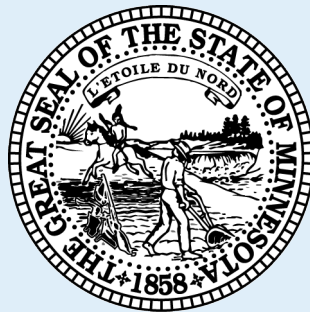

MINNESOTA STATE BOARD OF INVESTMENT

MINNESOTA STATE BOARD
OF INVESTMENT
MEETING
August 22, 2019



Governor Tim Walz

State Auditor Julie Blaha

Secretary of State Steve Simon

Attorney General Keith Ellison

STATE BOARD OF INVESTMENT

AGENDA AND MINUTES

August 22, 2019

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AGENDA
STATE BOARD OF INVESTMENT MEETING
Thursday, August 22, 2019
10:00 A.M.
G23 Senate Committee Room
State Capitol
75 Rev. Dr. Martin Luther King Jr. Boulevard
St. Paul, MN

TAB

1. Approval of Minutes of May 30, 2019

2. Report from the Executive Director (Mansco Perry)

A. Quarterly Performance Summary
(April 1, 2019 – June 30, 2019)

A

B. Administrative Report

B

1. Reports on Budget and Travel
2. Participant Directed Investment Program (PDIP) Update
3. Sudan Update
4. Iran Update
5. Litigation Update

**3. Private Markets Program Report and Consideration (Gary Martin)
of Commitments**

C

4. Report from SBI Compensation Review Committee (Jay Stoffel)

D

REPORTS

**5. Report of Public Markets, Non-Retirement, and Participant
Directed Investment Programs**

E

6. AON Market Environment Report

F

7. Meketa Investment Market Risk Metrics

G

8. Comprehensive Performance Report

H

9. Other Items

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**Minutes
State Board of Investment
May 30, 2019**

The State Board of Investment (SBI) met at 10:03 a.m. Thursday, May 30, 2019 in G23 Senate Committee Room, State Capitol, St. Paul, Minnesota. Governor Tim Walz, State Auditor Julie Blaha, Secretary of State Steve Simon and Attorney General Keith Ellison were present. The minutes of the March 1, 2019 meeting were approved.

Executive Director's Report

Mr. Perry referred members to Tab A of the meeting materials and stated that as of March 31, 2019, the SBI was responsible for managing approximately \$96 billion of assets. Mr. Perry reported that the Combined Funds had outperformed its Composite Index over the ten-year period ending March 31, 2019 (Combined Funds 11.6% vs. Combined Funds-Composite Index 11.2%) and had provided a real rate of return of 4.4% above inflation over the latest 20 year period (Combined Funds 6.6% vs. CPI 2.2%).

Mr. Perry stated that assets increased over the quarter (Combined Funds ending value of \$68.8 versus a beginning value of \$64.1 billion), due primarily to investment returns. The Combined Funds outperformed the benchmark for the quarter (Combined Funds 8.4% vs. Combined Funds-Composite Index 8.3%) and underperformed for the year (Combined Funds 5.2% vs. Combined Funds-Composite Index 5.3%). The Combined Funds outperformed the benchmark return in the three-year, and matched the five-year period and outperformed in all other time periods reported.

Mr. Perry stated that the combined public equity performance outperformed the benchmark during the quarter (Public Equity 13.1% vs. Public Equity Benchmark 12.8%) and underperformed for the year (Public Equity 4.2% vs. Public Equity Benchmark 4.4%). Breaking it down between domestic and international equities, the domestic equity manager group outperformed its benchmark for the quarter (Domestic Equity 14.2% vs. Domestic Equity Benchmark 14.1%) and underperformed for the year (Domestic Equity 8.5% vs. Domestic Equity Benchmark 8.8%). The longer term returns were mixed as the domestic manager group outperformed the benchmark performance for the three-year, underperformed for the five-year period and matched the ten-year period. The international equity manager group outperformed its target for the quarter (International Equity 10.5% vs. International Equity Benchmark 10.3%) and underperformed for the year (International Equity -4.4% vs. International Equity Benchmark -4.2%). Although the three year period underperformed, the five and ten year periods outperformed the benchmark performance. Mr. Perry indicated that the fixed income segment outperformed its benchmark for the quarter (Fixed Income 3.4% vs. Fixed Income Benchmark 2.9%) and the year (Fixed Income 4.9% vs. Fixed Income Benchmark 4.5%) and outperformed over all other time periods reported. He reported that the Treasury portfolio slightly outperformed its target for the quarter (Treasuries 3.4% vs. Treasuries Benchmark 3.3%) and underperformed for the year (Treasuries 5.5% vs. Treasuries Benchmark 5.7%).

Mr. Perry stated that the asset allocation targets were close to their targets and notified the Board that a rebalance will occur in July after a major movement of funds at the end of June. State Auditor Blaha asked for clarification on the rebalance timeline and, congratulated Mr. Perry on the SBI's performance being so close to the top decile when compared to other public and corporate plans with over \$1 billion in assets.

Mr. Perry commented that the Strategic Allocation Category Framework is above the allocation ranges in the Growth - Appreciation category and slightly below the Growth - Income-orientation category and will re-visit the ranges over the next year.

Mr. Perry referred members to Tab B of the meeting materials for the Administrative Report and indicated that the report included the current administrative budget fiscal year to date, which was favorable, and staff travel for the quarter. Mr. Perry stated that legislatively there are three items that he will report on from the legislative session. The Salary Compensation Plan did pass the legislature; there was a provision that clarified that both the pension plans and the SBI are not subject to some of the MNIT requirements; and lastly the authorization to allow the SBI to invest the Pollution Control Administration Clean Water Revolving Fund. Mr. Perry gave an update on the Participant Directed Investment Program. He stated that over the course of the last year the SBI has been getting ready to move assets of the Unclassified Retirement Plan, the Health Care Savings Plan, and the Hennepin County Supplemental Retirement Plan to the mutual fund investment platform similar to the Minnesota State Deferred Compensation Program and will be effective July 1, 2019. Mr. Perry stated that after the transfer is complete the SBI will rebalance the asset groups back to target. Mr. Perry referenced the updates on restrictions for Sudan and Iran and reported that SBI was not involved in any litigation.

Mr. Perry provided a summary of the Administrative Committee meeting, which occurred on April 23, 2019. Attorney General Ellison noted that Mr. Perry and various experts have provided the necessary documents and answers prior to this meeting in order for them to make informed decisions. The first action item in Tab C, was a review of the Executive Director's Proposed Work Plan for FY20. The recommendation reads: **"The Committee recommends that the SBI approve the FY20 Executive Director's Work Plan. Further, the Committee recommends that the Work Plan serve as the basis for the Executive Director's performance evaluation for FY20."** Attorney General Ellison moved approval and State Auditor Blaha seconded the motion. The motion passed unanimously.

Mr. Perry detailed the second item in the Administrative Committee Report, which was a review of the Budget Plan for FY20 and FY21. The recommendation reads: **"The Committee recommends that the SBI approve the FY20 and FY21 Administrative Budget Plan, as presented to the Committee, and that the Executive Director have the flexibility to reallocate funds between budget categories if the Executive Director deems necessary."** State Auditor Blaha moved approval and Attorney General Ellison seconded the motion. The motion passed unanimously.

Mr. Perry proceeded to the third action item in the Administrative Committee Report, which has a review of the Continuing Fiduciary Education Plan. The recommendation reads: **"The Committee recommends that the SBI adopt the Continuing Fiduciary Education Plan."** State

Auditor Blaha moved approval and Attorney General Ellison seconded the motion. The motion passed unanimously.

Mr. Perry discussed the fourth action item in the Administrative Committee Report, which was a review of the Executive Director's Evaluation and Salary process. Mr. Perry confirmed for Governor Walz that the Board's general counsel will lead the evaluation process. Mr. Perry also noted that the SBI Compensation Review Committee may bring a recommendation back to them for approval of any salary recommendations or changes. The recommendation reads: **"The Committee recommends that the SBI adopt the following performance evaluation and salary process for the SBI Executive Director:**

- **Evaluations by each Board member should be completed by October 1.**
- **The evaluations will be based on the results of the Executive Director's Work Plan for the fiscal year ending the previous June 30.**
- **The SBI Deputies/Board designees will develop an appropriate evaluation form for use by each member.**
- **As Chair of the Board, the Governor (or his/her Board designee) will coordinate distribution of the evaluation forms. Board members will forward completed evaluations to the Executive Director. Board members should also send a copy of the Overall Evaluation (summary page 1) to the Governor or the Governor's designee. Board members are encouraged to meet individually with the Executive Director to review their own evaluation.**
- **Upon satisfactory performance evaluations from a majority of responding Board Members, the Executive Director's annual salary adjustment will be any Cost-of-Living Adjustment (COLA)/Across the Board (ATB)/General Salary Increases and/or any Performance-Based Salary Increases contained in the Managerial Plan for a Fiscal Year as approved by the Legislature to the extent that it is within the Executive Director's salary range. The adjustment shall be effective January 1 of the next calendar year.**
- **The Governor (or his/her Board designee) will provide a letter to the Executive Director confirming the status of the Executive Director's evaluation results by November 1."** Secretary of State Simon moved approval and State Auditor Blaha seconded the motion. The motion passed unanimously.

Mr. Perry stated that the Administrative Committee also reviewed the SBI's Business Continuity Plan, which meets the requirements but is not as robust as Mr. Perry would like it to be. Mr. Perry will have further conversations with Commissioner Frans and his staff to identify ways that the Business Continuity Plan can be improved.

Mr. Martin, Chairperson of the Investment Advisory Council (IAC), referred members to Tab D and reviewed the eight private markets proposals, all of which are existing managers: Apax

Partners Fund X (Private Equity), IK Investment Partners Fund IX (Private Equity), KKR European Fund V (Private Equity), Permira Fund VII (Private Equity), TPG Capital Fund VIII (Private Equity), Warburg Pincus WPC-SEA II (Private Equity), LBC Credit Partners V (Private Credit) and Energy & Minerals Group Fund V and Accordion (Real Assets). State Auditor Blaha moved approval and Secretary of State Simon seconded the motion of the eight recommendations which reads: **“The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate and execute a commitment of up to \$150 million, or 20% of Apax X USD L.P., 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 Apax Partners upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Apax Partners or reduction or termination of the commitment.**

The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate and execute a commitment of up to €135 million, or 20% of the IK IX Fund, 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 IK Investment Partners upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on IK Investment Partners or reduction or termination of the commitment.

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

The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate

and execute a commitment of up to €135 million, or 20% of Permira VII L.P.1, whichever is less, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by Permira upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Permira or reduction or termination of the commitment.

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 TPG Partners VIII, L.P., 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 TPG upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on TPG 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 \$50 million, or 20% of Warburg Pincus China-Southeast Asia II, whichever is less, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by Warburg Pincus upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Warburg Pincus or reduction or termination of the commitment.

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 LBC Credit Partners V, L.P., 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 LBC Credit Management upon this

approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on LBC Credit Management or reduction or termination of the commitment.

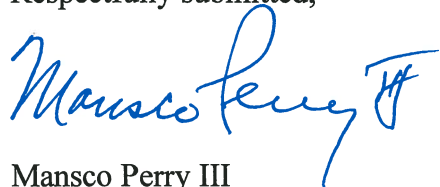
The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to \$150 million, or 20% of The Energy & Minerals Group Fund V and Accordion, whichever is less,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

Mr. Perry stated that the remaining items on the meeting agenda were the Public Markets, Non-Retirement and Participant Directed Investment Program report in Tab E and that Tab F and G was a Market Environment report and a Investment Market Risk Metrics report from the SBI consultants. Lastly, Mr. Perry stated that Tab H was the Comprehensive Performance Review detailing the performance of the individual managers and each of the SBI investment programs.

Mr. Perry stated that four individuals would like to address the Board. He noted that the proper notification was submitted according to the Board's written policy. Governor Walz recognized Phil Benson and the spokespeople for the group "Break the Bonds" which were: Sanna Towns, Shaker Ali, Mariam El Khatib and Amber Harris. Governor Walz thanked the presenters for believing and participating in our democracy and that the Board takes all testimony under advisement.

The meeting adjourned at 10:46 a.m.

Respectfully submitted,



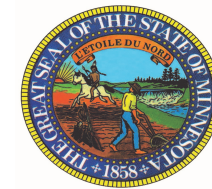
Mansco Perry III
Executive Director and
Chief Investment Officer

TAB A

Report from the Executive Director

Quarterly Performance Summary

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Performance Summary

June 30, 2019



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.

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. At this time, the assets of various retirement programs, including local firefighter groups, are included here.

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.

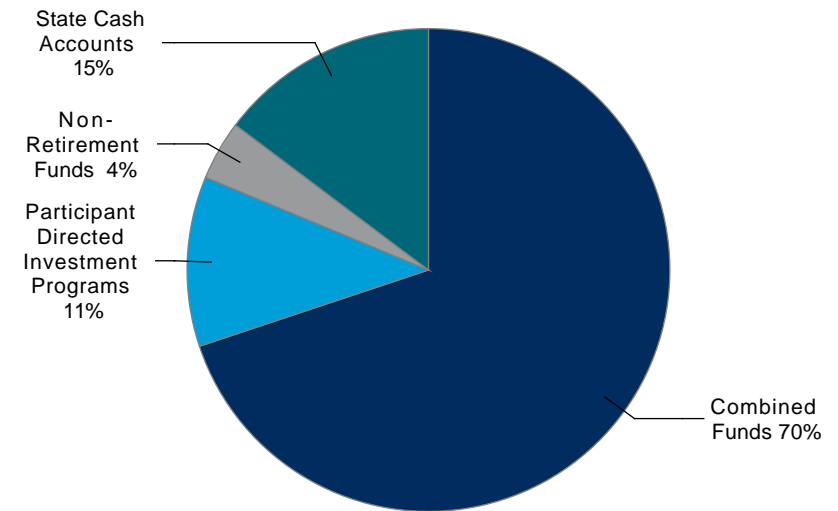
State Cash

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

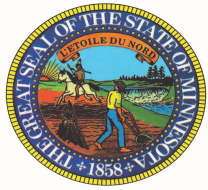
	<u>\$ Millions</u>
COMBINED FUNDS	
Combined Funds	\$70,658
PARTICIPANT DIRECTED INVESTMENT PROGRAMS	
Supplemental Investment Fund*	3,942
State Deferred Compensation Plan**	6,064
Minnesota College Savings Plan	1,503
Achieve a Better Life Experience	6
NON-RETIREMENT FUNDS	
Assigned Risk Plan	287
Permanent School Fund	1,513
Environmental Trust Fund	1,215
Closed Landfill Investment Fund	97
Miscellaneous	258
Other Post Employment Benefits Accounts	662
STATE CASH ACCOUNTS	
Treasurer's Cash	14,630
Other State Cash Accounts	273
TOTAL	
SBI AUM	101,110



* Includes assets of smaller retirement funds which are invested with the SBI but are not included in the Combined Funds

** Does not include the Stable Value and Money Market accounts that are used by Deferred Compensation and Supplemental Investment Fund

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	10.9%
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	10.5
	Excess	0.4
		<u>20 Year</u>
Provide Real Return (20 yr.)	COMBINED FUNDS	6.5%
Provide returns that are 3-5 percentage points greater than inflation over the latest 20 year period.	CPI-U	2.2
	Excess	4.4

Note:

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



Combined Funds Summary

Combined Funds Change in Market Value (\$Millions)

	<u>One Quarter</u>
COMBINED FUNDS	
Beginning Market Value	\$68,816
Net Contributions	-605
Investment Return	2,448
Ending Market Value	70,658

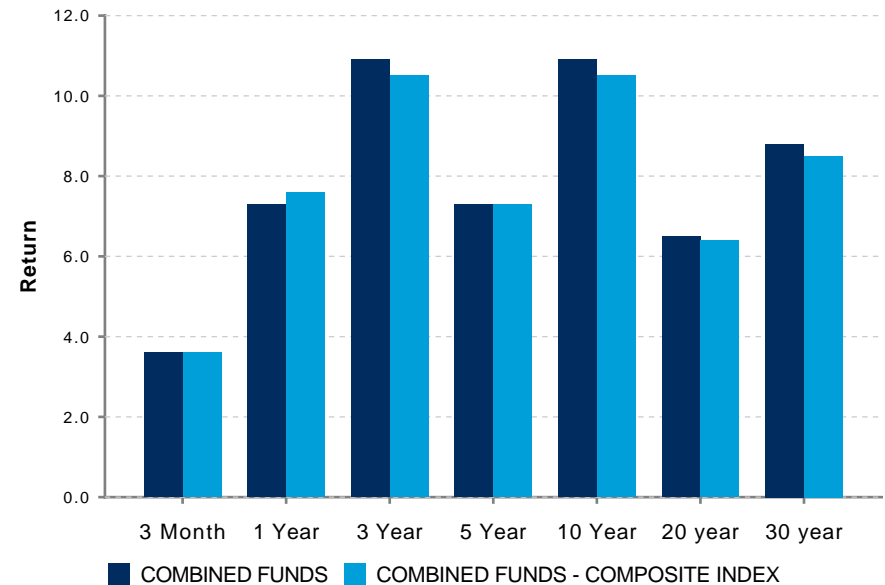
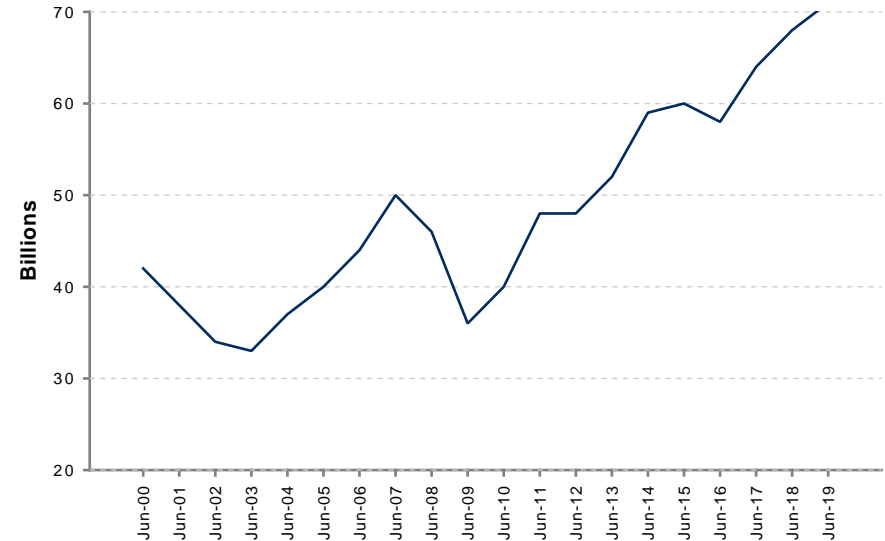
The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

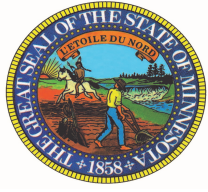
Performance (Net of Fees)

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	3.6%	7.3%	7.3%	10.9%	7.3%	10.9%	6.5%	8.8%
COMBINED FUNDS - COMPOSITE INDEX	3.6	7.6	7.6	10.5	7.3	10.5	6.4	8.5
Excess	-0.0	-0.3	-0.3	0.4	0.0	0.4	0.2	0.3

Asset Growth



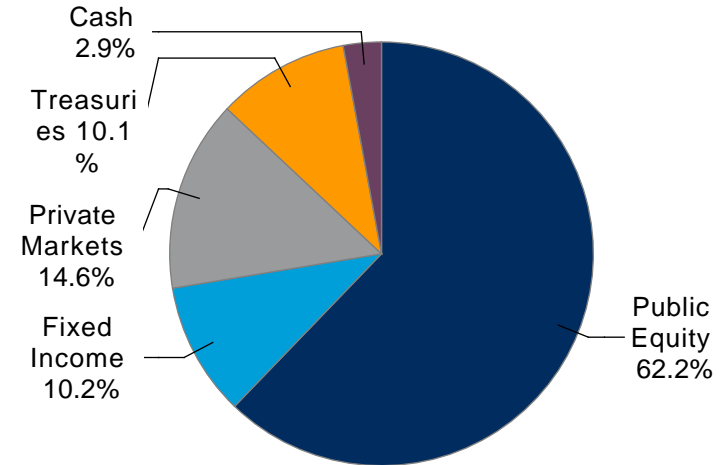


Combined Funds Summary

Asset Mix

The Combined Funds actual asset mix relative to the Strategic Asset Allocation Policy Target is shown below. Any uninvested portion of the Private Markets allocation is held in Public Equity.

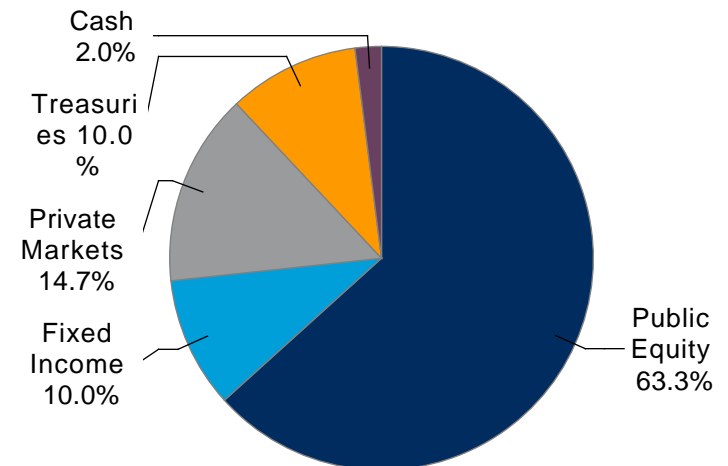
	<u>(Millions)</u>	<u>Actual Mix</u>	<u>Policy Target</u>
Public Equity	\$43,953	62.2%	53.0%
Fixed Income	7,208	10.2	10.0
Private Markets	10,281	14.6	25.0
Treasuries	7,169	10.1	10.0
Cash	2,048	2.9	2.0
TOTAL	70,658	100.0	

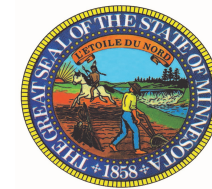


Composite Index Comparison

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	63.3%	Public Equity Benchmark
Fixed Income	10.0	BB Barclays U.S. Aggregate
Private Markets	14.7	Private Markets
Treasuries	10.0	BB Barclays Treasury 5+ Years
Cash	2.0	3 Month T-Bills





Combined Funds Asset Class Performance Summary

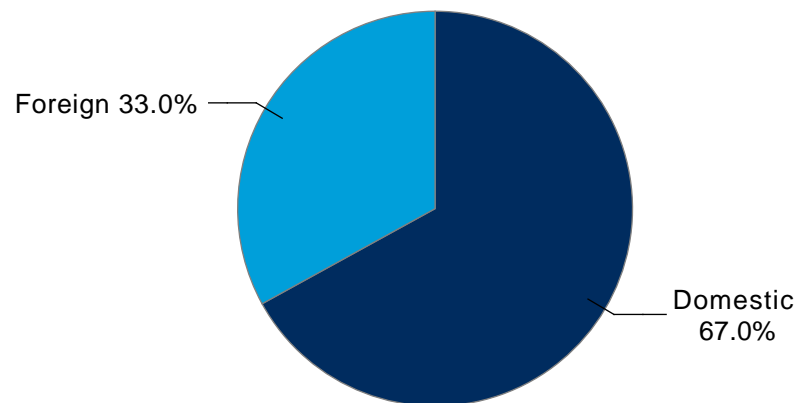
Public Equity

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	3.8%	6.1%	6.1%	12.8%	8.0%	12.7%	5.7%	9.1%
Public Equity Benchmark	3.7	6.4	6.4	12.5				
Excess	0.1	-0.4	-0.4	0.2				
Domestic Equity	4.1	8.5	8.5	14.3	10.0	14.7	6.0	9.6
Domestic Equity Benchmark	4.0	8.9	8.9	14.0	10.2	14.7	6.1	9.8
Excess	0.1	-0.5	-0.5	0.3	-0.2	-0.0	-0.1	-0.2
International Equity	3.2	1.1	1.1	9.3	2.6	7.0	4.8	
International Equity Benchmark	3.0	1.3	1.3	9.4	2.2	6.5	4.4	
Excess	0.2	-0.2	-0.2	-0.1	0.4	0.5	0.4	

Note:

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



Combined Funds Asset Class Performance Summary

Fixed Income

The Combined Funds Fixed Income program includes Core Fixed Income and Treasuries. The Combined Funds performance for these asset classes is shown here.

The Core Fixed Income benchmark is the Bloomberg Barclays U.S. Aggregate Index. This index reflects the performance of the broad bond market for investment grade (Baa or higher) bonds, U.S. Treasury and agency securities, and mortgage obligations with maturities greater than one year.

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

	<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>
Fixed Income	3.2%	8.2%	8.2%	3.0%	3.4%	5.0%	5.3%	6.4%
Fixed Income Benchmark	3.1	7.9	7.9	2.3	2.9	3.9	4.9	6.0
Excess	0.1	0.3	0.3	0.7	0.4	1.1	0.4	0.4
Treasuries	4.5	10.3	10.3					
BBG BARC 5Y + Us Tsy Idx	4.6	10.4	10.4					
Excess	-0.0	-0.1	-0.1					

Cash

The Combined Funds Cash performance is shown here. Cash is held by the Combined Funds to meet the liquidity needs of the retirement systems to pay benefits.

	<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>
Cash	0.6%	2.3%	2.3%	1.5%	1.0%	0.7%	2.3%	3.8%
90 DAY T-BILL	0.6	2.3	2.3	1.4	0.9	0.5	1.9	3.0

Note:

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	2.8%	10.4%	10.4%	14.9%	10.4%	12.5%	12.6%	13.6%	12.2%
Private Equity	5.0%	14.4%	14.4%	17.6%	14.3%	15.9%	13.5%	15.4%	
Private Credit	1.9	10.6	10.6	14.2	13.2	13.4	12.5		
Resources	-2.6	0.9	0.9	10.2	-1.8	5.5	15.5	14.5	
Real Estate	3.1	9.1	9.1	9.6	11.3	8.6	8.8	9.5	

Private Markets

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

Private Equity Investments

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

Private Credit Investments

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

Resource Investments

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

Real Estate Investments

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

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

SBI Combined Funds Strategic Allocation Category Framework

	<u>6/30/19</u> <u>(\$ millions)</u>	<u>6/30/19 Weights</u>	<u>Category Ranges</u>	
<u>Growth - Appreciation</u>				
Public Equity	\$ 43,953.08	62.2%		
Private Equity	\$ 5,621.29	8.0%		
Non-Core Real Assets	\$ 2,444.25	3.5%		
Distressed/Opportunistic	\$ 1,123.91	1.6%		
	\$ 53,142.53	75.2%	50%	75%
<u>Growth - Income-oriented</u>				
Core Fixed Income	\$ 7,207.63	10.2%		
Private Credit	\$ 600.83	0.9%		
Return-Seeking Fixed Income		0.0%		
	\$ 7,808.46	11.1%	15%	30%
<u>Real Assets</u>				
Core Real Estate		0.0%		
Real Assets	\$ 457.26	0.6%		
	\$ 457.26	0.6%	0%	10%
<u>Inflation Protection</u>				
TIPS		0.0%		
Commodities		0.0%		
		0.0%	0%	10%
<u>Protection</u>				
U.S. Treasuries	\$ 7,168.50	10.1%		
	\$ 7,168.50	10.1%	5%	20%
<u>Liquidity</u>				
Cash	\$ 2,081.53	2.9%		
	\$ 2,081.53	2.9%	0%	5%
<u>Opportunity</u>				
Opportunity	\$ -	0.0%	0%	10%
Total	\$ 70,658.28	100.0%		
Illiquid Asset Exposure	\$ 10,247.53	14.5%	0%	30%

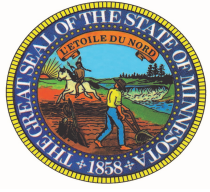
Volatility Equivalent Benchmark

Comparison Periods Ending 6/30/2019

As of (Date):	6/30/2019							
	1-year	3-year	5-year	10-year	15-year	20-year	25-year	30-year
SBI Combined Funds Return	7.3%	10.9%	7.3%	10.9%	8.0%	6.5%	8.7%	8.8%
Volatility Equivalent Benchmark Return	6.9%	8.2%	5.1%	7.9%	6.2%	5.2%	6.7%	7.3%
Value Added	0.4%	2.7%	2.2%	3.0%	1.8%	1.4%	1.9%	1.5%

Standard Deviation: Benchmark = Combined Funds			7.3%	8.1%	9.0%	9.3%	9.4%	9.3%
Benchmark Stock Weight	62%	62%	62%	60%	58%	61%	62%	62%
Benchmark Bond Weight	38%	38%	38%	40%	42%	39%	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

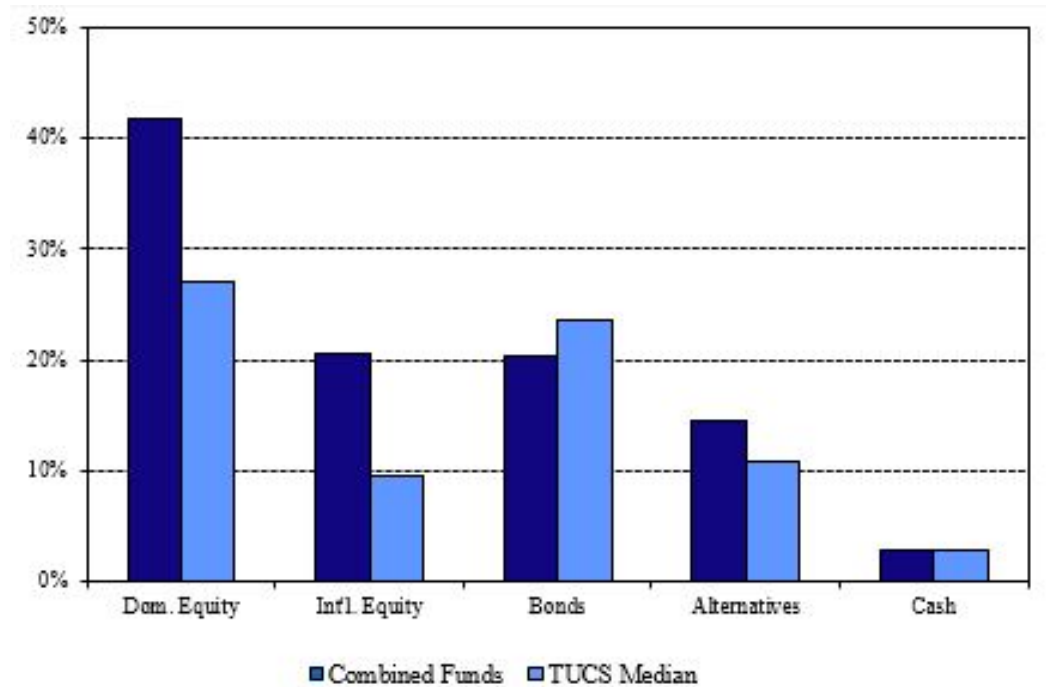
Asset Mix Compared to Other Pension Funds

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	43,953	62.2
Fixed Income	7,208	10.2
Treasuries	7,169	10.1
Private Markets	10,281	14.6
Cash	2,048	2.9
TOTAL	70,658	100.0



	<u>Domestic Equity</u>	<u>International Equity</u>	<u>Bonds</u>	<u>Alternatives</u>	<u>Cash</u>
Combined Funds	41.7%	20.6%	20.3%	14.6%	2.9%
Median in TUCS	27.0%	9.5%	23.5%	10.8%	2.8%



Combined Funds Summary

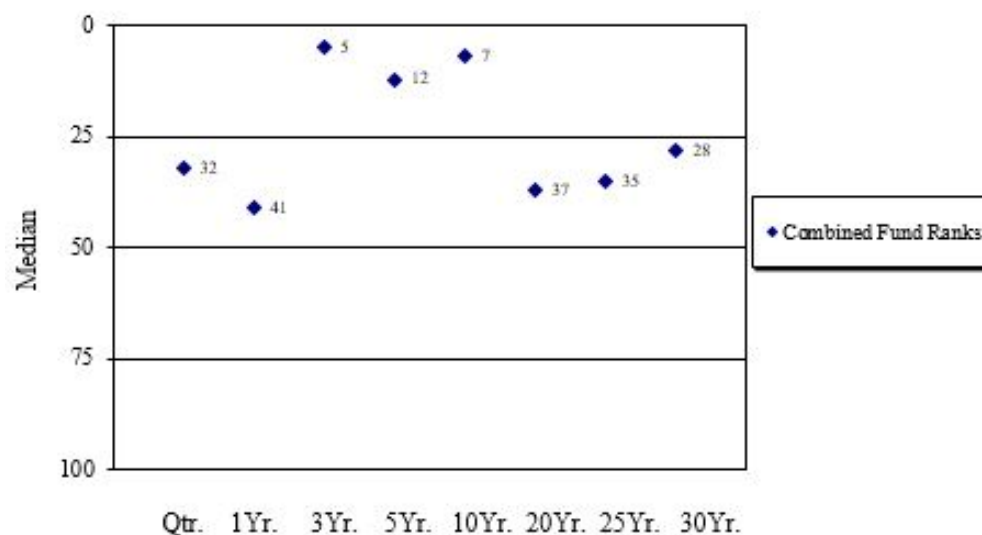
Performance Compared to Other Pension Funds

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 06/30/2019							
	<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	32nd	41st	5th	12th	7th	37th	35th	28th
Percentile Rank in TUCS								

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TAB B

Report from the Executive Director

Administrative Report

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EXECUTIVE DIRECTOR'S ADMINISTRATIVE REPORT

DATE: August 15, 2019

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 June 30, 2019 is included as **Attachment A**.

A report on travel for the period from April 1, 2019 – June 30, 2019 is included as **Attachment B**.

2. Participant Directed Investment Program (PDIP) Update

The investment options for participants in the Health Care Savings Plan, Hennepin County Supplemental Retirement Plan and the Unclassified Retirement Plan changed on July 1, 2019. Over \$1 billion was transferred from the Supplemental Investment Funds (SIF) to similar mutual fund options offered in the Minnesota Deferred Compensation Plan. The transition from SIF investments to a mutual fund platform began in 2017 and is the result of collaboration with the respective plan sponsors, mutual fund houses, legislature, Plan Administrator, Minnesota State Retirement System (MSRS), and Record Keeper, Empower.

3. 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 second quarter, SBI managers sold 1.0 million shares in five companies on the divestment list.

On June 17, 2019, 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.

4. 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 second quarter, SBI managers sold 38,100 shares in one company on the divestment list.

On June 17, 2019, 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.

5. 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 2019 ADMINISTRATIVE BUDGET REPORT
FISCAL YEAR TO DATE THROUGH JUNE 30, 2019**

ITEM	FISCAL YEAR 2019 BUDGET	FISCAL YEAR 2019 6/30/2019
PERSONNEL SERVICES		
FULL TIME EMPLOYEES	\$ 5,031,000	\$ 3,746,651
PART TIME EMPLOYEES	0	0
MISCELLANEOUS PAYROLL	100,000	128,815
SUBTOTAL	\$ 5,131,000	\$ 3,875,465
STATE OPERATIONS		
RENTS & LEASES	285,000	280,481
REPAIRS/ALTERATIONS/MAINTENANCE	14,000	9,414
PRINTING & BINDING	10,000	9,784
PROFESSIONAL/TECHNICAL SERVICES	145,000	113,294
COMPUTER SYSTEMS SERVICES	162,500	130,073
COMMUNICATIONS	36,000	19,676
TRAVEL, IN-STATE	1,000	231
TRAVEL, OUT-STATE	125,000	83,569
SUPPLIES	30,000	22,318
EQUIPMENT	17,500	23,720
EMPLOYEE DEVELOPMENT	117,000	105,904
OTHER OPERATING COSTS	140,000	114,773
INDIRECT COSTS	250,000	279,786
SUBTOTAL	\$ 1,333,000	\$ 1,193,022
TOTAL ADMINISTRATIVE BUDGET	\$ 6,464,000	\$ 5,068,488

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ATTACHMENT B

STATE BOARD OF INVESTMENT

Travel Summary by Date SBI Travel April 1, 2019 - June 30, 2019

Purpose	Name	Destination / Date	Total Cost
Manager Monitoring Private Markets Managers: Goldman Sachs; Nordic Capital Annual Meeting	N. Blumenshine	New York, NY 4/1/2019 - 4/3/2019	\$ 1,013.80
Conference: Institutional Limited Partners Association (ILPA) Private Equity Legal Conference	J. Mulé	Washington, DC 4/2/2019 - 4/3/2019	856.05
Conference: The 2019 Pension Bridge Annual Conference Other: Washington State Investment Board	M. Perry	San Francisco, CA Seattle, WA 4/9/2019 - 4/12/2019	1,537.54
Manager Monitoring Private Markets Managers: Audax; IK; Värde Manager Search Private Markets Managers: GIP; Marathon	C. Boll	New York, NY 4/9/2019 - 4/12/2019	2,231.94
Manager Monitoring Private Markets Managers: Silver Lake; Strategic Partners; Warburg Pincus	P. Ammann	New York, NY 4/22/2019 - 4/24/2019	1,225.11
Conference: Public Funds Roundtable sponsored by Institutional Investor	A. Krech	Los Angeles, CA 4/23/2019 - 4/26/2019	1,442.76

STATE BOARD OF INVESTMENT

Travel Summary by Date SBI Travel April 1, 2019 - June 30, 2019

Purpose	Name	Destination / Date	Total Cost
Manager Monitoring Private Markets Managers: Paine Schwartz; Oak Hill; Wellspring Manager Search Private Markets Manager: Stone Point Capital	J. Stacy	New York, NY 4/29/2019 - 5/1/2019	\$ 1,483.25
Manager Monitoring Private Markets Managers: KKR; Oaktree; TSSP	C. Boll	San Francisco, CA Los Angeles, CA Menlo Park, CA 4/29/2019 - 5/3/2019	2,652.94
Conference: National Association of State Investment Professionals (NASIP)	N. Blumenshine	Baltimore, MD 5/6/2019 - 5/9/2019	2,255.98
Conference: National Association of State Investment Professionals (NASIP)	A. Griga	Baltimore, MD 5/6/2019 - 5/9/2019	2,266.88
Manager Monitoring Private Markets Managers: Angelo Gordon; Court Square; Lexington Partners; Permira	J. Stacy	New York, NY 5/13/2019 - 5/16/2019	2,173.95
Manager Monitoring Private Markets Managers: Hellman & Friedman; Paine Schwartz; Rockwood	N. Blumenshine	San Francisco, CA 5/21/2019 - 5/23/2019	1,042.93
Seminar: Diversity & Inclusion: Bridging the Gap in the Investment Industry sponsored by CFA Society Minnesota	C. Boll	Minneapolis, MN 6/5/2019	70.00

STATE BOARD OF INVESTMENT

Travel Summary by Date SBI Travel April 1, 2019 - June 30, 2019

Purpose	Name	Destination / Date	Total Cost
Seminar: Diversity & Inclusion: Bridging the Gap in the Investment Industry sponsored by CFA Society Minnesota	N. Blumenshine	Minneapolis, MN 6/5/2019	\$ 70.00
Seminar: Diversity & Inclusion: Bridging the Gap in the Investment Industry sponsored by CFA Society Minnesota	P. Ammann	Minneapolis, MN 6/5/2019	70.00
Manager Monitoring Private Markets Manager: Madison Dearborn Manager Search Private Markets Manager: Wind Point Partners Consultant: Aon Hewitt Investment Consulting Inc.	J. Stacy	Chicago, IL 6/5/2019 - 6/6/2019	922.73
Manager Monitoring Private Markets Manager: Banc Funds Conference: Institutional Limited Partners Association (ILPA) - Private Credit	C. Boll	Chicago, IL 6/6/2019 - 6/7/2019	999.83
Manager Monitoring Private Markets Manager: KKR 2019 American Investors Meeting	A. Krech	Palos Verdes, CA 6/24/2019 - 6/26/2019	978.71
Conference: National Association of Public Pension Attorneys (NAPPA) 2019 Legal Education Conference	J. Mulé	San Diego, CA 6/25/2019 - 6/28/2019	2,455.41

STATE BOARD OF INVESTMENT

Travel Summary by Date SBI Travel April 1, 2019 - June 30, 2019

Purpose	Name	Destination / Date	Total Cost
Conference: National Association of Public Pension Attorneys (NAPPA) 2019 Legal Education Conference	J. Weber	San Diego, CA 6/25/2019 - 6/28/2019	\$ 2,336.00
Conference: National Association of Public Pension Attorneys (NAPPA) 2019 Legal Education Conference	J. Adam Sorenson	San Diego, CA 6/25/2019 - 6/28/2019	2,244.89
Conference: Adams Street Partners 2019 US Investor Conference	M. Perry	Chicago, IL 6/26/2019 - 6/27/2019	987.54
Manager Monitoring Private Markets Managers: Public Pension Capital; TSSP; Marathon Manager Search Private Markets Manager: Hayfin	C. Boll	New York, NY 6/26/2019 - 6/27/2019	1,422.69

TAB C

Investment Advisory Council Report

Private Markets Program Report and Consideration of Commitments

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INVESTMENT ADVISORY COUNCIL REPORT

DATE: August 15, 2019

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 Equity	Lexington Partners	CIP V	\$300 Million
Real Assets	BlackRock	GRP III	\$100 Million
Real Estate	Angelo Gordon	Europe Realty III	\$75 Million

New Managers:

Private Equity	Wind Point Partners	WPP IX	\$100 Million
Private Equity	Whitehorse Liquidity Partners	Fund III	\$100 Million
Private Credit	Marathon Asset Management	MSPS II	\$100 Million

SBI action is required on item B.

A. Status of SBI Current Private Markets Commitments

Minnesota State Board of Investment

Combined Funds

June 30, 2019

Combined Funds Market Value \$70,658,283,361

Amount Available for Investment **\$4,254,381,397**

	Current Level	Target Level	Difference
Market Value (MV)	\$10,247,531,068	\$17,664,570,840	\$7,417,039,772
MV +Unfunded	\$20,476,017,779	\$24,730,399,176	\$4,254,381,397

Asset Class	Market Value	Unfunded Commitment	Total
Private Equity	\$5,621,288,944	\$6,390,929,913	\$12,012,218,857
Private Credit	\$600,827,651	\$751,919,870	\$1,352,747,521
Real Assets	\$2,067,086,242	\$929,111,823	\$2,996,198,065
Real Estate	\$834,422,455	\$1,343,867,010	\$2,178,289,465
Distressed/Opportunistic	\$1,123,905,776	\$812,658,095	\$1,936,563,871
Total	\$10,247,531,068	\$10,228,486,711	\$20,476,017,779

Cash Flows

June 30, 2019

Calendar Year	Capital Calls	Distributions	Net Invested
2019 (6 months)	\$953,891,717	(\$1,022,913,843)	(\$69,022,126)
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
2015	\$1,541,161,769	(\$2,128,301,645)	(\$587,139,876)

B. Consideration of New Investment Commitments

ACTION ITEMS:

1) Investment with an existing private equity manager, Lexington Partners (“Lexington”), in Lexington Co-Investment Partners V, L.P. (“CIP V”).

Lexington is forming CIP V to continue their strategy of making equity co-investments in transactions alongside leading buyout and growth sponsors in U.S. and European, and selectively in Asian and Latin American companies. As in prior CIP funds, CIP V will seek to assemble a diversified portfolio of co-investments including by sponsor, company, company size, geography, industry, and vintage, and therefore anticipates achieving broad industry exposure.

In addition to reviewing the attractiveness of the CIP V 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 CIP V is included as **Attachment A beginning on page 9.**

RECOMMENDATION:

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

2) Investment with an existing real assets manager, BlackRock Financial Management (“BlackRock”), in Global Renewable Power Infrastructure Fund III (“GRP III”).

BlackRock is seeking investors to capitalize on the continued opportunity to invest capital at scale in the rapidly transforming climate infrastructure sector. GRP III will seek to invest in a diversified portfolio of climate infrastructure assets, predominantly in countries within the Organization for Economic Cooperation and Development. The Fund’s investments will principally comprise climate infrastructure assets that are renewable power generation assets with a focus on wind and solar energy.

In addition to reviewing the attractiveness of the GRP III 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 GRP III is included as **Attachment B beginning on page 13.**

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 GRP 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 BlackRock 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 BlackRock or reduction or termination of the commitment.

3) Investment with an existing real estate manager, Angelo Gordon & Co. ("Angelo Gordon") in AG Europe Realty Fund III, L.P. ("Fund III").

Angelo Gordon is establishing Fund III to make investments in commercial real estate in Europe. The Fund's strategy will emphasize the purchase of sub-performing real estate assets across a range of geographies and product types. Assets are expected to typically fall in the traditional categories of office, retail, industrial, and hotels, but may also include student housing, senior housing, self-storage, and land. The Fund will focus on major Western European markets, including the United Kingdom, Ireland, the Netherlands, Germany, France, Spain, Italy, Sweden, Denmark, and Norway.

In addition to reviewing the attractiveness of the AG Europe Realty Fund III, L.P. 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 Fund III is included as **Attachment C beginning on page 17.**

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 \$75 million, or 20% of AG Europe Realty Fund III, L.P., 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 Angelo Gordon 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 Angelo Gordon or reduction or termination of the commitment.

4) Investment with a new private equity manager, Wind Point Partners (“Wind Point”), in Wind Point Partners IX-A, L.P. (“WPP IX”).

Wind Point is forming WPP IX to make private equity investments in North American middle-market companies. Wind Point focuses on companies in the Consumer Products, Industrial Products, and Business Services sectors typically with \$100 million - \$500 million of total enterprise value at the time of acquisition. A key element of their strategy is identifying and partnering with a top-caliber CEO who can execute on a plan to build a fundamentally better business by improving the company’s team, growth rate, operations, effectiveness, and strategic position.

In addition to reviewing the attractiveness of the WPP IX 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 WPP IX is included as **Attachment D beginning on page 21.**

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 Wind Point Partners IX-A, L.P., 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 Wind Point 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 Wind Point or reduction or termination of the commitment.

