

**AGENDA**  
**INVESTMENT ADVISORY COUNCIL MEETING**  
**Monday, August 13, 2018**  
**12:00 P.M.**  
**State Board of Investment**  
**Retirement Systems Building**  
**Room 106 – Main Floor**  
**60 Empire Drive, St. Paul, MN**

- |  |            |
|--|------------|
| <b>1. Approval of Minutes of May 14, 2018</b>  | <b>TAB</b> |
| <br><b>2. Report from the Executive Director</b>                                       |            |
| A. Quarterly Performance Summary<br>(April 1, 2018 – June 30, 2018)                    | <b>A</b>   |
| B. Administrative Report   | <b>B</b>   |
| 1. Reports on Budget and Travel  |            |
| 2. Sudan Update  |            |
| 3. Iran Update   |            |
| 4. Litigation Update   |            |
| C. Investment Programs Report  |            |
| 1. Modification of Public Equity Asset Class Targets                                   | <b>C</b>   |
| 2. Participant Directed Investment Program (PDIP)                                      | <b>D</b>   |
| <br><b>INVESTMENT ADVISORY COUNCIL REPORT</b>  |            |
| <b>3. Private Markets Program</b>  | <b>E</b>   |
| <b>4. Public Markets, Non-Retirement, and Participant Directed Investment Programs</b> | <b>F</b>   |
| <br><b>REPORTS</b>   |            |
| <b>5. AON Market Environment Report</b>  | <b>G</b>   |
| <b>6. PCA Investment Market Risk Metrics</b>   | <b>H</b>   |
| <b>7. Comprehensive Performance Report</b>   | <b>I</b>   |
| <b>8. Other Items</b>  |            |

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**INVESTMENT ADVISORY COUNCIL**

**MINUTES**

**August 13, 2018**

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**Minutes  
Investment Advisory Council  
May 14, 2018**

The Investment Advisory Council (IAC) met at 12:00 P.M. on Monday, May 14, 2018 in the Retirement Systems Building, Room 106 – Main Floor, 60 Empire Drive, St. Paul, Minnesota.

**MEMBERS PRESENT:** Denise Anderson, Doug Anderson, Dennis Duerst, Kim Faust, Wei Huang, Erin Leonard, Gary Martin, Malcolm McDonald, Carol Peterfeso and Shawn Wischmeier.

**MEMBERS ABSENT:** Kerry Brick, Susanna Gibbons, Morris Goodwin Jr., Jennifer Hassemer (for Myron Frans) and Jay Stoffel.

**SBI STAFF:** Mansco Perry, LeaAnn Stagg, Patricia Ammann, Paul Anderson, Shirley Baribeau, Nate Blumenshine, Cassie Boll, Tammy Brusehaver, Stephanie Gleeson, Aaron Griga, Andrew Krech, Steve Kuettel, Mike Menssen, Jonathan Stacy, Charlene Olson and Melissa Mader.

**OTHERS ATTENDING:** Kristen Doyle, AON Hewitt Investment Consulting, Inc.; Neil Rue and John Burns, Pension Consulting Alliance; Ramona Advani, State Auditor's Office; Bert Black, Secretary of State's Office; Christie Eller and J. Adam Sorenson, Attorney General's Office; Stephanie Oliver and Maud Arend, Minnesota State Retirement System; Rick Baert, Pensions & Investments.

The minutes of the February 12, 2018 meeting were approved.

Mr. Martin turned member's attention to Tab E, Proposed Private Markets Commitments. Mr. Krech and his team appeared before the members. The one proposed real estate investment and seven proposed private market investments were listed in the report, all of which are with existing managers: AG Realty X & AG Asia Realty IV (Real Estate), Brookfield Capital Partners V (Private Equity), China-U.S. Industrial Partnership (Private Equity), Goldner Hawn Fund VII (Private Equity), Paine Schwartz Food Chain V (Private Equity), Thoma Bravo Fund XIII (Private Equity), Warburg Pincus Global Growth (Private Equity) and WCAS XIII (Private Equity). Mr. Krech and the team briefly summarized the recommendations and responded to questions from committee members. After discussion, Ms. Faust moved approval of the eight recommendations and Mr. McDonald seconded the motion. The motion passed unanimously.

Mr. Perry referred members to a proposed investment in BlackRock's Long Term Private Capital Fund, details of which were handed out at the meeting. According to Mr. Perry, the fund will invest in both public and private entities, but would act as a passive investor. Mr. Krech went on to explain that the opportunity set of the fund will include private or family-held companies and publicly-traded companies that desire to go private or have a private partner, but which are not good candidates for the traditional buy-out approach. The traditional buy-out approach uses a

significant amount of leverage on a company in order to generate a 20%-plus rate of return in a three-to-five year time period. Investments for BlackRock's Long Term Private Capital Fund would generally target larger, more mature firms with a lower risk and return profile. BlackRock's fund would also generally target investments with a longer holding period of up to twelve years. Mr. Krech indicated that the approach BlackRock is proposing can avoid some of the pitfalls of traditional private equity investments, where excess leverage can be applied to business models that can't support it, and where frictional costs can accrue to the plan sponsor from a company being sold successively from one buyout manager to another over time.

Mr. Krech went on to explain that relative to other providers of this type of longer-term investment vehicle, BlackRock has certain advantages. Among these advantages is the fact that the firm does not invest in traditional private equity and, therefore, would not have conflicts in determining what deals to allocate to which fund. In addition, while traditional buy-out funds base their fees on a relatively high management fee and carried interest, BlackRock is proposing budgeted fees and expenses to be approved by a Board of Advisors in which the largest investors would participate. Mr. Krech noted that BlackRock's core public equity and fixed income business may provide them with an information advantage relative to traditional buy-out firms. He also noted that BlackRock's reputation as an arm's length financial investor, rather than an operationally focused buy-out firm, could make them an attractive capital partner for a closely held or family owned business. Lastly, Mr. Perry explained certain operational details about the fund and noted that these details were still being negotiated and finalized. Mr. Perry responded to member's questions and indicated that the SBI was considering a commitment of one to two billion dollars to this investment. Mr. McDonald moved approval of the recommendation and Mr. Wischmeier seconded the motion. The motion passed unanimously.

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

Mr. Perry referred members to Tab A of the meeting materials. Mr. Perry reported that the Combined Funds had outperformed its Composite Index over the ten-year period ending March 31, 2018 (Combined Funds 7.6% vs. Combined Funds-Composite Index 7.2%) and had provided a real rate of return of 4.6% above inflation over the latest 20 year period (Combined Funds 6.8% vs. CPI 2.2%).

Mr. Perry stated that assets declined over the quarter as benefit payment outflows outweighed investment earnings (Combined Funds ending value of \$67.8 versus a beginning value of \$68.4 billion). The Combined Funds outperformed the benchmark for the quarter (Combined Funds 0.1% vs. Combined Funds-Composite Index -0.2%) and was ahead of the benchmark for the year (Combined Funds 12.7% vs. Combined Funds-Composite Index 12.0%). The Combined Funds matched the benchmark over the three-year period and outperformed in all other time periods reported.

Mr. Perry reported that the asset mix is pretty much on target. He also pointed out that the transfer of assets to the U.S. Treasury portfolio in the Protection category had been completed. He then reported that the combined public equity performance outperformed the benchmark during the quarter (Public Equity -0.6% vs. Public Equity Benchmark -0.8%). Breaking it down between domestic and international equities, Mr. Perry said that the domestic equity manager group outperformed its benchmark for the quarter (Domestic Equity -0.3% vs. Domestic Equity Benchmark -0.6%), outperformed for the year (Domestic Equity 14.3% vs. Domestic Equity Benchmark 13.8%) and underperformed or matched the benchmark performance over all other

time periods. He stated that the international equity manager group matched its target for the quarter (International Equity -1.2% vs. International Equity Benchmark -1.2%), outperformed for the year (International Equity 17.4% vs. International Equity Benchmark 16.5%) and outperformed over all remaining time periods shown. Mr. Perry indicated that the fixed income segment outperformed its benchmark for the quarter (Fixed Income -1.4% vs. Fixed Income Benchmark -1.5%) and the year (Fixed Income 1.7% vs. Fixed Income Benchmark 1.2%) and over all other time periods reported. He stated that the private market investments contributed to performance for the quarter and the year (Total Private Markets return of 4.6% and 17.7%, respectively) and also over the longer time periods. He concluded his report noting that, as of March 31, 2018, the SBI was responsible for managing approximately \$93.5 billion of assets.

Mr. Perry referred members to Tab B of the meeting materials for the Administrative Report. Mr. Perry noted that the SBI was running under its Administrative budget on fiscal year-to-date basis. Turning to the summary page of legislation impacting the SBI, included as Attachment C, Mr. Perry stated that while the Pension Bill had passed the Senate, it was not yet through the House. Mr. Perry noted that while the SBI had not proposed any legislation this session, the SBI had been referenced in a number of other bills, including the Supplemental Budget Bill which again, as in last year's proposal, tried to take away the SBI's MNIT exemption. The SBI awaits disposition of all legislation listed. Mr. Perry referred members to Attachment D containing a modification to the SBI Investment Belief Statement. The modification broadens the scope of the beliefs from a narrow focus on the Combined Funds to, where applicable, all investment programs run by the SBI. Mr. Wischmeier moved approval of the recommendation and Ms. Faust seconded the motion. The motion passed unanimously. Lastly, Mr. Perry indicated that Attachments E and F included the Iran and Sudan updates. He also stated that the SBI was not currently involved in any litigation.

Mr. Perry referred members to Tab C and reviewed its summary of other updates to the investment program. These updates included a transition in January 2018 of \$3 billion to fund the Protection category. Two transitions in March 2018, \$1.4 billion from developed international equity and \$1.7 billion from core fixed income, provided additional funding to the Protection category. Also, emerging markets equity was reduced by \$450 million to raise cash for benefit payments. Finally, domestic equity small-cap was reduced by \$300 million and reallocated to domestic equity large-cap to more appropriately align the domestic equity portfolio. Mr. Perry pointed out that these transitions resulted in the termination of three managers: McKinley Capital Management, LLC (domestic equity small-cap growth), Fidelity Institutional Asset Management LLC (international equity semi-passive), and State Street Global Advisors (international equity semi-passive). Mr. Perry noted that Attachment A included the fund's weights versus policy ranges of the Strategic Allocation Category Framework and Attachment B included the calculation of the volatility-weighted benchmark.

Mr. Perry referred members to Tab D which included a summary of the Administrative Committee meeting that took place on April 6, 2018. Mr. Perry noted that the SBI's proposed Management and Budget Plan was discussed and approved. He mentioned the review of the Participant Directed Investment Program as well as the RFP for a Private Markets Consultant(s). Mr. Perry also noted that the budget now included some items previously paid for through directed commissions. He asked for the committee's endorsement of the Management and Budget Plan. Mr. McDonald moved approval of the recommendation and Mr. Anderson seconded the motion. The motion passed unanimously.

Mr. Perry indicated that the report regarding Public Markets, Non-Retirement and Participant Directed Investment Programs was included in Tab F.

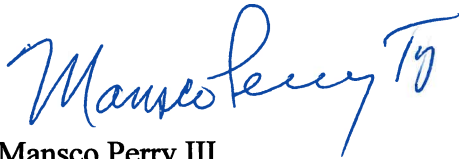
Mr. Perry noted that Tab G contained a Market Environment report prepared by AON.

Mr. Perry noted that Tab H contained an Investment Market Risk Metrics report prepared by PCA.

Lastly, Mr. Perry noted that Tab I contained the fund's Comprehensive Performance Report.

After comments by the fund's consultants, the meeting adjourned at 2:00 p.m.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "Mansco Perry III". The signature is fluid and cursive, with a stylized "T" at the end.

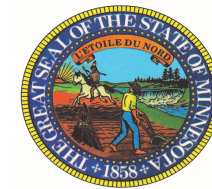
Mansco Perry III  
Executive Director and  
Chief Investment Officer



TAB

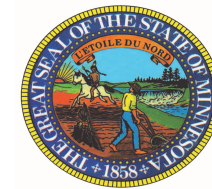
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# Performance Summary

## June 30, 2018



## Description of SBI Investment Programs

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

### Combined Funds

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

### Participant Directed Investment Program

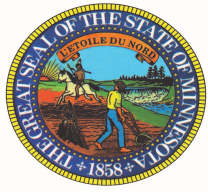
The Participant Directed Investment Program (PDIP) provides investment vehicles for a variety of retirement or other tax-advantaged savings plans. Investment goals among the PDIP's many participants are varied. In order to meet the variety of goals, participants may allocate their investments among one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

### Non-Retirement

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

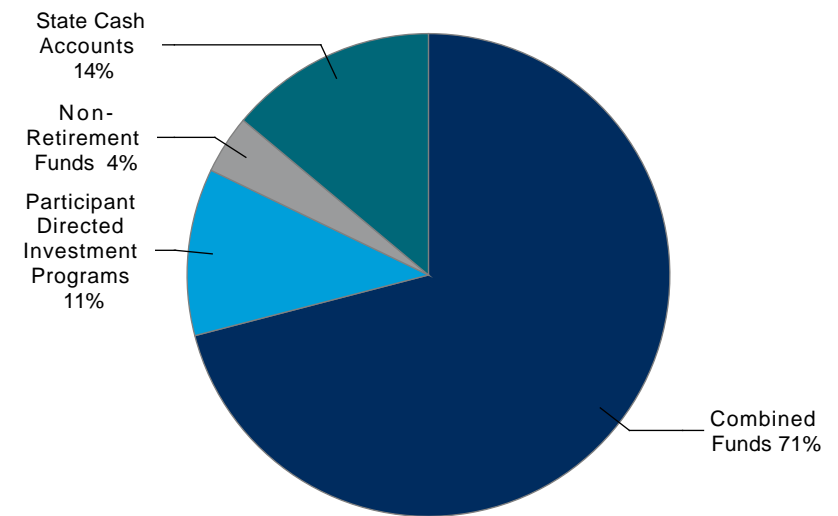
### State Cash

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



## Funds Under Management

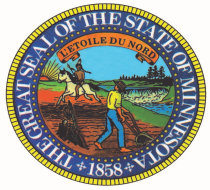
	<u>\$ Millions</u>
<b>COMBINED FUNDS</b>	
Combined Funds	\$68,288
<b>PARTICIPANT DIRECTED INVESTMENT PROGRAMS</b>	
Supplemental Investment Fund*	3,731
State Deferred Compensation Plan**	5,612
Minnesota College Savings Plan	1,422
Achieve a Better Life Experience	3
<b>NON-RETIREMENT FUNDS</b>	
Assigned Risk Account	319
Permanent School Fund	1,391
Environmental Trust Fund	1,116
Closed Landfill Investment Fund	89
Miscellaneous Trust	233
Other Post Employment Benefits	636
<b>STATE CASH ACCOUNTS</b>	
Treasurer's Cash	13,124
Other State Cash Accounts	277
<b>TOTAL</b>	
SBI AUM	96,242



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

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

Note: Differentials within column amounts may occur due to rounding

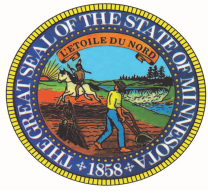


## Combined Funds Long Term Objectives

		<u>Comparison to Objective</u>
		<u>10 Year</u>
<b>Match or Exceed Composite Index (10 yr.)</b>	COMBINED FUNDS	7.8%
Outperform a composite market index weighted in a manner that reflects the long-term asset allocation of the Combined Funds over the latest 10 year period.	COMBINED FUNDS - COMPOSITE INDEX	7.4
	Excess	0.4
		 <u>20 Year</u>
<b>Provide Real Return (20 yr.)</b>	COMBINED FUNDS	6.8%
Provide returns that are 3-5 percentage points greater than inflation over the latest 20 year period.	CPI-U	2.2
	Excess	4.6

**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)

	<u>One Quarter</u>
COMBINED FUNDS	
Beginning Market Value	\$67,819
Net Contributions	-567
Investment Return	1,037
Ending Market Value	68,288

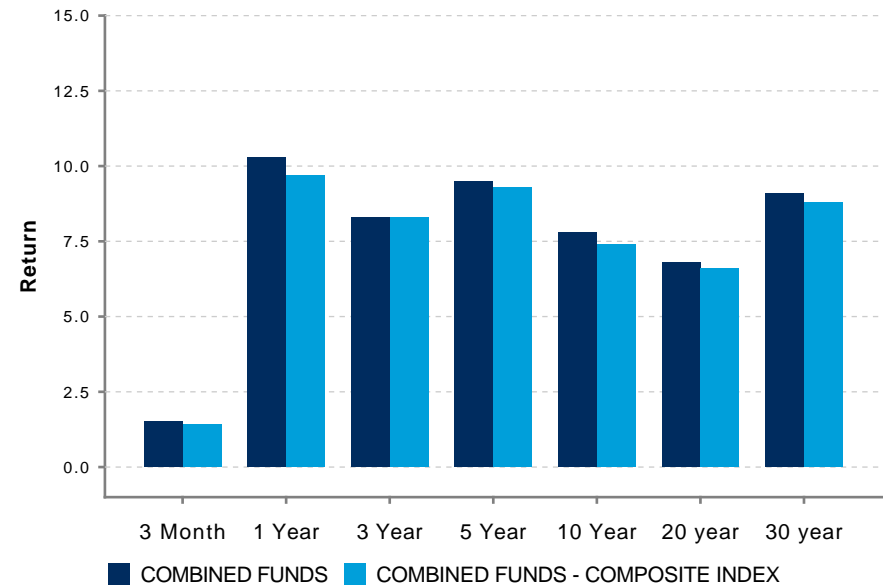
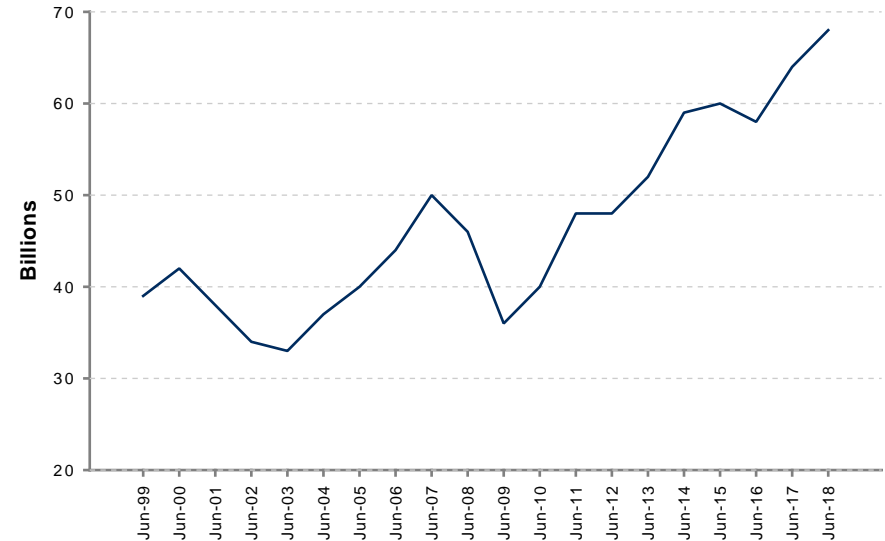
The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

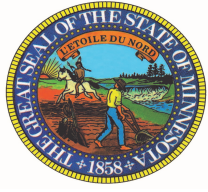
### Performance (Net of Fees)

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

	<u>Qtr</u>	<u>FYTD</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>	<u>20 Yr</u>	<u>30 Yr</u>
COMBINED FUNDS	1.5%	10.3%	10.3%	8.3%	9.5%	7.8%	6.8%	9.1%
COMBINED FUNDS - COMPOSITE INDEX	1.4	9.7	9.7	8.3	9.3	7.4	6.6	8.8
Excess	0.2	0.6	0.6	0.0	0.2	0.4	0.1	0.3

### Asset Growth



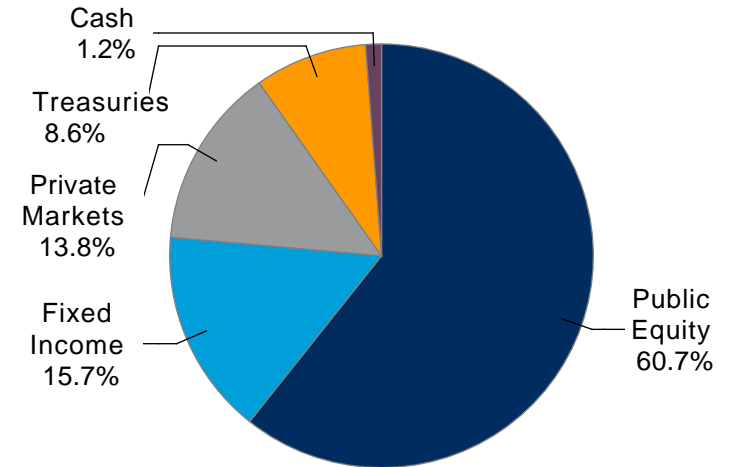


## Combined Funds Summary

### Asset Mix

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

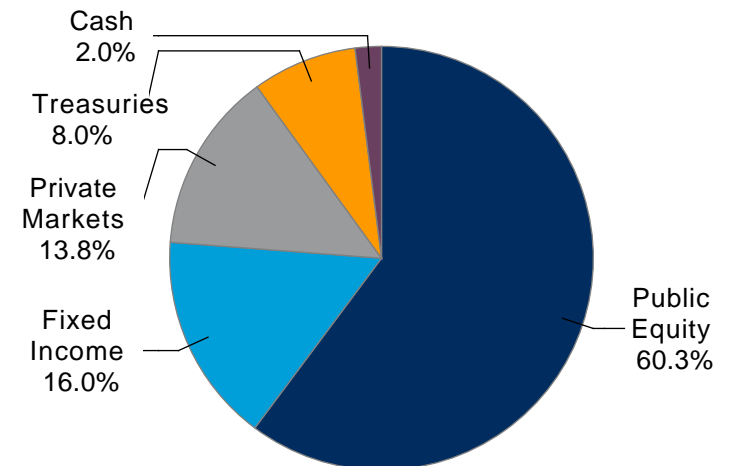
	<u>(Millions)</u>	<u>Actual Mix</u>	<u>Policy Target</u>
Public Equity	\$41,430	60.7%	49.0%
Fixed Income	10,695	15.7%	16.0%
Private Markets	9,432	13.8%	25.0%
Treasuries	5,880	8.6%	8.0%
Cash	851	1.2%	2.0%
<b>TOTAL</b>	<b>68,288</b>	<b>100.0</b>	



### Composite Index Comparison

The Combined Funds Composite is set as the Strategic Asset Allocation Policy Target with the uninvested portion of Private Markets allocated to Public Equity. Asset class weights for Public Equity and Private Markets are reset at the start of each month. The Combined Funds Composite weighting shown below is as of the first day of the quarter.

	<u>Policy Weight</u>	<u>Market Index</u>
Public Equity	60.3%	67% Russell 3000/33% MSCI ACWI ex US
Fixed Income	16.0	BB Barclays U.S. Aggregate
Private Markets	13.8	Private Markets
Treasuries	8.0	BB Barclays Treasury 5+ Years
Cash	2.0	3 Month T-Bills







## Combined Funds Asset Class Performance Summary

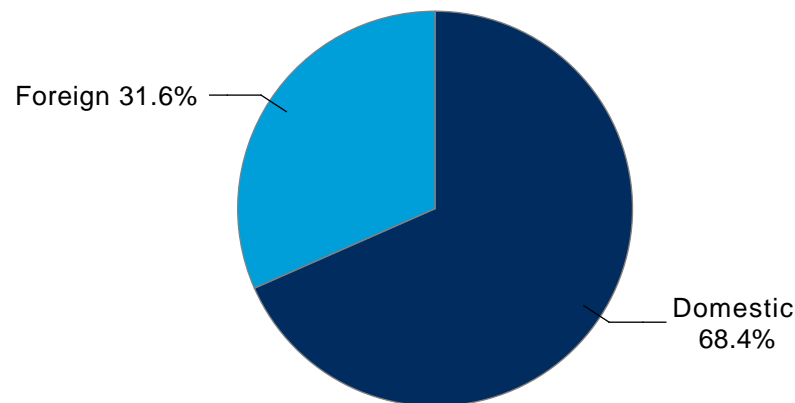
### Public Equity

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

The Public Equity benchmark is 67% Russell 3000 and 33% MSCI ACWI ex USA.

The Russell 3000 measures the performance of the 3000 largest U.S. companies based on total market capitalization.

The Morgan Stanley Capital International All Country World Index ex U.S. (net) is a free float-adjusted market capitalization index that is designed to measure equity market performance in developed and emerging markets other than the United States.



	<u>Last Qtr</u>	<u>FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>20 Year</u>	<u>30 year</u>
Public Equity	2.0%	12.8%	12.8%	9.7%	11.5%	8.4%	6.2%	9.5%
Public Equity Benchmark	1.7	12.3	12.3					
Excess	0.3	0.5	0.5					
Domestic Equity	4.2	15.4	15.4	11.3	13.3	10.2	6.5	9.9
Domestic Equity Benchmark	3.9	14.8	14.8	11.6	13.3	10.2	6.6	10.1
Excess	0.3	0.7	0.7	-0.3	0.0	-0.0	-0.2	-0.2
International Equity	-2.4	7.5	7.5	5.3	6.4	3.0	5.2	
International Equity Benchmark	-2.6	7.3	7.3	5.1	6.0	2.5	4.9	
Excess	0.2	0.2	0.2	0.2	0.4	0.5	0.3	

Note:

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



## Combined Funds Asset Class Performance Summary

### Fixed Income

The Combined Funds Fixed Income performance is shown here.

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

	<u>Last Qtr</u>	<u>FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>20 Year</u>	<u>30 year</u>
Fixed Income	0.0%	0.1%	0.1%	2.3%	2.8%	4.4%	5.0%	6.5%
Fixed Income Benchmark	-0.2	-0.4	-0.4	1.7	2.3	3.7	4.7	6.1
Excess	0.2	0.5	0.5	0.5	0.5	0.7	0.3	0.3

### Treasuries

The Combined Funds Treasuries performance is shown here. The Treasuries benchmark is the Bloomberg Barclays Treasury 5+ Years Index.

	<u>Last Qtr</u>	<u>FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>20 Year</u>	<u>30 year</u>
Treasuries	0.0%							
BBG BARC 5Y + Us Tsy Idx	0.1							
Excess	-0.1							

### Cash

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

	<u>Last Qtr</u>	<u>FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>20 Year</u>	<u>30 year</u>
Cash	0.5%	1.4%	1.4%	0.9%	0.6%	0.7%	2.5%	4.0%
90 DAY T-BILL	0.5	1.4	1.4	0.7	0.4	0.4	2.0	3.2

Note:

For additional information regarding historical asset class performance and benchmarks, please refer to the Combined Funds Performance Report.



## Combined Funds Asset Class Performance Summary

### Private Markets

	<u>Last Qtr</u>	<u>FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>20 Year</u>	<u>25 year</u>	<u>30 year</u>
Private Markets	2.4%	14.8%	14.8%	11.3%	12.0%	9.2%	12.1%	13.4%	12.2%
Private Equity	2.5%	19.7%	19.7%	15.1%	15.5%	11.7%	12.7%	15.3%	
Private Credit	4.3	12.0	12.0	14.2	14.4	11.2	13.0		
Resources	0.7	4.3	4.3	-0.3	0.9	4.9	13.8	14.7	
Real Estate	2.7	12.1	12.1	9.4	13.1	4.8	8.7	9.1	

### Private Markets

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

### **Private Equity Investments**

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

### **Private Credit Investments**

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

### **Resource Investments**

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

### **Real Estate Investments**

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

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

## SBI Combined Funds Strategic Allocation Category Framework

	<u>6/30/18 \$</u>	<u>6/30/18 Weights</u>	<u>Category Ranges</u>	
<b><u>Growth - Appreciation</u></b>				
Public Equity	\$ 41,429,613,107	60.7%		
Private Equity	\$ 4,793,444,858	7.0%		
Non-Core Real Assets	\$ 2,217,792,033	3.2%		
Distressed/Opportunistic	\$ 1,177,175,565	1.7%		
	<b>\$ 49,618,025,563</b>	<b>72.7%</b>	50%	75%
<b><u>Growth - Income-oriented</u></b>				
Core Fixed Income	\$ 10,695,312,701	15.7%		
Private Credit	\$ 540,924,098	0.8%		
Return-Seeking Fixed Income	\$ -	0.0%		
	<b>\$ 11,236,236,799</b>	<b>16.5%</b>	15%	30%
<b><u>Real Assets</u></b>				
Core Real Estate	\$ -	0.0%		
Real Assets	\$ 658,953,148	1.0%		
	<b>\$ 658,953,148</b>	<b>1.0%</b>	0%	10%
<b><u>Inflation Protection</u></b>				
TIPS	\$ -	0.0%		
Commodities	\$ -	0.0%		
	<b>\$ -</b>	<b>0.0%</b>	0%	10%
<b><u>Protection</u></b>				
U.S. Treasuries	\$ 5,880,054,748	8.6%		
	<b>\$ 5,880,054,748</b>	<b>8.6%</b>	5%	20%
<b><u>Liquidity</u></b>				
Cash	\$ 895,002,537	1.3%		
	<b>\$ 895,002,537</b>	<b>1.3%</b>	0%	5%
<b>Total</b>	<b>\$ 68,288,272,795</b>	<b>100.0%</b>		
<b>Illiquid Asset Exposure</b>	<b>\$ 9,388,289,702</b>	<b>13.7%</b>	0%	30%

## Volatility Equivalent Benchmark Comparison

Periods Ending 6/30/2018

As of (Date):	6/30/2018							
	1-year	3-year	5-year	10-year	15-year	20-year	25-year	30-year
<b>SBI Combined Funds Return</b>	10.3%	8.3%	9.5%	7.8%	8.6%	6.8%	8.4%	9.1%
<b>Volatility Equivalent Benchmark Return</b>	6.3%	5.8%	6.7%	5.2%	6.6%	5.4%	6.6%	7.6%
<b>Value Added</b>	4.0%	2.5%	2.8%	2.6%	2.0%	1.3%	1.8%	1.5%
<b>Standard Deviation: Benchmark = Combined Funds</b>			6.2%	9.5%	8.7%	9.6%	9.2%	9.1%
<b>Benchmark Stock Weight</b>	61%	61%	61%	57%	58%	62%	62%	61%
<b>Benchmark Bond Weight</b>	39%	39%	39%	43%	42%	38%	38%	39%

The Volatility Equivalent Benchmark stock and bond weights are adjusted to equal the standard deviation of the SBI Combined Funds portfolio. Then a return is calculated.

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At the time this book was assembled, the TUCs report was not available. It will be passed out at the meeting.

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

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DATE: August 6, 2018

TO: Members, State Board of Investment

FROM: **Mansco Perry III**

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

A report on the SBI's administrative budget for the fiscal year to date through June 30, 2018 is included as **Attachment A**.

A report on travel for the period from April 1, 2018 – June 30, 2018 is included as **Attachment B**.

### **2. Sudan Update**

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

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

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

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

In the second quarter, no shares have been sold as a result of divestment.

On June 26, 2018, 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.

### **3. Iran Update**

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

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

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

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

In the second quarter, SBI managers sold 533,452 shares in four companies on the divestment list.

On June 28, 2018, 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.

### **4. 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 2018 ADMINISTRATIVE BUDGET REPORT  
FISCAL YEAR TO DATE THROUGH JUNE 30, 2018**

<b>ITEM</b>	<b>FISCAL YEAR 2018 BUDGET</b>	<b>FISCAL YEAR 2018 6/30/2018</b>
<b>PERSONNEL SERVICES</b>		
FULL TIME EMPLOYEES	\$ 4,827,900	\$ 3,966,676
PART TIME EMPLOYEES	0	0
MISCELLANEOUS PAYROLL	100,000	2,240
<b>SUBTOTAL</b>	<b>\$ 4,927,900</b>	<b>\$ 3,968,916</b>
<b>STATE OPERATIONS</b>		
RENTS & LEASES	285,000	280,205
REPAIRS/ALTERATIONS/MAINTENANCE	14,000	6,680
PRINTING & BINDING	9,000	8,482
PROFESSIONAL/TECHNICAL SERVICES	175,000	25,440
COMPUTER SYSTEMS SERVICES	83,000	26,678
COMMUNICATIONS	36,000	27,519
TRAVEL, IN-STATE	1,000	160
TRAVEL, OUT-STATE	125,000	88,194
SUPPLIES	28,000	21,965
EQUIPMENT	25,000	25,002
EMPLOYEE DEVELOPMENT	105,000	101,336
OTHER OPERATING COSTS	140,000	121,989
INDIRECT COSTS	250,000	203,194
<b>SUBTOTAL</b>	<b>\$ 1,276,000</b>	<b>\$ 936,843</b>
<b>TOTAL ADMINISTRATIVE BUDGET</b>	<b>\$ 6,203,900</b>	<b>\$ 4,905,758</b>

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## ATTACHMENT B

### STATE BOARD OF INVESTMENT

#### Travel Summary by Date SBI Travel April 1, 2018 - June 30, 2018

<b>Purpose</b>	<b>Name(s)</b>	<b>Destination and Date</b>	<b>Total Cost</b>
<b>Manager Monitoring</b> <b>Private Markets Managers:</b> Merit Energy Annual Meeting, NGP	A. Krech	Dallas, TX 4/3-4/5	\$ 851.97
<b>Manager Monitoring</b> <b>Domestic Equity Manager:</b> Barrow Hanley <b>Manager Search</b> <b>Domestic Equity Manager:</b> Smith Group	T. Brusehaver	Dallas, TX 4/3-4/4	681.36
<b>Conference:</b> The Pension Bridge Annual Conference	M. Perry	San Francisco, CA 4/10-4/11	887.95
<b>Manager Monitoring</b> <b>Private Markets Manager:</b> Angelo, Gordon & Co. <b>Manager Search</b> <b>Private Markets Managers:</b> General Atlantic; Palladium Equity Partners	J. Stacy	New York, NY 4/16-4/19	1,594.15
<b>Manager Monitoring</b> <b>Domestic Equity Managers:</b> Hood River Capital Mgmt.; Hotchkis and Wiley Capital Mgmt.; Rice Hall James & Associates; Zevenbergen Capital Investments	T. Brusehaver	Pasadena, CA Los Angeles, CA Portland, OR Seattle, WA 4/16-4/20	1,524.81

# STATE BOARD OF INVESTMENT

## Travel Summary by Date SBI Travel April 1, 2018 - June 30, 2018

Purpose	Name(s)	Destination and Date	Total Cost
<b>Manager Monitoring</b> <b>Private Markets Managers:</b> Silver Lake Partners Annual Meeting; Hellman & Friedman <b>Fixed Income Manager:</b> Dodge & Cox	C. Boll	San Francisco, CA 4/23-4/25	\$ 680.35
<b>Manager Monitoring</b> <b>Private Markets Managers:</b> KKR Europe Diligence Day; Warburg Pincus Advisory Committee Meeting; Warburg Pincus Global Growth Fund Diligence Day	A. Krech	New York, NY 4/23-4/26	1,619.98
<b>Conference:</b> National Association of State Investment Professionals (NASIP)	J. Stacy	Denver, CO 4/23-4/26	2,075.50
<b>Manager Monitoring</b> <b>Domestic Equity Manager:</b> ArrowMark Colorado Holdings <b>Conference:</b> National Association of State Investment Professionals (NASIP)	M. Menssen	Denver, CO 4/23-4/26	1,764.53
<b>Manager Monitoring</b> <b>International Equity Manager:</b> Acadian Asset Mgmt. <b>Conference:</b> Institutional Investors Services (IIS) Client Advisory Council Meeting sponsored by State Street	L. Stagg	Boston, MA 4/24-4/26	598.19

# STATE BOARD OF INVESTMENT

## Travel Summary by Date SBI Travel April 1, 2018 - June 30, 2018

Purpose	Name(s)	Destination and Date	Total Cost
<b>Conference:</b> Institutional Investor Public Funds Roundtable	M. Perry	Los Angeles, CA 4/24-4/26	\$ 986.09
<b>Manager Monitoring</b> <b>Private Markets Managers:</b> Strategic Partners Fund Solutions Annual Meeting; Blackstone Capital Partners Annual Meeting	P. Ammann	Miami, FL 4/30-5/2	1,331.32
<b>Manager Monitoring</b> <b>Private Markets Managers:</b> BlackRock; Paine Schwartz Partners Annual Meeting; Oak Hill Partners Annual Meeting	A. Krech	New York, NY 5/1-5/2	1,206.37
<b>Conference:</b> Government Finance Officers Association (GFOA)	K. Anderson	St. Louis, MO 5/6-5/9	1,595.06
<b>Conference:</b> Government Finance Officers Association (GFOA)	W. Nicol	St. Louis, MO 5/6-5/9	1,699.42
<b>Manager Monitoring</b> <b>Private Markets Managers:</b> WCAS Annual Limited Partners Meeting; Wellspring Capital Management; Landmark Partners; Strategic Partners	P. Ammann	New York, NY 5/21-5/23	1,513.41

# STATE BOARD OF INVESTMENT

## Travel Summary by Date SBI Travel April 1, 2018 - June 30, 2018

Purpose	Name(s)	Destination and Date	Total Cost
<b>Manager Monitoring</b> <b>Emerging Markets Managers:</b> Macquarie Investment Mgmt. Advisers; Morgan Stanley Investment Mgmt Inc.; Neuberger Berman Investment Advisers; Pzena Investment Mgmt.; The Rock Creek Group <b>Manager Monitoring</b> <b>Fixed Income Managers:</b> BlackRock Financial Mgmt.; Goldman Sachs Asset Mgmt.	A. Griga	Boston, MA Newark, NJ New York, NY Washington, DC 5/21-5/25	\$ 1,997.36
<b>Manager Monitoring</b> <b>Private Markets Manager:</b> Hellman & Friedman <b>Manager Search</b> <b>Private Markets Manager:</b> Francisco Partners	A. Krech	San Francisco, CA 5/22-5/24	762.37
<b>Conference:</b> NRS Investment Adviser Compliance Symposium	I. Shafir	San Diego, CA 6/4-6/8	3,567.98
<b>Consultant Monitoring:</b> Aon Hewitt Investment Consulting Inc. <b>Conference:</b> Institutional Limited Partners Association (ILPA)	N. Blumenshine	Chicago, IL 6/5-6/7	1,652.39



# STATE BOARD OF INVESTMENT

## Travel Summary by Date SBI Travel April 1, 2018 - June 30, 2018

Purpose	Name(s)	Destination and Date	Total Cost
<b>Consultant Monitoring:</b> Aon Hewitt Investment Consulting Inc.	M. Menssen	Chicago, IL 6/18	\$ 437.38
<b>Consultant Monitoring:</b> Aon Hewitt Investment Consulting Inc.	L. Stagg	Chicago, IL 6/18	437.38
<b>Conference:</b> Level 1: Introduction to Private Equity sponsored by Institutional Limited Partners Association (ILPA)	N. Blumenshine	Chicago, IL 6/20-6/22	696.58
<b>Manager Monitoring</b> <b>International Equity Managers:</b> Martin Currie; Threadneedle; Fidelity; J.P. Morgan; Marathon <b>Consultant Monitoring:</b> Aon Hewitt Investment Consulting Inc. <b>Manager Search</b> <b>International Equity Managers:</b> Baille Gifford; Investec; Longview; Unigestion; Global Infrastructure Partners	T. Brusehaver	Edinburgh, Scotland London, England 6/22-6/30	4,267.20

# STATE BOARD OF INVESTMENT

## Travel Summary by Date SBI Travel April 1, 2018 - June 30, 2018

Purpose	Name(s)	Destination and Date	Total Cost
<b>Manager Monitoring</b> <b>International Equity Managers:</b> Martin Currie; Threadneedle; Fidelity; J.P. Morgan; Marathon <b>Consultant Monitoring:</b> Aon Hewitt Investment Consulting Inc. <b>Manager Search</b> <b>International Equity Managers:</b> Baille Gifford; Investec; Longview; Unigestion; Global Infrastructure Partners	L. Stagg	Edinburgh, Scotland London, England 6/22-6/30	\$ 4,505.00
<b>Manager Monitoring</b> <b>Private Markets Manager:</b> KKR <b>Conference:</b> KKR Americas Investors Meeting	A. Krech	Los Angeles, CA 6/25-6/27	1,095.27
<b>Conference:</b> National Association of Public Pension Attorneys (NAPPA)	A. Sorenson	Savannah, GA 6/26-6/29	1,645.97
<b>Conference:</b> National Association of Public Pension Attorneys (NAPPA)	J. Mulé	Savannah, GA 6/26-6/29	2,476.30

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## **EXECUTIVE DIRECTOR'S REPORT**

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DATE: August 6, 2018

TO: Members, Investment Advisory Council

FROM: Mansco Perry III

**SUBJECT: Modification of Public Equity Asset Class Targets**

Historically, the State Board of Investment has set broad market indices as the asset class target for each of its public equity components, the Russell 3000 for the domestic equity target and the MSCI ACWI ex USA index for the international equity target. However, in the management of these investment programs, the focus has primarily been on component parts of each target. While the Russell 3000 has been the domestic equity target, the program has focused on the Russell 1000 (large/mid-cap stocks) and the Russell 2000 (small-cap stocks) and their respective component parts (core, value and growth). In order to manage the equity programs to their respective targets, we are required to attempt to keep the components of each target in-line with the weightings each component represents in the target. However, each day the component weightings float, creating inherent misfit within the target. While the only approach one can deploy to eliminate the component weighting misfit is to passively manage a portfolio based on the target without recognition of the component parts, e.g., passively manage the domestic equity portfolio to the Russell 3000 and disregard the utilization of the Russell 1000 and 2000, and disregard any value and growth components. At this time, we have chosen not to 100% passively manage the domestic equity portfolio. We utilize active managers which requires us to manage and balance to at least four components within the Russell 3000. It is extremely difficult to keep the components in balance to the domestic equity target given our active management structure. (Some of you are probably thinking that I am leading up to a conclusion that we should discontinue the active management program. While there is some to desire to take that approach, that's not the objective here).

At this time to facilitate this process, the Executive Director is recommending that we modify our public equity benchmarks such that the benchmarks are based on static component weightings rather than the broad market indices. Utilizing this approach, the domestic equity benchmark would be a static weighted composite of the Russell 1000 and the Russell 2000 indices. The weighting of the two components could be set at the beginning of each year or we could assign weightings and make changes as deemed necessary, but at a time of no less than one year. My preference would be the latter.

Additionally, we would modify the international equity target to be a static weighted composite of the MSCI World ex USA Index and the MSCI Emerging Markets Index.

**RECOMMENDATION:**

**Staff is requesting that the Investment Advisory Council endorse the recommendation to modify the domestic equity from the Russell 3000 to a statically weighted composite of the Russell 1000 and the Russell 2000 and to modify the international equity target from the MSCI ACWI ex USA Index to a statically weighted composite of the MSCI World ex USA Index and the MSCI Emerging Markets Index.**

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## **EXECUTIVE DIRECTOR'S REPORT**

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DATE: August 6, 2018

TO: Members, Investment Advisory Council

FROM: Mansco Perry III

**SUBJECT: Participant Directed Investment Program (PDIP)**

The Minnesota State Retirement System (MSRS) administers four defined contribution retirement plans which are part of the State Board of Investment's (SBI) Participant Directed Investment Program (PDIP):

- Minnesota Deferred Compensation Program
- Unclassified Retirement Plan
- Health Care Savings Plan
- Hennepin County Supplemental Retirement Plan

The Deferred Compensation Plan currently offers a mutual fund investment platform. The remaining PDIP plans offer the SBI's Supplemental Investment Fund ("SIF") as an investment platform. Participants investing through the SIF may purchase units of pools containing assets invested in managers of the Combined Funds. While units purchased through the Supplemental Fund are separate from the Combined Funds, Combined Funds' asset allocation (i.e. active to passive) changes affect the assets comprising the pools through which participants purchase units for their PDIP plan accounts.

As a result of this issue, SBI staff reviewed the possibility of moving all PDIP plans to a mutual fund platform similar to the Deferred Compensation Program. SBI staff have determined that using a mutual fund platform will prevent any unintended impacts to PDIP investment options when the SBI makes changes to the Combined Funds' asset allocation. Staff also believe that offering a mutual fund platform for all MSRS PDIP plans will create operational efficiencies and enhance plan participant experience.

The attached charts illustrate the transition of current SIF investments to a mutual fund platform. While most investment options are the same as the Deferred Compensation Program, there are a few differences. PDIP plans currently using SIF investments will have access to the Vanguard Total Stock Market Index (an all-cap domestic equity fund) rather than the Vanguard Institutional Index Fund (which is managed against the S&P 500, representing the large-cap domestic equity space) currently offered in the Deferred Compensation Plan. Additionally, PDIP plans currently investing through the SIF will not have access to the Fidelity Diversified International Comingled Pool. The fees charged by Fidelity for the Hennepin County and Health Care Savings Plans would be significantly higher than for the Deferred Compensation Plan and all plans will have access to

the Vanguard Total International Stock Index fund. Finally, the Hennepin County and Health Care Savings Plans will not have access to the Target Date Funds due to their plan structures.

SBI Staff have worked with MSRS and Hennepin County to plan an investment transition. The MSRS Board supports these changes. The SBI will work with MSRS and the plan record keeper during the transition. SBI and MSRS staff estimate that the transition, along with required disclosures and participant education, will take six months.

A summary of the proposed changes in the investment offerings is presented in **Tables A and B**.

If the Board approves this recommendation, SBI staff will develop a plan to determine how best to provide investment offerings to the remaining SIF users.

**RECOMMENDATION:**

**Staff is requesting that the Investment Advisory Council concur with Staff's recommendation that the SBI authorize the Executive Director to transition the assets of the Unclassified Retirement Plan, the Health Care Savings Plan, and the Hennepin County Supplemental Retirement Plan as outlined in the summary provided in Table A and B.**

Staff is requesting approval of the investment mapping strategy outlined in **Table A** and approval of the investment line-ups outlined in **Table B**.

**Table A. Summary of Proposed Changes**

Current Investment Option	Proposed Replacement or New Investment Option	Explanation & Special Considerations
SIF Balanced Fund	Vanguard Balanced Index Fund- Institutional	Funds to map from SIF fund to the proposed fund which is also part of MNDCP
SIF US Stock Index Fund	Vanguard Total Stock Market Index- Institutional	Funds to map from SIF fund to the new proposed fund
SIF US Stock Actively Managed Fund		
SIF Bond Fund	Vanguard Total Bond Market Index Fund- Institutional	Funds to map from SIF fund to the proposed fund which is also part of MNDCP
SIF Broad International Stock Fund	Vanguard Total International Stock Index Fund	Funds to map from SIF fund to the proposed fund which is also part of MNDCP
SIF Stable Value	Stable Value Fund	Name change only will be same as MNDCP. Note: Option not available to Hennepin County Plan.
SIF Money Market	Money Market Fund	Name change only will be same as MNDCP
	Vanguard Dividend Growth Fund	Offered in MNDCP and will become a new offering in the other DC plans
	Dodge & Cox Income Fund	Offered in MNDCP and will become a new offering in the other DC plans
	T. Rowe Price Small Cap Fund	Offered in MNDCP and will become a new offering in the other DC plans
	Vanguard Mid Cap Index Fund	Offered in MNDCP and will become a new offering in the other DC plans

**Table B. Proposed Investment Option Summary, by Asset Class**

Asset Class	MNDCP	Unclassified Plan	HCSP	Hennepin County Plan
Small-Cap Domestic Equity	T. Rowe Price Small Cap Fund			
Mid-Cap Domestic Equity	Vanguard Mid Cap Index Fund			
Large-Cap Domestic Equity	Vanguard Institutional Index Fund			
	Vanguard Dividend Growth Fund			
All-Cap Domestic Equity		Vanguard Total Stock Market Index- Institutional		
International Equity	Fidelity Diversified International Comingled Pool*			
	Vanguard Total International Stock Index			
Balanced	Vanguard Balanced Index Fund			
Bond	Dodge & Cox Income Fund			
	Vanguard Total Bond Market Index Fund			
Stable Value	Stable Value Fund			
Money Market	Money Market Fund			
Target Date Allocation	Target Date Funds*			

\* Comingled Investment Trust (CIT) is only available for qualified plans; HCSP and Hennepin County are not considered qualified plans under Internal Revenue Code.

