
MINNESOTA STATE BOARD OF INVESTMENT

MINNESOTA STATE BOARD
OF INVESTMENT
MEETING
December 5, 2017



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

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STATE BOARD OF INVESTMENT

AGENDA AND MINUTES

December 5, 2017

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AGENDA
STATE BOARD OF INVESTMENT MEETING
Tuesday, December 5, 2017
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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| 1. Approval of Minutes of September 12, 2017 | |
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(July 1, 2017 – September 30, 2017) | A |
| B. Administrative Report | B |
| C. Investment Manager Update | C |
| 3. IAC Membership Review Committee (M. Perry) | D |
| 4. Report of Master Custody Review Committee (M. Perry) | E |
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| INVESTMENT ADVISORY COUNCIL REPORT | |
| 5. Strategic Allocation Category Framework - Proposed Category Weightings (G. Martin/M. Perry) | F |
| 6. Proposed Private Markets Commitments (G. Martin) | G |
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**Minutes
State Board of Investment
September 12, 2017**

The State Board of Investment (SBI) met at 12:30 P.M. Tuesday, September 12, 2017 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 May 31, 2017 meeting were approved.

Executive Director's Report

Executive Director Mansco Perry referred members to Tab A of the meeting materials, noting the new format of the report. Mr. Perry reported that the Combined Funds had outperformed its Composite Index over the ten-year period ending June 30, 2017 (Combined Funds 6.2% vs. Composite 6.0%) and had provided a real rate of return of 5.1 percentage points above inflation over the latest 20 year period (Combined Funds 7.2% vs. CPI 2.1%).

Mr. Perry stated that assets increased over the quarter (Combined Funds ending value of \$64.1 billion versus a beginning value of \$62.4 billion). The Combined Fund's return exceeded the benchmark for the quarter (Combined Funds 3.7% vs. Composite 3.4%) and was 0.8 percentage points ahead of the benchmark for the year (Combined Funds 15.1% vs. Composite 14.4%). The Combined Funds underperformed over the three-year period but outperformed in all other time periods reported.

Mr. Perry reported that, adjusting for the private markets not being at its target and those assets instead reflected in public equity, per policy, the plan is on target. He reported that the performance for public equities exceeded the benchmark during the year (Public Equity 19.9% vs. Composite 19.2%). Mr. Perry indicated that the fixed income investments outperformed their benchmark for the year (Bonds 0.9% vs. Fixed Income Asset Class Target -0.3%). He stated that the alternative investments contributed to performance for the year (total return of 19.7%). Mr. Perry concluded his report noting that, as of June 30, 2017, the SBI was responsible for managing more than \$89.5 billion of assets.

Mr. Perry referred members to Tab B of the meeting materials for the Administrative Report. He reported that for the year the SBI came in about a million dollars under budget, primarily due to a lower number of staff than currently allocated. He then stated that Tab B included the Iran and Sudan legislative divestment updates, and that the SBI was not in any litigation.

In Tab C, Mr. Perry stated that the SBI terminated Mellon Capital Management from the domestic equity program and transferred the associated \$770 million dollars to the Russell 1000 passive index fund. He indicated that the remainder of the report stated where the SBI is with some of its contractual obligations.

Mr. Perry moved on to Tab D and reviewed the five alternative investment proposals, the first two of which are with existing investment managers, brought to the IAC: Blackstone Partners BREP Asia II (Private Real Estate), Angelo, Gordon & Co. AG Europe Realty Fund II (Private Real

Estate), Carlyle Realty Partners Realty Fund VIII (Private Real Estate), Landmark Partners LREF VIII (Private Real Estate), and Wellspring Capital WCP VI (Private Equity).

State Auditor Otto moved approval of all five recommendations in Tab D of the meeting materials, which reads: **“The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate and execute a commitment of up to \$75 million, or 20% of Blackstone Real Estate Partners Asia II, 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 Blackstone upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Blackstone or reduction or termination of 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 Angelo, Gordon Europe Realty Fund II, 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 upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Angelo, Gordon or reduction or termination of the commitment.

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 Carlyle Realty Partners VIII, L.P. 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 Carlyle Group upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Carlyle Group 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 Landmark Real Estate Partners Fund VIII, 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 Landmark 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 Landmark 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 \$125 million, or 20% of Wellspring Capital Partners VI, 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 Wellspring 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 Wellspring or reduction or termination of the commitment." The motion passed unanimously.

Mr. Perry moved on to Tab E and outlined his summary of the review conducted by the SBI's new general consultant and the special projects consultant of the fund's asset allocation, risk profile and management structure. He reported that the first issue under consideration, which would require the Board's approval, is the adoption of a new framework for the fund's strategic asset allocation, moving from asset class groupings to strategic allocation categories to better define why the SBI invests in assets and the role that they play in the portfolio. This change would group the assets based on the economic drivers for each category of investment, result in a broader degree of diversification, and provide greater mitigation of the risks inherent in the portfolio. Mr. Perry stated that the goal of this change would not be to generate greater return over the long-term, but instead provide less volatility than the fund currently has with its public equity dominant portfolio. In addition, this change would separate the two inherent risks in the SBI's bond portfolio – credit risk and interest rate risk – grouping the risks more appropriately, and broadening the investments made in private markets. The second proposed change would be to increase the total portfolio target weighting of private markets from twenty to twenty-five percent and to set a range with a maximum limitation of 30% rather than the current 24%. Mr. Perry stated that this recommendation would not change the 35% limitation in statutes on total market value or the 35% policy limit on market value plus unfunded commitments. Mr. Perry responded to questions from the Board members.

State Auditor Rebecca Otto moved approval of the recommendation in Tab E which reads: **"The Investment Advisory Council endorses the recommendation that the Board authorize the Executive Director to:**

- 1) adopt the framework of Strategic Allocation Categories as the basis for its asset allocation and authorize the Executive Director to implement the Strategic Allocation Category Framework consistent with investment policy and the positions presented in this memorandum;**
- 2) increase the target allocation weighting for the market value of private investments from 20% to 25% and set a range with a maximum limitation of 30% rather than the current 24% limit; and**

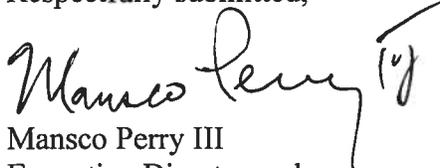
- 3) **work with the SBI's investment consultants to develop policy weights for the proposed framework to be reviewed by the IAC and make a recommendation to the SBI Board.**"
The motion passed unanimously.

Mr. Perry turned members' attention to Tab F, the Proposed Statement of Investment Beliefs for the SBI. He indicated that the purpose of investment beliefs is to document the principles, which have been followed historically, and which would continue to guide the SBI in formulating sound investment practices in the management of the Combined Funds. Mr. Perry referred to the handout (see **Attachment A**), which contained revised language from that in the presentation book. He briefly reviewed the investment beliefs, which addressed the importance of strategic asset allocation, diversification, illiquidity and equity risk premiums, the long-term benefits of managing costs, the role of governance, and clearly defined responsibilities between the Board, IAC, and staff. Secretary of State Steve Simon moved approval of the recommendation in Tab C which reads: **"The Investment Advisory Council concurs with the Executive Director's recommendation that the SBI adopt the proposed Statement of Investment Beliefs."** The motion passed unanimously.

Mr. Perry referred members to Tab H, the Public Market Investments Report. He indicated that he had nothing to report in this area, but drew members' attention to the new format of the report.

The meeting adjourned at 1:05 p.m.

Respectfully submitted,



Mansco Perry III
Executive Director and
Chief Investment Officer

Date: July 27, 2017

To: SBI Investment Advisory Committee (IAC)

From: Pension Consulting Alliance, Inc. (PCA)

CC: Allan Emkin | Neil Rue, CFA | John Burns, CFA

RE: Consideration of Draft SBI Investment Beliefs

Summary

At its May 2017 meeting, the CIO and IAC provided direction to PCA to work with the CIO to develop a draft set of SBI investment beliefs by August/September 2017. After undertaking a process that included surveying dozens of SBI-related individuals, meeting with senior management, and conducting additional significant discussions on the matter, PCA and the CIO have developed ten investment beliefs the Board and IAC could consider for adoption.

Discussion

PCA provided the IAC with an introductory discussion on investment beliefs at the May 2017 IAC meeting. While such beliefs often reflect current investment activities and positioning, they can also prove extremely helpful in guiding institutional decision makers toward sound investment principles. In this respect, decision-makers can view investment belief statements as important foundational reference points when making key investment policy and strategy decisions.

Since the May meeting, Staff and PCA have made significant progress in developing an initial set of investment belief statements for the SBI. After considering approximately five dozen different belief statements, surveying dozens of individuals across Staff, IAC, Board, and other key individuals, and meeting with Staff leadership to take their input on framing investment beliefs, the CIO worked with PCA to collate the survey results and factor in key discussion points to develop the ten attached investment belief statements.

Across all these final beliefs, the different survey groups (Staff, IAC, Board and Others) either strongly agreed or agreed with a specific statement. In other words, there was consensus among all parties for the specific statement. That was not always the case across the several-dozen survey statements, as some groups agreed with some statements while other groups showed disagreement.

As expected, the set of draft investment belief statements help to convey SBI's perspective on several key topical/foundational investment areas. Topics covered include asset allocation in the context of the overall retirement system, cost management, expected rewards from exposure to certain risk premiums, active vs. passive management, and governance.

Upon adoption, these Investment Belief Statements will provide a guiding foundation for future strategic investment decisions of the Board and IAC and be a potential focal point for other various stakeholder groups.

SBI Investment Beliefs

In September 2017, the State Board of Investment adopted a set of ten Investment Beliefs for managing the assets of the Combined Funds (those funds utilized to support the defined benefit plans of the State's employees). The primary purpose of these Beliefs is to guide the SBI toward sound investing principles related to investing on behalf of the Combined Funds. In this respect, the Beliefs help provide context for SBI's actions, reflect SBI's investment values, and acknowledge SBI's role in supporting the State's broader retirement systems.

The SBI is a long-term investor whose primary mission is to maintain the viability of the retirement systems it supports.

When determining an appropriate level of risk that the systems' assets should bear the SBI must reflect the nature of those systems' liabilities and funding policy.

The SBI's strategic allocation policy is the primary determinant of (i) the asset portfolio's long-term investment return and (ii) asset portfolio's risk.

While the SBI can sacrifice some short-term liquidity to pursue a greater long-term return, the investment portfolio's net cash flows and ability to pay benefits on a year-by-year basis are key risk considerations.

Diversification improves the risk-adjusted return profile of the SBI investment portfolio.

Diversification of the SBI investment portfolio takes place across several critical dimensions, such as allocation across global regions and country markets (e.g., U.S. versus Europe, Asia, emerging markets, etc.), allocation among different types of assets (equities, bonds, real estate, etc.), spreading assets across various sectors and industries (e.g., technology, financials, consumer-oriented, etc.), and weighting of different risk factor premiums (e.g., value vs. growth, small companies vs. big companies, carry, illiquidity, etc.). If the correlation (i.e., relationship) among the returns generated by these factors is less than perfect (i.e., less than 1.0), then diversification is beneficial.

There are long-term benefits to SBI managing investment costs.

The equity risk premium is significantly positive over a long-term investment horizon although it can vary over time.

The equity risk premium is also pervasive across several asset classes and its overall exposure should be managed accordingly.

Private market investments have an illiquidity premium that the SBI can capture.

This risk premium can increase the portfolio's long-term compound return and help diversify the portfolio's risk.

It is extremely challenging for a large institutional investor to add significant value over market-representative benchmarks, particularly in the highly-competitive public global equity markets.

Passive management should be utilized when there is low confidence that active management can add value. Active management can have potential to add value where information processing is difficult and challenging, allowing for market inefficiencies that are potentially exploitable.

The SBI benefits significantly when roles and levels of authority are clearly defined and followed.

The role of the members of the State Board of Investment (Board) is to establish investment policies that are in compliance with state statute and guide the ongoing management of the funds. The Board delegates implementation of that policy to the Executive Director/CIO, and exercises oversight with respect to the Executive Director/CIO's implementation activities and the portfolio's active risk level in the context of the portfolio's strategic allocation policy. The Board, through its budgetary authority, will provide the Executive Director/CIO necessary resources to maintain an appropriate operating budget and adequate staffing levels to execute the policies and implement the investment strategies of the SBI.

The Investment Advisory Committee (IAC) key role is advising the Board and Executive Director/CIO on general policy matters and methods to enhance the management of the investment portfolio;

The Executive Director's/CIO's key role is implementing SBI investment policies and setting the portfolio's active risk level in a prudent manner to achieve value-added over policy benchmarks.

Utilizing engagement initiatives to address economic, social, and governance-related (ESG) issues can lead to positive portfolio and governance outcomes.

In addition to specific engagement strategies the SBI might apply, proxy rights attached to shareholder interests in public companies are also “plan assets” of the SBI and represent a key mechanism for expressing SBI’s positions relating to specific ESG issues. By taking a leadership role in promoting responsible corporate governance through the proxy voting process, SBI can contribute significantly to implementing ESG best practices which should, in turn, add long-term value to SBI’s investments.

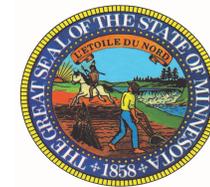
*Approved by State Board of Investment
Date: September 12, 2017*

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TAB

A

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Performance Summary

September 30, 2017



Combined Funds Long Term Objectives

Comparison to Objective

Match or Exceed Composite Index (10 yr.)

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

COMBINED FUNDS

10 Year

6.4%

COMBINED FUNDS - COMPOSITE INDEX

6.1

Excess

0.2

Provide Real Return (20 yr.)

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

COMBINED FUNDS

20 Year

7.1%

CPI-U

2.1

Excess

5.0

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	\$64,116
Net Contributions	-586
Investment Return	2,553
Ending Market Value	66,083

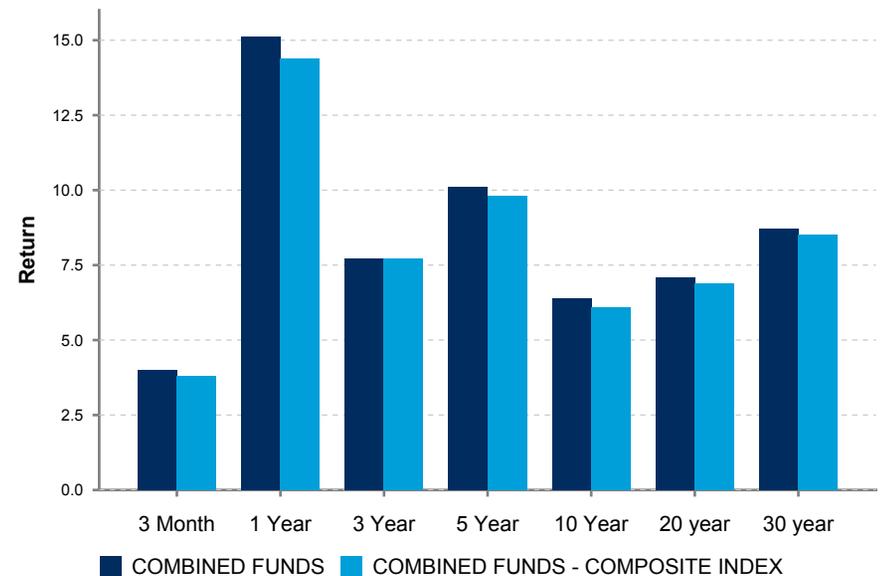
The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

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	4.0%	4.0%	15.1%	7.7%	10.1%	6.4%	7.1%	8.7%
COMBINED FUNDS - COMPOSITE INDEX	3.8	3.8	14.4	7.7	9.8	6.1	6.9	8.5
Excess	0.2	0.2	0.6	0.0	0.3	0.2	0.2	0.2

Asset Growth



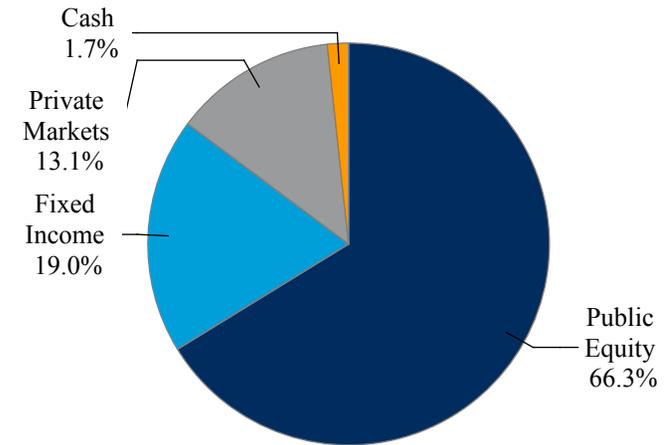


Combined Funds Summary

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. The current Strategic Asset Allocation Policy Target became effective on 7/1/2016.

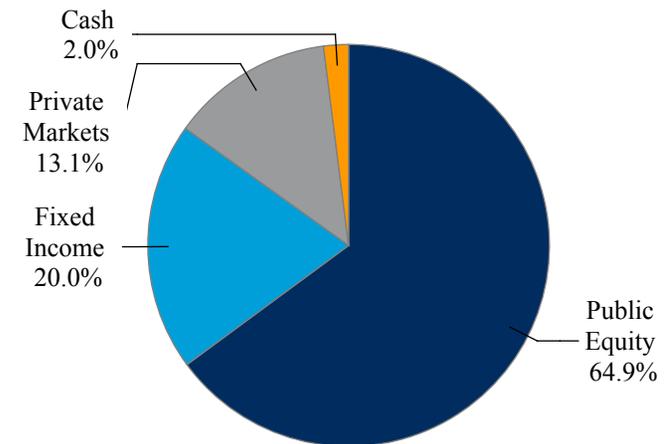
	<u>(Millions)</u>	<u>Actual Mix</u>	<u>Policy Target</u>
Public Equity	\$43,789	66.3%	58.0%
Fixed Income	12,545	19.0	20.0
Private Markets	8,644	13.1	20.0
Cash	1,104	1.7	2.0
TOTAL	66,083	100.0	



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>Target Weight</u>	<u>Market Index</u>
Public Equity	64.9%	67% Russell 3000/33% MSCI ACWI ex US
Fixed Income	20.0	BB Barclays U.S. Aggregate
Private Markets	13.1	Private Markets
Cash	2.0	3 Month T-Bills





Combined Funds Asset Class Performance Summary

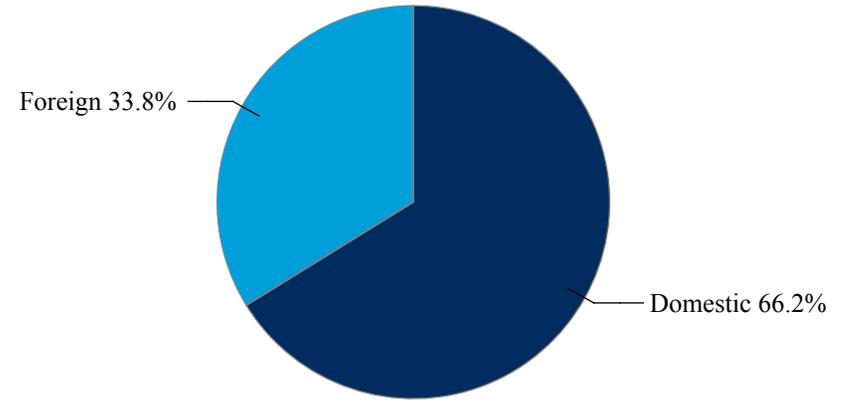
Public Equity

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

The Public Equity benchmark is 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>
Public Equity	5.3%	5.3%	19.9%	9.4%	12.7%	6.2%	6.5%
Public Equity Benchmark	5.1	5.1	19.3				
Excess	0.2	0.2	0.5				
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Domestic Equity	4.7	4.7	19.2	10.4	14.2	7.5	6.8
Domestic Equity Benchmark	4.6	4.6	18.7	10.7	14.2	7.6	7.0
Excess	0.1	0.1	0.5	-0.4	-0.0	-0.1	-0.1
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International Equity	6.4	6.4	19.9	5.5	7.8	1.8	5.2
International Equity Benchmark	6.2	6.2	19.6	4.7	7.0	1.3	4.9
Excess	0.2	0.2	0.3	0.8	0.8	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>
Fixed Income	1.0%	1.0%	1.0%	3.2%	2.6%	4.7%	5.4%
Fixed Income Benchmark	0.8	0.8	0.1	2.7	2.1	4.3	5.1
Excess	0.2	0.2	0.9	0.5	0.6	0.4	0.3

Cash

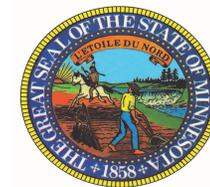
The Combined Funds Cash performance is shown here. Cash is held by the Combined Funds to meet the liquidity needs of the retirement systems to pay benefits.

The Combined Funds Cash benchmark is the iMoneyNet, All Taxable Money Fund Report Average.

	<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>
Cash	0.3%	0.3%	0.9%	0.6%	0.4%	0.9%	2.7%
90 DAY T-BILL	0.3	0.3	0.7	0.3	0.2	0.5	2.1
iMoneyNet Money Fund Average-All Taxable	0.2	0.2	0.4	0.2	0.1	0.4	1.9

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>
Total Private Markets	2.8%	2.8%	17.1%	7.8%	11.9%	8.7%	12.7%
Private Equity	4.8	4.8	19.8	13.0	15.1	10.5	13.6
Private Credit	-0.5	-0.5	14.2	13.0	13.8	10.7	12.9
Resources	-1.0	-1.0	13.5	-8.7	2.0	6.5	13.1
Real Estate	2.4	2.4	9.6	11.0	12.5	4.5	9.5

Private Markets

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

Private Equity Investments

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

Private Credit Investments

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

Resource Investments

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

Real Estate Investments

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

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



Combined Funds Summary

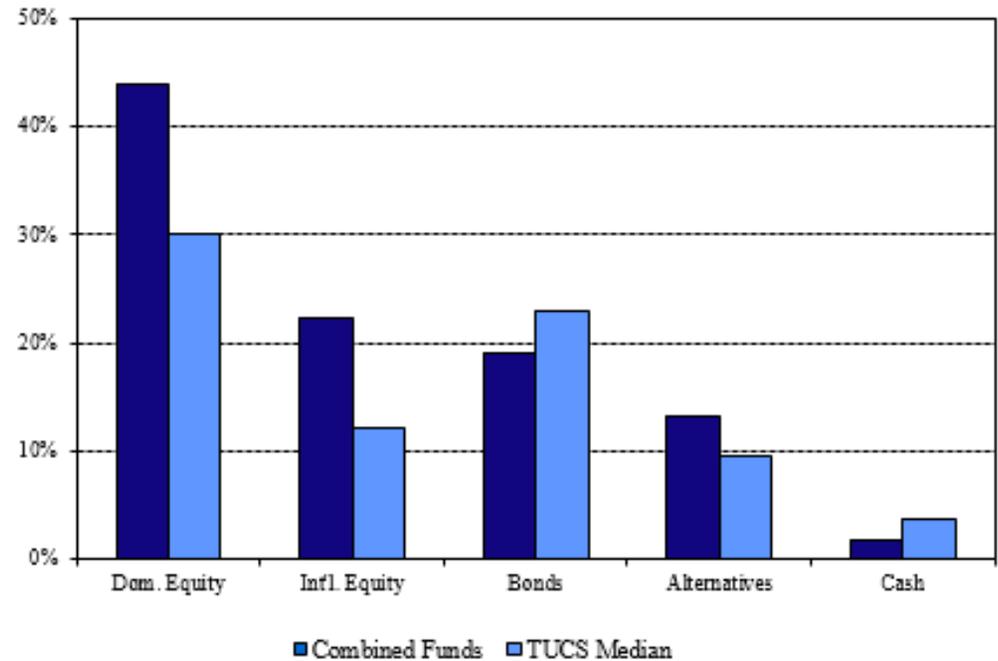
Asset Mix Compared to Other Pension Funds

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

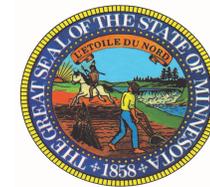
Comparisons of the Combined Funds' asset mix to the median allocation to stocks, bonds and other assets of the public and corporate funds in TUCS over \$1 billion are shown below:

Combined Funds Asset Mix

	<u>(\$Millions)</u>	<u>Actual Mix</u>
Public Equity	43,789	66.3
Fixed Income	12,545	19.0
Private Markets	8,644	13.1
Cash	1,104	1.7
TOTAL	66,083	100.0



	<u>Domestic Equity</u>	<u>International Equity</u>	<u>Bonds</u>	<u>Alternatives</u>	<u>Cash</u>
Combined Funds	43.9%	22.4%	19.0%	13.1%	1.7%
Median in TUCS	30.2%	12.2%	23.0%	9.6%	3.6%



Combined Funds Summary

Performance Compared to Other Pension Funds

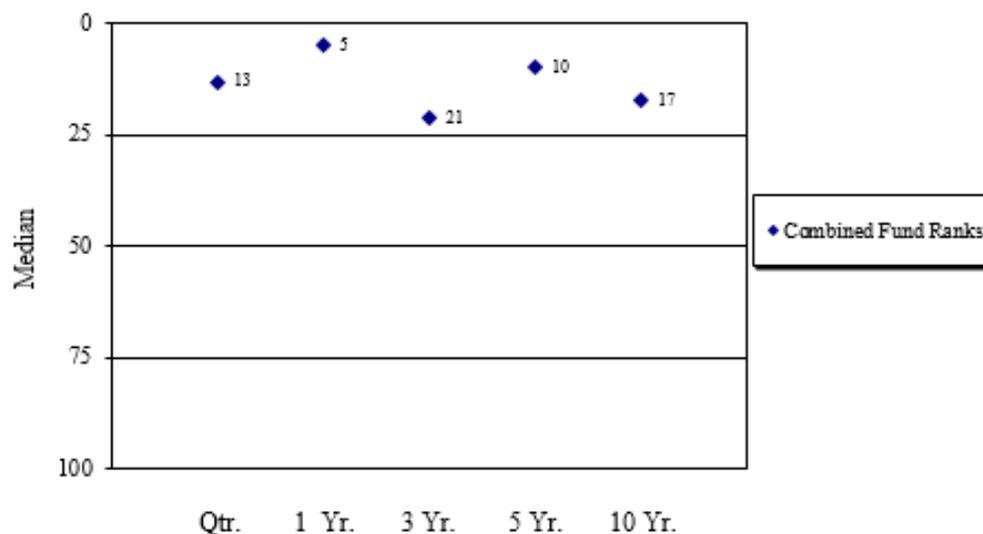
While the SBI is concerned with how its returns compare to other pension investors, universe comparisons should be used with great care. There are several reasons why such comparisons will provide an "apples to oranges" look at performance:

- **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.

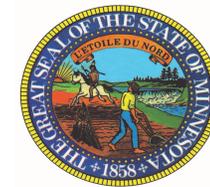
- **Differing Goals/Liabilities.** Each pension fund structures its portfolio to meet its own liabilities and risk tolerance. This will result in different asset mix choices. Since asset mix will largely determine investment results, a universe ranking is not relevant to a discussion of how well a plan 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 9/30/17				
	<u>Quarter</u>	<u>1 Year</u>	<u>3 Years</u>	<u>5 Years</u>	<u>10 Years</u>
Combined Funds	13th	5th	21st	10th	17th
Percentile Rank in TUCS					



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.

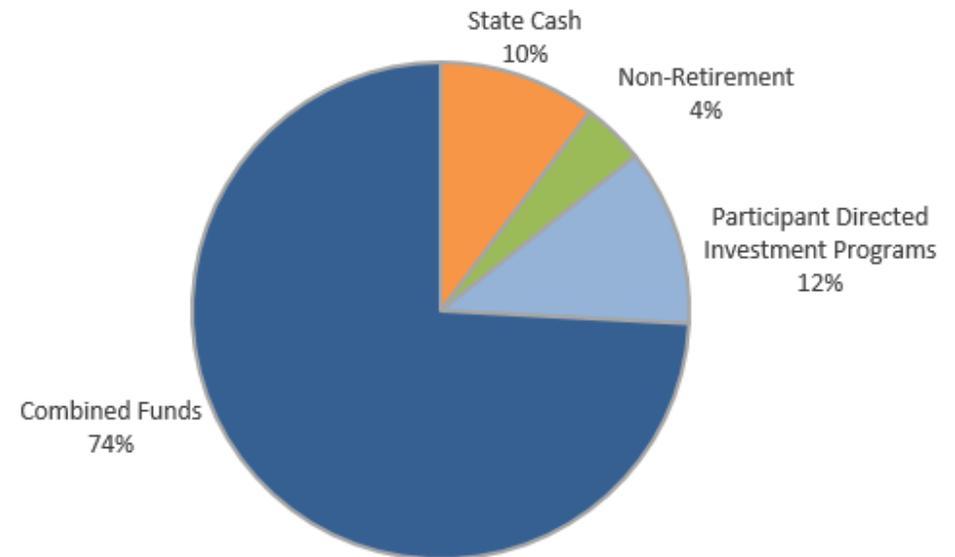
State Cash

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>\$ Billions</u>
COMBINED FUNDS	
Combined Funds	\$66.1
PARTICIPANT DIRECTED INVESTMENT PROGRAMS	
Supplemental Investment Fund*	3.6
State Deferred Compensation Plan**	5.3
Minnesota College Savings Plan	1.4
Achieve a Better Life Experience	0.0
NON-RETIREMENT FUNDS	
Assigned Risk Plan	0.3
Permanent School Fund	1.3
Environmental Trust Fund	1.1
Closed Landfill Investment Fund	0.1
Miscellaneous Trust Accounts	0.2
Other Post Employment Benefits Accounts	0.6
STATE CASH ACCOUNTS	
Invested Treasurer's Cash	9.0
Other State Cash Accounts	0.1
TOTAL	89.1



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

** Does not include Money Market and Stable Value options that are included in the Supplemental Investment Fund market value

Note: Differentials within column amounts may occur due to rounding

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EXECUTIVE DIRECTOR'S ADMINISTRATIVE REPORT

DATE: November 28, 2017

TO: Members, State Board of Investment

FROM: **Mansco Perry III**

1. Reports on Budget and Travel

A report on the SBI's administrative budget for the fiscal year to date through September 30, 2017 is included as **Attachment A**.

A report on travel for the period from July 1, 2017 – September 30, 2017 is included as **Attachment B**.

2. FY17 Audit Report

The Legislative Auditor is working on the financial audit of SBI operations for FY17. We will inform you of the results upon completion of the audit.

3. Draft of FY17 Annual Report

A draft of the SBI's annual report for FY17 will be distributed to the Board members/designees and IAC members in December or January.

4. Meeting Dates for Calendar 2018.

IAC
Monday, February 12, 2018
Monday, May 14, 2018
Monday, August 13, 2018
Monday, November 19, 2018

SBI
Thursday, March 1, 2018
Thursday, June 14, 2018
Friday, September 14, 2018
Thursday, December 13, 2018

5. 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 Empowering Responsible Investment EIRIS Conflict Risk Network (CRN) about the status of companies with operations in Sudan.

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

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

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

In the third quarter, SBI managers sold 271,244 shares in two companies on the divestment list.

Attachment C is a copy of the September 26, 2017 letter sent to each international equity manager and domestic equity manager containing the most recent restricted list and the list of stocks to be divested.

6. 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 IW Financial, through Glass Lewis. Staff receives monthly reports from the SBI's custodian bank concerning SBI holdings of companies on the restricted list and writes letters as required by the law.

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

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

In the third quarter, SBI managers sold 22,986 shares in one company on the divestment list.

Attachment D is a copy of the September 26, 2017 letter sent to each international equity manager and domestic equity manager and fixed income manager containing the end of quarter restricted list and the list of companies to be divested.

7. Litigation Update

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

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ATTACHMENT A

**STATE BOARD OF INVESTMENT
FISCAL YEAR 2018 ADMINISTRATIVE BUDGET REPORT
FISCAL YEAR TO DATE THROUGH SEPTEMBER 30, 2017**

ITEM	FISCAL YEAR 2018 BUDGET	FISCAL YEAR 2018 9/30/2017
PERSONNEL SERVICES		
FULL TIME EMPLOYEES	\$ 4,827,900	\$ 1,001,706
PART TIME EMPLOYEES	0	0
MISCELLANEOUS PAYROLL	100,000	0
SUBTOTAL	\$ 4,927,900	\$ 1,001,706
STATE OPERATIONS		
RENTS & LEASES	285,000	93,335
REPAIRS/ALTERATIONS/MAINTENANCE	14,000	1,663
PRINTING & BINDING	9,000	244
PROFESSIONAL/TECHNICAL SERVICES	175,000	1,067
COMPUTER SYSTEMS SERVICES	83,000	4,169
COMMUNICATIONS	36,000	4,850
TRAVEL, IN-STATE	1,000	82
TRAVEL, OUT-STATE	125,000	17,037
SUPPLIES	28,000	7,375
EQUIPMENT	25,000	1,356
EMPLOYEE DEVELOPMENT	105,000	7,721
OTHER OPERATING COSTS	140,000	29,642
INDIRECT COSTS	250,000	50,648
SUBTOTAL	\$ 1,276,000	\$ 219,188
TOTAL ADMINISTRATIVE BUDGET	\$ 6,203,900	\$ 1,220,894

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ATTACHMENT B

STATE BOARD OF INVESTMENT

**Travel Summary by Date
SBI Travel July 1, 2017 - September 30, 2017**

Purpose	Name	Destination and Date	Total Cost
Manager Search Alternative Investment Managers: TPG Sixth Street Partners; White Oak Global Advisers; Thoma Bravo; Fortress	R. Hill	San Francisco, CA 7/5-7/7	\$ 826.42
Manager Search Alternative Investment Managers: TPG Sixth Street Partners; White Oak Global Advisers; Thoma Bravo; Fortress	C. Boll	San Francisco, CA 7/5-7/7	1,158.10
In-State Travel: Princeton Fire Relief Presentation	P. Ammann	Princeton, MN 7/10	39.16
In-State Travel: Princeton Fire Relief Presentation	S. Baribeau	Princeton, MN 7/10	39.16
Conference: Institutional Limited Partners Association (ILPA) Institute Level II	J. Stacy	Chicago, IL 7/11-7/14	3,690.69
Conference: Financial Analysts Seminar sponsored by CFA Institute	M. Menssen	Chicago, IL 7/23-7/27	4,277.14

STATE BOARD OF INVESTMENT

**Travel Summary by Date
SBI Travel July 1, 2017 - September 30, 2017**

Purpose	Name	Destination and Date	Total Cost
Manager Search Alternative Investment Manager: Carlyle Realty Partners	J. Stacy	Washington, DC 7/24-7/25	\$ 830.25
Manager Search Alternative Investment Manager: Carlyle Realty Partners	A. Krech	Washington, DC 7/24-7/25	801.02
Conference: Institutional Limited Partners Association (ILPA) Institute Level 1	P. Ammann	Chicago, IL 7/30-8/2	1,173.71
Conference: Institutional Limited Partners Association (ILPA) Institute Level 1	C. Boll	Chicago, IL 7/30-8/2	1,158.63
In-State Travel: Fraud Awareness Training	I. Shafir	St. Paul, MN 8/31	3.20
Manager Monitoring Alternative Investment Manager: BlackRock (BlackRock Real Assets US Forum)	A. Krech	Chicago, IL 9/11-9/13	1,466.37
Manager Monitoring Alternative Investment Managers: Court Square; Welsh Carson; Warburg Pincus; Permira	J. Stacy	New York, NY 9/13-9/15	1,436.92

STATE BOARD OF INVESTMENT

Travel Summary by Date SBI Travel July 1, 2017 - September 30, 2017

Purpose	Name	Destination and Date	Total Cost
Conference: Council of Institutional Investors (CII) Fall 2017 Conference	J. Mulé	San Diego, CA 9/13-9/15	\$ 1,383.36
Manager Monitoring Alternative Investment Managers: Angelo Gordon, PPC Enterprises; Rockwood Capital RE Partners; Goldman Sachs Manager Search Alternative Investment Manager: Warburg Pincus Financial Sector	P. Ammann	New York, NY 9/18-9/20	1,523.32
Conference: National Association of State Investment Officers (NASIO)	M. Perry	Nashville, TN 9/24-9/27	2,969.85

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ATTACHMENT C

Letter to SBI Domestic and International Equity Managers

September 26, 2017

Regarding: Sudan Companies

Dear Manager:

The Minnesota State Board of Investment (SBI) sent you prior communication concerning holdings in companies doing business in Sudan. **This new communication applies to all SBI equity portfolios managed by your organization and replaces all prior communications. This communication also applies to all depository receipts or ADR's of any of the listed companies.**

Minnesota Statutes, section 11A.243 requires the SBI to implement a Sudan restriction.

Attachment 1 is the List of Restricted Sudan Stocks. These securities **may not be purchased** for the SBI portfolio that your organization manages. If you own securities of companies on the Restricted List **and** the companies are **not** on the divestment list, then you do not need to sell your holdings. Please note that the attached list makes changes to the List of Restricted Sudan Companies that was attached to the June 29, 2017 letter you received. **This new list is effective September 30, 2017.**

Changes to Attachment 1:

The following company **has been removed** from the Restricted List:

- **Bharat Heavy Electricals Limited** **India**

Attachment 2 is the List of Sudan Stocks Requiring Divestment. If you own securities of companies on this list then you must **divest** those holdings according to the schedule provided in the attachment:

- At least 50 percent of a company's holdings must be sold by the date indicated; and
- At least 100 percent of a company's holdings must be sold by the date indicated.

Changes to Attachment 2:

The following company **has been added** to the Divestment List:

- **Siemens AG** **Germany**

Attachment 3 is a list of security identifiers for the companies on the List of Restricted Sudan Stocks (Attachment 1) that your organization may use. The SBI does not represent that this is a complete list of identifiers. The manager is responsible for identifying all listings. Please note that the list of security identifiers may have information on companies not on the restricted list.

If you have any questions about this matter, please contact your assigned SBI Investment Officer.

Sincerely,

Paul T. Anderson
Director, Investment Administration

Enclosures

cc: LeaAnn M. Stagg, Assistant Executive Director and Chief Operating Officer
Michael J. Menssen, Director, Debt Management
Tammy Brusehaver, Investment Officer, Public Equity
Stephanie Gleeson, Investment Officer, Public Equity

ATTACHMENT 1

Restricted Sudan Stocks

Company Name	Country
Andritz AG	Austria
Orca Gold Inc.	Canada
China Gezhouba Group Company Limited	China
China North Industries Group Corporation AKA CNGC/NORINCO	China
China Petroleum and Chemical Corporation AKA Sinopec Corp.	China
China Poly Group Corporation	China
China Petrochemical Corporation	China
Daqing Huake Group Company Limited	China
Dongfeng Motor Group Company Limited	China
Harbin Electric Company Ltd.	China
Jiangxi Hongdu Aviation	China
NORINCO International Cooperation Ltd	China
North Huajin Chemical Industries Co.	China
North Navigation Control Technology Co. Ltd	China
Petrochina Co. Ltd AKA China National Petroleum Corporation (CNPC)	China
Poly Property Group Co. Ltd.	China
Power Construction Corporation of China Ltd.	China
Power Construction Corporation of China (PowerChina)	China
Shanghai Electric Group Co. Ltd.	China
Sinopec Engineering Group Co. Ltd.	China
Sinopec Shanghai Petrochemicals Ltd	China
Sinopec Oilfield Service Corp	China
Egypt Kuwait Holding Company	Egypt
ENGIE	France
Parisienne Chauffage Urbain	France
MAN SE	Germany
Renk AG	Germany
Volkswagen AG	Germany
Siemens AG	Germany
Kunlun Energy Co. Ltd	Hong Kong
Sinopec Kanton Holdings Limited	Hong Kong
Bharat Electronics Limited	India
Chennai Petroleum Corporation Ltd. AKA CPCL	India
Indian Oil Corporation Ltd.	India
Lanka IOC Limited	India
Mangalore Refinery and Petrochemicals Limited	India
Oil & Natural Gas Corp. Ltd.	India
Oil India Limited	India
Energy House Holding Co KSCC, The	Kuwait
Kuwait Finance House	Kuwait
Engen Botswana Ltd. AKA Engen	Malaysia
KLCCP Stapled Group AKA KLCC Property Holdings	Malaysia
Malaysia International Shipping Company AKA MISC Berhad	Malaysia

Restricted Sudan Stocks

Company Name	Country
Malaysia Marine and Heavy Engineering Holdings Bhd	Malaysia
Petroliam Nasional Berhad AKA Petronas	Malaysia
Petronas Chemicals Group Berhad	Malaysia
Petronas Dagangan Berhad	Malaysia
Petronas Gas Berhad	Malaysia
Managem	Morocco
Societe Metallurgique D'imiter	Morocco
GAZ Group	Russia
GAZ PJSC	Russia
Kamaz PJSC	Russia
Neftekamsky Avtozavod (aka NEFAZ)	Russia
Pavlovo Bus PJSC	Russia
LS Industrial Systems	South Korea
Atlas Copco AB	Sweden

Note: List contains parent companies and subsidiaries publicly traded.
AKA means "Also Known As"

Source: EIRIS Conflict Risk Network

Effective Date: September 30, 2017

ATTACHMENT 2

SUDAN STOCKS REQUIRING DIVESTMENT

Company Name	Country of Origin	Divest 50 Percent By this Date	Divest 100 Percent By this date
ENGIE	France	June 30, 2017	December 31, 2017
Atlas Copco AB	Sweden	September 30, 2017	March 31, 2018
Siemens AG	Germany	March 31, 2018	September 30, 2018

Effective Date: September 30, 2017

Security Identifiers for "Scrutinized" Stocks

The following security identifiers correlate with the Third Quarter 2017 Sudan Company Report and are current as of August 7, 2017.

ALL DATA IS FROM BLOOMBERG LP UNLESS OTHERWISE NOTED.

STOCKS ADDED SINCE LAST REPORT ARE HIGHLIGHTED

Company	Primary Company (Affiliate/Parent)	Exchange	Security Type	Security Name	Ticker	WPK Number	SEDOL	CUSIP	ISIN	COMMON	CINS
ANDRITZ AG	ANDRITZ GROUP	Vienna (WBAH)	Common Stock	ANDRITZ AG	ANDR AV	RUB 632,305.00	B1WV68 AT		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	BATS Europe (BATE)	Common Stock	ANDRITZ AG	ANDR EB	RUB 632,305.00	B1WV68 AT		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	Chi-X Europe (CHIX)	Common Stock	ANDRITZ AG	ANDR IX	RUB 632,305.00	B1WV68 AT		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	Turquoise (TROX)	Common Stock	ANDRITZ AG	ANDR TQ	RUB 632,305.00	B1WV68 AT		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	Xetra (XETR)	Common Stock	ANDRITZ AG	AZ2 B	RUB 632,305.00	B1X9FH2 DE		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	Xetra (XETR)	Common Stock	ANDRITZ AG	AZ2 GD	RUB 632,305.00	B1X9FH2 DE		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	Xetra (XETR)	Common Stock	ANDRITZ AG	AZ2 GF	RUB 632,305.00	B1X9FH2 DE		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	Xetra (XETR)	Common Stock	ANDRITZ AG	AZ2 GH	RUB 632,305.00	B1X9FH2 DE		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	Xetra (XETR)	Common Stock	ANDRITZ AG	AZ2 GM	RUB 632,305.00	B1X9FH2 DE		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	Xetra (XETR)	Common Stock	ANDRITZ AG	AZ2 GR	RUB 632,305.00	B1X9FH2 DE		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	Xetra (XETR)	Common Stock	ANDRITZ AG	AZ2 GS	RUB 632,305.00	B1X9FH2 DE		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	Xetra (XETR)	Common Stock	ANDRITZ AG	AZ2 GY	RUB 632,305.00	B1X9FH2 DE		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	Gettex (MUND)	Common Stock	ANDRITZ AG	AZ2 GZ	RUB 632,305.00			AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	Quotix Exch (XQTX)	Common Stock	ANDRITZ AG	AZ2 QT	RUB 632,305.00	B1X9FH2 DE		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	Tradegate (XGAT)	Common Stock	ANDRITZ AG	AZ2 TH	RUB 632,305.00	B1X9FH2 DE		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	OTC US (OOTC)	Common Stock	ANDRITZ US	ADRZF US	632305	B1XBL36		AT0000730007	RUB 13,042,748.00	A1123105
ANDRITZ AG	ANDRITZ GROUP	OTC US (OOTC)	Common Stock	ANDRITZ US	ADRZF UV	632305	B1XBL36		AT0000730007	RUB 13,042,748.00	A1123105
ANDRITZ AG	ANDRITZ GROUP	Euro Comp (XLON)	Common Stock	ANDRITZ AG	ANDR EU	RUB 632,305.00	B28F3F6 GB		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	LSE Europe QS (XLON)	Common Stock	ANDRITZ AG	ANDR LI	RUB 632,305.00	B28F3F6 GB		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	LSE Europe QS (XLON)	Common Stock	ANDRITZ AG	ANDR LO	RUB 632,305.00	B28F3F6 GB		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	Euro OTC (XLON)	Common Stock	ANDRITZ AG	ANDR KA	RUB 632,305.00	B28F3F6 GB		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	Euro OTC (XLON)	Common Stock	ANDRITZ AG	ANDR XB	RUB 632,305.00	B28F3F6 GB		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	Euro OTC (XLON)	Common Stock	ANDRITZ AG	ANDR XD	RUB 632,305.00	B28F3F6 GB		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	Euro OTC (XLON)	Common Stock	ANDRITZ AG	ANDR XE	RUB 632,305.00	B28F3F6 GB		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	Euro OTC (XLON)	Common Stock	ANDRITZ AG	ANDR XL	RUB 632,305.00	B28F3F6 GB		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	Euro OTC (XLON)	Common Stock	ANDRITZ AG	ANDR XV	RUB 632,305.00	B28F3F6 GB		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	BX Worldcaps (XB RN)	Common Stock	ANDRITZ AG	ANDR BW	RUB 632,305.00	BHZL8M4 CH		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	SIX Swiss Ex (XSWI X)	Common Stock	ANDRITZ AG	ANDR SE	RUB 632,305.00	BHZL8M4 CH		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	BX Worldcaps (XB RN)	Common Stock	ANDRITZ AG	ANDR SW	RUB 632,305.00	BHZL8M4 CH		AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	Euro Comp (XLON)	Common Stock	ANDRITZ AG	ANDR XS	RUB 632,305.00			AT0000730007	RUB 13,042,748.00	A1123105
ANDRITZ AG	ANDRITZ GROUP	Blockmatch (BLOX)	Common Stock	ANDRITZ AG	ANDRCH EU	632305			AT0000730007	RUB 13,042,748.00	
ANDRITZ AG	ANDRITZ GROUP	Liquidnet (LIQU)	Common Stock	ANDRITZ AG	ANDR B3	RUB 632,305.00			AT0000730007		
ANDRITZ AG	ANDRITZ GROUP	ITG Post (XPOS)	Common Stock	ANDRITZ AG	ANDR L3	RUB 632,305.00			AT0000730007	RUB 13,042,748.00	A1123105
ANDRITZ AG	ANDRITZ GROUP	UBS MTF (XUBS)	Common Stock	ANDRITZ AG	ANDR SV	RUB 632,305.00			AT0000730007		
ANDRITZ AG	ANDRITZ GROUP	Sigma X MTF (SGMX)	Common Stock	ANDRITZ AG	ANDR S1	RUB 632,305.00	B1WV68 AT		AT0000730007	013042748	
ANDRITZ AG	ANDRITZ GROUP	OTC US (OOTC)	ADR	ANDRITZ AG-UNSPON ADR	ADRZY PO		B3D4P2 US	034522102	US0345221024		
ANDRITZ AG	ANDRITZ GROUP	OTC US (OOTC)	ADR	ANDRITZ AG-UNSPON ADR	ADRZY US		B3D4P2 US	034522102	US0345221024		
ANDRITZ AG	ANDRITZ GROUP	OTC US (OOTC)	ADR	ANDRITZ AG-UNSPON ADR	ADRZY UV	A1W8D1	B3D4P2 US	034522102	US0345221024	RUB 96,194,871.00	
ATLAS COPCO AB	ATLAS COPCO AB	BATS Europe (BATE)	Common Stock	ATLAS COPCO AB-A SHS	ATCOA EB	A14S17	BXC8B57		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Aquis Exchg (AQXE)	Common Stock	ATLAS COPCO AB-A SHS	ATCOA QX	A14S17	BXC8B57		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Stockholm (XSTO)	Common Stock	ATLAS COPCO AB-A SHS	ATCOA SS	A14S17	BXC8B57		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Euro OTC (XLON)	Common Stock	ATLAS COPCO AB-A SHS	ATCOA XL	A14S17			SE0006886750	123361946	
ATLAS COPCO AB	ATLAS COPCO AB	Euro OTC (XLON)	Common Stock	ATLAS COPCO AB-A SHS	ATCOA XS	A14S17			SE0006886750	123361946	
ATLAS COPCO AB	ATLAS COPCO AB	Equiduct (XEQT)	Common Stock	ATLAS COPCO AB-A SHS	ATCOAS BO	A14S17	BXC8B57		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Chi-X Europe (CHIX)	Common Stock	ATLAS COPCO AB-A SHS	ATCOAS IX	A14S17	BXC8B57		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Liquidnet (LIQU)	Common Stock	ATLAS COPCO AB-A SHS	ATCOAS L3	A14S17			SE0006886750	123361946	
ATLAS COPCO AB	ATLAS COPCO AB	Turquoise (TROX)	Common Stock	ATLAS COPCO AB-A SHS	ATCOAS TO	A14S17	BXC8B57		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	OTC US (OOTC)	Common Stock	ATLAS COPCO AB-A SHS	ATLKF PQ	A14S17	BXDZJPO		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	OTC US (OOTC)	Common Stock	ATLAS COPCO AB-A SHS	ATLKF US	A14S17	BXDZJPO		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	OTC US (OOTC)	Common Stock	ATLAS COPCO AB-A SHS	ATLKF UV	A14S17	BXDZJPO		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	BX Worldcaps (XB RN)	Common Stock	ATLAS COPCO AB-A SHS	ATCOA BW	A14S17	BXV1GV5		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	BX Worldcaps (XB RN)	Common Stock	ATLAS COPCO AB-A SHS	ATCOA SW	A14S17	BXV1GV5		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Frankfurt (XFRA)	Common Stock	ATLAS COPCO AB-A SHS	ACOF GB	A14S17	BXV1GX7		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Frankfurt (XFRA)	Common Stock	ATLAS COPCO AB-A SHS	ACOF GD	A14S17	BXV1GX7		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Frankfurt (XFRA)	Common Stock	ATLAS COPCO AB-A SHS	ACOF GF	A14S17	BXV1GX7		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Frankfurt (XFRA)	Common Stock	ATLAS COPCO AB-A SHS	ACOF GI	A14S17	BXV1GX7		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Frankfurt (XFRA)	Common Stock	ATLAS COPCO AB-A SHS	ACOF GR	A14S17	BXV1GX7		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Frankfurt (XFRA)	Common Stock	ATLAS COPCO AB-A SHS	ACOF GS	A14S17	BXV1GX7		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Gettex (MUND)	Common Stock	ATLAS COPCO AB-A SHS	ACOF HZ	A14S17			SE0006886750	123361946	
ATLAS COPCO AB	ATLAS COPCO AB	Quotix Exch (XQTX)	Common Stock	ATLAS COPCO AB-A SHS	ACOF OT	A14S17	BXV1GX7		SE0006886750	123361946	
ATLAS COPCO AB	ATLAS COPCO AB	Tradegate (XGAT)	Common Stock	ATLAS COPCO AB-A SHS	ACOF TH	A14S17	BXV1GX7		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Mexico (XMEX)	Common Stock	ATLAS COPCO AB-A SHS	ACOFN MM	A14S17	BXVKS49		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	LSE Europe QS (XLON)	Common Stock	ATLAS COPCO AB-A SHS	ATCOA LI	A14S17	BXVMB02		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	LSE Europe QS (XLON)	Common Stock	ATLAS COPCO AB-A SHS	ATCOA LO	A14S17	BXVMB02		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Euro Comp (XLON)	Common Stock	ATLAS COPCO AB-A SHS	ATCOA EU	A14S17			SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Euro OTC (XLON)	Common Stock	ATLAS COPCO AB-A SHS	ATCOA XB	A14S17			SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Euro OTC (XLON)	Common Stock	ATLAS COPCO AB-A SHS	ATCOA XE	A14S17			SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Euro OTC (XLON)	Common Stock	ATLAS COPCO AB-A SHS	ATCOA XG	A14S17			SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Euro OTC (XLON)	Common Stock	ATLAS COPCO AB-A SHS	ATCOA XY	A14S17			SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Euro Comp (XLON)	Common Stock	ATLAS COPCO AB-A SHS	ATCOAEUR EU	A14S17			SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Euro OTC (XLON)	Common Stock	ATLAS COPCO AB-A SHS	ATCOAEUR XS	A14S17			SE0006886750	123361946	
ATLAS COPCO AB	ATLAS COPCO AB	Blockmatch (BLOX)	Common Stock	ATLAS COPCO AB-A SHS	ATCOAS B3	A14S17			SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	ITG Post (XPOS)	Common Stock	ATLAS COPCO AB-A SHS	ATCOAS PO	A14S17			SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	UBS MTF (XUBS)	Common Stock	ATLAS COPCO AB-A SHS	ATCOAS S2	A14S17			SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Sigma X MTF (SGMX)	Common Stock	ATLAS COPCO AB-A SHS	ATCOAS S1	A14S17	BXC8B57		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Euro OTC (XLON)	Common Stock	ATLAS COPCO AB-A SHS	ATCOA KA	A14S17			SE0006886750	123361946	
ATLAS COPCO AB	ATLAS COPCO AB	Quotix Exch (XQTX)	Common Stock	ATLAS COPCO AB-B SHS	ACOB OT	A14S18			SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Berlin (XBER)	Common Stock	ATLAS COPCO AB-B SHS	ACOB GB	A14S18	BW45D0		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Berlin (XBER)	Common Stock	ATLAS COPCO AB-B SHS	ACOB GD	A14S18	BW45D0		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Berlin (XBER)	Common Stock	ATLAS COPCO AB-B SHS	ACOB GM	A14S18	BW45D0		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Berlin (XBER)	Common Stock	ATLAS COPCO AB-B SHS	ACOB GN	A14S18	BW45D0		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Berlin (XBER)	Common Stock	ATLAS COPCO AB-B SHS	ACOB GR	A14S18	BW45D0		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Berlin (XBER)	Common Stock	ATLAS COPCO AB-B SHS	ACOB GS	A14S18	BW45D0		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	Chi-X Europe (CHIX)	Common Stock	ATLAS COPCO AB-B SHS	ATCOB IX	A14S18	BXC8BW1		SE0006886750		
ATLAS COPCO AB	ATLAS COPCO AB	BATS Europe (BATE)	Common Stock	ATLAS COPCO AB-B SHS	ATCOB EB	A14S18	BXC8BW1		SE0006886750		