5) Investment with a new private equity manager, Whitehorse Liquidity Partners (“Whitehorse”), in Whitehorse Liquidity Partners Fund III (“Fund III”).

Whitehorse is seeking investors to make preferred equity investments in private equity portfolios. Whitehorse seeks to provide customized and flexible liquidity solutions to private

equity investors looking for alternatives to outright sales of assets or traditional debt financings. This includes: (i) institutional investors seeking liquidity on existing investments; (ii) private equity fund of funds that want to generate early distributions for their limited partners; (iii) private equity general partners that want to finance follow-on investments or provide liquidity for investors; and (iv) secondary market buyers interested in financing portfolio acquisitions.

In addition to reviewing the attractiveness of the Fund III 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 Fund III is included as **Attachment E beginning on page 25.**

RECOMMENDATION:

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

6) Investment with a new private credit manager, Marathon Asset Management ("Marathon"), in Marathon Secured Private Strategies Fund II, L.P. ("MSPS II").

Marathon is establishing MSPS II to generate attractive risk-adjusted returns in the private secured credit markets by providing capital solutions to creditworthy and underserved borrowers and capitalizing on complexity and illiquidity premiums found within non-traditional lending channels. The partnership's investments may include, but are not limited to, investments in the following areas of focus: residential and commercial real estate, healthcare loans and royalty-backed credit, commercial aviation, asset-based corporate credit, consumer-based loans, and asset-backed securities.

In addition to reviewing the attractiveness of the MSPS II Fund 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 MSPS II is included as **Attachment F beginning on page 29.**

RECOMMENDATION:

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

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ATTACHMENT A

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	Lexington Co-Investment Partners V, L.P.
<i>Type of Fund:</i>	Private Equity – Co-Investment
<i>Target Fund Size:</i>	\$2.5 billion (\$3 billion hard cap)
<i>Fund Manager:</i>	Lexington Partners
<i>Manager Contact:</i>	Bart Osman Lexington Partners 660 Madison Avenue New York, NY 10065

II. Organization and Staff

Lexington Partners L.P. (the “Firm” or “Lexington”) is forming Lexington Co-Investment Partners V, L.P. (the “Partnership” or “CIP V”), to continue Lexington’s history of successfully making equity co-investments in transactions alongside leading buyout and growth sponsors in U.S. and European companies. The Partnership is being formed to continue Lexington’s successful, 21-year co-investment strategy and will selectively add new limited partners to the Firm’s established global co-investment program.

Lexington is the largest independent manager of co-investment and secondary acquisition funds with more than \$48 billion in original committed capital. Lexington’s funds pursue innovative strategies in two principal areas: (i) making equity co-investments alongside leading buyout and growth capital sponsors, and (ii) providing secondary liquidity solutions to owners of private equity and alternative investments. In addition, since 1998, Lexington’s secondary funds have made select commitments to new private equity funds during their initial formation to complement Lexington’s secondary acquisition strategy. Lexington has been at the forefront of private equity innovation since principals of Lexington helped pioneer the development of the secondary market for private equity interests 27 years ago and also created one of the first independent co-investment programs 21 years ago.

Lexington’s co-investment strategy is led by Partners Bart Osman, John Loverro, David Outcalt, and James Pitt. The CIP team is located in New York City and London, complemented by Lexington offices in Menlo Park, Boston, Hong Kong, and Santiago.

III. Investment Strategy

Increasingly, limited partners are seeking co-investment opportunities to enhance their private equity programs. Co-investments offer limited partners the ability to obtain insights and gain additional exposure to attractive private equity investments, while benefiting from significantly lower economic costs including lower fees and carried interest as compared to traditional primary fund investing. The co-investment program (“CIP”) will seek to generate superior returns by co-investing alongside high-quality buyout sponsors in attractive companies primarily in the United States and Europe. CIP V will also co-invest opportunistically in companies in the growth markets of Asia and Latin America.

Lexington’s co-investment program (“CIP”) was created in 1998 specifically to allow the Florida State Board of Administration (“FSBA”), the fifth largest U.S. public pension fund, to harness the co-investment opportunities generated by the FSBA’s and Lexington’s combined private equity programs. Additional limited partners joined the program over the years to capitalize on the growth in co-investment opportunities from their respective large private equity fund portfolios. CIP’s dedicated co-investment team thoroughly analyzes transactions and has the discretion and flexible investment process to respond to opportunities in a timely manner. Lexington’s distinctive partnership model enables investors to aggregate their private equity commitments to provide increased access to deals that may not be available on an individual investor basis. Currently, the program’s limited partners are six U.S. state plans and five non-U.S. investors located in Australia, Europe, and Latin America.

Lexington has been a consistent co-investor in private equity transactions since 1998, sourcing and analyzing over 2,200 co-investment opportunities from more than 450 private equity sponsors, and committing to invest \$5.4 billion in 337 companies alongside 158 sponsors. Over the past 21 years, co-investment volume has increased considerably and is now estimated by published sources to account for more than 5% of global private equity volume. Lexington expects that co-investment volume will continue to increase due to the significant benefits for both limited partners and private equity sponsors.

CIP seeks to make passive, minority co-investments alongside lead transaction sponsors. As a result, CIP does not have the same degree of day-to-day portfolio company management responsibilities as the control sponsor. This allows CIP to assemble a more diversified portfolio of investments than traditional primary funds which, the General Partner believes, reduces portfolio risk. As in prior CIP funds, CIP V will seek to assemble a diversified portfolio of co-investments including by sponsor, company, company size, geography, industry, and vintage, and therefore anticipates achieving broad industry exposure.

IV. Investment Performance

Previous fund performance as of March 31, 2019 is shown below. Historical CIP performance is provided here:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
CIP I	1998	\$903 million	-	13.4%	1.8	1.8
CIP II	2005	\$950 million	-	4.9%	1.4	1.2
CIP III	2012	\$1.6 billion	-	19.5%	1.8	0.9
CIP IV	2016	\$2.4 billion	\$200 million	17.0%	1.1	0.1

Historical performance for Lexington's global secondary funds is provided here:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
LCP I	1996	\$242 million	-	13.1%	1.3	1.3
LCP II	1998	\$1.1 billion	-	8.2%	1.3	1.3
LCP III	1999	\$656 million	-	8.7%	1.3	1.3
LCP IV	2000	\$606 million	-	19.3%	1.8	1.8
LCP V	2002	\$2.0 billion	-	18.9%	1.7	1.7
LCP VI	2006	\$3.8 billion	\$100 million	6.9%	1.4	1.3
LCP VII	2010	\$7.1 billion	\$200 million	15.1%	1.6	1.3
LCP VIII	2014	\$10.1 billion	\$150 million	20.5%	1.3	0.4
LCP IX	2018	\$12.0 billion	\$150 million	N/A	N/A	N/A

Historical performance for Lexington's middle market secondary funds is provided here:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
LMMI I	2005	\$556 million	-	11.6%	1.6	1.5
LMMI II	2009	\$650 million	-	14.7%	1.7	1.3
LMMI III	2013	\$1.1 billion	-	19.2%	1.4	0.6
LMMI IV	2017	\$2.7 billion	\$100 million	NM	1.1	0.2

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

V. Investment Period and Term

The fund will have a five-year investment period and a ten-year term, with the potential of three one-year extension periods.

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

ATTACHMENT B

REAL ASSETS MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	Global Renewable Power Fund III
<i>Type of Fund:</i>	Real Assets - Infrastructure
<i>Target Fund Size:</i>	\$2.5 billion
<i>Fund Manager:</i>	BlackRock Financial Management
<i>Manager Contact:</i>	Laura Champion 400 Howard Street San Francisco, CA 94105

II. Organization and Staff

BlackRock is the world's largest publicly traded investment management firm with \$5.97 trillion of assets under management. BlackRock is forming a follow-on fund ("GRP III" or the "Fund") to BlackRock NTR Renewable Power Fund and BlackRock Global Renewable Power Fund II, to capitalize on the continued opportunity to invest capital at scale in the rapidly transforming climate infrastructure sector. GRP III will seek to provide, over the long-term, a total return on investors' capital contributions in the form of capital growth and income.

In February 2011, BlackRock established the Global Renewable Power Group ("GRPG") as the first element of its broader BlackRock Infrastructure platform, which is currently comprised of over 170 infrastructure investment professionals and has over \$24 billion in committed capital. GRPG is made up of 31 experienced and dedicated renewable power investment professionals, including 6 members of the technical and commercial asset management team that have spent the majority of their careers in the renewable power industry. GRPG is supported by 17 dedicated professionals in finance and operations, product strategy, structuring and investor relations functions. The GRPG team will further leverage the resources and expertise of the broader BlackRock platform in sourcing and evaluating opportunities, executing transactions, and providing day-to-day management of the investments.

BlackRock is headquartered in New York and has offices in 30 countries. The GRPG is spread across 8 of those offices in Europe, North America and Asia Pacific. The GRPG leadership team is David Giordano, Rory O'Connor, Martin Torres, Charlie Reid, Peter Raftery, Patrick Flynn and Freek Spoorenberg. The GRP III Investment Committee includes both GRPG team members as well as advisors and senior members from other divisions within BlackRock. The Investment Committee includes Rory O'Connor, David Giordano, Jim Barry, Matt Anestis, Brian Deese, Teresa O'Flynn, Matthew Botein, Pat Eilers, Sacha Bacro, one of either Alastair Bishop or Charles Lilford, and two rotating members from the GRPG.

III. Investment Strategy

GRP III will seek to invest in a diversified portfolio of climate infrastructure assets, predominantly in countries within the Organization for Economic Cooperation and Development. The Fund's investments will principally comprise climate infrastructure assets that are renewable power generation assets with a focus on wind and solar energy. The Fund may also invest in climate infrastructure assets that support renewable power, including energy storage and distribution, and/or that relate to electrified transport. The Investment Team believes that the climate infrastructure sector presents a compelling opportunity to invest capital at scale in infrastructure assets that have the potential to deliver attractive risk-adjusted returns with a lower correlation to the public markets and provide a means of diversification for an existing investment portfolio. The Fund's assets may be pre-construction or construction, or operational. The Fund may also invest in businesses that develop, own, source, finance or manage such climate infrastructure assets.

The cornerstone of the origination strategy is to cultivate long-term partnerships with industry leading project developers and other industry partners in order to access and create attractive investment opportunities. The Fund's ability to take majority or minority ownership positions facilitates engagement with the full spectrum of industry partners from the small project developers that prefer to sell outright, to the large utilities that want to retain a significant ownership stake. GRPG believes that this partnership strategy combined with its global relationship network of project developers, equipment manufacturers, advisors, financiers, and policy makers will allow the Fund to gain broad access to opportunities in the market. In addition, GRPG believes extensive in-house expertise across the full spectrum of renewable power activities including project development, construction, project financing, equity investment, financial analytics, tax structuring and operations strengthens its credibility with potential partners. With a strong industry reputation and relationships with banks, BlackRock believes it can achieve favorable financing terms in structuring each transaction.

Post-acquisition, the GRPG's commercial, technical and operations expertise is applied towards the comprehensive day-to-day investment management of the portfolio with the objective of mitigating operating risks and maximizing value for investors. All investments are managed by experienced project managers with input and oversight from the operations team. GRPG will leverage its relationships with project developers and other industry partners, both locally and globally, who are established providers of operations and maintenance services to gain efficiencies and insight across its investment portfolio.

To determine the optimal time to exit, GRPG will monitor developments across the global renewable power sector. The Fund will pro-actively seek to make operational enhancements and balance sheet improvements to investments to add value when it comes to exit. All feasible exit strategies will be evaluated, including selling individual assets/portfolios to potential buyers and publicly listing the Fund or a portion of the portfolio investments of the Fund through a public exit. It is expected that investor interest in the asset class will continue to strengthen and the potential buyer universe will expand further over time.

IV. Investment Performance

Previous fund performance as of March 31, 2019 is shown below:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
BlackRock Global Renewable Power I	2012	\$611 million	-	6.7%	1.3	0.7
BlackRock Global Renewable Power II	2015	\$1,649 million	\$98.5 million	1.9%	1.0	0.1

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

V. General Partner's Investment

BlackRock will contribute up to 3% of GRP II's aggregate Capital Commitments.

VI. Investment Period and Term

The Investment Period will end 5 years after the first investment. The Term will end 12 years after the first investment, subject to one-year extension at the GP's discretion and two one-year extensions with the consent of the LP Advisory Committee.

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

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ATTACHMENT C

REAL ESTATE MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	AG Europe Realty Fund III, L.P.
<i>Type of Fund:</i>	Private Real Estate
<i>Target Fund Size:</i>	\$1.2 billion
<i>Fund Manager:</i>	Angelo Gordon & Co., L.P.
<i>Manager Contact:</i>	Brigid Flanagan 245 Park Avenue New York, NY, 10167

II. Organization and Staff

Angelo Gordon & Co., L.P. (“Angelo Gordon” or the “Firm”) is forming AG Europe Realty Fund III, L.P. (“Fund III” or the “Fund”) to make investments in commercial real estate in Europe. Angelo Gordon has been actively investing in European real estate since 2009 and currently has offices and staff in London, Amsterdam, Frankfurt and Milan. Additionally, the firm has had a significant presence in Europe since 2000 as an active investor in distressed debt.

Angelo Gordon was founded in 1988 by John Angelo and Michael Gordon. Headquartered in New York City, the Firm is 100% employee owned and has over 500 employees working across their four disciplines – corporate credit, real estate, direct lending, and securitized products. There are 17 investment professionals on the Europe Real Estate team led by Adam Schwartz and co-portfolio manager Anuj Mittal. As of March 2019, the firm manages approximately \$33 billion in assets.

Over the past 26 years, Angelo Gordon has acquired over \$29 billion of real estate assets in over 550 transactions, representing over \$12 billion of equity in a series of opportunistic, core plus and value-added real estate funds. Angelo Gordon began making opportunistic investments in 1993 and has been an active investor in distressed real estate debt since 1990.

III. Investment Strategy

The Fund’s strategy will emphasize the purchase of sub-performing real estate assets across a range of geographies and product types. Assets are expected to typically fall in the traditional categories of office, retail, industrial, and hotels, but may include alternative asset classes such as student housing, senior housing, self-storage, and land. In addition to making direct property investments, the Fund may also make investments in distressed real estate debt and

real estate companies. The Fund will focus on major Western European markets, including the United Kingdom, Ireland, the Netherlands, Germany, France, Spain, Italy, Sweden, Denmark, and Norway. Angelo Gordon believes that the Fund will benefit from a value-added strategy in a region with continued high levels of distressed real estate and loan sales and economic fundamentals that continue to lag the recovery seen in the United States.

Angelo Gordon's approach to value-add real estate investing centers on value creation and capital preservation. The firm typically purchases assets from owners who lack the capital, patience, or expertise to improve cash flow and value. The assets are often attractively priced due to the lack of current cash flow, difficulty in obtaining debt financing, complexity of analysis, or inefficiency of the sale process. Upon ownership, Angelo Gordon's business plans may range from modest lease-up and operations improvement to a more significant value-add strategy, which may require complete capital restructuring or asset repositioning to stabilize.

The Fund will seek to invest in a portfolio of assets that, after stabilization, will be highly sought after by traditional institutional real estate investors and will continue to appreciate even after underperformance has been corrected. Angelo Gordon will, therefore, seek opportunities to purchase assets with all or some of the following fundamental strengths:

- Clearly identifiable reasons for underperformance and a well-defined and achievable plan for turnaround,
- Purchase price and forecasted stabilized value that are at discounts to replacement costs,
- Favorable long-term demand growth in the local market, and
- Barriers to new supply in the local market due to restrictions on land availability, zoning, or entitlement.

The Angelo Gordon real estate team has particular experience and expertise in purchasing and repositioning sub-performing properties representing virtually every product type and most major geographical regions of the United Kingdom and Western Europe. Over the past 19 years, Angelo Gordon has established an excellent network of both deal sources and operating partner relationships in Europe. Since 2009, Angelo Gordon has purchased approximately \$3.2 billion of real estate assets and over \$3.7 billion of debt securities in Europe. Rather than employing a large internal property management group, Angelo Gordon actively manages a network of third-party operating partners that it believes significantly improves its alignment with other investors. The real estate team will seek to leverage its internal capabilities through the firm's extensive and well-developed network of external alliances and has created a broad network of deal sources with local real estate firms, brokers, direct sellers and distressed debt players. The firm has approximately 40 real estate operating partners in Europe and is often shown transactions on an exclusive basis.

IV. Investment Performance

Previous fund performance as of March 31, 2019 is shown below:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
Opportunistic Portfolio						
AG Realty Fund	1994	\$30 million	--	23%	2.0	2.0
AG Realty Fund II	1995	\$33 million	--	25%	2.2	2.2
AG Realty Fund III	1997	\$61 million	--	3%	1.3	1.3
AG Realty Fund IV	1999	\$255 million	--	8%	1.5	1.5
AG Realty Fund V	2001	\$333 million	--	26%	1.6	1.6
AG Realty Fund VI	2005	\$514 million	--	2%	1.1	1.1
AG Realty Fund VII	2007	\$1.3 billion	--	13%	1.5	1.5
AG Realty Fund VIII	2011	\$1.3 billion	--	15%	1.6	1.3
AG Realty Fund IX	2015	\$1.3 billion	\$100 million	13%	1.3	0.2
Value-Add Portfolio						
AG Realty Fund X	2018	\$2.8 billion	\$150 million	N/A	N/A	N/A
Asia Opportunistic Portfolio						
AG Asia Realty Fund	2006	\$526 million	--	3%	1.2	1.1
AG Asia Realty Fund II	2010	\$616 million	--	17%	1.6	1.5
AG Asia Realty Fund III	2015	\$847 million	\$50 million	17%	1.3	0.3
AG Asia Realty Fund IV	2018	\$917 million	\$100 million	N/A	N/A	N/A
Europe Value-Add Portfolio						
AG Europe Realty Fund	2014	\$570 million	--	18%	1.4	0.7
AG Europe Realty Fund II	2017	\$843 million	\$75 million	8%	1.0	0.0

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

V. Investment Period and Term

The fund will have a four-year investment period and an eight-year term, with the potential of two one-year extension periods.

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

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ATTACHMENT D

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	Wind Point Partners IX-A, L.P.
<i>Type of Fund:</i>	Private Equity – Buyout
<i>Target Fund Size:</i>	\$1.2 billion
<i>Fund Manager:</i>	Wind Point Advisors LLC
<i>Manager Contact:</i>	Nathan Brown 676 N. Michigan Avenue Suite 3700 Chicago, IL 60611

II. Organization and Staff

Wind Point Partners (“Wind Point” or the “Firm”) is forming Wind Point Partners IX (the “Fund” or “WPP IX”) to continue the Firm’s successful history of making private equity investments in North American middle-market companies. Wind Point focuses on companies in the Consumer Products, Industrial Products, and Business Services sectors typically with \$100 million - \$500 million of total enterprise value at the time of acquisition. Since its inception in 1984, Wind Point has invested approximately \$3.5 billion in 97 portfolio companies generating strong performance across multiple economic cycles.

Wind Point has been an active investor in the Consumer Products, Industrial Products, and Business Services sectors since the 1980s. These three sectors are referred to by Wind Point as their “Core Sectors” and comprise 100% of the Firm’s investment activity since 2007. In the early 2000s, Wind Point began a shift away from other “non-Core” sectors such as Healthcare, Telecommunications and Media, and other areas. Wind Point’s Managing Directors have spent the entirety of their careers investing exclusively in the Firm’s “Core Sectors.”

The Firm is led by Managing Directors Nathan Brown, Paul Peterson, Alex Washington, Konrad Salaber, and David Stott, who have an average tenure at Wind Point of 16 years. They are joined by 15 additional investment professionals and 10 operations professionals all working from a single office in Chicago.

Wind Point’s current Managing Directors represent the Firm’s third generation of leadership. The Firm underwent a successful leadership transition, which began prior to Wind Point VII (2009 vintage), and was formalized (change in management company ownership) prior to the Wind Point VIII (2016 vintage) fundraise. The Firm’s Managing Directors fully deployed Wind Point VII and Wind Point VIII as the prior generation of Wind Point leadership began rolling back their day-to-day involvement and sourcing activities during the course of Wind

Point VI (2006 vintage). Wind Point IX will, therefore, represent the third fund deployed and managed by Wind Point's current leadership team.

III. Investment Strategy

Wind Point intends to continue their strategy of identifying well-positioned middle-market businesses they believe are in need of leadership transitions whereby they can leverage their extensive executive networks to conduct thorough diligence and establish a clear path to value creation. To execute their strategy, they seek to bring together three key elements in each transaction:

- 1) A top-caliber CEO: The core of Wind Point's investment strategy is focused on identifying and partnering with a top-caliber CEO. Wind Point senior investment professionals and Wind Point's Chief Talent Officer ("CTO") dedicate significant time to developing an extensive network of potential CEO candidates. Once an investment opportunity is identified, the diligence process typically involves a potential CEO candidate and one or more members of Wind Point's Executive Advisor Partner ("EAP") network. EAP members are senior executives with deep ties to Wind Point who are typically retired, but looking to play an active advisory role in Wind Point's process. They contribute valuable time and industry expertise to all aspects of Wind Point's investment process.
- 2) A well-positioned middle-market company: The Wind Point team has extensive experience sourcing unique opportunities in the middle market by leveraging their reputation as an attractive partner to companies Wind Point believes are in need of upgraded executive talent or a full leadership transition. These opportunities may include family or entrepreneur-held businesses with no succession plan, corporate divestitures without an experienced leader, or simply businesses with weak leadership. Considerable time is spent developing relationships with business owners, executives, investment bankers, and others to source investment opportunities potentially well-suited for Wind Point's approach.
- 3) A value creation plan ("VCP"): The goal of Wind Point's VCP is to build a fundamentally better business by improving the company's team, growth rate, operations, effectiveness, and strategic position. During the diligence process, Wind Point works side-by-side with their CEO candidate and executive partners to develop and quantify specific initiatives to drive sales, improve operations, and pursue add-on acquisitions that they compile into a tactical VCP to execute during their ownership period. The VCP provides an ownership "game plan", which they use as a collaborative and dynamic tool for measuring progress throughout the investment.

Wind Point's collaborative culture provides the opportunity for potential and existing deals to be discussed weekly during their "all hands" meeting. All members of the investment team and any EAPs in attendance are encouraged to ask questions and participate in the conversation. Thus, while Wind Point does have an Investment Committee comprised of the

Managing Directors who formally approve each investment, in practice, the Firm seeks to develop consensus support across the organization.

IV. Investment Performance

Previous fund performance as of March 31, 2019 is shown below.**

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
WPP II	1987	\$90 million	-	19%	3.2	3.2
WPP III	1997	\$215 million	-	23%	2.3	2.3
WPP IV	1999	\$405 million	-	10%	2.0	2.0
WPP V	2002	\$476 million	-	7%	1.3	1.1
WPP VI	2006	\$715 million	-	4%	1.2	1.2
WPP VII	2009	\$915 million	-	19%	2.0	1.9
WPP VIII	2016	\$985 million	-	23%	1.3	0.1

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

** WPP I is not included as the Fund primarily made venture investments and the majority of the Fund was not comprised of third-party institutional capital.

V. Investment Period and Term

The fund will have a six-year investment period and a ten-year term, with the potential of one additional two-year extension with the consent of the Advisory Board and additional one-year extensions with the consent of a majority interest of Limited Partners.

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

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ATTACHMENT E

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	Whitehorse Liquidity Partners III LP
<i>Type of Fund:</i>	Private Equity – Secondaries
<i>Target Fund Size:</i>	\$1.5 billion (hard cap: \$2.0 billion)
<i>Fund Manager:</i>	Whitehorse Liquidity Partners
<i>Manager Contact:</i>	Yann Robard 200 Wellington Street West, Suite 600 Toronto, Ontario M5V 3C7 Canada

II. Organization and Staff

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

Whitehorse was founded in 2015 and is headquartered in Toronto. Since its founding, the firm has raised two funds and is currently raising Fund III to make preferred equity investments, and closed or is pending close on 34 transactions for a total of \$2.8 billion invested, committed or reserved capital. The Whitehorse team has grown to 34 professionals with experience in investing, managing and administering private equity investments, including the structuring and execution of complex secondary transactions. Whitehorse is led by the members of its Investment Committee, which includes: Yann Robard, Michael Gubbels, Giorgio Riva, Rob Gavin, Sean Connor and Leah Boyd. Firm founder Yann Robard was previously at Canada Pension Plan Investment Board for 13 years where his most recent position was Managing Director, Head of Secondaries and Co-Investments.

III. Investment Strategy

Whitehorse’s strategy is to make preferred equity investments in private equity portfolios as an alternative to a traditional secondaries transaction. Whitehorse has identified what it believes to be a significant and untapped market opportunity in the utilization of structures to accelerate liquidity on private equity portfolios and/or finance the acquisition of private equity portfolios, which are designed to provide attractive, risk-adjusted returns for its investors.

Whitehorse seeks to provide customized and flexible liquidity solutions to private equity investors looking for alternatives to outright sales of assets or traditional debt financings. This includes: (i) institutional investors seeking liquidity on existing investments; (ii) private equity

fund of funds that want to generate early distributions for their limited partners; (iii) private equity general partners that want to finance follow-on investments or provide liquidity for investors; and (iv) secondary market buyers interested in financing portfolio acquisitions. In the case of (i), (ii) and (iii), a preferred equity investment by Whitehorse allows its counterparty to generate immediate liquidity while retaining ownership, investment upside and operating flexibility. In the case of (iv), Whitehorse allows its counterparty to source attractive deal flow and potentially gain substantial return accretion while providing the counterparty with flexible capital required to consummate the acquisition and an alternative to debt finance.

In general, Whitehorse will provide some portion of the value of a portfolio of assets to its counterparty in exchange for receiving 100% of the cash flows generated by that portfolio until an internal rate of return (“IRR”) or multiple return hurdle is met. Once the return hurdle is reached, the cash flows are shared with the counterparty so that both groups retain exposure to the upside. This structure provides investors in Whitehorse the potential for attractive downside protection and for additional upside above the return requirement. Whitehorse also believes that this product is attractive to counterparties because they receive early liquidity without timing the market, crystalizing a loss, or giving up all potential future upside. Whitehorse seeks to support every transaction with a quality portfolio, whether the counterparty is a seller, buyer or a general partner of private equity funds, the preferred equity solution is structured in a similar manner.

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

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

Utilizing this strategy, Whitehorse intends to construct a portfolio for Fund III of 12-15 investments generally ranging from \$30 to \$200 million in size that it believes have the potential to provide compelling, risk-adjusted returns. The Fund’s objective is to seek investments with the potential to generate gross IRR of 12-14% while maintaining exposure to upside that could increase gross returns to high teens.

IV. Investment Performance

Previous fund performance as of March 31, 2019 is shown below:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI**
Whitehorse Liquidity Partners I LP (“Fund I”)	2016	\$400 million	-	10.3%	1.12x	0.48x
Whitehorse Liquidity Partners II LP (“Fund II”)	2018	\$1,000 million	-	15.6%	1.06x	0.16x

* 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.

** Net DPI as of June 30, 2019.

V. General Partner’s Investment

The General Partner, together with certain other affiliates, will contribute an amount equal to at least the lesser of 1% of Fund III’s aggregate Capital Commitments or \$7.5 million.

VI. Investment Period and Term

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

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

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ATTACHMENT F

PRIVATE CREDIT MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	Marathon Secured Private Strategies Fund II, L.P.
<i>Type of Fund:</i>	Private Credit
<i>Total Fund Size:</i>	\$750 Million
<i>Fund Manager:</i>	Marathon Asset Management, L.P.
<i>Manager Contact:</i>	James Atwater One Bryant Park, 38th Floor New York, New York 10036

II. Organization and Staff

Marathon Asset Management is a global credit manager with approximately \$15.2 billion of capital under management as of October 31, 2018. Marathon began investment management operations in 1998 and today employs approximately 157 employees globally, approximately 84 of whom are investment professionals. Marathon is headquartered in New York with investment offices in London and Singapore.

Five Principals including Bruce Richards (Chairman and Chief Executive Officer), Louis Hanover (Chief Investment Officer), Andrew Rabinowitz (President and Chief Operating Officer) Jamie Raboy (Chief Operating Officer) and Andy Springer (Head of Secured Private Strategies and Structured Credit Group) lead the investment management team.

In June 2016, Blackstone Strategic Capital Holdings Fund, a vehicle managed by Blackstone Alternative Asset Management, acquired a passive, minority interest in the Investment Manager. The Principals continue to maintain autonomy over the Investment Manager's business management, operations and investment processes following this transaction.

III. Investment Strategy

Marathon Secured Private Strategies Fund II, L.P. is a Delaware limited partnership that has been formed to seek to generate attractive risk-adjusted returns in the private secured credit markets by providing capital solutions to creditworthy and underserved borrowers and capitalizing on complexity and illiquidity premiums found within non-traditional lending channels. Assets sourced for the Partnership are generally senior, secured, asset-based investment opportunities. The asset-based nature of the Partnership's target opportunity set seeks to increase the protection of the investor's principal while typically exhibiting low

volatility and high cash flow. The partnership's investments may include, but are not limited to, investments in the following areas of focus:

Residential Real Estate

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

Healthcare Loans and Royalty-Backed Credit

Marathon expects to invest in senior-secured healthcare loans secured by intellectual property with the potential to capture royalty payment streams. The Partnership will primarily seek opportunities secured by existing FDA approved assets, which the Investment Manager believes provide a natural collateral base for debt financing, as they often produce robust, uncorrelated cash flows that are not dependent on economic cycles. Marathon believes it possess key competitive advantages in this sector, including its dedicated in-house investment team and their long-tenured industry relationships, as well as the product databases the team has developed. Furthermore, the Investment Manager has established an external medical advisory board, which consists of medical professionals, scientist and senior industry executives, to review potential investments and provide insight to the Investment Manager.

Commercial Aviation

Marathon expects to invest early to mid-life commercial aircraft on "triple net" leases to commercial airline companies. In a "triple-net" lease, the lessee is responsible for maintenance, insurance and taxes on the aircraft. Marathon's investments will focus on in-demand commercial aircraft, specifically newer-technology aircraft on lease to major commercial airline carriers.

Commercial Real Estate

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

Asset-Based Corporate Credit

The Partnership expects to lend to companies (both publicly listed and privately held) to originate and secure asset-based loans secured by real estate, equipment, receivables, inventory and intellectual property rights.

Consumer Based Loans and Asset-Backed Securities

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

IV. Investment Performance

Previous fund performance as of March 31, 2019 for is shown below:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
MSPS I	2014	\$370 Million	--	10.8%	1.3x	0.22

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

V. Investment Period and Term

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

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

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TAB D

Report from the
SBI Compensation
Review Committee

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SBI COMPENSATION REVIEW COMMITTEE REPORT

DATE: August 15, 2019

TO: Members, State Board of Investment

FROM: **SBI Compensation Review Committee**

The SBI Compensation Review Committee met on July 15 and July 31, 2019 to discuss the following agenda item: Executive Director/Chief Investment Officer Compensation

The members of the SBI Compensation Review Committee are:

Ramona Advani	State Auditor's Representative
Doug Anderson	Public Employees Retirement Association (PERA)
Bibi Black	Secretary of State's Representative
Christie Eller	Attorney General's Representative
Edwin Hudson	Minnesota Management and Budget (MMB) Representative
Erin Leonard	Minnesota State Retirement System (MSRS)
Gary Martin	Investment Advisory Council Representative
Karl Procaccini	Co-Chair, Governor's Representative
Jay Stoffel	Co-Chair, Teachers Retirement Association (TRA)
Shawn Wischmeier	Investment Advisory Council Representative

RECOMMENDATION:

Approve a market-based adjustment to the annual base salary of the SBI Executive Director/Chief Investment Officer to \$419,000, effective September 4, 2019.

Background and Basis for the Recommendation:

1. During the 2019 legislative session, legislation was signed into law that revised the SBI compensation plan. Effective May 31, 2019, the new compensation plan establishes a salary range for the SBI Executive Director/CIO at a minimum of \$298,000 and a maximum of \$495,000.

2. A study regarding the compensation of the SBI staff was performed during the fall of 2018 by McLagan, a national compensation consulting firm. The study provided information regarding salary ranges for CIOs in the public and private sectors with assets under management of at least \$50 billion. The study revealed the following conclusions and data points:

- a) The base salary of the SBI CIO is well below that of other large public funds. Factoring in incentive compensation received by other CIOs, SBI CIO salary is currently positioned significantly below the median.

PUBLIC FUNDS - range of total compensation:

25th percentile = \$298,000 Median = \$419,000 75th percentile = \$554,000

- b) SBI CIO salary is even further behind market when compared to private sector investment management organizations, especially when factoring total compensation.

PRIVATE SECTOR FIRMS - range of base salary (without incentive pay):

25th percentile = \$370,000 Median = \$496,000 75th percentile = \$580,000

3. The SBI CIO's current base salary is approximately \$358,000. This is well below the median compensation of comparable public and private sector CIOs (15% below the median for comparable public sector CIOs and 28% below the median for comparable private sector CIOs).
4. As of June 30, 2019, the SBI CIO has responsibility for managing over \$101 billion in assets, the majority of which are public employee pension funds. The SBI is a larger organization than comparable organizations in most other states.
5. The SBI is a more complex enterprise than similar institutions in other states. The SBI CIO manages pension assets, non-retirement assets, and the state cash account, each with very different investment objectives and asset allocations. The SBI CIO is also responsible for reviewing and recommending investment options in participant directed accounts such as the deferred compensation program, the health care savings plan, and the college saving plan.
6. Investment performance of the pension assets as of June 30, 2019 has been in the top quartile of the public funds universe.
7. In light of the market-based compensation data, as well as the caliber of CIO skills and experience needed to prudently manage the SBI's \$101 billion in assets, SBI CIO compensation should be set at no less than the median compensation point for CIOs of large public funds.

TAB E

Investment Advisory Council Report

Public Markets, Non-Retirement, and Participant Directed Investment Programs

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INVESTMENT ADVISORY COUNCIL REPORT

DATE: August 15, 2019

TO: Members, State Board of Investment

FROM: Investment Advisory Council and SBI Staff

**SUBJECT: Public Markets, Non-Retirement, and Participant Directed
Investment Programs**

This section of the report provides a brief performance overview of the SBI portfolio. Included in this section is a summary of investment manager activity and performance summaries of the public equity and fixed income managers in the SBI portfolio.

Also, we have included commentary and performance for the non-retirement managers and deferred compensation plan mutual funds.

The report includes the following sections:

	Page
• Review of Public Markets Program	3
• Public Markets Managers' Organizational Update	6
• Non-Retirement Manager Update	9
• Deferred Compensation Manager Update	10

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Review of SBI Public Markets Program Second Quarter 2019

Combined Funds Total Portfolio - Quarter and Year Attribution

In the second quarter, the Combined Funds, matched the composite benchmark return (3.6% Combined Funds versus 3.6% Composite Benchmark). Domestic equities outperformed the Russell 3000 Index return (4.1% Domestic Equity versus 4.0% Domestic Equity Benchmark), while international equities outperformed the MSCI ACWI ex U.S.A. Index (net) return (3.2% International Equity versus 3.0% International Equity Benchmark). The core fixed income portfolio outperformed the Bloomberg Barclays U.S. Aggregate Index return (3.2% Fixed Income versus 3.1% Fixed Income Benchmark) and the Treasury Protection Portfolio, at a 4.5% return, slightly underperformed the Bloomberg Barclays Treasury 5+ Year Index return of 4.6%. Lastly, private markets contributed positively, returning 2.8% for the quarter.

Domestic Equity

Within domestic equity, large cap stocks benefited from the global interest rate environment and guidance of lower interest rates from the U.S. FOMC, relative to small cap stocks, as the Russell 1000 Index returned 4.2% while the Russell 2000 Index returned 2.1% for the quarter. In addition, value investment styles continued several quarters of underperformance relative to growth and momentum styles.

The large cap growth managers surpassed the Russell 1000 Growth benchmark by 1.6 percentage points for the quarter. Stock selection in the Health Care sector led the outperformance. Two of three managers exceeded the benchmark for the quarter, with Zevenbergen generating the majority of excess return.

The large cap value managers underperformed the Russell 1000 Value benchmark by 0.4 percentage point for the quarter. Overall stock selection was mixed, with stock selection in Consumer Discretionary the largest detractor. Barrow Hanley outperformed and two managers trailed the quarterly benchmark. In spite of adequate security selection, LSV's deeper value oriented strategy lagged the benchmark primarily due to its out-of-favor style.

The small cap growth managers trailed the Russell 2000 Growth benchmark by 0.9 percentage point for the quarter. Stock selection detracted from performance, led by the Health Care sector. Two managers outperformed for the quarter and two underperformed.

The small cap value managers exceeded the Russell 2000 Value benchmark by 0.3 percentage point for the quarter. Overall stock selection was positive for the quarter, primarily in the Energy sector. Two managers outperformed for the quarter and two underperformed, with Goldman Sachs generating the majority of excess return.

For the quarter, the semi-passive managers in aggregate outperformed the Russell 1000 Index return. Stock selection overall contributed positively, especially in the Consumer Staples, Producer Durables, and Energy sectors. The passive Russell 3000, Russell 1000, and Russell 2000 Index mandates tracked their respective indices and were within guidelines tolerance for the quarter.

Developed International Equity

Developed international stocks earned positive returns for the quarter, as generally weak global macro data and subdued inflation releases led to dovish central bank guidance by both the U.S. Federal Reserve and European Central Bank. The active developed markets managers outperformed the MSCI World ex U.S.A. Standard Index (net) by 1.0 percentage point over the quarter. Developed markets currencies were relatively stable versus the U.S. Dollar for the quarter, so most positive attribution was derived from country security selection. From a country perspective, stock selection in the United Kingdom and Japan contributed to the outperformance. From a sector perspective, stock selection in Health Care, Consumer Staples and Consumer Discretionary sectors also contributed to positive relative returns.

AQR's semi-passive portfolio underperformed the MSCI World ex U.S.A. Standard Index (net) during the quarter by 2.1 percentage points. Stock selection and allocation decisions in the Industrials, Materials, Health Care and Consumer Discretionary sectors contributed negatively to performance. Stock selection overall in Australia and Canada was also negative.

Both the passive developed markets manager and the passive emerging markets manager tracked their respective indices within guideline tolerance for the quarter.

Emerging Markets Equity

Emerging Market Equities (EME), as measured by MSCI Emerging Markets Index, produced a modest gain of 0.6% during the quarter. The asset class was negatively affected by U.S.-China trade tensions and trade talks which unexpectedly broke down during the month of May. China, with a roughly 30% market weight within the Index, was the worst performing country. On a relative basis, the SBI active program exceeded its benchmark as the active composite returned 1.2%, versus MSCI Emerging Markets Index return of 0.6%. Four managers in the active program outperformed while three managers underperformed. The overall emerging markets equity program, including passive, outperformed the benchmark return by 30 basis points (0.9% vs. 0.6%) over the same period. Underweight allocation to China was the largest contributor to returns for the quarter, followed by stock selection in China and India, slightly offset by negative currency translation from Russia. From a sector point of view, positive stock selection in Financials (Banks) was the primary contributor to performance, offset by negative selection in Communication Services.

Fixed Income – Core

Two of the four active SBI fixed income managers within the core fixed income pool outperformed the Bloomberg Barclays Aggregate benchmark this quarter. In total, the active managers returned 3.2% versus 3.1% for the benchmark. The three semi-passive managers matched the benchmark return of 3.1%. Yields fell (prices rose) across the curve for a second consecutive quarter, continuing first quarter's rally fueled by a dovish FOMC, which went beyond zero planned rate increases through 2019, to signaling rate cuts may be appropriate at the upcoming July meeting. The market has fully priced in a one-quarter point cut, with many participants expecting a larger half-point cut. The U.S. Treasury yield curve also steepened during the quarter, with short-term bond prices rallying on FOMC news. Globally, similar dovish positioning by the European Central Bank caused developed market sovereign bonds such as Japan and Germany to drift more deeply into negative yielding territory. Corporate bond spreads, as measured by U.S.D. Investment Grade Option Adjusted Spread, widened in May to a high of 135 bps, but subsequently rallied to a quarter low 110 bps, tracking equity markets during the quarter. The SBI's relative outperformance during

the quarter was largely due to duration positioning. Both outperforming active managers were positioned with longer duration, which was negatively offset by curve flattening positions. The semi-passive managers' guidelines constraining duration and curve mismatches benefited the program during the quarter. Overweight positioning in spread sectors performed modestly well, while Agency MBS exposure detracted from returns.

Fixed Income – Treasury Portfolio

During the second quarter, U.S. Treasury securities rallied across the curve in a 'flight to quality' response to market conditions, with the 10 year Treasury yield rallying from 2.4% yield to 2.0%, and 30 year Treasury yields declining from 2.8% to 2.5% (yields move opposite of prices). For the three months ending 6/30/2019, the three managers responsible for the Treasury Portfolio mandate (Goldman Sachs, BlackRock and Neuberger Berman) slightly underperformed the Bloomberg Barclays Treasury 5+ Year Index, returning 4.5% versus 4.6% for the benchmark. On a relative basis, short duration positioning detracted from performance, as well as Treasury Inflation Protection Securities (TIPS) allocations, in which strategies tied to rising inflation expectations did not materialize. For the quarter, the Treasury Portfolio was SBI's best performing asset class in absolute terms.

Public Markets Managers' Organizational Update Second Quarter 2019

Domestic Equity Managers

Hood River

In the second quarter, Hood River hired an additional research analyst, Scott Kintz. Scott has 18 years of investment experience and was previously a portfolio manager at Ascend Capital. He started his career as a financial analyst at Goldman Sachs.

BlackRock

In April 2019, Blackrock announced a number of leadership changes to several areas within the firm. As part of these changes, Supurna VedBrat was named Head of Global Trading.

Developed International Equity Managers

Columbia Threadneedle

Following the departure of Michelle Scrimgeour, Nick Ring has been appointed as the new EMEA CEO. He joined from Jupiter Asset Management where he was Global head of Distribution. Nick originally joined Jupiter from Columbia Threadneedle, having spent seven years in leadership roles in product and distribution areas between 2008 and 2015.

Fidelity

Effective April 30, 2019, Matt Torrey, institutional portfolio manager for International Growth was named lead Portfolio Manager for the strategy. Camille Carlstrom will remain a co-lead portfolio manager on the strategy through the end of the year.

AQR

In June 2019, Isaac Chang was named Head of Trading. Brian Hurst, who previously co-headed the Trading team with Isaac, continues to focus on his portfolio management responsibilities. Michael Patchen was named Chief Risk Officer and Bryan Kelly was named Head of Machine Learning.

State Street Global Advisors (SSgA)

During the quarter, Richard Taggart, SSgA's Head of Global Investment Operations assumed a new role with State Street Corporation. Global Investment Operation's leadership will report directly to Marc Brown, Chief Administrative Officer at SSgA. Staff has no concerns with this change.

Emerging Market Equity Managers

Martin Currie

In 2019 Legg Mason, Martin Currie's parent company, revised the scope of its Global Business Platform initiative, aimed at consolidation of the legal, compliance and information technology resources to only those affiliates whose operational business models would benefit from such an effort. Julien Ide, Martin Currie's new COO, has determined that the company will participate in the initiative. Staff will monitor but has no immediate concerns with these changes, as they are independent of the Emerging Markets investment management function.

Pzena

Himanshu Sharma, Senior Research Analyst within the EM Value strategy, left the organization in June 2019. Himanshu covered semiconductors and natural gas sectors, which are being reassigned to new hire Brett Shironi and Clark Smith, respectively. Staff has no concerns with this rotation of analyst coverage.

Fixed Income Managers

BlackRock

In April 2019, Rick Reider, CIO for Global Fixed Income, assumed leadership of BlackRock's Global Allocation (unconstrained) strategy. Rick will continue as CIO and retains his current portfolio management responsibilities, however he will be used as an investor resource for Global Allocation. To allow for this capacity, BlackRock named Bob Miller as Head of Americas Fundamental Fixed Income reporting directly to Rick. Staff has no concerns with these leadership changes, primarily as our fixed income mandates are outside of Global Allocation.

2019 Manager Meetings

The second quarter manager reviews are noted below.

Investment Manager

Asset Class

• AQR Capital Management, LLC	International Equity
• BlackRock Financial Management, Inc.	Fixed Income
• Columbia Management Investment Advisers, LLC	International Equity
• Earnest Partners LLC	International Equity
• Fidelity Institutional Asset Management LLC	International Equity
• Goldman Sachs Asset Management	Fixed Income
• Hood River Capital Management, LLC	Domestic Equity
• J. P. Morgan Investment Management Inc.	Domestic Equity
• J. P. Morgan Investment Management Inc.	International Equity
• Macquarie Investment Management Advisers	International Equity
• Marathon Asset Management LLP	International Equity
• Martin Currie Inc.	International Equity
• Morgan Stanley Investment Management Inc.	International Equity
• Neuberger Berman Investment Adviser LLC	Fixed Income
• Neuberger Berman Investment Adviser LLC	International Equity
• Pacific Investment Management Company LLC	Fixed Income
• Pzena Investment Management, LLC	International Equity
• Sands Capital Management, LLC	Domestic Equity
• The Rock Creek Group, LP	International Equity
• Wellington Management Company LLP	Domestic Equity

Non-Retirement Manager Update Second Quarter 2019

Fixed Income

RBC Global Asset Management

The fixed income portfolio return of 2.3% for the quarter slightly underperformed the benchmark return, the Bloomberg Barclays Intermediate Government Index of 2.4%. The portfolio's shorter duration positioning detracted from performance.

Prudential Fixed Income

The fixed income portfolio return of 3.2% for the quarter outperformed the benchmark return, the Bloomberg Barclays U.S. Aggregate by 11 basis points. The portfolio's sector allocation to CMBS, Investment Grade corporates and Municipals contributed to relative performance, somewhat offset by negative security selection in Electric Utilities, as well as slightly short duration positioning.

Equity

BNY Mellon

Mellon tracked the benchmark for the quarter.

