companies listed below that were subject to removal from the portfolio. Managers are required to remove those securities from SBI's portfolio no later than December 31, 2020. SBI Staff provided managers with the complete list of 43 companies that are no longer authorized investments in the SBI's Combined Funds and non-retirement portfolios (see **Attachment A**). SBI Staff will monitor compliance with the December 31, 2020 deadline. SBI Staff will update the list annually to ensure compliance with the Board's resolution.

Companies in SBI Portfolios (as of June 30) Subject to Removal	
Adaro Energy	
China Shenhua Energy	
Exxaro Resources	
Inner Mongolia Yitai Coal	
Nacco Industries	
Shaanxi Coal Industry	
United Tractors	
Yanzhou Coal Mining	
Peabody Energy Corp.	
Consol Energy	

ATTACHMENT A

SBI List of Restricted Thermal Coal Companies As of June 30, 2020	
Adani Enterprises	
Adaro Energy	
Agritrade Resources	
Alliance Resource Partners	
Anhui Hengyuan Coal Industry and Electricity Power	
Arch Resources	
Banpu	
Bathurst Resources	
Bukit Asam	
Bumi Resources	
China Coal Energy	
China Coal Xinji Energy	
China Qinfu Group	
China Shenhua Energy	
Cloud Peak Energy	
Coal India	
CONSOL Coal Resources	
Consol Energy	
DMCI Holdings	
Exxaro Resources	
Foresight Energy	
Gansu Jingyuan Coal Industry and Electricity Power	
Gujarat Mineral Development	
Hallador Energy	
Huolinhe Opencut Coal Industry Corporation	
Indo Tambangraya Megah	
Inner Mongolia Pingzhuang Energy Resources	
Inner Mongolia Yitai Coal	
Jizhong Energy Resources	
Kinetic Mines & Energy	
Lubelski Wegiel Bogdanka	
Murray Energy	
Nacco Industries	
Peabody Energy	
PT Golden Energy Mines	
Rhino Resource Partners	
Semirara Mining and Power	
Shaanxi Coal Industry	
Shanghai Datun Energy Resources	
United Tractors	
Westmoreland Coal	
Yanzhou Coal Mining	
Zhengzhou Coal Industry & Electric Power	

TAB D

Private Markets
Commitments for
Consideration

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INVESTMENT ADVISORY COUNCIL REPORT

DATE: November 25, 2020

TO: Members, State Board of Investment

FROM: Members, 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 commitments

Existing Managers:

Private Credit	Oaktree	Oaktree REDF III	\$100 Million
Real Estate	Oaktree	Oaktree ROF VIII	\$100 Million
Private Equity	Blackstone	Blackstone Growth	\$250 Million
Private Equity	Blackstone	Co-Investment Partnership	\$125 Million
Private Equity	KKR	Core Investments	\$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, 2020

Combined Funds Market Value \$74,761,926,540

Amount Available for Investment **\$6,867,125,353**

	% of Combined Funds	Current Level	Target Level ¹	Difference
Market Value (MV)	15.8%	\$11,823,356,282	\$18,690,481,635	\$6,867,125,353
Policy Target	25%			
Statutory Limit	35%			
MV + Unfunded	29.9%	\$22,321,894,437	\$33,642,866,943	\$11,320,972,506
Policy Limit	45.0%			

Asset Class	% of Combined Funds	Market Value	Unfunded Commitment	Total
Private Equity	9.5%	\$7,072,646,693	\$6,169,842,032	\$13,242,488,725
Private Credit	1.0%	\$767,544,203	\$1,187,747,302	\$1,955,291,506
Real Assets	2.3%	\$1,737,866,130	\$753,148,475	\$2,491,014,604
Real Estate	1.4%	\$1,059,299,953	\$1,207,339,679	\$2,266,639,633
Distressed/Opportunist	1.6%	\$1,179,155,283	\$1,180,460,667	\$2,359,615,950
Other ²		\$6,844,020		
Total	15.8%	\$11,823,356,282	\$10,498,538,154	\$22,321,894,437

Cash Flows

September 30, 2020

Calendar Year	Capital Calls	Distributions	Net Invested
2020 (9 months)	\$1,920,923,769	(\$1,218,912,470)	\$702,011,299
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)
2016	\$1,874,320,138	(\$1,728,367,357)	\$145,952,781

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) Additional commitment to Oaktree Real Estate Funds

In the first quarter of 2020, the IAC and SBI Board approved a recommendation for the SBI to commit \$100 million each to Oaktree Real Estate Debt Fund III and Oaktree Real Estate Opportunities Fund VIII. At the time of investment, staff believed both Funds were attractive given their flexible and opportunistic strategies which invest across sectors of the real estate market such as public debt, private debt, equity and distress-for-control. Although the Funds' flexible nature allows them to successfully invest across multiple economic cycles, the unique features of these funds along with Oaktree's general focus on distress should allow them to take advantage of the current real estate market.

Real Estate Debt Fund III

Real Estate Debt Fund III is an opportunistic real estate debt strategy that invests across both the public and private real estate debt markets. The strategy spans the spectrum from structured credit to private debt and rescue capital. Due to the opportunistic nature and broad reach of the strategy, the Real Estate Debt Fund III can take advantage of both the volatility in the public markets and the active pipeline of restructuring/rescue capital opportunities. Oaktree has a strong and stable team that can support a broad strategy with team members that focus on specific sectors of the real estate debt market. The strategy is unique to the SBI's portfolio as it is currently the only fund that is dedicated to the real estate debt market.

During the initial months of COVID-induced market volatility, the Fund's investments consisted exclusively of real estate structured credit opportunities, which were purchased at significant discounts with prices ranging from approximately 60 to 90 cents on the dollar. But while only a few months ago traded securities were the most attractive opportunities, the real estate debt team's focus has shifted in recent weeks to private lending opportunities, as many banks and many of Oaktree's peers remain on the sidelines, focused on management of their portfolio assets.

More information on Oaktree Real Estate Debt Fund III is included as **Attachment A beginning on page 7.**

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 an additional \$100 million to Oaktree Real Estate Debt Fund III, such that the MSBI's total commitment will be up to \$200 million in the aggregate, or 20% of the Fund in the aggregate, 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 Oaktree upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Oaktree or reduction or termination of the commitment.

Real Estate Opportunities Fund VIII

Real Estate Opportunities Fund VIII incorporates a flexible strategy that can invest across both the real estate debt and equity markets. Oaktree launched its first Real Estate Opportunities strategy in 2008 to take advantage of the dislocation in the real estate market at the time. Since then, the strategy has successfully deployed capital through multiple market cycles and across the real estate sectors including non-performing loans, CMBS, CRE CLO's and real estate equity. In addition to investing across multiple real estate markets, the Oaktree Real Estate Opportunities strategy can also take advantage of opportunities across multiple geographies including Europe and Asia. To date, ROF VIII has invested approximately \$524 million across 16 investments (before realizations). The Fund's portfolio is largely concentrated in debt-related opportunistic credit, complemented by corporate platform investments and residential, with most of these investments falling into one of two themes: (i) capitalizing on forced sellers and public market volatility, or (ii) providing rescue capital financing for distressed owners of real estate.

More information on Oaktree Real Estate Opportunities Fund VIII is included as **Attachment B 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 an additional \$100 million to Oaktree Real Estate Opportunities Fund VIII, such that the MSBI's total commitment will be up to \$200 million in the aggregate, or 20% of the Fund in the aggregate, 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 Oaktree upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Oaktree or reduction or termination of the commitment.

2) Investment with an existing private equity manager, Blackstone Group ("Blackstone") in Blackstone Growth.

Blackstone Growth will focus on providing capital to growth-state companies that have the potential for category leadership and breakout performance. Targeted companies are expected to have sustainable barriers to entry supported by differentiated intellectual property, proven

business models, large addressable markets, accomplished management teams, capital efficient business models that offer significant operating leverage, and strong historical and forecasted revenue growth. The Firm expects to focus on businesses that have matured past many of the binary risks that often characterize growth equity investments, and instead to focus on minimizing execution risks associated with fast-growing environments, which Blackstone believes it is uniquely positioned to address.

Blackstone and the SBI may establish a co-investment partnership for the benefit of the SBI, which would have the ability to co-invest in certain investments made by Blackstone corporate private equity funds in which the SBI is also a Limited Partner. Such a partnership would be invested consistent with guidelines around portfolio composition and discretion agreed upon by both Blackstone and the SBI, including the appropriate time horizon. There can be no guarantee that any capital committed to a co-investment partnership will ultimately be invested.

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

More information on Blackstone Growth is included as **Attachment C 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 \$250 million, or 20% of Blackstone Growth, whichever is less, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Additionally, 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 in a co-investment partnership created for the SBI, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Approval of these potential commitments 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 Blackstone upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Blackstone or reduction or termination of these commitments.

3) Investment with an existing private equity manager, Kohlberg Kravis Roberts ("KKR") in KKR Core Investments Partnership.

KKR is establishing KKR Core Investments Partnership to invest alongside the KKR Core Platform in high quality investments that KKR believes have the potential to generate attractive risk-adjusted returns and significant net asset value appreciation over a long period of time.

These investments are expected to generally have a longer holding period and lower risk/return profile than those made by KKR's traditional private equity funds.

More information on KKR Core Investments Partnership is included as **Attachment D 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 \$100 million, or 20% of KKR Core Investments Partnership, 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.

ATTACHMENT A

PRIVATE CREDIT MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	Oaktree Real Estate Debt Fund III, L.P.
<i>Type of Fund:</i>	Private Credit
<i>Target Fund Size:</i>	\$3 Billion
<i>Fund Manager:</i>	Oaktree Capital Management
<i>Manager Contact:</i>	Michael Trefz 1301 Avenue of the Americas New York, NY 10019

II. Organization and Staff

Oaktree Capital Management (“Oaktree” or “Firm”) is forming Oaktree Real Estate Debt Fund III (“REDF III” or the “Fund”) to continue Oaktree’s risk-controlled investment philosophy that seeks to deliver superior risk-adjusted returns and produce current income for the Fund’s limited partners through investments in real estate-related debt that are not anticipated to result in real estate ownership, with an emphasis on investments in the United States. Investments are anticipated to include commercial mezzanine loans, real estate structured credit, real estate-related corporate debt, commercial first mortgages, residential first mortgages and other similar investments. As of June 30, 2020, the Real Estate Debt fund series has committed \$6.6 billion and currently has \$2.5 billion in assets under management.

Oaktree was formed in April 1995 and since inception has emphasized an opportunistic, value-oriented and risk-controlled approach to investments in real estate, distressed debt, corporate debt (including high yield debt and senior loans), control investing, convertible securities, listed equities, and multi-strategy solutions. Oaktree’s primary firm-wide goal is to achieve attractive returns while bearing less-than-commensurate risk.

Headquartered in Los Angeles, California, Oaktree has over 950 employees across 18 cities globally and oversees approximately \$121.9 billion in assets¹. The Real Estate Group consists of 59 investment professionals in seven offices globally.² The team is led by John Brady (Managing Director and global head of the Real Estate group), who has led the group since joining the firm in 2007. In July 2018, John organized a leadership team of nine other experienced leaders, including the Fund’s co-portfolio manager Justin Guichard (together with John Brady, the “Portfolio Managers”). The Real Estate group is organized under five separate yet overlapping synergistic investment areas in which team members develop deep, focused expertise and relationships while still functioning on a highly collaborative basis. These five investment areas include: Commercial Real Estate, Residential Real Estate, Opportunistic Credit, Corporate Platforms, and Global Ex-U.S. Real Estate.

¹ As of June 30, 2020

² As of August 3, 2020

On March 13, 2019, Brookfield Asset Management Inc. (“Brookfield”) and Oaktree Capital Group, LLC (“OCG”) announced that they had entered into an agreement to which Brookfield would acquire a majority interest in Oaktree’s business. The transaction closed on September 30, 2019. Upon the closing of the transaction, Brookfield acquired an economic stake of approximately 61.2% of the Oaktree business and OCG’s Class A common shares ceased to be publicly traded. Both Brookfield and Oaktree continue to operate their respective businesses independently, partnering to leverage their strengths, with each remaining under its prior brand and led by its prior management and investment teams. Howard Marks and Bruce Karsh will continue to have operating control of Oaktree as an independent entity for the foreseeable future.

III. Investment Strategy

The real estate debt strategy seeks to achieve attractive risk-adjusted returns and generate current income through investments in real estate-related debt with an emphasis on the United States. The Portfolio Managers also intend to look opportunistically at investments outside the United States including Canada, the United Kingdom, Western Europe, Australia and select countries in Asia.

The Real Estate Group leverages its knowledge advantage gained from its proprietary research, extensive existing real estate portfolio, and the broader Oaktree credit platform. This research intensive, thematic approach is the foundation of their investment process informing their view on where to invest capital to generate an attractive return for investors while placing high priority on mitigating losses.

The investment themes for the Fund are: private loan origination, regulatory-driven opportunities, real estate structured credit, and real estate-related corporate debt. Within each of these themes, the Real Estate team has identified the categories of debt that comprise its respective opportunity set. Together, the Fund will primarily target five categories of debt investment: commercial mezzanine loans, real estate structured credit, real estate-related corporate debt, commercial first mortgages, and residential first mortgages. They intend to pivot their deployment of capital between the private loan originations, regulatory-driven opportunities, real estate structured credit and real estate-related corporate debt themes as the environment and opportunity set change, tactically shifting portfolio construction to where the Portfolio Managers view the most attractive risk-adjusted returns to be available.

Private Loan Origination

The Fund’s most active borrowers are value-add and opportunistic real estate funds, which today are sitting on record amounts of dry powder. These investors typically finance acquisitions or need refinancing at terms outside the scope of what traditional lenders, such as banks and life insurance companies, are able to provide.

The category of debt that represents the theme’s opportunity set is:

Commercial First Mortgages: Commercial first mortgages are secured loans collateralized by a first lien on commercial properties, typically office, retail, multifamily, industrial and hotel properties as well as in pools of loans. The Fund will target first mortgage positions with an LTV ratio primarily in the range of 65% to 75%.

Regulatory-driven Opportunities

Regulations including the Dodd-Frank Wall Street Reform and Consumer Protection Act and Basel III have constrained banks' ability to lend on the more transitional or marginally higher leverage segments of commercial and residential real estate debt that the Fund targets. As a result, there is a gap of liquidity in the market that debt funds are able to fill.

The categories of debt that represents the theme's opportunity set are:

Commercial Mezzanine Loans: Mezzanine loans are debt obligations secured by a pledge of equity, membership interests and/or partnership interests in one or more special purpose entities owning a direct or indirect interest in real estate. The Fund will target mezzanine loans with an LTV ratio of 60% to 80%.

Residential First Mortgages: Dodd-Frank regulation created a complex standard for qualified mortgages which provides certain liability protection for originators. The regulation largely focuses on borrower income to evaluate a borrower's creditworthiness and includes a prescriptive methodology to calculate income, which dictates whether a borrower qualifies for a QM loan. The Fund will focus on pools of loans with an LTV ratio primarily in the range of 60% to 70% and borrowers with FICO scores above 700.

Real Estate Structured Credit: With regard to the structured credit debt strategy of the Regulatory-driven Opportunistic theme, Oaktree is focused on the horizontal-risk retention bonds of the CMBS issuance, primarily targeting single-asset single-borrower risk retention CMBS.

Real Estate Structured Credit

Structured credit products are created through a securitization process, in which financial assets such as loans and mortgages are packaged into interest-bearing securities backed by those assets and issued to investors. Oaktree's real estate structured credit investments include CMBS, RMBS and other ABS debt.

The category of debt that represents the theme's opportunity set is:

Real Estate Structured Credit: The Real Estate Structured Credit theme will focus on all non-risk retention CMBS, RMBS and other ABS of the structured credit debt category. The Fund anticipates targeting structured credit investments with LTV ratios between 40% and 65%.

Real Estate-related Corporate Debt

Oaktree's foundation as a credit investor with \$61.4 billion in assets under management in their corporate credit-focused strategies, combined with the knowledge advantage from the 244 investment professionals across the broader Oaktree credit platform, is a competitive differentiator for their real estate debt strategy. By leveraging this informational advantage, the team is able to identify opportunities to invest in real estate-related corporate debt at attractive yields, especially during times of market volatility.

The category of debt that represents the theme's opportunity set is:

Real Estate-related Corporate Debt: Corporate debt encompasses loans to real estate-related companies which may be either secured or unsecured. Oaktree is primarily focused on

opportunities that leverage the knowledge advantage gained from the Real Estate team's proprietary research and the broader Oaktree corporate credit platform. The Fund anticipates targeting corporate investments with LTV ratios primarily between 40% to 65%.

Throughout the life cycle of an investment, Oaktree incorporates environmental, social and governance ("ESG") topics into the investment, analysis, and decision-making process. Oaktree has a Socially Responsible Investing ("SRI") policy informed by the principles set forth in the U.N. Principles for Responsible Investment (the "UN PRI"). Oaktree's real estate team recognizes that ESG issues are the focus of socially responsible investing and can directly impact investment performance, particularly within the real estate industry. The team believes that adherence to ESG principles can serve as a significant risk mitigant and value-enhancer for their investments. The team seeks to integrate and prioritize ESG best practices as part of its investment process by establishing and monitoring key performance indicators ("KPIs") and incorporating ESG factors into its investment reviews. The investment team utilizes various reports as a screening mechanism and in some cases, will abstain from investing if an opportunity is deemed too risky from an environmental perspective, although typically the findings of these reports and the team's additional due diligence better informs the team of opportunities where value-add initiatives can be made, resulting in a potential overall improvement of ESG KPIs. The investment professionals take formal account of ESG considerations in the opportunity's investment committee memo.

IV. Investment Performance

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

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
Real Estate Debt Fund I	2013	\$1.1 Billion	--	13.7%	1.1x	1.76x
Real Estate Debt Fund II	2017	\$2.1 Billion	--	5.5%	1.1x	0.19x

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

V. Investment Period and Term

The Fund will have a 4-year investment period and a 7-year term. The term is subject to three one-year extensions at the discretion of the GP.

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

ATTACHMENT B

REAL ESTATE MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	Oaktree Real Estate Opportunities Fund VIII, L.P.
<i>Type of Fund:</i>	Real Estate – Opportunistic
<i>Target Fund Size:</i>	\$3-4 billion
<i>Fund Manager:</i>	Oaktree Capital Management
<i>Manager Contact:</i>	Michael Trefz 1301 Avenue of the Americas New York, NY 10019

II. Organization and Staff

Oaktree Capital Management (“Oaktree” or “Firm”) is forming Oaktree Real Estate Opportunities Fund VIII (“ROF VIII” or the “Fund”) to continue Oaktree’s risk-controlled investment philosophy across its real estate focus areas: commercial, residential, corporate platforms, opportunistic credit, and global ex-U.S. As of June 2020, the Real Estate Opportunities fund series has committed \$11.9 billion and currently has \$5.4 billion in assets under management.

Oaktree was formed in April 1995 and since inception has emphasized an opportunistic, value-oriented and risk-controlled approach to investments in real estate, distressed debt, corporate debt (including high yield debt and senior loans), control investing, convertible securities, listed equities, and multi-strategy solutions. Oaktree’s primary firm-wide goal is to achieve attractive returns while bearing less-than-commensurate risk.

Headquartered in Los Angeles, California, Oaktree has over 950 employees across 18 cities globally and oversees approximately \$121.9 billion in assets¹. The Real Estate Group consists of 59 investment professionals in seven offices globally.² The team is led by John Brady (Managing Director and global head of the Real Estate group), who has led the group since joining the firm in 2007. The Real Estate group is organized under five synergistic investment areas in which team members develop deep, focused expertise and relationships while operating on a highly collaborative basis. The U.S. real estate team is assigned market and relationship coverage responsibilities across the top-50 markets in the United States while the team outside the United States is assigned regional and/or country-specific coverage responsibilities of the markets internationally. The team pursues investments that fall within the five synergistic investment areas, which include: Commercial Real Estate, Residential Real Estate, Opportunistic Credit, Corporate Platforms, and Global Ex-U.S. Real Estate.

¹ As of June 30, 2020

² As of August 18, 2020

On March 13, 2019, Brookfield Asset Management Inc. (“Brookfield”) and Oaktree Capital Group, LLC (“OCG”) announced that they had entered into an agreement to which Brookfield would acquire a majority interest in Oaktree’s business. The transaction closed on September 30, 2019. Upon the closing of the transaction, Brookfield acquired an economic stake of approximately 61.2% of the Oaktree business and OCG’s Class A common shares ceased to be publicly traded. Both Brookfield and Oaktree continue to operate their respective businesses independently, partnering to leverage their strengths, with each remaining under its prior brand and led by its prior management and investment teams. Howard Marks and Bruce Karsh will continue to have operating control of Oaktree as an independent entity for the foreseeable future.

III. Investment Strategy

Oaktree’s opportunistic real estate strategy will focus on targeting attractive risk-adjusted opportunities in value and growth investments across the team’s five areas of investment focus - commercial, residential, opportunistic credit, corporate platforms and global ex-U.S. investments. Investment team members are designated with geographically-based coverage organized by focus area in order to develop deep, focused expertise and relationships while functioning on a highly collaborative basis. They are complemented by a dedicated asset management team that works in concert with the investment teams and Oaktree’s operating partners to provide oversight of the real estate portfolio and to ensure that the portfolio managers have access to accurate and timely reporting on each investment and significant asset-level support services. Within each focus area, the team emphasizes buying right, creating value, and exiting opportunistically.

Buy Right: Consistent with Oaktree’s investment philosophy of managing risk, they focus on investments that they believe have both strong downside protection and upside potential. The teams conduct extensive bottom-up, fundamental analysis to ensure they are paying less than intrinsic value, while also structuring – or ensuring sufficient value cushion – for various downside scenarios. Given the Firm’s roots in credit, they spend a significant amount of time discussing the downside risks of each deal.

Create Value: Following the purchase of an asset, Oaktree takes a very active approach in seeking to execute value-add initiatives in order to drive results. These initiatives focus on both top- and bottom-line growth. For example, revenue growth may be achieved by repositioning assets and executing tenant improvements to increase occupancy and improve leasing rates. Bottom-line improvements are sought by pursuing operational efficiencies and cost management strategies, such as leveraging the expertise of their operating partners and third-party service provider relationships.

Exit Opportunistically: Oaktree pursues multiple channels of liquidity when exiting investments in order to maximize results. Over the last 25 years, they have exited investments through initial public offerings (“IPOs”), bulk sales, wholesale-to-retail exits, and leveraged recapitalizations, in addition to the more traditional brokered sales. They believe this experience allows them to capitalize on exit windows when liquidity is prevalent, while maximizing flexibility to exit investments in any part of a market cycle.

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

Throughout the life cycle of an investment, Oaktree incorporates environmental, social and governance (“ESG”) topics into the investment, analysis, and decision-making process. Oaktree has a Socially Responsible Investing (“SRI”) policy informed by the principles set forth in the U.N. Principles for Responsible Investment (the “UN PRI”). Oaktree’s real estate team recognizes that ESG issues are the focus of socially responsible investing and can directly impact investment performance, particularly within the real estate industry. The team believes that adherence to ESG principles can serve as a significant risk mitigant and value-enhancer for their investments. The team seeks to integrate and prioritize ESG best practices as part of its investment process by establishing and monitoring key performance indicators (“KPIs”) and incorporating ESG factors into its investment reviews. The investment team utilizes various reports as a screening mechanism and in some cases, will abstain from investing if an opportunity is deemed too risky from an environmental perspective. Although typically, the findings of these reports and the team’s additional due diligence better informs the team of opportunities where value-add initiatives can be made, resulting in a potential overall improvement of ESG KPIs. The investment professionals take formal account of ESG considerations in the opportunity’s investment committee memo.

IV. Investment Performance

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

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
ROF A	1996	\$304 million	--	8.4%	1.7	1.7
ROF B	1997	\$286 million	--	7.1%	1.6	1.6
ROF II	1998	\$464 million	--	11.1%	1.5	1.5
ROF III/III A	2002	\$707 million	--	11.3%	1.7	1.7
ROF IV	2008	\$450 million	--	10.6%	1.7	1.7
ROF V	2011	\$1,283 million	--	12.3%	1.6	1.5
ROF VI	2012	\$2,677 million	--	8.9%	1.4	1.0
ROF VII	2015	\$2,921 million	--	19.0%	1.3	0.4

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

V. Investment Period and Term

The Fund will have a 4-year investment period and a 10-year term. The term is subject to extensions that require LPAC approval. The Fund has not started its investment period, though it's expected to commence later this year or early next.

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>	Blackstone Growth, L.P.
<i>Type of Fund:</i>	Growth Equity
<i>Target Fund Size:</i>	\$4 billion
<i>Fund Manager:</i>	The Blackstone Group Inc.
<i>Manager Contact:</i>	Candice Sorbera 345 Park Avenue New York, NY 10154

II. Organization and Staff

The Blackstone Group L.P. (together with its affiliates “Blackstone” or the “Firm”) is sponsoring Blackstone Growth L.P. (“BXG” or the “Fund”), a private investment fund that seeks to deliver attractive risk-adjusted returns by investing in dynamic, growth-stage business in four core sectors globally: Consumer, Enterprise Solutions, Financial Services, and Healthcare.

Blackstone was founded in 1985 by Stephen A. Schwarzman and Peter G. Peterson and is headquartered in New York, NY. Blackstone’s alternative asset management businesses include investment vehicles focused on private equity, real estate, hedge fund solutions, credit, secondary funds, tactical opportunities, infrastructure and insurance solutions. As of June 30, 2020, Blackstone had 173 Senior Managing Directors, and approximately 2,943 other employees. The Firm’s total assets under management is approximately \$564 billion.

The BXG team is led by Jon Korngold, who has previously held a variety of leadership roles at General Atlantic and Goldman Sachs. In addition to Mr. Korngold the BXG investment team will include Senior Managing Directors Vini Letteri, Ram Jagannath and Viral Patel, as well as Managing Directors Ann Chung, Vishal Amin and Brian Dunlap. In total, the Blackstone Growth team comprises 29 professionals across three offices in New York, San Francisco and London.

Blackstone is highly focused on its efforts and commitments to diversity both inside the Firm and in the industry. The continually increasing commitment is demonstrated in the following ways: internal networks and support for existing diverse populations; targeted recruiting and attraction efforts designed to build diverse candidate pipelines and hire diverse talent and Blackstone; and partnerships with and direct support of external diversity-focused organizations.

III. Investment Strategy

Blackstone Growth will focus on providing capital to growth-state companies that have the potential for category leadership and breakout performance. Targeted companies are expected to have sustainable barriers to entry supported by differentiated intellectual property, proven business models, large addressable markets, accomplished management teams, capital efficient business models that offer significant operating leverage, and strong historical and forecasted revenue growth. The Firm expects to focus on businesses that have matured past many of the binary risks that often characterize growth equity investments, and instead to focus on minimizing execution risks associated with fast-growing environments, which Blackstone believes it is uniquely positioned to address.

The following characteristics are key to the BXG investment strategy:

- **Concentrated Portfolio.** The Fund will likely have a relatively concentrated portfolio, and expects to be actively involved in the company's strategic, operational and financial initiatives. BXG will only pursue the most attractive opportunities that are uncovered out of a large set of opportunities generated by the deep and broad Blackstone sourcing platform. The Firm believes this selectivity will allow BXG to deploy large amounts of capital into investments with highly attractive risk-adjusted return profiles. Finally, unlike the typical growth equity model characterized by having significantly more portfolio companies relative to operational professionals, the Firm believes that this approach allows BXG to commit substantial operational resources to each investment and ensure that Blackstone's value-add capabilities are fully utilized.
- **No Binary Risks.** BXG intends to pursue investments in companies that have eclipsed many of the hurdles that plague early stage opportunities. These include technology risk, evolving business model risk, and total addressable market size. Further, the Fund will seek to invest in businesses with proven unit economics. In other words, the strategy will focus on companies whose primary challenge is minimizing the execution risks and operational strains that are associated with fast-growth environments.
- **Sector Concentration.** Blackstone has extensive growth investing experience across multiple industry verticals. BXG will seek to invest in sectors in which Blackstone has extensive experiences and that the Firm believes hold the greatest growth prospects with highly attractive underlying business characteristics. The team believes that four core sectors – Consumer, Enterprise Solutions, Financial Services, and Healthcare – have produced many of the most innovative and transformative companies today, and will continue to generate a very high number of attractive investment opportunities.

- **High Growth.** Blackstone believes that market forces are driving attractive growth opportunities in sectors at growth rates that significantly outpace GDP. This rising tide creates opportunities for all market participants and particularly strong opportunities for the best companies.

BXG will seek to make equity investments in the range of \$200 - \$500 million, with the opportunity for additional follow-on funding for organic and inorganic growth opportunities after the initial investment. The Firm believes its ability to fund leading companies at scale will be highly attractive to entrepreneurs and management teams looking for a long-term partner (versus a syndicate of multiple investment firms) and that few other firms can match Blackstone's substantial capital resources and value-add capabilities.

Blackstone places a strong focus on health, safety, environmental, social and corporate governance (collectively "ESG") issues. The Firm expects management teams to prioritize relevant ESG issues, and expects portfolio companies to manage ESG risks responsibly. Blackstone considers relevant ESG issue both during the due diligence of potential investments, as well as throughout the ownership period. Focus points for the ESG framework include (but are not limited to):

- Reducing energy/water usage and costs
- Building more diverse and inclusive workforces, management teams, and boards
- Providing affordable and quality healthcare to U.S. employees and their families
- Supporting the hiring of veterans to help develop successful careers following military service
- Monitoring portfolio companies for strong governance practices

The Firm's approach to ESG is fully integrated across Blackstone's core business functions to ensure consistent implementation during the investment process, from deal sourcing through asset management, exit, and beyond.

Blackstone and the SBI may establish a co-investment partnership for the benefit of the SBI, which would have the ability to co-invest in certain investments made by Blackstone corporate private equity funds in which the SBI is also a Limited Partner. Such a partnership would be invested consistent with guidelines around portfolio composition and discretion agreed upon by both Blackstone and the SBI, including the appropriate time horizon. There can be no guarantee that any capital committed to a co-investment partnership will ultimately be invested.

IV. Investment Performance

Aggregate performance as of June 30, 2020 for Blackstone's growth equity-related track record across prior Blackstone Capital Partners and Blackstone Tactical Opportunities funds is shown below:

Strategy	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
BX Growth Equity Related Track Record	2012-2020	\$5 billion	--	29%	1.7	0.7

* Net performance does not represent the actual performance of any fund. Hypothetical net IRR and MOIC have been calculated as a weighted average of each individual deal's gross performance and assuming management fees and carried interest consistent with the proposed terms of the Fund. Performance has been provided by Blackstone.

V. Investment Period and Term

The term of the fund is eleven years, subject to two (one-year) extensions. The Investment Period will last for a period of five years from the commencement date of the Fund.

This document has been prepared by the Minnesota State Board of Investment (MSBI) and any views or opinions expressed herein are solely the views of MSBI and not Blackstone. Blackstone shall not be responsible for the contents of this document produced by MSBI. 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.

ATTACHMENT D

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	KKR Core Investments Partnership SCSp
<i>Type of Fund:</i>	Private Equity
<i>Target Fund Size:</i>	\$500 Million - \$1 Billion
<i>Fund Manager:</i>	KKR
<i>Manager Contact:</i>	Ari Barkan 9 West 57 th Street New York, NY, 10019

II. Organization and Staff

Kohlberg Kravis Roberts & Co. (“KKR” or the “General Partner”), one of the world’s oldest and most experienced private equity firms, is headquartered in New York, NY and has over twenty office locations globally. Founded in 1976 by Jerome Kohlberg, Henry R. Kravis and George R. Roberts, KKR seeks to provide its investors with long-term capital appreciation through multiple business platforms, including private equity, credit, infrastructure and real estate.

Since 1976 KKR’s global private equity funds have invested approximately \$90 billion in ~520 private equity transactions, as of June 30, 2020. These investments include taking publicly-listed companies private; corporate carve-outs, partnerships with family-owned business and strategic buyers, structured minority investments, and industry consolidation strategies.

The KKR Core Investments team consists of KKR’s Co-President Joseph Bae, Partners Webster Chua, Tim Franks, and Kate Richdale, Director Michael Whyte, and Principal Kevin Murphy. The team is further supported by KKR’s investment teams across the Americas, Europe and Asia, which includes over 340 private markets investment professionals as well as over 70 operations executives at KKR Capstone.

KKR believes that in order to deliver outstanding investment performance for the investors in its funds, it needs to become more diverse and inclusive than it is today. In 2014, KKR established its Inclusion & Diversity Council to pursue this goal. KKR also became a signatory of the UN-supported Principles for Responsible Investment in 2009 and over the past decade has established itself as a credible leader in driving and protecting value through thoughtful Environmental, Social and Governance (“ESG”) management.

III. Investment Strategy

KKR (“The Firm”) is establishing KKR Core Investments Partnership SCSp (“The Fund”) to invest alongside the KKR Core Platform, in transactions where the capital need is larger than the demand of the current pool of capital. The KKR Core Platform was established to invest in high quality investments that the Firm believes have the potential to generate attractive risk-adjusted returns and significant net asset value appreciation over a long period of time.

These investments are expected to generally have a longer holding period and lower risk/return profile than those made by KKR’s traditional private equity funds. As of September 30, 2020, the existing Core platform has signed/closed on 11 Core Investments representing approximately \$7 billion of equity capital from KKR’s dedicated Core vehicles.

Core Investments opportunities targeted by the Fund are expected to exhibit some or all of the following attributes:

- Not highly cyclical
- High cash flow generation
- Lower leverage, on average, over the investment holding period
- More limited external exposures (e.g. commodity prices)
- More limited disruptors
- Control or significant influence
- Limited turnaround required
- High quality management team

In the Firm’s experience to-date, the profile of the “typical” Core Investment opportunity has skewed towards stable industries with visible growth paths that are, they believe, less susceptible to disruption (for example, veterinary care, dental services, oncology treatment, mission-critical subscription-based software, infrastructure, and others). While there may be some exceptions, KKR believes businesses that are in transition, are part of cyclical industries, or that require a turnaround thesis are generally less appropriate, given the target of a lower risk/return profile, for the Core Investment strategy.

The opportunities assessed to-date have generally been in developed markets (e.g. North America, Western Europe, and select countries in Asia) given the target risk/return profile of the strategy. For investment opportunities in emerging markets, KKR generally targets a risk/return profile that is higher than the target Core Investments opportunity set, in order to receive returns commensurate with sovereign and/or currency risk.

Given the longer target hold period of Core Investments, KKR will generally seek to make investments involving control or significant influence. With a longer investment tenor, the Firm is more likely to face different economic cycles, technological change and industry repositionings. For these reasons KKR believes it is important to be able to control the strategic direction of the companies.

While over the course of ownership it is expected that certain strategic adjustments and business enhancements will be made, the Core Investments strategy will generally target

companies which have a principal business strategy that the Firm believes is well-positioned to succeed over a ten to fifteen year time horizon. KKR will generally seek to back strong management teams who share a long-term vision for the company in question.

As a general matter at the beginning of the hold period for Core Investments KKR expects to employ leverage with respect to portfolio companies that is similar to the Firm's typical practice with respect to traditional private equity. However, over time as an investment matures, the Firm will generally seek to reduce leverage to a more moderate level, with a goal to ultimately begin distributions of available cash to investors.

KKR believes that the addressable market for Core Investments is strong and growing, with both the volume and transaction size of investment opportunities exceeding the Firm's expectations. In KKR's view, the Core Investments target universe currently represents a less crowded market with more favorable supply and demand dynamics than traditional private equity. By competing in a segment with fewer sponsors managing less capital, KKR believes buyers are able to differentiate themselves through competitive advantages and/or greater compatibility, as opposed to pricing.

To date KKR has a \$3 billion commitment to the \$8.5 billion Core Investments strategy (approximately 35% of committed capital). The relative size of KKR's commitment to the Core Investments strategy is intended to foster strong alignment of interest with investors in the strategy. By way of example, KKR could have approximately twenty times more exposure to each Core Investment made by the Partnership than an investor committing \$100 million to the Partnership.

All potential investments at KKR go through a rigorous due diligence process. As part of this process, in conversations with the respective KKR industry teams, cross-functional internal subject matter experts review prospective investments to identify material Environmental, Social or Governance ("ESG") factors, gather the appropriate information from the company in question, and make informed recommendations about potential risks and opportunities as potential investments move through the Investment Committee process.

ESG considerations discovered in the diligence phase can affect investment decisions; however, a decision to invest or not is rarely due exclusively to ESG issues. ESG-related concerns are often intertwined with other business issues that make the business more, or less, attractive for investment. In rare cases, KKR may find an ESG issue poses such a risk to an investment that the investment does not occur. However, in most instances the Firm looks to determine that a company has significant opportunities because of the way it addresses ESG issues or could have such opportunities if it were to address them in a proactive manner. Understanding ESG challenges and opportunities of individual investments helps KKR determine whether to invest in a company and, more importantly, the best strategy for working with a company in the future.

KKR has been a signatory to the United Nations Principles of Responsible Investing (PRI) since 2009.

IV. Investment Performance

Performance of the current Core Partnership Investments as of June 30, 2020 is shown below:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
KKR Core Investments Vehicles	2017	\$9.9 Billion	--	17.1%	1.3	--

* The Core Partnership investments may be relatively immature and, therefore, returns may not be indicative of future results. Net IRR and Net MOIC are USD based and provided by the manager.

V. Investment Period and Term

The investment period for the Fund will run through February 2023. The term of the Fund will continue until the disposition of the final portfolio investment. The Fund expects to hold each investment for 10-15 years, with a 15-year maximum hold on each investment, subject to up to three one-year extensions to the hold period for each investment.

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.

TAB E

Public Markets Investment Program

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INVESTMENT ADVISORY COUNCIL REPORT

DATE: November 25, 2020

TO: Members, State Board of Investment

FROM: Members, Investment Advisory Council and SBI Staff

SUBJECT: Public Markets Investment Program

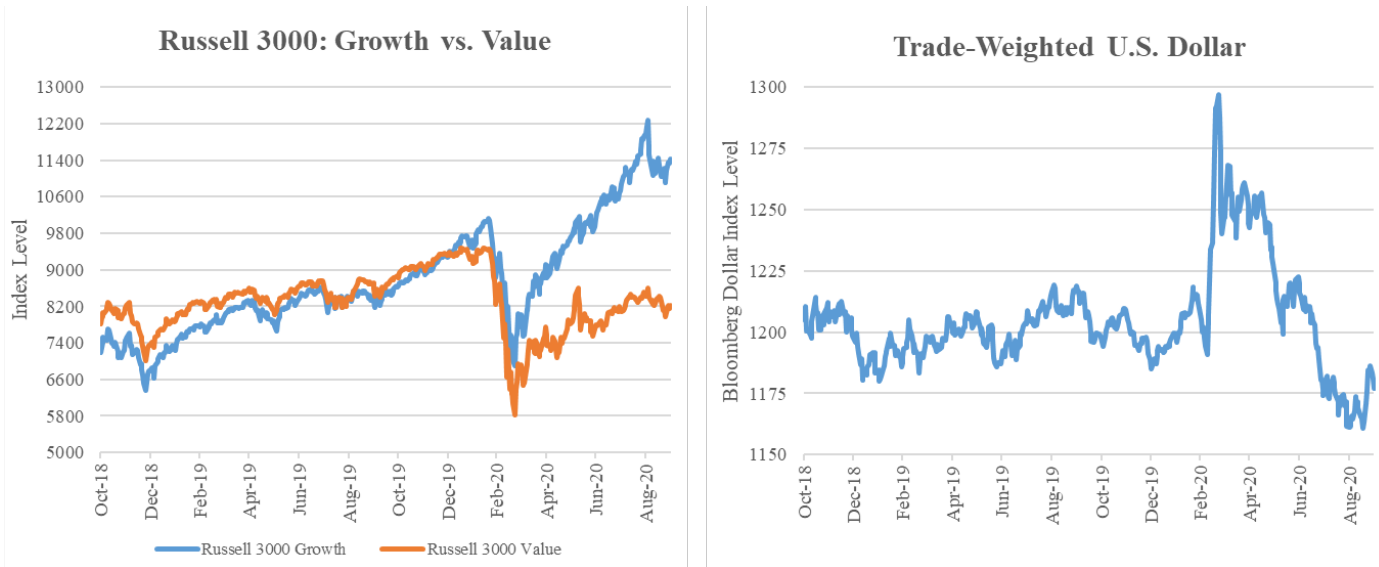
This section of the report provides a brief performance review of the SBI Public Markets portfolio through the third quarter. Included in this section are a short market commentary, manager performance summaries and a report of any organizational updates for the public equity and fixed income managers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

The report includes the following sections:

	Page
• Review of the Public Markets Program	3
• Public Markets Managers' Organizational Update	8
• Manager Meetings	10

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Review of SBI Public Markets Program Third Quarter 2020



Source: Bloomberg, FTSE Russell

Market Summary

In the third quarter, capital markets continued their recovery from the global pandemic related dislocation that occurred in first quarter. Growth stocks and large caps continued to lead the global stock rally, while emerging markets – particularly China and Northern Asia – posted strong results as those economies have seen the most success in controlling the COVID-19 pandemic. Through August, markets remained remarkably sanguine over the prospect of a ‘blue wave’ in the upcoming U.S. election and largely shrugged off the possible impacts of a contested election scenario. However, markets ultimately corrected in September as prospects for a pre-election vote on a second stimulus bill faded and concerns that a recent rise in coronavirus cases in the U.S. and Europe might threaten the nascent economic recovery. Interest rates remained low across developed markets; lower quality, credit-sensitive sectors outperformed as investors continued to pile back into higher-yielding assets. The dollar continued its decline, falling over 4% versus the euro and British pound, and losing over 2% versus the yen.

Overall Combined Funds Portfolio - Quarter and Year Performance

In the third quarter, the overall Combined Funds Portfolio exceeded the composite benchmark return by +0.3%, or 30 basis points (+6.2% Combined Funds versus +5.9% Composite Benchmark). Portfolio outperformance was supported by strong relative performance within both the domestic equity portfolio (+9.2% Domestic Equity versus +9.0% Domestic Equity Benchmark) and the international equity portfolio (+6.7% International Equity versus +6.1% International Equity Benchmark). Within fixed income, the core fixed income portfolio strongly outperformed the Bloomberg Barclays U.S. Aggregate Index return for the quarter (+1.3% Core

Bonds versus +0.6% Fixed Income Benchmark), supported by a benign interest rate environment and tightening spreads on risk assets like corporate bonds and securitized credit. The Treasury protection portfolio modestly outperformed the Bloomberg Barclays Treasury 5+ Year Index (Portfolio +0.4% versus Benchmark +0.2%) while the portfolio's cash allocation matched the benchmark's return. The private markets portfolio returned +6.1% for the quarter, led by the private equity portfolio, which gained +7.9%. As a reminder, in general the investments in the private markets portfolio are valued quarterly and reported on a lagged basis. As a result, the performance results for private markets are reflective of second quarter market conditions.

For the year ending September 30, 2020, the Combined Funds outperformed the composite benchmark return by +0.7%, or 70 basis points (+9.6% Combined Funds versus +8.9% Composite Benchmark). Overall, the public equity portfolio posted strong results, led by outperformance in domestic equities (+15.1% Domestic Equity versus +14.4% Domestic Equity Benchmark), while the international equity portfolio's return lagged the U.S. market on an absolute basis but outperformed relative to its benchmark (+3.7% International Equity versus +3.0% International Equity Benchmark). The core fixed income portfolio outperformed the Bloomberg Barclays U.S. Aggregate Index return (+8.2% Fixed Income versus +7.0% Fixed Income Benchmark), while the Treasury protection portfolio modestly underperformed the Bloomberg Barclays Treasury 5+ Year Index (Portfolio +12.1% vs Benchmark +12.4%). The private markets portfolio returned +1.5% for the year.

Domestic Equity

During the third quarter, the Russell 3000 Index rose +9.2% as markets continued their strong comeback from the March lows. Positive sentiment around the prospects for an economic rebound and better than expected earnings provided support to equity valuations. Growth continued to outpace value by a wide margin (R3000G +12.9% versus R3000V +5.4%), while large cap companies outperformed small caps (R1000 +9.5% versus R2000 +4.9%). The Russell 2000 Growth Index appreciated +7.2% during the quarter, outpacing the Russell 2000 Value Index's +2.6% quarterly gain. With this quarter's performance, the Russell 2000 Growth Index has now outperformed the Russell 2000 Value Index over the trailing quarter, 1-year, 3-year, 5-year, and 10-year periods.

Within the Combined Funds domestic equity portfolio, large cap growth managers posted strong outperformance, aided by strong stock selection. Zevenbergen and Sands exceeded their benchmark, while Winslow trailed for the quarter. The portfolio's large cap value managers lagged the Russell 1000 Value benchmark for the quarter. Stock selection in the Financial Services sector detracted from performance. Barrow Hanley outperformed, while both Earnest and LSV underperformed the quarterly benchmark.

The portfolio's small cap growth managers outperformed the Russell 2000 Growth benchmark by +0.9% for the quarter. Stock selection drove the outperformance, led by the Utilities sector. Hood River strongly outperformed on the quarter, while the remaining managers trailed the benchmark. The portfolio's small cap value managers trailed the Russell 2000 Value benchmark by -0.3% for the quarter. Stock selection detracted from performance, led by the Health Care sector. Peregrine and Goldman outperformed for the quarter, while Hotchkis and Martingale lagged the benchmark.

The portfolio's semi-passive large cap core managers in aggregate nearly matched the Russell 1000 Index for the quarter (+9.4% Portfolio versus +9.5% Russell 1000). Stock selection was relatively flat for the quarter on balance. The passive Russell 3000, Russell 1000 and Russell 2000 Index mandates tracked their respective indices within guideline ranges for the quarter.

Developed International Equity

International developed markets equities, as measured by the MSCI World ex USA index (net), gained +6.3%, advancing for the second quarter in a row following a pandemic-induced selloff in the first quarter. Markets were supported by government stimulus measures and investor optimism for a global economic recovery. However, fears of a second-wave of virus outbreaks sent markets lower in September. Germany was a strong performer, as manufacturing activity increased in Europe's largest economy in response to rising demand from China and other markets. Japanese stocks also rose despite continued economic weakness and the resignation of Prime Minister Shinzo Abe due to ill health. His successor, Yoshihide Suga, has promised policy continuity. Information Technology stocks continued to be among the top performers, lifted by a surge in e-commerce activity. The Industrials and Materials sectors also rallied amid a recovery in global demand. Energy stocks suffered the biggest losses, weighed down by the declines in the oil and gas industry. The U.S. dollar fell against the euro and yen and most other currencies amidst concerns about U.S. fiscal deficits and expectations for an extended period of low interest rates supported by accommodative Fed policy. Growth continued to outpace value by a wide margin and small cap stocks outperformed large cap stocks.