PAVLOVO BUS PJSC	GAZ GROUP	MICEX Main (MISX)	Common Stock	PAVLOVO BUS PJSC	PAZA RM	RUB 908,324.00	B57MPG4 RU	RU0009083240	
PAVLOVO BUS PJSC	GAZ GROUP	MICEX Main (MISX)	Common Stock	PAVLOVO BUS PJSC	PAZA RX	RUB 908,324.00	B57MPG4 RU	RU0009083240	
HARBIN ELECTRIC CO LTD	HARBIN ELECTRIC CO LTD	Hong Kong (XHKG)	Common Stock	HARBIN ELECTRIC CO LTD-H	1133 HK	A0M4X8	6422761 HK	CNE1000003C0	RUB 11,043,780.00
HARBIN ELECTRIC CO LTD	HARBIN ELECTRIC CO LTD	Frankfurt (XFR)	Common Stock	HARBIN ELECTRIC CO LTD-H	HP6H GB	A0M4X8	B1HJDX0 DE	CNE1000003C0	RUB 11,043,780.00
HARBIN ELECTRIC CO LTD	HARBIN ELECTRIC CO LTD	Frankfurt (XFR)	Common Stock	HARBIN ELECTRIC CO LTD-H	HP6H GB	A0M4X8	B1HJDX0 DE	CNE1000003C0	RUB 11,043,780.00
HARBIN ELECTRIC CO LTD	HARBIN ELECTRIC CO LTD	Frankfurt (XFR)	Common Stock	HARBIN ELECTRIC CO LTD-H	HP6H GB	A0M4X8	B1HJDX0 DE	CNE1000003C0	RUB 11,043,780.00
CHENNAI PETROLEUM CORPORATION LIMITED	INDIAN OIL CORP LTD aka IOCL	Mumbai (XBOM)	Common Stock	CHENNAI PETROLEUM CORP LTD	MRLIB	A0B968	6121563 IN	INE178A01016	
CHENNAI PETROLEUM CORPORATION LIMITED	INDIAN OIL CORP LTD aka IOCL	Mumbai (XBOM)	Common Stock	CHENNAI PETROLEUM CORP LTD	MRLIN	A0B968	6121563 IN	INE178A01016	
CHENNAI PETROLEUM CORPORATION LIMITED	INDIAN OIL CORP LTD aka IOCL	Mumbai (XBOM)	Common Stock	CHENNAI PETROLEUM CORP LTD	MRLIS	A0B968	6121563 IN	INE178A01016	
CHENNAI PETROLEUM CORPORATION LIMITED	INDIAN OIL CORP LTD aka IOCL	Nat India (XNSE)	Sec Lending	CHENNAI PETROLEUM CORP-SLB	MRLSIN				
CHENNAI PETROLEUM CORPORATION LIMITED	INDIAN OIL CORP LTD aka IOCL	Nat India (XNSE)	Sec Lending	CHENNAI PETROLEUM CORP-SLB	MRLSIS				
INDIAN OIL CORP LTD	INDIAN OIL CORP LTD aka IOCL	Nat India (XNSE)	Common Stock	INDIAN OIL CORPORATION LTD	IOCLB	A0B9FM	6253767 IN	INE242A01010	
INDIAN OIL CORP LTD	INDIAN OIL CORP LTD aka IOCL	Nat India (XNSE)	Common Stock	INDIAN OIL CORPORATION LTD	IOCLN	A0B9FM	6253767 IN	INE242A01010	
INDIAN OIL CORP LTD	INDIAN OIL CORP LTD aka IOCL	Nat India (XNSE)	Common Stock	INDIAN OIL CORPORATION LTD	IOCLIS	A0B9FM	6253767 IN	INE242A01010	
INDIAN OIL CORP LTD	INDIAN OIL CORP LTD aka IOCL	Nat India (XNSE)	Sec Lending	INDIAN OIL CORP LTD-SLB	IOCLSL				
INDIAN OIL CORP LTD	INDIAN OIL CORP LTD aka IOCL	Nat India (XNSE)	Sec Lending	INDIAN OIL CORP LTD-SLB	IOCLSI				
LANKA IOC PLC	INDIAN OIL CORP LTD aka IOCL	Colombo (XCLO)	Common Stock	LANKA IOC PLC	LIQO SL	A0D83L	B0591G4 LK	LK0345N00005	
JIANGXI HONGDU AVIATION INDUSTRY CO LTD	JIANGXI HONGDU AVIATION	Shanghai (XSHG)	Common Stock	JIANGXI HONGDU AVIATION-A	600316 CG	A0M4EK	6304375 CN	CNE0000015N3	
JIANGXI HONGDU AVIATION INDUSTRY CO LTD	JIANGXI HONGDU AVIATION	Shanghai (XSHG)	Common Stock	JIANGXI HONGDU AVIATION-A	600316 CH	A0M4EK	6304375 CN	CNE0000015N3	
JIANGXI HONGDU AVIATION INDUSTRY CO LTD	JIANGXI HONGDU AVIATION	Nrh SSE-SEHK (XSSE)	Common Stock	JIANGXI HONGDU AVIATION-A	600316 C1	A0M4EK	BP3R8J7 CN	CNE0000015N3	
KAMAZ PJSC	KAMAZ PJSC	MICEX Main (XMIC)	Common Stock	KAMAZ PJSC	KMAZ RM	RUB 895,958.00	B55XCO8 RU	RU0008959580	RUB 6,692,125.00
KAMAZ PJSC	KAMAZ PJSC	MICEX Main (XMIC)	Common Stock	KAMAZ PJSC	KMAZ RP	RUB 895,958.00	B55XCO8 RU	RU0008959580	RUB 6,692,125.00
KAMAZ PJSC	KAMAZ PJSC	MICEX Main (XMIC)	Common Stock	KAMAZ PJSC	KMAZ RX	RUB 895,958.00	B55XCO8 RU	RU0008959580	RUB 6,692,125.00
NEFTEKAMSKY AVTOZAVOD aka NEFAZ	KAMAZ PJSC	MICEX Main (XMIC)	Common Stock	NEFAZ PJSC	NEFAZ RP		B5637D9 RU	RU0009115604	
NEFTEKAMSKY AVTOZAVOD aka NEFAZ	KAMAZ PJSC	MICEX Main (XMIC)	Common Stock	NEFAZ PJSC	NEFAZ RM		B5637D9 RU	RU0009115604	
NEFTEKAMSKY AVTOZAVOD aka NEFAZ	KAMAZ PJSC	MICEX Main (XMIC)	Common Stock	NEFAZ PJSC	NEFAZ RX		B5637D9 RU	RU0009115604	
LS INDUSTRIAL SYSTEMS CO. LTD	LS INDUSTRIAL SYSTEMS CO. LTD	Korea (XKRK)	Common Stock	LS INDUSTRIAL SYSTEMS	010120 KP	895497	6378217 KR	KR7010120004	
LS INDUSTRIAL SYSTEMS CO. LTD	LS INDUSTRIAL SYSTEMS CO. LTD	Korea (XKRK)	Common Stock	LS INDUSTRIAL SYSTEMS	010120 KX	895497	6378217 KR	KR7010120004	
MAN SE	MAN SE	Equiduct (XEQT)	Common Stock	MAN SE	MAN BQ	RUB 593,700.00	5563520 DE	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	BX Worldcaps (XBRN)	Common Stock	MAN SE	MAN BV	RUB 593,700.00	5563520 DE	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	BATS Europe (BATE)	Common Stock	MAN SE	MAN EB	RUB 593,700.00	5563520 DE	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Xetra (XETR)	Common Stock	MAN SE	MAN GB	RUB 593,700.00	5563520 DE	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Xetra (XETR)	Common Stock	MAN SE	MAN GD	RUB 593,700.00	5563520 DE	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Xetra (XETR)	Common Stock	MAN SE	MAN GF	RUB 593,700.00	5563520 DE	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Xetra (XETR)	Common Stock	MAN SE	MAN GH	RUB 593,700.00	5563520 DE	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Xetra (XETR)	Common Stock	MAN SE	MAN GI	RUB 593,700.00	5563520 DE	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Xetra (XETR)	Common Stock	MAN SE	MAN GM	RUB 593,700.00	5563520 DE	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Xetra (XETR)	Common Stock	MAN SE	MAN GS	RUB 593,700.00	5563520 DE	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Xetra (XETR)	Common Stock	MAN SE	MAN GT	RUB 593,700.00	5563520 DE	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Gettex (MUND)	Common Stock	MAN SE	MAN GZ	RUB 593,700.00	5563520 DE	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Quotix Exch (XQTX)	Common Stock	MAN SE	MAN QT	RUB 593,700.00	5563520 DE	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Sigma X MTF (SGMX)	Common Stock	MAN SE	MAN S1	RUB 593,700.00	5563520 DE	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	BX Worldcaps (XBRN)	Common Stock	MAN SE	MAN SW	RUB 593,700.00	5563520 DE	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Tradegate (XGAT)	Common Stock	MAN SE	MAN TH	RUB 593,700.00	5563520 DE	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Turquoise (TRQX)	Common Stock	MAN SE	MAN TQ	RUB 593,700.00	5563520 DE	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Euro OTC (XLON)	Common Stock	MAN SE	MAN XA	RUB 593,700.00	5563520 DE	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Euro OTC (XLON)	Common Stock	MAN SE	MAN XD	RUB 593,700.00	5563520 DE	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Aquis Exchg (AQXE)	Common Stock	MAN SE	MAND QX	RUB 593,700.00	5563520 DE	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Chi-X Europe (CHIX)	Common Stock	MAN SE	MANG IX	RUB 593,700.00	5563520 DE	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	SIX Swiss Ex (XSWX)	Common Stock	MAN SE	MAN SE	RUB 593,700.00	5628883 CH	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Euro Comp (XLON)	Common Stock	MAN SE	MAN EU	RUB 593,700.00	B10LRX1 GB	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	LSE EuropeQS (XLON)	Common Stock	MAN SE	MAN LI	RUB 593,700.00	B10LRX1 GB	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	LSE EuropeQS (XLON)	Common Stock	MAN SE	MAN LO	RUB 593,700.00	B10LRX1 GB	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Euro OTC (XLON)	Common Stock	MAN SE	MAN XB	RUB 593,700.00	B10LRX1 GB	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Euro OTC (XLON)	Common Stock	MAN SE	MAN XC	RUB 593,700.00	B10LRX1 GB	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Euro OTC (XLON)	Common Stock	MAN SE	MAN XS	RUB 593,700.00	B10LRX1 GB	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Euro OTC (XLON)	Common Stock	MAN SE	MAN XV	RUB 593,700.00	B10LRX1 GB	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Euro TLX (ETLX)	Common Stock	MAN SE	MAN TE	RUB 593,700.00	B88FOL3 IT	DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Euro Comp (XLON)	Common Stock	MAN SE	MANCH EU	RUB 593,700.00		DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Blockmatch (BLOX)	Common Stock	MAN SE	MAN D3	RUB 593,700.00		DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	ITG Post (XPOS)	Common Stock	MAN SE	MAND PO	RUB 593,700.00		DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	SIX Swiss Ex (XSWX)	Common Stock	MAN SE	MAN S2	RUB 593,700.00		DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	Euro OTC (XLON)	Common Stock	MAN SE	MAN XI	RUB 593,700.00		DE0005937007	RUB 1,117,254.00
MAN SE	MAN SE	LSE EuropeQS (XLON)	Preference	MAN SE-VORZUGSAKTIE	MAN3 L1	RUB 593,703.00	B28K2R6 GB	DE0005937031	RUB 1,114,816.00
MAN SE	MAN SE	LSE EuropeQS (XLON)	Preference	MAN SE-VORZUGSAKTIE	MAN3 L0	RUB 593,703.00	B28K2R6 GB	DE0005937031	RUB 1,114,816.00
MAN SE	MAN SE	Turquoise (TRQX)	Preference	MAN SE-VORZUGSAKTIE	MAN3 TQ	RUB 593,703.00	5563531 DE	DE0005937031	RUB 1,114,816.00
MAN SE	MAN SE	BATS Europe (BATE)	Preference	MAN SE-PFD	MAN3 EB	RUB 593,703.00	5563531 DE	DE0005937031	RUB 1,114,816.00
MAN SE	MAN SE	Blockmatch (BLOX)	Preference	MAN SE-PFD	MAN3 B3	RUB 593,703.00		DE0005937031	RUB 1,114,816.00
MAN SE	MAN SE	Xetra (XETR)	Preference	MAN SE-PFD	MAN3 GB	RUB 593,703.00	5563531 DE	DE0005937031	RUB 1,114,816.00
MAN SE	MAN SE	Xetra (XETR)	Preference	MAN SE-PFD	MAN3 GD	RUB 593,703.00	5563531 DE	DE0005937031	RUB 1,114,816.00
MAN SE	MAN SE	Xetra (XETR)	Preference	MAN SE-PFD	MAN3 GF	RUB 593,703.00	5563531 DE	DE0005937031	RUB 1,114,816.00
MAN SE	MAN SE	Xetra (XETR)	Preference	MAN SE-PFD	MAN3 GH	RUB 593,703.00	5563531 DE	DE0005937031	RUB 1,114,816.00
MAN SE	MAN SE	Xetra (XETR)	Preference	MAN SE-PFD	MAN3 GI	RUB 593,703.00	5563531 DE	DE0005937031	RUB 1,114,816.00
MAN SE	MAN SE	Xetra (XETR)	Preference	MAN SE-PFD	MAN3 GM	RUB 593,703.00	5563531 DE	DE0005937031	RUB 1,114,816.00
MAN SE	MAN SE	Xetra (XETR)	Preference	MAN SE-PFD	MAN3 GN	RUB 593,703.00	5563531 DE	DE0005937031	RUB 1,114,816.00
MAN SE	MAN SE	Xetra (XETR)	Preference	MAN SE-PFD	MAN3 GS	RUB 593,703.00	5563531 DE	DE0005937031	RUB 1,114,816.00
MAN SE	MAN SE	Xetra (XETR)	Preference	MAN SE-PFD	MAN3 GT	RUB 593,703.00	5563531 DE	DE0005937031	RUB 1,114,816.00
MAN SE	MAN SE	Quotix Exch (XQTX)	Preference	MAN SE-PFD	MAN3 QT	RUB 593,703.00	5563531 DE	DE0005937031	RUB 1,114,816.00
MAN SE	MAN SE	Chi-X Europe (CHIX)	Preference	MAN SE-PFD	MAN3 QX	RUB 593,703.00	5563531 DE	DE0005937031	RUB 1,114,816.00
MAN SE	MAN SE	Euro Comp (XLON)	Preference	MAN SE-PFD	MAN3 EU	RUB 593,703.00	B28K2R6 GB	DE0005937031	RUB 1,114,816.00
MAN SE	MAN SE	Euro OTC (XLON)	Preference	MAN SE-PFD	MAN3 XS	RUB 593,703.00	B28K2R6 GB	DE0005937031	RUB 1,114,816.00
MAN SE	MAN SE	Tradegate (XGAT)	Preference	MAN SE-PFD	MAN3 TH	RUB 593,703.00	B28K2R6 GB	DE0005937031	RUB 1,114,816.00
MAN SE	MAN SE	OTC US (OOTC)	ADR	MAN SE-ADR	MAGQY PO	B3DY656 US	561641101	US5616411014	RUB 54,361,637.00
MAN SE	MAN SE	OTC US (OOTC)	ADR	MAN SE-ADR	MAGQY US	B3DY656 US	561641101	US5616411014	RUB 54,361,637.00
MAN SE	MAN SE	OTC US (OOTC)	ADR	MAN SE-ADR	MAGQY UV	B3DY656 US	561641101	US5616411014	RUB 54,361,637.00
MAN SE	MAN SE	Frankfurt (XFR)	ADR	MAN SE-ADR	MANC GF	A0YF6N	B590P0 DE	561641101	US5616411014
MAN SE	MAN SE	Frankfurt (XFR)	ADR	MAN SE-ADR	MANC GR	A0YF6N	B590P0 DE	561641101	US5616411014
MAN SE	MAN SE	Frankfurt (XFR)	ADR	MAN SE-ADR	MANC GS	A0YF6N	B590P0 DE	561641101	US5616411014
RENK AG	RENK AG	Frankfurt (XFR)	Common Stock	RENK AG	ZAR GB	RUB 785,000.00	555969 DE	DE0007850000	RUB 1,121,936.00
RENK AG	RENK AG	Frankfurt (XFR)	Common Stock	RENK AG	ZAR GF	RUB 785,000.00	555969 DE	DE0007850000	RUB 1,121,936.00
RENK AG	RENK AG	Frankfurt (XFR)	Common Stock	RENK AG	ZAR GM	RUB 785,000.00	555969 DE	DE0007850000	RUB 1,121,936.00
RENK AG	RENK AG	Frankfurt (XFR)	Common Stock	RENK AG	ZAR GR	RUB 785,000.00	555969 DE	DE0007850000	RUB 1,121,936.00
RENK AG	RENK AG	Frankfurt (XFR)	Common Stock	RENK AG	ZAR GS	RUB 785,000.00	555969 DE	DE0007850000	RUB 1,121,936.00
RENK AG	RENK AG	Gettex (MUND)	Common Stock	RENK AG	ZAR GZ	RUB 785,000.00		DE0007850000	RUB 1,121,936.00
RENK AG	RENK AG	Euro Comp (XLON)	Common Stock	RENK AG	ZAR EU	RUB 785,000.00	B28LK31 GB	DE0007850000	RUB 1,121,936.00
VOLKSWAGEN AG	VolksWAGEN AG	Chi-X Europe (CHIX)	Common Stock	VOLKSWAGEN AG	VVW X	RUB 766,400.00	RUB 5,496,940.00	DE0007664005	RUB 1,115,308.00
VOLKSWAGEN AG	VolksWAGEN AG	LSE EuropeQS (XLON)	Common Stock	VOLKSWAGEN AG	VOW L1	RUB 766,400.00	0308908 DE	DE0007664005	RUB 1,115,308.00
VOLKSWAGEN AG	VolksWAGEN AG	LSE EuropeQS (XLON)	Common Stock	VOL					

MANGALORE REFINERY & PETROCHEMICALS LIMITED	OIL & NATURAL GAS CORP	Mumbai (XBOM)	Common Stock	MANGALORE REFINERY & PETRO	MRPL IS	A0NANW	6121530 IN	INE103A01014		
MANGALORE REFINERY & PETROCHEMICALS LIMITED	OIL & NATURAL GAS CORP	Nat India (XNSE)	Sec Lending	MANGALORE REFINERY & PET-SLB	MRPL/IS					
MANGALORE REFINERY & PETROCHEMICALS LIMITED	OIL & NATURAL GAS CORP	Nat India (XNSE)	Sec Lending	MANGALORE REFINERY & PET-SLB	MRPL/IS					
OIL & NATURAL GAS CORP LTD	OIL & NATURAL GAS CORP	Nat India (XNSE)	Sec Lending	OIL & NATURAL GAS CORP-SLB	ONGC/IS					
OIL & NATURAL GAS CORP LTD	OIL & NATURAL GAS CORP	Nat India (XNSE)	Sec Lending	OIL & NATURAL GAS CORP-SLB	ONGC/IS					
OIL & NATURAL GAS CORP LTD	OIL & NATURAL GAS CORP	Nat India (XNSE)	Common Stock	OIL & NATURAL GAS CORP LTD	ONGC IN	A11HP4	6139362 IN	INE213A01029		
OIL & NATURAL GAS CORP LTD	OIL & NATURAL GAS CORP	Nat India (XNSE)	Common Stock	OIL & NATURAL GAS CORP LTD	ONGC IB	A11HP4	6139362 IS	INE213A01029		
OIL & NATURAL GAS CORP LTD	OIL & NATURAL GAS CORP	Nat India (XNSE)	Common Stock	OIL & NATURAL GAS CORP LTD	ONGC IS	A11HP4	6139362 IS	INE213A01029		
OIL INDIA LTD	OIL INDIA LTD	Nat India (XNSE)	Common Stock	OIL INDIA LTD	OINL IB	A0X9PF	B409H09 IN	INE274J01014		
OIL INDIA LTD	OIL INDIA LTD	Nat India (XNSE)	Common Stock	OIL INDIA LTD	OINL IN	A0X9PF	B409H09 IN	INE274J01014		
OIL INDIA LTD	OIL INDIA LTD	Nat India (XNSE)	Sec Lending	OIL INDIA LTD-SLB	OINL/IS					
OIL INDIA LTD	OIL INDIA LTD	Nat India (XNSE)	Sec Lending	OIL INDIA LTD-SLB	OINL/IS					
OIL INDIA LTD	OIL INDIA LTD	Nat India (XNSE)	Sec Lending	OIL INDIA LTD-SLB	OINL/IS					
OIL INDIA LTD	OIL INDIA LTD	Nat India (XNSE)	Sec Lending	OIL INDIA LTD-SLB	OINL/IS					
ORCA GOLD INC	ORCA GOLD INC	Venture (XTSX)	Common Stock	ORCA GOLD INC	ORG DS	A11T8L	B84J7Q3	68558N102	CAB6558N1024	RUB 91,768,224.00
ORCA GOLD INC	ORCA GOLD INC	Venture (XTSX)	Common Stock	ORCA GOLD INC	ORG CJ	A11T8L	B84J7Q3 CA	68558N102	CAB6558N1024	RUB 91,768,224.00
ORCA GOLD INC	ORCA GOLD INC	Venture (XTSX)	Common Stock	ORCA GOLD INC	ORG CN	A11T8L	B84J7Q3 CA	68558N102	CAB6558N1024	RUB 91,768,224.00
ORCA GOLD INC	ORCA GOLD INC	Venture (XTSX)	Common Stock	ORCA GOLD INC	ORG CV	A11T8L	B84J7Q3 CA	68558N102	CAB6558N1024	RUB 91,768,224.00
ORCA GOLD INC	ORCA GOLD INC	Venture (XTSX)	Common Stock	ORCA GOLD INC	ORG DG	A11T8L	B84J7Q3 CA	68558N102	CAB6558N1024	RUB 91,768,224.00
ORCA GOLD INC	ORCA GOLD INC	Venture (XTSX)	Common Stock	ORCA GOLD INC	ORG DV	A11T8L	B84J7Q3 CA	68558N102	CAB6558N1024	RUB 91,768,224.00
ORCA GOLD INC	ORCA GOLD INC	Venture (XTSX)	Common Stock	ORCA GOLD INC	ORG QF	A11T8L	B84J7Q3 CA	68558N102	CAB6558N1024	RUB 91,768,224.00
ORCA GOLD INC	ORCA GOLD INC	Venture (XTSX)	Common Stock	ORCA GOLD INC	ORG QH	A11T8L	B84J7Q3 CA	68558N102	CAB6558N1024	RUB 91,768,224.00
ORCA GOLD INC	ORCA GOLD INC	Venture (XTSX)	Common Stock	ORCA GOLD INC	HUBA GR	A11T8L	B9L5S59 DE	68558N102	CAB6558N1024	RUB 91,768,224.00
ORCA GOLD INC	ORCA GOLD INC	Venture (XTSX)	Common Stock	ORCA GOLD INC	HUBA GS	A11T8L	B9L5S59 DE	68558N102	CAB6558N1024	RUB 91,768,224.00
ORCA GOLD INC	ORCA GOLD INC	Frankfurt (XFR)	Common Stock	ORCA GOLD INC	HUBA GB	A11T8L	B9L5S59 DE	68558N102	CAB6558N1024	RUB 91,768,224.00
ORCA GOLD INC	ORCA GOLD INC	Frankfurt (XFR)	Common Stock	ORCA GOLD INC	HUBA GF	A11T8L	B9L5S59 DE	68558N102	CAB6558N1024	RUB 91,768,224.00
ORCA GOLD INC	ORCA GOLD INC	Frankfurt (XFR)	Common Stock	ORCA GOLD INC	HUBA GR	A11T8L	B9L5S59 DE	68558N102	CAB6558N1024	RUB 91,768,224.00
ORCA GOLD INC	ORCA GOLD INC	Frankfurt (XFR)	Common Stock	ORCA GOLD INC	HUBA GS	A11T8L	B9L5S59 DE	68558N102	CAB6558N1024	RUB 91,768,224.00
ENGEN BOTSWANA LTD	PETROLIAM NASIONAL BERHAD aka	Gaborone (XBOT)	Common Stock	ENGEN	ENGN BG	RUB 546,632.00	B063G04		BW000000058	
KLCCP STAPLED GROUP	PETROLIAM NASIONAL BERHAD aka	Bursa Malaysia (XKLS)	Common Stock	KLCCP STAPLED GROUP	KLCCSS MK	A1T91X	B92NSW7 MY		MYL5235S0008	
MALAYSIA INTERNATIONAL SHIPPING COMPANY aka MISC BHD	PETROLIAM NASIONAL BERHAD aka	Bursa Malaysia (XKLS)	Common Stock	MISC BHD	MISC MK	RUB 880,504.00	6557997 MY		MYL3816O0005	RUB 3,527,883.00
MALAYSIA MARINE AND HEAVY ENGINEERING HOLDINGS BHD	PETROLIAM NASIONAL BERHAD aka	Bursa Malaysia (XKLS)	Common Stock	MALAYSIA MARINE AND HEAVY EN	MHMH MK	A1C7U6	B3W5N77		MYL186O0001	RUB 55,049,394.00
PETRONAS CHEMICALS GROUP BHD	PETROLIAM NASIONAL BERHAD aka	Bursa Malaysia (XKLS)	Common Stock	PETRONAS CHEMICALS GROUP BHD	PCHM MK	A1C891	B5K0GT3 MY		MYL5183O0008	RUB 55,800,235.00
PETRONAS DAGANGAN BHD	PETROLIAM NASIONAL BERHAD aka	Bursa Malaysia (XKLS)	Common Stock	PETRONAS DAGANGAN BHD	PETD MK	RUB 895,131.00	695938 MY		MYL5681O0001	
PETRONAS DAGANGAN BHD	PETROLIAM NASIONAL BERHAD aka	OTC US (OOTC)	Common Stock	PETRONAS DAGANGAN BHD	PNAD US	RUB 895,131.00	B7PW950 US		MYL5681O0001	
PETRONAS DAGANGAN BHD	PETROLIAM NASIONAL BERHAD aka	OTC US (OOTC)	Common Stock	PETRONAS DAGANGAN BHD	PNAD US	RUB 895,131.00	B7PW950 US		MYL5681O0001	
PETRONAS GAS BHD	PETROLIAM NASIONAL BERHAD aka	Bursa Malaysia (XKLS)	Common Stock	PETRONAS GAS BHD	PTG MK	RUB 896,633.00	6703972 MY		MYL6033O0004	RUB 7,076,959.00
POWER CONSTRUCTION CORP OF CHINA	POWER CONSTRUCTION	Shanghai (XSHG)	Common Stock	POWER CONSTRUCTION CORP OF-A	601669 CG	A1JNL6	B4TH690 CN		CNE1000017G1	
POWER CONSTRUCTION CORP OF CHINA	POWER CONSTRUCTION	Shanghai (XSHG)	Common Stock	POWER CONSTRUCTION CORP OF-A	601669 CH	A1JNL6	B4TH690 CN		CNE1000017G1	
POWER CONSTRUCTION CORP OF CHINA	POWER CONSTRUCTION	Nih SSE-SEHK (XSXC)	Common Stock	POWER CONSTRUCTION CORP OF-A	601669 C1	A1JNL6	BP3R4M2 CN		CNE1000017G1	
SHANGHAI ELECTRIC GROUP CO LTD	SHANGHAI ELECTRIC GROUP CO	Hong Kong (XHKG)	Common Stock	SHANGHAI ELECTRIC GRP CO L-H	2727 HK	A0M4YX	B07J656 HK		CNE100000437	RUB 21,854,387.00
SHANGHAI ELECTRIC GROUP CO LTD	SHANGHAI ELECTRIC GROUP CO	Frankfurt (XFR)	Common Stock	SHANGHAI ELECTRIC GRP CO L-H	USR GB	A0M4YX	B07ZG10 DE		CNE100000437	RUB 21,854,387.00
SHANGHAI ELECTRIC GROUP CO LTD	SHANGHAI ELECTRIC GROUP CO	Frankfurt (XFR)	Common Stock	SHANGHAI ELECTRIC GRP CO L-H	USR GF	A0M4YX	B07ZG10 DE		CNE100000437	RUB 21,854,387.00
SHANGHAI ELECTRIC GROUP CO LTD	SHANGHAI ELECTRIC GROUP CO	Frankfurt (XFR)	Common Stock	SHANGHAI ELECTRIC GRP CO L-H	USR GZ	A0M4YX	B07ZG10 DE		CNE100000437	RUB 21,854,387.00
SHANGHAI ELECTRIC GROUP CO LTD	SHANGHAI ELECTRIC GROUP CO	Frankfurt (XFR)	Common Stock	SHANGHAI ELECTRIC GRP CO L-H	USR GR	A0M4YX	B07ZG10 DE		CNE100000437	RUB 21,854,387.00
SHANGHAI ELECTRIC GROUP CO LTD	SHANGHAI ELECTRIC GROUP CO	Frankfurt (XFR)	Common Stock	SHANGHAI ELECTRIC GRP CO L-H	USR GS	A0M4YX	B07ZG10 DE		CNE100000437	RUB 21,854,387.00
SHANGHAI ELECTRIC GROUP CO LTD	SHANGHAI ELECTRIC GROUP CO	Sh SSE-SEHK (SHSC)	Common Stock	SHANGHAI ELECTRIC GRP CO L-H	2727 H1	A0M4YX	BP3R269 HK		CNE100000437	RUB 21,854,387.00
SHANGHAI ELECTRIC GROUP CO LTD	SHANGHAI ELECTRIC GROUP CO	Euro Comp (XLON)	Common Stock	SHANGHAI ELECTRIC GRP CO L-H	2727EUR EU	A0M4YX			CNE100000437	RUB 21,854,387.00
SHANGHAI ELECTRIC GROUP CO LTD	SHANGHAI ELECTRIC GROUP CO	OTC US (OOTC)	ADR	SHANGHAI ELECTRIC-UNSP ADR	A11H9PU		B3L2823 US	81943J108	US81943J1088	Y7682N404
SHANGHAI ELECTRIC GROUP CO LTD	SHANGHAI ELECTRIC GROUP CO	OTC US (OOTC)	ADR	SHANGHAI ELECTRIC-UNSP ADR	SIELY US	A11H9PU	B3L2823 US	81943J108	US81943J1088	
SHANGHAI ELECTRIC GROUP CO LTD	SHANGHAI ELECTRIC GROUP CO	OTC US (OOTC)	ADR	SHANGHAI ELECTRIC-UNSP ADR	SIELY UV	A11H9PU	B3L2823 US	81943J108	US81943J1088	
SHANGHAI ELECTRIC GROUP CO LTD	SHANGHAI ELECTRIC GROUP CO	Shanghai (XSHG)	Common Stock	SHANGHAI ELECTRIC GRP CO L-H	USR GZ	A0M4YX	B07ZG10 DE		CNE100000437	RUB 21,854,387.00
SHANGHAI ELECTRIC GROUP CO LTD	SHANGHAI ELECTRIC GROUP CO	Quotix Exch (XQTX)	Common Stock	SHANGHAI ELECTRIC GRP CO L-H	USR QT	A0M4YX	B07ZG10 DE		CNE100000437	RUB 21,854,387.00
SHANGHAI ELECTRIC GROUP CO LTD	SHANGHAI ELECTRIC GROUP CO	Tradegate (XGAT)	Common Stock	SHANGHAI ELECTRIC GRP CO L-H	USR TH	A0M4YX	B07ZG10 DE		CNE100000437	RUB 21,854,387.00
SHANGHAI ELECTRIC GROUP CO LTD	SHANGHAI ELECTRIC GROUP CO	Sth SSE-SEHK (SZSC)	Common Stock	SHANGHAI ELECTRIC GRP CO L-H	2727 H2	A0M4YX	BD8NLZ3 HK		CNE100000437	RUB 21,854,387.00
SHANGHAI ELECTRIC GROUP CO LTD	SHANGHAI ELECTRIC GROUP CO	OTC US (OOTC)	Common Stock	SHANGHAI ELECTRIC GRP CO L-H	SIELF US	A0M4YX	BOXNV50 US		CNE100000437	RUB 21,854,387.00
SHANGHAI ELECTRIC GROUP CO LTD	SHANGHAI ELECTRIC GROUP CO	OTC US (OOTC)	Common Stock	SHANGHAI ELECTRIC GRP CO L-H	SIELF UV	A0M4YX	BOXNV50 US		CNE100000437	RUB 21,854,387.00
SHANGHAI ELECTRIC GROUP CO LTD	SHANGHAI ELECTRIC GROUP CO	Nih SSE-SEHK (XSXC)	Common Stock	SHANGHAI ELECTRIC GRP CO L-H	601727 C1	A0YAVL	BP3R3T2 CN		CNE100000055	
SHANGHAI ELECTRIC GROUP CO LTD	SHANGHAI ELECTRIC GROUP CO	Shanghai (XSHG)	Common Stock	SHANGHAI ELECTRIC GRP CO L-A	601727 CG	A0YAVL	B3FJ9X8 CN		CNE100000055	
SHANGHAI ELECTRIC GROUP CO LTD	SHANGHAI ELECTRIC GROUP CO	Shanghai (XSHG)	Common Stock	SHANGHAI ELECTRIC GRP CO L-A	601727 GH	A0YAVL	B3FJ9X8 CN		CNE100000055	
SHANGHAI MECHANICAL AND ELECTRICAL INDUSTRY CO LTD	SHANGHAI ELECTRIC GROUP CO	Shanghai (XSHG)	Common Stock	SHANGHAI MECHANICAL AND EL-A	600835 CG	A0M654	6785851 CN		CNE000000B91	
SHANGHAI MECHANICAL AND ELECTRICAL INDUSTRY CO LTD	SHANGHAI ELECTRIC GROUP CO	Shanghai (XSHG)	Common Stock	SHANGHAI MECHANICAL AND EL-A	600835 CH	A0M654	6785851 CN		CNE000000B91	
SHANGHAI MECHANICAL AND ELECTRICAL INDUSTRY CO LTD	SHANGHAI ELECTRIC GROUP CO	Nih SSE-SEHK (XSXC)	Common Stock	SHANGHAI MECHANICAL AND EL-A	600835 C1	A0M654	BP3R7Q7 CN		CNE000000B91	
SHANGHAI MECHANICAL AND ELECTRICAL INDUSTRY CO LTD	SHANGHAI ELECTRIC GROUP CO	Shanghai (XSHG)	Common Stock	SHANGHAI MECHANICAL AND EL-B	900925 CG	A0M3UQ	6797436 CN		CNE000000G39	RUB 32,099,050.00
SHANGHAI MECHANICAL AND ELECTRICAL INDUSTRY CO LTD	SHANGHAI ELECTRIC GROUP CO	Shanghai (XSHG)	Common Stock	SHANGHAI MECHANICAL AND EL-B	900925 CH	A0M3UQ	6797436 CN		CNE000000G39	RUB 32,099,050.00
SIEMENS AG	SIEMENS AG	EN Amsterdam (XAMS)	Common Stock	SIEMENS AG-REG	SIA NA	RUB 723,610.00	RUB 5,735,288.00		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Xetra (XETR)	Common Stock	SIEMENS AG-REG	SIE GY	RUB 723,610.00	RUB 5,727,973.00		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Xetra (XETR)	Common Stock	SIEMENS AG-REG	SIE GR	RUB 723,610.00	RUB 5,727,973.00		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Euro Comp (XLON)	Common Stock	SIEMENS AG-REG	SIE EU	RUB 723,610.00			DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Tradegate (XGAT)	Common Stock	SIEMENS AG-REG	SIE TH	RUB 723,610.00	RUB 5,727,973.00		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Xetra (XETR)	Common Stock	SIEMENS AG-REG	SIE GF	RUB 723,610.00	RUB 5,727,973.00		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Quotix Exch (XQTX)	Common Stock	SIEMENS AG-REG	SIE OT	RUB 723,610.00	RUB 5,727,973.00		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Xetra (XETR)	Common Stock	SIEMENS AG-REG	SIE GS	RUB 723,610.00	RUB 5,727,973.00		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Gettex (MUND)	Common Stock	SIEMENS AG-REG	SIE GZ	RUB 723,610.00			DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Aquis Exchg (AQXE)	Common Stock	SIEMENS AG-REG	SIE QX	RUB 723,610.00	RUB 5,727,973.00		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	EURO OTC (XLON)	Common Stock	SIEMENS AG-REG	SIE XV	RUB 723,610.00	#N/A N/A		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Brsaltalina (MTAA)	Common Stock	SIEMENS AG-REG	SIE W	RUB 723,610.00	B19GK05		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	BATS Europe (BATE)	Common Stock	SIEMENS AG-REG	SIE EB	RUB 723,610.00	RUB 5,727,973.00		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	EURO OTC (XLON)	Common Stock	SIEMENS AG-REG	SIE XB	RUB 723,610.00			DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Equiduct (XEQT)	Common Stock	SIEMENS AG-REG	SIE BQ	RUB 723,610.00	RUB 5,727,973.00		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Xetra (XETR)	Common Stock	SIEMENS AG-REG	SIE GH	RUB 723,610.00	RUB 5,727,973.00		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Xetra (XETR)	Common Stock	SIEMENS AG-REG	SIE GM	RUB 723,610.00	RUB 5,727,973.00		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Xetra (XETR)	Common Stock	SIEMENS AG-REG	SIE GB	RUB 723,610.00	RUB 5,727,973.00		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Turquoise (TROX)	Common Stock	SIEMENS AG-REG	SIE TQ	RUB 723,610.00	RUB 5,727,973.00		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	EURO OTC (XLON)	Common Stock	SIEMENS AG-REG	SIE XS	RUB 723,610.00			DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Xetra (XETR)	Common Stock	SIEMENS AG-REG	SIE G1	RUB 723,610.00	RUB 5,727,973.00		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Xetra (XETR)	Common Stock	SIEMENS AG-REG	SIE GD	RUB 723,610.00	RUB 5,727,973.00		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Brsaltalina (MTAA)	Common Stock	SIEMENS AG-REG	SIE IF	RUB 723,610.00	B19GK05		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Bucharest (XBSE)	Common Stock	SIEMENS AG-REG	SIE RE	RUB 723,610.00	B87F0H0		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Bucharest (XBSE)	Common Stock	SIEMENS AG-REG	SIE RO	RUB 723,610.00	B87F0H0		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	EuroTLX (ETLX)	Common Stock	SIEMENS AG-REG	SIE TE	RUB 723,610.00	B19GK05		DE0007236101	009974687

SIEMENS AG	SIEMENS AG	LSE EuropeQS (XLON)	Common Stock	SIEMENS AG-REG	SIE1 LO	RUB 723,610.00	RUB 798,725.00		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Vienna (XWBO)	Common Stock	SIEMENS AG-REG	SIE AV	RUB 723,610.00	BF028C7 AT		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Sigma X MTF (SGMX)	Common Stock	SIEMENS AG-REG	SIE S1	RUB 723,610.00	5727973 DE		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Buenos Floor (XBUE)	Common Stock	SIEMENS AG-CEDEAR	SIEGY AF		2691264 AR		ARDEUT112372	
SIEMENS AG	SIEMENS AG	Buenos Floor (XBUE)	Common Stock	SIEMENS AG-CEDEAR	SIEGY AF		2691264 AR		ARDEUT112372	
SIEMENS AG	SIEMENS AG	Xetra (XETR)	ADR	SIEMENS AG-ADR	SIEB GR	RUB 632,748.00	B1C58Q1	826197501	US8261975010	012654812
SIEMENS AG	SIEMENS AG	Xetra (XETR)	ADR	SIEMENS AG-ADR	SIEB GD	RUB 632,748.00	B1C58Q1	826197501	US8261975010	012654812
SIEMENS AG	SIEMENS AG	Xetra (XETR)	ADR	SIEMENS AG-ADR	SIEB GF	RUB 632,748.00	B1C58Q1	826197501	US8261975010	012654812
SIEMENS AG	SIEMENS AG	Xetra (XETR)	ADR	SIEMENS AG-ADR	SIEB GS	RUB 632,748.00	B1C58Q1	826197501	US8261975010	012654812
SIEMENS AG	SIEMENS AG	Euro Comp (XLON)	Common Stock	SIEMENS AG-REG	SIECHF EU	RUB 723,610.00			DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Chi-X Europe (CHIX)	Common Stock	SIEMENS AG-REG	SIED IX	RUB 723,610.00	RUB 5,727,973.00		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	ITG Posit (XPOS)	Common Stock	SIEMENS AG-REG	SIED PO	RUB 723,610.00			DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Blockmatch (BLOX)	Common Stock	SIEMENS AG-REG	SIED B3	RUB 723,610.00			DE0007236101	
SIEMENS AG	SIEMENS AG	Liquidnet (LIQU)	Common Stock	SIEMENS AG-REG	SIED L3	RUB 723,610.00			DE0007236101	
SIEMENS AG	SIEMENS AG	UBS MTF (XUBS)	Common Stock	SIEMENS AG-REG	SIED S2	RUB 723,610.00			DE0007236101	
SIEMENS AG	SIEMENS AG	OTC US (OOTC)	ADR	SIEMENS AG-ADR	SIEGY U2	RUB 632,748.00	RUB 2,742,689.00	826197501	US8261975010	012654812
SIEMENS AG	SIEMENS AG	OTC US (OOTC)	ADR	SIEMENS AG-ADR	SIEGY UV	RUB 632,748.00	RUB 2,742,689.00	826197501	US8261975010	012654812
SIEMENS AG	SIEMENS AG	OTC US (OOTC)	ADR	SIEMENS AG-ADR	SIEGY PQ	RUB 632,748.00	RUB 2,742,689.00	826197501	US8261975010	012654812
SIEMENS AG	SIEMENS AG	Budapest (XBUD)	Common Stock	SIEMENS AG-REG	SIEMENS HB	RUB 723,610.00	B5NMZR9		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	Mexico (XMEX)	Common Stock	SIEMENS AG-REG	SIEN MM	RUB 723,610.00	BN7ZCD5		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	SIX Swiss Ex (XSWX)	Common Stock	SIEMENS AG-REG	SIN SE	RUB 723,610.00	RUB 5,735,233.00		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	SIX Swiss Ex (XSWX)	Common Stock	SIEMENS AG-REG	SIN SW	RUB 723,610.00	RUB 5,735,233.00		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	SIX Swiss Ex (XSWX)	Common Stock	SIEMENS AG-REG	SIN BW	RUB 723,610.00	RUB 5,735,233.00		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	SIX Swiss Ex (XSWX)	Common Stock	SIEMENS AG-REG	SINEUR SW	RUB 723,610.00	BYL6SL1		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	SIX Swiss Ex (XSWX)	Common Stock	SIEMENS AG-REG	SINEUR SE	RUB 723,610.00	BYL6SL1		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	OTC US (OOTC)	Common Stock	SIEMENS AG-REG	SMAWV US	RUB 723,610.00	B0395G4		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	OTC US (OOTC)	Common Stock	SIEMENS AG-REG	SMAWV UV	RUB 723,610.00	B0395G4		DE0007236101	009974687
SIEMENS AG	SIEMENS AG	OTC US (OOTC)	Common Stock	SIEMENS AG-REG	SMAWV PO	RUB 723,610.00	B0395G4		DE0007236101	009974687
SIEMENS LTD	SIEMENS AG	Natl India (XNSE)	Common Stock	Siemens Ltd	SIEM IN		A0J3F4	B15T569	INE003A01024	
SIEMENS LTD	SIEMENS AG	Natl India (XNSE)	Common Stock	Siemens Ltd	SIEM IS		A0J3F4	B15T569	INE003A01024	
SIEMENS LTD	SIEMENS AG	Natl India (XNSE)	Common Stock	Siemens Ltd	SIEM IB		A0J3F4	B15T569	INE003A01024	
SIEMENS LTD	SIEMENS AG	Natl India (XNSE)	Sec Lending	Siemens Ltd	SIEM/S IN					
SIEMENS LTD	SIEMENS AG	Natl India (XNSE)	Sec Lending	Siemens Ltd	SIEM/S IS					
SIEMENS PAKISTAN ENGINEERING CO LTD	SIEMENS AG	Pakistan (XKAR)	Common Stock	SIEMENS PAKISTAN ENGIN CO	SIEM PA	A1W5U3	RUB 6,807,539.00		PK00022701012	
SIEMENS PAKISTAN ENGINEERING CO LTD	SIEMENS AG	Pakistan (XKAR)	Common Stock	SIEMENS PAKISTAN ENGIN CO	SIEM PK	A1W5U3	6807539		PK00022701012	

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ATTACHMENT D

Letter to SBI Domestic and International Equity Managers

September 26, 2017

Regarding: Iran Companies

Dear Manager:

The Minnesota State Board of Investment (SBI) sent you prior communication concerning holdings in companies doing business in Iran. **This new communication applies to all SBI equity portfolios managed by your organization and replaces all prior communications. This communication also applies to all depository receipts or ADR's of any of the listed companies.**

Minnesota Statutes, section 11A.244, requires the Minnesota State Board of Investment (SBI) to implement an Iran restriction.

Attachment 1 is the List of Restricted Iran Companies. **These securities may not be purchased for the SBI portfolio that your organization manages.** If you own securities of companies on the Restricted List **and** the companies are **not** on the divestment list, then you do not need to sell your holdings. Please note that the attached list may differ from the List of Restricted Iran Companies that was attached to the June 29, 2017 letter you received. **This new list is effective September 30, 2017.**

The following company has been **added** to the Restricted List:

- **Total S.A.** **France**

Attachment 2 is the List of Iran Companies Requiring Divestment. If you own securities of companies on this list then you must **divest** those holdings according to the schedule provided in the attachment:

- At least 50 percent of a company's holdings must be sold by the date indicated, and
- At least 100 percent of a company's holdings must be sold by the date indicated.

Attachment 3 is a list of security identifiers for the companies on the List of Restricted Iran Companies (Attachment 1) that your organization may use. The SBI does not represent that this is a complete list of identifiers. The manager is responsible for identifying all listings.

If you have any questions about this matter, please contact your assigned SBI Investment Officer.

Sincerely,

Paul T. Anderson
Director, Investment Administration

Enclosures

cc: LeaAnn M. Stagg, Assistant Executive Director & Chief Operating Officer
Michael J. Menssen, Director, Debt Management
Tammy Brusehaver, Investment Officer, Public Equity
Stephanie Gleeson, Investment Officer, Public Equity
Aaron Griga, Investment Officer, Fixed Income

ATTACHMENT 1

RESTRICTED IRAN COMPANIES SECURITIES OF COMPANIES MAY NOT BE PURCHASED FOR PORTFOLIO

COMPANY NAME	COUNTRY
Bharat Petroleum Corporation Ltd.	India
China Petroleum & Chemical Corp	China
Daelim Industrial	South Korea
Daewoo Engineering & Construction	South Korea
Eni Spa	Italy
Gazprom OAO	Russia
GS Engineering & Construction Corp	South Korea
Gubre Fabrikalari T.A.S.	Turkey
Indian Oil Corporation Ltd.	India
L G International	South Korea
Linde AG	Germany
Maire Tecnimont S.p.A.	Italy
Mitsui & Co. Ltd	Japan
Oil & Natural Gas Corporation Ltd.	India
PetroChina Co. Ltd.	China
PJSC Lukoil	Russia
Total S.A.	France
Toyo Engineering Corporation	Japan
Toyota Tsusho Corporation	Japan

Effective Date: September 30, 2017

ATTACHMENT 2

LIST OF IRAN COMPANIES REQUIRING DIVESTMENT

Company Name	Country of Origin	Divest 50 Percent By this Date	Divest 100 Percent By this Date
Linde AG	Germany	March 31, 2017	September 30, 2017
Eni Spa	Italy	June 30, 2017	December 31, 2017
Daewoo Engineering & Construction	South Korea	December 31, 2017	June 30, 2018

Effective Date: September 30, 2017

ATTACHMENT 3

IRAN RESTRICTED COMPANIES Security Identifiers

ISIN	COMPANY NAME	SYMBOL	COUNTRY	CUSIP
INE029A01011	Bharat Petroleum Corporation Ltd.	500547	India	
US16941R1086	China Petroleum & Chemical Corp	386	China	16941R108
CNE0000018G1	China Petroleum & Chemical Corp	386	China	16941R108
ARDEUT114071	China Petroleum & Chemical Corp	386	China	16941R108
CNE1000002Q2	China Petroleum & Chemical Corp	386	China	16941R108
KR7000211003	Daelim Industrial	210	Korea South	
KR7000210005	Daelim Industrial	210	Korea South	
KR7047040001	Daewoo Engineering & Construction	A047040	Korea South	
US26874R1086	Eni Spa	ENI	Italy	26874R108
ARDEUT112612	Eni Spa	ENI	Italy	26874R108
IT0003132476	Eni Spa	ENI	Italy	26874R108
US3682872078	Gazprom OAO	GAZP	Russia	368287207
US3682871088	Gazprom OAO	GAZP	Russia	368287207
ARDEUT114261	Gazprom OAO	GAZP	Russia	368287207
RU0007661625	Gazprom OAO	GAZP	Russia	368287207
KR7006360002	GS Engineering & Construction Corp	6360	Korea South	
TRAGUBRF91E2	Gubre Fabrikalari T.A.S.	GUBRF	Turkey	
INE242A01010	Indian Oil Corporation Ltd.	530965	India	
KR7001120005	L G International	1120	Korea South	
US5352232004	Linde AG	LIN	Germany	535223200
DE0006483001	Linde AG	LIN	Germany	535223200
US56064T1016	Maire Tecnimont S.p.A.	MT	Italy	56064T101
IT0004931058	Maire Tecnimont S.p.A.	MT	Italy	56064T101
US6068272029	Mitsui & Co. Ltd	8031	Japan	606827202
JP3893600001	Mitsui & Co. Ltd	8031	Japan	606827202
INE213A01029	Oil & Natural Gas Corporation Ltd.	500312	India	
US71646E1001	PetroChina Co. Ltd.	857	China	71646E100
CNE1000007Q1	PetroChina Co. Ltd.	857	China	71646E100
ARDEUT113958	PetroChina Co. Ltd.	857	China	71646E100
CNE1000003W8	PetroChina Co. Ltd.	857	China	71646E100
US69343P2048	PJSC Lukoil	LKOH	Russia	677862104
US69343P1057	PJSC Lukoil	LKOH	Russia	677862104
US5498741058	PJSC Lukoil	LKOH	Russia	677862104
ARDEUT114253	PJSC Lukoil	LKOH	Russia	677862104
RU0009024277	PJSC Lukoil	LKOH	Russia	677862104
US89151E1091	Total S.A.	FP	France	89151E109
ARDEUT112075	Total S.A.	FP	France	89151E109
FR0000120271	Total S.A.	FP	France	89151E109
JP3607800004	Toyo Engineering Corporation	6330	Japan	
JP3635000007	Toyota Tsusho Corporation	8015	Japan	

Please note that the SBI does not represent that this is a complete list of identifiers. The manager is responsible for identifying all listings.

Source: IW Financial

Effective Date: September 30, 2017

Letter to SBI Fixed Income Managers

September 26, 2017

Regarding: Iran Companies

Dear Manager:

The Minnesota State Board of Investment (SBI) has sent you prior communication concerning holdings in companies doing business in Iran. **This communication applies to the SBI fixed income portfolio managed by your organization.**

Minnesota Statutes, section 11A.244, requires the Minnesota State Board of Investment (SBI) to implement an Iran restriction.

Attachment 1 is the List of Restricted Iran Companies. **These securities may not be purchased for the SBI portfolio that your organization manages.** If you own securities of companies on the Restricted List **and** the companies are **not** on the divestment list, then you do not need to sell your holdings. Please note that the attached list could differ from List of Restricted Iran Companies that was attached to the June 29, 2017 letter you received. **This new list is effective September 30, 2017.**

The following company has been **added** to the Restricted List:

- **Total S.A.** **France**

Attachment 2 is the List of Iran Companies Requiring Divestment. If you own securities of companies on this list then you must **divest** those holdings according to the schedule provided in the attachment:

- At least 50 percent of a company's holdings must be sold by the date indicated, and
- At least 100 percent of a company's holdings must be sold by the date indicated.

If you have any questions about this matter, please contact your assigned SBI Investment Officer.

