State of Wisconsin
Additional/Voluntary Filing #2017-18
Dated October 9, 2017

This Additional/Voluntary Filing does not concern an event described in Securities and Exchange Act Rule 15c2-12, as amended. The State of Wisconsin provides this information as it may be material to financial evaluation of one or more obligations of the State of Wisconsin.

Issuer: State of Wisconsin

CUSIP Numbers:

977055 Prefix (All)	977056 Prefix (All)
97705L Prefix (All)	97705M Prefix (All)
977087 Prefix (All)	97709T Prefix (All)
977092 Prefix (All)	977100 Prefix (All)
977109 Prefix (All)	977123 Prefix (All)

Type of Information: Financial/Operating Data Disclosures; Interim/Additional Financial Information/Operating Data

In September 2017, the Department of Employee Trust Funds released the financial statements and financial report for the Wisconsin Retirements System **(WRS)** and the Legislative Audit Bureau **(LAB)** released its audit of these financial statements and an audit report that provides uniform calculations of the pension expenses and liabilities for the WRS. Using the GASB pension accounting standards, the net pension liability of participating WRS employers as of December 31, 2016 was $0.8 billion. Under these standards each participating employer in the WRS is required to report its proportionate share of this net pension liability (or asset) on its financial statements, if such statements are prepared in accordance with GAAP. A copy of the LAB audit and the WRS Financial Report are attached.

The State of Wisconsin is providing this Additional/Voluntary Filing with the Municipal Securities Rulemaking Board through its Electronic Municipal Market Access system. This Additional/Voluntary Filing is also available on the State of Wisconsin Capital Finance Office web site at:

doa.wi.gov/capitalfinance

The undersigned represents that he is the Capital Finance Director, State of Wisconsin Capital Finance Office, which is the office of the State of Wisconsin responsible for providing additional/voluntary filings, annual reports, and Event Filings pursuant to the State's Master Agreement on Continuing Disclosure (Amended and Restated December 1, 2010), and is authorized to distribute this information publicly.

/S/ DAVID R. ERDMAN

David R. Erdman, Capital Finance Director
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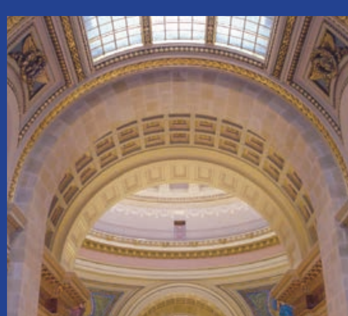
Report 17-17
September 2017

Wisconsin Retirement System Reporting for Participating Employers

Calendar Year 2016

State of Wisconsin



Legislative Audit Bureau

Report 17-17
September 2017

Wisconsin Retirement System Reporting for Participating Employers

Calendar Year 2016

Report 17-17
September 2017

LEGISLATIVE AUDIT BUREAU

The Bureau is a nonpartisan legislative service agency responsible for conducting financial audits and performance evaluations of state agencies. The Bureau's purpose is to provide assurance to the Legislature that financial transactions and management decisions are made effectively, efficiently, and in compliance with state law and that state agencies carry out the policies of the Legislature and the Governor. Bureau reports typically contain reviews of financial transactions, analyses of agency performance or public policy issues, conclusions regarding the causes of problems found, and recommendations for improvement.

Reports are submitted to the Joint Legislative Audit Committee and made available to other committees of the Legislature and to the public. The Audit Committee may arrange public hearings on the issues identified in a report and may introduce legislation in response to the audit recommendations. However, the findings, conclusions, and recommendations in the report are those of the Legislative Audit Bureau.

The Bureau accepts confidential tips about fraud, waste, and mismanagement in any Wisconsin state agency or program through its hotline at 1-877-FRAUD-17.

For more information, visit *www.legis.wisconsin.gov/lab.*

Contact the Bureau at 22 East Mifflin Street, Suite 500, Madison, Wisconsin 53703; *AskLAB@legis.wisconsin.gov;* or (608) 266-2818.

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OPINIONS PUBLISHED SEPARATELY

The employer schedules and our opinions on them are available on the Department of Employee Trust Funds' website

STATE OF WISCONSIN | Legislative Audit Bureau

22 East Mifflin St., Suite 500 ▪ Madison, WI 53703 ▪ (608) 266-2818 ▪ Hotline: 1-877-FRAUD-17 ▪ www.legis.wisconsin.gov/lab

Joe Chrisman
State Auditor

September 28, 2017

Senator Robert Cowles and
Representative Samantha Kerkman, Co-chairpersons
Joint Legislative Audit Committee
State Capitol
Madison, Wisconsin 53702

Dear Senator Cowles and Representative Kerkman:

As requested by the Department of Employee Trust Funds (ETF), we have completed an audit of the Schedule of Employer Allocations of the Wisconsin Retirement System (WRS), the Schedule of Collective Pension Amounts of the WRS, and the related notes to these schedules as of December 31, 2016. These schedules, and our unmodified opinions on them, may be found on ETF's website.

We have also audited the financial statements and related notes of the WRS as of and for the year ended December 31, 2016, and provided our unmodified opinion on them, as detailed in report 17-16, which we also published today. The fiduciary net position of the WRS, which represents resources available to pay pension benefits, increased from $88.5 billion as of December 31, 2015, to $92.6 billion as of December 31, 2016, or by 4.6 percent. This increase is primarily attributable to an increase in net investment income from a loss of $675.0 million in 2015 to a gain of $7.3 billion in 2016, or by 1,177.3 percent.

Accounting standards for pension funds, issued by the Governmental Accounting Standards Board, require the calculation of a net pension liability or net pension asset, which is represented by the difference between fiduciary net position reported in the financial statements and the total pension liability calculated by the actuary. ETF calculated a net pension liability for the WRS of $0.8 billion, as of December 31, 2016. This represents an improvement in the net pension liability, which was of $1.6 billion, calculated as of December 31, 2015.

Each of the almost 1,500 participating employers in the WRS is required to report its proportionate share of this net pension liability on its financial statements if prepared in accordance with generally accepted accounting principles. The proportionate share of the net pension liability for all State of Wisconsin agencies was $231.6 million, or 28.1 percent of the total net pension liability. Of this amount, $111.6 million related to the University of Wisconsin System. The net pension liability for the state agencies will be reported in the State's Comprehensive Annual Financial Report for the year ended June 30, 2017.

Because of an error made by ETF in preparing and presenting certain amounts in the Schedule of Collective Pension Amounts, we report a significant deficiency in internal control over financial reporting. ETF's process for preparing and reviewing the schedule did not include an adequate review of the accounting standards to ensure accurate presentation of the schedule. We recommend ETF annually review the accounting standards when compiling the schedule. A response from ETF follows our report.

Respectfully submitted,

Joe Chrisman
State Auditor

JC/CS/jj

Auditor's Report ■

STATE OF WISCONSIN | Legislative Audit Bureau
22 East Mifflin St., Suite 500 ▪ Madison, WI 53703 ▪ (608) 266-2818 ▪ Hotline: 1-877-FRAUD-17 ▪ www.legis.wisconsin.gov/lab

Joe Chrisman
State Auditor

Report 17-17

Independent Auditor's Report on Internal Control over Financial Reporting and on Compliance and Other Matters

Senator Robert Cowles and
Representative Samantha Kerkman, Co-Chairpersons
Joint Legislative Audit Committee

Members of the Employee Trust Funds Board and
Mr. Robert J. Conlin, Secretary

We have audited the Schedule of Employer Allocations of the Wisconsin Retirement System (WRS) as of and for the year ended December 31, 2016, and the related notes. We have also audited the totals for the columns titled Net Pension Liability (Asset), Total Deferred Outflows of Resources Excluding Employer Specific Amounts, Total Deferred Inflows of Resources Excluding Employer Specific Amounts, and Plan Pension Expense included in the Schedule of Collective Pension Amounts of the WRS as of and for the year ended December 31, 2016, and the related notes. We have issued our report on these schedules thereon dated September 26, 2017. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, which is issued by the Comptroller General of the United States.

Internal Control over Financial Reporting

Management of the Department of Employee Trust Funds (ETF) is responsible for establishing and maintaining effective internal control over financial reporting (internal control). In planning and performing our audit of the WRS schedules, we considered ETF's internal control to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinions on the schedules, but not for the purpose of expressing an opinion on the effectiveness of ETF's internal control. Accordingly, we do not express an opinion on the effectiveness of ETF's internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent misstatements, or to detect and correct misstatements on a timely basis. A *material weakness* is a deficiency or a combination of deficiencies in internal control such that there is a reasonable possibility that a material misstatement of the schedules will not be prevented, or that a material misstatement will not be detected and corrected on a timely basis. A *significant deficiency* is a deficiency or a combination of deficiencies in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies, and therefore, material weaknesses or significant deficiencies may exist that were not identified. Given these limitations, we did not identify any deficiencies in internal control that we consider to be material weaknesses. We did identify a deficiency in internal control, described in the accompanying Finding and Response Schedule that we consider to be a significant deficiency.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the WRS schedules are free from material misstatement, we performed tests of compliance with certain provisions of laws, regulations, and contracts, noncompliance with which could have a direct and material effect on the determination of schedule amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit and, accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

We have also audited, in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in Government Auditing Standards, issued by the Comptroller General of the United States, the financial statements and related notes of the WRS as of and for the year ended December 31, 2016. We expressed an unmodified opinion, dated September 26, 2017, on those financial statements. In addition, we issued an Independent Auditor's Report on Internal Control over Financial Reporting and on Compliance and Other Matters, dated September 26, 2017, and included in report 17-16, related to the audit of the financial statements.

Response to Finding

ETF's written response to the finding identified in our audit is described in the accompanying Finding and Response Schedule. ETF's response was not subjected to the auditing procedures applied in the audit of the financial statements and, accordingly, we express no opinion on it.

Purpose of This Report

This report is an integral part of an audit performed in accordance with *Government Auditing Standards* and should be used when considering ETF's internal control and compliance. The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the result of that testing, and not to provide an opinion on the effectiveness of ETF's internal control or on compliance. Accordingly, this report is not suitable for any other purpose.

LEGISLATIVE AUDIT BUREAU

Joe Chrisman
State Auditor

September 26, 2017

FINDING AND RESPONSE SCHEDULE

Finding 2017-001: Error in the Schedule of Collective Pension Amounts

Criteria:

The WRS is a cost-sharing, multiple-employer, defined benefit pension plan with almost 1,500 participating employers. Generally accepted accounting principles (GAAP) related to this type of public pension plan require each employer to report in its GAAP-based financial statements its proportionate share of the net pension liability of the WRS, other collective pension amounts for the WRS, and "employer specific" amounts.

As the plan administrator for the WRS, employers rely on ETF to provide accurate amounts, such as the collective pension amounts and the employer's proportionate share, in accordance with accounting standards. Accounting standards require that the differences between projected and actual investment earnings on pension plan investments be aggregated across periods and reported on a net basis, as either a deferred outflow of resources or a deferred inflow of resources.

Condition:

The Schedule of Collective Pension Amounts includes the collective pension amounts of Net Pension Liability (Asset), Total Deferred Outflows of Resources Excluding Employer Specific Amounts, Total Inflows of Resources Excluding Employer Specific Amounts, and Plan Pension Expense. One of the components of total deferred outflows or inflows of resources is the amount calculated for the differences between projected and actual investment earnings on pension plan investments. Each year an amount is calculated for this component, which is amortized into pension expense over a period of years, as defined in the accounting standards. Under this accounting method, the outstanding balance at the end of the year will include the unamortized amounts of deferred outflow or inflows of resources from several years.

During the calendar year 2016 audit, we identified an error in the presentation of the collective deferred outflow or inflow of resources resulting from the difference between actual and projected investment earnings on pension plan investments on the Schedule of Collective Pension Amounts. In preparing the schedule, ETF did not net the deferred inflow of resources calculated for the current year with the unamortized deferred outflow of resources from the prior year in the schedule. Instead ETF reported both a deferred outflow of resources and a deferred inflow of resources.

Context:

ETF prepares the Schedule of Employer Allocations and the Schedule of Collective Pension Amounts of the WRS to provide each of the approximately 1,500 employers participating in the WRS with information needed to prepare its GAAP-based financial statements.

Effect:

Total Deferred Outflows of Resources Excluding Employer Specific Amounts and Total Deferred Inflows of Resources Excluding Employer Specific Amounts were each overstated by $609.8 million at the time of our review. After we brought these concerns to its attention, ETF corrected the Schedule of Collective Pension Amounts for this error. If these errors had not been corrected, each employer relying on the schedule may have reported inaccurate amounts in its GAAP-based financial statements.

Cause:

ETF's process for preparing and reviewing the Schedule of Collective Pension Amounts did not include an adequate review of the accounting standards to ensure accurate presentation of the schedule.

☑ Recommendation

We recommend the Department of Employee Trust Funds annually review the accounting standards when compiling the Schedule of Collective Pension Amounts to ensure accurate presentation of the schedule in accordance with accounting standards.

Response from the Department of Employee Trust Funds: Thank you for the opportunity to review and comment on the finding related to the Schedule of Collective Pension Amounts of the WRS.

The most recently issued pension accounting standards are complex and include several very technical requirements that may or may not apply depending on specific situations. ETF staff spent a lot of time reviewing these standards and refer to them in their on-going work. ETF will review the relevant accounting standards when compiling the Schedule of Collective Pension Amounts. ETF agrees the accounting standards state collective deferred outflows of resources and deferred inflows of resources arising from differences between projected and actual pension plan investment earnings in different measurement periods should be aggregated and included as a net collective deferred outflow of resources related to pensions or a net collective deferred inflow of resources related to pensions. Calendar year 2016 was the first time this situation occurred for the WRS.

Although the said deferrals were not presented in aggregate in the original schedule, ETF would like to clarify the amount of the collective deferred outflow and inflow was accurate. Furthermore, this had no effect on the WRS plan level financial statements for which ETF is responsible. Employers are solely responsible for their financial statements and for evaluating the information used to recognize and disclose pension amounts in their financial statements in accordance with accounting standards. As such, employers are to verify and recalculate the information provided. Employers could easily net deferred inflows and outflows of resources if presented separately on the schedule provided by ETF. Based on past discussions with some employer auditors, ETF believes the risk of each employer reporting incorrectly is very low.

As noted in the finding, ETF staff updated the schedule to present the collective deferred inflows and outflows of resources arising from differences between projected and actual pension plan investment earnings as a net amount. In addition, ETF requested that the actuary update the report it provides ETF to show these deferrals net. This report is the source of data for the Schedule of Collective Pension Amounts.

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Response ■

State of Wisconsin
Department of Employee Trust Funds
Robert J. Conlin
SECRETARY

801 W Badger Road
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Madison WI 53707-7931

1-877-533-5020 (toll free)
Fax 608-267-4549
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September 26, 2017

JOE CHRISMAN, STATE AUDITOR
LEGISLATIVE AUDIT BUREAU
22 E MIFFLIN ST SUITE 500
MADISON WI 53703

Re: Audit of the 2016 Wisconsin Retirement System (WRS) Employer Schedules

Dear Mr. Chrisman,

Thank you for the opportunity to review and comment on the audit of the Schedule of Employer Allocations of the WRS, the Schedule of Collective Pension Amounts of the WRS, and the related notes to these schedules as of December 31, 2016.

The most recently issued pension accounting standards are complex and include several very technical requirements that may or may not apply depending on specific situations. ETF agrees the accounting standards state collective deferred outflows of resources and deferred inflows of resources arising from differences between projected and actual pension plan investment earnings in different measurement periods should be aggregated and included as a net collective deferred outflow of resources related to pensions or a net collective deferred inflow of resources related to pensions. Calendar year 2016 was the first time this situation occurred for the WRS.

Although the said deferrals were not presented in aggregate in the original Schedule of Collective Pension Amounts, ETF would like to emphasize the amount of the collective deferred outflow and deferred inflow was accurate. This also had no effect on the WRS plan level financial statements for which ETF is responsible.

Employers are solely responsible for their financial statements and for evaluating the information used to recognize and disclose pension amounts in its financial statements in accordance with accounting standards. As such, employers need to understand the applicable accounting standards and the effect on their financial reporting. In addition to the audited schedules, ETF staff provide employers specific employer amounts which in aggregate total the amounts on the Schedule of Collective Pension Amounts. The AICPA Audit and Accounting Guide states employers are to verify and recalculate the information provided. Employers could net deferred inflows and outflows of resources if presented separately on the schedules provided by ETF. Based on past discussions with some employer auditors, we believe the risk of each employer reporting incorrectly is very low. Given the above, we believe the severity of this deficiency is not significant.

