# STATE OF CONNECTICUT OFFICE OF THE TREASURER

2018



## COMBINED INVESTMENT FUNDS COMPREHENSIVE ANNUAL FINANCIAL REPORT

For the fiscal year ended June 30, 2018

## **STATE OF CONNECTICUT Office of the State Treasurer**



The State Motto, "Qui Transtulit Sustinet" (He Who Transplanted Still Sustains), has been associated with various versions of the state seal from the creation of the Saybrook Colony Seal.

# STATE OF CONNECTICUT OFFICE OF THE TREASURER

2018



## COMBINED INVESTMENT FUNDS COMPREHENSIVE ANNUAL FINANCIAL REPORT

For the fiscal year ended June 30, 2018

Prepared by: State of Connecticut

Office of the Treasurer

55 Elm Street

Hartford, CT 06106-1773

## **STATE OF CONNECTICUT Office of the State Treasurer**



## COMBINED INVESTMENT FUNDS COMPREHENSIVE ANNUAL FINANCIAL REPORT

FOR THE FISCAL YEAR ENDED JUNE 30, 2018

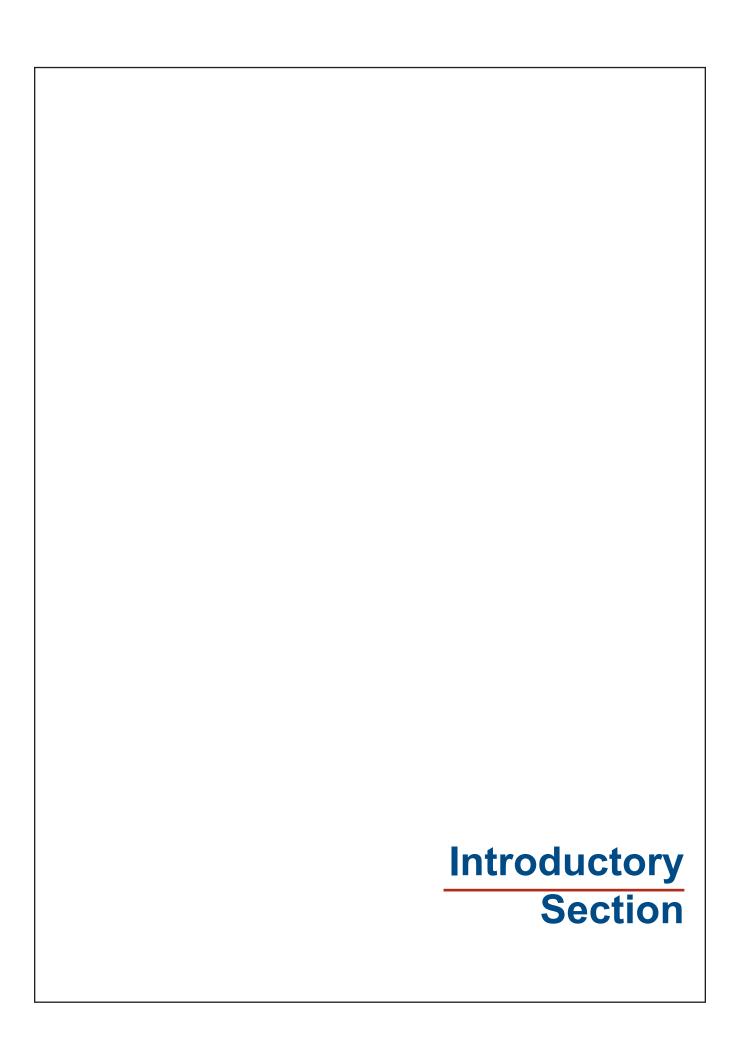
### **Table of Contents**

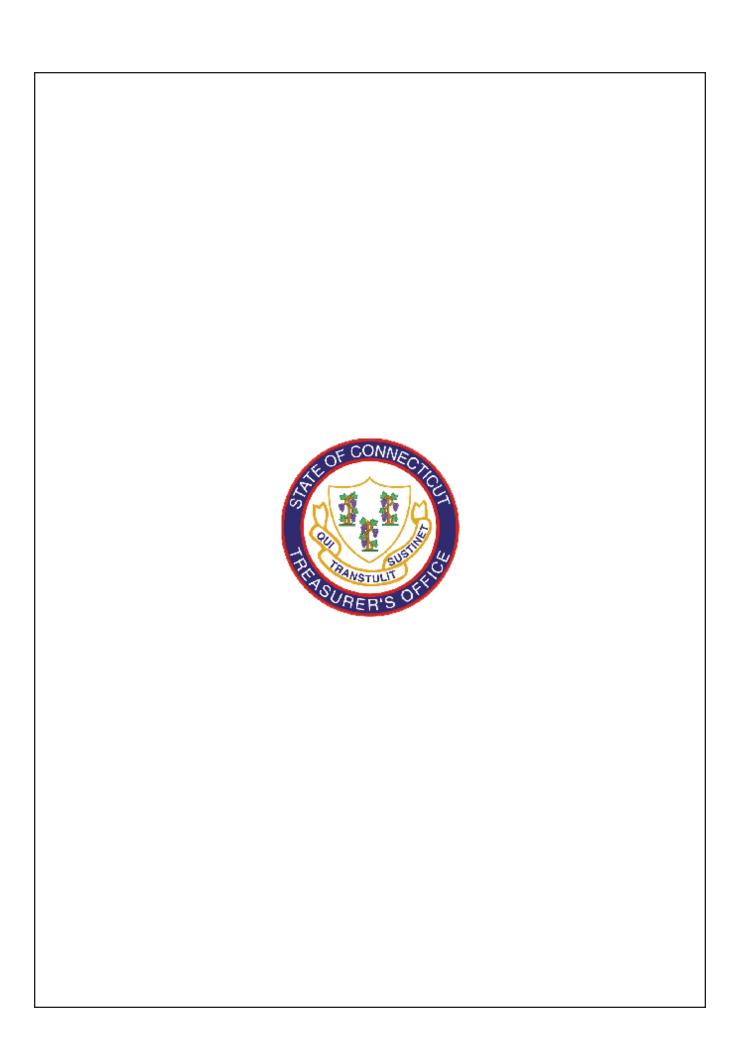
INTRODUCTORY SECTION	
Letter from the Treasurer	3
Management's Report	
Certificate of Achievement for Excellence in Financial Reporting	
The Connecticut State Treasury	
Combined Investment Funds' Administration	
List of Principal Officials	
Investment Advisory Council	
LIST OF EXTERNAL AUVISORS	11
FINANCIAL SECTION	
Report of Auditors of Public Accounts	
Management's Discussion and Analysis	18
BASIC FINANCIAL STATEMENTS	
Statement of Net Position	
Statement of Changes in Net Position	
Notes to Financial Statements	24
INVESTMENT SECTION	
Pension Funds Management Division	43
Division Overview	
The Year in Review	
Total Fund Performance	
2018 Management InitiativesCorporate Governance	
Asset Recovery and Loss Prevention	
Liquidity Fund	
Alternative investment Fund	
Mutual Equity Fund	
Core Fixed Income Fund	65
Inflation Linked Bond Fund	70
Emerging Market Debt Fund	74
High Yield Debt Fund	
Developed Market International Stock Fund	
Emerging Market International Stock Fund	
Real Estate Fund	

Private Investment Fund

#### TABLE OF CONTENTS

Schedule of Expenses in Excess of \$5,000	99
Combined Investment Funds Schedule of Brokerage Commissions	102
Combined Investment Funds Total Net Position Value by Pension Plans and Trusts	105
Schedule of Net Position	106
Schedules of Changes in Net Position	108
Combined Investment Funds Schedule of Investment Activity by Pension Plan	112
Combined Investment Funds Schedule of Investment Activity by Trust	116
Combined Investment Funds List of Investment Advisors and Net Position Under Management	122
Combined Investment Funds Top Ten Holdings	
Combined Investment Funds Glossary of Investment Terms	130
Understanding Investment Performance	136
STATISTICAL SECTION	
Overview	138
Combined Investment Funds Financial Highlights	
Balances in Combined Investment Funds Ten Year Comparison	
Combined Investment Funds Investment Summary	
Schedule of Investment Returns	
Condensed Financial Schedules	146







DENISE L. NAPPIER TREASURER

December 31, 2018

To the State of Connecticut Combined Investment Funds Fellow Beneficiaries.

I am pleased to submit this Comprehensive Annual Financial Report for the State of Connecticut Combined Investment Funds (CIFs) for the fiscal year ended June 30, 2018. The CIFs generated a net investment return of 7.03 percent for the fiscal year. The State's three largest pension funds – the Teachers' Retirement Fund, the State Employees' Retirement Fund, and the Connecticut Municipal Employees' Retirement Fund – posted net investment results of 7.04 percent, 7.30 percent, and 6.14 percent, respectively. Longer term, the five-year returns for the funds, were 7.85 percent, 7.89 percent and 7.17 percent, respectively.

The CIFs performance for Fiscal Year 2018 added \$1.8 billion of market value to pension assets. After paying fees and expenses, including \$466 million of benefit payments in excess of contributions received, the CIFs ended the fiscal year with net assets of \$34.4 billion – a 5.5 percent increase from the previous fiscal year.

The primary purpose of the CIF is to help the State pay its benefit obligations. Accordingly, from July 1, 1999 (the start of Fiscal Year 2000), the Funds have paid out \$26.9 billion in pension benefits, received \$13.4 billion in contributions, earned \$27.3 billion in investment income and increased net assets by \$14.4 billion – all during a time of significant market volatility and uncertainty. Overall, during my administration, the CIFs grew their asset base by 73 percent, achieving investment returns that met or exceeded the average performance of its peers while taking on less risk.

Responsibility for both the accuracy of the data and the completeness and fairness of this report rests with Treasury management. All disclosures necessary and required to enable fellow beneficiaries and the financial community to gain an understanding of the CIF's financial activities are contained within this report.

The enclosed financial statements and data are presented fairly in all material respects and are reported in a manner designed to present the financial position and results of CIF operations accurately.

The CIFs were established pursuant to Connecticut General Statutes Section 3-31b as a means to invest pension and trust fund assets entrusted to the Treasurer in a variety of investment classes. The CIFs are comprised of separate pooled investment funds: Liquidity Fund, Alternative Investment Fund, Mutual Equity Fund, Core Fixed Income Fund, Inflation Linked Bond Fund, Emerging Market Debt Fund, High Yield Debt Fund, Developed Markets International Stock Fund, Emerging Markets International Stock Fund, Real Estate Fund. and Private Investment Fund.

The units of the CIFs are owned by six pension funds: Teachers' Retirement Fund; State Employees' Retirement Fund; Connecticut Municipal Employees' Retirement Fund; State Judges' Retirement Fund; Probate Court Retirement Fund; and State's Attorneys' Retirement Fund. In addition, the CIFs are owned by nine trust funds: Soldiers' Sailors' and Marines' Fund; Police and Fireman' Survivors' Benefit Fund; Connecticut Arts Endowment Fund; School Fund; Ida Eaton Cotton Fund; Hopemead State Park Fund; Andrew C. Clark Fund; Agricultural College Fund and State of Connecticut Other Post-Employment Benefits Trust Fund.

#### **Financial Information**

The consolidated CIF assets at the close of Fiscal Year 2018 were \$34.4 billion based on fair value and the

55 ELM STREET, HARTFORD, CONNECTICUT 06106-1773 • (860) 702-3000

An Equal Opportunity Employer

#### LETTER FROM THE TREASURER

#### **Financial Information**

The consolidated CIF assets at the close of Fiscal Year 2018 were \$34.4 billion based on fair value and the CIFs were in full compliance with the standards of the Governmental Accounting Standards Board. The CIFs are invested across global public and private market equity, fixed income and alternative asset classes. Additional information on the CIFs can be found in the Notes to the Financial Statements.

#### Internal Control Structure

Management is responsible for maintaining a system of adequate internal accounting controls designed to provide reasonable assurance that transactions are (i) executed in accordance with management's general or specific authorization, and (ii) recorded as necessary to maintain accountability for assets and to permit preparation of financial statements consistent with generally accepted accounting principles. We believe the internal controls in effect during Fiscal Year 2018 adequately safeguarded the CIFs' assets and provided reasonable assurance regarding the proper recording of financial transactions. The concept of reasonable assurance recognizes that the cost of a control should not exceed the benefits likely to be derived and that the valuation of costs and benefits requires estimates and judgments by management.

#### **Independent Audit**

The State of Connecticut's independent Auditors of Public Accounts conducted an annual audit of this Comprehensive Annual Financial Report in accordance with generally accepted auditing standards. The Auditors' report on the basic financial statements is included in the Financial Section of this report.

#### **Management Discussion and Analysis**

The Government Accounting Standards Board requires a narrative introduction, overview and analysis to accompany the basic financial statements in the form of a Management's Discussion and Analysis (MD&A). This letter of transmittal is designed to complement and be read in conjunction with the MD&A. The MD&A can be found in the Financial Section immediately following the report of the independent auditors.

#### **Awards**

The Government Finance Officers Association of the United States and Canada awarded the CIFs a Certificate of Achievement for Excellence in Financial Reporting for its Comprehensive Annual Financial Report for the fiscal year ended June 30, 2017. The Certificate is a prestigious national award recognizing conformance with the highest standards for preparation of state and local government financial reports.

#### **Requests for Information**

Denise L. Nappier

This Comprehensive Annual Financial Report is designed to provide a general overview of investment activities of the CIFs. We hope this report will prove both informative and useful. Questions concerning any of the information contained in this report or requests for additional financial information should be addressed to the Office of the Treasurer, 55 Elm Street, Hartford, Connecticut 06106-1773, or by telephone to (860) 702-3000. Copies of the report also will be available on the internet at www.ott.ct.gov.

Sincerely,

Denise L. Nappier

Treasurer

State of Connecticut



DENISE L. NAPPIER TREASURER

December 31, 2018

This Comprehensive Annual Financial Report was prepared by the Office of the Treasurer, which is responsible for the accuracy of the data contained herein, the completeness and fairness of the presentation, and all disclosures. We present the financial statements and data as accurate in all material respects and prepared in conformity with generally accepted accounting principles. Such financial statements are audited annually by the State of Connecticut Auditors of Public Accounts.

To carry out this responsibility, the Office of the Treasurer maintains financial policies, procedures, accounting systems and internal controls that management believes provide reasonable, but not absolute, assurance that accurate financial records are maintained and investments and other assets are safeguarded.

It is our belief that the contents of this Annual Report make evident the Office of the Treasurer's support of the safe custody and conscientious stewardship of the State's property and money, including Trusts and Custodial accounts held by the State Treasurer. In addition, the Office of the Treasurer has sought to maximize earnings on the assets held by the State Treasurer within the boundaries of prudent investment guidelines authorized by Article Four, Section 22 of the Connecticut Constitution and by Title 3 of the Connecticut General Statutes, thereby stabilizing taxpayer costs and securing the safety of benefit commitments established by various general statutes covering the State retirement systems and other retirement systems administered by the State.

The State of Connecticut also issues a Comprehensive Annual Financial Report (the CAFR) available from the State Comptroller's Office. The material presented herein is intended to expand on, but not to conflict with, the State's CAFR.

In management's opinion, the internal control structure of the Office of the Treasurer is adequate to ensure that the financial information in this report fairly presents the financial condition and results of operations of the funds that follow.

Sincerely,

Lawrence A. Wilson Interim Deputy Treasurer

State of Connecticut

. 6. W2-



Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

### Connecticut State Treasurer's Combined Investment Funds

For its Comprehensive Annual Financial Report for the Fiscal Year Ended

June 30, 2017

Chuitophe P. Morrill

Executive Director/CEO

#### THE CONNECTICUT STATE TREASURY

#### **Mission Statement**

To serve as the premier State Treasurer's Office in the nation through effective management of public resources, high standards of professionalism and integrity, and expansion of opportunity for the citizens and businesses of Connecticut.

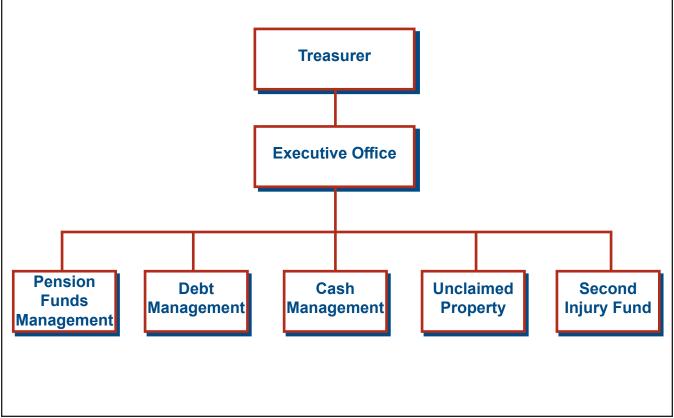
#### **Constitutional and Statutory Responsibilities**

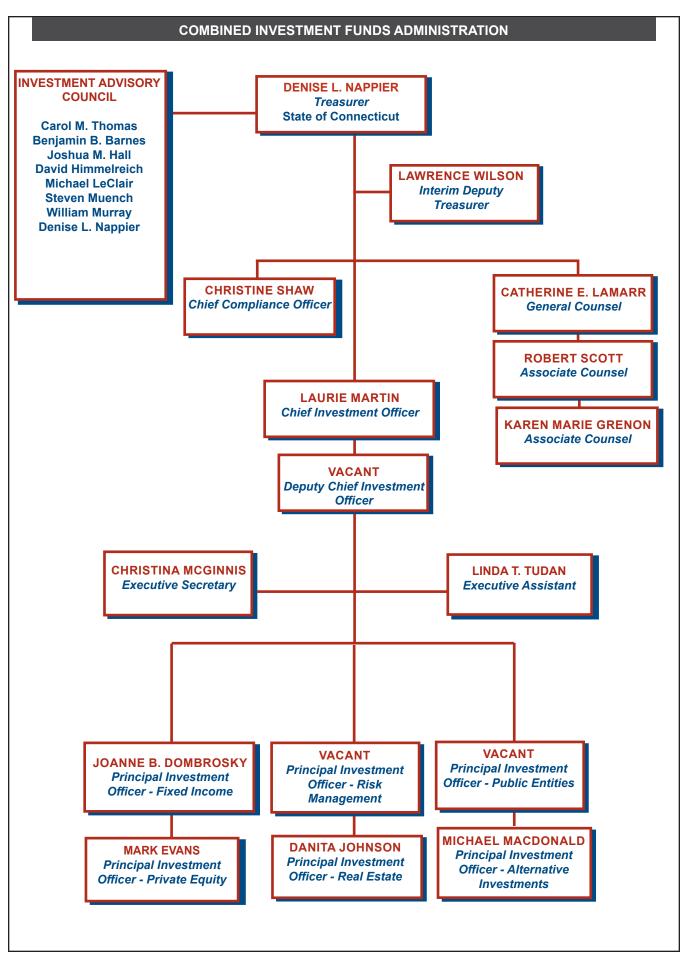
The Office of the Treasurer was established following the adoption of the fundamental orders of Connecticut in 1638. The Treasurer shall receive all funds belonging to the State and disburse the same only as may be directed by law, as described in Article Fourth, Section 22 of the Connecticut Constitution and in Title 3 of the Connecticut General Statutes.

The Treasurer, as Chief Elected Financial Officer for the State, oversees the prudent preservation and management of State funds, including the investment of a \$34.4 billion portfolio of pension and trust fund assets, \$6.8 billion in total State and local short-term and other investments, and \$3.7 billion of assets in the Connecticut Higher Education Trust. The Treasurer maintains an accurate account of all funds through sophisticated security measures and procedures.

#### **Public Service**

The Office of the Treasurer includes an Executive Office as well as five distinct divisions, each with specific responsibilities: Pension Funds Management, Cash Management, Debt Management, Unclaimed Property, and the Second Injury Fund.





#### LIST OF PRINCIPAL OFFICIALS

#### **COMBINED INVESTMENT FUNDS**

55 Elm Street, 6th Floor Hartford, CT. 06106-2773 Telephone: (860) 702-3155 Facsimile: (860) 702-3042 World Wide Web: www.ott.ct.gov

Treasurer, State of Connecticut DENISE L. NAPPIER (860) 702-3010

Interim Deputy Treasurer, State of Connecticut LAWRENCE A. WILSON, CTP (860) 702-3070

Chief Investment Officer LAURIE MARTIN, CIA, CPA (860) 702-3195

Deputy Chief Investment Officer VACANT

General Counsel
CATHERINE E. LAMARR (860) 702-3018

Chief Compliance Officer CHRISTINE SHAW (860) 702-3211

#### **INVESTMENT ADVISORY COUNCIL**

The Investment Advisory Council (IAC) consists of the State Treasurer and the Secretary of the Office of Policy and Management (as ex-officio members of the Council); five public members, all of whom shall be experienced in matters relating to investments, appointed by the Governor and legislative leadership; three representatives of the State teachers' unions and two representatives of the State employees' unions (CGS Sec. 3-13b).

Pursuant to C.G.S. Sec.3-13b, the IAC annually reviews the Investment Policy Statement (IPS) recommended by the Treasurer, which outlines the standards governing investment of the Connecticut Retirement Plans and Trust Funds (CRPTF) assets by the Treasurer. The IPS includes, with respect to each plan and trust fund, (A) investment objectives; (B) asset allocation policies and risk tolerances; (C) asset class definitions, including specific types of permissible investments within each asset class and any specific limitations or other considerations governing the investment of any funds; (D) investment and money manager guidelines; (E) investment performance evaluation guidelines; (F) guidelines for the selection and termination of providers of investment related services, which shall include, but not be limited to, external investment and money managers, investment consultants, custodians, broker-dealers, legal counsel, and similar investment industry professionals; and (G) proxy voting guidelines. The Treasurer shall thereafter adopt the IPS, including any such changes recommended by the IAC the Treasurer deems appropriate, with the approval of a majority of the members appointed to the IAC. The latest IPS was adopted by the Treasurer and approved by the IAC in August 2012, and amended four times, reflecting revisions including the projected capital market returns, the liquidity needs of each plan and trust fund and other financial scenarios for the CRPTF, emanating from the 2012 Asset Liability Study that the Treasurer led, with the assistance of IAC members.

All plan and trust fund investments by the State Treasurer shall be reviewed by the IAC along with all information regarding such investments provided to the IAC which the Treasurer deems relevant to the Council's review and such other information as may be requested by the Council. The IAC shall also review the report provided by the Treasurer at each regularly scheduled meeting of the IAC as to the status of the plan and trust funds and any significant changes which may have occurred or which may be pending with regard to the funds. The Council shall promptly notify the Auditors of Public Accounts and the Comptroller of any unauthorized, illegal, irregular or unsafe handling or expenditure of plan and trust funds or breakdown in the safekeeping of plan and trust fund assets or contemplated action to do the same within their knowledge.

At the close of the fiscal year, the IAC shall make a complete examination of the security investments of the State and determine as of June thirtieth, the value of such investments in the custody of the Treasurer and report thereon to the Governor, the General Assembly and beneficiaries of plan and trust fund assets administered, held or invested by the Treasurer (CGS Sec. 3-13b(c) (2)).

Council members who contributed their time and knowledge to the IAC during Fiscal Year 2018 include:

**CAROL M. THOMAS**, Interim Chairperson, as appointed by the Governor; Representative of State Employees' unions; Retiree, Department of Developmental Services

**BENJAMIN B. BARNES**, Secretary, State Office of Policy and Management (Ex officio member)

JOSHUA HALL, Representative of State Teachers' unions; Hartford Federation of Teachers

DAVID HIMMELREICH, Principal, Hynes, Himmelreich, Glennon & Company

MICHAEL LeCLAIR, Senior Vice President/Investments, Stifel (served from January, 2016)

STEVEN MUENCH, Representative of State Teachers' unions; Conn. Education Association

WILLIAM MURRAY, Representative of State Teachers' unions; NEA, Danbury

DENISE L. NAPPIER, Treasurer, State of Connecticut (Ex officio member) and Council secretary

#### LIST OF EXTERNAL ADVISORS

#### **CONSULTANTS**

Cliffwater Associates - Marina del Rey, California Aon Hewitt Investment Consulting, Inc. - Chicago, Illinois Stepstone Group, LP - New York, New York Meketa Invesmtment Group - Boston, Massachusetts

#### **MASTER CUSTODIAN**

Bank of New York Mellon - New York. New York

#### **AUDITORS**

Auditors of Public Accounts - Hartford, Connecticut

#### **INVESTMENT ADVISORS**

#### LIQUIDITY FUND

State Street Global Advisors - Boston, Massachusetts

#### **MUTUAL EQUITY FUND**

#### Large Cap

State Street Global Advisors - Boston, Massachusetts T. Rowe Price Associates - Baltimore, Maryland

#### All Cap

Capital Prospects, LLC - Stamford, Connecticut FIS Group, Inc. - Philadelphia, Pennsylvania

#### **Small/Mid Cap Active**

Bivium Capital Partners - San Francisco, California Frontier Capital Management Company, LLC - Boston, Massachusetts

#### **DEVELOPED MARKET INTERNATIONAL STOCK FUND**

#### Index

State Street Global Advisors - Boston, Massachusetts Northern Trust Investments, N.A. – Chicago, Illinois

#### Core

Acadian Asset Management - Boston, Massachusetts AQR Capital Management - Greenwich, Connecticut Progress Investment Management Company - San Francisco, California

#### **Active - Growth**

MFS Institutional Advisors, Inc. - Boston, Massachusetts

#### **Small Cap**

Dimensional Fund Advisors - Austin, Texas Schroder Investment Management - New York, New York William Blair & Company - Chicago, Illinois

#### **EMERGING MARKET INTERNATIONAL STOCK FUND**

Schroder Investment Management - New York, New York BlackRock Investment Management, LLC - New York, New York

#### **REAL ESTATE FUND**

American Realty Advisors - Glendale, California
Blackstone Real Estate Advisors - New York, New York
Clarion Lion Industrial Trust - Baltimore, Maryland
Cornerstone Real Estate Advisors - Hartford, Connecticut
Covenant Apartment Funds - Nashville, Tennessee
Crow Holdings Realty Partners - Dallas, Texas

#### LIST OF EXTERNAL ADVISORS

Cypress Acquisition Partners - Dallas, Texas
Gerding Edlen - Portland, Oregon
Hart Realty Advisors - Simsbury, Connecticut
IL&FS Investment Advisors - Ebene, Mauritius
JP Morgan Investment Management, New York, New York
Landmark Real Estate Partners, Simsbury, Connecticut
Lone Star Global Acquisitions Ltd - Dallas, Texas
Prime Property Fund - New York, New York
Prudential Real Estate Investors - Madison, New Jersey
Rockwood Capital - Greenwich, Connecticut
Starwood Global Opportunity Funds - Greenwich, Connecticut
UBS Trumbull Property - Hartford, Connecticut
Urban Strategy America Fund - Boston, Massachusetts
USAA Eagle Fund - San Antonio, Texas
WL Ross & Co. - New York, New York

#### **CORE FIXED INCOME FUND**

State Street Global Advisors - Boston, Massachusetts
BlackRock Financial Management, Inc. - New York, New York
Wellington - Boston, Massachusetts
Conning-Goodwin Capital Advisers Inc. - Hartford, Connecticut
Progress Investment Management Company - San Francisco, California
Payden & Rygel - Los Angeles, California
Pacific Investment Management Company - Newport Beach, California
Colchester Global Investors Ltd. - London, England

#### **HIGH YIELD DEBT FUND**

Loomis Sayles & Co., Inc. - Boston, Massachusetts
Shenkman Capital Management - Stamford, Connecticut
AllianceBernstein, LP New York, NY
DDJ Capital Management, LLC - Waltham, MA
Columbia Management Investment Advisers, LLC - Minneapolis, MN
Nomura Corporation Research & Asset Management, Inc. - New York, NY
TCG BDC, Inc. - New York NY

#### **EMERGING MARKET DEBT FUND**

Ashmore Emerging Markets Debt Fund - London, England Fidelity Institutional Asset Mgt. Trust Co. - Merrimack, NH Stone Harbor Investment Partners - New York, New York Lazard Asset Management LLC - New York, New York

#### **INFLATION LINKED BOND FUND**

BlackRock Financial Management, Inc. - New York, New York Colchester Global Investors Ltd. - London, England New Century Advisors, LLC - Chevy Chase, Maryland

#### PRIVATE INVESTMENT FUND

#### **Corporate Buyouts**

Altaris Capital Partners- New York, New York BV Investment Partners- Boston, Massachusetts Charterhouse Equity Partners - Summit, New Jersey Court Square Capital Partners - New York, New York Ethos Private Equity - Sandton, South Africa Freeman Spogli & Co - Los Angeles, California GenNx360 Capital Partners - New York, New York

#### LIST OF EXTERNAL ADVISORS

ICV Partners - New York, New York
J.F. Lehman & Company - New York, New York
KKR - New York, New York
Leeds Equity Partners - New York, New York
RFE Investment Partners - New Canaan, Connecticut
TA Associates - Boston, Massachusetts
Thomas H. Lee Equity Partners - Boston, Massachusetts
Vista Equity Partners - Austin, Texas
Wellspring Capital Management - New York, New York
Welsh, Carson, Anderson & Stowe - New York, New York
The Yucaipa Companies - Los Angeles, California

#### **Venture Capital**

Crescendo III – Minneapolis, Minnesota Syndicated Venture Partners - Bethesda, Maryland

#### Mezzanine

Audax Group - Boston, Massachusetts
Balance Point Capital Advisors - Westport, Connecticut
GarMark Partners - Stamford, Connecticut
Ironwood Capital - Avon, Connecticut

#### International

BC Partners - London, United Kingdom Gilbert Global Equity Partners - New York, New York

#### **Fund of Funds**

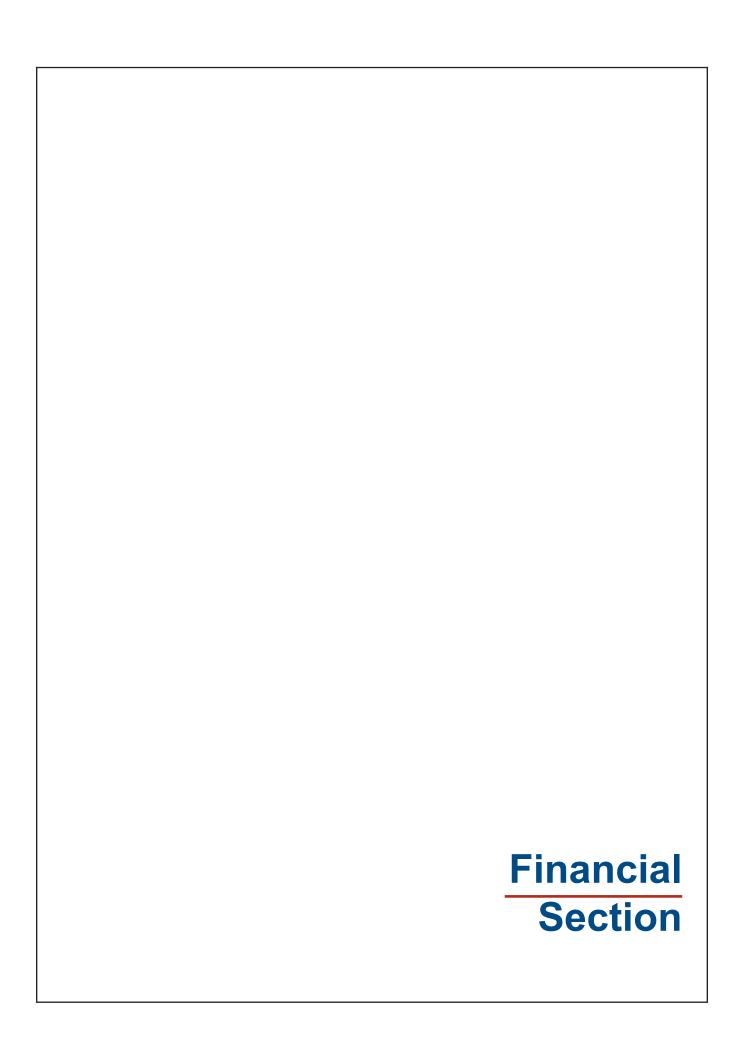
Muller & Monroe Asset Management - Chicago, Illinois GCM Grosvenor - New York, New York Fairview Capital Partners - West Hartford, Connecticut JPMorgan Asset Management - New York, New York PineBridge Investments - New York, New York Landmark Partners - Simsbury, Connecticut StepStone Group - La Jolla, California

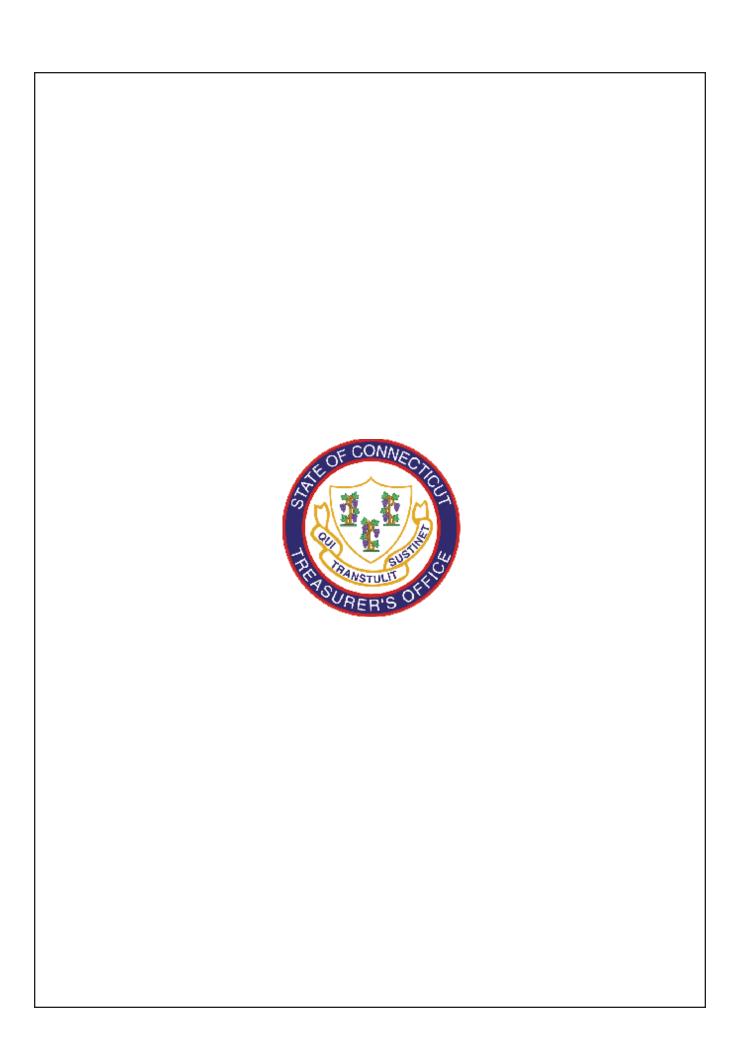
#### **Special Situations**

Apollo Management - New York, New York
Castlelake - Minneapolis, Minnesota
Clearlake Capital Group - Santa Monica, California
Levine Leichtman Capital Partners - Beverly Hills, California
Pegasus Partners - Cos Cob, Connecticut
WL Ross & Co. - New York, New York

#### **ALTERNATIVE INVESTMENT FUND**

Anchorage Capital Group - New York, New York
Arclight Energy Partners Funds - Boston, Massachusetts
Crescent Capital Group - New York, New York
EIG Global Energy Partners - Washington D.C.
I Squared Capital - New York, New York
Marathon Asset Management - New York, New York
Owl Rock Capital Advisors - New York, New York
Permal Limited Partnership - New York, New York
Prisma Limited Partnership - New York, New York
Rock Creek Limited Partnership - Washington D.C.
K2 Advisors - Stamford, Connecticut
Appomattox Advisory Inc. - New York, New York
Morgan Stanley Alternative Investment Partners- New York, New York





#### STATE OF CONNECTICUT



JOHN C. GERAGOSIAN

ROBERT J. KANE

#### INDEPENDENT AUDITORS' REPORT

Hartford, Connecticut 06106-1559

Governor Dannel P. Malloy Members of the General Assembly:

#### **Report on the Financial Statements**

We have audited the accompanying financial statements of the Combined Investment Funds, which comprise the statement of net position as of June 30, 2018, the statements of changes in net position for the fiscal years ended June 30, 2018 and 2017, and the related notes to the financial statements.

#### Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

#### Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

#### **Opinion**

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Combined Investment Funds as of June 30, 2018, and the statements of changes in financial position for the fiscal years ended June 30, 2018 and 2017, in conformity with accounting principles generally accepted in the United States of America.

#### **Emphasis of Matter**

As explained in Note 1B to the financial statements of the Combined Investment Funds, the Real Estate, Private Investment, and Alternative Investment Funds include investments that are carried at the investment advisors' June 30, 2018 fair value, or net asset value equivalent. The Treasurer's staff reviews the estimated fair values provided by the investment advisors for reasonableness. In instances in which an advisor's value appears to be overstated, the Treasurer's staff adjusts this estimated fair value accordingly. We reviewed the Treasury's documentation and procedures used to determine the fair values, and found them to be appropriate and reasonable; however, because of the inherent uncertainty in valuing these investments, determination of the estimated fair value market values may differ from the actual values had a ready market existed for these investments. Our opinion is not modified with respect to this matter.

As discussed in Note 1 to the financial statements, the financial statements referred to in the first paragraph are intended to present only the Combined Investment Funds administered by the Office of the State Treasurer. They do not purport to, and do not, present fairly the financial position of the State of Connecticut as of June 30, 2018, and the changes in financial position for the fiscal years ended June 30, 2018 and 2017, in conformity with generally accepted accounting principles in the United States of America. Our opinion is not modified with respect to this matter.

#### Other Matters

#### Required Supplementary Information

Management's Discussion and Analysis, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

#### Supplementary Information

Our audit was made for the purpose of forming an opinion on the financial statements of the Combined Investment Funds as a whole. Certain other financial information, which includes the Schedule of Net Position by Investment Fund, Schedules of Changes in Net Position by Investment Fund, Total Net Position Value by Pension Plans and Trust Funds and the Schedules of Investment Activity by Pension Plan and by Trust contained within the investment section of this document, is presented for purposes of additional analysis and is not a required part of the financial statements of the combined investment funds. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the financial statements. The information has been subjected to the auditing procedures applied in the audit of the financial statements of the combined investment funds and certain additional procedures, including comparing and

reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the information is presented fairly in all material respects in relation to the financial statements taken as a whole.

#### Other Information

The introductory, investment and statistical sections include information other than the schedules noted within the investment section that is presented for purposes of additional analysis and is not a required part of the basic financial statements. Such information other than the schedules specifically noted within the investment section, has not been subjected to the auditing procedures applied in the audit of the basic financial statement and, accordingly, we do not express an opinion or provide any assurance on it.

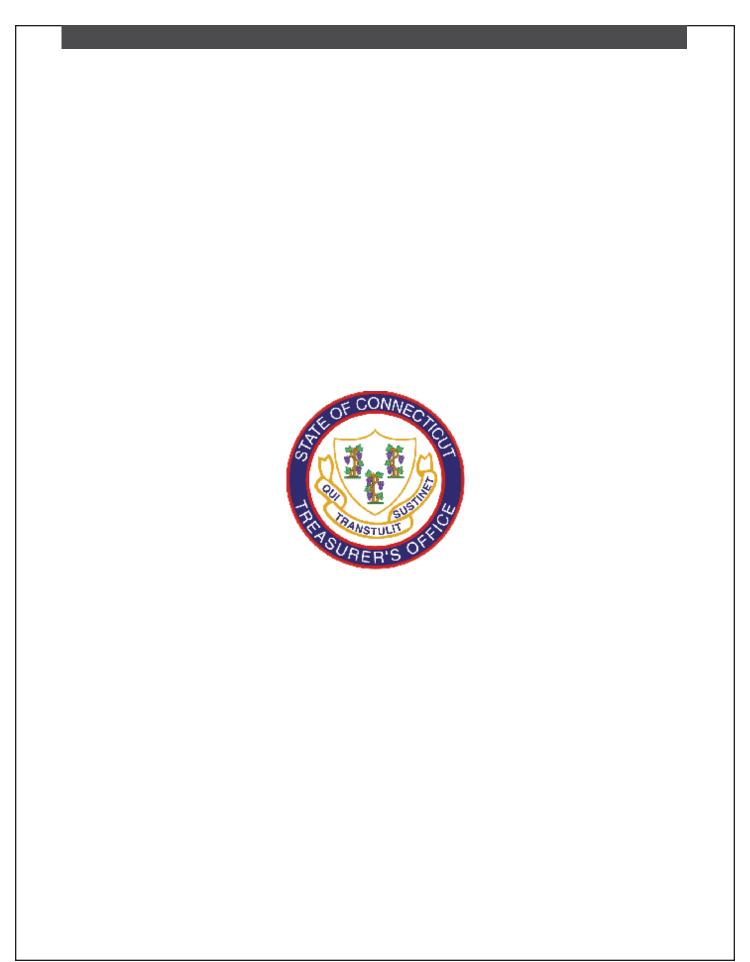
#### Other Reporting Required by Government Auditing Standards

In accordance with Government Auditing Standards, we have also issued our report dated December 31, 2018, on our consideration of the State Treasury's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the internal control over financial reporting or on compliance. That report will be issued under separate cover in the Independent Auditors' Report on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with Government Auditing Standards for the Fiscal Year Ended June 30, 2018, and is an integral part of an audit performed in accordance with Government Auditing Standards and should be considered in assessing the results of our audit.

John C. Geragosian State Auditor

Robert J. Kane State Auditor

December 31, 2018 State Capitol Hartford, Connecticut



#### MANAGEMENT'S DISCUSSION AND ANALYSIS

This section presents Management's Discussion and Analysis (MD&A) of the Comprehensive Annual Financial Report (CAFR) of the State of Connecticut's Office of the Treasurer Combined Investment Funds (CIFs) financial position and performance for the fiscal year ended June 30, 2018. It is presented as a narrative overview and analysis. Management of the State of Connecticut's Office of the Treasurer encourage readers to review it in conjunction with the transmittal letter included in the Introductory Section at the front of this report and the financial statements in the Financial Section that follow.

The CIFs serve as an investment vehicle for the six State pension plans and nine trust funds collectively known as the Connecticut Retirement Plans and Trust Funds representing the pension funds of the State teachers, State and municipal employees, as well as non-retirement trust funds that support academic programs, grants and initiatives throughout the State and are managed for the sole benefit of the participants. The CIFs range in investment diversity from domestic and international stocks to fixed income, real estate and private investment equity. Investments of the pension plans and trust funds are combined in a commingled investment pool as authorized by state statute. Each pension plan and trust fund owns an equity position in the CIFs and receives proportionate investment income from the CIFs in accordance with each respective ownership percentage. The pension plan and trust fund's allocated share of each type of investment in the CIFs is shown in the Schedule of Changes in Net Position. Investment gains or losses are also reported in the Statement of Changes in Net Position of each pension plan and trust. The market value per share is therefore approximately the same for each of the pension plans and trust funds investments in the CIFs.

The CIFs financial statements reported by the Treasurer's Office for which the Treasurer has fiduciary responsibility for the investment thereof follow this MD&A and provide detailed information about the individual funds

#### FINANCIAL HIGHLIGHTS

#### **Condensed Financial Information**

#### **Combined Investment Funds**

#### Net Position and Changes in Net Position

The net position of the CIFs at the close of the 2018 fiscal year was \$34.4 billion, an increase of \$1.8 billion from the previous year. The change in net position resulted from a \$2.3 billion increase from operations (realized and unrealized gains and investment income) partly offset by \$0.5 billion of net redemptions from the CIFs.

The net position of the CIFs at the close of the 2017 fiscal year was \$32.5 billion, an increase of \$3.3 billion from the previous year. The change in net position resulted from a \$4.1 billion increase from operations (realized and unrealized gains and investment income) partly offset by \$0.8 billion of net redemptions from the CIFs.

#### Assets held in trust for Participants

A summary of the net position of assets held in trust for participants is presented below.

## Condensed Statement of Net Position Fiscal Year Ended June 30,

Assets Investments at Fair Value Cash, Receivables and Other Total Assets Liabilities Net Position

2018	Increase (Decrease)	2017	Increase (Decrease)	2016
\$34,368,676,287	\$1,800,301,121	\$32,568,375,166	\$3,362,320,165	\$29,206,055,001
12,487,065,407	2,186,323,713	10,300,741,694	(4,597,191,581)	14,897,933,275
46,855,741,694	3,986,624,834	42,869,116,860	(1,234,871,416)	44,103,988,276
(12,463,683,900)	(2,142,437,054)	(10,321,246,846)	4,536,821,669	(14,858,068,515)
\$34,392,057,794	\$1,844,187,780	\$32,547,870,014	\$3,301,950,253	\$29,245,919,761

#### **MANAGEMENT'S DISCUSSION AND ANALYSIS**

### Condensed Statement of Changes in Net Position Fiscal Year Ended June 30,

Additions	2018	Increase (Decrease)	2017	Increase (Decrease)	2016
Dividends	\$541,639,540	\$31,250,605	\$510,388,935	\$50,435,311	459,953,624
Interest	365,754,068	57,221,220	308,532,848	(28,740,648)	337,273,496
Securities Lending & Other Incom	e 49,298,163	1,046,134	48,252,029	19,482,997	28,769,032
Total Investment Income	956,691,771	89,517,959	867,173,812	41,177,660	825,996,152
Total Investment Expenses	(127,954,370)	(28,424,542)	(99,529,828)	(8,875,246)	(90,654,582)
Net Investment Income	828,737,401	61,093,417	767,643,984	32,302,414	735,341,570
Net Increase (Decrease) in Fair					
Value of Investments and					
Foreign Currency	1,484,659,450	(1,848,083,645)	3,332,743,095	4,052,859,827	(720,116,732)
Net Increase (Decrease) in		,			,
Net Position resulting					
from operations	2,313,396,851	(1,786,990,228)	4,100,387,079	4,085,162,241	15,224,838
Purchase of Units by		,			
Participants	7,303,018,454	4,616,002,352	2,687,016,102	222,634,561	2,464,381,541
Total Additions	9,616,415,305	2,829,012,124	6,787,403,181	4,307,796,802	2,479,606,379
Deductions					
Administrative Expense	(4,332,002)	(321,347)	(4,000,655)	602,017	(4,602,672)
Distribution of Income to	, , ,	,	, , ,		,
Unit Owners	(25,442,996)	(1,136,454)	(24,306,542)	(10,836,504)	(13,470,038)
Redemption of Units by	,	,	,	, ,	,
Participants	(7,742,462,527)	(4,285,316,796)	(3,457,145,731)	(374,555,307)	(3,082,590,424)
Total Deductions	(7,772,227,525)	(4,286,774,597)	(3,485,452,928)	(384,789,794)	(3,100,663,134)
Change in Net Position	1,844,187,780	(1,457,762,473)	3,301,950,253	3,923,007,008	(621,056,755)
Net Position – Beginning of year	32,547,870,014	3,301,950,253	29,245,919,761	(621,056,755)	29,866,976,516
	\$34,392,057,794	\$1,844,187,780	\$32,547,870,014	\$3,301,950,253	\$29,245,919,761

#### **OVERVIEW OF THE FINANCIAL STATEMENTS**

This discussion and analysis is an introduction to the Office of the Treasurer's CIFs basic financial statements, which are comprised of: 1) Statement of Net Position, 2) Statement of Changes in Net Position and 3) Notes to the Financial Statements.

The Statements of Net Position and Changes in Net Position are two financial statements that report information about the CIFs. These statements include all assets and liabilities using the accrual basis of accounting. The current year's revenues and expenses are taken into account regardless of when cash is received or paid.

The Statement of Net Position presents all of the CIFs assets and liabilities, with the difference between the two reported as "net position". Over time, increases and decreases in net position measure whether the CIFs financial position is improving or deteriorating.

The Statement of Changes in Net Position presents information showing how the CIFs net position changed during the most recent year. All changes in net position are reported as soon as the underlying events giving rise to the change occurs, regardless of the timing of related cash flows. Therefore, revenues and expenses are reported in this statement for some items that will only result in cash flows in future fiscal periods (eg. security lending rebates and dividend and interest income).

The Notes to the Financial Statements provide additional information that is essential to a full understanding of the data provided in the CIFs financial statements.

#### **ECONOMIC CONDITIONS AND OUTLOOK**

Domestic growth, as measured by Gross Domestic Product (GDP), experienced modest growth during the fiscal year. For Fiscal Year 2018, GDP (on a year-over-year basis) ranged between 2.3 percent and 2.8 percent. For the entire fiscal year, GDP averaged a 2.6 percent year-over-year rate, up from Fiscal Year 2017's 1.9 percent rate. Meanwhile the unemployment rate ended the fiscal year at 4.0 percent, down from the 4.4 rate at the end of Fiscal Year 2017. During the course of the fiscal year, approximately 2.4 million people were added to payrolls.

#### MANAGEMENT'S DISCUSSION AND ANALYSIS

Domestic inflation averaged 2.3 percent during the fiscal year, up 50 basis points from 1.8 percent in fiscal year 2017. Excluding the more volatile food and energy components, inflation during the fiscal year averaged 1.9 percent, down 20 basis points from Fiscal Year 2017's 2.1 percent. Similar to domestic inflation, inflation in the Eurozone was stronger as well, with an average inflation rate of 1.5 percent, up 40 basis points from the 2017 fiscal year period.

Connecticut's unemployment rate has continued to decline from a high of 9.5 percent in October 2010 to 4.4 percent in July 2018, compared to the national unemployment rate of 4.0 percent. The State Comptroller reported on November 30, 2018 that the State's General Fund ended the 2018 fiscal year with a pre-audited deficit of \$482.9 million which will be eliminated through a transfer from the Budget Reserve Fund

#### CONTACTING THE OFFICE OF THE TREASURER

This Comprehensive Annual Financial Report is designed to provide a general overview of the CIF and to show the Office of the Treasurer's accountability for its stewardship of CIF assets. Questions about this report or requests for additional information should be addressed to:

Connecticut State Treasury 55 Elm Street Hartford, CT 06106-1773 Telephone (860) 702-3000 www.ott.ct.gov

## STATEMENT OF NET POSITION JUNE 30, 2018

		TOTAL
ASSETS		
Investments in Securities, at Fair Value	•	0.40.050.000
Cash Equivalents	\$	848,350,292
Asset Backed Securities		260,195,751
Government Securities		3,661,833,904
Government Agency Securities		645,395,809
Mortgage Backed Securities		333,199,844
Corporate Debt		4,284,257,522
Convertible Securities		31,231,555
Common Stock		15,183,972,585
Preferred Stock		47,298,568
Real Estate Investment Trust		327,950,185
Mutual Fund		1,529,260,099
Limited Liability Corporation		1,156,486
Limited Partnerships		7,214,573,687
Total Investments in Securities, at Fair Value		34,368,676,287
Cash		106,037,905
Receivables		
Foreign Exchange Contracts		9,470,188,749
Interest Receivable		91,644,543
Dividends Receivable		30,685,155
Due from Brokers		164,244,578
Foreign Taxes		18,949,920
Securities Lending Receivable		1,319,239
Reserve for Doubtful Receivables	_	(2,166,899)
Total Receivables		9,774,865,285
Invested Securities Lending Collateral		2,605,088,450
Prepaid Expenses		1,073,767
Total Assets		46,855,741,694
LIABILITIES		
Payables		0.440.040.040
Foreign Exchange Contracts		9,443,212,919
Due to Brokers		397,327,407
Income Distribution		1,383,916
Total Payables		9,841,924,242
Securities Lending Collateral		2,605,088,450
Accrued Expenses	_	16,671,208
Total Liabilities		12,463,683,900
NET POSITION HELD IN TRUST FOR PARTICIPANTS	\$	34,392,057,794

The accompanying notes are an integral part of these financial statements.

### STATEMENT OF CHANGES IN NET POSITION FOR THE FISCAL YEAR ENDED JUNE 30, 2018

ADDITIONS		TOTAL
OPERATIONS Investment Income		
Dividends	\$	541,639,540
Interest	*	365,754,068
Other Income		5,501,172
Securities Lending		43,796,991
Total Income		956,691,771
Expenses		
Investment Advisory Fees		81,766,084
Custody and Transfer Agent Fees		3,305,439
Professional Fees		3,758,554
Security Lending Fees		1,500,325
Security Lending Rebates		28,791,169
Investment Expenses		8,832,799
Total Expenses		127,954,370
Net Investment Income		828,737,401
Net Increase (Decrease) in the Fair Value of Investments and Foreign Currency		1,484,659,450
Net Increase (Decrease) in Net Position Resulting from Operations		2,313,396,851
Unit Transactions Purchase of Units by Participants		7,303,018,454
TOTAL ADDITIONS		9,616,415,305
DEDUCTIONS Administrative Expenses: Salary and Fringe Benefits		(4,322,002)
Distributions to Unit Owners: Income Distributed		(25,442,996)
Unit Transactions Redemption of Units by Participants		(7,742,462,527)
TOTAL DEDUCTIONS		(7,772,227,525)
Change in Net Position Held in Trust for Participants		1,844,187,780
Net Position- Beginning of Period		32,547,870,014
Net Position- End of Period	\$	34,392,057,794

The accompanying notes are an integral part of these financial statements

### STATEMENT OF CHANGES IN NET POSITION FOR THE FISCAL YEAR ENDED JUNE 30, 2017

ADDITIONS OPERATIONS		TOTAL
Investment Income		
Dividends	\$	510,388,935
Interest	,	308,532,848
Other Income		21,127,292
Securities Lending		27,124,737
Total Income		867,173,812
Expenses		
Investment Advisory Fees		77,960,003
Custody and Transfer Agent Fees		3,471,588
Professional Fees		2,852,273
Security Lending Fees		1,576,512
Security Lending Rebates		11,360,474
Investment Expenses		2,308,978
Total Expenses		99,529,828
Net Investment Income		767,643,984
Net Increase (Decrease) in the Fair Value of Investments and Foreign Currency		3,332,743,095
Net Increase (Decrease) in Net Position Resulting from Operations		4,100,387,079
Unit Transactions Purchase of Units by Participants		2,687,016,102
TOTAL ADDITIONS		6,787,403,181
DEDUCTIONS Administrative Expenses: Salary and Fringe Benefits		(4,000,655)
Distributions to Unit Owners: Income Distributed		(24,306,542)
Unit Transactions Redemption of Units by Participants		(3,457,145,731)
TOTAL DEDUCTIONS		(3,485,452,928)
Change in Net Position Held in Trust for Participants		3,301,950,253
Net Position- Beginning of Period		29,245,919,761
Net Position- End of Period	\$	32,547,870,014
	*	,,

The accompanying notes are an integral part of these financial statements

#### **NOTES TO FINANCIAL STATEMENTS**

#### NOTE 1: SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The Combined Investment Funds (CIFs) are separate legally defined funds, which have been created by the Treasurer of the State of Connecticut (the "Treasurer") under the authority of the Connecticut General Statutes (CGS) Section 3-31b. The CIFs are open-end, unitized portfolios consisting of the Liquidity Fund, Alternative Investment Fund, Mutual Equity Fund, Core Fixed Income Fund, Inflation Linked Bond Fund, Emerging Market Debt Fund, High Yield Debt Fund, Developed Market International Stock Fund, Emerging Market International Stock Fund, Real Estate Fund, and the Private Investment Fund. The CIFs were established to provide a means for investing pension and other trust fund assets entrusted to the Treasurer in a variety of investment classes. The units of the CIFs are owned by these pension and trust funds. For financial reporting purposes of the State of Connecticut, the CIFs are considered to be external investment pools and are not reported in the State's combined financial statements. Instead, each fund type's investment in the CIF is reported as "equity in combined investment funds" in the State's combined balance sheet.

The Treasurer, as sole fiduciary of the CIFs, is authorized to invest in a broad range of fixed income and equity securities, as well as real estate properties, mortgages and private equity. This authority is restricted only by statute. Such limitations include prohibitions against investment in companies doing business in Iran and those doing business in Northern Ireland, but who have failed to implement the MacBride Principles (CGS Section 3–13h). Other legislation restricts the maximum aggregate investment in equity securities to 60% of the fair value of the Trust Funds.

The CIFs are not subject to regulatory oversight and are not registered with the Securities and Exchange Commission as an investment company.

The following is a summary of significant accounting policies consistently followed by the CIFs in the preparation of their financial statements.

#### A. NEW PRONOUNCEMENTS

There were no new pronouncements for the fiscal year ending June 30, 2018.

#### **B. SECURITY VALUATION**

Investments are stated at fair value for each of the CIFs as described below. For the Alternative Investment, Real Estate and Private Investment Funds substantially all of the investments, other than those in the Liquidity Fund, are shown at values that are carried at the general partner's June 30, 2018 fair value, or net asset value ("NAV") equivalent. The CIF's assets are fair valued quarterly by the General Partner and at such other times as determined by the General Partner and are based on Accounting Standards Codification ("ASC") 820 "Fair Value Measurements and Disclosures". The fair value the General Partner assigned to these investments is based upon available information and does not represent necessarily the amount that ultimately might be realized upon sale or maturity. Because of the inherent uncertainty of the fair valuation process, this estimated fair value presented by the General Partner may differ significantly from the fair value that would have been used had a ready market for the security existed, and the difference could be material. The General Partner is responsible for coordination and oversight of all investment valuations.

The Treasurer's staff reviews the valuations for all investments in these alternative asset classes to see that they are reasonable and consistent. Due to the inherent uncertainty of valuation, those estimated values may differ significantly from the values that would have been used had a ready market for the securities existed and the differences could be material.

#### **Liquidity Fund**

Existing money market vehicles are valued at amortized cost on a daily basis, which approximates fair value. A standard price hierarchy is utilized in the daily valuation of the Liquidity Fund.

Repurchase agreements held in the fund are collateralized at 100 percent of the securities' value. Such transactions are only entered into with primary government securities dealers who report directly to the Federal Reserve Bank of New York. When-issued securities held in the fund are fully collateralized by U.S Government securities and such collateral is in the possession of the CIF's custodial bank. The collateral is evaluated daily to ensure its fair value exceeds the current fair value of the repurchase agreements including accrued interest. The collateral is evaluated daily to ensure its fair value exceeds the current fair value of the repurchase agreements including accrued interest.

#### **NOTES TO FINANCIAL STATEMENTS (Continued)**

#### Alternative Investment Fund

Investments in securities not listed on security exchanges and investments in limited partnerships, which comprise substantially all of the CIF's investments, are carried at the general partner's June 30, 2018 fair value, or net asset value ("NAV") equivalent. The Treasurer's staff reviews the estimated fair values provided by the investment advisors for reasonableness. In those instances where an advisor's value appears to be overstated, this estimated fair value is adjusted accordingly

#### Mutual Equity Fund

Securities traded on securities exchanges are valued at the last reported sales price on the last business day of the fiscal year. Corporate bonds and certain over-the-counter stocks are valued at the mean of bid and asked prices as furnished by broker-dealers.

#### Core Fixed Income Fund

Investments are valued based on quoted market prices when available. For securities that have no quoted market value, fair value is estimated based on yields currently available on comparable securities of issuers with similar credit ratings and maturities.

"When-issued" securities held in the CIF are fully collateralized by U.S Government securities and such collateral is in the possession of the CIF's custodial bank. The collateral is evaluated daily to ensure its market value exceeds the current market value of the instruments including accrued interest.

The Core Fixed Income Fund invests in Mortgage Backed Securities (MBSs) and Asset Backed Securities (ABSs), which are included in the Statement of Net Position. These are bonds issued by a special purpose trust that collects payments on an underlying collateral pool of mortgage or other loans and remits payments to bondholders. The bonds are structured in a series of classes or tranches, each with a different coupon rate and stated maturity date. Interest payments to the bondholders are made in accordance with the trust indentures and amounts received from borrowers in excess of interest payments and expenses are used to amortize the principal on the bonds. Such principal payments are made to retire the tranches of bonds in order of their stated maturity. Because mortgage prepayments are largely dependent on market interest rates, the ultimate maturity date of the bonds is unpredictable and is sensitive to changes in market interest rates, but is generally prior to the stated maturity date. At June 30, 2018, the CIF held MBSs of \$332,454,879 and ABSs of \$256,333,884.

Interest-only stripped mortgage backed securities (IOs), a specialized type of Collateralized Mortgage Obligation (CMO), are included as Mortgage Backed Securities on the Statement of Net Position. The cash flow on these investments is derived from the interest payments on the underlying mortgage loans. Prepayments on the underlying loans curtail these interest payments, reducing the value of the IOs and, as such, these instruments are extremely sensitive to changes in interest rates, which encourage or discourage such prepayments. At June 30, 2018 the CIF's holdings had a fair value of \$340,758 and a cost of \$690,898. The valuations were provided by the custodian.

Investments in non-U.S. fixed income securities are utilized on an opportunistic basis. Certain advisors within the Core Fixed Income Fund are authorized to invest in global fixed income securities.

#### Inflation Linked Bond Fund

Investments are valued based on quoted market prices when available. For securities that have no quoted market value, fair value is estimated based on yields currently available on comparable securities of issuers with similar credit ratings and maturities.

"When-issued" securities held in the CIF are fully collateralized by U.S Government securities and such collateral is in the possession of the CIF's custodial bank. The collateral is evaluated daily to ensure its market value exceeds the current market value of the instruments including accrued interest.

Investments in non-U.S. fixed income securities are utilized on an opportunistic basis. Certain advisors within the Inflation Linked Bond Fund are authorized to invest in global fixed income securities.

The Inflation Linked Bond Fund sometimes invests in Asset Backed Securities (ABSs), which are included in the Statement of Net Position. These are bonds issued by a special purpose trust that collects payments on an underlying

#### **NOTES TO FINANCIAL STATEMENTS (Continued)**

collateral pool of mortgage or other loans and remits payments to bondholders. The bonds are structured in a series of classes or tranches, each with a different coupon rate and stated maturity date. Interest payments to the bondholders are made in accordance with the trust indentures and amounts received from borrowers in excess of interest payments and expenses are used to amortize the principal on the bonds. Such principal payments are made to retire the tranches of bonds in order of their stated maturity. Because mortgage prepayments are largely dependent on market interest rates, the ultimate maturity date of the bonds is unpredictable and is sensitive to changes in market interest rates, but is generally prior to the stated maturity date. At June 30, 2018, the CIF held ABSs, consisting of swaps and resulting in a fair value of (\$600,841).

#### **Emerging Market Debt Fund**

Investments are valued based on quoted market prices when available. For securities that have no quoted market value, fair value is estimated based on yields currently available on comparable securities of issuers with similar credit ratings.

The Emerging Market Debt Fund invests in securities in emerging market countries that are either U.S. dollar-denominated or issued in the local currency of the country. In addition to bond interest rate sensitivity, the local currency bonds' values will fluctuate with exchange rates.

"When-issued" securities held in the CIF are fully collateralized by U.S Government securities and such collateral is in the possession of the CIF's custodian. The collateral is evaluated daily to ensure its market value exceeds the current market value of the instruments including accrued interest.

The Emerging Market Debt Fund sometimes invests in Asset Backed Securities (ABSs), which are included in the Statement of Net Position. These are bonds issued by a special purpose trust that collects payments on an underlying collateral pool of mortgage or other loans and remits payments to bondholders. The bonds are structured in a series of classes or tranches, each with a different coupon rate and stated maturity date. Interest payments to the bondholders are made in accordance with the trust indentures and amounts received from borrowers in excess of interest payments and expenses are used to amortize the principal on the bonds. Such principal payments are made to retire the tranches of bonds in order of their stated maturity. Because mortgage prepayments are largely dependent on market interest rates, the ultimate maturity date of the bonds is unpredictable and is sensitive to changes in market interest rates, but is generally prior to the stated maturity date. At June 30, 2018, the CIF held ABSs, consisting of swaps and resulting in a fair value of \$3,479,670.

#### High Yield Debt Fund

Investments are valued based on quoted market prices when available. For securities that have no quoted market value, fair value is estimated based on yields currently available on comparable securities of issuers with similar credit ratings and maturities.

"When-issued" securities held in the fund are fully collateralized by U.S Government securities and such collateral is in the possession of the CIF's custodial bank. The collateral is evaluated daily to ensure its market value exceeds the current market value of the instruments including accrued interest.

Investments in non-U.S. fixed income securities are utilized on an opportunistic basis. Certain advisors within the High Yield Debt Fund are authorized to invest in global fixed income securities.

The High Yield Debt Fund invests in Mortgage Backed Securities (MBSs) and Asset Backed Securities (ABSs), which are included in the Statement of Net Position. These are bonds issued by a special purpose trust that collects payments on an underlying collateral pool of mortgage or other loans and remits payments to bondholders. The bonds are structured in a series of classes or tranches, each with a different coupon rate and stated maturity date. Interest payments to the bondholders are made in accordance with the trust indentures and amounts received from borrowers in excess of interest payments and expenses are used to amortize the principal on the bonds. Such principal payments are made to retire the tranches of bonds in order of their stated maturity. Because mortgage prepayments are largely dependent on market interest rates, the ultimate maturity date of the bonds is unpredictable and is sensitive to changes in market interest rates, but is generally prior to the stated maturity date. At June 30, 2018, the CIF held MBSs of \$744,964 and ABSs, consisting of swaps and resulting in a fair value of \$983,038.

#### **NOTES TO FINANCIAL STATEMENTS (Continued)**

#### Developed Market International Stock Fund

The Developed Market International Stock Fund at times may utilize foreign currency contracts to facilitate transactions in foreign securities and to manage the CIF's currency exposure. Contracts to buy are used to acquire exposure to foreign currencies, while contracts to sell are used to hedge the CIF's' investments against currency fluctuations. Also, a contract to buy or sell can offset a previous contract. Losses may arise from changes in the value of the foreign currency or failure of the counterparties to perform under the contracts' terms.

Investing in forward currency contracts may increase the volatility of the CIF's' performance. Price movements of currency contracts are influenced by, among other things, international trade, fiscal, monetary, and exchange control programs and policies; national and international political and economic events; and changes in worldwide interest rates. Governments from time to time intervene in the currency markets with the specific intent of influencing currency prices. Such intervention may cause certain currency prices to move rapidly. Additionally, the currency markets may be particularly sensitive to interest rate fluctuations.

The U. S. dollar value of forward foreign currency contracts is determined using forward currency exchange rates supplied by a quotation service

Investments in securities listed on security exchanges are valued at the last reported sales price on the last business day of the fiscal year; securities traded in the over-the-counter market and listed securities for which no sale was reported on that date are valued at the mean of the last reported bid and asked prices.

Certain cash held in non-U.S. dollar denominated trading accounts is non-interest bearing.

#### **Emerging Market International Stock Fund**

The Emerging Market International Stock Fund at times may utilize foreign currency contracts to facilitate transactions in foreign securities and to manage the CIF's' currency exposure. Contracts to buy are used to acquire exposure to foreign currencies, while contracts to sell are used to hedge the CIF's' investments against currency fluctuations. Also, a contract to buy or sell can offset a previous contract. Losses may arise from changes in the value of the foreign currency or failure of the counterparties to perform under the contracts' terms.

Investing in forward currency contracts may increase the volatility of the CIF's' performance. Price movements of currency contracts are influenced by, among other things, international trade, fiscal, monetary, and exchange control programs and policies; national and international political and economic events; and changes in worldwide interest rates. Governments from time to time intervene in the currency markets with the specific intent of influencing currency prices. Such intervention may cause certain currency prices to move rapidly. Additionally, the currency markets may be particularly sensitive to interest rate fluctuations.

The U. S. dollar value of forward foreign currency contracts is determined using forward currency exchange rates supplied by a quotation service

Investments in securities listed on security exchanges are valued at the last reported sales price on the last business day of the fiscal year; securities traded in the over-the-counter market and listed securities for which no sale was reported on that date are valued at the mean of the last reported bid and asked prices.

Certain cash held in non-U.S. dollar denominated trading accounts is non-interest bearing.

#### Real Estate Fund

Investments in securities not listed on security exchanges and investments in trusts, limited partnerships, and annuities, which comprise substantially all of the CIF's investments, are carried at the general partner's June 30, 2018 fair value, or net asset value ("NAV") equivalent. The Treasurer's staff reviews estimated fair values provided by the investment advisors for reasonableness. In those instances where an advisor's value appears to be overstated, this estimated fair value is adjusted accordingly.

#### Private Investment Fund

Investments in securities not listed on security exchanges and investments in limited partnerships and limited liability corporations, which comprise substantially all of the CIF's investments, are carried at the general partner's June 30, 2018

#### **NOTES TO FINANCIAL STATEMENTS (Continued)**

fair value, or net asset value ("NAV") equivalent. The Treasurer's staff reviews estimated fair values provided by the investment advisors for reasonableness. In those instances where an advisor's value appears to be overstated, this estimated fair value is adjusted accordingly.

#### C. INVESTMENT TRANSACTIONS AND RELATED INCOME

Investment transactions are accounted for on a trade date basis. Dividend income is recognized as earned on the ex-dividend date. Interest income is recorded on the accrual basis as earned. Realized gains and losses are computed on the basis of the average cost of investments sold. Such amounts are calculated independent of and are presented as part of the Net Increase (Decrease) in Fair value of Investments on the Statement of Changes in Net Position. Realized gains and losses on investments held more than one fiscal year and sold in the current year were included as a change in the fair value of investments reported in the prior year(s) and the current year. Unrealized gains and losses represent the difference between the fair value and the cost of investments. The increase (decrease) in such difference is also accounted for in the Net Increase (Decrease) in Fair Value of Investments. In the CIF's' cost basis records, premiums are amortized using the straight-line method that approximates the interest method.

Dividends earned by the Private Investment, Real Estate and Alternative Investment Funds relate to investments that are not listed on security exchanges. Such dividends are recognized as income when received, generally net of advisory fees.

#### D. FOREIGN CURRENCY TRANSLATION

The value of investments, assets and liabilities denominated in currencies other than U.S. dollars are translated into U.S. dollars based upon appropriate fiscal year end foreign exchange rates. Purchases and sales of foreign investments and income and expenses are converted into U.S. dollars based on currency exchange rates prevailing on the respective dates of such transactions. The CIFs do not isolate that portion of the results of operations arising from changes in the exchange rates from that portion arising from changes in the market prices of securities.

#### E. SHARE TRANSACTIONS AND PRICING

All unit prices are determined at the end of each month based on the net asset value of each CIF divided by the number of units outstanding. Purchases and redemptions of units are based on the prior month end price and are generally processed on the first business day of the month.

#### F. EXPENSES

Expenses of the CIFs, excluding certain management fees as discussed in more detail in note 1J, are recognized on the accrual basis and are deducted in calculating net investment income and net asset value on a monthly basis. Each of the CIFs bears its direct expenses, such as investment advisory fees, and, in addition, each of the CIFs are allocated a portion of the overhead expenses of the Pension Funds Management Division of the Office of the State Treasurer, which services the CIFs. These expenses include salary and fringe benefit costs and other administrative expenses. Certain of these costs are allocated among the CIFs based on relative net asset values. Other costs are charged directly based on the specific duties of personnel.

#### G. DISTRIBUTIONS

Distributions to unit holders of the CIFs were discontinued after September 30, 2013.

#### H. DERIVATIVE FINANCIAL INSTRUMENTS

GASB Statement Number 53 Accounting and Financial Reporting for Derivative Instruments, requires that the fair value of financial arrangements called derivatives or derivative instruments be reported in the financial statements. GASB defines a derivative instrument as a financial instrument or other contract with all of the following characteristics: a) It has one or more reference rates and (2) one or more notional amounts or payment provisions or both. b) It requires no initial net investment or an initial net investment that is smaller than would be required for other types of contracts that would be expected to have a similar response to changes in market factors. c) Its terms require or permit net settlement, it can readily be settled net by a means outside the contract, or it provides for delivery of an asset that puts the recipient in a position not substantially different from net settlement.

## **NOTES TO FINANCIAL STATEMENTS (Continued)**

For the fiscal year ended June 30, 2018, the CIF maintained positions in a variety of such securities that are all reported at fair value on the Statement of Net Position. The following is a listing of such securities:

#### Adjustable Rate Securities:

CIF	Cost	Fair Value
Liquidity	\$1,325,379	\$1,324,919
Core Fixed Income	666,937,216	663,904,569
Inflation Linked Bond	17,840,805	17,752,483
Emerging Market Debt	7,199,855	6,752,859
High Yield Debt	38,130,915	35,029,907
Asset Backed Securities:		
CIF	Cost	Fair Value
Core Fixed Income	\$256,697,037	\$256,333,884
High Yield Debt	936,982	983,038
Mortgage Backed Securities	s, Net of CMO's:	
CIF	Cost	Fair Value
Core Fixed Income	\$270,816,526	\$269,165,400
High Yield Debt	762,170	744,965
CMO's:		
CIF	Cost	Fair Value
Core Fixed Income	\$65,605,086	\$63,289,479
TBA's:		
CIF	Cost	Fair Value
Core Fixed Income	\$140,344,608	\$140,844,075
Interest Only:		
CIF	Cost	Fair Value
Core Fixed Income	\$690,898	\$340,758
Options:		
CIF	Cost	Fair Value
Inflation Linked Bond	(\$282,350)	(\$178,733)

The Inflation Linked Bond Fund held futures with a notional cost of \$6,799,842 and an unrealized loss of \$38,418 reported in the Due from Brokers in the Statement of Net Position. The Core Fixed Income Fund held futures with a notional cost of \$109,623,748 and an unrealized loss of \$495,730 reported in the Due from Brokers in the Statement of Net Position. The High Yield Debt Fund held futures with a negative notional cost of (\$3,211,990) and an unrealized loss of \$32,364 reported in the Due from Brokers in the Statement of Net Position. Emerging Market Debt Fund held futures with a negative notional cost of (\$29,220,750) and an unrealized gain of \$15,187 reported in the Due from Brokers in the Statement of Net Position. The Developed Market International Stock also held futures with a notional cost of \$61,021,451 and an unrealized loss of \$3,414,256 reported in the Due from Brokers in the Statement of Net Position.