Sincerely,

Paul T. Anderson
Director, Investment Administration

Enclosures

cc: LeaAnn M. Stagg, Assistant Executive Director & Chief Operating Officer
Michael J. Menssen, Director, Debt Management
Aaron Griga, Investment Officer, Fixed Income
Cassandra Boll, Investment Officer, Private Markets
Steve Kuettel, Investment Officer, Cash Mgmt. Services
Patricia Ammann, Investment Officer, DC & Private Markets

ATTACHMENT 1

RESTRICTED IRAN COMPANIES SECURITIES OF COMPANIES MAY NOT BE PURCHASED FOR PORTFOLIO

COMPANY NAME	COUNTRY
Bharat Petroleum Corporation Ltd.	India
China Petroleum & Chemical Corp	China
Daelim Industrial	South Korea
Daewoo Engineering & Construction	South Korea
Eni Spa	Italy
Gazprom OAO	Russia
GS Engineering & Construction Corp	South Korea
Gubre Fabrikalari T.A.S.	Turkey
Indian Oil Corporation Ltd.	India
L G International	South Korea
Linde AG	Germany
Maire Tecnimont S.p.A.	Italy
Mitsui & Co. Ltd	Japan
Oil & Natural Gas Corporation Ltd.	India
PetroChina Co. Ltd.	China
PJSC Lukoil	Russia
Total S.A.	France
Toyo Engineering Corporation	Japan
Toyota Tsusho Corporation	Japan

Effective Date: September 30, 2017

ATTACHMENT 2

LIST OF IRAN COMPANIES REQUIRING DIVESTMENT

Company Name	Country of Origin	Divest 50 Percent By this Date	Divest 100 Percent By this Date
Linde AG	Germany	March 31, 2017	September 30, 2017
Eni Spa	Italy	June 30, 2017	December 31, 2017
Daewoo Engineering & Construction	South Korea	December 31, 2017	June 30, 2018

Effective Date: September 30, 2017

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EXECUTIVE DIRECTOR'S REPORT

DATE: November 28, 2017

TO: Members, State Board of Investment

FROM: Mansco Perry III

SUBJECT: Investment Manager Update

Combined Funds - Public Markets

In accordance with the SBI work plan, SBI staff completed their annual review of investment manager guidelines, updating and re-certifying them for another year.

Combined Funds - Private Markets

Contracts for all outstanding commitments have been negotiated and executed.

Non-Retirement

The SBI Executive Director has been authorized to negotiate and execute contracts and assign the assets of the internally managed S&P 500 equity index and internal fixed income portfolios, which are used to manage the assets of non-retirement entities, to external managers. Contracts with Mellon Capital Management to manage the equity portfolio and Prudential Global Investment Management to manage the fixed income portfolio are completed. Prospectuses were sent to all current participants in October to notify them of the change in management of their assets. Funding of both managers is scheduled for December 1, 2017.

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IAC MEMBERSHIP REVIEW COMMITTEE REPORT

DATE: November 28, 2017

TO: Members, State Board of Investment

FROM: IAC Membership Review Committee

SUBJECT: Investment Advisory Council Member Vacancy

On November 15, 2017, the IAC Membership Review Committee, which is comprised of a designee of each Board member, met to review applications for an open position on the Investment Advisory Council. The open position was created on April 1, 2017 upon the resignation of Jeff Bailey, in anticipation of his retirement from Target Corporation.

We received five applications in response to the notice of an open position. After reviewing the applications, the Committee is making the following recommendation.

RECOMMENDATION:

The IAC Membership Review Committee recommends that the Board appoint the following member to the Investment Advisory Council, with the term expiring in January 2019.

**Wei Huang
Chief Investment Officer
The Saint Paul & Minnesota Community Foundations**

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MASTER CUSTODY REVIEW COMMITTEE REPORT

DATE: November 28, 2017

TO: Members, State Board of Investment

FROM: Master Custody Review Committee

SUBJECT: Master Custodian Services

The SBI's relationship with its master custodian is central to its responsibility to effectively and efficiently manage \$75 billion plus of retirement, trust fund and certain non-retirement assets under its control. The SBI's current five year contract with State Street Bank for custodian services expires April 30, 2018. On July 24, 2017, the SBI issued an RFP for custodian services.

The primary responsibilities of the master custodian are to provide settlement and custody services, income collection, reporting, and performance measurement for all assets owned by the funds. The master custodian is the book of record for all assets under SBI management. In addition, non-basic services such as analytics and securities lending are provided.

SBI Staff sent an RFP to seven firms:

- Bank of New York Mellon
- Citigroup
- J.P. Morgan Chase
- Northern Trust Corporation
- State Street Corporation
- U.S. Bank
- Wells Fargo

Two of the firms, BNY Mellon and State Street, submitted bids.

Summary

While both firms are highly capable organizations with the capacity and commitment to perform the required duties. State Street provided a more thorough and understandable response to the RFP than did BNY Mellon. In addition, State Street presents the SBI with a significantly higher "net available for distribution" of securities lending revenue, net of fees, to the SBI compared to BNY Mellon.

Conclusion

Based on SBI Staff's review and evaluation of the State Street and BNY Mellon RFP responses, the Committee concurs with the Executive Director that State Street Corporation be selected as the SBI's Master Custodian Bank.

RECOMMENDATION:

The Investment Advisory Council concurs with the Master Custody Review Committee to recommend that the Board authorize the Executive Director, with the assistance of SBI counsel, to negotiate and execute a contract with State Street Corporation, Boston, MA, for Master Custodian Services for a period of up to five years.

Approval by the SBI 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 obligation on the State Board of Investment and neither the State of Minnesota, the State Board of Investment or its Executive Director have any liability for reliance by State Street Corporation upon this approval. Until a formal agreement is executed by the Executive Director on behalf of the SBI, further due diligence and negotiations may result in the imposition of additional terms and conditions on State Street Corporation or reduction or termination of the commitment.

MASTER CUSTODY REVIEW COMMITTEE REPORT

DATE: November 28, 2017

TO: Members, State Board of Investment

FROM: Master Custody Review Committee

SUBJECT: Foreign Tax Advisory Services

The Executive Director requested that the Master Custody Review Committee review and make a recommendation to the State Board of Investment for a Foreign Tax Advisory Service provider for the SBI at the November 6, 2017, Master Custody Review Committee meeting.

As an investor in public and private equity and debt in emerging markets countries, the SBI is often required to appoint a local (i.e. foreign market) tax agent to calculate capital gains tax liability, prepare annual tax returns and more generally interact with local tax authorities.

The following is a summary of the Staff's review process and the recommendation resulting from the Foreign Tax Advisory Services RFP.

Overview

The SBI's contract for foreign tax advisory services in India expires on March 31, 2018. SBI Staff issued an RFP on August 7, 2017, to enhance the scope of services and seek an advisor that could not only provide foreign tax advisory services in any emerging market country in which the SBI may invest in going forward, but also act as the sole point of contact to the SBI with its local tax offices.

The SBI Staff sent the RFP for Foreign Tax Advisory Services to the following firms:

Deloitte LLP	PwC US
Ernst and Young LLP (EY)	KPMG LLP (KPMG)
RSM	Grant Thornton
CBIZ	BDO
Crowe Horwath	CliftonLarsonAllen

The following four firms submitted responses to the RFP and responded to the "Best and Final Offer" bids requested by Staff:

EY
Grant Thornton
KPMG
PwC US

Staff reviewed the RFP responses and rated EY and KPMG highest for thoroughness in RFP response, ability to meet the current and future foreign tax advisory needs of the SBI, and overall costs of the proposed services.

Staff invited both EY and KPMG to make finalist presentations to the SBI Staff on October 26, 2017.

Summary

While both EY and KPMG demonstrated their experience in foreign tax advisory work and the proficiency of their staffs, KPMG better demonstrated its ability to add value to the SBI and improve overall portfolio tax efficiency compared to EY. In addition, KPMG's proposed annual fees were significantly lower than EY's.

Conclusion

Based on the review of the RFP responses and Staff's evaluation of the finalist presentations made by EY and KPMG on October 26th, the Committee concurs with the Executive Director's request that KPMG be selected as the SBI's Foreign Tax Advisor.

RECOMMENDATION:

The Investment Advisory Council concurs with the Master Custody Review Committee to recommend that the Board authorize the Executive Director, with the assistance of SBI counsel, to negotiate and execute a contract with KPMG LLP, New York, NY, for the SBI's Foreign Tax Advisory Services for a period of up to five years.

Approval by the SBI 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 obligation on the State Board of Investment and neither the State of Minnesota, the State Board of Investment or its Executive Director have any liability for reliance by KPMG LLP upon this approval. Until a formal agreement is executed by the Executive Director on behalf of the SBI, further due diligence and negotiations may result in the imposition of additional terms and conditions on KPMG LLP or reduction or termination of the commitment.

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EXECUTIVE DIRECTOR'S REPORT

DATE: November 28, 2017

TO: Members, State Board of Investment

FROM: Mansco Perry III

SUBJECT: Strategic Allocation Category Framework – Proposed Category Weightings

At the September, 2017, the Board approved a recommendation to adopt a Strategic Allocation Category Framework (Framework) and directed the Executive Director to work with the SBI's investment consultants to develop policy weights for the Framework to be reviewed by the Investment Advisory Council (IAC). Included in the recommendation was approval to increase the target weighting for the market value of private investments to 25% and to set a range with a maximum limitation of 30%. At the IAC meeting on November 20, 2017, the Executive Director presented the proposed weightings and rationale for the Framework. The IAC had an in-depth discussion with the Executive Director and the investment consultants regarding the issues that were presented with the implications for future portfolio construction. All agreed that reducing the volatility of the portfolio was a highly desired result. The IAC agreed with the recommendations.

The key issues are summarized below. The IAC endorsed the recommendations that were presented for approval by the Board. The more detailed memo presented to the IAC is included as **Attachment A**, which begins on **page 5** of this tab.

SUMMARY

The major issue under consideration is the adoption of the proposed category policy weights for the Strategic Allocation Category Framework. The proposed weights represent the ranges for each strategic allocation category. There will be no specific weightings developed for the asset classes within an allocation category. However, there are maximum limitations for the exposure to private market investments in the appropriate allocation categories. The objective is to construct a portfolio which decreases the expected volatility of the portfolio with minimal variance in expected return from the current asset allocation target. AON has translated the current allocation target into the Framework perspective and applied their current capital market assumptions thus allowing for a comparable analysis of the current target with sample portfolio mixes. **(This information can be seen in Exhibit 1, 2 and 3 of Attachment A).**

To better specify the categories within the Framework, we have made minor changes to the Strategic Allocation Categories:

- Growth has been renamed to Growth - Appreciation to recognize that the primary source of return in this category is from capital appreciation.
- Income has been renamed to Growth - Income-oriented to recognize that the source of return in this category is both the income and capital appreciation.
- The Real Return category has been modified and restructured into two categories. Real Return was originally formed to recognize the inflation sensitivity of the included assets. We have modified the category into two categories, Real Assets and Inflation Protection. The rationale for the modification is to reflect that each group is influenced by inflation in different ways. The types of assets can be considered to be hard (Real Assets) and soft (Inflation Protection). Such a distinction makes sense to some, but may not be to others. While this distinction is somewhat arbitrary, we think that such separation has merit.

Following are the proposed ranges being adopted for the Strategic Allocation Category Framework:

<u>Strategic Allocation Category</u>	Proposed Minimum: % of Total Fund	Proposed Maximum: % of Total Fund	Proposed Maximum of Private Investments: % of Total Fund
Growth - Appreciation	50%	75%	20%
Growth - Income-oriented	15%	30%	15%
Real Assets	0%	10%	10%
Inflation Protection	0%	10%	5%
Protection	5%	20%	0%
Liquidity	0%	5%	NA
Total			30%

At the IAC meeting, there was a discussion of the desire to have a specified target. It was explained that given that we are at the initial stage of transitioning to the Framework, development of a target category allocation would be less than meaningful. The Executive Director explained the difficulty in defining a permanent target and pointed out that a permanent target would evolve as the transition took place. The Council recognized some of the complexities which could be involved with the transition and that the implementation process would take time to put into place. Potential market movements might cause changes in the targets before a complete transition occurred. The Executive Director explained his plans for initial implementation steps. The Council agreed that his plans made sense and agreed with the reasoning for not developing static targets. However, based on subsequent discussions with the Chairman of the IAC, it was determined that developing transitional targets throughout the implementation process would be a helpful tool to monitor the progress of the transition. The initial transitional target has been developed and will be revised as the implementation progresses.

The Initial Transition Target is as follows:

<u>Strategic Allocation Category</u>	Current Asset Allocation Target (using Framework Structure)	Transitional Allocation Category Target
Growth - Appreciation	72.1%	65.0%
Growth - Income-oriented	20.4%	18.0%
Real Assets	1.5%	3.0%
Inflation Protection	0.0%	0.0%
Protection	4.0%	12.0%
Liquidity	2.0%	2.0%
Total	100.0%	100.0%

The initial targets reflect the plan to establish the Protection Category in the near future.

The final issue under consideration is benchmarking. We plan to continue to benchmark and evaluate each manager and asset class versus an appropriate benchmark. The Composite Index may be problematic as we will no longer allocate via asset classes. However, we plan to introduce other total fund benchmarking metrics for purposes of evaluating the performance of the Combined Funds portfolio. We can measure the performance using standard passive based metrics such as a 60/40 equity/bond (or 70/30 or 80/20) indexed based benchmark. A more refined approach will be a “volatility-weighted” benchmark. This approach takes the longer term (5 years and longer) standard deviation of the portfolio and solves for the weights of an equity/bond portfolio with the same standard deviation. The similar term (e.g., length in years) return for the equity/bond benchmark becomes the benchmark for comparison to the portfolio (see **Exhibit 4 of Attachment A** for an example).

RECOMMENDATION:

The Investment Advisory Council endorses the recommendation that the Board authorize the Executive Director to:

- 1) Adopt the modification of the category names within the Strategic Allocation Category Framework as follows:

Original Category	Modified Category
• Growth	• Growth – Appreciation
• Income	• Growth – Income-oriented
• Real Return	• Real Assets • Inflation Protection

- 2) Approve the Strategic Allocation Category weightings for the Framework as follows:

<u>Strategic Allocation Category</u>	Proposed Minimum: % of Total Fund	Proposed Maximum: % of Total Fund	Proposed Maximum of Private Investments: % of Total Fund
Growth - Appreciation	50%	75%	20%
Growth - Income-oriented	15%	30%	15%
Real Assets	0%	10%	10%
Inflation Protection	0%	10%	5%
Protection	5%	20%	0%
Liquidity	0%	5%	NA
Total			30%

- 3) Approve the “Volatility Weighted Benchmarks” as an evaluation method for the Combined Funds portfolio.

ATTACHMENT A

DATE: November 13, 2017

TO: Members, Investment Advisory Council

FROM: Mansco Perry III

SUBJECT: Strategic Allocation Category Framework – Proposed Category Weightings

At the September 2017 State Board of Investment meeting, the Board approved a recommendation to adopt a Strategic Allocation Category Framework with authorization to develop policy weights. A primary focus of the Framework is to reduce the expected volatility of the Combined Funds portfolio. AON has prepared several allocation mixes for review to assist in the development of proposed allocation category weights.

In order to develop policy weights for each strategic allocation category, assumptions were made regarding the weightings of the composition of asset classes within each category for the allocation mixes (see **Exhibit 1**). The intent of the Framework is to develop ranges for each strategic allocation category. There will not be specific weightings developed for the asset classes within an allocation category. However, there will be a maximum for the exposure to private market investments in the appropriate allocation categories. Our objective is to target a portfolio which decreases the expected volatility of the portfolio with minimal variance in expected return. The reference portfolio is the current allocation target (which AON has translated into the Framework perspective and applied their capital market assumptions thus allowing for a comparable analysis).

As illustrated in **Exhibit 2**, accompanying each mix we can see that there is a high probability of being able to decrease expected volatility and increase the expected Sharpe ratio (expected risk-adjusted return) within each of the alternative mixes presented. For all mixes presented, the difference in expected return between the 40th and 60th percentile is between 100 and 120 basis points. This indicates that there is very little variance around the expected returns of each mix. However, when we review the standard deviation of the mixes relative to the current allocation target, we can see that there is a decrease in volatility of 100 to 300 basis points. The Sharpe ratios for the mixes are .36 to .41 versus the Sharpe ratio of the target of .31, representing an increase in the expected risk-adjusted return for all potential mixes. The five sample mixes each illustrate various approaches to achieve the objective of decreasing volatility with minimal variance in expected return. These mixes represent potential changes that can be considered. Given the difficulty in arriving at a unique targeted mix, we are instead focusing on the ranges presented by the sample allocation mixes to aid in developing our recommendation. Using the standard mean variance optimization approach used in the traditional allocation exercise is not a useful tool when developing the Framework target and ranges. However, by analyzing the changes from the current target to the five sample mixes one can distill the impact the changes in asset classes have on the volatility levels.

If we compare the current target mix relative to the five sample allocation mixes on a declining expected volatility basis, we can see the impact that changes in types of assets (or the strategic category) have on expected volatility. The major interplay is between the Growth - Appreciation Category and the Protection Category. As Growth - Appreciation declines and Protection increases, expected volatility declines. Substitution of other categories are used to offset any decline in return caused the trade of Protection Category assets for Growth - Appreciation assets. E.g., there is rarely a 1 for 1 change of Growth - Appreciation for Protection. Such exchanges are often accompanied by a movement in Growth - Income-oriented with Real Assets (or other categories) to balance out the exchange to offset any return performance variance.

Category Modification

In **Exhibit 3**, we have presented a summary of the Strategic Allocation Category weightings from the sample allocation mixes developed by AON. The maximum and minimum weightings of each set of Strategic Allocation Categories were used to develop the set of ranges being recommended for the Strategic Allocation Category Framework. Unlike the traditional portfolio construction process, the Framework is not built upon assigning the weightings to individual asset classes. The Framework requires that similar behaving assets which have similar risk characteristics are grouped together with designated strategic allocation categories.

It should be noted that we have made minor changes to the Strategic Allocation Categories:

- Growth has been renamed to Growth - Appreciation to recognize that the primary source of return in this category is from capital appreciation.
- Income has been renamed to Growth - Income-oriented to recognize that the source of return in this category is both the income and capital appreciation.
- The Real Return category has been modified and restructured into two categories. Real Return was originally formed to recognize the inflation sensitivity of the included assets. We have modified the category into two categories, Real Assets and Inflation Protection. The rationale for the modification is to reflect that each group is influenced by inflation in different ways. The types of assets can be considered to be hard (Real Assets) and soft (Inflation Protection). Such a distinction makes sense to some, but may not be to others. While this distinction is somewhat arbitrary, we think that such separation has merit.

Proposed Category Allocation Ranges

Based on the review of potential allocation mixes, I am proposing the following ranges be adopted for the Strategic Allocation Category Framework.

<u>Strategic Allocation Category</u>	Proposed Minimum: % of Total Fund	Proposed Maximum: % of Total Fund	Proposed Maximum of Private Investments: % of Total Fund
Growth - Appreciation	50%	75%	20%
Growth - Income-oriented	15%	30%	15%
Real Assets	0%	10%	10%
Inflation Protection	0%	10%	5%
Protection	5%	20%	0%
Liquidity	0%	5%	NA
Total			30%

Benchmarking

The question of benchmarking was raised at the last IAC meeting. We plan to continue to benchmark and evaluate each manager and asset class versus an appropriate benchmark. The Composite Index may be problematic as we will no longer allocate via asset classes. However, we plan to introduce other total fund benchmarking metrics for purposes of evaluating the performance of the Combined Funds portfolio. We can measure the performance using standard passive based metrics such as a 60/40 equity/bond (or 70/30 or 80/20) indexed based benchmark. A more refined approach will be a “volatility-weighted” benchmark. This approach takes the longer term (5 years and longer) standard deviation of the portfolio and solves for the weights of an equity/bond portfolio with the same standard deviation. The similar term (e.g., length in years) return for the equity/bond benchmark becomes the benchmark for comparison to the portfolio (see **Exhibit 4** for an example).

Initial Implementation Steps

As we initially transition to the Framework, there will be no static targets. It is envisioned that it will take several quarters to make significant changes to the portfolio. However, the first step towards implementing the Framework will be to establish the Protection Category. While the Protection Category can be comprised of sovereign bonds and absolute return funds, it is anticipated that initially the category will be comprised of primarily U.S. Government Bonds. The initial funding source will be from the Growth – Appreciation and the Growth – Income and Appreciation categories. Development of the Protection Category will begin before the end of the calendar year 2017. In early 2018, we will begin to develop plans to expand our exposure to credit and to investigate the extent to which we will expand our exposure to real estate (core and non-core) and other real assets.

RECOMMENDATION:

The Executive Director is requesting that the IAC endorse the recommendation to the SBI Board:

- 1) To adopt the modification of the category names within the Strategic Allocation Category Framework as follows:

Original Category	Modified Category
• Growth	• Growth - Appreciation
• Income	• Growth – Income-oriented
• Real Return	• Real Assets • Inflation Protection

- 2) To approve the Strategic Allocation Category weightings for the Framework as follows:

<u>Strategic Allocation Category</u>	Proposed Minimum: % of Total Fund	Proposed Maximum: % of Total Fund	Proposed Maximum of Private Investments: % of Total Fund
Growth - Appreciation	50%	75%	20%
Growth - Income-oriented	15%	30%	15%
Real Assets	0%	10%	10%
Inflation Protection	0%	10%	5%
Protection	5%	20%	0%
Liquidity	0%	5%	NA
Total			30%

- 3) To approve the “Volatility Weighted Benchmarks” as an evaluation method for the Combined Funds portfolio.

Exhibit 1

Sample Allocation Mixes

	Current Target	Similar Return Target	No Absolute Return	Higher Real Return	Higher Return Target	Higher Return Target2
<u>Growth - Appreciation</u>						
U.S. Equity	38.80%	23.50%	26.20%	26.20%	28.90%	32.20%
Non-U.S. Developed Equity	14.70%	8.70%	9.70%	9.70%	10.70%	12.00%
Emerging Market Equity	4.50%	2.80%	3.10%	3.10%	3.40%	3.80%
Private Equity	12.70%	12.00%	12.00%	12.00%	11.00%	11.00%
Non-Core Real Estate	1.40%	2.00%	2.00%	2.00%	3.00%	2.00%
Equity Insurance Risk Premium	0.00%	5.00%	5.00%	5.00%	5.00%	5.00%
	72.10%	54.00%	58.00%	58.00%	62.00%	66.00%
<u>Growth - Income-oriented</u>						
U.S. Investment Grade Credit	16.00%	10.00%	12.00%	10.00%	8.00%	8.00%
Private Credit - Direct Lending	4.40%	5.00%	5.00%	5.00%	5.00%	5.00%
Return-Seeking Fixed Income	0.00%	7.00%	7.00%	7.00%	7.00%	5.00%
	20.40%	22.00%	24.00%	22.00%	20.00%	18.00%
<u>Real Assets</u>						
Core Real Estate	0.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Real Assets	1.50%	1.00%	1.00%	1.00%	1.00%	2.00%
	1.50%	6.00%	6.00%	6.00%	6.00%	7.00%
<u>Inflation Protection</u>						
TIPS	0.00%	0.00%	0.00%	5.00%	0.00%	0.00%
Commodities	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	0.00%	0.00%	0.00%	5.00%	0.00%	0.00%
<u>Protection</u>						
U.S. Gov't Bonds	4.00%	8.00%	10.00%	7.00%	5.00%	7.00%
Absolute Return Funds	0.00%	8.00%	0.00%	0.00%	5.00%	0.00%
	4.00%	16.00%	10.00%	7.00%	10.00%	7.00%
<u>Liquidity</u>						
Cash	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Illiquid Asset Exposure	20.00%	25.00%	25.00%	25.00%	25.00%	25.00%

Exhibit 2

**RISK / RETURN
ANALYSIS
OF SAMPLE MIXES**

	Current Target	Similar Return Target	No Absolute Return	Higher Real Return	Higher Return Target	Higher Return Target2
Expected Return - 30 Year	7.20%	7.10%	6.90%	6.90%	7.20%	7.20%
Standard Deviation - 30 Year	13.90%	10.90%	11.50%	11.50%	12.10%	12.90%
Sharpe Ratio	0.33	0.41	0.37	0.37	0.38	0.36
	.					
60th Percentile	7.80%	7.60%	7.40%	7.50%	7.80%	7.70%
40th Percentile	6.60%	6.60%	6.40%	6.40%	6.60%	6.60%
Probability of >7.0%	53.30%	51.30%	48.30%	48.50%	53.70%	52.60%
Probability of >7.5%	45.40%	41.30%	38.90%	39.00%	44.60%	44.10%
Probability of >8.0%	37.60%	31.80%	30.10%	30.20%	35.90%	35.90%

Exhibit 3

Strategic Allocation Category Ranges

<u>Strategic Allocation Category</u>	<u>Current Target</u>	<u>Similar Return Target</u>	<u>No Absolute Return</u>	<u>Higher Real Return</u>	<u>Higher Return Target</u>	<u>Higher Return Target2</u>	<u>Sample Minimum:</u>	<u>Sample Maximum:</u>	<u>Proposed Minimum:</u>	<u>Proposed Maximum:</u>
							<u>% of Total Fund</u>	<u>% of Total Fund</u>	<u>% of Total Fund</u>	<u>% of Total Fund</u>
Growth - Appreciation	72.10%	54.00%	58.00%	58.00%	62.00%	66.00%	54.00%	66.00%	50%	75%
Growth - Income-oriented	20.40%	22.00%	24.00%	22.00%	20.00%	18.00%	18.00%	24.00%	15%	30%
Real Assets	1.50%	6.00%	6.00%	6.00%	6.00%	7.00%	6.00%	7.00%	0%	10%
Inflation Protection	0.00%	0.00%	0.00%	5.00%	0.00%	0.00%	0.00%	5.00%	0%	10%
Protection	4.00%	16.00%	10.00%	7.00%	10.00%	7.00%	7.00%	16.00%	5%	20%
Liquidity	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	0%	5%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%				

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<u>Private Investments</u>	<u>Proposed Maximum:</u>
	<u>% of Total Fund</u>
Growth - Appreciation	20%
Growth - Income-oriented	10%
Real Assets	10%
Inflation Protection	5%
Protection	10%
Liquidity	NA
Total	30%

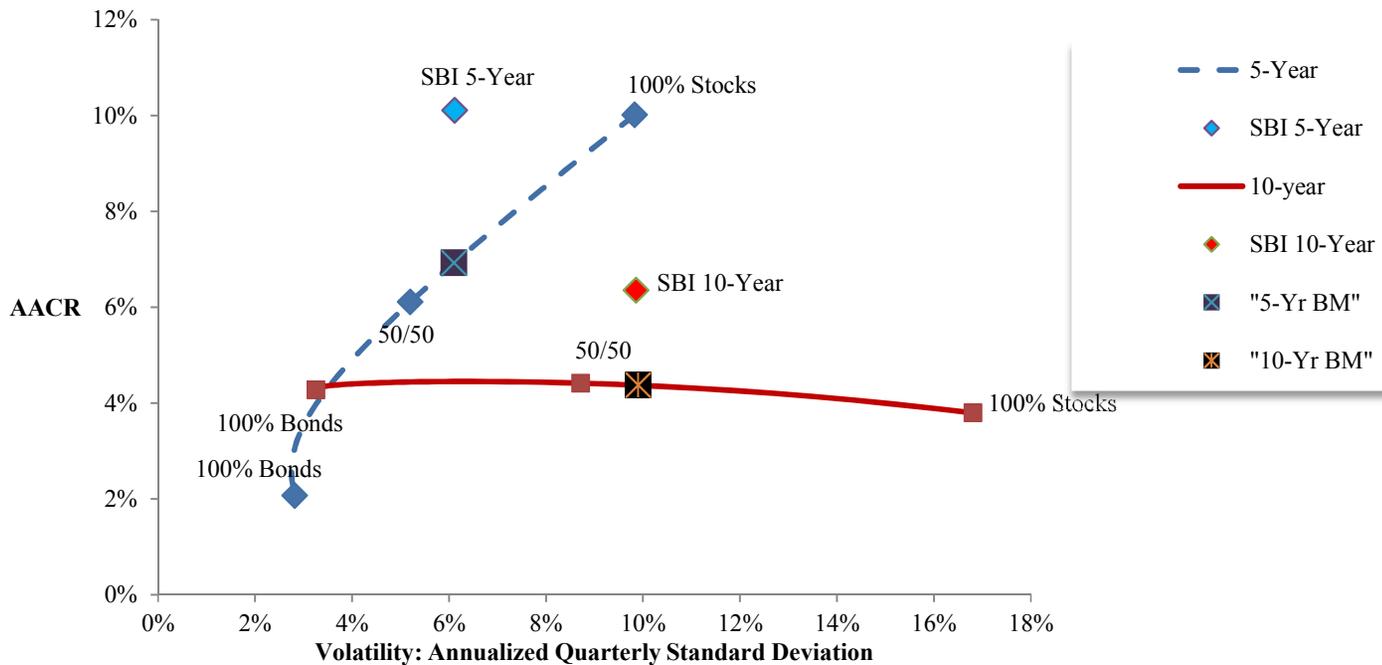
Exhibit 4

As of (Date): 9/30/2017

SBI AACR and Volatility									
		1-year	3-year	5-year	10-year	15-year	20-year	25-year	30-year
SBI	AACR	15.1%	7.7%	10.1%	6.4%	9.2%	7.1%	8.7%	8.7%
	Stdev	-	-	6.1%	9.9%	8.9%	9.6%	9.2%	9.6%
Vol. Equivalent Benchmark Characteristics									
Benchmark	AACR	10.4%	5.5%	6.9%	4.4%	7.3%	5.7%	7.0%	7.4%
	Stdev			6.1%	9.9%	8.9%	9.6%	9.2%	9.6%
	Value Added	4.7%	2.2%	3.2%	2.0%	1.9%	1.4%	1.7%	1.3%
	Stock Weight	60%	60%	60%	58%	58%	61%	62%	62%
	Bond Weight	40%	40%	40%	43%	42%	39%	39%	38%

AACR and Volatility of Returns for "Simple" Benchmark Portfolios

-from All Bonds (Left) to All Stocks (Right)-



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INVESTMENT ADVISORY COUNCIL REPORT

DATE: November 28, 2017

TO: Members, State Board of Investment

FROM: Members, Investment Advisory Council and SBI Staff

SUBJECT: Proposed Private Markets Commitments

Staff has reviewed the following information and action agenda items:

- A. Discussion of Annual Private Markets Commitments
- B. Status of SBI Current Private Markets Commitments
- C. Consideration of new commitments

Existing Managers:

Distress/Opp.	Oaktree Capital Mgmt.	Oaktree Special Sit. Fund II	\$100 Million
Private Equity	Neuberger Berman	Dyal Capital Partners IV	\$250 Million
Private Equity	PPC Enterprises	Public Pension Capital	\$100 Million
Private Equity	Thomas H. Lee Partners	Thomas H. Lee Equity VIII	\$150 Million
Private Equity	Warburg Pincus	Warburg Pincus Financial	\$100 Million
Private Equity	Windjammer Capital	Windjammer Sr. Equity V	\$100 Million
Real Assets	Energy Capital Partners	Energy Capital Partners IV	\$150 Million
Real Assets	NGP Energy Capital	NGP Natural Resources XII	\$150 Million

New Managers:

Private Credit	BlackRock	Middle Market Senior Fund	\$250 Million
Private Equity	The Carlyle Group	Carlyle Partners VII	\$150 Million

SBI action is required on item C.

INFORMATION ITEM:

A. Discussion of Annual Private Markets Commitments

One of the goals of SBI staff when investing in private markets is consistent pacing over a rolling 12 month period. Vintage year diversification is important so that private markets commitments are deployed in a relatively smooth manner. Another important goal is taking advantage of preferred economic arrangements when given the opportunity. General Partners, occasionally, incentivize Limited Partners with lower management fees if LPs, for example, commit a certain dollar amount to a fund and/or submit their signed subscription documents by a certain date. However, given the SBI's current process, there are instances where we miss

out on a fee discount opportunity. This quarter, we are bringing forth ten recommendations. The total dollar amount and overall number of recommendations is larger than in prior IAC meetings, but our pacing is still within our targeted rolling band of commitment dollar amount. Moreover, a number of the recommendations are being included this quarter to maximize our fee saving potential. We do not anticipate this level of commitments every quarter, but we will take advantage of those occasions where it is in the best long-term interest of the SBI and its beneficiaries to take advantage of multiple preferred economic arrangements in the same quarter.

In order to better inform the Board and the IAC, the Executive Director will formalize the annual planning process used by Staff to manage the Private Markets Program. In concert with the SBI's Investment Beliefs, it is important that the key decision makers have a clearer understanding of the management of this program. Given its importance, size, and complexity, the Executive Director will present key aspects of the Plan at the First Quarter 2018 meetings and will include the Private Markets Commitment Plan for Fiscal Year 2019 in his Fiscal Year 2019 Management Plan.

B. Status of SBI Current Private Markets Commitments

Minnesota State Board of Investment *Combined Funds* *September 30, 2017*

Combined Funds Market Value \$66,082,943,646

Amount Available for Investment **\$4,632,509,986**

	Current Level	Target Level	Difference
Market Value (MV)	\$8,584,078,743	\$13,216,588,729	\$4,632,509,986
MV +Unfunded	\$14,902,595,436	\$23,129,030,276	\$8,226,434,840

Asset Class	Market Value	Unfunded Commitment	Total
Private Equity	\$4,385,318,008	\$3,534,016,376	\$7,919,334,384
Private Credit	\$503,752,536	\$727,922,544	\$1,231,675,080
Real Assets	\$1,946,575,585	\$786,253,602	\$2,732,829,187
Real Estate	\$577,147,916	\$612,053,048	\$1,189,200,964
Distressed/Oppportunistic	\$1,171,284,698	\$658,271,123	\$1,829,555,821
Total	\$8,584,078,743	\$6,318,516,693	\$14,902,595,436

Cash Flows *September 30, 2017*

Calendar Year	Capital Calls	Distributions	Net Invested
2017 (thru 9/30)	\$1,322,875,234	(\$1,542,015,199)	(\$219,139,966)
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)

C. Consideration of New Investment Commitments

ACTION ITEMS:

- 1) **Investment with an existing Distressed/Opportunistic manager, Oaktree Capital Management (“Oaktree”), in Oaktree Special Situations Fund II (“SSF II”).**

Oaktree is seeking investors for a new \$1.75 billion fund for the purpose of primarily making special situations investments in the U.S. Oaktree will seek to make control investments in middle-market companies through three types of investments: (a) the purchase of distressed debt, (b) structured equity investments (e.g., debt or preferred equity with a conversion feature or warrants) and (c) direct equity investments.

In addition to reviewing the attractiveness of the Oaktree Special Situations Fund II investment offering, staff has conducted on-site due diligence, reference checks, a literature database search, and reviewed the potential investor base for the fund.

More information on Oaktree Special Situations Fund II is included as **Attachment A beginning on page 11.**

RECOMMENDATION:

The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate and execute a commitment of to \$100 million, or 20% of Oaktree Special Situations Fund II, 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 Oaktree upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on Oaktree or reduction or termination of the commitment.

- 2) **Investment with an existing private equity manager, Neuberger Berman (“NB”), in Dyal Capital Partners IV, L.P. (“Fund IV”).**

Dyal Capital Partners (“Dyal”) is part of the Neuberger Berman Private Equity platform. Dyal is seeking investors for a \$5 billion private equity fund to make minority equity investments in leading institutionalized private equity firms. Dyal anticipates that these investments will benefit from three return components: a share of management fees, a share of return of capital and gains on balance sheet investments made alongside the limited partners in the funds (i.e., the GP commitment), and a share of carried interest.

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

More information on Dyal Capital Partners IV is included as **Attachment B beginning on page 17.**

RECOMMENDATION:

The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate and execute a commitment of to \$250 million, or 20% of Dyal Capital Partners 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 Neuberger Berman 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 Neuberger Berman or reduction or termination of the commitment.

3) Investment with an existing private equity manager, PPC Enterprises LLC (“PPC”), in Public Pension Capital, LLC (the “Fund”).

PPC is seeking investors to increase their allocation in the evergreen-structured fund, Public Pension Capital, LLC. The Fund is currently valued at \$640 million. The Fund seeks to invest in what PPC believes are conservatively priced businesses with sustainable competitive advantages and favorable industry dynamics in small or middle-market companies principally located in the U.S. and Canada. The Fund will focus primarily on stable, profitable, well-managed companies with positive cash flow and defensible strategic niches.

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

More information on Public Pension Capital, LLC is included as **Attachment C beginning on page 23.**

RECOMMENDATION:

The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate and execute for an additional commitment of up to \$100 million, or 20% in the aggregate of Public Pension Capital, LLC, 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 PPC Enterprises 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 PPC Enterprises or reduction or termination of the commitment.

4) Investment with an existing private equity manager, Thomas H. Lee Partners, L.P. (“THL”), in Thomas H. Lee Equity Fund VIII, L.P. (“Fund VIII”).

THL is seeking investors for a new \$3 billion fund to continue their strategy of acquiring middle-market, North American growth-oriented businesses in four core sectors: Business & Financial Services, Consumer & Retail, Healthcare, and Media, Information Services & Technology. THL intends to partner with portfolio company management to identify and implement organizational, operational, and strategic improvements and to accelerate sustainable revenue and profit growth, both organically and through acquisitions.

In addition to reviewing the attractiveness of the Thomas H. Lee Equity Fund VIII investment offering, staff conducted on-site due diligence, reference checks, a literature database search, and reviewed the potential investor base for the fund.

More information on Thomas H. Lee Equity Fund VIII is included as **Attachment D beginning on page 27**.

RECOMMENDATION:

The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate and execute a commitment of to \$150 million, or 20% of Thomas H. Lee Equity Fund VIII, 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 Thomas H. Lee 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 Thomas H. Lee Partners or reduction or termination of the commitment.

5) Investment with an existing private equity manager, Warburg Pincus LLC (“Warburg”), in Warburg Pincus Financial Sector, L.P. (“WPF”).

Warburg is seeking capital commitments of \$1.6 billion to make growth equity investments alongside the current Warburg Pincus Global Fund, Warburg Pincus Private Equity XII. The firm believes that it is well-positioned to benefit from both secular and cyclical trends underway in Financial Services and will seek opportunities across the global financial sector segments.

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

More information on Warburg Pincus Financial Sector is included as **Attachment E beginning on page 31.**

RECOMMENDATION:

The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate and execute a commitment of to \$100 million, or 20% of Warburg Pincus Financial Sector, 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.

- 6) Investment with an existing private equity manager, Windjammer Capital Investors (“Windjammer”), in Windjammer Senior Equity Fund V, L.P. (“Fund V”).**

Windjammer is seeking investors for a new \$800 million fund to make control buyouts in high quality, leading middle-market businesses. Windjammer intends to invest in advanced manufacturing, specialty distribution and scalable business service companies that operate in a diverse set of niche industries and generate approximately \$10 million to \$50 million in operating profit.

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

More information on Windjammer Senior Equity Fund V is included as **Attachment F beginning on page 35.**

RECOMMENDATION:

The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate and execute a commitment of to \$100 million, or 20% of Windjammer Senior Equity 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 Windjammer 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 Windjammer or reduction or termination of the commitment.

7) Investment with an existing real assets manager, Energy Capital Partners Management, LP (“ECP”), in Energy Capital Partners IV, L.P. (“Fund IV”).

ECP is seeking capital commitments of \$6 billion to continue the ECP’s investment strategy of making value-added, primarily control investments in existing and new-build energy infrastructure projects, primarily in North America. ECP intends to utilize a disciplined investment approach for Fund IV focused on acquiring and developing controlling interested in high quality assets, contracts and businesses in power, midstream oil and gas, environmental infrastructure, and related energy services businesses.

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

More information on Energy Capital Partners IV is included as **Attachment G beginning on page 39**.

RECOMMENDATION:

The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate and execute a commitment of to \$150 million, or 20% of Energy Capital Partners 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 Energy Capital 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 Energy Capital Partners or reduction or termination of the commitment.

8) Investment with an existing real assets manager, NGP Energy Capital Management L.L.C. (“NGP”), in NGP Natural Resources XII, L.P. (“Fund XII”).

NGP is seeking investors for a \$5.325 billion fund to invest in companies that grow through the effective reinvestment of cash flow and conservative use of financial leverage to acquire and develop assets. Fund XII will target investments in North American businesses in the oil and natural gas production, energy midstream, and oilfield service industries.

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

More information on NGP Natural Resources XII is included as **Attachment H beginning on page 43**.

RECOMMENDATION:

The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate and execute a commitment of to \$150 million, or 20% of NGP Natural Resources XII, 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 NGP 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 NGP or reduction or termination of the commitment.

9) Investment with a new private credit manager, BlackRock, in BlackRock Middle Market Senior Fund (the “Fund”).

BlackRock is seeking investors for a new \$1.5 billion fund to invest in a portfolio of secured income-generating debt and debt-related instruments. Investments may include, but are not limited to, private floating senior secured first lien loans and senior secured unitranche loans to medium-sized companies domiciled in, or exercising the main part of their economic activity in, the United States.

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

More information on BlackRock Middle Market Senior Fund is included as **Attachment I beginning on page 47**.

RECOMMENDATION:

The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate and execute a commitment of to \$250 million, or 20% of BlackRock Middle Market Senior Fund, 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 BlackRock upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on BlackRock or reduction or termination of the commitment.

10) Investment with a new private equity manager, The Carlyle Group (“Carlyle”), in Carlyle Partners VII, L.P. (“CP VII”).

Carlyle is seeking capital commitments of \$15 billion to make control-oriented and strategic minority investments, with equity investments of approximately \$200 million and \$1.2 billion of total equity capital. CP VII will generally target investments in market-leading businesses with solid cash flows and attractive fundamentals, where it can obtain majority control or significant influence over the governance of the business and drive further growth and operational improvement.

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

More information on Carlyle Partners VII is included as **Attachment J beginning on page 51**.

RECOMMENDATION:

The Investment Advisory Council concurs with Staff’s recommendation that the SBI authorize the Executive Director, with assistance from the SBI’s legal counsel, to negotiate and execute a commitment of to \$150 million, or 20% of Carlyle Partners VII, 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 The Carlyle Group upon this approval. Until the Executive Director on behalf of the SBI executes a formal agreement, further due diligence and negotiations may result in the imposition of additional terms and conditions on The Carlyle Group or reduction or termination of the commitment.

ATTACHMENT A

PRIVATE DEBT MANAGER SUMMARY PROFILE

I. Background Data

Name of Fund:	Oaktree Special Situations Fund II, L.P.
Type of Fund:	Distressed / Opportunistic Limited Partnership
Total Fund Size:	\$1.75 billion
Fund Manager:	Oaktree Capital Management, L.P.
Manager Contact:	Lisa Kenyon 333 South Grand Avenue, 28 th floor Los Angeles, CA 90071 (213) 830-6250

II. Organization and Staff

Oaktree Capital Management, L.P., is establishing Oaktree Special Situations Fund II, L.P. The Fund will seek to make control investments in middle-market companies through three types of investments: (a) the purchase of distressed debt, (b) structured equity investments (e.g., debt or preferred equity with a conversion feature or warrants) and (c) direct equity investments.

Oaktree was formed in 1995 and is a global investment management firm headquartered in Los Angeles, California. As of September 2017, Oaktree and its affiliates had \$99.5 billion in assets under management and a staff of over 900 people. Oaktree emphasizes an opportunistic, value-oriented and risk-controlled approach to investments in distressed debt, corporate debt (including high yield debt and senior loans), control investing, convertible securities, real estate, and listed equities. Oaktree is indirectly controlled by Oaktree Capital Group, LLC (“OCG”), a publicly-traded company listed on the New York Stock Exchange under the ticker symbol “OAK.”

Oaktree will manage the Fund through its special situations group (the “Special Situations Group,” or “SSG”). The Fund is the eighth closed-end fund Oaktree or its predecessors have organized since 1994 for the purpose of primarily making special situations investments in the U.S. The seven prior funds have combined committed capital of more than \$11 billion. The Fund is the second special situations fund managed by Jordon Kruse and Matt Wilson, who were named co-portfolio managers in July 2014 and took over sole responsibility for the SSG in January 2016. Mr. Kruse and Mr. Wilson, who joined Oaktree in 2001 and 2007, respectively, have managed Oaktree Special Situations Fund, L.P. (formerly known as Oaktree Principal Fund VI, L.P.) (“SSF I”), the immediate predecessor to the Fund, since its inception.

III. Investment Strategy

The Partnership's objective is to make investments that result in control of, or significant influence over, a company. The Partnership is expected to make investments that primarily fall into one of the aforementioned categories:

Distress for Control – Oaktree will seek secondary purchases – at prices substantially below par – of the debt securities of companies that are either in default or bankruptcy, or are likely to require financial restructuring. In these situations, Oaktree expects to target companies they believe have fundamentally sound business models and sustainable competitive positions, notwithstanding their financial distress. In these situations, the Partnership will attempt to become the largest, or one of the largest, creditors of the target company and will seek an active role during the restructuring. Ultimately, the Partnership will seek control of the company through the restructuring and forgiveness of its debt, which may include the injection of new capital.

Distressed debt investments have two primary paths for the exit: open market sale of debt or sale of the company after a full restructuring. In the case of an open market sale, this usually takes place because SSG believes the security no longer trades at an inherent discount to its intrinsic value and/or because the business prospects of the company have improved and they no longer believe the company will need to restructure. In the case of a full restructuring, the fund typically receives equity in the recapitalization and has full or partial control of the company through voting rights and board representation. As such, SSG can control the timing and path of exit similar to a direct equity investment (see discussion below for Direct Equity exit).

Structured Equity – Oaktree will seek to make structured investments in situations that involve an element of distress or dislocation or involve a level of complexity that makes them incompatible with more mainstream capital solutions. The forms of structured/hybrid investments include debt and preferred stock with warrants or an equity conversion feature. Such securities may include interest or dividends paid to the Partnership in cash; however, in many instances, part of the attractiveness of the Partnership's solution is that such interest or dividends may be accrued or paid-in-kind. In every case, the structured security is expected to provide the Partnership with control of, or significant influence over, the company, including a meaningful ownership interest with commensurate board representation and contractual affirmative and negative control provisions/covenants.

Structured equity investments are typically exited in two stages. Stage one is usually the sale of the fixed-income component typically through a refinancing that replaces the Fund's fixed-income investment with a lower cost of capital debt following a turnaround. Stage two is the eventual sale of the equity-linked component either through the sale of public equity or full sale of the company.

Direct Equity Investments – Oaktree expects to make direct equity investments in situations involving distress or dislocation, including distressed sellers, distressed companies, and industries in transition or that are out of favor, management in transition and/or other special situations. Examples of situations in which the Partnership expects to make direct equity

investments include motivated sellers, industry dislocation, management dislocation, asset build-ups and relationship transactions.

Direct equity investments are typically exited through the full sale of the company; however, the fund looks to make interim monetization via refinancings, divestitures or dividend recapitalizations where appropriate. The choice as to the method of final exit will depend upon, among other things, the capital structure of the company, the likelihood of attracting a strategic buyer and the state of the market for public equity offerings.

The Partnership generally intends to make friendly investments in cooperation with a target company's existing management. In certain instances, however, such as the restructuring of an existing debt investment, the Partnership may proceed with actions that may be adverse to a board of directors, members of management, stockholders or members of a creditors' committee if Oaktree determines that such a strategy would better serve the Partnership's interests.

Once strategic initiatives have been implemented, and the team makes the decision that it is the optimum time to realize the investment; the SSG will explore all possible avenues including divestitures, refinancing, dividend recapitalizations and sales of securities in both registered offerings and open-market transactions in obtaining the maximum value of the investment. The choice as to the method of disposition will depend upon, among other factors, the capital structure of the company, the likelihood of attracting a strategic buyer and the state of the market for public equity offerings.

IV. Investment Performance

Previous fund performance as of June 30, 2017 for investments in previous Funds is shown below:

Fund	Vintage Year	Total Committed Capital	SBI Investment	Net IRR*	Net MOIC*
The Principal Fund	1994	\$540 million		15%	1.7x
Principal Opps. Fund	1996	\$845 million		5%	1.5x
Principal Opps. Fund II	2000	\$1.6 billion		18%	1.8x
Principal Opps Fund III	2004	\$1.6 billion		10%	1.5x
Principal Opps. Fund IV	2006	\$4.0 billion		9%	1.8x
Principal Fund V	2009	\$3.3 billion		3%	1.1x
Special Situations Fund	2014	\$1.2 billion	\$100 million	28%	1.3x

* Previous Fund investments may be relatively immature and, therefore, returns may not be indicative of future results. Net IRR and Multiple of Invested Capital (MOIC) were provided by the General Partner.

V. General Partner's Investment

The General Partner and its affiliates will make aggregate Capital Commitments to the Partnership equal to at least 2.5% of the total Capital Commitments to the Partnership; provided that the aggregate Capital Commitments of the General Partner and its affiliates as of the date of the final admission of Limited Partners to the Partnership will not (a) be less than \$20 million or (b) be required to exceed \$100 million.

VI. Standard Fee Schedule

The Partnership will pay a management fee to the Manager quarterly in advance during the first ten years of the term of the Partnership, starting on the date of the initial investment, at the following rate:

- (i) during the Investment Period, 1.60% per annum of Capital Commitments; and
- (ii) during the Liquidation Period, 1.60% per annum on the lesser of (a) the total funded Capital Commitments of the Limited Partners (less any amounts returned as uninvested) and (b) the cost basis of the investments held by the Partnership as of the end of the next-to-last month of the immediately preceding calendar quarter.

No management fee will be payable to the Partnership after the 11th anniversary of the initial investment date, even if the Partnership continues to hold assets at that time.

VII. Distributions

Distributions will be made in the following order and priority:

- (a) First, 100% to such Limited Partner until such Limited Partner receives 100% of its capital contributions;
- (b) Second, 100% to such Limited Partner until such Limited Partner has received an 8% annual return, compounded annually, on its aggregate capital contributions;
- (c) Third, 80% to the General Partner and 20% to such Limited Partner until the General Partner has received an amount that is equal to 20% of the amounts distributed to such Limited Partner; and
- (d) Thereafter, 20% Carried Interest.

VIII. Key Person

A Key Person Event will be triggered if (a) any two of Bruce Karsh, Matthew Wilson and Jordon Kruse (each, a “Portfolio Principal”), have ceased to devote the requisite time and attention to the Fund (other than for a de minimis amount of time), unless qualified replacements therefor have been elected (in which case such qualified replacement will take the place of such Portfolio Principal for purposes of this clause (a)) or (b) the Portfolio Principals or their qualified replacements, together with the investment professionals of Oaktree as of the final Closing (or, if later, the date of the final admission of Late Participants), cease to be entitled to receive directly or indirectly in the aggregate at least 50% of the Carried Interest.

IX. Investment Period and Term

The Investment Period terminates three years after the date of initial investment. The Partnership’s term will be ten years from the initial investment date, subject to five one-year extensions at the discretion of the General Partner and an additional one-year extension with the consent of a majority in interest of Limited Partners.

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ATTACHMENT B

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. Background Data

Name of Fund:	Dyal Capital Partners IV, L.P.
Type of Fund:	Private Equity
Target Fund Size:	\$5 billion
Fund Manager:	Neuberger Berman
Manager Contact:	Sean Ward 1290 Avenue of Americas New York, NY 10104 212-476-8532

II. Organization and Staff

Dyal Capital Partners (“Dyal” or “the firm”) is sponsoring Dyal Capital Partners IV (the “Fund” or “Fund IV”) to make minority equity investments in established investment management companies (“Partner Managers”).

Dyal Capital Partners is part of the Neuberger Berman (“NB”) Private Equity platform. Since its inception, NB Private Equity has managed over \$50 billion of investor commitments across primary, secondary, co-investments, private debt and other direct investments (since inception through June 30, 2017). NB Private Equity has a global presence with over 120 investment professionals in offices in the U.S., Europe, Asia, and South America.

The Dyal Capital Partners team is composed of 31 professionals: 11 investment professionals, a 17-member Business Services Platform, and three professionals providing legal and finance support. The 11 members of the Investment Team have extensive prior experience in asset management mergers and acquisitions, and have consummated minority investments in 14 hedge funds and 10 private equity managers across Dyal Funds I – III. The Business Services Platform provides strategic services to Partner Managers in five key areas: client development and marketing support, business strategy, product development, talent management, and operational advisory.

The Dyal team is headquartered in New York, and has raised a total of \$8.7 billion in three prior funds. Dyal Capital Partners I and Dyal Capital Partners II followed a hedge fund-focused investment program, which is substantially similar to the private equity-focused program of Fund III, and which Fund IV intends to implement.

III. Investment Strategy

Fund IV focuses on acquiring minority interests in leading institutionalized private equity firms, which should continue to benefit from increased allocations to private equity funds by

large institutional investors, such as public and corporate pension plans and sovereign wealth funds. Further, Dyal believes that portfolio diversification is critical and will seek to assemble a portfolio of complimentary investments diversified by investment strategy, vintage years, and geography.

Dyal believes that owners of private equity firms are increasingly attracted to taking on minority equity partners for a number of reasons. First, such a transaction can provide the private equity firm with permanent capital, which can be used to make larger commitments to their own funds or develop new products, as well as engage in acquisitions or geographic expansion. Second, selling a minority stake may allow management to reallocate ownership to the next generation of investment professionals. Third, certain firms may have existing financial shareholders that are seeking liquidity, or may be looking to spin a successful franchise out of a bank due to regulatory concerns. Lastly, taking on a minority partner can provide management with access to capital while avoiding an IPO and the costs and responsibilities of running a public company.

Dyal seeks to respond to all of these motivations, and has three distinct advantages in seeking to partner with high quality private equity firms: (i) a deep and experienced team, (ii) the ability to offer a true strategic partnership, and (iii) affiliation with a global asset management firm that does not, generally speaking, compete with Partner Managers.

The Firm anticipates that each Fund IV investment in a private equity Partner Manager will benefit from three return components:

1. A share of management fees, which is very stable and predictable over the life of the funds;
2. A share of return of capital and gains on balance sheet investments made alongside the limited partners in the funds (i.e., the GP commitment); and
3. A share of carried interest, which is episodic and varies with fund returns.

Although every transaction is unique, Dyal generally seeks to acquire the right to these three income streams with respect to a Partner Manager's existing funds, as well as those it will raise in the future. The existing funds may be at different stages of their lives, and the predictability of the performance of balance sheet assets and the likelihood of carried interest payments varies according to the stage of the fund. Regardless of fund stage, the expected management fee income is much less variable and can be more accurately predicted. Dyal uses reasonable and conservative assumptions regarding the size and performance of funds that a Partner Manager may raise in the future, and evaluates several different scenarios (both good and bad) to assess the range of possible outcomes. Dyal's underwriting does not ascribe significant terminal value to the manager at the end of an expected 12 year hold period; Dyal expects to generate attractive returns solely from cash flow.