Deferred Compensation Manager Update Second Quarter 2019

Domestic Equities

Vanguard Dividend Growth Fund

The Fund returned 6.3% for the quarter, which outperformed its benchmark, the NASDAQ U.S. Dividend Achievers Select Index return of 5.6%. The portfolio benefited from positive security selection in Industrial and Consumer Staples sectors. An overweight allocation in Financials and Real Estate sectors also helped relative returns for the quarter.

Vanguard Institutional Index Plus

The domestic equity portfolio matched the return of the S&P 500 Index for the quarter with a 4.3% return.

Vanguard Mid-Cap Index

The mid-cap equity portfolio tracked the benchmark, CRSP U.S. Mid-Cap Index, for the quarter with a 4.4% return.

T. Rowe Price

The small cap equity portfolio outperformed the Russell 2000 for the quarter with a 5.8% return versus the benchmark return of 2.1%. Stock selection was the main contributor to relative performance primarily in the Health Care and Consumer Discretionary sectors. Stock choices in Information Technology, Communication Services, and Consumer Staples sectors were also strong.

International Equities

Fidelity Diversified International

The international equity portfolio returned 5.8% for the quarter, which outperformed the MSCI EAFE Free benchmark return of 3.7%. Stock selection in Financials, Health Care, Consumer Staples, Industrials, and Materials sectors contributed to relative returns. Regionally, a non-index allocation in U.S and favorable stock picking in most regional markets, mainly Japan and Continental Europe, benefited performance.

Vanguard Total International Stock Index

The international equity portfolio underperformed the benchmark, the FTSE Global All Cap ex US Index, for the quarter with a 2.7% return versus the benchmark return of 2.8%. In the short term, the international portfolio will have higher tracking error because of fair value pricing, which tends to smooth out over time. Fair value pricing most frequently occurs when a current price is not readily available or is not reflective of its current value, which often happens when the foreign market is closed while the U.S. market is open.

Fixed Income

Dodge & Cox Income Fund

The fixed income portfolio underperformed the benchmark, the Bloomberg Barclays Aggregate, for the quarter with a 2.8% return versus the benchmark return of 3.1%. As Treasury yields plunged, the portfolio's lower duration position relative to the benchmark detracted from returns and holdings in the MBS sector underperformed relative to the benchmark MBS sector return.

Vanguard Total Bond Market Index

The fixed income portfolio matched the benchmark, the Bloomberg Barclays Aggregate Index, for the quarter with a 3.1% return. Small deviations in the fund's performance relative to the benchmark may occur given the fund's sampling approach to approximate the index.

Balanced and Conservative Options

Vanguard Balanced

The balanced portfolio return of 3.7% slightly underperformed the customized benchmark return for the quarter. The benchmark is a combined return of 60% CRSP U.S. Total Market and 40% Barclays Aggregate.

Galliard Capital Management

The stable value portfolio outperformed the benchmark, the 3 Year Constant Maturity Treasury plus 0.45%, for the quarter with a 0.7% return versus the benchmark return of 0.6%. An overweight to corporates, other U.S. Government securitizations, ABS, CMBS, and taxable municipals benefited returns.

During 2Q19, Galliard announced the retirement of three key people and the succession plan for these key roles. The implementation will occur in phases to facilitate continuity.

Karl Tourville, Founding Managing Partner and President will transition to a non-management role by December 2019 and retire in June of 2020. Andrew Owen, currently an Executive Vice President of Wells Fargo Asset Management will join Galliard as President and Senior Managing Principal on January 1, 2020.

Mr. Richard Merriam, Founding Managing Partner began delegating his day to day responsibilities in 2018 and will retire from his management role effective December 2019. Ajay Mirza, Managing Partner, who has been with Galliard since its inception, will remain with Galliard as Senior Managing Principal and Chair of the Investment Committee.

Ms. Carrie Callahan, Managing Partner, will retire December 2019. Michael Norman, Partner and Chief Administrative Officer, will assume responsibility for Client Service, Sales and Consultant relations as Senior Managing Principal.

State Street Global Advisors (SSgA)

The money market fund matched the 90 Day T-Bill return of 0.6%.

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TAB F

Report

AON Market Environment Report

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Market Environment

Second Quarter 2019

Aon

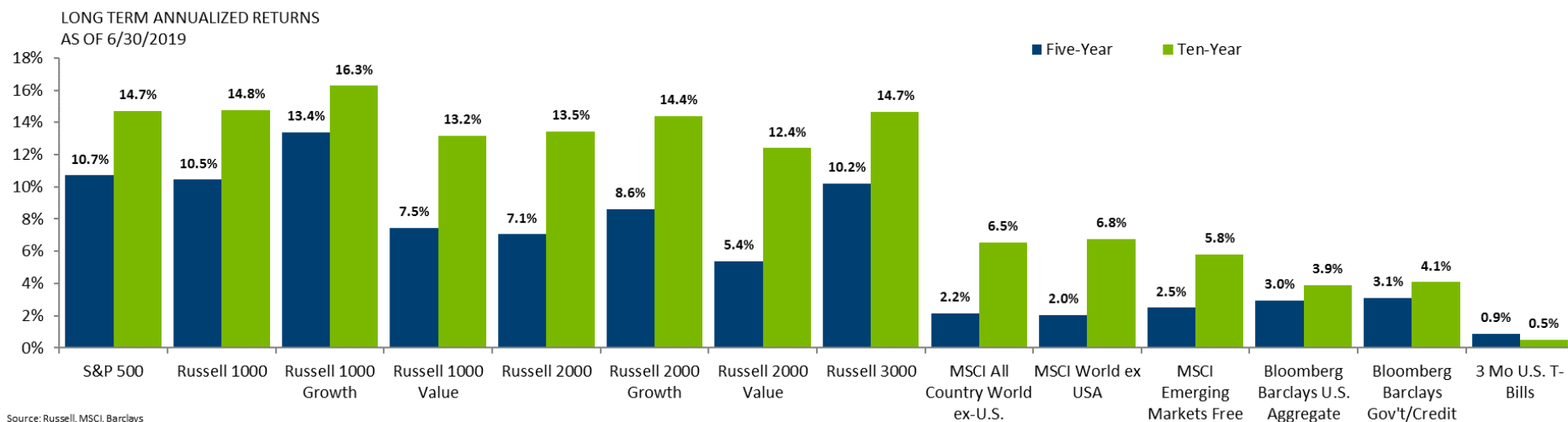
Investment advice and consulting services provided by Aon Hewitt Investment Consulting, Inc., an Aon Company.

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Market Highlights



Source: Russell, MSCI, Barclays



Source: Russell, MSCI, Barclays

Market Highlights

Returns of the Major Capital Markets

Periods Ending 6/30/2019

	Second Quarter	1-Year	3-Year ¹	5-Year ¹	10-Year ¹
Domestic Equity					
S&P 500	4.3%	10.4%	14.2%	10.7%	14.7%
Russell 1000	4.3%	10.0%	14.2%	10.5%	14.8%
Russell 1000 Growth	4.6%	11.6%	18.1%	13.4%	16.3%
Russell 1000 Value	3.8%	8.5%	10.2%	7.5%	13.2%
Russell 2000	2.1%	-3.3%	12.3%	7.1%	13.5%
Russell 2000 Growth	2.8%	-0.5%	14.7%	8.6%	14.4%
Russell 2000 Value	1.4%	-6.2%	9.8%	5.4%	12.4%
Russell 3000	4.1%	9.0%	14.0%	10.2%	14.7%
International Equity					
MSCI All Country World ex-U.S.	3.0%	1.3%	9.4%	2.2%	6.5%
MSCI World ex USA	3.8%	1.3%	9.0%	2.0%	6.8%
MSCI Emerging Markets Free	0.6%	1.2%	10.7%	2.5%	5.8%
Fixed Income					
Bloomberg Barclays U.S. Aggregate	3.1%	7.9%	2.3%	3.0%	3.9%
Bloomberg Barclays Gov't/Credit	3.5%	8.5%	2.4%	3.1%	4.1%
3 Mo U.S. T-Bills	0.6%	2.3%	1.4%	0.9%	0.5%
Inflation					
CPI-U	0.5%	1.7%	2.1%	1.5%	1.7%

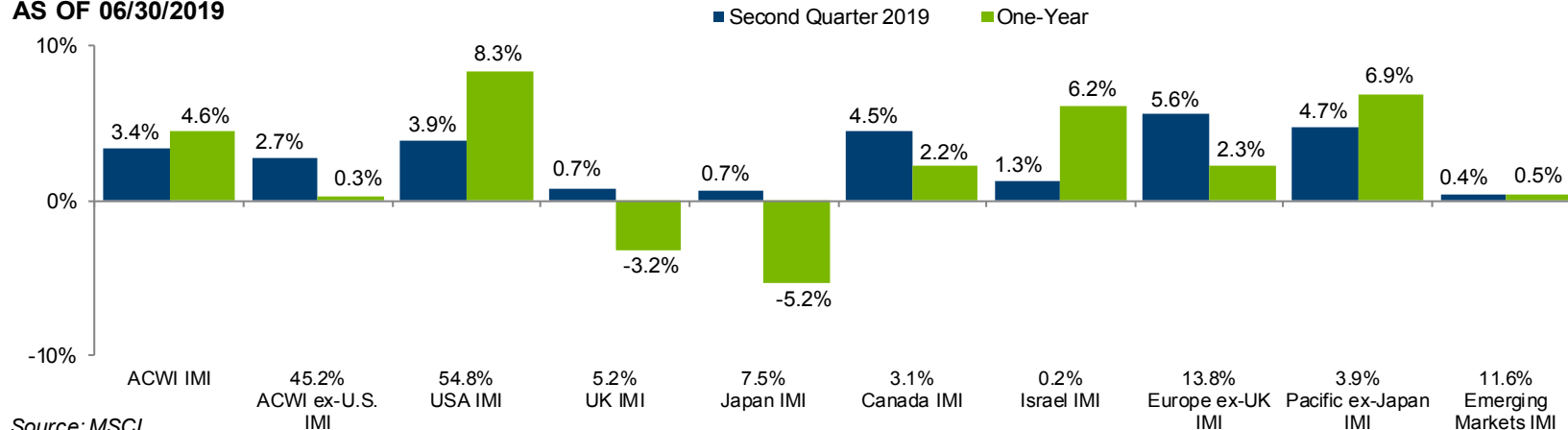
MSCI Indices show net returns.

All other indices show total returns.

¹ Periods are annualized.

Global Equity Markets

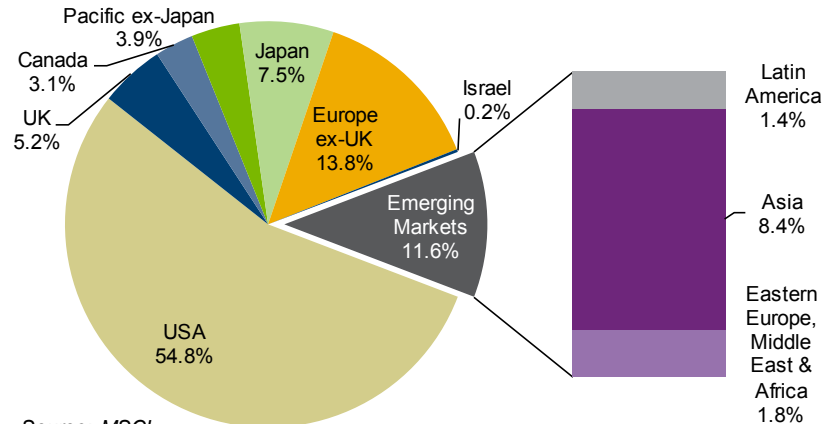
**GLOBAL MSCI IMI INDEX RETURNS (USD, Net)
AS OF 06/30/2019**



- Global trade negotiations dominated equity markets in Q2 2019. In local currency terms, the MSCI AC World Investable Market Index returned 3.4% which was supported by prospects of looser monetary policy by major central banks and positive progress in U.S.-China trade negotiations.
- Increased expectations of further monetary stimulus from the European Central Bank (ECB) combined with a strengthening of the euro against the U.S. dollar resulted in the European equities being the strongest performer (in USD terms) over the quarter.
- Japanese equities delivered positive returns in USD terms due to strong yen performance against the U.S. dollar over the quarter. In local currency terms, however, Japanese equities largely lagged other markets with yen strength and escalating trade tensions leading Japanese equities to be the only equity market to post negative returns in local currency terms over the second quarter. Emerging market equities especially those with greater linkages to China came under pressure due to uncertainties around ongoing trade dispute.

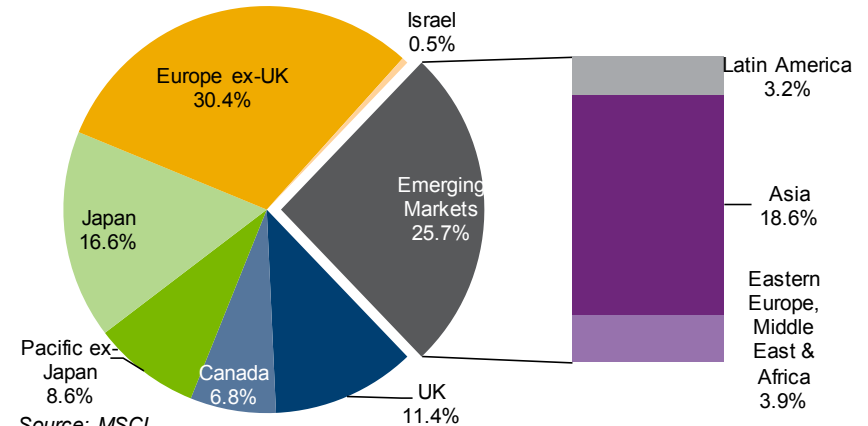
Global Equity Markets

**MSCI ALL COUNTRY WORLD IMI INDEX
GEOGRAPHIC ALLOCATION AS OF 06/30/2019**



Source: MSCI

**MSCI ALL COUNTRY WORLD EX-U.S. IMI INDEX
GEOGRAPHIC ALLOCATION AS OF 06/30/2019**

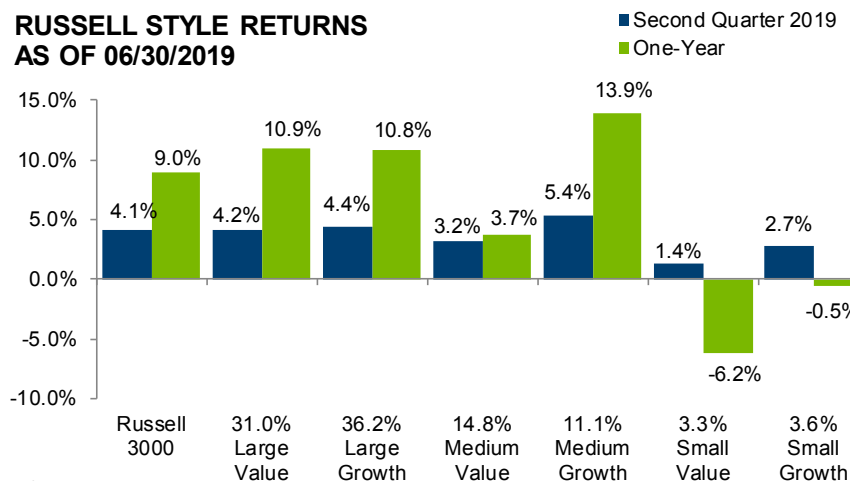


Source: MSCI

- 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.

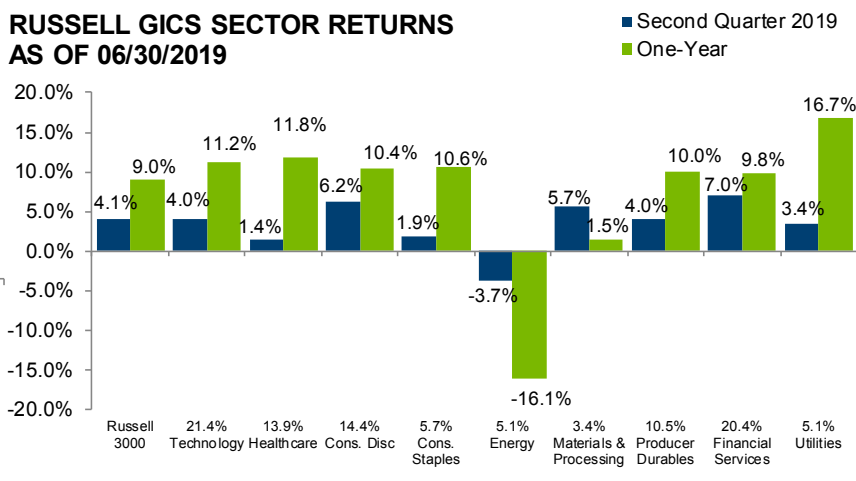
U.S. Equity Markets

RUSSELL STYLE RETURNS AS OF 06/30/2019



Source: Russell Indexes

RUSSELL GICS SECTOR RETURNS AS OF 06/30/2019

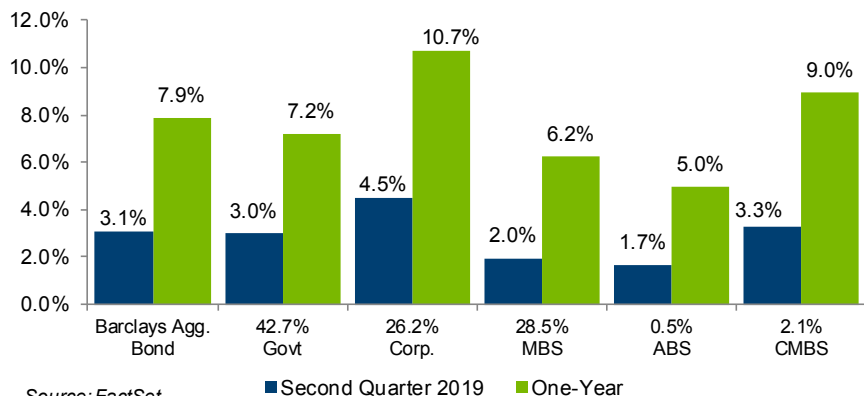


Source: Russell Indexes

- U.S. equities continued their rally fueled by the increased expectation for an interest rate cut by the U.S. Federal Reserve (Fed). Equities rallied despite mixed economic data releases and a murkier economic outlook. Greater optimism over thawing U.S.-China trade tensions towards the end of the quarter also helped to lift investor sentiment. The Russell 3000 Index rose 4.1% during the second quarter and 9.0% over the one-year period.
- All sectors, except for Energy (-3.7%), generated positive returns over the quarter. In particular, Financial Services (7.0%) and Consumer Discretionary (6.2%) were the best performing sectors in Q2 2019.
- Performance was positive across the market capitalization spectrum over the quarter. In general, small cap stocks underperformed both large and medium cap stocks over the quarter. Growth stocks outperformed their Value counterparts in Q2 2019, benefitting from the fall in U.S. yields.

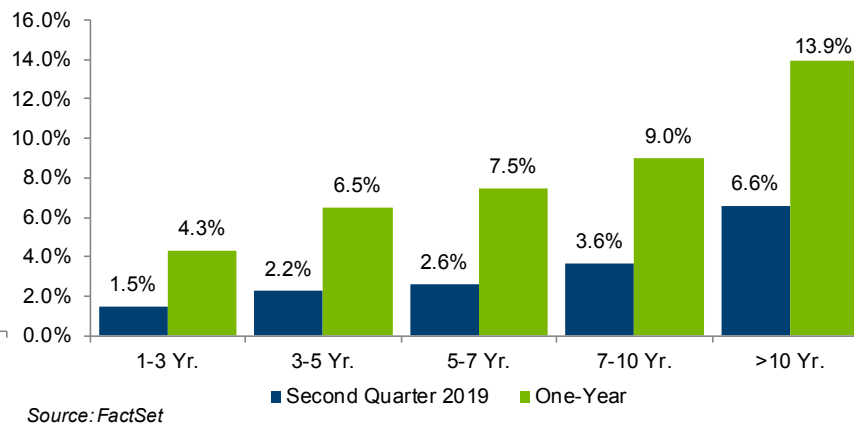
U.S. Fixed Income Markets

**BLOOMBERG BARCLAYS AGGREGATE RETURNS BY SECTOR
AS OF 06/30/2019**

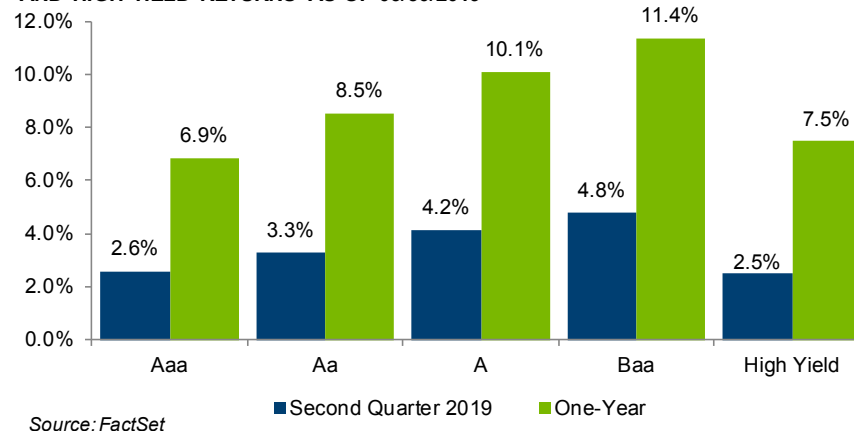


- The Bloomberg Barclays U.S. Aggregate Bond Index returned 3.1% over the quarter. Corporate bonds were the best performers, returning 4.5% whilst ABS bonds underperformed with a return of 1.7%.
- Performance was positive across all credit grades. Within investment grade bonds, lower quality bonds outperformed with Baa bonds returning 4.8%.
- Long-maturity bonds outperformed both intermediate and short-maturity bonds over the quarter. Long-maturity bonds returned 6.6% while short-maturity bonds returned only 1.5% in Q2 2019.

**BLOOMBERG BARCLAYS AGGREGATE RETURNS BY MATURITY
AS OF 06/30/2019**

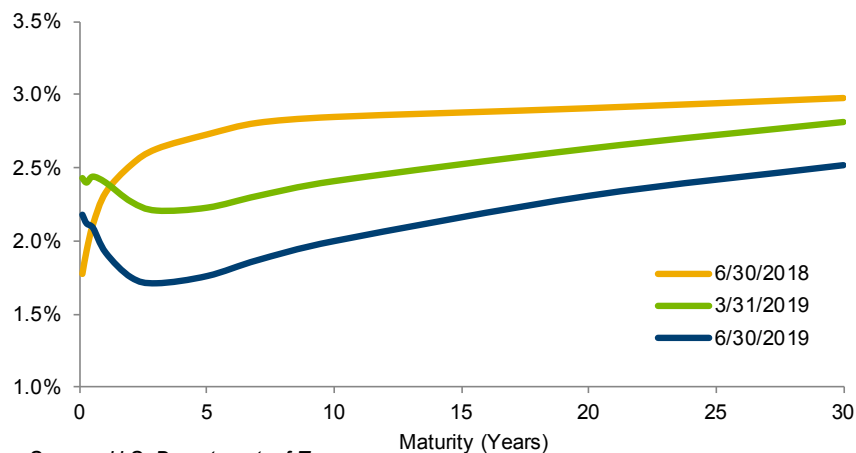


**BLOOMBERG BARCLAYS AGGREGATE RETURNS BY QUALITY
AND HIGH YIELD RETURNS AS OF 06/30/2019**

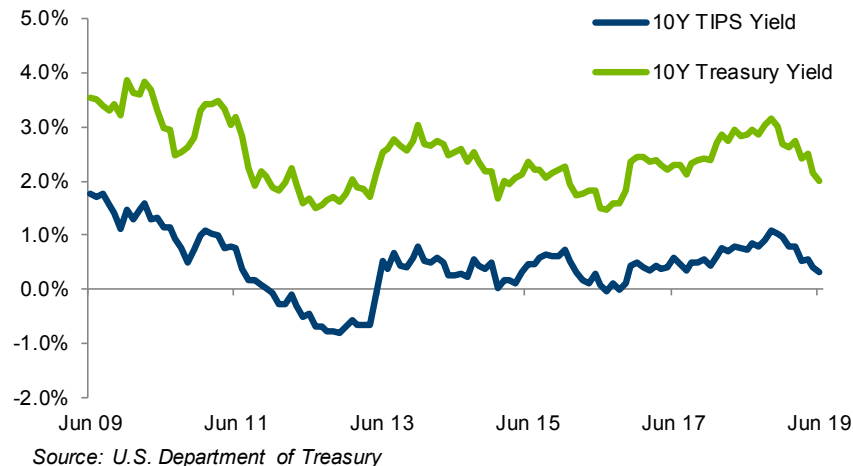


U.S. Fixed Income Markets

U.S. TREASURY YIELD CURVE



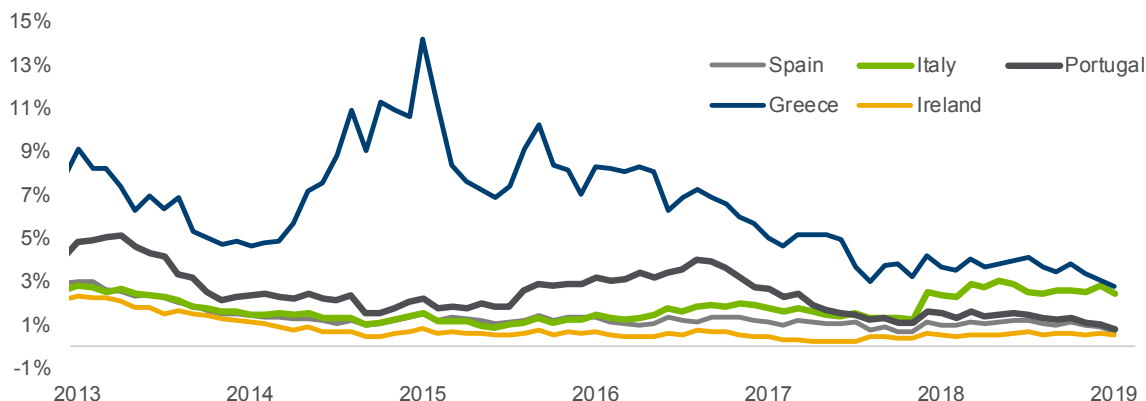
U.S. 10-YEAR TREASURY AND TIPS YIELDS



- The U.S. nominal yield curve shifted downwards over the quarter with yields falling across all maturities. In Q2 2019, 10-year US Treasury yield dipped below 2.0% for the first time since 2016 but ultimately rested at 2.0% at the end of quarter; a 41bps decrease since the end of March.
- The Fed appeared to capitulate to financial market pressure by signaling possible rate cuts this year, with eight out of seventeen officials expecting at least one rate cut in 2019. This came amidst a slowing US economy and elevated risks from the ongoing trade dispute.
- The 10-year TIPS yield fell by 22bps over the quarter and ended the period at 0.31%. Breakeven inflation decreased as inflation expectations had moved lower.

European Fixed Income Markets

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



Source: FactSet

- Eurozone government bond spreads over 10-year German bunds generally fell across the Eurozone. ECB officials indicated the possibility of a fresh round of quantitative easing if needed to stimulate the flagging economy.
- German government bund yields fell by 26bps to a record low of -0.33% as the country's manufacturing sector continued in the contraction territory.
- Italian government bond yields fell by 41bps to 2.08% over the quarter. The dovish stance from the ECB encourage greater risk appetite and sent more risky bond yields lower. Minutes from the European Commission meeting on June 5th indicated that the European Commission will hold off disciplinary actions over Italy's fiscal target and could give additional time until the end of the year to reduce its public debt.
- Greek government bond yields reached a record low over the quarter, falling by 130bps to 2.43%.

Credit Spreads

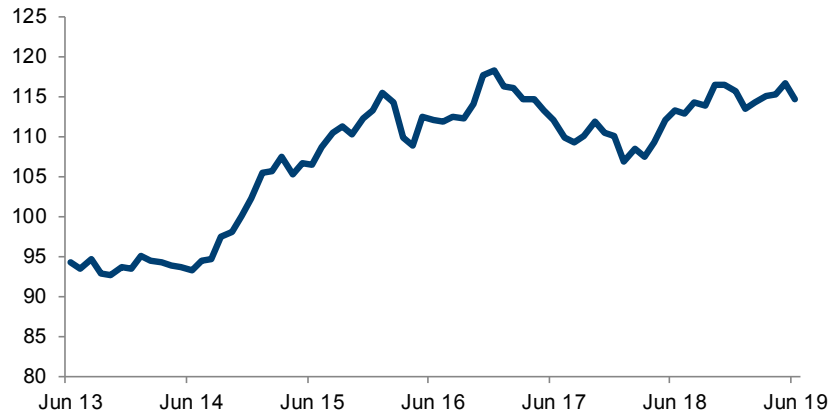
Spread (bps)	6/30/2019	3/31/2019	6/30/2018	Quarterly Change (bps)	1-Year Change (bps)
U.S. Aggregate	44	44	41	0	3
Gov't	0	0	0	0	0
Credit	109	113	116	-4	-7
Gov't/Credit	46	48	50	-2	-4
MBS	35	35	29	0	6
CMBS	69	69	67	0	2
ABS	39	39	48	0	-9
Corporate	119	119	109	0	10
High Yield	391	391	354	0	37
Global Emerging Market	283	283	230	0	53

Source: Barclays Live

- Mirroring equity market concern, credit spreads increased in the middle of the quarter but broadly retraced May's spread widening late in the quarter as investor eased and risk appetite returned.
- In Q2 2019, High Yield bond spreads narrowed by 14bps – the largest spread narrowing among credit market we consider here. Despite the spread narrowing, High Yield bonds underperformed investment grade bonds due to the lower duration of the index. Spreads on securitized debt widened slightly, most notably for Mortgage-Backed Securities which increased by 11bps.

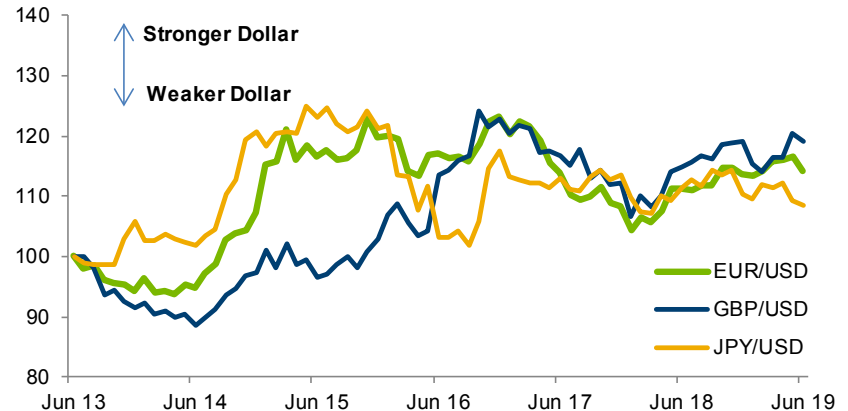
Currency

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



Source: Federal Reserve

**U.S. DOLLAR RELATIVE TO EUR, GBP AND JPY
REBASED TO 100 AT 06/30/2013**

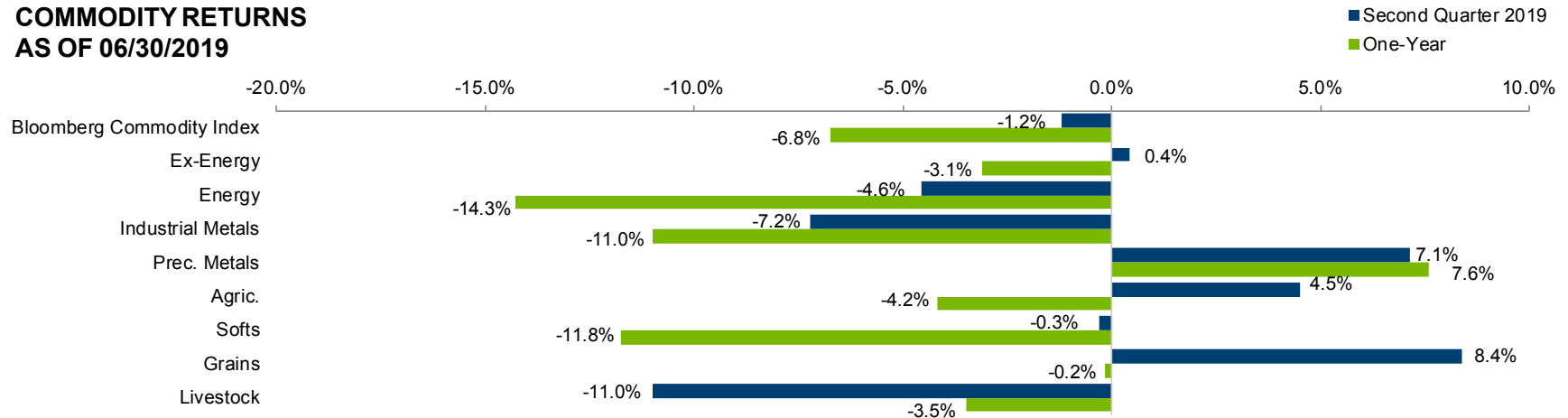


Source: FactSet

- The U.S. dollar fell 0.4% on a trade-weighted basis over the quarter, depreciating against all major currencies with the exception of sterling. The upward trend in the US dollar stalled in the second quarter. The dollar fell in June as expectations of Fed easing grew. Cyclical supports to the 'greenback' (stronger relative economic growth and wide interest rate differentials) lost momentum.
- In the UK, Brexit uncertainties continued as UK Prime Minister Theresa May announced her resignation and the prohibitive favorite, Boris Johnson, has taken a very tough stance on Brexit which has increased expectations of a "Hard-Brexit" by the end of October. Against this backdrop, sterling depreciated by 2.3% against the U.S. dollar.
- Despite a more dovish ECB and a weaker economic outlook, the euro appreciated by 1.4% against the U.S. dollar.
- The yen strengthened over the quarter as investors moved back to the 'safe-haven' currency. Similar to the Euro Area, there was less disappointment in economic releases over the quarter while the gap between US and Japanese government bond yields narrowed by just under 50bps.

Commodities

COMMODITY RETURNS AS OF 06/30/2019



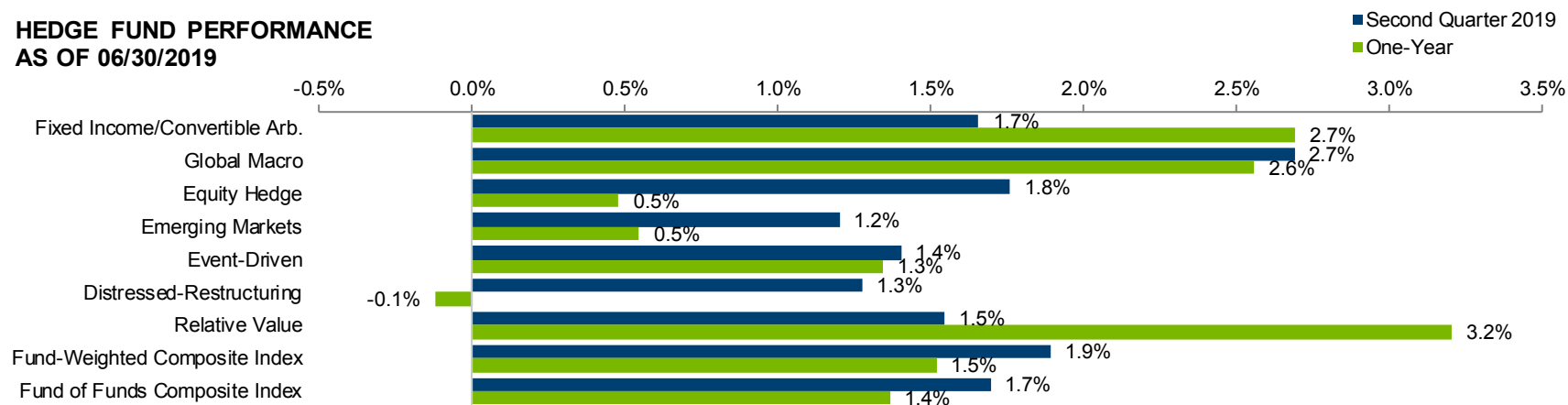
Source: Bloomberg

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

- Commodities generally fell over the quarter with the Bloomberg Commodity Index returning -1.2%.
- Livestock (-11.0%) was the worst performing sector whilst Precious Metals (7.1%) returned the most. The latter benefitted from safe-haven buying in a quarter where geopolitical risks rose and gold prices surged by 8.8%.
- The Energy sector fell 4.6% over the quarter. The price of Brent crude oil fell by 2.7% to \$67/bbl and the WTI crude oil spot price fell by 2.8% to \$58/bbl. Oil prices got some support from rising tensions in Middle East as the U.S. re-imposed sanctions on Iran. However, a sharp rise in U.S. crude inventories and, more significantly, signs of slowing global growth put pressure on energy prices. Weaker anticipated demand due to a slowing economic environment also pushed Industrial Metals lower with copper prices falling 7.9% to \$5,972/t.

Hedge Fund Markets Overview

HEDGE FUND PERFORMANCE AS OF 06/30/2019



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 second quarter.
- Over the quarter, Global Macro and Equity Hedge strategies were the best performers with returns of 2.7% and 1.8%. The former's strong return offset weaker performance over the previous nine months and led to a positive return of 2.6% over the trailing twelve months. Conversely, Distressed-Restructuring and Emerging Markets were the worst performers, returning 1.3% and 1.2%, respectively.
- The HFRI Fund-Weighted Composite Index and the HFRI Fund of Funds Composite Index produced returns of 1.9% and 1.7%, respectively.

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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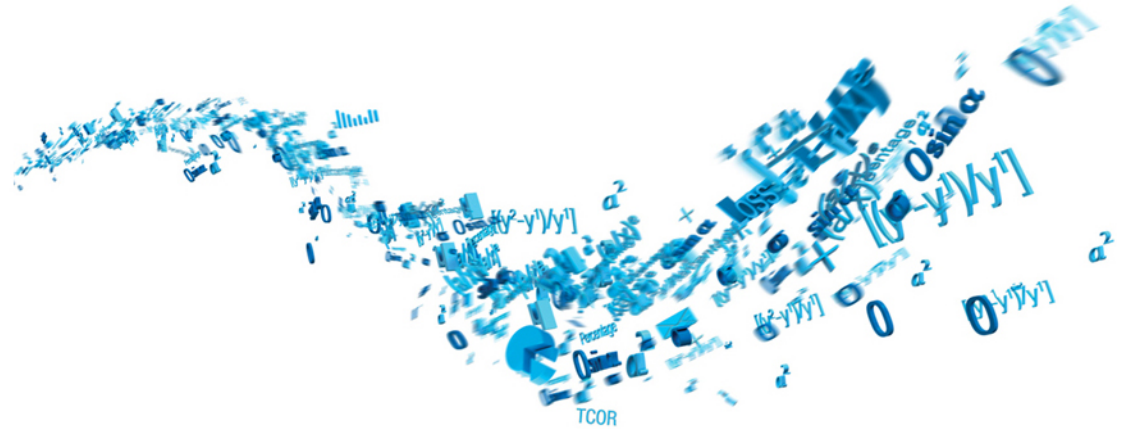
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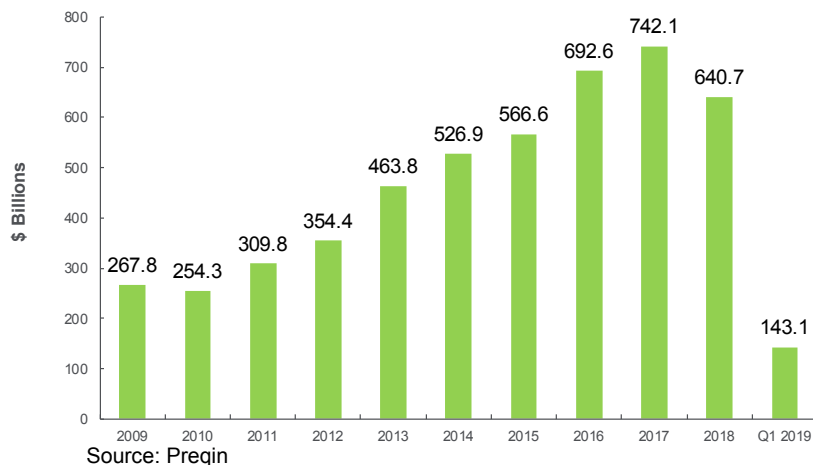
Appendix A:

Global Private Equity Market Overview

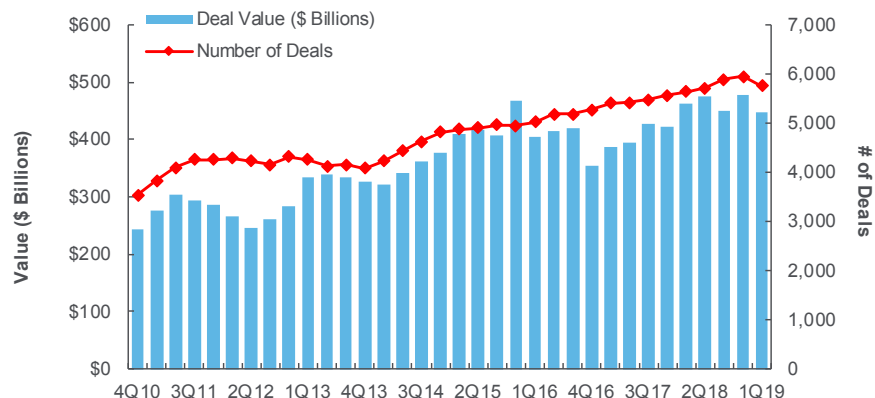
1Q 2019

Private Equity Overview

Total Funds Raised



LTM Global Private Equity-Backed Buyout Deal Volume



Fundraising

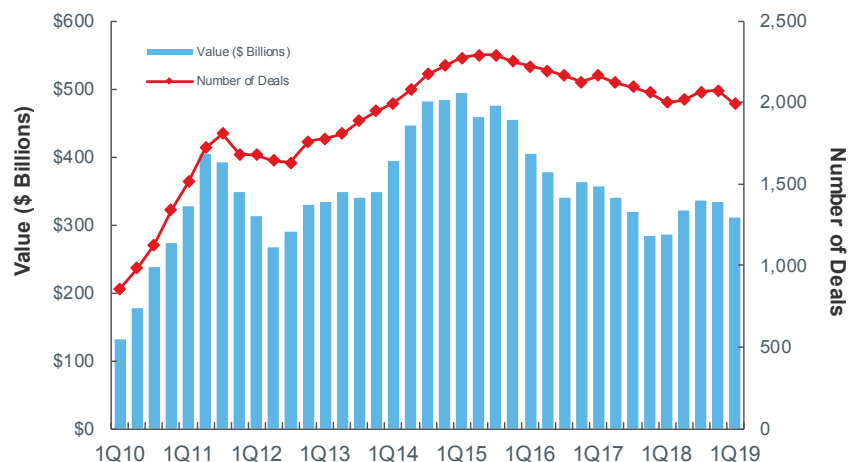
- In 1Q 2019, \$143.1 billion was raised by 319 funds, which was a decrease of 8.9% on a capital basis and a decrease of 35.3% by number of funds from the prior quarter.¹
 - 1Q 2019 fundraising was 9.7% lower than the five-year quarterly average.
 - Relative to the five-year quarterly average, the number of funds raised decreased by 38.9%, strengthening the observation that larger amounts of capital are being raised by fewer funds.
 - The majority of 1Q 2019 capital was raised by funds with target geographies in North America, comprising 63.2% of the quarterly total. Capital targeted for Europe made up 21.5% of the total funds raised during the quarter, while the remainder was attributable to managers targeting Asia and other parts of the world.
- Dry powder stood at nearly \$2.0 trillion at the end of the quarter, an increase of 5.7% compared to the previous quarter.¹

Activity

- In 1Q 2019, 1,206 deals were completed for an aggregate deal value of \$102.2 billion as compared to 1,486 transactions totaling \$112.3 billion in 4Q 2018.¹
 - This was 3.2% lower than the five-year quarterly average deal volume of \$105.5 billion.
- European LBO transaction volume totaled €13.1 billion in 1Q 2019, representing roughly 19.0% of 2018's total LBO loan volume.³
- At the end of 1Q 2019, the average purchase price multiple for all U.S. LBOs was 10.3x EBITDA, down slightly from year-end 2018 (10.6x) and up from the five-year average (10.2x). Large corporate purchase price multiples stood at 10.3x, down from the 10.6x observed at year-end 2018.³
 - For all U.S. LBOs, this quarter was 0.1x and 0.9x turns (multiple of EBITDA) above the five and ten-year average levels, respectively.
- European multiples decreased by 0.4x for transactions greater than €1.0 billion, averaging 11.3x in the first quarter. Transactions greater than €500.0 million also saw a decrease of 0.4x in purchase multiples and ended the quarter at 10.9x.³
- Debt remained broadly available in the U.S.
 - U.S. average leverage levels in 1Q 2019 were 5.7x compared to the five and ten-year averages of 5.7x and 5.2x, respectively.³
 - The amount of debt issued supporting new transactions increased compared to year-end 2018 from 68.2% to 80.4%, which is also higher than the 61.7% average level over the prior five years.³
- In Europe, average senior debt/EBITDA in 1Q 2019 was 5.5x, up from the 4.7x observed year-end 2018. This was also up over the five-year average of 5.2x and ten-year average level of 4.9x.