The active developed markets managers outperformed the MSCI World ex USA index (net) (+7.9% active developed markets managers versus +4.9% benchmark index). Stock selection across all sectors was positive, with the strongest relative performance coming from the Industrials, Communication Services, Financials and Healthcare sectors. An overweight position in the Industrials sector and an underweight position in the Energy sector also contributed positively. AQR, the semi-passive developed markets equity manager, outperformed the MSCI World ex USA index (net) (+6.6% AQR actual versus +4.9% developed markets benchmark index). Stock selection in the United Kingdom, Australia and Canada contributed positively to performance. Additionally, stock selection in the Financials, Materials and Communication Services sectors as well as underweight positions in the Financials and Energy sectors were positive.

The passive developed markets portfolio tracked the MSCI World ex USA index (net) within guideline tolerance for the quarter (+5.0% SSgA actual versus +4.9% developed markets benchmark index).

Emerging Markets Equity

Emerging market equities (EME), as measured by MSCI Emerging Markets index (net) gained +9.6% during the quarter. Markets were lifted by China's economic rebound, stronger commodity prices, a weaker U.S. dollar and government stimulus measures. China and other north Asian markets (Taiwan & Korea), continue to recover from the COVID-19 pandemic more quickly than the rest of the world due to successful mitigation efforts and despite relatively measured fiscal and monetary support. Other emerging markets, such as Brazil, Russia and South Africa continue to

struggle with the COVID-19 fallout, while their pandemic responses have highlighted structural challenges. India proved the exception to that rule during the quarter, despite deterioration in the health outlook and a border conflict with China. The country was viewed as a beneficiary of the trade tension between the U.S. and China, as companies reexamine supply chains. As in developed equity markets, Information Technology names were strong performers led by internet platform companies and semiconductor giants. Cyclical sectors, including Materials and Consumer Discretionary rebounded, while Utilities, Financials and Energy names lagged. Growth outpaced value and small cap stocks outperformed large cap stocks.

The active emerging markets managers outperformed the MSCI Emerging Markets index (net) (+10.0% active emerging markets managers versus +9.6% benchmark index). Key sources of positive active return included stock selection in Taiwan and India, underweight positions in Thailand, South Africa and Malaysia, stock selection in the Communication Services and Consumer Staples sectors, and an underweight position in the Financials sector.

The passive emerging markets portfolio experienced slight negative tracking error relative to the MSCI Emerging Markets index (net) within guideline tolerance for the quarter (+9.4% SSGA actual versus +9.6% emerging markets benchmark index).

Core Bonds

Fixed income market performance was subdued during the quarter as interest rates were little changed overall. Risk assets such as corporate bonds and securitized credit benefitted from improved investor appetite for yield amid early signs of a rebound in economic activity. Risk assets also remained well-supported by the Fed's asset purchase programs and accommodative policy stance. With these programs, the Fed has effectively backstopped key parts of the credit markets. Within Agency MBS, record-low mortgage rates drove expectations for faster prepayment speeds, which weighed on MBS returns during the quarter. Within CMBS, deals with higher exposures to COVID-impacted sectors such as retail and hospitality continued to feel pressure. Treasury Inflation Protection Securities (TIPS) breakeven inflation levels rose during the quarter, reflecting the improved economic outlook and resulting (modest) increase in future inflation expectations.

Fixed Income Sectors Spread Performance since 12/31/19					
Sector	Spread to Treasuries (bps)				
	12/31/19	6/30/20	9/30/20	Q3 Chg	YTD Chg
US Inv. Grade Credit	90	150	136	-14	+46
US High Yield	360	626	517	-109	+157
US CMBS	72	132	106	-26	+34
US ABS	44	68	41	-27	-3
US Agency MBS	39	70	61	-9	+22
US TIPS (10 Yr Break Even)	179	134	163	+29	-16

Source: Barclays Live, Bloomberg

The portfolio's core bond managers solidly outperformed the Bloomberg Barclays Aggregate benchmark during the quarter (+1.3% versus +0.6% Benchmark), led by the portfolio's active managers (+1.7% Portfolio versus +0.6% Benchmark). For the quarter, the portfolio's overweight to risk assets such as corporate bonds, ABS and TIPS boosted relative performance, while underperformance within CMBS detracted somewhat. All managers met or exceeded benchmark performance during the quarter and trailing one-year periods.

Treasury Protection Portfolio

While interest rates on balance were little changed during the quarter, the long-end of the market experienced slight underperformance as the yield on the 30-year Treasury Bond rose five basis points to end the quarter at 1.46%. Yields across the front end of the yield curve, meanwhile, were little changed for the quarter. Higher inflation data during the quarter combined with expectations of continued aggressive fiscal and monetary stimulus breathed new life into longer-term inflation expectations, and the market-implied breakeven level of inflation on 10-year U.S. Treasury Inflation Protected Securities rose +29 basis points during the quarter to end at 1.63%.

For the three months ending 9/30/2020, the Treasury protection portfolio modestly outperformed the Bloomberg Barclays Treasury 5+ Year Index (+0.4% Portfolio versus +0.2% Benchmark). The portfolio was positioned relatively short duration vs. the benchmark, resulting in positive performance as long end yields rose (prices fell). The program guidelines also allow a modest allocation to TIPS and U.S. Agency securities, both of which sectors performed well during the quarter, providing an additional performance tailwind.

Public Markets Managers' Organizational Update

Third Quarter 2020

Acadian (Developed International)

Effective August 1, 2020 Asha Mehta, a portfolio manager, departed Acadian to pursue other opportunities. Acadian's quantitative strategy is managed by a team of thirty-one portfolio managers.

Barrow Hanley (Domestic Equity)

On July 27, 2020 Barrow Hanley entered into an agreement to be acquired by Australian financial firm Perpetual Limited (Perpetual) from BrightSphere Investment Group. Barrow Hanley will retain its brand autonomy and continue to operate independently with no change to its investment teams and philosophy, along with its 24.9% equity ownership of the firm. The transaction is expected to be completed in the fourth quarter of 2020 subject to regulatory approval.

Columbia (Core Bonds)

During Q3, the firm announced that Colin Lundgren, global head of fixed income, plans to retire in 2021. Gene Tannuzzo, current deputy global head of fixed income, will succeed Mr. Lundgren as global head of fixed income on March 1, 2021. Mr. Tannuzzo will report to Colin Moore, global chief investment officer. Coinciding on March 1, 2021, Mr. Lundgren will no longer be a portfolio manager for the MSBI account, with Gene assigned as replacement.

Fidelity (Developed International)

Effective September 30, 2020, Joe DeSantis assumed a new role as head of Global Investment Solutions. The Global Institutional Solutions portfolio managers and analysts, as well as the FIAM equity team will report to him. The FIAM equity investment team, responsible for the management of the SBI's portfolio, previously reported to Jeff Mitchell, who will retire at the end of the year.

J.P. Morgan (Domestic Equity)

Urmas Wompa who was covering Financials, retired during the third quarter and was replaced by Steve Wharton. Hunter Horgan who was covering the Energy sector, left the firm during the quarter and was replaced by David Maccarrone.

Martin Currie (Emerging Markets Equity)

Franklin Resources, Inc. completed its acquisition of Martin Currie's parent firm, Legg Mason, during the quarter. Martin Currie continues to have full independence with respect to the investment process and also maintains its own institutional distribution and client service functions.

McKinley (Developed International)

It was announced during the quarter that Sheldon Lien will be leaving the portfolio management team effective October 1, 2020. The remaining team of four will assume his responsibilities with respect to McKinley's quantitative strategies.

Neuberger Berman (Emerging Markets Equity)

Gaurav Maheshwari joined the team to cover Indian equities. He will be based in Mumbai, India. Sophie Chiu, greater China regional analyst, decided to leave the firm. Her coverage will be assumed by the seven other global sector analysts based in Hong Kong.

2020 Manager Meetings

As a result of the ongoing COVID-19 pandemic and continued restrictions on business travel on the part of managers' and SBI Staff policies, there were no in-person meetings conducted with Public Markets managers during third quarter 2020.

Throughout the quarter, however, Staff utilized teleconference and videoconference technologies to remain in communication with managers as needed. During the quarter, Staff held 28 manager strategy review calls via teleconference or videoconference.

Investment Manager	Asset Class
• AQR Capital Management, LLC	International Equity
• ArrowMark Colorado Holdings, LLC	Domestic Equity
• Barrow, Hanley, Mewhinney & Strauss, LLC	Domestic Equity
• BlackRock Institutional Trust Company, N.A.	Domestic Equity Fixed Income
• Columbia Management Investment Advisers, LLC	Fixed Income
• Earnest Partners, LLC	International Equity
• Fidelity Institutional Asset Management LLC	International Equity
• Goldman Sachs Asset Management, L.P.	Domestic Equity Fixed Income
• Hood River Capital Management, LLC	Domestic Equity
• Hotchkis and Wiley Capital Management, LLC	Domestic Equity
• J.P. Morgan Investment Management Inc.	Domestic Equity
• LSV Asset Management	Domestic Equity
• Macquarie Investment Management Advisers	International Equity
• Martingale Asset Management, L.P.	Domestic Equity
• McKinley Capital Management, LLC	International Equity
• Morgan Stanley Investment Management Inc.	International Equity
• Neuberger Berman Investment Advisers LLC	International Equity Fixed Income
• Peregrine Capital Management	Domestic Equity

2020 Manager Meetings (cont.)

• Pzena Investment Management, LLC	International Equity
• Rice Hall James & Associates, LLC	Domestic Equity
• Sands Capital Management, LLC	Domestic Equity
• The Rock Creek Group, LP	International Equity
• Wellington Management Company LLP	Domestic Equity
• Western Asset Management Company	Fixed Income
• Winslow Capital Management, LLC	Domestic Equity
• Zevenbergen Capital Investments LLC	Domestic Equity

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TAB F

Participant Directed Investment Program and Non-Retirement Program

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INVESTMENT ADVISORY COUNCIL REPORT

DATE: November 25, 2020

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:

	Page
• Review of Participant Directed Investment Program Fund Commentaries	2
• Non-Retirement Fund Commentaries	5
• Manager Meetings	6

Participant Directed Investment Program Fund Commentaries

Third Quarter 2020

Domestic Equities

Vanguard Total Stock Market Index Institutional Plus

The fund employs an indexing approach designed to track the performance of the CRSP U.S. Total Market Index, which represents approximately 100% of the investable U.S. stock market and includes large-, mid-, small-, and micro-cap stocks. The fund slightly outperformed its benchmark return for the quarter and the year with a +9.4% and +15.2% return, respectively. Technology is the largest sector in the portfolio with a 26% allocation. *This option is not available to the Minnesota State Deferred Compensation Plan (MNDCP).*

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 tracked the S&P 500 Index return for the quarter and the year with a +8.9% and +15.2% return, respectively. Sector allocation in the fund, which is consistent with the S&P 500, has a 28% allocation to Information Technology and a 14% weight to Healthcare companies. *This option is only available to the Minnesota Deferred Compensation Plan (MNDCP).*

Vanguard Dividend Growth Fund

The fund is actively managed by Wellington Management and invests in large- and mid- cap equity holdings with an emphasis on companies that have a history of growing dividends over time. Performance for the fund lagged the benchmark for the quarter with a +9.9% return compared to a +10.4% return for the NASDAQ US Dividend Achievers Select Index. For the year, the fund reported a +7.5% return compared to a +9.9% return for the benchmark. Underperformance for the quarter was driven mostly by poor stock selection within Consumer Staples, Materials, and Information Technology. Unfavorable sector allocation had a negative impact on the one-year return, primarily from the underweight to Information Technology and an overweight to Financials. Stock selection within Consumer Staples also detracted from the one-year return.

Vanguard Mid-Cap Index

The fund attempts to employ a full replication indexing approach designed to track the performance of a broadly diversified pool of medium-size U.S. stocks. The fund matched the CRSP US Mid Cap Index return for the quarter and the year earning a +8.0% and a +7.1% return, respectively. Holdings in Technology, Consumer Discretionary, and Industrials make up the largest sector allocations in the fund.

T. Rowe Price Institutional Small-Cap Stock Fund

The fund's investment process emphasizes fundamental research and active, bottom-up stock selection. The small cap equity fund outperformed the Russell 2000 for the quarter and the year. The fund earned a +8.3% return compared to the benchmark return of +4.9% for the quarter and returned +7.7% compared to the benchmark return of +0.4% for the year. Relative performance for the quarter was led by stock selection, primarily in Health Care and secondly from Information Technology. Positive stock selection in Information Technology and Health Care sectors also contributed to the one-year relative returns.

International Equities

Fidelity Diversified International

The fund's approach is based on actively selecting companies based on fundamental analysis, management quality, and attractive valuations over a long time horizon. The international equity fund returned +8.9% for the quarter outperforming the MSCI EAFE benchmark return of +4.8%. For the year, the fund returned +17.8% outperforming the benchmark return of +0.5%. Positive stock selection during the quarter was the main contributor to relative return with sector allocation contributing to a lesser extent. By sector, stock selection in Consumer Discretionary, Energy and Communication Services notably benefited for the quarter. By region, non-benchmark exposure to emerging markets contributed the most for the quarter.

Vanguard Total International Stock Index

The fund attempts to employ an indexing approach designed to track the FTSE Global All Cap ex US Index, a market-cap weighted pool designed to measure performance of developed and emerging market companies. The fund slightly underperformed for the quarter and outperformed for the year. The fund earned a +6.5% return compared to the benchmark return of +6.7% for the quarter and for the year, returned +3.8% compared to the benchmark return of +3.5%. Japan continues to have the largest country exposure in the fund with a 17% allocation and Financials has the largest industry exposure with a 16% allocation.

Fixed Income

Dodge & Cox Income Fund

The fund invests in a diversified portfolio that consist 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 return compared to the Bloomberg Barclays U.S. Aggregate Index for the quarter and the year. The fund earned +1.5% compared to the benchmark return of +0.6% for the quarter and for the year, returned +7.7% compared to +7.0% for the benchmark. Performance during the quarter benefited from security selection in the Fund's Agency Mortgage Backed Security holdings and from positive security selection within credit. An underweight to U.S. Treasuries and an overweight to corporate debt also benefited relative returns during the quarter.

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 and the year with a +0.6% return and a +7.0% return, respectively. The large allocation in U.S. Government issuer bonds and the fund's duration position is consistent with that of the index. Treasury/Agency and Government Mortgage-Backed Securities represent 42% and 20.8% of the fund, respectively.

Balanced and Conservative Options

Vanguard Balanced

The fund seeks to track the investment performance of a benchmark index that measures 60% U.S. stock market index and 40% in a U.S. broad, market-weighted bond index. The fund matched the benchmark for the quarter and the year with a +5.7% return and a +12.5% return, respectively. The sector allocation in the equity fund will be consistent with its benchmark, the CRSP US Total Stock Market Index, which has the largest allocations to Technology, Consumer Discretionary, and Healthcare holdings.

Stable Value Fund

Galliard Asset Management manages the stable value fund 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 fund returned +0.6% for the quarter compared to a +0.2% return for the benchmark, the 3-Year Constant Maturity Treasury +45 basis points. For the year, the fund returned +2.6% compared to the benchmark return of +1.2%. Within the underlying fixed income portfolio, a general overweight to the spread sectors drove returns for the quarter and the year. Overweights to taxable municipal and corporate sectors, along with out-of-benchmark allocations to Agency RMBS, consumer ABS, and CMBS all benefited returns.

Money Market Fund

State Street Global Advisors manages the money market fund in a commingled pool. For the quarter, the fund performed in line with its benchmark, the ICE BofA U.S. 3 Month T-Bill, with a +0.1% return for the quarter and a +1.1% return for the year. Money market instruments continue to be anchored by the Fed's decision to maintain the federal funds target range of 0.0% to 0.25% on muted growth and inflation expectations. At the Fed's most recent Federal Open Market Committee (FOMC) meeting in September, they committed to maintaining this near zero target range until maximum employment and price stability goals are met.

Non-Retirement Fund Commentaries

Third Quarter 2020

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 analysis. The portfolio matched the benchmark return for the quarter with a +0.2% return. For the year, the portfolio outperformed its benchmark with a +6.2% return compared to a +6.0% return for the benchmark. The positive impact from declining spreads of non-Treasury sectors relative to Treasuries and yield income was enough to offset negative returns from minimally higher treasury yields during the quarter. Contrary to the quarterly performance, declining treasury yields of the last year have been the primary driver of performance over that time, generating positive returns. The portfolio's overweight to U.S. Agencies and Agency Securitized bonds drove outperformance, primarily due to the yield advantage that these sectors have over Treasuries.

Non-Retirement Program Fixed Income Manager

Prudential Global Investment Management (PGIM) manages the Non-Retirement Fund Program fixed income portfolio in a separately managed portfolio. The fixed income portfolio return of +1.3% for the quarter outperformed the benchmark return, the Bloomberg Barclays U.S. Aggregate of +0.6%. Sector allocation was the primary driver of outperformance, with overweights to CMBS, High Yield, ABS and Investment Grade Corporates, combined with security selection in Electric Utilities.

Non-Retirement Program Domestic Equity Manager

Mellon Investments Corporation manages the Non-Retirement Program domestic equity portfolio in a separately managed portfolio. Mellon invests the portfolio to track the S&P 500. The portfolio matched the benchmark return for the quarter and the year with a +8.9% and a +15.1% 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 outperformed the benchmark for the year with a +1.0% return compared to +0.7% return for the benchmark.

2020 Manager Meetings

During the third quarter staff met with the investment funds noted below.

Investment Manager	Management Style/Asset Class	Investment Platform
• Ascensus	Multi-Asset Class Platform	PDIP (ABLE Plan)
• Dodge & Cox	Active, Fixed Income	PDIP
• Fidelity	Active, International Equities	PDIP
• Prudential	Active, Fixed Income Bond Fund Manager	Non-Retirement Program
• RBC Global Asset Manager	Active, Fixed Income Assigned Risk Bond Mgr.	Non-Retirement Program
• TIAA Nuveen Vanguard	Multi-Asset Class Platform Annual Due Diligence Annual Due Diligence	PDIP (MN 529 Plan)
• T. Rowe Price	Active, Small Cap Equities	PDIP
• Vanguard	Passive, Fixed Income Passive, Domestic Equities Passive, International Equities	PDIP PDIP PDIP

REPORT

SBI Environmental, Social, and Governance (ESG) Report

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MINNESOTA STATE BOARD OF INVESTMENT

ENVIRONMENTAL, SOCIAL, GOVERNANCE REPORT

The Minnesota State Board of Investment (SBI) continues to engage on Environmental, Social, and Governance (ESG) issues and has begun working on the 2021 proxy season. In addition to its engagement on climate issues, SBI has expanded its direct engagement efforts with respect to diversity and inclusion on corporate boards of directors and throughout the broader corporate workforce.

The SBI Cosigns Letter to Russell 3000 Companies Regarding Board Diversity

The SBI cosigned a letter that was sent to companies listed in the Russell 3000 index urging the companies to disclose the racial/ethnic and gender composition of their boards of directors in each company's 2021 proxy disclosure statement.

The letter, which was authored jointly by the Illinois and Connecticut State Treasurers' Offices, was signed by investment entities comprising over \$3 trillion of assets under management, many of whom are part of the Midwest Investors Diversity Initiative and the Thirty Percent Coalition. The letter notes that research consistently indicates that diversity on corporate boards enhances long-term value for investors; and that investors continue to develop proxy voting policies that take diversity into account when voting For or Against corporate boards. Furthermore, increased voluntary disclosure will provide investors with reliable data to assist investors in making proxy voting decisions and provide additional avenues for direct engagement with companies.



Engagement Efforts

SBI Begins Engagement Efforts for the 2021 Proxy Season

In advance of the 2021 proxy season, the SBI has begun reviewing sponsorship of shareholder proposals. Through its involvement in the Midwest Investors Diversity Initiative (MIDI), the SBI has filed one shareholder proposal and will lead and participate in engagements on board diversity with target companies in the Midwest region. MIDI identifies companies with little or no documented racial, ethnic, and/or gender diversity on their boards of directors and asks the company to adopt a rule that the pool of board candidates will include at least one woman and one person with a racial/ethnically diverse background. The SBI will engage with companies on this issue asking them to voluntarily adopt this rule. In addition, the SBI will sponsor or co-sponsor shareholder proposals for 2021 proxy ballots asking companies to adopt the rule.

Engagement Efforts (Cont.)

SBI Engagement Efforts on Deforestation

The SBI continues to engage with companies about the impact of deforestation in South America due to agricultural supply chains. In 2019, the SBI signed on to an investor letter through United Nations Principles of Responsible Investment (PRI) urging large global agricultural companies to require beef producers in their supply chains to eliminate illegal farming operations in the Amazon region. Recently, the SBI signed on to a similar effort reaching out to soy producers in the region. The SBI will continue to monitor progress toward eliminating deforestation through its membership in the PRI and Ceres organizations.



MINNESOTA STATE BOARD OF INVESTMENT

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REPORT

AON Market Environment Report

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Market Environment

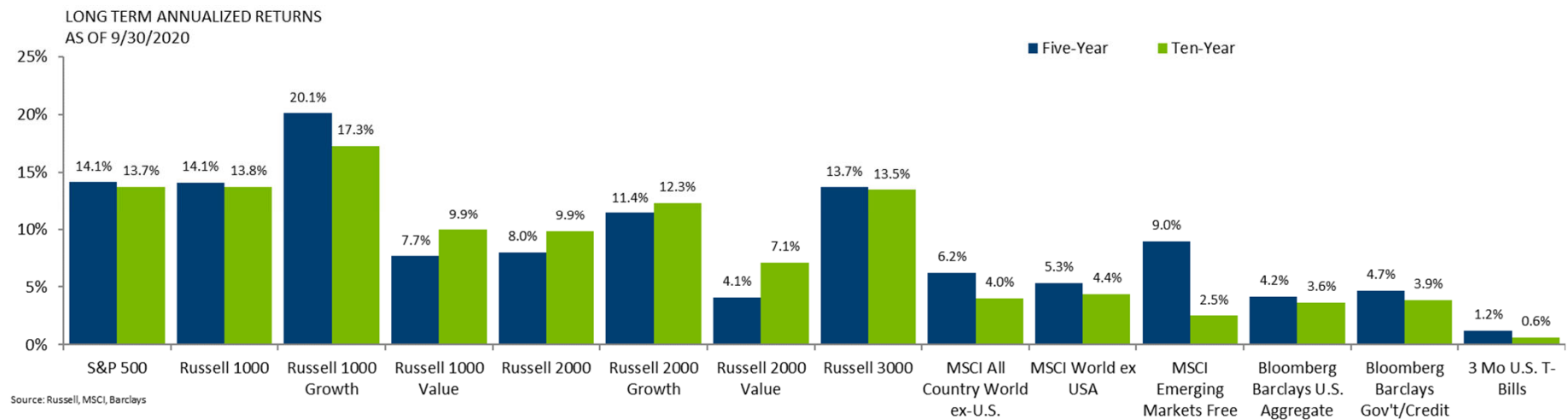
Third Quarter 2020

Aon

Investment advice and consulting services provided by Aon Investments USA Inc.

Aon
Empower Results®

Market Highlights



Market Highlights

Returns of the Major Capital Markets					
	Periods Ending 9/30/2020				
	Third Quarter	1-Year	3-Year ¹	5-Year ¹	10-Year ¹
Domestic Equity					
S&P 500	8.9%	15.1%	12.3%	14.1%	13.7%
Russell 1000	9.5%	16.0%	12.4%	14.1%	13.8%
Russell 1000 Growth	13.2%	37.5%	21.7%	20.1%	17.3%
Russell 1000 Value	5.6%	-5.0%	2.6%	7.7%	9.9%
Russell 2000	4.9%	0.4%	1.8%	8.0%	9.9%
Russell 2000 Growth	7.2%	15.7%	8.2%	11.4%	12.3%
Russell 2000 Value	2.6%	-14.9%	-5.1%	4.1%	7.1%
Russell 3000	9.2%	15.0%	11.6%	13.7%	13.5%
International Equity					
MSCI All Country World ex-U.S.	6.3%	3.0%	1.2%	6.2%	4.0%
MSCI World ex USA	4.9%	0.2%	0.6%	5.3%	4.4%
MSCI Emerging Markets Free	9.6%	10.5%	2.4%	9.0%	2.5%
Fixed Income					
Bloomberg Barclays U.S. Aggregate	0.6%	7.0%	5.2%	4.2%	3.6%
Bloomberg Barclays Gov't/Credit	0.8%	8.0%	5.9%	4.7%	3.9%
3 Mo U.S. T-Bills	0.0%	1.1%	1.7%	1.2%	0.6%
Inflation					
CPI-U	1.2%	1.4%	1.8%	1.8%	1.8%

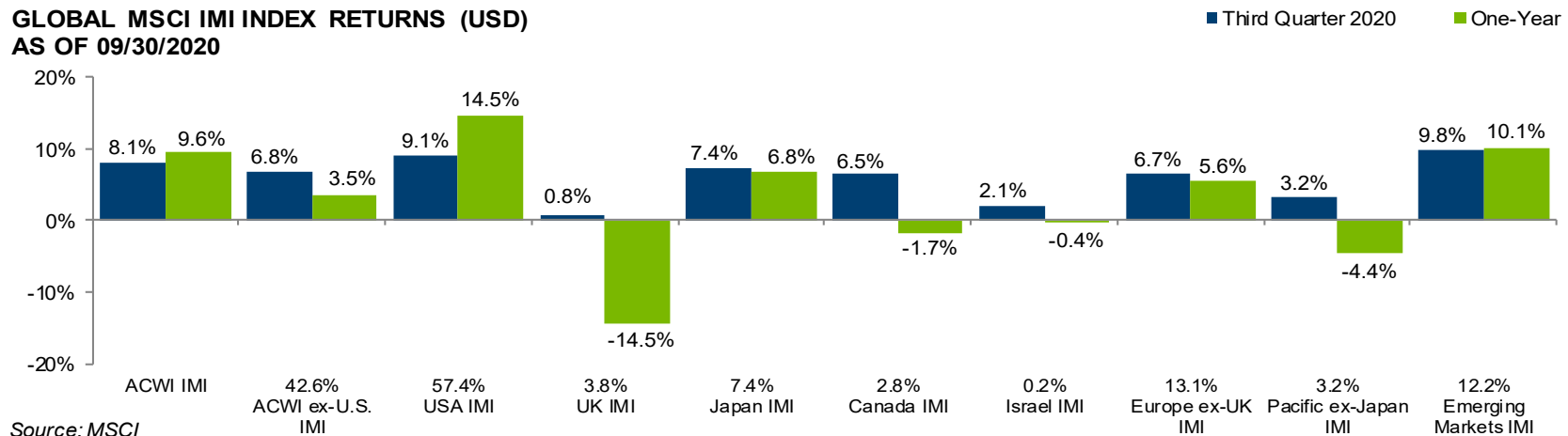
MSCI Indices show net returns.

All other indices show total returns.

¹ Periods are annualized.

Global Equity Markets

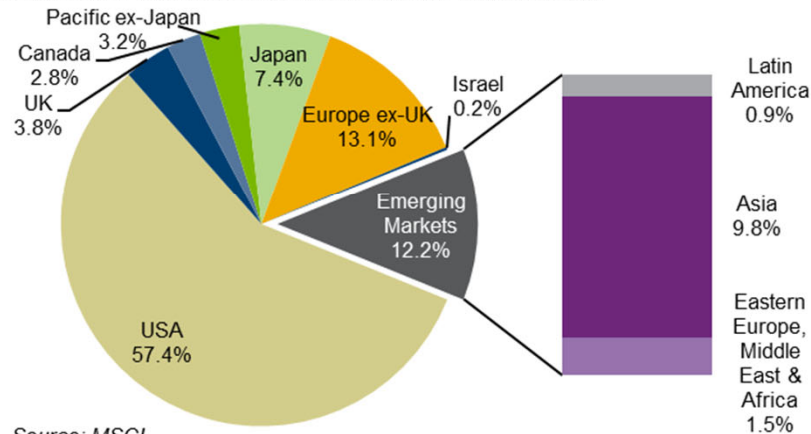
**GLOBAL MSCI IMI INDEX RETURNS (USD)
AS OF 09/30/2020**



- Global equities continued their rebound over the third quarter as they broke through their pre-pandemic all time highs in early September. This performance was supported by optimism over progress in Covid-19 vaccine trials and supportive monetary and fiscal policies. However, rising fears of a second wave coronavirus outbreak and failure to agree further fiscal stimulus reversed some of the equity market's gains, bringing the MSCI AC World Investable Market Index's local currency return over the quarter to 6.9%. Depreciation of the U.S. dollar further pushed up the returns to 8.1% in USD terms.
- Emerging Markets equities were the best performers with a return of 9.8% over the quarter, supported by strong returns from the Consumer Discretionary and Information Technology sectors. Chinese equities continued their strong performance, boosted by the government's successful containment of Covid-19, despite increasing U.S.-China tensions.
- UK equities were the worst performer, returning 0.8% over the quarter. The UK's economy contracted by 19.8% over the second quarter, the worst Q2 contraction of any major developed economy. Heightened Brexit uncertainty also weighed on UK equities, as trade negotiations continue ahead of the end of the transition period in December.

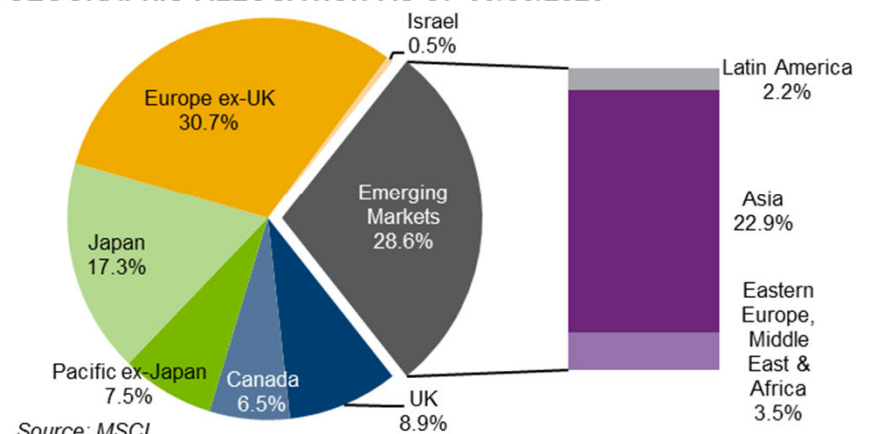
Global Equity Markets

**MSCI ALL COUNTRY WORLD IMI INDEX
GEOGRAPHIC ALLOCATION AS OF 09/30/2020**



Source: MSCI

**MSCI ALL COUNTRY WORLD EX-U.S. IMI INDEX
GEOGRAPHIC ALLOCATION AS OF 09/30/2020**

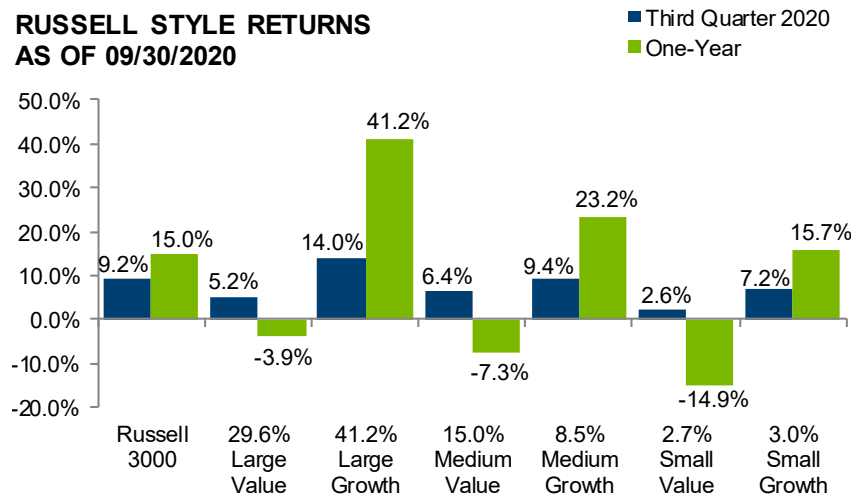


Source: MSCI

- The two exhibits on this slide illustrate the percentage that each country/region represents of the global and international equity markets as measured by the MSCI All Country World IMI Index and the MSCI All Country World ex-U.S. IMI Index, respectively.

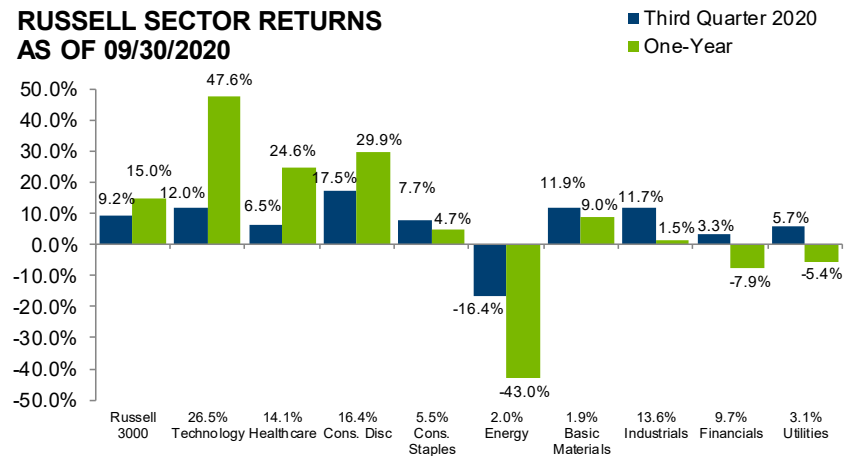
U.S. Equity Markets

RUSSELL STYLE RETURNS AS OF 09/30/2020



Source: Russell Indexes

RUSSELL SECTOR RETURNS AS OF 09/30/2020

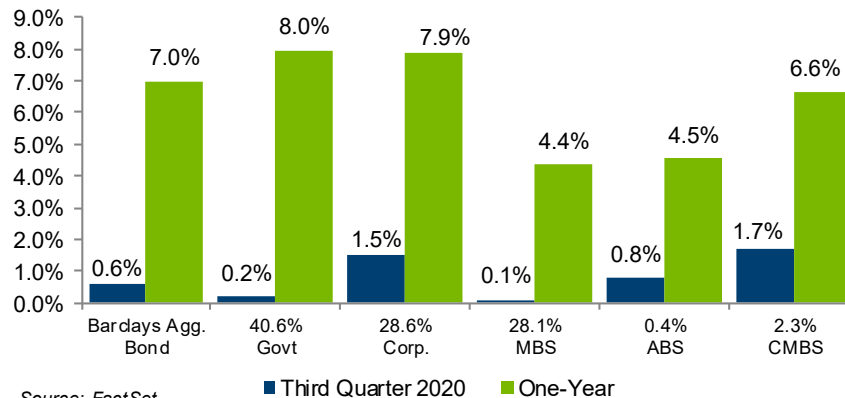


Source: Russell Indexes. Russell introduced Telecommunications and Real Estate as new sectors on 09/30/2020. Returns for the new sectors have been excluded due to the lack of historical data.

- U.S. equities ended the quarter above the pre-pandemic high set in February 2020, as rebounding economic data and strong performances from big tech stocks continued to push equity markets. The U.S. unemployment rate fell to 8.4% in August, down from April's all-time high of 14.7%, with jobless claims data suggesting that over half of the jobs lost since the start of the pandemic have now been recovered. However, an acrimonious election campaign ahead of November's presidential election and deadlocked congressional negotiations over a new fiscal stimulus package cast a shadow over the market. The Russell 3000 Index rose 9.2% during the third quarter and 15.0% over the one-year period.
- Except Energy, all sectors generated positive returns over the quarter. Consumer Discretionary was the best performing sector with a return of 17.5% while the Energy sector fell by 16.4%.
- Small cap stocks underperformed both large and medium cap stocks over the quarter, whilst Value stocks continued to underperform their Growth counterparts in Q3 2020.

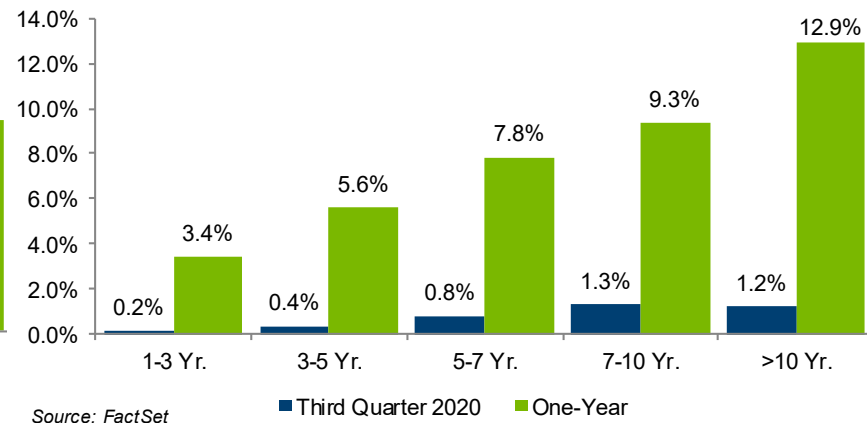
U.S. Fixed Income Markets

**BLOOMBERG BARCLAYS AGGREGATE RETURNS BY SECTOR
AS OF 09/30/2020**

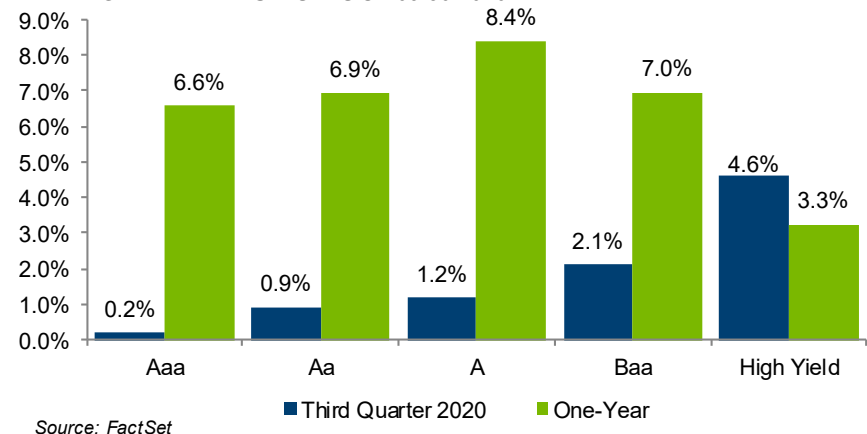


- The Bloomberg Barclays U.S. Aggregate Bond Index rose by 0.6%.
- CMBS bonds were the best performer with a return of 1.7%, followed by corporate bonds which rose by 1.5%.
- Bonds with 7–10-year maturities performed the best with a return of 1.3%.
- The Federal Reserve (Fed) continued to buy corporate bonds through its \$750 billion corporate lending facility, ensuring that demand remains high
- High yield bonds rose by 4.6%. Within investment grade bonds, Baa bonds outperformed with a return of 2.1%.

BLOOMBERG BARCLAYS AGGREGATE RETURNS BY MATURITY AS OF 09/30/2020

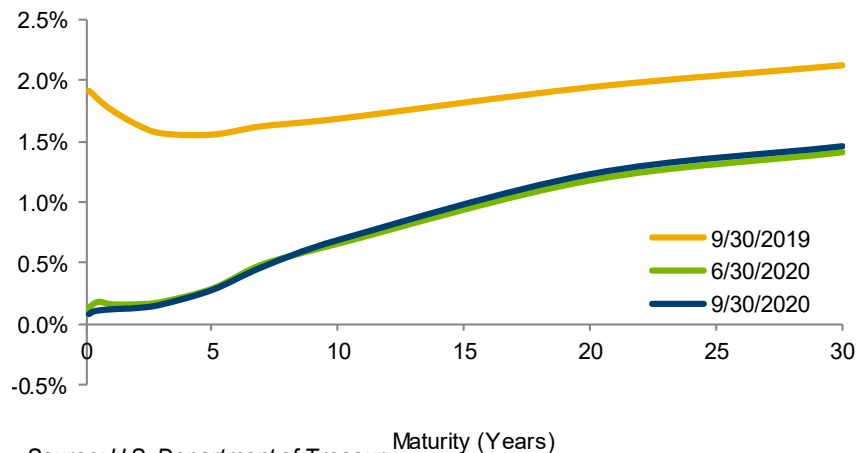


BLOOMBERG BARCLAYS AGGREGATE RETURNS BY QUALITY AND HIGH YIELD RETURNS AS OF 09/30/2020



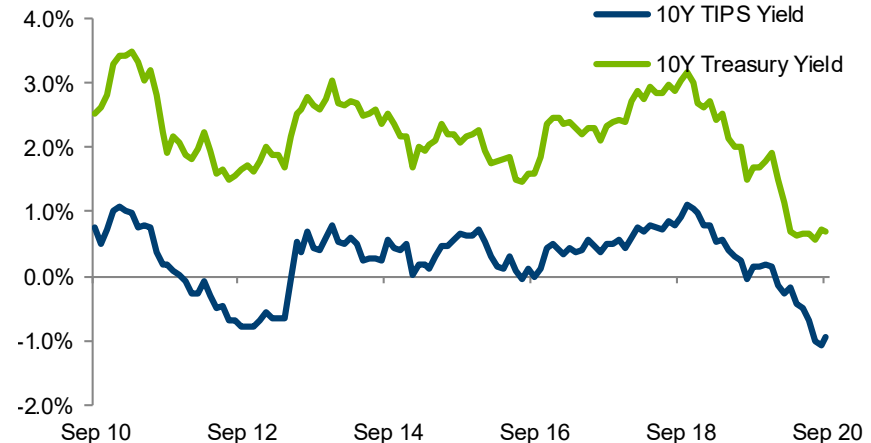
U.S. Fixed Income Markets

U.S. TREASURY YIELD CURVE



Source: U.S. Department of Treasury

U.S. 10-YEAR TREASURY AND TIPS YIELDS

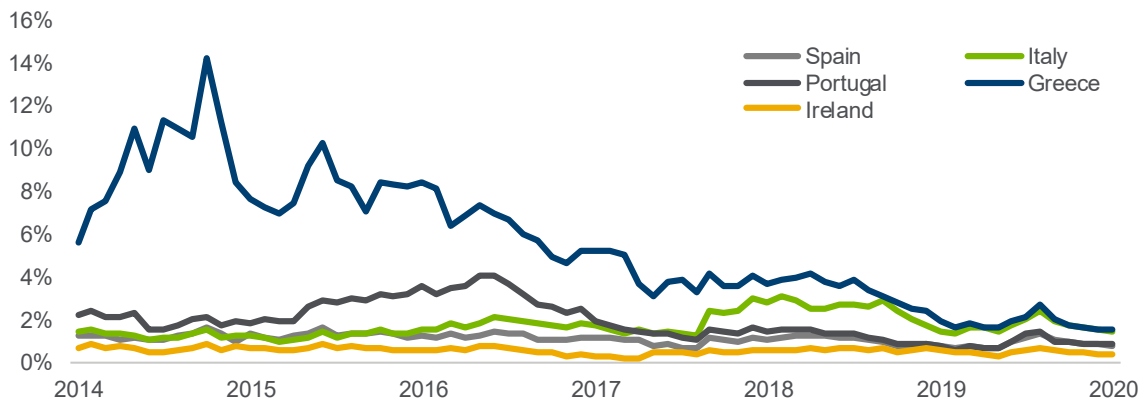


Source: U.S. Department of Treasury

- The U.S. nominal yield curve slightly steepened over the quarter, but overall yields were broadly unchanged. The Fed projected that it would keep interest rates near zero until at least 2023. During the quarter, the Fed also announced a major policy shift by adopting an “average inflation targeting” approach. Under this new approach the Fed will seek an average of 2.0% inflation over time by allowing inflation to run above the target to make up for periods where inflation ran below the target. Since inflation has recently run below the target, a period of higher inflation could be tolerated under the approach without the Fed having to tighten monetary policy.
- The 10-year U.S. treasury yield ended the quarter 3bps higher at 0.69% and the 30-year yield increased by 5bps to 1.46%.
- The 10-year TIPS yield fell by 26bps over the quarter to -0.94%. Breakeven inflation rose across the curve, with the short end rising by a greater extent. The Fed’s new “average inflation targeting” approach, the continued relaxation of lockdown measures and the anticipation of further fiscal stimulus raised inflationary expectations over the quarter.

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 continued to narrow across the Euro Area. European Union leaders struck a deal on a €750bn coronavirus recovery package, which the European Commission will fund by borrowing in the capital markets for the first time. Elsewhere, the Eurozone witnessed a second consecutive month of deflation, putting pressure on the European Central Bank to allow inflation to overshoot its target in the future.
- German bund yields fell by 5bps to -0.53% over the quarter. In Q2 2020 the Eurozone economy suffered the sharpest drop in growth since its inception, with GDP contracting by 12.1% on a quarter-on-quarter basis. Spain, which is one of the worst hit countries by the Covid-19 pandemic, was the worst performing major Eurozone economy over the quarter as it contracted by 18.5%.
- Italian government bond yields fell the most at 37bps to 0.87%, whereas, Spanish and Portuguese government bond yields fell by 22bps and 21bps to 0.25% and 0.26% respectively.

Credit Spreads

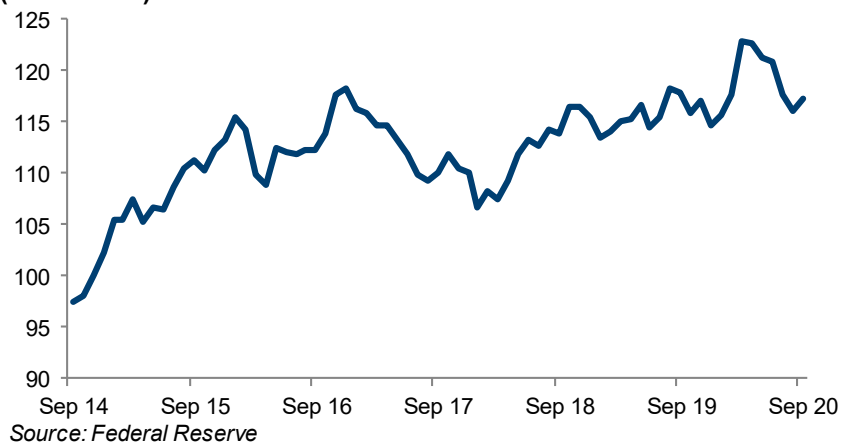
Spread (bps)	9/30/2020	6/30/2020	9/30/2019	Quarterly Change (bps)	1-Year Change (bps)
U.S. Aggregate	60	68	46	-8	14
Gov't	0	1	0	-1	0
Credit	128	142	109	-14	19
Gov't/Credit	58	65	46	-7	12
MBS	61	70	46	-9	15
CMBS	106	132	70	-26	36
ABS	41	68	37	-27	4
Corporate	136	150	115	-14	21
High Yield	517	626	373	-109	144
Global Emerging Markets	334	393	312	-59	22

Source: Barclays Live

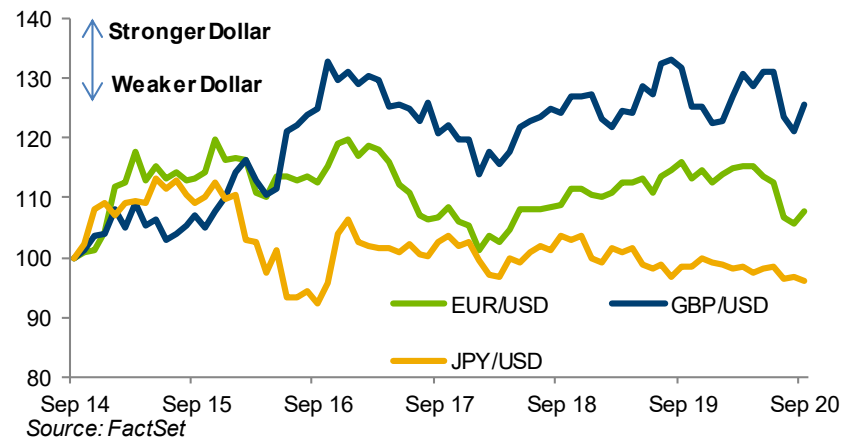
- Credit markets generally performed well as spreads continued to fall, especially in the riskier credit areas. However, similar to equity markets, growing concerns over rising COVID cases and uncertainty with regards to the next round of fiscal stimulus caused spreads to widen in September. Overall, credit spreads over U.S. treasuries narrowed over the quarter.
- Riskier areas of credit, such as U.S. high yield bonds and emerging market debt performed well. High yield credit spreads narrowed significantly in Q3 2020, decreasing by 109bps, whilst Global Emerging Markets spreads narrowed by 59bps over the quarter.