Dyal's focus is on "institutionalized" firms that are positioned for sustained earnings stability with potential upside growth. These firms have the resources to retain large, sophisticated investors and build lasting businesses. Institutionalized firms dedicate substantial resources to non-investment functions, such as investor relations, legal, compliance, and risk management. They typically have multiple products and are not key-person dependent. Managers will be

evaluated both for their investment acumen and their ability to build and manage growth businesses successfully. In addition to business stability and attractiveness to institutional investors and consultants, institutionalized firms are generally large enough to be profitable even in years with little or no carried interest.

Fund IV Partner Managers will be entitled to benefit from the customized suite of services provided by Dyal’s Business Services Platform. Broadly speaking, the Business Services Platform executes projects in five key areas:

- **Client Development & Marketing Support** – Emphatically not a placement agent, the Business Services Platform team focuses on making, subject to any applicable information barriers, strategic, qualified introductions of Dyal’s Partner Managers to carefully selected institutional investors, including investors in Dyal’s funds.
- **Product Development** – The Business Services Platform has assisted several Partner Managers as they have considered launching new products. This assistance has included extensive market and product opportunity analyses that define relevant peer groups, examine performance data and identify potential target investors and barriers to entry.
- **Talent Management** – The Business Services Platform provides talent management services to Partner Managers, including guidance on organizational development, talent sourcing, and in-depth compensation benchmarking and structuring assistance.
- **Business Strategy** – The Business Services Platform undertakes individualized management consulting projects such as developing firm strategic growth plans, evaluating distribution expansion options, and assessing brand development strategies. Additionally, the team provides strategic best practices advice, and competitive benchmarking reports.
- **Operational Advisory** – The Business Services Platform delivers support and best practices advice to our partners’ business operations, technology, and infrastructure functions through peer benchmarking, thought leadership and customized analysis.

IV. Investment Performance

Previous fund performance as of June 30, 2017 is shown below:

Fund	Vintage Year	Total Committed Capital	SBI Investment	Net IRR*	Net MOIC*
Dyal I	2012	\$1.3 billion	N/A	7.0%	1.21x
Dyal II	2015	\$2.1 billion	N/A	-2.6%	0.96x
Dyal III	2016	\$5.3 billion	\$175 million	13.1%	1.20x

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

V. General Partner's Investment

The General Partner and its affiliates (including employees of Neuberger Berman) will commit to Fund IV an amount equal to at least 1% of aggregate commitments.

VI. Standard Fee Schedule

The management fee for Fund IV will be 2% per annum during the Investment Period, stepping down to 1.5% beginning on the earliest of (A) the end of the investment period and (B) the date upon which 90% of the aggregate commitments have been drawn (and not returned subject to recall). No management fee will be charged after the 15th anniversary of Fund IV's final closing.

VII. Distributions

Distributions will be apportioned to Limited Partners as follows:

- (a) First, 100% to such Limited Partner until such Limited Partner has received cumulative distributions of Investment Proceeds equal to such Limited Partner's cumulative capital contributions through such date;
- (b) Second, 100% to such Limited Partner until cumulative distributions of Investment Proceeds are sufficient to provide an 8% per annum compounded internal rate of return;
- (c) Third, 100% to the Special Limited Partner until the cumulative Carried Interest is equal to 20%; and
- (d) Thereafter, 80% to such Limited Partner and 20% to the Special Limited Partner

VIII. Key Persons

Instead of a "Key Person" provision, Dyal includes a "Team Departure Event" provision. A Team Departure Event shall be deemed to have occurred if, at any time during the Investment Period, none of the Team Members is devoting a sufficient amount of time to the Fund as is reasonably required to conduct the investment and other activities of the Fund in accordance with the Partnership Agreement. If a Team Departure Event occurs, Voting Investors are provided written notice and the Investment Period is suspended 60 days after such event. Limited Partners are released from further capital contribution obligations and may elect in writing to terminate the Investment Period. If Limited Partners elect not to terminate, then the Investment Period, and each Limited Partner's obligation to make capital contributions to the Partnership during the Investment Period, shall be automatically reinstated effective as of the last day of the Suspension Period.

“Team Member” shall mean each of (i) Michael Rees, (ii) Sean Ward, (iii) Andrew Laurino, (iv) Mark O’Sullivan, (v) Matthew Rees, and (vi) any other individual or individuals nominated as a Team Member by the General Partner and approved within 90 days thereafter by the LP Advisory Committee.

IX. Investment Period and Term

The investment period will last for five years from the date of the final closing, unless terminated earlier by the General Partner. The General Partner may extend the Investment Period for up to two periods of up to 12 months each, once in the General Partner’s sole discretion and once with the consent of the LP Advisory Committee. At any time during the investment period, 80% in interest of the voting investors may elect to terminate the investment period. Fund IV will continue in existence indefinitely. However, the General Partner may present the Limited Partners with the opportunity to offer all or substantially all of their interests for public or private sale, and may cause Fund IV to enter into a transaction that affords the Limited Partners with an opportunity to receive in exchange for all or substantially all of their interests cash or marketable securities.

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ATTACHMENT C

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	Public Pension Capital, LLC
<i>Type of Fund:</i>	Private Equity – Buyout
<i>Current Fund Size:</i>	\$640 Million
<i>Fund Manager:</i>	PPC Enterprises LLC
<i>Manager Contact:</i>	Perry Golkin 500 Park Avenue, 4 th Floor New York, NY 10022 (646) 205-1220

II. Organization and Staff

PPC Enterprises LLC (together with its affiliates, “PPC” or the “Manager”) established Public Pension Capital, LLC (the “Company,” or the “Fund”) in 2014 to pursue investment opportunities through a unique organizational structure which maximizes alignment of interest between limited partner investors and the Fund’s general partner. The intent of this open-ended fund model is to maximize the time investment executives spend on sourcing and creating value in portfolio company investments and minimizing the time utilized for fundraising, regulatory compliance and other administrative functions. Since 2014, PPC has raised an aggregate total of \$640 million in capital and intends to continue to accept commitments from select sophisticated public pension fund investors and other long-term investors.

A unique feature of this Fund is that it has a separate Board of Investors (the “Board”) which approves the budget and the resulting Fund management fee and other expenses on an annual basis. The Board also approves the overall size of the Fund and the composition of Fund limited partners. The goal is to create a level of interaction and cooperation that has not been typical of previous relationships between limited partners and fund managers.

The annual fees and expenses of the Fund and General Partner’s profit participation in successful investments (not more than 10%) is less than those payable by most other private equity fund managers. The General Partner believes this structure will create enhanced alignment between the investors and the General Partner with improved economics to the Fund limited partners. An additional feature of the Fund which the Manager believes is attractive to limited partners is the ability for any investor to unilaterally reduce their undrawn and unreserved commitments each year, beginning April 1, 2017 for investors in the first close. This mechanism will accommodate any investor facing unexpected liquidity concerns or a change of investment strategy.

The Fund will build upon the extensive private equity investment experience of Perry Golkin and Michael T. Tokarz, the co-founders of the Manager (the “Co-Founders”), as well as the

investment professionals of The Tokarz Group Advisers (“TTGA”), the investment manager of MVC Capital, Inc. (“MVC”), a publicly traded business development company listed on the New York Stock Exchange (NYSE:MVC). Co-Founders, Messrs. Golkin and Tokarz were employed by Kohlberg Kravis Roberts & Co. (“KKR”) for 25 and 17 years, respectively. They worked there together both when they were associates and later as partners, overlapping for 16 years. Individually or together, they participated in over 20 separate KKR portfolio company investments. Although they actively participated in these investments, other investment professionals were involved in these investments as well and, in general, these investments were KKR team efforts, with oversight provided by Henry Kravis and George Roberts. The Co-Founders believe that the lessons they learned and experience they gained during their years with KKR can be successfully applied to private equity investing focused on the middle market.

Mr. Tokarz left KKR in 2002 and became the Chairman and Portfolio Head of MVC, a small business development company, in November 2003. Effective November 1, 2006, TTGA, which was founded by Mr. Tokarz in 2002, became the manager of MVC.

PPC has 13 employees with offices located in New York and Chicago. The Fund’s investment team (the “Investment Team”) is comprised of Mr. Golkin, Mr. Tokarz and an experienced Senior Investment Team listed below.

- Jim Fisher, Partner and head of the Financial Institutions Group, has over 22 years of financial services and investment experience. Mr. Fisher served at various times as chief executive officer, chief operating officer and chief financial officer of KKR portfolio companies;
- Jeffery Krauss, Partner and head of the Healthcare Group, has over 26 years of private equity experience. Prior to joining PPC he was a member of Psilos Group Managers, LLC, with a focus on healthcare services, healthcare information technology, and medical technology segments and a general partner at Nazem & Company;
- Thomas Uger, Partner and head of Business Services Group, has over 19 years of private equity experience. Prior to joining PPC, Mr. Uger was a partner and the head of merchant banking at LionTree LLC, a boutique investment bank and a partner and co-head of North America Media and Communications at KKR, where he worked for 16 years;
- Max Alper is the head of the Industrial Services Group and has over 17 years of private equity experience. Prior to joining PPC, Mr. Alper was a senior executive at KKR, where he led private equity investments in the services, chemicals, and consumer sectors. Prior to KKR, Mr. Alper worked with SAB Capital, Madison Dearborn Partners, and Morgan Stanley Capital Partners; and
- And shared investment professionals of The Tokarz Group Advisers (TTGA) and MVC Investment Team.

Additional senior and junior investment professionals and industry experts are expected to join the group as the Fund grows its operations.

III. Investment Strategy

The Fund will invest in what PPC believes are conservatively priced businesses with sustainable competitive advantages and favorable industry dynamics in small or middle-market companies principally located in the U.S. and Canada. The Fund will focus primarily on stable, profitable, well-managed companies with positive cash flow and defensible strategic niches. The Funds seeks opportunities where the Investment Team can provide strategic, operational and financial support directly to portfolio companies to enhance value and guide them towards successful exit opportunities. The fund will target companies in industries that include financial services; business and industrial services; specialty chemicals; and certain segments of the healthcare industry with revenue and EBITDA over \$150 million and \$25 million, respectively. The fund will deploy capital for: buyouts; control equity positions; expansion; special situations; and minority equity investments greater than 10% ownership.

IV. Investment Performance

Performance shown below is as of September 30, 2017.

Fund	Vintage Year	Total Committed Capital	SBI Investment	Net IRR*	Net MOIC*
PPC	2014	\$640 million	\$100 million	10.45%	1.1x

* Investments may be relatively immature and, therefore, returns may not be indicative of future results. Net IRR and Net MOIC are provided by State Street and represent 6/30/17 valuations adjusted for cash flows as of 9/30/17.

V. General Partner's Investment

The aggregate capital commitments of the General Partner, its affiliates and any other persons or entities receiving a share of the Fund's profit participation will equal 5% of aggregate Limited Partner commitments up to the first \$1 billion of aggregate Limited Partner commitments.

VI. Standard Fee Schedule

Management fees and other ordinary expenses of the Fund will be paid by the Limited Partners in accordance with a Limited Partner approved annual budget prepared by the Manager. The annual management fee of the aggregate commitments of the Limited Partners in respect of the budget year that began on April 1 of each year was: 1.5% for 2015; 1.49% for 2016; and 1.39% for 2017.

VII. Distributions

PPC will have profit participation in each investment subject to required minimum compounded annual return and will be no more than 10%.

VIII. Key Persons

A key person event will occur if either Perry Golkin or Michael Tokarz fail to devote substantially all of their business time and attention to the business and affairs of the Fund. Or, if a majority of the following three investment professionals: James Fisher, Jeffrey Krauss, and Thomas Uger, cease to devote substantially all of their time to the fund.

IX. Investment Period and Term

The Fund does not have a fixed term, provided that PPC will use its commercially reasonable efforts to dispose of all investments in a portfolio company within ten years from the date of a Series' initial investment in such portfolio company (subject to three one-year extensions with Board consent).

The Fund will not have a set Commitment Period and instead, any investor can reduce its unfunded and unreserved capital commitments each year, if desired.

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ATTACHMENT D

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. Background Data

Name of Fund:	Thomas H. Lee Equity Fund VIII, L.P.
Type of Fund:	Private Equity Limited Partnership
Total Fund Size:	\$3.0 billion
Fund Manager:	Thomas H. Lee Partners, L.P.
Manager Contact:	Beverly Berman 100 Federal Street Boston, MA 02110 (617) 946-2618

II. Organization and Staff

Thomas H. Lee Partners, L.P. (“THL” or the “Firm”) is sponsoring Thomas H. Lee Equity Fund VIII, L.P. (the “Fund” and, together with its parallel funds, “Fund VIII”), a private investment fund that will acquire middle market growth-oriented businesses, headquartered in North America, in four core sectors: Business & Financial Services, Consumer & Retail, Healthcare, and Media, Information Services & Technology. THL intends to partner with portfolio company management to identify and implement organizational, operational, and strategic improvements and to accelerate sustainable revenue and profit growth, both organically and through acquisitions.

THL was founded in 1974 by Thomas Lee and is located in one office in Boston, MA. The Firm has 65 professionals, 7 Executive Advisors, and an extensive network of executive relationships and corporate partnerships. Co-Presidents Tony DiNovi and Scott Sperling have led the firm since 2004 and each have been with THL for over 20 years. Todd Abbrecht was appointed Head of Private Equity in 2017 and is responsible for managing the Firm’s private equity program, reporting to the Co-Presidents. The Firm is governed by a Private Equity Management Committee, which consists of Tom Hagerty, Soren Oberg, Kent Weldon, along with DiNovi, Sperling and Abbrecht. All six members have been with THL for over 20 years and have an average tenure of 25 years at THL.

III. Investment Strategy

THL is raising Fund VIII to continue their strategy of acquiring middle-market, North American growth-oriented businesses and increasing value organically and through acquisitions. Since its founding in 1974, THL has raised over \$22 billion, acquired over 140 portfolio companies, and completed over 360 add-on acquisitions. By using their domain expertise and the internal operating capabilities of their Strategic Resource Group (“SRG”), they seek to create deal sourcing advantages, and to accelerate growth and improve operations in portfolio companies in partnership with management teams.

Based in one office in Boston, MA, investment professionals are organized into industry groups, which THL believes facilitates thought leadership and crisp decision making within their four sectors of focus. Investment teams are purposefully senior heavy, with 27 Managing Directors and Directors who average 22 years of relevant experience. This level of seniority, experience, and continuity enhances the team's investment judgment and network of relationships. To complement THL investment professionals, the Firm established the SRG in 2006 as an internal (paid by THL), operationally-focused resource to partner with THL portfolio companies to accelerate growth, drive operating improvements, and address challenges. The SRG currently consists of 11 seasoned professionals (six at the managing director or director level) with operating and consulting backgrounds who are typically fully integrated with THL investment professionals on deal teams from due diligence through exit.

The Firm invests in four industry sectors: Business & Financial Services, Consumer & Retail, Healthcare, and Media, Information Services & Technology. THL prefers these areas of the U.S. economy because they believe companies in these sectors tend to possess attractive growth and free cash flow characteristics. THL focuses their efforts on companies with enterprise values between \$250 million and \$2.5 billion because they believe they have a greater ability to source transactions, accelerate growth, and improve operations for companies of this size.

Once THL acquires a portfolio company, they are active, hands-on investors, with an operationally-intensive approach to building value. Their integrated teams of investment and SRG professionals partner with portfolio company management teams to identify high priority growth, operating, and organizational initiatives. SRG is implementation oriented, operating on site at portfolio companies three to five days per week to help implement these key initiatives alongside portfolio company executives. Since 2010, SRG has worked with 24 portfolio companies leading more than 140 projects involving approximately 1,600 portfolio company employees. These projects include organic growth initiatives such as "white space" penetration, portfolio expansion (new products, new markets, etc.), improving pricing strategies, and sales force effectiveness. They also include acquisition integration as they work with portfolio company management to build scalable platforms, including the necessary human resources, systems, and processes, to identify, complete, and integrate follow-on acquisitions. In addition, SRG has worked with most THL portfolio companies on cross-portfolio projects such as healthcare plan design, procurement, and information technology optimization.

IV. Investment Performance

Previous fund performance as of June 30, 2017 is shown below:

Fund	Vintage Year	Total Committed Capital	SBI commitment	Net IRR*	Net MOIC*
Fund I	1984	\$66 million	--	50%	2.6x
Fund II	1989	\$568 million	--	54%	3.4x
Fund III	1995	\$1.4 billion	--	32%	1.9x
Fund IV	1998	\$3.5 billion	--	(3%)	0.9x
Fund V	2000	\$6.1 billion	--	14%	1.7x
Fund VI	2006	\$8.1 billion	--	9%	1.6x
Fund VII	2015	\$2.6 billion	\$100 million	49%	1.5x

* Previous Fund investments may be relatively immature and, therefore, returns may not be indicative of future results. Net IRR and Multiple of Invested Capital (MOIC) are provided by Thomas H. Lee for Funds I-VI and by State Street for Fund VII.

V. General Partner's Investment

THL employees will commit at least \$150 million to the Fund.

VI. Standard Fee Schedule

The management fee will be 1.50% of committed capital during the investment period. Until the earlier of end of follow-on commitment period and 5 years from final close, the management fee steps down to 1.25% of committed plus invested capital. Following that period, the management fee steps down to 1.00% of committed plus invested capital.

VII. Distributions

The Fund has two classes of Limited Partnership interests: Class A Limited Partnership interests ("Class A Interests") and Class B Limited Partnership interests ("Class B Interests"). The Interests differ with regards to the distribution of profits and the preferred rate of return.

Class A Interests are a modified American-style waterfall with distributions to be made in the following order and priority:

- First, 100% to the Limited Partner until the cumulative distributions received by the Limited Partner equals the sum of its capital contributions with respect to (i) each realized portfolio investment and the amount of net write-downs among all other Portfolio Investments; and (ii) expenses of the Fund, including the Management Fee, allocated to each Realized Portfolio Investment and such net write-downs;

- Second, 100% to the Limited Partner until the cumulative distributions received by the Limited Partner equal a preferred return of 8% per annum, compounded annually, on the sum of its capital contributions to the Fund with respect to (i) each Realized Portfolio Investment and the amount of net write-downs among all other Portfolio Investments, and (ii) expenses of the Fund, including the Management Fee, allocated to each Realized Portfolio Investment and such net write-downs;
- Third, 100% to the General Partner until the general partner has received its 20% carried interest; and
- Thereafter, 80% to the Limited Partner and 20% to the General Partner.

Class B Interests are a European-style waterfall with distributions to be made in the following order and priority:

- First, 100% to the Limited Partner until the cumulative distributions received by the Limited Partner equals the sum of its aggregate capital contributions to the Fund utilized to fund Portfolio Investments and expenses of the Fund, including the Management Fee;
- Second, 100% to the Limited Partner until the cumulative distributions received by the Limited Partner equal a preferred return of 5% per annum, compounded annually, on the amount of its aggregate capital contributions to the Fund utilized to fund Portfolio Investments and to pay the expenses of the Fund, including the Management Fee;
- Third, 100% to the General Partner until the cumulative distributions to the General Partner equal 20% of the total cumulative distributions; and
- Thereafter, 80% to the Limited Partner and 20% to the General Partner.

VIII. Key Persons

A Key Person Event occurs when fewer than seven of the Principals are not devoting substantially all of their business time to the Partnership.

IX. Investment Period and Term

The Fund will have a five-year investment period and a ten-year term. The Fund may be extended by the General Partner with the consent of the Advisory Committee, for up to three additional one-year periods.

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ATTACHMENT E

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. Background Data

Name of Fund:	Warburg Pincus Financial Sector, L.P.
Type of Fund:	Private Equity – Growth Equity
Target Fund Size:	\$1.6 Billion
Fund Manager:	Warburg Pincus LLC
Manager Contact:	James W. Wilson 450 Lexington Ave. New York, NY 10017 212-878-6126

II. Organization and Staff

Warburg Pincus was founded in 1966 and raised its first institutional fund in 1971. Since that time, Warburg Pincus has raised 16 private equity funds which collectively represent \$73 billion in committed capital – twelve prior Global Funds, two International-Only Funds and two companion funds that invest alongside the firm’s active Global Funds in certain opportunities, one in Energy and another in China. The firm also established a \$1.2 billion global real estate fund in 2006 that is fully invested. Warburg Pincus was founded in and remains headquartered in New York. The Firm maintains a global presence with eight additional offices around the world.

All of the firm’s investment activities are coordinated by a 19-person Executive Management Group (EMG) led by the firm’s Co-Chief Executive Officers. The members of the EMG have an average tenure of 15 years with the firm and an average age of 50. The current Co-Chief Executive Officers - Charles R. Kaye and Joseph P. Landy - manage an ownership structure and carried interest pool for the firm that is spread broadly and deeply among certain employees. Over 160 professionals now participate in carried interest generated by all Warburg Pincus private equity funds through one common allocation program.

The Warburg Pincus Financial Sector Fund (“WPF”) is being raised to invest alongside the current Warburg Pincus Global Fund, Warburg Pincus Private Equity XII, L.P. Warburg Pincus believes that the number and size of the opportunities available in Financial Services in the years ahead are likely to be attractive and exceed the appropriate level of concentration in the firm’s Global Funds. Since its inception in 1971, Warburg Pincus has invested \$10.8 billion across 93 Financial Services investments. The dedicated Financial Services Team was formally established in 2005 and since 2009 has been led by Michael Martin. The Financial Services Team has 32 investment professionals, including 14 managing directors with an average tenure at the firm of over 10 years.

III. Investment Strategy

The firm's predominant focus is on growth investing. Warburg Pincus believes over the next several years there is an increased likelihood of dislocations in Financial Services in one or more of the geographic markets in which the firm has historically invested. While WPF's objectives are not premised on any dislocation occurring, and the firm believes that there would be ample growth investing opportunities for WPF absent a dislocation, the Financial Services Team believes that dislocations can present attractive investing opportunities. The firm believes that Warburg Pincus is well-positioned to benefit from both secular and cyclical trends underway in Financial Services and will seek opportunities across the global financial sector segments. Over more than 40 years, Warburg Pincus has made financial services investments across cycles in both dislocated and growth markets. Warburg Pincus follows the secular trends impacting Financial Services and develops theses that drive investments in a range of subsectors, including: banks, specialty lenders, insurance, asset and wealth management, payments, core processing, and tech-enabled non-bank lending. Secular trends that the firm is currently actively pursuing include: technological innovation in Financial Services, the growth of the Financial Services in emerging markets, regulatory changes to the industry, increasing financial inclusion, technological advancement, changing distribution models of financial products and the growth in systems outsourcing.

In addition to a core focus on backing talented management teams, the firm's broader investment strategy hinges on the development of specific industry theses and combining the right management teams with these theses to create successful portfolio companies. The Financial Services Team's thesis-building work focuses on identifying attractive themes for investment, sometimes before the team has identified a management team or specific opportunity related to these themes. The Financial Services Team routinely collaborates with other Warburg Pincus managing directors and investment professionals across different industries and geographies who can provide additional perspective, sector expertise and support in developing investment theses.

The Financial Services Team generally holds weekly meetings attended by all available Financial Services Team investment professionals across the firm's offices to discuss new investment opportunities, portfolio company progress, networking efforts and general geographic and industry trends. When the team has built conviction for a potential transaction and has vetted it with the Executive Management Group, the Financial Services Team managing directors will make a recommendation to proceed and seek formal approval from the firm's Co-Chief Executive Officers.

IV. Investment Performance

Previous fund performance is shown below:

Fund	Vintage Year	Total Committed Capital	SBI Investment	Net IRR*	Net MOIC*
EMW Ventures Inc.	1971	\$41 million	N/A	14.9%	3.3x
Warburg Pincus Associates	1980	\$101 million	N/A	19.0%	3.3x
Warburg Pincus Capital Partners	1983	\$341 million	N/A	14.6%	2.8x
Warburg Pincus Capital Company	1986	\$1.2 billion	N/A	18.4%	4.4x
Warburg Pincus Investors	1989	\$1.8 billion	N/A	14.8%	2.4x
Warburg Pincus Ventures	1994	\$2 billion	\$50 million	49.2%	5.3x
Warburg Pincus Equity Partners	1998	\$5 billion	\$100 million	10.0%	1.6x
Warburg Pincus VIII	2001	\$5.3 billion	\$100 million	14.9%	2.3x
Warburg Pincus IX	2005	\$8 billion	\$100 million	10.1%	1.8x
Warburg Pincus X	2007	\$15.1 billion	\$150 million	7.9%	1.5x
Warburg Pincus XI	2012	\$11.2 billion	\$200 million	12.2%	1.4x
Warburg Pincus XII	2015	\$13.4 billion	\$131 million	-5.23%	1.0x
Warburg Pincus China	2016	\$2.2 billion	\$45 million	-7.7%	1.0x

* Previous Fund investments may be relatively immature and, therefore, returns may not be indicative of future results. Net IRR and Net MOIC for all funds prior to Warburg Pincus Equity Partners provided by the manager as of 3-31-17. Net IRR and Net MOIC for Warburg Pincus Equity Partners through Warburg Pincus China provided by State Street as of 6-30-17.

Track record of Financial Services investments only from inception in 1971 to June 30, 2017 is shown below:

(\$ millions)	Investments	\$ Invested	Total Gross Return	Gross IRR*	Gross MOIC*
Realized	72	\$7,358	\$16,183	29.1%	2.2x
Partially Realized	9	\$2,003	\$3,766	19.6%	1.9x
Unrealized	14	\$1,741	\$1,969	6.3%	1.1x
Total	95	\$11,103	\$21,917	29.0%	2.0x
Total (Realized and Partially Realized)	81	\$9,362	\$19,949	29.0%	2.1x

* Data provided by the manager. Net IRRs in Financial Services investments are estimated as 72.5% of gross IRR on a sequential cash flow basis and net Multiples are estimated to be 90% of gross Multiples. Exact net IRRs and net Multiples for Financial Services investments cannot be calculated due to lack of a mechanism to allocate fees, taxes, expenses and general partner carried interest to each investment.

V. General Partner's Investment

Warburg Pincus Partners and professionals will invest at least \$160 million in and in parallel with the Partnership.

VI. Standard Fee Schedule

An annual management fee of 1.3%¹ of total commitments will be paid to the Manager for the six years following the commencement of the Partnership's activities, provided if a subsequent Financial Sector fund is raised, the management fee would "step down" to a rate as described in the following sentence. From the 6th anniversary of the effective date through the 8th, the annual management fee will be 1.3% of the cost of investments remaining in the portfolio less any write offs and the line of equity balance the General Partner believes will be funded during the two-year period. From 8th anniversary of the effective date through the 10th, the annual management fee will be 1.25% of the cost of investments remaining in the portfolio less any write offs. After the 10th anniversary, the annual management fee will decrease to 1% of the cost of the remaining investments less any write offs.

VII. Distributions

Realized profits will be distributed 80% to Limited Partners and 20% to the General Partner, subject to a requirement that the value of each Partners' Net Capital Accounts exceed 125% of the Base Capital Accounts before any distributions are made.

VIII. Key Persons

A key person event will occur if any six or more of the senior managers (Charles Kaye, Joseph Landy, Mark Colodny, Timothy Geithner, Peter Kagan, Julian Cheng, Vishal Mahadevia, Michael Martin, James Neary, Daniel Zilberman, or, in each case, any successors to or substitutes for any of the foregoing individuals approved by the Advisory Committee) fail to be actively involved in the affairs of the General Partner. Upon notice of a key person event, the obligations of the Limited Partners to make capital commitments will be suspended. A majority in interest of the Limited Partners may vote to make the suspension permanent.

IX. Investment Period and Term

The Partnership's investment period will be six years and the Partnership's term will be 12 years subject to extension for up to two years with the approval of the Advisory Committee.

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¹ For investors that subscribe for commitments to WPF or any Parallel Fund of at least \$100 million (a "WPFS Special Fee LP"), the applicable Management Fee rate (charged on the applicable fee base of the Partnership) will be reduced to 1.3% from 1.4%.

ATTACHMENT F

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. **Background Data**

Name of Fund:	Windjammer Senior Equity Fund V, L.P.
Type of Fund:	Private Equity – Buyout
Target Fund Size:	\$800 million
Fund Manager:	Windjammer Capital Investors
Manager Contact:	Costa Littas Windjammer Capital Investors 890 Winter Street – Suite 130 Waltham, MA 02451 (781) 530-9160

II. **Organization and Staff**

Windjammer Capital Investors (the “Firm” or “Windjammer”) is forming Windjammer Senior Equity Fund V, L.P. (the “Partnership” or “Fund V”) to continue Windjammer’s history of investing in middle-market businesses. It marks the Firm’s fifth institutional fund since its founding in 1990 and its third senior equity fund since the realignment of its investment focus to emphasize control equity in 2006.

Windjammer intends to continue to execute its tested investment strategy and remain a disciplined investor focusing on high quality, leading middle-market businesses and creating value during its ownership by serving as an engaged, transformative partner in close cooperation with management. As in its prior Senior Equity Funds, the Firm intends to build a portfolio of primarily equity investments, while also retaining the capacity in certain limited situations to provide subordinated debt to platform companies.

The firm is led by Costa Littas, Gregory Bondick, and Jeffrey Mieke (collectively, the “Managing Principals”), who have been partners together at Windjammer for the past ten years and collectively have more than 80 years of investment, management, and advisory experience in the private equity and corporate finance industries. The Managing Principals are supported by 14 additional professionals. Windjammer has offices in Newport Beach, California and Waltham, Massachusetts.

III. **Investment Strategy**

Windjammer is forming the Partnership to create a unique portfolio of primarily control equity investments in leading middle-market companies that are expected to share a core set of high performance attributes. The Partnership intends to invest in advanced manufacturing, specialty distribution and scalable business service companies that operate in a diverse set of niche industries and generate \$10 million to \$50 million in operating profit. The Partnership expects

to invest in eight to twelve platform companies, as well as a number of add-on acquisitions. In most cases, Fund V (alone or together with its limited partners) will acquire a control position in its platform companies, although in some limited cases, Fund V may make non-control investments in attractive family-owned companies meeting the Firm's investment criteria, and where a sufficient degree of governance influence is available. Fund V is expected to seek opportunities that satisfy the Firm's rigorous capital preservation standards and also offer attractive levers for growth and value-creation, which can be realized through targeted strategic and tactical initiatives led by the Firm's deal teams.

The foundation of the Firm's investment strategy is its emphasis on capital preservation, which is consistently reinforced in its sourcing, diligence, and approval protocols. The Firm's investment selection process focuses on a set of embedded characteristics that have been effective indicators for sustainable differentiation among high quality, resilient businesses based on the Firm's past experience. Windjammer uses its diligence protocols to further identify those high quality middle-market business models that also offer discernable and actionable unexploited value creation opportunities that are consistent with our own resource capabilities and achievable within our envisioned holding period. Windjammer expects that Fund V's platform will meet a majority of the following characteristics:

- *Significant, Defensible Market Position:* the target company is a significant and embedded participant in a niche market with strong barriers to entry.
- *Favorable Industry Growth and Profitability Characteristics:* the target company operates in a mature and growing industry, typically growing faster than GDP due to the underlying demand drivers.
- *Mission Critical Products:* the target company provides customers with a mission critical, proprietary product or service that offers high value-to-cost benefits for customers.
- *Strong Core Management / Organizational Teams:* most management teams have a demonstrated track record of success, but Windjammer has been successful in developing and complementing management teams through the addition of new leadership in line with the go-forward growth strategy or enhancement of key functional areas with either internal reorganization or outside recruitments.
- *Predictable Cash Flow:* the target company has predictable cash flows based upon the underlying demand drivers of its products.
- *Value Creation Opportunities:* typical platforms have established strong and resilient market positions that historically translated into sufficient cash flows and distributions to prior ownership.
- *RONA Benchmark:* the target company has historically generated a minimum return on net assets (RONA) in excess of 25%.

The second key pillar to the Firm's investment strategy and success is its dedication of considerable time, resources and prior experience in driving value creation programs at each platform investment. These customized core initiatives are developed and executed by its deal

teams that consist of both investment staff and Operating Directors in alignment with company management and with an emphasis on focused and urgent execution. The initiatives are customized and incorporate all aspects of the business including: (i) revenue enhancement programs; (ii) operational improvement initiatives; and (iii) management team and board upgrades.

The Managing Principals have each been members of the Investment Committee (“IC”) for the past five years and were the lead deal team members on the vast majority of control equity transactions completed by the Firm over the past decade. Messrs. Bondick and Mieke will also participate on the Management Committee (“MC”) in Fund V alongside Mr. Littas, who has served as a member of the IC and MC over the past decade. The elevation of Messrs. Bondick and Mieke to the MC represents the second stage of a coordinated transfer of governance responsibility and control which commenced in 2012 and was intended to provide an orderly generational transfer to achieve longer-term succession. Mr. Bartholomew, a co-founder of the Firm in 1990 and active investor during its original subordinated debt funds and member of prior governance committees, will not participate on either the Fund V IC or MC.

IV. Investment Performance

Previous fund performance as of June 30, 2017 is shown below:

Fund	Vintage Year	Total Committed Capital	SBI Investment	Net IRR*	Net MOIC*
PMI Mezzanine Fund	1995	\$262 million	-	10.2%	1.6x
Windjammer Mezzanine & Equity Fund II	2000	\$334 million	\$66.7 million	9.3%	1.5x
Windjammer Senior Equity Fund III	2006	\$574 million	\$75 million	19.2%	2.3x
Windjammer Senior Equity Fund IV	2012	\$726 million	\$100 million	-0.2%	1.0x

* Previous Fund investments may be relatively immature and, therefore, returns may not be indicative of future results. Net IRR and Net MOIC provided by the manager for PMI Mezzanine Fund and provided by State Street for other funds.

V. General Partner’s Investment

The General Partner and its affiliates will commit an amount equal to at least 2% of aggregate commitments.

VI. Standard Fee Schedule

During the Investment Period, management fees are 2.0% per annum of Commitments. Thereafter, management fees are 2.0% per annum of invested capital.

VII. Distributions

Distributions will be apportioned as follows:

- (a) First, 100% to each Limited Partner until the proceeds equal an amount necessary to provide an internal rate of return of 8% per annum;
- (b) Second, 100% to each Limited Partner until it has received total distributions equal to its capital contributions:
 - a. attributable to realized investments and unrealized investments to the extent they are permanently written down as of that time; and
 - b. used to pay fees and expenses;
- (c) Third, 100% of the proceeds to the General Partner until it receives cumulative proceeds equal to 25% of the profits distributed; and
- (d) Thereafter, 80% to such Limited Partner and 20% to the General Partner.

VIII. Key Persons

If at any time two of Gregory Bondick, Costa Littas, or Jeffrey Mieke fail to devote substantially all of their business time and attention to the Partnership, a key person event has occurred.

IX. Investment Period and Term

The investment period is six years and the term is ten years from the final close, with one additional one-year period at the discretion of the General Partner and up to two further one-year periods at the discretion of the General Partner with the approval of a majority in interest of the Limited Partners.

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ATTACHMENT G

REAL ASSETS MANAGER SUMMARY PROFILE

I. Background Data

Name of Fund:	Energy Capital Partners IV, L.P.
Type of Fund:	Energy Infrastructure
Target Fund Size:	\$6 billion
Fund Manager:	Energy Capital Partners Management, LP
Manager Contact:	Paul Parshley 51 JFK Parkway, Suite 200 Short Hills, NJ 07078 (973) 671-6106

II. Organization and Staff

Energy Capital Partners (“ECP” or “the Firm”) is forming Energy Capital Partners IV, LP (“Fund IV” or “the Fund”) to continue the Firm’s investment strategy of making value-added, primarily control investments in existing and new-build energy infrastructure projects, primarily in North America.

ECP was established in 2005 and is led by a team of experienced investment professionals, many of whom have been investing together over the last 20 years or more. ECP’s senior professionals collectively average approximately 20 years of energy industry experience, possess deep industry relationships and have a successful track record of investing in energy infrastructure assets. The Firm has raised more than \$16 billion of committed capital across three prior private equity funds, one credit fund, and several co-investment vehicles.

The Firm is led by founder Douglas Kimmelman, together with Partners Rahul Advani, Schuyler Coppedge, Rahman D’Argenio, Murray Karp, Peter Labbat, Tyler Reeder, Scott Rogan and Andrew Singer. Since 2005, Energy Capital Partners has grown to a team of 36 investment professionals, 21 additional professionals across compliance, accounting, investor relations and administrative functions, and two senior advisors. ECP is headquartered in Short Hills, New Jersey, and has offices in San Diego and Houston, with an office in New York expected to open in 2018.

III. Investment Strategy

Energy Capital Partners intends to utilize a disciplined investment approach for Fund IV focused on acquiring and developing controlling interests in high quality assets, contracts and businesses in power, midstream oil and gas, environmental infrastructure, and related energy services businesses. Specifically, ECP intends to primarily focus on the following sub-sectors of energy with the notable exclusion of oil and gas exploration and production:

- Power and renewable generation;
- Midstream oil and gas pipeline, storage, processing and related fee-based asset systems along with further downstream infrastructure, including transportation, fractionation, terminalling and other hydrocarbon logistics;
- Energy-related environmental infrastructure assets in the air emissions, water and solid waste sectors; and
- Related energy services, with an emphasis on asset-heavy and contracted businesses.

Energy Capital Partners presently anticipates that Fund IV will make between 10 and 20 investments, with an average equity commitment per transaction of \$250 million to \$750 million. This approach is consistent with ECP II and ECP III.

The Firm expects to focus Fund IV's investment efforts predominantly on control opportunities in North America, though the Fund may opportunistically evaluate investments in Europe (primarily in the U.K. where Fund III has made some investments). ECP believes that focusing primarily on investments where Fund IV will acquire control positions in assets and/or the company managing assets will enable it to optimize financing and risk management structures, operations and contracts, capacity arrangements, fuel purchasing or switching capabilities, expansion opportunities, exit strategies, recapitalizations and other value creation strategies. Also, such control is expected to allow the Firm to take advantage of its expertise in ensuring that qualified and properly motivated management is in place at the portfolio companies to operate such assets.

ECP expects Fund IV to pursue both the purchase of existing assets, contracts and businesses, and the development and construction of new ones. The Firm intends to remain opportunistic in selecting between late-stage development and operating investments, with a focus on capturing attractive risk-adjusted returns, while utilizing a disciplined investment approach. ECP anticipates seeking higher investment returns for directly negotiated acquisition opportunities where Fund IV's \$6 billion size and the Firm's extensive industry relationships enables opportunities that others may not see (27 of 34 total investment platforms were proprietarily originated). The firm believes acquisition opportunities may present more attractive opportunities when and if available for purchase at a discount to replacement cost and with an attractive underlying thesis for ownership during Fund IV's projected life. The Firm has also successfully executed development and construction projects and managed associated risks. The Firm believes that as a result of the broad array of skill sets necessary to engage in development activities as well as the incremental development and construction risks, less competition exists with respect to development investment opportunities. Generally, the Firm believes the risks of development and construction are less on execution and more

related to the potential length of development and potential illiquidity selling an uncompleted project in an attractive M&A cycle.

The Firm also intends to opportunistically pursue take-private transactions or strategic partnerships with public companies, based on previous experience and track record with those types of transactions. Examples of take-private or strategic partnership investments include ECP II's investments in EnergySolutions Inc., and ECP III's investments in Dynegy and Calpine. ECP expects that such opportunities will only be pursued should a compelling value proposition be identified and actionable, and if ECP believes that the transaction can help advance any future strategic opportunities.

IV. Investment Performance

Previous fund performance as of June 30, 2017 is shown below:

Fund	Vintage Year	Total Committed Capital	SBI Investment	Net IRR*	Net MOIC*
ECP I	2006	\$2.3 billion	N/A	-3%	0.7
ECP II	2009	\$4.3 billion	\$100 million	15%	1.7
ECP III	2013	\$5.1 billion	\$200 million	9%	1.1

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

V. General Partner's Investment

The General Partner will commit at least \$100 million to Fund IV assuming Limited Partner capital commitments of at least \$6 billion.

VI. Standard Fee Schedule

The management fee for Fund IV will be 1.5% per annum on committed capital during the Commitment Period, stepping down to 1.25% on invested capital at the end of the Commitment period. The management fee will drop down to 1% per annum following any successor fund of \$3 billion in size or greater beginning to accrue management fees.

VII. Distributions

Distributions will be apportioned to Limited Partners as follows:

- (a) First, 100% to such Limited Partner until such Limited Partner has received cumulative distributions of Investment Proceeds equal to such Limited Partner's cumulative capital contributions through such date;
- (b) Second, 100% to such Limited Partner until cumulative distributions of Investment Proceeds are sufficient to provide an 8% per annum compounded internal rate of return;
- (c) Third, 100% to the General Partner until the cumulative Carried Interest is equal to 20%; and
- (d) Thereafter, 80% to such Limited Partner and 20% to the General Partner.

VIII. Key Persons

A Key Person Event is triggered if (i) both Doug Kimmelman and Peter Labbat or (ii) any three of Kimmelman, Labbat, Tyler Reeder, Andy Singer and Rahman D'Argenio are no longer active in ECP Business.

IX. Investment Period and Term

The commitment period will last five years, and the term of the fund will be 10 years, subject to a one year extension at the General Partner's discretion and two additional two-year extensions with the approval of either the LP Advisory Committee or a majority of the LPs by capital commitments.

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ATTACHMENT H

REAL ASSETS MANAGER SUMMARY PROFILE

I. Background Data

Name of Fund:	NGP Natural Resources XII, L.P.
Type of Fund:	Real Assets
Target Fund Size:	\$5.325 billion
Fund Manager:	NGP Energy Capital Management L.L.C.
Manager Contact:	Lindsay Grider 5221 N. O'Connor Boulevard, Suite 1100 Irving, TX 75039 P: (972) 432-1440

II. Organization and Staff

NGP Energy Capital Management, L.L.C. (together with its affiliates, “NGP” or the “Firm”) was founded in 1988 by Ken Hersh, David Albin, John Foster and the late R. Gamble Baldwin. NGP has subsequently managed 11 energy-focused investment funds with aggregate committed capital exceeding \$15.8 billion.

Today, NGP’s investment team is led by Managing Partners Tony Weber and Chris Carter, and includes: Partners Craig Glick, Christopher Ray, Richard Covington, Robert Edwards, Scott Gieselman, David Hayes, Patrick McWilliams, Brian Minnehan, James Wallis, Brian Patterson, Jeff Zlotky, and Jill Lampert. The surviving founders, Ken Hersh, David Albin and John Foster, remain as advisory partners to the firm.

In addition to the key management members mentioned above, NGP has a staff of senior investment, accounting and administrative professionals who assist in sourcing and monitoring NGP’s growing number of portfolio companies and provide accounting, tax, legal and other management services. In total, NGP employs 61 persons, 31 of which are investment management professionals.

In 2012 NGP formed a strategic relationship with The Carlyle Group (“Carlyle”). NGP now serves as the North American energy private equity platform for Carlyle (excluding power generation). Carlyle’s global network refers appropriate transactions to NGP, and NGP also has the ability to draw on Carlyle’s transaction and capital markets experience. Carlyle owns a 55% interest in the management fee stream of NGP. Carlyle has no involvement in the governance or operation of NGP and does not control NGP or its funds, except for the right to appoint two non-voting observing members to the investment committee of NGP11 and NGP12.

III. Investment Strategy

NGP's investment strategy employs disciplined private equity governing principles, investing primarily in companies that operate in lower risk segments of the energy industry, including companies that acquire and operate assets in "core" areas within oil and gas basins that NGP believes can generate attractive rates of return with a lower relative risk profile than is available in other "non-core" areas of these basins. NGP seeks to invest in companies that grow through the effective reinvestment of cash flow and conservative use of financial leverage to acquire and develop assets. NGP also seeks to employ a disciplined approach to portfolio construction by building a balanced portfolio of dozens of high quality businesses diversified by geography and business strategy over a prudent period of time.

NGP's goal is to generate superior returns through investments in high-quality companies without having to rely on timing its investments in conjunction with unpredictable commodity price and capital market cycles. The Firm believes the foundation to support achievement of this goal is its proprietary deal sourcing efforts combined with a disciplined investment process employed by experienced investment professionals. NGP conducts extensive research and analysis of investment opportunities, carefully evaluates the abilities of potential portfolio company management teams, and provides continuing support to portfolio companies during the life of each investment. NGP's "buy-and-build" approach focuses on partnering with high quality management teams that seek to grow the equity of portfolio companies. Many of these management teams have proven themselves at prior NGP portfolio companies.

Fund XII will target investments in North American businesses in the oil and natural gas production, energy midstream and oilfield service industries. All investments made by the Fund must satisfy the same investment criteria, and no specified minimum amount of the Fund is allocated to any particular industry. NGP targets opportunities to make commitments ranging from \$10 million to \$550 million, with no more than 15% of the fund in any one investment.

IV. Investment Performance

Previous fund performance as of 9/30/17 is shown below:

Fund	Vintage Year	Total Committed Capital	SBI Investment	Net IRR*	Net MOIC*
NGP Fund I	1988	\$100 million	\$0	22%	2.1x
NGP Fund II	1994	\$37 million	\$0	16%	1.9x
NGP Fund III	1995	\$30 million	\$0	10%	1.5x
NGP Fund IV	1996	\$150 million	\$0	10%	1.4x
NGP Fund V	1998	\$320 million	\$0	25%	2.0x
NGP Fund VI	2000	\$370 million	\$0	73%	5.5x
NGP Fund VII	2003	\$600 million	\$0	17%	1.6x
NGP Fund VIII	2005	\$1,300 million	\$0	9%	1.6x
NGP Fund IX	2007	\$4,000 million	\$150 million	11%	1.4x
NGP Fund X	2012	\$3,586 million	\$150 million	5%	1.1x
NGP Fund XI	2014	\$5,325 million	\$150 million	25%	1.2x

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

V. General Partner's Investment

The capital commitment of the General Partner shall equal 2% of the Aggregate Commitments. Management, employees and related persons of NGP will commit 52.5% of the total General Partner Commitment. Carlyle will commit 47.5% of the total General Partner Commitment.

VI. Standard Fee Schedule

During the investment period the Management Fee is equal to 1.5% times committed capital minus distributions, writedowns and other adjustments determined by the General Partner. At the effective date of dissolution or upon extension of the Fund's term, the 1.5% fee rate shall be reduced to a rate not to exceed 1%, as established by the General Partner. If the General Partner extends the Partnership's term for two consecutive one-year periods, no Management Fee will be charged after the expiration of the second one-year period.

VII. Distributions

Distributions shall be made as follows:

- (i) First, 100% to such Investor Limited Partner until it has received cumulative distributions in an amount equal to the sum of all contributions for realized investments, fees and expenses, and an 8% per annum compounding return on those contributions;
- (ii) Second, 20% to such Investor Limited Partner and 80% to the General Partner with respect to its Carried Interest until the General Partner has received cumulative distributions in an amount equal to 20% of the cumulative distributions made pursuant preferred return distributed to the investor; and
- (iii) The balance, if any, 80% to such Investor Limited Partner and 20% to the General Partner with respect to its Carried Interest.

VIII. Key Persons

Any Limited Partner will have the right to cease contributing capital to the Fund for investments in future transactions if the General Partner notifies the Limited Partners that any four of the following members: Tony Weber, Craig Glick, David Hayes, Christopher Ray, Scott Gieselman, Chris Carter and Jill Lampert have ceased to be actively involved in, and to devote a substantial amount of time to, the management of the Partnership for a continuous period of at least 90 days.

IX. Investment Period and Term

The Investment Period began on July 31, 2017 and will end no more than 5 years later. The term of the Fund will expire no later than December 31, 2027 unless extended by the General Partner for one or two, one-year extensions and one additional year for liquidation.

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ATTACHMENT I

PRIVATE DEBT MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	BlackRock Middle Market Senior Fund
<i>Type of Fund:</i>	Private Debt
<i>Target Fund Size:</i>	\$1.5 billion
<i>Fund Manager:</i>	BlackRock
<i>Manager Contact:</i>	Douglas McNeely 55 East 52 nd Street New York, NY 10022 P: (212) 810-3298

II. Organization and Staff

BlackRock was founded in New York City in 1988 by eight partners, five of whom remain active in the firm today. BlackRock initially focused primarily on fixed income. In 1995, the firm became affiliated with The PNC financial Services Group and began managing open-end mutual funds, including equity and cash funds. BlackRock went public with broad employee ownership in 1999. By 2005, BlackRock had strong fixed income and cash businesses and growing equity and advisory capabilities. The firm then undertook a series of transformational mergers that added core investment competencies. These acquisitions strengthened BlackRock's products and services mix with more offerings in equity, multi-asset products and alternatives, and greatly expanded the firm's scale and global reach.

BlackRock's middle market private debt capabilities sit within their Global Fundamental Credit Platform, managed and co-led by James Keenan and Tim O'Hara. The team currently invests in U.S. middle market loans via BlackRock Capital Investment Corp ("BCIC"), a business development company ("BDC") that is publicly traded on the NASDAQ (ticker: BKCC). Since inception in 2005, BCIC has invested across the capital structure, but may be described as a more junior-oriented strategy given the asset-level return target. The team also invests in senior secured U.S. middle market loans via BCIC Senior Loan Partners, LLC ("BCIC Senior Loan Partners"). BlackRock's US Private Capital team, the team responsible for the management of the Middle Market Senior Fund, currently manages \$990.9 million in U.S. middle market assets.

Members of the US Private Capital Team who are composed of experienced investment professionals dedicated to U.S. middle market investing, will provide day-to-day management of the Investments on behalf of the Fund, including sourcing and evaluation opportunities, executing transactions and monitoring Investments. The US Private Capital Team will seek to leverage the resources and expertise of the broader BlackRock platform, including BlackRock's proprietary risk analysis, market insights, industry and counterparty relationships that provide access to transaction flow, and operational expertise.

The team is led by Michael Zugay, Managing Director, who has 16 years of experience in middle market direct lending. A substantial portion of Mr. Zugay's experience has been in the first lien space, most recently at Ares Management. In total, the team is comprised of 15 investment professionals with middle market investing careers averaging over 20 years at the senior level.

The investment committee for the Fund will consist of senior investment professionals from the members of the US Investment Manager. The Investment Committee initially will be comprised of the following five professionals:

- Michael Zugay, Head of BlackRock US Private Capital, Chairman of Investment Committee
- Aaron Kless, Managing Director
- Jason Mehring, Managing Director, Vice Chairman of Investment Committee
- R. Marshall Merriman, Managing Director, Head of Portfolio Management
- Stephan Sachman, Managing Director

III. Investment Strategy

The fund will achieve its investment objective by investing primarily in a portfolio of senior secured income-generating debt and debt-related instruments. Such investments may include, but are not limited to, private floating senior secured first lien loans and senior secured unitranche loans to medium-sized companies domiciled in, or exercising the main part of their economic activity in, the United States. It is expected that such companies will generally have earnings before interest, tax, depreciation and amortization of \$15 million to \$75 million and enterprise values of \$100 million to \$750 million, although the Fund may invest in companies with EBITDA and enterprise values outside of such range.

BlackRock believes that the environment for the Fund to gain exposure to senior secured loans to US middle market companies is particularly compelling due to, among other factors:

- Increased regulation, which has reduced the traditional lending role of banks thereby constraining the supply of capital to the middle market;
- Substantial company refinancing needs coupled with historically high private equity dry powder, creating a demonstrable demand for such financing;
- The ability to retain a senior position in the capital structure, providing principal protections through business cycles;
- Attractive risk-adjusted return potential with floating-rate based current income; and
- First lien direct lending being under-penetrated among institutional investors as borrowers with the inability to access less expensive financing in the public markets seek financing solutions from reliable partners that have size and scale.

IV. *Investment Performance*

This is the first fund in this strategy for BlackRock. No historical performance for this strategy is available.

V. *General Partner's Investment*

BlackRock, the General Partner, other funds or accounts managed by BlackRock or any of BlackRock's affiliated, officers, members, partners or employees are expected to make Capital Commitments to the Fund representing up to 3% of the aggregate capital commitments subject to a maximum \$45 million. This amount is capped at 3% due to Volcker Rule restrictions.

VI. *Standard Fee Schedule*

The management fee will be payable, with respect to each Investor, in an amount equal to .75 of the sum of (i) the aggregate amount of Capital Contributions made by such Investor in respect of Investments and (ii) such Investor's allocable portion of the related Borrowings per annum.

VII. *Distributions*

- (i) Return of Contributions: First 100% to the Feeder Partnership until the Feeder Partnership has received cumulative distributions in respect of the applicable Investor, and the Investor has in turn received cumulative distributions, equal to such Investor's aggregate Capital Contributions;
- (ii) Preferred Return: Second, 100% to the Feeder Partnership until the Feeder Partnership has received distributions in respect of such Investor equal to the Preferred Return of 6%;
- (iii) US Investment Manager Catch-Up: Third, 75% to the US Investment Manager and 25% to the Feeder Partnership until the cumulative amount paid to the US Investment Manager is equal to 10% of the sum of all amounts distributed to the Feeder Partnership; and
- (iv) 90/10 Split: Thereafter, 90% to the Feeder Partnership, and in turn to the Investor, and 10% paid to the US Investment Manager.

VIII. Investment Period and Term

The investment period will continue for 3 years after the Initial Closing Date.

The Fund will be put into liquidation on the 7th anniversary of the Initial Closing Date, subject to two one-year extension at the election of the General Partner. Following such expiry, the term of the Fund can be extended further with the consent of both the Board of Managers and the General Partner acting on behalf of the Feeder Partnership and with the consent of an Unaffiliated Majority-in-Interest.

