MINNESOTA STATE BOARD OF INVESTMENT

MINNESOTA STATE BOARD
OF INVESTMENT
MEETING
May 28, 2020

Governor Tim Walz

State Auditor Julie Blaha

Secretary of State Steve Simon

Attorney General Keith Ellison

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STATE BOARD OF INVESTMENT

AGENDA

May 28, 2020

MINUTES

February 26, 2020

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AGENDA
STATE BOARD OF INVESTMENT MEETING

Thursday, May 28, 2020
10:00 a.m.

State Board of Investment
Participant Dial In: 1-866-726-7736
Conference ID: 7138476

	TAB
1. Approval of Minutes of February 26, 2020	
2. Report from the Executive Director (M. Perry)	**A**
A. Quarterly Performance Summary (January 1, 2020 – March 31, 2020)	
B. Administrative Report	**B**
1. Reports on Budget and Travel	
2. Legislative Update	
3. Sudan Update	
4. Iran Update	
5. Litigation Update	
3. SBI Administrative Committee Report (M. Perry)	**C**
A. Review of Executive Director's Proposed Work Plan FY21	
B. Review of Budget Plan for FY21 and FY22	
C. Review of Continuing Fiduciary Education Plan	
D. Review of Executive Director's Evaluation	
E. Update of Business Continuity Plan	
4. IAC Membership Review Committee Report (M. Perry)	**D**
5. Private Markets Program Report and Commitments for Consideration (G. Martin)	**E**
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REPORTS	
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Minutes
State Board of Investment
February 26, 2020

The State Board of Investment (SBI) met at 12:16 p.m. Wednesday, February 26, 2020 in G23 Senate Committee Room of the 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 December 2, 2019 and January 21, 2020 meeting were approved.

Executive Director's Report
Mr. Perry referred members to Tab A of the meeting materials and stated that as of December 31, 2019 the SBI was responsible for managing in excess of $104 billion of assets. Mr. Perry reported that the Combined Funds had outperformed its Composite Index over the ten-year period ending December 31, 2019 (Combined Funds 9.8% vs. Combined Funds-Composite Index 9.6%) and had provided a real rate of return of 4.3% above inflation over the latest 20 year period (Combined Funds 6.5% vs. 2.2%).

Mr. Perry stated that the Combined Funds assets increased over the quarter (Combined Funds ending value of $74.2 billion versus a beginning value of $70.7 billion). The Combined Funds matched the benchmark for the quarter (Combined Funds 5.8% vs. Combined Funds-Composite Index 5.8%) and slightly outperformed for the year (Combined Funds 20.1% vs. Combined Funds-Composite Index 20.0%). The Combined Funds outperformed the benchmark return for the three year, matched it for the five year, and outperformed other time periods reported.

Mr. Perry stated that the combined public equity performance outperformed the benchmark for the year end (Public Equity 28.0% vs. Public Equity Benchmark 27.7%). Breaking it down between domestic and international equities, domestic equities slightly underperformed its benchmark for the year (Domestic Equity 30.7% vs. Domestic Equity Benchmark 30.8%), matched the benchmark for the three-year period, and underperformed for all other time periods reported. The international equity manager group outperformed its target for the one-year (International Equity 22.4% vs. International Equity Benchmark 21.5%), outperformed the benchmark for the three-year period, and outperformed for all other time periods reported. Mr. Perry continued with the fixed income segment, which outperformed for the year (Fixed Income 9.7% vs. Fixed Income Benchmark 8.7%) and all other time periods reported. Treasuries also outperformed its target for the year (Treasuries 10.5% vs. Treasuries Benchmark 10.4%). Lastly, Mr. Perry stated that for the last year the Private Markets return was impacted by the Resources investments, which were adversely impacted by fluctuations in commodity prices (Private Markets 2.4% and 6.6% for the quarter and the year, respectively).

Mr. Perry then referred members to the Strategic Allocation Category Framework, the Volatility Equivalent Benchmark and a comparison of the Combined Funds return and allocation versus the Trust Universe Comparison Service (TUCS) universe. Mr. Perry stated that the Combined Funds one-year return was in the top quartile for the calendar year compared to other public funds with assets over $1 billion. Using the same comparison universe, over the last thirty years the Combined

Funds has mostly been in the first quartile and always in the top half. The Board Members recognized Mr. Perry, his staff, and the consultants for such a great achievement.

Mr. Perry referred members to Tab B of the meeting materials for the Administrative Report, which included the administrative budget and travel report for the fiscal year to date through December 31, 2019. He stated that the Office of the Legislative Auditor had no written findings or recommendations for the SBI and that the 2019 Annual Report was distributed in January and is also available on the SBI's website. Mr. Perry also referenced the Iran and Sudan summary that is included in the Administrative Report and indicated there was no litigation during the quarter. State Auditor Blaha provided positive feedback to staff on the FY2019 Office of the Legislative Auditor letter and for Mr. Perry's thoughts of potentially adding an internal audit position to staff.

Mr. Perry referred members to Tab C of the meeting materials for the Stable Value Fund Program Review. Mr. Perry stated that the SBI staff did a very thorough review of the current manager, Galliard, and the universe of stable value firms. He also noted that while many of Galliard's senior members retired during 2019, the investment team remains intact and staff continues to believe that Galliard remains one of the premier managers in the asset class. However, there is some concern with the reliance on a single stable value manager that could limit the SBI's ability to replace the manager quickly and efficiently if there is cause to terminate the current manager. To help resolve this issue, Staff developed a Bench List of potential stable value managers, which includes T. Rowe Price and Invesco, and recommend that the Executive Director be authorized to execute a contract with one of the managers on the Bench List. Attorney General moved approval of the recommendation which reads: **"The Investment Advisory Council concurs with Staff's recommendation that the Board approve to create a Bench List of approved stable value managers consisting of two firms, Invesco and T. Rowe Price; and to grant authority to the Executive Director to hire a stable value manager from the Bench List if at any time in the future the current stable value manager is given notice of termination."** The motion passed unanimously.

Mr. Martin, Chairperson of the Investment Advisory Council, referred members to Tab D for the Private Markets Program Report and reviewed the six private markets proposals listed in the report. He stated that the six commitments for consideration are with existing managers: KKR Asian Fund IV, SCSp; Audax Mezzanine Fund V, L.P.; Oaktree Real Estate Debt Fund III, L.P.; PGIM Capital Partners Fund VI, L.P.; CVI Credit Value Fund V, L.P., and Oaktree Real Estate Opportunities Fund VIII. Mr. Martin highlighted the additional narrative in the Manager Summary Profile from staff's due diligence process that addresses the fund's consideration of Environmental, Social and Governance (ESG) factors. Secretary of State Simon moved approval of the six recommendations that read: **"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 KKR Asian Fund IV, whichever is less, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by KKR upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement,**

further due diligence and negotiations may result in the imposition of additional terms and conditions on KKR or reduction or termination of the commitment.

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

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to $200 million, or 20% of PGIM Capital Partners Fund VI, 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 PGIM 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 PGIM 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 CVI Credit Value Fund V, whichever is less, plus an additional amount not to exceed one percent of the total commitment for the payment of required charges at closing. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the

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

Mr. Perry referred members to the SBI's Environmental, Social and Governance (ESG) report that was included in Tab F of the meeting materials. He stated that the intent of the report is to provide the public and the Board with some information with regard to the analysis and activities that staff is doing around ESG. This report is also available on the SBI's website. He also stated that the SBI will be periodically updating the report and what the SBI is doing to heighten activities in regards to ESG and the impact of it. Attorney General Ellison expressed his appreciation and stated that he is honored to join with his fellow Board Members to present a resolution to address ESG investment risk enabling the Board to make the most responsible investment decisions possible. The Board expressed their appreciation to Attorney General Ellison for his work on the resolution. Attorney General Ellison moved approval of the resolution concerning Environmental, Social and Governance Initiatives of the State Board of Investment (see **Attachment A**). The motion passed unanimously.

The remainder of the reports included the Public Markets, Non-Retirement and Participant Directed Investment Programs Report was in Tab E; Tab G contained the Market Environment Report prepared by AON; Tab H contained the Capital Markets Outlook & Risk Metrics Report prepared by Meketa; and Tab I included the SBI's Comprehensive Performance Report.

The meeting adjourned at 12:42 p.m.

Respectfully submitted,

Mansco Perry KJ

Mansco Perry III
Executive Director and
Chief Investment Officer

ATTACHMENT A

MINNESOTA STATE BOARD OF INVESTMENT

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RESOLUTION OF THE MINNESOTA STATE BOARD OF INVESTMENT CONCERNING ENVIRONMENTAL, SOCIAL, AND GOVERNANCE INITIATIVES

WHEREAS, fiduciary responsibility is the touchstone of any decision of the Minnesota State Board of Investment (MSBI);

WHEREAS, any investment decision must be made with prudence and consistent with the duty of care to beneficiaries;

WHEREAS, the MSBI recognizes the importance of addressing Environmental, Social and Governance (ESG) risk in its investments;

WHEREAS, the MSBI has a long history of engaging with corporations through proxy voting;

WHEREAS, the MSBI has increased its involvement by participation in coalitions which engage with corporations and governmental organizations to address ESG risks and opportunities;

WHEREAS, the MSBI evaluates whether its investment managers consider ESG risk and encourages managers to enhance their ESG risk analysis; and

WHEREAS, the MSBI believes that corporations and partnerships that do not take ESG risk into consideration may jeopardize their financial viability and decrease their value.

NOW, THEREFORE, BE IT RESOLVED that consistent with its fiduciary responsibility that the following measures be taken:

1. The MSBI Proxy Committee continue to actively vote proxies in accordance with MSBI proxy guidelines, policies, and precedents as approved from time to time by the Board.

2. The MSBI continue to participate in ESG coalitions and engage with corporations on ESG related issues, including but not limited to participation in the Council of Institutional Investors; the United Nations Principles for Responsible Investment; the Ceres Investor Network; the Institutional Limited Partners Association; the Thirty Percent Coalition; the Midwest Investors Diversity Initiative; the Robert F. Kennedy Compass initiative; and other ESG related organizations the MSBI may join from time to time.

3. The MSBI prepare and periodically update a Stewardship Report and other ESG informational materials provided to stakeholders and posted on the MSBI website.

4. The MSBI Executive Director develop and implement plans for reporting on and addressing ESG investment risks; to evaluate options for reducing the MSBI's investments to long-term carbon risk exposure; and to promote efforts for greater diversity and inclusion on corporate boards and within the investment industry.

Adopted this 26th day
of February, 2020

Governor Tim Walz
Chair, Minnesota
State Board of Investment

State Auditor Julie Blaha
Minnesota
State Board of Investment

Secretary of State Steve Simon
Minnesota
State Board of Investment

Attorney General Keith Ellison
Minnesota
State Board of Investment

TAB A

Report from the Executive Director

Quarterly Performance Summary

March 31, 2020

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Performance Summary

March 31, 2020

Description of SBI Investment Programs

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

Combined Funds

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

Fire Plans + Other Retirement Plans

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

Participant Directed Investment Program

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

Non-Retirement

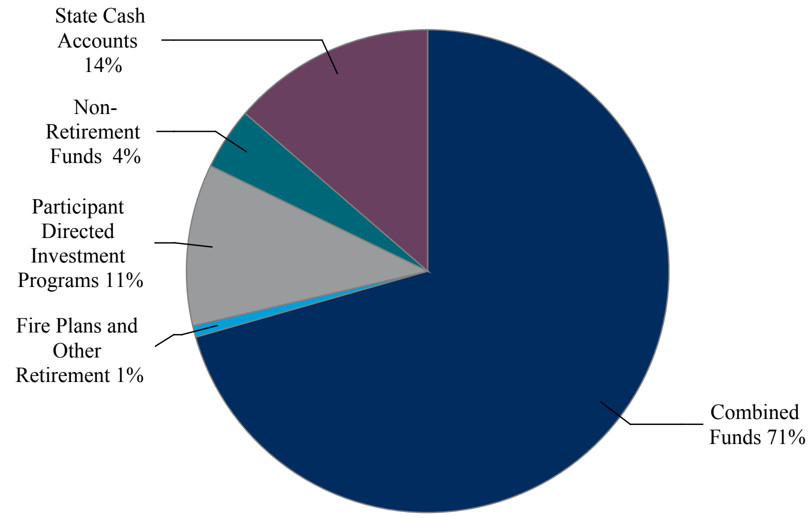
The Non-Retirement Funds are funds established by the State of Minnesota and other government entities for various purposes which include the benefit of public schools, the environment, other post-employment benefits, workers compensation insurance, and other purposes.

State Cash

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

Funds Under Management

	$ Millions
COMBINED FUNDS	**$64,559**
FIRE PLANS + OTHER RETIREMENT	**699**
PARTICIPANT DIRECTED INVESTMENT PROGRAMS	**9,903**
State Deferred Compensation Plan	6,809
Health Care Savings Plan	1,179
Unclassified Employees Retirement Plan	293
Hennepin County Supplemental Retirement Plan	142
PERA Defined Contribution Plan	67
Minnesota College Savings Plan	1,403
Minnesota Achieve a Better Life Experience	9
NON-RETIREMENT FUNDS	**3,801**
Assigned Risk Plan	294
Permanent School Fund	1,445
Environmental Trust Fund	1,119
Closed Landfill Investment Fund	90
Miscellaneous Trust Funds	245
Other Postemployment Benefits Accounts	608
STATE CASH ACCOUNTS	**12,490**
Invested Treasurer's Cash	12,333
Other State Cash Accounts	157
TOTAL SBI AUM	**91,451**



Note: Differentials within column amounts may occur due to rounding

Combined Funds Long Term Objectives

Comparison to Objective

Match or Exceed Composite Index (10 yr.)

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

	10 Year
COMBINED FUNDS	8.0%
COMBINED FUNDS - COMPOSITE INDEX	7.8
Excess	0.2

Provide Real Return (20 yr.)

Provide returns that are 3-5 percentage points greater than inflation over the latest 20 year period.

	20 Year
COMBINED FUNDS	5.6%
CPI-U	2.1
Excess	3.6

Note:

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

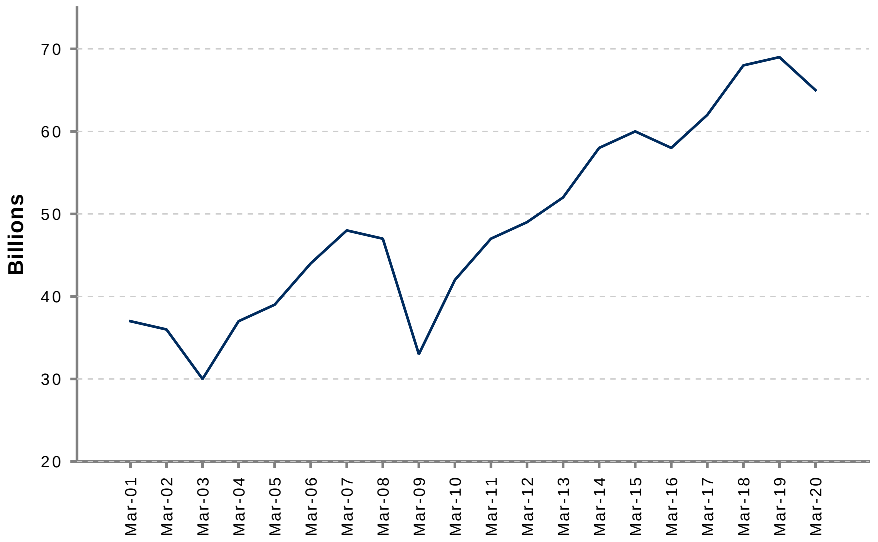
Combined Funds Summary

Combined Funds Change in Market Value ($Millions)

	One Quarter
COMBINED FUNDS	
Beginning Market Value	$74,208
Net Contributions	-653
Investment Return	-8,996
Ending Market Value	64,559

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

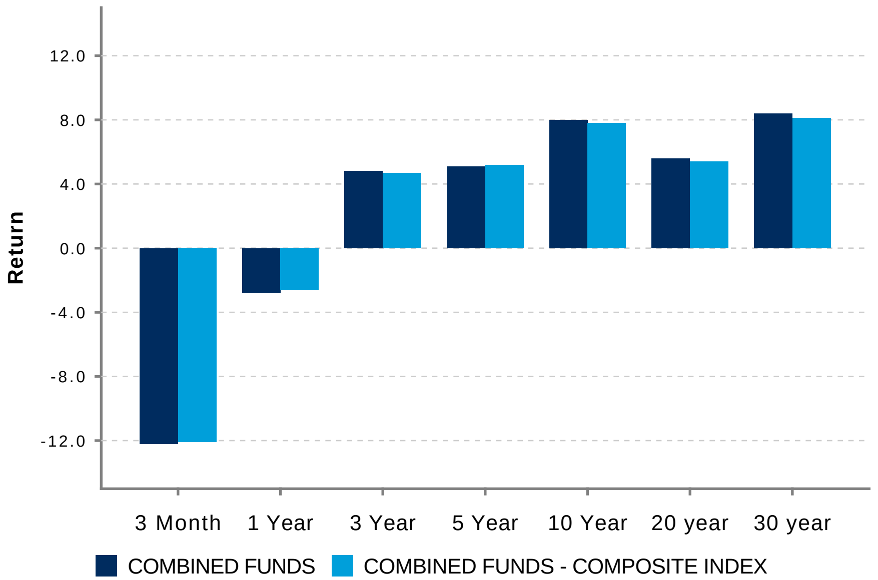
Asset Growth



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	-12.2%	-6.2%	-2.8%	4.8%	5.1%	8.0%	5.6%	8.4%
COMBINED FUNDS - COMPOSITE INDEX	-12.1	-6.0	-2.6	4.7	5.2	7.8	5.4	8.1
Excess	-0.2	-0.2	-0.3	0.1	-0.1	0.2	0.2	0.2

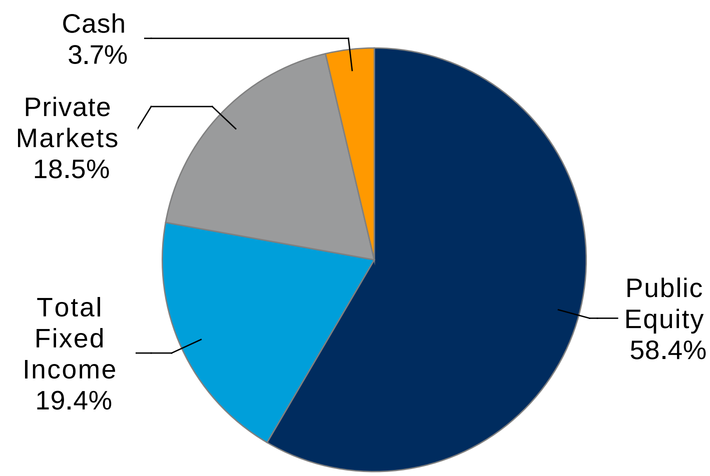


Combined Funds Summary

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.

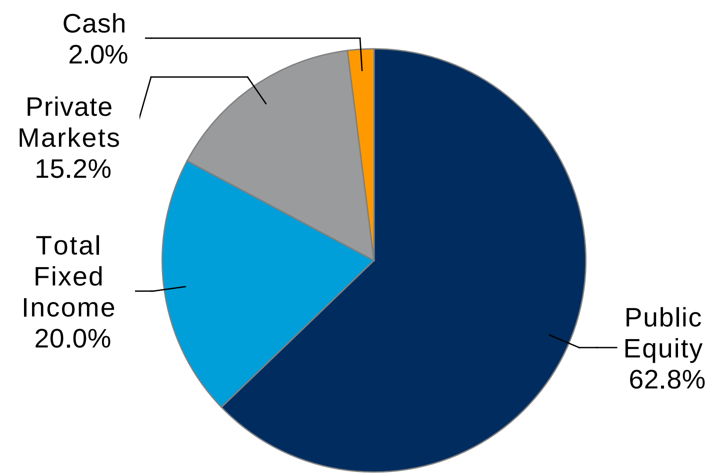
	(Millions)	Actual Mix	Policy Target
Public Equity	$37,753	58.5%	53.0%
Total Fixed Income	12,524	19.4	20.0
Private Markets	11,913	18.5	25.0
Cash	2,369	3.7	2.0
TOTAL	64,559	100.0	



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.

	Policy Weight	Market Index
Public Equity	62.8%	Public Equity Benchmark
Total Fixed Income	20.0	Total Fixed Income Benchmark
Private Markets	15.2	Private Markets
Cash	2.0	3 Month T-Bills



Combined Funds Asset Class Performance Summary

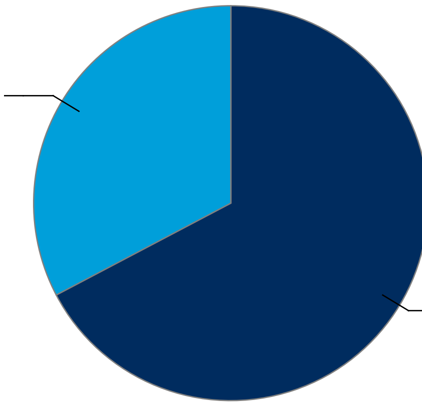
Public Equity

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.



	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 year
Public Equity	-22.0%	-15.0%	-11.7%	2.0%	3.6%	8.0%	4.1%	8.3%
Public Equity Benchmark	-22.0	-14.8	-11.7	1.9				
Excess	-0.1	-0.2	-0.1	0.1				
Domestic Equity	-21.3	-13.5	-10.0	3.7	5.3	10.0	4.6	8.8
Domestic Equity Benchmark	-21.3	-13.2	-9.7	3.8	5.6	10.1	4.7	9.0
Excess	-0.0	-0.3	-0.3	-0.0	-0.4	-0.1	-0.1	-0.2
International Equity	-23.6	-18.0	-15.3	-1.7	-0.4	2.5	2.8	
International Equity Benchmark	-23.3	-18.0	-15.6	-1.9	-0.6	2.1	2.4	
Excess	-0.2	0.0	0.2	0.2	0.2	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 Bonds and Treasuries. The Combined Funds performance for these asset classes is shown here.

The Core Bonds 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.

	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 year
Total Fixed Income	7.2%	9.9%	14.0%	6.9%	4.8%	5.1%	5.7%	6.6%
Total Fixed Income Benchmark	8.5	11.1	15.3					
Excess	-1.3	-1.2	-1.3					
Core Bonds	0.8	3.6	6.9	4.5	3.4	4.3	5.3	6.4
Core Bonds Benchmark	3.1	5.7	8.9	4.8	3.4	3.9	5.1	6.1
Excess	-2.4	-2.1	-2.1	-0.4	0.0	0.4	0.3	0.3
Treasuries	13.8	16.4	21.6					
BBG BARC 5Y + Us Tsy Idx	14.0	16.5	21.9					
Excess	-0.2	-0.2	-0.2					

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.

	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 year
Cash	0.4%	1.4%	2.1%	1.8%	1.3%	0.8%	2.1%	3.6%
US 3-Month Treasury Bill	0.6	1.6	2.3	1.8	1.2	0.6	1.7	2.9

Note:

Prior to 3/31/2020 the returns of Core Bonds and Treasuries were not reported as a total Fixed Income return. For additional information regarding historical asset class performance and benchmarks, please refer to the Combined Funds Performance Report.

STATE STREET.

Combined Funds Asset Class Performance Summary

Private Markets

	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	25 year	30 year
Private Markets	2.7%	7.1%	10.1%	12.5%	11.0%	12.1%	12.2%	13.7%	12.3%
Private Equity	3.6%	11.7%	17.2%	17.2%	15.5%	14.9%	12.8%	15.6%	
Private Credit	3.0	7.9	9.9	12.0	11.8	13.2	12.2		
Resources	0.1	-7.3	-9.7	0.4	-1.9	3.9	14.4	14.3	
Real Estate	2.1	7.7	11.1	10.9	10.9	12.0	9.1	9.7	

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

	3/31/20 ($ millions)	3/31/20 Weights	Category Ranges	
Growth - Appreciation				
Public Equity	$ 37,752.78	58.5%		
Private Equity	$ 6,893.21	10.7%		
Non-Core Real Assets	$ 2,565.29	4.0%		
Distressed/Opportunistic	$ 1,122.09	1.7%		
	$ 48,333.37	**74.9%**	*50%*	*75%*
Growth - Income-oriented				
Core Fixed Income	$ 6,361.65	9.9%		
Private Credit	$ 773.94	1.2%		
Return-Seeking Fixed Income		0.0%		
	$ 7,135.58	**11.1%**	*15%*	*30%*
Real Assets				
Core Real Estate		0.0%		
Real Assets	$ 523.81	0.8%		
	$ 523.81	**0.8%**	*0%*	*10%*
Inflation Protection				
TIPS		0.0%		
Commodities		0.0%		
		0.0%	*0%*	*10%*
Protection				
U.S. Treasuries	$ 6,162.02	9.5%		
	$ 6,162.02	**9.5%**	*5%*	*20%*
Liquidity				
Cash	$ 2,403.85	3.7%		
	$ 2,403.85	**3.7%**	*0%*	*5%*
Opportunity				
Opportunity		**0.0%**	*0%*	*10%*
Total	**$ 64,558.63**	**100.0%**		
Illiquid Asset Exposure	**$ 11,878.33**	**18.4%**	*0%*	*30%*

Volatility Equivalent Benchmark Comparison

Periods Ending 3/31/2020

As of (Date):	3/31/2020							
	1-year	*3-year*	*5-year*	*10-year*	*15-year*	*20-year*	*25-year*	*30-year*
SBI Combined Funds Return	**-2.8%**	**4.8%**	**5.1%**	**8.0%**	**7.0%**	**5.6%**	**8.0%**	**8.4%**
Volatility Equivalent Benchmark Return			**3.3%**	**5.4%**	**5.2%**	**4.3%**	**6.2%**	**6.9%**
Value Added			**1.8%**	**2.6%**	**1.8%**	**1.4%**	**1.8%**	**1.5%**

Standard Deviation: Benchmark = Combined Funds			**8.3%**	**8.3%**	**9.3%**	**9.4%**	**9.5%**	**9.4%**
Benchmark Stock Weight			**61%**	**60%**	**59%**	**61%**	**62%**	**62%**
Benchmark Bond Weight			**39%**	**40%**	**41%**	**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

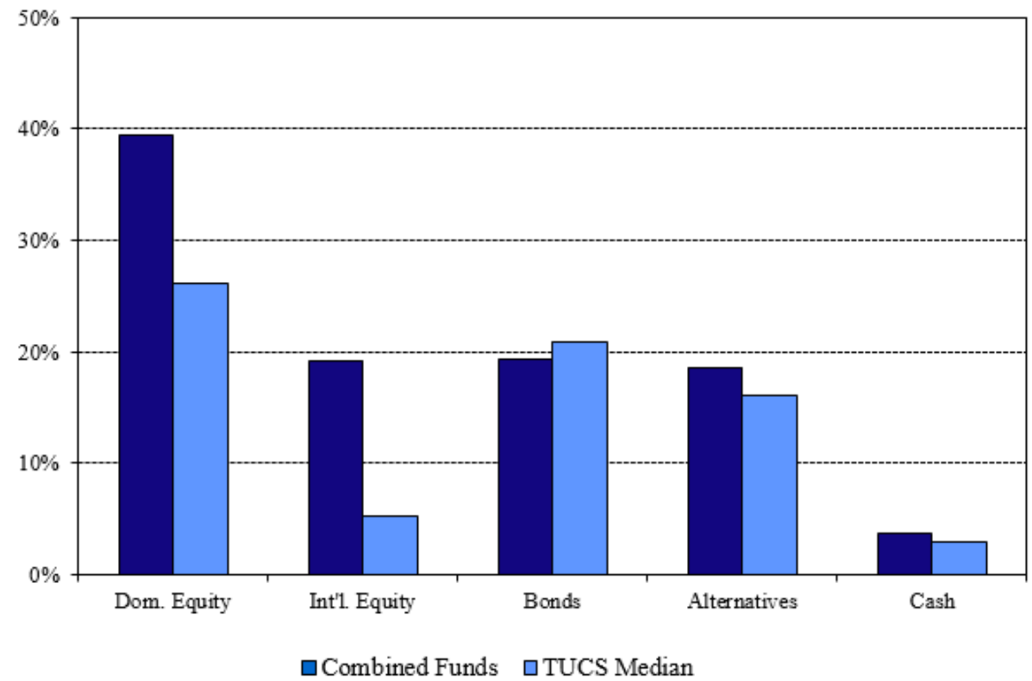
Asset Mix Compared to Other Pension Funds

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

	($Millions)	Actual Mix
Public Equity	37,753	58.5
Total Fixed Income	12,524	19.4
Private Markets	11,913	18.5
Cash	2,369	3.7
TOTAL	64,559	100.0



	Domestic Equity	International Equity	Bonds	Alternatives	Cash
Combined Funds	39.4%	19.1%	19.4%	18.5%	3.7%
Median in TUCS	26.2%	5.2%	20.8%	16.1%	2.9%

Combined Funds Summary

Performance Compared to Other Pension Funds

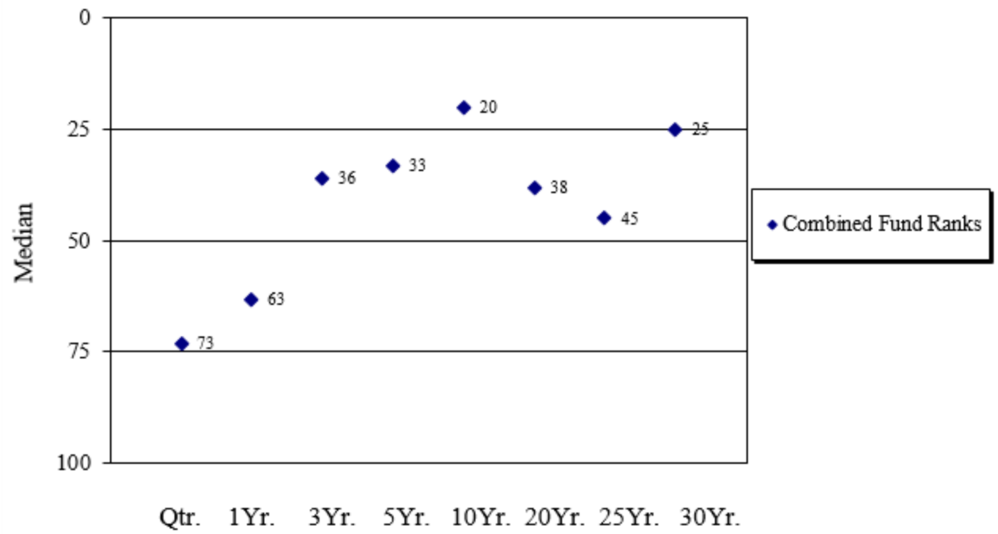
While the SBI is concerned with how its returns compare to other pension investors, universe comparisons should be used with great care. There are several reasons why such comparisons will provide an "apples to oranges" look at performance:

- 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.



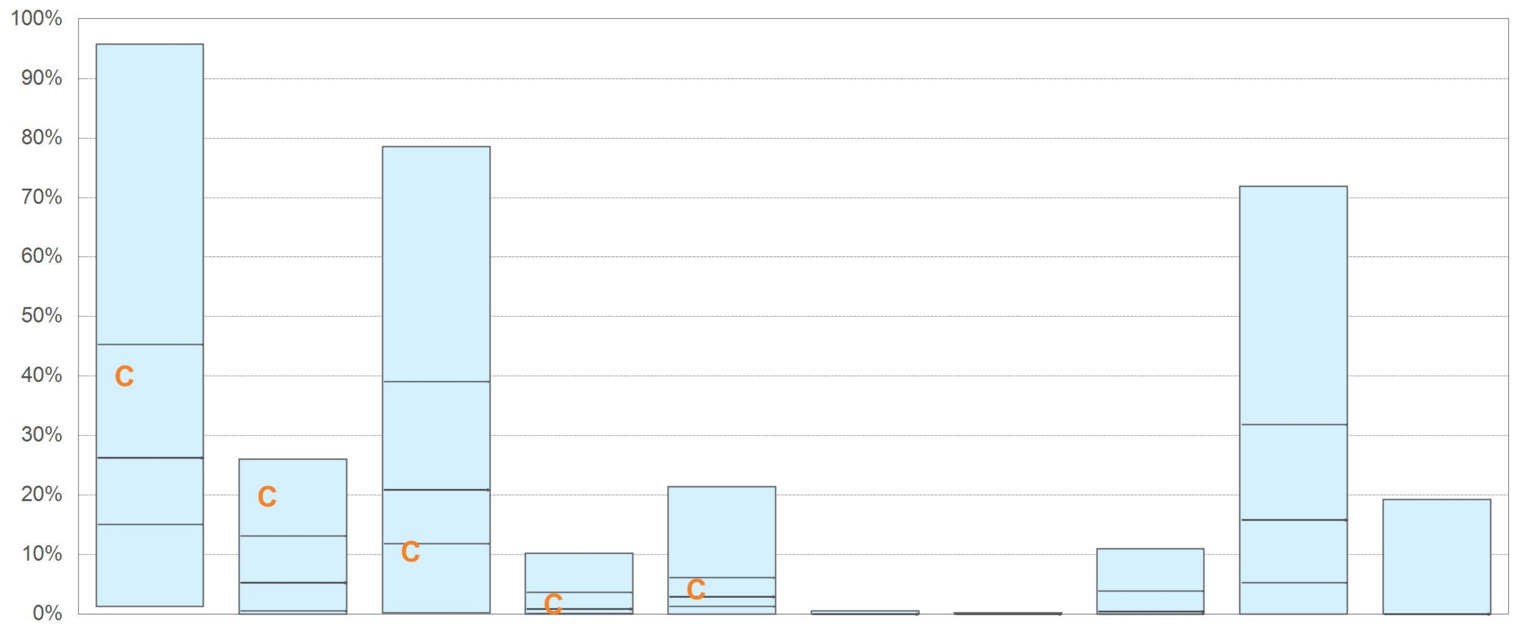
Periods Ended 03/31/2020

	Qtr	1 Yr	3 Yrs	5 Yrs	10 Yrs	20 Yrs	25 Yrs	30 Yrs
Combined Funds Percentile Rank in TUCS	73rd	63rd	36th	33rd	20th	38th	45th	25th

STATE STREET

Wilshire

Minnesota State Board of Investments
Asset Allocation of Master Trusts - Plans > $1 Billion
Quarter Ending March 31, 2020

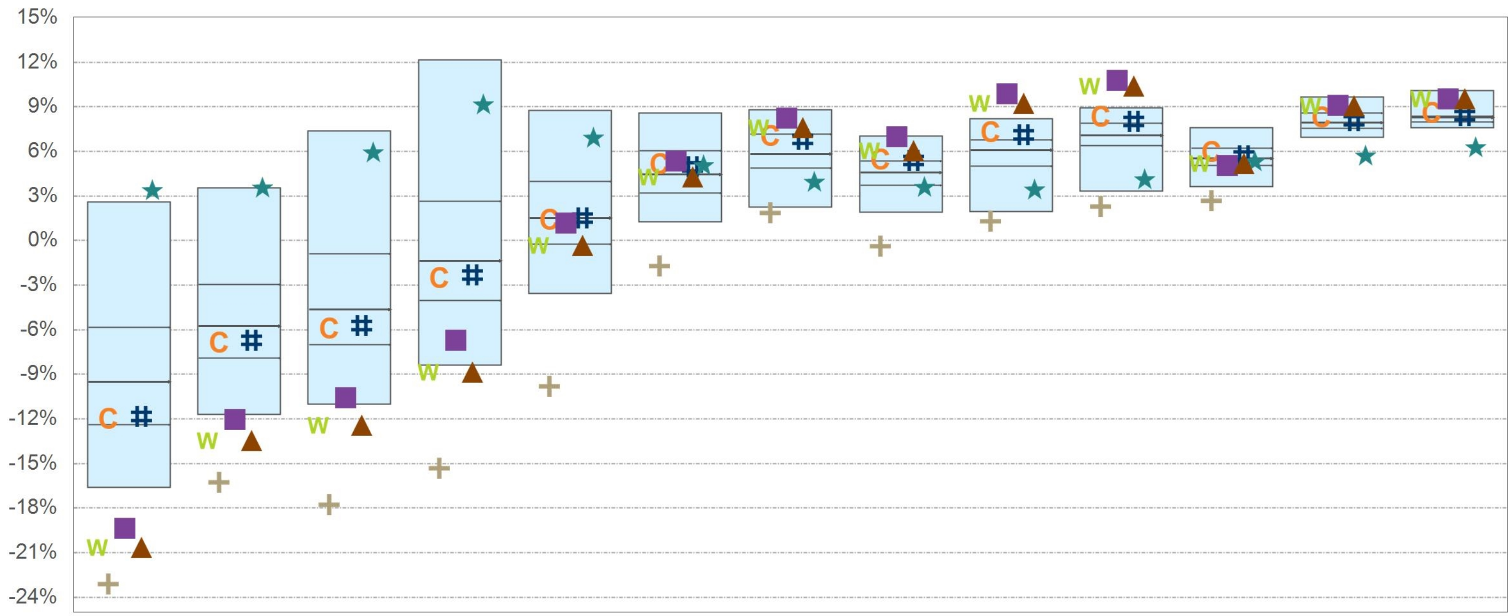


Percentile Rankings	US Equity	Non-US Equity	US Fixed	Non-US Fixed	Cash	Convertible	GIC GAC	Real Estate	Alternative Investments	Other
5th	95.85	26.02	78.62	10.17	21.36	0.47	0.19	10.98	71.95	19.29
25th	45.34	13.16	39.08	3.61	6.12	0.02	0.00	3.90	31.84	0.00
50th	26.23	5.24	20.82	0.81	2.93	0.00	0.00	0.35	15.76	0.00
75th	15.06	0.46	11.79	0.05	1.30	0.00	0.00	0.00	5.25	0.00
95th	1.21	0.00	0.18	0.00	-0.03	0.00	0.00	0.00	0.00	0.00
C Combined Funds	39.36 (29)	19.12 (10)	9.85 (78)	0.00 (100)	3.55 (44)			1.54 (35)		3.25 (12)

Minnesota State Board of Investments
Performance Comparison

Total Returns of Master Trusts - Plans > $1 Billion

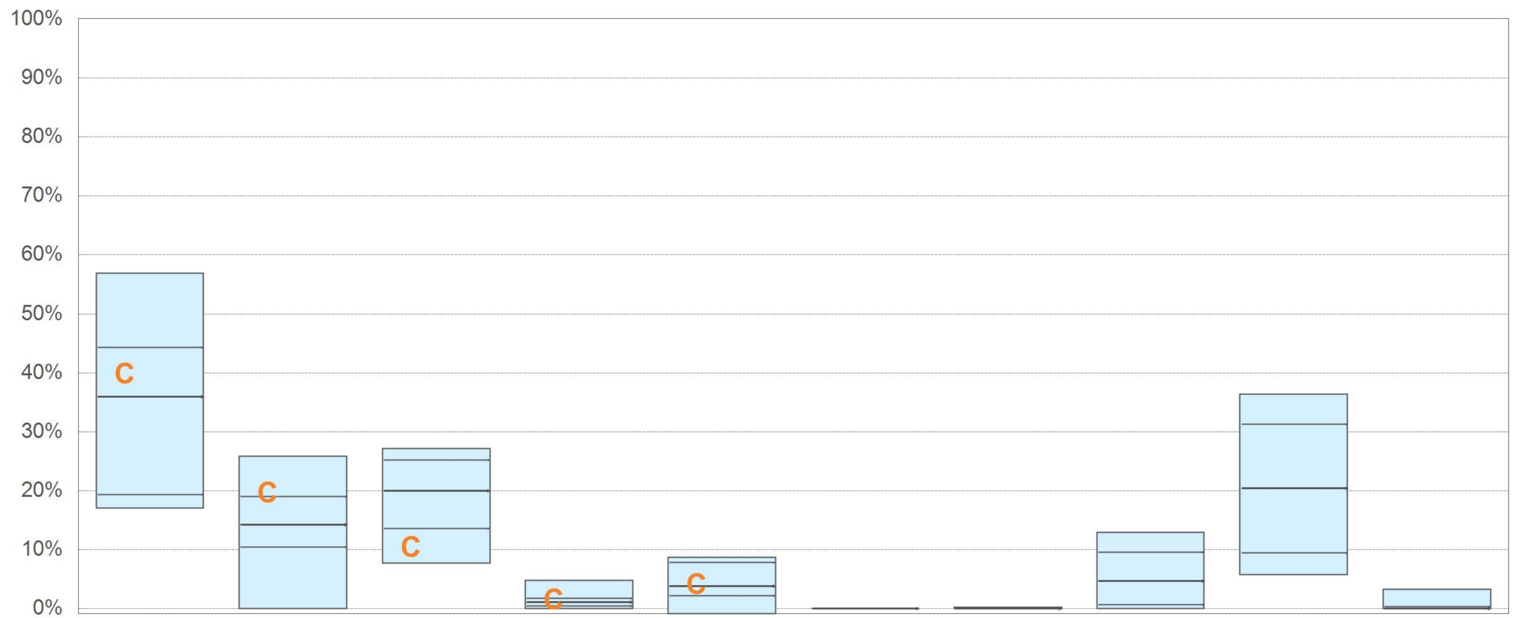
Cumulative Periods Ending : March 31, 2020



Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years	20 Years	25 Years	30 Years
5th	2.59	3.53	7.39	12.14	8.77	8.60	8.79	7.03	8.19	8.94	7.58	9.64	10.10
25th	-5.85	-2.97	-0.88	2.66	3.96	6.03	7.15	5.37	6.77	7.91	6.20	8.57	8.39
50th	-9.50	-5.76	-4.63	-1.37	1.54	4.43	5.85	4.59	6.08	7.09	5.52	7.96	8.27
75th	-12.37	-7.89	-7.02	-4.01	-0.25	3.21	4.88	3.73	5.02	6.41	5.06	7.54	7.98
95th	-16.62	-11.70	-11.01	-8.39	-3.55	1.28	2.25	1.93	1.97	3.32	3.63	6.96	7.60
No. Of Obs	132	126	123	122	120	117	117	116	116	109	87	61	33

C Combined Funds	-12.21 (73)	-7.07 (66)	-6.14 (65)	-2.75 (63)	1.19 (54)	4.94 (36)	6.81 (30)	5.21 (33)	7.09 (21)	8.11 (20)	5.76 (38)	8.05 (45)	8.39 (25)
# SBI Combined Funds Ind	-12.07 (72)	-6.97 (64)	-5.98 (63)	-2.56 (61)	1.27 (52)	4.71 (41)	6.58 (32)	5.16 (34)	6.85 (22)	7.78 (30)	5.45 (54)	7.80 (60)	8.14 (59)
W SBI Domestic Equity Ta	-20.90 (97)	-13.70 (97)	-12.70 (97)	-9.13 (95)	-0.58 (81)	4.00 (59)	7.35 (17)	5.77 (18)	8.96 (3)	10.15 (2)	4.91 (80)	8.81 (15)	9.29 (8)
★ SBI Fixed Income Targe	3.15 (4)	3.33 (5)	5.68 (7)	8.93 (9)	6.68 (8)	4.82 (38)	3.71 (88)	3.36 (82)	3.19 (91)	3.88 (94)	5.08 (72)	5.49 (99)	6.05 (100)
■ S&P 500	-19.60 (96)	-12.31 (96)	-10.82 (94)	-6.98 (92)	0.93 (61)	5.11 (32)	8.00 (8)	6.73 (8)	9.62 (3)	10.53 (1)	4.78 (84)	8.85 (15)	9.27 (8)
+ MSCI World Ex US (N)	-23.35 (98)	-16.52 (98)	-18.02 (97)	-15.57 (97)	-10.07 (97)	-1.96 (97)	1.61 (97)	-0.64 (97)	1.06 (98)	2.05 (97)	2.42 (100)		
▲ Russell 3000	-20.90 (97)	-13.70 (97)	-12.70 (97)	-9.13 (95)	-0.58 (81)	4.00 (59)	7.35 (17)	5.77 (18)	8.96 (3)	10.15 (2)	4.91 (80)	8.81 (15)	9.29 (8)

Minnesota State Board of Investments
Asset Allocation of Master Trusts - Public : Plans > $10 Billion
Quarter Ending March 31, 2020

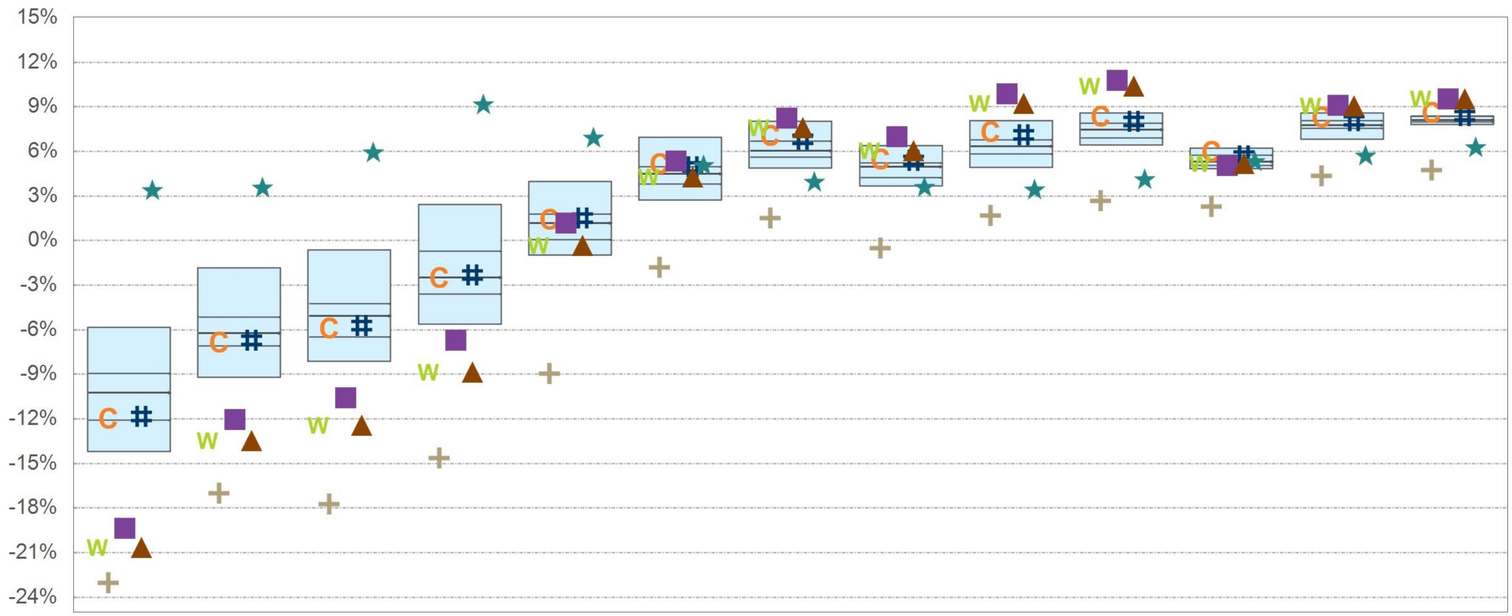


Percentile Rankings	US Equity	Non-US Equity	US Fixed	Non-US Fixed	Cash	Convertible	GIC GAC	Real Estate	Alternative Investments	Other
5th	56.91	25.84	27.19	4.82	8.68	0.06	0.21	12.96	36.41	3.25
25th	44.33	19.07	25.21	1.72	7.88	0.02	0.00	9.57	31.28	0.37
50th	35.96	14.29	19.97	1.11	3.78	0.00	0.00	4.74	20.44	0.00
75th	19.38	10.40	13.54	0.43	2.15	0.00	0.00	0.62	9.46	0.00
95th	17.05	0.01	7.78	0.00	-0.85	0.00	0.00	0.00	5.79	0.00
C Combined Funds	39.36 (30)	19.12 (20)	9.85 (94)	0.00 (100)	3.55 (54)			1.54 (66)		3.25 (5)

Minnesota State Board of Investments
Performance Comparison

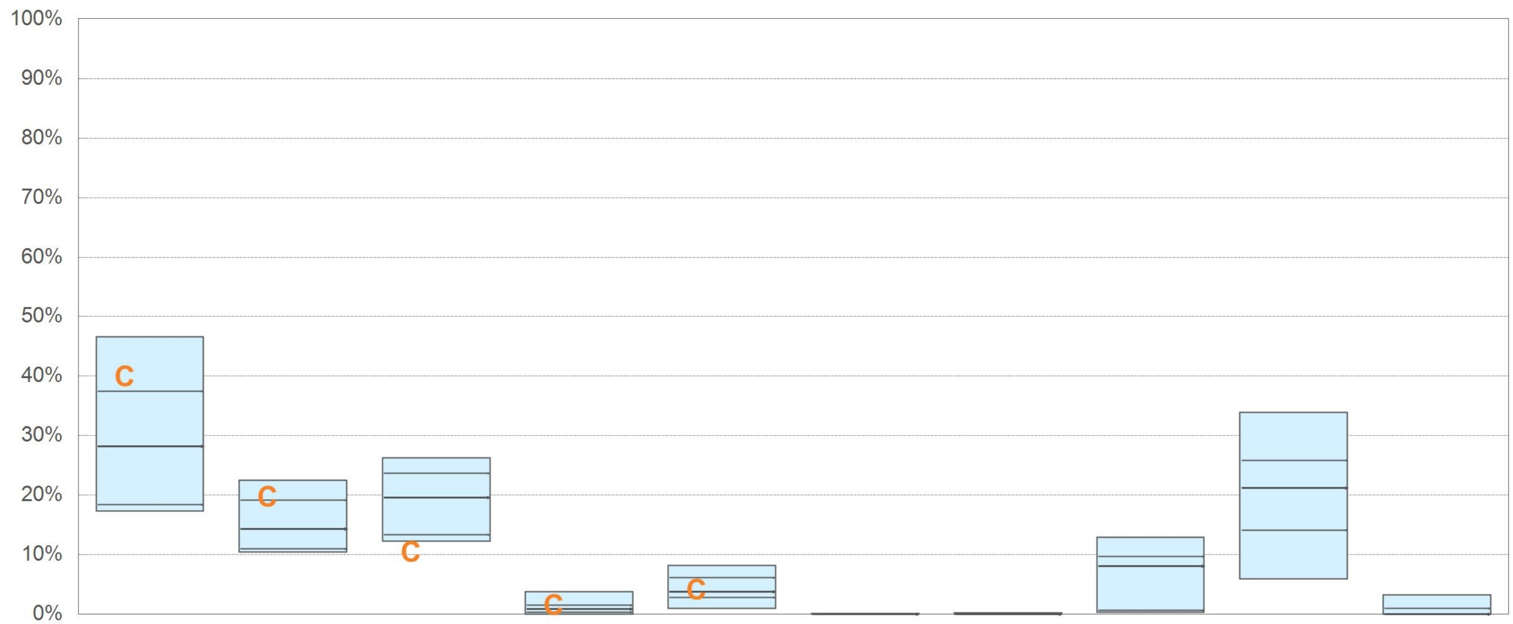
Total Returns of Master Trusts - Public : Plans > $10 Billion

Cumulative Periods Ending : March 31, 2020



Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years	20 Years	25 Years	30 Years
5th	-5.85	-1.82	-0.65	2.42	3.96	6.95	8.04	6.40	8.07	8.60	6.22	8.59	8.38
25th	-8.94	-5.13	-4.24	-0.72	1.80	4.97	6.68	5.24	6.78	7.88	5.76	8.05	8.35
50th	-10.22	-6.23	-5.06	-2.49	1.16	4.48	6.06	4.95	6.33	7.45	5.31	7.78	8.09
75th	-12.10	-7.07	-6.49	-3.59	0.05	3.80	5.60	4.25	5.84	6.90	5.06	7.54	7.98
95th	-14.18	-9.18	-8.12	-5.62	-0.99	2.71	4.89	3.69	4.93	6.43	4.83	6.80	7.82
No. Of Obs	36	35	34	33	33	33	33	33	33	30	28	24	19
C Combined Funds	-12.21 (78)	-7.07 (75)	-6.14 (68)	-2.75 (62)	1.19 (46)	4.94 (31)	6.81 (19)	5.21 (31)	7.09 (19)	8.11 (18)	5.76 (25)	8.05 (25)	8.39 (1)
# SBI Combined Funds Ind	-12.07 (72)	-6.97 (71)	-5.98 (65)	-2.56 (53)	1.27 (37)	4.71 (40)	6.58 (28)	5.16 (31)	6.85 (22)	7.78 (25)	5.45 (39)	7.80 (45)	8.14 (45)
W SBI Domestic Equity Ta	-20.90 (99)	-13.70 (99)	-12.70 (99)	-9.13 (99)	-0.58 (81)	4.00 (65)	7.35 (11)	5.77 (16)	8.96 (1)	10.15 (1)	4.91 (87)	8.81 (1)	9.29 (1)

Minnesota State Board of Investments
Asset Allocation of Master Trusts - Public : Plans > $20 Billion
Quarter Ending March 31, 2020

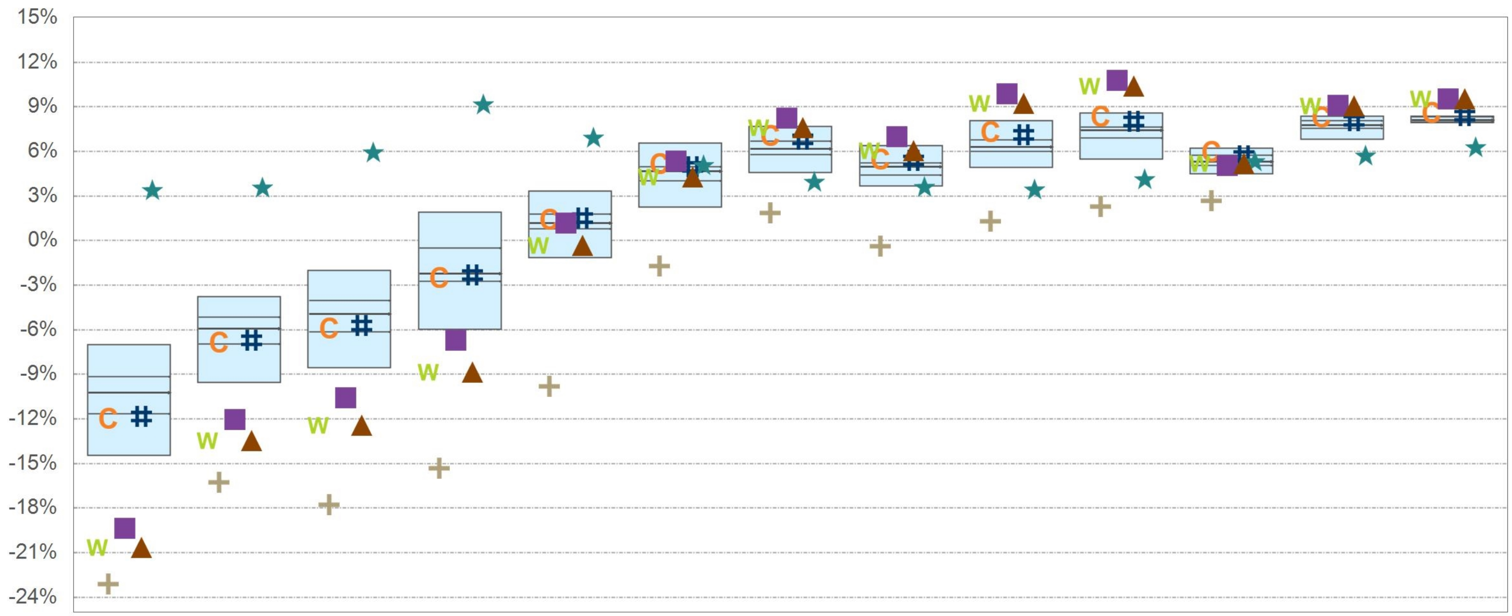


Percentile Rankings	US Equity	Non-US Equity	US Fixed	Non-US Fixed	Cash	Convertible	GIC GAC	Real Estate	Alternative Investments	Other
5th	46.61	22.45	26.23	3.74	8.18	0.06	0.21	12.96	33.86	3.25
25th	37.43	19.12	23.71	1.54	6.12	0.00	0.00	9.64	25.81	0.97
50th	28.18	14.35	19.55	0.91	3.78	0.00	0.00	8.05	21.24	0.00
75th	18.37	11.02	13.33	0.33	2.85	0.00	0.00	0.62	14.05	0.00
95th	17.28	10.40	12.28	0.01	0.92	0.00	0.00	0.36	5.90	0.00
C Combined Funds	39.36 (15)	19.12 (25)	9.85 (100)	0.00 (100)	3.55 (58)			1.54 (58)		3.25 (5)