The Liquidity, Core Fixed Income, Inflation Linked, Emerging Market Debt, High Yield Debt, Developed Market International Stock and Emerging Market International Stock Funds were invested in foreign exchange contracts. The specific nature of these investments is discussed more fully in the foreign exchange contract note for each respective fund, where appropriate. These financial instruments are utilized for trading and other purposes. Those that are used for other than trading purposes are foreign exchange contracts, which can be used to facilitate trade settlements, and may serve as foreign currency hedges. The credit exposure resulting from such contracts is limited to the recorded fair value of the contracts on the Statement of Net Position.

The remaining such securities are utilized for trading purposes and are intended to enhance investment returns. All positions are reported at fair value and changes in fair value are reflected in income as they occur. The CIF's' credit exposure resulting from such investments is limited to the recorded fair value of the derivative financial instruments.

The Core Fixed Income, Developed Market International Stock, Mutual Equity, Emerging Market Debt, and the Emerging Market International Stock Funds may utilize derivatives indirectly through participation in mutual funds. These mutual funds may hold derivatives from time to time. Such derivatives may be used for hedging, investment and risk management purposes. These transactions subject the investor to credit and market risk.

## **NOTES TO FINANCIAL STATEMENTS (Continued)**

## I. COMBINATION/ELIMINATION ENTRY

The financial statements depict a full presentation of each of the CIF. However, one of these funds, the Liquidity Fund, is owned both directly by the pension plans and trust funds which have accounts in the Liquidity Fund, and also indirectly because each of the other CIF has an account with the Liquidity Fund. As a result, elimination entries are presented for the purpose of netting out balances and transactions relating to the ownership of the Liquidity Fund by the other CIF. The combined presentation totals to the overall net assets owned by the pension plans and trust funds. In order to help the Liquidity Fund managers better manage their cash balances, realized gains (losses) are no longer included in the Liquidity Fund income sweep.

## J. FEES AND REALIZED GAINS

Investment advisory fees incurred for certain investments in the Alternative Investment, Core Fixed Income, Private Investment and Real Estate Funds are generally charged to the entity in which the CIF has been invested. In such cases, these amounts are either capitalized in the cost basis of the investment on a cash basis and become a component of unrealized gain (loss) or are netted against the corresponding income generated. Certain other fees are incurred directly by the CIF and are expensed. These expensed amounts are accrued and the expense is reflected as Investment Advisory Fees on the Statement of Changes in Net Position. The appropriate treatment is determined depending on the terms of the investment agreement. Capitalized fees are not separately presented on the Statement of Changes in Net Position. These fees are borne by the partners in their respective shares. The following is a listing of the Funds total fees for the fiscal year ended June 30, 2018:

CIF	Netted	Capitalized	Expensed	Total
Alternative Investment	\$ 9,766,209	\$ 1,621,418	\$ -	\$ 11,387,627
Private Investment	12,860,261	16,185,732	942,012	29,988,004
Real Estate	10,287,038	6,237,958	6,850,149	23,375,145

Periodically the Private Investment and Real Estate Funds may receive security distributions in lieu of cash. These securities are included as Common Stock and Real Estate Investment Trust, respectively on the Statement of Net Position. When one of these individual securities is sold the realized gain or loss is included in the Net Increase (Decrease) in the Fair Value of Investments presented on the Statement of Changes in Net Position. The Private Investment Fund incurred realized gain of \$11,455,354 for such transactions for the fiscal year ended June 30, 2018.

The Core Fixed Income, Emerging Market Debt, Developed Market International Stock and the Emerging Market International Stock funds include investments in mutual funds. Fees incurred from these investments are deducted from the operations of the CIF and are not separately presented on the Statement of Changes in Net Position. The following is a listing of the corresponding fees incurred for the fiscal year ended June 30, 2018:

CIF		Amount
Core Fixed Income	\$	23,092
Emerging Market Debt		172,634
<b>Developed Market Internation</b>	nal Stock	449,749
<b>Emerging Market Internation</b>	al Stock	1,230,557

Investment advisory fees for the Liquidity, Mutual Equity, Core Fixed Income, Inflation Linked Bond, Emerging Market Debt, High Yield Debt, Developed Market International Stock and the Emerging Market International Stock Funds, except those noted above are estimated monthly based on periodic reviews of asset values. Accordingly, the amounts listed as Investment Advisory Fees on the Statement of Changes in Net Position represent estimates of annual management fee expenses.

## K. RECLASSIFICATIONS

Certain prior year amounts have been reclassified to conform to the current year presenttion. Net Realized Gain (Loss) and Net Change in Unrealized Gain (Loss) on investments and foreign currency is now presented as Net Increase (Decrease) in the Fair Value of Investments and Foreign Currency.

## **NOTES TO FINANCIAL STATEMENTS (Continued)**

## L. RELATED PARTY AND OTHER TRANSACTIONS

There were no related party transactions during the fiscal year. Additionally, there were no "soft dollar" transactions. Soft dollar transactions result from arrangements whereby firms doing business with organizations such as the Treasury arrange for third parties to provide other services in lieu of cash payment. These arrangements tend to obscure the true cost of operations and can result in potential overpayment for services. Such transactions have been prohibited by the Treasurer.

#### M. ESTIMATES

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

## NOTE 2: DEPOSITS, INVESTMENTS AND SECURITIES LENDING PROGRAM

#### **Deposits:**

The CIFs minimize custodial credit risk by maintaining certain restrictions set forth in the Investment Policy Statement. Custodial credit risk is risk associated with the failure of a depository financial institution. In the event of a depository financial institution's failure the CIFs would not be able to recover its deposits or collateralized securities that are in the possession of the outside parties. The CIFs utilize a Liquidity Account that is a cash management pool investing primarily in highly liquid money market securities such as commercial paper, certificates of deposit, bank notes and other cash equivalents, asset backed securities, and floating rate corporate bonds. Deposits shall consist of cash instruments generally maturing in less than one year and having a quality rating, by at least one widely recognized rating agency, of A-1 or P-1 and earn interest at a rate equal to or better than the International Business Communications ("IBC") First Tier Institutions-Only Rated Money Fund Report Index.

At June 30, 2018, the reported amount of Funds deposits were \$106,037,905 and the bank balance was \$106,037,905. Of the bank amount, \$106,037,905 was uncollateralized and uninsured. Through the Securities Lending Program, \$2,609,094,193 was collateralized with securities held by the counterparty's trust department or agent in the State's name.

## Investments:

The CIFs measure and record their investments using fair value measurement guidelines established by GAAP. The guidelines recognize a three tired fair value hierarchy, as follows: Level 1: Quoted prices for identical investments in active market; Level 2: Observable inputs other than quoted market price; and, Level 3 Unobservable inputs. At June 30, 2018 the CIF have the following recurring fair value measurements:

	Fair Value Measurements			
Investments by Fair Value Level	Total	Level 1	Level 2	Level 3
Cash Equivalents	\$ 848,350,291	\$ 47,550	\$ 848,302,741	\$ -
Asset Backed Securities	260,195,751	-	260,195,751	-
Government Securities	3,661,833,905	1,264,151,788	2,397,682,117	-
Government Agency Securities	645,395,809	-	645,395,809	-
Mortgage Backed Securities	333,199,844	-	333,199,844	-
Corporate Debt	4,284,257,522	-	4,158,574,127	125,683,395
Convertible Securities	31,231,556	-	31,231,556	-
Common Stock	15,183,972,584	15,183,228,935	-	743,649
Preferred Stock	47,298,568	28,737,222	18,561,346	-
Real Estate Investment Trust	327,950,185	266,669,498	61,280,687	-
Mutual Fund	1,529,260,099	1,529,260,099	-	-
Limited Partnerships (publicly traded)	1,948,495	1,948,495	-	-
Total	\$27,154,894,609	\$18,274,043,587	\$8,754,423,978	\$126,427,044

Investments Measured at the Net Asset Value(NAV)			Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Limited Liability Corporation	\$	1,156,486	-	Illiquid	N/A
Limited Partnerships	7	,212,625,192	2,346,469,160	Illiquid	N/A
Total	7	,213,781,678	\$ 2,346,469,160		
Total Investments in Securities at Fair Value	\$34	,368,676,287			

## **NOTES TO FINANCIAL STATEMENTS (Continued)**

Pursuant to the Connecticut General Statutes, the Treasurer is the principal fiduciary of the plans and trusts, authorized to invest in a broad range of equity and fixed income securities, as well as real estate properties, mortgages and private equity. The CIF minimize credit risk, the risk of loss due to the failure of the security issuer or backer, in accordance with a comprehensive Investment Policy Statement (IPS), as developed by The Office of the Treasurer and the State's Investment Advisory Council (IAC), that provides policy guidelines for the plans and trusts and the CIF and includes an asset allocation plan. The asset allocation plan's main objective is to maximize investment returns over the long term at an acceptable level of risk. There have been no violations of these investment restrictions during the 2018 fiscal year.

The CIF's concentration of credit risk is the risk attributed to the magnitude of an investment in a single issuer. There are no restrictions in the amount that can be invested in Government Securities and Government Agency Securities.

The following table provides average credit quality and exposure levels information on the credit ratings associated with Funds investments in debt securities:

		Percentage
	Fair Value	of Fair Value
Aaa	\$2,476,345,182	24.60%
Aa	683,693,293	6.79
A	822,926,207	8.18
Baa	844,884,432	8.39
Ва	842,977,539	8.38
В	950,295,970	9.44
Caa	444,618,246	4.42
Ca	3,979,710	0.04
C	30,106,217	0.30
Prime 1	698,275,800	6.94
Prime 2	70,027,466	0.70
Prime 3	20,680,782	0.21
U.S. Government fixed income securities (not rated)	159,771,569	1.59
Non US Government fixed income securities (not rated)	323,136,793	3.21
Not Rated	1,692,745,470	16.82
	\$10,064,464,677	100.00%

The investments in the Private Equity, Real Estate and Alternative Investment Funds generally utilize investment vehicles such as annuity contracts, common stocks, limited partnerships and trusts to comply with investment guidelines against direct ownership of such investment assets.

The investments of the Liquidity, Mutual Equity, Core Fixed Income, Inflation Linked Bond, Emerging Market Debt, High Yield Debt, Developed Market International Stock and the Emerging Market International Stock Funds have securities registered under the Bank of New York Mellon's nominee name MAC & Co. and held by a designated agency of the Pension Plans and Trust Funds of the State of Connecticut, or bearer and held by a designated agency of the Pension Plans and Trust Funds of the State of Connecticut.

Investments of cash collateral received and invested under securities lending arrangements are registered and maintained by a third party administrator exclusively for the CIF. In circumstances where securities or letters of credit are received as collateral under securities lending arrangements, the collateral is held by the master custodian in a commingled pool in the third party administrator's name as trustee. Securities Lending collateral of \$2,609,094,193 is invested in various short term repurchase agreements which are classified as cash equivalents.

The following table provides information about the interest rate risks associated with the CIF investments. Interest rate risk is the risk that the value of fixed income securities will decline because of rising interest rates. The prices of fixed income securities with a longer time to maturity tend to be more sensitive to changes in interest rates and therefore, more volatile than those with shorter maturities.

Investment Managers that manage the CRPTF portfolio are given full discretion to manage their portion of CRPTF assets within their respective guidelines and constraints. The guidelines and constraints require each manager to maintain a diversified portfolio at all times. In addition, each core manager is required to maintain a target duration that is similar to its respective benchmark which is typically the Barclay's Aggregate – an intermediate duration index.

The investments include certain short-term cash equivalents which include certificate of deposits and collateral, various long term items, and restricted assets by maturity in years:

## **NOTES TO FINANCIAL STATEMENTS (Continued)**

		Investment Maturities (in Years)			
Investment Type	Fair Value	Less Than 1	<u>1 - 5</u>	<u>6 - 10</u>	More Than 10
Cash Equivalents	\$848,350,291	\$848,350,291	\$0	\$0	\$0
Asset Backed Securities	260,195,751	(19,989)	90,405,563	80,631,811	89,178,366
Government Securities	3,661,833,905	182,297,513	1,502,443,059	813,202,501	1,163,890,832
Government Agency Securities	645,395,809	34,991,721	43,568,303	29,318,302	537,517,483
Mortgage Backed Securities	333,199,844	3,546,423	56,109,728	30,388,684	243,155,009
Corporate Debt	4,284,257,522	1,366,686,483	1,540,615,356	1,015,629,817	361,325,866
Convertible Debt	31,231,555	558,610	7,393,089	10,342,002	12,937,854
	\$10,064,464,677	\$2,436,411,052	\$3,240,535,098	\$1,979,513,117	\$2,408,005,410

Exposure to foreign currency risk results from investments in foreign currency-denominated equity or fixed income securities. As a means of limiting its exposure, the CIF utilize a strategic hedge ratio of 50% for the Developed Market International Stock Fund ("DMISF"). This strategic hedge ratio represents the neutral stance or desired long-term exposure to currency for the DMISF. To implement this policy, currency specialists actively manage the currency portfolio as an overlay strategy to the equity investment managers. These specialists may manage the portfolio passively or actively depending on opportunities in the market place. While managers within the fixed income portion of the portfolio are allowed to invest in non-U.S. dollar denominated securities, managers are required to limit that investment to a portion of their respective portfolios. The following table provides information on deposits and investments held in various foreign currencies, which are stated in U.S. dollars. Negative amounts are reflective of short positions.

	Fixed Income Securities				Equities					
Foreign Currency	Total	Cash	Cash Equiv	Government Securities	Corporate Debt	Asset Backed	Mortgage Backed	Common Stock	Preferred Stock	Real Estate Investment Trust
Argentine Peso	\$ 8,484,181 \$	127,442	\$ -	\$7,676,322	\$680,417	\$ -	\$ -	\$ -	\$ -	\$ -
Australian Dollar	413,204,983	901,512		74,622,289	7,448,931		· _	313,811,408	· -	16,420,843
Brazilian Real	144,228,929	5.704	_	92,492,712	-,,	61.056	_	51,150,029	519,428	-
Canadian Dollar	146,323,095	2,394,985	10,978,889	27,528,031	_	(23,588)	_	104,690,134		754,644
Chilean Peso	17,905,293	2,001,000	-	13,084,895	_	(20,000)	_	4,820,398	_	-
Colombian Peso	63,859,354	908,644	_	61,342,455	1,510,205	_	_	98,050		
Czech Koruna	11,587,537	130	-	11,587,407	1,310,203	-	-	90,030	-	•
	, ,	201.087	-	, ,	-	-	-	113,033,007	-	-
Danish Krone	114,297,522	201,007	-	1,063,428	-	-	-	113,033,007	-	-
Dominican Rep Peso	, ,	17 101 055		4,451,925				4 000 040		
Egyptian Pound	23,882,309	17,404,955	-	4,591,336		-	-	1,886,018		
Euro Currency	2,263,543,707	9,332,778	-	230,051,297	19,916,647	(132,690)	-	1,974,339,070	18,874,522	11,162,083
Ghanaian Cedi	1,426,597	-	-	-	1,426,597	-	-	-	-	-
Hong Kong Dollar	671,898,232	(150,639)	-	-	-	-	-	668,240,479	-	3,808,392
Hungarian Forint	63,075,632	810,543	-	24,459,311	-	-	-	37,805,778	-	-
Iceland Krona	2,255	2,255	-	-	-	-	-	-	-	-
Indian Rupee	5,949,481	-	-	270,123	5,679,358	-	-	-	-	-
Indonesian Rupiah	91,767,909	1.759.753	-	41,373,277	45,930,845	-	-	2.704.034	-	_
Israeli Shekel	42,264,878	16,962	_	_	_	_	_	42,247,916	_	_
Japanese Yen	1,370,814,707	5,610,494	_	50,965,619	_	120,093	_	1,307,198,837	_	6,919,664
Kazakhstan Tenge	6,025,833	0,0.0,.0.		00,000,010	6,025,833	.20,000		.,00.,.00,00.		0,010,001
Georgian Lari	1,847,722	_	_	_	1,847,722					
Malaysian Ringgit	87,957,020	607,444		87,084,498	1,047,722	9,167		255,911		
Mexican Peso	183,022,363	1,065,733	-	176,104,481	5,929,393		-	73,421	-	-
	, ,	, ,				. , ,	-	,	-	-
New Zealand Dollar	110,392,263	499,070	-	94,017,769	694,377	(94,957)	-	15,276,004	-	-
Nigerian Naira	8,842,336	3,109,127	-	-	5,562,256	-	-	170,953	-	-
Norwegian Krone	49,242,360	85,444	-	-	236,922	-	-	48,919,994	-	-
Peruvian Nouveau S	, ,	22,000	-	23,590,298	6,416,980	-	-	-	-	-
Philippine Peso	1,446,583	-	-	1,446,583	-	-	-	-	-	-
Polish Zloty	162,453,211	259,012	-	90,006,543	-	1,382	-	72,186,274	-	-
Pound Sterling	1,223,683,687	2,351,471	106,048	258,745,031	4,874,440	(71,123)	985,228	939,361,941	-	17,330,651
Romanian Leu	14,262,606	-	-	14,262,606	-	-	-	-	-	-
Russian Ruble	71,739,618	122,350	-	71,617,268	-	-	-	_	-	_
Singapore Dollar	131,882,582	79,692	_	25,129,212	_	_	_	103,889,266	_	2,784,412
South African Rand	184,298,453	529,731	_	85,516,065	2,985,382	_	_	95,267,275	_	_,,
South Korean Won	358,178,755	69,083	_	-	_,000,002	_	_	351,268,023	6,841,649	_
Sri Lanka Rupee	3,899,479	09,003	-	-	3,899,479	-	-	001,200,020	0,041,043	-
Swedish Krona	160,132,513	198.008	-	4,212,451	5,055,475	-	-	155,722,054	-	-
		,	-	4,212,431	-	-			-	-
Swiss Franc	436,610,806	507,137	-	-	-	-	-	436,103,669	-	-
Thailand Baht	84,762,801	309,518	-	36,891,605	-	-	-	47,561,678	-	-
Turkish Lira	51,193,707	76	-	35,943,026		-	-	15,250,605	-	-
Ukraine Hryvana	8,827,003				8,827,00					
Uruguayan Peso	3,492,910	-	-	3,492,910	-	-	-	-	-	-
	\$8,833,192,415	\$49,141,501	\$11,084,937	7 \$1,653,6 <del>2</del> 0	,773 \$129,89	92,787 (\$2	81,325) \$985	,228 \$6,903,332,2	26 \$26,235,59	9 \$59,180,689

## **NOTES TO FINANCIAL STATEMENTS (Continued)**

## Securities Lending:

Certain of the CIF engage in securities lending transactions to provide incremental returns. The CIF are permitted to enter into securities lending transactions pursuant to Section 3-13d of the Connecticut General Statutes. The CIF's third party securities lending administrator is authorized to lend available securities to authorized broker-dealers and banks subject to a formal loan agreement.

During the period ended June 30, 2018, the Agent lent certain securities and received cash or other collateral as indicated on the Agency Securities Lending Agreement. The Agent did not have the ability to pledge or sell collateral securities delivered therefore absent a borrower default. Borrowers were required to deliver collateral for each loan equal to at least 102% of the fair value of domestic loaned securities or 105% of the fair value of foreign loaned securities.

Pursuant to the Agency Securities Lending Agreement, the Agent has an obligation to indemnify the CIFs in the event any borrower failed to return the loaned securities or pay distributions thereon. There were no such failures by any borrowers to return loaned securities or pay distributions thereon during the fiscal year that resulted in a declaration or notice of default by a borrower. During the fiscal year, the CIF and the borrowers maintained the right to terminate all securities lending transactions upon notice. The cash collateral received on each loan is eligible for investment in cash, securities guaranteed by the U. S. government or any agency of the U. S. government, securities guaranteed by a sovereign government that participates in the General Arrangements to Borrow (Group of 10 or G10) and rated AA or better, or reverse transactions on an overnight or term basis. On June 30, 2018, the CIF had no credit risk exposure to borrowers. The fair value of collateral held for the CIF as of June 30, 2018 was \$2,605,088,450 as cash. The fair value of securities on loan for the CIF as of June 30, 2018 was \$2,556,581,745 as cash.

Under ordinary circumstances, the net weighted average maturity (weighted average maturity of assets less the weighted average maturities of liabilities) will not exceed 60 days. As of June 30, 2018 the cash collateral investment pool had an average duration of 21.06 days and an average weighted final maturity 47.26 days.

The fair value of collateral held and the fair value of securities on loan including \$9,660 million pending loans within DMISF (to be collateralized) are as follows for the CIF as of June 30, 2018:

CIF	Fair Value of Collateral	Fair Value of Securities Lent
Mutual Equity	\$883,208,392	\$862,933,310
Core Fixed Income	166,157,885	162,980,124
Inflation Linked Bond	412,231,077	405,410,437
Emerging Market Debt	38,667,975	37,931,738
High Yield Debt	577,176,107	566,956,356
Developed Market International Stock	107,963,198	100,975,388
Emerging Market International Stock	429,343,816	419,394,392
	\$2,614,748,450	\$2,556,581,745

Investments made using the cash collateral received from security loans were included in the Statement of Net Position. The fair value of these amounts is as follows:

		Casn
CIF		Equivalents
Mutual Equity	\$	884,566,472
Core Fixed Income		166,413,385
Inflation Linked Bond		412,864,948
Emerging Market Debt		38,727,435
High Yield Debt		578,063,602
Developed Market International Stock		98,454,340
Emerging Market International Stock		430,004,011
Total	\$	2,609,094,193
	_	

## **NOTES TO FINANCIAL STATEMENTS (Continued)**

## NOTE 3: PURCHASES AND SALES OF INVESTMENT SECURITIES

For the period ended June 30, 2018, the aggregate cost of purchases and proceeds from sales of investment securities were as follows:

CIF	Purchases	Sales
Alternative Investment	\$1,845,829,579	\$1,482,313,559
Mutual Equity	2,445,066,510	2,574,906,330
Core Fixed Income	11,788,088,678	11,001,997,189
Inflation Linked Bond	1,454,531,855	1,416,476,818
Emerging Market Debt	2,329,847,083	1,906,313,513
High Yield Debt	1,973,657,655	1,815,766,884
Developed Market International Stock	5,665,009,894	5,272,055,787
Emerging Market International Stock	4,805,230,053	5,125,097,700
Real Estate	714,975,644	749,940,100
Private Investment	1,140,300,109	1,363,714,584

The above amounts include the effect of cost adjustments processed during the year.

# NOTE 4: UNREALIZED APPRECIATION AND DEPRECIATION ON INVESTMENTS AND FOREIGN EXCHANGE CONTRACTS

At June 30, 2018, the gross appreciation of investment securities in which there was an excess of fair value over cost, the gross depreciation of investment securities in which there was an excess of cost over fair value and the resulting net appreciation (depreciation) by the CIF were as follows:

	Gross	Gross	Net Appreciation
CIF	Appreciation	Depreciation	(Depreciation)
Liquidity Investment Fund	\$76	\$658	\$(582)
Alternative Investment Fund	290,189,982	9,900,381	280,289,601
Mutual Equity	3,034,619,644	171,139,892	2,863,479,752
Core Fixed Income	11,602,685	52,484,276	(40,881,591)
Inflation Linked Bond	25,705,653	33,089,568	(7,383,915)
Emerging Market Debt	7,595,013	165,682,016	(158,087,003)
High Yield Debt	31,495,183	104,397,507	(72,902,324)
Developed Market International Stock	1,382,609,297	341,622,229	1,040,987,068
Emerging Market International Stock	438,893,571	165,550,687	273,342,884
Real Estate	417,674,738	103,283,769	314,390,969
Private Investment Fund	719,166,569	294,050,094	425,116,475

## **NOTE 5: FOREIGN EXCHANGE CONTRACTS**

From time to time the Liquidity, Core Fixed Income, Inflation Linked Bond Fund, Emerging Market Debt, High Yield Debt Fund, Developed Market International Stock, Emerging Market International Funds utilize foreign currency contracts to facilitate transactions in foreign securities and to manage the CIF's currency exposure. Contracts to buy are used to acquire exposure to foreign currencies, while contracts to sell are used to hedge the CIF's investments against currency fluctuations. Also, a contract to buy or sell can offset a previous contract. Losses may arise from changes in the value of the foreign currency or failure of the counterparties to perform under the contracts' terms.

The U. S. dollar value of forward foreign currency contracts is determined using forward currency exchange rates supplied by a quotation service.

Investing in forward currency contracts may increase the volatility of the CIF's performance. Price movements of currency contracts are influenced by, among other things, international trade, fiscal, monetary, and exchange control programs and policies; national and international political and economic events; and changes in worldwide interest rates. Governments from time to time intervene in the currency markets with the specific intent of influencing currency prices. Such intervention may cause certain currency prices to move rapidly. Additionally, the currency markets may be particularly sensitive to interest rate fluctuations.

## **NOTES TO FINANCIAL STATEMENTS (Continued)**

At June 30, 2018, the CIF had recorded unrealized gains (losses) from open forward currency contracts as follows:

## **Core Fixed Income Fund:**

Local Currency Name	Value	Unrealized Gain/(Loss)
Contracts to Buy:		
Australian Dollar	\$13,898,548	(\$133)
Canadian Dollar	3,045,121	(46,287)
Euro Currency Unit	5,539,508	(13,745)
Japanese Yen	6,904,031	(45,955)
Mexican Peso	979,258	44,162
New Zealand Dollar	5,958,501	(97,097)
Norwegian Krone	8,161,216	(69,567)
Polish Zloty	14,767,688	(63,003)
Pound Sterling	14,157,235	(156,327)
Swedish Krona	7,899,241	(197,472)
	\$81,310,347	\$ (645,424)
Contracts to Sell:		
Australian Dollar	29,907,906	653,104
Canadian Dollar	26,504,324	323,620
Euro Currency Unit	6,299,787	(394,838)
Japanese Yen	2,995,329	22,743
Mexican Peso	22,610,770	(1,022,035)
New Zealand Dollar	37,733,664	1,419,640
Polish Zloty	26,931,437	758,698
Singapore Dollar	23,648,206	453,326
	176,631,423	2,214,258
Grand total	\$257,941,770	\$1,568,834

#### **Financial Statement Amounts:**

	Receivable	Payable	Net
FX Value	\$257,941,770	\$257,941,770	\$ -
Unrealized Gain(Loss)	(645,424)	2,214,258	1,568,834
Net	\$257,296,346	\$255,727,512	\$1,568,834

## Inflation Linked Bond Fund:

iacioni Emilioa Bona i aniai		
Local Currency Name	Value	Unrealized Gain/(Loss)
Contracts to Buy:		
Australian Dollar	\$1,364,366	\$(10,660)
Canadian Dollar	12,836,202	(139,763)
Colombian Peso	1,122,731	(6,641)
Danish Krone	454,936	(2,664)
Euro Currency Unit	29,080,463	48,246
Japanese Yen	53,815,225	(316,247)
Mexican Peso	9,003,290	177,284
New Zealand Dollar	6,517,104	5,629
Norwegian Krone	18,099,783	(154,283)
Pound Sterling	202,764,580	(1,860,810)
Swedish Krona	45,756,458	(1,097,502)
_	380,815,138	(3,357,411)
Contracts to Sell:		

Australian Dollar	49,397,106	1,067,526
Canadian Dollar	2,606,565	33,692
Colombian Peso	7,011,982	186,994
Euro Currency Unit	56,231,409	139,524
Japanese Yen	30,224,448	334,735
Mexican Peso	25,745,554	(908,751)
New Zealand Dollar	65,364,279	2,217,508
Polish Zloty	2,023,476	57,004
Pound Sterling	31,110,039	(79,006)
Swedish Krona	764,705	(1,527)
	270,479,563	3,047,699
Grand total	\$651,294,701	\$(309,712)

## **NOTES TO FINANCIAL STATEMENTS (Continued)**

Financial Statement Amou
--------------------------

nancial Statement Amoun	ts:		
	Receivable	Payable	Net
FX Value	\$651,294,701	\$651,294,701	\$ -
Unrealized Gain/Loss	(3,357,411)	3,047,699	(309,712)
Net	\$647,937,290	\$648,247,002	(\$309,712)

## **Emerging Market Debt Fund:**

erging Market Debt Fund:		
Local Currency Name	Value	Unrealized Gain/(Loss)
Contracts to Buy:		
Argentina Peso	\$5,467,791	\$(450,182)
Australian Dollar	4,920,122	(1,598)
Brazil Real	41,882,914	(451,787)
Chilean Peso	21,183,353	(689,405)
Chinese Yuan Renminbi	3,004,823	(89,866)
Colombian Peso	18,459,278	(736,374)
Czech Koruna	38,797,322	(986,020)
Dominican Rep Peso	2,080,000	3,352
Egyptian Pound	3,896,770	172,226
Ghanaian Cedi		
	3,062,310	(112,497)
Hungarian Forint	15,389,813	(615,025)
Indian Rupee	8,906,369	(192,902)
Indonesian Rupiah	4,961,592	(105,411)
Israeli Shekel	5,293,772	(101,498)
Kazakhstan Tenge	9,038,149	(181,510)
Malaysian Ringgit	1,222,768	(17,704)
Mexican Peso	27,421,962	597,264
Nigerian Naira	4,079,079	190,165
Peruvian Sol	2,110,468	(35,312)
Philippines Peso	3,000,000	(8,858)
Polish Zlotv	37,039,617	(2,138,123)
Romanian Leu	8,389,457	(192,241)
Russian Ruble (New)	14,974,058	(30,674)
South African Rand	22,710,463	(1,817,408)
South Korean Won	2,004,210	(75,390)
Thailand Baht	, ,	
	29,966,890	(1,201,087)
Turkish Lira	21,061,947	(627,457)
Ukraine Hryvana	527,000	56,955
	360,852,297	(9,838,367)
Contracts to Sell:		0.40 =00
Argentina Peso	4,335,769	240,590
Australian Dollar	9,972,411	104,855
Brazil Real	58,385,556	1,089,749
Canadian Dollar	1,043,355	(13,520)
Chilean Peso	10,920,472	273,032
Colombian Peso	6,360,447	287,719
Czech Koruna	6,145,170	137,254
Egyptian Pound	788,639	(17,397)
Euro Currency Unit	5,520,907	30,409
Hungarian Forint	2,581,000	71,700
Indian Rupee	4,262,537	24,181
Indonesian Rupiah	4,847,597	59,054
Israeli Shekel	1,256,081	5,811
		·
Malaysian Ringgit	2,800,000	30,082
Mexican Peso	27,282,574	1,312,515
Nigerian Naira	2,998,780	(114,875)
Peruvian Sol	2,017,000	(2,300)
Philippines Peso	2,192,221	(1,853)
Polish Zloty	16,743,307	418,117
Romanian Leu	4,178,003	12,965
	7,630,530	(65,101)
Russian Ruble (New)		(65,101) 1,753,668
Russian Ruble (New) South African Rand	7,630,530 31,463,335	1,753,668
Russian Ruble (New) South African Rand Thailand Baht	7,630,530 31,463,335 4,536,901	1,753,668 88,667
Russian Ruble (New) South African Rand Thailand Baht Turkish Lira	7,630,530 31,463,335 4,536,901 9,778,000	1,753,668 88,667 (135,404)
Russian Ruble (New) South African Rand Thailand Baht Turkish Lira	7,630,530 31,463,335 4,536,901 9,778,000 578,463	1,753,668 88,667 (135,404) (5,492)
Russian Ruble (New) South African Rand Thailand Baht Turkish Lira Ukraine Hryvana	7,630,530 31,463,335 4,536,901 9,778,000	1,753,668 88,667 (135,404)

## **NOTES TO FINANCIAL STATEMENTS (Continued)**

	<b>Financial</b>	Statement	Amounts:
--	------------------	-----------	----------

	Receivable	Payable	Net
FX Value	\$589,471,352	\$589,471,352	\$ -
Unrealized Gain(Loss)	(9,838,367)	5,584,426	(4,253,941)
Net	\$579,632,985	\$583,886,926	\$(4,253,941)

## High Yield Debt Fund:

Local Currency Name	Value	Unrealized Gain/(Loss)
Contracts to Buy:		
Euro Currency Unit	\$2,336,602	\$15,389
_	2,336,602	15,389
Contracts to Sell:		
Euro Currency Unit	21,904,894	25,454
Pound Sterling	3,091,072	45,852
	24,995,966	71,306
Grand total	\$27,332,568	\$86,695

## Financial Statement Amounts:

	Receivable	Payable	Net	
FX Value	\$27,332,568	\$27,332,568	\$ -	
Unrealized Gain(Loss)	15,389	71,306	86,695	
Net	\$27,347,957	\$27,261,262	\$86,695	

# Developed Market International Stock Fund: Local Currency Name Value Unrealized Gain/(Loss)

Contracts to Buy:		, ,
Australian Dollar	\$556,390,876	\$(15,306,944)
Canadian Dollar	504,607,920	(9,530,335)
Danish Krone	374,152	(3,309)
Euro Currency Unit	285,406,401	(727,740)
Hong Kong Dollar	7,611,029	(4,707)
Israeli Shekel	4,479,309	(117,288)
Japanese Yen	88,254,791	(1,176,910)
New Zealand Dollar	297,082,585	(8,246,792)
Norwegian Krone	335,316,606	(1,982,101)
Pound Sterling	252,921,607	(2,823,078)
Singapore Dollar	339,197,592	(5,078,556)
Swedish Krona	243,132,819	(4,004,750)
Swiss Franc	8,378,887	(74,299)
	2,923,154,574	(49,076,809)
Contracts to Sell:		
Australian Dollar	153,712,391	4,516,695
Canadian Dollar	183.758.600	320.493
Danish Krone	52,933,881	529,963
Euro Currency Unit	1,207,893,584	11,488,041
Hong Kong Dollar	111,474,171	57,571
Israeli Shekel	29,857,609	846,538
Japanese Yen	548,153,599	4,338,876
New Zealand Dollar	93,237,139	2,464,289
Norwegian Krone	628,645,900	9,122,623
Pound Sterling	298,834,289	3,304,098
Singapore Dollar	706,253,954	14,774,865
South African Rand	21,709	(194)
Swedish Krona	799,100,223	23,735,390
Swiss Franc	261,568,598	2,654,601
	5,075,445,647	78,153,849
Grand total	\$7,998,600,221	\$29,077,040

## Financial Statement Amounts: Receivable Payable Net

	Receivable	Payable	Net
FX Value	\$7,998,600,221	\$7,998,600,221	\$ -
Unrealized Gain(Loss)	(49,076,809)	78,153,849	29,077,040
Net	\$7,949,523,412	\$7,920,446,372	\$29,077,040

## **NOTES TO FINANCIAL STATEMENTS (Continued)**

Emerging Market International Stock Fund:							
Local Currency Name	Value	Unrealized Gain/(Loss)					
Contracts to Buy:							
Hong Kong Dollar	\$2,527,689	\$206					
Polish Zloty	1,179,156	365					
-	3,706,845	571					
Contracts to Sell:							
Brazil Real	23,625	(53)					
Hong Kong Dollar	1,945,159	(431)					
Polish Zloty	428,183	(133)					
Pound Sterling	380,460	(1,624)					
South African Rand	1,147,559	(9,773)					
-	3,924,986	(12,014)					
Grand total	\$7,631,831	(\$11,443)					
=							
Financial Statement Ame	ounts:						
	Receivable	Payable	Net				

Receivable	rayable	iver
\$7,631,831	\$7,631,831	\$ -
571	(12,014)	(11,443)
\$7,632,402	\$7,643,845	(\$11,443)
	\$7,631,831 571	\$7,631,831 \$7,631,831 571 (12,014)

The net unrealized gain has been included in the Statement of Changes in Net Position as a component of Net Change in Unrealized Gain (Loss) on Investments and Foreign Currency.

#### **NOTE 6: COMMITMENTS**

In accordance with the terms of the individual investment agreements, the Private Investment, Real Estate, Alternative Investment Funds and Core Fixed Income Fund have outstanding commitments to make additional investments. These commitments will be fulfilled as suitable investment opportunities become available. Commitments at June 30, 2018, were as follows:

	Cumulative					
	Total	Amounts	Unfunded			
Fund	Commitment	Funded	Commitment			
Real Estate	\$ 3,433,032,287	\$ 2,986,741,582	\$ 446,290,705			
Private Investment	6,163,211,149	4,699,136,604	1,464,074,545			
Alternative Investment	2,987,054,932	2,706,509,729	280,545,203			

		Cumulative		
Commitments	Total	Amounts	Unfunded	
Denominated in Euros	Commitment	Funded	Commitment	
Real Estate	€ 0	€ 0	€0	
Private Investment	152,500,000	19,361,771	133,138,229	
Alternative Investment	0	0	0	

Euro denominated Unfunded Commitment when translated to US. Dollars was valued at \$155,558,707 on June 30, 2018.

Certain Private Investment Funds allow the General Partner to recycle distributions without a reduction in unfunded commitments and accordingly have no impact upon the above amounts. Capital recycling is a tool frequently used by investment managers to fully invest the committed capital in portfolio investments. Since fees and expenses are a component of a General Partner's total capital commitments, capital recycling generally allows managers to: (i) mitigate the impact of fees and expenses and (ii) increase the possibility that limited partner capital is invested in portfolio companies. Recycling provisions allow managers to recall capital distributions if certain criteria are met. The use of recycling provisions varies by manager but generally limits capital recycling to a range between 0% and 20% of total commitments. As a result the actual commitment could be as much as 120% of the stated commitment amount.

## **NOTES TO FINANCIAL STATEMENTS (Continued)**

## **NOTE 7: SUBSEQUENT EVENT**

The CRPTF has performed an evaluation of subsequent events through December 31, 2018 the date the basic financial statements were available to be issued. No material events were identified.

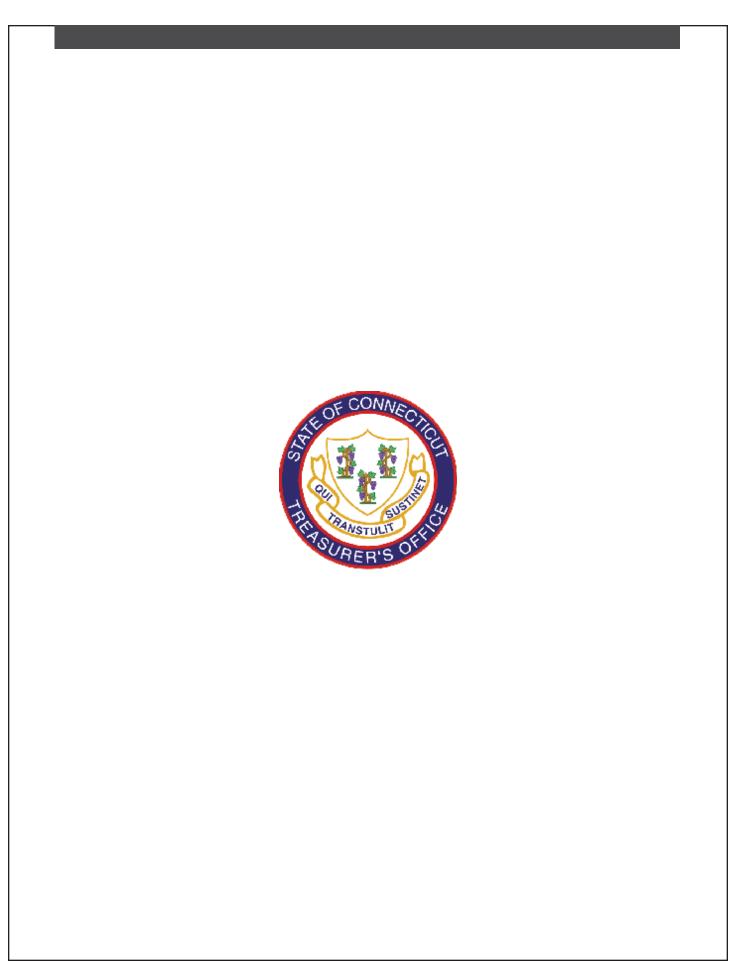
## **NOTE 8: COST BASIS OF INVESTMENTS**

The aggregate cost values of investments in the Funds are as follows at June 30, 2018:

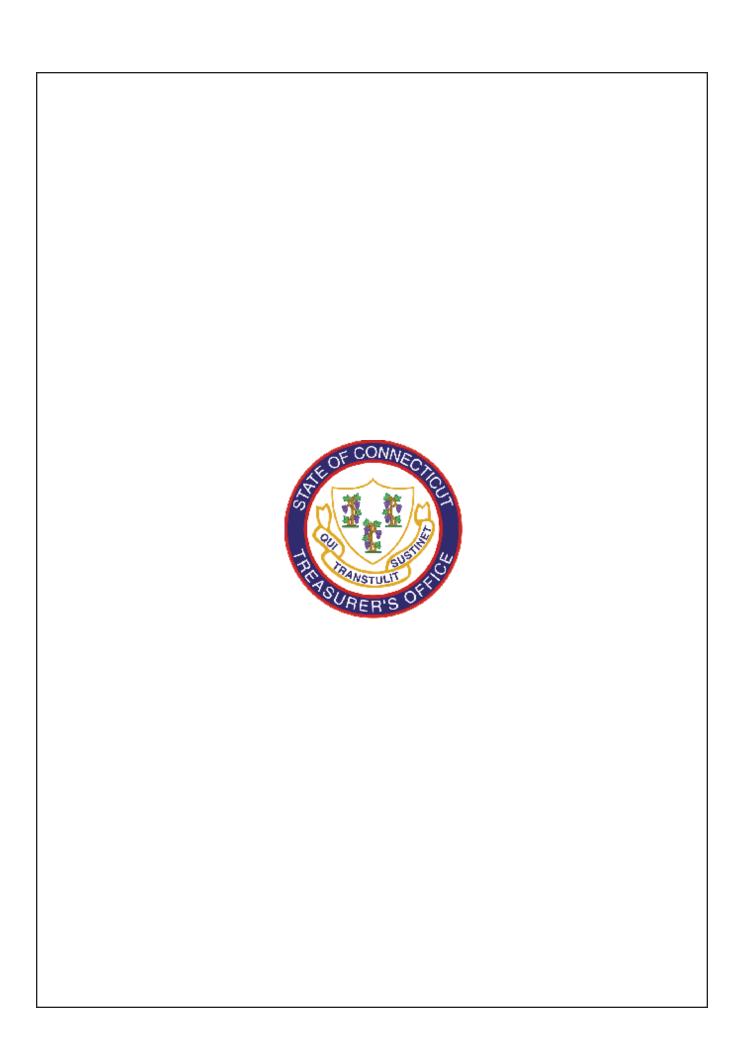
	LIQUIDITY FUND	ALTERNATIVE INVESTMENT FUND	MUTUAL EQUITY FUND	CORE FIXED INCOME FUND	INFLATION LINKED BOND FUND
Investments in Securities, at Cost					
Liquidity Fund	\$ -	\$35,097,771	\$134,290,812	\$173,151,537	\$30,698,897
Cash Equivalents	827,720,976	-	-	11,378,667	1,021,823
Asset Backed Securities	-	-	-	256,697,037	(216,627)
Government Securities	3,726,674	-	-	939,363,791	-
Government Agency Securities	33,557,033	-	-	617,211,103	1,336,381,962
Mortgage Backed Securities	-	-	-	336,421,612	-
Corporate Debt	1,138,817,773	-	-	966,102,739	21,914,595
Convertible Securities	-	-	-	-	-
Common Stock	-	-	4,586,555,323	-	-
Preferred Stock	-	-	-	3,939,731	-
Real Estate Investment Trust	-	-	174,085,322	18,183,283	-
Business Development Corp	-	-	-	-	-
Mutual Fund	-	-	-	10,996,186	-
Limited Liability Corporation	-	-	-	-	-
Trusts	-	-	-	-	-
Limited Partnerships	-	2,107,349,727	1,601,472	-	-
Partnerships	-	-	-	-	-
Annuities	-	-	-	-	
Total Investments in Securities, at cost	\$2,003,822,456	\$2,142,447,498	\$4,896,532,929	\$3,333,445,686	\$1,389,800,650

## NOTES TO FINANCIAL STATEMENTS (Continued)

EMERGING MARKET DEBT FUND	HIGH YIELD DEBT FUND	DEVELOPED MARKET INTERNATIONAL STOCK FUND	EMERGING MARKET INTERNATIONAL STOCK FUND	REAL ESTATE FUND	PRIVATE INVESTMENT FUND	
\$72,017,606	\$54,196,706	\$549,732,307	\$75,297,334	\$72,201,324	\$97,075,690	
6,461,890	(43,135)	1,802,404	-	-	-	
3,689,766	936,982	-	-	-	-	
1,460,962,182	75,526,021	-	-	-	-	
-	-	-	-	-	-	
-	762,170	-	-	-	-	
376,661,168	1,883,247,861	-	-	-	-	
-	31,637,096	-	-	-	-	
395,023	75,501,848	4,795,007,592	1,447,536,256	-	-	
-	16,203,546	19,319,661	9,890,177	-	-	
-	44,470,442	53,394,234	-	-	-	
-	-	-	-	-	-	
82,206,860	-	611,684,669	973,495,873	-	-	
-	-	-	-	-	1,432,734	
-	-	-	-	-	-	
-	-	-	-	1,896,547,244	2,188,740,257	
-	-	-	-	-	-	
-	-	-	-	-	-	
\$2,002,394,495	\$2,182,439,537	\$6,030,940,867	\$2,506,219,640	\$1,968,748,568	\$2,287,248,681	







# pension funds management division Division Overview

## Introduction

As principal fiduciary of six state pension funds and nine trust funds (known collectively as the Connecticut Retirement Plans and Trust Funds (CRPTF), the Treasurer is responsible for managing investment assets for retirement plans serving approximately 219,000 state and municipal employees, teachers, retirees and survivorships, as well as trust funds that support academic programs, grants, and initiatives throughout the state.

Prudent investment management requires the proper safeguard of the CRPTF assets to ensure the retirement security of the beneficiaries and to support the spending policies of the trust funds. Funding of the pension benefit liability is dependent upon state contributions, investment returns and the contribution requirements of eligible retirement plan participants. The spending requirements of the trust funds are met through the generation of investment income and capital gains with a focus on the preservation of capital.

The Combined Investment Funds (CIFs) were established pursuant to Connecticut General Statutes Section 3-31b as a means to invest pension and other trust fund assets in a variety of investment classes. The CIFs are comprised of the following separate pooled investment funds: Liquidity Fund; Mutual Equity Fund; Core Fixed Income Fund; Emerging Markets Debt Fund; High Yield Debt Fund; Inflation Linked Bond Fund; Developed Markets International Stock Fund; Emerging Markets International Stock Fund; Real Estate Fund; Private Investment Fund; and Alternative Investment Fund.

Over the last ten years, the net asset value of the CRPTF investments under Treasury management has grown from \$25.9 billion to approximately \$34.4 billion. The Teachers' Retirement Fund, with approximately \$17.9 billion of assets under management at June 30, 2018, is the largest participating plan. The State Employees' Retirement Fund and the Connecticut Municipal Employees' Retirement Fund have approximately \$12.5 billion and \$2.6 billion of assets, respectively. For the fiscal year ended June 30, 2018, total investment income (comprised of interest income, dividends, securities lending income, realized and unrealized capital gains, net of operating expenses) before allocation of administrative expenses, was approximately \$2.3 billion.

CRPTF's total investment in the CIFs at fair value as of June 30, 2018 was:

	Fair	% of Total Fund
	Value (1)	Fair Value
Liquidity Fund (LF) <sup>(2)</sup>	\$ 709,844,344	2.07%
Mutual Equity Fund (MEF)	7,760,012,682	22.58%
Developed Markets International Stock Fund (DMISF)	7,071,927,935	20.58%
Emerging Markets International Stock Fund (EMISF)	2,779,562,524	8.09%
Real Estate Fund (REF)	2,283,139,537	6.64%
Core Fixed Income Fund (CFIF)	3,292,563,253	9.58%
Inflation Linked Bond Fund (ILBF)	1,382,416,735	4.02%
Emerging Market Debt Fund (EMDF)	1,844,542,809	5.37%
High Yield Debt Fund (HYDF)	2,109,564,213	6.14%
Alternative Investment Fund (AIF)	2,422,737,099	7.05%
Private Investment Fund (PIF)	2,712,365,156	7.89%
Total Fund	\$34,368,676,287	100.00%

- (1) "Fair value" includes securities and cash invested in the Liquidity Fund (LF), and excludes receivables (FX contracts, interest, dividends due from brokers, foreign tax, securities lending receivables, reserve for doubtful accounts, invested securities lending collateral and prepaid expenses), payables (FX contracts, due to brokers, income distribution, securities lending collateral and accrued expenses), and cash not invested in the LF.
- (2) The fair value of the LF represents the pension and trust assets allocated to the LF (excluding receivables and payables); the LF balances of the other combined investment funds are shown in the fair value of each fund.

## **Fund Management**

Under the supervision of a Chief Investment Officer, appointed by the Treasurer with the consent of the Investment Advisory Council (IAC), the Pension Funds Management Division (PFM) executes and manages the investment programs of the pension and trust funds with a 13 member professional staff. Internal resources are augmented by several outside consulting firms that provide research and analytical expertise to the Treasurer, the Chief Investment Officer and PFM professionals. During Fiscal Year 2018, The Bank of New York Mellon (BNY Mellon) served as the custodian of record for the CRPTF, maintaining custody of and safeguarding plan assets. BNY Mellon also provided recordkeeping services under the supervision of PFM, and Deutsche Bank was the provider of securities lending services.

The Treasurer employs external investment managers to manage the portfolios underlying each CIF. Investment managers are selected based upon asset class expertise, investment performance and style. Investment managers are expected to comply with the parameters, guidelines, and restrictions set forth in the CRPTF Investment Policy Statement (IPS). As of June 30, 2018, 113 external investment managers were employed by the Treasury to invest the pension and trust assets (See Figure 1-5).

All operating overhead is allocated directly to the earnings of the pension and trust fund assets under management. The Treasury manages assets in a cost-effective manner, to maximize long-term investment returns.

## **Investment Policy**

One of the immutable principles of investment management is that asset allocation decisions are responsible for as much as 90 percent of investment returns. In September 2012, the IAC approved the Treasurer's adopted IPS, including the asset allocation plan, which governs the CRPTF investment portfolios and each of the CIFs. Subsequently, in December 2012, January 2013, April 2013, July 2013, and December 2017 the IAC approved the Treasurer's adopted modifications.

The asset allocation plan is customized for each plan and trust with the main objective being the maximization of investment returns over the long term at an acceptable level of risk, primarily through asset diversification. Risk, in this context, is defined as volatility of investment returns. (See Understanding Investment Performance under Supplemental Information.)

Diversification across asset classes is a critical component in structuring portfolios to maximize return at a given level of risk. In developing an asset allocation strategy, there is thorough analysis of the expected risk/return tradeoffs under different economic scenarios predicated on established correlations of investment returns and the diversification benefits of the available asset classes (i.e., those not restricted by statute).

As shown in Figure 1-4, the number and complexity of asset classes comprising the asset allocation policy have fluctuated during the last ten years. As of June 30, 2018, multiple asset classes were integrated in the IPS, including global public market equities and fixed income, as well as alternative investments such as real estate, private equity, hedge funds and real asset investment strategies.

At fiscal year-end, domestic, international developed and emerging markets equities (stocks) comprised the largest percentage of the total CRPTF, at approximately 52 percent. Publicly traded equities have an established record of maximizing investment returns over the long term. Fixed income, real estate and alternative investments were also included to enhance portfolio returns during highly inflationary or deflationary environments, to mitigate the effects of volatility in the stock market and to provide current income.

## **Asset Classes**

To realize the asset allocations set forth in the IPS for each plan and trust, the Treasurer administers the CIFs as a series of mutual funds in which the various retirement plans and trusts may invest through the purchase of ownership interests. The asset mix for each of the 15 plans and trusts is established by the Treasurer, with approval of the independent IAC, based upon (1) capital market theory, (2) financial and fiduciary requirements and (3) liquidity needs. However, there are instances in which the asset mix for a trust is set by the trust's governing document.

The asset classes which make up the CRPTF's portfolio include:

## **Domestic Equity**

The Mutual Equity Fund (MEF) assets are allocated across the broad U.S. stock market to ensure diversification by market capitalization and investment style, such as value and growth. The MEF may opportunistically invest up to 30 percent of assets to take advantage of shifts in the investment landscape or opportunities that offer diversification and risk-return benefits, and may include investments in any market capitalization and investment style as well as an allocation to stocks outside the U.S. As of June 30, 2018, the MEF structure was approximately 78.86 percent invested in large-cap stocks, 10.69 percent in small/mid-cap stocks, 9.49 percent in all-cap, and 0.97 percent in cash equivalents and other net assets. The MEF's ten largest holdings, aggregating 16.81 percent of Fund investments, included a variety of blue chip companies and were broadly diversified, with the largest holding of 2.92 percent in Apple Inc. Performance of the MEF is measured against the Russell 3000 Index (R3000).

Management of the MEF includes the use of pure indexing, enhanced indexing, active management, and opportunistic strategies executed by external investment managers. Index and enhanced index strategies are referred to as passive strategies since their investment portfolios are similar to the index. The goal of enhanced indexing is to generate a return slightly in excess of the selected index. Indexing is particularly appropriate for the "large-cap" segment of the equity markets, which is defined as the securities of the largest capitalized public companies. Given the overall efficiency of the domestic equity market, approximately 79 percent of the portfolio is invested in passive strategies. The balance of the portfolio is actively managed, primarily in the less efficient small and mid-capitalization sectors of the equity markets. These securities are issued by companies that are smaller and not as closely monitored, researched or analyzed as the larger capitalization companies. As a result of this relative inefficiency, active investment managers have the potential to outperform these markets over the long term, while earning an acceptable level of return per unit of risk.

## International Equity

Exposure to international equities is provided through two funds: the Developed Markets International Stock Fund (DMISF) and the Emerging Markets International Stock Fund (EMISF), each of which has distinct risk/return profiles. Stocks from developed market countries tend to offer lower risk and return potential compared to emerging market securities as a result of generally more stable economic and political environments and the depth and liquidity of their financial markets. The foreign currency exposure in the DMISF is partially hedged back to the U.S. dollar. DMISF and EMISF assets are allocated across foreign markets so that there is diversification by country, sector, capitalization and style, in a mix that is structured to replicate the characteristics of the comparable non-U.S. developed and emerging stock market indices to which each combined investment fund is benchmarked.

External investment managers invest DMISF assets primarily in common stocks issued by companies in developed market countries domiciled outside of the U.S. The benchmark for DMISF is the Morgan Stanley Capital International Europe Australasia and Far East Investable Market Index (MSCI EAFE IMI) 50 percent hedged. The DMISF is comprised of passive indexing, core developed markets and opportunistic strategies. As of June 30, 2018, the DMISF structure was approximately 74.79 percent invested in large-cap stocks, 18.91 percent in small-cap stocks, and 6.31 percent in cash equivalents and other net assets. Mandates for active growth/value and small cap developed market strategies represent roughly 21.69 percent and 18.91 percent of the DMISF, respectively. The currency exposure of the DMISF investments is managed through a currency hedging overlay strategy.

The EMISF invests primarily in the common stocks of non-U.S. corporations domiciled in countries included in the EMISF benchmark, which is the Morgan Stanley Capital International Emerging Markets Investable Market Index (MSCI EM IMI). EMISF investments are made through portfolios managed by external investment managers. The EMISF is invested 100 percent in active, unhedged emerging market strategies.

## Fixed Income

Fixed income assets are diversified across four funds: the Core Fixed Income Fund (CFIF), the Inflation Linked Bond Fund (ILBF), the Emerging Markets Debt Fund (EMDF), and the High Yield Debt Fund (HYDF). Investments in the various fixed income CIFs serve to reduce the overall volatility of CRPTF returns under numerous economic scenarios. Further, the fixed income CIFs provide cash flow to the CRPTF in the form of interest and principal payments.

The CFIF consists of externally managed, primarily investment grade, fixed income portfolios that include debt instruments issued by the U.S. Government and its agencies, quasi-government agencies, U.S. corporations and any other public or private U.S. corporation whose debt security is regulated by the Securities and Exchange Commission (including Eurobonds and quasi or sovereign debt). Assets are diversified across sectors, industries, credit quality and duration, and up to 30.0 percent may be opportunistically invested based on changes in the investment landscape that may improve diversification, reduce risk or enhance return. As of June 30, 2018, the CFIF structure approximated 28.0 percent invested in Treasury/agency securities, 32.6 percent in corporate securities, 17.6 percent in mortgage-backed securities, 14.0 percent in asset-backed securities, and 7.8 percent in cash equivalents and other net assets. The benchmark for CFIF is the Barclays U.S. Aggregate Bond Index.

The ILBF consists of externally managed fixed income portfolios containing domestic and foreign developed market sovereign bonds. These government bonds are primarily inflation-linked securities. Inflation-linked bonds offer protection against inflation and contribute to overall portfolio diversification. As of June 30, 2018, the ILBF structure was comprised of securities from the following countries or regions: 46.1 percent in the U.S., 19.2 percent in the U.K., 15.6 percent in the Eurozone, 8.9 percent in Australia and New Zealand, 3.4 percent in Mexico and 6.8 percent in other countries and cash equivalents. The benchmark for ILBF is the Barclays World Government Inflation-Linked Bond Index.

The EMDF consists of externally managed fixed income portfolios that contain debt instruments issued by governments and companies located in emerging countries as defined by the benchmark and The World Bank. The benchmark for EMDF is the J.P. Morgan Emerging Markets Bond Index Global Diversified/J.P. Morgan Government Bond Index - Emerging Markets Global Diversified (50 percent/50 percent). As of June 30, 2018, the EMDF structure approximated 34.8 percent invested in Latin America, 27.0 percent in Europe, 13.9 percent in Asia, 9.3 percent in Africa, 6.0 percent in the Middle East and 9.0 percent in cash equivalents, foreign currency, and other markets and net assets. The benchmark accounts for U.S. dollar-denominated debt and for debt issued in local currencies. The local currency debt is not hedged as the foreign currency is considered an additional source of alpha, or return in excess of that predicted by its benchmark.

The HYDF consists of externally managed fixed income portfolios that include debt instruments rated below investment grade by a nationally recognized rating agency service. The assets are diversified by sector, industry, credit quality and duration. The majority of the bonds are U.S. dollar-denominated. As of June 30, 2018, the HYDF structure approximated 94.3 percent invested in corporate securities, 2.1 percent in Treasury securities, and 3.7 percent in cash equivalents and other net assets. The benchmark for HYDF is the Citigroup U. S. High Yield Market Capped Index.

## **Liquidity Fund**

The Liquidity Fund (LF) consists of externally managed fixed income portfolios intended to provide a liquid source of funds for investment operations and earn a return greater than money market instruments, with minimal exposure to risk of principal. The LF is invested in money market instruments. As of June 30, 2018, the benchmark for the LF is the one month London Interbank Offered Rate (LIBOR) Index.

## Real Estate

The Real Estate Fund (REF) is the vehicle by which the CRPTF invests in the real estate asset class and may consist of a number of different investment strategies and investment vehicles, including externally managed commingled funds, open-end funds, separate accounts, and publicly traded real estate securities. The REF invests in real estate properties and mortgages and is designed to dampen the volatility of overall

returns through diversification and to generate attractive risk-adjusted rates of return. The REF will invest in the following: core strategies; value added strategies (investments involving efforts to increase property value through repositioning, development and redevelopment); opportunistic strategies (strategies that target niche opportunities, market inefficiencies, or special purpose markets); and publicly traded securities (primarily Real Estate Investment Trusts and Real Estate Operating Companies). Leverage at the aggregate of the REF is limited to 60 percent of REF's total valuation. These investments also adhere to the Responsible Contractor Policy. As of June 30, 2018, the REF structure was approximately 63.6 percent invested in core, 21.7 percent in value-added, 11.4 percent in opportunistic and 3.3 percent in cash equivalents and other net assets. The benchmark for REF is the National Council of Real Estate Investment Fiduciaries National Property Index (NCREIF-NPI), lagged by one quarter.

## Private Investments

The Private Investment Fund (PIF) is the vehicle used to invest in private equity. PIF investments generally are made in externally managed limited partnerships or through separate accounts that focus on private investments. These vehicles include investments in both venture capital and corporate finance investment strategies. Venture capital typically involves equity capital invested in young or development stage companies, and may include start-up, early, mid or late-stage companies. Corporate finance typically involves equity and debt capital invested in growth, mature or distressed stage companies, often through the financing of acquisitions, spin-offs, mergers or changes in capitalization. As of June 30, 2018, the PIF structure was approximately 76.0 percent invested in Corporate Finance and 24.0 percent in Venture. The benchmark for PIF is the S&P Global Ratings (S&P 500).

## Alternative Investments

The Alternative Investment Fund (AIF) invests in strategies that offer the potential to enhance return and/ or reduce risk. The AIF provides a vehicle for investment in portfolio strategies which are not easily classified, categorized, or described in other CIFs. Hybrid strategies which contain multiple asset classes are also considered part of the opportunity set. As of June 30, 2018, the AIF structure was approximately 91.5 percent invested in hedge fund of funds, 4.9 percent in real assets, 3.6 percent in opportunistic strategies, and 1.8 percent in cash equivalents and other net assets. AIF's benchmark is the 90-day Treasury Bill.

## Securities Lending

The CRPTF maintains a securities lending program designed to provide incremental risk adjusted returns. This program involves the lending of portfolio securities to broker/dealers in return for payment. Each loan is secured by collateral valued slightly in excess of the market value of the loaned securities. To further mitigate the risks of securities lending transactions, the CRPTF's securities lending bank carefully monitors the credit ratings of each counter-party and overall collateral levels.

Deutsche Bank was responsible for marketing the program, lending the securities, and obtaining adequate collateral during Fiscal Year 2018. As of June 30, 2018, securities with a market value of approximately \$2.6 billion had been loaned against collateral of approximately \$2.6 billion. Income generated by securities lending totaled \$13.6 million for the fiscal year

## The Year in Review

## **Total Fund Performance**

For the fiscal year ended June 30, 2018, the CRPTF achieved an annual total return of 7.03 percent, net of all fees and expenses. The three largest pension plans, the Teachers' Retirement Fund, the State Employees' Retirement Fund, and the Connecticut Municipal Employees' Retirement Fund -- which represent 96 percent of total assets -- returned 7.04 percent, 7.30 percent and 6.14 percent and underperformed their benchmarks by 66, 46 and 39 basis points, respectively. The CIFs' investment performance for Fiscal Year 2018 added \$1.8 billion of market value to pension assets.

After paying fees and expenses, including \$466 million of benefit payments in excess of contribution receipts, the CIFs ended the fiscal year with assets of \$34.4 billion.

The AIF, which invests in hedge funds, real assets and other opportunistic investments, returned 4.69 percent, outperforming its 90-day T-Bill benchmark return of 1.36 percent. Gains in equity and credit drove positive returns as the public equities markets continued its advance. For the trailing three- ,five- and seven-year periods, the AIF compounded returns, net of all fees and expenses, were 2.45 percent, 3.58 percent and 3.22, respectively.

The REF returned 8.69 percent, outperforming its benchmark return of 7.12 percent. Market fundamentals in most real estate sectors were strong during the fiscal year led by industrial and multi-family sectors. For the trailing three-, five-and seven-year periods, the REF compounded returns, net of all fees and expenses, were 9.18 percent, 10.22 percent and 9.79 percent, respectively.

The PIF returned 15.50 percent, outperforming its public market S&P 500 benchmark return of 14.37 percent. Utilizing the institutional standard for measuring private equity performance, Internal Rate of Return (IRR), PIF generated a net IRR of 12.7 percent. The PIF portfolio continued to generate positive cash flow with investment distributions exceeding contributions by approximately \$418 million for the year. For the trailing three-, five- and seven-year periods, the PIF compounded returns, net of all fees and expenses, were 11.75 percent, 13.05 percent and 11.50 percent, respectively.

The LF returned 1.63 percent, outperforming its benchmark return of 1.51 percent benefiting from rising interest rates environment resulting from the Federal Reserves' rate hikes. For the trailing three-, five- and seven-year periods, the LF compounded returns, net of all fees and expenses, were 1.09 percent, 0.54 percent and 0.46 percent, respectively.

The EMD returned -1.78 percent, outperforming its blended benchmark return of -1.89 percent. Fears of trade wars and the rise of the U.S. dollar versus foreign currencies had a meaningful impact on emerging markets performance. For the trailing three-, five- and seven-year periods, the EMD compounded returns, net of all fees and expenses, were 4.34 percent, 2.35 percent and 2.61 percent, respectively.

The MEF returned 14.74 percent, slightly underperforming its benchmark return of 14.78 percent. Domestic equity was the best performer for the year across all asset classes. Strong corporate earnings, solid economic growth and federal tax cuts passed earlier in the fiscal year contributed to the returns. For the trailing three-, five- and seven-year periods, the MEF compounded returns, net of all fees and expenses, were 11.67 percent, 13.36 percent and 12.94 percent, respectively.

The ILBF returned 3.21 percent, slightly underperforming its benchmark return of 3.32 percent. The increase in the price of oil and other commodities fueled by global growth caused an uptick in inflation expectations contributing to the ILBF's performance. For the trailing three-, five- and seven-year periods, the ILBF compounded returns, net of all fees and expenses, were 2.05 percent, 1.47 percent and 2.06 percent, respectively.

The HYDF returned 2.58 percent, underperforming its benchmark return of 2.82 percent. Higher interest rates and commodity prices, supportive corporate earnings, strong economic data, and low defaults contributed to the positive returns for the year. For the trailing three-, five- and seven-year periods, the HYDF compounded returns, net of all fees and expenses, were 4.81 percent, 4.99 percent and 5.69 percent, respectively.

The CFIF returned -0.89 percent, underperforming its benchmark return of -0.40 percent. Corporate bonds and U.S. Treasury bonds struggled throughout the year as interest rate yields across all time periods increased in response to normalization of monetary policy by the Federal Reserve. For the trailing three-, five- and seven-year periods, the CFIF compounded returns, net of all fees and expenses, were 1.47 percent, 2.10 percent and 2.55 percent, respectively.

The DMISF returned 6.53 percent, trailing its benchmark return of 8.26 percent. Overall performance for the fiscal year was positive for developed international markets. The first half of the year was strong as markets continued to benefit from positive corporate earnings and accommodative monetary policy but the second half of the year was negative as geopolitical risks increased. For the trailing three-, five-and seven-year periods, the DMISF compounded returns, net of all fees and expenses, were 7.30 percent, 8.75 percent and 7.28 percent, respectively.

The EMISF returned 4.66 percent, underperforming its benchmark return of 7.90 percent. Overall performance for the fiscal year was positive for emerging markets. Similar to developed international markets the first half of the year was positive, but was offset by appreciation in the U.S. dollar and escalating global trade tensions. For the trailing three-, five- and seven-year periods, the EMISF compounded returns, net of all fees and expenses, were 6.13 percent, 4.40 percent and 1.39 percent, respectively.

## 2018 Management Initiatives

Over the course of the fiscal year, the CRPTF made significant new investment commitments totaling in excess of \$2 billion, representing 19 opportunities; nine in the Private Investment Fund, two in the Real Estate Fund, six in the Alternative Investment Fund, including the first commitment to a top quartile global infrastructure fund, and two in the Core Fixed Income Fund. Moreover, restructuring of hedge fund allocations within the Alternative Investment Fund completed during the year will generate annual fee savings in excess of \$12 million.

The Connecticut Horizon Fund, an initiative developed by Treasurer Nappier to diversify the management of the state's pension assets and enhance portfolio returns while providing opportunities for minority-owned, women-owned, Connecticut-based and emerging investment management firms, has greater than \$1 billion in assets in its fund-of-funds public market program, including a \$155 million private equity allocation and a \$170 million alternative investment allocation. During the fiscal year, two exceptional, top tier fixed income fund managers in the public market portion of the program graduated to the broader CRPTF portfolio.

## **Corporate Governance**

In carrying out her fiduciary responsibilities, and in conformance with state law, the Treasurer considers the financial implications for long-term shareholder value of a portfolio company's environmental, social and governance structure and practices. The primary method the Treasurer's Office utilizes to address corporate governance at publicly-traded companies in which the CRPTF invests is through proxy voting. These companies hold annual general meetings at which shareholders vote to approve or reject proposals presented by the company's management or by shareholders on significant transactions or activities at a company. The Treasurer's Office uses comprehensive guidelines approved by the independent Investment Advisory Council when casting proxy votes at these meetings. The guidelines incorporate best practices on corporate structure, administration and control to reduce risk, encourage sustainability and increase opportunities for growth.

The Office also engages directly with portfolio companies on corporate governance issues that may positively impact the value of the pension fund's investments. Engagement often begins with discussions between the Treasury and board members, chief executive officers and senior management of portfolio companies, and may last for several years. The CRPTF has also utilized the shareholder resolution process as an engagement tool with portfolio companies. During Fiscal Year 2018, the Treasury filed or co-filed shareholder resolutions at 14 companies, and reached agreement with 11 companies on issues raised in shareholder resolutions related to four broad categories of corporate governance best practices: (i) board structure and composition; (ii) governance reforms directed at manufacturers and distributors of opioids; (iii) climate-related disclosure; and (iv) board accountability to shareholders. Two resolutions went to a shareholder vote, and one resolution was withdrawn given that a similar resolution was previously filed with the company. To support our efforts, The Treasurer's Office worked with a broad cross section of investors representing public pension funds, investment firms, labor funds and faith-based investors.

Treasurer Nappier also was signatory to letters sent to 36 companies held in the CRPTF's portfolio regarding executive compensation plans; 70 companies with boards that lacked gender or racial diversity; 10 companies that manufacture or distribute opioids urging adoption of corporate governance reforms. Two of the nation's largest distributors of opioids – Cardinal Health and McKesson -- committed to fuller disclosure of the measures their boards are taking to monitor and manage financial and reputational risks related to the opioid crisis.

## **Investment Restrictions**

The Treasurer's Office is charged with administering three laws that authorize investment restrictions on companies doing business in Northern Ireland, Sudan and Iran. Connecticut's MacBride law, set forth in Section 3-13h of the Connecticut General Statutes, is based on the MacBride Principles, which are a

corporate code of conduct for companies doing business in Northern Ireland designed to address religious discrimination in the workplace. During Fiscal Year 2018, the CRPTF restricted its managers from investing in two companies for failure to adopt these principles: Domino's Pizza Inc. and Yum Brands, Inc.

The Treasurer's Office monitored companies doing business in Sudan pursuant to Section 3-21e of the Connecticut General Statutes. The Sudan law, adopted in 2006, authorizes the Treasurer to engage companies doing business in Sudan and potentially divest holdings in those companies if their business is contributing to the government's perpetuation of genocide in Sudan. As of the end of Fiscal Year 2018, the Treasurer's Office prohibited direct investment in eighteen companies: Bharat Heavy Electricals Ltd.; China North Industries Group; China North Industries Corporation a.k.a. NORINCO; NORINCO International Cooperation Ltd.; North Huajin Chemical Industries Co. Ltd.; North Navigation Control Technology Co. Ltd.; China Petroleum and Chemical Corp.; CNPC (Hong Kong); Dongfeng Motor Corporation; Jiangxi Hongdu Aviation Industry Ltd.; Oil and Natural Gas Corp.; Mangalore Refinery and Petrochemicals Ltd.; ONGC Nile Ganga BV, Amsterdam; ONGC Videsh Limited; ONGC Videsh Vankorneft; PetroChina Co. Ltd.; Petronas Capital Ltd.; and Sinopec Shanghai Petrochemical Corp.

Connecticut's Iran law, Connecticut General Statutes Section 3-13g, authorizes the Treasurer to engage with companies doing business in Iran, and potentially divest holdings in such companies if she determines such companies, by their business activities, may be contributing to the Iranian government's development of its nuclear program and its support of global terrorism. As of the end of Fiscal Year 2018, the Treasurer's Office prohibited direct investment in fourteen companies: Bongaigaon Refinery & Petrochemicals; Ca La Electricidad de Caracas; Chennai Petroleum Corp.; China Bluechemical; China National Offshore Oil Corporation; China Oilfield Services Ltd.; CNOOC; Daelim Industrial Co. Ltd.; IBP Co. Ltd.; Indian Oil Corporation Ltd.; Lanka loc Plc; Offshore Oil Engineering Co.; Oil India Ltd.; and Petroleos de Venezuela S.A..

## **Asset Recovery and Loss Prevention**

The Treasurer's Legal Unit works to manage risk by limiting opportunities for loss due to the malfeasance of others. Extensive pre-contracting due diligence helps the Office of the Treasurer select the best available vendors and suitable products to meet the needs of the Office. Careful contract negotiation, coupled with periodic review, development and implementation of best practice contract language, helps to ensure clarity with respect to the obligations of the Office of the Treasurer and its vendors and investment partners. The Office maintains regular contact with other similar governmental offices and institutional investors, sharing ideas for enhancement of contract language, frequently sharing advice with counterparts in other states.

The Office of the Treasurer deters malfeasance with its reputation for active and diligent pursuit of all opportunities to recover assets lost due to the misfeasance or malfeasance of others.

The Office of the Treasurer believes that most disputes can be resolved through dialogue designed to enforce contract terms or clarify misunderstanding. The Office is however prepared, when necessary, to pursue judicial solutions where negotiation is unsuccessful. Although very limited as a percentage of all investments, the Office, like all other investors, experiences losses due to corporate malfeasance. In these instances, the Office believes that litigation managed by investors is more effectively negotiated, efficiently litigated and achieves larger settlements for the benefit of all investors. As such, the Office is committed to taking on its fair share of the management responsibility of such litigation and will consider making application to serve as lead plaintiff in class action litigation where appropriate. From time to time, the Office has used litigation to encourage corporate governance enhancements. Although rare, the Office has filed individual and group actions to pursue specific rights where disputing parties are unwilling or unable to reach an extra-judicial conclusion. Since the U.S. Supreme Court's 2010 decision in *Morrison v. National Australia Bank*, the Office has experienced an increase in its participation in group actions as a means of seeking recovery of lost assets. The Office works with other institutional investors to collaborate and monitor *Morrison*-related matters.