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ATTACHMENT J

PRIVATE EQUITY MANAGER SUMMARY PROFILE

I. Background Data

<i>Name of Fund:</i>	Carlyle Partners VII, L.P.
<i>Type of Fund:</i>	Private Equity
<i>Total Fund Size:</i>	\$15 billion
<i>Fund Manager:</i>	The Carlyle Group
<i>Manager Contact:</i>	Fran Lolli 1001 Pennsylvania Avenue Washington, DC 20004 (312) 952-6555

II. Organization and Staff

The Carlyle Group (“Carlyle” or the “Firm”) has formed Carlyle Partners VII (the “Fund” or “CP VII”) to make control-oriented and strategic minority investments in mainly leveraged-buyout transactions in the U.S. CP VII is the seventh in a series of funds raised by Carlyle since it was formed in 1987. Since inception, the strategy has invested approximately \$37.3 billion of equity (excluding co-investment) in 143 transactions and returning \$58.6 billion in distributions as of September 30, 2017.

Carlyle was founded in 1987 by William Conway, Daniel D’Aniello, and David Rubenstein. Today it has grown into a global alternative asset management firm with approximately \$162 billion in AUM, more than 625 investment professionals, and over 1,550 total employees located in 19 countries worldwide (as of March 31, 2017). The U.S. Buyout strategy is co-led by Peter J. Clare and Sandra J. Horbach, who collectively have nearly 60 years of private equity experience. Further strengthening the continuity of strategy and personnel is Carlyle U.S. Buyout Chairman Allan Holt, a 25-year Carlyle veteran. In addition to the Co-Heads and Chairman, six Sector Heads complete Carlyle U.S. Buyout’s senior advisory leadership team, which has an average tenure of 17 years at Carlyle and 21 years of private equity experience.

III. Investment Strategy

Carlyle Partners VII will seek to make control-oriented and strategic minority investments in mainly leveraged-buyout transactions, with equity investments where the opportunity available to Carlyle is between approximately \$200 million and \$1.2 billion of total equity capital. The Fund will generally target investments in market-leading businesses with solid cash flows and attractive fundamentals, where it can obtain majority control or significant influence over the governance of the business and drive further growth and operational improvement.

As with the predecessor funds, CP VII will focus on investments within five core industries: Aerospace, Defense & Government Services; Consumer & Retail; Healthcare; Industrial & Transportation; and TMT (Telecommunications, Media, & Technology). Carlyle believes that Carlyle U.S. Buyout's in-depth knowledge of these specific industries improves the Firm's ability to source and create transactions, conduct effective and more informed due diligence, and develop strong relationships with management teams to design and implement highly achievable, customized value creation plans.

As Carlyle U.S. Buyout's investment strategy has steadily evolved over its 28-year investment history, the Carlyle U.S. Buyout investment advisory team consistently strives to be creative and look for deals in which Carlyle can leverage its competitive advantages, sector experience and the global *One Carlyle* platform in order to drive growth. This strategy includes identifying opportunities where Carlyle has an edge, such as:

- (i) *Driving Transformative Operational Improvements*: Carlyle believes that it has established a differentiated track record in creating value through operational change, particularly in complex carve-outs. CP VII will seek to pursue investments in which transformative operational improvements, such as hiring a new management team, expanding into new markets or products and achieving significant cost reductions, will drive earnings growth.
- (ii) *Finding and Creating High Growth*: Carlyle believes it has developed unique capabilities in finding and partnering with companies operating in market segments that exhibit high growth rates and often have market disruptive products, technology or strategies. In many instances, these companies are founder-led businesses in which Carlyle believes there is a significant opportunity to leverage the resources of the broader Carlyle platform and industry teams to enhance the target company and generate attractive returns.
- (iii) *Capitalizing on Global Complexities*: CP VII will seek to partner with Carlyle investment funds globally to identify unique investment opportunities and create value through the Firm's global platform. By leveraging Carlyle's resources across the world, Carlyle U.S. Buyout believes that it is better able to expand businesses globally and be a value-adding investor to its portfolio companies.

Carlyle believes that Carlyle U.S. Buyout's track record of strong and consistent investment returns is driven by its unique capabilities to create value through earnings growth. Carlyle aims to accelerate revenue growth and drive margin improvement. The value creation process begins during the assessment of the investment opportunity itself, when the investment advisory team identifies key strengths, opportunities and risks of the business and engages with management, potential new management and Carlyle Operating Executives to develop a customized and comprehensive value creation plan. Post-investment, the Carlyle U.S. Buyout investment advisory team and Carlyle Operating Executives, through their role on the Board of Directors or as consultants to management, oversee management's execution of this value creation plan. Carlyle's value creation strategy is focused on growing earnings by accelerating revenue (e.g., through international expansion or market share gains) and improving margins (e.g., through operational efficiencies or economies of scale). Furthermore, Carlyle aims to utilize all levers of value creation by employing a robust and

flexible toolkit, which includes supporting M&A, optimizing capital structure, skillfully navigating market environments, and creatively structuring transactions.

IV. Investment Performance

Previous fund performance as of June 30, 2017 is shown below:

Fund	Vintage Year	Total Committed Capital	Net IRR*	Net MOIC*
Carlyle Partners I	1990	\$100 million	26.1%	3.2x
Carlyle Partners II	1995	\$1.3 billion	24.9%	2.5x
Carlyle Partners III	2000	\$3.9 billion	20.6%	2.1x
Carlyle Partners IV	2005	\$7.9 billion	13.1%	2.0x
Carlyle Partners V	2007	\$13.7 billion	13.8%	1.7x
Carlyle Partners VI	2014	\$13.0 billion	11.0%	1.2x

* Previous Fund investments may be relatively immature and, therefore, returns may not be indicative of future results. Net IRR and Multiple of Invested Capital (MOIC) were provided by Carlyle Partners.

V. General Partner's Investment

The General Partner and its affiliates will commit to invest at least 3% of capital commitments in or alongside CP VII.

VI. Standard Fee Schedule

For commitments between \$100 million, but less than \$250 million, the management fee is 1.50% per annum. This amount steps down after the investment period.

VII. Distributions

Distributions will be made in the following order and priority:

- (a) First, 100% to the limited partner until they received their realized capital and costs and the annually compounded 8% preferred return on realized capital and costs;
- (b) Then, 100% to the General Partner until the General Partner has received an amount that is equal to 20% of the profits; and
- (c) Thereafter, 80% to Limited Partners and 20% to the General Partner.

VIII. Key-Person Termination

A key person event occurs if either (i) there are not at least three Key Executives devoting the Required Involvement, or (ii) there are not at least four Key Professionals devoting the Required Involvement to the strategy.

IX. Investment Period and Term

The investment period ends six years after the final closing date. The Partnership's term will be ten years from the final closing date, subject to extensions approved by the Advisory Committee.

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INVESTMENT ADVISORY COUNCIL REPORT

DATE: November 28, 2017

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. Also, 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, deferred compensation plan mutual funds, and performance for options within the Minnesota College Savings Plan.

The report includes the following sections:

	Page
• Review of Public Markets Program	3
• Public Markets Managers' Organizational Update	5
• Non-Retirement Manager Update	7
• Deferred Compensation Manager Update	8

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Review of SBI Public Markets Program Third Quarter 2017

SBI Portfolio – Quarter and Year Attribution

In the third quarter, the SBI's overall portfolio, the Combined Funds, exceeded the composite benchmark return 4.0% versus 3.8%. Domestic equities slightly outperformed the Russell 3000 Index return 4.7% versus 4.6%, while international equities exceeded the MSCI ACWI ex US Index net return 6.4% versus 6.2%. The fixed income portfolio outperformed the Bloomberg Barclays U.S. Aggregate Index return 1.0% versus 0.8%. For the quarter, domestic equity generated the largest contribution to the combined funds return, contributing 2.1% of the 4.0% total, while International equity contributed 1.4% of the total. For the year ending September 30th, domestic equity contributed 8.4% of the 15.1% net return, while international equity contributed 4.4% of total.

Domestic Equity

The large-cap growth managers trailed the Russell 1000 Growth benchmark by 0.5 percentage points for the quarter. Stock selection across several sectors detracted from performance. Two of the three large-cap growth managers outperformed for the quarter.

The large-cap value managers outperformed the Russell 1000 Value benchmark by 1.0 percentage point for the quarter. Overall stock selection helped the quarterly return, led by the producer durables sector. Two of the three large-cap value managers outperformed for the quarter.

The small-cap growth managers underperformed the Russell 2000 Growth benchmark by 0.7 percentage points for the quarter. This was the third quarterly performance period for ArrowMark, Hood River, Rice Hall and Wellington. Overall stock selection was negative across the majority of sectors which hurt quarterly performance. Two of the five small-cap growth managers outperformed for the quarter.

The small-cap value managers exceeded the Russell 2000 Value benchmark by 0.4 percentage points for the quarter. Stock selection was slightly positive for the quarter with most sectors having a positive impact on returns. Three of the four small-cap value managers outperformed for the quarter.

The semi-passive managers in aggregate outperformed the Russell 1000 benchmark by 0.7 percentage points for the quarter. Stock selection overall contributed positively to relative returns, especially in the healthcare, financials, consumer discretionary, and consumer staples sectors. The passive Russell 3000 and Russell 1000 index managers tracked their respective indices within expectation.

International Equity

Active developed equity managers outperformed the MSCI World ex USA Index (net) by 0.6 percentage points for the quarter as stock selection in Switzerland, United Kingdom and France contributed to relative performance, while allocation and stock selection in Germany detracted. From a sector point of view, selection within consumer staples and information technology were positive contributors, while selection within materials detracted from performance.

The semi-passive developed markets equity managers outperformed the MSCI World ex USA Index (net) by 0.1 percentage point during the quarter. Stock selection in France, Switzerland, and Japan contributed positively to performance. With respect to sectors, stock selection in the consumer staples, consumer discretionary, real estate, and industrials sectors added value. Both the passive developed markets manager and the passive emerging markets managers' performance were within expectation.

Emerging Markets Equity

Emerging markets active equity enjoyed another strong quarter, as the active composite returned 8.3 % vs. MSCI EM benchmark of 7.9 %. The overall emerging markets equity program, including passive, outperformed the benchmark by 0.4 percentage points over the same period. Overall, stock selection and an underweight to Taiwan and India, contributed positively to returns, while an underweight to Hong Kong detracted from performance. From a sector point of view, stock selection in the financials and consumer discretionary and consumer staples contributed to performance, while an underweight to real estate detracted. The passive emerging markets manager's performance tracked its index.

Fixed Income

Each of the seven SBI's fixed income managers supporting the fixed income pool outperformed the Bloomberg Barclays Aggregate benchmark this quarter, returning 1.0% in total vs. 0.8% for the benchmark. Exposure to credit, both corporate investment grade and high yield was beneficial as spreads narrowed during the quarter. Limited exposure to non-agency MBS and emerging market debt was also beneficial to performance. Curve and spread effects were minimal for managers during the quarter, as yield curves rallied to start the quarter but largely gave up those gains approaching the end of the quarter.

Public Markets Managers' Organizational Update Third Quarter 2017

For the quarter, the majority of investment managers performed in-line with expectations. Other noteworthy manager developments for the quarter are shown below.

International Equity Managers

Fidelity Institutional Asset Management (FIAM)

Effective July 1, 2017, Judy Marlinski became president of FIAM. She also assumed the title of president of FIAM's two investment management units, FIAM LLC and Fidelity Institutional Asset Management Trust Company. Judy reports to Jeff Lagarce, president of Fidelity Institutional. She succeeded Scott Couto, who left the firm at the end of June 2017.

Columbia Management Investment Advisers

During the quarter, William Davies was promoted from Head of Global Equities to Global Head of Equities for Columbia Threadneedle Investments. On assuming this role, he relinquished his previous position as head of the Global team to ensure he could maintain the same level of commitment to his management of portfolios. SBI staff will monitor the change.

Fixed Income Managers

Columbia Management Investment Advisers

In September, Columbia announced that Colin Lundgren had been appointed Global Head of Fixed Income, reporting to Colin Moore, Global Chief Investment Officer. Previously, Mr. Lundgren was Deputy Global Head of Fixed Income. Jim Cielinski, Global Head of Fixed Income, has resigned to pursue another opportunity. The expansion of Mr. Lundgren's role is not expected to affect any of Columbia's fixed income investment process or global approach. Staff has no concerns with this change.

2017 Manager Meetings

The third quarter manager reviews are noted below.

Investment Manager

- Dodge & Cox
- Goldman Sachs Asset Management
- Macquarie Investment Management Advisers
- McKinley Capital Management, LLC
- Morgan Stanley Investment Management Inc.
- Pzena Investment Management, LLC
- The Rock Creek Group, LP
- Wellington Management Company LLP

Asset Class

Fixed Income
Fixed Income
International Equity
Domestic Equity
International Equity
International Equity
International Equity
Domestic Equity

Non-Retirement Manager Update Third Quarter 2017

Domestic Equities

Internal Stock Pool

The performance in the domestic equity portfolio matched the S&P 500 for the quarter.

In May 2017, the Investment Advisory Council and the Board authorized the Executive Director to assign the internally managed non-retirement equity portfolio to an external manager. Staff has negotiated fees and executed a contract with Mellon Capital to manage the S&P 500 equity portfolio. Assets will be transferred to Mellon on December 1, 2017.

Fixed Income

RBC Global Asset Management

The fixed income portfolio outperformed the benchmark, the Bloomberg Barclays Intermediate Government Index, for the quarter. The overweight to government related securities contributed to the outperformance.

Internal Bond Pool

The bond portfolio underperformed its benchmark, the Bloomberg Barclays U.S. Aggregate Bond Index, for the quarter. Security selection in mortgages and corporate bonds was the biggest driver of underperformance.

In May 2017, the Investment Advisory Council and the Board authorized the Executive Director to assign the internally managed non-retirement, core fixed income portfolio to an external manager. Staff has negotiated fees and executed a contract with Prudential Global Investment Management to manage the fixed income portfolio. Assets will be transferred to Prudential on December 1, 2017.

Deferred Compensation Manager Update Third Quarter 2017

Domestic Equities

Vanguard Dividend Growth Fund

The Fund matched its benchmark, the NASDAQ US Dividend Achievers Select Index, for the quarter. The outperformance from strong stock selection in consumer staples and financials was matched by the underperformance from an overweight to consumer discretionary and healthcare and an underweight in information technology.

Vanguard Institutional Index Plus

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

Vanguard Mid-Cap Index

The mid-cap equity portfolio tracked the benchmark, CRSP U.S. Mid Cap Index, for the quarter.

T. Rowe Price

The small-cap equity portfolio underperformed the Russell 2000 for the quarter. Stock selection in the health care sector detracted from relative performance. Holdings in the materials sector also underperformed for the quarter.

International Equities

Fidelity Diversified International

The international equity portfolio underperformed the MSCI EAFE Free for the quarter. For the quarter, stock selection in the consumer discretionary sector in addition to stock selection and an underweight in the materials sector detracted from relative return.

Vanguard Total International Stock Index

The portfolio tracked the benchmark, the FTSE Global All Cap ex U.S. Index, for the quarter. In the short term, the international portfolio may have tracking error because of fair value pricing, which tends to smooth out over time.

Fixed Income

Dodge & Cox Income Fund

The fixed income portfolio outperformed the benchmark, the Bloomberg Barclays U.S. Aggregate Bond Index, for the quarter. The portfolio benefited from security selection within credit as certain emerging market-domiciled holdings performed well along with other notable holdings such as Citigroup capital securities, and Telecom Italia. The funds overweight position to corporate bonds and underweight to U.S. Treasuries also added to relative returns for the quarter.

Vanguard Total Bond Market Index

The fixed income portfolio underperformed the benchmark, the Bloomberg Barclays U.S. Aggregate Bond Index, for the quarter. 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 underperformed the customized benchmark for the quarter. The underperformance was attributed to the fee expense. The benchmark is a combined return of 60% CRSP U.S. total Market and 40% Bloomberg Barclays U.S. Aggregate Bond Index.

Galliard Capital Management

The stable value portfolio tracked the benchmark, the 3 Year Constant Maturity Treasury plus 0.45%, for the quarter. Performance benefited from allocations to corporates, ABS, CMBS, and Agency MBS, all of which outperformed like-maturity US Treasuries. An allocation to TIPS aided returns with the increased inflationary pressures during the quarter and a preference for intermediate maturities as they outperformed short-term bonds on the quarter.

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Market Environment

Third Quarter 2017

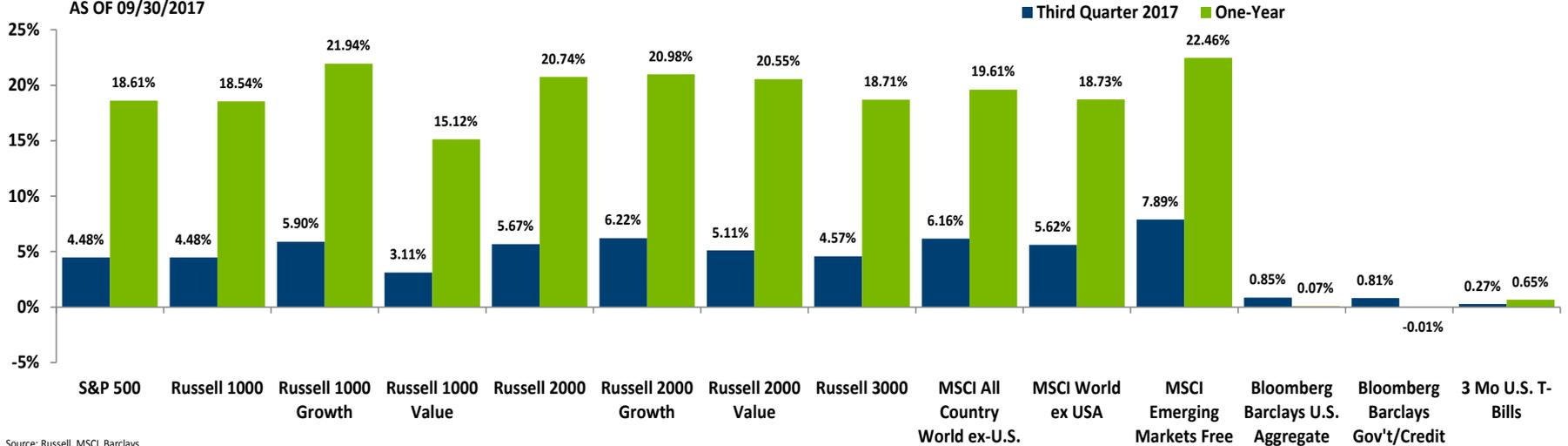
Aon Hewitt
Retirement and Investment

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



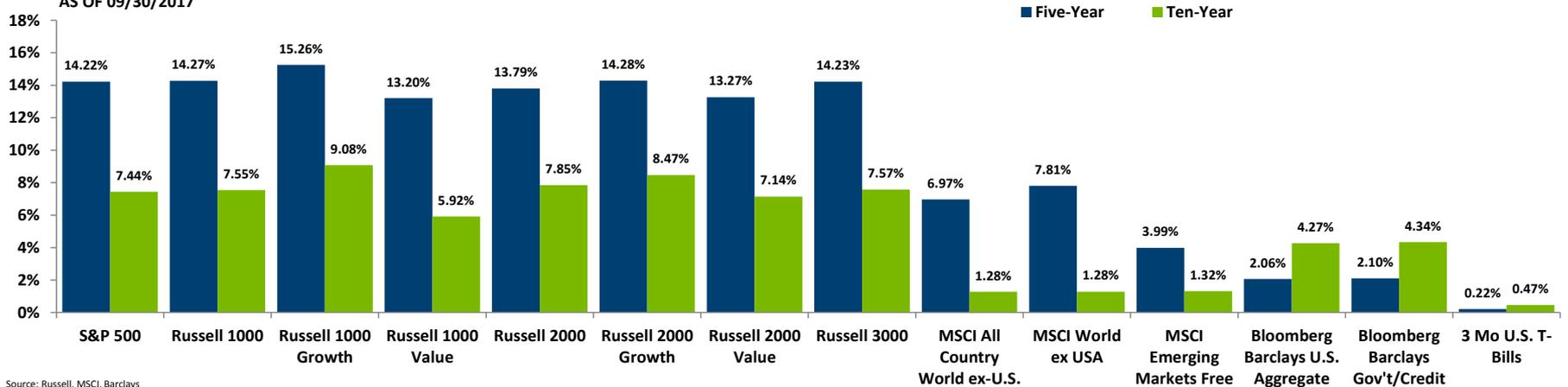
Market Highlights

SHORT TERM ANNUALIZED RETURNS AS OF 09/30/2017



Source: Russell, MSCI, Barclays

LONG TERM ANNUALIZED RETURNS AS OF 09/30/2017



Source: Russell, MSCI, Barclays

Market Highlights

Returns of the Major Capital Markets

Periods Ending 09/30/2017

	Second Quarter	1-Year	3-Year ¹	5-Year ¹	10-Year ¹
Domestic Equity					
S&P 500	4.48%	18.61%	10.81%	14.22%	7.44%
Russell 1000	4.48%	18.54%	10.63%	14.27%	7.55%
Russell 1000 Growth	5.90%	21.94%	12.69%	15.26%	9.08%
Russell 1000 Value	3.11%	15.12%	8.53%	13.20%	5.92%
Russell 2000	5.67%	20.74%	12.18%	13.79%	7.85%
Russell 2000 Growth	6.22%	20.98%	12.17%	14.28%	8.47%
Russell 2000 Value	5.11%	20.55%	12.12%	13.27%	7.14%
Russell 3000	4.57%	18.71%	10.74%	14.23%	7.57%
International Equity					
MSCI All Country World ex-U.S.	6.16%	19.61%	4.70%	6.97%	1.28%
MSCI World ex USA	5.62%	18.73%	4.57%	7.81%	1.28%
MSCI Emerging Markets Free	7.89%	22.46%	4.90%	3.99%	1.32%
Fixed Income					
Bloomberg Barclays U.S. Aggregate	0.85%	0.07%	2.71%	2.06%	4.27%
Bloomberg Barclays Gov't/Credit	0.81%	-0.01%	2.83%	2.10%	4.34%
3 Mo U.S. T-Bills	0.27%	0.65%	0.32%	0.22%	0.47%
Inflation					
CPI-U	1.06%	2.23%	1.23%	1.30%	1.68%

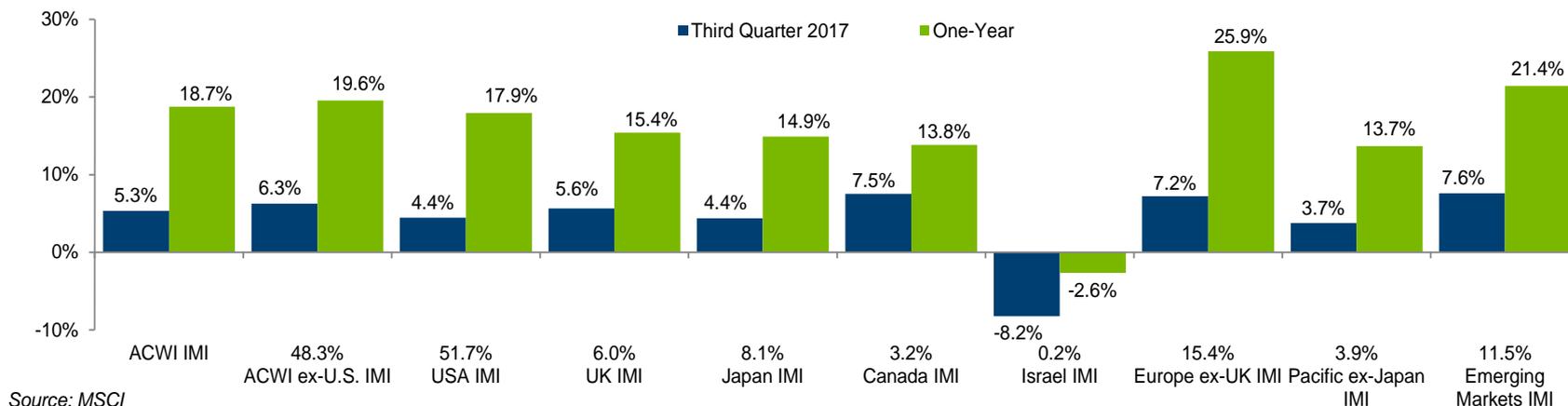
MSCI Indices show net returns.

All other indices show total returns.

¹ Periods are annualized.

Global Equity Markets

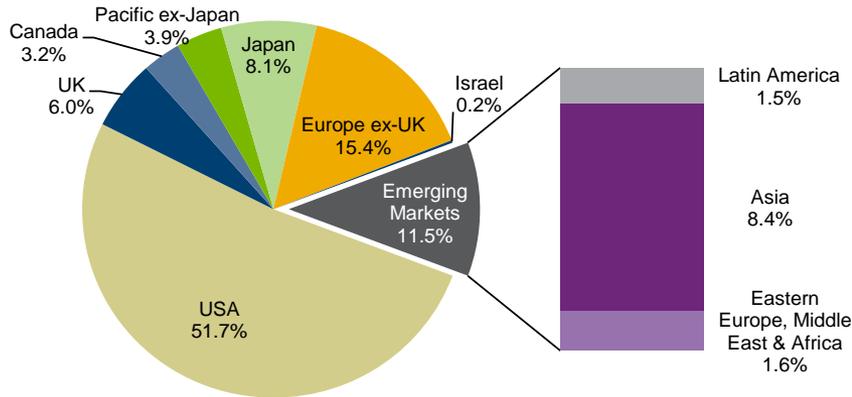
GLOBAL MSCI IMI INDEX RETURNS AS OF 09/30/2017



- Evidence of improving global growth and low inflation continued to sustain the global equity market rally over the last quarter. Moreover, markets were broadly unperturbed by heightened tensions between the U.S. and North Korea. Global equity markets returned 5.3% in Q3 2017 in U.S. dollar terms. The broad weakening of the U.S. dollar (1.7% in trade-weighted terms) led to a lower return of 4.5% in local currency terms.
- All regions shown above generated positive returns with the exception of Israel which moved sharply lower over the quarter. Emerging markets (EM) were once again the strongest performers, returning 7.6% in the third quarter of 2017.

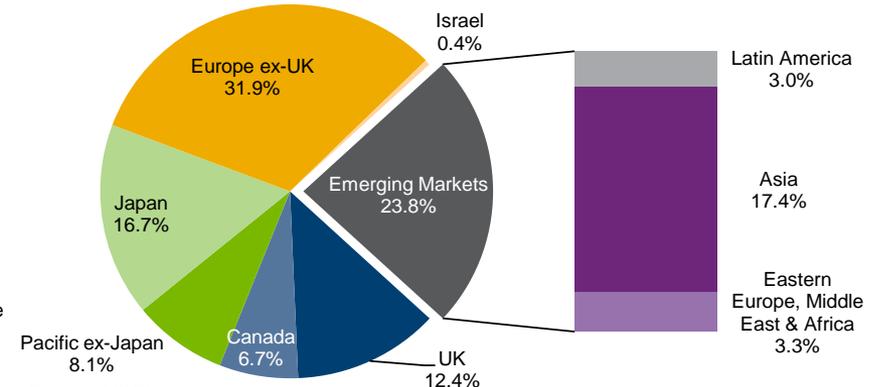
Global Equity Markets

**MSCI ALL COUNTRY WORLD IMI INDEX
GEOGRAPHIC ALLOCATION AS OF 09/30/2017**



Source: MSCI

**MSCI ALL COUNTRY WORLD EX-U.S. IMI INDEX
GEOGRAPHIC ALLOCATION AS OF 09/30/2017**

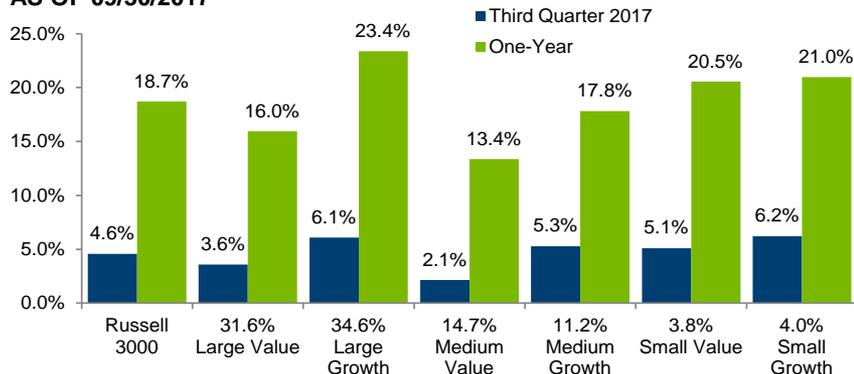


Source: MSCI

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

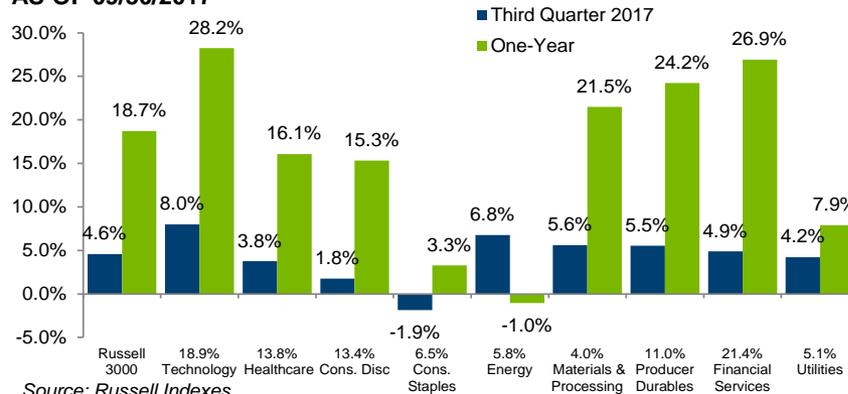
U.S. Equity Markets

RUSSELL STYLE RETURNS AS OF 09/30/2017



Source: Russell Indexes

RUSSELL GICS SECTOR RETURNS AS OF 09/30/2017

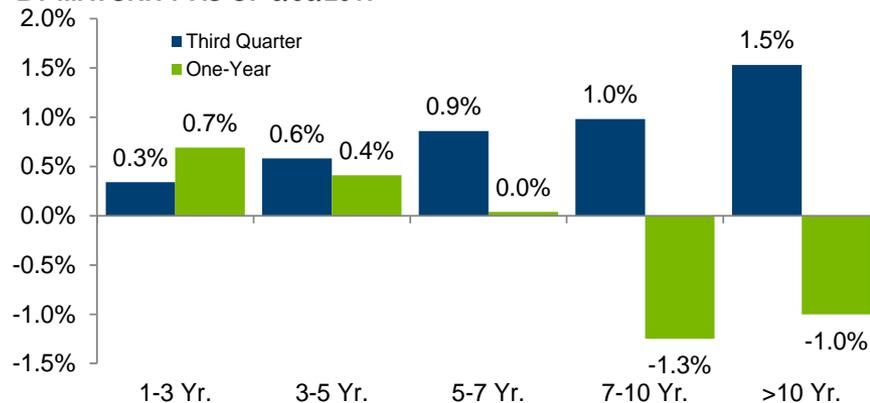


Source: Russell Indexes

- The Russell 3000 Index returned 4.6% during the third quarter and 18.7% over the one-year period.
- During the third quarter, the technology sector continued to be the strongest performer, posting returns of 8.0%. Consumer staples were the weakest and the only sector which posted negative returns in Q3 2017 by falling 1.9%.
- Performance was positive across the market capitalization spectrum over the quarter. Renewed expectations for U.S. tax reform, announced late in the quarter, provided a boost for small cap stocks which outperformed their large cap peers. However, despite the recent outperformance, small cap stocks still lagged large cap stocks since the start of the year. In general, growth stocks outperformed value stocks.

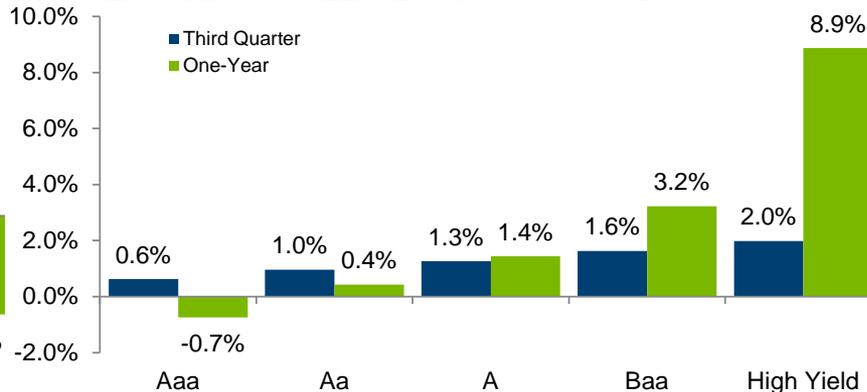
U.S. Fixed Income Markets

BLOOMBERG BARCLAYS U.S. AGGREGATE RETURNS BY MATURITY AS OF 9/30/2017



Source: Bloomberg Barclays

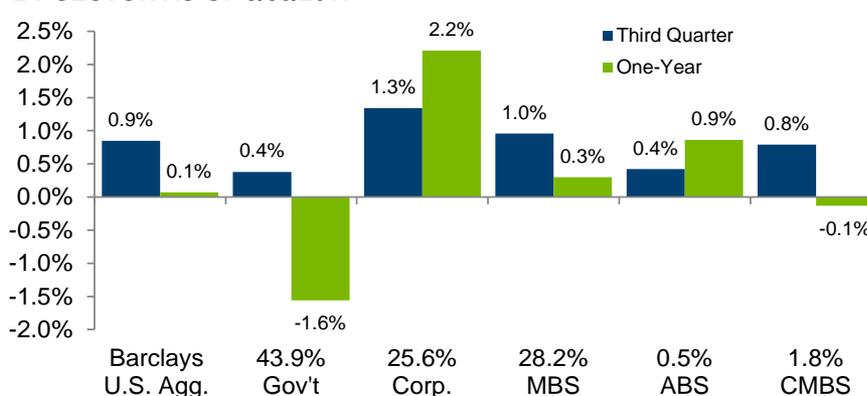
BLOOMBERG BARCLAYS U.S. AGGREGATE RETURNS BY QUALITY AND HIGH YIELD RETURNS AS OF 9/30/2017



Source: Bloomberg Barclays

- The Bloomberg Barclays U.S. Aggregate Bond Index returned 0.9% in the third quarter. Credit spreads narrowed over the quarter which supported corporate bond returns. Corporate bonds posted the highest return at 1.3%, particularly outperforming government bonds which had the lowest return of only 0.4%.
- High yield bonds outperformed their investment grade bond peers, returning nearly 2.0%.
- Long duration bonds outperformed intermediate and short duration bonds through the quarter.

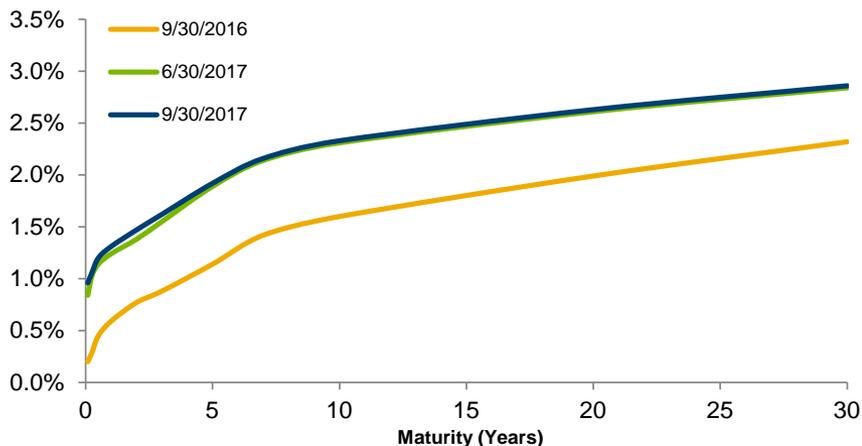
BLOOMBERG BARCLAYS U.S. AGGREGATE RETURNS BY SECTOR AS OF 9/30/2017



Source: Bloomberg Barclays

U.S. Fixed Income Markets

U.S. TREASURY YIELD CURVE



Source: U.S. Department of Treasury

U.S. 10-YEAR TREASURY AND TIPS YIELDS

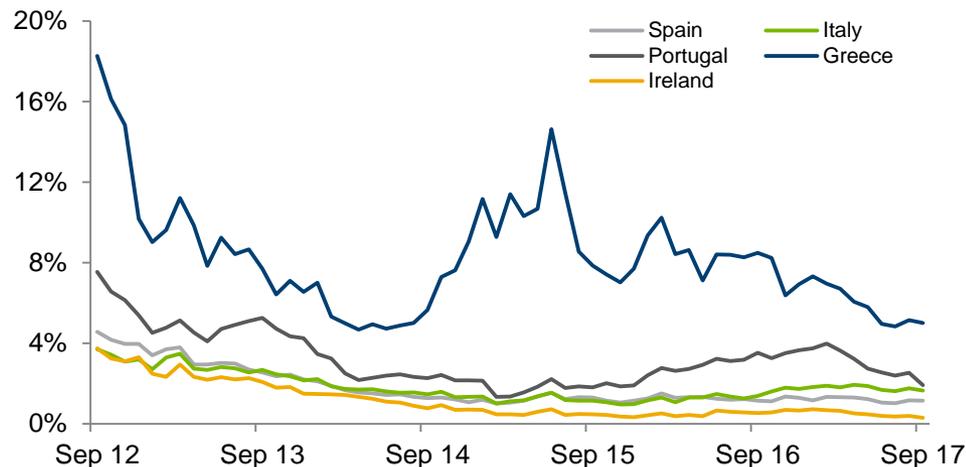


Source: U.S. Department of Treasury

- The Treasury yield curve marginally flattened over the quarter, as yields of short maturity bonds inched higher while longer maturity bonds were relatively unchanged.
- The 10-year U.S. Treasury yield ended the quarter at 2.3%, 2 basis points (bps) higher than at the start of the quarter. This was largely driven by higher breakeven inflation which moved 11 bps higher and offset the fall in real yields.
- The 10-year TIPS yield fell by 9 bps over the quarter and ended the period at 0.5%.

European Fixed Income Markets

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



Source: DataStream

- In the Eurozone, bond spreads were mixed across peripheral region. Spain's government bond yields rose by 8 bps with the majority of the increase coming towards the end of the quarter as political instability due to Catalanian Independence referendum grew. Meanwhile, Portuguese government bond yields fell sharply after the rating agency Standard & Poor's raised the nation's credit rating to investment grade from junk status, resulting in the yield on 10 year Portuguese government debt ending 64 bps lower over Q3 2017. Meanwhile, the spread between Greek bonds and German Bunds moved 24 bps higher over the same period.

Credit Spreads

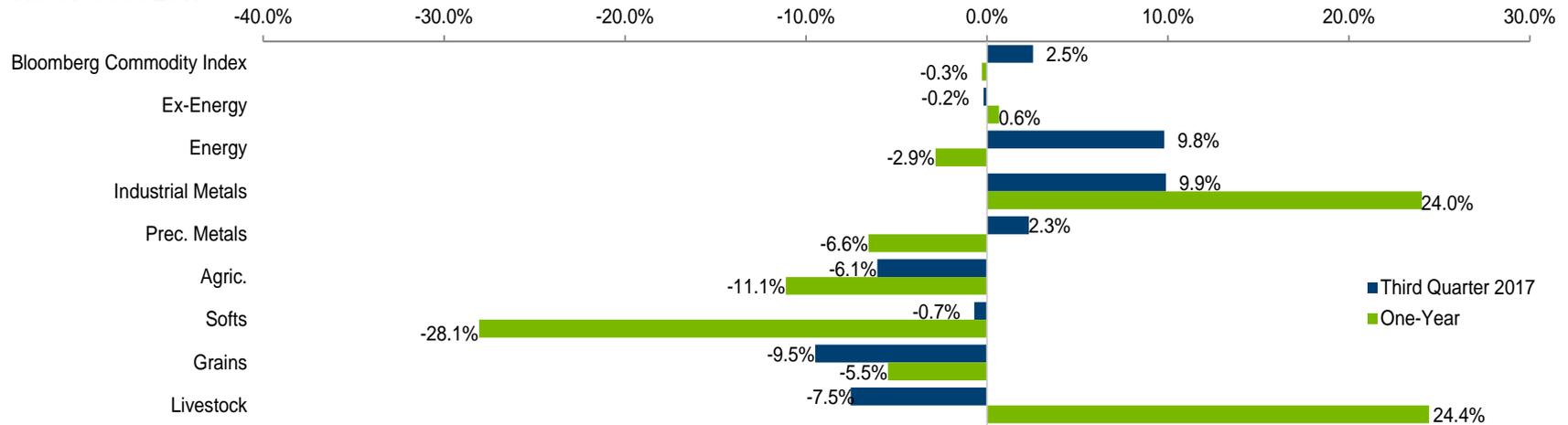
Spread (bps)	9/30/2017	6/30/2017	9/30/2016	Quarterly Change (bps)	1-Year Change (bps)
U.S. Aggregate	38	43	47	-5	-9
Gov't	1	1	1	0	0
Credit	96	103	131	-7	-35
Gov't/Credit	43	46	59	-3	-16
MBS	22	32	14	-10	8
CMBS	71	74	84	-3	-13
ABS	44	46	55	-2	-11
Corporate	101	109	138	-8	-37
High Yield	347	364	480	-17	-133
Global Emerging Markets	235	255	299	-20	-64

Source: Barclays Live

- Improved risk appetite and a benign global credit backdrop saw spreads over U.S. Treasuries fall across all areas of the credit market. However, movement in U.S investment grade credit spreads were more muted.
- Global emerging market bond spreads fell by the most over the quarter, narrowing by 20 bps. They were closely followed by high yield bonds, their fellow outperformers in the credit universe this year, which fell by 17 bps.

Commodities

COMMODITY RETURNS AS OF 09/30/2017



Source: Bloomberg

- A strong upturn in commodity prices over the quarter saw the Bloomberg Commodity Index return 2.5%, driven mainly by the rise in crude oil prices.
- Over the quarter, the best performing segment was industrial metals with a return of 9.9%, closely followed by Energy (9.8%). Agriculture remained the laggard with a return of -6.1% which weighed on the overall index return.
- Grains was the worst performing sector over the quarter with a return of -9.5%.

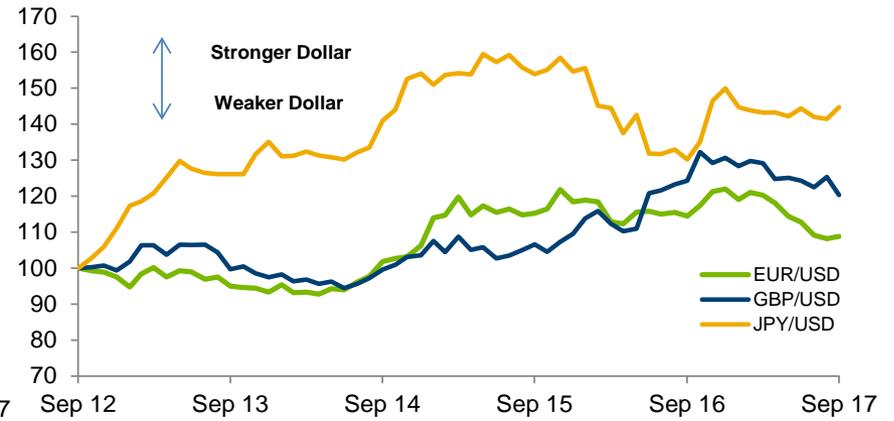
Currency

**TRADE WEIGHTED U.S. DOLLAR INDEX
(1997 = 100)**



Source: Federal Reserve

**U.S. DOLLAR RELATIVE TO EUR, GBP AND JPY
REBASED TO 100 AT 09/30/2012**

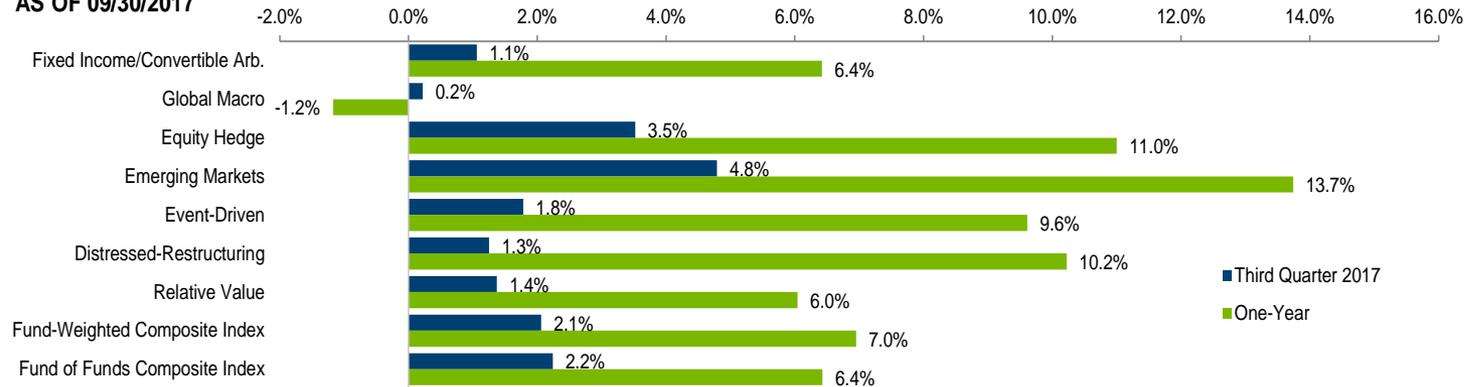


Source: DataStream

- The U.S. dollar weakened by 1.7% on a trade-weighted basis over the quarter. Market expectations of a rate hike were lowered after a flurry of disappointing inflation releases, although the U.S. Federal Reserve (Fed) continued to believe that the factors suppressing inflation are transitory.
- The U.S. dollar depreciated against all the major currencies with the exception of the Japanese yen. Bank of England officials indicated UK monetary policy struck a more hawkish tone in September which sent sterling 3.2% higher against the U.S. dollar. Despite a brief period of safe-haven flow activity amid escalating geopolitical tensions in the Korean peninsula, the yen fell by 0.2% against the U.S. dollar. Resilient economic data emanating from the Eurozone supported the euro's 3.5% appreciation against the 'greenback'.

Hedge Fund Markets Overview

HEDGE FUND PERFORMANCE AS OF 09/30/2017

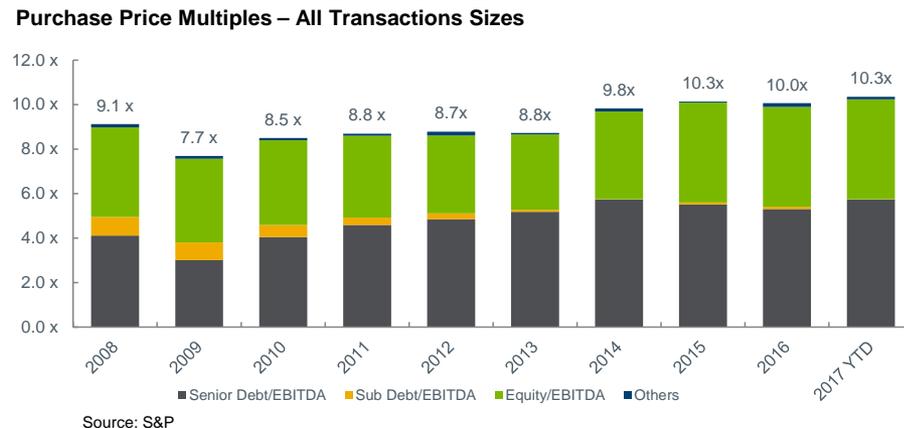
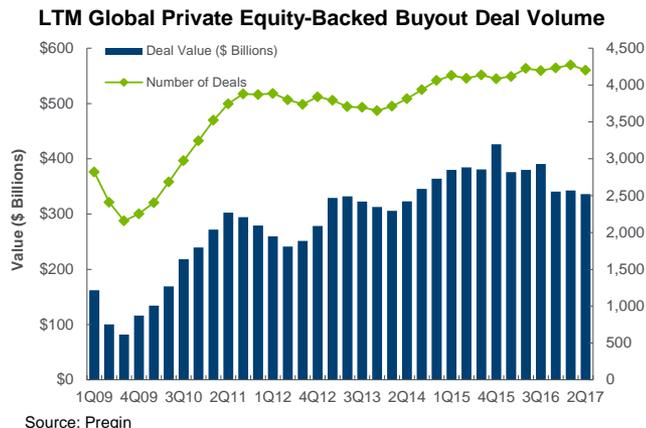


Note: Latest 5 months of HFR data are estimated by HFR and may change in the future.

Source: HFR

- Hedge fund performance was positive across all strategies in the third quarter.
- The HFRI Fund-Weighted Composite Index and the HFRI Fund of Funds Composite Index produced returns of 2.1% and 2.2%, respectively, during the quarter.
- Emerging market hedge funds continued to be the best performer, posting a return of 4.8% during the third quarter which brought the one-year return to 13.7%.

Private Equity Market Overview – Second Quarter 2017



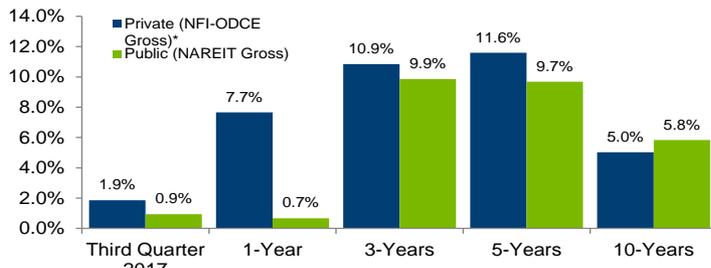
- **Fundraising:** In 2Q 2017, \$162.0 billion was raised by 297 funds, which was up 8.7% on a capital basis and 11.2% by number of deals from the prior quarter. Dry powder stood at \$1.3 trillion at the end of the quarter, up 3.7% and 31.1% compared to 1Q 2017 and the five year average, respectively ¹.
- **Buyout:** Global private equity-backed buyout deals totaled \$93.2 billion in 2Q 2017, which was up 67.9% and 7.5% from the prior quarter and five year average, respectively ¹. At the end of 2Q 2017, the average purchase price multiple for all U.S. LBOs was 10.3x EBITDA, up from 10.2x as of the end of 1Q 2017. Large cap middle-market purchase price multiples stood at 10.3x, up compared to both 1Q 2017 and full year 2016 levels of 9.6x and 10.0x, respectively. The weighted average purchase price multiple across all European transaction sizes averaged 10.8x EBITDA on an LTM basis in 2Q 2017, down slightly from 10.9x in 1Q 2017. Purchase prices for transactions of €1.0 billion or more decreased from 11.8x in 1Q 2017 to 11.6x in the second quarter. Transactions between €500.0 million and €1.0 billion were down 0.1x from the end of 1Q 2017, and stood at 11.2x ². Globally, exit value totaled \$68.7 billion on 417 deals in 2Q 2017 compared to \$49.9 billion on 437 deals in the prior quarter ¹.
- **Venture:** During the second quarter, 1,152 venture backed transactions totaling \$18.4 billion were completed, up on a capital basis from 1Q 2017's total of \$14.4 billion across 1,206 deals. This was 44.9% higher than the five-year average of \$12.7 billion³. Total U.S. venture backed exit activity totaled \$10.5 billion across 156 completed transactions in 2Q 2017, down from \$14.6 billion across 196 exits in 1Q 2017 ⁴.
- **Mezzanine:** 10 funds closed on \$2.3 billion during the quarter, down from 1Q 2017's total of \$3.0 billion raised by 11 funds and the five year quarterly average of \$4.7 billion. Estimated dry powder was \$50.0 billion at the end of 2Q 2017, down from \$51.6 billion in 1Q 2017 ¹. Fundraising activity remains robust with an estimated 66 funds in market targeting \$14.3 billion of commitments ¹.
- **Distressed Debt:** The LTM U.S. high-yield default rate was 2.2% as of June 2017, which was down from March 2017's LTM rate of 3.9% ⁵. Distressed debt and bankruptcy restructuring activity totaled \$105.9 billion during the first half of 2017, up 28.0% from 1H 2016. U.S. activity accounted for \$55.7 billion in 1H 2017 and was up 123.2% from the same period last year ⁶.
- **Secondaries:** 10 funds raised \$4.2 billion during the second quarter, down from \$19.4 billion by nine funds in 1Q 2017 ¹. The average discount rate for all private equity sectors declined 0.2% quarter-over-quarter to 8.1% ⁷.
- **Infrastructure:** \$5.3 billion of capital was raised by 11 funds in 2Q 2017 compared to \$30.7 billion of capital closed on by 18 partnerships in 1Q 2017. At the end of the quarter, dry powder stood at \$150.2 billion, up from 1Q 2017's record total of \$147.0 billion. Infrastructure managers completed 256 deals with an estimated aggregate deal value of \$104.0 billion in 2Q 2017 compared to 372 deals totaling \$216.9 billion a quarter ago ¹.
- **Natural Resources:** During 2Q 2017, eight funds closed on \$4.9 billion compared to three funds totaling \$0.8 billion in 1Q 2017. Energy and utilities industry managers completed approximately 70 deals totaling an estimated \$12.6 billion through 1H 2017, which represents 59.8% of 2016's full year capital deployment ¹.

Sources: ¹ Preqin ² Standard & Poors 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 twelve months (aka trailing twelve months); PPM: Purchase Price Multiples: Total Purchase Price / EBITDA.