As noted in the audit report, ETF staff updated the schedule to present the collective deferred inflows and outflows of resources arising from differences between projected and actual pension plan investment earnings as a net amount. In addition, we requested our actuary to update the report they provide ETF to show these deferrals net. This report is the source of data for the Schedule of Collective Pension Amounts.

Thank you for bringing this matter to management's attention and for the courtesy and professionalism of LAB staff during the audit.

Sincerely,

Robert J. Conlin
Secretary

Wisconsin Retirement System Financial Report

Calendar Year 2016

ET-8600 (9/14/2017)

Wisconsin Retirement System Financial Report
Calendar Year 2016

Wisconsin Department of Employee Trust Funds
801 W. Badger Road
Madison, WI 53713
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ETF Executive Team
Robert J. Conlin, Secretary
John Voelker, Deputy Secretary
Pamela Henning, Assistant Deputy Secretary

ET-8600 (9/14/2017)

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STATE OF WISCONSIN | Legislative Audit Bureau
22 East Mifflin St., Suite 500 ▪ Madison, WI 53703 ▪ (608) 266-2818 ▪ Hotline: 1-877-FRAUD-17 ▪ www.legis.wisconsin.gov/lab

Joe Chrisman
State Auditor

Independent Auditor's Report on the Financial Statements and Other Reporting Required by *Government Auditing Standards*

Senator Robert Cowles and
Representative Samantha Kerkman, Co-Chairpersons
Joint Legislative Audit Committee

Members of the Employee Trust Funds Board and
Mr. Robert J. Conlin, Secretary
Department of Employee Trust Funds

Report on the Financial Statements

We have audited the accompanying Statement of Fiduciary Net Position, Statement of Changes in Fiduciary Net Position, and the related notes for the Wisconsin Retirement System as of and for the year ended December 31, 2016.

Management's Responsibility for the Financial Statements

Management of the Department of Employee Trust Funds (ETF) 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.

Auditor's 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 of America and the standards applicable to financial audits contained in *Government Auditing Standards*, which is 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 the 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 opinion on these financial statements.

Opinion

In our opinion, the financial statements referred to in the first paragraph present fairly, in all material respects, the financial position of the Wisconsin Retirement System as of December 31, 2016, and the respective changes in its financial position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Emphases of Matter

As discussed in Note 1 to the financial statements, the financial statements referred to in the first paragraph present only the Wisconsin Retirement System and do not purport to, and do not, present fairly the financial position of the State of Wisconsin as of December 31, 2016, or the changes in its financial position for the year then ended, in accordance with accounting principles generally accepted in the United States of America.

As discussed in Note 2 to the financial statements, ETF implemented Governmental Accounting Standards Board Statement Number 72, *Fair Value Measurement and Application*, which addresses accounting and reporting issues related to fair value measurements.

As discussed in Note 3 to the financial statements, the financial statements include investments that do not have readily ascertainable market prices and are valued based on a variety of third-party pricing methods. However, because of the inherent uncertainty of valuation, those estimated values may differ from the values that would have been used had a ready market for the investments existed.

Our opinion was not modified with respect to these matters.

Other Matters

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis, which is on pages 4 through 11, be presented to supplement the financial statements. In addition, the Wisconsin Retirement System's Schedules of Changes in Net Pension Liability (Asset) and Related Ratios, Schedule of Employer Contributions, and Schedule of Investment Returns, which include the related notes, which are on pages 58 through 60, are also required to be presented to supplement the financial statements. Although such information is not a part of the financial statements, it is required by the Governmental Accounting Standards Board, which considers it to be essential for placing the financial statements in an appropriate operational, economic, or historical context. In accordance with auditing standards generally accepted in the United States of America, we have applied certain limited procedures to the required supplementary information that included inquiries of management about the methods of preparing the information. We further compared the information for consistency with management's responses to our inquiries, the financial statements, and other knowledge we obtained during our audit of the 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 do so.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued a report dated September 26, 2017, on our consideration of ETF's internal control over financial reporting;
our tests of its compliance with certain provisions of laws, regulations, and contracts; 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 is an integral part of an audit performed in accordance with *Government Auditing Standards* and should be used when considering ETF's internal control over financial reporting and compliance.

LEGISLATIVE AUDIT BUREAU

Joe Chrisman State Auditor

September 26, 2017

Management's Discussion and Analysis

Management of the Wisconsin Department of Employee Trust Funds (ETF) presents this discussion and analysis of the financial activities for the year ended December 31, 2016. This narrative is intended to supplement the financial statements which follow, and should be read in conjunction with the note disclosures which are an integral part of the financial statements.

ETF administers a defined benefit pension trust and other employee benefit plans for over 622,000 members, retirees, and beneficiaries.

Overview of the Financial Statements

The following discussion and analysis is intended to serve as an introduction to Wisconsin Retirement System's (WRS) financial statements. The WRS is reported as a Fiduciary Fund. Fiduciary Funds are used to report assets held by ETF as trustee for others and is responsible for handling the assets placed under its control. The financial statements include:

1. Statement of Fiduciary Net Position
2. Statement of Changes in Fiduciary Net Position
3. Notes to the Financial Statements

Financial Statements

The Statement of Fiduciary Net Position provides a snapshot of account balances at a point in time. It reports the assets available for future payments to benefit recipients, along with any liabilities that are owed as of the statement date. The difference between assets and liabilities, called "Net Position Restricted for Pensions," represents the value of assets held in trust for future benefit payments.

The Statement of Changes in Fiduciary Net Position displays the effect of financial transactions that occurred during the calendar year. Additions less Deductions equals the Net Increase (or Net Decrease) in Net Position. This Net Increase (or Net Decrease) reflects the change in the value of Net Position that occurred between the current and prior year.

Notes to the Financial Statements are an integral part of the financial statements and provide additional information that is essential for a comprehensive understanding of the data reported in the financial statements. The Notes describe the accounting and administrative policies under which ETF operates, significant account balances and activities, material risks, obligations, contingencies and subsequent events, if any.

The Required Supplementary Information includes:

- Schedule of Changes in Net Pension Liability (Asset) and Related Ratios
- Schedule of Employer Contributions
- Schedule of Investment Returns

The financial statements and related notes are prepared in accordance with Generally Accepted Accounting Principles established by the Governmental Accounting Standards Board (GASB).

Financial Highlights

- Overall Net Position of WRS increased by $4.1 billion or 4.6% from $88.5 billion in 2015 to $92.6 billion in 2016. This was primarily a result of higher returns on investments due to stronger market conditions in 2016.
- Total Additions for 2016 were $9.2 billion comprised of contributions of $1.9 billion plus investment income of $7.3 billion.
- Total Deductions for 2016 increased by 4.1% from $4.9 billion in 2015 to $5.1 billion in 2016 due to an increase in the number of benefit recipients.
- The WRS funding ratio under the funding methodology used to establish required contributions continues to be nearly 100% as of December 31, 2016. Under the GASB financial reporting method, the WRS is 99.1% funded as of December 31, 2016.
- As of December 31, 2016, the WRS had a net pension liability of $824 million compared to $1.625 billion as of December 31, 2015. The decrease of approximately $801 million is primarily attributable to higher returns on investments due to stronger market conditions in 2016. Total Pension Liability increased from $90.1 million in 2015 to $93.4 million in 2016.

Analysis of WRS Financial Activity

The WRS is a cost-sharing, multiple-employer public employee retirement system established and administered by the State of Wisconsin to provide pension benefits for state and local government employees. The system is administered in accordance with Chapter 40 of the Wisconsin Statutes. ETF, under the direction of the ETF Board, is responsible for administration of the WRS, including collecting contributions from employers and paying retirement benefits to WRS participants, and the State of Wisconsin Investment Board (SWIB) is responsible for managing WRS investments.

The system's funding objective is to meet its long-term benefit obligations through contributions and investment income. The following tables show the Summary Statement of Fiduciary Net Position and Summary Statement of Changes in Fiduciary Net Position for 2016 as compared to 2015. Contributions and the income from investments provide the reserves needed to finance the benefits provided under the plans.

SUMMARY OF WRS NET POSITION
AT DECEMBER 31
IN MILLIONS

		2016	Increase (Decrease)		2015
Assets:					
Cash and Receivables	$	8,299	2,856	$	5,443
Investments at Fair Value		90,734	2,502		88,232
Securities Lending Collateral		1,005	(173)		1,178
Prepaid Expenses		6	(23)		29
Capital Assets		26	12		14
Total Assets	**$**	**100,070**	**5,174**	**$**	**94,896**
Liabilities:					
Core Investment Due Other Benefit Programs		3,529	202		3,327
Variable Investment Due Other Benefit Programs		22	2		20
Obligation Under Reverse Repurchase Agreements		1,831	1,021		810
Investment Payables		162	(171)		333
Securities Lending Collateral Liability		1,005	(173)		1,178
Other Payables		941	218		723
Total Liabilities	**$**	**7,490**	1,099	**$**	**6,391**
Net Position Restricted for Pensions	**$**	**92,580**	**4,075**	**$**	**88,505**

SUMMARY OF CHANGES IN WRS NET POSITION
FOR THE YEARS ENDED DECEMBER 31
IN MILLIONS

		2016	Increase (Decrease)		2015
Contributions		1,885	(30)		1,915
Net Investment Income		7,272	7,947		(675)
Other Income		1	(1)		2
Total Additions	**$**	**9,158**	**7,916**	**$**	**1,242**
Benefits/Benefit Expenses	$	5,062	201	$	4,861
Administrative Expenses		21	(2)		23
Total Deductions	**$**	**5,083**	**199**	**$**	**4,884**
Net Increase (Decrease) in Net Position	**$**	**4,075**	**7,717**	**$**	**(3,642)**
Net Position - Beginning of Year		**88,505**	**(3,642)**		**92,147**
Net Position - End of Year		**92,580**	**4,075**		**88,505**

MEMBERS, RETIREES, BENEFICIARIES AND EMPLOYERS

Approximately 257,000 active members were employed with 1,495 WRS-participating employers as of December 31, 2016. The number of inactives, retirees and other annuitants totaled 364,838 at year-end. Total members served by the WRS in 2016 was over 622,000 as shown in the following tables.

DISTRIBUTION OF ACTIVE MEMBERS

AT DECEBMER 31	2016		2015	
	Number	Percent of Total	Number	Percent of Total
General	133,843	52.0%	133,385	52.1%
Teachers	99,850	38.8%	99,261	38.8%
Elected/Executive/Judges	1,369	0.5%	1,396	0.5%
Protective with Social Security	19,468	7.6%	19,301	7.5%
Protective without Social Security	2,755	1.1%	2,734	1.1%
Total Active Members	**257,285**	**100.0%**	**256,077**	**100.0%**

DISTRIBUTION OF INACTIVES, RETIREES, AND BENEFICIARIES

AT DECEMBER 31	2016		2015	
	Number	Percent of Total	Number	Percent of Total
Inactive Members:				
Terminated Participants	163,145	44.7%	161,851	45.2%
Alternate Payees	4,046	1.1%	4,111	1.1%
Retirees and Beneficiaries:				
Retirement Annuities	190,111	52.1%	184,180	51.5%
Disability Annuities	6,198	1.7%	6,305	1.8%
Death Benefit Annuities	1,338	0.4%	1,310	0.4%
Total Inactive and Retiree Members	**364,838**	**100.0%**	**357,757**	**100.0%**

Additional information about members is presented in Note 4.

The following is a listing of participating employers by category as of December 31, 2016:

DISTRIBUTION OF EMPLOYERS AT DECEBMER 31	2016	2015
State Agencies, UW & Public Authorities	58	58
Cities	152	152
Counties	71	71
4th Class Cities	36	36
Villages	266	264
Towns	254	247
School Districts	422	424
Cooperative Educational Service Agencies	12	12
WI Technical College System Districts	16	16
Special Districts	208	207
Total Employers	1,495	1,487

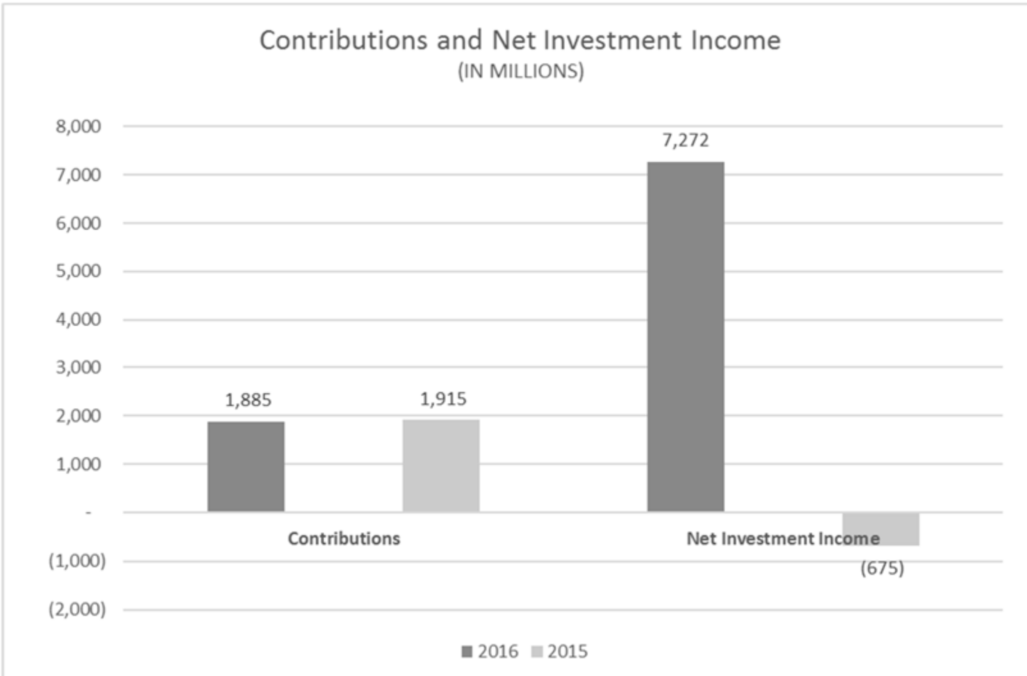
CONTRIBUTIONS AND INVESTMENT EARNINGS

The retirement benefits provided by the WRS are funded from pension trust fund revenue. The primary sources of revenue are investment income generated from the investment of plan assets and contributions for active members made by members and their employers.

Total contributions and investment earnings for the year ended December 31, 2016, was $9.2 billion. This was an increase of $7.9 billion compared to 2015. As the table below shows, Contributions remained relatively stable at $1.9 billion, while Investment Income increased by $7.9 billion due to more favorable market conditions in 2016 compared to 2015.

The assets of the WRS are valued at fair value and are invested in the Core Retirement Investment Trust (Core Fund) and the Variable Retirement Investment Trust (Variable Fund). All WRS members have at least half, if not all, of their pension contributions invested in the Core Fund. The Core Fund is a diversified, balanced fund invested for the long-term needs of the WRS. Diversification helps to stabilize the effects of market changes. The investment objective of the Core Fund is to meet or exceed an average 7.2% annual nominal return over the long-term. This objective is based on market rate of return and actuarial assumptions needed to meet the obligations of the WRS. The Variable Fund allows active employees participating in the WRS to put up to half of their pension fund contributions into this global stock fund. Approximately 16% of WRS members participate in the Variable Fund. By law, the Variable fund invests in stocks and provides participants the potential for higher returns in exchange for higher risk. The investment objective of the Variable Fund is to meet or exceed broad equity market indices over a full market cycle.

SWIB is responsible for managing the assets of WRS. See Note 3 for additional information on Investments and Securities Lending Transactions.



EXPENSES – DEDUCTIONS FROM PLAN NET POSITION

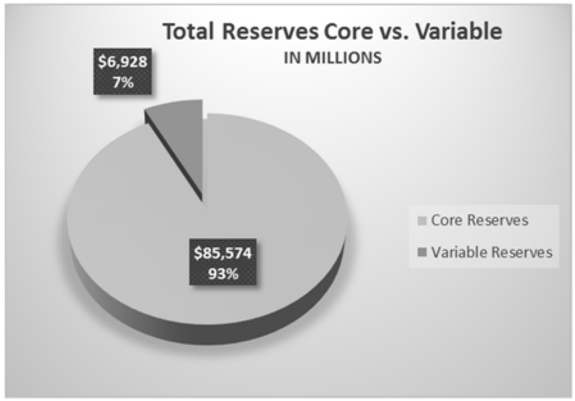
The primary expenses of the WRS include annuity benefits for retirees and beneficiaries, refunds of contributions to former members and expenses associated with the administration of the retirement plans. Benefit payments for 2016 totaled $5,062 million, an increase of $201 million or 4.13% over the 2015 amount of $4,861 million. This was due to the number of retired participants increasing from 191,795 as of December 31, 2015, to 197,647 as of December 31, 2016. Administrative Expenses of approximately $21 million accounted for less than 1% of the deductions to Net Position in 2016 and was a $2 million decrease from $23 million in 2015.

