
MINNESOTA STATE BOARD OF INVESTMENT

**MINNESOTA STATE BOARD
OF INVESTMENT
MEETING
September 14, 2018**



**Governor Mark Dayton
State Auditor Rebecca Otto
Secretary of State Steve Simon
Attorney General Lori Swanson**

STATE BOARD OF INVESTMENT

AGENDA AND MINUTES

September 14, 2018

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AGENDA
STATE BOARD OF INVESTMENT MEETING
Friday, September 14, 2018
10:00 A.M.
G23 Senate Committee Room
State Capitol
75 Rev. Dr. Martin Luther King Jr. Boulevard
St. Paul, MN

- | | |
|--|------------|
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| 3. Iran Update | |
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**Minutes
State Board of Investment
June 14, 2018**

The State Board of Investment (SBI) met at 10:06 A.M. Thursday, June 14, 2018 in G23 Senate Committee Room of the State Capitol, St. Paul, Minnesota. Governor Mark Dayton, State Auditor Rebecca Otto, Secretary of State Steve Simon, and Attorney General Lori Swanson were present. The minutes of the March 1, 2018 meeting were approved.

Executive Director's Report

Executive Director Mansco 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 1, 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%).

The assets decreased over the quarter (Combined Funds ending value of \$67.8 versus a beginning value of \$68.4 billion), due to negative net contributions that outweighed investment earnings. The Combined Funds outperformed the benchmark for the quarter (Combined Funds 0.1% vs. Combined Funds-Composite Index -0.2%) and outperformed 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, adjusting for the private markets, is almost on target. He then reported that the public equity had outperformed the benchmark for the fiscal year-to-date (Public Equity 10.6% vs. Public Equity Benchmark 10.4%) and the one-year period (Public Equity 15.2% vs. Public Equity Benchmark 14.7%). 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%) and for the year (Domestic Equity 14.3% vs. Domestic Equity Benchmark 13.8%), and underperformed or matched 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%), and outperformed for the year (International Equity 17.4% vs. International Equity Benchmark 16.5%) as well as 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 the fund is a second quartile performer over the quarter and a top quartile performer over all other periods in the Trust Universe Comparison Service and that, as of March 31, 2018, the SBI was responsible for managing over \$93.4 billion of assets.

Mr. Perry referred members to Tab B of the meeting materials for the administrative report and indicated that it included the current administrative budget and staff travel for the first quarter of 2018. Mr. Perry noted that the SBI was below budget on a fiscal year-to-date basis. Regarding legislation, he stated that the pension bill passed and that the SBI now has the authority to invest the proceeds from the 3M settlement. Mr. Perry stated that staff was in discussion with the Pollution Control Agency (PCA) and Department of Natural Resources (DNR) with respect to the best way to manage these assets and, given the relatively short investment time horizon of the Funds, they will likely be invested in bonds and cash. Mr. Perry then summarized the modification to the SBI Investment Beliefs Statement to reflect the additional investment programs under the responsibility of the SBI, as appropriate. State Auditor Otto moved approval of the recommendation in Tab B which reads: **“The Executive Director recommends that the Board adopt the SBI Investment Beliefs modified to include the following sentence which will be added at the end of the first paragraph of the SBI Investment Beliefs Statement: “When relevant, the SBI also uses these Beliefs as a guide when investing the assets of the other investment programs that it manages, as deemed appropriate.”** The motion passed unanimously.

Mr. Perry followed up on a request from the Board at its March 2018 meeting to report back on the use of a coal free policy benchmark and also to report on the SBI’s investments in firearm manufacturers. He stated that the coal companies in the current policy benchmark represent an insignificant amount and would not have an impact on the tracking error of the portfolio. He also stated that there would be a cost to implementing a coal free benchmark and that doing so might also negatively impact the advantageous fees he had negotiated with the passive portfolio investment managers. Mr. Perry did not recommend changing to a coal free benchmark. Mr. Perry then confirmed that the SBI held six gun manufacturers representing less than \$20 million out of the \$70 billion that the SBI is responsible for managing at the end of 2017. He indicated that he had no recommendation regarding the SBI’s gun manufacturer holdings. Mr. Perry then stated that Tab B included the Sudan and Iran legislative updates, and that the SBI was not in any litigation.

Mr. Perry referred members to Tab C of the meeting materials for an Investment Program Update. He stated that the SBI had successfully transitioned about four and a half billion dollars out of public equities and one and a half billion dollars out of the fixed income portfolios to complete the funding of the new U.S. Treasury portfolio. Mr. Perry noted that in the process of funding the U.S. Treasury portfolio the following three managers were terminated: McKinley Capital Management LLC (U.S. equity small-cap growth), State Street Global Advisors (international equity semi-passive), and Fidelity Institutional Asset Management (international equity semi-passive). Mr. Perry stated that the SBI’s portfolio was now within the specified ranges of the new Strategic Allocation Category Framework. He also noted that the Combined Funds outperformed a passively managed stock and bond portfolio.

Mr. Perry referred members to Tab D containing the report from the SBI’s Administrative Committee which met on April 6, 2018 to review the SBI’s Fiscal Year 2019 Management and Budget Plan. He presented his Proposed Work Plan for Fiscal Year 2019 and highlighted three items: the revision of the SBI’s investment policies, a review of investments for the Participant Directed Investment Program, and the development and issuance of an RFP for a private markets Investment consultant(s).

Attorney General Swanson moved approval of the recommendation in Tab D which reads: **“The Committee recommends that the SBI approve the FY19 Executive Director’s Work Plan. Further, the Committee recommends that the Work Plan serve as the basis for the Executive Director’s performance evaluation for FY19.”** The motion passed unanimously.

Mr. Perry referred members to the budget plan for Fiscal Year 2019-2020 and indicated that it was set out differently than in the past wherein it now separately delineates the administrative budget, which details the personnel services and operating expenses, separately from the investment support services budget which details the accounting and consultant services fees. Secretary of State Simon moved approval of the recommendation in Tab D which reads: **“The Committee recommends that the SBI approve the FY19, and FY20 Administrative Budget Plan, as presented to the Committee, and that the Executive Director have the flexibility to reallocate funds between budget categories if the Executive Director deems necessary.”** The motion passed unanimously.

Mr. Perry then asked the Board to approve the Continuing Fiduciary Education Plan which allocates five-thousand dollars to each Board member to be used, as necessary, for educational purposes. State Auditor Otto moved approval of the recommendation which reads: **“The Committee recommends that the SBI adopt the attached Continuing Fiduciary Education Plan.”** The motion passed unanimously.

Mr. Perry referred members to the next item for approval, the Executive Director’s Evaluation Process. He stated that the only change in the process from the past was that, in addition to providing the completed evaluations to the Executive Director, the Board members should also provide a copy of the evaluation summary page to the Governor or the Governor’s designee. Mr. Perry requested that the Governor’s summary be provided to both the Executive Director and the Director of Investment Administration to file and implement any salary action. State Auditor Otto moved approval of the recommendation which reads: **“The Committee recommends that the SBI adopt the following performance evaluation and salary process for the SBI Executive Director:**

- **Evaluations by each Board member should be completed by October 1.**
- **The evaluations will be based on the results of the Executive Director’s Work Plan for the fiscal year ending the previous June 30.**
- **The SBI Deputies/Board designees will develop an appropriate evaluation form for use by each member.**
- **As Chair of the Board, the Governor (or his/her Board designee) will coordinate distribution of the evaluation forms. Board members will forward completed evaluations to the Executive Director. Board members should also send a copy of the Overall Evaluation (summary page 1) to the Governor or the Governor’s designee. Board members are encouraged to meet individually with the Executive Director to review their own evaluation.**

- **Upon satisfactory performance evaluations from a majority of responding Board Members, the Executive Director's annual salary adjustment will be any Cost-of-Living Adjustment (COLA)/Across the Board (ATB)/General Salary Increases and/or any Performance-Based Salary Increases contained in the Managerial Plan for a Fiscal Year as approved by the Legislature to the extent that it is within the Executive Director's salary range. The adjustment shall be effective January 1 of the next calendar year.**
- **The Governor (or his/her Board designee) will provide a letter to the Executive Director confirming the status of the Executive Director's evaluation results by November 1." The motion passed unanimously.**

Mr. Perry stated that he provided the Administrative Committee with an update of the SBI's Business Continuity Plan, for which no action was required.

Mr. Martin, Chairperson of the Investment Advisory Council (IAC), referred members to Tab E and reviewed the proposed seven private equity investments and one real estate investment, all of which are with existing managers, as follows: 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). Secretary of State Simon moved approval of eight of the recommendations in Tab E which read: **"The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to a combined \$250 million in the aggregate, or 20% of each of AG Realty Fund X or AG Asia Realty Fund IV, whichever is less. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by Angelo, Gordon & Co. upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Angelo, Gordon & Co. or reduction or termination of the commitment.**

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to \$250 million, or 20% of Brookfield Capital Partners V, whichever is less. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by Brookfield Asset Management Inc. upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Brookfield Asset Management Inc. or reduction or termination of the commitment.

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to \$100 million, or 20% of China-U.S. Industrial Cooperation Partnership, whichever is less. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by Goldman, Sachs & Co. upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Goldman, Sachs & Co. or reduction or termination of the commitment.

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to \$75 million, or 20% of Goldner Hawn Fund VII, whichever is less, contingent on the aggregate fund size being at least \$250 million. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by Goldner Hawn Johnson & Morrison upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Goldner Hawn Johnson & Morrison or reduction or termination of the commitment.

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to \$150 million, or 20% of Paine Schwartz Food Chain Fund V, whichever is less. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by Paine Schwartz Partners upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Paine Schwartz Partners or reduction or termination of the commitment.

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

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to \$250 million, or 20% of Warburg Pincus Global Growth, whichever is less. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by Warburg Pincus upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Warburg Pincus or reduction or termination of the commitment.

The Investment Advisory Council concurs with Staff's recommendation that the SBI authorize the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute a commitment of up to \$250 million, or 20% of WCAS XIII whichever is less. Approval of this potential commitment is not intended to be, and does not constitute in any way, a binding or legal agreement or impose any legal obligations on the State Board of Investment and neither the State of Minnesota, the Investment Advisory Council, the State Board of Investment nor its Executive Director have any liability for reliance by Welsh, Carson, Anderson & Stowe upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Welsh, Carson, Anderson & Stowe or reduction or termination of the commitment." The motion passed unanimously.

Mr. Martin then referred members to the consideration of BlackRock's Long Term Private Capital Fund which is a hybrid between public and private markets. The Fund has an evergreen structure that allows for potentially indefinite holding periods of investments (with liquidity options to be negotiated) and is designed to invest in established businesses with strong, recurring revenues and stable growth potential over a long-term horizon. BlackRock expects deals within the fund to be originated primarily (though not exclusively) from family-owned or closely held businesses, private equity take-outs, asset recapitalizations, and friendly minority investments. BlackRock's target fund size is \$12 billion dollars and the SBI is proposing to invest, as a cornerstone investor, with a commitment of up to \$2 billion, or 20%, whichever is less. Governor Dayton raised concerns about the size of this commitment relative to other private market deals, and had additional questions regarding the potential economic advantages and the uncertainty of some of the terms of the proposed deal. A discussion followed as Mr. Perry and the consultants responded to Board member questions about the Fund. State Auditor Otto, moved approval and the Governor made a motion to amend the original recommendation. After additional discussion, the Executive Director was asked to provide additional information. The members agreed that the additional information could be presented at a special meeting if the Executive Director determined that a resolution was needed before the September 14, 2018 SBI meeting.

Mr. Perry referred members to a hand-out not included in the published meeting materials, the subject of which was "Potential Secondary Sales of SBI Private Market Funds (see **Attachment A**)". He indicated that he was asking for authority to sell some private market funds, with an approximate current total value of a half a billion dollars, which had been on the books for

some time and which, according to the Executive Director, will not grow any further. State Auditor Otto moved approval of the recommendation which reads: **"The SBI authorizes the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute the sale of certain Limited Partnership interests that Staff believes are substantially mature or otherwise do not represent the optimal use of capital going forward. Approval of this recommendation is not intended to be, and does not constitute in any way, a binding or legal obligation on the State Board of Investment to engage in any transaction. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations with respect to the terms and conditions of any potential sale will continue."** The motion passed unanimously.

Mr. Perry noted that the remaining information in the meeting materials were as follows: Public Markets Non-Retirement and Participant Direct Programs, the Market Economic Report prepared by AON, the Investment Market Risk Metrics Report prepared by PCA, and the Comprehensive Performance Report.

Mr. Perry stated that Jim Baker, from Private Equity Stakeholders Project, was present and wished to address the Board. Governor Dayton welcomed Mr. Baker who stated that he was also presenting on behalf of the Center for Popular Democracy and the United for Respect organization. Mr. Baker noted that the KKR Millennium Fund, invested in by the SBI, had owned Toys "R" Us until its recent bankruptcy which he attributed to the high debt burden placed on it by the private equity fund. Mr. Baker alleged that as a result, Toys "R" Us was closing 800 stores and terminating 33,000 employees across the U.S. While Toys "R" Us employees had requested severance pay out of private equity fees previously collected from Toys "R" Us, Mr. Baker noted that KKR had not responded. Mr. Baker requested that the SBI not make new commitments to KKR until the firm more properly aligns its interests with those of its investors and other stakeholders and pays a fair severance to the Toys "R" Us employees.

Governor Dayton expressed his concern that the situation alleged by Mr. Baker was very disturbing if the allegations are true. He stated that he wanted his staff to review the information. **Governor Dayton moved approval to suspend commitments to new KKR funds, but honor existing KKR contractual fund commitments, until the Board can further review the situation and decide a course of action.** Governor Dayton, Secretary of State Simon, Attorney General Swanson were in favor of the motion and State Auditor Otto was in opposition. The motion passed.

The meeting adjourned at 11:15 a.m.

Respectfully submitted,



Mansco Perry III
Executive Director and
Chief Investment Officer

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DATE: June 14, 2018

TO: Members, State Board of Investment

FROM: Mansco Perry III

SUBJECT: Potential Secondary Sales of SBI Private Market Funds

In recent years the market for secondary sales of Limited Partnership interests in private funds has changed significantly, becoming more robust and efficient as more and more capital enters the secondary market. Staff has observed these changes through our investment in funds which seek to purchase LP interests on the secondary market. However, the SBI has historically not been an active seller of LP interests on the secondary market. Staff believes that in the current market environment it would be prudent and appropriate to explore the possibility of selling certain fund interests.

The SBI's Private Markets portfolio includes a substantial amount of capital invested in funds that may be good candidates for liquidation via the secondary market. In many cases these funds are nearing the end of their contractual term, or have been extended beyond their initial term. In certain cases the Investment Manager and General Partner of the fund may no longer be a going concern, or do not have the confidence of SBI staff going forward. Some funds may simply not be a good fit for the SBI portfolio from a strategic perspective.

The SBI Staff believes that in many of these cases, the value of the underlying investments in the funds are unlikely to increase. By continuing to hold these funds until final liquidation the SBI is forgoing potential return from other investment opportunities that could be funded not only with the capital already invested, but also the undrawn capital that has been committed to these funds. In this sense, these older, mature funds represent a significant opportunity cost to the SBI.

Staff believes the SBI could benefit from exploring what options are available in the secondary market. Staff would seek to establish price expectations for LP interests by soliciting bids from secondary buyers, as well as potentially engaging a broker specializing in secondary transactions. Staff may ultimately reach the conclusion that a sale is unattractive due to pricing or other concerns, but we cannot make that determination without the ability to fully engage and negotiate in good faith with potential buyers.

RECOMMENDATION:

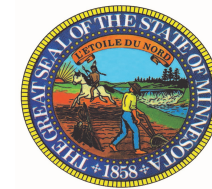
The SBI authorizes the Executive Director, with assistance from the SBI's legal counsel, to negotiate and execute the sale of certain Limited Partnership interests that Staff believes are substantially mature or otherwise do not represent the optimal use of capital going forward. Approval of this recommendation is not intended to be, and does not constitute in any way, a binding or legal obligation on the State Board of Investment to engage in any transaction. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations with respect to the terms and conditions of any potential sale will continue.

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TAB

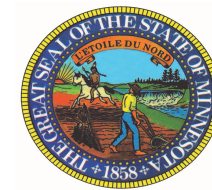
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Performance Summary

June 30, 2018



Description of SBI Investment Programs

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

Combined Funds

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

Participant Directed Investment Program

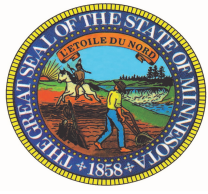
The Participant Directed Investment Program (PDIP) provides investment vehicles for a variety of retirement or other tax-advantaged savings plans. Investment goals among the PDIP's many participants are varied. In order to meet the variety of goals, participants may allocate their investments among one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

Non-Retirement

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

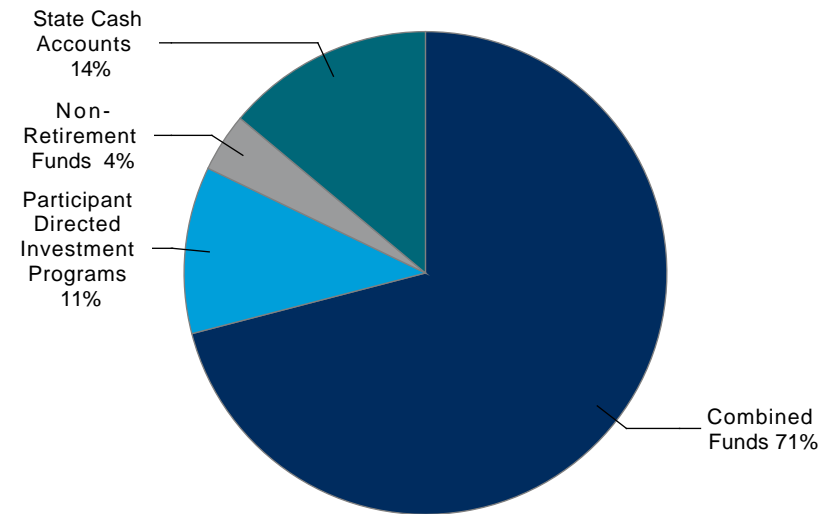
State Cash

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



Funds Under Management

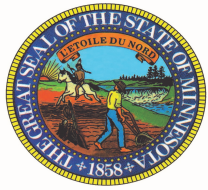
| | <u>\$ Millions</u> |
|---|--------------------|
| COMBINED FUNDS | |
| Combined Funds | \$68,288 |
| PARTICIPANT DIRECTED INVESTMENT PROGRAMS | |
| Supplemental Investment Fund* | 3,731 |
| State Deferred Compensation Plan** | 5,612 |
| Minnesota College Savings Plan | 1,422 |
| Achieve a Better Life Experience | 3 |
| NON-RETIREMENT FUNDS | |
| Assigned Risk Account | 319 |
| Permanent School Fund | 1,391 |
| Environmental Trust Fund | 1,116 |
| Closed Landfill Investment Fund | 89 |
| Miscellaneous Trust | 236 |
| Other Post Employment Benefits | 636 |
| STATE CASH ACCOUNTS | |
| Treasurer's Cash | 13,124 |
| Other State Cash Accounts | 277 |
| TOTAL | |
| SBI AUM | 96,245 |



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

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

Note: Differentials within column amounts may occur due to rounding

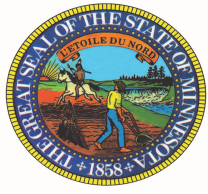


Combined Funds Long Term Objectives

| | | <u>Comparison to Objective</u> |
|---|----------------------------------|--------------------------------|
| | | <u>10 Year</u> |
| Match or Exceed Composite Index (10 yr.) | COMBINED FUNDS | 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> |
| Provide Real Return (20 yr.) | 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 |

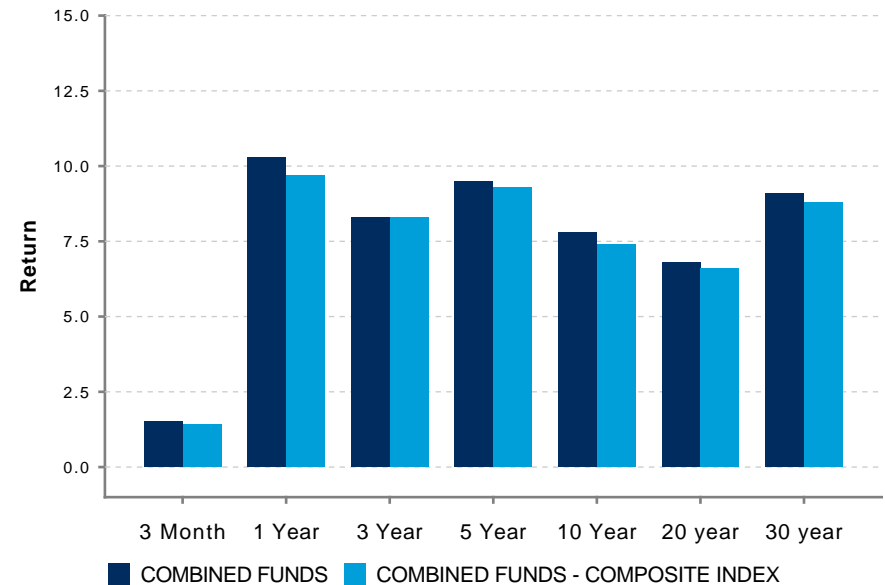
The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

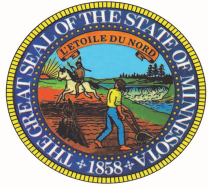
Performance (Net of Fees)

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



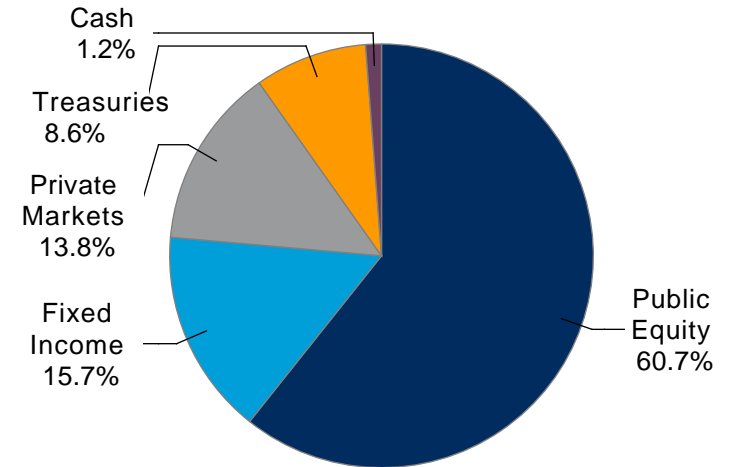


Combined Funds Summary

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.

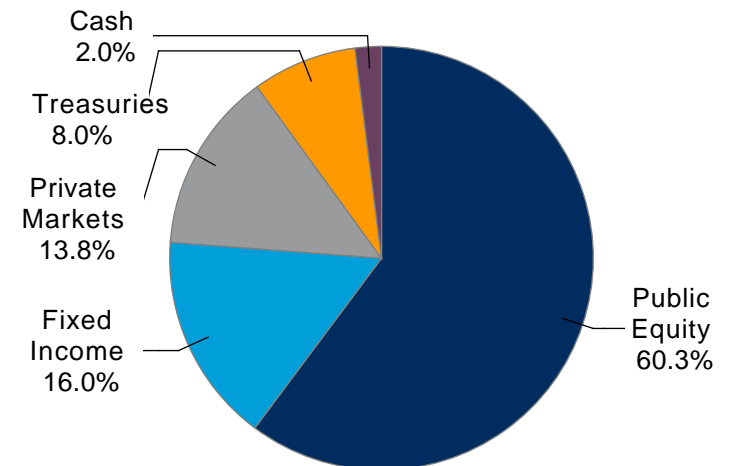
| | <u>(Millions)</u> | <u>Actual Mix</u> | <u>Policy Target</u> |
|-----------------|-------------------|-------------------|----------------------|
| Public Equity | \$41,430 | 60.7% | 49.0% |
| Fixed Income | 10,695 | 15.7% | 16.0% |
| Private Markets | 9,432 | 13.8% | 25.0% |
| Treasuries | 5,880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

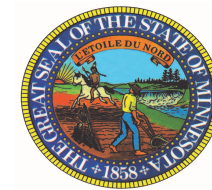


Composite Index Comparison

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

| | <u>Policy Weight</u> | <u>Market Index</u> |
|-----------------|----------------------|--------------------------------------|
| Public Equity | 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

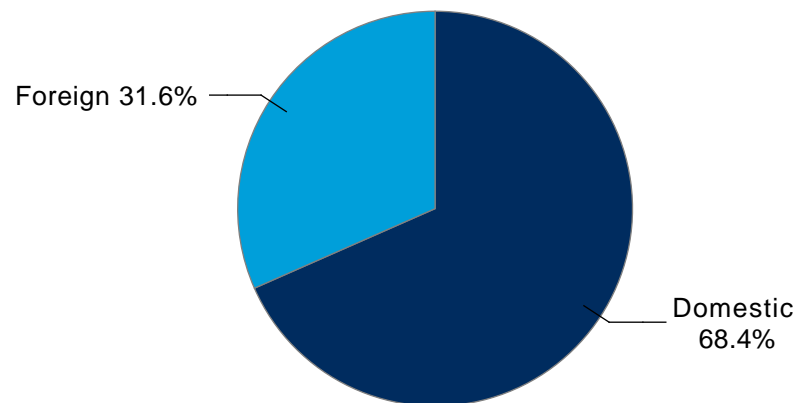
Public Equity

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.

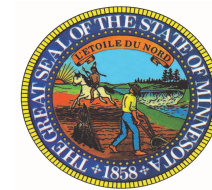
The Morgan Stanley Capital International All Country World Index ex U.S. (net) is a free float-adjusted market capitalization index that is designed to measure equity market performance in developed and emerging markets other than the United States.



| | <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 | | | | | | | |

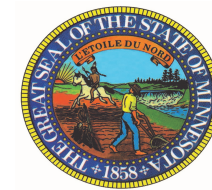
Cash

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

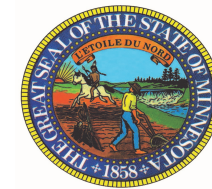
| | <u>6/30/18 \$</u> | <u>6/30/18 Weights</u> | <u>Category Ranges</u> | |
|--|--------------------------|------------------------|------------------------|-----|
| <u>Growth - Appreciation</u> | | | | |
| Public Equity | \$ 41,429,613,107 | 60.7% | | |
| Private Equity | \$ 4,793,444,858 | 7.0% | | |
| Non-Core Real Assets | \$ 2,217,792,033 | 3.2% | | |
| Distressed/Opportunistic | \$ 1,177,175,565 | 1.7% | | |
| | \$ 49,618,025,563 | 72.7% | 50% | 75% |
| <u>Growth - Income-oriented</u> | | | | |
| Core Fixed Income | \$ 10,695,312,701 | 15.7% | | |
| Private Credit | \$ 540,924,098 | 0.8% | | |
| Return-Seeking Fixed Income | \$ - | 0.0% | | |
| | \$ 11,236,236,799 | 16.5% | 15% | 30% |
| <u>Real Assets</u> | | | | |
| Core Real Estate | \$ - | 0.0% | | |
| Real Assets | \$ 658,953,148 | 1.0% | | |
| | \$ 658,953,148 | 1.0% | 0% | 10% |
| <u>Inflation Protection</u> | | | | |
| TIPS | \$ - | 0.0% | | |
| Commodities | \$ - | 0.0% | | |
| | \$ - | 0.0% | 0% | 10% |
| <u>Protection</u> | | | | |
| U.S. Treasuries | \$ 5,880,054,748 | 8.6% | | |
| | \$ 5,880,054,748 | 8.6% | 5% | 20% |
| <u>Liquidity</u> | | | | |
| Cash | \$ 895,002,537 | 1.3% | | |
| | \$ 895,002,537 | 1.3% | 0% | 5% |
| Total | \$ 68,288,272,795 | 100.0% | | |
| Illiquid Asset Exposure | \$ 9,388,289,702 | 13.7% | 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 |
| SBI Combined Funds Return | 10.3% | 8.3% | 9.5% | 7.8% | 8.6% | 6.8% | 8.4% | 9.1% |
| Volatility Equivalent Benchmark Return | 6.3% | 5.8% | 6.7% | 5.2% | 6.6% | 5.4% | 6.6% | 7.6% |
| Value Added | 4.0% | 2.5% | 2.8% | 2.6% | 2.0% | 1.3% | 1.8% | 1.5% |
| Standard Deviation: Benchmark = Combined Funds | | | 6.2% | 9.5% | 8.7% | 9.6% | 9.2% | 9.1% |
| Benchmark Stock Weight | 61% | 61% | 61% | 57% | 58% | 62% | 62% | 61% |
| Benchmark Bond Weight | 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.



