

2020 Retirement Funds

# ANNUAL REPORT







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# INTRODUCTION

## Message from the Executive Director/Chief Investment Officer

The COVID-19 pandemic, and the economic fallout that came with it, made 2020 a year unlike any other. Amidst a great deal of volatility in the financial markets, the State of Wisconsin Investment Board (SWIB) stayed the course and was able to take advantage of market opportunities to generate returns and add tremendous value to the Wisconsin Retirement System (WRS).

Through a true team effort, SWIB helped create stability in an otherwise unstable year. That stability allowed SWIB to accomplish several major initiatives in 2020 while positioning portfolios to add value and moving forward key projects started prior to the pandemic.

In mid-March, SWIB shifted to a remote working environment and, without missing a beat, teams across the organization worked to find ways to continue to deliver on key goals and meet new challenges. SWIB delivered exceptional results on multiple fronts, including onboarding new employees, adding new portfolios and technology to continue successful implementation of a sophisticated investment strategy, delivering strong returns, and solidifying the planning process for a new facility.

The WRS Core Fund achieved a net return of 15.2% in 2020, representing outperformance of 106 basis points relative to its benchmark. The WRS Variable Fund, an optional stock-only fund, ended 2020 with a net return of 17.5%. The Core Fund and Variable Fund had assets of over \$120 billion and about \$9.6 billion, respectively, as of December 31, 2020.

While an annual report necessarily focuses mainly on the previous year, it is important to note that SWIB's success, sustained over many years, has helped keep the WRS strong. SWIB's one-, five-, and ten-year returns for the Core Fund all exceed the long-term WRS investment target of 7.0%. When looking over the last 20 years, SWIB's active management and its diversified holdings generated \$34.5 billion for the Core Fund above what SWIB would have earned by simply investing in a low-cost passive portfolio consisting of 60% global equities and 40% domestic bonds.

SWIB has helped fuel one of the only fully funded pension systems in the U.S. during a time when many public pension plans are struggling with underfunding. Investment earnings generated by SWIB comprise about 80% of the revenues needed to fund the WRS, thereby reducing the burden on public employers and employees. The WRS is consistently among the top ten largest public pension funds in the U.S. More than 652,000 current and former state and local government employees and their families count on the WRS for some portion of their retirement security.

SWIB's previous Executive Director/Chief Investment Officer, David Villa, was passionate about SWIB's mission to help public employees retire with dignity. Sadly, David passed away February 13, 2021. I am grateful for the trust the SWIB Board has placed in me and I am eager to build on David's vision for SWIB as we continue to create a world-class investment organization.



Edwin Denson  
Executive Director/Chief Investment Officer

# Agency Overview

In addition to the WRS trust funds, SWIB also serves the state by investing the assets of the State Investment Fund, University of Wisconsin System Trusts Funds, Injured Patients and Families Compensation Fund, State Life Insurance Trust Fund, and the Wisconsin Historical Society Trust Fund.

SWIB was created under section 15.76 of the state statutes and its duties to invest these funds are provided in Chapter 25 of the statutes. SWIB is a fiduciary and is governed by the “prudent investor” standard, which requires it to use the diligence, skill, and care that a prudent person acting in a similar capacity and with the same resources would use in managing a large public pension fund. The law also requires SWIB to make investment decisions and conduct its operations solely to fulfill the purpose of the funds under management.

## Strong Governance

SWIB is governed by a nine-person, independent Board of Trustees. Trustees appoint the executive director and set the governing policies for SWIB. The executive director/chief investment officer (ED/CIO) oversees the staff, develops and recommends agency and investment policies for Board adoption, and ensures adherence to state law and policies. The ED/CIO serves as chair of the Investment Committee. The Investment Committee provides oversight of SWIB’s investments and reports to and makes recommendations to the Trustees.

## Experienced Staff

SWIB’s investments are managed by its own professional staff and by outside management firms. SWIB’s staff consists of 261 authorized positions (as of December 2020) and includes portfolio managers, investment analysts, and traders who are responsible for daily investment decisions made within the parameters of the investment policy, as well as highly trained professionals with legal, technical, accounting, and operational expertise. About 80% of SWIB

investment management staff hold advanced degrees and/or professional certifications.

## Internal Management

Having a strong internal management program provides a significant financial benefit to the WRS. SWIB’s Board of Trustees has committed to internal active management. Internally managing about 50% of WRS assets helps keep SWIB’s costs lower than its peers, according to CEM Benchmarking, an independent provider of objective cost benchmarking for public pension plans. In addition to cost savings, SWIB’s active management has created billions in value added compared to a simple passively constructed portfolio.

## Growing a Strong Future

Historically, markets tend to be cyclical with periods of strong performance and periods of decline. Because SWIB is a long-term investor, it can be more patient than many other investors. However, it must also be responsible and committed to a thoughtful investment strategy that can weather both positive and negative market conditions. SWIB’s investment strategy is designed to provide moderate downside protection from dramatic market downturns, while still earning reasonable returns in other market conditions.

According to Callan Associates, Inc., a firm that provides independent research, education, decision support, and advice to public pension plans and other institutional investors, the Core Fund’s gross investment returns as of December 31, 2020, performed in the top decile of a peer median group over the last one-, three- and five-year periods. While Callan’s comparisons are only shown gross of fees, Callan expressed that SWIB’s performance would likely rank even higher over these periods, if shown net of fees, because SWIB consistently has lower costs than its peers.

To meet the market challenges SWIB anticipates for the next several years, SWIB will rely on more robust and complex investment strategies. To

continue to manage risk and optimize costs, SWIB will strengthen its already award-winning staff to deal with the complexity of managing assets in a more challenging environment. SWIB will continue to build out the infrastructure and technology needed to support the investments SWIB makes on behalf of the more than 652,000 WRS participants.

Actively managing the trust funds in a diversified portfolio is vital to the long-term success of SWIB and the WRS. SWIB's long-term goal is to provide prudent and cost-effective management of the funds held in trust. This is achieved through strong governance, people, processes, and innovative investment strategies.

## MISSION

To be a trusted and skilled global investment organization contributing to a strong financial future for the beneficiaries of the funds entrusted to us.

## VISION

SWIB will be an innovative, agile, integrated organization that optimizes investment returns while managing risk and cost over the long term.

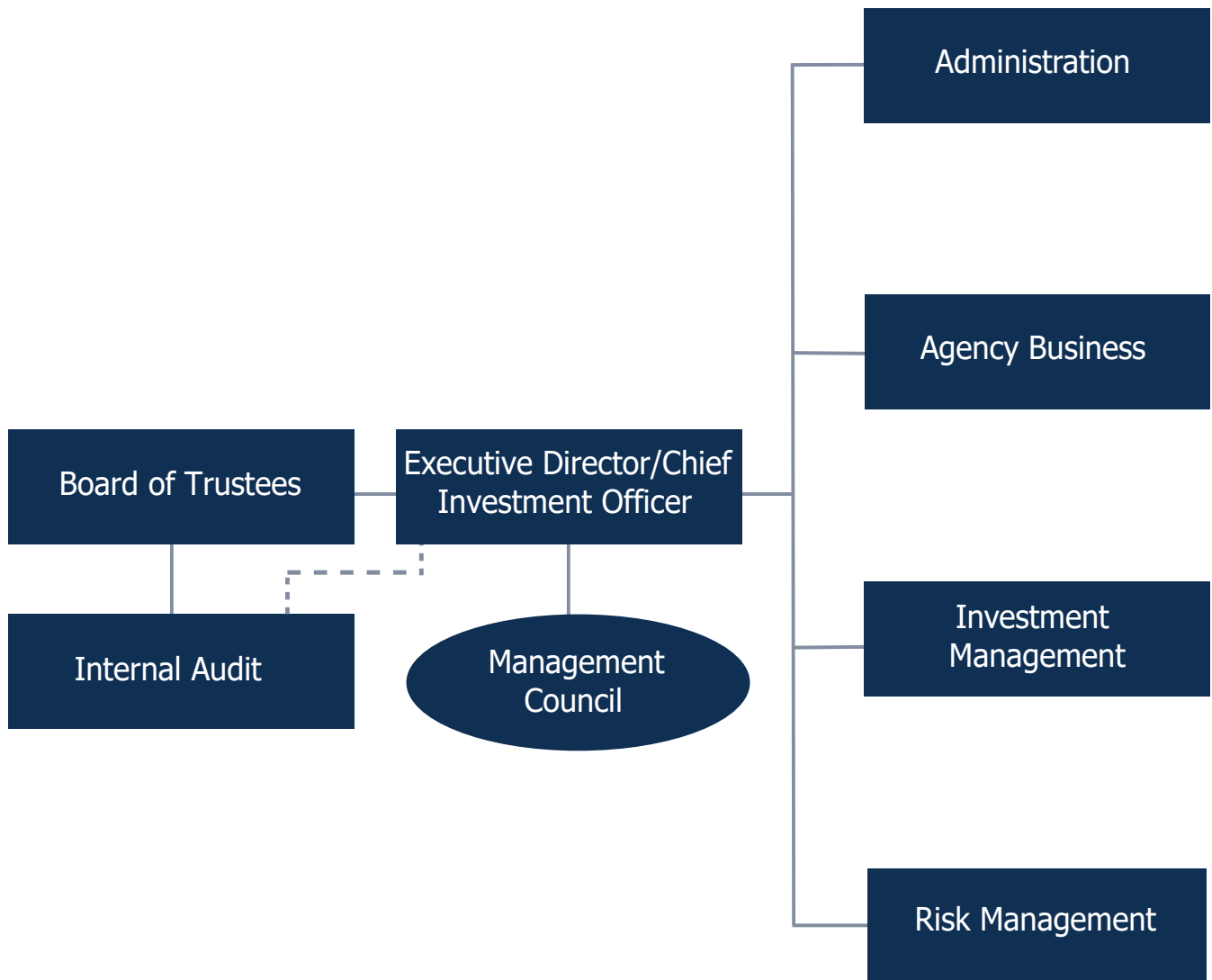
## FUTURE DIRECTION

Throughout our history, we have been committed to contributing to a strong financial future for the beneficiaries of the funds entrusted to us. We understand that carrying that commitment into the future demands more than maintaining the status quo.

As a global investment management organization, our mission requires that we keep pace with ever-changing financial markets while remaining true to our values and operating principles. Accordingly, we continually seek to effectively manage risk, optimize costs and achieve the target returns for our funds over the long term.