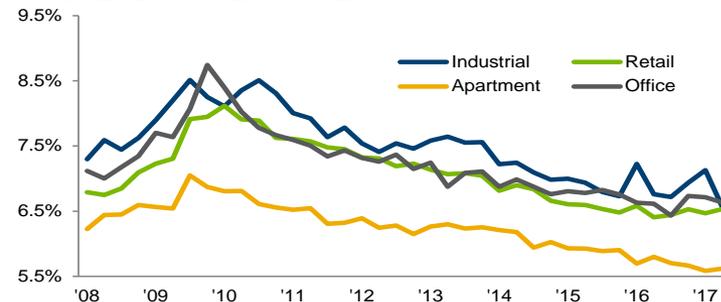
U.S. Commercial Real Estate Markets

PRIVATE VS. PUBLIC REAL ESTATE RETURNS AS OF 06/30/2017



*Third quarter returns are preliminary
Sources: NCREIF, NAREIT

CAP RATES BY PROPERTY TYPE

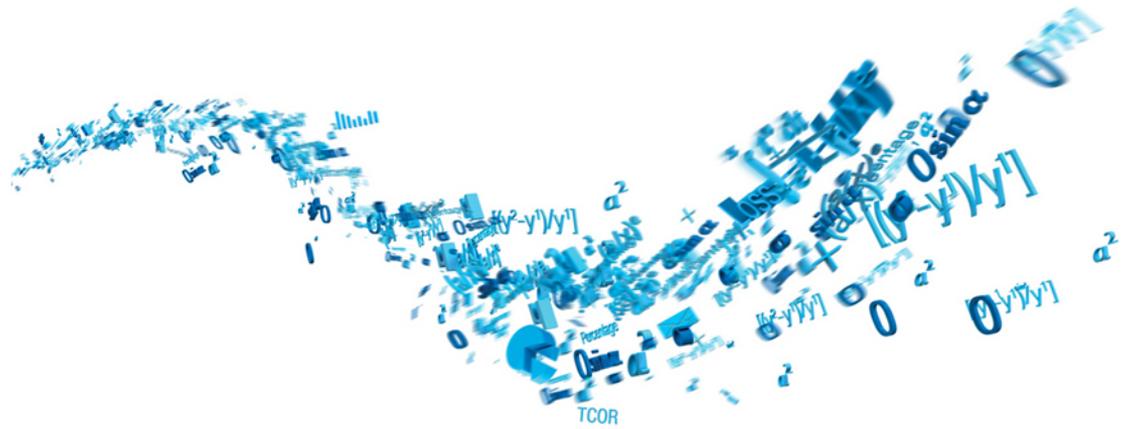


Sources: RCA, AHIC 6/30/2017

- Returns continue to moderate.** The trailing one-year return for U.S. core real estate was 7.7%* in third quarter, down 242 bps from this time last year. While moderating, returns are now back in line with the sector's long run average range of 7.0-9.0%. During the quarter, returns climbed slightly to 1.9%*, up 16 bps over Q2 but 21 bps lower year-on-year and 182 bps lower than 3Q2015. Income is now, and will continue to be, the larger driver of the sector's total return. Continued moderation is expected.
- Property stocks are up 7.3% YTD, globally.** In 3Q, global property stocks (FTSE EPRA/NAREIT Developed Index) posted modest gains (1.8%), with positive returns in each of the major regions. Both the Europe (4.9%) and Asia (2.0%) regions outperformed. The U.S. REIT market (FTSE NAREIT Equity REITs Index), while slightly positive (0.9%), underperformed on a relative basis during the quarter and also lags year to date. During the quarter, strong share price gains were seen in the Industrial, Data Center, Net Lease, and Storage sectors, with weakness in the Health Care and Mall sectors. Values for high quality assets have remained relatively stable; however there is a wide disparity in relative valuations within the property sectors, with the overall U.S. REITs market ending the quarter trading at an approximate 2.0% premium. Despite the significant destructive impact of Hurricanes Harvey (Houston) and Irma (Florida) the negative financial impact to the REITs is expected to be minimal. Overall U.S. public REIT exposure is only approximately 3.0% to Houston, 5.0% to Florida and <0.5% to Puerto Rico.
- Pricing.** The more typical relationship between deal volume and pricing has not moved in unison for almost two years now. While the reason varies by property type, in most cases volume has moved lower while prices have moved higher. This indicates a continuing disconnect between buyers' and sellers' expectations, which has been evident in sales trends since volume peaked in 4Q2015. Cap rates, however, have remained at or near recent lows — that said, there is little expectation of them going lower.
- Capital flows remain robust.** Private real estate dry powder globally (capital already allocated to new investments) now totals over \$240.0bn; and far exceeds the peak of the last recession. The majority of the sector's dry powder sits in opportunistic and value add funds, accounting for 41.0% and 24.0% of the total respectively. Capital flows into U.S. commercial real estate, in particular, remain healthy and have not been disrupted by on-going global events as investors continue to favor the U.S. at this point in cycle due to the maturity and liquidity of U.S. markets.
- Portfolio structure important.** Overall, real estate fundamentals and pricing are at a mature point in the real estate cycle. Given that, it is important to ensure that risk mitigation strategies are incorporated into all portfolio's structure. Preferred equity, secondaries, and debt structures are important investment considerations that can help mitigate medium term cyclical risks.

Sources: NCREIF, RCA, CBRE-EA, Aon Hewitt
*Indicates preliminary NFI-ODCE data gross of fees

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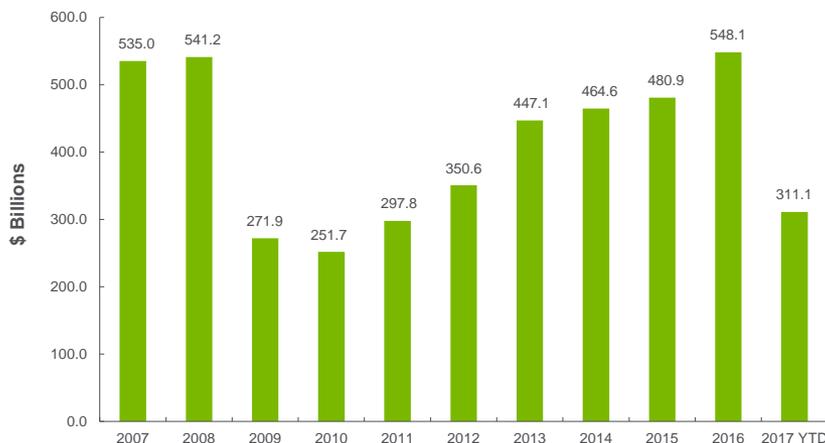


Appendix A:

Global Private Equity Market Overview

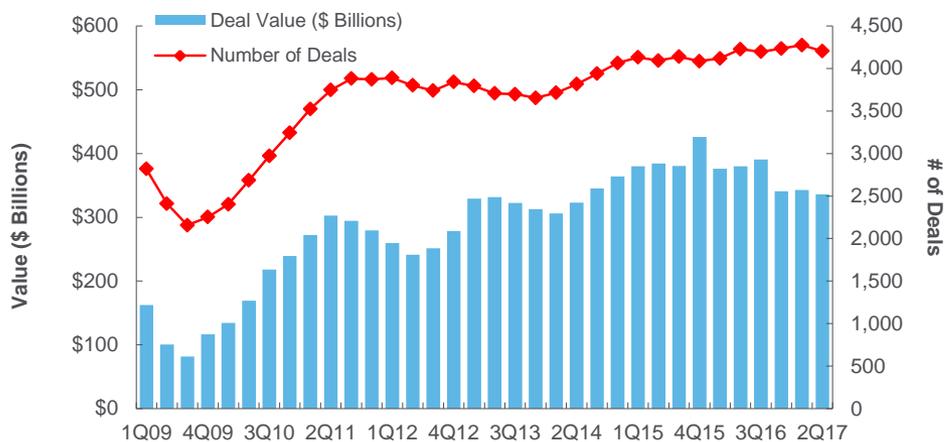
Private Equity Overview

Total Funds Raised



Source: Preqin

LTM Global Private Equity-Backed Buyout Deal Volume



Source: Preqin

Fundraising

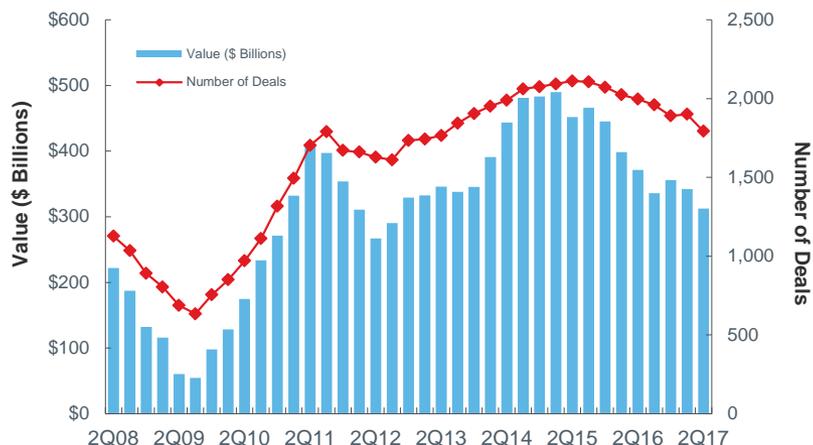
- In 2Q 2017, \$162.0 billion was raised by 297 funds, which was up 8.7% on a capital basis and 11.2% by number of deals from the prior quarter ¹.
 - The majority of 2Q 2017 capital was raised by funds with target geographies in North America, comprising 57.2% of the quarterly total. Capital targeted for Europe made up 27.6% 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 \$1.3 trillion at the end of the quarter, up 3.7% and 31.1% compared to 1Q 2017 and the five year average, respectively ¹.

Activity

- On an LTM basis, 4,203 deals were completed for an aggregate deal value of \$336.2 billion as of 2Q 2017 compared to 4,274 transactions totaling \$342.8 billion as of 1Q 2017 ¹.
 - Average deal size was \$80.0 million on an LTM basis, down 0.2% and 6.6% from the prior quarter and five year quarterly average level, respectively.
- European LBO transaction volume totaled €12.9 billion in 2Q 2017 and €40.1 billion on an LTM basis, compared to 1Q 2017's quarterly and LTM totals of €13.6 billion and €43.2 billion, respectively. 2Q 2017's total was up 13.2% from the five year quarterly average ³.
- At the end of 2Q 2017, the average purchase price multiple for all U.S. LBOs was 10.3x EBITDA, up from 10.2x as of the end of 1Q 2017 ³.
 - This was 0.8x and 1.2x turns (multiple of EBITDA) above the year-end five and ten year average levels, respectively.
- European multiples were down 0.1x quarter-over-quarter, averaging 10.8x EBITDA for all transaction sizes, with large and medium transactions each running at 12.1x and 11.2x, respectively ³.
- Debt remained broadly available in the U.S.
 - U.S. average leverage levels through 1H 2017 were 5.8x compared to the five and ten year averages of 5.4x and 5.1x, respectively ³.
 - The amount of debt issued supporting new transactions increased compared to 1Q 2017 from 52.4% to 60.4% and remains above the 51.0% average level over the prior five years ³.
 - In Europe, average senior debt/EBITDA through 1H 2017 was 5.1x, down from the 5.6x observed through 1Q 2017. This was also up significantly over the five year and ten year average levels of 4.9x.

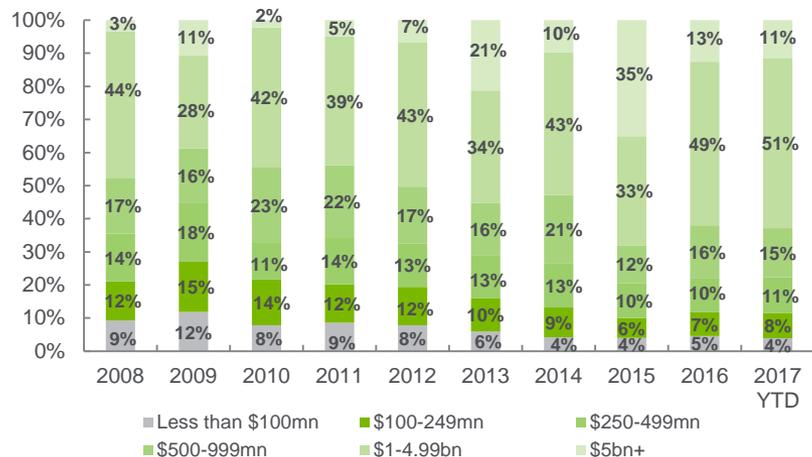
Buyouts / Corporate Finance

LTM PE Exit Volume and Value



Source: Preqin

M&A Deal Value by Deal Size



Source: Preqin

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

Fundraising

- \$106.4 billion was closed on by 102 buyout and growth funds in 2Q 2017, compared to \$64.2 billion raised by 84 funds the quarter before ¹.
 - This was up compared to the five year annual average of \$54.2 billion and exceeded the highest quarterly total during that time by 27.9%.
 - CVC Capital Partners Fund VII and Silver Lake Partners V were the largest partnerships raised during the quarter, with final closes totaling €16.0 billion and \$15.0 billion, respectively.
- Buyout and growth equity dry powder was estimated at \$703.6 billion, which was above the record level of \$663.7 billion observed at the end of 1Q 2017 ¹.
 - Aside from small cap funds, which decreased 14.6% quarter-over-quarter, buyout dry powder increased across all fund size categories. Mega fund dry powder exhibited the largest increase during the quarter (13.9%), setting a new record mark of \$247.0 billion. Large and middle market buyout dry powder finished the quarter up 0.6% and 6.2%, respectively, from 1Q 2017 ¹.
 - An estimated 56.2% of buyout dry powder was targeted for North America, while European dry powder comprised 31.1% of the total ¹.

Activity

- Global private equity-backed buyout deals totaled \$93.2 billion in 2Q 2017, which was up 67.9% and 7.5% from the prior quarter and five year average, respectively ¹.
 - 1,052 deals were completed during the quarter, which was down 2.0% from 1Q 2017, but up 5.1% compared to the five year quarterly average.
 - Through 1H 2017, deals valued at \$5.0 billion or greater accounted for an estimated 11.4% of total deal value during the quarter compared to 12.6% in 2016 and 35.1% in 2015 ¹.
- Entry multiples for all transaction sizes through 1H 2017 stood at 10.3x EBITDA, up from 1Q 2017 (10.2x) ³.
 - Large cap middle-market purchase price multiples stood at 10.3x, up compared to both 1Q 2017 and full year 2016 levels of 9.6x and 10.0x, respectively ³.
 - The weighted average purchase price multiple across all European transaction sizes averaged 10.8x EBITDA on an LTM basis in 2Q 2017, down slightly from 10.9x in 1Q 2017. Purchase prices for transactions of €1.0 billion or more decreased from 11.8x in 1Q 2017 to 11.6x in the second quarter.
 - Transactions between €500.0 million and €1.0 billion were down 0.1x from the end of 1Q 2017, and stood at 11.2x ³.
 - The portion of average purchase prices financed by equity for U.S. deals was 43.6% in 1H 2017, down from 44.0% through 1Q 2017; however, this remained above the five and ten year full year averages of 41.7% and 42.3%, respectively ³.
- Globally, exit value totaled \$68.7 billion on 417 deals in 2Q 2017 compared to \$49.9 billion on 437 deals in the prior quarter, which had marked the lowest quarterly total since 1Q 2010 ¹.

Opportunity

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



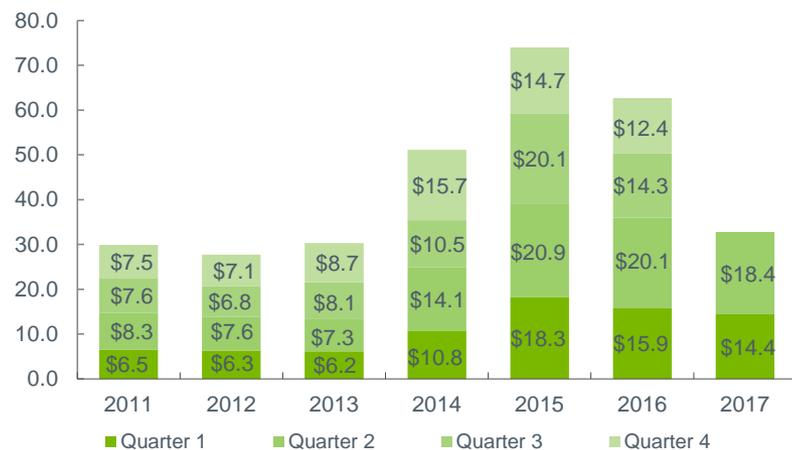
Venture Capital

Venture Capital Fundraising



Source: Preqin

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



Source: PwC/CB Insights Report

Fundraising

- \$18.2 billion of capital was raised by 110 funds in 2Q 2017, up from the prior quarter's total of \$14.2 billion by 108 managers ¹.
 - 2Q 2017 capital raised was up 37.6% compared to the five year quarterly level, despite being down on a number of funds basis (-11.8%).
 - New Enterprise Associates 16 was the largest fund raised during the quarter, closing on \$3.3 billion.
- The average fund size raised during the quarter was approximately \$177.0 million, which was above both the prior quarter and five year quarterly average of \$146.0 million and \$126.1 million, respectively. The vast majority of funds in market are seeking commitments of \$200.0 million or less ¹.
- Dry powder was estimated at \$177.2 billion at the end of 2Q 2017, which was down from 1Q 2017's total of \$178.5 billion. This was 48.9% higher than the five year average ¹.

Activity

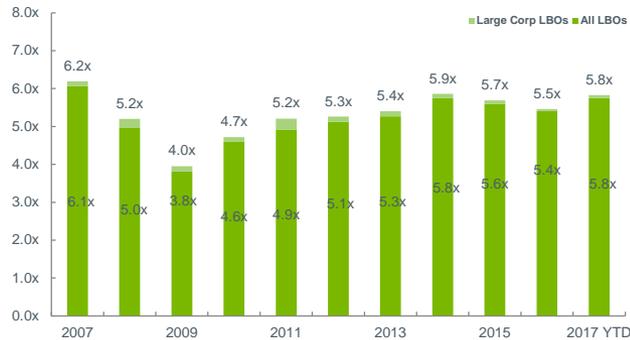
- During the second quarter, 1,152 venture backed transactions totaling \$18.4 billion were completed, up on a capital basis from 1Q 2017's total of \$14.4 billion across 1,206 deals. This was 44.9% higher than the five year average of \$12.7 billion ⁷.
 - Globally, the number of unicorns, or companies with valuations of \$1.0 billion or more, increased from 14 in 1Q 2017 to 16 in 2Q 2017. This marked the highest number observed since 3Q 2015 ¹⁴.
- Median pre-money valuations increased across all transaction stages. Series D+ transactions exhibited the largest increase (150.0%). Series A, B, and Series C transactions were up 57.2%, 33.8%, and 13.1%, respectively ⁹.
- Total U.S. venture backed exit activity totaled \$10.5 billion across 156 completed transactions in 2Q 2017, down on a capital basis from \$14.6 billion in 1Q 2017 ⁸.
 - There were 18 venture-backed initial public offerings during the quarter, which was up from seven in 1Q 2017. However, on a capital basis, IPOs raised just \$1.8 billion, down 56.0% quarter-over-quarter ¹⁶.
 - The number of M&A transactions totaled 142 deals in 2Q 2017, representing a decrease of 12.9% quarter-over-quarter ¹⁶.

Opportunity

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

Leveraged Loans & Mezzanine

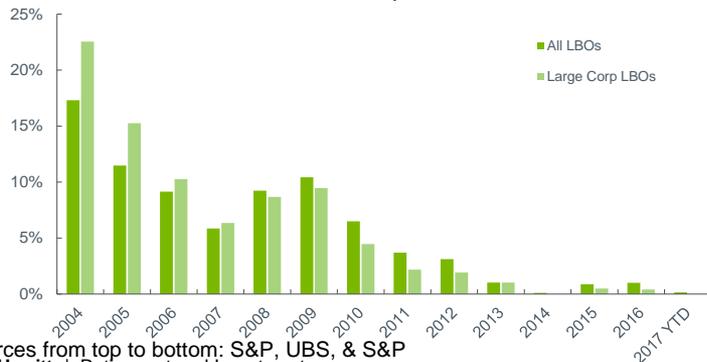
Average Leverage by Deal Size



Debt Issuance (\$ Billions)



Mezzanine % of Purchase Price Multiple



Sources from top to bottom: S&P, UBS, & S&P
Aon Hewitt | Retirement and Investment

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

Leveraged Loans

Fundraising

- New CLO issuance totaled \$48.1 billion during the quarter, up compared to 1Q 2017's total of \$15.9 billion ².
- High-yield debt issuance totaled \$62.2 billion in 2Q 2017, down from \$82.7 billion in 1Q 2017 ².
- Mutual fund net inflows stood at \$11.4 billion through the end of 2Q 2017, compared to net outflows of \$11.4 billion as of 1Q 2017 ².

Activity

- Leverage for all LBO transactions ended the quarter at 5.9x, compared to 5.6x at 1Q 2017 and continues to be comprised almost entirely of senior debt. The average leverage level for large cap LBOs was 5.9x during the quarter, up from 5.7x in 1Q 2017 ³.
- New leveraged loan issuances in 2Q totaled \$166.0 billion, down from the prior quarter's total of \$202.0 billion. 1H 2017 leveraged loan issuances represent 77.1% of 2016's full year total ².
- 59.8% of new leveraged loans were used to support M&A and growth activity during the first half of the year, up from 51.7% through 1Q 2017. This was above the prior five year average of 50.2% ³.
- European leveraged loan issuance decreased by 11.0% quarter-over-quarter to €18.0 billion ³.
 - This was above the five year and ten year average levels of €11.7 billion and €10.9 billion, respectively.
- Leveraged loan spreads for B rated issues narrowed quarter-over-quarter, ending 2Q 2017 at L+409 bps compared to L+428 bps at 1Q 2017. BB- index spreads decreased to L+260 bps from L+270 bps during the quarter ².

Opportunity

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

Mezzanine

Fundraising

- 10 funds closed on \$2.3 billion during the quarter, down from 1Q 2017's total of \$3.0 billion raised by 11 funds and the five year quarterly average of \$4.7 billion ¹.
- Estimated dry powder was \$50.0 billion at the end of 2Q 2017, down from \$51.6 billion in 1Q 2017 ¹.
- Fundraising activity remains robust with an estimated 66 funds in market targeting \$14.3 billion of commitments ¹.

Opportunity

- Funds with the capacity to scale for large sponsored deals

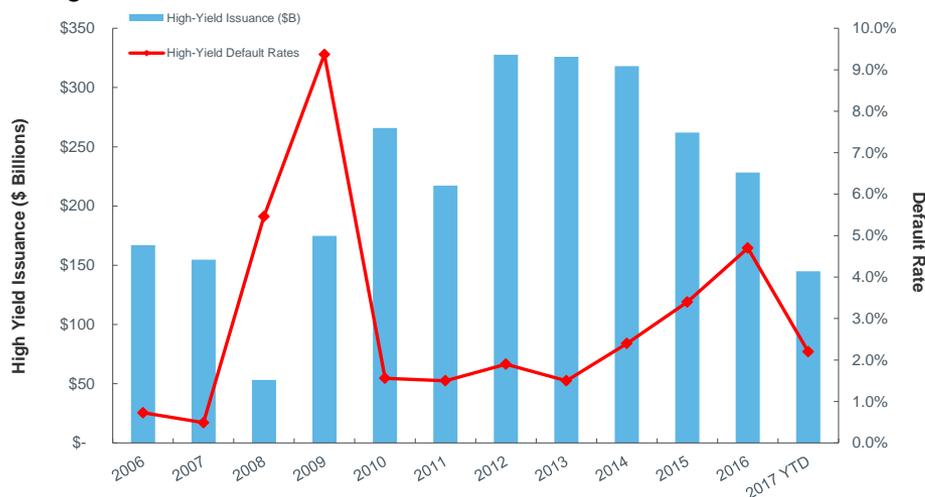
Distressed Private Markets

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, \$9.6 billion was raised by nine funds compared to \$9.8 billion raised by nine funds in 1Q 2017¹.
 - This was flat compared to the five year quarterly average.
 - Cerberus Institutional Partners VI was the largest partnership raised during the quarter, closing on \$4.0 billion.
- Dry powder was estimated at \$103.1 billion at the end 2Q 2017, which was up 5.4% from 1Q 2017, but down 8.1% from 2015's record year end level. This remained above the five year quarterly average level of \$88.5 billion.
- Roughly 101 funds were in the market at the end of 2Q 2017, seeking an aggregate \$76.9 billion in capital commitments¹.
 - Distressed debt managers were targeting the most capital, seeking an aggregate \$44.1 billion.
 - 3G Special Situations Fund V was the largest fund in market with a target fund size of \$10.0 billion.

Activity

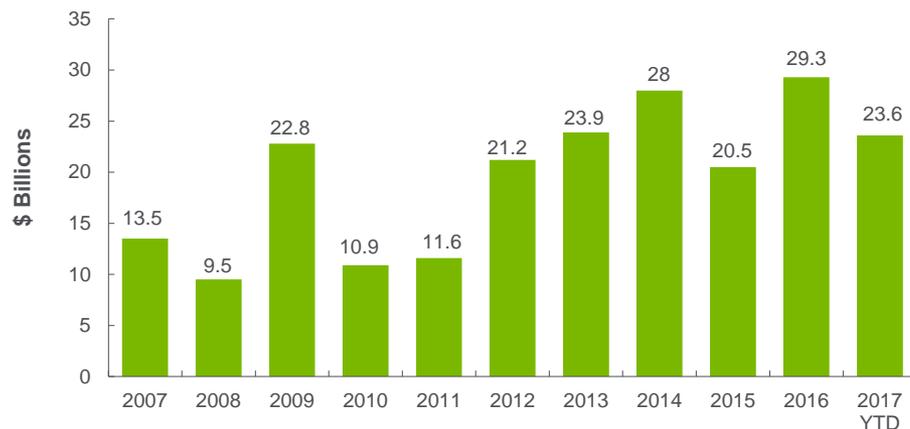
- Distressed debt and bankruptcy restructuring activity totaled \$105.9 billion during the first half of 2017, up 28.0% from 1H 2016⁵.
 - U.S. activity accounted for \$55.7 billion in 1H 2017 and was up 123.2% from the same period last year⁵.
- The LTM U.S. high-yield default rate was 2.2% as of June 2017, which was down from March 2017's LTM rate of 3.9%⁶.
- Credit spreads are now modestly expensive, and yields are also low. Expect continued volatility caused by oil and equity market gyrations. The impact of rising interest rates is becoming more and more pertinent, and further positive returns driven by valuations will be limited⁴.
- 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

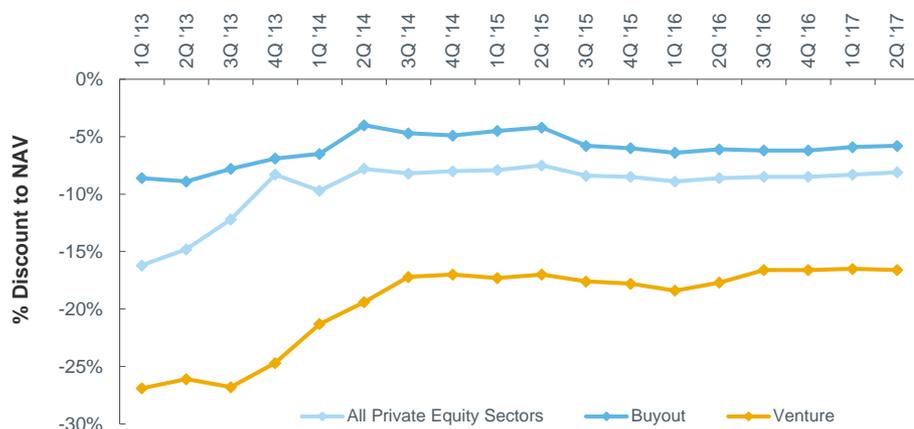
Secondaries

Secondary Fundraising



Source: Preqin

Secondary Pricing



Source: UBS

Fundraising

- 10 funds raised \$4.2 billion during the second quarter, down from \$19.4 billion by nine funds in 1Q 2017¹.
 - 1H 2017's total capital raised represents 80.5% of 2016's full year total.
 - Hamilton Lane Secondary Fund IV was the largest fund raised during the quarter, closing on \$1.9 billion¹.
- At the beginning of 2017, dry powder was estimated at a record \$71.0 billion, which was 22.4% above 3Q 2016's prior record level². The top 15 secondary buyers are estimated to command more than 75.0% of the market's capital reserves. A further inflow of dry powder can be expected given that nine of the top 20 purchasers are currently fundraising².
- At the end of 2Q 2017, there were an estimated 45 secondary and direct secondary funds in market, targeting approximately \$26.8 billion. Goldman Sach's Vintage Fund VII was the largest fund in the market targeting \$5.0 billion¹.

Activity

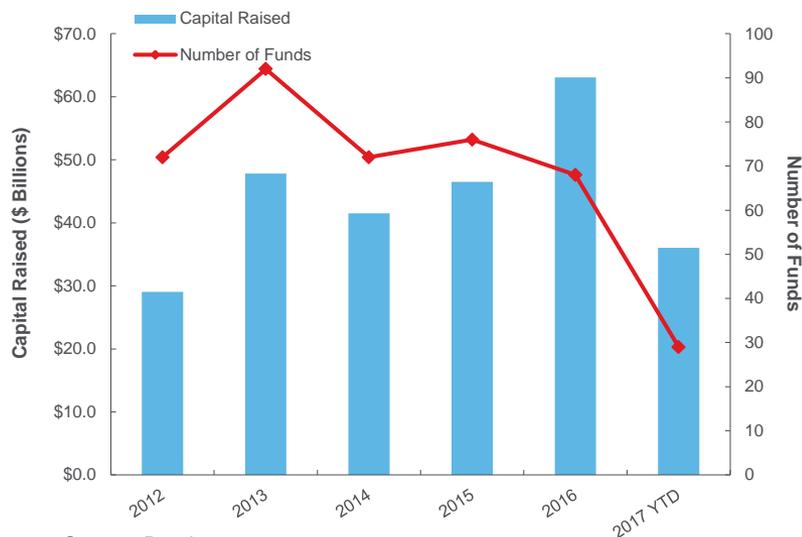
- More than 900 potential buyers and 750 potential sellers of secondary interests have been identified¹.
 - Secondary funds were the most active buyers in 1H 2017, accounting for 78.6% of total purchases¹³.
 - Fund of funds managers and public pension funds represent the largest proportion of potential sellers at 13.0% and 12.0%, respectively.
- In 1H 2017, private equity transaction volume totaled \$24.3 billion, representing an increase of 58.8% from the level observed during 1H 2016. 71.6% of deal volume was traditional LP positions and the remainder were secondary direct transactions¹³.
 - Leveraged buyout funds continued to be the most purchased private equity funds during 1H 2017, representing 79.0% on a capital basis¹³.
 - The secondary market for infrastructure interests has shown growth².
- The average discount rate for all private equity sectors declined 0.2% quarter-over-quarter to 8.1%. The average buyout pricing discount decreased 0.1% during the year, ending the quarter at 5.8%².
- Pricing is expected to remain attractive given the strong competitive market dynamics and the widening supply/demand imbalance driven by the continued growth of dry powder².

Opportunity

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

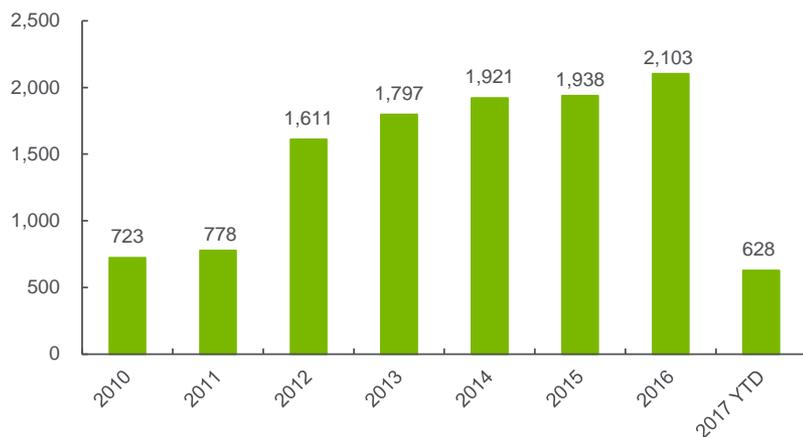
Infrastructure

Global Infrastructure Fundraising



Source: Preqin

Number of Deals Completed



Source: Preqin

Fundraising

- \$5.3 billion of capital was raised by 11 funds in 2Q 2017 compared to \$30.7 billion of capital closed on by 18 partnerships in 1Q 2017¹.
 - Funds raised during 1H 2017 averaged 106.9% of their target size, which was up from the five year average level of 95.8%¹.
 - iCON Infrastructure Partners IV was the largest fund raised during the quarter, closing on €1.2 billion¹.
- As of the end of 2Q 2017, there were an estimated 171 funds in the market seeking roughly \$149.0 billion, up from \$102.3 billion sought by 168 managers a quarter ago¹.
 - Funds focused on infrastructure assets in North America were targeting an estimated \$75.1 billion in capital, followed by Europe focused funds, which were targeting approximately \$39.8 billion¹.
 - Blackstone Infrastructure was the largest fund in the market as of the end of 2Q 2017, targeting \$40.0 billion of commitments. If successfully raised, this would be considerably higher than the record \$15.8 billion mark set by Global Infrastructure Partners III in 1Q 2017.
- At the end of the quarter, dry powder stood at \$150.2 billion, up from 1Q 2017's record total of \$147.0 billion¹.
 - Funds with commitments of \$2.0 billion or more hold an estimated 47.4% of the dry powder.
 - 44.3% of the dry powder was targeted for North America, compared to 33.1% for Europe and 22.6% 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

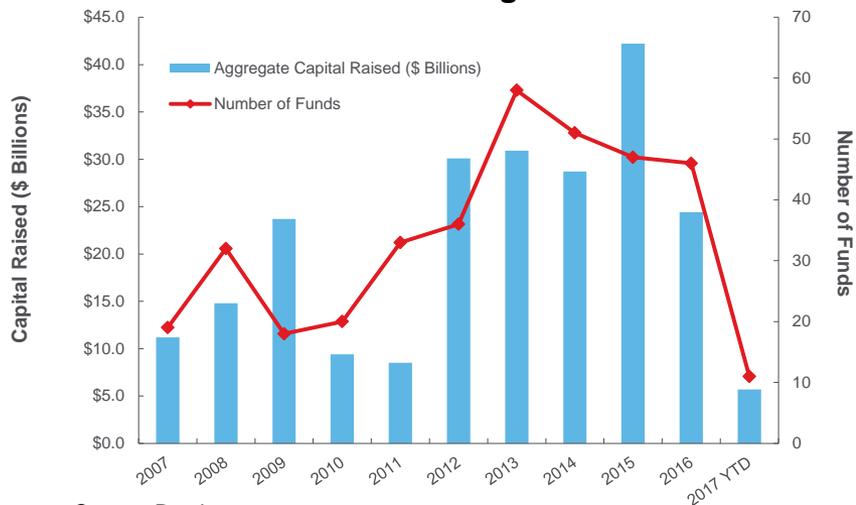
- Infrastructure managers completed 256 deals with an estimated aggregate deal value of \$104.0 billion in 2Q 2017 compared to 372 deals totaling \$216.9 billion a quarter ago. The average deal value during the quarter was \$406.3 million, down compared to 1Q 2017's average of \$583.1 million, but above the prior five year average of \$374.2 million¹.
 - Europe accounted for 51.2% of the deals in 2Q 2017, while 28.9% and 9.4% of deals were transacted in North America and Asia, respectively¹.
 - Energy was the dominant industry during the quarter with 78.5% of transactions, followed by the transportation sector, which accounted for 10.5% of the quarter's deals¹.

Opportunity

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

Natural Resources

Natural Resources Fundraising



Source: Preqin

Energy & Utilities Deal Activity



Source: Preqin

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Fundraising

- During 2Q 2017, eight funds closed on \$4.9 billion compared to three funds totaling \$0.8 billion in 1Q 2017 ¹.
 - Energy & Minerals Group Fund IV and Denham Oil and Gas Fund accounted for 69.0% of the capital raised during the quarter, closing on \$2.4 billion and \$1.0 billion, respectively.
- At the end of 2Q 2017, there were roughly 96 funds in the market targeting an estimated \$47.6 billion in capital, compared to 102 funds seeking an estimated \$54.2 billion in 1Q 2017 ¹.
 - Six managers accounted for 49.6% of the total capital being raised.
 - EnCap Energy Capital Fund XI was seeking the most capital with a target fund size of \$6.5 billion.
- Dry powder was estimated at \$74.0 billion at the end of 2Q 2017, which was up 2.4% from 1Q 2017's level, but remains below the record level of \$77.4 billion observed in 3Q 2016 ¹.

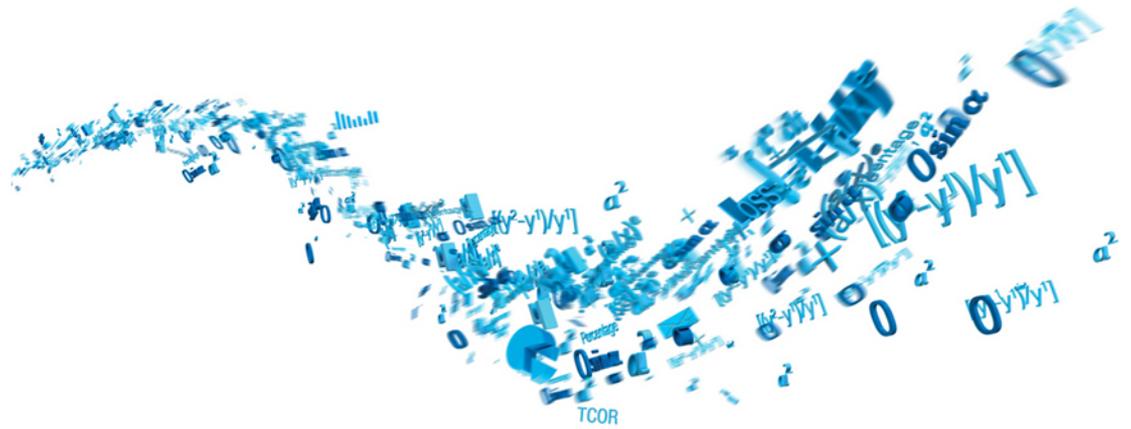
Activity

- Energy and utilities industry managers completed approximately 70 deals totaling an estimated \$12.6 billion through 1H 2017, which represents 59.8% of 2016's full year capital deployment ¹.
- Crude oil prices decreased during the quarter.
 - WTI crude oil prices decreased 8.4% during the quarter to \$45.18/bbl ¹¹.
 - Brent crude oil prices ended the quarter at \$46.37/bbl, down 10.1% from 1Q 2017 ¹¹.
- Natural gas prices (Henry Hub) increased by 3.5% during the second quarter, ending at \$2.98 per MMBtu ¹¹.
- A total of 940 crude oil and natural gas rotary rigs were in operation in the U.S. at the end of 1Q 2017, up 14.1% from the prior quarter ¹⁵.
 - Crude oil rigs represented 80.4% of the total rigs in operation. 48.9% of the 756 active oil rigs were in the Permian basin.
 - 24.5% and 21.7% of natural gas rigs at the end of 2Q 2017 were operating in the Marcellus and Haynesville basins, respectively.
- The price of iron ore (Tianjin Port) ended the quarter at \$57.86 per dry metric ton, down 33.6% quarter-over-quarter ¹².

Opportunity

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

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Appendix B:

Real Estate Market Update

U.S. Real Estate Market Update – Q2 2017

The commercial real estate cycle is very mature and nearing the top of its expansionary phase. Highlights from the quarter included:

- *Return momentum continued to wane.*
 - The NFI-ODCE returned 1.7% (gross of fees) this quarter, roughly in line with 1Q2017 but 43 bps lower YOY, and 164 bps lower than 2Q2015. Income was the main driver of returns, registering 1.08% versus appreciation at 0.6%. The trailing one-year return of 7.87% for this Core index remained in-line with the sector's long-run average range of 7-9%. Continued moderation of returns is expected.
 - Returns in *non Core* legacy funds continued to perform generally in line with expectations as completed strategies still find eager buyers in the Core investment segment. That said, sales activity is slowing, thus exit risk continued to rise for this segment.
 - U.S. REITs gained 1.5% during the quarter (FTSE NAREIT Equity REIT Index) after a strong June, up 2.2% . While REIT returns were positive (+2.7%) in the first half of 2017, the sector underperformed the broader market as the S&P 500 returned 9.3% during the same time period. REIT returns continued their broad divergence at the sector level as property types with stronger fundamentals (industrial & data centers) outperformed those with weaker fundamentals (retail). U.S. REITs are trading towards the middle of their five-year historical range relative to their underlying property net asset value. Heightened volatility is expected to continue.
- *Fundamentals healthy but moderating:* Vacancy held fairly steady across core property types in second quarter, driven by no significant changes in new supply and demand trends. Industrial continued to outperform on a relative basis across the core property types; with Apartments underperforming. Rent growth, while still healthy in all core property types except Apartments, continued to demonstrate a waning in momentum; with more downside risk than upside potential medium term.
- *Investors hunt for yield:* Transaction volume in second quarter continued to demonstrate an elevated level of pricing uncertainty as a disconnect between buyers' and sellers' expectations remained present. That said, investors still paid handsomely for well located properties in primary markets; helping to keep cap rates sticky and low. Search for yield continued to be a key driver of sales activity across all property types.
- *Portfolio structure important.* Overall, real estate fundamentals and pricing remain at a mature point in the cycle. Given that, it is important to ensure that risk mitigation strategies are incorporated into the portfolio's structure. Preferred equity and debt structures are important investment considerations that can help mitigate medium term cyclical risks.

The following charts provide an update on select current market stats:

Sources: Aon Hewitt, CBRE EA, RCA, NCREIF, Moody's

U.S. Real Estate Market Outlook

A mature real estate cycle, at a time when the economic outlook is also expected to moderate, presents additional challenges that create the need for closer monitoring and increased attention to new capital deployment.

Factors to consider in 2017 and beyond include:

- The U.S. real estate cycle is very mature; and thus presents more downside risk than upside potential medium term
 - Portfolio construction is critical at this point in the cycle. Appropriate risk mitigation measures should be a staple in all investment portfolios today
 - New investments will likely be required to ride out a cyclical downturn
- Core recovery is fully valued or more. Returns are expected to continue to moderate
 - Returns will be driven by income generation. Important to focus on underwriting assumptions, especially rent growth expectations and exit cap rates, as well as new supply impacts and levels of non core activity
- Non-Core investing is past its cyclical sweet spot
 - Tactical opportunities still exist, though return expectations are lower today than the past few years
 - Preferred equity and debt structures are important to incorporate now to help mitigate medium term cyclical risks
 - Focus on use of leverage and managers' proven ability to execute on expected strategy in down markets
- Fundamentals to more broadly moderate; increased downside volatility in pricing will likely follow
 - Demand is expected to slow across most property types, albeit still modestly in 2017; while new supply is expected to rise slightly
 - Prepare portfolio for downward pressure on rent growth and eventually pricing
- Heightened economic and political uncertainty adds to investment risk
 - Increases risk to real estate investors due to potential changes in interest rates, trade agreements, demand patterns, and the like. Uncertainty creates the potential for higher volatility
 - While current solid sector fundamentals and robust capital flows into the US will help offset some of these risks, real estate will not be immune to global events
 - Important to prepare portfolios for downside volatility

Sources: Aon Hewitt, CBRE EA, RCA, NCREIF, Moody's

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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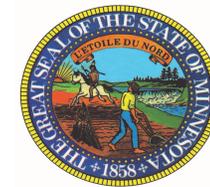
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Comprehensive Performance Report

September 30, 2017



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.

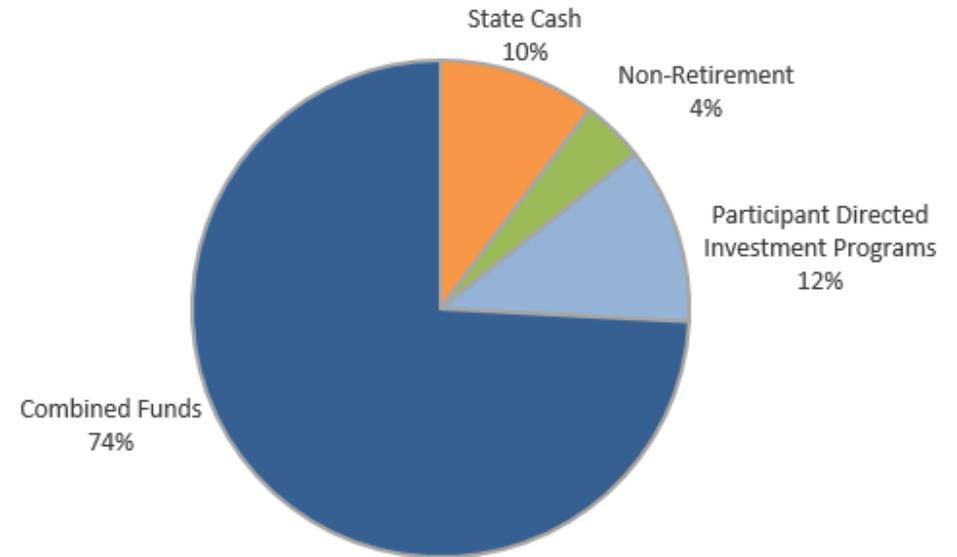
State Cash

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

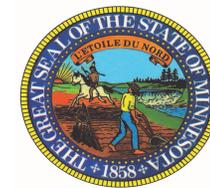
	<u>\$ Billions</u>
COMBINED FUNDS	
Combined Funds	\$66.1
PARTICIPANT DIRECTED INVESTMENT PROGRAMS	
Supplemental Investment Fund*	3.6
State Deferred Compensation Plan**	5.3
Minnesota College Savings Plan	1.4
Achieve a Better Life Experience	0.0
NON-RETIREMENT FUNDS	
Assigned Risk Plan	0.3
Permanent School Fund	1.3
Environmental Trust Fund	1.1
Closed Landfill Investment Fund	0.1
Miscellaneous Trust Accounts	0.2
Other Post Employment Benefits Accounts	0.6
STATE CASH ACCOUNTS	
Invested Treasurer's Cash	9.0
Other State Cash Accounts	0.1
TOTAL	89.1



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

** Does not include Money Market and Stable Value options that are included in the Supplemental Investment Fund market value

Note: Differentials within column amounts may occur due to rounding



Quarterly Report

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Performance Reporting Legend

Manager Level Data

Aggregate Level Data

Sub-Asset Class Level Data

Asset Class Level Data

Note:

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



Combined Funds

September 30, 2017



Combined Funds Summary

Combined Funds Change in Market Value (\$Millions)

	<u>One Quarter</u>
COMBINED FUNDS	
Beginning Market Value	\$64,116
Net Contributions	-586
Investment Return	2,553
Ending Market Value	66,083

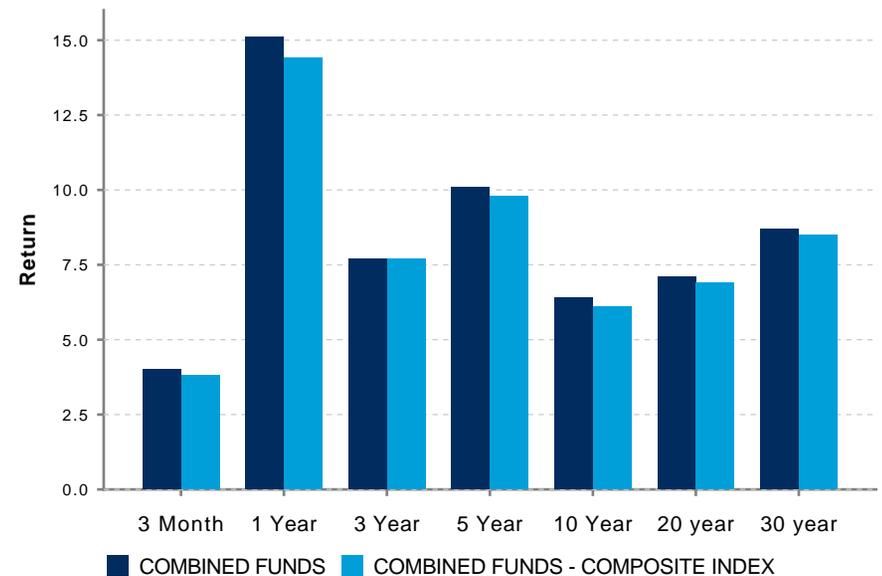
The change in market value of the Combined Funds since the end of last quarter is due to net contributions and investment returns.

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	4.0%	4.0%	15.1%	7.7%	10.1%	6.4%	7.1%	8.7%
COMBINED FUNDS - COMPOSITE INDEX	3.8	3.8	14.4	7.7	9.8	6.1	6.9	8.5
Excess	0.2	0.2	0.6	0.0	0.3	0.2	0.2	0.2

Asset Growth



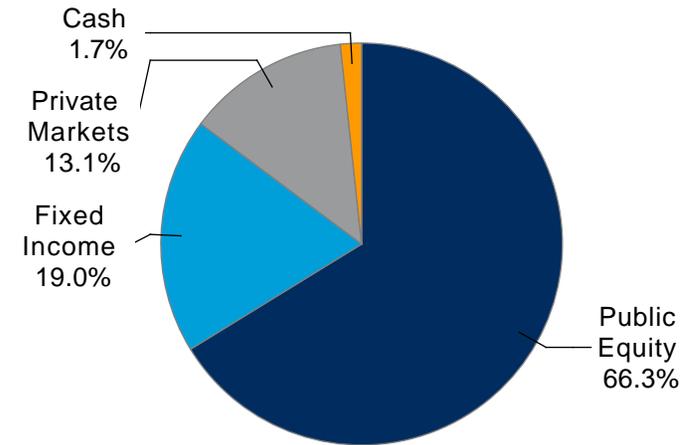


Combined Funds Summary

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. The current Strategic Asset Allocation Policy Target became effective on 7/1/2016.

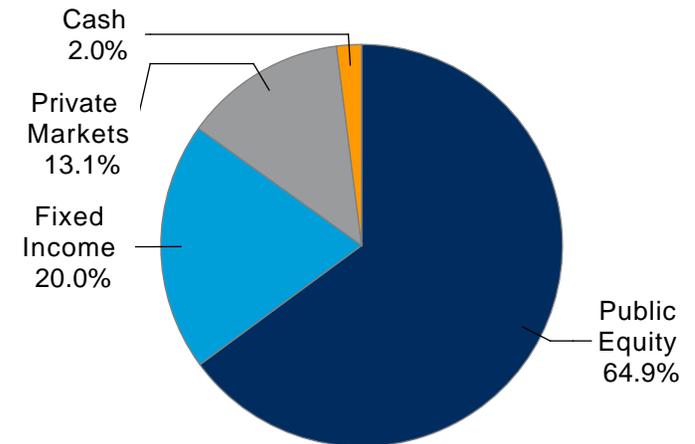
	<u>(Millions)</u>	<u>Actual Mix</u>	<u>Policy Target</u>
Public Equity	\$43,789	66.3%	58.0%
Fixed Income	12,545	19.0	20.0
Private Markets	8,644	13.1	20.0
Cash	1,104	1.7	2.0
TOTAL	66,083	100.0	



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>Target Weight</u>	<u>Market Index</u>
Public Equity	64.9%	67% Russell 3000/33% MSCI ACWI ex US
Fixed Income	20.0	BB Barclays U.S. Aggregate
Private Markets	13.1	Private Markets
Cash	2.0	3 Month T-Bills





Combined Funds Asset Class Performance Summary

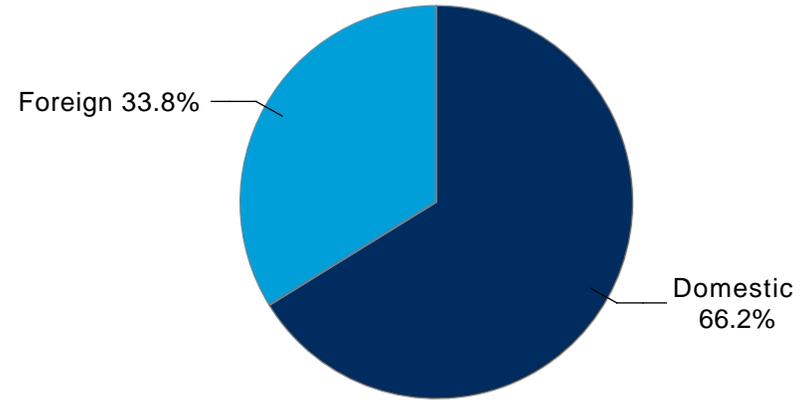
Public Equity

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

The Public Equity benchmark is 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>
Public Equity	5.3%	5.3%	19.9%	9.4%	12.7%	6.2%	6.5%
Public Equity Benchmark	5.1	5.1	19.3				
Excess	0.2	0.2	0.5				
Domestic Equity	4.7	4.7	19.2	10.4	14.2	7.5	6.8
Domestic Equity Benchmark	4.6	4.6	18.7	10.7	14.2	7.6	7.0
Excess	0.1	0.1	0.5	-0.4	-0.0	-0.1	-0.1
International Equity	6.4	6.4	19.9	5.5	7.8	1.8	5.2
International Equity Benchmark	6.2	6.2	19.6	4.7	7.0	1.3	4.9
Excess	0.2	0.2	0.3	0.8	0.8	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>
Fixed Income	1.0%	1.0%	1.0%	3.2%	2.6%	4.7%	5.4%
Fixed Income Benchmark	0.8	0.8	0.1	2.7	2.1	4.3	5.1
Excess	0.2	0.2	0.9	0.5	0.6	0.4	0.3

Cash

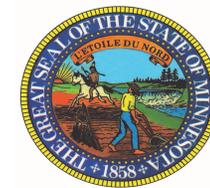
The Combined Funds Cash performance is shown here. Cash is held by the Combined Funds to meet the liquidity needs of the retirement systems to pay benefits.

The Combined Funds Cash benchmark is the iMoneyNet, All Taxable Money Fund Report Average.