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DATE: August 6, 2018

TO: Members, Investment Advisory Council

FROM: SBI Staff

**SUBJECT: Private Markets Program**

Staff has provided a review of the following agenda item:

A. Status of SBI Current Private Markets Commitments

In the first two quarters of 2018, the SBI approved approximately \$2.6 billion and €150 million of new commitments. As of June 30, 2018, the SBI has a Private Markets portfolio of \$9.4 billion representing 13.8% of the total Combined Funds value. The SBI remains below its Private Markets market value target of 25%. In addition, the SBI has \$7.8 billion of unfunded commitments to Private Market investments that will be invested over time. Since 2014, distributions have outpaced capital calls despite significant new commitments made each year. It is the intention of SBI staff to be consistent with new commitments to Private Market vehicles across all vintages and through various market cycles.

**No IAC action is required on these items.**

## A. Status of SBI Current Private Markets Commitments

### Minnesota State Board of Investment

#### *Combined Funds*

*June 30, 2018*

Combined Funds Market Value \$68,288,272,795

Amount Available for Investment **\$6,753,346,428**

	Current Level	Target Level	Difference
Market Value (MV)	\$9,388,289,701	\$17,072,068,199	\$7,683,778,498
MV +Unfunded	\$17,147,549,050	\$23,900,895,478	\$6,753,346,428

Asset Class	Market Value	Unfunded Commitment	Total
Private Equity	\$4,793,444,858	\$4,421,980,125	\$9,215,424,983
Private Credit	\$540,924,098	\$887,365,424	\$1,428,289,522
Real Assets	\$2,179,152,859	\$915,314,632	\$3,094,467,491
Real Estate	\$697,592,321	\$807,585,079	\$1,505,177,400
Distressed/Opportunistic	\$1,177,175,565	\$727,014,089	\$1,904,189,654
<b>Total</b>	<b>\$9,388,289,701</b>	<b>\$7,759,259,349</b>	<b>\$17,147,549,050</b>

#### *Cash Flows*

*June 30, 2018*

Calendar Year	Capital Calls	Distributions	Net Invested
2018 (thru June)	\$853,680,084	(\$862,904,974)	(\$9,224,890)
2017	\$2,021,595,780	(\$2,383,863,711)	(\$362,267,931)
2016	\$1,874,320,138	(\$1,728,367,357)	\$145,952,781
2015	\$1,541,161,769	(\$2,128,301,645)	(\$587,139,876)
2014	\$1,378,984,263	(\$2,133,698,037)	(\$754,713,774)



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DATE: August 6, 2018

TO: Members, Investment Advisory Council

FROM: 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:

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

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## **Review of SBI Public Markets Program Second Quarter 2018**

### **SBI Portfolio - Quarterly and Year Attribution**

In the second quarter, the SBI's Combined Funds portfolio slightly outperformed the composite benchmark return (1.5% Combined Funds versus 1.4% Composite Benchmark). Domestic equities exceeded the Russell 3000 Index return (4.2% Domestic Equity versus 3.9% Domestic Equity Benchmark), while international equities outperformed the MSCI ACWI ex USA Index (net) return (International Equity 2.4% versus 2.6% International Equity Benchmark). The core fixed income portfolio exceeded the Bloomberg Barclays U.S. Aggregate Index return (Fixed Income 0.1% versus 0.2% Fixed Income Benchmark), while the U.S. Treasury portfolio equaled the Bloomberg Barclays Treasury 5+ Year Index of 0.1%. Lastly, private markets contributed positively to absolute performance, returning 2.3%. For the quarter, domestic equity generated the largest contribution to the Combined Funds return. For the year ending June 30, domestic equity contributed 6.4 percentage points of the 10.3% net return, while alternatives contributed 2.0 percentage points of the total Combined Funds' return.

### **Domestic Equity**

The large-cap growth managers exceeded the Russell 1000 Growth benchmark by 5.8 percentage points for the quarter. Stock selection in Consumer Discretionary led the outperformance. All three managers outperformed for the quarter.

The large-cap value managers outperformed the Russell 1000 Value benchmark by 0.3 percentage points for the quarter. Overall stock selection led by the Energy sector helped the returns for the quarter. Barrow Hanley and Earnest Partners outperformed for the quarter.

The small-cap growth managers outperformed the Russell 2000 Growth benchmark by 0.5 percentage points for the quarter. Overall stock selection helped the quarterly returns. ArrowMark and Hood River outperformed for the quarter.

The small-cap value managers trailed the Russell 2000 Value benchmark by 2.1 percentage points for the quarter. Stock selection was negative for the quarter. Hotchkis and Wiley outperformed for the quarter.

For the quarter, the semi-passive managers returned 3.3%, underperforming the Russell 1000 index return of 3.6%. Stock selection overall contributed negatively, especially in the Consumer Discretionary, Producer Durables, and Materials & Processing sectors. The passive Russell 3000 and Russell 1000 index managers tracked their respective indices within expectation.

### **Developed International Equity**

The active developed markets managers outperformed the MSCI World ex USA Index (net) by 1.1 percentage points over the quarter. From a country perspective, stock selection within the United Kingdom and Australia contributed to the outperformance, which was partially offset by stock selection in Japan. Among the active developed managers, an underweight to the underperforming Automobile and Banking sectors led to positive allocation and selection effects versus the benchmark, largely explaining the outperformance for the second quarter.

AQR's portfolio with a return of -3.5% underperformed the MSCI World ex USA Index (net) return of -0.75% for the quarter. Stock selection in the Industrials, Consumer Discretionary, and Information Technology sectors as well as an underweight position in the Energy sector contributed negatively to performance. Both the passive developed markets manager and the passive emerging markets manager experienced positive tracking error that was within expectations relative to their respective indices.

### **Emerging Markets Equity**

The emerging markets equity program experienced a difficult quarter, returning -8.3% on an absolute basis. Emerging market currencies experienced outflows as most currencies depreciated against the U.S. dollar due to tighter Federal Reserve monetary policies (rising domestic interest rates) amid a strong U.S. economy. Cyclical sectors such as Industrials and Financials were the worst absolute performing sectors, while countries such as Brazil and Argentina declined due to both weak equity performance and foreign exchange exposure. On a relative basis, the active program underperformed its benchmark as the active emerging markets equity composite returned -8.4% versus MSCI Emerging Markets Index benchmark return of -8.0% for the quarter. Three managers in the active program underperformed while four managers outperformed. The overall emerging markets equity program, including passive, underperformed the benchmark by 0.3 percentage points over the same period. Stock selection in Taiwan and Brazil and an overweight allocation to Brazil detracted from returns which was, partially offset by an underweight to Hong Kong. Although SBI's exposure to Argentina declined 39% for the quarter, the negative effect was minimal as the active program holds only a 0.4% weight to this country. From a sector point of view, manager over-weights to the negatively performing Financials, Consumer Discretionary and Information Technology sectors weighed on returns, but was partially offset by stock selection within Energy, the sole positively performing sector.

### **Fixed Income – Core**

Two of the four active SBI's core fixed income managers supporting the fixed income pool outperformed the Bloomberg Barclays Aggregate benchmark this quarter, while two managers underperformed. In total, the active managers returned -0.11% vs. -0.16% for the benchmark. The three semi-passive managers' combined performance exceeded the benchmark (-0.08% Semi-Passive Core vs. -0.16% Bloomberg Barclays Aggregate). During the quarter, widening corporate spreads and overall higher rates were the largest contributors to the relative outperformance. Investment Grade corporate Option Adjusted Spreads (OAS) widened from 105 bps to 123 bps, detracting from the relative returns of managers who were overweight IG credit. Also, in response to FOMC rate increases, yields rose to a greater degree in the front-end of the curve (U.S. 2 year from 2.25% to 2.52% while 10yr from 2.74% to 2.86%), contributing to a curve flattening effect seen for the past several quarters. Managers with shorter overall duration positions outperformed managers with longer positions, while those anticipating the curve to flatten outperformed those anticipating a steepening of the curve. Security selection in ABS, CMBS and non-agency MBS were also positive contributors to relative performance, while investments in dollar denominated emerging market debt detracted from performance.

**Fixed Income – U.S. Treasury**

Since the completed funding of the U.S. Treasury portfolio in March 2018, the three managers responsible for the mandate (Goldman Sachs, BlackRock and Neuberger Berman) have performed in-line with the Bloomberg Barclays Treasury 5+ Years Index, with the composite and benchmark both returning 0.1% for the quarter. The managers' guidelines allow for modest levels of active risk in the form of duration, yield curve positioning and limited allocations to off-benchmark U.S. Agencies, Supranationals and Treasury Inflation Protected Securities (TIPS), however, we expect the overall risk profile of the U.S. Treasury portfolio to largely resemble the Bloomberg Barclays Treasury 5 + Years Index over time.

## **Public Markets Managers' Organizational Update Second Quarter 2018**

### **Developed International Equity Managers**

#### **Acadian Asset Management**

Wes Chan, SVP and Co-Director of Research, left Acadian at the end of May for personal reasons. This followed the loss in the first quarter 2018 of the Co-Director of Research, Ryan Stever, who left the firm to pursue a hedge fund opportunity. Wes and Ryan had managed Acadian's top-down research and bottom-up stock selection research, respectively.

Malcolm Baker, Director, Research and Brendan Bradley Co-CIO have taken over the responsibilities of managing the research team on an interim basis. Malcolm has been a consultant and senior member of the research team for over a decade. He is also a full tenured professor at Harvard Business School, and has taken a temporary leave of absence in order to devote more time to this position. Management decided to pursue this interim arrangement in order to take the time necessary to first, appropriately define the role, and second, to find the right fit for the newly defined role. Staff will monitor the situation to ensure a resolution is achieved in a reasonable amount of time.

#### **Fidelity Institutional Asset Management**

In April 2018, Jeff Mitchell was named Chief Investment Officer (CIO), Fidelity Institutional Asset Management (FIAM) Equity at Fidelity Investments. In this new role, Jeff will oversee FIAM's equity portfolio managers, investment research, and risk management functions and will report to Pam Holding, co-head of Fidelity's Equity Division.

Jeff is a 23-year Fidelity veteran who most recently led the research team within the Global Asset Allocation group, which included asset allocation research, investment research, and counterparty research. Staff has no concerns at this time since there are no known changes to the SBI's portfolio management team at Fidelity.

#### **Marathon Asset Management**

Patrick Seth replaced Wilson Phillips, in April 2018, as head of the client service team. Staff has no concerns with this change.

#### **McKinley Capital Management**

McKinley has continued to lose assets with almost \$1.9 billion in net asset loss occurring in 2017 and the first six months of 2018 alone. With just under \$5 billion in AUM the firm is still able to sustain operations but they are nearing firm breakeven. With AUM approaching breakeven levels and the staff reductions outlined in last quarter's report, SBI Staff will continue to monitor the situation.



## **AQR**

During the first quarter, AQR's ownership expanded to include five new principals from among existing employees. Hoon Kim, a portfolio manager for AQR's Global Stock Selection strategies and a principal of AQR, announced he would be leaving the firm.

## **State Street Global Advisors (SSgA)**

The international equity semi-passive portfolio managed by SSgA was terminated by the SBI's Executive Director on March 16, 2018.

In January 2018, Mile O'Connor joined SSgA as the EMEA (Emerging Europe, Middle East, & Africa) Head of Institutional. He joined SSgA from Unigestion, where he held the role of Chairman & Non-Executive Director. In February 2018, after five years as SSgA's Chief Compliance Officer, Alyssa Albertelli rejoined SSgA's legal team as Deputy General Counsel.

## **Emerging Market Equity Managers**

### **Macquarie Investment Management**

Effective June 29, 2018 Macquarie Investment Management closed on its acquisition of ValueInvest, a Luxembourg based asset management business with approximately €4 billion in assets under management. The acquisition brings 17 new professionals to Macquarie. The acquisition comprises a relatively small percentage of Macquarie's €211 billion assets under management, and the firms value oriented global and Japanese equity strategy are largely unrelated to SBI's Emerging Markets Equity strategy. We will, however, monitor the growth strategy of Macquarie Group and its proportion of acquisition based versus organic growth in AUM.

### **Martin Currie**

Paul Sloane re-joined Martin Currie in 2018 and will work with the Global Emerging Markets Equity team. Paul is a portfolio manager with over 25 years of experience with Martin Currie, Deutsche Bank and Standard Life, and was most recently a research consultant for an Asian long-term equity strategy. He is replacing Andrew Ness who will be leaving the firm later this year. Staff views the staffing change as positive, but will monitor any additional turnover in the portfolio management teams.

## **Fixed Income Managers**

### **BlackRock**

Georgina Fogo, Global Chief Compliance Officer, decided to leave BlackRock to pursue a new role outside the firm. Her last day at BlackRock was May 11, 2018. She was replaced by Una Neary, who was formerly Head of the Regulatory Practice Group at Goldman Sachs leading the firms' global compliance efforts. Prior to joining Goldman Sachs, Una spent 17 years at the Federal Reserve Bank of New York, as well as Managing Director of Internal Audit at J.P. Morgan. Staff has no concerns with this staffing change.

## 2018 Manager Meetings

The second quarter manager reviews are noted below.

### Investment Manager

- Acadian Asset Management LLC
- Barrow, Hanley, Mewhinney & Strauss, LLC
- BlackRock Financial Management, Inc.
- Columbia Management Investment Advisers, LLC (Threadneedle)
- Fidelity Institutional Asset Management LLC
- Goldman Sachs Asset Management
- Hood River Capital Management, LLC
- Hotchkis and Wiley Capital Management, LLC
- J.P. Morgan Investment Management Inc.
- LSV Asset Management
- Macquarie Investment Management Advisers
- Marathon Asset Management LLP
- Martingale Asset Management, L.P.
- Martin Currie Inc.
- McKinley Capital Management, LLC
- Morgan Stanley Investment Management Inc.
- Neuberger Berman Investment Advisers LLC
- Prudential Global Investment Management
- Pzena Investment Management, LLC
- Rice Hall James & Associates, LLC
- Sands Capital Management, LLC
- The Rock Creek Group, LP
- Zevenbergen Capital Investments LLC

### Asset Class

International Equity

Domestic Equity

Fixed Income

International Equity

International Equity

Fixed Income

Domestic Equity

Domestic Equity

International Equity

Domestic Equity

International Equity

International Equity

Domestic Equity

International Equity

International Equity

International Equity

Fixed Income

International Equity

Domestic Equity

Domestic Equity

International Equity

Domestic Equity

## **Non-Retirement Manager Update Second Quarter 2018**

### **Fixed Income**

#### **RBC Global Asset Management**

The fixed income portfolio return of 0.1% for the quarter matched the benchmark return, the Bloomberg Barclays Intermediate Government Index. Excess yield derived from overweight positions in municipal and securitized bonds contributed to return.

#### **Prudential Fixed Income**

The fixed income portfolio return of -0.13% for the quarter outperformed the benchmark return, the Bloomberg Barclays U.S. Aggregate by 3 basis points. Relative outperformance was due to security selection in banking and telecom and a short duration position, as rates sold off during the quarter. The portfolio's allocation to the Investment Grade corporate and CMBS sectors somewhat detracted from returns, as spreads widened during the quarter.

### **Equity**

#### **BNY Mellon**

Mellon tracked the benchmark for the quarter.

## **Deferred Compensation Manager Update Second Quarter 2018**

### **Domestic Equities**

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

The Fund returned 3.0% for the quarter, which outperformed its benchmark (+3.4% benchmark), the NASDAQ US Dividend Achievers Select Index.

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

The domestic equity portfolio tracked the return of the S&P 500 Index for the quarter with a 3.4% return.

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

The mid-cap equity portfolio tracked the benchmark, CRSP US Mid Cap Index, for the quarter with a 2.6% return.

#### **T. Rowe Price**

The small cap equity portfolio underperformed the Russell 2000 for the quarter with a 6.7% return (7.8% benchmark). Stock selection in Healthcare and Financials detracted for the quarter.

### **International Equities**

#### **Fidelity Diversified International**

The international equity portfolio reported a -0.9% return for the quarter, which outperformed the MSCI EAFE Free benchmarks return of -1.2%. Stock selection in Healthcare, Information Technology and Consumer Discretionary sectors added value for the quarter.

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

The portfolio underperformed the benchmark, the FTSE Global All Cap ex US Index, for the quarter (-3.2% Vanguard versus -2.7% benchmark). In the short-term, the international portfolio will have higher tracking error because of fair value pricing, which tends to smooth out over time.

## **Fixed Income**

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

The fixed income portfolio underperformed the benchmark, the Bloomberg Barclays U.S. Aggregate, for the quarter (-0.3% portfolio versus -0.2% benchmark). While the portfolio's short relative duration positioning was positive for performance, an overweight to Investment Grade credit detracted from returns as spreads widened during the quarter. Also, the portfolio's yield curve positioning weighed on returns, given their underweight to longer duration bonds in a curve flattening environment.

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

The fixed income portfolio matched the benchmark, the Bloomberg Barclays U.S. Aggregate Index, for the quarter with a -0.2% return. Small deviations in the fund's performance relative to the benchmark may occur given the fund's sampling approach to approximate the index.

## **Balanced and Conservative Options**

### **Vanguard Balanced**

The portfolio returned 2.3%, which matched the customized benchmark for the quarter. The benchmark is a combined return of 60% CRSP US total Market and 40% Barclays Aggregate.

### **Galliard Capital Management**

The stable value portfolio underperformed the benchmark, the 3 Year Constant Maturity Treasury plus 0.45%, for the quarter (0.6% Stable Value portfolio versus 0.8% benchmark). Allocations to SBA securitizations detracted from returns for the quarter.

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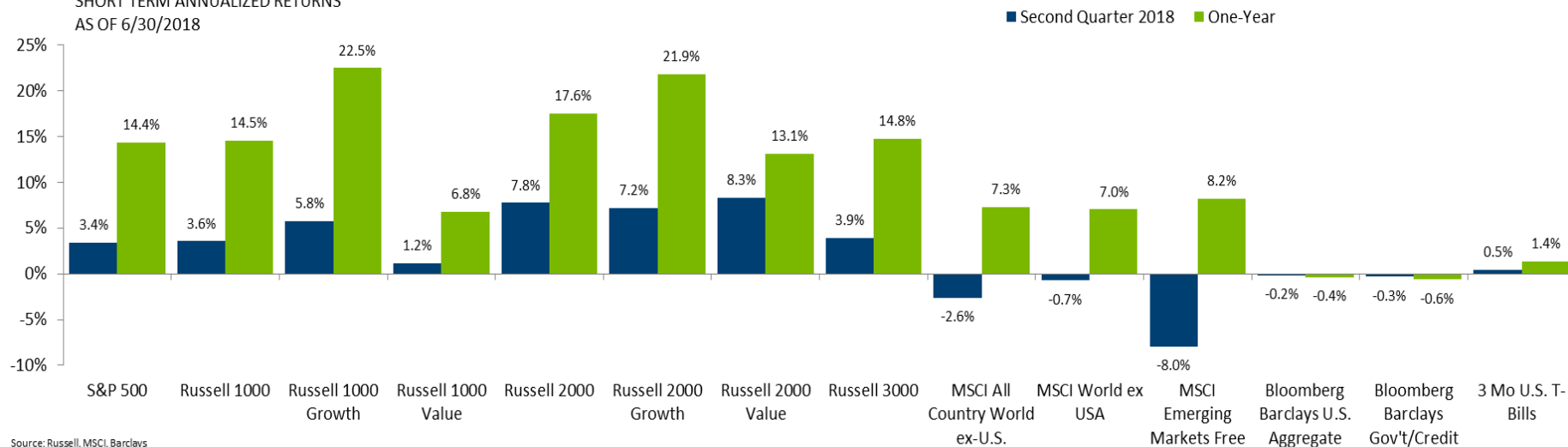
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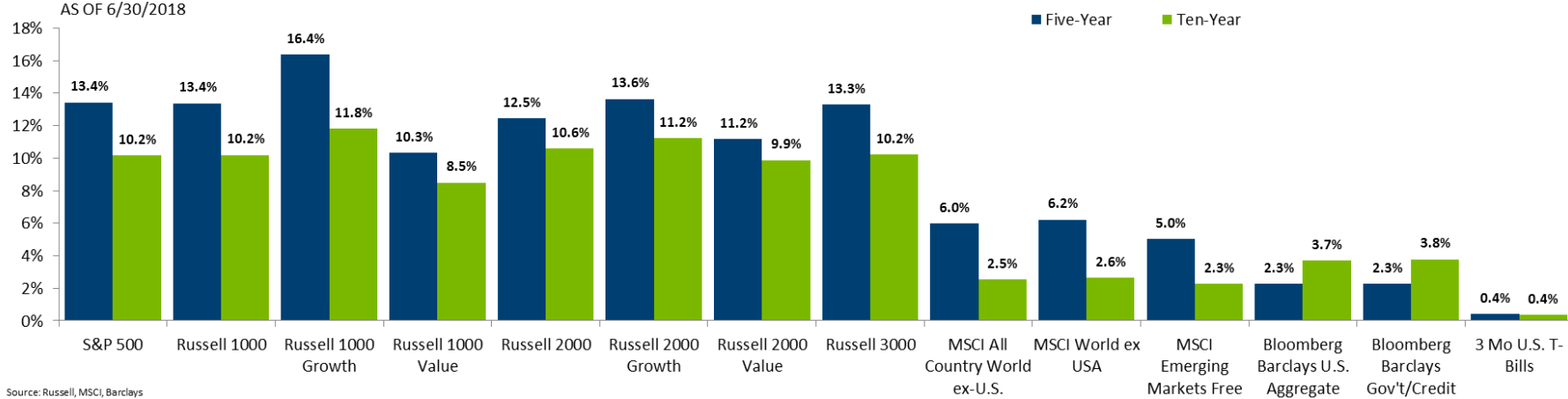


# Market Highlights

SHORT TERM ANNUALIZED RETURNS  
AS OF 6/30/2018



LONG TERM ANNUALIZED RETURNS  
AS OF 6/30/2018

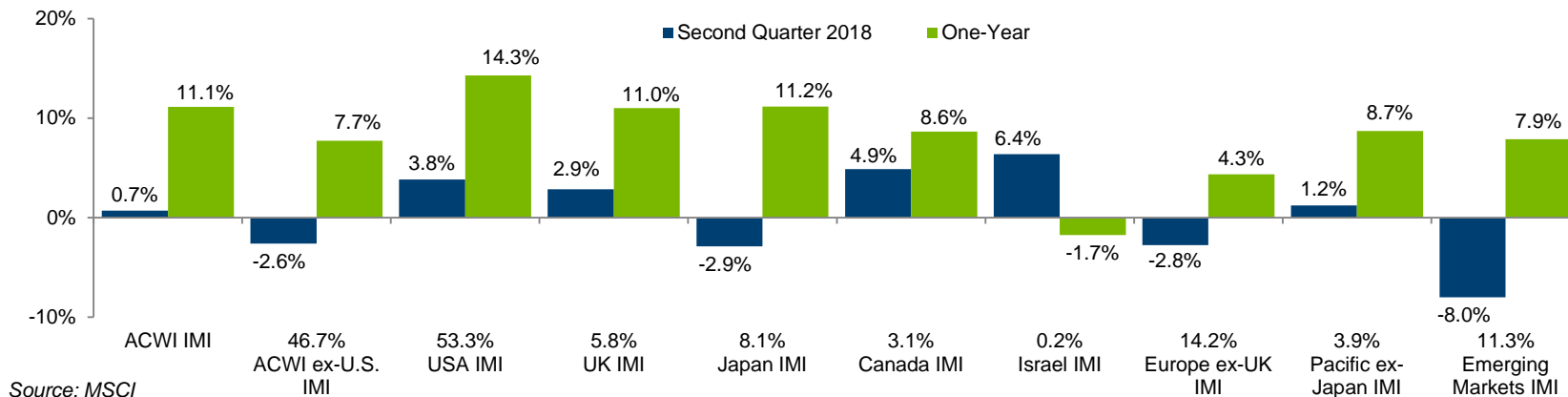


# Market Highlights

Returns of the Major Capital Markets					
	Periods Ending 6/30/2018				
	Second Quarter	1-Year	3-Year <sup>1</sup>	5-Year <sup>1</sup>	10-Year <sup>1</sup>
<b>Domestic Equity</b>					
S&P 500	3.4%	14.4%	11.9%	13.4%	10.2%
Russell 1000	3.6%	14.5%	11.6%	13.4%	10.2%
Russell 1000 Growth	5.8%	22.5%	15.0%	16.4%	11.8%
Russell 1000 Value	1.2%	6.8%	8.3%	10.3%	8.5%
Russell 2000	7.8%	17.6%	11.0%	12.5%	10.6%
Russell 2000 Growth	7.2%	21.9%	10.6%	13.6%	11.2%
Russell 2000 Value	8.3%	13.1%	11.2%	11.2%	9.9%
Russell 3000	3.9%	14.8%	11.6%	13.3%	10.2%
<b>International Equity</b>					
MSCI All Country World ex-U.S.	-2.6%	7.3%	5.1%	6.0%	2.5%
MSCI World ex USA	-0.7%	7.0%	4.9%	6.2%	2.6%
MSCI Emerging Markets Free	-8.0%	8.2%	5.6%	5.0%	2.3%
<b>Fixed Income</b>					
Bloomberg Barclays U.S. Aggregate	-0.2%	-0.4%	1.7%	2.3%	3.7%
Bloomberg Barclays Gov't/Credit	-0.3%	-0.6%	1.8%	2.3%	3.8%
3 Mo U.S. T-Bills	0.5%	1.4%	0.7%	0.4%	0.4%
<b>Inflation</b>					
CPI-U	0.6%	2.8%	1.8%	1.5%	1.4%
MSCI Indices show net returns. All other indices show total returns. <sup>1</sup> Periods are annualized.					

# Global Equity Markets

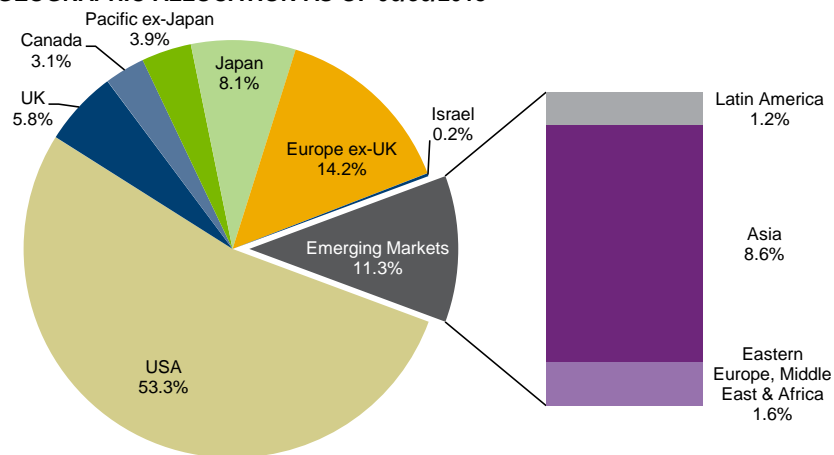
## GLOBAL MSCI IMI INDEX RETURNS (USD) AS OF 06/30/2018



- Global equities rebounded in Q2 2018, supported by resilient earnings and higher energy prices. However, equity market momentum faltered toward the end of the quarter as trade tensions increased and global growth slowed. Global equity markets returned 3.1% in local currency terms. However, the strengthening of the U.S. dollar (5.6% in trade-weighted terms) pushed down returns to 0.9% in U.S. dollar terms.
- Emerging Markets (EM) equities were the hardest hit due to rising trade protectionism and a stronger U.S. dollar. Over the quarter, EM equities fell 7.9% in U.S. dollar terms. Fears over the impact of looser Chinese monetary policy alongside rising U.S. rates also dampened returns.
- European equity performance was dragged down by political uncertainties, with an openly anti-EU government taking power in Italy. Fears of a possible imposition of tariffs on German carmakers by the U.S. and softer European economic data also detracted from performance.
- UK equities were bolstered by higher energy prices and sterling weakness. However, the latter did lead to a far lower 2.9% return in U.S. dollar terms.

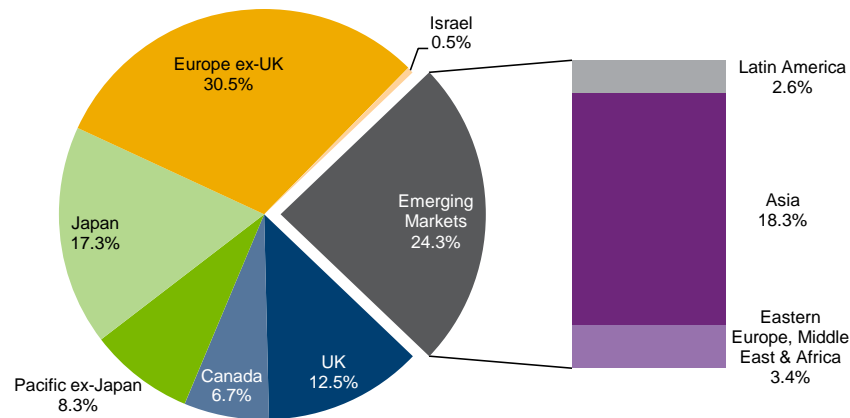
# Global Equity Markets

**MSCI ALL COUNTRY WORLD IMI INDEX  
GEOGRAPHIC ALLOCATION AS OF 06/30/2018**



Source: MSCI

**MSCI ALL COUNTRY WORLD EX-U.S. IMI INDEX  
GEOGRAPHIC ALLOCATION AS OF 06/30/2018**

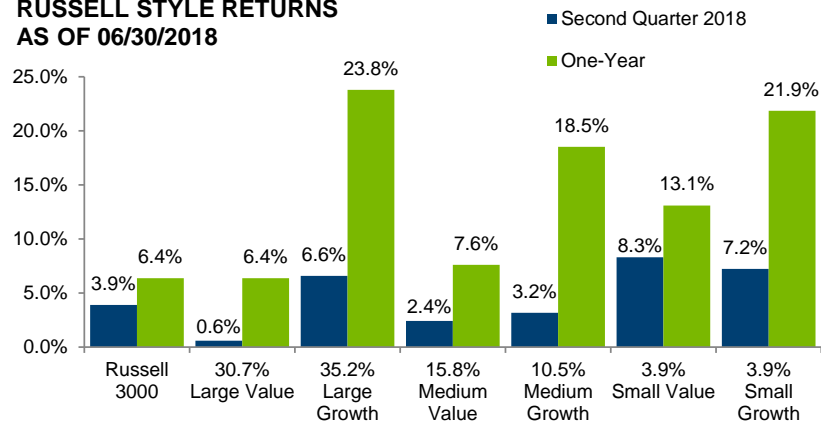


Source: MSCI

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

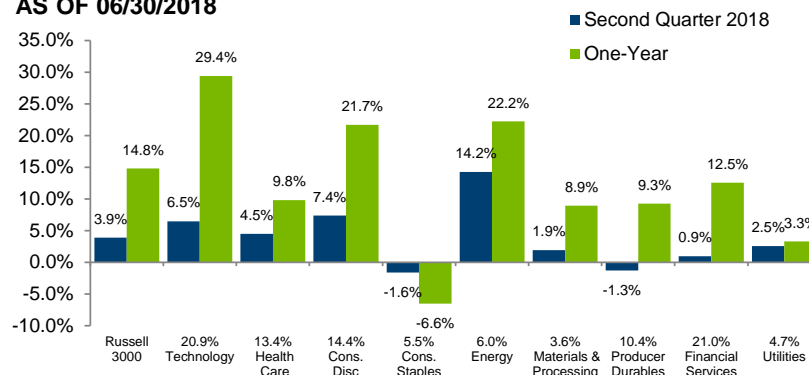
# U.S. Equity Markets

## RUSSELL STYLE RETURNS AS OF 06/30/2018



Source: Russell Indexes

## RUSSELL GICS SECTOR RETURNS AS OF 06/30/2018

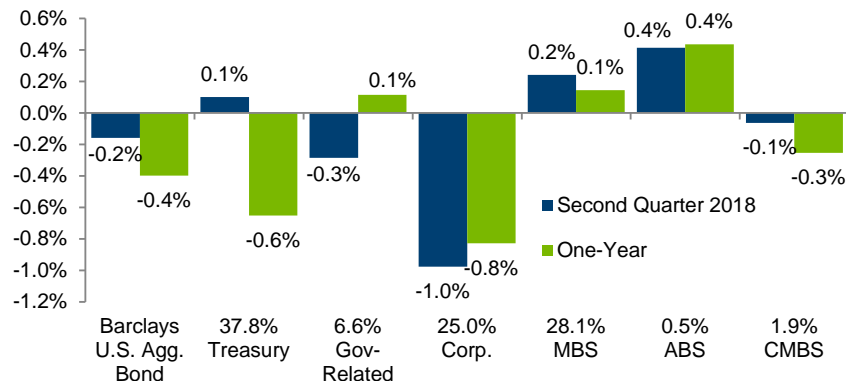


Source: Russell Indexes

- The Russell 3000 Index returned 3.9% during the second quarter and 6.4% over the one-year period.
- With the exception of Consumer Staples (-1.6%) and Producer Durables (-1.3%), all sectors generated positive returns over the quarter. Energy was the strongest sector posting a return of 14.2% in Q2 2018, as crude oil prices continued to increase. The second best performer was Consumer Discretionary (7.4%), which benefited from a strong U.S. economy and healthy consumer sentiment.
- Performance was positive across the market capitalization spectrum over the quarter. In general, small cap stocks outperformed both medium and large cap stocks over the quarter benefiting from strong U.S. growth, as the majority of their revenue is generated domestically. Over the last 12 months, Value stocks continued to lag their Growth stock equivalents significantly. The underperformance of Value stocks can be partly attributed to the lower exposure to Technology stocks, which have performed strongly over the last year.

# U.S. Fixed Income Markets

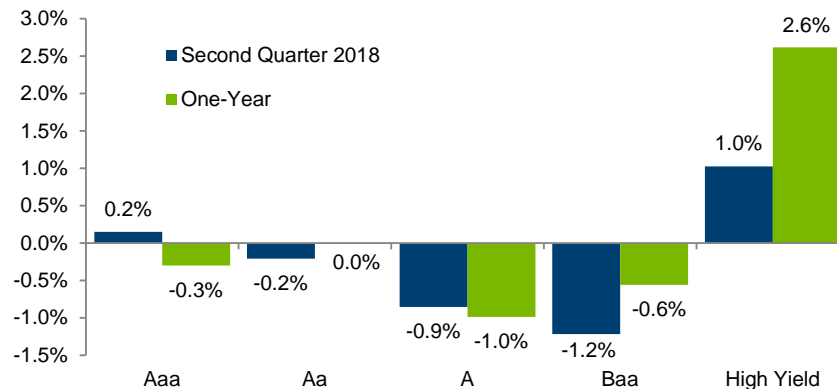
**BLOOMBERG BARCLAYS AGGREGATE RETURNS BY SECTOR  
AS OF 06/30/2018**



Source: FactSet

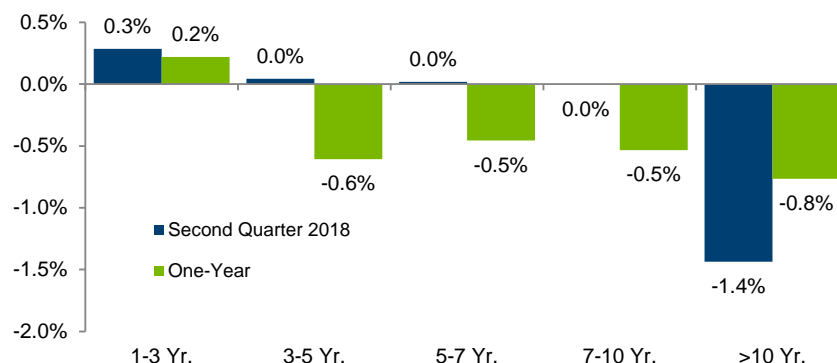
- The Bloomberg Barclays U.S. Aggregate Bond Index returned -0.2% in the second quarter. For a second successive quarter, investment grade corporate bonds fell the most, falling 1.0%. ABS was the best performer, returning 0.4% over the quarter and offsetting the first quarter decline.
- Credit spreads widened over the quarter, with low-quality investment grade credit the worst affected, posting a 1.2% return. Conversely, higher quality investment grade credit outperformed, albeit with a modest 0.2% return.
- High yield bonds were more resilient to the flight from credit and posted a return of 1.0% as strong income return offset capital losses.

**BLOOMBERG BARCLAYS U.S. AGGREGATE RETURNS  
BY QUALITY AND HIGH YIELD RETURNS AS OF 06/30/2018**



Source: FactSet

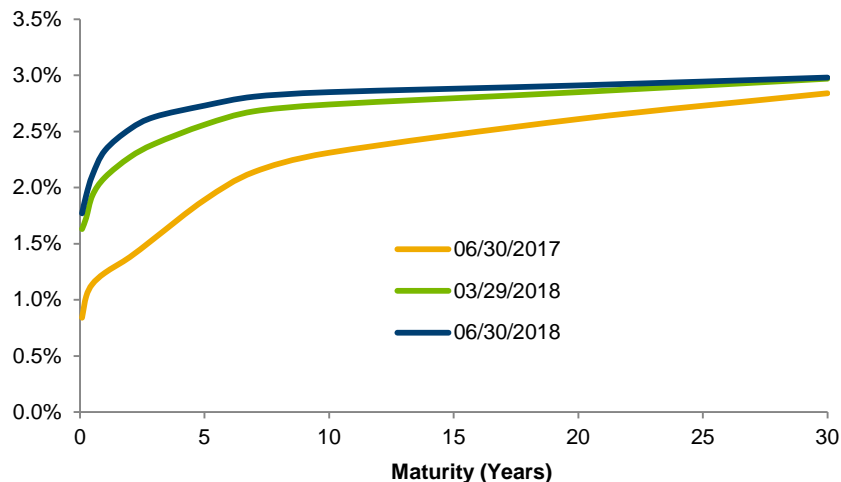
**BLOOMBERG BARCLAYS AGGREGATE RETURNS BY MATURITY  
AS OF 06/30/2018**



Source: FactSet

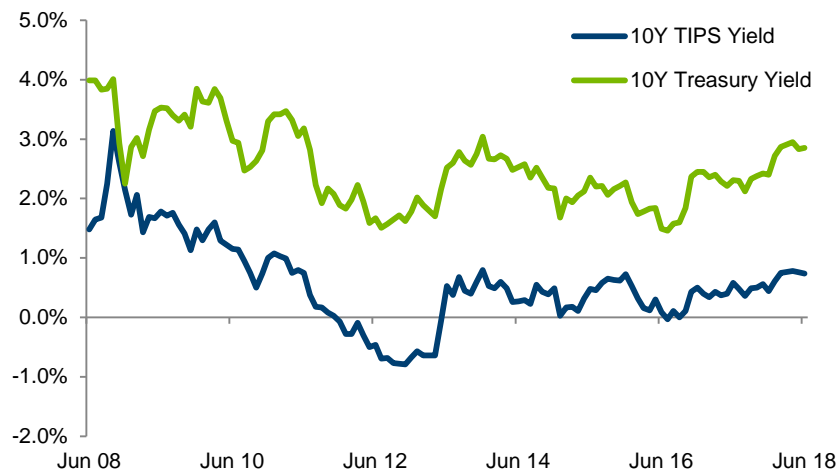
# U.S. Fixed Income Markets

## U.S. TREASURY YIELD CURVE



Source: U.S. Department of Treasury

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



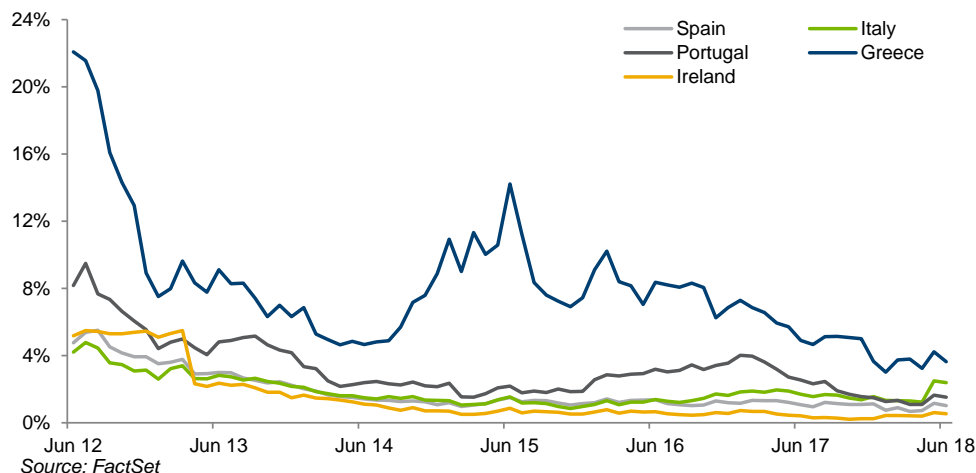
Source: U.S. Department of Treasury

- The U.S. Treasury yield curve flattened over the quarter with yields rising across maturities, but to a greater extent in short to medium maturities. The spread between the 10-year and 2-year U.S. Treasury yield touched its lowest level since 2007 during the quarter. The additional 25bps hike by the Fed in June and upward revision to their expected future rate hikes led the policy-sensitive 2-year Treasury 26bps higher to 2.52%.
- The 10-year U.S. Treasury yield ended the quarter at 2.85%, 11bps higher than at the start of the quarter. Higher risk aversion stemming from trade war uncertainty countered the impact of the tighter monetary policy stance adopted by the Fed.
- The 10-year TIPS yield rose by 5bps over the quarter and ended the period at 0.74%.



# European Fixed Income Markets

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



- Bond spreads over 10-year German bunds increased across the eurozone with the exception of Greece. The European Central Bank (ECB) announced a reduction in its asset purchases from €30bn to €15bn starting from October this year—with a view to halt purchases altogether by the end of 2018. However, the ECB also indicated that interest rates are likely to remain unchanged until at least the middle of 2019. Spanish government bond yields rose by 16bps to 1.32% over the quarter as the (now former) prime minister Mariano Rajoy was ousted after facing a no confidence vote.
- Italian bond yields rose sharply by 90bps to 2.68%, driven by concerns over the impact of the new populist coalition government's policies to reverse reforms and their confrontational stance toward the EU. The spread between Italian 10-year government bonds and German bunds reached its highest level since the 2013 eurozone debt crisis.
- Greek government bond yields fell by 35bps to 3.94% as the government negotiated a debt relief deal to postpone the repayment deadline on its €100bn bailout loan and to provide a liquidity injection to support the Greek economy.

# Credit Spreads

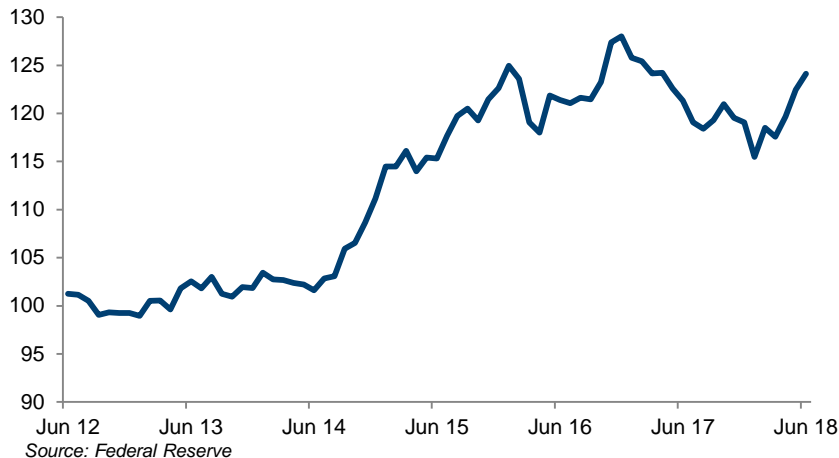
Spread (bps)	6/30/2018	3/31/2018	6/30/2017	Quarterly Change (bps)	1-Year Change (bps)
U.S. Aggregate	44	41	43	3	1
Gov't	0	0	1	0	-1
Credit	116	89	103	27	13
Gov't/Credit	50	45	46	5	4
MBS	28	29	32	-1	-4
CMBS	70	67	74	3	-4
ABS	47	48	46	-1	1
Corporate	123	109	109	14	14
High Yield	363	354	364	9	-1
Global Emerging Markets	288	230	255	58	33

Source: Barclays Live

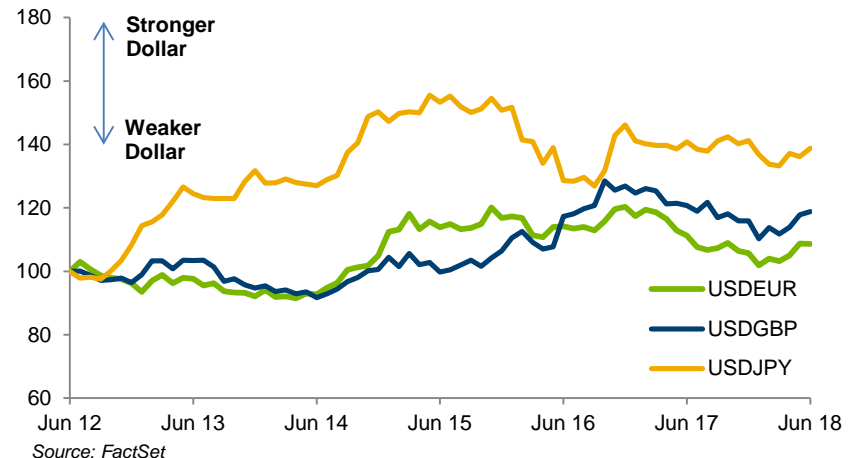
- In general, investment-grade credit underperformed during the second quarter as spreads over U.S. Treasuries widened across all maturities.
- bond spreads and Long Government/Credit bond spreads also widened by 14bps and 13bps, respectively. The increase in yields on U.S. Treasuries increased the total debt burden on U.S. companies causing spreads to widen.
- Movements in securitized credit spreads were far more muted with ABS and MBS bond spreads falling by 1bp each.

# Currency

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



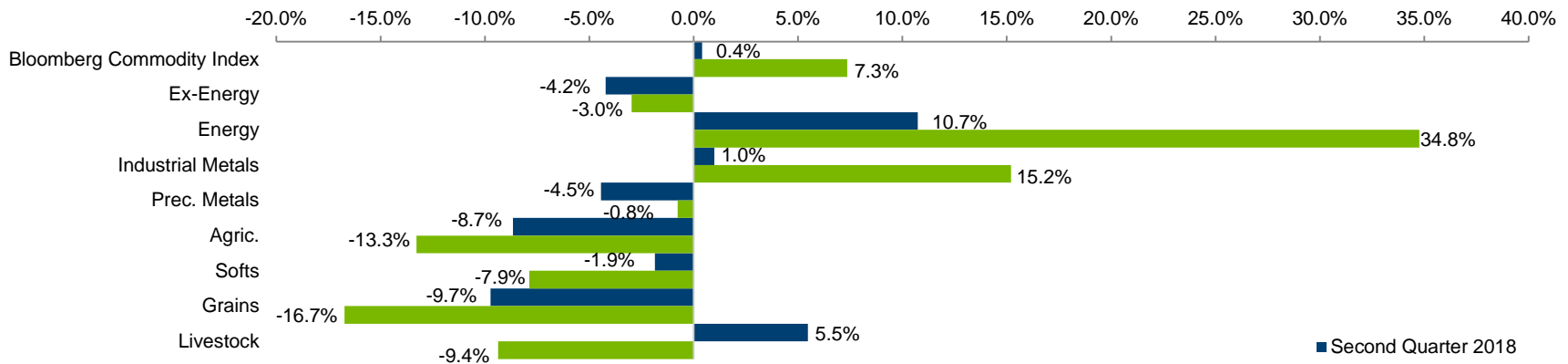
**U.S. DOLLAR RELATIVE TO EUR, GBP, AND JPY  
REBASED TO 100 AT 06/29/2012**



- The U.S. dollar posted its best quarterly performance since 2016 as it rose 5.6% on a trade-weighted basis over the quarter. A combination of wider interest rate differentials and global trade turmoil led the U.S. dollar higher.
- The U.S. dollar appreciated against all the major currencies over the quarter. Political uncertainty in both the UK and eurozone and reduced safe haven flows into Japanese yen—following the resolution of tensions in the Korean Peninsula—contributed to the strong U.S. dollar performance.
- Both the Bank of England (BoE) and the ECB left their respective policy rates unchanged at 0.5% and 0.0%, although it was widely expected that the BoE would increase rates at its May meeting. There is, however, an increased chance the BoE will raise rates by 25bps in August after an additional BoE policymaker voted to increase rates at the meeting taking the vote to 6–3 against raising rates.