## Class Action Securities Litigation

The Combined Investment Funds recovered \$2.47 million from class action settlements in the fiscal year ended June 30, 2018. The Office continues to closely monitor opportunities to recover lost assets through participation in class action litigation. As of the close of the fiscal year, the class action filing portion of the asset recovery program has exceeded \$53 million since inception.

The Office of the Treasurer, as the Trustee for the CRPTF, served as lead plaintiff in the matter known as In Re Amgen, Inc. Securities Litigation, filed in the federal district court for the Southern District of California. The case, settled for \$95 million prior to the commencement of the trial. The court has approved the terms of the settlement and the claims filing process is underway.

## **Corporate Governance Related Litigation**

Litigation has not been recommended for corporate governance matters in the 2018 Fiscal Year. The Office of the Treasurer has focused on engagement of companies to promote good corporate citizenship. The Office is judicious in its consideration of the merits of litigation.

## **Other Litigation**

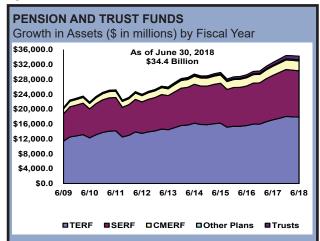
The Office of the Treasurer continues its participation in group action in Belgium adverse Ageas SA/NV (f/k/a Fortis, N.A.), France adverse Vivendi, S.A., Japan adverse Olympus, Denmark adverse O.W. Bunker, Germany adverse Volkswagen and Porsche and in Texas' state court adverse BP. The Fortis and Olympus matters have announced settlements. Connecticut received ¥11,236,470 as its share of the settlement of the Olympus lawsuit. Connecticut's counsel, Ageas SA/NV and other claimant groups entered into an Amended Settlement Agreement for the benefit of Fortis investors. The Dutch court approved the settlement amount of €1.3 billion. The Office evaluated the merits of joining other foreign group action during the fiscal year. Participation in foreign group action became necessary as the Supreme Court's decision in Morrison foreclosed all other avenues of recovery in matters of securities fraud.

Figure 1-1

		TE	ERF			SEI	RF			CIV	IERF	
				r Upper				Upper			Lower	
	Actual	Polic	y Rang	e Range	Actual	Policy	Range	Range	Actual	Policy	Range	Range
U.S. EQUITY	00.00/	0.4.00/	4= 00/	05.00/	00.00/	04.00/	47.00/	0= 00/	47.00/	10.00/	10.00/	10.00/
Mutual Equity Fund (MEF)	23.2%	21.0%	17.0%	25.0%	22.8%	21.0%	17.0%	25.0%	17.6%	16.0%	13.0%	19.0%
INTERNATIONAL EQUITY												
Developed Market Intl Stock Fund (DMISF)	20.4%	18.0%	14.0%	22.0%	20.4%	18.0%	14.0%	22.0%	14.4%	14.0%	11.0%	17.0%
Emerging Market Intl Stock Fund (EMISF)		9.0%	7.0%	11.0%	8.3%	9.0%	7.0%	11.0%	6.5%	7.0%	6.0%	8.0%
( ,												
REAL ESTATE												
Real Estate Fund (REF)	6.5%	7.0%	5.0%	9.0%	6.3%	7.0%	5.0%	9.0%	6.3%	7.0%	5.0%	9.0%
FIXED INCOME												
Core Fixed Income Fund (CFIF)	8.0%	7.0%	6.0%	8.0%	9.0%	8.0%	6.0%	10.0%	9.3%	8.0%	6.0%	10.0%
Inflation Linked Bond Fund (ILBF)	3.3%	3.0%	2.0%	4.0%	4.9%	5.0%	4.0%	6.0%	5.4%	5.0%	4.0%	6.0%
Emerging Market Debt Fund (EMDF)		5.0%	4.0%	6.0%	4.8%	4.0%	3.0%	5.0%	8.0%	8.0%	6.0%	10.0%
High Yield Debt Fund (HYDF)	5.4%	5.0%	4.0%		5.1%	5.0%	4.0%	6.0%	14.3%		11.0%	17.0%
Liquidity Fund (LF)*	5.2%	6.0%	5.0%	7.0%	3.8%	4.0%	3.0%	5.0%	2.6%	3.0%	2.0%	4.0%
PRIVATE EQUITY												
Private Investment Fund (PIF)	6.7%	11.0%	8.0%	14.0%	8.1%	11.0%	8.0%	14.0%	8.4%	10.0%	7.0%	13.0%
ALTERNATIVE INVESTMENT												
	7.1%	8.0%	6.00/	10.0%	6.5%	8.0%	6.00/	10.0%	7 00/	8.0%	6.0%	10.00/
Alternative Investment Fund (AIF)	1.1%	0.0%	0.0%	10.0%	6.5%	0.0%	0.0%	10.0%	7.2%	0.0%	0.0%	10.0%
TOTAL 1	00.0%	400 00/			100.0%	100 00/			100.0%1	100 00/		

<sup>\*</sup>Additional LF balances are included in actual allocations of other investment funds.

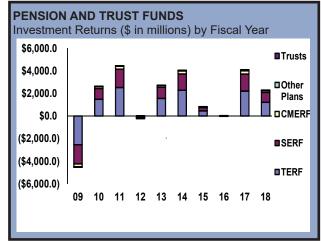
Figure 1-2



TERF - Teachers' Retirement Fund SERF - State Employees' Retirement Fund

CMERF - Connecticut Municipal Employees' Retirement Fund

Figure 1-3



TERF - Teachers' Retirement Fund

SERF - State Employees' Retirement Fund

CMERF - Connecticut Municipal Employees' Retirement Fund

Figure 1-4

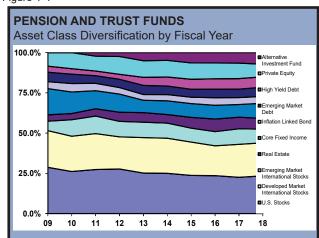
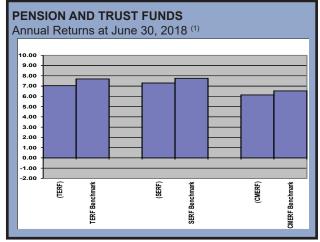


Figure 1-5

ISION AND TR isor Breakdown	UST FUNDS		
	June 30,	June 30,	
Fund	2018	2017	
MEF	6	6	
DMISF <sup>(1)</sup>	9	9	
EMISF	2	3	
PIF	39	61	
CFIF	8	7	
ILBF	3	3	
EMDF	4	4	
HYDF	7	9	
REF	21	42	
LF	1	5	
AIF	13	10	
Total(2)	113	159	

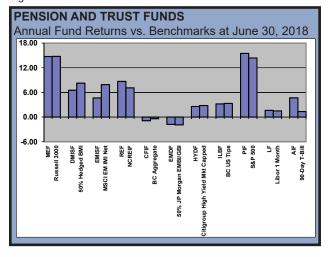
- (1) Does not include the Currency Overlay Manager.
- (2) Terminated managers with nonmaterial balances and Private Investment partnerships with nonmaterial balances are not included.

Figure 1-6



 Each Plan benchmark composite represents the Plan's policy allocation weights times each investment Fund's return.

Figure 1-7



## **Combined Investment Funds Total Return Analysis (%)**

	Fiscal Years Ended June 30,					Annualized 3 5 10		
	2018	2017	2016	2015	2014	Years	Years	Years
(Investment performance is calculated using a time-weighted rate of return	n based on the	market rate o	of return.)					
PLANS								
Teachers' Retirement Fund (TERF) TERF Custom Benchmark	7.04 7.70	14.38 13.24	0.25 (0.06)	2.79 3.21	15.67 15.09	7.07 6.82	7.85 7.68	6.20 6.31
State Employees' Retirement Fund (SERF) SERF Custom Benchmark	7.30 7.76	14.32 13.17	0.26 (0.01)	2.84 3.24	15.62 15.15	7.14 6.84	7.89 7.71	6.13 6.34
CT Municipal Employees' Retirement Fund (CMERF) CMERF Custom Benchmark	6.14 6.53	13.05 12.07	1.15 0.77	2.57 2.32	13.58 13.85	6.67 6.36	7.17 6.99	5.80 6.12
U.S. Stocks								
Mutual Equity Fund Russell 3000 Index	14.74 14.78	19.26 18.51	1.75 2.14	7.32 7.29	25.28 25.22	11.67 11.58	13.36 13.29	9.71 10.23
International Stocks								
Developed Markets International Stock Fund	6.53	24.81	(7.09)	0.67	22.31	7.30	8.75	5.19
MSCI EAFE IMI 50% Hedged Emerging Markets International Stock Fund	8.26 4.66	22.41 23.00	(9.26) (7.15)	3.79 (6.93)	21.24 11.50	6.34 6.13	8.63 4.40	4.89 2.08
MSCI Emerging Market Investable Market Index	7.90	22.82	(12.16)	(4.41)	14.31	5.19	4.93	2.52
Equity Commercial Real Estate								
Real Estate Fund NCREIF (1 Qtr. Lag)	8.69 7.12	7.38 7.27	11.51 11.84	12.93 12.72	10.66 11.18	9.18 8.72	10.22 10.00	2.43 6.09
U.S. Fixed Income								
Core Fixed Income Fund	(0.89)	1.89	3.46	1.85	4.28	1.47	2.10	3.70
Barclays Aggregate Bond Index	(0.40)	(0.31)	6.00	1.86	4.37	1.72	2.27	3.72
Emerging Market Debt 50% JP Morgan EMBI/50% JPM GBI EMBI	(1.78) (1.89)	9.11 6.26	6.01 5.96	(7.57) (7.72)	6.99 7.61	4.34 3.37	2.35 1.87	5.13 5.35
High Yield Debt	2.58	12.59	(0.31)	(1.31)	12.24	4.81	4.99	7.37
FTSE High Yield Market Capped Index	2.82	12.09	0.82	(0.80)	11.25	5.13	5.10	7.54
Inflation Linked Bonds	3.21	0.66	2.29	(2.85)	4.17	2.05	1.47	3.17
Barclays World Gov't Inflation Linked Bond Index	3.32	0.81	2.76	(3.21)	4.44	2.29	1.59	2.99
Commercial Mortgage Fund <sup>(1)</sup> Barclays Aggregate Bond Index	N/A N/A	N/A N/A	N/A N/A	0.25 1.86	10.17 4.37	N/A N/A	N/A N/A	N/A N/A
Alternative Assets								
Private Investment Fund	15.50	10.97	8.87	14.04	16.06	11.75	13.05	9.68
S & P 500	14.37	17.90	3.99	7.42	24.61	11.93	13.42	10.17
Liquidity Fund								
(2)Liquidity Fund	1.63	0.96	0.68	(1.07)	0.54	1.09	0.54	0.69
LIBOR 1 Month Index	1.51	0.72	0.32	0.17	0.17	0.85	0.57	0.54
Alternative Investment Fund 90-Day T-Bill	4.69 1.36	8.51 0.49	(5.32) 0.19	3.98 0.02	6.63 0.05	2.45 0.68	3.58 0.42	N/A N/A

<sup>(1)</sup> The Commercial Mortgage Fund was liquidated in 2017.

<sup>(2)</sup> The Liquidity Fund includes all cash balances, including manager cash. However all fund returns still reflect cash balances.



## Fund Facts at June 30, 2018

**Investment Strategy/Goals:** The purpose of the Liquidity Fund (LF) is to: (1) provide a liquid source of funds for investment operations and (2) earn a return greater than that of money market investments.

Date of Inception: November 1, 2007 Total Net Position: \$2,003,180,852

**Performance Objective:** A net return that matches the

benchmark, over rolling three to five year periods.

Benchmark: One Month London Interbank Offered Operating Expenses: \$865,887

Management Fees: \$2,296,629

Rate (LIBOR)

Number of Advisors: 1 external Expense Ratio: 0.13%

## **Description of the Fund**

The Liquidity Fund contains high quality money market instruments and enables CRPTF to meet the cash outflow requirements of the plans and trusts while maintaining positive investment returns.

## **Portfolio Characteristics**

The Liquidity Fund allowable investments include money market instruments such as U.S. Treasury and government agency securities, commercial paper, certificates of deposit, repurchase agreements and corporate securities. (See Figure 2-3). As of June 30, 2018, the average maturity of the LF was 88 days and the average quality rating was AA-3. (See Figure 2-4)

#### **Market Review**

During the twelve month period ending June 30, 2018, yields on short-term instruments rose notably. One month LIBOR increased by 87 basis points to 2.09 percent and 3-month LIBOR rose by 104 basis points to 2.34 percent over the period. The 2-year U.S. Treasury yield increase by 117 basis points to 2.53 percent The longer end of the curve also rose, but to a lesser extent, thereby flattening the yield curve. U.S. economic data continued to be favorable, and the Federal Reserve increased the overnight lending rate by 25 basis points three times during the fiscal period. It ended the year at 1.75 percent - 2.00 percent. The Fed began reducing its balance sheet and some foreign central banks followed suit along with hiking their interest rates. Thus, interest rates moved higher across the globe, but subdued volatility persisted as investors searched for yield.

The LIBOR-Overnight Index Swap spread, which is regarded as a measure of credit conditions, increased from 10 basis points to a high of 59 basis points in February 2018. The acceleration transpired over several months, driven predominantly by issuance of Treasury bills following resolution of the debt ceiling impasse, and by reduced demand for short-term securities as tax reform incentivized U.S. corporations to repatriate high quality corporate paper and cash that had been invested overseas.

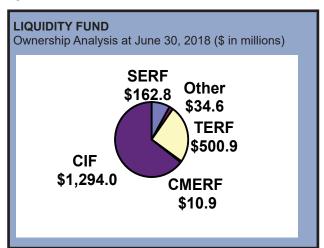
## **Performance Summary**

For the fiscal year ended June 30, 2018, the LF generated a return of 1.63 percent, outperforming one month LIBOR's return by 12 basis points (See Figure 2-5). For the trailing three-, five- and seven-year periods, the LF compounded returns, net of all fees and expenses, were 1.09 percent, 0.54 percent and 0.46 percent, respectively.

## **Risk Profile**

Given the LF's investment policies and objectives, the Fund is exposed to some risks. Interest rate risk is somewhat mitigated by the Fund's 88 days average maturity and credit risk is moderated by investments being concentrated in high quality securities. Other potential risks include reinvestment risk and inflation risk. Counter party risk is managed by dealing only with reputable, high quality firms.

Figure 2-1



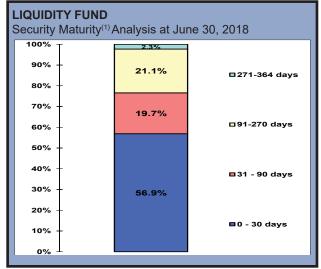
TERF - Teachers' Retirement Fund

SERF - State Employees' Retirement Fund

CMERF - Connecticut Municipal Employees' Retirement Fund

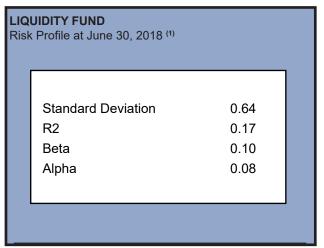
CIF - Combined Investment Funds

Figure 2-3



(1) Or Interest Rate Reset Period.

Figure 2-2



(1) Based upon returns over the last five years.

Figure 2-4

LIQUIDITY FUND Comprehensive Profile at June 30, 2018								
Date	Number of Issues	Yield <sup>(1)</sup>	Average Maturity	Average Quality				
2018	136	1.63%	88 days	AA-3				
2017	788	0.96%	475 days	AA-2				
2016	776	0.68%	387 days	AA-2				
2015	742	-1.07%	347 days	AA-2				
2014	767	0.54%	343 days	AA-2				
2013	495	0.66%	631 days	AA+				
2012	329	-0.14%	482 days	AA-2				
2011	337	1.20%	321 days	AA-1				
2010	244	0.98%	202 days	AA-1				
2009	162	1.54%	36 days	AA-2				

(1) Represents annual total return of the Fund for year ended June 30

Figure 2-6

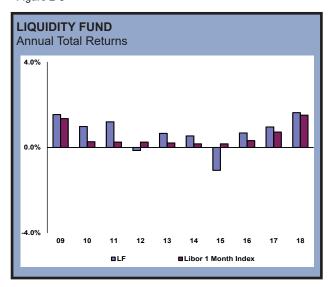


Figure 2-8

<b>LIQUIDITY FUND</b> Ten Largest Holdings* at June 30, 2018				
Security Name M	aturity Date	Market Value	e %_	
HSBC BANK TRI REPO	7/2/2018	\$218,025,433	10.88%	
CITIGROUP GLOBAL TRI REPO	7/2/2018	200,023,444	9.98%	
BANK OF NY REPO TRI REPO	7/2/2018	95,011,136	4.74%	
MERRILL LYNCH TRI REPO	7/2/2018	59,006,883	2.94%	
ING BANK NV C/D	10/9/2018	35,000,807	1.75%	
DZ BANK AG DISC	7/2/2018	29,998,425	1.50%	
WESTPAC BANKING IB NT	1/18/2019	25,127,706	1.25%	
NATIXIS NY INSTL C/D	9/4/2018	25,102,514	1.25%	
BNP PARIBAS NY BRH C/D	9/17/2018	25,072,188	1.25%	
NATIONAL BK CANADA IB NT	8/6/2018	25,037,899	1.25%	
Top Ten		\$737,406,435	36.80%	
<u> </u>				

A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act.

Figure 2-5

LIQUIDITY FUND Periods ending June 30, 2018				
	1 YR	3 YRS	5 YRS	10 YRS
Compounded, Annual Total Return (%)				
LF	1.63	1.09	0.54	0.69
LIBOR 1 MONTH INDEX	1.51	0.85	0.57	0.54
Cumulative Total Return (%)				
LF	1.63	3.29	2.73	7.15
LIBOR 1 MONTH INDEX	1.51	2.57	2.91	5.49

Figure 2-7

LIQUIDITY FUND Investment Advisor Tiers at June 30, 2018			
Investment Advisor	Net Asset Value	% of Fund	
State Street Global Advisors	\$2,003,180,852	100.00%	
Total LF	\$2,003,180,852	100.00%	



## Fund Facts at June 30, 2018

**Investment Strategy/Goals:** The purpose of the Alternative Investment Fund (AIF) is to invest CRPTF assets in investment strategies that offer the potential to enhance overall portfolio expected returns, reduce risk, or a combination of both in a variety of market conditions. Additionally, the AIF is expected to provide diversification benefits and a degree of inflation protection. The AIF serves as a vehicle for strategies that are not easily classified, categorized, or described in the other Combined Investment Funds. Hybrid strategies that cut across multiple asset classes are also considered part of the opportunity set.

**Date of Inception:** February 1, 2011 **Total Net Position:** \$2,422,650,044

**Performance Objective:** To outperform the 90 day T-Bill Rate ("T-Bills") by 300 basis points net of all expenses.

Capitalized and Netted Fees: \$11,387,627

**Expensed Management Fees: \$0** 

Benchmark: 90 Day T-Bills Operating Expenses: \$1,377,354

Number of Advisors: 13 external Expense Ratio: 0.06%

Expense ratio is calculated using the management fee and operating expense totals.

## **Description of the Fund**

The AIF represents a unique investment exposure that differs from traditional, long-only funds. The strategies employed within the AIF represent a broad set of investment styles, mandates and products that focus primarily on the liquid equity, fixed income and derivatives markets, and may also include allocations to non-traditional investments, including illiquid securities and investments. AIF strategies may target absolute returns without reference to a traditional benchmark using a wide range of investment tools such as short-selling, leverage, derivatives and complex securities.

The AIF may invest in strategies that do not fit the constraints of existing Combined Investment Funds. Such strategies could include, but are not limited to, absolute return strategies, managed futures strategies, commodities, real assets and other alternative asset strategies.

The AIF mandate is executed through external investment advisors and money managers who actively manage fund of funds portfolios or through direct investments in single manager funds.

## **Portfolio Characteristics**

As of June 30, 2018, the AIF was invested in six absolute return oriented fund of hedge funds, including two fund of funds participating in the Connecticut Horizon Fund program, with a combined market value of \$2.4 billion. The portfolio also includes four real asset oriented private equity style funds that invest in infrastructure with a combined market value of \$151.2 million and three new opportunistic credit partnerships representing capital commitments of \$225 million.

## **Market Review**

Hedge funds experienced returns of 5.5 percent for the 12 months ending June 30, 2018 (as measured by the HFRI Fund-of-Funds Composite Index) in line with long-term expectations. Most strategies had positive returns during the year. While equity and credit exposure contributed most positively to performance, global macro strategies (discretionary and systematic) had flat results.

From a sector perspective, growth-oriented strategies such as technology and healthcare rallied strongly, while value-oriented sectors were relatively weak. From a geographic perspective U.S. exposure performed much better than non-US developed and emerging markets, as U.S. GDP growth outpaced the rest of the world.

During the year ended March 31, 2018, private energy performance as measured by the Cambridge Associates Energy Index generated modest positive performance (5.9 percent) while private infrastructure returns were strong (14.8 percent gain for the Cambridge Associates Infrastructure Index). These returns were notably higher than their public market equivalents, which posted low or negative returns during the year.

## **Performance Summary**

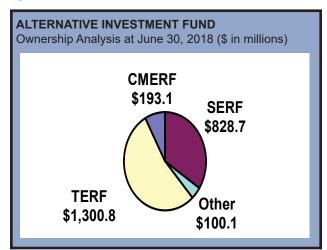
For the fiscal year ended June 30, 2018, the AIF generated a return of 4.69 percent, net of all expenses, which outperformed the 90-day Treasury bill return of 1.36 percent by 333 basis points (see Figure 3-2). For the trailing three-, five- and seven year periods, the AIF compounded returns, net of all fees and expenses, were 2.45 percent, 3.58 percent and 3.22, respectively. These returns outperformed the compounded 90-day Treasury bill return by 177, 316 and 289 basis points, respectively.

Within the AIF, the fund of hedge funds portfolio returned 4.12 percent as of June 30, 2018. The consolidated hedge fund portfolios underperformed their fund of funds peer group (Hedge Fund Research, Inc. Fund of Funds Composite Index), which increased by 5.49 percent over the same period. It also underperformed the broader Hedge Fund Research, Inc. Fund Weighted Composite Index, which increased by 5.67 percent.

## **Risk Profile**

Given the AIF's investment policy and objectives, the Fund is exposed to several forms of risk. These include, but are not limited to, risks attendant with alternative investments, such as management, operations and product risk, overall liquidity risk, leverage, short selling, derivative use, and transparency. Assuming these risks as part of a prudent, total portfolio strategy assists the AIF in achieving its investment objectives.

Figure 3-1



TERF - Teachers' Retirement Fund

SERF - State Employees' Retirement Fund

CMERF - Connecticut Municipal Employees' Retirement Fund

Figure 3-3

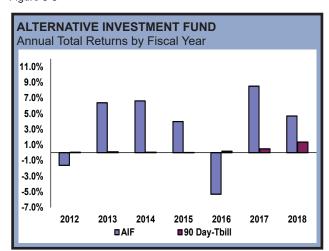


Figure 3-5

nvestment Advisor	Net Asset Value	% of Fund
Anchorage	\$7,539,420	0.31%
Arclight Energy Partners Fund V	49,473,619	
Arclight VI	77,051,205	
Crescent II	17,931,494	0.74%
EIG Energy Fund XV Limited Partnership	33,011,940	1.36%
SQ II	4,249,661	0.18%
Marathon European Credit Opportunity	9,628,710	0.40%
Owl Rock	26,131,651	1.08%
Prudence Crandall I Permal Limited Partnership	19,154,591	0.79%
Prudence Crandall II Prisma Limited Partnership	333,672,871	13.77%
Prudence Crandall III LLC-C	293,058,881	12.10%
Prudence Crandall III Rock Creek Limited Partnership	325,958,511	13.45%
Prudence Crandall III D - Liquid Strategy	389,578,681	16.08%
Prudence Crandall IV K2 Limited Partnership	321,674,793	13.28%
Prudence Crandall IV LLC-C	301,518,897	12.45%
Thomas Welles Fund I	89.394.492	3.69%
Thomas Welles Fund II	88.572.379	3.66%
Other (1)	35,048,249	1.45%
Total AIF	\$2.422.650.044	100.00%

(1) Other represents cash equivalents and other net assets.

Figure 3-2

ALTERNATIVE INVESTMENT FUND Period ending June 30, 2018			
	1 YR	3 YRS	5 YRS
Compounded, Annual Total Return (%)			
AIF	4.69	2.45	3.58
90 Day T-Bill	1.36	0.68	0.42
Cumulative Total Ret AIF 90 Day T-Bill	urn (%) 4.69 1.36	7.55 2.05	19.23 2.13

Figure 3-4

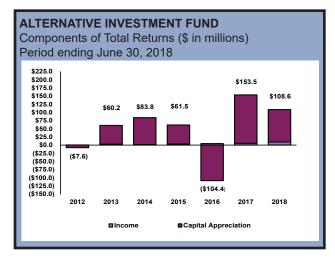


Figure 3-6

Ten Largest Holdings* at June 30, 2018				
Partnership Name	Туре	Market Value	%	
PC III D Liquid Strat.	Hedge F-o-F	\$389,578,681	16.08%	
PC II Prisma LP	Hedge F-o-F	333,672,871	13.77%	
PC III Rock Creek LP	Hedge F-o-F	325,958,511	13.45%	
PC IV K2 LP	Hedge F-o-F	321,674,793	13.28%	
PC IV LLC-C	Hedge F-o-F	301,518,897	12.45%	
PC III LLC-C	Hedge F-o-F	293,058,881	12.10%	
Thomas Wells Fund I	Hedge F-o-F	89,394,492	3.69%	
Thomas Wells Fund II	Hedge F-o-F	88,572,379	3.66%	
Arclight VI	Real Assets	77,051,205	3.18%	
Arclight Energy Prtnrs V	Real Assets	49,473,619	2.04%	
Top Ten		\$2,269,954,328	93.69%	

 A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act.



## Fund Facts at June 30, 2018

**Investment Strategy/Goals:** The purpose of the Mutual Equity Fund (MEF) is to (1) achieve a long term, real rate of return significantly above the inflation rate; and (2) provide a source of diversification from other asset classes within the CRPTF during different economic environments.

**Date of Inception:** July 1, 1972 **Total Net Position:** \$7,754,897,097

Performance Objective: A net return that, at a minimum, Management Fees: \$15,772,324

matches the benchmark over rolling three- to five-year periods.

Benchmark: Russell 3000 Index Operating Expenses: \$13,188,659

Number of Advisors: 6 Expense Ratio: 0.39%

## **Description of the Fund**

The MEF assets are allocated across the U.S. stock market to ensure diversification by market capitalization and investment style, such as value and growth. The MEF may opportunistically invest up to 30 percent of assets to take advantage of shifts in the investment landscape or opportunities that offer diversification and/or risk-return benefits, and may include investments in any market capitalization and/or investment style as well as an allocation to stocks outside the U.S.

## **Portfolio Characteristics**

The MEF invests primarily in the common stock of U.S. corporations. The largest industry weightings at June 30, 2018 were information technology (21.7 percent) followed by financials (19.9 percent) and consumer discretionary (14.3 percent) (See Figure 4-3).

The MEF's ten largest holdings, aggregating 16.8 percent of Fund investments, included a variety of blue chip companies and were broadly diversified, with the largest holding of 2.9 percent in Apple Inc. (See Figure 4-9).

#### Market Review

U.S. equities posted strong returns for the year ended June 30, 2018. Shares were propelled by strong corporate earnings growth, solid economic growth, and federal tax cuts passed in late 2017 that helped shift the economy in the last few months. Market volatility picked up noticeably in early 2018, in part because of rising interest rates as the Federal Reserve pressed ahead with normalizing monetary policy, and the 10-year Treasury note yield reached a seven-year high in May. More concerning, however, was an increase in global trade tensions in the last few months stemming from proposed tariffs on imports from various trading partners, including Mexico, Canada, the European Union, and China. Many countries retaliated or threatened to retaliate with their own tariffs on U.S. goods. These actions sparked fears that global commerce and the worldwide economic expansion could be hurt by continued trade actions.

Small-cap shares outperformed their larger peers. The small-cap Russell 2000 Index returned 17.6 percent, versus 14.4 percent and 13.5 percent for the large-cap S&P 500 Index and the S&P MidCap 400 Index, respectively. Returns were strong despite a sharp but short-lived pullback in late January and early February that resulted in the S&P 500 decline of approximately 10.0 percent. Additionally, growth stocks soundly outperformed value stocks across all market capitalizations.

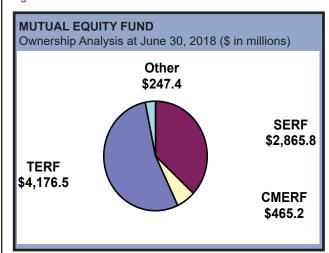
## **Performance Summary**

For Fiscal Year 2018, the MEF generated a return of 14.74 percent, net of all expenses, which slightly underperformed the Russell 3000 Index return by 4 basis points (See Figure 4-4). For the trailing three-, five- and seven-year periods, the MEF compounded returns, net of all fees and expenses, were 11.67 percent, 13.36 percent and 12.94 percent, respectively. MEF outperformed its benchmark for the three-, five -year periods, and underperformed the benchmark for the seven-year period.

## **Risk Profile**

Based on returns over the last five years, MEF has exhibited a similar degree of risk as that of its benchmark, the Russell 3000 Index. With the portfolio volatility (Beta) of 0.99, the MEF's volatility is approximately the same as the market. The Fund's active return, or its excess returns over the last five years, adjusted for risk, has been a 0.17 (See Figure 4-2).

Figure 4-1



TERF - Teachers' Retirement Fund

SERF - State Employees' Retirement Fund

CMERF - Connecticut Municipal Employees' Retirement Fund

Figure 4-3

MUTUAL EQUITY FUND Fiscal 2018 Industrial Secto Based on Investments in Se	( )	
At 6/30/2018:	<u>MEF</u> % of Mrkt Value	
Energy	5.5	6.0
Materials	4.3	3.6
Producer Durables	10.9	10.4
Consumer Discretionary	14.3	14.4
Consumer Staples	5.4	5.5
Health Care	13.6	13.4
Financials	19.9	21.0
Information Technology	21.7	20.9
Utilities	4.3	4.7
	100.0	100.0

(1) Excludes the Liquidity Fund.

Figure 4-5

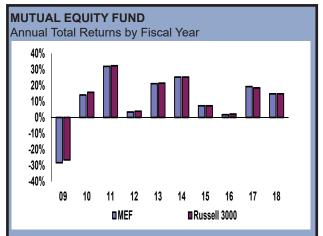


Figure 4-2

isk Profile at June 3	0, 2010	
Standard Dev	riation 9	).79
R <sup>2</sup>		.00
Beta		.99
Alpha	0	0.17

(1) Based upon returns over the last five years.

Figure 4-4

MUTUAL EQUITY FUND Periods ending June 30, 2018									
	1 YR	3 YRS	5 YRS	10 YRS					
Compounded, Annu	ual Total Retur	n (%)							
MEF	14.74	11.67	13.36	9.71					
Russell 3000	14.78	11.58	13.29	10.23					
Cumulative Total Ret	urn (%)								
MEF	14.74	39.24	87.19	152.58					
Russell 3000	14.78	38.93	86.66	164.83					

Figure 4-6

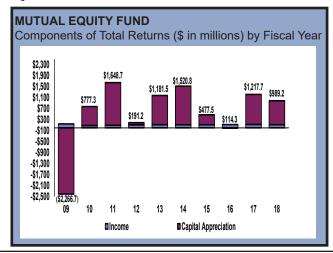


Figure 4-7

# **MUTUAL EQUITY FUND**

Comprehensive Profile for the Fiscal Years ending June 30, 2018

	20	2018		2017		16	20	)15	2014	
	MEF	Russell	MEF	Russell	MEF	Russell	MEF	Russell	MEF	Russell
# of Issues	1,737	3,000	1,756	3,000	1,706	3,000	1,807	3,000	1,806	3,000
Cap (\$ Bil)	\$175.8	\$179.9	\$137.0	\$140.2	\$114.1	\$114.6	\$108.1	\$108.9	\$102.1	\$101.7
P/E	25.3	25.0	25.0	24.3	22.8	22.1	22.0	21.7	21.2	20.8
Div Yield	1.68%	1.84%	1.73%	1.89%	1.92%	2.06%	1.81%	1.93%	1.74%	1.84%
ROE	16.1%	16.1%	16.2%	16.2%	16.6%	16.4%	17.7%	17.5%	16.9%	17.0%
P/B	2.8	2.6	3.0	3.0	2.6	2.4	2.8	2.8	2.8	2.7
Cash & Equiv.	1.7%	0.0%	5.7%	0.0%	1.2%	0.0%	1.1%	0.0%	0.9%	0.0%
Source: Custodian B	Source: Custodian Bank									

Figure 4-8

In continue of A.I. San	Net Asset	% of
Investment Advisor	Value	Fund
Large Cap	\$6,115,530,413	78.86%
T. Rowe Price Associates	2,620,992,391	33.80%
State Street Global Advisors	3,494,538,022	45.06%
All Cap	735,853,288	9.49%
Capital Prospects	383,066,200	4.94%
FIS Group, Inc.	352,787,089	4.55%
Small/Mid Cap	828,677,442	10.69%
Frontier Capital Mgmt Co	456,625,174	5.89%
Bivium	372,052,268	4.80%
Other (1)	74,835,954	0.97%
TOTAL MEF	\$7,754,897,097	100.00%

<sup>(1)</sup> Other represents cash equivalents and other net assets.

Figure 4-9

MUTUAL EQUITY FUND Ten Largest Holdings* at June 30, 2018								
Security Name	Sector	Market Value	%					
Apple Inc	Information Tech	\$226,909,689	2.92%					
Microsoft Corp	Information Tech	201,686,244	2.60%					
Amazon.Com, Inc.	Consumer Discr	195,601,085	2.52%					
Facebook Inc	Information Tech	134,587,198	1.73%					
Exxon Mobil Corp.	Energy	100,344,541	1.29%					
JPMorgan Chase & C	o Financials	98,141,604	1.26%					
Alphabet IncCL C	Information Tech	96,402,201	1.24%					
Alphabet IncCL A	Information Tech	95,523,828	1.23%					
Johnson & Johnson	Health Care	81,038,739	1.04%					
Wells Fargo & Co.	Financials	74,401,921	0.96%					
Top Ten	\$1	,304,637,050	16.81%					

A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act.



#### Fund Facts at June 30, 2018

**Investment Strategy/Goals:** The purpose of the Core Fixed Income Fund (CFIF) is to: (1) achieve a long-term real rate of return above the inflation rate; (2) generate a stream of income and (3) provide a source of diversification from other asset classes within the CRPTF during different economic environments.

**Date of Inception:** November 1, 2007 **Total Net Position:** \$3,117,615,280

**Performance Objective:** A net return that matches its benchmark, over rolling three-to-five year periods.

**Expensed Management Fees:** \$3,349,330

Operating Expenses: \$4,283,842

Benchmark: Barclays U.S. Aggregate Bond Index Expense Ratio: 0.27%

Number of Advisors: 8 external

# **Description of the Fund**

The CFIF assets are invested across debt instruments issued by the U.S. Government and its agencies, U.S. or international corporations, high quality quasi or sovereign debt and any other public or private U.S. regulated debt securities. The CFIF may invest up to 30 percent of its assets opportunistically to take advantage of shifts in the investment landscape or opportunities which offer diversification and/or risk-return benefits.

# **Portfolio Characteristics**

At the end of fiscal year 2018, the composition of the CFIF was: corporate bonds 32.6 percent, mortgage-backed securities 17.6 percent, U.S. Treasuries 25.1 percent, asset-backed securities 14.0 percent, and government agency securities 2.9 percent. The remaining assets were invested in the Liquidity Fund and other assets. As of June 30, 2018, the CFIF was overweight asset-backed securities and corporate bonds compared to the Barclays U.S. Aggregate Bond Index, and underweight mortgage-backed securities and U.S. Treasuries. (See Figure 5-4) Fifty six percent of the CFIF was invested in AAA-rated securities. (See Figure 5-5) The duration of the Fund was 4.38 years, compared to 6.30 years for the benchmark. The yield to maturity was 3.40 percent for the CFIF versus 3.30 percent for the Barclays U.S. Aggregate Bond Index. (See Figure 5-11)

#### **Market Review**

The U.S. investment grade fixed income market as measured by the Bloomberg Barclays U.S. Aggregate Index had a negative return of 40 basis points for the fiscal year ending June 30, 2018. Investment grade corporate bonds and U.S. Treasuries, two of the largest sectors in the index, each generated negative returns. Escalating geopolitical tensions supported core government bonds over the first half of the period and U.S. Treasury yields declined. However, the anticipated inflationary impact of U.S. trade tariffs coupled with continued monetary policy normalization pushed Treasury yields higher over the second half of the period. Plans for more government spending were also tailwinds for growth. The yield curve flattened dramatically over the course of the period.

Investment grade credit spreads tightened to 85 basis points in February, the lowest level since 2007, as optimism around tax cuts and the strong growth environment supported the market. Volatility in the equity markets then spread and the credit curve moved wider across the board. Contributing further to this credit spread widening were concerns over the increased leverage and additional supply related to merger and acquisition activity. Credit spreads ended the fiscal year at 123 basis points over comparable U.S. Treasuries.

#### PENSION FUNDS MANAGEMENT DIVISION

# **Performance Summary**

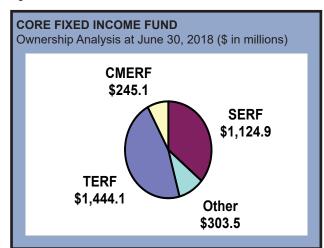
For the fiscal year ended June 30, 2018, the CFIF underperformed the Barclays U.S. Aggregate Bond Index by 49 basis points, a -0.89 percent net return compared to a -0.40 percent return for the benchmark (See Figure 5-8). For the trailing three-, five- and seven-year periods, the CFIF compounded returns, net of all fees and expenses, were 1.47 percent, 2.10 percent and 2.55 percent, respectively.

#### **Risk Profile**

Given the CFIF's investment policies and objectives, the Fund is exposed to several forms of risk, such as credit default risk, interest rate risk, liquidity risk, inflation risk, reinvestment risk, counter party risk and geopolitical risk. These risks are monitored on an ongoing basis, and actions are taken to mitigate identified risks. External rating agencies assign credit ratings to individual securities reflecting their views of the underlying firm's credit worthiness or the underlying assets in the case of securitized debt. As of fiscal year end, over half of the CFIF was rated AAA.

#### PENSION FUNDS MANAGEMENT DIVISION

Figure 5-1

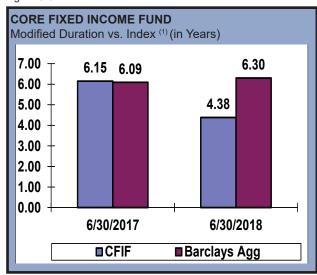


TERF - Teachers' Retirement Fund

SERF - State Employees' Retirement Fund

CMERF - Connecticut Municipal Employees' Retirement Fund

Figure 5-3



(1) Computed without the effect of Cash and other Net Assets.

Figure 5-5

Distribution by Quality Rating at June 30, 2018 Based on Investments in Securities, at Value							
	AAA	56.3%					
	AA-1 to AA3	11.3%					
	A-1 to A-3	12.6%					
	BAA-1 to BAA-3	14.6%					
	Less than BAA-3	0.3%					
	Not Rated <sup>(1)</sup>	4.9%					
	Total	100.0%					

(1) Represents securities for which ratings are unavailable.

Figure 5-2

CORE FIXED INCOME FUND Risk Profile at June 30, 2018 <sup>(1)</sup>								
	Standard Deviation R <sup>2</sup> Beta Alpha	2.19 0.93 0.79 0.21						

(1) Based upon returns over the last five years.

Figure 5-4

rigule 5-4									
CORE FIXED INCOME FUND Distribution by Sector at June 30, 2018 Based on Investments in Securities, at Value									
Barclays CFIF Aggregate Variance									
Treasury	25.1%	37.5%	-12.4%						
Agency	2.9%	3.2%	-0.3%						
Corporate	32.6%	25.0%	7.6%						
Mortgage-Backed	17.6%	28.1%	-10.5%						
Asset-Backed	14.0%	0.5%	13.5%						
Other <sup>(1)</sup>	<u>7.8%</u>	<u>5.7%</u>	2.1%						

(1) Other category includes Liquidity Fund and other assets.

100.0%

100.0%

Figure 5-6

**TOTAL** 

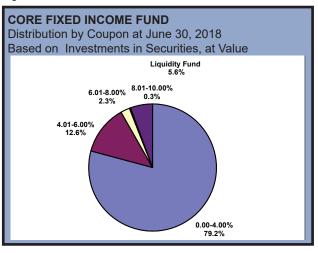


Figure 5-8

Figure 5-7

	CORE FIXED INCOME FUND Duration Distribution at June 30, 2018 Based on Investments in Securities, a	
ı	0-3 Years	56.1%
ı	3-5 Years	17.9%
ı	5-7 Years	17.5%
ı	7-10 Years	4.2%
ı	10+ Years	4.1%
ı	Undetermined (1)	0.2%
ı	Total	100.0%
-		

**CORE FIXED INCOME FUND** Periods ending June 30, 2018 1 YR 3 YRS 5 YRS 10 YRS Compounded, Annual Total Return (%) CFIF 3.70 -0.89 1.47 2.10 Barclays Aggregate -0.40 2.27 3.72 1.72 Cumulative Total Return (%) 10.97 43.75 -0.89 4.48 Barclays Aggregate -0.40 5.25 11.89 44.09

(1) Represents securities for which the duration could not be calculated by the custodian.

Figure 5-9

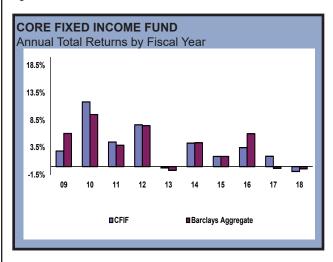


Figure 5-10

CORE FIXED INCOME FUND Investment Advisors at June 30, 2018								
Net Asset % of Investment Advisor Value Fund								
State Street Global Advisors	\$148,954,851	4.78%						
BlackRock Financial Management, Inc.	434,307,915	13.93%						
Wellington	750,871,746	24.08%						
Conning-Goodwin Capital	363,455,130	11.66%						
Colchester	297,322,850	9.54%						
Payden and Rygel	546,134,896	17.52%						
PIMCO	431,258,300	13.83%						
Progress	118,655,940	3.81%						
Other (1)	26,653,653	0.85%						
TOTAL CFIF	\$3,117,615,280	100.00%						

(1) Other represents Liquidity Fund, other assets and terminated advisor balances.

Figure 5-11

CORE FIXED INCOME FUND Comprehensive Profile for the Fiscal Year ending June 30, 2018										
	2018 2017 2016 2015 2014								14	
	CFIF	BC AGG	CFIF	BC AGG*	CFIF	BC AGG*	CFIF	BC AGG*	CFIF	LBAI*
Number of Issues	4,615	10,011	4,129	9,355	3,844	9,804	3,448	9,496	3,080	8,818
Average Coupon	1.97%	3.17%	3.37%	3.11%	3.35%	3.21%	3.54%	3.31%	3.47%	3.41%
Yield Maturity	3.40%	3.30%	2.91%	2.46%	2.20%	1.74%	2.59%	2.29%	2.31%	2.10%
Average Maturity	6.21	8.49	8.40	8.00	7.78	7.85	8.73	7.57	8.05	7.29
Modified Duration	4.38	6.30	6.15	6.09	5.86	5.76	6.15	5.72	5.85	5.58
Average Quality	AA-2	AA-2	AA-2	AA-2	AA-2	AA-2	AA-2	AA-2	AA-2	AA-2
Liquidity Fund*	5.6%	0.0%	5.8%	0.0%	3.8%	0.0%	7.2%	0.0%	6.5%	0.0%

Figure 5-12

# CORE FIXED INCOME FUND

Ten Largest Holdings\* at June 30, 2018

Security Name	Maturity	Market Value	%
FNMA TBA	7/1/2048	\$37,760,528	1.15%
FHLMC TBA	7/1/2048	35,450,590	1.08%
U S TREASURY NOTE	9/30/2019	24,954,294	0.76%
GNMA TBA	7/20/2048	22,960,941	0.70%
U S TREASURY NOTE	8/31/2019	22,342,946	0.68%
U S TREASURY NOTE	12/31/2019	22,235,806	0.68%
U S TREASURY NOTE	5/31/2025	21,366,313	0.65%
U S TREASURY NOTE	3/31/2022	19,624,495	0.60%
U S TREASURY NOTE	6/30/2021	18,136,513	0.55%
SINGAPORE GOVERNMENT BOND	10/1/2019	18,018,266	0.55%
Top Ten		\$242,850,693	7.38%

<sup>\*</sup> A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act.

Figure 5-13

	6/30/2018	3/31/2018	12/31/2017	9/30/2017	6/30/2017
CORE FIXED INCOME	3.29	3.35	3.33	3.46	3.24
Barclays Aggregate	3.12	3.06	2.97	2.94	2.92
Barclays Treasury	2.27	2.20	2.11	2.06	2.05
Barclays Agency	2.36	2.27	2.21	2.17	2.16
Barclays Mortgage	3.52	3.49	3.42	3.43	3.44
Barclays Corporate	3.86	3.77	3.65	3.67	3.69
Barclays Asset Backed	2.32	2.14	2.03	1.98	1.97

<sup>(1)</sup> Current Yield represents annual coupon interest divided by the market value of securities.



#### Fund Facts at June 30, 2018

**Investment Strategy/Goals:** The purpose of the Inflation Linked Bond Fund (ILBF) is to (1) achieve a long- term, real rate of return above the inflation rate; (2) provide protection against rampant inflation; and (3) offer a source of diversification relative to other asset classes within the CRPTF during different economic environments.

Operating Expenses: \$5,266,750

Date of Inception: November 1, 2007 Total Net Position: \$1,399,476,192

**Performance Objective:** A net return, which matches the benchmark, over rolling three- to five-year periods.

ne benchmark, over rolling three- to five-year periods.

Management Fees: \$2,418,901

**Benchmark:** Barclays World Government Inflation-Linked

Bond Index

Number of Advisors: 3 external Expense Ratio: 0.56%

# **Description of the Fund**

Inflation linked bonds are high-quality securities issued primarily by governments in their home country currencies. While the benchmark for this Fund is unhedged, investment managers have discretion to hedge foreign currency exposure back to the U.S. dollar. Inflation-linked bonds carry a fixed interest rate and the principal of the bonds is adjusted semi-annually for any rise or decline in the inflation rate.

#### **Portfolio Characteristics**

At June 30, 2018, the ILBF was well diversified with issues of inflation-linked and nominal sovereign bonds from eight countries plus the United Kingdom and the Eurozone. (See Figure 6-3) The average coupon of this Fund was 1.72 percent compared to 0.84 percent for the benchmark. Duration of the ILBF at 11.11 years was longer than the 7.68 years of the benchmark. Credit quality of the Fund was AA-2 on June 30, 2018 compared to AAA for the benchmark. (See Figure 6-9)

#### **Market Review**

The global inflation-linked bond market returned 3.3 percent for the fiscal year ending June 30, 2018. Monetary tightening by many developing countries' central banks and a weaker U.S. dollar marked more than the first half of the period. The increase in the price of oil and other commodities filtered into expectations for higher inflation in many countries. In the U.S., the 10-year Treasury yield bottomed near 2 percent in August on North Korea tensions and rose above 3 percent by May, before retreating slightly near fiscal year end. The back-up in yields and corresponding yield curve flattening were mainly driven by tightening monetary policy of the Federal Reserve, concerns that tax cuts could over-heat the economy, and fears that Treasury supply would need to increase to cover the budget deficit.

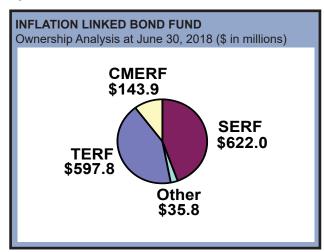
U.S. TIPS outperformed nominal Treasuries with a return of 2.3 percent. With the exception of the U.K., the linkers of countries in the global linker index all outperformed their nominal counterparts. Rising oil prices and expanding global growth combined to exert upward pressure on both realized inflation as well as inflation expectations, helping the linker market to perform well.

# **Performance Summary**

For the fiscal year ended June 30, 2018, the ILBF underperformed the Barclays World Government Inflation-Linked Bond Index by 11 basis points, generating a 3.21 percent net return compared to a 3.32 percent return for the benchmark (See Figure 6-7). For the trailing three-, five- and seven-year periods, the ILBF compounded returns, net of all fees and expenses, were 2.05 percent, 1.47 percent and 2.06 percent, respectively.

ILBF compounded returns, ne respectively.	ILBF compounded returns, net of all fees and expenses, were 2.05 percent, 1.47 percent and 2.06 percent, respectively.					
Risk Profile						
Given the ILBF's investme est rate risk, deflation risk, cur	ent policies and objectives, the Fund is exposed to various risks such as inter- rrency risk, geopolitical risk, and credit risk.					

Figure 6-1



TERF - Teachers' Retirement Fund

SERF - State Employees' Retirement Fund

CMERF - Connecticut Municipal Employees' Retirement Fund

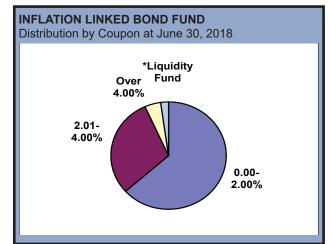
Figure 6-3

#### INFLATION LINKED BOND FUND

Distribution by Country at June 30, 2018
Based on Investments in Securities, at Value

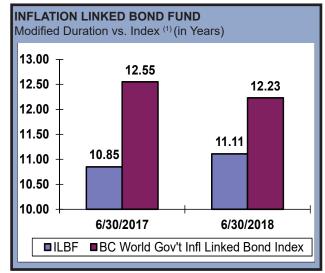
	BC World Gov't				
	ILBF	Infl Linked	Variance		
U.S.	46.1%	42.8%	3.3%		
U.K.	19.2%	28.8%	-9.6%		
Eurozone	15.6%	21.1%	-5.5%		
Mexico	3.4%	0.0%	3.4%		
Malaysia	1.4%	0.0%	1.4%		
Canada	1.1%	2.0%	-0.9%		
Poland	1.2%	0.0%	1.2%		
Japan	2.1%	2.7%	-0.6%		
Australia	4.3%	1.1%	3.2%		
New Zealand	4.6%	0.4%	4.2%		
Other	<u>0.9%</u>	<u>1.1%</u>	-0.2%		
TOTAL	100.0%	100.0%			

Figure 6-5



\*Note: Ending weights

Figure 6-2



(1) Computed without the effect of Cash and other Net Assets. Figure 6-4

INFLATION LINKED BOND FUND

Distribution by Quality Rating at June 30, 2018 Based on Investments in Securities, at Value

AAA	49.6%
AA-1 to AA-3	30.0%
A-1 to A-3	9.2%
BAA-1 to BAA-3	7.0%
Less than BAA-1	4.2%
Total	100.0%

Figure 6-6

INFL	ATION	<b>LINKED</b>	BOND	FUND
------	-------	---------------	------	------

Duration Distribution at June 30, 2018
Based on Investments in Securities, at Value

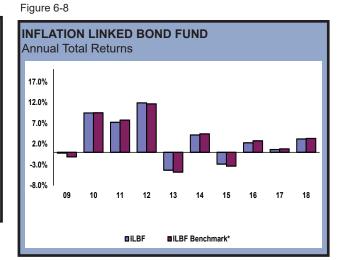
0-3 Years	25.6%
3-5 Years	8.4%
5-7 Years	26.8%
7-10 Years	5.0%
10+ Years	34.2%
Total	100.0%

Figure 6-7

INFLATION LINKED BOND FUND Periods ending June 30, 2018							
	1 YR	3 YRS	5YRS	10YRS			
Compounded, Annual Total Return (%)							
ILBF	3.21	2.05	1.47	3.17*			
BC World Gov't Infl Linked Bond Index <sup>(1)</sup>	3.32	2.29	1.59	2.99			
Cumulative Total Return (	%)						
ILBF	3.21	6.27	7.55	36.59*			
BC World Gov't Infl Linked Bond Index <sup>(1)</sup>	3.32	7.03	8.19	34.23			

<sup>(1)</sup> The benchmark was changed during Fiscal Year 2015 from BC U.S. TIPS to BC World Government Inflation Linked Bond Index.

Figure 6-9



\*Note: 2015 and forward, the Benchmark is BC World Government Inflation Linked Bond Index; for prior years the benchmark is BC U.S. TIPS Index.

# **INFLATION LINKED BOND FUND**

Comprehensive Profile for the Fiscal Year ending June 30, 2018

	20	18	2	017	2	016	20		20	014
	ILBF	BC World Gov't Infl	ILBF	BC World Gov't Infl	ILBF	Barclays US TIPS	ILBF	Barclays US TIPS	ILBF	Barclays US TIPS
Number of Issues	529	39	382	136	587	134	418	131	37	35
Average Coupon	1.72%	0.84%	1.41%	1.15%	1.65%	1.23%	2.08%	1.35%	1.53%	1.22%
Average Maturity	12.64	8.40	11.70	13.68	13.71	13.49	12.63	13.40	8.68	8.57
Modified Duration	11.11	7.68	10.85	12.55	11.73	12.36	11.32	12.07	7.31	7.72
Average Quality	AA-2	AAA	AA-2	AA-2	AA-2	AA-1	AA-2	AA-1	AAA	AAA
Liquidity Fund (1)	2.2%	0.0%	2.8%	0.0%	3.1%	0.0%	2.4%	0.0%	5.6%	0.0%

<sup>(1)</sup> Ending Weights

Figure 6-10

INFLATION LINKED BOND FUND Investment Advisors at June 30, 2018					
Investment Advisor	Net Asset Value	% of Fund			
BlackRock	\$535,129,762	38.24%			
Colchester	627,844,915	44.86%			
New Century	216,232,717	15.45%			
Other <sup>(1)</sup>	20,268,798	1.45%			
TOTAL ILBF	\$1,399,476,192	100.00%			

(1) Other represents Liquidity Fund, other assets and terminated advisor balances.

Figure 6-11

INFLATION LINKED BOND FUND Ten Largest Holdings <sup>(1)</sup> at June 30, 2018						
		Market				
Security Name	Maturity	Value	%			
US TREAS-CPI INFLAT	4/15/2029	\$68,820,250	4.98%			
US TREAS-CPI INFLAT	7/15/2022	54,862,660	3.97%			
US TREAS-CPI INFLAT	1/15/2027	54,808,441	3.96%			
ITALY BUONI						
POLIENNALI DE REGS	9/15/2023	56,875,656	4.11%			
US TREAS-CPI INFLAT	2/15/2042	52,512,551	3.80%			
US TREAS-CPI INFLAT	1/15/2021	43,015,573	3.11%			
UNITED KINGDOM GILT	•		ı			
INFLA REGS	3/22/2044	41,288,878	2.99%			
NEW ZEALAND GOV'T						
IN REGS	9/20/2030	35,950,387	2.60%			
US TREAS-CPI INFLAT	4/15/2022	33,778,377	2.44%			
MEXICAN UDIBONOS	11/15/2040	23,167,704	1.68%			
Top Ten		\$465,080,479	33.64%			

<sup>(1)</sup> A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act.

<sup>\*</sup>Represents historical returns at the portfolio composite level.



#### Fund Facts at June 30, 2018

**Investment Strategy/Goals:** The purpose of the Emerging Market Debt Fund (EMDF) is to (1) achieve long-term, real rates of return above the inflation rate and (2) provide some diversification relative to other asset classes within CRPTF given the different global economic environments.

Date of Inception: November 1, 2007 Total Net Position: \$1,901,511,335

Performance Objective: A net return that Management Fees: \$7,076,439

matches the benchmark, over rolling three- to

five-year periods. **Operating Expenses:** \$1,557,425

**Benchmark:** J.P. Morgan Emerging Markets Bond Index Global Diversified (JPM EMBI GD) (50%) J.P. Morgan Government Bond Index Emerging Markets Global Diversified (JPM GBI EM GD) (50%)

Number of Advisors: 4 external Expense Ratio: 0.49%

#### **Description of the Fund**

The EMDF invests primarily in debt instruments issued by governments and companies operating in developing countries as identified by the benchmark, the World Bank, or the United Nations. The EMDF is generally weighted 50 percent to U.S. dollar-denominated securities and 50 percent to securities issued in local currencies. For performance measurement purposes, the dollar-denominated securities are benchmarked to the JPM EMBI GD and the local currency securities are benchmarked to the JPM GBI EM GD.

### **Portfolio Characteristics**

The EMDF is well diversified with broad geographic and currency exposures. Latin America and Europe have the highest representation; while the Middle East and Africa have the lowest exposure, relatively consistent with the benchmark. (See Figure 7-3) The Fund had an overall yield to maturity of 8.50 percent compared to the EMBI benchmark yield of 6.95 percent. The average quality of EMDF was BA-1 versus the EMBI benchmark average of BAA-3. The duration of the EMDF was 5.40 years versus 5.39 years for the benchmark. (See Figure 7-11)

#### Market Review

Strong and accelerating global economic growth, demand for emerging market assets, U.S. dollar weakness and few political elections supported both strong investment performance of and net inflows into emerging debt markets during the first three quarters of the fiscal year. Investor risk appetite reversed amid fears of trade wars, U.S. dollar strength, and foreign central banks' defense of their currencies causing fixed income emerging markets to decline in the fourth fiscal quarter.

U.S. dollar-denominated emerging market debt had a negative return of 1.6 percent for the fiscal year ending June 30, 2018, driven by spread widening against U.S. Treasuries. There was wide dispersion in returns across countries. Oil-exporting countries and those with sound economic fundamentals performed well, while countries with high inflation, external financing needs or unstable political conditions did poorly. In contrast, local currency investments returned a positive 3 percent in their own currencies. However, when converted back to U.S. dollars, local currency bonds had a loss of 2.3 percent. The Argentine peso and the Turkish lira were down 42 percent, and 23 percent, respectively, against the U.S. dollar. During the first three fiscal quarters, non-investment grade investments outperformed their higher quality counterparts, until the final two months of the fiscal year when investor sentiment shifted towards risk aversion and asset outflows increased.

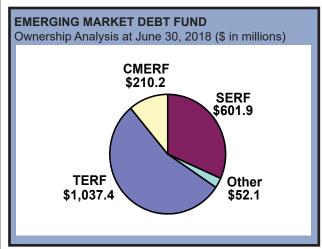
# **Performance Summary**

For the fiscal year ended June 30 2018, the EMDF generated a return of -1.78 percent, net of all expenses, outperforming the benchmark return of -1.89 percent by 11 basis points (See Figure 7-7). For the trailing three-, five- and seven-year periods, the EMDF compounded returns, net of all fees and expenses, were 4.34 percent, 2.35 percent and 2.61 percent, respectively.

# **Risk Profile**

Given the EMDF's investment policies and objectives, the Fund is exposed to multiple types of risk. These risks include, but are not limited to, credit risk, currency risk, interest rate risk, liquidity risk, inflation risk and geopolitical risk. Approximately half of the Fund is rated as investment grade.

Figure 7-1



TERF - Teachers' Retirement Fund

SERF - State Employees' Retirement Fund

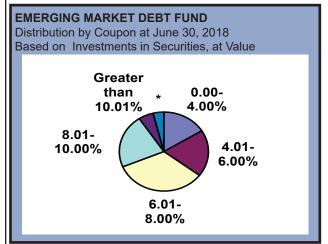
CMERF - Connecticut Municipal Employees' Retirement Fund

Figure 7-3

EMERGING MARK Distribution by Region			
	EMDF	50% JPM EMBI/ 50% JP GBI EM GD	M Variance
Asia	13.9%	18.6%	-4.8%
Africa	9.3%	9.0%	0.3%
Europe	27.0%	25.9%	1.0%
Latin America	34.8%	43.2%	-8.4%
Middle East	6.0%	3.2%	2.8%
United States (1)	9.0%	0.0%	9.0%
TOTAL	100.0%	100.0%	

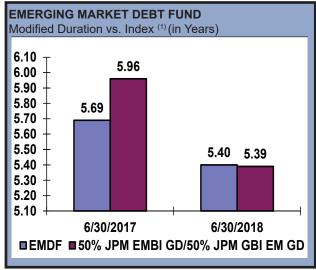
(1) Mainly Liquidity Fund and Foreign Currency Contracts.

Figure 7-5



\*Liquidity Fund and other assets.

Figure 7-2



(1) Computed without the effect of Cash and other Net Assets.

Figure 7-4

EMERGING MARKET DEBT FUND Distribution by Quality Rating at June 30, 2018 Based on Investments in Securities, at Value						
	Aaa	5.4%				
	AA-1 to AA3	0.8%				
	A-1 to A-3	13.1%				
	BAA-1 to BAA3	26.1%				
	Less than BAA-3 44.4%					
	Not Rated (1)	10.3%				
	Total	100.0%				

(1) Represents securities for which ratings are unavailable.

Figure 7-6

EMERGING MARKET DEBT FUND  Duration Distribution at June 30, 2018  Based on Investments in Securities, at Value					
0-3 Years	39.5%				
3-5 Years	26.7%				
5-7 Years	12.1%				
7-10 Years	13.2%				
10+ Years	8.4%				
Unknown <sup>(1)</sup>	0.1%				
Total	100.0%				

(1) Represents securities for which the duration could not be calculated by the custodian.

Figure 7-7

	G MARKET ding June 3		JND		
		1 YR	3 YRS	5YRS	10 YRS
Compound	led, Annual	Total Retur	n (%)		
EMDF		-1.78	4.34	2.35	5.13*
50% JPM E		D 4 00	0.07	4.07	- 0-
50% J	PM GBI EM (	JD -1.89	3.37	1.87	5.35
Cumulative	Total Retur	n (%)			
EMDF		-1.78	13.60	12.34	64.86*
50% JPM E					
50% J	PM GBI EM (	GD -1.89	10.46	9.69	68.47

<sup>\*</sup> Represents historical returns at the portfolio composite level.

Figure 7-9

EMERGING MARKET DEBT FUND Investment Advisors at June 30, 2018					
Investment Advisor	Net Asset Value	% of Fund			
Ashmore Investment Mgt. Ltd.	\$562,035,658	29.56%			
Payden & Rygel	759,912,413	39.96%			
Fidelity Institutional Asset Mgt.					
Trust Co.	472,297,829	24.84%			
Lazard	98,898,275	5.20%			
Other (1)	8,367,161	0.44%			
TOTAL EMDF	\$1,901,511,336	100.00%			

<sup>(1)</sup> Other represents Liquidity Fund, other assets and terminated advisor balances.

Figure 7-8

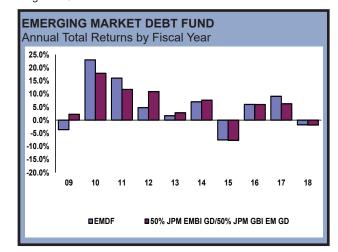


Figure 7-10

EMERGING MARKET DEBT FUND
Ten Largest Holdings* at June 30, 2018

		Market	
Security Name	Maturity	Value	%
Brazil Notas Do Tesouro	1/1/2021	\$39,709,525	2.15%
Mexican Bonds	12/5/2024	27,417,050	1.49%
South Africa Gvmt Bond	2/28/2031	26,264,324	1.42%
Colombian TES	5/4/2022	23,817,748	1.29%
Colombian TES	7/24/2024	18,477,017	1.00%
Russian Fed Bond-OFZ	2/3/2027	18,359,629	1.00%
Argentine Rep Gvmt	4/22/2026	17,603,931	0.95%
Brazil Notas Do Tesouro	1/1/2023	17,091,923	0.93%
JPM Chase Bank NA	9/17/2026	16,130,070	0.87%
Russian Fed Bond-OFZ	4/14/2021	15,233,210	0.83%
Top Ten		\$220,104,429	11.93%

<sup>\*</sup> A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act..

Figure 7-11

EMERGING MARKET DEBT FUND
Comprehensive Profile for the Fiscal Year ending June 30,

	20	18	20	17	2	016	20^	15	2	014
	EMDF	EMBI								
Number of Issues	1,364	879	1,114	818	978	714	968	686	880	631
Yield to Maturity	8.50%	6.95%	6.72%	5.58%	7.56%	5.81%	8.54%	6.68%	5.32%	5.86%
Average Maturity	9.83	8.47	8.69	9.11	9.25	9.28	9.23	9.23	7.57	8.60
Modified Duration	5.40	5.39	5.69	5.96	6.30	6.02	6.17	5.87	5.69	5.74
Average Quality	BA-1	BAA-3	BA-1	BAA-3	BA-1	BAA-3	BA-1	BAA-2	BAA-3	BAA-2
*Liquidity Fund	3.8%	0.0%	2.9%	0.0%	2.7%	0.0%	3.0%	0.0%	3.2%	0.0%

<sup>\*</sup> Note: Ending weights



#### Fund Facts at June 30, 2018

**Investment Strategy/Goals:** The purpose of the High Yield Debt Fund (HYDF) is to (1) achieve a long-term, real rate of return above the inflation rate; and (2) provide diversification to other asset classes within the CRPTF under different economic environments.

Date of Inception: November 1, 2007 Total Net Position: \$2,131,830,669

**Performance Objective:** A net return that matches

its benchmark, over rolling three- to five-year periods. Management Fees: \$7,408,647

Benchmark: Citigroup U.S. High Yield Market Capped Index Operating Expenses: \$6,082,831

Number of Advisors: 7 external Expense Ratio: 0.65%

# **Description of the Fund**

The HYDF invests primarily in debt instruments rated below-investment grade by one or more nationally recognized rating agencies.

#### **Portfolio Characteristics**

The HYDF is well diversified across a range of corporate high yield bonds and bank loans. These securities are predominantly U.S. based. The Fund's average quality rating was B-1 on June 30, 2018, matching the average quality of the benchmark, and had a yield to maturity of 7.08 percent compared to 6.67 percent yield for the benchmark. As of June 30, 2018, the duration of the HYDF was 4.42 years, compared to the benchmark duration of 4.67 years. (See Figure 8-10)

#### **Market Review**

The high yield market return of 2.6 percent for the fiscal year ending June 30, 2018 was driven by higher interest rates and commodity prices, supportive corporate earnings, strong economic data, and low defaults. As the reach for yield continued, lower quality (CCC) securities outperformed higher quality (B/BB) securities throughout the year. Returns were sometimes volatile during the period with 40-50 basis point monthly swings. However, by the end of the fiscal year, high yield spreads were only one basis point lower than where they had begun the period.

After the Federal Reserve raised rates at the end of the second fiscal quarter, the market turned negative on concerns about increasing inflation and the pace of future monetary tightening. As a result, longer-dated bonds underperformed the shorter end of the curve. Asset class outflows were modest for the first half of the period, but turned sharply negative in early 2018. A spike in volatility, negative equity market returns and uncertainty around escalating threats of trade war contributed to negative returns at that time. Offsetting some of the weakened demand, was lower supply. New issuance was subdued and refinancing continued to be the primary use of proceeds.

The Energy sector outperformed as oil prices increased, driven by declining inventories, OPEC production limits and lower production from Venezuela. Utilities, Transportation, Financial Services also outperformed, while Automotive, Consumer Goods, Media, and Banking produced negative returns.

#### PENSION FUNDS MANAGEMENT DIVISION

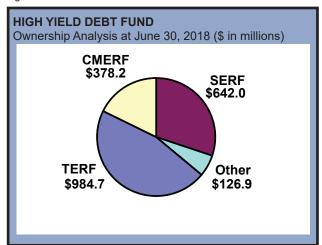
# **Performance Summary**

For the fiscal year ended June 30, 2018, the HYDF generated a return of 2.58 percent, net of all expenses, underperforming the Citigroup U.S. High Yield Market Capped Index return of 2.82 percent by 24 basis points (See Figure 8-8). For the trailing three-, five- and seven-year periods, the HYDF compounded returns, net of all fees and expenses, were 4.81 percent, 4.99 percent and 5.69 percent, respectively.

#### Risk Profile

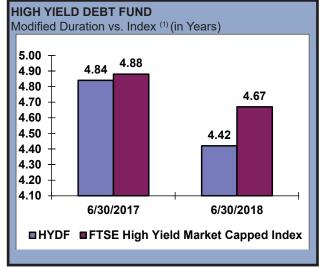
Given the HYDF's investment policies and objective, the Fund is exposed to several forms of risk. These risks include, but are not limited to, credit default risk, interest rate risk, liquidity risk, pre-payment risk, reinvestment risk and inflation risk. In addition, the Fund is occasionally exposed to political, economic and currency risk resulting from investments in international high yield securities. The average quality of the Fund is B-1, which matches the benchmark.

Figure 8-1



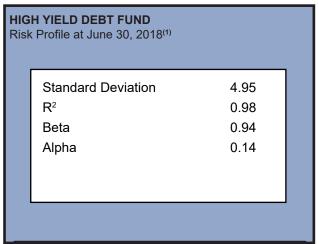
TERF - Teachers' Retirement Fund SERF - State Employees' Retirement Fund CMERF - Connecticut Municipal Employees' Retirement Fund

Figure 8-3



(1) Computed without the effect of Cash and other Net Assets.

Figure 8-2



(1) Based upon returns over the last five years.

Figure 8-4

HIGH YIELD DEBT FUND Distribution by Sector at June 30, 2018 Based on Investments in Securities, at Value							
	HYDF	Citigroup	Variance				
Treasury	2.1%	0.0%	2.1%				
Corporate	94.3%	100.0%	-5.7%				
Asset-Backed	0.1%	0.0%	0.1%				
Other(1)	<u>3.6%</u>	0.0%	3.6%				
TOTAL	100.0%	100.0%					

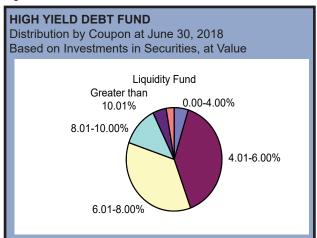
(1) Other category includes non fixed-income securities such as common and preferred stock and convertible securities, Real Estate Investment Trust, Business Development Corporation, Liquidity Fund and other assets.

#### PENSION FUNDS MANAGEMENT DIVISION

Figure 8-5

#### **HIGH YIELD DEBT FUND** Distribution by Quality Rating at June 30, 2018 Based on Investments in Securities, at Value AAA to A3 3.4% BAA1 to BAA3 3.4% BA1 to BA3 28.6% B1 to B3 40.1% CAA1 to CAA3 18.5% CA to C 0.9% Not Rated(1) 5.2% 100.0% Total

Figure 8-6



(1) Represents securities for which ratings are unavailable.

Figure 8-7

HIGH YIELD DEBT FUND Duration Distribution at June 30, 2018 Based on Investments in Securities, at Value						
0-3 Years	69.3%					
3-5 Years	25.2%					
5-7 Years	2.6%					
7-10 Years	1.6%					
10+ Years	0.3%					
Unknown <sup>(1)</sup>	1.0%					
Total	100.0%					

<sup>(1)</sup> Represents securities for which the duration could not be calculated by the custodian.

Figure 8-8

HIGH YIELD DEBT FUND						
Periods ending June 30,	2018					
	1 YR	3 YRS	5 YRS	10 YRS		
Compounded, Annual To	tal Retur	n (%)				
HYDF	2.58	4.81	4.99	7.37		
FTSE High Yield						
Market Capped Index	2.82	5.13	5.10	7.54*		
Cumulative Total Return	(%)					
HYDF	2.58	15.14	27.54	103.64*		
FTSE High Yield						
Market Capped Index	2.82	16.19	28.23	106.91		

<sup>\*</sup>Represents historical returns at the portfolio composite level.

Figure 8-9

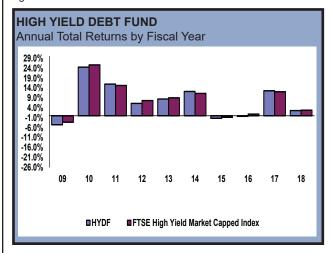


Figure 8-10

#### **HIGH YIELD DEBT FUND** Comprehensive Profile for the Fiscal Year ending June 30, 20 18 <u>2017</u> **2018** <u>2016</u> <u>2015</u> <u>2014</u> HYDF Citigroup **HYDF HYDF HYDF** Citigroup HYDF Citigroup **FTSE** Citigroup 2,183 Number of Issues 1,700 1,992 1,354 2,043 1,016 2,179 972 2,220 884 6.36% Average Coupon 5.88% 5.60% 6.45% 5.67% 6.54% 5.80% 6.73% 5.88% 7.08% Yield Maturity 7.08% 6.67% 5.51% 6.02% 6.87% 7.32% 6.34% 6.77% 5.13% 5.73% Average Maturity 5.50 5.49 5.33 5.71 6.17 5.64 6.29 5.74 5.99 5.04 **Modified Duration** 4.42 4.88 4.95 4.67 4.84 5.12 4.77 5.36 5.42 5.12 Average Quality B-1 Liquidity Fund 7.5% 6.6% 0.0% 2.5% 0.0% 0.0% 4.4% 0.0% 4.6% 0.0%

Figure 8-11

HIGH YIELD DEBT FUND Investment Advisors at June 30, 2018						
Investment Advisor	Net Asset Value	% of Fund				
Loomis Sayles & Co., Inc.	\$391,634,857	18.37%				
Stone Harbor Investment Partners	2,687	0.00%				
Shenkman Capital Management, Inc.	238,199,178	11.17%				
Oaktree Capital Management, LLC	414,963	0.02%				
AllianceBernstein, LP	321,676,184	15.09%				
DDJ Capital Management, LLC	263,149,399	12.34%				
Columbia Mgmt Investment Advisers, LLC	372,909,831	17.49%				
Nomura Corp. Research & Asset Mgmt, Ind	c469,510,728	22.02%				
TCG BDC, Inc.	55,926,710	2.62%				
Other (1)	18,406,131	0.86%				
TOTAL HYDF	2,131,830,669	100.00%				

(1) Other represents Liquidity Fund, other assets and terminated advisor balances.