# Agency Management



## MANAGEMENT COUNCIL



**Edwin Denson**  
**Executive Director/  
Chief Investment Officer**



**Rochelle Klaskin**  
**Deputy Executive Director/  
Chief Administrative Officer**



**Mike Jacobs**  
**Agency Business Director**



**Brian Hellmer**  
**Global Public Market  
Strategies Chief  
Investment Officer**



**Anne-Marie Fink**  
**Private Markets &  
Funds Alpha Chief  
Investment Officer**

# Board of Trustees

The Board of Trustees is responsible for setting long-term investment policies, asset allocation, benchmarks, and fund level risk and monitoring investment performance. The Board is comprised of the following, per section 15.76 of the state statutes:

- Six public members appointed by the Governor and confirmed by the state Senate including four with at least 10 years investment experience, and one with at least 10 years financial experience and who works for a local government in the Local Government Investment Pool
- Educator participant in the Wisconsin Retirement System (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

## Public Members\*

1. David Stein, Board Chair, Executive Vice President and Head of Retail Banking, Associated Banc-Corp, Madison
2. Barbara Nick, Board Vice Chair, Retired President and Chief Executive Officer, Dairyland Power Cooperative, La Crosse
3. Mark Doll, Retired Executive Vice President and Chief Investment Officer, Northwestern Mutual Life Insurance Co., Milwaukee
4. Kristi Palmer, Finance Director, Marathon County
5. Tim Sheehy, President, Metropolitan Milwaukee Association of Commerce, Milwaukee
6. Esther Ancel, Emeritus Professor of Finance, UW-Milwaukee

## WRS Participant Members\*

1. Dave Schalow, Educator, Professor of Business, UW-Stevens Point
2. John Voelker, Non-educator, Department Secretary, Employee Trust Funds (succeeded Robert Conlin in 2021)

## Department of Administration

1. Joel Brennan, Department Secretary

\* Appointed Board members serve six-year terms.



David Stein



Barbara Nick



Mark Doll



Kristi Palmer



Tim Sheehy



Esther Ancel



Dave Schalow



John Voelker



Joel Brennan

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# FINANCIAL SECTION



STATE OF WISCONSIN

# Legislative Audit Bureau

Joe Chrisman  
State Auditor

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[AskLAB@legis.wisconsin.gov](mailto:AskLAB@legis.wisconsin.gov)

## **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 Board of Trustees, and  
Mr. Edwin Denson, Executive Director/Chief Investment Officer  
State of Wisconsin Investment Board

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

We have audited the accompanying Statement of Net Investment Position and the Statement of Changes in Net Investment Position, and the related notes to the financial statements of the Core Retirement Investment Trust Fund and the Variable Retirement Investment Trust Fund (Retirement Funds) of the State of Wisconsin as of and for the year ended December 31, 2020.

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

Management of the State of Wisconsin Investment Board (SWIB) 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 opinions 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 opinions on these financial statements.

### **Opinions**

In our opinion, the financial statements referred to in the first paragraph present fairly, in all material respects, the financial position of the Retirement Funds as of December 31, 2020, and the respective changes in financial position thereof for the year then ended in accordance with accounting principles generally accepted in the United States of America.

### **Emphases of Matter**

As described in Note 1 to the financial statements, the financial statements referred to in the first paragraph present only the investment activity of the Retirement Funds and do not purport to, and do not, present fairly the financial position of SWIB or the State of Wisconsin as of December 31, 2020, or the changes in financial position for the year then ended, in accordance with accounting principles generally accepted in the United States of America.

As described in Note 2C to the financial statements, the financial statements include investments that do not have readily ascertainable market prices. Some of these investments are valued based on a variety of third-party pricing methods and others, such as limited partnerships, are reported based on net asset value. Because of the inherent uncertainty of valuation, these estimated values may differ from the values that would have been used had a ready market for the investments existed.

Our opinions are not modified with respect to these matters.

### **Other Matters**

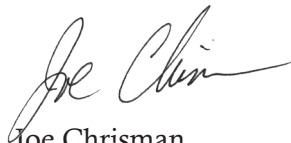
*Required Supplementary Information*—Accounting principles generally accepted in the United States of America require that the management discussion and analysis on pages 16 through 21 of the annual report, which precedes the financial statements, be presented to supplement the financial statements. Such information, although not a part of the financial statements, 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 express an opinion or provide any assurance.

*Accompanying Information*—Our audit was conducted for the purpose of forming opinions on the financial statements of the Retirement Funds. The introduction section on pages 3 through 10 of the annual report is presented for purposes of additional analysis and is not a required part of the financial statements. Such information has not been subjected to the auditing procedures applied in the audits of the financial statements and, accordingly, we do not express an opinion or provide any assurance on it.

## Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we will also issue a report dated September 2, 2021, and published in report 21-13, on our consideration of SWIB'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 solely to describe the scope of our testing of internal control over financial reporting and compliance and the result of that testing, and not to provide an opinion on the effectiveness of SWIB's 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 SWIB's internal control over financial reporting and compliance.

LEGISLATIVE AUDIT BUREAU



Joe Chrisman  
State Auditor

September 2, 2021



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# Retirement Funds

## Management Discussion & Analysis

The Retirement Funds' discussion and analysis of the financial activities for the calendar year ended December 31, 2020, is presented by management as an introduction to the financial statements. It is meant to assist the reader in understanding the financial statements by providing an overall review of the financial activities during the year while also comparing the current year's activities and results against the prior year.

### Overview of Basic Financial Statements

The State of Wisconsin Investment Board (SWIB) is responsible for managing the assets of the Wisconsin Retirement System (WRS). The Core Retirement Investment Trust Fund (Core Fund) and Variable Retirement Investment Trust Fund (Variable Fund; collectively, the Retirement Funds) represent the assets of the WRS. Following this section are the financial statements and footnotes which reflect only the investment activity of the Retirement Funds. Retirement reserves, contribution revenue, and benefit expense are specifically excluded from presentation in these statements, although contribution revenue and benefit expenses are reflected in "Net Disbursements" in the Statement of Changes in Net Investment Position. The Wisconsin Department of Employee Trust Funds (ETF) prepares an Annual Comprehensive Financial Report, which can be found on their website: [www.etf.wi.gov](http://www.etf.wi.gov).

The **Statement of Net Investment Position** provides information on the financial position of the Retirement Funds at December 31, 2020. It reflects the investment assets available for payment of future benefits and any liabilities related to the investments.

The **Statement of Changes in Net Investment Position** presents the results of the investing activities for the twelve months ending December 31, 2020.

The **Notes to the Financial Statements** provide additional information that is essential to a full understanding of the data presented in the financial statements. The notes provide more detail about accounting policies, significant account balances and activities, material risks, obligations, contingencies, and subsequent events, if any.

The financial statements and related notes are prepared in accordance with Governmental Accounting Standards Board (GASB) Pronouncements.

### Retirement Funds

More than 652,000 people participate in the WRS, including current and former employees of Wisconsin's state agencies, most local governments, and school districts in Wisconsin. Contributions made to the WRS by these employees, and their employers, are invested by SWIB to finance retirement and other benefits. The Retirement Funds had a combined Net Investment Position of \$129.7 billion as of December 31, 2020.

### Core Retirement Investment Trust Fund

The larger of the two trust funds comprising the WRS is the Core Fund. The Core Fund had a Net

#### Time-Weighted Annualized Returns<sup>1</sup>

As of December 31, 2020

	One Year	Five Years	Ten Years	Twenty Years
Core Fund	15.2%	10.7%	8.5%	6.9%
Core Fund Benchmark	14.2%	10.3%	8.1%	6.6%
Variable Fund	17.5%	13.7%	11.4%	7.1%
Variable Fund Benchmark	17.9%	13.6%	11.2%	6.9%

<sup>1</sup>One year returns presented net of all fees and costs. All other returns presented net of external manager fees.

## Retirement Funds Management Discussion and Analysis

Investment Position of \$120.2 billion at December 31, 2020. All WRS members have at least half, and most have all, of their pension contributions invested in the Core Fund. It is a diversified, balanced fund invested for the long-term needs of the WRS. Diversification helps stabilize the effects of market changes. The investment objective of this trust fund is to meet or exceed an annual average nominal return of 7.0% over the long-term. This return target is set by ETF with input from external consultants using a number of factors including market returns, estimated wage growth, and other actuarial assumptions.

The financial statements reflect the investment activity of the Core Fund as well as changes in

cash balances due to net disbursements managed by ETF. Net disbursements include, but are not limited to, benefit payments, contribution receipts, transfers to/from the Variable Fund, and administrative expenses.

Condensed Core Fund financial information for the calendar years ending December 31, 2020 and December 31, 2019 is included in the table below entitled **Core Fund Condensed Financial Information**.

**Cash and Cash Equivalents (C&CE)** increased by \$1.8 billion, or 41%, during 2020. Several events caused the change in cash and cash equivalents.

Core Fund Condensed Financial Information (In Thousands)			
	2020	2019	% Change
Cash and Cash Equivalents	\$ 6,259,669	\$ 4,432,392	41
Receivables	11,601,938	6,861,026	69
Invested Securities Lending Collateral	777,813	441,770	76
Prepaid Expenses	12,632	30,537	(59)
Investments	129,604,270	116,873,889	11
Total Investment Assets	148,256,322	128,639,614	15
Payables and Other Liabilities	10,181,483	6,116,079	66
Securities Lending Collateral Liability	777,813	441,770	76
Short Sales	6,479,968	4,464,308	45
Obligations Under Reverse Repurchase Agreements	10,658,825	9,844,991	8
Total Investment Liabilities	28,098,089	20,867,148	35
Net Investment Position Held in Trust	\$ 120,158,233	\$ 107,772,466	11
Investment Income (Loss)	\$ 16,603,027	\$ 18,605,966	(11)
Investment Expense	(734,853)	(841,437)	(13)
Net Investment Income (Loss)	15,868,174	17,764,529	(11)
Net Disbursements - Department of Employee Trust Funds	(3,482,407)	(3,478,433)	-
Net Increase (Decrease) in Net Investment Position Held in Trust	\$ 12,385,767	\$ 14,286,096	(13)

## Retirement Funds

### Management Discussion and Analysis

Rebalancing the Core Fund's asset allocation and changes in investment strategies at year-end result in fluctuations to cash balances. Also, securitized cash positions and synthetic exposure accounts used to manage liquidity and leverage can change significantly during a given period. These investment strategies require adequate levels of margin to meet risk mitigation requirements. At December 31, 2020, SWIB used securitized cash positions to adjust risk and exposure to desired levels for internal portfolio restructuring and rebalancing activities. Additionally, increased liquidity was reserved to accommodate the funding of a new investment strategy in early 2021.

The balance in **Receivables** increased by \$4.7 billion, or 69%, during 2020. The largest contributor to this change was an increase in the balance for investment sales receivable, which is dependent upon the timing and settlement of securities transactions. Approximately 77% of the Receivables balance at year-end related to To Be Announced (TBA) securities. TBA securities are derivative contracts that consist of mortgage-backed securities (MBS) issued by the Government National Mortgage Association, a government entity, and by government-sponsored enterprises, such as the Federal National Mortgage Association or the Federal Home Loan Mortgage Corp. The term TBA is derived from the fact that the actual MBS that will be delivered to fulfill a TBA contract is not designated at the time the trade is made. Instead, the specific pool of mortgages making up the MBS is announced 48 hours prior to the established trade settlement date. Eligibility rules and standards for MBS pools deliverable into TBA contracts ensure that delivered MBS pools are fungible. Sold TBA contracts create a receivable on the Statement of Net Investment Position as payment for TBA securities is not made until the settlement date.