# Commodities

## COMMODITY RETURNS AS OF 06/30/2018

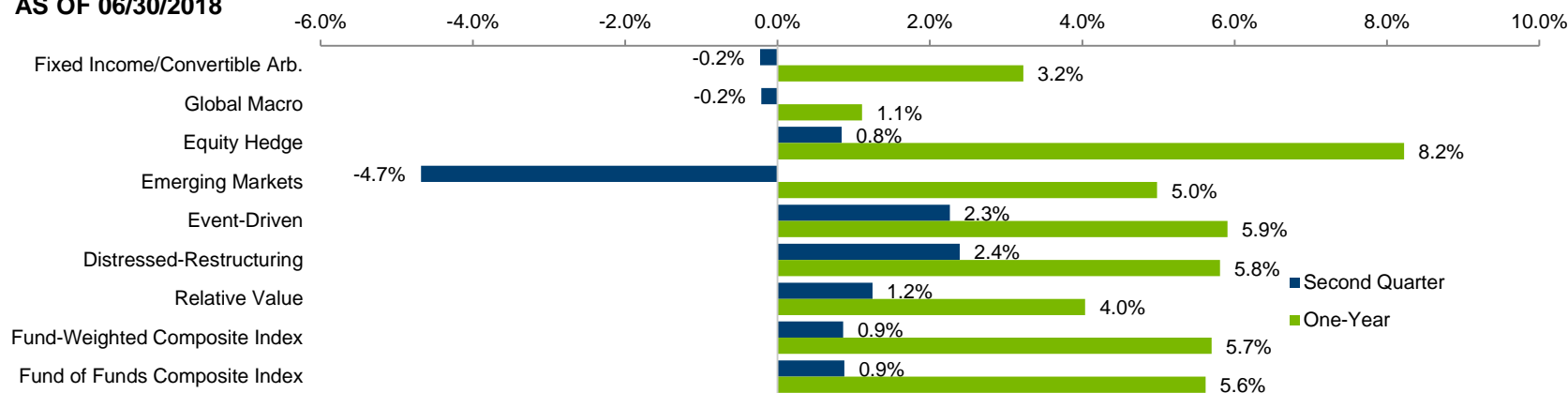


Note: Softs and Grains are part of the wider Agriculture sector  
Source: Bloomberg

- Commodities had a mixed quarter with the Bloomberg Commodity Index returning 0.4%.
- Energy was once again the best-performing sector over the quarter with a return of 10.7%. Crude oil prices rose sharply after the U.S. reintroduced sanctions in Iran and urged its allies to stop importing crude oil from Iran. The U.S. also imposed additional sanctions on Venezuela. The price of WTI crude oil rose sharply by 14.2% to \$74/bbl.
- Other than Energy, the other notable increase was Livestock, which rose by 5.5% in Q2 2018.
- The worst-performing segment over the quarter was Agriculture with a return of -8.7%, followed by Precious Metals, which returned -4.5%. Within the Agriculture sector, Grains was the worst performer with a return of -9.7%.
- The detrimental impact of a stronger U.S. dollar on commodities was noticeable in other markets with declines in Softs, Grains, and Precious Metals.

# Hedge Fund Markets Overview

## HEDGE FUND PERFORMANCE AS OF 06/30/2018



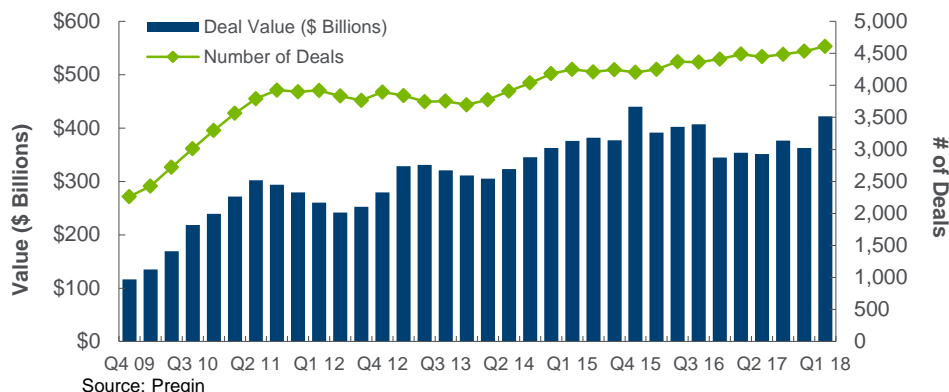
Note: Latest five months of HFR data are estimated by HFR and may change in the future.

Source: HFR

- Hedge fund performance was mixed across all strategies over the second quarter. Distressed-Restructuring and Event-Driven were the best performers with a return of 2.4% and 2.3%, respectively. The Emerging Markets hedge funds were the worst performer with a return of -4.7%.
- Fixed income-based Relative Value and Equity Hedge strategies led the index higher in April as U.S. yields rose sharply and equities rebounded after a poor first quarter. Event-Driven funds led in May supported by strong corporate earnings. However, hedge fund performance was more mixed in June as trade tensions increased with Emerging Markets hedge funds the worst hit, falling by 3.0% over the month.
- Both the HFRI Fund-Weighted Composite Index and the HFRI Fund of Funds Composite Index produced returns of 0.9%.

# Private Equity Market Overview – Q1 2018

## LTM Global Private Equity-Backed Buyout Deal Volume



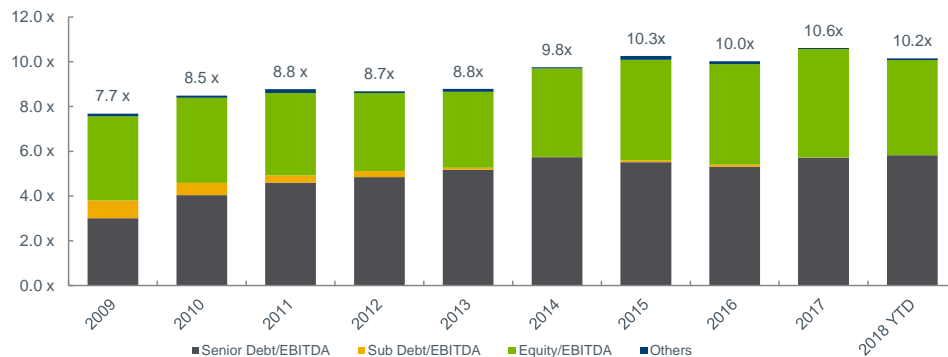
- **Fundraising:** \$120.3 billion was raised by 285 funds in Q1 2018, a decline of 16.1% on a capital basis and a 28.4% fall in the number of deals from the prior quarter. Dry powder stood at \$1.47 trillion at the end of the quarter, an increase of 6.5% and 28.7% compared to Q4 2017 and the five year average, respectively.<sup>1</sup>
- **Buyout:** Global private equity-backed buyout deals totaled \$120.9 billion in Q1 2018, increasing 53.1% and 32.8% from the prior quarter and five-year average, respectively.<sup>1</sup> At the end of Q1 2018, the average purchase price multiple for all U.S. leveraged buyouts (LBOs) was 10.2x EBITDA, down from 10.6x as of the end of 2017.<sup>2</sup> Large cap purchase price multiples stood at 11.3x, down compared to the full year 2017 level of 11.6x.<sup>2</sup> The weighted average purchase price multiple across all European transaction sizes averaged 10.6x EBITDA in Q1 2018, down from 10.7x at year-end 2017. Purchase prices for transactions of €1.0 billion or more decreased from 11.6x at year end 2017 to 11.3x in Q1 2018. Transactions between €500.0 million and €1.0 billion fell by 0.1x to 10.4x over the quarter.<sup>2</sup> Globally, exit value totaled \$61.4 billion during the quarter, down from \$66.3 billion in Q4 2017. This marked the second lowest quarterly total since Q1 2010.<sup>1</sup>
- **Venture:** During the first quarter, 1,206 venture-backed transactions totaling \$21.1 billion were completed, an increase on a capital basis over the prior quarter's total of \$20.3 billion across 1,233 deals. The amount of transactions during the quarter was 36.1% higher than the five-year quarterly average of \$15.5 billion.<sup>1</sup> Total U.S. venture-backed exit activity totaled approximately \$8.1 billion across 188 completed transactions in Q1 2018, down from \$12.6 billion across 200 exits in Q4 2017.<sup>3</sup>
- **Mezzanine:** Twelve funds closed on a total of \$5.1 billion during the quarter, up from Q4 2017's total of \$2.3 billion raised by eight funds and the five-year quarterly average of \$4.8 billion.<sup>1</sup> Estimated dry powder was \$45.5 billion at the end of Q1 2018, down by \$4.9 billion from Q4 2017.<sup>1</sup> Fundraising remains robust with an estimated 76 funds in the market targeting \$30.6 billion of commitments.<sup>1</sup>

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

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

# Private Equity Market Overview – Q1 2018

## Purchase Price Multiples—All Transaction Sizes



Source: Standard & Poor's

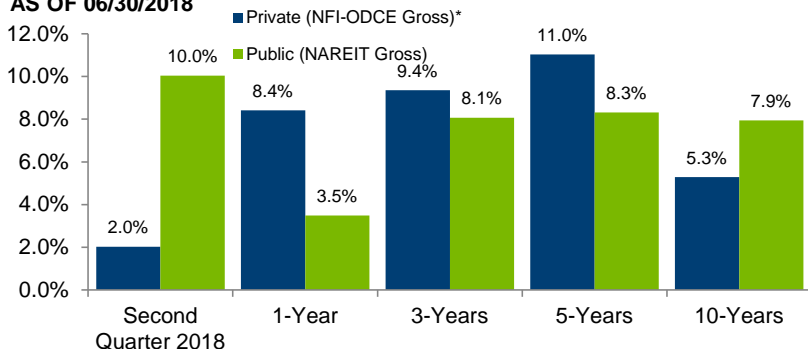
- **Distressed Debt:** The LTM U.S. high-yield default rate was 2.7% as of March 2018, which was up from December 2017's LTM rate of 1.8%.<sup>4</sup> During the quarter, \$7.8 billion was raised by 12 funds, down on a capital basis from Q4 2017, which saw \$11.7 billion raised across 11 funds.<sup>1</sup> Dry powder was estimated at \$117.9 billion at the end of Q1 2018, which was up 11.4% from Q4 2017. This remained above the five-year annual average level of \$98.1 billion.<sup>1</sup>
- **Secondaries:** Eight funds raised \$5.6 billion during the first quarter, up from \$3.9 billion raised by 12 funds in Q4 2017, but lower than the \$19.6 billion raised in Q1 2017.<sup>1</sup> At the end of Q1 2018, there were an estimated 34 secondary and direct secondary funds in the market, targeting approximately \$29.8 billion.<sup>1</sup>
- **Infrastructure:** \$12.9 billion of capital was raised by nine funds in Q1 2018 compared to \$32.3 billion of capital raised by 23 partnerships in Q1 2017. At the end of the quarter, dry powder stood at an estimated \$160.0 billion, up from the prior quarter's total of \$159.0 billion. Infrastructure managers completed 564 deals with an estimated aggregate deal value of \$222.6 billion in Q1 2018 compared to 825 deals totaling \$230.3 billion a quarter ago.<sup>1</sup>
- **Natural Resources:** During Q1 2018, nine funds closed on \$7.6 billion compared to eight funds totaling \$9.4 billion in Q4 2017. Energy and utilities industry managers completed approximately 23 deals totaling an estimated \$8.8 billion through Q1 2018, which represents 23.8% of the full year capital deployment seen in 2017.<sup>1</sup>

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

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

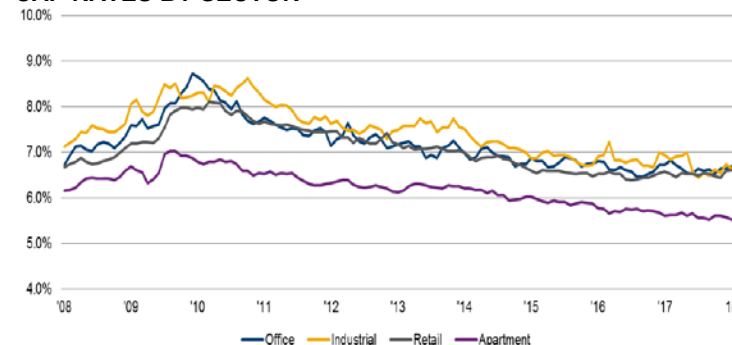
# U.S. Commercial Real Estate Markets

## PRIVATE VS. PUBLIC REAL ESTATE RETURNS AS OF 06/30/2018



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

## CAP RATES BY SECTOR



SOURCE: RCA, Aon 03/31/2018

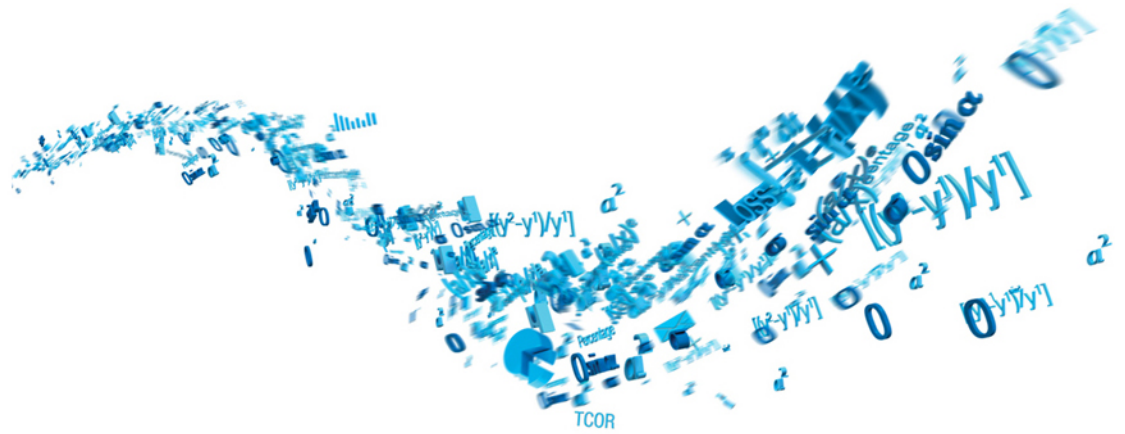
- Sector returns have held up well despite the maturity of the real estate cycle. U.S. Core real estate returned 2.0%\* over the second quarter, taking year-on-year returns to 8.4%—both of which are in line with the long-term average. Both appreciation return (0.98%) and income return (1.05%) were similar over the quarter, though net income growth is expected to be the larger driver of total returns going forward given the current point in the real estate cycle.
- Global property stocks (FTSE EPRA/Nareit Developed Index) bounced back from their Q1 losses rising 5.5% in Q2, driven by a strong rebound in the U.S. market, while the Europe and Asia regions each posted marginal losses. The U.S. REIT market (FTSE Nareit Equity REITs Index) rallied from first quarter losses, returning 10.0% in Q2. The U.S. REIT market has now gained 1.0% on a year-to-date basis. Strength, particularly in the latter part of the quarter, coincided with significant take-private activity, and a pullback in the rise of bond yields after the 10-year U.S. Treasury bond yield exceeded 3.0% during the quarter. The U.S. sector ended the quarter trading at a 1% premium to net asset values (NAVs).
- The more typical relationship between deal volume and pricing has broken down over the past few years. While the reason varies by property type, in most cases volume has moved lower while prices have moved higher. While this indicates a continuing disconnect between buyers' and sellers' expectations, which has been evident in sales trends since volume peaked in Q4 2015, absolute sales volumes remain strong relative to history. Current cap rates support this strength as they remain at or near recent lows—that said, there is little expectation that they will go lower.
- Despite many investment classes looking expensive today relative to history (including real estate), and notwithstanding the risk of further capital markets sensitivity to rising interest rates, there remain attractive opportunities to deploy capital prudently in real estate. Real estate fundamentals are currently on a solid footing and generally in balance across most property types. Hence, fundamentals are expected to remain fairly stable, offering investors attractive absolute and relative yields.
- Strategy as well as manager selection, however, are key decision points when deploying new capital. Given the maturity of the current real estate cycle, it is prudent to consider taking some risk off the table. One way to do this is by increasing risk mitigation strategies in the portfolio structure. Preferred equity, secondaries, and debt structures are valuable investment tools that can help mitigate medium-term cyclical risks while still providing attractive risk-adjusted returns.

\*Indicates preliminary NFI-ODCE data gross of fees



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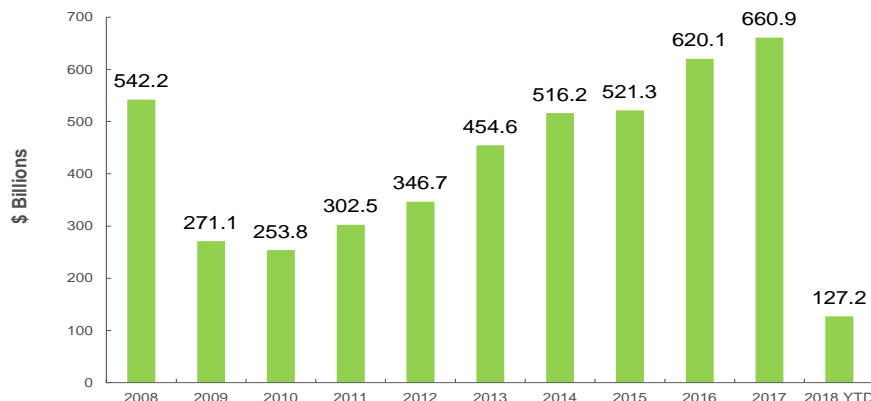
# Appendix A:

## Global Private Equity Market Overview

1Q 2018

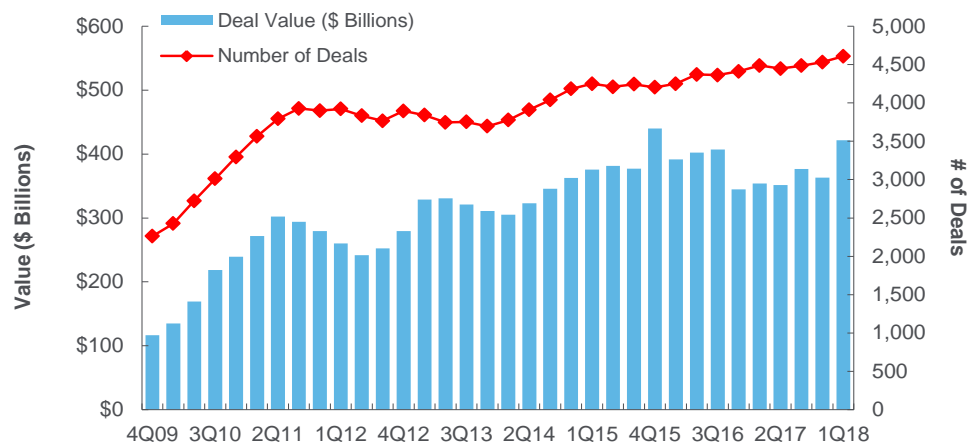
# Private Equity Overview

## Total Funds Raised



Source: Preqin

## LTM Global Private Equity-Backed Buyout Deal Volume



Source: Preqin

## Fundraising

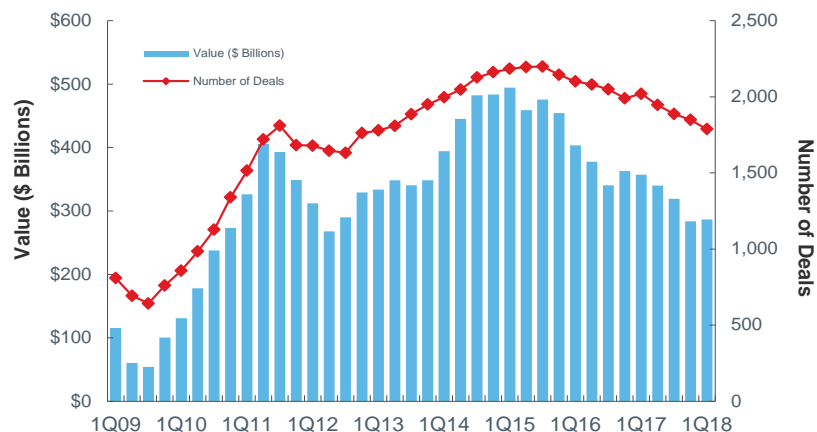
- In 1Q 2018, \$120.3 billion was raised by 285 funds, which was down 16.1% on a capital basis and 28.4% by number of deals from the prior quarter <sup>1</sup>.
  - About half of 1Q 2018 capital was raised by funds with target geographies in North America, comprising 46.8% of the quarterly total. Capital targeted for Europe made up 46.0% of the total funds raised during the quarter, while the remainder was attributable to managers targeting Asia and other parts of the world <sup>1</sup>.
- Dry powder stood at \$1.47 trillion at the end of the quarter, up 6.5% and 28.7% compared to year end 2017 and the five year average, respectively <sup>1</sup>.

## Activity

- On an LTM basis, 4,608 deals were completed for an aggregate deal value of \$421.7 billion as of 1Q 2018 compared to 4,396 transactions totaling \$364.7 billion as of year end 2017 <sup>1</sup>.
  - Average deal size was \$91.5 million on an LTM basis, up 14.2% and 5.8% from the prior quarter and the five year quarterly average level, respectively.
- European LBO transaction volume totaled €16.2 billion in 1Q 2018 and €67.4 billion on an LTM basis, compared to 4Q 2017's quarterly and full year totals of €20.1 billion and €64.7 billion, respectively. 1Q 2018's total was up 24.6% from the five year quarterly average <sup>3</sup>.
- At the end of 1Q 2018, the average purchase price multiple for all U.S. LBOs was 10.2x EBITDA, down from 10.6x as of the end of 2017 <sup>3</sup>.
  - This was 0.3x and 1.0x turns (multiple of EBITDA) above the year end five and ten year average levels, respectively.
- European multiples were down 0.2x quarter-over-quarter, averaging 10.5x EBITDA for all transaction sizes, with large and medium transactions each running at 11.3x and 10.4x, respectively <sup>3</sup>.
- Debt remained broadly available in the U.S.
  - U.S. average leverage levels in 1Q 2018 were 5.8x compared to the five and ten year averages of 5.6x and 5.1x, respectively <sup>3</sup>.
  - The amount of debt issued supporting new transactions decreased compared to year end 2017 from 62.3% to 57.3%, but remains above the 56.2% 5 year average level <sup>3</sup>.
  - In Europe, average senior debt/EBITDA level through 1Q 2018 was 5.1x, down from the 5.4x observed in full year 2017. This was also significantly higher than the ten year average level of 4.8x, but even with the five year average level of 5.1x.

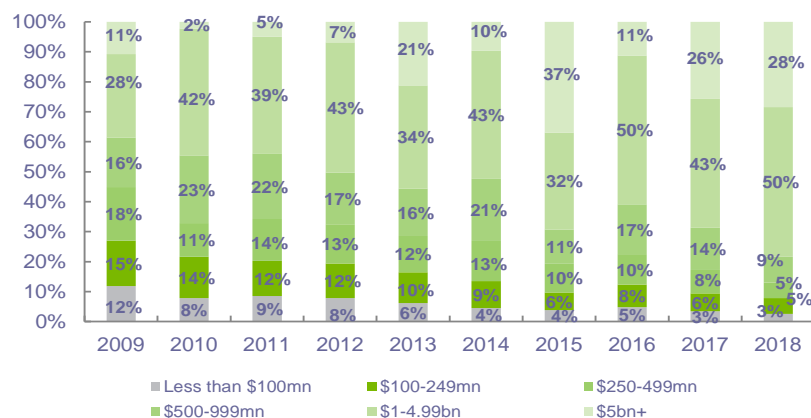
# Buyouts / Corporate Finance

## LTM PE Exit Volume and Value



Source: Preqin

## M&A Deal Value by Deal Size



AonSource: Preqin  
Proprietary & Confidential

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## Fundraising

- \$62.2 billion was closed on by 81 buyout and growth funds in 1Q 2018, compared to \$76.8 billion raised by 122 funds the quarter before <sup>1</sup>.
  - This was down compared to the five year annual average of \$67.8 billion.
  - EQT VIII was the largest partnership raised during the quarter, having raised €10.8 billion at final close.
- Buyout and growth equity dry powder was estimated at \$798.6 billion, which was above the record level of \$765.1 billion observed at year-end 2017 and was substantially higher than the five-year average level of \$506.9 billion <sup>1</sup>.
  - Dry powder for small and large cap funds decreased 27.3% and 3.3% quarter-over-quarter, respectively, while mega fund and middle market increased. Middle market fund dry powder exhibited the largest increase during the quarter (9.1%), setting a new record mark of \$120.9 billion. Mega fund dry powder finished the quarter up 3.4% from year end 2017 <sup>1</sup>.
  - An estimated 53.8% of buyout dry powder was targeted for North America, while 31.3% was targeted for Europe <sup>1</sup>.

## Activity

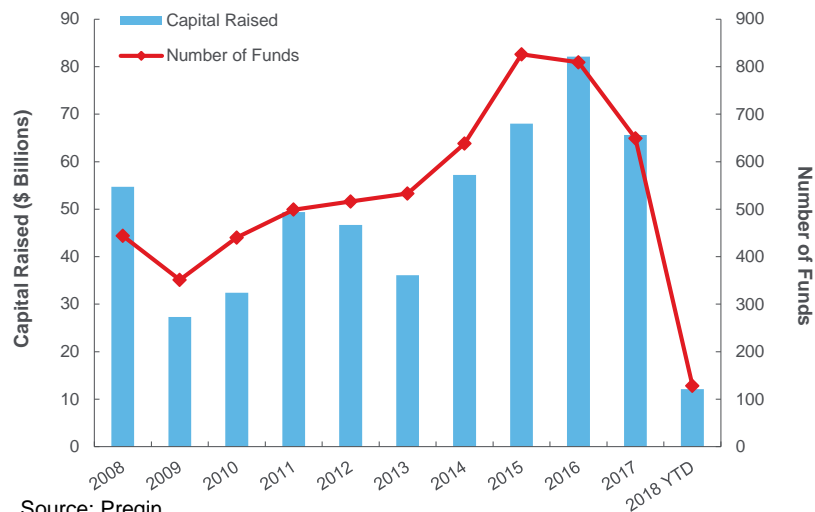
- Global private equity-backed buyout deals totaled \$120.9 billion in 1Q 2018, which was up 53.1% and 32.8% from the prior quarter and five year average, respectively <sup>1</sup>.
  - 1,181 deals were completed during the quarter, which was down 1.2% from 4Q 2017, but up 12.3% compared to the five year quarterly average.
  - Deals valued at \$5.0 billion or greater accounted for an estimated 28.4% of total deal value during the quarter compared to 25.7% in 2017 and 12.6% in 2016 <sup>1</sup>.
- Entry multiples for all transaction sizes in 1Q 2018 stood at 10.2x EBITDA, down from year end 2017 (10.6x) <sup>3</sup>.
  - Large cap purchase price multiples stood at 11.3x, down compared to a full year 2017 level of 11.6x <sup>3</sup>.
  - The weighted average purchase price multiple across all European transaction sizes averaged 10.6x EBITDA in 1Q 2018, down from 10.7x at year end 2017. Purchase prices for transactions of €1.0 billion or more decreased from 11.6x at year end 2017 to 11.3x in 1Q 2018.
  - Transactions between €500.0 million and €1.0 billion were down 0.1x from the end of 4Q 2017, and stood at 10.4x <sup>3</sup>.
  - The portion of average purchase prices financed by equity for U.S. deals was 40.9% in 1Q 2018, down from 45.7% at year end 2017; this remained above the five and ten year full year averages of 39.0% and 39.7%, respectively <sup>3</sup>.
- Exit value totaled \$61.4 billion during the quarter, down from \$66.3 billion in 4Q 2017. This marked the second lowest quarterly total since 1Q 2010 <sup>1</sup>.

## Opportunity

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

# Venture Capital

## Venture Capital Fundraising



### Fundraising

- \$12.1 billion of capital closed in 1Q 2018, down from the prior quarter and 1Q 2017 totals of \$18.1 billion and \$15.1 billion, respectively<sup>1</sup>.
  - 128 funds closed during the quarter, down 28.1% and 25.9% from the prior quarter and five year quarterly average, respectively<sup>1</sup>.
  - Norwest Venture Partners XIV was the largest fund raised during the quarter, closing on \$1.5 billion<sup>16</sup>.
- The average fund size raised during the quarter was approximately \$112.0 million, which was less than both the prior quarter and five year quarterly average of \$128.0 million and \$113.7 million, respectively. The majority of funds in market are seeking commitments of \$200.0 million or less<sup>1</sup>.
- Dry powder was estimated at \$200.9 billion at the end of 1Q 2018, which was up from 4Q 2017's total of \$179.4 billion. This was 45.4% higher than the five year average. An estimated 50.6% of dry powder was targeted for North America, followed by approximately 32.7% earmarked for Asia<sup>1</sup>.

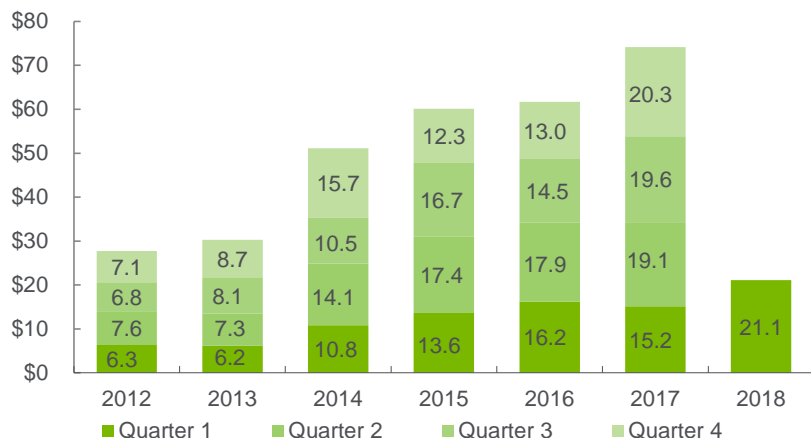
### Activity

- During the first quarter, 1,206 U.S. venture backed transactions totaling \$21.1 billion were completed, up from 4Q 2017's total value of \$20.3 billion but lower than the 1,233 deals completed. This was the strongest quarter on a capital investment basis since Q2 2015 and marks the fourth consecutive quarter of \$20 billion or more invested into venture-backed companies<sup>7</sup>.
  - The number of unicorns in the U.S., or companies with valuations of \$1.0 billion or more, increased by five in 1Q 2018<sup>7</sup>.
- Median pre-money valuations increased across all deal stages, excluding Series C transactions, during Q1. Seed, Series A, and Series B increased by 14.3%, 9.5%, and 1.6%, respectively, to valuations of \$8.0 million, \$23.0 million, and \$63.0 million, respectively. Series D+ deal valuations were up 33.5% quarter-over-quarter and are currently valued at \$266.8 million. Series C pre-money valuations decreased by 26.8% quarter-over-quarter, ending at \$90.0 million<sup>9</sup>.
- Total U.S. venture backed exit activity totaled \$8.1 billion across 188 completed transactions in 1Q 2018, down on a capital basis from \$12.6 billion in 4Q 2017<sup>8</sup>.
  - There were 15 venture-backed initial public offerings during the quarter, which was lower than the 22 completed in 4Q 2017<sup>8</sup>.
  - The number of M&A transactions totaled 144 deals in 1Q 2018, representing a decrease of 19.6% from 1Q 2017<sup>8</sup>.

### Opportunity

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

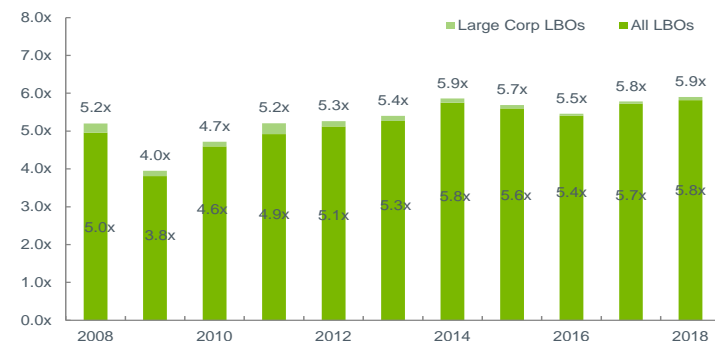
## U.S. Venture Capital Investments by Quarter (\$B)



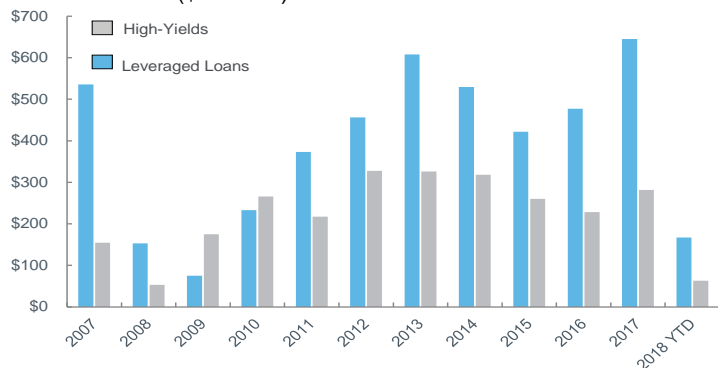
Source: PwC/CB Insights Report

# Leveraged Loans & Mezzanine

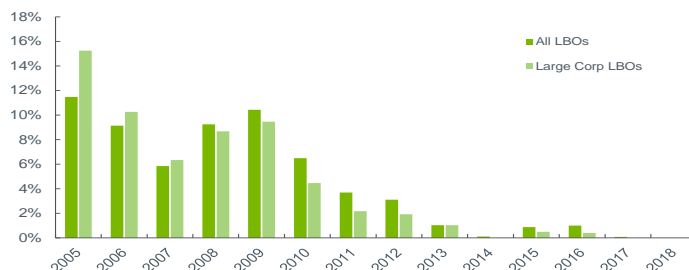
## Average Leverage by Deal Size



## 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 \$26.4 billion during the quarter, down compared to 4Q 2017's total of \$36.4 billion <sup>2</sup>.
- High-yield debt issuance totaled \$62.8 billion in 1Q 2018, down from \$65.9 billion in 4Q 2017 <sup>2</sup>.
- Mutual fund net inflows stood at \$2.9 billion at the end of 1Q 2018, compared to net inflows of \$11.4 billion as of 1Q 2017 <sup>2</sup>.

### Activity

- The average leverage level for large cap LBOs was 5.9x during the quarter, up from 5.8x in 2017. Leverage for all LBO transactions ended the quarter at 5.8x, compared to 5.7x at year end 2017 and continues to be comprised primarily of senior debt. Subordinated debt levels fell to 0.0x during the quarter <sup>3</sup>.
- New leveraged loan issuances in 1Q totaled \$167.0 billion, up from the prior quarter's total of \$133.0 billion. This represents 25.9% of 2017's full year total <sup>2</sup>.
- 56.9% of new leveraged loans were used to support M&A and growth activity during the quarter, down from 60.3% in 2017, but above the prior five year average of 54.8% <sup>3</sup>.
- European leveraged loan issuance increased by 33.0% quarter-over-quarter to €24.1 billion <sup>3</sup>.
  - This was significantly above the five year and ten year average levels of €13.7 billion and €10.1 billion, respectively.
- Leveraged loan spreads for B rated issues tightened quarter-over-quarter, ending 1Q 2018 at L+332 bps compared to L+375 bps at year end 2017. BB- index spreads increased slightly to L+233 bps from L+229 bps during the quarter <sup>2</sup>.

### Opportunity

- Funds with the ability to source deals directly and the capacity to scale for large transactions
- Funds with the flexibility to focus on opportunities in both Europe and the U.S.

## Mezzanine

### Fundraising

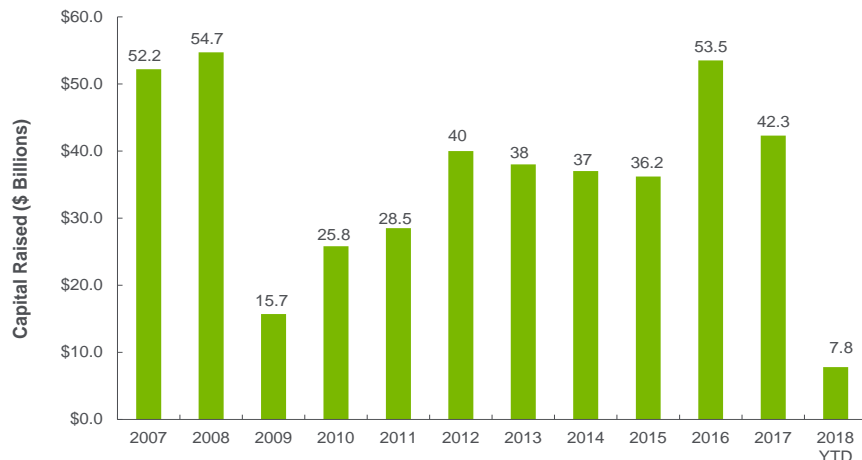
- Twelve funds closed on \$5.1 billion during the quarter, up from 4Q 2017's total of \$2.3 billion raised by eight funds and the five year quarterly average of \$4.8 billion <sup>1</sup>.
- Estimated dry powder was \$45.5 billion at the end of 1Q 2018, down by \$4.9 billion from 4Q 2017 <sup>1</sup>.
- Fundraising remains robust with an estimated 76 funds in market targeting \$30.6 billion of commitments <sup>1</sup>.

### Opportunity

- Funds with the capacity to scale for large sponsored deals.

# Distressed Private Markets

## Distressed Debt, Turnaround, & Special Situations Fundraising



Source: Thomson Reuters

## High-Yield Bond Volume vs Default Rates



Source: UBS & Fitch Ratings

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## Fundraising

- During the quarter, \$7.8 billion was raised by 12 funds, down on a capital basis from 4Q 2017, which saw \$11.7 billion in fundraising across 11 funds <sup>1</sup>.
  - This was below the five year quarterly average of \$10.4 billion.
  - Clearlake Capital Partners V was the largest partnership raised during the quarter, closing on \$3.6 billion.
- Dry powder was estimated at \$117.9 billion at the end 1Q 2018, which was up 11.4% from 4Q 2017. This remained above the five year annual average level of \$98.1 billion <sup>1</sup>.
- Roughly 109 funds were in the market at the end of 1Q 2018, seeking an aggregate \$63.6 billion in capital commitments <sup>1</sup>.
  - Fortress Investment Group and GSO Capital Partners are the largest funds in market with target fund sizes of \$5.0 billion each.

## Activity

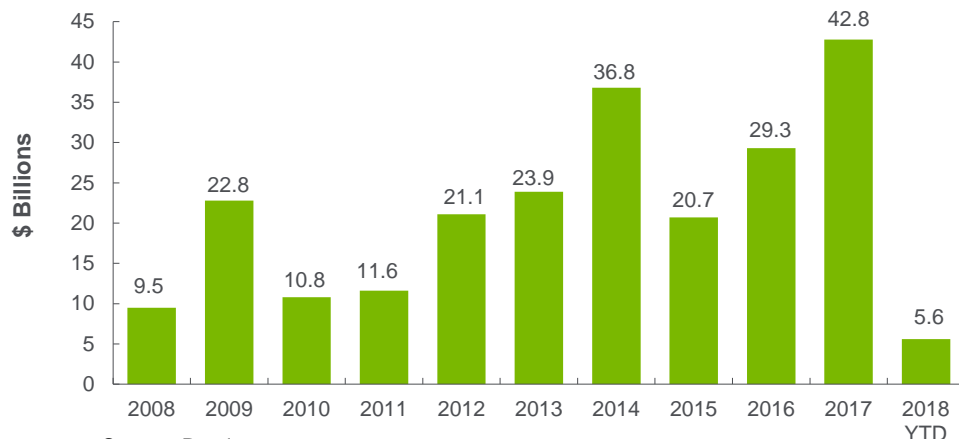
- The LTM U.S. high-yield default rate was 2.7% as of March 2018, which was up from December 2017's LTM rate of 1.8% <sup>6</sup>.
- Credit spreads are now modestly expensive, and yields are also low. The credit risk environment remains benign, but the impact of rising interest rates is becoming more and more pertinent, and further positive returns driven by valuations will be limited. <sup>4</sup>
- Increasing purchase prices and 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

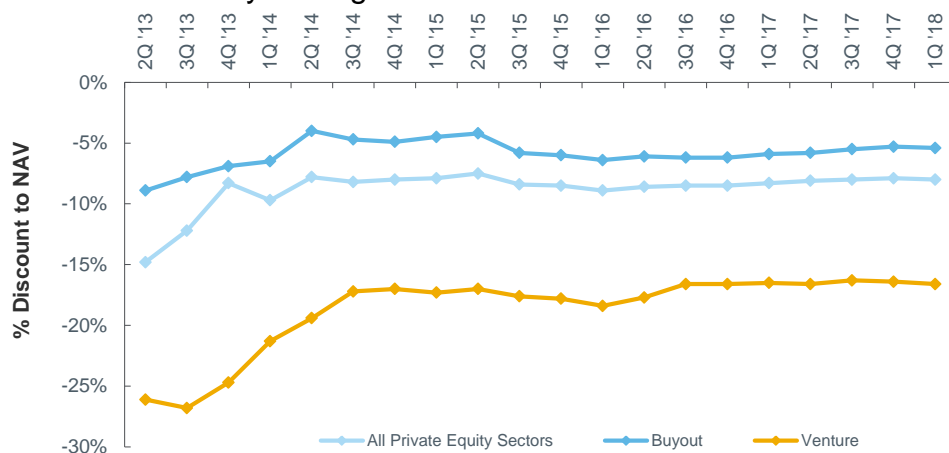
- Funds capable of performing operational turnarounds.
- Funds with the flexibility to invest globally.

# Secondaries

## Secondary Fundraising



## Secondary Pricing



Aon Source: UBS  
 Proprietary & Confidential  
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## Fundraising

- Eight funds raised \$5.6 billion during the first quarter, up from \$3.9 billion raised by 12 funds in 4Q 2017, but lower than the \$19.6 billion raised in 1Q 2017<sup>1</sup>.
  - 1Q 2018's aggregate capital raised represents 13.1% of 2017's full year total.
  - Portfolio Advisors Secondary Fund III was the largest fund raised during the quarter, closing on \$1.5 billion<sup>1</sup>.
- At the beginning of 2018, dry powder was estimated at \$89.0 billion, which was 5.3% lower than 3Q 2017's record level<sup>2</sup>. The top 15 secondary buyers are estimated to command more than 66.0% of the market's capital reserves. While this remains significant, it marks a decrease from the 75.0% of capital previously controlled by this group<sup>2</sup>.
- At the end of 1Q 2018, there were an estimated 34 secondary and direct secondary funds in market, targeting approximately \$29.8 billion. Lexington Capital Partners IX was the largest fund in the market targeting \$12.0 billion<sup>1</sup>.
  - Over 70% of secondary funds are targeting North America and seek 86% of capital being raised.

## Activity

- More than 900 potential buyers and nearly 850 potential sellers of secondary interests have been identified<sup>1</sup>.
  - Fund of funds managers and public pension funds represent the largest proportion of potential sellers at 13.0%, respectively.
- Transaction and fund leverage and deferred payment structures continue to be prevalent and are used as a means to improve pricing in an increasingly competitive environment<sup>2</sup>.
- The average discount rate for all private equity sectors finished Q1 2018 at 8.0%, down from 8.3% at the start of 2017. The average buyout pricing discount ended at 5.4%, while venture ended at a discount of 16.6%<sup>2</sup>.
- Pricing is expected to remain attractive for sellers given the continued high levels of dry powder and competition for secondary transactions<sup>2</sup>.

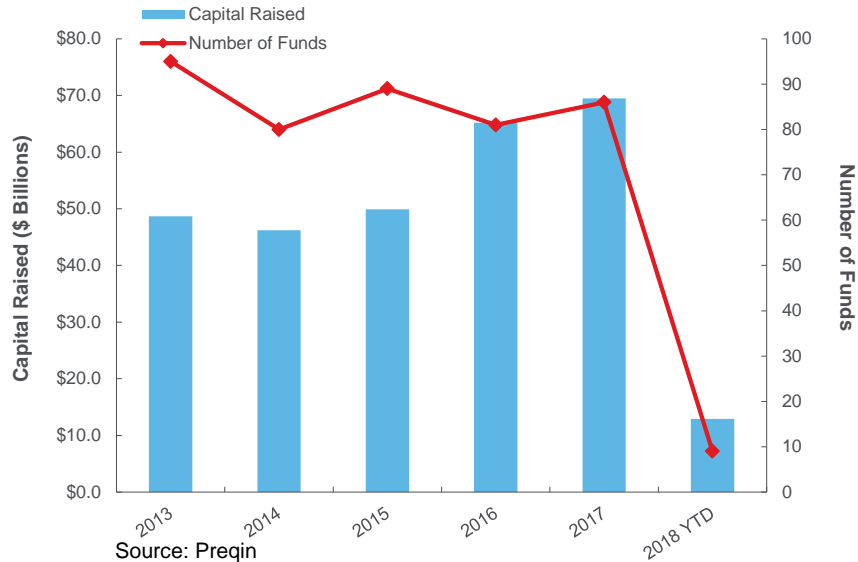
## Opportunity

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

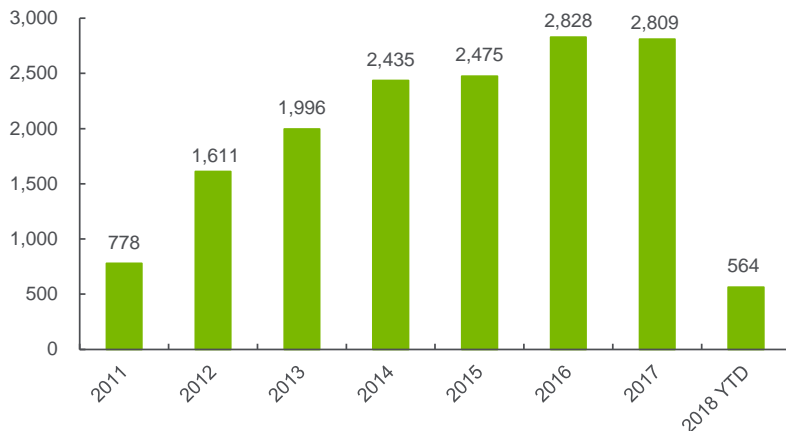


# Infrastructure

## Global Infrastructure Fundraising



## Number of Deals Completed



Aon Source: Preqin

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## Fundraising

- \$12.9 billion of capital was raised by nine funds in 1Q 2018 compared to \$32.3 billion of capital closed on by 23 partnerships in 1Q 2017<sup>1</sup>.
  - Funds raised during the quarter averaged 119.8% of their target size, which was up from 100.5% in 2017<sup>1</sup>.
  - Partners Group Direct Infrastructure 2016 held its final close on €2.2 billion and was the largest fund closed during Q1 2018<sup>1</sup>.
- As of the end of 1Q 2018, there were an estimated 178 funds in the market seeking roughly \$133.0 billion<sup>1</sup>.
  - Funds focused on infrastructure assets in the U.S. were targeting an estimated \$54.0 billion in capital, while European focused funds were targeting approximately \$44.2 billion<sup>1</sup>.
  - Energy Capital Partners IV and Alinda Infrastructure Fund III were the largest funds in the market as of the end of 1Q 2018, targeting \$6.0 billion and \$5.0 billion, respectively. Both are focused on making investments within the U.S.
- At the end of the quarter, dry powder stood at an estimated \$160.0 billion, up from Q4 2017 of \$159.0 billion<sup>1</sup>. An estimated 45.5% of the dry powder was targeting North America, compared to 33.8% for Europe and 20.7% for Asia and the rest of the world<sup>1</sup>.
- Concerns surrounding the relative availability and pricing of assets remain. Fundraising continues to be very competitive given the number of funds and aggregate target level of funds in market. Investor appetite for the asset class persists despite the record levels of dry powder and increased investment activity from strategic and corporate buyers as well as institutional investors.