Investment Expenses are deducted from Investment Income and were $391 million in 2016, an increase of 11.7% from $350 million in 2015. Approximately $17 million of this increase is due to a change in recording private equity management fees. See Note 2 for additional information.

RETIREMENT RESERVES

The funds accumulated by the WRS to meet current and future obligations to retirees and beneficiaries are derived from the excess of revenue over expenses. Reserves have been established to reflect legal restrictions established by Wisconsin Statutes on the use of funds. The higher level of funding a plan achieves, the larger the accumulation of assets and the greater the investment income potential. As the Summary of Pension Plan Reserve balances table below shows in 2016 revenue exceeded expenses, leading to an increase of $4,098 million in the retirement reserves. The increase was related primarily to the increase in investment earnings in 2016. The reserves are invested in either the Core Fund or the Variable Fund. As the table below shows, 93% of the reserves are invested in the Core Fund and 7% are invested in the

Variable Fund. More information on Reserves can be found in Note 7.



SUMMARY OF PENSION PLAN RESERVE BALANCES
FOR THE YEARS ENDED DECEMBER 31
IN MILLIONS

Total Reserves	2016	Increase (Decrease)	2015
Annuity	$ 55,762	2,837	$ 52,925
Employee	17,178	641	16,537
Employee Additional	184	14	170
Employer	22,309	306	22,003
Market Recognition Account (WRS Only)	(2,931)	300	(3,231)
Total Reserves	**$ 92,502**	**4,098**	**$ 88,404**

ACTUARIAL VALUATIONS AND FUNDING PROGRESS – PENSION PLAN

ETF's actuarial firm performs an actuarial valuation of the WRS each year to determine funding requirements and establish contribution rates. The funding policy provides for periodic employer contributions at actuarially determined rates that will remain relatively level over time as a percentage of payroll and will accumulate sufficient assets to meet the costs of all benefits when due. The latest valuation of the pension plan was performed by Gabriel Roeder Smith & Company. Under the funding methodology, the WRS remains nearly 100% funded as of December 31, 2016. For financial reporting purposes, a funding ratio is calculated in accordance with GASB pension accounting standards. Under these standards, the WRS was 99.1% funded as of December 31, 2016.

Capital Asset Activity

As of December 31, 2016, the total value of capital assets was $29 million less accumulated depreciation of $3.2 million for a net capital asset value of $25.8 million. Compared to 2015 at which time the total value of capital assets was $16.8 million less accumulated depreciation of $2.9 million, for a net capital asset value of $13.9 million. The $11.9 million increase from 2015 to 2016 was due to the capitalization of a Benefit Administration System program, an internally generated software program that will improve how ETF provides services and benefits to employers and employees. For additional information on Capital Assets, please refer to Note 1.

Financial Contact

This financial report is designed to provide a general overview of ETF's finances and to demonstrate its accountability with the assets it holds in trust. Questions concerning any of the information provided in this report should be addressed to ETF at P.O. Box 7931, Madison, Wisconsin, 53707-7931.

Wisconsin Retirement System
Statement of Fiduciary Net Position
December 31, 2016

		December 31, 2016
ASSETS		
Equity in Pooled Cash and Cash Equivalents	$	6,924,871,521
Securities Lending Collateral		1,004,940,219
Prepaid Expenses		6,368,375
Receivables:		
Contributions Receivable		179,126,248
Prior Service Contributions Receivable		18,034,566
Benefit Overpayment Receivable		2,270,181
Due From Other Benefit Programs		16,381,714
Miscellaneous Receivables		876,381
Securities Lending Income Receivable		2,561,998
Interest and Dividends Receivable		244,205,098
Investment Sales Receivable		910,708,145
Total Receivables		1,374,164,331
Investments at Fair Value:		
Fixed Income Investments		28,622,140,349
Financial Futures Contracts		(79,142,454)
Preferred Securities		166,541,609
Convertible Securities		638,584
Stocks		44,963,358,380
Options Contracts		252,082
Limited Partnerships		11,285,914,510
Real Estate		1,275,525,892
Foreign Currency Contracts		67,023,702
Multi Asset Investments		4,407,771,956
Swaps		23,624,006
Total Investments		90,733,648,616
Capital Assets		25,774,389
TOTAL ASSETS		100,069,767,451
LIABILITIES		
Core Investment Due Other Benefit Programs		3,529,432,164
Variable Investment Due Other Benefit Programs		21,840,235
Obligation Under Reverse Repurchase Agreements		1,831,168,542
Short Sell Obligations		314,925,726
Securities Lending Collateral Liability		1,004,940,219
Collateral Due to Counterparty		74,340,000
Benefits Payable		343,714,196
Unearned Revenue		62,082
Due To Other Benefit Programs		81,879,198
Miscellaneous Payables		125,834,072
Investment Payables		161,528,522
TOTAL LIABILITIES		7,489,664,956
NET POSITION RESTRICTED FOR PENSIONS	$	92,580,102,495

The accompanying notes are an integral part of this statement.

Wisconsin Retirement System
Statement of Changes in Fiduciary Net Position
For the Year Ended December 31, 2016

		Year Ended December 31, 2016
ADDITIONS		
Contributions:		
Employer Contributions	$	963,121,911
Employee Contributions		921,863,806
Total Contributions		1,884,985,717
Investment Income:		
Net Appreciation (Depreciation) in Fair Value of Investments		5,861,708,280
Interest		568,126,678
Dividends		1,239,791,380
Securities Lending Income		36,528,746
Other		242,853,574
Less:		
Investment Income Distributed to Other Benefit Programs		(283,077,315)
Investment Expense		(391,427,255)
Securities Lending Income		(2,973,273)
Net Investment Income		7,271,530,815
Interest on Prior Service Receivable		1,197,751
Miscellaneous Income		340,521
TOTAL ADDITIONS		9,158,054,804
DEDUCTIONS		
Retirement, Disability & Beneficiary Benefits		4,951,649,846
Separation Benefits		39,275,602
Other Benefit Expenses		71,270,980
Administrative Expenses		20,426,190
TOTAL DEDUCTIONS		5,082,622,618
Net Increase (Decrease)		4,075,432,186
Net Position - Beginning of Year		88,504,670,309
Net Position - End of Year	$	92,580,102,495

The accompanying notes are an integral part of this statement.

Notes to the Financial Statements

1. Summary of Significant Accounting Policies

The Wisconsin Retirement System (WRS) is a cost-sharing, multiple-employer public employee retirement system established and administered by the State of Wisconsin to provide pension benefits for state and local government employees. The system is administered in accordance with Chapter 40 of the Wisconsin Statutes. The Department of Employee Trust Funds (ETF) is responsible for administration of the WRS, including collecting contributions from employers and paying retirement benefits to WRS participants, and the State of Wisconsin Investment Board (SWIB) is responsible for managing WRS investments.

Presentation Basis
The financial statements of the WRS have been prepared by ETF in conformity with generally accepted accounting principles (GAAP) for government units as prescribed by the Governmental Accounting Standards Boards (GASB). The WRS is not a general-purpose government and does not present government-wide statements. The WRS is included in the State of Wisconsin financial reporting entity and is presented in the State's Comprehensive Annual Financial Report in a "Pension and Other Employee Benefit Trust Fund" and is reported as a separate fund in ETF's separately issued Comprehensive Annual Financial Report.

Department-wide administrative expenses, capital assets, and general fund activities are most closely associated with the WRS fund and have been blended with the WRS for presentation. All material intrafund transactions have been eliminated from fund financial statements.

Measurement Focus and Basis of Accounting
The financial statements of the WRS have been prepared in accordance with GAAP. The WRS fund is accounted for using the flow of economic resources measurement focus and the accrual basis of accounting. Under the accrual basis of accounting, contributions are recognized in the accounting period in which the underlying earnings on which the contributions are based are paid and the employer has made a formal commitment to provide the contributions. Benefits and refunds are recognized when due and payable in accordance with the terms of the WRS. Security transactions and the related gains and losses are recorded on a trade date basis. Dividend income is recorded on the ex-dividend date, and interest income is accrued as earned.

Investments
The assets of the WRS are valued at fair value and are invested in the Core Retirement Investment Trust (Core Fund) and the Variable Retirement Investment

Trust (Variable Fund), which are collectively the Retirement Funds. The assets of other benefit programs are invested in the Core Fund. Earnings are allocated between the WRS and other benefit programs based on the average balance invested for each program. Earnings allocated to other benefit programs are classified as "Investment Income Distributed to Other Benefit Programs" on the Statement of Changes in Fiduciary Net Position. The total amount invested by the other benefit programs included in the Retirement Funds is presented as "Core Investment Due Other Benefit Programs" and "Variable Investment Due Other Benefit Programs" on the Statement of Fiduciary Net Position.

The State of Wisconsin Investment Board (SWIB) manages the Retirement Funds with oversight by the Board of Trustees, as authorized in Wis. Stat. § 25.17. SWIB is not registered with the Securities and Exchange Commission as an investment company.

Administrative Expenses

The administrative costs of all Department programs are financed by a separate appropriation and are allocated to each benefit plan administered by ETF in accordance with Wis. Stat. § 40.04. The sources of funds for this appropriation are investment earnings and third-party reimbursements received from the various programs administered by ETF. WRS administrative expenses for the year were $21 million.

SWIB incurs expenses related to investing the trust funds. As authorized by Wis. Stat. § 25.187 (2), these costs are charged directly to the investment income of each trust fund.

Capital Assets

Capital assets consist of office furniture and equipment and computer software (purchased or externally acquired and internally generated software). ETF capitalizes all furniture and equipment, and purchased computer software with a purchase price in excess of $5,000, and internally-generated software and other intangible assets in excess of $1 million. Assets are depreciated on a composite basis over an estimated life, ranging from 5 to 20 years, using the straight-line method of depreciation.

As of December 31, 2016, the total value of capital assets was $29 million less accumulated depreciation of $3.2 million for a net capital asset value of $25.8 million. The net capital asset value includes $25.6 million in internally-generated software, and $82,815 in purchased software.

Amounts Due From/To Other Benefit Programs

In addition to the WRS, ETF administers other employee benefit programs for public employees. Amounts due from or to the WRS and other benefit programs administered by ETF, as of December 31, 2016, consist of the following:

Due from/to Other Benefit Programs As of December 31, 2016 (In Thousands)		
Wisconsin Retirement System	**Due From Other Benefit Programs**	**Due to Other Benefit Programs**
Employee Reimbursement Accounts & Commuter Benefits	$ 382	$ 7
Long-Term Disability Insurance	7,469	71,271
Health Insurance	4,629	-
State Retiree Health Insurance	1,499	5,109
Local Retiree Health Insurance	138	1,025
Life Insurance	548	4
State Retiree Life Insurance	39	-
Local Retiree Life Insurance	52	-
Duty Disability	755	271
Income Continuation Insurance	436	2
Sick Leave	390	4,190
Deferred Compensation	44	-
Total	$ 16,381	$ 81,879

The amounts due from Long-Term Disability Insurance to WRS are for additional contributions to WRS, but not allocated to WRS prior to year-end. The remainder of the due from are administrative expenses that are due to WRS at year end. The amounts due to other benefit programs consist of contributions received and interest earned but not allocated out of WRS until after the calendar year ended, with exception of the due to Long-Term Disability which represents insurance premiums owed by WRS to Long-Term Disability. All assets and liabilities are expected to be settled within one year of the balance sheet date.

Use of Estimates

The preparation of financial statements in accordance with GAAP requires management to make estimates that affect amounts reported herein. Due to the inherent uncertainty involved, actual results could differ from those estimates.

2. Accounting Changes

During the year ended December 31, 2016, WRS adopted GASB Statement No. 72, Fair Value Measurement and Application, which addresses accounting and reporting related to fair value measurements. This Statement requires disclosures to be made about fair value measurements, the level of fair value hierarchy and valuation techniques. Although the adoption did not materially change the way in which the Retirement Funds' assets and liabilities are measured, it did result in enhanced disclosures, found in note 3.

Effective January 1, 2016, WRS instituted a change in the method of recording private equity management fees. In previous reporting periods, WRS recorded such fees net of offsets, deferrals and waivers. Beginning with calendar year 2016, private equity management fees are reported on a gross basis, to better align with industry changes and permit more consistent reporting of these fees. In calendar year 2016, the change in method results in an increase of approximately $17 million in "Investment Income" and a corresponding increase in "Investment Expense" on the Statement of Changes in Fiduciary Net Position. This change has no impact on Retirement Funds' reported beginning "Net Position."

3. Deposits, Investments and Securities Lending Transactions

Valuation of Securities

The investments of the Retirement Funds are reported in the Statement of Fiduciary Net Position at fair value as prescribed by GASB and per section 25.17(14) of the Wisconsin Statutes. Unrealized gains and losses are reflected in the Statement of Changes in Fiduciary Net Position as "Net Appreciation (Depreciation) in Fair Value of Investments."

The fair value of the Retirement Funds' assets are obtained or estimated in accordance with a pricing hierarchy established with SWIB's custodian, Bank of New York Mellon (BNY Mellon). As prescribed by the hierarchy, a variety of independent pricing sources are used to price assets based on type, class or issue.

When a portfolio includes securities or instruments for which the custodial bank does not receive fair value information from its vendor pricing sources, a variety of third party pricing methods are used, including appraisals, pricing models and other methods deemed acceptable by industry standards.

The "Equity in Pooled Cash and Cash Equivalents" account reported on the Statement of Fiduciary Net Position consists of short-term investments which are used to meet the liquidity requirements of the Retirement Funds. Equity in Pooled Cash and Cash Equivalents held by the Retirement Funds can include cash on deposit, foreign currencies, cash posted as collateral to counterparties, repurchase agreements, certificates of deposit, U.S. Treasury Bills, short-term investment funds, and other US or foreign liquid financial instruments with maturities that are generally less than three months. Equity in Pooled Cash and Cash Equivalents are reported at fair value or cost, which approximates fair value.

Privately held debt, which is included in "Fixed Income Investments" on the Statement of Fiduciary Net Position, is priced using approaches that value each holding based on the best available information using the following hierarchy of pricing sources:

1. Custodian supplied prices for assets that can be priced in accordance with the pricing hierarchy established with SWIB's custodian
2. Prices provided by a third party with expertise in the bond market

For alternative investments where no readily ascertainable market value exists, including limited partnerships and real estate pooled funds, fair value is estimated based on the net asset value as reported by the general partner. The capital account balance as stated in the most recent available quarterly reporting period is adjusted for subsequent cash flows to derive fair value. The financial statements of the limited partnerships and real estate pooled funds are audited by independent auditors annually.

Real estate properties wholly owned by SWIB are valued by independent appraisers every three years. In years when appraisals are not performed, properties are informally appraised by the asset advisor. Each year, audited financial statements are prepared for each property.

SWIB employs portfolio strategies which involve investments across multiple asset classes. The "Multi Asset Investments" account on the Statement of Fiduciary Net Position consists primarily of hedge funds. SWIB values hedge funds based on monthly statements or estimated returns received from each of the hedge fund's administrators. A third-party administrator's responsibility is to independently account for the hedge fund's activity and calculate the net asset value of the fund. Generally, hedge fund administrators price financial instruments traded in active markets based on quoted market prices or binding dealer quotations. For certain over-the-counter instruments, fair value is determined based on valuation models used by the administrator. Annually, the financial statements prepared by the administrator are audited by independent auditors.

Derivative financial instruments are marked to fair value daily, with valuation changes recognized in income during the period the instruments are held and when the instrument is sold or expires. The nature and use of derivative instruments is discussed later in these notes.

A limited number of securities are carried at cost. Certain non-public or closely held stocks are not reported at fair value, but are carried at cost since no independent quotation is available to estimate fair value for these securities.

Credit Risk

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations to SWIB. Fixed income credit risk investment guidelines outline the minimum ratings required at the time of purchase by individual portfolios, or groups of portfolios, based on the portfolios' investment objectives. In addition, some fixed income portfolios are required to carry a minimum weighted average rating at all times. Information regarding SWIB's credit risk related to derivatives is discussed later in these notes.