Minnesota State Board of Investments
Performance Comparison

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

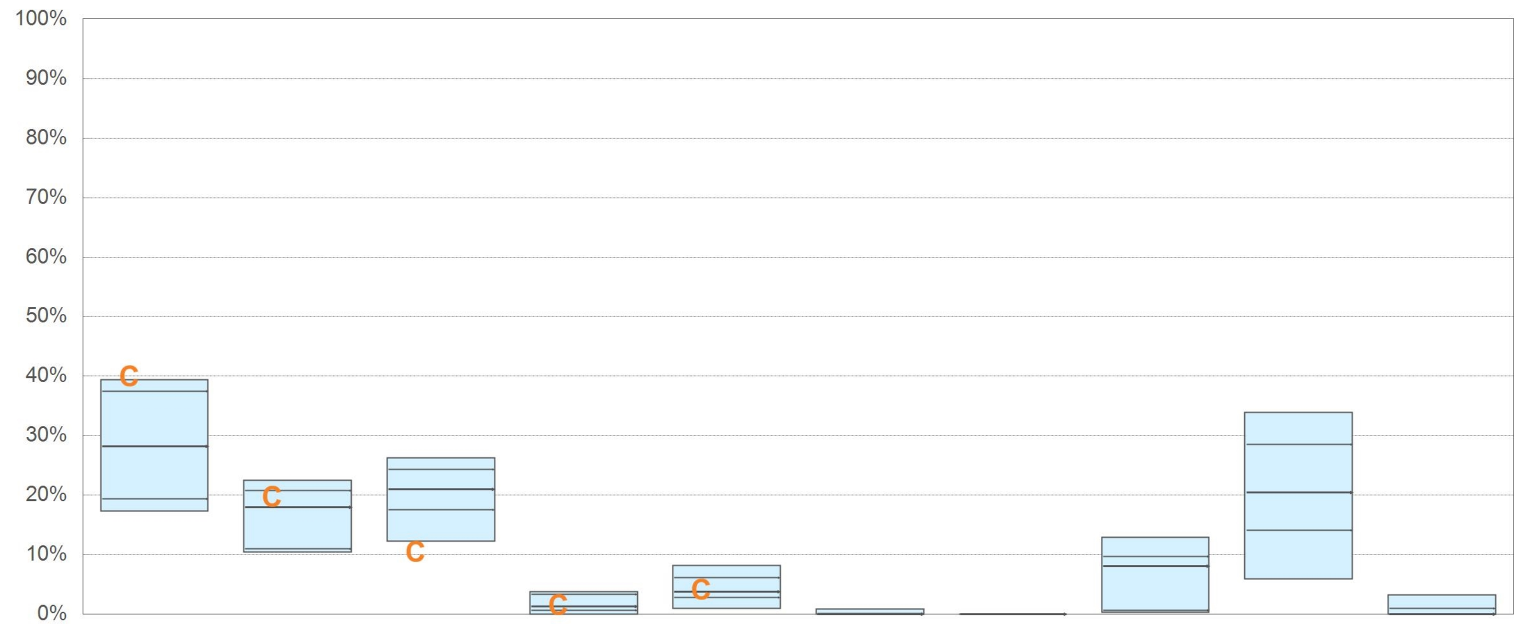
Cumulative Periods Ending : March 31, 2020



Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years	20 Years	25 Years	30 Years
5th	-7.02	-3.79	-2.00	1.92	3.35	6.55	7.70	6.40	8.07	8.60	6.22	8.37	8.38
25th	-9.16	-5.13	-4.02	-0.50	1.80	4.97	6.67	5.24	6.77	7.63	5.76	8.05	8.32
50th	-10.22	-5.91	-4.93	-2.23	1.20	4.65	6.19	4.96	6.32	7.44	5.31	7.78	8.09
75th	-11.66	-6.94	-6.14	-2.75	0.79	4.00	5.77	4.41	5.98	6.90	5.05	7.54	7.98
95th	-14.43	-9.53	-8.55	-5.99	-1.14	2.25	4.56	3.69	4.93	5.47	4.49	6.80	7.94
No. Of Obs	23	23	23	23	23	23	23	23	23	21	20	17	14
C Combined Funds	-12.21 (84)	-7.07 (84)	-6.14 (75)	-2.75 (75)	1.19 (55)	4.94 (29)	6.81 (15)	5.21 (29)	7.09 (20)	8.11 (15)	5.76 (25)	8.05 (25)	8.39 (1)
# SBI Combined Funds Ind	-12.07 (79)	-6.97 (79)	-5.98 (70)	-2.56 (60)	1.27 (41)	4.71 (41)	6.58 (25)	5.16 (29)	6.85 (20)	7.78 (20)	5.45 (40)	7.80 (43)	8.14 (41)
W SBI Domestic Equity Ta	-20.90 (99)	-13.70 (99)	-12.70 (99)	-9.13 (99)	-0.58 (89)	4.00 (75)	7.35 (5)	5.77 (10)	8.96 (1)	10.15 (1)	4.91 (87)	8.81 (1)	9.29 (1)

Wilshire

Minnesota State Board of Investments
Asset Allocation of Master Trusts - Public : Plans > $50 Billion
Quarter Ending March 31, 2020

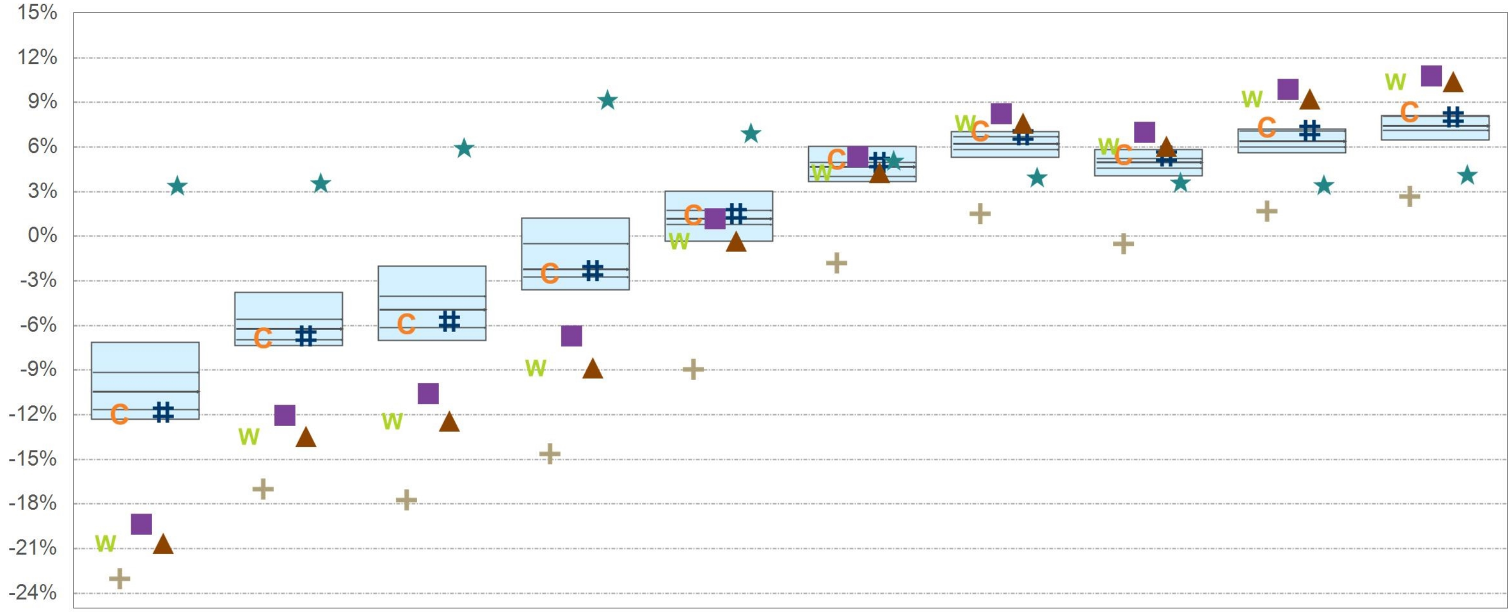


Percentile Rankings	US Equity	Non-US Equity	US Fixed	Non-US Fixed	Cash	Convertible	GIC GAC	Real Estate	Alternative Investments	Other
5th	39.36	22.45	26.23	3.74	8.18	0.82	-	12.96	33.86	3.25
25th	37.43	20.81	24.38	3.32	6.12	0.06	-	9.64	28.52	0.97
50th	28.18	17.98	21.00	1.29	3.78	0.00	-	8.05	20.44	0.00
75th	19.38	11.02	17.59	0.67	2.85	0.00	-	0.62	14.05	0.00
95th	17.28	10.40	12.28	0.01	0.92	0.00	-	0.36	5.90	0.00
C Combined Funds	39.36 (5)	19.12 (33)	9.85 (100)	0.00 (100)	3.55 (58)			1.54 (58)		3.25 (5)

Minnesota State Board of Investments
Performance Comparison

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

Cumulative Periods Ending : March 31, 2020



Percentile Rankings	1 Qtr	2 Qtrs	3 Qtrs	1 Year	2 Years	3 Years	4 Years	5 Years	7 Years	10 Years
5th	-7.13	-3.79	-2.00	1.21	3.03	6.04	7.05	5.82	7.22	8.13
25th	-9.16	-5.56	-4.02	-0.50	1.72	4.97	6.67	5.24	7.09	8.05
50th	-10.46	-6.23	-4.93	-2.23	1.20	4.65	6.21	4.97	6.38	7.44
75th	-11.66	-6.94	-6.14	-2.75	0.79	4.00	5.81	4.58	6.02	7.12
95th	-12.29	-7.33	-7.02	-3.59	-0.31	3.69	5.31	4.08	5.60	6.48
No. Of Obs	16	16	16	16	16	16	16	16	16	15
C Combined Funds	-12.21 (91)	-7.07 (91)	-6.14 (75)	-2.75 (75)	1.19 (56)	4.94 (31)	6.81 (15)	5.21 (31)	7.09 (25)	8.11 (15)
# SBI Combined Funds Ind	-12.07 (83)	-6.97 (83)	-5.98 (68)	-2.56 (56)	1.27 (37)	4.71 (37)	6.58 (25)	5.16 (31)	6.85 (25)	7.78 (25)
W SBI Domestic Equity Ta	-20.90 (100)	-13.70 (100)	-12.70 (100)	-9.13 (100)	-0.58 (99)	4.00 (75)	7.35 (1)	5.77 (5)	8.96 (1)	10.15 (1)
★ SBI Fixed Income Targe	3.15 (1)	3.33 (1)	5.68 (1)	8.93 (1)	6.68 (1)	4.82 (37)	3.71 (100)	3.36 (100)	3.19 (100)	3.88 (100)
■ S&P 500	-19.60 (100)	-12.31 (100)	-10.82 (100)	-6.98 (100)	0.93 (68)	5.11 (5)	8.00 (1)	6.73 (1)	9.62 (1)	10.53 (1)
+ MSCI Wld Ex US (Net)	-23.26 (100)	-17.23 (100)	-18.00 (100)	-14.89 (100)	-9.21 (100)	-2.07 (100)	1.25 (100)	-0.76 (100)	1.44 (100)	2.43 (100)
▲ Russell 3000	-20.90 (100)	-13.70 (100)	-12.70 (100)	-9.13 (100)	-0.58 (99)	4.00 (75)	7.35 (1)	5.77 (5)	8.96 (1)	10.15 (1)

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TAB B

Report from the Executive Director

Administrative Report

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EXECUTIVE DIRECTOR'S ADMINISTRATIVE REPORT

DATE: May 21, 2020

TO: Members, State Board of Investment

FROM: Mansco Perry III

1. Reports on Budget and Travel

A report on the SBI's administrative budget for the fiscal year to date through March 31, 2020 is included as **Attachment A**.

A report on travel for the period from January 1, 2020 – March 31, 2020 is included as **Attachment B**.

2. Legislative Update

I will present an update on legislation matters. A summary is included in **Attachment C**.

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 first quarter, there were no restricted companies on the SBI divestment list, therefore no restricted shares to sell.

On March 16, 2020, staff sent a letter to each international equity manager and domestic equity manager containing the most recent restricted list and the list of stocks to be divested in compliance with Minnesota law.

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 first quarter, there were no restricted companies on the SBI divestment list, therefore no restricted shares to sell.

On March 16, 2020, staff sent a letter to each international equity manager, domestic equity manager and fixed income manager containing the most recent restricted list and the list of companies to be divested in compliance with Minnesota law.

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 2020 ADMINISTRATIVE BUDGET REPORT
FISCAL YEAR TO DATE THROUGH MARCH 31, 2020

ITEM	FISCAL YEAR 2020 BUDGET	FISCAL YEAR 2020 3/31/2020
PERSONNEL SERVICES		
FULL TIME EMPLOYEES	$ 5,559,000	$ 3,242,403
PART TIME EMPLOYEES	0	0
MISCELLANEOUS PAYROLL	125,000	3,806
SUBTOTAL	**$ 5,684,000**	**$ 3,246,209**
STATE OPERATIONS		
RENTS & LEASES	285,000	233,398
REPAIRS/ALTERATIONS/MAINTENANCE	20,000	12,774
PRINTING & BINDING	12,000	7,057
PROFESSIONAL/TECHNICAL SERVICES	260,000	95,618
COMPUTER SYSTEMS SERVICES	120,000	102,102
COMMUNICATIONS	25,000	13,119
TRAVEL, IN-STATE	1,000	672
TRAVEL, OUT-STATE	125,000	66,087
SUPPLIES	30,000	34,910
EQUIPMENT	60,000	44,815
EMPLOYEE DEVELOPMENT	125,000	89,264
OTHER OPERATING COSTS	125,000	105,130
INDIRECT COSTS	300,000	131,529
SUBTOTAL	**$ 1,488,000**	**$ 936,473**
TOTAL ADMINISTRATIVE BUDGET	**$ 7,172,000**	**$ 4,182,682**

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ATTACHMENT B

STATE BOARD OF INVESTMENT

Travel Summary by Date
January 1, 2020 - March 31, 2020

Purpose	Name	Destination / Date	Total Cost
Manager Monitoring **Private Markets Manager:** Prudential Private Capital	C. Boll	Chicago, IL 2/3/2020-2/4/2020	$ 572.24
Manager Monitoring **Private Markets Managers:** Madison Dearborn; Merit Capital; Banc Funds **Consultant:** Aon Hewitt Investment Consulting Inc.	A. Christensen	Chicago, IL 2/6/2020-2/7/2020	623.07
Conference: National Association of Public Pension Attorneys (NAPPA) 2020 Winter Seminar	J. Mulé	Pheonix, AZ 2/18/2020-2/21/2020	1,940.20
Conference: National Association of Public Pension Attorneys (NAPPA) 2020 Winter Seminar	J. Weber	Phoenix, AZ 2/18/2020-2/21/2020	1,863.73
In-State Travel: Presentation to Litchfield and Eden Valley Fire Relief Associations	P. Ammann	Litchfield, MN 2/20/2020	85.68
In-State Travel: Presentation to Litchfield and Eden Valley Fire Relief Associations	S. Baribeau	Litchfield, MN 2/20/2020	85.68
Manager Monitoring **Private Markets Managers:** BlackRock Long Term Capital; Blackstone	A. Krech	New York, NY 3/2/2020-3/4/2020	1,243.25

STATE BOARD OF INVESTMENT

Travel Summary by Date
January 1, 2020 - March 31, 2020

Purpose	Name	Destination / Date	Total Cost
Manager Monitoring **Private Markets Managers:** TPG; Thoma Bravo **Manager Search** **Private Markets Managers:** FTV Capital	J. Stacy	San Francisco, CA 3/2/2020-3/4/2020	$ 1,723.27
Manager Monitoring **Private Markets Managers:** Whitehorse Liquidity; Brookfield Capital Partners **Manager Search** **Private Markets Managers:** Brookfield Infrastructure Partners	N. Blumenshine	Toronto, Canada 3/3/2020-3/5/2020	998.98

ATTACHMENT C Updated 05.19.2020

BILLS OF INTEREST TO THE MINNESOTA STATE BOARD OF INVESTMENT

Bill No.	Author	Name of Bill	Current Status	Notes
HF3272 **HF3903** SF4023 **SF3808**	Albright, et al. Frentz, et al.	State Board of Investment investments authorized	05/17: HF3903: See below 05/17: SF3808: The House and Senate passed the bill unanimously	The bill would authorize the SBI to invest in private markets investments through separate accounts and coinvestment vehicles. The bill would exempt liquid alternative investments from the statutory market value cap on traditional private markets vehicles. Additionally, the bill would authorize the SBI to invest in bank loans. The bill was included in the 2020 Pension Bill in Article 1, which was passed by the House and Senate unanimously.
HF4461	Schultz, et al.	Long-Term Services and Supports Trust Fund	03/16: HF2329: The bill was referred to the Tax Committee	The bill would establish a Long-Term Services and Supports Trust Fund from which the Commissioner of Human Services would be authorized to pay for certain services benefiting qualified individuals requiring long-term care services. The trust would be a separate account in the general fund and all investment returns associated with the trust would be credited to the trust. The SBI would serve on an advisory board responsible for policies related to the trust.
HF3777 **HF3903** SF3672 **SF3808**	Her, et al. Rosen, et al.	Public Pension Plan Portfolio and Performance Reporting Requirements Refined	05/17: HF3903: See below 05/13: SF3808: The bill passed the House and Senate unanimously	The bill would eliminate or change certain reporting requirements that public pensions submit to the State Auditor's Office reports regarding each pensions' portfolio holdings and returns. The bill was included in the 2020 Pension Bill in Article 4, which was passed by the House and Senate unanimously.
HF4206 SF4130 **SF4564**	Sundin, et al. Utke, et al.	Workers Compensation Advisory Council Recommendations Adoption	05/15: HF4206: The bill passed the House unanimously 05/13: SF4130 was substituted with HF4206, which passed the Senate; SF4564 passed the Senate.	The bill creates a workers' compensation COVID-19 reimbursement fund. The assets of the fund will be managed by the SBI. The fund provides reimbursement to workers compensation providers (i.e. insurance companies; self-insured entities; governmental entities) that make workers' compensation to employees for COIVID-19 related conditions in the event total payments exceed a threshold amount. The language pertaining to the SBI survived in SF4564.
HF3641 SF3455	Kunesh-Podein, et al. Eichorn, et al.	Permanent School Fund Endowment Examination Task Force	02.20: HF3641: The bill was referred to the Education Finance Committee 02/20: SF3455 The bill was referred to the E-12 Finance and Policy Committee	The bill would establish a task force to evaluate potential changes to the Fund including changes to the asset allocation and potential constitutional/statutory amendments to modify spending authority. The SBI would appoint a member to the task force.

HF2836 SF3143	Hornstein, et al. Dibble, et al.	Minnesota Green New Deal	04/12/2019: HF2836 was referred to the Energy and Climate Finance and Policy Division. 02/13/2020: SF3143 was referred to the Environment and Natural Resources Policy Committee	The bill would require the SBI to evaluate the risks and impacts of divesting from fossil fuel companies (exploring, drilling, processing, transporting, sale) and investing the assets in other companies.

TAB C

Report from the SBI Administrative Committee

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SBI ADMINISTRATIVE COMMITTEE REPORT

DATE: May 21, 2020

TO: Members, State Board of Investment

FROM: SBI Administrative Committee

The Administrative Committee met on May 8, 2020 and May 15, 2020 to consider the following agenda items:

- Review of Executive Director's Proposed Work Plan for FY21
- Review of Budget Plan for FY21 and FY22
- Review of Continuing Fiduciary Education Plan
- Review of Executive Director's Evaluation and Salary Process
- Update of Business Continuity Plan

The members of the SBI Administrative Committee are:

Karl Procaccini	Chair and Governor's Representative
Bibi Black	Secretary of State's Representative
Ramona Advani	State Auditor's Representative
Christie Eller	Attorney General's Representative
Erin Leonard	Minnesota State Retirement System (MSRS)
Jay Stoffel	Teachers Retirement Association (TRA)
Doug Anderson	Public Employees Retirement Association (PERA)
Gary Martin	IAC Representative
Shawn Wischmeier	IAC Representative

Action is required by the SBI on the first four items.

1. Review of Executive Director's Proposed Work Plan for FY21

The Executive Director's Proposed Work Plan for FY21 was presented. As in previous work plans, the FY21 plan follows the same category order found in the Executive Director's position description. The plan is a compilation of on-going responsibilities as well as the new initiatives the Executive Director will undertake during the next fiscal year.

A summary of the proposed plan is shown in **Attachment A on Page 5** of this tab. The Executive Director will review the work plan summary. Supporting information is included in the FY21 Management and Budget Plan document.

RECOMMENDATION:

The Committee recommends that the SBI approve the FY21 Executive Director's Work Plan. Further, the Committee recommends that the Work Plan serve as a basis for the Executive Director's performance evaluation for FY21.

The Investment Advisory Council (IAC) endorses the above recommendation.

2. Review of Budget Plan for FY21 and FY22

The SBI's Administrative Budget is set annually by the Board. The budget is comprised of several portions:

Personnel Services
Operating Expenses
Investment Support Services
Directed Commission Services

The budget is funded by a combination of:

- direct charge-backs to entities that invest with the SBI;
- an appropriation by the legislature from the general fund to support management of general fund assets;
- directed appropriations budget from the investment asset pool; and
- the directed commissions budget received from the SBI's use of active investment management.

An overview of the budget is shown in **Attachment B on page 9 of this Tab**. Supporting information was sent to each Board member in April 2020 as part of the FY21 Management and Budget Plan.

RECOMMENDATION:

The Committee recommends that the SBI approve the FY21, and FY22 Administrative Budget Plan, as presented to the Committee and subject to any legislative appropriation changes; and that the Executive Director have the flexibility to reallocate funds between budget categories if the Executive Director deems necessary.

The Investment Advisory Council (IAC) endorses the above recommendation.

3. Review of Continuing Fiduciary Education Plan

Minnesota Statutes, Chapter 356A requires each public pension plan to establish a continuing education plan for its fiduciaries. The Continuing Fiduciary Education Plan is shown in **Attachment C on page 15 of this Tab**. Please note that the travel allocation policy for Board members and their designees is included in the plan.

RECOMMENDATION:

The Committee recommends that the SBI adopt the attached Continuing Fiduciary Education Plan.

4. **Review of Executive Director's Evaluation and Salary Process**

The Committee discussed the process that will be used by the Board to evaluate the Executive Director for FY20. The Committee members agreed that the performance reviews should be completed by October 1st and should follow the process as discussed.

RECOMMENDATION:

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 primarily 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 determined with consideration of 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, as indicated on the Evaluation Form by a majority of evaluations. 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.**

5. **Update of Business Continuity Plan**

Staff noted that the annual SBI Business Continuity Plan update had been completed.

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ATTACHMENT A

STATE BOARD OF INVESTMENT
Executive Director's Proposed Work Plan

FY21
(Categories A, B, C, D, E correspond to the position description)

A. DEVELOPMENT OF INVESTMENT POLICIES	**Projected Time Frame**
1. Participant Directed Investment Program (PDIP)	Jun. – Jun.
2. Review of Fixed Income Investment Structure for the Combined Funds	Begin Jul.
3. Review of Public Equity Investment Structure for the Combined Funds	Begin Jul.
B. IMPLEMENTATION OF INVESTMENT POLICIES APPROVED BY THE SBI	
1. Private Markets / Alternatives Consultant(s) Selection	Apr. – Jan.
2. Review of the current Minnesota Target Retirement Fund Option and Establish a Bench List of Approved Target Date Fund Managers	Jun. – Jun.
3. Portfolio Rebalancing: Transition Management	Ongoing
4. Meet or Exceed the Performance Objectives	Ongoing
5. Investments with New and Existing Private Markets Managers	Ongoing
6. Public Markets Manager Search Process	Ongoing
7. Conduct Investment Manager Portfolio and Compliance Review of Guidelines and Contracts	Ongoing
8. Implement State Law Concerning Iran	Ongoing
9. Implement State Law Concerning Sudan	Ongoing

C. REVIEW AND CONTROL OF INVESTMENT POLICIES

1.	Monitor and Evaluate Investment Manager Performance	Ongoing
2.	Public Markets Manager Guidelines	Ongoing
3.	Provide Staff Support to Proxy Committee	Jul. – Jun.
4.	Monitor Implementation of Northern Ireland Mandate	Oct. – Mar.
5.	Provide Staff Support for Corporate Actions and Miscellaneous Legal Issues	Jul. – Jun.

D. ADMINISTRATION AND MANAGEMENT

1.	Coordinate Financial Audit by Legislative Auditor	Jul. – Dec.
2.	Legislative Package Fiscal Year 2021	Jul – May
3.	Prepare Fiscal Year 2022 Management and Budget Plan	Mar. – Jun.
5.	Annual Update of Business Continuity Plan	Apr. – Jun.
6.	Prepare Annual Supplemental Investment Fund (SIF) Investment Options Prospectus and Information Booklet for the Statewide Volunteer Firefighter Retirement Plan (SVFRP)	May – Sep.
7.	Prepare Annual Non-Retirement Prospectus for the Trusts and Other Participating Entities; Other Postemployment Benefits (OPEB); and Qualifying Governmental Entities	May – Sep.
8.	Respond to Minnesota Government Data Practices Act Requests	Ongoing

E. COMMUNICATION AND REPORTING

1.	Prepare reports on investment results	Ongoing
2.	Meet with SBI and IAC	Ongoing

3.	Meet with Board's designees	Ongoing
4.	Prepare Fiscal Year 2020 Annual Report	Jul. – Jan.
5.	Coordinate Public Pension Plan Performance Reporting Disclosure	Ongoing
6.	Roundtable Discussions	Ongoing
7.	Redesign of the State Board of Investment Website	Apr. – Mar.

F. OTHER ITEMS

During the course of the year, the Executive Director may encounter other significant items which must be addressed that were not contemplated at the time the annual workplan was developed. Any such items will be reported in the Executive Director's Workplan Status Report.

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ATTACHMENT B

Administrative Budget
Fiscal Year 2021 & 2022 Budget Plan
Overview

The Fiscal Years 2021 and 2022 budget process is based on budget procedures instituted by Minnesota Management and Budget. The SBI receives a General Fund appropriation (currently $139,000) to support the management of the General Fund portion of the Invested Treasurer's Cash (ITC) pool. The remaining budget revenues are generated from invoicing actual cost of services to plans that have funds under SBI management.

The Fiscal Year 2021 budget includes 35 Full Time Equivalent (FTE) positions. The SBI added two information technology positions, two investment positions and one accounting position. The SBI has included a 3% projected salary increase in the budget for all staff in Fiscal Years 2021 and 2022. The investment staff salaries also include a 3% performance increase that requires approval from the Board. The actual salary increases for non-investment staff will be determined by legislative negotiated contracts per bargaining unit. The investment staff salary increases, if any, will be determined in accordance with the SBI Salary Plan.

In Fiscal Years 2021 and 2022, the SBI anticipates an increase in the operating expense portion of the budget for Professional Technical Services, Computer System Services, Travel, Employee Development, Supplies and the Equipment line items. The increase to the Professional Technical Services portion of the budget is for a redesign of our web site and a contract for an IT risk assessment. The Computer System Services budget line increased because the SBI is adding additional licenses/users to the Client Relationship Management (CRM) software. The Employee Development line was increased to accommodate additional staff that the SBI will be hiring. The SBI has increased the supply budget for additional supply type items in case the SBI needs to remodel for additional staffing. Staff did a thorough review of our equipment and have determined that the SBI will need to replace a server and a color printer, and will need computers and cubicle setups for additional staff.

Administrative Budget
Fiscal Year 2021 & 2022 Budget Plan

	FY2020 Budget	FY2020 Projected	FY2021 Request	FY2022 Request
Personnel Services	$5,684,000	$4,417,300	$6,846,000	$7,024,000
Operating Expense	1,488,000	1,260,500	2,004,000	1,696,000
Total	$7,172,000	$5,677,800	$8,850,000	$8,720,000

Personnel Services: Personnel Services are estimated to account for 77% of the requested Fiscal Year 2021 budget and 81% of the requested Fiscal Year 2022 budget.

Personnel Services include salaries, retirement, insurance, FICA and severance.

Operating Expenses: Operating Expenses are estimated to account for 23% of the requested Fiscal Year 2021 budget, and 19% of the requested Fiscal Year 2022 budget.

Operating Expenses include rents, leases, printing, data processing, communications, travel, employee development, miscellaneous fees, office equipment, furnishings and supplies.

Investment Support Services Budget
Fiscal Year 2021 & 2022 Budget Plan
Overview

The SBI currently has three Investment Support Services contracts that are funded from the Investment Support Services budget. The SBI is in the process of adding a Private Markets consultant.

	FY2020 Budget	**FY2020 Projected**	**FY2021 Request**	**FY2022 Request**
Investment Support	$5,000,000	$1,165,600	$5,000,000	$5,000,000
Total	$5,000,000	$1,165,600	$5,000,000	$5,000,000

Investment Support: The Investment Support Services budget will cover the following contracts for FY20 and FY21: Aon Hewitt Investment Consulting, Inc., Meketa Investment Group, Broadridge Financial Solutions, Inc. and a new Private Markets consultant(s).

STATE BOARD OF INVESTMENT
ADMINISTRATIVE BUDGET PLAN
FISCAL YEARS 2021 AND 2022

DESCRIPTION	FY2020 BUDGET	FY2020 PROJECTED	FY2021 PROPOSED	FY2022 PROPOSED
PERSONNEL SERVICES				
FULL TIME EMPLOYEES	$ 5,559,000	4,367,500	$ 6,721,000	$ 6,899,000
OTHER BENEFITS	125,000	49,800	125,000	125,000
SUBTOTAL	$ 5,684,000	$ 4,417,300	$ 6,846,000	$ 7,024,000
STATE OPERATIONS				
RENTS & LEASES	285,000	280,700	285,000	285,000
PRINTING & BINDING	12,000	10,600	12,000	12,000
PROFESSIONAL/TECHNICAL SERVICES	260,000	112,000	360,000	310,000
COMPUTER SYSTEMS SERVICES	120,000	128,200	150,000	150,000
COMMUNICATIONS	25,000	19,300	25,000	25,000
TRAVEL, IN-STATE	1,000	900	3,000	3,000
TRAVEL, OUT-STATE	125,000	88,600	235,000	235,000
EMPLOYEE DEVELOPMENT	125,000	105,000	150,000	150,000
SUPPLIES	30,000	39,800	150,000	50,000
REPAIRS/ALTERATIONS/MAINTENANCE	20,000	17,700	21,000	21,000
INDIRECT COSTS	300,000	289,000	300,000	300,000
OTHER OPERATING COSTS	125,000	113,200	125,000	125,000
EQUIPMENT	60,000	55,500	188,000	30,000
SUBTOTAL	$ 1,488,000	$ 1,260,500	$ 2,004,000	$ 1,696,000
TOTAL MSBI OPERATING FUND	$ 7,172,000	$ 5,677,800	$ 8,850,000	$ 8,720,000
PERCENT INCREASE (DECREASE) OVER PRIOR YEAR BUDGET			23.4%	-1.5%

STATE BOARD OF INVESTMENT
INVESTMENT SUPPORT SERVICES BUDGET PLAN
FISCAL YEARS 2021 AND 2022

DESCRIPTION	FY2020 BUDGET	FY2020 PROJECTED	FY2021 PROPOSED	FY2022 PROPOSED
STATE OPERATIONS				
PROFESSIONAL/TECHNICAL SERVICES	4,500,000	800,000	4,500,000	4,500,000
COMPUTER SYSTEMS SERVICES	500,000	365,600	500,000	500,000
TOTAL	$ 5,000,000	$ 1,165,600	$ 5,000,000	$ 5,000,000
PERCENT INCREASE (DECREASE) OVER PRIOR YEAR BUDGET			0.0%	0.0%

STATE BOARD OF INVESTMENT
DIRECTED COMMISSIONS
CALENDAR YEAR 2020

DESCRIPTION	CY2019 BUDGET	CY2019 ACTUAL	CY2020 PROPOSED
DIRECTED COMMISSIONS			
DIRECTED COMMISSIONS	1,127,000	$ 1,113,200	1,170,000
PERCENT INCREASE (DECREASE) OVER PRIOR YEAR BUDGET			3.82%

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ATTACHMENT C

CONTINUING FIDUCIARY EDUCATION PLAN

REQUIRED BY MS 356A.13

The State Board of Investment (SBI) undertakes the following activities related to fiduciary education. Taken as a group, these activities shall constitute the plan for continuing fiduciary education required by Minnesota Statutes 356A.13. In addition, pursuant to statutory requirements of qualification, the SBI Executive Director and many members of the Board's Investment Advisory Council (IAC) can be reasonably considered to be experts with respect to their duties as fiduciaries.

1. Briefing for New Board/IAC Members

Shortly after election to the Board or appointment to the IAC, each new member is briefed on SBI operations and policies. As part of the briefing, SBI's legal counsel will review the member's fiduciary obligations and responsibilities as specified in *Minnesota Statutes,* Chapters 11A and 356A.

2. Development and Review of Investment Policies

The SBI adopts comprehensive investment policies for each fund under its control. The policies cover investment objectives, asset allocation, management structure, and performance evaluation. Policy papers or reports on these topics are developed and written by SBI staff in conjunction with the IAC and consultants. Relevant research and analyses from the academic and professional investment fields are used to formulate these policy guidelines.

After the Board formally adopts them, these written policies guide the management of all assets under the SBI's control. The SBI intends to review its stated investment policies periodically. This review may occur within the framework of the SBI's regular quarterly meetings or may take place at special meetings or seminars specifically designated for this purpose.

3. Input from Board's Consultants

The SBI retains outside investment consultants to advise the Board members on a wide variety of investment management issues. As part of their contracts with the SBI, the consultants offer to meet with the Board members or their designees to discuss investment-related issues. These individual consultations occur throughout the year. In addition, the general consultant is available at each meeting of the Board and IAC. These meetings are supplemented by quarterly reports on investment performance prepared by the general consultant.

4. Roundtable Discussions

Roundtable discussions will be held periodically for Board members, Investment Advisory Council members, and other interested parties. The Roundtable Discussions will be presented primarily by SBI consultants, investment managers, and /or SBI Staff. The discussions will focus on investment or other relevant educational information which is pertinent to the management and / or oversight of the SBI Investment Programs.

5. Travel Allocation

The SBI allocates $10,000 annually to each Board member (or their designee) for costs associated with attendance at investment-related seminars and conferences. This allocation is used at the discretion of each Board member.

2019 Minnesota Statutes

356A.13 CONTINUING FIDUCIARY EDUCATION

Subdivision 1. **Obligation of fiduciaries**. A fiduciary of a covered pension plan shall make reasonable effort to obtain knowledge and skills sufficient to enable the fiduciary to perform fiduciary activities adequately. At a minimum, a fiduciary of a covered pension plan shall comply with the program established in accordance with subdivision 2.

Subd. 2. **Continuing fiduciary education program**. The governing boards covered pension plans shall each develop and periodically revise a program for the continuing education of any of their board members and any of their chief administrative officers who are not reasonably considered to be experts with respect to their activities as fiduciaries. The program must be designed to provide those persons with knowledge and skills sufficient to enable them to perform their fiduciary activities adequately.

TAB D

IAC Membership Review Committee Report

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IAC MEMBERSHIP REVIEW COMMITTEE REPORT

DATE: May 21, 2020

TO: Members, State Board of Investment

FROM: IAC Membership Review Committee

On May 1st and May 8, 2020, the Investment Advisory Council (IAC) Membership Review Committee of the Minnesota State Board of Investment (MSBI) met to review applications for IAC membership. The Committee is comprised of the designees of the Governor (Karl Procaccini), State Auditor (Ramona Advani), Secretary of State (Bibi Black) and Attorney General (Christie Eller). Mr. Procaccini served as Chair.

The term of five members of the Investment Advisory Council have expired and there is one vacancy on the Council due to a retirement that will expire in January 2023. The five members were as follows:

Kim Faust	Vice President and Treasurer Fairview Health Services
Susanna Gibbons	Managing Director, Carlson Funds Enterprise Carlson School of Management
Morris Goodwin Jr.	Senior Vice President and Chief Financial Officer American Public Media Group
Carol Peterfeso	Chief Treasury and Investment Officer University of St. Thomas
Shawn Wischmeier	Chief Investment Officer Margaret A. Cargill Philanthropies

All the individuals above have each submitted an application for reappointment to the IAC.

In addition, the Committee received five new applications for membership to the Council. The new applicants are as follows:

Ms. Ellen Brownell	Senior Investment Advisor Pohlad Investment Management, LLC
Mr. Niko E. LeMieux	
Mr. David McGee	Executive Director Build Wealth MN, Inc.
Mr. Shawn Murphy	Board Manager Capitol Region Watershed District
Mr. Sibi Murugesan	Head of Platform & Investor Earnest Capital

After reviewing all the applications, the Committee is making the following recommendations.

RECOMMENDATIONS:

The Committee recommends that the Board reappoint the following as members of the Investment Advisory Council, with terms expiring in January 2024:

Ms. Kim Faust
Ms. Susanna Gibbons
Mr. Morris Goodwin Jr.
Ms. Carol Peterfeso
Mr. Shawn Wischmeier

The Committee also recommends that the Board appoint the following applicant to the Investment Advisory Council, with a term expiring in January 2023:

Ms. Ellen Brownell

TAB E

Investment Advisory Council Report

Private Markets Program Report and Commitments for Consideration

INVESTMENT ADVISORY COUNCIL REPORT

DATE: May 21, 2020

TO: Members, State Board of Investment

FROM: Members, Investment Advisory Council and SBI Staff

SUBJECT: Private Markets Commitments for Consideration

Staff has reviewed the following action agenda item:

A. Status of SBI Current Private Markets Commitments
B. Consideration of new commitments

Existing Managers:

Distressed/Opportunistic	Oaktree	Oaktree Opportunities Fund XI	$300 Million
Private Credit	TCW	TALF Opportunities Fund	$100 Million

SBI action is required on item B.

A. Status of SBI Current Private Markets Commitments

Minnesota State Board of Investment

Combined Funds

March 31, 2020

Combined Funds Market Value	$64,558,631,446
Amount Available for Investment	**$555,348,577**

	Current Level	Target Level	Difference
Market Value (MV)	$11,878,331,412	$16,139,657,861	$4,261,326,449
MV +Unfunded	$22,040,172,429	$22,595,521,006	$555,348,577

Asset Class	Market Value	Unfunded Commitment	Total
Private Equity	$6,893,205,483	$6,310,681,054	$13,203,886,537
Private Credit	$773,936,037	$844,801,702	$1,618,737,740
Real Assets	$2,097,322,624	$857,249,287	$2,954,571,910
Real Estate	$991,780,987	$1,291,465,540	$2,283,246,527
Distressed/Opportunistic	$1,122,086,281	$857,643,433	$1,979,729,715
Total	$11,878,331,412	$10,161,841,016	$22,040,172,429

Cash Flows

March 31, 2020

Calendar Year	Capital Calls	Distributions	Net Invested
2020 (3 months)	$708,969,446	($367,423,046)	$341,546,400
2019	$2,543,614,503	($2,080,037,860)	$463,576,642
2018	$1,992,000,341	($2,049,733,815)	($57,733,474)
2017	$2,021,595,780	($2,383,863,711)	($362,267,931)
2016	$1,874,320,138	($1,728,367,357)	$145,952,781

B. Consideration of New Investment Commitments

ACTION ITEMS:

1) **Investment with an existing distressed/opportunistic manager, Oaktree Capital Management ("Oaktree") in Oaktree Opportunities Fund XI ("Fund XI").**

   Oaktree is forming Oaktree Opportunities Fund XI to invest opportunistically in debt of financially distressed companies. Oaktree will focus on companies with hard asset values, dependable cash flows, and durable business franchises. The strategy will provide downside protection by emphasizing: senior or secured debt, a mix of public and private debt, tangible underlying value of assets or franchise, and limited concentrations of positions. Fund XI will employ a flexible investment approach across asset classes and geographies to capitalize on evolving opportunities.

   In addition to reviewing the attractiveness of the Opportunities Fund XI 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 Opportunities Fund XI is included as **Attachment A beginning on page 5.**

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

2) **Investment with an existing private credit manager, TCW Asset Management Company LLC ("TCW") in TCW TALF Opportunities Fund ("Fund").**

   TCW is forming TALF Opportunities Fund to participate in the Federal Reserve's new Term Asset-Backed Securities Loan Facility ("TALF"). The Fund will acquire TALF-eligible assets utilizing nonrecourse financing lines provided under the terms of the TALF program by the Federal Reserve Bank of New York. TCW sees an opportunity to generate attractive risk-adjusted returns by investing in commercial mortgage-backed securities ("CMBS") and newly issued asset-backed securities ("ABS") in select sectors with the highest credit ratings. The Fund expects to obtain leverage through its participation in TALF.

In addition to reviewing the attractiveness of the TALF Opportunities 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 TALF Opportunities Fund is included as **Attachment B 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 $100 million, or 20% of TCW TALF Opportunities 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 TCW 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 TCW or reduction or termination of the commitment.

ATTACHMENT A

DISTRESSED/OPPORTUNISTIC MANAGER SUMMARY PROFILE

I. Background Data

Name of Fund:	Oaktree Opportunities Funds XI, L.P.
Type of Fund:	Distressed/Opportunistic
Target Fund Size:	$15 billion
Fund Manager:	Oaktree Capital Management, L.P.
Manager Contact:	Mike Trefz 1301 Avenue of Americas New York, NY 10019

II. Organization and Staff

Oaktree Capital Management, L.P. is forming Oaktree Opportunities Fund XI to take advantage of opportunities arising from financial distress, as well as to provide Oaktree with flexibility to react to changing market conditions in the distressed debt marketplace. Oaktree was formed in April 1995 and is headquartered in Los Angeles, California, with more than 950 employees in offices in 19 cities worldwide. Oaktree's senior executives and investment professionals have focused on less efficient markets and alternative investments for over 34 years. Oaktree emphasizes an opportunistic, value-oriented and risk-controlled approach to investments in real estate, distressed debt, corporate debt (including mezzanine finance, high yield debt and senior loans), control investing, convertible securities, listed equities and multi-strategy solutions.

The Senior Executives

The current senior executives of Oaktree are Howard Marks, Bruce Karsh, Jay Wintrob, John Frank and Sheldon Stone. The original founders formed Oaktree in April 1995 after having managed funds in the high yield bond, distressed debt, private equity and convertible securities areas of Trust Company of the West (together with its affiliates, "TCW") for approximately 10 years. The senior executives have led the investment of clients' funds in the consistent, risk-controlled manner called for by Oaktree's philosophy, generally resulting in what Oaktree believes to be an impressive track record, reduced risk and satisfied clients.

Distressed Debt Investing Activities

By the mid-1980s, the experience of Howard Marks and Sheldon Stone in extracting recoveries from their holdings of high yield bonds in default convinced them that high returns could be earned in portfolios organized expressly for that purpose. In 1987, Bruce Karsh joined the TCW team to organize funds dedicated exclusively to distressed debt investments (SCF I through SCF IV) and has been the portfolio manager of such funds since their inception. Mr. Karsh had previously practiced law and then served as a special assistant for opportunistic investments to the Chairman of Sun Life Insurance Company of America and its parent, SunAmerica, Inc. Since 1988, the team has organized 23 non-control pooled distressed debt funds (six Special Credits Funds and 17 Opportunities Funds) which, together with all related trusts and separate accounts managed with the same investment strategy, have total capital commitments of approximately $53 billion. The professional staff focused on the Opportunities Funds has grown to a total of approximately 50.

The Oaktree Team

Oaktree is dedicated to highly professional management in a limited number of specialized investment niches. In Oaktree's view, its main strength is its staff of over 950 people, as of December 31, 2019, including nearly 400 investment, legal and compliance professionals and nearly 500 administrative and marketing professionals; these people are the core of Oaktree. The professionals are active in portfolio management, investment analysis, trading, legal, client service and administration; approximately 50 of these professionals focus on Oaktree's distressed debt investment activities and will also manage the Fund.

Brookfield Asset Management Transaction

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

III. Investment Strategy

The Fund will seek to realize substantial capital appreciation without subjecting principal to undue risk. The Fund will seek to achieve this objective primarily through investment, in connection with episodes of financial distress, in debt or equity securities or other obligations at substantial discounts to their original value and by realizing gains through sales of restructured debt obligations or newly issued securities obtained through exchanges resulting from reorganizations and restructurings.

Consistent across all of Oaktree's areas of specialization, their philosophy and approach to investing places first priority on avoiding losses. Thus, as applied to distressed opportunities, Oaktree strongly emphasize senior and secured debt, protection from underlying asset values and reasonable diversification of positions, usually below 10% and never above 15%. Oaktree will always act as long-term investors, not short-term traders.

Oaktree's approach is highly quantitative, although informed by experience and judgment. To determine the value of the underlying company, the Firm assess its business and competitive position, strength of management, industry fundamentals and other relevant factors.

Oaktree has the flexibility to capitalize on changing market conditions in order to identify the best opportunities on a global basis at any one point in time. They "right size" their funds to the opportunity set at hand. Potential categories for the types of investments that the Firm makes include:

- Corporate distressed debt opportunities in a restructuring;
- Corporate distressed debt opportunities not in a restructuring;
- Distressed real estate investments;
- Portfolios of non-performing loans;
- Platform investments in distressed assets, markets and/or sectors;
- Opportunistic equity investments in distressed industries;
- Post-reorganization equities; and
- Stressed high yield bonds.

During dislocated markets when the supply of corporate distressed debt blooms, they are intrepid investors. Oaktree demonstrated this most recently when they invested more than $6 billion in capital during the time between when Lehman Brothers filed for bankruptcy on September 15, 2008 and the end of 2008. During benign environments when the supply of corporate distressed debt is more limited and distressed opportunities are more concentrated in idiosyncratic pockets of dislocation, they are disciplined sellers. They believe that this discipline provides an important source of risk mitigation.

While Oaktree has the flexibility to purchase a variety of different investment opportunities, buying corporate distressed debt that later gets converted into equity has historically been their "bread and butter." In these situations, their assumption is that they will hold their investments throughout the entire restructuring process and contribute value and reduce uncertainty by being highly active in that process, often in a leadership role. In this way, Oaktree best assures the outcome for the credit classes to which the funds belong.

Throughout the life cycle of an investment, Oaktree incorporates environmental, social and governance ("ESG") topics into the investment, analysis, and decision-making process. Oaktree has a Socially Responsible Investing ("SRI") policy informed by the principles set forth in the United Nations Principles for Responsible Investment (the "UNPRI"). The ability of Oaktree's Distressed Debt team to assess and influence ESG issues varies significantly by investment. Situations where they can have access to full due diligence and where they obtain control allows them to better detect and address ESG issues relative to where they may be limited to public information or have non-controlling investment. In evaluating an existing or prospective investment, Oaktree's Distressed Debt investment professionals generally seek to (a) identify ESG issues that may affect the investment, (b) analyze the relative importance of, and risk posed by, any identified ESG issue, (c) consider the costs and benefits of potential remedial measures and (d) assess our ability to influence change. Based on the foregoing analysis, they may seek to foster change in some circumstances or even forgo investments in others.

IV. Investment Performance

Previous fund performance as of December 31, 2019 in shown below:

Fund	Vintage Year	Total Commitments	SBI Investment	Net IRR*	Net MOIC*	Net DPI*
Oaktree Opps Fund	1995	$770 Million	--	10.2%	1.6	1.6
Oaktree Opps Fund II	1997	$1.550 Billion	--	8.5	1.5	1.5
Oaktree Opps Fund III	1999	$2.076 Billion	--	11.9	1.5	1.5
Oaktree Opps Fund IV	2001	$2.124 Billion	--	28.1	1.7	1.7
Oaktree Opps Fund IVb	2002	$1.338 Billion	--	47.3	1.8	1.8
Oaktree Opps Fund V	2004	$1.178 Billion	--	14.1	1.7	1.7
Oaktree Opps Fund VI	2005	$1.773 Billion	--	8.8	1.6	1.6
Oaktree Opps Fund VII	2007	$3.598 Billion	--	7.3	1.4	1.4
Oaktree Opps Fund VIIb	2008	$10.940 Billion	--	16.5	1.7	1.7
Oaktree Opps Fund VIII	2009	$4.507 Billion	--	9.0	1.5	1.4
Oaktree Opps Fund VIIIb	2011	$2.692 Billion	--	6.2	1.4	1.0
Oaktree Opps Fund IX	2013	$5.066 Billion	--	4.1	1.2	.50
Oaktree Opps Fund X	2015	$3.242 Billion	$50 Million	10.9	1.3	.10
Oaktree Opps Fund Xb	2018	$8.562 Billion	$100 Million	-5.40	1.0	N/A

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

V. Investment Period and Term

The investment period will run for three years, starting on the earlier of: (a) the Fund becoming 20% invested; or (b) the first anniversary of the Fund's initial investment. The Fund term lasts 10-years from the start of the investment period, subject to an extension.

ATTACHMENT B

PRIVATE CREDIT MANAGER SUMMARY PROFILE

I. *Background Data*

Name of Fund:	TCW TALF Opportunities Fund LP
Type of Fund:	Private Credit
Total Fund Size:	$1 billion
Fund Manager:	TCW Asset Management
Manager Contact:	Judy Hirsch 865 South Figueroa Street Los Angeles, CA 90017

II. *Organization and Staff*

TCW Asset Management Company LLC plans to launch the TALF Opportunities Fund LP to take advantage of the Federal Reserve's new Term Asset-Backed Securities Loan Facility ("TALF"). The Fund will acquire TALF-eligible assets utilizing nonrecourse financing lines provided under the terms of the TALF program by the Federal Reserve Bank of New York.

Founded in 1971 and based in Los Angeles, TCW manages equity, fixed income, and alternative assets on behalf of institutional and private clients. TCW's clients include corporate and public pension plans, financial institutions, insurance companies, endowments, and foundations in the U.S. as well as non-U.S. based entities including central banks, sovereign wealth funds, and private banks.

In 2001, Société Générale, one of the largest global banking franchises, acquired TCW. In 2010, TCW acquired Metropolitan West Asset Management LLC, a fixed income asset manager. In February 2013, TCW's then parent company, Société Générale, completed the sale of its ownership stake in TCW to the Carlyle Group and TCW management and employees. Following the buyout, The Carlyle Group held an approximately 60% stake in the firm through two of its private equity funds, with TCW management and employees owning the balance of approximately 40%. On December 27, 2017 Nippon Life completed its acquisition of 24.75% minority stake in TCW from Carlyle. The remaining portion of Carlyle's interest was transferred to another Carlyle long-dated private equity fund. As a result of the transaction, ownership in TCW by TCW management and employees increased to 44.07%, while Carlyle maintained a 31.18% interest in the firm.

The Fund will be managed using a team approach to leverage the experience and skills of the TCW's Securitized Products Team. The team consists of 21 members who have been together for over 15 years working in securitized products. The team is led by Scott Austin and Harrison Choi. Scott joined TCW in 2006 and has traded a variety of mortgage-backed, asset backed and commercial mortgage-backed securities. Harrison Choi has been with TCW ten years and has extensive knowledge of Mortgage Backed Securities.

III. Investment Strategy

The Term Asset-Backed Securities Loan Facility (TALF) program was first created by the U.S. Federal Reserve and the U.S. Treasury Department during the Great Financial Crisis in 2008-2009 to help provide liquidity to the securitized portion of the fixed income market. In response to the market stress created by the COVID-19 crisis, TALF was relaunched in March 2020 with a program size of $100 billion to address the dislocation in securitized assets. The key feature of TALF is the ability to invest in eligible collateral using nonrecourse leverage provided by the Federal Reserve Bank of New York.

TCW believes the current iteration, dubbed TALF 2.0, is likely to share many of the same features of the TALF 1.0 program. The program has been designed by the U.S. Treasury Department to support consumer and small business credit by attracting investors back into the Asset Backed Securities (ABS) market with financing terms which are non-recourse, void of margin calls for the term of the loan, and offered at rates that are very attractive and generally not available elsewhere.

Based on the current TALF program structure, prevailing market conditions, and TCW's prior experience with the TALF program, TCW believes that investors may achieve current income and gross cash yields ranging from upper single digits to low double-digits on a portfolio of diversified high quality assets. The Fund will seek to achieve its investment objective by investing on a leveraged basis in certain kinds of ABS, Commercial Mortgage Backed Securities (CMBS) and other TALF Eligible assets as collateral through the TALF.

The TALF Eligible Assets are those that meet the following criteria:

1. Have a credit rating in the highest long-term or, in the case of non-mortgage backed ABS, the highest short-term investment-grade rating category from at least two eligible nationally recognized rating agencies. The major National Rating Agencies for the purpose of determining TALF-eligible ABS are currently Fitch Ratings, Moody's Investor Service, Standard and Poors, Kroll Bond Rating Agency and DBRS.
2. Substantially all the credit exposures underlying eligible assets must have been originated by a U.S. company and the issuer of eligible collateral must be a U.S. company. For CMBS, the underlying credit exposure must be to real property located in the United States or one of its territories.
3. Except for CMBS, the credit exposure must be issued by a US company on or after March 23, 2020 (CMBS issued on or after March 23, 2020, will not be eligible);
4. With the exception of CMBS, collateral must be newly-originated and will be designated as TALF eligible; and
5. May not be a synthetic cash flow.

Eligible collateral must be ABS where the underlying credit exposures are one of the following:

- Auto loans and leases;
- Student loans;
- Credit card receivables;
- Equipment loans and leases;
- Floorplan loans;
- Premium finance loans for property and casualty insurance;
- Certain small business loans that are guaranteed by the Small Business Administration;
- Leveraged loans; or
- Commercial mortgages.

The amount of leverage provided by the Federal Reserve and financing cost on the leverage will be dependent on the asset type purchased as collateral. The loans have a 3 year term and can be paid off in part or in full at any time during the 3 year term. The unpaid loan balance is due at the end of the 3 year period at which time the borrower may repay the loan and receive the collateral from the Fed, arrange a sale of the collateral or surrender the collateral in lieu of payment. The leverage provided by the Fed will not have mark to market requirements, and is fully secured by eligible collateral.

IV. *Investment Performance*

Previous fund performance for TALF 1.0 is shown below:

Fund	Vintage Year	Total Committed	SBI Investment	Net IRR*	Net MOIC*
TCW TALF 1.0	2008	$358.8 Million	0	10.53%	1.26

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

V. *Investment Period and Term*

The Fund expects to make investments on a monthly basis during the applicable Subscription Period. The General Partner, in its discretion, may extend the length of the applicable Subscription Period in the event of changes to TALF. The Fund expects to dissolve once all or substantially all of its assets have been distributed to Investors. The term of the Fund will be 3 years.