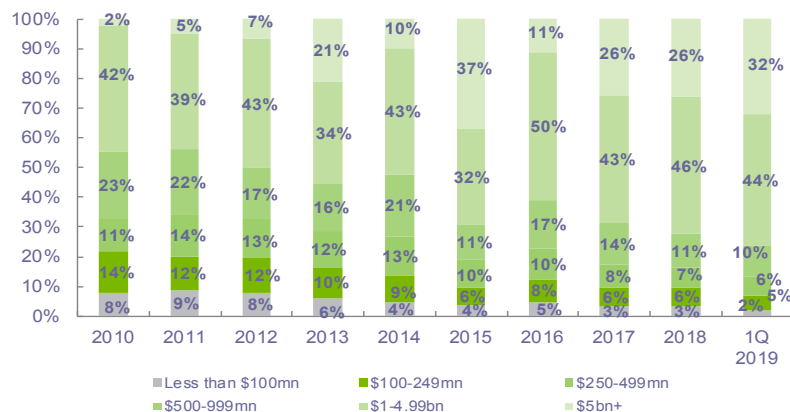
Buyouts / Corporate Finance

LTM PE Exit Volume and Value



Source: Preqin

M&A Deal Value by Deal Size



Source: Preqin

Fundraising

- \$86.4 billion was closed on by 96 buyout and growth funds in 1Q 2019, compared to \$67.5 billion raised by 113 funds in 1Q 2018.¹
 - This was higher than the five-year quarterly average of \$78.2 billion.
 - Thoma Bravo XIII was the largest fund raised, closing on \$12.6 billion.¹ This was below the record-breaking total from Apollo Investment Fund IX, which raised \$24.7 billion in 2017.¹²
- Buyout and growth equity dry powder was estimated at \$930.5 billion, which surpassed the record level of \$905.4 billion observed at the end of 2018. This was substantially higher than the five-year average level of \$677.1 billion.¹
 - Aside from small funds, which decreased 43.5% quarter-over-quarter, buyout dry powder increased across all fund size categories in 1Q 2019. Mega fund dry powder exhibited the largest increase during the quarter (17.9%), setting a new record mark of \$343.7 billion. Large and mid market buyout dry powder finished the quarter up 13.1% and 9.7%, respectively, from 4Q 2018.¹
 - An estimated 57.6% of buyout dry powder was targeted for North America, while European dry powder comprised 26.7% of the total.¹

Activity

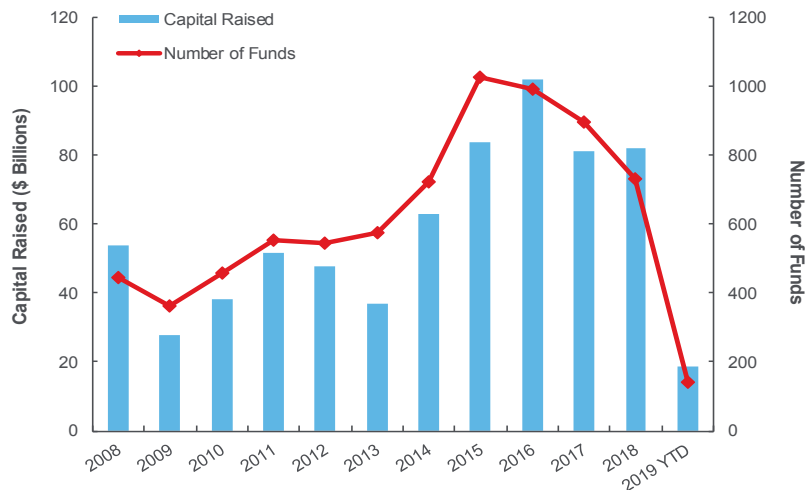
- Global private equity-backed buyout deals totaled \$102.2 billion in 1Q 2019, which was a decrease of 9.0% and 3.2% from 4Q 2018 and the five-year quarterly average, respectively.¹
 - 1,206 deals were completed during Q1 2019, which was down 18.8% from 4Q 2018 and down 9.6% compared to the five-year quarterly average.
 - In 1Q 2019, deals valued at \$5.0 billion or greater accounted for an estimated 32.2% of total deal value during the year compared to 26.3% in 2018 and 25.7% in 2017.¹
- Entry multiples for all transaction sizes in 1Q 2019 stood at 10.3x EBITDA, down from 2018's level (10.6x).³
 - Large corporate purchase price multiples stood at 10.3x, down from the 10.6x observed at year-end 2018.³
 - The weighted average purchase price multiple across all European transaction sizes averaged 10.9x EBITDA through Q1 2019, down from the 11.3x seen at year-end 2018. Purchase prices for transactions of €1.0 billion or more decreased from 11.7x to 11.3x quarter-over-quarter.
 - Transactions between €250.0 million and €500.0 million were up 0.5x from 4Q 2018, and stood at 9.1x.³
 - The portion of average purchase prices financed by equity for all deals was 40.8% in 1Q 2019, up from 40.1% in 2018. This remained above the five and ten-year average levels of 39.9% and 39.8%, respectively.³
- Globally, exit value totaled \$38.0 billion from 382 deals in 1Q 2019 compared to \$65.5 billion for 464 deals in 1Q 2018.¹

Opportunity

- Operationally focused managers targeting the middle and large markets with expertise in multiple sectors

Venture Capital

Venture Capital Fundraising



Source: Preqin

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



Source: PwC/CB Insights Report

Fundraising

- \$20.1 billion of capital closed in 1Q 2019, down from the prior quarter total of \$26.2 billion but up from the Q1 2018 total of \$15.1 billion.¹
 - 163 funds closed during the quarter, down 32.1% and 30.5% from the prior quarter and five year quarterly average, respectively.¹
 - Technology Crossover Ventures X was the largest fund raised during the quarter, closing on \$3.0 billion.¹⁶
- The average fund size raised during the quarter was approximately \$154.0 million, which was less than both the prior quarter of \$155.0 million but higher than the five year quarterly average of \$116.1 million. The majority of funds in market are seeking commitments of \$100.0 million or less.¹
- Dry powder was estimated at \$239.9 billion at the end of 1Q 2019, which was up from 4Q 2018's total of \$229.7 billion. This was 44.8% higher than the five year average. An estimated 48.0% of dry powder was targeted for North America, followed by approximately 35.4% earmarked for Asia.¹

Activity

- During the first quarter, 1,279 U.S. venture backed transactions totaling \$24.6 billion were completed, down from 4Q 2018's total value of \$38.7 billion from 1,328 transactions. This was the third strongest quarter on a capital investment basis since Q2 2017 and marks the seventh consecutive quarter of \$20.0 billion or more invested into venture-backed companies.⁷
 - The number of unicorns in the U.S., or companies with valuations of \$1.0 billion or more, increased by ten in 1Q 2019.⁷
- Median pre-money valuations decreased across all deal stages during Q1. Seed, Series A, and Series B decreased by 5.9%, 16.7%, and 14.7%, respectively, to valuations of \$8.0 million, \$20.0 million, and \$64.0 million, respectively. Series C pre-money valuations decreased slightly by 1.8% quarter-over-quarter, ending at \$160.0 million. Series D+ deal valuations were also down slightly by 4.0% quarter-over-quarter and are currently valued at \$600.0.⁹
- Total U.S. venture backed exit activity totaled \$46.7 billion across 137 completed transactions in 1Q 2019, up on a capital basis from \$39.8 billion in 4Q 2018.⁸
 - There were 12 venture-backed initial public offerings during the quarter, which was lower than the 17 completed in 4Q 2018.⁸
 - The number of M&A transactions totaled 154 deals in 1Q 2019, representing a decrease of 6.7% from 1Q 2018.⁷

Opportunity

- Early stage continues to be attractive, although we are monitoring valuation increases
- Smaller end of growth equity
- Technology sector

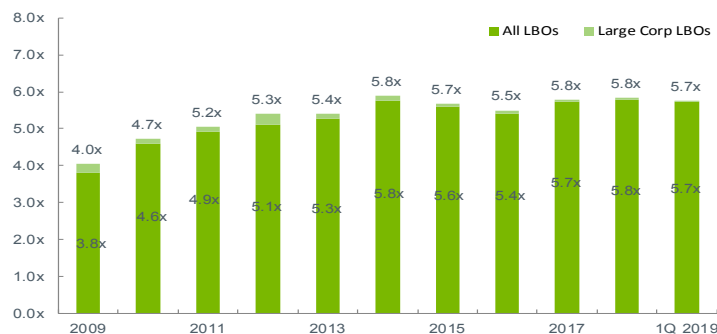
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Leveraged Loans & Mezzanine

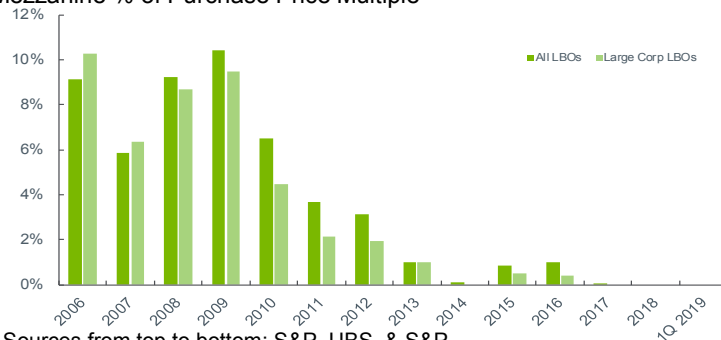
Average Leverage by Deal Size



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 \$29.1 billion through 1Q 2019, up 10.2% from 1Q 2018.²
- High-yield debt issuance totaled \$60.5 billion in 1Q 2019, down from \$62.8 billion issues in 1Q 2018.²
- Leveraged loan mutual fund net flows ended 1Q 2019 with a net outflow of \$10.1 billion, compared to a net inflow of \$2.9 billion through 1Q 2018.²

Activity

- Leverage for all LBO transactions ended the quarter at 5.7x, down slightly from 2018's level of 5.8x. Leverage continues to be comprised almost entirely of senior debt. The average leverage level for large cap LBOs was 5.7x during the year, down 0.1x from year-end 2018.³
- YTD institutional new leveraged loan issuances totaled \$77.9 billion in 1Q 2019, down significantly from the \$129.9 billion issued during the same period in 2018.²
- 80.4% of new leveraged loans were used to support M&A and growth activity in 1Q 2019, up from 68.2% in 2018. This was also above the prior five-year average of 61.7%.³
- European leveraged loan issuance decreased by 34.9% year-over-year to €15.1 billion during the first quarter.³
 - This equates to roughly 19.7% of 2018's total sponsored loan volume.³
- Year to date, yields for BB, B, and CCC indices tightened by 140 bps, 158 bps, and 200 bps, respectively.²

Opportunity

- Funds with the ability to source deals directly and the capacity to scale for large transactions
- Funds with an extensive track record and experience through prior credit cycles

Mezzanine

Fundraising

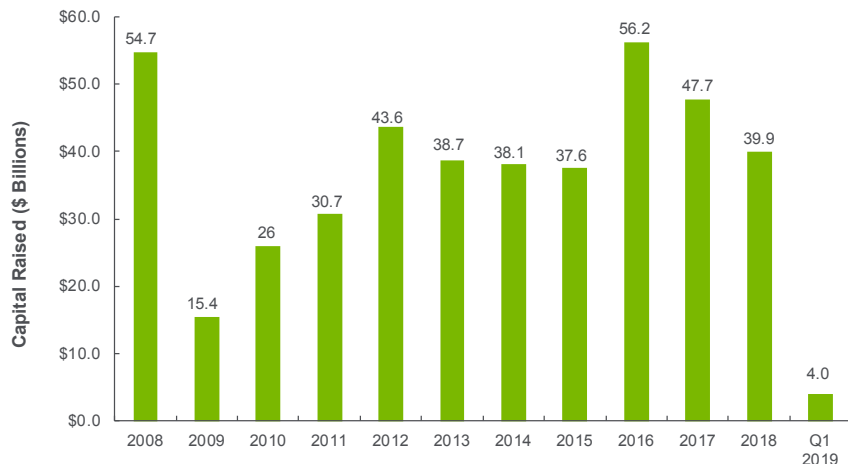
- Three funds closed on \$1.0 billion during the first quarter. This was a significant decrease from the prior quarter's total of \$8.0 billion raised by 14 funds and represented a decrease of 81.0% from the five-year quarterly average of \$5.3 billion.¹
- Estimated dry powder was \$58.8 billion at the end of 1Q 2019, up from the \$53.5 billion seen at the end of 2017.¹
- Fundraising activity held steady with an estimated 66 funds in market targeting \$23.7 billion of commitments, compared to 67 funds in market at the end of 2018 targeting \$25.0 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: Thomson Reuters

Fundraising

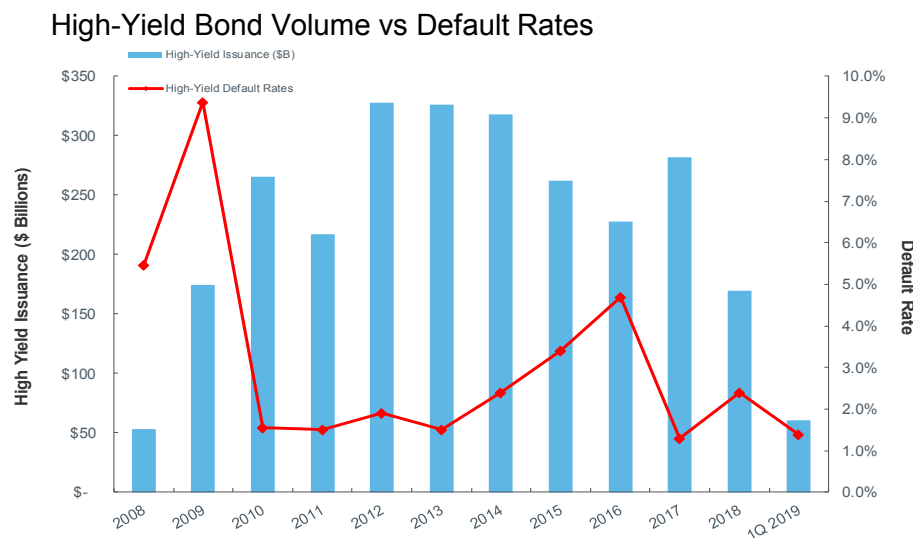
- During the quarter, \$4.0 billion was raised by 11 funds compared to \$8.7 billion raised by 17 funds in 1Q 2018.¹
 - 1Q 2019 fundraising was 63.6% lower than the five-year quarterly average of \$11.0 billion.
 - Bain Capital Special Situations Europe was the largest partnership raised during the quarter, closing on €1.2 billion.
- Dry powder was estimated at \$118.0 billion at the end of 1Q 2019, up slightly from the \$117.6 billion seen at year-end 2018. This was up compared to year-end 2017 (\$110.2 billion). This remained above the five-year average level of \$103.3 billion.¹
- Roughly 114 funds were in the market at the end of 1Q 2019, seeking \$59.8 billion in capital commitments.¹
 - Distressed debt managers were targeting the most capital, seeking an aggregate \$36.2 billion.
 - Fortress Credit Opportunities Fund V and GSO Energy Select Opportunities Fund II were the largest funds in market with target fund sizes of \$5.0 billion each.

Activity

- The LTM U.S. high-yield default rate was 1.4% as of March 2019, which was down from December 2018's LTM rate of 2.4%.⁶
- Interest rates declined over the period as signs of weakness in economic growth persisted. The yield curve continued to flatten and inverted across certain maturities for a short period during the quarter—a leading indicator of recessionary pressures. By the end of the quarter, investors had returned to their risk-on sentiment and corporate spreads tightened.⁴
- High purchase prices and continued elevated levels of leverage may result in an increase in distressed opportunities looking out over the next two to three years, or sooner if there is a stall in the economy.

Opportunity

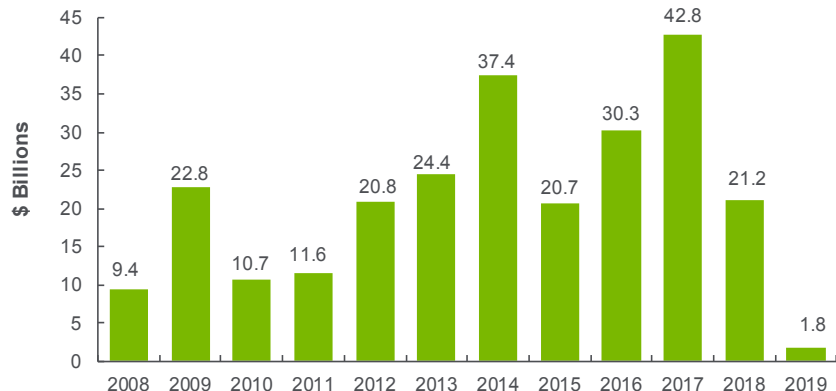
- Funds capable of performing operational turnarounds
- Funds with the flexibility to invest globally



Source: UBS & Fitch Ratings

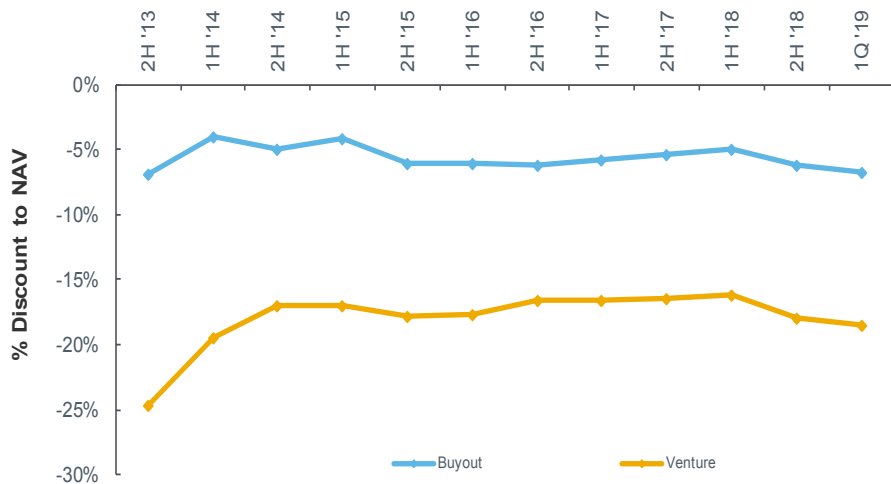
Secondaries

Secondary Fundraising



Source: Preqin

Secondary Pricing



Source: UBS

Fundraising

- Eight funds raised \$1.8 billion during the first quarter, down significantly from \$8.2 billion raised by seven funds in 4Q 2018 and lower than the \$5.9 billion raised in 1Q 2018.¹
 - 1Q 2019's aggregate capital raised represents 8.5% of 2018's full year total.
 - Verdane Capital X was the largest fund raised during the quarter, closing on \$663.7 million.¹
- At the beginning of 2019, dry powder was estimated at \$68.0 billion, which was 27.4% lower than 3Q 2017's record level of 93.7 billion.² The top 15 secondary buyers are estimated to command more than 74.0% of the market's capital reserves. This marks a increase from the 66.0% of capital previously controlled by this group.²
- At the end of 1Q 2019, there were an estimated 60 secondary and direct secondary funds in market, targeting approximately \$79.4 billion. Ardian Secondaries Fund VIII was the largest fund in the market targeting \$18.0 billion.¹
 - The majority of secondary funds are targeting North American investments. Two funds, Ardian Secondaries Fund VIII and Lexington Capital Partners IX (\$12.0 billion target), represent 37.8% of all capital being raised.¹

Activity

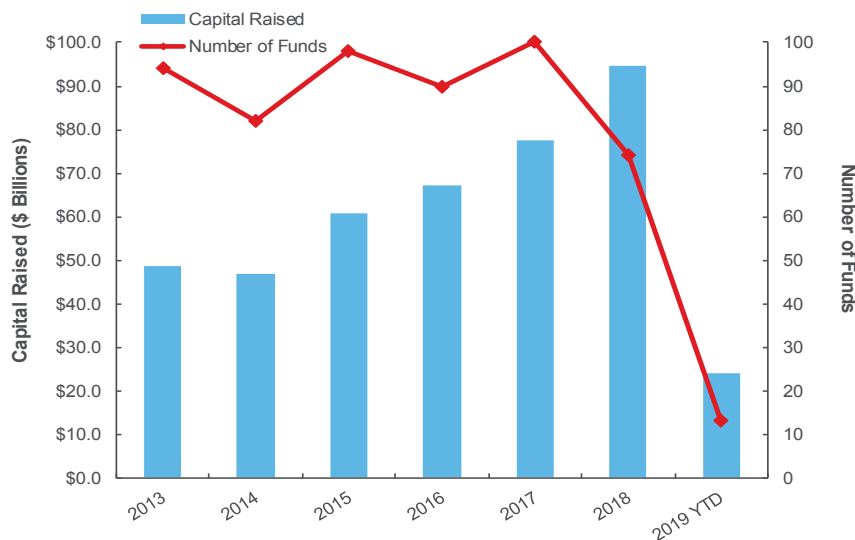
- Roughly 87% of buyers report that their deal pipelines are as strong or stronger than in 2018.²
 - Buyers have increasingly turned to leverage in their transactions in order to support attractive pricing and transaction execution. The spreads between committed capital and drawn capital by secondary purchasers has increased over the last quarter (and year).²
- The average discount rate for all private equity sectors finished Q1 2019 at 9.5%, up from 8.0% at the end of 2018. The average buyout pricing discount ended at 6.8%, while venture ended at a discount of 18.5%.² The average buyout pricing discount for Q1 was up from year-end 2018's 4.7% discount, while the venture discount was up from 16.0%.
- Pricing, while having gotten slightly more favorable for buyers over the last quarter, is expected to remain attractive for sellers given the continued high levels of dry powder and competition for secondary transactions. Pricing dipped in Q1 due to greater public market volatility and a slight decline in secondary fundraising.²
- For buyout pricing, tail-end vintages were being traded at larger discounts, while top performing funds continued to obtain premiums for their assets. While there is support and interest in pre-2010 vintage funds, there is significant volume and competition for younger vintages where premiums are often being commanded.²

Opportunity

- Funds that are able to execute complex and structured transactions at scale
- Funds that are able to leverage their long-standing relationships and networks in the secondaries marketplace
- Niche strategies

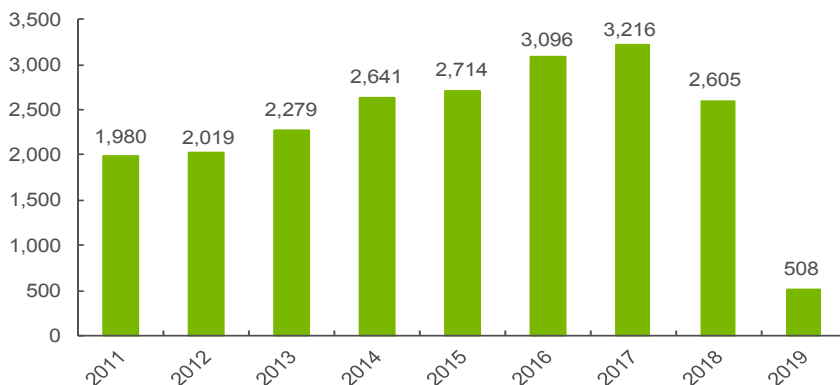
Infrastructure

Global Infrastructure Fundraising



Source: Preqin

Number of Deals Completed



Source: Preqin

Fundraising

- \$24.2 billion of capital was raised by 13 funds in 1Q 2018 compared to \$16.6 billion of capital closed on by 16 partnerships in 1Q 2018, as capital continues to be concentrate around a smaller set of infrastructure managers.¹
 - EQT Infrastructure IV held its final close on €9.0 billion and was the largest fund closed during Q1 2019.¹
- As of the end of 1Q 2019, there were an estimated 210 funds in the market seeking roughly \$190.0 billion, compared to 186 funds targeting \$136.0 billion in 1Q 2018.¹
 - Funds focused on infrastructure assets in the U.S. were targeting an estimated \$89.3 billion in capital, while European focused funds were targeting approximately \$63.4 billion.¹
 - Global Infrastructure Partners IV and Brookfield Infrastructure Fund IV were the largest funds in the market as of the end of 1Q 2019, targeting \$20.0 billion each. Both are focused on making investments within the U.S.¹
- At the end of the quarter, dry powder stood at an estimated \$185.0 billion, up from Q4 2018 of \$177.0 billion.¹ An estimated 41.1% of the dry powder was targeting North America, compared to 39.5% for Europe and 18.9% for Asia and the rest of the world.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

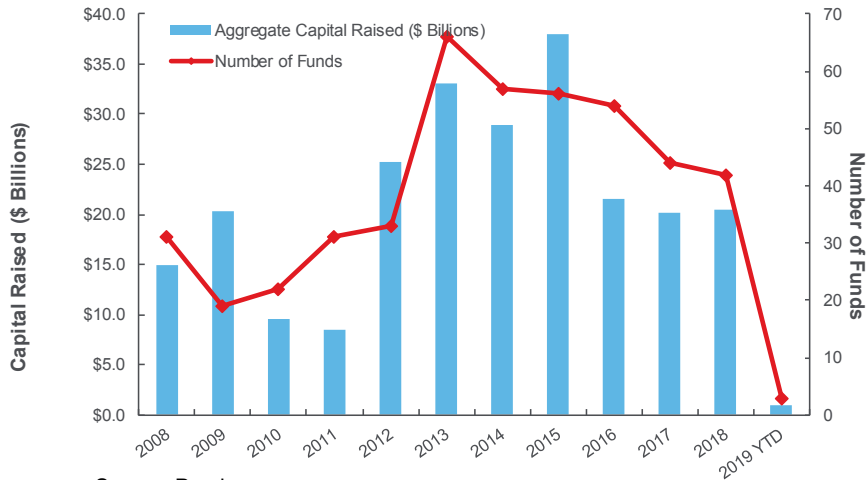
- Infrastructure managers completed 508 deals with an estimated aggregate deal value of \$58.0 billion in 1Q 2019 compared to 568 deals totaling \$54.0 billion a quarter ago.¹ The average deal value during the quarter was \$114.2 million, down compared to the five-year average of \$137.3 million.
 - North America accounted for 37.0% of the deals in 1Q 2019, while 35.4% and 10.6% of deals were transacted in Europe and Asia, respectively¹.
 - Renewable energy was the dominant industry during the quarter with 62.0% of transactions, followed by the conventional energy and transport sectors, which each accounted for 11.6% of the quarter's deals. Utilities accounted for 10.0% of transactions.¹

Opportunity

- Greenfield infrastructure is less competitive and offers a premium for managers willing to take on construction risk

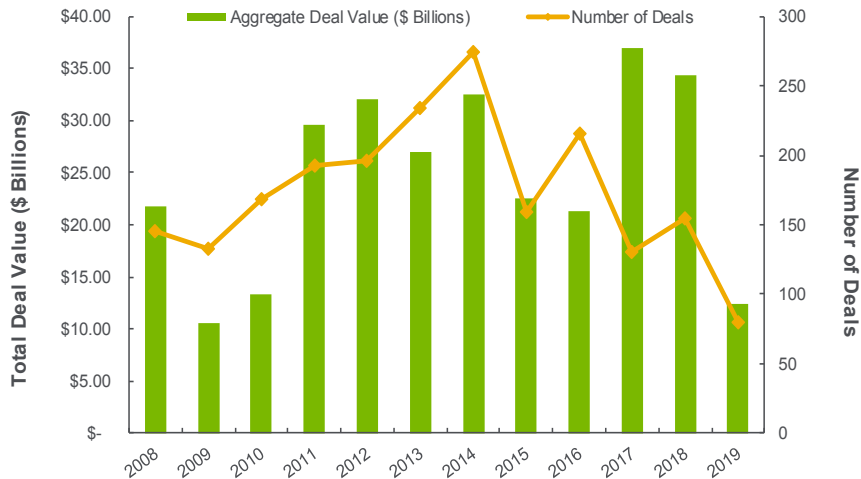
Natural Resources

Natural Resources Fundraising



Source: Preqin

Energy & Utilities Deal Activity



Source: Preqin

Fundraising

- During 1Q 2019, four funds closed on \$1.3 billion compared to 11 funds totaling \$1.8 billion in 4Q 2018.¹
 - Merit Energy Partners K was the largest fund to close during the period with a final close of \$904.0 million.
- At the end of 1Q 2019, there were roughly 94 funds in the market targeting an estimated \$36.1 billion in capital, compared to 93 funds seeking an estimated \$35.8 billion in 4Q 2018.¹
 - NGP Natural Resources XII was seeking the most capital with a target fund size of \$5.3 billion.
- Dry powder was estimated at \$53.9 billion at the end of 1Q 2019, which was down 2.9% from 4Q 2018's level, and remains below the record level of \$72.5 billion observed in 4Q 2016.¹

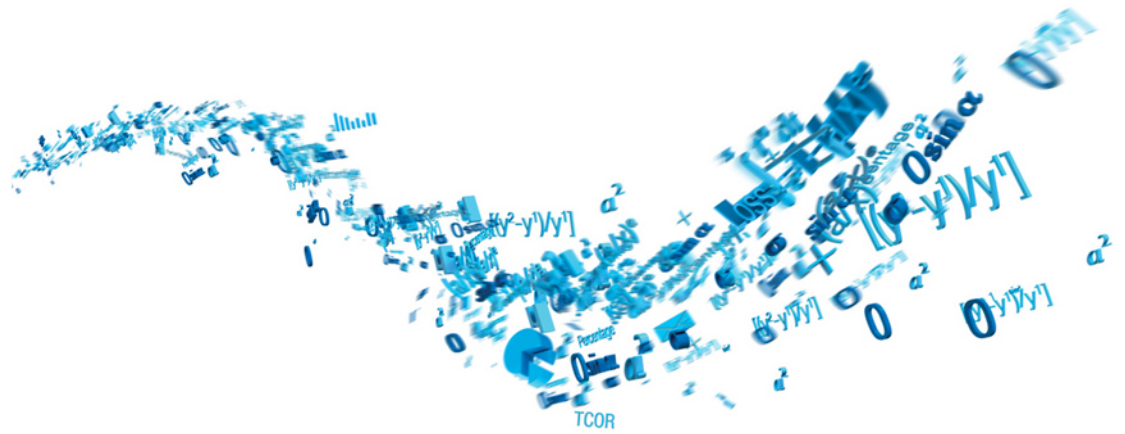
Activity

- Energy and utilities industry managers completed 80 deals totaling a reported \$12.4 billion in 1Q 2019, representing 51.6% and 36.0% of 2018's total deal activity and total deal value, respectively.¹
- Crude oil prices increased during the quarter.
 - WTI crude oil prices increased 17.1% during the quarter to \$58.15/bbl.¹¹
 - Brent crude oil prices ended the quarter at \$66.14/bbl, up 15.3% from year end 2018.¹¹
- Natural gas prices (Henry Hub) decreased significantly by 27.0% during the first quarter, ending at \$2.95 per MMBtu.¹¹
- A total of 1,013 crude oil and natural gas rotary rigs were in operation in the U.S. at the end of 1Q 2019, down 6.4% from the prior quarter. Crude oil rigs represented 80.9% of the total rigs in operation, while gas rigs represented 19.1% of the total rigs in operation.¹⁵
- The price of iron ore (Tianjin Port) ended the first quarter at \$86.47 per dry metric ton, up by 25.0% quarter-over-quarter.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

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Appendix B:

Real Estate Market Update

1Q 2019

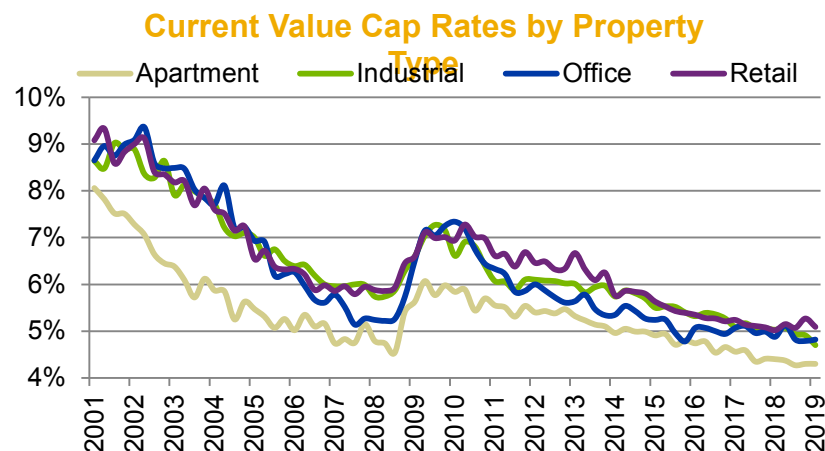
United States Real Estate Market Update (1Q19)

General

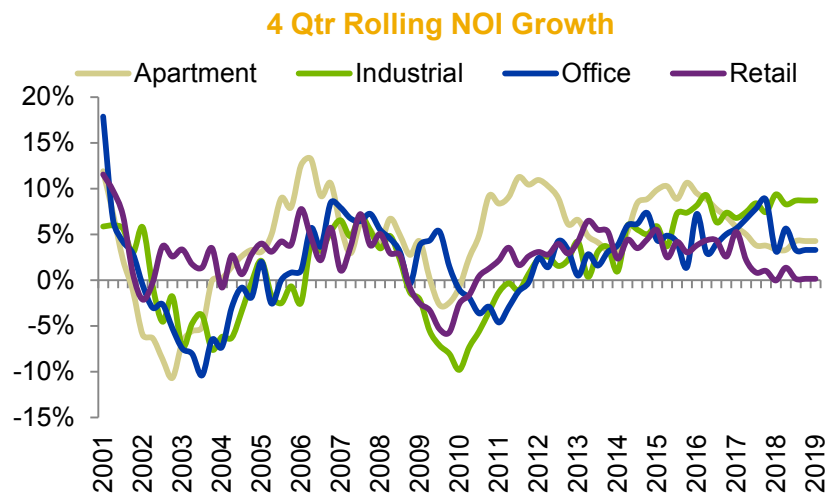
- The S&P 500 produced a gross total return of 13.6% during the Quarter, as markets rebounded from a poor fourth quarter (-13.1%). The MSCI US REIT index produced a return of 16.3%. Consumer Sentiment remained flat at 98.4, but rose subsequent to quarter end.
- Macro indicators for U.S. real estate continue to be positive; GDP grew at an annualized rate of 3.2% in the First Quarter and headline CPI rose by 1.7% YoY, below the Fed's 2% target. As of Quarter-end, the economy has now experienced 102 consecutive months of job growth. The Federal Reserve has paused its tightening of monetary policy, with the effective federal funds rate remaining around 2.4% at Quarter-end. Based on interest rate futures, the Market has begun pricing in the expectation of a cut by the Fed.

Commercial Real Estate

- Private real estate market carrying values remained flat over the Quarter. Transaction cap rates (5.4%) expanded 5 bps during the Quarter. While, current valuation cap rates remained flat across property sectors, with the exception of the industrial and retail sector cap rates which compressed by 20 bps.
- NOI growth by sector continued to deviate during the Quarter, with the industrial sector continuing to outpace the other traditional property types. While the industrial sector has faced increasing supply, it continues to benefit from outsized demand tailwinds (e-commerce and economic growth). On the other hand, retail experienced negative 20 bps of NOI growth during the Quarter.
- In the First Quarter of 2019, \$66 bn of aggregate capital was raised by real estate funds. In 2018, private equity real estate funds raised \$236 bn which is an increase of 9% YoY. Although, transaction volume declined during the 1st quarter by 18% year over year to \$28 bn.
- 10-year treasury bond yields dropped 28 bps to 2.4% during the Quarter, and, subsequent to Quarter-end, have dropped further to 2.1%. A combination of expansionary fiscal policy and tightening monetary policy have led to increasing short-term interest rates and a few temporary inversions of the yield curve.



Source: NCREIF



Source: NCREIF

Sources: Bureau of Economic Analysis, U.S. Census Bureau, Federal Reserve Board, NCREIF, Cushman and Wakefield, Real Capital Analytics, Bloomberg LP., Preqin, University of Michigan, Green Street

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Empower Results® 28

United States Property Matrix (1Q19)

INDUSTRIAL

- In 1Q19, industrial properties were the highest returning sector at 3.0% and outperformed the NPI by 122 bps.
- Transaction volumes reached \$17.6 billion in the first quarter of the year, marking a 15.6% year-over-year decrease. Large-scale portfolio sales increased year-over-year by 7.2%, individual portfolio sales were close to flat, while entity-level sales sharply declined.
- The industrial sector continued to experience steady NOI growth of 2.1% in the quarter, up from 1.9% in 4Q18. Market rent growth is expected to decelerate compared to the recent phenomenal pace, but still remains strong.
- Vacancy ticked slightly higher from 2018 levels to 3.5%, but continues to be close to all-time historic lows. E-commerce continues to boost demand.
- Industrial cap rates compressed approximately 33 bps from a year ago, to 4.7%. Industrial fundamentals still top all property sectors.

MULTIFAMILY

- The apartment sector delivered a 1.3% return during the Quarter, underperforming the NPI by 46 bps.
- Transaction volume in the first quarter of 2019 reached \$38.0 billion, an increase of 5.7% year-over-year. This volume continues to make multifamily the most actively traded sector for the eighth straight quarter.
- Debt levels in the sector were virtually unchanged from year end, at 65% loan-to-value. This remains close to historical lows over the past decade for the sector.
- Cap rates held steady at 4.3%, compressing close to 10 bps year-over-year. Robust job growth and improving wages have supported healthy operating fundamentals.
- Steady demand for the sector continues to keep occupancy close to 94.0%, a slight increase from a year ago. Delayed deliveries from construction labor bottlenecks have created a gap between permitting activity and starts volume.

OFFICE

- The office sector returned 1.6% in 1Q19, 18 bps below the NPI return over the period.
- Transaction volumes decreased by 13.5% year-over-year in Q1. Annual sales volumes of \$26.0 billion for the quarter. Single asset transactions accounted for 86% of volume.
- Occupancy growth within the office sector is relatively flat, increasing 0.7% year-over-year. Office continues to be the highest vacancy property type at close to 10.3%.
- NOI growth of 4.1% in the quarter is a positive as the sector remains in a low-growth mode. Sun Belt and tech-oriented West Coast office fundamentals screen healthiest.
- Office cap rates compressed slightly from a year ago to approximately 4.8% in the first quarter. Office-using job growth is positive, though decelerating as expected.
- Supply is moderate nation-wide. Although it is keeping a lid on net effective rent growth in NYC and D.C.

RETAIL

- As of 1Q19, the retail sector delivered a quarterly return of 1.7%, performing 7 bps below the NPI.
- Transaction volumes totaled \$12.1 billion in the first quarter, down 14.2% year-over-year. Individual-level transaction volume decreased slightly year-over-year, while portfolio-level transactions steeply declined by almost 60.0%.
- Slight year-over-year cap rate expansion of approximately 7 bps within the sector. Strong fundamental headwinds continue to effect the retail landscape.
- Growth in NOI declined in the quarter by 1.6%. Retail is expected to continue to suffer from the shift towards e-commerce.
- Retail vacancy has ticked up almost 60 bps over the past year. Many big box stores have closed as the need for retail space shrinks, meaning rent growth will likely be negative for many centers.

Global Real Estate Market Update (1Q19)

- Global investment activity during the first quarter of 2019 was elevated, but there are indications that momentum has begun to slow as compared to 2018. During the quarter, the three most active cities were New York City, London, and Los Angeles, respectively.

- Geopolitical uncertainty and its impact on the global real estate markets has remained at the forefront for investors, however, global commercial real estate is still positioned to steadily perform in 2019. Despite compressing yields, decreases in risk-free rates have kept real estate as an attractive investment option. Capital values and rents are expected to increase during the year, however, full-year global investment volumes are expected to decline by 5-10%.

Global Total Commercial Real Estate Volume - 2018 - 2019

\$ US Billions	Q1 2019	Q1 2018	% Change Q1 19 - Q1 18	Full Year Ending 1Q19	Full Year Ending 1Q18	% Change Full Year
Americas	92	106	-13%	505	447	13%
EMEA	50	78	-36%	327	371	-12%
Asia Pacific	168	216	-22%	815	895	-9%
Total	310	400	-22%	1646	1713	-4%

Source: Real Capital Analytics, Inc., Q1' 19

- Investment volumes in the Americas decreased during the first quarter year-over-year, including the U.S., Canada, Brazil, and Mexico all showing declines.
- Asia-Pacific cross-border investment activity was up in 1Q19, specifically in China, South Korea, and Singapore, offsetting decreases in Hong Kong, Australia, and Japan. However domestic activity declined which signals that Asia-Pacific domestic investors are becoming increasingly cautious.
- In EMEA, the decline in investment volume is largely attributable to uncertainty over Brexit in the UK.
- In the office sector, global leasing vacancy rates continued to decrease through the first quarter of 2019. The U.S office market performed well with an increase in gross leasing activity up 6% year-over-year. Europe also started the year strong with gross leasing up 6% year-over-year, boosted by performance in Brussels and Stockholm. Asia Pacific's office market contracted due to economic uncertainty and restricted supply. Globally, aggregate rental growth for prime office locations is expected to stay positive in 2019.
- In the retail sector, the U.S. is experiencing trends such as shorter lease lengths, pop-up stores, and using brick and mortar stores as effective delivery hubs for retailers. Strengthening labor markets and wage growth in Europe has positively impacted consumer spending, and retailers continue to focus on rightsizing their store portfolios. Asia Pacific retailers are focusing efforts on tech-driven services to enhance the customer experience. Australia is experiencing challenging retailer market conditions.
- The multifamily market in the U.S. has continued to see growth in demand and increases in effective rental growth, specifically in the Sun Belt markets. There has been an increase in construction activity which is likely to lead to some near-term supply headwinds. Investment activity in European multifamily markets continued to be robust, specifically in France, Spain, and the UK.
- The global industrial market maintained momentum during the quarter, with vacancy rates in the U.S. and Asia Pacific at all-time lows as demand continues to be robust. Demand has been strong in the European logistics market as well, however, a slight deceleration in the rate of growth suggests the sector may be entering a stage of stabilization.

Global Outlook - GDP (Real) Growth % pa, 2019-2021

	2019	2020	2021
Global	3.3	3.3	3.1
Asia Pacific	4.6	4.6	4.7
Australia	2.2	2.6	2.6
China	6.3	6.0	5.9
India	7.0	7.2	7.3
Japan	0.6	0.5	0.9
North America	2.5	1.9	1.9
US	2.6	1.9	1.9
MENA*	2.9	3.0	-
European Union	1.5	1.6	1.5
France	1.3	1.4	1.5
Germany	0.9	1.4	1.4
UK	1.3	1.4	1.6

*Middle East North Africa

Source: Bloomberg

Note: 2021 projections are not yet available for certain regions

TAB G

Report

Meketa Investment Market Risk Metrics

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Capital Markets Outlook & Risk Metrics

As of June 30, 2019

M E K E T A I N V E S T M E N T G R O U P

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Capital Market Outlook - Takeaways

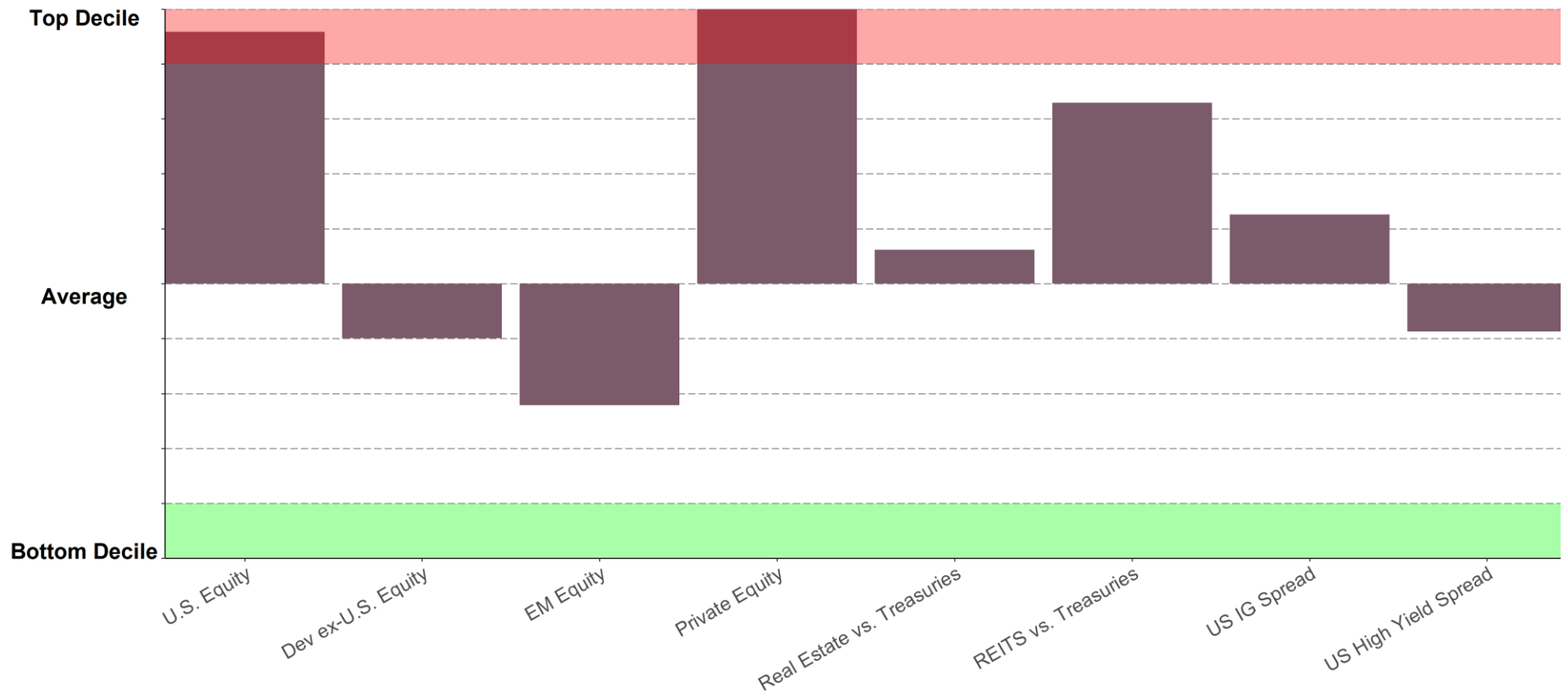
- If equity performance during May reminded investors of the fourth quarter of 2018, then June performance resembled Q1 2019, as most equity markets produced returns of positive 4-7%. June returns bring YTD returns above double digits for most major equity markets.
- The rally in equities may have been fueled by subdued concerns about trade wars, as the U.S. and China agreed upon a truce at the G20 summit that, for the moment, at least delays the imposition of additional tariffs. Global economic growth worries are still present, however, which may have supported further reductions in interest rates across the curve.
- The Federal Reserve left rates steady during its June meeting and added more cautionary language about the state of the U.S. and global economies. While the central bank predicted no rate cuts during the year, it did leave the door open for cuts in the future, starting in 2020.
- U.S. equity markets remain expensive whereas Non-U.S. equity markets remain reasonably valued, relative to their history.
- Implied market volatility¹ remains below its historical average (~19), staying below 17 throughout June, and pushing below 13 near the end of the month.
- The Market Sentiment Indicator² returned to positive (green) supported by the rebound in equity markets.
- Market uncertainty as measured by Systemic Risk remains low, but there is potential for negative surprises, as global economies navigate their respective “late-cycle” dynamics.