Other routine rebalancing activities, where investment positions were sold but pending settlement, also contributed to the Receivables balance at December 31, 2020.

**Invested Securities Lending Collateral and Securities Lending Collateral Liability** increased by \$336.0 million or 76%, during 2020. These

balances consist of cash received as collateral for securities lending transactions. As discussed later in this section, SWIB increased its internal shorting capacity in 2020, which contributed to these increases. Investment policies permit the use of both cash and treasury securities as collateral to support short positions.

**Prepaid Expenses** decreased by \$17.9 million, or 59%, during 2020. This change is not representative of a change in total expenses, but rather reflects a difference in timing for the billing and payment of Core Fund operating expenses in 2020, as compared to the prior year.

**Investments** increased by \$12.7 billion, or 11%, during the year. Investment returns generated during the year primarily drove this change. Significant drivers of these returns are included in the upcoming discussion of Investment Income.

**Payables & Other Liabilities** increased by \$4.1 billion, or 66%, during 2020. The largest contributor to this change was an increase in the balance for investment purchases payable, which is dependent upon the timing and settlement of pending purchase transactions. Investment purchases payable primarily relate to SWIB's use of TBA securities, which accounted for 84% of the investment purchases payable balance at December 31, 2020. Purchased TBA securities create a payable on the Statement of Net Investment Position as payment for TBA securities is not made until the settlement date. Other routine rebalancing activities, where investment positions were purchased but pending settlement, also contributed to the balance of Payables & Other Liabilities at December 31, 2020.

**Short Sales** increased by \$2.0 billion, or 45%, during 2020. Fixed income short sales were added as a SWIB investment capability during 2020. These activities represent 4% of the total increase. A short sale transaction is created when a security not owned by the portfolio is sold in anticipation of purchasing the security at a lower price in the future. The increase in short sales is largely due to internal equity and fixed income strategies designed to increase active risk.



### Obligations Under Reverse Repurchase

**Agreements** increased by \$813.8 million, or 8%, during 2020. Reverse repurchase agreements involve the sale of assets with the simultaneous agreement to repurchase those assets for a pre-determined price, plus interest, at a future date. The proceeds from these agreements are invested in Treasury Inflation Protected Securities (TIPS). During 2020, SWIB increased its capacity to participate in reverse repurchase agreements, providing access to low-cost financing needed to maintain SWIB's strategic allocation targets. The increase in reverse repurchase agreements corresponds with the overall increase in the Core Fund's assets under management.

Driven by a 2020 net return of 15.2%, the Core Fund generated \$16.6 billion in **Investment Income** during 2020. This represents a decrease of \$2.0 billion, or 11%, against the investment income generated during 2019, when the Core Fund's net return approximated 19.4%. Asset class returns for calendar year 2020 and 2019 are presented in the table entitled **Core Fund Time Weighted Annualized Asset Class Returns**.

**Investment Expense** includes most transaction related expenses, external management fees, and expenses tied to Core Fund operations. These expenses are presented on the Statement of Changes in Net Investment Position. Transaction related expenses are reflected in Investment Operating Expense and Securities Lending Fees.

Core Fund Time Weighted Annualized Asset Class Returns Net of External Management Fees		
	2020	2019
	Return %	Return %
Public Equities	16.4	27.9
Fixed Income	8.9	10.4
Inflation Sensitive	11.4	8.4
Real Estate	1.1	6.0
Private Equity/Debt	19.1	10.0
Multi Asset	14.9	20.6

These expenses are often related to the execution of specific investment transactions like short sales. In this example, the dividends a shorted security pays are reflected as dividend expense. Two transaction related expense types, commissions and trade execution fees, are excluded from Investment Operating Expense and are instead included in "Net Increase (Decrease) in the Fair Value of Investments" on the Statement of Changes in Net Investment Position as these fees are not readily separable from the acquisition or disposal of an investment. External management fees include base fees, and, in some cases, performance fees paid to external managers. Administrative-related expenses include internal operating expenses, legal fees, custodial bank fees, research and data services, and investment consulting fees.

The Core Fund incurred \$734.9 million in Investment Expense during 2020, representing a decrease of \$106.6 million, or 13%, from the prior year. As noted, Investment Expense comprises several individual accounts on the financial statements. Within these accounts, Investment Operating Expense decreased by \$156.3 million versus the prior year. Specifically, interest expense paid to counterparties decreased \$178.9 million as short-term interest rates decreased significantly during 2020, resulting in lower interest paid on reverse repurchase agreements. Reverse repurchase agreements are used to finance certain investment strategies. Dividend expense paid to counterparties increased by \$13.3 million as SWIB's equity short exposures increased over the course of 2020. Investment Operating Expense accounted for \$208.2 million, or 28%, of the Core Fund's investment expenses for the year-ended December 31, 2020.

The remaining decrease in **Investment Expense** was primarily driven by a decrease of approximately \$19.0 million, or 17%, in base fees paid to external asset managers. During 2020, select investment strategies were transitioned from external management to internal management. This change also reflected the impact of an accounting methodology change implemented by SWIB in 2020. With this change, the period in which external investment management fees

## Retirement Funds

### Management Discussion and Analysis

were recorded was adjusted to align with the period during which income generated by external investment managers was recognized. In addition, performance fees paid to external asset managers increased by approximately \$64.5 million, or 58%, largely due to higher hedge fund performance.

#### Variable Retirement Investment Trust Fund

Active employees participating in the WRS have the option of allocating half of their pension fund contributions into the Variable Fund, which almost entirely consists of global equity investments.

Approximately 14% of WRS members participate in the Variable Fund, which maintained a Net Investment Position of \$9.6 billion at December 31, 2020. By law, the Variable Fund invests primarily in equity securities and provides participants the potential for higher returns while bearing greater risk. The investment objective of the Variable Fund is to meet or exceed broad equity market indices over a full market cycle.

Condensed Variable Fund financial information for the calendar years ended December 31, 2020 and December 31, 2019 is included in the table entitled **Variable Fund Condensed Financial Information**. Variable Fund **Cash and Cash Equivalents** decreased by \$91.0 million, or 39%, during 2020. This decrease is largely attributable to a reduction of cash balances held at year-end and routine rebalancing activities which fluctuate throughout the year.

**Receivables** increased by \$2.2 million, or 11%, and **Payables & Other**

**Liabilities** increased by \$6.0 million, or 25%, during 2020 due to changes in pending investment sales and purchases at year-end. The changes were due to normal trading activity, which can fluctuate during the year depending upon market conditions, asset transitions, and trade opportunities.

**Invested Securities Lending Collateral** and **Securities Lending Collateral Liability** represent cash collateral held for securities lending transactions. The \$3.2 million increase in these accounts during 2020 was driven by an increase in Variable Fund equity loans collateralized with cash.

Investment expenses increased by \$2.2 million, or 30%, during 2020. This was largely driven by higher assets under management. Expenses paid to

Variable Fund Condensed Financial Information (In Thousands)			
	2020	2019	% Change
Cash and Cash Equivalents	\$ 140,078	\$ 231,054	(39)
Receivables	21,061	18,894	11
Invested Securities Lending Collateral	32,872	29,697	11
Prepaid Expenses	1,652	1,614	2
Investments	9,434,895	8,458,299	12
Total Investment Assets	9,630,558	8,739,558	10
Payables and Other Liabilities	29,518	23,546	25
Securities Lending Collateral Liability	32,872	29,697	11
Total Investment Liabilities	62,390	53,243	17
Net Investment Position Held in Trust	\$ 9,568,168	\$ 8,686,315	10
Investment Income (Loss)	\$ 1,434,579	\$ 1,965,060	(27)
Investment Expense	(9,504)	(7,284)	30
Net Investment Income (Loss)	1,425,075	1,957,776	(27)
Net Disbursements - Department of Employee Trust Funds	(543,222)	(371,350)	46
Net Increase (Decrease) in Net Investment Position Held in Trust	\$ 881,853	\$ 1,586,426	(44)

external asset managers are generally paid based on the value of the underlying assets.

Driven by a net return of 17.5%, the Variable Fund generated \$1.4 billion in **Investment Income** during 2020. This represents a decrease of \$0.5 billion, or 27%, against the investment income generated during 2019, when the Variable Fund's net return approximated 28.5%.

The Variable Fund has an asset allocation target of 70% domestic and 30% international equities to satisfy its equity market mandate. Therefore, its performance highly correlates with broader equity market trends during the year. As with the Core Fund, SWIB has implemented a long-term approach to investing Variable Fund assets. As of December 31, 2020, the Variable Fund's 20-year annualized net of external management fees return was 7.1%, outperforming its benchmark.

# Retirement Funds

## Financial Statements

Statement of Net Investment Position As of December 31, 2020 (In Thousands)			
	Core Retirement Investment Trust Fund	Variable Retirement Investment Trust Fund	
<b>Investment Assets</b>			
Cash and Cash Equivalents	\$ 6,259,669	\$ 140,078	
Receivables:			
Interest & Dividends	371,881	16,008	
Securities Lending Income	2,349	516	
Investment Sales	11,227,707	4,538	
Invested Securities Lending Collateral	777,813	32,872	
Prepaid Expenses	12,632	1,652	
Investments (at fair value):			
Equities	62,940,541	9,406,683	
Fixed Income	42,385,338	-	
Limited Partnerships	16,889,531	-	
Multi Asset	5,967,126	-	
Real Estate	1,379,939	-	
Preferred Securities	581,500	26,171	
Convertible Securities	1,156	-	
To Be Announced Securities	(685,010)	-	
Foreign Currency Contracts	15,060	71	
Option Contracts	(8,402)	-	
Futures Contracts	30,252	1,969	
Swaps	107,239	-	
Total Investment Assets	\$ 148,256,322	\$ 9,630,558	
<b>Investment Liabilities</b>			
Payable for Investments Purchased	\$ 9,881,006	\$ 27,939	
Obligations Under Reverse Repurchase Agreements	10,658,824	-	
Short Sales	6,479,968	-	
Collateral Due to Counterparty	199,478	20	
Accounts Payable	76,927	1,440	
Other Liabilities	24,073	119	
Securities Lending Collateral Liability	777,813	32,872	
Total Investment Liabilities	\$ 28,098,089	\$ 62,390	
<b>Net Investment Position Held in Trust</b>	<b>\$ 120,158,233</b>	<b>\$ 9,568,168</b>	
The accompanying notes are an integral part of this statement.			