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 F

SBI
Executive Director
Comments and
Discussion

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EXECUTIVE DIRECTOR'S REPORT

DATE: May 21, 2020

TO: Members, State Board of Investment

FROM: Mansco Perry III

SUBJECT: SBI Executive Director Comments and Discussion

The Executive Director discussed the following with the Investment Advisory Council (IAC) and the State Board of Investment (SBI) Consultants at the May 18, 2020 IAC meeting. As a result of the conversation, the Executive Director is requesting approval of several recommendations.

1. SBI Board Resolution regarding Environmental, Social, and Governance (ESG) initiatives
2. Combined Funds Update and Potential Portfolio Modifications

SBI Board Resolution regarding ESG initiatives

At the February 26, 2020 SBI Board meeting, the SBI passed a resolution regarding ESG Initiatives. A copy of the Resolution is included as **Attachment A on page 7.** At the end of the resolution, one of the measures the Board passed directed the Executive Director to develop and implement plans for several issues.

At the IAC meeting, the Executive Director focused on one of the measures; "to evaluate options for reducing the SBI's investments to long-term carbon risk exposure." He informed the IAC that he had some general concerns in this area and had given much thought as to how to best address this topic. He explained that while the SBI engages with companies in support of the Paris Climate Agreement through organizations like the Climate Action 100+, but as the Chief Investment Officer of a major public pension fund he has a fiduciary responsibility to approach minimizing long-term carbon risk into the portfolio prudently and thoughtfully. He explained that he had some ideas, but wanted to engage the IAC and get a sense of their perspectives before reaching any firm conclusions. The most pressing issues pertains to investments in thermal coal and oil sands. The Executive Director noted that he was aware of the actions that other organizations had taken (e.g., CalStrs, New York Common, San Francisco Retirement, BlackRock) and had several discussions with the Special Projects Consultant, Meketa. Several of the meeting participants provided their opinions and expressed their desired outcomes.

After hearing from the members, the Executive Director told the participants at the meeting that he would be informing the Board that he would conduct a review to determine whether there was an appropriate rationale for excluding companies that owned thermal coal or oil sands from the SBI Combined Funds portfolio, to be presented at the August or December 2020 Board meeting.

The Executive Director also informed the IAC that within the next year Staff would transform the State Cash Accounts to a Fossil Fuel Free portfolio.

Combined Funds Update

Given recent market volatility, the Executive Director provided an update regarding the status of the Combined Funds and corresponding market values over the past fiscal year. Through the period ending May 8, 2020, the Combined Funds are as follows:

Period Ending	Portfolio Value ($ Billion)
May 8, 2020	$68.5
March 31, 2020	64.6
March 23, 2020	59.2
February 23, 2020	75.3
December 31, 2019	74.2
June 30, 2019	70.7

As you can see the portfolio has been on an interesting journey. The Combined Funds experienced its high point of $75.3 billion on February 23rd only to retreat to a portfolio value of $59.2 billion on March 23rd, a level last seen during the market decline in 2018 and first achieved in the latter half of 2016. While more market volatility is expected, the portfolio has rebounded almost to the level at which it began the current fiscal year, $70.7 billion.

Below are estimated performance returns for the period ending May 8, 2020.

Quarter to Date	7.01%
Calendar Year to Date	-6.08%
Fiscal Year to Date	0.39%

As you can see the return for the current fiscal year is relatively flat. The primary factors contributing to the fiscal year to date performance are as follows:

Total Fund	0.39%
Domestic Equities	-0.76%
International Equities	-11.99%
Treasuries	16.14%
Core Bonds	6.41%
Private Markets	4.38%

Fortunately, Treasuries have been incorporated into the portfolio. Please note that the Combined Funds real performance is most likely overstated as the Private Markets portfolio has a quarter lag in recognized performance.

After providing the update, the Executive Director discussed potential portfolio modifications he and the Staff are contemplating to improve the management of the Combined Funds portfolio.

Fixed Income Allocation and need for Liquidity Buffer

Fixed income instruments are primarily used as a hedge against a drawdown of growth on risk assets. Given the volatility the Combined Funds has experienced and the uncertainty the financial markets are facing with a depressed economic environment, the Executive Director believes it is necessary to utilize a portion of the fixed income portfolio (fixed income including cash and Treasuries as well as core and other return seeking bonds) to hedge against the inability to make benefit payments. In order to assure the ability to make benefit payments, Staff is contemplating maintaining a combination of cash and a short-duration laddered portfolio of Treasuries. For the remaining Treasury exposure in the portfolio, triggers would be set to signal whether the duration of the portfolio should be modified to preserve the protection nature of the portfolio in the event of an adverse interest rate movement within these two portions of the fixed income portfolio (liquidity and protection). Additionally, a dollar value minimum would be set to minimize the risk of the entire portfolio. The remainder of the fixed income portfolio would be comprised of core/core-plus bonds and return seeking bonds. Currently, these combined portfolio represent a 22% target allocation in the Combined Funds. We would recommend that this aggregate bucket be increased to a 25% target allocation with the three additional percentage points coming from public equity. The internal target allocation of the fixed income bucket would be as follows:

Internal Allocation	Security Description	Potential Benchmarks
20%	Cash plus Short Duration Treasury Ladder	3 month T-Bills + Custom Treasury Ladder Index
40%	Treasury Protection	Bloomberg Barclays Treasury 5+ Year Index
40%	Core/Core-Plus and Return Seeking Bonds	Bloomberg Barclays Aggregate + Blended RSFI Benchmark

Individual managers may be assigned a different benchmark than the segment aggregate.

RECOMMENDATION:

The Investment Advisory Council concurs with the Executive Director's recommendation that the Board approve that the Fixed Income Program be restructured to include a 20% combined Cash plus Short Duration Treasury Ladder allocation; a 40% Treasury Protection allocation; and a 40% combined Core/Core-Plus and Return Seeking Bond allocation. The Total Combined Fund allocation to the Fixed Income Program will be 25% which will be comprised of the current 20% Allocation to Core Bonds and Treasuries, the current 2% allocation to Cash, and a transfer of 3% from Public Equities. The Executive Director shall develop a total Fixed Income Program Benchmark comprised of an appropriate benchmark for each of the three segments.

The Management and Sizing of our Unfunded Commitments

Another area of major concern is the management and sizing of the Private Markets unfunded commitments. This issue might be the most complex one on our plate. Private Market / Alternative Investments have served the SBI very well over the past Forty-plus years. The portfolio has grown steadily in that time, but unlike many of our peers, we have a relatively low target and have found that reaching the target is not an easy task. We do not consider this a failure by any means. Our program has received international recognition as having been very well managed and having delivered excellent performance. In the early 1990's, the SBI was one of the first organizations to recognize that once a commitment was made that one should recognize not only the dollars deployed and growing, or market value, but that the undrawn commitment dollars also needed to be measured and recognized as they are a remaining significant obligation of the fund. Unfortunately, at that time we took a simple approach to recognizing this measure. While developing a better approach which also encompasses the risk associated with this measure, we do know that our current measure needs to be updated. The measure should enable the investor to reach their target while signaling if they are over extended to the point where they will significantly overshoot their target. The often cited difficulty is that in order to reach and maintain the desired target level, the investor has to have significant undrawn commitments to replace asset values that are being reduced because of distributions, declines in value, "the denominator effect", etc. However, one doesn't want so many undrawn commitment dollars as they are reaching a target such that the investor may be forced to sell assets to not over shoot the target. While we remain in the development stage with regards to reaching a permanent solution, the Executive Director will be seeking concurrence from the IAC for a recommendation to the Board to modify the current policy for the upper limit for Private Market / Alternatives Market Value plus Unfunded Commitments. The current policy states that Market Value plus Unfunded Commitments are limited to 35% of the market value of the Combined Funds portfolio. The recommended "temporary" policy would maintain the current target level of 25% but that the market value cannot exceed the statutory maximum of 35%. The total value of Market Value plus Unfunded Commitments could not exceed 45%. Staff will present a proposed new permanent recommendation by the end of FY 2021.

RECOMMENDATION:

The Investment Advisory Council concurs with Executive Director's recommendation that the Board approve a new temporary policy for measuring the Private Markets / Alternative Investments that would maintain the current target market value level of 25%, while maintaining the current statutory market value maximum of 35%. The total value of Market Value plus Unfunded Commitments will have a maximum of 45%. Staff will present a proposed new permanent recommendation by the end of FY 2021.

Other Items which are in the development stage

Staff is also working on potential modifications for the other portions of the Combined Funds. The Executive Director provided a brief summary of some of the following issues, which Staff is analyzing and will be bringing forth for approval and implementation during FY21.

A major concern involves the management of the Unallocated Investment dollars associated with the Private Markets / Alternatives Program. In the past the dollars were invested in the Fixed

Income Portfolio. Currently, these dollars are invested in Public Equities. The assets have been commingled with the dedicated Public Equity and Fixed Income Programs. Operationally, this approach causes a bit of difficulty in managing the dedicated portfolios as the dollars are constantly in transition. We are considering managing the unallocated dollars separately. While we think it is most appropriate to keep these dollars invested in public equities, we believe that it makes sense to segregate them from the dedicated program and use a combination of physical assets and an overlay fully collateralized by cash. This could reduce the transitions necessary to fund commitment drawdowns. The overlay would utilize both equity and interest rate futures.

We are also exploring the broader use of cash overlay strategies (fully cash collateralized) to facilitate rebalancing the dedicated Public Equity and Fixed Income portfolios back to target with the potential of reducing transition costs associated with the movement of the physical assets. This strategy could be utilized in conjunction with the above approach being developed.

For use primarily within Public Equities (but also other asset classes, if they have non-dollar exposure), the Executive Director has been reviewing a return to the use of a currency overlay strategy in conjunction with our international equity assets. This is an approach we used with very good success in the early years of our international equity program. The strategy would be used primarily as a risk management tool for purposes of hedging the SBI's non-dollar exposure. After the implementation of this strategy, Staff would explore the utilization of active currency strategies for purposes of providing additional returns to the Combined Funds.

The Executive Director did not present a recommendation to the IAC for their consideration. However, the IAC endorsed each of these strategies and encouraged the Executive Director to continue their development for consideration by the Council.

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MINNESOTA STATE BOARD OF INVESTMENT

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RESOLUTION OF THE MINNESOTA STATE BOARD OF INVESTMENT CONCERNING ENVIRONMENTAL, SOCIAL, AND GOVERNANCE INITIATIVES

WHEREAS, fiduciary responsibility is the touchstone of any decision of the Minnesota State Board of Investment (MSBI);

WHEREAS, any investment decision must be made with prudence and consistent with the duty of care to beneficiaries;

WHEREAS, the MSBI recognizes the importance of addressing Environmental, Social and Governance (ESG) risk in its investments;

WHEREAS, the MSBI has a long history of engaging with corporations through proxy voting;

WHEREAS, the MSBI has increased its involvement by participation in coalitions which engage with corporations and governmental organizations to address ESG risks and opportunities;

WHEREAS, the MSBI evaluates whether its investment managers consider ESG risk and encourages managers to enhance their ESG risk analysis; and

WHEREAS, the MSBI believes that corporations and partnerships that do not take ESG risk into consideration may jeopardize their financial viability and decrease their value.

NOW, THEREFORE, BE IT RESOLVED that consistent with its fiduciary responsibility that the following measures be taken:

1. The MSBI Proxy Committee continue to actively vote proxies in accordance with MSBI proxy guidelines, policies, and precedents as approved from time to time by the Board.

2. The MSBI continue to participate in ESG coalitions and engage with corporations on ESG related issues, including but not limited to participation in the Council of Institutional Investors; the United Nations Principles for Responsible Investment; the Ceres Investor Network; the Institutional Limited Partners Association; the Thirty Percent Coalition; the Midwest Investors Diversity Initiative; the Robert F. Kennedy Compass initiative; and other ESG related organizations the MSBI may join from time to time.

3. The MSBI prepare and periodically update a Stewardship Report and other ESG informational materials provided to stakeholders and posted on the MSBI website.

4. The MSBI Executive Director develop and implement plans for reporting on and addressing ESG investment risks; to evaluate options for reducing the MSBI's investments to long-term carbon risk exposure; and to promote efforts for greater diversity and inclusion on corporate boards and within the investment industry.

Adopted this 26th day
of February, 2020

Governor Tim Walz
Chair, Minnesota
State Board of Investment

State Auditor Julie Blaha
Minnesota
State Board of Investment

Secretary of State Steve Simon
Minnesota
State Board of Investment

Attorney General Keith Ellison
Minnesota
State Board of Investment

TAB G

Report

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

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DATE: May 21, 2020

TO: Members, State Board of Investment

FROM: Members, 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:

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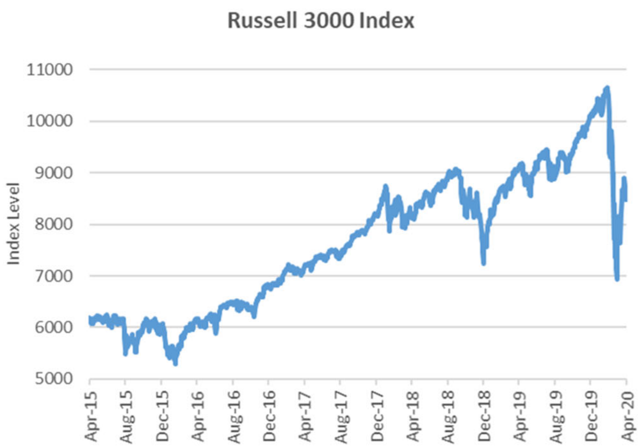
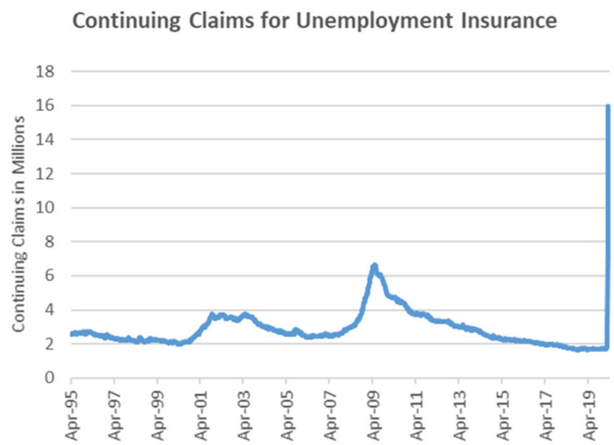
Review of SBI Public Markets Program
First Quarter 2020



Data as of April 23, 2020. Source: Bloomberg, FTSE Russell



Data as of April 10, 2020. Source: Bloomberg, U.S. Department of Labor

Market Backdrop

Financial markets globally fell sharply during the first quarter amid a severe coronavirus outbreak that brought the world economy to a virtual standstill. The U.S. equity bull market came to an abrupt end as investors feared the widening pandemic would spark a global recession. Virtually no financial market or sub-sector was spared some measure of disruption; global equity markets declined by more than 20%, credit spreads ballooned and U.S. Treasury yields experienced unprecedented intra-day price swings as investors seemingly all at once fled risk assets and sought the safety of cash and U.S. T-bills.

As the scale of the public health crisis unfolded, governments worldwide enacted social distancing measures and lockdowns of non-essential businesses in order to contain the virus and prevent it from overwhelming health systems. The impact on business activity across the globe was both rapid and dramatic. The IMF slashed its estimate for 2020 full year global GDP to a -3.0% contraction from its previous estimate of +3.3% growth as recently as January. In the U.S., the spike in cumulative applications for jobless benefits reached nearly 16 million by early April, a *level 2.5 times higher* than the peak reached in 2009 during the Global Financial Crisis (GFC). Bloomberg consensus estimates call for U.S. GDP to contract by -3.1% in Q1 and a whopping -26.0% in Q2 on a seasonally-adjusted annualized basis.

Also during the quarter, an ill-timed price war between Saudi Arabia and Russia led to a spike in crude oil supply at the same time in which demand was sharply declining due to strict travel restrictions and subdued economic activity. The resulting oil glut sent crude prices plummeting below $20 per barrel, the lowest level since 2001, and energy company shares fell over 50% during the quarter.

In response to the increasing economic fallout, governments around the world responded with unprecedented monetary and fiscal stimulus measures totaling over $8 trillion. The U.S. passed a $2 trillion relief package, the largest stimulus bill in history, providing loans, tax breaks and direct payments to large corporations, small businesses and individuals. The Federal Reserve also announced a series of emergency stimulus measures, including cutting its policy rate to near zero, reinstating a massive bond-buying program and providing both direct and indirect support to the repo market, money market funds and commercial paper issuers. The European Central Bank announced a comprehensive bond purchasing program and the Bank of England slashed interest rates. In the face of intense uncertainty, the extent of the emergency policy support – as well as some signs of success in containing the outbreak in China, South Korea and even Italy and Spain – began to reassure markets. Equity and credit markets staged a rally in final days of the quarter.

Combined Funds Portfolio - Quarter and Year Performance

In the first quarter, the overall Combined Funds narrowly underperformed the composite benchmark return (-12.2% Combined Funds versus -12.1% Composite Benchmark). Domestic equities matched the policy benchmark's -22.0% decline, while international equities slightly underperformed the policy benchmark return (-23.6% International Equity versus -23.3% Benchmark). The core fixed income portfolio lagged the Bloomberg Barclays U.S. Aggregate Index return (+0.8% Fixed Income versus +3.1% Fixed Income Benchmark) as credit markets experienced a sharp dislocation in March. The Treasury Protection Portfolio returned +13.8% during the quarter, slightly underperforming the Bloomberg Barclays Treasury 5+ Year Index return of +14.0%. The Combined Funds' private markets portfolio returned +2.7% for the quarter. It is important to note that in general the investments in the private markets portfolio are valued quarterly and reported on a lagged basis. As a result, the recent market dislocation is expected to impact private markets performance in subsequent quarters.

For the year ending March 31, 2020, the Combined Funds narrowly underperformed the composite benchmark return (-2.8% Combined Funds versus -2.6% Composite Benchmark). Domestic equities underperformed policy benchmark (-10.0% Domestic Equity versus -9.7% Benchmark), while international equities outpaced the policy benchmark return (-15.3% International Equity versus -15.6% Benchmark). Within the bond allocation, the core fixed income portfolio returned +6.9%, lagging the Bloomberg Barclays U.S. Aggregate Index's +8.9% return for the year. The Treasury Protection Portfolio gained +21.6% for the year as U.S. Treasuries benefitted from a sharp decline in interest rates and a spike in investor demand for safe-haven assets. The Protection Portfolio's return slightly lagged the Bloomberg Barclays Treasury 5+ Year Index return of +21.9% over the period. The Combined Funds' private markets portfolio returned +10.1% for the one-year ended March 31, 2020. Due to the lagged quarterly valuation process for private markets, the market dislocation experienced in public markets during the first quarter is expected to negatively impact private markets performance in subsequent quarters.

Domestic Equity

During the first quarter, the Russell 3000 Index fell -20.9%. Within domestic equity, growth significantly outpaced value (R3000G -14.9% vs. R3000V -27.3%), and large cap companies outperformed small caps (R1000 -20.2% vs R2000 -30.6%) as investors sought the relative safety and stability of larger, well established businesses.

Within the Combined Funds portfolio, the large cap growth managers outperformed the Russell 1000 Growth benchmark by +6.9% for the quarter. Stock selection was positive across all sectors, led by key outperformers in the Consumer Discretionary (Netflix, Tesla, Amazon) and Technology (ServiceNow, RingCentral) sectors. All three managers exceeded the benchmark.

The portfolio's large cap value managers trailed the Russell 1000 Value benchmark by -4.1 % for the quarter. The managers' stock selection in the Consumer Discretionary and Financial Services sectors detracted from performance, as did the managers' overall heavier tilt toward the value factor relative to benchmark as value underperformed quality, momentum and growth factors by a wide margin. All three managers lagged the benchmark for the quarter.

The small cap growth managers underperformed the Russell 2000 Growth benchmark by -1.7% for the quarter. Stock selection detracted from performance, led by the Producer Durables sector. An overweight to the Consumer Discretionary sector also negatively impacted performance. Hood River outperformed for the quarter while the remaining managers trailed the benchmark.

The portfolio's small cap value managers underperformed the Russell 2000 Value benchmark by -2.8% for the quarter. Stock selection hurt performance, particularly within the Technology, Health Care and Producer Durables sectors. Goldman Sachs matched the benchmark return for the quarter while the remaining managers trailed the benchmark.

The semi-passive large cap core managers in aggregate slightly exceeded the Russell 1000 Index for the quarter. Stock selection was positive across most sectors. The passive Russell 3000, Russell 1000 and Russell 2000 Index mandates tracked their respective indices within guideline ranges for the quarter.

Developed International Equity

International developed markets equities, as measured by the MSCI World ex USA Index, declined sharply during the quarter (-23.3%) as the coronavirus spread around the world and caused unprecedented disruption to the global economy. While no market was immune from the sell-off, countries with less perceived risk from the virus - including Denmark, Switzerland, and Portugal - fared better that those significantly impacted by it, including Spain, Italy and the United Kingdom. Similarly, industries most directly impacted by shutdown measures were hardest hit; the Energy and Financial sectors were the worst performers while Health Care, Consumer and Information Technology names generally fared better. Growth continued to outpace value by a wide margin and large capitalization stocks outperformed small capitalization stocks. The U.S. dollar strengthened appreciably versus the majority of developed market currencies, leading to lower returns for U.S. dollar-based investors versus those measured in local currency.

The portfolio's active developed markets managers outperformed the MSCI World ex USA Standard Index (Net), returning -22.5% versus the benchmark return of -23.3%. Positive stock selection in Switzerland, Germany and Spain contributed positively to performance as did an overweight allocation to Denmark. The portfolio also benefitted from stock selection in the Health Care, Communication Services, and Real Estate sectors, as well an overweight position in the Information Technology sector.

AQR, the portfolio's sole semi-passive developed markets portfolio manager, underperformed the index by -2.5% (-25.8% Portfolio vs. -23.3% Benchmark). Stock selection in the United Kingdom, Japan and Canada detracted from performance. Additionally, stock selection in Industrials, Consumer Staples, and Consumer Discretionary sectors was negative. The passive developed markets portfolio tracked the MSCI World ex USA index within guideline tolerance for the quarter (-23.1% Portfolio vs. -23.3% Benchmark).

Emerging Markets Equity

Emerging market equities, as measured by MSCI Emerging Markets Index, tumbled by -23.6% during the quarter as markets were jolted by the coronavirus pandemic. Asian markets, including China, Taiwan and Korea, which experienced the first cases of the virus and implemented strict quarantine measures early on, were the strongest relative performers over the period. In contrast, energy and industrial commodity-producing countries, including Brazil and Russia, experienced the sharp declines. As in the developed markets, Energy and Financial stocks were the weakest performing areas of the market while defensive sectors, including Health Care, Consumer Discretionary and Consumer Staples outperformed the broader market. Growth outpaced value by a wide margin and large capitalization stocks outperformed small capitalization stocks. The U.S. dollar strengthened sharply versus emerging market currencies as investors sought the perceived safety of U.S. Treasuries.

The active emerging markets managers underperformed the MSCI Emerging Markets Standard Index (Net), posting a return of -25.8% vs. the index return of -23.6%. Negative stock selection in China, Mexico and Malaysia detracted from performance as did the portfolio's underweight position to China, which was among the best performing markets. Additionally, stock selection within the Financials, Consumer Discretionary, and Communication Services sectors also detracted from relative performance. The passive emerging markets portfolio tracked the MSCI World ex USA index within guideline tolerance for the quarter (-23.3% Portfolio vs. -23.6% Benchmark).

Core Bonds

In early-March, as the global scale of the COVID-19 pandemic and its economic implications became clear, financial markets experienced unprecedented panic selling. Global equities dropped over 30% in the space of just 12 trading days, and U.S. Treasury yields fell to all-time lows, with the 10-year Treasury touching an intra-day low of 0.31% on March 9th. Spreads on non-Treasury assets gapped out to the widest levels since the 2008-09 GFC as sellers overwhelmed buyers in an unprecedented rush for cash and T-bills. The swift downdraft in asset prices triggered margin calls for leveraged players, including hedge funds and mortgage REITS, which in turn exacerbated selling pressure.

Seeing risk of a market collapse, much like the 2008-09 GFC period, the Fed responded strongly to ease the liquidity crunch by slashing interest rates to near-zero, dramatically expanding its asset-purchase program and extending massive direct and indirect liquidity support to market participants including primary dealers, money market funds, as well as corporate commercial paper and asset-backed funding programs. As markets digested the unprecedented scale of the monetary policy support combined with the passing of the largest fiscal stimulus package (over $2 trillion) in U.S. history, asset prices began to stabilize in late-March.

Against this challenging backdrop, the Combined Funds' core bond portfolio experienced a difficult quarter, returning +0.8% relative to the Bloomberg Barclays Aggregate Index's performance of +3.1%. Heading into the COVID-19 crisis, both Active and Semi-Passive managers were generally positioned with overweight allocations to corporate credit, agency MBS and CMBS/ABS sectors and a corresponding underweight to U.S. Treasuries. As a result, all core bond managers underperformed the benchmark. The Active managers fared worse (-0.3% Active Core versus +3.1% Benchmark), while the portfolio's three semi-passive managers managed slightly better performance (+2.2% Semi-passive Core vs. +3.1% Benchmark).

Treasury Protection Portfolio
U.S. Treasury securities rallied significantly across the curve in response to the COVID-19 pandemic as investors sold risk assets and sought the perceived safe-haven status of Treasuries. Treasury yields declined over -100bps, producing eye-popping total returns for the quarter: the 10-year Treasury gained +11.9% while the 30-year Treasury posted a gain of +25.8%.

For the quarter ending 3/31/2020, the Treasury Protection Portfolio gained +13.8%, slightly underperforming the Bloomberg Barclays Treasury 5+ Year Index which advanced +14.0%. On a relative basis, the portfolio's modest short duration positioning detracted from performance, as did an allocation to Treasury Inflation Protection Securities (TIPS) and U.S. agency securities. Relative performance was also impacted by transaction costs during the quarter related to rebalancing activity within the Combined Funds. Managers raised over $2 billion from the portfolio during March, with the proceeds used to bolster the Combined Funds' cash position as well as to rebalance into public equities.

Public Markets Managers' Organizational Update
First Quarter 2020

Dodge & Cox (Core Bonds)
Dana Emery, President and CEO, will step down as Co-Director of Fixed Income but will continue to serve as a member of the U.S. and Global Fixed Income Committee and Credit Sector Committee. Thomas Dugan has been named Director of Fixed Income. Mr. Dugan has been with Dodge & Cox since 1993. Additionally, Lucy Johns has been named Associate Director of Fixed Income. Ms. Johns joined Dodge & Cox in 1998. Staff will monitor the staffing changes, in particular any further reduction in portfolio management responsibilities related to Ms. Emery.

Fidelity (Developed International)
As announced in April 2019, Matt Torrey became the sole lead portfolio manager for the International Growth Strategy, effective January 1, 2020.

Hood River (Domestic Equity)
In January, the firm announced that Rob Marvin, one of three portfolio managers responsible for the small cap growth strategy, will be retiring effective April 30, 2020. The two remaining portfolio managers will absorb Mr. Marvin's day-to-day responsibilities as well as his equity stake in the firm.

J.P. Morgan (Developed International)
In January, Dominic Valder, joined from Fidelity International as a Global Sector Specialist covering the health care sector.

Martin Currie (Emerging Markets Equity)
On February 18, 2020, Franklin Resources, Inc. announced that it entered into an agreement to acquire Martin Currie's parent firm, Legg Mason. Subject to the necessary regulatory approval, this transaction will complete in September 2020. Staff will monitor the change to Martin Currie's operating autonomy is maintained.

McKinley (Developed International)
John Wanamaker joined McKinley in January 2020 as the Director of Private Investment, a new position and business unit within the firm. Forrest Badgley was promoted to Director of Investments, Portfolio Manager.

Pzena (Emerging Markets Equity)
As of March 1, 2020, Gary Bachman, Chief Operating Officer, resigned to pursue other opportunities and was succeeded by Evan Fire. Mr. Fire has been with Pzena for seventeen years, most recently serving as Chief Information & Operations Officer/Chief Information Security Officer. Additionally, Kavitha Venkatrman, a Research Analyst, left the firm to pursue other opportunities.

Western Asset (Core Bonds)
On February 18, 2020, Franklin Resources, Inc. announced that it entered into an agreement to acquire Western Asset's parent firm, Legg Mason. Subject to the necessary regulatory approval, this transaction will complete in September 2020. Staff will monitor the change to ensure Western's operating autonomy is maintained.

2020 Manager Meetings

The first quarter 2020 manager reviews are noted below.

Investment Manager	Asset Class
• Acadian Asset Management LLC	International Equity
• AQR Capital Management, LLC	International Equity
• ArrowMark Colorado Holdings, LLC	Domestic Equity
• Galliard Capital Management	Stable Value Fund
• Mellon Investments Corporation	Assigned Risk
• Neuberger Berman Investment Advisers LLC	Fixed Income
• Pacific Investment Management Company LLC (PIMCO)	Fixed Income
• Prudential Global Investment Management	Non-Retirement
• State Street Global Advisors (SSgA)	International Equity
• TIAA-CREF	MN College Savings Plan
• The Rock Creek Group, LP	International Equity
• Western Asset Management Company	Fixed Income
• Winslow Capital Management, LLC	Domestic Equity

Non-Retirement Manager Update
First Quarter 2020

Fixed Income

RBC Global Asset Management
The portfolio posted a return of +5.0% for the quarter, modestly underperforming the Bloomberg Barclays Intermediate Government Index which gained +5.2%. Both the portfolio and broader market benefitted from the sharp drop in the yields on U.S. Treasuries during the quarter. Against this backdrop, the portfolio's modest exposure to U.S. agency securities, including agency debt and mortgage-backed securities, hurt relative performance as spreads on non-Treasury securities widened sharply in response to a spike in investor risk aversion.

Prudential Fixed Income
The portfolio returned +0.1% for the quarter, underperforming the Bloomberg Barclays U.S. Aggregate Index return of +3.1%. During the quarter, spreads on all non-Treasury sectors spiked to the widest levels since the 2008-09 Financial Crisis. The portfolio's significant overweights to CMBS (both Agency and non-Agency), investment grade corporates and municipal bonds all hurt relative performance. Duration and yield curve effects were negligible for the quarter.

Equity

Mellon Investments Corporation
Mellon's performance tracked the benchmark for the quarter.

Deferred Compensation Manager Update
First Quarter 2020

Domestic Equities

Vanguard Total Stock Market Index Institutional Plus Fund
The fund employs an indexing approach designed to track the performance of the CRSP U.S. Total Market Index, which represents approximately 100% of the investable U.S. stock market and includes large-, mid-, small-, and micro-cap stocks. The fund matched the return of the benchmark for the quarter and the year with a -20.9% and -9.2% return, respectively. *This option is not available to the Minnesota State Deferred Compensation Plan (MNDCP).*

Vanguard Institutional Index Plus Fund
The fund attempts to employ a full replication indexing approach designed to track the S&P 500 Index. Performance for the fund matched the S&P 500 Index return for the quarter and the year with a -19.6% and -7.0% return, respectively. The largest company exposure by industry are in Information Tech, Healthcare, and Financials with a 25%, 15% and 11% allocation, respectively. *This option is only available to the Minnesota Deferred Compensation Plan (MNDCP).*

Vanguard Dividend Growth Fund
The fund invests in large cap equity holdings with an emphasis on dividend-paying stocks. The quarter return slightly lagged its benchmark, the NASDAQ US Dividend Achievers Select Index by -0.6%. Stock selection was negative for the quarter and further magnified by unfavorable allocations. Those included an underweight allocation to Information Technology and overweight allocations to Financials. For the year, the fund lagged its benchmark by -0.9% primarily due to unfavorable sector allocations.

Vanguard Mid-Cap Index Fund
The fund attempts to employ a full replication indexing approach designed to track the performance of a broadly diversified pool of medium-size U.S. stocks. For the quarter and year, the fund slightly outperformed its benchmark, CRSP US Mid Cap Index. The largest company exposures by industry are in Financials, Technology, and Industrials with a 21%, 18%, and 16% allocation, respectively.

T. Rowe Price Small Cap Equity Fund
The small cap equity fund outperformed the Russell 2000 for the quarter by +4.4% and for the year by +8.0%. Relative performance benefited from positive stock selection in nine of the eleven sectors. The largest relative value add was from holdings in Industrials and Business Services and to a lesser extent, holdings in Real Estate and Information Technology sectors.

International Equities

Fidelity Diversified International Equity Fund
The international equity fund outperformed the MSCI EAFE Index (Net MA) benchmark return by +3.5% for the quarter and by +8.2% for the year. Stock selection was the primary driver for the outperformance with sector allocation also contributing. Holdings in the Industrials, Materials and Financial sectors added the most value.

Vanguard Total International Stock Index Fund
The fund attempts to employ an indexing approach designed to track the FTSE Global All Cap ex US Index, a market-cap weighted pool designed to measure performance of developed and emerging market companies. The fund underperformed the benchmark for the quarter and the year by -0.3% and -0.4%, respectively. The largest company exposure in the fund by country is Japan with an 18% allocation and by industry is Financials with a 22% allocation.

<u>Fixed Income</u>

Dodge & Cox Income Fund
The Income Fund underperformed the Bloomberg Barclays U.S. Aggregate Index by -3.8% for the quarter and by -3.9% for the full year. Relative performance for the quarter lagged as the result of security selection within credit, primarily in several energy related issuers. The Fund's below-benchmark duration position also detracted from performance as Treasury yields declined. For the full year, the portfolio's underweight to U.S. Treasuries and overweight to corporate bonds in the Industrial sector detracted from relative returns.

Vanguard Total Bond Market Index Fund
The Fund employs a sampling process to its index investment approach to track the performance of the Bloomberg Barclays U.S. Aggregate Index. The fund modestly outpaced its benchmark over the quarter (+0.1% above index return) and also slightly outperformed for the year. The portfolio's large allocation in U.S. Government holdings and the Fund's strategy of maintaining portfolio duration consistent with that of the index benefited the portfolio's total return over both the quarter and full year.

<u>Balanced and Conservative Options</u>

Vanguard Balanced Index Fund
The fund seeks to track the investment performance of a benchmark index that measures 60% U.S. stock market index and 40% in a U.S. broad, market-weighted bond index. The fund underperformed the benchmark by -0.5% for the quarter and by -0.6% for the year. Equity exposure by industry was largest in Technology, Financials and Healthcare. The sector allocation within the bond holdings has over 42% in Treasury/Agency and 25% in Government securities.

Stable Value Fund
Galliard Asset Management manages the stable value fund in a separate account and invests in a diversified portfolio of high quality fixed income securities and investment contracts issued by high quality financial institutions. For the quarter and the year, the stable value fund outperformed its benchmark, the 3-year Constant Maturity Treasury +45 basis points, by +0.2% and +0.7% respectively. Underlying portfolio performance was negatively impacted by an overweight to the spread sectors of the market, notably corporate bonds, as this sector underperformed relative to Treasuries during the period. However, an emphasis on high quality corporate issuers dampened the underperformance from that sector.

During the quarter, while the firm's overall asset base remained stable, Galliard lost a large 401(k) client due to a merger with another company.

Money Market Fund
State Street Global Advisors manages the money market fund in a commingled pool. The fund underperformed its benchmark, the 3 Month T-Bill, for the quarter and the year by -0.2% and -0.1%, respectively. During the quarter, the Federal Open Market Committee (FOMC) moved rapidly to cut its policy rate to near zero to combat the unpreceded economic disruption caused by the COVID-19 crisis and lockdown. U.S. Treasury yields declined sharply (and prices rose), while spreads on non-Treasury financial assets widened significantly resulting in underperformance versus Treasuries.

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Report

AON Market Environment Report

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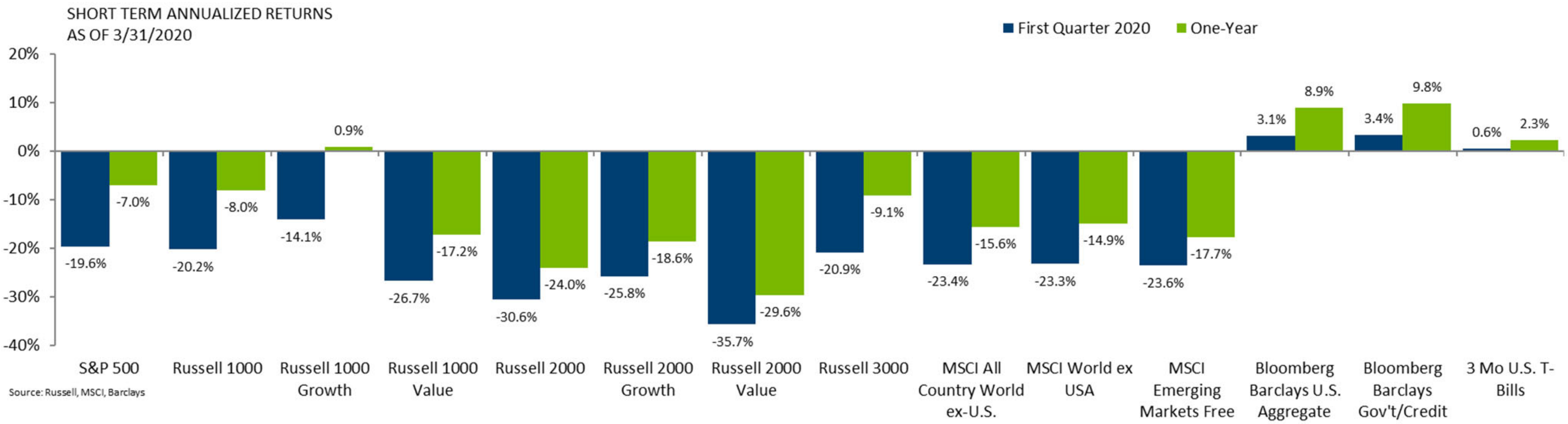
Market Environment

First Quarter 2020

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

Empower Results®

Market Highlights

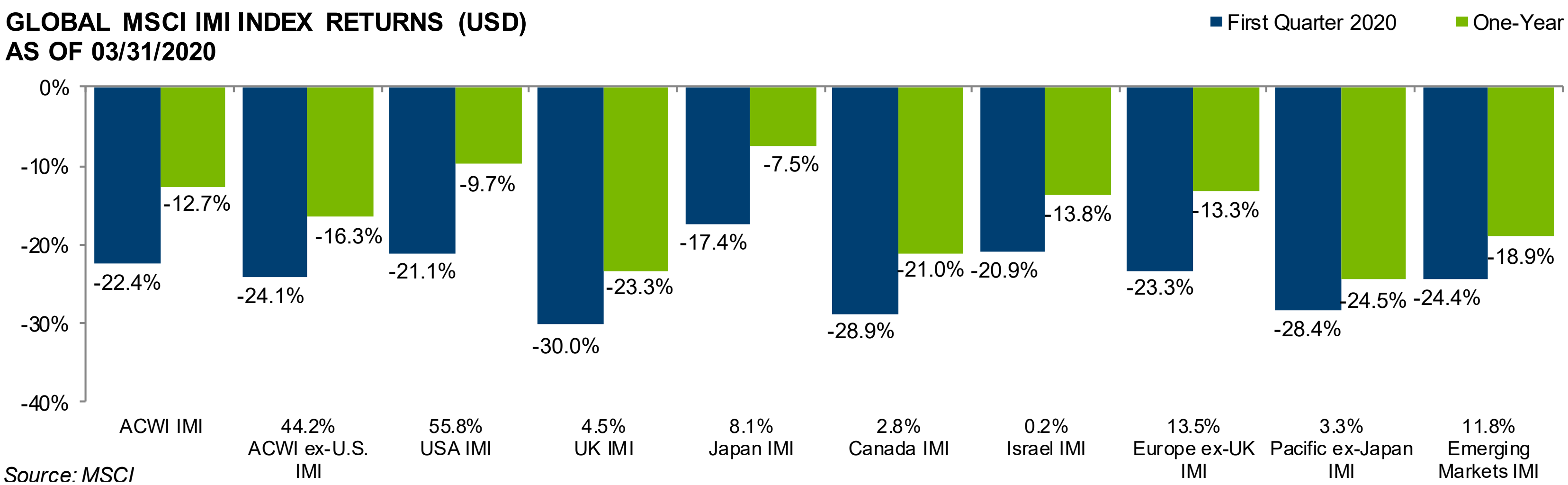


Market Highlights

Returns of the Major Capital Markets					
					Periods Ending 3/31/2020
	First Quarter	**1-Year**	**3-Year[1]**	**5-Year[1]**	**10-Year[1]**
Domestic Equity					
S&P 500	-19.6%	-7.0%	5.1%	6.7%	10.5%
Russell 1000	-20.2%	-8.0%	4.6%	6.2%	10.4%
Russell 1000 Growth	-14.1%	0.9%	11.3%	10.4%	13.0%
Russell 1000 Value	-26.7%	-17.2%	-2.2%	1.9%	7.7%
Russell 2000	-30.6%	-24.0%	-4.6%	-0.2%	6.9%
Russell 2000 Growth	-25.8%	-18.6%	0.1%	1.7%	8.9%
Russell 2000 Value	-35.7%	-29.6%	-9.5%	-2.4%	4.8%
Russell 3000	-20.9%	-9.1%	4.0%	5.8%	10.1%
International Equity					
MSCI All Country World ex-U.S.	-23.4%	-15.6%	-2.0%	-0.6%	2.1%
MSCI World ex USA	-23.3%	-14.9%	-2.1%	-0.8%	2.4%
MSCI Emerging Markets Free	-23.6%	-17.7%	-1.6%	-0.4%	0.7%
Fixed Income					
Bloomberg Barclays U.S. Aggregate	3.1%	8.9%	4.8%	3.4%	3.9%
Bloomberg Barclays Gov't/Credit	3.4%	9.8%	5.2%	3.5%	4.1%
3 Mo U.S. T-Bills	0.6%	2.3%	1.8%	1.2%	0.6%
Inflation					
CPI-U	-0.2%	1.5%	1.9%	1.8%	1.7%

MSCI Indices show net returns.
All other indices show total returns.
[1] Periods are annualized.

Global Equity Markets

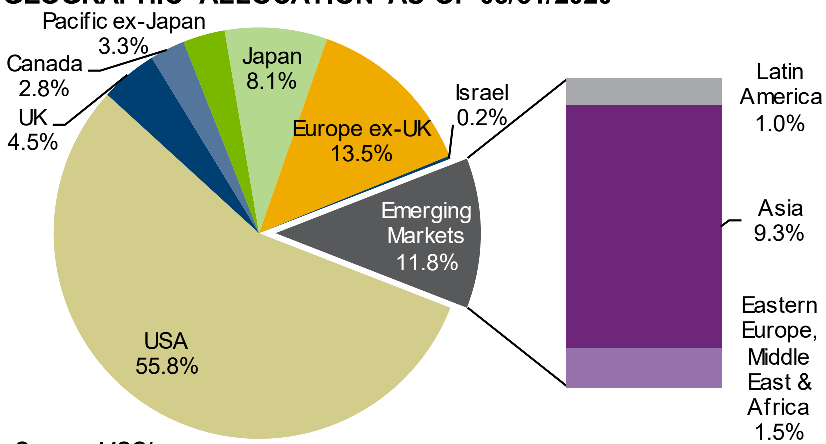


Source: MSCI

- A decade-long bull market came to an abrupt halt as the Covid-19 outbreak in China turned into a global pandemic. After reaching all-time highs in mid-February, global equities sold off sharply as infection numbers grew and governments worldwide ramped up virus containment measures. With much of the economy shuttered, a deep global recession appears to be inevitable despite unprecedented fiscal and monetary stimulus measures. In local currency terms, the MSCI AC World Investable Market Index fell by 21.0%. Appreciation of the U.S. dollar further dragged down the returns to -22.4% in USD terms in Q1 2020.
- UK equities were the worst performers (-30.0%) over the quarter where its sizeable resource sector (Oil & Gas and Basic Materials) underperformed due to sharp drop in crude oil prices amidst the coronavirus outbreak. Brexit negotiations ran into difficulties as the UK and the European Union (EU) clashed on “level playing field” requirements. The UK Prime Minister Boris Johnson stated that Britain would be prepared to leave the EU on the World Trade Organization’s (WTO) terms if progress is not made by June 2020.

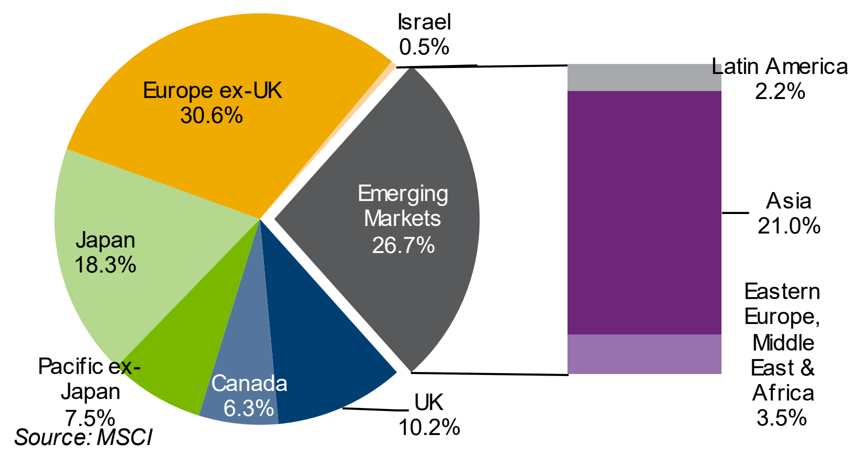
Global Equity Markets

MSCI ALL COUNTRY WORLD IMI INDEX GEOGRAPHIC ALLOCATION AS OF 03/31/2020



Source: MSCI

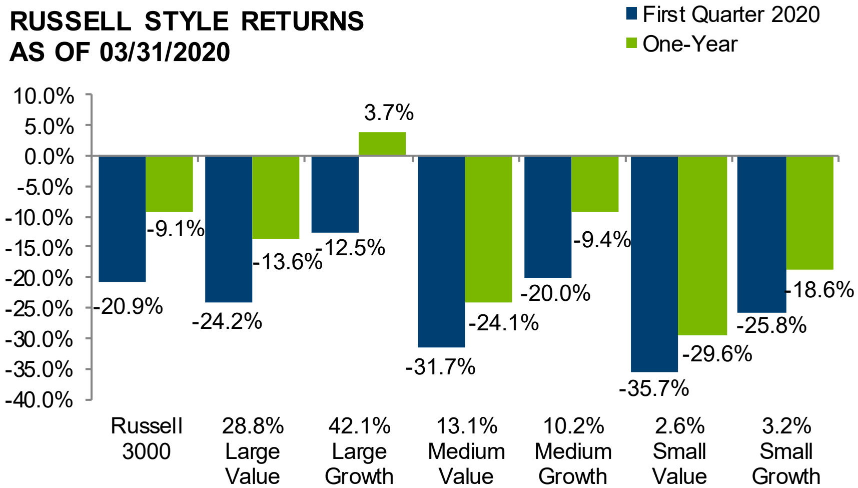
MSCI ALL COUNTRY WORLD EX-U.S. IMI INDEX GEOGRAPHIC ALLOCATION AS OF 03/31/2020



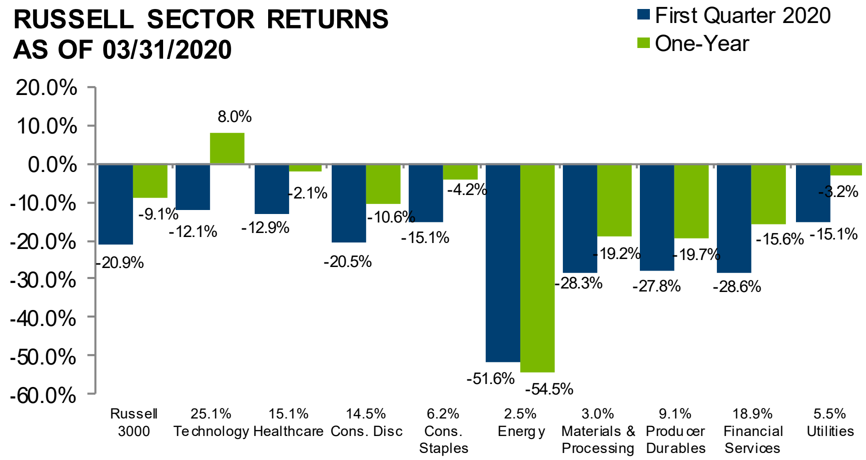
Source: MSCI

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

U.S. Equity Markets



Source: Russell Indexes

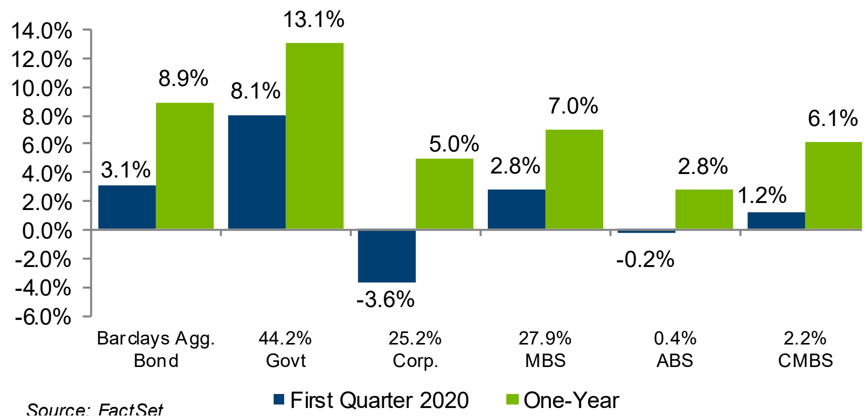


Source: Russell Indexes

- Three major U.S. equity indices (S&P 500, Dow Jones Industrial Average and Nasdaq Composite) entered bear market territory as the indices fell more than 20% below their mid-February peaks in the fastest bear market on record ending the 11-year bull market, the longest on record. Returns were on pace to be much worse before stock markets rallied to end the quarter. Large fiscal stimulus packages were credited as the major reason for improving risk sentiment. For the quarter, the Dow Jones US Total Stock Market Index returned -21.0%. The Russell 3000 Index fell 20.9% during the first quarter and 9.1% over the one-year period.
- The CBOE Volatility Index (VIX), Wall Street's "fear gauge", set a new record peak of 82.7 in mid-March before ending the quarter slightly lower at 53.5 after having averaged 19.0 over the previous 12 months.
- All sectors generated negative returns over the quarter. In particular, Energy (-51.6%) and Financial Services (-28.6%) were the worst performing sectors in Q1 2020.
- Performance was negative across the market capitalization spectrum over the quarter. Small cap stocks underperformed both large and medium cap stocks over the quarter. Value stocks underperformed their Growth counterparts in Q1 2020 and over the last year.

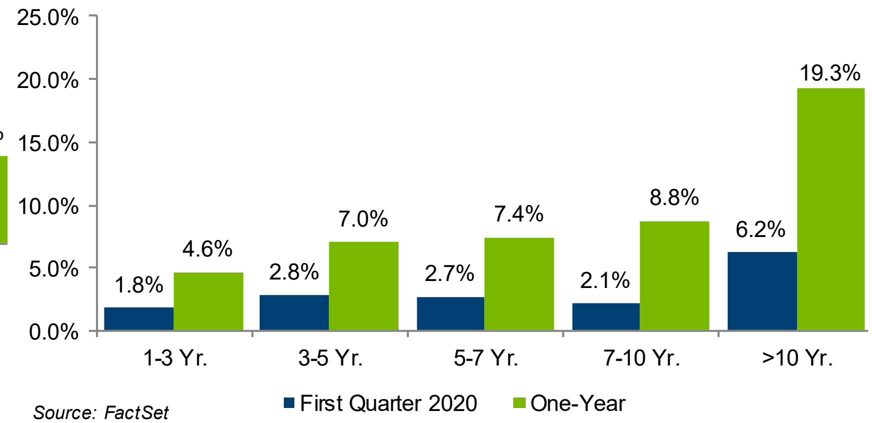
U.S. Fixed Income Markets

BLOOMBERG BARCLAYS AGGREGATE RETURNS BY SECTOR AS OF 03/31/2020



Source: FactSet

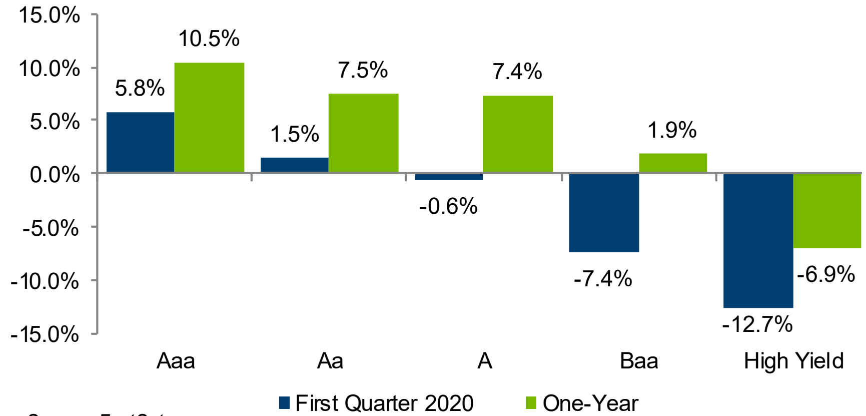
BLOOMBERG BARCLAYS AGGREGATE RETURNS BY MATURITY AS OF 03/31/2020



Source: FactSet

- The Bloomberg Barclays U.S. Aggregate Bond Index rose by 3.1% over the quarter, supported by Government bond's return of 8.1%. The risk asset sell-off which tormented equity markets were also evident in the corporate bonds space, as concerns over corporate leverage that were disregarded in more benign times resurfaced. Corporate bonds underperformed with a return of -3.6%.
- Performance was mixed across all credit grades. High yield bonds fell by 12.7%. Within investment grade bonds, Aaa bonds outperformed with a return of 5.8%.
- Long-maturity bonds outperformed intermediate and short-maturity bonds over the quarter. Long-maturity bonds returned 6.2% while short-maturity bonds returned only 1.8% in Q1 2020.