Combined Funds Summary

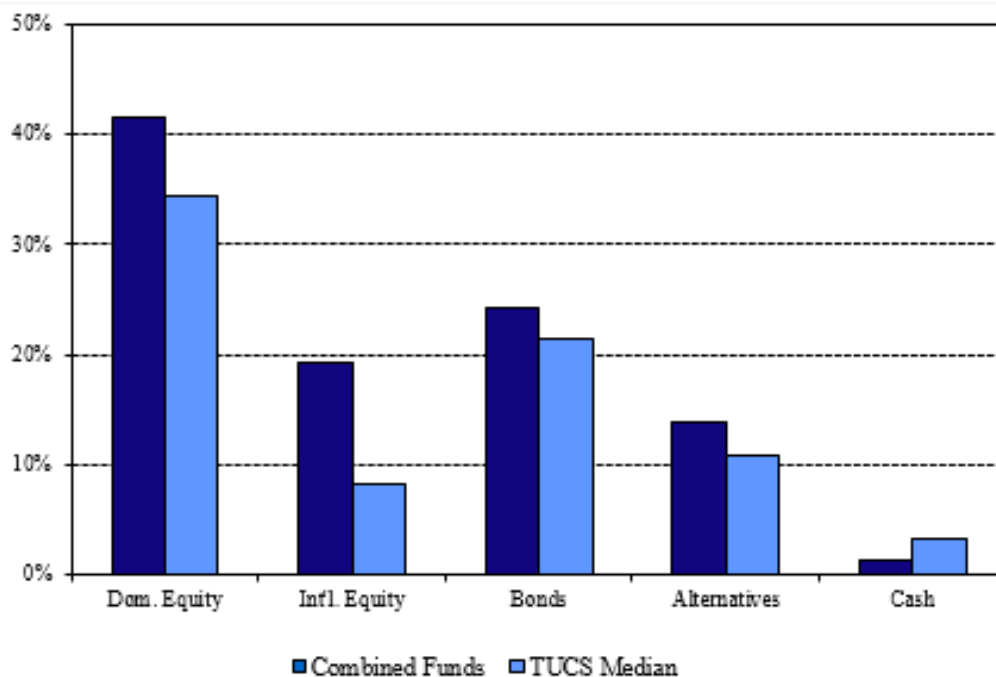
Asset Mix Compared to Other Pension Funds

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

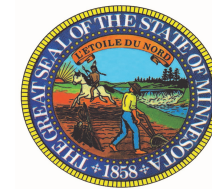
Comparisons of the Combined Funds' asset mix to the median allocation to stocks, bonds and other assets of the public and corporate funds in TUCS over \$1 billion are shown below:

Combined Funds Asset Mix

| | <u>(\$Millions)</u> | <u>Actual Mix</u> |
|-----------------|---------------------|-------------------|
| Public Equity | 41,430 | 60.7 |
| Fixed Income | 10,695 | 15.7 |
| Treasuries | 5,880 | 8.6 |
| Private Markets | 9,432 | 13.8 |
| Cash | 851 | 1.2 |
| TOTAL | 68,288 | 100.0 |



| | <u>Domestic Equity</u> | <u>International Equity</u> | <u>Bonds</u> | <u>Alternatives</u> | <u>Cash</u> |
|----------------|------------------------|-----------------------------|--------------|---------------------|-------------|
| Combined Funds | 41.5% | 19.2% | 24.3% | 13.8% | 1.2% |
| Median in TUCS | 34.4% | 8.3% | 21.4% | 10.8% | 3.3% |



Combined Funds Summary

Performance Compared to Other Pension Funds

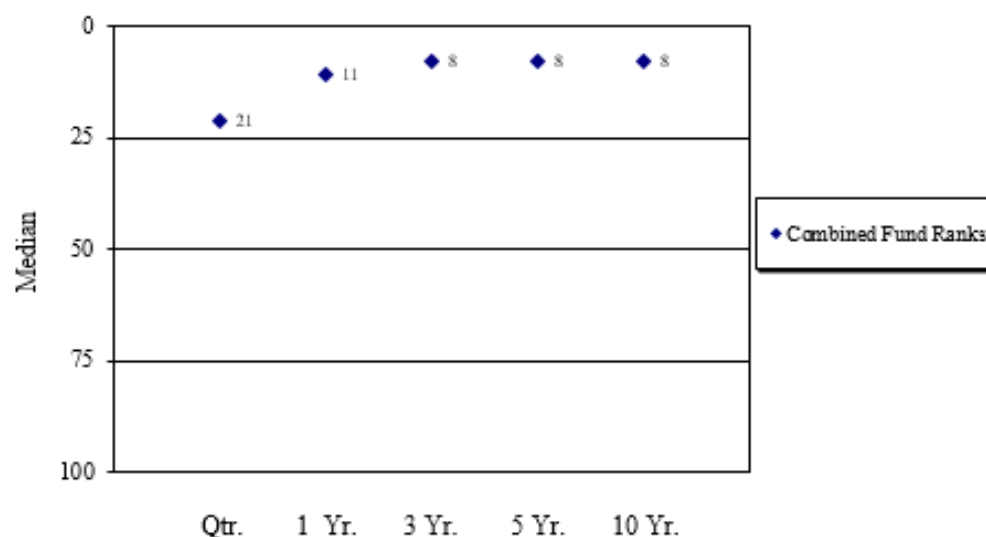
While the SBI is concerned with how its returns compare to other pension investors, universe comparisons should be used with great care. There are several reasons why such comparisons will provide an "apples to oranges" look at performance:

- Differing Allocations. Asset allocation will have a dominant effect on return. The allocation to stocks among the funds in TUCS typically ranges from 20-90%, a very wide range for meaningful comparison. In addition, it appears that many funds do not include alternative asset holdings in their reports to TUCS. This further distorts comparisons among funds.

- Differing Goals/Liabilities. Each pension fund structures its portfolio to meet its own liabilities and risk tolerance. This will result in different asset mix choices. Since asset mix will largely determine investment results, a universe ranking is not relevant to a discussion of how well a plan sponsor is meeting its long-term liabilities.

With these considerations in mind, the performance of the Combined Funds compared to other public and corporate pension funds in Trust Universe Comparison Service (TUCS) are shown below.

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



| | Periods Ended 06/30/2018 | | | | |
|-------------------------|--------------------------|---------------|----------------|----------------|-----------------|
| | <u>Quarter</u> | <u>1 Year</u> | <u>3 Years</u> | <u>5 Years</u> | <u>10 Years</u> |
| Combined Funds | 21st | 11th | 8th | 8th | 8th |
| Percentile Rank in TUCS | | | | | |

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EXECUTIVE DIRECTOR'S ADMINISTRATIVE REPORT

DATE: September 7, 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**

| ITEM | FISCAL YEAR 2018 BUDGET | FISCAL YEAR 2018 6/30/2018 |
|------------------------------------|--|---|
| PERSONNEL SERVICES | | |
| FULL TIME EMPLOYEES | \$ 4,827,900 | \$ 3,966,676 |
| PART TIME EMPLOYEES | 0 | 0 |
| MISCELLANEOUS PAYROLL | 100,000 | 2,240 |
| SUBTOTAL | \$ 4,927,900 | \$ 3,968,916 |
| STATE OPERATIONS | | |
| 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 |
| SUBTOTAL | \$ 1,276,000 | \$ 936,843 |
| TOTAL ADMINISTRATIVE BUDGET | \$ 6,203,900 | \$ 4,905,758 |

ATTACHMENT B

STATE BOARD OF INVESTMENT

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

| Purpose | Name(s) | Destination and Date | Total Cost |
|---|---------------|---|------------|
| Manager Monitoring Private Markets Managers: Merit Energy Annual Meeting, NGP | A. Krech | Dallas, TX 4/3-4/5 | \$ 851.97 |
| Manager Monitoring Domestic Equity Manager: Barrow Hanley Manager Search Domestic Equity Manager: Smith Group | T. Brusehaver | Dallas, TX 4/3-4/4 | 681.36 |
| Conference: The Pension Bridge Annual Conference | M. Perry | San Francisco, CA 4/10-4/11 | 887.95 |
| Manager Monitoring Private Markets Manager: Angelo, Gordon & Co. Manager Search Private Markets Managers: General Atlantic; Palladium Equity Partners | J. Stacy | New York, NY 4/16-4/19 | 1,594.15 |
| Manager Monitoring Domestic Equity Managers: 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 |
|---|------------|--------------------------------|------------|
| Manager Monitoring Private Markets Managers: Silver Lake Partners Annual Meeting; Hellman & Friedman Fixed Income Manager: Dodge & Cox | C. Boll | San Francisco, CA 4/23-4/25 | \$ 680.35 |
| Manager Monitoring Private Markets Managers: 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 |
| Conference: National Association of State Investment Professionals (NASIP) | J. Stacy | Denver, CO 4/23-4/26 | 2,075.50 |
| Manager Monitoring Domestic Equity Manager: ArrowMark Colorado Holdings Conference: National Association of State Investment Professionals (NASIP) | M. Menssen | Denver, CO 4/23-4/26 | 1,764.53 |
| Manager Monitoring International Equity Manager: Acadian Asset Mgmt. Conference: 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 |
|---|-------------|------------------------------|------------|
| Conference: Institutional Investor Public Funds Roundtable | M. Perry | Los Angeles, CA 4/24-4/26 | \$ 986.09 |
| Manager Monitoring Private Markets Managers: Strategic Partners Fund Solutions Annual Meeting; Blackstone Capital Partners Annual Meeting | P. Ammann | Miami, FL 4/30-5/2 | 1,331.32 |
| Manager Monitoring Private Markets Managers: BlackRock; Paine Schwartz Partners Annual Meeting; Oak Hill Partners Annual Meeting | A. Krech | New York, NY 5/1-5/2 | 1,206.37 |
| Conference: Government Finance Officers Association (GFOA) | K. Anderson | St. Louis, MO 5/6-5/9 | 1,595.06 |
| Conference: Government Finance Officers Association (GFOA) | W. Nicol | St. Louis, MO 5/6-5/9 | 1,699.42 |
| Manager Monitoring Private Markets Managers: 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 |
|--|----------------|---|-------------|
| Manager Monitoring Emerging Markets Managers: Macquarie Investment Mgmt. Advisers; Morgan Stanley Investment Mgmt Inc.; Neuberger Berman Investment Advisers; Pzena Investment Mgmt.; The Rock Creek Group Manager Monitoring Fixed Income Managers: 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 |
| Manager Monitoring Private Markets Manager: Hellman & Friedman Manager Search Private Markets Manager: Francisco Partners | A. Krech | San Francisco, CA 5/22-5/24 | 762.37 |
| Conference: NRS Investment Adviser Compliance Symposium | I. Shafir | San Diego, CA 6/4-6/8 | 3,567.98 |
| Consultant Monitoring: Aon Hewitt Investment Consulting Inc. Conference: 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 |
|--|----------------|---|------------|
| Consultant Monitoring: Aon Hewitt Investment Consulting Inc. | M. Menssen | Chicago, IL 6/18 | \$ 437.38 |
| Consultant Monitoring: Aon Hewitt Investment Consulting Inc. | L. Stagg | Chicago, IL 6/18 | 437.38 |
| Conference: Level 1: Introduction to Private Equity sponsored by Institutional Limited Partners Association (ILPA) | N. Blumenshine | Chicago, IL 6/20-6/22 | 696.58 |
| Manager Monitoring International Equity Managers: Martin Currie; Threadneedle; Fidelity; J.P. Morgan; Marathon Consultant Monitoring: Aon Hewitt Investment Consulting Inc. Manager Search International Equity Managers: 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 |
|--|-------------|---|-------------|
| Manager Monitoring International Equity Managers: Martin Currie; Threadneedle; Fidelity; J.P. Morgan; Marathon Consultant Monitoring: Aon Hewitt Investment Consulting Inc. Manager Search International Equity Managers: Baille Gifford; Investec; Longview; Unigestion; Global Infrastructure Partners | L. Stagg | Edinburgh, Scotland London, England 6/22-6/30 | \$ 4,505.00 |
| Manager Monitoring Private Markets Manager: KKR Conference: KKR Americas Investors Meeting | A. Krech | Los Angeles, CA 6/25-6/27 | 1,095.27 |
| Conference: National Association of Public Pension Attorneys (NAPPA) | A. Sorenson | Savannah, GA 6/26-6/29 | 1,645.97 |
| Conference: 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 INVESTMENT PROGRAMS REPORT

DATE: September 7, 2018

TO: Members, State Board of Investment

FROM: **Mansco Perry III**

| | Page |
|---|-------------|
| 1. Modification of Public Equity Asset Class Targets | 3 |
| 2. Participant Directed Investment Program (PDIP) | 5 |
| 3. Update of Items Discussed at June 14, 2018 State Board of Investment (SBI) Meeting | 11 |
| 4. Remarks on State Board of Investment (SBI) Administration | 13 |

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EXECUTIVE DIRECTOR'S INVESTMENT PROGRAMS REPORT

DATE: September 7, 2018

TO: Members, State Board of Investment

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:

The Investment Advisory Council concurs with Staff's recommendation that the Board approve the changes to the Domestic Equity and the International Equity asset class targets as follows:

- 1) Domestic Equity - change from the Russell 3000 Index as the domestic equity target to the Russell 1000 Index (large-cap) representing 90% of the domestic equity target and the Russell 2000 Index (small-cap) representing 10% of the domestic equity target; and**
- 2) International Equity - change from the MSCI ACWI ex USA as the international equity target to the MSCI World ex USA Index (developed markets) representing 75% of the international equity target and the MSCI Emerging Markets Index (emerging markets) representing 25% of the international equity target.**

The rebalancing range guidelines for assets are +/-10% of the respective allocation targets of each asset class. However, the rebalancing range for small-cap domestic equity and emerging markets will now be +/-20% of their respective allocation targets.

Staff will additionally review the small-cap and large-cap allocations within the Russell 3000 as well as the developed and emerging markets allocations within the MSCI ACWI ex USA on an annual basis and recommend additional changes to the Domestic Equity and International Equity asset class targets if warranted.

EXECUTIVE DIRECTOR'S INVESTMENT PROGRAMS REPORT

DATE: September 7, 2018

TO: Members, State Board of Investment

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**.

A comparison of fees for the current and replacement investment options is presented in **Table C**.

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:

The Investment Advisory Council concurs 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.

Table C. Fee Comparison for Mapped Funds

| Current Investment Option | Expense Ratio | Proposed Replacement or New Investment Option | Expense Ratio |
|------------------------------------|----------------------|--|----------------------|
| SIF Balanced Fund | 0.04% | Vanguard Balanced Index Fund- Institutional | 0.06% |
| SIF US Stock Index Fund | 0.01% | Vanguard Total Stock Market Index- Institutional | 0.02% |
| SIF US Stock Actively Managed Fund | 0.19% | | |
| SIF Bond Fund | 0.09% | Vanguard Total Bond Market Index Fund- Institutional | 0.03% |
| SIF Broad International Stock Fund | 0.23% | Vanguard Total International Stock Index Fund | 0.07% |

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EXECUTIVE DIRECTOR'S INVESTMENT PROGRAMS REPORT

DATE: September 7, 2018

TO: Members, State Board of Investment

FROM: Mansco Perry III

**SUBJECT: Update of Items Discussed at June 14, 2018 State Board of Investment
(SBI) Meeting**

To be discussed at the September 14, 2018 SBI meeting.

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EXECUTIVE DIRECTOR'S INVESTMENT PROGRAMS REPORT

DATE: September 7, 2018

TO: Members, State Board of Investment

FROM: Mansco Perry III

SUBJECT: Remarks on State Board of Investment (SBI) Administration

To be discussed at the September 14, 2018 SBI meeting.

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INVESTMENT ADVISORY COUNCIL REPORT

DATE: September 7, 2018

TO: Members, State Board of Investment

FROM: Members, Investment Advisory Council and 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 **\$6,853,346,428**

| | Current Level | Target Level | Difference |
|-------------------|------------------|------------------|-----------------|
| Market Value (MV) | \$9,388,289,701 | \$17,072,068,199 | \$7,683,778,498 |
| MV +Unfunded | \$17,047,549,050 | \$23,900,895,478 | \$6,853,346,428 |

| Asset Class | Market Value | Unfunded Commitment | Total |
|--------------------------|------------------------|------------------------|-------------------------|
| Private Equity | \$4,793,444,858 | \$4,321,980,125 | \$9,115,424,983 |
| 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 |
| Total | \$9,388,289,701 | \$7,659,259,349 | \$17,047,549,050 |

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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INVESTMENT ADVISORY COUNCIL REPORT

DATE: September 7, 2018

TO: Members, State Board of Investment

FROM: Members, Investment Advisory Council and SBI Staff

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

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

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

The report includes the following sections:

| | Page |
|--|-------------|
| • 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

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 (1.1% 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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Market Environment

Second Quarter 2018

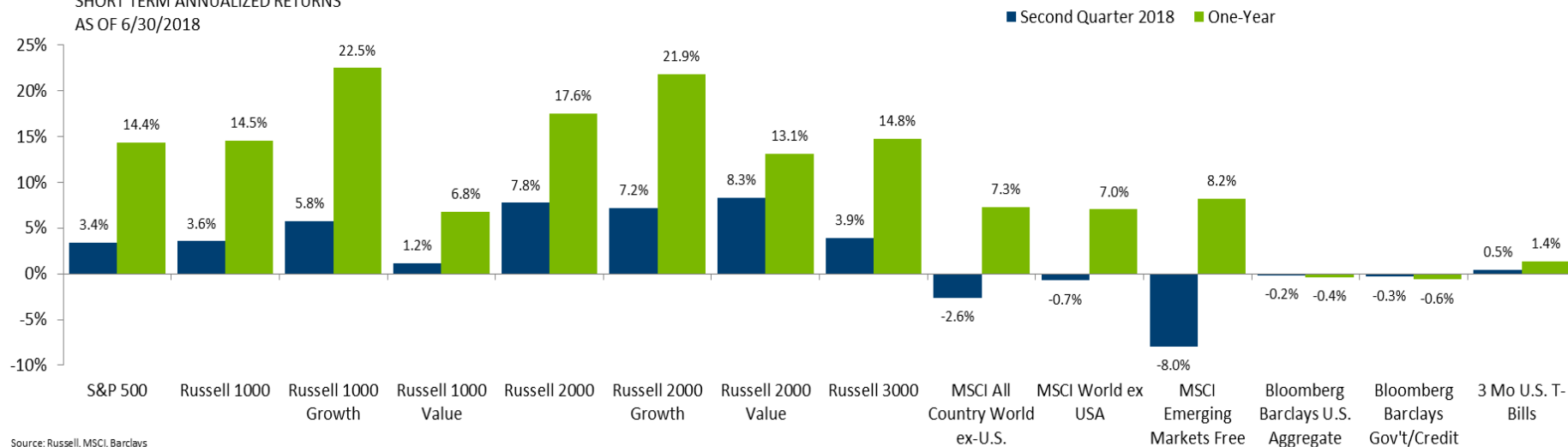
Aon

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

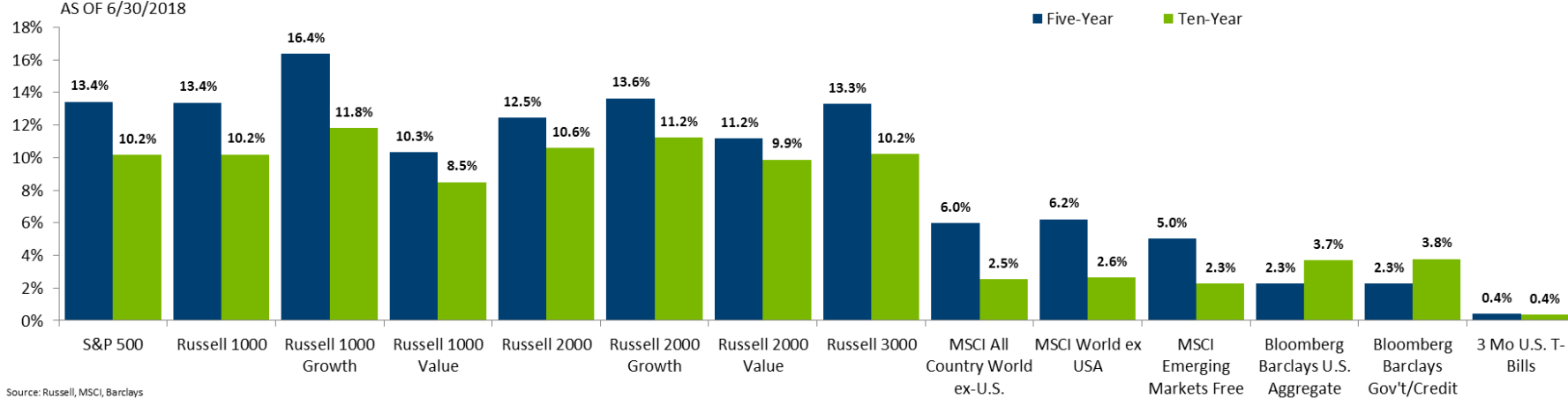
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Market Highlights

SHORT TERM ANNUALIZED RETURNS
AS OF 6/30/2018



LONG TERM ANNUALIZED RETURNS
AS OF 6/30/2018

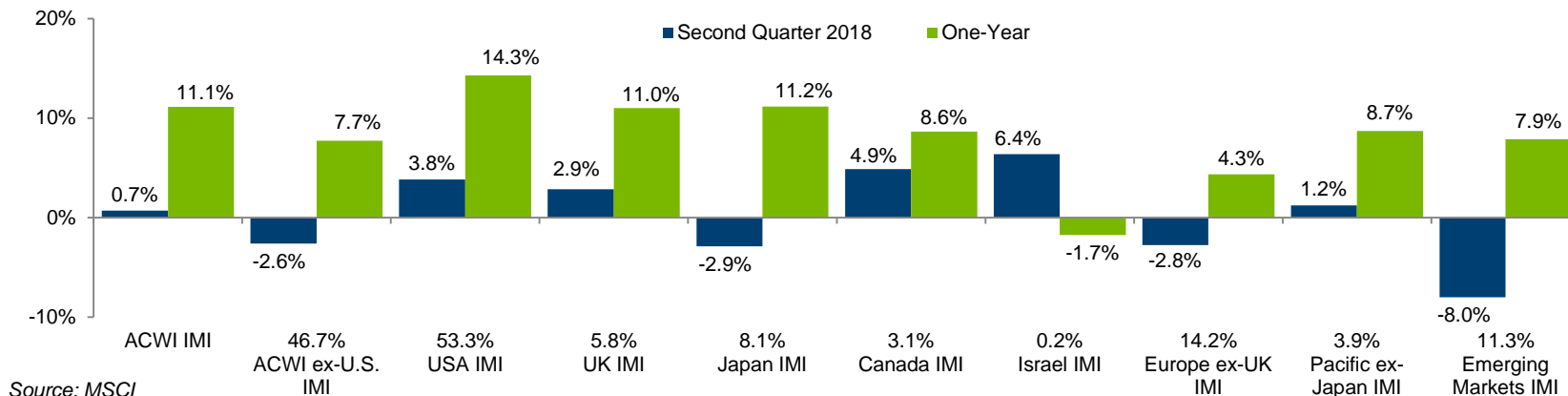


Market Highlights

| Returns of the Major Capital Markets | | | | | |
|---|--------------------------|--------|---------------------|---------------------|----------------------|
| | Periods Ending 6/30/2018 | | | | |
| | Second Quarter | 1-Year | 3-Year ¹ | 5-Year ¹ | 10-Year ¹ |
| Domestic Equity | | | | | |
| 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% |
| International Equity | | | | | |
| 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% |
| Fixed Income | | | | | |
| 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% |
| Inflation | | | | | |
| CPI-U | 0.6% | 2.8% | 1.8% | 1.5% | 1.4% |
| MSCI Indices show net returns. All other indices show total returns. ¹ Periods are annualized. | | | | | |

Global Equity Markets

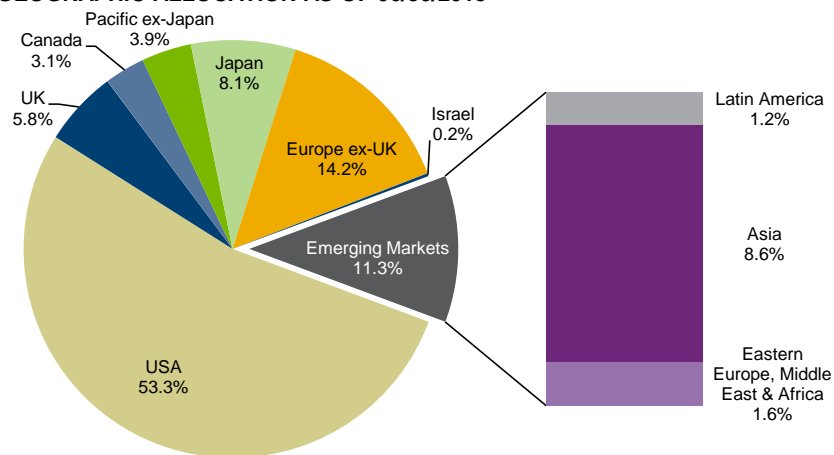
GLOBAL MSCI IMI INDEX RETURNS (USD) AS OF 06/30/2018



- 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.

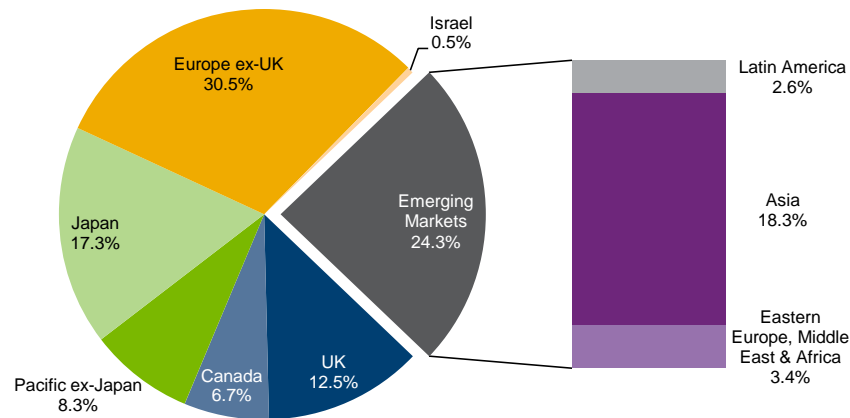
Global Equity Markets

**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**

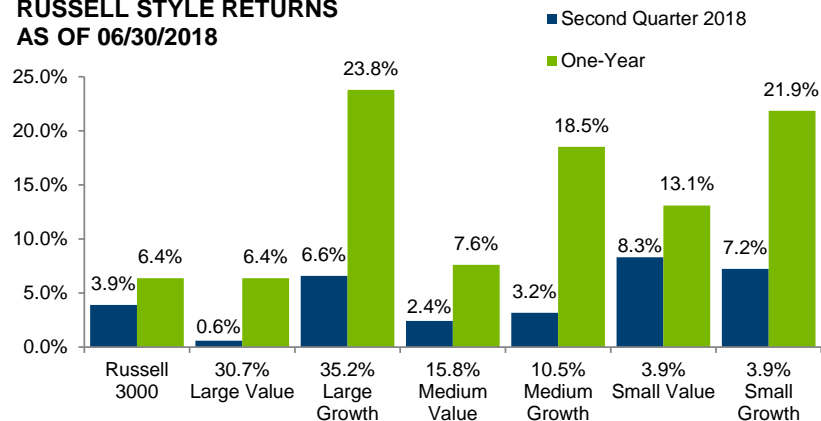


Source: MSCI

- 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.

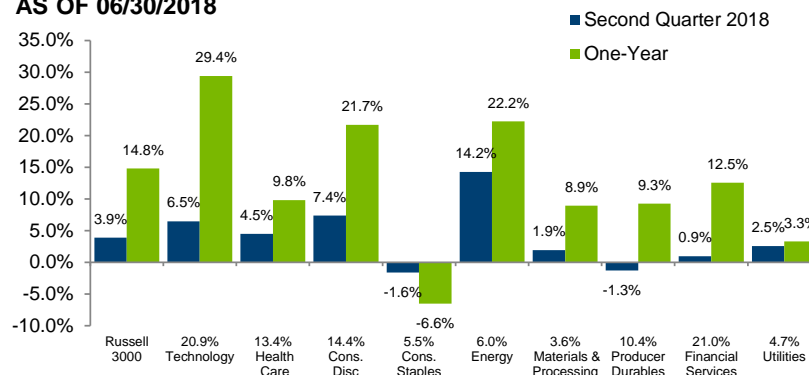
U.S. Equity Markets

RUSSELL STYLE RETURNS AS OF 06/30/2018



Source: Russell Indexes

RUSSELL GICS SECTOR RETURNS AS OF 06/30/2018

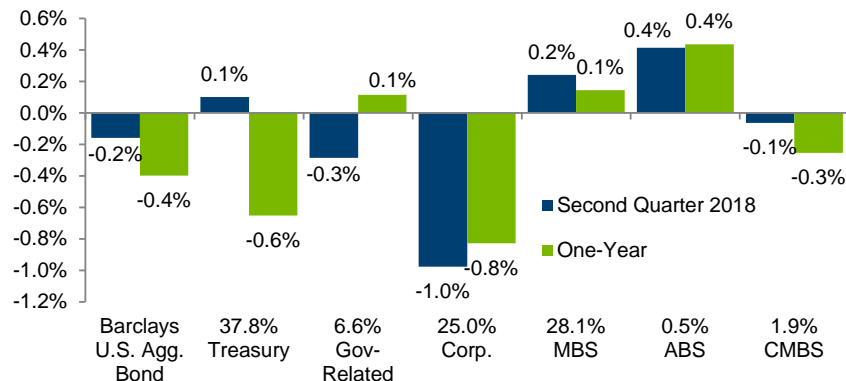


Source: Russell Indexes

- 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

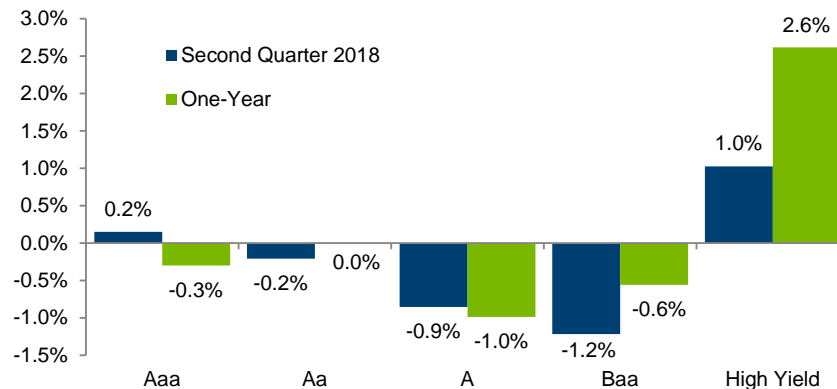
**BLOOMBERG BARCLAYS AGGREGATE RETURNS BY SECTOR
AS OF 06/30/2018**



Source: FactSet

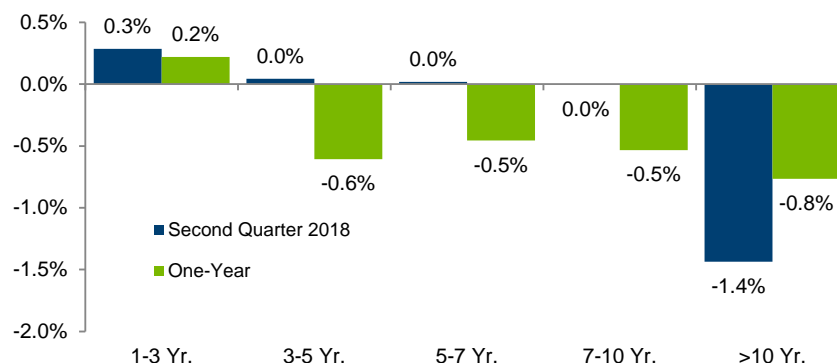
- The Bloomberg Barclays U.S. Aggregate Bond Index returned -0.2% in the second quarter. For a second successive quarter, investment grade corporate bonds fell the most, falling 1.0%. ABS was the best performer, returning 0.4% over the quarter and offsetting the first quarter decline.
- Credit spreads 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