Statement of Changes in Net Investment Position  
For the Calendar Year Ended December 31, 2020  
(In Thousands)

	Core Retirement Investment Trust Fund	Variable Retirement Investment Trust Fund
<b>Additions</b>		
Investment Income:		
Net Increase (Decrease) in the Fair Value of Investments	\$ 14,591,497	\$ 1,301,249
Investment Operating Income	1,979,315	127,459
Securities Lending Income	32,216	5,870
<b>Less</b>		
Investment Operating Expense	208,228	45
Internal Operating Expense	60,380	2,256
Custodial, Bank Fees & Operating Services	5,011	440
Professional Services Expenses	31,821	944
External Investment Management Fees	427,099	5,337
Securities Lending Fees	2,315	481
<b>Net Investment Income</b>	<b>\$ 15,868,174</b>	<b>\$ 1,425,075</b>
<b>Deductions</b>		
Net Disbursements - Department of Employee Trust Funds	(3,482,407)	(543,222)
<b>Net Increase in Net Investment Position Held in Trust</b>	<b>\$ 12,385,767</b>	<b>\$ 881,853</b>
<b>Net Investment Position Held in Trust:</b>		
Beginning of the Year	\$ 107,772,466	\$ 8,686,315
End of the Year	<u>\$ 120,158,233</u>	<u>\$ 9,568,168</u>

The accompanying notes are an integral part of this statement.

# Retirement Funds

## Notes to Financial Statements

### 1. Description of Funds

The Wisconsin Legislature created the State of Wisconsin Investment Board (SWIB) for the sole purpose of providing professional investment management for the funds entrusted to it, including the assets of the Core Retirement Investment Trust Fund (Core Fund) and the Variable Retirement Investment Trust Fund (Variable Fund). The Board of Trustees for SWIB is responsible for the overall professional investment management of the assets of the Wisconsin Retirement System (WRS). The Core Fund and the Variable Fund, collectively the Retirement Funds, represent the investment assets of the WRS.

The statements presented herein solely reflect the investment activity of the Retirement Funds. Excluded from presentation in these statements are, for example, retirement reserves, contribution revenue, and benefit expense. The statements are not intended to present the financial activity for the State of Wisconsin as a whole.

The notes and related tables included in this section are presented for the Retirement Funds as a whole, unless specified.

Investment related expenses are charged directly to the Retirement Funds and funded through employer and employee contributions and investment earnings. Investment expenses are listed on the Statement of Changes in Net Investment Position. Two types of transaction-related expenses—commission and trade execution fees—are excluded from Investment Expense and included in the Net Increase (Decrease) in the Fair Value of Investments on the Statement of Changes in Net Investment Position as these fees are not readily separable from the acquisition or disposal of an investment.

#### **A. Core Retirement Investment Trust Fund**

The Core Fund is managed by SWIB with oversight

by a Board of Trustees as authorized in section 25.15 and 25.17 of the Wisconsin Statutes. The Core Fund and SWIB are not registered with the Securities and Exchange Commission (SEC) as an investment company. The investments of the Core Fund consist of a diversified portfolio of securities. SWIB is required to make investment management decisions for the Retirement Funds solely for the benefit of the members of the WRS. Section 25.182 of the Wisconsin Statutes authorizes SWIB to manage the Core Fund in accordance with the prudent investor standard of responsibility. This standard is described in section 25.15(2) of the Wisconsin Statutes, which requires that SWIB manage the Retirement Funds with the diligence, skill, and care that a prudent person acting in a similar capacity and with the same resources would use in managing a large public pension fund.

The Core Fund consists primarily of assets invested for the WRS. The WRS is administered by the Department of Employee Trust Funds (ETF) in accordance with Chapter 40 of the Wisconsin Statutes. All WRS contributions are invested in this trust fund unless participants have elected to have one-half of their contributions invested in the Variable Fund. In addition to the retirement contributions, the assets of various other benefit programs are invested in the Core Fund. Information regarding the other programs invested in the Core Fund can be found in the Annual Comprehensive Financial Report, prepared by ETF and located on their website:

[www.etf.wi.gov](http://www.etf.wi.gov).

#### **B. Variable Retirement Investment Trust Fund**

The Variable Fund is managed by SWIB with oversight by a Board of Trustees as authorized by section 25.15 and 25.17 of the Wisconsin Statutes. The Variable Fund and SWIB are not registered with the SEC as an investment company. Section 25.17(5) of the Wisconsin Statutes states that assets of the Variable Fund shall be invested

primarily in equity securities that shall include common stocks, real estate, or other recognized forms of equities whether or not subject to indebtedness, including securities convertible into common stocks and securities of corporations in the venture capital stage. Subject to that requirement, SWIB may invest the Variable Fund in any manner consistent with the prudent investor standard of responsibility in section 25.15(2) of the Wisconsin Statutes, which requires that SWIB manage the trust funds with the diligence, skill, and care that a prudent person acting in a similar capacity and with the same resources would use in managing a large public pension fund.

The Variable Fund consists primarily of the assets invested for the WRS. In addition, there are two other retirement/benefit plans invested in the Variable Fund. Additional information regarding the Variable Fund can also be found in the Annual Comprehensive Financial Report, prepared by ETF and located on their website:

[www.etf.wi.gov](http://www.etf.wi.gov).

Participation in the Variable Fund is at the option of the employee. Participants can elect to invest one-half of their retirement contributions and matching amounts of employer contributions to this fund, and have the remainder invested in the Core Fund. Individual participants in the Variable Fund have a one-time option to terminate their Variable Fund participation and transfer their account to the Core Fund.

## 2. Significant Accounting Policies

### **A. Basis of Presentation**

The accompanying financial statements are prepared in conformity with generally accepted accounting principles (GAAP) for governments as prescribed by the Governmental Accounting Standards Board (GASB).

### **B. Measurement Focus and Basis of Accounting**

The financial statements are prepared based upon the flow of economic resources measurement focus and the full accrual basis of accounting. Under the accrual basis of accounting, revenues are recognized in the accounting period in which they are earned and become measurable, and

expenses are recognized in the period incurred, if measurable. Securities 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.

### **C. Valuation of Securities**

The investments of the Retirement Funds are reported in the Statement of Net Investment 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 Net Investment Position as Net Increase (Decrease) in the Fair Value of Investments.

The fair value of the Retirement Funds' assets is obtained or estimated in accordance with a pricing hierarchy established with SWIB's custodian, Bank of New York 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 Cash and Cash Equivalents category reported on the Statement of Net Investment Position consists of short-term investments which are used to meet the liquidity requirements of the Retirement Funds. 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, US Treasury Bills, short-term investment funds, and other US or foreign liquid financial instruments with maturities that are generally less than three months. Cash and Cash Equivalents are reported at fair value or cost, which approximates fair value.

Privately held debt, which is included as Fixed Income investments on the Statement of Net Investment Position, is priced using approaches that value each holding based on the best available

## Retirement Funds

### Notes to Financial Statements

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 debt markets

For private market 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 values provided by the general partner. Due to the reporting timing of private markets investment managers, reported fair values as of December 31, 2020 are based on actual September 30, 2020 reporting, which has been adjusted to reflect cash flows occurring from October 1, 2020 through December 31, 2020. As a result, the fair value reported is considered an estimate that may significantly differ from the value that could be realized in a secondary market transaction and/or from the amounts ultimately realized. The financial statements of the limited partnerships and real estate pooled funds are audited by independent auditors annually.

Certain portfolios invest in privately held companies alongside a strategic partner, such as a limited partnership fund manager. These co-investments are valued by SWIB's strategic partners, who often employ independent valuation agents and use a variety of methodologies including reviews of subsequent financing rounds, discounted cash flow analyses, cash flow multiples analyses, reviews of market comparable sales or metrics, and reviews of third-party appraisals.

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 category on the Statement of Net

Investment 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 (OTC) instruments, fair value is determined based on valuation models used by the administrator or independent valuation agent. Annually, the financial statements prepared by the administrator are audited by independent auditors.

Derivative financial instruments are marked to market 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 are discussed in Note 5.

A limited number of securities are carried at cost. Certain non-public or closely held investments are not reported at fair value but are carried at cost as no independent price quotes are available to estimate fair value for these securities.

#### ***D. 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.

### **3. Deposit and Investment Risk**

#### ***A. 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 derivative instruments is found in Note 5.

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, 2020. Included in this table are fixed income securities, including certain short-term securities, classified as cash equivalents on the Statement of Net Investment 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. See Note 6 for additional information regarding the securities lending program.

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.

SWIB held \$10.7 billion in reverse repurchase agreements at December 31, 2020. 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

Credit Quality Distribution As of December 31, 2020 (In Thousands)		
Rating	Fair Value	% of Total
AAA/Aaa	\$ 336,799	0.7%
A-1/P-1	27,389	0.1
AA/Aa	26,644,024	54.8
A-2/P-2	104,366	0.2
A	2,996,413	6.2
BBB/Baa	6,689,184	13.6
BB/Ba	2,006,141	4.1
B	1,408,956	2.9
CCC/Caa or below	337,388	0.7
Not Rated	1,786,196	3.7
Commingled Fixed Income Funds	6,322,210	13.0
Total	\$ 48,659,066	100%

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, 2020 is summarized in the table entitled **Reverse Repurchase Agreements, Counterparty Credit Exposure**.

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 0.13% and 0.23% at December 31, 2020. Portfolio guidelines require agreements to mature between one and 90 days. The cash due to counterparties resulting from reverse repurchase agreements is reported



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### Notes to Financial Statements

Reverse Repurchase Agreements Counterparty Credit Exposure As of December 31, 2020 (In Thousands)	
Fair Value of Collateral Held by Counterparty	\$ 11,149,589
Less:	
Cash due to Counterparty	\$10,658,824
Collateral and Interest due to Counterparty	363,621
Total due to Counterparty	11,022,445
Net Counterparty Credit Exposure	\$ 127,144

as Obligations Under Reverse Repurchase Agreements and the interest due to counterparties is included in Other Liabilities on the Statement of Net Investment Position.

#### **B. 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 \$774.1 million as of December 31, 2020. Of the total, \$87.3 million was collateralized by securities borrowed. Depository insurance covered another \$383.4 million of the total. The remaining deposits, totaling \$303.4 million, were uninsured and uncollateralized. These uninsured deposits represent the US dollar equivalent of balances held in foreign currencies in SWIB's custodian's nominee name, cash posted as collateral for derivative 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 \$52.9 million in certificates of deposit, all of which were covered by depository insurance as of December 31, 2020.

**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 repurchase agreements totaling \$733.8 million as of December 31, 2020. 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 agent, not in SWIB's name.

During 2020, SWIB signed a committed repo agreement with a major equity derivative clearing organization (counterparty) for an agreed upon commitment amount, from which the

counterparty can fully or partially draw upon at their discretion during the commitment period. A separate account is established at the asset custodian in SWIB's name to hold the available cash and the collateral from the counterparty if any of the commitment amount is drawn. For the undrawn commitment amount, the counterparty pays SWIB a commitment fee. Any cash amounts drawn are structured as repo transactions where SWIB receives a fee and US Treasuries as collateral with a margin percentage greater than 100%. Draws are limited to a maximum of 30 days, so the term of each repo transaction is also limited to 30 days. The counterparty is rated AA+ and is a Systematically Important Financial Market Utility. Collateral is marked to market daily. A separate financial services company acts as SWIB's agent and provides indemnification in the event of the counterparty's default.