Currency

**TRADE WEIGHTED U.S. DOLLAR INDEX
(1973 = 100)**



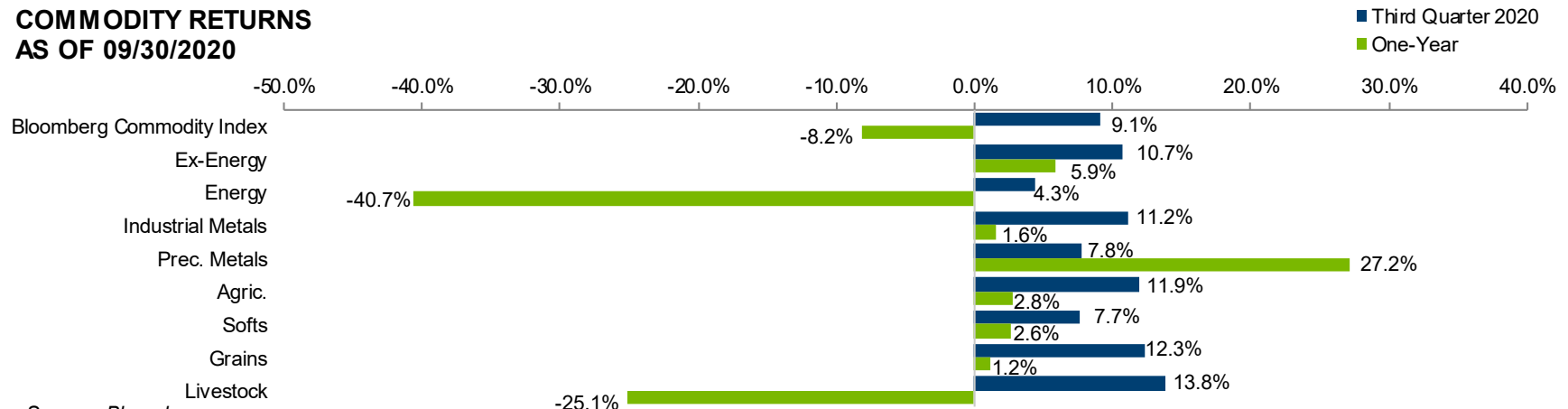
**U.S. DOLLAR RELATIVE TO EUR, GBP AND JPY
REBASED TO 100 AT 09/30/2014**



- The U.S. dollar weakened against major currencies over the quarter as it fell by 2.9% on a trade-weighted basis. The resurgence of Covid-19 cases in the US and heightened political uncertainty ahead of November's presidential election was a drag on the dollar, whilst expectations of looser monetary policy and a higher inflation outlook provided further headwinds.
- Sterling rose by 1.8% on a trade-weighted basis over the quarter. Hopes that a UK-EU trade deal will be reached by the end of the year boosted sterling over July and August, but sterling came under renewed pressure in September as UK-EU clashes over the Internal Markets Bill raised fears of a chaotic departure. Over the quarter sterling appreciated by 4.4% against the U.S. dollar.
- The U.S. dollar depreciated by 4.2% and 2.2% against the euro and yen respectively.

Commodities

COMMODITY RETURNS AS OF 09/30/2020



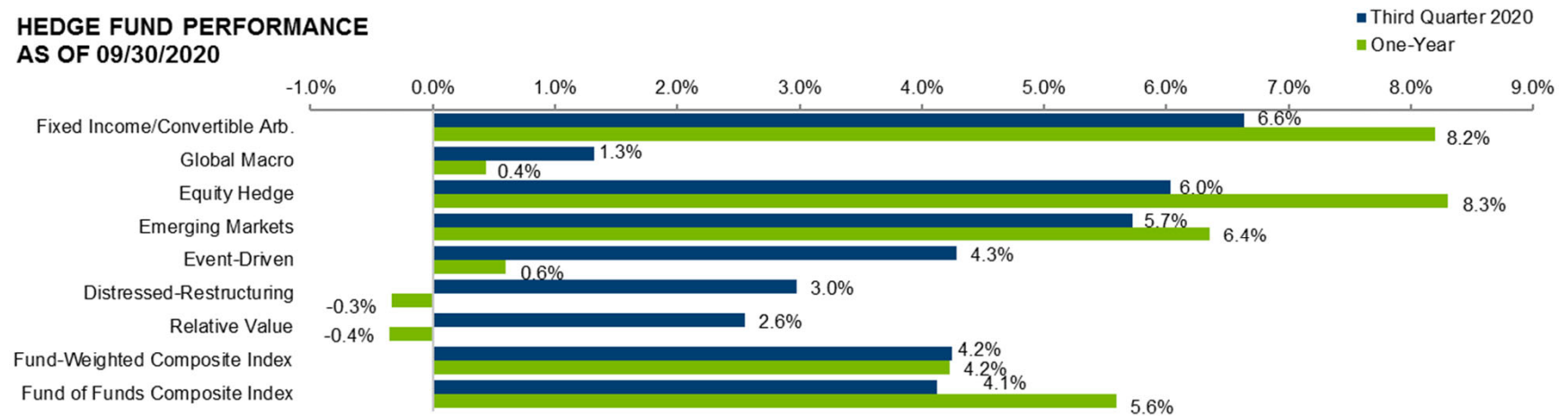
Source: Bloomberg

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

- Commodities started the quarter off strong before falling back in tandem with equity markets in September. Despite the poor performance in September, the Bloomberg Commodity Index returned 9.1%.
- The Energy sector rose by 4.3% over the quarter. Oil had another turbulent quarter with prices seeming to stabilize in July and August as OPEC+ agreed to scale back its production cuts from 9.7 million barrels per day to 7.7 million barrels per day until the end of the year. However, WTI crude prices fell by 5.6% in September as OPEC reduced its demand expectations for the rest of 2020 to 90.2 million barrels per day as global coronavirus cases continued to grow.
- The price of Brent crude oil fell by 0.5% to \$40.9/bbl. whilst WTI crude oil spot prices rose by 2.4% to \$40.2/bbl. On a one-year basis, the Energy sector is down by 40.7%.
- Livestock was the best performing sector, rising by 13.8% in Q3 2020.

Hedge Fund Markets Overview

HEDGE FUND PERFORMANCE AS OF 09/30/2020



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

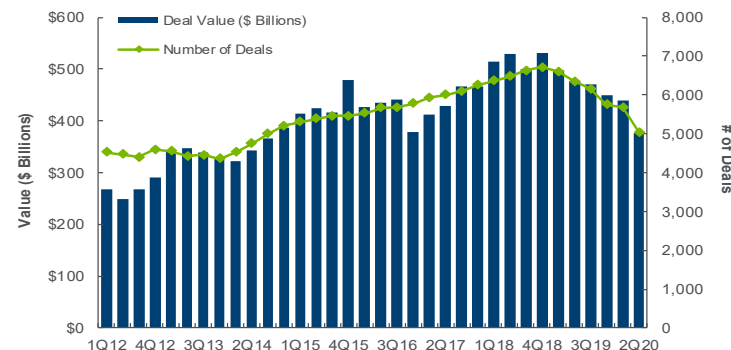
Source: HFR

- Hedge fund performance was positive across all strategies in the third quarter.
- Over the quarter, Fixed Income/Convertible Arbitrage and Equity Hedge strategies were the best performers, returning 6.6% and 6.0% respectively.
- HFRI Fund-Weighted Composite Index and the HFRI Fund of Funds Composite Index produced returns of 4.2% and 4.1% respectively.

Private Equity Market Overview—Second Quarter 2020

LTM Global Private Equity-Backed Buyout Deal Volume

Source: Preqin



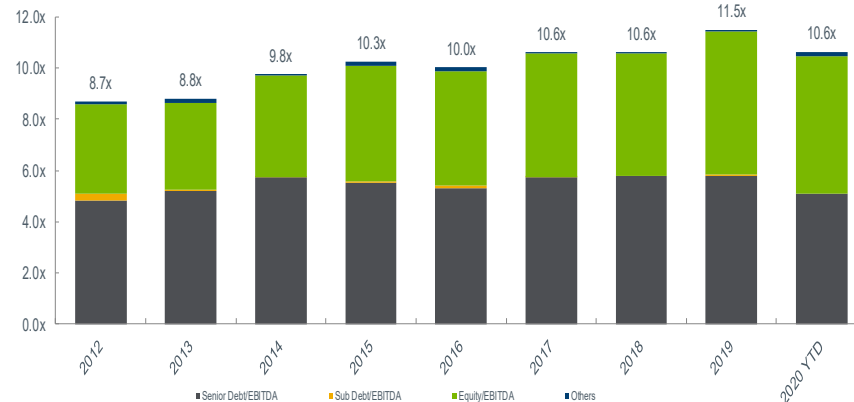
- **Fundraising:** In 2Q 2020, \$162.3 billion was raised by 349 funds, which was a decrease of 17.7% on a capital basis and 15.9% by number of funds over the prior quarter. Dry powder stood at nearly \$2.2 trillion at the end of the quarter, a modest increase compared to the previous quarter.¹
- **Buyout:** Global private equity-backed buyout deals totaled \$61.9 billion in 2Q 2020, which was down 40.1% on a capital basis and down 30.0% by number of deals from 1Q 2020.¹ In 2Q 2020, the average purchase price multiple for all U.S. LBOs was 9.2x EBITDA, a decrease of 2.0x over 1Q 2020 and lower than the five-year average (10.6x).² Large cap purchase price multiples stood at 9.2x in 2Q 2020, down compared to 1Q 2020's level of 10.9x.² The weighted average purchase price multiple across all European transaction sizes averaged 12.6x EBITDA for 2Q 2020, up from the 12.2x multiple seen at the end of 1Q 2020. Purchase prices for transactions of greater than €1.0 billion increased to 12.7x at the end of 2Q 2020, a jump from the 12.1x seen at the previous quarter end. Globally, exit value totaled \$36.4 billion from 296 deals during the second quarter, meaningfully down from the \$70.0 billion in exits from 453 deals during 1Q 2020.¹
- **Venture:** During the second quarter, 1,374 venture-backed transactions totaling \$26.9 billion were completed in the U.S., which was a decrease on a capital basis over the prior quarter's total of \$27.0 billion across 1,336 deals. This was 16.3% higher than the five-year quarterly average of \$23.1 billion.³ Total U.S. venture-backed exit activity totaled approximately \$21.2 billion across 147 completed transactions in 2Q 2020, down on a capital basis from the \$24.1 billion across 229 exits in 1Q 2020. Through 2Q 2020, U.S. exit activity represented only 17.3% of 2019's total.⁴
- **Mezzanine:** Six funds closed on \$2.6 billion during the second quarter. This was up from the prior quarter's total of \$2.3 billion raised by six funds and represented 53.0% of the five-year quarterly average of \$4.9 billion. Estimated dry powder was \$48.6 billion at the end of 2Q 2020, up from the \$48.5 billion seen at the end of 1Q 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.

Private Equity Market Overview—Second Quarter 2020 (Continued)

**U.S. LBO Purchase Price Multiples—
All Transactions Sizes**
Source: S&P



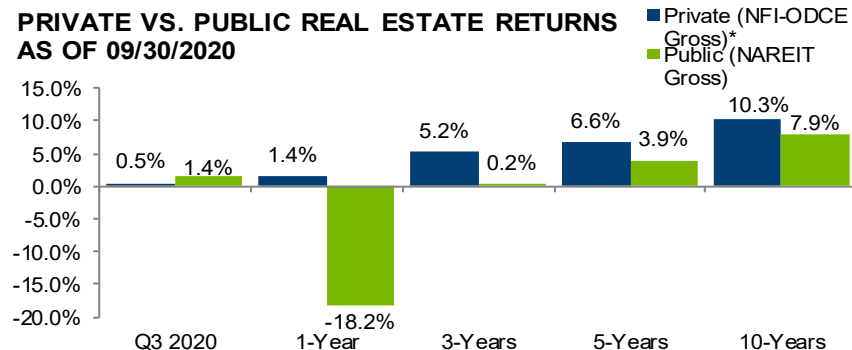
- **Distressed Debt:** The LTM U.S. high-yield default rate was 5.1% at June 2020 and was expected to increase during the following month.⁵ During the quarter, \$22.5 billion was raised by 18 funds, substantially higher than the \$4.5 billion raised by 10 funds in 1Q 2020 and the five-year quarterly average of \$11.4 billion.¹ Dry powder was estimated at \$127.3 billion at the end of 2Q 2020, which was up from the \$117.2 billion seen at the end of 4Q 2019. This remained above the five-year annual average level of \$109.3 billion.¹
- **Secondaries:** 11 funds raised \$22.7 billion during the quarter, up from the \$21.3 billion raised by 16 funds in 1Q 2020. The quarter surpassed the record-breaking amount raised in 1Q 2020, which was the most raised since Q1 2017.¹ At the end of 2Q 2020, there were an estimated 82 secondary and direct secondary funds in market targeting roughly \$71.7 billion.¹ The average discount rate for all private equity sectors finished the quarter at 20.8%, lower than the 18.1% discount at the end of 1Q 2020.⁶
- **Infrastructure:** \$13.9 billion of capital was raised by 28 funds in 2Q 2020 compared to \$38.7 billion of capital raised by 23 partnerships in 1Q 2020. At the end of the quarter, dry powder stood at an estimated \$219.7 billion, down slightly from 1Q 2020's total of \$220.7 billion. Infrastructure managers completed 313 deals with an estimated aggregate deal value of \$47.0 billion in 2Q 2020 compared to 644 deals totaling \$81.8 billion a quarter ago.¹
- **Natural Resources:** During 2Q 2020, two funds closed on \$0.3 billion compared to six funds totaling \$4.6 billion in 1Q 2020. Energy and utilities industry managers completed approximately 67 deals totaling an estimated \$8.1 billion through 2Q 2020, which represented 47.8% of energy and utilities deal value during all of 2019.¹

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.

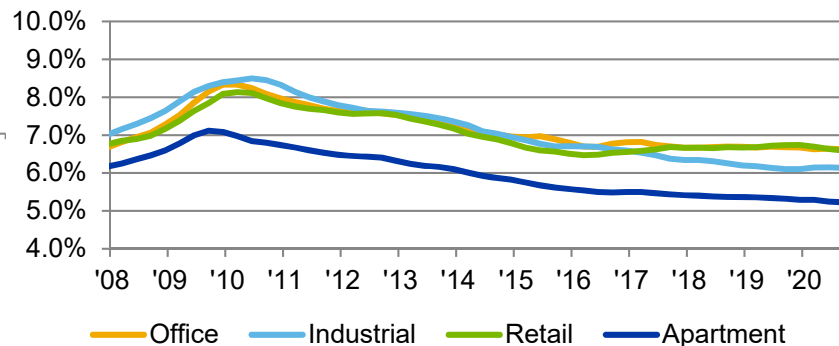
U.S. Commercial Real Estate Markets

PRIVATE VS. PUBLIC REAL ESTATE RETURNS AS OF 09/30/2020



*Third quarter returns are preliminary
Sources: NCREIF, FactSet

CAP RATES BY SECTOR
SOURCE: RCA, AON 6/30/2020



- U.S. Core Real Estate returned 0.48%* over the third quarter, equating to a 1.4% total gross return year-over-year, including a 4.0% income return. Shelter in place orders and social distancing practices have most severely impacted the retail and hotel property sectors. Property valuations have begun to price in the loss of cash flow as a result of COVID-19. Transaction volume has contracted -57% YoY through Q3 2020, and price discovery continues to be limited.
- Global property markets, as measured by the FTSE EPRA/NAREIT Developed Real Estate Index, returned 2.3% (USD) in aggregate during the third quarter and experienced a cumulative decline of -19.1% YTD. REIT market performance was driven by Asia Pacific (2.0% USD), North America (0.9% USD) and Europe (3.1% USD). The U.S. REIT markets (FTSE NAREIT Equity REITs Index) returned 1.4% in the third quarter. The U.S. 10-year treasury bond yields rose by 3bps to 0.69% during the quarter.
- The coronavirus fueled market volatility in the stock and bond markets has created a situation of uncertainty for private real estate pricing. Public markets are searching for the right pricing level in light of the global pandemic, and how it will affect the regional and global economies. Implied volatility continues to signal elevated levels of uncertainty concerning public market implied valuations. Considering this situation, we are recommending that investments with pre-specified assets be postponed. Private market transactions based on appraisal valuations lag the most current information, and they do not fully reflect the current market conditions.
- We are proactively evolving our investment strategy. In the post-coronavirus world, supply chains may move back to North America which will require corresponding real estate infrastructure. Demand for last mile logistics, already a key investment theme, will accelerate. Live and work preference changes will create opportunities. Interest rates are likely to remain lower for even longer, making real estate a very compelling alternative to fixed income investments.
- Blind pool funds offer a potential to have capital available when the new opportunity set presents itself. Those strategies need careful review in light of the changing market dynamics. Strategies that worked previously in a growth-oriented market may not be appropriate for what may be more opportunistic style investing. Regions, countries and property types all need to be reevaluated.

*Indicates preliminary NFI-ODCE data gross of fees

Notes

1. Preqin
2. Standard & Poors
3. PitchBook/National Venture Capital Association Venture Monitor
4. First Trust Advisors
5. Evercore

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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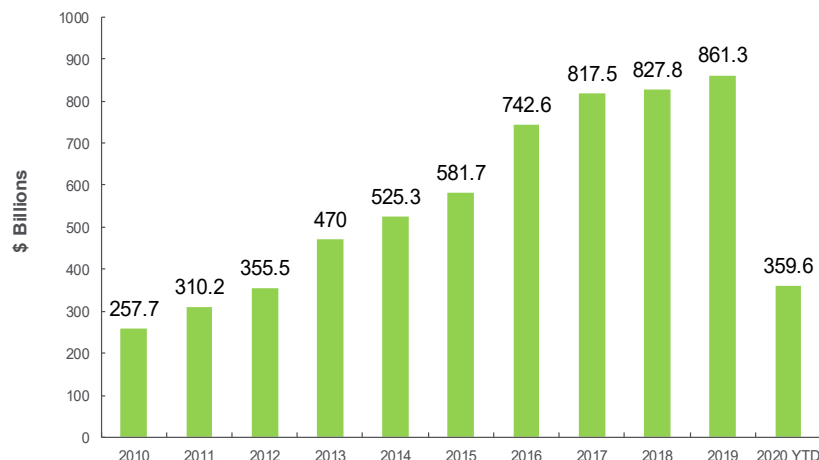
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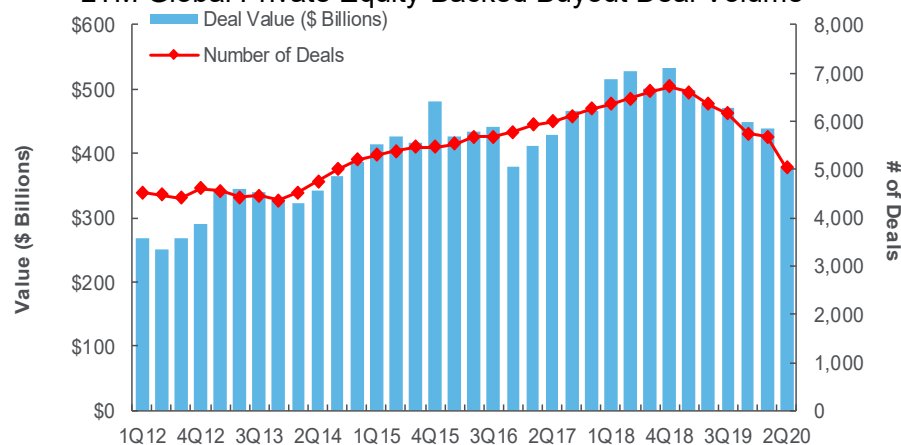
Private Equity Overview

Total Funds Raised



Source: Preqin

LTM Global Private Equity-Backed Buyout Deal Volume



Source: Preqin

Fundraising

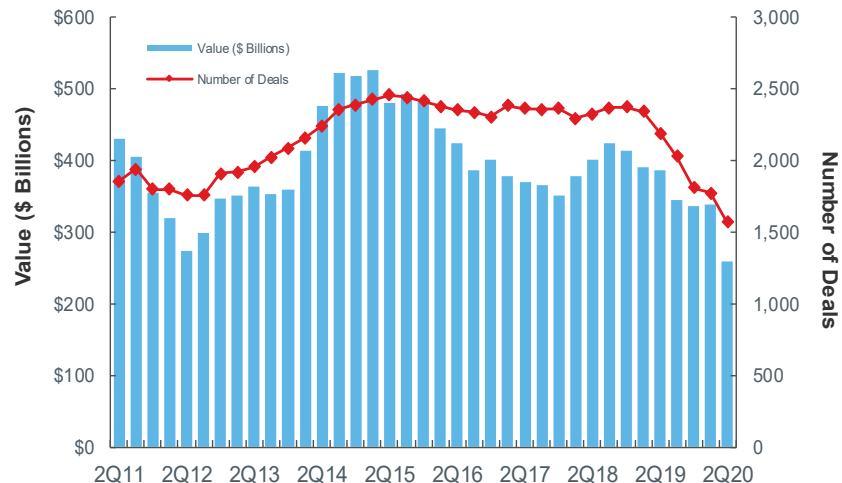
- In Q2 2020, \$162.3 billion was raised by 349 funds, which was a decrease of 17.7% on a capital basis and 15.9% by number of funds from the prior quarter. Capital raised through Q2 2020 represented 41.8% of capital raised in all of 2019.¹
 - Q2 2020 fundraising was 16.7% lower, on a capital basis, than the five-year quarterly average, but 45.1% lower by number of funds raised.
 - The majority of capital was raised by funds with target geographies in North America, comprising 58.2% of the quarter's total. This was down from 74.8% in Q1 2020. Capital targeted for Europe made up 29.3% of the total funds raised during the quarter, roughly double the 14.9% raised in Q1 2020. The remainder was attributable to managers targeting Asia and other parts of the world.
- Dry powder stood at nearly \$2.2 trillion at the end of the quarter, a modest increase from the prior quarter and an increase of 28.1% compared to the five-year average.

Activity

- In Q2 2020, global buyout deals totaled 967 deals for an aggregate deal value of \$61.9 billion, down meaningfully from the 1,381 transactions totaling \$103.5 billion in Q1 2020.¹
 - This was 45.9% lower than the five-year quarterly average deal volume of \$114.5 billion.
 - Average deal size was \$64.0 million in Q2 2020. This was down 14.5% compared to Q1 2020 and down 16.0% relative to the five-year quarterly average.
- European sponsored loan volume totaled €6.0 billion in Q2 2020, down by 71.0% compared to Q1 2020's total of €20.8 billion. Q2 2020's total was 42.4% less than the five-year quarterly average level of €10.5 billion.³
- In Q2 2020, the average purchase price multiple for all U.S. LBOs was 9.2x EBITDA, substantially down from Q1 2020 (11.2x) and down from the five-year average (10.6x). Large-cap purchase price multiples stood at 9.2x, down from the 10.9x observed at the end of Q1 2020.³
 - This was 1.4x and 0.5x turns (multiple of EBITDA) below the five and ten-year average levels, respectively.
- European multiples were up 0.4x quarter-over-quarter, averaging 12.6x EBITDA for all transaction sizes on a weighted basis, with large and medium transactions each running at 12.7x and 12.5x, respectively.³
- Debt remained broadly available in the U.S.
 - The average leverage for U.S. deals in Q2 2020 was 4.9x compared to the five and ten-year averages of 5.7x and 5.4x, respectively.³
 - The amount of debt issued supporting new transactions increased compared to the prior quarter, moving from 65.8% to 67.6%, and was higher than the five-year average of 64.7%.³
- In Europe, average senior debt/EBITDA in Q2 2020 was 5.8x, down slightly from the 5.9x observed in Q1 2020.

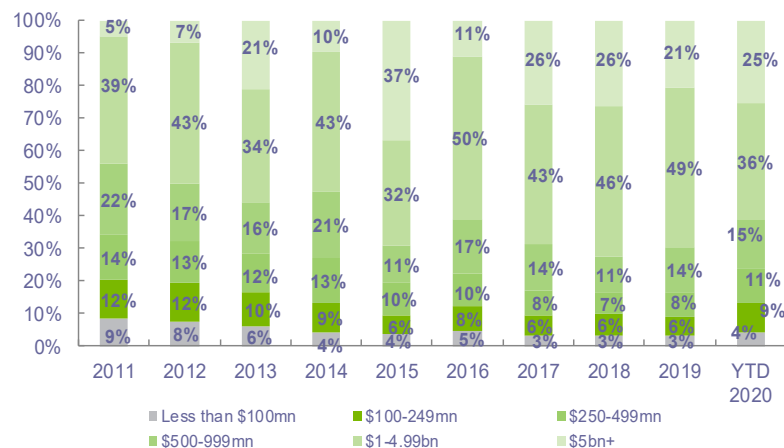
Buyouts / Corporate Finance

LTM PE Exit Volume and Value



Source: Preqin

M&A Deal Value by Deal Size



Source: Preqin

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Fundraising

- \$63.5 billion was closed on by 83 buyout and growth funds in Q2 2020, compared to \$72.6 billion raised by 125 funds in Q1 2020. This was substantially lower than the \$154.4 billion raised by 145 funds in Q4 2019.¹
 - This was significantly below the five-year quarterly average of \$94.5 billion and 179 funds.
 - Insight Partners XI was the largest fund raised during the quarter, closing on \$9.5 billion of commitments.¹
- Buyout and growth equity dry powder was estimated at \$1.0 trillion, up 1.3% from Q1 2020 and substantially higher than the five-year average level of \$780.3 billion.¹
 - Mega, large, and mid cap buyout funds increased in dry powder compared to year-end 2019 by 2.5%, 8.8% and 15.5%, respectively. Mega cap buyout funds were sitting on \$358.3 billion in dry powder at the end of the quarter. Small cap dry powder exhibited the only decrease during the quarter, decreasing to \$85.8 billion or a decrease of 35.3% over Q4 2019.¹
 - An estimated 60.3% of buyout dry powder was targeted for North America, while European dry powder comprised 24.6% and Asia/Rest of World accounted for the remainder.¹

Activity

- Global private equity-backed buyout deals totaled \$61.9 billion in Q2 2020, which was a decrease of 40.1% and 45.9% from Q1 2020 and the five-year quarterly average, respectively.¹
 - Through Q2 2020, deal level accounted for 36.8% of 2019's total buyout activity and represented a decrease of 50.0% compared to Q2 2019's total.
- Through Q2 2020, deals valued at \$5.0 billion or greater accounted for an estimated 25.5% of total deal value compared to 20.9% in 2019 and 26.3% in 2018.¹ Deals valued between \$1.0 billion to \$4.99 billion represented 35.7% 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 49.2% through Q2 2020, while Information Technology deals accounted for the largest percentage by industry at 32.7% of total deal value.
- U.S. Entry multiples for all transaction sizes in Q2 2020 stood at 9.2x EBITDA, down significantly from Q1 2020's level (11.2x).³
 - Large cap purchase price multiples stood at 9.2x, down compared to 10.9x in Q1 2020.³
 - The weighted average purchase price multiple across all European transaction sizes averaged 12.6x EBITDA in Q2 2020, up significantly from 12.2x in Q1 2020. Purchase prices for transactions of €1.0 billion or more increased from 12.1x to 12.7x quarter-over-quarter.
 - The portion of average purchase prices financed by equity for all deals was 46.7% in Q2 2020, down from 52.7% in Q1 2020. However this remained above the five and ten-year average levels of 45.7% and 43.6%, respectively.³
- Globally, exit value totaled \$36.4 billion across 296 deals in Q2 2020 compared to \$70.0 billion across 453 deals in the prior quarter.¹

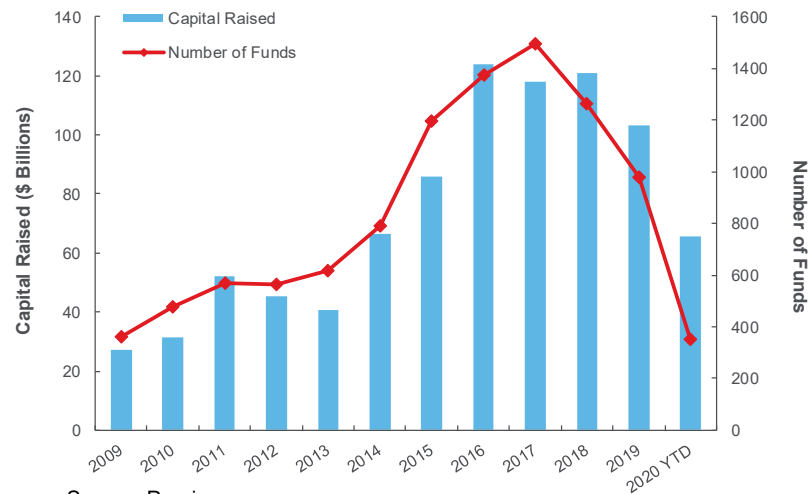
Opportunity

- Value-focused strategies
- Managers with expertise across business cycles



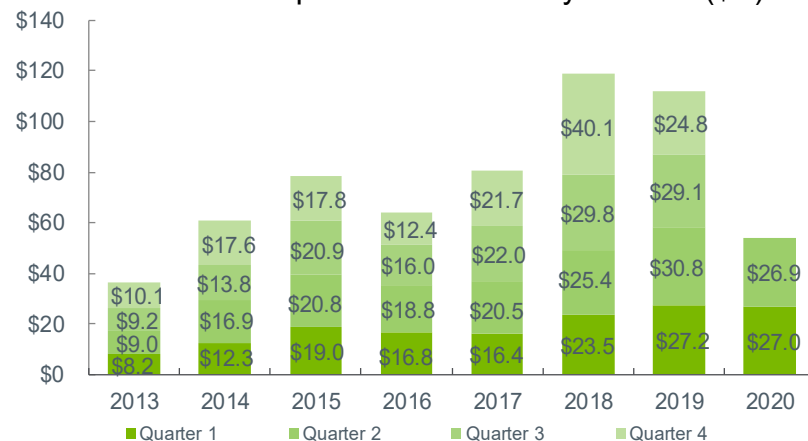
Venture Capital

Venture Capital Fundraising



Source: Preqin

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



Source: PwC/CB Insights Report

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Fundraising

- \$26.4 billion of capital was raised by 167 funds in Q2 2020, down from the prior quarter's total of \$39.4 billion raised by 186 managers. Although the average fund size dropped to \$175.0 million, this was well above the five-year quarterly average of \$115.0 million.¹
 - Q2 2020 fundraising was down by 8.3% on a capital basis compared to the five-year quarterly average of \$28.8 billion.
 - Lightspeed Venture Partners Select IV was the largest fund raised during the quarter, closing on \$1.8 billion.
- The average fund size raised during the quarter was approximately \$175.0 million. This represented a decrease compared to 1Q 2020's average of \$240.0 million.
- At the end of Q2 2020, there were an estimated 2,237 funds in market targeting \$193.4 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 \$315.3 billion at the end of 2Q 2020, up from Q1 2020's total of \$302.9 billion and 59.0% higher than the five-year average.¹

Activity

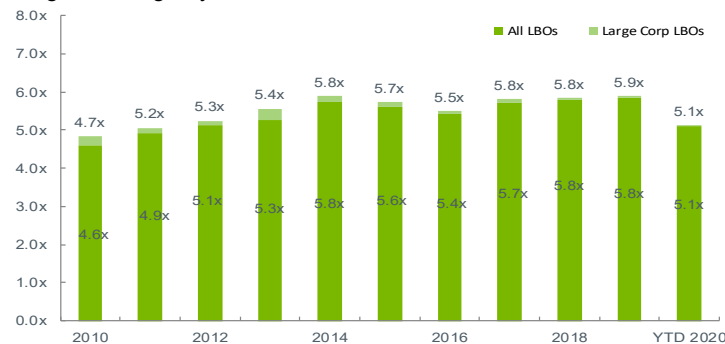
- During the quarter, 1,371 U.S. venture-backed transactions totaling \$26.9 billion were completed, which was a decrease on a capital basis over the prior quarter's total of \$27.0 billion across 1,336 deals. This was 16.3% higher than the five-year quarterly average of \$23.1 billion.⁷
 - In Q2 2020, there were 49 U.S.-based deals involving unicorn companies, representing roughly \$13.6 billion in deal value. This was up by number and value compared to Q1 2020, which saw 47 unicorn-related deals close at a deal value of \$9.0 billion. Q4 2018 continues to be the quarter in which deal value by U.S. unicorns was the highest, with 49 deals raising \$24.0 billion in value.⁸
- At the end of Q2 2020, median pre-money valuations increased across series except seed-stage rounds. Compared to Q1 2020, Series A transactions increased to a median pre-money valuation of \$31.7 million from \$29.9 million, Series B increased from \$97.0 million to \$105.0 million, Series C increased from \$166.1 million to \$317.5 million, and Series D+ increased from \$407.5 million to \$475.0 million. Seed median pre-money valuation decreased from \$9.0 million to \$8.6 million during the quarter.⁹
- Total U.S. venture-backed exit activity totaled approximately \$21.2 billion across 147 completed transactions in 2Q 2020, down from \$24.1 billion across 229 exits in Q1 2020. Exit value through Q2 2020 represented only 17.3% of 2019's total exit value.⁸
 - The number of U.S. venture-backed initial public offerings increased over 1Q 2020, with 16 IPOs completed in 2Q 2020. Only 109 exits occurred by acquisition, the lowest by number in over 10 years, and accounted for only \$7.5 billion in exit value. IPOs accounted for \$12.3 billion in value compared to \$5.8 billion in the prior quarter.⁸

Opportunity

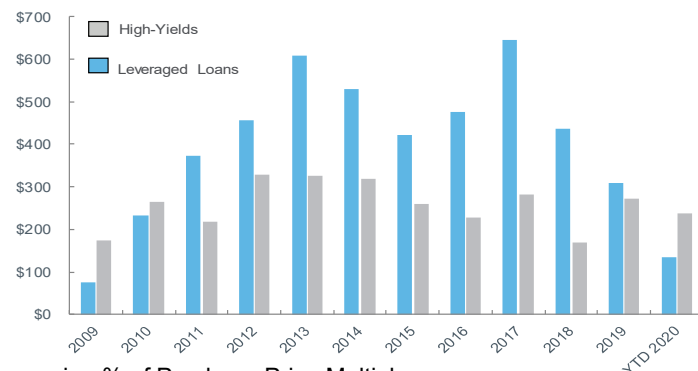
- Early stage continues to be attractive, although we continue to monitor valuations
- Smaller end of growth equity
- Technology sector

Leveraged Loans & Mezzanine

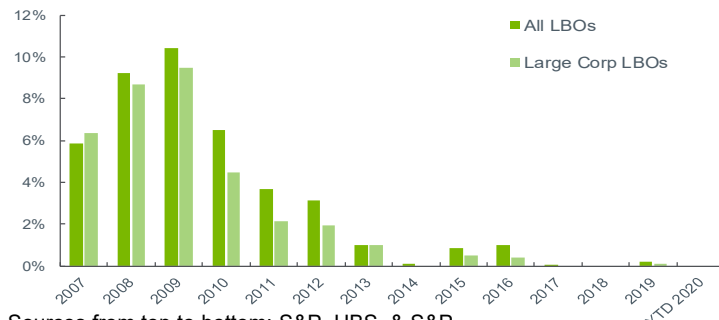
Average Leverage by Deal Size



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 \$34.1 billion in through Q2 2020 compared to \$118.3 billion in full-year 2019.²
- High-yield debt issuance totaled \$164.8 billion in 2Q 2020. 2020's YTD total is already 78.1% greater than 2019's total of \$132.2 billion issued in the same period.²
- Through 2Q 2020, leveraged loan mutual fund net flows ended with a net outflow of \$17.4 billion.²

Activity

- Leverage for all U.S. LBO transactions ended the quarter at 4.9x, down from Q1 2020's leverage of 5.3x. Leverage continues to be comprised almost entirely of senior debt. The average leverage level for large cap LBOs was 4.9x during the quarter, down from the 5.9x witnessed in 2019.³
- Q2 2020 institutional leveraged loan issuances totaled \$44.0 billion compared to Q1 2020's total of \$89.5 billion.²
- 67.6% of new leveraged loans were used to support M&A and growth activity in 2Q 2020, up from 65.8% in Q1 2020. This was above the five-year average of 64.7%.³
- European sponsored loan issuance decreased substantially to €6.0 during the second quarter compared to €20.8 during Q1 2020. This was a decrease of 60.9% compared to the five-year quarterly average level of €15.4 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

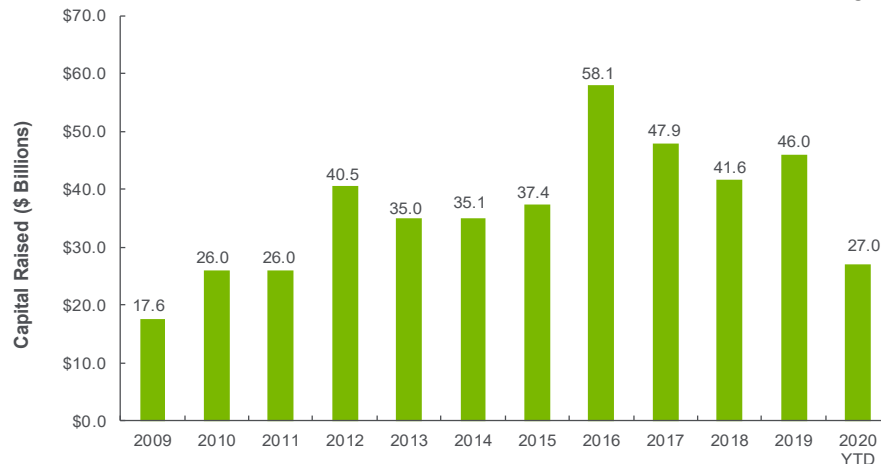
- Six funds closed on \$2.6 billion during the quarter. This was an increase from the prior quarter's total of \$2.3 billion raised by six funds and represented a decrease from the five-year quarterly average of \$4.9 billion.¹
- Estimated dry powder was \$48.6 billion at the end of Q2 2020, which was up 11.5% from year-end 2019.¹
- An estimated 85 funds are in market targeting \$38.7 billion of commitments. HPS Mezzanine Partners 2019 is the largest fund in market targeting commitments of \$8.0 billion.¹

Opportunity

- Funds with the capacity to scale for large sponsored deals

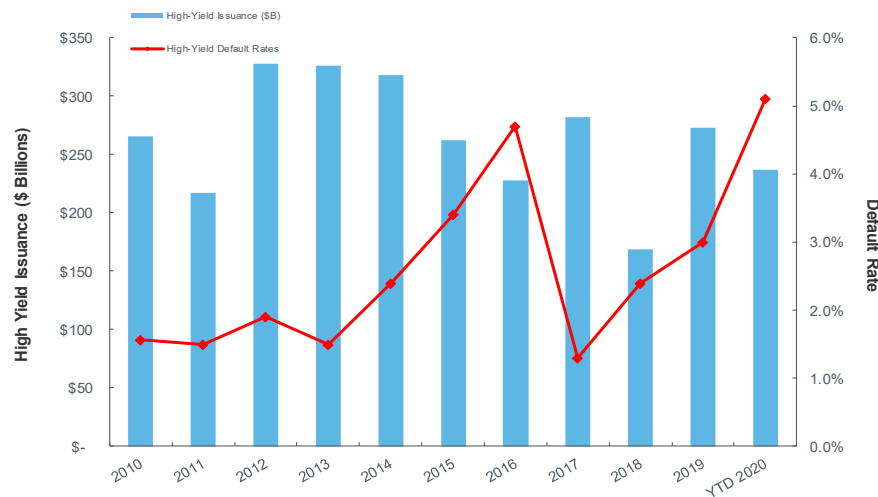
Distressed Private Markets

Distressed Debt, Turnaround, & Special Situations Fundraising



Source: Preqin

High-Yield Bond Volume vs Default Rates



Source: UBS & Fitch Ratings

Fundraising

- During the quarter, \$22.5 billion was raised by 18 funds, up 500% compared to the \$4.5 billion raised by 10 funds in Q1 2020.¹
 - Q1 2020's fundraising was 97.1% higher than the five-year quarterly average and represented only 48.9% of 2019's total.
 - Clearlake Capital Partners VI was the largest fund closed during the quarter, closing on \$7.0 billion.
- Dry powder was estimated at \$127.3 billion at the end of the quarter, up from year-end 2019's mark of \$117.2 billion. This was also up compared to year-end 2018 (\$118.3 billion) and remained above the five-year average level of \$109.2 billion.¹
- Roughly 139 funds were in the market at the end of 2Q 2020, seeking \$92.3 billion in capital commitments.¹
 - Distressed debt managers were targeting the most capital, seeking an aggregate \$68.1 billion, followed by special situation managers (\$21.6 billion).
 - Oaktree Opportunities Fund XI was the largest fund in market with a target fund size of \$15.0 billion.

Activity

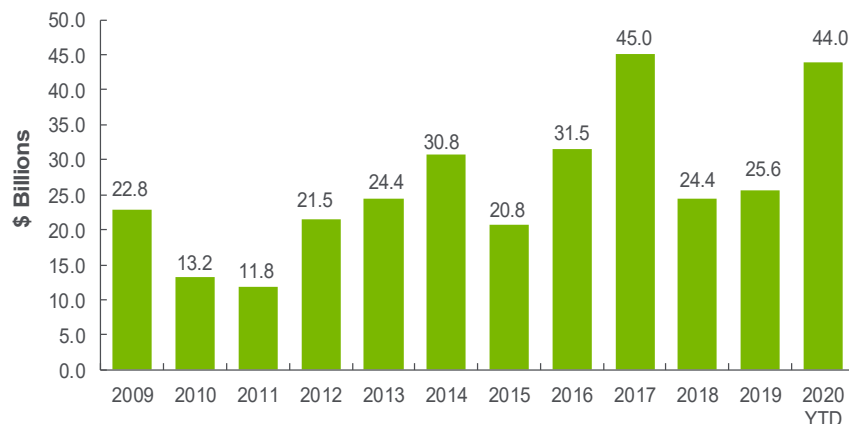
- The LTM U.S. high-yield default rate was 5.1% as of June 2020, which was up meaningfully from year-end 2019's rate of 3.0%. The default rate is expected to increase over the next several months of 2020.⁶
- The market dislocation caused by COVID-19 is expected to supply an abundance of distressed opportunities in the next several months.

Opportunity

- Funds capable of performing operational turnarounds
- Funds with the flexibility to invest globally
- Increased focus on distressed and turnaround opportunities during current downturn

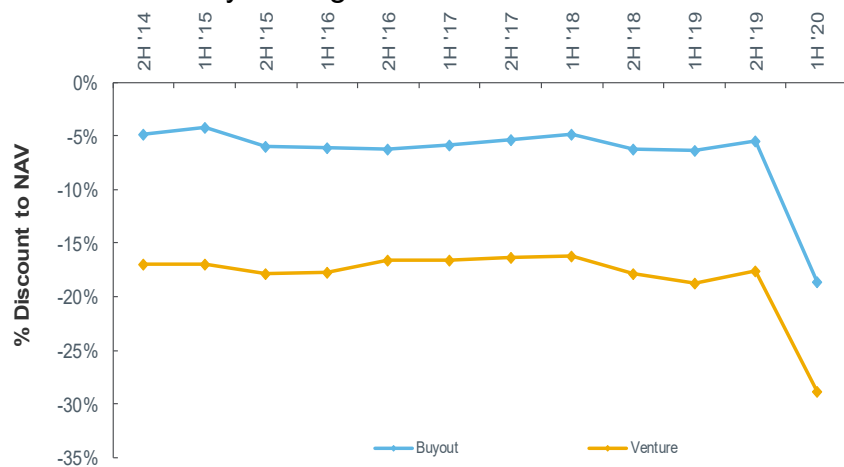
Secondaries

Secondary Fundraising



Source: Preqin

Secondary Pricing



Source: UBS

Fundraising

- 11 funds raised \$22.7 billion during the quarter, up from the \$21.3 billion by 16 funds in 1Q 2020. Capital raised through Q2 2020 represented 171.9% of 2019's total capital raised.¹
 - Ardian's ASF VIII was the largest fund raised during the quarter, closing on \$19.0 billion.
- Through 2Q 2020, there were an estimated 82 secondary funds in market, targeting approximately \$71.7 billion. The majority of secondary funds are targeting North American investments.
 - Four funds are currently in market targeting greater than \$5.0 billion in capital commitments. Together, these four funds account for \$29.8 billion of the \$71.7 billion of capital being raised.
 - Coller International Partners VIII is the largest fund being raised, seeking \$9.0 billion in commitments.¹

Activity

- Secondary market volume dropped significantly through Q2 2020 to \$20.2 billion, a decrease of 56.1% compared to the same period in 2019. This also represented only 23.7% of 2019's total.¹²
- 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.
 - Middle market buyouts are expected to remain as the primary investment strategy in demand for buyers, with continued interest in growth and mega fund strategies. North America and Western Europe accounted for the vast majority of assets purchased through Q2 2020, representing 60.6% and 32.0%, respectively.¹²
- Due to the effects of Covid-19, the average discount rate for all private equity sectors finished Q2 2020 at 20.8%, down from 18.0% at the end of Q1 2020. The average buyout pricing discount ended at 18.6%, while venture ended at a discount of 28.8%. The average buyout pricing discount for Q2 was down from Q1 2020's 15.9% discount, while the venture discount was down from 25.7%.²
- Transaction fund leverage and deferred payment structures continue to be prevalent and are used as a means to improve pricing and deal returns in an increasingly competitive environment.²
- Pricing is expected to remain attractive for buyers given the effects of COVID on Q1 2020 and Q2 2020 NAVS. While steep discounts are expected to offer downside protection for buyers, discounts for assets of experienced GPs will be impacted less as buyers have greater confidence in their ability to work through the impacts of COVID.²
- GP-led transactions continue to assume a large share of transaction volume and activity, accounting for 27% of volume through Q2 2020.¹²

Opportunity

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

Infrastructure

Global Infrastructure Fundraising



Source: Preqin

Number of Deals Completed



Source: Preqin

Fundraising

- \$13.9 billion of capital was raised by 28 funds in 2Q 2020 compared to \$38.7 billion of capital raised by 23 partnerships in 1Q 2020. This represented 12.9% of capital raised in 2019.¹
 - Blackrock Global Energy & Power Infrastructure Fund III was the largest fund raised during the quarter, closing on \$5.1 billion.¹
- As of the end of 2Q 2020, there were an estimated 238 funds in the market seeking roughly \$184.4 billion.¹
 - ISQ Global Infrastructure Fund III was the largest fund in market and was seeking commitments of \$12.0 billion.
- At the end of the quarter, dry powder stood at \$219.1 billion, slightly lower than the amounts seen at the end of Q1 2020 (\$220.7 billion).¹
- Concerns surrounding the relative availability and pricing of assets remain. Fundraising continues to be very competitive given the number of funds and aggregate target level of funds in market. Investor appetite for the asset class persists despite the record levels of dry powder and increased investment activity from strategic and corporate buyers as well as institutional investors.