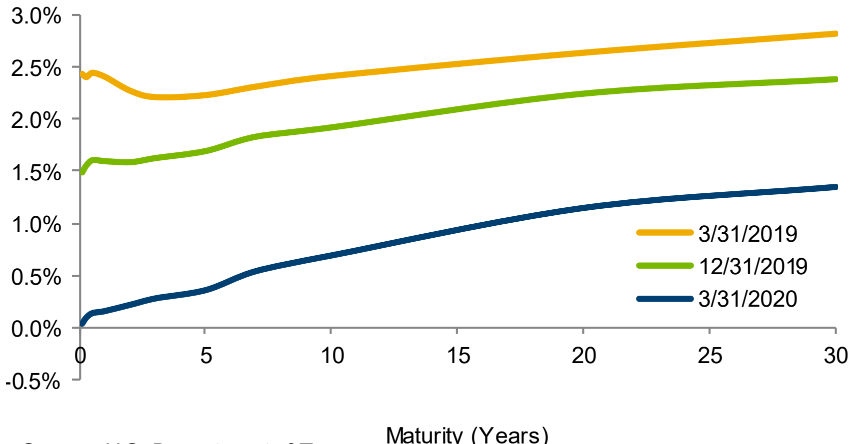
BLOOMBERG BARCLAYS AGGREGATE RETURNS BY QUALITY AND HIGH YIELD RETURNS AS OF 03/31/2020



Source: FactSet

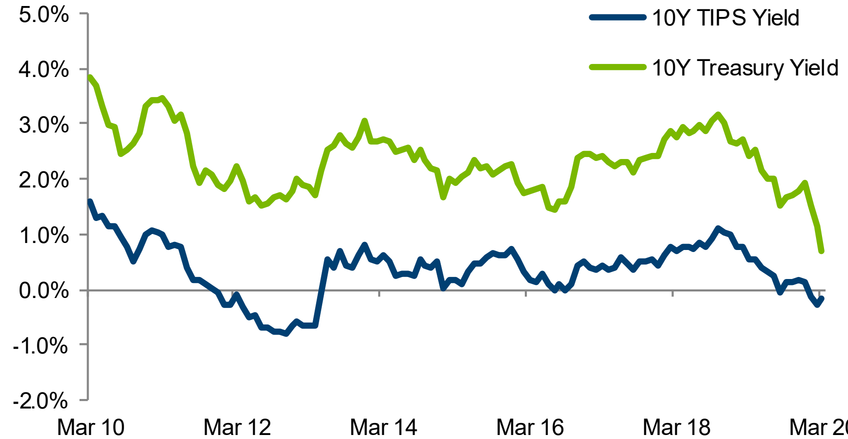
U.S. Fixed Income Markets

U.S. TREASURY YIELD CURVE



Source: U.S. Department of Treasury

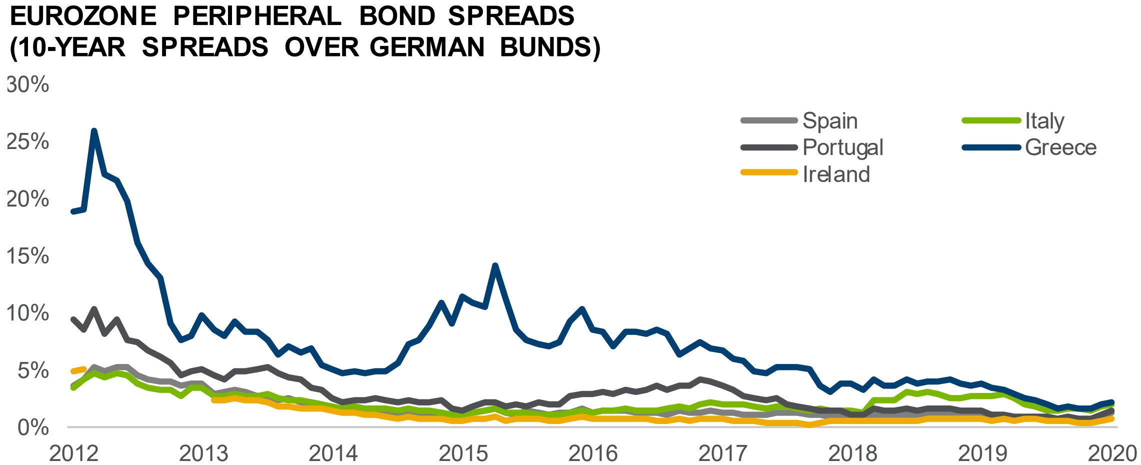
U.S. 10-YEAR TREASURY AND TIPS YIELDS



Source: U.S. Department of Treasury

- The U.S. nominal yield curve shifted downwards over the quarter as the combination of economic damage caused by the Pandemic and the response of easing monetary policy caused yields to fall across the curve.
- The rate cuts, along with decreases in global output, caused 10-year US treasury yields to decrease by over 122 basis points to 0.70%, the first time in history it fell below 1.0%, and it remained there at the end of the quarter. The 30-year yield began the quarter at 2.39% and ended the quarter at 1.35%, a decline of 1.04%. The 30-year yield briefly closed below 1% on March 9, 2020, a sign of how stressed the outlook had become
- The 10-year TIPS yield fell by 32bps over the quarter to -0.17%.
- The US Federal Reserve (Fed) announced two emergency rate cuts over the quarter, lowering the Fed Funds Rate target by a total of 150bps to 0.00%-0.25%. The Federal Reserve also launch unlimited QE, and an expansion of QE into other markets, such as corporate bonds and municipal bonds. In addition to this, Congress passed a $2.2tn stimulus package, the largest bailout in US history.

European Fixed Income Markets



Source: FactSet

- European government bond spreads over 10-year German bunds rose across the Euro Area with core yields falling and peripheral yields rising (except Ireland). The European Central Bank (ECB) expanded its asset purchase programme and removed a self-imposed limit to buy no more than a third of any country's eligible bond, restoring some stability to the Euro Area's government bond market.
- German government bund yields fell in line with other developed market government bond yields, falling by 30bps to -0.49% over the quarter. Germany's annual economic growth slowed to its lowest rate in six years at 0.6% whilst it posted zero growth in Q4, hit by falling household and government consumption while capital investment in machinery and equipment fell.
- Italian government bond yields rose by 6bps to 1.48% over the quarter, retracting from a nine-month high of 2.3% after it spiked by 130bps mid-March and Spanish government bond yields rose by 18bps to 0.64%. Both the countries were the worst affected by novel coronavirus in Europe and were the first to impose quarantine measures.
- Greek government bond yields rose by 18bps to 1.61% over the quarter which saw the country's 10-year yield drop below 1% mid-Feb for the first time.

Credit Spreads

Spread (bps)	3/31/2020	12/31/2019	3/31/2019	Quarterly Change (bps)	1-Year Change (bps)
U.S. Aggregate	39	39	54	0	-15
Gov't	3	0	0	3	3
Credit	255	90	113	165	142
Gov't/Credit	105	38	48	67	57
MBS	39	39	35	0	4
CMBS	72	72	86	0	-14
ABS	44	44	53	0	-9
Corporate	93	93	153	0	-60
High Yield	336	336	526	0	-190
Global Emerging Markets	287	287	330	0	-43

Source: Barclays Live

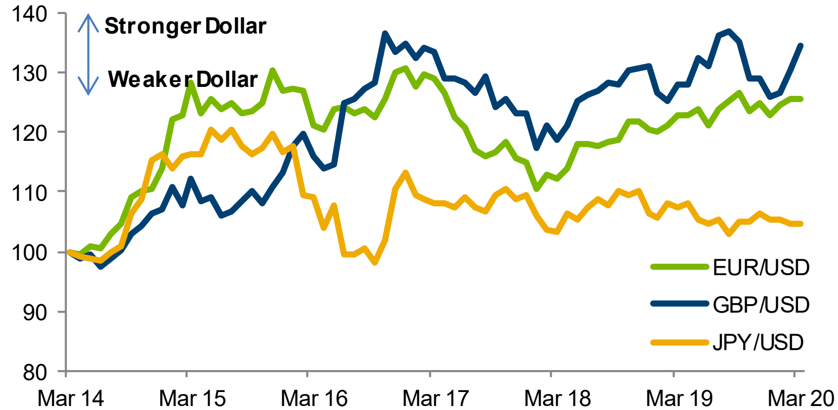
- The rapid reassessment of the economic outlook took a dramatic toll on credit assets during the quarter. Credit spreads over U.S. Treasuries widened over the quarter.
- Riskier areas of credit, such as US high yield bonds and emerging market debt, saw double digit losses due to a decrease in investors' risk appetite. High Yield bond spreads widened significantly in Q1 2020, increasing by 544bps. This was followed by Global Emerging Markets bonds spreads, which widened by 332bps.

Currency

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

Source: Federal Reserve

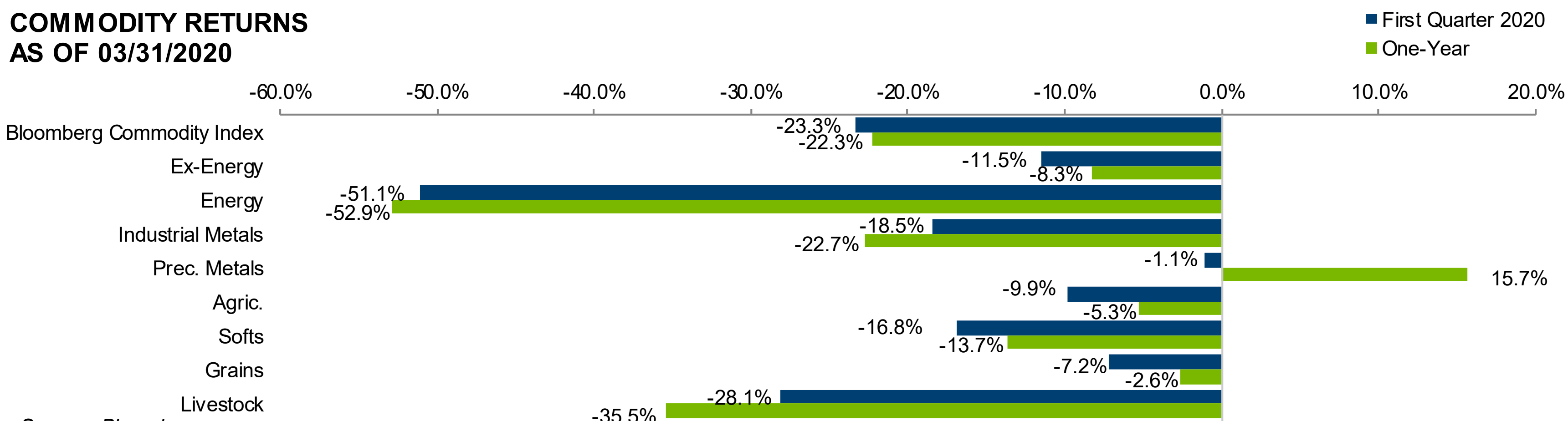
U.S. DOLLAR RELATIVE TO EUR, GBP AND JPY
REBASED TO 100 AT 03/31/2014



Source: FactSet

- The U.S. dollar generally strengthened against major currencies over the quarter as it rose 7.1% on a trade-weighted basis. U.S. dollar appreciated against euro and sterling but marginally depreciated against Japanese yen.
- Sterling fell sharply over the quarter amidst “risk-off” trade flows as the coronavirus outbreak escalated. The UK’s current account deficit and its status as a relatively small open economy means that sterling is particularly exposed to international fund flows. As investor concerns over economic growth and financial market stability grew, capital flows started to dry up from the UK as investors seek “safe haven” assets such as the US dollar. Sterling depreciated by 6.4% against the U.S. dollar.
- Alongside a more dovish ECB and a weaker economic outlook, the euro fell against both the US dollar and the Japanese yen, depreciating by 2.2% and 2.9% respectively. However, it rose by 4.2% against sterling.

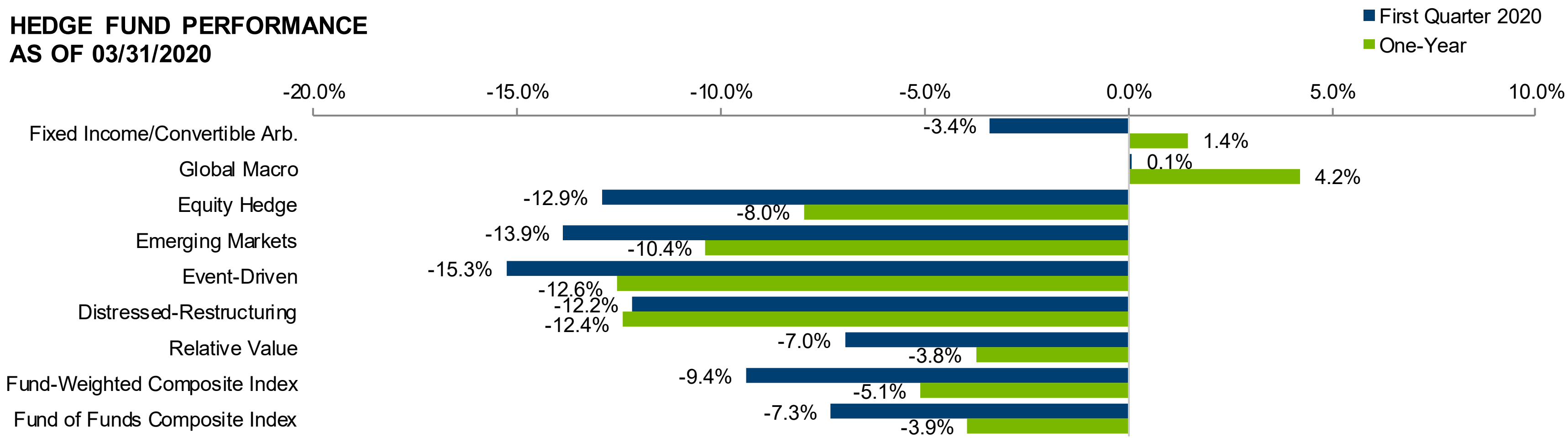
Commodities



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

- Amidst Covid-19 pandemic, commodities fell sharply over the quarter which saw the Bloomberg Commodity Index tumble by 23.3%.
- Energy was the worst performing sector over the quarter with a return of -51.1% as crude oil prices fell sharply following Saudi Arabia's plans to raise production and offer deep discounts to key markets in a bid to gain market share after Russia rejected a proposal by OPEC to cut oil production. The price of Brent crude oil fell by 65.5% to $23/bbl. and WTI crude oil spot prices fell by 66.5% to $20/bbl.
- Livestock (-28.1%) was the second worst performing sector in Q1 2020.

Hedge Fund Markets Overview

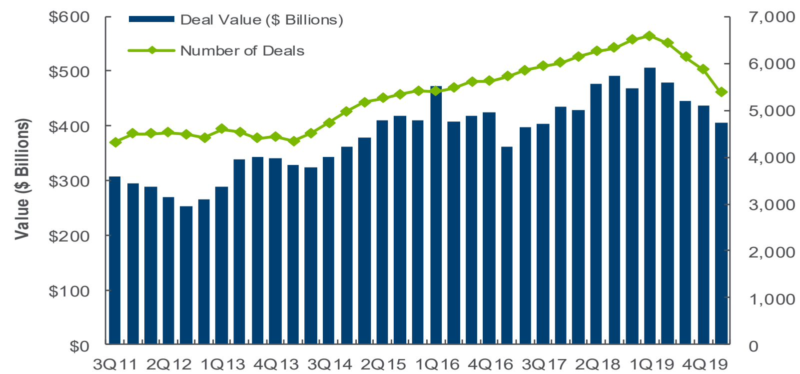


Note: Latest 5 months of HFR data are estimated by HFR and may change in the future.
Source: HFR

- Hedge fund performance was generally negative across all strategies in the first quarter.
- Over the quarter, Global Macro was the only strategy to generate marginal positive return of 0.1%. Conversely, Event-Driven and Emerging Markets were the worst performers, falling 15.3% and 13.9% respectively.
- HFRI Fund-Weighted Composite Index and the HFRI Fund of Funds Composite Index produced returns of -9.4% and -7.3% respectively.

Private Equity Market Overview – 4Q 2019

LTM Global Private Equity-Backed Buyout Deal Volume

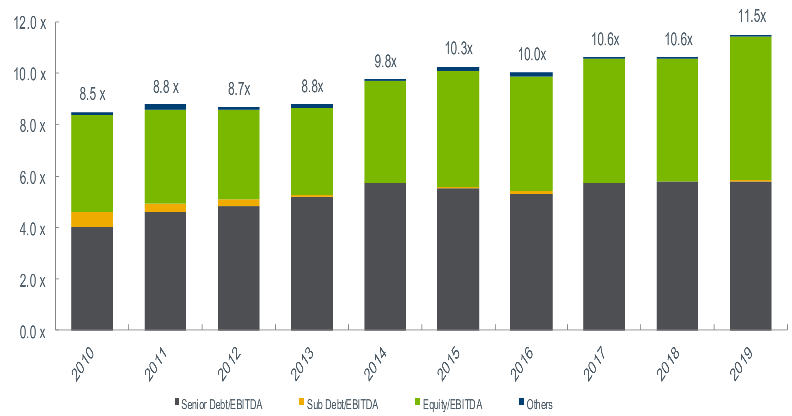


Source: Preqin

- **Fundraising:** In 2019, $787.2 billion was raised by 1,725 funds, which was a decrease of 3.4% on a capital basis and a decrease of 19.2% by number of funds from the prior year. Dry powder stood at $2.2 trillion at the end of the year, an increase of 5.4% and 39.7% compared to year-end 2018 and the five year average, respectively.[1]
- **Buyout:** Global private equity-backed buyout deals totaled $405.7 billion in 2019, which was down 19.9% and 5.6% from 2018 and the five year average, respectively.[1] At the end of 2019, the average purchase price multiple for all U.S. LBOs was 11.5x EBITDA, up from year-end 2018's average of 10.6x and up from the five-year average (10.6x).[2] Large cap purchase price multiples stood at 11.4x, up compared to the full-year 2018 level of 10.6x.[2] The weighted average purchase price multiple across all European transaction sizes averaged 11.1x EBITDA for year-end 2019, down slightly from the 11.3x multiple seen at year-end 2018. Purchase prices for transactions of €1.0 billion or more decreased from 11.7x in 2018 to 11.2x in 2019. Globally, exit value totaled $336.5 billion on 1,804 deals during the year, significantly lower than the $412.0 billion in exits from 2,369 deals during 2018.
- **Venture:** During the year, 5,906 venture-backed transactions totaling $108.0 billion were completed, which was a decrease on a capital and number of deals basis over the prior year's total of $118.4 billion across 6,452 deals. This was 34.7% higher than the five-year average of $80.2 billion.[3] Total U.S. venture-backed exit activity totaled approximately $256.4 billion across 882 completed transactions in 2019, up notably from $130.2 billion across 1,015 exits in 2018.[4]
- **Mezzanine:** 25 funds closed on $6.1 billion during the year. This was a significant decrease from the prior year's total of $27.3 billion raised by 56 funds and represented a decrease of 71.5% from the five-year average of $21.1 billion. Estimated dry powder was $44.6 billion at the end of 2019, down by $18.5 billion from the prior year.

Private Equity Market Overview – 4Q 2019

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



Source: S&P

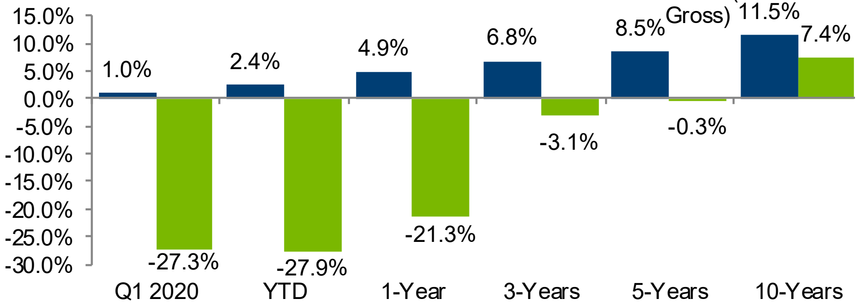
- **Distressed Debt:** The LTM U.S. high-yield default rate was 3.3% as of December 2018, which was up from December 2018's LTM rate of 2.4%.[5] This was the highest level seen since 2016. During the year, $52.6 billion was raised by 66 funds, higher than the $41.8 billion raised by 72 funds during 2018.[1] Dry powder was estimated at $117.2 billion at the end of 2019, which was down 1.0% from year-end 2018. This remained above the five-year annual average level of $101.8 billion.[1]
- **Secondaries:** 30 funds raised $23.2 billion during the year, down slightly from the $23.6 billion raised by 49 funds in 2018 and down significantly from the $43.1 billion raised by 61 funds in 2017.[1] The average discount rate for all private equity sectors finished the year at 8.1%, lower than the 8.9% discount at the end of 2018.[6]
- **Infrastructure:** $104.5 billion of capital was raised by 107 funds in 2019 compared to $91.8 billion of capital raised by 99 partnerships in 2018. At the end of the year, dry powder stood at $212.1 billion, up from last year's record of $177.9 billion. Infrastructure managers completed 2,608 deals for an aggregate deal value of $469.1 billion in 2019 compared to 2,749 deals totaling $406.1 billion in 2018.[1]
- **Natural Resources:** During 2019, 27 funds closed on $12.1 billion compared to 51 funds totaling $22.2 billion in 2018. Energy and utilities industry managers completed 156 deals totaling $17.0 billion in 2019, compared to $34.4 billion across 155 deals in 2018.[1]

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

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

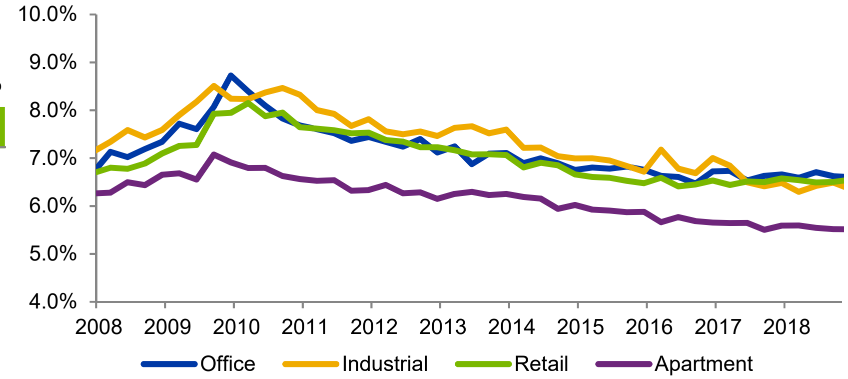
U.S. Commercial Real Estate Markets (TO BE UPDATED)

PRIVATE VS. PUBLIC REAL ESTATE RETURNS AS OF 03/31/2020



**First quarter returns are preliminary*
Sources: NCREIF, FactSet

CAP RATES BY SECTOR



Sources: RCA, AON 12/31/2018

- U.S. Core real estate returned 1.42%* over the first quarter, equating to 7.5% total gross return year-over-year, including a 4.2% income return. Debt mark to market was a drag on the quarterly return as a result of declining interest rates. Net income growth is expected to be the larger driver of the total return on a go forward basis given the current point of the real estate cycle.
- Global property markets, as measured by the FTSE EPRA/NAREIT Global Developed Real Estate Index, returned 14.9% (USD) in aggregate during the first quarter. Sector strength was largely attributed to a broader equity market rally due to an abrupt shift in monetary policy across major economies. The EU restarted QE just 2 months after ceasing the program, and the US Fed communicated a general pause from increasing rates for 2019. REIT market performance was driven by Asia Pacific (15.6% USD), North America (16.0% USD) and Europe (12.2% USD). The U.S. REIT markets (FTSE NAREIT Equity REITs Index) gained 16.3% in the first quarter. U.S. 10-year Treasury bond yield fell to 2.41%, after hitting highs over 3% in 2018. the movement was supportive to REIT share prices. Similarly, the German 10-year bond yield fell from .24% back to -0.07% at the end of the quarter.
- According to RCA through February 2019, the U.S. property market has experienced price growth of 6.3% year-over-year across major sectors. In addition, transaction volume was down 4% over the same period.
- Return expectations have normalized, with go forward expectations in line with historical norms. Declining interest rates have led to a rally across various asset classes. According to Preqin, there remains a record amount of dry powder ($326 billion) in closed-end vehicles seeking real estate exposure, which should continue to lend support to valuations and liquidity in the commercial real estate market.

*Indicates preliminary NFI-ODCE data gross of fees

Notes

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

Notes:

FY: Fiscal year ended 12/31

YTD: Year to date

YE: Year end

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

PPM: Purchase Price Multiples: Total Purchase Price / EBITDA

/bbl: Price per barrel

MMBtu: Price per million British thermal units

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ATTN: AHIC Compliance Officer

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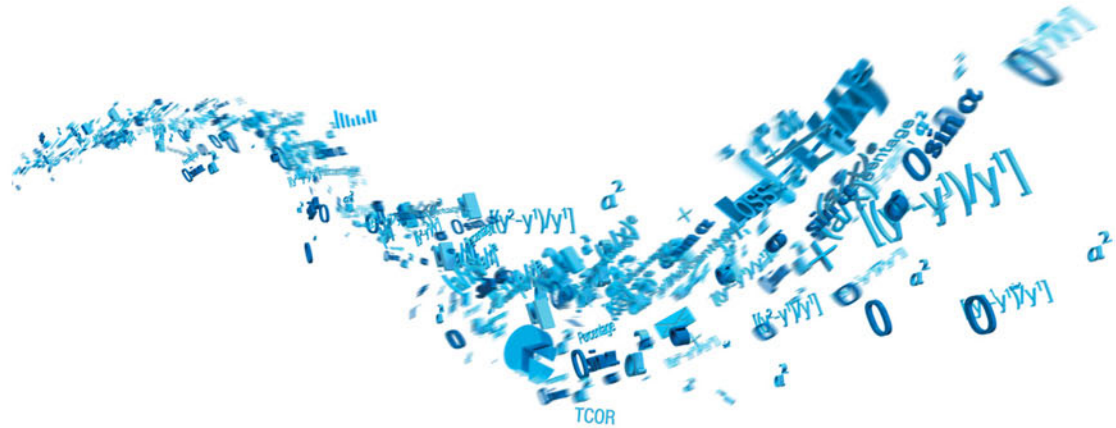


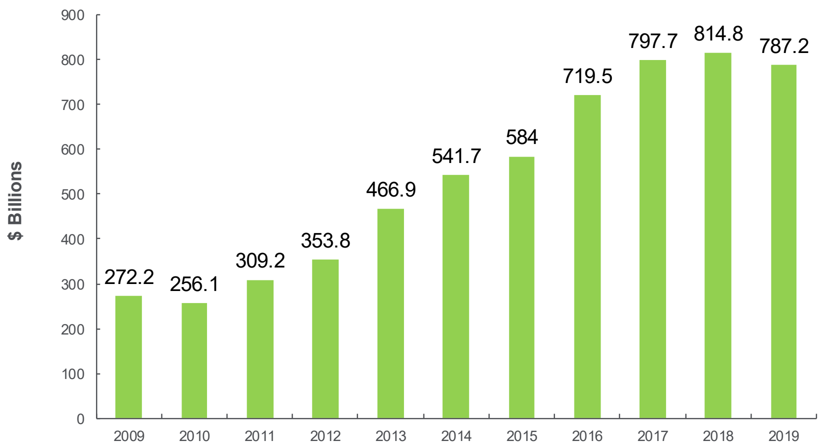
Appendix A:

Global Private Equity Market Overview

4Q 2019

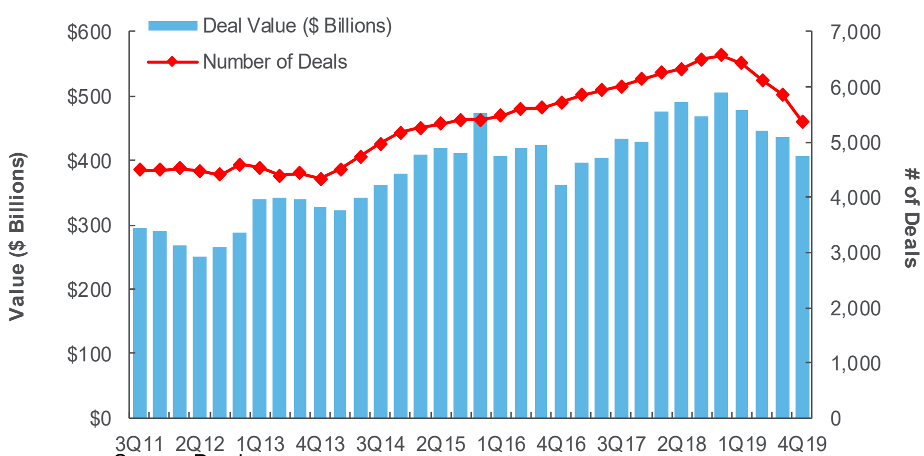
Private Equity Overview

Total Funds Raised



Source: Preqin

LTM Global Private Equity-Backed Buyout Deal Volume



Source: Preqin

Fundraising

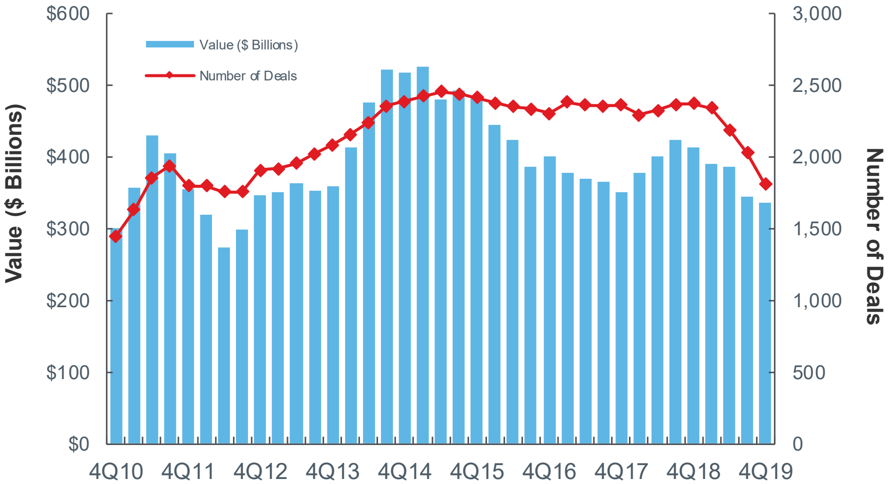
- In 2019, $787.2 billion was raised by 1,725 funds, which was a decrease of 3.4% on a capital basis and 19.2% by number of funds from the prior year.[1]
  - 2019 fundraising was 13.8% higher, on a capital basis, than the five-year average, but 27.1% lower by number of funds raised.
  - The majority of 2019 capital was raised by funds with target geographies in North America, comprising 59.1% of the annual total. Capital targeted for Europe made up 21.2% of the total funds raised during the year, while the remainder was attributable to managers targeting Asia and other parts of the world.
- Dry powder stood at nearly $2.15 trillion at the end of the year, an increase of 5.4% and 39.7% compared to 2018 and the five-year average, respectively.[1]

Activity

- In 2019, 5,371 deals were completed for an aggregate deal value of $405.7 billion as compared to 6,579 transactions totaling $506.5 billion in 2018.[1]
  - This was 5.6% lower than the five-year average deal volume of $429.6 billion.
  - Average deal size was $75.5 million in Q4 2019. This was down 1.9% compared to Q4 2018, but up 1.8% relative to the five-year quarterly average.
- European LBO transaction volume totaled €45.4 billion in 2019, down by 34.2% compared to 2018's total of €69.1 billion. 2019's total was also down compared to the five-year average level of €53.2 billion.[3]
- At the end of 2019, the average purchase price multiple for all U.S. LBOs was 11.5x EBITDA, up from year-end 2018 (10.6x) and up from the five-year average (10.2x). Middle-market purchase price multiples stood at 12.9x, up significantly from the 10.6x observed at year-end 2018.[3]
  - This was 2.3x and 3.6x turns (multiple of EBITDA) above the five and ten-year average levels, respectively.
- European multiples were down 0.2x year-over-year, averaging 11.1x EBITDA for all transaction sizes on a weighted basis, with large and medium transactions each running at 11.2x and 11.1x, respectively.[3]
- Debt remained broadly available in the U.S.
  - U.S. average leverage level in 2019 was 5.8x 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 2018 from 68.2% to 72.2%, and is higher than the 61.7% average level over the prior five years.[3]
- In Europe, average senior debt/EBITDA in 2019 was 5.6x, up from the 5.5x observed in 2018. This was also up over the five-year average of 5.3x and ten-year average level of 4.9x.

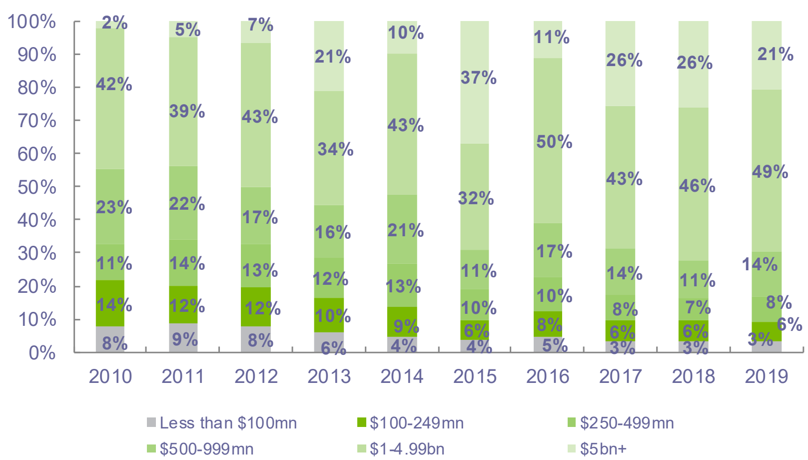
Buyouts / Corporate Finance

LTM PE Exit Volume and Value



Source: Preqin

M&A Deal Value by Deal Size



Source: Preqin

Fundraising

- $450.1 billion was closed on by 444 buyout and growth funds in 2019, compared to $345.4 billion raised by 520 funds the year before.[1]
  - This was significantly higher than the five-year average of $329.8 billion by 700 funds.
  - Blackstone Capital Partners VIII was the largest fund raised during the year, closing on $26.0 billion.[1] This was above the former 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 $1.0 trillion, which surpassed the record level of $921.4 billion observed at the end of 2018 and was substantially higher than the five-year average level of $684.4 billion.[1]
  - Mega and large cap funds increased in dry powder year-over-year by 12.0% and 13.0%, respectively. Large cap dry powder exhibited the largest increase during the year, setting a new record mark of $163.4 billion. Mega funds ended 2019 with $349.5 billion in dry powder, an increase of $37.5 billion over the prior year. Middle and small market buyout dry powder finished the year down 0.5% and 7.0%, respectively, from 2018.[1]
  - An estimated 59.5% of buyout dry powder was targeted for North America, while European dry powder comprised 26.1% of the total.[1]

Activity

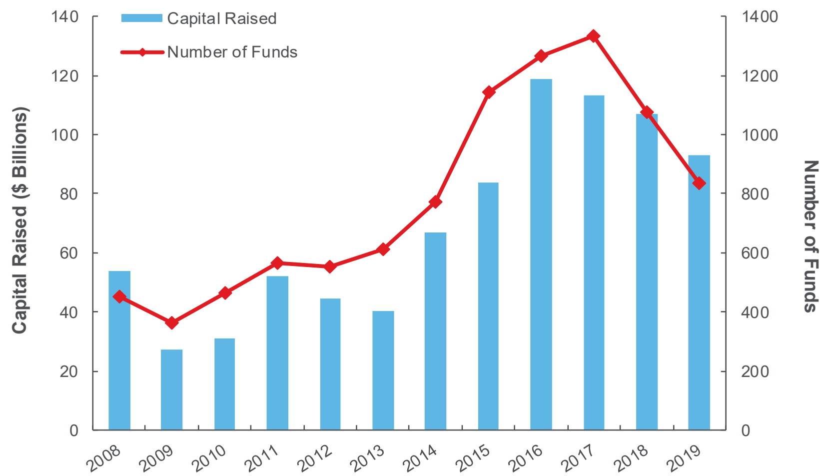
- Global private equity-backed buyout deals totaled $405.7 billion in 2019, which was a decrease of 19.9% and 5.6% from 2018 and the five-year average, respectively.[1]
  - $94.1 billion in deal value was completed during Q4 2019, which was down 24.2% from 4Q 2018 and down 11.6% compared to the five-year quarterly average.
  - In 2019, deals valued at $5.0 billion or greater accounted for an estimated 20.9% of total deal value during the year compared to 26.3% in 2018 and 25.7% in 2017.[1] Deals valued between $1.0 billion to $4.99 billion represented 48.6% of total deal value during the year.
- Entry multiples for all transaction sizes in 2019 stood at 11.5x EBITDA, up significantly from 2018's level (10.6x).[3]
  - Middle-market purchase price multiples stood at 12.9x, up compared to 10.6x in 2018.[3]
  - The weighted average purchase price multiple across all European transaction sizes averaged 11.1x EBITDA on a full-year 2019 basis, down from 11.3x in 2018. Purchase prices for transactions of €1.0 billion or more decreased from 11.7x to 11.2x year-over-year.
  - The portion of average purchase prices financed by equity for all deals was 43.5% in 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 $336.5 billion across 1,804 deals in 2019 compared to $412.0 billion across 2,369 deals in the prior year.[1]

Opportunity

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

Venture Capital

Venture Capital Fundraising



Source: Preqin

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

Source: PwC/CB Insights Report

Fundraising

- $92.9 billion of capital was raised by 836 funds in 2019, down from the prior year's total of $106.9 billion raised by 1,074 managers. Continuing the trend seen in previous quarters, a smaller number of funds continue to raise larger pools of capital, raising the average fund size to $130.0 million.[1]
  - 2019 fundraising was down by 5.1% on a capital basis compared to the five-year average of $97.9 billion.
  - Technology Crossover Ventures X was the largest fund raised during the year, closing on $3.0 billion.
- The average fund size raised during the year was approximately $130.0 million. This represented a slight increase compared to 2018's average of $126.0 million and increased the spread between the five-year average fund size of $108.8 million.
- At the end of 2019, there were an estimated 2,105 funds in market targeting $226.5 billion.[1]
  - Guoxin Fund was the largest venture fund in market, targeting an estimated $22.1 billion, or 150,000,000,000 CNY.
  - The majority of funds in market are seeking commitments of $200.0 million or less.
- Dry powder was estimated at $275.3 billion at the end of 2019, which was up from 2018's total of $245.1 billion. This was 65.5% higher than the five-year average.[1]

Activity

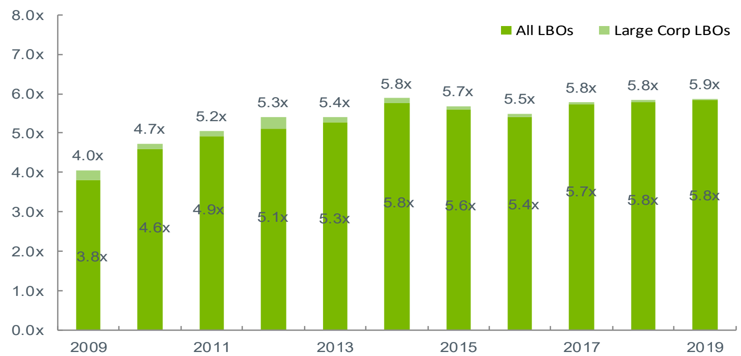
- During the year, 5,906 venture-backed transactions totaling $108.0 billion were completed, which was a decrease on a capital basis over the prior year's total of $118.4 billion across 6,452 deals. However, this was 34.7% higher than the five-year average of $80.2 billion.[7]
  - In 2019, there were 155 U.S.-based deals involving unicorn companies, representing roughly $42.6 billion in deal value. This was up substantially by number compared to 2018, which saw 129 unicorn deals closed, but lower on a deal value basis. 2018 marked a substantial increase from 2017 in regards to total deal value, jumping from $17.8 billion to $47.0 billion, which was also greater than 2019's unicorn deal value.[8]
- At the end of 2019, median pre-money valuations increased or remained stable across all transaction stages, except for Series B. Compared to year-end 2018, Series D+ transactions remained stable at a median pre-money valuation of $625.0 million. Seed, Series A, and Series C transactions were up 11.8%, 29.2%, and 22.7% respectively, from year-end 2018 levels.[9]
- Total U.S. venture-backed exit activity totaled approximately $256.4 billion across 882 completed transactions in 2019, up significantly from $130.2 billion across 1,015 exits in 2018.[8]
  - The number of U.S. venture-backed initial public offerings declined over 2018, with 80 IPOs completed in 2019. However, on a value basis, 2019 IPOs surpassed the prior year by more than $130.0 billion.[8]

Opportunity

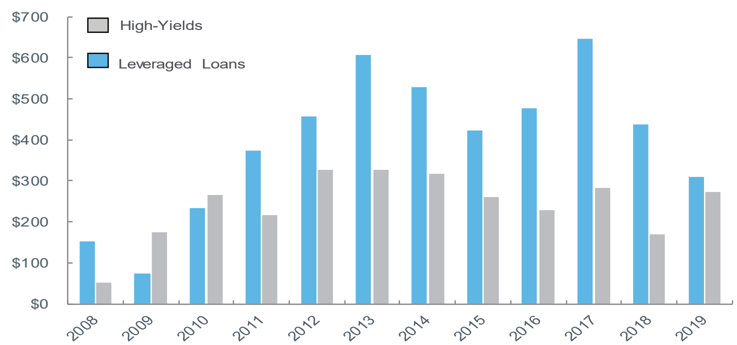
- Early stage continues to be attractive, although we are monitoring valuation increases
- Smaller end of growth equity
- Technology sector

Leveraged Loans & Mezzanine

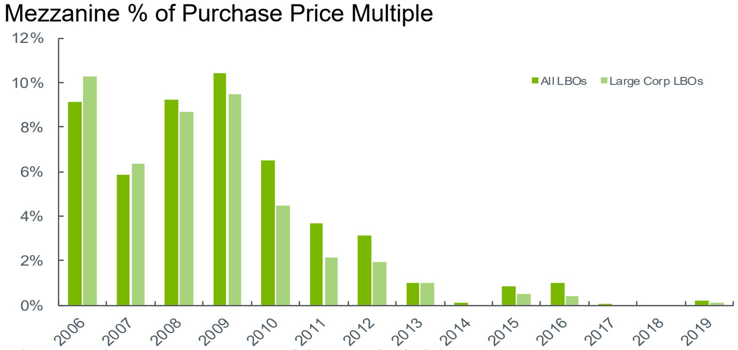
Average Leverage by Deal Size



Debt Issuance ($ Billions)



Mezzanine % of Purchase Price Multiple



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

Leveraged Loans

Fundraising

- New CLO issuance totaled $118.3 billion in 2019, down 8.2% from 2018.[2]
- High-yield debt issuance totaled $272.5 billion in 2019, up significantly from $168.8 billion in 2018.[2]
- Leveraged loan mutual fund net flows ended 2019 with a net outflow of $29.5 billion, compared to a net outflow of $35.9 billion in 2018.[2]

Activity

- Leverage for all LBO transactions ended the year at 5.8x, flat with 2018's level. Leverage continues to be comprised almost entirely of senior debt. The average leverage level for large cap LBOs was 5.9x during the year, up slightly from the 5.8x witnessed in 2018.[3]
- YTD institutional new leveraged loan issuances totaled $309.2 in 2019, down from 2018's total of $437.3 billion.[2]
- 72.2% of new leveraged loans were used to support M&A and growth activity in 2019, up from 68.2% in 2018. This was also above the five-year average of 61.7%.[3]
- European leveraged loan issuance decreased by 34.2% year-over-year to €45.5 billion.[3]
  - This was below the five-year average level of €53.2 billion and slightly higher than the ten-year average level of and €45.1 billion.
- TMT and Industrials made up the largest share of new leveraged loan issue volume, together totaling 48% of 2019's loan volume.[2]

Opportunity

- Funds with the ability to source deals directly and the capacity to scale for large transactions (both sponsored and non-sponsored)
- Funds with an extensive track record, experience through prior credit cycles, and staff with workout experience

Mezzanine

Fundraising

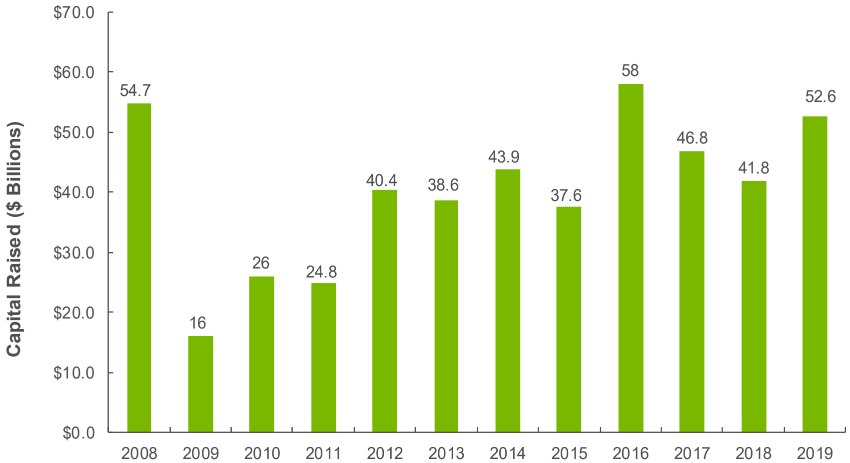
- 25 funds closed on $6.0 billion during the year. This was a significant decrease from the prior year's total of $27.3 billion raised by 56 funds and represented a decrease of 71.5% from the five-year average of $21.1 billion.[1]
- Estimated dry powder was $44.6 billion at the end of 2019, which was down 29.3% from year-end 2018.[1]
- Fundraising activity has intensified with an estimated 81 funds in market targeting $32.1 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

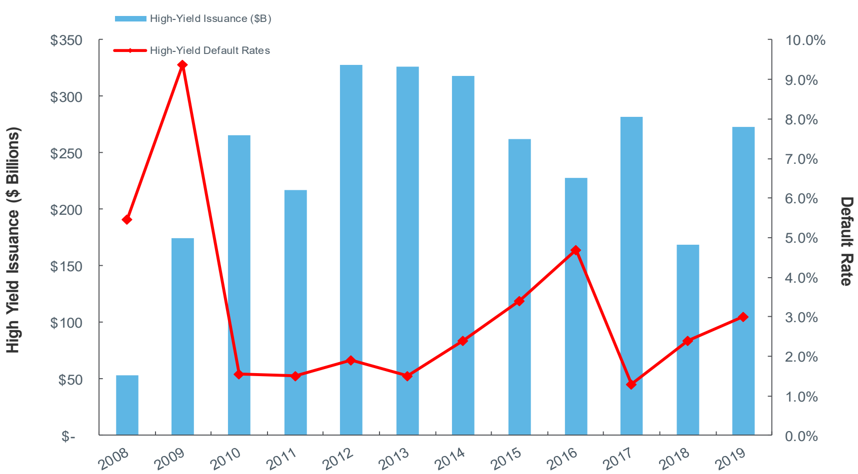
Distressed Private Markets

Distressed Debt, Turnaround, & Special Situations Fundraising



Source: Preqin

High-Yield Bond Volume vs Default Rates



Source: UBS & Fitch Ratings

Fundraising

- During the year, $52.6 billion was raised by 66 funds compared to $41.8 billion raised by 72 funds in 2018.[1]
  - 2019 fundraising was 15.3% higher than the prior five-year average.
  - KPS Special Situations Fund V was the largest partnership raised during the year, closing on $6.0 billion.
- Dry powder was estimated at $117.2 billion at the end 2019. This was down compared to year-end 2018 ($118.2 billion), but remained above the five-year average level of $101.8 billion.[1]
- Roughly 111 funds were in the market at the end of 2019, seeking $60.1 billion in capital commitments.[1]
  - Special situation managers were targeting the most capital, seeking an aggregate $32.8 billion, followed by distressed debt managers ($25.8 billion).
  - Clearlake Capital Partners VI and LCM Credit Opportunities Strategy 4 were the largest funds in market with target fund sizes of $5.0 billion and $4.4 billion, respectively.

Activity

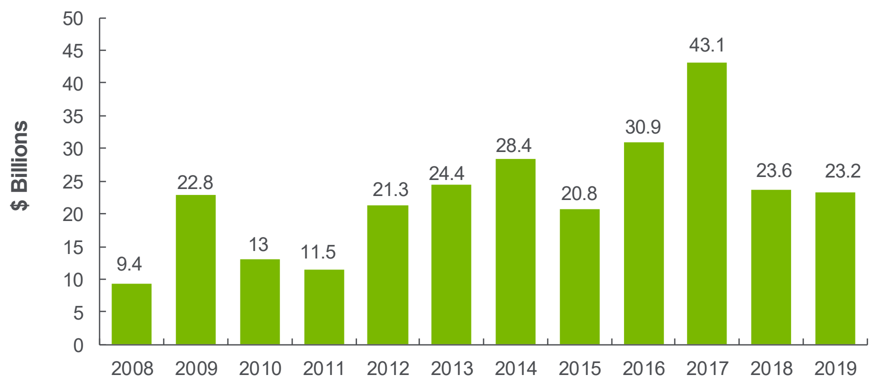
- The LTM U.S. high-yield default rate was 3.0% as of year-end 2019, which was up from year-end 2018's rate of 2.4%.[6]
- High purchase prices and continued elevated levels of leverage may result in an increase in distressed opportunities looking out over the next two to three years, or sooner if there is a stall in the economy.

Opportunity

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

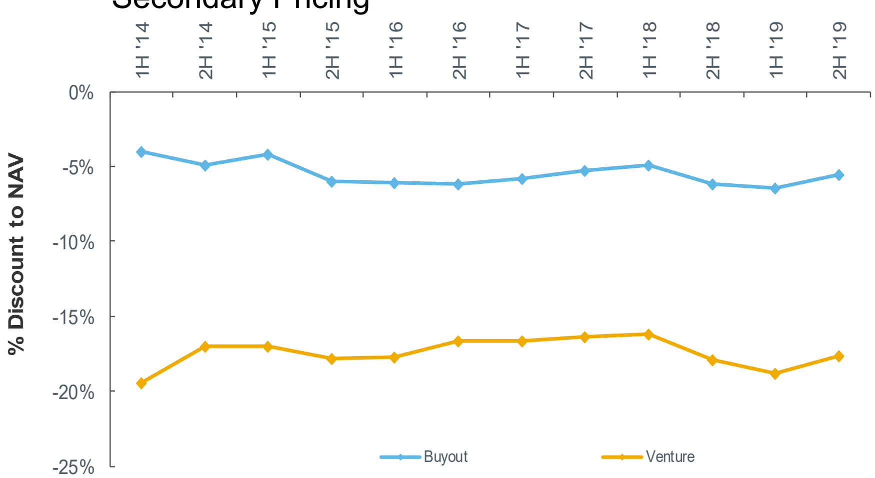
Secondaries

Secondary Fundraising



Source: Preqin

Secondary Pricing



Source: UBS

Fundraising

- 30 funds raised $23.2 billion during the year, down slightly from the $23.6 billion by 49 funds in 2018.[1]
  - Strategic Partners VIII was the largest fund raised during the year, closing on $11.1 billion.
- As of year-end 2019, dry powder was estimated to be at $91.0 billion, which was higher than 4Q 2018's level of $68.0 billion.[2] The top 18 secondary buyers are estimated to command more than 84.0% of the market's capital reserves. Of the top 18 buyers, 12 are currently in market or are in some stage of fundraising.[2]
- Through 4Q 2019, there were an estimated 72 secondary and direct secondary funds in market, targeting approximately $75.5 billion. The majority of secondary funds are targeting North American investments.
  - Two funds account for 31.2% of all capital being raised: Lexington Capital Partners IX and Ardian's ASF VIIII, both of which are targeting $12.0 billion.[1]

Activity

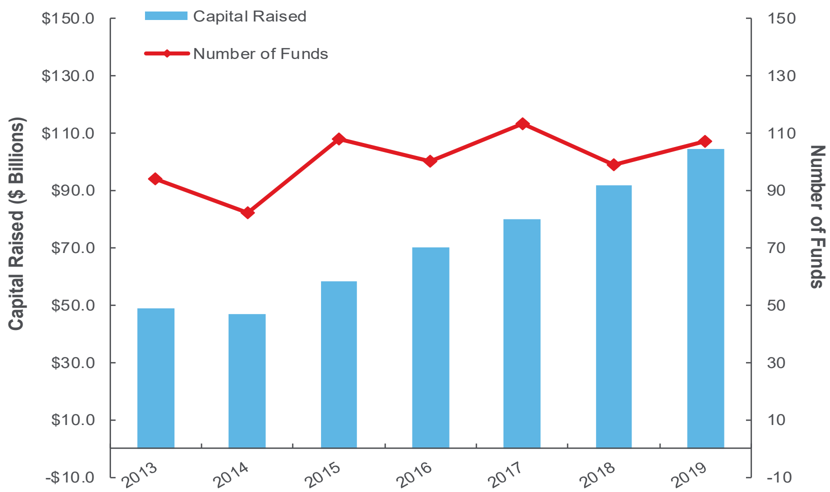
- The market continues to have strong participation from both buyers and sellers, with opportunistic selling activity from public and private pensions, financial institutions and insurance companies.
  - Secondary funds were the most active buyers in 2019, accounting for 86.8% of total purchases, followed by fund of funds, which accounted for 10.3% of purchases.[13]
  - General Partners and Pensions (that are not fund of funds or secondaries funds) sold the most positions in 2019, accounting for 24.5% and 22.7% of volume, respectively.[13]
- In 2019, the private equity market transaction volume totaled $77.8 billion, representing an increase of 10.8% from the level observed in 2018. 65.8% of deal volume was traditional fund secondaries positions and the remainder were direct secondaries transactions.[13]
  - Leveraged buyout funds continued to be the most purchased private equity funds during 2019, representing 75.0% of deal flow on a capital basis, followed by venture capital at 9.0% of deal flow.[13]
- Transaction fund leverage and deferred payment structures continue to be prevalent and are used as a means to improve pricing and deal returns in an increasingly competitive environment.[2]
- The average discount rate for all private equity sectors finished the year at 8.1%, down from 8.9% at the end of 2018. The average buyout pricing discount decreased 0.7% during the year, ending the year at 5.5%.[2]
- Pricing is expected to remain attractive for sellers given lower targeted return thresholds, the strong level of dry powder, and the robust competitive dynamics seen in the sector.[2]
- GP-led transactions continue to take a greater share of transaction volume and activity, accounting for 38% of volume in 2019.[2]

Opportunity

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

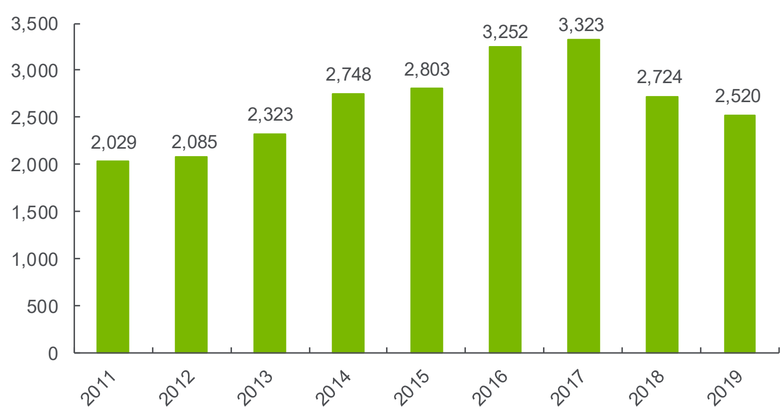
Infrastructure

Global Infrastructure Fundraising



Source: Preqin

Number of Deals Completed



Source: Preqin

Fundraising

- $104.5 billion of capital was raised by 107 funds in 2019 compared to $91.9 billion of capital raised by 99 partnerships in 2018, showing that the average amount raised per manager has continued to increase.[1]
  - Global Infrastructure Partners IV was the largest fund raised during the year, closing on $22.0 billion.[1]
- As of the end of 2019, there were an estimated 245 funds in the market seeking roughly $201.8 billion.[1]
  - Brookfield Infrastructure Fund IV was the largest fund in market and was seeking commitments of $20.0 billion.
- At the end of the year, dry powder stood at $212.1 billion, up from the year-end 2018's record total of $177.9 billion.[1]
- Concerns surrounding the relative availability and pricing of assets remain. Fundraising continues to be very competitive given the number of funds and aggregate target level of funds in market. Investor appetite for the asset class persists despite the record levels of dry powder and increased investment activity from strategic and corporate buyers as well as institutional investors.