	<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>
Cash	0.3%	0.3%	0.9%	0.6%	0.4%	0.9%	2.7%
90 DAY T-BILL	0.3	0.3	0.7	0.3	0.2	0.5	2.1
iMoneyNet Money Fund Average-All Taxable	0.2	0.2	0.4	0.2	0.1	0.4	1.9

Note:

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



Private Markets Performance

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>
Total Private Markets	2.8%	2.8%	17.1%	7.8%	11.9%	8.7%	12.7%
Private Equity	4.8	4.8	19.8	13.0	15.1	10.5	13.6
Private Credit	-0.5	-0.5	14.2	13.0	13.8	10.7	12.9
Resources	-1.0	-1.0	13.5	-8.7	2.0	6.5	13.1
Real Estate	2.4	2.4	9.6	11.0	12.5	4.5	9.5

Private Markets

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

Private Equity Investments

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

Private Credit Investments

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

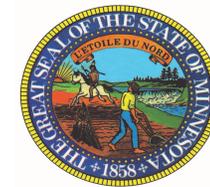
Resources Investments

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 following pages.



Quarterly Report

Asset Class & Manager Performance

September 30, 2017

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

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

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

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

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Domestic Equity

September 30, 2017



	<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)	\$4,552,668,031	15.1%	5.2%	5.2%	21.5%	10.3%	14.4%	7.2%		
Active Domestic Equity Benchmark			5.1	5.1	19.8	11.2	14.3	7.6		
Excess			0.0	0.0	1.7	-0.9	0.1	-0.4		
SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)	2,368,035,809	7.9	5.2	5.2	19.2	10.5	14.3	7.6		
Semi Passive Domestic Equity Benchmark			4.5	4.5	18.5	10.6	14.3	7.5		
Excess			0.7	0.7	0.7	-0.1	0.1	0.1		
PASSIVE DOMESTIC EQUITY AGGREGATE (3)	23,194,011,447	77.0	4.5	4.5	18.6	10.7	14.2	7.6		
Passive Domestic Equity Benchmark			4.5	4.5	18.7	10.7	14.2	7.6		
Excess			-0.0	-0.0	-0.1	-0.0	-0.0	0.0		
TRANSITION AGGREGATE DOMESTIC EQUITY (4)	11,963	0.0								
TOTAL DOMESTIC EQUITY (5)	30,114,727,250	100.0	4.7	4.7	19.2	10.4	14.2	7.4	10.4	01/1984
Domestic Equity Benchmark			4.6	4.6	18.7	10.7	14.2	7.6	10.6	01/1984
Excess			0.1	0.1	0.5	-0.4	-0.0	-0.1	-0.2	

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

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

(3) The current Passive Domestic Equity Benchmark is a weighted average of the Russell 1000 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>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>	<u>2012 Calendar Return</u>
Total Domestic Equity					
ACTIVE DOMESTIC EQUITY AGGREGATE (1)	10.9%	-0.4%	9.3%	40.2%	15.4%
Active Domestic Equity Benchmark	15.7	-0.6	11.0	34.7	16.3
Excess	-4.8	0.3	-1.7	5.5	-0.9
SEMI PASSIVE DOMESTIC EQUITY AGGREGATE (2)	11.1	0.5	14.2	33.2	17.7
Semi Passive Domestic Equity Benchmark	12.1	0.9	13.2	33.1	16.4
Excess	-1.0	-0.4	1.0	0.1	1.3
PASSIVE DOMESTIC EQUITY AGGREGATE (3)	12.6	0.5	12.6	33.5	16.4
Passive Domestic Equity Benchmark	12.5	0.5	12.6	33.6	16.4
Excess	0.1	0.0	0.0	-0.0	0.0
TRANSITION AGGREGATE DOMESTIC EQUITY (4)					
TOTAL DOMESTIC EQUITY (5)	11.5	0.3	12.3	35.1	16.6
Domestic Equity Benchmark	12.7	0.5	12.6	33.6	16.4
Excess	-1.3	-0.2	-0.2	1.6	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>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	\$475,175,514	1.6%	6.9%	6.9%	20.9%	9.1%	14.0%	10.9%	10.2%	01/2005
Russell 1000 Growth			5.9	5.9	21.9	12.7	15.3	9.1	9.2	01/2005
Excess			1.0	1.0	-1.0	-3.6	-1.3	1.8	1.0	
WINSLOW	198,457,650	0.7	5.9	5.9	21.3	11.6	14.6	8.9	9.9	01/2005
Russell 1000 Growth			5.9	5.9	21.9	12.7	15.3	9.1	9.2	01/2005
Excess			0.0	0.0	-0.6	-1.1	-0.6	-0.2	0.6	
ZEVENBERGEN	437,798,641	1.5	3.6	3.6	26.1	9.5	17.3	9.2	10.4	04/1994
Russell 1000 Growth			5.9	5.9	21.9	12.7	15.3	9.1	9.4	04/1994
Excess			-2.3	-2.3	4.2	-3.2	2.0	0.1	1.0	
RUSSELL 1000 GROWTH AGGREGATE	1,111,431,805	3.7	5.4	5.4	24.5	11.9	15.8	9.2		
Russell 1000 Growth			5.9	5.9	21.9	12.7	15.3	9.1		
Excess			-0.5	-0.5	2.6	-0.8	0.5	0.1		



	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>	<u>2012 Calendar Return</u>
Active Large Cap Growth					
SANDS	-6.9%	2.9%	9.1%	42.4%	24.2%
Russell 1000 Growth	7.1	5.7	13.0	33.5	15.3
Excess	-13.9	-2.8	-3.9	8.9	9.0
WINSLOW	-1.9	6.7	11.0	37.4	13.7
Russell 1000 Growth	7.1	5.7	13.0	33.5	15.3
Excess	-9.0	1.0	-2.0	3.9	-1.5
ZEVENBERGEN	-2.8	6.4	3.4	60.6	8.0
Russell 1000 Growth	7.1	5.7	13.0	33.5	15.3
Excess	-9.9	0.7	-9.6	27.1	-7.3
RUSSELL 1000 GROWTH AGGREGATE	1.0	4.6	9.6	42.0	15.5
Russell 1000 Growth	7.1	5.7	13.0	33.5	15.3
Excess	-6.1	-1.1	-3.4	8.5	0.3



	<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>
Active Large Cap Value										
BARROW HANLEY	\$360,561,612	1.2%	2.1%	2.1%	14.1%	7.5%	13.2%	6.0%	8.0%	04/2004
Russell 1000 Value			3.1	3.1	15.1	8.5	13.2	5.9	7.9	04/2004
Excess			-1.0	-1.0	-1.1	-1.0	0.0	0.1	0.1	
EARNEST PARTNERS	252,143,423	0.8	4.3	4.3	20.4	10.0	13.4	6.1	6.8	07/2000
Russell 1000 Value			3.1	3.1	15.1	8.5	13.2	5.9	7.2	07/2000
Excess			1.2	1.2	5.2	1.5	0.2	0.2	-0.4	
LSV	396,088,173	1.3	5.8	5.8	21.8	9.8	16.1	7.0	9.3	04/2004
Russell 1000 Value			3.1	3.1	15.1	8.5	13.2	5.9	7.9	04/2004
Excess			2.7	2.7	6.7	1.3	2.9	1.1	1.4	
RUSSELL 1000 VALUE AGGREGATE	1,008,793,207	3.3	4.1	4.1	19.2	8.6	13.9	6.2		
Russell 1000 Value			3.1	3.1	15.1	8.5	13.2	5.9		
Excess			1.0	1.0	4.1	0.0	0.7	0.3		



	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>	<u>2012 Calendar Return</u>
Active Large Cap Value					
BARROW HANLEY	12.8%	-2.1%	13.0%	35.5%	15.5%
Russell 1000 Value	17.3	-3.8	13.5	32.5	17.5
Excess	-4.5	1.7	-0.5	3.0	-2.0
EARNEST PARTNERS	16.2	-2.7	14.0	32.0	10.7
Russell 1000 Value	17.3	-3.8	13.5	32.5	17.5
Excess	-1.1	1.1	0.5	-0.5	-6.8
LSV	17.0	-2.2	14.0	41.2	20.4
Russell 1000 Value	17.3	-3.8	13.5	32.5	17.5
Excess	-0.4	1.6	0.6	8.7	2.9
RUSSELL 1000 VALUE AGGREGATE	15.3	-3.2	13.1	36.5	16.9
Russell 1000 Value	17.3	-3.8	13.5	32.5	17.5
Excess	-2.1	0.6	-0.4	3.9	-0.6



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Semi-Passive Large Cap										
BLACKROCK	\$956,633,517	3.2%	5.8%	5.8%	21.4%	11.6%	15.1%	7.9%	9.9%	01/1995
Semi Passive Domestic Equity Benchmark			4.5	4.5	18.5	10.6	14.3	7.5	9.4	01/1995
Excess			1.3	1.3	2.9	1.0	0.8	0.3	0.4	
J.P. MORGAN										
J.P. MORGAN	1,411,402,292	4.7	4.7	4.7	19.3	11.0	14.8	8.2	9.8	01/1995
Semi Passive Domestic Equity Benchmark			4.5	4.5	18.5	10.6	14.3	7.5	9.4	01/1995
Excess			0.3	0.3	0.8	0.3	0.5	0.7	0.3	
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE										
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE	2,368,035,809	7.9	5.2	5.2	19.2	10.5	14.3	7.6		
Semi Passive Domestic Equity Benchmark			4.5	4.5	18.5	10.6	14.3	7.5		
Excess			0.7	0.7	0.7	-0.1	0.1	0.1		



	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>	<u>2012 Calendar Return</u>
Semi-Passive Large Cap					
BLACKROCK	12.5%	0.8%	14.2%	33.3%	19.0%
Semi Passive Domestic Equity Benchmark	12.1	0.9	13.2	33.1	16.4
Excess	0.5	-0.1	1.0	0.2	2.6
J.P. MORGAN					
J.P. MORGAN	12.3	0.8	15.0	33.7	17.6
Semi Passive Domestic Equity Benchmark	12.1	0.9	13.2	33.1	16.4
Excess	0.2	-0.1	1.8	0.6	1.2
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE					
SEMI-PASSIVE DOMESTIC EQUITY AGGREGATE	11.1	0.5	14.2	33.2	17.7
Semi Passive Domestic Equity Benchmark	12.1	0.9	13.2	33.1	16.4
Excess	-1.0	-0.4	1.0	0.1	1.3



	<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>
Active Small Cap Growth										
ARROWMARK	\$198,510,765	0.7%	7.1%	7.1%					31.8%	11/2016
Russell 2000 Growth			6.2	6.2					29.0	11/2016
Excess			0.9	0.9					2.8	
HOOD RIVER	225,717,291	0.7	3.7	3.7					28.8	11/2016
Russell 2000 Growth			6.2	6.2					29.0	11/2016
Excess			-2.5	-2.5					-0.2	
MCKINLEY	280,004,208	0.9	7.2	7.2	24.7%	11.1%	15.9%	6.5%	7.8	01/2004
Russell 2000 Growth			6.2	6.2	21.0	12.2	14.3	8.5	9.1	01/2004
Excess			1.0	1.0	3.7	-1.1	1.6	-1.9	-1.3	
RICE HALL JAMES	198,699,399	0.7	3.6	3.6					32.0	11/2016
Russell 2000 Growth			6.2	6.2					29.0	11/2016
Excess			-2.6	-2.6					3.0	
WELLINGTON	228,960,126	0.8	5.5	5.5					30.6	11/2016
Russell 2000 Growth			6.2	6.2					29.0	11/2016
Excess			-0.7	-0.7					1.6	
RUSSELL 2000 GROWTH AGGREGATE	1,131,891,790	3.8	5.5	5.5	22.1	10.2	11.9	5.6		
Russell 2000 Growth			6.2	6.2	21.0	12.2	14.3	8.5		
Excess			-0.7	-0.7	1.1	-1.9	-2.4	-2.9		



	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>	<u>2012 Calendar Return</u>
Active Small Cap Growth					
ARROWMARK					
Russell 2000 Growth					
Excess					
HOOD RIVER					
Russell 2000 Growth					
Excess					
MCKINLEY					
	12.9%	3.6%	2.0%	51.6%	23.2%
Russell 2000 Growth	11.3	-1.4	5.6	43.3	14.6
Excess	1.6	5.0	-3.6	8.3	8.6
RICE HALL JAMES					
Russell 2000 Growth					
Excess					
WELLINGTON					
Russell 2000 Growth					
Excess					
RUSSELL 2000 GROWTH AGGREGATE					
	4.7	1.0	-3.4	47.2	12.0
Russell 2000 Growth	11.3	-1.4	5.6	43.3	14.6
Excess	-6.6	2.4	-9.0	3.9	-2.6



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Small Cap Value										
GOLDMAN SACHS	\$350,051,703	1.2%	5.8%	5.8%	20.1%	11.3%	14.4%	9.5%	10.1%	01/2004
Russell 2000 Value			5.1	5.1	20.5	12.1	13.3	7.1	8.5	01/2004
Excess			0.7	0.7	-0.5	-0.8	1.1	2.4	1.6	
HOTCHKIS AND WILEY	303,135,347	1.0	5.3	5.3	24.5	8.5	15.1	9.6	8.9	01/2004
Russell 2000 Value			5.1	5.1	20.5	12.1	13.3	7.1	8.5	01/2004
Excess			0.2	0.2	4.0	-3.6	1.8	2.5	0.4	
MARTINGALE	291,747,553	1.0	6.2	6.2	20.7	13.8	16.5	7.7	8.6	01/2004
Russell 2000 Value			5.1	5.1	20.5	12.1	13.3	7.1	8.5	01/2004
Excess			1.1	1.1	0.2	1.7	3.2	0.5	0.1	
PEREGRINE	355,616,626	1.2	4.7	4.7	20.5	11.2	13.5	7.4	10.7	07/2000
Russell 2000 Value			5.1	5.1	20.5	12.1	13.3	7.1	10.1	07/2000
Excess			-0.4	-0.4	-0.0	-0.9	0.2	0.2	0.6	
RUSSELL 2000 VALUE AGGREGATE	1,300,551,229	4.3	5.5	5.5	21.3	11.1	14.6	8.3		
Russell 2000 Value			5.1	5.1	20.5	12.1	13.3	7.1		
Excess			0.4	0.4	0.8	-1.0	1.4	1.2		



	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>	<u>2012 Calendar Return</u>
Active Small Cap Value					
GOLDMAN SACHS	24.6%	-5.2%	7.4%	39.3%	16.6%
Russell 2000 Value	31.7	-7.5	4.2	34.5	18.1
Excess	-7.1	2.3	3.1	4.8	-1.4
HOTCHKIS AND WILEY					
	19.9	-8.5	13.0	46.0	24.1
Russell 2000 Value	31.7	-7.5	4.2	34.5	18.1
Excess	-11.8	-1.0	8.8	11.5	6.0
MARTINGALE					
	34.3	-5.2	7.3	43.1	20.1
Russell 2000 Value	31.7	-7.5	4.2	34.5	18.1
Excess	2.5	2.3	3.1	8.5	2.0
PEREGRINE					
	27.8	-6.7	4.1	37.3	18.8
Russell 2000 Value	31.7	-7.5	4.2	34.5	18.1
Excess	-3.9	0.8	-0.1	2.8	0.7
RUSSELL 2000 VALUE AGGREGATE					
	26.5	-6.5	7.5	40.8	19.6
Russell 2000 Value	31.7	-7.5	4.2	34.5	18.1
Excess	-5.2	1.0	3.3	6.3	1.5



	<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>
Total Passive Domestic Equity										
BLACKROCK RUSSELL 1000	\$11,223,810,889	37.3%	4.5%	4.5%					20.9%	10/2016
Russell 1000			4.5	4.5					20.9	10/2016
Excess			-0.0	-0.0					-0.0	
BLACKROCK RUSSELL 3000 (1)	11,970,200,558	39.7	4.6	4.6	18.7%	10.8%	14.2%	7.6%	9.2%	07/1995
Passive Manager Benchmark			4.6	4.6	18.7	10.7	14.2	7.6	9.1	07/1995
Excess			0.0	0.0	-0.0	0.0	0.0	0.0	0.1	
PASSIVE DOMESTIC EQUITY AGGREGATE	23,194,011,447	77.0	4.5	4.5	18.6	10.7	14.2	7.6		
Passive Domestic Equity Benchmark			4.5	4.5	18.7	10.7	14.2	7.6		
Excess			-0.0	-0.0	-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>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>	<u>2012 Calendar Return</u>
Total Passive Domestic Equity					
BLACKROCK RUSSELL 1000					
Russell 1000					
Excess					
BLACKROCK RUSSELL 3000 (1)	12.7%	0.5%	12.6%	33.5%	16.4%
Passive Manager Benchmark	12.7	0.5	12.6	33.6	16.4
Excess	0.0	0.0	0.0	-0.0	0.0
PASSIVE DOMESTIC EQUITY AGGREGATE	12.6	0.5	12.6	33.5	16.4
Passive Domestic Equity Benchmark	12.5	0.5	12.6	33.6	16.4
Excess	0.1	0.0	0.0	-0.0	0.0

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

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International Equity

September 30, 2017



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Total International Equity										
DEVELOPED MARKETS (1)	\$11,314,718,701	75.5%	5.8%	5.8%	19.0%	5.5%	8.7%	2.0%		
BENCHMARK DM			5.6	5.6	18.7	4.6	7.8	1.3		
Excess			0.2	0.2	0.2	0.9	0.9	0.7		
EMERGING MARKETS (2)	3,666,567,350	24.5	8.3	8.3	21.2	5.0	4.2	1.0		
BENCHMARK EM			7.9	7.9	22.5	4.9	4.0	1.4		
Excess			0.4	0.4	-1.2	0.1	0.2	-0.3		
TRANSITION AGGREGATE INTERNATIONAL EQUITY (3)	3,349,202	0.0								
TOTAL INTERNATIONAL EQUITY (4)	14,984,635,253	100.0	6.4	6.4	19.8	5.5	7.8	1.8	6.8	10/1992
International Equity Benchmark			6.2	6.2	19.6	4.7	7.0	1.3	6.3	10/1992
Excess			0.2	0.2	0.2	0.8	0.8	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>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>	<u>2012 Calendar Return</u>
Total International Equity					
DEVELOPED MARKETS (1)	1.3%	-0.3%	-4.1%	23.3%	17.6%
BENCHMARK DM	2.7	-3.0	-4.3	21.0	16.4
Excess	-1.5	2.8	0.2	2.2	1.1
EMERGING MARKETS (2)	7.5	-13.1	-3.8	0.2	17.6
BENCHMARK EM	11.2	-14.9	-2.2	-2.6	18.2
Excess	-3.7	1.9	-1.6	2.9	-0.7
TRANSITION AGGREGATE INTERNATIONAL EQUITY (3)					
TOTAL INTERNATIONAL EQUITY (4)	2.6	-2.9	-4.0	17.8	17.6
International Equity Benchmark	4.5	-5.7	-3.9	15.3	16.8
Excess	-1.8	2.8	-0.2	2.5	0.8

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

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

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

(4) 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	\$520,772,856	3.5%	7.1%	7.1%	30.9%	12.0%	13.5%	2.2%	7.1%	07/2005
BENCHMARK DM			5.6	5.6	18.7	4.6	7.8	1.3	5.3	07/2005
Excess			1.5	1.5	12.1	7.4	5.7	0.9	1.8	
COLUMBIA	422,991,964	2.8	7.2	7.2	20.2	7.4	8.7	3.1	2.9	03/2000
BENCHMARK DM			5.6	5.6	18.7	4.6	7.8	1.3	3.5	03/2000
Excess			1.6	1.6	1.5	2.8	0.9	1.8	-0.6	
FIDELITY	418,622,431	2.8	6.0	6.0	19.7	6.0	9.2	3.0	6.9	07/2005
BENCHMARK DM			5.6	5.6	18.7	4.6	7.8	1.3	5.3	07/2005
Excess			0.4	0.4	0.9	1.4	1.4	1.7	1.5	
JP MORGAN	351,000,530	2.3	6.8	6.8	22.4	5.0	7.9	2.2	5.5	07/2005
BENCHMARK DM			5.6	5.6	18.7	4.6	7.8	1.3	5.3	07/2005
Excess			1.2	1.2	3.7	0.4	0.1	0.9	0.2	
MARATHON	907,353,653	6.1	4.5	4.5	17.3	6.9	10.2	4.3	8.4	11/1993
BENCHMARK DM			5.6	5.6	18.7	4.6	7.8	1.3	5.3	11/1993
Excess			-1.1	-1.1	-1.4	2.4	2.4	3.0	3.2	
MCKINLEY	349,004,168	2.3	8.1	8.1	19.0	5.5	8.8	0.4	5.0	07/2005
BENCHMARK DM			5.6	5.6	18.7	4.6	7.8	1.3	5.3	07/2005
Excess			2.5	2.5	0.2	0.9	1.0	-0.9	-0.3	
ACTIVE DEVELOPED MARKETS AGGREGATE	2,969,745,602	19.8	6.2	6.2	21.1	7.3	9.9	2.8		
BENCHMARK DM			5.6	5.6	18.7	4.6	7.8	1.3		
Excess			0.6	0.6	2.3	2.7	2.1	1.5		



	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>	<u>2012 Calendar Return</u>
Active Developed Markets					
ACADIAN	8.1%	2.4%	-1.7%	26.1%	17.6%
BENCHMARK DM	2.7	-3.0	-4.3	21.0	16.4
Excess	5.4	5.4	2.6	5.1	1.2
COLUMBIA	-5.6	6.4	-5.6	23.9	19.0
BENCHMARK DM	2.7	-3.0	-4.3	21.0	16.4
Excess	-8.3	9.4	-1.2	2.9	2.6
FIDELITY	1.2	0.1	-5.6	26.7	20.3
BENCHMARK DM	2.7	-3.0	-4.3	21.0	16.4
Excess	-1.5	3.2	-1.3	5.7	3.9
JP MORGAN	4.0	-4.7	-5.1	19.5	18.4
BENCHMARK DM	2.7	-3.0	-4.3	21.0	16.4
Excess	1.2	-1.6	-0.7	-1.5	2.0
MARATHON	-1.1	6.7	-4.0	28.5	17.9
BENCHMARK DM	2.7	-3.0	-4.3	21.0	16.4
Excess	-3.8	9.7	0.3	7.5	1.5
MCKINLEY	-7.5	3.1	-2.7	28.0	16.9
BENCHMARK DM	2.7	-3.0	-4.3	21.0	16.4
Excess	-10.2	6.2	1.6	7.0	0.5
ACTIVE DEVELOPED MARKETS AGGREGATE	-0.2	3.2	-4.1	25.4	17.9
BENCHMARK DM	2.7	-3.0	-4.3	21.0	16.4
Excess	-3.0	6.2	0.2	4.4	1.5



	<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>
Semi-Passive Developed Markets										
AQR	\$412,468,897	2.8%	6.5%	6.5%	20.8%	6.4%	9.7%	2.3%	6.1%	07/2005
BENCHMARK DM			5.6	5.6	18.7	4.6	7.8	1.3	5.3	07/2005
Excess			0.9	0.9	2.0	1.8	1.9	1.0	0.8	
FIDELITY	581,145,753	3.9	5.3	5.3	17.3	4.1	7.8	1.6	5.9	07/2005
BENCHMARK DM			5.6	5.6	18.7	4.6	7.8	1.3	5.3	07/2005
Excess			-0.4	-0.4	-1.4	-0.5	-0.0	0.3	0.6	
SSgA	361,680,538	2.4	5.4	5.4	22.1	4.8	8.9	0.8	5.0	07/2005
BENCHMARK DM			5.6	5.6	18.7	4.6	7.8	1.3	5.3	07/2005
Excess			-0.2	-0.2	3.4	0.2	1.1	-0.5	-0.3	
SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE	1,355,295,188	9.0	5.7	5.7	19.6	4.9	8.7	1.6		
BENCHMARK DM			5.6	5.6	18.7	4.6	7.8	1.3		
Excess			0.0	0.0	0.9	0.4	0.9	0.3		



	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>	<u>2012 Calendar Return</u>
Semi-Passive Developed Markets					
AQR	0.8%	0.9%	-4.4%	24.1%	20.8%
BENCHMARK DM	2.7	-3.0	-4.3	21.0	16.4
Excess	-2.0	3.9	-0.1	3.1	4.4
FIDELITY	-1.7	-0.7	-4.0	23.2	19.4
BENCHMARK DM	2.7	-3.0	-4.3	21.0	16.4
Excess	-4.5	2.3	0.3	2.2	3.0
SSgA	0.6	-0.9	-5.1	25.3	17.3
BENCHMARK DM	2.7	-3.0	-4.3	21.0	16.4
Excess	-2.2	2.1	-0.8	4.2	0.9
SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE	-0.4	-0.3	-4.4	24.0	19.2
BENCHMARK DM	2.7	-3.0	-4.3	21.0	16.4
Excess	-3.1	2.7	-0.1	3.0	2.8



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Total Developed Markets										
ACTIVE DEVELOPED MARKETS AGGREGATE	\$2,969,745,602	19.8%	6.2%	6.2%	21.1%	7.3%	9.9%	2.8%		
BENCHMARK DM			5.6	5.6	18.7	4.6	7.8	1.3		
Excess			0.6	0.6	2.3	2.7	2.1	1.5		
SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE	1,355,295,188	9.0	5.7	5.7	19.6	4.9	8.7	1.6		
BENCHMARK DM			5.6	5.6	18.7	4.6	7.8	1.3		
Excess			0.0	0.0	0.9	0.4	0.9	0.3		
SSgA DEVELOPED MARKETS PASSIVE	6,989,677,911	46.6	5.7	5.7	19.3	5.0	8.2	1.7	6.5	10/1992
BENCHMARK DM			5.6	5.6	18.7	4.6	7.8	1.3	6.2	10/1992
Excess			0.1	0.1	0.5	0.5	0.4	0.4	0.3	
DEVELOPED MARKETS TOTAL	11,314,718,701	75.5	5.8	5.8	19.0	5.5	8.7	2.0		
BENCHMARK DM			5.6	5.6	18.7	4.6	7.8	1.3		
Excess			0.2	0.2	0.2	0.9	0.9	0.7		



	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>	<u>2012 Calendar Return</u>
Total Developed Markets					
ACTIVE DEVELOPED MARKETS AGGREGATE	-0.2%	3.2%	-4.1%	25.4%	17.9%
BENCHMARK DM	2.7	-3.0	-4.3	21.0	16.4
Excess	-3.0	6.2	0.2	4.4	1.5
SEMI-PASSIVE DEVELOPED MARKETS AGGREGATE	-0.4	-0.3	-4.4	24.0	19.2
BENCHMARK DM	2.7	-3.0	-4.3	21.0	16.4
Excess	-3.1	2.7	-0.1	3.0	2.8
SSgA DEVELOPED MARKETS PASSIVE	3.2	-2.6	-3.9	21.4	16.7
BENCHMARK DM	2.7	-3.0	-4.3	21.0	16.4
Excess	0.4	0.5	0.4	0.4	0.3
DEVELOPED MARKETS TOTAL	1.3	-0.3	-4.1	23.3	17.6
BENCHMARK DM	2.7	-3.0	-4.3	21.0	16.4
Excess	-1.5	2.8	0.2	2.2	1.1



	<u>Ending Market Value</u>	<u>Portfolio Weight</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
Active Emerging Markets										
EARNEST PARTNERS	\$300,784,924	2.0%	5.6%	5.6%					14.1%	04/2017
MSCI EMERGING MARKETS			7.9	7.9					14.7	04/2017
Excess			-2.2	-2.2					-0.5	
MARTIN CURRIE	329,459,637	2.2	11.8	11.8					21.8	04/2017
BENCHMARK EM			7.9	7.9					14.7	04/2017
Excess			4.0	4.0					7.1	
MACQUARIE	325,153,566	2.2	11.7	11.7					19.8	04/2017
BENCHMARK EM			7.9	7.9					14.7	04/2017
Excess			3.8	3.8					5.1	
MORGAN STANLEY	623,910,483	4.2	7.9	7.9	20.2%	6.0%	5.3%	1.9%	10.4	01/2001
BENCHMARK EM			7.9	7.9	22.5	4.9	4.0	1.4	9.9	01/2001
Excess			-0.0	-0.0	-2.3	1.1	1.3	0.5	0.5	
NEUBERGER BERMAN	317,307,511	2.1	9.6	9.6					17.1	04/2017
BENCHMARK EM			7.9	7.9					14.7	04/2017
Excess			1.7	1.7					2.4	
PZENA	297,412,081	2.0	4.9	4.9					10.8	04/2017
BENCHMARK EM			7.9	7.9					14.7	04/2017
Excess			-3.0	-3.0					-3.8	
ROCK CREEK	303,169,778	2.0	7.1	7.1					12.7	04/2017
BENCHMARK EM			7.9	7.9					14.7	04/2017
Excess			-0.8	-0.8					-1.9	



	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>	<u>2012 Calendar Return</u>
Active Emerging Markets					
EARNEST PARTNERS					
MSCI EMERGING MARKETS					
Excess					
MARTIN CURRIE					
BENCHMARK EM					
Excess					
MACQUARIE					
BENCHMARK EM					
Excess					
MORGAN STANLEY	6.1%	-9.4%	-2.5%	0.5%	21.1%
BENCHMARK EM	11.2	-14.9	-2.2	-2.6	18.2
Excess	-5.1	5.5	-0.3	3.1	2.8
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	\$2,497,197,981	16.7%	8.3%	8.3%	19.1%	4.4%	3.9%	0.9%		
BENCHMARK EM			7.9	7.9	22.5	4.9	4.0	1.4		
Excess			0.5	0.5	-3.3	-0.5	-0.1	-0.5		
SSGA EMERGING MARKETS PASSIVE	1,169,369,369	7.8	8.0	8.0	22.2	5.2	4.2		5.7	01/2012
BENCHMARK EM			7.9	7.9	22.5	4.9	4.0		5.5	01/2012
Excess			0.2	0.2	-0.2	0.3	0.2		0.2	
EMERGING MARKETS TOTAL	3,666,567,350	24.5	8.3	8.3	21.2	5.0	4.2	1.0		
BENCHMARK EM			7.9	7.9	22.5	4.9	4.0	1.4		
Excess			0.4	0.4	-1.2	0.1	0.2	-0.3		



	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>	<u>2012 Calendar Return</u>
Total Emerging Markets					
ACTIVE EMERGING MARKETS AGGREGATE	5.3%	-12.7%	-4.1%	0.6%	17.5%
BENCHMARK EM	11.2	-14.9	-2.2	-2.6	18.2
Excess	-5.9	2.2	-2.0	3.2	-0.8
SSGA EMERGING MARKETS PASSIVE					
BENCHMARK EM	11.2	-14.9	-2.2	-2.6	18.2
Excess	-0.1	0.3	0.1	0.1	0.3
EMERGING MARKETS TOTAL					
BENCHMARK EM	11.2	-14.9	-2.2	-2.6	18.2
Excess	-3.7	1.9	-1.6	2.9	-0.7

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Fixed Income

September 30, 2017



	<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	\$6,038,842,535	46.9%	1.1%	1.1%	1.8%	3.6%	3.0%	4.9%		
BBG BARC Agg (Dly)			0.8	0.8	0.1	2.7	2.1	4.3		
Excess			0.3	0.3	1.7	0.9	1.0	0.6		
SEMI PASSIVE FIXED INCOME AGGREGATE	6,845,348,533	53.1	0.9	0.9	0.3	2.9	2.3	4.5		
BBG BARC Agg (Dly)			0.8	0.8	0.1	2.7	2.1	4.3		
Excess			0.0	0.0	0.2	0.2	0.2	0.2		
TRANSITION AGGREGATE FIXED INCOME (1)	17,036	0.0								
TOTAL FIXED INCOME (2)	12,884,208,104	100.0	1.0	1.0	1.0	3.2	2.7	4.7	7.7	07/1984
Fixed Income Benchmark			0.8	0.8	0.1	2.7	2.1	4.3	7.4	07/1984
Excess			0.2	0.2	0.9	0.5	0.6	0.4	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>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>	<u>2012 Calendar Return</u>
Total Fixed Income					
ACTIVE FIXED INCOME AGGREGATE	4.4%	0.6%	6.2%	-0.8%	8.1%
BBG BARC Agg (Dly)	2.6	0.5	6.0	-2.0	4.2
Excess	1.7	0.0	0.2	1.2	3.9
SEMI PASSIVE FIXED INCOME AGGREGATE	2.8	0.8	6.1	-1.8	5.3
BBG BARC Agg (Dly)	2.6	0.5	6.0	-2.0	4.2
Excess	0.2	0.2	0.1	0.2	1.1
TRANSITION AGGREGATE FIXED INCOME (1)					
TOTAL FIXED INCOME (2)	3.6	0.7	6.1	-1.3	6.7
Fixed Income Benchmark	2.6	0.5	6.0	-2.0	4.2
Excess	0.9	0.1	0.2	0.7	2.5

(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	\$1,174,372,665	9.1%	1.2%	1.2%	1.9%	3.7%	2.9%	4.8%	5.5%	07/1993
BBG BARC Agg (Dly)			0.8	0.8	0.1	2.7	2.1	4.3	5.3	07/1993
Excess			0.3	0.3	1.8	1.0	0.9	0.5	0.2	
DODGE & COX	1,665,736,296	12.9	1.2	1.2	2.4	3.3	3.4	5.4	6.2	02/2000
BBG BARC Agg (Dly)			0.8	0.8	0.1	2.7	2.1	4.3	5.2	02/2000
Excess			0.3	0.3	2.3	0.6	1.3	1.2	1.0	
PIMCO	1,591,644,345	12.4	1.0	1.0	0.9	3.3	2.6		5.8	10/2008
BBG BARC Agg (Dly)			0.8	0.8	0.1	2.7	2.1		4.3	10/2008
Excess			0.2	0.2	0.8	0.5	0.5		1.5	
WESTERN	1,607,089,229	12.5	1.2	1.2	2.1	4.0	3.3	5.3	8.6	07/1984
BBG BARC Agg (Dly)			0.8	0.8	0.1	2.7	2.1	4.3	7.4	07/1984
Excess			0.4	0.4	2.0	1.3	1.3	1.0	1.2	
ACTIVE FIXED INCOME AGGREGATE	6,038,842,535	46.9	1.1	1.1	1.8	3.6	3.0	4.9		
BBG BARC Agg (Dly)			0.8	0.8	0.1	2.7	2.1	4.3		
Excess			0.3	0.3	1.7	0.9	1.0	0.6		



	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>	<u>2012 Calendar Return</u>
Active Fixed Income Managers					
COLUMBIA	5.2%	0.2%	5.8%	-1.0%	6.9%
BBG BARC Agg (Dly)	2.6	0.5	6.0	-2.0	4.2
Excess	2.6	-0.4	-0.2	1.0	2.7
DODGE & COX	4.8	0.3	6.0	0.9	8.5
BBG BARC Agg (Dly)	2.6	0.5	6.0	-2.0	4.2
Excess	2.2	-0.3	0.0	3.0	4.2
PIMCO	2.8	1.0	5.5	-1.3	9.3
BBG BARC Agg (Dly)	2.6	0.5	6.0	-2.0	4.2
Excess	0.2	0.4	-0.4	0.7	5.1
WESTERN	4.9	0.7	7.0	-1.4	7.8
BBG BARC Agg (Dly)	2.6	0.5	6.0	-2.0	4.2
Excess	2.2	0.1	1.0	0.7	3.6
ACTIVE FIXED INCOME AGGREGATE	4.4	0.6	6.2	-0.8	8.1
BBG BARC Agg (Dly)	2.6	0.5	6.0	-2.0	4.2
Excess	1.7	0.0	0.2	1.2	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 Fixed Income Managers										
BLACKROCK	\$2,084,687,021	16.2%	0.9%	0.9%	0.2%	2.9%	2.2%	4.2%	5.4%	04/1996
BBG BARC Agg (Dly)			0.8	0.8	0.1	2.7	2.1	4.3	5.3	04/1996
Excess			0.0	0.0	0.1	0.2	0.2	-0.1	0.1	
GOLDMAN SACHS	2,510,104,822	19.5	0.9	0.9	0.5	3.0	2.4	4.6	5.7	07/1993
BBG BARC Agg (Dly)			0.8	0.8	0.1	2.7	2.1	4.3	5.3	07/1993
Excess			0.1	0.1	0.4	0.3	0.3	0.3	0.3	
NEUBERGER	2,250,556,690	17.5	0.9	0.9	0.1	2.9	2.2	4.7	6.6	07/1988
BBG BARC Agg (Dly)			0.8	0.8	0.1	2.7	2.1	4.3	6.3	07/1988
Excess			0.0	0.0	0.0	0.1	0.1	0.4	0.2	
SEMI PASSIVE FIXED INCOME	6,845,348,533	53.1	0.9	0.9	0.3	2.9	2.3	4.5		
BBG BARC Agg (Dly)			0.8	0.8	0.1	2.7	2.1	4.3		
Excess			0.0	0.0	0.2	0.2	0.2	0.2		



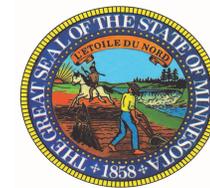
	<u>2016 Calendar Return</u>	<u>2015 Calendar Return</u>	<u>2014 Calendar Return</u>	<u>2013 Calendar Return</u>	<u>2012 Calendar Return</u>
Semi Passive Fixed Income Managers					
BLACKROCK	2.8%	0.9%	6.0%	-1.8%	5.0%
BBG BARC Agg (Dly)	2.6	0.5	6.0	-2.0	4.2
Excess	0.1	0.3	0.0	0.2	0.8
GOLDMAN SACHS	3.0	0.8	6.1	-1.7	5.4
BBG BARC Agg (Dly)	2.6	0.5	6.0	-2.0	4.2
Excess	0.3	0.2	0.1	0.3	1.2
NEUBERGER	2.7	0.7	6.1	-2.0	5.4
BBG BARC Agg (Dly)	2.6	0.5	6.0	-2.0	4.2
Excess	0.1	0.2	0.2	0.1	1.2
SEMI PASSIVE FIXED INCOME	2.8	0.8	6.1	-1.8	5.3
BBG BARC Agg (Dly)	2.6	0.5	6.0	-2.0	4.2
Excess	0.2	0.2	0.1	0.2	1.1

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Private Markets

September 30, 2017



Private Markets Performance

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>
Total Private Markets	2.8%	2.8%	17.1%	7.8%	11.9%	8.7%	12.7%
Private Equity	4.8	4.8	19.8	13.0	15.1	10.5	13.6
Private Credit	-0.5	-0.5	14.2	13.0	13.8	10.7	12.9
Resources	-1.0	-1.0	13.5	-8.7	2.0	6.5	13.1
Real Estate	2.4	2.4	9.6	11.0	12.5	4.5	9.5

Private Markets

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

Private Equity Investments

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

Private Credit Investments

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

Resources 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 following pages.

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Investment	Total Commitment	Funded Commitment	MarketValue	Distributions	Unfunded Commitment	IRR %	MOIC*	Period Years
I. PRIVATE EQUITY								
Adams Street Partners								
<i>Adams Street Global Secondary Fund 5</i>	100,000,000	74,529,750	59,418,292	21,947,518	25,470,250	4.35	1.09	5.29
<i>Adams Street Global Secondary Fund 6</i>	100,000,000	0	0	0	100,000,000	0.00	0.00	0.50
Advent International								
<i>Advent International GPE VI</i>	50,000,000	50,000,000	25,926,648	81,885,584	0	17.55	2.16	9.50
<i>Advent International GPE VII</i>	90,000,000	81,000,000	97,237,132	34,200,083	9,000,000	18.21	1.62	5.04
<i>Advent International GPE VIII</i>	100,000,000	45,150,000	46,713,048	0	54,850,000	10.60	1.03	1.65
Affinity Ventures								
<i>Affinity Ventures IV</i>	4,000,000	4,000,000	1,097,452	1,541,970	0	-7.76	0.66	13.26
<i>Affinity Ventures V</i>	5,000,000	5,000,000	2,886,504	1,585,611	0	-2.36	0.89	9.25
APAX Partners								
<i>Apax VIII - USD</i>	200,000,000	204,727,016	212,901,949	50,484,278	18,132,238	11.89	1.29	4.57
<i>Apax IX - USD</i>	150,000,000	40,050,000	38,374,308	0	109,950,000	-19.04	0.96	1.36
Banc Fund								
<i>Banc Fund VII</i>	45,000,000	45,000,000	40,425,697	23,168,725	0	3.36	1.41	12.51
<i>Banc Fund VIII</i>	98,250,000	98,250,000	145,275,757	61,109,973	0	15.06	2.10	9.44
<i>Banc Fund IX</i>	107,205,932	98,629,457	117,075,434	3,283,917	8,576,475	15.56	1.22	3.31
Blackstone Capital Partners								
<i>Blackstone Capital Partners IV</i>	70,000,000	72,354,340	7,602,981	192,717,027	1,916,968	37.06	2.77	15.23
<i>Blackstone Capital Partners V</i>	140,000,000	130,994,409	15,571,818	227,542,468	8,522,239	8.03	1.86	11.67
<i>Blackstone Capital Partners VI</i>	100,000,000	88,712,973	90,813,793	43,231,091	17,323,019	11.66	1.51	9.19
<i>Blackstone Capital Partners VII</i>	130,000,000	16,498,486	17,136,847	179,088	113,573,850	-12.85	1.05	2.25
Blackstone Strategic Partners (CSFB/ DLJ)								
<i>Strategic Partners II-B</i>	100,000,000	86,169,494	579,021	161,941,377	4,678,067	35.07	1.89	14.21
<i>Strategic Partners III VC</i>	25,000,000	24,838,567	5,899,193	28,514,393	1,118,650	6.42	1.39	12.34
<i>Strategic Partners III-B</i>	100,000,000	78,115,035	15,562,740	103,709,850	15,043,813	6.57	1.53	12.34
<i>Strategic Partners IV VC</i>	40,500,000	40,139,897	12,722,010	47,954,392	2,874,619	9.40	1.51	9.29
<i>Strategic Partners IV-B</i>	100,000,000	92,161,937	20,832,389	131,071,759	18,258,203	12.47	1.65	9.52
<i>Strategic Partners V</i>	100,000,000	78,520,491	33,419,270	96,016,166	40,696,991	20.31	1.65	6.12
<i>Strategic Partners VI</i>	150,000,000	83,768,334	80,355,351	41,473,306	69,129,887	21.24	1.45	3.46
<i>Strategic Partners VII</i>	150,000,000	23,837,606	28,644,800	2,854,121	127,943,407	83.62	1.32	0.77
Blum Capital Partners								
<i>Blum Strategic Partners II</i>	50,000,000	40,185,889	133,412	89,708,870	2,127,584	22.42	2.24	16.21
<i>Blum Strategic Partners III</i>	75,000,000	78,121,020	0	83,524,046	471,064	0.26	1.07	12.34

Minnesota State Board of Investment
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Investment	Total Commitment	Funded Commitment	MarketValue	Distributions	Unfunded Commitment	IRR %	MOIC*	Period Years
<i>Blum Strategic Partners IV</i>	150,000,000	172,056,780	1,139,984	167,939,991	4,756,033	-0.75	0.98	9.87
Brookfield Asset Management								
<i>Brookfield Capital Partners Fund IV</i>	100,000,000	45,176,859	45,992,701	8,007,829	60,105,141	10.65	1.20	2.05
Cardinal Partners								
<i>DSV Partners IV</i>	10,000,000	10,000,000	31,115	39,196,082	0	10.61	3.92	32.77
Chicago Growth Partners (William Blair)								
<i>William Blair Capital Partners VII</i>	50,000,000	48,150,000	68,355	67,985,017	1,650,000	8.26	1.41	16.58
<i>Chicago Growth Partners I</i>	50,000,000	52,441,998	4,839,370	53,058,188	300,000	2.29	1.10	12.19
<i>Chicago Growth Partners II</i>	60,000,000	58,095,626	21,587,292	94,583,860	1,652,374	18.60	2.00	9.56
Court Square Capital Partners								
<i>Court Square Capital Partners</i>	100,000,000	80,827,220	104,698	182,160,766	1,920,943	28.91	2.26	15.81
<i>Court Square Capital Partners II</i>	175,000,000	158,426,466	46,705,023	255,654,871	17,620,732	12.96	1.91	11.08
<i>Court Square Capital Partners III</i>	175,000,000	103,318,875	64,516,478	63,968,665	79,345,214	10.47	1.24	5.33
Crescendo								
<i>Crescendo IV</i>	101,500,000	101,500,000	14,414,249	42,303,255	0	-5.07	0.56	17.57
CVC Capital Partners								
<i>CVC European Equity Partners V</i>	134,002,188	132,413,576	59,219,665	194,689,132	1,688,463	15.03	1.92	9.52
<i>CVC Capital Partners VI</i>	258,504,296	136,946,057	162,260,254	10,679,340	127,558,365	13.94	1.26	4.23
Diamond Castle Partners								
<i>Diamond Castle Partners IV</i>	92,487,949	91,151,326	0	94,068,606	1,377,108	0.40	1.03	11.07
Elevation Partners								
<i>Elevation Partners</i>	75,000,000	69,311,710	163,520	113,492,106	799,634	11.82	1.64	12.38
Fox Paine & Company								
<i>Fox Paine Capital Fund II</i>	50,000,000	46,299,626	4,096,286	86,859,891	11,953,212	18.90	1.96	17.26
GHJM Marathon Fund								
<i>GHJM Marathon Fund V</i>	50,000,000	50,093,425	8,931	95,948,519	46,502	12.10	1.92	13.01
<i>TrailHead Fund</i>	20,000,000	15,414,187	21,652,289	2,406,955	4,585,813	12.86	1.56	5.61
Glouston Capital Partners**								
<i>Glouston Private Equity Opportunities Fund IV</i>	5,337,098	4,247,098	2,017,761	2,590,487	1,090,000	3.86	1.09	2.76
GS Capital Partners								
<i>GS Capital Partners 2000</i>	50,000,000	50,000,000	168,285	115,122,481	0	23.49	2.31	17.09
<i>GS Capital Partners V</i>	100,000,000	73,958,901	1,598,693	219,279,192	1,041,099	18.23	2.99	12.51
<i>GS Capital Partners VI</i>	100,000,000	80,215,619	20,720,045	117,108,503	3,405,134	6.97	1.72	10.67
<i>West Street Capital Partners</i>	150,000,000	22,500,000	20,748,578	0	127,500,000	-11.63	0.92	0.78
<i>GS Vintage VII</i>	100,000,000	8,770,594	9,549,822	274,313	91,229,406	50.00	1.12	1.26

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GTCR								
<i>GTCR IX</i>	75,000,000	71,414,933	6,480,810	119,144,001	3,585,067	13.49	1.76	11.26
<i>GTCR X</i>	100,000,000	93,248,604	68,309,457	131,964,423	6,751,396	22.34	2.15	6.81
<i>GTCR Fund XI</i>	110,000,000	85,558,444	86,628,139	19,591,961	24,441,556	17.23	1.24	3.88
HarbourVest**								
<i>Dover Street VII Cayman Fund</i>	2,198,112	2,070,612	716,221	1,194,976	127,500	-5.24	0.92	2.76
<i>HarbourVest Intl PE Partners V-Cayman US</i>	3,530,179	3,293,739	1,549,511	2,569,140	236,440	14.24	1.25	2.76
<i>Harbourvest Intl PE Partners VI-Cayman</i>	4,247,432	3,875,039	3,870,450	1,392,804	372,393	17.43	1.36	2.76
<i>HarbourVest Partners VIII Cayman Buyout</i>	4,506,711	4,220,711	2,507,300	2,816,811	286,000	14.14	1.26	2.76
<i>HarbourVest Partners VIII-Cayman Venture</i>	7,190,898	7,050,898	4,831,881	3,123,827	140,000	5.92	1.13	2.76
Hellman & Friedman								
<i>Hellman & Friedman Capital Partners V</i>	160,000,000	146,165,961	3,070,546	415,483,079	8,070,303	27.90	2.86	12.84
<i>Hellman & Friedman Capital Partners VI</i>	175,000,000	171,035,354	41,698,527	311,033,272	5,087,265	13.18	2.06	10.51
<i>Hellman & Friedman Capital Partners VII</i>	50,000,000	47,461,919	68,860,518	25,612,315	2,538,081	22.11	1.99	8.45
IK Investment Partners								
<i>IK Fund VII</i>	180,647,555	172,208,922	190,268,875	16,742,521	8,438,633	7.58	1.20	4.05
<i>IK Fund VIII</i>	175,215,409	43,212,577	43,234,802	2,213,957	134,148,734	8.71	1.05	1.20
Kohlberg Kravis Roberts								
<i>KKR Millennium Fund</i>	200,000,000	200,000,000	18,491,513	400,827,308	0	16.29	2.10	14.82
<i>KKR 2006 Fund</i>	200,000,000	211,063,288	73,870,514	284,498,039	3,360,223	8.66	1.70	11.02
<i>KKR Americas Fund XII</i>	150,000,000	0	0	0	150,000,000	0.00	0.00	1.58
<i>KKR Asian Fund III</i>	100,000,000	0	0	0	100,000,000	0.00	0.00	0.50
Leonard Green & Partners								
<i>Green Equity Investors VI</i>	200,000,000	213,778,395	211,003,326	67,744,414	17,755,145	12.08	1.30	5.55
Lexington Capital Partners								
<i>Lexington Capital Partners VI-B</i>	100,000,000	98,365,297	19,431,635	124,260,049	1,634,703	7.91	1.46	11.77
<i>Lexington Capital Partners VII</i>	200,000,000	166,986,835	74,534,641	183,137,900	41,166,114	15.25	1.54	8.72
<i>Lexington Capital Partners VIII</i>	150,000,000	74,237,063	70,077,820	21,763,856	83,665,740	25.31	1.24	3.58
<i>Lexington Middle Market Investors IV</i>	100,000,000	0	0	0	100,000,000	0.00	0.00	0.78
<i>Lexington Co-Investment Partners IV</i>	200,000,000	0	0	0	200,000,000	0.00	0.00	1.16
Madison Dearborn Capital Partners								
<i>Madison Dearborn Capital Partners VII</i>	100,000,000	24,920,485	24,254,828	1,026,980	76,049,298	1.29	1.01	1.79
Neuberger Berman								
<i>Dyal Capital Partners III</i>	175,000,000	121,343,383	56,605,197	74,112,866	127,377,732	19.93	1.08	2.45

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Nordic Capital								
<i>Nordic Capital Fund VIII</i>	179,834,982	116,521,186	171,159,618	49,418	63,313,795	16.20	1.47	4.05
North Sky Capital**								
<i>North Sky Capital LBO Fund III</i>	1,070,259	720,259	434,407	501,904	350,000	14.58	1.30	2.76
<i>North Sky Capital Venture Fund III</i>	1,384,080	1,277,830	537,545	896,160	106,250	6.98	1.12	2.76
Oak Hill Capital Management, Inc.								
<i>Oak Hill Capital Partners IV</i>	150,000,000	15,000,000	5,511,034	2,790,511	137,790,511	-48.26	0.55	0.81
Paine & Partners								
<i>Paine & Partners Capital Fund IV</i>	75,000,000	39,541,862	34,935,575	1,074,740	36,514,143	-6.88	0.91	2.81
Permira								
<i>Permira V</i>	179,277,415	166,420,997	209,682,769	2,229,773	12,856,418	11.02	1.27	3.75
<i>Permira VI</i>	140,117,364	21,164,465	20,917,078	0	118,952,900	-1.78	0.99	1.18
Public Pension Capital Management								
<i>Public Pension Capital</i>	100,000,000	53,470,728	61,852,890	2,261,962	47,166,185	10.45	1.20	3.38
RWI Ventures								
<i>RWI Ventures I</i>	7,603,265	7,603,265	483,052	6,094,262	0	-4.28	0.87	11.26
Silver Lake Partners								
<i>Silver Lake Partners II</i>	100,000,000	90,142,191	14,919,513	156,317,295	11,771,953	11.07	1.90	13.26
<i>Silver Lake Partners III</i>	100,000,000	91,564,385	38,106,596	157,795,616	10,559,311	18.00	2.14	10.51
<i>Silver Lake Partners IV</i>	100,000,000	90,043,067	95,856,974	33,124,810	22,348,703	25.81	1.43	5.01
<i>Silver Lake Partners V</i>	135,000,000	0	0	0	135,000,000	0.00	0.00	0.50
Split Rock Partners								
<i>Split Rock Partners</i>	50,000,000	47,454,543	17,820,064	35,947,002	2,545,457	1.60	1.13	12.42
<i>Split Rock Partners II</i>	60,000,000	58,845,000	33,964,976	34,863,729	1,155,000	4.05	1.17	9.43
Summit Partners								
<i>Summit Ventures V</i>	25,000,000	24,125,000	104,720	33,358,461	875,000	8.12	1.39	19.51
<i>Summit Partners Growth Equity Fund VIII</i>	100,000,000	106,489,649	104,798,685	62,541,418	12,212,734	19.80	1.57	6.41
<i>Summit Partners Growth Equity Fund IX</i>	100,000,000	14,150,000	17,326,222	0	85,850,000	41.45	1.22	2.09
T. Rowe Price								
	48,704,031	48,704,031	25,821,263	28,448,408	0	10.13	1.11	
Thoma Bravo								
<i>Thoma Bravo Fund XII</i>	75,000,000	30,374,491	30,408,237	0	44,625,509	-0.14	1.00	1.06
Thoma Cressey								
<i>Thoma Cressey Fund VII</i>	50,000,000	50,000,000	845,752	106,625,069	0	23.60	2.15	17.11
<i>Thoma Cressey Fund VIII</i>	70,000,000	68,932,574	1,522,009	233,860,926	770,000	18.27	3.41	11.42