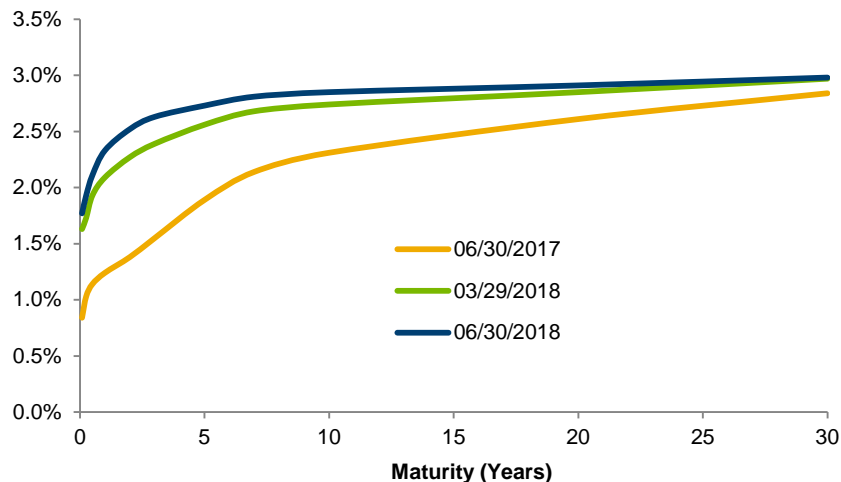
**BLOOMBERG BARCLAYS AGGREGATE RETURNS BY MATURITY
AS OF 06/30/2018**



Source: FactSet

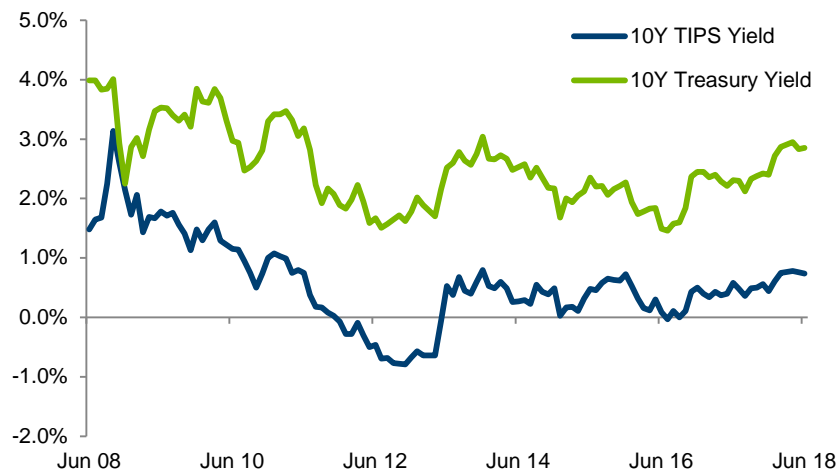
U.S. Fixed Income Markets

U.S. TREASURY YIELD CURVE



Source: U.S. Department of Treasury

U.S. 10-YEAR TREASURY AND TIPS YIELDS

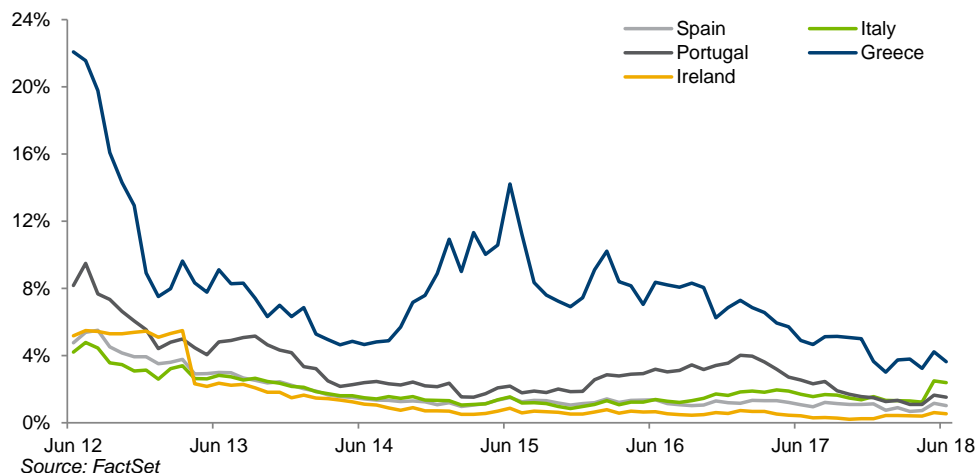


Source: U.S. Department of Treasury

- 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

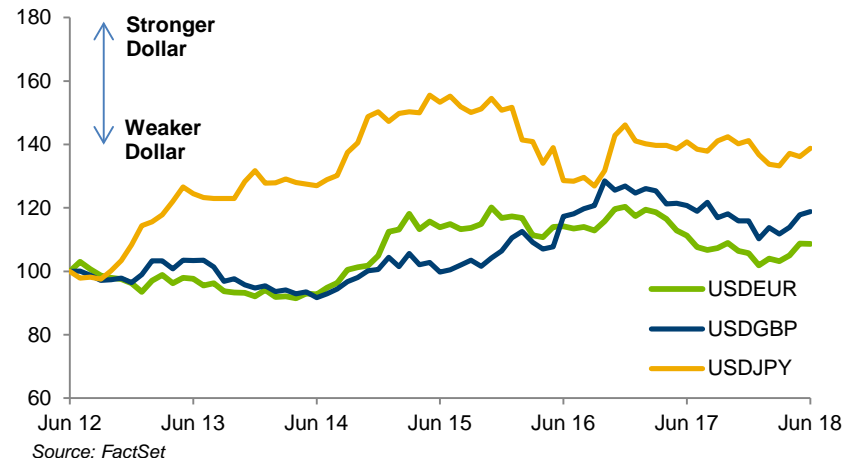
- In general, investment-grade credit underperformed during the second quarter as spreads over U.S. Treasuries widened across all maturities.
- bond spreads and Long Government/Credit bond spreads also widened by 14bps and 13bps, respectively. The increase in yields on U.S. Treasuries increased the total 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)**



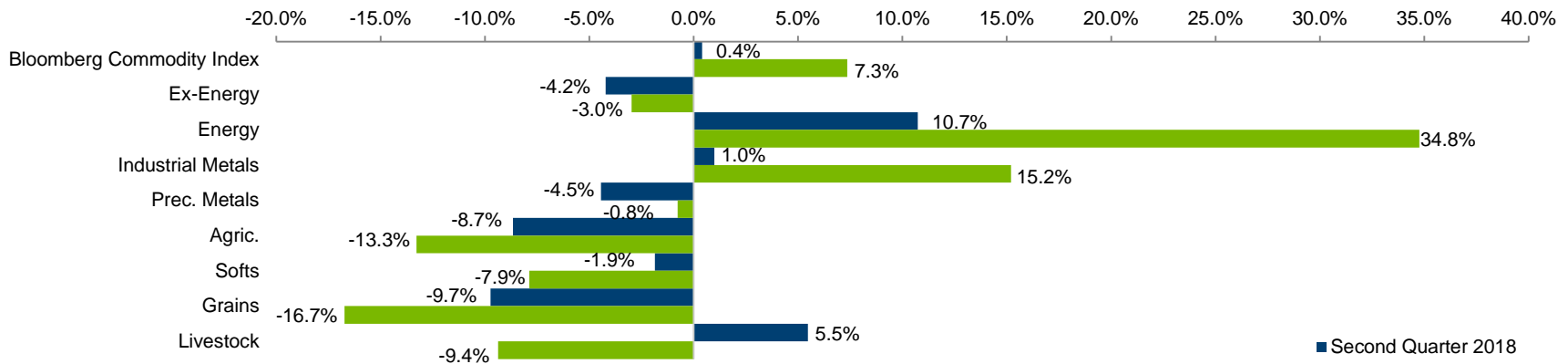
**U.S. DOLLAR RELATIVE TO EUR, GBP, AND JPY
REBASED TO 100 AT 06/29/2012**



- 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

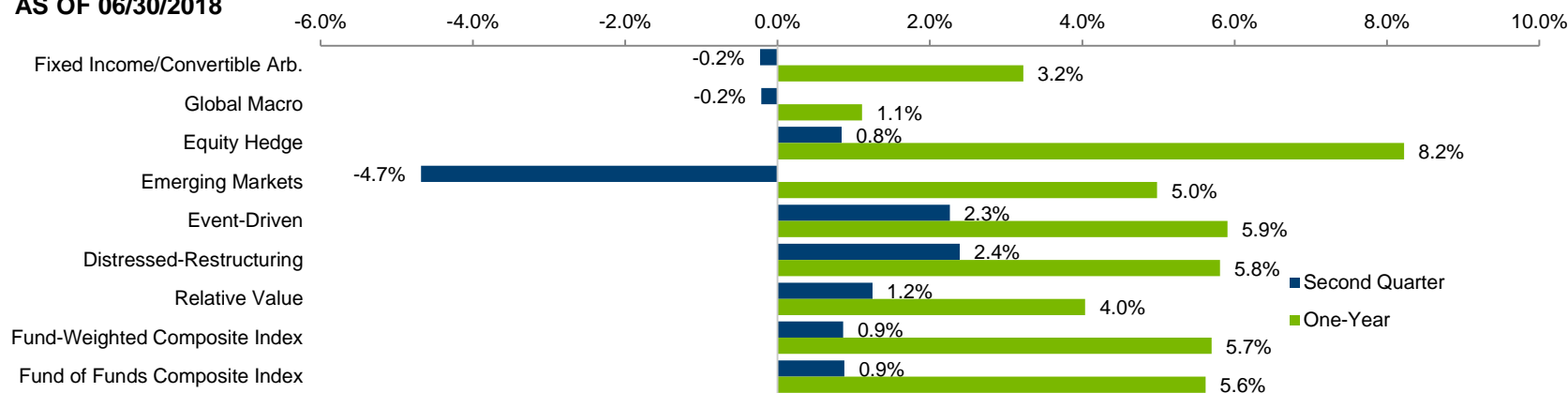


Note: Softs and Grains are part of the wider Agriculture sector
Source: Bloomberg

- 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



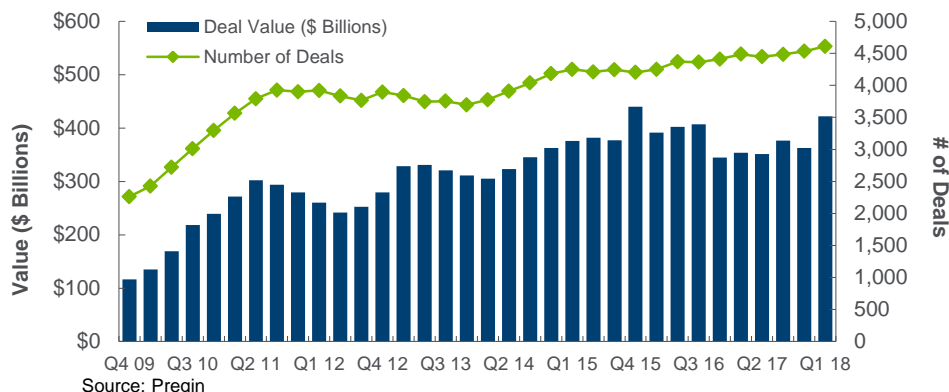
Note: Latest five months of HFR data are estimated by HFR and may change in the future.

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



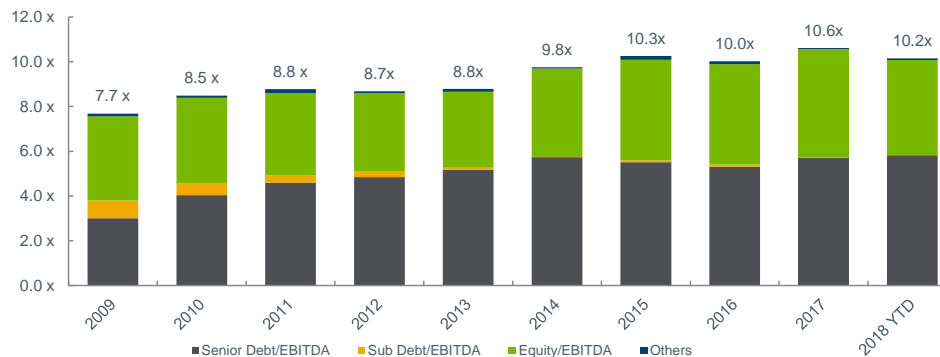
- **Fundraising:** \$120.3 billion was raised by 285 funds in Q1 2018, a decline of 16.1% on a capital basis and a 28.4% fall in the number of deals from the prior quarter. Dry powder stood at \$1.47 trillion at the end of the quarter, an increase of 6.5% and 28.7% compared to Q4 2017 and the five year average, respectively.¹
- **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.¹ 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 2017.² Large cap purchase price multiples stood at 11.3x, down compared to the full year 2017 level of 11.6x.² 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.² 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 2010.¹
- **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.¹ 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 2017.³
- **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.¹ Estimated dry powder was \$45.5 billion at the end of Q1 2018, down by \$4.9 billion from Q4 2017.¹ Fundraising remains robust with an estimated 76 funds in the market targeting \$30.6 billion of commitments.¹

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

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

Private Equity Market Overview – Q1 2018

Purchase Price Multiples—All Transaction Sizes



Source: Standard & Poor's

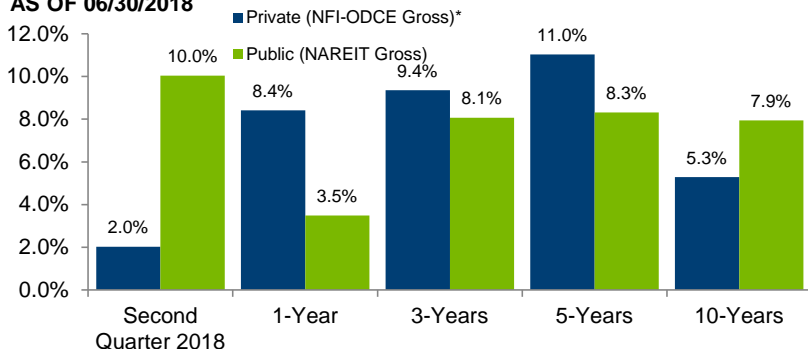
- **Distressed Debt:** The LTM U.S. high-yield default rate was 2.7% as of March 2018, which was up from December 2017's LTM rate of 1.8%.⁴ During the quarter, \$7.8 billion was raised by 12 funds, down on a capital basis from Q4 2017, which saw \$11.7 billion raised across 11 funds.¹ Dry powder was 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.¹
- **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 2017.¹ At the end of Q1 2018, there were an estimated 34 secondary and direct secondary funds in the market, targeting approximately \$29.8 billion.¹
- **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.¹
- **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 2017.¹

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

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

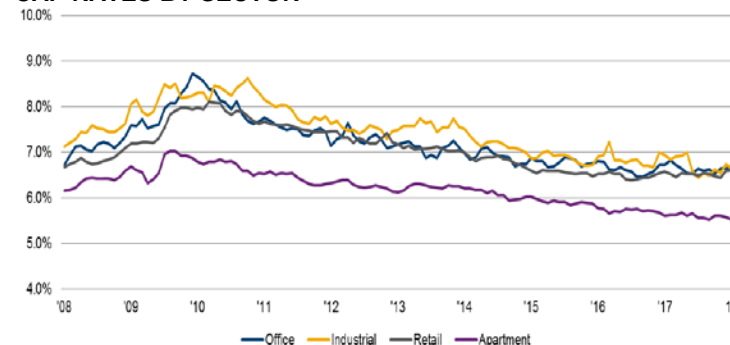
U.S. Commercial Real Estate Markets

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



*Second quarter returns are preliminary
Sources: NCREIF, FactSet

CAP RATES BY SECTOR

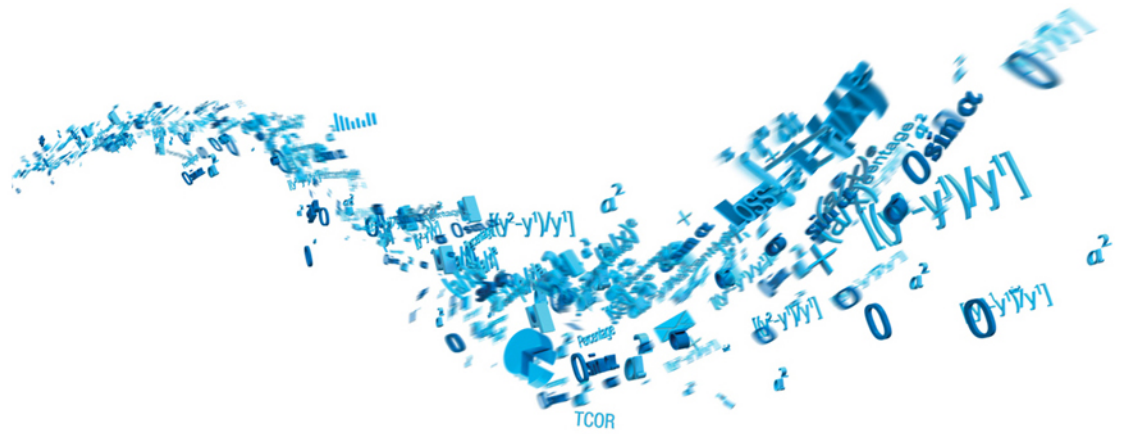


SOURCE: RCA, Aon 03/31/2018

- 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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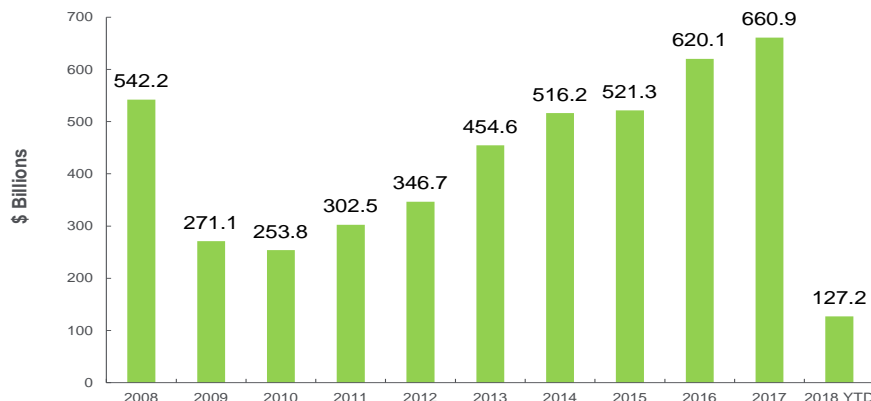
Appendix A:

Global Private Equity Market Overview

1Q 2018

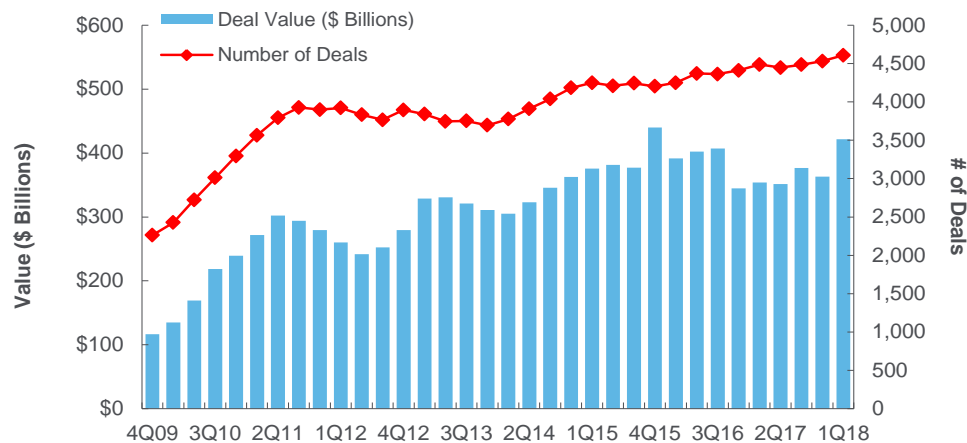
Private Equity Overview

Total Funds Raised



Source: Preqin

LTM Global Private Equity-Backed Buyout Deal Volume



Source: Preqin

Fundraising

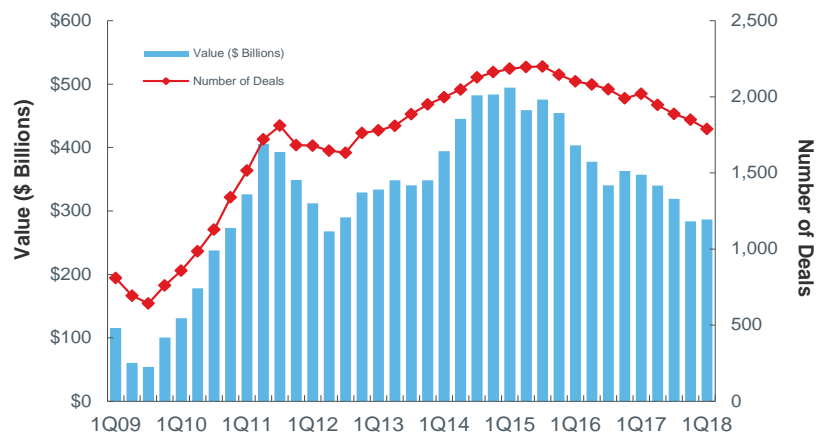
- In 1Q 2018, \$120.3 billion was raised by 285 funds, which was down 16.1% on a capital basis and 28.4% by number of deals from the prior quarter ¹.
 - About half of 1Q 2018 capital was raised by funds with target geographies in North America, comprising 46.8% of the quarterly total. Capital targeted 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 ¹.
- 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 ¹.

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 ¹.
 - 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 ³.
- 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 ³.
 - 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 ³.
- 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 ³.
 - 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 ³.
 - 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.

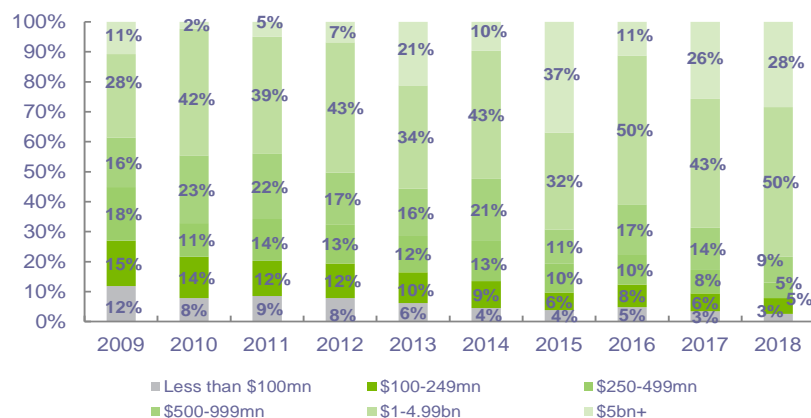
Buyouts / Corporate Finance

LTM PE Exit Volume and Value



Source: Preqin

M&A Deal Value by Deal Size



AonSource: Preqin
Proprietary & Confidential

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

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 ¹.
 - 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 ¹.
 - 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 ¹.
 - An estimated 53.8% of buyout dry powder was targeted for North America, while 31.3% was targeted for Europe ¹.

Activity

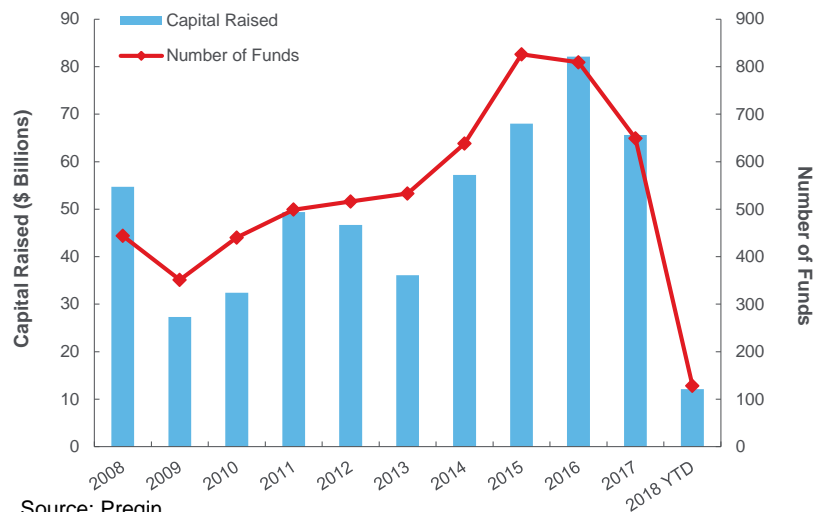
- Global private equity-backed buyout deals totaled \$120.9 billion in 1Q 2018, which was up 53.1% and 32.8% from the prior quarter and five year average, respectively ¹.
 - 1,181 deals were completed during the quarter, which was down 1.2% from 4Q 2017, but up 12.3% compared to the five year quarterly 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 ¹.
- Entry multiples for all transaction sizes in 1Q 2018 stood at 10.2x EBITDA, down from year end 2017 (10.6x) ³.
 - Large cap purchase price multiples stood at 11.3x, down compared to a full year 2017 level of 11.6x ³.
 - 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 ³.
 - 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 ³.
- 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 ¹.

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, respectively¹.
 - 128 funds closed during the quarter, down 28.1% and 25.9% from the prior quarter and five year quarterly average, respectively¹.
 - Norwest Venture Partners XIV was the largest fund raised during the quarter, closing on \$1.5 billion¹⁶.
- 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 less¹.
- 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 Asia¹.

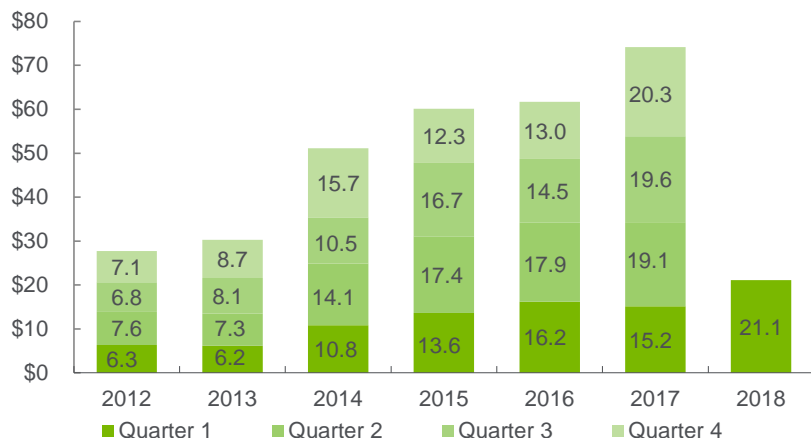
Activity

- 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 companies⁷.
 - The number of unicorns in the U.S., or companies with valuations of \$1.0 billion or more, increased by five in 1Q 2018⁷.
- 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 million⁹.
- 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 2017⁸.
 - There were 15 venture-backed initial public offerings during the quarter, which was lower than the 22 completed in 4Q 2017⁸.
 - The number of M&A transactions totaled 144 deals in 1Q 2018, representing a decrease of 19.6% from 1Q 2017⁸.

Opportunity

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

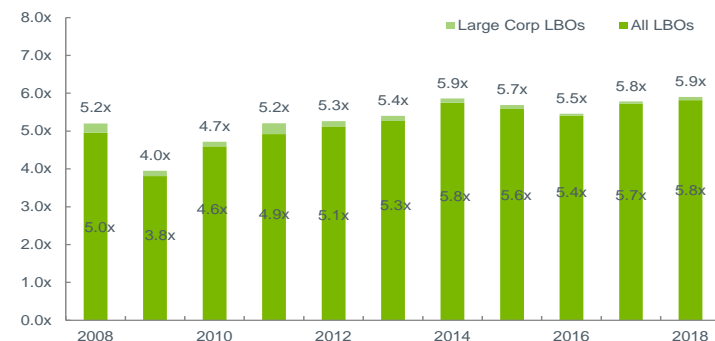
U.S. Venture Capital Investments by Quarter (\$B)



Source: PwC/CB Insights Report

Leveraged Loans & Mezzanine

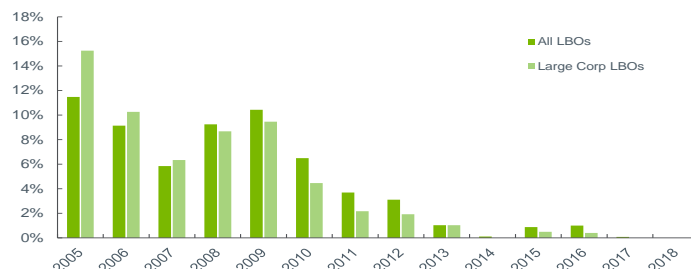
Average Leverage by Deal Size



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 ².
- High-yield debt issuance totaled \$62.8 billion in 1Q 2018, down from \$65.9 billion in 4Q 2017 ².
- 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 ².

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 ³.
- 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 ².
- 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% ³.
- European leveraged loan issuance increased by 33.0% quarter-over-quarter to €24.1 billion ³.
 - 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 ².

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

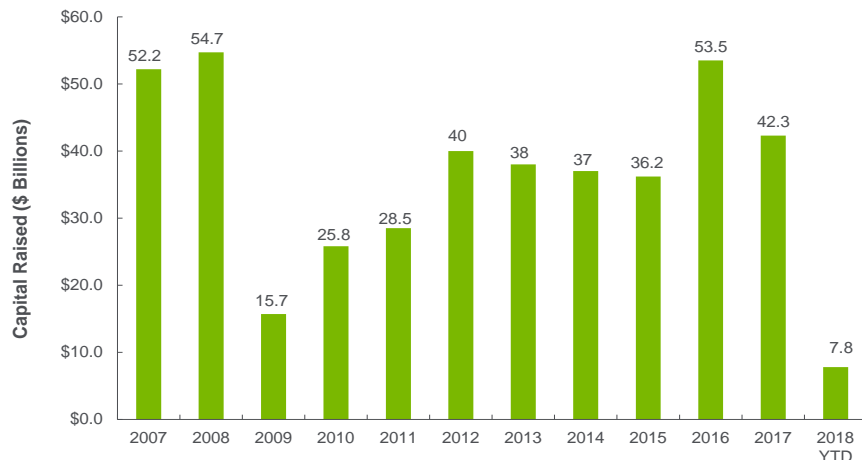
- Twelve funds closed on \$5.1 billion during the quarter, up from 4Q 2017's total of \$2.3 billion raised by eight funds and the five year quarterly average of \$4.8 billion ¹.
- Estimated dry powder was \$45.5 billion at the end of 1Q 2018, down by \$4.9 billion from 4Q 2017 ¹.
- Fundraising remains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

Opportunity

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

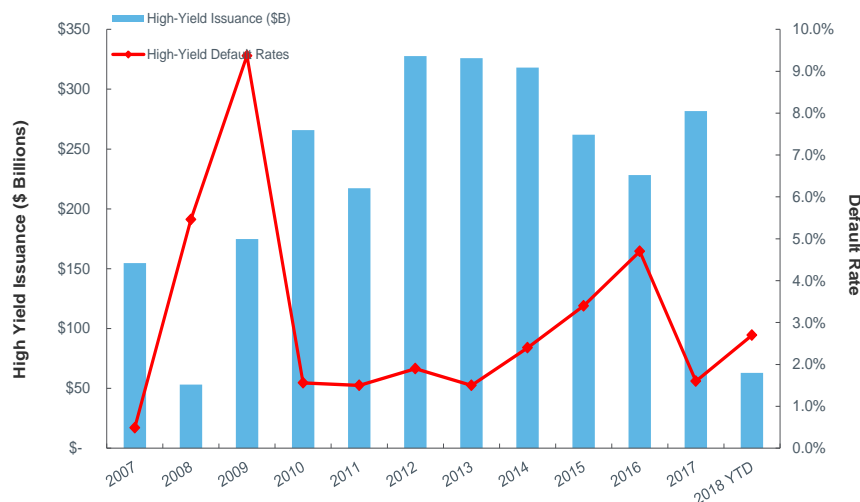
Distressed Private Markets

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 ¹.
 - 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 ¹.
- Roughly 109 funds were in the market at the end of 1Q 2018, seeking an aggregate \$63.6 billion in capital commitments ¹.
 - Fortress Investment Group and GSO Capital Partners are the largest funds in market with target fund sizes of \$5.0 billion each.