Activity

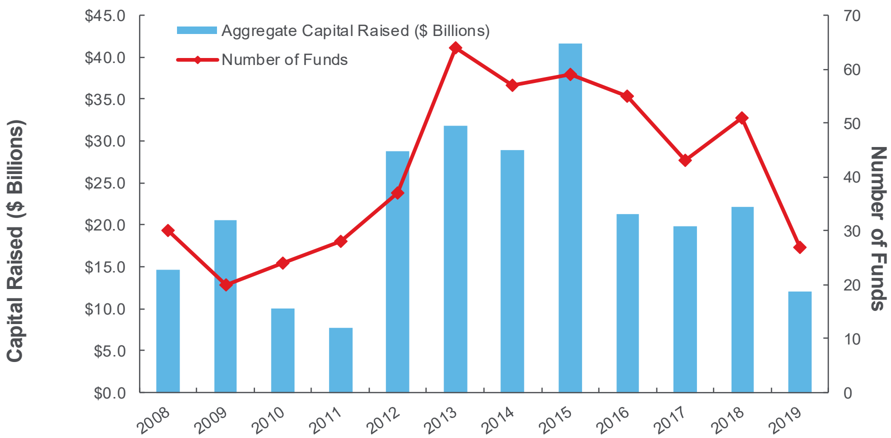
- Infrastructure managers completed 2,520 deals for an aggregate deal value of $484.8 billion in 2019 compared to 2,724 deals totaling $385.3 billion in 2018.[1]
  - By region, Europe saw the highest amount of deals completed, with 38.4% of deals being invested in the region, followed by North America at 30.6%. Asia amassed 13.8% of activity during the year.
  - Energy was the dominant industry during the year with 65.9% of transactions, followed by the transport sector, which accounted for 12.8% of 2019's deals. Utilities and telecommunications accounted for 12.0% and 6.4% of deals during 2019.[1]

Opportunity

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

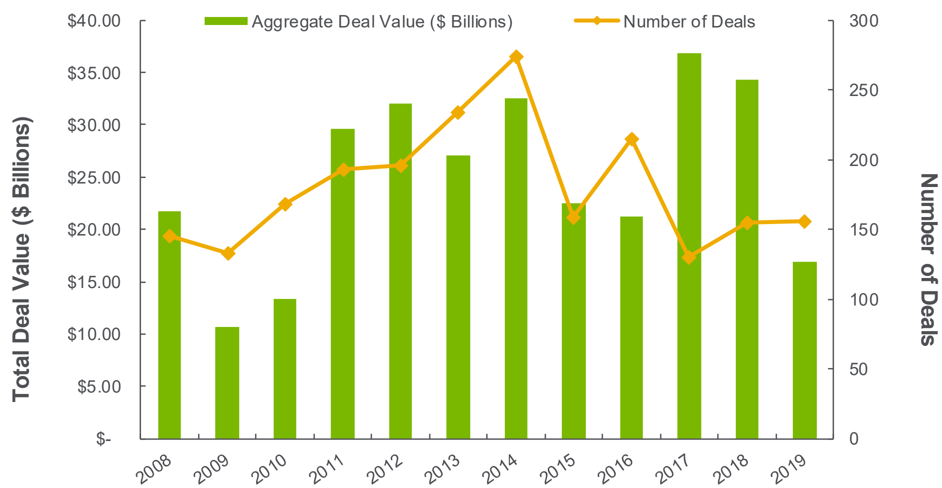
Natural Resources

Natural Resources Fundraising



Source: Preqin

Energy & Utilities Deal Activity



Source: Preqin

Fundraising

- During 2019, 27 funds closed on $12.1 billion compared to 51 funds totaling $22.2 billion in 2018.[1] This represented the lowest amount raised since 2011.
  - NGP Natural Resources XII was the largest fund raised during the year, securing commitments of $4.3 billion.
- At the end of 2019, there were roughly 100 funds in the market targeting an estimated $42.5 billion in capital, compared to 93 funds seeking an estimated $35.8 billion in 4Q 2018.[1]
  - Blackstone Energy Partners III and Carlyle International Energy Partners II were seeking the most capital, each with a target fund size of $4.0 billion.
- Dry powder stood at $53.9 billion at the end of 2019, which was down 12.9% from 4Q 2018's level of $61.5 billion and down from the five-year average level by 20.1%.[1]

Activity

- Energy and utilities industry managers completed 156 deals totaling $17.0 billion in 2019, compared to $34.4 billion across 155 deals in 2018.[1]
- Crude oil prices increased during the year.
  - WTI crude oil prices increased 20.1% during the year to $59.88 per bbl. This was also an increase of 5.1% quarter-over-quarter.[11]
  - Brent crude oil prices ended the quarter at $67.31/bbl, up 17.3% and 7.1% from 4Q 2018 and 3Q 2019, respectively.[11]
- Natural gas prices (Henry Hub) finished 2019 at $2.22 per MMBtu, which was down 45.0% from 4Q 2018 and down 13.3% from 3Q 2019.[11]
- A total of 805 crude oil and natural gas rotary rigs were in operation in the U.S. at the end of 2019. This was down by 6.4% from the prior quarter and up 25.7% year-over-year.[15]
  - Crude oil rigs represented 84.1% of the total rigs in operation. 59.8% of the 677 active oil rigs were in the Permian basin.
  - 39.2% and 32.8% of natural gas rigs at the end of 2019 were operating in the Haynesville and Marcellus basins, respectively.
- The price of iron ore (Tianjin Port) ended the year at $92.65 per dry metric ton, up from $69.15 at year-end 2018.[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

Notes

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

Notes:
FY: Fiscal year ended 12/31
YTD: Year to date
YE: Year end
LTM: Last twelve months (aka trailing twelve months or TTM)
PPM: Purchase Price Multiples: Total Purchase Price / EBITDA
/bbl: Price per barrel
MMBtu: Price per million British thermal units

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Appendix B:

Real Estate Market Update

3Q 2019

United States Real Estate Market Update (4Q19)

General

- The S&P 500 produced a gross total return of 9.1% during the quarter. The MSCI US REIT index produced a return of -0.8%. Ending the year on a high note, Consumer Sentiment increased to 99.3. Subsequent to quarter-end, the macro environment took a sharp turn as a result of the novel coronavirus spreading globally, disrupting supply chains, and impacting consumer behavior.

- Macro indicators for U.S. real estate continue to be positive; GDP grew at an annualized rate of 2.0% in the fourth quarter and headline CPI rose by 2.3% YoY, just above the Fed's 2% target. As of quarter-end, the economy has now experienced 111 consecutive months of job growth. The Federal Reserve cut rates three times in 2019 and, in 2020, an emergency 50bps rate cut was made intermeeting as a result of the previously mentioned coronavirus.

Commercial Real Estate

- Private real estate market carrying values remained flat over the quarter. Transaction cap rates (5.4%) expanded 4 bps during the quarter, while current valuation cap rates compressed across property sectors, industrial (-7 bps), office (-17 bps), and retail (-10 bps). Apartment cap rates were expanded 9 bps during the quarter.

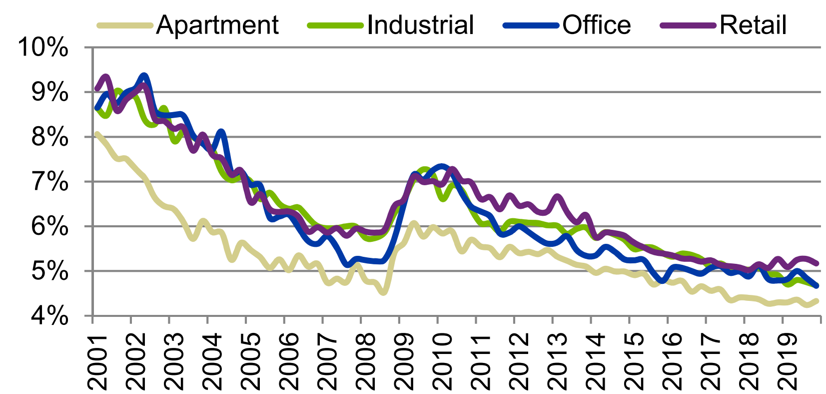
- NOI growth continues to be elevated across property sectors during the quarter, with the industrial sector continuing to outpace the other traditional property types. While the industrial sector has faced increasing supply, it continues to benefit from outsized demand tailwinds (e-commerce and economic growth). Retail NOI growth continues to struggle (-82 bps) in the face of e-commerce headwinds.

- In the fourth quarter of 2019, $22 bn of aggregate capital was raised by real estate funds. Through the fourth quarter of 2019, private equity real estate funds raised $157 bn which is an increase of 5% YoY. Transaction volume was flat during the 4th quarter at $581.2 bn.

- 10-year treasury bond yields increased to 1.88% during the quarter, and, subsequent to quarter-end, have dropped to 0.57%.

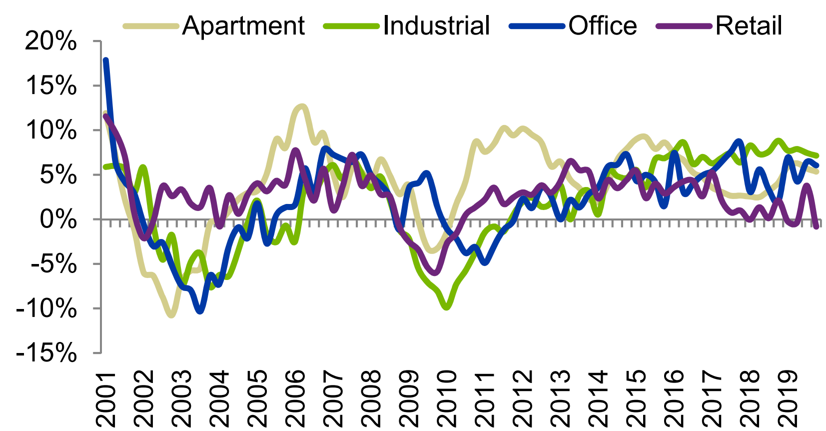
Sources: Bureau of Economic Analysis, U.S. Census Bureau, Federal Reserve Board, NCREIF, Cushman and Wakefield, Real Capital Analytics, Bloomberg LP., Preqin, University of Michigan, Green Street

Current Value Cap Rates by Property Type



Source: NCREIF

4 Qtr Rolling NOI Growth



Source: NCREIF

United States Property Matrix (4Q19)

TOWNSEND GROUP
an Aon company

INDUSTRIAL

- In 4Q19, industrial properties were the highest returning sector at 3.2% and outperformed the NPI by 160 bps.
- Transaction volumes reached $35.9 billion in the fourth quarter of the year, a 10.0% year-over-year increase. Individual asset sales were up 25.5% year-over-year, while portfolio purchases turned in a year-over-year volume increase of 149.0%. Yet again, portfolio transaction volume was driven by multiple megadeals occurring in the sector, as well as a significant year-over-year decrease in entity-level transactions. This large portfolio transaction volume increase is expected to be an outlier and should regress to the mean positive growth rate.
- The industrial sector continued to experience steady NOI growth of 7.1% over the past year, decreasing from the prior periods TTM growth of 7.5% in 3Q19. Market rent growth is expected to decelerate compared to the recent phenomenal pace, but still remains strong.
- Vacancy increased by 11 bps to 3.3%, still remaining close to all-time historic lows. E-commerce continues to drive demand.
- Industrial cap rates compressed approximately 23 bps from a year ago, to 4.68%. Industrial fundamentals still top all property sectors.

MULTIFAMILY

- The apartment sector delivered a 1.5% return during the quarter, underperforming the NPI by 9 bps.
- Transaction volume in the fourth quarter of 2019 reached $52.7 billion, an decrease of 1.8% year-over-year. This volume continues to make multifamily the most actively traded sector for the tenth straight quarter.
- Cap rates grew to 4.33%, inflating 3 bps year-over-year. Robust job growth and improving wages have supported healthy operating fundamentals.
- Steady demand for the sector continues to keep occupancy floating around 94.0%, vacancy has decreased 16 bps from a year ago. The aging millennials have begun shifting their desires to suburban living but continued home price appreciation has deterred the full effect of this migratory trend.

OFFICE

- The office sector returned 1.7% in 4Q19, 15 bps above the NPI return over the period.
- Transaction volumes decreased by 3.8% year-over-year in Q4. Annual sales volumes equaled $41.1 billion for the quarter. Single asset transactions accounted for 79% of volume.
- Occupancy growth within the office sector has improved, increasing 0.7% year-over-year. Office continues to be the highest vacancy property type at close to 9.8%.
- NOI growth of 6.1% in the last year is a positive as the sector continues to benefit from positive job growth. Sun Belt and tech-oriented West Coast office fundamentals continue to prove healthiest.
- Office cap rates compressed from a year ago to approximately 4.67% in the fourth quarter. Office-using job growth is positive, though decelerating as expected.

RETAIL

- As of 4Q19, the retail sector delivered a quarterly return of 0.1%, performing 150 bps below the NPI.
- Transaction volumes totaled $19.4 billion in the fourth quarter, increasing 2.5% year-over-year.
- Cap rates have compressed approximately 10 bps within the sector over the last year. Strong fundamental headwinds continue to affect the retail landscape.
- After showing positive for the first time this year last quarter, NOI growth has turned a negative for the fourth quarter. NOI has decreased 82 bps over the past year. Retail is expected to continue to suffer from the shift towards e-commerce.
- Retail vacancy rates increased 19 bps over the past year to 7.1%. Many big box stores have closed as the need for retail space shrinks, translating to a negative outlook for rent growth.

Sources: Real Capital Analytics, Green Street, NCREIF

Global Real Estate Market Update (4Q19)

TOWNSEND® GROUP
an Aon company

- Global investment activity during the fourth quarter of 2019 was down relative to the same period in 2018. In 2019, the New York, San Francisco and Los Angeles metro markets have witnessed the greatest transaction volume.
- Broad geopolitical risk factors, such as Brexit and the Trade War, continue to have negatively influenced sentiment. An impending global slowdown, especially in the manufacturing sector, further dampened transaction volumes. Loose monetary policy continued supporting low yields and pushing capital inflows towards real estate which offers a premium to other asset classes.

Global Total Commercial Real Estate Volume - 2018 - 2019

$ US Billions	Q4 2019	Q4 2018	% Change Q4 19 - Q4 18	2019	2018	% Change 2019 - 2018
Americas	155	159	-2%	520	525	-1%
EMEA	121	124	-3%	335	361	-7%
Asia Pacific	199	229	-13%	825	868	-5%
Total	475	512	-7%	1680	1754	-4%

Source: Real Capital Analytics, Inc., Q4' 19

- Investment volumes in the Americas decreased by 2% year-over-year, including Canada and Brazil showing declines, the US remaining unchanged, and Mexico posting investment volume growth.
- The Asia Pacific region declined as a whole due largely to activity levels falling in several key markets. Specifically in Hong Kong, volume hit its lowest level since the Global Financial Crisis as a product of continued sociopolitical uncertainty within the metro. Japan was the sole country to experience growth as Australia was flat and both China and South Korea declined.
- In EMEA, Brexit continued to press UK investment volumes lower, a 21% decline from fourth quarter 2018. Growth was mixed for the rest of EMEA countries with Italy, Ireland, Sweden, and Greece reporting the largest increases.
- In the office sector, global leasing activity was healthy but moderated in the final quarter of 2019. The U.S office market saw net absorption hit a cyclical high despite a 6% QoQ decline in leasing activity. Europe experienced an uptick in demand, and office net absorption surpassed the 10 year average by nearly 20%. Economic, geopolitical, and sectoral headwinds subdued leasing activity in the APAC region resulting in leasing volumes 13% lower than in 2018.
- The retail sector continued to face headwinds globally as e-commerce disrupts traditional consumer spending habits. Within the U.S., net absorption continued to trend downward, declining 10% YoY. Retail sales increased 3.8% YoY driven by non-store retailers and food services. Across Europe, rents were broadly stable, while APAC markets rents were muted.
- The multifamily market in the U.S. has continued to see strong growth, with vacancy rates hitting their lowest Q4 level since 2000. Construction remains near peak levels, possibly presenting future supply headwinds. Rent control and low supply constrained activity in many European markets, but investment volume remains positive. APAC markets were mixed, a result of macroeconomic uncertainty and holiday season effects.
- Industrial properties demand continued to grow but at a slower pace. Uptake was robust globally driven by logistics and omnichannel distribution demand. New supply has been increasing rapidly, and there are signs of slowing demand in Asia while Europe recovered from a slow start earlier in the year.

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

	2019	2020	2021
Global	**2.9**	**3.0**	**3.3**
Asia Pacific	**4.5**	**4**	**4.4**
Australia	1.8	2.0	2.6
China	6.1	5.5	5.8
India	5.0	5.8	6.6
Japan	0.8	0.3	0.8
North America	**2.1**	**1.7**	**2.0**
US	2.3	1.8	2.0
MENA*	**2.0**	**2.7**	**2.9**
European Union	**1.5**	**1.2**	**1.5**
France	1.3	1	1.3
Germany	0.6	0.6	1.2
UK	1.4	1.0	1.5

*Middle East North Africa

Source: Bloomberg (March 2, 2020)

Sources: Jones Lang LaSalle Research, Real Capital Analytics, Inc., CBRE

TAB I

Report

Meketa Capital Markets Outlook & Risk Metrics

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Capital Markets Outlook & Risk Metrics

As of April 30, 2020

Capital Markets Outlook

Takeaways

- After Q1 turned out to be a historically challenging quarter, the month of April proved to be one of history's strongest months on record for a variety of risk-based assets. Moreover, safe-haven assets such as US Treasury bonds also produced positive returns during the month.
- From a performance perspective, US equity indices were generally up in the 10-15% range, developed international equity markets (in aggregate) produced returns in the 6-8% range, and emerging markets equity generated returns near 10%.
- Growth continued to outperform value. However, in a reversal from Q1, small cap stocks outperformed large cap stocks. An interesting outcome from these market movements is that large cap growth stocks, in aggregate, are only down -2% to -4% YTD as a variety of technology companies have proved resilient.
- US interest rates were stable throughout the month of April as the Federal Reserve continued to remain extremely accommodative. This level of accommodation is also seen in global fiscal policies as authorities continue to rollout historic efforts to combat the economic fallout from the pandemic.
- While valuations for most risk-based asset classes appear attractive at first glance, it is important to note that the full impact on corporate earnings and solvencies remains unknown. The actual path that the global economy will take moving forward is uncertain.

Capital Markets Outlook

Takeaways

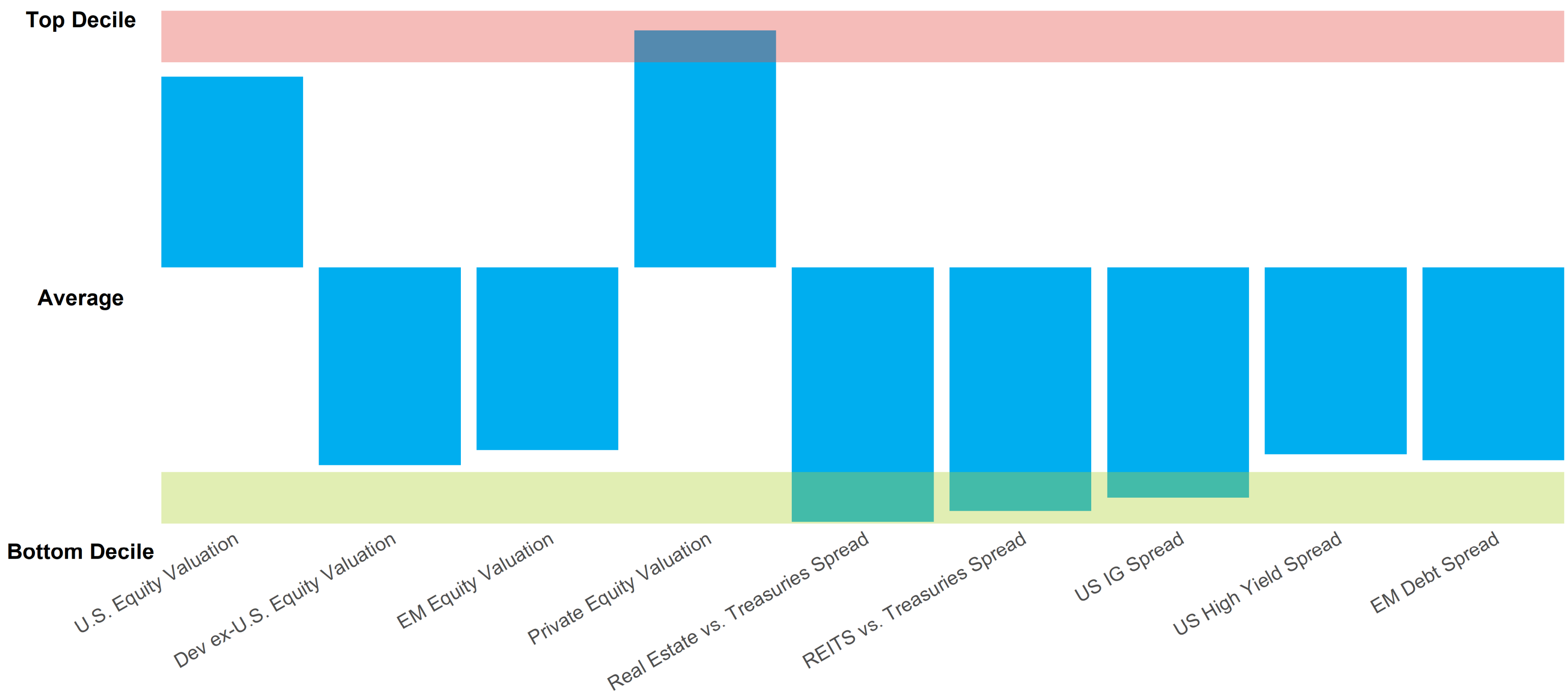
- Implied equity market volatility[1] began April at around 55 but declined over the course of the month to end the period at around 34. To put that level in context, the market is currently implying that, over the next month, equities will be about two times as volatile as the long-term average.
- The Market Sentiment Indicator[2] flipped to grey (i.e., neutral) at month-end.

[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)

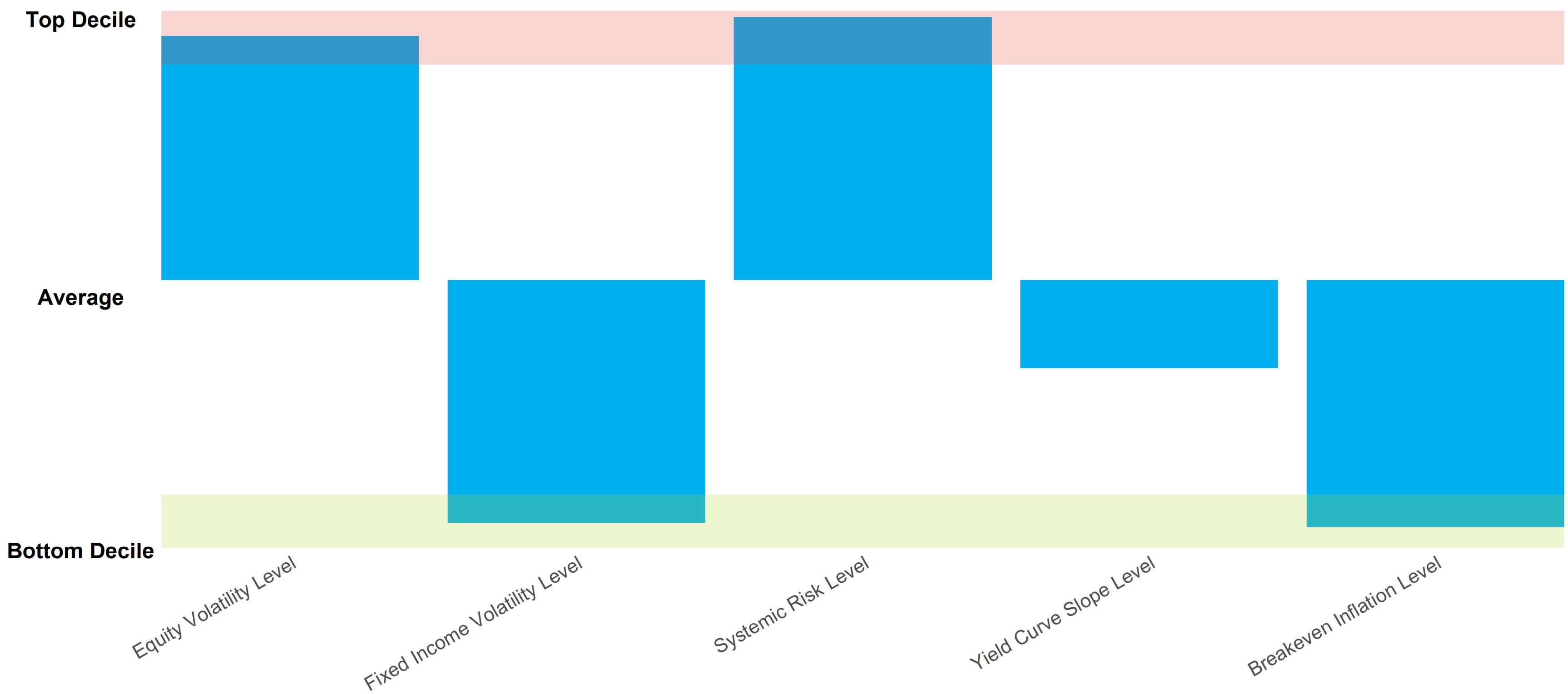
(As of April 30, 2020)[1]



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

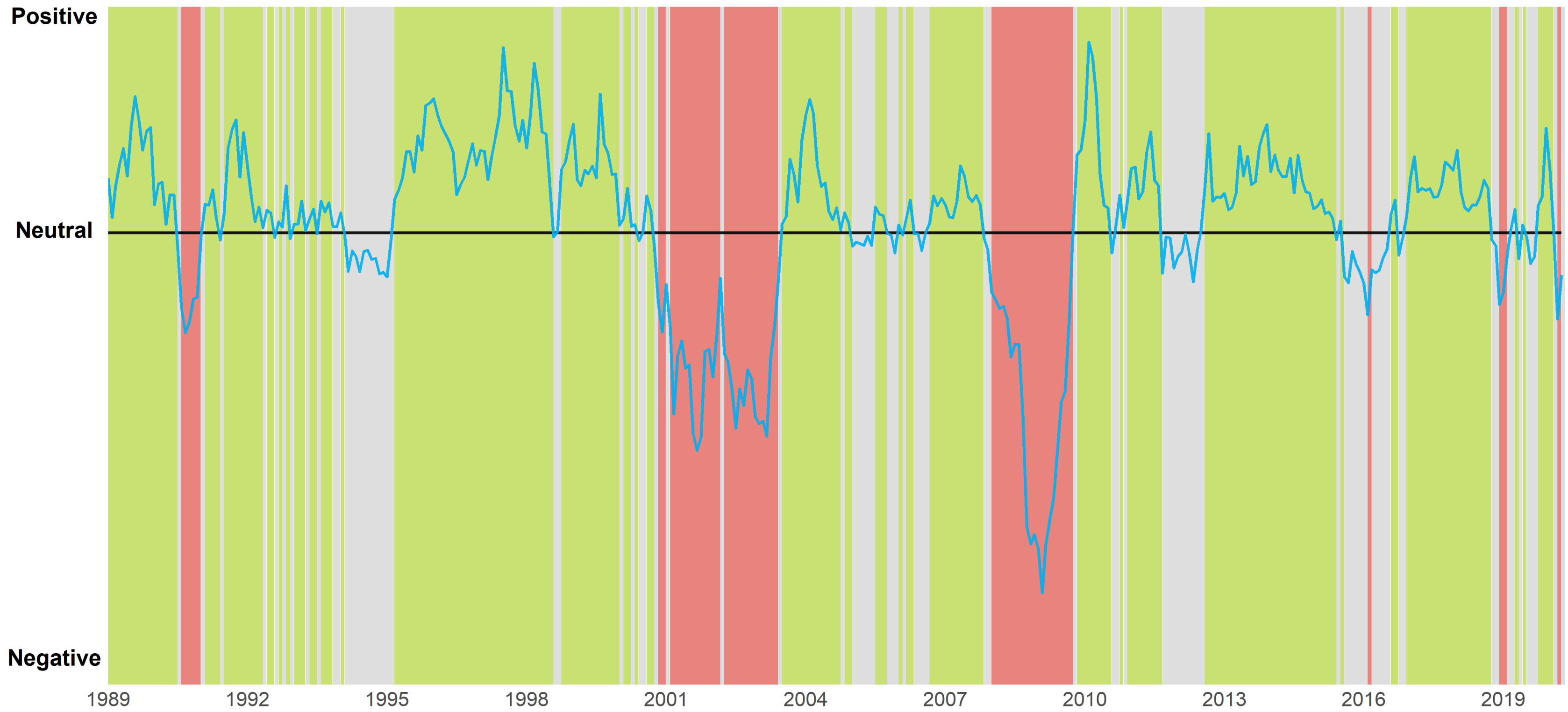
[1] With the exception of Private Equity Valuation, that is YTD as of December 31, 2019.

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

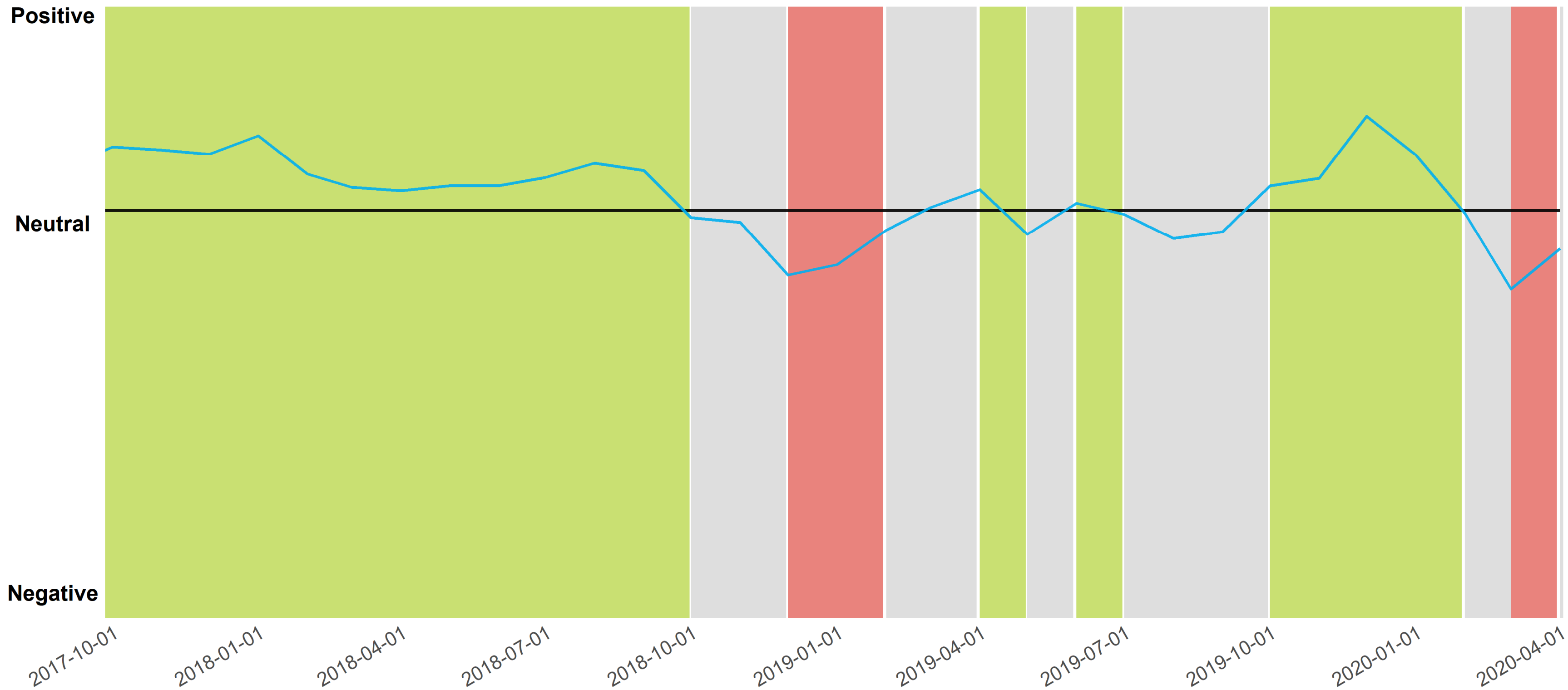


- Dashboard (2) shows how the current level of each indicator compares to its respective history.

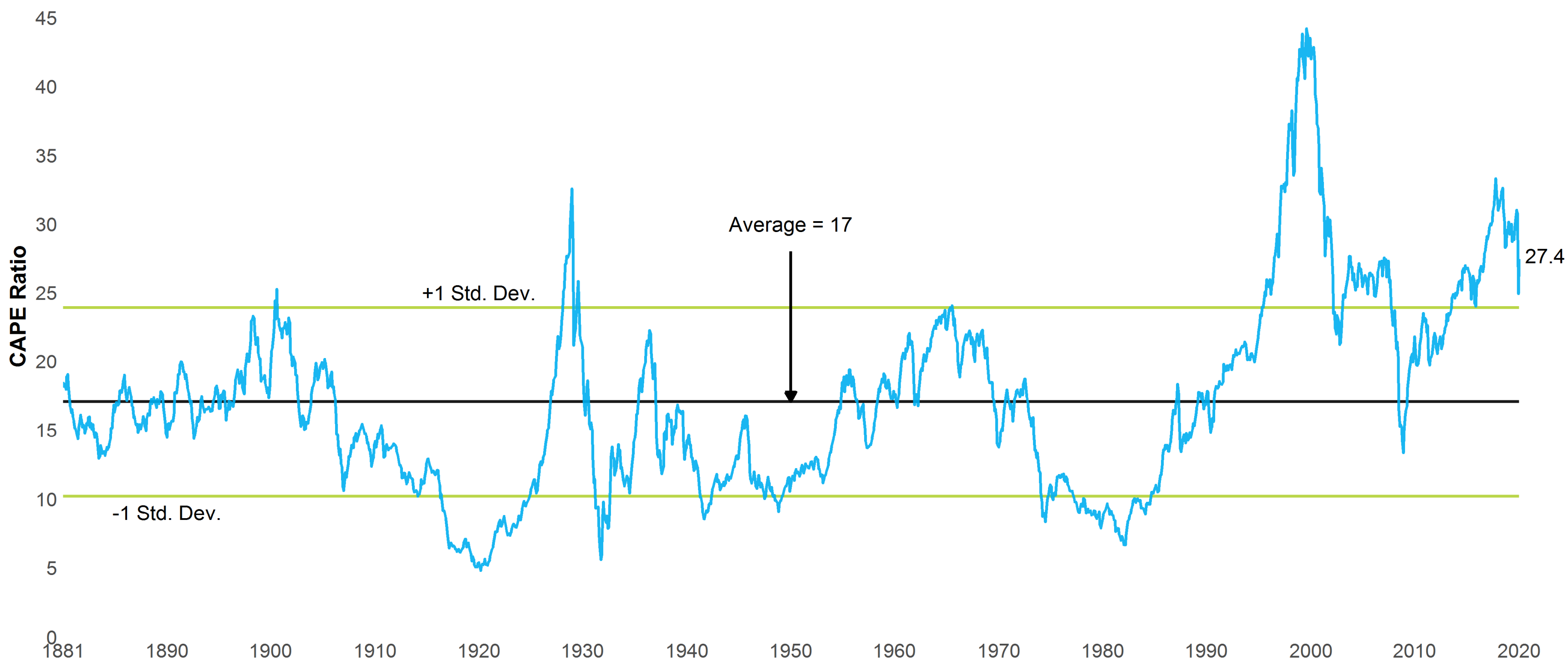
Market Sentiment Indicator (All History)
(As of April 30, 2020)



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



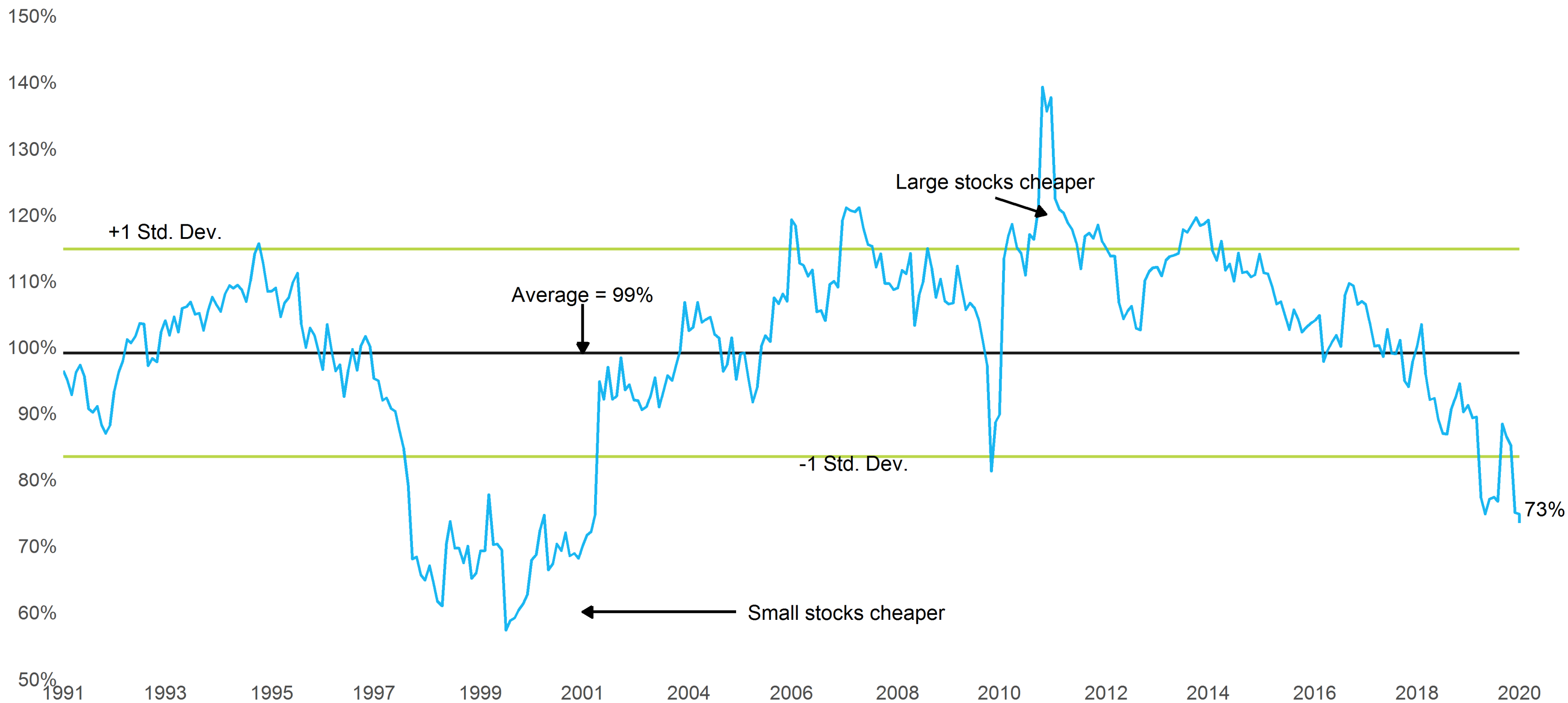
US Equity Cyclically Adjusted P/E[1]
(As of April 30, 2020)



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

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

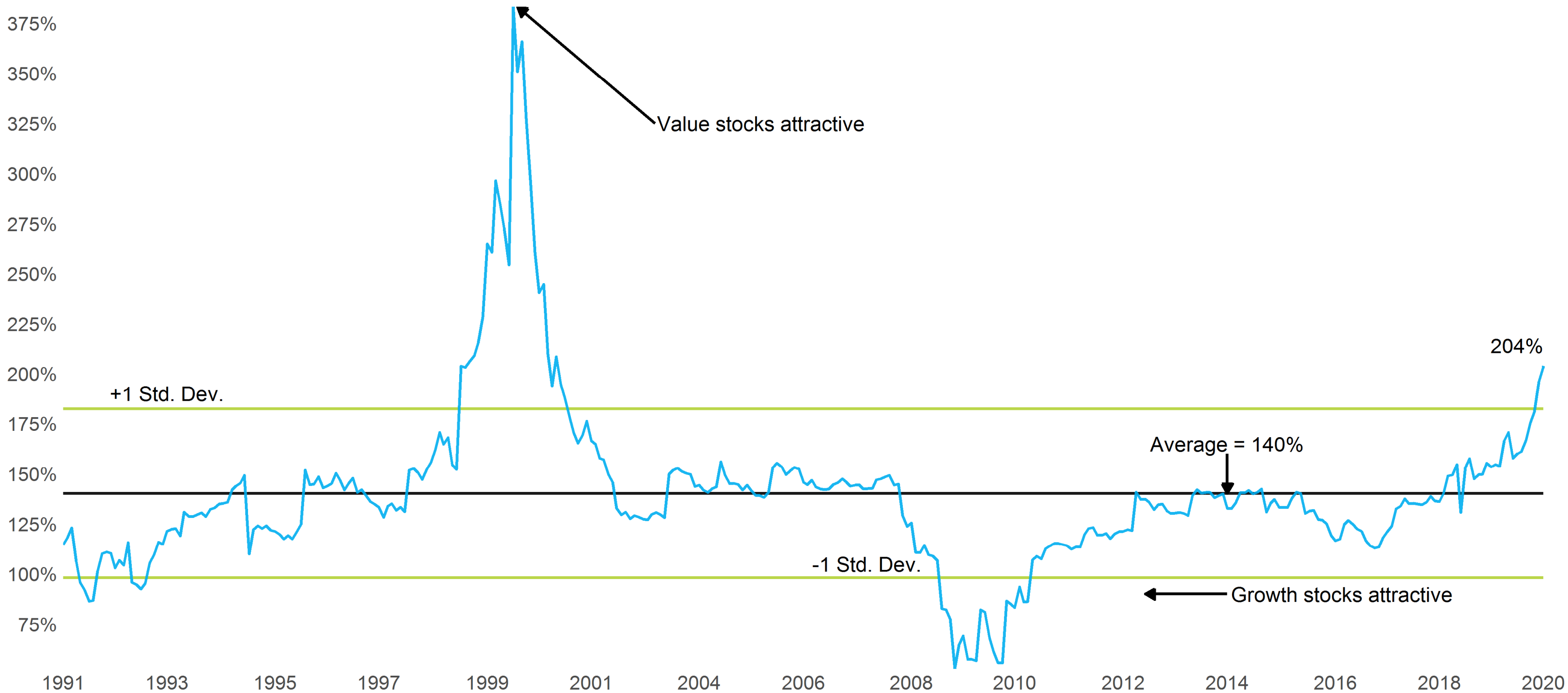
Small Cap P/E vs. Large Cap P/E[1]
(As of April 30, 2020)



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

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

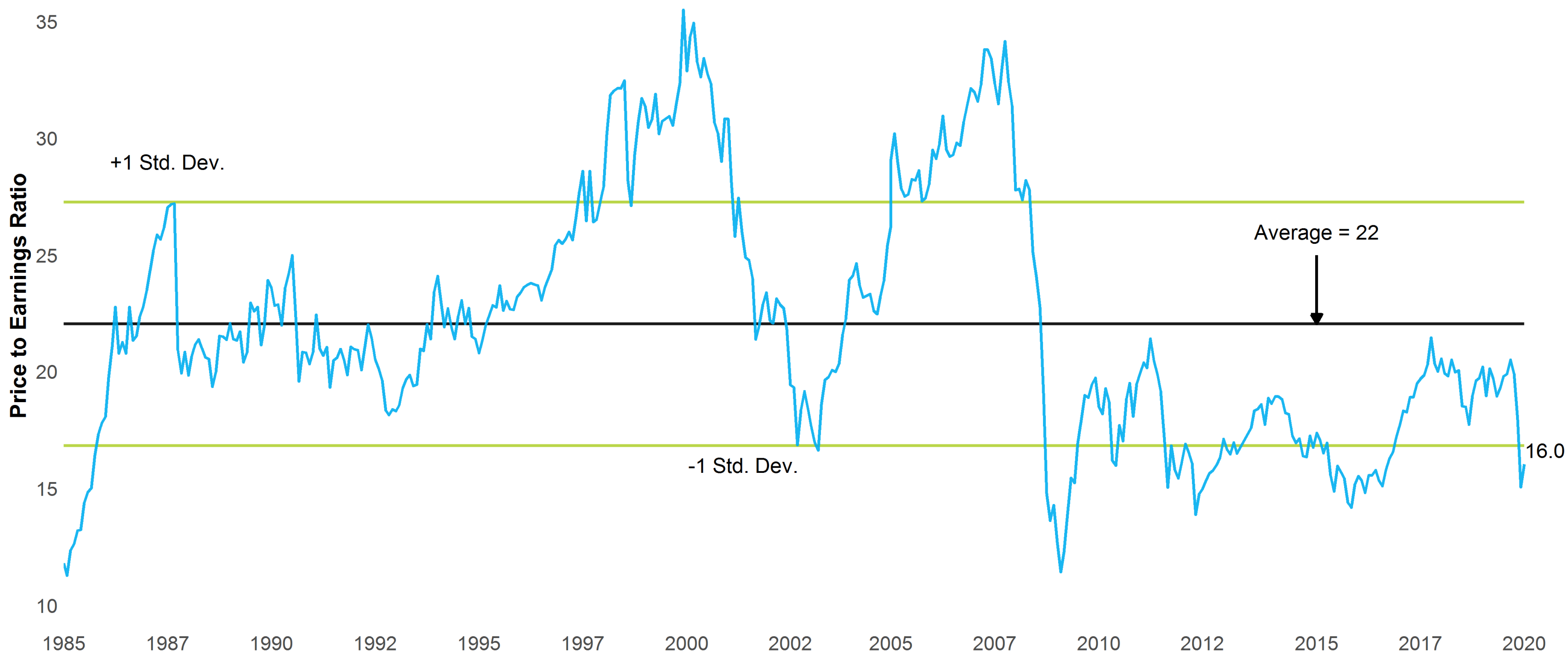
Growth P/E vs. Value P/E[1]
(As of April 30, 2020)



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

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

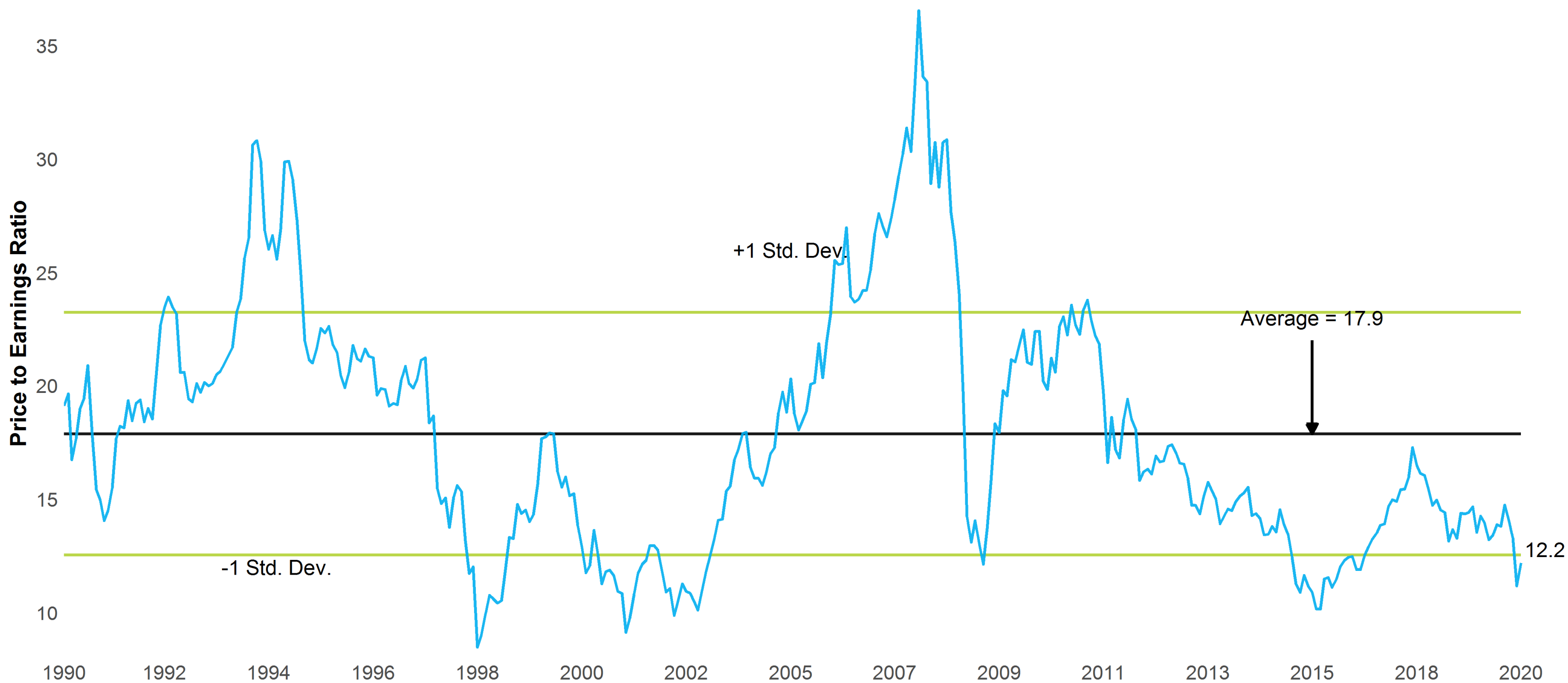
Developed International Equity Cyclically Adjusted P/E[1]
(As of April 30, 2020)



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

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

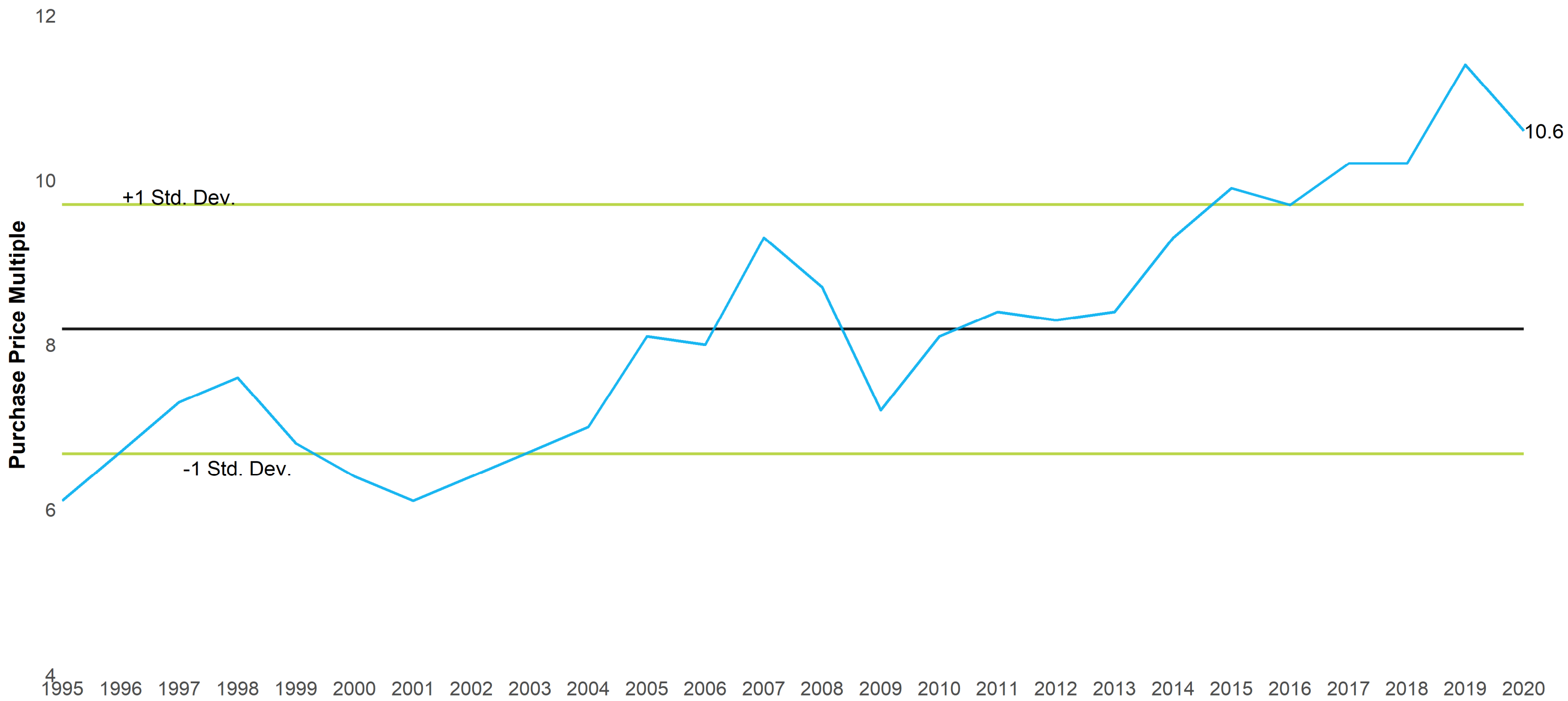
Emerging Market Equity Cyclically Adjusted P/E[1]
(As of April 30, 2020)



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

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

Private Equity Multiples[1]
(As of February 29, 2020)[2]

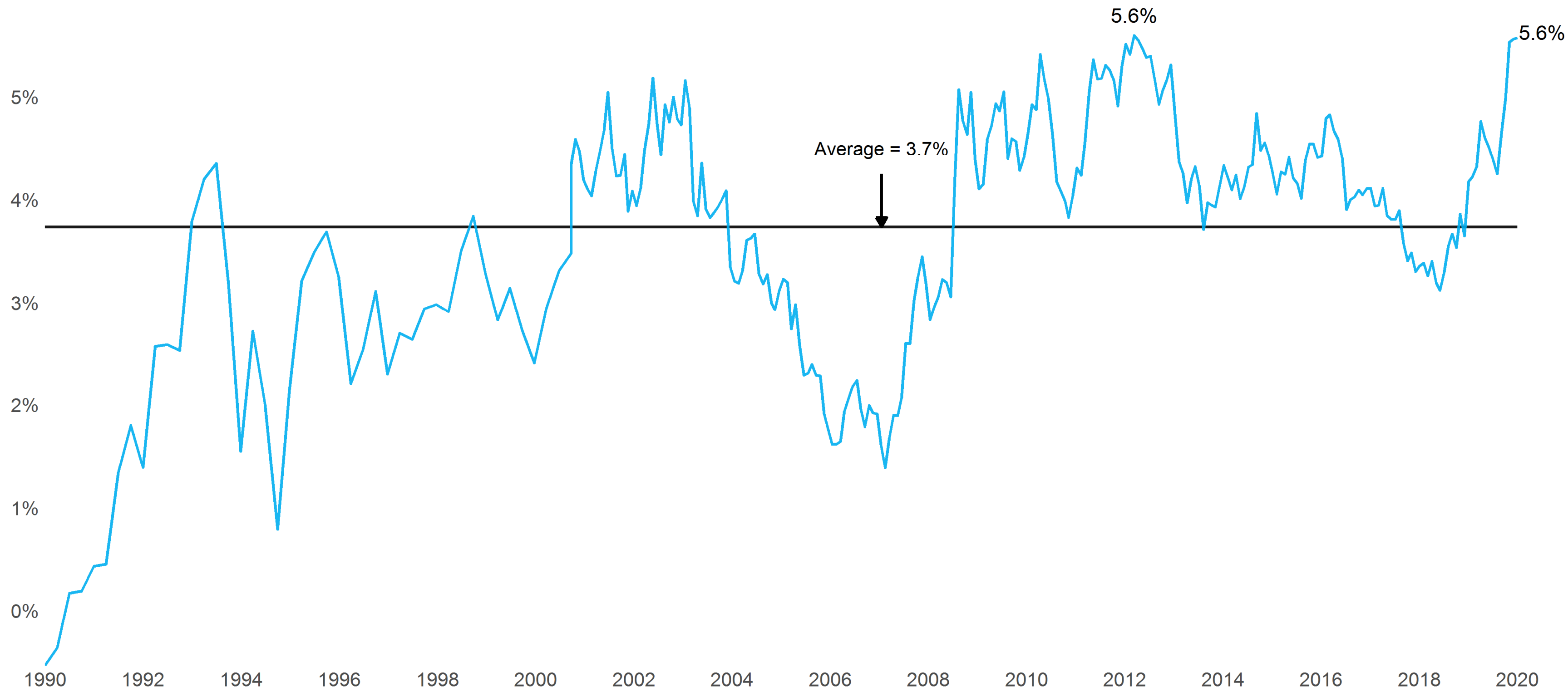


- This chart details one valuation metric for the private equity market. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

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

[2] Annual figures, except for 2020 (YTD).