The table entitled Credit Quality Distribution displays the lowest credit rating assigned by nationally recognized statistical rating organizations on debt securities held by the Retirement Funds as of December 31, 2016. Included in this table are fixed income securities, including certain short term securities, classified as "Equity in Pooled Cash and Cash Equivalents" on the Statement of Fiduciary Net Position. Also included are interest rate sensitive investments held in the Retirement Funds' securities lending collateral reinvestment pools, which are managed by SWIB's custodian. Additional information regarding the securities lending program is discussed later in these notes.

The table also includes SWIB's investment in commingled fixed income funds which are not rated. Although the funds themselves are not assigned ratings, external management investment guidelines govern minimum credit quality standards for the investments within each portfolio. These standards are determined based on the investment objectives and risk parameters of each fund.

Retirement Funds
Credit Quality Distribution
As of December 31, 2016
(In Thousands)

Rating	Fair Value	% of Total
F1/A-1	$ 10,974	0%
AAA/Aaa	444,025	1
AA/Aa	14,644,752	41
A	2,890,989	8
P-2 or A-2	176,756	1
BBB/Baa	2,635,070	7
BB/Ba	912,705	3
B	941,872	3
CCC/Caa or below	320,346	1
Commingled Fixed Income Funds	11,182,669	32
Not Rated	1,180,571	3
Total	$ 35,340,729	100%

Reverse Repurchase Agreements

SWIB held $1.8 billion in reverse repurchase agreements at December 31, 2016. Investment guidelines permit certain portfolios to enter into reverse repurchase agreements, which are a sale of securities with a simultaneous agreement to repurchase the securities in the future at the same price plus a stated rate of interest. The market value of the securities underlying reverse repurchase agreements exceeds the cash received, providing the counterparty a margin against a decline in market value of the securities. If the counterparty defaults on their obligation to sell these securities back to SWIB or provide cash of equal value, SWIB could suffer an economic loss equal to the difference between the market value of the underlying securities plus accrued interest and the agreement obligation, including accrued interest.

SWIB enters into reverse repurchase agreements with various counterparties and such transactions are governed by Master Repurchase Agreements (MRA). MRAs are negotiated contracts and contain terms in which SWIB seeks to minimize counterparty credit risk. SWIB also controls credit exposures by limiting trades with any one counterparty to stipulated amounts. The counterparty credit exposure is managed through the transfer of margin, in the form of cash or securities, between SWIB and the counterparty. The Retirement Funds' counterparty credit exposure for reverse repurchase agreements at December 31, 2016 is summarized in the table entitled Reverse Repurchase Agreements, Counterparty Credit Exposure.

Retirement Funds
Reverse Repurchase Agreements
Counterparty Credit Exposure
As of December 31, 2016
(In Thousands)

Fair Value of Collateral Held by Counterparty		$ 1,880,936
Less:		
Cash due to Counterparty	1,831,169	
Collateral and Interest due to Counterparty	1,207	
Total due to Counterparty		1,832,376
Net Counterparty Credit Exposure		$ 48,560

The cash proceeds from reverse repurchase agreements are reinvested by the Retirement Funds. The maturities of the purchases made with the proceeds of reverse repurchase agreements are not necessarily matched to the maturities of the agreements. The agreed-upon yields earned by the counterparty for the reverse repurchase agreements held were between 0.65% and 1.2% at December 31, 2016. The reverse repurchase agreements had open maturities, whereby a maturity date is not established upon entering into the agreement; however, interest rates on the agreements are negotiated daily. The agreements can be terminated at the will of either SWIB or the counterparty.

The cash due to counterparties resulting from reverse repurchase agreements is reported as "Obligation Under Reverse Repurchase Agreements" and the interest due to counterparties is included in "Investment Payables" on the Statement of Fiduciary Net Position. The underlying assets, as well as the reinvested proceeds, are reported in the "Investments at Fair Value" section on the Statement of Fiduciary Net Position.

Custodial Credit Risk

Deposits — Custodial credit risk related to deposits is the risk that, in the event of the failure of a depository financial institution, SWIB will not be able to recover deposits that are in possession of an outside party. Cash deposits totaled $1,119.2 million as of December 31, 2016. Of the total, $526.2 million was collateralized by securities borrowed. Depository insurance covered another $41.4 million of the total. The remaining deposits, totaling $551.6 million were uninsured and uncollateralized. These uninsured deposits represented balances held in foreign currencies in SWIB's custodian's nominee name, cash posted as collateral for derivatives transactions and cash collateral posted in excess of the market value of securities borrowed by SWIB for short sales. In addition to cash deposits, the Retirement Funds also held $72.2 million in certificates of deposit, all of which were covered by depository insurance as of December 31, 2016.

Investments — Custodial credit risk for investments is the risk that, in the event of failure of the counterparty to a transaction, SWIB will not be able to recover the value of investments that are in the possession of an outside party. The Retirement Funds held eight repurchase agreements totaling $455.9 million as of December 31, 2016. These repurchase agreements were tri-party agreements held in a short-term cash management portfolio managed by SWIB's custodian. The underlying securities for these agreements were held by the tri-party's agent, not in SWIB's name.

SWIB's custodial credit risk policy addresses the primary risks associated with safekeeping and custody. It requires that SWIB's custodial institution be selected through a competitive bid process and that the institution be designated a "Systemically Important Financial Institution" by the U.S. Federal Reserve. The policy also requires that SWIB be reflected as beneficial owner on all securities entrusted to the custodian and that SWIB have access to safekeeping and custody accounts. The custodian is also required to be insured for errors and omissions and must provide SWIB with an annual report on internal controls, prepared in accordance with the Statement on Standards for Attestation Engagements (SSAE) No. 16. Furthermore, SWIB management has established a system of controls for the oversight of services and related processes of the custodian. SWIB's current custodial bank was selected in accordance with these guidelines and meets all requirements stipulated in the custodial credit risk policy.

Concentration of Credit Risk

Concentration of credit risk is the risk of loss attributed to the magnitude of an organization's investment in a single issuer. SWIB limits concentrations of credit risk by establishing investment guidelines for individual portfolios or groups of portfolios that generally restrict issuer concentrations in any one company or Rule 144A securities to less than 5% of the portfolio's market value. The Retirement Funds did not hold any investments with a single issuer, exclusive of investments issued or explicitly guaranteed by the U.S. government, representing 5% or more of the Retirement Funds' value at December 31, 2016.

Interest Rate Risk

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. SWIB uses a number of different methods to manage interest rate risk. Fixed income instruments held by the Retirement Funds include investments with variable rate securities, stepped rate securities, securities with no coupon, such as discount notes, and coupons that range between 0.0% and 12.75% at December 31, 2016.

Generally, SWIB analyzes long or intermediate term portfolios' interest rate risk using various duration calculations. Modified duration, which is stated in years, is the measure of price sensitivity of a fixed income security to an interest rate change of 100 basis points. The calculation is based on the weighted average of the present values for all cash flows. Some investments are analyzed using an option adjusted duration calculation which is similar to the modified duration method. Option adjusted duration incorporates the duration shortening effect of any embedded call provisions in the securities. Duration statistics are weighted by the dollar value of the position to compute an average duration for each investment type.

Short-term portfolios' interest rate risk is analyzed using the weighted average maturity to next reset. Weighted average maturity is the maturity of each position in a portfolio weighted by the dollar value of the position to compute an average maturity for the portfolio as a whole. This measure indicates a portfolio's sensitivity to interest rate changes: a longer weighted average maturity implies greater volatility in response to interest rate changes.

SWIB's investment guidelines related to interest rate risk vary by portfolio. Some fixed income portfolios are required to be managed within a range of a targeted duration, while others are required to maintain a weighted average maturity at or below a specified number of days or years.

The table entitled Interest Rate Sensitivity by Investment Type presents the aggregated interest rate exposure for the Retirement Funds' assets at December 31, 2016. Weighted average maturity, where reset dates are assumed to be the effective maturity date for the security, is presented for repurchase agreements and short term pooled investments. Longer term instruments held by the Retirement Funds are presented using modified duration, as this measure more accurately states the interest rate sensitivity of these investments. The duration statistic is calculated utilizing reset dates for some floating rate instruments, such as term loans. Information about the interest rate sensitivity of derivative contracts is discussed later in these notes.

SWIB invests in securities with contractual cash flows, such as asset-backed securities and U.S. government agencies. These types of structured product investments may be highly sensitive to interest rate changes in that they can be subject to early payment in a period of declining interest rates. The resulting changes in timing, or possible reduction in expected total cash flows, affect the fair value of these securities.

Retirement Funds
Interest Rate Sensitivity by Investment Type*
As of December 31, 2016
(in Thousands)

Investment Type	Fair Value	Weighted Average Duration (years)	Weighted Average Maturity (days)
Asset Backed Securities	$ 28,266	1.8	
Commercial Paper	216,502		18
Corporate Bonds & Private Placements	5,351,749	6.0	
Corporate Bonds & Private Placements	3,820	N/A	
Foreign Government/Agency Bonds	4,288,317	7.1	
Municipal Bonds	117,483	9.6	
Repurchase Agreements	455,870		3
U.S Government Agencies	294,270	4.1	
U.S Treasury Inflation Protected Securities	9,296,545	7.5	
U.S Treasury Securities	4,160,637	5.2	
U.S Treasury Securities - Short Positions	(55,399)	0.2	
Commingled Funds			
Domestic Fixed Income	5,240,386	6.7	
Emerging Market Fixed Income	582,551	6.3	
Exchange Traded Funds - Short Positions	(450)	N/A	
Short Term Cash Management	5,360,182		62
Total	$ 35,340,729		

*Excludes derivatives
N/A duration information not available

Foreign Currency Risk
Foreign currency risk is the risk that changes in exchange rates will adversely impact the fair value of an investment. It includes the risk that currencies in which a portfolio's investments are denominated, or currencies in which a portfolio has taken on a long/short active position, will decline in value relative to the U.S. dollar.

Foreign currency exchange rates may fluctuate significantly for a number of reasons, including the forces of supply and demand in the foreign exchange markets, actual or perceived changes in interest rates, intervention by U.S. or foreign governments or central banks, currency controls, or political developments in the U.S. or abroad.

SWIB's policies include foreign currency risk management objectives relating to each individual portfolio. These guidelines address the foreign currency management activities permitted for each portfolio based on the portfolios mandates, risk tolerances and objectives. SWIB also employs discretionary currency overlay strategies at the total fund level when currency market conditions suggest such strategies are warranted. Additional information related to the management of foreign currencies through the use of derivatives is discussed later in these notes.

The table entitled Currency Exposures by Investment Type presents the Retirement Fund investments which were exposed to foreign currency risk at December 31, 2016.

Retirement Funds
Currency Exposure by Investment Type
December 31, 2016
Stated in U.S. Dollars
(In Thousands)

Currency	Cash & Cash Equivalents	Stocks	Fixed Income	Limited Partnerships	Preferred Securities	Financial Futures Contracts	Short Sell Obligations	Total
Argentina Peso	$ 1,925	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,925
Australian Dollar	18,424	1,006,564	58,171	-	-	1,413	(3,880)	1,080,692
Brazilian Real	692	45,502	-	-	21,901	-	-	68,095
British Pound Sterling	41,584	2,677,383	292,648	97,791	-	3,455	-	3,112,861
Canadian Dollar	20,745	1,415,690	70,238	-	-	(188)	(1,777)	1,504,708
Chilean Peso	2	422	-	-	-	-	-	424
Colombian Peso	10	445	-	-	-	-	-	455
Czech Koruna	-	44	-	-	-	-	-	44
Danish Krone	2,848	288,640	22,875	-	-	-	-	314,363
Euro Currency Unit	63,767	4,722,780	1,512,155	659,494	72,447	3,794	(9,272)	7,025,165
Hong Kong Dollar	5,080	605,073	-	-	-	-	-	610,153
Hungarian Forint	194	-	-	-	-	-	-	194
Indian Rupee	16	80,870	-	-	-	-	-	80,886
Indonesian Rupiah	585	13,939	2,382	-	-	-	-	16,906
Israeli New Shekel	408	29,412	-	-	-	-	-	29,820
Japanese Yen	345,768	3,581,767	1,285,693	-	-	2,484	(22,846)	5,192,866
Malaysian Ringgit	569	24,375	14,572	-	-	-	-	39,516
Mexican New Peso	49,353	10,959	43,515	-	-	-	-	103,827
Moroccan Dirham	12	-	-	-	-	-	-	12
New Zealand Dollar	294	27,272	4,521	-	-	-	-	32,087
Norwegian Krone	911	82,891	10,145	-	-	-	(3,245)	90,702
Philippine Peso	534	621	-	-	-	-	-	1,155
Polish Zloty	333	19,286	21,303	-	-	-	-	40,922
Russian Ruble	6	-	-	-	-	-	-	6
Singapore Dollar	2,085	168,644	12,397	-	-	-	(1,890)	181,236
South African Rand	526	33,195	17,294	-	-	-	-	51,015
South Korean Won	55	153,782	-	-	-	-	-	153,837
Swedish Krona	4,752	360,059	15,235	12,244	-	-	(234)	392,056
Swiss Franc	6,176	1,251,591	-	-	-	-	(5,827)	1,251,940
Taiwan New Dollar	20	76,393	-	-	-	-	-	76,413
Thailand Baht	7	51,166	-	-	-	-	-	51,173
Turkish Lira	107	39,431	-	-	-	-	-	39,538
Total	$ 567,788	$ 16,768,196	$ 3,383,144	$ 769,529	$ 94,348	$ 10,958	$ (48,971)	$ 21,544,992

1) Commingled funds (including limited partnerships and other pooled vehicles) represent investments where the Retirement Funds own only a portion of the overall fund. While the overall fund may be denominated in U.S. dollars, the underlying investments may be exposed to foreign currency risk in various currencies. Commingled funds are shown in the denomination used by the fund for financial reporting.

2) Short Sell Obligations are reported as liabilities on the Statement of Fiduciary Net Position. They are included in the above table because they have exposure to foreign currency risk.

3) Investment types holding instruments denominated only in U. S. Dollars are not included in the above table. At calendar year-end, these include: Convertible Securities, Multi Asset Investments, Real Estate, Options Contracts, Swaps and Obligation Under Reverse Repurchase Agreements.

4) Values may not add due to rounding.

Fair Value of Investments

Fair value measurements of the investments held by the WRS are categorized by the hierarchy established by generally accepted accounting principles. The hierarchy, which has three levels, is based on the valuation inputs used to measure the fair value of the asset.

Level 1 – Investments reflect unadjusted quoted prices in active markets for identical assets.

Level 2 – Investments reflect prices that are based on inputs that are either directly or indirectly observable for an asset (including quoted prices for similar assets), which may include inputs in markets that are not considered to be active.

Level 3 – Investments reflect prices based upon valuation techniques in which significant inputs or significant value drivers are unobservable.

The fair value hierarchy gives the highest priority to Level 1 inputs and the lowest priority to Level 3. When the inputs used to measure, fair value fall within different levels of the hierarchy, the level within which the fair value measurement is categorized is based on the lowest level input that is significant to fair value. The categorization of investments within the hierarchy is based upon the pricing transparency of the instrument and does not represent the investment's overall risk.

Commingled investments are not categorized under the fair value hierarchy but are disclosed within this note as investments measured at net asset value (NAV).

The fair value measurements of investments as of December 31, 2016, are found in the table entitled Investments by Fair Value Level.