## Activity

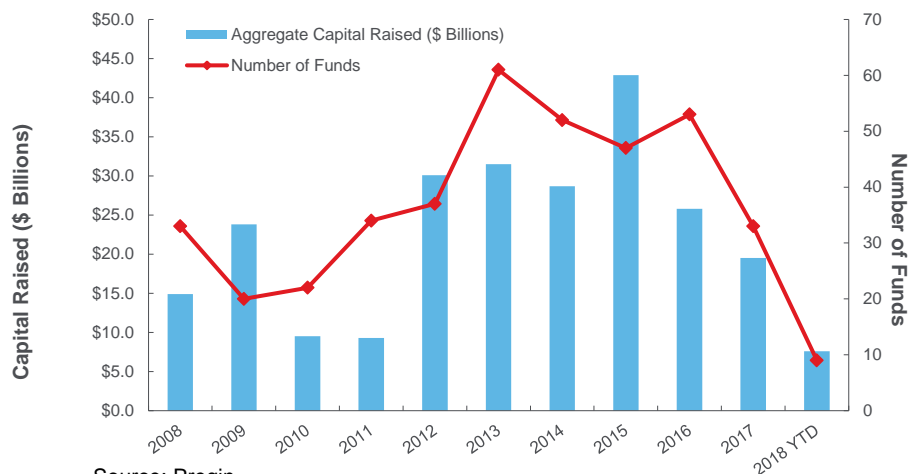
- Infrastructure managers completed 564 deals with an estimated aggregate deal value of \$222.6 billion in 1Q 2018 compared to 825 deals totaling \$230.3 billion a quarter ago<sup>1</sup>. The average deal value during the quarter was \$438.7 million, up compared to the five-year average of \$404.1 million.
  - North America accounted for 39.7% of the deals in 1Q 2018, while 35.5% and 12.1% of deals were transacted in Europe and Asia, respectively<sup>1</sup>.
  - Energy was the dominant industry during the quarter with 63.8% of transactions, followed by the social infrastructure sector, which accounted for 17.2% of the quarter's deals. Utilities accounted for 8.2% of transactions<sup>1</sup>.

## Opportunity

- Greenfield infrastructure is less competitive and offers a premium for managers willing to take on construction risk.
- Mid-market and core-plus brownfield infrastructure is relatively less competitive and may offer better relative value to investors.

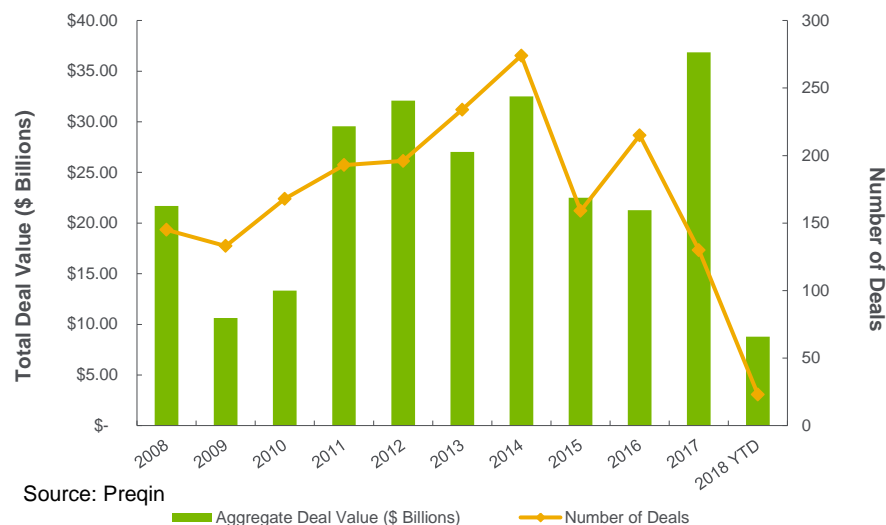
# Natural Resources

## Natural Resources Fundraising



Source: Preqin

## Energy & Utilities Deal Activity



Source: Preqin

Aon

Proprietary & Confidential

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

### Fundraising

- During 1Q 2018, nine funds closed on \$7.6 billion compared to 8 funds totaling \$9.4 billion in 4Q 2017<sup>1</sup>.
  - EnCap Flatrock Midstream Fund IV was the largest fund to close during the period with a final close of \$3.3 billion.
- At the end of 1Q 2018, there were roughly 103 funds in the market targeting an estimated \$54.2 billion in capital, compared to 100 funds seeking an estimated \$39.4 billion in 4Q 2017<sup>1</sup>.
  - Energy Capital Partners IV was seeking the most capital with a target fund size of \$6.0 billion.
- Dry powder was estimated at \$64.3 billion at the end of 1Q 2018, which was down 2.6% from 4Q 2017's level, and remains below the record level of \$78.0 billion observed in 4Q 2016<sup>1</sup>.

### Activity

- Energy and utilities industry managers completed 23 deals totaling a reported \$8.8 billion in 1Q 2018, representing 17.7% and 23.8% of 2017's total deal activity and total deal value, respectively.
- Crude oil prices increased during the quarter.
  - WTI crude oil prices increased 8.4% during the quarter to \$62.73/bbl<sup>11</sup>.
  - Brent crude oil prices ended the quarter at \$66.02/bbl, up 2.6% from year end 2017<sup>11</sup>.
- Natural gas prices (Henry Hub) decreased by 4.6% during the first quarter, ending at \$2.69 per MMBtu<sup>11</sup>.
- A total of 991 crude oil and natural gas rotary rigs were in operation in the U.S. at the end of 1Q 2018, up 6.7% from the prior quarter. Crude oil rigs represented 80.4% of the total rigs in operation<sup>15</sup>.
- The price of iron ore (Tianjin Port) ended the first quarter at \$70.35 per dry metric ton, down 2.6% quarter-over-quarter<sup>12</sup>.

### 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

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1. Preqin
2. UBS
3. Standard & Poor's
4. Aon Hewitt Investment Consulting
5. Thomson Reuters
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. Setter Capital Volume Report: Secondary Market FY 2016
14. KPMG and CB Insights
15. Baker Hughes
16. 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)

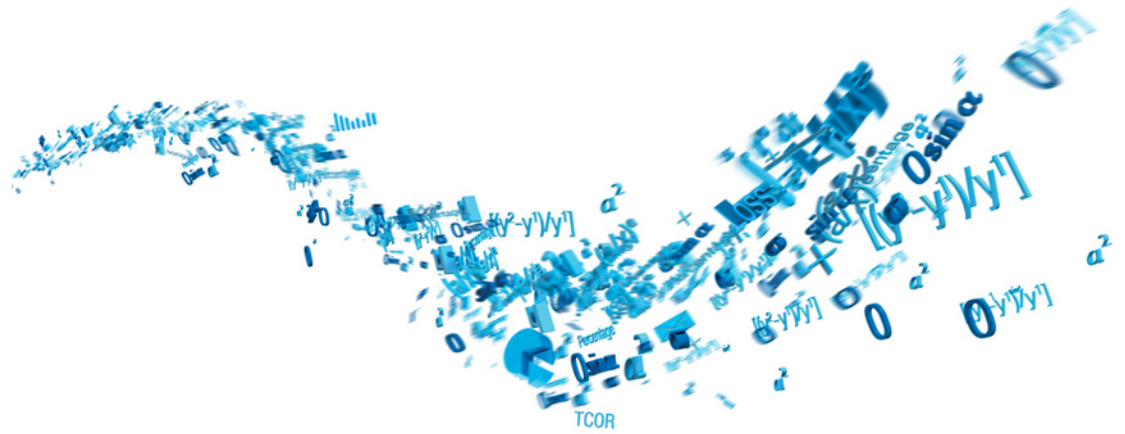
PPM: Purchase Price Multiples: Total Purchase Price / EBITDA

/bbl: Price per barrel

MMBtu: Price per million British thermal units

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# Appendix B:

## Real Estate Market Update

1Q 2018

# United States Real Estate Market Update (1Q18)

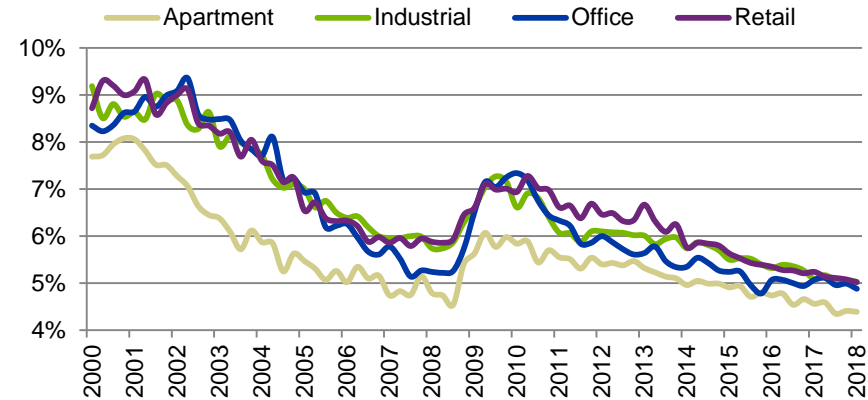
## General

- The S&P 500 produced a gross total return of -0.8% during the Quarter, as markets faced headwinds from a potential global trade war and tightening monetary policy. MSCI US REIT index produced a return of -8.1%. REITS performed in line with the broader equities market for the Quarter, but continue to lag by 18.3% over the TTM period. Consumer Sentiment improved during the Quarter, concluding the year at 101.4.
- Macro indicators for U.S. real estate continue to be positive; GDP grew at an annualized rate of 2.3% in the First Quarter. With the conclusion of March, the economy has now experienced 90 consecutive months of job growth. As of March 31<sup>st</sup>, Core CPI rose by 2.1% YoY, near the Fed's 2% target. The Federal Reserve has continued to tighten their policy, in light of improving economic data and continued positive job growth, and, in March 2018, raised base rates to 1.5-1.75%. In 2018, the consensus expectation remains at three rate hikes.

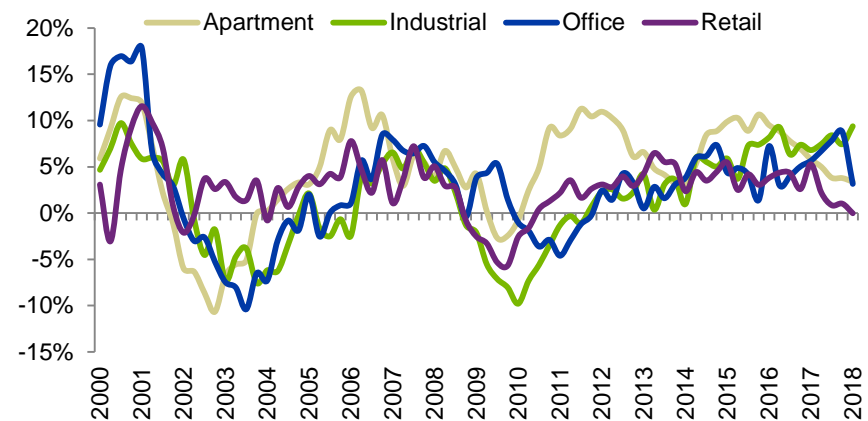
## Commercial Real Estate

- Private Real Estate Market values have remained flat for another quarter. Transaction cap rates (5.65%) on average contracted 22 bps during the Fourth Quarter of 2017. At the same time, current valuation cap rates were primarily flat across property sectors, with the exception of industrial cap rates compressing an additional 11 bps to a historic low of 4.88%.
- NOI growth by sector continued to diverge during the Quarter, with retail NOI growth turning negative. The industrial sector, benefiting from e-commerce and global trade growth, has experienced NOI Growth of 9.4% over the last year.
- In the First Quarter of 2018, \$33bn of aggregate capital was raised by US Real Estate Funds. In 2017, Private Equity Real Estate Funds raised \$111.6bn. Positive momentum was mirrored in the open-ended commingled fund space, which experienced a positive net inflow of \$3.1bn during 2017.
- 10 year treasury bond yields compressed an expanded 33 bps to 2.7% during the quarter and, subsequent to quarter end, have continued to expand. A combination of fiscal stimulus, positive job growth, wage inflation, and tightening from the fed has increased the investors' expectation of inflation.

## Current Value Cap Rates by Property Type



## Exhibit C: 4 Qtr Rolling NOI Growth



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

# United States Property Matrix (1Q18)

## INDUSTRIAL

- As of 1Q18, industrial properties returned 3.3% and outperformed the NPI by 155 bps.
- Net absorption declined to 53 million sqft in 1Q18, comparable to the first quarter of 2017. Net absorption as a % of inventory was 1.7%
- Transaction volumes reached \$16 million, marking a 20% year-over-year increase. Large-scale portfolio sales are expected make 2018 the second highest annual volume recorded.
- New deliveries were 57 million sqft for the quarter, with the active pipeline remaining robust at 233 million sqft.
- Continuing the trend, vacancy declined another 20 bps to another all-time low of 4.8%. Strong demand has pushed asking rents up 5.3% year-over-year.

## MULTIFAMILY

- The apartment sector delivered a 1.5% return during the Quarter, underperforming the NPI by 20 bps.
- Sales volumes increased 32% compared to the first quarter of 2017, totaling \$34 billion. Transaction volume is 9% higher on an annualized basis.
- Primary market transaction activity represented 45.3% of activity, up from 40.3% in 2017. This helped drive up interest in high-rise product, with transactions increasing 115% when compared to the first quarter of 2017.
- Private investors continue to dominate the investment activity, accounting for 65.4% of transactions compared to the historical average of 55.5%.
- Annual rent growth remained at 2.3% for the fourth consecutive quarter. Vacancy increased a modest 14 bps over the 12-month period ending 1Q18.

## OFFICE

- The office sector returned 1.8% in 1Q18, 10bps above the NPI.
- Occupancy growth slowed considerably with net absorption totaling only 3.7 million sqft. On an annualized basis, this would represent a 50% decline from 2017.
- Total vacancy remained consistent at 14.8%, though anticipated new deliveries will apply upward pressure for the remainder of the year. Class A CBD vacancy declined by 20 bps to 11.9%, while Class A suburban rose 20 bps to 16.6%.
- Construction activity increased to over 100 million sqft, with NYC, DC and Chicago accounting for 34%. Deliveries are projected to total 53 million sqft in 2018, with the remainder completing by year-end 2019.
- Asking rents increased 1.6% to \$33.78/sqft. This was driven by suburban rent growth of 2.7%, while CBD experienced a slight decline of 0.2%. Concession packages continue to increase, rising 3.5% and leading to an overall decline in effective rents.

## RETAIL

- As of 1Q18, the retail sector delivered a quarterly return of 0.7%, performing 98 bps below the NPI.
- Transaction volumes declined 30.9% quarter-over-quarter to \$11.6 billion. REIT acquisition activity declined 86.7% quarter-over quarter, remaining net sellers divesting non-core assets.
- Despite the continued announcement of store closures, 12-month rental growth was 5.7%, largely driven by grocery-anchored centers.
- Average cap rates remain at 4.3%. Premier assets continue to trade aggressively, driven by foreign demand, while mall and lifestyle centers struggle to agree on terms.
- Vacancy remained stable at 4.6%, having declined 1 basis point over the prior 12-month period. Investors are optimistic about the opportunity to re-tenant power centers caused by continuing bankruptcies in the market.

# Global Real Estate Market Update (1Q18)

## GLOBAL

- Global investment activity during 1Q 2018 totaled \$165 billion, representing a 15% increase as compared to 1Q 2017 levels. The first quarter activity marks the highest level since 1Q 2007, despite increasing trade tensions and stock market volatility. Looking forward, global investment volumes in 2018 are expected to soften by 5% - 10% to around \$650 billion as investors continue to seek real estate through non-traditional venues outside of single-asset acquisitions, such as debt financing, M&A activity, and alternative sectors. Tokyo held the top global investment position for the quarter, followed by New York and London in second and third place, respectively.

**Direct Commercial Real Estate Investment - Regional Volumes, 2016 - 2018**

	% Change				% Change		% Change	
\$ US Billions	Q4 2017	Q1 2018	Q4 17 - Q1 18	Q1 2017	Q1 17 - Q1 18	FY 2016	FY 2017	FY 16 - FY 17
Americas	66	69	5%	58	19%	285	249	-13%
EMEA	117	56	-52%	56	0%	245	307	25%
Asia Pacific	52	40	-23%	30	33%	131	149	14%
Total	235	165	-30%	144	15%	661	705	7%

Source: Jones Lang LaSalle, April 2018

## EUROPE

- European investment increased totaled \$56.3 billion in 1Q 2018, in line with 1Q 2017 volume levels. Full-year 2018 volumes are predicted to be 10% lower as compared to 2017. The main drivers in European growth were the UK and Germany, with investment volumes for the UK up 10% y/y. Germany's activity was in line with expectations, finishing the quarter with \$13.7 billion of transactions, which represents an increase of 13% y/y. Central and Eastern Europe started the year strong with investment volumes up 36% y/y. The increase was largely driven by Poland, where volumes grew to \$2.4 billion. Within Benelux, Belgium, investment volumes tripled to \$2.4 billion, as opposed to the Netherlands, which saw a 7% y/y decline.

## ASIA

- Asia Pacific's record-breaking investment volumes continued into 1Q 2018, with y/y activity up 34% to \$40 billion. Demand was strong across the region's major markets, with investment activity in Japan and Hong Kong up 23% and 72%, respectively. Conversely, transaction volumes in Singapore and South Korea declined by 39% and 18%, respectively. Investment in India during the quarter was strong, with volumes reaching \$872 million. The high volumes were due to offshore investors seeking exposure to one of the world's fastest-growing economies. In Australia, investment volumes were at \$4.7 billion for the quarter. The majority of activity was concentrated in Sydney and Melbourne, which represented 86% of total national investment volumes. Transaction volumes in mainland China were up 93% y/y, with the retail sector accounting for 34% of total activity. The 72% y/y increase in Hong Kong was largely driven by record-breaking office transactions. Cross-border investment activity accounted for 34% of total transaction volumes.

## Global Outlook - GDP (Real) Growth % pa, 2017-2019

	2017	2018	2019
<b>Global</b>	<b>3.7</b>	<b>3.9</b>	<b>3.7</b>
<b>Asia Pacific</b>	<b>5.5</b>	<b>5.5</b>	<b>5.2</b>
Australia	2.3	2.7	2.6
China	6.9	6.4	6.0
India	6.4	7.3	7.0
Japan	1.7	1.5	0.9
<b>North America</b>	<b>2.0</b>	<b>2.6</b>	<b>2.6</b>
US	2.3	2.9	2.5
<b>MENA*</b>	<b>1.9</b>	<b>3.2</b>	<b>3.7</b>
<b>European Union</b>	<b>3.0</b>	<b>2.6</b>	<b>2.1</b>
France	2.0	1.8	1.9
Germany	2.5	2.4	1.8
UK	1.7	1.8	1.6

\*Middle East North Africa

Source: Jones Lang LaSalle (Oxford Economics), April 2018



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# PCA INVESTMENT MARKET RISK METRICS

## Monthly Report



July 2018  
(as of 6/30/18)

# Takeaways

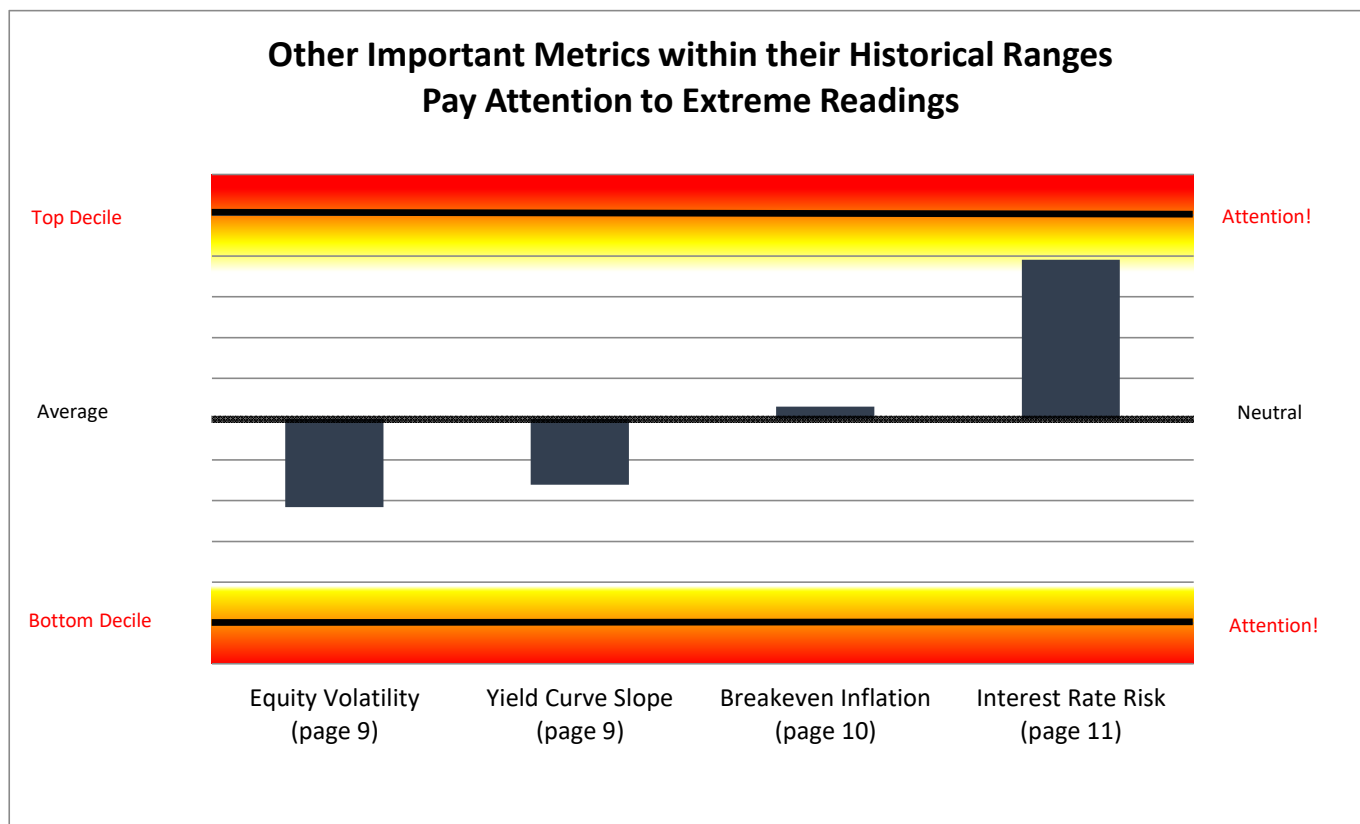
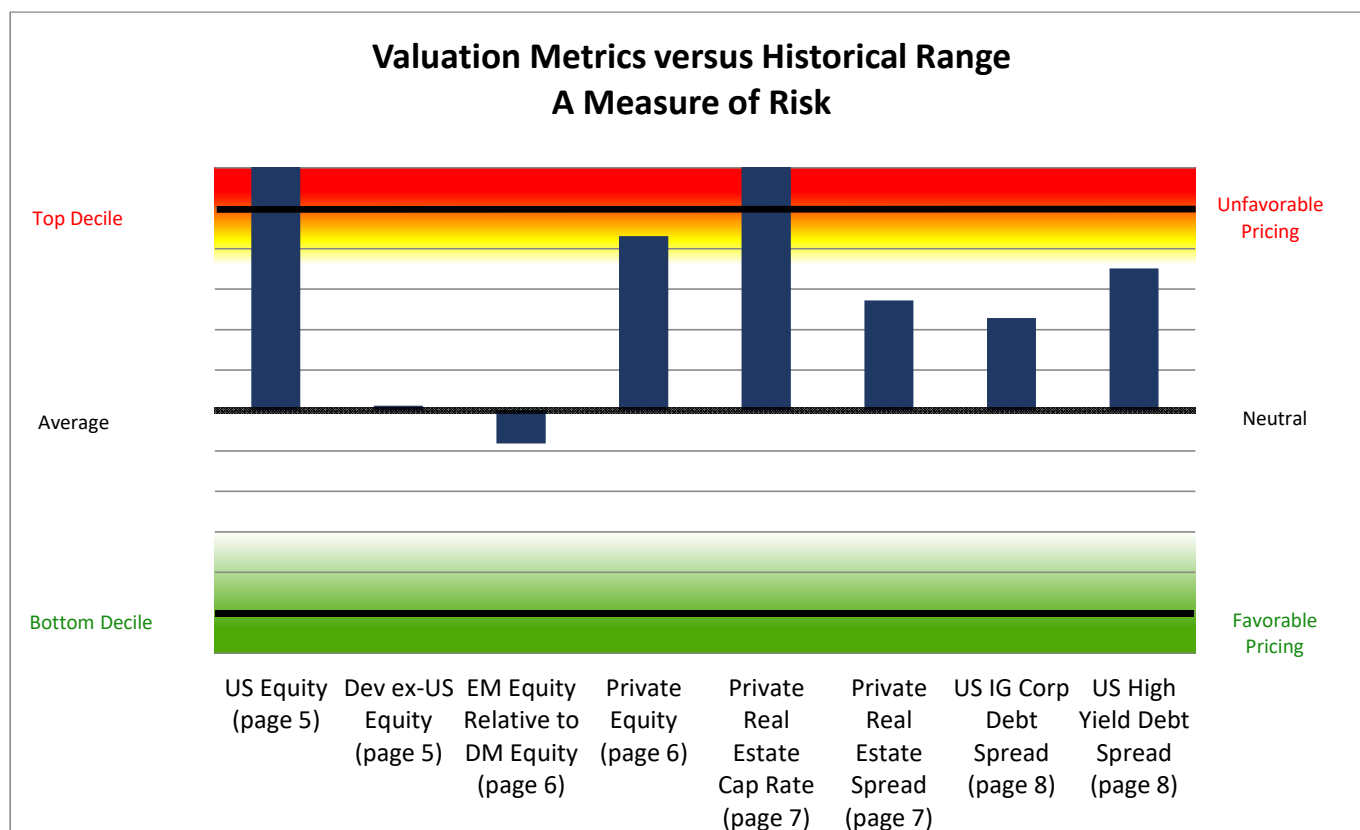
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- June was a relatively benign month with the exception of Emerging Markets equities, which experienced mid-single digit drawdowns over the month. The majority of asset classes produced slight positive or slight negative returns over the period.
- Implied equity market volatility (i.e., VIX) increased over the month but still remained materially below the long-term average level.
- For the second month in a row (and the first time since mid-2016), PCA's sentiment indicator (page 4) remained neutral (**gray**). This is the result of year-over-year changes in bond spreads.
- U.S. Treasury interest rates were relatively stable during June, and the yield curve remains relatively flat. As of the end of the month, the spread between 30-year and 3-month U.S. Treasury yields was roughly 1.05%, a level not seen since 2008.
- Non-U.S. Developed and Emerging Market equity valuations are currently in-line with long-term averages, but they remain modestly cheap relative to U.S. levels.
- A prevailing market theme at the moment is the divergence of U.S. fiscal and monetary policies. Whereas fiscal policy is currently stimulative, monetary policy is generally tightening as economic growth, inflation, and unemployment are approaching late-cycle levels. PCA expects this to remain a topic of interest/concern throughout 2018.

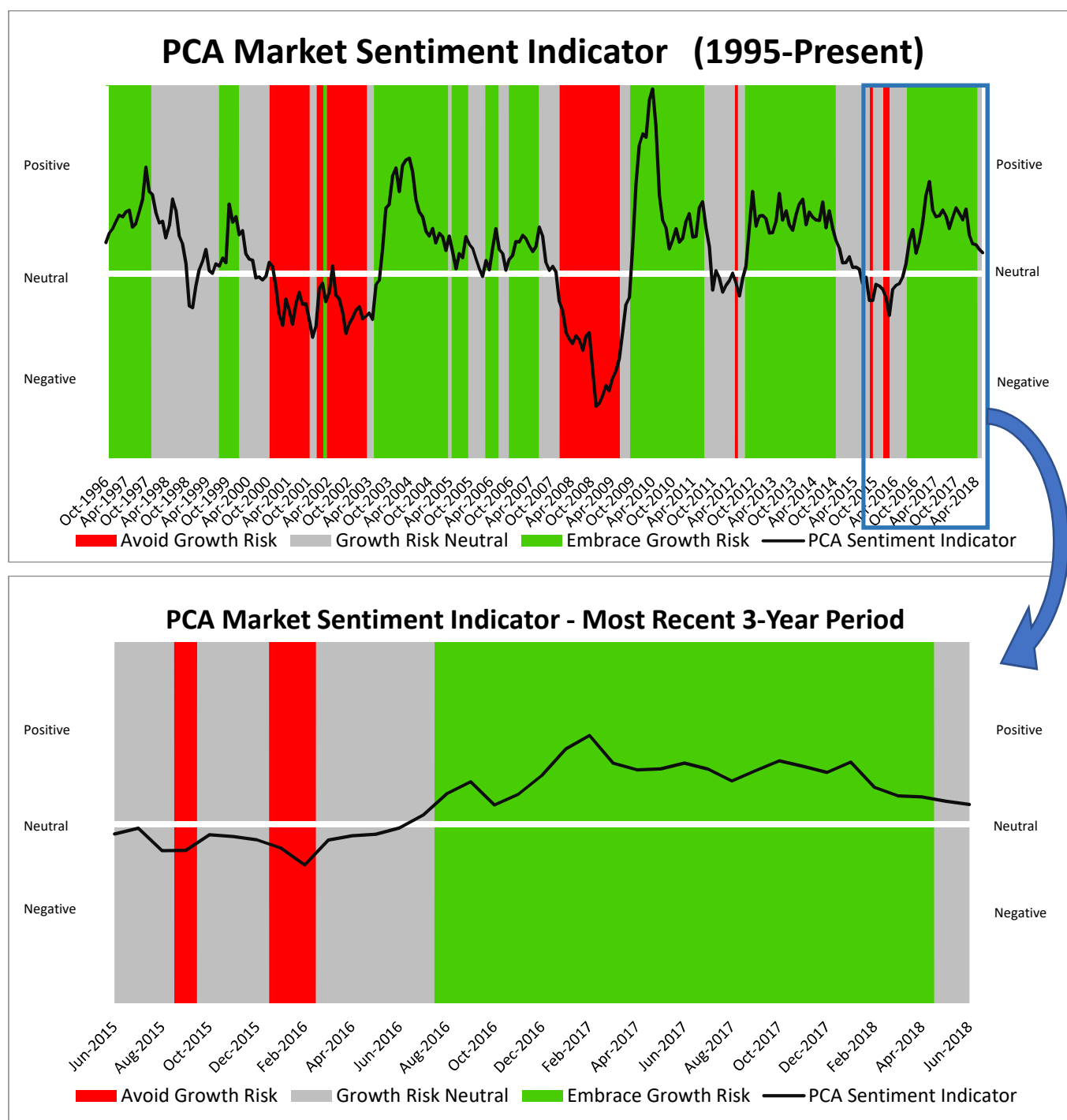
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<sup>1</sup>See Appendix for the rationale for selection and calculation methodology used for the risk metrics.

## Risk Overview



## Market Sentiment



### Information Behind Current Sentiment Reading

Bond Spread Momentum Trailing-Twelve Months

Equity Return Momentum Trailing-Twelve Months

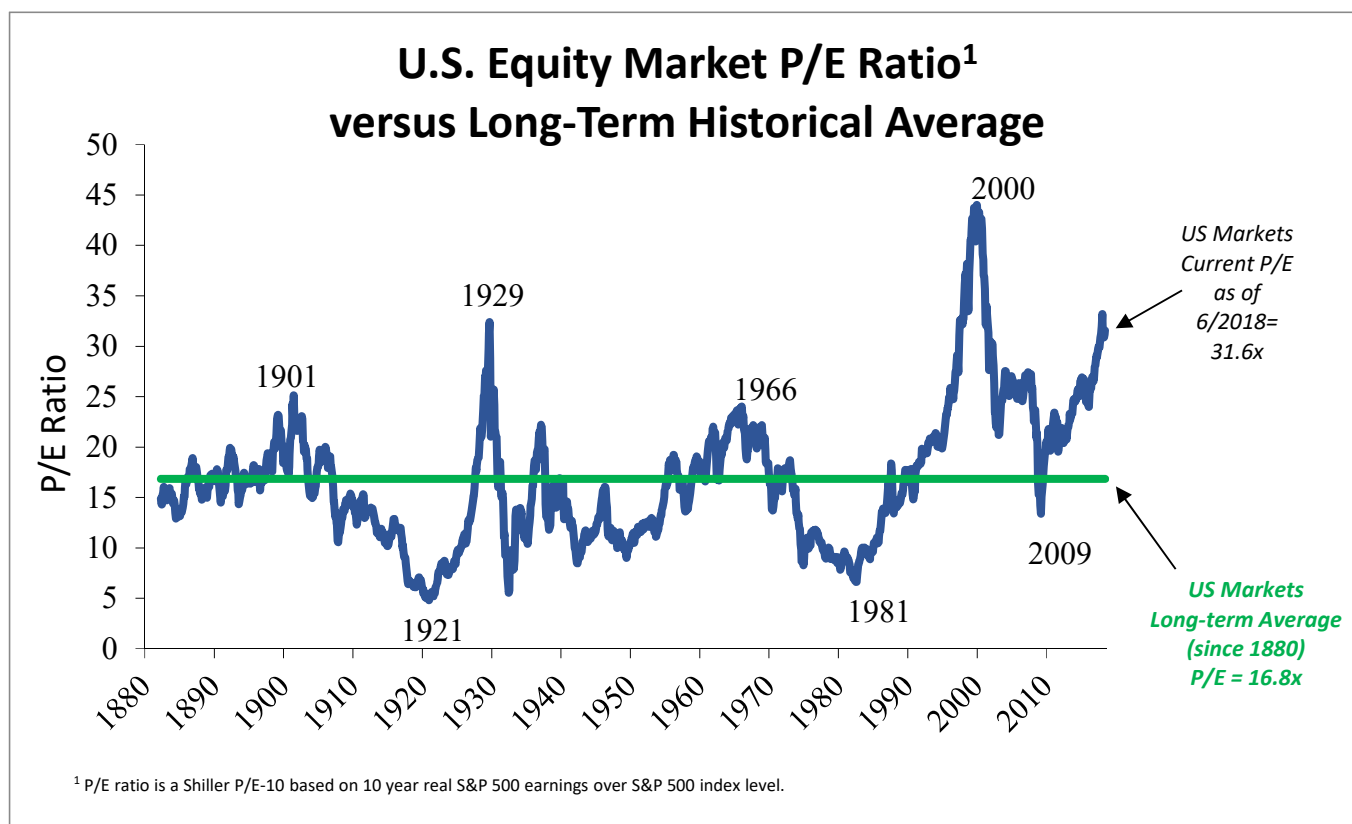
Agreement Between Bond Spread and Equity Spread Momentum Measures?

Negative	
Positive	
Disagree	

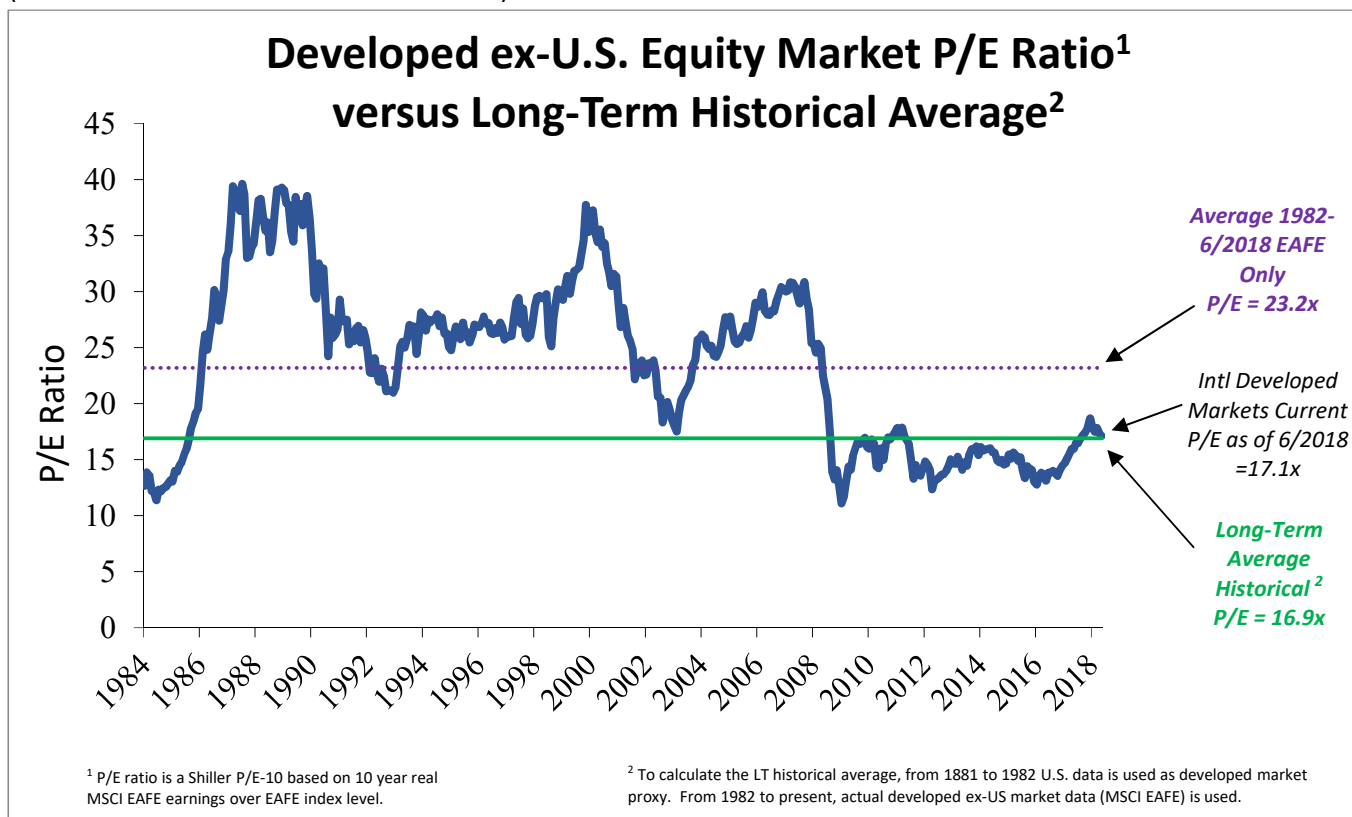
### Growth Risk Visibility (Current Overall Sentiment)

Neutral	
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## Developed Public Equity Markets

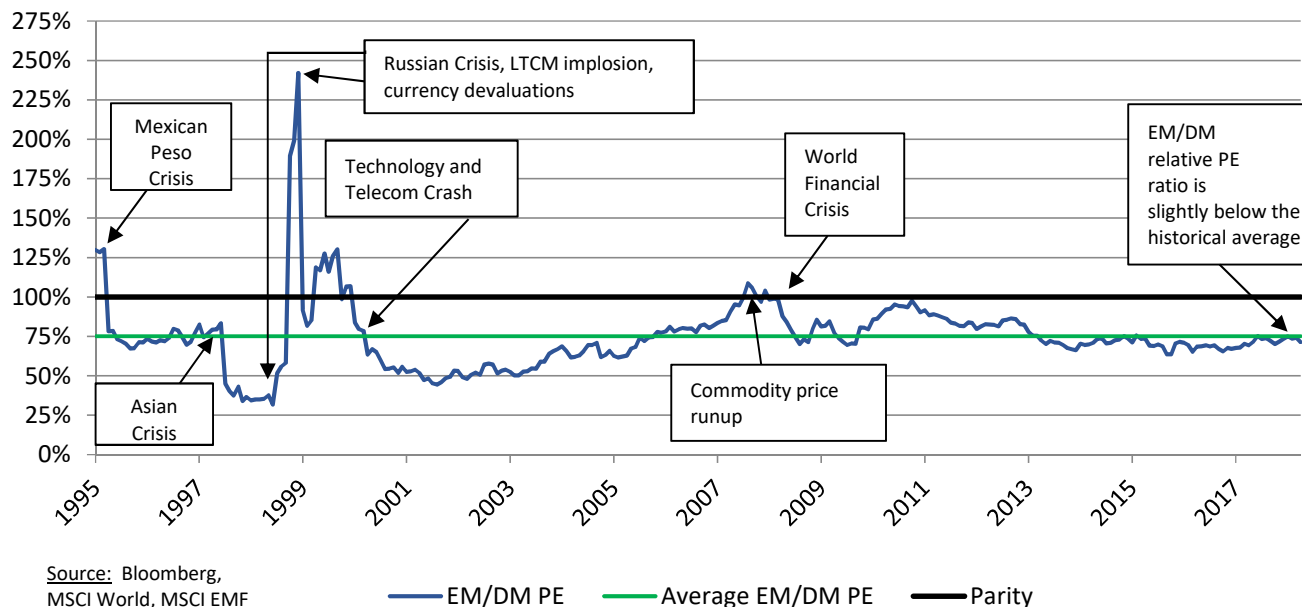


(Please note the difference in time scales)



## Emerging Market Public Equity Markets

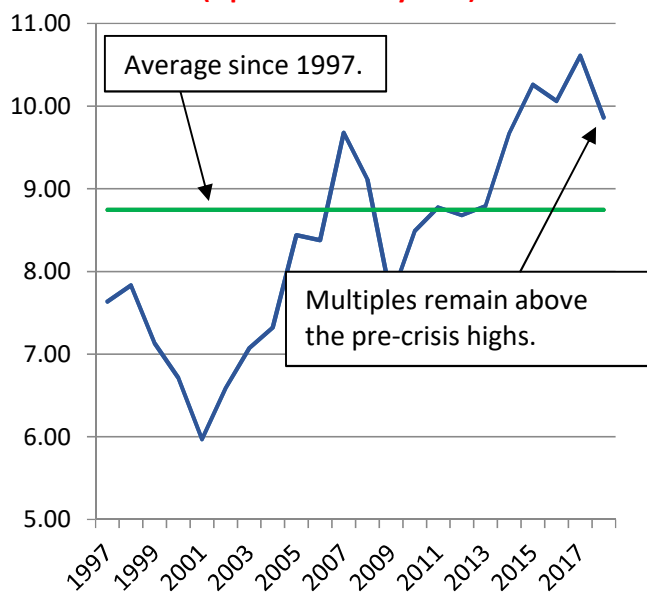
### Emerging Markets PE / Developed Markets PE (100% = Parity between PE Ratios)



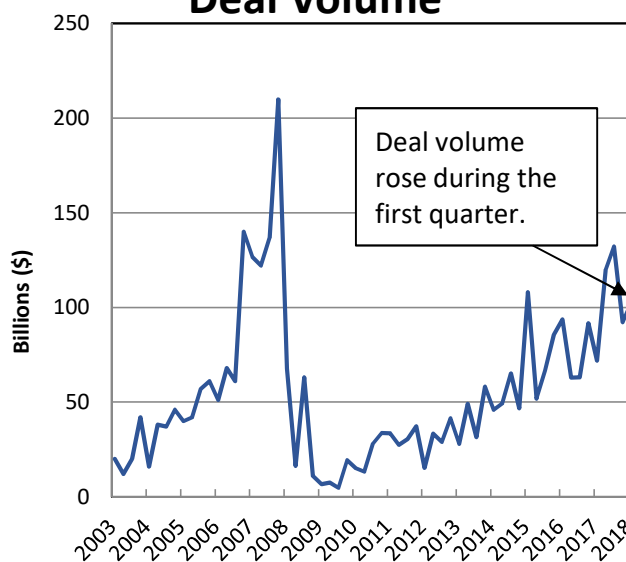
## US Private Equity

Quarterly Data, Updated to March 31st

### Price to EBITDA Multiples Paid in LBOs (Updated to May 31st)



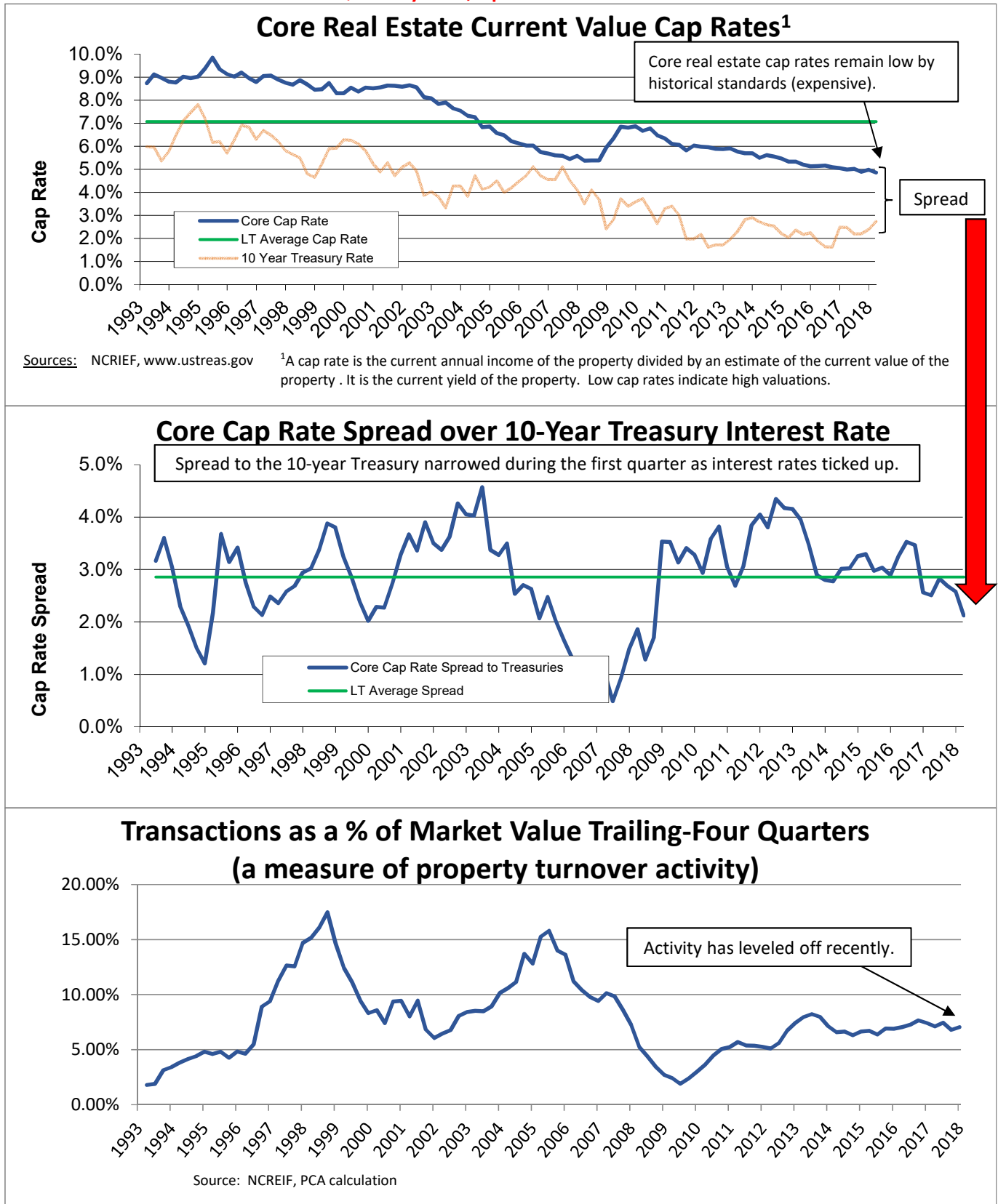
### Disclosed U.S. Quarterly Deal Volume\*





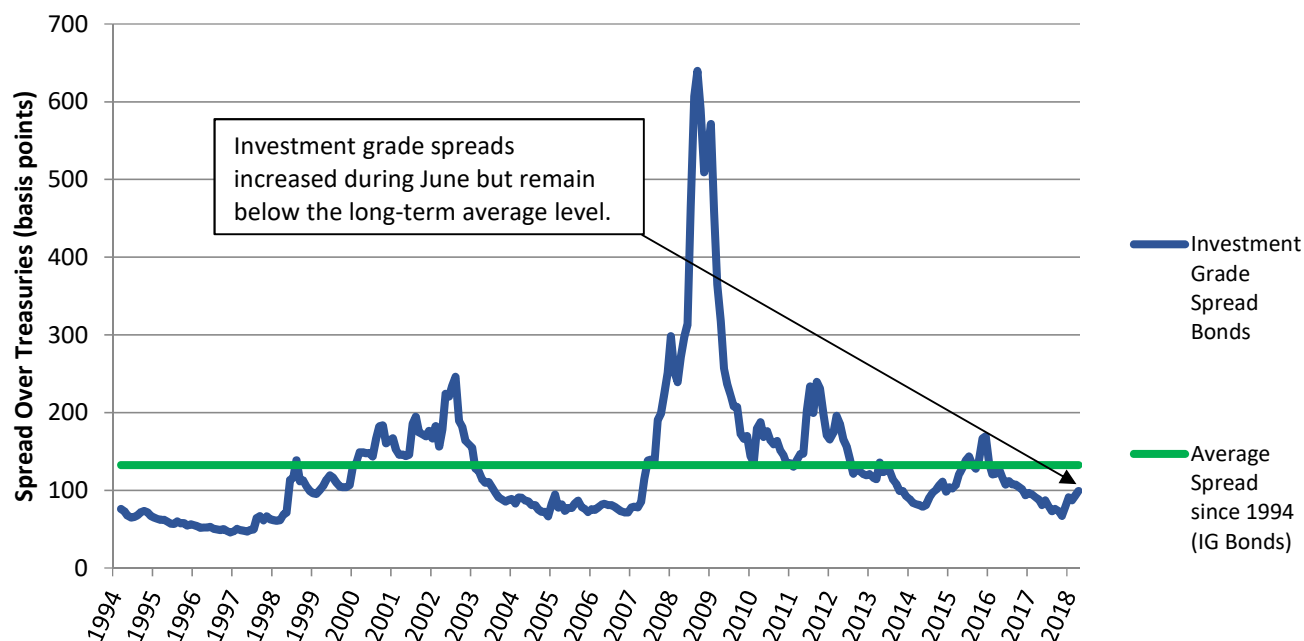
## Private Real Estate

Quarterly Data, Updated to March 31st.