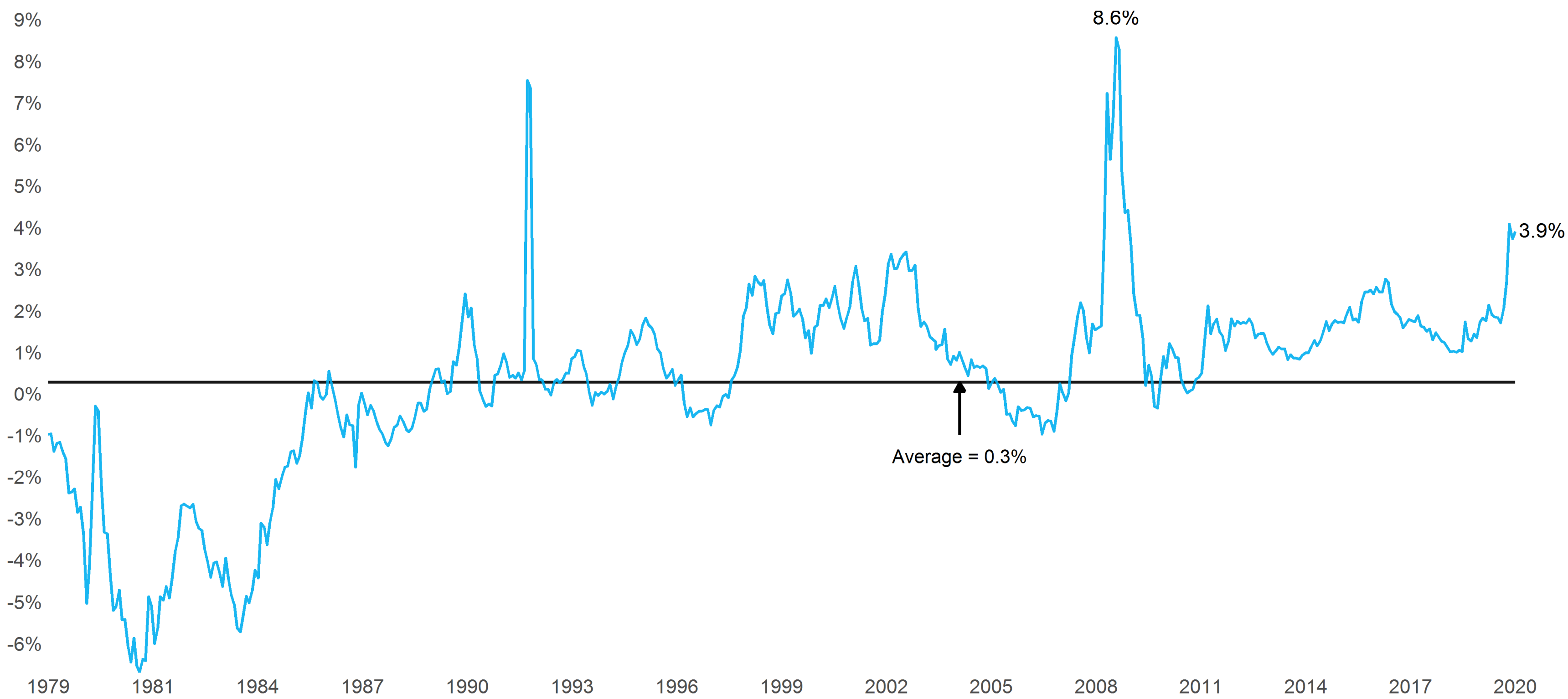
Core Real Estate Spread vs. Ten-Year Treasury[1]
(As of April 30, 2020)



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

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

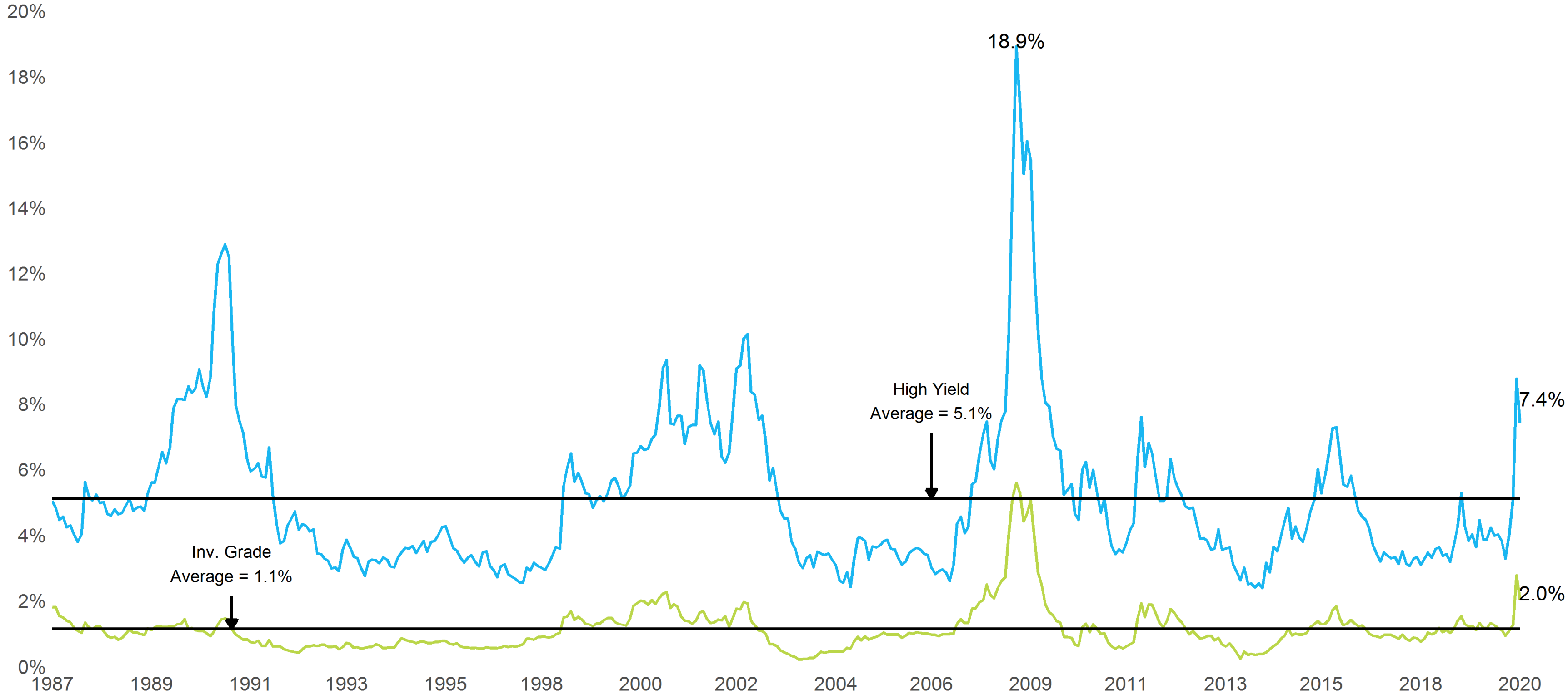
REITs Dividend Yield Spread vs. Ten-Year Treasury[1]
(As of April 30, 2020)



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

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

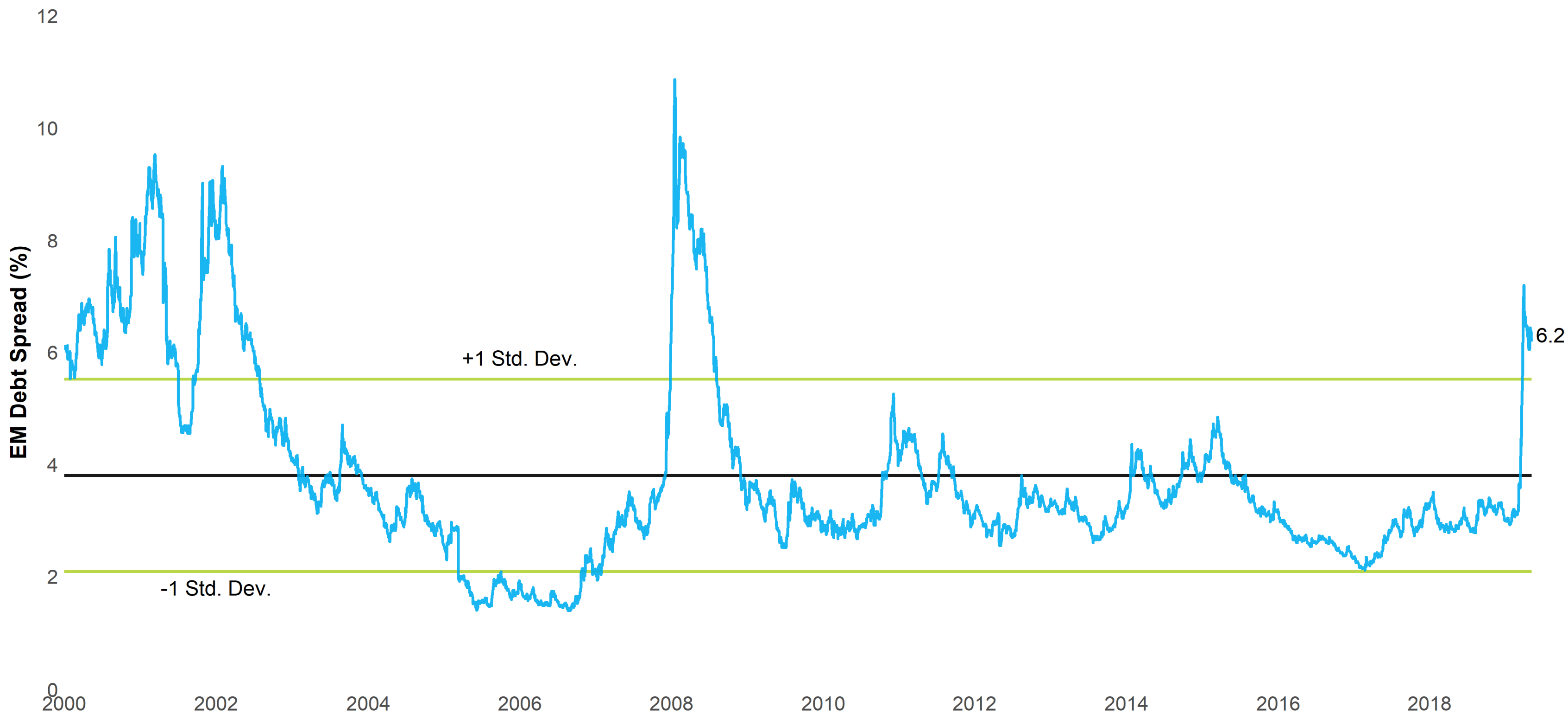
Credit Spreads[1]
(As of April 30, 2020)



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

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

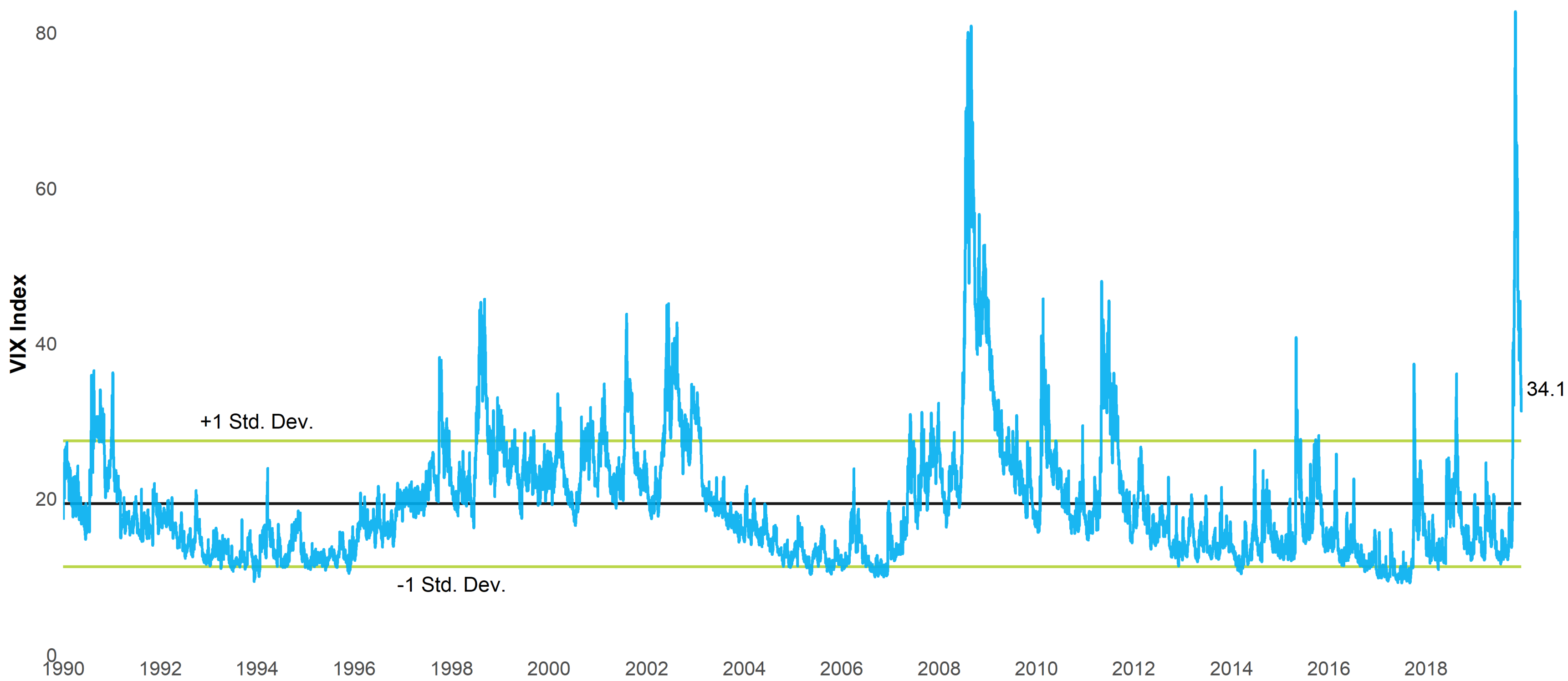
Emerging Market Debt Spreads[1]
(As of April 30, 2020)



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

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

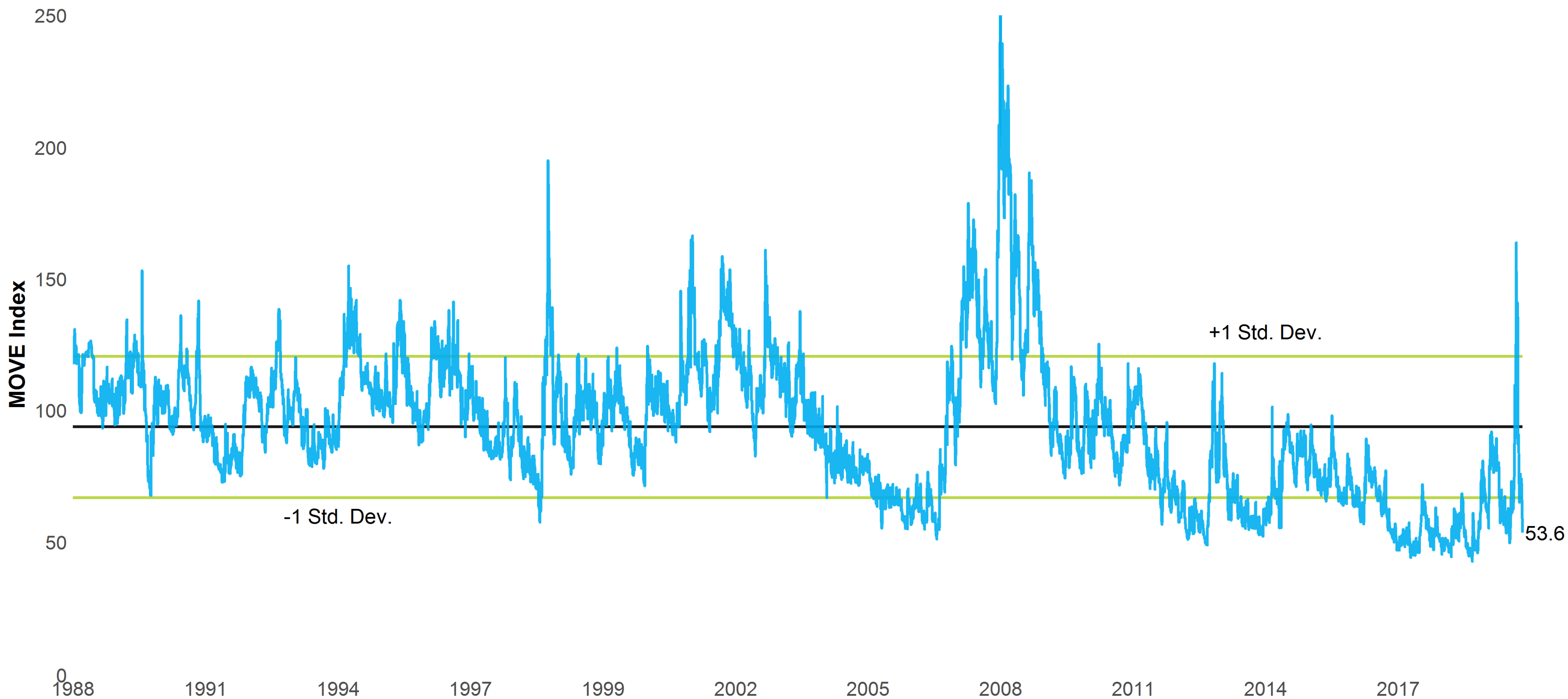
Equity Volatility[1]
(As of April 30, 2020)



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

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

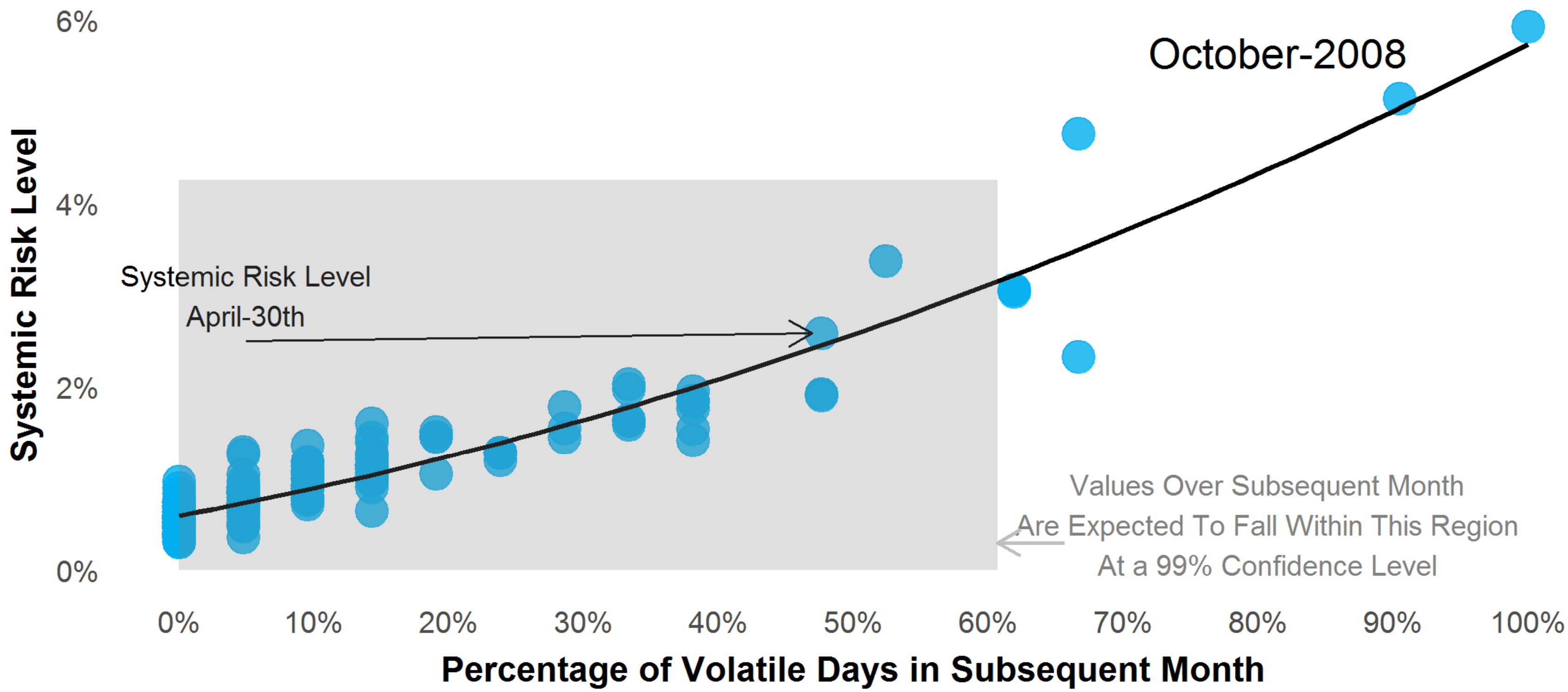
Fixed Income Volatility[1]
(As of April 30, 2020)



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

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

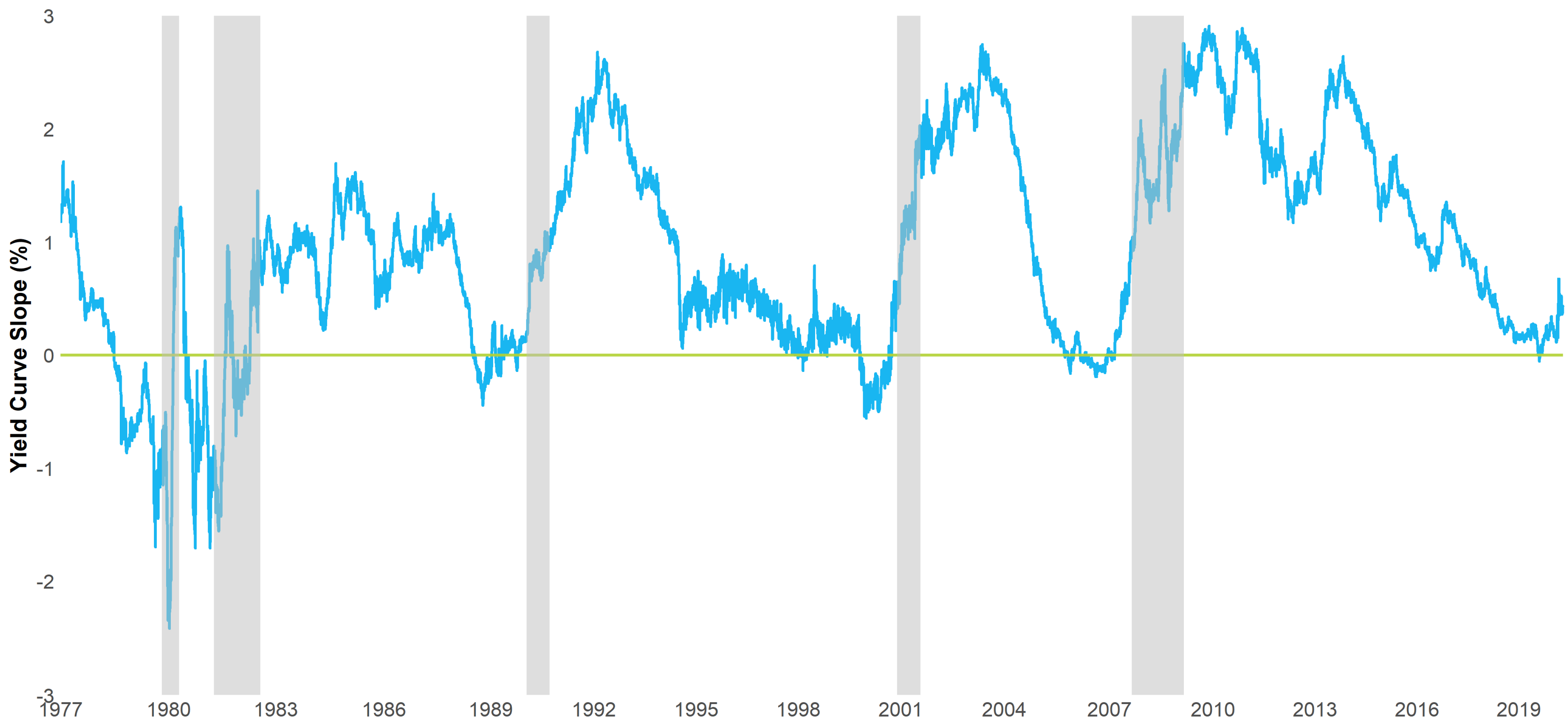
Systemic Risk and Volatile Market Days[1]
(As of April 30, 2020)



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

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

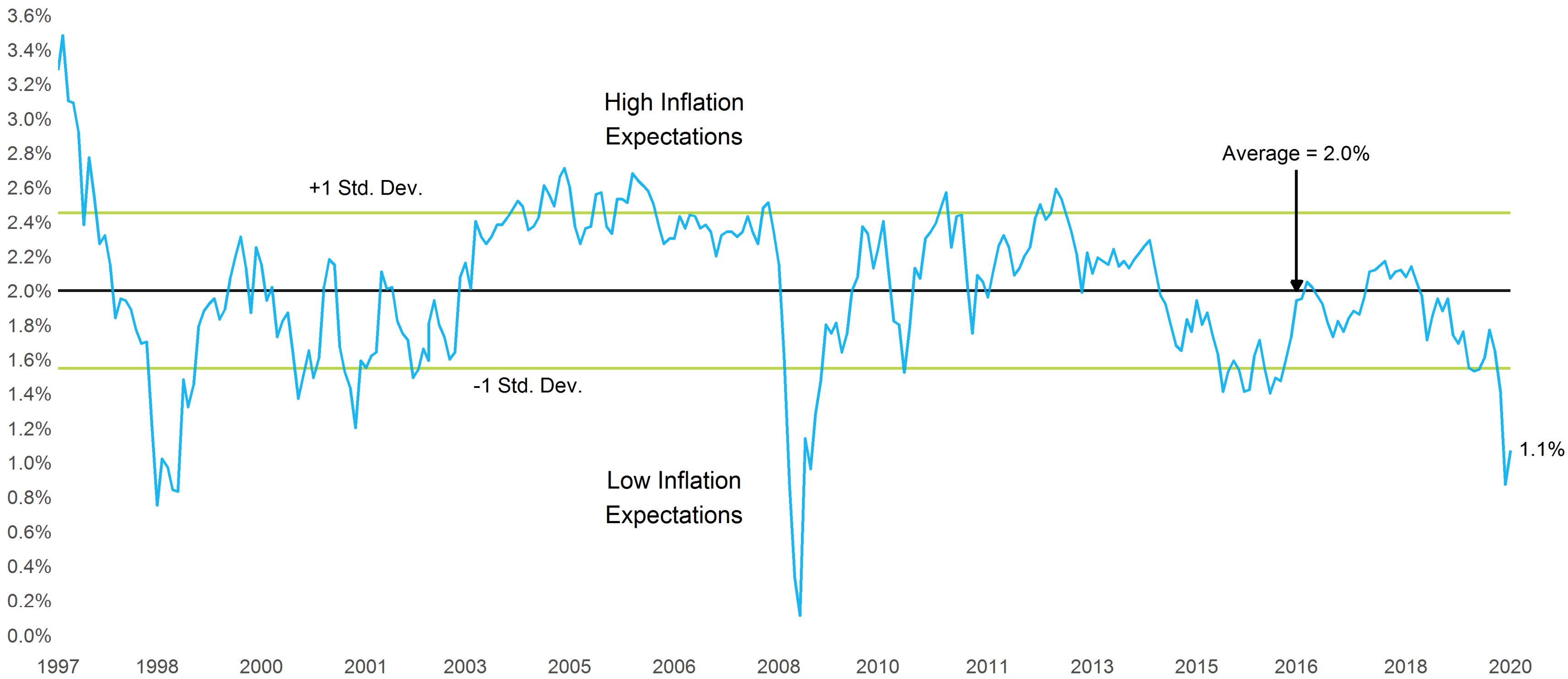
Yield Curve Slope (Ten Minus Two)[1]
(As of April 30, 2020)



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

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

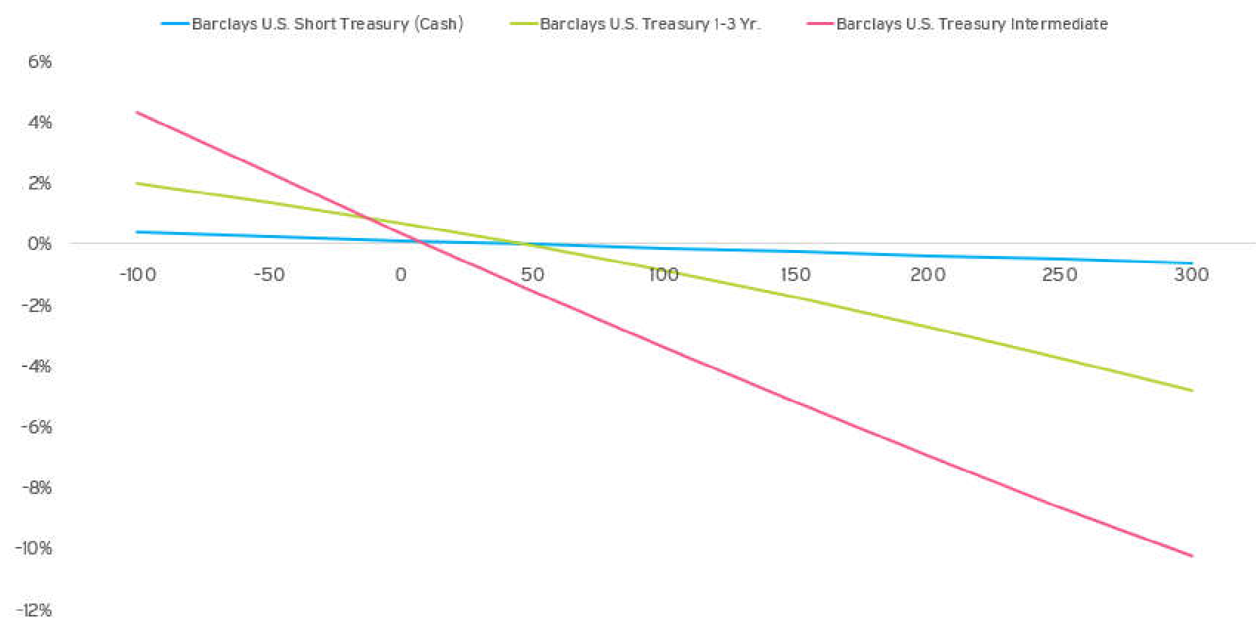
Ten-Year Breakeven Inflation[1]
(As of April 30, 2020)



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

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

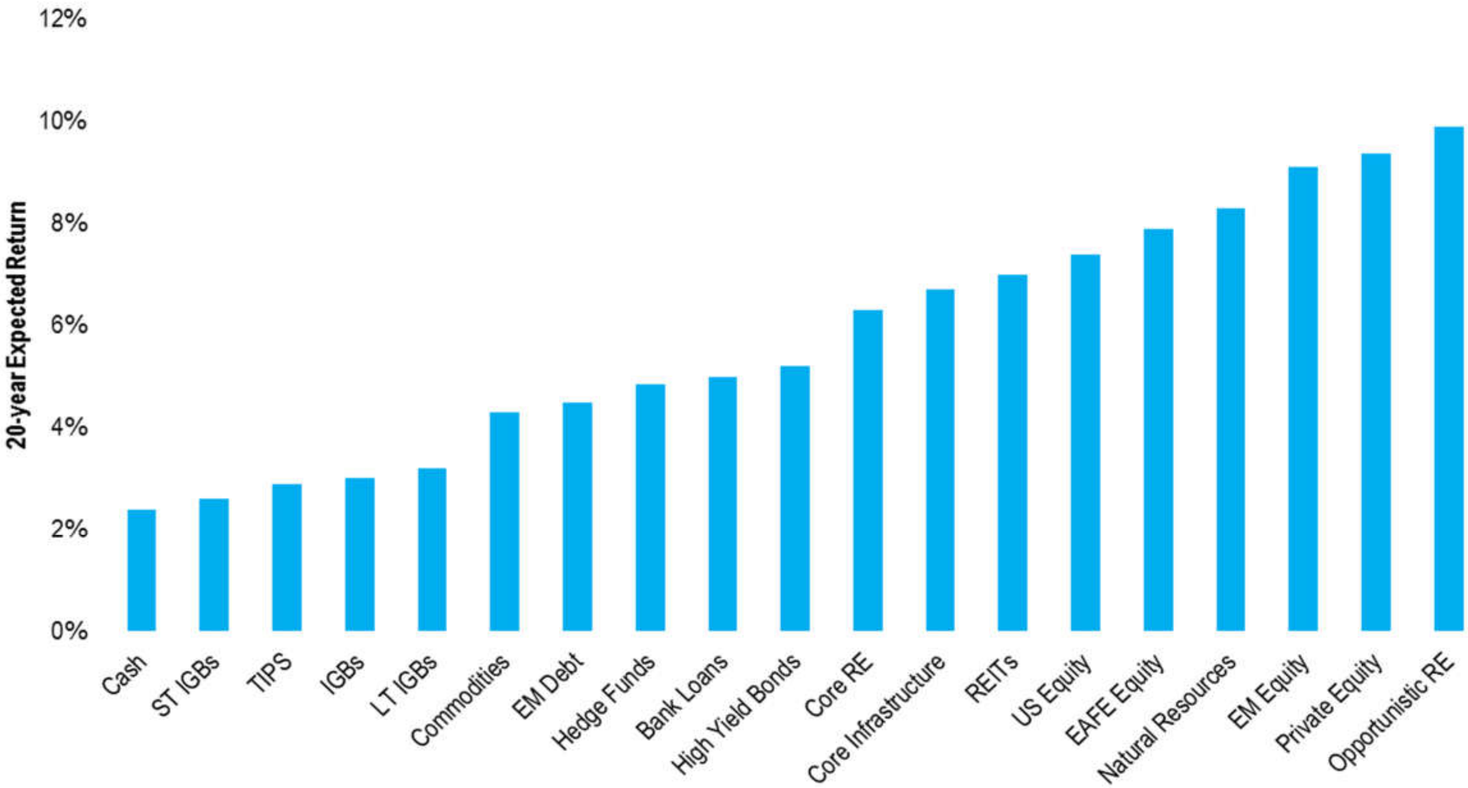
Total Return Given Changes in Interest Rates (bps)[1]
(As of April 30, 2020)



	Total Return for Given Changes in Interest Rates (bps)									Statistics	
	-100	-50	0	50	100	150	200	250	300	Duration	YTW
Barclays US Short Treasury (Cash)	0.4%	0.2%	0.1%	0.0%	-0.1%	-0.3%	-0.4%	-0.5%	-0.6%	0.25	0.10%
Barclays US Treasury 1-3 Yr.	2.0%	1.4%	0.7%	-0.1%	-0.9%	-1.8%	-2.7%	-3.7%	-4.8%	1.42	0.68%
Barclays US Treasury Intermediate	4.3%	2.3%	0.3%	-1.6%	-3.4%	-5.2%	-7.0%	-8.7%	-10.3%	3.87	0.33%
Barclays US Treasury Long	22.8%	11.4%	1.2%	-7.9%	-15.8%	-22.6%	-28.2%	-32.7%	-36.0%	19.3	1.21%

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

Long-Term Outlook – 20-Year Annualized Expected Returns[1]



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

[1] Source: Meketa Investment Group's 2020 Annual Asset Study.

Appendix

Data Sources and Explanations[1]

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

[1] All Data as of March 31, 2020 unless otherwise noted.

Appendix

Data Sources and Explanations[1]

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

[1] All Data as of April 30, 2020 unless otherwise noted.

Appendix

Data Sources and Explanations[1]

- 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 US Treasury Yield and 2-Year US Treasury Yield.
- Ten-Year Breakeven Inflation – Source: US Treasury and Federal Reserve. Inflation is measured by the Consumer Price Index (CPI-U NSA).

[1] All Data as of April 30, 2020 unless otherwise noted.

Meketa Market Sentiment Indicator

Explanation, Construction and Q&A

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

This appendix explores:

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

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

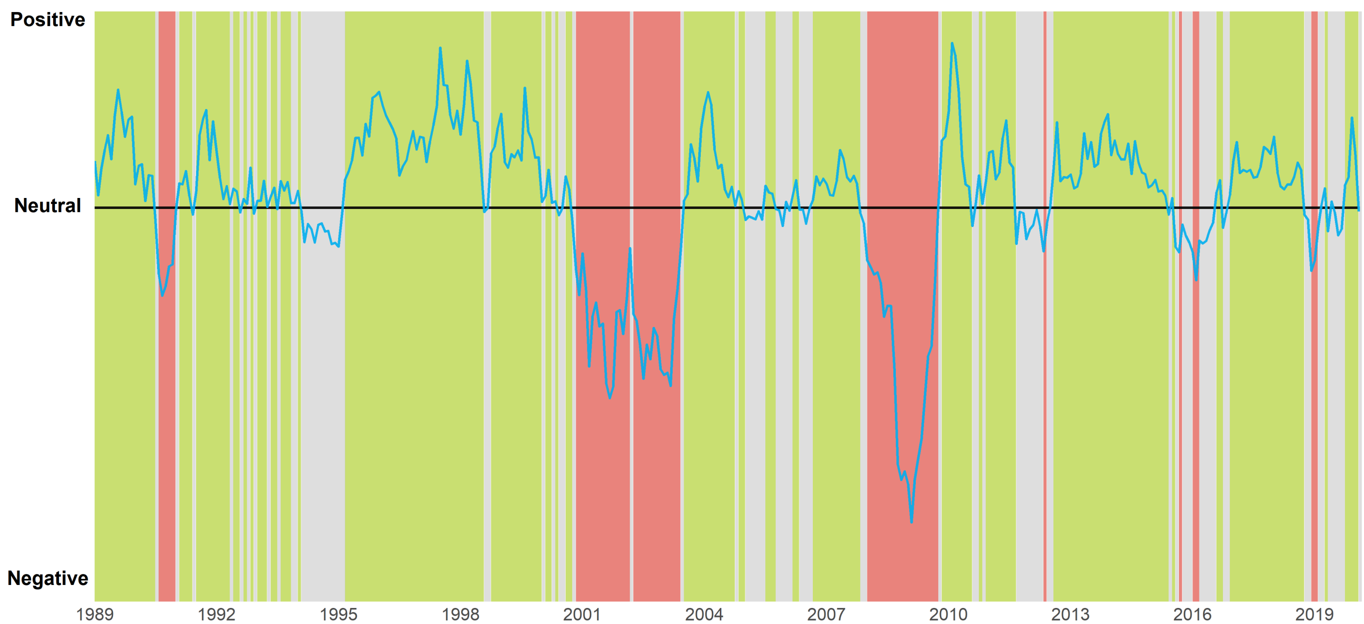
- Meketa's Risk Metrics, which rely significantly on standard market measures of relative valuation, often provide valid early signals of increasing long-term risk levels in the global investment markets. However, as is the case with numerous valuation measures, the Risk Metrics may convey such risk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

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

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

How do I read the Meketa Market Sentiment Indicator graph?

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



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

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

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

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

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

TAB J

Report

Comprehensive Performance Report

March 31, 2020

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Comprehensive Performance Report

March 31, 2020

Description of SBI Investment Programs

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

Combined Funds

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

Fire Plans + Other Retirement Plans

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

Participant Directed Investment Program

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

Non-Retirement

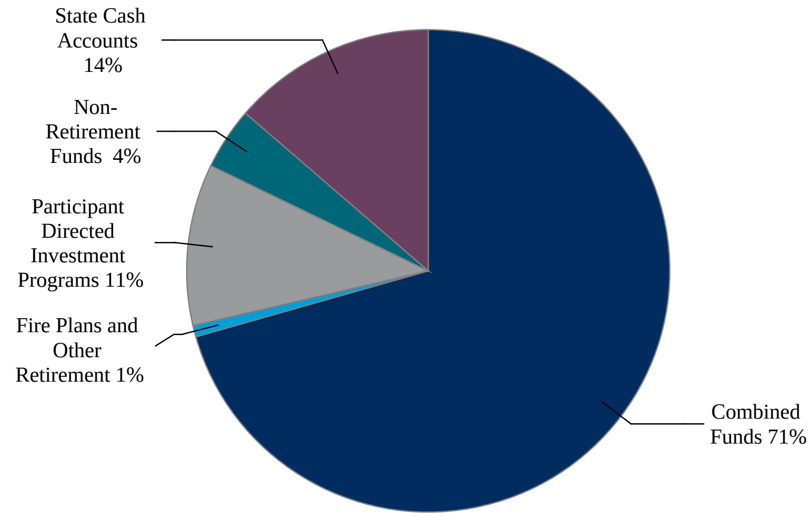
The Non-Retirement Funds are funds established by the State of Minnesota and other government entities for various purposes which include the benefit of public schools, the environment, other post-employment benefits, workers compensation insurance, and other purposes.

State Cash

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

Funds Under Management

	$ Millions
COMBINED FUNDS	**$64,559**
FIRE PLANS + OTHER RETIREMENT	**699**
PARTICIPANT DIRECTED INVESTMENT PROGRAMS	**9,903**
State Deferred Compensation Plan	6,809
Health Care Savings Plan	1,179
Unclassified Employees Retirement Plan	293
Hennepin County Supplemental Retirement Plan	142
PERA Defined Contribution Plan	67
Minnesota College Savings Plan	1,403
Minnesota Achieve a Better Life Experience	9
NON-RETIREMENT FUNDS	**3,801**
Assigned Risk Plan	294
Permanent School Fund	1,445
Environmental Trust Fund	1,119
Closed Landfill Investment Fund	90
Miscellaneous Trust Funds	245
Other Postemployment Benefits Accounts	608
STATE CASH ACCOUNTS	**12,490**
Invested Treasurer's Cash	12,333
Other State Cash Accounts	157
TOTAL SBI AUM	**91,451**



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 becuase of portfolio management decisions to group managers in different aggregates over time.

Combined Funds

March 31, 2020

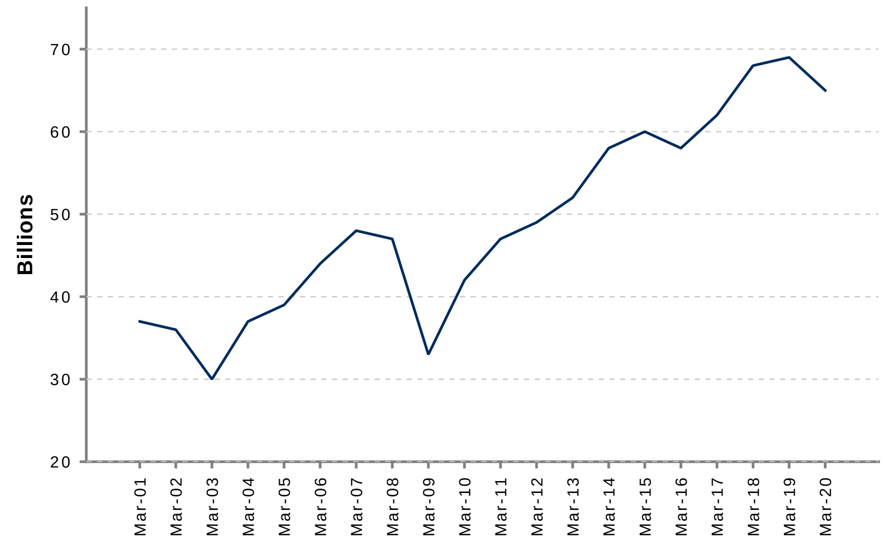
Combined Funds Summary

Combined Funds Change in Market Value ($Millions)

	One Quarter
COMBINED FUNDS	
Beginning Market Value	$74,208
Net Contributions	-653
Investment Return	-8,996
Ending Market Value	64,559

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

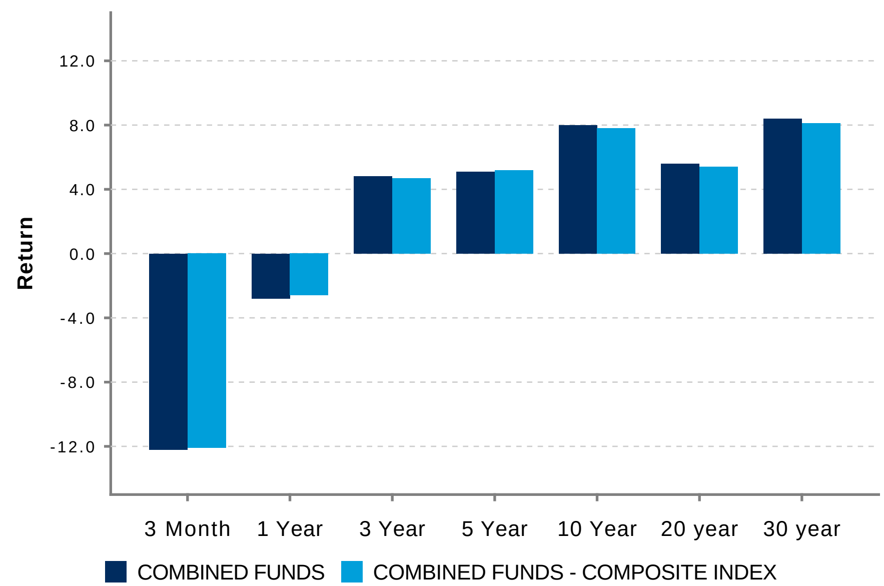
Asset Growth



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	-12.2%	-6.2%	-2.8%	4.8%	5.1%	8.0%	5.6%	8.4%
COMBINED FUNDS - COMPOSITE INDEX	-12.1	-6.0	-2.6	4.7	5.2	7.8	5.4	8.1
Excess	-0.2	-0.2	-0.3	0.1	-0.1	0.2	0.2	0.2



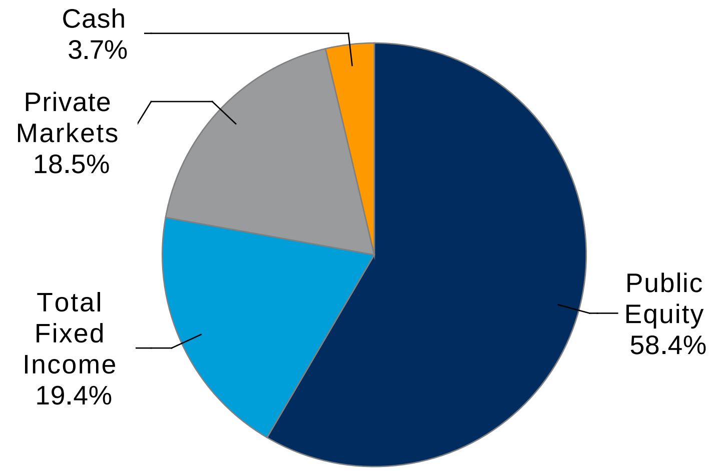
STATE STREET

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.

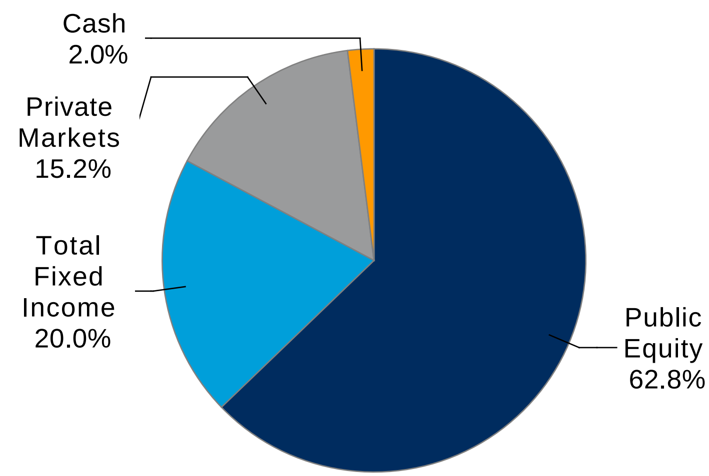
	(Millions)	Actual Mix	Policy Target
Public Equity	$37,753	58.5%	53.0%
Total Fixed Income	12,524	19.4	20.0
Private Markets	11,913	18.5	25.0
Cash	2,369	3.7	2.0
TOTAL	64,559	100.0	



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.

	Policy Weight	Market Index
Public Equity	62.8%	Public Equity Benchmark
Total Fixed Income	20.0	Total Fixed Income Benchmark
Private Markets	15.2	Private Markets
Cash	2.0	3 Month T-Bills



Combined Funds Asset Class Performance Summary

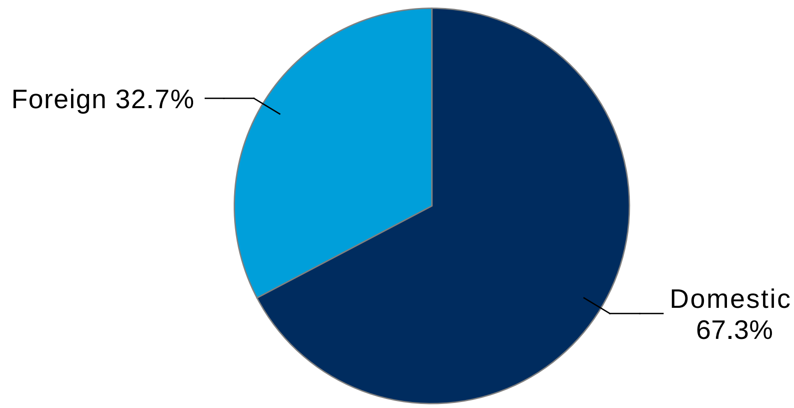
Public Equity

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.



	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 year
Public Equity	-22.0%	-15.0%	-11.7%	2.0%	3.6%	8.0%	4.1%	8.3%
Public Equity Benchmark	-22.0	-14.8	-11.7	1.9				
Excess	-0.1	-0.2	-0.1	0.1				
Domestic Equity	-21.3	-13.5	-10.0	3.7	5.3	10.0	4.6	8.8
Domestic Equity Benchmark	-21.3	-13.2	-9.7	3.8	5.6	10.1	4.7	9.0
Excess	-0.0	-0.3	-0.3	-0.0	-0.4	-0.1	-0.1	-0.2
International Equity	-23.6	-18.0	-15.3	-1.7	-0.4	2.5	2.8	
International Equity Benchmark	-23.3	-18.0	-15.6	-1.9	-0.6	2.1	2.4	
Excess	-0.2	0.0	0.2	0.2	0.2	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 Bonds and Treasuries. The Combined Funds performance for these asset classes is shown here.

The Core Bonds 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.

	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 year
Total Fixed Income	7.2%	9.9%	14.0%	6.9%	4.8%	5.1%	5.7%	6.6%
Total Fixed Income Benchmark	8.5	11.1	15.3					
Excess	-1.3	-1.2	-1.3					
Core Bonds	0.8	3.6	6.9	4.5	3.4	4.3	5.3	6.4
Core Bonds Benchmark	3.1	5.7	8.9	4.8	3.4	3.9	5.1	6.1
Excess	-2.4	-2.1	-2.1	-0.4	0.0	0.4	0.3	0.3
Treasuries	13.8	16.4	21.6					
BBG BARC 5Y + Us Tsy Idx	14.0	16.5	21.9					
Excess	-0.2	-0.2	-0.2					

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.

	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	30 year
Cash	0.4%	1.4%	2.1%	1.8%	1.3%	0.8%	2.1%	3.6%
US 3-Month Treasury Bill	0.6	1.6	2.3	1.8	1.2	0.6	1.7	2.9

Note:

Prior to 3/31/2020 the returns of Core Bonds and Treasuries were not reported as a total Fixed Income return. For additional information regarding historical asset class performance and benchmarks, please refer to the Combined Funds Performance Report.

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Combined Funds Asset Class Performance Summary

Private Markets

	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	25 year	30 year
Private Markets	2.7%	7.1%	10.1%	12.5%	11.0%	12.1%	12.2%	13.7%	12.3%
Private Equity	3.6%	11.7%	17.2%	17.2%	15.5%	14.9%	12.8%	15.6%	
Private Credit	3.0	7.9	9.9	12.0	11.8	13.2	12.2		
Resources	0.1	-7.3	-9.7	0.4	-1.9	3.9	14.4	14.3	
Real Estate	2.1	7.7	11.1	10.9	10.9	12.0	9.1	9.7	

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.

Asset Class & Manager Performance
March 31, 2020

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

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

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

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

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Domestic Equity
March 31, 2020

Total Domestic Equity

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
ACTIVE DOMESTIC EQUITY AGGREGATE (1)	**$3,432,820,008**	**13.3%**	**-26.6%**	**-21.7%**	**-19.0%**	**0.0%**	**2.5%**	**8.5%**		
Active Domestic Equity Benchmark			-25.9	-19.3	-16.8	-0.4	3.1	8.7		
Excess			-0.7	-2.4	-2.3	0.4	-0.6	-0.2		
SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)	**2,070,774,278**	**8.0**	**-20.0**	**-11.8**	**-7.8**	**4.7**	**6.0**	**10.5**		
Semi Passive Domestic Equity Benchmark			-20.2	-11.8	-8.0	4.6	6.2	10.4		
Excess			0.3	-0.1	0.3	0.1	-0.2	0.1		
PASSIVE DOMESTIC EQUITY AGGREGATE (3)	**20,351,832,418**	**78.7**	**-20.5**	**-12.1**	**-8.5**	**4.4**	**6.0**	**10.3**		
Passive Domestic Equity Benchmark			-20.5	-12.2	-8.5	4.4	6.0	10.3		
Excess			0.0	0.1	0.1	-0.0	-0.0	-0.0		
TRANSITION AGGREGATE DOMESTIC EQUITY (4)	17,230	0.0								
TOTAL DOMESTIC EQUITY (5)	**25,855,443,934**	**100.0**	**-21.3**	**-13.5**	**-10.0**	**3.8**	**5.3**	**10.0**	**9.8**	**01/1984**
Domestic Equity Benchmark			-21.3	-13.2	-9.7	3.8	5.6	10.1	10.0	01/1984
Excess			-0.0	-0.3	-0.3	-0.0	-0.3	-0.1	-0.2	

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

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

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

(4) The Transition Domestic Equity Aggregate 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.