Figure 8-12

HIGH YIELD DEBT FUND Ten Largest Holdings* at June 30, 2018				
		Market		
Security Name	Maturity	Value	%	
U S Treasury Bill	9/6/2018	\$19,931,200	0.94%	
U S Treasury Bill	11/15/2018	14,886,600	0.71%	
U S Treasury Note	5/31/2019	11,285,347	0.53%	
Indnesia Gvmt Bond	1/15/2024	9,441,770	0.45%	
Polaris Int. Corp 144A	12/1/2022	9,487,964	0.45%	
Altice France SA/ France144A	5/15/2022	8,746,445	0.41%	
Tenet Healthcare Corp	11/15/2031	8,190,047	0.39%	
New Star Metals Inc	6/22/2022	8,179,421	0.39%	
MEG Energy Corp144A	3/31/2024	8,130,056	0.39%	
New Albertsons LP	8/1/2029	8,099,231	0.38%	
Top Ten		\$106,378,081	5.04%	

A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act.

# developed markets international stock fund

#### Fund Facts at June 30, 2018

**Investment Strategy/Goals:** The purpose of the Developed Markets International Stock Fund (DMISF) is to (1) achieve a long-term, real rate of return above the US inflation rate; and (2) provide additional measures of diversification to other asset classes within the CRPTF under different economic scenarios.

**Date of Inception:** November 1, 2007 **Total Net Position:** \$7,152,742,976

**Performance Objective:** A net return that matches

the benchmark, over rolling three-to-five year periods. Management Fees: \$24,221,682

Benchmark: Benchmark: Morgan Stanley Capital International Europe,

Australasia and Far East Investable Market Index

(MSCI EAFE IMI)<sup>(1)</sup> 50% Hedged **Operating Expenses:** \$4,118,900

Number of Advisors: 9 external Expense Ratio: 0.42%

(1) The CRPTF signed a licensing agreement with MSCI to provide benchmark data commencing in fiscal year 2015. For the three, five and ten year performance periods, the CRPTF is using the prior benchmark, S&P/Citigroup Broad Market Index Europe, Pacific and Asia Composite Index 50% Hedged.

# **Description of the Fund**

DMISF assets are allocated across foreign developed equity markets to provide diversification by country, market capitalization and style. Non-U.S. equities are issued by companies domiciled outside of the United States. The DMISF may invest up to 30 percent of assets opportunistically to take advantage of shifts in the investment landscape, or opportunities that offer diversification and/or risk-return benefits within non-U.S. equity markets.

#### **Portfolio Characteristics**

At fiscal year-end, the DMISF was invested in the developed markets across Europe, Asia and Australia, with the two largest allocations in Japan (20.2 percent) and the United Kingdom (13.3 percent) (see Figure 9.5). The portfolio's largest country overweight positions relative to the benchmark were Canada (1.9 percent vs. the benchmark's 0.0 percent) and the Netherlands (5.2 percent vs. the benchmark's 3.4 percent). The largest underweights were Japan (20.2 percent vs. the benchmark's 25.1 percent) and United Kingdom (13.3 percent vs. the benchmark's 18.1 percent).

#### **Market Review**

International developed equities made modest gains over the 12 month period with the MSCI EAFE Index up 6.8 percent. Smaller companies outperformed this with the MSCI EAFE Small Cap Index rising 12.4 percent. Small cap outperformance has been evident in all regions with continental Europe making the strongest contribution to relative returns. Small caps also benefitted from their higher weighting in Japan (the strongest performing region) and lower weighting in continental Europe (the weakest performing region). Across sectors, information technology, financials, health care and consumer staples have been the strongest drivers of relative outperformance with only partial offset from energy.

The first half of the fiscal year saw international equity markets produce strong returns as economic growth indicators were positive overall as stable expansion and benign inflation backed by positive earnings releases were very supportive. Markets in the second half of the fiscal year took a more negative note with investors unnerved by concerns about the path of U.S. interest rate rises, worries over trade, and an unsettling geopolitical backdrop. Despite this, economic and earnings data has remained resilient.

# **Performance Summary**

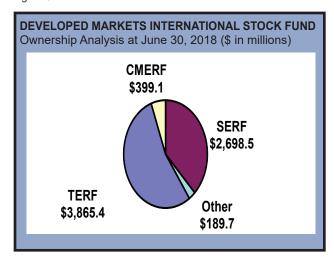
For the fiscal year ended June 30, 2018, the DMISF generated a return of 6.53 percent, net of all expenses, which underperformed the benchmark return of 8.26 percent by 173 basis points (See Figure 9-3). For the trailing three-, five-and seven-year periods, the DMISF compounded returns, net of all fees and expenses, were 7.30 percent, 8.75 percent and 7.28 percent, respectively.

#### **Risk Profile**

Given the DMISF's investment policies and objectives, the Fund is exposed to several forms of risk. These include, but are not limited to, political and economic risk, currency risk, market risk, and individual company risk. A 50 percent currency hedging strategy is employed to reduce the portfolio's currency risk over time. The Fund's portfolio volatility (Beta) over a five year period is only slightly lower than the market at 0.97. On a risk adjusted basis, the Fund has generated excess return of 0.68, which indicates that it is producing a higher risk adjusted return than the benchmark.

#### PENSION FUNDS MANAGEMENT DIVISION

Figure 9-1



TERF - Teachers' Retirement Fund

SERF - State Employees' Retirement Fund

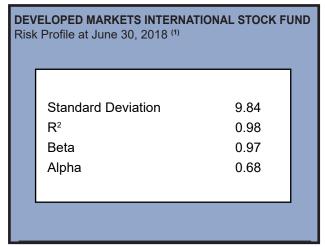
CMERF - Connecticut Municipal Employees' Retirement Fund

Figure 9-3

<b>DEVELOPED MARKETS</b> Periods ending June 30		ATIONAL	STOCK	( FUND
	1 YR	3 YRS	5YRS	10YRS
Compounded, Annual T	otal Retur	n (%)		
DMISF	6.53	7.30	8.75	5.19*
MSCI EAFE				
IMI 50% Hedged	8.26	6.34	8.63	4.89
Cumulative Total Return DMISF MSCI EAFE IMI 50% Hedged	1 <b>(%)</b> 6.53 8.26	23.55 20.24	52.11 51.30	65.91* 61.16

<sup>\*</sup>Represents historical returns at the portfolio composite level.

Figure 9-2



(1) Based upon returns over the last five years.

Figure 9-4

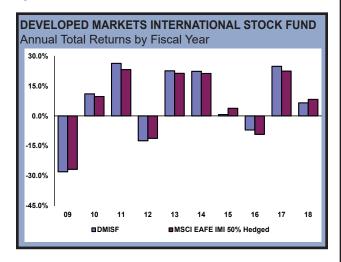


Figure 9-5

**DEVELOPED MARKETS INTERNATIONAL STOCK FUND** Diversification by Benchmark Country at June 30, 2018<sup>(1)</sup>

	DMISF % of Net Assets 6/30/18	Benchmark % of Net Assets 6/30/18	Variance
Japan	20.2	25.1	-4.9
United Kingdom	13.3	18.1	-4.8
Korea	0.2	0.0	0.2
Hong Kong	2.6	3.4	-0.8
United States	0.3	0.0	0.3
France	9.0	9.9	-0.9
Germany	7.7	9.0	-1.3
Switzerland	7.3	7.3	0.0
Australia	5.1	7.0	-1.9
China	0.5	0.0	0.5
Netherlands	5.2	3.4	1.7
Italy	2.5	2.6	-0.1
Spain	2.2	3.0	-0.8
Sweden	2.4	3.0	-0.6
Singapore	1.6	1.3	0.3
Canada	1.9	0.0	1.9
Turkey	0.0	0.0	0.0
Other <sup>(2)</sup>	18.2	7.0	11.2
Total	100.0	100.0	

- (1) Based upon currency exposures of the underlying securities.
- (2) Includes Liquidity Fund and MSCI EAFE ETF with multiple domiciles.

Figure 9-6

Investment Advisor	Net Asset Value	% of Fund
Index	\$1,947,913,436	27.23%
State Street Global Advisors	1,947,913,436	27.23%
Core	1,849,815,018	25.86%
AQR Capital Management	818,980,240	11.45%
Acadian Asset Management	875,506,681	12.24%
Progress	155,328,097	2.17%
Active-Growth	984,321,964	13.76%
MFS Institutional Advisors, Inc.	984,321,964	13.76%
Active-Value	567,380,455	7.93%
MSCI EAFE ETF	567,380,455	7.93%
Small Cap	1,352,262,314	18.91%
Schroder Investment Mgmt.	457,058,321	6.39%
DFA	433,138,250	6.06%
William Blair & Company	462,065,743	6.46%
Other (1)	451,049,789	6.31%
TOTAL DMISF	\$7,152,742,977	100.00%

(1) Other represents Liquidity Fund, other assets and terminated advisor balances, as well as, currency overlay balances for the DMISF (managed by First Quadrant).

Figure 9-7

Security Name	Country	Market Value	%
IShares Core MSCI EAFE ETF	Multiple Domicile	\$556,352,226	7.87%
Nestle SA REG	Switzerland	86,435,658	1.229
Roche Holding AG Genusschein	Switzerland	72,589,764	1.039
Novartis AG REG	Switzerland	47,599,689	0.67
SAP SE	Germany	45,419,353	0.649
Bayer AG REG	Germany	45,084,855	0.64
Novo Nordisk A/S	Denmark	43,143,999	0.61
AIA Group Ltd	Hong Kong	42,166,399	0.60
DBS Group Holdings Ltd	Singapore	38,769,433	0.559
LVMH Moet Hennessey Louis Vuitt	France	37,647,375	0.539

A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act.

# emerging markets international stock fund

#### Fund Facts at June 30, 2018

**Investment Strategy/Goals:** The purpose of the Emerging Markets International Stock Fund (EMISF) is to (1) achieve a long-term, real rate of return above the US inflation rate; and (2) provide additional measures of diversification within the CRPTF under different economic scenarios.

**Date of Inception:** November 1, 2007 **Total Net Position:** \$2,790,994,726

Performance Objective: A net return that matches

the benchmark, over rolling three- to five-year periods. Management Fees: \$12,571,177

Benchmark: Morgan Stanley Capital International Emerging

Markets Investable Market Index (MSCI EM IMI) (1) Operating Expenses: \$4,760,903

Number of Advisors: 2 external Expense Ratio: 0.60%

(1) The CRPTF signed a licensing agreement with MSCI to provide benchmark data commencing in fiscal year 2015. For the three, five and ten year performance periods, the CRPTF is using the prior benchmark, S&P/Citigroup Broad Market Index Europe, Pacific and Asia Composite Index 50% Hedged.

# **Description of the Fund**

EMISF assets are allocated across foreign emerging equity markets and are diversified by market, capitalization and style. Emerging market equities are defined as common stocks issued by companies domiciled in developing countries, including the 23 companies in the MSCI EM IMI.

#### **Portfolio Characteristics**

At fiscal year-end, the EMISF's portfolio holdings were diversified over a number of emerging market countries (see Figure 10.6). Notable overweight position versus the benchmark included Hong Kong (4.9 percent versus the benchmark's 0.0 percent). Underweight positions include China (16.6 percent versus the benchmark's 30.6 percent), Taiwan (6.6 percent versus the benchmark's 12.6 percent), and India (4.1 percent versus the benchmark's 9.4 percent). EMISF portfolio also held MSCI Emerging Markets ETF with geographic exposure across multiple domiciles' at June 30, 2018. (See Figure 10.6)

#### **Market Review**

Emerging markets equities recorded a positive return overall for the fiscal year. Increases in global growth and trade proved supportive, as did U.S. dollar weakness in the first half of the fiscal year. However, a revival in the U.S. dollar, amid policy normalization from the Federal Reserve, and escalating U.S.-China trade tensions weighed on returns in the second half of the fiscal year.

In response to the increase in the U.S. dollar, central banks in countries such as Argentina, Turkey, Indonesia and Mexico have had to raise local interest rates. Country specific issues such as high inflation in Argentina, political uncertainty in Turkey and the economic impact of a truckers strike in Brazil added to the negative sentiment towards emerging markets.

# **Performance Summary**

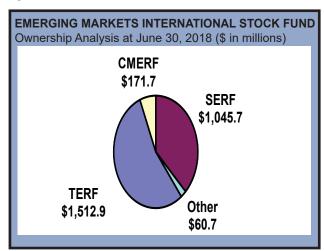
For the fiscal year ended June 30, 2018, the EMISF generated a return of 4.66 percent, net of all expenses, which underperformed the benchmark return of 7.90 percent by 324 basis points (See Figure 10-4). For the trailing three-, five- and seven-year periods, the EMISF compounded returns, net of all fees and expenses, were 6.13 percent, 4.40 percent and 1.39 percent, respectively.

# **Risk Profile**

Given the EMISF's investment policies and objectives, the Fund is exposed to several forms of risk. These include, but are not limited to, political and economic risk, currency risk, market risk, and individual company risk. Based on returns over the last five years, the Fund's risk profile closely equaled that of the benchmark as evidenced by portfolio volatility (Beta) of 0.97. The EMISF's annualized alpha over the five-years on a risk adjusted basis was -0.39. (See Figure 10.2)

#### PENSION FUNDS MANAGEMENT DIVISION

Figure 10-1



TERF - Teachers' Retirement Fund

SERF - State Employees' Retirement Fund

CMERF - Connecticut Municipal Employees' Retirement Fund

Figure 10-3

# **EMERGING MARKETS INTERNATIONAL STOCK FUND** Fiscal Year 2018 Economic Sector vs. Index (%)

	EM	MSCI	Vari-
	ISF	Index	ance
Energy	8.3	6.6	1.7
Materials	4.8	8.2	-3.4
Industrials	2.1	6.3	-4.1
Consumer Discretionary	8.2	10.5	-2.3
Consumer Staples	5.1	6.7	-1.7
Health Care	0.9	3.9	-2.9
Financials	32.2	21.3	10.9
Information Technology	34.5	26.4	8.0
Telecommunication Service	es 3.3	3.9	-0.7
Utilities	0.6	2.6	<b>-</b> 2.0
Other	0.0	3.6	-3.5
	100.0	100.0	

Figure 10-2

EMERGING MARKETS INTERNATIONAL STOCK FUND Risk Profile at June 30, 2018 <sup>(1)</sup>				
Standard Deviation R <sup>2</sup> Beta Alpha	14.21 0.98 0.97 -0.39			
719114 -0.53				

(1) Based upon returns over the last five years.

Figure 10-4

EMERGING MARKETS INTERNATIONAL STOCK FUND
Periods ending June 30, 2018

	1 YR	3 YRS	5 YRS	10 YRS	
Compounded, Annual Total Return (%)					
EMISF	4.66	6.13	4.40	2.08*	
MSCI EMERGING					
MARKETS IMI INDEX	7.90	5.19	4.93	2.52	
Cumulative Total Return	(%)				
EMISF	4.66	19.53	24.04	22.86*	
MSCI EMERGING					
MARKETS IMI INDEX	7.90	16.40	27.18	28.26	
_					

<sup>\*</sup>Represents historical returns at the portfolio composite level.

Figure 10-5

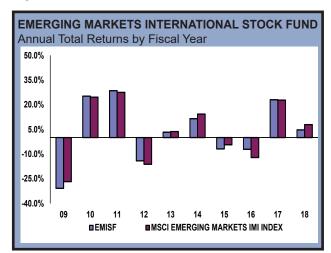


Figure 10-6

**EMERGING MARKETS INTERNATIONAL STOCK FUND** Diversification by Benchmark Country at June 30, 2018 (1)

	EMISF	Benchmark
	Percent of	Percent of
	Net Assets	Net Assets
	6/30/18	6/30/18
Brazil	4.1	5.7
Korea	12.5	15.1
Hong Kong	4.9	0.0
Russia	4.5	3.2
China	16.8	30.6
Taiwan	6.6	12.6
United States	2.7	0.0
Mexico	0.4	2.9
Thailand	1.6	2.3
South Africa	3.0	6.4
Turkey	0.5	0.8
Indonesia	0.0	2.0
Malaysia	0.0	2.5
India	4.1	9.4
Philippines	0.0	0.9
United Kingdom	0.1	0.0
Multiple Domicile*	31.5	0.0
Other Countries	6.7	5.7
Total	100.0%	100.0%

<sup>(1)</sup> Includes Liquidity Fund and cash equivalents at each country

Figure 10-8

EMERGING MARKET Ten Largest Holdings			K FUND
Security Name	Country	Market Value	%
IShares Core MSCI Emerging ETF	Multiple Domicile	\$878,969,563	31.62%
Tencent Holdings LTD	China	146,824,514	5.28%
Samsung Electronics Co LTD	South Korea	130,190,950	4.68%
Alibaba Group Holding LTD	) China	111,528,948	4.01%
Taiwan Semiconductor Manufacture	Taiwan	96,755,872	3.48%
China Construction Bank Co	China	77,226,461	2.78%
Lukoil PJSC	Russia	51,515,378	1.85%
AIA Group LTD	Hong Kong	49,557,050	1.78%
HDFC Bank LTD	India	46,689,178	1.68%
Infosys LTD	India	43,841,852	1.58%
Top Ten		\$1,633,099,766	58.75%

A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act.

Figure 10-7

Investment Advisors at June 30, 2018				
Investment Advisor	Net Asset Value	% of Fund		
Schroders Investment Mgt	\$1,882,153,750	67.44%		
MSCI Emerging ETF	879,343,899	31.51%		
Other (1)	29,497,077	1.06%		
TOTAL EMISF	\$2,790,994,726	100.00%		

**EMERGING MARKETS INTERNATIONAL STOCK FUND** 

(1) Other represents Liquidity Fund, other assets and terminated advisor balances.

<sup>\*</sup> Multiple Domicile represents MSCI EMERGING ETF



#### Fund Facts at June 30, 2018

**Investment Strategy/Goals:** The purpose of the Real Estate Fund (REF) is to (1) provide diversification to the overall CRPTF investment program, (2) preserve investment capital, (3) generate attractive risk-adjusted rates of return, (4) provide consistent current income and (5) act as a hedge against inflation under different economic scenarios.

Date of Inception: July 1, 1982 Total Net Position: \$2,285,030,519

Performance Objective: A net return that Management Fees (1): \$6,850,149

matches the benchmark over rolling

three-to five-year periods. Capitalized and Netted Fees: \$16,524,996
Benchmark: National Council of Real Estate Operating Expenses: \$1,867,387

Investment Fiduciaries - National Properties Index

("NCREIF-NPI") Expense Ratio: 0.38%

Number of Investment Advisors: 21

(1) See note 1 to the Financial Statements for a discussion of similar fees incurred at the investment level.

# **Description of the Fund**

The REF is the vehicle by which the CRPTF makes investments in the real estate asset class. The REF may invest in real estate properties, real estate related equity investments, or real estate related debt and mortgages. The REF consists of a number of investment strategies and vehicles including externally managed commingled funds, open-end funds, separate accounts, publically traded real estate securities, limited partnerships, and other indirect ownership structures managed by professional real estate investment managers.

#### **Portfolio Characteristics**

For fiscal year 2018, the Fund generated a total return of 8.69 percent net of all expenses, outperforming its benchmark NCREIF-NPI, which posted a gross return of 7.12 percent (See Figure 11-8). The one-year return reflects an ongoing positive trend in the REF portfolio, which can be attributed to recent accretive commitments to open-ended core and core-plus funds, as well as a number of new value-add strategies in the Fund.

For the trailing three-, five-and seven-year periods, the REF compounded returns, net of all fees and expenses, were 9.18 percent, 10.22 percent and 9.79 percent, respectively. The Fund has continued to invest through the recent real estate cycle, with new commitments in value-add and opportunistic strategies during the fiscal year, which has helped to maintain diversification in the Fund.

#### **Market Review**

The U.S. economy continues to grow at a measured pace. Economic growth, measured by the Gross Domestic Product (GDP), has averaged 2.2 percent since the recovery began and accelerated in the beginning of 2018 to reach 4.1 percent by the second quarter 2018. Similarly, job growth, averaging 1.6 percent per year since the beginning of the recovery, has been solid but measured consistent with the general pace of the expansion and sufficient to meet the demand of the growing labor force. Despite employment gains and a declining unemployment rate - down to 3.9 percent at the end of June 2018 - wage growth has been muted. However, the tightening labor market is expected to eventually put upward pressure on wages as employers will be forced to raise wages to attract and keep talent.

The overall positive U.S. economic environment and labor market as well as low interest rates have provided a favorable back drop for real estate investment activity. The U.S. real estate capital markets environment remains balanced, with capital continuing to flow into real estate resulting in a steady volume of transaction activity. With rising rates, however, the spread available on real estate has condensed and investment volume showed signs

of leveling off during the first half of 2018. In addition returns have stabilized across all sectors and performance is being driven primarily by positive income growth, as opposed to yield compression.

Market fundamentals in most real estate sectors were strong during the fiscal year. While a growing economy and tightening labor market continued to generate demand for real estate, supply growth remained in check across most sectors and markets due to stricter lending standards and increasing construction costs. By property type, the industrial sector driven by the E-commerce boom, continues to lead the property sectors in returns and has seen the highest year-over-year growth in transaction volume. Demand in the multifamily sector remains strong, bolstered by favorable demographics. However, a robust supply pipeline focused on luxury apartments in urban locations has started to weaken rent growth in the high-end segment and performance has underperformed the mid-tier segment. Office and retail have both lagged other property sectors; however, with solid employment growth in the U.S., Central Business District office is seeing strong demand albeit with smaller space requirements. In the retail sector, despite pressure from E-commerce causing power centers and lower quality malls to suffer, well-located, higher quality malls and convenience-oriented, necessity retail are both bright spots in the sector.

# **Performance Summary**

For Fiscal Year 2018, the Fund generated a total return of 8.69 percent net of all expenses, outperforming its benchmark NCREIF-NPI, which posted a gross return of 7.12 percent. The one-year return reflects an ongoing positive trend in the REF portfolio, which can be attributed to recent accretive commitments to open-ended core and core-plus funds, as well as a number of new value-add strategies in the Fund.

For the trailing three- and five-year periods, the REF's compounded annual returns, net of all expenses, were 9.18 percent and 10.22 percent, respectively (See Figure 11.8). REF's net returns have outperformed the gross benchmark for the three- and five-year periods. The Fund has continued to invest through the recent real estate cycle, with new commitments in value-add and opportunistic strategies during the fiscal year, which has helped to maintain diversification in the Fund.

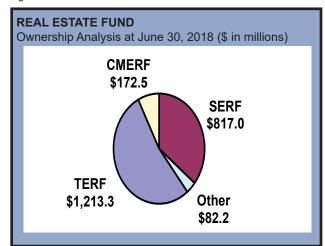
#### **Risk Profile**

The REF takes both a total portfolio and asset class specific approach to risk management. Risk is managed at the portfolio level through diversification and strategic asset allocation and the implementation of strategy. Risks attendant to alternative investments, such as management, operations, local/regional property markets, and liquidity risk, are managed at the asset class level with additional risk management focused on financing, geography, and property type risks specific to a fund manager's portfolio investments.

The REF's large allocation to core funds which most closely track NPI generally has lower leverage than value-add and opportunistic strategies resulting in reduced risk. NPI is comprised of a portfolio of 6,000+ properties, many of which are levered, but for purposes of constructing the NPI benchmark, are de-levered for the index. The REF volatility is typical and not excessive relative to a benchmark comprised of unlevered core properties.

#### PENSION FUNDS MANAGEMENT DIVISION

Figure 11-1



TERF - Teachers' Retirement Fund

SERF - State Employees' Retirement Fund

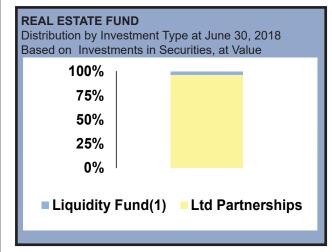
CMERF - Connecticut Municipal Employees' Retirement Fund

Figure 11-3

REAL ESTATE FUND Investments Analysis (1)						
At	No. of REF Investments	REF Book Value	REF Market Value			
6/30/2018	33	1,970,639,550	2,210,907,863			
6/30/2017	42	1,917,730,506	2,156,493,225			
6/30/2016	42	1,798,740,547	2,065,132,526			
6/30/2015	38	1,646,736,485	1,732,052,523			
6/30/2014	33	1,398,172,794	1,429,069,066			
6/30/2013	30	1,366,354,620	1,227,275,238			
6/30/2012	36	1,376,611,668	1,180,717,977			
6/30/2011	36	1,310,614,926	1,057,213,580			
6/30/2010	35	1,097,439,251	715,310,010			
6/30/2009	34	996,474,812	745,643,849			
6/30/2008	31	920,921,272	968,885,960			

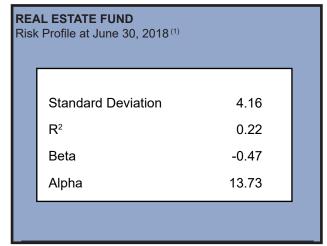
 Number of investments in annuities, partnerships, corporations, and trusts, excluding the Liquidity Fund.

Figure 11-5



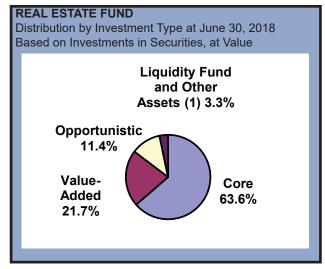
(1) Liquidity Fund and other assets.

Figure 11-2



(1) Based upon returns over the last five years.

Figure 11-4



(1) Liquidity Fund and Other Net Assets

Figure 11-6

REAL ESTATE FUND
Distribution by Geographic Location at June 30, 2018
Based on Investments in Securities, at Value

	REF	NCREIF	Variance
East	27.0%	32.8%	-5.8%
Midwest	10.0%	8.7%	1.3%
South	26.0%	19.9%	6.1%
West	34.0%	38.3%	-4.3%
International	3.0%	0.0%	3.0%
Other assets	0.0%	0.3%	-0.3%
	100.0%	100.0%	

Figure 11-8

Figure 11-7

REAL ESTATE FUND Diversification by Property Type at June 30, 2018 Based on Investments in Securities, at Value				
	REF	NCREIF	Variance	
Apartment	29.0%	23.8%	5.2%	
Office	28.0%	37.0%	-9.0%	
Retail	25.0%	23.2%	1.8%	
Industrial	13.0%	15.2%	-2.2%	
Hotel	2.0%	0.8%	1.2%	
Other Assets <sup>(1)</sup>	3.0%	0.0%	3.0%	
	100.0%	100.0%		

 REAL ESTATE FUND

 Periods ending June 30, 2018

 1 YR 3 YRS 5 YRS 10 YRS

 Compounded, Annual Total Return (%)

 REF
 8.69 9.18 10.22 2.43

 NCREIF Property
 7.12 8.72 10.00 6.09

 Cumulative Total Return (%)

8.69

7.12

30.15 62.64

28.51 61.05

27.11

80.68

(1) Includes senior living, real estate/mixed use and land..

Figure 11-9

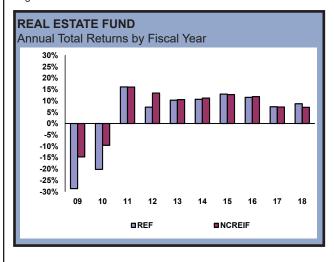


Figure 11-10

REF

NCREIF Property

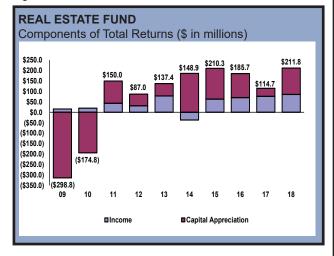


Figure 11-11

#### **REAL ESTATE FUND** Funds at June 30, 2018 **Net Asset** % of Value Fund 165,301,184 American Realty Advisors 7.23% Blackstone Real Estate Partner Europe III LP 15,344,939 0.67% Blackstone Real Estate Spec Sit II LP 2,193,832 0.10% Blackstone Real Estate VI LP 12,517,217 0.55% Blackstone Real Estate Partners VIII LP 60,816,226 2.66% Blackstone Real Estate Partners EURO V 23,054,319 1.01% Clarion Lion Industrial Trust 130,172,102 5.70% Cornerstone Patriot Fund LP 253,473,430 11.09% Covenant Apartment Fund VIII 23,908,070 1.05% Crow Hldgs Realty Partners VII LP 2.73% 62,374,096 Cypress Acquisition Prtnrs Retail FD LP 55,727,475 2.44% Gerding Edlen Green Cities II 1.28% 29,219,191 Gerding REF III 44,555,714 1.95% Hart Realty Advisors 218,377,677 9.56% IL & FS India Realty Fund II LLC 12,034,582 0.53% JP Morgan Strategic Property 104,322,514 4.57% Landmark RE Partners VII LP 1.15% 26.223.304 Landmark VIII REF 6,989,311 0.31% Lone Star Real Estate Part II LP 4,586,286 0.20% Prime Property Fund LLC 274,974,063 12.03% PRISA 207,845,289 9.10% Rockwood Capital VI Limited Partnership 192,727 0.01% Rockwood Capital VII Limited Partnership 11,037,052 0.48% Starwood Opportunity Fund VII 3.449.609 0.15% Starwood Opportunity Fund VIII 9,614,245 0.42% Starwood Opportunity Fund IX 26,281,169 1.15% Starwood Opportunity Fund X 53,228,501 2.33% UBS-Trumbull Property Income 60,465,980 2.65% UBS-Trumbull Property G&I (TPG) 70.749.203 3 10% UBS-Trumbull Property Fund LP 89,494,498 3.92% Urban Strategy America Fund LP 4,351,251 0.19% USAA Eagle RE Fund 140,600,644 6.15% WLR IV PPIP Co Invest LP 6,774,355 0.30% Other (1) TOTAL REF 74,780,465 3.27% 100.00% 2,285,030,519

Figure 11-12

REAL ESTATE FUND Ten Largest Holdings* at	June	30, 2018	
		Market	
Property Name	Type	Value	%
Prime Property Fund LLC	Core	\$274,974,063	12.04%
Cornerstone Patriot Fund LP	Core	253,473,430	11.10%
Hart Realty Advisors	Core	218,377,677	9.56%
PRISA	Core	207,845,289	9.10%
American Realty Advisors	Core	165,301,184	7.24%
USAA Eagle RE Fund	Core	140,600,644	6.16%
Clarion Lion Industrial Trust	Value	Added 130,172,102	5.70%
JP Morgan Strategic Property	Core	104,322,514	4.57%
UBS-Trumbull Property Fund LP	Core	89,494,498	3.92%
UBS-Trumbull Property G&I (TPG)	Core	70,749,203	3.10%
Top Ten		\$1,655,310,603	72.50%

<sup>\*</sup> A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act.

 Other represents moneys earmarked for distribution to participants, reinvestment, and expenses as well as terminated advisor balances.

Figure 11-13

# REAL ESTATE FUND New Investments Made in Fiscal Year 2018 (in Excess of \$3 Million) Partnership Name Landmark Real Estate Partners VIII, LP Crow Holdings Realty Partners VIII, LP Total State Partners VIII, LP \$75 million \$140 million

# private investment fund

#### Fund Facts at June 30, 2018

**Investment Strategy/Goals:** The purpose of the Private Investment Fund (PIF) is to: (1) earn returns in excess of the public equity markets, (2) generate attractive risk-adjusted rates of return, and (3) provide diversification for the CRPTF under different economic environments.

Date of Inception: July 1, 1987 Total Net Position: \$2,726,105,801

**Performance Objective:** A net return that outperforms **Management Fees**<sup>(1)</sup>: \$942,012 the Standard & Poor Index (S&P 500) over rolling

ten year periods. Capitalized and Netted Fees: \$29,045,992

**Benchmark:** S&P 500 **Operating Expenses:** \$7,570,614

Number of Advisors: 39 Expense Ratio: \*0.30%

(1) See Note 1 to the Financial Statements for a discussion of similar fees incurred at the investment level.

# **Description of the Fund**

The PIF invests in externally managed funds that are executing strategies divided into two sub-asset classes: venture capital and corporate finance. Venture capital invests equity into young or development stage companies. Corporate finance encompasses several underlying strategies, including leveraged buyout, mezzanine debt, and special situations.

#### **Portfolio Characteristics**

The PIF invests in private equity funds either directly as a limited partner to a specific fund or indirectly as a limited partner to a fund of funds vehicle. Fund-of-funds invest in multiple private equity partnerships that invest in underlying companies and are typically used to execute a strategic objective within the PIF. Private equity investments include two general areas of strategic focus.

#### Corporate Finance

- Buyout focused investments are defined as controlling or majority investments in private equity or equity-like securities of more established companies on the basis of the company's asset value and/ or cash flow.
- Mezzanine debt focused investments are defined as investments in securities located between equity
  and senior debt in the company's capital structure. Mezzanine debt investments offer higher current
  income than senior debt securities and often offer equity participation features that may take the form
  of warrants or contingent equity interests.
- Special situation focused investments are defined as investments in a variety of securities (debt, preferred equity and/or common equity) in portfolio companies at a variety of stages of development.
- International private equity focused investments are defined as investments in private equity or equity-like securities in companies located outside the continental United States. International private equity investments provide the benefit of geographic and economic diversification and may include exposure to higher growth economies in select markets.

### Venture Capital

Venture capital focused investments can be narrowly defined as investments in private equity or equity-like securities of developing companies in need of growth or expansion capital. These investments can range from early-stage financing, where a company has little more than a marketable idea, to expansion financing, where a company has a marketable product but requires additional capital to bring the product to market.

<sup>\*</sup>Expense ratio is calculated using the management fee and operating expense totals.

The PIF had 67 active funds and aggregate capital commitments totaling \$9.1 billion as of June 30, 2018. Approximately 86 percent, or \$7.8 billion, had been "drawn down" for investment purposes as of that date while the balance of approximately \$1.3 billion, or 14 percent, was committed but not drawn (See Figure 13-6.

#### **Market Review**

Global private equity markets continued to enjoy favorable overall conditions with economic growth and accommodative credit markets more than compensating for a variety of potential concerns, including high valuations, political and regulatory uncertainty, and a changing interest rate environment. While the broader private equity markets benefitted from generally positive fundamentals, variations by strategy, size and region were present during the year. Investor interest in private equity, as evidenced by a strong fundraising market for general partners, particularly for buyout focused managers.

In the U.S., buyout volumes increased due to the persistent demand of well-capitalized strategic buyers seeking to acquire growth as well as private equity firms looking to deploy record levels of uncalled capital, or dry powder. The combination of heightened demand for quality assets and accommodative debt markets, despite concerns over Federal Reserve interest rate hikes, led to higher purchase price and leverage multiples during 2017, which had abated slightly by June 2018. However, U.S. private equity activity moderated from recent levels as managers may have been challenged by high valuations and uncertainty involving changing trade regulations. Meanwhile, the value of international buyouts expanded faster than in the U.S., due primarily to several larger deals completed across Asia with a significant uptick in Japan's buyout volume in 2017. While private equity managers continued to generate significant realizations, the number and value of U.S. private equity-backed exits continued to trend downward from recent highs.

The venture capital industry continued to demonstrate a brisk pace of capital deployment, with the value of U.S. investments made during the first half of 2018 surpassing any comparable period of the last decade. While the U.S. venture capital industry has been investing more capital recently, there has been a downward trend in the number of companies receiving venture funding. This dynamic has been driven by an increase in the average size of early stage deals as well as the significant growth in funding rounds of \$100 million or more. The value and number of U.S. venture capital exits remained steady during the year despite a modest improvement in the number of venture-backed companies executing initial public offerings.

#### **Performance Summary**

For the fiscal year ended June 30, 2018, PIF generated a net compounded annual rate of return of 15.50 percent. (See Figure 13-5) This return was measured using a time weighted return calculation methodology.

While short-term returns are reviewed, longer term (e.g., three- five- ten years) returns are more meaningful in evaluating private equity portfolio performance. Long-term horizons better reflect the illiquid nature of PIF's holdings and the time it takes for investments to realize their potential. PIF's performance is benchmarked against the S&P 500. Over the three- five- ten years through June 30, 2018, PIF's performance has kept pace with the S&P 500. (See Figure 13-5)

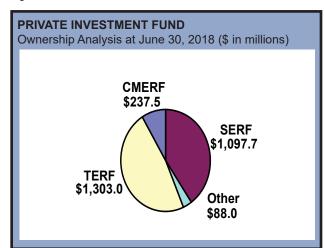
The institutional standard for measuring private equity performance is the Internal Rate of Return (IRR). IRR is a dollar-weighted annualized return that considers both cash flows and time. Since its inception in 1987, PIF has generated a 9.2 percent IRR. A tool commonly used by institutional investors to benchmark IRR performance is the public market equivalent (PME). From inception through June 30, 2018, PIF has generated 198 basis points of annual performance in excess of its S&P 500 PME.

During Fiscal Year 2018, eight partnership commitments were made, including seven to new partnerships and one increased commitment to an existing partnership. (See Figure 13-10)

#### **Risk Profile**

PIF's risk profile is complex given the valuation judgments and liquidity constraints placed on it consistent with an alternative investment strategy. Over the last five years, the Fund has returned an annual alpha, or return relative to that predicted by its benchmark, of 12.30. (See Figure 13.2)

Figure 13-1



TERF - Teachers' Retirement Fund

SERF - State Employees' Retirement Fund

CMERF - Connecticut Municipal Employees' Retirement Fund

iaure 13-3

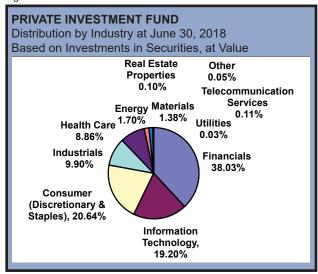


Figure 13-2

vATE INVESTMENT FUND Profile at June 30, 2018 (1)		
Standard Deviation	5.15	
$R^2$	0.00	
Beta	-0.02	
Alpha	12.30	

(1) Based upon quarterly returns over the last five years.

Figure 13-4

	Figure 13-4					
	PRIVATE INVESTMENT FUND Distribution by Geographic Location at June 30, 2018 Based on Investments in Securities, at Value					
ı	Region	%				
ı	Northeast (Excludes Connecticut)	17.6%				
ı	International	8.3%				
ı	West Coast	21.1%				
ı	Other	1.9%				
ı	Southeast	14.9%				
ı	Mid-Atlantic	3.4%				
ı	MidWest	12.8%				
ı	Southwest	11.2%				
ı	Connecticut	7.8%				
ı	Northwest	1.0%				
	TOTAL	100.0%				

Figure 13-5

		rn (%)	nual Total Retu	Compounded, Ar
)5 9.6	13.05	11.75	15.50	PIF
12 10.1	13.42	11.93	14.37	S & P 500
			Return (%)	Cumulative Total
88 152.0	84.68	39.54	15.50	PIF
1 163.4	87.71	40 23	14.37	S & P 500
6	84.	39.54	<b>Return (%)</b> 15.50	Cumulative Total

Figure 13-6

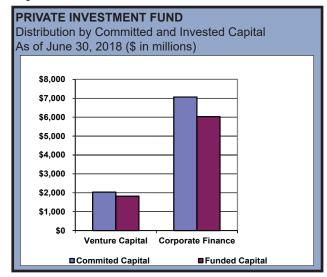


Figure 13-7

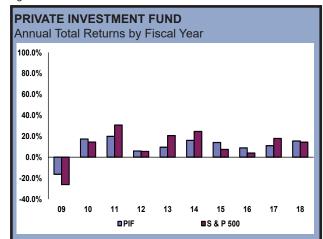


Figure 13-8

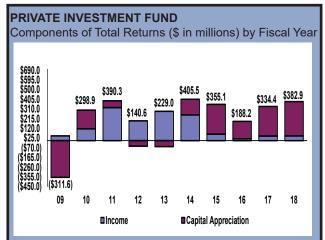


Figure 13-9

		Market	
Partnership Name	Partnership Type	Value	%
FAIRVIEW CONSTITUTION III	Fund of Funds	\$311,760,899	11.49%
FAIRVIEW CONSTITUTION IV	Fund of Funds	167,477,196	6.17%
APOLLO INVESTMENT FUND VIII	Special Situations	111,757,366	4.12%
YUCAIPA AMERICAN ALLIANCE FUND	Buyout	98,652,129	3.64%
FS EQUITY PARTNERS VI	Buyout	90,812,149	3.35%
NUTMEG OPPORTUNITIES FUND	Fund of Funds	83,933,116	3.09%
VISTA VI	Buyout	81,666,443	3.01%
STEPSTONE PIONEER CAPITAL II	Fund of Funds	80,469,570	2.97%
M 2 CT EMERGING	Fund of Funds	74,873,926	2.76%
LEVINE LEICHTMAN CAPITAL PARTNERS	Special Situations	71,613,885	2.64%
Top Ten		\$1,173,016,679	43.25%

<sup>\*</sup> A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act.

Figure 13-10

w Commitments Made in Fiscal Year 20	018		
Partnership Name	Commitment Amount	Investment Type	Investment Date
Landmark Equity Partners XVI, L.P.	\$100 million	Secondaries	12/21/2017
Wellspring Capital Partners VI, L.P.	75 million	Buyout	1/3/2018
Clearlake Capital Partners V, L.P.	60 million	Buyout	1/12/2018
BC European Capital X, L.P. <sup>(1)</sup>	92 million	Buyout	1/15/2018
EQT VIII SCSp <sup>(1)</sup>	83 million	Buyout	2/13/2018
Leeds Equity Partners VI, L.P <sup>(2)</sup>	25 million	Buyout	5/31/2018
Aldrich Capital Partners, L.P.	50 million	Growth	6/4/2018
Siris Partners IV, L.P.	50 million	Buyout	6/22/2018
Total:	\$535 million	•	

<sup>(1)</sup> Fund commitments denominated in Euros; approximate US dollar equivalents shown here.

<sup>(2)</sup> Incremental commitment made in FY18; total commitment to fund is \$75 million.

Figure 13-11

# PRIVATE INVESTMENT FUND

Investment Advisors at June 30, 2018

Throatment Advisors at Same So, 2	010	
	Net Asset	% of
Investment Advisor	Value	Fund
Buyout	1,036,283,222	38.01%
Altaris Health Partners II, L.P.	15,371,147	0.56%
Altaris Health Partners III, L.P.	50,196,527	1.84%
Altaris Constellation Partners IV LP	3,067,317	0.11%
Altaris Health Partners IV LP	8,270,111	0.30%
Boston Ventures Limited Partnership VII	29,093,861	1.07%
Charterhouse Equity Partners IV, L.P.	1,201,977	0.04%
Court Square Capital Partners II, L.P.	22,952,144	0.84%
Court Square Capital Partners III, L.P.	30,058,378	1.10%
Ethos U.S. Dollar Fund V-B		
(OPIC Jersey & Non-OPIC Jersey), L.P.	5,075,595	0.19%
FS Equity Partners V, L.P.	5,277,696	0.19%
FS Equity Partners VI, L.P.	90,812,149	3.33%
GenNx360 Capital Partners II, L.P.	23,320,772	0.86%
ICV Partners II, L.P.	7,455,410	0.27%
JFL Equity Investors III, L.P.	42,526,837	1.56%
JFL Equity Investors IV, L.P.	36,449,948	1.34%
KKR 2006 Fund L.P.	44,578,444	1.64%
KKR Millennium Fund L.P.	3,193,566	0.12%
Leeds Equity Partners V, L.P.	37,743,576	1.38%
Leeds Equity Partners VI, L.P.	19,904,861	0.73%
RFE Investment Partners VII, L.P.	6,417,634	0.24%
RFE Investment Partners VIII, L.P.	31,083,939	1.14%
TA XI, L.P.	51,771,336	1.90%
Thomas H. Lee Equity Fund VI, L.P.	36,505,871	1.34%
Vista Equity Partners Fund III, L.P.	13,963,411	0.51%
Vista Equity Partners Fund IV, L.P.	61,571,257	2.26%
Vista Equity Partners Fund VI, L.P.	81,666,443	3.00%
Wellspring Capital Partners V, L.P.	33,145,750	1.22%
Wellspring Capital Partners VI, L.P.	2,526,476	0.09%
Welsh, Carson, Anderson & Stowe X, L.P.	203,794	0.01%
Welsh, Carson, Anderson & Stowe XI, L.P.	56,272,120	2.06%
Welsh, Carson, Anderson & Stowe XII, L.P.	68,124,111	2.50%
Yucaipa American Alliance Fund II, LP	98,652,129	3.62%
Yucaipa American Alliance Fund III, LP	17,828,635	0.65%
Venture Capital	6,301,707	0.23%
Crescendo III, L.P. Liquidating Trust	1,156,486	0.04%
Syndicated Communications Venture		
Partners V, L.P.	5,145,221	0.19%

Mezzanine	49,802,476	1.83%
Audax Mezzanine Fund III, L.P.	22,900,921	0.84%
Connecticut Growth Capital LLC	20,339,318	0.75%
GarMark Partners II, L.P.	4,766,813	0.17%
Ironwood Mezzanine Fund IV LP	1,795,424	0.07%
International	74,017,593	2.72%
BC European Capital Fund X LP	20,880,786	0.77%
GGEP/CPM Holdings, LLC		
fka Gilbert Global Equity Partners, L.P.	53,136,807	1.95%
Fund of Funds	980,944,127	35.98%
CT Horizon Legacy Fund, L.P.	3,032,286	0.11%
GCM Grosvenor - CT Cleantech		
Opportunities Fund LP	5,552,346	0.20%
M2 - Connecticut Emerging Private		
Equity Fund-of-Funds, L.P.	74,873,926	2.75%
Fairview Constitution II, L.P.	67,921,100	2.49%
Fairview Constitution III, L.P.	311,760,899	11.44%
Fairview Constitution IV, L.P.	167,477,196	6.14%
Constitution Fund V, LLC Series A & B	63,520,577	2.33%
Constitution Liquidating Fund, L.P.	32,650,028	1.20%
Nutmeg Opportunities Fund II LLC	13,432,258	0.49%
Nutmeg Opportunities Fund L.P.	83,933,116	3.08%
PineBridge Global Emerging		
Markets Partners, L.L.C.	1,685,093	0.06%
Landmark Equity Partners XIV, L.P.	25,658,937	0.94%
Landmark Equity Partners XV, L.P.	47,725,225	1.75%
Landmark Equity Partners XVI LP	1,239,368	0.05%
StepStone Pioneer Capital I, L.P.	12,202	0.00%
StepStone Pioneer Capital Buyout		
Fund II, L.P.	80,469,570	2.95%
Special Situations	467,693,295	17.16%
Apollo Investment Fund VIII, L.P.	111,757,366	4.10%
Castlelake II, L.P. fka TPG	00.050.400	4.000/
Credit Strategies Fund II, L.P.	29,659,138	1.09%
Clearlake Capital Partners III, L.P.	67,780,725	2.49%
Clearlake Capital Partners IV, L.P.	44,661,112	1.64%
Clearlake Capital Partners V, L.P.	14,666,655	0.54%
Levine Leichtman Capital Partners IV, L.P.	29,059,852	1.07%
Levine Leichtman Capital Partners V, L.P.	71,613,885	2.63%
Pegasus Partners IV, L.P.	27,825,959	1.02%
Pegasus Partners V L.P.	61,557,225	2.26%
WLR Recovery Fund IV, L.P.	9,111,378	0.33%
Other (1)	111,063,380	4.07%
TOTAL PIF	2,726,105,801	100.00%

<sup>(1)</sup> Other includes partnerships with nonmaterial balances, as well as moneys earmarked for distribution to participants, reinvestment, expenses and other net assets.

### SCHEDULE OF EXPENSES IN EXCESS OF \$5,000 (1)

### FISCAL YEAR ENDED JUNE 30, 2018

INVESTMENT ADVISORY SERVICES		Contract	Aggregate Comp. Paid	Status at June 30,
INVESTMENT ADVISORY SERVICES  Domestic Equity Investment Advisory Service	Description of Services	Date	in FY 2018	2018
	3			
Bivium Capital Partners, LLC	Equity Advisor	Jul-05	\$2,995,488	Active
Capital Prospects LLC	Equity Advisor	Jul-05	2,085,324	Active
FIS Group Inc.	Equity Advisor	Jul-05	1,725,404	Active
Frontier Capital Management Co.LLC	Equity Advisor	Oct-10	3,227,994	Active
State Street Global Advisors	Equity Advisor	Mar-96	243,744	Active
T. Rowe Price Associates, Inc.	Equity Advisor	Nov-08	5,446,248	Active
Total Domestic Equity Advisor Compensation			\$15,724,201	
Core Fixed Income Investment Advisory Servi	ces			
Blackrock Financial Management	Core Income Advisor	Mar-96	\$957,925	Active
Colchester Global investors Limited	Core Income Advisor	May-09	620,633	Active
Goodwin Capital Advisors(Phoenix)	Core Income Advisor	Nov-97	556,037	Active
Pacific Investment Management Co. LLC	Core Income Advisor	Mar-09	584,123	Active
Payden & Rygel	Core Income Advisor	Mar-09	546,329	Active
Progress Investment Management	Core Income Advisor	Jul-05	416,017	Active
State Street Global Advisors	Core Income Advisor	Mar-96	100,000	Active
Wellington Asset Management	Core Income Advisor	Nov-97	874,202	Active
Total Core Fixed Income Advisor Compensation	on		\$4,655,267	
Inflation Linked Bond Investment Advisory Se				
BlackRock Financial Management, Inc	Inflation Income Advisor	Sep-14	\$793,449	Active
Colchester Global Investors Limited	Inflation Income Advisor	Nov-14	1,222,212	Active
New Century Advisors, LLC	Inflation Income Advisor	Sep-14	403,256	Active
Total Inflation Linked Bond Advisor Compensa	ation		\$2,418,917	
Emerging Market Debt Investment Advisory Se	ervices			
Ashmore Investment Management Limited	Emerging Market Income Advisor		\$2,579,091	Active
Ashmore Investment Management Limited Lazard Asset Management LLC	Emerging Market Income Advisor	Aug-09	131,814	Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel	Emerging Market Income Advisor Emerging Market Income Advisor	Aug-09 Jul-16	131,814 2,468,210	Active Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC	Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor	Aug-09 Jul-16	131,814 2,468,210 2,027,032	Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens	Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor	Aug-09 Jul-16	131,814 2,468,210	Active Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens High Yield Debt Advisory Services	Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor ation	Aug-09 Jul-16 Oct-07	131,814 2,468,210 2,027,032 \$7,201,147	Active Active Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens High Yield Debt Advisory Services Alliance Bernstein L.P.	Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor ation  High Yield Income Advisor	Aug-09 Jul-16 Oct-07	131,814 2,468,210 2,027,032 \$7,201,147 \$1,025,342	Active Active Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens High Yield Debt Advisory Services Alliance Bernstein L.P. Columbia	Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor ation  High Yield Income Advisor High Yield Income Advisor	Aug-09 Jul-16 Oct-07 Nov-16 Feb-17	131,814 2,468,210 2,027,032 \$7,201,147 \$1,025,342 1,340,472	Active Active Active Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens High Yield Debt Advisory Services Alliance Bernstein L.P. Columbia DDJ Capital Management	Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor ation  High Yield Income Advisor High Yield Income Advisor High Yield Income Advisor	Aug-09 Jul-16 Oct-07 Nov-16 Feb-17 Nov-16	131,814 2,468,210 2,027,032 \$7,201,147 \$1,025,342 1,340,472 1,070,659	Active Active Active Active Active Active Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens High Yield Debt Advisory Services Alliance Bernstein L.P. Columbia DDJ Capital Management Loomis Sayles & Co., Inc.	Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor ation  High Yield Income Advisor	Aug-09 Jul-16 Oct-07 Nov-16 Feb-17 Nov-16 Mar-96	131,814 2,468,210 2,027,032 \$7,201,147 \$1,025,342 1,340,472 1,070,659 786,435	Active Active Active Active Active Active Active Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens High Yield Debt Advisory Services Alliance Bernstein L.P. Columbia DDJ Capital Management Loomis Sayles & Co., Inc. Nomura	Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor ation  High Yield Income Advisor	Aug-09 Jul-16 Oct-07 Nov-16 Feb-17 Nov-16 Mar-96 Feb-17	131,814 2,468,210 2,027,032 \$7,201,147 \$1,025,342 1,340,472 1,070,659 786,435 1,780,726	Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens High Yield Debt Advisory Services Alliance Bernstein L.P. Columbia DDJ Capital Management Loomis Sayles & Co., Inc. Nomura Shenkman Capital Management	Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor ation  High Yield Income Advisor	Aug-09 Jul-16 Oct-07 Nov-16 Feb-17 Nov-16 Mar-96	131,814 2,468,210 2,027,032 \$7,201,147 \$1,025,342 1,340,472 1,070,659 786,435 1,780,726 915,627	Active Active Active Active Active Active Active Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens High Yield Debt Advisory Services Alliance Bernstein L.P. Columbia DDJ Capital Management Loomis Sayles & Co., Inc. Nomura Shenkman Capital Management Total High Yield Debt Advisor Compensation	Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor ation  High Yield Income Advisor	Aug-09 Jul-16 Oct-07 Nov-16 Feb-17 Nov-16 Mar-96 Feb-17	131,814 2,468,210 2,027,032 \$7,201,147 \$1,025,342 1,340,472 1,070,659 786,435 1,780,726	Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens High Yield Debt Advisory Services Alliance Bernstein L.P. Columbia DDJ Capital Management Loomis Sayles & Co., Inc. Nomura Shenkman Capital Management Total High Yield Debt Advisor Compensation Liquidity Fund Advisory Services	Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor ation  High Yield Income Advisor	Aug-09 Jul-16 Oct-07 Nov-16 Feb-17 Nov-16 Mar-96 Feb-17 Dec-07	131,814 2,468,210 2,027,032 \$7,201,147 \$1,025,342 1,340,472 1,070,659 786,435 1,780,726 915,627 \$6,919,261	Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens High Yield Debt Advisory Services Alliance Bernstein L.P. Columbia DDJ Capital Management Loomis Sayles & Co., Inc. Nomura Shenkman Capital Management Total High Yield Debt Advisor Compensation Liquidity Fund Advisory Services State Street Global Advisors	Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor ation  High Yield Income Advisor	Aug-09 Jul-16 Oct-07 Nov-16 Feb-17 Nov-16 Mar-96 Feb-17	131,814 2,468,210 2,027,032 \$7,201,147 \$1,025,342 1,340,472 1,070,659 786,435 1,780,726 915,627 \$6,919,261	Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens High Yield Debt Advisory Services Alliance Bernstein L.P. Columbia DDJ Capital Management Loomis Sayles & Co., Inc. Nomura Shenkman Capital Management Total High Yield Debt Advisor Compensation Liquidity Fund Advisory Services State Street Global Advisors Total Liquidity Fund Advisor Compensation	Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor Advisor Income Incom	Aug-09 Jul-16 Oct-07 Nov-16 Feb-17 Nov-16 Mar-96 Feb-17 Dec-07	131,814 2,468,210 2,027,032 \$7,201,147 \$1,025,342 1,340,472 1,070,659 786,435 1,780,726 915,627 \$6,919,261	Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens High Yield Debt Advisory Services Alliance Bernstein L.P. Columbia DDJ Capital Management Loomis Sayles & Co., Inc. Nomura Shenkman Capital Management Total High Yield Debt Advisor Compensation Liquidity Fund Advisory Services State Street Global Advisors Total Liquidity Fund Advisor Compensation Developed Market International Equity Investm	Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor ation  High Yield Income Advisor Liquidity Fund Advisor	Aug-09 Jul-16 Oct-07 Nov-16 Feb-17 Nov-16 Mar-96 Feb-17 Dec-07	131,814 2,468,210 2,027,032 \$7,201,147 \$1,025,342 1,340,472 1,070,659 786,435 1,780,726 915,627 \$6,919,261 357,320 \$357,320	Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens High Yield Debt Advisory Services Alliance Bernstein L.P. Columbia DDJ Capital Management Loomis Sayles & Co., Inc. Nomura Shenkman Capital Management Total High Yield Debt Advisor Compensation Liquidity Fund Advisory Services State Street Global Advisors Total Liquidity Fund Advisor Compensation Developed Market International Equity Investment Acadian Asset Management	Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor ation  High Yield Income Advisor Liquidity Fund Advisor  Liquidity Fund Advisor  ment Advisory Services International Equity Advisor	Aug-09 Jul-16 Oct-07 Nov-16 Feb-17 Nov-16 Mar-96 Feb-17 Dec-07 Mar-96	131,814 2,468,210 2,027,032 \$7,201,147 \$1,025,342 1,340,472 1,070,659 786,435 1,780,726 915,627 \$6,919,261 357,320 \$357,320 \$2,660,821	Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens High Yield Debt Advisory Services Alliance Bernstein L.P. Columbia DDJ Capital Management Loomis Sayles & Co., Inc. Nomura Shenkman Capital Management Total High Yield Debt Advisor Compensation Liquidity Fund Advisory Services State Street Global Advisors Total Liquidity Fund Advisor Compensation Developed Market International Equity Investm Acadian Asset Management AQR Capital Management, LLC	Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor Advisor Income Advisor Income Advisor Income Advisor High Yield Income Advisor Income Advisor Income Advisor Income Advisor Income Advisor Income Advisor Income I	Aug-09 Jul-16 Oct-07 Nov-16 Feb-17 Nov-16 Mar-96 Feb-17 Dec-07 Mar-96	131,814 2,468,210 2,027,032 \$7,201,147 \$1,025,342 1,340,472 1,070,659 786,435 1,780,726 915,627 \$6,919,261 357,320 \$357,320 \$2,660,821 3,453,143	Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens High Yield Debt Advisory Services Alliance Bernstein L.P. Columbia DDJ Capital Management Loomis Sayles & Co., Inc. Nomura Shenkman Capital Management Total High Yield Debt Advisor Compensation Liquidity Fund Advisory Services State Street Global Advisors Total Liquidity Fund Advisor Compensation Developed Market International Equity Investm Acadian Asset Management AQR Capital Management, LLC Dimensional Fund Advisors LP	Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor Advisor Income Advisor High Yield Income Advisor Income Advisor Income Advisor International Equity Advisor International Equity Advisor International Equity Advisor	Aug-09 Jul-16 Oct-07 Nov-16 Feb-17 Nov-16 Mar-96 Feb-17 Dec-07 Mar-96	131,814 2,468,210 2,027,032 \$7,201,147 \$1,025,342 1,340,472 1,070,659 786,435 1,780,726 915,627 \$6,919,261 357,320 \$357,320 \$2,660,821	Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens High Yield Debt Advisory Services Alliance Bernstein L.P. Columbia DDJ Capital Management Loomis Sayles & Co., Inc. Nomura Shenkman Capital Management Total High Yield Debt Advisor Compensation Liquidity Fund Advisory Services State Street Global Advisors Total Liquidity Fund Advisor Compensation Developed Market International Equity Investm Acadian Asset Management AQR Capital Management, LLC Dimensional Fund Advisors LP First Quadrant LP	Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor Advisor Income Advisor Income Advisor Income Advisor High Yield Income Advisor Income Advisor Income Advisor Income Advisor Income Advisor Income Advisor Income I	Aug-09 Jul-16 Oct-07  Nov-16 Feb-17 Nov-16 Mar-96 Feb-17 Dec-07  Mar-96  Sep-06 Sep-06 Mar-09	131,814 2,468,210 2,027,032 \$7,201,147  \$1,025,342 1,340,472 1,070,659 786,435 1,780,726 915,627 \$6,919,261  357,320 \$357,320 \$2,660,821 3,453,143 2,327,583	Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens High Yield Debt Advisory Services Alliance Bernstein L.P. Columbia DDJ Capital Management Loomis Sayles & Co., Inc. Nomura Shenkman Capital Management Total High Yield Debt Advisor Compensation Liquidity Fund Advisory Services State Street Global Advisors Total Liquidity Fund Advisor Compensation Developed Market International Equity Investm Acadian Asset Management AQR Capital Management, LLC Dimensional Fund Advisors LP First Quadrant LP Grantham, Mayo, Van Otterloo & Co	Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor Income Advisor Income Advisor High Yield Income Advisor Income Advisor International Equity Advisor International Eq	Aug-09 Jul-16 Oct-07  Nov-16 Feb-17 Nov-16 Mar-96 Feb-17 Dec-07  Mar-96  Sep-06 Sep-06 Mar-09 Jul-14	131,814 2,468,210 2,027,032 \$7,201,147  \$1,025,342 1,340,472 1,070,659 786,435 1,780,726 915,627 \$6,919,261  357,320 \$357,320 \$2,660,821 3,453,143 2,327,583 4,556,402	Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens High Yield Debt Advisory Services Alliance Bernstein L.P. Columbia DDJ Capital Management Loomis Sayles & Co., Inc. Nomura Shenkman Capital Management Total High Yield Debt Advisor Compensation Liquidity Fund Advisory Services State Street Global Advisors Total Liquidity Fund Advisors Total Liquidity Fund Advisor Compensation Developed Market International Equity Investing Acadian Asset Management AQR Capital Management AQR Capital Management, LLC Dimensional Fund Advisors LP First Quadrant LP Grantham, Mayo, Van Otterloo & Co MFS Institutional Advisors	Emerging Market Income Advisor Advisor High Yield Income Advisor International Equity Advisor	Aug-09 Jul-16 Oct-07  Nov-16 Feb-17 Nov-16 Mar-96 Feb-17 Dec-07  Mar-96  Sep-06 Sep-06 Mar-09 Jul-14 Mar-96	131,814 2,468,210 2,027,032 \$7,201,147  \$1,025,342 1,340,472 1,070,659 786,435 1,780,726 915,627 \$6,919,261  357,320 \$2,660,821 3,453,143 2,327,583 4,556,402 885,994	Active Terminated
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens High Yield Debt Advisory Services Alliance Bernstein L.P. Columbia DDJ Capital Management Loomis Sayles & Co., Inc. Nomura Shenkman Capital Management Total High Yield Debt Advisor Compensation Liquidity Fund Advisory Services State Street Global Advisors Total Liquidity Fund Advisors Total Liquidity Fund Advisor Compensation Developed Market International Equity Investin ACACACIAN ASSET MANAGEMENT ACACACIAN ASSET MANAGEMENT FIRST QUADRANT LP Grantham, Mayo, Van Otterloo & Co MFS Institutional Advisors Progress Investment Management	Emerging Market Income Advisor Advisor High Yield Income Advisor International Equity Advisor	Aug-09 Jul-16 Oct-07  Nov-16 Feb-17 Nov-16 Mar-96 Feb-17 Dec-07  Mar-96  Sep-06 Sep-06 Mar-09 Jul-14 Mar-96 Aug-03	131,814 2,468,210 2,027,032 \$7,201,147  \$1,025,342 1,340,472 1,070,659 786,435 1,780,726 915,627 \$6,919,261  357,320 \$2,660,821 3,453,143 2,327,583 4,556,402 885,994 2,939,866	Active Terminated Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens High Yield Debt Advisory Services Alliance Bernstein L.P. Columbia DDJ Capital Management Loomis Sayles & Co., Inc. Nomura Shenkman Capital Management Total High Yield Debt Advisor Compensation Liquidity Fund Advisory Services State Street Global Advisors Total Liquidity Fund Advisors Total Liquidity Fund Advisor Compensation Developed Market International Equity Investin ACACAGIAN Asset Management ACR Capital Management, LLC Dimensional Fund Advisors LP First Quadrant LP Grantham, Mayo, Van Otterloo & Co MFS Institutional Advisors Progress Investment Management Schroder Investment Management Schroder Investment Management State Street Global Advisors	Emerging Market Income Advisor Advisor High Yield Income Advisor International Equity Advisor	Aug-09 Jul-16 Oct-07  Nov-16 Feb-17 Nov-16 Mar-96 Feb-17 Dec-07  Mar-96  Sep-06 Sep-06 Mar-09 Jul-14 Mar-96 Aug-03 Jul-05 Sep-03 Mar-96	131,814 2,468,210 2,027,032 \$7,201,147  \$1,025,342 1,340,472 1,070,659 786,435 1,780,726 915,627 \$6,919,261  357,320 \$357,320 \$2,660,821 3,453,143 2,327,583 4,556,402 885,994 2,939,866 996,421 2,270,676 1,134,189	Active
Ashmore Investment Management Limited Lazard Asset Management LLC Payden & Rygel FIAM, LLC Total Emerging Market Debt Advisor Compens High Yield Debt Advisory Services Alliance Bernstein L.P. Columbia DDJ Capital Management Loomis Sayles & Co., Inc. Nomura Shenkman Capital Management Total High Yield Debt Advisor Compensation	Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor Emerging Market Income Advisor Advisor Income Advisor High Yield Income Advisor International Equity Advisor Internati	Aug-09 Jul-16 Oct-07  Nov-16 Feb-17 Nov-16 Mar-96 Feb-17 Dec-07  Mar-96  Sep-06 Sep-06 Mar-09 Jul-14 Mar-96 Aug-03 Jul-05 Sep-03	131,814 2,468,210 2,027,032 \$7,201,147  \$1,025,342 1,340,472 1,070,659 786,435 1,780,726 915,627 \$6,919,261  357,320 \$357,320 \$2,660,821 3,453,143 2,327,583 4,556,402 885,994 2,939,866 996,421 2,270,676	Active

## SCHEDULE OF EXPENSES IN EXCESS OF \$5,000 (1) (Continued) FISCAL YEAR ENDED JUNE 30, 2018

INVESTMENT ADVISORY SERVICES	Description of Services	Aggregate Contract Date	Status at Comp. Paid in FY 2018	June 30, 2018
Emerging Market International Equity Advisory	Services			
Aberdeen Asset Management INC	International Equity Advisor	Jul-09	\$3,717,109	Terminated
Grantham, Mayo, Van Otterloo & Co	International Equity Advisor	Feb-00	1,227,025	Terminated
Schroder Investment Management	International Equity Advisor	Jan-10	7,833,438	Active
Total Emerging Market International Equity Adv	visor Compensation		\$12,777,573	
Alternative Investment Advisory Services (2)				
ArcLight Energy Partners Fund VI	Alternative Investment Advisor	Jul-15	\$1,237,382	Active
EIG Energy Fund XV, LP	Alternative Investment Advisor	Apr-11	384,036	Active
otal Alternative Investment Advisor Compens	ation		\$1,621,418	
Real Estate Investment Advisory Services (2)				
merican Realty Advisors	Real Estate Advisor	Mar-12	\$566,242	Active
Blackstone Real Estate Advisors Europe	Real Estate Advisor	Nov-08	212,725	Active
Blackstone Real Estate Partners Europe V	Real Estate Advisor	Jun-17	1,000,000	Active
Blackstone Real Estate Partners VI	Real Estate Advisor	Aug-07	108,207	Active
Blackstone Real Estate Partners VIII	Real Estate Advisor	Mar-15	1,500,000	Active
Clarion Lion Industrial Trust LP	Real Estate Advisor	Sep-14	1,327,904	Active
Cornerstone Patriot Fund, LP	Real Estate Advisor	Dec-07	1,611,788	Active
Crow Holdings Capital Partners LLC	Real Estate Advisor	Nov-14	819,360	Active
Cypress Retail Fund LP	Real Estate Advisor	May-13	467,487	Active
Gerding Elden Fund Management, LP	Real Estate Advisor	May-14	903,387	Active
lart Realty Advisors, Inc. (CORE)	Real Estate Advisor	Nov-11	1,490,213	Active
IP Morgan Investment Mgmt.	Real Estate Advisor	May-14	699,930	Active
Rockwood Capital Partners Fund VII	Real Estate Advisor	Jun-06	7,105	Active
JBS Trumbull Property Growth & Income Fund LP	Real Estate Advisor	Nov-13	696,157	Active
JBS Trumbull Property Income Fund, LP	Real Estate Advisor	Nov-13	1,169,529	Active
Total Real Estate Advisor Compensation			\$12,580,033	
Private Investment Advisory Services (2)				
AIG Altaris Healthcare Partners III, LP	Private Investment Advisor	Oct-07	\$346,977	Active
AIG Altaris Healthcare Partners IV, LP	Private Investment Advisor	Jan-17	616,413	Active
Apollo Advisors VIII, LP	Private Investment Advisor	Nov-13	838,028	Active
Audax Mezzanine Fund III, LP	Private Investment Advisor	May-10	401,447	Active
BC European Capital X	Private Investment Advisor	May-17	906,491	Active
Clearlake Capital Partners III, LP	Private Investment Advisor	Nov-12	16,923	Active
Clearlake Capital Partners IV, LP	Private Investment Advisor	Aug-15	639,135	Active
Clearlake Capital Partners V, LP	Private Investment Advisor	Jan-18	668,021	Active
Connecticut Growth Capital, LLC	Private Investment Advisor	Dec-15	191,866	Active
Constitution Fund V, LLC	Private Investment Advisor	Dec-16	975,000	Active
Court Square Capital Partners II	Private Investment Advisor	Apr-12	66,171	Active
Court Square Capital Partners III	Private Investment Advisor	May-13	750,000	Active
CT Horizon Legacy Fund LP Total	Private Investment Advisor	Jun-08	37,500	Active
Fairview Constitution Management, LLC	Private Investment Advisor	May-05	56,010	Active
airview Constitution II, LP	Private Investment Advisor	May-05	143,191	Active
Fairview Constitution III, LP	Private Investment Advisor	Jun-07	525,000	Active
Fairview Constitution IV, LP	Private Investment Advisor	Dec-11	975,000	Active
S Equity Partners V, LP	Private Investment Advisor	Mar-04	13,459	Active
S Equity Partners VI, LP	Private Investment Advisor	Mar-04	175,163	Active
Garmark Partners, II LP	Private Investment Advisor	Jun-95	37,034	Active
GCM Grosvenor - CT Cleantech			00 - 1-	
(formerly CS/CT Cleantech)	Private Investment Advisor	Jul-07	69,946	Active
GenNx360 Capital Partners II, LP	Private Investment Advisor	Mar-14	265,892	Active
FL Equity Investors IV, L.P.	Private Investment Advisor	Sep-16	693,854	Active
IFL Investors III, LP	Private Investment Advisor	Aug-11	587,004	Active
eeds Equity Partners VI, LP	Private Investment Advisor	Nov-16	455,264	Active
Levine Leichtman Capital Partners IV, LP	Private Investment Advisor	Jul-08	325,470	Active
Levine Leichtman Capital Partners V, LP	Private Investment Advisor	Aug-12	899,815	Active
Muller & Monroe Asset Management	Private Investment Advisor	Nov-07	252,514	Active
Nogales Investors Fund LP	Private Investment Advisor	Sep-09	11,723	Active
Nutmeg Opportunities Fund LP	Private Investment Advisor	Nov-06	656,868	Active

## SCHEDULE OF EXPENSES IN EXCESS OF \$5,000 (1) (Continued) FISCAL YEAR ENDED JUNE 30, 2018

Name of Firm	Description of Services	Contract Date	Aggregate Comp. Paid in FY 2018	Status at June 30, 2018
Nutmeg Opportunities Fund II LLC	Private Investment Advisor	Apr-11	675,000	Active
Pegasus Investors IV, LP	Private Investment Advisor	Aug-07	401,453	Active
Pegasus Investors V, LP	Private Investment Advisor	May-12	483,024	Active
RFE Associates VIII, LP	Private Investment Advisor	Apr-12	356,429	Active
StepStone Pioneer Capital Buyout Fund II, LP	Private Investment Advisor	Jun-06	276,063	Active
/ista Equity Partners III, LP	Private Investment Advisor	Feb-12	88,860	Active
/ista Equity Partners IV, LP	Private Investment Advisor	May-12	837,473	Active
Vista Equity Partners VI, LP	Private Investment Advisor	Nov-16	1,243,321	Active
WCAS Fund XII, LP	Private Investment Advisor	May-16	945,280	Active
Wellspring Capital Partners VI, LP	Private Investment Advisor	Mar-17	76,855	Active
Yuciapa American Alliance Fund III, LP	Private Investment Advisor	Jul-15	462,624	Active
Total Private Equity Advisor Compensation	1 mate investment aviser	001 10	\$18,443,561	7101170
TOTAL COMPENSATION TO INVESTMENT ADV	USORS		\$106,810,648	
	IOOKO		Ψ100,010,040	
<b>Custody Services</b> Bank of New York Mellon	Master Custodian	Oct-13	\$3,262,223	Active
TOTAL CUSTODY SERVICES COMPENSATION	iviasiei Gusiouiail	OG-13	\$3,262,223 \$3,262,223	Active
TOTAL CUSTODT SERVICES CUMPENSATION			<b>Φ</b> 3, <b>∠</b> 0 <b>∠</b> , <b>∠∠</b> 3	
CONSULTING SERVICES				
Cliffwater LLC	Consultant - Alternative Investment		\$535,000	Active
Hewitt EnnisKnupp, Inc.	Consulting - Pension Funds	Aug-11	68,700	Active
Maketa Investment Group	Consultant - Pension Funds	Jul-17	450,000	Active
Stepstone Group LP	Consultant -Private Investment	Oct-15	500,000	Active
The Townsend Group, Inc.	Consultant -Pension Funds	Mar-08	165,972	Terminated
TOTAL CONSULTING SERVICES COMPENSAT	ION		\$1,719,672	
MISCELLANEOUS SERVICES				
A & A Office Systems	Photocopier Lease	N/A	\$6,461	Active
Advanced Office Systems	Computer Equipment	N/A	12,427	Active
Bloomberg Finance LP	On-Line Information service	N/A	61,236	Active
CERES, Inc.	Dues	N/A	5,750	Active
Corporate Governance Consulting	Corporate Governance Services	N/A	7,590	Active
Council of Institutional Investors	Dues	N/A	19,594	Active
Day Pitney LLP	Legal Services	Mar-12	7,001	Active
	_			
Department of Public Safety	Services	N/A	8,265	Active
DLA Piper LLP	Legal Services	Nov-17	375,388	Active
Finn, Dixon & Herling	Legal Services	Mar-17	47,515	Active
Institutional Shareholder Services	Proxy Voting	Nov-99	83,140	Active
Lexis-Nexis Corp.	Services	N/A	5,320	Active
McCarter & English	Legal Services	Dec-11	159,239	Active
Murphy Security Services LLC	Premises Security Services	May-10	11,723	Active
National Association of State Treasurers	Subscription	N/A	5,425	Active
Nossaman	Legal Services	Dec-16	49,773	Active
Office of the State Comptroller	Services	N/A	22,740	Active
Orrick, Herrington, & Sutcliffe	Legal Services	Jun-12	55,343	Active
PRI Association	Subscription	N/A	11,877	Active
Pullman & Comley, LLC	Legal Services	Dec-11	15,385	Active
Reinhart Boerner Vandeuren	Legal Services	Dec-11	98,172	Active
Robinson Bradshaw	Legal Services	Jun-17	82,077	Active
Shipman & Goodwin LLP	Legal Services	Mar-12	23,113	Active
Squire Patton Boggs	Legal Services	Sep-10	144,898	Active
Teigland-Hunt LLP	Legal Services Legal Services	May-17	83,497	Active
TOTAL MISCELLANEOUS SERVICES COMPEN	O .	iviay 11	\$1,402,947	, 101140
TOTAL MISCELLANEOUS SERVICES COMPER	NSATION		D1.4U2.74/	

<sup>(1)</sup> Expenses are presented on a cash basis.