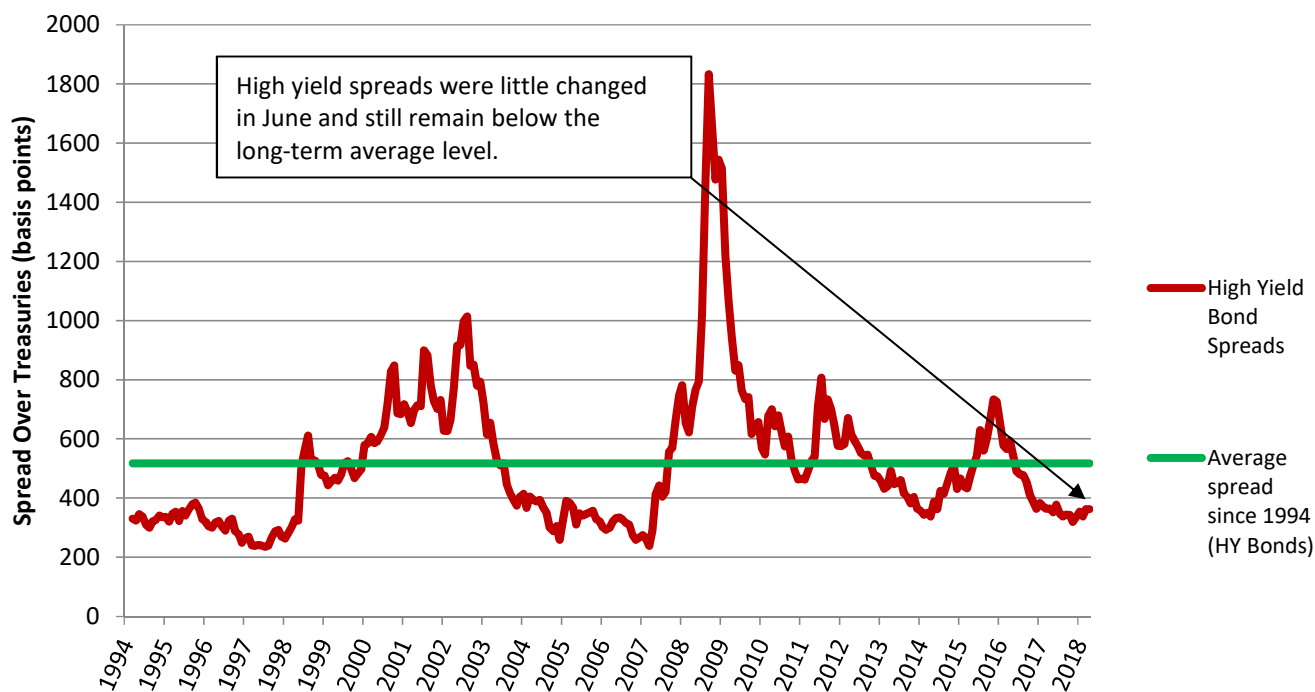
## Credit Market US Fixed Income

### Investment Grade Corporate Bond Spreads



Source: LehmanLive: Barclays Capital US Corporate Investment Grade Index Intermediate Component.

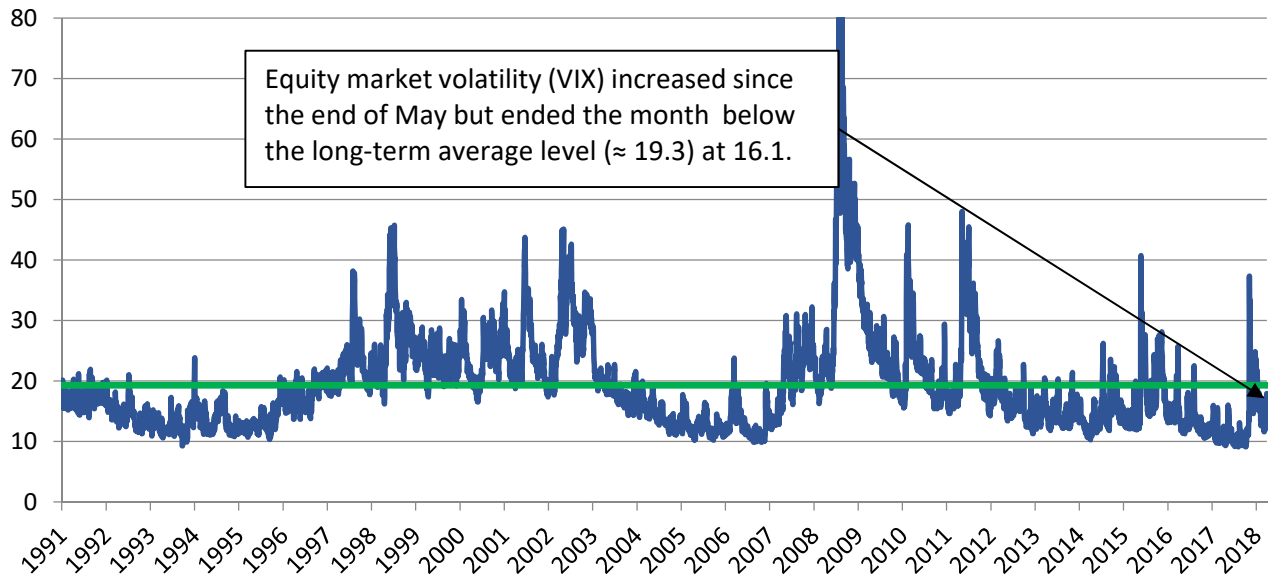
### High Yield Corporate Bond Spreads



Source: LehmanLive: Barclays Capital U.S. Corporate High Yield Index.

## Other Market Metrics

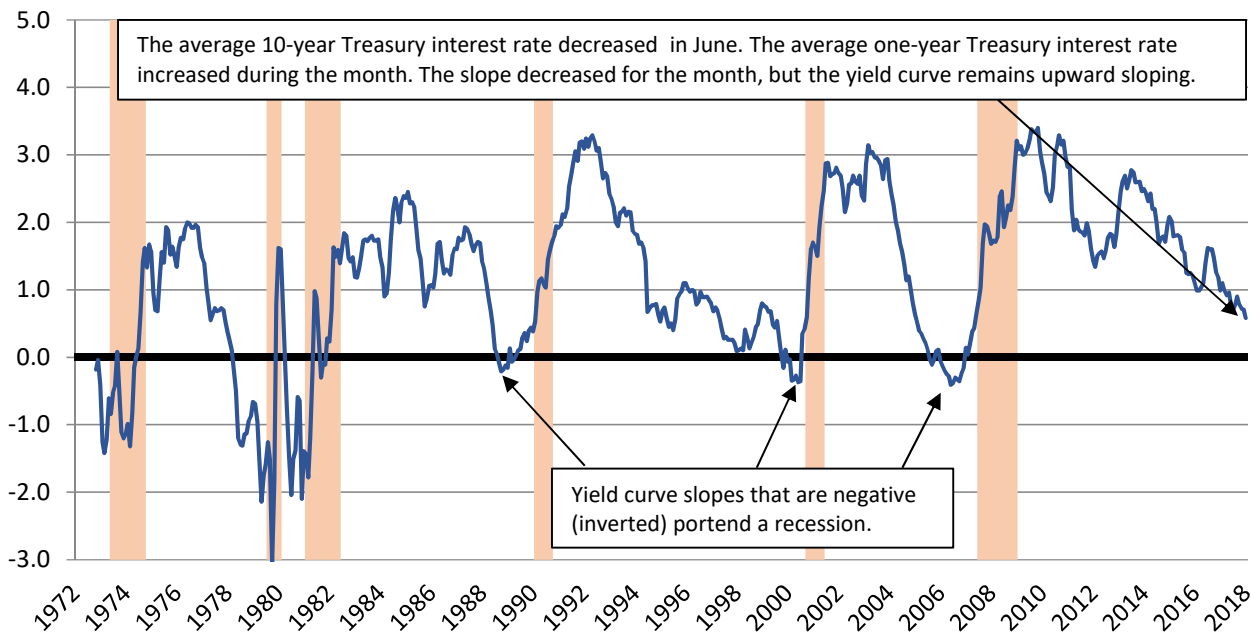
### VIX - a measure of equity market fear / uncertainty



Source: <http://www.cboe.com/micro/vix/historical.aspx>

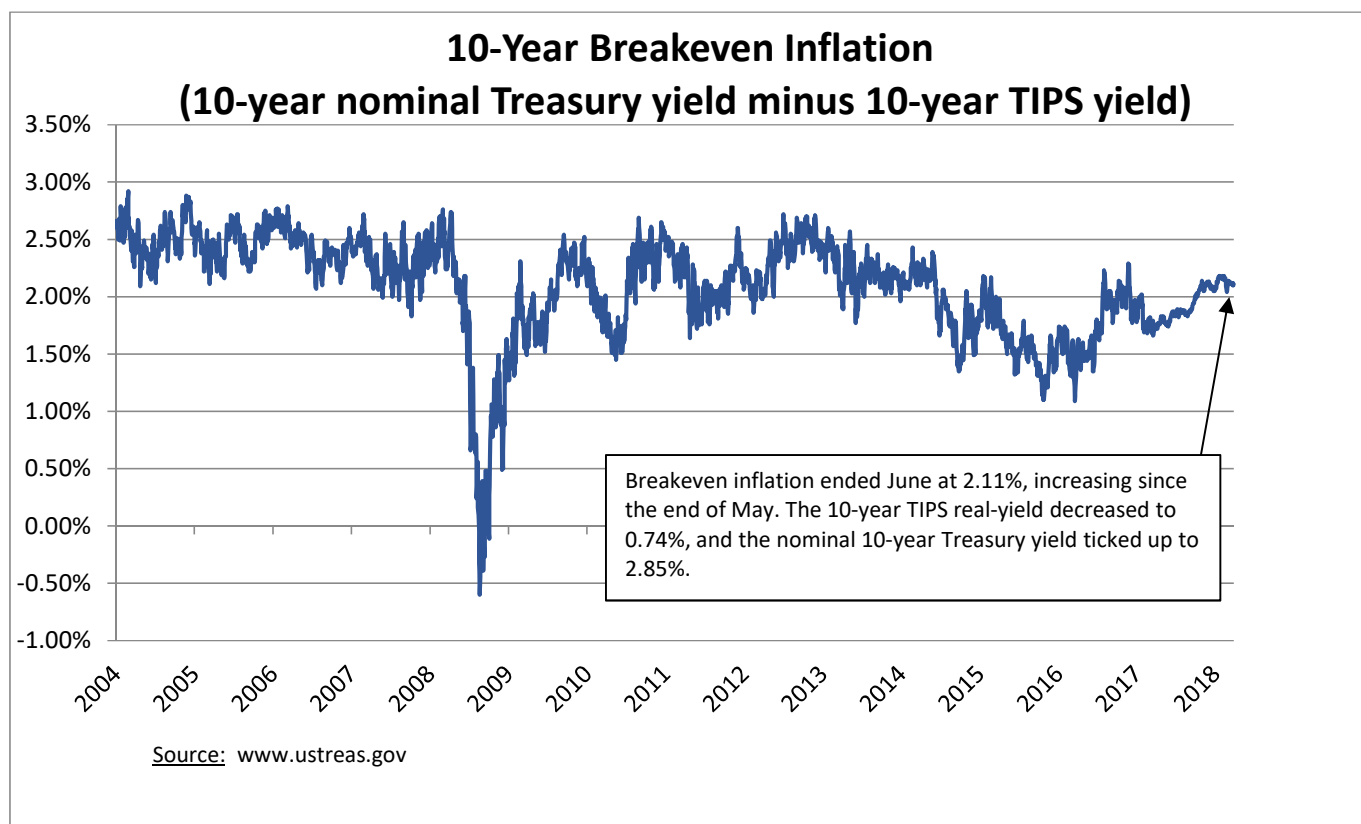
(Please note the difference in time scales)

### Yield Curve Slope

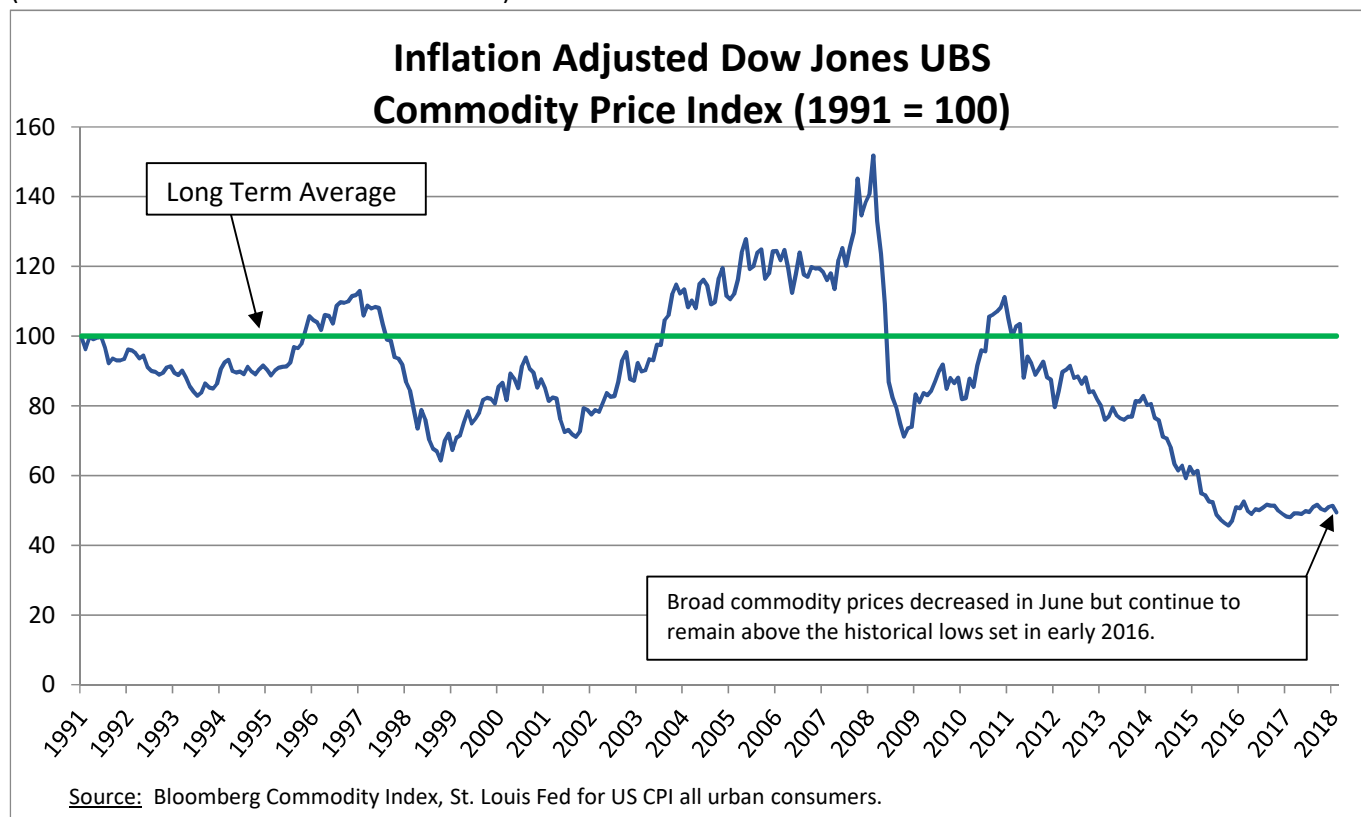


Source: [www.ustreas.gov](http://www.ustreas.gov) (10 yr treasury yield minus 1 year treasury yield)

## Measures of Inflation Expectations

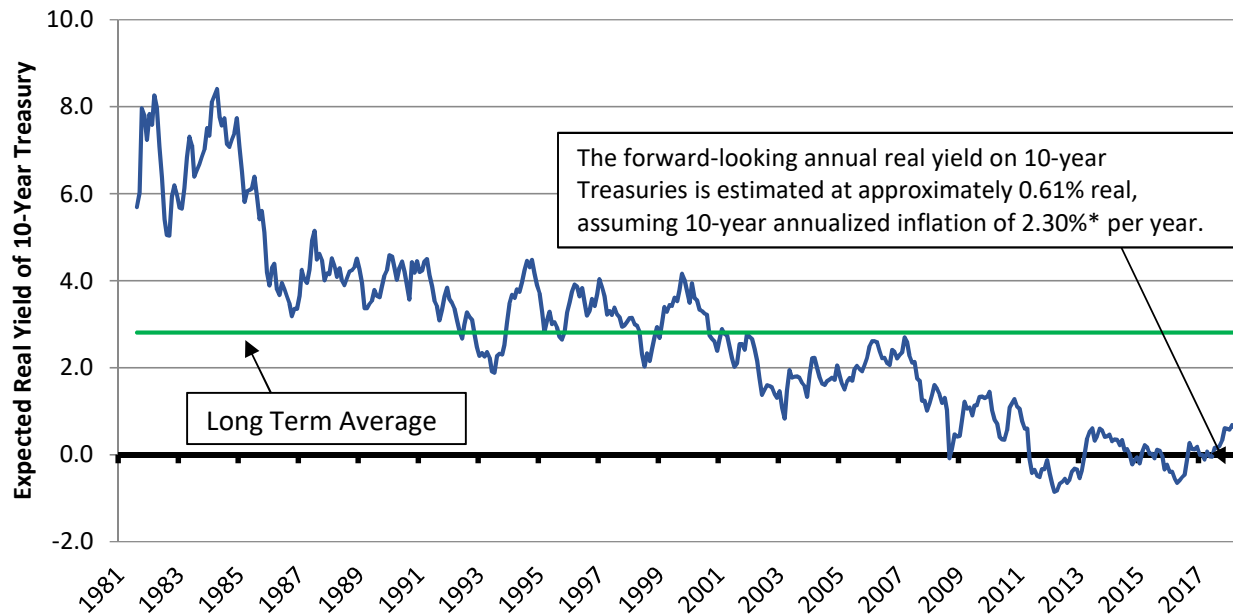


(Please note the difference in time scales)



## Measures of U.S. Treasury Interest Rate Risk

### Estimate of 10-Year Treasury Forward-Looking Real Yield

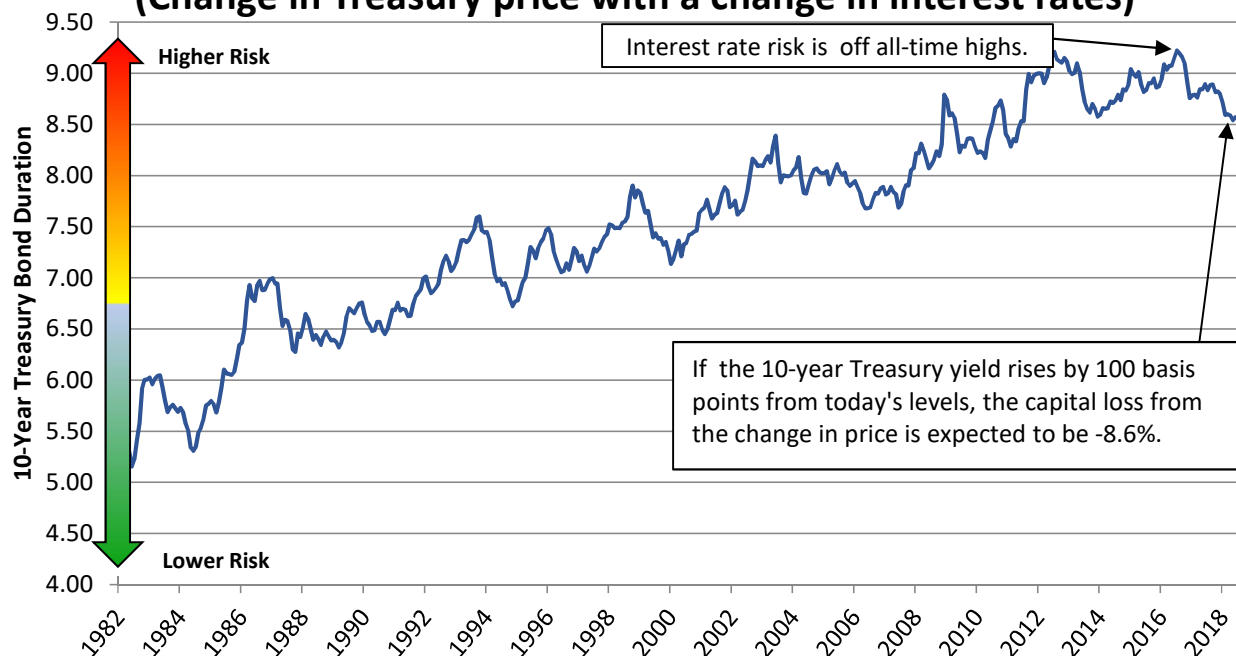


Sources: [www.ustreas.gov](http://www.ustreas.gov) for 10-year constant maturity rates

\*Federal Reserve Bank of Philadelphia survey of professional forecasts for inflation estimates

### 10-Year Treasury Duration

#### (Change in Treasury price with a change in interest rates)



Source: [www.ustreas.gov](http://www.ustreas.gov) for 10-year constant maturity rates, calculation of duration

# Appendix

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# Appendix

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## METRIC DESCRIPTION, RATIONALE FOR SELECTION AND CALCULATION METHODOLOGY

### **US Equity Markets:**

Metric: P/E ratio = Price / "Normalized" earnings for the S&P 500 Index

To represent the price of US equity markets, we have chosen the S&P 500 index. This index has the longest published history of price, is well known, and also has reliable, long-term, published quarterly earnings. The price= $P$  of the P/E ratio is the current price of the market index (the average daily price of the most recent full month for the S&P 500 index). Equity markets are very volatile. Prices fluctuate significantly during normal times and extremely during periods of market stress or euphoria. Therefore, developing a measure of earnings power ( $E$ ) which is stable is vitally important, if the measure is to provide insight. While equity prices can and do double, or get cut in half, real earnings power does not change nearly as much. Therefore, we have selected a well known measure of real, stable earnings power developed by Yale Professor Robert Shiller known as the Shiller E-10. The calculation of E-10 is simply the average real annual earnings over the past 10 years. Over 10 years, the earnings shenanigans and boom and bust levels of earnings tend to even out (and often times get restated). Therefore, this earnings statistic gives a reasonably stable, slow-to-change estimate of average real earnings power for the index. Professor Shiller's data and calculation of the E-10 are available on his website at <http://www.econ.yale.edu/~shiller/data.htm>. We have used his data as the base for our calculations. Details of the theoretical justification behind the measure can be found in his book *Irrational Exuberance* [Princeton University Press 2000, Broadway Books 2001, 2nd ed., 2005].

### **Developed Equity Markets Excluding the US:**

Metric: P/E ratio = Price / "Normalized" earnings for the MSCI EAFE Index

To represent the price of non-US developed equity markets, we have chosen the MSCI EAFE index. This index has the longest published history of price for non-US developed equities. The price= $P$  of the P/E ratio is the current price of the market index (the average daily price of the most recent full month for the MSCI EAFE index). The price level of this index is available starting in December 1969. Again, for the reasons described above, we elected to use the Shiller E-10 as our measure of earnings ( $E$ ). Since 12/1972, a monthly price earnings ratio is available from MSCI. Using this quoted ratio, we have backed out the implied trailing-twelve month earnings of the EAFE index for each month from 12/1972 to the present. These annualized earnings are then inflation adjusted using CPI-U to represent real earnings in US dollar terms for each time period. The Shiller E-10 for the EAFE index (10 year average real earnings) is calculated in the same manner as detailed above.

However, we do not believe that the pricing and earnings history of the EAFE markets are long enough to be a reliable representation of pricing history for developed market equities outside of the US. Therefore, in constructing the Long-Term Average Historical P/E for developed ex-US equities for comparison purposes, we have elected to use the US equity market as a developed market proxy, from 1881 to 1982. This lowers the Long-Term Average Historical P/E considerably. We believe this methodology provides a more realistic historical comparison for a market with a relatively short history.

# Appendix

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## METRIC DESCRIPTION, RATIONALE FOR SELECTION AND CALCULATION METHODOLOGY

### **Emerging Market Equity Markets:**

Metric: Ratio of Emerging Market P/E Ratio to Developed Market P/E Ratio

To represent the Emerging Markets P/E Ratio, we have chosen the MSCI Emerging Market Free Index, which has P/E data back to January 1995 on Bloomberg. To represent the Developed Markets PE Ratio, we have chosen the MSCI World Index, which also has data back to January 1995 on Bloomberg. Although there are issues with published, single time period P/E ratios, in which the denominator effect can cause large movements, we feel that the information contained in such movements will alert investors to market activity that they will want to interpret.

### **US Private Equity Markets:**

Metrics: S&P LCD Average EBITDA Multiples Paid in LBOs and US Quarterly Deal Volume

The Average Purchase Price to EBITDA multiples paid in LBOs is published quarterly by S&P in their LCD study. This is the total price paid (both equity and debt) over the trailing-twelve month EBITDA (earnings before interest, taxes, depreciation and amortization) as calculated by S&P LCD. This is the relevant, high-level pricing metric that private equity managers use in assessing deals. Data is published monthly.

US quarterly deal volume for private equity is the total deal volume in \$ billions (both equity and debt) reported in the quarter by Thomson Reuters Buyouts. This metric gives a measure of the level of activity in the market. Data is published quarterly.

### **U.S Private Real Estate Markets:**

Metrics: US Cap Rates, Cap Rate Spreads, and Transactions as a % of Market Value

Real estate cap rates are a measure of the price paid in the market to acquire properties versus their annualized income generation before financing costs (NOI=net operating income). The data, published by NCREIF, describes completed and leased properties (core) on an unleveraged basis. We chose to use current value cap rates. These are capitalization rates from properties that were revalued during the quarter. This data relies on estimates of value and therefore tends to be lagging (estimated prices are slower to rise and slower to fall than transaction prices). The data is published quarterly.

Spreads between the cap rate (described above) and the 10-year nominal Treasury yield, indicate a measure of the cost of properties versus a current measure of the cost of financing.

Transactions as a % of Market Value Trailing-Four Quarters is a measure of property turnover activity in the NCREIF Universe. This quarterly metric is a measure of activity in the market.

### **Credit Markets US Fixed Income:**

Metric: Spreads

The absolute level of spreads over treasuries and spread trends (widening / narrowing) are good indicators of credit risk in the fixed income markets. Spreads incorporate estimates of future default, but can also be driven by technical dislocations in the fixed income markets. Abnormally narrow spreads (relative to historical levels) indicate higher levels of valuation risk, wide spreads indicate lower levels of valuation risk and / or elevated default fears. Investment grade bond spreads are represented by the Barclays Capital US Corporate Investment Grade Index Intermediate Component. The high yield corporate bond spreads are represented by the Barclays Capital US Corporate High Yield Index.



# Appendix

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## METRIC DESCRIPTION, RATIONALE FOR SELECTION AND CALCULATION METHODOLOGY

### **Measure of Equity Market Fear / Uncertainty**

Metric: VIX – Measure of implied option volatility for U.S. equity markets

The VIX is a key measure of near-term volatility conveyed by implied volatility of S&P 500 index option prices. VIX increases with uncertainty and fear. Stocks and the VIX are negatively correlated. Volatility tends to spike when equity markets fall.

### **Measure of Monetary Policy**

Metric: Yield Curve Slope

We calculate the yield curve slope as the 10 year treasury yield minus the 1 year treasury yield. When the yield curve slope is zero or negative, this is a signal to pay attention. A negative yield curve slope signals lower rates in the future, caused by a contraction in economic activity. Recessions are typically preceded by an inverted (negatively sloped) yield curve. A very steep yield curve (2 or greater) indicates a large difference between shorter-term interest rates (the 1 year rate) and longer-term rates (the 10 year rate). This can signal expansion in economic activity in the future, or merely higher future interest rates.

### **Measures of US Inflation Expectations**

Metrics: Breakeven Inflation and Inflation Adjusted Commodity Prices

Inflation is a very important indicator impacting all assets and financial instruments. Breakeven inflation is calculated as the 10 year nominal treasury yield minus the 10 year real yield on US TIPS (treasury inflation protected securities). Abnormally low long-term inflation expectations are indicative of deflationary fears. A rapid rise in breakeven inflation indicates an acceleration in inflationary expectations as market participants sell nominal treasuries and buy TIPS. If breakeven inflation continues to rise quarter over quarter, this is a signal of inflationary worries rising, which may cause Fed action and / or dollar decline.

Commodity price movement (above the rate of inflation) is an indication of anticipated inflation caused by real global economic activity putting pressure on resource prices. We calculate this metric by adjusted in the Dow Jones UBS Commodity Index (formerly Dow Jones AIG Commodity Index) by US CPI-U. While rising commodity prices will not necessarily translate to higher US inflation, higher US inflation will likely show up in higher commodity prices, particularly if world economic activity is robust.

These two measures of anticipated inflation can, and often are, conflicting.

### **Measures of US Treasury Bond Interest Rate Risk**

Metrics: 10-Year Treasury Forward-Looking Real Yield and 10-Year Treasury Duration

The expected annualized real yield of the 10 year U.S. Treasury Bond is a measure of valuation risk for U.S. Treasuries. A low real yield means investors will accept a low rate of expected return for the certainty of receiving their nominal cash flows. PCA estimates the expected annualized real yield by subtracting an estimate of expected 10 year inflation (produced by the Survey of Professional Forecasters as collected by the Federal Reserve Bank of Philadelphia), from the 10 year Treasury constant maturity interest rate.

Duration for the 10-Year Treasury Bond is calculated based on the current yield and a price of 100. This is a measure of expected percentage movements in the price of the bond based on small movements in percentage yield. We make no attempt to account for convexity.

### **Definition of “extreme” metric readings**

A metric reading is defined as “extreme” if the metric reading is in the top or bottom decile of its historical readings. These “extreme” reading should cause the reader to pay attention. These metrics have reverted toward their mean values in the past.

# PCA Market Sentiment Indicator

*Explanation, Construction and Q&A*

**By:**

**Pension Consulting Alliance, LLC.**

PCA has created the PCA Market Sentiment Indicator (PMSI) to complement our valuation-focused PCA Investment Market 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 paper explores:

- What is the PCA Market Sentiment Indicator (PMSI)?
- How do I read the indicator graph?
- How is the PCA Market Sentiment Indicator (PMSI) constructed?
- What do changes in the indicator mean?



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# PCA Market Sentiment Indicator

PCA has created a market sentiment indicator for monthly publication (the PMSI – see below) to complement PCA's Investment Market Risk Metrics.

PCA's Investment Market 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 PMSI 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 PMSI 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, PCA believes the Risk Metrics and PMSI 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 PCA PMSI:

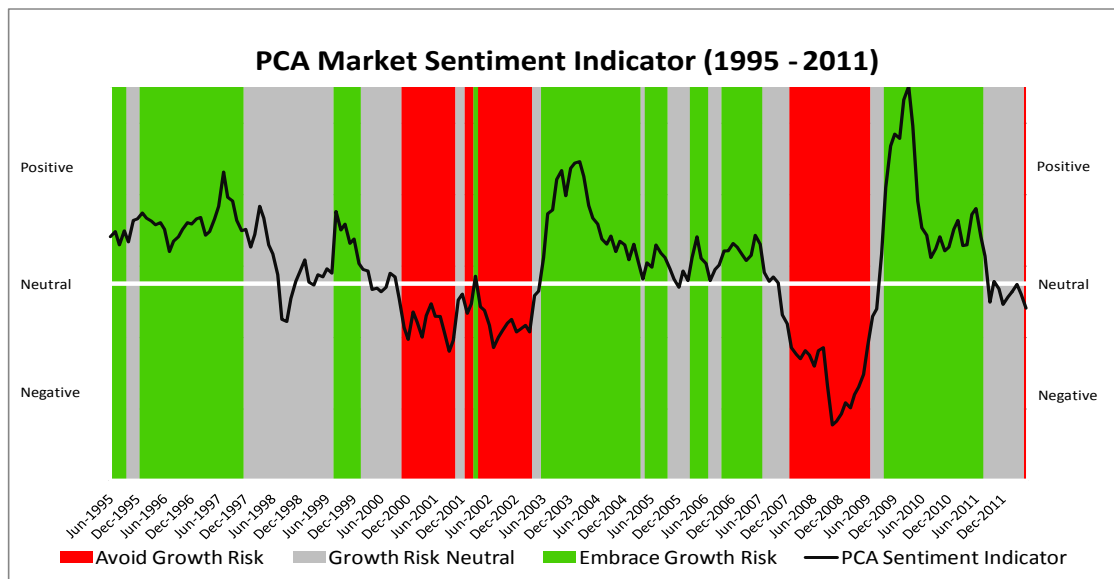
## What is the PCA Market Sentiment Indicator (PMSI)?

The PMSI 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 PMSI 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 PCA Market Sentiment Indicator (PMSI) graph?

Simply put, the PMSI 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 PMSI 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 PMSI. 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.



# PCA Market Sentiment Indicator

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## How is the PCA Market Sentiment Indicator (PMSI) Constructed?

The PMSI is constructed from two sub-elements representing investor sentiment in stocks and bonds:

1. Stock return momentum: Return momentum for the S&P 500 Equity Index (trailing 12-months)
2. Bond yield spread momentum: Momentum of bond yield spreads (excess of the measured bond yield over the identical duration U.S. Treasury bond yield) for corporate bonds (trailing 12-months) for both investment grade bonds (75% weight) and high yield bonds (25% weight). The scale of this measure is adjusted to match that of the stock return momentum measure.

The black line reading on the graph is calculated as the average of the stock return momentum measure and the bonds spread momentum measure. The color reading on the graph is determined as follows:

1. If both stock return momentum and bond spread momentum are positive = GREEN (positive)
2. If one of the momentum indicators is positive, and the other negative = GRAY (inconclusive)
3. If both stock return momentum and bond spread momentum are negative = RED (negative)

## What does the PCA Market Sentiment Indicator (PMSI) 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 PMSI 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.

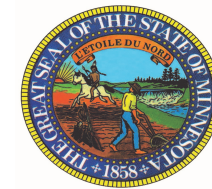
<sup>i</sup> Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.

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

TAB

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# Comprehensive Performance Report

June 30, 2018



## Description of SBI Investment Programs

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

### Combined Funds

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

### Participant Directed Investment Program

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

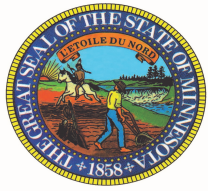
### Non-Retirement

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

### State Cash

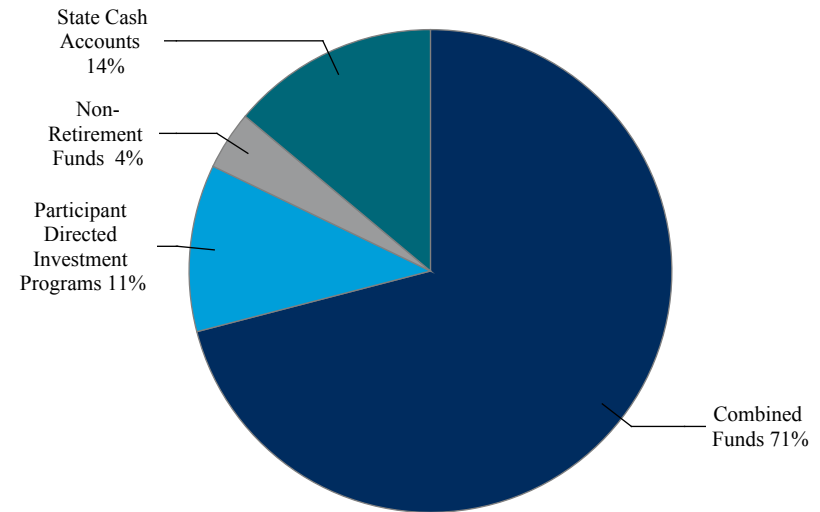
The State Cash accounts are cash balances of state government funds including the State General Fund. Most accounts are invested by SBI staff through a short-term pooled fund referred to as the Treasurer's Cash Pool. It contains the cash balances of special or dedicated accounts necessary for the operation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





## Funds Under Management

	<u>\$ Millions</u>
<b>COMBINED FUNDS</b>	
Combined Funds	\$68,288
<b>PARTICIPANT DIRECTED INVESTMENT PROGRAMS</b>	
Supplemental Investment Fund*	3,731
State Deferred Compensation Plan**	5,612
Minnesota College Savings Plan	1,422
Achieve a Better Life Experience	3
<b>NON-RETIREMENT FUNDS</b>	
Assigned Risk Plan	319
Permanent School Fund	1,391
Environmental Trust Fund	1,116
Closed Landfill Investment Fund	89
Miscellaneous Trust Accounts	233
Other Post Employment Benefits Accounts	636
<b>STATE CASH ACCOUNTS</b>	
Treasurer's Cash	13,124
Other State Cash Accounts	277
<b>TOTAL</b>	
SBI AUM	96,242



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

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

Note: Differentials within column amounts may occur due to rounding



## Quarterly Report

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Assigned Risk Plan	
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### Performance Reporting Legend

**Manager Level Data**

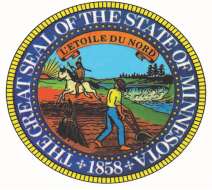
**Aggregate Level Data**

**Sub-Asset Class Level Data**

**Asset Class Level Data**

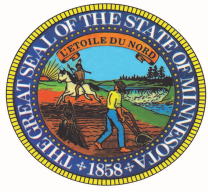
Note:

Throughout this report performance is calculated net of investment management fees, aggregates include terminated managers, and returns for all periods greater than one year are annualized. Inception Date and Since Inception Returns refer to the date of retention by the SBI. FYTD refers to the return generated by an account since July 1 of the most recent year. For historical benchmark details, please refer to the addendum of this report. Inception to date return information is included for manager accounts and total asset class but not other aggregates because of portfolio management decisions to group managers in different aggregates over time.



# Combined Funds

June 30, 2018



## Combined Funds Summary

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

	<u>One Quarter</u>
COMBINED FUNDS	
Beginning Market Value	\$67,819
Net Contributions	-567
Investment Return	1,037
Ending Market Value	68,288

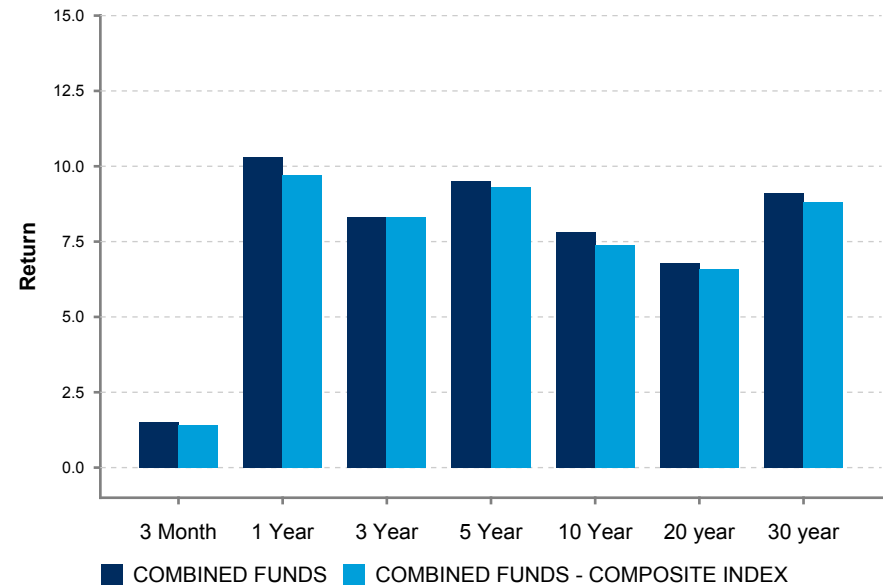
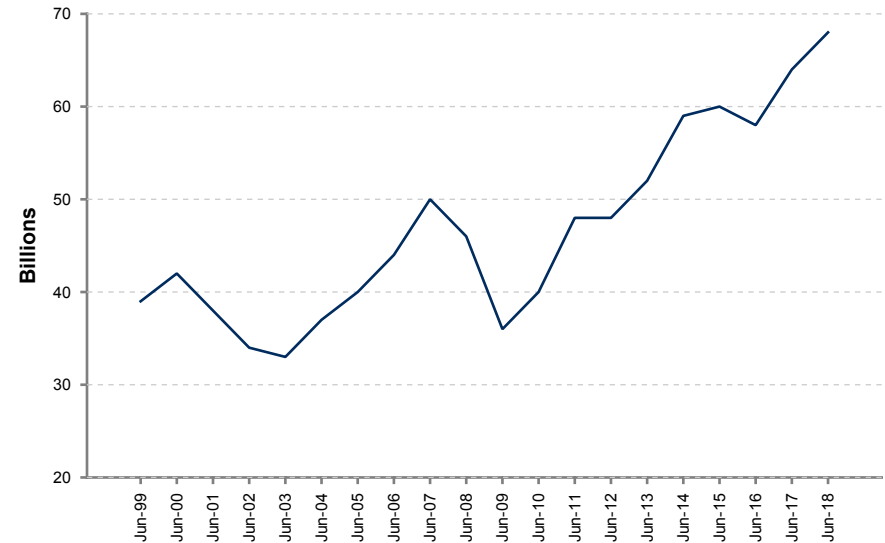
The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

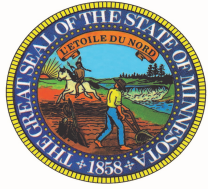
### Performance (Net of Fees)

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

	<u>Qtr</u>	<u>FYTD</u>	<u>1 Yr</u>	<u>3 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>	<u>20 Yr</u>	<u>30 Yr</u>
COMBINED FUNDS	1.5%	10.3%	10.3%	8.3%	9.5%	7.8%	6.8%	9.1%
COMBINED FUNDS - COMPOSITE INDEX	1.4	9.7	9.7	8.3	9.3	7.4	6.6	8.8
Excess	0.2	0.6	0.6	0.0	0.2	0.4	0.1	0.3

### Asset Growth



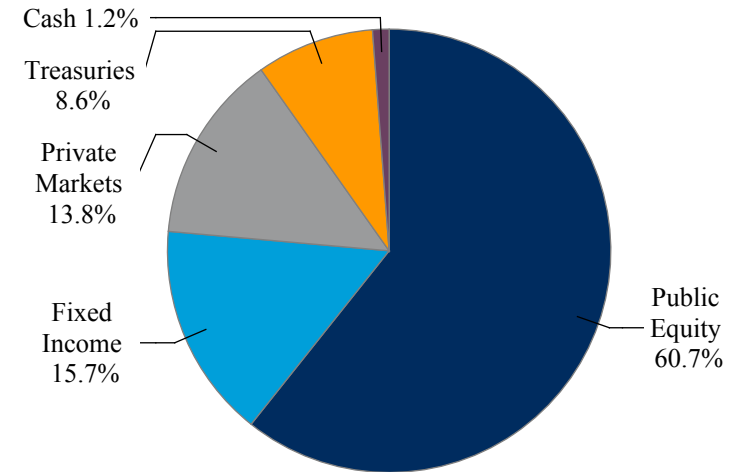


## Combined Funds Summary

### Asset Mix

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

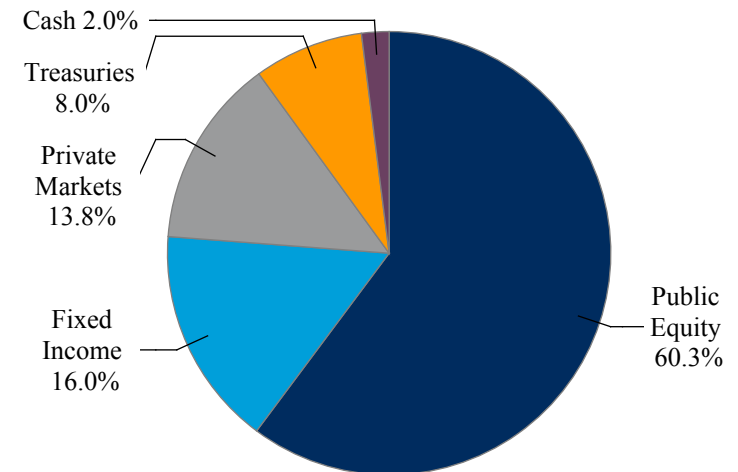
	<u>(Millions)</u>	<u>Actual Mix</u>	<u>Policy Target</u>
Public Equity	\$41,430	60.7%	49.0%
Fixed Income	10,695	15.7%	16.0%
Private Markets	9,432	13.8%	25.0%
Treasuries	5,880	8.6%	8.0%
Cash	851	1.2%	2.0%
<b>TOTAL</b>	<b>68,288</b>	<b>100.0</b>	

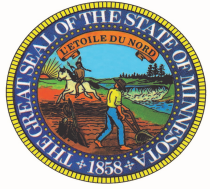


### Composite Index Comparison

The Combined Funds Composite is set as the Strategic Asset Allocation Policy Target with the uninvested portion of Private Markets allocated to Public Equity. Asset class weights for Public Equity and Private Markets are reset at the start of each month. The Combined Funds Composite weighting shown below is as of the first day of the quarter.

	<u>Policy Weight</u>	<u>Market Index</u>
Public Equity	60.3%	67% Russell 3000/33% MSCI ACWI ex US
Fixed Income	16.0	BB Barclays U.S. Aggregate
Private Markets	13.8	Private Markets
Treasuries	8.0	BB Barclays Treasury 5+ Years
Cash	2.0	3 Month T-Bills





## Combined Funds Asset Class Performance Summary

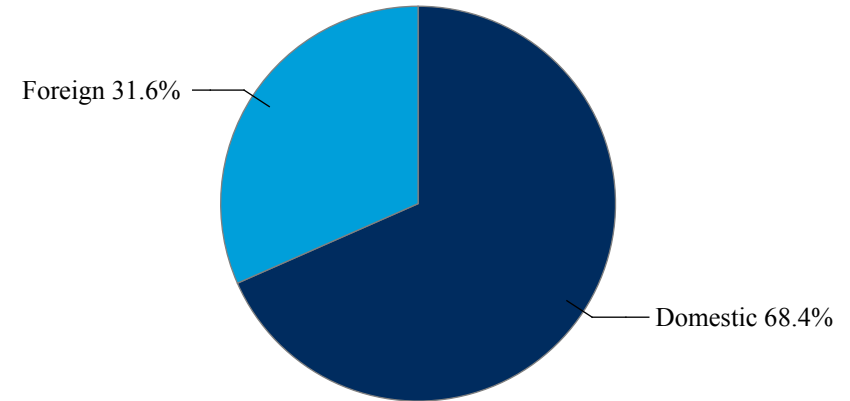
### Public Equity

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

The Public Equity benchmark is 67% Russell 3000 and 33% MSCI ACWI ex USA.

The Russell 3000 measures the performance of the 3000 largest U.S. companies based on total market capitalization.

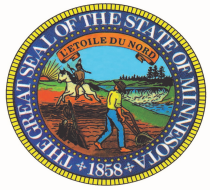
The Morgan Stanley Capital International All Country World Index ex U.S. (net) is a free float-adjusted market capitalization index that is designed to measure equity market performance in developed and emerging markets other than the United States.