Also, during 2020, SWIB entered into transactions under a Master Repurchase Agreement (MRA) with another counterparty to purchase mortgage series trust certificates issued by a loan originator. The loan originator, acting as trust sponsor, places Government National Mortgage Association (Ginnie-Mae) eligible loans in a trust and issues trust certificates. The trust sponsor sells trust certificates to SWIB's counterparty in a repo transaction under a separate MRA between the trust sponsor and the counterparty. The sponsor and owner trustee utilize a custodian for the loan documents. SWIB purchases the trust certificates and provides funding to the counterparty



which provides funding to the loan originator/ trust sponsor. The trust certificates have been pledged by the counterparty to SWIB under the MRA between SWIB and the counterparty. The trust certificates are collateralized by the pool of mortgage loans custodied at the custodian. The counterparty is required to make margin adjustments when the value of the collateral pool, based on TBA pricing, falls below the required margin threshold. The collateral held is greater than 100%, and the repurchase transactions have one-month terms.

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 US 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 carry insurance covering errors and omissions and they must provide SWIB with an annual report on internal controls, prepared in accordance with the Statement on Standards for Attestation Engagements. In addition, SWIB management has established a system of controls for the oversight of services and related processes performed by the custodian. SWIB's current custodial bank was selected in accordance with these guidelines and meets all of the requirements stipulated in the custodial credit risk policy.

#### **C. 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 US government, representing 5% or more of the

Retirement Funds' value at December 31, 2020.

#### **D. 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 17.0% at December 31, 2020.

SWIB analyzes long and 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 require management within a range of a targeted duration, while others require a weighted average maturity at or below a specified number of days or years.

#### **The Interest Rate Sensitivity by Investment**

**Type** table below presents the aggregated interest rate exposure for the Retirement Funds' assets at

## Retirement Funds

### Notes to Financial Statements

December 31, 2020. 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. This duration measure is calculated using reset dates for some floating rate instruments, such as term loans. Information about the interest rate sensitivity of derivative contracts can be found in Note 5.

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 as they may 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.

#### ***E. 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, and currencies in which a portfolio has taken on a long or short active position, will decline or appreciate 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 portfolio 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 derivative instruments is discussed in Note 5.

The table entitled **Currency Exposures by**

Interest Rate Sensitivity by Investment Type <sup>1</sup> As of December 31, 2020 (In Thousands)				
Investment Type	Fair Value	Weighted Average Duration (Years)	Weighted Average Maturity (Days)	
U.S. Treasury Inflation Protected Securities	\$18,691,566	7.6		
Corporate Bonds & Private Placements	13,109,679	7.3		
U.S. Treasury Securities	4,866,093	9.2		
U.S. Government Agencies	2,293,953	3.1		
Foreign Government/Agency Bonds	2,022,059	8.1		
Repurchase Agreements	733,828			4
Asset Backed Securities	355,267	3.2		
Municipal Bonds	154,098	11.9		
Commercial Paper	140,247			93
Commingled Funds				
Short Term Cash Management	4,778,935			37
Emerging Market Fixed Income	1,102,521	5.7		
Exchange Traded	410,820	7.2		
Total	<u>\$48,659,066</u>			
<sup>1</sup> Excludes derivatives. See note 5 for information about the interest rate sensitivity of derivative instruments.				

# Retirement Funds

## Notes to Financial Statements

### Currency Exposures by Investment Type<sup>1, 3</sup> As of December 31, 2020 Stated in U.S. Dollars (In Thousands)

Currency	Cash & Cash Equivalents	Equities	Fixed Income	Limited Partnerships	Preferred Securities	Futures Contracts	Short Sales <sup>2</sup>	Options	Swaps	Total <sup>4</sup>
Australia Dollar	\$ 7,866	\$ 1,061,499	\$ 32,521	\$ -	\$ -	\$ (159)	\$ (179,519)	\$ -	\$ -	\$ 922,208
Brazil Real	192	64,358	1,672	-	38,416	-	-	-	-	104,638
Canada Dollar	12,584	1,659,332	23,530	-	-	(929)	(214,152)	-	-	1,480,365
Chile Peso	16	2,474	-	-	-	-	-	-	-	2,490
China Yuan Renminbi	(14)	-	-	-	-	-	-	-	(544)	(558)
Czech Republic Koruna	961	328	-	-	-	-	-	-	-	1,289
Denmark Krone	1,237	552,353	-	-	-	-	(206,754)	-	-	346,836
Euro Member Countries	4,578	6,413,200	328,881	1,246,669	242,315	29	(902,421)	(79)	3,186	7,336,358
Hong Kong Dollar	3,868	945,249	-	-	-	-	(26,515)	-	-	922,602
Hungary Forint	451	20,732	-	-	-	-	-	-	-	21,183
India Rupee	3	66,281	-	-	-	-	-	-	-	66,284
Indonesia Rupiah	128	7,227	-	-	-	-	-	-	-	7,355
Israel Shekel	1,084	48,572	-	-	-	-	(18,354)	-	-	31,302
Japan Yen	16,011	4,708,455	-	-	-	865	(675,608)	-	-	4,049,723
Korea (South) Won	17	372,788	-	-	426	-	-	-	-	373,231
Malaysia Ringgit	497	17,407	12,236	-	-	-	-	-	-	30,140
Mexico Peso	1,051	4,523	31,380	-	-	-	-	-	526	37,480
New Zealand Dollar	793	90,193	16,728	-	-	-	(15,256)	-	-	92,458
Norway Krone	1,241	253,104	-	-	-	-	(25,781)	-	-	228,564
Philippines Peso	23	431	-	-	-	-	-	-	-	454
Poland Zloty	-	15,630	4,996	-	-	-	-	-	-	20,626
Russia Ruble	5	-	-	-	-	-	-	-	-	5
Singapore Dollar	4,073	184,424	-	-	-	-	(33,737)	-	-	154,760
South Africa Rand	1,366	57,776	40,047	-	31	-	-	-	-	99,220
Sweden Krona	732	846,914	4,057	2,584	-	-	(195,563)	-	-	658,724
Switzerland Franc	416	1,365,280	-	-	-	-	(205,130)	-	-	1,160,566
Taiwan New Dollar	257	397,210	-	-	-	-	-	-	-	397,467
Thailand Baht	2	21,283	-	-	-	-	-	-	-	21,285
Turkey Lira	55	62,575	-	-	-	-	-	-	-	62,630
United Kingdom Pound	9,153	2,675,593	30,932	324,370	-	876	(339,460)	-	-	2,701,464
Total	\$ 68,646	\$ 21,915,191	\$ 526,980	\$ 1,573,623	\$ 281,188	\$ 682	\$ (3,038,250)	\$ (79)	\$ 3,168	\$ 21,331,149

<sup>1</sup>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.

<sup>2</sup>Short Sales are reported as liabilities on the Statement of Net Investment Position. They are included in the above table because they have exposure to foreign currency risk.

<sup>3</sup>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, Real Estate, To Be Announced Securities, Option Contracts, Swaps and Obligations Under Reverse Repurchase Agreements.

<sup>4</sup>Values may not add due to rounding.

## Retirement Funds

### Notes to Financial Statements

**Investment Type** presents the Retirement Fund investments which were exposed to foreign currency risk at December 31, 2020.

#### 4. Fair Value of Investments

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

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).

##### **A. Fair Value Measurements**

The fair value measurements of investments as of December 31, 2020 are found in the table entitled **Investments by Fair Value Level**.

Securities classified as Level 1 are generally valued at the official closing price (usually the last trade price). Such investments generally include exchange traded securities such as equities, preferred stock, certain derivative instruments,

and exchange traded funds. U.S. Treasury Bills and only the most recently issued U.S. Treasury Notes and Bonds are classified as Level 1 as available pricing for these securities is similarly reliable to exchange traded securities.

Securities classified as Level 2 are valued using observable inputs provided by third-party pricing services generally 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. Debt securities comprise the majority of the Level 2 investments as they are generally traded using a dealer market, with lower trading volumes than Level 1 securities. OTC derivative instruments, such as swaps, TBAs, 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, which is valued using appraisals that include significant unobservable inputs. Asset Backed Securities included in Level 3 represent private placements that are valued at purchase price when third-party valuations are unavailable. Equities, convertibles, 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, fair value is determined based on recent financing rounds. Bank loans, which are included in corporate bonds and private placements within the Level 3 category, are priced by vendors using proprietary models which may incorporate

**Investments by Fair Value Level**  
**As of December 31, 2020**  
(In Thousands)

Asset Type	Fair Value			Total
	Level 1	Level 2	Level 3	
Cash Equivalents				
Certificates of Deposit	\$ -	\$ 35,873	\$ 15,000	\$ 50,873
Commercial Paper	-	-	140,247	140,247
Money Market Funds	250,388	-	-	250,388
Total Cash Equivalents	250,388	35,873	155,247	441,508
Equities				
Domestic	41,447,255	-	69,289	41,516,544
International	21,877,798	-	37,394	21,915,192
Total Equities	63,325,053	-	106,683	63,431,736
Fixed Income				
Asset Backed Securities	-	351,380	3,887	355,267
Corporates Bonds & Private Placements	-	12,325,921	67,624	12,393,545
Exchange Traded Funds	410,820	-	-	410,820
Foreign Government/Agency Bonds	-	2,022,059	-	2,022,059
Municipal Bonds	-	154,098	-	154,098
U.S. Government Agencies	-	2,293,952	-	2,293,952
U.S. Treasury Inflation Protected Securities	-	18,691,566	-	18,691,566
U.S. Treasury Securities	37,955	4,828,138	-	4,866,093
Total Fixed Income	448,775	40,667,114	71,511	41,187,400
Real Estate	-	-	1,379,939	1,379,939
Preferred Securities				
Domestic	-	233,190	93,293	326,483
International	281,188	-	-	281,188
Total Preferred Securities	281,188	233,190	93,293	607,671
Convertibles	-	19	1,137	1,156
Derivatives				
Foreign Exchange Contracts	-	15,131	-	15,131
Futures	32,221	-	-	32,221
Options	(8,402)	-	-	(8,402)
Swaps	-	107,239	-	107,239
To Be Announced Securities	-	(685,009)	-	(685,009)
Total Derivatives	23,819	(562,639)	-	(538,820)
Short Sales	(6,477,303)	(2,165)	(500)	(6,479,968)
Total	\$ 57,851,920	\$40,371,392	\$1,807,310	\$ 100,030,622

## Retirement Funds

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#### Investments Measured at NAV As of December 31, 2020 (In Thousands)

Investments Measured at NAV	Fair Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period <sup>7</sup>
Cash and Cash Equivalents <sup>1</sup>	\$ 4,774,492	\$ -	Daily	Same Day
Fixed Income <sup>2</sup>	1,615,932	207,872	Daily, N/A	5 days, N/A
Private Equity Limited Partnerships <sup>3</sup>	10,897,338	9,469,624	N/A	N/A
Equities <sup>4</sup>	8,915,489	-	Daily, Monthly	2-30 days
Real Estate Limited Partnerships <sup>5</sup>	5,992,192	1,515,852	Quarterly, Annually, N/A	30-90 days, Other, N/A
Hedge Funds <sup>6</sup>	5,967,126	582,354	Various (Note 4D)	Various (Note 4D)
<b>Total</b>	<b>\$38,162,569</b>	<b>\$ 11,775,702</b>		

<sup>1</sup>This category consists of short term cash funds with the investment objective of safety of principal and liquidity while earning a competitive money market rate of return. The short-term cash funds have daily liquidity with same day notice.