<sup>(2)</sup> Alternative Investment Management fees for the Private Investment Fund and the Real Estate Fund include capitalized fees and expensed fees Capitalized fees are part of the cost of the investment and become a component of unrealized gain (loss). Capitalized fees are disclosed in Note 1 of the Combined Investment Funds Financial Statements. Expensed fees which are not part of the cost of the investment are recorded in the Statement of Operations.

## SCHEDULE OF BROKERAGE COMMISSIONS FOR THE FISCAL YEAR ENDED JUNE 30, 2018

## ABS BEEC AS HORDER, FULLA, STOCHOLM ## ABS BEEC AS HOR	Broker Name	\$ Commission	Shares/ Par Value	Avg Comm	Broker Name	\$ Commiss	Shares/ sion Par Value	Avg Comm
ASSAMATION CLEARING BANK NV, AMSTERDAM   153,033   103,550   001   CREET IT VIONABLE SECS SIGNAL HOW COME   14,880   14,878,235.00   0.00   CREET IT VIONABLE SECS SIGNAL HOW COME   1,980   1,980   0.00	ABG SEC AS (NORGE), FILIAL, STOCKHOLM	462.15	47,824.00	0.01	CREDICORP CAPITAL COLOMBIA S.A,BOGOTA	30.08	2,555.00	0.01
ACADEMY SECURITIES, INC., KeV YORK  4.02.20  4.0								
AMERICAN ECCHANGE CO NEC, KIMANT 6,869.29 2,415.00 251 CREET SUSSE (EUROPE), LORDON 118,752.39 23,848.800.0 0.00 200 CREET SUSSE (EUROPE), EUROPE CONTON 128,752.00 200 CREET SUSSE (EUROPE), EUROPE CONTON 128,752.00 0.00 1.00 CREET SUSSE (EUROPE), EUROPE CONTON 128,752.00 0.00 CREET SUSSE (EUROPE), EUROPE CONTON 128,752.00 0.00 1.00 CREET SUSSE (EUROPE), EUROPE CONTON 128,752.00 0.00 CREET SUSSE (EUROPE), EUROPE CONTON 128,752.00 0.00 1.00 CREET S								
APEX CLEARNING CORPORATION (DALLAS )  ARADAMA CAP S AFFOLIAT 1. JOHANNESSIERE   22,278,00   0.00   CREETT SUBSE (FULLINITE I.) CHOKA (KOM)   2,428,00   0.00    ARADAM CAP S AFFOLIAT 1. JOHANNESSIERE   22,278,00   0.00   CREETT SUBSE (FULLINITE I.) CHOKA (KOM)   2,412,00   0.00    ARADO STOR (MICHAEL S.) AND AND ALLAS (MICHAEL S.) AND ALLAS (M					· ·			
ARDAMARA APS AFFICA LTD. JOHANNESSURG   220.31   22.57.00   0.01   CREDIT SUBSE (HK) LIMITED, HONS KOME   2,144.26   8.418,000.00   0.00	1	-,			, , , , , , , , , , , , , , , , , , , ,			
BAMED, DEGETT VIA CO NICK, MILWAUREE  1, 1438-71  1, 1								
BANCO DE INVESTIGATION SA RIGID DE JAMERICO DE JAMES DE J	1						70,711.00	
BANCO DER INVESTIMENTILIS CARATIA  1.439.71  BANCO TAUL SAN ENVYORK  2.206.82  1.130.00  1.130.0								
BANDO IDLA S., NEW YORK   2,2003   81,100.00   0.00   DAMN-BEGS, FROM INCHAIN   13,72280   985,394.00   0.10   DAMN-BEGS, FROM INCHAIN   13,72280   20,724.00.00   0.10   DAMN-BEGS, FROM INCHAIN   13,72280   20,724.00   0.10   DAMN-BEGS, BAMIC, DEPENDENCE   14,64   20,724.00   0.10   DAMN-BEGS, BAMIC, DEPENDE					. ,			
BANCO SANTANDER-CHILE, SANTIAGO 59.86 19.59.00.0 0.01 DAIWA SEC, SECOLU, 10.00 KONG 32.27 3, 23.21.00 0.10 DAIWA SEC, SECOLU, 10.00 KONG 5.00 0.00 0.00 DAIWA SEC, SECOLU, 10.00 KONG 5.00 0.00 0.00 DAIWA SEC, SALE, 10.00 DAIWA SEC, SALE, 10.00 0.00 0.00 DAIWA SEC, SALE, 10.00 DAIWA S			. ,				•	
BANCU SANTANDER, NEW YORK	1							
BANK JAWNTOREL & COLTD, ZURICH BANK OF AMERICA PRINCH, NEWYORK BANK OF AMERICA PRINCH, NEWYORK BANK OF AMERICA PRINCH, NEWYORK BANK OF AMERICA PARIBAS, FARDS BANK OF AMERICA PRINCH, NEWYORK BANK OF AMERICA PARIBAS, FARDS BANK DATE OF AMERICA PARI					, , .	-,		
BANK OF AMERICA MERRILL LYNCH, NEW YORK  ARADIC PARABRES, PARIS  BANK LANGE SAME, PARIS  BANK LANGE SAME, NEW YORK  BANK LANGE SAME SAME SAME SAME SAME SAME SAME SAM	· ·							
BANDLE PARIBAS, PARIS BANCLAYS BANN, NEW YORK 2025 544,000 200 201 201 201 201 201 201 201 201								
BARCLAYS SAMY, NEW YORK  ARRICLAYS CAPITAL, INC., EM PLY YORK  ARRICLAYS CAPITAL, LENGY YORK  ARRICLAYS CAPITAL, LONGON (BARCGRS3)  BECHNEROR CORNER OF CAPITAL (BARCGRS CAPITAL)  BERNASTER SAPARAS SARS, PRAGUE  ARRICLAYS CAPITAL, LARGE CRIST, LONGON (BARCGRS CAPITAL)  BERNASTER OF ARRICLAYS CAPITAL AND ARRICLAY (BARCGRS CAPITAL)  BERNASTER OF ARRICLAYS CAPITAL AND ARRICLAY (BARCGRS CAPITAL)  BERNASTER OF ARRICLAYS CAPITAL AND ARRICLAY (BARCGRS CAPITAL)  BERNASTER DEPORTED ARRICLAY (BARCGRS CAPITAL)  BERNASTER BORGERAGE OR NEW YORK  ARRICLAYS CAPITAL AND ARRICLAY (BARCGRS CAPITAL)  BERNASTER BORGERAGE OR NEW YORK  ARRICLAYS CAPITAL AND ARRICLAY (BARCGRS CAPITAL)  BERNASTER BORGERAGE OR NEW YORK  ARRICLAYS CAPITAL AND ARRICLAY (BARCGRS CAPITAL)  BERNASTER BORGERAGE OR NEW YORK  ARRICLAYS CAPITAL C	,							
BARCLAYS CAPITAL ILC, NEW YORK								
BARCLAYS CAPITAL LE, NEW YORK  9.42 59 68, 68, 726, 726 50 000  9.00	BARCLAYS CAPITAL INC./LE, NEW JERSEY	5,641.06	349,697.00	0.02	DEUTSCHE BK SECS INC, NY (NWSCUS33)	109,686.98	38,193,960.00	0.00
BARCLAYS CAPITAL, LONDONI (BARCCBS3)								
BARCLAYS CAPITAL, NEW YORK   19.82   26,432.00   0.00   DOWLING AND PARTINERS, NEW YORK   10,882.88   416,997.00   0.00   1.81   BERNSERES GOSSERS & CIE, HAMBURG   2.50   2.50   1.381,405.00   0.00   ERITER EST PARTINERS, NEW YORK   1.381,405.00   0.00   ERITER EST PARTINERS, NEW YORK   1.381,405.00   0.00   EUROCLEAR BANK SA NV, BRUSSELS   3.125.60   3.73,104.00   0.00   BLOOMBERG TRACEBOOK LLC, NW   10,323.73   1.255,800.00   0.00   PROBLEM TO ALL T					·			
BERENBERG GOSSLER & GLE; HAMBURG   22,097   1,881,22600   0.01   ERSTEIR SPARKASSEN, PRAGUE   3.45   2.400   1.81	, , , , , , , , , , , , , , , , , , , ,				·	, -	,	
BERNSTEIN SAMFORD C & CO., NEW YORK  43.91183 11.3814,05.00 0.00 EUROCLEAR BANK SA MY, BRUSSELS 3,125.69 373,164.00 0.01 BLOOMBERG TRADEBOOK LLC, NY  10.36573 12.568,00.00 0.00 FINE PROPERTION (CO.) 10.00 0.00 0.00 FINE PROPERTION (CO.) 10.00 0.00 0.00 0.00 0.00 0.00 0.00 0	1				·			
BLOOMBERG TRADEBOOK NLC, NY		43,311.83	11,381,405.00	0.00	EUROCLEAR BANK SA NV, BRUSSELS	3,125.69	373,164.00	0.01
BLOOMBERG TRADEBOOK NEW YORK   67.726   4.468.800   0.01	1						•	
BIND CAPITAL MARKETS CORP. NEW YORK BIND PARIBAS PRECRINE SECTION LONG KONG BIND PARIBAS PRECRINE SECTION LONG KONG BIND PARIBAS PRECRINE SECTION CONTROLL (12.812.95 11.900.00 0.00) BIND PARIBAS SECS SEVS SAS ANISAPORCE 2.85.00 11.700.00 0.00 BIND PARIBAS SECS SEVS SAS ANISAPORCE 2.85.00 11.700.00 0.00 BIND PARIBAS SECS SEVS SAS ANISAPORCE 2.877.16 189.594.00 0.00 BIND PARIBAS SECS SEVS SAS ANISAPORCE 2.877.16 189.594.00 0.00 BIND PARIBAS SECS SEVS SAS ANISAPOR KONG BIND PARIBAS SECS					· · · · · · · · · · · · · · · · · · ·			
BNP PARIBAS PERCERINE SEC LTD, HONG KONG   12.812,95   1.249,036.00   0.01   FOR SYTH BARR, DUNEDIN   29.20   102.314.00   0.00   0.01   BNP PARIBAS PRIME BROKERAGE (INC.NEW YORK   29.55   1.7700.00   0.01   FOR SYTHE RECUTION TECHLILL.JERSEY CITY   588.00   0.00   FOR SYTHE RECUTION TECHLILL.JERSEY CITY   589.00   0.00   FOR SYTHE RECUTION TECHLILL.JERSEY CIT	1				. ,			
BNP PARIBAS SEC SFN'S SA, SINGAPORE   28,588.23   5,082,471.00   0.01   FREMARK BUSSELL SEC BROADCOR CAP, NEW YORK   16,53   6,281.00   0.02   DAY ORD   17,640.00   0.04   DAY ORD   17,640.00   0.04   DAY ORD   17,640.00   0.04   DAY ORD   17,640.00   0.05   DAY ORD   17,640.00   0.04   DAY ORD   18,054.00   0.05   DAY ORD   18,054	· ·							
BNP PARIBAS SEC SVES, LONDON (PARBEGEL)   2,971.6   189,594.00   0.02   FRIEDMAN, BILLINSCAND RAMSEY, NEW YORK   10,214.9 (12,800,000.00   0.00   0.00   0.00   ENP PARIBAS SECURITIES SVCS, HONG KONG   6,401.4   3,042,400.00   0.00   6,70   6,70   6,70   0.00	BNP PARIBAS PRIME BROKERAGE, INC, NEW YORK	292.50	11,700.00	0.03	FOX RIVER EXECUTION TECH,LLC,JERSEY CITY	588.00	117,600.00	0.01
BNP PARIBAS SECS SERNS, SYDNEY   3,74.29   1,195,149.00   0.00   6,00   0.00   6,00   0.00	1							
BNP PARIRAS SECURITIES SVS, HONG KONG BNP PARIRAS JS A. NEW YORK BRANCH IN) BS8 01 74.487 00 0.01 GOLDMAN SACHS (SAS), SEOUL BNP CONVERGEK EXECUTION SOL, NEW YORK BNP CANNERGEK EXECUTION SOL, NEW YORK BNY CONVERGEK EXECUTION SOL, NEW YORK BNY CONVERGEK EXECUTION SOL, NEW YORK BNY CONVERGEK EXECUTION SOL, NEW YORK BASIS PURIAL COTTAIN AS	, , , , , , , , , , , , , , , , , , , ,							
SIMP PARIBAS U.S.A. NEW YORK BRANCH NJ   58.601   74.487.00   0.01   GOLDMAN SACHS &CO, NY   184.839   84.945.889.00   0.00	1							
BRY CONVERGEX, NEW YORK 7,544 07 394,604 00 02 GOLDMAN SACHS ASIASEC LTD, HONG KONG 711 84 9,769,481 00 0.00 BRAGESCO SA, CTYM, SAO PAULO 9,909 13 1205,499 00 01 GOLDMAN SACHS EVENTED, HONG KONG 711 84 9,769,481 00 0.00 BRAGESCO SA, CTYM, SAO PAULO 188 37 12,581 00 01 GOLDMAN SACHS DO BRASIL SAO PAULO 4,984 90 943,328.00 0.01 BRODACORT CAPTAL CORP NEW YORK 1,731 13 105,745 00 0.02 GOLDMAN SACHS EVENTION & CLEARING, NY 41,49 43,633 00 0.01 BROCKHOUSE AND COOPEE, MONTREAL 350 88 115,900 00 02 GOLDMAN SACHS INTL LONDON (GSILGBEX) 107,635 97 54,467,186 00 0.01 BROCKHOUSE AND COOPEE, MONTREAL 350 88 15,900 00 02 GOLDMAN SACHS INTL LONDON (GSILGBEX) 107,635 97 54,467,186 00 0.01 BROCKHOUSE AND COOPEE, MONTREAL 350 88 15,900 00 02 GOLDMAN SACHS INTL LONDON (GSILGBEX) 107,635 97 54,467,186 00 0.01 BROCKHOUSE AND COOPEE, MONTREAL 350 88 15,900 00 02 GOLDMAN SACHS INTL LONDON (GSILGBEX) 107,635 97 54,467,186 00 0.01 BROCKHOUSE AND COOPEE, MONTREAL 350 88 279,983 00 0.02 GOLDMAN SACHS INTL LONDON (GSILGBEX) 177,826 00 0.01 BROCKHOUSE AND COOPEE, MONTREAL 350 88 30 0.00 00 00 GOLDMAN SACHS INTL LONDON (GSILGBEX) 177,826 00 0.01 BROCKHOUSE AND COOPEE, MONTREAL 350 88 30 0.00 00 00 GOLDMAN SACHS INTL LONDON (GSILGBEX) 177,826 00 0.01 GOLDMAN SAC								
BRADESCO S.A. CTVM, SAO PAULO 99.99.13 12.05.499.00 0.01 GOLDMAN SACHS AUSTRALIA PTY LTD.MELBOURN 4.65 1.718.00 0.00 BRASILI, EVAN PAULO 4.984.39 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	BNY CONVERGEX EXECUTION SOL, NEW YORK	102,874.24	18,146,566.00	0.01		198,438.39	48,946,389.00	0.00
BRASLPLURAL CCTVM SA, SAO PAULO   108.37   21.581.00   0.01   GOLDMAN SACHS DO BRASLI, SAO PAULO   4.94.90   94.328.00   0.01   BROCKHOUSE AND COOPER, MONTREAL   350.86   15.900.00   0.02   GOLDMAN SACHS EXECUTION & CLEARING, NY   411.49   43.633.00   0.01   BROCKHOUSE AND COOPER, MONTREAL   350.86   15.900.00   0.02   GOLDMAN SACHS INTL, LONDON (CSILGBZX)   107.635.97   54.367.186.00   0.02   BTIG LLC, NEW YORK   44.927.88   279.963.00   0.02   GOLDMAN SACHS INTL, NY   11.676.24   129.642.00   0.01   BTIG LLC, NEW YORK   1.581   3.03.00   0.04   GOLDMAN SACHS INTL, NY   11.676.24   129.642.00   0.01   BTIG LLC, NEW YORK   1.581   3.03.00   0.04   GOLDMAN SACHS INTL, NY   1.676.24   1.476.00   0.01   DISTINATION OF COMPANIAN OF COMPAN	The state of the s							
BROADCORT CAPITAL CORP, NEW YORK   1,731.13   105,745.00   0.02   GOLDMAN SACHS EXECUTION & CLEARING, NY   411.49   43,633.00   0.01   BROCKHOUSE AND COOPER (MONTREAL   350.86   15,900.00   0.02   GOLDMAN SACHS INT., LONDON (GSILGBZX)   176,835.97   53,871.88   0.00   0.00   BTG CAPITAL CORP, JERSEY CITY   237.70   11,885.00   0.02   GOLDMAN SACHS INT., NY   1,676.24   129,642.00   0.01   BUCKINGHAM RESEARCH, NEW YORK   105.81   3,022.00   0.04   GUIGENHEIM CAPITAL MARKETS LLC, NEW YORK   33,46.99   117,1826.00   0.01   BUCKINGHAM RESEARCH, NEW YORK   105.81   3,022.00   0.00   0.00   GUIGENHEIM CAPITAL MARKETS LLC, NEW YORK   3,846.99   113,198.00   0.03   CANADIAN DEPOSITORY, TORONTO   422.29   360,000.00   0.00   GUIGENHEIM CAPITAL MARKETS LLC, NEW YORK   3,469.99   113,198.00   0.03   CANADIAN DEPOSITORY, TORONTO   383.33   300,000.00   0.00   HANWHA SECS CO LTD, SECUL   1,731.74   50,967.00   0.02   CAPINSTI, SVCS INC - EQUITIES, NEW YORK   6,001.52   218,601.00   0.03   HAUCK UND AUBLISHE PRIVATE, FRANKFURT   492.62   18,079.00   0.03   CARNEGIE ASA, OSLO   3,665.89   371,210   0.01   HAUCK UND AUBLISHE PRIVATE, FRANKFURT   492.62   18,079.00   0.03   CARNEGIE SECS LTD, HELSINKI (CASFIHI)   1,142.79   19,331.00   0.05   HSBC BANK PLC (MIDLAND BK)/LACK) LONDON   59,986.29   7,974.862.00   0.01   CIBIG WORLD MKTS INC, TORONTO   665.73   44,231.00   0.01   HSBC BANK PLC (MIDLAND BK)/LACK) LONDON   59,986.29   7,974.862.00   0.01   CIBIG WORLD MKTS INC, TORONTO   2,665.73   44,231.00   0.02   HSBC SECS LTD, NEW YORK   5,852.00   5,004.779.00   0.00   CIMB GNE SECURITIES FIVE LID, SINGAPORE   2,891.11   107,647.00   0.00   HSBC BANK PLC (MIDLAND BK)/LACK) LONDON   59,986.29   7,974.862.00   0.01   CIMB AND SECURITIES FIVE LID, SINGAPORE   2,891.11   107,647.00   0.00   HSBC BANK PLC (MIDLAND BK)/LACK) LONDON   59,986.29   7,974.862.00   0.01   CIMB AND SECURITIES FIVE LID, SINGAPORE   2,891.00   0.01   HSBC SECS LID, NEW YORK   5,892.00   5,004.779.00   0.00   CIMB AND SECURITIES FIVE LID, SINGAPORE   2,891.								
BROCKHOUSE AND COOPER MONTREAL 350.68 15,900.00 0.02 GOLDMAN SACHS INTIL, LONDON (GSILGB2X) 107,635.97 54,367,168.00 0.00 BTG CAPITAL CORP, JERSEY CITY 237.0 1,186.00 0.02 GOLDMAN SACHS INTIL, LONDON (GSILGB2X) 107,635.97 54,367,168.00 0.00 BTG CAPITAL CORP, JERSEY CITY 127,00 1,187.00 0.00 DITCH CAPITAL CORP, JERSEY CITY 127,00 1,187.00 0.00 DITCH CAPITAL CORP, JERSEY CITY 127,00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	1							
BITG LLC, NEW YORK							•	
BUCKING-HAM RESEARCH, NEW YORK   105.81   3,023.00   0,04   GUIGGENHEIM CAPITAL MARKETS LLC, NEW YORK   3,546.99   113,198.00   0,03   CANACCORD GENUITY LTD, LONDON   422.29   360,000.00   0,00   GUIZMAN AND COMPANY, NEW YORK   1,437.44   59,386.00   0,03   CANADIAN DEPOSITORY, TORONTO   833.33   300,000.00   0,00   HANWHA SEGS CO LTD, SEQUIL   1,731.74   95,067.00   0,02   CANADIAN DEPOSITORY, TORONTO   833.33   300,000.00   0,00   HANWHA SEGS CO LTD, SEQUIL   1,731.74   95,067.00   0,02   CANTOR FITZGERALD & CO NO, NEW YORK   6,001.52   218,601.00   0,03   HILLTOP SECURITIES INC, DALLAS   4,214.00   120,400.00   0,00   CARNEGIE ASA, OSLO   6,665.89   371,281.00   0,01   CARNEGIE ASA, OSLO   6,665.89   371,281.00   0,01   CARNEGIE ASA, OSLO   6,665.89   371,281.00   0,01   CARNEGIE ASA, OSLO   6,657.30   44,231.00   0,02   HABCC SECS LTD, HELSINKI (CASFFIH1)   1,142.79   19,331.00   0,06   HSBC BANK PLC (MIDIAND BK)(JAC), LONDON   59,986.29   7,974,862.00   0,01   CHINA INTL CAP CORP HK SECS, HONG KONG   70,46   40,000.00   0,00   HSBC BANK PLC (MIDIAND BK)(JAC), LONDON   59,986.29   7,974,862.00   0,01   CHINA INTL CAP CORP HK SECS, HONG KONG   7,746   40,000.00   0,00   HSBC BANK PLC (MIDIAND BK)(JAC), LONDON   59,986.29   7,974,862.00   0,01   CHINA INTL CAP CORP HK SECS, HONG KONG   7,746   40,000.00   HSBC BANK PLC (MIDIAND BK)(JAC), LONDON   59,986.29   7,974,862.00   0,01   CHINA INTL CAP CORP HK SECS, HONG KONG   7,746   40,000.00   HSBC BANK PLC (MIDIAND BK)(JAC), LONDON   59,986.29   7,974,862.00   0,01   CHINA INTL CAP CORP HK SECS, HONG KONG   7,746   40,000.00   HSBC BANK PLC (MIDIAND BK)(JAC), LONDON   59,986.29   7,974,862.00   0,01   CID CAP DIS BANK PLC (MIDIAND BK)(JAC), LONDON   59,986.29   7,974,862.00   0,01   CID CAP DIS BANK PLC (MIDIAND BK)(JAC), LONDON   59,986.29   7,974,862.00   0,01   CID CAP DIS BANK PLC (MIDIAND BK)(JAC), LONDON   59,986.29   7,974,862.00   0,01   CID CAP DIS BANK PLC (MIDIAND BK)(JAC), LONDON   59,986.29   7,974,862.00   0,01   CID CAP DIS BANK PLC (MIDIAND BK)		237.70		0.02	,			0.01
CABRERA CAPITAL MARKETS, CHICAGO 50.00 50.01 50.61100 0.01 GUGGENHEIM CAPITAL MARKETS LLC, NEW YORK 1,437.44 50.936.00 0.03 CANACORD GENUITY LTD, LONDON 422.29 360,000.00 0.00 HANWHA SECS CO LTD, SECUL 1,731.74 95.067.00 0.03 CANADIAN DEPOSITORY, TORONTO 833.33 300,000.00 0.00 HANWHA SECS CO LTD, SECUL 1,731.74 95.067.00 0.02 CANTOR FITZGERALD & CO INC, NEW YORK 7,066.11 301,689.00 0.02 HAUCK UND AUHALEUSER PRIVATE, FRANKFURT 492.62 18.079.00 0.03 CARNEGIE ASA, OSLO 3,665.89 371,281.00 0.01 HAUCK UND AUHALEUSER PRIVATE, FRANKFURT 492.62 18.079.00 0.03 CARNEGIE ASA, OSLO 3,665.89 371,281.00 0.01 HONG KONG 8.9 HANGHA BKG CORP, HONG KONG 7,999.95 4,569.200.00 0.00 CARNEGIE SECS LTD, HELSINKI (CASFFIH1) 1,142.79 19.331.00 0.06 HSBC BANK PLC (MIDLAND BK)(JAC), LONDON 59,86.29 7,747,862.00 0.01 CHICANDEN SECS, HONG KONG 70.46 40,000.00 0.00 HSBC SECS INC, NEW YORK 50.00 0.00 CHICANDEN SECS INC, TORONTO 666.73 44,231.00 0.02 HSBC SECS INC, NEW YORK 50.00 0.00 HSBC SECURITIES (US.) NEW YORK 713.61 61.214.00 0.01 CHICANDEN SERVICES INC, TORONTO 665.73 44,231.00 0.01 HSBC SECS INC, NEW YORK 713.61 61.214.00 0.01 CIMB KNYESTMENT BK BERHAD, KUALA LUMPUR 757.11 100,550.00 0.01 HSBC SECURITIES (US.) NEW YORK 713.61 61.214.00 0.01 CAP DO BRASIL DTW LTDA, RICO DE JANEIRO 163.77 11.100.00 0.01 CITIBANK (COR), NEW YORK 111.11 107,647.00 0.00 HSBC SECURITIES (US.) NEW YORK 713.61 61.214.00 0.01 CITIBANK (COR), NEW YORK 111.11 107,647.00 0.00 HSBC SECURITIES (US.) NEW YORK 713.61 61.214.00 0.01 CITIBANK AL, HONG KONG 5.265.00 1.00 HSBC SECURITIES (US.) NEW YORK 713.61 61.214.00 0.01 CITIBANK AL, HONG KONG 5.265.00 1.00 HSBC SECURITIES (US.) NEW YORK 713.61 61.214.00 0.01 CITIBANK AL, HONG KONG 5.265.00 1.00 HSBC SECURITIES (US.) NEW YORK 713.61 61.214.00 0.01 CITIBANK AL, HONG KONG 5.265.00 1.00 HSBC SECURITIES (US.) NEW YORK 713.61 61.214.00 0.01 CITIBANK AL, HONG KONG 5.265.00 1.00 HSBC SECURITIES (US.) NEW YORK 713.61 61.214.00 0.01 CITIBANK AL, HONG KONG 5.265.00 1.00 HSBC SECURITIES (US.) NEW YORK 713.61 61.214.00 0.01 CITIBA	I control of the cont							
CANACOCRD GENUITY LTD, LONDON 422.29 360,000,00 0.00 GUZMAN AND COMPANY, NEW YORK 1,437.44 59,936.00 0.03 CANADIAN DEPOSITORY, TORONTO 833.33 300,000.00 0.00 HANWHA SECS CO LTD, SEOUL 1,731.74 95,067.00 0.03 CANADIAN DEPOSITORY, TORONTO 833.33 300,000.00 0.00 HANWHA SECS CO LTD, SEOUL 1,731.74 95,067.00 0.03 CAP INSTI. SYCS INC - EQUITIES, NEW YORK 6,001.52 218,601.00 0.03 HILLTOP SECURITIES INC, DALLAS 4,214.00 120,400.00 0.04 CARNEGIE SAS, OSLO 3,665.89 371,281.00 0.01 HORK KONG 8 SHANGHAI BKG CORP, HONG KONG 7,999.95 4,569,200 0.00 0.00 CARNEGIE SECS LTD, HELSINKI (CASFFIH1) 1,142.79 19,331.00 0.06 HSBC BANK PLC (MIDLAND BK)(JAC), LONDON 59,986.29 7,974,862.00 0.01 CHINA INTI- CAP CORP HK SECS, HONG KONG 70.46 40,000.00 0.00 HSBC JAMES CAPEL, SEOUL 287.04 2,783.00 0.10 CHINA INTI- CAP CORP HK SECS, HONG KONG 70.46 40,000.00 0.00 HSBC JAMES CAPEL, SEOUL 287.04 2,783.00 0.10 CIMB GK SECURITIES PTE LTD, SINGAPORE 2,897.15 800,000.00 0.00 HSBC SECURITIES (USA) INC, NEW YORK 5,852.00 5,004,779.00 0.00 CIMB GK SECURITIES PTE LTD, SINGAPORE 2,897.15 800,000.00 0.01 HSBC SECURITIES (USA) INC, NEW YORK 713.61 61,214.00 0.01 CITO FUND SERVICES IRELAND, DUBLIN 154.22 3,342.00 0.05 ICBC FINCL SVCS, NEW YORK 9,193.22 470,049.00 0.02 CITIBANK (COR), NEW YORK 111.11 107,647.00 0.00 IMTRUST SACCOREDORES DE BOLSA, SANTIAGO 5,885.89 926,140.00 0.01 CITIBANK (COR) PROPER YOR AND SANTIAGO 1,113.23 1,083,500.00 0.00 INSTINET CANADA, TORONTO 12.28 2,100.00 0.01 CITIBANK (COR) FUND SERVICES INCLAID, DUBLIN 153,781.00 0.00 INSTINET CANADA, TORONTO 10,576.88 34,387,559.00 0.00 CITIBANK NA, LONDON 2,845.03 179,848.00 0.00 INSTINET CANADA, TORONTO 10,576.88 34,387,559.00 0.00 CITIBANK NA, LONDON 19,558.2 42,582,027.00 0.00 INSTINET CANADA, TORONTO 10,576.88 34,387,559.00 0.00 CITIBANK NA, LONDON 19,540.54 42,705.01.00 0.01 INSTINET CANADA, TORONTO 10,576.88 34,387,559.00 0.00 CITIGROUP GBL MKTS AUGUSTALIA PTY, SYDNEY 2,848.88 12,312,894.00 0.01 INSTINET SACCOREDOR CROST HWAITE.LONDON 19,540.54 42,705.01.00 0.01 INSTINET SACCORITIES (S	'				•			
CANDAIN DEPOSITIORY, TORONTO 833.33 300,000.00 0.00 HANWHA SEGS CO LTD, SEOUL 1,731.74 95,067.00 0.02 CANTOR FITZGERALD & CO INC, NEW YORK 7,066.11 301,689.00 0.02 HAUCK UND AUFHAEUSER PRIVATE, FRANKFURT 492.62 18,079.00 0.03 HAUCK UND AUFHAEUSER PRIVATE, FRANKFURT 492.62 18,079.00 0.03 CAPINSTIL SVCS INC - EQUITIES, NEW YORK 6,001.52 218,601.00 0.03 HILLTOP SECURITIES INC, DALLAS 4,214.00 120,400.00 0.04 CARNEGIE SEGS LTD, HELSINKI (CASFFIH1) 1,142.79 19,331.00 0.01 HONG KONG 8, SHANCHAI BKG CORP, HONG KONG 7,999.95 7,974,862.00 0.01 CHINA INTL CAP CORP HK SECS, HONG KONG 70.46 40,000.00 0.00 HSBC BANK PLC (MIDLAND BKI)JAC), LONDON 59,862.90 7,974,862.00 0.01 CHINA INTL CAP CORP HK SECS, HONG KONG 70.46 40,000.00 0.00 HSBC JAMES CAPEL, SEOUL 287.04 2,783.00 0.10 CHINA INTL CAP CORP HK SECS, HONG KONG 70.46 40,000.00 0.00 HSBC SECURITIES (USA) INC, NEW YORK 713.61 61,214.00 0.01 CIMB GK SECURITIES PIE LTD, SINGAPORE 2,897.15 800,000.00 0.00 HSBC SECURITIES (USA) INC, NEW YORK 713.61 61,214.00 0.01 CIMB INVESTMENT BK BERHAD, KUALA LUMPUR 757.11 100,500.00 0.01 (ICAP DO BRASIL DTVM LTDA, RIO DE JANERO 183.77 11,100.00 0.01 CIAP DO BRASIL DTVM LTDA, RIO DE JANERO 183.77 11,100.00 0.01 CIAP DO BRASIL DTVM LTDA, RIO DE JANERO 183.77 11,100.00 0.01 CITIBANK (COR), NEW YORK 11.11 11 107,647.00 0.00 IM TRUST SA CORREDORES DE BOLSA, SANTIAGO 5,386.58 926,140.00 0.01 CITIBANK PLANCHOLD AND AND AND AND AND AND AND AND AND AN	1							
CAPINDE FITZGERALD & CO INC, NEW YORK 6,001.52 218,601.00 0.02 HAUCK UND AUFHAEUSER PRIVATE, FRANKFURT 492.62 18,079.00 0.03 CAP INSTL SYCS INC - EQUITIES, NEW YORK 6,001.52 218,601.00 0.02 HILLTOP SECURITIES INC, DALLAS 4,214.00 120,400.00 0.04 CAP INSTANCE, SECOS, LTD, HELSINKI (CASFFIH1) 1.142.79 19,331.00 0.06 HSBC BANK PLC (MIDLAND BK)(JAC), LONDON 59,986.29 7,974,862.00 0.01 CHINA INTL. CAP CORP HK SECS, HONG KONG 70.46 40,000.00 0.00 HSBC BANK PLC (MIDLAND BK)(JAC), LONDON 59,986.29 7,974,862.00 0.01 CIBB CWORLD MKTS INC, TORONTO 665.73 44,231.00 0.02 HSBC SECN SECON S								
CARNEGIE SAS, OSLO  GARNEGIE SECS LTD, HELSINKI (CASFFIH1)  1,142.79  1,142.70  1,142.	CANTOR FITZGERALD & CO INC, NEW YORK			0.02				0.03
CARNEGIE SECS LTD, HELSINKI (CASFFIH1) 1,142.79 19,331.00 0.06 HSBC BANK PLC (MIDLAND BK)(JAC), LONDON 59,986.29 7,974,862.00 0.01 CHINA INTL CAP CORP HK SECS, HONG KONG 70.46 40,000.00 0.00 HSBC JAMES CAPEL, SEOUL 287.04 2,783.00 0.00 CIMB GK SECURITIES PTE LTD, SINGAPORE 2,897.15 800,000.00 0.00 HSBC SECURITIES (USA) INC, NEW YORK 713.61 61,214.00 0.01 CIMB INVESTMENT BK BERHAD, KUALA LUMPUR 757.11 100,500.00 0.01 LICAP DO BRASIL DTVM LTDA, RIO DE JANEIRO 163.77 11,100.00 0.01 CITIBANK (COR), NEW YORK 111.11 107,647.00 0.02 LITIBANK (COR), NEW YORK 11.13.23 1,803.500.00 0.02 LITIBANK NA, HONG KONG 1,113.23 1,803.500.00 0.01 LISAP TORONTO 1,01 LISAP TORONTO 1,02 LITIBANK NA, HONG KONG 1,113.23 1,803.500.00 0.01 LISTINET CANADA, TORONTO 1,28 2,160.00 0.01 LISTINET CLEARING SERV, SCW YORK 1,20,90 0.01 LISTINET CLEARING SER INC, NEW YORK 1,20,90 0.01 LISTINET CLEARING SER INC, NEW YORK 1,20,90 0.01 CITIBANK, PRANKFURT 2,8,348.47 1,081.986.00 0.01 LITIBANK, PRANKFURT 2,8,348.47 1,081.986.00 0.02 LITIBANK, PRANKFURT 2,8,348.47 1,081.986.00 0.03 LINSTINET CLEARING SER INC, NEW YORK 2,180.01 1,000 0.05 LITIGROUP GBL MKTS NUC, NEW YORK 65,124.54 4,770,501.00 0.01 LITIGROUP GBL MKTS NUC, NEW YORK 65,124.54 4,770,501.00 0.01 LITISTRED CHECKED LIMITED, LONDON 10,576.88 3,158.37 2,598.270.00 0.00 CITIGROUP GBL MKTS SINC, NEW YORK 65,124.54 4,770,501.00 0.01 LITISTRED CHECKED LIMITED, LONDON 10,576.88 3,158.37 2,598.270.00 0.00 CITIGROUP GBL MKTS SINC, NEW YORK 65,124.54 4,770,501.00 0.01 LITISTRED CHECKED LIMITED, LONDON 10,576.88 3,158.37 2,598.270.00 0.00 CITIGROUP GBL MKTS NUCHALA PTY, SYDNEY 4,272.67 881,591.00 0.00 LITISTRED CHECKED LIMITED, LONDON 1,000 0.01 LITISTRED CHECKED LIN								
CHINA INTL CAP CORP HK SECS, HONG KONG 70.46 40,000.00 0.00 HSBC JAMES CAPEL, SEOUL 2,87.04 2,783.00 0.10 CIBC WORLD MKTS INC, TORONTO 665.73 44,231.00 0.02 HSBC SECS INC, NEW YORK 5,852.00 5,004,779.00 0.00 HSBC SECURITIES (TPE LTD, SINGAPORE 2,897.15 800,000.00 0.01 HSBC SECURITIES (USA) INC, NEW YORK 713.61 61,214.00 0.01 CIMB GN SECURITIES (TPE LTD, SINGAPORE 2,897.15 800,000.00 0.01 HSBC SECURITIES (USA) INC, NEW YORK 713.61 61,214.00 0.01 CIMB INVESTMENT BK BERHAD, KUALA LUMPUR 757.11 100,500.00 0.01 ICAP DO BRASIL DTVM LTDA, RIO DE JANEIRO 163.77 11,100.00 0.01 CITCO FUND SERVICES IRELAND, DUBLIN 154.22 3,342.00 0.05 ICBC FINCL SVCS, NEW YORK 91,93.22 470,049.00 0.02 CITIBANK (OR), NEW YORK 111.11 176,474.00 0.00 IM TRIUST SA CORREDORES DE BOLSA, SANTIAGO 5,386.58 926,140.00 0.01 CITIBANK EUROPE PLC AUSTRIA BR, VIENNA 3,311.41 153,781.00 0.02 INSTINET AUSTRALIA CLEARING SERV, SYDNEY 6,733.09 3,858,327.00 0.00 CITIBANK NA, HONG KONG 11,113.23 1,083,500.00 0.00 INSTINET CANADA, TORONTO 12,28 2,100.00 0.01 CITIBANK NA, HONG KONG 11,113.23 1,083,500.00 0.01 INSTINET CANADA, TORONTO 12,28 2,100.00 0.01 CITIBANK NY (MER) 541.43 328,404.00 0.01 INSTINET CORP, NEW YORK 23,180.01 4,061,323.00 0.01 CITIBANK NY (MER) 541.43 328,404.00 0.01 INSTINET CORP, NEW YORK 23,180.01 4,061,323.00 0.01 CITIBANK NY (MER) 541.43 328,404.00 0.01 INSTINET EUROPE LIMITED, LONDON 105,576.88 34,387,559.00 0.00 CITIGROUP GBL MKTS AUSTRALIA PTY, SYDNEY 396.69 199,686.99 199,686.00 0.00 INSTINET PACIFIC LTD, HONG KONG 52,750.95 39,207,026.00 0.00 CITIGROUP GBL MKTS INC, NEW YORK 65,124.54 4,770,501.00 0.01 INSTINET EUROPE LIMITED, LONDON 4,908.97 703,942.00 0.01 CITIGROUP GBL MKTS INC, NEW YORK 65,246.88 12,312,329,400 0.00 INSTINET SINGAPORE 31,180.00 1,319.74 290,513.00 0.01 CITIGROUP GBL MKTS INCADA PORE TO LONDON 191,540.54 35,855,200.00 0.00 INVESTEC SECURITIES (331), LONDON 4,908.97 703,942.00 0.01 CITIGROUP GBL MKTS INCADA PORE TO LONDON 191,540.54 35,655,000 0.00 INVESTEC SECURITIES (331), LONDON 4,908.97 703,942.00 0.01 CITIGRO						,		
CIBE WORLD MKTS INC, TORONTO 665.73 44,231.00 0.02 HSBC SECS INC, NEW YORK 5,852.00 5,004,779.00 0.00 CIMB GK SECURITIES PTE LTD, SINGAPORE 2,897.15 800,000.00 0.00 HSBC SECURITIES (USA) INC, NEW YORK 713.61 61,214.00 0.01 CITCO FUND SERVICES IRELAND, DUBLIN 154.22 3,342.00 0.05 ICBC FINCL SVCS, NEW YORK 9,193.22 470,049.00 0.02 CITIBANK (COR), NEW YORK 111.11 107,647.00 0.00 IM TRUST SA.CORREDORES DE BOLSA, SANTIAGO 5,386.58 926,140.00 0.01 CITBANK EUROPE PLC AUSTRIABR, VIENNA 3,311.41 153,781.00 0.02 INSTINET AUSTRALIA CLEARING SERV, SYDNEY 6,733.09 3,858,327.00 0.00 CITIBANK NA, HONG KONG 1,113.23 1,083,500.00 0.00 INSTINET CANADA, TORONTO 12.28 2,100.00 0.01 CITIBANK NA, LONDON 2,645.03 179,484.00 0.01 INSTINET CLEARING SER V, SYDNEY 7,809.98 1,386,574.00 0.01 CITIBANK NA, HONG KONG 1,414 338,404.00 0.01 INSTINET CLEARING SER INC, NEW YORK 17,809.98 1,386,574.00 0.01 CITIBANK NA, HONG KONG 1,545.43 38,404.00 0.01 INSTINET CORP, NEW YORK 23,180.01 4,661,323.00 0.01 CITIBANK, NY (MER) 28,348.47 1,081,896.00 0.03 INSTINET EUROPE LIMITED, LONDON 105,576.88 34,387,559.00 0.00 CITIGROUP GBL MKTS AUSTRALIA PTY, SYDNEY 396.99 190,858.00 0.00 INSTINET EUROPE LIMITED, LONDON 105,576.88 34,387,559.00 0.00 CITIGROUP GBL MKTS INC, NEW YORK 26,348.88 12,312,894.00 0.01 INSTINET EUROPE LIMITED, LONDON 105,576.89 39,207,026.00 0.00 CITIGROUP GBL MKTS/SALOMON, NEW YORK 25,348.88 12,312,894.00 0.00 INSTINET SINGAPORE 31,168.37 2,599,570.00 0.00 CLISA AUSTRALIA PTY LTD, SYDNEY 4,272.67 881,591.00 0.01 INVESTEC SECURITIES LTD, JOHANNESBURG 4,116.67 1,619,527.00 0.01 CLISA AUSTRALIA PTY LTD, SYDNEY 4,272.67 881,591.00 0.01 INVESTEC SECURITIES LTD, JOHANNESBURG 4,116.67 1,619,527.00 0.01 CONVERGEX EXECUTION SOLUTION, NEW YORK 199.38 9,969.00 0.02 INVESTMENT TECH GROUP INC, NEW YORK 15,899.37 1,091,233.00 0.01 CONVERGEX EXECUTION SOLUTION, NEW YORK 15,109.23 1,167,014.00 0.01 INVESTMENT TECH GROUP INC, NEW YORK 15,899.37 1,091,233.00 0.01 COWEN AND COMPANY, LLC, JERSEY CITY 5,769.25 173,050.00 0.01 INT GANDA CORP, TORONTO 9,1648.								
CIMB GK SECURITIES PTE LTD, SINGAPORE         2,897.15         800,000.00         0.00         HSBC SECURITIES (USA) INC, NEW YORK         713.61         61,214.00         0.01           CIMB INVESTMENT BK BERHAD, KUALA LUMPUR         757.11         100,500.00         0.01         LICAP DO BRASIL DTYML LTDA, RIO DE JANEIRO         163.77         11,100.00         0.01           CITICO FUND SERVICES IRELAND, DUBLIN         154.22         3,342.00         0.05         IGBC FINCL SVCS, NEW YORK         9,193.22         470,049.00         0.02           CITIBANK (COR), NEW YORK         111.11         107,647.00         0.00         IM TRUST SA.CORREDORES DE BOLSA, SANTIAGO         5,386.58         926,140.00         0.01           CITIBANK EUROPE PLC AUSTRIA BR, VIENNA         3,311.41         153,781.00         0.02         INSTINET CANADA, TORONTO         12.28         2,100.00         0.00           CITIBANK NA, HONG KONG         1,113.23         1,083,500.00         0.00         INSTINET CANADA, TORONTO         12.28         2,100.00         0.01           CITIBANK NY (MER)         541.43         328,404.00         0.00         INSTINET CLEARING SER INC, NEW YORK         17,809.98         1,368,574.00         0.01           CITIBANK, PY         254.43         478,409.96         10,989.90         1,019.98         1,315.23					•			
CITICO FUND SERVICES IRELAND, DUBLIN 154.22 3,342.00 0.05 ICBC FINCL SVCS, NEW YORK 9,193.22 470,049.00 0.02 CITIBANK (COR), NEW YORK 1111.11 107,647.00 0.00 IM TRUST SA.CORREDORES DE BOLSA,SANTIAGO 5,386.58 926,140.00 0.01 CITIBANK EUROPE PLC AUSTRIA BR, VIENNA 3,311.41 153,781.00 0.02 INSTINET AUSTRALIA CLEARING SERV, SYDNEY 6,733.09 3,858,327.00 0.01 CITIBANK NA, HONG KONG 1,113.23 1,083,550.00 0.00 INSTINET CANADA, TORONTO 12.28 2,100.00 0.01 CITIBANK NA, LONDON 2,645.03 179,484.00 0.01 INSTINET CANADA, TORONTO 12.28 2,100.00 0.01 CITIBANK NY (MER) 541.43 328,404.00 0.00 INSTINET CORP, NEW YORK 23,180.01 4,061,323.00 0.01 CITIBANK NY (MER) 28,348.47 1,081,890.00 0.03 INSTINET CORP, NEW YORK 23,180.01 4,061,323.00 0.00 CITIBANK, NY (MER) 176,955.82 42,582,027.00 0.00 INSTINET PACIFIC LTD, HONG KONG 52,750.95 39,207,026.00 0.00 CITIGROUP GBL MKTS AUSTRALIA PTY, SYDNEY 36.69 190,858.00 0.00 INSTINET PACIFIC LTD, HONG KONG 52,750.95 39,207,026.00 0.00 CITIGROUP GBL MKTS INC, NEW YORK 65,124.54 4,770,501.00 0.01 INSTINET SIM S.P.A., MILANO 289.67 6,658.00 0.01 CITIGROUP GBL MKTS/SALOMON, NEW YORK 26,348.88 12,312,894.00 0.01 INVESTEC HENDERSON CROSTHWAITE,LONDON 2,319.74 290,513.00 0.01 CISA AUSTRALIA PTY LTD, SYDNEY 4,272.67 881,591.00 0.00 INVESTEC SECURITIES (331), LONDON 4,908.97 703,942.00 0.01 CLSA SINGAPORE PTE LTD (CHV), SINGAPORE 179,56 36,627.00 0.00 INVESTEC SECURITIES (331), LONDON 4,908.97 703,942.00 0.01 CONVENÇAO S/A CORRETORA DE, SAO PAULO 1,189.79 149,829.00 0.01 INVESTEMENT TECH ROLOGY GROUP LTD, DUBLIN 58,781.86 10,786,547.00 0.01 CONVERGEX EXECUTION SOLUTION, NEW YORK 2,936.73 137,168.00 0.02 INVESTEMENT TECH ROLOGY GROUP LTD, DUBLIN 58,781.86 10,786,547.00 0.01 COWEN AND COMPANY, LLC, JERSEY CITY 5,69.25 173,050.00 0.03 ITG HONG KONG LIMITED, HONG KONG 9,648.28 176,079.00 0.05 COWEN AND COMPANY, LLC, JERSEY CITY 5,69.25 173,050.00 0.03 ITG HONG KONG LIMITED, HONG KONG 9,648.28 176,079.00 0.05 COWEN AND COMPANY, LLC, JERSEY CITY 5,669.25 173,050.00 0.03 ITG HONG KONG LIMITED, HONG KONG 9,1648								
CITIBANK (COR), NEW YORK 111.11 107,647.00 0.00 IM TRUST SA.CORREDORES DE BOLSA,SANTIAGO 5,386.58 926,140.00 0.01 CITIBANK EUROPE PLC AUSTRIA BR, VIENNA 3,311.41 153,781.00 0.02 INSTINET AUSTRALIA CLEARING SERV, SYDNEY 6,733.09 3,858,327.00 0.00 CITIBANK NA, HONG KONG 1,113.23 1,083,500.00 0.00 INSTINET CANADA, TORONTO 12.28 2,100.00 0.01 CITIBANK NA, LONDON 2,645.03 179,484.00 0.01 INSTINET CLEARING SER INC, NEW YORK 17,809.98 1,368,574.00 0.01 CITIBANK, NY (MER) 541.43 328,404.00 0.00 INSTINET CORP, NEW YORK 23,180.01 4,061,323.00 0.01 CITIBANK, FRANKFURT 28,348.47 1,081,896.00 0.03 INSTINET EUROPE LIMITED, LONDON 105,576.88 34,387,559.00 0.00 CITIBANK, NY MICHAEL STANDAR STA								
CITIBANK EUROPE PLC AUSTRIA BR, VIENNA 3,311.41 153,781.00 0.02 INSTINET AUSTRALIA CLEARING SERV, SYDNEY 6,733.09 3,858,327.00 0.00 CITIBANK NA, HONG KONG 1,113.23 1,083,500.00 0.00 INSTINET CANADA, TORONTO 12.28 2,100.00 0.01 CITIBANK NA, LONDON 2,645.03 179,484.00 0.01 INSTINET CLEARING SER INC, NEW YORK 17,809.98 1,368,574.00 0.01 CITIBANK NY (MER) 541.43 328,404.00 0.00 INSTINET CORP, NEW YORK 23,180.01 4,061,323.00 0.01 CITIBANK, FRANKFURT 28,348.47 1,081,896.00 0.03 INSTINET EUROPE LIMITED, LONDON 10,5576.88 34,387,559.00 0.00 CITIGROUP GBL MKTS AUSTRALIA PTY, SYDNEY 396.69 190,858.00 0.00 INSTINET PACIFIC LTD, HONG KONG 52,750.95 39,207,026.00 0.00 CITIGROUP GBL MKTS INC, NEW YORK 65,124.54 4,770,501.00 0.01 INTERMONTE SIM S.P.A., MILANO 289.67 6,658.00 0.04 CITIGROUP GBL MKTS/SALOMON, NEW YORK 26,348.88 12,312,894.00 0.00 INVESTEC HENDERSON CROSTHWAITE,LONDON 2,319.74 290,513.00 0.01 CLSA AUSTRALIA PTY LTD, SYDNEY 4,272.67 881,591.00 0.01 INVESTEC SECURITIES (331), LONDON 4,908.97 703,942.00 0.01 CLSA AUSTRALIA PTY LTD, SYDNEY 4,272.67 881,591.00 0.01 INVESTEC SECURITIES (TD, JOHANNESBURG 4,116.67 1,619,527.00 0.00 CLSA SINGAPORE PTE LTD (CHV), SINGAPORE 179.56 36,627.00 0.01 INVESTEC SECURITIES LTD, JOHANNESBURG 4,116.67 1,619,527.00 0.00 CONVENCAO S/A CORRETORA DE, SAO PAULO 1,189.79 149,829.00 0.01 INVESTEC SECURITIES LTD, JOHANNESBURG 4,116.67 1,619,527.00 0.00 CONVENCAO S/A CORRETORA DE, SAO PAULO 1,189.79 149,829.00 0.01 INVESTEC HENDERSON CROSTHWAITE, LONDON 58,718.16 10,786,547.00 0.01 CONVERGEX EXECUTION SOLUTION, NEW YORK 199.38 9,969.00 0.02 INVESTMENT TECH GROUP INC, NEW YORK 15,899.37 1,091,233.00 0.01 CONVENCAO S/A CORRETORA DE, SAO PAULO 1,189.79 149,829.00 0.01 INVESTMENT TECH GROUP INC, NEW YORK 15,899.37 1,091,233.00 0.01 COWEN AND COULC, NEW YORK 15,109.23 1,167,014.00 0.01 INVESTMENT TECH GROUP INC, NEW YORK 15,899.37 1,091,233.00 0.01 COWEN AND COULC, NEW YORK 15,109.23 1,167,014.00 0.01 ITG CANADA CORP, TORONTO 9,648.28 176,079.00 0.05 COWEN AND COULC, NEW YORK 15,109.25 173,050.00								
CITIBANK NA, HONG KONG 1,113.23 1,083,500.00 0.00 INSTINET CANADA, TORONTO 12.28 2,100.00 0.01 CITIBANK NA, LONDON 2,645.03 179,484.00 0.01 INSTINET CLEARING SER INC, NEW YORK 17,809.98 1,368,574.00 0.01 CITIBANK NY (MER) 541.43 328,404.00 0.00 INSTINET CLEARING SER INC, NEW YORK 23,180.01 4,061,323.00 0.01 CITIBANK, NY (MER) 28,348.47 1,081,896.00 0.03 INSTINET EUROPE LIMITED, LONDON 105,576.88 34,387,559.00 0.00 CITIBANK, NY 17,095.82 42,582,027.00 0.00 INSTINET PACIFIC LTD, HONG KONG 52,750.95 39,207,026.00 0.00 CITIGROUP GBL MKTS AUSTRALIA PTY, SYDNEY 396.69 190,858.00 0.00 INSTINET, SINGAPORE 3,158.37 2,598,270.00 0.00 CITIGROUP GBL MKTS/SALOMON, NEW YORK 65,124.54 4,770,501.00 0.01 INTERMONTE SIM S.P.A., MILANO 288.67 6,658.00 0.04 CITIGROUP GLOBAL MARKETS LTD, LONDON 191,540.54 35,855,200.00 0.01 INVESTEC HENDERSON CROSTHWAITE,LONDON 4,908.97 703,942.00 0.01 CLSA AUSTRALIA PTY LTD, SYDNEY 4,272.67 881,591.00 0.00 INVESTEC SECURITIES (331), LONDON 4,908.97 703,942.00 0.00 CLSA SINGAPORE PTE LTD (CHV), SINGAPORE 179.56 36,627.00 0.00 INVESTEC SECURITIES LTD, JOHANNESBURG 4,116.67 1,619,527.00 0.00 CLSA SINGAPORE PTE LTD (CHV), SINGAPORE 179.56 36,627.00 0.00 INVESTEC SECURITIES LTD, JOHANNESBURG 4,116.67 1,619,527.00 0.00 CONVENCAO S/A CORRETORA DE, SAO PAULO 1,189.79 149,829.00 0.01 INVESTEC SECURITIES LTD, JOHANNESBURG 4,116.67 1,619,527.00 0.00 CONVENCAO S/A CORRETORA DE, SAO PAULO 1,189.79 149,829.00 0.01 INVESTEC NEW YORK 15,899.37 1,091,233.00 0.01 CONVERGEX EXECUTION SOLUTION, NEW YORK 199.38 9,969.00 0.02 ISI GROUP INC, NEW YORK 15,899.37 1,091,233.00 0.01 CONVERGEX EXECUTION SOLUTION, NEW YORK 15,109.23 1,167,014.00 0.01 ITG CANADA CORP, TORONTO 9,162.33 1,528,549.00 0.01 COWEN AND COULC, NEW YORK 15,109.23 1,167,014.00 0.01 ITG CANADA CORP, TORONTO 9,648.28 176,079.00 0.05 COWEN AND COULC, NEW YORK 15,109.23 1,167,014.00 0.01 ITG CANADA CORP, TORONTO 9,648.28 176,079.00 0.05 COWEN AND COULC, NEW YORK 15,109.23 1,167,014.00 0.01 ITG CANADA CORP, TORONTO 9,648.28 176,079.00 0.05 COWEN AND COULC, NE								
CITIBANK NA, LONDON 2,645.03 179,484.00 0.01 INSTINET CLEARING SER INC, NEW YORK 17,809.98 1,368,574.00 0.01 CITIBANK NY (MER) 541.43 328,404.00 0.00 INSTINET CORP, NEW YORK 23,180.01 4,061,323.00 0.01 CITIBANK, NY (MER) 28,348.47 1,081,896.00 0.03 INSTINET EUROPE LIMITED, LONDON 105,576.88 34,387,559.00 0.00 CITIBANK, NY 176,955.82 42,582,027.00 0.00 INSTINET PACIFIC LTD, HONG KONG 52,750.95 39,207,026.00 0.00 CITIGROUP GBL MKTS AUSTRALIA PTY, SYDNEY 396.69 190,858.00 0.00 INSTINET, SINGAPORE 3,158.37 2,598,270.00 0.00 CITIGROUP GBL MKTS INC, NEW YORK 65,124.54 4,770,501.00 0.01 INTERMONTE SIM S.P.A., MILANO 289.67 6,658.00 0.04 CITIGROUP GBL MKTS/SALOMON, NEW YORK 26,348.88 12,312,894.00 0.00 INVESTEC HENDERSON CROSTHWAITE,LONDON 2,319.74 290,513.00 0.01 CITIGROUP GLOBAL MARKETS LTD, LONDON 191,540.54 35,855,200.00 0.01 INVESTEC SECURITIES (331), LONDON 4,908.97 703,942.00 0.01 CLSA AUSTRALIA PTY LTD, SYDNEY 4,272.67 881,591.00 0.00 INVESTEC SECURITIES (131), LONDON 4,908.97 703,942.00 0.00 CLSA SINGAPORE PTE LTD (CHV), SINGAPORE 179.56 36,627.00 0.00 INVESTEC SECURITIES LTD, JOHANNESBURG 4,116.67 16,19,527.00 0.00 CONVENCAO S/A CORRETORA DE, SAO PAULO 1,189.79 149,829.00 0.01 INVESTMENT TECH GROUP INC, NEW YORK 15,899.37 1,091,233.00 0.01 CONVERGEX EXECUTION SOLUTION, NEW YORK 199.38 9,969.00 0.02 ISI GROUP INC, NEW YORK 15,899.37 1,091,233.00 0.01 CONVERGEX EXECUTION SOLUTION, NEW YORK 15,109.23 137,168.00 0.02 ITG AUSTRALIA LTD, MELBOURNE 43,710.51 40,249,964.00 0.00 COWEN AND CO LLC, NEW YORK 15,109.23 1,167,014.00 0.01 ITG CANADA CORP, TORONTO 9,162.23 1,528,549.00 0.01 COWEN AND COMPANY, LLC, JERSEY CITY 5,769.25 173,050.00 0.03 ITG HONG KONG LIMITED, HONG KONG 1,964.28 176,079.00 0.05	•							
CITIBANK, FRANKFURT 28,348.47 1,081,896.00 0.03 INSTINET EUROPE LIMITED, LONDON 105,576.88 34,387,559.00 0.00 CITIBANK, NY 176,955.82 42,582,027.00 0.00 INSTINET PACIFIC LTD, HONG KONG 52,750.95 39,207,026.00 0.00 CITIGROUP GBL MKTS AUSTRALIA PTY, SYDNEY 396.69 190,858.00 0.00 INSTINET PACIFIC LTD, HONG KONG 52,750.95 39,207,026.00 0.00 CITIGROUP GBL MKTS INC, NEW YORK 65,124.54 4,770,501.00 0.01 INTERMONTE SIM S.P.A., MILANO 289.67 6,658.00 0.04 CITIGROUP GBL MKTS/SALOMON, NEW YORK 26,348.88 12,312,894.00 0.00 INVESTEC HENDERSON CROSTHWAITE,LONDON 2,319.74 290,513.00 0.01 CITIGROUP GLOBAL MARKETS LTD, LONDON 191,540.54 35,855,200.00 0.01 INVESTEC SECURITIES (331), LONDON 4,908.97 703,942.00 0.01 CLSA AUSTRALIA PTY LTD, SYDNEY 4,272.67 881,591.00 0.00 INVESTEC SECURITIES LTD, JOHANNESBURG 4,116.67 1,619,527.00 0.00 CLSA SINGAPORE PTE LTD (CHV), SINGAPORE 179.56 36,627.00 0.00 INVESTMENT TECH GROUP INC, NEW YORK 8,700.79 480,553.00 0.02 CONVENCAO S/A CORRETORA DE, SAO PAULO 1,189.79 149,829.00 0.01 INVESTMENT TECH GROUP INC, NEW YORK 8,700.79 480,553.00 0.01 CONVERGEX EXECUTION SOLUTION, NEW YORK 199.38 9,969.00 0.02 ISI GROUP INC, NEW YORK 15,899.37 1,091,233.00 0.01 CONVERGES EXECUTION SOLUTION, NEW YORK 2936.73 137,168.00 0.02 ISI GROUP INC, NEW YORK 45,710.51 40,249,964.00 0.00 COWEN AND CO LLC, NEW YORK 15,109.23 1,167,014.00 0.01 ITG CANADA CORP, TORONTO 9,176.23 1,528,549.00 0.01 COWEN AND COMPANY, LLC, JERSEY CITY 5,769.25 173,050.00 0.03 ITG HONG KONG LIMITED, HONG KONG 10.00 0.05			179,484.00					
CITIGROUP GBL MKTS AUSTRALIA PTY, SYDNEY 396.69 190,858.00 0.00 INSTINET PACIFIC LTD, HONG KONG 52,750.95 39,207,026.00 0.00 CITIGROUP GBL MKTS AUSTRALIA PTY, SYDNEY 396.69 190,858.00 0.00 INSTINET, SINGAPORE 3,158.37 2,598,270.00 0.00 CITIGROUP GBL MKTS SINC, NEW YORK 65,124.54 4,770,501.00 0.01 INTERMONTE SIM S.P.A., MILANO 289.67 6,658.00 0.04 CITIGROUP GBL MKTS/SALOMON, NEW YORK 26,348.88 12,312,894.00 0.00 INVESTEC HENDERSON CROSTHWAITE,LONDON 2,319.74 290,513.00 0.01 CITIGROUP GLOBAL MARKETS LTD, LONDON 191,540.54 35,855,200.00 0.01 INVESTEC SECURITIES (331), LONDON 4,908.97 703,942.00 0.01 CLSA AUSTRALIA PTY LTD, SYDNEY 4,272.67 881,591.00 0.00 INVESTEC SECURITIES LTD, JOHANNESBURG 4,116.67 1,619,527.00 0.00 CLSA SINGAPORE PTE LTD (CHV), SINGAPORE 179.56 36,627.00 0.00 INVESTMENT TECH GROUP INC, NEW YORK 8,700.79 480,553.00 0.02 CONVENCAO S/A CORRETORA DE, SAO PAULO 1,189.79 149,829.00 0.01 INVESTMENT TECH GROUP INC, NEW YORK 8,700.79 480,553.00 0.01 CONVERGEX EXECUTION SOLUTION, NEW YORK 199.38 9,969.00 0.02 ISI GROUP INC, NEW YORK 15,899.37 1,091,233.00 0.01 CONVERGES EXECUTION SOLUTION, NEW YORK 15,109.23 1,167,014.00 0.02 ITG AUSTRALIA LTD, MELBOURNE 43,710.51 40,249,964.00 0.00 COWEN AND CO LLC, NEW YORK 15,109.23 1,167,014.00 0.01 ITG CANADA CORP, TORONTO 9,176.23 1,528,549.00 0.01 COWEN AND COMPANY, LLC, JERSEY CITY 5,769.25 173,050.00 0.03 ITG HONG KONG LIMITED, HONG KONG 1,005 COWEN AND COMPANY, LLC, JERSEY CITY 5,769.25 173,050.00 0.03 ITG HONG KONG LIMITED, HONG KONG 1,005 COWEN AND COMPANY, LLC, JERSEY CITY 5,769.25 173,050.00 0.03 ITG HONG KONG LIMITED, HONG KONG 1,005 COWEN AND COMPANY, LLC, JERSEY CITY 5,769.25 173,050.00 0.03 ITG HONG KONG LIMITED, HONG KONG 1,005 COWEN AND COMPANY, LLC, JERSEY CITY 5,769.25 173,050.00 0.03 ITG HONG KONG LIMITED, HONG KONG 1,005 COWEN AND COMPANY, LLC, JERSEY CITY 5,769.25 173,050.00 0.03 ITG HONG KONG LIMITED, HONG KONG 1,005 COWEN AND COMPANY, LLC, JERSEY CITY 5,769.25 173,050.00 0.03 ITG HONG KONG LIMITED, HONG KONG 1,005 COWEN AND COMPANY, LLC, JERSEY	, ,							
CITIGROUP GBL MKTS AUSTRALIA PTY, SYDNEY 396.69 190,858.00 0.00 INSTINET, SINGAPORE 3,158.37 2,598,270.00 0.00 CITIGROUP GBL MKTS INC, NEW YORK 65,124.54 4,770,501.00 0.01 INTERMONTE SIM S.P.A., MILANO 289.67 6,658.00 0.04 CITIGROUP GBL MKTS/SALOMON, NEW YORK 26,348.88 12,312,894.00 0.00 INVESTEC HENDERSON CROSTHWAITE,LONDON 2,319.74 290,513.00 0.01 CLSA AUSTRALIA PTY LTD, SYDNEY 4,272.67 881,591.00 0.00 INVESTEC SECURITIES (331), LONDON 4,908.97 703,942.00 0.01 CLSA SINGAPORE PTE LTD (CHV), SINGAPORE 179.56 36,627.00 0.00 INVESTEC SECURITIES LTD, JOHANNESBURG 4,116.67 16,19,527.00 0.00 CLSA SINGAPORE PTE LTD (CHV), SINGAPORE 179.56 36,627.00 0.00 INVESTEC SECURITIES LTD, JOHANNESBURG 8,700.79 480,553.00 0.02 CONVENCAO S/A CORRETORA DE, SAO PAULO 1,189.79 149,829.00 0.01 INVESTMENT TECH GROUP INC, NEW YORK 8,700.79 480,553.00 0.01 CONVERGEX EXECUTION SOLUTION, NEW YORK 199.38 9,969.00 0.02 ISI GROUP INC, NEW YORK 15,899.37 1,091,233.00 0.01 CONVERGEN MACRO LLC, NEW YORK 15,109.23 137,168.00 0.02 ITG AUSTRALIA LTD, MELBOURNE 43,710.51 40,249,964.00 0.00 COWEN AND CO LLC, NEW YORK 15,109.23 1,167,014.00 0.01 ITG CANADA CORP, TORONTO 9,176.23 1,528,549.00 0.01 COWEN AND COMPANY, LLC, JERSEY CITY 5,769.25 173,050.00 0.03 ITG HONG KONG LIMITED, HONG KONG 1,005 ITG AUSTRALIA LTD, HONG KONG 1,005 ITG CANADA CORP, TORONTO 9,648.28 176,079.00 0.05	I control of the cont							
CITIGROUP GBL MKTS INC, NEW YORK 65,124.54 4,770,501.00 0.01 INTERMONTE SIM S.P.A., MILANO 289.67 0,658.00 0.04 CITIGROUP GBL MKTS/SALOMON, NEW YORK 26,348.88 12,312,894.00 0.00 INVESTEC HENDERSON CROSTHWAITE,LONDON 2,319.74 290,513.00 0.01 CITIGROUP GLOBAL MARKETS LTD, LONDON 191,540.54 35,855,200.00 0.01 INVESTEC SECURITIES (331), LONDON 4,908.97 703,942.00 0.01 CLSA AUSTRALIA PTY LTD, SYDNEY 4,272.67 881,591.00 0.00 INVESTEC SECURITIES LTD, JOHANNESBURG 4,116.67 1,619,527.00 0.00 CLSA SINGAPORE PTE LTD (CHV), SINGAPORE 179.56 36,627.00 0.00 INVESTMENT TECH GROUP INC, NEW YORK 8,700.79 480,553.00 0.02 CONVENCAO S/A CORRETORA DE, SAO PAULO 1,189.79 149,829.00 0.01 INVESTMENT TECHNOLOGY GROUP LTD, DUBLIN 58,718.16 10,786,547.00 0.01 CONVERGEX EXECUTION SOLUTION, NEW YORK 199.38 9,969.00 0.02 ISI GROUP INC, NEW YORK 15,899.37 1,091,233.00 0.01 CONVERSTONE MACRO LLC, NEW YORK 15,109.23 1,1617,014.00 0.02 ITG AUSTRALIA LTD, MELBOURNE 43,710.51 40,249,964.00 0.00 COWEN AND CO LLC, NEW YORK 15,109.23 1,1617,014.00 0.01 ITG CANADA CORP, TORONTO 9,176.23 1,528,549.00 0.01 COWEN AND COMPANY, LLC, JERSEY CITY 5,769.25 173,050.00 0.03 ITG HONG KONG LIMITED, HONG KONG 1,005								
CITIGROUP GBL MKTS/SALOMON, NEW YORK 26,348.88 12,312,894.00 0.00 INVESTEC HENDERSON CROSTHWAITE,LONDON 2,319.74 290,513.00 0.01 CITIGROUP GLOBAL MARKETS LTD, LONDON 191,540.54 35,855,200.00 0.01 INVESTEC SECURITIES (331), LONDON 4,908.97 703,942.00 0.01 CLSA AUSTRALIA PTY LTD, SYDNEY 4,272.67 881,591.00 0.00 INVESTEC SECURITIES LTD, JOHANNESBURG 4,116.67 1,619,527.00 0.00 CLSA SINGAPORE PTE LTD (CHV), SINGAPORE 179.56 36,627.00 0.00 INVESTMENT TECH GROUP INC, NEW YORK 8,700.79 480,553.00 0.02 CONVENCAO S/A CORRETORA DE, SAO PAULO 1,189.79 149,829.00 0.01 INVESTMENT TECH GROUP INC, NEW YORK 15,899.37 109,1233.00 0.01 CONVERGEX EXECUTION SOLUTION, NEW YORK 199.38 9,969.00 0.02 ISI GROUP INC, NEW YORK 15,899.37 10,91,233.00 0.01 CORNERSTONE MACRO LLC, NEW YORK 2,936.73 137,168.00 0.02 ITG AUSTRALIA LTD, MELBOURNE 43,710.51 40,249,964.00 0.00 COWEN AND CO LLC, NEW YORK 15,109.23 1,167,014.00 0.01 ITG CANADA CORP, TORONTO 9,176.23 1,528,549.00 0.01 COWEN AND COMPANY, LLC, JERSEY CITY 5,769.25 173,050.00 0.03 ITG HONG KONG LIMITED, HONG KONG 9,648.28 176,079.00 0.05	1				·			
CLSA AUSTRALIA PTY LTD, SYDNEY         4,272.67         881,591.00         0.00         INVESTEC SECURITIES LTD, JOHANNESBURG         4,116.67         1,619,527.00         0.00           CLSA SINGAPORE PTE LTD (CHV), SINGAPORE         179.56         36,627.00         0.00         INVESTMENT TECH GROUP INC, NEW YORK         8,700.79         480,553.00         0.02           CONVENCAO S/A CORRETORA DE, SAO PAULO         1,89.79         149,829.00         0.01         INVESTMENT TECHNOLOGY GROUP LTD, DUBLIN         58,718.16         10,786,547.00         0.01           CONVERGEX EXECUTION SOLUTION, NEW YORK         199.38         9,969.00         0.02         ISI GROUP INC, NEW YORK         15,899.37         1,091,233.00         0.01           CORNERSTONE MACRO LLC, NEW YORK         2,936.73         137,168.00         0.02         ITG AUSTRALIA LTD, MELBOURNE         43,710.51         40,249,964.00         0.00           COWEN AND CO LLC, NEW YORK         15,109.23         1,167,014.00         0.01         ITG CANADA CORP, TORONTO         9,176.23         1,528,549.00         0.01           COWEN AND COMPANY, LLC, JERSEY CITY         5,769.25         173,050.00         0.03         ITG HONG KONG LIMITED, HONG KONG         9,648.28         176,079.00         0.05								
CLSA SINGAPORE PTE LTD (CHV), SINGAPORE       179.56       36,627.00       0.00       INVESTMENT TECH GROUP INC, NEW YORK       8,700.79       480,553.00       0.02         CONVENCAO S/A CORRETORA DE, SAO PAULO       1,189.79       149,829.00       0.01       INVESTMENT TECHNOLOGY GROUP LTD, DUBLIN       58,718.16       10,786,547.00       0.01         CONVERGEX EXECUTION SOLUTION, NEW YORK       199.38       9,969.00       0.02       ISI GROUP INC, NEW YORK       15,899.37       1,091,233.00       0.01         CORNERSTONE MACRO LLC, NEW YORK       2,936.73       137,168.00       0.02       ITG AUSTRALIA LTD, MELBOURNE       43,710.51       40,249,964.00       0.00         COWEN AND CO LLC, NEW YORK       15,109.23       1,167,014.00       0.01       ITG CANADA CORP, TORONTO       9,176.23       1,528,549.00       0.01         COWEN AND COMPANY, LLC, JERSEY CITY       5,769.25       173,050.00       0.03       ITG HONG KONG LIMITED, HONG KONG       9,648.28       176,079.00       0.05								
CONVENCAO S/A CORRETORA DE, SAO PAULO         1,189.79         149,829.00         0.01         INVESTMENT TECHNOLOGY GROUP LTD, DUBLIN         58,718.16         10,786,547.00         0.01           CONVERGEX EXECUTION SOLUTION, NEW YORK         199.38         9,969.00         0.02         ISI GROUP INC, NEW YORK         15,899.37         1,091,233.00         0.01           CORNERSTONE MACRO LLC, NEW YORK         2,936.73         137,168.00         0.02         ITG AUSTRALIA LTD, MELBOURNE         43,710.51         40,249,964.00         0.01           COWEN AND CO LLC, NEW YORK         15,109.23         1,167,014.00         0.01         ITG CANADA CORP, TORONTO         9,176.23         1,528,549.00         0.01           COWEN AND COMPANY, LLC, JERSEY CITY         5,769.25         173,050.00         0.03         ITG HONG KONG LIMITED, HONG KONG         9,648.28         176,079.00         0.05								
CONVERGEX EXECUTION SOLUTION, NEW YORK         199.38         9,969.00         0.02         ISI GROUP INC, NEW YORK         15,899.37         1,091,233.00         0.01           CORNERSTONE MACRO LLC, NEW YORK         2,936.73         137,168.00         0.02         ITG AUSTRALIA LTD, MELBOURNE         43,710.51         40,249,964.00         0.00           COWEN AND CO LLC, NEW YORK         15,109.23         1,167,014.00         0.01         ITG CANADA CORP, TORONTO         9,176.23         1,528,549.00         0.01           COWEN AND COMPANY, LLC, JERSEY CITY         5,769.25         173,050.00         0.03         ITG HONG KONG LIMITED, HONG KONG         9,648.28         176,079.00         0.05	1							
CORNERSTONE MACRO LLC, NEW YORK         2,936.73         137,168.00         0.02         ITG AUSTRALIA LTD, MELBOURNE         43,710.51         40,249,964.00         0.00           COWEN AND CO LLC, NEW YORK         15,109.23         1,167,014.00         0.01         ITG CANADA CORP, TORONTO         9,176.23         1,528,549.00         0.01           COWEN AND COMPANY, LLC, JERSEY CITY         5,769.25         173,050.00         0.03         ITG HONG KONG LIMITED, HONG KONG         9,648.28         176,079.00         0.05								
COWEN AND CO LLC, NEW YORK 15,109.23 1,167,014.00 0.01 ITG CANADA CORP, TORONTO 9,176.23 1,528,549.00 0.01 COWEN AND COMPANY, LLC, JERSEY CITY 5,769.25 173,050.00 0.03 ITG HONG KONG LIMITED, HONG KONG 9,648.28 176,079.00 0.05								
	COWEN AND CO LLC, NEW YORK	15,109.23	1,167,014.00	0.01	ITG CANADA CORP, TORONTO	9,176.23		0.01
CKAIG HALLUM, NEW YURK 3,160.19 106,613.00 0.03 ITG INC, NEW YORK 16,023.56 1,766,441.00 0.01								
	CKAIG HALLUM, NEW YORK	3,160.19	106,613.00	0.03	ITG INC, NEW YORK	16,023.56	1,766,441.00	0.01