¹ As measured by VIX Index.

² See Appendix for the rationale for selection and calculation methodology used for the risk metrics.



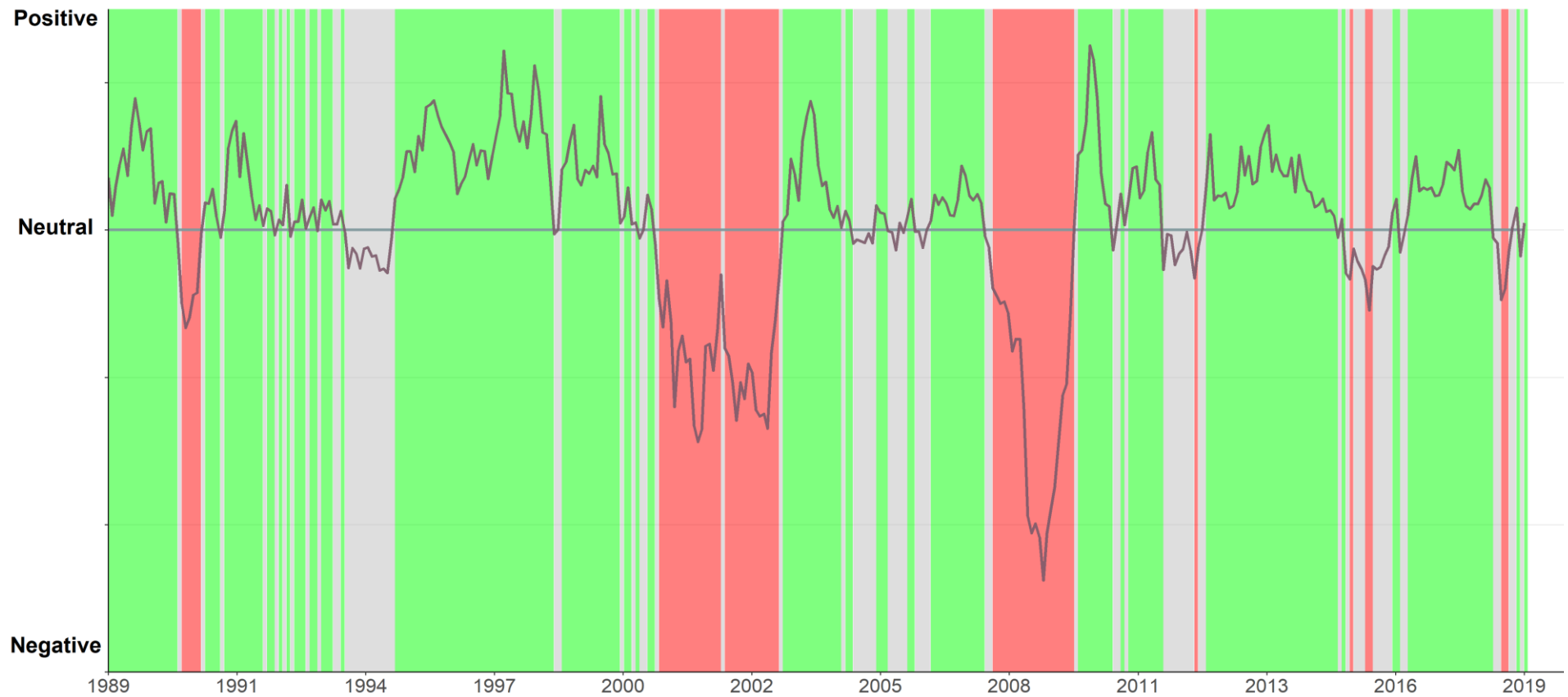
Risk Overview/Dashboard (1)



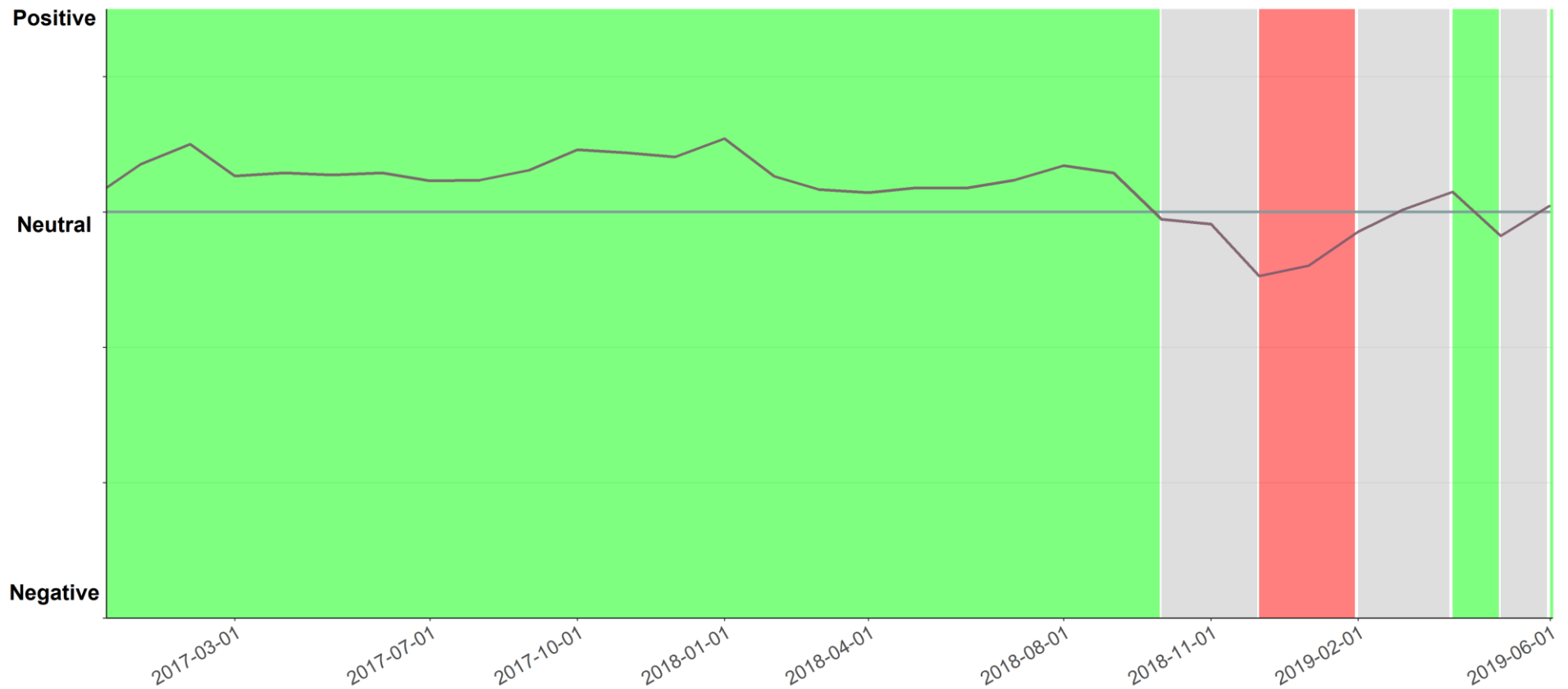
Risk Overview/Dashboard (2)



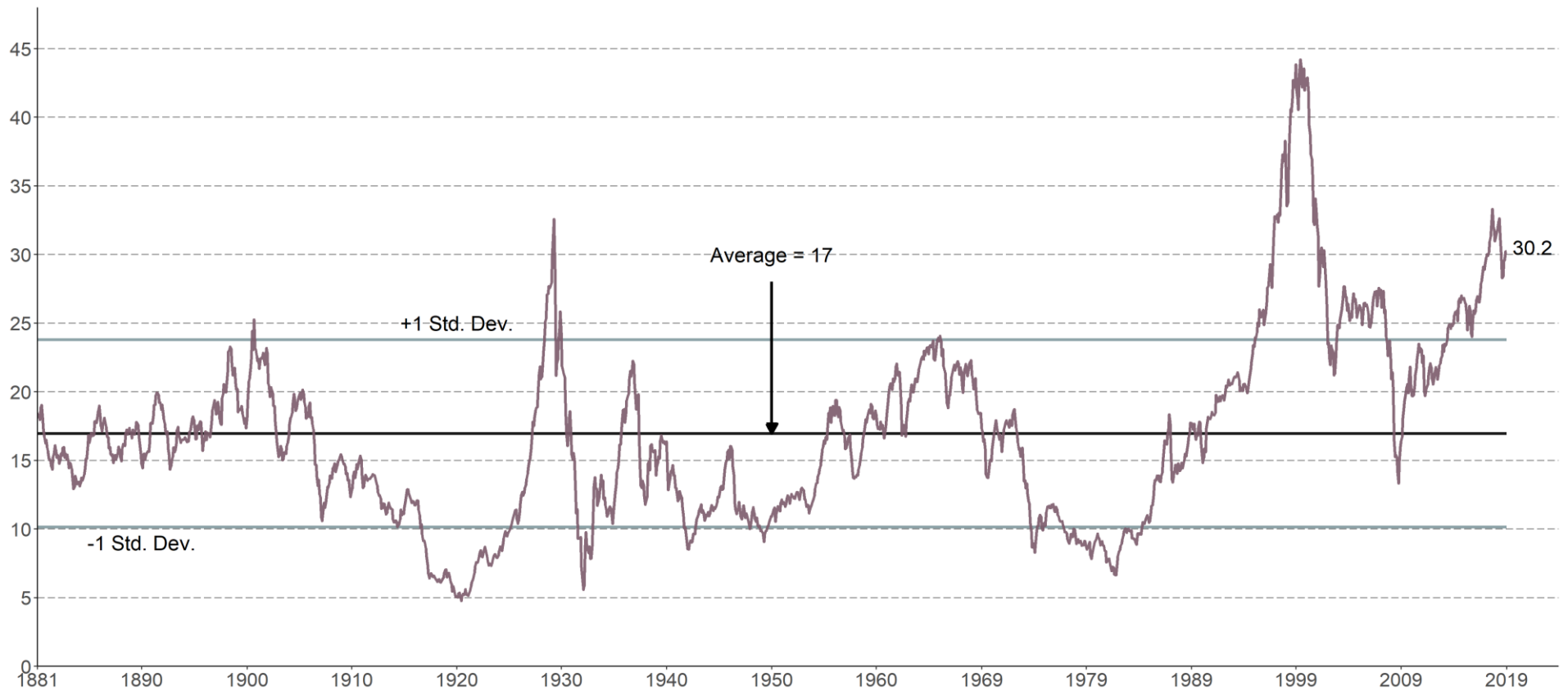
Market Sentiment Indicator (All History)



Market Sentiment Indicator (Last Three Years)

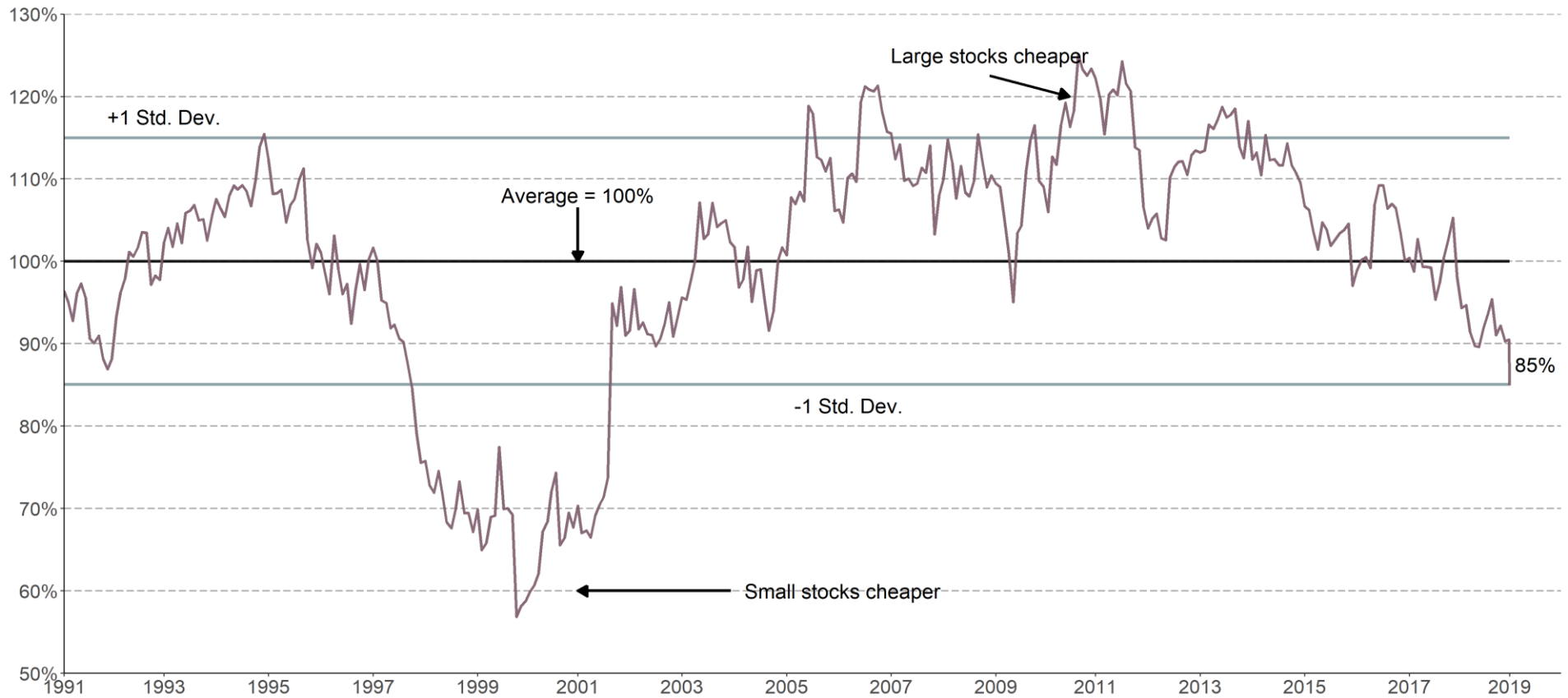


U.S. Equity Cyclically Adjusted P/E¹



¹ U.S. Equity Cyclically Adjusted P/E on S&P 500 Index – Source: Robert Shiller and Yale University.

Small Cap P/E vs. Large Cap P/E¹



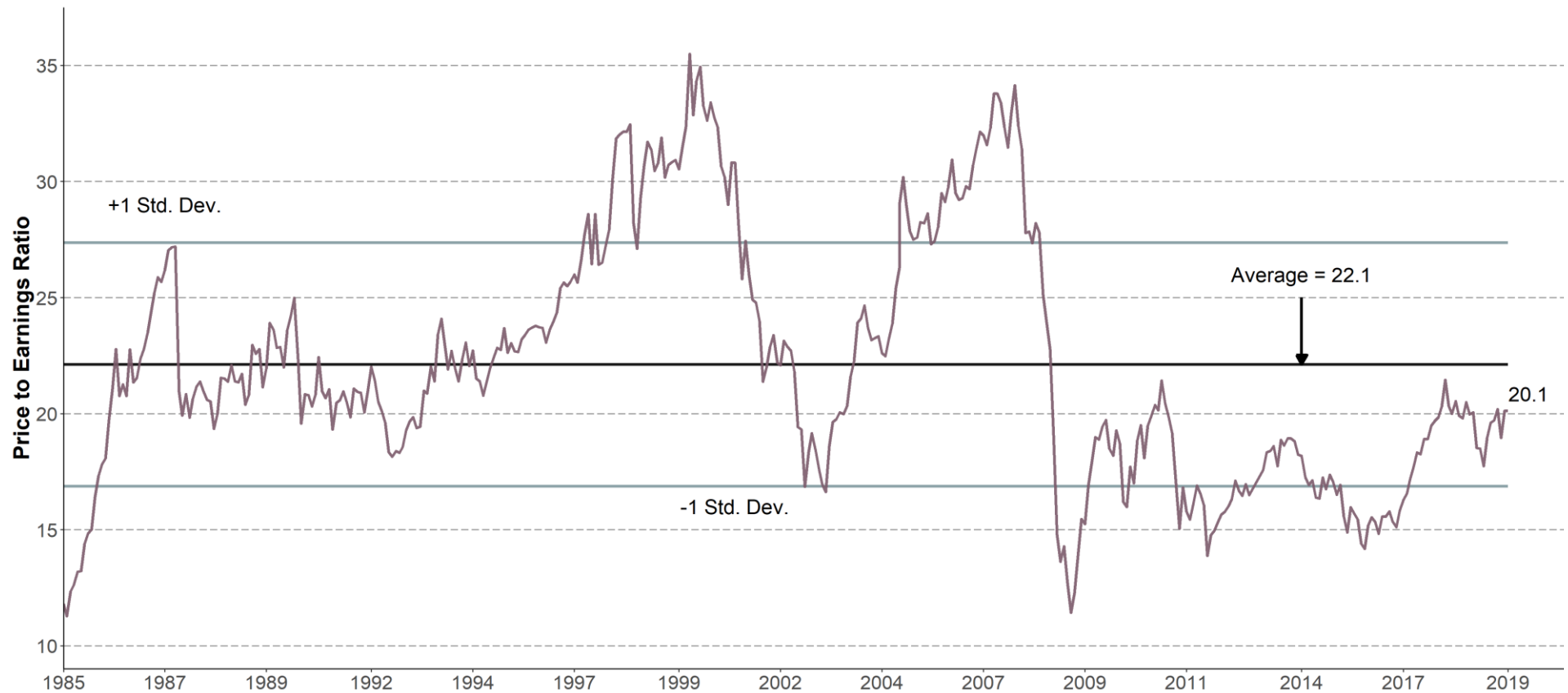
¹ Small Cap P/E (Russell 2000 Index) vs. Large Cap P/E (Russell 1000 Index) - Source: Russell Investments. Earnings figures represent 12-month "as reported" earnings.

Growth P/E vs. Value P/E¹



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



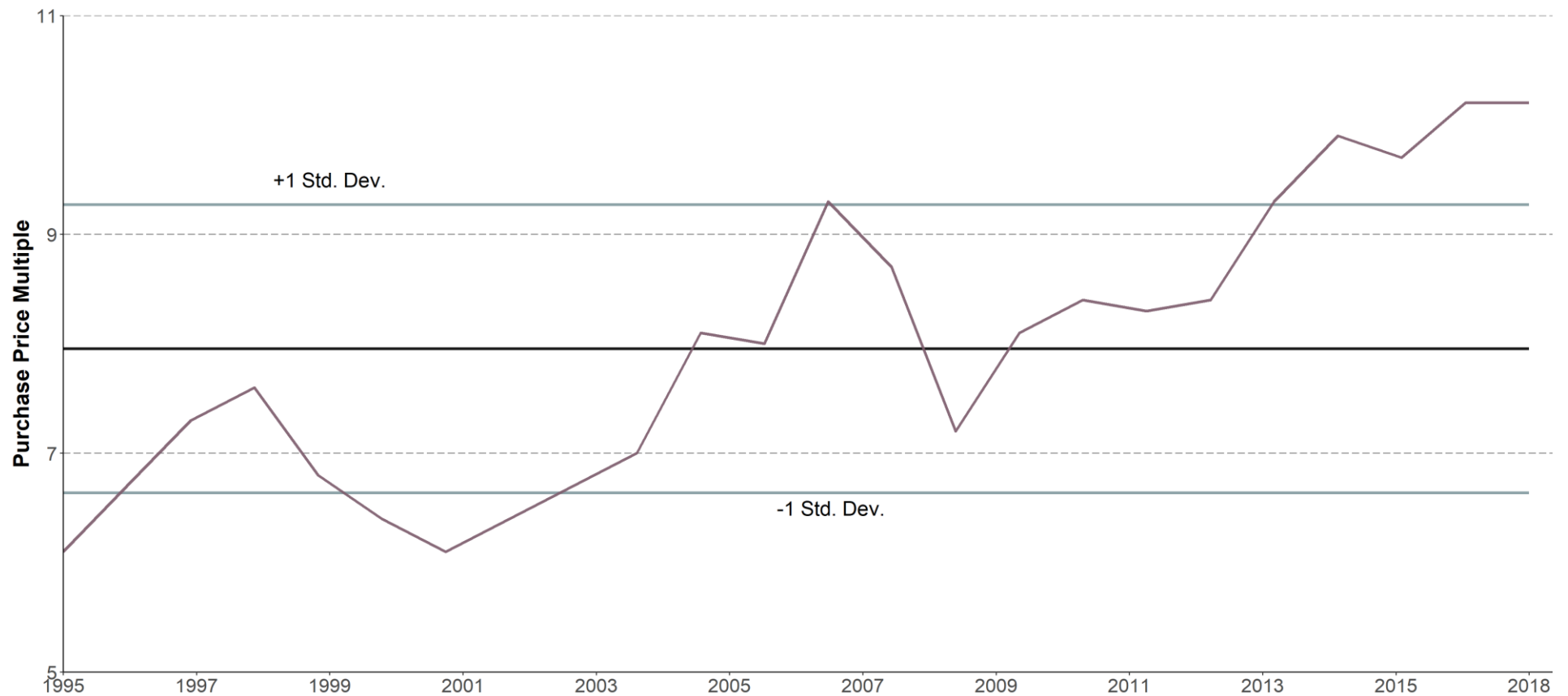
¹ Developed International Equity (MSCI EAFE ex Japan Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years.

Emerging Market Equity Cyclically Adjusted P/E¹



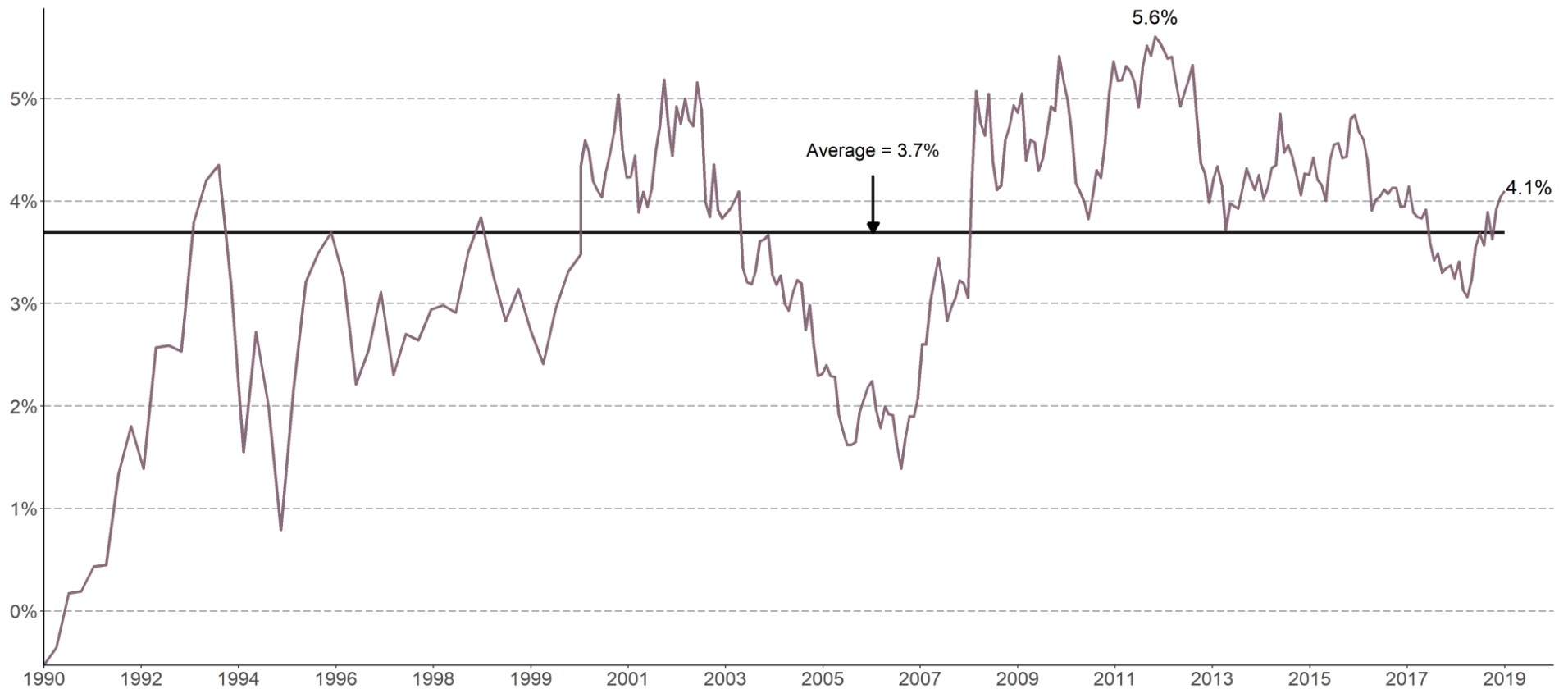
¹ Emerging Market Equity (MSCI Emerging Markets Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years

Private Equity Multiples¹

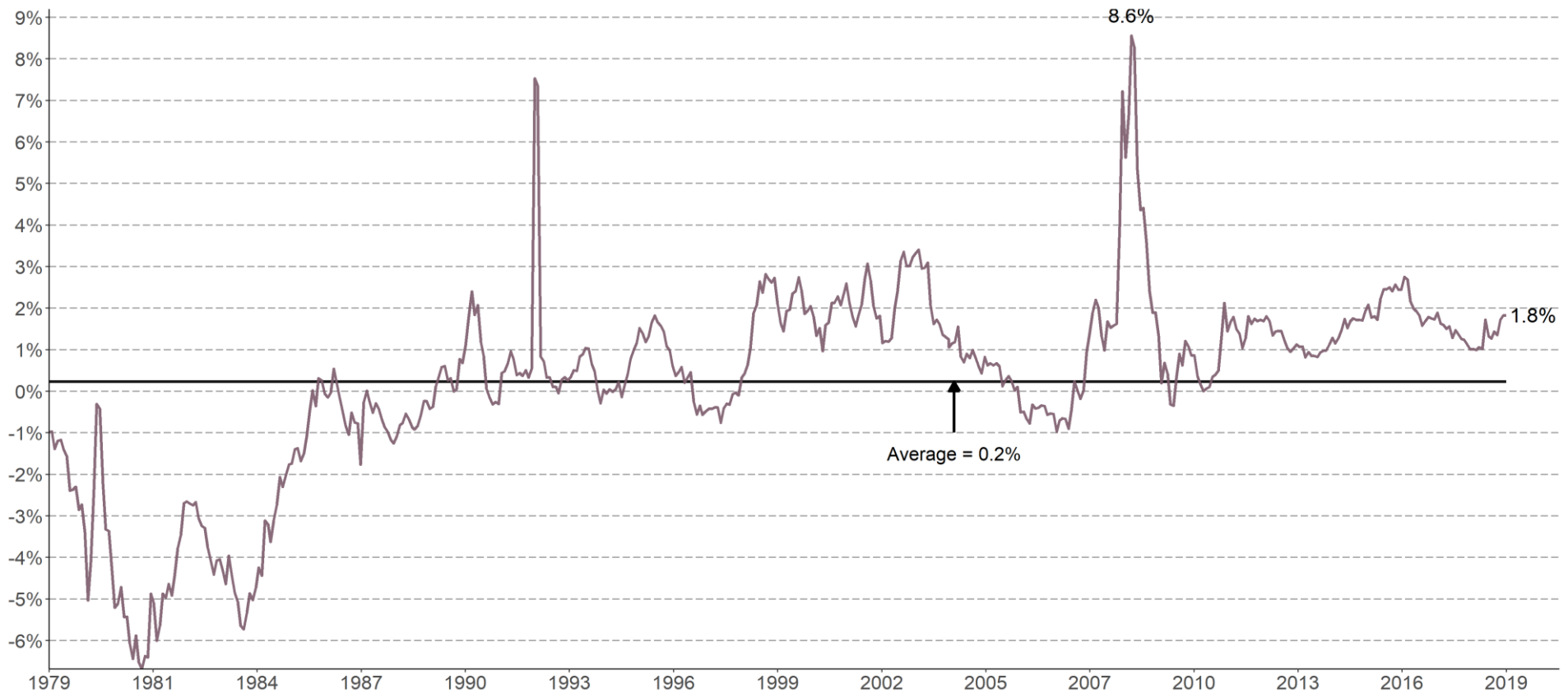


¹ Private Equity Multiples – Source: S&P LCD Average EBITDA Multiples Paid in All LBOs

Core Real Estate Spread vs. Ten-Year Treasury¹

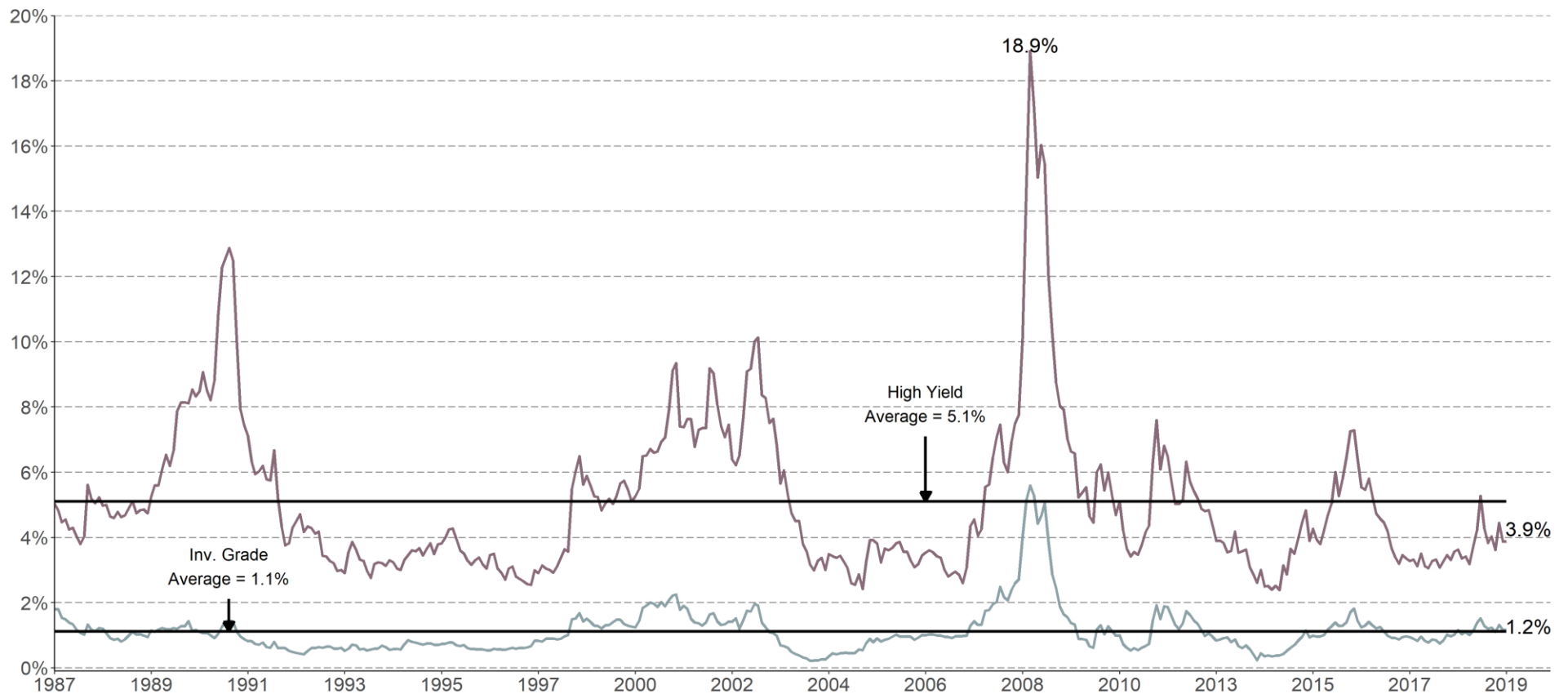


¹ Core Real Estate Spread vs. Ten-Year Treasury – Source: Real Capital Analytics, U.S. Treasury, Bloomberg, and Meketa Investment Group. Core Real Estate is proxied by weighted sector transaction based indices from Real Capital Analytics and Meketa Investment Group.

REITs Dividend Yield Spread vs. Ten-Year Treasury¹

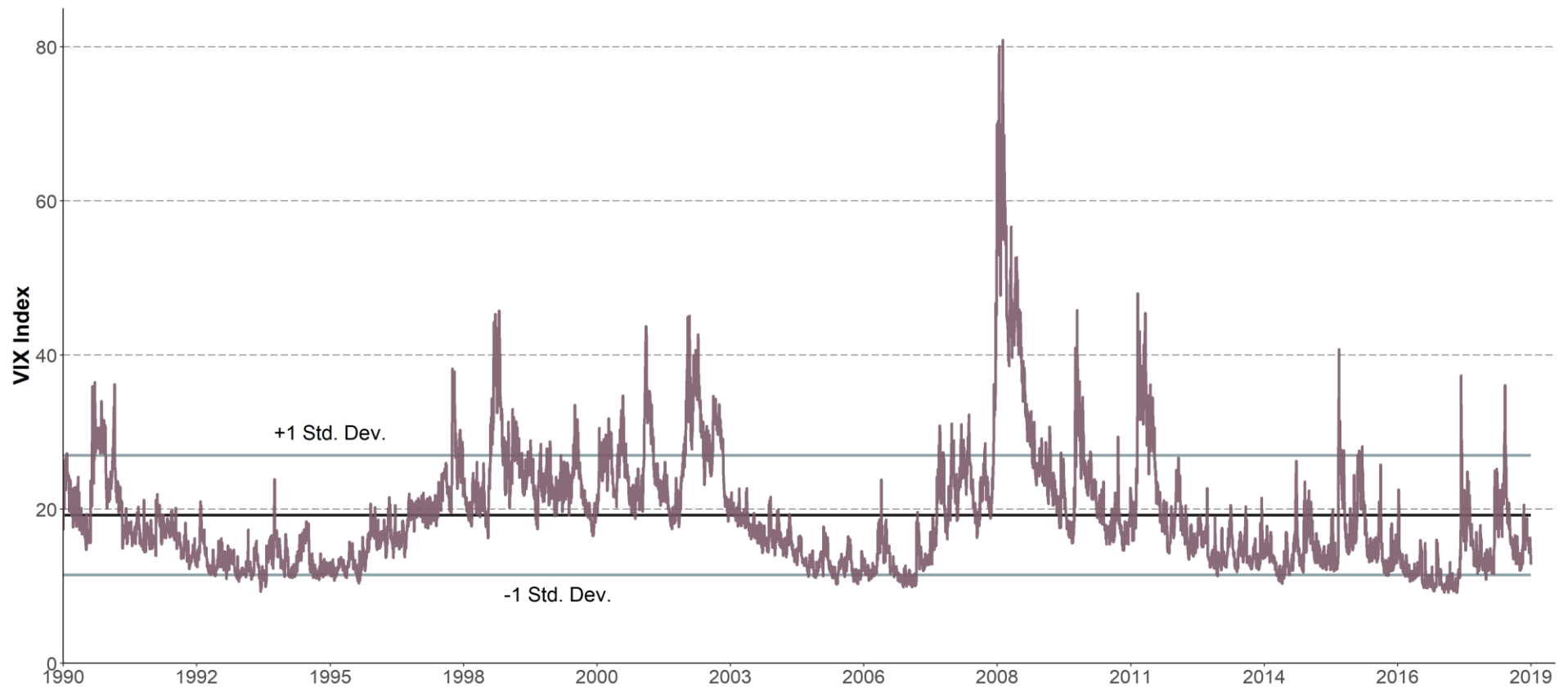
¹ REITs Dividend Yield Spread vs. Ten-Year Treasury – Source: NAREIT, U.S. Treasury. REITs are proxied by the yield for the NAREIT Equity index.

Credit Spreads¹



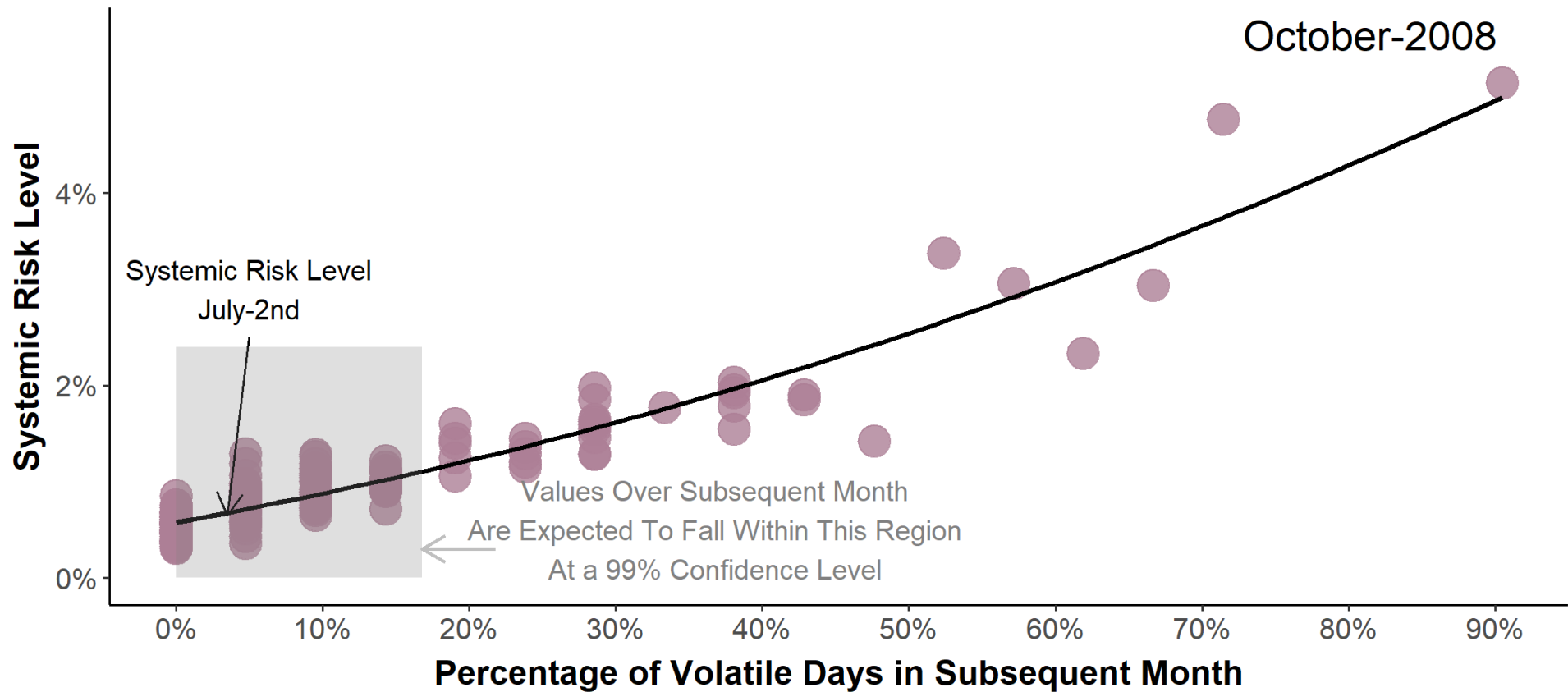
¹ Credit Spreads – Source: Barclays Capital. High Yield is proxied by the Barclays High Yield index and Investment Grade Corporates are proxied by the Barclays U.S. Corporate Investment Grade index.

Equity Volatility¹



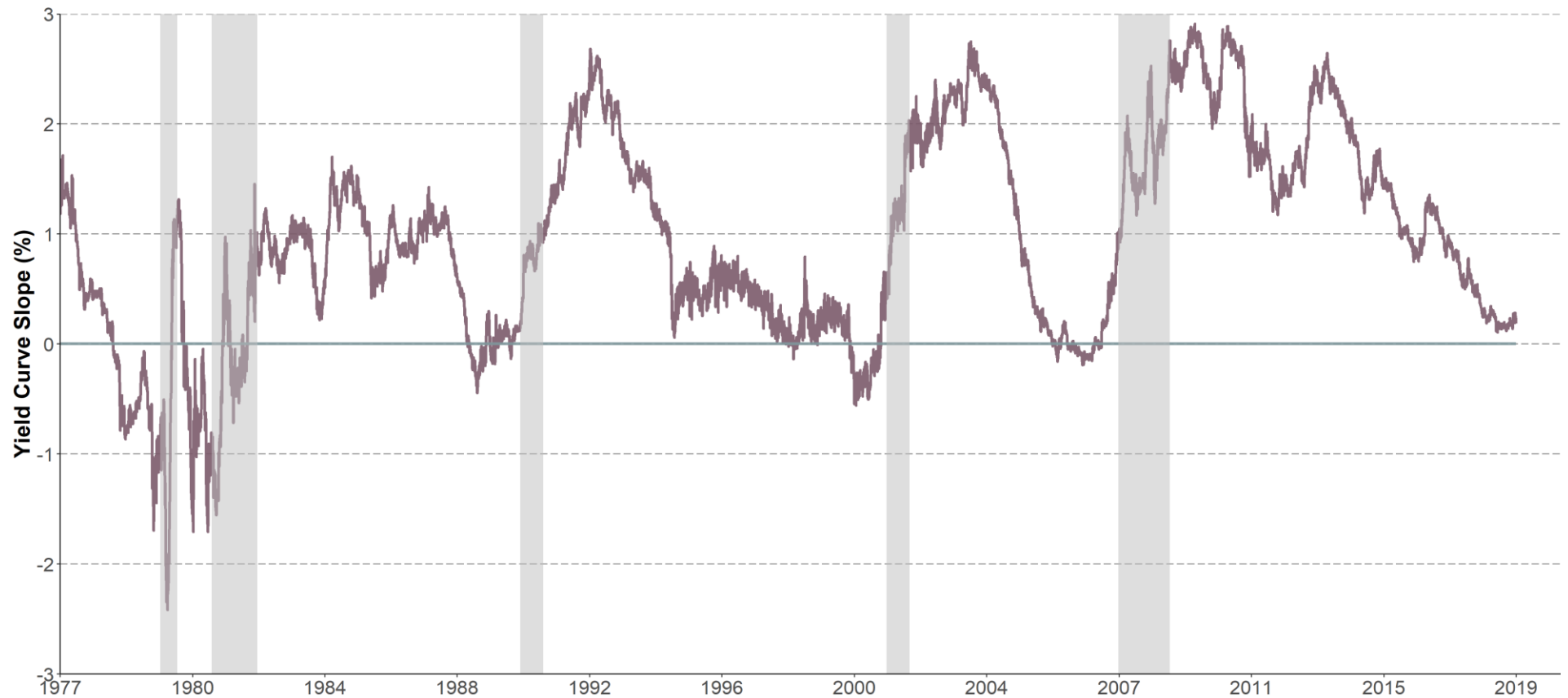
¹ Equity Volatility – Source: Bloomberg, and Meketa Investment Group. Equity Volatility proxied by VIX Index, a Measure of implied option volatility for U.S. equity markets.

Systemic Risk and Volatile Market Days¹



¹ Source: Meketa Investment Group, as of July 2, 2019. 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



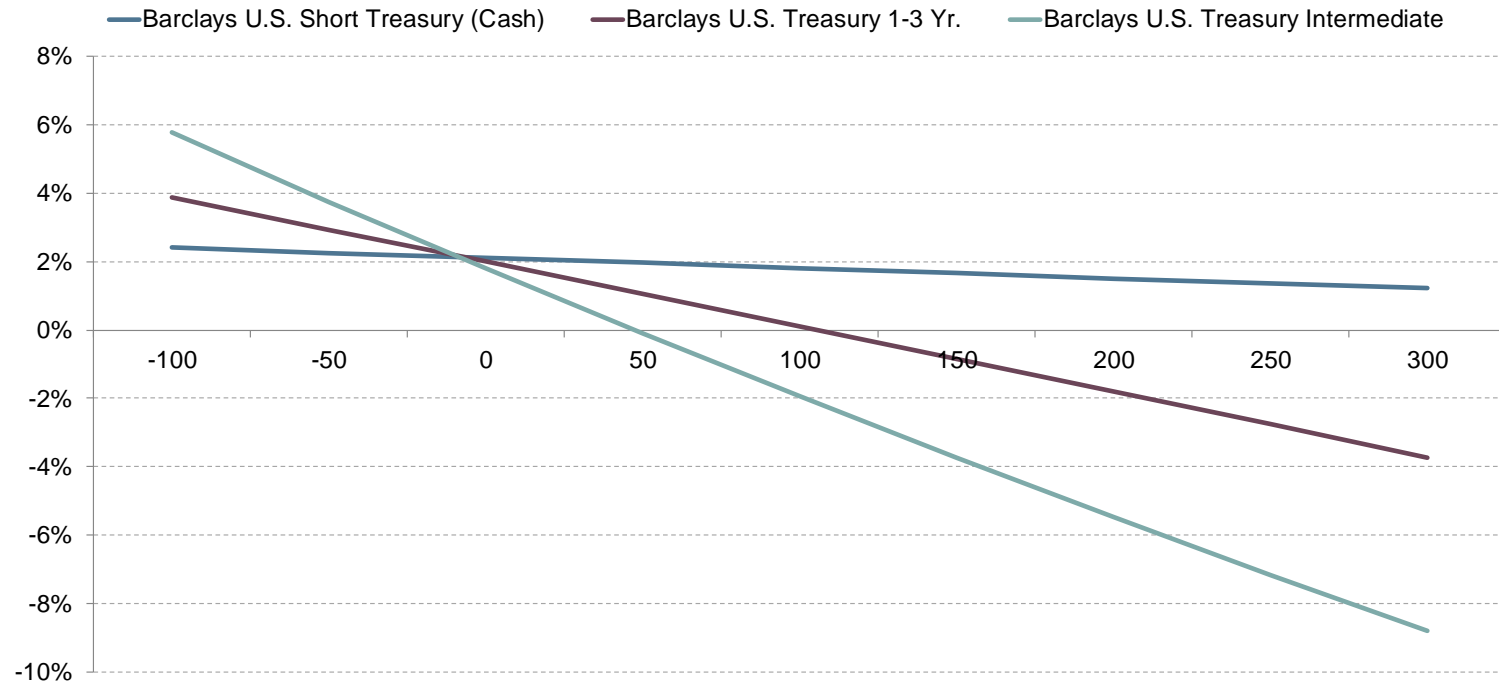
¹ Yield Curve Slope (Ten Minus Two) – Source: Bloomberg, and Meketa Investment Group. Yield curve slope is calculated as the difference between the 10-Year U.S. Treasury Yield and 2-Year U.S. Treasury Yield.