Activity

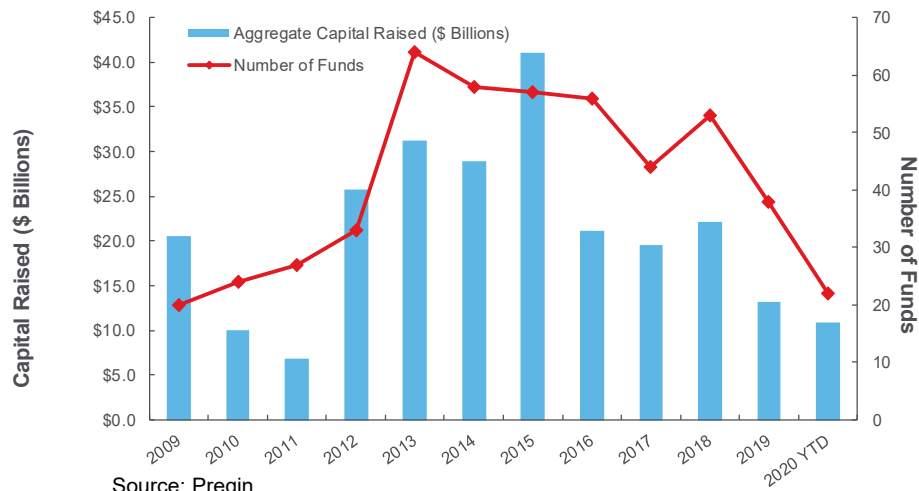
- Infrastructure managers completed 313 deals for an aggregate deal value of \$47.0 billion in Q2 2020 compared to 644 deals totaling \$80.8 billion in Q1 2020.¹
 - By region, Europe saw the largest amount of deals completed, with 45.0% of deals being invested in the region, followed by North America at 24.2%. Asia amassed 10.7% of activity during the quarter.
 - Renewable energy was the dominant industry during the quarter with 59.3% of transactions, followed by the telecommunication sector, which accounted for 10.6% of deals. Utilities accounted for 7.3% of deals during the second quarter.¹

Opportunity

- Avoid funds with pre-specified assets due to lag in and uncertainty around valuation impact
- Blind-pool funds may be better positioned to take advantage of the market dislocation across core and core+ infrastructure, however careful review of such strategies is required
- Greenfield social / PPP infrastructure will likely continue to be less competitive and offer a premium for managers willing to take on construction risk

Natural Resources

Natural Resources Fundraising



Fundraising

- During Q2 2020, two funds closed on \$0.3 billion compared to six funds totaling \$4.6 billion in Q1 2020.¹ The represented 2.3% of 2019's total.
 - Warwick Royalty & Mineral Fund II was the largest fund raised during the quarter, securing commitments of €274 million.
- At the end of the first quarter, there were roughly 107 funds in the market targeting an estimated \$48.9 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 \$55.7 billion at the end of 2Q 2020, which was 4.1% higher than 4Q 2019's level of \$53.5 billion and down from the five-year average level by 12.7%.¹

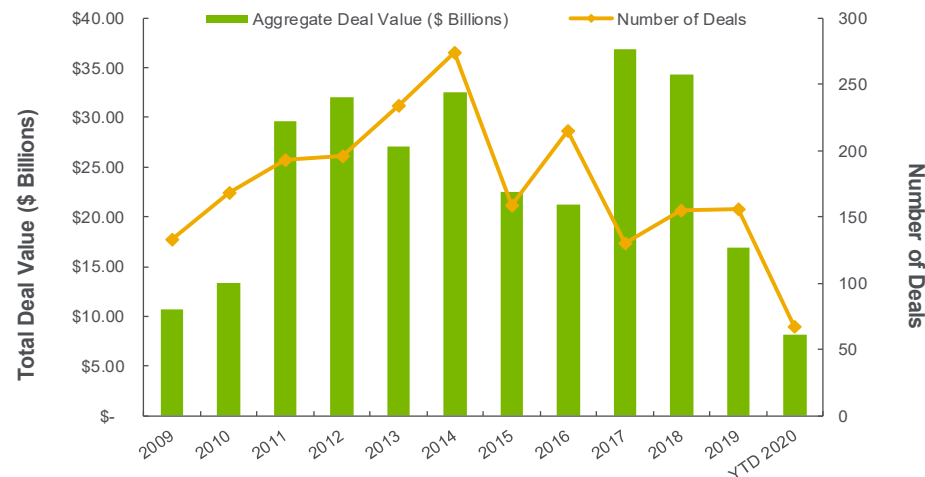
Activity

- Energy and utilities industry managers completed 28 deals totaling \$2.8 billion in 1Q 2020, compared to \$5.3 billion across 39 deals in Q1 2020.¹
- Crude oil prices increased during the quarter.
 - WTI crude oil prices increased 31.2% during the quarter to \$38.31 per bbl. However this was still a decrease of 36.0% compared to year-end 2019.¹¹
 - Brent crude oil prices ended the quarter at \$40.27/bbl, up 25.8% compared to the prior quarter, but down 40.2% from 4Q 2019.¹¹
- Natural gas prices (Henry Hub) finished Q2 2020 at \$1.63 per MMBtu, which was down 8.9% from 1Q 2020 and down 26.6% from 4Q 2019.¹¹
- A total of 263 crude oil and natural gas rotary rigs were in operation in the U.S. at the end of the quarter. This was down by 60.3% from the prior quarter and down 72.7% year-over-year.¹⁵
 - Crude oil rigs represented 70.3% of the total rigs in operation. 68.1% of the 185 active oil rigs were in the Permian basin.
 - 43.4% and 36.8% of natural gas rigs at the end of Q2 2020 were operating in the Haynesville and Marcellus basins, respectively.
- The price of iron ore (Tianjin Port) ended the quarter at \$103.30 per dry metric ton, up from \$88.99 at the end of Q1 2020.¹²

Opportunity

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

Energy & Utilities Deal Activity



Notes

1. Preqin
2. UBS
3. Standard & Poor's
4. Aon Hewitt Investment Consulting
5. Moody's
6. Fitch Ratings
7. PriceWaterhouseCoopers/National Venture Capital Association MoneyTree Report
8. PitchBook/National Venture Capital Association Venture Monitor
9. Cooley Venture Financing Report
10. U.S. Energy Information Administration
11. Bloomberg
12. Setter Capital Volume Report: Secondary Market FY 2019
13. KPMG and CB Insights
14. Baker Hughes

Notes:

FY: Fiscal year ended 12/31

YTD: Year to date

YE: Year end

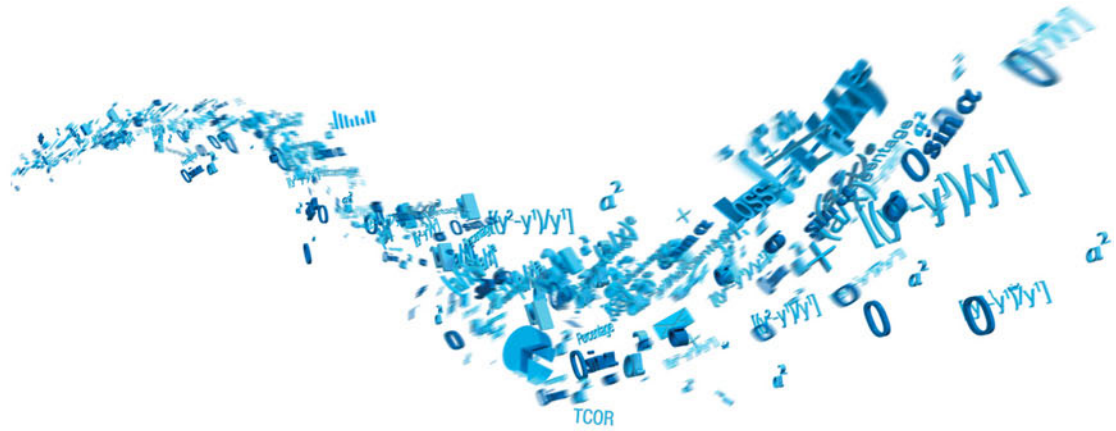
LTM: Last twelve months (aka trailing twelve months or TTM)

PPM: Purchase Price Multiples: Total Purchase Price / EBITDA

/bbl: Price per barrel

MMBtu: Price per million British thermal units

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Appendix B:

Real Estate Market Update

2Q 2020

United States Real Estate Market Update (2Q20)

General

- On March 13, President Trump declared a national emergency. National, state, and local governments across the world implemented stay-at-home orders, which caused a near complete halt of the world economy. governments have dramatically expanded expenditures in order to protect people and businesses from large-scale disruption. In the 2nd quarter, equity markets bounced back from the March rout, and the S&P 500 produced a gross total return of 20.0%. The MSCI US REIT index rebounded and produced a return of 10.7% but remains down -20.0%.
- The U.S. entered a recession in February; GDP grew at an annualized rate of -32.9% in the 2nd quarter. Initial jobless claims reached 10 million in March alone, while the unemployment rate peaked in April at 14.7% but declined to 11.1% by quarter end. The Federal Reserve has acted aggressively via quantitative easing and rate cuts, thus far financial markets have stabilized. The CARES Act provided \$1.5 trillion of stimulus to the economy. The International Monetary Fund has projected that the world economy will shrink by 4.9% in 2020.

Commercial Real Estate

- Shelter in place orders and social distancing have restricted the ability to complete due diligence and acquire assets. Transaction volume has declined by nearly 50% over the last 6 months. Transactions have primarily occurred in the apartment and industrial sectors.
- Private real estate market carrying values contracted marginally over the quarter. Transaction cap rates (5.5%) expanded 12 bps during the quarter. Current valuation cap rates declined due to a reduction in cash flows, apartments (-12 bps), office (-2 bps), and retail (-77 bps). A lack of transactions has limited evidence to revalue real estate.
- NOI growth has substantially diverged between property sector due to the impacts of COVID-19. Retail NOI contracted substantially (-3273 bps) as rent collections declined and retailers were shutdown. The retail sector has seen rent collections of 30-50% vs. more than 85% in the other major sectors. Public market signals have been divergent by property type.
- In the second quarter of 2020, \$44 bn of aggregate capital was raised by real estate funds. There continues to be substantial dry powder, ~\$322 billion, seeking exposure to private real estate.
- 10-year treasury bond yields remained approximately flat 0.7% during the quarter.

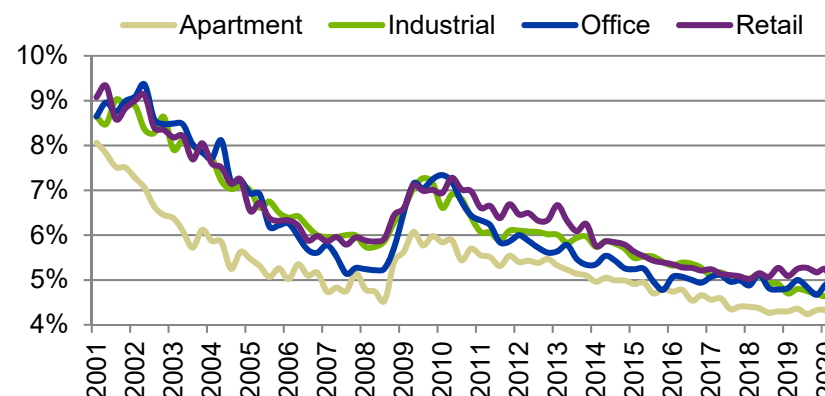
Sources: Bureau of Economic Analysis, U.S. Census Bureau, St. Louis Fed, NCREIF, Real Capital Analytics, Bloomberg LP., Prequin

Aon

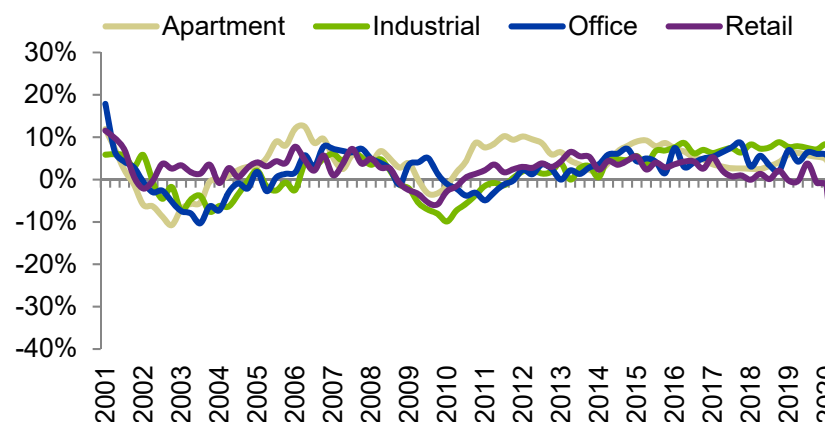
Proprietary & Confidential

Investment advice and consulting services provided by Aon Investments USA Inc.

Current Value Cap Rates by Property Type



4 Qtr Rolling NOI Growth



United States Property Matrix (2Q20)



INDUSTRIAL	MULTIFAMILY
<ul style="list-style-type: none"> In 2Q20, industrial properties were the highest returning sector at 1.0% and outperformed the NPI by 200 bps. Transaction volumes fell to \$12.3 billion in the second quarter of the year, a 40.0% year-over-year decrease. Individual asset sales were down 41.8% year-over-year, while portfolio purchases turned in a year-over-year volume decrease of 28.0%. The portfolio transaction volume continued to regress to the mean growth rate in 2Q20 following a second half of 2019 that was full of astronomical growth. The industrial sector turned in NOI growth of 5.6% over the past year, significantly decreasing from the prior periods TTM growth of 8.3% in 1Q20. Market rent growth is expected to decelerate compared to its recent pace, but still remains very strong. Vacancy increased by 26 bps year-over-year to 3.4%, still remaining close to all-time historic lows. E-commerce continues to drive demand. Industrial cap rates compressed approximately 6 bps from a year ago, to 4.74%. Industrial fundamentals still top all property sectors. 	<ul style="list-style-type: none"> The apartment sector delivered a -0.6% return during the quarter, outperforming the NPI by 35 bps. Transaction volume in the second quarter of 2020 fell to \$15.0 billion, a decrease of 68.0% year-over-year. This volume continues to make multifamily the most actively traded sector for the twelfth straight quarter. Cap rates decreased to 4.20%, compressing 16 bps year-over-year. Multifamily cap rates have falling to their lowest in years. The multifamily sector has seen increasing vacancy rates due to the pandemic but has still held steady relatively speaking, vacancy has increased 175 bps from a year ago. 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 -0.5% in 2Q20, 50 bps above the NPI return over the period. Transaction volumes decreased by 70.0% year-over-year in Q2. Annual sales volumes equaled \$11.6 billion for the quarter. Single asset transactions accounted for 87% of volume. Occupancy growth within the office sector has slowed, decreasing by 44 bps year-over-year. Office continues to be the highest vacancy property type at close to 10.2%. NOI growth of 2.3% in the last year is a negative for the sector as this is a decrease of 350 bps from 1Q20. Due to a number of work from home orders put in place at the end of the first quarter that have remained in place, NOI growth is expected to continue trending downward. Office cap rates compressed from a year ago to approximately 4.89% in the second quarter. Office-using job growth was hit significantly hard in the first quarter and continued into the second. Many work from home policies continued through the second quarter. Substantially slowing overall office growth. 	<ul style="list-style-type: none"> As of 2Q20, the retail sector delivered a quarterly return of -3.9%, performing 285 bps below the NPI. Transaction volumes totaled \$5.0 billion in the second quarter, falling 71.0% year-over-year. Single asset transactions accounted for just over 91% of all sales volume. Cap rates have compressed approximately 80 bps within the sector over the last year, to 4.45%. NOI growth significantly decreased, -32.7% over the last year. This is a 31.2% decrease from last quarter. Retail is expected to continue to suffer from the shift towards e-commerce and the recent shelter in place orders. Retail vacancy rates increased 114 bps over the past year to 7.9%. 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 that has had a significant negative impact on this sector.

Global Real Estate Market Update (2Q20)

- Global investment activity during the second quarter of 2020 was significantly down relative to the same period in 2019 and reached the worst quarterly level since 2Q 2009. Although transaction volumes fell during 2Q 2020, the New York, Los Angeles, San Francisco metro markets continued to witness the greatest transaction volume.
- Rising COVID cases across the world caused lockdowns across major economies resulting in a short but deep recession and affecting all sectors of the real estate industry. Uncertainty about the state of the economy threw some doubts on the future needs for certain property types.

Global Total Commercial Real Estate Volume - 2019 - 2020

\$ US Billions	Q2 2020	Q2 2019	% Change		H1 2020	H1 2019	% Change
			Q2 20 - Q2 19				H1 20-H1 19
Americas	40	124	-68%		162	224	-28%
EMEA	55	80	-31%		132	146	-10%
Asia Pacific	211	271	-22%		331	460	-28%
Total	306	474	-36%		624	830	-25%

Source: Real Capital Analytics, Inc., Q2' 20

- Investment activity in the Americas witnessed a sharp decline and fell by 68% year-over-year. COVID cases continued to increase in the US, putting plans of fully reopening the economy on hold. In the US, transaction volume decreased by 70% compared to the same quarter last year.
- In the Asia Pacific region, volumes declined but transaction activity was mixed across the region. China witnessed a strong investment quarter recovering from a severe plunge over the previous period. Japan continued to be the regions' largest investment market. Conversely, transactions fell in both Australia and Singapore.
- Although investment activity dropped in the EMEA region, Europe appeared to be more in control of the outbreak. Germany witnessed a 15% growth in the quarter as several apartment megadeals closed. In addition, Denmark saw a substantial increase of 74% in sales compared to the same quarter last year. On the other hand, both France and Netherlands recorded declines in transactions.
- All sectors were impacted by the spread of the pandemic but the hotel and retail sectors were affected the most
- In the office sector, global leasing activity declined by 59% year-over-year and vacancy rates begun to increase in all regions. The declines represent an uncertainty about future office space needs. The US witnessed a 65% decline in leasing activity. Across the main European markets, demand for office space is expected to fall by 40%. In the APAC region, net absorption is anticipated to decrease by 40% to 50%.
- The retail sector continued to suffer globally as the shutdowns and social distancing measures of the COVID-19 outbreak posed challenges for operators. Vacancy rates increased as rents and NOI continued to compress. Retailers that were able to adapt their strategy to the digital world witnessed a recovery in sales.
- Despite the multifamily market recording a significant decrease in investments globally, the sector remains the most liquid in commercial real estate highlighting its attractiveness. In the U.S., rents fell by approximately 1% and demands fell. However, in Europe effective rent rates were stable. On the other hand, the APAC region recorded a stronger sales performance as cities like Beijing and Shanghai attracted home buyers.
- While the industrial market was affected by short-term headwinds from the recession as global vacancy recorded a slight uptick of 8.2%, the sector remains resilient. Despite the slowdown in the construction of industrial properties at the beginning of the year, new development resumed during the second quarter.

Global Outlook - GDP (Real) Growth % pa, 2020-2022

	2020	2021	2022
Global	-3.9	5.1	3.5
Asia Pacific	-0.7	4.8	4.6
Australia	-3.9	3.0	3.2
China	2.0	8.0	5.5
India	-5.5	7.2	
Japan	-5.3	2.5	1.3
North America	-5.4	3.8	2.8
US	-5.0	3.7	2.8
MENA*	-4.1	3.1	3.3
European Union	-8.0	5.6	2.6
France	-10.0	7.0	2.7
Germany	-6.0	5.0	2.4
UK	-9.9	6.4	2.8

*Middle East North Africa

Source: Bloomberg

REPORT

Meketa Capital Markets Outlook & Risk Metrics

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Capital Markets Outlook & Risk Metrics

As of September 30, 2020

Capital Markets Outlook

Takeaways

- September diverged from the prior five months as equity markets across the globe produced moderately negative returns. Additionally, safe haven assets (e.g., US Treasury bonds) were roughly flat.
- Despite negative returns in September, risk-oriented markets have rebounded significantly since the March lows and Q3 was another strong period in aggregate. However, there has been a high degree of divergence among equity regions/styles/capitalizations, and this is exemplified at the extremes with US large cap growth stocks outperforming US small cap value stocks by over 45% thus far in 2020.
- As expected (considering recent Federal Reserve announcements), the entire US Treasury yield curve was effectively unchanged from the end of August to the end of September.
- Conversely, real yields in the US ticked up during September, with the most significant movements occurring at the short end of the curve. The entire real yield curve does, however, remain in negative territory.
- Recent economic data has shown a divergence among regions and metrics. Certain areas (e.g., US housing, China GDP, etc.) have been positive whereas other segments (e.g., US payrolls) are still indicative of broad challenges. Many global authorities appear to be in a period of observation as they attempt to gauge how the economy does, or does not, recover in the short term.

Capital Markets Outlook

Takeaways

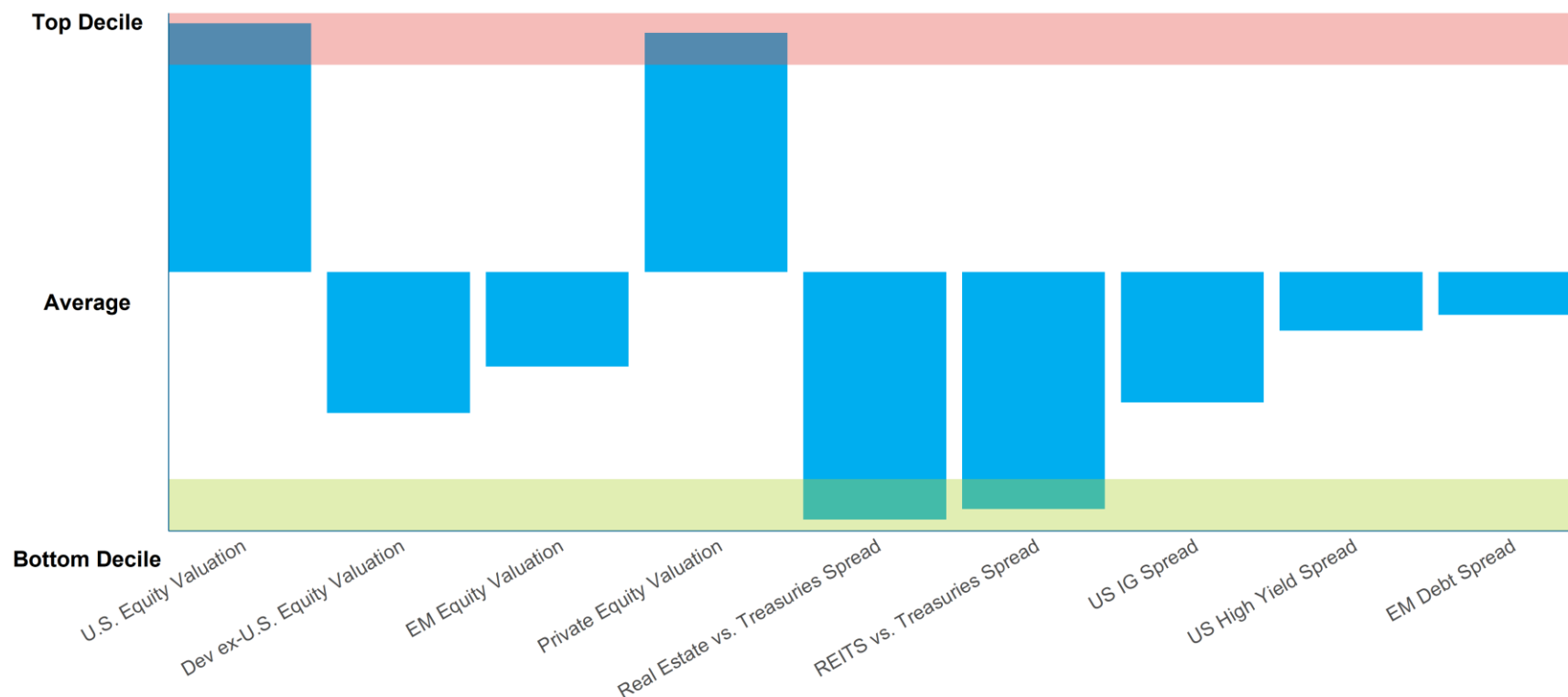
- Local/regional US economies are in various stages of reopening, and the timeline for returning to normal levels of economic activity remains uncertain. Relatedly, the aggregate impacts to global GDP due to the COVID-19 pandemic are still unknown. Returning to pre-COVID levels of economic activity is not expected to occur until 2021 at the earliest.
- Implied equity market volatility¹ remained relatively stable throughout September at around 25-30. Conversely, our Systemic Risk measure increased during the month, while implied fixed income volatility² declined during September.
- While valuations for several risk-based asset classes appear neutral-to-attractive at first glance, it is important to note that the full impact on corporate earnings and solvencies remains unknown. The path that the global economy will take moving forward is uncertain.
- The Market Sentiment Indicator³ remained **green** (i.e., positive) at month-end.

¹ As measured by VIX Index.

² As measured by MOVE Index.

³ See Appendix for the rationale for selection and calculation methodology used for the risk metrics.

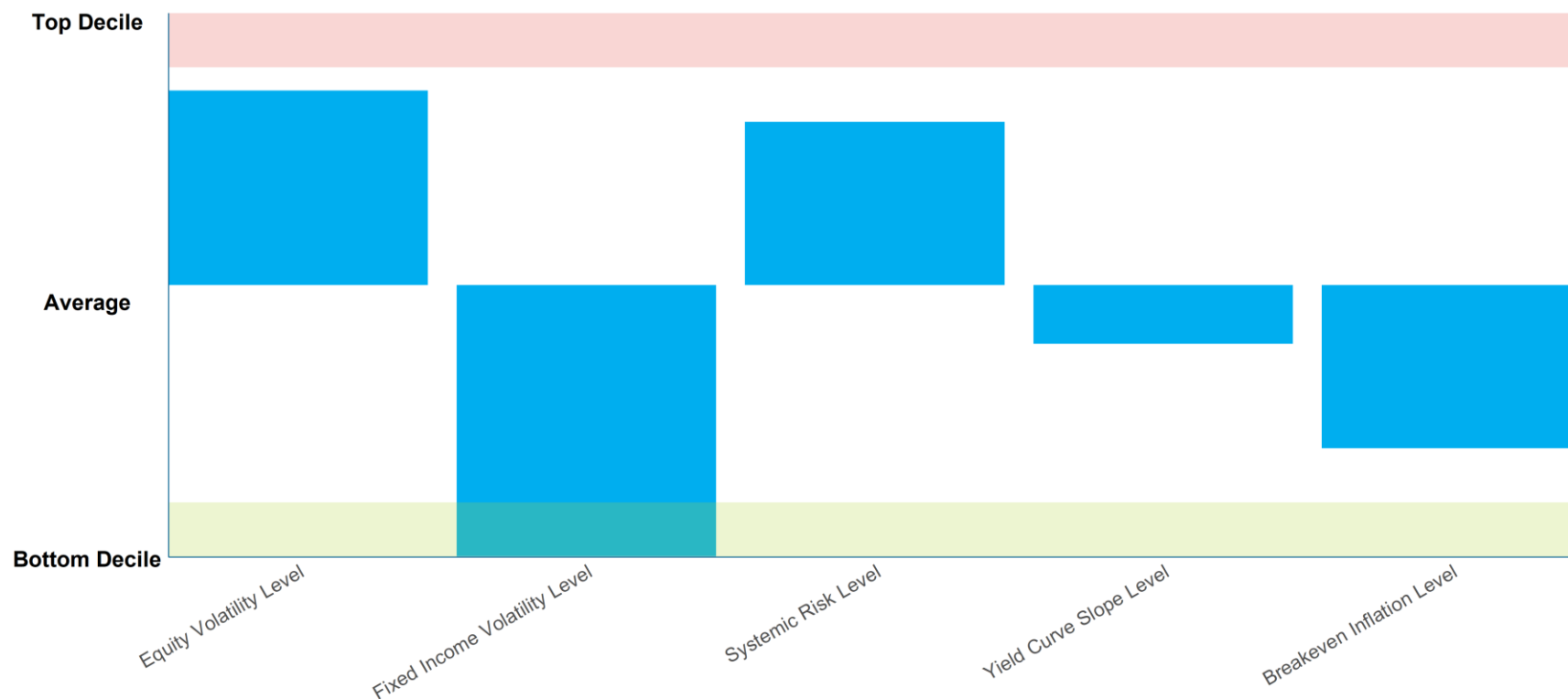
Risk Overview/Dashboard (1) (As of September 30, 2020)¹



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

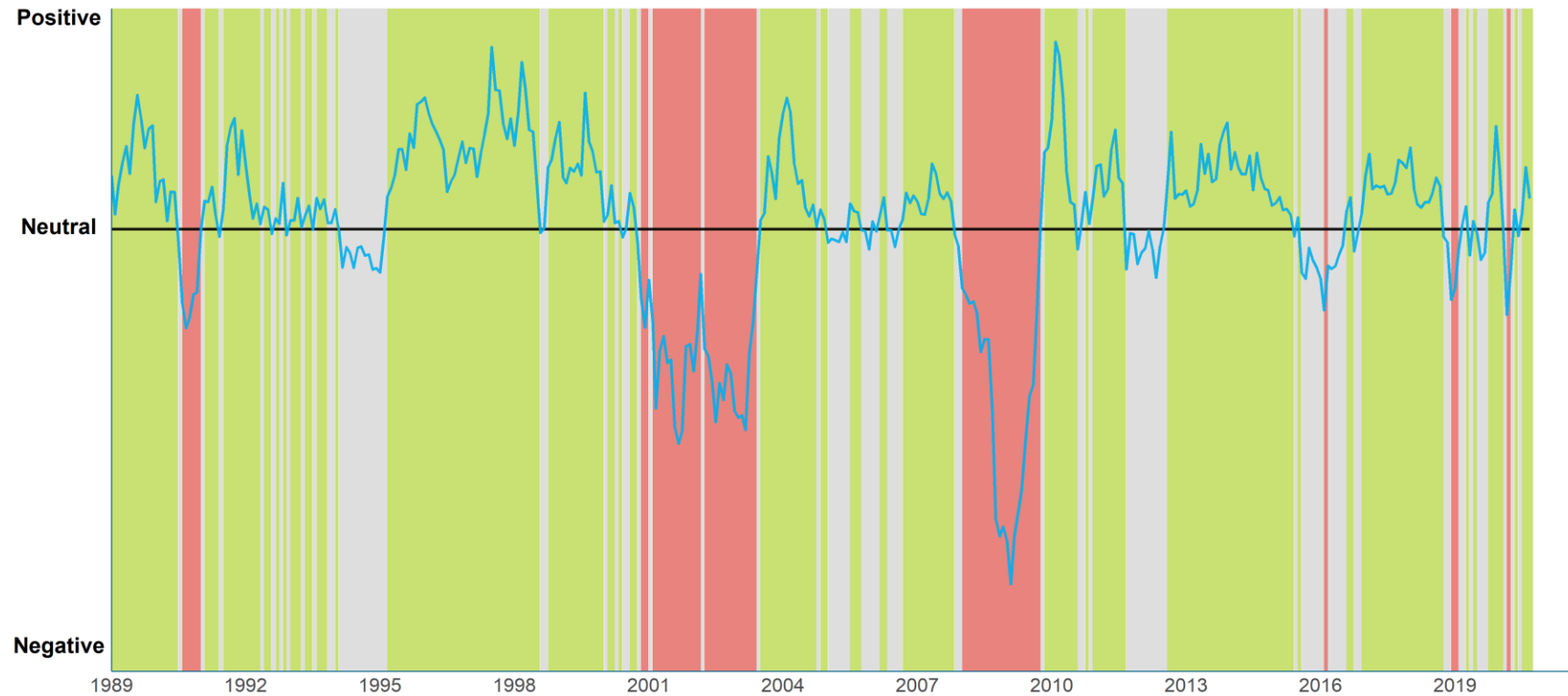
¹ With the exception of Private Equity Valuation, that is YTD as of December 31, 2019.

Risk Overview/Dashboard (2) (As of September 30, 2020)

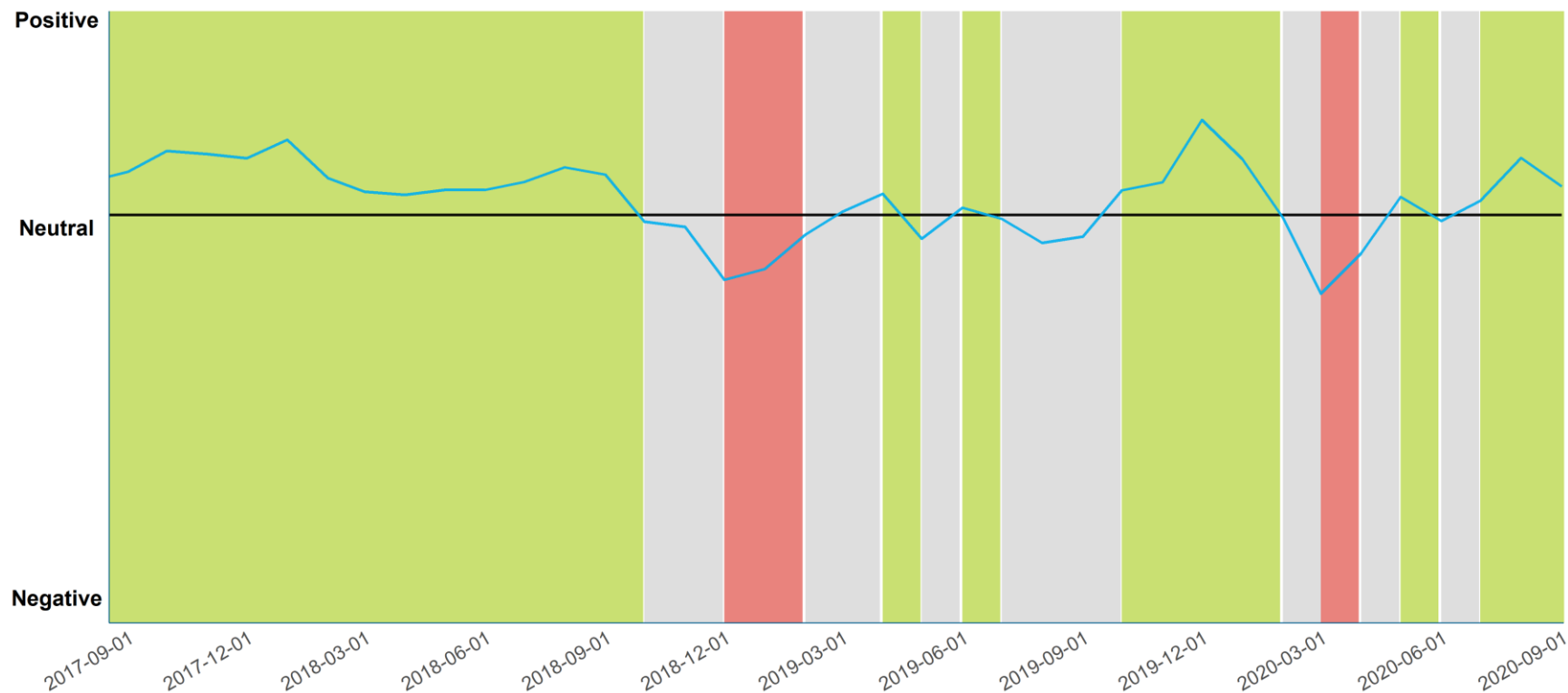


- Dashboard (2) shows how the current level of each indicator compares to its respective history.

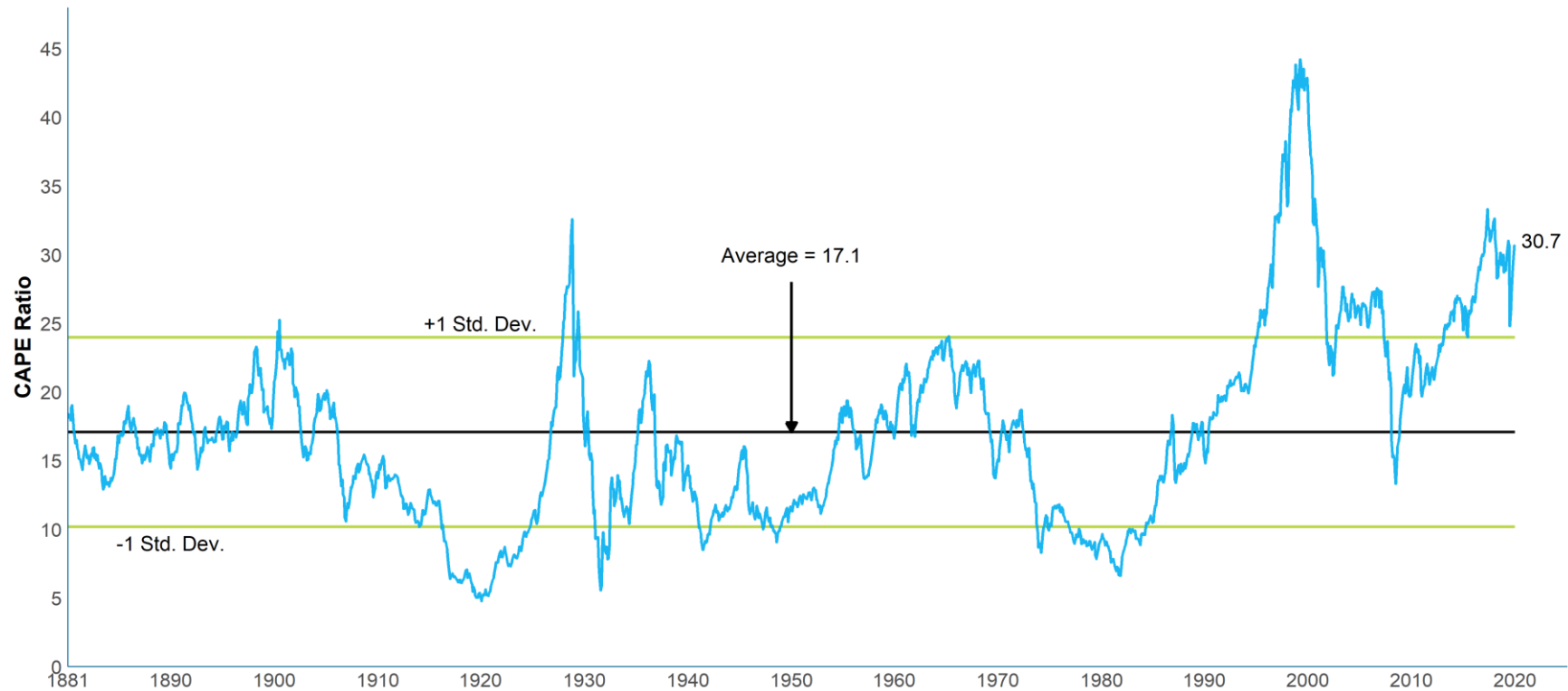
Market Sentiment Indicator (All History) (As of September 30, 2020)



Market Sentiment Indicator (Last Three Years)
(As of September 30, 2020)



US Equity Cyclically Adjusted P/E¹ (As of September 30, 2020)



- 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, 2020)



- 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.

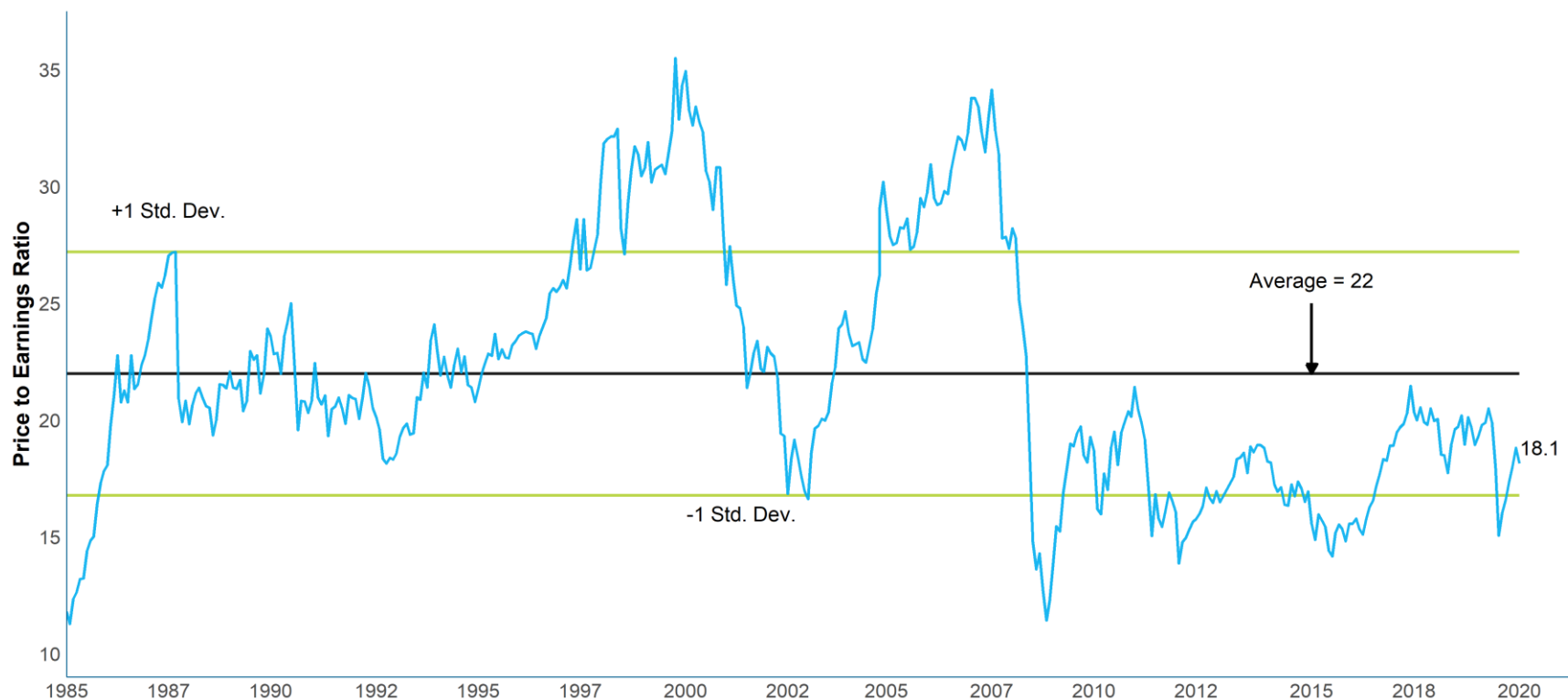
Growth P/E vs. Value P/E¹ (As of September 30, 2020)



- 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.

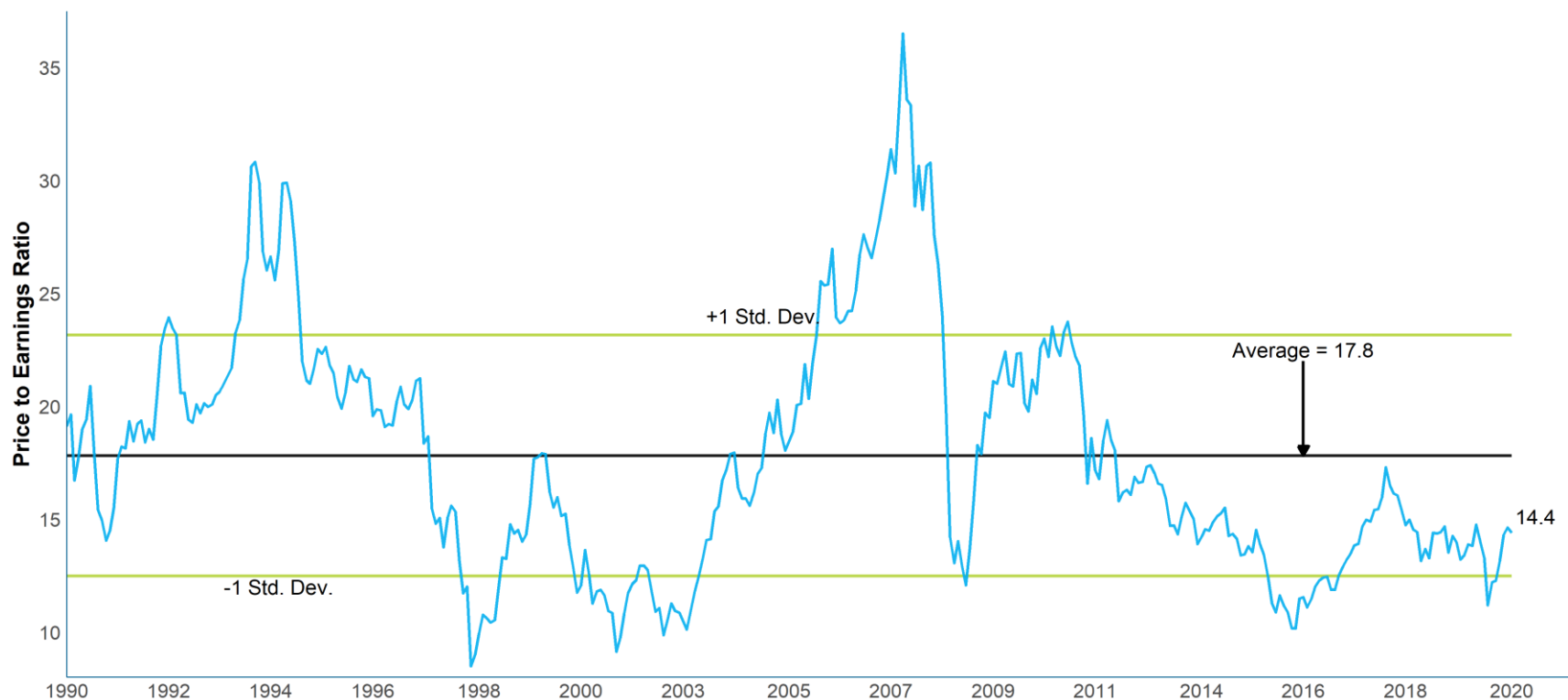
Developed International Equity Cyclically Adjusted P/E¹ (As of September 30, 2020)



- 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 ex Japan Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years.