## SCHEDULE OF BROKERAGE COMMISSIONS (Continued) FOR THE FISCAL YEAR ENDED JUNE 30, 2018

Broker Name	\$ Commissio	Shares/ n Par Value	Avg Comm	Broker Name	\$ Commission	Shares/ Par Value	Avg Comm
ITG INC, NY	8,967.40	1,695,586.00	0.01	NOMURA SECS INTL, LONDON	9.28	1,100.00	0.01
J & E DAVY, DUBLIN	3,331.04	390,777.00	0.01	NORDEA BK PLC, HELSINKI (NDEAFIHH030)	1,157.82	679,274.00	0.00
J P MORGAN SEC LTD/STOCK LENDING, LONDON	2,682.35 2.632.06	397,710.00	0.01 0.00	NORTHERN TR CO INC, CHICAGO	95.74	6,160.00	0.02
J P MORGAN SEC, SYDNEY J P MORGAN SECS LTD, LONDON	121,955.08	599,238.00 15,668,742.00	0.00	NORTHLAND SECURITIES INC., NEW YORK NUMIS SECURITIES INC., NEW YORK	693.18 990.04	21,776.00 84,278.00	0.03 0.01
J.P MORGAN SECURITIES INC, NEW YORK	10,684.27	461,127.00	0.02	NUMIS SECURITIES LTD, LONDON	3,727.26	707,524.00	0.01
J.P. MORGAN CLEARING CORP, NEW YORK	125,610.45	7,872,069.00	0.02	O NEIL WILLIAM CO INC BCC CLRG, NEW YORK	1,911.40	65,157.00	0.03
J.P. MORGAN SECURITIES, HONG KONG	39,856.16	25,357,268.00	0.00	ODDO ET CIE, PARIS	542.51	11,102.00	0.05
JANNEY MONTGOMERY SCOTT, PHILADELPHIA	1,988.70 120.438.95	45,740.00	0.04 0.01	OKASAN INTERNATIONAL (ASIA), HONG KONG	363.38	16,600.00	0.02
JEFFERIES & CO INC, NEW YORK JEFFERIES & CO LTD, LONDON	35,241.37	11,440,190.00 21,104,600.00	0.00	OPPENHEIMER & CO INC, NEW YORK PANMURE GORDON & CO LTD, LONDON	8,577.11 1,668.35	231,452.00 363,470.00	0.04 0.00
JEFFERIES HONG KONG LIMITED, HONG KONG	2,808.43	4,518,700.00	0.00	PAREL, PARIS	4,620.75	283,534.00	0.02
JONESTRADING INST SVCS LLC, NEW YORK	18,105.10	670,750.00	0.03	PEEL HUNT LLP, LONDON	2,516.49	1,329,885.00	0.00
JP MORGAN SECS (FAR EAST) LTD, SEOUL	1,735.94	45,308.00	0.04	PENSERRA SECURITIES, NEW YORK	7,420.27	652,104.00	0.01
JP MORGAN SECS, SINGAPORE	28,692.38	75,430,164.00	0.00 0.02	PEREGRINE SECS PHILIPPINES INC, MANILA	313.74	195,540.00	0.00
JPMORGAN CHASE BANK/ECLR BANK, NEW YORK JPMORGAN SECURITIES INC, NEW YORK	10,322.44 79,544.76	444,819.00 17,060,884.00	0.02	PERSHING LLC, JERSEY CITY PERSHING SECS AUSTRALIA PTY LTD, SYDNEY	204,447.74 39.83	10,631,740.00 15,601.00	0.02 0.00
KAS BANK NV, AMSTERDAM	327.52	29,544.00	0.01	PERSHING SECURITIES LTD, LONDON	14,721.09	2,510,160.00	0.01
KEB SALOMON SMITH BARNEY SECS, SEOUL	38,991.39	2,006,955.00	0.02	PIPER JAFFRAY & CO., JERSEY CITY	8,350.85	274,663.00	0.03
KEEFE BRUYETTE + WOODS INC, NEW YORK	3,551.30	104,159.00	0.03	PIPER JAFFRAY & CO, MINNEAPOLIS	1,922.70	58,945.00	0.03
KEPLER EQUITIES, PARIS	4,176.19 6.895.69	110,519.00	0.04	PT OSK NUSADANA SECS INDONESIA, JAKARTA	100.80	217,500.00	0.00
KEYBANC CAPITAL MARKETS INC, NEW YORK KEYBANC CAPITAL MARKETS INC, NEW YORK	6,895.69 4,410.56	189,022.00 162,831.00	0.04 0.03	RAYMOND JAMES & ASSOC INC, ST PETERSBURG RBC CAPITAL MARKETS LLC, NEW YORK	32,719.06 43,118.66	1,147,491.00 2,419,262.00	0.03 0.02
KING (CL) & ASSOCIATES, ALBANY	27,367.55	873,723.00	0.03	RBC DOMINION SECS INC, TORONTO (DOMA)	6,374.30	361,541.00	0.02
KNIGHT CAPITAL EUROPE LTD, LONDON	2,888.81	759,739.00	0.00	REDBURN PARTNERS LLP, LONDON	2,115.11	702,348.00	0.00
KNIGHT EQUITY MARKETS LP, NEW YORK	3.34	167.00	0.02	RENAISSANCE CAPITAL LTD, LONDON	12,660.56	679,177.00	0.02
KOREA INVESTMENT AND SEC CO.LTD,SEOUL	1,080.08	35,283.00	0.03	RENAISSANCE SECS (CYPRUS) LTD, NICOSIA	125.02	9,442.00	0.01
LARRAIN VIAL, SANTIAGO LEERINK SWANN AND COMPANY, NEW YORK	2,236.40 1,833.27	7,702,753.00 53,214.00	0.00	RENCAP SECURITIES INC, NEW YORK ROTH CAPITAL PARTNERS LLC, NEW YORK	719.57 528.65	45,762.00 21,890.00	0.02 0.02
LIBERUM CAPITAL INC, NEW YORK	7,406.14	487,804.00	0.02	ROYAL BANK OF CANADA EUROPE LTD, LONDON	986.99	56,635.00	0.02
LIQUIDNET CANADA INC, TORONTO	4,262.17	268,126.00	0.02	ROYAL TR CORP OF CDA/GBL CUSTODY, LONDON	684.05	126,376.00	0.01
LIQUIDNET EUROPE LIMITED, LONDON	544.20	7,312.00	0.07	S G WARBURG, SEOUL	3,297.96	30,005.00	0.11
LIQUIDNET INC, NEW YORK	28,090.85	1,365,385.00	0.02	SANDLER ONEILL AND PARTNER LP, NEW YORK	3,592.72	237,750.00	0.02
LIQUIDNET INC, NEW YORK LONGBOW SECURITIES LLC, NEW YORK	21.01 588.91	1,681.00 13,504.00	0.01 0.04	SANFORD C BERNSTEIN & CO INC, LONDON SANTANDER CENTRAL HISPANO INVT, MADRID	7,464.50 176.75	1,479,486.00 188,270.00	0.01 0.00
LOOP CAPITAL MARKETS, JERSEY CITY	2,512.78	101,177.00	0.02	SANTANDER INVESTMENT SECS, JERSEY CITY	576.40	28,820.00	0.00
MACQUARIE BANK LIMITED, SYDNEY	4,345.40	2,687,313.00	0.00	SCB SECURITIES CO LTD, BANGKOK	245.45	367,500.00	0.00
MACQUARIE BANK LTD, HONG KONG		138,738,412.01	0.00	SCOTIA CAPITAL (USA) INC, NEW YORK	2,528.25	261,456.00	0.01
MACQUARIE BANK LTD, SYDNEY	481.89	433,209.00	0.00	SCOTIA CAPITAL INC, NEW YORK	155.17	92,457.00	0.00
MACQUARIE CAPITAL (USA) INC., NEW YORK MACQUARIE CAPITAL LTD, LONDON	399.17 2,469.09	25,839.00 659,737.00	0.02 0.00	SCOTIA CAPITAL MKTS, TORONTO SEAPORT GROUP SECURITIES, LLC, NEW YORK	3,742.27 5,217.75	206,890.00 254,014.00	0.02 0.02
MACQUARIE SECS (SINGAPORE), SINGAPORE	562.75	244,200.00	0.00	SG AMERICAS SECURITIES LLC, NEW YORK	1,530.88	91,287.00	0.02
MACQUARIE SECS USA INC, NEW YORK	1,689.59	48,213.00	0.04	SG SEC (LONDON) LTD, LONDON	48,928.47	8,704,341.00	0.01
MACQUARIE SECURITIES LTD, AUCKLAND	321.38	74,238.00	0.00	SG SECURITIES, HONG KONG		21,371,819.00	0.00
MACQUARIE SECURITIES LTD, SEOUL	24,543.79	406,889.00	0.06	SHENYIN WANGUO SECS LTD, HONG KONG	794.42	770,900.00	0.00
MAINFIRST BANK AG, FRANKFURT AM MAIN MAXIM GROUP, JERSEY CITY	634.79 323.76	10,008.00 10,392.00	0.06 0.03	SHORE CAPITAL STOCKBROKERS, LONDON SIDOTI AND COMPANY LLC, NEW YORK	306.54 1,865.36	17,669.00 53,970.00	0.02 0.03
MAYBANK INV BANK BERHAD, KUALA LUMPUR	1,188.33	318,000.00	0.00	SINGER CAPITAL MARKETS LTD, LONDON	379.98	30,000.00	0.03
MEDIOBANCA SPA, MILANO	1,362.81	78,598.00	0.02	SKANDINAVISKA ENSKILDA BANKEN, COPENHAGE	469.45	11,195.00	0.04
MERRILL LYNCH (SINGAPORE) PTE LTD	459.02	660,000.00	0.00	SKANDINAVISKA ENSKILDA BANKEN, LONDON	1,603.17	52,850.00	0.03
MERRILL LYNCH & CO INC ATLAS GLOBAL, NY	1,601.56	255,455.00	0.01	SKANDINAVISKA ENSKILDA BANKEN, STOCKHOLM	16,563.14	760,398.00	0.02
MERRILL LYNCH BROADCOURT CAP, NEW YORK MERRILL LYNCH GILTS LTD, LONDON	14.34 19,663.95	1,912.00 6,743,982.00	0.01 0.00	SMBC NIKKO SECURITIES LTD, WAN CHAI SMBC SECURITIES, INC NEW YORK	463.24 4,393.98	24,200.00 253,000.00	0.02 0.02
MERRILL LYNCH INTL (2L), LONDON	48.83	70,101.00	0.00	SOCIETE GENERALE LONDON BRANCH, LONDON	35,938.26	7,520,379.00	0.02
MERRILL LYNCH INTL LONDON EQUITIES	183,180.86	74,884,848.00	0.00	SOUTHWEST SECURITIES INC, NEW YORK	3,783.50	108,100.00	0.04
MERRILL LYNCH PIERCE FENNER SMITH INC NY	204,983.55	22,321,499.00	0.01	STANDARD BANK, LONDON	14,758.64	2,211,376.00	0.01
MERRILL LYNCH PIERCE FENNER, WILMINGTON	32,817.39	6,225,930.00	0.01	STATE STREET GLOBAL MARKETS LLC, BOSTON	876.93	77,393.00	0.01
MERRILL LYNCH PROFESSIONAL CLRG, PURCHAS MERRILL LYNCH SA CVTM, SAO PAULO	341.97 2,214.12	9,838.00 279,000.00	0.03 0.01	STEPHENS INC, LITTLE ROCK STIFEL NICOLAUS	17,325.44 28,857.13	543,938.00 1,164,367.00	0.03 0.02
MERRILL LYNCH, SYDNEY	0.24	338.00	0.00	STRATEGAS SECURITIES LLC, NEW YORK	82.00	3,280.00	0.02
MIRAE ASSET SECURITIES, SEOUL	2,007.62	56,207.00	0.04	STURDIVANT & CO INC, BROOKLYN	2,132.91	76,144.00	0.03
MISCHLER FINANCIAL GROUP INC, NEW YORK	3,380.39	126,692.00	0.03	SUNTRUST CAPITAL MARKETS INC, NEW YORK	6,883.09	218,724.00	0.03
MITSUBISHI UFJ SECS INTL PLC, LONDON MITSUBISHI UFJ SECURITIES. NEW YORK	389.67	16,800.00	0.02	SVENSKA HANDELSBANKEN, STOCKHOLM	1,715.85	94,727.00	0.02
MIZUHO SECURITIES ASIA, HONG KONG	13,059.19 56.58	1,529,300.00 1,300.00	0.01 0.04	TD SECURITIES (USA) LLC, NEW YORK TELSEY ADVISORY GROUP LLC, DALLAS	153.24 2,747.79	3,831.00 104,027.00	0.04 0.03
MIZUHO SECURITIES USA INC. NEW YORK	7,075.06	874,924.00	0.04	TONG YANG SECURITIES INC, SEOUL	1,521.26	21,475.00	0.03
MIZUHO SECURITIES USA INC, NEW YORK	121.62	3,644.00	0.03	TORONTO DOMINION SEC, TORONTO	3,629.49	239,782.00	0.02
MKM PARTNERS LLC, GREENWICH	64.25	2,570.00	0.03	UBS EQUITIES, LONDON	5,622.72	5,219,853.00	0.00
MORGAN STANLEY & CO INC, NY	267,288.96	41,768,683.00	0.01	UBS SECS SINGAPORE PTE LTD	1,416.97	386,600.00	0.00
MORGAN STANLEY & CO INTL LTD, SEOUL MORGAN STANLEY & CO, LONDON (MSLNGB2X)	10,983.18 67,118.15	96,075.00 66,388,874.02	0.11 0.00	UBS SECURITIES CANADA, TORONTO (BWIT) UBS SECURITIES HONG KONG LTD, HONG KONG	2,718.02 17.78	164,012.00 150,400.00	0.02 0.00
MORGAN STANLEY & CO, LONDON (MSLNGB2X) MORGAN STANLEY DEAN WITTER, SYDNEY	247.04	589,647.00	0.00	UBS SECURITIES HONG KONG LTD, HONG KONG UBS SECURITIES LLC, STAMFORD	61,763.22	4,919,623.00	0.00
NATIONAL FINANCIAL SERVICES LLC, BOSTON	130.48	159,841.00	0.00	UBS WARBURG ASIA LTD, HONG KONG		22,807,598.00	0.00
NATIONAL FINL SVCS CORP, NEW YORK	151,031.99	18,885,323.00	0.01	UBS WARBURG AUSTRALIA EQUITIES, SYDNEY	187.87	77,838.00	0.00
NEEDHAM AND CO LLC, NEW YORK	5,165.78	164,063.00	0.03	UBS WARBURG, LONDON		12,720,241.00	0.01
NESBITT BURNS, TORONTO (NTDT) NOMURA FINANCIAL & INVESTMENT, SEOUL	2,066.84 3,199.80	134,487.00 300,782.00	0.02 0.01	UNION BANK SWITZERLAND SECS, LONDON VIRTU AMERICAS LLC, JERSEY CITY	711.98 320.27	4,223,000.00	0.00 0.02
INOMIGINAT MANUAL & MAYESTIVIENT, SECUL	3, 138.00	300,762.00	0.01	VINTO AIVIERIDAS LLO, JERSET CITT	320.27	15,785.00	0.02

### SCHEDULE OF BROKERAGE COMMISSIONS (Continued) FOR THE FISCAL YEAR ENDED JUNE 30, 2018

TOTAL	\$5,313,335.94		
YAMNER & COMPANY INC, JERSEY CITY	2,022.90	202,290.00	0.01
WOORI INVESTMENT & SECURITIES, SEOUL	615.22	1,077.00	0.57
WOOD & COMPANY, PRAGUE	10,311.14	597,756.00	0.02
WOLFE TRAHAN SECURITIES, NEW YORK	10,427.00	336,477.00	0.03
WILLIAMS CAPITAL GROUP LP, JERSEY CITY	292.98	15,716.00	0.02
WILLIAM BLAIR & CO, CHICAGO	19,584.72	575,115.00	0.03
WELLS FARGO SECURITIES, LLC, NEW YORK	8,022.76	296,236.00	0.03
WELLS FARGO SECURITIES LLC, CHARLOTTE	7,708.19	244,445.00	0.03
WEEDEN & CO, NEW YORK	39,433.42	2,093,879.00	0.02
WEEDEN & CO, GREENWICH	826.91	50,389.00	0.02
WEDBUSH MORGAN SECS INC, LOS ANGELES	5,484.22	195,408.00	0.03
VTB BANK EUROPE PLC, LONDON	255.98	5,039.00	0.05
VIRTU FINANCIAL IRELAND LIMITED, DUBLIN	3.53	6,853.00	0.00
VIRTU FINANCIAL IRELAND LIMITED, DUBLIN	234.72	99,985.00	0.00
Broker Name	Commission	Par Value	Comm
	\$	Shares/	Avg

# COMBINED INVESTMENT FUNDS TOTAL NET POSITION VALUE BY PENSION PLANS AND TRUST FUNDS JUNE 30, 2018

Retirement Funds	Net Position Value
Teachers' Retirement Fund	\$17,936,759,675
State Employees' Retirement Fund	12,506,984,183
Municipal Employees' Retirement Fund	2,627,388,953
State Judges' Retirement Fund	222,747,722
The Probate Court Retirement Fund	99,880,918
State's Attorneys' Retirement Fund	1,932,098
Non-retirement Trust Funds	
Soldiers' Sailors' & Marines' Fund	\$76,118,843
Police & Fireman's Survivors' Benefit Fund	34,619,821
Connecticut Arts Endowment Fund	20,060,490
School Fund	11,667,990
Ida Eaton Cotton Fund	2,588,598
Hopemead State Park Fund	3,891,632
Andrew C. Clark Fund	1,217,385
Agricultural College Fund	639,981
OPEB Fund	845,559,505
TOTAL	\$34,392,057,794

## SCHEDULE OF NET POSITION BY INVESTMENT FUND JUNE 30, 2018

LIQUIDITY FUND	ALTERNATIVE INVESTMENT FUND	MUTUAL EQUITY FUND			EMERGING MARKET DEBT FUND
\$ -	\$35,135,304	\$134,326,137	\$173,148,830	\$30,658,190	\$72,030,870
827,720,976	-	-	11,273,539	1,134,618	6,461,890
-	-	-	256,333,884	(600,841)	3,479,670
3,726,674	-	-	930,148,285	1,329,441,771	1,326,725,762
33,556,572	-	-	611,839,237	-	-
-	-	-	332,454,879	-	-
1,138,817,652	-	-	944,651,219	21,782,997	353,637,757
-	-	-	-	-	-
-	-	7,416,249,240	-	-	-
-	-	-	4,031,714	-	-
-	-	207,488,810	17,685,480	-	-
on -	-	-	-	-	-
-	-	-	10,996,186	-	82,206,860
-	-	-	-	-	-
-	-	-	-	-	-
	2,387,601,795	1,948,495			
2,003,821,874	2,422,737,099	7,760,012,682	3,292,563,253	1,382,416,735	1,844,542,809
1,283	39,683	4,624	17,704,313	11,036,897	30,116,330
-	-	-	257,296,346	647,937,290	579,632,985
2,806,423	69,142	218,459	16,361,522	5,652,807	36,330,356
-	· -	·	-	-	-
-	-	14,174,999	102,013,412	13,875,685	8,386,757
-	_	· · ·			351,043
-	-	396,625	49,698	60,714	27,396
-	_	(51,077)	-		(172,691)
2,806,423	69,142	20,996,189	375,816,712	667,550,404	624,555,846
-	-	883,208,392	166,157,885	412,231,077	38,667,975
-	-	-	-	-	-
2 006 620 580	2 422 845 024	9 664 221 997	3 952 242 163	2 472 225 112	2,537,882,960
2,000,029,000	2,422,040,924	0,004,221,007	3,032,242,103	2,470,200,110	2,007,002,900
-	-	-	255,727.512	648,247,002	583,886,926
99.995	_	21.726.013		, ,	11,881,424
	_	-	-	-	-
3,235.233		21,726.013	567,127.648	661,063.053	595,768,350
-,,	-				38,667,975
213.495	195.880				1,935,300
3,448,728		909,324,790			636,371,625
		\$7,754,897,097			\$1,901,511,335
2,066,711,393	1,897,245,550	3,652,993	23,898,786	8,691,004	11,111,573
2,066,711,393	1,897,245,550	3,652,993	23,898,786	8,691,004	11,111,5/3
	\$ - 827,720,976	\$\frac{1}{827,720,976} \ \text{\$35,135,304} \ \text{827,720,976} \ \text{\$35,135,304} \ \text{\$35,135,806,572} \ \text{\$-\$} \ \$	LIQUIDITY FUND	\$ - \$35,135,304 \$134,326,137 \$173,148,830 827,720,976 - 11,273,539 - 256,333,884 3,726,674 - 930,148,285 33,556,572 - 618,892,275 - 944,651,219 - 7,416,249,240 - 4,031,714 - 207,488,810 17,685,480 and a series of the series of	LIQUIDITY FUND FUND FUND FIXED INCOME FUND FUND FUND FUND FUND FUND FUND FUND

## SCHEDULE OF NET POSITION BY INVESTMENT FUND (Continued) JUNE 30, 2018

	STOCK FUND	STOCK FUND	REAL L ESTATE FUND	PRIVATE INVESTMENT FUND	ELIMINATION ENTRY	TOTAL	
					• / ·		
\$54,241,116	\$549,786,248	\$75,326,025	\$72,231,674	\$97,093,136	\$(1,293,977,530)		
(43,135)	1,802,404	-	-	-	-	848,350,292	
983,038	-	-	-	-	-	260,195,751	
71,791,412	-	-	-	-	-	3,661,833,904	
_	_	_	-	_	_	645,395,809	
744,965	_	_	_	_	_	333,199,844	
1,825,367,897	_	_	_	_		4,284,257,522	
31,231,555	_	_	_	_	_	31,231,555	
	E 001 677 156	1 016 121 261	_	-	_		
66,621,828	5,884,677,156	1,816,424,361	-	-	-	15,183,972,585	
15,030,330	19,393,950	8,842,574	-	-	-	47,298,568	
43,595,207	59,180,688	-	-	-	-	327,950,185	
-	-	-	-	-	-	-	
-	557,087,489	878,969,564	-	-	-	1,529,260,099	
-	-	-	-	1,156,486	-	1,156,486	
-	-	-	-	-	-	-	
	-		2,210,907,863	2,614,115,534		7,214,573,687	
2,109,564,213	7,071,927,935	2,779,562,524	2,283,139,537	2,712,365,156	(1,293,977,530	34,368,676,287	
1,510,293	30,469,974	153,421	2,216,589	12,785,781	(1,283)	106,037,905	
27,347,957	7,949,523,412	7,632,402	_		818,357	9,470,188,749	
			07 110	116 575	,		
32,151,966	523,633	122,965	97,118	116,575	(2,806,423)	91,644,543	
1,196,746	10,593,098	12,638,128	-	-	-	30,685,155	
12,957,757	7,738,647	5,097,321	-	-	-	164,244,578	
715	18,176,146	261,163	-	-	-	18,949,920	
339,888	319,621	125,297	-	-	-	1,319,239	
-	(1,862,308)	(39,612)	-	-	-	(2,166,899)	
73,995,029	7,985,012,249	25,837,664	97,118	116,575	(1,988,066)	9,774,865,285	
577,176,107	98,303,198	429,343,816	-	-	-	2,605,088,450	
-	-	-	-	-	-	-	
<u> </u>	<u> </u>	<u> </u>	<u> </u>	1,073,767		1,073,767	
2,762,245,642	15,185,713,356	3,234,897,425	2,285,453,244	2,726,341,279	(1,295,966,879)	46,855,741,694	
27,261,262	7,920,446,372	7,643,845	-	-	-	9,443,212,919	
24,018,251	8,405,749	7,079,783	-	-	(99,995)	397,327,407	
-	-	-	-	-	(1,751,322)	1,383,916	
51,279,513	7,928,852,121	14,723,628		-	(1,851,317)	9,841,924,242	
577,176,107	98,303,198	429,343,816	_	_	(1,001,017)	2,605,088,450	
1,959,353	5,815,061	(164,745)	400 70E	225 470	(127 06F)	16,671,208	
630,414,973	8,032,970,380	443,902,699	422,725 422,725	235,478 235,478	(137,865) (1,989,182)	12,463,683,900	
030,414,973	0,032,970,360	443,902,099	422,723	233,476	(1,969,162)	12,403,063,900	
\$2,131,830,669	\$7,152,742,976	\$2,790,994,726	\$2,285,030,519	\$2,726,105,801	\$(1,293,977,69	7) 34,392,057,794	
13,418,104	12,499,233	6,319,081	38,990,437	30,035,584	-	-	
\$158.88	\$572.25	\$441.68	\$58.60	\$90.76		_	
Ψ130.00	φυι Ζ.Ζυ	φ44 1.00	φυσ.συ	φσυ.10		-	

### SCHEDULE OF CHANGES IN NET POSITION BY INVESTMENT FUND FOR THE FISCAL YEAR ENDED JUNE 30, 2018

	LIQUIDITY FUND	ALTERNATIVE INVESTMENT FUND	MUTUAL EQUITY FUND	CORE FIXED INCOME FUND	INFLATION LINKED BOND FUND	EMERGING MARKET DEBT FUND
ADDITIONS						
OPERATIONS						
Investment Income	Φ.	Φ7.00F.000	<b>0400 447 054</b>	Φ.	<b>#0.070</b>	
Dividends Interest	\$ - 53,715,722	\$7,805,080 2,633,636	\$126,447,951	\$ - 65.069.370	\$2,872 4,125,637	121 060 210
Other Income	55,715,722	2,033,030	1,537,886 1,197,691	65,968,279 1,183,335	4,125,057	121,969,219 751,367
Securities Lending	-	-	15,749,816	4,646,032	4,713,966	853,274
Total Income	53,715,722	10,438,716	144,933,344	71,797,646	8,842,475	123,573,860
Evnence						
Expenses Investment Advisory Fees	2,296,629	_	15,772,324	3,349,330	2,418,901	7,076,439
Custody and Transfer Agent Fees	419,432	164,310	656,291	197,146	124,607	163,322
Professional Fees	97,749	680,974	287,984	66,944	78,754	53,661
Security Lending Fees	01,140	-	501,658	100,801	67,593	37,986
Security Lending Rebates	_	_	10,733,238	3,635,445	4,038,033	473,412
Investment Expenses	3,747	45,512	4,524	44,450	799,007	614,703
Total Expenses	2,817,557	890,796	27,956,019	7,394,116	7,526,895	8,419,523
		,				· · ·
Net Investment Income	50,898,165	9,547,920	116,977,325	64,403,530	1,315,580	115,154,337
Net Increase (Decrease) in the Fair Val of Investments and Foreign Current		99,010,481	872,193,040	(81,735,749)	41,231,309	(162,693,302)
Net Increase (Decrease) in Net Position Resulting from Operations	50,574,911	108,558,401	989,170,365	(17,332,219)	42,546,889	(47,538,965)
Unit Transactions Purchase of Units by Participants	14,804,261,716	1,023,676,633	122,950,325	2,045,154,431	29,212,312	353,270,812
TOTAL ADDITIONS	14,854,836,627	1,132,235,034	1,112,120,690	2,027,822,212	71,759,201	305,731,847
DEDUCTIONS Administrative Expenses: Salary and Fringe Benefits	(344,959)	(486,558)	(1,004,964)	(239,056)	(158,756)	(214,341)
Distributions to Unit Owners:						
Income Distributed	(50,572,924)	-	-	-	-	-
Unit Transactions Redemption of Units by Participants	(15,720,180,463)	(737,054,932)	(378,349,332)	(1,362,351,366)	(16,150,000)	(41,187,186)
TOTAL DEDUCTIONS	(15,771,098,346)	(737,541,490)	(379,354,296)	(1,362,590,422)	(16,308,756)	(41,401,527)
Change in Net Position Held in Trust						
for Participants	(916,261,719)	394,693,544	732,766,394	665,231,790	55,450,445	264,330,320
Net Position- Beginning of Period	2,919,442,571		7,022,130,703	2,452,383,490	1,344,025,747	1,637,181,015
Net Position- End of Period	\$2,003,180,852				\$1,399,476,192	\$1,901,511,335
Other Information: Units						
Purchased	15,284,824,485	829,564,849	58,999	15,650,528	176,840	1,949,265
Redeemed	(16,229,855,741)		(201,778)	(10,363,496)	(100,124)	(234,454)
Net Increase (Decrease)	(945,031,256)	227,281,688	(142.779)	5,287,032	76,716	1,714,811
7131 1131 3433 (3301 3435)	(0.10,001,200)	221,201,000	(172,170)	5,201,002	70,710	1,, 14,011

## SCHEDULE OF CHANGES IN NET POSITION BY INVESTMENT FUND (Continued) FOR THE FISCAL YEAR ENDED JUNE 30, 2018

HIGH YIELD- DEBT FUND	DEVELOPED MARKET INTERNATIONAL STOCK FUND	EMERGING MARKET INTERNATIONA STOCK FUND	REAL L ESTATE FUND	PRIVATE INVESTMENT FUND	ELIMINATION ENTRY	TOTAL	
\$6,757,662 129,714,760 2,151,701	\$190,477,094 3,053,158 116,397	\$70,155,533 1,236,661 97,065	\$91,018,808 2,815,546	\$48,974,540 5,675,165 3,616	\$ - (26,691,601) -	\$541,639,540 365,754,068 5,501,172	
9,159,455 147,783,578	4,906,339 198,552,988	3,768,109 75,257,368	93,834,354	54,653,321	(26,691,601)	43,796,991 956,691,771	
147,700,070	100,002,000	70,207,000	00,004,004	04,000,021	(20,001,001)	000,001,771	
7,408,647 179,772 71,538 405,524	24,221,682 661,288 249,855 279,357	12,571,177 344,059 115,089 107,406	6,850,149 280,249 422,695	942,012 323,381 1,681,883	(1,141,206) (208,418) (48,572)	81,766,084 3,305,439 3,758,554 1,500,325	
5,104,220	2,112,767	2,694,054	-	-	-	28,791,169	
94,233	113,821	1,185,654	884,395	5,044,615	(1,862)	8,832,799	
13,263,934	27,638,770	17,017,439	8,437,488	7,991,891	(1,400,058)	127,954,370	
134,519,644	170,914,218	58,239,929	85,396,866	46,661,430	(25,291,543)	828,737,401	
(81,543,783)	238,467,080	96,282,068	126,356,745	336,154,690	1,260,125	1,484,659,450	
52,975,861	409,381,298	154,521,997	211,753,611	382,816,120	(24,031,418)	2,313,396,851	
64,936,312	373,709,523	8,972,708	61,076,136	12,430,605	(11,596,633,059)	7,303,018,454	
117,912,173	783,090,821	163,494,705	272,829,747	395,246,725	(11,620,664,477)	9,616,415,305	
(227,544)	(701,812)	(314,641)	(280,048)	(520,735)	171,412	(4,322,002)	
-	-	-	-	-	25,129,928	(25,442,996)	
(30,187,989)	(10,686,223)	(387,507,397)	(236,000,000)	(659,062,570)	11,836,254,931	(7,742,462,527)	
(30,415,533)	(11,388,035)	(387,822,038)	(236,280,048)	(659,583,305)	11,861,556,271	(7,772,227,525)	
87,496,640 2,044,334,029	771,702,786 6,381,040,190	(224,327,333) 3,015,322,059	36,549,699 2,248,480,820	(264,336,580 2,990,442,381	,	1,844,187,780 32,547,870,014	
\$2,131,830,669	\$7,152,742,976	\$2,790,994,726	\$2,285,030,519			\$34,392,057,794	
		· · · · · · · ·	. , , , , , , , , , , ,	. , , , , , , , , , , , , , , , , , , ,			
407,463	639,201	18,345	1,086,882	162,359	-		
(190,217) 217,246	(19,573) 619,628	(844,567) (826,222)	(4,205,022) (3,118,140)	(8,171,113) (8,008,754)	<u> </u>		
211,270	310,020	(020,222)	(0,110,140)	(0,000,104)			

### SCHEDULE OF CHANGES IN NET POSITION BY INVESTMENT FUND FOR THE FISCAL YEAR ENDED JUNE 30, 2017

	LIQUIDITY FUND	ALTERNATIVE INVESTMENT FUND	MUTUAL EQUITY FUND	CORE FIXED INCOME FUND	INFLATION LINKED BOND FUND	EMERGING MARKET DEBT FUND
ADDITIONS						
OPERATIONS						
Investment Income						
Dividends	\$ -	\$3,675,456	\$130,853,122	\$7,415	\$459	\$ -
Interest	47,272,487	2,775,092	1,557,805	53,982,946	846,960	100,777,661
Other Income	13,908	23,518	1,272,856	608,095	17,231	17,312,548
Securities Lending		-	11,869,343	1,699,211	2,876,399	332,417
Total Income	47,286,395	6,474,066	145,553,126	56,297,667	3,741,049	118,422,626
Expenses						
Investment Advisory Fees	2,240,224	-	13,261,733	2,602,485	2,613,172	5,645,057
Custody and Transfer Agent Fees	160,666	188,495	703,492	244,697	136,366	156,178
Professional Fees	51,404	573,708	228,862	51,521	27,929	41,474
Security Lending Fees	-	-	652,152	77,010	93,113	24,477
Security Lending Rebates	-	-	5,348,677	929,110	1,945,268	87,652
Investment Expenses	12,774	10,433	42,193	38,683	172,699	24,068
Total Expenses	2,465,068	772,636	20,237,109	3,943,506	4,988,547	5,978,906
Net Investment Income	44,821,327	5,701,430	125,316,017	52,354,161	(1,247,498)	112,443,720
Net Increase (Decrease) in the Fair Valu of Investments and Foreign Currer		147,986,010	1,093,439,042	(9,942,660)	10,408,838	24,349,950
Net Increase (Decrease) in Net Position Resulting from Operations	27,890,199	153,687,440	1,218,755,059	42,411,501	9,161,340	136,793,670
Unit Transactions Purchase of Units by Participants	10,670,233,604	73,221,868	25,848,399	50,171,440	13,067,857	9,119,611
TOTAL ADDITIONS	10,698,123,803	226,909,308	1,244,603,458	92,582,941	22,229,197	145,913,281
DEDUCTIONS Administrative Expenses: Salary and Fringe Benefits	(427,025)	(223,352)	(977,274)	(307,273)	(177,396)	(181,723)
Distributions to Unit Owners: Income Distributed	(44,443,763)	-	-	-	-	-
<b>Unit Transactions</b> Redemption of Units by Participants	(9,713,904,136)	(3,070,100)	(863,600,297)	(46,756,545)	-	(6,331,026)
TOTAL DEDUCTIONS	(9,758,774,924)	(3,293,452)	(864,577,571)	(47,063,818)	(177,396)	(6,512,749)
Change in Net Position Held in Trust for Participants Net Position- Beginning of Period Net Position- End of Period	939,348,879 1,980,093,693 \$2,919,442,572		380,025,887 6,642,104,816 \$7,022,130,703	45,519,123 2,406,864,366 \$2,452,383,489	22,051,801 1,321,973,944 \$1,344,025,745	139,400,532 1,497,780,484 \$1,637,181,016
Other Information: Units						
Purchased	10,973,461,035	64,193,409	15,479	386,610	85,657	55,127
Redeemed	(9,988,401,748)	(2,675,765)	(501,504)	(357,863)	,	(38,165)
Net Increase (Decrease)	985,059,287	61,517,644	(486,025)	28,747	85,657	16,962
. ,						

## SCHEDULE OF CHANGES IN NET POSITION BY INVESTMENT FUND (Continued) FOR THE FISCAL YEAR ENDED JUNE 30, 2017

HIGH YIELD- DEBT FUND	DEVELOPED MARKET INTERNATIONAL STOCK FUND	EMERGING MARKET INTERNATIONA STOCK FUND	REAL L ESTATE FUND	PRIVATE INVESTMENT FUND	ELIMINATION ENTRY	TOTAL	
\$11,598,458 113,359,654 1,323,824 5,104,339	\$174,761,976 2,398,866 114,531 2,781,738	\$57,931,072 1,084,545 22,788 2,461,290	\$84,913,699 2,100,048 28,768	\$46,647,278 3,795,686 395,527	\$ - (21,418,902) (6,302)	\$510,388,935 308,532,848 21,127,292 27,124,737	
131,386,275	180,057,111	61,499,695	87,042,515	50,838,491	(21,425,204)	867,173,812	
4,896,835 195,000 47,359 325,031 1,854,032	21,770,263 602,595 129,903 247,612 305,614	13,891,017 471,686 63,664 157,117 890,121	9,398,241 310,010 449,555 -	2,656,009 375,200 1,210,185	(1,015,033) (72,797) (23,291)	77,960,003 3,471,588 2,852,273 1,576,512 11,360,474	
289,911	157,154	1,393,591	12,410	160,850	(5,788)	2,308,978	
7,608,168 123,778,107	23,213,141	16,867,196 44,632,499	10,170,216 76,872,299	4,402,244 46,436,247	(1,116,909) (20,308,295)	99,529,828 767,643,984	
101,465,790	1,125,951,807	522,156,606	38,116,638	288,361,287	7,380,915	3,332,743,095	
225,243,897	1,282,795,777	566,789,105	114,988,937	334,797,534	(12,927,380)	4,100,387,079	
13,149,010	17,140,296	7,204,576	66,607,366	35,661,283	(8,294,409,208)	2,687,016,102	
238,392,907	1,299,936,073	573,993,681	181,596,303	370,458,817	(8,307,336,588)	6,787,403,181	
(255,405)	(670,799)	(325,165)	(235,414)	(413,312)	193,483	(4,000,655)	
-	-	-	-		20,137,221	(24,306,542)	
(16,952,242)	(142,029,995)	(41,816,972)	(139,968,974)	(149,413,229)	7,666,697,785	(3,457,145,731)	
(17,207,647)	(142,700,794)	(42,142,137)	(140,204,388)	(149,826,541)	7,687,028,489	(3,485,452,928)	
221,185,260 1,823,148,770 \$2,044,334,030	1,157,235,279 5,223,804,912 \$6,381,040,191	531,851,544 2,483,470,514 \$3,015,322,058	41,391,915 2,207,088,905 \$2,248,480,820 \$		(620,308,099) (914,561,392) \$(1,534,869,491)	3,301,950,253 29,245,919,761 \$32,547,870,014	
87,988 (116,161) (28,173)	37,301 (296,111) (258,810)	19,508 (110,695) (91,187)	1,291,886 (2,788,325) (1,496,439)	489,630 (2,128,299) (1,638,669)			

# COMBINED INVESTMENT FUNDS SCHEDULE OF INVESTMENT ACTIVITY BY PENSION PLAN FOR THE FISCAL YEAR ENDED JUNE 30, 2018

_	LIQUIDITY FUND	ALTERNATIVE INVESTMENT FUND	MUTUAL EQUITY FUND	CORE FIXED INCOM FUND	INFLATION IE LINKED BONI FUND	EMERGING D MARKET DEBT FUND
Teachers' Retirement Fund						
Book Value at June 30, 2017	\$881,272,631	\$905,068,000	\$457,248,501	\$936,267,199	\$498,447,781	\$651,600,289
Market Value at June 30, 2017		\$1,048,084,410	\$3,812,766,933		\$588,932,014	\$917,223,989
Shares Purchased	2,259,077,005	573,368,219	50,000,000	, , ,	(40,000,000)	175,169,625
Shares Redeemed Returns of Capital	(2,637,890,312)	(376,566,658)	(220,000,000)	(856,324,433)	(10,000,000)	(30,000,000)
Gain/(Loss) on Shares Redeemed	(1,905,265)	44,073,863	193,968,979	94,006,086	1,810,897	7,326,959
Net Investment Income Earned	17,418,092		-	-	-	
Net Investment Income Distributed	(17,418,092)	-	_	-	-	-
Changes in Market Value of Fund Shares		11,833,818	339,734,087	(101,976,828)	17,087,698	(32,312,164)
Market Value at June 30, 2018 =	\$500,869,588	\$1,300,793,652	\$4,176,469,999	\$1,444,071,902	\$597,830,609	\$1,037,408,409
Book Value\Cost at June 30, 2018	\$500,554,059	\$1,145,943,424	\$481,217,480	\$1,340,456,524	\$490,258,678	\$804,096,873
Shares Outstanding =	516,754,613	1,018,688,205	1,967,353	11,069,861	3,712,638	6,062,146
Market Value per Share	\$0.97	\$1.28	\$2,122.89	\$130.45	\$161.03	\$171.13
State Employees' Retirement Fund						
Book Value at June 30, 2017	\$412,730,992	\$620,620,000	\$283,572,072	\$737,209,170	\$539,055,068	\$318,201,035
Market Value at June 30, 2017	\$407,390,592	\$712,523,256	\$2,646,440,599	\$886,497,360	\$608,455,058	\$482,986,315
Shares Purchased	581,031,516	340,237,565	-	629,090,388	-	144,916,165
Shares Redeemed	(825,689,640)	(262,165,210)	(151,000,000)	(385,727,117)	(6,000,000)	(10,000,000)
Returns of Capital	- (4.004.075)	-	125 020 051	-	-	- 0.040.747
Gain/(Loss) on Shares Redeemed Net Investment Income Earned	(4,604,675) 8,030,454	28,385,184	135,030,051	55,880,357	856,749	2,616,717
Net Investment Income Earned  Net Investment Income Distributed	(8,030,454)	_	-	-	-	-
Changes in Market Value of Fund Shares	4,716,798	9,698,577	235,334,597	(60,807,236)	18,662,247	(18,664,386)
- Changes in Market value of Faria Shares	1,7 10,700	0,000,011	200,001,001	(00,001,200)	10,002,217	(10,001,000)
Market Value at June 30, 2018 =	\$162,844,591	\$828,679,372	\$2,865,805,247	\$1,124,933,752	\$621,974,054	\$601,854,811
Book Value\Cost at June 30, 2018	\$163,468,193	\$727,077,539	\$267,602,123	\$1,036,452,798	\$533,911,817	\$455,733,917
Shares Outstanding =	168,009,197	648,962,160	1,349,956	8,623,435	3,862,573	3,516,968
Market Value per Share	\$0.97	\$1.28	\$2,122.89	\$130.45	\$161.03	\$171.13
Municipal Employees' Retirement Fund						
Book Value at June 30, 2017	\$67,243,689	\$166,185,264	\$67,167,529	\$165,404,367	\$102,883,453	\$156,250,304
Market Value at June 30, 2017	\$66,770,887	\$193,570,136	\$390,677,349	\$192,704,913	\$119,522,506	\$193,856,062
Shares Purchased	115,642,153	59,840,186	24,000,000	101,411,126	21,167,575	22,512,985
Shares Redeemed	(171,628,355)	(70,029,479)	(6,119,707)	(46,994,155)	-	(906,500)
Returns of Capital	(000,000)		-	-	-	-
Gain/(Loss) on Shares Redeemed Net Investment Income Earned	(389,988)	8,432,942	5,089,353	5,644,787	-	201,599
Net Investment Income Earned  Net Investment Income Distributed	1,120,862 (1,120,862)	-	-	-	-	-
Changes in Market Value of Fund Shares	470,396	1,294,590	51,543,235	(7,665,413)	3,184,063	(5,480,501)
Market Value at June 30, 2018	\$10,865,093	\$193,108,375	\$465,190,230	\$245,101,258	\$143,874,144	\$210,183,645
Book Value\Cost at June 30, 2018 =	\$10,867,499	\$164,428,913	\$90,137,175	\$225,466,125	\$124,051,028	\$178,058,388
Shares Outstanding =	11,209,688	151,228,607	219,131	1,878,879	893,485	1,228,218
Market Value per Share	\$0.97	\$1.28	\$2,122.89	\$130.45	\$161.03	\$171.13

# COMBINED INVESTMENT FUNDS SCHEDULE OF INVESTMENT ACTIVITY BY PENSION PLAN (Continued) FOR THE FISCAL YEAR ENDED JUNE 30, 2018

HIGH YIELD DEBT	DEVELOPED MARKET INTERNATIONAL	EMERGING MARKET INTERNATIONAL	REAL ESTATE	PRIVATE INVESTMENT		
FUND	STOCK FUND	STOCK FUND	FUND	FUND	TOTAL	
725 200 040	¢1 526 011 602	\$902 190 <i>424</i>	¢000 245 060	¢1 222 444 661	¢0 717 205 197	
\$735,399,049 \$974,464,378	\$1,536,011,692 \$3,471,808,606	\$893,189,424 \$1,656,937,784	\$999,345,960 \$1,186,810,692	\$1,223,444,661 \$1,448,947,950	\$9,717,295,187 \$17,126,802,473	
9974,404,376		\$1,030,937,764				
(45,000,000)	170,000,000	(000 000 000)	40,505,609	6,000,000	4,440,628,130	
(15,000,000)	-	(230,000,000)	(125,561,697)	(335,833,042)	(4,837,176,142)	
-	-	-	-	-	-	
3,953,417	-	116,038,453	24,925,463	59,746,056	543,944,908	
-	-	-	-	-	17,418,092	
-	-	-	-	-	(17,418,092)	
21,283,901	223,595,194	(30,045,141)	86,637,556	124,100,337	662,560,306	
\$984,701,696	\$3,865,403,800	\$1,512,931,096	\$1,213,317,623	\$1,302,961,301	\$17,936,759,675	
1704 050 400	¢4.700.044.000	Ф770 007 077	<b>#020 045 225</b>	<b>#052 257 075</b>	¢0.004.000.000	
\$724,352,466	\$1,706,011,692	\$779,227,877	\$939,215,335	\$953,357,675	\$9,864,692,083	
6,197,880	6,754,693	3,425,422	20,703,349	14,355,717	1,609,691,876	
\$158.88	\$572.25	\$441.68	\$58.60	\$90.76		
\$494,458,589	\$1,008,726,606	\$616,857,122	\$695,212,682	\$1,042,956,083	\$6,769,599,419	
640,418,008	\$2,422,514,428	\$1,132,400,053	\$819,121,986	\$1.196.626.925	\$11,955,374,580	
-	120,000,000	ψ1,132,400,033	7,250,841	Ψ1,130,020,323	1,822,526,475	
(15,000,000)	120,000,000	(145,000,000)		(252,154,807)	(2,138,496,021)	
(13,000,000)	-	(143,000,000)	(85,759,247)	(232, 134,607)	(2,130,490,021)	
3,698,470	-	72,374,141	16,501,267	37,771,583	348,509,844	
3,090,470	-	12,314,141	10,301,207	37,771,003		
-	-	-	-	-	8,030,454	
-	-	-		-	(8,030,454)	
12,881,682	156,001,760	(14,113,404)	59,899,806	115,458,864	519,069,305	
2014 000 400	#0.000 F40.400	#4.04F.000.700	#047.044.0F0	#4 007 700 F0F	<b>\$40,500,004,400</b>	
\$641,998,160	\$2,698,516,188	\$1,045,660,790	\$817,014,653	\$1,097,702,565	\$12,506,984,183	
\$483,157,059	\$1,128,726,606	\$544,231,263	\$633,205,543	\$828,572,859	\$6,802,139,717	
		· · · · · ·				
4,040,846	4,715,587	2,367,477	13,941,065	12,094,225	871,483,488	
\$158.88	\$572.25	\$441.68	\$58.60	\$90.76		
Ψ130.00	Ψ01 Ζ.Ζ0	Ψ+1.00	Ψ30.00	Ψ30.70		
\$273,954,836	\$149,975,585	\$110,568,596	\$135,019,769	\$206,763,317	\$1,601,416,709	
\$338,249,628	\$345,741,069	\$174,115,775	\$169,540,537	\$256,554,537	\$2,441,303,399	
31,440,050	42,000,000	_	3,715,001	-	421,729,076	
· · ·	(9,061,211)	(10,750,395)	(16,718,107)	(52,030,951)	(384,238,860)	
-	-	-	-	-	-	
_	5,193,902	4,376,911	3,986,926	11,006,701	43,543,133	
_	-	-	-	_	1,120,862	
_	_	_		_	(1,120,862)	
8,520,095	15,253,946	3,987,527	12,013,536	21,930,731	105,052,205	
0,320,093	13,233,940	3,901,321	12,013,330	21,930,731	103,032,203	
\$378,209,773	\$399,127,706	\$171,729,818	\$172,537,893	\$237,461,018	\$2,627,388,953	
,,	, , . — , ,	, , ==,=:=	, ,,	, , , , , , , , , , , ,	. ,- ,,	
\$305,394,886	\$188,108,276	\$104,195,112	\$126,003,589	\$165,739,067	\$1,682,450,058	
	697,465	388,813	2,944,087	2,616,289	175,685,179	
2,380,517						

# COMBINED INVESTMENT FUNDS SCHEDULE OF INVESTMENT ACTIVITY BY PENSION PLAN FOR THE FISCAL YEAR ENDED JUNE 30, 2018

Probate Court Retirement Fund   S2.986.202   \$3.988.202   \$1.85.010   \$6.944.728   \$3.980.642   \$5.954.492   \$8.000   \$4.000.000   \$4.000.0001   \$4.000.00	_	LIQUIDITY FUND	ALTERNATIVE INVESTMENT FUND	MUTUAL EQUITY FUND	CORE FIXED INCOME FUND	INFLATION LINKED BOND FUND	EMERGING MARKET DEBT FUND
Market Value at June 30, 2017         \$2,389,960         \$4,719,999         \$15,242,418         \$8,456,103         \$4,663,128         \$7,563,335           Shares Perchased         5,743,807         1,421,463         1,000,000         4,708,763         12,862         618,562           Shares Redeemed         (7,418,185)         (1,700,364)         (343,656)         (3,555,158)         12,862         (67,785)           Gain/(Loss) on Shares Redeemed         (9,386)         221,176         300,557         464,204         -         21,109           Net Investment Income Earned         (50,496)         14,428         1,899,006         (550,794)         149,625         (201,115)           Market Value at Jun. 30, 2018         \$712,447         \$4,676,702         \$18,098,327         \$9,525,118         \$4,825,615         \$7,914,104           Book Value/Cost at Jun 30, 2018         \$712,438         \$3,940,477         \$2,908,911         \$8,662,535         \$3,999,504         \$6,506,378           Shares Outstanding         735,043         3,662,457         \$,525         73,017         29,968         46,246           Market Value at June 30, 2017         \$5,841,238         \$14,276,123         \$6,225,787         \$14,137,155         \$8,802,585         \$13,284,538           Shares Redeemed	Probate Court Retirement Fund						
Shares Purchased   5,743,807   1,421,463   1,000,000   4,708,763   12,862   618,562   Shares Redeemed   (7,418,185)   (1,700,364)   (343,666)   (3,555,184)   -							
Shares Redeemed   (7.418,185)   (1,700,364)   (343,656)   (3,555,158)   - (87,785)   Returns of Capital Gain/Loss) on Shares Redeemed   (9,386)   (221,176   300,557   484,204   - 21,109   Net Investment Income Earned   (50,496)   (60,496)   (144   1.899,008   (550,794)   149,652   (201,115)	The state of the s				. , ,		
Returns of Capital   Gain/Loss) on Shares Redeemed   (9,386)   221,176   300,557   464,204   21,109   Net Investment Income Earned   (50,496)   (50,496)   (50,496)   (50,496)   (50,496)   (60,496)						12,862	
Gain/(Loss) on Shares Redeemed Net Investment Income Earned Net Investment Income Distributed (50,496)         50,496 (50,496)         484,204 (50,496)         21,109           Net Investment Income Distributed Changes in Market Value of Fund Shares 6,251         14,428 (515)         1,899,008 (550,794)         149,625 (201,115)           Market Value at Jun. 30, 2018         \$712,447 (54,676,702)         \$18,098,327 (59,525,118)         \$4,825,615 (57,914,104)           Book Value (Cost at Jun 30, 2018         \$712,438 (54,676,702)         \$18,098,327 (54,676,505)         \$3,993,504 (55,06,378)           Shares Outstanding         735,043 (36,62,457)         \$2,908,911 (58,562,535 (58,26,355)         \$3,993,504 (56,506,378)           Shares Outstanding         735,043 (36,62,457)         \$8,625 (73,017)         29,968 (46,246)           Market Value per Share         \$0.97 (51,28) (		(7,418,185)	(1,700,364)	(343,656)	(3,555,158)	-	(87,785)
Net Investment Income Earmed Net Investment Income Earmed CRO.496 (2014)   14.9625 (2014)		(0.000)	-	-	-	-	-
Net Investment Income Distributed Changes in Market Value of Fund Shares 6,251 14,428 1,899,008 (550,794) 149,625 (201,115)	Gain/(Loss) on Shares Redeemed		221,176	300,557	464,204	-	21,109
Changes in Market Value of Fund Shares   6,251		·	-	-	-	-	-
Market Value at Jun. 30, 2018   \$712,447   \$4,676,702   \$18,098,327   \$9,525,118   \$4,825,615   \$7,914,104			14 429	1 900 009	(550 704)	140 625	(201 115)
Shares Outstanding	Changes in Market value of Fund Shares	0,231	14,420	1,099,000	(550,794)	149,025	(201,113)
Shares Outstanding         735,043         3,662,457         8,525         73,017         29,968         46,246           Market Value per Share         \$0.97         \$1.28         \$2,122.89         \$130.45         \$161.03         \$171.13           Judges' Retirement Fund         Book Value at June 30, 2017         \$5,841,238         \$14,278,123         \$6,225,787         \$14,137,155         \$8,802,585         \$13,284,538           Market Value at June 30, 2017         \$5,792,818         \$16,648,493         \$33,601,417         \$16,574,121         \$10,279,865         \$16,73,183           Shares Purchased         2,938,333         \$2,30,910         1,500,000         9,741,376         645,995         1,208,606         \$16,673,183           Shares Redeemed         (7,112,330)         (6,039,222)         (380,637)         (5,051,138)         -         (5,105)           Returns of Capital         - <td>Market Value at Jun. 30, 2018</td> <td>\$712,447</td> <td>\$4,676,702</td> <td>\$18,098,327</td> <td>\$9,525,118</td> <td>\$4,825,615</td> <td>\$7,914,104</td>	Market Value at Jun. 30, 2018	\$712,447	\$4,676,702	\$18,098,327	\$9,525,118	\$4,825,615	\$7,914,104
Market Value per Share	Book Value\Cost at Jun 30, 2018	\$712,438	\$3,940,477	\$2,908,911	\$8,562,535	\$3,993,504	\$6,506,378
Judges' Retirement Fund	Shares Outstanding	735,043	3,662,457	8,525	73,017	29,968	46,246
Book Value at June 30, 2017   \$5,841_238   \$14,278,123   \$6,225,787   \$14,137,155   \$8,802,585   \$13,284,538   \$13,648,493   \$33,601,417   \$16,574,121   \$10,279,865   \$16,673,183   \$16,574,121   \$10,279,865   \$16,673,183   \$16,574,121   \$10,279,865   \$16,673,183   \$16,274,121   \$10,279,865   \$16,673,183   \$16,274,121   \$10,279,865   \$16,673,183   \$16,274,121   \$10,279,865   \$16,673,183   \$16,274,121   \$10,279,865   \$16,673,183   \$16,274,121   \$10,279,865   \$16,673,183   \$16,274,121   \$10,279,865   \$16,674,121   \$10,279,865   \$16,674,121   \$10,279,865   \$16,674,121   \$10,279,865   \$16,674,121   \$10,279,865   \$16,674,121   \$10,279,865   \$16,674,121   \$10,279,865   \$16,674,121   \$10,279,865   \$16,674,121   \$10,279,865   \$16,674,121   \$10,279,865   \$16,674,121   \$10,279,865   \$16,674,121   \$10,279,865   \$	Market Value per Share	\$0.97	\$1.28	\$2,122.89	\$130.45	\$161.03	\$171.13
Market Value at June 30, 2017   \$5,792,818   \$16,684,843   \$33,601,417   \$16,574,121   \$10,279,865   \$16,673,183   \$16,978,4721   \$10,279,865   \$16,673,183   \$16,978,4721   \$10,279,865   \$16,673,183   \$1,208,606	Judges' Retirement Fund						
Shares Purchased   2,938,383   5,230,910   1,500,000   9,741,376   645,995   1,208,606   Shares Redeemed   (7,112,330)   (6,039,222)   (380,637)   (5,051,138)   -   (5,105)   (7,105)   (7,112,330)   (6,039,222)   (380,637)   (5,051,138)   -   (5,105)   (7,105)   (7,112,330)   (6,039,222)   (380,637)   (5,051,138)   -     (5,051,138)   -     (1,05)   (7,05)	Book Value at June 30, 2017	\$5,841,238		\$6,225,787	\$14,137,155	\$8,802,585	\$13,284,538
Shares Redeemed   (7,112,330)   (6,039,222)   (380,637)   (5,051,138)   - (5,105)   Returns of Capital   -     -		\$5,792,818	\$16,648,493	\$33,601,417	\$16,574,121	\$10,279,865	
Returns of Capital Gain/(Loss) on Shares Redeemed         (44,130)         729,851         311,571         583,565         -         1,181           Net Investment Income Earned Net Investment Income Distributed Changes in Market Value of Fund Shares         (102,436)         -						645,995	
Gain/(Loss) on Shares Redeemed         (44,130)         729,851         311,571         583,565         -         1,181           Net Investment Income Distributed         (102,436)         - <td></td> <td>(7,112,330)</td> <td>(6,039,222)</td> <td>(380,637)</td> <td>(5,051,138)</td> <td>-</td> <td>(5,105)</td>		(7,112,330)	(6,039,222)	(380,637)	(5,051,138)	-	(5,105)
Net Investment Income Earned Net Investment Income Distributed Net Investment Income Distributed Changes in Market Value of Fund Shares         102,436		- (44.400)	700.054	-	-	-	-
Net Investment Income Distributed Changes in Market Value of Fund Shares         (102,436) 39,928         110,343         4,595,061         (760,165)         314,311         (396,042)           Market Value at Jun. 30, 2018         \$1,614,669         \$16,680,375         \$39,627,412         \$21,087,759         \$11,240,171         \$17,481,823           Book Value\Cost at Jun 30, 2018         \$1,623,161         \$14,199,662         \$7,656,721         \$19,410,958         \$9,448,580         \$14,489,220           Shares Outstanding         1,665,880         13,062,874         18,667         161,653         69,804         102,156           Market Value per Share         \$0.97         \$1.28         \$2,122.89         \$130.45         \$161.03         \$171.13           State's Attorneys' Retirement Fund           Book Value at June 30, 2017         \$23,885         \$-         \$153,077         \$354,458         \$27,304         \$75,906           Market Value at June 30, 2017         \$23,800         \$-         \$520,527         \$407,315         \$35,149         \$106,879           Shares Purchased         25,427         -         -         -         -         137,721         827         2,166           Shares Redeemed         (31,629)         -         (1,076)         (100,038)			729,851	311,5/1	583,565	-	1,181
Changes in Market Value of Fund Shares         39,928         110,343         4,595,061         (760,165)         314,311         (396,042)           Market Value at Jun. 30, 2018         \$1,614,669         \$16,680,375         \$39,627,412         \$21,087,759         \$11,240,171         \$17,481,823           Book Value\Cost at Jun 30, 2018         \$1,623,161         \$14,199,662         \$7,656,721         \$19,410,958         \$9,448,580         \$14,489,220           Shares Outstanding         1,665,880         13,062,874         18,667         161,653         69,804         102,156           Market Value per Share         \$0.97         \$1.28         \$2,122.89         \$130.45         \$161.03         \$171.13           State's Attorneys' Retirement Fund         Book Value at June 30, 2017         \$23,885         \$-         \$153,077         \$354,458         \$27,304         \$75,906           Market Value at June 30, 2017         \$23,800         \$-         \$520,527         \$407,315         \$35,149         \$106,879           Shares Purchased         25,427         -         -         137,721         827         2,166           Returns of Capital         -         -         -         -         -         -         -         -         -         -         -			-	-	-	-	-
Market Value at Jun. 30, 2018         \$1,614,669         \$16,680,375         \$39,627,412         \$21,087,759         \$11,240,171         \$17,481,823           Book Value\Cost at Jun 30, 2018         \$1,623,161         \$14,199,662         \$7,656,721         \$19,410,958         \$9,448,580         \$14,489,220           Shares Outstanding         \$1,665,880         \$13,062,874         \$18,667         \$161,653         \$69,804         \$102,156           Market Value per Share         \$0.97         \$1.28         \$2,122.89         \$130.45         \$161.03         \$171.13           State's Attorneys' Retirement Fund           Book Value at June 30, 2017         \$23,885         \$-         \$153,077         \$354,458         \$27,304         \$75,906           Market Value at June 30, 2017         \$23,885         \$-         \$153,077         \$354,458         \$27,304         \$75,906           Market Value at June 30, 2017         \$23,800         \$-         \$520,527         \$407,315         \$35,149         \$106,879           Shares Redeemed         (31,629)         \$-         (1,076)         (100,038)         \$-         \$27,906           Shares Redeemed         (53)         \$-         766         10,943         \$-         \$-           Net Investment Income Earned<			110 2/13	4 505 061	(760 165)	21/1211	(306 042)
Book Value\Cost at Jun 30, 2018   \$1,623,161   \$14,199,662   \$7,656,721   \$19,410,958   \$9,448,580   \$14,489,220   \$1 Shares Outstanding   \$1,665,880   \$13,062,874   \$18,667   \$161,653   \$69,804   \$102,156   \$1 State's Attorneys' Retirement Fund Book Value at June 30, 2017   \$23,885   \$- \$153,077   \$354,458   \$27,304   \$75,906   \$1 Shares Purchased   \$25,427   \$- \$137,721   \$27 \$21,66   \$1 Shares Redeemed   \$366   \$- \$1	Changes in Market value of Fund Shares	39,920	110,343	4,393,001	(700,103)	314,311	(390,042)
Shares Outstanding         1,665,880         13,062,874         18,667         161,653         69,804         102,156           Market Value per Share         \$0.97         \$1.28         \$2,122.89         \$130.45         \$161.03         \$171.13           State's Attorneys' Retirement Fund           Book Value at June 30, 2017         \$23,885         \$-         \$153,077         \$354,458         \$27,304         \$75,906           Market Value at June 30, 2017         \$23,800         \$-         \$520,527         \$407,315         \$35,149         \$106,879           Shares Purchased         25,427         -         -         137,721         827         2,166           Shares Redeemed         (31,629)         -         (1,076)         (100,038)         -         -         -           Returns of Capital         -	Market Value at Jun. 30, 2018	\$1,614,669	\$16,680,375	\$39,627,412	\$21,087,759	\$11,240,171	\$17,481,823
Market Value per Share         \$0.97         \$1.28         \$2,122.89         \$130.45         \$161.03         \$171.13           State's Attorneys' Retirement Fund           Book Value at June 30, 2017         \$23,885         \$-         \$153,077         \$354,458         \$27,304         \$75,906           Market Value at June 30, 2017         \$23,800         \$-         \$520,527         \$407,315         \$35,149         \$106,879           Shares Purchased         25,427         -         -         137,721         827         2,166           Shares Redeemed         (31,629)         -         (1,076)         (100,038)         -         -         -           Returns of Capital         -	Book Value\Cost at Jun 30, 2018	\$1,623,161	\$14,199,662	\$7,656,721	\$19,410,958	\$9,448,580	\$14,489,220
State's Attorneys' Retirement Fund           Book Value at June 30, 2017         \$23,885         \$-         \$153,077         \$354,458         \$27,304         \$75,906           Market Value at June 30, 2017         \$23,800         \$-         \$520,527         \$407,315         \$35,149         \$106,879           Shares Purchased         25,427         -         -         137,721         827         2,166           Shares Redeemed         (31,629)         -         (1,076)         (100,038)         -         -         -           Returns of Capital         -	Shares Outstanding =	1,665,880	13,062,874	18,667	161,653	69,804	102,156
Book Value at June 30, 2017         \$23,885         \$-         \$153,077         \$354,458         \$27,304         \$75,906           Market Value at June 30, 2017         \$23,800         \$-         \$520,527         \$407,315         \$35,149         \$106,879           Shares Purchased         25,427         -         -         -         137,721         827         2,166           Shares Redeemed         (31,629)         -         (1,076)         (100,038)         -         -         -           Returns of Capital         -	Market Value per Share	\$0.97	\$1.28	\$2,122.89	\$130.45	\$161.03	\$171.13
Market Value at June 30, 2017       \$23,800       \$-       \$520,527       \$407,315       \$35,149       \$106,879         Shares Purchased       25,427       -       -       137,721       827       2,166         Shares Redeemed       (31,629)       -       (1,076)       (100,038)       -       -         Returns of Capital       -       -       -       -       -       -       -       -         Gain/(Loss) on Shares Redeemed       (53)       -       766       10,943       -       -       -         Net Investment Income Earned       366       - <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
Shares Purchased         25,427         -         -         137,721         827         2,166           Shares Redeemed         (31,629)         -         (1,076)         (100,038)         -         -           Returns of Capital         -			\$-	<del></del>			
Shares Redeemed       (31,629)       -       (1,076)       (100,038)       -       -         Returns of Capital       -			\$-	\$520,527			
Returns of Capital       -			-	- (4.0=0)		827	2,166
Gain/(Loss) on Shares Redeemed       (53)       -       766       10,943       -       -         Net Investment Income Earned       366       -       -       -       -       -       -         Net Investment Income Distributed       (366)       - </td <td></td> <td>(31,629)</td> <td>-</td> <td>(1,076)</td> <td>(100,038)</td> <td>-</td> <td>-</td>		(31,629)	-	(1,076)	(100,038)	-	-
Net Investment Income Earned       366       -       <		- (E2)	-	766	10.042	-	-
Net Investment Income Distributed Changes in Market Value of Fund Shares         (366)         -		, ,	-	700	10,943	-	-
Changes in Market Value of Fund Shares         75         -         75,886         (15,213)         1,134         (2,019)           Market Value at Jun. 30, 2018         \$17,620         \$-         \$596,103         \$440,728         \$37,110         \$107,026           Book Value\Cost at Jun 30, 2018         \$17,630         \$-         \$152,767         \$403,084         \$28,131         \$78,072           Shares Outstanding         18,175         -         281         3,378         230         625			_	_	_	_	_
Book Value\Cost at Jun 30, 2018 \$17,630 \$- \$152,767 \$403,084 \$28,131 \$78,072 Shares Outstanding 18,175 - 281 3,378 230 625			-	75,886	(15,213)	1,134	(2,019)
Shares Outstanding 18,175 - 281 3,378 230 625	Market Value at Jun. 30, 2018	\$17,620	\$-	\$596,103	\$440,728	\$37,110	\$107,026
	Book Value\Cost at Jun 30, 2018	\$17,630	\$-	\$152,767	\$403,084	\$28,131	\$78,072
Market Value per Share \$0.97 - \$2,122.89 \$130.45 \$161.03 \$171.13	Shares Outstanding	18,175	-	281	3,378	230	625
	Market Value per Share	\$0.97	-	\$2,122.89	\$130.45	\$161.03	\$171.13

# COMBINED INVESTMENT FUNDS SCHEDULE OF INVESTMENT ACTIVITY BY PENSION PLAN (Continued) FOR THE FISCAL YEAR ENDED JUNE 30, 2018

HIGH YIELD DEBT	DEVELOPED MARKET INTERNATIONAL	EMERGING MARKET INTERNATIONAL	REAL ESTATE	PRIVATE INVESTMENT		
FUND	STOCK FUND	STOCK FUND	FUND	FUND	TOTAL	
\$11,354,411	\$5,480,586	\$4,091,777	\$5,426,045	\$7,716,398	\$59,295,491	
\$14,139,420	\$14,453,460	\$6,793,474	\$6,614,698	\$10,009,760	\$95,047,753	
1,100,000	1,000,000	200,000	98,640	-	15,904,097	
(37,989)	(477,861)	(465,621)	(647,880)	(2,082,623)	(16,817,122)	
- 7 770	- 200 570	202 700	- 440.740	-	- 0.400.004	
7,779	299,578	203,796	140,749	510,739	2,160,301	
-	-	-	-	-	50,496	
-	-	-	-	-	(50,496)	
355,014	572,266	95,295	480,184	765,727	3,585,889	
\$15,564,224	\$15,847,443	\$6,826,944	\$6,686,391	\$9,203,603	\$99,880,918	
\$12,424,201	\$6,302,303	\$4,029,952	\$5,017,554	\$6,144,514	\$60,542,767	
Ψ12,424,201	Ψ0,002,000	Ψ4,023,002	Ψ0,017,004		Ψ00,042,707	
97,964	27,693	15,457	114,093	101,403	4,911,866	
\$158.88	\$572.25	\$441.68	\$58.60	\$90.76		
\$23,497,547	\$13,013,933	\$9,265,696	\$12,136,399	\$18,468,635	\$138,951,636	
\$29,092,151	\$29,736,915	\$14,975,523	\$14,581,873	\$22,065,890	\$210,022,249	
3,451,410	500,000	-	383,808	9,579	25,610,067	
0,401,410		(861,037)	(1,443,981)		(25,957,632)	
-	(652,231)	(001,037)	(1,443,961)	(4,411,951) -	(25,957,032)	
-	371,385	363,670	294,502	800,595	3,412,190	
-	-	-	-	-	102,436	
_	_	_	-	_	(102,436)	
759,295	1,513,293	354,292	1,086,293	2,044,239	9,660,848	
\$33,302,856	\$31,469,362	\$14,832,448	\$14,902,495	\$20,508,352	\$222,747,722	
\$26,948,957	\$13,233,087	\$8,768,329	\$11,370,728	\$14,866,858	\$142,016,261	
209,614	54,992	33,582	254,288	225,956	15,859,464	
\$158.88	\$572.25	\$441.68	\$58.60	\$90.76		
	<u> </u>	·	·	·		
\$139,220	\$298,893	\$107,578	\$-	\$-	\$1,180,321	
\$177,619	\$399,249	\$127,955	<u> </u>	<u> </u>	\$1,798,493	
3,184	ΨΟΟΟ,Ζ-ΤΟ	Ψ121,000	Ψ-	Ψ-	169,325	
J, 10 <del>4</del>	(4,960)	(6,157)	-	-	(143,860)	
-	-	-	-	-	-	
-	1,307	1,324	-	-	14,287	
-	-	-	-	-	366	
<u>-</u>			-	-	(366)	
4,654	24,553	4,783	-	-	93,853	
\$185,457	\$420,149	\$127,905	\$-	\$-	\$1,932,098	
\$142,404	\$295,240	\$102,745	\$-	\$-	\$1,220,073	
1,167	734	290	-	-	24,881	
	\$572.25	\$441.67				