Activity

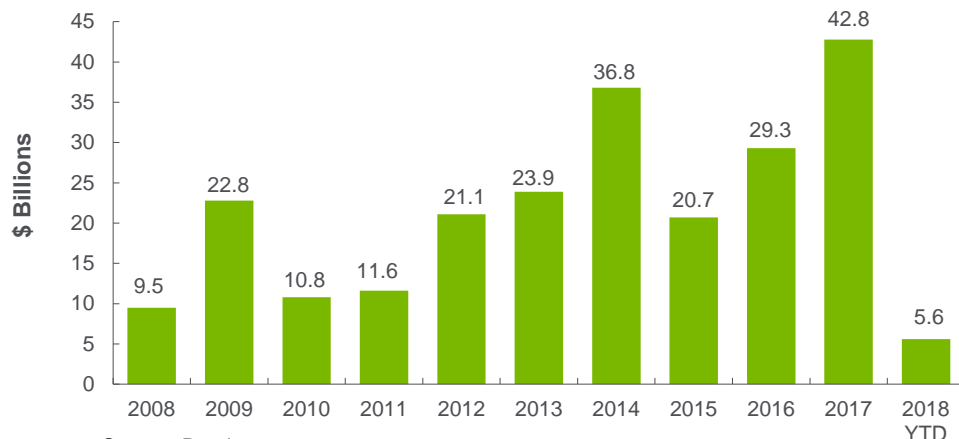
- The LTM U.S. high-yield default rate was 2.7% as of March 2018, which was up from December 2017's LTM rate of 1.8% ⁶.
- Credit spreads are now modestly expensive, and yields are also low. The credit risk environment remains benign, but the impact of rising interest rates is becoming more and more pertinent,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

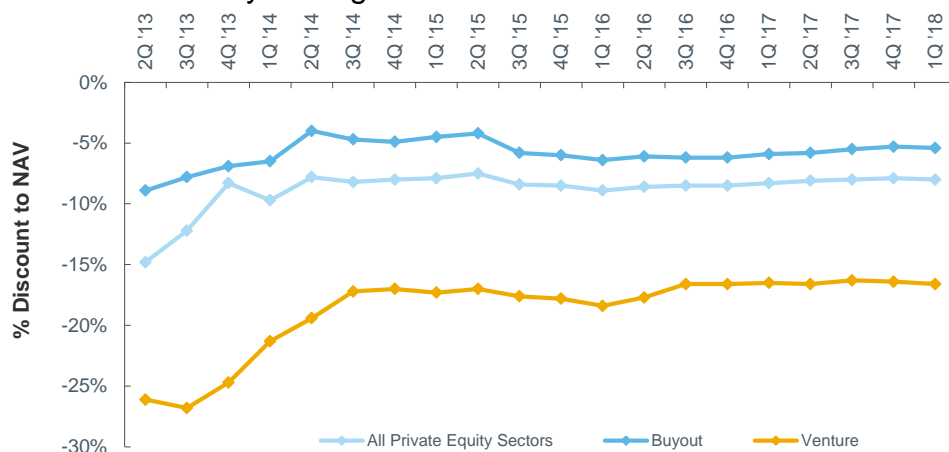
- Funds capable of performing operational turnarounds.
- Funds with the flexibility to invest globally.

Secondaries

Secondary Fundraising



Secondary Pricing



Aon Source: UBS
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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 2017¹.
 - 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 billion¹.
- At the beginning of 2018, dry powder was estimated at \$89.0 billion, which was 5.3% lower than 3Q 2017's record level². 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 group².
- 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 billion¹.
 - Over 70% of secondary funds are targeting North America and seek 86% of capital being raised.

Activity

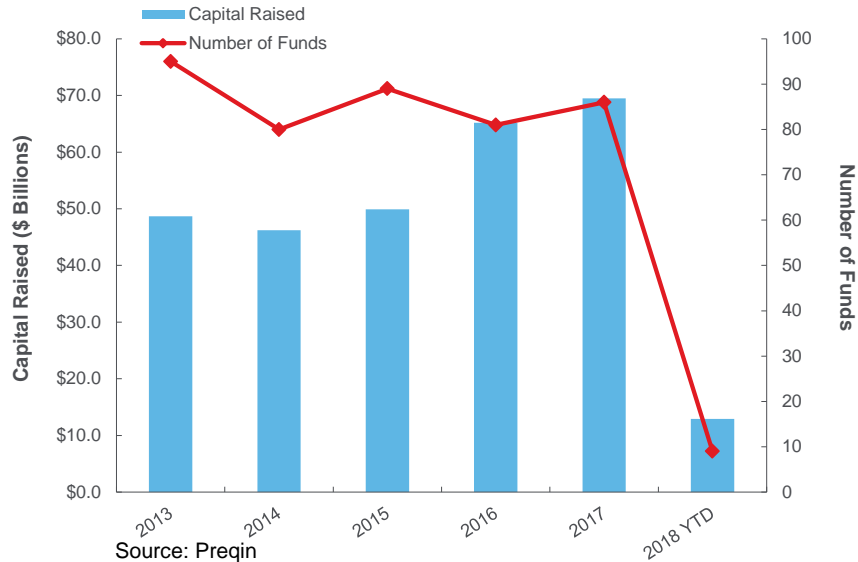
- More than 900 potential buyers and nearly 850 potential sellers of secondary interests have been identified¹.
 - Fund of funds managers and public pension funds represent the largest proportion of potential sellers at 13.0%, respectively.
- Transaction and fund leverage and deferred payment structures continue to be prevalent and are used as a means to improve pricing in an increasingly competitive environment².
- 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%².
- Pricing is expected to remain attractive for sellers given the continued high levels of dry powder and competition for secondary transactions².

Opportunity

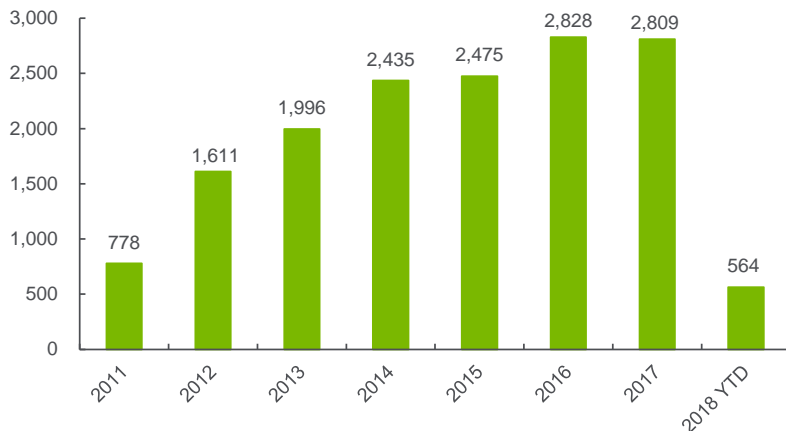
- Funds that are able to execute complex and structured transactions.
- Niche strategies.
- Fund restructurings.

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 2017¹.
 - Funds raised during the quarter averaged 119.8% of their target size, which was up from 100.5% in 2017¹.
 - Partners Group Direct Infrastructure 2016 held its final close on €2.2 billion and was the largest fund closed during Q1 2018¹.
- As of the end of 1Q 2018, there were an estimated 178 funds in the market seeking roughly \$133.0 billion¹.
 - 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 billion¹.
 - 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 billion¹. 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 world¹.
- 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

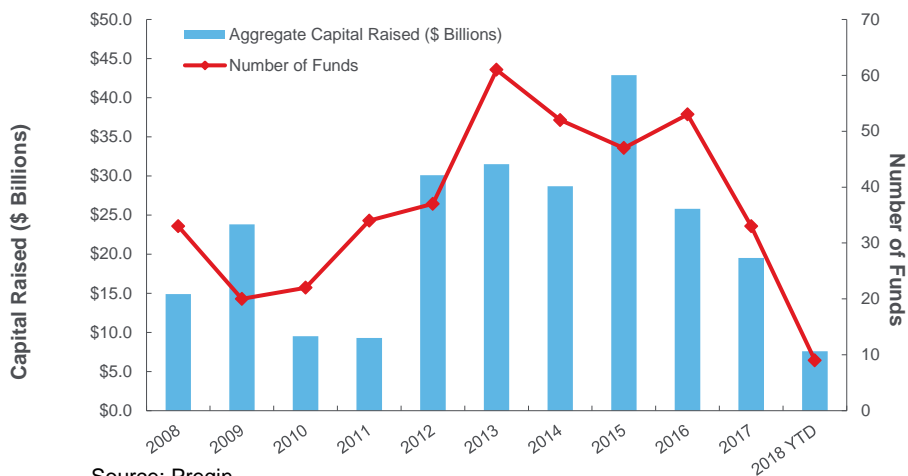
- Infrastructure managers completed 564 deals with an estimated aggregate deal value of \$222.6 billion in 1Q 2018 compared to 825 deals totaling \$230.3 billion a quarter ago¹. The average deal value during the quarter was \$438.7 million, up compared to the five-year average of \$404.1 million.
 - 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, respectively¹.
 - 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 transactions¹.

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.

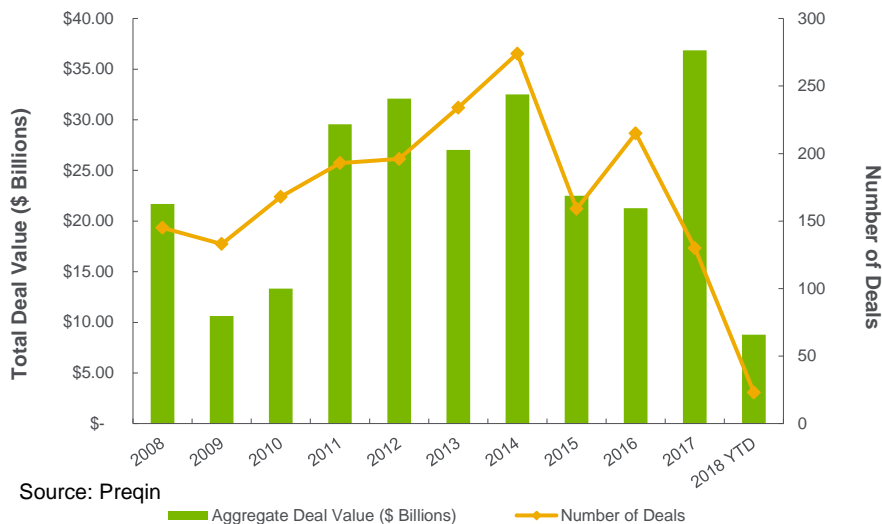
Natural Resources

Natural Resources Fundraising



Source: Preqin

Energy & Utilities Deal Activity



Source: Preqin

Aon

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Fundraising

- During 1Q 2018, nine funds closed on \$7.6 billion compared to 8 funds totaling \$9.4 billion in 4Q 2017¹.
 - 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 2017¹.
 - 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 2016¹.

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/bbl¹¹.
 - Brent crude oil prices ended the quarter at \$66.02/bbl, up 2.6% from year end 2017¹¹.
- Natural gas prices (Henry Hub) decreased by 4.6% during the first quarter, ending at \$2.69 per MMBtu¹¹.
- 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 operation¹⁵.
- The price of iron ore (Tianjin Port) ended the first quarter at \$70.35 per dry metric ton, down 2.6% quarter-over-quarter¹².

Opportunity

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

Notes

1. Preqin
2. UBS
3. Standard & Poor's
4. Aon Hewitt Investment Consulting
5. 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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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 31st, 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

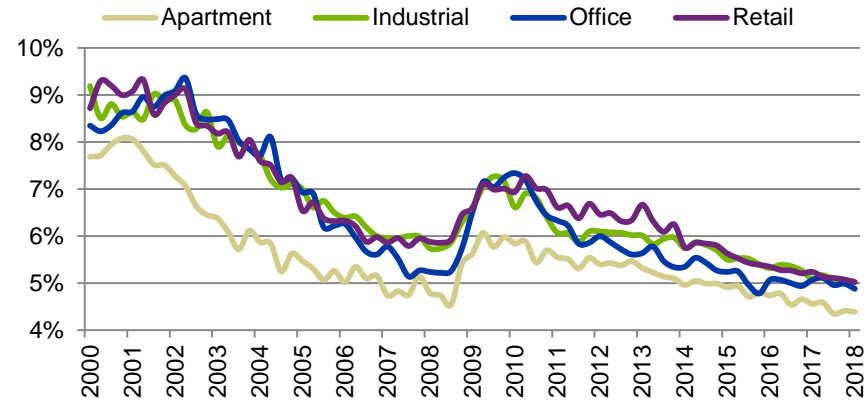
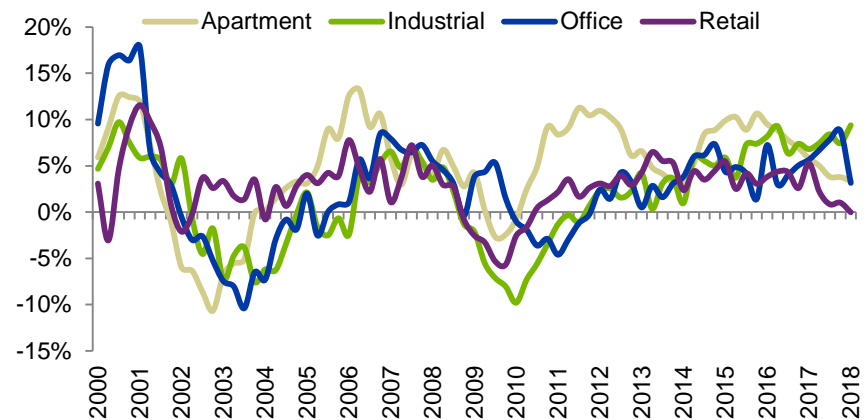


Exhibit C: 4 Qtr Rolling NOI Growth



Sources: Bureau of Economic Analysis, U.S. Census Bureau, Federal Reserve Board, NCREIF, Cushman and Wakefield, Real Capital Analytics, Bloomberg LP., Preqin, 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 |
|-----------------------|------------|------------|------------|
| Global | 3.7 | 3.9 | 3.7 |
| Asia Pacific | 5.5 | 5.5 | 5.2 |
| 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 |
| North America | 2.0 | 2.6 | 2.6 |
| US | 2.3 | 2.9 | 2.5 |
| MENA* | 1.9 | 3.2 | 3.7 |
| European Union | 3.0 | 2.6 | 2.1 |
| 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

TAB

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PCA INVESTMENT MARKET RISK METRICS

Monthly Report



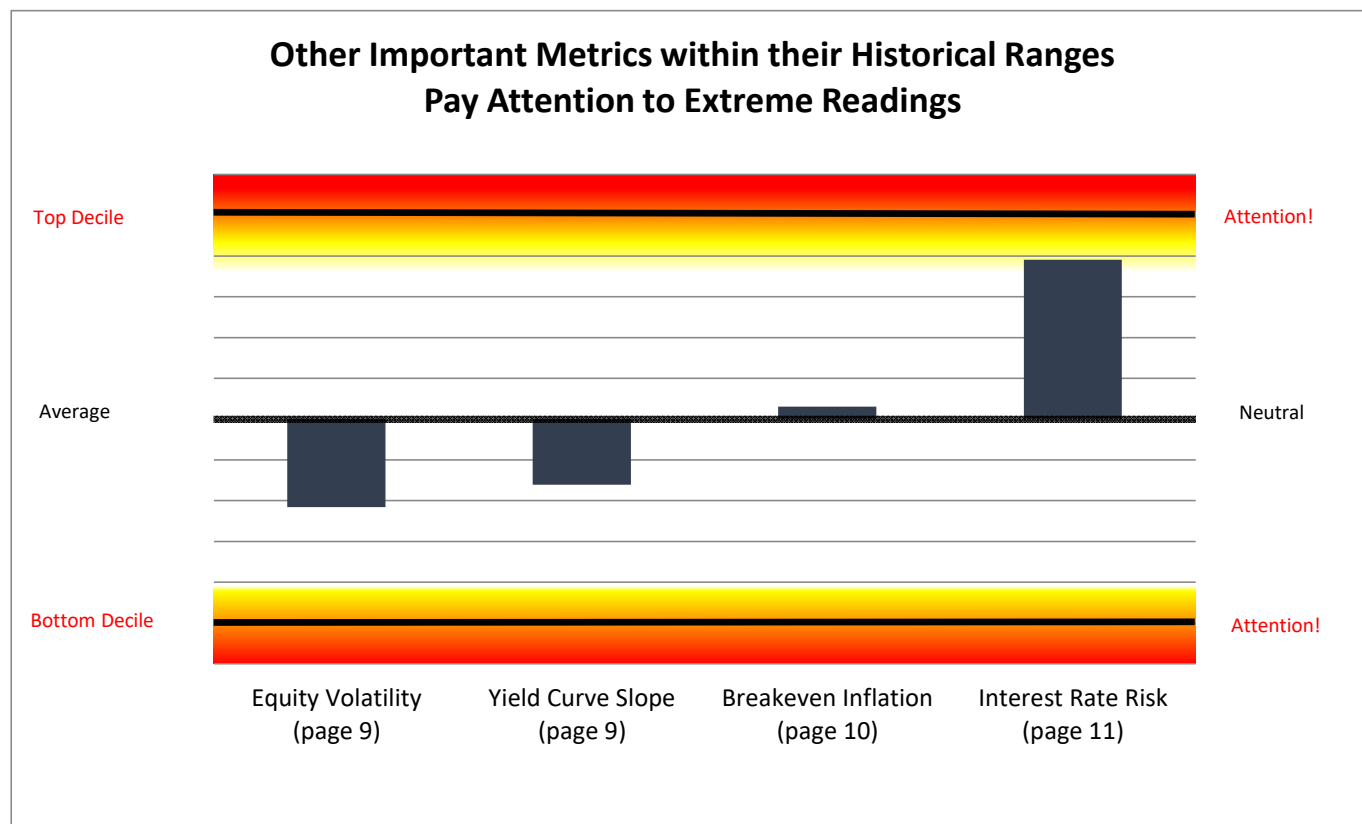
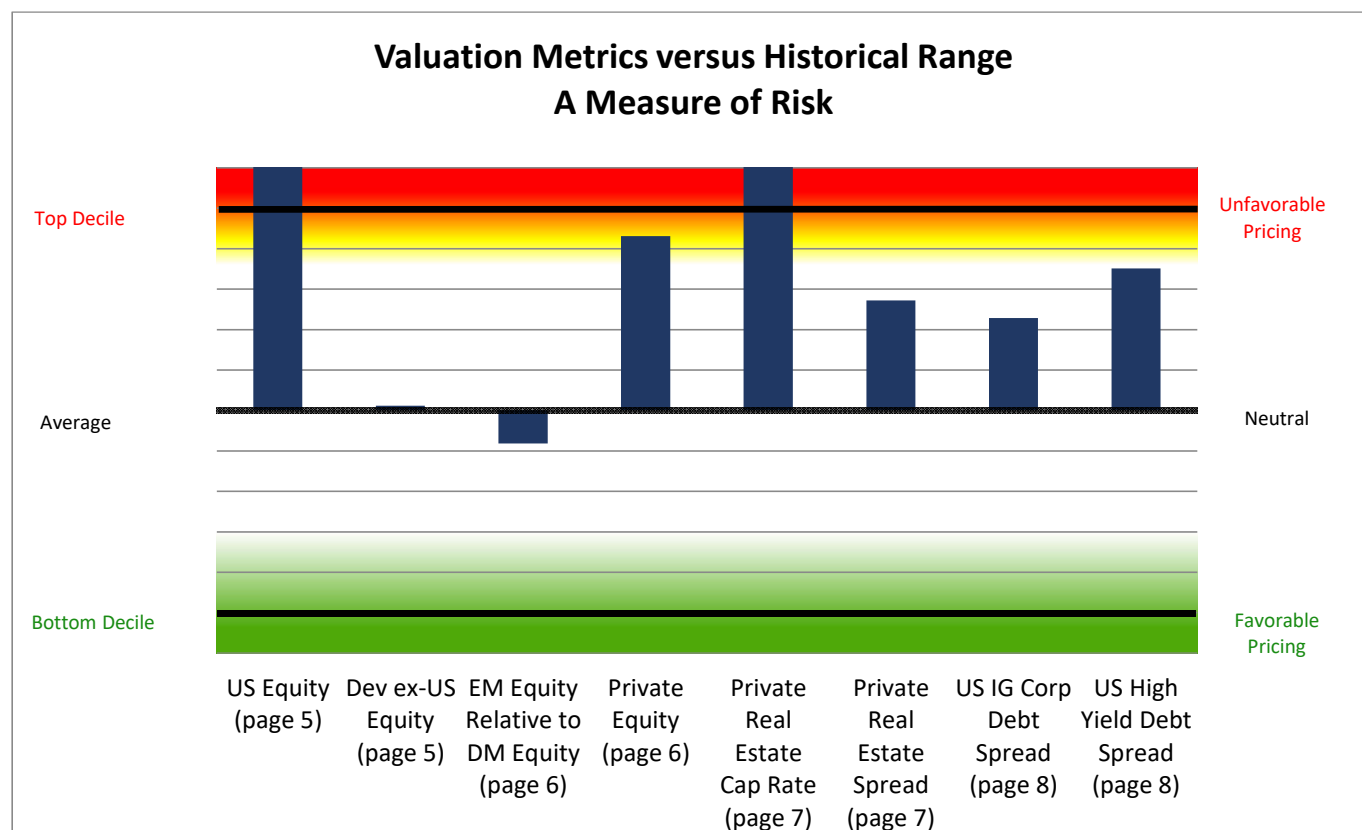
July 2018
(as of 6/30/18)

Takeaways

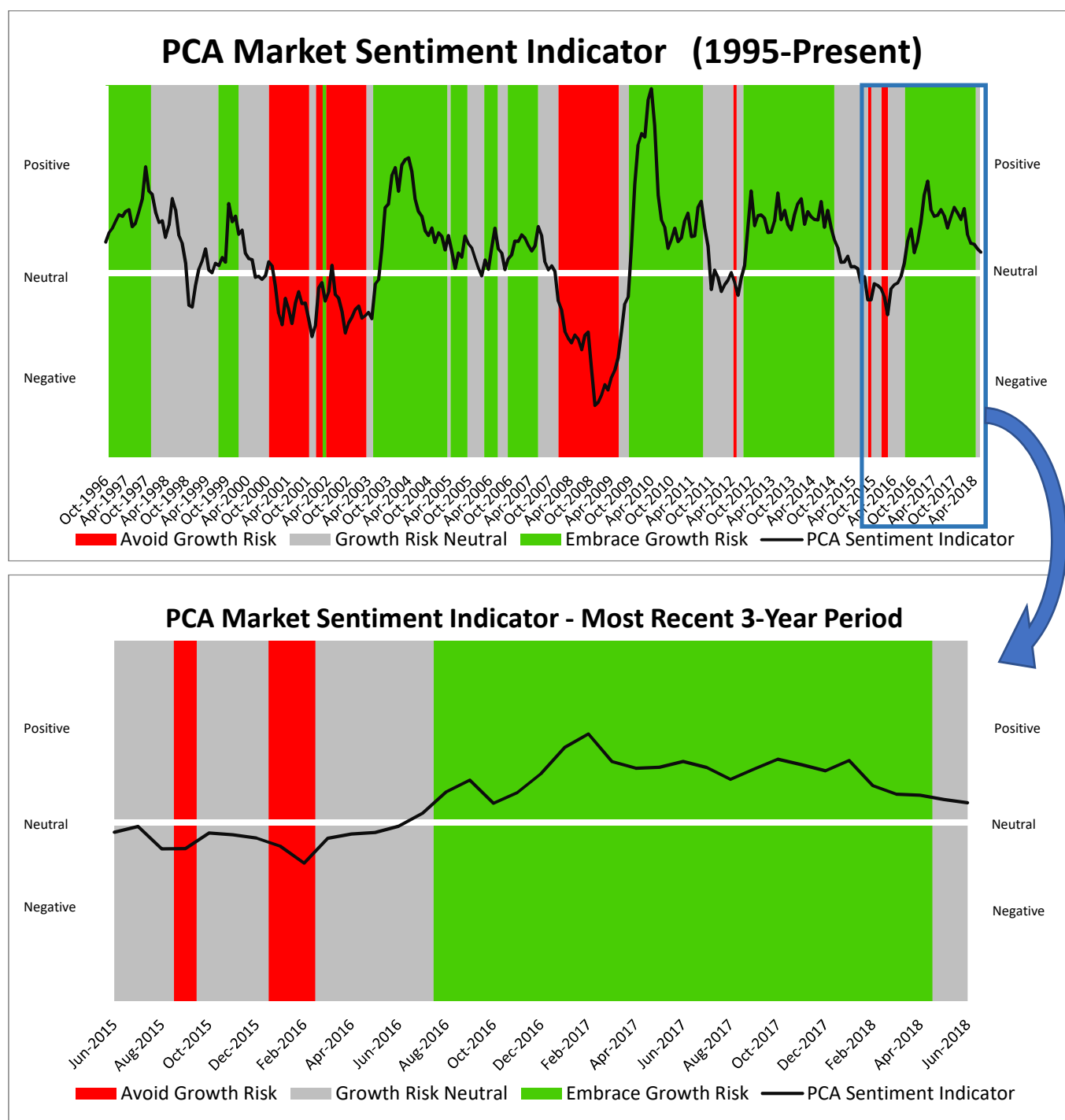
- June was a relatively benign month with the exception of Emerging Markets equities, which experienced mid-single digit drawdowns over the month. The majority of asset classes produced slight positive or slight negative returns over the period.
- Implied equity market volatility (i.e., VIX) increased 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.

¹See 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

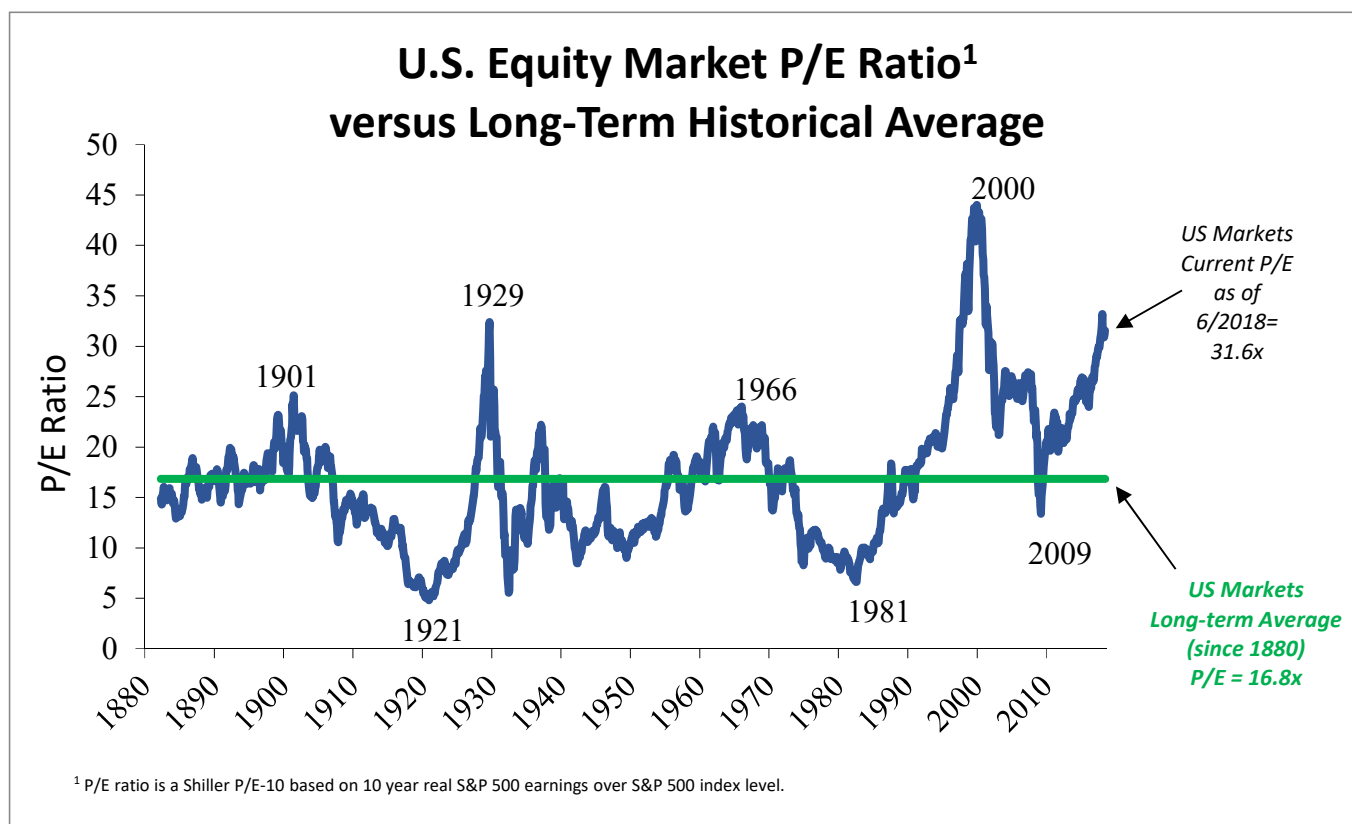
Agreement Between Bond Spread and Equity Spread Momentum Measures?