Retirement Funds
Investments by Fair Value Level
As of December 31, 2016
(In Thousands)

Asset Type	Fair Value Level 1	Fair Value Level 2	Fair Value Level 3	TOTAL
Cash Equivalents				
Corporates & Private Placements	$	$ 2,346	$	$ 2,346
Foreign Government/Agency Securities	-	-	341,915	341,915
U.S. Treasury Securities	156,793	-	$ -	156,793
Total Cash Equivalents	156,793	2,346	341,915	501,054
Stocks				
Domestic	22,061,707	-	79,966	22,141,673
International	16,768,113	81	-	16,768,194
Total Stocks	38,829,820	81	79,966	38,909,867
Fixed Income				
Asset Backed Securities	-	26,721	1,545	28,266
Corporate Bonds & Private Placements	-	4,963,128	142,898	5,106,026
Foreign Government/Agency Bonds	-	3,921,823	24,579	3,946,402
Municipal Bonds	-	117,483	-	117,483
U.S Government Agencies	-	294,270	-	294,270
U.S. Treasury Inflation Protected Securities	-	9,296,546	-	9,296,546
U.S. Treasury Securities	-	4,003,844	-	4,003,844
Total Fixed Income	-	22,623,815	169,022	22,792,837
Real Estate	-	-	1,275,526	1,275,526
Preferred Securities				
Domestic	-	38,506	33,687	72,193
International	94,348	-	-	94,348
Total Preferred Securities	94,348	38,506	33,687	166,541
Convertibles	-	-	639	639
Derivatives				
Foreign Exchange Contracts	-	67,024	-	67,024
Futures	(79,142)	-	-	(79,142)
Options	252	-	-	252
Swaps	-	23,624	-	23,624
Total Derivatives	(78,890)	90,648	-	11,758
Equity Short Sales	(259,076)	-	-	(259,076)
Fixed Income Short Sales				
Exchange Traded Funds - Short Positions	(450)	-	-	(450)
U.S. Treasury Securities - Short Positions	(8,988)	(46,411)	-	(55,399)
Total Fixed Income Short Sales	(9,438)	(46,411)	-	(55,849)
Total	**$ 38,733,557**	**$22,708,985**	**$ 1,900,755**	**$63,343,297**

Securities classified as Level 1 are generally valued at the official closing price (usually the last trade price) or the last bid price on the security's primary exchange. Such investments generally include common stock, preferred stock, exchange-traded derivatives and exchange-traded funds. U.S. Treasury Bills and only the most recently issued US Treasury Notes and Bonds are classified as level 1 because available pricing for these securities is similarly reliable to exchange-traded securities.

Securities classified as Level 2 are valued using observable inputs, by third-party pricing services using either a bid evaluation or a matrix-pricing technique. Bid evaluations may include market quotations that are based on yields, maturities, call features and ratings. Matrix-pricing is used to value securities based on their relationship to benchmark market prices for securities with similar interest rates, maturities, and credit ratings. Pricing in this level may also include market approaches that incorporate benchmark interest rates. Other factors such as infrequent trading, inactive market, or adjusted quoted prices may also result in level 2 measurements. Debt securities comprise the majority of the level 2 investments because they are generally traded using a dealer market, with lower trading volumes than level 1 securities. Over-the-counter derivatives, such as swaps and foreign exchange contracts are also included in level 2 because they are priced using a market approach that considers benchmark interest rates and foreign exchange rates.

Level 3 investments are generally valued using significant inputs that are unobservable to the marketplace. This may occur if an investment is illiquid or its value is based on estimates. For the WRS, such investments primarily include directly held real estate, valued using appraisals and, as such, rely on unobservable inputs. Foreign Government/Agency securities in level 3 are valued using proprietary valuation models. Stocks and Preferred Securities included in the level 3 hierarchy are generally privately held securities valued using valuation models such as price multiples incorporating public company comparables, discounted cash flows and milestone valuation models. In some instances of privately held preferred securities, valuation is determined based on recent financing rounds. A smaller portion of level 3 investments represent private debt securities which are priced using matrix pricing techniques that include unobservable inputs and judgement to infer a spread over publicly priced fixed income investments. Cash and Cash Equivalents included in level 3 represent securities priced at cost. Typically, due to their short-term nature, cost approximates fair value for these investments.

Investments Measured at NAV

The fair value of investments in certain fixed income funds, private equity limited partnerships, stock funds, real estate limited partnerships and hedge funds are based on the investments' net asset value (NAV) per share (or its equivalent), provided by the investee. The December 31, 2016 investments valued using NAV are shown in the table entitled Investments Measured at NAV and include commingled/pooled funds, private equity and real estate limited partnerships.

Retirement Funds
Investments Measured at NAV
As of December 31, 2016
(In Thousands)

Investments Measured at NAV	Fair Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period (7)
Fixed Income (1)	$ 11,391,233	$ 136,614	Daily, Monthly, NA (1)	0-15 days, NA (1)
Private Equity Limited Partnerships (2)	6,564,294	4,951,712	N/A	N/A
Stock (3)	6,053,490	-	Daily, Monthly, Quarterly	2-45 days
Real Estate Limited Partnerships (4)	4,721,621	1,103,455	N/A, Quarterly	N/A, 30-90 days
Hedge Funds (5)	4,407,772	100,000	Various	Various
Total (6)	$ 33,138,410	$ 6,291,781		

(1) A large portion of this category consists of short term cash funds (47%) with the investment objective of safety of principal and liquidity while earning a competitive money market rate of return. Corporate and government bond index funds are another significant portion of this category (46%) and have the investment objective of approximating as closely as practicable the return of a given segment of the markets for publicly traded investments. The short term cash funds and the Corporate and government index funds all have daily liquidity with 0-2 days' notice. An additional 5% of this category represents long-only fixed income managers , which can invest across the credit quality spectrum, in varying geographies, and can include derivatives, high yield and structured securities. These long-only managers require a redemption notice period of approximately 2 weeks and have monthly liquidity. The remaining 2% of this category includes LLCs which invest in private real estate debt . These LLC investments distribute earnings over the life of the investment and have an average remaining life of between 0-5 years.

(2) Private Equity Limited Partnerships include direct, co-investments with existing SWIB general partners, direct secondary investments and fund of funds. These investments are illiquid and are generally not resold or redeemed. Distributions from each fund will be received as the underlying investments are liquidated. The table, Limited Partnerships - Estimated Remaining Life provides an estimate of the period over which the underlying assets are expected to be liquidated.

(3) This category includes emerging markets equity index funds (56%) with an investment strategy designed to track the return of the given segment of the emerging equity markets. This investment can be redeemed daily with 2 days' notice. An additional 40% of this category represents long-only equity managers with various fundamental, quantitative and other approaches spanning various styles, geographies and market cap weights. These long-only manager investments can be redeemed monthly, with between 10 and 30 days' notice. The remaining 4% of this category includes investments structured as Real Estate Investment Trusts which can be redeemed quarterly, with 45 days' notice.

(4) This category includes funds that invest directly in real estate and real estate related assets. Approximately 67% of these investments are generally not resold or redeemed. Distributions from each fund will be received as the underlying investments are liquidated. The table, Limited Partnerships - Estimated Remaining Life provides an estimate of the period over which the underlying assets are expected to be liquidated. The remaining 33% of this category consists of open-ended funds that invest directly in real estate and real estate related assets. Such investments can be redeemed quarterly with between 30 and 90 days' notice.

(5) Hedge Fund investments are private investment funds that seek to produce absolute returns using a broad range of strategies. In certain instances, Hedge Fund investments are structured as limited partnerships, whereby participants receive distributions over the life of the fund. Estimated remaining life of funds structured as limited partnerships is estimated to be between 6-10 years. Additional information relating to Hedge Funds are discussed later in these notes.

(6) WRS had additional unfunded commitments of approximately $22.4 million, relating to assets not valued using NAV.

(7) Redemption terms described for NAV investments reflect contractual agreements and assume withdrawals are made without adverse market impact and under normal market conditions.

Private Equity and Real Estate Limited Partnerships

In general, the Private Equity Limited Partnerships participated in the following investment strategies at December 31, 2016:

Buyout—This strategy acquires shares of a private company to gain a controlling interest.

Mezzanine—Provides mezzanine debt to finance leveraged buyouts, recapitalizations and corporate acquisitions.

Special Situations—This strategy can invest in public and private companies undergoing financial distress, a turnaround in business operations or which are believed to be undervalued because of a discrete extraordinary event.

Venture Capital—This strategy invests in companies with potential for significant growth (generally small to early stage emerging firms).

The Real Estate Limited Partnerships generally consisted of the following investment strategies at December 31, 2016:

Core—Core investments are expected to deliver a significant percentage of their return from income and should demonstrate lower volatility than Opportunistic and Value investments due to lower leverage, higher occupancy, and asset location.

Value—Value investments typically have significant near term leasing, repositioning, and/or renovation risk. This strategy is expected to have modest initial operating revenues with potential for substantial income growth, and will likely encounter greater volatility than Core strategies, but lower volatility than Opportunistic strategies.

Opportunistic—Opportunistic investments usually have significant development, lease-up, financial restructuring, and/or liquidity risk with little or no initial operating income. This strategy typically uses the highest leverage, is expected to achieve most of its return from future capital gains, and is likely to encounter greater volatility than Core and Value strategies.

Limited partnerships are generally structured to provide distributions to participants of the fund as the holdings of the partnership are liquidated over time. The table entitled *Limited Partnerships—Estimated Remaining Life* illustrates the distribution of estimated remaining liquidation periods for the Retirement Funds' private equity and real estate limited partnership holdings as of December 31, 2016.

Retirement Funds
Limited Partnerships - Estimated Remaining Life
As of December 31, 2016
(In Thousands)

Estimated Remaining Life*

Limited Partnership Type	< 5 Years	5 - 10 Years	> 10 Years	N/A	Total
Private Equity	$ 560,745	$ 3,178,904	$ 2,824,645	-	$ 6,564,294
Real Estate	140,083	2,953,883	87,990	1,539,665	4,721,621
Total	$ 700,828	$ 6,132,787	$ 2,912,635	$ 1,539,665	$ 11,285,915

* Estimated remaining life represents subjective estimates, assuming normal market conditions.
N/A investments represent open-ended funds that can be redeemed.

Hedge Funds

Hedge Fund investments are private investment funds that seek to produce absolute returns using a broad range of strategies. The Retirement Funds participated in the following Hedge Fund strategies at December 31, 2016:

Equity Long-Short—This strategy invests both long and short in publicly traded stocks. These managers vary in their use of short selling and leverage.

Event-Driven—The funds in this strategy seek to gain an advantage from pricing inefficiencies that may occur before or after a corporate action or related event, such as a merger, spinoff, earnings call, bankruptcy or restructuring.

Global Macro—The funds in this category invest their holdings in indexes, commodities, interest rate instruments and currencies as a result of relative value or directional forecasts from a systematic or discretionary approach.

Market Neutral/Arbitrage—This strategy uses a range of fixed income, convertible instruments and/or statistical arbitrage strategies that seek to hedge market related risks to earn consistent returns.

Multistrategy—The funds in this category employ a wide range of strategies and instruments in managing assets.

When redeeming Hedge Fund investments, the agreements governing the investment vehicle oftentimes require advanced notice and may restrict the timing of withdrawals. The table entitled Hedge Fund Redemption Timing depicts redemption terms, irrespective of other contractual restrictions, for Retirement Funds' Hedge Fund investments at December 31, 2016.

Retirement Funds
Hedge Fund Redemption Timing
As of December 31, 2016
(In Thousands)

Redemption Frequency	Redemption Notice Periods (Days)	Fair Value
Weekly	3–7	$ 361,691
Monthly	2– 75	1,563,264
Quarterly	30–90	1,531,782
Other [1]	65–90, N/A	951,035
Total		$ 4,407,772

[1] This category includes funds that are subject to rolling locks, whereby the fund automatically re-locks unless a withdrawal request is submitted. In addition, this category includes funds that are in a liquidating trust, with final distribution expected in 2017. This category also includes funds that are structured as limited partnerships, whereby withdrawals are not permitted but the participants receive distributions over the life of the fund.

Hedge Fund agreements can also include "lock-up" periods, which restrict investors from redeeming their investment during a specified time frame. The lock-up period helps portfolio managers avoid liquidity problems. Lock-ups can be "hard," where redemptions are not permitted for a specified time period, or "soft," where redemptions are permitted provided the investor pays a penalty. In addition, hedge fund managers can also institute a "rolling" lock-up. A fund with a rolling lock-up period requires investors to commit to an initial lock-up period, and if the investor does not submit a redemption notice within a set time prior to expiration of the lock-up, the lock-up is reset.

The table entitled Hedge Fund Lock-ups reflects the lock-up terms for the Hedge Fund investments held at December 31, 2016.

Retirement Funds
Hedge Fund Lock-ups
As of December 31, 2016
(In Thousands)

Hedge Fund Lock Type	Initial Duration of Lock (Years)	Year of Lock Expiration	Fair Value
Soft Lock	1 - 1.5	2017 - 2018	$ 682,820
Hard Lock	3	2018	224,350
Rolling Lock	2 - 3	2017 - 2019	785,413
None	N/A	N/A	2,549,567
Other (1)	N/A	N/A	165,622
Total			$ 4,407,772

(1) This category includes funds that are in a liquidating trust, with final distribution expected in 2017. This category also includes funds that are structured as limited partnerships, whereby withdrawals are not permitted but the participants receive distributions over the life of the fund.

Similar to lock-ups, hedge fund agreements also commonly incorporate "gate" restrictions. An investor-level gate limits redemptions on a particular redemption date to a specified percentage of the investor's account value, while a fund level gate may limit total investor withdrawals on a particular redemption date to a percentage of aggregated fund-level (or master fund-level) net asset value. In certain instances, funds can have both investor and fund level gates in place. Such funds are reflected in the "Investor Level" category. The table entitled Hedge Fund Gates summarizes the Hedge Fund gates in place at December 31, 2016.

Retirement Funds
Hedge Fund Gates
As of December 31, 2016
(In Thousands)

Hedge Fund Gate Type	Gate Range	Fair Value
Investor Level	25% - 33%	$ 562,775
Fund Level	8.33% - 25%	1,302,483
None	N/A	2,376,892
Other (1)	N/A	165,622
Total		$4,407,772

(1) This category includes funds that are in a liquidating trust, with final distribution expected in 2017. This category also includes funds that are structured as limited partnerships, whereby withdrawals are not permitted but the participants receive distributions over the life of the fund.

Derivatives

A derivative instrument, as defined by GASB Statement No. 53, is a financial instrument or other contract that has all of the following characteristics:

- Settlement factors. It has (1) one or more reference rates and (2) one or more notional amounts or payment provisions or both. Those terms determine the amount of the settlement or settlements and, in some cases, whether or not a settlement is required.
- Leverage. 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.
- Net settlement. 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.

Derivatives may be used to implement investment strategies for the Retirement Funds. All derivative instruments are subjected to risk analysis and monitoring processes at the portfolio, asset class and fund levels. Investment guidelines define allowable derivative activity for each portfolio and are based on the investment objectives which have been approved by the Board of Trustees. Where derivatives are permitted, guidelines stipulate allowable instruments and the manner and degree to which they are to be used.

Gains and losses for all derivative instruments are reported in the Statement of Changes in Fiduciary Net Position as "Net Appreciation (Depreciation) in Fair Value of Investments." SWIB invests in derivative investments directly, as well as indirectly through commingled or pooled investments. Information relating to investments held in commingled funds has not been separately disclosed in the financial statements or the accompanying footnotes, consistent with GASB reporting requirements.

A derivative can take the form of an individually negotiated contract between the Retirement Funds and a specific counterparty. These types of negotiated positions are known as over-the-counter (OTC) contracts. OTC contracts can be structured as either "uncleared" or "cleared."

Uncleared OTC contracts are non-standardized bilateral contracts between counterparties and do not include the use of a centralized intermediary, such as a clearinghouse. Uncleared OTC transactions are subject to regulatory requirements with respect to data reporting and recordkeeping, trading relationship documentation, business conduct standards, portfolio reconciliation, and margin collection and posting. For these transactions, master netting agreements and credit support annexes governing the credit relationship and collateral exchange between two counterparties are put in place to mitigate counterparty credit risk.

Cleared OTC contracts offer additional protections to trade participants. These types of transactions employ the use of an intermediary between counterparties. The intermediary, known as a clearinghouse, serves to facilitate trading and mitigate risks. While not completely standardized, these contracts involve a high degree of standardization. Once cleared, the clearinghouse steps in as the counterparty to all trades. Regulatory bodies govern the tools and procedures for risk mitigation such as margin requirements and daily mark-to-market.

In addition to trading OTC, derivative contracts can also be transacted on established exchanges. These types of contracts are called "exchange-traded" and are completely standardized. Like cleared OTC contracts, the clearinghouse is an intermediary to the trade, reducing risks and standardizing the exchange of margin. The table entitled Derivative Contract Types summarizes the differences between OTC and exchange- traded contracts.