<sup>2</sup>This category includes a long-only fixed income manager (68%), which can invest across the credit quality spectrum, in varying geographies, and can include derivatives, high yield and structured securities. The long-only manager requires a redemption notice period of 5 days and has daily liquidity. The remaining 32% of this category includes LLCs which invest in private real estate debt. These LLC investments distribute earnings over the life of the investment. The majority of these LLC investments have an average, estimated remaining life of less than 5 years. One LLC investment has an estimated remaining life of >10 years.

<sup>3</sup>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 are received as the underlying investments are liquidated. The table entitled **Limited Partnerships - Estimated Remaining Life** provides an estimate of the period over which the underlying assets are expected to be liquidated. As of December 31, 2020, there is no expectation that any of the investments will be sold in the secondary market.

<sup>4</sup>This category includes long-only equity managers (69%) with various fundamental, quantitative, and other approaches spanning various styles, geographies, and market cap weights. These long-only manager investments can be redeemed either daily or monthly with between 10 and 30 business days' notice. The remaining 31% of this category represents emerging markets equity index funds with an investment strategy designed to track the return of the given segment of the emerging equity markets. These investments can be redeemed daily with 2 business days' notice.

<sup>5</sup>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 entitled **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. The majority of these investments can be redeemed quarterly with between 30 and 90 days' notice. One fund can be redeemed annually with notice provided in the first quarter of the calendar year.

<sup>6</sup>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 for two funds structured as limited partnerships within the portfolio is <5 years, two funds between 5-10 years, and two funds >10 years. Additional information relating to Hedge Funds can be found in Note 4(D).

<sup>7</sup>Redemption terms described for NAV investments reflect contractual agreements and assume withdrawals are made without adverse market impact and under normal market conditions.



unobservable inputs. 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. Other factors such as infrequent trading, an inactive market, or adjusted quoted prices may also result in Level 3 measurements.

**B. 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, 2020 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.

**C. Private Equity and Real Estate Limited Partnerships**

The Private Equity Limited Partnerships participated in the following investment strategies at December 31, 2020:

*Buyout* – This strategy acquires shares of a private company in an attempt to gain a controlling interest.

*Mezzanine* – This strategy provides mezzanine debt to finance leveraged buyouts, recapitalizations, and corporate acquisitions.

*Distressed/Turnaround* – 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.

*Growth Equity* – This strategy is an investment opportunity in relatively mature companies that are going through a transformational event in their lifecycle with potential for significant growth.

*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, 2020:

*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

<b>Limited Partnerships - Estimated Remaining Life</b> <b>As of December 31, 2020</b> <b>(In Thousands)</b>					
Limited Partnership Type	Estimated Remaining Life <sup>1</sup>				Total
	<5 Years	5-10 Years	>10 Years	N/A <sup>2</sup>	
Private Equity	\$ 1,626,431	\$ 5,737,236	\$ 3,533,671	\$ -	\$ 10,897,338
Real Estate	463,632	3,340,160	280,759	1,907,642	5,992,193
Total	\$ 2,090,063	\$ 9,077,396	\$ 3,814,430	\$ 1,907,642	\$ 16,889,531

<sup>1</sup>Estimated remaining life represents subjective estimates, assuming normal market conditions.  
<sup>2</sup>N/A investments represent open-ended funds that are readily redeemable.

## Retirement Funds

### Notes to Financial Statements

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 WRS private equity and real estate limited partnership holdings as of December 31, 2020.

#### D. 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, 2020:

*Long-Short Equity* – This strategy invests both

long and short in publicly-traded stocks. These managers vary in their use of short selling and leverage.

*Event-Driven*– This strategy seeks 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.

*Tactical Trading* – This strategy invests in indexes, commodities, interest rate instruments, and currencies as a result of relative value or directional forecasts from a systematic or discretionary approach.

*Relative Value* – This strategy uses a range of fixed income arbitrage, insurance linked, long-short credit, and/or quantitative strategies that seek to take advantage of price differentials.

*Multistrategy* – This strategy employs a wide range

#### Hedge Fund Redemption Timing As of December 31, 2020 (In Thousands)

Redemption Frequency	Redemption Notice Period (Days)	Fair Value
Monthly <sup>2</sup>	30 - 90	\$ 1,446,399
Quarterly <sup>1,2,3</sup>	30 - 90	3,540,467
Semi-Annual	60	46,454
Other <sup>1,3</sup>	0 - 90, N/A	933,806
Total		\$ 5,967,126

<sup>1</sup>These categories include funds that are in the process of being fully redeemed, with final distribution expected in 2021.

<sup>2</sup>This category includes funds that have a funding date of January 1, 2021. SWIB was contractually obligated to wire funds to the fund manager prior to the funding date.

<sup>3</sup>This category includes funds that are subject to rolling locks, whereby the fund automatically re-locks unless a withdrawal request is submitted. 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 Lock-ups As of December 31, 2020 (In Thousands)

Hedge Fund Lock Type	Initial Duration of Lock (Years)	Year of Lock Expiration	Fair Value
Hard Lock	1 - 3	2021 - 2022	\$ 823,851
Soft Lock <sup>2</sup>	1	2021	243,936
Rolling Lock <sup>1</sup>	2 - 3	2021 - 2023	459,304
None <sup>1,2</sup>	N/A	N/A	4,174,970
Other <sup>3</sup>	N/A	N/A	265,065
Total			\$5,967,126

<sup>1</sup>These categories include funds that are in the process of being fully redeemed, with final distribution expected in 2021.

<sup>2</sup>This category includes funds that have a funding date of January 1, 2021. SWIB was contractually obligated to wire funds to the fund manager prior to the funding date.

<sup>3</sup>This category 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 Gates As of December 31, 2020 (In Thousands)		
Hedge Fund Gate Type	Gate Range	Fair Value
Investor Level <sup>1</sup>	12.5% - 50%	\$ 2,059,182
Fund Level <sup>1</sup>	8.33% - 33%	1,375,708
None <sup>1,2</sup>	N/A	2,267,171
Other <sup>3</sup>	N/A	265,065
Total		\$ 5,967,126
<sup>1</sup> These categories include funds that are in the process of being fully redeemed, with final distribution expected in 2021.		
<sup>2</sup> This category includes funds that have a funding date of January 1, 2021. SWIB was contractually obligated to wire funds to the fund manager prior to the funding date.		
<sup>3</sup> This category includes funds that are structured as limited partnerships, whereby withdrawals are not permitted but the participants receive distributions over the life of the fund.		

of strategies and instruments in managing assets. When redeeming Hedge Fund investments, the agreements governing the investment often require advanced notice and may restrict the timing of withdrawals. The table entitled **Hedge Fund Redemption Timing** depicts redemption terms, independent of other contractual restrictions like lock-up periods as discussed below, for SWIB's Hedge Fund investments at December 31, 2020.

Hedge Fund agreements can also include lock-up periods, which restrict investors from redeeming their investment during a specified time frame. Lock-up periods help portfolio managers mitigate liquidity risks. 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 certain instances, a fund may have both hard and soft lock-up restrictions. In addition, in certain investments, Hedge Fund managers may be allowed to 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, 2020.

Similar to lock-ups, Hedge Fund agreements also commonly incorporate gating restrictions. An investor level gate limits redemption 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, 2020.

## 5. Derivative Instruments

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.

Derivative instruments 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

## Retirement Funds

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objectives which have been approved by the Board. Where derivatives instruments are permitted, guidelines stipulate allowable types 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 Net Investment Position as “Net Increase (Decrease) in the Fair Value of Investments.”

SWIB invests in derivative instruments directly and indirectly through commingled or pooled investment vehicles. 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 instrument 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 OTC contracts. OTC contracts can be structured as either uncleared or cleared.

Uncleared OTC contracts are non-standardized, bilateral contracts that 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 parties 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 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**

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

OTC Derivative Investments Subject to Counterparty Credit Risk As of December 31, 2020 (In Thousands)					
Counterparty Credit Rating	FX Receivables	Swap Receivables	To Be Announced Securities <sup>1</sup>	Warrants <sup>1,2</sup>	Total <sup>3</sup>
AA	\$ 931,513	\$ -	\$ -	\$ -	\$ 931,513
A	3,644,726	3,818,749	7,099	-	7,470,574
Not Rated	-	-	-	75	75
Total	\$ 4,576,239	\$ 3,818,749	\$ 7,099	\$ 75	\$ 8,402,162
<sup>1</sup> Exposure to counterparty credit risk for To Be Announced Securities and Warrants is limited to unrealized gains on open positions.					
<sup>2</sup> Warrants issued by privately held company that is not rated by statistical credit rating organization.					
<sup>3</sup> Aggregate amount of liabilities included in master netting arrangements was \$8.1 billion at December 31, 2020.					

**Contract Types** summarizes the differences between OTC and exchange-traded contracts.

Collateral postings are commonplace for derivative contracts and vary based on the type of contract traded. SWIB posted \$306.2 million in cash and \$439.5 million in securities as collateral for derivative positions as of December 31, 2020. More information regarding collateral requirements is included below.

**A. Uncleared OTC Derivative Instruments**

Inherent in the use of uncleared OTC derivative instruments, the Retirement Funds may be exposed to counterparty credit risk. Counterparty credit risk is the risk that a derivative instrument 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.

The table entitled **OTC Derivative Instruments Subject to Counterparty Credit Risk**, summarizes, by credit rating, the Retirement Funds' exposure to counterparty credit risk relating to uncleared OTC contracts as of December 31, 2020, without respect to any collateral or netting agreement.

The aggregate fair value of receivables relating to uncleared OTC derivative contracts was \$8.4 billion at December 31, 2020. This amount represents 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 \$135.1 million at December 31, 2020 when counterparty collateral and master netting arrangements are taken into account. The number of uncleared OTC counterparties with credit exposure at year end was 17.

**B. 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



## Retirement Funds

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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.

#### **C. Foreign Currency Spot and Forward Contracts**

Foreign Currency Spot and Forward contracts are uncleared OTC agreements between two parties 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 settlement 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 US dollar is permitted when consistent with the strategy of the portfolio. Cross-currency exposure management seeking to transfer out of an exposed currency and into a benchmark currency is permitted. In select 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 Increase (Decrease) in Fair Value of Investments on the Statement of Changes in Net Investment Position. The net receivable or payable for spot and forward contracts is reflected as Foreign Currency Contracts on the Statement of Net Investment Position. The tables entitled **Foreign Currency Spot and Forward Contracts** present the fair value of foreign currency spot and forward contract assets and liabilities held by the Retirement Funds as of December 31, 2020.