| | |
|----------|--|
| Negative | |
| Positive | |
| Disagree | |

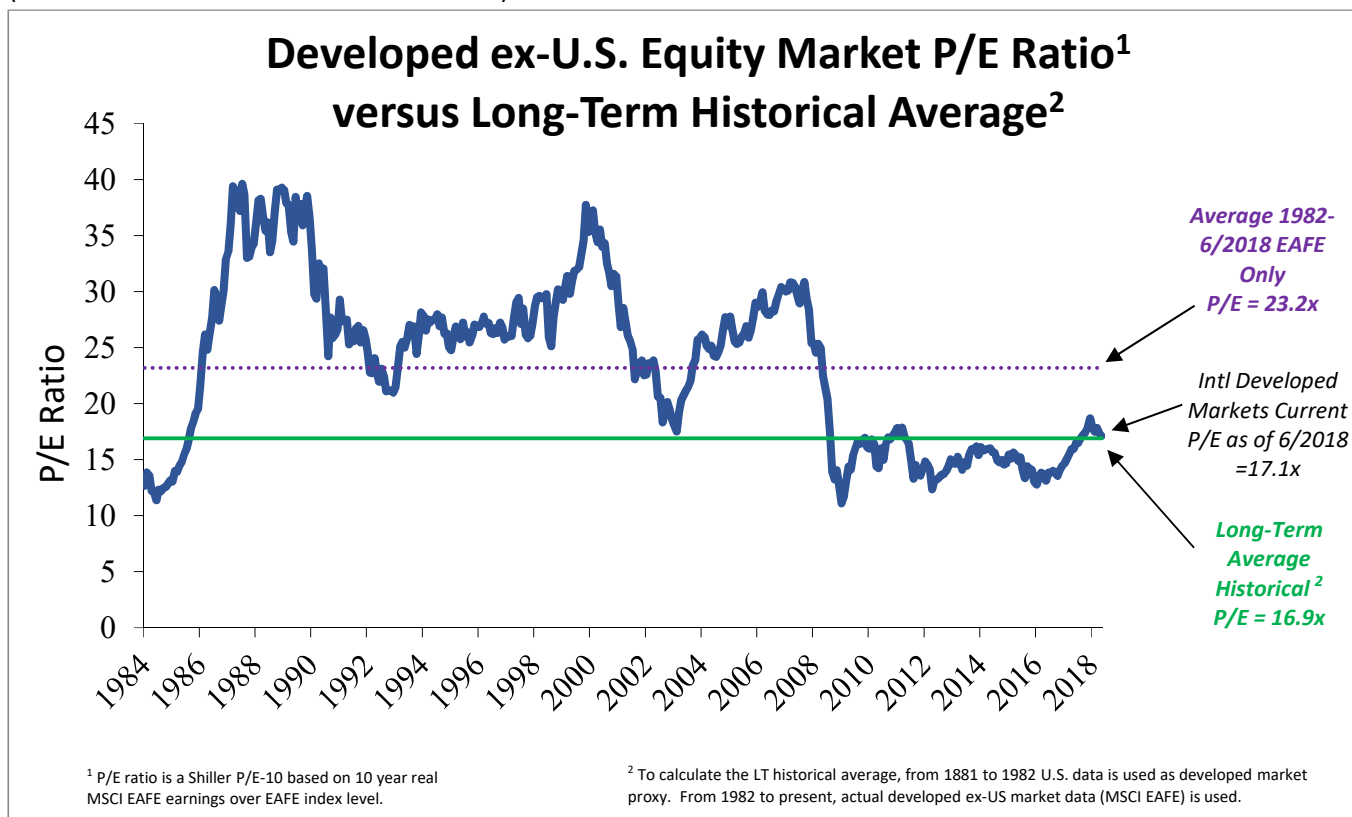
Growth Risk Visibility (Current Overall Sentiment)

| | |
|---------|--|
| Neutral | |
|---------|--|

Developed Public Equity Markets

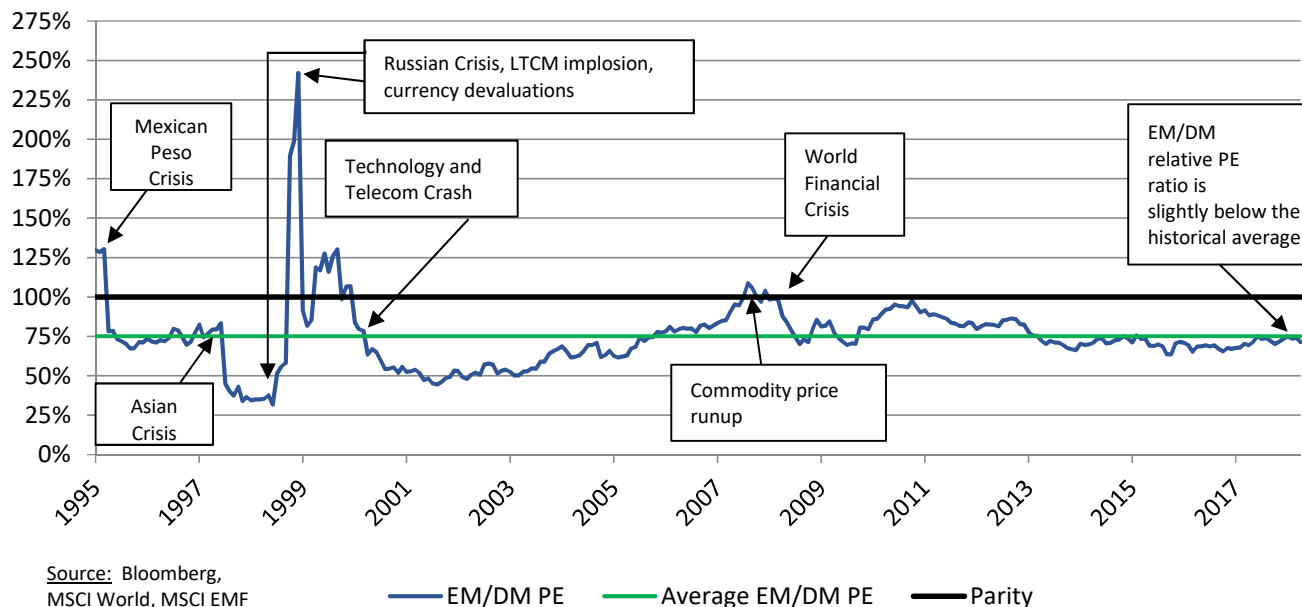


(Please note the difference in time scales)



Emerging Market Public Equity Markets

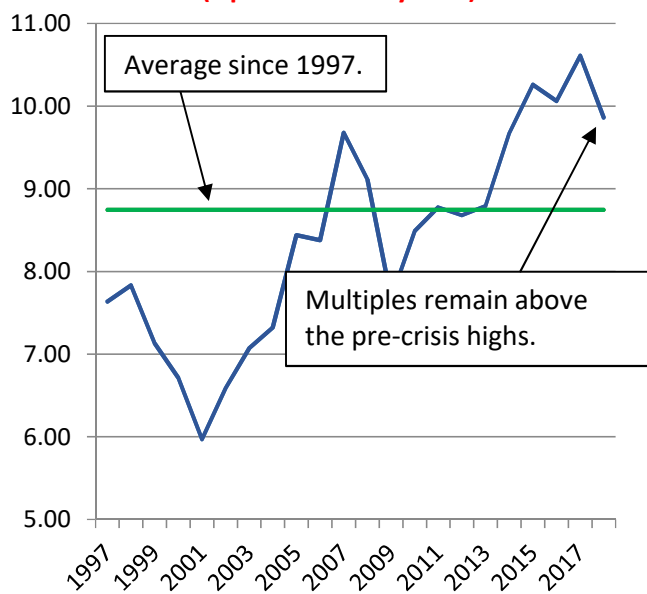
Emerging Markets PE / Developed Markets PE (100% = Parity between PE Ratios)



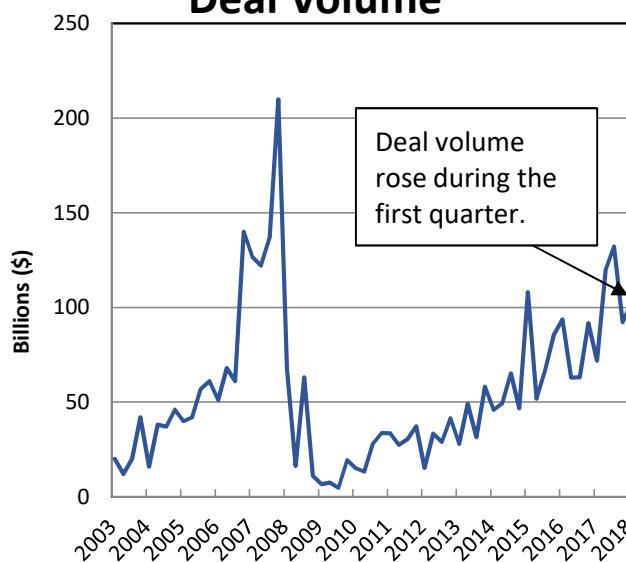
US Private Equity

Quarterly Data, Updated to March 31st

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

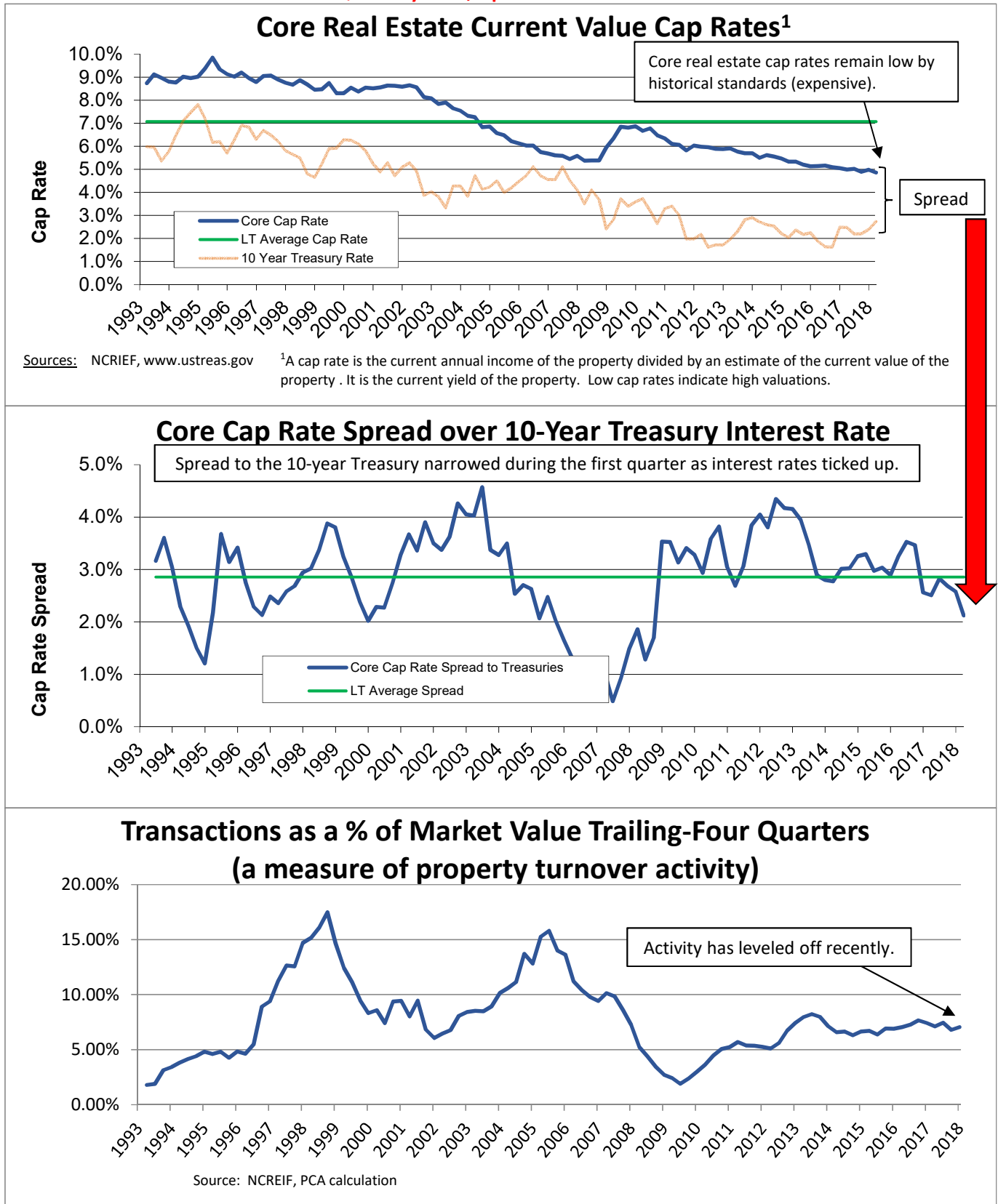


Disclosed U.S. Quarterly Deal Volume*



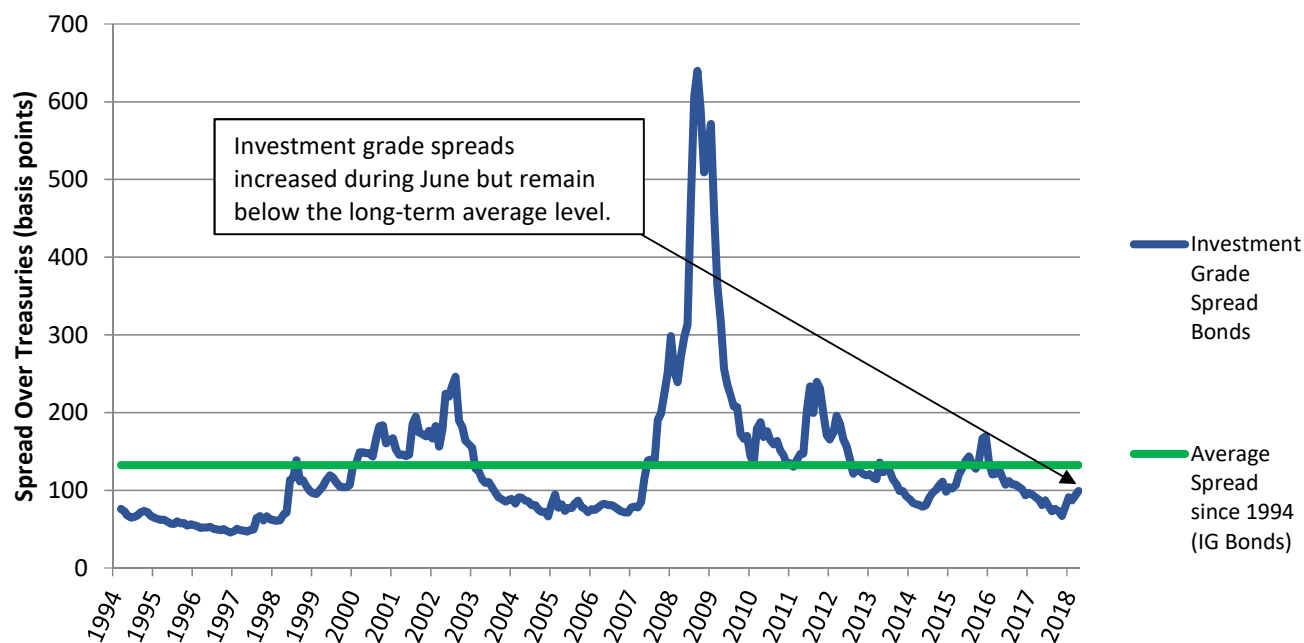
Private Real Estate

Quarterly Data, Updated to March 31st.



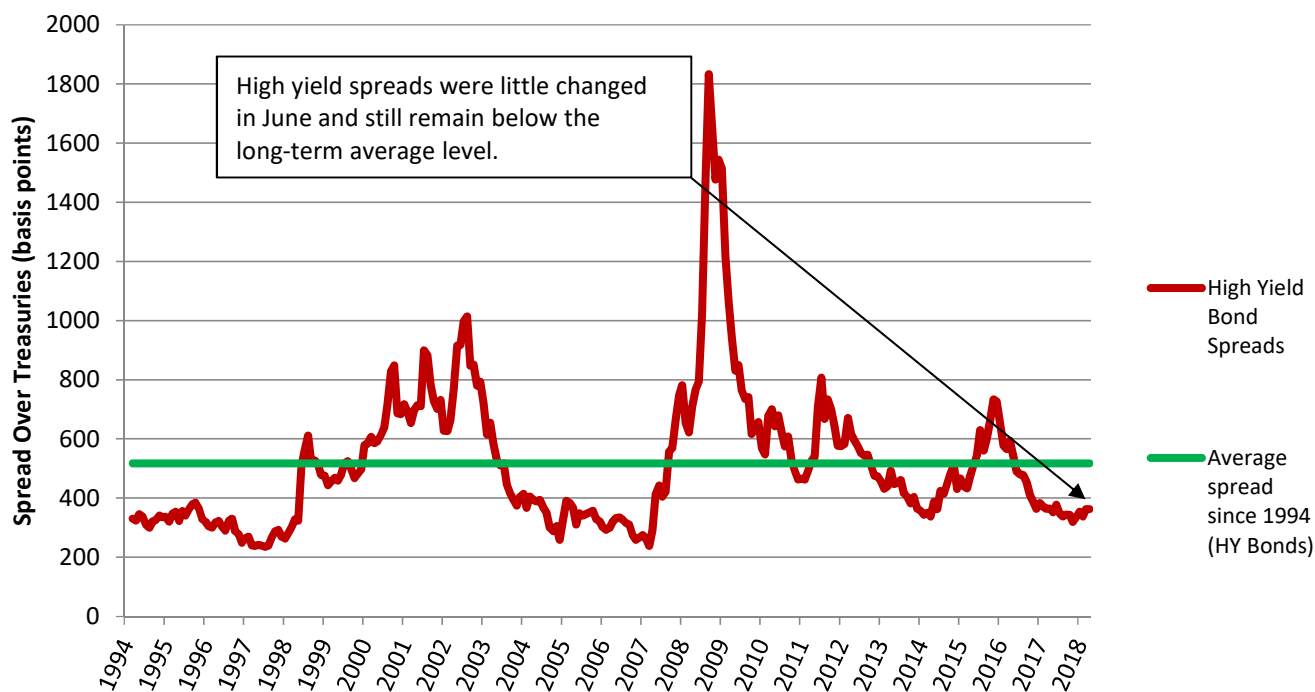
Credit Market US Fixed Income

Investment Grade Corporate Bond Spreads



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

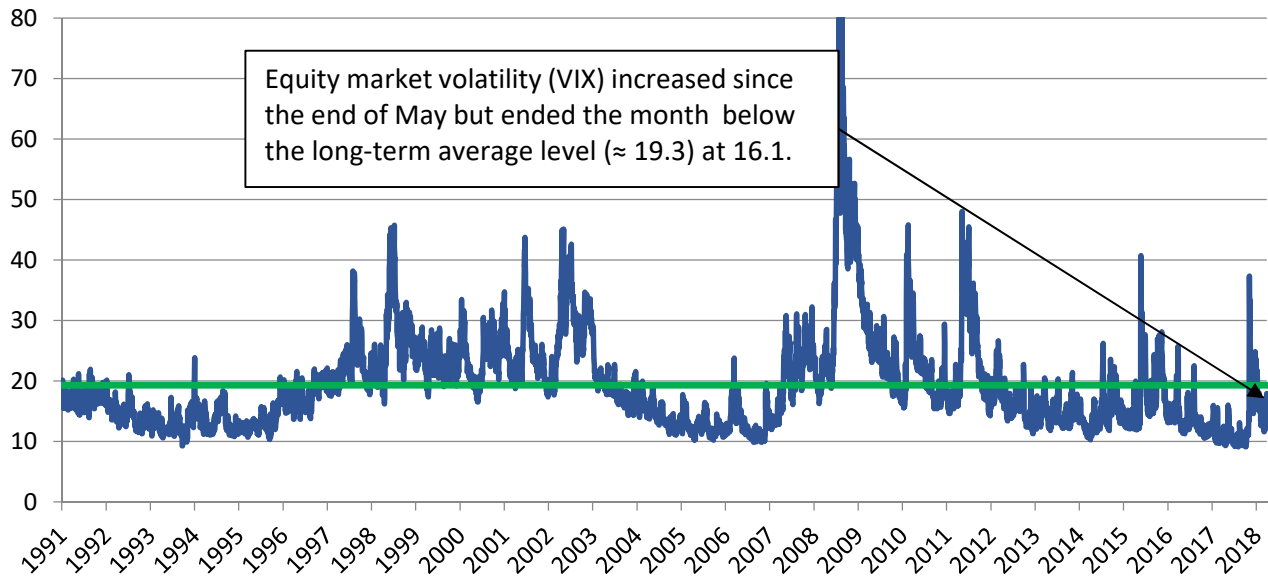
High Yield Corporate Bond Spreads



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

Other Market Metrics

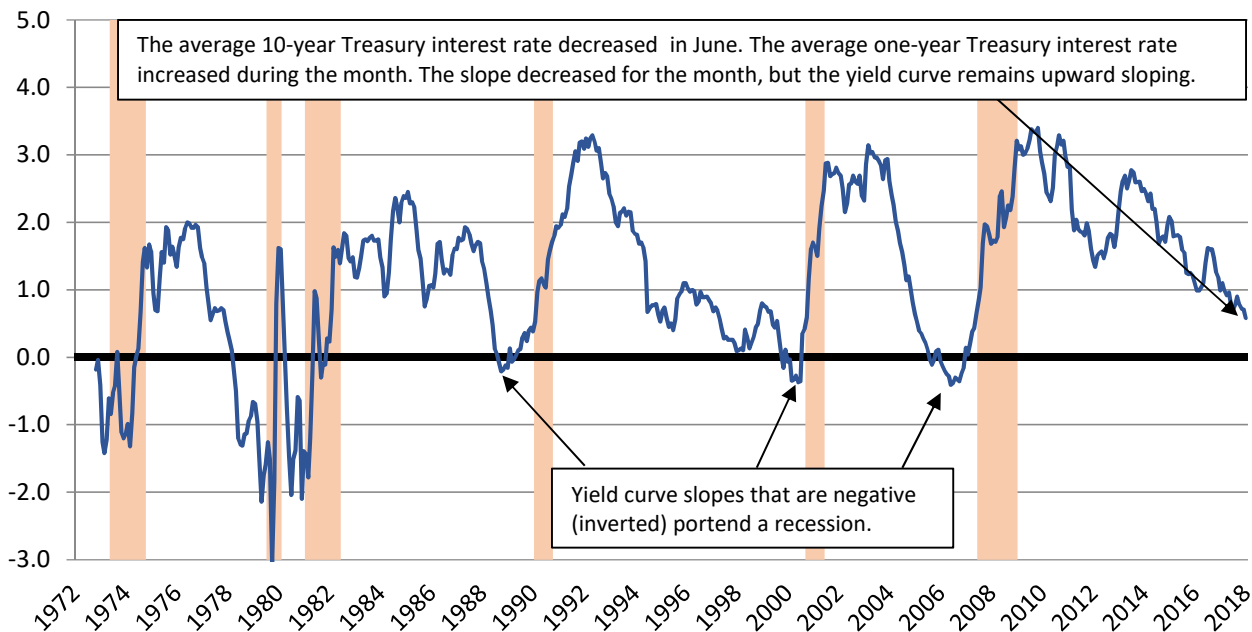
VIX - a measure of equity market fear / uncertainty



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

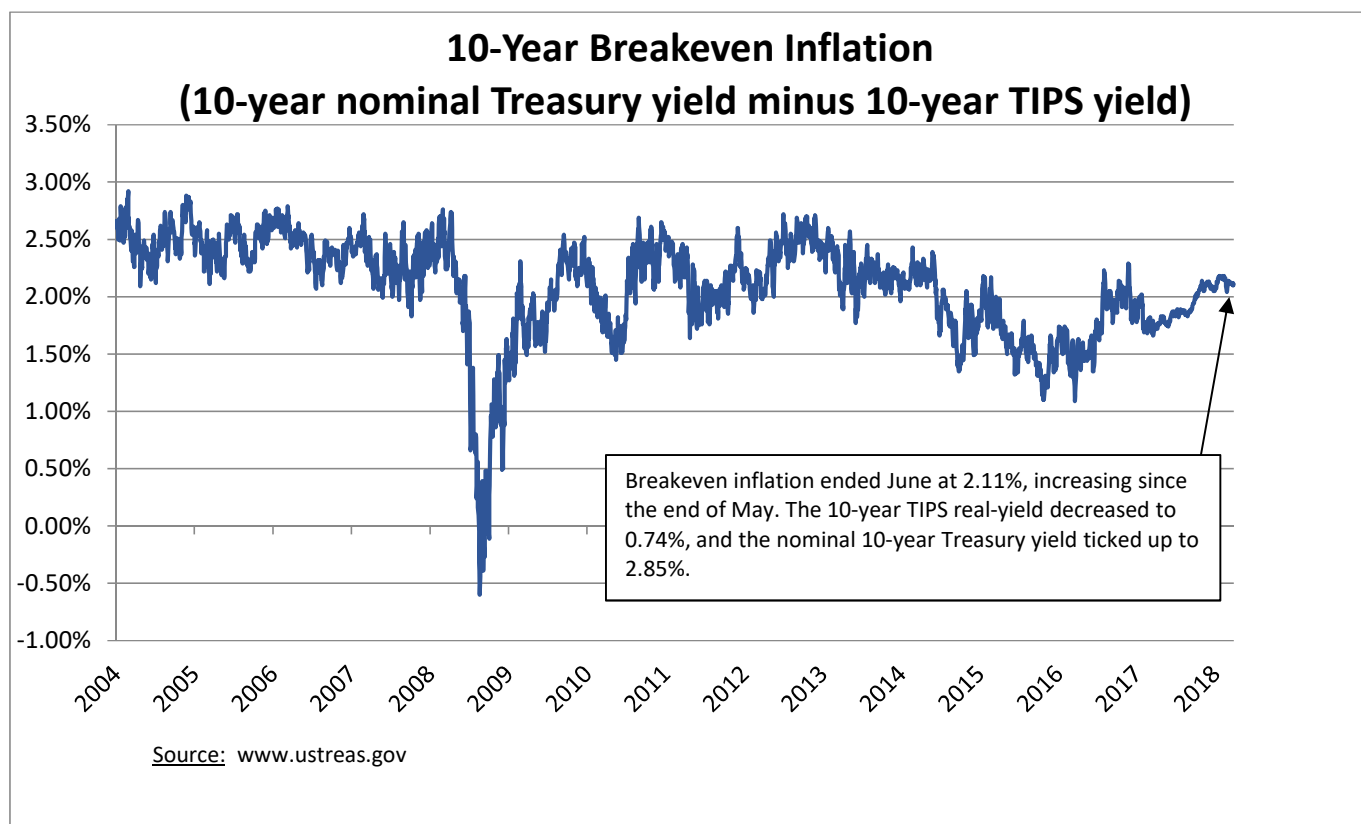
(Please note the difference in time scales)

Yield Curve Slope

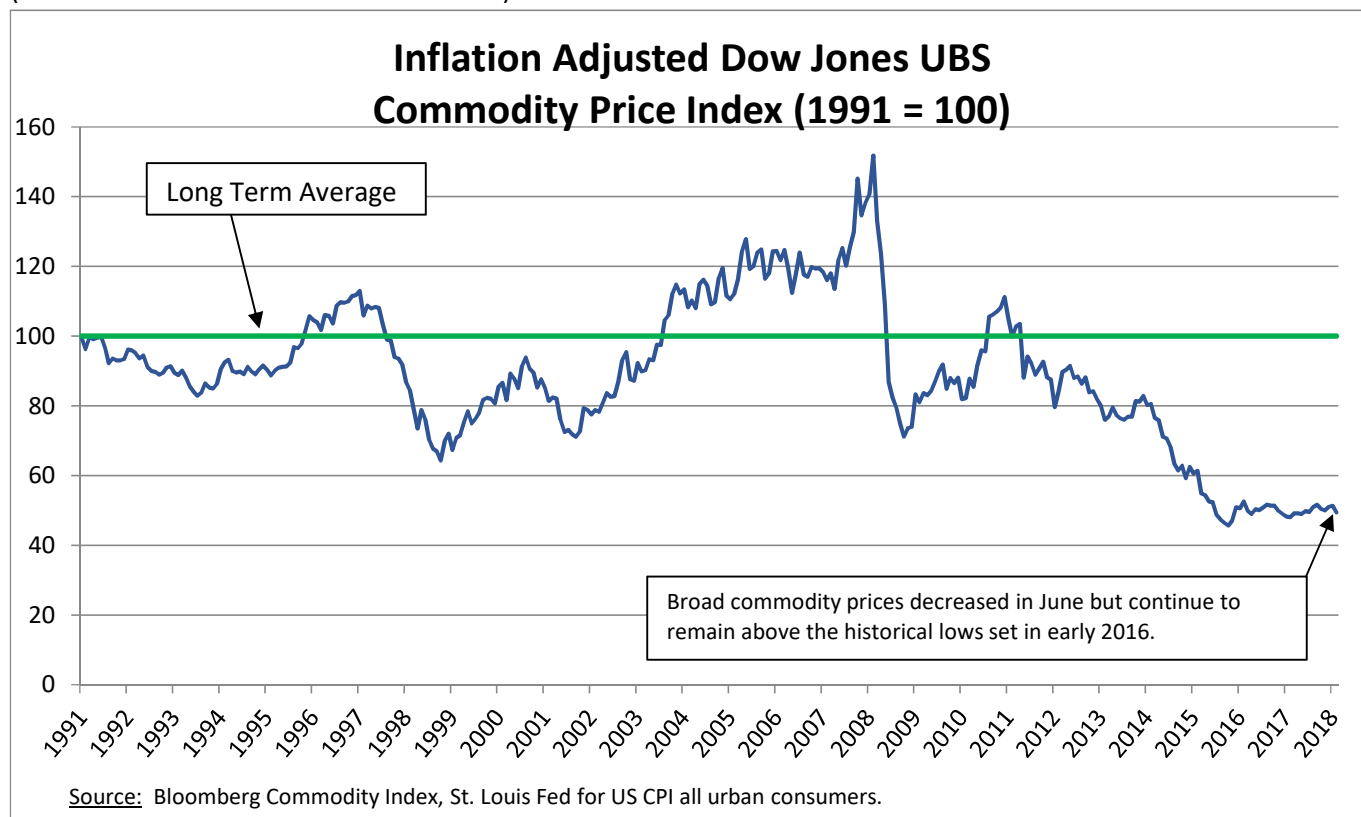


Source: www.ustreas.gov (10 yr treasury yield minus 1 year treasury yield)

Measures of Inflation Expectations

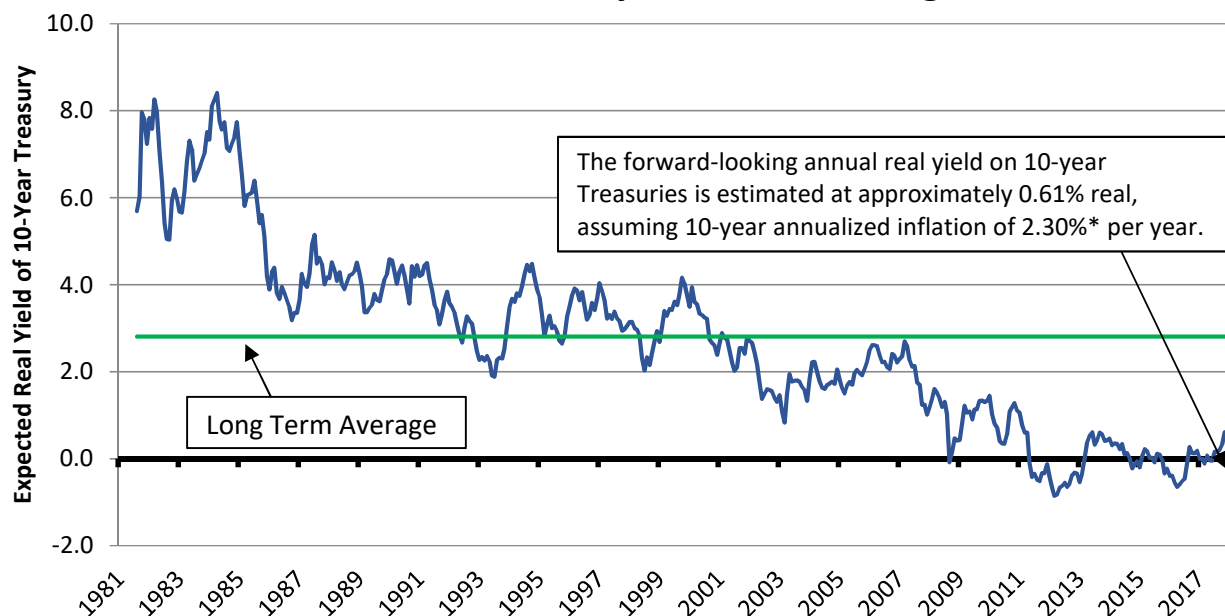


(Please note the difference in time scales)



Measures of U.S. Treasury Interest Rate Risk

Estimate of 10-Year Treasury Forward-Looking Real Yield

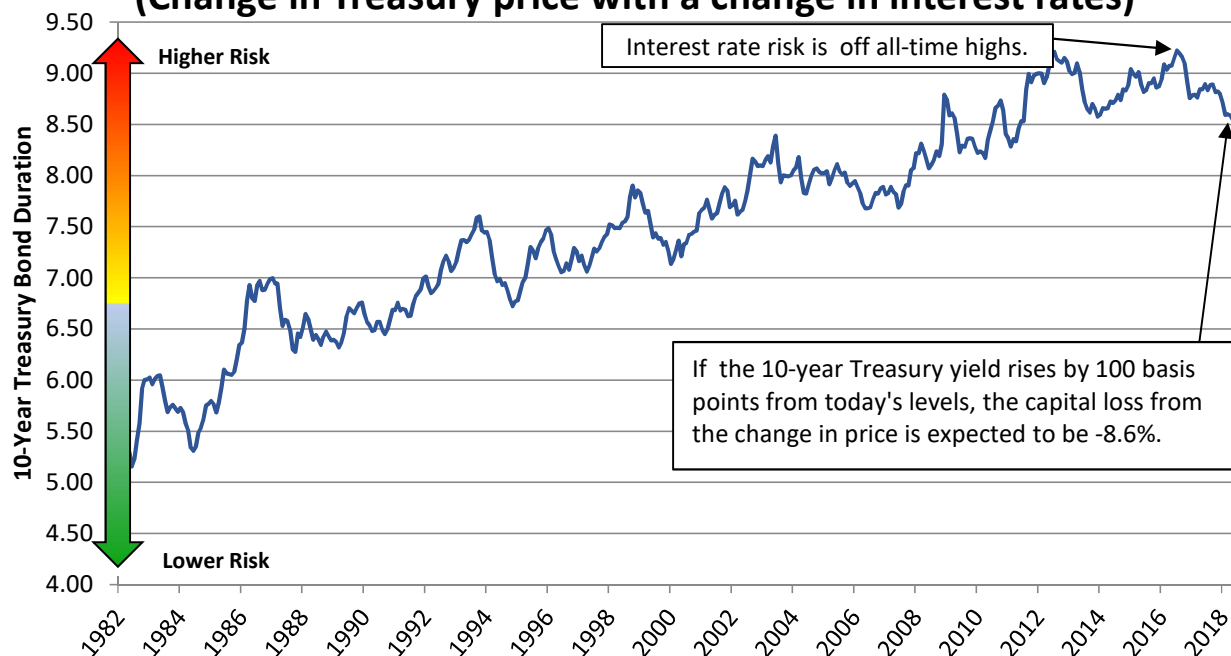


Sources: www.ustreas.gov for 10-year constant maturity rates

*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 for 10-year constant maturity rates, calculation of duration

Appendix

Appendix

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

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

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:

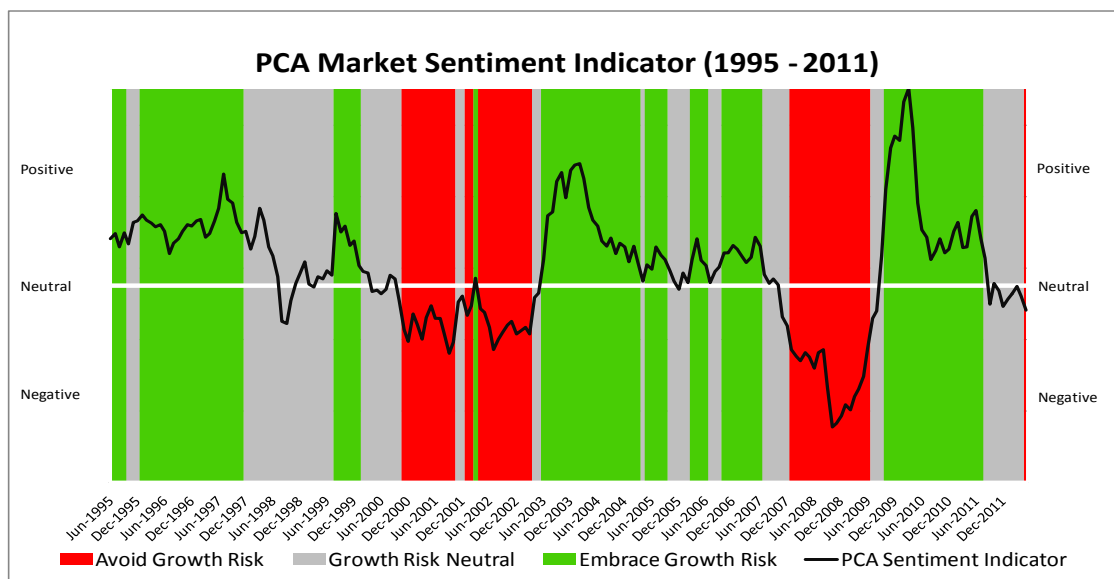
What is the PCA Market Sentiment Indicator (PMSI)?