Retirement Funds Derivative Contract Types		
Uncleared (OTC)	**Cleared (OTC)**	**Exchange-traded**
Trades negotiated over-the-counter	Trades negotiated over-the-counter	Trades executed on organized exchanges
Customized trade terms are agreed upon by counterparties	Trades limited to standardized terms	Trades limited to standardized terms
Traded bilaterally between counterparties	Trades are submitted through a clearinghouse, which is counterparty	Trades are booked with exchange's clearinghouse, which is counterparty
Margin (collateral) often exchanged but subject to negotiation between counterparties.	Mandatory margin requirements	Mandatory margin requirements
Common example: Forward Contracts	Common example: Credit Default Swaps	Common example: Futures Contracts

Uncleared OTC Derivatives

Inherent in the use of uncleared OTC derivatives, the Retirement Funds may be exposed to counterparty credit risk. Counterparty credit risk is the risk that a derivative counterparty may fail to meet its payment obligations under the terms of the derivative contract. SWIB seeks to mitigate this risk through counterparty credit evaluations and approvals, counterparty credit limits, and exposure monitoring procedures. Additionally, policies have been established which seek to implement master netting arrangements with counterparties that permit the closeout and netting of transactions with the same counterparty upon the occurrence of certain events, such as payment default, rating downgrade, bankruptcy, illegality or force majeure. Agreements may also require daily collateral postings to further mitigate credit risk. Cash collateral posted by SWIB for uncleared OTC positions was $3.1 million at December 31, 2016. In addition, no securities were pledged as collateral relating to uncleared OTC positions.

The Retirement Funds uncleared OTC positions included foreign currency contracts and total return swaps. The table entitled OTC Derivative Investments Subject to Counterparty Credit Risk, summarizes, by credit rating, the Retirement Funds' exposure to OTC derivative instruments' counterparty credit risk as of December 31, 2016, without respect to any collateral or netting arrangement.

Retirement Funds
OTC Derivative Investments Subject to Counterparty Credit Risk
As of December 31, 2016
(In Thousands)

Counterparty Credit Rating	Payable	Receivable	Fair Value
AA	$ (198)	$ 198	$ 0
A	(4,569,626)	4,638,156	68,530
BBB	(443,733)	464,848	21,115
Total	$ (5,013,557)	$ 5,103,202	$ 89,645

The aggregate fair value of receivables relating to uncleared OTC derivative contracts was $5.1 billion at December 31, 2016.These amounts represent the maximum loss that would be recognized at the reporting date if all counterparties failed to perform as contracted. This maximum exposure is reduced to $19.3 million at December 31, 2016 when counterparty collateral and master netting arrangements are taken into account. The number of uncleared OTC counterparties with credit exposure at year-end was nine.

Cleared OTC and Exchange-Traded Derivatives
Counterparty credit risk is mitigated by an intermediary for cleared OTC and exchange-traded derivative contracts. For these types of derivative investments, a clearinghouse interposes itself as counterparty to all trades and extends a guarantee that trades will be settled as originally intended. To ensure performance, margin requirements are imposed. The requirements are established with the intent to cover nearly all expected price changes based on market risk. Margin payments are settled daily based upon the price movements of the contracts, thereby significantly reducing counterparty credit risk. The Retirement Funds posted $374.3 million in cash and $237.8 million in securities as collateral with clearing brokers as of December 31, 2016.

Foreign Currency Spot and Forward Contracts
Foreign Currency Spot and Forward contracts are uncleared OTC agreements between two counterparties to exchange designated currencies at a specific time in the future. No cash is exchanged when a foreign exchange spot or forward contract is initiated. Depending upon market movements, forward contracts may require collateral postings either to SWIB or to counterparties. Spot contracts are exempt from collateralization. For deliverable contracts, amounts due are paid or received on the contracted settle date. In other instances, (most often in emerging markets), contracts are established as non-deliverable forwards (NDFs). Unlike deliverable

contracts, NDFs are only settled in U.S. dollars.

Currency exposure management is permitted through the use of currency derivative instruments. Direct hedging of currency exposure back to the U.S. dollar is permitted when consistent with the strategy of the portfolio. Cross-currency exposure management to transfer out of an exposed currency and into a benchmark currency is permitted. In some portfolios, currencies of non-benchmark countries may be held through the use of forward contracts, provided that the notional value of any single non-benchmark currency does not exceed 5% of the market value of the portfolio. SWIB may employ discretionary currency overlay strategies at the total fund and asset class level when currency market conditions suggest such strategies are warranted.

Losses may arise from future changes in the value of the underlying currency, or if the counterparties do not perform under the terms of the contract. Spot and forward contracts are valued daily with the changes in fair value included in "Net Appreciation (Depreciation) in Fair Value of Investments" on the Statement of Changes in Fiduciary Net Position. The net receivable or payable for spot and forward contracts is reflected as "Foreign Currency Contracts" on the Statement of Fiduciary Net Position. The table entitled Foreign Currency Spot and Forward Contracts presents the fair value of foreign currency spot and forward contract assets and liabilities held by the Retirement Funds as of December 31, 2016.

Retirement Funds
Foreign Currency Spot and Forward Contracts
December 31, 2016
(In Thousands)

Currency	Notional (local currency)	Fair Value ($US)	Unrealized Gain/(Loss) ($US)
Foreign Currency Contract Receivables			
Australian Dollar	308,673	223,350	(574)
Brazilian Real	70,811	21,539	1,187
British Pound Sterling	237,568	293,785	1,290
Canadian Dollar	257,029	191,726	969
Chilean Peso	630,024	939	6
Colombian Peso	3,682,120	1,222	34
Danish Krone	206,245	29,305	305
Euro Currency Unit	375,209	396,332	254
Hong Kong Dollar	334,012	43,087	19
Hungarian Forint	1,947,066	6,654	(212)
Indian Rupee	2,136,987	31,319	105
Indonesian Rupiah	151,688,777	11,196	(115)
Israeli New Shekel	23,322	6,064	18
Japanese Yen	37,070,535	318,352	(4,071)
Malaysian Ringgit	15,759	3,507	(146)
Mexican New Peso	127,797	6,177	(432)
New Zealand Dollar	9,440	6,576	62
Norwegian Krone	305,836	35,540	449
Peruvian Nuevo Sol	20,125	5,987	133
Philippine Peso	140,623	2,831	(60)
Polish Zloty	35,493	8,499	(467)
Russian Ruble	1,575,385	25,581	1,414
Singapore Dollar	36,741	25,428	105
South African Rand	260,887	19,024	286
Swedish Krona	886,398	97,745	1,209
Swiss Franc	123,875	122,126	682
Thailand Baht	460,858	12,867	(22)
Turkish Lira	34	10	0
U.S. Dollar	1,787,022	1,787,022	0
		3,733,790	2,428
Foreign Currency Contract Payables			
Australian Dollar	(77,487)	(56,068)	361
Brazilian Real	(10,991)	(3,347)	(240)
British Pound Sterling	(123,295)	(152,478)	290
Canadian Dollar	(80,496)	(60,045)	(345)
Chilean Peso	(10,650,033)	(15,852)	283
Colombian Peso	(11,492,837)	(3,815)	(21)
Danish Krone	(411,662)	(58,493)	(797)
Euro Currency Unit	(365,251)	(385,771)	2,027
Hong Kong Dollar	(111,496)	(14,383)	(10)
Hungarian Forint	(3,304,191)	(11,291)	183
Indian Rupee	(178,214)	(2,607)	(1)
Israeli New Shekel	(86,656)	(22,531)	(80)
Japanese Yen	(84,333,024)	(727,249)	62,975
Malaysian Ringgit	(15,503)	(3,450)	51
Mexican New Peso	(1,252,738)	(60,450)	615
New Zealand Dollar	(8,287)	(5,772)	208
Norwegian Krone	(21,333)	(2,479)	(34)
Philippine Peso	(140,686)	(2,828)	50
Polish Zloty	(35,539)	(8,510)	(26)
Russian Ruble	(182,581)	(2,969)	(16)
Singapore Dollar	(33,926)	(23,477)	11
South African Rand	(172,723)	(12,608)	(634)
South Korean Won	(9,083,145)	(7,538)	196
Swedish Krona	(253,416)	(27,947)	(370)
Swiss Franc	(35,227)	(34,732)	(437)
Taiwan New Dollar	(390,096)	(12,054)	127
Thailand Baht	(462,405)	(12,911)	134
Turkish Lira	(38,916)	(10,979)	96
U.S. Dollar	(1,924,132)	(1,924,132)	0
		(3,666,766)	64,596
Total		$67,024	$67,024

Futures Contracts
A futures contract is an exchange-traded agreement to buy or sell a financial instrument, index or commodity at an agreed upon price and time in the future.

The fair value of futures contracts represents the unrealized gain/(loss) on the contracts, since trade inception, and is reflected as "Financial Futures Contracts" on the Statement of Fiduciary Net Position. Futures contracts are marked to market daily, based upon the closing market price of the contract at the board of trade or exchange on which they are traded. Gains and losses resulting from investments in futures contracts are included in the "Net Appreciation (Depreciation) in Fair Value of Investments" on the Statement of Changes in Fiduciary Net Position.

Futures contracts involve, to varying degrees, risk of loss in excess of the margin deposited with the clearinghouse. Losses may arise from future changes in the value of the underlying instrument.

Futures contracts may be entered into for purposes such as the following:

- To efficiently gain or adjust market exposures for trust fund rebalancing,
- To adjust sector, interest rate, or duration exposures, and
- To securitize cash or as act a substitute for cash market transactions.

The table entitled Futures Contracts presents the Retirement Funds investments in futures contracts as of December 31, 2016.

Retirement Funds
Futures Contracts
As of December 31, 2016
(In Thousands)

Futures Contract Description	Position	Expiration	Notional Amount	Fair Value*
Commodity	Long	Jan 17 - Mar 17	$ 1,906,783	$ (34,828)
Equity	Long	Mar-17	7,297,830	(41,316)
Equity	Short	Mar-17	(6,663)	95
Fixed Income	Long	Mar-17	7,074,933	(4,983)
Fixed Income	Short	Mar-17	(562,651)	1,890
Total			$ 15,710,232	$ (79,142)

* Fair Value includes foreign currency gains/(losses).

The table entitled Futures Contracts with Interest Rate Sensitivity presents the interest rate sensitivity of fixed income futures contracts as of December 31, 2016. Duration, which is stated in years, is the measure of price sensitivity of a fixed income security to an interest rate change of 100 basis points. Duration statistics presented in this table are weighted by the notional value of each position to compute an average duration for the contract types held.

Retirement Funds
Futures Contracts with Interest Rate Sensitivity
As of December 31, 2016
(In Thousands)

Contract Type	Position	Notional Amount	Fair Value	Weighted Average Duration (Years)
U.S. Treasury Notes	Long	$5,785,933	$ (4,647)	3.6
U.S. Treasury Notes	Short	(562,651)	1,890	5.0
U.S. Treasury Bonds	Long	1,186,696	(1,263)	16.9
Foreign Government Bonds	Long	102,304	927	7.9
Total		$6,512,282	$ (3,093)	

Options
An option contract gives the purchaser of the contract the right, but not the obligation, to buy (call) or sell (put) the security or index underlying the contract at an agreed upon price on or before the expiration of the option contract. The seller of the contract is subject to market risk, while the purchaser is subject to credit risk and market risk, to the extent of the premium paid to enter into the contract.

Trust fund rebalancing policies and certain portfolio investment guidelines permit the use of exchange-traded and uncleared OTC options. Investment Guidelines allow options to be used to improve market exposure efficiency, enhance expected returns, or provide market exposure hedges. Exchange rules require that the seller of short exchange-traded option contracts cover these positions either by collateral deposits in the form of cash or by pledging, in escrow, the actual securities that would be transferred to the option purchaser in the event the option contract were exercised.

The fair value of option contracts is based upon the closing market price of the contract and is reflected as “Options Contracts” on the Statement of Fiduciary Net Position. Gains and losses as a result of investments in option contracts are included in the “Net Appreciation (Depreciation) in Fair Value of Investments” on the Statement of Changes in Fiduciary Net Position. The table entitled Option Contracts presents the fair value of option contracts as of December 31, 2016.

Retirement Funds
Option Contracts
As of December 31, 2016
(In Thousands)

Description	Contract Type	Position	Exchange-Traded (EXCH) vs. OTC	Expiration	Notional	Fair Value	Unrealized Gain (loss)
Equity	Call	Long	EXCH	Jan 17 – July 17	$ 30,110	$ 828	$ 308
	Call	Short	EXCH	Jan 17 - July 17	(12,147)	(123)	125
	Put	Long	EXCH	March-17	1,467	29	(2)
	Put	Short	EXCH	Jan 17 - May 17	(49,461)	(482)	11
Total					$(30,031)	$ 252	$ 442

Swaps

Swaps are negotiated contractual agreements between two counterparties which can be cleared or uncleared OTC investments. Throughout the calendar year, the Retirement Funds held positions in Total Return Swaps (TRS), Interest Rate Swaps (IRS) and Credit Default Swaps (CDS).

As is specified in SWIB's investment guidelines, swaps may be used as an alternative to physical securities when it is deemed advantageous for portfolio construction. In addition, swaps may be used to adjust asset class exposures for the Retirement Funds. Guideline limits and soft risk parameters for each portfolio are applied to the aggregate exposures which includes both physical and synthetic securities. A synthetic security is created by combining securities to mirror the properties of another security.

The table entitled Open Swap Positions lists the open swap contracts held at December 31, 2016. As noted in the table, certain swap terms are based on the 3-month London Interbank Offering Rate (LIBOR).

Retirement Funds
Open Swap Positions
As of December 31,2016
(In Thousands)

Description	Date Initiated	Maturity Date	Reference Rates	Notional Amount	Fair Value
Total Return Swaps	Apr-16	Apr-17	Pay 3-month LIBOR, Receive Equity Index Return	$ 548,203	$31,437
Total Return Swaps	Sep-16	Sep-17	Pay 3-month LIBOR, Receive Equity Index Return	797,584	(7,813)
Total				$1,345,787	$23,624

TRS positions represent uncleared OTC contracts where fair value is determined based on the change in quoted market price of the underlying equity index. The fair value of swaps represents the unrealized gain/(loss) on the contracts, since trade inception, and is reflected as "Swaps" on the Statement of Fiduciary Net Position. Any interest owed but not yet paid relating to TRS contracts is reported within the account "Investment Payables" on the Statement of Fiduciary Net Position.

Gains and losses resulting from investments in swap contracts are included in the "Net Appreciation (Depreciation) in Fair Value of Investments" on the Statement of Changes in Fiduciary Net Position. Interest expense relating to TRS contracts is reported as "Investment Expense" on the Statement of Changes in Fiduciary Net Position.

Securities Lending Transactions

State statutes and Board policies permit SWIB to use investments of the Retirement Funds to enter into securities lending transactions. These transactions involve the lending of securities to broker-dealers and other entities in exchange for collateral, in the form of cash or securities, with the simultaneous agreement to return the collateral for identical securities in the future. SWIB's custodian is an agent in lending the Retirement Funds' directly held domestic and international securities. When the Retirement Funds' securities are delivered to a borrower as part of a securities lending agreement, the borrower is required to place collateral with the lending agent equal to at least 102% of the loaned securities' fair value, including interest accrued, as of the delivery date, so long as the securities and the collateral are denominated in the same currency. In the event that securities are loaned against collateral denominated in a different currency, the borrower is required to place collateral with the lending agent totaling at least 105% of the loaned securities' fair value, including interest accrued, as of the delivery date. Collateral is marked to market daily and adjusted as needed to maintain the required minimum level. Pledging or selling non-cash collateral securities cannot be done without a borrower default. On December 31, 2016, the fair value of the securities on loan was approximately $12.0 billion.

Cash collateral is reinvested by the lending agent in two separate pools, a U.S. dollar cash collateral pool and a pool denominated in Euros. These pools are administered in accordance with contractual investment guidelines, which are designed to minimize the risk of principal loss and provide a modest rate of return. Investment guidelines limit credit and liquidity risk by restricting new investments to overnight repurchase agreements collateralized with high quality U.S. government, U.S. government agencies, and sovereign debt securities. To further reduce credit risk, SWIB's custodian provides indemnification to SWIB against counterparty default. The earnings generated from the collateral investments, plus or minus the rebates received from or paid to the dealers and less fees paid to agents, results in the net earnings from lending activities, which are then split on a percentage basis with the lending agent. Cash from the U.S. dollar pool may be posted as collateral relating to short sale transactions and earns the Overnight Bank Funding rate plus 10 basis points. Additional information relating to short sales is discussed later in these notes.

At December 31, 2016, the Retirement Funds had minimal credit risk exposure to borrowers because the amounts owed to the borrowers exceeded the amounts the borrowers owed the Retirement Funds. In addition to the cash collateral reinvestment indemnification, the contract with the lending agent requires it to indemnify the Retirement Funds if the borrowers fail to return the loaned securities and the collateral is inadequate to replace the securities lent. The Retirement Funds are also indemnified against losses resulting from violations of investment guidelines.