Total Domestic Equity

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

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

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

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

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

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

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

Active Large Cap Growth

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
SANDS	**$354,389,324**	**1.4%**	**-9.1%**	**-4.6%**	**-0.7%**	**15.6%**	**10.9%**	**15.1%**	**10.6%**	**01/2005**
Russell 1000 Growth			-14.1	-3.6	0.9	11.3	10.4	13.0	9.2	01/2005
Excess			5.0	-1.0	-1.6	4.3	0.5	2.2	1.4	
WINSLOW	**257,769,868**	**1.0**	**-12.3**	**-4.5**	**-0.0**	**13.8**	**10.6**	**12.8**	**10.1**	**01/2005**
Russell 1000 Growth			-14.1	-3.6	0.9	11.3	10.4	13.0	9.2	01/2005
Excess			1.8	-0.9	-0.9	2.5	0.2	-0.1	0.8	
ZEVENBERGEN	**385,080,256**	**1.5**	**-1.4**	**0.8**	**10.6**	**20.0**	**14.4**	**14.4**	**11.1**	**04/1994**
Russell 1000 Growth			-14.1	-3.6	0.9	11.3	10.4	13.0	9.4	04/1994
Excess			12.7	4.3	9.7	8.7	4.1	1.5	1.7	
RUSSELL 1000 GROWTH AGGREGATE	**997,239,449**	**3.9**	**-7.2**	**-2.9**	**3.2**	**16.8**	**12.7**	**14.4**		
Russell 1000 Growth			-14.1	-3.6	0.9	11.3	10.4	13.0		
Excess			6.9	0.7	2.3	5.5	2.4	1.5		

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

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	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active Large Cap Value										
BARROW HANLEY	**$242,679,653**	**0.9%**	**-31.0%**	**-24.3%**	**-20.2%**	**-2.9%**	**0.8%**	**7.0%**	**5.8%**	**04/2004**
Russell 1000 Value			-26.7	-20.2	-17.2	-2.2	1.9	7.7	5.9	04/2004
Excess			-4.2	-4.0	-3.0	-0.7	-1.2	-0.7	-0.1	
EARNEST PARTNERS	**214,853,285**	**0.8**	**-28.0**	**-21.7**	**-18.9**	**-0.5**	**2.6**	**7.2**	**5.5**	**07/2000**
Russell 1000 Value			-26.7	-20.2	-17.2	-2.2	1.9	7.7	5.7	07/2000
Excess			-1.3	-1.5	-1.7	1.7	0.6	-0.4	-0.2	
LSV	**289,194,694**	**1.1**	**-32.6**	**-25.2**	**-23.4**	**-4.6**	**0.2**	**7.7**	**6.4**	**04/2004**
Russell 1000 Value			-26.7	-20.2	-17.2	-2.2	1.9	7.7	5.9	04/2004
Excess			-5.9	-4.9	-6.3	-2.4	-1.7	0.0	0.5	
RUSSELL 1000 VALUE AGGREGATE	**746,727,632**	**2.9**	**-30.8**	**-23.8**	**-20.9**	**-2.8**	**0.9**	**7.2**		
Russell 1000 Value			-26.7	-20.2	-17.2	-2.2	1.9	7.7		
Excess			-4.1	-3.6	-3.7	-0.7	-1.0	-0.5		

Active Large Cap Value

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

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Semi-Passive Large Cap										
BLACKROCK	**$1,014,915,101**	**3.9%**	**-19.8%**	**-12.2%**	**-8.1%**	**5.4%**	**6.8%**	**11.0%**	**9.2%**	**01/1995**
Semi Passive Domestic Equity Benchmark			-20.2	-11.8	-8.0	4.6	6.2	10.4	8.7	01/1995
Excess			0.5	-0.5	-0.1	0.8	0.5	0.6	0.4	
J.P. MORGAN	**1,055,859,177**	**4.1**	**-20.2**	**-11.5**	**-7.4**	**4.3**	**6.2**	**10.6**	**9.0**	**01/1995**
Semi Passive Domestic Equity Benchmark			-20.2	-11.8	-8.0	4.6	6.2	10.4	8.7	01/1995
Excess			0.1	0.3	0.6	-0.3	-0.1	0.2	0.3	
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE	**2,070,774,278**	**8.0**	**-20.0**	**-11.8**	**-7.8**	**4.7**	**6.0**	**10.5**		
Semi Passive Domestic Equity Benchmark			-20.2	-11.8	-8.0	4.6	6.2	10.4		
Excess			0.3	-0.1	0.3	0.1	-0.2	0.1		

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

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active Small Cap Growth										
ARROWMARK	**$170,535,128**	**0.7%**	**-32.1%**	**-26.7%**	**-28.3%**	**-0.4%**			**3.7%**	**11/2016**
Russell 2000 Growth			-25.8	-20.8	-18.6	0.1			4.6	11/2016
Excess			-6.3	-6.0	-9.7	-0.5			-0.9	
HOOD RIVER	**206,470,338**	**0.8**	**-22.6**	**-22.3**	**-19.1**	**0.7**			**4.9**	**11/2016**
Russell 2000 Growth			-25.8	-20.8	-18.6	0.1			4.6	11/2016
Excess			3.2	-1.6	-0.5	0.6			0.3	
RICE HALL JAMES	**167,814,092**	**0.6**	**-29.2**	**-26.0**	**-24.0**	**-2.7**			**3.2**	**11/2016**
Russell 2000 Growth			-25.8	-20.8	-18.6	0.1			4.6	11/2016
Excess			-3.5	-5.3	-5.4	-2.8			-1.4	
WELLINGTON	**240,432,149**	**0.9**	**-26.4**	**-19.2**	**-17.3**	**0.8**			**5.4**	**11/2016**
Russell 2000 Growth			-25.8	-20.8	-18.6	0.1			4.6	11/2016
Excess			-0.6	1.6	1.3	0.7			0.7	
RUSSELL 2000 GROWTH AGGREGATE	**785,251,707**	**3.0**	**-27.4**	**-23.4**	**-22.0**	**-0.7**	**-0.1**	**7.0**		
Russell 2000 Growth			-25.8	-20.8	-18.6	0.1	1.7	8.9		
Excess			-1.7	-2.6	-3.4	-0.8	-1.8	-1.9		

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

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active Small Cap Value										
GOLDMAN SACHS	**$274,416,354**	**1.1%**	**-35.7%**	**-31.8%**	**-29.6%**	**-8.8%**	**-2.4%**	**6.5%**	**6.2%**	**01/2004**
Russell 2000 Value			-35.7	-30.6	-29.6	-9.5	-2.4	4.8	4.8	01/2004
Excess			-0.0	-1.2	0.1	0.8	0.0	1.7	1.4	
HOTCHKIS AND WILEY	**195,138,492**	**0.8**	**-41.6**	**-38.0**	**-37.4**	**-13.9**	**-7.0**	**4.8**	**4.3**	**01/2004**
Russell 2000 Value			-35.7	-30.6	-29.6	-9.5	-2.4	4.8	4.8	01/2004
Excess			-6.0	-7.4	-7.7	-4.4	-4.6	0.0	-0.5	
MARTINGALE	**197,843,454**	**0.8**	**-38.8**	**-33.9**	**-33.4**	**-11.7**	**-3.9**	**5.8**	**4.4**	**01/2004**
Russell 2000 Value			-35.7	-30.6	-29.6	-9.5	-2.4	4.8	4.8	01/2004
Excess			-3.1	-3.3	-3.8	-2.2	-1.5	1.0	-0.4	
PEREGRINE	**236,202,921**	**0.9**	**-38.2**	**-34.3**	**-33.3**	**-11.1**	**-4.0**	**4.8**	**7.0**	**07/2000**
Russell 2000 Value			-35.7	-30.6	-29.6	-9.5	-2.4	4.8	6.8	07/2000
Excess			-2.5	-3.7	-3.7	-1.6	-1.5	-0.0	0.2	
RUSSELL 2000 VALUE AGGREGATE	**903,601,221**	**3.5**	**-38.4**	**-34.4**	**-33.3**	**-11.2**	**-4.2**	**5.4**		
Russell 2000 Value			-35.7	-30.6	-29.6	-9.5	-2.4	4.8		
Excess			-2.8	-3.8	-3.6	-1.7	-1.8	0.6		

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

Minnesota State Board of Investment
Quarter Ending March 31, 2020
Domestic Equity Managers

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Total Passive Domestic Equity										
BLACKROCK RUSSELL 1000	**$18,591,046,485**	**71.9%**	**-20.2%**	**-11.7%**	**-8.0%**	**4.6%**			**7.6%**	**11/2016**
RUSSELL 1000 (DAILY)			-20.2	-11.8	-8.0	4.6			7.7	11/2016
Excess			0.0	0.0	0.0	-0.0			-0.0	
BLACKROCK RUSSELL 2000	**524,083,882**	**2.0**	**-30.1**	**-25.0**	**-23.5**				**-15.7**	**11/2018**
RUSSELL 2000 (DAILY)			-30.6	-25.5	-24.0				-16.2	11/2018
Excess			0.5	0.5	0.5				0.4	
BLACKROCK RUSSELL 3000 (1)	**1,236,702,050**	**4.8**	**-20.8**	**-12.6**	**-9.0**	**4.1**	**5.8%**	**10.2%**	**8.4**	**07/1995**
Passive Manager Benchmark			-20.9	-12.7	-9.1	4.0	5.8	10.1	8.3	07/1995
PASSIVE DOMESTIC EQUITY AGGREGATE (2)	**20,351,832,418**	**78.7**	**-20.5**	**-12.1**	**-8.5**	**4.4**	**6.0**	**10.3**		
Passive Domestic Equity Benchmark			-20.5	-12.2	-8.5	4.4	6.0	10.3		
Excess			0.0	0.1	0.1	-0.0	-0.0	-0.0		

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

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

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

(1) The current Passive Manager Benchmark is the Russell 3000. For historical benchmark details please refer to the addendum of this report.
(2) The current Passive Domestic Equity Benchmark is a weighted average of the Russell 1000, Russell 2000 and Russell 3000.

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International Equity

March 31, 2020

Total International Equity

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
DEVELOPED MARKETS (1)	**$9,406,734,890**	**75.5%**	**-23.1%**	**-17.7%**	**-14.4%**	**-1.6%**	**-0.3%**	**3.2%**		
BENCHMARK DM			-23.3	-18.0	-14.9	-2.1	-0.8	2.4		
Excess			0.2	0.3	0.4	0.5	0.5	0.7		
EMERGING MARKETS (2)	**3,043,940,183**	**24.4**	**-25.0**	**-18.7**	**-17.9**	**-2.0**	**-0.7**	**0.2**		
BENCHMARK EM			-23.6	-18.2	-17.7	-1.6	-0.4	0.7		
Excess			-1.4	-0.5	-0.2	-0.4	-0.4	-0.5		
TRANSITION AGGREGATE INTERNATIONAL EQUITY (3)	1,317,607	0.0								
TOTAL INTERNATIONAL EQUITY (4)	**12,451,992,680**	**100.0**	**-23.6**	**-18.0**	**-15.3**	**-1.7**	**-0.4**	**2.5**	**5.5**	**10/1992**
International Equity Benchmark			-23.3	-18.0	-15.6	-1.9	-0.6	2.1		10/1992
Excess			-0.2	0.0	0.2	0.2	0.2	0.5		

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

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

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

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

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

	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return	2016 Calendar Return	2015 Calendar Return
Total International Equity					
DEVELOPED MARKETS (1)	**23.3%**	**-14.2%**	**24.9%**	**1.3%**	**-0.3%**
BENCHMARK DM	22.5	-14.1	24.2	2.7	-3.0
Excess	0.8	-0.1	0.7	-1.5	2.8
EMERGING MARKETS (2)	**20.3**	**-15.4**	**37.7**	**7.5**	**-13.1**
BENCHMARK EM	18.4	-14.6	37.3	11.2	-14.9
Excess	1.9	-0.8	0.4	-3.7	1.9
TRANSITION AGGREGATE INTERNATIONAL EQUITY (3)					
TOTAL INTERNATIONAL EQUITY (4)	**22.4%**	**-14.5%**	**27.6%**	**2.6**	**-2.9**
International Equity Benchmark	21.5%	-14.2%	27.2%	4.5	-5.7
Excess	0.9%	-0.3%	0.4%	-1.8	2.8

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

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

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

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

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

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active Developed Markets										
ACADIAN	**$318,334,104**	**2.6%**	**-22.3%**	**-17.8%**	**-15.8%**	**-0.3%**	**3.3%**	**5.6%**	**4.7%**	**07/2005**
BENCHMARK DM			-23.3	-18.0	-14.9	-2.1	-0.8	2.4	3.2	07/2005
Excess			1.0	0.2	-0.9	1.8	4.1	3.1	1.5	
COLUMBIA	**346,465,444**	**2.8**	**-20.9**	**-14.7**	**-9.5**	**2.7**	**1.7**	**4.8**	**2.1**	**03/2000**
BENCHMARK DM			-23.3	-18.0	-14.9	-2.1	-0.8	2.4	2.2	03/2000
Excess			2.4	3.3	5.4	4.7	2.5	2.4	-0.1	
FIDELITY	**365,938,879**	**2.9**	**-22.0**	**-16.2**	**-11.4**	**0.1**	**0.6**	**4.2**	**4.8**	**07/2005**
BENCHMARK DM			-23.3	-18.0	-14.9	-2.1	-0.8	2.4	3.2	07/2005
Excess			1.2	1.8	3.5	2.2	1.4	1.7	1.6	
JP MORGAN	**265,092,643**	**2.1**	**-21.7**	**-16.4**	**-11.0**	**-0.2**	**0.4**	**3.2**	**3.6**	**07/2005**
BENCHMARK DM			-23.3	-18.0	-14.9	-2.1	-0.8	2.4	3.2	07/2005
Excess			1.6	1.6	3.8	1.9	1.2	0.7	0.4	
MARATHON	**292,487,713**	**2.3**	**-25.1**	**-18.8**	**-15.9**	**-2.5**	**-0.4**	**4.2**	**6.9**	**11/1993**
BENCHMARK DM			-23.3	-18.0	-14.9	-2.1	-0.8	2.4	4.1	11/1993
Excess			-1.8	-0.8	-1.0	-0.4	0.4	1.7	2.8	
MCKINLEY	**217,329,848**	**1.7**	**-22.8**	**-18.1**	**-13.4**	**-0.7**	**-0.5**	**3.1**	**3.0**	**07/2005**
BENCHMARK DM			-23.3	-18.0	-14.9	-2.1	-0.8	2.4	3.2	07/2005
Excess			0.4	-0.1	1.5	1.4	0.2	0.7	-0.1	
ACTIVE DEVELOPED MARKETS AGGREGATE	**1,805,648,632**	**14.5**	**-22.5**	**-17.0**	**-13.0**	**-0.3**	**0.9**	**4.1**		
BENCHMARK DM			-23.3	-18.0	-14.9	-2.1	-0.8	2.4		
Excess			0.7	1.0	1.9	1.8	1.6	1.7		

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Active Developed Markets

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

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Semi-Passive Developed Markets										
AQR	**$270,474,074**	**2.2%**	**-25.8%**	**-21.4%**	**-20.1%**	**-5.2%**	**-2.2%**	**2.3%**	**3.1%**	**07/2005**
BENCHMARK DM			-23.3	-18.0	-14.9	-2.1	-0.8	2.4	3.2	07/2005
Excess			-2.5	-3.4	-5.2	-3.1	-1.4	-0.1	-0.1	
SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE	**270,474,074**	**2.2**	**-25.8**	**-21.4**	**-20.1**	**-5.6**	**-3.1**	**1.7**		
BENCHMARK DM			-23.3	-18.0	-14.9	-2.1	-0.8	2.4		
Excess			-2.5	-3.4	-5.2	-3.6	-2.3	-0.7		

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	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return	2016 Calendar Return	2015 Calendar Return
Semi-Passive Developed Markets					
AQR	**20.8%**	**-18.2%**	**25.1%**	**0.8%**	**0.9%**
BENCHMARK DM	22.5	-14.1	24.2	2.7	-3.0
Excess	-1.7	-4.1	0.9	-2.0	3.9

	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return	2016 Calendar Return	2015 Calendar Return
SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE	**20.8%**	**-18.7%**	**23.3%**	**-0.4**	**-0.3**
BENCHMARK DM	22.5%	-14.1%	24.2%	2.7	-3.0
Excess	-1.7%	-4.6%	-0.9%	-3.1	2.7

Total Developed Markets

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
ACTIVE DEVELOPED MARKETS AGGREGATE	**$1,805,648,632**	**14.5%**	**-22.5%**	**-17.0%**	**-13.0%**	**-0.3%**	**0.9%**	**4.1%**		
BENCHMARK DM			-23.3	-18.0	-14.9	-2.1	-0.8	2.4		
Excess			0.7	1.0	1.9	1.8	1.6	1.7		
SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE	**270,474,074**	**2.2**	**-25.8**	**-21.4**	**-20.1**	**-5.6**	**-3.1**	**1.7**		
BENCHMARK DM			-23.3	-18.0	-14.9	-2.1	-0.8	2.4		
Excess			-2.5	-3.4	-5.2	-3.6	-2.3	-0.7		
SSgA DEVELOPED MARKETS PASSIVE	**7,330,612,184**	**58.9**	**-23.1**	**-17.8**	**-14.6**	**-1.7**	**-0.4**	**2.9**	**5.2**	**10/1992**
BENCHMARK DM			-23.3	-18.0	-14.9	-2.1	-0.8	2.4	4.9	10/1992
Excess			0.1	0.2	0.3	0.3	0.4	0.4	0.3	
DEVELOPED MARKETS TOTAL	**9,406,734,890**	**75.5**	**-23.1**	**-17.7**	**-14.4**	**-1.6**	**-0.3**	**3.2**		
BENCHMARK DM			-23.3	-18.0	-14.9	-2.1	-0.8	2.4		
Excess			0.2	0.3	0.4	0.5	0.5	0.7		

Total Developed Markets

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

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active Emerging Markets										
EARNEST PARTNERS	**$238,823,094**	**1.9%**	**-29.7%**	**-23.2%**	**-22.4%**	**-3.2%**			**-3.2%**	**04/2017**
MSCI EMERGING MARKETS			-23.6	-18.2	-17.7	-1.6			-1.6	04/2017
Excess			-6.1	-5.1	-4.7	-1.6			-1.6	
MARTIN CURRIE	**319,043,039**	**2.6**	**-22.4**	**-13.1**	**-12.3**	**2.6**			**2.6**	**04/2017**
BENCHMARK EM			-23.6	-18.2	-17.7	-1.6			-1.6	04/2017
Excess			1.2	5.1	5.4	4.2			4.2	
MACQUARIE	**268,055,671**	**2.2**	**-24.9**	**-15.6**	**-16.2**	**-0.4**			**-0.4**	**04/2017**
BENCHMARK EM			-23.6	-18.2	-17.7	-1.6			-1.6	04/2017
Excess			-1.3	2.6	1.5	1.2			1.2	
MORGAN STANLEY	**418,331,838**	**3.4**	**-25.9**	**-19.5**	**-17.1**	**-3.0**	**-0.9%**	**1.2%**	**7.7**	**01/2001**
BENCHMARK EM			-23.6	-18.2	-17.7	-1.6	-0.4	0.7	7.5	01/2001
Excess			-2.4	-1.3	0.6	-1.3	-0.6	0.5	0.1	
NEUBERGER BERMAN	**287,844,268**	**2.3**	**-23.0**	**-17.9**	**-17.1**	**-1.2**			**-1.2**	**04/2017**
BENCHMARK EM			-23.6	-18.2	-17.7	-1.6			-1.6	04/2017
Excess			0.6	0.3	0.6	0.4			0.4	
PZENA	**215,288,199**	**1.7**	**-31.5**	**-27.4**	**-27.5**	**-7.1**			**-7.1**	**04/2017**
BENCHMARK EM			-23.6	-18.2	-17.7	-1.6			-1.6	04/2017
Excess			-7.9	-9.2	-9.8	-5.5			-5.5	
ROCK CREEK	**295,940,361**	**2.4**	**-23.9**	**-16.6**	**-15.2**	**-2.9**			**-2.9**	**04/2017**
BENCHMARK EM			-23.6	-18.2	-17.7	-1.6			-1.6	04/2017
Excess			-0.3	1.6	2.5	-1.3			-1.3	

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	2019 Calendar Return	2018 Calendar Return	2017 Calendar Return	2016 Calendar Return	2015 Calendar Return
Active Emerging Markets					
EARNEST PARTNERS	**24.7%**	**-15.4%**			
MSCI EMERGING MARKETS	18.4	-14.6			
Excess	6.3	-0.8			
MARTIN CURRIE	**27.3**	**-16.6**			
BENCHMARK EM	18.4	-14.6			
Excess	8.8	-2.0			
MACQUARIE	**23.2**	**-13.3**			
BENCHMARK EM	18.4	-14.6			
Excess	4.7	1.3			
MORGAN STANLEY	**20.4**	**-16.7**	**37.9%**	**6.1%**	**-9.4%**
BENCHMARK EM	18.4	-14.6	37.3	11.2	-14.9
Excess	1.9	-2.2	0.6	-5.1	5.5
NEUBERGER BERMAN	**19.7**	**-17.1**			
BENCHMARK EM	18.4	-14.6			
Excess	1.3	-2.6			
PZENA	**13.4**	**-10.8**			
BENCHMARK EM	18.4	-14.6			
Excess	-5.1	3.8			
ROCK CREEK	**22.3**	**-17.6**			
BENCHMARK EM	18.4	-14.6			
Excess	3.9	-3.1			

Total Emerging Markets

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
ACTIVE EMERGING MARKETS AGGREGATE	**$2,043,326,469**	**16.4%**	**-25.8%**	**-19.0%**	**-18.1%**	**-2.2%**	**-1.2%**	**-0.0%**		
BENCHMARK EM			-23.6	-18.2	-17.7	-1.6	-0.4	0.7		
Excess			-2.2	-0.8	-0.4	-0.6	-0.9	-0.7		
SSGA EMERGING MARKETS PASSIVE	**1,000,613,714**	**8.0**	**-23.3**	**-18.1**	**-17.8**	**-1.5**	**-0.3**		**1.6**	**01/2012**
BENCHMARK EM			-23.6	-18.2	-17.7	-1.6	-0.4		1.5	01/2012
Excess			0.3	0.1	-0.1	0.1	0.1		0.1	
EMERGING MARKETS TOTAL	**3,043,940,183**	**24.4**	**-25.0**	**-18.7**	**-17.9**	**-2.0**	**-0.7**	**0.2**		
BENCHMARK EM			-23.6	-18.2	-17.7	-1.6	-0.4	0.7		
Excess			-1.4	-0.5	-0.2	-0.4	-0.4	-0.5		

Total Emerging Markets

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

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Core Bonds
March 31, 2020

Core Bonds

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
ACTIVE CORE BONDS AGGREGATE	**$3,759,227,541**	**57.4%**	**-0.3%**	**2.6%**	**5.8%**	**4.3%**	**3.5%**	**4.5%**		
BBG BARC Agg (Dly)			3.1	5.7	8.9	4.8	3.4	3.9		
Excess			-3.4	-3.1	-3.1	-0.5	0.1	0.7		
SEMI PASSIVE CORE BONDS AGGREGATE	**2,791,402,834**	**42.6**	**2.2**	**5.0**	**8.3**	**4.7**	**3.4**	**4.1**		
BBG BARC Agg (Dly)			3.1	5.7	8.9	4.8	3.4	3.9		
Excess			-0.9	-0.7	-0.7	-0.1	0.0	0.2		
TRANSITION AGGREGATE CORE BONDS (1)	17,648	0.0								
TOTAL CORE BONDS (2)	**6,550,648,024**	**100.0**	**0.8**	**3.6**	**6.9**	**4.5**	**3.4**	**4.3**	**7.5**	**07/1984**
Core Bonds Benchmark			3.1	5.7	8.9	4.8	3.4	3.9	7.2	07/1984
Excess			-2.4	-2.1	-2.1	-0.4	0.0	0.4	0.3	

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

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

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

STATE STREET

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

(1) The Transition Aggregate Core Bonds includes core bonds securities that are being transition to a different manager.
(2) The current Core Bonds Benchmark is the Bloomberg Barclays U.S. Aggregate calculated daily: BBG BARC Agg (Dly). For historical benchmark details please refer to the addendum of this report.

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

STATE STREET.

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Active Core Bonds Managers										
COLUMBIA	**$874,099,690**	**13.3%**	**-1.6%**	**1.2%**	**4.9%**	**4.2%**	**3.4%**	**4.4%**	**5.3%**	**07/1993**
BBG BARC Agg (Dly)			3.1	5.7	8.9	4.8	3.4	3.9	5.3	07/1993
Excess			-4.8	-4.4	-4.1	-0.7	0.1	0.5	0.0	
DODGE & COX	**978,657,207**	**14.9**	**-0.2**	**2.7**	**5.7**	**4.1**	**3.4**	**4.4**	**5.9**	**02/2000**
BBG BARC Agg (Dly)			3.1	5.7	8.9	4.8	3.4	3.9	5.2	02/2000
Excess			-3.3	-2.9	-3.2	-0.7	0.0	0.5	0.8	
PIMCO	**887,785,846**	**13.6**	**2.1**	**4.1**	**7.2**	**4.7**	**3.4**	**4.5**	**5.6**	**10/2008**
BBG BARC Agg (Dly)			3.1	5.7	8.9	4.8	3.4	3.9	4.5	10/2008
Excess			-1.1	-1.6	-1.7	-0.2	0.1	0.6	1.1	
WESTERN	**1,018,685,707**	**15.6**	**-1.3**	**2.3**	**5.6**	**4.5**	**3.7**	**4.8**	**8.2**	**07/1984**
BBG BARC Agg (Dly)			3.1	5.7	8.9	4.8	3.4	3.9	7.2	07/1984
Excess			-4.4	-3.4	-3.3	-0.3	0.3	0.9	1.0	
ACTIVE CORE BONDS AGGREGATE	**3,759,227,541**	**57.4**	**-0.3**	**2.6**	**5.8**	**4.3**	**3.5**	**4.5**		
BBG BARC Agg (Dly)			3.1	5.7	8.9	4.8	3.4	3.9		
Excess			-3.4	-3.1	-3.1	-0.5	0.1	0.7		

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

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
Semi Passive Core Bonds Managers										
BLACKROCK	**$947,108,361**	**14.5%**	**2.3%**	**4.9%**	**8.2%**	**4.7%**	**3.3%**	**4.0%**	**5.3%**	**04/1996**
BBG BARC Agg (Dly)			3.1	5.7	8.9	4.8	3.4	3.9	5.3	04/1996
Excess			-0.9	-0.8	-0.8	-0.2	-0.0	0.1	0.0	
GOLDMAN SACHS	**951,065,064**	**14.5**	**1.6**	**4.5**	**7.8**	**4.6**	**3.4**	**4.2**	**5.6**	**07/1993**
BBG BARC Agg (Dly)			3.1	5.7	8.9	4.8	3.4	3.9	5.3	07/1993
Excess			-1.6	-1.2	-1.2	-0.2	0.0	0.3	0.3	
NEUBERGER	**893,229,410**	**13.6**	**2.9**	**5.5**	**8.8**	**4.8**	**3.4**	**4.2**	**6.4**	**07/1988**
BBG BARC Agg (Dly)			3.1	5.7	8.9	4.8	3.4	3.9	6.2	07/1988
Excess			-0.3	-0.1	-0.1	0.0	0.0	0.3	0.2	
SEMI PASSIVE CORE BONDS	**2,791,402,834**	**42.6**	**2.2**	**5.0**	**8.3**	**4.7**	**3.4**	**4.1**		
BBG BARC Agg (Dly)			3.1	5.7	8.9	4.8	3.4	3.9		
Excess			-0.9	-0.7	-0.7	-0.1	0.0	0.2		

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

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Treasuries
March 31, 2020

Treasuries Managers

	Ending Market Value	Portfolio Weight	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
BLACKROCK	**$2,157,507,447**	**35.0%**	**14.0%**	**16.5%**	**21.8%**				**12.4%**	**02/2018**
BBG BARC 5Y + Us Tsy Idx			14.0	16.5	21.9				12.5	02/2018
Excess			-0.0	-0.0	-0.1				-0.1	
GOLDMAN SACHS	**1,996,202,978**	**32.4**	**13.8**	**16.3**	**21.7**				**12.4**	**02/2018**
BBG BARC 5Y + Us Tsy Idx			14.0	16.5	21.9				12.5	02/2018
Excess			-0.2	-0.2	-0.1				-0.1	
NEUBERGER	**2,008,307,448**	**32.6**	**13.7**	**16.2**	**21.4**				**12.2**	**02/2018**
BBG BARC 5Y + Us Tsy Idx			14.0	16.5	21.9				12.5	02/2018
Excess			-0.3	-0.3	-0.4				-0.3	
TREASURIES TRANSITION ACCOUNT	0	0.0								03/2018
TOTAL TREASURIES	**6,162,017,874**	**100.0**	**13.8**	**16.4**	**21.6**				**12.4%**	**02/2018**
BBG BARC 5Y + Us Tsy Idx			14.0	16.5	21.9				12.5%	02/2018
Excess			-0.2	-0.2	-0.2				-0.1%	

Treasuries Managers

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

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Private Markets
March 31, 2020

Combined Funds Asset Class Performance Summary

Private Markets

	Last Qtr	FYTD	1 Year	3 Year	5 Year	10 Year	20 Year	25 year	30 year
Private Markets	2.7%	7.1%	10.1%	12.5%	11.0%	12.1%	12.2%	13.7%	12.3%
Private Equity	3.6%	11.7%	17.2%	17.2%	15.5%	14.9%	12.8%	15.6%	
Private Credit	3.0	7.9	9.9	12.0	11.8	13.2	12.2		
Resources	0.1	-7.3	-9.7	0.4	-1.9	3.9	14.4	14.3	
Real Estate	2.1	7.7	11.1	10.9	10.9	12.0	9.1	9.7	

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 March 31, 2020

Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
I. PRIVATE EQUITY								
Adams Street Partners								
Adams Street Global Secondary Fund 5	100,000,000	77,114,692	52,712,136	42,776,897	22,885,308	6.12	1.24	**7.53**
Adams Street Global Secondary Fund 6	100,000,000	33,700,000	39,020,389	1,214,007	66,300,000	38.23	1.19	**2.75**
Advent International								
Advent International GPE VI	50,000,000	52,993,313	7,907,986	100,573,095	0	16.79	2.05	**11.75**
Advent International GPE VII	90,000,000	84,690,641	68,346,689	85,371,791	5,400,000	15.34	1.82	**7.29**
Advent International GPE VIII	100,000,000	92,700,002	118,714,867	0	7,299,998	13.06	1.28	**3.90**
Advent International GPE IX	115,000,000	25,300,001	24,053,015	0	89,699,999	-7.67	0.95	**0.90**
Affinity Ventures								
Affinity Ventures IV	4,000,000	4,000,000	117,817	1,541,970	0	-22.08	0.41	**15.51**
Affinity Ventures V	5,000,000	5,000,000	2,113,832	1,706,245	0	-4.44	0.76	**11.50**
APAX Partners								
Apax VIII - USD	200,000,000	227,487,449	143,510,125	226,515,837	12,031,822	14.73	1.63	**6.82**
Apax IX - USD	150,000,000	138,697,018	190,545,928	3,944,404	15,247,386	24.50	1.40	**3.61**
Apax X - USD	150,000,000	0	0	0	150,000,000	0.00	0.00	**0.73**
Arsenal Capital Partners								
Arsenal Fund V	75,000,000	34,591,003	34,580,885	51,772	40,419,115	0.18	1.00	**0.99**
Asia Alternatives								
Asia Alternatives Capital Partners V	99,000,000	32,879,381	27,457,413	709,551	66,808,997	-18.06	0.86	**2.50**
Banc Fund								
Banc Fund VIII	98,250,000	98,250,000	46,868,496	174,293,973	0	13.68	2.25	**11.69**
Banc Fund IX	107,205,932	107,205,932	122,553,855	19,549,737	0	8.38	1.33	**5.56**
Banc Fund X	71,345,455	44,535,273	45,956,705	0	26,810,182	3.96	1.03	**1.66**
BlackRock								
BlackRock Long Term Capital	250,000,000	92,785,984	105,595,182	1,492,700	157,214,016	12.40	1.15	**1.01**
Blackstone Capital Partners								
Blackstone Capital Partners IV	70,000,000	84,459,884	1,734,834	200,025,998	1,832,302	37.02	2.39	**17.48**
Blackstone Capital Partners V	140,000,000	152,334,232	5,042,742	238,282,782	7,027,560	7.91	1.60	**13.92**
Blackstone Capital Partners VI	100,000,000	105,914,993	72,989,255	94,559,204	11,100,376	11.92	1.58	**11.44**

Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
Blackstone Capital Partners VII	130,000,000	113,220,319	127,247,715	11,764,334	30,837,107	15.77	1.23	**4.50**
Blackstone Capital Partners VIII LP	150,000,000	0	0	0	150,000,000	0.00	0.00	**1.25**
Blackstone Strategic Partners (CSFB/ DLJ)								
Strategic Partners III VC	25,000,000	25,039,648	469,835	33,676,348	1,028,056	6.00	1.36	**14.59**
Strategic Partners III-B	100,000,000	79,581,948	437,188	118,286,611	14,851,676	6.35	1.49	**14.59**
Strategic Partners IV VC	40,500,000	42,083,951	5,505,339	59,159,044	2,338,555	9.37	1.54	**11.77**
Strategic Partners IV-B	100,000,000	99,166,058	9,260,222	146,008,606	17,654,270	12.29	1.57	**11.54**
Strategic Partners V	100,000,000	85,250,647	17,022,711	121,389,550	36,841,352	18.96	1.62	**8.37**
Strategic Partners VI	150,000,000	99,273,250	46,982,087	97,563,835	57,058,218	15.65	1.46	**5.71**
Strategic Partners VII	150,000,000	96,996,306	103,292,840	34,186,333	67,371,716	20.99	1.42	**3.02**
Strategic Partners VIII	150,000,000	32,520,737	40,927,399	1,125,000	118,552,709	62.50	1.29	**1.25**
Bridgepoint								
Bridgepoint Europe VI	165,068,057	32,553,226	34,074,701	0	132,514,831	8.83	1.05	**1.78**
Brookfield Asset Management								
Brookfield Capital Partners Fund IV	100,000,000	96,443,104	89,821,857	124,645,731	23,980,870	53.54	2.22	**4.30**
Brookfield Capital Partners V	250,000,000	76,879,595	70,374,890	0	173,120,405	-14.89	0.92	**1.43**
Cardinal Partners								
DSV Partners IV	10,000,000	10,000,000	30,735	39,196,082	0	10.61	3.92	**35.01**
Carlyle Group								
Carlyle Partners VII	150,000,000	37,669,107	34,835,927	317,553	112,648,446	-7.58	0.93	**2.04**
Chicago Growth Partners (William Blair)								
William Blair Capital Partners VII	50,000,000	48,150,000	753,569	69,698,512	1,650,000	8.61	1.46	**18.82**
Chicago Growth Partners I	50,000,000	52,441,998	1,825,466	54,532,745	300,000	1.67	1.07	**14.44**
Chicago Growth Partners II	60,000,000	58,347,626	2,495,334	121,871,703	1,652,374	19.61	2.13	**11.81**
Court Square Capital Partners								
Court Square Capital Partners II	175,000,000	170,186,067	15,268,565	295,201,185	16,455,909	12.81	1.82	**13.32**
Court Square Capital Partners III	175,000,000	181,630,450	181,143,838	114,850,934	12,442,542	19.17	1.63	**7.58**
Court Square Capital Partners IV	150,000,000	29,206,229	32,538,601	0	120,793,771	15.05	1.11	**1.64**
Crescendo								
Crescendo IV	101,500,000	103,101,226	494,891	57,625,039	0	-4.63	0.56	**19.82**
CVC Capital Partners								
CVC European Equity Partners V	133,883,398	153,813,045	11,966,104	279,808,725	1,567,136	16.54	1.90	**11.77**
CVC Capital Partners VI	256,561,039	263,643,548	263,642,572	130,560,514	41,732,031	15.45	1.50	**6.48**
Elevation Partners								
Elevation Partners	75,000,000	73,237,580	144,246	113,492,106	799,634	11.81	1.55	**14.63**
Glouston Capital Partners**								
Glouston Private Equity Opportunities Fund IV	5,337,098	4,378,779	1,120,078	3,606,251	1,090,000	3.16	1.08	**5.00**

Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
Goldner Hawn Johnson & Morrison								
Goldner Hawn Fund VII, L.P.	57,755,138	6,733,200	5,367,482	0	51,187,289	-20.85	0.80	**1.68**
TrailHead Fund	20,000,000	16,070,803	28,275,070	12,806,955	3,935,813	17.76	2.56	**7.85**
GS Capital Partners								
GS Capital Partners V	100,000,000	74,319,006	1,103,373	191,435,136	1,041,099	18.26	2.59	**14.75**
GS Capital Partners VI	100,000,000	110,196,079	12,073,714	132,005,252	2,551,356	7.19	1.31	**12.92**
GS Vintage VII	100,000,000	76,493,216	70,070,635	24,463,676	48,090,599	15.36	1.24	**3.50**
West Street Capital Partners VII	150,000,000	88,397,501	77,078,358	15,552,958	74,258,025	3.48	1.05	**3.02**
GS China-US Cooperation Fund	99,800,000	13,647,445	11,019,904	0	86,327,000	-21.54	0.81	**1.62**
GTCR								
GTCR IX	75,000,000	71,414,933	0	129,016,213	3,585,067	13.77	1.81	**13.50**
GTCR X	100,000,000	104,934,096	1,977,199	202,619,633	6,751,396	20.82	1.95	**9.06**
GTCR XI	110,000,000	99,095,726	98,604,716	93,035,406	12,066,556	25.84	1.93	**6.12**
HarbourVest**								
Dover Street VII Cayman Fund	2,198,112	2,073,547	249,153	1,629,615	132,416	-4.58	0.91	**5.00**
HarbourVest Intl PE Partners V-Cayman US	3,516,165	3,345,135	510,160	3,886,610	175,560	13.25	1.31	**5.00**
Harbourvest Intl PE Partners VI-Cayman	4,229,153	4,038,952	3,504,732	2,940,367	192,019	14.72	1.60	**5.00**
HarbourVest Partners VIII Cayman Buyout	4,506,711	4,302,827	1,260,207	4,594,237	234,000	13.33	1.36	**5.00**
HarbourVest Partners VIII-Cayman Venture	7,190,898	7,084,902	3,420,356	6,041,806	140,000	9.29	1.34	**5.00**
Hellman & Friedman								
Hellman & Friedman Capital Partners VI	175,000,000	171,037,755	8,943,514	309,639,874	5,084,864	12.94	1.86	**12.76**
Hellman & Friedman Capital Partners VII	50,000,000	49,801,388	72,607,675	68,799,843	2,300,967	24.50	2.84	**10.70**
Hellman & Friedman Investors IX	175,000,000	0	0	0	172,258,308	0.00	0.00	**1.50**
IK Investment Partners								
IK Fund VII	180,030,340	177,217,341	157,356,828	148,679,827	8,321,845	14.03	1.73	**6.30**
IK Fund VIII	170,524,305	155,295,415	163,927,774	31,294,092	16,670,366	13.56	1.26	**3.44**
IK Fund IX	148,151,357	2,009,192	1,668,084	0	146,142,165	-26.49	0.83	**0.72**
Kohlberg Kravis Roberts								
KKR Millennium Fund	200,000,000	205,167,570	161,924	424,946,028	0	16.37	2.07	**17.07**
KKR 2006 Fund	200,000,000	219,016,785	65,875,536	326,296,312	3,360,223	9.31	1.79	**13.26**
KKR Americas Fund XII	150,000,000	73,630,717	78,968,485	988,851	78,250,452	5.90	1.09	**3.82**
KKR Asian Fund III	100,000,000	49,858,523	55,107,393	10,023,032	54,665,240	26.59	1.31	**2.75**
KKR Europe V	100,000,000	11,384,120	10,060,033	0	88,615,880	-11.63	0.88	**1.40**
Leonard Green & Partners								
Green Equity Investors VI	200,000,000	216,505,331	225,586,602	155,412,252	20,006,293	15.57	1.76	**7.79**
Green Equity Investors VII	125,000,000	0	0	0	125,000,000	0.00	0.00	**0.50**
Lexington Capital Partners								

Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
Lexington Capital Partners VI	100,000,000	98,374,022	7,383,546	138,718,613	1,634,703	7.94	1.49	**14.02**
Lexington Capital Partners VII	200,000,000	172,466,709	42,948,561	231,127,975	38,059,995	14.43	1.59	**10.97**
Lexington Capital Partners VIII	150,000,000	134,716,285	104,989,655	72,073,000	33,671,484	15.77	1.31	**5.83**
Lexington Co-Investment Partners IV	200,000,000	178,383,856	191,462,818	10,689,731	31,960,217	10.73	1.13	**3.41**
Lexington Middle Market Investors IV	100,000,000	23,262,562	23,098,329	1,458,011	76,737,438	11.98	1.06	**3.02**
Lexington Capital Partners IX	150,000,000	10,623,000	17,121,209	1,892,671	140,160,764	79.51	1.79	**1.48**
Lexington Co-Investment Partners V	300,000,000	0	0	0	300,000,000	0.00	0.00	**0.25**
Madison Dearborn Capital Partners								
Madison Dearborn Capital Partners VII	100,000,000	76,164,710	83,731,415	9,274,293	33,074,188	9.96	1.22	**4.03**
Madison Dearborn Capital Partners VIII-A	100,000,000	0	0	0	100,000,000	0.00	0.00	**0.54**
Neuberger Berman								
Dyal Capital Partners III	175,000,000	166,102,435	119,604,889	102,987,121	106,783,114	24.47	1.34	**4.70**
Dyal Capital Partners IV	250,000,000	24,687,639	17,961,925	9,156,912	234,104,683	11.50	1.10	**1.73**
Nordic Capital								
Nordic Capital Fund VIII	176,326,391	196,798,372	144,999,545	143,324,844	21,306,063	12.96	1.47	**6.30**
Nordic Capital Fund IX Beta	166,112,452	70,034,277	85,492,102	0	96,078,175	49.20	1.22	**2.70**
North Sky Capital**								
North Sky Capital LBO Fund III	1,070,259	720,259	245,382	775,539	350,000	13.44	1.42	**5.00**
North Sky Capital Venture Fund III	1,384,080	1,277,830	288,620	1,369,463	106,250	11.27	1.30	**5.00**
Oak Hill Capital Management, Inc.								
Oak Hill Capital Partners IV	150,000,000	119,353,934	118,307,678	28,267,962	52,442,502	20.66	1.23	**3.05**
Oak Hill Capital Partners V	100,000,000	0	0	0	100,000,000	0.00	0.00	**1.32**
Paine Schwartz								
Paine Schwartz IV	75,000,000	60,330,193	63,033,774	14,823,737	15,742,961	9.67	1.29	**5.05**
Paine Schwartz V	150,000,000	15,270,488	12,169,617	0	134,729,512	-50.42	0.80	**1.66**
Permira								
Permira V	176,608,420	173,011,785	253,798,622	159,877,708	24,458,584	22.54	2.39	**6.00**
Permira VI	136,012,789	122,910,381	154,659,865	0	13,102,408	15.82	1.26	**3.43**
Permira VII	137,328,986	16,096,539	15,923,846	0	121,232,447	-1.07	0.99	**0.83**
Public Pension Capital Management								
Public Pension Capital	150,000,000	81,253,502	89,220,073	46,439,326	80,046,009	22.76	1.67	**5.62**
RWI Ventures								
RWI Ventures I	7,603,265	7,603,265	289,923	6,122,274	0	-5.04	0.84	**13.51**
Silver Lake Partners								
Silver Lake Partners II	100,000,000	90,200,747	218,785	171,694,975	11,771,953	11.03	1.91	**15.50**
Silver Lake Partners III	100,000,000	91,976,186	31,647,407	175,803,509	10,559,311	18.55	2.26	**12.76**
Silver Lake Partners IV	100,000,000	113,350,023	127,621,123	83,639,570	3,403,431	23.88	1.86	**7.26**

Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
Silver Lake Partners V	135,000,000	80,014,454	89,384,264	992,615	41,945,580	11.85	1.13	**2.75**
Split Rock Partners								
Split Rock Partners	50,000,000	47,890,906	4,098,359	58,794,192	2,109,094	3.34	1.31	**14.67**
Split Rock Partners II	60,000,000	59,165,000	25,036,893	49,975,369	835,000	4.89	1.27	**11.68**
Summit Partners								
Summit Partners Growth Equity Fund VIII	100,000,000	115,667,192	53,525,181	193,525,542	23,496,551	26.22	2.14	**8.66**
Summit Partners Growth Equity Fund IX	100,000,000	105,630,001	109,524,375	27,851,839	22,221,838	24.38	1.30	**4.34**
Summit Partners Growth Equity Fund X	150,000,000	4,875,000	4,437,415	0	145,125,000	-8.98	0.91	**1.07**
Thoma Bravo								
Thoma Bravo Fund XII	75,000,000	75,960,561	106,618,826	5,117,450	4,228,124	17.77	1.47	**3.31**
Thoma Bravo Fund XIII	150,000,000	91,725,036	95,935,215	606	58,274,964	7.04	1.05	**1.75**
Thoma Cressey								
Thoma Cressey Fund VII	50,000,000	50,000,000	466,311	107,057,940	0	23.59	2.15	**19.36**
Thomas H. Lee Partners								
Thomas H. Lee Equity Fund VII	100,000,000	98,428,776	108,349,478	30,607,993	10,337,586	18.18	1.41	**4.31**
Thomas H. Lee Equity Fund VIII	150,000,000	45,628,053	39,854,678	11,089,430	113,720,068	34.49	1.12	**1.75**
Thomas, McNerney & Partners								
Thomas, McNerney & Partners I	30,000,000	30,000,000	3,740,685	15,087,143	0	-6.95	0.63	**17.16**
Thomas, McNerney & Partners II	50,000,000	48,125,000	5,169,539	107,648,037	1,875,000	16.71	2.34	**13.50**
TPG Capital								
TPG Partners VII	100,000,000	96,302,098	104,745,509	21,158,266	11,289,420	13.27	1.31	**4.31**
TPG Partners VIII	150,000,000	8,562,125	5,290,495	0	141,437,875	-67.37	0.62	**1.76**
Vestar Capital Partners								
Vestar Capital Partners IV	55,000,000	55,652,024	521,313	102,293,320	57,313	14.64	1.85	**20.05**
Vestar Capital Partners V	75,000,000	76,649,712	9,701,119	91,759,094	0	3.99	1.32	**14.04**
Vestar Capital Partners VI	100,000,000	106,195,246	63,746,794	123,127,619	357,259	24.65	1.76	**8.27**
Vestar Capital Partners VII	150,000,000	36,416,947	32,370,676	120,808	113,583,053	-10.11	0.89	**2.04**
Vista Equity Partners								
Vista Equity Partners Perennial, L.P.	200,000,000	68,988,098	67,775,195	0	132,224,805	-1.76	0.98	**0.10**
Warburg Pincus								
Warburg Pincus Equity Partners, LP	100,000,000	100,000,000	394,070	163,542,253	0	10.03	1.64	**21.77**
Warburg Pincus Private Equity VIII	100,000,000	100,373,266	361,642	228,717,051	0	14.74	2.28	**17.72**
Warburg Pincus Private Equity IX	100,000,000	100,000,000	4,613,965	169,104,301	0	9.72	1.74	**14.44**
Warburg Pincus Private Equity X	150,000,000	150,000,000	36,286,605	217,943,704	0	8.92	1.69	**12.19**
Warburg Pincus Private Equity XI	200,000,000	200,299,952	125,338,946	203,441,948	0	13.04	1.64	**7.02**
Warburg Pincus Private Equity XII	131,000,000	125,825,500	147,210,835	12,356,313	5,174,500	12.13	1.27	**4.11**
Warburg Pincus China	45,000,000	42,615,000	49,082,271	5,879,250	4,320,000	15.48	1.29	**3.05**

Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
Warburg Pincus Financial Sector, LP	90,000,000	49,653,308	48,865,842	4,590,000	44,730,000	6.98	1.08	**2.29**
Warburg Pincus Global Growth	250,000,000	46,959,589	43,707,620	0	202,750,000	-15.19	0.93	**1.36**
Warburg Pincus China-Southeast Asia II	50,000,000	1,750,000	1,485,125	0	48,250,000	-15.14	0.85	**0.82**
Wellspring Capital Partners								
Wellspring Capital Partners VI	125,000,000	42,773,393	38,429,755	0	82,226,607	-10.94	0.90	**3.30**
Welsh, Carson, Anderson & Stowe								
Welsh, Carson, Anderson & Stowe XI	100,000,000	100,000,000	33,448,847	130,320,188	0	11.93	1.64	**11.45**
Welsh, Carson, Anderson & Stowe XII	150,000,000	133,905,102	142,115,395	77,974,598	16,094,898	23.34	1.64	**5.03**
Welsh, Carson, Anderson & Stowe XIII	250,000,000	15,635,083	9,041,831	0	234,364,917	0.00	0.58	**1.76**
Whitehorse Capital								
Whitehorse Liquidity Partners III, LP	100,000,000	62,675,307	58,323,528	8,244,387	45,612,774	10.97	1.06	**1.00**
Wind Point Partners								
Wind Point Partners IX	100,000,000	11,474,207	11,469,604	0	88,530,396	-0.13	1.00	**0.76**
Windjammer Capital Investors								
Windjammer Mezzanine & Equity Fund II	66,708,861	55,215,684	64,305	84,876,800	10,139,363	8.94	1.54	**19.76**
Windjammer Senior Equity Fund IV	100,000,000	89,524,405	127,562,801	41,101,357	18,397,478	15.86	1.88	**7.85**
Windjammer Senior Equity Fund V	100,000,000	23,248,067	22,613,697	0	76,751,933	-5.98	0.97	**2.12**
Private Equity Total	**15,875,708,659**	**10,371,298,840**	**6,893,205,483**	**9,221,101,325**	**6,310,681,054**	**12.36**	**1.55**	**0.00**
II. PRIVATE CREDIT								
Audax Group								
Audax Mezzanine Fund III	100,000,000	98,148,751	17,846,008	111,720,707	3,489,372	9.88	1.32	**9.74**
Audax Mezzanine Fund IV	100,000,000	58,878,541	34,673,265	30,840,543	51,874,605	9.48	1.11	**4.73**
BlackRock								
BlackRock Middle Market Senior Fund	97,500,000	69,802,405	70,837,645	1,247,100	27,697,595	4.98	1.03	**1.71**
Energy Capital Partners								
Energy Capital Credit Solutions II	100,000,000	0	135,277	0	100,000,000	0.00	0.00	**1.25**
GS Mezzanine Partners								
GS Mezzanine Partners 2006	100,000,000	113,454,150	760,064	134,861,849	9,858,563	5.00	1.20	**13.74**
GS Mezzanine Partners V	150,000,000	147,704,244	2,268,385	179,089,405	37,564,028	9.08	1.23	**12.19**
Gold Hill Venture Lending								
Gold Hill Venture Lending	40,000,000	40,000,000	387,975	65,077,862	0	10.69	1.64	**15.26**
Gold Hill 2008	25,852,584	25,852,584	5,865,333	44,745,145	0	14.67	1.96	**11.50**
HPS Investment Partners								
HPS Mezzanine Partners 2019	100,000,000	23,085,054	18,294,922	5,167,522	82,186,402	2.35	1.02	**0.97**
Kohlberg Kravis Roberts								

Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
KKR Lending Partners II	75,000,000	86,287,405	21,730,713	79,747,153	8,802,924	8.50	1.18	**4.82**
KKR Lending Partners III	199,000,000	94,204,729	91,791,042	20,918,095	111,708,154	15.45	1.20	**2.73**
LBC Credit Partners								
LBC Credit Partners IV	100,000,000	89,770,558	66,134,818	36,654,383	32,291,029	9.64	1.15	**3.67**
LBC Credit Partners V	100,000,000	0	0	0	100,000,000	0.00	0.00	**0.75**
Marathon								
Marathon Secured Private Strategies Fund II, L.P.	100,000,000	45,022,008	50,145,920	0	56,000,000	14.09	1.11	**0.50**
Merit Capital Partners								
Merit Mezzanine Fund IV	75,000,000	70,178,571	545,539	139,120,463	4,821,429	11.57	1.99	**15.05**
Merit Mezzanine Fund V	75,000,000	71,044,898	34,399,735	75,273,236	3,955,102	10.01	1.54	**10.04**
Merit Mezzanine Fund VI	100,000,000	62,246,633	71,273,902	7,929,104	37,686,567	13.55	1.27	**3.77**
Oaktree Capital Management								
Oaktree Real Estate Debt Fund, III	17,500,000	0	0	0	17,500,000	0.00	0.00	**0.02**
Portfolio Advisors								
DLJ Investment Partners III	100,000,000	82,719,050	538,399	96,478,980	509,988	6.80	1.17	**13.53**
Prudential Capital Partners								
Prudential Capital Partners II	100,000,000	97,418,748	5,726,946	136,427,860	11,049,052	8.82	1.46	**14.51**
Prudential Capital Partners III	100,000,000	101,296,231	3,067,268	171,929,852	14,667,692	14.13	1.73	**10.71**
Prudential Capital Partners IV	100,000,000	108,523,913	56,013,139	84,357,168	3,170,999	9.16	1.29	**7.95**
Prudential Capital Partners V	150,000,000	111,156,307	113,180,728	19,811,729	42,608,517	13.00	1.20	**3.37**
Summit Partners								
Summit Subordinated Debt Fund III	45,000,000	44,088,494	3,816,372	60,443,093	2,250,000	8.91	1.46	**15.88**
Summit Subordinated Debt Fund IV	50,000,000	55,914,003	4,731,635	72,207,729	19,850,132	10.32	1.38	**11.76**
TCW Asset Management								
TCW Direct Lending VI	100,000,000	83,599,652	40,339,716	63,307,087	25,329,409	9.13	1.24	**5.28**
TCW Direct Lending VII	100,000,000	63,032,508	59,431,293	5,949,415	39,930,144	4.98	1.04	**1.96**
Private Credit Total	**2,499,852,584**	**1,843,429,438**	**773,936,037**	**1,643,305,480**	**844,801,702**	**9.89**	**1.31**	**0.00**
III. REAL ASSETS								
BlackRock								
BlackRock Global Renewable Power Fund II	98,500,000	80,734,131	71,128,004	12,627,223	24,394,414	2.10	1.04	**4.10**
BlackRock Global Renewable Power Infrastructure	100,000,000	0	0	0	100,000,000	0.00	0.00	**0.50**
EIG Global Energy Partners								
EIG Energy Fund XIV	100,000,000	113,459,470	7,036,363	95,309,310	2,761,129	-3.68	0.90	**12.70**
EIG Energy Fund XV	150,000,000	159,599,857	49,701,535	130,868,823	22,871,323	3.19	1.13	**9.57**
EIG Energy Fund XVI	200,000,000	186,918,939	134,027,538	86,016,925	56,458,417	5.90	1.18	**6.30**

Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
EnCap Energy								
EnCap Energy Capital Fund VII	100,000,000	105,379,160	5,488,985	135,157,214	0	14.56	1.33	**12.50**
EnCap Energy Capital Fund VIII	100,000,000	99,410,912	21,033,603	54,781,243	4,394,899	-7.81	0.76	**9.25**
Encap Energy Capital Fund IX	100,000,000	111,445,745	50,498,286	85,276,789	6,157,851	7.91	1.22	**7.06**
EnCap Energy Capital Fund X	100,000,000	92,184,461	88,749,880	21,277,953	15,968,876	7.87	1.19	**4.82**
EnerVest Energy								
EnerVest Energy Institutional Fund XIV	100,000,000	94,732,645	83,476,838	41,175,285	13,361,053	9.35	1.32	**4.56**
Energy Capital Partners								
Energy Capital Partners II	100,000,000	85,722,480	7,049,607	112,434,332	29,749,110	9.41	1.39	**9.45**
Energy Capital Partners III	200,000,000	221,489,260	182,462,246	83,824,545	16,145,076	7.59	1.20	**6.03**
Energy Capital Partners IV	150,000,000	45,957,181	44,780,248	10,887,130	113,682,359	13.23	1.21	**2.00**
Energy & Minerals Group								
NGP Midstream & Resources	100,000,000	103,527,211	10,901,047	178,140,260	17,857	13.67	1.83	**12.76**
The Energy & Minerals Group Fund II	100,000,000	105,186,174	92,971,033	102,399,087	723,681	13.94	1.86	**8.27**
The Energy & Minerals Group Fund III	200,000,000	201,327,783	141,191,100	22,410,545	1,284,543	-4.55	0.81	**5.82**
The Energy & Minerals Group Fund IV	150,000,000	150,173,111	162,253,537	46,989,014	21,414,947	13.84	1.39	**4.17**
The Energy & Minerals Group Fund V	112,500,000	75,288,041	79,117,647	2,756	37,773,015	5.88	1.05	**0.96**
The Energy & Minerals Group Fund V Accordion	17,500,000	14,108,142	14,622,623	0	3,474,727	4.62	1.04	**0.96**
First Reserve								
First Reserve Fund X	100,000,000	100,000,000	6,850	182,761,608	0	31.05	1.83	**15.17**
First Reserve Fund XI	150,000,000	150,292,121	7,340,668	98,323,471	0	-7.08	0.70	**13.03**
First Reserve Fund XII	150,000,000	165,617,044	24,804,277	82,274,676	0	-9.37	0.65	**11.17**
First Reserve Fund XIII	200,000,000	200,570,313	156,294,405	66,726,641	23,998,015	6.38	1.11	**6.16**
Kohlberg, Kravis, Roberts & Co.								
KKR Global Infrastructure Investors III	149,850,000	55,239,723	53,223,749	1,107,018	95,717,295	-2.73	0.98	**1.76**
Merit Energy Partners								
Merit Energy Partners B	24,000,000	24,000,000	1,554,840	189,858,902	0	24.28	7.98	**22.95**
Merit Energy Partners C	50,000,000	50,000,000	4,970,844	514,177,741	0	30.10	10.38	**21.18**
Merit Energy Partners D	88,000,000	70,938,303	11,709,964	333,800,338	0	22.67	4.87	**18.61**
Merit Energy Partners E	100,000,000	39,983,197	1,942,294	82,850,913	0	11.38	2.12	**15.25**
Merit Energy Partners F	100,000,000	59,522,861	9,201,811	30,129,452	0	-6.65	0.66	**13.78**
Merit Energy Partners H	100,000,000	100,000,000	58,893,463	29,668,582	0	-2.34	0.89	**8.91**
Merit Energy Partners I	169,721,518	169,721,518	215,232,410	43,839,059	0	14.44	1.53	**5.20**
Merit Energy Partners K	150,000,000	39,706,295	39,268,950	188,422	110,293,705	-1.68	0.99	**1.01**
NGP								
Natural Gas Partners IX	150,000,000	173,921,032	3,154,198	245,366,339	605,481	12.03	1.43	**12.19**

Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
NGP Natural Resources X	150,000,000	146,856,370	34,744,912	116,514,590	3,143,630	0.89	1.03	**8.22**
Natural Gas Capital Resources XI	150,000,000	148,267,241	129,675,495	44,498,161	8,336,018	6.80	1.17	**5.06**
NGP Natural Resources XII	149,500,000	73,787,659	72,383,380	0	75,371,866	-1.50	0.98	**2.41**
Sheridan								
Sheridan Production Partners I	100,000,000	116,552,260	0	82,750,000	0	0.00	0.71	**12.76**
Sheridan Production Partners II	100,000,000	103,500,000	0	7,000,000	3,500,000	0.00	0.07	**9.25**
Sheridan Production Partners III	100,000,000	34,353,005	26,429,994	19,675,000	65,650,000	11.22	1.34	**5.06**
Real Assets Total	**4,709,571,518**	**4,069,473,646**	**2,097,322,624**	**3,391,089,347**	**857,249,287**	**12.97**	**1.35**	**0.00**
IV. REAL ESTATE								
Angelo, Gordon & Co.								
AG Realty Fund IX	100,000,000	92,141,126	95,711,724	23,500,000	11,650,000	10.42	1.29	**5.06**
AG Asia Realty Fund III	50,000,000	47,587,261	33,685,720	29,500,000	6,196,250	14.80	1.33	**3.25**
AG Europe Realty Fund II	75,000,000	59,350,822	64,797,420	28,384	15,000,000	7.76	1.09	**2.53**
AG Realty Fund X	150,000,000	29,618,800	30,979,148	12,431	118,500,000	6.95	1.05	**1.66**
AG Asia Realty Fund IV	100,000,000	26,549,050	26,809,247	0	72,250,000	1.41	1.01	**1.56**
AG Europe Realty Fund III	75,000,000	0	0	0	75,000,000	0.00	0.00	**0.25**
Blackstone Real Estate Partners								
Blackstone Real Estate Partners V	100,000,000	104,213,007	4,467,768	202,469,573	4,174,052	10.78	1.99	**13.68**
Blackstone Real Estate Partners VI	100,000,000	109,477,567	6,388,091	214,629,798	4,907,906	13.16	2.02	**12.76**
Blackstone Real Estate Partners VII	100,000,000	108,304,085	48,593,034	143,301,518	13,765,866	16.24	1.77	**8.09**
Blackstone Real Estate Partners VIII	150,000,000	159,701,573	150,398,543	62,098,284	29,553,202	14.60	1.33	**4.76**
Blackstone Real Estate Partners Asia II	74,500,000	26,321,747	26,310,414	1,203,065	50,805,804	5.03	1.05	**2.27**
Blackstone Real Estate Partners IX	300,000,000	54,149,013	52,621,206	1,892,663	247,873,526	0.94	1.01	**1.27**
Blackstone Strategic Partners (CSFB)								
Strategic Partners III RE	25,000,000	25,987,864	79,848	15,252,523	9,006	-6.49	0.59	**14.50**
Strategic Partners IV RE	50,000,000	51,479,976	4,048,917	48,003,680	1,077,741	0.18	1.01	**11.54**
Carlyle Group								
Carlyle Realty Partners VIII	150,000,000	36,421,780	34,708,459	2,480,328	116,067,415	2.42	1.02	**2.65**
Colony Capital								
Colony Investors III	100,000,000	99,660,860	2,634,651	173,802,105	0	14.50	1.77	**22.01**
Landmark Partners								
Landmark Real Estate Partners VIII	149,500,000	62,662,496	47,799,221	23,213,855	92,663,765	15.25	1.13	**3.04**
Lubert Adler								
Lubert-Adler Real Estate Fund VII-B	74,147,868	58,316,730	62,455,398	3,943,034	16,683,270	9.17	1.14	**3.23**
Rockpoint								

Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
Rockpoint Real Estate Fund V	100,000,000	93,245,965	84,171,204	27,330,781	21,119,727	9.41	1.20	**4.97**
Rockpoint Real Estate Fund VI	100,000,000	0	0	0	100,000,000	0.00	0.00	**1.03**
Rockwood								
Rockwood Capital RE Partners X	100,000,000	83,845,591	79,275,161	12,500,001	17,838,938	5.03	1.09	**4.46**
Rockwood Capital Partners XI	100,000,000	664,947	661,595	0	99,338,405	-0.50	0.99	**0.76**
Silverpeak Real Estate Partners								
Silverpeak Legacy Pension Partners II	75,000,000	73,005,908	963,868	91,268,650	7,559,162	4.16	1.26	**14.42**
Silverpeak Legacy Pension Partners III	150,000,000	70,573,046	11,529,027	13,427,052	79,431,504	-10.92	0.35	**11.67**
T.A. Associates Realty								
The Realty Associates Fund VIII	100,000,000	100,000,000	14,490	99,271,327	0	-0.08	0.99	**13.75**
The Realty Associates Fund X	100,000,000	100,000,000	12,059,577	149,874,563	0	12.92	1.62	**8.08**
The Realty Associates Fund XI	100,000,000	100,000,000	102,214,497	23,639,242	0	9.19	1.26	**4.75**
The Realty Associates Fund XII	100,000,000	10,000,000	8,402,760	0	90,000,000	-15.97	0.84	**2.00**
Real Estate Total	**2,948,147,868**	**1,783,279,214**	**991,780,987**	**1,362,642,856**	**1,291,465,540**	**7.97**	**1.32**	**0.00**
V. DISTRESSED/ OPPORTUNISTIC								
Avenue Capital Partners								
Avenue Energy Opportunities Fund	100,000,000	100,977,328	97,332,546	19,472,941	0	3.52	1.16	**5.50**
Avenue Energy Opportunities Fund II	100,000,000	100,000,000	102,166,000	417,420	0	1.40	1.03	**2.65**
BlackRock**								
BlackRock Tempus Fund	1,774,870	1,774,870	265,634	1,717,220	0	6.46	1.12	**4.55**
Carlyle Group								
Carlyle Strategic Partners IV	100,000,000	53,008,469	34,008,160	21,169,529	68,113,296	3.96	1.04	**3.75**
Carval Investors								
CVI Global Value Fund	200,000,000	190,000,000	4,906,353	315,888,483	10,000,000	9.53	1.69	**12.97**
CVI Credit Value Fund I	100,000,000	95,000,000	6,201,506	207,569,569	5,000,000	18.74	2.25	**9.25**
CVI Credit Value Fund A II	150,000,000	142,500,000	7,374,162	194,560,061	7,500,000	8.25	1.42	**7.17**
CVI Credit Value Fund A III	150,000,000	142,500,000	72,832,265	110,492,431	7,500,000	8.94	1.29	**4.58**
CVI Credit Value Fund IV	150,000,000	135,203,333	143,960,220	60	15,000,000	6.68	1.06	**2.24**
Marathon								
Marathon Distressed Credit Fund	200,000,000	10,000,000	10,000,000	0	190,000,000	0.00	1.00	**0.32**
Merced Capital								
Merced Partners III	100,000,000	100,000,000	9,121,900	126,497,107	0	6.15	1.36	**9.65**
Merced Partners IV	125,000,000	124,968,390	58,724,423	93,097,539	0	4.70	1.21	**6.47**
Merced Partners V	53,737,500	53,915,358	52,311,038	0	0	-1.14	0.97	**2.50**
MHR Institutional Partners								

Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years
MHR Institutional Partners IV	75,000,000	47,059,392	42,484,504	5,173,917	33,055,945	0.56	1.01	**5.53**
Oaktree Capital Management								
Oaktree Principal Fund VI	100,000,000	94,166,508	95,254,312	14,037,147	18,241,294	7.72	1.16	**5.00**
Oaktree Opportunities Fund X	50,000,000	46,500,021	46,862,388	11,119,660	8,500,000	9.83	1.25	**4.88**
Oaktree Opportunities Fund Xb	100,000,000	25,000,000	24,127,175	0	75,000,000	-3.92	0.97	**4.88**
Oaktree Special Situations Fund II	100,000,000	5,729,373	6,239,670	0	94,248,304	33.86	1.09	**1.68**
Pimco Bravo**								
Pimco Bravo Fund OnShore Feeder I	3,958,027	3,958,027	71,841	3,978,735	2,348,173	2.25	1.02	**5.00**
Pimco Bravo Fund OnShore Feeder II	5,243,670	4,685,039	2,251,120	3,910,408	4,463,852	6.39	1.32	**5.00**
TSSP								
TSSP Adjacent Opportunities Partner	50,000,000	30,649,841	31,620,075	2,186,115	21,536,274	10.91	1.10	**1.74**
TSSP Adjacent Opportunities Contingent	100,000,000	82,193	82,193	204	99,917,807	0.23	1.00	**1.82**
TSSP Opportunities Partners IV	50,000,000	10,281,511	10,710,738	9,829	39,718,489	5.82	1.04	**1.64**
Varde Fund								
Varde Fund IX	100,000,000	100,000,000	488,496	215,525,625	0	15.00	2.16	**11.52**
Varde Fund X	150,000,000	150,000,000	37,352,082	247,420,719	0	11.40	1.90	**9.70**
Varde Fund XI	200,000,000	200,000,000	160,112,491	145,425,939	0	7.94	1.53	**6.47**
Varde Fund XIII	150,000,000	37,500,000	38,172,375	20,038	112,500,000	6.53	1.02	**1.48**
Wayzata								
Wayzata Opportunities Fund II	150,000,000	174,750,000	2,275,715	327,229,040	30,000,000	16.47	1.89	**12.19**
Wayzata Opportunities Fund III	150,000,000	68,415,000	24,776,900	39,068,770	15,000,000	-2.00	0.93	**7.54**
Distressed/Opportunistic Total	**3,064,714,067**	**2,248,624,653**	**1,122,086,281**	**2,105,988,505**	**857,643,433**	**10.31**	**1.44**	
Private Markets Total	**29,097,994,696**	**20,316,105,790**	**11,878,331,412**	**17,724,127,512**	**10,161,841,017**	**11.65**	**1.46**	

Private Markets Portfolio Status	Investment Manager Count	Investments Count
PRIVATE EQUITY	53	140
PRIVATE CREDIT	15	27
REAL ASSETS	11	42
REAL ESTATE	11	28
DISTRESSED/ OPPORTUNISTIC	12	29
Total	102	266

Investment	Total Commitment	Total Contribution	MarketValue	Distributions	Unfunded Commitment	IRR %	NET MOIC*	Period Years

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

March 31, 2020

Participant Directed Investment Program

The Participant Directed Investment Program (PDIP) provides investment vehicles for a variety of retirement or other tax-advantaged savings plans. The objective of the Plan is to be competitive in the marketplace by providing quality investment options with low fees to its participants. Investment goals among the PDIP's many participants are varied.

- The Supplemental Investment Fund (SIF) is an investment platform that provides participants with the option to invest in many of the same pools as the Combined Fund in addition to a Stable Value Fund and a Money Market Fund. The Volunteer Firefighter Account is an option in the SIF for local firefighter entities that join the Statewide Voluntary Firefighter Plan administered by PERA. The investment vehicles are structured much like a family of mutual funds where participating entities buy or sell units in each fund. Participants may allocate their investments among one or more funds that are appropriate for their needs and are within statutory requirements and rules established by the participating organizations.
- The Mutual Fund Line-up is an investment platform that offers participants three sets of investment options. The first is a set of actively and passively managed mutual funds, a Stable Value Fund and a Money Market Fund. The second is a set of target date funds called Minnesota Target Retirement Funds. The third is a self-directed brokerage account window which offers thousands of mutual funds. The SBI has no direct management responsibilities for funds within the self-directed brokerage account window. Participants may allocate their investments among one or more accounts that are appropriate for their needs within the statutory requirements and rules established by the participating organizations.
- The SBI is responsible for the investment options provided in the two State Sponsored Savings Plans established under provisions of the Internal Revenue Code 529, the Minnesota College Savings Plan and Minnesota Achieving a Better Life Experience Plan (ABLE). The Minnesota College Savings Plan is an educational savings plan designed to help families save for qualified nationwide college costs. The SBI is responsible for the investments and the Minnesota Office of Higher Education (OHE) is responsible for the overall administration of the Plan. The SBI and OHE have contracted jointly with TIAA-CREF Tuition Financing, Inc. to provide administrative, marketing, communication, recordkeeping and investment management services. The ABLE Plan is a savings plan designed to help individuals save for qualified disability expenses without losing eligibility for certain assistance programs. The plan is administered by the Department of Human Services (DHS). The SBI and DHS have jointly contracted with Ascensus to provide recordkeeping, administrative, and investment management services for the plan.

The investment returns shown in this report are calculated using a time-weighted rate of return formula. These returns are net of investment management fees and transaction costs. They do not, however, reflect administrative expenses that may be deducted by the retirement systems or other agencies to defray administrative costs.

Supplemental Investment Fund Summary

The Minnesota Supplemental Investment Fund (SIF) is a multi-purpose investment platform that offers a range of investment options to state and local public employees. This investment platform provides some or all of the investment options to the Public Employees Retirement Association (PERA) Defined Contribution Plan, local pension plans and the Statewide Volunteer Firefighter plan.

A wide diversity of investment goals exists among the Fund's participants. In order to meet those needs, the Fund has been structured much like a "family of mutual funds." Participants may allocate their investments among one or more accounts that are appropriate for their needs, within the statutory requirements and rules established by the participating organizations. Participation in the Fund is accomplished through the purchase or sale of shares in each account. All returns are net of investment management fees.

Investment Option Descriptions

- Balanced Fund - a balanced portfolio utilizing both common stocks and bonds
- U.S. Stock Actively Managed Fund - an actively managed, U.S. common stock portfolio.
- U.S. Stock Index Fund - a passively managed, common stock portfolio designed to broadly track the performance of the U.S. stock market.
- Broad International Stock Fund - a portfolio of non-U.S. stocks that incorporates both active and passive management.
- Bond Fund - an actively managed, bond portfolio.
- Money Market Fund - a portfolio utilizing short-term, liquid debt securities.
- Stable Value Fund - a portfolio of stable value instruments, including security backed contracts and insurance company and bank investment contracts.
- Volunteer Firefighter Account - a balanced portfolio only used by the Statewide Volunteer Firefighter Plan.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year	Option Since
BALANCED FUND	$84,603,643	-12.3%	-2.6%	4.5%	5.0%	7.9%	01/1980
U.S. ACTIVELY MANAGED FUND	50,941,311	-20.5	-9.7	4.8	5.8	10.3	07/1986
U.S. STOCK INDEX FUND	307,036,201	-20.8	-9.0	4.0	5.8	10.2	07/1986
BROAD INTERNATIONAL STOCK FUND	94,955,184	-23.6	-15.3	-1.7	-0.4	2.5	09/1994
BOND FUND	110,039,911	0.8	6.9	4.5	3.4	4.3	07/1986
MONEY MARKET FUND	542,609,913	0.4	2.2	1.9	1.3	0.8	07/1986
STABLE VALUE FUND	1,638,429,060	0.6	2.7	2.5	2.3	2.5	11/1994
VOLUNTEER FIREFIGHTER ACCOUNT	106,709,324	-10.3	-1.7	3.7	3.9	6.2	01/2010

Note:

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

Supplemental Investment Fund Performance

Balanced Fund

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

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
BALANCED FUND	**$84,603,643**	**-12.3%**	**-2.6%**	**4.5%**	**5.0%**	**7.9%**
SIF BALANCED FUND BENCHMARK		-11.8	-2.0	4.5	5.0	7.7
Excess		-0.4	-0.6	-0.1	0.0	0.2

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.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
U.S. ACTIVELY MANAGED FUND	**50,941,311**	**-20.5**	**-9.7**	**4.8**	**5.8**	**10.3**
Russell 3000		-20.9	-9.1	4.0	5.8	10.1
Excess		0.4	-0.6	0.8	0.0	0.1

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.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
U.S. STOCK INDEX FUND	**$307,036,201**	**-20.8%**	**-9.0%**	**4.0%**	**5.8%**	**10.2%**
Russell 3000		-20.9	-9.1	4.0	5.8	10.1
Excess		0.1	0.1	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).

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
BROAD INTERNATIONAL STOCK FUND	**94,955,184**	**-23.6**	**-15.3**	**-1.7**	**-0.4**	**2.5**
International Equity Benchmark		-23.3	-15.6	-1.9	-0.6	2.1
Excess		-0.2	0.2	0.2	0.2	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.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
BOND FUND	**$110,039,911**	**0.8%**	**6.9%**	**4.5%**	**3.4%**	**4.3%**
BBG BARC US Agg		3.1	8.9	4.8	3.4	3.9
Excess		-2.4	-2.1	-0.4	0.0	0.4

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.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
MONEY MARKET FUND	**542,609,913**	**0.4**	**2.2**	**1.9**	**1.3**	**0.8**
ICE BofA US 3-Month Treasury Bill		0.6	2.3	1.8	1.2	0.6
Excess		-0.2	-0.1	0.1	0.1	0.1

Supplemental Investment Fund Performance

Stable Value Fund

The investment objectives of the Stable Value Fund are to protect investors from loss of their original investment and to provide competitive interest rates using somewhat longer-term investments than typically found in a money market fund. The Fund is invested in a well-diversified portfolio of high-quality fixed income securities with strong credit ratings. The Fund also invests in contracts issued by highly rated insurance companies and banks which are structured to provide principal protection for the Fund's diversified bond portfolios, regardless of daily market changes. The Stable Value Fund Benchmark is the 3-year Constant Maturity Treasury Bill +45 basis points. Please note that the Market Value for the Stable Value Fund reflects assets held through the Deferred Compensation Plan as well.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
STABLE VALUE FUND	**$1,638,429,060**	**0.6%**	**2.7%**	**2.5%**	**2.3%**	**2.5%**
Fixed Interest Blended Benchmark		0.4	2.1	2.4	2.1	1.6
Excess		0.3	0.7	0.0	0.2	0.9

Volunteer Firefighter Account

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

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
VOLUNTEER FIREFIGHTER ACCOUNT	**106,709,324**	**-10.3**	**-1.7**	**3.7**	**3.9**	**6.2**
SIF Volunteer Firefighter Account BM		-9.8	-1.3	3.7	3.8	5.9
Excess		-0.5	-0.4	-0.0	0.1	0.3

Mutual Funds

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

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year	Option Since
VANGUARD TOTAL STOCK MARKET INSTITUTIONAL INDEX PLUS	$409,218,505	-20.9%					07/2019
VANGUARD INSTITUTIONAL INDEX PLUS	1,111,521,898	-19.6%	-7.0%	5.1%	6.7%	10.5%	07/1999
VANGUARD DIVIDEND GROWTH	632,881,391	-17.3	-4.8	7.0			10/2016
VANGUARD MID CAP INDEX	433,471,297	-25.7	-16.6	-0.2	2.1	8.9	01/2004
T. ROWE PRICE SMALL-CAP STOCK	592,845,896	-26.2	-16.0	2.2	4.1	10.7	04/2000
FIDELITY DIVERSIFIED INTERNATIONAL	253,960,790	-19.2	-5.8	1.5	1.2	4.4	07/1999
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	229,901,465	-24.3	-16.5	-2.5	-0.6		07/2011
VANGUARD BALANCED INDEX	1,097,990,974	-11.6	-1.7	4.7	5.1	7.9	12/2003
DODGE & COX INCOME	280,987,558	-0.7	5.1	3.9	3.3	4.1	07/1999
VANGUARD TOTAL BOND MARKET INDEX	363,711,590	3.3	9.0	4.8	3.3	3.9	12/2003
2025 FUND	158,764,683	-10.8	-3.4	2.8	3.1		07/2011
2030 FUND	111,702,059	-12.3	-3.7	3.2	3.6		07/2011
2035 FUND	87,606,388	-13.5	-4.2	3.4	3.7		07/2011
2040 FUND	67,930,195	-15.0	-5.5	3.1	3.7		07/2011
2045 FUND	57,238,015	-16.5	-6.9	2.8	3.5		07/2011
2050 FUND	43,212,639	-18.0	-8.2	2.4	3.4		07/2011
2055 FUND	26,054,065	-18.6	-8.9	2.2	3.2		07/2011
2060 FUND	21,658,452	-18.6	-8.9	2.2	3.2		07/2011
INCOME FUND	213,028,049	-7.7	-1.5	2.4	2.5		07/2011
TD Ameritrade SDB	66,506,770						
TD Ameritrade SDB Roth	1,194,901						

Mutual Funds

LARGE CAP EQUITY

Vanguard Total Stock Market Institutional Index Plus (passive)

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

Vanguard Index Institutional Plus (passive)

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

Vanguard Dividend Growth (active) (1)

A fund of large cap stocks which is expected to outperform the Nasdaq US Dividend Achievers Select Index, over time.

MID CAP EQUITY

Vanguard Mid Cap Index (passive) (2)

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

SMALL CAP EQUITY

T Rowe Price Small Cap (active)

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

INTERNATIONAL EQUITY

Fidelity Diversified International (active)

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

Vanguard Total International Stock Index (passive) (3)

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

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
Large Cap US Equity						
VANGUARD TOTAL STOCK MARKET INSTITUTIONAL INDEX PLUS	$409,218,505	**-20.9%**				07/2019
CRSP US Total Market Index		-20.9				07/2019
Excess		0.0				
VANGUARD INSTITUTIONAL INDEX PLUS	**1,111,521,898**	**-19.6%**	**-7.0%**	**5.1%**	**6.7%**	**07/1999**
S&P 500		-19.6	-7.0	5.1	6.7	07/1999
Excess		0.0	-0.0	-0.0	-0.0	
VANGUARD DIVIDEND GROWTH	**632,881,391**	**-17.3**	**-4.8**	**7.0**		**10/2016**
NASDAQ US Dividend Achievers Select		-16.7	-4.0	6.8		10/2016
Excess		-0.6	-0.8	0.1		
Mid Cap US Equity						
VANGUARD MID CAP INDEX	**433,471,297**	**-25.7**	**-16.6**	**-0.2**	**2.1**	**01/2004**
CRSP US Mid Cap Index		-25.7	-16.7	-0.2	2.1	01/2004
Excess		0.0	0.0	0.0	0.0	
Small Cap US Equity						
T. ROWE PRICE SMALL-CAP STOCK	**592,845,896**	**-26.2**	**-16.0**	**2.2**	**4.1**	**04/2000**
Russell 2000		-30.6	-24.0	-4.6	-0.2	04/2000
Excess		4.4	8.0	6.8	4.4	
International Equity						
FIDELITY DIVERSIFIED INTERNATIONAL	**253,960,790**	**-19.2**	**-5.8**	**1.5**	**1.2**	**07/1999**
MSCI EAFE FREE (NET)		-22.8	-14.4	-1.8	-0.6	07/1999
Excess		3.6	8.6	3.3	1.8	
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	**229,901,465**	**-24.3**	**-16.5**	**-2.5**	**-0.6**	**07/2011**
FTSE Global All Cap ex US Index Net		-24.0	-16.2	-2.4	-0.7	07/2011
Excess		-0.2	-0.4	-0.1	0.1	

Mutual Funds

BALANCED

Vanguard Balanced Index (passive) (4)

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

FIXED INCOME

Dodge & Cox Income Fund (active)

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

Vanguard Total Bond Market Index (passive)

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

Money Market Fund (5)

A fund that invests in short-term debt instruments which is expected to outperform the return on 90-Day U.S. Treasury Bills.

STABLE VALUE

Stable Value Fund (5)

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

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
Balanced Funds						
VANGUARD BALANCED INDEX	**$1,097,990,974**	**-11.6%**	**-1.7%**	**4.7%**	**5.1%**	**12/2003**
Vanguard Balanced Fund Benchmark		-11.7	-1.8	4.7	5.1	12/2003
Excess		0.1	0.1	0.0	0.0	
Fixed Income						
DODGE & COX INCOME	**280,987,558**	**-0.7**	**5.1**	**3.9**	**3.3**	**07/1999**
BBG BARC Agg Bd		3.1	8.9	4.8	3.4	07/1999
Excess		-3.8	-3.9	-1.0	-0.1	
VANGUARD TOTAL BOND MARKET INDEX	**363,711,590**	**3.3**	**9.0**	**4.8**	**3.3**	**12/2003**
BBG BARC Agg Bd		3.1	8.9	4.8	3.4	12/2003
Excess		0.1	0.1	-0.0	-0.0	
MONEY MARKET FUND	**542,609,913**	**0.4**	**2.2**	**1.9**	**1.3**	**07/1986**
ICE BofA US 3-Month Treasury Bill		0.6	2.3	1.8	1.2	07/1986
Excess		-0.2	-0.1	0.1	0.1	
Stable Value						
STABLE VALUE FUND	**1,638,429,060**	**0.6**	**2.7**	**2.5**	**2.3**	**11/1994**
Fixed Interest Blended Benchmark		0.4	2.1	2.4	2.1	11/1994
Excess		0.3	0.7	0.0	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) Money Market and Stable Value are Supplemental Investment Fund options which are also offered to eligible plans that invest through other plans.

Mutual Funds

MN TARGET RETIREMENT ACCOUNTS

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

Target Date Retirement Funds

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
SSgA						
2025 FUND	**$158,764,683**	**-10.8%**	**-3.4%**	**2.8%**	**3.1%**	**07/2011**
2025 FUND BENCHMARK		-10.7	-3.3	2.8	3.1	07/2011
Excess		-0.1	-0.1	-0.0	-0.0	
2030 FUND	**111,702,059**	**-12.3**	**-3.7**	**3.2**	**3.6**	**07/2011**
2030 FUND BENCHMARK		-12.2	-3.6	3.3	3.6	07/2011
Excess		-0.1	-0.1	-0.0	-0.0	
2035 FUND	**87,606,388**	**-13.5**	**-4.2**	**3.4**	**3.7**	**07/2011**
2035 FUND BENCHMARK		-13.3	-4.0	3.4	3.8	07/2011
Excess		-0.1	-0.1	-0.1	-0.1	
2040 FUND	**67,930,195**	**-15.0**	**-5.5**	**3.1**	**3.7**	**07/2011**
2040 FUND BENCHMARK		-14.9	-5.3	3.2	3.7	07/2011
Excess		-0.1	-0.1	-0.1	-0.0	

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
2045 FUND	**$57,238,015**	**-16.5%**	**-6.9%**	**2.8%**	**3.5%**	**07/2011**
2045 FUND BENCHMARK		-16.3	-6.7	2.9	3.6	07/2011
Excess		-0.2	-0.2	-0.1	-0.1	
2050 FUND	**43,212,639**	**-18.0**	**-8.2**	**2.4**	**3.4**	**07/2011**
2050 FUND BENCHMARK		-17.8	-8.1	2.5	3.4	07/2011
Excess		-0.2	-0.2	-0.1	-0.1	
2055 FUND	**26,054,065**	**-18.6**	**-8.9**	**2.2**	**3.2**	**07/2011**
2055 FUND BENCHMARK		-18.3	-8.6	2.3	3.3	07/2011
Excess		-0.2	-0.3	-0.1	-0.1	
2060 FUND	**21,658,452**	**-18.6**	**-8.9**	**2.2**	**3.2**	**07/2011**
2060 FUND BENCHMARK		-18.3	-8.6	2.3	3.3	07/2011
Excess		-0.3	-0.3	-0.1	-0.1	
INCOME FUND	**213,028,049**	**-7.7**	**-1.5**	**2.4**	**2.5**	**07/2011**
INCOME FUND BENCHMARK		-7.7	-1.5	2.4	2.5	07/2011
Excess		0.0	0.0	-0.0	-0.0	

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

MN College Savings Plan Options

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

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

ENROLLMENT-BASED MANAGED ALLOCATIONS

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

RISK BASED ALLOCATIONS

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

ASSET CLASS BASED ALLOCATIONS

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

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

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

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

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

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

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

MINNESOTA COLLEGE SAVINGS PLAN
Performance Statistics for the Period Ending: March 31, 2020

Total = $1,403 Million

				Annualized				
Fund Name	Ending Market	3 Months	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
2036/2037 Enrollment Option	$12,106,622	-16.89%					-12.90%	10/28/2019
2036-2037 Custom Benchmark		-16.59%					-11.97%	
2034/2035 Enrollment Option	$19,935,038	-16.52%					-12.60%	10/28/2019
2034-2035 Custom Benchmark		-15.99%					-11.43%	
2032/2033 Enrollment Option	$25,472,517	-15.60%					-11.80%	10/28/2019
2032-2033 Custom Benchmark		-15.11%					-10.72%	
2030/2031 Enrollment Option	$34,637,357	-14.86%					-11.20%	10/28/2019
2030-2031 Custom Benchmark		-13.98%					-9.74%	
2028/2029 Enrollment Option	$49,013,521	-13.28%					-9.90%	10/28/2019
2028-2029 Custom Benchmark		-12.09%					-8.13%	
2026/2027 Enrollment Option	$73,814,648	-10.75%					-7.80%	10/28/2019
2026-2027 Custom Benchmark		-9.77%					-6.32%	
2024/2025 Enrollment Option	$111,010,782	-8.56%					-6.00%	10/28/2019
2024-2025 Custom Benchmark		-7.57%					-4.60%	
2022/2023 Enrollment Option	$144,766,681	-6.56%					-4.50%	10/28/2019
2022-2023 Custom Benchmark		-5.16%					-2.71%	
2020/2021 Enrollment Option	$181,053,280	-3.65%					-2.20%	10/28/2019
2020-2021 Custom Benchmark		-3.29%					-1.55%	
In School Option	$202,383,119	-2.17%					-0.90%	10/28/2019
In School Custom Benchmark		-2.71%					-1.28%	

MINNESOTA COLLEGE SAVINGS PLAN
Performance Statistics for the Period Ending: March 31. 2020

Fund Name	Ending Market	3 Months	1 Year	Annualized				Inception Date
				3 Years	5 Years	10 Years	Since Inception	
U.S. and International Equity Option	$226,473,576	-21.85%	-11.66%	1.95%	3.48%	7.69%	5.84%	10/ 1/2001
BB: U.S. and International Equity Option		-21.10%	-10.10%	2.50%	3.94%	8.16%	7.06%	
Moderate Allocation Option	$66,642,200	-12.81%	-4.10%	3.05%	3.47%	6.10%	4.42%	8/ 2/2007
BB: Moderate Allocation Option		-12.39%	-3.09%	3.45%	3.88%	6.70%	5.54%	
100% Fixed-Income Option	$19,883,151	1.09%	6.17%	3.71%	2.74%	3.27%	3.71%	8/16/2007
BB: 100% Fixed-Income Option		0.74%	6.28%	3.94%	3.00%	3.70%	4.30%	
International Equity Index Option	$4,359,174	-23.35%	-15.72%	-2.04%	-0.70%		0.96%	6/18/2013
BB: International Equity Index Option		-22.92%	-14.95%	-1.69%	-0.48%		1.26%	
Money Market Option	$17,478,091	0.28%	1.80%	1.47%	0.92%	0.42%	0.58%	11/ 1/2007
BB: Money Market Option		0.25%	1.55%	1.29%	0.80%	0.41%	0.52%	
Principal Plus Interest Option	$128,396,202	0.51%	2.01%	1.82%	1.64%	1.72%	2.48%	10/10/2001
Citigroup 3-Month U.S. Treasury Bill		0.39%	2.04%	1.74%	1.12%	0.60%	1.35%	
Aggressive Allocation Option	$30,765,965	-17.29%	-7.87%	2.60%	3.52%		4.08%	8/12/2014
BB: Aggressive Allocation Option		-16.76%	-6.53%	3.04%	3.96%		4.39%	
Conservative Allocation Option	$12,166,763	-6.14%	0.00%	3.03%	2.88%		2.96%	8/18/2014
BB: Conservative Allocation Option		-5.89%	0.76%	3.28%	3.08%		3.21%	
Equity and Interest Accumulation Option	$4,446,061	-10.42%	-3.26%	3.10%	3.78%		4.01%	8/18/2014
BB: Equity and Interest Accumulation Option		-9.97%	-2.57%	3.43%	3.86%		4.17%	
U.S. Large Cap Equity Option	$36,326,213	-19.61%	-7.08%	4.92%	6.52%		7.26%	8/12/2014
BB: U.S. Large Cap Equity Option		-19.60%	-6.98%	5.10%	6.73%		7.34%	
Matching Grant	$2,205,748	0.51%	2.01%	1.82%	1.64%	1.72%	2.48%	3/22/2002
Citigroup 3-Month U.S. Treasury Bill		0.39%	2.04%	1.74%	1.12%	0.60%	1.35%	

MINNESOTABLE*plan*
A member of The National ABLE Alliance

Performance as of
03/31/20

Total Market Value: $ **9,481,323**

Fund Name		Market Value	% of Plan	1 Month	3 Months	YTD	1 Year	3 Year	5 Year	10 Year	Inception	Inception Date
Aggressive Option	$	727,952	7.68%	(14.87)	(21.40)	(21.40)	(12.92)	0.57			1.93	12/15/16
ABLE Aggressive Custom Benchmark				(14.89)	(21.51)	(21.51)	(12.76)	0.87			2.38	
Variance				**0.02**	**0.11**	**0.11**	**(0.16)**	**(0.30)**			**(0.45)**	
Moderately Aggressive Option	$	826,872	8.72%	(12.35)	(17.57)	(17.57)	(9.63)	1.20			2.34	12/15/16
ABLE Moderately Aggressive Custom Benchmark				(12.37)	(17.71)	(17.71)	(9.49)	1.52			2.79	
Variance				**0.02**	**0.14**	**0.14**	**(0.14)**	**(0.32)**			**(0.45)**	
Growth Option	$	1,176,356	12.41%	(9.93)	(13.84)	(13.84)	(6.52)	1.71			2.62	12/15/16
ABLE Growth Custom Benchmark				(9.93)	(13.91)	(13.91)	(6.30)	2.06			3.10	
Variance				**0.00**	**0.07**	**0.07**	**(0.22)**	**(0.35)**			**(0.48)**	
Moderate Option	$	1,066,931	11.25%	(7.58)	(10.08)	(10.08)	(3.52)	2.09			2.85	12/15/16
ABLE Moderate Custom Benchmark				(7.59)	(10.11)	(10.11)	(3.21)	2.50			3.32	
Variance				**0.01**	**0.03**	**0.03**	**(0.31)**	**(0.41)**			**(0.47)**	
Moderately Conservative Option	$	1,041,344	10.98%	(5.24)	(6.71)	(6.71)	(1.54)	2.01			2.51	12/15/16
ABLE Moderately Conservative Custom Benchmark				(5.03)	(6.51)	(6.51)	(1.04)	2.47			2.99	
Variance				**(0.21)**	**(0.20)**	**(0.20)**	**(0.50)**	**(0.46)**			**(0.48)**	
Conservative Option	$	1,739,941	18.35%	(1.75)	(1.84)	(1.84)	1.23	1.91			2.05	12/15/16
ABLE Conservative Custom Benchmark				(1.70)	(1.74)	(1.74)	1.60	2.25			2.38	
Variance				**(0.05)**	**(0.10)**	**(0.10)**	**(0.37)**	**(0.34)**			**(0.33)**	
Checking Option	$	2,901,926	30.61%					0.00				03/30/17

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

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

RISK BASED ALLOCATIONS

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

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Non-Retirement

March 31, 2020

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 trusteed by the Public Employees Retirement Association.
- Miscellanous 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

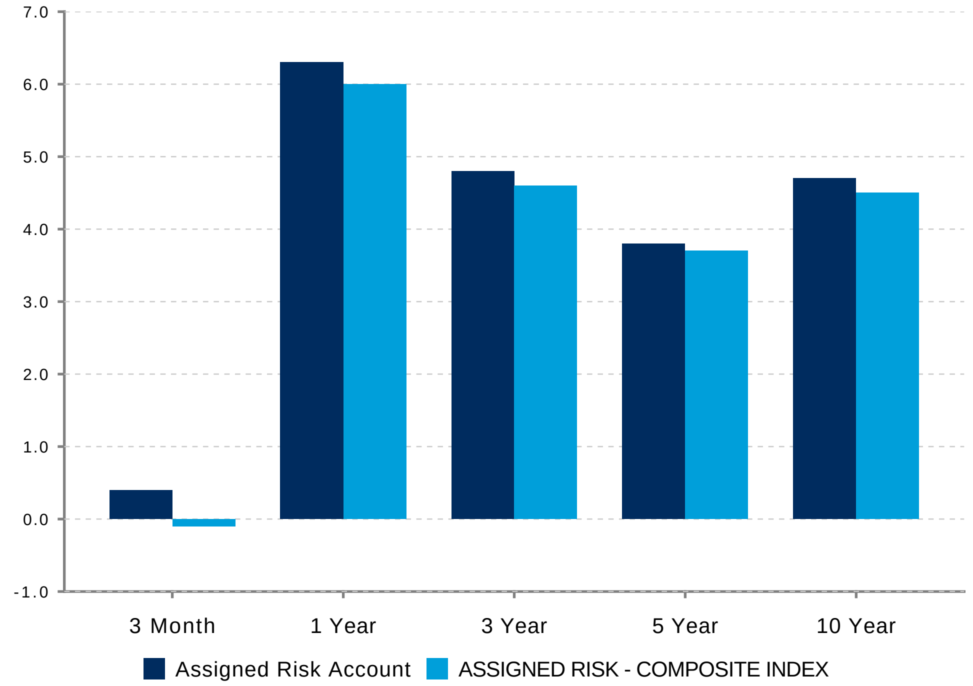
Assigned Risk Plan

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.

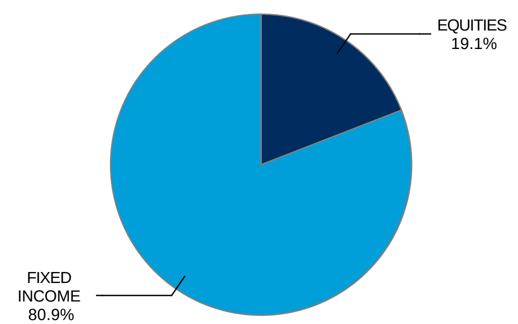
The Assigned Risk Plan is invested in a portfolio of common stocks and bonds

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	$294,469,264	0.4%	6.3%	4.8%	3.8%	4.7%
EQUITIES	56,371,788	-19.6	-6.9	5.1	6.0	9.5
FIXED INCOME	238,097,476	5.1	8.9	4.1	2.8	3.1
ASSIGNED RISK - COMPOSITE INDEX		-0.1	6.0	4.6	3.7	4.5
Excess		0.4	0.4	0.3	0.1	0.2
S&P 500		-19.6	-7.0	5.1	6.7	10.5
BBG BARC US Gov: Int		5.2	8.9	4.1	2.8	2.8



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

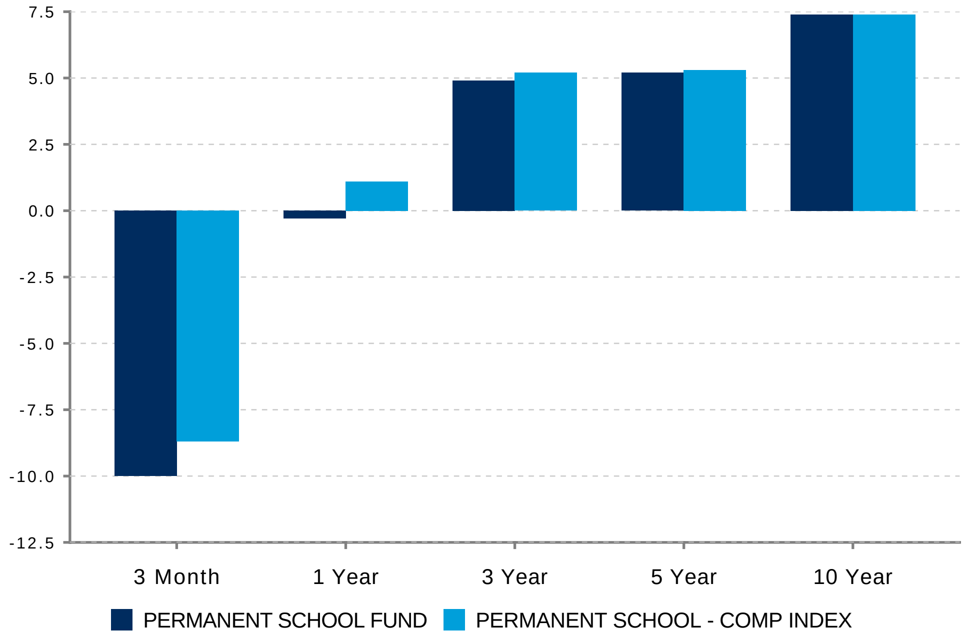
Non-Retirement

Permanent School Fund

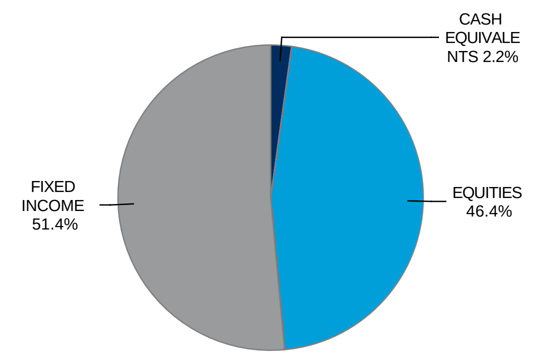
The investment objective of the Permanent School Fund is to produce a growing level of spendable income, within the constraints of maintaining adequate portfolio quality and liquidity. The income from the portfolio is transferred to the school endowment fund and distributed to Minnesota's public schools.

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

The stock segment is passively managed to track the performance of the S&P 500. The bond segment is actively managed to add incremental value through sector, security and yield curve decisions. The fixed income benchmark is the Bloomberg 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	$1,444,684,330	-10.0%	-0.3%	4.9%	5.2%	7.4%
CASH EQUIVALENTS	31,252,959	0.4	2.0	1.8	1.2	0.7
EQUITIES	669,985,078	-19.6	-6.9	5.1	6.7	10.5
FIXED INCOME	743,446,293	0.4	6.4	4.2	3.2	4.0
PERMANENT SCHOOL - COMP INDEX		-8.7	1.1	5.2	5.3	7.4
Excess		-1.3	-1.4	-0.3	-0.1	0.0
S&P 500		-19.6	-7.0	5.1	6.7	10.5
BBG BARC US Agg		3.1	8.9	4.8	3.4	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.

STATE STREET

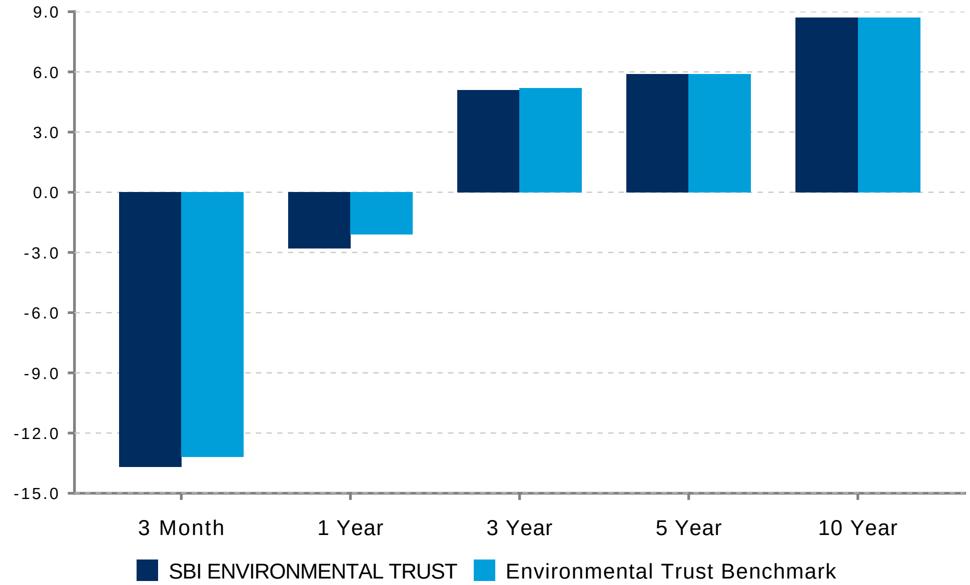
Non-Retirement

Environmental Trust Fund

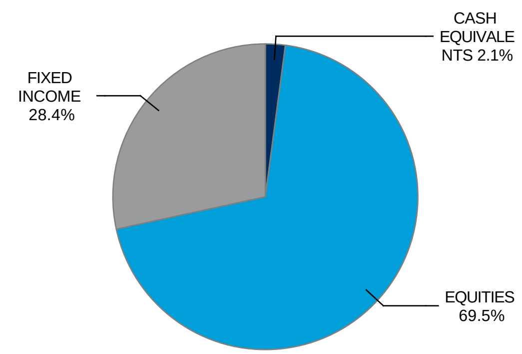
The objective of the Environmental Trust Fund is to increase the market value of the Fund over time in order to increase the annual amount made available for spending within the constraints of maintaining adequate portfolio quality and liquidity.

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

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



	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
SBI ENVIRONMENTAL TRUST	$1,119,138,301	-13.7%	-2.8%	5.1%	5.9%	8.7%
CASH EQUIVALENTS	23,447,922	0.4	2.0	1.8	1.2	0.7
EQUITIES	777,383,120	-19.6	-6.9	5.1	6.7	10.5
FIXED INCOME	318,307,259	0.4	6.4	4.2	3.2	4.0
Environmental Trust Benchmark		-13.2	-2.1	5.2	5.9	8.7
Excess		-0.6	-0.6	-0.2	-0.0	0.0
S&P 500		-19.6	-7.0	5.1	6.7	10.5
BBG BARC US Agg		3.1	8.9	4.8	3.4	3.9



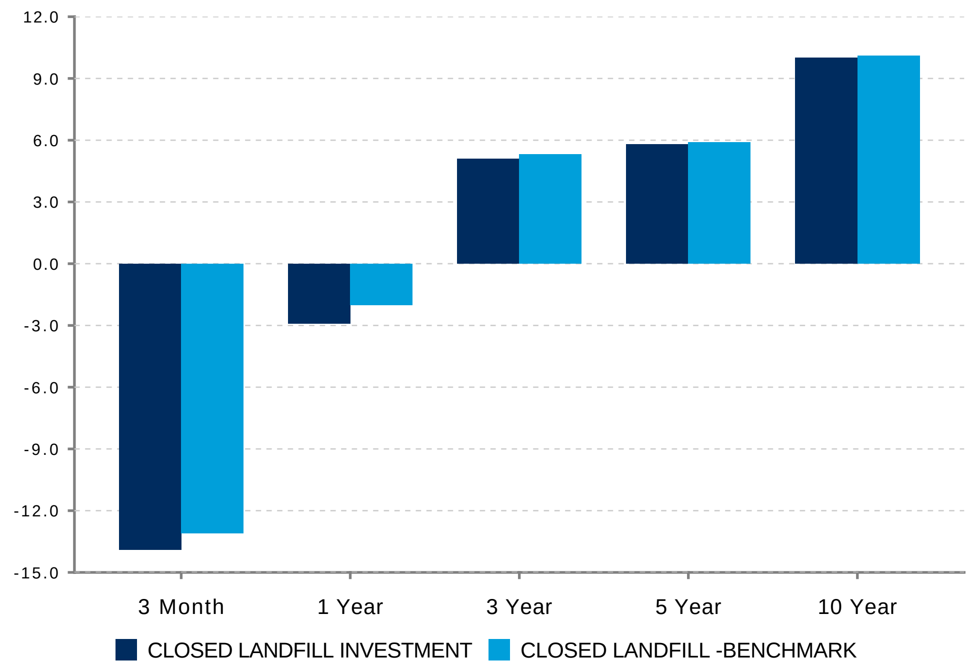
Note: Since 12/1/2017 the equity segment has been managed by Mellon and the fixed income segment by Prudential. Prior to 12/1/2017 both segments were managed internally by SBI staff. From 7/1/94 to 7/1/99, the Fund's target allocation and benchmark was 50% fixed income and 50% stock. Prior to 7/1/94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

Non-Retirement

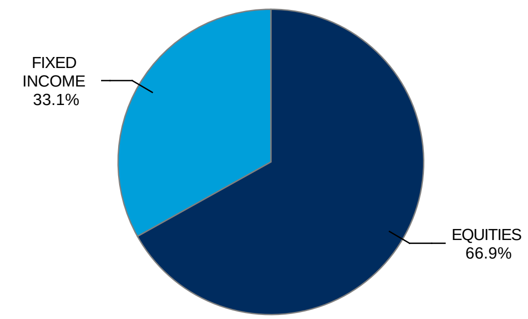
Closed Landfill Investment Fund

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	$89,519,306	-13.9%	-2.9%	5.1%	5.8%	10.0%
EQUITIES	59,907,177	-19.6	-6.9	5.1	6.7	10.5
FIXED INCOME	29,612,129	0.4	6.4	4.2	3.2	
CLOSED LANDFILL -BENCHMARK		-13.1	-2.0	5.3	5.9	10.1
Excess		-0.8	-0.9	-0.2	-0.1	-0.0
S&P 500		-19.6	-7.0	5.1	6.7	10.5
BBG BARC US Agg		3.1	8.9	4.8	3.4	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.

	Ending Market Value	Last Qtr	Fiscal YTD	1 Year	3 Year	5 Year	10 Year	Since Inception	Inception Date
NON RETIREMENT EQUITY INDEX - MELLON	**2,130,255,437**	**-19.6**	**-10.8**	**-7.0**	**5.1**	**6.7**	**10.5**	**8.9**	**07/1993**
S&P 500 INDEX (DAILY)		-19.6	-10.8	-7.0	5.1	6.7	10.5	8.9	07/1993
Excess		0.0	0.0	0.0	-0.0	0.0	-0.0	0.1	
NON RETIREMENT FIXED INCOME - PRUDENTIAL	**1,269,579,171**	**0.4**	**3.1**	**6.4**	**4.2**	**3.2**	**3.9**	**5.9**	**07/1994**
BBG BARC Agg (Dly)		3.1	5.7	8.9	4.8	3.4	3.9	5.6	07/1994
Excess		-2.8	-2.6	-2.6	-0.6	-0.1	0.1	0.4	
RBC	**238,097,537**	**5.1**	**6.5**	**8.9**	**4.2**	**2.8**	**3.1**	**5.0**	**07/1991**
RBC Custom Benchmark		5.2	6.4	8.9	4.1	2.8	2.8	5.1	07/1991
Excess		-0.0	0.0	-0.1	0.0	0.1	0.3	-0.1	
MET COUNCIL OPEB BOND POOL	68,443,440	2.5	3.8	5.6					02/2009
NON RETIREMENT CASH	**179,729,173**	**0.4**	**1.4**	**2.0**	**1.8**	**1.2**	**0.7**	**2.7**	
iMoneyNet Money Fund Average-All Taxable		0.3	1.1	1.6	1.4	0.9	0.4		
Excess		0.1	0.3	0.5	0.5	0.4	0.3		

Note:

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

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

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

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State Cash

March 31, 2020

State Cash Accounts

Invested Treasurer's Cash

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

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

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

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

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

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
Treasurer's Cash	12,332,652,537	0.4	2.2	1.9	1.4	1.0
iMoneyNet Money Fund Average-All Taxable		0.3	1.6	1.4	0.9	0.4

Other State Cash Accounts

Due to differing investment objectives, strategies, and time horizons, some State agencies' accounts are invested seperately. 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.

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
Debt Service	77,135,525	0.8	3.9	3.2	2.7	
Housing Finance	69,783,488	0.8	1.4	1.6	1.4	
Public Facilities Authority	10,063,115	-0.3	1.6	1.9	1.9	

Addendum

Benchmark Definitions

Active Domestic Equity Benchmark:

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

Benchmark DM:

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

Benchmark EM:

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

Combined Funds Composite Index:

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

Core Bonds Benchmark:

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

Domestic Equity Benchmark:

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

Addendum

Fixed Interest Blended Benchmark:

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

International Equity Benchmark:

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

Passive Domestic Equity Benchmark:

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

Passive Manager Benchmark:

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

Public Equity Benchmark:

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

Semi-Passive Domestic Equity Benchmark:

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

Total Fixed Income Benchmark:

Since 4/1/2019 equals 50% Bloomberg Barclays Agg and 50% Bloomberg Barclays Treasury 5+ Years Index. From 2/1/2018-3/31/19 the weighting of this benchmark reflected the relative weights of the Core Bonds and Treasuries allocations in the Combined Funds Composite.

STATE STREET