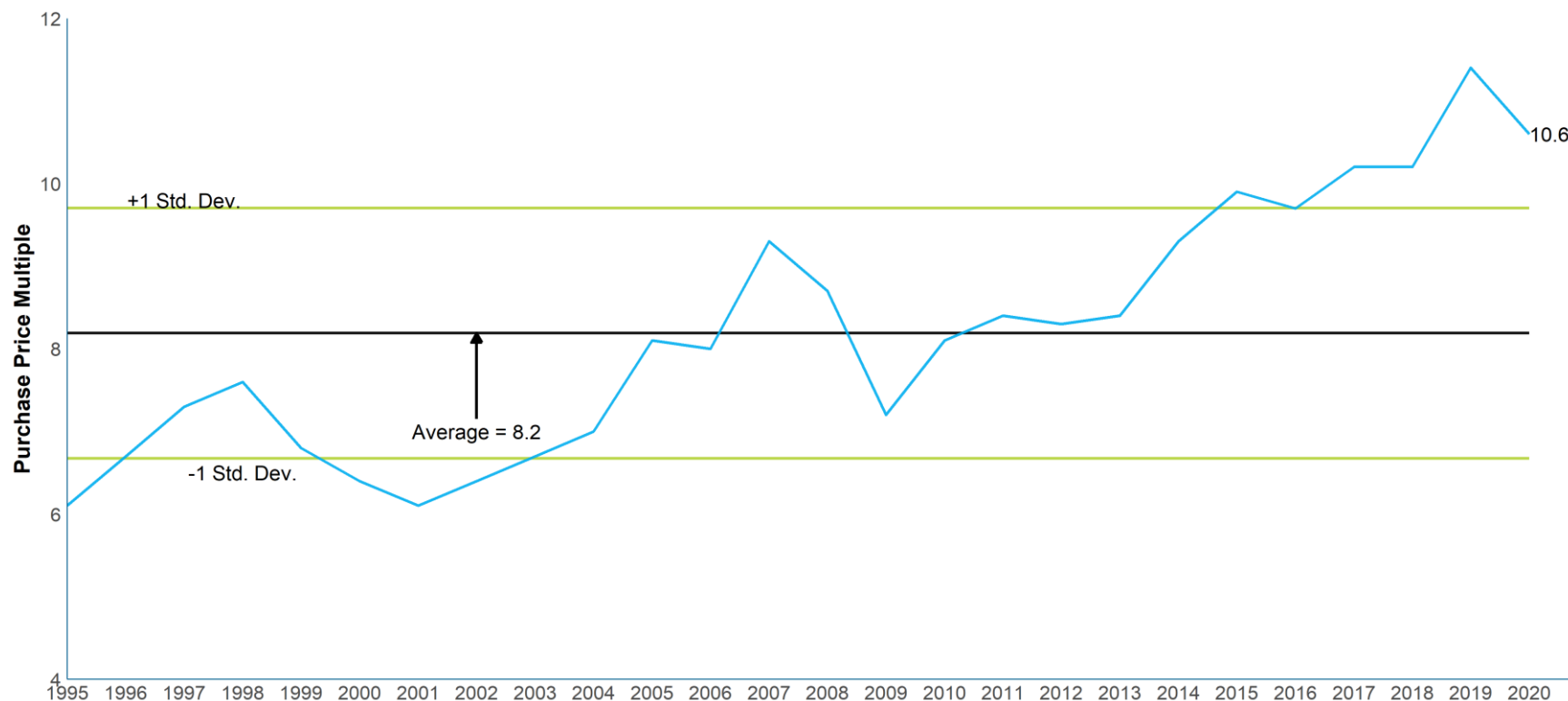
Emerging Market Equity Cyclically Adjusted P/E¹ (As of September 30, 2020)



- 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 29, 2020)²

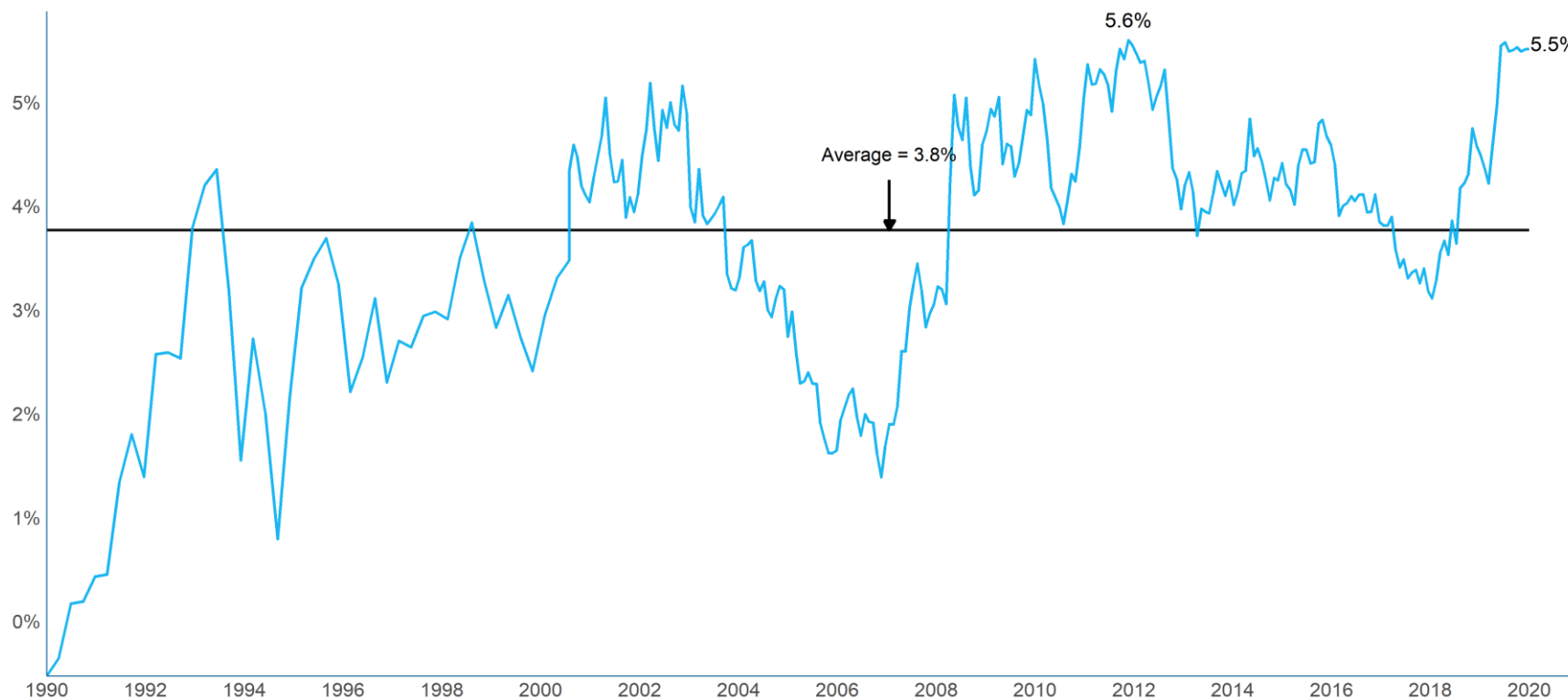


- This chart details one valuation metric for the private equity market. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

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

² Annual figures, except for 2020 (YTD).

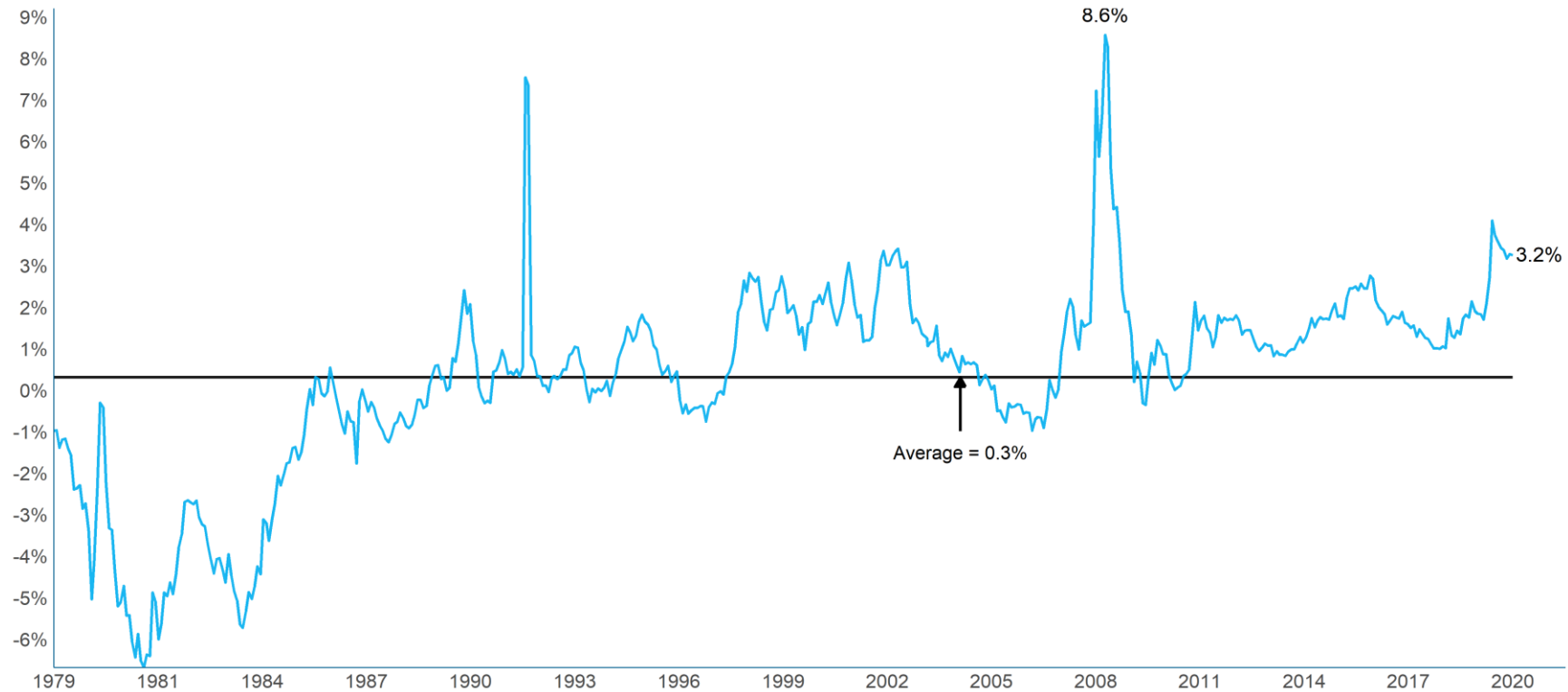
Core Real Estate Spread vs. Ten-Year Treasury¹ (As of September 30, 2020)



- 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.

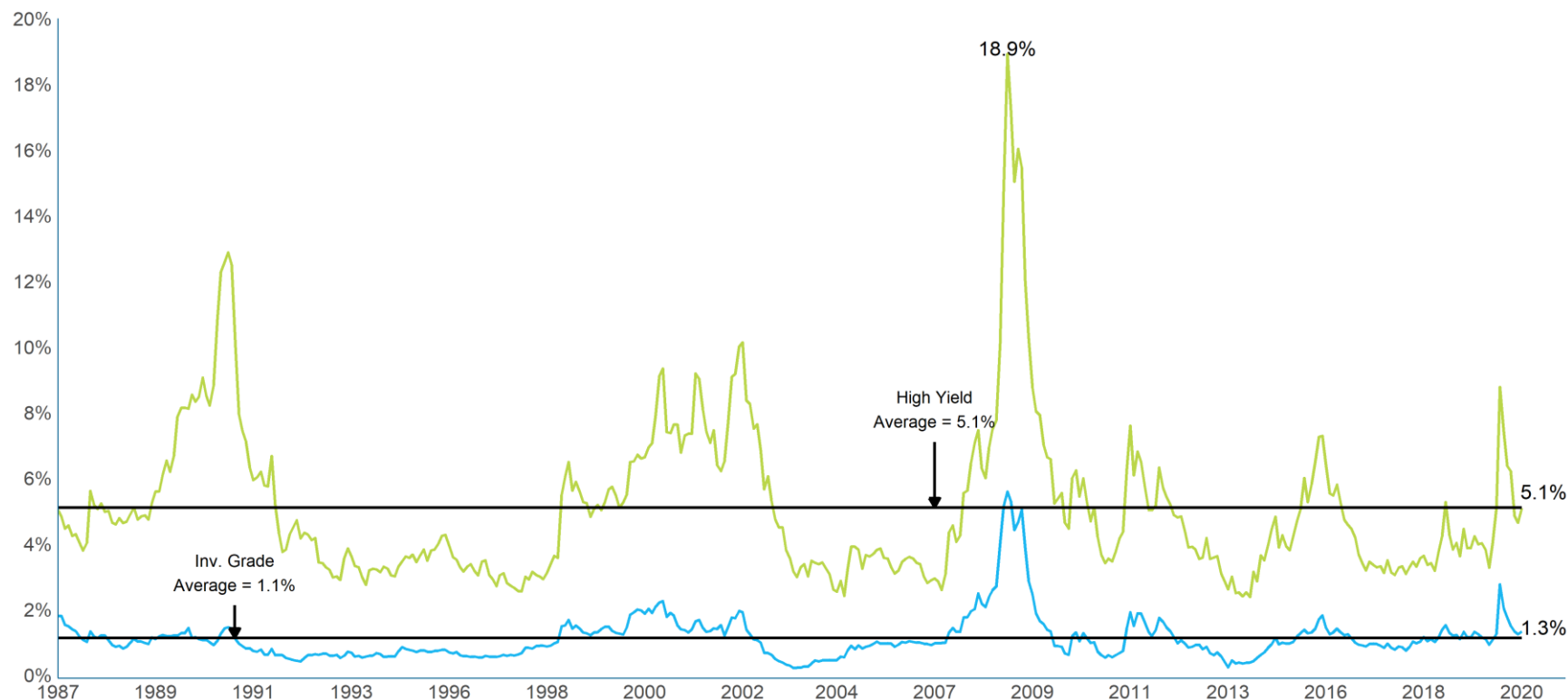
REITs Dividend Yield Spread vs. Ten-Year Treasury¹ (As of September 30, 2020)



- 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, 2020)



- 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.

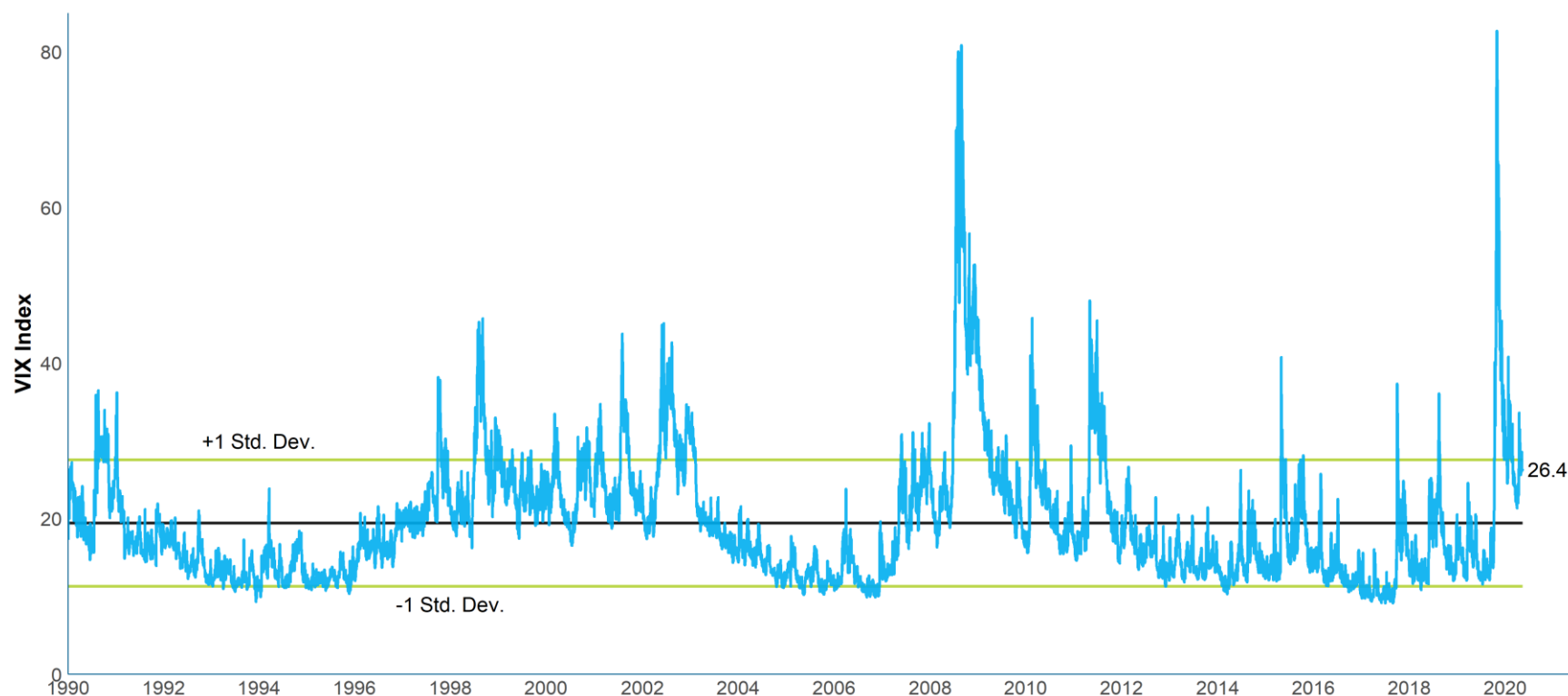
Emerging Market Debt Spreads¹ (As of September 30, 2020)



- 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.

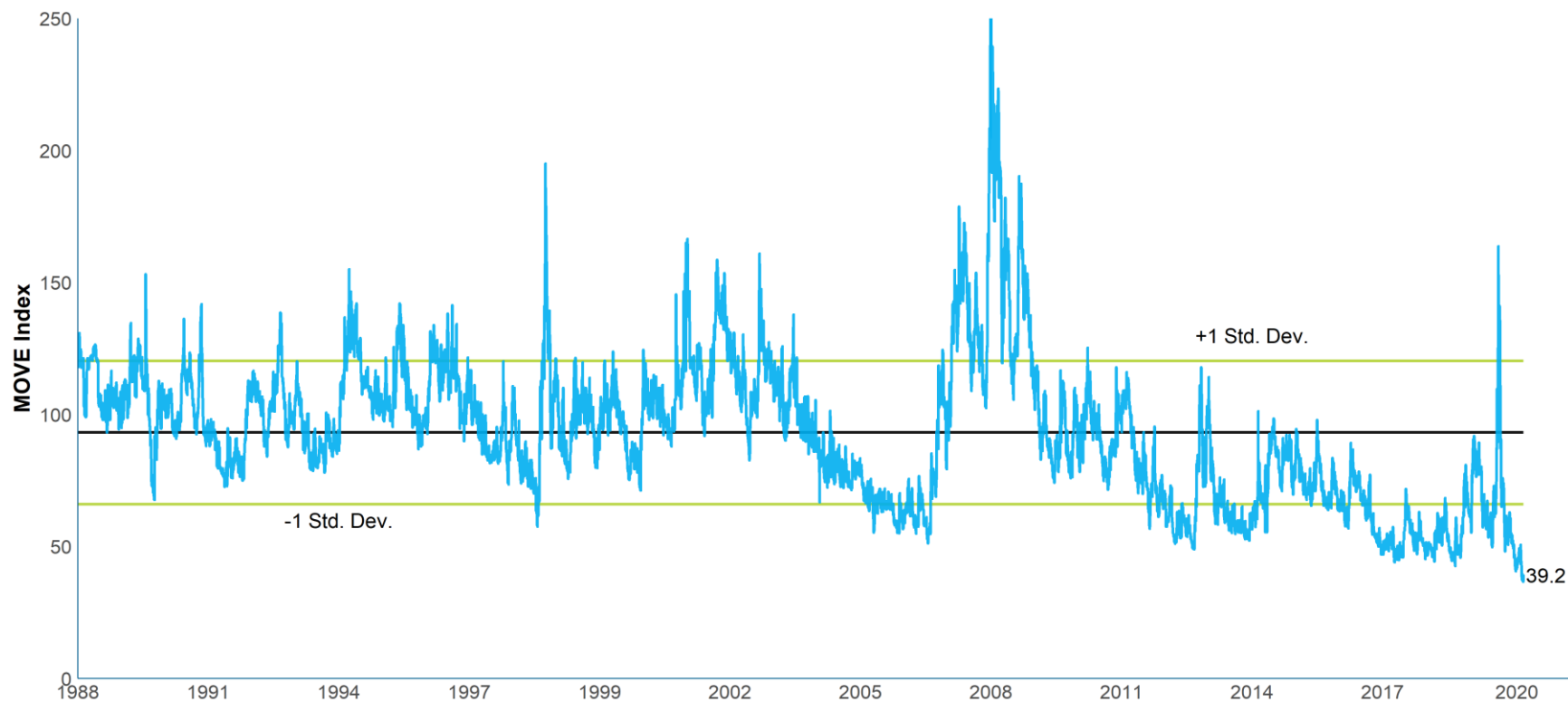
Equity Volatility¹ (As of September 30, 2020)



- 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.

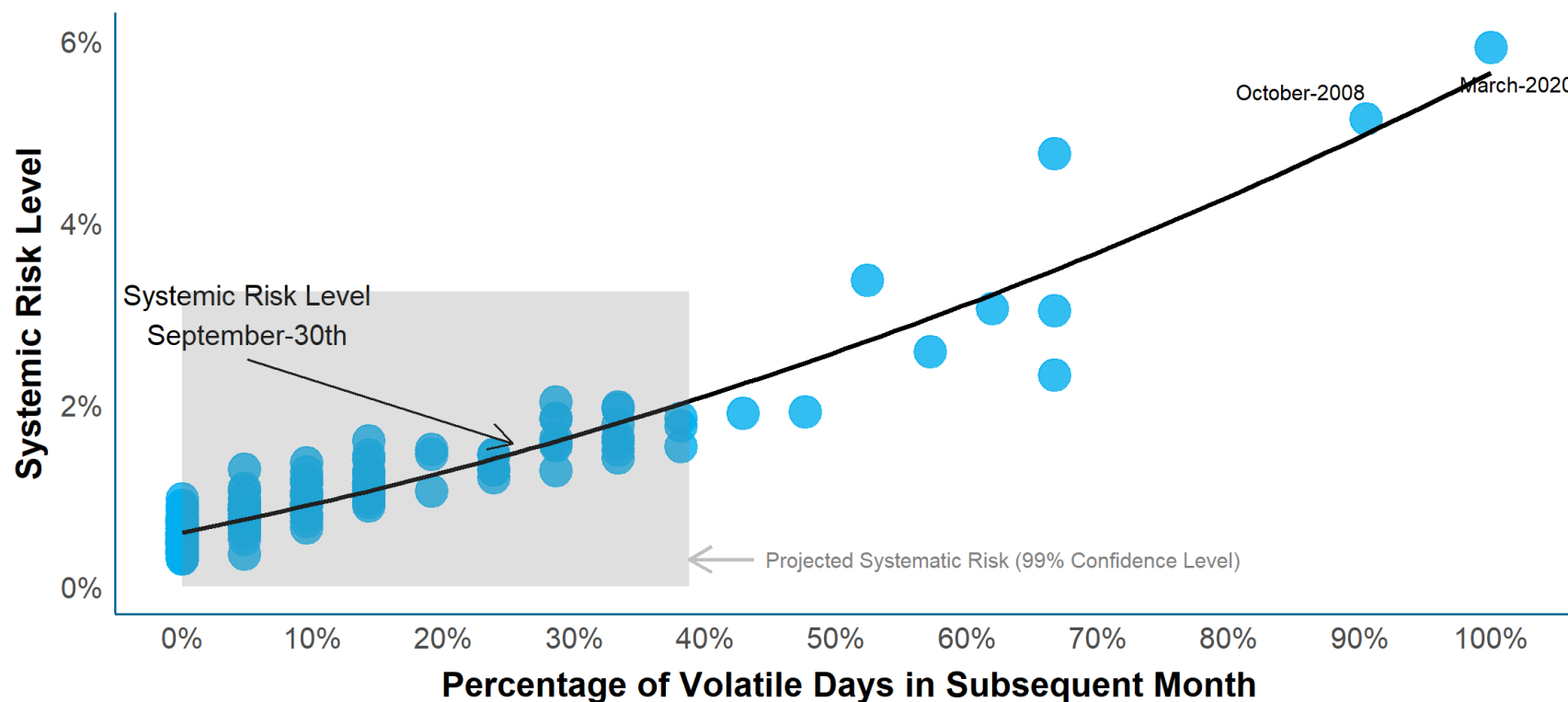
Fixed Income Volatility¹ (As of September 30, 2020)



- 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.

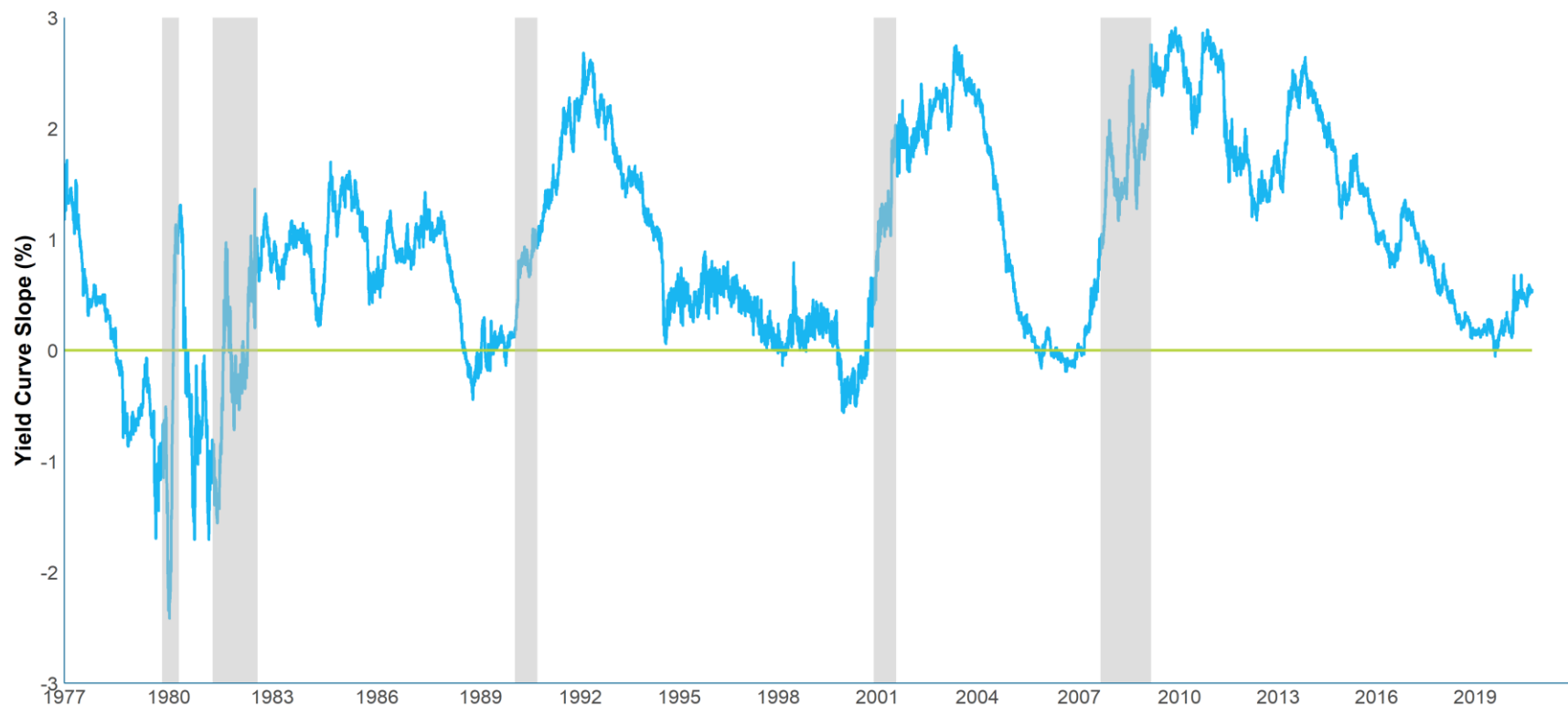
Systemic Risk and Volatile Market Days¹ (As of September 30, 2020)



- 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.

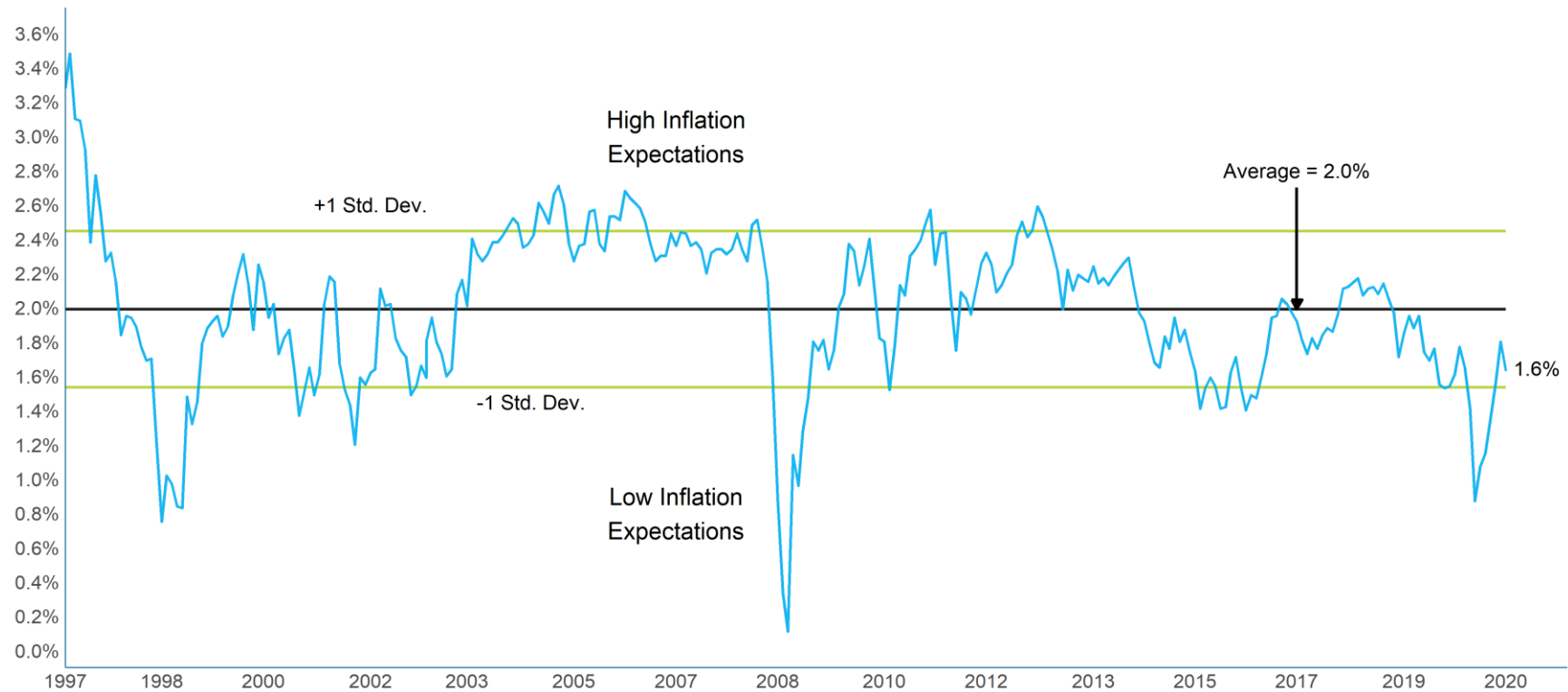
Yield Curve Slope (Ten Minus Two)¹
(As of September 30, 2020)



- 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.

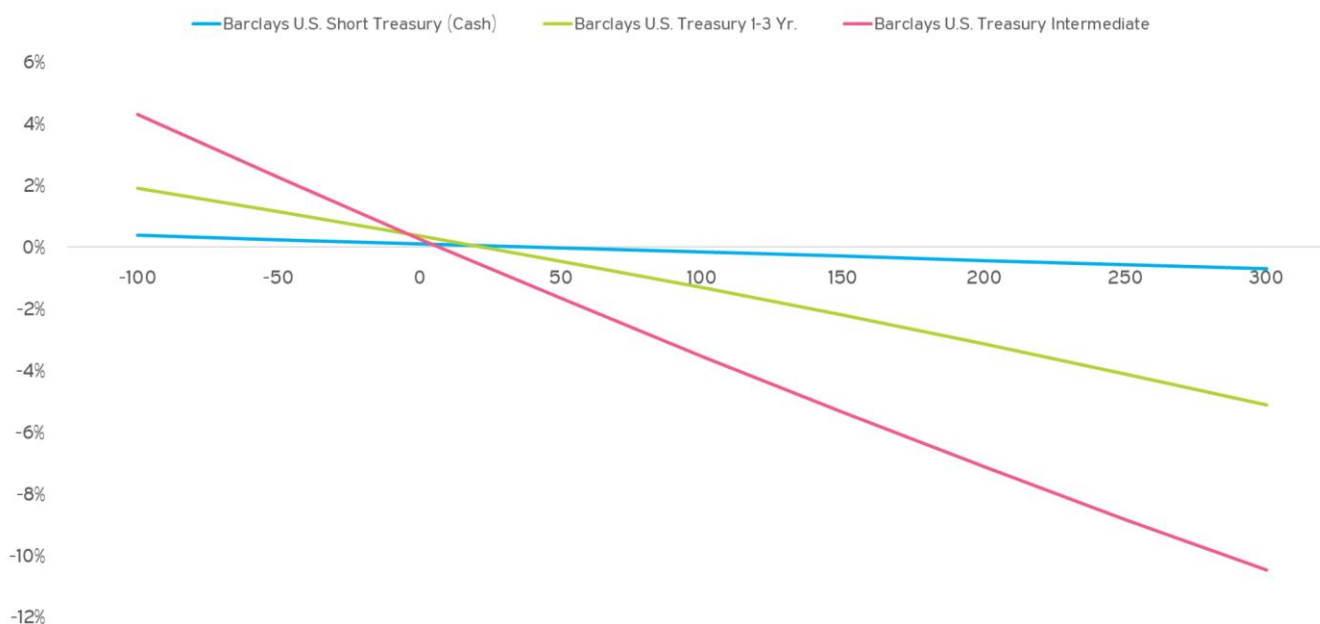
Ten-Year Breakeven Inflation¹ (As of September 30, 2020)



- 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).

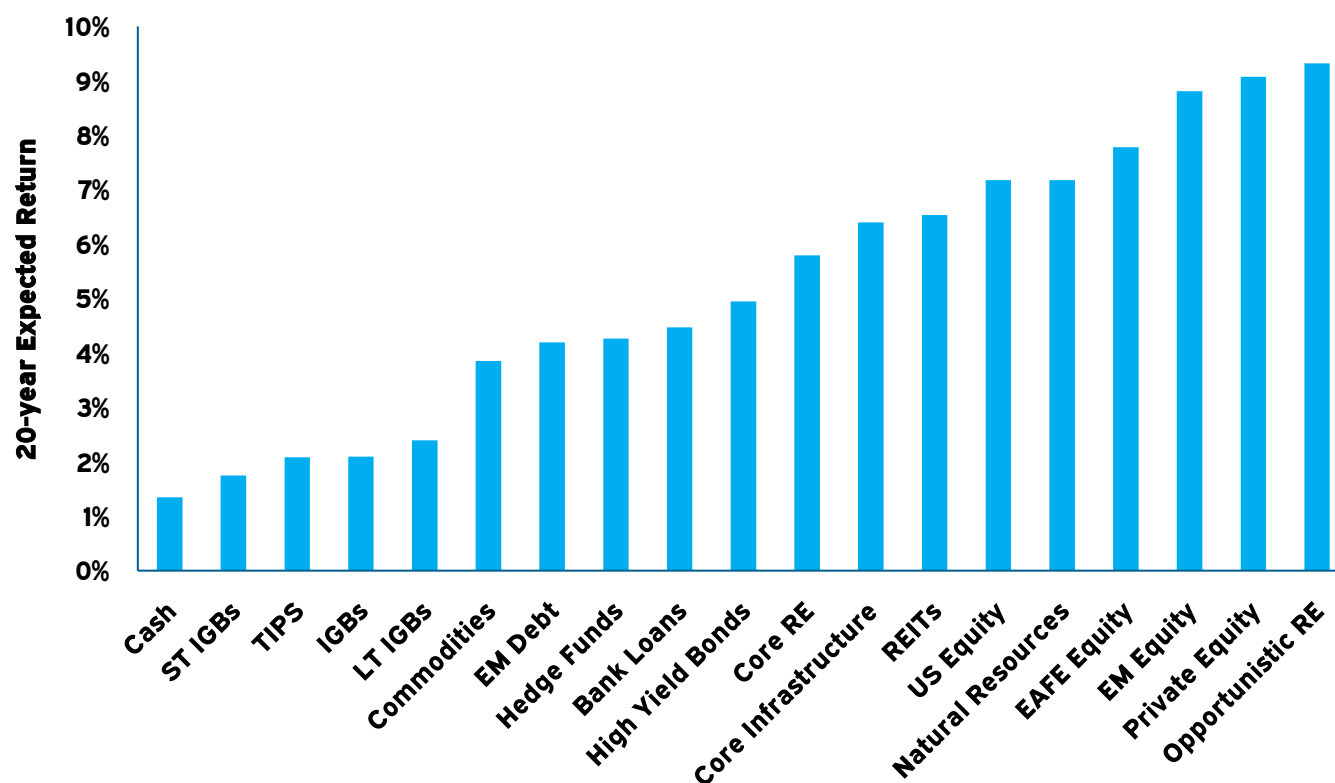
Total Return Given Changes in Interest Rates (bps)¹ (As of September 30, 2020)



	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%	0.2%	0.1%	0.0%	-0.2%	-0.3%	-0.4%	-0.6%	-0.7%	0.27	0.09%
Barclays US Treasury 1-3 Yr.	1.9%	1.1%	0.4%	-0.5%	-1.3%	-2.2%	-3.2%	-4.1%	-5.1%	1.61	0.35%
Barclays US Treasury Intermediate	4.3%	2.2%	0.3%	-1.7%	-3.6%	-5.4%	-7.1%	-8.8%	-10.5%	3.92	0.25%
Barclays US Treasury Long	23.0%	11.6%	1.3%	-7.8%	-15.8%	-22.6%	-28.3%	-32.8%	-36.2%	19.42	1.32%

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 2020 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 ex Japan 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 (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, 2020 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, 2020 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, 2020 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.

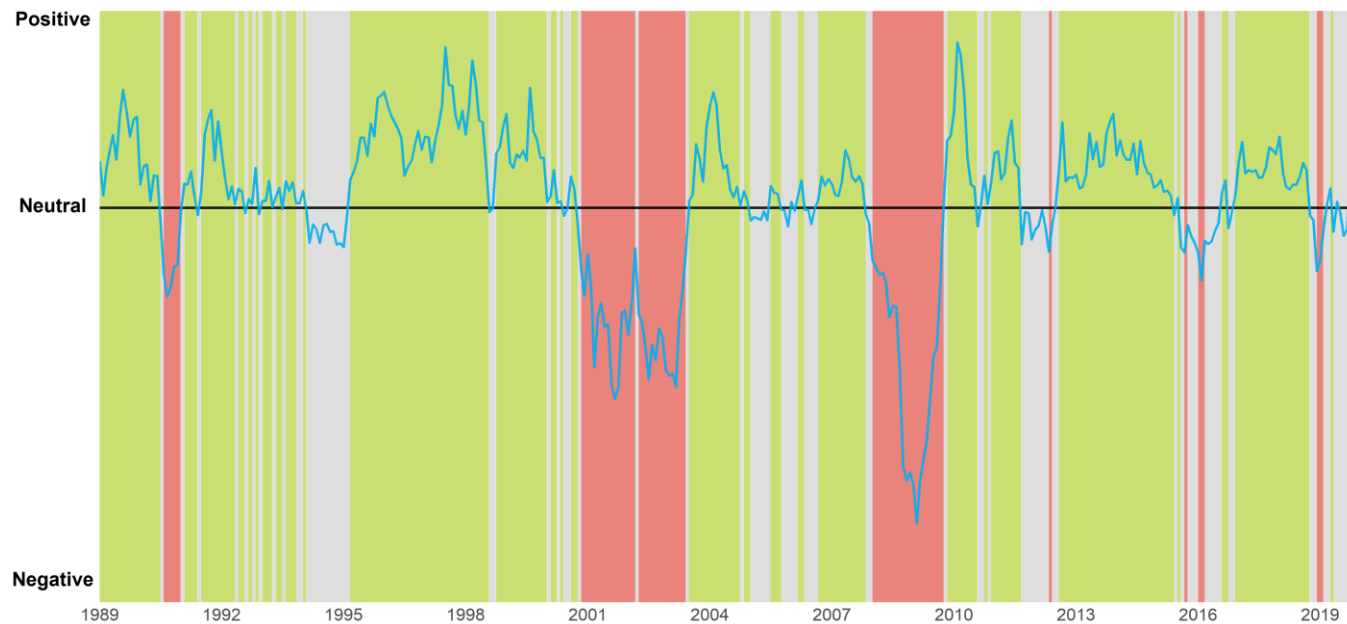
- Meketa's Risk Metrics, which rely significantly on standard market measures of relative valuation, often provide valid early signals of increasing long-term risk levels in the global investment markets. However, as is the case with numerous valuation measures, the Risk Metrics may convey such risk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

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

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

How do I read the Meketa Market Sentiment Indicator graph?

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



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

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

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

“Time Series Momentum” Moskowitz, Ooi, Pedersen, August 2010. <http://pages.stern.nyu.edu/~lpederse/papers/TimeSeriesMomentum.pdf>

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

- There is strong evidence that time series momentum is significant and persistent. 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

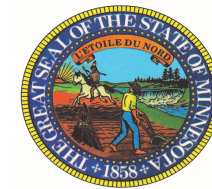
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REPORT

Comprehensive Performance Report

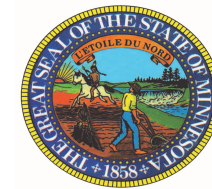
September 30, 2020

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Comprehensive Performance Report

September 30, 2020



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

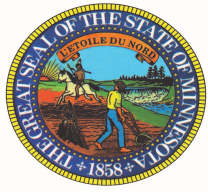
The Participant Directed Investment Program (PDIP) provides investment vehicles for a variety of retirement or other tax-advantaged savings plans. Investment goals among the PDIP's many participants are varied. In order to meet the variety of goals, participants may allocate their investments among one 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.