The majority of security loans are open-ended and can be terminated on demand by the Retirement Funds or the borrower. Maturities of investments made with cash collateral are not necessarily matched to the maturities of the securities loaned because most loans do not have a fixed maturity date. The risk that SWIB would be unable to return collateral to securities borrowers upon termination of the loan is low because all the investments made with cash collateral mature within seven business days. The average maturities of the loans and the average maturities of the assets held in the collateral reinvestment pools did not materially differ at December 31, 2016.

Securities lending is allowed in certain commingled fund investments. As an investor in such funds, SWIB does not own the underlying securities and does not separately report on securities lending activity. All earnings of these funds are reported in the Statement of Changes in Fiduciary Net Position as "Net Appreciation (Depreciation) in Fair Value of Investments."

Short Sell Obligations

The Retirement Funds may sell a security it does not own in anticipation of purchasing the security later at a lower price. This is known as a short sale transaction. For the duration of the short sale transaction, a liability is recorded under "Short Sell Obligations" on the Statement of Fiduciary Net Position. The liability presented on the Statement of Fiduciary Net Position represents the fair value of the shorted securities necessary for delivery to the purchaser and is marked-to-market daily. Realized and unrealized gains and losses associated with short sales are recorded on the Statement of Changes in Fiduciary Net Position, within in the "Net Appreciation (Depreciation) in Fair Value of Investments" account. Prior to executing a short sale, SWIB will borrow the security from a party currently holding it. While the transaction is open, the Retirement Funds incur expenses for securities borrowing costs. In addition, as a security borrower, the Retirement Funds may incur dividend and interest expense as such payments must be remitted to the security lender during the course of the loan. During the duration of the borrow, there may be corporate action elections requiring the borrower to deliver items such as cash or securities to the lender. Expenses resulting from short sales are included in “Investment Expense” on the Statement of Changes in Fiduciary Net Position.

Risks arise from short sales due to the possible illiquidity of the securities markets and from potential adverse movements in security values. The cost to acquire the securities sold short may exceed the amount of proceeds initially received, as well as the amount of the liability recorded as “Short Sell Obligations” in the Statement of Fiduciary Net Positions. Short sales expose the short seller to potentially unlimited liability because there is no upward limit on the price a shorted security could attain. Certain portfolio guidelines permit short sales and mitigate risks in various ways, such as: limiting the total value of short sales as a percentage of portfolio value, establishing portfolio vs. benchmark tracking error limits and monitoring other statistical and economic risk measures of the portfolio. Investment performance and risk associated with each portfolio is measured against benchmarks and monitored by management.

When a short sale occurs, the shorting portfolio must borrow the security and deliver it to the buyer. If the shorted security is owned by another Retirement Fund portfolio, investment policies allow the borrowing of the shorted securities from other Retirement Fund portfolios, including inter-fund borrowings. In addition to borrowing securities from existing Retirement Fund portfolios, SWIB may borrow securities from external sources. These borrowings are facilitated by SWIB’s custodian.

Except in the case of borrowings within the same trust fund, the Retirement Funds are required to post collateral to the lender, at the required rate of 102% for in-currency loans and 105% for cross-currency loans. The Retirement Funds posted $551.3 million in cash collateral to security lenders representing $26.2 million in excess of the fair market value of the securities borrowed as of December 31, 2016. If the security lender recalled the security and SWIB was not able to supply the lender with the security, the lender would be permitted to use SWIB’s collateral to fund the purchase of the security.

Investment Policy and Asset Allocation

SWIB is required by section 25.15(2)(b) of the Wisconsin Statutes “To diversify investments in order to minimize the risk of large losses, unless under the circumstances it is clearly prudent not to do so, considering each trust’s or fund’s portfolio as a whole at any point in time.”

SWIB’s Board of Trustees has established investment guidelines pursuant to a comprehensive and ongoing evaluation of the appropriate risk and return standards for each fund under management. Trustees have a fiduciary responsibility, with respect to the Core Fund and the Variable Fund, to act solely in the interest of the WRS. The Board of Trustees consists of nine members meeting specific requirements as follows:

- Six Governor appointed and State Senate approved members including:
    - Four with at least ten years investment experience
    - One with at least ten years financial experience and who works for a local government participant in the Local Government Investment Pool
    - One additional member
- Educator participant in the WRS appointed by the Teachers Retirement Board
- Non-educator participant in the WRS appointed by the Wisconsin Retirement Board

- Secretary of the Department of Administration or designee

The Board of Trustees approved guidelines are intended to assist in development of a diversified portfolio of investments, tailored to accomplish the purpose of each fund within acceptable risk parameters. They represent a delegation of standing authority to the SWIB's Executive Director and investment managers within the organization to make prudent investments within the investment guidelines, pursuant to sections 15.02(4) and 25.16(1) of the Wisconsin Statutes and section IB 2.02 of the Wisconsin Administrative Code.

Additionally, the Investment Committee (IC) was created to provide oversight of SWIB investments within the parameters established by the Board of Trustees. Oversight includes analysis of risk and return of the portfolio, asset class, and Core and Variable Funds. The IC is responsible for proposing to the Board of Trustees changes to investment guidelines for internally managed portfolios, for approving investment guidelines or strategies for externally managed portfolios, approving the general strategies for each asset class, and for approving individual strategies within the Multi Asset portfolios.

The Board of Trustees adopts the Retirement Funds' asset allocation policy, based on recommendations by the IC and asset allocation consultant. SWIB undertakes a review of its strategic asset allocation plan every other year, including asset/liability modeling, to determine a suitable target allocation for each asset class included in the Core and Variable Funds. The strategic nature of these reviews contemplates a long-term time horizon over which potential results are evaluated. This exercise is not an attempt to predict short-term market movements, but an effort to understand the long-term impacts of poor, normal and above average market results. In the "off year" of the two-year cycle, structural asset allocation adjustments and other funding initiatives are considered.

In addition to potential future market impact, SWIB also contemplates the objectives of the funds, the impact of actuarial analysis and the soundness of investment return and risk expectations. SWIB's asset allocation policies reflect the Board of Trustee's program of risk allocation that involves reduced equity exposure coupled with leveraged low-volatility assets, such as "fixed income" securities. This investment strategy results in Core Fund strategic targets which exceed 100% of invested assets. Currently the Core Fund has adopted an asset allocation target of 10% leverage, however over time it is anticipated that SWIB will move toward an asset allocation that includes 20% leveraging of low volatility assets. As SWIB increases the degree of leverage and moves toward the destination target asset allocation, the Board of Trustees will be informed of the nature and method used for each incremental step. Before implementing leverage beyond 10%, the Board of Trustees, SWIB's asset allocation consultant and staff will engage in additional focused asset allocation discussion.

SWIB's asset allocation review process also includes assumptions regarding expected rates of return. Long-term (e.g. 30-year) expected real rates of return on pension plan investments are determined using a building block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected real rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The table entitled Asset Allocation Targets and Expected Returns presents the policy asset allocation targets most recently approved by the Board of Trustees in December, 2016, the destination asset allocation targets and the best estimates of expected geometric rates of return for each major asset class as of December 31, 2016.

Retirement Funds
Asset Allocation Targets and Expected Returns
As of December 31, 2016

Core Fund Asset Class	Asset Allocation %	Destination Target Asset Allocation %	Long-Term Expected Nominal Rate of Return %	Long-Term Expected Real Rate of Return %
Global Equities	50 %	45 %	8.3 %	5.4 %
Fixed Income	24.5	37	4.2	1.4
Inflation Sensitive Assets	15.5	20	4.3	1.5
Real Estate	8	7	6.5	3.6
Private Equity/Debt	8	7	9.4	6.5
Multi-Asset	4	4	6.6	3.7
Total Core Fund	110 %	120 %	7.4 %	4.5 %
Variable Fund Asset Class				
U.S. Equities	70	70	7.6	4.7
International Equities	30	30	8.5	5.6
Total Variable Fund	100 %	100 %	7.9 %	5.0 %

New England Pension Consultants Long Term US CPI (Inflation) Forecast: 2.75%

Asset Allocations are managed within established ranges, target percentages may differ from actual monthly allocations

For purposes of determining asset allocation targets, investments may be categorized differently than they are within the financial statements. For example, SWIB's management considers inflation sensitive assets separately from other "fixed income" investments for asset allocation purposes.

Annual Money-Weighted Rate of Return

Money-weighted rate of return expresses investment performance, net of pension plan investment expense, adjusted for the changing amounts actually invested. For the year ended December 31, 2016, the money-weighted rate of return for the Core Fund was 8.29% and 10.49% for the Variable Fund.

4. Description of Wisconsin Retirement System

WRS benefits and other plan provisions are established by Chapter 40 of the Wisconsin Statutes. Benefit terms may only be modified by the legislature. ETF, under the direction of the ETF Board, is responsible for the administration of the WRS.

Employee Trust Funds Board

The ETF Board has general oversight of ETF, appoints the ETF Secretary and oversees administration of the benefit programs, other than group insurance and deferred compensation. The ETF Board is comprised of 13 members, including:

- the Governor or the Governor's designee on the Group Insurance Board,
- the Administrator of the Department of Administration's Division of Personnel Management or the Administrator's designee,
- 4 members appointed by the Teachers Retirement Board (an advisory board to the ETF Board),
- 4 members appointed by the Wisconsin Retirement Board (an advisory board to the ETF Board),
- a public member who is not a participant in or beneficiary of the Wisconsin Retirement System, with at least 5 years of experience in actuarial analysis, administration of an employee benefit plan or significant administrative responsibility in a major insurer,
- a WRS annuitant, and
- a participant in the Wisconsin retirement system who is a technical college or public school district educational support personnel employee.

WRS Employers
The WRS is open to all public employers in Wisconsin. Participation is optional, except that participation is mandatory for school districts with respect to teachers, some municipalities with respect to police and firefighters, and all counties except Milwaukee County. As of December 31, 2016, the number of participating employers was:

State Agencies, UW & Public Authorities	58
Cities	152
Counties	71
4th Class Cities	36
Villages	266
Towns	254
School Districts	422
Cooperative Educational Service Agencies	12
Wisconsin Technical College System Districts	16
Special Districts	208
Total Employers	1,495

WRS Membership
All eligible employees of a participating employer who are expected to work at least 1,200 hours per year (880 hours per year for teachers and school district educational support employees) must be covered by the WRS. As of December 31, 2016, the WRS membership consisted of:

Current Employees:		
General	133,843	
Teachers	99,850	
Elected / Executive / Judges	1,369	
Protective with Social Security	19,468	
Protective without Social Security	2,755	
Total Current Employees		**257,285**
Inactive Participants:		
Terminated Participants	163,145	
Alternate Payees	4,046	
Total Inactive Participants		**167,191**
Retirees and Beneficiaries Currently Receiving Benefits:		
Retirement Annuities	190,111	
Disability Annuities	6,198	
Death Beneficiary Annuities	1,338	
Total Annuitants		**197,647**
Total Participants		**622,123**

WRS Benefits

The WRS provides retirement benefits as well as death and disability benefits. Vesting requirements have changed over time, as follows:

- Participants in the system prior to January 1, 1990, were fully vested at the time they met participation requirements;
- For participants entering the system from January 1, 1990, to April 23, 1998, creditable service in each of five years was required for vesting;
- All active participants in the system at any time from April 24, 1998 to June 30, 2011 are fully vested;
- 2011 Wisconsin Act 32 generally required participants hired on or after July 1, 2011 to have five years of creditable service to be vested.

Employees who retire at or after age 65 (54 for protective occupations and 62 for elected officials and executive service retirement plan participants) are entitled to a retirement benefit based on a formula factor, their final average earnings, and creditable service. Formula factors are shown in the table below.

Employment Category	Service Before 1/1/2000	Service Between 2000 and 2011	Service After 2011
General and Teachers	1.765%	1.6%	1.6%
Executive and Elected	2.165	2.0*	1.6*
Protective with Social Security	2.165	2.0	2.0
Protective without Social Security	2.665	2.5	2.5

*2011 Wisconsin Act 10 changed the Executive and Elected formula factor from 2.0% to 1.6%. The effective date of the change varies among different employee categories, and generally applies to the service earned after Act 10 effective date (i.e., June 29,2011).

Final average earnings is the average of the participant's three highest annual earnings periods. Creditable service includes current service and prior service for which a participant received earnings and made contributions as required. Creditable service also includes creditable military service. The retirement benefit will be calculated as a money purchase benefit based on the employee's contributions plus matching employer's contributions, with interest, if that benefit is higher than the formula benefit.

Vested participants may retire at or after age 55 (50 for protective occupations) and receive an actuarially-reduced benefit. Participants terminating covered employment prior to eligibility for an annuity may either receive employee-required contributions plus interest as a separation benefit or leave contributions on deposit and defer application until eligible to receive a retirement benefit.

Post-Retirement Adjustments

The Employee Trust Funds Board may periodically adjust annuity payments from the retirement system based on annual investment performance in accordance with s. 40.27, Wis. Stat. An increase (or decrease) in annuity payments may result when investment gains (losses), together with other actuarial experience factors, create a surplus (shortfall) in the reserves, as determined by the system's consulting actuary. Annuity increases are not based on cost of living or other similar factors. For Core annuities, decreases may be applied only to previously granted increases. By law, Core annuities cannot be reduced to an amount below the original, guaranteed amount (the "floor") set at retirement.

The Core and Variable Fund annuity adjustments granted during the past 10 years are as follows:

Year	Core Adjustment	Variable Adjustment
2007	3.0%	10%
2008	6.6	0.0
2009	(2.1)	(42.0)
2010	(1.3)	22.0
2011	(1.2)	11.0
2012	(7.0)	(7.0)
2013	(9.6)	9.0
2014	4.7	25.0
2015	2.9	2.0
2016	0.5	(5.0)

The negative Core annuity adjustments from 2009 to 2013 were primarily due to the Fund's $21.0 billion investment decline in 2008, caused by the global economic crisis. Core Fund gains and losses are recognized over a five-year period.

Long-term Receivables

The "Prior Service Contributions Receivable" on the Statement of Fiduciary Net Position represents the WRS unfunded actuarial accrued liability (UAAL), determined under the plan's Frozen Initial Liability funding methodology. This liability is being amortized as a level percentage of payroll over a 40-year period beginning January 1, 1990, for employers in the WRS prior to 2009. The remaining balance is expected to be fully amortized by December 31, 2029. Liabilities for employers joining the WRS beginning in 2009 are amortized over 30 years. Interest is assessed on the outstanding liability at year-end at the assumed earnings rate. The level-percentage-of-payroll amortization method results in a relatively lower dollar contribution in earlier years than in later years, when payrolls have increased. During the early years of the amortization period, payments made are less than annual interest assessments, resulting in an increase in the liability. As payrolls increase annually, prior service payments increase proportionally until they exceed annual interest and ultimately fully liquidate the liability at the end of the amortization period. State law requires the accrued retirement cost to be funded. As of December 31, 2016, the receivable balance was $18.0 million.

Variable Retirement Option

Prior to 1980, WRS participants could opt to have one-half of their required contributions and matching employer contributions invested in the Variable Fund. Retirement benefits were adjusted for the difference between the investment experience of the Core Fund and the Variable Fund. Provisions for allowing members to withdraw from the Variable Fund were added with the passage of Chapter 221, Laws of 1979. The Variable Fund was closed to new membership after April 30, 1980. 1999 Wisconsin Act 11 reopened the Variable Fund for existing and future participants, effective January 1, 2001. As of December 31, 2016, there were 58,306 active and inactive members and 40,647 annuitants participating in the Variable Fund.

Municipal Police and Firefighters Pension Group
As of March 31, 1978, administration of certain local funds for police officers and firefighters was assumed by the Wisconsin Retirement Fund. This included approximately 2,000 members. As of December 31, 2016, approximately 80 annuitants or their beneficiaries remained in the system. This group was closed to new members after January 1, 1948.

The liability for retirement benefits for these annuitants is funded by the employers, as benefit payments are made. Annuity reserves for these police and firefighter annuities are established by a transfer from the employer accumulation reserve at the time the annuity is approved. Earnings on these reserves are used to fund annuity adjustments on the same basis as for WRS annuitants. The unfunded liability for these annuitants as of December 31, 2016, was $2.3 million.