	<u>Last Qtr</u>	<u>FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>20 Year</u>	<u>30 year</u>
Public Equity	2.0%	12.8%	12.8%	9.7%	11.5%	8.4%	6.2%	9.5%
Public Equity Benchmark	1.7	12.3	12.3					
Excess	0.3	0.5	0.5					
Domestic Equity	4.2	15.4	15.4	11.3	13.3	10.2	6.5	9.9
Domestic Equity Benchmark	3.9	14.8	14.8	11.6	13.3	10.2	6.6	10.1
Excess	0.3	0.7	0.7	-0.3	0.0	-0.0	-0.2	-0.2
International Equity	-2.4	7.5	7.5	5.3	6.4	3.0	5.2	
International Equity Benchmark	-2.6	7.3	7.3	5.1	6.0	2.5	4.9	
Excess	0.2	0.2	0.2	0.2	0.4	0.5	0.3	

Note:

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



## Combined Funds Asset Class Performance Summary

### Fixed Income

The Combined Funds Fixed Income performance is shown here.

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

	<u>Last Qtr</u>	<u>FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>20 Year</u>	<u>30 year</u>
Fixed Income	0.0%	0.1%	0.1%	2.3%	2.8%	4.4%	5.0%	6.5%
Fixed Income Benchmark	-0.2	-0.4	-0.4	1.7	2.3	3.7	4.7	6.1
Excess	0.2	0.5	0.5	0.5	0.5	0.7	0.3	0.3

### Treasuries

The Combined Funds Treasuries performance is shown here. The Treasuries benchmark is the Bloomberg Barclays Treasury 5+ Years Index.

	<u>Last Qtr</u>	<u>FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>20 Year</u>	<u>30 year</u>
Treasuries	0.0%							
BBG BARC 5Y + Us Tsy Idx	0.1							
Excess	-0.1							

### Cash

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

	<u>Last Qtr</u>	<u>FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>20 Year</u>	<u>30 year</u>
Cash	0.5%	1.4%	1.4%	0.9%	0.6%	0.7%	2.5%	4.0%
90 DAY T-BILL	0.5	1.4	1.4	0.7	0.4	0.4	2.0	3.2

Note:

For additional information regarding historical asset class performance and benchmarks, please refer to the Combined Funds Performance Report.



## Combined Funds Asset Class Performance Summary

### Private Markets

	<u>Last Qtr</u>	<u>FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>20 Year</u>	<u>25 year</u>	<u>30 year</u>
Private Markets	2.4%	14.8%	14.8%	11.3%	12.0%	9.2%	12.1%	13.4%	12.2%
Private Equity	2.5%	19.7%	19.7%	15.1%	15.5%	11.7%	12.7%	15.3%	
Private Credit	4.3	12.0	12.0	14.2	14.4	11.2	13.0		
Resources	0.7	4.3	4.3	-0.3	0.9	4.9	13.8	14.7	
Real Estate	2.7	12.1	12.1	9.4	13.1	4.8	8.7	9.1	

### Private Markets

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

### **Private Equity Investments**

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

### **Private Credit Investments**

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

### **Resource Investments**

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

### **Real Estate Investments**

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

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





## Quarterly Report

# Asset Class & Manager Performance

## June 30, 2018

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

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

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

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

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## Domestic Equity

June 30, 2018



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
<b>Total Domestic Equity</b>										
<b>ACTIVE DOMESTIC EQUITY AGGREGATE (1)</b>	<b>\$4,874,690,373</b>	<b>16.5%</b>	<b>6.9%</b>	<b>19.7%</b>	<b>19.7%</b>	<b>11.8%</b>	<b>14.0%</b>	<b>10.3%</b>		
Active Domestic Equity Benchmark			5.7	15.8	15.8	11.8	13.3	10.3		
Excess			1.2	3.9	3.9	-0.0	0.6	0.0		
<b>SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)</b>	<b>2,596,436,350</b>	<b>8.8</b>	<b>3.3</b>	<b>15.3</b>	<b>15.3</b>	<b>11.4</b>	<b>13.4</b>	<b>10.4</b>		
Semi Passive Domestic Equity Benchmark			3.6	14.5	14.5	11.6	13.4	10.2		
Excess			-0.3	0.8	0.8	-0.2	0.0	0.2		
<b>PASSIVE DOMESTIC EQUITY AGGREGATE (3)</b>	<b>22,025,233,661</b>	<b>74.7</b>	<b>3.7</b>	<b>14.6</b>	<b>14.6</b>	<b>11.5</b>	<b>13.3</b>	<b>10.2</b>		
Passive Domestic Equity Benchmark			3.7	14.7	14.7	11.5	13.3	10.2		
Excess			-0.0	-0.1	-0.1	-0.0	-0.0	0.0		
TRANSITION AGGREGATE DOMESTIC EQUITY (4)	3,980,515	0.0								
<b>TOTAL DOMESTIC EQUITY (5)</b>	<b>29,500,340,900</b>	<b>100.0</b>	<b>4.2</b>	<b>15.4</b>	<b>15.4</b>	<b>11.3</b>	<b>13.3</b>	<b>10.2</b>	<b>10.5</b>	<b>01/1984</b>
Domestic Equity Benchmark			3.9	14.8	14.8	11.6	13.3	10.2	10.7	01/1984
Excess			0.3	0.7	0.7	-0.3	0.0	-0.0	-0.2	

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

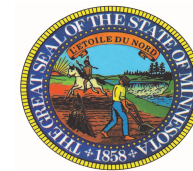
(2) The current Semi-Passive Domestic Equity Benchmark is the Russell 1000 index.

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

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



	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>
<b>Total Domestic Equity</b>					
<b>ACTIVE DOMESTIC EQUITY AGGREGATE (1)</b>	<b>20.6%</b>	<b>10.9%</b>	<b>-0.4%</b>	<b>9.3%</b>	<b>40.2%</b>
Active Domestic Equity Benchmark	18.3	15.7	-0.6	11.0	34.7
Excess	2.3	-4.8	0.3	-1.7	5.5
<b>SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)</b>	<b>22.5</b>	<b>11.1</b>	<b>0.5</b>	<b>14.2</b>	<b>33.2</b>
Semi Passive Domestic Equity Benchmark	21.7	12.1	0.9	13.2	33.1
Excess	0.8	-1.0	-0.4	1.0	0.1
<b>PASSIVE DOMESTIC EQUITY AGGREGATE (3)</b>	<b>21.3</b>	<b>12.6</b>	<b>0.5</b>	<b>12.6</b>	<b>33.5</b>
Passive Domestic Equity Benchmark	21.5	12.5	0.5	12.6	33.6
Excess	-0.2	0.1	0.0	0.0	-0.0
TRANSITION AGGREGATE DOMESTIC EQUITY (4)					
<b>TOTAL DOMESTIC EQUITY (5)</b>	<b>21.4%</b>	<b>11.5</b>	<b>0.3</b>	<b>12.3</b>	<b>35.1</b>
Domestic Equity Benchmark	21.1%	12.7	0.5	12.6	33.6
Excess	0.2%	-1.3	-0.2	-0.2	1.6

(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 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 the Russell 3000.

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



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
<b>Active Large Cap Growth</b>										
<b>SANDS</b>	<b>\$598,533,935</b>	<b>2.0%</b>	<b>10.7%</b>	<b>34.7%</b>	<b>34.7%</b>	<b>16.1%</b>	<b>17.6%</b>	<b>14.6%</b>	<b>11.5%</b>	<b>01/2005</b>
Russell 1000 Growth			5.8	22.5	22.5	15.0	16.4	11.8	9.9	01/2005
Excess			5.0	12.2	12.2	1.1	1.2	2.8	1.7	
<b>WINSLOW</b>	<b>240,227,799</b>	<b>0.8</b>	<b>7.6</b>	<b>28.2</b>	<b>28.2</b>	<b>15.1</b>	<b>16.9</b>	<b>11.4</b>	<b>10.9</b>	<b>01/2005</b>
Russell 1000 Growth			5.8	22.5	22.5	15.0	16.4	11.8	9.9	01/2005
Excess			1.8	5.7	5.7	0.1	0.5	-0.4	1.0	
<b>ZEVENBERGEN</b>	<b>567,078,300</b>	<b>1.9</b>	<b>14.2</b>	<b>34.2</b>	<b>34.2</b>	<b>16.6</b>	<b>18.6</b>	<b>13.4</b>	<b>11.2</b>	<b>04/1994</b>
Russell 1000 Growth			5.8	22.5	22.5	15.0	16.4	11.8	9.8	04/1994
Excess			8.5	11.7	11.7	1.6	2.2	1.6	1.5	
<b>RUSSELL 1000 GROWTH AGGREGATE</b>	<b>1,405,840,034</b>	<b>4.8</b>	<b>11.6</b>	<b>33.3</b>	<b>33.3</b>	<b>17.9</b>	<b>18.6</b>	<b>13.0</b>		
Russell 1000 Growth			5.8	22.5	22.5	15.0	16.4	11.8		
Excess			5.8	10.8	10.8	2.9	2.3	1.1		



	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>
<b>Active Large Cap Growth</b>					
<b>SANDS</b>	<b>35.3%</b>	<b>-6.9%</b>	<b>2.9%</b>	<b>9.1%</b>	<b>42.4%</b>
Russell 1000 Growth	30.2	7.1	5.7	13.0	33.5
Excess	5.1	-13.9	-2.8	-3.9	8.9
<b>WINSLOW</b>	<b>33.2</b>	<b>-1.9</b>	<b>6.7</b>	<b>11.0</b>	<b>37.4</b>
Russell 1000 Growth	30.2	7.1	5.7	13.0	33.5
Excess	3.0	-9.0	1.0	-2.0	3.9
<b>ZEVENBERGEN</b>	<b>35.1</b>	<b>-2.8</b>	<b>6.4</b>	<b>3.4</b>	<b>60.6</b>
Russell 1000 Growth	30.2	7.1	5.7	13.0	33.5
Excess	4.9	-9.9	0.7	-9.6	27.1
<b>RUSSELL 1000 GROWTH AGGREGATE</b>	<b>33.4%</b>	<b>1.0</b>	<b>4.6</b>	<b>9.6</b>	<b>42.0</b>
Russell 1000 Growth	30.2%	7.1	5.7	13.0	33.5
Excess	3.2%	-6.1	-1.1	-3.4	8.5



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
<b>Active Large Cap Value</b>										
<b>BARROW HANLEY</b>	<b>\$382,287,559</b>	<b>1.3%</b>	<b>3.3%</b>	<b>8.3%</b>	<b>8.3%</b>	<b>7.8%</b>	<b>10.6%</b>	<b>8.9%</b>	<b>8.0%</b>	<b>04/2004</b>
Russell 1000 Value			1.2	6.8	6.8	8.3	10.3	8.5	7.7	04/2004
Excess			2.1	1.5	1.5	-0.5	0.2	0.4	0.3	
<b>EARNEST PARTNERS</b>	<b>272,999,395</b>	<b>0.9</b>	<b>1.4</b>	<b>12.9</b>	<b>12.9</b>	<b>10.0</b>	<b>12.2</b>	<b>9.1</b>	<b>7.0</b>	<b>07/2000</b>
Russell 1000 Value			1.2	6.8	6.8	8.3	10.3	8.5	7.1	07/2000
Excess			0.2	6.1	6.1	1.7	1.9	0.6	-0.1	
<b>LSV</b>	<b>419,135,723</b>	<b>1.4</b>	<b>0.0</b>	<b>11.9</b>	<b>11.9</b>	<b>9.5</b>	<b>12.5</b>	<b>10.1</b>	<b>9.2</b>	<b>04/2004</b>
Russell 1000 Value			1.2	6.8	6.8	8.3	10.3	8.5	7.7	04/2004
Excess			-1.2	5.2	5.2	1.2	2.1	1.6	1.5	
<b>RUSSELL 1000 VALUE AGGREGATE</b>	<b>1,074,422,677</b>	<b>3.6</b>	<b>1.5</b>	<b>10.9</b>	<b>10.9</b>	<b>8.7</b>	<b>11.4</b>	<b>9.0</b>		
Russell 1000 Value			1.2	6.8	6.8	8.3	10.3	8.5		
Excess			0.3	4.1	4.1	0.4	1.1	0.5		





	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>
<b>Active Large Cap Value</b>					
<b>BARROW HANLEY</b>	<b>14.6%</b>	<b>12.8%</b>	<b>-2.1%</b>	<b>13.0%</b>	<b>35.5%</b>
Russell 1000 Value	13.7	17.3	-3.8	13.5	32.5
Excess	0.9	-4.5	1.7	-0.5	3.0
<b>EARNEST PARTNERS</b>	<b>19.9</b>	<b>16.2</b>	<b>-2.7</b>	<b>14.0</b>	<b>32.0</b>
Russell 1000 Value	13.7	17.3	-3.8	13.5	32.5
Excess	6.2	-1.1	1.1	0.5	-0.5
<b>LSV</b>	<b>18.6</b>	<b>17.0</b>	<b>-2.2</b>	<b>14.0</b>	<b>41.2</b>
Russell 1000 Value	13.7	17.3	-3.8	13.5	32.5
Excess	4.9	-0.4	1.6	0.6	8.7
<b>RUSSELL 1000 VALUE AGGREGATE</b>	<b>17.3%</b>	<b>15.3</b>	<b>-3.2</b>	<b>13.1</b>	<b>36.5</b>
Russell 1000 Value	13.7%	17.3	-3.8	13.5	32.5
Excess	3.7%	-2.1	0.6	-0.4	3.9



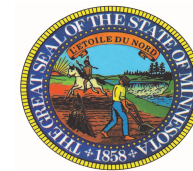
	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
<b>Semi-Passive Large Cap</b>										
<b>BLACKROCK</b>	<b>\$1,060,666,411</b>	<b>3.6%</b>	<b>3.2%</b>	<b>17.3%</b>	<b>17.3%</b>	<b>12.8%</b>	<b>14.4%</b>	<b>10.6%</b>	<b>10.0%</b>	<b>01/1995</b>
Semi Passive Domestic Equity Benchmark			3.6	14.5	14.5	11.6	13.4	10.2	9.6	01/1995
Excess			-0.4	2.8	2.8	1.1	1.0	0.4	0.5	
<b>J.P. MORGAN</b>	<b>1,535,769,939</b>	<b>5.2</b>	<b>3.4</b>	<b>14.0</b>	<b>14.0</b>	<b>11.5</b>	<b>13.6</b>	<b>10.9</b>	<b>9.8</b>	<b>01/1995</b>
Semi Passive Domestic Equity Benchmark			3.6	14.5	14.5	11.6	13.4	10.2	9.6	01/1995
Excess			-0.2	-0.6	-0.6	-0.1	0.2	0.7	0.3	
<b>SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE</b>	<b>2,596,436,350</b>	<b>8.8</b>	<b>3.3</b>	<b>15.3</b>	<b>15.3</b>	<b>11.4</b>	<b>13.4</b>	<b>10.4</b>		
Semi Passive Domestic Equity Benchmark			3.6	14.5	14.5	11.6	13.4	10.2		
Excess			-0.3	0.8	0.8	-0.2	0.0	0.2		



	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>
<b>Semi-Passive Large Cap</b>					
<b>BLACKROCK</b>	<b>24.6%</b>	<b>12.5%</b>	<b>0.8%</b>	<b>14.2%</b>	<b>33.3%</b>
Semi Passive Domestic Equity Benchmark	21.7	12.1	0.9	13.2	33.1
Excess	2.9	0.5	-0.1	1.0	0.2
<b>J.P. MORGAN</b>					
<b>J.P. MORGAN</b>	<b>21.8</b>	<b>12.3</b>	<b>0.8</b>	<b>15.0</b>	<b>33.7</b>
Semi Passive Domestic Equity Benchmark	21.7	12.1	0.9	13.2	33.1
Excess	0.1	0.2	-0.1	1.8	0.6
<b>SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE</b>					
<b>SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE</b>	<b>22.5%</b>	<b>11.1</b>	<b>0.5</b>	<b>14.2</b>	<b>33.2</b>
Semi Passive Domestic Equity Benchmark	21.7%	12.1	0.9	13.2	33.1
Excess	0.8%	-1.0	-0.4	1.0	0.1



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
<b>Active Small Cap Growth</b>										
<b>ARROWMARK</b>	<b>\$235,548,264</b>	<b>0.8%</b>	<b>10.4%</b>	<b>27.1%</b>	<b>27.1%</b>				<b>30.9%</b>	<b>11/2016</b>
Russell 2000 Growth			7.2	21.9	21.9				26.6	11/2016
Excess			3.2	5.2	5.2				4.3	
<b>HOOD RIVER</b>	<b>253,574,375</b>	<b>0.9</b>	<b>8.2</b>	<b>16.5</b>	<b>16.5</b>				<b>24.9</b>	<b>11/2016</b>
Russell 2000 Growth			7.2	21.9	21.9				26.6	11/2016
Excess			0.9	-5.4	-5.4				-1.7	
<b>RICE HALL JAMES</b>	<b>246,064,871</b>	<b>0.8</b>	<b>6.5</b>	<b>28.3</b>	<b>28.3</b>				<b>34.4</b>	<b>11/2016</b>
Russell 2000 Growth			7.2	21.9	21.9				26.6	11/2016
Excess			-0.7	6.4	6.4				7.8	
<b>WELLINGTON</b>	<b>258,133,818</b>	<b>0.9</b>	<b>6.0</b>	<b>19.0</b>	<b>19.0</b>				<b>26.2</b>	<b>11/2016</b>
Russell 2000 Growth			7.2	21.9	21.9				26.6	11/2016
Excess			-1.3	-2.9	-2.9				-0.4	
<b>RUSSELL 2000 GROWTH AGGREGATE</b>	<b>993,321,329</b>	<b>3.4</b>	<b>7.7</b>	<b>22.1</b>	<b>22.1</b>	<b>8.5</b>	<b>11.6</b>	<b>8.5</b>		
Russell 2000 Growth			7.2	21.9	21.9	10.6	13.6	11.2		
Excess			0.5	0.3	0.3	-2.1	-2.1	-2.8		



	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>
<b>Active Small Cap Growth</b>					
<b>ARROWMARK</b>	<b>26.2%</b>				
Russell 2000 Growth	22.2				
Excess	4.1				
<b>HOOD RIVER</b>	<b>21.3</b>				
Russell 2000 Growth	22.2				
Excess	-0.9				
<b>RICE HALL JAMES</b>	<b>27.9</b>				
Russell 2000 Growth	22.2				
Excess	5.8				
<b>WELLINGTON</b>	<b>22.6</b>				
Russell 2000 Growth	22.2				
Excess	0.4				
<b>RUSSELL 2000 GROWTH AGGREGATE</b>	<b>22.0%</b>	<b>4.7</b>	<b>1.0</b>	<b>-3.4</b>	<b>47.2</b>
Russell 2000 Growth	22.2%	11.3	-1.4	5.6	43.3
Excess	-0.1%	-6.6	2.4	-9.0	3.9



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
<b>Active Small Cap Value</b>										
<b>GOLDMAN SACHS</b>	<b>\$371,176,649</b>	<b>1.3%</b>	<b>3.8%</b>	<b>12.2%</b>	<b>12.2%</b>	<b>9.6%</b>	<b>11.8%</b>	<b>11.7%</b>	<b>10.0%</b>	<b>01/2004</b>
Russell 2000 Value			8.3	13.1	13.1	11.2	11.2	9.9	8.6	01/2004
Excess			-4.5	-0.9	-0.9	-1.6	0.6	1.8	1.4	
<b>HOTCHKIS AND WILEY</b>	<b>326,297,788</b>	<b>1.1</b>	<b>9.1</b>	<b>13.4</b>	<b>13.4</b>	<b>7.0</b>	<b>11.5</b>	<b>12.1</b>	<b>9.0</b>	<b>01/2004</b>
Russell 2000 Value			8.3	13.1	13.1	11.2	11.2	9.9	8.6	01/2004
Excess			0.8	0.3	0.3	-4.2	0.3	2.2	0.4	
<b>MARTINGALE</b>	<b>309,405,915</b>	<b>1.0</b>	<b>6.1</b>	<b>12.6</b>	<b>12.6</b>	<b>11.3</b>	<b>13.1</b>	<b>10.5</b>	<b>8.6</b>	<b>01/2004</b>
Russell 2000 Value			8.3	13.1	13.1	11.2	11.2	9.9	8.6	01/2004
Excess			-2.2	-0.5	-0.5	0.1	1.9	0.6	0.0	
<b>PEREGRINE</b>	<b>394,225,982</b>	<b>1.3</b>	<b>6.1</b>	<b>16.0</b>	<b>16.0</b>	<b>10.5</b>	<b>11.4</b>	<b>11.6</b>	<b>10.8</b>	<b>07/2000</b>
Russell 2000 Value			8.3	13.1	13.1	11.2	11.2	9.9	10.1	07/2000
Excess			-2.2	2.9	2.9	-0.7	0.2	1.7	0.7	
<b>RUSSELL 2000 VALUE AGGREGATE</b>	<b>1,401,106,333</b>	<b>4.7</b>	<b>6.2</b>	<b>13.6</b>	<b>13.6</b>	<b>9.6</b>	<b>11.8</b>	<b>11.4</b>		
Russell 2000 Value			8.3	13.1	13.1	11.2	11.2	9.9		
Excess			-2.1	0.5	0.5	-1.6	0.6	1.5		



	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>
<b>Active Small Cap Value</b>					
<b>GOLDMAN SACHS</b>	<b>12.6%</b>	<b>24.6%</b>	<b>-5.2%</b>	<b>7.4%</b>	<b>39.3%</b>
Russell 2000 Value	7.8	31.7	-7.5	4.2	34.5
Excess	4.7	-7.1	2.3	3.1	4.8
<b>HOTCHKIS AND WILEY</b>	<b>7.9</b>	<b>19.9</b>	<b>-8.5</b>	<b>13.0</b>	<b>46.0</b>
Russell 2000 Value	7.8	31.7	-7.5	4.2	34.5
Excess	0.0	-11.8	-1.0	8.8	11.5
<b>MARTINGALE</b>	<b>6.9</b>	<b>34.3</b>	<b>-5.2</b>	<b>7.3</b>	<b>43.1</b>
Russell 2000 Value	7.8	31.7	-7.5	4.2	34.5
Excess	-0.9	2.5	2.3	3.1	8.5
<b>PEREGRINE</b>	<b>12.5</b>	<b>27.8</b>	<b>-6.7</b>	<b>4.1</b>	<b>37.3</b>
Russell 2000 Value	7.8	31.7	-7.5	4.2	34.5
Excess	4.7	-3.9	0.8	-0.1	2.8
<b>RUSSELL 2000 VALUE AGGREGATE</b>	<b>10.2%</b>	<b>26.5</b>	<b>-6.5</b>	<b>7.5</b>	<b>40.8</b>
Russell 2000 Value	7.8%	31.7	-7.5	4.2	34.5
Excess	2.3%	-5.2	1.0	3.3	6.3



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
<b>Total Passive Domestic Equity</b>										
<b>BLACKROCK RUSSELL 1000</b>	<b>\$12,600,546,083</b>	<b>42.7%</b>	<b>3.6%</b>	<b>14.5%</b>	<b>14.5%</b>				<b>18.4%</b>	<b>11/2016</b>
Russell 1000			3.6	14.5	14.5				18.5	11/2016
Excess			-0.0	-0.0	-0.0				-0.0	
<b>BLACKROCK RUSSELL 3000 (1)</b>	<b>9,424,687,578</b>	<b>31.9</b>	<b>3.9</b>	<b>14.8</b>	<b>14.8</b>	<b>11.6%</b>	<b>13.3%</b>	<b>10.3%</b>	<b>9.3</b>	<b>07/1995</b>
Passive Manager Benchmark			3.9	14.8	14.8	11.6	13.3	10.2	9.2	07/1995
Excess			-0.0	0.0	0.0	0.0	0.0	0.0	0.1	
<b>PASSIVE DOMESTIC EQUITY AGGREGATE</b>	<b>22,025,233,661</b>	<b>74.7</b>	<b>3.7</b>	<b>14.6</b>	<b>14.6</b>	<b>11.5</b>	<b>13.3</b>	<b>10.2</b>		
Passive Domestic Equity Benchmark			3.7	14.7	14.7	11.5	13.3	10.2		
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.





	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>
<b>Total Passive Domestic Equity</b>					
<b>BLACKROCK RUSSELL 1000</b>	<b>21.7%</b>				
Russell 1000	21.7				
Excess	-0.0				
<b>BLACKROCK RUSSELL 3000 (1)</b>	<b>21.1</b>	<b>12.7%</b>	<b>0.5%</b>	<b>12.6%</b>	<b>33.5%</b>
Passive Manager Benchmark	21.1	12.7	0.5	12.6	33.6
Excess	0.0	0.0	0.0	0.0	-0.0
<b>PASSIVE DOMESTIC EQUITY AGGREGATE</b>	<b>21.3%</b>	<b>12.6</b>	<b>0.5</b>	<b>12.6</b>	<b>33.5</b>
Passive Domestic Equity Benchmark	21.5%	12.5	0.5	12.6	33.6
Excess	-0.2%	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.

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# International Equity

## June 30, 2018



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
<b>Total International Equity</b>										
<b>DEVELOPED MARKETS (1)</b>	<b>\$10,091,941,311</b>	<b>75.8%</b>	<b>-0.4%</b>	<b>7.8%</b>	<b>7.8%</b>	<b>5.3%</b>	<b>6.9%</b>	<b>3.4%</b>		
BENCHMARK DM			-0.7	7.0	7.0	4.9	6.2	2.6		
Excess			0.4	0.7	0.7	0.4	0.7	0.7		
<b>EMERGING MARKETS (2)</b>	<b>3,218,923,800</b>	<b>24.2</b>	<b>-8.3</b>	<b>6.8</b>	<b>6.8</b>	<b>5.1</b>	<b>4.4</b>	<b>1.8</b>		
BENCHMARK EM			-8.0	8.2	8.2	5.6	5.0	2.3		
Excess			-0.3	-1.4	-1.4	-0.5	-0.6	-0.4		
TRANSITION AGGREGATE INTERNATIONAL EQUITY (3)	4,822,895	0.0								
<b>TOTAL INTERNATIONAL EQUITY (4)</b>	<b>13,315,688,006</b>	<b>100.0</b>	<b>-2.4</b>	<b>7.5</b>	<b>7.5</b>	<b>5.3</b>	<b>6.4</b>	<b>3.0</b>	<b>6.6</b>	<b>10/1992</b>
International Equity Benchmark			-2.6	7.3	7.3	5.1	6.0	2.5	6.2	10/1992
Excess			0.2	0.2	0.2	0.2	0.4	0.5	0.5	

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

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

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

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

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



	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>
<b>Total International Equity</b>					
<b>DEVELOPED MARKETS (1)</b>	<b>24.9%</b>	<b>1.3%</b>	<b>-0.3%</b>	<b>-4.1%</b>	<b>23.3%</b>
BENCHMARK DM	24.2	2.7	-3.0	-4.3	21.0
Excess	0.7	-1.5	2.8	0.2	2.2
<b>EMERGING MARKETS (2)</b>	<b>37.7</b>	<b>7.5</b>	<b>-13.1</b>	<b>-3.8</b>	<b>0.2</b>
BENCHMARK EM	37.3	11.2	-14.9	-2.2	-2.6
Excess	0.4	-3.7	1.9	-1.6	2.9
TRANSITION AGGREGATE INTERNATIONAL EQUITY (3)					
<b>TOTAL INTERNATIONAL EQUITY (4)</b>	<b>27.6%</b>	<b>2.6</b>	<b>-2.9</b>	<b>-4.0</b>	<b>17.8</b>
International Equity Benchmark	27.2%	4.5	-5.7	-3.9	15.3
Excess	0.4%	-1.8	2.8	-0.2	2.5

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

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

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

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

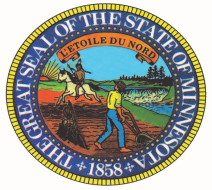
Note: All aggregates include the performance of terminated managers. For historical benchmark details please refer to the addendum of this report.



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
<b>Active Developed Markets</b>										
<b>ACADIAN</b>	<b>\$452,616,172</b>	<b>3.4%</b>	<b>0.8%</b>	<b>13.5%</b>	<b>13.5%</b>	<b>13.4%</b>	<b>12.1%</b>	<b>4.5%</b>	<b>7.2%</b>	<b>07/2005</b>
BENCHMARK DM			-0.7	7.0	7.0	4.9	6.2	2.6	5.1	07/2005
Excess			1.6	6.5	6.5	8.5	5.9	1.9	2.1	
<b>COLUMBIA</b>	<b>347,277,699</b>	<b>2.6</b>	<b>-0.4</b>	<b>12.8</b>	<b>12.8</b>	<b>6.2</b>	<b>7.8</b>	<b>4.5</b>	<b>3.1</b>	<b>03/2000</b>
BENCHMARK DM			-0.7	7.0	7.0	4.9	6.2	2.6	3.5	03/2000
Excess			0.4	5.8	5.8	1.3	1.6	1.9	-0.4	
<b>FIDELITY</b>	<b>431,061,143</b>	<b>3.2</b>	<b>0.5</b>	<b>9.1</b>	<b>9.1</b>	<b>5.9</b>	<b>7.0</b>	<b>4.1</b>	<b>6.7</b>	<b>07/2005</b>
BENCHMARK DM			-0.7	7.0	7.0	4.9	6.2	2.6	5.1	07/2005
Excess			1.2	2.1	2.1	1.0	0.8	1.4	1.6	
<b>JP MORGAN</b>	<b>259,578,530</b>	<b>1.9</b>	<b>-1.2</b>	<b>8.4</b>	<b>8.4</b>	<b>5.3</b>	<b>6.3</b>	<b>3.6</b>	<b>5.3</b>	<b>07/2005</b>
BENCHMARK DM			-0.7	7.0	7.0	4.9	6.2	2.6	5.1	07/2005
Excess			-0.5	1.4	1.4	0.4	0.1	1.0	0.2	
<b>MARATHON</b>	<b>831,854,462</b>	<b>6.2</b>	<b>1.1</b>	<b>7.3</b>	<b>7.3</b>	<b>5.6</b>	<b>7.9</b>	<b>5.4</b>	<b>8.3</b>	<b>11/1993</b>
BENCHMARK DM			-0.7	7.0	7.0	4.9	6.2	2.6	5.2	11/1993
Excess			1.8	0.2	0.2	0.7	1.6	2.8	3.1	
<b>MCKINLEY</b>	<b>266,441,965</b>	<b>2.0</b>	<b>0.7</b>	<b>12.8</b>	<b>12.8</b>	<b>4.7</b>	<b>7.0</b>	<b>1.7</b>	<b>5.1</b>	<b>07/2005</b>
BENCHMARK DM			-0.7	7.0	7.0	4.9	6.2	2.6	5.1	07/2005
Excess			1.5	5.8	5.8	-0.2	0.8	-1.0	-0.0	
<b>ACTIVE DEVELOPED MARKETS AGGREGATE</b>	<b>2,588,829,971</b>	<b>19.4</b>	<b>0.5</b>	<b>10.2</b>	<b>10.2</b>	<b>6.8</b>	<b>8.1</b>	<b>4.4</b>		
BENCHMARK DM			-0.7	7.0	7.0	4.9	6.2	2.6		
Excess			1.2	3.2	3.2	2.0	1.9	1.7		

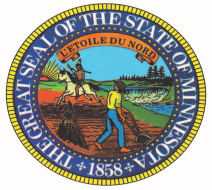


	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>
<b>Active Developed Markets</b>					
<b>ACADIAN</b>	<b>37.0%</b>	<b>8.1%</b>	<b>2.4%</b>	<b>-1.7%</b>	<b>26.1%</b>
BENCHMARK DM	24.2	2.7	-3.0	-4.3	21.0
Excess	12.8	5.4	5.4	2.6	5.1
<b>COLUMBIA</b>	<b>32.7</b>	<b>-5.6</b>	<b>6.4</b>	<b>-5.6</b>	<b>23.9</b>
BENCHMARK DM	24.2	2.7	-3.0	-4.3	21.0
Excess	8.5	-8.3	9.4	-1.2	2.9
<b>FIDELITY</b>	<b>25.9</b>	<b>1.2</b>	<b>0.1</b>	<b>-5.6</b>	<b>26.7</b>
BENCHMARK DM	24.2	2.7	-3.0	-4.3	21.0
Excess	1.7	-1.5	3.2	-1.3	5.7
<b>JP MORGAN</b>	<b>28.3</b>	<b>4.0</b>	<b>-4.7</b>	<b>-5.1</b>	<b>19.5</b>
BENCHMARK DM	24.2	2.7	-3.0	-4.3	21.0
Excess	4.1	1.2	-1.6	-0.7	-1.5
<b>MARATHON</b>	<b>23.1</b>	<b>-1.1</b>	<b>6.7</b>	<b>-4.0</b>	<b>28.5</b>
BENCHMARK DM	24.2	2.7	-3.0	-4.3	21.0
Excess	-1.1	-3.8	9.7	0.3	7.5
<b>MCKINLEY</b>	<b>28.5</b>	<b>-7.5</b>	<b>3.1</b>	<b>-2.7</b>	<b>28.0</b>
BENCHMARK DM	24.2	2.7	-3.0	-4.3	21.0
Excess	4.3	-10.2	6.2	1.6	7.0
<b>ACTIVE DEVELOPED MARKETS AGGREGATE</b>	<b>28.4%</b>	<b>-0.2</b>	<b>3.2</b>	<b>-4.1</b>	<b>25.4</b>
BENCHMARK DM	24.2%	2.7	-3.0	-4.3	21.0
Excess	4.2%	-3.0	6.2	0.2	4.4



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
<b>Semi-Passive Developed Markets</b>										
AQR	\$404,296,844	3.0%	-3.5%	4.4%	4.4%	4.9%	6.4%	3.4%	5.6%	07/2005
BENCHMARK DM			-0.7	7.0	7.0	4.9	6.2	2.6	5.1	07/2005
Excess			-2.8	-2.6	-2.6	0.0	0.2	0.7	0.5	
SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE	404,296,844	3.0	-3.5	2.7	2.7	3.0	5.6	2.4		
BENCHMARK DM			-0.7	7.0	7.0	4.9	6.2	2.6		
Excess			-2.8	-4.3	-4.3	-1.8	-0.6	-0.2		

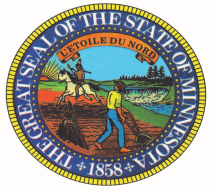




	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>
<b>Semi-Passive Developed Markets</b>					
AQR	25.1%	0.8%	0.9%	-4.4%	24.1%
BENCHMARK DM	24.2	2.7	-3.0	-4.3	21.0
Excess	0.9	-2.0	3.9	-0.1	3.1
<b>SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE</b>					
BENCHMARK DM	24.2%	2.7	-3.0	-4.3	21.0
Excess	-0.9%	-3.1	2.7	-0.1	3.0



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
<b>Total Developed Markets</b>										
<b>ACTIVE DEVELOPED MARKETS AGGREGATE</b>	<b>\$2,588,829,971</b>	<b>19.4%</b>	<b>0.5%</b>	<b>10.2%</b>	<b>10.2%</b>	<b>6.8%</b>	<b>8.1%</b>	<b>4.4%</b>		
BENCHMARK DM			-0.7	7.0	7.0	4.9	6.2	2.6		
Excess			1.2	3.2	3.2	2.0	1.9	1.7		
<b>SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE</b>	<b>404,296,844</b>	<b>3.0</b>	<b>-3.5</b>	<b>2.7</b>	<b>2.7</b>	<b>3.0</b>	<b>5.6</b>	<b>2.4</b>		
BENCHMARK DM			-0.7	7.0	7.0	4.9	6.2	2.6		
Excess			-2.8	-4.3	-4.3	-1.8	-0.6	-0.2		
<b>SSgA DEVELOPED MARKETS PASSIVE</b>	<b>7,098,814,495</b>	<b>53.3</b>	<b>-0.5</b>	<b>7.3</b>	<b>7.3</b>	<b>5.3</b>	<b>6.7</b>	<b>3.0</b>	<b>6.3</b>	<b>10/1992</b>
BENCHMARK DM			-0.7	7.0	7.0	4.9	6.2	2.6	6.0	10/1992
Excess			0.3	0.3	0.3	0.4	0.4	0.4	0.3	
<b>DEVELOPED MARKETS TOTAL</b>	<b>10,091,941,311</b>	<b>75.8</b>	<b>-0.4</b>	<b>7.8</b>	<b>7.8</b>	<b>5.3</b>	<b>6.9</b>	<b>3.4</b>		
BENCHMARK DM			-0.7	7.0	7.0	4.9	6.2	2.6		
Excess			0.4	0.7	0.7	0.4	0.7	0.7		



	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>
<b>Total Developed Markets</b>					
<b>ACTIVE DEVELOPED MARKETS AGGREGATE</b>	<b>28.4%</b>	<b>-0.2%</b>	<b>3.2%</b>	<b>-4.1%</b>	<b>25.4%</b>
BENCHMARK DM	24.2	2.7	-3.0	-4.3	21.0
Excess	4.2	-3.0	6.2	0.2	4.4
<b>SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE</b>	<b>23.3</b>	<b>-0.4</b>	<b>-0.3</b>	<b>-4.4</b>	<b>24.0</b>
BENCHMARK DM	24.2	2.7	-3.0	-4.3	21.0
Excess	-0.9	-3.1	2.7	-0.1	3.0
<b>SSgA DEVELOPED MARKETS PASSIVE</b>	<b>24.7%</b>	<b>3.2</b>	<b>-2.6</b>	<b>-3.9</b>	<b>21.4</b>
BENCHMARK DM	24.2%	2.7	-3.0	-4.3	21.0
Excess	0.5%	0.4	0.5	0.4	0.4
<b>DEVELOPED MARKETS TOTAL</b>	<b>24.9%</b>	<b>1.3</b>	<b>-0.3</b>	<b>-4.1</b>	<b>23.3</b>
BENCHMARK DM	24.2%	2.7	-3.0	-4.3	21.0
Excess	0.7%	-1.5	2.8	0.2	2.2



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
<b>Active Emerging Markets</b>										
<b>EARNEST PARTNERS</b>	<b>\$294,013,073</b>	<b>2.2%</b>	<b>-10.6%</b>	<b>3.3%</b>	<b>3.3%</b>				<b>9.2%</b>	<b>04/2017</b>
MSCI EMERGING MARKETS			-8.0	8.2	8.2				11.8	04/2017
Excess			-2.7	-4.9	-4.9				-2.7	
<b>MARTIN CURRIE</b>	<b>337,146,705</b>	<b>2.5</b>	<b>-6.3</b>	<b>14.5</b>	<b>14.5</b>				<b>19.3</b>	<b>04/2017</b>
BENCHMARK EM			-8.0	8.2	8.2				11.8	04/2017
Excess			1.7	6.3	6.3				7.4	
<b>MACQUARIE</b>	<b>314,583,393</b>	<b>2.4</b>	<b>-6.5</b>	<b>8.1</b>	<b>8.1</b>				<b>12.5</b>	<b>04/2017</b>
BENCHMARK EM			-8.0	8.2	8.2				11.8	04/2017
Excess			1.5	-0.1	-0.1				0.7	
<b>MORGAN STANLEY</b>	<b>597,481,355</b>	<b>4.5</b>	<b>-10.3</b>	<b>3.3</b>	<b>3.3</b>	<b>4.7%</b>	<b>4.4%</b>	<b>2.6%</b>	<b>9.7</b>	<b>01/2001</b>
BENCHMARK EM			-8.0	8.2	8.2	5.6	5.0	2.3	9.5	01/2001
Excess			-2.4	-4.9	-4.9	-0.9	-0.6	0.3	0.2	
<b>NEUBERGER BERMAN</b>	<b>318,332,098</b>	<b>2.4</b>	<b>-7.9</b>	<b>10.0</b>	<b>10.0</b>				<b>13.8</b>	<b>04/2017</b>
BENCHMARK EM			-8.0	8.2	8.2				11.8	04/2017
Excess			0.1	1.8	1.8				1.9	
<b>PZENA</b>	<b>289,632,118</b>	<b>2.2</b>	<b>-7.2</b>	<b>2.1</b>	<b>2.1</b>				<b>6.3</b>	<b>04/2017</b>
BENCHMARK EM			-8.0	8.2	8.2				11.8	04/2017
Excess			0.7	-6.1	-6.1				-5.5	
<b>ROCK CREEK</b>	<b>297,329,810</b>	<b>2.2</b>	<b>-8.2</b>	<b>5.0</b>	<b>5.0</b>				<b>8.4</b>	<b>04/2017</b>
BENCHMARK EM			-8.0	8.2	8.2				11.8	04/2017
Excess			-0.3	-3.2	-3.2				-3.4	



	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>
<b>Active Emerging Markets</b>					
<b>EARNEST PARTNERS</b>					
MSCI EMERGING MARKETS					
Excess					
<b>MARTIN CURRIE</b>					
BENCHMARK EM					
Excess					
<b>MACQUARIE</b>					
BENCHMARK EM					
Excess					
<b>MORGAN STANLEY</b>	<b>37.9%</b>	<b>6.1%</b>	<b>-9.4%</b>	<b>-2.5%</b>	<b>0.5%</b>
BENCHMARK EM	37.3	11.2	-14.9	-2.2	-2.6
Excess	0.6	-5.1	5.5	-0.3	3.1
<b>NEUBERGER BERMAN</b>					
BENCHMARK EM					
Excess					
<b>PZENA</b>					
BENCHMARK EM					
Excess					
<b>ROCK CREEK</b>					
BENCHMARK EM					
Excess					



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
<b>Total Emerging Markets</b>										
<b>ACTIVE EMERGING MARKETS AGGREGATE</b>	<b>\$2,448,518,552</b>	<b>18.4%</b>	<b>-8.4%</b>	<b>6.2%</b>	<b>6.2%</b>	<b>4.3%</b>	<b>3.8%</b>	<b>1.6%</b>		
BENCHMARK EM			-8.0	8.2	8.2	5.6	5.0	2.3		
Excess			-0.4	-2.0	-2.0	-1.3	-1.2	-0.7		
<b>SSGA EMERGING MARKETS PASSIVE</b>	<b>770,405,248</b>	<b>5.8</b>	<b>-7.9</b>	<b>8.2</b>	<b>8.2</b>	<b>5.7</b>	<b>5.2</b>		<b>5.0</b>	<b>01/2012</b>
BENCHMARK EM			-8.0	8.2	8.2	5.6	5.0		4.9	01/2012
Excess			0.1	-0.0	-0.0	0.1	0.1		0.1	
<b>EMERGING MARKETS TOTAL</b>	<b>3,218,923,800</b>	<b>24.2</b>	<b>-8.3</b>	<b>6.8</b>	<b>6.8</b>	<b>5.1</b>	<b>4.4</b>	<b>1.8</b>		
BENCHMARK EM			-8.0	8.2	8.2	5.6	5.0	2.3		
Excess			-0.3	-1.4	-1.4	-0.5	-0.6	-0.4		



	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>
<b>Total Emerging Markets</b>					
<b>ACTIVE EMERGING MARKETS AGGREGATE</b>	<b>37.2%</b>	<b>5.3%</b>	<b>-12.7%</b>	<b>-4.1%</b>	<b>0.6%</b>
BENCHMARK EM	37.3	11.2	-14.9	-2.2	-2.6
Excess	-0.1	-5.9	2.2	-2.0	3.2
<b>SSGA EMERGING MARKETS PASSIVE</b>	<b>37.4%</b>	<b>11.1</b>	<b>-14.6</b>	<b>-2.1</b>	<b>-2.5</b>
BENCHMARK EM	37.3%	11.2	-14.9	-2.2	-2.6
Excess	0.1%	-0.1	0.3	0.0	0.1
<b>EMERGING MARKETS TOTAL</b>	<b>37.7%</b>	<b>7.5</b>	<b>-13.1</b>	<b>-3.8</b>	<b>0.2</b>
BENCHMARK EM	37.3%	11.2	-14.9	-2.2	-2.6
Excess	0.4%	-3.7	1.9	-1.6	2.9

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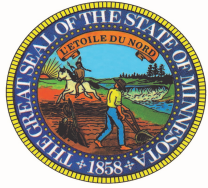
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# Fixed Income

## June 30, 2018

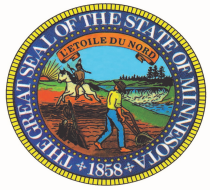


	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
<b>Total Fixed Income</b>										
<b>ACTIVE FIXED INCOME AGGREGATE</b>	<b>\$5,495,207,171</b>	<b>49.7%</b>	<b>-0.1%</b>	<b>0.4%</b>	<b>0.4%</b>	<b>2.7%</b>	<b>3.1%</b>	<b>4.7%</b>		
BBG BARC Agg (Dly)			-0.2	-0.4	-0.4	1.7	2.3	3.7		
Excess			0.1	0.8	0.8	0.9	0.8	1.0		
<b>SEMI PASSIVE FIXED INCOME AGGREGATE</b>	<b>5,565,016,233</b>	<b>50.3</b>	<b>-0.1</b>	<b>-0.2</b>	<b>-0.2</b>	<b>1.9</b>	<b>2.5</b>	<b>4.1</b>		
BBG BARC Agg (Dly)			-0.2	-0.4	-0.4	1.7	2.3	3.7		
Excess			0.1	0.2	0.2	0.2	0.2	0.4		
TRANSITION AGGREGATE FIXED INCOME (1)	18,174	0.0								
<b>TOTAL FIXED INCOME (2)</b>	<b>11,060,241,579</b>	<b>100.0</b>	<b>-0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>2.3</b>	<b>2.8</b>	<b>4.4</b>	<b>7.5</b>	<b>07/1984</b>
Fixed Income Benchmark			-0.2	-0.4	-0.4	1.7	2.3	3.7	7.1	07/1984
Excess			0.1	0.5	0.5	0.5	0.5	0.7	0.4	

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

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

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



	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>
<b>Total Fixed Income</b>					
<b>ACTIVE FIXED INCOME AGGREGATE</b>	<b>4.7%</b>	<b>4.4%</b>	<b>0.6%</b>	<b>6.2%</b>	<b>-0.8%</b>
BBG BARC Agg (Dly)	3.5	2.6	0.5	6.0	-2.0
Excess	1.2	1.7	0.0	0.2	1.2
<b>SEMI PASSIVE FIXED INCOME AGGREGATE</b>	<b>3.7</b>	<b>2.8</b>	<b>0.8</b>	<b>6.1</b>	<b>-1.8</b>
BBG BARC Agg (Dly)	3.5	2.6	0.5	6.0	-2.0
Excess	0.2	0.2	0.2	0.1	0.2
TRANSITION AGGREGATE FIXED INCOME (1)					
<b>TOTAL FIXED INCOME (2)</b>	<b>4.2%</b>	<b>3.6</b>	<b>0.7</b>	<b>6.1</b>	<b>-1.3</b>
Fixed Income Benchmark	3.5%	2.6	0.5	6.0	-2.0
Excess	0.7%	0.9	0.1	0.2	0.7

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

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

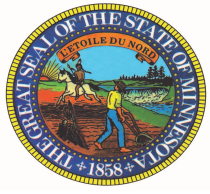
Note: All aggregates include the performance of terminated managers. Inception refers to the date of retention by the SBI.