#### **D. 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 specified date in the future.

The fair value of futures contracts represents the unrealized gain/(loss) on the contracts since trade inception and is reflected as Futures Contracts on

Futures Contracts As of December 31, 2020 (In Thousands)				
Futures Contract Description	Position	Expiration	Notional Amount	Fair Value <sup>1</sup>
Commodity	Long	Jan 21 - Dec 21	\$ 193,496	\$ 9,767
	Short	Feb 21 -Mar 21	(3,159)	155
Currency	Long	Mar 21	164,478	2,083
Equity Index	Long	Jan 21 - Mar 21	2,166,195	35,816
	Short	Jan 21 - May 21	(280,485)	(5,444)
Fixed Income	Long	Mar 21	8,870,728	(1,230)
	Short	Mar 21	(4,420,396)	(8,926)
Total			<u>\$ 6,690,857</u>	<u>\$ 32,221</u>

<sup>1</sup>Fair Value includes foreign currency gains/(losses).



Foreign Currency Spot and Forward Contracts As of December 31, 2020 (In Thousands)			
Currency	Notional (Local Currency)	Fair Value (\$US)	Unrealized Gain/(Loss) (\$US)
<b>Foreign Currency Contract Receivables</b>			
Australia Dollar	199,608	\$ 154,065	\$ 2,549
Brazil Real	222,302	42,780	1,208
Canada Dollar	113,261	88,908	732
Chile Peso	29,815,307	41,959	3,470
China Yuan Renminbi	228,684	35,091	973
Colombia Peso	12,038,905	3,514	59
Czech Republic Koruna	1,239,277	57,753	1,201
Denmark Krone	487,744	80,195	1,347
Euro Member Countries	48,780	59,711	155
Hong Kong Dollar	260,081	33,545	(5)
Hungary Forint	22,665,961	76,462	175
India Rupee	5,203,371	70,846	884
Indonesia Rupiah	784,077,549	56,187	2,548
Israel Shekel	107,780	33,601	463
Japan Yen	20,340,249	197,058	742
Korea (South) Won	8,948,433	8,228	11
Mexico Peso	556,343	27,698	269
New Zealand Dollar	10,077	7,257	91
Norway Krone	3,508,119	409,676	13,117
Philippines Peso	181,491	3,766	11
Poland Zloty	212,502	57,041	1,052
Russia Ruble	4,434,463	59,545	645
Singapore Dollar	444,547	336,439	2,564
Sweden Krona	3,212,569	391,396	13,677
Switzerland Franc	146,586	165,947	649
Thailand Baht	431,403	14,401	41
Turkey Lira	350,875	46,264	2,948
United Kingdom Pound	83,913	114,725	1,361
United States Dollar	1,902,181	1,902,181	-
Total Receivables		\$ 4,576,239	\$ 52,937

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Foreign Currency Spot and Forward Contracts As of December 31, 2020 (In Thousands)			
Currency	Notional (Local currency)	Fair Value (\$US)	Unrealized Gain/(Loss) (\$US)
<b>Foreign Currency Contract Payables</b>			
Australia Dollar	(148,115)	\$ (114,305)	\$ (3,981)
Brazil Real	(57,337)	(11,039)	(4)
Canada Dollar	(184,702)	(144,986)	(2,103)
Chile Peso	(6,662,786)	(9,378)	(465)
China Yuan Renminbi	(134,773)	(20,668)	(563)
Colombia Peso	(22,128,375)	(6,458)	(258)
Czech Republic Koruna	(110,821)	(5,163)	(362)
Denmark Krone	(436,850)	(71,823)	197
Euro Member Countries	(1,229,089)	(1,505,107)	(31,347)
Hong Kong Dollar	(163,267)	(21,057)	3
Hungary Forint	(2,288,427)	(7,720)	(224)
India Rupee	(368,663)	(5,010)	(55)
Israel Shekel	(19,468)	(6,067)	(49)
Japan Yen	(10,059,404)	(97,436)	(182)
Korea (South) Won	(7,922,855)	(7,285)	(15)
Mexico Peso	(73,987)	(3,683)	1
New Zealand Dollar	(84,681)	(60,979)	(2,105)
Norway Krone	(201,591)	(23,545)	(173)
Peru Sol	(4,651)	(1,286)	4
Philippines Peso	(79,651)	(1,653)	(8)
Poland Zloty	(9,926)	(2,664)	(7)
Russia Ruble	(275,687)	(3,698)	7
Singapore Dollar	(8,466)	(6,405)	(7)
South Africa Rand	(529,297)	(35,786)	(2,129)
Sweden Krona	(892,439)	(108,691)	(1,614)
Switzerland Franc	(74,584)	(84,406)	(1,364)
Taiwan New Dollar	(8,946,754)	(325,927)	537
Thailand Baht	(68,526)	(2,288)	(14)
United Kingdom Pound	(89,847)	(122,824)	(2,037)
United States Dollar	(1,743,771)	(1,743,771)	-
Total Payables		\$ (4,561,108)	\$ (48,317)
Net		\$ 15,131	\$ 4,620

the Statement of Net Investment 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 Increase (Decrease) in the Fair Value of Investments on the Statement of Changes in Net Investment 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 rebalancing,
- To adjust sector, interest rate, or duration exposures, and

Futures Contracts with Interest Rate Sensitivity As of December 31, 2020 (In Thousands)				
Contract Type	Position	Notional Amount	Fair Value	Weighted Average Duration (Years)
U.S. Treasury Notes	Long	\$ 7,045,237	\$ 7,623	4.0
U.S. Treasury Notes	Short	(4,068,853)	(8,269)	6.6
U.S. Treasury Bonds	Long	1,766,633	(8,822)	18.3
U.S. Treasury Bonds	Short	(67,893)	510	13.9
Foreign Government Bonds	Long	58,858	(31)	7.2
Foreign Government Bonds	Short	(283,650)	(1,167)	8.7
Total		\$ 4,450,332	\$ (10,156)	

Option Contracts As of December 31, 2020 (In Thousands)							
Description	Contract Type	Position	Exchange-Traded (EXCH) vs. OTC	Expiration	Notional	Fair Value	Unrealized Gain/(Loss)
Equity	CALL	Long	EXCH	Jun 21	\$ 110,212	\$ 31,267	\$ 15,877
Equity	CALL	Short	EXCH	Jan 21 - Feb 21	(141,672)	(35,767)	(15,787)
Equity	PUT	Long	EXCH	Jan 21 - Jun 21	119,227	4,411	(10,664)
Equity	PUT	Short	EXCH	Jan 21 - Apr 21	(167,223)	(8,081)	11,337
Fixed In-come Index	CALL	Short	EXCH	Feb 21 - Mar 21	(4,636)	(37)	(16)
Fixed In-come Index	PUT	Long	EXCH	Jan 21 - Feb 21	5,288	6	(30)
Futures Index	PUT	Short	EXCH	Jan 21	(351,445)	(56)	1,086
Equity Index	CALL	Long	EXCH	Jun 21	439	69	33
Equity Index	CALL	Short	EXCH	Jan 21	(439)	(80)	(32)
Equity Index	PUT	Long	EXCH	Jan 21 - Jun 21	972	15	(32)
Equity Index	PUT	Short	EXCH	Jan 21 - Feb 21	(10,157)	(70)	99
OTC Index	PUT	Short	OTC	Jan 21 - Feb 21	(477,120)	(79)	1,694
Total					\$ (916,554)	\$ (8,402)	\$ 3,565

## Retirement Funds

### Notes to Financial Statements

- To securitize cash or act as a substitute for cash market transactions.

The table entitled **Futures Contracts** presents the Retirement Funds investments in futures contracts as of December 31, 2020.

The table entitled **Futures Contracts with Interest Rate Sensitivity** presents the interest rate sensitivity of fixed income futures contracts as of December 31, 2020. 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.

#### E. 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 date of the 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 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. In the case of OTC options, investment guidelines mitigate counterparty credit risk by establishing minimum credit ratings and requiring master netting agreements with provisions for collateral exchanges.

The fair value of option contracts is based upon the closing market price of the contract and is

reflected as Option Contracts on the Statement of Net Investment Position. Gains and losses as a result of investments in option contracts are included in the Net Increase (Decrease) in the Fair Value of Investments on the Statement of Changes in Net Investment Position. The table entitled **Option Contracts** presents the fair value of option contracts as of December 31, 2020.

#### F. Swaps

Swaps are negotiated contractual agreements between two parties which can be either cleared or uncleared OTC investments. 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 a security or combination of securities that mirrors the properties of another reference security.

Throughout the calendar year, the Retirement Funds held positions in Total Return Swaps (TRS), Interest Rate Swaps (IRS), and Credit Default Swaps (CDS). The table entitled **Open Swap Positions** lists the open swap contracts held at December 31, 2020.

Open CDS contracts represent cleared OTC positions where SWIB gains exposure to credit protection. Under the terms of the contract, SWIB receives or pays periodic payments and, in exchange, agrees to pay or receive a formula-driven amount to counterparties for losses incurred if stipulated credit events occur. CDS spreads are sensitive to credit spread and interest rate changes. The fair value of a CDS is determined using the closing price as reported by the applicable clearinghouse.

IRS positions represent cleared OTC contracts where fair value is determined using the closing price as reported by the applicable clearinghouse. The open TRS contracts represent uncleared OTC positions where SWIB gains exposure to the return

## Retirement Funds

### Notes to Financial Statements

#### Open Swap Positions As of December 31, 2020 (In Thousands)

Type	Maturity Date	Reference Rate	Notional Amount	Fair Value	Unrealized Gain/(Loss)
Credit Default	Jun-25	NA <sup>1</sup>	\$ 100,00	\$ 1,628	\$ 1,745
Credit Default	Dec-25	NA <sup>1</sup>	122,355	3,186	622
Credit Default	Dec-25	NA <sup>2</sup>	(65,000)	(6,053)	(180)
Interest Rate <sup>3</sup>	May-25	Receive Fixed 2.02, Pay CNY-7D China Fixing Repo Rates	19,878	(520)	(282)
Interest Rate <sup>3</sup>	Jul-25	Receive Fixed 2.53, Pay CNY-7D China Fixing Repo Rates	4,633	(24)	(24)
Interest Rate <sup>3</sup>	Jun-27	Receive Fixed 5.42, Pay MXN-TIIE-Banxico 28D	19,071	526	526
Total Return	Sep-21	Pay Equity Index, Receive 3-Month LIBOR plus spread	(434,023)	(10,207)	(10,207)
Total Return	Dec-21	Pay Equity Index, Receive 3-Month LIBOR plus spread	(140,002)	-	-
Total Return	Jan-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	65,698	5,278	5,278
Total Return	Jan-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	77,182	1,089	1,089
Total Return	Feb-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	67,766	4,778	4,778
Total Return	Feb-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	66,153	3,173	3,173
Total Return	Feb-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	144,314	4,405	4,405
Total Return	Mar-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	224,266	2,824	2,824
Total Return	Apr-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	64,134	6,842	6,842
Total Return	Apr-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	126,973	13,326	13,326
Total Return	May-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	124,892	8,805	8,805
Total Return	May-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	124,943	4,628	4,627
Total Return	Jun-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	65,102	1,747	1,747
Total Return	Jun-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	78,397	832	832
Total Return	Jun-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	224,770	4,664	4,664
Total Return	Jul-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	212,714	16,720	16,720
Total Return	Aug-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	63,002	3,022	3,022
Total Return	Aug-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	116,846	562	562
Total Return	Sep-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	68,538	1,382	1,382
Total Return	Sep-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	461,722	5,933	5,933
Total Return	Sep-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	72,286	1,991	1,991
Total Return	Sep-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	225,454	3,980	3,980
Total Return	Oct-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	184,257	18,850	18,850
Total Return	Nov-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	67,728	3,248	3,248
Total Return	Dec-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	58,798	624	624
Total Return	Dec-21	Pay 3-Month LIBOR plus spread, Receive Equity Index Return	140,004	-	-
Total			<u>\$2,752,851</u>	<u>\$ 107,239</u>	<u>\$ 110,902</u>

<sup>1</sup>SWIB sold credit protection in exchange for periodic payments.