Annuity Supplement—General Fund
As authorized under 1985 Wis. Stats. § 40.27 (1), the State's General Fund provides certain supplemental annuity benefits to annuitants receiving a continuing annuity on or before September 1974. The benefit is subject to continuation of the appropriation by the Legislature. ETF serves as a clearing agent for its payment. Total supplemental annuity benefits paid were approximately $158,000 in 2016.

5. Contributions Made and Required

Required Contributions
Contribution rates are determined by the "entry age normal with a frozen initial liability" actuarial method. This is a "level contribution" actuarial method intended to keep employer and employee contribution rates at a level percentage of payroll over the years. This method determines the amount of contributions necessary to fund: 1) the current service cost, which represents the estimated amount necessary to pay for benefits earned by the employees during the current service year plus actuarial gains or losses arising from the difference between actual and assumed experience; and 2) the prior service cost, which represents the estimated amount necessary to pay for unfunded benefits earned prior to the employer becoming a participating employer in WRS and the past service cost of benefit improvements.

The 2016 contribution requirements were determined by the December 31, 2014, actuarial valuation.

Employee contributions are deducted from the employee's salary and remitted by the employer. Employers generally may not pay the employee required contribution. The employee required contribution is one-half of the actuarially- determined contribution rate for General category employees, which includes teachers; and employees in the Executive Group and Elected Officials category, effective in 2016 the Executive & Elected Officials are now included in the General category. Employee required contributions for Protective Occupation category employees are the same rate as General category employees. Employers are required to contribute the remainder of the actuarially-determined contribution rate.

Contribution rates in effect during 2016 by employment category were:

	Employer Current	Employer Prior *	Employee	Total
General, Teachers, Executive & Elected Officials	6.6%	0.0%	6.6%	13.2%
Protective Occupation with Social Security	9.4	0.0	6.6	16.0
Protective Occupation without Social Security	13.2	0.2	6.6	19.8

*The employer prior service contribution rate is a weighted average of individual employer rates.

Contributions required and made during 2016 were:

Contributions Required and Made		
	Contributions ($ in millions)	Percentage of Payroll
Employer Current Service	$954.2	6.96%
Employer Prior Service*	1.2	0.01
Employee Required	905.7	6.61

*Employer Prior Service contributions are recorded on the Statement of Fiduciary Net Position as a reduction in the Prior Service Contribution Receivable. Contributions Made includes both mandatory and voluntary payments received from participating employers. Some Prior Service contributions received after year end are included in Contributions Made, but are not in the determination of Prior Service Contributions Receivable. This is due to a difference in how these payments are treated for actuarial and financial reporting purposes.

Employers also contributed approximately $665,000 in reimbursement for benefits paid under the s. 62.13, Wis. Stat, Police and Firefighters Pension Program.

Employee and Employer Additional Contributions

Contributions in addition to those required contributions by employees and/or employers may be made to the retirement system. These contributions are held in separate reserve accounts and are subject to certain restrictions as to amount, form of benefit payments, tax status, etc.

6. Net Pension Liability (Asset) Of Participating Employers—WRS

The components of the net pension liability (asset) of the participating employers at December 31, 2016, were as follows ($ in millions):

Total Pension Liability	$	93,404.34	*
Plan Fiduciary Net Position		92,580.10	**
Participating Employer's Net Pension Liability (Asset)	$	824.24	
Percentage of the Total Pension Liability		99.12%	

*Includes the impact of known Market Recognition Account deferred gains/losses on the liability for dividend payments.

**Immaterial difference may exist between the Plan Fiduciary Net Position used in the actuarial valuation and that reported in the Statement of Fiduciary Net Position, due to the timing of the actuarial valuation.

Additional information as of the latest actuarial valuations follows:

Actuarial Valuation Date:	December 31, 2015
Measurement Date of Net Pension Liability:	December 31, 2016
Actual Cost Method:	Entry Age
Asset Valuation Method:	Fair Value
Long-Term Expected Rate of Return:	7.2%
Discount Rate:	7.2%
Salary Increases:	
Inflation	3.2%
Senior/Merit	0.2% - 5.6%
Mortality:	Wisconsin 2012 Mortality Table
Post-retirement Adjustments:	2.1%*

*No post-retirement adjustments is guaranteed. Actual adjustments are based on recognized investment return, actuarial experience and other factors. 2.1% is assumed annual adjustments based on the investment return assumption and the post-retirement discount rate. Includes the impact of known Market Recognition Account deferred gains/losses on liability for dividend payments.

Actuarial assumptions are based upon an experience study conducted in 2015 using experience from 2012 – 2014. The total pension liability as of December 31, 2016, is based upon a roll-forward of the liability calculated from the December 31, 2015, actuarial valuation.

A single discount rate of 7.20% was used to measure the total pension liability (asset) which was based on the expected rate of return on pension plan investments. Because of the unique structure of WRS, the 7.20% expected rate of return implies that a dividend of approximately 2.1% will always be paid after reflecting known changes in the Market Recognition Account. For purposes of the single discount rate, it was assumed that the dividend would always be paid.

The projection of cash flows used to determine the single discount rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments (including expected dividends) of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Sensitivity of the Net Pension Liability (Asset) to Changes in the Discount Rate

The following presents the plan's net pension liability (asset), calculated using a single discount rate of 7.20%, as well as what the plan's net pension liability (asset) would be if it were calculated using a single discount rate that is one percentage point lower or one percentage point higher:

	1% Decrease (6.2%)	Current Discount Rate (7.2%)	1% Increase (8.2%)
Total Pension Liability	$ 103,423.5	$ 93,404.3	$ 85,689.1
Plan Fiduciary Net Position	$ 92,580.1	$ 92,580.1	$ 92,580.1
Net Pension Liability/(Asset)	$ 10,843.4	$ 824.2	$ (6,891.0)

Amounts may not foot due to rounding.

For the WRS, the determination of liabilities also depends on the assumed dividend which is linked to the interest rate used in the liability calculation. Therefore, we have also shown an alternative set of Sensitivity Analysis which varies the assumed dividend in conjunction with the change in the discount rate. For the liabilities shown below, the assumed dividend was 1.1% for the 6.2% discount rate, 2.1% for the 7.2% discount rate, and 3.0% for the 8.2% discount rate. ($ in millions):

	1% Decrease (6.2)		Current Discount Rate (7.2%)		1% Increase (8.2%)	
Total Pension Liability	$	96,874.4	$	93,404.3	$	89,738.9
Plan Fiduciary Net Position	$	92,580.1	$	92,580.1	$	92,580.1
Net Pension Liability/(Asset)	$	4,294.3	$	824.2	$	(2,841.2)

Amounts may not foot due to rounding.

7. Statutory Reserves

The following reserves have been established to reflect legal restrictions on the use of pension trust funds.

Employee Accumulation Reserve
As authorized by Wis. Stats. § 40.04 (4), this reserve includes all required and voluntary employee contributions, including contributions made by the employer on behalf of the employee. This reserve may only be used to pay lump sum benefits or transfers to the Annuity Reserve to fund annuities. All legal restrictions on use of this reserve were met during the year. The Employee Accumulation Reserve is fully funded.

Employee Accumulation Reserve balances ($ in millions) as of December 31, 2016, were:

	Core		Variable		Total	
Employee Required	$	15,615.8	$	1,562.5	$	17,178.3
Employee Additional		169.7		14.2		183.9
Total	$	15,785.5	$	1,576.7	$	17,362.2

Employer Accumulation Reserve
As authorized by Wis. Stat. § 40.04 (5), this reserve includes all required employer contributions, including contributions for amortization of the unfunded accrued actuarial liability. This reserve may only be used to pay lump sum benefits or transfers to the Annuity Reserve to fund annuities. All legal restrictions on use of this reserve were met during the year. The Employer Accumulation Reserve is 99.9% funded.

Employer Accumulation Reserve balances ($ in millions) as of December 31, 2016, were:

	Core	Variable	Police & Firefighters	Total
Employer Accumulation	$ 20,748.3	$ 1,562.5	$ 0.0	$ 22,310.8
Less: Unfunded Actuarial Accrued Liability	0.0	0.0	(2.3)	$ (2.3)
Net Employer Accumulation	$ 20,748.3	$ 1,562.5	$ (2.3)	$ 22,308.5

Annuity Reserve

As authorized by Wis. Stat. § 40.04 (6), this reserve includes the present value of all annuities. The present value of new annuities is transferred from the Employee Accumulation Reserve and the Employer Accumulation Reserve to the Annuity Reserve. This reserve may only be used for the payment of annuities and death benefits to annuitants. All legal restrictions on use of this reserve were met during the year. The Annuity Reserve is fully funded.

Annuity Reserve Balances ($ in millions) as of December 31, 2016, were:

	Core	Variable	Police & Firefighters	Total
Annuity Reserve	$51,965.7	$3,790.1	$6.0	$55,761.8

Market Recognition Account

As authorized by Wis. Stat. § 40.04 (3), this reserve is used to smooth the flow of investment income into the Employee, Employer, and Annuity Reserves and other benefit plans invested in the Core Fund. Under the Market Recognition Account (MRA), all investment income, including realized and unrealized market gains and losses, is deposited into the MRA. At year-end, income equal to the assumed earnings rate is recognized. Any surplus or shortfall in earnings is recognized equally over five years.

Year-end balances in the MRA ($ in millions) for the last five years after annual distributions were as follows:

As of:	MRA
December 31, 2012	$ 2,451
December 31, 2013	4,721
December 31, 2014	2,540
December 31, 2015	(3,404)
December 31, 2016	$ (3,086)

8. Contingencies, Unusual Events, And Subsequent Events

Loss Contingency

On September 5, 2008, the Internal Revenue Service (IRS) provided SWIB with a "Notice of Transferee Liability". This claim seeks taxes, penalties and interest relating to the sale of Shockley Communications Corporation (SCC) stock in 2001.

SWIB is classified as a tax-exempt entity by the IRS. However, the IRS asserts that the shareholders' sale of SCC stock in 2001 should have been characterized as a sale of assets by SCC, on which SCC should have paid income taxes. Based on the theory of transferee liability, the IRS asserts that the former SCC shareholders, including SWIB, are liable for SCC's unpaid taxes, penalties and interest.

SWIB has filed a petition in the United States Tax Court contesting the proposed IRS assessment. In April 2014, SWIB and the IRS agreed to stay the Tax Court proceeding pending the resolution of the tax case initiated by the principal shareholders of SCC challenging the IRS' characterization of the SCC sale. In 2015, the Tax Court found that the principal shareholders of SCC were liable as putative transferees for the tax, penalties and interest owed by SCC related to its sale. The 2015 Tax Court opinion is currently on appeal with the 11th Circuit Court of Appeals. Although SWIB plans to continue to aggressively contest the IRS' assertions of SWIB's tax liability, and SWIB has separate and distinct arguments from the principal shareholders of SCC, at the end of 2015, SWIB determined it was prudent to accrue a potential loss from the SCC transaction based on the Tax Court's adverse opinion. SWIB's potential liability, as a putative transferee of SCC assets, is reasonably estimated to be between $16.6 million and $51.7 million as of December 31, 2016. Although results may differ, this estimated range of loss is based on a possible settlement strategy with the IRS and the maximum potential liability to the IRS for the taxes, interest and potential penalties of SCC based on the Tax Court's decision against the principal shareholders. Accordingly, in calendar year 2015, SWIB accrued a loss of $16.6 million, which represents the estimated minimum amount of the possible loss to which SWIB believes it may be exposed.

Required Supplementary Information

WISCONSIN RETIREMENT SYSTEM
SCHEDULES OF CHANGES IN NET PENSION LIABILITY (ASSET) AND RELATED RATIOS
(Dollar Amounts in Millions)

Calendar Year Ended, December 31	2016	2015	2014	2013
Total Pension Liability				
Service Cost	$ 1,814.1	$ 1,787.9	$ 1,757.0	$ 1,745.0
Interest on the Total Pension Liability	$ 6,372.4	$ 6,347.1	$ 6,089.3	$ 5,680.7
Benefit Changes	$ -	$ -	$ -	$ -
Difference between Expected and Actual Experience*	$ 150.3	$ (4,247.3)	$ 437.3	$ 2,659.9
Assumption Changes	$ -	$ 1,412.0	$ -	$ -
Benefit Payments, including refunds of employee contributions	$ (5,062.2)	$ (4,861.2)	$ (4,574.6)	$ (4,258.0)
Net Change in Total Pension Liability	$ 3,274.6	$ 438.5	$ 3,708.9	$ 5,827.7
Total Pension Liability - Beginning	$ 90,129.7	$ 89,691.2	$ 85,982.2	$ 80,154.6
Total Pension Liability - Ending (a)	$ 93,404.3	$ 90,129.7	$ 89,691.2	$ 85,982.2
Plan Fiduciary Net Position				
Employer Contributions	$ 963.1	$ 977.7	$ 987.8	$ 914.7
Employee Contributions	$ 921.9	$ 937.2	$ 941.9	$ 871.3
Pension Plan Net Investment Income	$ 7,273.1	$ (673.1)	$ 4,891.0	$ 11,347.3
Benefit Payments, including refunds of employee contributions	$ (5,062.2)	$ (4,861.2)	$ (4,574.6)	$ (4,258.0)
Pension Plan Administrative Expense	$ (20.4)	$ (22.7)	$ (24.0)	$ (22.9)
Net Change in Plan Fiduciary Net Position	$ 4,075.4	$ (3,642.1)	$ 2,222.0	$ 8,852.4
Plan Fiduciary Net Position - Beginning	$ 88,504.7	$ 92,146.8	$ 89,924.7	$ 81,072.3
Plan Fiduciary Net Position - Ending (b)	$ 92,580.1	$ 88,504.7	$ 92,146.8	$ 89,924.7
Net Pension Liability/(Asset) - Ending (a) - (b)	$ 824.2	$ 1,625.0	$ (2,455.6)	$ (3,942.5)
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	99.12%	98.20%	102.74%	104.59%
Covered Employee Payroll	$ 13,706.0	$ 13,530.5	$ 13,219.5	$ 12,884.8
Net Pension Liability/(Asset) as a Percentage of Covered Employee Payroll	6.01%	12.01%	(18.58%)	(30.60%)

Immaterial differences may exist between the amounts in this schedule and those reported in the Statement of Fiduciary Net Position and the Statement of Changes in Fiduciary Net position due to the timing of the actuarial valuation.

Amounts may not foot due to rounding.

*Starting with 2015, this item includes the impact of known Market Recognition account deferred gains/losses on the liability for dividend payments.

Schedule of Employer Contributions

WISCONSIN RETIREMENT SYSTEM
SCHEDULE OF EMPLOYER CONTRIBUTIONS
(Dollar Amounts in Millions)

Calendar Year Ending December 31,	Actuarially Determined Contributions	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll	Actual Contribution as a % of Covered Payroll
2013	905.1	905.1	-	12,884.8	7.02%
2014	977.1	977.1	-	13,219.5	7.39%
2015	967.7	967.7	-	13,530.5	7.15%
2016	954.2	954.2	-	13,706.0	6.96%

Schedule of Investment Returns

WISCONSIN RETIREMENT SYSTEM
SCHEDULE OF INVESTMENT RETURNS
LAST TEN CALENDAR YEARS
ANNUAL MONEY-WEIGHTED RATE OF RETURN (IRR), NET OF INVESTMENT EXPENSES

	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Core Trust Fund	8.29%	(0.63%)	5.44%	13.18%	13.40%	1.25%	11.92%	21.76%	(26.31%)	8.52%
Variable Trust Fund	10.49%	(1.11%)	7.24%	28.78%	16.94%	(3.02%)	15.23%	33.06%	(38.96%)	5.57%

Notes to Required Supplementary Information

Significant methods and assumptions used in calculating the Actuarially Determined Contribution:

Valuation Date:	December 31, 2014
Actuarial Cost Method:	Frozen Entry Age
Amortization Method:	Level Percent-Closed Amortization Period
Amortization Period:	30 Year closed from date of participation in WRS
Asset Valuation Method:	Five Year Smoothed Market (Closed)
Actuarial Assumptions	
Net Investment Rate of Return:	5.5%
Weighted based on assumed rate for:	
Pre-retirement:	7.2%
Post-retirement:	5.0%
Salary Increases	
Inflation:	3.2%
Seniority/Merit:	0.2% - 5.6%
Post-retirement Benefit Adjustments:	2.1%*

*No post-retirement adjustment is guaranteed. Actual adjustments are based on recognized investment return, actuarial experience and other factors. 2.1% is the assumed annual adjustment based on the investment return assumption and the post-retirement discount rate.