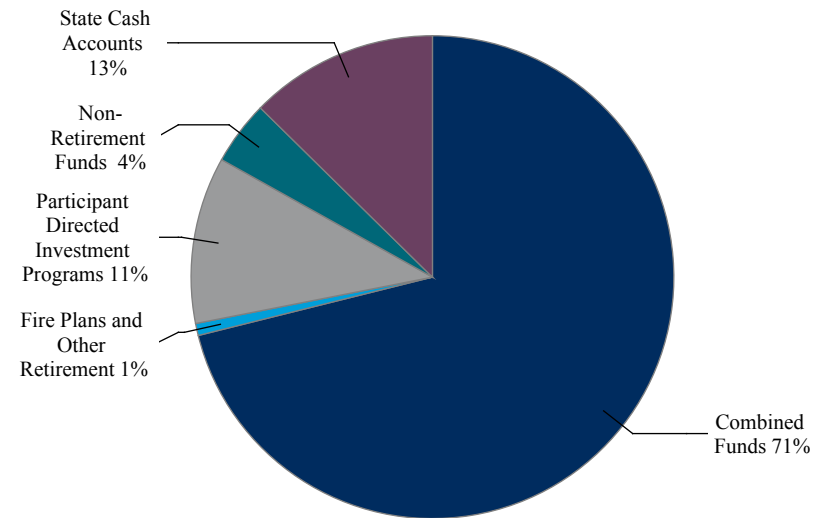
State Cash

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	\$74,762
FIRE PLANS + OTHER RETIREMENT	850
PARTICIPANT DIRECTED INVESTMENT PROGRAMS	11,745
State Deferred Compensation Plan	8,145
Health Care Savings Plan	1,376
Unclassified Employees Retirement Plan	339
Hennepin County Supplemental Retirement Plan	167
PERA Defined Contribution Plan	83
Minnesota College Savings Plan	1,622
Minnesota Achieve a Better Life Experience	14
NON-RETIREMENT FUNDS	4,494
Assigned Risk Plan	292
Permanent School Fund	1,700
Environmental Trust Fund	1,373
Closed Landfill Investment Fund	109
Miscellaneous Trust Funds	296
Other Post Employment Benefits Accounts	723
STATE CASH ACCOUNTS	13,297
Treasurer's Cash	13,214
Other State Cash Accounts	83
TOTAL SBI AUM	105,148



Note: Differentials within column amounts may occur due to rounding



Quarterly Report

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Performance Reporting Legend

Manager Level Data

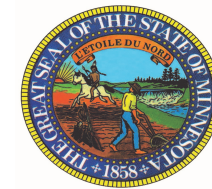
Aggregate Level Data

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, 2020



Combined Funds Summary

Combined Funds Change in Market Value (\$Millions)

	<u>One Quarter</u>
COMBINED FUNDS	
Beginning Market Value	\$71,053
Net Contributions	-651
Investment Return	4,360
Ending Market Value	74,762

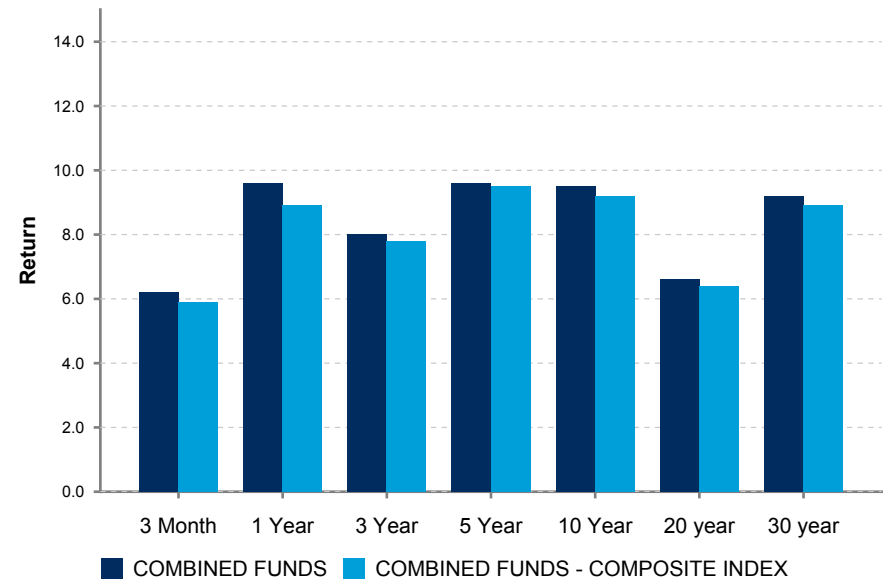
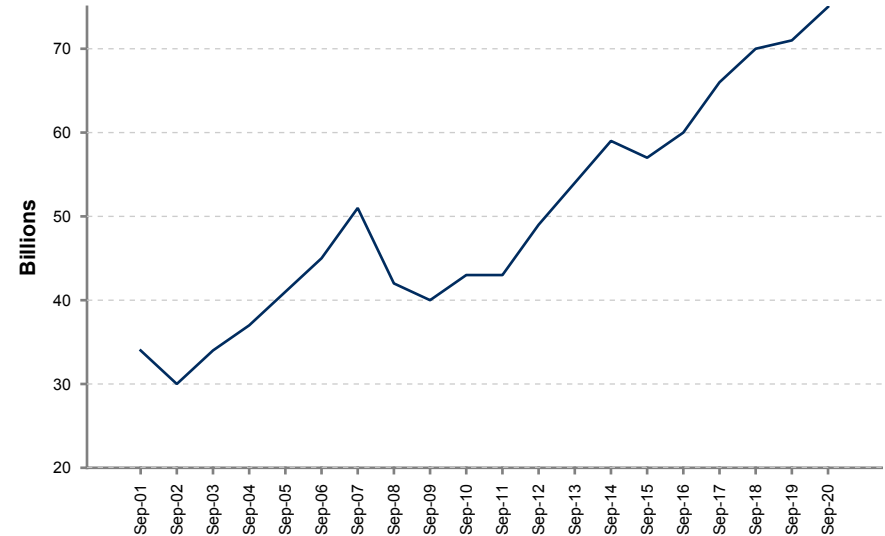
The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

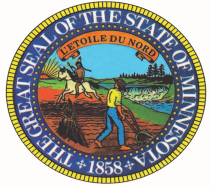
Performance (Net of Fees)

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	6.2%	6.2%	9.6%	8.0%	9.6%	9.5%	6.6%	9.2%
COMBINED FUNDS - COMPOSITE INDEX	5.9	5.9	8.9	7.8	9.5	9.2	6.4	8.9
Excess	0.3	0.3	0.7	0.2	0.1	0.3	0.2	0.3

Asset Growth



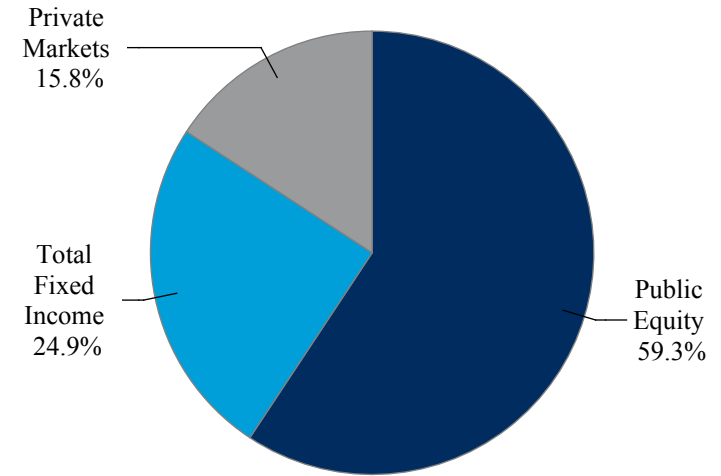


Combined Funds Summary

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.

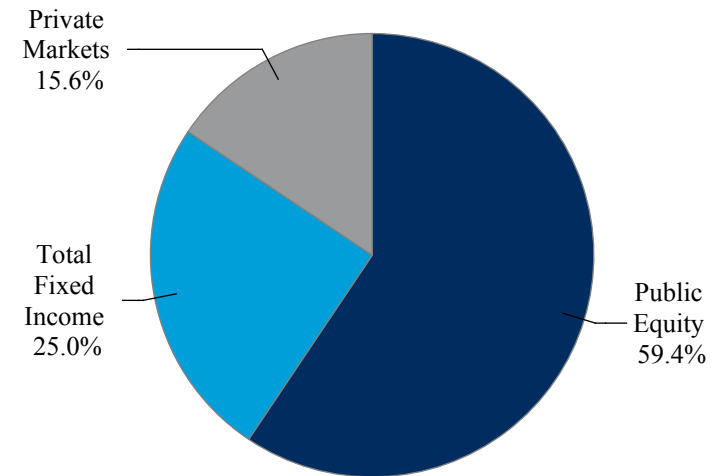
	<u>(Millions)</u>	<u>Actual Mix</u>	<u>Policy Target</u>
Public Equity	\$44,357	59.3%	50.0%
Total Fixed Income	18,582	24.9	25.0
Private Markets	11,823	15.8	25.0
TOTAL	74,762	100.0	

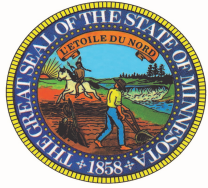


Composite Index Comparison

The Combined Funds Composite is set as the Strategic Asset Allocation Policy Target with the uninvested portion of Private Markets allocated to Public Equity. Asset class weights for Public Equity and Private Markets 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>Benchmark</u>
Public Equity	59.4%	Public Equity Benchmark
Total Fixed Income	25.0	Total Fixed Income Benchmark
Private Markets	15.6	Private Markets





Combined Funds Asset Class Performance Summary

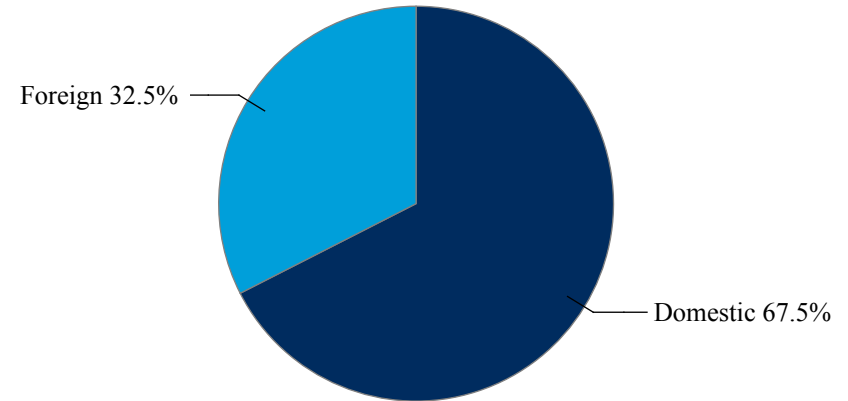
Public Equity

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

The Public Equity benchmark is 60.3% Russell 1000, 6.7% Russell 2000, 24.75% MSCI World ex US (net), and 8.25% MSCI EM (net).

The Russell 1000 and Russell 2000 measure the performance of the 1000 largest and 2000 next largest U.S. companies based on total market capitalization.

The MSCI World ex US index is composed of large and mid cap companies that capture approximately 85% of the total market capitalization in 22 of the 23 developed markets. The MSCI Emerging Markets index is composed of large and mid cap companies that capture approximately 85% of the total market capitalization across 24 Emerging Markets countries.



	<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	8.4%	8.4%	11.3%	8.2%	11.2%	11.0%	5.8%	9.7%
Public Equity Benchmark	8.1	8.1	10.5	8.0				
Excess	0.3	0.3	0.8	0.2				
Domestic Equity	9.2	9.2	15.1	11.5	13.4	13.4	6.4	10.4
Domestic Equity Benchmark	9.0	9.0	14.4	11.4	13.5	13.4	6.5	10.5
Excess	0.2	0.2	0.6	0.1	-0.2	0.0	-0.1	-0.1
International Equity	6.7	6.7	3.7	1.4	6.3	4.5	4.5	
International Equity Benchmark	6.1	6.1	2.8	1.1	6.2	4.0	4.2	
Excess	0.6	0.6	1.0	0.3	0.1	0.5	0.3	

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

The Core Bonds benchmark is the Bloomberg Barclays U.S. Aggregate Index.

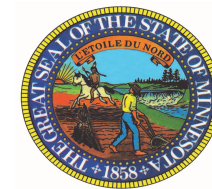
The Treasuries benchmark is the Bloomberg Barclays Treasury 5+ Years Index.

The Cash benchmark is the ICE BofA US 3-Month Treasury Bill.

	<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	0.8%	0.8%	10.2%	7.3%	5.7%	4.7%	5.7%	6.6%
Total Fixed Income Benchmark	0.4	0.4	9.6					
Excess	0.4	0.4	0.6					
Core Bonds	1.3	1.3	8.2	5.9	4.9	4.3	5.4	6.5
Core Bonds Benchmark	0.6	0.6	7.0	5.2	4.2	3.6	5.0	6.0
Excess	0.7	0.7	1.2	0.6	0.7	0.7	0.4	0.4
Treasury Protection	0.4	0.4	12.1					
BBG BARC 5Y + Us Tsy Idx	0.2	0.2	12.4					
Excess	0.2	0.2	-0.3					
Cash	0.0	0.0	1.0	1.7	1.3	0.8	1.9	3.4
ICE BofA US 3-Month Treasury Bill	0.0	0.0	1.1	1.7	1.2	0.6	1.6	2.8
Excess	0.0	0.0	-0.1	-0.0	0.1	0.2	0.3	0.7

Note:

Since 7/1/2020 the Total Fixed Income includes the allocations to Core Bonds, Treasuries and Cash. From 2/1/2018-6/30/20 Total Fixed Income includes the allocations to Core Bonds and Treasuries. Prior to 2/1/2018, Total Fixed Income includes the allocation to 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	6.1%	6.1%	1.5%	8.4%	8.9%	11.1%	11.3%	13.1%	12.1%
Private Equity	7.9%	7.9%	7.9%	13.4%	13.6%	14.2%	12.1%	15.2%	
Private Credit	4.0	4.0	2.9	9.2	10.4	12.0	11.3		
Resources	2.3	2.3	-20.9	-6.7	-5.6	1.6	11.6	12.7	
Real Estate	2.5	2.5	2.9	8.2	8.0	11.3	8.4	9.3	

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.

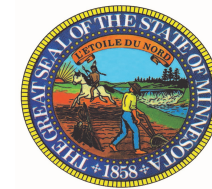
Resource Investments

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.



Quarterly Report

Asset Class & Manager Performance September 30, 2020

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.

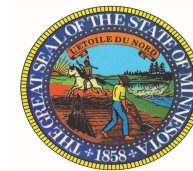
The performance information presented on the following pages for Public Equity and Fixed Income includes both the Combined Funds and Supplemental Investment Fund. The Private Markets is Combined Funds only. All assets in the Combined Funds are managed externally by investment management firms retained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

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Domestic Equity

September 30, 2020



	<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)	\$4,096,983,944	13.4%	8.1%	8.1%	11.5%	8.3%	11.3%	12.2%		
Active Domestic Equity Benchmark			7.2	7.2	6.7	6.5	10.8	11.8		
Excess			1.0	1.0	4.8	1.8	0.5	0.4		
SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)	2,770,424,448	9.1	9.4	9.4	16.6	12.5	14.0	14.0		
Semi Passive Domestic Equity Benchmark			9.5	9.5	16.0	12.4	14.1	13.8		
Excess			-0.0	-0.0	0.5	0.1	-0.1	0.3		
PASSIVE DOMESTIC EQUITY AGGREGATE (3)	23,660,946,817	77.5	9.3	9.3	15.5	12.0	13.9	13.6		
Passive Domestic Equity Benchmark			9.3	9.3	15.6	12.1	13.9	13.6		
Excess			0.0	0.0	-0.0	-0.0	-0.0	-0.0		
TRANSITION AGGREGATE DOMESTIC EQUITY (4)										
TOTAL DOMESTIC EQUITY (5)	30,528,355,209	100.0	9.2	9.2	15.1	11.5	13.4	13.4	10.5	01/1984
Domestic Equity Benchmark			9.0	9.0	14.4	11.4	13.5	13.4	10.7	01/1984
Excess			0.2	0.2	0.7	0.1	-0.2	0.0	-0.2	

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

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

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

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

(5) The current Domestic Equity Benchmark is 90% Russell 1000 and 10% Russell 2000.

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



	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>
Total Domestic Equity					
ACTIVE DOMESTIC EQUITY AGGREGATE (1)	27.6%	-6.5%	20.6%	10.9%	-0.4%
Active Domestic Equity Benchmark	28.2	-8.0	18.3	15.7	-0.6
Excess	-0.6	1.4	2.3	-4.8	0.3
SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)	30.9	-4.9	22.5	11.1	0.5
Semi Passive Domestic Equity Benchmark	31.4	-4.8	21.7	12.1	0.9
Excess	-0.5	-0.1	0.8	-1.0	-0.4
PASSIVE DOMESTIC EQUITY AGGREGATE (3)	31.3	-5.0	21.3	12.6	0.5
Passive Domestic Equity Benchmark	31.3	-5.0	21.5	12.5	0.5
Excess	0.0	-0.0	-0.2	0.1	0.0
TRANSITION AGGREGATE DOMESTIC EQUITY (4)					
TOTAL DOMESTIC EQUITY (5)	30.7%	-5.3%	21.4%	11.5	0.3
Domestic Equity Benchmark	30.8%	-5.2%	21.1%	12.7	0.5
Excess	-0.1%	-0.0%	0.2%	-1.3	-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 contains Domestic Equity securities that are being transitioned to a different manager.

(5) The current Domestic Equity Benchmark is 90% Russell 1000 and 10% Russell 2000.

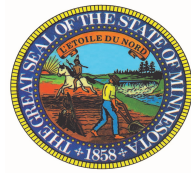
Note: All aggregates include the performance of terminated managers. For historical benchmark details please refer to the addendum of this report.



	<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	\$372,682,136	1.2%	15.3%	15.3%	59.8%	29.0%	23.7%	19.9%	13.6%	01/2005
Russell 1000 Growth			13.2	13.2	37.5	21.7	20.1	17.3	11.5	01/2005
Excess			2.1	2.1	22.3	7.3	3.6	2.6	2.1	
WINSLOW	254,235,310	0.8	12.0	12.0	37.2	23.0	20.0	16.8	12.3	01/2005
Russell 1000 Growth			13.2	13.2	37.5	21.7	20.1	17.3	11.5	01/2005
Excess			-1.2	-1.2	-0.3	1.3	-0.1	-0.4	0.7	
ZEVENBERGEN	459,580,322	1.5	21.1	21.1	111.4	40.9	30.5	21.2	13.5	04/1994
Russell 1000 Growth			13.2	13.2	37.5	21.7	20.1	17.3	10.7	04/1994
Excess			7.9	7.9	73.9	19.3	10.4	3.9	2.7	
RUSSELL 1000 GROWTH AGGREGATE	1,086,497,768	3.6	16.9	16.9	71.3	31.9	26.2	20.2		
Russell 1000 Growth			13.2	13.2	37.5	21.7	20.1	17.3		
Excess			3.7	3.7	33.7	10.3	6.1	2.9		



	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>
Active Large Cap Growth					
SANDS	33.5%	7.0%	35.3%	-6.9%	2.9%
Russell 1000 Growth	36.4	-1.5	30.2	7.1	5.7
Excess	-2.8	8.6	5.1	-13.9	-2.8
WINSLOW	34.2	4.2	33.2	-1.9	6.7
Russell 1000 Growth	36.4	-1.5	30.2	7.1	5.7
Excess	-2.2	5.7	3.0	-9.0	1.0
ZEVENBERGEN	43.0	2.3	35.1	-2.8	6.4
Russell 1000 Growth	36.4	-1.5	30.2	7.1	5.7
Excess	6.7	3.8	4.9	-9.9	0.7
RUSSELL 1000 GROWTH AGGREGATE	37.3%	4.7%	33.4%	1.0	4.6
Russell 1000 Growth	36.4%	-1.5%	30.2%	7.1	5.7
Excess	0.9%	6.2%	3.2%	-6.1	-1.1



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Large Cap Value										
BARROW HANLEY	\$306,000,001	1.0%	5.7%	5.7%	-8.1%	3.3%	7.3%	10.0%	7.1%	04/2004
Russell 1000 Value			5.6	5.6	-5.0	2.6	7.7	9.9	6.9	04/2004
Excess			0.1	0.1	-3.0	0.6	-0.4	0.0	0.2	
EARNEST PARTNERS	268,589,034	0.9	5.2	5.2	-1.6	4.8	8.9	10.0	6.5	07/2000
Russell 1000 Value			5.6	5.6	-5.0	2.6	7.7	9.9	6.5	07/2000
Excess			-0.4	-0.4	3.4	2.2	1.2	0.0	0.0	
LSV	353,325,645	1.2	4.6	4.6	-9.9	-0.4	6.0	10.1	7.5	04/2004
Russell 1000 Value			5.6	5.6	-5.0	2.6	7.7	9.9	6.9	04/2004
Excess			-1.0	-1.0	-4.9	-3.0	-1.7	0.2	0.5	
RUSSELL 1000 VALUE AGGREGATE	927,914,679	3.0	5.1	5.1	-7.0	2.4	7.3	9.9		
Russell 1000 Value			5.6	5.6	-5.0	2.6	7.7	9.9		
Excess			-0.5	-0.5	-2.0	-0.3	-0.4	-0.0		



	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>
Active Large Cap Value					
BARROW HANLEY	26.9%	-5.9%	14.6%	12.8%	-2.1%
Russell 1000 Value	26.5	-8.3	13.7	17.3	-3.8
Excess	0.4	2.4	0.9	-4.5	1.7
EARNEST PARTNERS	28.1	-7.7	19.9	16.2	-2.7
Russell 1000 Value	26.5	-8.3	13.7	17.3	-3.8
Excess	1.5	0.6	6.2	-1.1	1.1
LSV	26.9	-11.8	18.6	17.0	-2.2
Russell 1000 Value	26.5	-8.3	13.7	17.3	-3.8
Excess	0.4	-3.6	4.9	-0.4	1.6
RUSSELL 1000 VALUE AGGREGATE	27.4%	-8.7%	17.3%	15.3	-3.2
Russell 1000 Value	26.5%	-8.3%	13.7%	17.3	-3.8
Excess	0.9%	-0.4%	3.7%	-2.1	0.6



	<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>
Semi-Passive Large Cap										
BLACKROCK	\$1,354,122,831	4.4%	9.2%	9.2%	16.1%	12.7%	14.8%	14.5%	10.2%	01/1995
Semi Passive Domestic Equity Benchmark			9.5	9.5	16.0	12.4	14.1	13.8	9.8	01/1995
Excess			-0.3	-0.3	0.1	0.4	0.7	0.7	0.4	
J.P. MORGAN	1,416,301,617	4.6	9.7	9.7	17.0	12.3	14.2	14.1	10.1	01/1995
Semi Passive Domestic Equity Benchmark			9.5	9.5	16.0	12.4	14.1	13.8	9.8	01/1995
Excess			0.3	0.3	1.0	-0.0	0.1	0.3	0.3	
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE	2,770,424,448	9.1	9.4	9.4	16.6	12.5	14.0	14.0		
Semi Passive Domestic Equity Benchmark			9.5	9.5	16.0	12.4	14.1	13.8		
Excess			-0.0	-0.0	0.5	0.1	-0.1	0.3		



	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>
Semi-Passive Large Cap					
BLACKROCK	30.4%	-4.1%	24.6%	12.5%	0.8%
Semi Passive Domestic Equity Benchmark	31.4	-4.8	21.7	12.1	0.9
Excess	-1.0	0.7	2.9	0.5	-0.1
J.P. MORGAN					
J.P. MORGAN	31.3	-5.4	21.8	12.3	0.8
Semi Passive Domestic Equity Benchmark	31.4	-4.8	21.7	12.1	0.9
Excess	-0.1	-0.6	0.1	0.2	-0.1
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE					
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE	30.9%	-4.9%	22.5%	11.1	0.5
Semi Passive Domestic Equity Benchmark	31.4%	-4.8%	21.7%	12.1	0.9
Excess	-0.5%	-0.1%	0.8%	-1.0	-0.4



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Small Cap Growth										
ARROWMARK	\$208,737,099	0.7%	4.7%	4.7%	5.2%	5.5%			11.8%	11/2016
Russell 2000 Growth			7.2	7.2	15.7	8.2			13.3	11/2016
Excess			-2.4	-2.4	-10.5	-2.7			-1.6	
HOOD RIVER	304,169,416	1.0	14.6	14.6	35.5	13.4			17.5	11/2016
Russell 2000 Growth			7.2	7.2	15.7	8.2			13.3	11/2016
Excess			7.5	7.5	19.8	5.2			4.1	
RICE HALL JAMES	219,072,628	0.7	5.5	5.5	12.2	6.9			13.0	11/2016
Russell 2000 Growth			7.2	7.2	15.7	8.2			13.3	11/2016
Excess			-1.7	-1.7	-3.5	-1.3			-0.3	
WELLINGTON	305,582,283	1.0	6.0	6.0	14.4	7.9			13.5	11/2016
Russell 2000 Growth			7.2	7.2	15.7	8.2			13.3	11/2016
Excess			-1.1	-1.1	-1.3	-0.3			0.2	
RUSSELL 2000 GROWTH AGGREGATE	1,037,561,427	3.4	8.0	8.0	17.0	8.3	9.7	11.0		
Russell 2000 Growth			7.2	7.2	15.7	8.2	11.4	12.3		
Excess			0.9	0.9	1.3	0.2	-1.8	-1.4		



	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>
Active Small Cap Growth					
ARROWMARK	20.1%	0.9%	26.2%		
Russell 2000 Growth	28.5	-9.3	22.2		
Excess	-8.4	10.3	4.1		
HOOD RIVER	24.3	-7.0	21.3		
Russell 2000 Growth	28.5	-9.3	22.2		
Excess	-4.2	2.3	-0.9		
RICE HALL JAMES	18.0	-6.9	27.9		
Russell 2000 Growth	28.5	-9.3	22.2		
Excess	-10.5	2.4	5.8		
WELLINGTON	35.6	-11.6	22.6		
Russell 2000 Growth	28.5	-9.3	22.2		
Excess	7.1	-2.3	0.4		
RUSSELL 2000 GROWTH AGGREGATE	24.6%	-6.2%	22.0%	4.7	1.0
Russell 2000 Growth	28.5%	-9.3%	22.2%	11.3	-1.4
Excess	-3.9%	3.2%	-0.1%	-6.6	2.4



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Small Cap Value										
GOLDMAN SACHS	\$332,854,446	1.1%	3.1%	3.1%	-16.5%	-4.7%	3.8%	8.5%	7.3%	01/2004
Russell 2000 Value			2.6	2.6	-14.9	-5.1	4.1	7.1	5.9	01/2004
Excess			0.5	0.5	-1.6	0.5	-0.3	1.4	1.4	
HOTCHKIS AND WILEY	218,235,137	0.7	1.6	1.6	-21.4	-8.9	-0.2	7.0	5.5	01/2004
Russell 2000 Value			2.6	2.6	-14.9	-5.1	4.1	7.1	5.9	01/2004
Excess			-0.9	-0.9	-6.6	-3.7	-4.3	-0.1	-0.4	
MARTINGALE	217,200,140	0.7	0.6	0.6	-19.3	-7.9	2.4	7.8	5.5	01/2004
Russell 2000 Value			2.6	2.6	-14.9	-5.1	4.1	7.1	5.9	01/2004
Excess			-1.9	-1.9	-4.4	-2.7	-1.7	0.7	-0.4	
PEREGRINE	276,720,348	0.9	3.0	3.0	-17.0	-5.4	2.9	7.3	8.1	07/2000
Russell 2000 Value			2.6	2.6	-14.9	-5.1	4.1	7.1	7.7	07/2000
Excess			0.4	0.4	-2.1	-0.3	-1.2	0.2	0.4	
RUSSELL 2000 VALUE AGGREGATE	1,045,010,070	3.4	2.2	2.2	-18.4	-6.6	2.3	7.6		
Russell 2000 Value			2.6	2.6	-14.9	-5.1	4.1	7.1		
Excess			-0.3	-0.3	-3.6	-1.4	-1.8	0.5		



	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>
Active Small Cap Value					
GOLDMAN SACHS	23.2%	-13.3%	12.6%	24.6%	-5.2%
Russell 2000 Value	22.4	-12.9	7.8	31.7	-7.5
Excess	0.8	-0.5	4.7	-7.1	2.3
HOTCHKIS AND WILEY	19.7	-14.4	7.9	19.9	-8.5
Russell 2000 Value	22.4	-12.9	7.8	31.7	-7.5
Excess	-2.7	-1.5	0.0	-11.8	-1.0
MARTINGALE	21.1	-15.0	6.9	34.3	-5.2
Russell 2000 Value	22.4	-12.9	7.8	31.7	-7.5
Excess	-1.3	-2.1	-0.9	2.5	2.3
PEREGRINE	21.1	-16.1	12.5	27.8	-6.7
Russell 2000 Value	22.4	-12.9	7.8	31.7	-7.5
Excess	-1.3	-3.3	4.7	-3.9	0.8
RUSSELL 2000 VALUE AGGREGATE	21.3%	-14.7%	10.2%	26.5	-6.5
Russell 2000 Value	22.4%	-12.9%	7.8%	31.7	-7.5
Excess	-1.1%	-1.8%	2.3%	-5.2	1.0

Minnesota State Board of Investment
Quarter Ending September 30, 2020
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	\$21,582,565,688	70.7%	9.5%	9.5%	15.9%	12.3%			14.8%	11/2016
RUSSELL 1000 (DAILY)			9.5	9.5	16.0	12.4			14.8	11/2016
Excess			-0.0	-0.0	-0.1	-0.0			-0.0	
BLACKROCK RUSSELL 2000	429,165,812	1.4	4.7	4.7	1.0				1.7	11/2018
RUSSELL 2000 (DAILY)			4.9	4.9	0.4				1.4	11/2018
Excess			-0.2	-0.2	0.6				0.4	
BLACKROCK RUSSELL 3000 (1)	1,649,215,317	5.4	9.2	9.2	15.2	11.7	13.7%	13.5%	9.5	07/1995
Passive Manager Benchmark			9.2	9.2	15.0	11.6	13.7	13.5	9.4	07/1995
Excess			-0.0	-0.0	0.2	0.1	0.1	0.0	0.1	
PASSIVE DOMESTIC EQUITY AGGREGATE (2)	23,660,946,817	77.5	9.3	9.3	15.5	12.0	13.9	13.6		
Passive Domestic Equity Benchmark			9.3	9.3	15.6	12.1	13.9	13.6		
Excess			0.0	0.0	-0.0	-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.

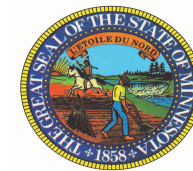


	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>
Total Passive Domestic Equity					
BLACKROCK RUSSELL 1000	31.4%	-4.8%	21.7%		
RUSSELL 1000 (DAILY)	31.4	-4.8	21.7		
Excess	0.0	-0.0	-0.0		
BLACKROCK RUSSELL 2000	25.2				
RUSSELL 2000 (DAILY)	25.5				
Excess	-0.3				
BLACKROCK RUSSELL 3000 (1)	31.1	-5.2	21.1	12.7%	0.5%
Passive Manager Benchmark	31.0	-5.2	21.1	12.7	0.5
Excess	0.0	-0.0	0.0	0.0	0.0
PASSIVE DOMESTIC EQUITY AGGREGATE (2)	31.3%	-5.0%	21.3%	12.6	0.5
Passive Domestic Equity Benchmark	31.3%	-5.0%	21.5%	12.5	0.5
Excess	0.0%	-0.0%	-0.2%	0.1	0.0

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

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

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International Equity

September 30, 2020



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Total International Equity										
DEVELOPED MARKETS (1)	\$10,611,855,129	73.0%	5.6%	5.6%	1.8%	1.3%	5.7%	5.2%		
BENCHMARK DM			4.9	4.9	0.2	0.6	5.3	4.4		
Excess			0.7	0.7	1.6	0.7	0.4	0.8		
EMERGING MARKETS (2)	3,929,838,296	27.0	9.8	9.8	9.6	2.0	8.3	2.0		
BENCHMARK EM			9.6	9.6	10.5	2.4	9.0	2.5		
Excess			0.2	0.2	-0.9	-0.4	-0.7	-0.5		
TRANSITION AGGREGATE INTERNATIONAL EQUITY (3)	930,932	0.0								
TOTAL INTERNATIONAL EQUITY (4)	14,542,624,358	100.0	6.7	6.7	3.7	1.4	6.3	4.5	6.2	10/1992
International Equity Benchmark			6.1	6.1	2.8	1.1	6.2	4.0	5.7	10/1992
Excess			0.6	0.6	1.0	0.3	0.1	0.5	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 75% MSCI World ex USA (net) and 25% MSCI Emerging Markets Free (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>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>
Total International Equity					
DEVELOPED MARKETS (1)	23.3%	-14.2%	24.9%	1.3%	-0.3%
BENCHMARK DM	22.5	-14.1	24.2	2.7	-3.0
Excess	0.8	-0.1	0.7	-1.5	2.8
EMERGING MARKETS (2)					
EMERGING MARKETS (2)	20.3	-15.4	37.7	7.5	-13.1
BENCHMARK EM	18.4	-14.6	37.3	11.2	-14.9
Excess	1.9	-0.8	0.4	-3.7	1.9
TRANSITION AGGREGATE INTERNATIONAL EQUITY (3)					
TOTAL INTERNATIONAL EQUITY (4)	22.4%	-14.5%	27.6%	2.6	-2.9
International Equity Benchmark	21.5%	-14.2%	27.2%	4.5	-5.7
Excess	0.9%	-0.3%	0.4%	-1.8	2.8

(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 75% MSCI World ex USA (net) and 25% MSCI Emerging Markets Free (net). Does not includes impact of currency overlay on the passive EAFE portfolio from 12/1/95-10/31/00. This impact is included in the return for the Combined Funds portion of the International Equity portfolio.

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



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Developed Markets										
ACADIAN	\$402,992,367	2.8%	7.6%	7.6%	5.4%	2.2%	9.8%	7.8%	6.2%	07/2005
BENCHMARK DM			4.9	4.9	0.2	0.6	5.3	4.4	4.4	07/2005
Excess			2.6	2.6	5.2	1.6	4.5	3.4	1.8	
COLUMBIA	435,354,242	3.0	8.6	8.6	7.9	5.1	7.8	6.9	3.2	03/2000
BENCHMARK DM			4.9	4.9	0.2	0.6	5.3	4.4	3.1	03/2000
Excess			3.6	3.6	7.7	4.5	2.5	2.5	0.1	
FIDELITY	415,493,780	2.9	7.8	7.8	8.7	4.3	7.8	6.7	6.4	07/2005
BENCHMARK DM			4.9	4.9	0.2	0.6	5.3	4.4	4.4	07/2005
Excess			2.9	2.9	8.6	3.7	2.4	2.3	2.0	
JP MORGAN	333,647,572	2.3	6.9	6.9	6.5	3.3	7.7	5.5	5.0	07/2005
BENCHMARK DM			4.9	4.9	0.2	0.6	5.3	4.4	4.4	07/2005
Excess			2.0	2.0	6.4	2.7	2.3	1.2	0.7	
MARATHON	358,812,207	2.5	7.2	7.2	0.2	0.6	4.8	6.0	7.5	11/1993
BENCHMARK DM			4.9	4.9	0.2	0.6	5.3	4.4	4.7	11/1993
Excess			2.3	2.3	0.1	-0.1	-0.5	1.7	2.8	
MCKINLEY	290,935,339	2.0	9.7	9.7	11.8	4.4	6.6	6.1	4.9	07/2005
BENCHMARK DM			4.9	4.9	0.2	0.6	5.3	4.4	4.4	07/2005
Excess			4.8	4.8	11.6	3.8	1.3	1.7	0.5	
ACTIVE DEVELOPED MARKETS AGGREGATE	2,237,235,508	15.4	7.9	7.9	6.5	3.2	7.3	6.5		
BENCHMARK DM			4.9	4.9	0.2	0.6	5.3	4.4		
Excess			3.0	3.0	6.3	2.6	2.0	2.1		



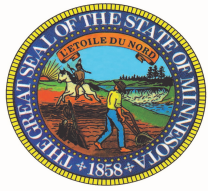
	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>
Active Developed Markets					
ACADIAN	19.1%	-13.5%	37.0%	8.1%	2.4%
BENCHMARK DM	22.5	-14.1	24.2	2.7	-3.0
Excess	-3.4	0.6	12.8	5.4	5.4
COLUMBIA	28.9	-14.9	32.7	-5.6	6.4
BENCHMARK DM	22.5	-14.1	24.2	2.7	-3.0
Excess	6.4	-0.8	8.5	-8.3	9.4
FIDELITY	27.1	-14.6	25.9	1.2	0.1
BENCHMARK DM	22.5	-14.1	24.2	2.7	-3.0
Excess	4.6	-0.5	1.7	-1.5	3.2
JP MORGAN	28.5	-17.3	28.3	4.0	-4.7
BENCHMARK DM	22.5	-14.1	24.2	2.7	-3.0
Excess	6.0	-3.3	4.1	1.2	-1.6
MARATHON	23.5	-13.4	23.1	-1.1	6.7
BENCHMARK DM	22.5	-14.1	24.2	2.7	-3.0
Excess	1.0	0.7	-1.1	-3.8	9.7
MCKINLEY	25.6	-15.9	28.5	-7.5	3.1
BENCHMARK DM	22.5	-14.1	24.2	2.7	-3.0
Excess	3.1	-1.9	4.3	-10.2	6.2
ACTIVE DEVELOPED MARKETS AGGREGATE	25.0%	-14.5%	28.4%	-0.2	3.2
BENCHMARK DM	22.5%	-14.1%	24.2%	2.7	-3.0
Excess	2.5%	-0.4%	4.2%	-3.0	6.2



	<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>
Semi-Passive Developed Markets										
AQR	\$337,902,656	2.3%	6.6%	6.6%	1.0%	-1.9%	3.8%	4.5%	4.5%	07/2005
BENCHMARK DM			4.9	4.9	0.2	0.6	5.3	4.4	4.4	07/2005
Excess			1.7	1.7	0.8	-2.5	-1.5	0.1	0.1	
SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE	337,902,656	2.3	6.6	6.6	1.0	-2.2	3.1	3.9		
BENCHMARK DM			4.9	4.9	0.2	0.6	5.3	4.4		
Excess			1.7	1.7	0.8	-2.8	-2.2	-0.5		



	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>
Semi-Passive Developed Markets					
AQR	20.8%	-18.2%	25.1%	0.8%	0.9%
BENCHMARK DM	22.5	-14.1	24.2	2.7	-3.0
Excess	-1.7	-4.1	0.9	-2.0	3.9
SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE					
SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE	20.8%	-18.7%	23.3%	-0.4	-0.3
BENCHMARK DM	22.5%	-14.1%	24.2%	2.7	-3.0
Excess	-1.7%	-4.6%	-0.9%	-3.1	2.7



	<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>
Total Developed Markets										
ACTIVE DEVELOPED MARKETS AGGREGATE	\$2,237,235,508	15.4%	7.9%	7.9%	6.5%	3.2%	7.3%	6.5%		
BENCHMARK DM			4.9	4.9	0.2	0.6	5.3	4.4		
Excess			3.0	3.0	6.3	2.6	2.0	2.1		
SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE	337,902,656	2.3	6.6	6.6	1.0	-2.2	3.1	3.9		
BENCHMARK DM			4.9	4.9	0.2	0.6	5.3	4.4		
Excess			1.7	1.7	0.8	-2.8	-2.2	-0.5		
SSgA DEVELOPED MARKETS PASSIVE	8,036,716,966	55.3	5.0	5.0	0.7	1.0	5.7	4.8	5.9	10/1992
BENCHMARK DM			4.9	4.9	0.2	0.6	5.3	4.4	5.5	10/1992
Excess			0.1	0.1	0.5	0.3	0.4	0.4	0.3	
DEVELOPED MARKETS TOTAL	10,611,855,129	73.0	5.6	5.6	1.8	1.3	5.7	5.2		
BENCHMARK DM			4.9	4.9	0.2	0.6	5.3	4.4		
Excess			0.7	0.7	1.6	0.7	0.4	0.8		



	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>
Total Developed Markets					
ACTIVE DEVELOPED MARKETS AGGREGATE	25.0%	-14.5%	28.4%	-0.2%	3.2%
BENCHMARK DM	22.5	-14.1	24.2	2.7	-3.0
Excess	2.5	-0.4	4.2	-3.0	6.2
SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE	20.8	-18.7	23.3	-0.4	-0.3
BENCHMARK DM	22.5	-14.1	24.2	2.7	-3.0
Excess	-1.7	-4.6	-0.9	-3.1	2.7
SSgA DEVELOPED MARKETS PASSIVE	23.0%	-13.9%	24.7%	3.2	-2.6
BENCHMARK DM	22.5%	-14.1%	24.2%	2.7	-3.0
Excess	0.5%	0.2%	0.5%	0.4	0.5
DEVELOPED MARKETS TOTAL	23.3%	-14.2%	24.9%	1.3	-0.3
BENCHMARK DM	22.5%	-14.1%	24.2%	2.7	-3.0
Excess	0.8%	-0.1%	0.7%	-1.5	2.8



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Emerging Markets										
EARNEST PARTNERS	\$295,031,989	2.0%	7.0%	7.0%	-2.9%	-0.6%			3.3%	04/2017
MSCI EMERGING MARKETS			9.6	9.6	10.5	2.4			6.1	04/2017
Excess			-2.6	-2.6	-13.4	-3.1			-2.9	
MARTIN CURRIE	427,698,764	2.9	13.0	13.0	18.8	6.0			11.2	04/2017
BENCHMARK EM			9.6	9.6	10.5	2.4			6.1	04/2017
Excess			3.5	3.5	8.3	3.6			5.0	
MACQUARIE	430,457,445	3.0	12.9	12.9	21.4	5.3			10.1	04/2017
BENCHMARK EM			9.6	9.6	10.5	2.4			6.1	04/2017
Excess			3.4	3.4	10.8	2.9			3.9	
MORGAN STANLEY	542,287,650	3.7	11.0	11.0	8.8	1.2	7.5%	3.1%	9.0	01/2001
BENCHMARK EM			9.6	9.6	10.5	2.4	9.0	2.5	8.8	01/2001
Excess			1.5	1.5	-1.7	-1.2	-1.4	0.6	0.2	
NEUBERGER BERMAN	363,714,022	2.5	7.8	7.8	6.4	1.3			5.8	04/2017
BENCHMARK EM			9.6	9.6	10.5	2.4			6.1	04/2017
Excess			-1.8	-1.8	-4.1	-1.1			-0.3	
PZENA	263,216,559	1.8	4.6	4.6	-6.0	-4.0			-0.6	04/2017
BENCHMARK EM			9.6	9.6	10.5	2.4			6.1	04/2017
Excess			-4.9	-4.9	-16.5	-6.4			-6.7	
ROCK CREEK	394,966,236	2.7	10.3	10.3	13.7	2.7			5.9	04/2017
BENCHMARK EM			9.6	9.6	10.5	2.4			6.1	04/2017
Excess			0.8	0.8	3.2	0.3			-0.3	



	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>
Active Emerging Markets					
EARNEST PARTNERS	24.7%	-15.4%			
MSCI EMERGING MARKETS	18.4	-14.6			
Excess	6.3	-0.8			
MARTIN CURRIE					
MARTIN CURRIE	27.3	-16.6			
BENCHMARK EM	18.4	-14.6			
Excess	8.8	-2.0			
MACQUARIE					
MACQUARIE	23.2	-13.3			
BENCHMARK EM	18.4	-14.6			
Excess	4.7	1.3			
MORGAN STANLEY					
MORGAN STANLEY	20.4	-16.7	37.9%	6.1%	-9.4%
BENCHMARK EM	18.4	-14.6	37.3	11.2	-14.9
Excess	1.9	-2.2	0.6	-5.1	5.5
NEUBERGER BERMAN					
NEUBERGER BERMAN	19.7	-17.1			
BENCHMARK EM	18.4	-14.6			
Excess	1.3	-2.6			
PZENA					
PZENA	13.4	-10.8			
BENCHMARK EM	18.4	-14.6			
Excess	-5.1	3.8			
ROCK CREEK					
ROCK CREEK	22.3	-17.6			
BENCHMARK EM	18.4	-14.6			
Excess	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	\$2,717,372,666	18.7%	10.0%	10.0%	9.0%	1.8%	7.8%	1.8%		
BENCHMARK EM			9.6	9.6	10.5	2.4	9.0	2.5		
Excess			0.4	0.4	-1.5	-0.6	-1.2	-0.7		
SSGA EMERGING MARKETS PASSIVE	1,212,465,630	8.3	9.4	9.4	10.8	2.4	9.0		4.5	01/2012
BENCHMARK EM			9.6	9.6	10.5	2.4	9.0		4.4	01/2012
Excess			-0.2	-0.2	0.2	-0.0	-0.0		0.1	
EMERGING MARKETS TOTAL	3,929,838,296	27.0	9.8	9.8	9.6	2.0	8.3	2.0		
BENCHMARK EM			9.6	9.6	10.5	2.4	9.0	2.5		
Excess			0.2	0.2	-0.9	-0.4	-0.7	-0.5		



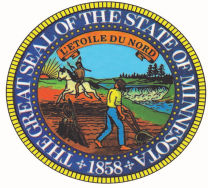
	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>
Total Emerging Markets					
ACTIVE EMERGING MARKETS AGGREGATE	21.4%	-15.6%	37.2%	5.3%	-12.7%
BENCHMARK EM	18.4	-14.6	37.3	11.2	-14.9
Excess	3.0	-1.0	-0.1	-5.9	2.2
SSGA EMERGING MARKETS PASSIVE	18.1%	-14.7%	37.4%	11.1	-14.6
BENCHMARK EM	18.4%	-14.6%	37.3%	11.2	-14.9
Excess	-0.3%	-0.1%	0.1%	-0.1	0.3
EMERGING MARKETS TOTAL	20.3%	-15.4%	37.7%	7.5	-13.1
BENCHMARK EM	18.4%	-14.6%	37.3%	11.2	-14.9
Excess	1.9%	-0.8%	0.4%	-3.7	1.9

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Core Bonds

September 30, 2020



	<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 Bonds										
ACTIVE CORE BONDS AGGREGATE	\$4,272,207,686	56.5%	1.7%	1.7%	8.6%	6.1%	5.3%	4.6%		
BBG BARC Agg (Dly)			0.6	0.6	7.0	5.2	4.2	3.6		
Excess			1.1	1.1	1.6	0.8	1.1	1.0		
SEMI PASSIVE CORE BONDS AGGREGATE	3,293,217,233	43.5	0.8	0.8	7.7	5.6	4.5	4.0		
BBG BARC Agg (Dly)			0.6	0.6	7.0	5.2	4.2	3.6		
Excess			0.2	0.2	0.7	0.4	0.3	0.4		
TRANSITION AGGREGATE CORE BONDS (1)	18,886	0.0								
TOTAL CORE BONDS (2)	7,565,443,805	100.0	1.3	1.3	8.2	5.9	4.9	4.3	7.6	07/1984
Core Bonds Benchmark			0.6	0.6	7.0	5.2	4.2	3.6	7.2	07/1984
Excess			0.7	0.7	1.2	0.6	0.7	0.7	0.4	

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

(2) The current Core Bonds Benchmark is the Bloomberg Barclays U.S. Aggregate calculated daily: BBG BARC Agg (Dly). 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.

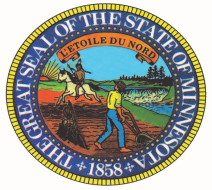


	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>
Core Bonds					
ACTIVE CORE BONDS AGGREGATE	10.0%	0.0%	4.7%	4.4%	0.6%
BBG BARC Agg (Dly)	8.7	0.0	3.5	2.6	0.5
Excess	1.3	-0.0	1.2	1.7	0.0
SEMI PASSIVE CORE BONDS AGGREGATE	9.3	-0.1	3.7	2.8	0.8
BBG BARC Agg (Dly)	8.7	0.0	3.5	2.6	0.5
Excess	0.6	-0.1	0.2	0.2	0.2
TRANSITION AGGREGATE CORE BONDS (1)					
TOTAL CORE BONDS (2)	9.7%	-0.0%	4.2%	3.6	0.7
Core Bonds Benchmark	8.7%	0.0%	3.5%	2.6	0.5
Excess	1.0%	-0.1%	0.7%	0.9	0.1

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

(2) The current Core Bonds Benchmark is the Bloomberg Barclays U.S. Aggregate calculated daily: BBG BARC Agg (Dly). For historical benchmark details please refer to the addendum of this report.