Ten-Year Breakeven Inflation¹



¹ Ten-Year Breakeven Inflation – Source: U.S. Treasury and Federal Reserve. Data is as of June 30, 2019 for TIPS and Treasuries. Inflation is measured by the Consumer Price Index (CPI-U NSA).

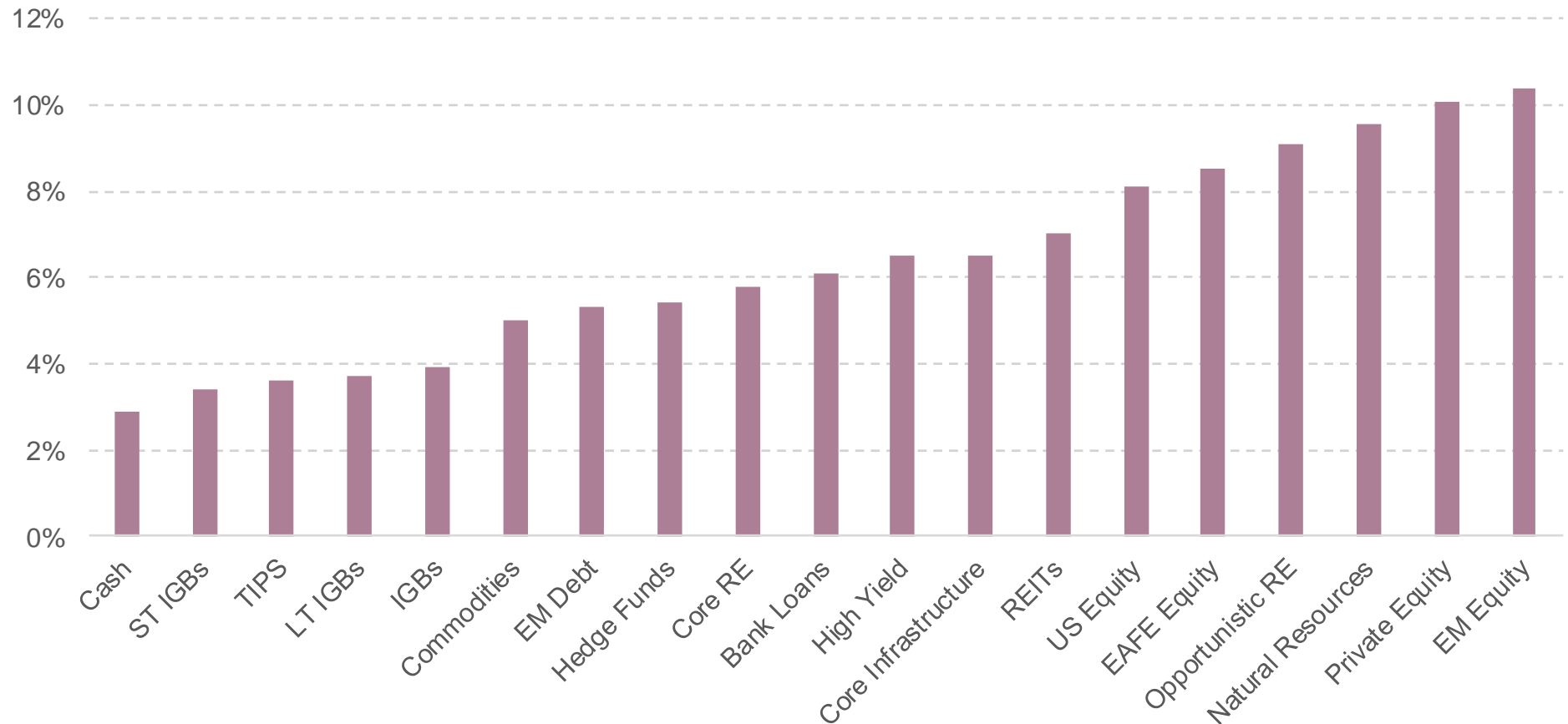
Total Return Given Changes in Interest Rates (bps)¹



	Total Return for Given Changes in Interest Rates (bps)									Statistics	
	-100	-50	0	50	100	150	200	250	300	Duration	YTW
Barclays U.S. Short Treasury (Cash)	2.4%	2.3%	2.1%	2.0%	1.8%	1.7%	1.5%	1.4%	1.2%	0.3	2.11%
Barclays U.S. Treasury 1-3 Yr.	3.9%	2.9%	2.0%	1.1%	0.1%	-0.8%	-1.8%	-2.8%	-3.7%	1.88	2.00%
Barclays U.S. Treasury Intermediate	5.8%	3.8%	1.8%	-0.1%	-2.0%	-3.7%	-5.5%	-7.2%	-8.8%	3.86	1.80%
Barclays U.S. Treasury Long	22.5%	12.0%	2.4%	-6.0%	-13.5%	-19.9%	-25.3%	-29.6%	-32.9%	17.99	2.44%

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. Data is as of June 30, 2019 via Barclays, Bloomberg, and Meketa Investment Group.

Long-Term Outlook¹



¹ Twenty-year expected returns based upon Meketa Investment Group's 2019 Annual Asset Study.

Appendix – Data Sources and Explanations

All Data as of June 30, 2019

- U.S. 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, U.S. Treasury, Bloomberg, and Meketa Investment Group. Core Real Estate is proxied by weighted sector transaction based indices from Real Capital Analytics and Meketa Investment Group.
- REITs Dividend Yield Spread vs. Ten-Year Treasury – Source: NAREIT, U.S. 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 U.S. Corporate Investment Grade index.

Appendix – Data Sources and Explanations (Continued)
All Data as of June 30, 2019

- Equity Volatility – Source: Bloomberg, and Meketa Investment Group. Equity Volatility proxied by VIX Index, a Measure of implied option volatility for U.S. equity 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.
- Yield Curve Slope (Ten Minus Two) – Source: Bloomberg, and Meketa Investment Group. Yield curve slope is calculated as the difference between the 10-Year U.S. Treasury Yield and 2-Year U.S. Treasury Yield.
- Ten-Year Breakeven Inflation – Source: U.S. Treasury and Federal Reserve. Inflation is measured by the Consumer Price Index (CPI-U NSA).

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:

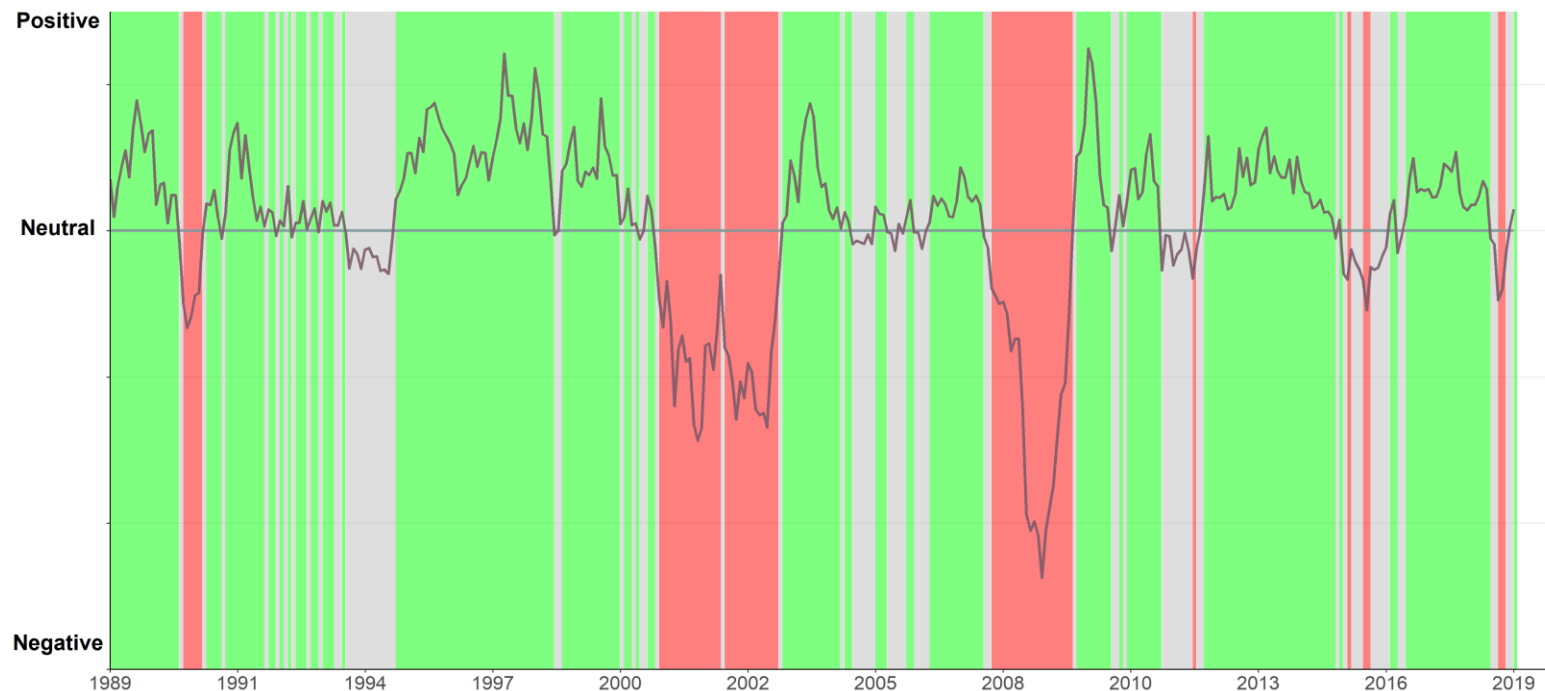
What is the Meketa Market Sentiment Indicator (MIG-MSI)?

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 U.S. 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/~lpedersen/papers/TimeSeriesMomentum.pdf>

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

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

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TAB H

Report

Comprehensive Performance Report

June 30, 2019

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Comprehensive Performance Report

June 30, 2019



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.

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. At this time, the assets of various retirement programs, including local firefighter groups, are included here.

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.

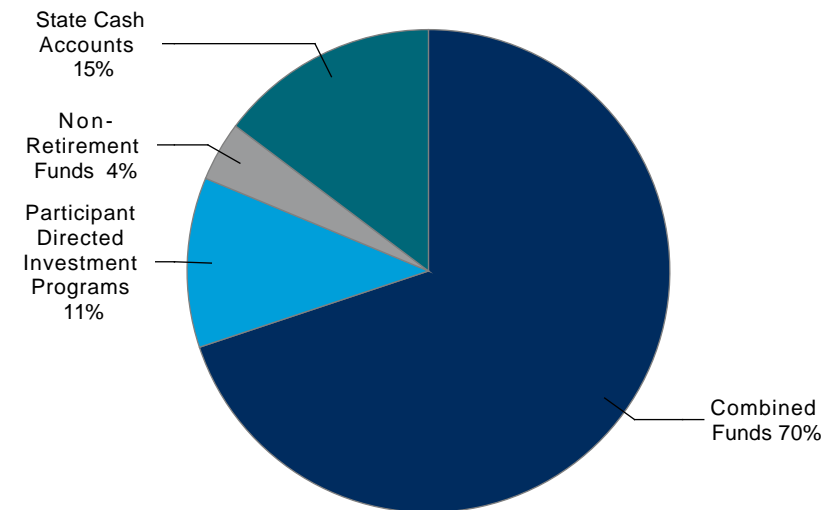
State Cash

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	
Combined Funds	\$70,658
PARTICIPANT DIRECTED INVESTMENT PROGRAMS	
Supplemental Investment Fund*	3,942
State Deferred Compensation Plan**	6,064
Minnesota College Savings Plan	1,503
Achieve a Better Life Experience	6
NON-RETIREMENT FUNDS	
Assigned Risk Plan	287
Permanent School Fund	1,513
Environmental Trust Fund	1,215
Closed Landfill Investment Fund	97
Miscellaneous	258
Other Post Employment Benefits Accounts	662
STATE CASH ACCOUNTS	
Treasurer's Cash	14,630
Other State Cash Accounts	273
TOTAL	
SBI AUM	101,110



* Includes assets of smaller retirement funds which are invested with the SBI but are not included in the Combined Funds

** Does not include the Stable Value and Money Market accounts that are used by Deferred Compensation and Supplemental Investment Fund

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

June 30, 2019



Combined Funds Summary

Combined Funds Change in Market Value (\$Millions)

	One Quarter
COMBINED FUNDS	
Beginning Market Value	\$68,816
Net Contributions	-605
Investment Return	2,448
Ending Market Value	70,658

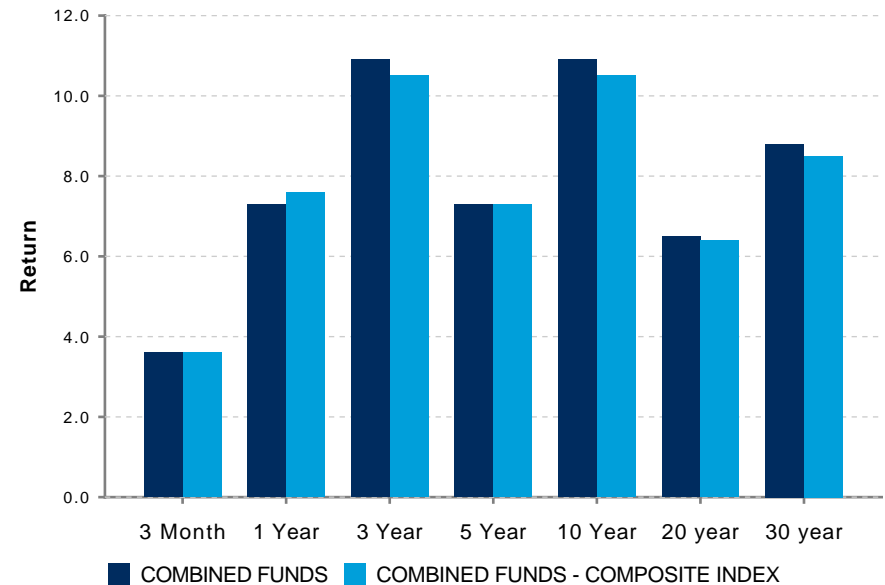
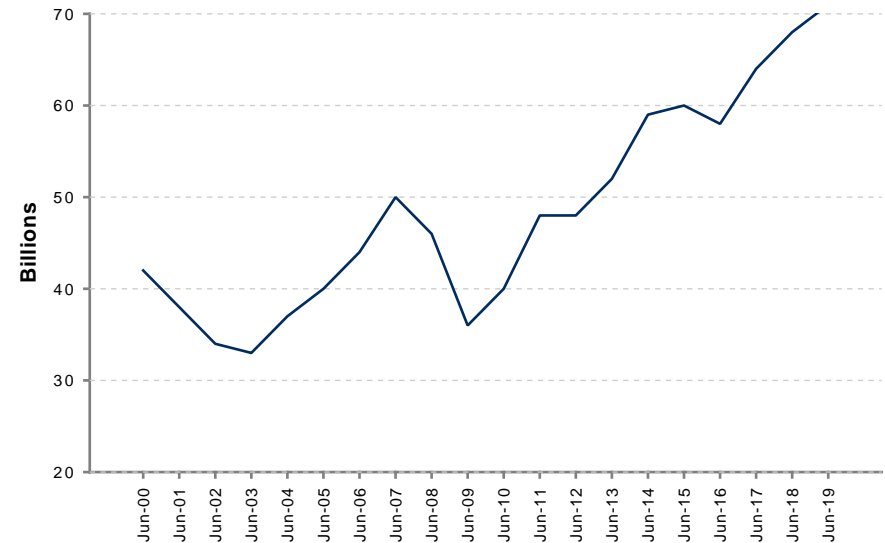
The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

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	3.6%	7.3%	7.3%	10.9%	7.3%	10.9%	6.5%	8.8%
COMBINED FUNDS - COMPOSITE INDEX	3.6	7.6	7.6	10.5	7.3	10.5	6.4	8.5
Excess	-0.0	-0.3	-0.3	0.4	0.0	0.4	0.2	0.3

Asset Growth



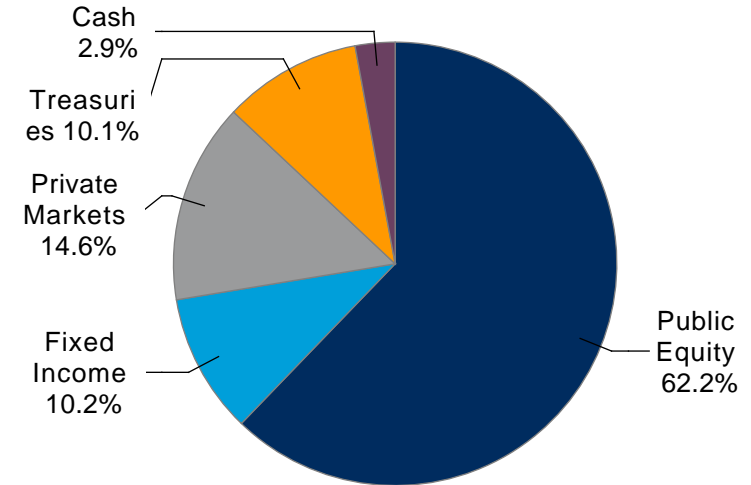


Combined Funds Summary

Asset Mix

The Combined Funds actual asset mix relative to the Strategic Asset Allocation Policy Target is shown below. Any uninvested portion of the Private Markets allocation is held in Public Equity.

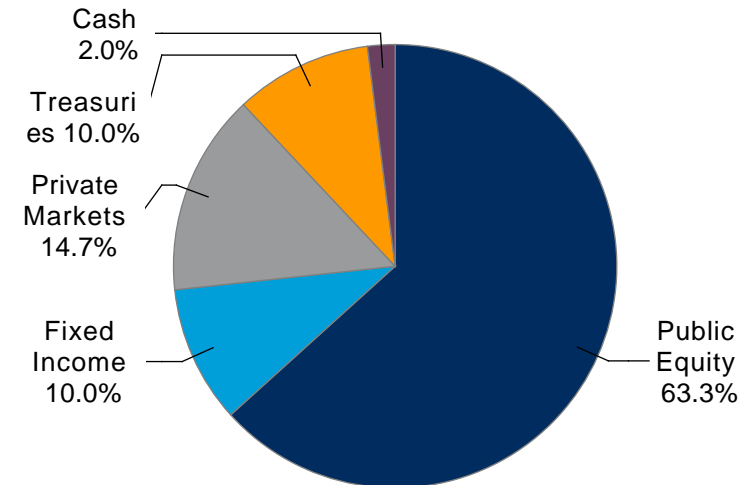
	<u>(Millions)</u>	<u>Actual Mix</u>	<u>Policy Target</u>
Public Equity	\$43,953	62.2%	53.0%
Fixed Income	7,208	10.2	10.0
Private Markets	10,281	14.6	25.0
Treasuries	7,169	10.1	10.0
Cash	2,048	2.9	2.0
TOTAL	70,658	100.0	



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	63.3%	Public Equity Benchmark
Fixed Income	10.0	BB Barclays U.S. Aggregate
Private Markets	14.7	Private Markets
Treasuries	10.0	BB Barclays Treasury 5+ Years
Cash	2.0	3 Month T-Bills





Combined Funds Asset Class Performance Summary

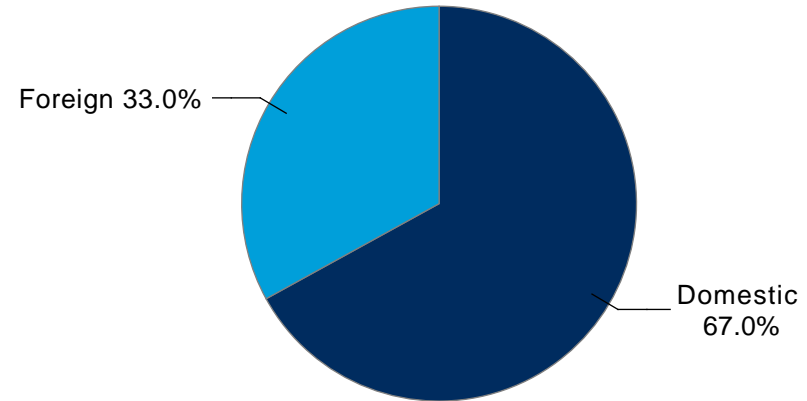
Public Equity

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	3.8%	6.1%	6.1%	12.8%	8.0%	12.7%	5.7%	9.1%
Public Equity Benchmark	3.7	6.4	6.4	12.5				
Excess	0.1	-0.4	-0.4	0.2				
Domestic Equity	4.1	8.5	8.5	14.3	10.0	14.7	6.0	9.6
Domestic Equity Benchmark	4.0	8.9	8.9	14.0	10.2	14.7	6.1	9.8
Excess	0.1	-0.5	-0.5	0.3	-0.2	-0.0	-0.1	-0.2
International Equity	3.2	1.1	1.1	9.3	2.6	7.0	4.8	
International Equity Benchmark	3.0	1.3	1.3	9.4	2.2	6.5	4.4	
Excess	0.2	-0.2	-0.2	-0.1	0.4	0.5	0.4	

Note:

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



Combined Funds Asset Class Performance Summary

Fixed Income

The Combined Funds Fixed Income program includes Core Fixed Income and Treasuries. The Combined Funds performance for these asset classes is shown here.

The Core Fixed Income benchmark is the Bloomberg Barclays U.S. Aggregate Index. This index reflects the performance of the broad bond market for investment grade (Baa or higher) bonds, U.S. Treasury and agency securities, and mortgage obligations with maturities greater than one year.

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

	<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>
Fixed Income	3.2%	8.2%	8.2%	3.0%	3.4%	5.0%	5.3%	6.4%
Fixed Income Benchmark	3.1	7.9	7.9	2.3	2.9	3.9	4.9	6.0
Excess	0.1	0.3	0.3	0.7	0.4	1.1	0.4	0.4
Treasuries	4.5	10.3	10.3					
BBG BARC 5Y + Us Tsy Idx	4.6	10.4	10.4					
Excess	-0.0	-0.1	-0.1					

Cash

The Combined Funds Cash performance is shown here. Cash is held by the Combined Funds to meet the liquidity needs of the retirement systems to pay benefits.

	<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>
Cash	0.6%	2.3%	2.3%	1.5%	1.0%	0.7%	2.3%	3.8%
90 DAY T-BILL	0.6	2.3	2.3	1.4	0.9	0.5	1.9	3.0

Note:

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	2.8%	10.4%	10.4%	14.9%	10.4%	12.5%	12.6%	13.6%	12.2%
Private Equity	5.0%	14.4%	14.4%	17.6%	14.3%	15.9%	13.5%	15.4%	
Private Credit	1.9	10.6	10.6	14.2	13.2	13.4	12.5		
Resources	-2.6	0.9	0.9	10.2	-1.8	5.5	15.5	14.5	
Real Estate	3.1	9.1	9.1	9.6	11.3	8.6	8.8	9.5	

Private Markets

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

Private Equity Investments

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

Private Credit Investments

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

Resource Investments

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

Real Estate Investments

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

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



Quarterly Report

Asset Class & Manager Performance

June 30, 2019

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

June 30, 2019



	<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)	\$4,619,105,944	15.1%	3.4%	2.6%	2.6%	14.7%	9.1%	14.3%		
Active Domestic Equity Benchmark			3.1	3.0	3.0	12.7	9.0	14.1		
Excess			0.3	-0.4	-0.4	2.1	0.1	0.2		
SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)	2,484,474,354	8.1	4.6	10.0	10.0	14.4	10.4	14.9		
Semi Passive Domestic Equity Benchmark			4.2	10.0	10.0	14.1	10.5	14.8		
Excess			0.4	-0.0	-0.0	0.2	-0.0	0.1		
PASSIVE DOMESTIC EQUITY AGGREGATE (3)	23,581,207,072	76.8	4.2	9.6	9.6	14.1	10.3	14.7		
Passive Domestic Equity Benchmark			4.2	9.6	9.6	14.2	10.3	14.7		
Excess			-0.0	-0.0	-0.0	-0.1	-0.0	-0.0		
TRANSITION AGGREGATE DOMESTIC EQUITY (4)	1,544	0.0								
TOTAL DOMESTIC EQUITY (5)	30,684,788,913	100.0	4.1	8.5	8.5	14.3	10.0	14.6	10.4	01/1984
Domestic Equity Benchmark			4.0	8.9	8.9	14.0	10.2	14.7	10.6	01/1984
Excess			0.1	-0.5	-0.5	0.3	-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>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>
Total Domestic Equity					
ACTIVE DOMESTIC EQUITY AGGREGATE (1)	-6.5%	20.6%	10.9%	-0.4%	9.3%
Active Domestic Equity Benchmark	-8.0	18.3	15.7	-0.6	11.0
Excess	1.4	2.3	-4.8	0.3	-1.7
SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)	-4.9	22.5	11.1	0.5	14.2
Semi Passive Domestic Equity Benchmark	-4.8	21.7	12.1	0.9	13.2
Excess	-0.1	0.8	-1.0	-0.4	1.0
PASSIVE DOMESTIC EQUITY AGGREGATE (3)	-5.0	21.3	12.6	0.5	12.6
Passive Domestic Equity Benchmark	-5.0	21.5	12.5	0.5	12.6
Excess	-0.0	-0.2	0.1	0.0	0.0
TRANSITION AGGREGATE DOMESTIC EQUITY (4)					
TOTAL DOMESTIC EQUITY (5)	-5.3%	21.4%	11.5	0.3	12.3
Domestic Equity Benchmark	-5.2%	21.1%	12.7	0.5	12.6
Excess	-0.0%	0.2%	-1.3	-0.2	-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	\$495,144,491	1.6%	4.0%	12.2%	12.2%	23.9%	13.6%	19.5%	11.6%	01/2005
Russell 1000 Growth			4.6	11.6	11.6	18.1	13.4	16.3	10.0	01/2005
Excess			-0.6	0.7	0.7	5.8	0.2	3.3	1.6	
WINSLOW	269,923,115	0.9	4.7	12.4	12.4	20.6	14.0	16.3	11.0	01/2005
Russell 1000 Growth			4.6	11.6	11.6	18.1	13.4	16.3	10.0	01/2005
Excess			0.1	0.8	0.8	2.5	0.6	-0.0	1.0	
ZEVENBERGEN	462,527,518	1.5	9.7	15.0	15.0	28.3	14.4	17.8	11.4	04/1994
Russell 1000 Growth			4.6	11.6	11.6	18.1	13.4	16.3	9.8	04/1994
Excess			5.1	3.4	3.4	10.2	1.0	1.6	1.5	
RUSSELL 1000 GROWTH AGGREGATE	1,227,595,124	4.0	6.3	13.1	13.1	24.3	15.2	18.0		
Russell 1000 Growth			4.6	11.6	11.6	18.1	13.4	16.3		
Excess			1.6	1.6	1.6	6.2	1.8	1.7		



	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>
Active Large Cap Growth					
SANDS	7.0%	35.3%	-6.9%	2.9%	9.1%
Russell 1000 Growth	-1.5	30.2	7.1	5.7	13.0
Excess	8.6	5.1	-13.9	-2.8	-3.9
WINSLOW	4.2	33.2	-1.9	6.7	11.0
Russell 1000 Growth	-1.5	30.2	7.1	5.7	13.0
Excess	5.7	3.0	-9.0	1.0	-2.0
ZEVENBERGEN	2.3	35.1	-2.8	6.4	3.4
Russell 1000 Growth	-1.5	30.2	7.1	5.7	13.0
Excess	3.8	4.9	-9.9	0.7	-9.6
RUSSELL 1000 GROWTH AGGREGATE	4.7%	33.4%	1.0	4.6	9.6
Russell 1000 Growth	-1.5%	30.2%	7.1	5.7	13.0
Excess	6.2%	3.2%	-6.1	-1.1	-3.4



	<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 Large Cap Value										
BARROW HANLEY	\$416,035,718	1.4%	5.4%	8.8%	8.8%	10.9%	7.7%	13.0%	8.1%	04/2004
Russell 1000 Value			3.8	8.5	8.5	10.2	7.5	13.2	7.8	04/2004
Excess			1.5	0.4	0.4	0.7	0.3	-0.2	0.3	
EARNEST PARTNERS	296,894,008	1.0	3.6	8.8	8.8	14.2	9.6	13.0	7.1	07/2000
Russell 1000 Value			3.8	8.5	8.5	10.2	7.5	13.2	7.2	07/2000
Excess			-0.2	0.3	0.3	4.0	2.2	-0.2	-0.1	
LSV	386,446,651	1.3	2.3	2.2	2.2	11.3	7.5	14.0	8.7	04/2004
Russell 1000 Value			3.8	8.5	8.5	10.2	7.5	13.2	7.8	04/2004
Excess			-1.5	-6.2	-6.2	1.1	0.1	0.9	1.0	
RUSSELL 1000 VALUE AGGREGATE	1,099,376,377	3.6	3.8	6.3	6.3	12.3	7.8	13.3		
Russell 1000 Value			3.8	8.5	8.5	10.2	7.5	13.2		
Excess			-0.0	-2.2	-2.2	2.1	0.3	0.1		



	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>
Active Large Cap Value					
BARROW HANLEY	-5.9%	14.6%	12.8%	-2.1%	13.0%
Russell 1000 Value	-8.3	13.7	17.3	-3.8	13.5
Excess	2.4	0.9	-4.5	1.7	-0.5
EARNEST PARTNERS	-7.7	19.9	16.2	-2.7	14.0
Russell 1000 Value	-8.3	13.7	17.3	-3.8	13.5
Excess	0.6	6.2	-1.1	1.1	0.5
LSV	-11.8	18.6	17.0	-2.2	14.0
Russell 1000 Value	-8.3	13.7	17.3	-3.8	13.5
Excess	-3.6	4.9	-0.4	1.6	0.6
RUSSELL 1000 VALUE AGGREGATE	-8.7%	17.3%	15.3	-3.2	13.1
Russell 1000 Value	-8.3%	13.7%	17.3	-3.8	13.5
Excess	-0.4%	3.7%	-2.1	0.6	-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>
Semi-Passive Large Cap										
BLACKROCK	\$1,126,722,758	3.7%	4.7%	10.4%	10.4%	15.8%	11.4%	15.3%	10.0%	01/1995
Semi Passive Domestic Equity Benchmark			4.2	10.0	10.0	14.1	10.5	14.8	9.6	01/1995
Excess			0.4	0.3	0.3	1.7	1.0	0.6	0.5	
J.P. MORGAN	1,357,751,596	4.4	4.6	9.8	9.8	14.2	10.5	15.2	9.8	01/1995
Semi Passive Domestic Equity Benchmark			4.2	10.0	10.0	14.1	10.5	14.8	9.6	01/1995
Excess			0.4	-0.2	-0.2	0.0	0.1	0.4	0.3	
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE	2,484,474,354	8.1	4.6	10.0	10.0	14.4	10.4	14.9		
Semi Passive Domestic Equity Benchmark			4.2	10.0	10.0	14.1	10.5	14.8		
Excess			0.4	-0.0	-0.0	0.2	-0.0	0.1		



	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>
Semi-Passive Large Cap					
BLACKROCK	-4.1%	24.6%	12.5%	0.8%	14.2%
Semi Passive Domestic Equity Benchmark	-4.8	21.7	12.1	0.9	13.2
Excess	0.7	2.9	0.5	-0.1	1.0
J.P. MORGAN					
J.P. MORGAN	-5.4	21.8	12.3	0.8	15.0
Semi Passive Domestic Equity Benchmark	-4.8	21.7	12.1	0.9	13.2
Excess	-0.6	0.1	0.2	-0.1	1.8
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE					
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE	-4.9%	22.5%	11.1	0.5	14.2
Semi Passive Domestic Equity Benchmark	-4.8%	21.7%	12.1	0.9	13.2
Excess	-0.1%	0.8%	-1.0	-0.4	1.0



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Small Cap Growth										
ARROWMARK	\$232,684,840	0.8%	-2.1%	-1.2%	-1.2%				17.8%	11/2016
Russell 2000 Growth			2.7	-0.5	-0.5				15.6	11/2016
Excess			-4.9	-0.7	-0.7				2.1	
HOOD RIVER	265,773,224	0.9	4.2	4.8	4.8				16.9	11/2016
Russell 2000 Growth			2.7	-0.5	-0.5				15.6	11/2016
Excess			1.4	5.3	5.3				1.3	
RICE HALL JAMES	226,901,796	0.7	2.8	-7.8	-7.8				16.7	11/2016
Russell 2000 Growth			2.7	-0.5	-0.5				15.6	11/2016
Excess			0.0	-7.3	-7.3				1.0	
WELLINGTON	259,133,187	0.8	2.4	0.4	0.4				15.8	11/2016
Russell 2000 Growth			2.7	-0.5	-0.5				15.6	11/2016
Excess			-0.4	0.9	0.9				0.2	
RUSSELL 2000 GROWTH AGGREGATE	984,493,048	3.2	1.8	-0.9	-0.9	13.8	7.4	13.0		
Russell 2000 Growth			2.7	-0.5	-0.5	14.7	8.6	14.4		
Excess			-0.9	-0.4	-0.4	-0.9	-1.2	-1.4		



	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>
Active Small Cap Growth					
ARROWMARK	0.9%	26.2%			
Russell 2000 Growth	-9.3	22.2			
Excess	10.3	4.1			
HOOD RIVER	-7.0	21.3			
Russell 2000 Growth	-9.3	22.2			
Excess	2.3	-0.9			
RICE HALL JAMES	-6.9	27.9			
Russell 2000 Growth	-9.3	22.2			
Excess	2.4	5.8			
WELLINGTON	-11.6	22.6			
Russell 2000 Growth	-9.3	22.2			
Excess	-2.3	0.4			
RUSSELL 2000 GROWTH AGGREGATE	-6.2%	22.0%	4.7	1.0	-3.4
Russell 2000 Growth	-9.3%	22.2%	11.3	-1.4	5.6
Excess	3.2%	-0.1%	-6.6	2.4	-9.0



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Small Cap Value										
GOLDMAN SACHS	\$366,637,765	1.2%	3.2%	-1.2%	-1.2%	10.3%	6.3%	14.3%	9.2%	01/2004
Russell 2000 Value			1.4	-6.2	-6.2	9.8	5.4	12.4	7.6	01/2004
Excess			1.8	5.0	5.0	0.5	0.9	1.9	1.7	
HOTCHKIS AND WILEY	297,954,252	1.0	0.9	-8.7	-8.7	9.9	3.4	15.3	7.8	01/2004
Russell 2000 Value			1.4	-6.2	-6.2	9.8	5.4	12.4	7.6	01/2004
Excess			-0.4	-2.5	-2.5	0.1	-2.0	2.9	0.2	
MARTINGALE	283,679,533	0.9	0.8	-8.3	-8.3	8.4	5.8	13.5	7.4	01/2004
Russell 2000 Value			1.4	-6.2	-6.2	9.8	5.4	12.4	7.6	01/2004
Excess			-0.6	-2.1	-2.1	-1.4	0.4	1.1	-0.1	
PEREGRINE	359,369,845	1.2	1.4	-8.8	-8.8	10.1	5.0	13.4	9.7	07/2000
Russell 2000 Value			1.4	-6.2	-6.2	9.8	5.4	12.4	9.2	07/2000
Excess			0.1	-2.6	-2.6	0.3	-0.4	1.0	0.5	
RUSSELL 2000 VALUE AGGREGATE	1,307,641,396	4.3	1.7	-6.7	-6.7	9.7	5.1	14.0		
Russell 2000 Value			1.4	-6.2	-6.2	9.8	5.4	12.4		
Excess			0.3	-0.4	-0.4	-0.1	-0.3	1.6		



	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>
Active Small Cap Value					
GOLDMAN SACHS	-13.3%	12.6%	24.6%	-5.2%	7.4%
Russell 2000 Value	-12.9	7.8	31.7	-7.5	4.2
Excess	-0.5	4.7	-7.1	2.3	3.1
HOTCHKIS AND WILEY	-14.4	7.9	19.9	-8.5	13.0
Russell 2000 Value	-12.9	7.8	31.7	-7.5	4.2
Excess	-1.5	0.0	-11.8	-1.0	8.8
MARTINGALE	-15.0	6.9	34.3	-5.2	7.3
Russell 2000 Value	-12.9	7.8	31.7	-7.5	4.2
Excess	-2.1	-0.9	2.5	2.3	3.1
PEREGRINE	-16.1	12.5	27.8	-6.7	4.1
Russell 2000 Value	-12.9	7.8	31.7	-7.5	4.2
Excess	-3.3	4.7	-3.9	0.8	-0.1
RUSSELL 2000 VALUE AGGREGATE	-14.7%	10.2%	26.5	-6.5	7.5
Russell 2000 Value	-12.9%	7.8%	31.7	-7.5	4.2
Excess	-1.8%	2.3%	-5.2	1.0	3.3



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Total Passive Domestic Equity										
BLACKROCK RUSSELL 1000	\$21,368,276,572	69.6%	4.2%	10.0%	10.0%				15.2%	11/2016
Russell 1000			4.2	10.0	10.0				15.2	11/2016
Excess			-0.0	-0.0	-0.0				-0.0	
BLACKROCK RUSSELL 2000	594,171,324		2.1						4.8	11/2018
RUSSELL 2000 (DAILY)			2.1						4.7	11/2018
Excess			0.0						0.1	
BLACKROCK RUSSELL 3000 (1)	1,618,759,175	5.3	4.1	9.0	9.0	14.0%	10.2%	14.7%	9.3	07/1995
Passive Manager Benchmark			4.1	9.0	9.0	14.0	10.2	14.7	9.2	07/1995
PASSIVE DOMESTIC EQUITY AGGREGATE	23,581,207,072	76.8	4.2	9.6	9.6	14.1	10.3	14.7		
Passive Domestic Equity Benchmark			4.2	9.6	9.6	14.2	10.3	14.7		
Excess			-0.0	-0.0	-0.0	-0.1	-0.0	-0.0		

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

The passively managed portfolios may, at times, exhibit minimal tracking error from the benchmark as a result of the Sudan and Iran restrictions.



	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>
Total Passive Domestic Equity					
BLACKROCK RUSSELL 1000	-4.8%	21.7%			
Russell 1000	-4.8	21.7			
Excess	-0.0	-0.0			
BLACKROCK RUSSELL 2000					
RUSSELL 2000 (DAILY)					
Excess					
BLACKROCK RUSSELL 3000 (1)	-5.2	21.1	12.7%	0.5%	12.6%
Passive Manager Benchmark	-5.2	21.1	12.7	0.5	12.6
PASSIVE DOMESTIC EQUITY AGGREGATE	-5.0%	21.3%	12.6	0.5	12.6
Passive Domestic Equity Benchmark	-5.0%	21.5%	12.5	0.5	12.6
Excess	-0.0%	-0.2%	0.1	0.0	0.0

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

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International Equity

June 30, 2019



	<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)	\$11,059,767,988	75.1%	4.0%	1.2%	1.2%	9.2%	2.7%	7.5%		
BENCHMARK DM			3.8	1.3	1.3	9.0	2.0	6.7		
Excess			0.2	-0.1	-0.1	0.2	0.6	0.8		
EMERGING MARKETS (2)	3,673,704,208	24.9	0.9	1.2	1.2	9.6	2.1	5.3		
BENCHMARK EM			0.6	1.2	1.2	10.7	2.5	5.8		
Excess			0.3	0.0	0.0	-1.1	-0.4	-0.5		
TRANSITION AGGREGATE INTERNATIONAL EQUITY (3)	1,351,188	0.0								
TOTAL INTERNATIONAL EQUITY (4)	14,734,823,384	100.0	3.2	1.0	1.0	9.3	2.6	7.0	6.4	10/1992
International Equity Benchmark			3.0	1.3	1.3	9.4	2.2	6.5	6.0	10/1992
Excess			0.2	-0.3	-0.3	-0.1	0.4	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) 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. The current International Equity Benchmark is 75% MSCI World ex USA (net) and 25% MSCI Emerging Markets Free (net).

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



	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>
Total International Equity					
DEVELOPED MARKETS (1)	-14.2%	24.9%	1.3%	-0.3%	-4.1%
BENCHMARK DM	-14.1	24.2	2.7	-3.0	-4.3
Excess	-0.1	0.7	-1.5	2.8	0.2
EMERGING MARKETS (2)	-15.4	37.7	7.5	-13.1	-3.8
BENCHMARK EM	-14.6	37.3	11.2	-14.9	-2.2
Excess	-0.8	0.4	-3.7	1.9	-1.6
TRANSITION AGGREGATE INTERNATIONAL EQUITY (3)					
TOTAL INTERNATIONAL EQUITY (4)	-14.5%	27.6%	2.6	-2.9	-4.0
International Equity Benchmark	-14.2%	27.2%	4.5	-5.7	-3.9
Excess	-0.3%	0.4%	-1.8	2.8	-0.2

(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) 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. The current International Equity Benchmark is 75% MSCI World ex USA (net) and 25% MSCI Emerging Markets Free (net).