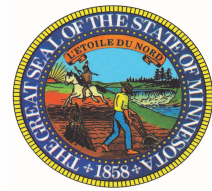
	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
<b>Active Fixed Income Managers</b>										
<b>COLUMBIA</b>	<b>\$1,169,333,831</b>	<b>10.6%</b>	<b>0.2%</b>	<b>0.7%</b>	<b>0.7%</b>	<b>2.8%</b>	<b>3.1%</b>	<b>4.5%</b>	<b>5.3%</b>	<b>07/1993</b>
BBG BARC Agg (Dly)			-0.2	-0.4	-0.4	1.7	2.3	3.7	5.1	07/1993
Excess			0.3	1.1	1.1	1.1	0.9	0.8	0.2	
<b>DODGE &amp; COX</b>	<b>1,655,889,421</b>	<b>15.0</b>	<b>-0.2</b>	<b>0.6</b>	<b>0.6</b>	<b>2.7</b>	<b>3.2</b>	<b>5.1</b>	<b>5.9</b>	<b>02/2000</b>
BBG BARC Agg (Dly)			-0.2	-0.4	-0.4	1.7	2.3	3.7	4.9	02/2000
Excess			-0.1	1.0	1.0	0.9	1.0	1.4	1.0	
<b>PIMCO</b>	<b>1,075,716,024</b>	<b>9.7</b>	<b>0.1</b>	<b>0.2</b>	<b>0.2</b>	<b>2.0</b>	<b>2.5</b>		<b>5.3</b>	<b>10/2008</b>
BBG BARC Agg (Dly)			-0.2	-0.4	-0.4	1.7	2.3		3.9	10/2008
Excess			0.2	0.6	0.6	0.3	0.2		1.4	
<b>WESTERN</b>	<b>1,594,267,896</b>	<b>14.4</b>	<b>-0.3</b>	<b>0.4</b>	<b>0.4</b>	<b>3.1</b>	<b>3.5</b>	<b>5.1</b>	<b>8.3</b>	<b>07/1984</b>
BBG BARC Agg (Dly)			-0.2	-0.4	-0.4	1.7	2.3	3.7	7.2	07/1984
Excess			-0.1	0.8	0.8	1.4	1.2	1.4	1.1	
<b>ACTIVE FIXED INCOME AGGREGATE</b>	<b>5,495,207,171</b>	<b>49.7</b>	<b>-0.1</b>	<b>0.4</b>	<b>0.4</b>	<b>2.7</b>	<b>3.1</b>	<b>4.7</b>		
BBG BARC Agg (Dly)			-0.2	-0.4	-0.4	1.7	2.3	3.7		
Excess			0.1	0.8	0.8	0.9	0.8	1.0		



	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>
<b>Active Fixed Income Managers</b>					
<b>COLUMBIA</b>	<b>4.8%</b>	<b>5.2%</b>	<b>0.2%</b>	<b>5.8%</b>	<b>-1.0%</b>
BBG BARC Agg (Dly)	3.5	2.6	0.5	6.0	-2.0
Excess	1.2	2.6	-0.4	-0.2	1.0
<b>DODGE &amp; COX</b>		<b>4.8</b>	<b>0.3</b>	<b>6.0</b>	<b>0.9</b>
BBG BARC Agg (Dly)	3.5	2.6	0.5	6.0	-2.0
Excess		2.2	-0.3	0.0	3.0
<b>PIMCO</b>	<b>4.4</b>	<b>2.8</b>	<b>1.0</b>	<b>5.5</b>	<b>-1.3</b>
BBG BARC Agg (Dly)	3.5	2.6	0.5	6.0	-2.0
Excess	0.8	0.2	0.4	-0.4	0.7
<b>WESTERN</b>	<b>5.6</b>	<b>4.9</b>	<b>0.7</b>	<b>7.0</b>	<b>-1.4</b>
BBG BARC Agg (Dly)	3.5	2.6	0.5	6.0	-2.0
Excess	2.1	2.2	0.1	1.0	0.7
<b>ACTIVE FIXED INCOME AGGREGATE</b>	<b>4.7%</b>	<b>4.4</b>	<b>0.6</b>	<b>6.2</b>	<b>-0.8</b>
BBG BARC Agg (Dly)	3.5%	2.6	0.5	6.0	-2.0
Excess	1.2%	1.7	0.0	0.2	1.2



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
<b>Semi Passive Fixed Income Managers</b>										
<b>BLACKROCK</b>	<b>\$1,659,035,471</b>	<b>15.0%</b>	<b>-0.1%</b>	<b>-0.4%</b>	<b>-0.4%</b>	<b>1.8%</b>	<b>2.4%</b>	<b>3.7%</b>	<b>5.1%</b>	<b>04/1996</b>
BBG BARC Agg (Dly)			-0.2	-0.4	-0.4	1.7	2.3	3.7	5.1	04/1996
Excess			0.0	0.0	0.0	0.1	0.2	-0.0	0.1	
<b>GOLDMAN SACHS</b>	<b>2,084,495,180</b>	<b>18.8</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>2.0</b>	<b>2.6</b>	<b>4.2</b>	<b>5.5</b>	<b>07/1993</b>
BBG BARC Agg (Dly)			-0.2	-0.4	-0.4	1.7	2.3	3.7	5.1	07/1993
Excess			0.2	0.4	0.4	0.3	0.3	0.5	0.3	
<b>NEUBERGER</b>	<b>1,821,485,583</b>	<b>16.5</b>	<b>-0.1</b>	<b>-0.4</b>	<b>-0.4</b>	<b>1.8</b>	<b>2.4</b>	<b>4.3</b>	<b>6.3</b>	<b>07/1988</b>
BBG BARC Agg (Dly)			-0.2	-0.4	-0.4	1.7	2.3	3.7	6.1	07/1988
Excess			0.0	0.0	0.0	0.1	0.1	0.6	0.2	
<b>SEMI PASSIVE FIXED INCOME</b>	<b>5,565,016,233</b>	<b>50.3</b>	<b>-0.1</b>	<b>-0.2</b>	<b>-0.2</b>	<b>1.9</b>	<b>2.5</b>	<b>4.1</b>		
BBG BARC Agg (Dly)			-0.2	-0.4	-0.4	1.7	2.3	3.7		
Excess			0.1	0.2	0.2	0.2	0.2	0.4		



	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>
<b>Semi Passive Fixed Income Managers</b>					
<b>BLACKROCK</b>	<b>3.7%</b>	<b>2.8%</b>	<b>0.9%</b>	<b>6.0%</b>	<b>-1.8%</b>
BBG BARC Agg (Dly)	3.5	2.6	0.5	6.0	-2.0
Excess	0.1	0.1	0.3	0.0	0.2
<b>GOLDMAN SACHS</b>	<b>3.9</b>	<b>3.0</b>	<b>0.8</b>	<b>6.1</b>	<b>-1.7</b>
BBG BARC Agg (Dly)	3.5	2.6	0.5	6.0	-2.0
Excess	0.4	0.3	0.2	0.1	0.3
<b>NEUBERGER</b>	<b>3.6</b>	<b>2.7</b>	<b>0.7</b>	<b>6.1</b>	<b>-2.0</b>
BBG BARC Agg (Dly)	3.5	2.6	0.5	6.0	-2.0
Excess	0.0	0.1	0.2	0.2	0.1
<b>SEMI PASSIVE FIXED INCOME</b>	<b>3.7%</b>	<b>2.8</b>	<b>0.8</b>	<b>6.1</b>	<b>-1.8</b>
BBG BARC Agg (Dly)	3.5%	2.6	0.5	6.0	-2.0
Excess	0.2%	0.2	0.2	0.1	0.2

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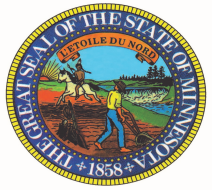
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# Treasuries

## June 30, 2018



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
<b>Treasuries Managers</b>										
<b>BLACKROCK</b>	<b>\$1,961,037,073</b>	<b>33.4%</b>	<b>0.1%</b>						<b>0.2%</b>	<b>02/2018</b>
BBG BARC 5Y + Us Tsy Idx			0.1						0.3	02/2018
Excess			0.0						-0.0	
<b>GOLDMAN SACHS</b>	<b>1,948,915,608</b>	<b>33.1</b>	<b>0.1</b>						<b>0.3</b>	<b>02/2018</b>
BBG BARC 5Y + Us Tsy Idx			0.1						0.3	02/2018
Excess			0.1						0.0	
<b>NEUBERGER</b>	<b>1,970,070,483</b>	<b>33.5</b>	<b>0.1</b>						<b>0.2</b>	<b>02/2018</b>
BBG BARC 5Y + Us Tsy Idx			0.1						0.3	02/2018
Excess			0.0						-0.1	
TREASURIES TRANSITION ACCOUNT	31,526	0.0								03/2018
<b>TOTAL TREASURIES</b>	<b>5,880,054,690</b>	<b>100.0</b>	<b>0.2</b>						<b>0.3%</b>	<b>02/2018</b>
BBG BARC 5Y + Us Tsy Idx			0.1						0.3%	02/2018
Excess			0.2						-0.0%	



	<u>2017 Calendar Return</u>	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>
<b>Treasuries Managers</b>					
<b>BLACKROCK</b>					
BBG BARC 5Y + Us Tsy Idx					
Excess					
<b>GOLDMAN SACHS</b>					
BBG BARC 5Y + Us Tsy Idx					
Excess					
<b>NEUBERGER</b>					
BBG BARC 5Y + Us Tsy Idx					
Excess					
<b>TOTAL TREASURIES</b>					
BBG BARC 5Y + Us Tsy Idx					
Excess					

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# Private Markets

June 30, 2018



## Combined Funds Asset Class Performance Summary

### Private Markets

	<u>Last Qtr</u>	<u>FYTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>20 Year</u>	<u>25 year</u>	<u>30 year</u>
Private Markets	2.4%	14.8%	14.8%	11.3%	12.0%	9.2%	12.1%	13.4%	12.2%
Private Equity	2.5%	19.7%	19.7%	15.1%	15.5%	11.7%	12.7%	15.3%	
Private Credit	4.3	12.0	12.0	14.2	14.4	11.2	13.0		
Resources	0.7	4.3	4.3	-0.3	0.9	4.9	13.8	14.7	
Real Estate	2.7	12.1	12.1	9.4	13.1	4.8	8.7	9.1	

### 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.

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<b>I. PRIVATE EQUITY</b>								
<b>Adams Street Partners</b>								
<i>Adams Street Global Secondary Fund 5</i>	100,000,000	76,529,750	63,209,755	26,434,531	23,470,250	6.34	1.17	<b>6.04</b>
<i>Adams Street Global Secondary Fund 6</i>	100,000,000	0	120,748	0	100,000,000	0.00	0.00	<b>1.25</b>
<b>Advent International</b>								
<i>Advent International GPE VI</i>	50,000,000	52,993,313	23,954,720	84,135,574	0	17.14	2.04	<b>10.25</b>
<i>Advent International GPE VII</i>	90,000,000	84,690,641	96,295,749	50,580,083	5,400,000	18.00	1.73	<b>5.79</b>
<i>Advent International GPE VIII</i>	100,000,000	49,150,000	51,185,154	0	50,850,000	4.07	1.04	<b>2.40</b>
<b>Affinity Ventures</b>								
<i>Affinity Ventures IV</i>	4,000,000	4,000,000	649,643	1,541,970	0	-11.75	0.55	<b>14.01</b>
<i>Affinity Ventures V</i>	5,000,000	5,000,000	2,310,985	1,706,245	0	-4.33	0.80	<b>10.00</b>
<b>APAX Partners</b>								
<i>Apax VIII - USD</i>	200,000,000	207,707,702	224,508,143	65,764,103	28,571,096	12.70	1.40	<b>5.32</b>
<i>Apax IX - USD</i>	150,000,000	66,417,205	69,448,213	1,422,626	85,005,421	9.44	1.07	<b>2.11</b>
<b>Asia Alternatives</b>								
<i>Asia Alternatives Capital Partners V</i>	99,000,000	4,144,162	3,001,830	75	94,861,948	-33.39	0.72	<b>1.00</b>
<b>Banc Fund</b>								
<i>Banc Fund VII</i>	45,000,000	45,000,000	10,393,834	56,459,725	0	3.73	1.49	<b>13.25</b>
<i>Banc Fund VIII</i>	98,250,000	98,250,000	114,008,722	105,125,973	0	14.95	2.23	<b>10.19</b>
<i>Banc Fund IX</i>	107,205,932	107,205,932	128,704,366	8,912,229	0	13.48	1.28	<b>4.06</b>
<i>Banc Fund X</i>	150,000,000	3,937,091	3,937,091	0	146,062,909	0.00	1.00	<b>0.16</b>
<b>Blackstone Capital Partners</b>								
<i>Blackstone Capital Partners IV</i>	70,000,000	84,375,218	6,703,721	193,288,642	1,916,968	37.03	2.37	<b>15.98</b>
<i>Blackstone Capital Partners V</i>	140,000,000	152,105,097	11,938,575	232,252,262	7,057,008	8.02	1.61	<b>12.41</b>
<i>Blackstone Capital Partners VI</i>	100,000,000	101,597,473	99,297,123	54,670,776	14,603,148	13.27	1.52	<b>9.94</b>
<i>Blackstone Capital Partners VII</i>	130,000,000	34,709,169	35,219,945	2,064,217	100,876,780	7.89	1.07	<b>3.00</b>
<b>Blackstone Strategic Partners (CSFB/ DLJ)</b>								
<i>Strategic Partners III VC</i>	25,000,000	24,960,287	4,749,040	29,717,061	1,093,582	6.31	1.38	<b>13.09</b>
<i>Strategic Partners III-B</i>	100,000,000	79,397,519	11,730,307	108,761,866	15,001,769	6.63	1.52	<b>13.09</b>
<i>Strategic Partners IV VC</i>	40,500,000	40,736,722	11,762,657	49,906,788	2,725,533	9.32	1.51	<b>10.27</b>

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<i>Strategic Partners IV-B</i>	100,000,000	98,811,961	16,140,268	138,175,704	17,990,668	12.49	1.56	<b>10.04</b>
<i>Strategic Partners V</i>	100,000,000	82,986,695	28,296,584	105,612,041	39,074,454	19.91	1.61	<b>6.87</b>
<i>Strategic Partners VI</i>	150,000,000	89,407,483	74,247,801	62,614,071	66,058,931	21.25	1.53	<b>4.21</b>
<i>Strategic Partners VII</i>	150,000,000	73,965,318	85,054,565	6,304,121	82,901,524	41.13	1.24	<b>1.52</b>
<b>Bridgepoint</b>								
<i>Bridgepoint Europe VI</i>	175,132,566	0	0	0	175,132,566	0.00	0.00	<b>0.28</b>
<b>Brookfield Asset Management</b>								
<i>Brookfield Capital Partners Fund IV</i>	100,000,000	73,214,965	99,973,679	60,275,581	39,852,369	72.53	2.19	<b>2.80</b>
<b>Cardinal Partners</b>								
<i>DSV Partners IV</i>	10,000,000	10,000,000	31,015	39,196,082	0	10.61	3.92	<b>33.52</b>
<b>Carlyle Group</b>								
<i>Carlyle Partners VII</i>	150,000,000	0	0	0	150,000,000	0.00	0.00	<b>0.54</b>
<b>Chicago Growth Partners (William Blair)</b>								
<i>William Blair Capital Partners VII</i>	50,000,000	48,150,000	966,033	69,201,191	1,650,000	8.60	1.46	<b>17.32</b>
<i>Chicago Growth Partners I</i>	50,000,000	52,441,998	3,538,485	54,532,745	300,000	2.32	1.11	<b>12.94</b>
<i>Chicago Growth Partners II</i>	60,000,000	58,347,626	4,714,742	120,959,703	1,652,374	19.90	2.15	<b>10.31</b>
<b>Court Square Capital Partners</b>								
<i>Court Square Capital Partners</i>	100,000,000	80,927,616	360,386	182,160,766	185,289	28.92	2.26	<b>16.56</b>
<i>Court Square Capital Partners II</i>	175,000,000	167,834,915	44,105,252	269,770,708	17,601,260	13.28	1.87	<b>11.82</b>
<i>Court Square Capital Partners III</i>	175,000,000	132,474,390	99,723,389	68,388,660	53,307,461	12.53	1.27	<b>6.08</b>
<b>Crescendo</b>								
<i>Crescendo IV</i>	101,500,000	103,101,226	10,680,230	43,048,440	0	-5.53	0.52	<b>18.32</b>
<b>CVC Capital Partners</b>								
<i>CVC European Equity Partners V</i>	133,983,803	153,750,518	42,442,468	222,905,205	1,667,541	15.31	1.73	<b>10.27</b>
<i>CVC Capital Partners VI</i>	258,655,489	228,896,999	222,339,356	41,707,268	33,576,626	8.85	1.15	<b>4.98</b>
<b>Elevation Partners</b>								
<i>Elevation Partners</i>	75,000,000	73,237,580	151,344	113,492,106	799,634	11.82	1.55	<b>13.13</b>
<b>Fox Paine &amp; Company</b>								
<i>Fox Paine Capital Fund II</i>	50,000,000	46,541,161	1,943	90,994,335	0	18.88	1.96	<b>18.01</b>
<b>GHJM Marathon Fund</b>								
<i>TrailHead Fund</i>	20,000,000	16,070,803	29,355,785	2,406,955	3,935,813	17.18	1.98	<b>6.35</b>
<b>Glouston Capital Partners**</b>								



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<i>Glouston Private Equity Opportunities Fund IV</i>	5,337,098	4,327,981	1,644,870	3,065,487	1,090,000	4.27	1.09	<b>3.50</b>
<b>GS Capital Partners</b>								
<i>GS Capital Partners 2000</i>	50,000,000	52,377,410	1,018	115,308,929	0	23.49	2.20	<b>17.84</b>
<i>GS Capital Partners V</i>	100,000,000	74,319,006	640,320	191,435,136	1,041,099	18.25	2.58	<b>13.25</b>
<i>GS Capital Partners VI</i>	100,000,000	109,162,551	15,810,317	126,580,321	3,226,857	7.33	1.30	<b>11.42</b>
<i>GS Vintage VII</i>	100,000,000	49,293,687	44,661,536	10,597,125	51,032,916	33.38	1.12	<b>2.01</b>
<i>West Street Capital Partners</i>	150,000,000	33,750,000	30,148,200	0	116,250,000	-12.20	0.89	<b>1.53</b>
<b>GTCR</b>								
<i>GTCR IX</i>	75,000,000	71,414,933	7,803,673	119,144,001	3,585,067	13.57	1.78	<b>12.01</b>
<i>GTCR X</i>	100,000,000	103,577,386	31,373,531	174,605,060	6,751,396	21.72	1.99	<b>7.56</b>
<i>GTCR Fund XI</i>	110,000,000	93,774,367	86,097,590	45,474,063	16,741,556	20.06	1.40	<b>4.62</b>
<b>HarbourVest**</b>								
<i>Dover Street VII</i>	2,198,112	2,071,558	538,661	1,429,588	132,416	-2.77	0.95	<b>3.50</b>
<i>HarbourVest Intl PE Partners V</i>	3,527,413	3,343,761	1,045,589	3,158,205	186,808	13.05	1.26	<b>3.50</b>
<i>Harbourvest Intl PE Partners VI</i>	4,243,695	3,917,536	3,793,620	1,808,914	326,914	15.98	1.43	<b>3.50</b>
<i>HarbourVest Partners VIII Buyout</i>	4,506,711	4,298,488	2,011,834	3,645,793	234,000	14.60	1.32	<b>3.50</b>
<i>HarbourVest Partners VIII Venture</i>	7,190,898	7,079,986	4,314,029	4,325,427	140,000	8.33	1.22	<b>3.50</b>
<b>Hellman &amp; Friedman</b>								
<i>Hellman &amp; Friedman Capital Partners V</i>	160,000,000	146,165,961	2,770,068	387,466,707	8,070,303	27.90	2.67	<b>13.59</b>
<i>Hellman &amp; Friedman Capital Partners VI</i>	175,000,000	171,037,755	13,730,940	307,008,677	5,084,864	13.11	1.88	<b>11.26</b>
<i>Hellman &amp; Friedman Capital Partners VII</i>	50,000,000	49,658,251	64,844,075	47,996,954	2,444,104	24.05	2.27	<b>9.20</b>
<b>IK Investment Partners</b>								
<i>IK Fund VII</i>	180,542,990	174,772,091	162,925,340	67,809,109	8,334,068	9.54	1.32	<b>4.80</b>
<i>IK Fund VIII</i>	174,011,411	67,753,771	69,650,757	2,213,957	108,403,543	5.70	1.06	<b>1.95</b>
<b>Kohlberg Kravis Roberts</b>								
<i>KKR Millennium Fund</i>	200,000,000	205,167,570	6,047,399	418,702,397	0	16.36	2.07	<b>15.57</b>
<i>KKR 2006 Fund</i>	200,000,000	218,993,927	55,424,394	302,036,488	3,360,223	8.46	1.63	<b>11.76</b>
<i>KKR Americas Fund XII</i>	150,000,000	21,752,873	21,786,798	0	128,805,235	0.32	1.00	<b>2.33</b>
<i>KKR Asian Fund III</i>	100,000,000	7,021,357	5,374,842	0	92,978,643	-23.60	0.77	<b>1.25</b>
<b>Leonard Green &amp; Partners</b>								
<i>Green Equity Investors VI</i>	200,000,000	214,505,390	189,789,935	124,831,654	21,248,883	14.39	1.47	<b>6.30</b>
<b>Lexington Capital Partners</b>								

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<i>Lexington Capital Partners VI-B</i>	100,000,000	98,374,022	12,320,747	132,739,841	1,634,703	7.97	1.47	<b>12.52</b>
<i>Lexington Capital Partners VII</i>	200,000,000	170,805,743	66,866,254	201,733,861	38,808,437	15.25	1.57	<b>9.47</b>
<i>Lexington Capital Partners VIII</i>	150,000,000	86,529,088	85,708,857	34,790,171	74,156,120	27.92	1.39	<b>4.33</b>
<i>Lexington Co-Investment Partners IV</i>	200,000,000	55,721,101	55,521,134	2,810,160	147,089,059	7.47	1.05	<b>1.91</b>
<i>Lexington Middle Market Investors IV</i>	100,000,000	0	0	1,458,011	100,000,000	0.00	0.00	<b>1.52</b>
<b>Madison Dearborn Capital Partners</b>								
<i>Madison Dearborn Capital Partners VII</i>	100,000,000	39,470,210	41,359,654	1,105,589	61,607,581	5.83	1.08	<b>2.53</b>
<b>Neuberger Berman</b>								
<i>Dyal Capital Partners III</i>	175,000,000	135,874,180	79,460,945	78,006,913	115,468,788	26.52	1.16	<b>3.20</b>
<i>Dyal Capital Partners IV</i>	250,000,000	12,500,000	12,500,000	0	237,500,000	0.00	1.00	<b>0.23</b>
<b>Nordic Capital</b>								
<i>Nordic Capital Fund VIII</i>	181,859,787	184,858,192	185,645,281	58,635,734	11,473,248	13.41	1.32	<b>4.80</b>
<b>North Sky Capital**</b>								
<i>North Sky Capital LBO Fund III</i>	1,070,259	720,259	399,340	605,324	350,000	15.77	1.39	<b>3.50</b>
<i>North Sky Capital Venture Fund III</i>	1,384,080	1,277,830	377,611	1,170,992	106,250	10.07	1.21	<b>3.50</b>
<b>Oak Hill Capital Management, Inc.</b>								
<i>Oak Hill Capital Partners IV</i>	150,000,000	58,545,326	50,379,828	13,130,886	104,531,216	35.99	1.08	<b>1.56</b>
<b>Paine &amp; Partners</b>								
<i>Paine &amp; Partners Capital Fund IV</i>	75,000,000	50,629,069	54,715,875	1,074,740	25,444,085	5.70	1.10	<b>3.55</b>
<b>Permira</b>								
<i>Permira V</i>	178,282,056	168,414,797	174,126,521	58,994,423	28,433,702	11.53	1.38	<b>4.50</b>
<i>Permira VI</i>	139,168,453	54,544,397	57,260,087	0	84,624,056	7.58	1.05	<b>1.93</b>
<b>Public Pension Capital Management</b>								
<i>Public Pension Capital</i>	100,000,000	60,910,633	72,112,452	4,346,396	45,928,858	15.28	1.26	<b>4.13</b>
<b>RWI Ventures</b>								
<i>RWI Ventures I</i>	7,603,265	7,603,265	482,970	6,094,262	0	-4.19	0.87	<b>12.01</b>
<b>Silver Lake Partners</b>								
<i>Silver Lake Partners II</i>	100,000,000	90,186,767	7,680,700	163,423,495	11,771,953	11.00	1.90	<b>14.01</b>
<i>Silver Lake Partners III</i>	100,000,000	91,667,586	50,653,505	152,928,327	10,559,311	19.09	2.22	<b>11.26</b>
<i>Silver Lake Partners IV</i>	100,000,000	101,177,382	118,028,178	33,436,237	13,000,047	23.60	1.50	<b>5.76</b>
<i>Silver Lake Partners V</i>	135,000,000	9,936,126	9,641,301	0	125,063,874	-3.13	0.97	<b>1.25</b>
<b>Split Rock Partners</b>								

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<i>Split Rock Partners</i>	50,000,000	47,890,906	6,469,807	56,816,177	2,109,094	3.47	1.32	<b>13.17</b>
<i>Split Rock Partners II</i>	60,000,000	59,165,000	37,154,205	44,774,545	835,000	7.55	1.38	<b>10.18</b>
<b>Summit Partners</b>								
<i>Summit Partners Growth Equity Fund VIII</i>	100,000,000	111,565,327	73,865,680	128,251,857	23,799,945	24.11	1.81	<b>7.16</b>
<i>Summit Partners Growth Equity Fund IX</i>	100,000,000	39,100,000	36,060,976	9,973,626	70,873,626	44.91	1.18	<b>2.84</b>
<b>Thoma Bravo</b>								
<i>Thoma Bravo Fund XII</i>	75,000,000	49,660,554	50,278,144	2,298,018	27,708,699	5.09	1.06	<b>1.81</b>
<i>Thoma Bravo Fund XIII</i>	150,000,000	0	0	0	150,000,000	0.00	0.00	<b>0.25</b>
<b>Thoma Cressey</b>								
<i>Thoma Cressey Fund VII</i>	50,000,000	50,000,000	843,884	106,625,069	0	23.59	2.15	<b>17.86</b>
<i>Thoma Cressey Fund VIII</i>	70,000,000	69,230,000	1,533,689	200,733,201	770,000	18.26	2.92	<b>12.17</b>
<b>Thomas H. Lee Partners</b>								
<i>Thomas H. Lee Equity Fund VII</i>	100,000,000	74,162,918	78,564,208	16,193,687	34,178,832	23.90	1.28	<b>2.81</b>
<i>Thomas H. Lee Equity Fund VIII</i>	150,000,000	0	0	0	150,000,000	0.00	0.00	<b>0.25</b>
<b>Thomas, McNerney &amp; Partners</b>								
<i>Thomas, McNerney &amp; Partners I</i>	30,000,000	30,000,000	3,032,158	15,087,143	0	-8.35	0.60	<b>15.66</b>
<i>Thomas, McNerney &amp; Partners II</i>	50,000,000	48,125,000	9,349,089	97,314,704	1,875,000	16.26	2.22	<b>12.01</b>
<b>TPG Capital</b>								
<i>TPG Partners VII</i>	100,000,000	69,636,389	73,674,666	6,837,318	36,442,872	14.67	1.16	<b>2.81</b>
<b>Vestar Capital Partners</b>								
<i>Vestar Capital Partners IV</i>	55,000,000	55,652,024	743,605	102,249,550	57,313	14.66	1.85	<b>18.55</b>
<i>Vestar Capital Partners V</i>	75,000,000	76,281,245	16,639,277	83,018,887	0	3.91	1.31	<b>12.54</b>
<i>Vestar Capital Partners VI</i>	100,000,000	100,609,153	82,078,467	114,308,447	960,325	34.09	1.95	<b>6.77</b>
<i>Vestar Capital Partners VII</i>	150,000,000	982,609	982,609	0	149,017,391	0.00	1.00	<b>0.54</b>
<b>Warburg Pincus</b>								
<i>Warburg Pincus Equity Partners</i>	100,000,000	100,000,000	296,524	163,542,253	0	10.03	1.64	<b>20.02</b>
<i>Warburg Pincus Private Equity VIII</i>	100,000,000	100,380,464	9,310,837	220,991,851	0	14.80	2.29	<b>16.22</b>
<i>Warburg Pincus Private Equity IX</i>	100,000,000	100,000,000	9,080,687	165,914,136	0	9.86	1.75	<b>12.94</b>
<i>Warburg Pincus Private Equity X</i>	150,000,000	150,000,000	68,943,894	164,660,202	0	8.21	1.56	<b>10.69</b>
<i>Warburg Pincus Private Equity XI</i>	200,000,000	200,299,952	184,399,135	114,838,086	0	13.72	1.49	<b>5.53</b>
<i>Warburg Pincus Private Equity XII</i>	131,000,000	69,757,500	76,110,264	1,925,700	61,242,500	9.63	1.12	<b>2.61</b>
<i>Warburg Pincus China</i>	45,000,000	28,215,000	28,384,955	1,935,000	18,720,000	13.90	1.07	<b>1.55</b>

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<i>Warburg Pincus Financial Sector</i>	90,000,000	14,260,808	9,104,714	4,590,000	80,280,000	-5.54	0.96	<b>0.54</b>
<b>Wellspring Capital Partners</b>								
<i>Wellspring Capital Partners VI</i>	125,000,000	6,372,571	4,480,963	0	118,627,429	-30.07	0.70	<b>1.80</b>
<b>Welsh, Carson, Anderson &amp; Stowe</b>								
<i>Welsh, Carson, Anderson &amp; Stowe X</i>	100,000,000	98,578,466	147,896	167,690,637	2,000,000	8.15	1.70	<b>12.55</b>
<i>Welsh, Carson, Anderson &amp; Stowe XI</i>	100,000,000	100,000,000	51,850,027	111,084,910	0	12.68	1.63	<b>9.95</b>
<i>Welsh, Carson, Anderson &amp; Stowe XII</i>	150,000,000	90,421,217	99,825,280	17,723,566	59,578,783	17.57	1.30	<b>3.53</b>
<b>Windjammer Capital Investors</b>								
<i>Windjammer Mezzanine &amp; Equity Fund II</i>	66,708,861	55,215,684	63,870	84,876,800	10,139,363	8.94	1.54	<b>18.26</b>
<i>Windjammer Senior Equity Fund III</i>	75,000,000	62,684,411	259,538	154,618,016	13,380,380	19.54	2.47	<b>12.50</b>
<i>Windjammer Senior Equity Fund IV</i>	100,000,000	78,741,414	87,191,590	12,600,533	29,180,469	8.07	1.27	<b>6.35</b>
<i>Windjammer Senior Equity Fund V</i>	100,000,000	0	0	0	100,000,000	0.00	0.00	<b>0.62</b>

<i>Private Equity Total</i>	<b>12,231,862,879</b>	<b>8,419,340,717</b>	<b>4,793,444,858</b>	<b>8,541,093,699</b>	<b>4,321,980,125</b>	<b>12.46</b>	<b>1.57</b>
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**II. PRIVATE CREDIT**

**Audax Group**

<i>Audax Mezzanine Fund III</i>	100,000,000	93,494,475	31,052,296	87,453,849	8,142,866	9.10	1.27	<b>8.24</b>
<i>Audax Mezzanine Fund IV</i>	100,000,000	25,760,944	21,024,739	7,075,921	76,103,754	12.04	1.09	<b>3.23</b>

**BlackRock**

<i>BlackRock Middle Market Senior Fund</i>	250,000,000	0	0	0	250,000,000	0.00	0.00	<b>0.21</b>
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**Crescent Capital Group**

<i>TCW/Crescent Mezzanine Partners III</i>	75,000,000	79,161,593	2,453,737	156,868,939	29,733,852	35.87	2.01	<b>17.26</b>
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**GS Mezzanine Partners**

<i>GS Mezzanine Partners 2006</i>	100,000,000	113,422,293	1,302,951	134,136,541	9,858,563	4.99	1.19	<b>12.24</b>
<i>GS Mezzanine Partners V</i>	150,000,000	147,682,304	2,207,742	177,988,948	37,594,230	8.96	1.22	<b>10.69</b>

**Gold Hill Venture Lending**

<i>Gold Hill Venture Lending</i>	40,000,000	40,000,000	1,064,964	64,391,012	0	10.70	1.64	<b>13.76</b>
<i>Gold Hill 2008</i>	25,852,584	25,852,584	13,311,387	33,841,601	0	14.01	1.82	<b>10.00</b>

**Kohlberg Kravis Roberts**

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<i>KKR Lending Partners II</i>	75,000,000	85,387,328	47,479,271	55,470,003	8,802,924	12.97	1.21	<b>3.33</b>
<i>KKR Lending Partners III</i>	192,000,000	38,955,000	42,740,647	0	153,045,000	18.29	1.10	<b>1.23</b>
<b>LBC Credit Partners</b>								
<i>LBC Credit Partners IV</i>	100,000,000	47,494,427	47,542,770	5,210,291	54,422,909	12.98	1.11	<b>2.17</b>
<b>Merit Capital Partners</b>								
<i>Merit Mezzanine Fund IV</i>	75,000,000	70,178,571	18,731,525	109,445,558	4,821,429	10.73	1.83	<b>13.55</b>
<i>Merit Mezzanine Fund V</i>	75,000,000	70,420,408	42,955,053	56,493,628	4,579,592	9.44	1.41	<b>8.54</b>
<i>Merit Mezzanine Fund VI</i>	100,000,000	32,302,603	36,101,158	0	67,630,597	9.61	1.12	<b>2.27</b>
<b>Portfolio Advisors</b>								
<i>DLJ Investment Partners II</i>	27,375,168	24,490,887	86,563	34,829,566	0	10.37	1.43	<b>18.51</b>
<i>DLJ Investment Partners III</i>	100,000,000	82,719,050	555,169	96,478,980	3,158,038	6.83	1.17	<b>12.03</b>
<b>Prudential Capital Partners</b>								
<i>Prudential Capital Partners II</i>	100,000,000	96,836,869	6,173,073	135,809,660	11,247,372	8.94	1.47	<b>13.01</b>
<i>Prudential Capital Partners III</i>	100,000,000	99,465,073	17,062,152	149,067,741	15,524,686	13.66	1.67	<b>9.21</b>
<i>Prudential Capital Partners IV</i>	100,000,000	102,385,264	71,828,269	56,066,122	6,590,872	10.26	1.25	<b>6.45</b>
<i>Prudential Capital Partners V</i>	150,000,000	52,925,587	56,829,965	3,985,966	98,603,003	25.51	1.15	<b>1.87</b>
<b>Summit Partners</b>								
<i>Summit Subordinated Debt Fund III</i>	45,000,000	44,088,494	6,806,976	58,922,343	2,250,000	9.37	1.49	<b>14.38</b>
<i>Summit Subordinated Debt Fund IV</i>	50,000,000	55,837,807	14,821,823	60,501,330	19,926,329	10.18	1.35	<b>10.26</b>
<b>TCW Asset Management</b>								
<i>TCW Direct Lending</i>	100,000,000	83,599,652	58,791,868	38,514,287	25,329,409	9.63	1.16	<b>3.78</b>
<i>Private Credit Total</i>	<b>2,230,227,752</b>	<b>1,512,461,214</b>	<b>540,924,098</b>	<b>1,522,552,286</b>	<b>887,365,424</b>	<b>12.13</b>	1.36	

### **III. REAL ASSETS**

#### **BlackRock**

<i>BlackRock Global Renewable Power Fund II</i>	98,500,000	58,906,799	57,244,584	537,604	41,185,768	-3.40	0.98	<b>2.60</b>
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#### **EIG Global Energy Partners**

<i>EIG Energy Fund XIV</i>	100,000,000	113,177,137	11,418,649	93,219,713	2,761,129	-2.83	0.92	<b>11.21</b>
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<i>EIG Energy Fund XV</i>	150,000,000	157,463,062	88,475,166	101,488,148	22,871,323	5.49	1.21	<b>8.07</b>
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<i>EIG Energy Fund XVI</i>	200,000,000	167,135,268	147,170,360	53,304,577	68,797,014	9.47	1.20	<b>4.80</b>
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<b>EnCap Energy</b>								
<i>EnCap Energy Capital Fund VII</i>	100,000,000	105,344,451	6,945,888	133,001,117	0	14.69	1.33	<b>11.01</b>
<i>EnCap Energy Capital Fund VIII</i>	100,000,000	94,422,340	31,447,771	52,671,359	9,383,470	-3.55	0.89	<b>7.75</b>
<i>EnCap Energy Capital Fund IX</i>	100,000,000	107,160,285	73,460,856	68,018,567	9,251,971	14.09	1.32	<b>5.56</b>
<i>EnCap Energy Capital Fund X</i>	100,000,000	77,732,954	71,374,919	16,769,138	30,053,789	11.16	1.13	<b>3.32</b>
<b>EnerVest Energy</b>								
<i>EnerVest Energy Institutional Fund XIV</i>	100,000,000	92,903,263	90,246,917	10,462,396	8,851,531	4.33	1.08	<b>3.06</b>
<b>Energy Capital Partners</b>								
<i>Energy Capital Partners II</i>	100,000,000	85,152,089	30,085,441	102,587,105	29,749,110	12.25	1.56	<b>7.95</b>
<i>Energy Capital Partners III</i>	200,000,000	188,345,465	195,776,809	22,707,874	30,657,688	10.06	1.16	<b>4.53</b>
<i>Energy Capital Partners IV</i>	105,808,339	27,036,117	25,782,452	72,619	78,772,222	-4.55	0.96	<b>0.50</b>
<b>Energy &amp; Minerals Group</b>								
<i>NGP Midstream &amp; Resources</i>	100,000,000	102,829,196	57,922,975	134,013,054	230,871	14.54	1.87	<b>11.26</b>
<i>The Energy &amp; Minerals Group Fund II</i>	100,000,000	102,893,225	110,875,231	70,328,585	3,006,959	15.38	1.76	<b>6.77</b>
<i>The Energy &amp; Minerals Group Fund III</i>	200,000,000	190,260,729	161,731,207	11,572,646	11,751,224	-2.92	0.91	<b>4.32</b>
<i>The Energy &amp; Minerals Group Fund IV</i>	150,000,000	93,528,930	115,464,752	15,776,674	70,278,465	18.25	1.40	<b>2.67</b>
<b>First Reserve</b>								
<i>First Reserve Fund X</i>	100,000,000	100,000,000	347,478	182,429,002	0	31.05	1.83	<b>13.67</b>
<i>First Reserve Fund XI</i>	150,000,000	150,292,121	8,107,918	94,066,313	0	-8.40	0.68	<b>11.53</b>
<i>First Reserve Fund XII</i>	150,000,000	163,010,444	33,419,563	80,719,259	2,606,600	-8.16	0.70	<b>9.67</b>
<i>First Reserve Fund XIII</i>	200,000,000	104,496,244	100,247,017	22,177,437	97,742,373	10.62	1.17	<b>4.66</b>
<b>Kohlberg, Kravis, Roberts &amp; Co.</b>								
<i>KKR Global Infrastructure Investors III</i>	149,850,000	0	0	0	149,850,000	0.00	0.00	<b>0.26</b>
<b>Merit Energy Partners</b>								
<i>Merit Energy Partners B</i>	24,000,000	24,000,000	7,998,384	184,828,016	0	24.30	8.03	<b>21.45</b>
<i>Merit Energy Partners C</i>	50,000,000	50,000,000	20,315,178	501,469,067	0	31.19	10.44	<b>19.68</b>
<i>Merit Energy Partners D</i>	88,000,000	70,938,303	32,631,552	314,767,281	0	23.73	4.90	<b>17.11</b>
<i>Merit Energy Partners E</i>	100,000,000	39,983,197	17,378,306	75,513,608	0	16.30	2.32	<b>13.75</b>
<i>Merit Energy Partners F</i>	100,000,000	59,522,861	19,798,913	27,510,575	0	-3.75	0.79	<b>12.28</b>
<i>Merit Energy Partners H</i>	100,000,000	100,000,000	73,186,972	24,238,423	0	-0.66	0.97	<b>7.41</b>
<i>Merit Energy Partners I</i>	169,721,518	146,099,999	186,471,373	24,839,059	23,621,519	21.44	1.45	<b>3.70</b>

NGP

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<i>Natural Gas Partners IX</i>	150,000,000	173,372,658	1,120,611	244,359,789	1,153,855	11.86	1.42	<b>10.69</b>
<i>NGP Natural Resources X</i>	150,000,000	141,804,796	73,389,549	94,628,121	8,195,204	5.57	1.18	<b>6.73</b>
<i>Natural Gas Capital Resources XI</i>	150,000,000	129,441,690	146,545,366	19,584,340	26,753,646	20.24	1.28	<b>3.56</b>
<i>NGP Natural Resources XII</i>	149,500,000	30,917,697	29,089,734	0	118,638,901	-7.98	0.94	<b>0.92</b>
<b>Sheridan</b>								
<i>Sheridan Production Partners I</i>	100,000,000	116,552,260	68,552,017	82,750,000	0	5.84	1.30	<b>11.26</b>
<i>Sheridan Production Partners II</i>	100,000,000	103,500,000	49,114,957	7,000,000	3,500,000	-11.97	0.54	<b>7.75</b>
<i>Sheridan Production Partners III</i>	100,000,000	34,353,005	36,013,994	14,700,000	65,650,000	24.72	1.48	<b>3.56</b>
<b>Real Assets Total</b>	<b>4,285,379,857</b>	<b>3,502,576,586</b>	<b>2,179,152,859</b>	<b>2,882,111,465</b>	<b>915,314,632</b>	<b>15.55</b>	<b>1.44</b>	

**IV. REAL ESTATE**

**Angelo, Gordon & Co.**

<i>AG Realty Fund IX</i>	100,000,000	71,772,308	74,925,706	8,000,000	32,150,000	10.12	1.16	<b>3.56</b>
<i>AG Asia Realty Fund III</i>	50,000,000	38,694,396	39,665,588	5,000,000	15,196,250	15.21	1.15	<b>1.75</b>
<i>AG Europe Realty Fund II</i>	75,000,000	13,312,500	12,765,476	28,384	61,687,500	-7.77	0.96	<b>1.03</b>

**Blackstone Real Estate Partners**

<i>Blackstone Real Estate Partners V</i>	100,000,000	104,213,007	17,458,796	189,842,220	4,174,052	10.89	1.99	<b>12.18</b>
<i>Blackstone Real Estate Partners VI</i>	100,000,000	109,427,250	12,323,720	205,580,301	4,907,906	13.11	1.99	<b>11.26</b>
<i>Blackstone Real Estate Partners VII</i>	100,000,000	105,806,706	80,860,229	101,943,147	15,126,809	17.76	1.73	<b>6.59</b>
<i>Blackstone Real Estate Partners VIII</i>	150,000,000	100,468,371	88,710,288	34,968,826	79,860,956	14.89	1.23	<b>3.26</b>
<i>Blackstone Real Estate Partners Asia II</i>	75,000,000	2,778,946	2,720,680	0	72,221,054	-2.21	0.98	<b>0.77</b>

**Blackstone Strategic Partners (CSFB)**

<i>Strategic Partners III RE</i>	25,000,000	25,973,891	2,703,932	12,799,240	9,006	-6.46	0.60	<b>13.01</b>
<i>Strategic Partners IV RE</i>	50,000,000	51,324,079	8,085,261	43,218,017	1,216,289	-0.01	1.00	<b>10.04</b>

**Carlyle Group**

<i>Carlyle Realty Partners VIII, L.P.</i>	150,000,000	1,392,693	0	0	148,616,174	0.00	0.00	<b>1.15</b>
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**Colony Capital**

<i>Colony Investors III</i>	100,000,000	99,660,860	4,694,100	172,642,105	0	14.53	1.78	<b>20.51</b>
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**Landmark Partners**

<i>Landmark Real Estate Partners VIII</i>	149,500,000	17,052,809	18,695,237	7,178,770	132,734,021	55.70	1.52	<b>1.54</b>
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<b>Lubert Adler</b>								
<i>Lubert-Adler Real Estate Fund VII</i>	74,147,868	32,364,976	30,768,101	1,250,230	42,635,024	-2.25	0.99	<b>1.73</b>
<b>Rockpoint</b>								
<i>Rockpoint Real Estate Fund V</i>	100,000,000	61,006,680	58,187,692	9,022,211	52,351,419	9.10	1.10	<b>3.47</b>
<b>Rockwood</b>								
<i>Rockwood Capital RE Partners X</i>	100,000,000	42,538,664	41,896,945	1,500,000	57,384,396	1.89	1.02	<b>2.96</b>
<b>Silverpeak Real Estate Partners</b>								
<i>Silverpeak Legacy Pension Partners II</i>	75,000,000	72,924,170	3,086,139	89,530,830	7,640,900	4.25	1.27	<b>12.92</b>
<i>Silverpeak Legacy Pension Partners III</i>	150,000,000	70,331,227	15,655,581	9,753,200	79,673,323	-11.91	0.36	<b>10.17</b>
<b>T.A. Associates Realty</b>								
<i>Realty Associates Fund VIII</i>	100,000,000	100,000,000	16,788,659	81,790,937	0	-0.17	0.99	<b>12.01</b>
<i>Realty Associates Fund IX</i>	100,000,000	100,000,000	610,962	159,608,332	0	10.43	1.60	<b>9.85</b>
<i>Realty Associates Fund X</i>	100,000,000	100,000,000	63,344,429	85,194,501	0	12.17	1.49	<b>6.33</b>
<i>Realty Associates Fund XI</i>	100,000,000	100,000,000	103,644,800	2,135,499	0	5.61	1.06	<b>3.00</b>
<b>Real Estate Total</b>	<b>2,123,647,868</b>	<b>1,421,043,533</b>	<b>697,592,321</b>	<b>1,220,986,750</b>	<b>807,585,079</b>	<b>7.97</b>	1.35	

**V. DISTRESSED/ OPPORTUNISTIC**

<b>Avenue Capital Partners</b>								
<i>Avenue Energy Opportunities Fund</i>	100,000,000	100,977,328	121,718,100	934,495	0	7.74	1.21	<b>4.00</b>
<i>Avenue Energy Opportunities Fund II</i>	100,000,000	65,000,000	63,354,395	0	35,000,000	-5.11	0.97	<b>1.16</b>
<b>BlackRock**</b>								
<i>BlackRock Tempus Fund</i>	1,774,870	1,774,870	639,937	1,384,701	0	9.48	1.14	<b>3.05</b>
<b>Carlyle Group</b>								
<i>Carlyle Strategic Partners IV</i>	100,000,000	17,449,606	14,707,631	4,674,546	87,183,049	11.99	1.11	<b>2.25</b>
<b>Carval Investors</b>								
<i>CVI Global Value Fund</i>	200,000,000	190,000,000	28,085,522	291,562,042	10,000,000	9.55	1.68	<b>11.47</b>
<i>CVI Credit Value Fund I</i>	100,000,000	95,000,000	28,089,785	183,039,526	5,000,000	18.73	2.22	<b>7.75</b>
<i>CVI Credit Value Fund A II</i>	150,000,000	142,500,000	69,596,282	136,990,569	7,500,000	9.30	1.45	<b>5.67</b>
<i>CVI Credit Value Fund A III</i>	150,000,000	135,000,000	165,765,825	0	15,000,000	12.35	1.23	<b>3.08</b>
<i>CVI Credit Value Fund IV</i>	150,000,000	15,203,333	15,340,875	60	135,000,000	0.92	1.01	<b>0.74</b>



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<b>Merced Capital</b>								
<i>Merced Partners II</i>	75,000,000	63,768,881	287,532	130,393,875	0	23.97	2.05	<b>11.25</b>
<i>Merced Partners III</i>	100,000,000	100,000,000	45,157,314	88,997,107	0	6.34	1.34	<b>8.15</b>
<i>Merced Partners IV</i>	125,000,000	124,968,390	97,894,524	59,372,049	0	7.04	1.26	<b>4.97</b>
<i>Merced Partners V</i>	53,737,500	53,915,358	59,874,376	0	0	12.49	1.11	<b>1.00</b>
<b>MHR Institutional Partners</b>								
<i>MHR Institutional Partners IV</i>	75,000,000	30,559,392	26,240,384	2,014,108	46,396,136	-4.97	0.92	<b>4.03</b>
<b>Oaktree Capital Management</b>								
<i>Oaktree Principal Fund VI</i>	100,000,000	62,524,537	61,427,694	13,606,490	49,951,405	18.66	1.20	<b>3.50</b>
<i>Oaktree Opportunities Fund X</i>	50,000,000	35,000,000	37,312,470	5,619,660	20,000,000	17.56	1.23	<b>3.38</b>
<i>Oaktree Opportunities Fund Xb</i>	100,000,000	2,500,000	2,500,000	0	97,500,000	0.00	1.00	<b>3.38</b>
<i>Oaktree Special Situations Fund II</i>	100,000,000	0	0	0	100,000,000	0.00	0.00	<b>0.18</b>
<b>Pimco Bravo**</b>								
<i>Pimco Bravo Fund OnShore Feeder I</i>	3,958,027	3,958,027	248,943	3,937,010	2,306,448	5.39	1.06	<b>3.50</b>
<i>Pimco Bravo Fund OnShore Feeder II</i>	5,243,670	4,667,339	4,225,781	1,678,740	2,257,050	6.82	1.27	<b>3.50</b>
<b>TSSP</b>								
<i>TSSP Adjacent Opportunities Partners</i>	50,000,000	0	0	0	50,000,000	0.00	0.00	<b>0.24</b>
<b>Varde Fund</b>								
<i>Varde Fund IX</i>	100,000,000	100,000,000	3,453,284	212,664,809	0	15.02	2.16	<b>10.02</b>
<i>Varde Fund X</i>	150,000,000	150,000,000	71,122,243	227,280,360	0	12.65	1.99	<b>8.20</b>
<i>Varde Fund XI</i>	200,000,000	200,000,000	214,741,263	63,860,162	0	7.89	1.39	<b>4.98</b>
<b>Wayzata</b>								
<i>Wayzata Opportunities Fund</i>	100,000,000	93,180,000	519,166	156,425,778	18,920,000	8.42	1.68	<b>12.53</b>
<i>Wayzata Opportunities Fund II</i>	150,000,000	174,750,000	8,850,819	319,228,413	30,000,000	16.47	1.88	<b>10.69</b>
<i>Wayzata Opportunities Fund III</i>	150,000,000	68,415,000	36,021,421	32,728,171	15,000,000	0.18	1.00	<b>6.04</b>
<b><i>Distressed/Opportunistic Total</i></b>	<b>2,739,714,067</b>	<b>2,031,112,061</b>	<b>1,177,175,565</b>	<b>1,936,392,670</b>	<b>727,014,089</b>		1.53	
<b><i>Private Markets Total</i></b>	<b>23,610,832,423</b>	<b>16,886,534,110</b>	<b>9,388,289,701</b>	<b>16,103,136,870</b>	<b>7,659,259,349</b>	<b>12.37</b>	1.50	

**Minnesota State Board of Investment**  
**- Alternative Investments -**  
**As of June 30, 2018**

Investment	Total Commitment	Total Contributions	Market Value	Distributions	Unfunded Commitment	IRR %	MOIC*	Period Years
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<i>Private Markets Portfolio Status</i>	Investment Manager Count	Investments Count
PRIVATE EQUITY	50	120
PRIVATE CREDIT	12	23
REAL ASSETS	11	35
REAL ESTATE	11	22
DISTRESSED/ OPPORTUNISTIC	11	27
Total	95	227

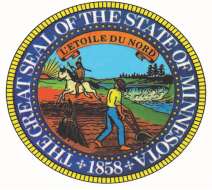
**Notes**

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

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

\* MOIC: Multiple of Invested Capital

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

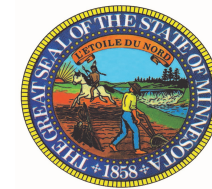


# Participant Directed Investment Program

June 30, 2018

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## Quarterly Report

# Participant Directed Investment Program

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

- The Supplemental Investment Fund (SIF) is a program which provides individuals the opportunity to invest in many of the same investment pools as the Combined Funds. Participation in the SIF is accomplished through the purchase or sale of shares in each Fund. The SIF is structured much like a family of mutual funds. Participants may allocate their investments among one or more accounts that are appropriate for their needs within statutory requirements and rules established by the participating organizations. It provides some or all of the investment options for the Unclassified Employees Retirement Plan, Minnesota Deferred Compensation Plan, Public Employees Defined Contribution Plan, Hennepin County Supplemental Retirement Plan, and Health Care Savings Plan. All Funds in the SIF program, except the Stable Value Fund, are available to local volunteer fire relief associations who invest their assets with the SBI. The Volunteer Firefighter Account is available only for those local firefighter entities that participate in the Statewide Volunteer Firefighter Plan. Local entities that participate in this Plan must have all their assets invested in the Volunteer Firefighter Account.
- The Minnesota Deferred Compensation Plan offers plan participants three sets of investment options. The first is a set of actively and passively managed options that includes four mutual funds, a Money Market Fund, a Stable Value Fund and five passively managed mutual funds. The second is a set of target date funds called Minnesota Target Retirement Funds. The third is a self-directed brokerage account window which offers thousands of mutual funds. The SBI has no direct management responsibilities for funds within the self-directed brokerage account window. The Minnesota Deferred Compensation Plan uses two of the SIF investment options, the Stable Value Fund and the Money Market Fund, for its participants.
- The Minnesota College Savings Plan is an education savings plan designed to help families set aside funds for future college costs. It is established under the provisions of the Internal Revenue Code Section 529, which authorized these types of savings plans to help families meet the costs of qualified colleges nationwide. The SBI is responsible for the investments and the Minnesota Office of Higher Education (OHE) is responsible for the overall administration of the Plan. The SBI and OHE have contracted jointly with TIAA-CREF Tuition Financing, Inc. to provide administrative, marketing, communication, recordkeeping and investment management services.
- The Minnesota Achieve a Better Life Experience Plan (ABLE) is a savings plan designed to help individuals save for qualified disability expenses without losing eligibility for certain assistance programs. The plan is administered by the Department of Human Services (DHS). The SBI and DHS have jointly contracted with Ascensus to provide recordkeeping, administrative, and investment management services for the plan.