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

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.

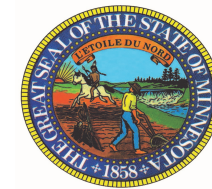
ⁱ Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.

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

TAB

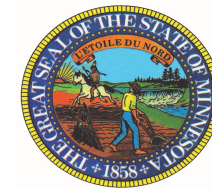
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Comprehensive Performance Report

June 30, 2018



Description of SBI Investment Programs

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

Combined Funds

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

Participant Directed Investment Program

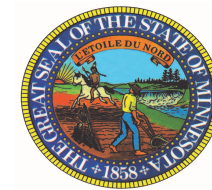
The Participant Directed Investment Program (PDIP) provides investment vehicles for a variety of retirement or other tax-advantaged savings plans. Investment goals among the PDIP's many participants are varied. In order to meet the variety of goals, participants may allocate their investments among one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

Non-Retirement

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

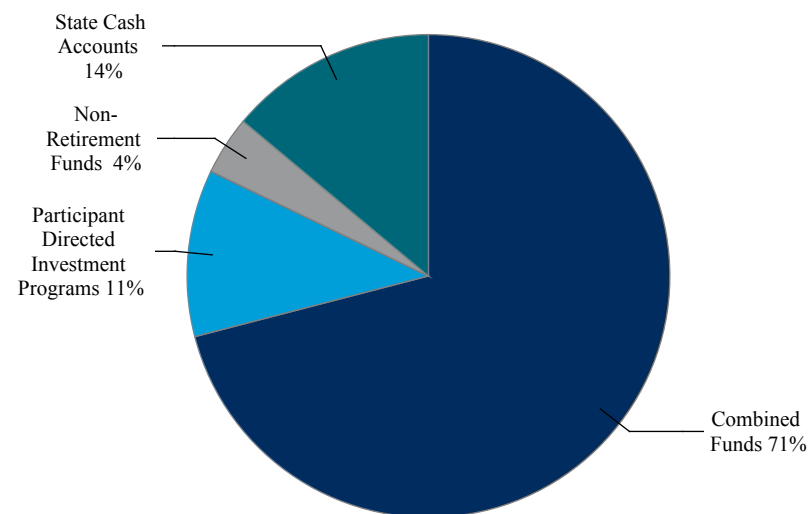
State Cash

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



Funds Under Management

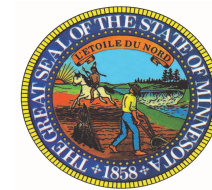
| | <u>\$ Millions</u> |
|---|--------------------|
| COMBINED FUNDS | |
| Combined Funds | \$68,288 |
| PARTICIPANT DIRECTED INVESTMENT PROGRAMS | |
| Supplemental Investment Fund* | 3,731 |
| State Deferred Compensation Plan** | 5,612 |
| Minnesota College Savings Plan | 1,422 |
| Achieve a Better Life Experience | 3 |
| NON-RETIREMENT FUNDS | |
| Assigned Risk Plan | 319 |
| Permanent School Fund | 1,391 |
| Environmental Trust Fund | 1,116 |
| Closed Landfill Investment Fund | 89 |
| Miscellaneous Trust Accounts | 236 |
| Other Post Employment Benefits Accounts | 636 |
| STATE CASH ACCOUNTS | |
| Treasurer's Cash | 13,124 |
| Other State Cash Accounts | 277 |
| TOTAL | |
| SBI AUM | 96,245 |



* 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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| Minnesota College Savings Plan | |
| Achieve a Better Life Experience | |
| Non-Retirement Funds | Page 85 |
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Performance Reporting Legend

Manager Level Data

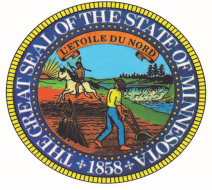
Aggregate Level Data

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 |

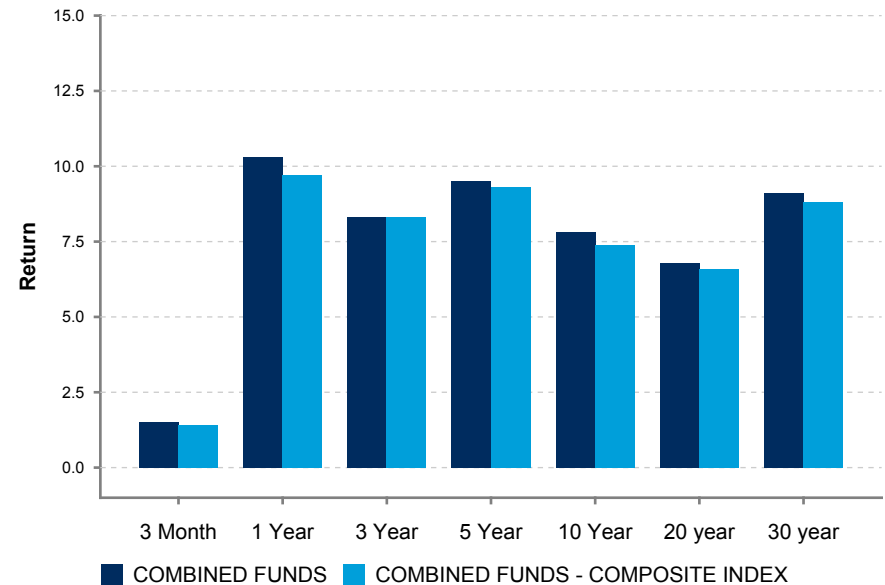
The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

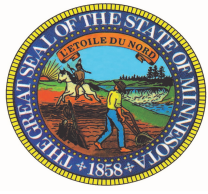
Performance (Net of Fees)

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



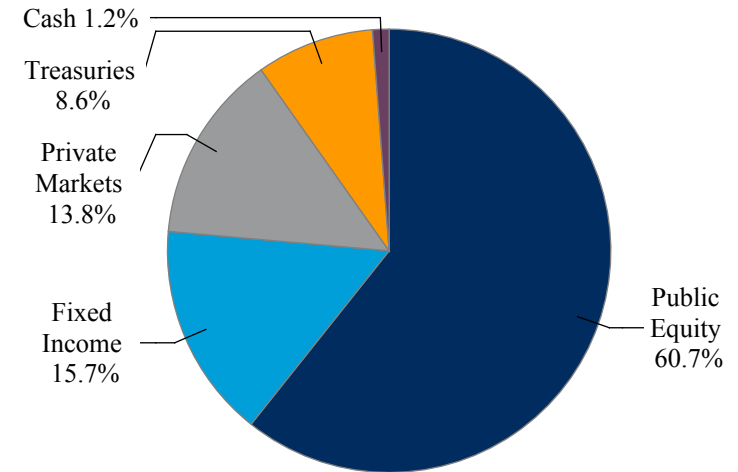


Combined Funds Summary

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.

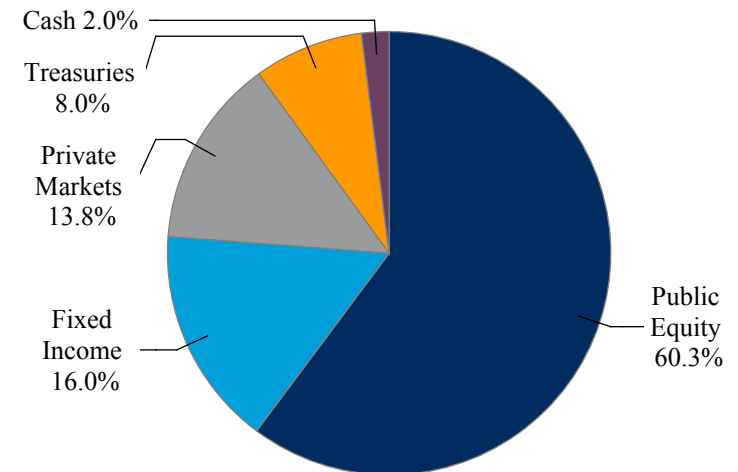
| | <u>(Millions)</u> | <u>Actual Mix</u> | <u>Policy Target</u> |
|-----------------|-------------------|-------------------|----------------------|
| Public Equity | \$41,430 | 60.7% | 49.0% |
| Fixed Income | 10,695 | 15.7% | 16.0% |
| Private Markets | 9,432 | 13.8% | 25.0% |
| Treasuries | 5,880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

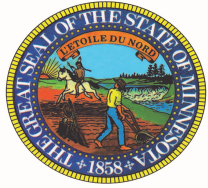


Composite Index Comparison

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

| | <u>Policy Weight</u> | <u>Market Index</u> |
|-----------------|----------------------|--------------------------------------|
| Public Equity | 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

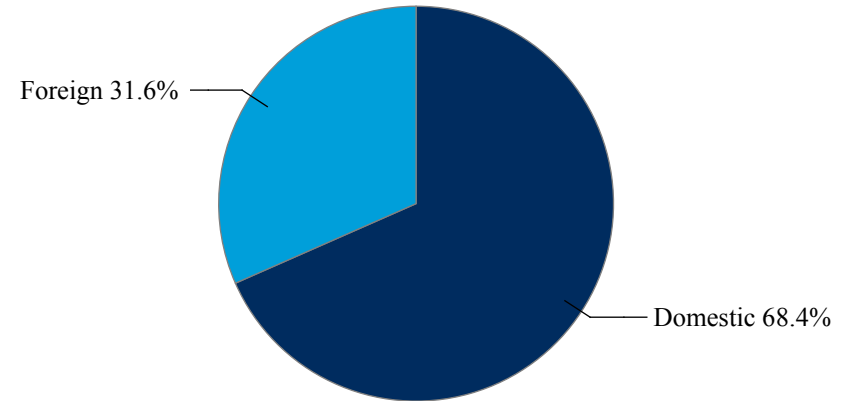
Public Equity

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 | | | | | | | |

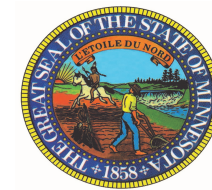
Cash

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.

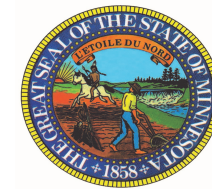
Resource Investments

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.

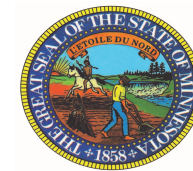
The performance information presented on the following pages for Public Equity and Fixed Income includes both the Combined Funds and Supplemental Investment Fund. The Private Markets is Combined Funds only. All assets in the Combined Funds are managed externally by investment management firms retained 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> |
|---|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| Total Domestic Equity | | | | | | | | | | |
| ACTIVE DOMESTIC EQUITY AGGREGATE (1) | \$4,874,690,373 | 16.5% | 6.9% | 19.7% | 19.7% | 11.8% | 14.0% | 10.3% | | |
| 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 | | |
| SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2) | 2,596,436,350 | 8.8 | 3.3 | 15.3 | 15.3 | 11.4 | 13.4 | 10.4 | | |
| 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 | | |
| PASSIVE DOMESTIC EQUITY AGGREGATE (3) | 22,025,233,661 | 74.7 | 3.7 | 14.6 | 14.6 | 11.5 | 13.3 | 10.2 | | |
| 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 | | | | | | | | |
| TOTAL DOMESTIC EQUITY (5) | 29,500,340,900 | 100.0 | 4.2 | 15.4 | 15.4 | 11.3 | 13.3 | 10.2 | 10.5 | 01/1984 |
| 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.

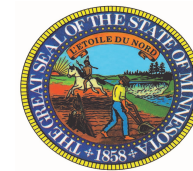
(2) The current Semi-Passive Domestic Equity Benchmark is the Russell 1000 index.

(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> |
|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Total Domestic Equity | | | | | |
| ACTIVE DOMESTIC EQUITY AGGREGATE (1) | 20.6% | 10.9% | -0.4% | 9.3% | 40.2% |
| 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 |
| SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2) | 22.5 | 11.1 | 0.5 | 14.2 | 33.2 |
| 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 |
| PASSIVE DOMESTIC EQUITY AGGREGATE (3) | 21.3 | 12.6 | 0.5 | 12.6 | 33.5 |
| 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) | | | | | |
| TOTAL DOMESTIC EQUITY (5) | 21.4% | 11.5 | 0.3 | 12.3 | 35.1 |
| 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> |
|--------------------------------------|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| Active Large Cap Growth | | | | | | | | | | |
| SANDS | \$598,533,935 | 2.0% | 10.7% | 34.7% | 34.7% | 16.1% | 17.6% | 14.6% | 11.5% | 01/2005 |
| 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 | |
| WINSLOW | 240,227,799 | 0.8 | 7.6 | 28.2 | 28.2 | 15.1 | 16.9 | 11.4 | 10.9 | 01/2005 |
| 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 | |
| ZEVENBERGEN | 567,078,300 | 1.9 | 14.2 | 34.2 | 34.2 | 16.6 | 18.6 | 13.4 | 11.2 | 04/1994 |
| 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 | |
| RUSSELL 1000 GROWTH AGGREGATE | 1,405,840,034 | 4.8 | 11.6 | 33.3 | 33.3 | 17.9 | 18.6 | 13.0 | | |
| 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> |
|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Active Large Cap Growth | | | | | |
| SANDS | 35.3% | -6.9% | 2.9% | 9.1% | 42.4% |
| Russell 1000 Growth | 30.2 | 7.1 | 5.7 | 13.0 | 33.5 |
| Excess | 5.1 | -13.9 | -2.8 | -3.9 | 8.9 |
| WINSLOW | 33.2 | -1.9 | 6.7 | 11.0 | 37.4 |
| Russell 1000 Growth | 30.2 | 7.1 | 5.7 | 13.0 | 33.5 |
| Excess | 3.0 | -9.0 | 1.0 | -2.0 | 3.9 |
| ZEVENBERGEN | 35.1 | -2.8 | 6.4 | 3.4 | 60.6 |
| Russell 1000 Growth | 30.2 | 7.1 | 5.7 | 13.0 | 33.5 |
| Excess | 4.9 | -9.9 | 0.7 | -9.6 | 27.1 |
| RUSSELL 1000 GROWTH AGGREGATE | 33.4% | 1.0 | 4.6 | 9.6 | 42.0 |
| 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> |
|-------------------------------------|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| Active Large Cap Value | | | | | | | | | | |
| BARROW HANLEY | \$382,287,559 | 1.3% | 3.3% | 8.3% | 8.3% | 7.8% | 10.6% | 8.9% | 8.0% | 04/2004 |
| 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 | |
| EARNEST PARTNERS | 272,999,395 | 0.9 | 1.4 | 12.9 | 12.9 | 10.0 | 12.2 | 9.1 | 7.0 | 07/2000 |
| 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 | |
| LSV | 419,135,723 | 1.4 | 0.0 | 11.9 | 11.9 | 9.5 | 12.5 | 10.1 | 9.2 | 04/2004 |
| 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 | |
| RUSSELL 1000 VALUE AGGREGATE | 1,074,422,677 | 3.6 | 1.5 | 10.9 | 10.9 | 8.7 | 11.4 | 9.0 | | |
| 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> |
|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Active Large Cap Value | | | | | |
| BARROW HANLEY | 14.6% | 12.8% | -2.1% | 13.0% | 35.5% |
| Russell 1000 Value | 13.7 | 17.3 | -3.8 | 13.5 | 32.5 |
| Excess | 0.9 | -4.5 | 1.7 | -0.5 | 3.0 |
| EARNEST PARTNERS | 19.9 | 16.2 | -2.7 | 14.0 | 32.0 |
| Russell 1000 Value | 13.7 | 17.3 | -3.8 | 13.5 | 32.5 |
| Excess | 6.2 | -1.1 | 1.1 | 0.5 | -0.5 |
| LSV | 18.6 | 17.0 | -2.2 | 14.0 | 41.2 |
| Russell 1000 Value | 13.7 | 17.3 | -3.8 | 13.5 | 32.5 |
| Excess | 4.9 | -0.4 | 1.6 | 0.6 | 8.7 |
| RUSSELL 1000 VALUE AGGREGATE | 17.3% | 15.3 | -3.2 | 13.1 | 36.5 |
| Russell 1000 Value | 13.7% | 17.3 | -3.8 | 13.5 | 32.5 |
| Excess | 3.7% | -2.1 | 0.6 | -0.4 | 3.9 |



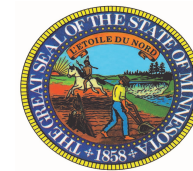
| | <u>Ending Market Value</u> | <u>Portfolio Weight</u> | <u>Last Qtr</u> | <u>Fiscal YTD</u> | <u>1 Year</u> | <u>3 Year</u> | <u>5 Year</u> | <u>10 Year</u> | <u>Since Inception</u> | <u>Inception Date</u> |
|---|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| Semi-Passive Large Cap | | | | | | | | | | |
| BLACKROCK | \$1,060,666,411 | 3.6% | 3.2% | 17.3% | 17.3% | 12.8% | 14.4% | 10.6% | 10.0% | 01/1995 |
| 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 | |
| J.P. MORGAN | 1,535,769,939 | 5.2 | 3.4 | 14.0 | 14.0 | 11.5 | 13.6 | 10.9 | 9.8 | 01/1995 |
| 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 | |
| SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE | 2,596,436,350 | 8.8 | 3.3 | 15.3 | 15.3 | 11.4 | 13.4 | 10.4 | | |
| 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> |
|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Semi-Passive Large Cap | | | | | |
| BLACKROCK | 24.6% | 12.5% | 0.8% | 14.2% | 33.3% |
| 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 |
| J.P. MORGAN | | | | | |
| J.P. MORGAN | 21.8 | 12.3 | 0.8 | 15.0 | 33.7 |
| 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 |
| SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE | | | | | |
| SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE | 22.5% | 11.1 | 0.5 | 14.2 | 33.2 |
| 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> |
|--------------------------------------|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| Active Small Cap Growth | | | | | | | | | | |
| ARROWMARK | \$235,548,264 | 0.8% | 10.4% | 27.1% | 27.1% | | | | 30.9% | 11/2016 |
| Russell 2000 Growth | | | 7.2 | 21.9 | 21.9 | | | | 26.6 | 11/2016 |
| Excess | | | 3.2 | 5.2 | 5.2 | | | | 4.3 | |
| HOOD RIVER | 253,574,375 | 0.9 | 8.2 | 16.5 | 16.5 | | | | 24.9 | 11/2016 |
| Russell 2000 Growth | | | 7.2 | 21.9 | 21.9 | | | | 26.6 | 11/2016 |
| Excess | | | 0.9 | -5.4 | -5.4 | | | | -1.7 | |
| RICE HALL JAMES | 246,064,871 | 0.8 | 6.5 | 28.3 | 28.3 | | | | 34.4 | 11/2016 |
| Russell 2000 Growth | | | 7.2 | 21.9 | 21.9 | | | | 26.6 | 11/2016 |
| Excess | | | -0.7 | 6.4 | 6.4 | | | | 7.8 | |
| WELLINGTON | 258,133,818 | 0.9 | 6.0 | 19.0 | 19.0 | | | | 26.2 | 11/2016 |
| Russell 2000 Growth | | | 7.2 | 21.9 | 21.9 | | | | 26.6 | 11/2016 |
| Excess | | | -1.3 | -2.9 | -2.9 | | | | -0.4 | |
| RUSSELL 2000 GROWTH AGGREGATE | 993,321,329 | 3.4 | 7.7 | 22.1 | 22.1 | 8.5 | 11.6 | 8.5 | | |
| 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> |
|--------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Active Small Cap Growth | | | | | |
| ARROWMARK | 26.2% | | | | |
| Russell 2000 Growth | 22.2 | | | | |
| Excess | 4.1 | | | | |
| HOOD RIVER | 21.3 | | | | |
| Russell 2000 Growth | 22.2 | | | | |
| Excess | -0.9 | | | | |
| RICE HALL JAMES | 27.9 | | | | |
| Russell 2000 Growth | 22.2 | | | | |
| Excess | 5.8 | | | | |
| WELLINGTON | 22.6 | | | | |
| Russell 2000 Growth | 22.2 | | | | |
| Excess | 0.4 | | | | |
| RUSSELL 2000 GROWTH AGGREGATE | 22.0% | 4.7 | 1.0 | -3.4 | 47.2 |
| 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> |
|-------------------------------------|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| Active Small Cap Value | | | | | | | | | | |
| GOLDMAN SACHS | \$371,176,649 | 1.3% | 3.8% | 12.2% | 12.2% | 9.6% | 11.8% | 11.7% | 10.0% | 01/2004 |
| 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 | |
| HOTCHKIS AND WILEY | 326,297,788 | 1.1 | 9.1 | 13.4 | 13.4 | 7.0 | 11.5 | 12.1 | 9.0 | 01/2004 |
| 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 | |
| MARTINGALE | 309,405,915 | 1.0 | 6.1 | 12.6 | 12.6 | 11.3 | 13.1 | 10.5 | 8.6 | 01/2004 |
| 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 | |
| PEREGRINE | 394,225,982 | 1.3 | 6.1 | 16.0 | 16.0 | 10.5 | 11.4 | 11.6 | 10.8 | 07/2000 |
| 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 | |
| RUSSELL 2000 VALUE AGGREGATE | 1,401,106,333 | 4.7 | 6.2 | 13.6 | 13.6 | 9.6 | 11.8 | 11.4 | | |
| 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> |
|-------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Active Small Cap Value | | | | | |
| GOLDMAN SACHS | 12.6% | 24.6% | -5.2% | 7.4% | 39.3% |
| Russell 2000 Value | 7.8 | 31.7 | -7.5 | 4.2 | 34.5 |
| Excess | 4.7 | -7.1 | 2.3 | 3.1 | 4.8 |
| HOTCHKIS AND WILEY | 7.9 | 19.9 | -8.5 | 13.0 | 46.0 |
| Russell 2000 Value | 7.8 | 31.7 | -7.5 | 4.2 | 34.5 |
| Excess | 0.0 | -11.8 | -1.0 | 8.8 | 11.5 |
| MARTINGALE | 6.9 | 34.3 | -5.2 | 7.3 | 43.1 |
| Russell 2000 Value | 7.8 | 31.7 | -7.5 | 4.2 | 34.5 |
| Excess | -0.9 | 2.5 | 2.3 | 3.1 | 8.5 |
| PEREGRINE | 12.5 | 27.8 | -6.7 | 4.1 | 37.3 |
| Russell 2000 Value | 7.8 | 31.7 | -7.5 | 4.2 | 34.5 |
| Excess | 4.7 | -3.9 | 0.8 | -0.1 | 2.8 |
| RUSSELL 2000 VALUE AGGREGATE | 10.2% | 26.5 | -6.5 | 7.5 | 40.8 |
| 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> |
|--|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| Total Passive Domestic Equity | | | | | | | | | | |
| BLACKROCK RUSSELL 1000 | \$12,600,546,083 | 42.7% | 3.6% | 14.5% | 14.5% | | | | 18.4% | 11/2016 |
| Russell 1000 | | | 3.6 | 14.5 | 14.5 | | | | 18.5 | 11/2016 |
| Excess | | | -0.0 | -0.0 | -0.0 | | | | -0.0 | |
| BLACKROCK RUSSELL 3000 (1) | 9,424,687,578 | 31.9 | 3.9 | 14.8 | 14.8 | 11.6% | 13.3% | 10.3% | 9.3 | 07/1995 |
| 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 | |
| PASSIVE DOMESTIC EQUITY AGGREGATE | 22,025,233,661 | 74.7 | 3.7 | 14.6 | 14.6 | 11.5 | 13.3 | 10.2 | | |
| 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> |
|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Total Passive Domestic Equity | | | | | |
| BLACKROCK RUSSELL 1000 | 21.7% | | | | |
| Russell 1000 | 21.7 | | | | |
| Excess | -0.0 | | | | |
| BLACKROCK RUSSELL 3000 (1) | 21.1 | 12.7% | 0.5% | 12.6% | 33.5% |
| Passive Manager Benchmark | 21.1 | 12.7 | 0.5 | 12.6 | 33.6 |
| Excess | 0.0 | 0.0 | 0.0 | 0.0 | -0.0 |
| PASSIVE DOMESTIC EQUITY AGGREGATE | 21.3% | 12.6 | 0.5 | 12.6 | 33.5 |
| 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 |

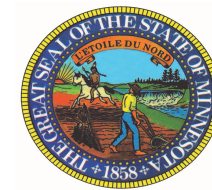
(1) The current Passive Manager Benchmark is the Russell 3000. For historical benchmark details please refer to the addendum of this report.

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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> |
|--|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| Total International Equity | | | | | | | | | | |
| DEVELOPED MARKETS (1) | \$10,091,941,311 | 75.8% | -0.4% | 7.8% | 7.8% | 5.3% | 6.9% | 3.4% | | |
| 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 | | |
| EMERGING MARKETS (2) | 3,218,923,800 | 24.2 | -8.3 | 6.8 | 6.8 | 5.1 | 4.4 | 1.8 | | |
| 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 | | | | | | | | |
| TOTAL INTERNATIONAL EQUITY (4) | 13,315,688,006 | 100.0 | -2.4 | 7.5 | 7.5 | 5.3 | 6.4 | 3.0 | 6.6 | 10/1992 |
| 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 | |

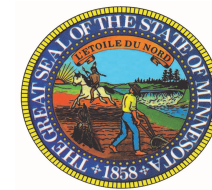
(1) The current benchmark for Developed Markets, Benchmark DM, is the Standard (large + mid) MSCI World ex USA (net).

(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> |
|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Total International Equity | | | | | |
| DEVELOPED MARKETS (1) | 24.9% | 1.3% | -0.3% | -4.1% | 23.3% |
| BENCHMARK DM | 24.2 | 2.7 | -3.0 | -4.3 | 21.0 |
| Excess | 0.7 | -1.5 | 2.8 | 0.2 | 2.2 |
| EMERGING MARKETS (2) | 37.7 | 7.5 | -13.1 | -3.8 | 0.2 |
| 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) | | | | | |
| TOTAL INTERNATIONAL EQUITY (4) | 27.6% | 2.6 | -2.9 | -4.0 | 17.8 |
| International Equity Benchmark | 27.2% | 4.5 | -5.7 | -3.9 | 15.3 |
| Excess | 0.4% | -1.8 | 2.8 | -0.2 | 2.5 |

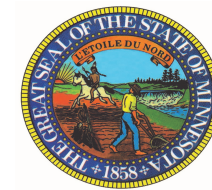
(1) The current benchmark for Developed Markets, Benchmark DM, is the Standard (large + mid) MSCI World ex USA (net).

(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).

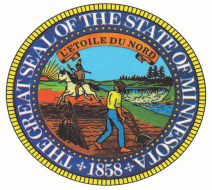
Note: All aggregates include the performance of terminated managers. For historical benchmark details please refer to the addendum of this report.