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	\$387,092,209	2.6%	2.4%	-3.1%	-3.1%	12.5%	5.9%	9.9%	6.4%	07/2005
BENCHMARK DM			3.8	1.3	1.3	9.0	2.0	6.7	4.8	07/2005
Excess			-1.4	-4.4	-4.4	3.5	3.9	3.2	1.6	
COLUMBIA	357,750,606	2.4	6.1	3.0	3.0	11.4	5.0	8.7	3.1	03/2000
BENCHMARK DM			3.8	1.3	1.3	9.0	2.0	6.7	3.4	03/2000
Excess			2.3	1.7	1.7	2.4	3.0	1.9	-0.3	
FIDELITY	387,827,640	2.6	5.8	2.6	2.6	10.0	3.6	8.4	6.4	07/2005
BENCHMARK DM			3.8	1.3	1.3	9.0	2.0	6.7	4.8	07/2005
Excess			2.0	1.3	1.3	1.0	1.6	1.7	1.6	
JP MORGAN	268,233,133	1.8	6.5	3.3	3.3	11.7	3.0	7.5	5.1	07/2005
BENCHMARK DM			3.8	1.3	1.3	9.0	2.0	6.7	4.8	07/2005
Excess			2.7	2.0	2.0	2.7	1.0	0.7	0.3	
MARATHON	458,442,137	3.1	3.6	-0.6	-0.6	8.4	3.2	8.6	7.9	11/1993
BENCHMARK DM			3.8	1.3	1.3	9.0	2.0	6.7	5.0	11/1993
Excess			-0.2	-1.9	-1.9	-0.6	1.1	1.9	2.9	
MCKINLEY	265,224,393	1.8	5.7	-0.5	-0.5	9.5	2.7	7.6	4.7	07/2005
BENCHMARK DM			3.8	1.3	1.3	9.0	2.0	6.7	4.8	07/2005
Excess			1.9	-1.7	-1.7	0.5	0.7	0.8	-0.2	
ACTIVE DEVELOPED MARKETS AGGREGATE	2,124,570,118	14.4	4.8	0.7	0.7	10.4	4.0	8.4		
BENCHMARK DM			3.8	1.3	1.3	9.0	2.0	6.7		
Excess			1.0	-0.6	-0.6	1.4	1.9	1.7		



	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>
Active Developed Markets					
ACADIAN	-13.5%	37.0%	8.1%	2.4%	-1.7%
BENCHMARK DM	-14.1	24.2	2.7	-3.0	-4.3
Excess	0.6	12.8	5.4	5.4	2.6
COLUMBIA	-14.9	32.7	-5.6	6.4	-5.6
BENCHMARK DM	-14.1	24.2	2.7	-3.0	-4.3
Excess	-0.8	8.5	-8.3	9.4	-1.2
FIDELITY	-14.6	25.9	1.2	0.1	-5.6
BENCHMARK DM	-14.1	24.2	2.7	-3.0	-4.3
Excess	-0.5	1.7	-1.5	3.2	-1.3
JP MORGAN	-17.3	28.3	4.0	-4.7	-5.1
BENCHMARK DM	-14.1	24.2	2.7	-3.0	-4.3
Excess	-3.3	4.1	1.2	-1.6	-0.7
MARATHON	-13.4	23.1	-1.1	6.7	-4.0
BENCHMARK DM	-14.1	24.2	2.7	-3.0	-4.3
Excess	0.7	-1.1	-3.8	9.7	0.3
MCKINLEY	-15.9	28.5	-7.5	3.1	-2.7
BENCHMARK DM	-14.1	24.2	2.7	-3.0	-4.3
Excess	-1.9	4.3	-10.2	6.2	1.6
ACTIVE DEVELOPED MARKETS AGGREGATE	-14.5%	28.4%	-0.2	3.2	-4.1
BENCHMARK DM	-14.1%	24.2%	2.7	-3.0	-4.3
Excess	-0.4%	4.2%	-3.0	6.2	0.2



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Semi-Passive Developed Markets										
AQR	\$344,210,381	2.3%	1.7%	-1.9%	-1.9%	7.4%	1.6%	7.3%	5.0%	07/2005
BENCHMARK DM			3.8	1.3	1.3	9.0	2.0	6.7	4.8	07/2005
Excess			-2.1	-3.1	-3.1	-1.6	-0.4	0.5	0.2	
SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE	344,210,381	2.3	1.7	-1.9	-1.9	6.5	0.7	6.5		
BENCHMARK DM			3.8	1.3	1.3	9.0	2.0	6.7		
Excess			-2.1	-3.1	-3.1	-2.5	-1.3	-0.3		



	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>
Semi-Passive Developed Markets					
AQR	-18.2%	25.1%	0.8%	0.9%	-4.4%
BENCHMARK DM	-14.1	24.2	2.7	-3.0	-4.3
Excess	-4.1	0.9	-2.0	3.9	-0.1
SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE					
SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE	-18.7%	23.3%	-0.4	-0.3	-4.4
BENCHMARK DM	-14.1%	24.2%	2.7	-3.0	-4.3
Excess	-4.6%	-0.9%	-3.1	2.7	-0.1



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Total Developed Markets										
ACTIVE DEVELOPED MARKETS AGGREGATE	\$2,124,570,118	14.4%	4.8%	0.7%	0.7%	10.4%	4.0%	8.4%		
BENCHMARK DM			3.8	1.3	1.3	9.0	2.0	6.7		
Excess			1.0	-0.6	-0.6	1.4	1.9	1.7		
SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE	344,210,381	2.3	1.7	-1.9	-1.9	6.5	0.7	6.5		
BENCHMARK DM			3.8	1.3	1.3	9.0	2.0	6.7		
Excess			-2.1	-3.1	-3.1	-2.5	-1.3	-0.3		
SSgA DEVELOPED MARKETS PASSIVE	8,590,987,490	58.3	3.9	1.6	1.6	9.3	2.4	7.2	6.2	10/1992
BENCHMARK DM			3.8	1.3	1.3	9.0	2.0	6.7	5.8	10/1992
Excess			0.1	0.3	0.3	0.3	0.4	0.4	0.3	
DEVELOPED MARKETS TOTAL	11,059,767,988	75.1	4.0	1.2	1.2	9.2	2.7	7.5		
BENCHMARK DM			3.8	1.3	1.3	9.0	2.0	6.7		
Excess			0.2	-0.1	-0.1	0.2	0.6	0.8		



	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>
Total Developed Markets					
ACTIVE DEVELOPED MARKETS AGGREGATE	-14.5%	28.4%	-0.2%	3.2%	-4.1%
BENCHMARK DM	-14.1	24.2	2.7	-3.0	-4.3
Excess	-0.4	4.2	-3.0	6.2	0.2
SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE	-18.7	23.3	-0.4	-0.3	-4.4
BENCHMARK DM	-14.1	24.2	2.7	-3.0	-4.3
Excess	-4.6	-0.9	-3.1	2.7	-0.1
SSgA DEVELOPED MARKETS PASSIVE	-13.9%	24.7%	3.2	-2.6	-3.9
BENCHMARK DM	-14.1%	24.2%	2.7	-3.0	-4.3
Excess	0.2%	0.5%	0.4	0.5	0.4
DEVELOPED MARKETS TOTAL	-14.2%	24.9%	1.3	-0.3	-4.1
BENCHMARK DM	-14.1%	24.2%	2.7	-3.0	-4.3
Excess	-0.1%	0.7%	-1.5	2.8	0.2



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Emerging Markets										
EARNEST PARTNERS	\$311,119,663	2.1%	1.1%	5.8%	5.8%				7.7%	04/2017
MSCI EMERGING MARKETS			0.6	1.2	1.2				7.0	04/2017
Excess			0.5	4.6	4.6				0.7	
MARTIN CURRIE	336,626,192	2.3	0.9	-0.2	-0.2				10.2	04/2017
BENCHMARK EM			0.6	1.2	1.2				7.0	04/2017
Excess			0.3	-1.4	-1.4				3.2	
MACQUARIE	317,514,684	2.2	-0.8	0.9	0.9				7.2	04/2017
BENCHMARK EM			0.6	1.2	1.2				7.0	04/2017
Excess			-1.4	-0.3	-0.3				0.2	
MORGAN STANLEY	607,113,200	4.1	3.0	1.6	1.6	8.5%	2.4%	6.2%	9.3	01/2001
BENCHMARK EM			0.6	1.2	1.2	10.7	2.5	5.8	9.0	01/2001
Excess			2.4	0.4	0.4	-2.1	-0.1	0.4	0.2	
NEUBERGER BERMAN	318,171,979	2.2	1.0	-0.1	-0.1				7.4	04/2017
BENCHMARK EM			0.6	1.2	1.2				7.0	04/2017
Excess			0.3	-1.3	-1.3				0.4	
PZENA	296,439,755	2.0	-0.2	2.4	2.4				4.5	04/2017
BENCHMARK EM			0.6	1.2	1.2				7.0	04/2017
Excess			-0.8	1.1	1.1				-2.5	
ROCK CREEK	294,712,515	2.0	1.7	-0.9	-0.9				4.2	04/2017
BENCHMARK EM			0.6	1.2	1.2				7.0	04/2017
Excess			1.1	-2.1	-2.1				-2.8	



	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>
Active Emerging Markets					
EARNEST PARTNERS	-15.4%				
MSCI EMERGING MARKETS	-14.6				
Excess	-0.8				
MARTIN CURRIE	-16.6				
BENCHMARK EM	-14.6				
Excess	-2.0				
MACQUARIE	-13.3				
BENCHMARK EM	-14.6				
Excess	1.3				
MORGAN STANLEY	-16.7	37.9%	6.1%	-9.4%	-2.5%
BENCHMARK EM	-14.6	37.3	11.2	-14.9	-2.2
Excess	-2.2	0.6	-5.1	5.5	-0.3
NEUBERGER BERMAN	-17.1				
BENCHMARK EM	-14.6				
Excess	-2.6				
PZENA	-10.8				
BENCHMARK EM	-14.6				
Excess	3.8				
ROCK CREEK	-17.6				
BENCHMARK EM	-14.6				
Excess	-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	\$2,481,697,987	16.8%	1.2%	1.4%	1.4%	8.7%	1.7%	5.0%		
BENCHMARK EM			0.6	1.2	1.2	10.7	2.5	5.8		
Excess			0.6	0.1	0.1	-1.9	-0.8	-0.8		
SSGA EMERGING MARKETS PASSIVE	1,192,006,221	8.1	0.4	1.1	1.1	10.5	2.6		4.5	01/2012
BENCHMARK EM			0.6	1.2	1.2	10.7	2.5		4.4	01/2012
Excess			-0.2	-0.1	-0.1	-0.1	0.1		0.1	
EMERGING MARKETS TOTAL	3,673,704,208	24.9	0.9	1.2	1.2	9.6	2.1	5.3		
BENCHMARK EM			0.6	1.2	1.2	10.7	2.5	5.8		
Excess			0.3	0.0	0.0	-1.1	-0.4	-0.5		



	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>
Total Emerging Markets					
ACTIVE EMERGING MARKETS AGGREGATE	-15.6%	37.2%	5.3%	-12.7%	-4.1%
BENCHMARK EM	-14.6	37.3	11.2	-14.9	-2.2
Excess	-1.0	-0.1	-5.9	2.2	-2.0
SSGA EMERGING MARKETS PASSIVE	-14.7%	37.4%	11.1	-14.6	-2.1
BENCHMARK EM	-14.6%	37.3%	11.2	-14.9	-2.2
Excess	-0.1%	0.1%	-0.1	0.3	0.0
EMERGING MARKETS TOTAL	-15.4%	37.7%	7.5	-13.1	-3.8
BENCHMARK EM	-14.6%	37.3%	11.2	-14.9	-2.2
Excess	-0.8%	0.4%	-3.7	1.9	-1.6

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Fixed Income

June 30, 2019



	<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 Fixed Income										
ACTIVE FIXED INCOME AGGREGATE	\$4,266,752,168	56.1%	3.2%	8.3%	8.3%	3.5%	3.7%	5.4%		
BBG BARC Agg (Dly)			3.1	7.9	7.9	2.3	2.9	3.9		
Excess			0.1	0.5	0.5	1.2	0.7	1.6		
SEMI PASSIVE FIXED INCOME AGGREGATE	3,333,569,816	43.9	3.1	8.0	8.0	2.5	3.1	4.5		
BBG BARC Agg (Dly)			3.1	7.9	7.9	2.3	2.9	3.9		
Excess			0.1	0.1	0.1	0.2	0.2	0.6		
TRANSITION AGGREGATE FIXED INCOME (1)	18,178	0.0								
TOTAL FIXED INCOME (2)	7,600,340,162	100.0	3.2	8.2	8.2	3.0	3.4	5.0	7.5	07/1984
Fixed Income Benchmark			3.1	7.9	7.9	2.3	2.9	3.9	7.2	07/1984
Excess			0.1	0.3	0.3	0.7	0.4	1.1	0.4	

(1) The Transition Aggregate Fixed Income includes fixed income securities that are being transition to a different manager.

(2) The current Fixed Income 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>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>
Total Fixed Income					
ACTIVE FIXED INCOME AGGREGATE	0.0%	4.7%	4.4%	0.6%	6.2%
BBG BARC Agg (Dly)	0.0	3.5	2.6	0.5	6.0
Excess	-0.0	1.2	1.7	0.0	0.2
SEMI PASSIVE FIXED INCOME AGGREGATE	-0.1	3.7	2.8	0.8	6.1
BBG BARC Agg (Dly)	0.0	3.5	2.6	0.5	6.0
Excess	-0.1	0.2	0.2	0.2	0.1
TRANSITION AGGREGATE FIXED INCOME (1)					
TOTAL FIXED INCOME (2)	-0.0%	4.2%	3.6	0.7	6.1
Fixed Income Benchmark	0.0%	3.5%	2.6	0.5	6.0
Excess	-0.1%	0.7%	0.9	0.1	0.2

(1) The Transition Aggregate Fixed Income includes fixed income securities that are being transition to a different manager.

(2) The current Fixed Income 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 Fixed Income Managers										
COLUMBIA	\$1,061,565,987	14.0%	3.6%	8.9%	8.9%	3.8%	3.9%	5.2%	5.4%	07/1993
BBG BARC Agg (Dly)			3.1	7.9	7.9	2.3	2.9	3.9	5.2	07/1993
Excess			0.5	1.0	1.0	1.5	0.9	1.3	0.2	
DODGE & COX	1,152,734,482	15.2	2.9	7.6	7.6	3.6	3.4	5.2	6.0	02/2000
BBG BARC Agg (Dly)			3.1	7.9	7.9	2.3	2.9	3.9	5.1	02/2000
Excess			-0.2	-0.2	-0.2	1.3	0.4	1.3	1.0	
PIMCO	953,784,717	12.5	3.0	8.1	8.1	3.0	3.4	5.3	5.6	10/2008
BBG BARC Agg (Dly)			3.1	7.9	7.9	2.3	2.9	3.9	4.2	10/2008
Excess			-0.1	0.3	0.3	0.7	0.5	1.4	1.3	
WESTERN	1,098,666,982	14.5	3.3	8.7	8.7	3.8	4.0	5.8	8.3	07/1984
BBG BARC Agg (Dly)			3.1	7.9	7.9	2.3	2.9	3.9	7.2	07/1984
Excess			0.2	0.8	0.8	1.5	1.0	1.9	1.1	
ACTIVE FIXED INCOME AGGREGATE	4,266,752,168	56.1	3.2	8.3	8.3	3.5	3.7	5.4		
BBG BARC Agg (Dly)			3.1	7.9	7.9	2.3	2.9	3.9		
Excess			0.1	0.5	0.5	1.2	0.7	1.6		



	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>
Active Fixed Income Managers					
COLUMBIA	0.2%	4.8%	5.2%	0.2%	5.8%
BBG BARC Agg (Dly)	0.0	3.5	2.6	0.5	6.0
Excess	0.2	1.2	2.6	-0.4	-0.2
DODGE & COX	-0.0	4.2	4.8	0.3	6.0
BBG BARC Agg (Dly)	0.0	3.5	2.6	0.5	6.0
Excess	-0.1	0.7	2.2	-0.3	0.0
PIMCO	0.4	4.4	2.8	1.0	5.5
BBG BARC Agg (Dly)	0.0	3.5	2.6	0.5	6.0
Excess	0.4	0.8	0.2	0.4	-0.4
WESTERN	-0.2	5.6	4.9	0.7	7.0
BBG BARC Agg (Dly)	0.0	3.5	2.6	0.5	6.0
Excess	-0.3	2.1	2.2	0.1	1.0
ACTIVE FIXED INCOME AGGREGATE	0.0%	4.7%	4.4	0.6	6.2
BBG BARC Agg (Dly)	0.0%	3.5%	2.6	0.5	6.0
Excess	-0.0%	1.2%	1.7	0.0	0.2



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Semi Passive Fixed Income Managers										
BLACKROCK	\$1,062,423,000	14.0%	3.1%	8.1%	8.1%	2.5%	3.1%	4.3%	5.3%	04/1996
BBG BARC Agg (Dly)			3.1	7.9	7.9	2.3	2.9	3.9	5.2	04/1996
Excess			0.1	0.3	0.3	0.2	0.2	0.4	0.1	
GOLDMAN SACHS	1,167,660,903	15.4	3.1	7.9	7.9	2.6	3.2	4.6	5.6	07/1993
BBG BARC Agg (Dly)			3.1	7.9	7.9	2.3	2.9	3.9	5.2	07/1993
Excess			0.1	0.0	0.0	0.3	0.2	0.7	0.3	
NEUBERGER	1,103,485,913	14.5	3.1	8.0	8.0	2.4	3.1	4.7	6.4	07/1988
BBG BARC Agg (Dly)			3.1	7.9	7.9	2.3	2.9	3.9	6.2	07/1988
Excess			0.0	0.1	0.1	0.0	0.1	0.8	0.2	
SEMI PASSIVE FIXED INCOME	3,333,569,816	43.9	3.1	8.0	8.0	2.5	3.1	4.5		
BBG BARC Agg (Dly)			3.1	7.9	7.9	2.3	2.9	3.9		
Excess			0.1	0.1	0.1	0.2	0.2	0.6		



	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>
Semi Passive Fixed Income Managers					
BLACKROCK	-0.1%	3.7%	2.8%	0.9%	6.0%
BBG BARC Agg (Dly)	0.0	3.5	2.6	0.5	6.0
Excess	-0.2	0.1	0.1	0.3	0.0
GOLDMAN SACHS	-0.0	3.9	3.0	0.8	6.1
BBG BARC Agg (Dly)	0.0	3.5	2.6	0.5	6.0
Excess	-0.0	0.4	0.3	0.2	0.1
NEUBERGER	-0.1	3.6	2.7	0.7	6.1
BBG BARC Agg (Dly)	0.0	3.5	2.6	0.5	6.0
Excess	-0.1	0.0	0.1	0.2	0.2
SEMI PASSIVE FIXED INCOME	-0.1%	3.7%	2.8	0.8	6.1
BBG BARC Agg (Dly)	0.0%	3.5%	2.6	0.5	6.0
Excess	-0.1%	0.2%	0.2	0.2	0.1

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Treasuries

June 30, 2019



	<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	\$2,390,321,616	33.3%	4.5%	10.3%	10.3%				7.3%	02/2018
BBG BARC 5Y + Us Tsy Idx			4.6	10.4	10.4				7.5	02/2018
Excess			-0.1	-0.2	-0.2				-0.1	
GOLDMAN SACHS	2,377,985,597	33.2	4.6	10.3	10.3				7.4	02/2018
BBG BARC 5Y + Us Tsy Idx			4.6	10.4	10.4				7.5	02/2018
Excess			0.1	-0.1	-0.1				-0.0	
NEUBERGER	2,400,010,589	33.5	4.5	10.2	10.2				7.3	02/2018
BBG BARC 5Y + Us Tsy Idx			4.6	10.4	10.4				7.5	02/2018
Excess			-0.0	-0.2	-0.2				-0.2	
TREASURIES TRANSITION ACCOUNT	0	0.0								
TOTAL TREASURIES	7,168,317,802	100.0	4.5	10.3	10.3				7.4%	02/2018
BBG BARC 5Y + Us Tsy Idx			4.6	10.4	10.4				7.5%	02/2018
Excess			-0.0	-0.1	-0.1				-0.1%	



	<u>2018 Calendar Return</u>	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>
Treasuries Managers					
BLACKROCK					
BBG BARC 5Y + Us Tsy Idx					
Excess					
GOLDMAN SACHS					
BBG BARC 5Y + Us Tsy Idx					
Excess					
NEUBERGER					
BBG BARC 5Y + Us Tsy Idx					
Excess					
TOTAL TREASURIES					
BBG BARC 5Y + Us Tsy Idx					
Excess					

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Private Markets

June 30, 2019



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	2.8%	10.4%	10.4%	14.9%	10.4%	12.5%	12.6%	13.6%	12.2%
Private Equity	5.0%	14.4%	14.4%	17.6%	14.3%	15.9%	13.5%	15.4%	
Private Credit	1.9	10.6	10.6	14.2	13.2	13.4	12.5		
Resources	-2.6	0.9	0.9	10.2	-1.8	5.5	15.5	14.5	
Real Estate	3.1	9.1	9.1	9.6	11.3	8.6	8.8	9.5	

Private Markets

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

Private Equity Investments

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

Private Credit Investments

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

Resource Investments

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

Real Estate Investments

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

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

**Minnesota State Board of Investment
- Alternative Investments -**

As of June 30, 2019

Investment	Total Commitment	Total Contribution	Market Value	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
I. PRIVATE EQUITY								
Adams Street Partners								
<i>Adams Street Global Secondary Fund 5</i>	100,000,000	76,529,750	53,902,821	38,701,321	23,470,250	6.14	1.21	6.78
<i>Adams Street Global Secondary Fund 6</i>	100,000,000	11,200,000	11,543,494	1,214,007	88,800,000	25.38	1.14	2.00
Advent International								
<i>Advent International GPE VI</i>	50,000,000	52,993,313	9,704,411	99,117,913	0	16.96	2.05	11.00
<i>Advent International GPE VII</i>	90,000,000	84,690,641	75,004,405	76,034,048	5,400,000	16.19	1.78	6.54
<i>Advent International GPE VIII</i>	100,000,000	84,100,000	97,562,728	0	15,900,000	11.11	1.16	3.15
<i>Advent International GPE IX</i>	115,000,000	0	0	0	115,000,000	0.00	0.00	0.14
Affinity Ventures								
<i>Affinity Ventures IV</i>	4,000,000	4,000,000	576,089	1,541,970	0	-11.71	0.53	14.76
<i>Affinity Ventures V</i>	5,000,000	5,000,000	2,263,538	1,706,245	0	-4.07	0.79	10.75
APAX Partners								
<i>Apax VIII - USD</i>	200,000,000	222,011,295	130,148,428	211,796,833	14,644,515	14.03	1.54	6.07
<i>Apax IX - USD</i>	150,000,000	72,867,205	94,704,841	3,944,404	81,077,199	21.01	1.35	2.86
Arsenal Capital Partners								
<i>Arsenal Fund V</i>	75,000,000	0	0	0	75,000,000	0.00	0.00	0.24
Asia Alternatives								
<i>Asia Alternatives Capital Partners V</i>	96,665,054	14,564,710	10,156,916	289,056	82,385,202	-37.10	0.72	1.75
Banc Fund								
<i>Banc Fund VIII</i>	98,250,000	98,250,000	69,662,533	142,853,973	0	13.48	2.16	10.94
<i>Banc Fund IX</i>	107,205,932	107,205,932	113,653,190	17,673,634	0	7.40	1.22	4.81
<i>Banc Fund X</i>	71,110,909	22,830,545	21,858,535	0	48,280,364	-8.84	0.96	0.91
BlackRock								
<i>BlackRock Long Term Capital</i>	250,000,000	0	0	0	250,000,000	0.00	0.00	0.25
Blackstone Capital Partners								
<i>Blackstone Capital Partners IV</i>	70,000,000	84,429,831	3,076,227	198,697,669	1,862,355	37.03	2.39	16.73

Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
<i>Blackstone Capital Partners V</i>	140,000,000	152,169,559	6,102,292	237,565,752	7,027,560	7.95	1.60	13.16
<i>Blackstone Capital Partners VI</i>	100,000,000	103,491,189	88,138,191	78,454,884	13,199,714	13.15	1.61	10.69
<i>Blackstone Capital Partners VII</i>	130,000,000	75,491,797	81,023,331	7,693,243	64,800,687	14.22	1.18	3.75
<i>Blackstone Capital Partners VIII</i>	150,000,000	0	0	0	150,000,000	0.00	0.00	0.25
Blackstone Strategic Partners (CSFB/ DLJ)								
<i>Strategic Partners III VC</i>	25,000,000	24,998,952	2,981,276	31,145,688	1,067,943	6.05	1.37	13.84
<i>Strategic Partners III-B</i>	100,000,000	79,488,031	4,261,237	114,448,044	14,934,308	6.38	1.49	13.84
<i>Strategic Partners IV VC</i>	40,500,000	41,058,721	9,747,180	53,616,011	2,439,627	9.43	1.54	11.02
<i>Strategic Partners IV-B</i>	100,000,000	99,017,142	9,746,794	143,932,425	17,798,494	12.23	1.55	10.79
<i>Strategic Partners V</i>	100,000,000	84,043,533	19,909,727	115,882,823	38,034,796	19.15	1.62	7.62
<i>Strategic Partners VI</i>	150,000,000	94,961,080	54,003,596	90,242,956	60,956,184	18.22	1.52	4.96
<i>Strategic Partners VII</i>	150,000,000	94,176,314	114,291,115	16,118,810	68,912,171	28.86	1.38	2.27
<i>Strategic Partners VIII</i>	150,000,000	7,951,243	7,951,243	0	142,048,757	0.00	1.00	0.50
Bridgepoint								
<i>Bridgepoint Europe VI</i>	170,691,984	9,854,501	7,883,738	0	160,837,483	-20.00	0.80	1.03
Brookfield Asset Management								
<i>Brookfield Capital Partners Fund IV</i>	100,000,000	90,760,734	89,588,356	110,229,853	27,499,345	59.43	2.20	3.55
<i>Brookfield Capital Partners V</i>	250,000,000	0	-1,017,621	0	250,000,000	0.00	0.00	0.68
Cardinal Partners								
<i>DSV Partners IV</i>	10,000,000	10,000,000	30,883	39,196,082	0	10.61	3.92	34.26
Carlyle Group								
<i>Carlyle Partners VII</i>	150,000,000	22,095,608	18,634,883	0	127,904,392	-20.44	0.84	1.29
Chicago Growth Partners (William Blair)								
<i>William Blair Capital Partners VII</i>	50,000,000	48,150,000	1,075,428	69,201,191	1,650,000	8.60	1.46	18.07
<i>Chicago Growth Partners I</i>	50,000,000	52,441,998	1,873,424	54,532,745	300,000	1.70	1.08	13.69
<i>Chicago Growth Partners II</i>	60,000,000	58,347,626	3,441,868	121,871,703	1,652,374	19.76	2.15	11.06
Court Square Capital Partners								
<i>Court Square Capital Partners II</i>	175,000,000	170,186,067	18,395,992	293,299,965	16,176,139	12.92	1.83	12.57
<i>Court Square Capital Partners III</i>	175,000,000	180,618,546	173,531,817	91,142,790	13,624,629	18.23	1.47	6.83
<i>Court Square Capital Partners IV</i>	150,000,000	0	0	0	150,000,000	0.00	0.00	0.89
Crescendo								
<i>Crescendo IV</i>	101,500,000	103,101,226	2,145,317	55,121,736	0	-4.79	0.56	19.07
CVC Capital Partners								
<i>CVC European Equity Partners V</i>	133,942,741	153,756,444	26,938,137	260,306,257	1,626,479	16.41	1.87	11.02

Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
<i>CVC Capital Partners VI</i>	258,298,579	255,492,099	260,188,310	76,191,255	51,621,020	12.63	1.32	5.73
Elevation Partners								
<i>Elevation Partners</i>	75,000,000	73,237,580	144,367	113,492,106	799,634	11.81	1.55	13.88
GHJM								
<i>TrailHead Fund</i>	20,000,000	16,070,803	34,369,639	6,406,955	3,935,813	19.49	2.54	7.10
Glouston Capital Partners**								
<i>Glouston Private Equity Opportunities Fund IV</i>	5,337,098	4,376,198	1,300,762	3,457,751	1,090,000	3.73	1.09	4.25
GS Capital Partners								
<i>GS Capital Partners V</i>	100,000,000	74,319,006	1,092,872	191,435,136	1,041,099	18.26	2.59	14.00
<i>GS Capital Partners VI</i>	100,000,000	109,807,690	13,296,247	130,385,768	2,801,717	7.28	1.31	12.16
<i>GS Vintage VII</i>	100,000,000	68,395,888	69,623,518	11,282,171	42,963,816	17.96	1.18	2.75
<i>West Street Capital Partners VII</i>	150,000,000	51,153,586	41,100,369	12,491,195	110,258,025	3.42	1.05	2.27
<i>GS China-US Cooperation Fund</i>	99,800,000	10,154,445	8,603,918	0	89,820,000	-15.27	0.85	0.87
GTCR								
<i>GTCR IX</i>	75,000,000	71,414,933	165,020	128,764,150	3,585,067	13.77	1.81	12.75
<i>GTCR X</i>	100,000,000	103,907,821	20,799,688	188,348,914	6,751,396	21.53	2.01	8.31
<i>GTCR XI</i>	110,000,000	97,445,726	92,206,797	66,755,383	13,716,556	22.50	1.63	5.37
HarbourVest**								
<i>Dover Street VII Cayman Fund</i>	2,198,112	2,072,893	314,508	1,584,581	132,416	-4.28	0.92	4.25
<i>HarbourVest Intl PE Partners V-Cayman US</i>	3,522,813	3,344,847	721,576	3,589,077	182,208	12.99	1.29	4.25
<i>Harbourvest Intl PE Partners VI-Cayman</i>	4,237,153	3,999,555	3,799,442	2,446,132	239,148	15.93	1.56	4.25
<i>HarbourVest Partners VIII Cayman Buyout</i>	4,506,711	4,298,488	1,595,542	4,240,871	234,000	14.14	1.36	4.25
<i>HarbourVest Partners VIII-Cayman Venture</i>	7,190,898	7,079,986	3,820,778	5,356,802	140,000	9.16	1.30	4.25
Hellman & Friedman								
<i>Hellman & Friedman Capital Partners VI</i>	175,000,000	171,037,755	11,149,880	309,138,681	5,084,864	13.03	1.87	12.01
<i>Hellman & Friedman Capital Partners VII</i>	50,000,000	49,759,311	67,642,880	62,974,408	2,343,044	24.64	2.62	9.95
<i>Hellman & Friedman Investors IX</i>	175,000,000	0	-313,512	0	172,258,308	0.00	0.00	0.75
IK Investment Partners								
<i>IK Fund VII</i>	180,337,770	177,717,768	183,148,220	104,167,821	8,128,847	13.78	1.62	5.55
<i>IK Fund VIII</i>	172,120,601	125,184,424	146,370,930	2,213,957	49,082,080	12.63	1.19	2.69
Kohlberg Kravis Roberts								
<i>KKR Millennium Fund</i>	200,000,000	205,167,570	178,659	424,946,028	0	16.37	2.07	16.32
<i>KKR 2006 Fund</i>	200,000,000	218,952,911	61,498,848	315,358,398	3,360,223	8.98	1.72	12.51
<i>KKR Americas Fund XII</i>	150,000,000	61,091,605	63,225,469	988,851	89,511,167	5.88	1.05	3.07

Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
<i>KKR Asian Fund III</i>	100,000,000	36,559,631	38,622,892	0	63,499,193	9.00	1.06	2.00
<i>KKR Europe V</i>	100,000,000	0	0	0	100,000,000	0.00	0.00	0.65
Leonard Green & Partners								
<i>Green Equity Investors VI</i>	200,000,000	215,919,566	213,155,198	143,815,738	20,574,386	15.59	1.65	7.04
Lexington Capital Partners								
<i>Lexington Capital Partners VI</i>	100,000,000	98,374,022	9,113,811	136,577,361	1,634,703	7.95	1.48	13.27
<i>Lexington Capital Partners VII</i>	200,000,000	172,466,709	51,325,173	220,490,869	38,059,995	14.64	1.58	10.22
<i>Lexington Capital Partners VIII</i>	150,000,000	127,263,490	110,116,433	54,736,720	37,620,383	18.70	1.30	5.08
<i>Lexington Co-Investment Partners IV</i>	200,000,000	131,326,240	137,748,821	6,715,339	75,389,099	11.63	1.10	2.66
<i>Lexington Middle Market Investors IV</i>	100,000,000	11,023,441	10,622,751	1,458,011	88,976,559	0.00	1.10	2.27
<i>Lexington Capital Partners IX</i>	150,000,000	0	4,498,002	0	150,000,000	0.00	0.00	0.73
Madison Dearborn Capital Partners								
<i>Madison Dearborn Capital Partners VII</i>	100,000,000	67,396,018	71,741,418	5,817,652	38,393,836	9.15	1.15	3.28
Neuberger Berman								
<i>Dyal Capital Partners III</i>	175,000,000	154,683,944	101,280,011	95,399,724	112,982,304	26.35	1.27	3.95
<i>Dyal Capital Partners IV</i>	250,000,000	12,408,973	9,291,800	3,803,147	241,250,918	5.73	1.06	0.98
Nordic Capital								
<i>Nordic Capital Fund VIII</i>	178,477,173	190,003,473	157,264,890	114,939,555	104,451,774	13.62	1.43	5.55
<i>Nordic Capital Fund IX Beta</i>	170,622,102	27,277,658	33,899,055	0	143,344,444	46.17	1.24	1.95
North Sky Capital**								
<i>North Sky Capital LBO Fund III</i>	1,070,259	720,259	300,141	708,259	350,000	13.95	1.40	4.25
<i>North Sky Capital Venture Fund III</i>	1,384,080	1,277,830	381,065	1,219,519	106,250	10.47	1.25	4.25
Oak Hill Capital Management, Inc.								
<i>Oak Hill Capital Partners IV</i>	150,000,000	102,244,567	93,266,820	28,267,962	69,551,869	31.13	1.19	2.30
<i>Oak Hill Capital Partners V</i>	100,000,000	0	0	0	100,000,000	0.00	0.00	0.56
Paine Schwartz								
<i>Paine Schwartz IV</i>	75,000,000	55,214,709	54,802,423	14,823,737	20,858,445	10.19	1.26	4.30
<i>Paine Schwartz V</i>	150,000,000	0	-1,403,561	0	150,000,000	0.00	0.00	0.91
Permira								
<i>Permira V</i>	177,534,603	171,146,581	208,221,956	83,631,687	25,384,767	15.53	1.71	5.25
<i>Permira VI</i>	137,055,758	92,507,453	104,315,059	0	44,548,305	10.79	1.13	2.68
<i>Permira VII</i>	142,350,048	0	0	0	142,350,048	0.00	0.00	0.08
Public Pension Capital Management								
<i>Public Pension Capital</i>	150,000,000	79,633,866	75,135,151	44,315,075	80,350,177	21.95	1.50	4.87

Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
RWI Ventures								
<i>RWI Ventures I</i>	7,603,265	7,603,265	453,038	6,122,274	0	-4.09	0.86	12.76
Silver Lake Partners								
<i>Silver Lake Partners II</i>	100,000,000	90,200,747	912,328	171,246,452	11,771,953	11.04	1.91	14.75
<i>Silver Lake Partners III</i>	100,000,000	91,865,976	19,915,095	174,273,455	10,559,311	17.93	2.11	12.01
<i>Silver Lake Partners IV</i>	100,000,000	108,966,844	137,886,690	60,600,091	7,057,636	26.46	1.82	6.51
<i>Silver Lake Partners V</i>	135,000,000	54,186,798	57,066,935	0	66,780,621	7.64	1.05	2.00
Split Rock Partners								
<i>Split Rock Partners</i>	50,000,000	47,890,906	6,074,471	56,816,177	2,109,094	3.36	1.31	13.92
<i>Split Rock Partners II</i>	60,000,000	59,165,000	29,133,475	47,174,545	835,000	5.50	1.29	10.93
Summit Partners								
<i>Summit Partners Growth Equity Fund VIII</i>	100,000,000	115,015,327	68,829,457	157,829,723	24,040,551	24.99	1.97	7.91
<i>Summit Partners Growth Equity Fund IX</i>	100,000,000	76,850,000	78,408,823	9,973,626	33,123,626	17.19	1.15	3.59
<i>Summit Partners Growth Equity Fund X</i>	150,000,000	0	0	0	150,000,000	0.00	0.00	0.32
Thoma Bravo								
<i>Thoma Bravo Fund XII</i>	75,000,000	72,161,313	85,800,882	2,298,018	5,207,940	12.38	1.22	2.56
<i>Thoma Bravo Fund XIII</i>	150,000,000	53,586,862	53,256,553	0	96,413,138	-0.99	0.99	1.00
Thoma Cressey								
<i>Thoma Cressey Fund VII</i>	50,000,000	50,000,000	468,920	107,057,940	0	23.59	2.15	18.61
<i>Thoma Cressey Fund VIII</i>	70,000,000	69,577,712	457,758	202,471,763	770,000	18.27	2.92	12.92
Thomas H. Lee Partners								
<i>Thomas H. Lee Equity Fund VII</i>	100,000,000	96,075,814	102,863,280	30,607,993	12,690,548	23.47	1.39	3.56
<i>Thomas H. Lee Equity Fund VIII</i>	150,000,000	3,908,094	1,705,856	0	146,091,906	-56.35	0.44	1.00
Thomas, McNerney & Partners								
<i>Thomas, McNerney & Partners I</i>	30,000,000	30,000,000	6,987,335	15,087,143	0	-4.27	0.74	16.41
<i>Thomas, McNerney & Partners II</i>	50,000,000	48,125,000	7,979,476	103,648,037	1,875,000	16.65	2.32	12.75
TPG Capital								
<i>TPG Partners VII</i>	100,000,000	90,994,420	97,638,555	17,515,734	16,597,098	15.47	1.27	3.56
<i>TPG Partners VIII</i>	150,000,000	0	0	0	150,000,000	0.00	0.00	1.01
Vestar Capital Partners								
<i>Vestar Capital Partners IV</i>	55,000,000	55,652,024	747,071	102,273,825	57,313	14.65	1.85	19.30
<i>Vestar Capital Partners V</i>	75,000,000	76,456,520	9,520,459	90,693,238	0	3.89	1.31	13.29
<i>Vestar Capital Partners VI</i>	100,000,000	106,195,246	68,301,014	118,359,663	1,821,992	26.69	1.76	7.52
<i>Vestar Capital Partners VII</i>	150,000,000	26,562,663	23,431,483	0	123,437,337	-17.76	0.88	1.29

Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
Warburg Pincus								
<i>Warburg Pincus Equity Partners</i>	100,000,000	100,000,000	386,522	163,542,253	0	10.03	1.64	20.77
<i>Warburg Pincus Private Equity VIII</i>	100,000,000	100,373,266	1,392,922	228,271,451	0	14.76	2.29	16.97
<i>Warburg Pincus Private Equity IX</i>	100,000,000	100,000,000	6,021,559	168,124,301	0	9.76	1.74	13.68
<i>Warburg Pincus Private Equity X</i>	150,000,000	150,000,000	56,970,774	180,343,550	0	8.14	1.58	11.44
<i>Warburg Pincus Private Equity XI</i>	200,000,000	200,299,952	179,449,542	145,134,148	0	13.85	1.62	6.27
<i>Warburg Pincus Private Equity XII</i>	131,000,000	102,376,500	114,023,133	5,740,813	28,623,500	9.73	1.17	3.36
<i>Warburg Pincus China</i>	45,000,000	38,115,000	40,697,959	3,899,250	8,820,000	13.82	1.17	2.30
<i>Warburg Pincus Financial Sector</i>	90,000,000	41,620,808	34,594,762	4,590,000	52,830,000	-10.95	0.94	1.29
<i>Warburg Pincus Global Growth</i>	250,000,000	2,897,089	2,195,811	0	247,000,000	-24.16	0.76	0.61
<i>Warburg Pincus China-Southeast Asia II</i>	50,000,000	1,750,000	1,750,000	0	48,250,000	0.00	1.00	0.07
Wellspring Capital Partners								
<i>Wellspring Capital Partners VI</i>	125,000,000	35,440,817	33,011,491	0	89,559,183	-21.17	0.93	2.55
Welsh, Carson, Anderson & Stowe								
<i>Welsh, Carson, Anderson & Stowe XI</i>	100,000,000	100,000,000	35,364,295	129,502,945	0	12.38	1.65	10.70
<i>Welsh, Carson, Anderson & Stowe XII</i>	150,000,000	125,826,129	135,669,422	53,574,205	24,173,871	23.24	1.50	4.28
<i>Welsh, Carson, Anderson & Stowe XIII</i>	250,000,000	1,833,825	494,427	0	248,166,175	-73.04	0.27	1.01
Windjammer Capital Investors								
<i>Windjammer Mezzanine & Equity Fund II</i>	66,708,861	55,215,684	66,484	84,876,800	10,139,363	8.94	1.54	19.01
<i>Windjammer Senior Equity Fund III</i>	75,000,000	62,684,411	401,894	154,618,016	13,380,380	19.55	2.47	13.24
<i>Windjammer Senior Equity Fund IV</i>	100,000,000	89,524,405	116,213,120	19,278,060	18,397,478	12.11	1.51	7.10
<i>Windjammer Senior Equity Fund V</i>	100,000,000	2,718,972	505,479	0	97,281,028	-90.47	0.19	1.36
Private Equity Total	14,760,222,504	9,151,482,240	5,621,288,944	8,715,856,266	6,390,929,913	12.68	1.58	

II. PRIVATE CREDIT

Audax Group

<i>Audax Mezzanine Fund III</i>	100,000,000	96,267,884	16,920,264	106,333,207	5,369,457	9.12	1.28	8.99
<i>Audax Mezzanine Fund IV</i>	100,000,000	42,270,178	31,501,527	14,790,221	59,697,426	9.04	1.10	3.98

BlackRock

<i>BlackRock Middle Market Senior Fund</i>	97,500,000	28,682,443	28,229,576	0	68,817,557	-1.86	0.98	0.96
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Crescent Capital Group

<i>TCW/Crescent Mezzanine Partners III</i>	75,000,000	79,161,593	227,398	159,230,122	29,733,852	35.87	2.01	18.01
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Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
Energy Capital Partners								
<i>Energy Capital Credit Solutions II</i>	100,000,000	0	0	0	100,000,000	0.00	0.00	0.50
GS Mezzanine Partners								
<i>GS Mezzanine Partners 2006</i>	100,000,000	113,445,143	923,532	134,654,263	9,858,563	5.00	1.20	12.99
<i>GS Mezzanine Partners V</i>	150,000,000	147,691,560	1,819,620	178,674,923	37,564,028	8.98	1.22	11.44
Gold Hill Venture Lending								
<i>Gold Hill Venture Lending</i>	40,000,000	40,000,000	360,588	65,077,862	0	10.69	1.64	14.51
<i>Gold Hill 2008</i>	25,852,584	25,852,584	5,668,508	44,745,145	0	14.79	1.95	10.75
Kohlberg Kravis Roberts								
<i>KKR Lending Partners II</i>	75,000,000	85,873,107	25,985,857	75,728,529	8,802,924	9.62	1.18	4.07
<i>KKR Lending Partners III</i>	199,000,000	72,547,481	69,661,994	13,335,209	132,302,062	16.16	1.14	1.98
LBC Credit Partners								
<i>LBC Credit Partners IV</i>	100,000,000	84,888,047	69,418,193	24,853,912	31,013,872	10.56	1.11	2.92
Merit Capital Partners								
<i>Merit Mezzanine Fund IV</i>	75,000,000	70,178,571	1,912,671	135,917,682	4,821,429	11.45	1.96	14.30
<i>Merit Mezzanine Fund V</i>	75,000,000	70,665,306	43,316,055	59,544,918	4,334,694	9.29	1.46	9.28
<i>Merit Mezzanine Fund VI</i>	100,000,000	52,545,141	60,693,585	2,425,373	47,388,060	13.28	1.20	3.02
Portfolio Advisors								
<i>DLJ Investment Partners III</i>	100,000,000	82,719,050	583,958	96,478,980	509,988	6.82	1.17	12.78
Prudential Capital Partners								
<i>Prudential Capital Partners II</i>	100,000,000	97,354,846	6,053,800	136,363,957	11,112,955	8.88	1.46	13.76
<i>Prudential Capital Partners III</i>	100,000,000	100,567,556	3,700,203	169,754,106	14,896,373	14.09	1.72	9.96
<i>Prudential Capital Partners IV</i>	100,000,000	107,116,335	60,803,277	75,216,604	3,818,601	9.40	1.27	7.20
<i>Prudential Capital Partners V</i>	150,000,000	85,553,949	89,031,263	11,361,141	67,865,788	15.36	1.17	2.62
Summit Partners								
<i>Summit Subordinated Debt Fund III</i>	45,000,000	44,088,494	3,728,682	60,443,093	2,250,000	8.94	1.46	15.13
<i>Summit Subordinated Debt Fund IV</i>	50,000,000	55,837,807	4,498,506	72,207,729	19,926,328	10.38	1.37	11.01
TCW Asset Management								
<i>TCW Direct Lending VI</i>	100,000,000	83,599,652	41,618,975	55,775,315	25,329,409	7.56	1.17	4.53
<i>TCW Direct Lending VII</i>	100,000,000	36,456,148	34,169,619	2,090,382	66,506,505	-0.67	0.99	1.21
Private Credit Total	2,257,352,584	1,703,362,875	600,827,651	1,695,002,672	751,919,870	12.03	1.35	

Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
III. REAL ASSETS								
BlackRock								
<i>BlackRock Global Renewable Power Fund II</i>	98,500,000	70,834,071	64,884,791	6,090,450	31,982,728	0.15	1.00	3.35
EIG Global Energy Partners								
<i>EIG Energy Fund XIV</i>	100,000,000	113,177,137	10,736,680	94,745,253	2,761,129	-2.40	0.93	11.95
<i>EIG Energy Fund XV</i>	150,000,000	158,557,720	70,235,877	117,356,327	22,871,323	4.48	1.18	8.82
<i>EIG Energy Fund XVI</i>	200,000,000	175,065,404	139,646,091	71,917,670	61,284,878	7.64	1.21	5.55
EnCap Energy								
<i>EnCap Energy Capital Fund VII</i>	100,000,000	105,357,255	7,240,831	134,445,165	0	14.81	1.34	11.75
<i>EnCap Energy Capital Fund VIII</i>	100,000,000	99,003,512	32,694,422	53,818,149	4,802,299	-3.89	0.87	8.50
<i>Encap Energy Capital Fund IX</i>	100,000,000	110,823,005	67,917,410	82,206,325	6,307,627	12.96	1.35	6.31
<i>EnCap Energy Capital Fund X</i>	100,000,000	85,798,877	86,533,531	17,941,118	22,090,249	11.07	1.22	4.07
EnerVest Energy								
<i>EnerVest Energy Institutional Fund XIV</i>	100,000,000	94,353,949	85,949,255	39,331,232	13,739,749	11.54	1.33	3.81
Energy Capital Partners								
<i>Energy Capital Partners II</i>	100,000,000	85,551,360	12,328,320	111,999,239	29,749,110	10.39	1.45	8.70
<i>Energy Capital Partners III</i>	200,000,000	201,330,531	180,407,231	68,434,490	33,632,656	9.94	1.24	5.28
<i>Energy Capital Partners IV</i>	150,000,000	39,699,839	46,858,875	2,378,600	112,929,806	22.76	1.24	1.25
Energy & Minerals Group								
<i>NGP Midstream & Resources</i>	100,000,000	103,527,211	15,002,556	176,410,295	17,857	13.92	1.85	12.01
<i>The Energy & Minerals Group Fund II</i>	100,000,000	104,661,204	97,417,497	98,872,076	1,248,635	15.11	1.88	7.52
<i>The Energy & Minerals Group Fund III</i>	200,000,000	192,607,030	152,403,918	18,442,920	9,428,480	-2.94	0.89	5.07
<i>The Energy & Minerals Group Fund IV</i>	150,000,000	132,518,254	167,568,920	35,874,026	38,187,834	20.60	1.54	3.42
First Reserve								
<i>First Reserve Fund X</i>	100,000,000	100,000,000	348,231	182,429,002	0	31.05	1.83	14.42
<i>First Reserve Fund XI</i>	150,000,000	150,292,121	7,348,721	97,802,016	0	-7.34	0.70	12.28
<i>First Reserve Fund XII</i>	150,000,000	165,617,044	29,295,626	81,001,567	0	-9.04	0.67	10.42
<i>First Reserve Fund XIII</i>	200,000,000	168,086,747	134,418,428	63,482,040	55,124,670	11.20	1.18	5.41
Kohlberg, Kravis, Roberts & Co.								
<i>KKR Global Infrastructure Investors III</i>	149,850,000	18,889,906	17,290,554	0	130,960,094	-13.21	0.92	1.01
Merit Energy Partners								
<i>Merit Energy Partners B</i>	24,000,000	24,000,000	3,140,663	188,273,079	0	24.28	7.98	22.19

Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
<i>Merit Energy Partners C</i>	50,000,000	50,000,000	6,154,869	512,993,716	0	30.96	10.38	20.43
<i>Merit Energy Partners D</i>	88,000,000	70,938,303	13,240,840	332,269,462	0	22.58	4.87	17.86
<i>Merit Energy Partners E</i>	100,000,000	39,983,197	2,971,472	81,305,936	0	11.37	2.11	14.50
<i>Merit Energy Partners F</i>	100,000,000	59,522,861	10,370,141	29,256,493	0	-6.77	0.67	13.02
<i>Merit Energy Partners H</i>	100,000,000	100,000,000	69,773,960	29,668,582	0	-0.12	0.99	8.16
<i>Merit Energy Partners I</i>	169,721,518	169,721,518	212,409,071	35,839,059	0	16.39	1.46	4.45
<i>Merit Energy Partners K</i>	150,000,000	0	0	0	150,000,000	0.00	0.00	0.25
NGP								
<i>Natural Gas Partners IX</i>	150,000,000	173,775,602	3,594,649	244,762,733	750,911	12.05	1.43	11.44
<i>NGP Natural Resources X</i>	150,000,000	144,048,971	58,192,419	105,475,349	5,951,029	3.84	1.14	7.47
<i>Natural Gas Capital Resources XI</i>	150,000,000	136,035,482	143,751,819	29,131,205	20,159,854	12.11	1.27	4.31
<i>NGP Natural Resources XII</i>	149,500,000	43,178,620	42,646,581	0	105,980,905	-1.08	0.99	1.66
Sheridan								
<i>Sheridan Production Partners I</i>	100,000,000	116,552,260	34,083,992	82,750,000	0	0.06	1.00	12.01
<i>Sheridan Production Partners II</i>	100,000,000	103,500,000	8,392,003	7,000,000	3,500,000	-33.57	0.15	8.50
<i>Sheridan Production Partners III</i>	100,000,000	34,353,005	31,835,999	17,300,000	65,650,000	16.20	1.43	4.31
Real Assets Total	4,479,571,518	3,741,361,996	2,067,086,242	3,251,003,574	929,111,823	14.43	1.42	

IV. REAL ESTATE

Angelo, Gordon & Co.