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



## Supplemental Investment Fund Summary

The Minnesota Supplemental Investment Fund (SIF) is a multi-purpose investment program that offers a range of investment options to state and local public employees. The SIF provides some or all of the investment options to the Unclassified Employees Retirement Plan, Minnesota Deferred Compensation Plan, Public Employees Defined Contribution Plan, Hennepin County Supplemental Retirement Plan, Health Care Savings Plan, local police and firefighter retirement plans and the Statewide Volunteer Firefighter plan.

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

### Investment Option Descriptions

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

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Option Since</u>
BALANCED FUND	\$443,928,458	2.3%	8.9%	7.8%	9.0%	8.1%	01/1980
U.S. ACTIVELY MANAGED FUND	259,911,942	5.2	18.2	12.1	13.9	10.5	07/1986
U.S. STOCK INDEX FUND	614,526,590	3.9	14.8	11.6	13.3	10.3	07/1986
BROAD INTERNATIONAL STOCK FUND	195,969,302	-2.4	7.5	5.3	6.4	3.1	09/1994
BOND FUND	171,064,922	0.0	0.1	2.3	2.8	4.4	07/1986
MONEY MARKET FUND	404,023,579	0.5	1.5	0.9	0.6	0.5	07/1986
STABLE VALUE FUND	1,553,732,886	0.6	2.2	2.1	2.0	2.9	11/1994
VOLUNTEER FIREFIGHTER ACCOUNT	88,331,359	1.0	6.3	6.0	6.9		01/2010
TOTAL SUPPLEMENTAL INVESTMENT FUND	3,731,489,041						

Note:

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



## Supplemental Investment Fund Performance

### Balanced Fund

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

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
<b>BALANCED FUND</b>	<b>\$443,928,458</b>	<b>2.3%</b>	<b>8.9%</b>	<b>7.8%</b>	<b>9.0%</b>	<b>8.1%</b>
SIF BALANCED FUND BENCHMARK		2.3	8.7	7.6	8.8	7.5
Excess		0.1	0.2	0.2	0.2	0.6

### U.S. Actively Managed Fund

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

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
<b>U.S. ACTIVELY MANAGED FUND</b>	<b>259,911,942</b>	<b>5.2</b>	<b>18.2</b>	<b>12.1</b>	<b>13.9</b>	<b>10.5</b>
Russell 3000		3.9	14.8	11.6	13.3	10.2
Excess		1.3	3.4	0.5	0.6	0.2



## Supplemental Investment Fund Performance

### U.S. Stock Index Fund

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

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
<b>U.S. STOCK INDEX FUND</b>	<b>\$614,526,590</b>	<b>3.9%</b>	<b>14.8%</b>	<b>11.6%</b>	<b>13.3%</b>	<b>10.3%</b>
Russell 3000		3.9	14.8	11.6	13.3	10.2
Excess		-0.0	-0.0	0.0	0.0	0.0

### Broad International Stock Fund

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

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
<b>BROAD INTERNATIONAL STOCK FUND</b>	<b>195,969,302</b>	<b>-2.4</b>	<b>7.5</b>	<b>5.3</b>	<b>6.4</b>	<b>3.1</b>
International Equity Benchmark		-2.6	7.3	5.1	6.0	2.5
Excess		0.2	0.2	0.2	0.4	0.5





## Supplemental Investment Fund Performance

### Bond Fund

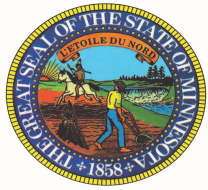
The investment objective of the Bond Fund is to exceed the return of the broad domestic bond market by investing in fixed income securities. The Bond Fund invests primarily in high-quality, government and corporate bonds that have intermediate to long-term maturities, usually 3 to 20 years. The Bond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

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
<b>BOND FUND</b>	<b>\$171,064,922</b>	<b>0.0%</b>	<b>0.1%</b>	<b>2.3%</b>	<b>2.8%</b>	<b>4.4%</b>
BBG BARC US Agg		-0.2	-0.4	1.7	2.3	3.7
Excess		0.2	0.5	0.5	0.5	0.7

### Money Market Fund

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

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
<b>MONEY MARKET FUND</b>	<b>404,023,579</b>	<b>0.5</b>	<b>1.5</b>	<b>0.9</b>	<b>0.6</b>	<b>0.5</b>
90 DAY T-BILL		0.5	1.4	0.7	0.4	0.4
Excess		0.0	0.2	0.2	0.2	0.2



## Supplemental Investment Fund Performance

### Stable Value Fund

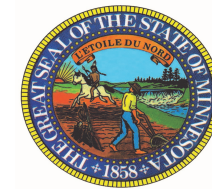
The investment objectives of the Stable Value Fund are to protect investors from loss of their original investment and to provide competitive interest rates using somewhat longer-term investments than typically found in a money market fund. The Fund is invested in a well-diversified portfolio of high-quality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

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
<b>STABLE VALUE FUND</b>	<b>\$1,553,732,886</b>	<b>0.6%</b>	<b>2.2%</b>	<b>2.1%</b>	<b>2.0%</b>	<b>2.9%</b>
Fixed Interest Blended Benchmark		0.8	2.4	1.8	1.6	1.5
Excess		-0.2	-0.1	0.2	0.4	1.4

### Volunteer Firefighter Account

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

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
<b>VOLUNTEER FIREFIGHTER ACCOUNT</b>	<b>88,331,359</b>	<b>1.0</b>	<b>6.3</b>	<b>6.0</b>	<b>6.9</b>	
SIF Volunteer Firefighter Account BM		0.9	6.1	5.7	6.7	
Excess		0.1	0.2	0.3	0.3	



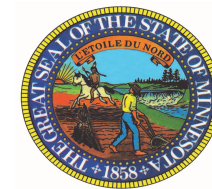
## Deferred Compensation Plan Summary

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

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

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

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Option Since</u>
VANGUARD INSTITUTIONAL INDEX PLUS	\$1,258,796,587	3.4%	14.4%	11.9%	13.4%	10.2%	07/1999
VANGUARD DIVIDEND GROWTH	612,686,535	3.0	10.6				10/2016
VANGUARD MID CAP INDEX	546,657,223	2.6	12.1	9.2	12.3	10.1	01/2004
T. ROWE PRICE SMALL-CAP STOCK	732,333,810	6.7	18.3	11.9	13.3	13.5	04/2000
FIDELITY DIVERSIFIED INTERNATIONAL	309,065,535	-0.9	6.0	4.0	7.2	3.0	07/1999
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	200,927,707	-3.2	7.1	5.4	6.5		07/2011
VANGUARD BALANCED INDEX	785,660,076	2.3	8.6	7.7	8.9	8.0	12/2003
DODGE & COX INCOME	240,234,256	-0.3	0.4	2.6	3.1	4.9	07/1999
VANGUARD TOTAL BOND MARKET INDEX	209,005,746	-0.2	-0.5	1.7	2.2	3.7	12/2003
2020 FUND	120,196,906	0.8	4.7	4.4	5.3		07/2011
2025 FUND	123,882,517	0.9	6.1	5.5	6.7		07/2011
2030 FUND	86,164,748	0.9	7.7	6.6	7.8		07/2011
2035 FUND	68,040,876	0.9	8.5	7.1	8.3		07/2011
2040 FUND	49,679,459	1.0	9.4	7.5	8.8		07/2011
2045 FUND	41,873,729	1.1	10.1	7.9	9.2		07/2011
2050 FUND	31,752,795	1.2	10.7	8.2	9.5		07/2011
2055 FUND	16,731,761	1.2	10.7	8.2	9.5		07/2011
2060 FUND	15,645,346	1.2	10.7	8.2	9.5		07/2011
INCOME FUND	87,987,494	0.8	4.0	3.8	4.1		07/2011
TD Ameritrade SDB	74,241,306						08/2017
TD Ameritrade SDB Roth	676,188						08/2017
Total Deferred Compensation Plan	5,612,240,602						



## Deferred Compensation Plan Options

### LARGE CAP EQUITY

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

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

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

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

### MID CAP EQUITY

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

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

### SMALL CAP EQUITY

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

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

### INTERNATIONAL EQUITY

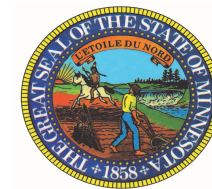
#### **Fidelity Diversified International (active)**

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

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

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

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
<b>Large Cap US Equity</b>						
<b>VANGUARD INSTITUTIONAL INDEX PLUS</b>	<b>\$1,258,796,587</b>	<b>3.4%</b>	<b>14.4%</b>	<b>11.9%</b>	<b>13.4%</b>	<b>07/1999</b>
S&P 500		3.4	14.4	11.9	13.4	07/1999
Excess		-0.0	-0.0	-0.0	-0.0	
<b>VANGUARD DIVIDEND GROWTH</b>	<b>612,686,535</b>	<b>3.0</b>	<b>10.6</b>			<b>10/2016</b>
NASDAQ US Dividend Achievers Select		1.1	11.9			10/2016
Excess		1.9	-1.3			
<b>Mid Cap US Equity</b>						
<b>VANGUARD MID CAP INDEX</b>	<b>546,657,223</b>	<b>2.6</b>	<b>12.1</b>	<b>9.2</b>	<b>12.3</b>	<b>01/2004</b>
CRSP US Mid Cap Index		2.6	12.1	9.2	12.4	01/2004
Excess		-0.0	-0.0	-0.0	-0.0	
<b>Small Cap US Equity</b>						
<b>T. ROWE PRICE SMALL-CAP STOCK</b>	<b>732,333,810</b>	<b>6.7</b>	<b>18.3</b>	<b>11.9</b>	<b>13.3</b>	<b>04/2000</b>
Russell 2000		7.8	17.6	11.0	12.5	04/2000
Excess		-1.1	0.7	1.0	0.8	
<b>International Equity</b>						
<b>FIDELITY DIVERSIFIED INTERNATIONAL</b>	<b>309,065,535</b>	<b>-0.9</b>	<b>6.0</b>	<b>4.0</b>	<b>7.2</b>	<b>07/1999</b>
MSCI EAFE FREE (NET)		-1.2	6.8	4.9	6.4	07/1999
Excess		0.3	-0.8	-0.9	0.7	
<b>VANGUARD TOTAL INTERNATIONAL STOCK INDEX</b>	<b>200,927,707</b>	<b>-3.2</b>	<b>7.1</b>	<b>5.4</b>	<b>6.5</b>	<b>07/2011</b>
FTSE Global All Cap ex US Index Net		-2.7	7.4	5.3	6.4	07/2011
Excess		-0.5	-0.3	0.1	0.1	



## Deferred Compensation Options

### BALANCED

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

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

### FIXED INCOME

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

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

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

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

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

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

### STABLE VALUE

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

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

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

#### **Balanced Funds**

<b>VANGUARD BALANCED INDEX</b>	<b>\$785,660,076</b>	<b>2.3%</b>	<b>8.6%</b>	<b>7.7%</b>	<b>8.9%</b>	<b>12/2003</b>
Vanguard Balanced Fund Benchmark		2.3	8.6	7.7	8.9	12/2003
Excess		0.0	-0.0	0.0	-0.0	

#### **Fixed Income**

<b>DODGE &amp; COX INCOME</b>	<b>240,234,256</b>	<b>-0.3</b>	<b>0.4</b>	<b>2.6</b>	<b>3.1</b>	<b>07/1999</b>
BBG BARC Agg Bd		-0.2	-0.4	1.7	2.3	07/1999
Excess		-0.2	0.8	0.9	0.8	

<b>VANGUARD TOTAL BOND MARKET INDEX</b>	<b>209,005,746</b>	<b>-0.2</b>	<b>-0.5</b>	<b>1.7</b>	<b>2.2</b>	<b>12/2003</b>
BBG BARC Agg Bd		-0.2	-0.4	1.7	2.3	12/2003
Excess		-0.0	-0.1	-0.0	-0.1	

<b>MONEY MARKET FUND</b>	<b>404,023,579</b>	<b>0.5</b>	<b>1.5</b>	<b>0.9</b>	<b>0.6</b>	<b>07/1986</b>
90 DAY T-BILL		0.5	1.4	0.7	0.4	07/1986
Excess		0.0	0.2	0.2	0.2	

#### **Stable Value**

<b>STABLE VALUE FUND</b>	<b>1,553,732,886</b>	<b>0.6</b>	<b>2.2</b>	<b>2.1</b>	<b>2.0</b>	<b>11/1994</b>
Fixed Interest Blended Benchmark		0.8	2.4	1.8	1.6	11/1994
Excess		-0.2	-0.1	0.2	0.4	

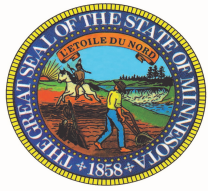
(1) Vanguard Dividend Growth replaced the Janus Twenty Fund in the third quarter of 2016.

(2) Prior to 02/01/2013 the benchmark was the MSCI US Mid-Cap 450 Index

(3) Prior to 06/01/2013 the benchmark was MSCI ACWI ex USA IMI.

(4) Prior to 01/01/2013 the benchmark was 60% MSCI US Broad Market Index and 40% Bloomberg Barclays U.S. Aggregate.

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



## Deferred Compensation Options

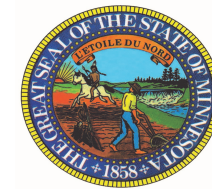
### MN TARGET RETIREMENT ACCOUNTS

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

#### Target Date Retirement Funds

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>Option Since</u>		<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>Option Since</u>	
SSgA														
2020 FUND	\$120,196,906	0.8%	4.7%	4.4%	5.3%	07/2011		2045 FUND	\$41,873,729	1.1%	10.1%	7.9%	9.2%	07/2011
2020 FUND BENCHMARK		0.9	4.7	4.4	5.4	07/2011		2045 FUND BENCHMARK		1.2	10.1	7.9	9.3	07/2011
Excess		-0.0	-0.0	-0.0	-0.0			Excess		-0.1	-0.0	-0.0	-0.0	
2025 FUND	123,882,517	0.9	6.1	5.5	6.7	07/2011		2050 FUND	31,752,795	1.2	10.7	8.2	9.5	07/2011
2025 FUND BENCHMARK		0.9	6.2	5.5	6.7	07/2011		2050 FUND BENCHMARK		1.3	10.7	8.2	9.5	07/2011
Excess		-0.0	-0.0	-0.0	-0.0			Excess		-0.1	-0.0	-0.0	-0.0	
2030 FUND	86,164,748	0.9	7.7	6.6	7.8	07/2011		2055 FUND	16,731,761	1.2	10.7	8.2	9.5	07/2011
2030 FUND BENCHMARK		1.0	7.7	6.6	7.8	07/2011		2055 FUND BENCHMARK		1.3	10.7	8.2	9.5	07/2011
Excess		-0.1	-0.0	-0.0	-0.1			Excess		-0.1	-0.0	-0.0	-0.0	
2035 FUND	68,040,876	0.9	8.5	7.1	8.3	07/2011		2060 FUND	15,645,346	1.2	10.7	8.2	9.5	07/2011
2035 FUND BENCHMARK		1.0	8.6	7.1	8.4	07/2011		2060 FUND BENCHMARK		1.3	10.7	8.2	9.5	07/2011
Excess		-0.1	-0.0	-0.0	-0.0			Excess		-0.1	-0.0	-0.0	-0.0	
2040 FUND	49,679,459	1.0	9.4	7.5	8.8	07/2011		INCOME FUND	87,987,494	0.8	4.0	3.8	4.1	07/2011
2040 FUND BENCHMARK		1.1	9.4	7.5	8.9	07/2011		INCOME FUND BENCHMARK		0.8	4.0	3.8	4.2	07/2011
Excess		-0.1	-0.0	-0.0	-0.0			Excess		-0.0	-0.0	-0.0	-0.1	

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



## MN College Savings Plan Options

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

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

### **AGE-BASED MANAGED ALLOCATIONS**

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

### **RISK BASED ALLOCATIONS**

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

### **ASSET CLASS BASED ALLOCATIONS**

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

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

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

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

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

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

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



**MINNESOTA COLLEGE SAVINGS PLAN**  
**Performance Statistics for the Period Ending: June 30, 2018**

Fund Name	Ending Market	3 Months	1 Year	Annualized				Inception Date
				3 Years	5 Years	10 Years	Since Inception	
Managed Ages 0-4	\$30,705,133	1.78%	9.40%	7.96%			7.31%	8/12/2014
BB: Managed Ages 0-4		1.92%	9.25%	8.03%			7.37%	
Managed Ages 5-8	\$69,359,487	1.59%	8.02%	7.17%			6.57%	8/12/2014
BB: Managed Ages 5-8		1.69%	8.10%	7.29%			6.69%	
Managed Ages 9-10	\$66,903,408	1.38%	6.85%	6.44%			5.87%	8/12/2014
BB: Managed Ages 9-10		1.46%	6.95%	6.55%			6.00%	
Managed Ages 11-12	\$99,445,689	1.25%	5.92%	5.69%			5.17%	8/12/2014
BB: Managed Ages 11-12		1.25%	5.87%	5.73%			5.25%	
Managed Ages 13-14	\$133,817,428	0.94%	4.78%	4.86%			4.42%	8/12/2014
BB: Managed Ages 13-14		1.03%	4.80%	4.91%			4.48%	
Managed Age 15	\$81,393,680	0.79%	3.97%	4.08%			3.69%	8/12/2014
BB: Managed Age 15		0.86%	3.84%	3.95%			3.59%	
Managed Age 16	\$80,663,981	0.80%	3.56%	3.63%			3.29%	8/12/2014
BB: Managed Age 16		0.78%	3.39%	3.44%			3.11%	
Managed Age 17	\$74,964,455	0.63%	3.14%	3.21%			2.91%	8/12/2014
BB: Managed Age 17		0.70%	2.95%	2.92%			2.63%	
Managed Ages 18 & Over	\$203,399,639	0.73%	2.80%	2.78%			2.53%	8/12/2014
BB: Managed Ages 18 & Over		0.62%	2.50%	2.40%			2.14%	
U.S. and International Equity Option	\$305,801,947	2.16%	11.42%	9.34%	10.62%	7.70%	7.04%	10/ 1/2001
BB: U.S. and International Equity Option		2.39%	11.56%	9.48%	10.83%	8.18%	7.93%	



**MINNESOTA COLLEGE SAVINGS PLAN**

**Performance Statistics for the Period Ending: June 30, 2018**

Fund Name	Ending Market	3 Months	1 Year	Annualized				Inception Date
				3 Years	5 Years	10 Years	Since Inception	
Moderate Allocation Option	\$66,565,982	1.46%	6.95%	6.42%	7.24%	6.19%	5.20%	8/ 2/2007
BB: Moderate Allocation Option		1.46%	6.95%	6.55%	7.45%	6.64%	5.76%	
100% Fixed-Income Option	\$13,842,973	0.14%	-0.14%	1.68%	1.92%	3.06%	3.36%	8/16/2007
BB: 100% Fixed-Income Option		0.08%	0.20%	1.99%	2.30%	3.65%	4.02%	
International Equity Index Option	\$4,877,827	-3.23%	6.54%	4.87%	5.99%		5.14%	6/18/2013
BB: International Equity Index Option		-2.61%	7.16%	5.13%	6.23%		5.46%	
Money Market Option	\$11,106,395	0.39%	1.07%	0.45%	0.27%	0.18%	0.37%	11/ 1/2007
BB: Money Market Option		0.33%	0.89%	0.39%	0.24%	0.22%	0.39%	
Principal Plus Interest Option	\$116,999,934	0.40%	1.67%	1.49%	1.38%	1.91%	2.54%	10/10/2001
Citigroup 3-Month U.S. Treasury Bill		0.44%	1.33%	0.64%	0.39%	0.31%	1.27%	
Aggressive Allocation Option	\$21,571,102	1.63%	9.42%	7.91%			7.27%	8/12/2014
BB: Aggressive Allocation Option		1.92%	9.25%	8.03%			7.37%	
Conservative Allocation Option	\$10,192,694	1.91%	5.67%	4.14%			3.64%	8/18/2014
BB: Conservative Allocation Option		1.86%	5.53%	4.09%			3.61%	
Equity and Interest Accumulation Option	\$2,831,249	2.21%	8.03%	6.42%			5.96%	8/18/2014
BB: Equity and Interest Accumulation Option		2.16%	7.94%	6.12%			5.64%	
U.S. Large Cap Equity Option	\$25,360,479	3.42%	14.12%	11.67%			11.22%	8/12/2014
BB: U.S. Large Cap Equity Option		3.43%	14.37%	11.93%			11.46%	
Matching Grant	\$2,448,785	0.40%	1.67%	1.49%	1.38%	1.91%	2.56%	3/22/2002
Citigroup 3-Month U.S. Treasury Bill		0.44%	1.33%	0.64%	0.39%	0.31%	1.25%	

# MINNESOTABLE<sup>plan</sup>

A member of The National ABLE Alliance

Performance as of  
06/30/18

Total Market Value: \$ 2,830,591

<u>Fund Name</u>	<u>Market Value</u>	<u>% of Plan</u>	<u>1 Month</u>	<u>3 Months</u>	<u>YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Inception</u>	<u>Inception Date</u>
Aggressive Option	\$ 287,725	10.16%	0.34	2.58	1.70	10.75				12.24	12/15/16
ABLE Aggressive Custom Benchmark			0.39	2.88	1.82	11.21					
<b>Variance</b>			<b>(0.05)</b>	<b>(0.30)</b>	<b>(0.12)</b>	<b>(0.46)</b>					
Moderately Aggressive Option	\$ 232,790	8.22%	0.26	2.11	1.31	8.89				10.34	12/15/16
ABLE Moderately Aggressive Custom Benchmark			0.34	2.43	1.48	9.40					
<b>Variance</b>			<b>(0.08)</b>	<b>(0.32)</b>	<b>(0.17)</b>	<b>(0.51)</b>					
Growth Option	\$ 401,752	14.19%	0.27	1.80	1.07	7.28				8.49	12/15/16
ABLE Growth Custom Benchmark			0.28	1.98	1.15	7.61					
<b>Variance</b>			<b>(0.01)</b>	<b>(0.18)</b>	<b>(0.08)</b>	<b>(0.33)</b>					
Moderate Option	\$ 324,414	11.46%	0.18	1.28	0.64	5.44				6.68	12/15/16
ABLE Moderate Custom Benchmark			0.23	1.53	0.81	5.84					
<b>Variance</b>			<b>(0.05)</b>	<b>(0.25)</b>	<b>(0.17)</b>	<b>(0.40)</b>					
Moderately Conservative Option	\$ 284,191	10.04%	0.19	1.03	0.66	3.97				4.80	12/15/16
ABLE Moderately Conservative Custom Benchmark			0.19	1.15	0.72	4.27					
<b>Variance</b>			<b>(0.00)</b>	<b>(0.12)</b>	<b>(0.06)</b>	<b>(0.30)</b>					
Conservative Option	\$ 520,395	18.38%	0.10	0.49	0.49	1.87				2.25	12/15/16
ABLE Conservative Custom Benchmark			0.15	0.64	0.62	2.20					
<b>Variance</b>			<b>(0.05)</b>	<b>(0.15)</b>	<b>(0.13)</b>	<b>(0.33)</b>					
Checking Option	\$ 779,323	27.53%									03/30/17

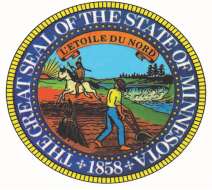
## MINNESOTA ACHIEVE A BETTER LIFE EXPERIENCE

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

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

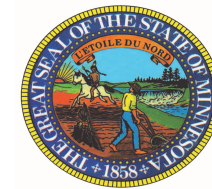
## RISK BASED ALLOCATIONS

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



# Non-Retirement

## June 30, 2018



## Quarterly Report

# Non-Retirement Funds

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

- The Permanent School Fund is a trust established for the benefit of Minnesota public schools.
- The Environmental Trust Fund is a trust established for the protection and enhancement of Minnesota's environment. It is funded with a portion of the proceeds from the state's lottery.
- The Minnesota Workers Compensation Assigned Risk Plan provides worker compensation insurance for companies unable to obtain coverage through private carriers.
- The Closed Landfill Investment Fund is a trust created by the Legislature to invest money to pay for the long-term costs of maintaining the integrity of landfills in Minnesota once they are closed.
- Other Post-Employment Benefits Accounts (OPEB) are the assets set aside by local units of government for the payment of retiree benefits trusted by the Public Employees Retirement Association.
- Miscellaneous Trust Accounts are other small funds managed by the SBI for a variety of purposes.

All equity, fixed income, and cash assets for these accounts are managed externally by investment management firms retained by the SBI.



## Non-Retirement

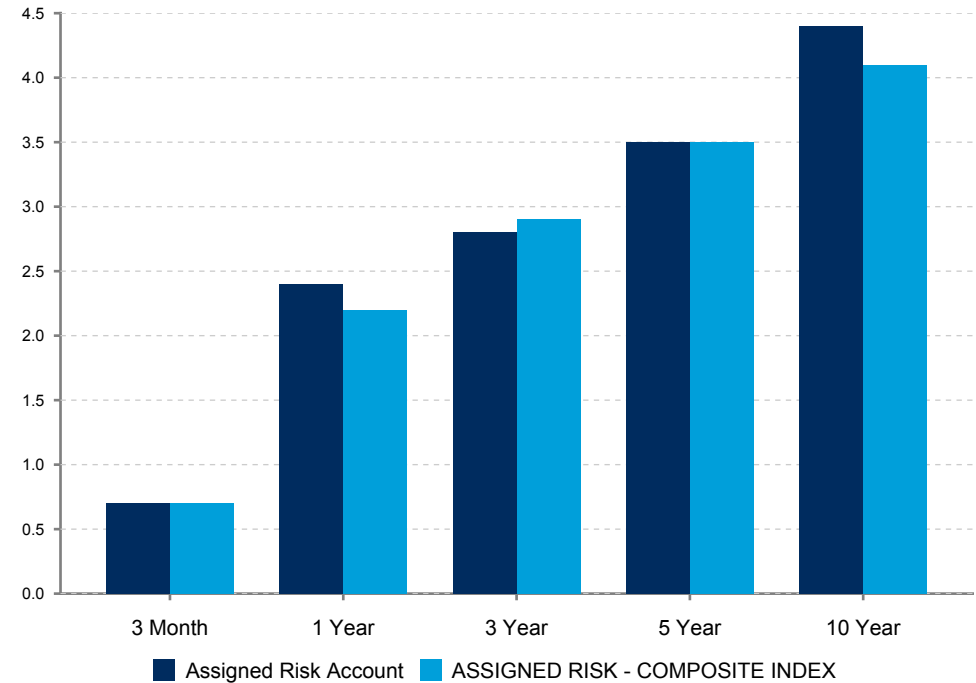
### Assigned Risk Plan

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

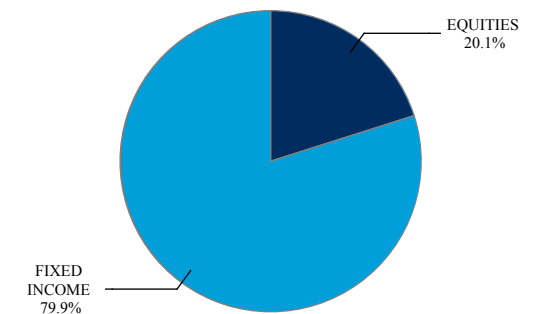
The Assigned Risk Plan is invested in a portfolio of common stocks and bonds

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

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



	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
Assigned Risk Account	\$318,972,368	0.7%	2.4%	2.8%	3.5%	4.4%
EQUITIES	64,102,762	3.4	14.3	10.6	12.6	9.5
FIXED INCOME	254,869,605	0.1	-0.6	0.8	1.1	2.9
ASSIGNED RISK - COMPOSITE INDEX		0.7	2.2	2.9	3.5	4.1
Excess		0.0	0.2	-0.1	-0.0	0.3
S&P 500		3.4	14.4	11.9	13.4	10.2
BBG BARC US Gov: Int		0.1	-0.7	0.6	1.0	2.4



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



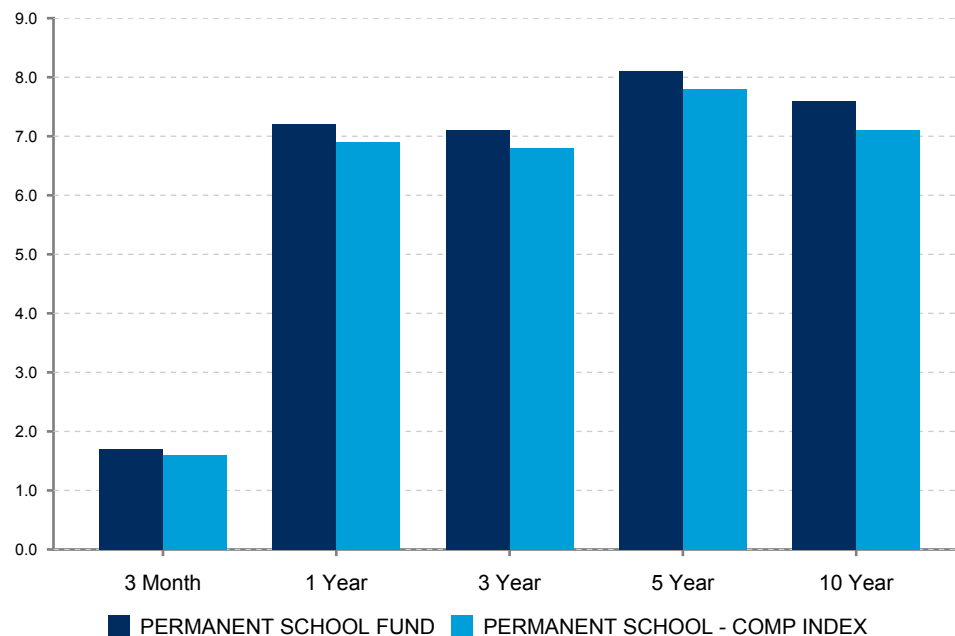
## Non-Retirement

### Permanent School Fund

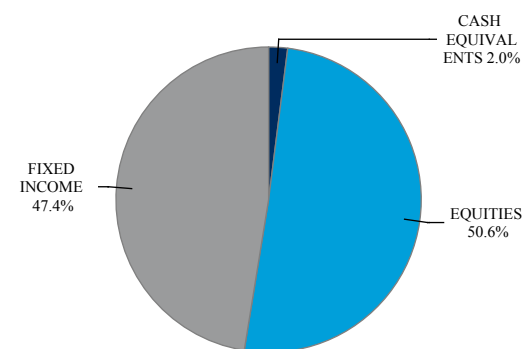
The investment objective of the Permanent School Fund is to produce a growing level of spendable income, within the constraints of maintaining adequate portfolio quality and liquidity. The income from the portfolio is transferred to the school endowment fund and distributed to Minnesota's public schools.

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

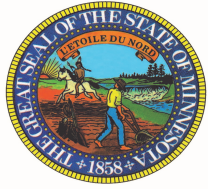
The stock segment is passively managed to track the performance of the S&P 500. The bond segment is actively managed to add incremental value through sector, security and yield curve decisions. The fixed income benchmark is the Bloomberg Barclays U.S. Aggregate. The total fund benchmark is a combination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



	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	10 Year
PERMANENT SCHOOL FUND	\$1,391,419,583	1.7%	7.2%	7.1%	8.1%	7.6%
CASH EQUIVALENTS	28,090,120	0.5	1.4	0.7	0.5	0.5
EQUITIES	703,260,687	3.4	14.3	11.9	13.4	10.2
FIXED INCOME	660,068,776	-0.1	-0.3	2.0	2.7	4.4
PERMANENT SCHOOL - COMP INDEX		1.6	6.9	6.8	7.8	7.1
Excess		0.0	0.3	0.2	0.2	0.5
S&P 500		3.4	14.4	11.9	13.4	10.2
BBG BARC US Agg		-0.2	-0.4	1.7	2.3	3.7



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



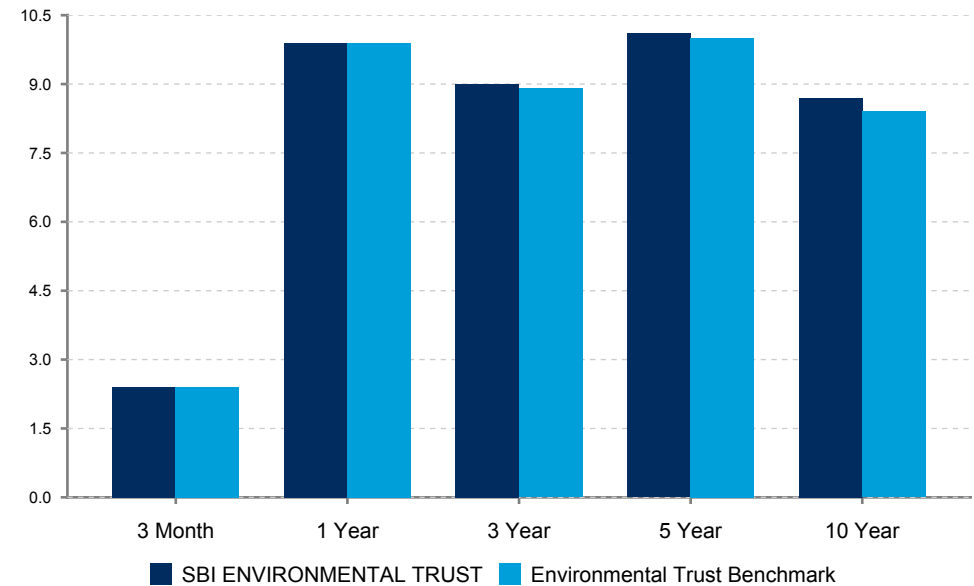
## Non-Retirement

### Environmental Trust Fund

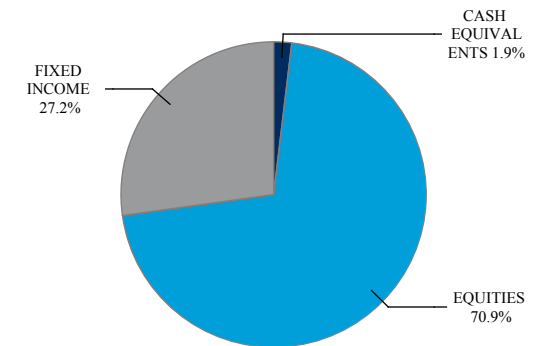
The objective of the Environmental Trust Fund is to increase the market value of the Fund over time in order to increase the annual amount made available for spending within the constraints of maintaining adequate portfolio quality and liquidity.

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

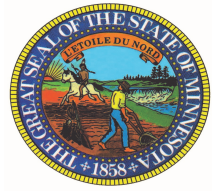
The bond segment is actively managed to add incremental value through sector, security and yield curve decisions. The stock segment is passively managed to track the performance of the S&P 500. The fixed income benchmark is the Bloomberg Barclays U.S. Aggregate. The total fund benchmark is a combination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



	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
SBI ENVIRONMENTAL TRUST	\$1,116,133,914	2.4%	9.9%	9.0%	10.1%	8.7%
CASH EQUIVALENTS	21,255,030	0.5	1.4	0.7	0.5	0.5
EQUITIES	791,622,694	3.4	14.3	11.9	13.4	10.2
FIXED INCOME	303,256,190	-0.1	-0.3	2.0	2.7	4.3
Environmental Trust Benchmark		2.4	9.9	8.9	10.0	8.4
Excess		0.0	-0.0	0.1	0.1	0.3
S&P 500		3.4	14.4	11.9	13.4	10.2
BBG BARC US Agg		-0.2	-0.4	1.7	2.3	3.7



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.

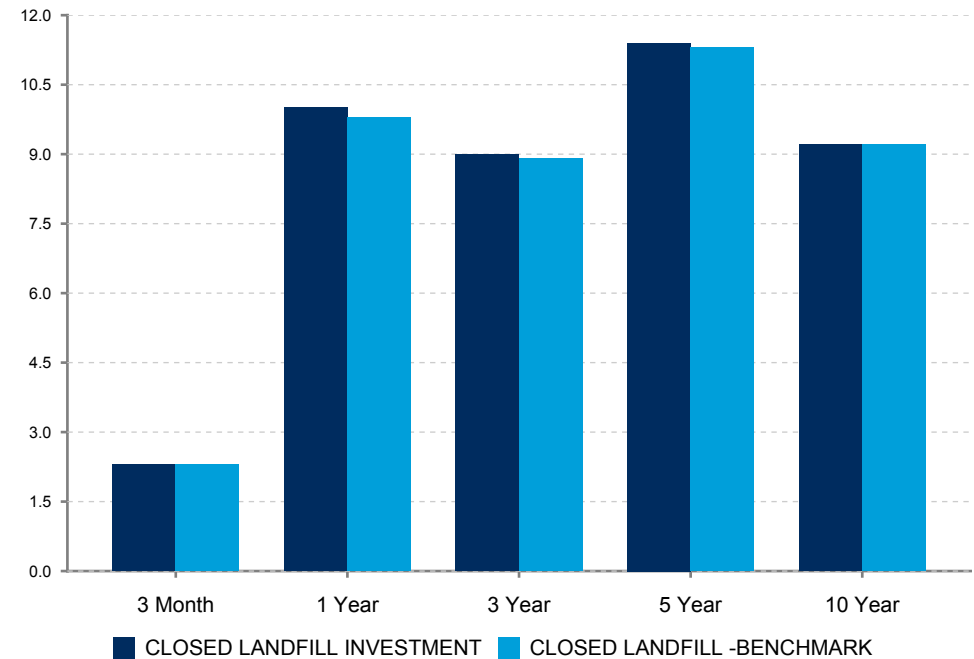


## Non-Retirement

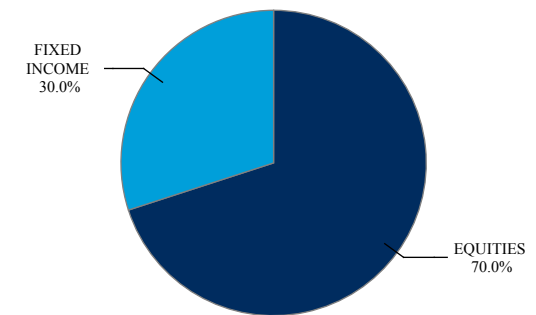
### Closed Landfill Investment Fund

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	\$88,564,796	2.3%	10.0%	9.0%	11.4%	9.2%
EQUITIES	62,019,332	3.4	14.3	11.9	13.4	10.2
FIXED INCOME	26,545,464	-0.1	-0.3	2.0		
CLOSED LANDFILL -BENCHMARK		2.3	9.8	8.9	11.3	9.2
Excess		0.0	0.1	0.1	0.1	0.1
S&P 500		3.4	14.4	11.9	13.4	10.2
BBG BARC US Agg		-0.2	-0.4	1.7	2.3	3.7



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





	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
<b>MELLON</b>	<b>2,201,265,745</b>	<b>3.4</b>							<b>12/2017</b>
S&P 500 INDEX (DAILY)		3.4							12/2017
Excess		-0.0							
<b>SBI INTERNAL EQUITY INDEX</b>	<b>274</b>								
<b>NON RETIREMENT EQUITY INDEX</b>	<b>2,201,266,019</b>	<b>3.4</b>	<b>14.3</b>	<b>14.3</b>	<b>11.9</b>	<b>13.4</b>	<b>10.2</b>	<b>9.7</b>	<b>07/1993</b>
S&P 500 INDEX (DAILY)		3.4	14.4	14.4	11.9	13.4	10.2	9.6	07/1993
Excess		-0.0	-0.0	-0.0	0.0	-0.0	0.0	0.1	
<b>PRUDENTIAL</b>	<b>1,148,360,681</b>	<b>-0.1</b>							<b>12/2017</b>
BBG BARC Agg (Dly)		-0.2							12/2017
Excess		0.1							
<b>NON RETIREMENT FIXED INCOME</b>	<b>1,148,360,681</b>	<b>-0.1</b>	<b>-0.4</b>	<b>-0.4</b>	<b>2.0</b>	<b>2.7</b>	<b>4.3</b>	<b>5.9</b>	<b>07/1994</b>
BBG BARC Agg (Dly)		-0.2	-0.4	-0.4	1.7	2.3	3.7	5.4	07/1994
Excess		0.1	0.0	0.0	0.3	0.4	0.6	0.5	
<b>RBC</b>	<b>254,869,642</b>	<b>0.1</b>	<b>-0.6</b>	<b>-0.6</b>	<b>0.8</b>	<b>1.1</b>	<b>2.9</b>	<b>4.8</b>	<b>07/1991</b>
RBC Custom Benchmark		0.1	-0.7	-0.7	0.6	1.0	2.5	4.9	07/1991
Excess		0.0	0.2	0.2	0.1	0.1	0.4	-0.1	

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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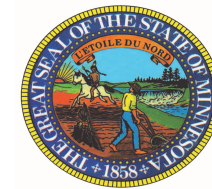


## Quarterly Report

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# State Cash

## June 30, 2018



## State Cash Accounts

### Invested Treasurer's Cash

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

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

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

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

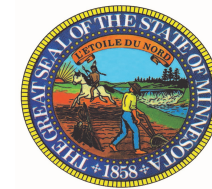
Beginning in January 2003, the Treasurer's Cash Pool is measured against the iMoneyNet, All Taxable Money Fund Report Average.

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
Treasurer's Cash	13,123,520,630	0.5	1.4	1.0	0.8	1.0
iMoneyNet Money Fund Average-All Taxable		0.4	1.0	0.4	0.3	0.2

### Other State Cash Accounts

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

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
Debt Service	139,680,004	0.6	0.7	2.0	2.1	
Housing Finance	77,117,941	0.8	1.6	1.3	1.5	
Public Facilities Authority	60,825,356	0.2	1.2	1.9	2.2	



## 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). Prior to that date, it was the MSCI Emerging Markets Free (gross), including from 10/1/01 to 5/31/02 when it was the Provisional MSCI Emerging Markets Free (net).

#### **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. Effective 1/1/2017, 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 7/1/2016-12/31/2016 the composite weights were set to match actual allocation as the portfolio was brought into line with the new Strategic Asset Allocation Policy Target. Prior to 7/1/2016 the uninvested portion of the Private Markets was invested in Fixed Income and the Composite Index was adjusted accordingly. When the Strategic Asset Allocation Policy Target changes, so does the Composite Index.

#### **Domestic Equity Benchmark:**

Russell 3000 effective 10/1/2003. From 7/1/1999 to 9/30/2003, it was the Wilshire 5000 Investable Index. From 11/1/1993 to 6/30/1999, the target was the Wilshire 5000 as reported with no adjustments. Prior to 11/1/1993, the Wilshire 5000 was adjusted to reflect SBI mandated restrictions, which included liquor and tobacco, American Home Products and South Africa.

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

In 2016, the Barclays Agg was rebranded Bloomberg Barclays Agg to reflect an ownership change. Prior to 9/18/2008 this index was called the Lehman Brothers Aggregate Bond Index. From 7/1/84-6/30/94 the asset class benchmark was the Salomon Brothers Broad Investment Grade Index.



## Addendum

### Benchmark Definitions (continued)

#### **Fixed Interest Blended Benchmark:**

On 6/1/2002, the benchmark was set as the 3 Year Constant Maturity Treasury Yield + 45 bps. Prior to this change it was the 3 Year Constant Maturity Treasury Yield + 30 bps.

#### **International Equity Benchmark:**

Since 6/1/08 the International Equity asset class target is 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:**

67% Russell 3000 and 33% MSCI ACWI ex USA effective 7/1/2017. 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 its current weighting.

#### **Semi-Passive Domestic Equity Benchmark:**

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