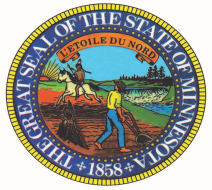
| | <u>Ending Market Value</u> | <u>Portfolio Weight</u> | <u>Last Qtr</u> | <u>Fiscal YTD</u> | <u>1 Year</u> | <u>3 Year</u> | <u>5 Year</u> | <u>10 Year</u> | <u>Since Inception</u> | <u>Inception Date</u> |
|---|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|-------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



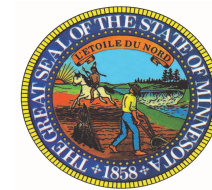
| | <u>2017 Calendar Return</u> | <u>2016 Calendar Return</u> | <u>2015 Calendar Return</u> | <u>2014 Calendar Return</u> | <u>2013 Calendar Return</u> |
|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|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



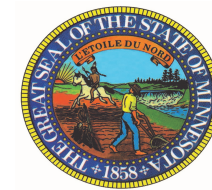
| | <u>Ending Market Value</u> | <u>Portfolio Weight</u> | <u>Last Qtr</u> | <u>Fiscal YTD</u> | <u>1 Year</u> | <u>3 Year</u> | <u>5 Year</u> | <u>10 Year</u> | <u>Since Inception</u> | <u>Inception Date</u> |
|---|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| Semi-Passive Developed Markets | | | | | | | | | | |
| 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 | | |



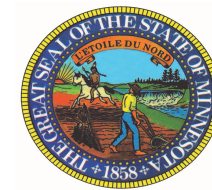
| | <u>2017 Calendar Return</u> | <u>2016 Calendar Return</u> | <u>2015 Calendar Return</u> | <u>2014 Calendar Return</u> | <u>2013 Calendar Return</u> |
|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Semi-Passive Developed Markets | | | | | |
| 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 |
| | | | | | |
| SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE | | | | | |
| BENCHMARK DM | 24.2% | 2.7 | -3.0 | -4.3 | 21.0 |
| Excess | -0.9% | -3.1 | 2.7 | -0.1 | 3.0 |



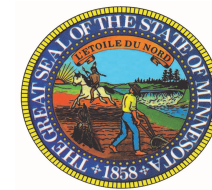
| | <u>Ending Market Value</u> | <u>Portfolio Weight</u> | <u>Last Qtr</u> | <u>Fiscal YTD</u> | <u>1 Year</u> | <u>3 Year</u> | <u>5 Year</u> | <u>10 Year</u> | <u>Since Inception</u> | <u>Inception Date</u> |
|---|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| Total Developed Markets | | | | | | | | | | |
| ACTIVE DEVELOPED MARKETS AGGREGATE | \$2,588,829,971 | 19.4% | 0.5% | 10.2% | 10.2% | 6.8% | 8.1% | 4.4% | | |
| 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 | | |
| 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 | | |
| SSgA DEVELOPED MARKETS PASSIVE | 7,098,814,495 | 53.3 | -0.5 | 7.3 | 7.3 | 5.3 | 6.7 | 3.0 | 6.3 | 10/1992 |
| 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 | |
| DEVELOPED MARKETS TOTAL | 10,091,941,311 | 75.8 | -0.4 | 7.8 | 7.8 | 5.3 | 6.9 | 3.4 | | |
| 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> |
|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Total Developed Markets | | | | | |
| ACTIVE DEVELOPED MARKETS AGGREGATE | 28.4% | -0.2% | 3.2% | -4.1% | 25.4% |
| BENCHMARK DM | 24.2 | 2.7 | -3.0 | -4.3 | 21.0 |
| Excess | 4.2 | -3.0 | 6.2 | 0.2 | 4.4 |
| SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE | 23.3 | -0.4 | -0.3 | -4.4 | 24.0 |
| BENCHMARK DM | 24.2 | 2.7 | -3.0 | -4.3 | 21.0 |
| Excess | -0.9 | -3.1 | 2.7 | -0.1 | 3.0 |
| SSgA DEVELOPED MARKETS PASSIVE | 24.7% | 3.2 | -2.6 | -3.9 | 21.4 |
| BENCHMARK DM | 24.2% | 2.7 | -3.0 | -4.3 | 21.0 |
| Excess | 0.5% | 0.4 | 0.5 | 0.4 | 0.4 |
| DEVELOPED MARKETS TOTAL | 24.9% | 1.3 | -0.3 | -4.1 | 23.3 |
| BENCHMARK DM | 24.2% | 2.7 | -3.0 | -4.3 | 21.0 |
| Excess | 0.7% | -1.5 | 2.8 | 0.2 | 2.2 |



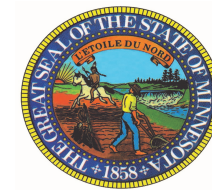
| | <u>Ending Market Value</u> | <u>Portfolio Weight</u> | <u>Last Qtr</u> | <u>Fiscal YTD</u> | <u>1 Year</u> | <u>3 Year</u> | <u>5 Year</u> | <u>10 Year</u> | <u>Since Inception</u> | <u>Inception Date</u> |
|--------------------------------|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| Active Emerging Markets | | | | | | | | | | |
| EARNEST PARTNERS | \$294,013,073 | 2.2% | -10.6% | 3.3% | 3.3% | | | | 9.2% | 04/2017 |
| MSCI EMERGING MARKETS | | | -8.0 | 8.2 | 8.2 | | | | 11.8 | 04/2017 |
| Excess | | | -2.7 | -4.9 | -4.9 | | | | -2.7 | |
| MARTIN CURRIE | 337,146,705 | 2.5 | -6.3 | 14.5 | 14.5 | | | | 19.3 | 04/2017 |
| BENCHMARK EM | | | -8.0 | 8.2 | 8.2 | | | | 11.8 | 04/2017 |
| Excess | | | 1.7 | 6.3 | 6.3 | | | | 7.4 | |
| MACQUARIE | 314,583,393 | 2.4 | -6.5 | 8.1 | 8.1 | | | | 12.5 | 04/2017 |
| BENCHMARK EM | | | -8.0 | 8.2 | 8.2 | | | | 11.8 | 04/2017 |
| Excess | | | 1.5 | -0.1 | -0.1 | | | | 0.7 | |
| MORGAN STANLEY | 597,481,355 | 4.5 | -10.3 | 3.3 | 3.3 | 4.7% | 4.4% | 2.6% | 9.7 | 01/2001 |
| 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 | |
| NEUBERGER BERMAN | 318,332,098 | 2.4 | -7.9 | 10.0 | 10.0 | | | | 13.8 | 04/2017 |
| BENCHMARK EM | | | -8.0 | 8.2 | 8.2 | | | | 11.8 | 04/2017 |
| Excess | | | 0.1 | 1.8 | 1.8 | | | | 1.9 | |
| PZENA | 289,632,118 | 2.2 | -7.2 | 2.1 | 2.1 | | | | 6.3 | 04/2017 |
| BENCHMARK EM | | | -8.0 | 8.2 | 8.2 | | | | 11.8 | 04/2017 |
| Excess | | | 0.7 | -6.1 | -6.1 | | | | -5.5 | |
| ROCK CREEK | 297,329,810 | 2.2 | -8.2 | 5.0 | 5.0 | | | | 8.4 | 04/2017 |
| 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> |
|--------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Active Emerging Markets | | | | | |
| EARNEST PARTNERS | | | | | |
| MSCI EMERGING MARKETS | | | | | |
| Excess | | | | | |
| MARTIN CURRIE | | | | | |
| BENCHMARK EM | | | | | |
| Excess | | | | | |
| MACQUARIE | | | | | |
| BENCHMARK EM | | | | | |
| Excess | | | | | |
| MORGAN STANLEY | 37.9% | 6.1% | -9.4% | -2.5% | 0.5% |
| BENCHMARK EM | 37.3 | 11.2 | -14.9 | -2.2 | -2.6 |
| Excess | 0.6 | -5.1 | 5.5 | -0.3 | 3.1 |
| NEUBERGER BERMAN | | | | | |
| BENCHMARK EM | | | | | |
| Excess | | | | | |
| PZENA | | | | | |
| BENCHMARK EM | | | | | |
| Excess | | | | | |
| ROCK CREEK | | | | | |
| 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> |
|--|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| Total Emerging Markets | | | | | | | | | | |
| ACTIVE EMERGING MARKETS AGGREGATE | \$2,448,518,552 | 18.4% | -8.4% | 6.2% | 6.2% | 4.3% | 3.8% | 1.6% | | |
| 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 | | |
| | | | | | | | | | | |
| SSGA EMERGING MARKETS PASSIVE | 770,405,248 | 5.8 | -7.9 | 8.2 | 8.2 | 5.7 | 5.2 | | 5.0 | 01/2012 |
| 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 | |
| | | | | | | | | | | |
| EMERGING MARKETS TOTAL | 3,218,923,800 | 24.2 | -8.3 | 6.8 | 6.8 | 5.1 | 4.4 | 1.8 | | |
| 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 | | |



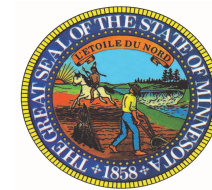
| | <u>2017 Calendar Return</u> | <u>2016 Calendar Return</u> | <u>2015 Calendar Return</u> | <u>2014 Calendar Return</u> | <u>2013 Calendar Return</u> |
|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Total Emerging Markets | | | | | |
| ACTIVE EMERGING MARKETS AGGREGATE | 37.2% | 5.3% | -12.7% | -4.1% | 0.6% |
| BENCHMARK EM | 37.3 | 11.2 | -14.9 | -2.2 | -2.6 |
| Excess | -0.1 | -5.9 | 2.2 | -2.0 | 3.2 |
| SSGA EMERGING MARKETS PASSIVE | | | | | |
| BENCHMARK EM | 37.3% | 11.2 | -14.9 | -2.2 | -2.6 |
| Excess | 0.1% | -0.1 | 0.3 | 0.0 | 0.1 |
| EMERGING MARKETS TOTAL | | | | | |
| 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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Fixed Income

June 30, 2018

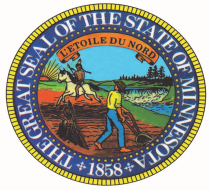


| | <u>Ending Market Value</u> | <u>Portfolio Weight</u> | <u>Last Qtr</u> | <u>Fiscal YTD</u> | <u>1 Year</u> | <u>3 Year</u> | <u>5 Year</u> | <u>10 Year</u> | <u>Since Inception</u> | <u>Inception Date</u> |
|--|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| Total Fixed Income | | | | | | | | | | |
| ACTIVE FIXED INCOME AGGREGATE | \$5,495,207,171 | 49.7% | -0.1% | 0.4% | 0.4% | 2.7% | 3.1% | 4.7% | | |
| 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 | | |
| SEMI PASSIVE FIXED INCOME AGGREGATE | 5,565,016,233 | 50.3 | -0.1 | -0.2 | -0.2 | 1.9 | 2.5 | 4.1 | | |
| 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 | | | | | | | | |
| TOTAL FIXED INCOME (2) | 11,060,241,579 | 100.0 | -0.1 | 0.1 | 0.1 | 2.3 | 2.8 | 4.4 | 7.5 | 07/1984 |
| 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> |
|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Total Fixed Income | | | | | |
| ACTIVE FIXED INCOME AGGREGATE | 4.7% | 4.4% | 0.6% | 6.2% | -0.8% |
| 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 |
| SEMI PASSIVE FIXED INCOME AGGREGATE | 3.7 | 2.8 | 0.8 | 6.1 | -1.8 |
| 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) | | | | | |
| TOTAL FIXED INCOME (2) | 4.2% | 3.6 | 0.7 | 6.1 | -1.3 |
| 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.

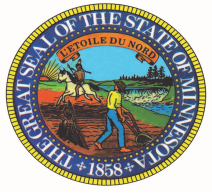
Note: All aggregates include the performance of terminated managers. Inception refers to the date of retention by the SBI.



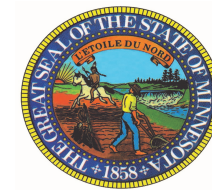
| | <u>Ending Market Value</u> | <u>Portfolio Weight</u> | <u>Last Qtr</u> | <u>Fiscal YTD</u> | <u>1 Year</u> | <u>3 Year</u> | <u>5 Year</u> | <u>10 Year</u> | <u>Since Inception</u> | <u>Inception Date</u> |
|--------------------------------------|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| Active Fixed Income Managers | | | | | | | | | | |
| COLUMBIA | \$1,169,333,831 | 10.6% | 0.2% | 0.7% | 0.7% | 2.8% | 3.1% | 4.5% | 5.3% | 07/1993 |
| 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 | |
| DODGE & COX | 1,655,889,421 | 15.0 | -0.2 | 0.6 | 0.6 | 2.7 | 3.2 | 5.1 | 5.9 | 02/2000 |
| 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 | |
| PIMCO | 1,075,716,024 | 9.7 | 0.1 | 0.2 | 0.2 | 2.0 | 2.5 | | 5.3 | 10/2008 |
| 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 | |
| WESTERN | 1,594,267,896 | 14.4 | -0.3 | 0.4 | 0.4 | 3.1 | 3.5 | 5.1 | 8.3 | 07/1984 |
| 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 | |
| ACTIVE FIXED INCOME AGGREGATE | 5,495,207,171 | 49.7 | -0.1 | 0.4 | 0.4 | 2.7 | 3.1 | 4.7 | | |
| 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> |
|--------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Active Fixed Income Managers | | | | | |
| COLUMBIA | 4.8% | 5.2% | 0.2% | 5.8% | -1.0% |
| 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 |
| DODGE & COX | | 4.8 | 0.3 | 6.0 | 0.9 |
| BBG BARC Agg (Dly) | 3.5 | 2.6 | 0.5 | 6.0 | -2.0 |
| Excess | | 2.2 | -0.3 | 0.0 | 3.0 |
| PIMCO | 4.4 | 2.8 | 1.0 | 5.5 | -1.3 |
| 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 |
| WESTERN | 5.6 | 4.9 | 0.7 | 7.0 | -1.4 |
| 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 |
| ACTIVE FIXED INCOME AGGREGATE | 4.7% | 4.4 | 0.6 | 6.2 | -0.8 |
| 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> |
|---|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| Semi Passive Fixed Income Managers | | | | | | | | | | |
| BLACKROCK | \$1,659,035,471 | 15.0% | -0.1% | -0.4% | -0.4% | 1.8% | 2.4% | 3.7% | 5.1% | 04/1996 |
| 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 | |
| GOLDMAN SACHS | 2,084,495,180 | 18.8 | 0.0 | 0.0 | 0.0 | 2.0 | 2.6 | 4.2 | 5.5 | 07/1993 |
| 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 | |
| NEUBERGER | 1,821,485,583 | 16.5 | -0.1 | -0.4 | -0.4 | 1.8 | 2.4 | 4.3 | 6.3 | 07/1988 |
| 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 | |
| SEMI PASSIVE FIXED INCOME | 5,565,016,233 | 50.3 | -0.1 | -0.2 | -0.2 | 1.9 | 2.5 | 4.1 | | |
| 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 | | |



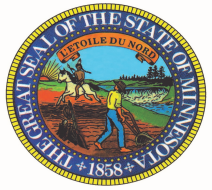
| | <u>2017 Calendar Return</u> | <u>2016 Calendar Return</u> | <u>2015 Calendar Return</u> | <u>2014 Calendar Return</u> | <u>2013 Calendar Return</u> |
|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Semi Passive Fixed Income Managers | | | | | |
| BLACKROCK | 3.7% | 2.8% | 0.9% | 6.0% | -1.8% |
| 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 |
| GOLDMAN SACHS | 3.9 | 3.0 | 0.8 | 6.1 | -1.7 |
| 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 |
| NEUBERGER | 3.6 | 2.7 | 0.7 | 6.1 | -2.0 |
| 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 |
| SEMI PASSIVE FIXED INCOME | 3.7% | 2.8 | 0.8 | 6.1 | -1.8 |
| 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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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> |
|----------------------------------|----------------------------|-------------------------|-----------------|-------------------|---------------|---------------|---------------|----------------|------------------------|-----------------------|
| Treasuries Managers | | | | | | | | | | |
| BLACKROCK | \$1,961,037,073 | 33.4% | 0.1% | | | | | | 0.2% | 02/2018 |
| BBG BARC 5Y + Us Tsy Idx | | | 0.1 | | | | | | 0.3 | 02/2018 |
| Excess | | | 0.0 | | | | | | -0.0 | |
| GOLDMAN SACHS | 1,948,915,608 | 33.1 | 0.1 | | | | | | 0.3 | 02/2018 |
| BBG BARC 5Y + Us Tsy Idx | | | 0.1 | | | | | | 0.3 | 02/2018 |
| Excess | | | 0.1 | | | | | | 0.0 | |
| NEUBERGER | 1,970,070,483 | 33.5 | 0.1 | | | | | | 0.2 | 02/2018 |
| 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 |
| TOTAL TREASURIES | 5,880,054,690 | 100.0 | 0.2 | | | | | | 0.3% | 02/2018 |
| BBG BARC 5Y + Us Tsy Idx | | | 0.1 | | | | | | 0.3% | 02/2018 |
| Excess | | | 0.2 | | | | | | -0.0% | |



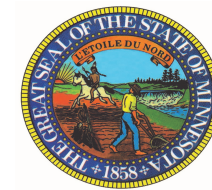
| | <u>2017 Calendar Return</u> | <u>2016 Calendar Return</u> | <u>2015 Calendar Return</u> | <u>2014 Calendar Return</u> | <u>2013 Calendar Return</u> |
|----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|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

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Private Markets

June 30, 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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| Investment | Total Commitment | Total Contributions | Market Value | Distributions | Unfunded Commitment | IRR % | MOIC* | Period Years |
|--|---------------------|------------------------|-----------------|---------------|------------------------|----------|-------|-----------------|
| I. PRIVATE EQUITY | | | | | | | | |
| Adams Street Partners | | | | | | | | |
| <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 | 6.04 |
| <i>Adams Street Global Secondary Fund 6</i> | 100,000,000 | 0 | 120,748 | 0 | 100,000,000 | 0.00 | 0.00 | 1.25 |
| Advent International | | | | | | | | |
| <i>Advent International GPE VI</i> | 50,000,000 | 52,993,313 | 23,954,720 | 84,135,574 | 0 | 17.14 | 2.04 | 10.25 |
| <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 | 5.79 |
| <i>Advent International GPE VIII</i> | 100,000,000 | 49,150,000 | 51,185,154 | 0 | 50,850,000 | 4.07 | 1.04 | 2.40 |
| Affinity Ventures | | | | | | | | |
| <i>Affinity Ventures IV</i> | 4,000,000 | 4,000,000 | 649,643 | 1,541,970 | 0 | -11.75 | 0.55 | 14.01 |
| <i>Affinity Ventures V</i> | 5,000,000 | 5,000,000 | 2,310,985 | 1,706,245 | 0 | -4.33 | 0.80 | 10.00 |
| APAX Partners | | | | | | | | |
| <i>Apax VIII - USD</i> | 200,000,000 | 207,707,702 | 224,508,143 | 65,764,103 | 28,571,096 | 12.70 | 1.40 | 5.32 |
| <i>Apax IX - USD</i> | 150,000,000 | 66,417,205 | 69,448,213 | 1,422,626 | 85,005,421 | 9.44 | 1.07 | 2.11 |
| Asia Alternatives | | | | | | | | |
| <i>Asia Alternatives Capital Partners V</i> | 99,000,000 | 4,144,162 | 3,001,830 | 75 | 94,861,948 | -33.39 | 0.72 | 1.00 |
| Banc Fund | | | | | | | | |
| <i>Banc Fund VII</i> | 45,000,000 | 45,000,000 | 10,393,834 | 56,459,725 | 0 | 3.73 | 1.49 | 13.25 |
| <i>Banc Fund VIII</i> | 98,250,000 | 98,250,000 | 114,008,722 | 105,125,973 | 0 | 14.95 | 2.23 | 10.19 |
| <i>Banc Fund IX</i> | 107,205,932 | 107,205,932 | 128,704,366 | 8,912,229 | 0 | 13.48 | 1.28 | 4.06 |
| <i>Banc Fund X</i> | 150,000,000 | 3,937,091 | 3,937,091 | 0 | 146,062,909 | 0.00 | 1.00 | 0.16 |
| Blackstone Capital Partners | | | | | | | | |
| <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 | 15.98 |
| <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 | 12.41 |
| <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 | 9.94 |
| <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 | 3.00 |
| Blackstone Strategic Partners (CSFB/ DLJ) | | | | | | | | |
| <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 | 13.09 |
| <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 | 13.09 |
| <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 | 10.27 |

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| Investment | Total Commitment | Total Contributions | Market Value | Distributions | Unfunded Commitment | IRR % | MOIC* | Period Years |
|--|-----------------------------|--------------------------------|-------------------------|----------------------|--------------------------------|------------------|--------------|-------------------------|
| <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 | 10.04 |
| <i>Strategic Partners V</i> | 100,000,000 | 82,986,695 | 28,296,584 | 105,612,041 | 39,074,454 | 19.91 | 1.61 | 6.87 |
| <i>Strategic Partners VI</i> | 150,000,000 | 89,407,483 | 74,247,801 | 62,614,071 | 66,058,931 | 21.25 | 1.53 | 4.21 |
| <i>Strategic Partners VII</i> | 150,000,000 | 73,965,318 | 85,054,565 | 6,304,121 | 82,901,524 | 41.13 | 1.24 | 1.52 |
| Bridgepoint | | | | | | | | |
| <i>Bridgepoint Europe VI</i> | 175,132,566 | 0 | 0 | 0 | 175,132,566 | 0.00 | 0.00 | 0.28 |
| Brookfield Asset Management | | | | | | | | |
| <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 | 2.80 |
| Cardinal Partners | | | | | | | | |
| <i>DSV Partners IV</i> | 10,000,000 | 10,000,000 | 31,015 | 39,196,082 | 0 | 10.61 | 3.92 | 33.52 |
| Carlyle Group | | | | | | | | |
| <i>Carlyle Partners VII</i> | 150,000,000 | 0 | 0 | 0 | 150,000,000 | 0.00 | 0.00 | 0.54 |
| Chicago Growth Partners (William Blair) | | | | | | | | |
| <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 | 17.32 |
| <i>Chicago Growth Partners I</i> | 50,000,000 | 52,441,998 | 3,538,485 | 54,532,745 | 300,000 | 2.32 | 1.11 | 12.94 |
| <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 | 10.31 |
| Court Square Capital Partners | | | | | | | | |
| <i>Court Square Capital Partners</i> | 100,000,000 | 80,927,616 | 360,386 | 182,160,766 | 185,289 | 28.92 | 2.26 | 16.56 |
| <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 | 11.82 |
| <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 | 6.08 |
| Crescendo | | | | | | | | |
| <i>Crescendo IV</i> | 101,500,000 | 103,101,226 | 10,680,230 | 43,048,440 | 0 | -5.53 | 0.52 | 18.32 |
| CVC Capital Partners | | | | | | | | |
| <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 | 10.27 |
| <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 | 4.98 |
| Elevation Partners | | | | | | | | |
| <i>Elevation Partners</i> | 75,000,000 | 73,237,580 | 151,344 | 113,492,106 | 799,634 | 11.82 | 1.55 | 13.13 |
| Fox Paine & Company | | | | | | | | |
| <i>Fox Paine Capital Fund II</i> | 50,000,000 | 46,541,161 | 1,943 | 90,994,335 | 0 | 18.88 | 1.96 | 18.01 |
| GHJM Marathon Fund | | | | | | | | |
| <i>TrailHead Fund</i> | 20,000,000 | 16,070,803 | 29,355,785 | 2,406,955 | 3,935,813 | 17.18 | 1.98 | 6.35 |
| Glouston Capital Partners** | | | | | | | | |

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

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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 | 12.52 |
| <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 | 9.47 |
| <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 | 4.33 |
| <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 | 1.91 |
| <i>Lexington Middle Market Investors IV</i> | 100,000,000 | 0 | 0 | 1,458,011 | 100,000,000 | 0.00 | 0.00 | 1.52 |
| Madison Dearborn Capital Partners | | | | | | | | |
| <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 | 2.53 |
| Neuberger Berman | | | | | | | | |
| <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 | 3.20 |
| <i>Dyal Capital Partners IV</i> | 250,000,000 | 12,500,000 | 12,500,000 | 0 | 237,500,000 | 0.00 | 1.00 | 0.23 |
| Nordic Capital | | | | | | | | |
| <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 | 4.80 |
| North Sky Capital** | | | | | | | | |
| <i>North Sky Capital LBO Fund III</i> | 1,070,259 | 720,259 | 399,340 | 605,324 | 350,000 | 15.77 | 1.39 | 3.50 |
| <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 | 3.50 |
| Oak Hill Capital Management, Inc. | | | | | | | | |
| <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 | 1.56 |
| Paine & Partners | | | | | | | | |
| <i>Paine & Partners Capital Fund IV</i> | 75,000,000 | 50,629,069 | 54,715,875 | 1,074,740 | 25,444,085 | 5.70 | 1.10 | 3.55 |
| Permira | | | | | | | | |
| <i>Permira V</i> | 178,282,056 | 168,414,797 | 174,126,521 | 58,994,423 | 28,433,702 | 11.53 | 1.38 | 4.50 |
| <i>Permira VI</i> | 139,168,453 | 54,544,397 | 57,260,087 | 0 | 84,624,056 | 7.58 | 1.05 | 1.93 |
| Public Pension Capital Management | | | | | | | | |
| <i>Public Pension Capital</i> | 100,000,000 | 60,910,633 | 72,112,452 | 4,346,396 | 45,928,858 | 15.28 | 1.26 | 4.13 |
| RWI Ventures | | | | | | | | |
| <i>RWI Ventures I</i> | 7,603,265 | 7,603,265 | 482,970 | 6,094,262 | 0 | -4.19 | 0.87 | 12.01 |
| Silver Lake Partners | | | | | | | | |
| <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 | 14.01 |
| <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 | 11.26 |
| <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 | 5.76 |
| <i>Silver Lake Partners V</i> | 135,000,000 | 9,936,126 | 9,641,301 | 0 | 125,063,874 | -3.13 | 0.97 | 1.25 |
| Split Rock Partners | | | | | | | | |

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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 | 13.17 |
| <i>Split Rock Partners II</i> | 60,000,000 | 59,165,000 | 37,154,205 | 44,774,545 | 835,000 | 7.55 | 1.38 | 10.18 |
| Summit Partners | | | | | | | | |
| <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 | 7.16 |
| <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 | 2.84 |
| Thoma Bravo | | | | | | | | |
| <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 | 1.81 |
| <i>Thoma Bravo Fund XIII</i> | 150,000,000 | 0 | 0 | 0 | 150,000,000 | 0.00 | 0.00 | 0.25 |
| Thoma Cressey | | | | | | | | |
| <i>Thoma Cressey Fund VII</i> | 50,000,000 | 50,000,000 | 843,884 | 106,625,069 | 0 | 23.59 | 2.15 | 17.86 |
| <i>Thoma Cressey Fund VIII</i> | 70,000,000 | 69,230,000 | 1,533,689 | 200,733,201 | 770,000 | 18.26 | 2.92 | 12.17 |
| Thomas H. Lee Partners | | | | | | | | |
| <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 | 2.81 |
| <i>Thomas H. Lee Equity Fund VIII</i> | 150,000,000 | 0 | 0 | 0 | 150,000,000 | 0.00 | 0.00 | 0.25 |
| Thomas, McNerney & Partners | | | | | | | | |
| <i>Thomas, McNerney & Partners I</i> | 30,000,000 | 30,000,000 | 3,032,158 | 15,087,143 | 0 | -8.35 | 0.60 | 15.66 |
| <i>Thomas, McNerney & Partners II</i> | 50,000,000 | 48,125,000 | 9,349,089 | 97,314,704 | 1,875,000 | 16.26 | 2.22 | 12.01 |
| TPG Capital | | | | | | | | |
| <i>TPG Partners VII</i> | 100,000,000 | 69,636,389 | 73,674,666 | 6,837,318 | 36,442,872 | 14.67 | 1.16 | 2.81 |
| Vestar Capital Partners | | | | | | | | |
| <i>Vestar Capital Partners IV</i> | 55,000,000 | 55,652,024 | 743,605 | 102,249,550 | 57,313 | 14.66 | 1.85 | 18.55 |
| <i>Vestar Capital Partners V</i> | 75,000,000 | 76,281,245 | 16,639,277 | 83,018,887 | 0 | 3.91 | 1.31 | 12.54 |
| <i>Vestar Capital Partners VI</i> | 100,000,000 | 100,609,153 | 82,078,467 | 114,308,447 | 960,325 | 34.09 | 1.95 | 6.77 |
| <i>Vestar Capital Partners VII</i> | 150,000,000 | 982,609 | 982,609 | 0 | 149,017,391 | 0.00 | 1.00 | 0.54 |
| Warburg Pincus | | | | | | | | |
| <i>Warburg Pincus Equity Partners</i> | 100,000,000 | 100,000,000 | 296,524 | 163,542,253 | 0 | 10.03 | 1.64 | 20.02 |
| <i>Warburg Pincus Private Equity VIII</i> | 100,000,000 | 100,380,464 | 9,310,837 | 220,991,851 | 0 | 14.80 | 2.29 | 16.22 |
| <i>Warburg Pincus Private Equity IX</i> | 100,000,000 | 100,000,000 | 9,080,687 | 165,914,136 | 0 | 9.86 | 1.75 | 12.94 |
| <i>Warburg Pincus Private Equity X</i> | 150,000,000 | 150,000,000 | 68,943,894 | 164,660,202 | 0 | 8.21 | 1.56 | 10.69 |
| <i>Warburg Pincus Private Equity XI</i> | 200,000,000 | 200,299,952 | 184,399,135 | 114,838,086 | 0 | 13.72 | 1.49 | 5.53 |
| <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 | 2.61 |
| <i>Warburg Pincus China</i> | 45,000,000 | 28,215,000 | 28,384,955 | 1,935,000 | 18,720,000 | 13.90 | 1.07 | 1.55 |

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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 | 0.54 |
| Wellspring Capital Partners | | | | | | | | |
| <i>Wellspring Capital Partners VI</i> | 125,000,000 | 6,372,571 | 4,480,963 | 0 | 118,627,429 | -30.07 | 0.70 | 1.80 |
| Welsh, Carson, Anderson & Stowe | | | | | | | | |
| <i>Welsh, Carson, Anderson & Stowe X</i> | 100,000,000 | 98,578,466 | 147,896 | 167,690,637 | 2,000,000 | 8.15 | 1.70 | 12.55 |
| <i>Welsh, Carson, Anderson & Stowe XI</i> | 100,000,000 | 100,000,000 | 51,850,027 | 111,084,910 | 0 | 12.68 | 1.63 | 9.95 |
| <i>Welsh, Carson, Anderson & Stowe XII</i> | 150,000,000 | 90,421,217 | 99,825,280 | 17,723,566 | 59,578,783 | 17.57 | 1.30 | 3.53 |
| Windjammer Capital Investors | | | | | | | | |
| <i>Windjammer Mezzanine & Equity Fund II</i> | 66,708,861 | 55,215,684 | 63,870 | 84,876,800 | 10,139,363 | 8.94 | 1.54 | 18.26 |
| <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 | 12.50 |
| <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 | 6.35 |
| <i>Windjammer Senior Equity Fund V</i> | 100,000,000 | 0 | 0 | 0 | 100,000,000 | 0.00 | 0.00 | 0.62 |

| | | | | | | | |
|-----------------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|--------------|-------------|
| <i>Private Equity Total</i> | 12,231,862,879 | 8,419,340,717 | 4,793,444,858 | 8,541,093,699 | 4,321,980,125 | 12.46 | 1.57 |
|-----------------------------|-----------------------|----------------------|----------------------|----------------------|----------------------|--------------|-------------|