# COMBINED INVESTMENT FUNDS SCHEDULE OF INVESTMENT ACTIVITY BY TRUST FOR THE FISCAL YEAR ENDED JUNE 30, 2018

_	LIQUIDITY FUND	ALTERNATIVE INVESTMENT FUND	MUTUAL EQUITY FUND	CORE FIXED INCOME FUND	INFLATION LINKED BOND FUND	EMERGING MARKET DEBT FUND
Soldiers' Sailors' & Marines' Fund						
Book Value at June 30, 2017	\$1,773,950	\$-	\$3,471,266	\$41,153,945	<u>\$-</u>	\$-
Market Value at June 30, 2017	\$1,762,761	\$-	\$11,548,652	\$50,884,757	\$-	\$-
Shares Purchased	1,502,040	-	-	13,506,260	-	32,401
Shares Redeemed	(2,489,750)	-	(309,682)	(13,286,370)	-	(32,401)
Returns of Capital	-	-	-	-	-	-
Gain/(Loss) on Shares Redeemed	(13,418)	-	218,526	2,136,830	-	-
Net Investment Income Earned	30,529	-	-	-	-	-
Net Investment Income Distributed	(30,529)	-	-	-	-	-
Changes in Market Value of Fund Shares —	9,985	-	1,446,750	(2,650,362)	-	-
Market Value at Jun. 30, 2018 =	\$771,618	\$-	\$12,904,246	\$50,591,115	\$-	\$-
Book Value\Cost at Jun 30, 2018	\$772,822	\$-	\$3,380,110	\$43,510,665	\$-	\$-
Shares Outstanding	796,090	-	6,079	387,818	-	
Market Value per Share	\$0.97	-	\$2,122.89	\$130.45	\$-	\$-
Endowment for the Arts						
Book Value at June 30, 2017	\$593,163	\$-	\$1,663,832	\$11,232,040	\$-	\$-
Market Value at June 30, 2017	\$591,158	\$-	\$3,016,000	\$13,289,762	\$-	\$-
Shares Purchased	1,243,173	-	2,711,125	3,074,532	1,245,248	1,842,591
Shares Redeemed	(1,624,653)	-	-	(14,335,438)	(150,000)	(150,000)
Returns of Capital	-	-	-	-	-	-
Gain/(Loss) on Shares Redeemed	(1,770)	-	-	1,942,167	6,344	5,354
Net Investment Income Earned	8,631	-	-	-	-	-
Net Investment Income Distributed	(8,631)	-	-	-	-	-
Changes in Market Value of Fund Shares	2,162	-	685,133	(1,922,351)	10,839	(90,159)
Market Value at Jun. 30, 2018	\$210,070	\$-	\$6,412,258	\$2,048,672	\$1,112,431	\$1,607,786
Book Value\Cost at Jun 30, 2018	\$209,913	\$-	\$4,374,957	\$1,913,301	\$1,101,592	\$1,697,945
Shares Outstanding	216,732	-	3,021	15,705	6,908	9,395
Market Value per Share	\$0.97	\$-	\$2,122.89	\$130.45	\$161.03	\$171.13
Agricultural College Fund						
Book Value at June 30, 2017	\$150	\$-	\$-	\$577,311	\$-	<u>\$-</u>
Market Value at June 30, 2017	\$151	\$-	\$-	\$660,057	\$-	\$-
Shares Purchased	48,613	-	-	160,145	-	13
Shares Redeemed	(48,632)	-	-	(173,965)	-	(13)
Returns of Capital	-	-	-	-	-	-
Gain/(Loss) on Shares Redeemed	-	-	-	18,810	-	-
Net Investment Income Earned	5	-	-	-	-	-
Net Investment Income Distributed Changes in Market Value of Fund Shares	(5)	-	-	(25,198)	-	-
Market Value at Jun. 30, 2018	\$132	\$-	\$-	\$639,849	\$-	\$-
Book Value\Cost at Jun 30, 2018	\$131	\$-	\$-	\$582,301	\$-	\$-
Shares Outstanding	138	-	-	4,905	-	-
Market Value per Share	\$0.96	\$-	\$-	\$130.45	\$-	\$-
_	<del></del>				<del></del>	

# COMBINED INVESTMENT FUNDS SCHEDULE OF INVESTMENT ACTIVITY BY TRUST (Continued) FOR THE FISCAL YEAR ENDED JUNE 30, 2018

\$- \$5,630,137 \$2,697,411 \$-\$ \$-\$ \$5,4726,709 \$-\$ \$8,597,288 \$3,137,717 \$-\$ \$-\$ \$75,901,175 \$-\$ \$15,040,701 \$-\$ \$3,020,655 \$-\$ \$229,5855 \$-\$ \$-\$ \$30,529 \$-\$ \$-	IGH YIELD DEBT FUND	DEVELOPED MARKET INTERNATIONAL STOCK FUND	EMERGING MARKET INTERNATIONAL STOCK FUND	REAL ESTATE FUND	PRIVATE INVESTMENT FUND	TOTAL	
\$- \$8,567,288 \$3,137,717 \$- \$- \$75,901,175 \$- \$- \$15,040,701 \$- \$15,040,701 \$- \$15,040,701 \$- \$15,040,701 \$- \$15,040,701 \$- \$15,040,701 \$- \$15,040,701 \$- \$15,040,701 \$- \$15,040,701 \$- \$15,040,701 \$- \$15,040,701 \$- \$15,040,701 \$- \$15,040,701 \$- \$13,023 \$- \$13,059 \$- \$10,059 \$							
\$- \$8,567,288 \$3,137,717 \$- \$- \$75,901,175 \$- \$- \$15,040,701 \$- \$15,040,701 \$- \$15,040,701 \$- \$15,040,701 \$- \$15,040,701 \$- \$15,040,701 \$- \$15,040,701 \$- \$15,040,701 \$- \$15,040,701 \$- \$13,025 \$- \$- \$16,667,443 \$- \$- \$2,500,387 \$- \$30,529 \$- \$- \$30,629 \$- \$- \$- \$30,629 \$- \$- \$- \$1,212,279 \$- \$- \$5,600,354 \$- \$- \$- \$- \$1,362 \$- \$- \$- \$- \$- \$- \$1,212,279 \$- \$- \$- \$- \$- \$- \$- \$- \$- \$- \$- \$- \$-	¢.	¢E 620 127	¢2 607 444	¢.	¢	¢£4.706.700	
- (320,655) (228,585) - 15,040,701 - (320,655) (228,585) - 16,1667,443] - 113,323	<u> </u>	\$5,030,137 \$8,567,288		<u>φ-</u>	\$- \$-		
- (320,655) (228,585) - (16,667,443) - 113,323	Ψ-	ψ0,307,200	φο, τοτ, τ ττ	Ψ-	Ψ-		
- 113,323 45,126 - 2,500,387 30,529 (30,529) - 431,244 106,406 - (655,977)  \$- \$8,791,200 \$3,060,664 \$- \$- \$76,118,843  \$- \$5,422,805 \$2,513,952 \$- \$- \$55,600,354  - 15,362 6,930 - 1,212,279  \$- \$572,25 \$441,68 \$- \$-  \$- \$1,478,555 \$705,783 \$- \$- \$15,673,373 \$- \$2,237,150 \$819,375 \$- \$- \$15,642,298 (150,000) - 1,000,000 \$- \$- \$15,642,298 (150,000) \$- \$- \$- \$1,944,209 (150,000) \$- \$- \$- \$- \$8,631 \$- \$- \$- \$- \$8,631 \$- \$- \$- \$8,631 \$- \$- \$- \$- \$8,631 \$- \$- \$- \$- \$8,631 \$- \$- \$- \$- \$8,631 \$- \$- \$- \$- \$8,631 \$- \$- \$- \$- \$8,631 \$- \$- \$- \$- \$8,631 \$- \$- \$- \$- \$8,631 \$- \$- \$- \$- \$8,631 \$- \$- \$- \$- \$8,631 \$- \$- \$- \$- \$8,631 \$- \$- \$- \$- \$8,631 \$- \$- \$- \$- \$- \$8,631 \$- \$- \$- \$- \$- \$8,631 \$- \$- \$- \$- \$- \$- \$- \$- \$- \$- \$- \$- \$-	-	(320.655)	(228.585)	-	_		
	-	-	-	-	-	-	
	-	113,323	45,126	-	-	2,500,387	
- 431,244 106,406 (655,977) \$- \$8,791,200 \$3,060,664 \$- \$- \$- \$76,118,843 \$- \$5,422,805 \$2,513,952 \$- \$- \$55,600,354  - 15,362 6,930 1,212,279 \$- \$572,25 \$441.68 \$- \$-  \$- \$1,478,555 \$705,783 \$- \$- \$15,673,373 \$- \$2,237,150 \$819,375 \$- \$- \$19,953,445  1,828,958 3,223,964 476,707 15,646,298 (150,000) 1,954,500  1,954,500  1,954,500  1,954,500  1,954,500  1,954,500  (16,811)  12,075 201,823 16,816 (1,083,662)  \$1,693,438 \$5,662,937 \$1,312,898 \$- \$- \$20,060,490  \$1,681,363 \$4,702,519 \$1,182,490 \$- \$- \$16,864,080  10,659 9,896 2,973 275,288  \$158.88 \$572.25 \$441.68 \$- \$-  \$- \$- \$- \$- \$- \$- \$- \$- \$- \$60,028  \$1,58.88 \$572.25 \$441.68 \$- \$- \$- \$- \$- \$60,028  \$ (222,610)  (55)  (55)  (55)  (55)  (55)  (55)  (55)  (25,198)  \$- \$- \$- \$- \$- \$- \$- \$- \$- \$- \$- \$- \$- \$	-	-	-	-	-		
\$- \$8,791,200 \$3,060,664 \$- \$- \$- \$76,118,843 \$- \$5,422,805 \$2,513,952 \$- \$- \$55,600,354  - 15,362 6,930 1,212,279 \$- \$572,25 \$441.68 \$- \$-  \$- \$1,478,555 \$705,783 \$- \$- \$15,673,373 \$- \$2,237,150 \$819,375 \$- \$- \$19,953,445 1,828,958 3,223,964 476,707 1,5646,298 (150,000) (16,410,091) 1,954,000 1,954,000 1,954,000 (6,631) 1,2075 201,823 16,816 (1,083,662) \$1,693,438 \$5,662,937 \$1,312,898 \$- \$- \$20,060,490 \$1,681,363 \$4,702,519 \$1,182,490 \$- \$- \$16,864,080  10,659 9,896 2,973 275,288 \$158.88 \$572.25 \$441.68 \$- \$-  \$- \$- \$- \$- \$- \$- \$- \$- \$660,208 \$1,58,88 \$572.25 \$441.68 \$- \$-  \$	-	<del>.</del>	<del>.</del>	-	-		
\$- \$5,422,805 \$2,513,952 \$- \$- \$55,600,354  - 15,362 6,930	-	431,244	106,406	-	-	(655,977)	
-     15,362     6,930     -     -     1,212,279       \$-     \$572.25     \$441.68     \$-     \$-       \$-     \$1,478,555     \$705,783     \$-     \$-     \$15,673,373       \$-     \$2,237,150     \$819,375     \$-     \$-     \$19,953,445       1,828,958     3,223,964     476,707     -     -     15,646,298       (150,000)     -     -     -     -     (16,410,091)       -     -     -     -     -     1,954,500       -     -     -     -     -     -     1,954,500       - <t< td=""><td>\$-</td><td>\$8,791,200</td><td>\$3,060,664</td><td>\$-</td><td>\$-</td><td>\$76,118,843</td><td></td></t<>	\$-	\$8,791,200	\$3,060,664	\$-	\$-	\$76,118,843	
-     15,362     6,930     -     -     1,212,279       \$-     \$572.25     \$441.68     \$-     \$-       \$-     \$1,478,555     \$705,783     \$-     \$-     \$15,673,373       \$-     \$2,237,150     \$819,375     \$-     \$-     \$19,953,445       1,828,958     3,223,964     476,707     -     -     15,646,298       (150,000)     -     -     -     -     (16,410,091)       -     -     -     -     -     1,954,500       -     -     -     -     -     -     1,954,500       - <t< td=""><td>\$-</td><td>\$5,422,805</td><td>\$2,513,952</td><td>\$-</td><td>\$-</td><td>\$55,600,354</td><td></td></t<>	\$-	\$5,422,805	\$2,513,952	\$-	\$-	\$55,600,354	
\$- \$572.25 \$441.68 \$- \$-  \$- \$1,478,555 \$705,783 \$- \$- \$15,673,373 \$- \$2,237,150 \$819,375 \$- \$- \$19,953,445 1,828,958 3,223,964 476,707 -							
\$- \$1,478,555 \$705,783 \$- \$- \$15,673,373 \$- \$2,237,150 \$819,375 \$- \$- \$19,553,445 \$1,828,958 3,223,964 \$476,707 \$- \$- \$- \$15,646,298 \$(150,000) \$- \$- \$- \$- \$- \$- \$(16,410,091) \$- \$- \$- \$- \$- \$- \$- \$- \$- \$- \$- \$- \$-		10,002	0,330			1,414,413	
\$- \$2,237,150 \$819,375 \$- \$- \$15,646,298 (150,000)	\$-	\$572.25	\$441.68	\$-	\$-		
\$- \$2,237,150 \$819,375 \$- \$- \$15,646,298 (150,000)	Φ.	<b>64.470.555</b>	Φ <b>7</b> 05 <b>7</b> 00	Φ.	Φ.	<b>\$45.070.070</b>	
1,828,958       3,223,964       476,707       -       -       15,646,298         (150,000)       -       -       -       -       (15,410,091)         2,405       -       -       -       -       1,954,500         -       -       -       -       -       8,631         -       -       -       -       -       (1,083,662)         \$1,693,438       \$5,662,937       \$1,312,898       \$-       \$-       \$20,060,490         \$1,681,363       \$4,702,519       \$1,182,490       \$-       \$-       \$20,060,490         \$1,688,888       \$572.25       \$441.68       \$-       \$-       \$275,288         \$158.88       \$572.25       \$441.68       \$-       \$-       \$-       \$275,288         \$158.88       \$572.25       \$441.68       \$-       \$-       \$-       \$20,000,490       \$-         \$-       \$-       \$-       \$-       \$-       \$20,000,490       \$-       \$-       \$16,864,080       \$-       \$-       \$275,288       \$-       \$-       \$20,000,490       \$-       \$-       \$-       \$275,288       \$-       \$-       \$-       \$275,288       \$-       \$-       \$-       <				\$- •	\$- •		
150,000				Φ-			
2,405		5,225,364	-10,707	_	_		
	-	_	_	-	_	-	
	2,405	-	-	-	-	1,954,500	
12,075       201,823       16,816       -       -       (1,083,662)         \$1,693,438       \$5,662,937       \$1,312,898       \$-       \$-       \$20,060,490         \$1,681,363       \$4,702,519       \$1,182,490       \$-       \$-       \$16,864,080         \$10,659       9,896       2,973       -       -       275,288         \$158.88       \$572.25       \$441.68       \$-       \$-         \$-       \$-       \$-       \$-       \$-         \$-       \$-       \$-       \$-       \$-         \$-       \$-       \$-       \$-       \$-       \$-         \$-	-	-	-	-	-	8,631	
\$1,693,438 \$5,662,937 \$1,312,898 \$- \$- \$20,060,490 \$1,681,363 \$4,702,519 \$1,182,490 \$- \$- \$16,864,080 \$10,659 \$9,896 \$2,973 \$- \$- \$275,288 \$158.88 \$572.25 \$441.68 \$- \$- \$- \$- \$660,208 \$- \$- \$- \$208,771 \$- \$- \$208,771 \$- \$- \$- \$208,771 \$- \$- \$- \$222,610) \$- \$- \$- \$- \$- \$552,610 \$- \$- \$- \$- \$- \$557,7461 \$- \$- \$- \$- \$- \$- \$- \$- \$- \$- \$- \$- \$-	-	-	-	-	-		
\$1,681,363  \$4,702,519  \$1,182,490  \$-  \$-  \$- \$16,864,080	12,075	201,823	16,816	-	-	(1,083,662)	
10,659     9,896     2,973     -     -     275,288       \$158.88     \$572.25     \$441.68     \$-     \$-       \$-     \$-     \$-     \$-     \$577,461       \$-     \$-     \$-     \$-     \$660,208       \$-     \$-     \$-     \$-     \$660,208       \$-     \$-     \$-     \$-     \$208,771       \$-     \$-     \$-     \$-     \$222,610       \$-     \$-     \$-     \$-     \$18,810       \$-     \$-     \$-     \$-     \$5       \$-     \$-     \$-     \$5       \$-     \$-     \$-     \$5       \$-     \$-     \$-     \$639,981       \$-     \$-     \$-     \$582,432	\$1,693,438	\$5,662,937	\$1,312,898	\$-	\$-	\$20,060,490	
\$158.88 \$572.25 \$441.68 \$- \$- \$- \$- \$- \$- \$- \$- \$- \$- \$- \$- \$-	\$1,681,363	\$4,702,519	\$1,182,490	\$-	\$-	\$16,864,080	
\$- \$- \$- \$- \$- \$- \$577,461  \$- \$- \$- \$- \$- \$- \$- \$660,208  -	10,659	9,896	2,973	-	-	275,288	
\$- \$- \$- \$- \$- \$- \$577,461  \$- \$- \$- \$- \$- \$- \$- \$660,208  208,771  (222,610)  18,810  5  (5)  (25,198)  \$- \$- \$- \$- \$- \$- \$- \$639,981  \$- \$- \$- \$- \$- \$- \$- \$- \$582,432	\$158.88	\$572.25	\$441.68	\$-	\$-		
\$-							
\$-	\$-	\$-	\$-	\$-	\$-	\$577,461	
-     -     -     -     (222,610)       -     -     -     -     -       -     -     -     -     18,810       -     -     -     -     5       -     -     -     -     (5)       -     -     -     -     (25,198)       \$-     \$-     \$-     \$-     \$639,981       \$-     \$-     \$-     \$-     \$582,432	\$-	\$-	\$-	\$-	Φ.	\$660,208	
	-	-	-	-	-	208,771	
-     -     -     -     5       -     -     -     -     (5)       -     -     -     -     (25,198)       \$-     \$-     \$-     \$-     \$639,981       \$-     \$-     \$-     \$-     \$582,432	-	-	-	-	-	(222,610)	
-     -     -     -     5       -     -     -     -     (5)       -     -     -     -     (25,198)       \$-     \$-     \$-     \$-     \$639,981       \$-     \$-     \$-     \$-     \$582,432	-	-	-	-	-	- 10 010	
-     -     -     -     (5)       -     -     -     (25,198)       \$-     \$-     \$-     \$639,981       \$-     \$-     \$-     \$-     \$582,432	-	-	-	-	-		
-     -     -     -     (25,198)       \$-     \$-     \$-     \$-     \$639,981       \$-     \$-     \$-     \$-     \$582,432	_	- -	-	-	-		
\$- \$- \$- \$- \$- \$582,432	-	-	-	-	-	(25,198)	
	\$-	\$-	\$-	\$-	\$-	\$639,981	
5,043	\$-	<u> </u>	<del></del>	\$-	\$-	\$582,432	
	_	-	-	-	-	5,043	
\$-   \$-  \$-  \$-	Φ.	Φ.	Φ.	Φ.	φ.		

# COMBINED INVESTMENT FUNDS SCHEDULE OF INVESTMENT ACTIVITY BY TRUST FOR THE FISCAL YEAR ENDED JUNE 30, 2018

_	LIQUIDITY FUND	ALTERNATIVE INVESTMENT FUND	MUTUAL EQUITY FUND	CORE FIXED INCOME FUND	INFLATION LINKED BOND FUND	EMERGING MARKET DEBT FUND
Ida Eaton Cotton Fund						
Book Value at June 30, 2017	\$76,645	\$-	\$49,291	\$1,463,228	\$-	<u>\$-</u> \$-
Market Value at June 30, 2017	\$76,358	\$-	\$389,561	\$1,716,543	\$-	
Shares Purchased	72,159	-	-	493,465	-	1,366
Shares Redeemed	(105,025)	-	(17,906)	(467,586)	-	(1,366)
Returns of Capital	- (0.50)	-	-	-	-	-
Gain/(Loss) on Shares Redeemed	(250)	-	15,744	57,849	-	-
Net Investment Income Earned	1,023	-	-	-	-	-
Net Investment Income Distributed	(1,023)	-	40.025	- (7E 100)	-	-
Changes in Market Value of Fund Shares —	284	-	40,025	(75,123)	-	<u>-</u>
Market Value at Jun. 30, 2018 =	\$43,526	<b>\$-</b>	\$427,424	\$1,725,148	\$-	\$-
Book Value\Cost at Jun 30, 2018 =	\$43,529	\$-	\$47,129	\$1,546,956	\$-	<b>\$-</b>
Shares Outstanding =	44,904	-	201	13,224	-	
Market Value per Share =	\$0.97	\$-	\$2,122.88	\$130.45	\$-	\$-
Andrew Clark Fund						
Book Value at June 30, 2017	\$36,044	<u>\$-</u>	\$23,263	\$702,581	\$-	\$-
Market Value at June 30, 2017	\$35,913	\$-	\$183,221	\$807,334	\$-	\$-
Shares Purchased	28,981	-	(0.740)	225,973	-	668
Shares Redeemed	(43,292)	-	(8,718)	(219,401)	-	(668)
Returns of Capital	(444)	-	7.000	- 00.000	-	-
Gain/(Loss) on Shares Redeemed Net Investment Income Earned	(111) 438	-	7,663	23,896	-	-
Net Investment Income Earned  Net Investment Income Distributed	(438)	-	-	-	-	_
Changes in Market Value of Fund Shares	129	-	18,547	(32,015)	-	-
Market Value at Jun. 30, 2018	\$21,620	\$-	\$200,713	\$805,787	\$-	\$-
Book Value\Cost at Jun 30, 2018	\$21,622	\$-	\$22,208	\$733,049	\$-	\$-
Shares Outstanding	22,302	-	95	6,177	-	
Market Value per Share	\$0.97	\$-	\$2,122.89	\$130.45	\$-	\$-
School Fund						
Book Value at June 30, 2017	\$345,174	\$-	\$254,925	\$6,580,887	<u>\$-</u>	\$
Market Value at June 30, 2017	\$344,286	\$-	\$1,758,131	\$7,744,805	\$-	\$-
Shares Purchased	210,566	-	-	2,080,816	-	1,368
Shares Redeemed	(365,501)	-	(110,919)	(1,984,229)	-	(1,368)
Returns of Capital	(4.464)	-	06 077	250 005	-	-
Gain/(Loss) on Shares Redeemed Net Investment Income Earned	(1,464)	-	96,277	250,895	-	-
Net Investment Income Earned  Net Investment Income Distributed	6,104 (6,104)	-	-	-	-	-
Changes in Market Value of Fund Shares	817	-	158,115	(330,452)	-	-
Market Value at Jun. 30, 2018	\$188,704	\$-	\$1,901,604	\$7,761,835	\$-	\$-
Book Value\Cost at Jun 30, 2018	\$188,775	\$-	\$240,283	\$6,928,369	\$-	\$-
Shares Outstanding	194,693	-	896	59,500	-	-
_	\$0.97	\$-	\$2,122.89	\$130.45	\$-	

# COMBINED INVESTMENT FUNDS SCHEDULE OF INVESTMENT ACTIVITY BY TRUST (Continued) FOR THE FISCAL YEAR ENDED JUNE 30, 2018

IIGH YIELD DEBT FUND	DEVELOPED MARKET INTERNATIONAL STOCK FUND	EMERGING MARKET INTERNATIONAL STOCK FUND	REAL ESTATE FUND	PRIVATE INVESTMENT FUND	TOTAL	
\$-	\$189,971	\$91,133	\$-	\$-	\$1,870,268	
\$-	\$288,958	\$105,831	\$-	\$-	\$2,577,251	
Ψ-	Ψ200,330	ψ100,001 -	Ψ-	Ψ-	566,990	
_	(18,914)	(7,021)	_	_	(617,818)	
_	-	-	_	_	-	
_	7,034	1,377	-	-	81,754	
-	-	-	-	-	1,023	
-	-	-	-	-	(1,023)	
-	11,517	3,718	-	-	(19,579)	
\$-	\$288,595	\$103,905	\$-	\$-	\$2,588,598	
\$-			\$-	\$-		
Φ-	\$178,091	\$85,489	Φ-	φ-	\$1,901,194	
-	504	235	-	-	59,070	
\$-	\$572.26	\$441.68	\$-	\$-		
\$-	\$89,346	\$42,882	<b>\$-</b>	<b>\$-</b>	\$894,116	
\$-	\$135,904	\$49,777	\$-	\$-	\$1,212,149	
-	- (4.400)	(0.000)	-	-	255,622	
-	(4,192)	(3,302)	-	-	(279,573)	
-	- 1,481	646	-	-	- 33,575	
-	1,401	-	-	-	438	
_	-	-	-	-	(438)	
-	7,201	1,750	-	-	(4,388)	
\$-	\$140,394	\$48,871	\$-	\$-	\$1,217,385	
\$-	\$86,635	\$40,226	\$-	\$-	\$903,740	
-	245	111	-	-	28,930	
\$-	\$572.26	\$441.70	<b>\$-</b>	\$-		
•	0000 444	<b>#</b> 400.040	Φ.	•	<b>0.450.007</b>	
\$- ©	\$868,411	\$409,910	\$- \$	<u>\$-</u> \$-	\$8,459,307	
\$-	\$1,304,688	\$477,807	\$-	φ-	\$11,629,717 2,292,750	
-	(41,023)	(31,941)	-	-	(2,534,981)	
-	-		-	_		
-	14,157	6,358	-	-	366,223	
-	-	-	-	-	6,104	
-	-	<b>-</b>	-	-	(6,104)	
-	69,150	16,651	-	-	(85,719)	
\$-	\$1,346,972	\$468,875	\$-	\$-	\$11,667,990	
\$-	\$841,545	\$384,327	\$-	\$-	\$8,583,299	
	2,354	1,062	_	_	258,505	
					, - + +	
\$-	\$572.25	\$441.68	\$-	\$-		

# COMBINED INVESTMENT FUNDS SCHEDULE OF INVESTMENT ACTIVITY BY TRUST FOR THE FISCAL YEAR ENDED JUNE 30, 2018

Book Value at June 30, 2017         \$1115,010         \$ \$119,014         \$22,15,012         \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	_	LIQUIDITY FUND	ALTERNATIVE INVESTMENT FUND	MUTUAL EQUITY FUND	CORE FIXED INCOME FUND	INFLATION LINKED BOND FUND	EMERGING MARKET DEBT FUND
Market Value at June 30, 2017         \$112,622         \$ S74,077         \$2,529,572         \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Hopemead Fund						
Shares Purchased         33,483         - 745,147         - 1,978           Shares Redeemed         (96,292)         1,11,650         (645,374)         - (1,978)           Returns of Capital         (2,947)         9,347         67,742         (2,247)           Net Investment Income Earned         1,832         - 73,896         (33,711)         (2,247)           Net Investment Income Distributed         (1,832)         - 73,896         (37,711)         (2,247)           Changes in Market Value of Fund Shares         2,817         - 73,896         (37,711)         (2,247)           Market Value at Jun. 30, 2018         \$49,583         \$ 645,670         \$2,603,376         \$ - \$           Book Value/Cost at Jun. 30, 2018         \$50,164         \$ \$113,611         \$2,382,527         \$ \$           Market Value per Share         \$0,97         \$ \$2,122,89         \$130,845         \$ \$           Police & Fireman's Survivors' Benefit Fund         \$066,893         \$2,267,029         \$2,247,399         \$1,958,769         \$1,106,666         \$1,654,046           Book Value at June 30, 2017         \$068,893         \$2,257,029         \$2,347,399         \$1,958,769         \$1,106,666         \$1,654,046           Shares Purchased         \$13,107         \$13,342 <td< td=""><td>Book Value at June 30, 2017</td><td>\$115,910</td><td>\$-</td><td>\$115,914</td><td>\$2,215,012</td><td>\$-</td><td>\$-</td></td<>	Book Value at June 30, 2017	\$115,910	\$-	\$115,914	\$2,215,012	\$-	\$-
Shares Redeemed         (96,292)         (11,650)         (645,374)         (97,87)           Gain/(Loss) on Shares Redeemed         (2,947)         9,347         67,742         -         -           Net Investment Income Distributed         1,832         -         73,878         (93,71)         -         -           Changes in Market Value of Fund Shares         2,817         -         73,896         (93,711)         -         -           Book Value at Jun. 30, 2018         \$49,583         \$         \$645,670         \$2,603,376         \$         \$           Book Value Cost at Jun 30, 2018         \$50,154         \$         \$113,611         \$2,382,527         \$         \$           Market Value per Share         \$0.97         \$         \$2,122.89         \$130,45         \$         \$           Police & Fireman's Survivors' Benefit Fund         \$         \$2,257,209         \$         \$2,212.89         \$130,45         \$         \$           Book Value at June 30, 2017         \$948,047         \$2,257,538         \$2,547,309         \$1,958,769         \$1,106,666         \$1,654,046           Shares Purchased         1813,107         \$915,554         200,000         1,244,334         121,818         124,414           Shares	Market Value at June 30, 2017	\$112,522	\$-	\$574,077	\$2,529,572	\$-	
Returns of Capital   Gain/(Loss) on Shares Redeemed   (2,947)   9,347   67,742	Shares Purchased		-	-	,	-	
Gain/Loss) on Shares Redeemed Net Investment Income Earmed Net Investment Income Distributed (1.832)         9,347         67,742         -		(96,292)	-	(11,650)	(645,374)	-	(1,978)
Net Investment Income Earned Net Income Earned (1,832) - 73,896 (93,711) - 9		-	-	-	-	-	-
Net Investment Income Distributed Changes in Market Value of Fund Shares   2,817   - 73,896   (93,711)			-	9,347	67,742	-	-
Changes in Market Value of Fund Shares         2,817         - 73,896         (93,711)         - 8-           Market Value at Jun. 30, 2018         \$49,583         \$- \$645,670         \$2,603,376         \$- \$-           Shares Outstanding         \$50,154         \$- \$113,611         \$2,382,527         \$- \$-           Market Value per Share         \$0.97         \$- \$2,122,89         \$130,45         \$- \$-           Police & Fireman's Survivors' Benefit Fund Book Value at June 30, 2017         \$946,047         \$2,875,936         \$5,481,686         \$2,226,805         \$1,6666         \$1,654,046           Market Value at June 30, 2017         \$946,047         \$2,875,936         \$5,481,686         \$2,226,805         \$1,262,760         \$2,240,046           Shares Redeemed         \$11,191,103         \$1,106,666         \$1,584,046         \$1,654,046 </td <td></td> <td>1,832</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td>		1,832	-	-	-	-	-
Market Value at Jun. 30, 2018   \$49,583   \$-\$\$645,670   \$2,603,376   \$-\$\$-\$\$-\$\$-\$\$-\$-\$-\$-\$-\$-\$-\$-\$-\$-\$-\$-\$		(1,832)	-	-	-	-	-
Section   Sect	Changes in Market Value of Fund Shares —	2,817	-	73,896	(93,711)	-	-
Shares Outstanding         51,154         -         304         19,957         -         -         -           Police & Fireman's Survivors' Benefit Fund Book Value at June 30, 2017         \$966,893         \$2,567,029         \$2,347,309         \$1,958,769         \$1,106,666         \$1,654,046           Market Value at June 30, 2017         \$948,047         \$2,875,936         \$5,481,686         \$2,226,805         \$1,262,760         \$2,240,046           Shares Purchased         813,107         913,634         200,000         1,264,334         121,818         124,814           Shares Redeemed         (11,69,103)         (1,045,166)         (45,381)         (745,152)         -         -           Gain/(Loss) on Shares Redeemed         (14,142)         97,006         26,351         68,676         -         -           Net Investment Income Earned         (16,433)         -         -         -         -         -           Market Value at Jun. 30, 2018         \$591,904         \$2,889,966         \$6,446,895         \$2,723,812         \$1,421,949         \$2,315,734           Book Value\Cost at Jun 30, 2018         \$596,755         \$2,532,503         \$2,528,279         \$2,546,627         \$1,228,484         \$1,778,860           Shares Outstanding         610,675	Market Value at Jun. 30, 2018	\$49,583	\$-	\$645,670	\$2,603,376	\$-	\$-
Market Value per Share   \$0.97	Book Value\Cost at Jun 30, 2018	\$50,154	\$-	\$113,611	\$2,382,527	\$-	\$-
Police & Fireman's Survivors' Benefit Fund Book Value at June 30, 2017   \$966,893   \$2,567,029   \$2,347,309   \$1,958,769   \$1,106,666   \$1,654,046   \$1,654,046   \$1,000   \$	Shares Outstanding	51,154	-	304	19,957	-	
Book Value at June 30, 2017         \$966,893         \$2,267,029         \$2,347,309         \$1,958,769         \$1,06,666         \$1,654,046           Market Value at June 30, 2017         \$948,047         \$2,875,936         \$5,481,686         \$2,226,805         \$1,262,760         \$2,240,406           Shares Redeemed         (1,169,103)         (1,045,166)         (45,381)         (745,152)         12.18         124,814           Shares Redeemed         (11,69,103)         (1,045,166)         (45,381)         (745,152)         12.18         124,814           Returns of Capital         1         16,433         1         66,651         68,676         1         1         1           Net Investment Income Earned         116,433         1         1         1         37,371         (49,126)           Market Value at Jun. 30, 2018         \$591,904         \$2,889,966         \$6,446,895         \$2,723,812         \$1,421,949         \$2,315,734           Book Value\Cost at Jun 30, 2018         \$596,755         \$2,532,503         \$2,528,279         \$2,546,627         \$1,228,484         \$1,778,860           Shares Outstanding         610,675         \$2,263,215         3,037         20,880         8,831         13,532           Market Value per Share         \$19,374,020 </td <td>Market Value per Share</td> <td>\$0.97</td> <td>\$-</td> <td>\$2,122.89</td> <td>\$130.45</td> <td>\$-</td> <td>\$-</td>	Market Value per Share	\$0.97	\$-	\$2,122.89	\$130.45	\$-	\$-
Market Value at June 30, 2017         \$948,047         \$2,875,936         \$5,481,686         \$2,226,805         \$1,262,760         \$2,240,046           Shares Purchased         813,107         913,634         200,000         1,264,334         121,818         124,814           Shares Redeemed         (1,169,103)         (1,045,166)         (45,381)         (745,152)         -         -           Gain/(Loss) on Shares Redeemed         (14,142)         97,006         26,351         68,676         -         -           Net Investment Income Earned         16,433         -         -         -         -         -           Net Investment Income Distributed         (16,433)         -         -         -         -         -           Changes in Market Value of Fund Shares         13,995         48,556         784,239         (90,851)         37,371         (49,126)           Market Value at Jun 30, 2018         \$591,904         \$2,889,966         \$6,446,895         \$2,723,812         \$1,421,949         \$2,315,734           Book Value\Cost at Jun 30, 2018         \$596,755         \$2,532,503         \$2,528,279         \$2,546,627         \$1,228,484         \$1,778,860           OPEB Fund           Book Value at June 30, 2017         \$19,374,020 <td>Police &amp; Fireman's Survivors' Benefit Fund</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Police & Fireman's Survivors' Benefit Fund						
Shares Purchased         813,107         913,634         200,000         1,264,334         121,818         124,814           Shares Redeemed         (1,169,103)         (1,045,166)         (45,381)         (745,152)         -         -           Gain/(Loss) on Shares Redeemed         (14,142)         97,006         26,351         68,676         -         -           Net Investment Income Earned         16,433         -         -         -         -         -           Net Investment Income Distributed         (16,433)         -         -         -         -         -         -           Changes in Market Value of Fund Shares         13,995         48,556         784,239         (90,851)         37,371         (49,126)           Market Value at Jun. 30, 2018         \$591,904         \$2,889,966         \$6,446,895         \$2,723,812         \$1,421,949         \$2,315,734           Book Value\Cost at Jun 30, 2018         \$596,755         \$2,532,503         \$2,528,279         \$2,246,627         \$1,228,484         \$1,778,860           Shares Outstanding         610,675         2,263,215         3,037         20,880         8,831         13,532           Market Value per Share         \$0.97         \$1,28         \$2,122.89         \$130.45	· -						
Shares Redeemed Returns of Capital         (1,169,103)         (1,045,166)         (45,381)         (745,152)         - <t< td=""><td></td><td></td><td></td><td></td><td></td><td>. , ,</td><td>. , ,</td></t<>						. , ,	. , ,
Returns of Capital		,		·		121,818	124,814
Gain/(Loss) on Shares Redeemed         (14,142)         97,006         26,351         68,676         -         -           Net Investment Income Earned         16,433         -<		(1,169,103)	(1,045,166)	(45,381)	(745,152)	-	-
Net Investment Income Earned Net Investment Income Distributed Changes in Market Value of Fund Shares         16,433 (16,433) (16,433) (19,508)		-	-	-	-	-	-
Net Investment Income Distributed Changes in Market Value of Fund Shares         (16,433)         -			97,006	26,351	68,676	-	-
Changes in Market Value of Fund Shares         13,995         48,556         784,239         (90,851)         37,371         (49,126)           Market Value at Jun. 30, 2018         \$591,904         \$2,889,966         \$6,446,895         \$2,723,812         \$1,421,949         \$2,315,734           Book Value\Cost at Jun 30, 2018         \$596,755         \$2,532,503         \$2,528,279         \$2,546,627         \$1,228,484         \$1,778,860           Shares Outstanding         610,675         2,263,215         3,037         20,880         8,831         13,532           Market Value per Share         \$0.97         \$1.28         \$2,122.89         \$130.45         \$161.03         \$171.13           OPEB Fund         Book Value at June 30, 2017         \$19,374,020         \$46,074,553         \$75,318,308         \$119,516,548         \$10,634,250         \$14,763,316           Market Value at June 30, 2017         \$19,367,516         \$49,534,269         \$99,930,132         \$126,022,638         \$10,875,265         \$16,531,209           Shares Purchased         239,218,244         42,664,656         43,539,201         112,006,717         6,017,988         6,837,503           Shares Redeemed         (228,212,833)         (19,508,833)         -         (32,741,812)         -         -         -         <		·	-	-	-	-	-
Market Value at Jun. 30, 2018         \$591,904         \$2,889,966         \$6,446,895         \$2,723,812         \$1,421,949         \$2,315,734           Book Value\Cost at Jun 30, 2018         \$596,755         \$2,532,503         \$2,528,279         \$2,546,627         \$1,228,484         \$1,778,860           Shares Outstanding         610,675         2,263,215         3,037         20,880         8,831         13,532           OPEB Fund           Book Value at June 30, 2017         \$19,374,020         \$46,074,553         \$75,318,308         \$119,516,548         \$10,634,250         \$14,763,316           Market Value at June 30, 2017         \$19,367,516         \$49,534,269         \$99,930,132         \$126,022,638         \$10,875,265         \$16,531,209           Shares Purchased         239,218,244         42,664,656         43,539,201         112,006,717         6,017,988         6,837,503           Shares Redeemed         (228,212,833)         (19,508,833)         -         (32,741,812)         -         -           Returns of Capital         -         -         -         1,344,915         -         -           Net Investment Income Earned         294,172         -         -         -         -         -           Net Investment Income Distributed </td <td></td> <td>· · /</td> <td>40.550</td> <td>704.000</td> <td>(00.054)</td> <td>07.074</td> <td>(40,400)</td>		· · /	40.550	704.000	(00.054)	07.074	(40,400)
Shares Outstanding   Specifies   Specifi	Changes in Market value of Fund Shares —	13,995	48,556	784,239	(90,851)	37,371	(49,126)
Shares Outstanding         610,675         2,263,215         3,037         20,880         8,831         13,532           Market Value per Share         \$0.97         \$1.28         \$2,122.89         \$130.45         \$161.03         \$171.13           OPEB Fund           Book Value at June 30, 2017         \$19,374,020         \$46,074,553         \$75,318,308         \$119,516,548         \$10,634,250         \$14,763,316           Market Value at June 30, 2017         \$19,367,516         \$49,534,269         \$99,930,132         \$126,022,638         \$10,875,265         \$16,531,209           Shares Purchased         239,218,244         42,664,656         43,539,201         112,006,717         6,017,988         6,837,503           Shares Redeemed         (228,212,833)         (19,508,833)         -         (32,741,812)         -         -         -           Returns of Capital         -	Market Value at Jun. 30, 2018	\$591,904	\$2,889,966	\$6,446,895	\$2,723,812	\$1,421,949	\$2,315,734
Market Value per Share         \$0.97         \$1.28         \$2,122.89         \$130.45         \$161.03         \$171.13           OPEB Fund           Book Value at June 30, 2017         \$19,374,020         \$46,074,553         \$75,318,308         \$119,516,548         \$10,634,250         \$14,763,316           Market Value at June 30, 2017         \$19,367,516         \$49,534,269         \$99,930,132         \$126,022,638         \$10,875,265         \$16,531,209           Shares Purchased         239,218,244         42,664,656         43,539,201         112,006,717         6,017,988         6,837,503           Shares Redeemed         (228,212,833)         (19,508,833)         -         (32,741,812)         -<	Book Value\Cost at Jun 30, 2018	\$596,755	\$2,532,503	\$2,528,279	\$2,546,627	\$1,228,484	\$1,778,860
OPEB Fund           Book Value at June 30, 2017         \$19,374,020         \$46,074,553         \$75,318,308         \$119,516,548         \$10,634,250         \$14,763,316           Market Value at June 30, 2017         \$19,367,516         \$49,534,269         \$99,930,132         \$126,022,638         \$10,875,265         \$16,531,209           Shares Purchased         239,218,244         42,664,656         43,539,201         112,006,717         6,017,988         6,837,503           Shares Redeemed         (228,212,833)         (19,508,833)         -         (32,741,812)         -         -           Returns of Capital         -         -         -         -         -         -         -           Gain/(Loss) on Shares Redeemed         22,332         1,127,815         -         1,344,915         -         -         -           Net Investment Income Earned         294,172         -         -         -         -         -         -           Net Investment Income Distributed         (294,172)         -	Shares Outstanding	610,675	2,263,215	3,037	20,880	8,831	13,532
Book Value at June 30, 2017         \$19,374,020         \$46,074,553         \$75,318,308         \$119,516,548         \$10,634,250         \$14,763,316           Market Value at June 30, 2017         \$19,367,516         \$49,534,269         \$99,930,132         \$126,022,638         \$10,875,265         \$16,531,209           Shares Purchased         239,218,244         42,664,656         43,539,201         112,006,717         6,017,988         6,837,503           Shares Redeemed         (228,212,833)         (19,508,833)         -         (32,741,812)         -	Market Value per Share	\$0.97	\$1.28	\$2,122.89	\$130.45	\$161.03	\$171.13
Market Value at June 30, 2017         \$19,367,516         \$49,534,269         \$99,930,132         \$126,022,638         \$10,875,265         \$16,531,209           Shares Purchased         239,218,244         42,664,656         43,539,201         112,006,717         6,017,988         6,837,503           Shares Redeemed         (228,212,833)         (19,508,833)         - (32,741,812)          -           Returns of Capital              -          -	OPEB Fund						
Market Value at June 30, 2017         \$19,367,516         \$49,534,269         \$99,930,132         \$126,022,638         \$10,875,265         \$16,531,209           Shares Purchased         239,218,244         42,664,656         43,539,201         112,006,717         6,017,988         6,837,503           Shares Redeemed         (228,212,833)         (19,508,833)         - (32,741,812)          -           Returns of Capital              -          -	Book Value at June 30, 2017	\$19,374,020	\$46,074,553	\$75,318,308	\$119,516,548	\$10,634,250	\$14,763,316
Shares Redeemed         (228,212,833)         (19,508,833)         - (32,741,812)	Market Value at June 30, 2017	\$19,367,516	\$49,534,269	\$99,930,132		\$10,875,265	
Returns of Capital         -	Shares Purchased	239,218,244	42,664,656	43,539,201	112,006,717	6,017,988	6,837,503
Gain/(Loss) on Shares Redeemed       22,332       1,127,815       -       1,344,915       -       -         Net Investment Income Earned       294,172       -       -       -       -       -       -         Net Investment Income Distributed       (294,172)       -		(228,212,833)	(19,508,833)	-	(32,741,812)	-	-
Net Investment Income Earned         294,172         -	•	-	-	-	-	-	-
Net Investment Income Distributed Changes in Market Value of Fund Shares         (294,172)         -	` '	•	1,127,815	-	1,344,915	-	-
Changes in Market Value of Fund Shares         6,731         2,003,695         16,701,636         (3,077,289)         266,856         (730,715)           Market Value at Jun. 30, 2018         \$30,401,990         \$75,821,602         \$160,170,969         \$203,555,169         \$17,160,109         \$22,637,997           Book Value\Cost at Jun 30, 2018         \$30,401,763         \$70,358,191         \$118,857,509         \$200,126,368         \$16,652,238         \$21,600,819           Shares Outstanding         31,366,189         59,378,032         75,450         1,560,398         106,567         132,286			-	-	-	-	
Market Value at Jun. 30, 2018 \$30,401,990 \$75,821,602 \$160,170,969 \$203,555,169 \$17,160,109 \$22,637,997  Book Value\Cost at Jun 30, 2018 \$30,401,763 \$70,358,191 \$118,857,509 \$200,126,368 \$16,652,238 \$21,600,819  Shares Outstanding 31,366,189 59,378,032 75,450 1,560,398 106,567 132,286			-	-	(0.0== 005)	-	(700 - 1 -
Book Value\Cost at Jun 30, 2018 \$30,401,763 \$70,358,191 \$118,857,509 \$200,126,368 \$16,652,238 \$21,600,819  Shares Outstanding 31,366,189 59,378,032 75,450 1,560,398 106,567 132,286	Changes in Market Value of Fund Shares —	6,731	2,003,695	16,701,636	(3,077,289)	266,856	(730,715)
Shares Outstanding 31,366,189 59,378,032 75,450 1,560,398 106,567 132,286	Market Value at Jun. 30, 2018 =	\$30,401,990	\$75,821,602	\$160,170,969	\$203,555,169	\$17,160,109	\$22,637,997
	Book Value\Cost at Jun 30, 2018 =	\$30,401,763	\$70,358,191	\$118,857,509	\$200,126,368	\$16,652,238	\$21,600,819
Market Value per Share \$0.97 \$1.28 \$2,122.89 \$130.45 \$161.03 \$171.13	Shares Outstanding =	31,366,189	59,378,032	75,450	1,560,398	106,567	132,286
	Market Value per Share	\$0.97	\$1.28	\$2,122.89	\$130.45	\$161.03	\$171.13

# COMBINED INVESTMENT FUNDS SCHEDULE OF INVESTMENT ACTIVITY BY TRUST (Continued) FOR THE FISCAL YEAR ENDED JUNE 30, 2018

HIGH YIELD DEBT FUND	DEVELOPED MARKET INTERNATIONAL STOCK FUND	EMERGING MARKET INTERNATIONAL STOCK FUND	REAL ESTATE FUND	PRIVATE INVESTMENT FUND	TOTAL	
TOND	STOCKTOND	3100110110	TOND	TOND	TOTAL	
\$-	\$283,120	\$133,931	<b>\$-</b>	<b>\$-</b>	\$2,863,887	
\$-	\$425,817	\$155,957	\$-	\$-	\$3,797,945	
-	-	-	-	-	780,608	
-	(13,136)	(10,346)	-	-	(778,776)	
-	-	-	-	-	-	
-	4,543	2,051	-	-	80,736	
-	-	-	-	-	1,832	
-	-	-	-	-	(1,832)	
-	22,659	5,458	-	-	11,119	
\$-	\$439,883	\$153,120	\$-	\$-	\$3,891,632	
\$-	\$274,527	\$125,636	\$-	\$-	\$2,946,455	
_	769	347	_	_	72,531	
		041			72,551	
\$-	\$572.25	\$441.68	\$-	\$-		
\$3,042,710	\$3,654,159	\$2,199,916	\$1,791,922	\$2,362,748	\$23,652,167	
\$3,828,828	\$4,891,506	\$2,627,632	\$2,238,922	\$3,726,704	\$32,348,872	
369,804	350,000	100,000	65,882	12,573	4,335,966	
-	(92,041)	(142,992)	(222,369)	(747,328)	(4,209,532)	
-	-	-	-	-	<u>-</u>	
-	24,389	31,226	51,873	283,098	568,477	
-	-	-	-	-	16,433	
_	-	-	-	-	(16,433)	
99,759	281,732	90,923	160,637	198,803	1,576,038	
\$4,298,391	\$5,455,586	\$2,706,789	\$2,294,945	\$3,473,850	\$34,619,821	
\$3,412,514	\$3,936,507	\$2,188,150	\$1,687,308	\$1,911,091	\$24,347,078	
27,055	9,533	6,128	39,160	38,274	3,040,320	
<u> </u>	<u> </u>	·			-,,	
\$158.88	\$572.25	\$441.68	\$58.60	\$90.76		
<b>#</b> 00 440 000	400 000 007	<b>#40.0</b> =0.440	<b>* * * * * * * * * *</b>	000 740 404	<b>#</b> 400.005.05 <i>t</i>	
\$38,412,829	\$63,028,237	\$18,858,442	\$40,666,677	\$39,748,194	\$486,395,374	
\$43,963,998	\$78,535,153	\$22,597,398	\$49,572,113	\$52,510,614	\$569,440,305	
26,742,905	36,635,560	8,196,001	9,056,357	6,408,452	537,323,584	
-	-	-	(5,646,719)	(11,801,869)	(297,912,066)	
-	-	-	4 000 000	0.770.400	- 0.040.450	
-	-	-	1,080,908	2,772,483	6,348,453	
-	-	-	-	-	294,172	
	-	-	-	-	(294,172)	
1,169,771	4,662,048	237,204	4,213,860	4,905,432	30,359,229	
\$71,876,674	\$119,832,761	\$31,030,603	\$58,276,519	\$54,795,112	\$845,559,505	
\$65,155,734	\$99,663,797	\$27,054,443	\$45,157,223	\$37,127,260	\$732,806,674	
452,404	209,405	70,256	994,397	603,720	94,949,104	
•			<u> </u>		0 1,0 10, 10 7	
\$158.88	\$572.25	\$441.68	\$58.60	\$90.76		

# COMBINED INVESTMENT FUNDS LIST OF INVESTMENT ADVISORS AND NET ASSETS UNDER MANAGEMENT JUNE 30. 2018

			Net Assets	Percent
	Investment		Under	of Fund
Name of Fund	Strategy		Management	Total
LIQUIDITY (LF)				
State Street Global Advisors	Active	\$	2,003,180,852	100.00%
Other (1)	, 10.110	*	0	0.00%
SUBTOTAL LF		\$	2,003,180,852	100.00%
000.0.7.2.2.			2,000,100,002	10010070
MUTUAL EQUITY FUND (MEF)				
Large Cap		\$	6,115,530,413	78.86%
T. Rowe Price Associates	Enhanced - Index		2,620,992,391	33.80%
State Street Global Advisors	Passive - Indexed		3,494,538,022	45.06%
All Cap			735,853,288	9.49%
Capital Prospects	Active		383,066,200	4.94%
FIS Group, Inc.	Active		352,787,089	4.55%
Small/Mid Cap			828,677,442	10.69%
Frontier Capital Mgmt Co	Active		456,625,174	5.89%
Bivium	Active		372,052,268	4.80%
Other (1)			74,835,954	0.97%
SUBTOTAL MEF		\$	7,754,897,097	100.00%
CODE EIVED INCOME ELIND (CEIE)				
CORE FIXED INCOME FUND (CFIF) State Street Global Advisors	Doggivo	φ	140 054 054	4.78%
	Passive	\$	148,954,851	
BlackRock Financial Management, Inc.	Active		434,307,915	13.93%
Wellington	Active		750,871,746	24.08%
Conning-Goodwin Capital	Active		363,455,130	11.66%
Colchester	Active		297,322,850	9.54%
Payden and Rygel	Active		546,134,896	17.52%
PIMCO	Active		431,258,300	13.83%
Progress	Active		118,655,940	3.81%
Other (1)			26,653,653	0.85%
SUBTOTAL CFIF		\$	3,117,615,280	100.00%
INFLATION LINKED BOND FUND (ILBF)				
BlackRock	Active	\$	535,129,762	38.24%
Colchester	Active	Ψ	627,844,915	44.86%
New Century	Active		216,232,717	15.45%
Other (1)	Active		20,268,798	1.45%
SUBTOTAL ILBF		\$	1,399,476,192	100.00%
			-,,	
EMERGING MARKET DEBT FUND (EMDF)	•		<b></b>	
Ashmore Investment Mgt. Ltd.	Active	\$	562,035,658	29.56%
Payden & Rygel	Active		759,912,413	39.96%
Fidelity Institutional Asset Mgt. Trust Co.	Active		472,297,829	24.84%
Lazard	Active		98,898,275	5.20%
Other (1)			8,367,161	0.44%
SUBTOTAL EMDF		\$	1,901,511,336	100.00%
HIGH YIELD DEBT FUND (HYDF)				
Loomis Sayles & Co., Inc.	Active	\$	391,634,857	18.37%
Stone Harbor Investment Partners	Active	φ	2,687	0.00%
			•	
Shenkman Capital Management, Inc.	Active		238,199,178	11.17%
Oaktree Capital Management, L.L.C.	Active		414,963	0.02%
AllianceBernstein, LP	Active		321,676,184	15.09%
DDJ Capital Management, LLC	Active		263,149,399	12.34%
Columbia Management Investment Advisers, LLC Nomura Corporation Research &	Active		372,909,831	17.49%
Asset Management, Inc.	Active		469,510,728	22.02%
•	Active		55,926,710	2.62%
TCG BDC Inc			JJ.JEJ.1 IU	Z.UZ /U
TCG BDC, Inc. <b>Other</b> <sup>(1)</sup>	Active		18,406,131	0.86%

# COMBINED INVESTMENT FUNDS LIST OF INVESTMENT ADVISORS AND NET ASSETS UNDER MANAGEMENT (Continued) JUNE 30, 2018

	Investment	Net Assets	Percent
Name of Fund	Investment Strategy	Under Management	of Fund Total
varie of Fund	Strategy	Management	Iotai
DEVELOPED MARKET INTERNATIONAL STO	CK FUND (DMISF)		
Index		1,947,913,436	27.23%
State Street Global Advisors	Index-Passive	1,947,913,436	27.23%
Core		1,849,815,018	25.86%
AQR Capital Management	Active	818,980,240	11.45%
Acadian Asset Management	Active	875,506,681	12.24%
Progress	Active	155,328,097	2.17%
Active-Growth		984,321,964	13.76%
MFS Institutional Advisors, Inc.	Active	984,321,964	13.76%
Active-Value		567,380,455	7.93%
MSCI EAFE ETF Formerly GMO	Index-Passive	567,380,455	7.93%
Small Cap		1,352,262,314	18.91%
Schroder Investment Mgmt.	Active	457,058,321	6.39%
DFA	Active	433,138,250	6.06%
William Blair & Company	Active	462,065,743	6.46%
Other (1)		451,049,788	6.31%
SUBTOTAL DMISF		\$ 7,152,742,976	100.00%
EMERGING MARKET INTERNATIONAL STOCE	( FUND (EMISF)	<del></del>	
Aberdeen Asset Management	Active	135,204	0.00%
Schroders Investment Mgt	Active	1,882,153,750	67.44%
MSCI Emerging ETF Formerly GMO	Index-Passive	879,343,899	31.51%
Other (1)	maox r accive	29,361,873	1.05%
SUBTOTAL EMISF		\$ 2,790,994,726	100.00%
		, , , , , , , ,	
REAL ESTATE FUND (REF)			
American Realty Advisors	Active	\$ 165,301,184	7.23%
Blackstone Real Estate Partner Europe III LP	Active	15,344,939	0.67%
Blackstone Real Estate Spec Sit II LP	Active	2,193,832	0.10%
Blackstone Real Estate VI LP	Active	12,517,217	0.55%
Blackstone Real Estate Partners VIII LP	Active	60,816,226	2.66%
Blackstone Real Estate Partners EURO V	Active	23,054,319	1.01%
Clarion Lion Industrial Trust	Active	130,172,102	5.70%
Cornerstone Patriot Fund LP	Active	253,473,430	11.09%
Covenant Apartment Fund VIII	Active	23,908,070	1.05%
Crow Hldgs Realty Partners VII LP	Active	62,374,096	2.73%
Cypress Acquisition Prtnrs Retail FD LP	Active	55,727,475	2.44%
Gerding Edlen Green Cities II	Active	29,219,191	1.28%
Gerding REF III	Active	44,555,714	1.95%
Hart Realty Advisors	Active	218,377,677	9.56%
IL & FS India Realty Fund II LLC	Active	12,034,582	0.53%
JP Morgan Strategic Property	Active	104,322,514	4.57%
Landmark RE Partners VII LP	Active	26,223,304	1.15%
Landmark VIII REF	Active	6,989,311	0.31%
Lone Star Real Estate Part II LP	Active	4,586,286	0.20%
Prime Property Fund LLC	Active	274,974,063	12.03%
PRISA	Active	207,845,289	9.10%
Rockwood Capital VI Limited Partnership	Active	192,727	0.01%
Rockwood Capital VII Limited Partnership	Active	11,037,052	0.48%
Starwood Opportunity Fund VII	Active	3,449,609	0.15%
Starwood Opportunity Fund VIII	Active	9,614,245	0.42%
Starwood Opportunity Fund IX	Active	26,281,169	1.15%
Starwood Opportunity Fund X	Active	53,228,501	2.33%
UBS-Trumbull Property Income	Active	60,465,980	2.65%
UBS-Trumbull Property G&I (TPG)	Active	70,749,203	3.10%
UBS-Trumbull Property Fund LP	Active	89,494,498	3.92%
Urban Strategy America Fund LP	Active	4,351,251	0.19%
USAA Eagle RE Fund	Active	140,600,644	6.15%
WLR IV PPIP Co Invest LP	Active	6,774,355	0.30%
Other <sup>(1)(2)</sup>	Active	74,780,465	3.27%
SUBTOTAL REF		\$ 2,285,030,519	100.00%

# COMBINED INVESTMENT FUNDS LIST OF INVESTMENT ADVISORS AND NET ASSETS UNDER MANAGEMENT (Continued) JUNE 30. 2018

	loove atom of	Net Assets	Percent
Name of Fund	Investment Strategy	Under Management	of Fund Total
Name of Fund	Strategy	Management	TOtal
PRIVATE INVESTMENT FUND (PIF)			
Buyout		\$ 1,036,283,222	38.01%
Altaris Health Partners II	Active	15,371,147	0.56%
Altaris Health Partners III	Active	50,196,527	1.84%
Altaris Constellation Partners IV	Active	3,067,317	0.11%
Altaris Health Partners IV	Active	8,270,111	0.30%
Boston Ventures VII	Active	29,093,861	1.07%
Charterhouse Equity Partners IV	Active	1,201,977	0.04%
Court Square Capital Partners II	Active	22,952,144	0.84%
Court Square Capital Partners III	Active	30,058,378	1.10%
Ethos Private Equity Fund V	Active	5,075,595	0.19%
FS Equity Partners V	Active	5,277,696	0.19%
FS Equity Partners VI	Active	90,812,149	3.33%
GENNX360 Capital Partners II	Active	23,320,772	0.86%
ICV Partners II	Active	7,455,410	0.27%
JFL Equity Investors III	Active	42,526,837	1.56%
JFL IV	Active	36,449,948	1.34%
KKR 2006 Fund	Active	44,578,444	1.64%
KKR Millennium Fund	Active	3,193,566	0.12%
Leeds Equity Partners V	Active	37,743,576	1.38%
Leeds Equity Partners VI	Active	19,904,861	0.73%
RFE Investment Partners VII	Active	6,417,634	0.73%
RFE Investments Partners VIII	Active	31,083,939	1.14%
TA XI	Active	51,771,336	1.90%
	Active	36,505,871	1.34%
Thomas H. Lee Equity Fund VI	Active		0.51%
Vista Equity Partners Fund III	Active	13,963,411	
Vista Equity Partners Fund IV		61,571,257	2.26%
Vista Equity Partners Fund VI	Active	81,666,443	3.00%
Wellspring Capital Partners V	Active	33,145,750	1.22%
Wellspring Capital Partners VI	Active	2,526,476	0.09%
Welsh Carson Anderson & Stowe X	Active	203,794	0.01%
Welsh Carson Anderson & Stowe XI	Active	56,272,120	2.06%
Welsh Carson Anderson & Stowe XII	Active	68,124,111	2.50%
Yucaipa American Alliance Fund II	Active	98,652,129	3.62%
Yucaipa American Alliance Fund III	Active	17,828,635	0.65%
Venture Capital		6,301,707	0.23%
Crescendo III	Active	1,156,486	0.04%
Syndicated Communications V	Active	5,145,221	0.19%
Mezzanine		49,802,476	1.83%
Audax Mezzanine III	Active	22,900,921	0.84%
CT Growth Capital	Active	20,339,318	0.75%
GarMark Partners II	Active	4,766,813	0.17%
Ironwood IV	Active	1,795,424	0.07%
International		74,017,593	2.72%
BC European Capital X	Active	20,880,786	0.77%
GGEP/CPM Holdings, Gilbert Global Equity Partne		53,136,807	1.95%
Fund of Funds		980,944,127	35.98%
Connecticut Horizon Legacy	Active	3,032,286	0.11%
CS/CT Cleantech Opp Fund	Active	5,552,346	0.20%
CT Emerging M-2 Private Equity	Active	74,873,926	2.75%
Fairview Constitution II	Active	67,921,100	2.49%
Fairview Constitution III	Active	311,760,899	11.44%
Fairview Constitution IV	Active	167,477,196	6.14%
Nutmeg Opportunities Fund II	Active	13,432,258	0.49%
Nutmeg Opportunities Fund I	Active	83,933,116	3.08%
Pinebridge Global Emerging Markets Fund	Active	1,685,093	0.06%
Landmark Equity Partners XIV	Active	25,658,937	0.94%
Landmark Equity Partners XV	Active	47,725,225	1.75%
Landmark Equity Partners XVI	Active	1,239,368	0.05%
Stepstone Pioneer Capital I	Active	12,202	0.00%
Stepstone Pioneer Capital II	Active	80,469,570	2.95%

#### **COMBINED INVESTMENT FUNDS**

### LIST OF INVESTMENT ADVISORS AND NET ASSETS UNDER MANAGEMENT (Continued)

Name of Fund	Investment Strategy	Net Assets Under Management	Percent of Fund Total
Constitution Fund V	Active	63,520,577	2.33%
The Constitution Liquidating Fund	Active	32,650,028	1.20%
Special Situations	Active	467,693,295	17.16%
Apollo Investment Fund VIII	Active	111,757,366	4.10%
Castlelake II	Active	29,659,138	1.09%
Clearlake Capital Partners III	Active	67,780,725	2.49%
Clearlake Capital Partners IV	Active	44,661,112	1.64%
Clearlake Capital Partners V	Active	14,666,655	0.54%
Levine Leichtman Capital Partners IV	Active	29,059,852	1.07%
Levine Leichtman Capital Partners V	Active	71,613,885	2.63%
Pegasus Partners IV	Active	27,825,959	1.02%
Pegasus Partners V	Active	61,557,225	2.26%
WLR Recovery Fund IV	Active	9,111,378	0.33%
Other <sup>(1)(2)</sup>	Active	111,063,380	4.07%
SUBTOTAL PIF		\$ 2,726,105,801	100.00%
ALTERNATIVE INVESTMENT FUND (AIF) Anchorage Arclight Energy Partners Fund V Arclight VI Crescent II	Active Active Active Active	\$ 7,539,420 49,473,619 77,051,205 17,931,494	0.31% 2.04% 3.18% 0.74%
EIG Energy Fund XV Limited Partnership	Active	33,011,940	1.36%
ISQ II	Active	4,249,661	0.18%
Marathon European Credit Opportunity	Active	9,628,710	0.40%
Owl Rock	Active	26,131,651	1.08%
Prudence Crandall I Permal Limited Partnership	Active	19,154,591	0.79%
Prudence Crandall II Prisma Limited Partnership	Active	333,672,871	13.77%
Prudence Crandall III LLC-C Prudence Crandall III Rock Creek	Active	293,058,881	12.10%
Limited Partnership	Active	325,958,511	13.45%
Prudence Crandall III D	Active	389,578,681	16.08%
Prudence Crandall IV K2 Limited Partnership	Active	321,674,793	13.28%
Prudence Crandall IV LLC-C	Active	301,518,897	12.45%
Thomas Welles Fund I	Active	89,394,492	3.69%
Thomas Welles Fund II	Active	88,572,379	3.66%
Other (2)(1)		35,048,249	1.45%
SUBTOTAL AIF		\$ 2,422,650,044	100.00%
TOTAL		\$ 35,686,035,491	
Adjustments (3)		(1,293,977,697)	
GRAND TOTAL		\$ 34,392,057,794	

<sup>(1)</sup> Other represents cash equivalents, other net assets and terminated advisor balances, as well as, currency overlay balances for the DMISF.

<sup>(2)</sup> Other includes partnerships with nonmaterial balances, as well as moneys earmarked for distribution to participants, reinvestment, expenses and other net assets.

<sup>(3)</sup> Represents Elimination Entry to account for investment of Combined Investment Funds in the Liquidity Fund.

## COMBINED INVESTMENT FUNDS TOP TEN HOLDINGS\* BY FUND AT JUNE 30, 2018

 $\sim$ 1			-		_	 	
 വ		11		~	-1	 N	
 Ql	U	D				 N	$\boldsymbol{L}$

Security Name	Maturity Date	Market Value	<u>%</u>
HSBC BANK TRI REPO	7/2/2018	218,025,433	10.88%
CITIGROUP GLOBAL TRI REPO	7/2/2018	200,023,444	9.98%
BANK OF NY REPO TRI REPO	7/2/2018	95,011,136	4.74%
MERRILL LYNCH TRI REPO	7/2/2018	59,006,883	2.94%
ING BANK NV C/D	10/9/2018	35,000,807	1.75%
DZ BANK AG DISC	7/2/2018	29,998,425	1.50%
WESTPAC BANKING IB NT	1/18/2019	25,127,706	1.25%
NATIXIS NY INSTL C/D	9/4/2018	25,102,514	1.25%
BNP PARIBAS NY BRH C/D	9/17/2018	25,072,188	1.25%
NATIONAL BK CANADA IB NT	8/6/2018	25,037,899	1.25%
Top Ten		\$737,406,435	36.80%

FAIR VALUE LF \$2,003,821,874

### **ALTERNATIVE INVESTMENT FUND**

Partnership Name	Partnership Type	Market Value	%
PRUDENCE CRANDALL III D - LIQUID SRATEGY	Hedge Fund-of-Funds	389,578,681	16.08%
PRUDENCE CRANDALL II PRISMA	Hedge Fund-of-Funds	333,672,871	13.77%
PRUDENCE CRANDALL III ROCK CREEK	Hedge Fund-of-Funds	325,958,511	13.45%
PRUDENCE CRANDALL IV K2	Hedge Fund-of-Funds	321,674,793	13.28%
PRUDENCE CRANDALL IV LLC-C	Hedge Fund-of-Funds	301,518,897	12.45%
PRUDENCE CRANDALL III LLC-C	Hedge Fund-of-Funds	293,058,881	12.10%
THOMAS WELLES FUND I	Hedge Fund-of-Funds	89,394,492	3.69%
THOMAS WELLES FUND II	Hedge Fund-of-Funds	88,572,379	3.66%
ARCLIGHT VI	Real Assets	77,051,205	3.18%
ARCLIGHT ENERGY PARTNERS FUND V	Real Assets	49,473,619	2.04%
Top Ten		\$2,269,954,328	93.69%

FAIR VALUE AIF \$2,422,737,099

### **MUTUAL EQUITY FUND**

Security Name	Industry Sector	Market Value	%
APPLE INC	INFORMATION TECHNOLOGY	226,909,689	2.92%
MICROSOFT CORP	INFORMATION TECHNOLOGY	201,686,244	2.60%
AMAZON.COM INC	CONSUMER DISCR	195,601,085	2.52%
FACEBOOK INC	INFORMATION TECHNOLOGY	134,587,198	1.73%
EXXON MOBIL CORP	ENERGY	100,344,541	1.29%
JP MORGAN CHASE & CO	FINANCIALS	98,141,604	1.26%
ALPHABET INC-CL C	INFORMATION TECHNOLOGY	96,402,201	1.24%
ALPHABET INC-CL A	INFORMATION TECHNOLOGY	95,523,828	1.23%
JOHNSON & JOHNSON	HEALTH CARE	81,038,739	1.04%
WELLS FARGO & CO	FINANCIALS	74,401,921	0.96%
Top Ten		\$1,304,637,050	16.81%

FAIR VALUE MEF \$7,760,012,682

### **COMBINED INVESTMENT FUNDS TOP TEN HOLDINGS\* BY FUND AT JUNE 30, 2018 (Continued)**

### **CORE FIXED INCOME FUND**

Security Name	Coupon	Maturity	Security Type	Market Value	%
FNMA TBA	4.000	7/1/2048	U.S. Govt/Agency	37,760,528	1.15%
FHLMC TBA	3.500	7/1/2048	U.S. Govt/Agency	35,450,590	1.08%
U S TREASURY NOTE	3.500	9/30/2019	U.S. Govt/Agency	24,954,294	0.76%
GNMA TBA	1.375	7/20/2048	U.S. Govt/Agency	22,960,941	0.70%
U S TREASURY NOTE	1.875	8/31/2019	U.S. Govt/Agency	22,342,946	0.68%
U S TREASURY NOTE	1.250	12/31/2019	U.S. Govt/Agency	22,235,806	0.68%
U S TREASURY NOTE	2.875	5/31/2025	U.S. Govt/Agency	21,366,313	0.65%
U S TREASURY NOTE	1.625	3/31/2022	U.S. Govt/Agency	19,624,495	0.60%
U S TREASURY NOTE	1.875	6/30/2021	U.S. Govt/Agency	18,136,513	0.55%
SINGAPORE GOVERNMENT BOND	1.125	10/1/2019	Singapore Govt/Agency	18,018,266	0.55%
Top Ten				\$242,850,693	7.38%

**FAIR VALUE CFIF** \$3,292,563,253

### **INFLATION LINKED BOND FUND**

Security Name	Coupon	Maturity	Security Type	Market Value	%
US TREAS-CPI INFLAT	3.875	4/15/2029	U.S. Govt/Agency	68,820,250	4.98%
US TREAS-CPI INFLAT	0.125	7/15/2022	U.S. Govt/Agency	54,862,660	3.97%
US TREAS-CPI INFLAT	2.375	1/15/2027	U.S. Govt/Agency	54,808,441	3.96%
ITALY BUONI POLIENNALI DE REGS	2.600	9/15/2023	Italy Govt/Agency	56,875,656	4.11%
US TREAS-CPI INFLAT	0.750	2/15/2042	U.S. Govt/Agency	52,512,551	3.80%
US TREAS-CPI INFLAT	1.125	1/15/2021	U.S. Govt/Agency	43,015,573	3.11%
UNITED KINGDOM GILT INFLA REGS	0.125	3/22/2044	U.K. Govt/Agency	41,288,878	2.99%
NEW ZEALAND GOVT IN REGS	3.000	9/20/2030	New Zealand Govt/Agency	35,950,387	2.60%
US TREAS-CPI INFLAT	0.125	4/15/2022	U.S. Govt/Agency	33,778,377	2.44%
MEXICAN UDIBONOS	4.000	11/15/2040	Mexico Govt/Agency	23,167,704	1.68%

Top Ten

### **EMERGING MARKET DEBT FUND**

**FAIR VALUE ILBF** 

Security Name	Coupon	Maturity	Market Value	%
BRAZIL NOTAS DO TESOURO NACION	10.000	1/1/2021	39,709,525	2.15%
MEXICAN BONOS	10.000	12/5/2024	27,417,050	1.49%
REPUBLIC OF SOUTH AFRICA GOVER	7.000	2/28/2031	26,264,324	1.42%
COLOMBIAN TES	7.000	5/4/2022	23,817,748	1.29%
COLOMBIAN TES	10.000	7/24/2024	18,477,017	1.00%
RUSSIAN FEDERAL BOND - OFZ	8.150	2/3/2027	18,359,629	1.00%
ARGENTINE REPUBLIC GOVERNMENT	Γ 7.500	4/22/2026	17,603,931	0.95%
BRAZIL NOTAS DO TESOURO NACION	10.000	1/1/2023	17,091,923	0.93%
JPMORGAN CHASE BANK NA 144A	8.375	9/17/2026	16,130,070	0.87%
RUSSIAN FEDERAL BOND - OFZ	7.600	4/14/2021	15,233,210	0.83%

Top Ten 11.93% \$220,104,429

**FAIR VALUE EMDF** \$1,844,542,809

\$465,080,479

\$1,382,416,735

33.64%

## CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS COMBINED INVESTMENT FUNDS

**TOP TEN HOLDINGS\* BY FUND AT JUNE 30, 2018 (Continued)** 

ŀ	4	и	G	H	1	Υ	1	F	П	ח	П	ח	F	R	Т	F	u	N	lГ	)
		ш,	${f -}$					_	_	$oldsymbol{-}$		$\boldsymbol{L}$		$\mathbf{-}$			v		4 1	•

Security Name	Coupon	Maturity	Market Value	%
U S TREASURY BILL	0.000	9/6/2018	19,931,200	0.94%
U S TREASURY BILL	0.000	11/15/2018	14,886,600	0.71%
U S TREASURY NOTE	1.250	5/31/2019	11,285,347	0.53%
INDONESIA GOVERNMENT INTE 144A	5.875	1/15/2024	9,441,770	0.45%
POLARIS INTERMEDIATE CORP 144A	8.500	12/1/2022	9,487,964	0.45%
ALTICE FRANCE SA/FRANCE 144A	6.000	5/15/2022	8,746,445	0.41%
TENET HEALTHCARE CORP	6.875	11/15/2031	8,190,047	0.39%
NEW STAR METALS INC	9.000	6/22/2022	8,179,421	0.39%
MEG ENERGY CORP 144A	7.000	3/31/2024	8,130,056	0.39%
NEW ALBERTSONS LP	7.450	8/1/2029	8,099,231	0.38%
Top Ten			\$106,378,081	5.04%

FAIR VALUE HYDF \$2,109,564,213

#### **DEVELOPED MARKET INTERNATIONAL STOCK FUND**

Security Name	Country	Market Value	%
ISHARES CORE MSCI EAFE ETF	Multiple Domicile	556,352,226	7.87%
NESTLE SA	Switzerland	86,435,658	1.22%
ROCHE HOLDING AG	Switzerland	72,589,764	1.03%
NOVARTIS AG	Switzerland	47,599,689	0.67%
SAP SE	Germany	45,419,353	0.64%
BAYER AG	Germany	45,084,855	0.64%
NOVO NORDISK A/S	Denmark	43,143,999	0.61%
AIA GROUP LTD	Hong Kong	42,166,399	0.60%
DBS GROUP HOLDINGS LTD	Singapore	38,769,433	0.55%
LVMH MOET HENNESSY LOUIS VUITT	France	37,647,375	0.53%
Top Ten		\$1,015,208,749	14.36%

FAIR VALUE DMISF \$7,071,927,935

#### **EMERGING MARKET INTERNATIONAL STOCK FUND**

Security Name	Country	Market Value	%
ISHARES CORE MSCI EMERGING ETF	MULTIPLE DOMICILE	878,969,563	31.62%
TENCENT HOLDINGS LTD	CHINA	146,824,514	5.28%
SAMSUNG ELECTRONICS CO LTD	SOUTH KOREA	130,190,950	4.68%
ALIBABA GROUP HOLDING LTD	CHINA	111,528,948	4.01%
TAIWAN SEMICONDUCTOR MANUFACTU	TAIWAN	96,755,872	3.48%
CHINA CONSTRUCTION BANK CORP	CHINA	77,226,461	2.78%
LUKOIL PJSC	RUSSIA	51,515,378	1.85%
AIA GROUP LTD	HONG KONG	49,557,050	1.78%
HDFC BANK LTD	INDIA	46,689,178	1.68%
INFOSYS LTD	INDIA	43,841,852	1.58%
Top Ten		\$1,633,099,766	58.75%

FAIR VALUE EMISF \$2,779,562,524

## COMBINED INVESTMENT FUNDS TOP TEN HOLDINGS\* BY FUND AT JUNE 30, 2018 (Continued)

	LECT			
REA	L E9	ΓΑΤΕ	ГU	NU

Partnership Name	Partnership Type	Market Value	%
PRIME PROPERTY FUND	Core	274,974,063	12.04%
CORNERSTONE PATRIOT FUND	Core	253,473,430	11.10%
HART REALTY ADVISORS	Core	218,377,677	9.56%
PRISA	Core	207,845,289	9.10%
AMERICAN REALTY ADVISORS	Core	165,301,184	7.24%
USAA EAGLE RE FUND	Core	140,600,644	6.16%
CLARION LION INDUSTRIAL TRUST	Value Added	130,172,102	5.70%
JPM CHASE STRATEGIC PROP FD	Core	104,322,514	4.57%
UBS TRUMBULL PROPERTY FUND	Core	89,494,498	3.92%
UBS TRUMBULL PROP G%I (TPG)	Value Added	70,749,203	3.10%
Top Ten		\$1,655,310,603	72.50%

FAIR VALUE REF \$2,283,139,537

### PRIVATE INVESTMENT FUND

Partnership Type	Market Value	%
Fund of Funds	311,760,899	11.49%
Fund of Funds	167,477,196	6.17%
Special Situations	111,757,366	4.12%
Buyout	98,652,129	3.64%
Buyout	90,812,149	3.35%
Fund of Funds	83,933,116	3.09%
Buyout	81,666,443	3.01%
Fund of Funds	80,469,570	2.97%
Fund of Funds	74,873,926	2.76%
Special Situations	71,613,885	2.64%
	1,173,016,679	43.25%
	Fund of Funds Fund of Funds Special Situations Buyout Buyout Fund of Funds Buyout Fund of Funds Fund of Funds Fund of Funds	Fund of Funds       311,760,899         Fund of Funds       167,477,196         Special Situations       111,757,366         Buyout       98,652,129         Buyout       90,812,149         Fund of Funds       83,933,116         Buyout       81,666,443         Fund of Funds       80,469,570         Fund of Funds       74,873,926         Special Situations       71,613,885

FAIR VALUE PIF \$2,712,365,156

<sup>\*</sup> A complete list of portfolio holdings is available upon request from the Office of the Treasurer, in accordance with the Connecticut Freedom of Information Act..