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Thomas H. Lee Partners								
<i>Thomas H. Lee Equity Fund VII</i>	100,000,000	38,828,623	53,166,387	5,929,545	66,175,308	49.36	1.52	2.06
Thomas, McNerney & Partners								
<i>Thomas, McNerney & Partners I</i>	30,000,000	30,000,000	3,335,058	15,087,143	0	-8.23	0.61	14.91
<i>Thomas, McNerney & Partners II</i>	50,000,000	48,125,000	14,608,052	95,314,704	1,875,000	16.86	2.28	11.26
TPG Capital								
<i>TPG Partners VII</i>	100,000,000	44,143,800	41,666,479	6,144,682	61,761,826	10.00	1.08	2.06
Vestar Capital Partners								
<i>Vestar Capital Partners IV</i>	55,000,000	53,635,969	746,153	102,141,056	57,313	14.65	1.92	17.81
<i>Vestar Capital Partners V</i>	75,000,000	74,936,812	19,898,764	82,528,082	63,188	4.37	1.37	11.79
<i>Vestar Capital Partners VI</i>	100,000,000	84,685,212	97,685,700	51,213,176	15,314,788	31.27	1.76	6.02
Warburg Pincus								
<i>Warburg Pincus Equity Partners</i>	100,000,000	100,000,000	568,188	163,222,253	0	10.03	1.64	19.28
<i>Warburg Pincus Private Equity VIII</i>	100,000,000	100,000,000	12,769,715	219,490,951	0	14.90	2.32	15.47
<i>Warburg Pincus Private Equity IX</i>	100,000,000	100,000,000	10,894,099	164,844,296	0	9.95	1.76	12.19
<i>Warburg Pincus Private Equity X</i>	150,000,000	150,000,000	69,853,523	157,210,873	0	8.04	1.51	9.94
<i>Warburg Pincus Private Equity XI</i>	200,000,000	186,800,000	193,844,620	65,324,286	13,200,000	12.39	1.39	4.78
<i>Warburg Pincus Private Equity XII</i>	131,000,000	56,788,500	55,679,138	353,700	74,211,500	-2.04	0.99	1.87
<i>Warburg Pincus China</i>	45,000,000	13,050,000	10,639,134	1,935,000	33,885,000	-9.37	0.96	0.80
Welsh, Carson, Anderson & Stowe								
<i>Welsh, Carson, Anderson & Stowe X</i>	100,000,000	98,000,000	5,431,210	161,775,605	2,000,000	8.12	1.71	11.80
<i>Welsh, Carson, Anderson & Stowe XI</i>	100,000,000	100,000,000	67,708,744	89,629,582	0	12.57	1.57	9.20
<i>Welsh, Carson, Anderson & Stowe XII</i>	150,000,000	61,907,194	72,338,925	2,070,391	88,092,806	12.66	1.20	2.78
Windjammer Capital Investors								
<i>Windjammer Mezzanine & Equity Fund II</i>	66,708,861	56,569,498	61,911	84,876,800	10,139,363	8.94	1.50	17.51
<i>Windjammer Senior Equity Fund III</i>	75,000,000	61,619,620	8,027,699	138,933,089	13,380,380	18.94	2.38	11.75
<i>Windjammer Senior Equity Fund IV</i>	100,000,000	78,087,703	70,879,778	6,906,820	24,581,218	-0.17	1.00	5.60
<i>Private Equity Total</i>	11,235,024,015	7,933,306,558	4,385,318,008	8,280,991,656	3,534,016,376		1.60	

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II. PRIVATE CREDIT								
Audax Group								
<i>Audax Mezzanine Fund III</i>	100,000,000	90,586,461	50,502,915	65,064,899	10,878,181	9.74	1.28	7.49
<i>Audax Mezzanine Fund IV</i>	100,000,000	12,363,775	10,390,340	2,626,287	88,283,175	9.64	1.05	2.48
Citicorp Mezzanine								
<i>CM Liquidating Partnership</i>	100,000,000	88,029,296	1,191,036	149,642,633	0	16.40	1.71	17.93
Crescent Capital Group								
<i>TCW/Crescent Mezzanine Partners III</i>	75,000,000	68,835,269	2,434,348	156,868,939	29,733,852	35.88	2.31	16.52
GS Mezzanine Partners								
<i>GS Mezzanine Partners 2006</i>	100,000,000	74,999,888	4,090,107	131,284,920	9,858,563	4.99	1.81	11.49
<i>GS Mezzanine Partners V</i>	150,000,000	112,057,963	7,241,875	172,683,972	37,701,823	8.98	1.61	9.95
Gold Hill Venture Lending								
<i>Gold Hill Venture Lending</i>	40,000,000	40,000,000	687,873	64,391,012	0	10.64	1.63	13.02
<i>Gold Hill 2008</i>	25,852,584	25,852,584	7,370,703	32,238,919	0	11.05	1.53	9.25
Kohlberg Kravis Roberts								
<i>KKR Lending Partners II</i>	75,000,000	81,865,272	62,520,630	32,482,314	11,180,434	13.59	1.16	2.58
<i>KKR Lending Partners III</i>	200,000,000	7,155,000	7,155,000	0	192,845,000	0.00	1.00	0.48
LBC Credit Partners								
<i>LBC Credit Partners IV</i>	100,000,000	30,000,000	29,696,427	2,515,136	71,552,577	14.91	1.07	1.42
Merit Capital Partners								
<i>William Blair Mezzan. Cap. Fd. III</i>	60,000,000	57,243,241	752,428	112,755,951	2,756,759	15.51	1.98	17.76
<i>Merit Mezzanine Fund IV</i>	75,000,000	70,178,571	17,101,386	108,814,045	4,821,429	10.64	1.79	12.80
<i>Merit Mezzanine Fund V</i>	75,000,000	70,420,408	48,072,182	49,287,846	4,579,592	9.67	1.38	7.79
<i>Merit Mezzanine Fund VI</i>	72,853,125	29,500,000	30,392,701	0	43,353,125	6.22	1.03	1.52
Portfolio Advisors								
<i>DLJ Investment Partners II</i>	27,375,168	23,164,217	82,725	34,829,566	0	10.37	1.51	17.76
<i>DLJ Investment Partners III</i>	100,000,000	72,260,040	5,841,751	93,262,919	29,739,249	7.93	1.37	11.28
Prudential Capital Partners								
<i>Prudential Capital Partners II</i>	100,000,000	97,182,295	4,957,184	135,703,635	2,950,458	8.85	1.45	12.26
<i>Prudential Capital Partners III</i>	100,000,000	96,385,611	38,556,442	123,452,022	7,056,782	13.45	1.68	8.46
<i>Prudential Capital Partners IV</i>	100,000,000	96,291,802	72,760,912	45,435,104	4,274,313	10.62	1.23	5.70
<i>Prudential Capital Partners V</i>	150,000,000	24,666,559	24,644,370	270,796	125,333,441	2.36	1.01	1.12

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Summit Partners								
<i>Summit Subordinated Debt Fund III</i>	45,000,000	42,750,000	6,755,800	58,922,343	2,250,000	9.46	1.54	13.63
<i>Summit Subordinated Debt Fund IV</i>	50,000,000	55,134,261	20,044,598	52,499,924	16,044,207	9.54	1.32	9.52
TCW Asset Management								
<i>TCW Direct Lending</i>	100,000,000	76,021,441	50,508,803	31,350,038	32,729,586	5.85	1.08	3.03
<i>Private Credit Total</i>	2,121,080,877	1,442,943,955	503,752,536	1,656,383,221	727,922,544		1.50	

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III. REAL ASSETS								
Apache Corp.								
<i>1986 Net Profits Interest</i>	30,000,000	30,000,000	371,580	59,838,195	0	12.15	2.01	30.77
BlackRock								
<i>BlackRock Global Renewable Power Fund II</i>	100,000,000	24,819,154	24,819,154	537,604	75,598,979	-3.90	1.02	1.85
EIG Global Energy Partners								
<i>EIG Energy Fund XIV</i>	100,000,000	113,013,074	13,640,419	92,181,918	2,761,129	-2.47	0.94	10.46
<i>EIG Energy Fund XV</i>	150,000,000	151,824,733	96,444,274	89,633,155	24,307,985	5.90	1.23	7.32
<i>EIG Energy Fund XVI</i>	200,000,000	124,880,546	119,815,251	28,199,904	94,269,162	8.50	1.19	4.05
EnCap Energy								
<i>EnCap Energy Capital Fund VII</i>	100,000,000	97,492,592	9,413,632	132,528,983	3,060,151	15.21	1.46	10.26
<i>EnCap Energy Capital Fund VIII</i>	100,000,000	92,787,484	44,269,740	40,019,993	8,379,469	-3.23	0.91	7.00
<i>Encap Energy Capital Fund IX</i>	100,000,000	102,248,109	70,815,203	62,187,806	14,169,871	15.57	1.30	4.82
<i>EnCap Energy Capital Fund X</i>	100,000,000	61,674,231	52,856,061	15,477,128	46,112,512	13.64	1.11	2.58
EnerVest Energy								
<i>EnerVest Energy Institutional Fund XIV</i>	100,000,000	85,064,991	79,672,549	6,510,333	16,689,803	0.97	1.01	2.31
Energy Capital Partners								
<i>Energy Capital Partners II</i>	100,000,000	80,645,205	47,798,902	88,181,019	29,983,919	13.65	1.69	7.21
<i>Energy Capital Partners III</i>	200,000,000	106,203,893	110,714,941	8,889,828	97,296,677	6.90	1.13	3.78
Energy & Minerals Group								
<i>NGP Midstream & Resources</i>	100,000,000	100,090,315	69,970,836	126,130,483	230,871	15.47	1.96	10.51
<i>The Energy & Minerals Group Fund II</i>	100,000,000	95,039,574	128,934,407	37,791,439	5,239,852	16.35	1.75	6.02
<i>The Energy & Minerals Group Fund III</i>	200,000,000	187,597,119	157,648,314	9,209,885	14,146,318	-4.66	0.89	3.57
<i>The Energy & Minerals Group Fund IV</i>	150,000,000	84,403,205	95,960,471	14,909,707	77,825,878	19.09	1.31	1.93
First Reserve								
<i>First Reserve Fund X</i>	100,000,000	100,000,000	430,477	182,429,002	0	31.06	1.83	12.92
<i>First Reserve Fund XI</i>	150,000,000	150,292,121	11,017,880	94,066,313	0	-7.74	0.70	10.78
<i>First Reserve Fund XII</i>	150,000,000	159,718,304	44,288,249	71,186,004	3,865,168	-8.08	0.72	8.92
<i>First Reserve Fund XIII</i>	200,000,000	85,749,727	76,528,248	21,862,335	114,250,273	9.92	1.15	3.92

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Merit Energy Partners								
<i>Merit Energy Partners B</i>	24,000,000	24,000,000	7,571,190	182,321,687	0	24.28	7.91	20.70
<i>Merit Energy Partners C</i>	50,000,000	50,000,000	19,502,589	497,681,630	0	30.98	10.34	18.93
<i>Merit Energy Partners D</i>	88,000,000	70,938,303	30,684,116	311,288,474	0	22.73	4.82	16.36
<i>Merit Energy Partners E</i>	100,000,000	39,983,197	19,547,884	73,805,235	0	12.47	2.33	13.01
<i>Merit Energy Partners F</i>	100,000,000	59,522,861	21,181,925	27,251,921	0	-3.54	0.81	11.53
<i>Merit Energy Partners H</i>	100,000,000	100,000,000	66,939,317	18,410,723	0	-4.70	0.85	6.67
<i>Merit Energy Partners I</i>	169,721,518	143,099,999	177,673,245	4,296,319	26,621,519	21.68	1.27	2.96
NGP								
<i>Natural Gas Partners IX</i>	150,000,000	161,702,525	7,800,811	235,442,290	1,473,974	11.74	1.50	9.95
<i>NGP Natural Resources X</i>	150,000,000	140,378,747	69,605,240	89,627,571	9,621,253	4.61	1.13	5.98
<i>Natural Gas Capital Resources XI</i>	150,000,000	101,463,168	107,238,712	17,344,708	54,698,838	23.95	1.23	2.81
Sheridan								
<i>Sheridan Production Partners I</i>	100,000,000	116,550,000	65,974,016	82,750,000	0	5.88	1.28	10.51
<i>Sheridan Production Partners II</i>	100,000,000	100,000,000	59,012,955	7,000,000	0	-9.05	0.66	7.00
<i>Sheridan Production Partners III</i>	100,000,000	34,350,000	38,432,997	13,300,000	65,650,000	38.71	1.51	2.81
<i>Real Assets Total</i>	3,911,721,518	3,175,533,177	1,946,575,585	2,742,291,592	786,253,602		1.48	

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IV. REAL ESTATE								
Angelo, Gordon & Co.								
<i>AG Realty Fund IX</i>	100,000,000	60,750,000	65,737,642	1,500,000	39,760,000	10.72	1.11	2.81
<i>AG Asia Realty Fund III</i>	50,000,000	24,477,959	24,632,439	4,375,000	27,475,791	20.04	1.19	1.00
Blackstone Real Estate Partners								
<i>Blackstone Real Estate Partners V</i>	100,000,000	97,030,342	31,242,347	173,967,639	4,174,052	10.89	2.11	11.43
<i>Blackstone Real Estate Partners VI</i>	100,000,000	99,320,387	19,085,727	196,178,700	4,907,906	13.03	2.17	10.51
<i>Blackstone Real Estate Partners VII</i>	100,000,000	95,318,583	86,118,531	83,913,174	15,165,664	17.41	1.78	5.84
<i>Blackstone Real Estate Partners VIII</i>	150,000,000	77,582,163	73,279,652	23,825,411	90,557,168	15.26	1.25	2.52
<i>Blackstone Real Estate Partners Asia II</i>	75,000,000	0	0	0	75,000,000	0.00	0.00	0.02
Blackstone Strategic Partners (CSFB)								
<i>Strategic Partners III RE</i>	25,000,000	25,752,810	3,719,452	11,430,193	9,006	-6.92	0.59	12.26
<i>Strategic Partners IV RE</i>	50,000,000	50,652,534	9,867,371	40,003,637	1,317,714	-0.46	0.98	9.29
Colony Capital								
<i>Colony Investors III</i>	100,000,000	100,000,000	5,178,600	172,642,105	0	14.55	1.78	19.76
Lubert Adler								
<i>Lubert-Adler Real Estate Fund VII</i>	75,000,000	10,211,181	10,211,181	0	64,788,819	-3.02	1.00	0.98
Rockpoint								
<i>Rockpoint Real Estate Fund V</i>	100,000,000	33,950,594	34,184,463	5,586,764	71,636,170	7.50	1.17	2.73
Rockwood								
<i>Rockwood Capital RE Partners X</i>	100,000,000	30,342,875	28,755,852	454,546	69,657,125	-5.27	0.96	2.21
Silverpeak Real Estate Partners								
<i>Silverpeak Legacy Pension Partners II</i>	75,000,000	78,673,707	5,237,674	87,952,458	7,742,386	4.38	1.18	12.17
<i>Silverpeak Legacy Pension Partners III</i>	150,000,000	70,138,753	16,438,202	9,565,276	79,861,247	-12.29	0.37	9.42
T.A. Associates Realty								
<i>Realty Associates Fund VIII</i>	100,000,000	100,000,000	36,373,189	59,980,275	0	-0.44	0.96	11.26
<i>Realty Associates Fund IX</i>	100,000,000	100,000,000	11,708,127	148,650,161	0	10.48	1.60	9.10
<i>Realty Associates Fund X</i>	100,000,000	100,000,000	75,604,069	66,216,200	0	11.96	1.42	5.59
<i>Realty Associates Fund XI</i>	100,000,000	40,000,000	39,773,400	578,667	60,000,000	0.91	1.01	2.25
Real Estate Total	1,750,000,000	1,194,201,888	577,147,916	1,086,820,205	612,053,048		1.39	

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V. DISTRESSED/ OPPORTUNISTIC								
Avenue Capital Partners								
<i>Avenue Energy Opportunities Fund</i>	100,000,000	100,000,000	116,174,500	934,495	0	8.26	1.17	3.25
<i>Avenue Energy Opportunities Fund II</i>	100,000,000	15,000,000	15,000,000	0	85,000,000	0.00	1.00	0.41
BlackRock**								
<i>BlackRock Tempus Fund</i>	1,774,870	1,774,870	718,610	1,324,425	0	12.14	1.15	2.31
Carlyle Group								
<i>Carlyle Strategic Partners IV</i>	100,000,000	10,212,331	10,750,447	1,457,332	91,245,001	27.32	1.20	1.50
Carval Investors								
<i>CVI Global Value Fund</i>	200,000,000	190,000,000	29,347,724	290,286,276	10,000,000	9.63	1.68	10.72
<i>CVI Credit Value Fund I</i>	100,000,000	95,000,000	35,999,341	174,059,737	5,000,000	18.99	2.21	7.01
<i>CVI Credit Value Fund A II</i>	150,000,000	142,500,000	110,763,734	84,832,839	7,500,000	8.55	1.37	4.92
<i>CVI Credit Value Fund A III</i>	150,000,000	112,500,000	131,692,950	0	37,500,000	12.79	1.17	2.33
Merced Capital								
<i>Merced Partners II</i>	75,000,000	63,768,881	5,989,757	124,662,721	0	23.98	2.05	10.51
<i>Merced Partners III</i>	100,000,000	100,000,000	53,970,366	79,997,107	0	6.66	1.34	7.41
<i>Merced Partners IV</i>	125,000,000	125,000,000	112,574,971	34,997,049	0	5.98	1.18	4.22
<i>Merced Partners V</i>	53,737,500	48,363,750	48,989,045	0	5,373,750	1.07	1.01	0.25
MHR Institutional Partners								
<i>MHR Institutional Partners IV</i>	75,000,000	18,937,500	15,112,173	1,733,418	57,571,511	-7.55	0.89	3.28
Oaktree Capital Management								
<i>Oaktree Principal Fund VI</i>	100,000,000	42,988,011	36,630,137	13,606,490	70,219,619	22.03	1.17	2.76
<i>Oaktree Opportunities Fund X</i>	50,000,000	25,000,000	24,786,800	5,619,660	30,000,000	23.11	1.22	2.64
<i>Oaktree Opportunities Fund Xb</i>	100,000,000	0	0	0	100,000,000	0.00	0.00	2.64
Pimco Bravo**								
<i>Pimco Bravo Fund OnShore Feeder I</i>	3,958,027	3,958,027	306,834	3,717,270	2,086,707	1.76	1.02	2.76
<i>Pimco Bravo Fund OnShore Feeder II</i>	5,243,670	4,618,670	5,458,196	232,675	852,487	7.30	1.23	2.76
Varde Fund								
<i>Varde Fund IX</i>	100,000,000	100,000,000	10,231,039	203,434,498	0	14.92	2.14	9.28
<i>Varde Fund X</i>	150,000,000	150,000,000	91,602,115	190,453,703	0	12.10	1.88	7.45
<i>Varde Fund XI</i>	200,000,000	200,000,000	251,041,408	14,243,056	0	7.85	1.33	4.23

Minnesota State Board of Investment
- Alternative Investments -
As of September 30, 2017

Investment	Total Commitment	Funded Commitment	Market Value	Distributions	Unfunded Commitment	IRR %	MOIC*	Period Years
Wayzata								
<i>Wayzata Opportunities Fund</i>	100,000,000	93,180,000	1,139,838	156,084,065	18,920,000	8.44	1.69	11.79
<i>Wayzata Opportunities Fund II</i>	150,000,000	174,750,000	23,247,927	301,574,990	30,000,000	16.37	1.86	9.95
<i>Wayzata Opportunities Fund III</i>	150,000,000	68,415,000	39,756,787	28,735,246	107,002,048	0.05	1.00	5.30
<i>Distressed/Oppportunistic Total</i>	2,439,714,067	1,885,967,040	1,171,284,698	1,711,987,051	658,271,123		1.53	
<i>Private Markets Total</i>	21,457,540,477	15,631,952,617	8,584,078,743	15,478,473,725	6,318,516,693		1.54	

<i>Private Markets Portfolio Status</i>	Investment Manager Count	Investments Count
PRIVATE EQUITY	49	121
PRIVATE CREDIT	12	24
REAL ASSETS	11	33
REAL ESTATE	9	19
DISTRESSED/ OPPORTUNISTIC	10	24
Total	91	221

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.

* MOIC: Multiple of Invested Capital

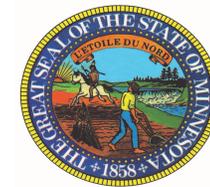
** Partnership interests transferred to the MSBI during 1Q2015. All data presented as of the transfer date.



Participant Directed Investment Program

September 30, 2017

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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 market place 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 Voluntary 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 Voluntary 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	\$418,931,105	3.1%	11.5%	7.7%	9.6%	6.7%	01/1980
U.S. ACTIVELY MANAGED FUND	238,954,736	5.0	20.5	10.5	14.4	7.5	07/1986
U.S. STOCK INDEX FUND	582,374,100	4.6	18.7	10.8	14.2	7.6	07/1986
BROAD INTERNATIONAL STOCK FUND	193,649,720	6.4	19.9	5.5	7.8	1.8	09/1994
BOND FUND	160,616,036	1.0	1.0	3.2	2.6	4.7	07/1986
MONEY MARKET FUND	395,006,970	0.3	0.9	0.5	0.4	0.7	07/1986
STABLE VALUE FUND	1,563,319,725	0.5	2.1	2.0	2.0	3.1	11/1994
VOLUNTEER FIREFIGHTER ACCOUNT	77,521,006	3.0	10.2	6.2	7.4		01/2010
TOTAL SUPPLEMENTAL INVESTMENT FUND	3,630,373,398						

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	\$418,931,105	3.1%	11.5%	7.7%	9.6%	6.7%
SIF BALANCED FUND BENCHMARK		3.0	11.0	7.5	9.2	6.2
Excess		0.1	0.5	0.2	0.4	0.5

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	238,954,736	5.0	20.5	10.5	14.4	7.5
Russell 3000		4.6	18.7	10.7	14.2	7.6
Excess		0.5	1.8	-0.2	0.2	-0.1



Supplemental Investment Fund Performance

U.S. Stock Index Fund

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

	<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	\$582,374,100	4.6%	18.7%	10.8%	14.2%	7.6%
Russell 3000		4.6	18.7	10.7	14.2	7.6
Excess		0.0	-0.0	0.0	0.0	0.1

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	193,649,720	6.4	19.9	5.5	7.8	1.8
International Equity Benchmark		6.2	19.6	4.7	7.0	1.3
Excess		0.2	0.3	0.8	0.8	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	\$160,616,036	1.0%	1.0%	3.2%	2.6%	4.7%
BBG BARC US Agg		0.8	0.1	2.7	2.1	4.3
Excess		0.2	0.9	0.5	0.6	0.4

Money Market Fund

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

	<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	395,006,970	0.3	0.9	0.5	0.4	0.7
90 DAY T-BILL		0.3	0.7	0.3	0.2	0.5
Excess		0.0	0.2	0.2	0.1	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	\$1,563,319,725	0.5%	2.1%	2.0%	2.0%	3.1%
3-Year Constant Maturity Treasury + 0.45%		0.5	1.9	1.6	1.4	1.6
Excess		0.1	0.2	0.4	0.7	1.5

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	77,521,006	3.0	10.2	6.2	7.4	
SIF Volunteer Firefighter Account BM		2.9	9.3	5.8	7.0	
Excess		0.1	1.0	0.4	0.4	



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.

	<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	\$1,178,637,835	4.5%	18.6%	10.8%	14.2%	7.5%	07/1999
VANGUARD DIVIDEND GROWTH	582,482,062	2.8	14.1				10/2016
VANGUARD MID CAP INDEX	513,448,196	3.4	15.3	9.8	14.4	8.0	01/2004
T. ROWE PRICE SMALL-CAP STOCK	683,720,554	5.3	20.2	12.1	14.5	10.3	07/1999
FIDELITY DIVERSIFIED INTERNATIONAL	302,882,730	5.1	16.4	6.2	9.1	1.8	07/1999
VANGUARD TOTAL INTERNATIONAL STOCK INDEX	193,413,374	6.0	19.3	5.3	7.5		07/2011
VANGUARD BALANCED INDEX	766,336,162	3.0	10.8	7.6	9.3	6.7	12/2003
DODGE & COX INCOME	232,892,143	1.1	2.6	3.2	3.2	5.1	07/1999
VANGUARD TOTAL BOND MARKET INDEX	210,611,954	0.7	-0.1	2.6	2.0	4.3	12/2003
2020 FUND	113,222,453	2.4	6.8	4.3	5.5		07/2011
2025 FUND	98,705,607	3.0	9.1	5.4	7.0		07/2011
2030 FUND	67,267,513	3.6	11.5	6.4	8.2		07/2011
2035 FUND	53,905,337	4.0	12.8	6.8	8.9		07/2011
2040 FUND	38,149,560	4.3	14.1	7.2	9.4		07/2011
2045 FUND	31,372,313	4.5	15.1	7.5	9.9		07/2011
2050 FUND	22,134,524	4.7	15.9	7.7	10.1		07/2011
2055 FUND	12,383,285	4.7	15.9	7.7	10.1		07/2011
2060 FUND	11,752,757	4.7	15.9	7.7	10.1		07/2011
INCOME FUND	79,412,606	2.0	5.6	3.6	4.0		07/2011
TD Ameritrade SDB	74,223,664						
TD Ameritrade SDB Roth	453,786						
Total Deferred Compensation Plan	5,267,408,416						



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	\$1,178,637,835	4.5%	18.6%	10.8%	14.2%	07/1999
S&P 500		4.5	18.6	10.8	14.2	07/1999
Excess		0.0	-0.0	-0.0	-0.0	

VANGUARD DIVIDEND GROWTH	582,482,062	2.8	14.1			10/2016
NASDAQ US Dividend Achievers Select		2.8	15.5			10/2016
Excess		-0.1	-1.4			

Mid Cap US Equity

VANGUARD MID CAP INDEX	513,448,196	3.4	15.3	9.8	14.4	01/2004
CRSP US Mid Cap Index		3.4	15.3	9.8	14.5	01/2004
Excess		0.0	0.0	-0.0	-0.0	

Small Cap US Equity

T. ROWE PRICE SMALL-CAP STOCK	683,720,554	5.3	20.2	12.1	14.5	07/1999
Russell 2000		5.7	20.7	12.2	13.8	07/1999
Excess		-0.4	-0.6	-0.0	0.7	

International Equity

FIDELITY DIVERSIFIED INTERNATIONAL	302,882,730	5.1	16.4	6.2	9.1	07/1999
MSCI EAFE FREE (NET)		5.4	19.1	5.0	8.4	07/1999
Excess		-0.3	-2.7	1.2	0.7	

VANGUARD TOTAL INTERNATIONAL STOCK INDEX	193,413,374	6.0	19.3	5.3	7.5	07/2011
FTSE Global All Cap ex US Index Net		6.0	19.2	5.1		07/2011
Excess		-0.0	0.1	0.3		



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.

(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.

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

Balanced Funds

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
VANGUARD BALANCED INDEX	\$766,336,162	3.0%	10.8%	7.6%	9.3%	12/2003
Vanguard Balanced Fund Benchmark		3.1	10.9	7.6	9.3	12/2003
Excess		-0.0	-0.1	-0.0	-0.1	

Fixed Income

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
DODGE & COX INCOME	232,892,143	1.1	2.6	3.2	3.2	07/1999
BBG BARC Agg Bd		0.8	0.1	2.7	2.1	07/1999
Excess		0.3	2.5	0.5	1.1	

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
VANGUARD TOTAL BOND MARKET INDEX	210,611,954	0.7	-0.1	2.6	2.0	12/2003
BBG BARC Agg Bd		0.8	0.1	2.7	2.1	12/2003
Excess		-0.1	-0.2	-0.1	-0.1	

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
MONEY MARKET FUND	395,006,970	0.3	0.9	0.5	0.4	07/1986
90 DAY T-BILL		0.3	0.7	0.3	0.2	07/1986
Excess		0.0	0.2	0.2	0.1	

Stable Value

	Ending Market Value	Last Qtr	1 Year	3 Year	5 Year	Option Since
STABLE VALUE FUND	1,563,319,725	0.5	2.1	2.0	2.0	11/1994
3-Year Constant Maturity Treasury + 0.45%		0.5	1.9	1.6	1.4	11/1994
Excess		0.1	0.2	0.4	0.7	



Deferred Compensation Options

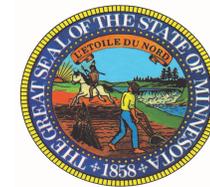
MN TARGET RETIREMENT ACCOUNTS

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	\$113,222,453	2.4%	6.8%	4.3%	5.5%	07/2011	2045 FUND	\$31,372,313	4.5%	15.1%	7.5%	9.9%	07/2011
2020 FUND BENCHMARK		2.4	6.9	4.3	5.5	07/2011	2045 FUND BENCHMARK		4.5	15.1	7.5	9.9	07/2011
Excess		0.0	-0.0	-0.0	-0.1		Excess		0.0	0.0	-0.0	-0.0	
2025 FUND	98,705,607	3.0	9.1	5.4	7.0	07/2011	2050 FUND	22,134,524	4.7	15.9	7.7	10.1	07/2011
2025 FUND BENCHMARK		3.0	9.2	5.4	7.1	07/2011	2050 FUND BENCHMARK		4.7	15.9	7.7	10.1	07/2011
Excess		-0.0	-0.0	-0.0	-0.0		Excess		0.0	-0.0	-0.0	-0.0	
2030 FUND	67,267,513	3.6	11.5	6.4	8.2	07/2011	2055 FUND	12,383,285	4.7	15.9	7.7	10.1	07/2011
2030 FUND BENCHMARK		3.6	11.5	6.4	8.2	07/2011	2055 FUND BENCHMARK		4.7	15.9	7.7	10.1	07/2011
Excess		-0.0	-0.0	-0.0	-0.0		Excess		0.0	0.0	-0.0	-0.0	
2035 FUND	53,905,337	4.0	12.8	6.8	8.9	07/2011	2060 FUND	11,752,757	4.7	15.9	7.7	10.1	07/2011
2035 FUND BENCHMARK		4.0	12.9	6.8	8.9	07/2011	2060 FUND BENCHMARK		4.7	15.9	7.7	10.1	07/2011
Excess		0.0	-0.0	-0.0	-0.0		Excess		0.0	0.0	-0.0	-0.0	
2040 FUND	38,149,560	4.3	14.1	7.2	9.4	07/2011	INCOME FUND	79,412,606	2.0	5.6	3.6	4.0	07/2011
2040 FUND BENCHMARK		4.3	14.1	7.2	9.5	07/2011	INCOME FUND BENCHMARK		2.0	5.6	3.7	4.1	07/2011
Excess		-0.0	-0.0	-0.0	-0.0		Excess		-0.0	-0.0	-0.1	-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: September 30, 2017

Fund Name	Ending Market	3 Months	1 Year	Annualized			Since Inception	Inception Date
				3 Years	5 Years	10 Years		
Managed Ages 0-4 BM: Managed Ages 0-4	\$27,297,325	3.91% 3.88%	13.86% 13.94%	7.76% 7.88%	- -	- -	7.35% 7.47%	8/12/2014
Managed Ages 5-8 BM: Managed Ages 5-8	\$69,904,990	3.54% 3.51%	12.26% 12.22%	7.16% 7.26%			6.74% 6.87%	8/12/2014
Managed Ages 9-10 BM: Managed Ages 9-10	\$68,980,575	3.08% 3.14%	10.66% 10.53%	6.49% 6.64%			6.10% 6.25%	8/12/2014
Managed Ages 11-12 BM: Managed Ages 11-12	\$106,792,704	2.79% 2.74%	9.06% 8.85%	5.78% 5.88%			5.42% 5.52%	8/12/2014
Managed Ages 13-14 BM: Managed Ages 13-14	\$136,943,334	2.39% 2.33%	7.43% 7.19%	5.06% 5.11%			4.73% 4.79%	8/12/2014
Managed Age 15 BM: Managed Age 15	\$79,120,386	1.81% 1.86%	5.72% 5.53%	4.17% 4.09%			3.89% 3.83%	8/12/2014
Managed Age 16 BM: Managed Age 16	\$72,629,040	1.64% 1.61%	5.00% 4.71%	3.70% 3.52%			3.47% 3.29%	8/12/2014
Managed Age 17 BM: Managed Age 17	\$70,731,830	1.48% 1.36%	4.36% 3.89%	3.30% 2.95%			3.09% 2.75%	8/12/2014
Managed Ages 18 & Over BM: Managed Ages 18 & Over	\$173,240,535	1.21% 1.11%	3.53% 3.08%	2.79% 2.38%			2.64% 2.22%	8/12/2014
U.S. and International Equity Option BM: U.S. and International Equity Option	\$298,715,326	4.53% 4.63%	17.11% 17.43%	8.99% 9.10%	11.66% 11.93%	5.28% 5.89%	6.95% 7.89%	10/ 1/2001

MINNESOTA COLLEGE SAVINGS PLAN

Performance Statistics for the Period Ending: September 30, 2017

Fund Name	Ending Market	3 Months	1 Year	Annualized				Inception Date
				3 Years	5 Years	10 Years	Since Inception	
Moderate Allocation Option BM: Moderate Allocation Option	\$61,668,661	3.08% 3.14%	10.55% 10.53%	6.46% 6.64%	7.58% 7.86%	5.02% 5.56%	5.21% 5.82%	8/ 2/2007
100% Fixed-Income Option BM: 100% Fixed-Income Option	\$13,698,314	0.77% 0.93%	0.35% 0.80%	2.42% 2.74%	1.29% 1.74%	3.64% 4.29%	3.70% 4.40%	8/16/2007
International Equity Index Option BM: International Equity Index Option	\$3,589,859	5.71% 5.92%	19.46% 19.82%	5.07% 5.10%			5.87% 6.16%	6/18/2013
Money Market Option BM: Money Market Option	\$10,445,187	0.19% 0.15%	0.39% 0.32%	0.16% 0.14%	0.10% 0.09%		0.31% 0.35%	11/ 1/2007
Principal Plus Interest Option Citigroup 3-Month U.S. Treasury Bill	\$113,315,034	0.40% 0.26%	1.49% 0.64%	1.37% 0.29%	1.35% 0.19%	2.05% 0.42%	2.58% 1.26%	10/10/2001
Aggressive Allocation Option BM: Aggressive Allocation Option	\$16,458,472	3.92% 3.88%	13.99% 13.94%	7.74% 7.88%			7.30% 7.47%	8/12/2014
Conservative Allocation Option BM: Conservative Allocation Option	\$7,701,213	1.91% 1.86%	5.67% 5.53%	4.14% 4.09%			3.64% 3.61%	8/18/2014
Equity and Interest Accumulation Option BM: Equity and Interest Accumulation Option	\$2,082,097	2.42% 2.40%	9.81% 9.38%	5.92% 5.53%			5.62% 5.24%	8/18/2014
U.S. Large Cap Equity Option BM: U.S. Large Cap Equity Option	\$17,295,756	4.46% 4.48%	18.41% 18.61%	10.57% 10.81%			10.90% 11.12%	8/12/2014
Matching Grant Citigroup 3-Month U.S. Treasury Bill	\$2,475,367	0.40% 0.26%	1.49% 0.64%	1.37% 0.29%	1.35% 0.19%	2.05% 0.42%	2.60% 1.24%	3/22/2002

MINNESOTABLE *plan*

A member of The National ABLE Alliance

Performance as of
09/30/17

Total Market Value: \$ **896,693**

<u>Fund Name</u>	<u>Market Value</u>	<u>% of Plan</u>	<u>1 Month</u>	<u>3 Months</u>	<u>YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Inception</u>	<u>Inception Date</u>
Aggressive Option	\$ 94,889	10.58%	2.09	4.17	12.51					12.40	12/15/16
ABLE Aggressive Custom Benchmark			2.13	4.26	12.96						
Variance			(0.04)	(0.09)	(0.45)						
Moderately Aggressive Option	\$ 75,111	8.38%	1.65	3.46	10.60					10.60	12/15/16
ABLE Moderately Aggressive Custom Benchmark			1.73	3.65	11.02						
Variance			(0.08)	(0.19)	(0.42)						
Growth Option	\$ 162,287	18.10%	1.30	2.93	8.58					8.80	12/15/16
ABLE Growth Custom Benchmark			1.32	3.04	9.11						
Variance			(0.02)	(0.11)	(0.53)						
Moderate Option	\$ 114,897	12.81%	0.85	2.29	6.88					7.20	12/15/16
ABLE Moderate Custom Benchmark			0.92	2.42	7.23						
Variance			(0.07)	(0.13)	(0.35)						
Moderately Conservative Option	\$ 92,979	10.37%	0.57	1.64	4.79					5.10	12/15/16
ABLE Moderately Conservative Custom Benchmark			0.61	1.73	5.06						
Variance			(0.04)	(0.09)	(0.27)						
Conservative Option	\$ 168,875	18.83%	0.20	0.69	2.10					2.30	12/15/16
ABLE Conservative Custom Benchmark			0.20	0.80	2.22						
Variance			(0.00)	(0.11)	(0.12)						
Checking Option	\$ 187,655	20.93%									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

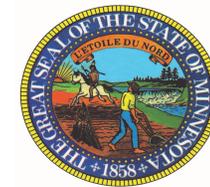
The plan offers seven different allocation investment options: Aggressive, Moderately Aggressive, Growth, Moderate, Moderately Conservative, Conservative, and Checking. Each allocation is based on a fixed risk level.



Quarterly Report

Non-Retirement

September 30, 2017



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 currently managed internally by the SBI except the fixed income portion of the Assigned Risk Plan. RBC is the manager for the Assigned Risk Plan fixed income allocation.



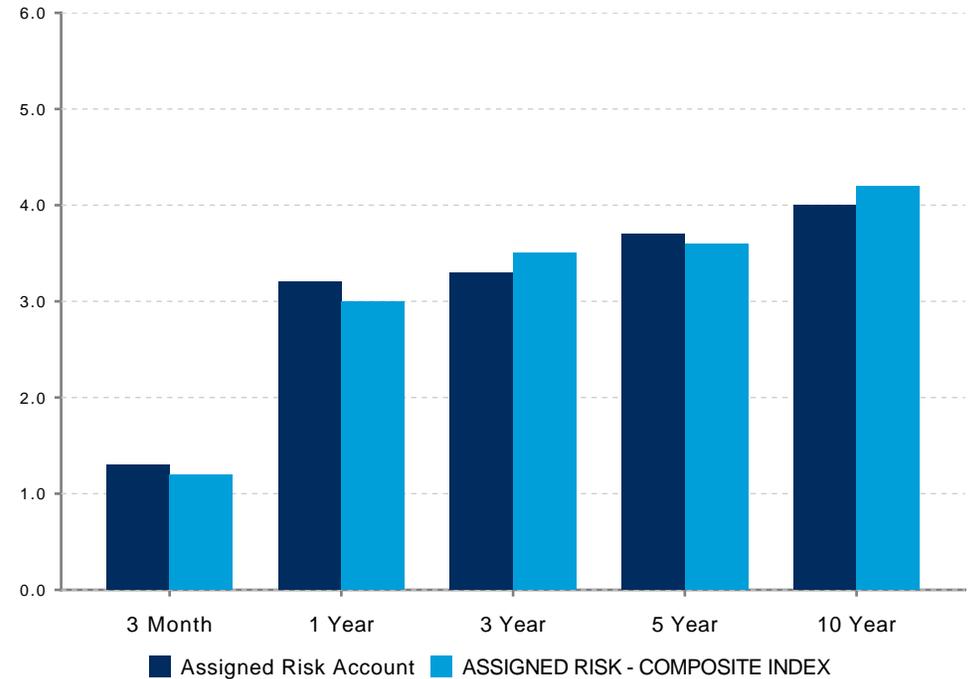
Non-Retirement

Assigned Risk Plan

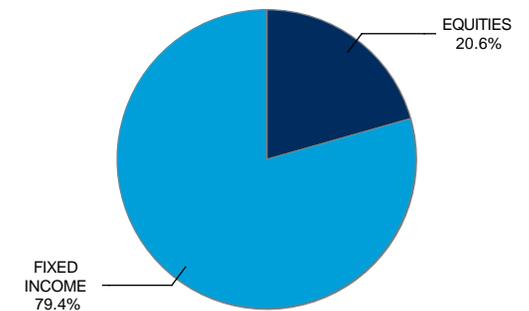
The Assigned Risk plan has two investment objectives: to minimize the mismatch between assets and liabilities and to provide sufficient liquidity for the payment of ongoing claims and operating expenses.

The Assigned Risk Plan is invested in a portfolio of common stocks and bonds. RBC Global Asset Management (U.S.) Inc. manages the bond segment of the Fund. SBI Staff passively manages the equity segment 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.



	<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>
Assigned Risk Account	\$315,346,223	1.3%	3.2%	3.3%	3.7%	4.0%
EQUITIES	64,954,638	4.5	18.2	9.1	13.6	7.2
FIXED INCOME	250,391,585	0.4	-0.4	1.7	1.1	3.0
ASSIGNED RISK - COMPOSITE INDEX		1.2	3.0	3.5	3.6	4.2
Excess		0.1	0.2	-0.2	0.0	-0.2
S&P 500		4.5	18.6	10.8	14.2	7.4
BBG BARC US Gov: Int		0.3	-0.7	1.6	1.0	3.1



Note: Prior to 1/17/2017 the Assigned Risk equity segment was managed by SSgA (formerly GE Investment Mgmt.).



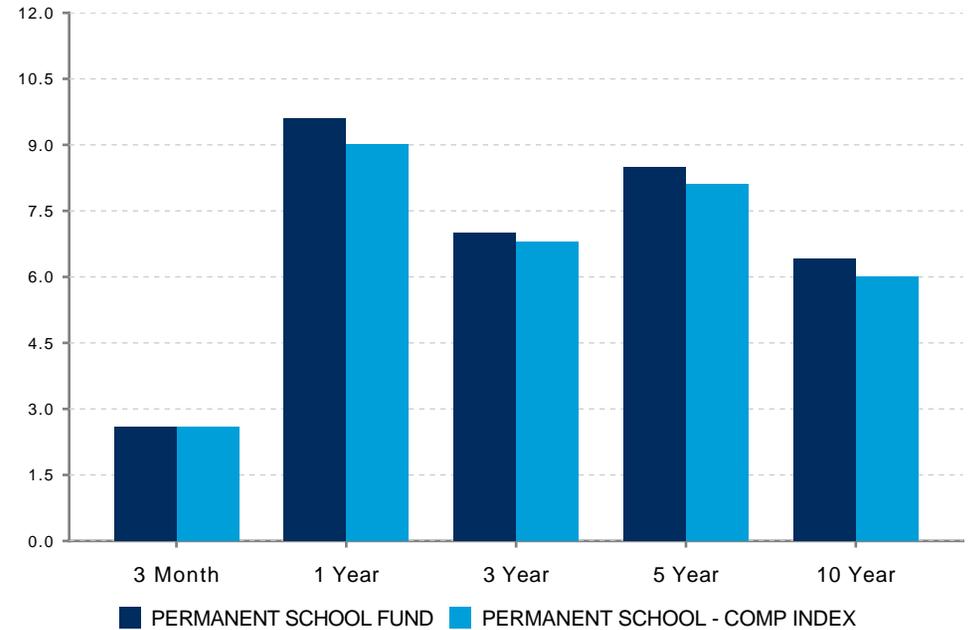
Non-Retirement

Permanent School Fund

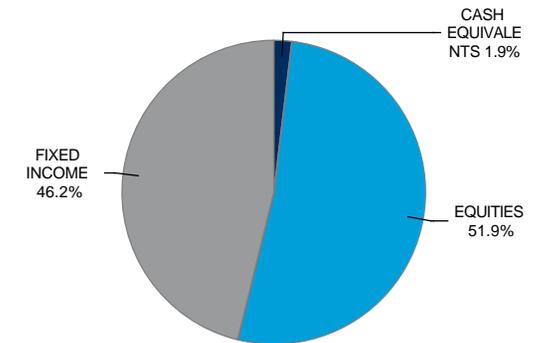
The investment objective of the Permanent School Fund is to produce a growing level of spendable income, within the constraints of maintaining adequate portfolio quality and liquidity. The income from the portfolio is transferred to the school endowment fund and distributed to Minnesota's public schools.

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.

SBI staff currently manages all assets of the Permanent School Fund. 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.



	<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>
PERMANENT SCHOOL FUND	\$1,345,762,879	2.6%	9.6%	7.0%	8.5%	6.4%
CASH EQUIVALENTS	25,121,254	0.3	0.8	0.4	0.3	0.7
EQUITIES	699,237,193	4.5	18.6	10.8	14.2	7.5
FIXED INCOME	621,404,433	0.7	0.8	3.1	2.8	4.9
PERMANENT SCHOOL - COMP INDEX		2.6	9.0	6.8	8.1	6.0
Excess		-0.0	0.6	0.2	0.4	0.4
S&P 500		4.5	18.6	10.8	14.2	7.4
BBG BARC US Agg		0.8	0.1	2.7	2.1	4.3



Note: Prior to 7/1/97 the Fund allocation was 100% fixed income.



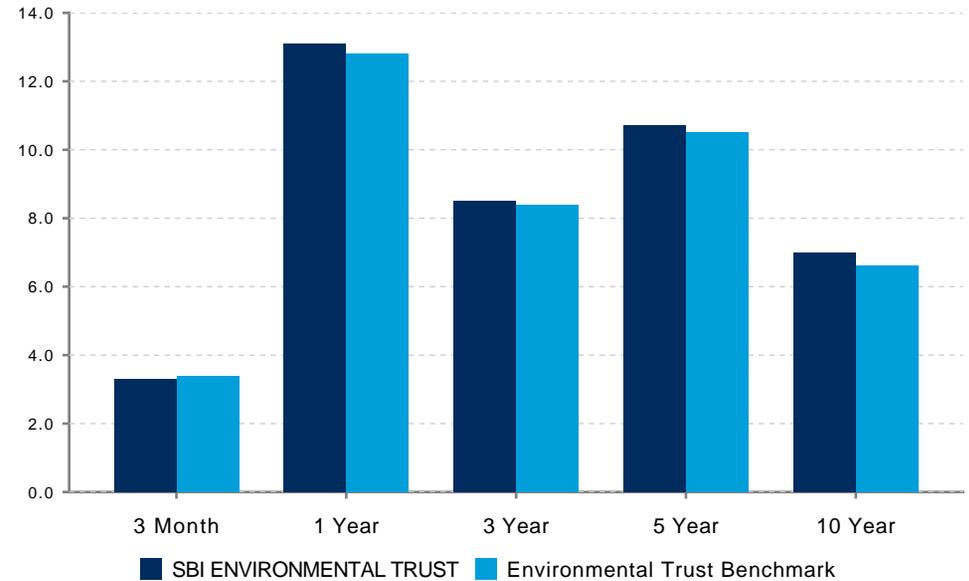
Non-Retirement

Environmental Trust Fund

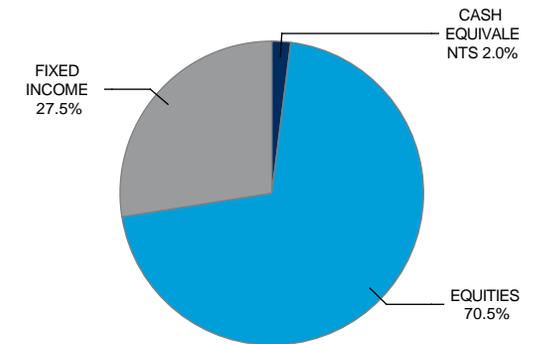
The objective of the Environmental Trust Fund is to increase the market value of the Fund over time in order to increase the annual amount made available for spending within the constraints of maintaining adequate portfolio quality and liquidity.

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.

SBI staff currently manages all assets of the Environmental Trust Fund. 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	\$1,058,246,620	3.3%	13.1%	8.5%	10.7%	7.0%
CASH EQUIVALENTS	20,909,448	0.3	0.8	0.4	0.3	0.7
EQUITIES	746,093,610	4.5	18.6	10.8	14.2	7.5
FIXED INCOME	291,243,563	0.7	0.8	3.1	2.8	4.8
Environmental Trust Benchmark		3.4	12.8	8.4	10.5	6.6
Excess		-0.0	0.3	0.1	0.2	0.3
S&P 500		4.5	18.6	10.8	14.2	7.4
BBG BARC US Agg		0.8	0.1	2.7	2.1	4.3



Note:

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.

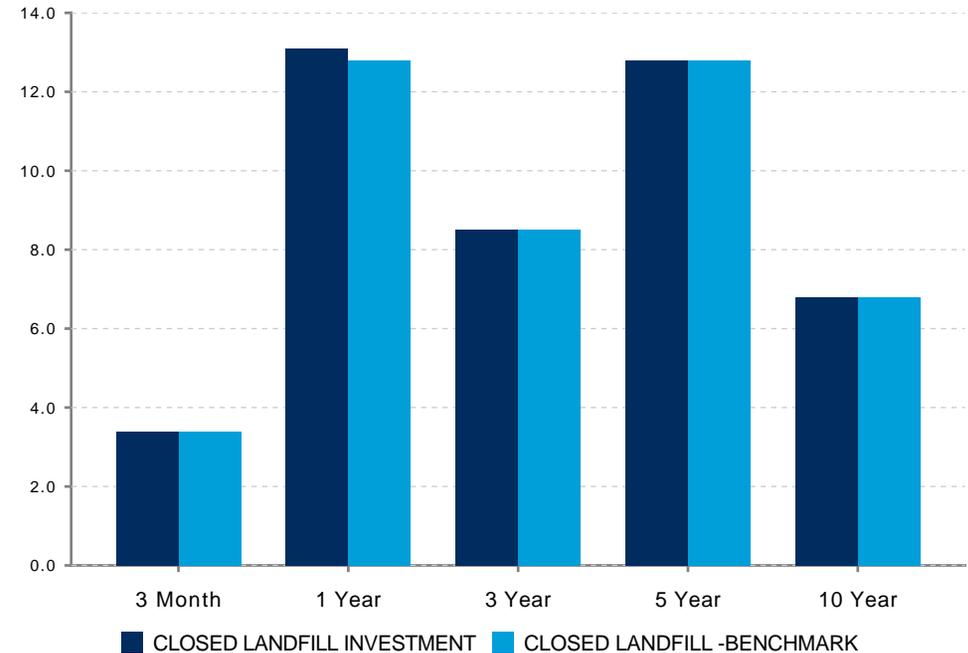


Non-Retirement

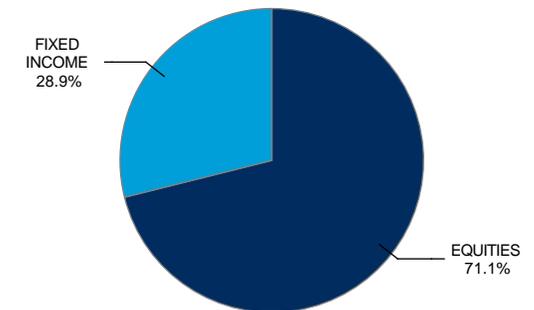
Closed Landfill Investment Fund

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.

SBI staff currently manage all assets of the Closed Landfill Investment Fund. 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.



	<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>
CLOSED LANDFILL INVESTMENT	\$83,925,013	3.4%	13.1%	8.5%	12.8%	6.8%
EQUITIES	59,702,365	4.5	18.6	10.8	14.2	7.5
FIXED INCOME	24,222,648	0.7	0.8	3.1		
CLOSED LANDFILL -BENCHMARK		3.4	12.8	8.5	12.8	6.8
Excess		-0.0	0.4	0.1	0.0	0.1
S&P 500		4.5	18.6	10.8	14.2	7.4
BBG BARC US Agg		0.8	0.1	2.7	2.1	4.3



Note: Prior to 9/10/14 the Fund's target allocation and benchmark was 100% domestic equity.



	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>Fiscal YTD</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>	<u>Since Inception</u>	<u>Inception Date</u>
SBI INTERNAL EQUITY INDEX	2,179,614,000	4.5	4.5	18.6	10.8	14.2	7.5	9.6	07/1993
S&P 500 INDEX (DAILY)		4.5	4.5	18.6	10.8	14.2	7.4	9.5	07/1993
Excess		-0.0	-0.0	-0.0	0.0	-0.0	0.0	0.1	
SBI INTERNAL FIXED INCOME	1,096,734,785	0.7	0.7	0.8	3.1	2.8	4.8	6.1	07/1994
BBG BARC Agg (Dly)		0.8	0.8	0.1	2.7	2.1	4.3	5.6	07/1994
Excess		-0.1	-0.1	0.7	0.4	0.8	0.6	0.5	
RBC	250,391,662	0.4	0.4	-0.4	1.7	1.1	3.0	5.0	07/1991
Voyageur Custom Index		0.3	0.3	-0.7	1.6	1.0	3.1	5.1	07/1991
Excess		0.1	0.1	0.2	0.1	0.1	-0.1	-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.

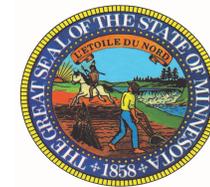
In addition to the Non-Retirement Funds listed on the previous pages, the SBI Internal Equity Index and the SBI Internal Fixed Income also include the assets of various smaller Miscellaneous Trust Accounts and Other Post Employment Benefits.

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State Cash

September 30, 2017



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.

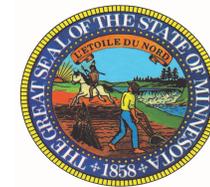
Beginning in January 2003, the Treasurer's Cash Pool is measured against the iMoneyNet, All Taxable Money Fund Report Average.

	<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	8,991,055,237	0.3	1.0	0.8	0.6	1.2
iMoneyNet Money Fund Average-All Taxable		0.2	0.4	0.2	0.1	0.4

Other State Cash Accounts

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

	<u>Ending Market Value</u>	<u>Last Qtr</u>	<u>1 Year</u>	<u>3 Year</u>	<u>5 Year</u>	<u>10 Year</u>
Debt Service	72,825,885	0.6	1.5	2.4		
Housing Finance	48,082,956	0.4	0.6	1.5		
Public Facilities Authority	16,729,399	1.3	2.5	2.5		



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:

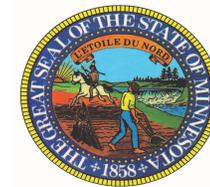
Since 6/1/08 the emerging markets managers' benchmark, "Benchmark EM," is the Standard (large + mid) MSCI Emerging Markets Free (net). From 10/1/07 through 5/31/08 the benchmark was the Provisional Standard MSCI Emerging Markets Free (net). From 1/1/01 to 9/30/07 the benchmark was the MSCI Emerging Markets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



Addendum

Benchmark Definitions (continued)

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

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.