<i>AG Realty Fund IX</i>	100,000,000	85,141,582	94,383,445	13,500,000	18,650,000	11.72	1.27	4.31
<i>AG Asia Realty Fund III</i>	50,000,000	47,587,261	43,297,351	17,000,000	6,196,250	15.67	1.27	2.50
<i>AG Europe Realty Fund II</i>	75,000,000	37,144,581	38,998,500	28,384	37,500,000	5.87	1.05	1.78
<i>AG Realty Fund X</i>	150,000,000	11,250,000	11,250,000	0	138,750,000	0.00	1.00	0.91
<i>AG Asia Realty Fund IV</i>	100,000,000	12,500,000	12,500,000	0	87,500,000	0.00	0.00	0.81

Blackstone Real Estate Partners

<i>Blackstone Real Estate Partners V</i>	100,000,000	104,213,007	7,740,330	198,817,559	4,174,052	10.79	1.98	12.93
<i>Blackstone Real Estate Partners VI</i>	100,000,000	109,477,567	9,036,720	209,759,596	4,907,906	13.08	2.00	12.01
<i>Blackstone Real Estate Partners VII</i>	100,000,000	107,645,658	59,516,202	127,633,007	13,995,597	16.48	1.74	7.34
<i>Blackstone Real Estate Partners VIII</i>	150,000,000	137,178,382	126,892,520	46,179,092	50,756,838	13.89	1.26	4.01
<i>Blackstone Real Estate Partners Asia II</i>	74,500,000	16,633,853	15,769,312	20,015	58,793,436	-11.10	0.95	1.52
<i>Blackstone Real Estate Partners IX</i>	300,000,000	0	0	0	300,000,000	0.00	0.00	0.52

Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
Blackstone Strategic Partners (CSFB)								
<i>Strategic Partners III RE</i>	25,000,000	25,988,048	646,314	14,666,337	9,006	-6.53	0.59	13.75
<i>Strategic Partners IV RE</i>	50,000,000	51,437,038	4,623,963	46,958,338	1,119,776	0.05	1.00	10.79
Carlyle Group								
<i>Carlyle Realty Partners VIII</i>	150,000,000	14,847,362	12,085,479	13,748	135,175,253	-23.72	0.81	1.90
Colony Capital								
<i>Colony Investors III</i>	100,000,000	99,660,860	2,996,500	173,622,105	0	14.50	1.77	21.26
Landmark Partners								
<i>Landmark Real Estate Partners VIII</i>	149,500,000	39,820,779	29,173,061	17,034,494	109,966,051	22.18	1.16	2.29
Lubert Adler								
<i>Lubert-Adler Real Estate Fund VII-B</i>	74,147,868	39,779,763	41,440,409	1,731,088	35,220,237	7.11	1.09	2.48
Rockpoint								
<i>Rockpoint Real Estate Fund V</i>	100,000,000	87,501,883	84,880,438	18,087,068	26,125,220	11.41	1.18	4.22
<i>Rockpoint Real Estate Fund VI</i>	100,000,000	0	0	0	100,000,000	0.00	0.00	0.28
Rockwood								
<i>Rockwood Capital RE Partners X</i>	100,000,000	73,869,859	73,726,546	5,136,364	27,838,939	4.95	1.07	3.71
Silverpeak Real Estate Partners								
<i>Silverpeak Legacy Pension Partners II</i>	75,000,000	72,965,488	1,616,723	90,801,977	7,599,582	4.20	1.27	13.67
<i>Silverpeak Legacy Pension Partners III</i>	150,000,000	70,415,683	12,780,887	12,176,279	79,588,867	-11.36	0.35	10.92
T.A. Associates Realty								
<i>Realty Associates Fund VIII</i>	100,000,000	100,000,000	256,967	99,064,669	0	-0.08	0.99	12.75
<i>Realty Associates Fund X</i>	100,000,000	100,000,000	47,050,666	109,656,048	0	12.44	1.57	7.08
<i>Realty Associates Fund XI</i>	100,000,000	100,000,000	104,683,941	12,019,309	0	8.11	1.17	3.75
<i>Realty Associates Fund XII</i>	100,000,000	0	-923,817	0	100,000,000	0.00	0.00	1.00
Real Estate Total	2,773,147,868	1,545,058,653	834,422,455	1,213,905,476	1,343,867,010	8.03	1.34	

V. DISTRESSED/ OPPORTUNISTIC

Avenue Capital Partners

<i>Avenue Energy Opportunities Fund</i>	100,000,000	100,977,328	119,602,800	10,934,495	0	7.46	1.29	4.75
<i>Avenue Energy Opportunities Fund II</i>	100,000,000	100,000,000	99,992,700	417,420	0	0.38	1.00	1.90

BlackRock**

<i>BlackRock Tempus Fund</i>	1,774,870	1,774,870	349,820	1,610,734	0	6.21	1.10	3.80
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Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
Carlyle Group								
<i>Carlyle Strategic Partners IV</i>	100,000,000	42,630,089	28,414,595	19,732,224	77,060,244	14.70	1.13	3.00
Carval Investors								
<i>CVI Global Value Fund</i>	200,000,000	190,000,000	9,060,293	311,161,915	10,000,000	9.53	1.69	12.22
<i>CVI Credit Value Fund I</i>	100,000,000	95,000,000	5,876,550	207,569,569	5,000,000	18.77	2.25	8.50
<i>CVI Credit Value Fund A II</i>	150,000,000	142,500,000	24,419,433	180,629,576	7,500,000	8.68	1.44	6.42
<i>CVI Credit Value Fund A III</i>	150,000,000	142,500,000	122,383,571	58,053,370	7,500,000	9.62	1.27	3.82
<i>CVI Credit Value Fund IV</i>	150,000,000	75,203,333	78,376,950	60	75,000,000	5.91	1.04	1.49
Merced Capital								
<i>Merced Partners II</i>	75,000,000	63,768,881	6,408	130,505,918	0	23.96	2.05	12.00
<i>Merced Partners III</i>	100,000,000	100,000,000	13,400,883	122,497,107	0	6.26	1.36	8.90
<i>Merced Partners IV</i>	125,000,000	124,968,390	76,575,197	79,977,033	0	5.88	1.25	5.72
<i>Merced Partners V</i>	53,737,500	53,915,358	53,419,159	0	0	-0.49	0.99	1.75
MHR Institutional Partners								
<i>MHR Institutional Partners IV</i>	75,000,000	35,809,392	31,484,264	3,343,007	42,475,035	-1.26	0.97	4.78
Oaktree Capital Management								
<i>Oaktree Principal Fund VI</i>	100,000,000	84,287,744	80,117,197	14,037,147	28,293,967	7.38	1.12	4.25
<i>Oaktree Opportunities Fund X</i>	50,000,000	46,500,021	47,283,408	11,119,660	8,500,000	13.69	1.26	4.13
<i>Oaktree Opportunities Fund Xb</i>	100,000,000	12,500,000	12,382,250	0	87,500,000	-1.27	0.99	4.13
<i>Oaktree Special Situations Fund II</i>	100,000,000	-11,926	0	0	100,000,000	0.00	0.00	0.93
Pimco Bravo**								
<i>Pimco Bravo Fund OnShore Feeder I</i>	3,958,027	3,958,027	111,761	3,978,735	2,348,173	3.17	1.03	4.25
<i>Pimco Bravo Fund OnShore Feeder II</i>	5,243,670	4,680,663	2,777,404	3,226,244	3,794,070	6.24	1.28	4.25
TSSP								
<i>TSSP Adjacent Opportunities Partner</i>	50,000,000	23,510,936	24,300,129	0	26,489,064	6.03	1.03	0.99
<i>TSSP Adjacent Opportunities Contingent</i>	100,000,000	70,318	70,318	0	99,929,682	0.00	1.00	1.07
<i>TSSP Opportunities Partners IV</i>	50,000,000	6,232,140	6,232,140	1,665	43,767,860	0.05	1.00	0.89
Varde Fund								
<i>Varde Fund IX</i>	100,000,000	100,000,000	886,042	215,289,913	0	15.01	2.16	10.77
<i>Varde Fund X</i>	150,000,000	150,000,000	46,699,690	240,096,045	0	11.67	1.91	8.95
<i>Varde Fund XI</i>	200,000,000	200,000,000	200,984,288	94,006,474	0	7.92	1.47	5.72
<i>Varde Fund XIII</i>	150,000,000	7,500,000	7,500,000	0	142,500,000	0.00	1.00	0.73
Wayzata								
<i>Wayzata Opportunities Fund II</i>	150,000,000	174,750,000	2,351,905	325,782,839	30,000,000	16.44	1.88	11.44

Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
<i>Wayzata Opportunities Fund III</i>	150,000,000	68,415,000	28,846,621	37,605,787	15,000,000	-0.92	0.97	6.79
<i>Distressed/Opportunistic Total</i>	2,939,714,067	2,151,440,565	1,123,905,776	2,071,576,936	812,658,095		1.49	
<i>Private Markets Total</i>	27,210,008,541	18,292,706,329	10,247,531,068	16,947,344,924	10,228,486,711	12.27	1.50	

<i>Private Markets Portfolio Status</i>	Investment Manager Count	Investments Count
PRIVATE EQUITY	51	133
PRIVATE CREDIT	13	24
REAL ASSETS	11	36
REAL ESTATE	11	26
DISTRESSED/ OPPORTUNISTIC	11	29
Total	97	248

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.

* MOIC: Multiple of Invested Capital

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



Participant Directed Investment Program

June 30, 2019

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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 a program which provides individuals the opportunity to invest in many of the same investment pools as the Combined Funds. Participation in the SIF is accomplished through the purchase or sale of shares in each Fund. The SIF is 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 statutory requirements and rules established by the participating organizations. It provides some or all of the investment options for the Unclassified Employees Retirement Plan, Minnesota Deferred Compensation Plan, Public Employees Defined Contribution Plan, Hennepin County Supplemental Retirement Plan, and Health Care Savings Plan. All Funds in the SIF program, except the Stable Value Fund, are available to local volunteer fire relief associations who invest their assets with the SBI. The Volunteer Firefighter Account is available only for those local firefighter entities that participate in the Statewide Volunteer Firefighter Plan. Local entities that participate in this Plan must have all their assets invested in the Volunteer Firefighter Account.
- The Minnesota Deferred Compensation Plan offers plan participants three sets of investment options. The first is a set of actively and passively managed options that includes four mutual funds, a Money Market Fund, a Stable Value Fund and five passively managed mutual funds. 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. The Minnesota Deferred Compensation Plan uses two of the SIF investment options, the Stable Value Fund and the Money Market Fund, for its participants.
- The Minnesota College Savings Plan is an education savings plan designed to help families set aside funds for future college costs. It is established under the provisions of the Internal Revenue Code Section 529, which authorized these types of savings plans to help families meet the costs of qualified colleges nationwide. 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 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.

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 program that offers a range of investment options to state and local public employees. The SIF provides some or all of the investment options to the Unclassified Employees Retirement Plan, Minnesota Deferred Compensation Plan, Public Employees Defined Contribution Plan, Hennepin County Supplemental Retirement Plan, Health Care Savings Plan, local police and firefighter retirement 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	\$474,234,574	3.6%	8.8%	9.7%	7.5%	10.6%	01/1980
U.S. ACTIVELY MANAGED FUND	277,105,464	4.6	8.9	15.7	10.6	15.0	07/1986
U.S. STOCK INDEX FUND	652,530,921	4.1	9.0	14.0	10.2	14.7	07/1986
BROAD INTERNATIONAL STOCK FUND	195,549,010	3.2	1.1	9.3	2.6	7.0	09/1994
BOND FUND	180,735,768	3.2	8.2	3.0	3.4	5.0	07/1986
MONEY MARKET FUND	468,426,492	0.6	2.5	1.6	1.0	0.6	07/1986
STABLE VALUE FUND	1,585,640,341	0.7	2.6	2.3	2.2	2.7	11/1994
VOLUNTEER FIREFIGHTER ACCOUNT	107,450,791	3.4	7.3	7.9	5.7		01/2010
TOTAL SUPPLEMENTAL INVESTMENT FUND	3,941,676,485						

Note:

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



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	\$474,234,574	3.6%	8.8%	9.7%	7.5%	10.6%
SIF BALANCED FUND BENCHMARK		3.7	8.7	9.4	7.3	10.3
Excess		-0.1	0.0	0.3	0.1	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	277,105,464	4.6	8.9	15.7	10.6	15.0
Russell 3000		4.1	9.0	14.0	10.2	14.7
Excess		0.5	-0.1	1.7	0.4	0.3



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	\$652,530,921	4.1%	9.0%	14.0%	10.2%	14.7%
Russell 3000		4.1	9.0	14.0	10.2	14.7
Excess		-0.0	0.0	0.0	0.0	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	195,549,010	3.2	1.1	9.3	2.6	7.0
International Equity Benchmark		3.0	1.3	9.4	2.2	6.5
Excess		0.2	-0.2	-0.1	0.4	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	\$180,735,768	3.2%	8.2%	3.0%	3.4%	5.0%
BBG BARC US Agg		3.1	7.9	2.3	2.9	3.9
Excess		0.1	0.3	0.7	0.4	1.1

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	468,426,492	0.6	2.5	1.6	1.0	0.6
90 DAY T-BILL		0.6	2.3	1.4	0.9	0.5
Excess		0.0	0.2	0.2	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	\$1,585,640,341	0.7%	2.6%	2.3%	2.2%	2.7%
Fixed Interest Blended Benchmark		0.6	3.0	2.4	2.0	1.6
Excess		0.0	-0.4	-0.1	0.2	1.1

Volunteer Firefighter Account

The Volunteer Firefighter Account is different than other SIF program options. It is available only to the local entities that participate in the Statewide Volunteer Firefighter Plan (administered by PERA) and have all of their assets invested in the Volunteer Firefighter Account. There are other volunteer firefighter plans that are not eligible to be consolidated that may invest their assets through other SIF program options. The investment objective of the Volunteer Firefighter Account is to maximize long-term returns while limiting short-term portfolio return volatility. The account is invested in a balanced portfolio of domestic equity, international equity, fixed income and cash. The benchmark for this account is 35% Russell 3000, 15% MSCI ACWI ex USA (net), 45% Bloomberg 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	107,450,791	3.4	7.3	7.9	5.7	
SIF Volunteer Firefighter Account BM		3.4	7.4	7.5	5.4	
Excess		-0.0	-0.1	0.4	0.2	



Deferred Compensation Plan Summary

The Deferred Compensation Plan provides public employees with a tax-sheltered retirement savings plan that is supplemental to their primary retirement plan. (In most cases, the primary plan is a defined benefit plan administered by TRA, PERA, or MSRS.)

Participants choose from 4 actively managed stock and bond funds, 5 passively managed stock and bond funds and a set of 10 target date retirement fund options.

Deferred Compensation Plan participants may also invest in the money market option and stable value option in the Supplemental Investment Fund program. All provide for the daily pricing needs of the plan administrator. In addition, participants may also choose from hundreds of funds available through a mutual fund brokerage window. The current plan structure became effective July 1, 2011.

	<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 INSTITUTIONAL INDEX PLUS	\$1,329,286,995	4.3%	10.4%	14.2%	10.7%	14.7%	07/1999
VANGUARD DIVIDEND GROWTH	714,782,250	6.3	19.0				10/2016
VANGUARD MID CAP INDEX	572,432,570	4.4	7.9	12.3	8.8	15.2	01/2004
T. ROWE PRICE SMALL-CAP STOCK	788,640,234	5.8	10.9	16.7	10.6	17.0	04/2000
FIDELITY DIVERSIFIED INTERNATIONAL	295,514,583	5.8	2.4	8.8	3.5	7.7	07/1999
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	205,481,422	2.7	0.6	9.0	2.4		07/2011
VANGUARD BALANCED INDEX	823,206,622	3.7	8.9	9.4	7.4	10.5	12/2003
DODGE & COX INCOME	254,624,247	2.8	7.6	3.7	3.3	4.9	07/1999
VANGUARD TOTAL BOND MARKET INDEX	235,190,962	3.1	7.8	2.2	2.9	3.8	12/2003
2020 FUND	128,497,259	2.5	5.9	5.8	3.8		07/2011
2025 FUND	147,870,191	2.9	6.2	7.2	4.7		07/2011
2030 FUND	108,986,607	3.3	6.3	8.4	5.5		07/2011
2035 FUND	85,479,546	3.5	6.3	9.1	5.8		07/2011
2040 FUND	65,833,538	3.6	6.0	9.7	6.0		07/2011
2045 FUND	54,752,171	3.6	5.7	10.2	6.2		07/2011
2050 FUND	41,079,627	3.6	5.4	10.5	6.3		07/2011
2055 FUND	24,056,933	3.6	5.4	10.5	6.3		07/2011
2060 FUND	19,267,689	3.6	5.4	10.5	6.3		07/2011
INCOME FUND	92,597,459	2.5	5.8	5.1	3.4		07/2011
TD Ameritrade SDB	75,925,291						
TD Ameritrade SDB Roth	978,508						
Total Deferred Compensation Plan	6,064,484,704						



Deferred Compensation Plan Options

LARGE CAP EQUITY

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 INSTITUTIONAL INDEX PLUS	\$1,329,286,995	4.3%	10.4%	14.2%	10.7%	07/1999
S&P 500		4.3	10.4	14.2	10.7	07/1999
Excess		-0.0	-0.0	-0.0	-0.0	
VANGUARD DIVIDEND GROWTH	714,782,250	6.3	19.0			10/2016
NASDAQ US Dividend Achievers Select		5.6	15.7			10/2016
Excess		0.8	3.3			
Mid Cap US Equity						
VANGUARD MID CAP INDEX	572,432,570	4.4	7.9	12.3	8.8	01/2004
CRSP US Mid Cap Index		4.4	7.8	12.4	8.9	01/2004
Excess		-0.0	0.0	-0.0	-0.0	
Small Cap US Equity						
T. ROWE PRICE SMALL-CAP STOCK	788,640,234	5.8	10.9	16.7	10.6	04/2000
Russell 2000		2.1	-3.3	12.3	7.1	04/2000
Excess		3.7	14.2	4.4	3.5	
International Equity						
FIDELITY DIVERSIFIED INTERNATIONAL	295,514,583	5.8	2.4	8.8	3.5	07/1999
MSCI EAFE FREE (NET)		3.7	1.1	9.1	2.2	07/1999
Excess		2.1	1.3	-0.3	1.3	
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	205,481,422	2.7	0.6	9.0	2.4	07/2011
FTSE Global All Cap ex US Index Net		2.8	0.3	9.0	2.2	07/2011
Excess		-0.0	0.3	-0.0	0.1	



Deferred Compensation Options

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.

SIF 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

SIF 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	\$823,206,622	3.7%	8.9%	9.4%	7.4%	12/2003
Vanguard Balanced Fund Benchmark		3.8	9.0	9.4	7.4	12/2003
Excess		-0.1	-0.1	-0.1	-0.0	

Fixed Income

DODGE & COX INCOME	254,624,247	2.8	7.6	3.7	3.3	07/1999
BBG BARC Agg Bd		3.1	7.9	2.3	2.9	07/1999
Excess		-0.3	-0.3	1.4	0.3	

VANGUARD TOTAL BOND MARKET INDEX	235,190,962	3.1	7.8	2.2	2.9	12/2003
BBG BARC Agg Bd		3.1	7.9	2.3	2.9	12/2003
Excess		-0.0	-0.0	-0.1	-0.1	

MONEY MARKET FUND	468,426,492	0.6	2.5	1.6	1.0	07/1986
90 DAY T-BILL		0.6	2.3	1.4	0.9	07/1986
Excess		0.0	0.2	0.2	0.2	

Stable Value

STABLE VALUE FUND	1,585,640,341	0.7	2.6	2.3	2.2	11/1994
Fixed Interest Blended Benchmark		0.6	3.0	2.4	2.0	11/1994
Excess		0.0	-0.4	-0.1	0.2	

(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) SIF Money Market and SIF Fixed Interest are Supplemental Investment Fund options which are also offered under the Deferred Compensation Plan.



Deferred Compensation Options

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													
2020 FUND	\$128,497,259	2.5%	5.9%	5.8%	3.8%	07/2011	2045 FUND	\$54,752,171	3.6%	5.7%	10.2%	6.2%	07/2011
2020 FUND BENCHMARK		2.5	5.8	5.8	3.8	07/2011	2045 FUND BENCHMARK		3.5	5.7	10.3	6.2	07/2011
Excess		0.0	0.0	-0.1	-0.0		Excess		0.0	0.0	-0.1	-0.0	
2025 FUND	147,870,191	2.9	6.2	7.2	4.7	07/2011	2050 FUND	41,079,627	3.6	5.4	10.5	6.3	07/2011
2025 FUND BENCHMARK		2.9	6.2	7.2	4.7	07/2011	2050 FUND BENCHMARK		3.5	5.4	10.6	6.3	07/2011
Excess		0.0	0.0	-0.1	-0.0		Excess		0.0	0.0	-0.1	-0.0	
2030 FUND	108,986,607	3.3	6.3	8.4	5.5	07/2011	2055 FUND	24,056,933	3.6	5.4	10.5	6.3	07/2011
2030 FUND BENCHMARK		3.2	6.2	8.5	5.5	07/2011	2055 FUND BENCHMARK		3.5	5.3	10.6	6.3	07/2011
Excess		0.0	0.0	-0.1	-0.0		Excess		0.0	0.0	-0.1	-0.0	
2035 FUND	85,479,546	3.5	6.3	9.1	5.8	07/2011	2060 FUND	19,267,689	3.6	5.4	10.5	6.3	07/2011
2035 FUND BENCHMARK		3.5	6.2	9.2	5.8	07/2011	2060 FUND BENCHMARK		3.5	5.3	10.6	6.3	07/2011
Excess		0.0	0.0	-0.1	-0.0		Excess		0.0	0.0	-0.1	-0.0	
2040 FUND	65,833,538	3.6	6.0	9.7	6.0	07/2011	INCOME FUND	92,597,459	2.5	5.8	5.1	3.4	07/2011
2040 FUND BENCHMARK		3.5	6.0	9.8	6.0	07/2011	INCOME FUND BENCHMARK		2.4	5.8	5.1	3.4	07/2011
Excess		0.0	0.0	-0.1	-0.0		Excess		0.0	0.0	-0.1	-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.

AGE-BASED MANAGED ALLOCATIONS

The Age-Based Managed Allocation Option seeks to align the investment objective and level of risk, which will become more conservative as the beneficiary ages and moves closer to entering an eligible educational institution.

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: June 30, 2019

Total = \$1,503 Million

Fund Name	Ending Market	3 Months	1 Year	Annualized				Inception Date
				3 Years	5 Years	10 Years	Since Inception	
Managed Ages 0-4	\$37,905,731	3.53%	7.15%	10.06%			7.28%	8/12/2014
BB: Managed Ages 0-4		3.53%	7.38%	10.15%			7.38%	
Managed Ages 5-8	\$70,253,377	3.39%	7.27%	9.11%			6.71%	8/12/2014
BB: Managed Ages 5-8		3.49%	7.48%	9.24%			6.85%	
Managed Ages 9-10	\$63,951,027	3.32%	7.21%	8.18%			6.15%	8/12/2014
BB: Managed Ages 9-10		3.43%	7.54%	8.32%			6.32%	
Managed Ages 11-12	\$93,705,189	3.10%	6.74%	7.15%			5.49%	8/12/2014
BB: Managed Ages 11-12		3.25%	7.32%	7.33%			5.67%	
Managed Ages 13-14	\$132,970,092	2.94%	6.68%	6.25%			4.88%	8/12/2014
BB: Managed Ages 13-14		3.07%	7.07%	6.34%			5.01%	
Managed Age 15	\$80,723,128	2.53%	5.82%	5.17%			4.12%	8/12/2014
BB: Managed Age 15		2.64%	6.29%	5.20%			4.14%	
Managed Age 16	\$90,393,921	2.23%	5.20%	4.55%			3.68%	8/12/2014
BB: Managed Age 16		2.36%	5.76%	4.59%			3.65%	
Managed Age 17	\$87,035,302	1.91%	4.74%	4.03%			3.29%	8/12/2014
BB: Managed Age 17		2.08%	5.23%	3.99%			3.15%	
Managed Ages 18 & Over	\$232,912,384	1.59%	4.26%	3.48%			2.89%	8/12/2014
BB: Managed Ages 18 & Over		1.80%	4.69%	3.38%			2.66%	
U.S. and International Equity Option	\$299,318,086	3.59%	7.20%	11.80%	7.70%	12.41%	7.05%	10/ 1/2001
BB: U.S. and International Equity Option		3.60%	7.11%	11.94%	7.78%	12.68%	7.89%	



MINNESOTA COLLEGE SAVINGS PLAN

Performance Statistics for the Period Ending: June 30, 2019

Fund Name	Ending Market	3 Months	1 Year	Annualized				Inception Date
				3 Years	5 Years	10 Years	Since Inception	
Moderate Allocation Option	\$72,879,507	3.33%	7.13%	8.17%	5.75%	8.89%	5.36%	8/ 2/2007
BB: Moderate Allocation Option		3.43%	7.54%	8.32%	5.95%	9.32%	5.91%	
100% Fixed-Income Option	\$17,572,346	2.82%	7.05%	2.42%	2.56%	3.52%	3.66%	8/16/2007
BB: 100% Fixed-Income Option		2.95%	7.32%	2.72%	2.86%	3.95%	4.29%	
International Equity Index Option	\$5,086,633	2.92%	1.24%	9.15%	2.25%		4.48%	6/18/2013
BB: International Equity Index Option		3.06%	1.14%	9.46%	2.37%		4.74%	
Money Market Option	\$13,160,384	0.57%	2.02%	1.12%	0.67%	0.28%	0.51%	11/ 1/2007
BB: Money Market Option		0.50%	1.84%	0.98%	0.60%	0.31%	0.51%	
Principal Plus Interest Option	\$123,006,719	0.45%	1.91%	1.67%	1.51%	1.78%	2.50%	10/10/2001
Citigroup 3-Month U.S. Treasury Bill		0.61%	2.30%	1.36%	0.84%	0.46%	1.33%	
Aggressive Allocation Option	\$30,204,642	3.38%	7.08%	10.05%			7.23%	8/12/2014
BB: Aggressive Allocation Option		3.53%	7.38%	10.15%			7.38%	
Conservative Allocation Option	\$11,069,322	2.46%	5.78%	5.12%			3.94%	8/18/2014
BB: Conservative Allocation Option		2.64%	6.29%	5.20%			4.00%	
Equity and Interest Accumulation Option	\$4,957,747	2.25%	5.36%	7.70%			5.84%	8/18/2014
BB: Equity and Interest Accumulation Option		2.47%	6.07%	7.73%			5.73%	
U.S. Large Cap Equity Option	\$33,550,586	4.26%	10.19%	13.96%			11.01%	8/12/2014
BB: U.S. Large Cap Equity Option		4.30%	10.42%	14.19%			11.24%	
Matching Grant	\$2,373,228	0.45%	1.91%	1.67%	1.51%	1.78%	2.52%	3/22/2002
Citigroup 3-Month U.S. Treasury Bill		0.61%	2.30%	1.36%	0.84%	0.46%	1.31%	

MINNESOTABLE *plan*

A member of The National ABLE Alliance

Performance as of
06/30/19

Total Market Value: \$ 6,463,472

<u>Fund Name</u>	<u>Market Value</u>	<u>% of Plan</u>	<u>1 Month</u>	<u>3 Months</u>	<u>YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Inception</u>	<u>Inception Date</u>
Aggressive Option	\$ 589,794	9.13%	5.36	2.94	15.72	5.36				9.48	12/15/16
ABLE Aggressive Custom Benchmark			5.52	3.11	16.04	5.74				10.11	
Variance			(0.16)	(0.17)	(0.32)	(0.38)				(0.63)	
Moderately Aggressive Option	\$ 634,191	9.81%	4.60	2.85	13.81	5.50				8.41	12/15/16
ABLE Moderately Aggressive Custom Benchmark			4.74	2.98	14.13	5.96				9.04	
Variance			(0.14)	(0.13)	(0.32)	(0.46)				(0.63)	
Growth Option	\$ 934,491	14.46%	3.91	2.75	11.97	5.56				7.33	12/15/16
ABLE Growth Custom Benchmark			3.97	2.86	12.22	6.09				7.94	
Variance			(0.06)	(0.11)	(0.25)	(0.53)				(0.61)	
Moderate Option	\$ 777,134	12.02%	3.09	2.55	9.90	5.52				6.23	12/15/16
ABLE Moderate Custom Benchmark			3.22	2.73	10.32	6.13				6.80	
Variance			(0.13)	(0.18)	(0.42)	(0.61)				(0.57)	
Moderately Conservative Option	\$ 711,400	11.01%	2.18	2.00	7.15	4.56				4.70	12/15/16
ABLE Moderately Conservative Custom Benchmark			2.27	2.17	7.55	5.22				5.21	
Variance			(0.09)	(0.17)	(0.40)	(0.66)				(0.51)	
Conservative Option	\$ 963,755	14.91%	0.94	1.23	3.48	3.29				2.66	12/15/16
ABLE Conservative Custom Benchmark			1.01	1.40	3.83	3.81				3.02	
Variance			(0.07)	(0.17)	(0.35)	(0.52)				(0.36)	
Checking Option	\$ 1,852,708	28.66%									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

June 30, 2019



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

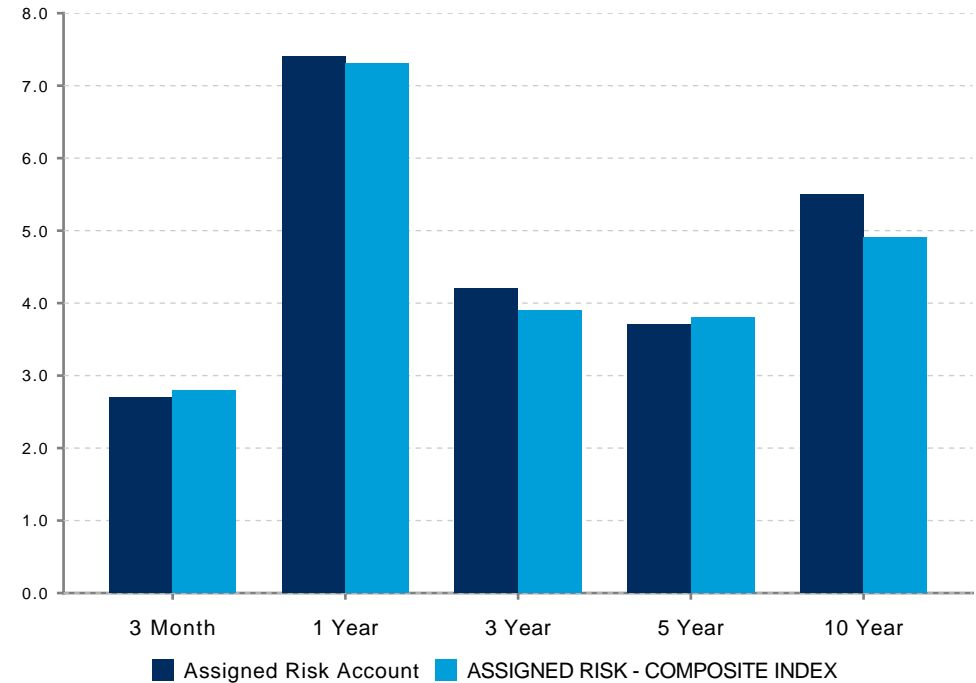
Assigned Risk Plan

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.

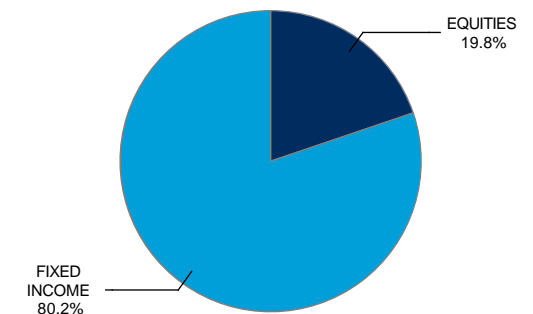
The Assigned Risk Plan is invested in a portfolio of common stocks and bonds

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	\$287,321,163	2.7%	7.4%	4.2%	3.7%	5.5%
EQUITIES	56,977,287	4.3	10.4	14.7	9.8	13.3
FIXED INCOME	230,343,876	2.3	6.0	1.4	2.0	3.4
ASSIGNED RISK - COMPOSITE INDEX		2.8	7.3	3.9	3.8	4.9
Excess		-0.2	0.1	0.3	-0.1	0.6
S&P 500		4.3	10.4	14.2	10.7	14.7
BBG BARC US Gov: Int		2.3	6.2	1.3	1.9	2.4



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.



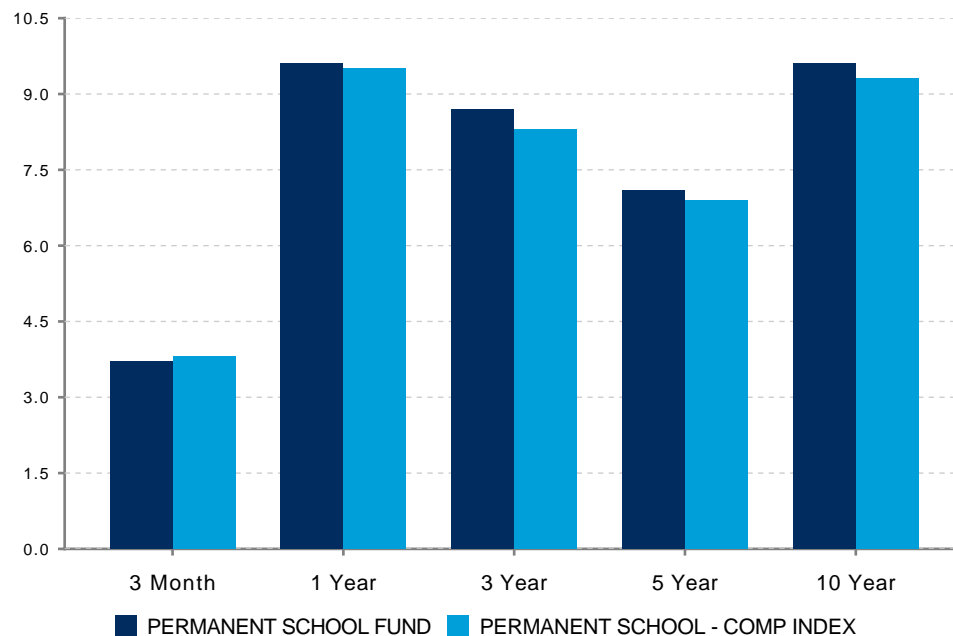
Non-Retirement

Permanent School Fund

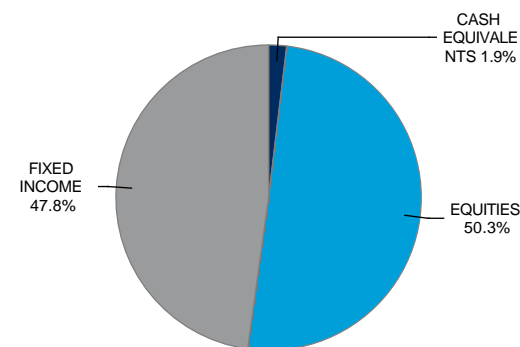
The investment objective of the Permanent School Fund is to produce a growing level of spendable income, within the constraints of maintaining adequate portfolio quality and liquidity. The income from the portfolio is transferred to the school endowment fund and distributed to Minnesota's public schools.

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	\$1,512,574,251	3.7%	9.6%	8.7%	7.1%	9.6%
CASH EQUIVALENTS	28,820,326	0.6	2.4	1.5	0.9	0.6
EQUITIES	760,953,299	4.3	10.4	14.2	10.7	14.7
FIXED INCOME	722,800,625	3.2	8.4	2.9	3.4	4.3
PERMANENT SCHOOL - COMP INDEX		3.8	9.5	8.3	6.9	9.3
Excess		-0.1	0.1	0.4	0.2	0.3
S&P 500		4.3	10.4	14.2	10.7	14.7
BBG BARC US Agg		3.1	7.9	2.3	2.9	3.9



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



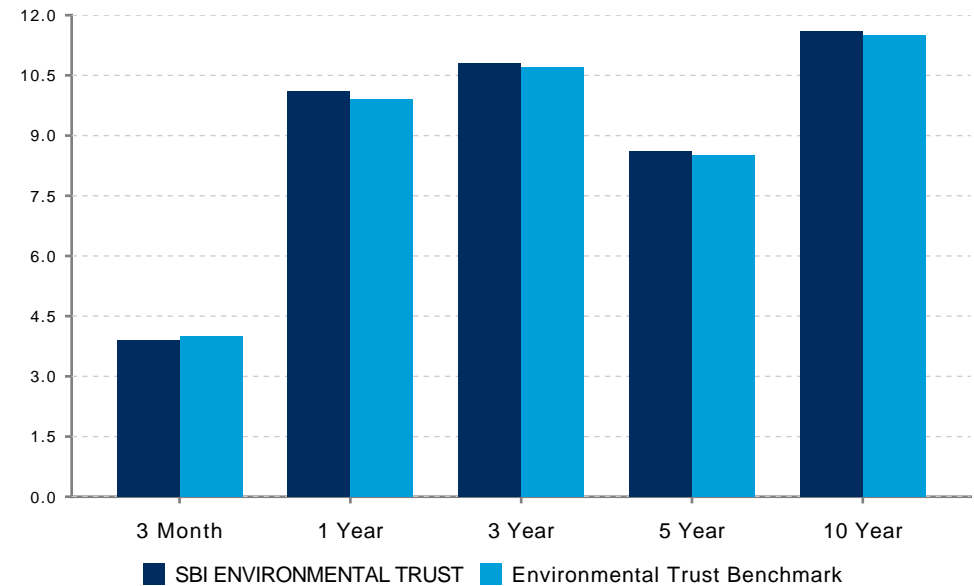
Non-Retirement

Environmental Trust Fund

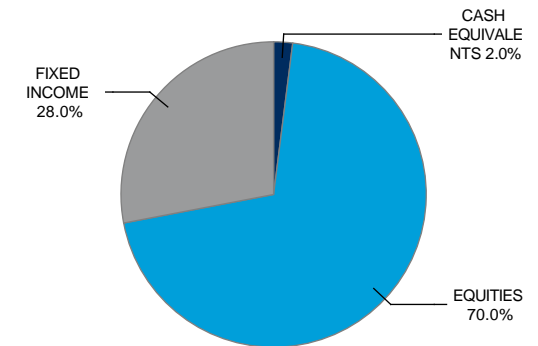
The objective of the Environmental Trust Fund is to increase the market value of the Fund over time in order to increase the annual amount made available for spending within the constraints of maintaining adequate portfolio quality and liquidity.

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

The bond segment is actively managed to add incremental value through sector, security and yield curve decisions. The stock segment is passively managed to track the performance of the S&P 500. The fixed income benchmark is the Bloomberg 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.



	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
SBI ENVIRONMENTAL TRUST	\$1,215,371,302	3.9%	10.1%	10.8%	8.6%	11.6%
CASH EQUIVALENTS	23,754,076	0.6	2.4	1.5	1.0	0.6
EQUITIES	851,009,309	4.3	10.4	14.2	10.7	14.7
FIXED INCOME	340,607,917	3.2	8.4	2.9	3.4	4.3
Environmental Trust Benchmark		4.0	9.9	10.7	8.5	11.5
Excess		-0.1	0.1	0.2	0.1	0.1
S&P 500		4.3	10.4	14.2	10.7	14.7
BBG BARC US Agg		3.1	7.9	2.3	2.9	3.9



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

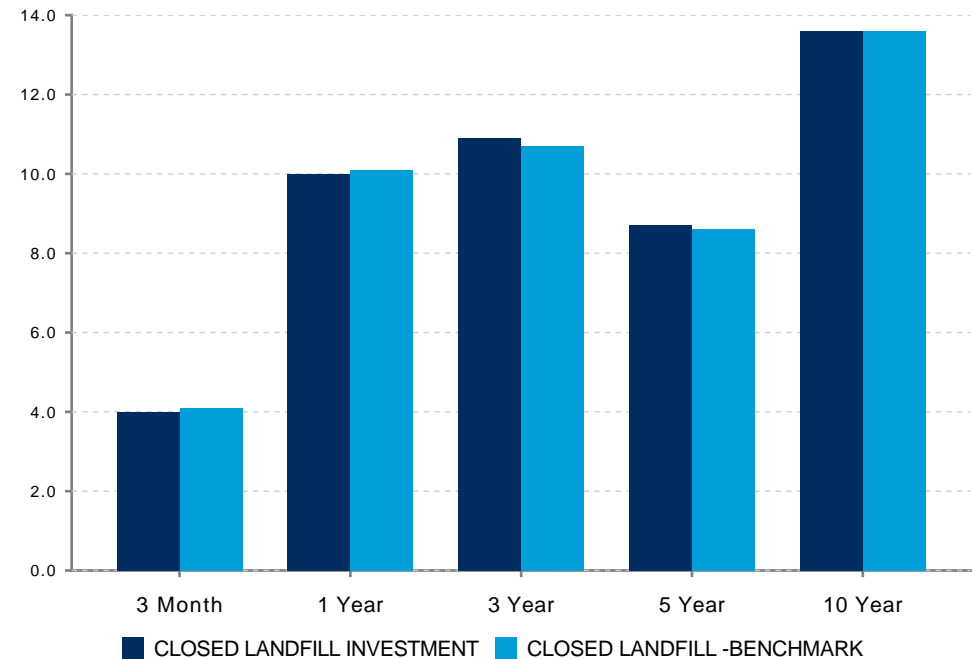


Non-Retirement

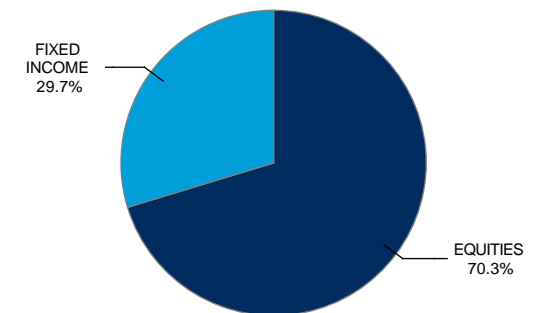
Closed Landfill Investment Fund

The investment objective of the Closed Landfill Investment Fund is to increase the market value of the Fund and to reduce volatility to meet future expenditures. By statute, the assets of the Fund 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	\$96,788,958	4.0%	10.0%	10.9%	8.7%	13.6%
EQUITIES	68,059,063	4.3	10.4	14.2	10.7	14.7
FIXED INCOME	28,729,895	3.2	8.4	2.9		
CLOSED LANDFILL -BENCHMARK		4.1	10.1	10.7	8.6	13.6
Excess		-0.1	-0.0	0.2	0.1	0.0
S&P 500		4.3	10.4	14.2	10.7	14.7
BBG BARC US Agg		3.1	7.9	2.3	2.9	3.9



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

Minnesota State Board of Investment
Quarter Ending June 30, 2019
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	2,375,754,716	4.3	10.4	10.4	14.2	10.7	14.7	9.7	07/1993
S&P 500 INDEX (DAILY)		4.3	10.4	10.4	14.2	10.7	14.7	9.6	07/1993
Excess		-0.0	-0.0	-0.0	-0.0	0.0	-0.0	0.1	
NON RETIREMENT FIXED INCOME - PRUDENTIAL	1,264,381,425	3.2	8.4	8.4	2.9	3.4	4.3	6.0	07/1994
BBG BARC Agg (Dly)		3.1	7.9	7.9	2.3	2.9	3.9	5.5	07/1994
Excess		0.1	0.6	0.6	0.6	0.4	0.4	0.5	
RBC	230,343,873	2.3	6.0	6.0	1.4	2.0	3.4	4.9	07/1991
RBC Custom Benchmark		2.3	6.2	6.2	1.3	1.9	2.4	5.0	07/1991
Excess		-0.1	-0.2	-0.2	0.1	0.0	0.9	-0.1	
MET COUNCIL OPEB BOND POOL	65,935,741	1.7	4.7	4.7					02/2009
NON RETIREMENT CASH	136,493,792	0.6	2.4	2.4	1.5	1.0	0.6	2.7	
iMoneyNet Money Fund Average- All Taxable		0.5	1.9	1.9	1.0	0.6	0.3		
Excess		0.1	0.5	0.5	0.4	0.3	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

June 30, 2019



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	14,630,264,734	0.7	2.7	1.6	1.2	0.9
iMoneyNet Money Fund Average-All Taxable		0.5	1.9	1.0	0.6	0.3

Other State Cash Accounts

Due to differing investment objectives, strategies, and time horizons, some State agencies' accounts are invested separately. These agencies direct the investments or provide the SBI with investment guidelines and the SBI executes on their behalf. Consequently, returns are shown for informational purposes only and there are no benchmarks for these accounts.

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
Debt Service	100,180,081	1.4	5.4	2.2	2.7	
Housing Finance	111,362,849	0.6	2.4	1.4	1.7	
Public Facilities Authority	61,045,065	1.1	3.2	1.9	2.3	



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.

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.

Fixed Income 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.



Addendum

Benchmark Definitions (continued)

Fixed Interest Blended Benchmark:

On 6/1/2002, the benchmark was set as the 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 the benchmark 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 the 67% and 33% weighting.

Semi-Passive Domestic Equity Benchmark:

Russell 1000 index effective 1/1/2004. Prior to 1/1/2004 it was the Completeness Fund benchmark.