#### **GLOSSARY OF INVESTMENT TERMS**

- **Active extension** Active extension is defined as an investment strategy that allows for both long and short positions in an investment portfolio with a gross exposure above 100% of total portfolio value on an absolute basis, while maintaining a beta of one.
- **Agency Securities** Securities, usually bonds, issued by U.S. Government agencies. These securities have high credit ratings but are not backed by the full faith and credit of the U.S. Government.
- **All-cap** An investment approach that disregards market capitalization (i.e. small, medium, or large cap) in its security selection process.
- **Alpha** A coefficient which measures risk-adjusted performance, factoring in the risk due to the specific security, rather than the overall market. A high value for alpha implies that the stock or mutual fund has performed better than would have been expected given its beta (volatility).
- **Asset** Anything owned that has economic value; any interest in property, tangible or intangible, that can be used for payment of debts.
- **Asset Backed Security** Bonds or notes collateralized by one or more types of assets including real property, mortgages, and receivables.
- At Value A term used to denote the current value of an asset at a point in time. Generally used in presentations containing a mix of assets some of which are traded on an exchange and some that are valued on an appraisal or similar basis.
- **Banker's Acceptance (BA)** A high-quality, short-term negotiable discount note, drawn on and accepted by banks which are obligated to pay the face amount at maturity.
- **Basis Point (bp)** The smallest measure used in quoting yields or returns. One basis point is 0.01% of yield, 100 basis points equals 1%. For example, a yield that changed from 8.75% to 9.50% has increased by 75 basis points.
- **Benchmark** A standard unit used as the basis of comparison; a universal unit that is identified with sufficient detail so that other similar classifications can be compared as being above, below, or comparable to the benchmark.
- **Benchmark composite** A term used when reporting on a portfolio containing multiple asset classes. The composite is generally calculated as a weighted average of the benchmarks of the underlying portfolios.
- Beta A quantitative measure of the volatility of a given stock, mutual fund or portfolio relative to the overall market.
- **Book Value (BV)** The value of individual assets, calculated as actual cost minus accumulated depreciation. Book value may be more or less than current market value.
- Buyout See "Leveraged Buyout"
- **Capital Gain (Loss)** Also known as capital appreciation (depreciation), capital gain (loss) measures the increase (decrease) in valuation of an asset over time.
- Capitalized Fees Fees (and expenses) that increase the cost basis of an investment.
- **Certificates of Deposit (CDs)** A debt instrument issued by banks, usually paying interest, with maturities ranging from 3 months to six years.
- **Citigroup Broad Investment-Grade Bond Index (CBIG)** A market value-weighted index composed of over 4,000 individually priced securities with a quality rating of at least BBB. Each issue has a minimum maturity of one year with an outstanding par amount of at least \$25 million.
- **Citigroup World Government Bond Index Non-U.S. (CWGBI)** An unhedged index measuring government issues of 12 major industrialized countries.
- Close-End fund Funds that have set limits on the life of the fund and/or the total amount to be invested.
- Coefficient of Determination (R2) A measurement of how closely the returns of an investment portfolio and its benchmark match. An R2 of 1.0 indicates that portfolio returns perfectly match the returns of the benchmark, while a value less than 1.0 indicates that the returns of the portfolio do not match the benchmark return. The closer the value is to 1 the closer the return of the portfolio is to the benchmark.
- Collateral Assets pledged by a borrower to secure a loan or other credit, and subject to seizure in the event of default.
- **Collateralized Mortgage Obligation (CMO)** A mortgage-backed, investment-grade bond that separates mortgage pools into different maturity classes. CMO payment obligations are backed by mortgage-backed securities with a fixed maturity.
- **Commercial Paper** Short-term obligations with maturities ranging from 2 to 270 days. An unsecured obligation issued by a corporation or bank to finance its short-term credit needs.
- **Commingled fund** A fund consisting of assets from multiple investors that are blended together. A mutual fund is a common example of a commingled fund.

#### **GLOSSARY OF INVESTMENT TERMS (Continued)**

- **Committed capital** Money that is committed by limited partners to a private investment fund. Company risk The risk of investing in any single company's stock or bonds.
- Compounded Annual Total Return Compounded annual total return measures the implicit annual percentage change in value of an investment, assuming reinvestment of dividends, interest, and realized capital gains, including those attributable to currency fluctuations. In effect, compounded annual total return "smoothes" fluctuations in long-term investment returns to derive an implied year-to-year annual return.
- Consumer Price Index (CPI) A measure of change in the cost of a fixed basket of products and services as determined by a monthly survey of the U.S. Bureau of Labor Statistics. Components of the CPI include housing costs, food, transportation, and electricity.
- **Core real estate strategy** Lower risk, low leverage, vehicles that invest in stabilized income-producing properties that provide steady net operating income or cash flow. Properties are usually located in major regional markets, have investment grade tenants, at-market rents, and high occupancy levels.
- Cost basis The original price paid for an investment.
- **Counter-party risk** The risk to each party of a contract that the counterparty will not live up to its contractual obligations. Credit default risk The risk that a debtor will not make payments in accordance with the terms of the debt.
- Credit risk The risk that a borrower will fail to make payments in a timely manner.
- **Cumulative Rate of Return** A measure of the total return earned for a particular time period. This calculation measures the absolute percentage change in value of an investment over a specified period, assuming reinvestment of dividends, interest income, and realized capital gains. For example, if a \$100 investment grew to \$120 in a two-year period, the cumulative rate of return would be 20%.
- **Currency exchange risk** The risk that a foreign country's currency may appreciate or depreciate relative to the U. S. dollar, thus impacting the value of foreign investments.
- **Currency hedging** Transactions intended to manage the foreign exchange rate risk associated with investing in foreign securities.
- **Currency spot** A contract for the purchase or sale of a commodity, security or currency for settlement (payment and delivery) on the spot date, which is normally two business days after the trade date.
- **Current Yield** The relationship between the stated annual interest or dividend rate and the market price of a security. In calculating current yield, only income payments are considered; no consideration is given to capital gain/loss.
- **Default risk** The chance that an issuer will not make the required coupon payments or principal repayments to its debt holders.
- **Derivative** Derivatives are generally defined as contracts whose value depend on, or are derived from, the value of an underlying asset, reference rate, or index. For example, an option is a derivative instrument because its value derives from an underlying stock, stock index, commodity.
- **Discount Rate** The interest rate that the Federal Reserve charges banks for loans, using government securities or eligible paper as collateral.
- **Diversification** A portfolio strategy designed to reduce exposure to risk by putting assets in several different securities or categories of investments.
- **Drawdown** (a) A request for cash charged against capital committed to a limited partnership, limited liability corporation, or other like entity; (b) a decline in the current value of an investment or other asset. Duration Duration is a measure of the price sensitivity of a fixed-income investment to a change in interest rates. (See Modified and Macaulay Duration).
- **Economic risk** The risk that economic activities will negatively impact an investment.
- **Enhanced indexing** Refers to the application of strategies to an index fund designed to generate higher rates of returns. Equity The ownership interest possessed by shareholders in a corporation in the form of common stock or preferred stock.
- **ERISA (Employee Retirement Income Security Act)** The 1974 federal law which established legal guidelines for private pension plan administration and investment practices.
- **Expense Ratio** Operating costs (including management fees) expressed as a percentage of the fund's average net assets for a given time period.
- **Fair Value** The amount at which a financial instrument could be exchanged in a current transaction between willing parties, other than in a forced or liquidation sale.
- **Federal Funds Rate** The interest rate that banks charge each other for the use of Federal Funds. This rate changes daily and is a sensitive indicator of general interest rate trends.

#### **GLOSSARY OF INVESTMENT TERMS (Continued)**

- **Federal Reserve Board** The seven member Board of Governors that oversees Federal Reserve Banks, establishes monetary policy and monitors the economic health of the economy.
- **Fiduciary** A person, company, or association holding assets in trust for a beneficiary. The fiduciary is charged with the responsibility to invest the assets prudently and solely for the beneficiary's benefit.
- Fitch Investor Services A financial services rating agency.
- **Floating Rate Note** A fixed principal instrument which has a long or even indefinite life and whose yield is periodically reset relative to a reference index rate to reflect changes in short- or intermediate-term interest rates.
- **Forward contract** A contract between two parties that requires the parties to sell or purchase an asset at a price set when the contract is entered into for settlement at a specified future date.
- Funded Capital Amount of cash invested. Geopolitical risk See "Political risk".
- **Gross Domestic Product** Total market value of goods and services produced in a country over a particular period of time, usually one year. The GDP growth rate is the primary indicator of the health of the economy.
- **Hedge** An investment in assets which serves to reduce the risk of adverse price movements in a security, by taking an offsetting position in a related security, such as an option or short sale.
- Index A benchmark of securities used as an independent representation of market performance. Example: S&P 500 index.
  Index Fund A passively managed fund constructed to mirror the performance of a specific index, such as the S&P 500.
  Individual company risk The risk associated with investment in the securities of any single company.
- **Inflation** The overall general upward price movement of goods and services in an economy, usually as measured by the Consumer Price Index and the Producer Price Index.
- Inflation risk The risk that the value of an investment will erode as a result of inflationary pressures.
- Interest rate risk The risk that changes in the general level of interest rates will adversely affect the fair value of an investment.
- Investment Income The equity dividends, bond interest, and/or cash interest paid on an investment.
- **J-Curve** An economic theory stating that a policy designed to have one effect will initially have the opposite effect. With regard to closed end commingled fund investments, this generally refers to a trend whereby a fund's return tends to be negative in the early years of a fund's existence until income and valuations increase in the later periods as investments mature and as the relative size of fees and other costs diminish relative to the value of invested capital.
- JP Morgan Emerging Markets Bond Index Plus (EMBI+) An index which tracks total returns for traded external debt instruments in the emerging markets. The instruments include external-currency-denominated Brady bonds, loans and Eurobonds, as well as U.S. dollar denominated local market instruments. The EMBI+ expands upon JP Morgan's original Emerging Markets Bond Index, which was introduced in 1992 and covers only Brady bonds.
- **Letter of Credit** An instrument or document issued by a bank, guaranteeing the payment of a customer's drafts up to a stated amount for a specified period. It substitutes the bank's credit for the buyer's and reduces the seller's risk.
- **Leverage** The use of borrowed funds to increase purchasing power and, ideally, to increase profitability of an investment transaction or business.
- **Leveraged buyout** A leveraged buyout (LBO) is an acquisition (usually of a company) financed through a combination of equity and debt and in which the cash flows or assets of the target are used to secure and repay the debt used to finance the acquisition.
- **Liability** The claim on the assets of a company or individual excluding ownership equity. An obligation that legally binds an individual or company to settle a debt.
- **Limited Partnership** A partnership formed by two or more entities with at least one limited partner and one general partner. Limited partner responsibility for debts and losses is limited to the amount of their investment in the partnership. In addition, the limited partner does not participate in the activities of the partnership. The general partner has control over the management of the partnership and has unlimited liability for partnership debt and losses.
- Liquidity risk The risk that an investment cannot be immediately liquidated unless discounted in value.
- **Macaulay Duration** The weighted-average term to maturity of a bond's cash flows. The weighting is based on the present value of each cash flow divided by price.
- Management risk The risks associated with ineffective, destructive or underperforming management.
- **Marked-to-market pricing** An accounting practice in which the price of an investment recorded within the accounting records is the market value at the end of the month.
- Market Risk The risk that fluctuations in the overall market for securities will impact an investment portfolio.

#### **GLOSSARY OF INVESTMENT TERMS (Continued)**

- **Market Value** A security's last reported sale price or its current bid and ask prices. The price as determined dynamically by buyers and sellers in an open market.
- **Master Custodian** An entity, usually a bank, used for safekeeping of securities and other assets. May be responsible for other functions including accounting, performance measurement and securities lending.
- **Maturity Date** The date on which the principal amount of a bond or other debt instrument becomes payable or due. Mezzanine Debt Debt that incorporates equity-based options, such as warrants, and is subordinated debt.
- MFR Index (iMoneyNet's First Tier Institutional-only Rated Money Fund Report AveragesTM Index) An index which represents an average of the returns of institutional money market mutual funds that invest primarily in first-tier (securities rated A-1. P-1) taxable securities.
- **Modified Duration** A measure of the price sensitivity of a bond to interest rate movements. It is the primary basis for comparing the effect of interest rate changes on prices of fixed income securities.
- **Money Market Fund** An open-ended mutual fund that invests in commercial paper, bankers' acceptances, repurchase agreements, government securities, certificates of deposit, and other highly liquid and safe securities and pays money market rates of interest. The fund's net asset value remains a constant \$1 per share only the interest rate goes up or down.
- Moody's (Moody's Investors Service) A financial services rating agency.
- **MSCI EAFE** Morgan Stanley Europe Australasia Far East foreign equity index. An arithmetic value weighted average of the performance of over 900 securities on the stock exchanges of 23 countries on three continents. NCREIF (National Council of Real Estate Investment Fiduciaries) National Council of Real Estate Investment Fiduciaries, a non-profit organization established to serve the institutional real estate investment community as a non-partisan collector, processor, validator and disseminator of real estate performance information.
- **Net Asset Value (NAV)** The total assets (including any valuation gains or losses on investments or currencies) minus total liabilities divided by shares outstanding.
- **Netted Fees** Refers to instances in which investment management fees/expenses are offset against income normally distributed to investors. May also refer to practices whereby investment management fees/expenses are added to the cost basis of an investment.
- **NPI -** NCREIF Property Index. The NCREIF Property Index is a quarterly time series composite total rate of return measure of investment performance of a very large pool of individual commercial real estate properties acquired in the private market for investment purposes only. Properties comprising this benchmark, which include wholly owned and joint venture investments, are held on an all-cash, non-leveraged basis, and is restricted to investment-grade, nonagricultural, and income-producing properties.
- **Open-End fund** A fund operated by an investment company in accordance with a stated set of objectives. Open-end funds raise money by periodically selling shares of the fund to the public.
- **Operations risk** The risk associated with negative operating events (net operating losses, inventory write-downs, breakdown in internal procedures, etc).
- **Par Value** The stated or face value of a stock or bond. While it has little significance for common stocks, for bonds, it specifies the payment amount at maturity.
- **Pension Fund** A fund set up by a corporation, labor union, governmental entity, or other organization to provide retirement income.
- **Percentile** A description of the percentage rank of a portfolio's performance, relative to a larger universe of portfolios. Political Risk The risk resulting from political changes or instability in a country's system of government, laws or regulation. Prepayment risk The risk associated with the prepayment of fixed income investments in a declining rate environment.
- **Present Value** The current value of a future cash flow or series of cash flows discounted at an appropriate interest rate or rates. For example, at a 12% interest rate, the value of one dollar a year from now has a present value of \$0.89286.
- **Price/Book (P/B)** A ratio showing the price of a stock divided by its book value per share. The P/B measures the multiple at which the market is capitalizing the net asset value per share of a company at any given time.
- **Price/Earnings (P/E)** A ratio showing the price of a stock divided by its earnings per share. The P/E measures the multiple at which the market is capitalizing the earnings per share of a company at any given time.
- **Principal** Face value of an obligation, such as a bond or a loan, that must be repaid at maturity. Product risk The risk associated with the introduction of a new product or process.
- Prudent Person Rule The standard adopted by some states to guide those fiduciaries with responsibility for investing the

#### **GLOSSARY OF INVESTMENT TERMS (Continued)**

money of others. Such fiduciaries must act as a prudent person would be expected to act, with discretion and intelligence, to seek reasonable income, preserve capital, and, in general, avoid speculative investments.

Purchasing power risk- See "Inflation risk"

**Pure indexing** - Refers to the application of strategies to an index fund designed to exactly match the returns of the portfolio benchmark.

R2 - See "Coefficient of Determination"

Real interest rate - An interest rate that has been adjusted to remove the effects of inflation.

Real rate of return - The return realized on an investment adjusted for changes due to inflation or other external effects.

Realized Gain (Loss) - A gain (loss) that has occurred financially. The difference between the principal amount received and the cost basis of an asset realized at sale.

Reinvestment risk – The risk that cash flows received from a security will be reinvested at lower rates due to declining interest rates

**Relative Volatility** - The standard deviation of the Fund divided by the standard deviation of its selected benchmark. A relative volatility greater than 1.0 suggests comparatively more volatility in Fund returns than those of the benchmark.

**Repurchase Agreements ("Repos")** - A contract in which the seller of securities, such as Treasury Bills, agrees to buy them back at a specified time and price. Repos are widely used as a money market instrument.

**Return on Equity (ROE)** - Net income of a company (after payment of preferred stock dividends but before payment of common stock dividends) divided by common shareholder equity. Reverse Repurchase Agreements ("Reverse Repos") - A purchase of securities with an agreement to resell them at a higher price at a specific future date.

Risk Adjusted Return - A measure of investment return which accounts for the amount of risk taken over a specified period.

**Russell 3000** - An equity index comprised of the securities of the 3,000 largest public U.S. companies as determined by total market capitalization. This index represents approximately 98% of the U.S. equity market's capitalization.

**Securities Lending** - A collateralized process of loaning portfolio positions to custodians, dealers, and short sellers who must make physical delivery of positions. Securities lending may reduce custody costs or enhance annual returns by a full percentage point or more in certain market environments.

Senior debt securities - Debt that must be paid off before other liabilities in the event of a business failure or bankruptcy.

**Separate accounts** - An investment portfolio managed by a third party investment manager in which the investor directly owns the securities within the portfolio.

**Soft Dollars** - The value of research or other services that brokerage houses and other service entities provide to a client "free of charge" in exchange for the client's brokerage.

**S&P 500 (Standard & Poor's)** - A basket of 500 stocks chosen for market size, liquidity and industry grouping, among other factors, designed to represented a US equity universe of large capitalization stocks.

S&P Credit Ratings Service - A financial services rating agency.

**Special situations** - Private equity investments in a variety of securities (Debt, Preferred Equity and/or Common Equity) in portfolio companies at a variety of stages of development (Seed, Early Stage, Later Stage).

**Standard Deviation** - A measure of the dispersion of a set of data from its mean. Often used as a measure of investment volatility or risk, it measures how much an investment return may vary from its average return.

Tail risk - The risk that a loss (or gain) would be three standard deviations from the mean or current price.

**Treasury Bill (T-Bill)** - Short-term, highly liquid government securities issued at a discount from the face value and returning the face amount at maturity.

**Treasury Bond or Note** - Debt obligations of the Federal government that make semiannual coupon payments and are sold at or near par value in denominations of \$1,000 or more.

**Trust** - A fiduciary relationship in which a person, called a trustee, holds title to property for the benefit of another person, called a beneficiary.

**TUCS** - Trust Universe Comparison Service. TUCS is a universe based upon a pooling of quarterly trust accounting data from participating banks and other organizations that provide custody for trust assets.

**Turnover** - Security purchases and sales divided by the fiscal year's average market value {(P+S)/[(BMV+EMV)/2]} for a given portfolio.

**Unhedged** - Not protected from market actions.

Un-levered - Investments made without the use of debt or debt like securities.

## **GLOSSARY OF INVESTMENT TERMS (Continued)**

- **Unrealized Gain (Loss)** A profit (loss) that has not been realized through the sale of a security. The gain (loss) is realized when a security or futures contract is actually sold or settled.
- Variable Rate Note Floating rate notes with a coupon rate adjusted at set intervals, such as daily, weekly, or monthly, based on different interest rate indices, such as LIBOR, Fed Funds, and Treasury Bills.
- **Vintage year** The year in which a capital commitment is made to an investment, most often applied to real estate and private equity investments.
- **Volatility** A statistical measure of the tendency of a market price or yield to vary over time. Volatility is said to be high if the price, yield, or return typically changes dramatically in a short period of time.
- **Warrant** A security that entitles the holder to buy a specific security at a specified price within a specified time frame. Yield The income return on an investment.
- **Yield Curve** A graph showing the term structure of interest rates by plotting the yields of all bonds of the same quality with maturities ranging from the shortest to the longest. The Y-axis represents the interest rate and the X-axis represents time, generally with a normal curve that is convex in shape.
- Zero Coupon Bond A bond paying no interest that sells at a discount and returns principal only at maturity.

#### UNDERSTANDING INVESTMENT PERFORMANCE

#### Introduction

This section discusses the Treasury's approach to measuring performance, including risk and return of the Connecticut Retirement Plans and Trust Funds (CRPTF).

# **Understanding Performance**

To measure success in achieving the primary objective of the Asset Allocation Plan, the Fund's performance is evaluated in two principal areas: risk and return. The results of these reviews, coupled with information on portfolio characteristics, are used to monitor and improve the performance of the Fund's external investment managers.

To monitor and evaluate Fund performance and measurements of risk and return, CRPTF performance is compared to those of similarly structured peer groups and indices. In addition, the performance of the Combined Investment Funds (CIF) invested in by the various plans and trusts is compared to the performance of their respective benchmarks. Each CIF's benchmark is selected on the basis of portfolio composition, investment style, and objectives. The benchmark comparisons enable plan participants, the Treasurer and the Investment Advisory Council, to determine whether and by how much CIF returns exceeded or fell short of their respective benchmarks. The comparisons provide an understanding of the reason for the CIF's performance relative to their benchmarks.

Comparative performance is reviewed over both the near-term and the long-term for two reasons. First, pension management is, by its very nature, a long-term process. While both young and old employees comprise the pool of plan beneficiaries, the increasing life span of plan participants makes it important that plan assets be managed for the long term. Second, as experience has shown, results attained in the short term are not necessarily an indicator of results to be achieved over the long term. Performance must be viewed in a broad context.

Overall performance is measured by calculating monthly returns and linking them to provide one-, three-, fiveand ten-year histories of overall investment performance. Short-term performance is measured by total return over one-month, quarter-end, and trailing one-year time periods. Risk is also measured over both short- and long-term periods

### Risk

The measurement of risk is a critical component in investment management. It is the basis for both strategic decision- making and investment evaluation. Investors assume risk to enhance portfolio returns. The primary objective is to generate returns in excess of those available in "risk-free" investments, such as Treasury Bills. The amount of excess returns varies in magnitude according to the degree of risk assumed. Many investors focus on the negative aspects of risk and in doing so forego substantial upside potential, which can significantly enhance long-term returns. Thus, while risk can never be completely eliminated from a portfolio, the prudent management of risk can maximize investment returns at acceptable levels of risk.

Risk can take several forms and include: <u>market risk</u>, the risk of fluctuations in the overall market for securities; <u>company risk</u>, the risk of investing in any single company's stock or bonds; <u>currency-exchange risk</u>, the risk that a foreign country's currency may appreciate or depreciate relative to the U.S. dollar, thus impacting the value of foreign investments; and political risk, risk incurred through investing in foreign countries with volatile economies and political systems.

With respect to fixed income investments, investors also assume: reinvestment risk, the risk that cash flows received from a security will be reinvested at lower rates due to declining interest rates; credit or default risk, the risk that the issuer of a fixed income security may fail to make principal and interest payments on the security; interest rate risk, the risk that the market value of fixed coupon bonds will decline in the event of rising market interest rates; and inflation or purchasing power risk, the risk that the real value of a security and its cash flows may be reduced by inflation. The level of risk incurred in fixed income investing increases as the investment time horizon is lengthened. This is demonstrated by the comparatively higher yields available on "long bonds," or bonds maturing in 20 to 30 years, versus those available on short-term fixed income securities.

#### **UNDERSTANDING INVESTMENT PERFORMANCE (Continued)**

In the alternative investment category, risks are significantly greater than those of publicly traded investments. Assessment of progress is more tenuous and valuation judgments are more complex. The investor assumes not only <u>management, product, market, and operations risk</u>, similar to equity investing, but also assumes <u>liquidity risk</u>, the risk that one's investment cannot be immediately liquidated at other than a substantially discounted value. An additional risk to this category is transparency risk, the risk associated with not knowing the underlying investments within a portfolio.

# Volatility

To measure the effects of risk on the portfolio, the volatility of returns is calculated over time. Volatility, viewed as the deviation of returns from an average of these returns over some period of time, is measured statistically by <u>standard deviation</u>. Funds with high standard deviations are considered riskier than those with low standard deviations.

To evaluate the significance of the CIF's standard deviation, each CIF's <u>relative volatility</u>, or the ratio of the CIF's standard deviation to that of the benchmark is calculated. A relative volatility greater than 1.0 indicates that the CIF is more volatile than the benchmark while a measure less than 1.0 indicates less volatility. A relative volatility of 1.0 indicates that the volatility of the CIF is the same as the benchmark.

As an extension of standard deviation, each CIF's <u>beta</u>, (a measure of the relative price fluctuation of the CIF to its benchmark) is also calculated. The measurement of beta allows one to evaluate the sensitivity of Fund returns to given movements in the market and/or its benchmark. A beta greater than 1.0 compared to the selected market benchmark signifies greater price sensitivity while a beta less than 1.0 indicates less sensitivity.

To measure the degree of correlation between CIF returns and the benchmark, the Division calculates the <u>coefficient of determination</u>, or R2. This calculation, which is used in conjunction with beta, allows one to evaluate how much of the volatility in CIF returns is explained by returns in the selected market benchmark. An R2 of 1.0 indicates that CIF returns are perfectly explained by returns of the benchmark, while a value less than 1.0 indicates that the returns of the benchmark explain only a portion of the fund return.

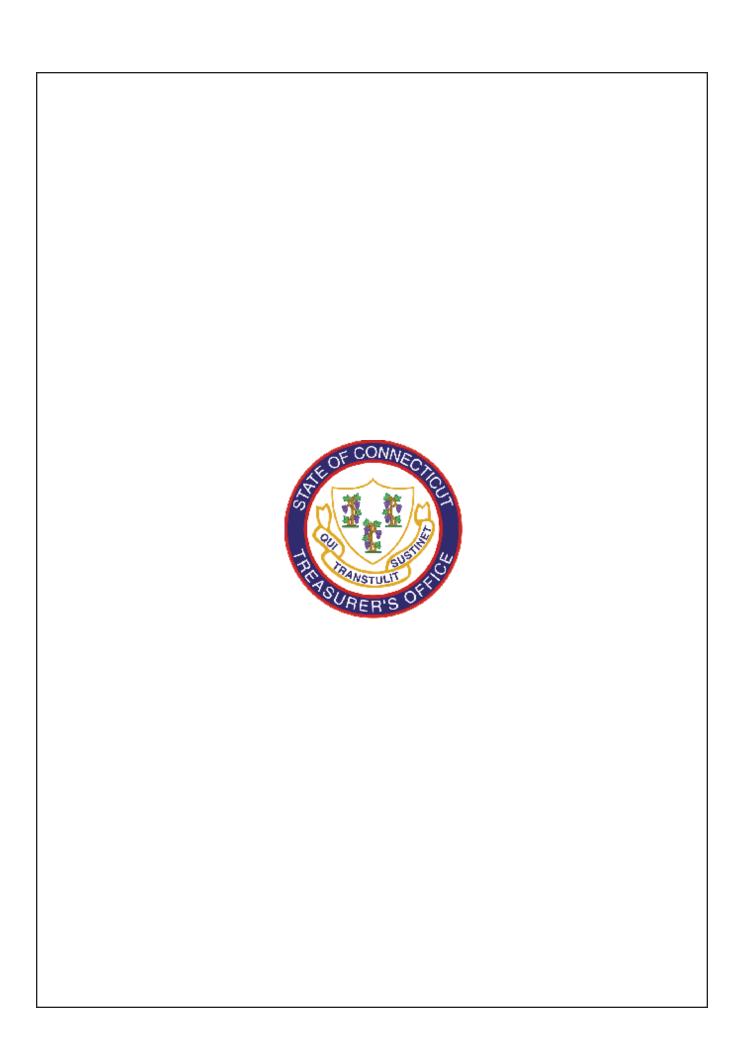
Finally, to evaluate how well each of the above measures actually predicted returns of the CIF, a calculation is performed on the CIF's <u>alpha</u>. This calculation measures the absolute difference between the CIF's monthly return and that predicted by its beta. Used together, these measures provide a comprehensive view of a CIF's relative risk profile.

#### Return

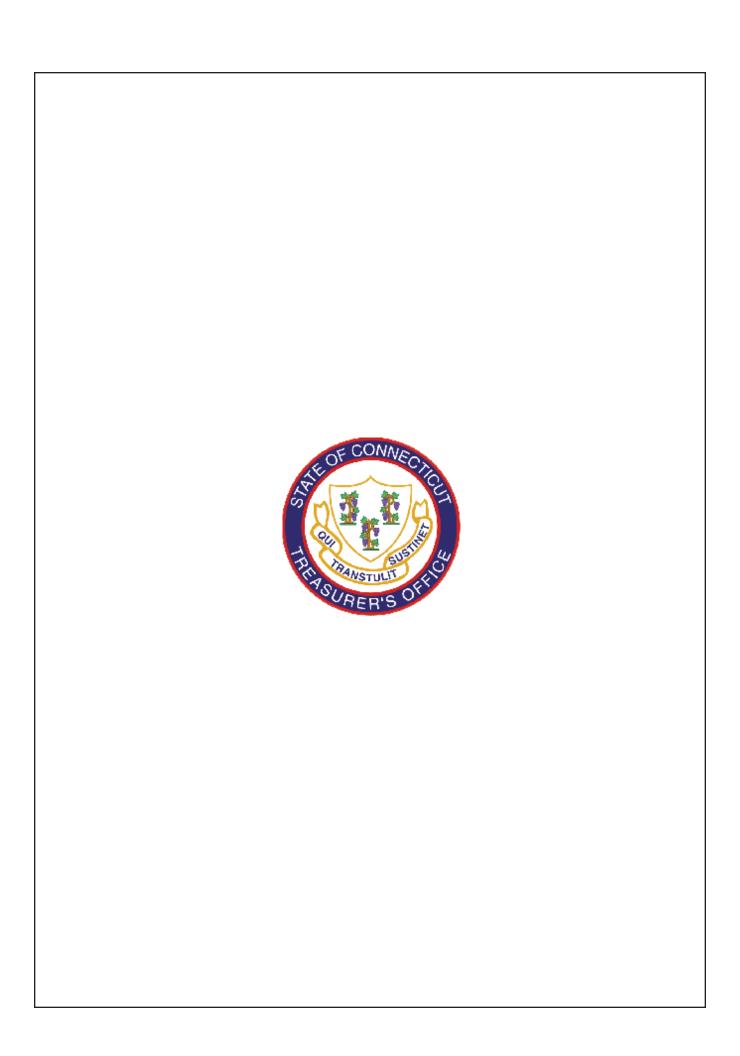
The Pension and Trust Funds are managed to maximize return and minimize risk. Return, viewed in this context, includes realized and unrealized gains in the market value of a security, including those attributable to currency fluctuations, as well as income distributed by a security such as dividends and interest. Return is measured through two calculations: compounded annual total return and cumulative total return.

Compounded Annual Total Return - This return measure evaluates performance over the short and long-term. Compounded annual total return measures the implicit annual percentage change in value of an investment, assuming reinvestment of dividends, interest, and realized and unrealized capital gains, including gains attributable to currency fluctuations. In effect, compounded annual total return "smooths" fluctuations in long-term investment returns to derive an implied year-to-year annual return.

Cumulative Total Return - This calculation measures the absolute percentage change in value of an investment over a specified period, assuming reinvestment of dividends, interest income, and realized capital gains. While this calculation does not "smooth" year-to-year fluctuations in long-term returns to derive implied annual performance, cumulative total return allows one to see on an absolute basis the percentage increase in the total Fund's value over a specified time. Viewed graphically, cumulative total return shows one what a \$10 million investment in the CRPTF a set number of years ago would be worth today.







# CONNECTICUT STATE TREASURER'S COMBINED INVESTMENT FUNDS STATISTICAL SECTION

This part of the Combined Investment Fund's (CIF's) comprehensive annual financial report presents detailed information as a context for understanding what the information in the financial schedules and other supplementary information say about the overall financial health of CIF. The schedules within this statistical section comply with the requirements of GASB 44.

### Financial Trends

These schedules contain the ten-year trend information on the financial performance of CIF.

Sc	hedule	Page Page
0	Per share data	139
0	Schedule of rates of return	139
0	Schedule of financial ratios	139
0	Schedule of balances in Combined Investment Funds	141

# Revenue Capacity

Revenue capacity is not applicable to CIF.

# **Borrowing Capacity**

Borrowing capacity is not applicable to CIF.

# Demographic and Economic Information

These schedules show the breakdown between CIF funds, growth of the fund and rate of return information.

<u>Sc</u>	hedule	<u>Page</u>
0	Investment summary	142
0	Annual money-weighted rates of return	145

# **Operating Information**

The summary of operations schedule outlines the expenses, additions and deductions associated with the management of CIF.

Sc	hedule	Page Page
0	Schedule of Net Position	146

Sources: Unless otherwise noted, the information in these schedules is derived from the comprehensive annual financial reports for the relevant year. CIF implemented Statement 34 in fiscal year 2005.

CONNECT								NT FU	NDS	
SUPPLE						IIGHLIG	піъ			
LIQUIDITY FUND FISCAL YEAR ENDED JUNE 30, PER SHARE DATA	AL1 2018	ZO17	E INVESTI 2016	MENT FUN 2015	ID 2014	2018	2017	2016	2015	2014
Net Position- Beginning of Period	\$0.98	\$0.98	\$0.98	\$1.00	\$1.00	\$1.21	\$1.12	\$1.19	\$1.13	\$1.06
INCOME FROM INVESTMENT OPERATIONS Net Investment Income (Loss) Net Gains or (Losses) on Securities	\$0.02	\$0.02	\$0.01	\$0.01	\$0.01	\$0.01	\$-	\$-	\$-	\$-
(Both Realized and Unrealized) Total from Investment Operations LESS DISTRIBUTIONS	\$0.01 \$0.03	\$- \$0.02	\$- \$0.01	\$(0.02) \$(0.01)	\$\$0.01	\$0.05_ \$0.06_	\$0.09 \$0.09	\$(0.07) \$(0.07)	\$0.06 \$0.06	\$0.07 \$0.07
Dividends from Net Investment Income Net Position - End of Period TOTAL RETURN	\$(0.02) \$0.99 1.63%	\$(0.02) \$0.98 0.96%	\$(0.01) \$0.98 0.68%	\$(0.01) \$0.98 -1.07%	\$(0.01) \$1.00 0.54%	\$- \$1.27 4.69%	\$- \$1.21 8.51%	\$- \$1.12 -5.32%	\$- \$1.19 3.98%	\$1.13 6.63%
RATIOS Net Position - End of Period (\$000,000 Omitted) Ratio of Expenses to Average Net Position	\$2,003	\$2,919	\$1,980	\$2,194	\$2,188	\$2,423	\$2,028	\$1,804	\$1,821	\$1,350
(excl. sec. lending fees & rebates) Ratio of Expenses to Average Net Position Ratio of Net Investment Income	0.13% 0.13%	0.12% 0.12%	0.09% 0.09%	0.25% 0.25%	0.24% 0.24%	0.06% 0.06%	0.05% 0.05%	0.06% 0.06%	0.08% 0.08%	0.08% 0.08%
(Loss) to Average Net Position	2.05%	1.81%	1.18%	0.83%	0.57%	0.41%	0.29%	0.24%	0.19%	0.14%
FISCAL YEAR ENDED JUNE 30,	2018	MUT 2017	UAL EQUI 2016	ITY 2015	2014	2018	COR 2017	E FIXED	NCOME 2015	2014
PER SHARE DATA — Net Position- Beginning of Period	\$1,849.99	1,551.24 \$	1,524.55	\$1,420.60	\$1,138.66	\$131.77	\$129.52	\$125.17	\$122.59	\$118.20
Net Investment Income (Loss) Net Gains or (Losses) on Securities	\$31.14	\$30.79	\$28.23	\$24.23	\$21.53	\$3.02	\$2.80	\$2.86	\$2.63	\$2.91
(Both Realized and Unrealized) otal from Investment Operations ESS DISTRIBUTIONS	\$241.76 \$272.90	\$267.96 \$298.75	\$(1.54) \$26.69	\$79.72 \$103.95	\$265.34 \$286.87	\$(4.34) \$(1.32)	\$(0.55) \$2.25	\$1.49 \$4.35	\$(0.05) \$2.58	\$2.02 \$4.93
Net Position - End of Period  TOTAL RETURN	\$- \$2,122.89 14.74%	\$- \$1,849.99 \$19.26%	\$- 61,551.24 1.75%	\$- \$1,524.55 7.32%	\$(4.93) \$1,420.60 25.28%	\$130.45 -0.89%	\$- \$131.77 1.89%	\$- \$129.52 3.46%	\$- \$125.17 1.85%	\$(0.54 \$122.59 4.28%
AATIOS let Position - End of Period (\$000,000 Omitted) atio of Expenses to Average Net Position	\$7,755			. ,	\$7,058	\$3,118	. ,	. ,	\$2,437	\$2,41
(excl. sec. lending fees & rebates) Ratio of Expenses to Average Net Position Ratio of Net Investment Income (Loss) to Average Net Position	0.24% 0.39% 1.57%		0.29%	0.23%	0.22% 0.23% 1.73%	0.14% 0.27% 2.30%	0.17%	0.14% 0.16% 2.25%	0.15% 0.16% 2.12%	0.17' 0.18' 2.56'
ISCAL YEAR ENDED JUNE 30,	2018	2017	N LINKED	2015	2014	2018	2017	ING MAR 2016	KET DEBT 2015	2014
PER SHARE DATA  Let Position- Beginning of Period	\$156.02	\$155.00	\$151.53	\$155.97	\$150.54	\$ <u>174.23</u>	\$159.68	\$150.63	\$162.98	\$152.34
NCOME FROM INVESTMENT OPERATIONS										
let Investment Income (Loss) let Gains or (Losses) on Securities	\$0.13	\$(0.17)	\$(0.11)	\$(0.76)	\$4.65	\$11.21	\$11.96	\$15.30	\$10.11	\$8.68
(Both Realized and Unrealized)  otal from Investment Operations  ESS DISTRIBUTIONS	<u>\$4.88</u> \$5.01	\$1.19 \$1.02	\$3.58 \$3.47	\$(3.68) \$(4.44)	\$1.50 \$6.15	\$(14.31) \$(3.10)	_	\$(6.25) \$9.05	\$(22.46) \$(12.35)	\$1.96 \$10.64
Dividends from Net Investment Income let Position - End of Period OTAL RETURN	\$- \$161.03 3.21%			\$- \$151.53 -2.85%	\$(0.72) \$155.97 4.17%	\$- \$171.13 -1.78%			\$- \$150.63 -7.57%	\$- \$162.98 6.99
RATIOS										
Net Position - End of Period (\$000,000 Omitted) Ratio of Expenses to Average Net Position (excl. sec. lending fees & rebates)	\$1,399		\$1,322 0.27%	\$1,131 0.23%	\$1,079	\$1,902		\$1,498	\$1,415	\$1,514 0.27
Ratio of Expenses to Average Net Position Ratio of Net Investment Income	0.26% 0.56%				0.22% 0.18%	0.46% 0.49%				0.2
(Loss) to Average Net Position	0.08%	-0.11%	-0.07%	-0.50%	2.97%	6.50%	7.16%	9.86%	6.45%	5.50

# SUPPLEMENTAL SCHEDULE OF FINANCIAL HIGHLIGHTS (Continued)

				_						
EICCAL VEAD ENDED THE 20	2040		YIELD DE		2014			ARKET II		
FISCAL YEAR ENDED JUNE 30, PER SHARE DATA Net Position- Beginning of Period	<b>2018</b> \$154.86	<b>2017</b> \$137.81	<b>2016</b> \$138.05	<b>2015</b> \$139.80	<b>2014</b> \$125.63	2018 \$537.14	\$430.35	<b>2016</b> \$463.22	<b>2015</b> \$460.14	<b>2014</b> \$378.32
Net Fosition- Beginning of Feriod	φ134.00	φ137.01	φ130.03	φ139.00	φ123.03	φ557.14	ψ430.33	φ403.22	φ400.14	φ370.32
INCOME FROM INVESTMENT OPERATIONS  Net Investment Income (Loss)	\$10.09	\$9.35	\$8.72	\$8.06	\$7.86	\$13.96	\$13.00	\$11.50	\$11.36	\$13.40
Net Gains or (Losses) on Securities (Both Realized and Unrealized)	\$(6.07)	\$7.70	\$(8.96)	\$(9.81)	\$7.30	\$21.15	\$93.79	\$(44.37)	\$(8.28)	\$70.75
Total from Investment Operations	\$4.02	\$17.05	\$(0.24)	\$(1.75)	\$15.16	\$35.11			\$3.08	\$84.15
LESS DISTRIBUTIONS Dividends from Net Investment Income	\$-	\$-	\$-	\$-	\$(0.99)	\$-	\$-	\$-	\$-	\$(2.33)
Net Position - End of Period	\$158.88	\$154.86	\$137.81	\$138.05	\$139.80	\$572.25		\$430.35	\$463.22	\$460.14
TOTAL RETURN	2.58%	12.59%	-0.31%	-1.31%	12.24%	6.53%	24.81%	-7.09%	0.67%	22.31%
DATION										
RATIOS Net Position - End of Period (\$000,000 Omitted) Ratio of Expenses to Average Net Position	\$2,132	\$2,044	\$1,823	\$1,774	\$1,588	\$7,153	\$6,381	\$5,224	\$5,909	\$6,135
(excl. sec. lending fees & rebates)	0.38%	0.29%	0.35%	0.33%	0.35%	0.38%	0.40%	0.43%	0.40%	0.40%
Ratio of Expenses to Average Net Position Ratio of Net Investment Income	0.65%	0.41%	0.39%	0.34%	0.36%	0.42%	0.41%	0.43%	0.41%	0.40%
(Loss) to Average Net Position	6.43%	6.39%	6.32%	5.80%	5.91%	2.52%	2.69%	2.57%	2.46%	3.17%
	EMERGIN	G MARKE	TINTERNA	ATIONAL S	STOCK		R	EAL ESTA	TE	
FISCAL YEAR ENDED JUNE 30,	2018	2017	2016	2015	2014	2018	2017	2016	2015	2014
PER SHARE DATA Net Position- Beginning of Period	\$422.00	\$343.19	\$369.61	\$397.12	\$358.76	\$53.40	\$50.62	\$46.27	\$39.48	\$36.46
INCOME FROM INVESTMENT OPERATIONS Net Investment Income (Loss)	\$8.60	\$6.16	\$6.59	\$8.22	\$6.81	\$2.10	\$1.79	\$1.66	\$1.59	\$(0.97)
Net Gains or (Losses) on Securities	¢11.00	Ф <b>7</b> 0 се	¢(22.04)	<b>₾/2E 72</b> \	£24.00	¢0.50	ድር ርር	<b>#2.60</b>	<b>ሴ</b> ድ ኃር	¢4.04
(Both Realized and Unrealized) Total from Investment Operations	<u>\$11.08</u> \$19.68	\$72.65 \$78.81	\$(33.01) \$(26.42)	\$(35.73) \$(27.51)	\$34.08 \$40.89	<u>\$2.52</u> \$4.62	\$0.99 \$2.78	\$2.69 \$4.35	\$5.20 \$6.79	\$4.84 \$3.87
LESS DISTRIBUTIONS	Ψ.σ.σσ	ψ. σ.σ.	Ψ(20.12)	Ψ(Σ1.01)	Ψ.υ.υυ		Ψ2σ	ψσσ	Ψ0σ	ψο.σ.
Dividends from Net Investment Income	\$-	\$-	\$-	\$-	\$(2.53)	\$-	\$-	\$-	\$-	\$(0.85)
Net Position - End of Period TOTAL RETURN	<u>\$441.68</u> 4.66%	\$422.00 23.00%	\$343.19 -7.15%	\$369.61 -6.93%	\$397.12 11.50%	<u>\$58.02</u> 8.69%	\$53.40 7.38%	\$50.62 11.51%	\$46.27 12.93%	\$39.48 10.66%
TOTAL NETOKN	4.0070	23.0070	-7.1370	-0.9370	11.30 /0	0.0970	7.3070	11.5170	12.9370	10.00 /0
RATIOS Net Position - End of Period (\$000,000 Omitted) Ratio of Expenses to Average Net Position	\$2,791	\$3,015	\$2,483	\$2,473	\$2,655	\$2,285	\$2,248	\$2,207	\$1,918	\$1,510
(excl. sec. lending fees & rebates)	0.50%	0.59%	0.64%	0.70%	0.69%	0.38%	0.47%	0.42%	0.39%	0.55%
Ratio of Expenses to Average Net Position Ratio of Net Investment Income	0.60%	0.63%	0.66%	0.71%	0.70%	0.38%	0.47%	0.42%	0.39%	0.55%
(Loss) to Average Net Position	2.00%	1.61%	1.85%	2.15%	1.81%	3.76%	3.44%	3.42%	3.69%	-2.50%
		PRIVATI	E INVESTI	/ENT						
FISCAL YEAR ENDED JUNE 30,	2018	2017	2016	2015	2014					
PER SHARE DATA Net Position- Beginning of Period	\$78.60	\$69.80	\$65.13	\$54.72	\$48.06					
Net Investment Income (Loss) Net Gains or (Losses) on Securities	\$1.36	\$1.18	\$0.46	\$1.31	\$4.72					
(Both Realized and Unrealized)	\$7.11	\$7.62	\$4.21	\$9.10	\$2.79					
	\$8.47	\$8.80	\$4.67	\$10.41	\$7.51					
Total from Investment Operations				_						
		\$-	\$-	\$-	\$(0.85)					
Total from Investment Operations LESS DISTRIBUTIONS	\$- \$87.07	\$- \$78.60	\$- \$69.80	\$- \$65.13	\$(0.85) \$54.72					
Total from Investment Operations LESS DISTRIBUTIONS Dividends from Net Investment Income										
Total from Investment Operations LESS DISTRIBUTIONS Dividends from Net Investment Income Net Position - End of Period TOTAL RETURN  RATIOS Net Position - End of Period (\$000,000 Omitted)	\$87.07	\$78.60	\$69.80	\$65.13	\$54.72					
Total from Investment Operations LESS DISTRIBUTIONS Dividends from Net Investment Income Net Position - End of Period TOTAL RETURN  RATIOS Net Position - End of Period (\$000,000 Omitted) Ratio of Expenses to Average Net Position	\$87.07 15.50% \$2,726	\$78.60 10.97% \$2,990	\$69.80 8.87% \$2,770	\$65.13 14.04% \$2,895	\$54.72 16.06% \$2,919					
Total from Investment Operations LESS DISTRIBUTIONS Dividends from Net Investment Income Net Position - End of Period TOTAL RETURN  RATIOS Net Position - End of Period (\$000,000 Omitted)	\$87.07 15.50%	\$78.60 10.97%	\$69.80 8.87%	\$65.13 14.04%	\$54.72 16.06%					

Source: Amounts were derived from custodial records.

# PENSION AND TRUST FUNDS BALANCES IN COMBINED INVESTMENT FUNDS (Dollars in Thousands) TEN YEAR COMPARISON

	2018 Percent of	3
Pension Plans	Total System	Assets
Teachers Retirement Fund	52.2%	17,936.8
State mployee Retirement Fund	36.4%	12,507.0
Municipal Employees Retirement Fund	7.6%	2,627.4
State Judges Retirement Fund	0.6%	222.7
The Probate Court Retirement Fund	0.3%	99.9
State's Attorneys Retirement Fund	0.0%	1.9
Trust Funds	2.9%	996 4
	100.0%	34,392.1

	2009 Percent of	)
Pension Plans	Total System	Assets
Teachers Retirement Fund	55.9%	11,396.7
State mployee Retirement Fund	35.9%	7,320.8
Municipal Employees Retirement Fund	6.6%	1,345.1
State Judges Retirement Fund	0.7%	148.2
The Probate Court Retirement Fund	0.3%	66.3
State's Attorneys Retirement Fund	0.0%	0.9
Trust Funds	0.5%	104.2
	100.0%	20,382.2

# PENSION FUNDS MANAGEMENT DIVISION

# COMBINED INVESTMENT FUNDS INVESTMENT SUMMARY AT JUNE 30, 2018 (1)

		Liquidity F	Fund (2)				Mutual Equity	y Fund	
	Book Value	Fair Value	% of Total Fund FV	Rate of Return		Book Value	Fair Value	% of Total Fund FV	Rate of Return
2018	\$710,062,471	\$709,844,344	2.07%	1.63%	:	\$4,896,532,930	\$7,760,012,682	22.58%	14.74%
2017	1,405,083,566	1,387,328,362	4.26%	0.96%		4,708,963,250	7,026,486,865	21.57%	19.26%
2016	1,036,810,247	1,018,293,290	3.49%	0.68%		4,681,029,693	6,647,482,185	22.76%	1.75%
2015	1,358,875,058	1,282,270,968	4.31%	-1.07%		4,584,447,046	6,784,028,571	22.80%	7.32%
2014	1,157,564,578	1,158,961,835	3.93%	0.54%		4,612,970,046	7,055,012,881	23.93%	25.28%
2013	1,062,418,543	1,041,232,312	4.01%	0.66%		4,664,358,346	6,236,082,798	24.07%	21.15%
2012	772,408,827	770,217,574	3.20%	-0.14%		5,144,712,429	6,417,508,518	26.65%	3.38%
2011	756,915,969	775,433,903	3.07%	1.20%		5,327,666,479	6,634,922,151	26.28%	31.92%
2010	1,626,177,183	1,621,182,259	7.44%	0.98%		5,175,570,747	5,288,853,566	24.28%	14.01%
2009	952,212,787	950,605,428	4.65%	1.54%		6,019,782,554	5,588,272,211	27.35%	-28.36%
	C	ore Fixed Inc	ome Fun	ıd		Infl	ation Linked I	Rond Fu	nd
	Book	Fair	% of Total	Rate of		Book	Fair	% of Total	
	Value	Value	Fund FV	Return		Value	Value	Fund FV	Return
2018	\$3,339,936,592	\$3.292.563.253	9.58%	-0.89%	:	\$1,389,800,650	\$1,382,416,735	4.02%	3.21%
2017	2,563,940,862		7.99%	1.89%		1,347,627,821	1,332,942,016	4.09%	0.66%
2016	2,442,024,334	2,490,655,941	8.53%	3.46%		1,338,629,405	1,321,779,931	4.52%	2.29%
2015	2,603,408,489	2,627,250,626	8.83%	1.85%		1,189,323,643	1,120,365,183	3.77%	-2.85%
2014	2,528,639,885	2,573,846,130	8.73%	4.28%		1,057,661,503	1,075,489,795	3.65%	4.17%
2013	2,042,090,874	2,056,321,868	7.94%	-0.24%		886,052,044	879,482,495	3.39%	-4.33%
2012	2,726,575,207	2,859,134,784	11.88%	7.63%		864,059,933	932,982,728	3.88%	11.91%
2011	2,911,577,713	3,001,125,667	11.89%	4.49%		1,075,894,193	1,115,148,171	4.42%	7.23%
2010	2,682,943,303	2,789,605,943	12.81%	11.81%		1,033,720,440	1,070,660,872	4.91%	9.48%
2009	3,400,625,343	3,215,718,047	15.74%	2.84%		813,926,651	829,543,021	4.06%	-0.20%
	Em	erging Marke	et Debt Fu	und		ŀ	ligh Yield Del	bt Fund	
	Book	Fair	% of Total	Rate of		Book	Fair	% of Total	Rate of
	Value	Value	Fund FV	Return	•	Value	Value	Fund FV	Return
2018	\$2,023,139,455	\$1,844,542,809	5.37%	-1.78%	;	\$2,182,466,537	\$2,109,564,213	6.14%	2.58%
2017		1,598,180,952	4.91%	9.11%		2,027,683,334	2,034,712,429	6.25%	12.59%
2016	1,577,124,552	1,483,772,612	5.08%	6.01%		1,905,160,587	1,808,188,496	6.19%	-0.31%
2015		1,399,864,819	4.70%	-7.57%		1,824,316,127	1,772,254,243	5.96%	-1.31%
2014	1,470,166,119	1,500,069,627	5.09%	6.99%		1,520,226,270	1,592,980,848	5.40%	12.24%
2013	1,415,363,738	1,388,070,525	5.36%	1.69%		1,261,124,831	1,267,238,204	4.89%	8.46%
2012	1,098,205,685	1,176,095,315	4.88%	4.78%		693,951,103	706,123,033	2.93%	6.23%
2011	1,012,164,604	1,141,817,330	4.52%	16.06%		685,595,880	710,362,023	2.81%	15.96%
2010	1,082,027,071	1,155,351,613	5.30%	23.02%		659,015,939	656,175,724	3.01%	24.54%
2009	1,153,012,696	1,125,226,197	5.51%	-3.62%		801,755,724	718,563,903	3.52%	-4.59%

# PENSION FUNDS MANAGEMENT DIVISION

# **COMBINED INVESTMENT FUNDS**

# INVESTMENT SUMMARY AT JUNE 30, 2018 (1) (Continued)

Developed	Market Inter	national	Stock Fund	d Emerging N	larket Interna	tional St	ock Fu
Book Value	Fair Value	% of Total Fund FV	Rate of Return	Book Value	Fair Value	% of Total Fund FV	Rate of Return
\$6,030,940,868	\$7,071,927,935	20.58%	6.53%	\$2,506,219,641	\$2,779,562,524	8.09%	4.66%
5,180,435,660	6,344,307,953	19.48%	24.81%	2,359,195,270	3,002,786,523	9.22%	23.00%
4,943,295,363	5,187,629,818	17.76%	-7.09%	2,305,345,878	2,467,083,187	8.45%	-7.15%
5,052,512,834	5,879,680,883	19.76%	0.67%	2,313,960,007	2,463,358,430	8.28%	-6.93%
4,806,622,148	6,101,761,491	20.70%	22.31%	2,278,127,868	2,645,431,257	8.97%	11.50%
4,861,705,636	5,393,071,695	20.81%	22.56%	2,241,227,436	2,367,182,053	9.14%	3.29%
4,586,337,006	4,550,036,799	18.90%	-12.48%	2,086,716,284	2,216,901,370	9.21%	-14.16%
4,684,676,553	5,391,257,095	21.35%	26.30%	2,114,345,516	2,629,250,556	10.41%	28.55%
4,552,279,820	4,328,450,937	19.87%	11.03%	1,860,837,675	2,065,255,957	9.48%	25.23%
4,847,669,826	4,464,491,006	21.85%	-27.98%	1,110,911,776	1,141,401,975	5.59%	-30.90%
5	Real Estate F	und <sup>(3)</sup>		Comm	nercial Mortga	age Fund	(3) (6)
Book	Fair	% of Total	Rate of	Book	Fair	% of Total	
Value	Value	Fund FV	Return	Value	Value	Fund FV	Return
\$1,968,748,568	\$2,283,139,537	6.64%	8.69%	\$0	\$0	0.00%	0.00%
2,003,957,301	2,242,658,118	6.89%	7.38%	0	0	0.00%	0.00%
1,941,003,659	2,207,396,472	7.56%	11.51%	83	83	0.00%	0.00%
1,763,256,288	1,848,291,148	6.21%	12.93%	29,834	29,799	0.00%	0.25%
1,478,885,377	1,509,757,272	5.12%	10.66%	67,723	67,609	0.00%	10.17%
1,611,385,620	1,471,299,222	5.68%	10.26%	70,239	70,099	0.00%	0.88%
1,524,367,937	1,328,560,229	5.52%	7.19%	717,122	765,779	0.00%	-6.48%
1,350,551,373	1,097,203,255	4.35%	16.12%	2,338,063	2,386,359	0.01%	4.61%
1,174,718,491	792,483,221	3.64%	-20.18%	3,769,581	3,818,115	0.02%	6.75%
1,021,805,530	770,955,194	3.77%	-28.66%	5,084,919	5,135,144	0.02%	-3.14%
	ivate Investm		<b>)</b> (3)		native Investn	nent Fun	
Book Value	Fair Value	% of Total Fund FV	Rate of Return	Book Value	Fair Value	% of Total Fund FV	Rate of Return
\$2,287,248,681	\$2 712 365 156	7.89%	15.50%	\$2,142,447,498	\$2,422,737,099	7.05%	4.69%
2,499,963,535	2,970,729,926	9.12%	10.97%	1,780,457,507	2,026,788,085	6.22%	8.51%
2,306,644,120	2,769,435,919	9.48%	8.87%	1,705,961,044	1,804,337,067	6.18%	-5.32%
2,286,868,807	2,773,374,435	9.32%	14.04%	1,611,126,633	1,804,487,746	6.06%	3.98%
2,449,109,360	2,918,978,182	9.90%	16.06%	1,210,080,164	1,349,977,450	4.58%	6.63%
2,246,698,441	2,564,877,605	9.90%	9.50%	1,190,675,281	1,247,574,910	4.81%	6.39%
	2,569,809,038	10.67%	5.92%	550,080,365	549,205,302	2.28%	-1.62%
2 221 0/15 727		10.07 /0	J 717 /0	000.000.000	J <del>4</del> J,ZUJ,JUZ	Z.ZO /0	- I.UZ /0
2,221,945,727							
2,221,945,727 1,909,670,699 1,859,585,108	2,229,679,980 2,013,101,198	8.83% 9.24%	19.89% 17.32%	511,873,555	519,007,742 0	2.06% 0.00%	0.00% 0.00%

### PENSION FUNDS MANAGEMENT DIVISION

#### **COMBINED INVESTMENT FUNDS**

#### **INVESTMENT SUMMARY AT JUNE 30, 2018 (1) (Continued)**

#### Total Fund (4)

	Book	Fair	% of Total	Rate of
	Value	Value	Fund FV	Return
2018	\$29,477,543,891	\$34,368,676,287	100.00%	7.03%
2017	27,484,125,381	32,568,375,166	100.00%	14.18%
2016	26,183,028,965	29,206,055,001	100.00%	0.35%
2015	26,111,332,380	29,755,256,851	100.00%	2.79%
2014	24,570,121,041	29,482,334,377	100.00%	15.43%
2013	23,483,171,029	25,912,503,786	100.00%	11.64%
2012	22,270,077,625	24,077,340,469	100.00%	-0.90%
2011	22,343,270,597	25,247,594,232	100.00%	20.75%
2010	21,710,645,358	21,784,939,405	100.00%	12.88%
2009	21,945,913,372	20,431,180,148	100.00%	-17.37%

- (1) All rates of return are net of management fees and division operating expenses.
- (2) The fair value of the Liquidity Fund for the periods presented represents the fair value of the pension and trust balances in the Liquidity Fund only (excluding receivables and payables); the Liquidity Fund balances of the other combined investment funds are shown in the fair value of each fund.
- (3) Investment returns published for prior years were net of management fees, but were restated in 2008 net of all expenses.
- (4) Represents a composite return of the total pension and trust funds. Individual returns for the three primary pension funds (Teachers, State Employees and Municipal Employees) are separately presented elsewhere due to different asset allocations of each fund.
- (5) Inception of the Alternative Investment Fund during Fiscal 2011.
- (6) Investments in Commercial Mortgage Fund were redeemed by plan participants. Ending Net Asset Value at June 30, 2016 was less than \$100. No percentages were calculated due to the immaterial amounts.

# SCHEDULE OF INVESTMENT RETURNS ANNUAL MONEY-WEIGHTED RATES OF RETURN NET OF INVESTMENT EXPENSES

	6/30/2018*	6/30/2017	6/30/2016	6/30/2015	6/30/2014
Teachers' Retirement Fund	7.04	14.37	0.17%	2.82%	15.67%
State Employees' Retirement Fund	7.30	14.32	0.23%	2.83%	15.62%
Municipal Employees' Retirement Fund	6.14	13.05	1.15%	2.57%	13.56%
State Judges' Retirement Fund	6.24	13.04	1.11%	2.57%	13.66%
The Probate Court Retirement Fund	6.06	13.19	1.17%	2.48%	13.87%
State's Attorneys' Retirement Fund	6.05	14.67	-0.21%	1.59%	13.66%
Soldiers' Sailors' & Marines' Fund	2.54	7.65	1.63%	2.19%	9.19%
Police & Fireman's Survivors' Benefit Fund	6.65	13.52	0.98%	2.85%	14.17%
Connecticut Arts Endowment Fund	4.6	7.54	1.58%	2.19%	9.40%
School Fund	2.55	7.69	1.66%	2.20%	9.54%
Ida Eaton Cotton Fund	2.56	7.64	1.66%	2.19%	9.47%
Hopemead State Park Fund	2.54	7.61	1.66%	2.15%	9.41%
Andrew C. Clark Fund	2.56	7.64	1.66%	2.19%	9.47%
Agricultural College Fund	-0.88	1.94	3.47%	1.86%	4.28%
OPEB Fund	5.85	11.83	2.44%	3.44%	11.80%

<sup>\*</sup>This schedule is to be built prospectively until it contains ten years of data.

NOO	CONNECTICUT STAT COND FISCAL Y	TATE TRE/ NDENSED - YEAR EN	TE TREASURER'S CON ENSED SCHEDULE OI EAR ENDED JUNE 30		OMBINED INVESTMEN OF NET POSITION (0 (dollars in millions)	MENT FUI I Ins)	NDS			
Assets Investments at Fair Value Cash, Receivables and Other Total Assets Liabilities Net Position	2018 \$34,368.7 \$3 12,487.1 1 46,855.8 4 12,463.7 1 \$34,392.1 \$3 CONDENSED FISCAL YE	2017 2016 \$32,568.4 \$29,20 10,300.7 14,89 42,869.1 44,10 10,321.2 14,85 \$32,547.9 \$29,24 ED SCHEDULE	2017 2016 20 32,568.4 \$29,206.1 \$29,9 10,300.7 14,897.9 10,6 12,869.1 44,104.0 40,5 10,321.2 14,858.1 10,3 32,547.9 \$29,245.9 \$29,8 32,547.9 \$29,045.9 \$29,8 SCHEDULE OF CHAN	2015 2014 2013 201 \$29,970.3 \$29,608.5 \$25,912 27.9 10,608.8 6,096.3 9,430 24.0 40,5794.0 35,704.8 35,388 28.1 10,712.1 6,150.7 9,447 25.9 \$29,867.0 \$29,554.1 \$25,940 CF CHANGES IN NET POSITION JUNE 30 (dollars in millions)	15 2014 2 370.3 \$29,608.5 \$25 508.8 6,096.3 9 794.0 35,704.8 35 712.1 6,150.7 9 387.0 \$29,554.1 \$25 367.0 \$29,554.1 \$25 (dollars in millions)	\$2013 \$25,912.5 9,430.8 35,388.3 9,447.5 \$25,940.8 ons)	2012 \$24,077.3 6,964.2 31,041.5 7,064.7 \$23,976.8	2011 \$25,247.6 7,959.9 33,207.5 8,023.8 \$25,183.7	2010 \$21,784.9 7,494.7 29,279.6 7,410.0 \$21,869.6	2009 \$20,431.2 11,520.3 31,951.5 11,569.3 \$20,382.2
Fiscal Year Ended June 30,	6	7,00	970	, 200 100 100 100 100 100 100 100 100 100	200	6.00	0.000	5	50	OCC
Additions Dividends	541.6	510.4	460.0	502.9	474.6	747.9	622.9	703.3	\$417.4	\$399.9
Interest	365.8	308.5	337.3	262.0	270.5	181.8	241.2	283.8	324.0	358.9
Securities Lending & Utner Income	49.3	48.3	787	22.8	16.5	7.62	28.4	30.0	730.5	74.9
Total Investment Expenses	936.7 127.9	99.5	90.7	87.5	84.3	930.0 86.9	83.5	9.68	83.8	6.550 89.9
Net Investment Income	828.8	7.797	735.3	700.2	677.4	871.9	809.0	927.5	686.7	743.8
of Investments and Foreign Currency	1,484.7	3,332.7	(720.1)	212.9	3,455.8	1,905.8	(1,023.8)	3,525.6	1,952.1	(5,276.0)
Purchase of Units by Participants Total Additions	7,303.0	2,687.0	2,464.4	3,010.4	2,955.3	4,981.5	2,716.0	3,118.5	3,647.0	6,599.3
			) i	0.00		1	1	2	)	- - - - - - - - - - - - - - -
Deductions Administrative Expense Distributions to Unit Holders Redemption of Units by Participants Total Deductions	(4.3) (25.4) (7,742.5) (7,772.2)	(4.0) (24.3) (3,457.1) (3,485.4)	(4.6) (13.5) (3,082.6) (3,100.7)	(4.6) (9.5) (3,596.6) (3,610.7)	(4.9) (190.4) (3,279.8) (3,475.1)	(4.3) (813.2) (4.977.7) (5,795.2)	(4.1) (660.6) (3.043.4) (3,708.1)	(4.1) (813.3) (3.440.1) (4,257.5)	(3.8) (579.3) (4.215.3) (4,798.4)	(3.4) (707.6) (6.845.7) (7,556.7)
Net Change in Position	1,844.2	3,302.0	(621.1)	312.9	3,613.3	1,964.0	(1,206.9)	3,314.1	1,487.4	(5,489.6)
Beginning Net Position	32,547.9	29,245.9	29,887.0	29,554.1	25,940.8	\$23,976.8	25,183.7	21,869.6	20,382.2	25,871.8
Ending Net Position	\$34,392.1	\$32,547.9	\$29,245.9	\$29,867.0	\$29,554.1	\$25,940.8	\$23,976.8	\$25,183.7	\$21,869.6	\$20,382.2

# Office of the State Treasurer LIST OF PRINCIPAL OFFICIALS AND PHONE NUMBERS

# Denise L. Nappier

Treasurer, State of Connecticut Tel: (860) 702-3010 Fax: (860) 702-3043

# Lawrence A. Wilson

Interim Deputy Treasurer Tel: (860) 702-3070 Fax: (860) 728-1290

# **Laurie Martin**

Chief Investment Officer Pension Funds Management Tel: (860) 702-3195 Fax: (860) 702-3042

# Christopher P. Martin

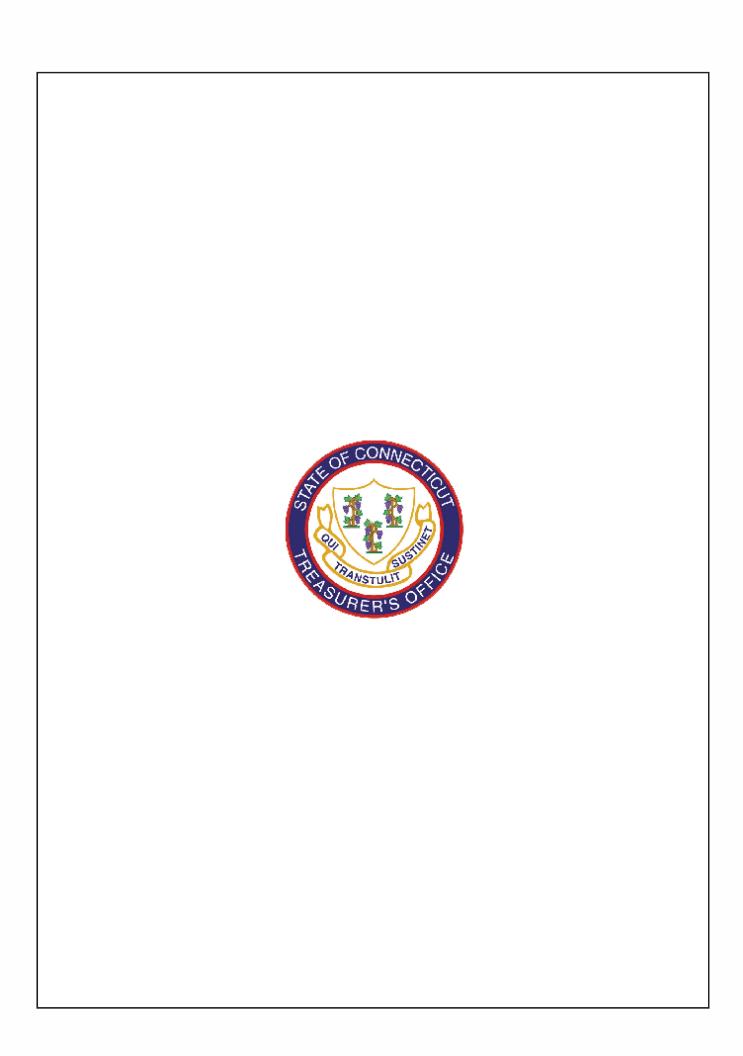
Assistant Treasurer Debt Management Tel: (860) 702-3288 Fax: (860) 702-3034

# Maria M. Greenslade

Assistant Deputy Treasurer Second Injury Fund and Unclaimed Property Tel: (860) 702-3125 Fax: (860) 702-3021

# Lawrence A. Wilson Assistant Treasurer

Cash Management Tel: (860) 702-3126 Fax: (860) 702-3041





# **CONNECTICUT STATE TREASURY**

55 Elm Street Hartford, CT 06106-1773 Tel: (860) 702-3000 www.ott.ct.gov