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



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Core Bonds Managers										
COLUMBIA	\$1,069,958,698	14.1%	2.3%	2.3%	9.2%	6.7%	5.8%	4.8%	5.6%	07/1993
BBG BARC Agg (Dly)			0.6	0.6	7.0	5.2	4.2	3.6	5.3	07/1993
Excess			1.7	1.7	2.2	1.4	1.6	1.2	0.3	
DODGE & COX	1,047,439,910	13.8	1.4	1.4	7.7	5.6	5.1	4.6	6.1	02/2000
BBG BARC Agg (Dly)			0.6	0.6	7.0	5.2	4.2	3.6	5.2	02/2000
Excess			0.7	0.7	0.7	0.3	0.9	1.0	0.9	
PIMCO	1,040,235,352	13.7	1.3	1.3	8.3	5.7	4.7	4.2	5.8	10/2008
BBG BARC Agg (Dly)			0.6	0.6	7.0	5.2	4.2	3.6	4.6	10/2008
Excess			0.7	0.7	1.3	0.4	0.5	0.6	1.2	
WESTERN	1,114,573,725	14.7	1.9	1.9	9.0	6.5	5.8	4.9	8.4	07/1984
BBG BARC Agg (Dly)			0.6	0.6	7.0	5.2	4.2	3.6	7.2	07/1984
Excess			1.3	1.3	2.0	1.2	1.6	1.3	1.2	
ACTIVE CORE BONDS AGGREGATE	4,272,207,686	56.5	1.7	1.7	8.6	6.1	5.3	4.6		
BBG BARC Agg (Dly)			0.6	0.6	7.0	5.2	4.2	3.6		
Excess			1.1	1.1	1.6	0.8	1.1	1.0		



	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>
Active Core Bonds Managers					
COLUMBIA	10.7%	0.2%	4.8%	5.2%	0.2%
BBG BARC Agg (Dly)	8.7	0.0	3.5	2.6	0.5
Excess	1.9	0.2	1.2	2.6	-0.4
DODGE & COX	9.6	-0.0	4.2	4.8	0.3
BBG BARC Agg (Dly)	8.7	0.0	3.5	2.6	0.5
Excess	0.9	-0.1	0.7	2.2	-0.3
PIMCO	8.4	0.4	4.4	2.8	1.0
BBG BARC Agg (Dly)	8.7	0.0	3.5	2.6	0.5
Excess	-0.3	0.4	0.8	0.2	0.4
WESTERN	11.1	-0.2	5.6	4.9	0.7
BBG BARC Agg (Dly)	8.7	0.0	3.5	2.6	0.5
Excess	2.4	-0.3	2.1	2.2	0.1
ACTIVE CORE BONDS AGGREGATE	10.0%	0.0%	4.7%	4.4	0.6
BBG BARC Agg (Dly)	8.7%	0.0%	3.5%	2.6	0.5
Excess	1.3%	-0.0%	1.2%	1.7	0.0



	<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>
Semi Passive Core Bonds Managers										
BLACKROCK	\$1,148,629,913	15.2%	0.9%	0.9%	7.7%	5.6%	4.5%	3.9%	5.4%	04/1996
BBG BARC Agg (Dly)			0.6	0.6	7.0	5.2	4.2	3.6	5.3	04/1996
Excess			0.3	0.3	0.7	0.3	0.3	0.3	0.1	
GOLDMAN SACHS	1,007,492,965	13.3	1.0	1.0	7.8	5.8	4.7	4.1	5.7	07/1993
BBG BARC Agg (Dly)			0.6	0.6	7.0	5.2	4.2	3.6	5.3	07/1993
Excess			0.3	0.3	0.9	0.5	0.5	0.5	0.4	
NEUBERGER	1,137,094,355	15.0	0.6	0.6	7.8	5.6	4.4	4.0	6.5	07/1988
BBG BARC Agg (Dly)			0.6	0.6	7.0	5.2	4.2	3.6	6.2	07/1988
Excess			-0.0	-0.0	0.8	0.3	0.2	0.3	0.2	
SEMI PASSIVE CORE BONDS AGGREGATE	3,293,217,233	43.5	0.8	0.8	7.7	5.6	4.5	4.0		
BBG BARC Agg (Dly)			0.6	0.6	7.0	5.2	4.2	3.6		
Excess			0.2	0.2	0.7	0.4	0.3	0.4		



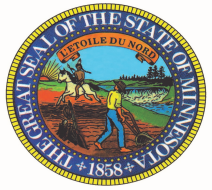
	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>
Semi Passive Core Bonds Managers					
BLACKROCK	9.3%	-0.1%	3.7%	2.8%	0.9%
BBG BARC Agg (Dly)	8.7	0.0	3.5	2.6	0.5
Excess	0.6	-0.2	0.1	0.1	0.3
GOLDMAN SACHS	9.6	-0.0	3.9	3.0	0.8
BBG BARC Agg (Dly)	8.7	0.0	3.5	2.6	0.5
Excess	0.9	-0.0	0.4	0.3	0.2
NEUBERGER	9.0	-0.1	3.6	2.7	0.7
BBG BARC Agg (Dly)	8.7	0.0	3.5	2.6	0.5
Excess	0.3	-0.1	0.0	0.1	0.2
SEMI PASSIVE CORE BONDS AGGREGATE	9.3%	-0.1%	3.7%	2.8	0.8
BBG BARC Agg (Dly)	8.7%	0.0%	3.5%	2.6	0.5
Excess	0.6%	-0.1%	0.2%	0.2	0.2

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Treasuries

September 30, 2020



	<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	\$2,468,160,030	34.2%	0.3%	0.3%	12.1%				10.2%	02/2018
BBG BARC 5Y + Us Tsy Idx			0.2	0.2	12.4				10.4	02/2018
Excess			0.1	0.1	-0.3				-0.2	
GOLDMAN SACHS	2,317,992,867	32.1	0.4	0.4	12.1				10.3	02/2018
BBG BARC 5Y + Us Tsy Idx			0.2	0.2	12.4				10.4	02/2018
Excess			0.2	0.2	-0.3				-0.1	
NEUBERGER	2,431,947,159	33.7	0.5	0.5	12.1				10.2	02/2018
BBG BARC 5Y + Us Tsy Idx			0.2	0.2	12.4				10.4	02/2018
Excess			0.2	0.2	-0.2				-0.2	
TREASURIES TRANSITION ACCOUNT										
TOTAL TREASURIES	7,218,100,057	100.0	0.4	0.4	12.1				10.2%	02/2018
BBG BARC 5Y + Us Tsy Idx			0.2	0.2	12.4				10.4%	02/2018
Excess			0.2	0.2	-0.3				-0.2%	



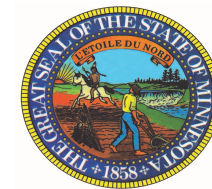
	<u>2019 Calendar Return</u>	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>
Treasuries Managers					
BLACKROCK	10.4%				
BBG BARC 5Y + Us Tsy Idx	10.4				
Excess	-0.1				
GOLDMAN SACHS					
GOLDMAN SACHS	10.6				
BBG BARC 5Y + Us Tsy Idx	10.4				
Excess	0.1				
NEUBERGER					
NEUBERGER	10.4				
BBG BARC 5Y + Us Tsy Idx	10.4				
Excess	-0.0				
TOTAL TREASURIES					
TOTAL TREASURIES	10.4%				
BBG BARC 5Y + Us Tsy Idx	10.4%				
Excess	0.0%				

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Private Markets

September 30, 2020



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	6.1%	6.1%	1.5%	8.4%	8.9%	11.1%	11.3%	13.1%	12.1%
Private Equity	7.9%	7.9%	7.9%	13.4%	13.6%	14.2%	12.1%	15.2%	
Private Credit	4.0	4.0	2.9	9.2	10.4	12.0	11.3		
Resources	2.3	2.3	-20.9	-6.7	-5.6	1.6	11.6	12.7	
Real Estate	2.5	2.5	2.9	8.2	8.0	11.3	8.4	9.3	

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
- Alternative Investments -
As of September 30, 2020

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Private Equity	16,240,919,512	10,992,045,286	9,676,518,015	6,169,842,032	7,072,646,693	1.52	12.04	
Adams Street Partners, LLC	200,000,000	115,814,692	46,182,255	84,185,308	86,797,441	1.15	4.93	
Adams Street Global Secondary Fund 5 LP	100,000,000	77,114,692	44,968,248	22,885,308	45,068,158	1.17	4.19	2012
Adams Street Global Secondary Fund 6	100,000,000	38,700,000	1,214,007	61,300,000	41,729,282	1.11	12.55	2017
Advent International Group	355,000,000	273,121,457	190,137,333	84,962,497	242,354,835	1.58	15.21	
Advent International GPE IX	115,000,000	40,537,501	0	74,462,499	45,155,655	1.11	19.88	2019
Advent International GPE VI-A, L.P.	50,000,000	52,993,313	100,573,095	0	7,012,007	2.03	16.62	2008
Advent International GPE VII, L.P.	90,000,000	84,690,641	89,564,238	5,400,000	63,059,416	1.80	14.52	2012
Advent International GPE VIII-B	100,000,000	94,900,002	0	5,099,998	127,127,758	1.34	12.58	2016
Affinity Ventures	9,000,000	9,000,000	3,248,215	0	1,509,222	0.53	-11.28	
Affinity Ventures IV, L.P.	4,000,000	4,000,000	1,541,970	0	3,279	0.39	-41.67	2004
Affinity Ventures V, L.P.	5,000,000	5,000,000	1,706,245	0	1,505,943	0.64	-7.39	2008
Apax Partners	500,000,000	368,247,529	263,377,076	180,874,716	316,821,703	1.58	15.59	
Apax IX USD L.P.	150,000,000	138,697,018	3,944,404	15,247,386	199,586,658	1.47	20.92	2016
APAX VIII - USD	200,000,000	229,550,511	259,432,671	15,627,330	117,235,045	1.64	14.39	2013
Apax X USD L.P.	150,000,000	0	0	150,000,000	0	0.00		2019
Arsenal Capital Partners	75,000,000	36,581,933	1,477,076	39,853,489	33,938,315	0.97	-3.42	
Arsenal Capital Partners V, L.P.	75,000,000	36,581,933	1,477,076	39,853,489	33,938,315	0.97	-3.42	2019
Asia Alternatives	99,000,000	45,672,255	1,154,949	54,019,778	44,011,977	0.99	-1.08	
Asia Alternatives Capital Partners V	99,000,000	45,672,255	1,154,949	54,019,778	44,011,977	0.99	-1.08	2017
Banc Fund	276,801,387	255,213,750	206,075,835	21,587,636	147,077,547	1.38	8.23	
Banc Fund IX, L.P.	107,205,932	107,205,932	19,549,737	0	91,600,822	1.04	0.95	2014
Banc Fund VIII, L.P.	98,250,000	98,250,000	186,526,098	0	14,624,412	2.05	12.23	2008
Banc Fund X, L.P.	71,345,455	49,757,818	0	21,587,636	40,852,313	0.82	-15.48	2018
BlackRock	250,000,000	127,530,934	1,492,700	122,469,066	134,502,667	1.07	6.30	
BlackRock Long Term Capital, SCSP	250,000,000	127,530,934	1,492,700	122,469,066	134,502,667	1.07	6.30	2019
Blackstone Group L.P.	590,000,000	469,978,236	557,640,329	187,787,591	192,258,352	1.60	15.17	
Blackstone Capital Partners IV, L.P.	70,000,000	84,459,884	200,025,998	1,832,302	1,563,245	2.39	37.02	2002
Blackstone Capital Partners V L.P.	140,000,000	152,334,232	238,572,267	7,027,560	4,081,841	1.59	7.87	2006
Blackstone Capital Partners VI, L.P.	100,000,000	106,079,682	107,159,245	11,175,309	54,063,763	1.52	10.55	2008
Blackstone Capital Partners VII	130,000,000	127,104,439	11,882,820	17,752,420	132,549,503	1.14	8.07	2015
Blackstone Capital Partners VIII LP	150,000,000	0	0	150,000,000	0	0.00		2019
Blackstone Strategic Partners	815,500,000	566,607,635	631,722,635	312,066,396	191,305,961	1.45	10.32	
Strategic Partners III VC, L.P.	25,000,000	25,039,648	33,676,348	1,028,056	470,765	1.36	5.99	2004
Strategic Partners III-B, L.P.	100,000,000	79,581,948	118,286,611	14,851,676	419,981	1.49	6.35	2004
Strategic Partners IV VC, L.P.	40,500,000	42,100,323	60,124,361	2,319,469	3,650,709	1.51	9.12	2008
Strategic Partners IV-B	100,000,000	99,284,545	146,832,123	17,535,783	7,115,832	1.55	12.11	2008
Strategic Partners V, LP	100,000,000	86,786,461	124,223,095	35,305,538	14,359,158	1.60	18.51	2011
Strategic Partners VI, L.P.	150,000,000	100,719,458	103,761,339	55,619,122	36,359,523	1.39	13.51	2014
Strategic Partners VII, L.P.	150,000,000	99,224,514	40,693,759	65,204,044	85,476,263	1.27	12.12	2016
Strategic Partners VIII	150,000,000	33,870,737	4,125,000	120,202,709	43,453,730	1.40	44.49	2018
Bridgepoint	172,990,682	69,134,010	4,829,389	103,856,672	70,296,039	1.09	14.30	
Bridgepoint Europe VI L.P.	172,990,682	69,134,010	4,829,389	103,856,672	70,296,039	1.09	14.30	2018

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Brookfield Asset Management Inc.	350,000,000	185,883,432	131,040,188	184,518,135	164,241,846	1.59	42.17	
Brookfield Capital Partners Fund IV	100,000,000	97,454,918	131,040,188	22,946,649	76,984,568	2.13	48.11	2015
Brookfield Capital Partners V L.P.	250,000,000	88,428,514	0	161,571,486	87,257,278	0.99	-1.88	2018
CVC Capital Partners	393,419,840	417,456,593	410,369,239	46,274,570	281,465,136	1.66	15.68	
CVC Capital Partners VI	259,428,753	263,643,548	130,560,514	44,599,745	264,120,006	1.50	13.88	2013
CVC European Equity Partners V, L.P.	133,991,087	153,813,045	279,808,725	1,674,825	17,345,130	1.93	16.74	2008
Cardinal Partners	10,000,000	10,000,000	39,196,082	0	30,659	3.92	10.61	
DSV Partners IV	10,000,000	10,000,000	39,196,082	0	30,659	3.92	10.61	1985
Carlyle Group	150,000,000	60,590,650	2,128,916	91,538,266	53,749,787	0.92	-7.90	
Carlyle Partners VII, L.P.	150,000,000	60,590,650	2,128,916	91,538,266	53,749,787	0.92	-7.90	2017
Chicago Growth Partners	160,000,000	158,939,624	247,602,298	3,602,374	2,962,933	1.58	9.89	
Chicago Growth Partners I, L.P.	50,000,000	52,441,998	54,532,745	300,000	1,771,403	1.07	1.65	2005
Chicago Growth Partners II, L.P.	60,000,000	58,347,626	123,371,040	1,652,374	440,930	2.12	19.54	2008
William Blair Capital Partners VII, L.P.	50,000,000	48,150,000	69,698,512	1,650,000	750,600	1.46	8.61	2001
Court Square	500,000,000	390,009,963	410,773,040	140,646,879	227,379,951	1.64	13.62	
Court Square Capital Partners II, L.P.	175,000,000	170,245,186	295,260,304	16,396,790	11,054,653	1.80	12.62	2006
Court Square Capital Partners III, L.P.	175,000,000	182,333,473	115,512,736	11,739,519	175,190,021	1.59	16.91	2012
Court Square Capital Partners IV, L.P.	150,000,000	37,431,304	0	112,510,570	41,135,277	1.10	12.46	2018
Crescendo	101,500,000	103,101,226	57,982,654	0	158,133	0.56	-4.63	
Crescendo Ventures IV	101,500,000	103,101,226	57,982,654	0	158,133	0.56	-4.63	2000
Elevation Partners	75,000,000	73,237,580	113,492,106	799,634	119,310	1.55	11.81	
Elevation Partners LP	75,000,000	73,237,580	113,492,106	799,634	119,310	1.55	11.81	2004
GTCR	210,000,000	205,979,774	323,594,799	16,868,000	86,269,522	1.99	22.35	
GTCR Fund X	100,000,000	104,934,096	202,619,633	6,751,396	5,030,627	1.98	21.04	2010
GTCR XI	110,000,000	101,045,678	120,975,166	10,116,604	81,238,895	2.00	25.34	2013
Goldman, Sachs & Co.	549,800,000	375,988,356	369,474,983	200,806,023	160,177,254	1.41	13.03	
GS Capital Partners V, L.P.	100,000,000	74,319,006	191,435,136	1,041,099	1,100,715	2.59	18.25	2005
GS Capital Partners VI, L.P.	100,000,000	110,258,192	134,042,009	2,551,356	9,718,125	1.30	7.09	2007
GS China-US Cooperation Fund	99,800,000	15,144,445	0	84,830,000	7,490,689	0.49	-45.45	2018
GS Vintage VII	100,000,000	79,866,513	25,865,036	46,118,662	66,270,626	1.15	8.48	2016
West Street Capital Partners VII, L.P.	150,000,000	96,400,200	18,132,802	66,264,906	75,597,100	0.97	-1.73	2016
Goldner Hawn Johnson & Morrison	77,755,138	28,260,249	12,806,955	49,666,856	37,900,882	1.79	15.11	
GHJM TrailHead Fund	20,000,000	16,070,803	12,806,955	3,935,813	25,415,351	2.38	15.53	2012
Goldner Hawn Fund VII, L.P.	57,755,138	12,189,445	0	45,731,044	12,485,531	1.02	3.58	2018
Green Equity Investors	325,000,000	220,061,822	156,584,808	141,449,802	209,645,692	1.66	13.40	
Green Equity Investors VI, L.P.	200,000,000	220,061,822	156,584,808	16,449,802	209,645,692	1.66	13.40	2012
Green Equity Investors VIII	125,000,000	0	0	125,000,000	0	0.00		2019
HarbourVest*	21,666,298	20,931,185	19,974,247	821,254	8,663,109	1.37	10.92	
Dover Street VII Cayman Fund L.P.	2,198,112	2,073,906	1,653,758	132,416	195,269	0.89	-5.25	2014
HarbourVest Intl PE Partners V-Cayman US	3,528,229	3,345,452	4,021,624	187,624	486,878	1.35	13.89	2014
HarbourVest Intl PE Partners VI-Cayman	4,242,348	4,039,120	3,164,047	205,214	3,553,508	1.66	14.82	2014
HarbourVest Partners VIII Cayman Buyout	4,506,711	4,387,189	4,639,746	156,000	1,225,303	1.34	12.42	2014
HarbourVest Partners VIII-Cayman Venture	7,190,898	7,085,519	6,495,073	140,000	3,202,150	1.37	9.54	2014
Hellman & Friedman	400,000,000	259,795,884	401,318,866	140,687,398	96,434,428	1.92	14.39	
Hellman & Friedman Capital Partners VI, L.P.	175,000,000	171,037,755	315,233,005	5,084,864	2,827,526	1.86	12.91	2007

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Hellman & Friedman Capital Partners VII, L.P.	50,000,000	49,856,571	86,085,861	2,245,784	56,676,836	2.86	23.75	2009
Hellman & Friedman Investors IX, L.P.	175,000,000	38,901,558	0	133,356,750	36,930,066	0.95	-10.22	2018
IK Limited	509,593,988	351,948,174	247,129,580	165,251,176	273,807,798	1.48	12.87	
IK Fund IX	158,193,857	2,009,192	0	156,184,666	327,979	0.16	-88.54	2019
IK Fund VII	180,602,195	178,082,353	215,835,488	8,893,700	84,370,776	1.69	13.02	2013
IK Fund VIII	170,797,936	171,856,630	31,294,092	172,811	189,109,043	1.28	12.83	2016
Kohlberg, Kravis, Roberts & Co.	900,000,000	605,849,234	773,413,692	333,700,683	241,385,859	1.68	12.70	
KKR 2006 Fund L.P.	200,000,000	219,050,752	333,440,550	3,300,979	46,493,519	1.73	8.89	2006
KKR Americas Fund XII L.P.	150,000,000	83,572,553	2,137,029	71,486,905	93,904,310	1.15	8.28	2016
KKR Asian Fund III	100,000,000	65,690,902	12,890,085	41,280,256	69,202,129	1.25	19.47	2017
KKR Asian Fund IV	150,000,000	0	0	150,000,000	0	0.00		2020
KKR Europe V	100,000,000	32,367,457	0	67,632,543	31,623,977	0.98	-4.17	2018
KKR Millennium Fund	200,000,000	205,167,570	424,946,028	0	161,924	2.07	16.37	2002
Lexington Partners	1,200,000,000	645,660,923	486,885,897	599,635,211	392,473,886	1.36	11.24	
Lexington Capital Partners IX, L.P.	150,000,000	25,749,746	3,908,352	126,284,882	28,963,919	1.28	73.27	2018
Lexington Capital Partners VI-B, L.P.	100,000,000	98,374,022	139,562,591	1,634,703	6,068,732	1.48	7.88	2005
Lexington Capital Partners VII, L.P.	200,000,000	172,466,709	234,014,811	38,059,995	37,692,529	1.58	14.06	2009
Lexington Capital Partners VIII, L.P.	150,000,000	134,716,285	80,947,191	33,755,157	93,014,151	1.29	12.96	2014
Lexington Co-Investment Partners IV	200,000,000	186,207,710	26,994,941	28,046,925	200,880,209	1.22	13.02	2017
Lexington Co-Investment Partners V	300,000,000	0	0	300,000,000	0	0.00		2020
Lexington Middle Market Investors IV	100,000,000	28,146,451	1,458,011	71,853,549	25,854,346	0.97	-3.65	2016
Madison Dearborn Capital Partners LLC	200,000,000	91,268,482	9,300,552	117,995,323	97,909,168	1.17	7.59	
Madison Dearborn Capital Partners VII, L.P.	100,000,000	91,268,482	9,300,552	17,995,323	97,577,506	1.17	7.45	2015
Madison Dearborn Capital Partners VIII-A, L.P.	100,000,000	0	0	100,000,000	331,662	0.00		2019
Neuberger Berman LLC	425,000,000	227,884,847	147,903,187	321,193,796	142,261,374	1.27	20.49	
Dyal Capital Partners III	175,000,000	176,947,208	135,891,321	110,484,158	97,998,492	1.32	20.94	2015
Dyal Capital Partners IV	250,000,000	50,937,639	12,011,866	210,709,638	44,262,882	1.10	16.29	2018
Nordic Capital	507,135,482	307,241,241	148,098,855	241,612,958	293,263,159	1.44	14.90	
Nordic Capital Fund VIII	177,954,021	206,223,692	143,324,844	13,449,046	159,485,538	1.47	12.56	2013
Nordic Capital Fund X	158,307,812	0	0	158,307,812	0	0.00		2020
Nordic Capital IX Beta, L.P.	170,873,649	101,017,549	4,774,012	69,856,100	133,777,621	1.37	45.67	2017
North Sky Capital*	2,454,339	1,998,089	2,260,406	456,250	357,681	1.31	11.04	
North Sky Capital LBO Fund III, LP	1,070,259	720,259	890,943	350,000	129,832	1.42	13.09	2014
North Sky Capital Venture Fund III, LP	1,384,080	1,277,830	1,369,463	106,250	227,849	1.25	9.64	2014
Oak Hill Capital Management, Inc.	250,000,000	144,461,526	28,267,962	127,334,910	141,329,729	1.17	13.80	
Oak Hill Capital Partners IV Onshore LP	150,000,000	144,461,526	28,267,962	27,334,910	141,329,729	1.17	13.80	2016
Oak Hill Capital Partners V	100,000,000	0	0	100,000,000	0	0.00		2018
Paine & Partners, LLC	225,000,000	79,384,299	14,823,737	146,688,855	78,770,331	1.18	6.72	
Paine Schwartz Food Chain Fund IV	75,000,000	62,851,819	14,823,737	13,221,335	66,507,645	1.29	8.81	2014
Paine Schwartz Food Chain Fund V, L.P.	150,000,000	16,532,480	0	133,467,520	12,262,686	0.74	-31.49	2018
Permal PE*	5,337,098	4,386,677	3,831,251	1,090,000	782,875	1.05	2.05	
Glouster Private Equity Opportunities IV	5,337,098	4,386,677	3,831,251	1,090,000	782,875	1.05	2.05	2014
Permira	461,256,400	323,608,491	234,301,900	175,781,661	404,063,909	1.97	21.88	
Permira V, L.P.	178,289,148	173,983,591	215,682,471	26,139,312	232,458,293	2.58	23.14	2013

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Permira VI, L.P.	138,166,832	122,910,381	18,619,429	31,556,447	143,471,388	1.32	14.78	2016
Permira VII L.P.1	144,800,420	26,714,519	0	118,085,901	28,134,228	1.05	6.22	2019
Public Pension Capital Management	150,000,000	82,242,296	50,272,616	80,046,009	98,689,905	1.81	23.46	
Public Pension Capital, LLC	150,000,000	82,242,296	50,272,616	80,046,009	98,689,905	1.81	23.46	2014
Silver Lake Partners	435,000,000	399,745,750	448,589,801	44,538,752	262,888,166	1.78	14.48	
Silver Lake Partners II, L.P.	100,000,000	90,200,747	171,694,975	11,771,953	86,144	1.90	11.02	2004
Silver Lake Partners III, L.P.	100,000,000	93,684,797	187,521,892	9,422,180	20,573,652	2.22	18.36	2007
Silver Lake Partners IV	100,000,000	112,921,146	88,224,710	4,168,036	127,294,835	1.91	22.55	2012
Silver Lake Partners V, L.P.	135,000,000	102,939,060	1,148,224	19,176,583	114,933,534	1.13	9.70	2017
Split Rock	110,000,000	107,055,906	108,769,561	2,944,094	29,138,924	1.29	3.90	
Split Rock Partners II, LP	60,000,000	59,165,000	49,975,369	835,000	24,751,494	1.26	4.68	2008
Split Rock Partners LP	50,000,000	47,890,906	58,794,192	2,109,094	4,387,430	1.32	3.38	2005
Summit Partners	350,000,000	243,981,298	230,585,483	182,242,386	188,784,636	1.72	25.29	
Summit Partners Growth Equity Fund IX	100,000,000	114,634,107	37,059,941	22,425,834	121,505,825	1.38	24.11	2015
Summit Partners Growth Equity Fund VIII	100,000,000	116,057,192	193,525,542	23,106,551	51,929,433	2.11	25.45	2011
Summit Partners Growth Equity Fund X-A	150,000,000	13,289,999	0	136,710,001	15,349,377	1.15	19.21	2019
TPG Capital	250,000,000	117,133,863	39,175,127	140,457,655	100,855,859	1.20	8.51	
TPG Partners VII, L.P.	100,000,000	97,246,905	39,175,127	10,344,613	85,622,190	1.28	10.40	2015
TPG Partners VIII	150,000,000	19,886,958	0	130,113,042	15,233,669	0.77	-41.54	2018
Thoma Bravo LLC	275,000,000	234,756,786	182,222,806	89,684,606	199,652,783	1.63	23.56	
Thoma Bravo Fund XII, L.P.	75,000,000	76,881,377	5,117,450	3,307,308	106,201,187	1.45	14.17	2016
Thoma Bravo Fund XIII, L.P.	150,000,000	107,875,409	70,047,416	86,377,298	92,993,629	1.51	46.84	2018
Thoma Cressey Fund VII, L.P.	50,000,000	50,000,000	107,057,940	0	457,967	2.15	23.58	2000
Thomas H. Lee Partners	250,000,000	173,130,197	58,729,414	94,984,286	200,279,439	1.50	25.60	
Thomas H. Lee Equity Fund VII, LP.	100,000,000	98,846,104	47,639,984	9,920,258	113,694,658	1.63	22.10	2015
Thomas H. Lee Equity Fund VIII, L.P.	150,000,000	74,284,093	11,089,430	85,064,028	86,584,781	1.31	59.28	2018
Thomas, McNerney & Partners	80,000,000	78,125,000	122,735,180	1,875,000	8,246,209	1.68	8.60	
Thomas, McNerney & Partners I, L.P.	30,000,000	30,000,000	15,087,143	0	3,430,913	0.62	-7.15	2002
Thomas, McNerney & Partners II, L.P.	50,000,000	48,125,000	107,648,037	1,875,000	4,815,295	2.34	16.64	2006
Vestar Capital Partners	380,000,000	277,322,319	317,423,395	111,711,788	118,100,556	1.57	11.12	
Vestar Capital Partners IV, L.P.	55,000,000	55,652,024	102,293,320	57,313	341,667	1.84	14.63	1999
Vestar Capital Partners V, L.P.	75,000,000	76,772,265	91,881,647	0	8,618,021	1.31	3.83	2005
Vestar Capital Partners VI, LP	100,000,000	106,516,978	123,127,619	35,527	68,219,841	1.80	24.17	2011
Vestar Capital Partners VII, L.P.	150,000,000	38,381,052	120,808	111,618,948	40,921,028	1.07	4.52	2017
Vista Equity Partners	200,000,000	69,166,924	0	132,045,979	67,161,473	0.97	-2.90	
Vista Equity Partners	200,000,000	69,166,924	0	132,045,979	67,161,473	0.97	-2.90	2020
Warburg Pincus	1,216,000,000	971,379,116	1,049,599,667	251,194,500	459,538,609	1.55	10.96	
Warburg Pincus China-Southeast Asia II	50,000,000	6,350,000	0	43,650,000	6,083,865	0.96	-10.49	2019
Warburg Pincus China, L.P.	45,000,000	44,460,000	9,340,200	2,475,000	51,743,909	1.37	16.06	2016
Warburg Pincus Financial Sector	90,000,000	67,383,308	4,590,000	26,955,000	66,407,185	1.05	4.36	2017
Warburg Pincus Global Growth, L.P.	250,000,000	75,334,589	0	174,250,000	71,435,659	0.95	-8.00	2018
Warburg Pincus Private Equity IX, L.P.	100,000,000	100,000,000	169,104,301	0	3,327,189	1.72	9.64	2005
Warburg Pincus Private Equity VIII, LP	100,000,000	100,373,266	228,717,051	0	393,172	2.28	14.74	2002
Warburg Pincus Private Equity X, LP	150,000,000	150,000,000	242,958,102	0	17,142,394	1.73	9.16	2007
Warburg Pincus Private Equity XI, LP	200,000,000	200,342,452	216,017,748	0	99,584,776	1.58	11.61	2012

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Warburg Pincus Private Equity XII, LP	131,000,000	127,135,500	15,330,013	3,864,500	143,026,807	1.25	9.22	2015
Warburg, Pincus Equity Partners, L.P.	100,000,000	100,000,000	163,542,253	0	393,652	1.64	10.03	1998
Wellspring Capital Partners	125,000,000	50,867,994	0	74,132,006	47,060,372	0.93	-6.24	
Wellspring Capital Partners VI, L.P.	125,000,000	50,867,994	0	74,132,006	47,060,372	0.93	-6.24	2016
Welsh, Carson, Anderson & Stowe	500,000,000	278,969,146	221,616,156	221,030,854	201,559,165	1.52	14.11	
Welsh, Carson, Anderson & Stowe XI, L.P.	100,000,000	100,000,000	130,320,188	0	30,092,896	1.60	11.39	2008
Welsh, Carson, Anderson & Stowe XII, L.P.	150,000,000	137,835,285	91,295,968	12,164,715	139,417,891	1.67	21.92	2014
Welsh, Carson, Anderson & Stowe XIII, L.P.	250,000,000	41,133,861	0	208,866,139	32,048,378	0.78	-53.04	2018
Whitehorse Capital	200,000,000	75,348,740	19,719,762	139,497,149	66,565,777	1.15	24.05	
Whitehorse Liquidity Partners III	100,000,000	75,348,740	19,719,762	39,497,149	66,565,777	1.15	24.05	2019
Whitehorse Liquidity Partners IV	100,000,000	0	0	100,000,000	0	0.00		2020
Wind Point Partners	100,000,000	18,312,845	0	81,691,758	16,355,723	0.89	-18.15	
Wind Point Partners IX	100,000,000	18,312,845	0	81,691,758	16,355,723	0.89	-18.15	2019
Windjammer Capital Investors	266,708,861	183,676,355	127,185,054	81,682,045	151,290,628	1.52	10.07	
Windjammer Mezzanine & Equity Fund II	66,708,861	55,215,684	84,876,800	1,013,936	65,571	1.54	8.94	2000
Windjammer Senior Equity Fund IV, L.P.	100,000,000	94,740,728	41,101,357	13,181,155	121,424,022	1.72	13.00	2012
Windjammer Senior Equity Fund V, L.P.	100,000,000	33,719,943	1,206,897	67,486,954	29,801,035	0.92	-10.07	2017
Private Credit	2,905,177,584	1,926,085,328	1,716,967,860	1,187,747,302	767,544,203	1.29	9.41	
Audax Group	300,000,000	158,161,429	145,095,317	154,229,840	50,648,416	1.24	9.32	
Audax Mezzanine Fund III, L.P.	100,000,000	98,416,787	112,447,466	3,221,335	16,339,088	1.31	9.50	2010
Audax Mezzanine Fund IV-A, L.P.	100,000,000	59,744,642	32,647,851	51,008,504	34,309,328	1.12	8.42	2015
Audax Mezzanine Fund V	100,000,000	0	0	100,000,000	0	0.00		2020
BlackRock	97,500,000	69,802,405	4,707,586	27,697,595	68,223,684	1.04	3.88	
BlackRock Middle Market Senior Fund	97,500,000	69,802,405	4,707,586	27,697,595	68,223,684	1.04	3.88	2018
Energy Capital Partners	100,000,000	11,167,119	1,705,128	90,538,009	9,027,162	0.96	-6.35	
Energy Capital Credit Solutions II-A	100,000,000	11,167,119	1,705,128	90,538,009	9,027,162	0.96	-6.35	2018
Gold Hill	65,852,584	65,852,584	110,006,747	0	6,048,409	1.76	11.82	
Gold Hill 2008	25,852,584	25,852,584	44,745,145	0	5,679,598	1.95	14.52	2008
Gold Hill Venture Lending	40,000,000	40,000,000	65,261,602	0	368,811	1.64	10.71	2004
Goldman, Sachs & Co.	250,000,000	261,164,272	315,121,215	47,422,591	1,860,254	1.21	6.79	
GS Mezzanine Partners 2006 Institutional	100,000,000	113,454,150	134,861,849	9,858,563	782,591	1.20	5.00	2006
GS Mezzanine Partners V, L.P.	150,000,000	147,710,122	180,259,366	37,564,028	1,077,663	1.23	9.07	2007
HPS Investment Partners	100,000,000	39,881,088	6,992,329	66,598,732	35,388,810	1.06	11.21	
HPS Mezzanine Partners 2019, L.P.	100,000,000	39,881,088	6,992,329	66,598,732	35,388,810	1.06	11.21	2019
Kohlberg, Kravis, Roberts & Co.	274,000,000	194,781,049	122,011,581	119,924,328	96,795,712	1.12	7.09	
KKR Lending Partner II L.P.	75,000,000	86,473,349	79,747,153	8,802,924	11,788,901	1.06	3.08	2015
KKR Lending Partners III L.P.	199,000,000	108,307,700	42,264,428	111,121,404	85,006,811	1.18	11.78	2017
LBC Credit Partners	200,000,000	98,170,147	40,866,976	123,791,029	73,795,186	1.17	9.77	
LBC Credit Partners IV, L.P.	100,000,000	89,694,286	40,866,976	32,291,029	65,299,198	1.18	9.85	2016
LBC Credit Partners V, L.P.	100,000,000	8,475,861	0	91,500,000	8,495,988	1.00	0.58	2019
Marathon	100,000,000	33,022,008	723,102	68,000,000	39,573,760	1.22	18.65	
Marathon Secured Private Strategies Fund II	100,000,000	33,022,008	723,102	68,000,000	39,573,760	1.22	18.65	2019
Merit Capital Partners	312,825,000	213,633,349	237,248,177	99,124,851	101,042,956	1.58	11.01	

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Merit Mezzanine Fund IV, L.P.	75,000,000	70,178,571	139,120,463	4,821,429	696,972	1.99	11.58	2004
Merit Mezzanine Fund V, LP	75,000,000	71,044,898	75,273,236	3,955,102	32,420,744	1.52	9.39	2009
Merit Mezzanine Fund VI	100,000,000	72,409,879	22,854,478	27,523,321	67,925,240	1.25	11.99	2016
Merit Mezzanine Fund VII	62,825,000	0	0	62,825,000	0	0.00		2020
Oaktree Capital Management, LLC	100,000,000	20,000,000	371,269	80,000,000	19,989,221	1.02	2.97	
Oaktree Real Estate Debt III	100,000,000	20,000,000	371,269	80,000,000	19,989,221	1.02	2.97	2020
Portfolio Advisors LLC	100,000,000	80,867,108	96,478,980	936,315	489,328	1.20	7.52	
IP III Mezzanine Partners, L.P.	100,000,000	80,867,108	96,478,980	936,315	489,328	1.20	7.52	2006
Prudential Global Investment Mgmt	550,000,000	426,948,114	418,805,399	164,702,165	172,148,868	1.38	10.30	
PGIM Capital Partners VI, L.P.	100,000,000	0	0	100,000,000	0	0.00		2020
Prudential Capital Partners II, L.P.	100,000,000	97,418,748	136,427,860	11,049,052	2,651,909	1.43	8.52	2005
Prudential Capital Partners III, L.P.	100,000,000	102,368,766	173,303,122	13,873,783	2,457,623	1.72	14.09	2009
Prudential Capital Partners IV	100,000,000	110,990,313	87,902,025	2,184,792	54,433,822	1.28	8.52	2012
Prudential Capital Partners V, L.P.	150,000,000	116,170,287	21,172,391	37,594,538	112,605,514	1.15	8.15	2016
Summit Partners	95,000,000	100,002,497	132,650,822	22,100,132	7,984,457	1.41	9.34	
Summit Subordinated Debt Fund III, L.P.	45,000,000	44,088,494	60,443,093	2,250,000	3,854,659	1.46	8.89	2004
Summit Subordinated Debt Fund IV, L.P.	50,000,000	55,914,003	72,207,729	19,850,132	4,129,798	1.37	10.09	2008
TCW	260,000,000	152,632,160	84,183,233	122,681,715	84,527,980	1.11	5.42	
TCW Direct Lending LLC	100,000,000	83,599,652	71,998,551	25,329,409	26,558,082	1.18	6.62	2014
TCW Direct Lending VII	100,000,000	63,032,508	12,184,682	43,352,306	51,974,518	1.02	1.51	2018
TCW TALF Opportunities Fund	60,000,000	6,000,000	0	54,000,000	5,995,380	1.00	-0.08	2020
Real Assets	4,409,571,518	3,827,466,276	3,181,446,480	753,148,475	1,737,866,130	1.29	11.77	
BlackRock	198,500,000	95,915,513	19,552,248	109,547,631	80,615,979	1.04	2.34	
BlackRock Global Renewable Power Fund II	98,500,000	89,988,766	19,552,248	15,474,378	74,689,232	1.05	2.35	2017
BlackRock Global Renewable Power Infrastructure III	100,000,000	5,926,747	0	94,073,253	5,926,747	1.00		2019
EIG Global Energy Partners	450,000,000	460,714,196	332,226,266	82,090,869	146,149,057	1.04	1.10	
EIG Energy Fund XIV	100,000,000	113,459,470	95,309,310	2,761,129	5,031,823	0.88	-4.56	2007
EIG Energy Fund XV	150,000,000	159,823,964	139,398,552	22,871,323	28,589,425	1.05	1.31	2010
EIG Energy Fund XVI	200,000,000	187,430,762	97,518,404	56,458,417	112,527,809	1.12	3.80	2013
Encap Energy	400,000,000	415,166,938	297,154,405	19,852,327	113,816,159	0.99	-0.49	
EnCap Energy Capital Fund VII, L.P.	100,000,000	105,379,160	135,157,214	0	2,950,883	1.31	14.17	2007
EnCap Energy Capital Fund VIII, L.P.	100,000,000	103,335,766	54,781,243	470,044	19,184,114	0.72	-10.22	2010
EnCap Energy Capital Fund X, L.P.	100,000,000	93,855,846	21,939,160	14,374,852	63,718,062	0.91	-3.54	2015
Encap Energy Fund IX	100,000,000	112,596,165	85,276,789	5,007,431	27,963,100	1.01	0.24	2012
Energy & Minerals Group	680,000,000	653,979,722	354,250,823	62,421,134	429,378,256	1.20	5.47	
NGP Midstream & Resources, L.P.	100,000,000	103,527,211	178,140,260	17,857	6,630,987	1.78	13.35	2007
The Energy & Minerals Group Fund II, L.P.	100,000,000	106,674,084	104,295,500	170,365	87,707,718	1.80	12.89	2011
The Energy & Minerals Group Fund III, L.P.	200,000,000	201,327,783	22,410,545	1,284,543	95,823,520	0.59	-10.63	2014
The Energy & Minerals Group Fund IV, LP	150,000,000	150,988,007	48,704,539	21,139,998	136,765,025	1.23	7.57	2015
The Energy & Minerals Group Fund V	112,500,000	77,354,495	699,979	36,333,644	86,045,250	1.12	11.31	2019
The Energy & Minerals Group Fund V Accordion, LP	17,500,000	14,108,142	0	3,474,727	16,405,755	1.16	15.56	2019

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Energy Capital Partners	450,000,000	367,374,146	232,515,645	164,715,800	222,691,093	1.24	7.96	
Energy Capital Partners II-A	100,000,000	85,722,480	112,434,332	29,749,110	3,611,745	1.35	8.78	2010
Energy Capital Partners III, L.P.	200,000,000	227,660,766	104,903,305	27,053,196	171,149,961	1.21	7.19	2013
Energy Capital Partners IV-A, LP	150,000,000	53,990,900	15,178,008	107,913,494	47,929,388	1.17	9.55	2017
Enervest Management Partners	100,000,000	97,755,702	41,175,285	10,337,996	58,119,416	1.02	0.50	
EnerVest Energy Institutional Fund XIV-A, L.P.	100,000,000	97,755,702	41,175,285	10,337,996	58,119,416	1.02	0.50	2015
First Reserve	500,000,000	537,063,780	247,740,570	4,463,054	150,393,426	0.74	-8.88	
First Reserve Fund XI, L.P.	150,000,000	150,292,121	98,378,656	0	157,883	0.66	-9.45	2006
First Reserve Fund XII, L.P.	150,000,000	165,617,044	82,471,718	0	13,686,686	0.58	-12.61	2008
First Reserve Fund XIII, L.P.	200,000,000	221,154,615	66,890,196	4,463,054	136,548,856	0.92	-4.84	2013
Kohlberg, Kravis, Roberts & Co.	149,850,000	62,862,036	3,882,386	93,632,913	53,166,758	0.91	-9.71	
KKR Global Infrastructure Investors III	149,850,000	62,862,036	3,882,386	93,632,913	53,166,758	0.91	-9.71	2018
Merit Energy Partners	781,721,518	553,872,174	1,224,513,409	110,293,705	269,988,420	2.70	23.87	
Merit Energy Partners B	24,000,000	24,000,000	189,858,902	0	1,554,840	7.98	24.27	1997
Merit Energy Partners C	25,000,000	25,000,000	244,016,835	0	1,855,365	9.83	30.03	1998
Merit Energy Partners C II	25,000,000	25,000,000	270,160,906	0	3,115,479	10.93	31.88	1998
Merit Energy Partners D I	63,500,000	53,039,103	222,746,220	0	7,248,919	4.34	21.32	2001
Merit Energy Partners D-II, L.P.	24,500,000	17,899,200	111,054,118	0	4,461,045	6.45	25.70	2001
Merit Energy Partners E I	50,000,000	18,230,644	43,124,116	0	490,302	2.39	14.17	2004
Merit Energy Partners E-II, L.P.	50,000,000	21,752,553	39,726,797	0	1,451,992	1.89	8.86	2004
Merit Energy Partners F-II, L.P.	100,000,000	59,522,861	30,129,452	0	6,602,004	0.62	-7.98	2006
Merit Energy Partners H	100,000,000	100,000,000	29,668,582	0	44,169,810	0.74	-5.61	2011
Merit Energy Partners I, L.P.	169,721,518	169,721,518	43,839,059	0	154,645,708	1.17	4.67	2014
Merit Energy Partners K, L.P.	150,000,000	39,706,295	188,422	110,293,705	44,392,956	1.12	17.94	2019
NGP	599,500,000	548,409,064	408,135,443	82,293,045	190,907,570	1.09	3.81	
Natural Gas Partners IX, LP	150,000,000	173,921,032	245,366,339	605,481	2,819,897	1.43	11.99	2007
NGP Natural Resources X, L.P.	150,000,000	146,856,370	116,514,590	3,143,630	24,250,441	0.96	-1.30	2011
NGP Natural Resources XI, L.P.	150,000,000	148,949,665	46,254,514	8,066,406	98,473,004	0.97	-1.07	2014
NGP Natural Resources XII, L.P.	149,500,000	78,681,997	0	70,477,528	65,364,228	0.83	-10.67	2017
Sheridan	100,000,000	34,353,005	20,300,000	13,500,000	22,639,995	1.25	7.82	
Sheridan Production Partners III-B, L.P.	100,000,000	34,353,005	20,300,000	13,500,000	22,639,995	1.25	7.82	2014
Real Estate	2,948,147,868	1,816,631,272	1,313,345,443	1,207,339,679	1,059,299,953	1.31	8.64	
Angelo, Gordon & Co.	550,000,000	286,372,059	58,540,815	267,471,250	283,708,839	1.20	9.44	
AG Asia Realty Fund III, L.P.	50,000,000	47,587,261	35,000,000	6,196,250	29,325,401	1.35	14.06	2016
AG Asia Realty Fund IV, L.P.	100,000,000	34,049,050	0	64,750,000	36,531,514	1.07	7.52	2018
AG Europe Realty Fund II, L.P.	75,000,000	59,350,822	28,384	15,000,000	68,668,260	1.16	9.07	2018
AG Europe Realty Fund III	75,000,000	10,500,000	0	64,500,000	10,084,001	0.96	-3.96	2020
AG Realty Fund IX	100,000,000	92,141,126	23,500,000	11,650,000	94,958,800	1.29	8.79	2014
AG Realty Fund X, L.P.	150,000,000	42,743,800	12,431	105,375,000	44,140,863	1.03	3.79	2018
Blackstone	824,500,000	616,990,922	642,618,271	310,291,789	308,841,616	1.54	11.98	
Blackstone Real Estate Partners Asia II	74,500,000	32,023,527	2,330,711	46,532,225	29,383,495	0.99	-0.82	2017
Blackstone Real Estate Partners IX, L.P.	300,000,000	96,943,279	13,630,173	215,530,261	85,786,115	1.03	4.13	2018