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 | 8.24 |
| <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 | 3.23 |

BlackRock

| | | | | | | | | |
|--|-------------|---|---|---|-------------|------|------|-------------|
| <i>BlackRock Middle Market Senior Fund</i> | 250,000,000 | 0 | 0 | 0 | 250,000,000 | 0.00 | 0.00 | 0.21 |
|--|-------------|---|---|---|-------------|------|------|-------------|

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 | 17.26 |
|--|------------|------------|-----------|-------------|------------|-------|------|--------------|

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 | 12.24 |
| <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 | 10.69 |

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 | 13.76 |
| <i>Gold Hill 2008</i> | 25,852,584 | 25,852,584 | 13,311,387 | 33,841,601 | 0 | 14.01 | 1.82 | 10.00 |

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 | 3.33 |
| <i>KKR Lending Partners III</i> | 192,000,000 | 38,955,000 | 42,740,647 | 0 | 153,045,000 | 18.29 | 1.10 | 1.23 |
| LBC Credit Partners | | | | | | | | |
| <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 | 2.17 |
| Merit Capital Partners | | | | | | | | |
| <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 | 13.55 |
| <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 | 8.54 |
| <i>Merit Mezzanine Fund VI</i> | 100,000,000 | 32,302,603 | 36,101,158 | 0 | 67,630,597 | 9.61 | 1.12 | 2.27 |
| Portfolio Advisors | | | | | | | | |
| <i>DLJ Investment Partners II</i> | 27,375,168 | 24,490,887 | 86,563 | 34,829,566 | 0 | 10.37 | 1.43 | 18.51 |
| <i>DLJ Investment Partners III</i> | 100,000,000 | 82,719,050 | 555,169 | 96,478,980 | 3,158,038 | 6.83 | 1.17 | 12.03 |
| Prudential Capital Partners | | | | | | | | |
| <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 | 13.01 |
| <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 | 9.21 |
| <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 | 6.45 |
| <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 | 1.87 |
| Summit Partners | | | | | | | | |
| <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 | 14.38 |
| <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 | 10.26 |
| TCW Asset Management | | | | | | | | |
| <i>TCW Direct Lending</i> | 100,000,000 | 83,599,652 | 58,791,868 | 38,514,287 | 25,329,409 | 9.63 | 1.16 | 3.78 |
| <i>Private Credit Total</i> | 2,230,227,752 | 1,512,461,214 | 540,924,098 | 1,522,552,286 | 887,365,424 | 12.13 | 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 | 2.60 |
|---|------------|------------|------------|---------|------------|-------|------|-------------|

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 | 11.21 |
| <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 | 8.07 |
| <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 | 4.80 |

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|---|---------------------|------------------------|-----------------|---------------|------------------------|----------|-------|-----------------|
| EnCap Energy | | | | | | | | |
| <i>EnCap Energy Capital Fund VII</i> | 100,000,000 | 105,344,451 | 6,945,888 | 133,001,117 | 0 | 14.69 | 1.33 | 11.01 |
| <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 | 7.75 |
| <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 | 5.56 |
| <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 | 3.32 |
| EnerVest Energy | | | | | | | | |
| <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 | 3.06 |
| Energy Capital Partners | | | | | | | | |
| <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 | 7.95 |
| <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 | 4.53 |
| <i>Energy Capital Partners IV</i> | 105,808,339 | 27,036,117 | 25,782,452 | 72,619 | 78,772,222 | -4.55 | 0.96 | 0.50 |
| Energy & Minerals Group | | | | | | | | |
| <i>NGP Midstream & Resources</i> | 100,000,000 | 102,829,196 | 57,922,975 | 134,013,054 | 230,871 | 14.54 | 1.87 | 11.26 |
| <i>The Energy & Minerals Group Fund II</i> | 100,000,000 | 102,893,225 | 110,875,231 | 70,328,585 | 3,006,959 | 15.38 | 1.76 | 6.77 |
| <i>The Energy & Minerals Group Fund III</i> | 200,000,000 | 190,260,729 | 161,731,207 | 11,572,646 | 11,751,224 | -2.92 | 0.91 | 4.32 |
| <i>The Energy & Minerals Group Fund IV</i> | 150,000,000 | 93,528,930 | 115,464,752 | 15,776,674 | 70,278,465 | 18.25 | 1.40 | 2.67 |
| First Reserve | | | | | | | | |
| <i>First Reserve Fund X</i> | 100,000,000 | 100,000,000 | 347,478 | 182,429,002 | 0 | 31.05 | 1.83 | 13.67 |
| <i>First Reserve Fund XI</i> | 150,000,000 | 150,292,121 | 8,107,918 | 94,066,313 | 0 | -8.40 | 0.68 | 11.53 |
| <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 | 9.67 |
| <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 | 4.66 |
| Kohlberg, Kravis, Roberts & Co. | | | | | | | | |
| <i>KKR Global Infrastructure Investors III</i> | 149,850,000 | 0 | 0 | 0 | 149,850,000 | 0.00 | 0.00 | 0.26 |
| Merit Energy Partners | | | | | | | | |
| <i>Merit Energy Partners B</i> | 24,000,000 | 24,000,000 | 7,998,384 | 184,828,016 | 0 | 24.30 | 8.03 | 21.45 |
| <i>Merit Energy Partners C</i> | 50,000,000 | 50,000,000 | 20,315,178 | 501,469,067 | 0 | 31.19 | 10.44 | 19.68 |
| <i>Merit Energy Partners D</i> | 88,000,000 | 70,938,303 | 32,631,552 | 314,767,281 | 0 | 23.73 | 4.90 | 17.11 |
| <i>Merit Energy Partners E</i> | 100,000,000 | 39,983,197 | 17,378,306 | 75,513,608 | 0 | 16.30 | 2.32 | 13.75 |
| <i>Merit Energy Partners F</i> | 100,000,000 | 59,522,861 | 19,798,913 | 27,510,575 | 0 | -3.75 | 0.79 | 12.28 |
| <i>Merit Energy Partners H</i> | 100,000,000 | 100,000,000 | 73,186,972 | 24,238,423 | 0 | -0.66 | 0.97 | 7.41 |
| <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 | 3.70 |

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 | 10.69 |
| <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 | 6.73 |
| <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 | 3.56 |
| <i>NGP Natural Resources XII</i> | 149,500,000 | 30,917,697 | 29,089,734 | 0 | 118,638,901 | -7.98 | 0.94 | 0.92 |
| Sheridan | | | | | | | | |
| <i>Sheridan Production Partners I</i> | 100,000,000 | 116,552,260 | 68,552,017 | 82,750,000 | 0 | 5.84 | 1.30 | 11.26 |
| <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 | 7.75 |
| <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 | 3.56 |
| Real Assets Total | 4,285,379,857 | 3,502,576,586 | 2,179,152,859 | 2,882,111,465 | 915,314,632 | 15.55 | 1.44 | |

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 | 3.56 |
| <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 | 1.75 |
| <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 | 1.03 |

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 | 12.18 |
| <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 | 11.26 |
| <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 | 6.59 |
| <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 | 3.26 |
| <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 | 0.77 |

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 | 13.01 |
| <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 | 10.04 |

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 | 1.15 |
|---|-------------|-----------|---|---|-------------|------|------|-------------|

Colony Capital

| | | | | | | | | |
|-----------------------------|-------------|------------|-----------|-------------|---|-------|------|--------------|
| <i>Colony Investors III</i> | 100,000,000 | 99,660,860 | 4,694,100 | 172,642,105 | 0 | 14.53 | 1.78 | 20.51 |
|-----------------------------|-------------|------------|-----------|-------------|---|-------|------|--------------|

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 | 1.54 |
|---|-------------|------------|------------|-----------|-------------|-------|------|-------------|

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| Lubert Adler | | | | | | | | |
| <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 | 1.73 |
| Rockpoint | | | | | | | | |
| <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 | 3.47 |
| Rockwood | | | | | | | | |
| <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 | 2.96 |
| Silverpeak Real Estate Partners | | | | | | | | |
| <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 | 12.92 |
| <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 | 10.17 |
| T.A. Associates Realty | | | | | | | | |
| <i>Realty Associates Fund VIII</i> | 100,000,000 | 100,000,000 | 16,788,659 | 81,790,937 | 0 | -0.17 | 0.99 | 12.01 |
| <i>Realty Associates Fund IX</i> | 100,000,000 | 100,000,000 | 610,962 | 159,608,332 | 0 | 10.43 | 1.60 | 9.85 |
| <i>Realty Associates Fund X</i> | 100,000,000 | 100,000,000 | 63,344,429 | 85,194,501 | 0 | 12.17 | 1.49 | 6.33 |
| <i>Realty Associates Fund XI</i> | 100,000,000 | 100,000,000 | 103,644,800 | 2,135,499 | 0 | 5.61 | 1.06 | 3.00 |
| Real Estate Total | 2,123,647,868 | 1,421,043,533 | 697,592,321 | 1,220,986,750 | 807,585,079 | 7.97 | 1.35 | |
| V. DISTRESSED/ OPPORTUNISTIC | | | | | | | | |
| Avenue Capital Partners | | | | | | | | |
| <i>Avenue Energy Opportunities Fund</i> | 100,000,000 | 100,977,328 | 121,718,100 | 934,495 | 0 | 7.74 | 1.21 | 4.00 |
| <i>Avenue Energy Opportunities Fund II</i> | 100,000,000 | 65,000,000 | 63,354,395 | 0 | 35,000,000 | -5.11 | 0.97 | 1.16 |
| BlackRock** | | | | | | | | |
| <i>BlackRock Tempus Fund</i> | 1,774,870 | 1,774,870 | 639,937 | 1,384,701 | 0 | 9.48 | 1.14 | 3.05 |
| Carlyle Group | | | | | | | | |
| <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 | 2.25 |
| Carval Investors | | | | | | | | |
| <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 | 11.47 |
| <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 | 7.75 |
| <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 | 5.67 |
| <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 | 3.08 |
| <i>CVI Credit Value Fund IV</i> | 150,000,000 | 15,203,333 | 15,340,875 | 60 | 135,000,000 | 0.92 | 1.01 | 0.74 |

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|--|-----------------------|------------------------|----------------------|-----------------------|------------------------|--------------|-------|-----------------|
| Merced Capital | | | | | | | | |
| <i>Merced Partners II</i> | 75,000,000 | 63,768,881 | 287,532 | 130,393,875 | 0 | 23.97 | 2.05 | 11.25 |
| <i>Merced Partners III</i> | 100,000,000 | 100,000,000 | 45,157,314 | 88,997,107 | 0 | 6.34 | 1.34 | 8.15 |
| <i>Merced Partners IV</i> | 125,000,000 | 124,968,390 | 97,894,524 | 59,372,049 | 0 | 7.04 | 1.26 | 4.97 |
| <i>Merced Partners V</i> | 53,737,500 | 53,915,358 | 59,874,376 | 0 | 0 | 12.49 | 1.11 | 1.00 |
| MHR Institutional Partners | | | | | | | | |
| <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 | 4.03 |
| Oaktree Capital Management | | | | | | | | |
| <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 | 3.50 |
| <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 | 3.38 |
| <i>Oaktree Opportunities Fund Xb</i> | 100,000,000 | 2,500,000 | 2,500,000 | 0 | 97,500,000 | 0.00 | 1.00 | 3.38 |
| <i>Oaktree Special Situations Fund II</i> | 100,000,000 | 0 | 0 | 0 | 100,000,000 | 0.00 | 0.00 | 0.18 |
| Pimco Bravo** | | | | | | | | |
| <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 | 3.50 |
| <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 | 3.50 |
| TSSP | | | | | | | | |
| <i>TSSP Adjacent Opportunities Partners</i> | 50,000,000 | 0 | 0 | 0 | 50,000,000 | 0.00 | 0.00 | 0.24 |
| Varde Fund | | | | | | | | |
| <i>Varde Fund IX</i> | 100,000,000 | 100,000,000 | 3,453,284 | 212,664,809 | 0 | 15.02 | 2.16 | 10.02 |
| <i>Varde Fund X</i> | 150,000,000 | 150,000,000 | 71,122,243 | 227,280,360 | 0 | 12.65 | 1.99 | 8.20 |
| <i>Varde Fund XI</i> | 200,000,000 | 200,000,000 | 214,741,263 | 63,860,162 | 0 | 7.89 | 1.39 | 4.98 |
| Wayzata | | | | | | | | |
| <i>Wayzata Opportunities Fund</i> | 100,000,000 | 93,180,000 | 519,166 | 156,425,778 | 18,920,000 | 8.42 | 1.68 | 12.53 |
| <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 | 10.69 |
| <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 | 6.04 |
| <i>Distressed/Opportunistic Total</i> | 2,739,714,067 | 2,031,112,061 | 1,177,175,565 | 1,936,392,670 | 727,014,089 | | 1.53 | |
| <i>Private Markets Total</i> | 23,610,832,423 | 16,886,534,110 | 9,388,289,701 | 16,103,136,870 | 7,659,259,349 | 12.37 | 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 |
|------------|---------------------|------------------------|-----------------|---------------|------------------------|----------|-------|-----------------|
|------------|---------------------|------------------------|-----------------|---------------|------------------------|----------|-------|-----------------|

| <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 |

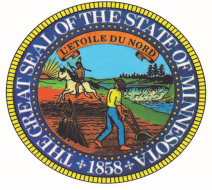
Notes

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

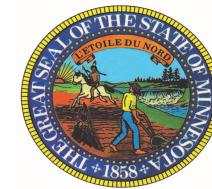
**Partnership interests transferred to the MSBI during 1Q2015. All data presented as of the transfer date.



Participant Directed Investment Program

June 30, 2018

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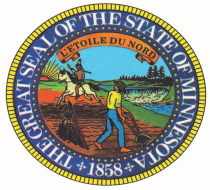
Quarterly Report

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> |
|--------------------------------|----------------------------|-----------------|---------------|---------------|---------------|----------------|
| BALANCED FUND | \$443,928,458 | 2.3% | 8.9% | 7.8% | 9.0% | 8.1% |
| 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> |
|---------------------------------------|----------------------------|-----------------|---------------|---------------|---------------|----------------|
| U.S. ACTIVELY MANAGED FUND | 259,911,942 | 5.2 | 18.2 | 12.1 | 13.9 | 10.5 |
| 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> |
|------------------------------|----------------------------|-----------------|---------------|---------------|---------------|----------------|
| U.S. STOCK INDEX FUND | \$614,526,590 | 3.9% | 14.8% | 11.6% | 13.3% | 10.3% |
| 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> |
|---------------------------------------|----------------------------|-----------------|---------------|---------------|---------------|----------------|
| BROAD INTERNATIONAL STOCK FUND | 195,969,302 | -2.4 | 7.5 | 5.3 | 6.4 | 3.1 |
| 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> |
|------------------|----------------------------|-----------------|---------------|---------------|---------------|----------------|
| BOND FUND | \$171,064,922 | 0.0% | 0.1% | 2.3% | 2.8% | 4.4% |
| 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> |
|--------------------------|----------------------------|-----------------|---------------|---------------|---------------|----------------|
| MONEY MARKET FUND | 404,023,579 | 0.5 | 1.5 | 0.9 | 0.6 | 0.5 |
| 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> |
|----------------------------------|----------------------------|-----------------|---------------|---------------|---------------|----------------|
| STABLE VALUE FUND | \$1,553,732,886 | 0.6% | 2.2% | 2.1% | 2.0% | 2.9% |
| 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> |
|--------------------------------------|----------------------------|-----------------|---------------|---------------|---------------|----------------|
| VOLUNTEER FIREFIGHTER ACCOUNT | 88,331,359 | 1.0 | 6.3 | 6.0 | 6.9 | |
| SIF Volunteer Firefighter Account BM | | 0.9 | 6.1 | 5.7 | 6.7 | |
| Excess | | 0.1 | 0.2 | 0.3 | 0.3 | |



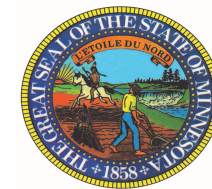
Deferred Compensation Plan Summary

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

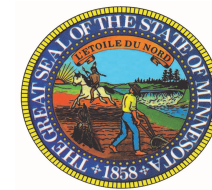
Fidelity Diversified International (active)

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

| | | | | | | |
|----------------------------------|----------------------|-------------|-------------|-------------|-------------|----------------|
| VANGUARD BALANCED INDEX | \$785,660,076 | 2.3% | 8.6% | 7.7% | 8.9% | 12/2003 |
| 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

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

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

| | | | | | | |
|--------------------------|--------------------|------------|------------|------------|------------|----------------|
| MONEY MARKET FUND | 404,023,579 | 0.5 | 1.5 | 0.9 | 0.6 | 07/1986 |
| 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

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

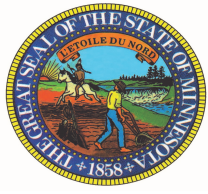
(1) Vanguard Dividend Growth replaced the Janus Twenty Fund in the third quarter of 2016.

(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

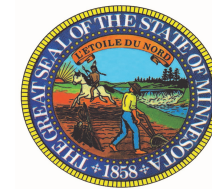
MN TARGET RETIREMENT ACCOUNTS

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^{plan}

A member of The National ABL 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</u> <u>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 | | | | | |
| Variance | | | (0.05) | (0.30) | (0.12) | (0.46) | | | | | |
| 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 | | | | | |
| Variance | | | (0.08) | (0.32) | (0.17) | (0.51) | | | | | |
| 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 | | | | | |
| Variance | | | (0.01) | (0.18) | (0.08) | (0.33) | | | | | |
| 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 | | | | | |
| Variance | | | (0.05) | (0.25) | (0.17) | (0.40) | | | | | |
| 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 | | | | | |
| Variance | | | (0.00) | (0.12) | (0.06) | (0.30) | | | | | |
| 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 | | | | | |
| Variance | | | (0.05) | (0.15) | (0.13) | (0.33) | | | | | |
| Checking Option | \$ 779,323 | 27.53% | | | | | | | | | 03/30/17 |

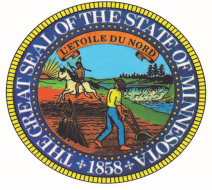
MINNESOTA ACHIEVE A BETTER LIFE EXPERIENCE

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.

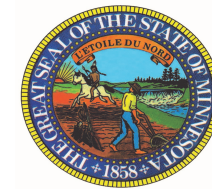
RISK BASED ALLOCATIONS

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



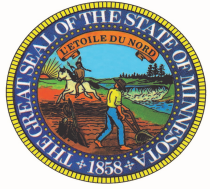
Quarterly Report

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

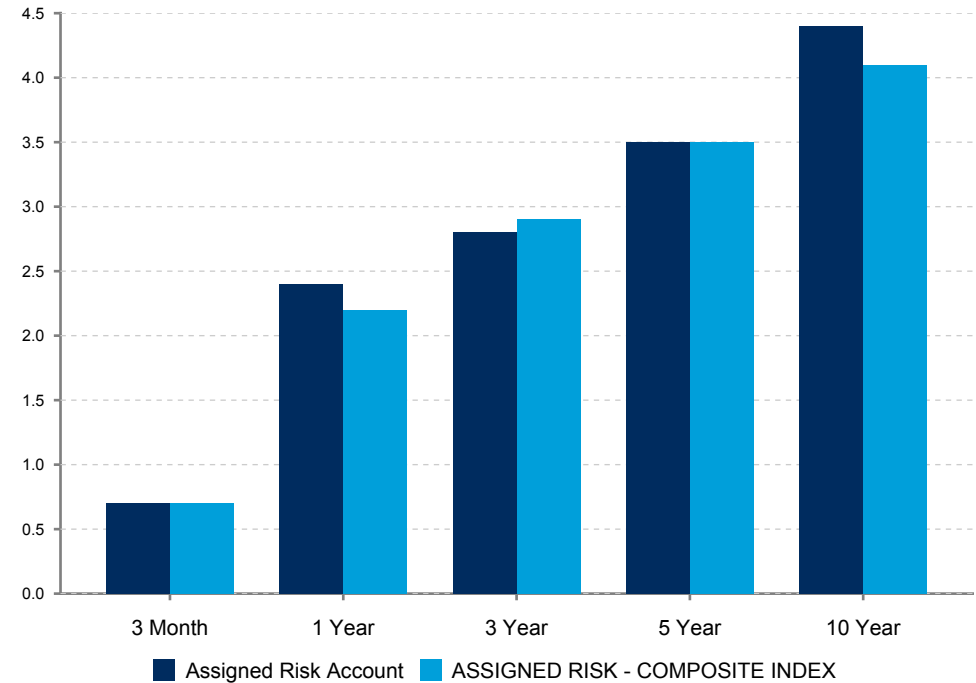
Assigned Risk Plan

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.

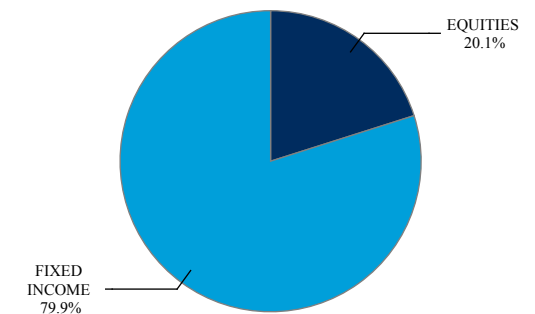
The Assigned Risk Plan is invested in a portfolio of common stocks and bonds

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

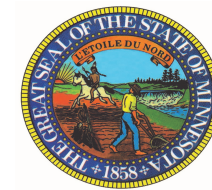
The fixed income benchmark is the Bloomberg Barclays Intermediate Government Index. The total fund benchmark is a combination of the fixed income and equity benchmarks, weighted according to the total fund asset allocation targets of 80% equities and 20% fixed income. The actual asset mix will fluctuate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



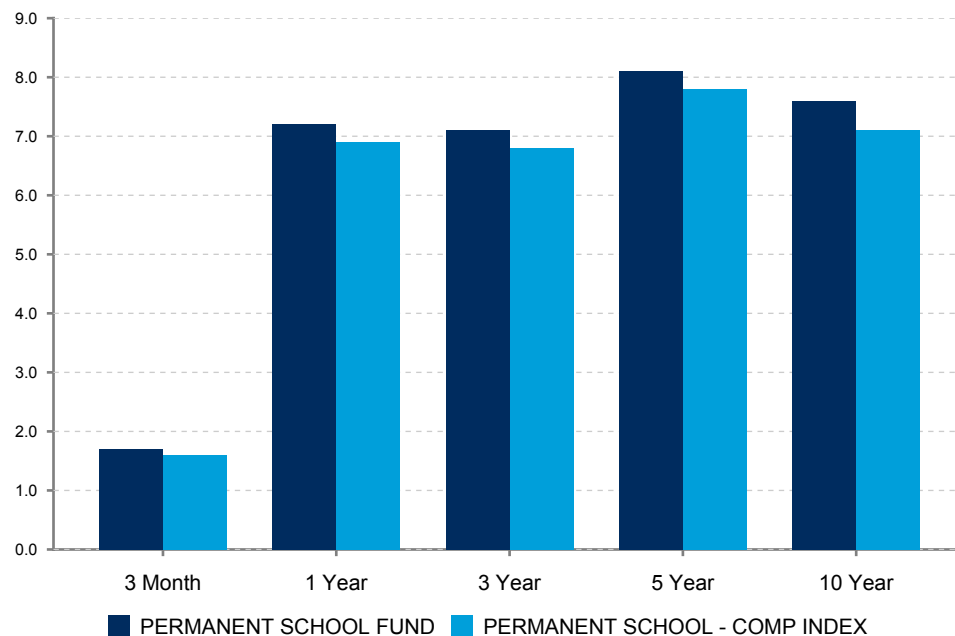
Non-Retirement

Permanent School Fund

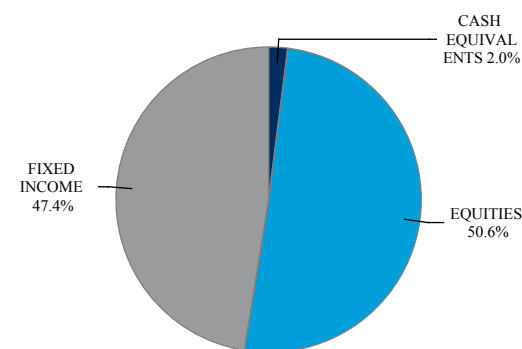
The investment objective of the Permanent School Fund is to produce a growing level of spendable income, within the constraints of maintaining adequate portfolio quality and liquidity. The income from the portfolio is transferred to the school endowment fund and distributed to Minnesota's public schools.

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.



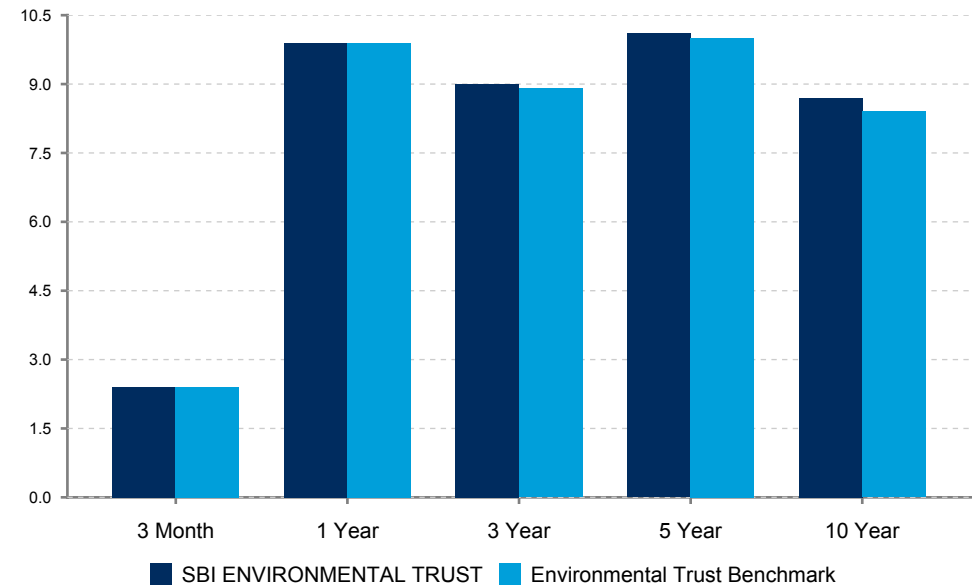
Non-Retirement

Environmental Trust Fund

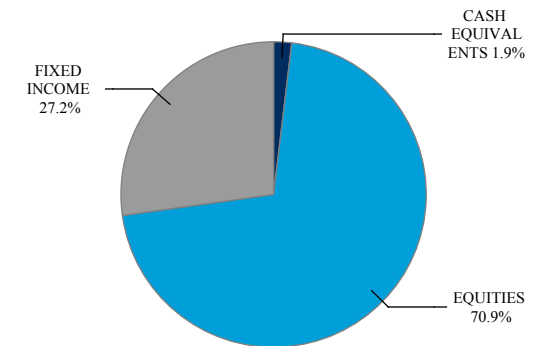
The objective of the Environmental Trust Fund is to increase the market value of the Fund over time in order to increase the annual amount made available for spending within the constraints of maintaining adequate portfolio quality and liquidity.

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.

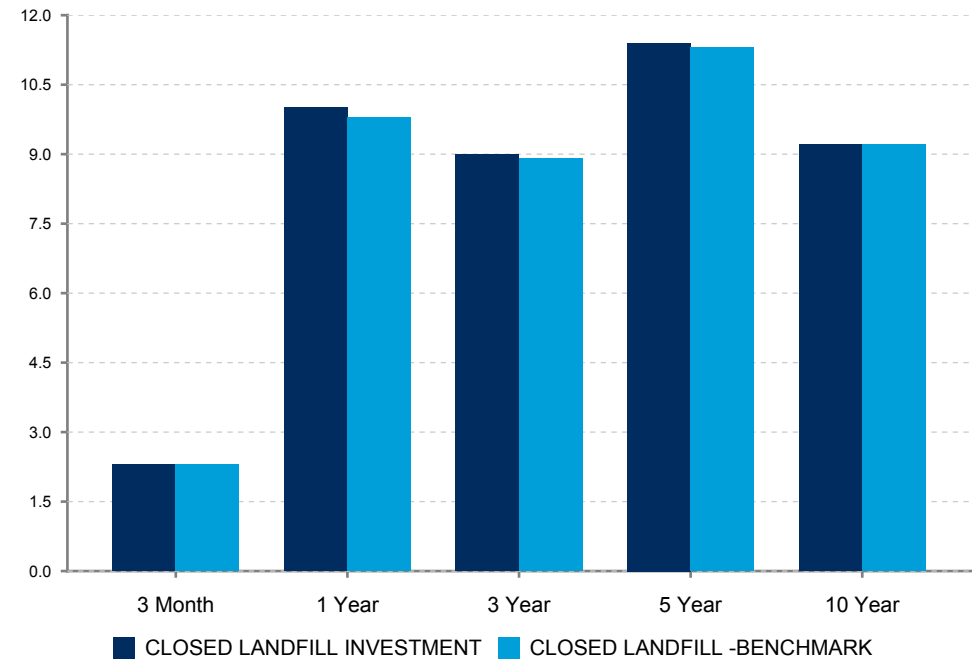


Non-Retirement

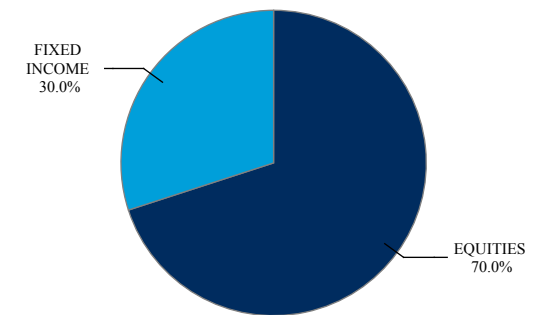
Closed Landfill Investment Fund

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.

Minnesota State Board of Investment
Quarter Ending June 30, 2018
Non-Retirement Managers



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

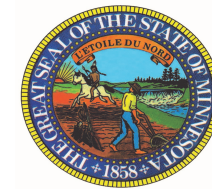
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Quarterly Report

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.

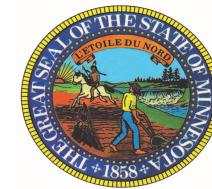
Beginning in January 2003, the Treasurer's Cash Pool is measured against the iMoneyNet, All Taxable Money Fund Report Average.

| | <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:

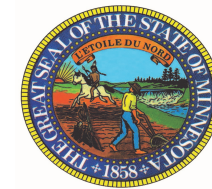
The Composite Index performance is calculated by multiplying the beginning of month Composite weights by the monthly returns of the asset class benchmarks. Effective 1/1/2017, the Combined Funds Composite weight is set as the Strategic Asset Allocation Policy Target with the uninvested portion of Private 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.