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
Blackstone Real Estate Partners V	100,000,000	104,213,007	203,023,990	4,174,052	2,510,126	1.97	10.71	2006
Blackstone Real Estate Partners VI, L.P.	100,000,000	109,477,567	215,712,768	4,907,906	4,124,095	2.01	13.09	2007
Blackstone Real Estate Partners VII, LP	100,000,000	109,752,670	144,355,194	12,575,003	38,822,000	1.67	14.73	2011
Blackstone Real Estate VIII.TE.1 L.P.	150,000,000	164,580,872	63,565,435	26,572,342	148,215,785	1.29	11.38	2015
Blackstone Strategic Partners	75,000,000	77,499,795	64,992,017	1,054,921	2,054,053	0.87	-2.13	
Strategic Partners III RE, L.P.	25,000,000	25,987,864	15,252,523	9,006	101,616	0.59	-6.46	2005
Strategic Partners IV RE, L.P.	50,000,000	51,511,931	49,739,494	1,045,915	1,952,437	1.00	0.06	2008
Carlyle Group	150,000,000	51,402,497	6,886,974	105,572,776	47,643,832	1.06	5.88	
Carlyle Realty Partners VIII, L.P.	150,000,000	51,402,497	6,886,974	105,572,776	47,643,832	1.06	5.88	2017
Colony Capital LLC	100,000,000	99,660,860	173,802,105	0	2,377,200	1.77	14.49	
Colony Investors III	100,000,000	99,660,860	173,802,105	0	2,377,200	1.77	14.49	1997
Landmark Partners	149,500,000	62,662,496	24,511,621	92,663,765	45,158,002	1.11	9.36	
Landmark Real Estate Partners VIII, L.P.	149,500,000	62,662,496	24,511,621	92,663,765	45,158,002	1.11	9.36	2016
Lubert Adler	74,147,868	63,877,820	11,636,760	11,122,180	69,252,941	1.27	13.89	
Lubert-Adler Real Estate Fund VII-B, L.P.	74,147,868	63,877,820	11,636,760	11,122,180	69,252,941	1.27	13.89	2017
Oaktree Capital Management, LLC	100,000,000	9,500,000	9,500,000	100,000,000	7,840,289	1.83	92.42	
Oaktree Real Estate Opportunities Fund VIII	100,000,000	9,500,000	9,500,000	100,000,000	7,840,289	1.83	92.42	2020
Rockpoint	200,000,000	109,034,988	27,342,008	105,819,571	91,303,258	1.09	4.24	
Rockpoint Real Estate Fund V, L.P.	100,000,000	93,734,832	27,330,781	21,119,727	75,905,686	1.10	4.30	2014
Rockpoint Real Estate Fund VI, L.P.	100,000,000	15,300,156	11,227	84,699,844	15,397,572	1.01	0.69	2019
Rockwood	200,000,000	85,872,673	13,425,272	115,813,706	72,225,051	1.00	-0.12	
Rockwood Capital RE Partners X, L.P.	100,000,000	85,209,228	13,425,272	16,475,301	72,225,051	1.01	0.23	2015
Rockwood Capital RE Partners XI	100,000,000	663,445	0	99,338,405	0	0.00	-99.93	2019
Silverpeak Real Estate Partners	225,000,000	143,757,163	105,887,112	7,529,720	8,855,184	0.80	-3.60	
Silverpeak Legacy Pension Partners II, L.P.	75,000,000	73,035,350	91,687,519	7,529,720	579,409	1.26	4.16	2005
Silverpeak Legacy Pension Partners III, L.P.	150,000,000	70,721,813	14,199,594	0	8,275,775	0.32	-12.00	2008
TA Associates Realty	300,000,000	210,000,000	174,202,489	90,000,000	120,039,688	1.40	10.77	
Realty Associates Fund X	100,000,000	100,000,000	150,113,746	0	11,240,756	1.61	12.75	2012
Realty Associates Fund XI	100,000,000	100,000,000	24,088,743	0	100,337,152	1.24	7.53	2015
Realty Associates Fund XII	100,000,000	10,000,000	0	90,000,000	8,461,780	0.85	-15.38	2018
Distressed/Opportunistic	3,614,714,067	2,464,858,840	2,180,099,002	1,180,460,667	1,179,155,283	1.36	9.41	
Avenue Capital Partners	200,000,000	200,977,328	29,877,244	0	177,851,772	1.03	0.96	
Avenue Energy Opportunities Fund II	100,000,000	100,000,000	417,420	0	100,395,600	1.01	0.35	2017
Avenue Energy Opportunities Fund, L.P.	100,000,000	100,977,328	29,459,824	0	77,456,172	1.06	1.25	2014
BlackRock*	1,774,870	1,774,870	1,737,312	0	229,353	1.11	5.84	
BlackRock Tempus Fund	1,774,870	1,774,870	1,737,312	0	229,353	1.11	5.84	2015
Canyon Partners	100,000,000	58,750,000	0	41,250,000	58,750,000	1.00		
Canyon Distressed Opportunity Fund III	100,000,000	58,750,000	0	41,250,000	58,750,000	1.00		2020
CarVal Investors	900,000,000	723,203,333	849,450,378	177,000,000	220,483,231	1.48	10.50	
CarVal Credit Value Fund I	100,000,000	95,000,000	212,205,836	5,000,000	1,643,806	2.25	18.72	2010
CVI Credit Value Fund A II	150,000,000	142,500,000	198,980,650	7,500,000	1,499,379	1.41	8.08	2012
CVI Credit Value Fund A III	150,000,000	142,500,000	118,026,693	7,500,000	62,574,478	1.27	7.90	2015
CVI Credit Value Fund IV	150,000,000	145,703,333	60	4,500,000	146,696,156	1.01	0.50	2017

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
CVI Credit Value Fund V	150,000,000	7,500,000	0	142,500,000	7,500,000	1.00		2020
CVI Global Value Fund, L.P.	200,000,000	190,000,000	320,237,140	10,000,000	569,412	1.69	9.53	2007
Carlyle Group	100,000,000	54,103,055	21,800,522	67,645,533	28,392,003	0.93	-5.99	
Carlyle Strategic Partners IV, L.P.	100,000,000	54,103,055	21,800,522	67,645,533	28,392,003	0.93	-5.99	2016
MHR Institutional Partners	75,000,000	54,559,392	6,742,795	27,124,823	58,183,708	1.19	7.30	
MHR Institutional Partners IV LP	75,000,000	54,559,392	6,742,795	27,124,823	58,183,708	1.19	7.30	2014
Marathon	200,000,000	10,000,000	3,613,525	193,485,193	8,926,367	1.25	25.93	
Marathon Distressed Credit Fund	200,000,000	10,000,000	3,613,525	193,485,193	8,926,367	1.25	25.93	2020
Merced Capital	278,737,500	278,883,748	231,259,646	5,360,662	86,699,124	1.14	3.18	
Merced Partners III	100,000,000	100,000,000	129,676,445	0	5,932,995	1.36	6.12	2010
Merced Partners IV	125,000,000	124,968,390	96,222,539	0	42,303,012	1.11	2.43	2013
Merced Partners V	53,737,500	53,915,358	5,360,662	5,360,662	38,463,118	0.81	-6.44	2017
Oaktree Capital Management, LLC	650,000,000	232,215,698	31,605,838	434,989,598	216,807,825	1.07	3.90	
Oaktree Opportunities Fund X, L.P.	50,000,000	46,500,021	13,969,660	8,500,000	41,403,322	1.19	6.63	2015
Oaktree Opportunities Fund Xb, L.P.	100,000,000	55,000,000	0	45,000,000	54,263,825	0.99	-1.61	2015
Oaktree Opportunities Fund XI	300,000,000	15,000,000	0	285,000,000	15,000,000	1.00	0.00	2020
Oaktree Special Situations Fund II, L.P.	100,000,000	18,671,187	0	81,248,304	20,060,171	1.07	20.07	2018
Oaktree Special Situations Fund, L.P.	100,000,000	97,044,490	17,636,178	15,241,294	86,080,507	1.07	2.92	2014
PIMCO BRAVO*	9,201,697	8,643,066	8,132,432	7,055,314	1,583,481	1.12	3.98	
PIMCO BRAVO Fund Onshore Feeder I	3,958,027	3,958,027	3,989,987	2,359,425	37,751	1.02	1.72	2014
PIMCO Bravo Fund OnShore Feeder II	5,243,670	4,685,039	4,142,445	4,695,889	1,545,730	1.21	4.40	2014
TSSP	200,000,000	73,583,350	9,392,927	135,799,544	70,262,147	1.08	8.86	
TSSP Adjacent Opportunities GenPar, L.P	100,000,000	21,335,757	204	78,664,243	22,041,480	1.03	11.69	2018
TSSP Adjacent Opportunities Partners (B)	50,000,000	34,984,418	7,755,531	22,771,113	31,844,550	1.13	9.93	2018
TSSP Opportunities Partners IV (A), L.P.	50,000,000	17,263,175	1,637,192	34,364,188	16,376,117	1.04	4.68	2018
Varde Fund	600,000,000	525,000,000	620,188,574	75,000,000	222,781,486	1.61	10.45	
Varde Fund IX, L.P.	100,000,000	100,000,000	215,880,706	0	481,993	2.16	15.01	2008
Varde Fund X, LP	150,000,000	150,000,000	249,265,784	0	21,138,665	1.80	10.63	2010
Varde Fund XI, LP	200,000,000	200,000,000	155,022,046	0	121,588,903	1.38	5.86	2013
Varde Fund XIII, L.P.	150,000,000	75,000,000	20,038	75,000,000	79,571,925	1.06	9.70	2018
Wayzata Investment Partners	300,000,000	243,165,000	366,297,810	15,750,000	28,204,787	1.62	14.45	
Wayzata Opportunities Fund II, LLC	150,000,000	174,750,000	327,229,040	750,000	2,558,665	1.89	16.48	2007
Wayzata Opportunities Fund III	150,000,000	68,415,000	39,068,770	15,000,000	25,646,122	0.95	-1.52	2012
Total Private Markets	30,118,530,549	21,027,087,002	18,068,376,800	10,498,538,154	11,816,512,262	1.42	11.25	
Difference**					6,844,019			
Private Markets Total with Difference					11,823,356,281			

Investments	Commitments	Contributions	Distributions	Remaining Commitment	Market Value	Investment Multiple	IRR	Vintage Year
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<i>Private Markets Portfolio Status</i>	Managers	Funds
PRIVATE EQUITY	52	141
PRIVATE CREDIT	15	31
REAL ASSETS	11	39
REAL ESTATE	12	28
DISTRESSED/ OPPORTUNISTIC	13	32
Total	103	271

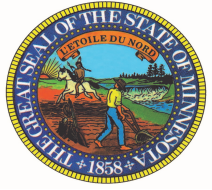
Notes

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.

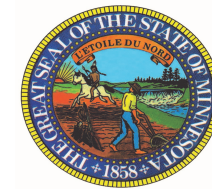
** Difference is from the T. Rowe Price portfolio, which is an in-kind stock distribution liquidating account, and cash transactions posted to next day



Participant Directed Investment Program

September 30, 2020

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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.

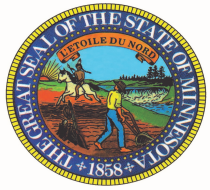
A wide diversity of investment goals exists among the Fund's participants. In order to meet those needs, the Fund has been structured much like a "family of mutual funds." Participants may allocate their investments among one or more accounts that are appropriate for their needs, within the statutory 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	\$97,284,834	6.1%	13.0%	9.6%	10.3%	9.9%	01/1980
U.S. ACTIVELY MANAGED FUND	73,996,197	10.0	20.3	13.5	14.6	14.1	07/1986
U.S. STOCK INDEX FUND	400,667,631	9.2	15.2	11.7	13.7	13.5	07/1986
BROAD INTERNATIONAL STOCK FUND	119,486,889	6.7	3.7	1.4	6.3	4.5	09/1994
BOND FUND	108,880,261	1.3	8.2	5.9	4.9	4.3	07/1986
MONEY MARKET FUND	577,002,845	0.1	1.1	1.8	1.4	0.8	07/1986
STABLE VALUE FUND	1,682,386,247	0.6	2.6	2.5	2.3	2.4	11/1994
VOLUNTEER FIREFIGHTER ACCOUNT	122,287,902	4.8	10.8	7.5	8.4	7.6	01/2010

Note:
The Market Values for the Money Market Fund and the Stable Value Fund 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% Barclays Aggregate Bond Index/5% T-Bills Composite.

	<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	\$97,284,834	6.1%	13.0%	9.6%	10.3%	9.9%
SIF BALANCED FUND BENCHMARK		5.8	12.2	9.3	10.0	9.6
Excess		0.3	0.8	0.3	0.3	0.3

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	73,996,197	10.0	20.3	13.5	14.6	14.1
Russell 3000		9.2	15.0	11.6	13.7	13.5
Excess		0.8	5.3	1.9	0.9	0.6



Supplemental Investment Fund Performance

U.S. Stock Index Fund

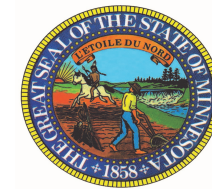
The investment objective of the U.S. Stock Index Fund is to generate returns that track those of the U.S. stock market as a whole. The Fund is designed to track the performance of the Russell 3000 Index, a broad-based equity market indicator. The Fund is invested 100% in common stock.

	<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	\$400,667,631	9.2%	15.2%	11.7%	13.7%	13.5%
Russell 3000		9.2	15.0	11.6	13.7	13.5
Excess		-0.0	0.2	0.1	0.1	0.0

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	119,486,889	6.7	3.7	1.4	6.3	4.5
International Equity Benchmark		6.1	2.8	1.1	6.2	4.0
Excess		0.6	1.0	0.3	0.1	0.5



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 Barclays 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	\$108,880,261	1.3%	8.2%	5.9%	4.9%	4.3%
BBG BARC US Agg		0.6	7.0	5.2	4.2	3.6
Excess		0.7	1.2	0.6	0.7	0.7

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	577,002,845	0.1	1.1	1.8	1.4	0.8
ICE BofA US 3-Month Treasury Bill		0.0	1.1	1.7	1.2	0.6
Excess		0.0	0.0	0.1	0.2	0.1



Supplemental Investment Fund Performance

Stable Value Fund

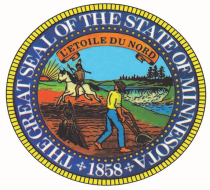
The investment objectives of the Stable Value Fund are to protect investors from loss of their original investment and to provide competitive interest rates using somewhat longer-term investments than typically found in a money market fund. The Fund is invested in a well-diversified portfolio of high-quality 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	\$1,682,386,247	0.6%	2.6%	2.5%	2.3%	2.4%
Fixed Interest Blended Benchmark		0.2	1.2	2.2	2.0	1.6
Excess		0.5	1.4	0.3	0.4	0.9

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 Barclays U.S. Aggregate, 5% 3 Month T-Bills.

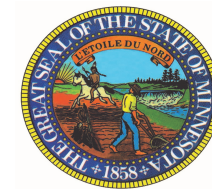
	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
VOLUNTEER FIREFIGHTER ACCOUNT	122,287,902	4.8	10.8	7.5	8.4	7.6
SIF Volunteer Firefighter Account BM		4.5	9.6	7.1	7.9	7.2
Excess		0.3	1.2	0.4	0.4	0.4



Mutual Funds

The mutual fund investment line-up provides investment options to the Minnesota Deferred Compensation Plan (MNDCP), Unclassified Retirement Plan, Health Care Savings Plan, and the Hennepin 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	\$533,713,683	9.4%	15.2%				07/2019
VANGUARD INSTITUTIONAL INDEX PLUS	1,436,698,468	8.9	15.2	12.3%	14.1%	13.7%	07/1999
VANGUARD DIVIDEND GROWTH	764,426,412	9.9	7.5	12.5			10/2016
VANGUARD MID CAP INDEX	572,711,300	8.0	7.1	8.0	10.4	12.0	01/2004
T. ROWE PRICE SMALL-CAP STOCK	777,286,440	8.3	7.7	10.4	13.4	13.8	04/2000
FIDELITY DIVERSIFIED INTERNATIONAL	334,680,162	8.9	17.8	6.9	8.7	7.3	07/1999
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	291,202,259	6.5	3.8	1.3	6.4		07/2011
VANGUARD BALANCED INDEX	1,300,903,410	5.7	12.5	9.5	10.1	9.7	12/2003
DODGE & COX INCOME	315,224,486	1.5	7.7	5.5	5.2	4.4	07/1999
VANGUARD TOTAL BOND MARKET INDEX	405,294,797	0.6	7.0	5.3	4.2	3.6	12/2003
2025 FUND	190,997,206	4.5	7.6	5.9	7.4		07/2011
2030 FUND	143,773,021	5.3	10.4	7.2	8.8		07/2011
2035 FUND	111,926,178	6.0	12.1	7.9	9.6		07/2011
2040 FUND	88,215,600	6.4	12.4	8.0	10.0		07/2011
2045 FUND	78,669,092	6.8	12.4	8.0	10.2		07/2011
2050 FUND	59,483,129	7.2	12.3	7.9	10.4		07/2011
2055 FUND	37,668,071	7.4	12.3	7.9	10.4		07/2011
2060 FUND	31,392,155	7.5	12.3	7.9	10.4		07/2011
2065 FUND	1,884,379	7.5					04/2020
INCOME FUND	230,322,557	3.5	6.8	5.2	5.6		07/2011
TD Ameritrade SDB	80,250,784						
TD Ameritrade SDB Roth	1,706,352						



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

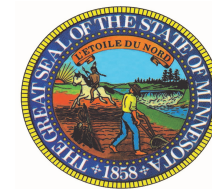
Fidelity Diversified International (active)

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	\$533,713,683	9.4%	15.2%			07/2019
CRSP US Total Market Index		9.2	15.0			07/2019
Excess		0.1	0.2			
VANGUARD INSTITUTIONAL INDEX PLUS	1,436,698,468	8.9	15.2	12.3%	14.1%	07/1999
S&P 500		8.9	15.1	12.3	14.1	07/1999
Excess		-0.0	0.0	-0.0	-0.0	
VANGUARD DIVIDEND GROWTH	764,426,412	9.9	7.5	12.5		10/2016
NASDAQ US Dividend Achievers Select		10.4	9.9	13.0		10/2016
Excess		-0.5	-2.4	-0.4		
Mid Cap US Equity						
VANGUARD MID CAP INDEX	572,711,300	8.0	7.1	8.0	10.4	01/2004
CRSP US Mid Cap Index		8.0	7.1	8.0	10.4	01/2004
Excess		0.0	0.0	0.0	0.0	
Small Cap US Equity						
T. ROWE PRICE SMALL-CAP STOCK	777,286,440	8.3	7.7	10.4	13.4	04/2000
Russell 2000		4.9	0.4	1.8	8.0	04/2000
Excess		3.4	7.3	8.6	5.4	
International Equity						
FIDELITY DIVERSIFIED INTERNATIONAL	334,680,162	8.9	17.8	6.9	8.7	07/1999
MSCI EAFE FREE (NET)		4.8	0.5	0.6	5.3	07/1999
Excess		4.1	17.3	6.3	3.5	
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	291,202,259	6.5	3.8	1.3	6.4	07/2011
FTSE Global All Cap ex US Index Net		6.7	3.5	1.1	6.2	07/2011
Excess		-0.2	0.3	0.2	0.1	



Mutual Funds

BALANCED

Vanguard Balanced Index (passive) (4)

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

Money Market Fund (5)

A fund that invests in short-term debt instruments which is expected to outperform the return on 90-Day U.S. Treasury 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	\$1,300,903,410	5.7%	12.5%	9.5%	10.1%	12/2003
Vanguard Balanced Fund Benchmark		5.8	12.5	9.5	10.1	12/2003
Excess		-0.0	0.0	0.0	-0.0	

Fixed Income

DODGE & COX INCOME	315,224,486	1.5	7.7	5.5	5.2	07/1999
BBG BARC Agg Bd		0.6	7.0	5.2	4.2	07/1999
Excess		0.9	0.7	0.2	1.0	

VANGUARD TOTAL BOND MARKET INDEX	405,294,797	0.6	7.0	5.3	4.2	12/2003
BBG BARC Agg Bd		0.6	7.0	5.2	4.2	12/2003
Excess		0.0	0.1	0.0	0.0	

MONEY MARKET FUND	577,002,845	0.1	1.1	1.8	1.4	07/1986
ICE BofA US 3-Month Treasury Bill		0.0	1.1	1.7	1.2	07/1986
Excess		0.0	0.0	0.1	0.2	

Stable Value

STABLE VALUE FUND	1,682,386,247	0.6	2.6	2.5	2.3	11/1994
Fixed Interest Blended Benchmark		0.2	1.2	2.2	2.0	11/1994
Excess		0.5	1.4	0.3	0.4	

(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 Barclays 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

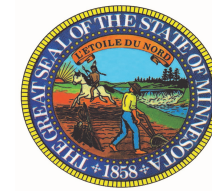
MN TARGET RETIREMENT ACCOUNTS

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	\$190,997,206	4.5%	7.6%	5.9%	7.4%	07/2011		2050 FUND	\$59,483,129	7.2%	12.3%	7.9%	10.4%	07/2011
2025 FUND BENCHMARK		4.5	7.5	5.9	7.4	07/2011		2050 FUND BENCHMARK		7.3	12.2	7.9	10.4	07/2011
Excess		-0.0	0.1	0.0	0.0			Excess		-0.1	0.1	0.0	0.0	
2030 FUND	143,773,021	5.3	10.4	7.2	8.8	07/2011		2055 FUND	37,668,071	7.4	12.3	7.9	10.4	07/2011
2030 FUND BENCHMARK		5.4	10.3	7.2	8.8	07/2011		2055 FUND BENCHMARK		7.5	12.3	7.9	10.4	07/2011
Excess		-0.0	0.1	0.0	0.0			Excess		-0.1	0.0	0.0	0.0	
2035 FUND	111,926,178	6.0	12.1	7.9	9.6	07/2011		2060 FUND	31,392,155	7.5	12.3	7.9	10.4	07/2011
2035 FUND BENCHMARK		6.0	12.0	7.8	9.6	07/2011		2060 FUND BENCHMARK		7.5	12.3	7.9	10.4	07/2011
Excess		-0.0	0.1	0.0	0.0			Excess		-0.1	0.0	0.0	0.0	
2040 FUND	88,215,600	6.4	12.4	8.0	10.0	07/2011		2065 FUND	1,884,379	7.5				04/2020
2040 FUND BENCHMARK		6.5	12.2	8.0	10.0	07/2011		2065 FUND BENCHMARK		7.5				04/2020
Excess		-0.1	0.1	0.0	0.0			Excess		-0.1				
2045 FUND	78,669,092	6.8	12.4	8.0	10.2	07/2011		INCOME FUND	230,322,557	3.5	6.8	5.2	5.6	07/2011
2045 FUND BENCHMARK		6.9	12.3	8.0	10.2	07/2011		INCOME FUND BENCHMARK		3.6	6.7	5.1	5.6	07/2011
Excess		-0.1	0.1	0.0	0.0			Excess		-0.0	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 Barclays 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% BB Barclays 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.



MINNESOTA COLLEGE SAVINGS PLAN

Performance Statistics for the Period Ending: September 30, 2020

Total = \$1,622 Million

Fund Name	Ending Market	3 Months	1 Year	Annualized				Inception Date
				3 Years	5 Years	10 Years	Since Inception	
2036/2037 Enrollment Option	\$20,345,457	5.93%					7.10%	10/28/2019
2036-2037 Custom Benchmark		6.06%					5.73%	
2034/2035 Enrollment Option	\$27,399,540	5.74%					6.90%	10/28/2019
2034-2035 Custom Benchmark		5.88%					5.59%	
2032/2033 Enrollment Option	\$33,379,256	5.52%					7.10%	10/28/2019
2032-2033 Custom Benchmark		5.64%					5.74%	
2030/2031 Enrollment Option	\$44,233,794	5.12%					6.80%	10/28/2019
2030-2031 Custom Benchmark		5.31%					5.53%	
2028/2029 Enrollment Option	\$60,945,462	4.62%					6.50%	10/28/2019
2028-2029 Custom Benchmark		4.73%					5.12%	
2026/2027 Enrollment Option	\$88,971,865	3.90%					6.50%	10/28/2019
2026-2027 Custom Benchmark		4.04%					5.24%	
2024/2025 Enrollment Option	\$129,793,128	3.30%					6.30%	10/28/2019
2024-2025 Custom Benchmark		3.34%					4.96%	
2022/2023 Enrollment Option	\$163,994,283	2.54%					5.00%	10/28/2019
2022-2023 Custom Benchmark		2.45%					3.78%	
2020/2021 Enrollment Option	\$187,364,923	1.85%					4.70%	10/28/2019
2020-2021 Custom Benchmark		1.72%					3.67%	
In School Option	\$191,197,737	1.64%					5.10%	10/28/2019
In School Custom Benchmark		1.51%					3.55%	



MINNESOTA COLLEGE SAVINGS PLAN
Performance Statistics for the Period Ending: September 30, 2020

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	\$270,416,046	7.21% 8.12%	8.19% 11.08%	7.70% 8.50%	10.61% 11.20%	10.41% 10.80%	7.07% 7.99%	10/ 1/2001
Moderate Allocation Option BB: Moderate Allocation Option	\$78,238,312	4.82% 5.40%	8.25% 9.77%	6.88% 7.39%	8.21% 8.63%	7.65% 8.09%	5.59% 6.29%	8/ 2/2007
100% Fixed-Income Option BB: 100% Fixed-Income Option	\$21,720,514	1.22% 1.27%	6.09% 6.39%	4.65% 4.91%	3.94% 4.26%	3.10% 3.58%	3.92% 4.52%	8/16/2007
International Equity Index Option BB: International Equity Index Option	\$5,425,848	5.38% 5.77%	2.42% 2.53%	0.93% 1.03%	5.85% 6.06%		3.81% 3.98%	6/18/2013
Money Market Option BB: Money Market Option	\$16,887,370	0.09% 0.01%	0.84% 0.61%	1.40% 1.22%	0.94% 0.80%	0.45% 0.41%	0.56% 0.50%	11/ 1/2007
Principal Plus Interest Option Citigroup 3-Month U.S. Treasury Bill	\$135,592,032	0.44% 0.03%	1.99% 1.02%	1.90% 1.65%	1.71% 1.16%	1.68% 0.61%	2.46% 1.32%	10/10/2001
Aggressive Allocation Option BB: Aggressive Allocation Option	\$41,267,376	5.98% 6.76%	8.29% 10.52%	7.31% 8.00%	9.43% 9.95%		7.30% 7.61%	8/12/2014
Conservative Allocation Option BB: Conservative Allocation Option	\$14,089,734	2.85% 3.03%	6.21% 6.93%	5.13% 5.45%	5.52% 5.73%		4.37% 4.56%	8/18/2014
Equity and Interest Accumulation Option BB: Equity and Interest Accumulation Option	\$5,230,279	4.93% 4.64%	8.95% 8.59%	6.88% 6.99%	7.66% 7.58%		6.24% 6.20%	8/18/2014
U.S. Large Cap Equity Option BB: U.S. Large Cap Equity Option	\$52,164,305	8.89% 8.93%	15.00% 15.15%	12.08% 12.28%	13.94% 14.15%		11.47% 11.56%	8/12/2014
Matching Grant Citigroup 3-Month U.S. Treasury Bill	\$2,153,216	0.44% 0.03%	1.99% 1.02%	1.90% 1.65%	1.71% 1.16%	1.68% 0.61%	2.46% 1.32%	3/22/2002

MINNESOTABLE^{plan}

A member of The National ABLE Alliance

Performance as of
09/30/20

Total Market Value: \$ 13,811,042

<u>Fund Name</u>	<u>Market Value</u>	<u>% of Plan</u>	<u>1 Month</u>	<u>3 Months</u>	<u>YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Inception</u>	<u>Date</u>
Aggressive Option	\$ 1,063,443	7.70%	(2.65)	7.10	0.22	7.35	6.51			8.40	12/15/16
ABLE Aggressive Custom Benchmark			(2.78)	7.18	0.63	8.00	6.95			8.97	
Variance			0.13	(0.08)	(0.41)	(0.65)	(0.44)			(0.57)	
Moderately Aggressive Option	\$ 1,240,899	8.98%	(2.21)	5.99	1.45	7.44	6.29			7.77	12/15/16
ABLE Moderately Aggressive Custom Benchmark			(2.35)	6.16	2.03	8.33	6.81			8.39	
Variance			0.14	(0.17)	(0.58)	(0.89)	(0.52)			(0.62)	
Growth Option	\$ 1,711,873	12.39%	(1.75)	5.03	2.37	7.30	5.95			7.03	12/15/16
ABLE Growth Custom Benchmark			(1.91)	5.13	3.15	8.35	6.53			7.70	
Variance			0.16	(0.10)	(0.78)	(1.05)	(0.58)			(0.67)	
Moderate Option	\$ 1,573,749	11.39%	(1.33)	3.96	3.28	7.05	5.53			6.28	12/15/16
ABLE Moderate Custom Benchmark			(1.46)	4.11	4.01	8.05	6.12			6.91	
Variance			0.13	(0.15)	(0.73)	(1.00)	(0.59)			(0.63)	
Moderately Conservative Option	\$ 1,574,943	11.40%	(0.83)	2.75	2.84	5.47	4.40			4.83	12/15/16
ABLE Moderately Conservative Custom Benchmark			(0.99)	2.83	3.49	6.32	4.94			5.37	
Variance			0.16	(0.08)	(0.65)	(0.85)	(0.54)			(0.54)	
Conservative Option	\$ 2,377,572	17.22%	(0.27)	1.09	2.11	3.25	2.82			2.84	12/15/16
ABLE Conservative Custom Benchmark			(0.34)	1.11	2.29	3.53	3.15			3.15	
Variance			0.07	(0.02)	(0.18)	(0.28)	(0.33)			(0.31)	
Checking Option	\$ 4,268,562	30.91%									03/30/17

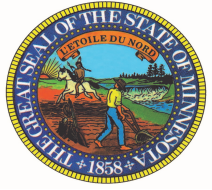
MINNESOTA ACHIEVE A BETTER LIFE EXPERIENCE

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.



Non-Retirement

September 30, 2020



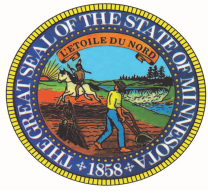
Quarterly Report

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

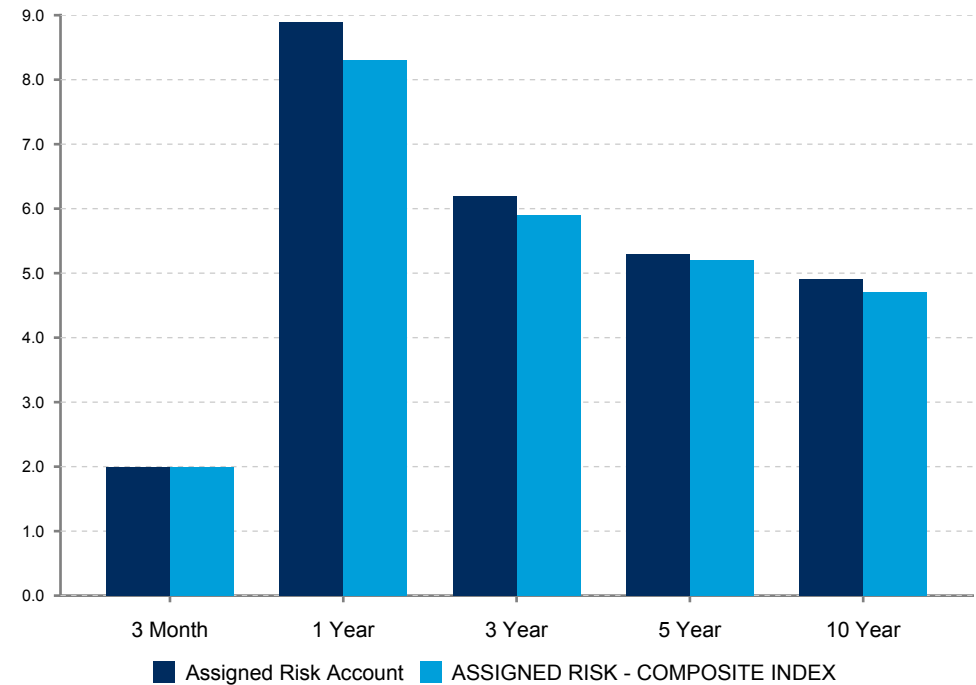
Assigned Risk Plan

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.

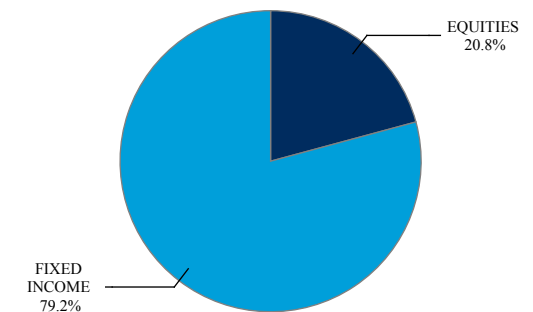
The Assigned Risk Plan is invested in a portfolio of common stocks and bonds

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

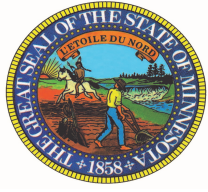
The fixed income benchmark is the Bloomberg Barclays Intermediate Government Index. The total fund benchmark is a combination of the fixed income and equity benchmarks, weighted according to the total fund asset allocation targets of 80% equities and 20% fixed income. The actual asset mix will fluctuate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



	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
Assigned Risk Account	\$291,534,629	2.0%	8.9%	6.2%	5.3%	4.9%
EQUITIES	60,641,545	8.9	15.1	12.3	13.8	13.0
FIXED INCOME	230,893,083	0.2	6.2	4.1	2.9	2.5
ASSIGNED RISK - COMPOSITE INDEX		2.0	8.3	5.9	5.2	4.7
Excess		0.0	0.6	0.3	0.2	0.2
S&P 500		8.9	15.1	12.3	14.1	13.7
BBG BARC US Gov: Int		0.2	6.0	4.0	2.8	2.3



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.



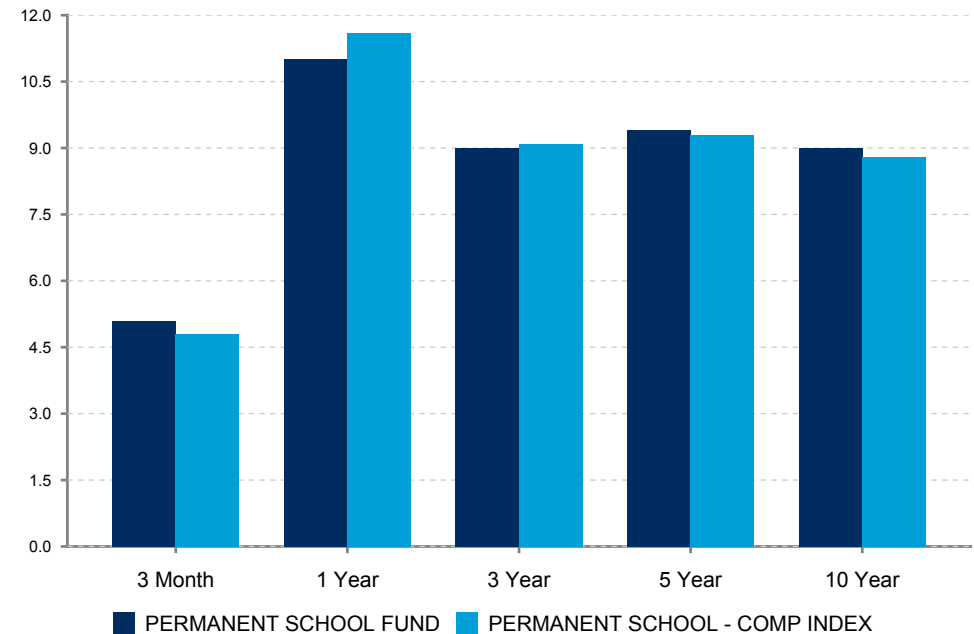
Non-Retirement

Permanent School Fund

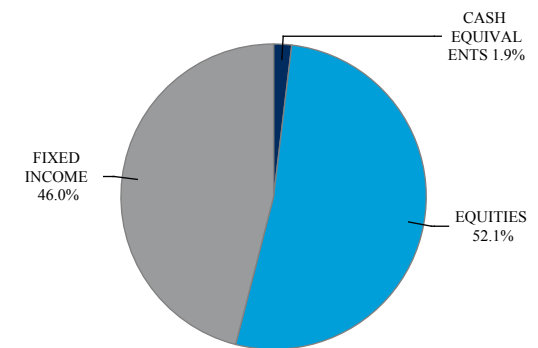
The investment objective of the Permanent School Fund is to produce a growing level of spendable income, within the constraints of maintaining adequate portfolio quality and liquidity. The income from the portfolio is transferred to the school endowment fund and distributed to Minnesota's public schools.

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 Barclays 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	\$1,699,886,630	5.1%	11.0%	9.0%	9.4%	9.0%
CASH EQUIVALENTS	32,595,607	0.0	1.0	1.7	1.2	0.7
EQUITIES	884,837,863	8.9	15.1	12.3	14.1	13.7
FIXED INCOME	782,453,160	1.2	6.9	5.5	4.5	4.1
PERMANENT SCHOOL - COMP INDEX		4.8	11.6	9.1	9.3	8.8
Excess		0.3	-0.6	-0.0	0.1	0.2
S&P 500		8.9	15.1	12.3	14.1	13.7
BBG BARC US Agg		0.6	7.0	5.2	4.2	3.6



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.



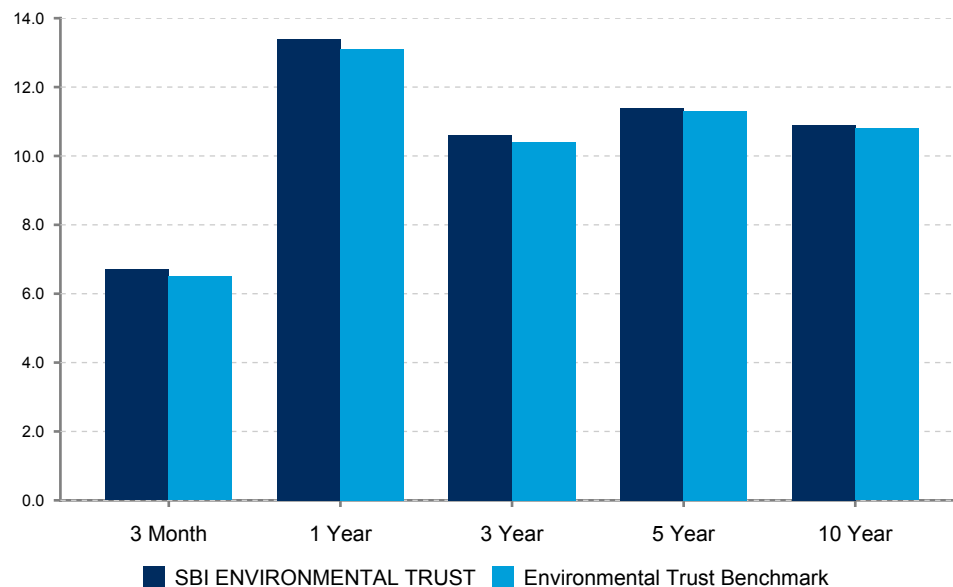
Non-Retirement

Environmental Trust Fund

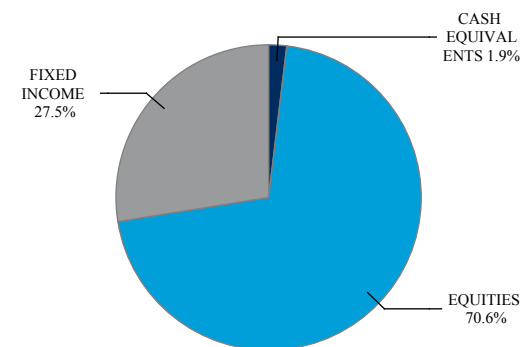
The objective of the Environmental Trust Fund is to increase the market value of the Fund over time in order to increase the annual amount made available for spending within the constraints of maintaining adequate portfolio quality and liquidity.

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 Barclays U.S. Aggregate. The total fund benchmark is a combination of the fixed income and equity benchmarks, weighted according to the total fund asset allocation targets of 2% cash, 70% equities, and 28% fixed income. The actual asset mix will fluctuate and is shown in the graph below.



	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
SBI ENVIRONMENTAL TRUST	\$1,373,043,987	6.7%	13.4%	10.6%	11.4%	10.9%
CASH EQUIVALENTS	26,684,275	0.0	1.0	1.7	1.2	0.7
EQUITIES	968,185,195	8.9	15.1	12.3	14.1	13.7
FIXED INCOME	378,174,518	1.2	6.9	5.5	4.5	4.1
Environmental Trust Benchmark		6.5	13.1	10.4	11.3	10.8
Excess		0.2	0.3	0.2	0.1	0.1
S&P 500		8.9	15.1	12.3	14.1	13.7
BBG BARC US Agg		0.6	7.0	5.2	4.2	3.6



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.

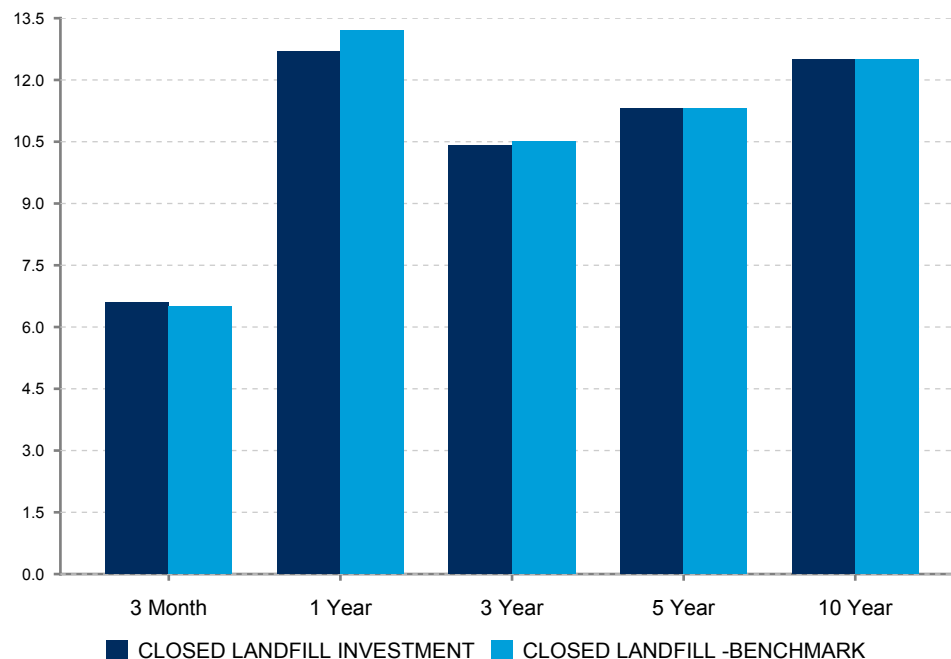


Non-Retirement

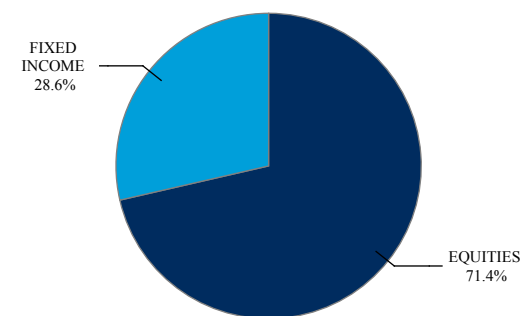
Closed Landfill Investment Fund

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 Barclays U.S. Aggregate. The total fund benchmark is a combination of the fixed income and equity benchmarks, weighted according to the total fund asset allocation targets of 70% equities and 30% fixed income. The actual asset mix will fluctuate and is shown in the graph below.

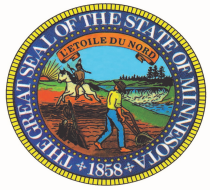


	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
CLOSED LANDFILL INVESTMENT	\$109,384,062	6.6%	12.7%	10.4%	11.3%	12.5%
EQUITIES	78,060,158	8.9	15.1	12.3	14.1	13.7
FIXED INCOME	31,323,903	1.2	6.9	5.5	4.5	
CLOSED LANDFILL -BENCHMARK		6.5	13.2	10.5	11.3	12.5
Excess		0.1	-0.6	-0.1	-0.1	-0.0
S&P 500		8.9	15.1	12.3	14.1	13.7
BBG BARC US Agg		0.6	7.0	5.2	4.2	3.6



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.

Minnesota State Board of Investment
Quarter Ending September 30, 2020
Non-Retirement Managers



	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
NON RETIREMENT EQUITY INDEX - MELLON	2,730,675,244	8.9	8.9	15.1	12.3	14.1	13.7	9.9	07/1993
S&P 500 INDEX (DAILY)		8.9	8.9	15.1	12.3	14.1	13.7	9.8	07/1993
Excess		0.0	0.0	-0.0	-0.0	-0.0	-0.0	0.1	
NON RETIREMENT FIXED INCOME - PRUDENTIAL	1,382,524,097	1.2	1.2	6.9	5.5	4.5	4.1	6.1	07/1994
BBG BARC Agg (Dly)		0.6	0.6	7.0	5.2	4.2	3.6	5.6	07/1994
Excess		0.6	0.6	-0.1	0.3	0.3	0.4	0.5	
RBC	230,893,083	0.2	0.2	6.2	4.1	2.9	2.5	4.9	07/1991
RBC Custom Benchmark		0.2	0.2	6.0	4.0	2.8	2.4	5.0	07/1991
Excess		0.0	0.0	0.2	0.0	0.1	0.2	-0.1	
MET COUNCIL OPEB BOND POOL	55,995,787	0.1	0.1	3.4					
NON RETIREMENT CASH	135,994,081	0.0	0.0	1.0	1.7	1.2	0.7	2.6	
iMoneyNet Money Fund Average- All Taxable		0.0	0.0	0.7	1.3	0.9	0.4		
Excess		0.0	0.0	0.3	0.4	0.4	0.3		

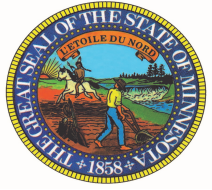
Note:

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 Barclays Intermediate Government 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.

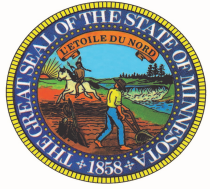
In addition to the Non-Retirement Funds listed on the previous pages, the Non Retirement Equity Index and the Non Retirement Fixed Income accounts also include the assets of various smaller Miscellaneous Trust Accounts and Other Post Employment Benefits.

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State Cash

September 30, 2020



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.

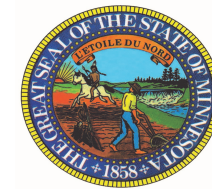
Beginning in January 2003, the Treasurer's Cash Pool is measured against the iMoneyNet, All Taxable Money Fund Report Average.

	<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	13,213,981,320	0.1	1.4	1.9	1.5	1.0
iMoneyNet Money Fund Average-All Taxable		0.0	0.7	1.3	0.9	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	74,160,374	0.7	4.5	3.7	3.1	
Public Facilities Authority	8,360,802	0.3	1.2	1.5	1.9	



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. The Combined Funds Composite weight is set as the Strategic Asset Allocation Policy Target with the uninvested portion of Private Markets allocated to Public Equity. Asset class weights for Public Equity and Private Markets 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. 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:

In 2016, the Barclays Agg was rebranded Bloomberg Barclays Agg to reflect an ownership change. 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.

Domestic Equity Benchmark:

Since 1/1/2019 the benchmark is 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.



Addendum

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 1/1/2019 equals is 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).

Passive Domestic Equity Benchmark:

A weighted average of the Russell 1000 and Russell 3000 effective 10/1/2016. 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.

Public Equity Benchmark:

60.3% Russell 1000, 6.7% Russell 2000, 24.75% MSCI World Ex US (net), and 8.25% MSCI EM (net) effective 1/1/2019. 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%.

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 4/1/2019 equals 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.