<sup>2</sup>SWIB bought credit protection in exchange for periodic payments.

<sup>3</sup>Denotes instrument is highly sensitive to interest rate changes.

## Retirement Funds

### Notes to Financial Statements

of the underlying equity index and, in exchange, agrees to pay or receive the stipulated rate benchmark. The rate benchmark is based on the 3-month London Interbank Offering Rate (LIBOR) rate and is sensitive to interest rate changes. The fair value of a TRS is based on the change in quoted market price of the underlying equity index and represents the unrealized gain/(loss) on the contracts since trade inception.

The fair value of CDS, IRS, and TRS is reflected as Swaps on the Statement of Net Investment Position. Gains and losses resulting from investments in swap contracts are included in the Net Increase (Decrease) in the Fair Value of Investments on the Statement of Changes in Net Investment Position. Any interest owed but not yet paid relating to swap contracts is reported within Other Liabilities on the Statement of Net Investment Position. Interest expense relating to swap contracts is reported as Investment Operating Expense on the Statement of Changes in Net Investment Position.

#### G. To Be Announced Securities

To be announced mortgage-backed (TBA) securities are uncleared OTC forward contracts consisting of mortgage-backed securities (MBS) issued by Government National Mortgage Association, a government entity, and by government-sponsored enterprises such as, the Federal National Mortgage Association or the Federal Home Loan Mortgage Corp. The term TBA is derived from the fact that the actual MBS that will be delivered to fulfill a TBA trade is not designated at the time the trade is made. Instead, the specific pool of mortgages comprising the MBS is announced 48 hours prior to the established trade settlement date. Eligibility rules and standards for MBS pools deliverable into TBA contracts ensure that delivered MBS pools are fungible. Payment for TBA securities is not made until the settlement date.

Certain portfolio investment guidelines allow for both long and short TBA positions. To mitigate counterparty credit risk, guidelines establish minimum credit

ratings and require master netting agreements which include provisions for collateral exchanges.

TBAs, much like their underlying MBS securities, may be highly sensitive to interest rate changes. This is because the MBS pool on which these forward contracts are based can be subject to early payment in a period of declining interest rates. The price of TBAs can fluctuate as the marketplace predicts changes in timing, or possible reductions in expected cash flows, associated with a change in interest rates. The table entitled **TBA Contracts** includes the interest rate sensitivity of TBA contracts as of December 31, 2020. 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 fair value of each position to compute an average duration for the contracts held.

The fair value of TBAs is reflected in To Be Announced Securities on the Statement of Net Investment Position. The unrealized gain/loss associated with these contracts is included within the Net Increase (Decrease) in the Fair Value of Investments on the Statement of Changes in Net Investment Position.

#### H. Warrants

A warrant is a contract that entitles the holder to buy the underlying stock of the issuing company at a specified price. Warrants and options are similar in that the two instruments allow the holder special rights to buy securities. However, warrants differ from options in that they provide additional financing to the issuing company when exercised.

TBA Contracts As of December 31, 2020 (In Thousands)				
Position	Contract Maturity	Fair Value	Unrealized Gain/(Loss)	Weighted Average Duration (Years)
Long	Jan - Feb 21	\$2,027,689	\$ 7,100	4.8
Short	Feb 21	(2,712,698)	(4,574)	2.5
Total		<u>\$(685,009)</u>	<u>\$ 2,526</u>	



As of December 31, 2020, SWIB held one warrant contract valued at \$73,884, and it is included in the Equities section on the Statement of Net Investment Position.

## 6. 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 acts as 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, 2020, the fair value of the securities on loan to counterparties was approximately \$13.6 billion.

Cash collateral is reinvested by the lending agent in two separate pools, a US 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, US 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 it earns the Overnight Bank Funding rate plus 10 basis points. See Note 7 for additional information relating to short sales.

At December 31, 2020, the Retirement Funds had minimal credit risk exposure to borrowers as loans are collateralized in excess of 100%. 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 mitigated by the highly liquid nature of investments held in the collateral reinvestment pools. The average maturities of the loans and the average maturities of the assets held in the collateral reinvestment pools were similar at December 31, 2020.

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 Net Investment Position as Net Increase (Decrease) in the Fair Value of Investments.

#### 7. Short Sales

The Retirement Funds may sell a security it does not own in anticipation of purchasing the security at a later time 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 Sales on the Statement of Net Investment Position. The liability presented on the Statement of Net Investment 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 Net Investment Position, in the Net Increase (Decrease) in Fair Value of Investments category. Prior to executing a short sale, SWIB borrows 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 Operating Expense on the Statement of Changes in Net Investment 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 Sales in the Statement of Net Investment Position. Short sales expose the short seller to potentially unlimited liability as there is no upward limit on the price a shorted security can reach. Certain portfolio guidelines permit short sales and mitigate risks in various ways including limiting the total value of short sales as a percentage of portfolio value, establishing portfolio versus 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 \$91.8 million in cash and \$4.6 billion in securities as collateral to security lenders representing \$191.5 million in excess of the fair market value of the securities borrowed as of December 31, 2020. 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.

#### 8. Investment Policy and Asset Allocation

As part of its fiduciary responsibilities, 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 exercises this duty in part by establishing its investment policy and by setting the asset allocation.

SWIB's Board of Trustees has established the asset allocation pursuant to a comprehensive and ongoing evaluation of the appropriate risk and return standards for each fund under management. 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-approved investment policy for the WRS is intended to assist in development of a diversified portfolio of investments within acceptable risk parameters. The policy represents a delegation of standing authority to the Executive Director/Chief Investment Officer and investment managers within the organization to make prudent

investments within the investment guidelines, pursuant to sections 15.02(4) and 25.15(2) 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 investment returns of the portfolios, asset classes, and Core and Variable Funds. The IC is responsible for proposing to the Board of Trustees changes to the WRS investment policy, approving investment guidelines or strategies for internally managed portfolios, approving the general strategies for each asset class, and for approving new investment instruments and derivatives strategies. The Board of Trustees reserves all rights to modify and amend IC guidelines at any time at its discretion.

#### Asset Allocation Targets and Expected Returns<sup>2</sup> As of December 31, 2020

Core Fund Asset Class	Asset Allocation %	Long-Term Expected Nominal Rate of Return %	Long-Term Expected Real Rate of Return % <sup>1</sup>
Global Equities	51	7.2	4.7
Fixed Income	25	3.2	0.8
Inflation Sensitive Assets	16	2.0	(0.4)
Private Equity/Debt	11	10.2	7.6
Real Estate	8	5.6	3.1
Multi Asset	4	5.8	3.3
<b>Total Core Fund</b>	<b>115</b>	<b>6.6</b>	<b>4.1</b>
<b>Variable Fund Asset Class</b>			
U.S. Equities	70	6.6	4.1
International Equities	30	7.4	4.9
<b>Total Variable Fund</b>	<b>100</b>	<b>7.1</b>	<b>4.6</b>

<sup>1</sup>New England Pension Consultants Long Term US CPI (Inflation) Forecast: 2.4%

<sup>2</sup>Asset Allocations are managed within established ranges; target percentages may differ from actual monthly allocations.

The IC approved WRS Investment Guidelines include several policies, including a derivatives use policy, rebalancing procedures, and a leverage use policy. The derivatives use policy sets forth the objectives, monitoring, and reporting guidelines relating to derivative investments. The rebalancing procedures used in both mandatory and discretionary asset class rebalancing are described in the Investment Guidelines, and the leverage use policy describes SWIB's leverage philosophy. The total amount of financial leverage is approved by the Board of Trustees through the WRS asset allocation process.

The Board adopts the Retirement Funds' asset allocation policy, based on recommendations by the IC, the Board's asset allocation consultant, Executive Director/Chief Investment Officer, and Managing Director of Assets and Risk Allocation. SWIB undertakes a comprehensive 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, and an annual review to assess whether any interim adjustments should be made. 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 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's program of risk allocation that involves reducing equity exposure by leveraging 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 Board has approved an asset allocation target of 15% financial leverage for the Core Fund subject to an allowable range of up to 20%.

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 and the best estimates of expected geometric rates of return for each major asset class as of December 31, 2020.

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.

## 9. Related-Party Disclosure

During the calendar year, the Core Fund entered into reverse repurchase agreement transactions with the State Investment Fund (SIF), for which the investment assets are managed by SWIB, as a counterparty. The transactions were governed by an MRA, and investment guidelines limit exposure with the SIF to \$3.0 billion. Credit exposure is also managed through the transfer of margin between the Core Fund and SIF. As of December 31, 2020, the Core Fund held \$2.1 billion in a bilateral reverse repurchase agreement with the SIF. The repurchase agreement was an overnight agreement collateralized with US Treasury securities in the amount of 102%. The Core Fund enters into similar reverse repurchase agreement transactions with other counterparties. The Core Fund is also a participant in the SIF, with an investment totaling \$3.8 billion at December 31, 2020. The SIF is a short-term, commingled fund with the investment objective of safety of principal and liquidity while earning a competitive money market rate of return.

## 10. Contingencies

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 asserted 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 asserted that the former SCC shareholders, including SWIB, are liable for SCC's unpaid taxes, penalties, and interest.

SWIB filed a petition in the United States Tax Court contesting the proposed IRS assessment. The principal shareholders of SCC were issued similar notices from the IRS and have been litigating their case through the Tax Court and United States Court of Appeals. In April 2014, SWIB and the IRS agreed to stay the Tax Court proceeding with respect to SWIB 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. In October 2017, the 11th Circuit Court of Appeals upheld the 2015 Tax Court opinion with respect to the principal shareholders of SCC; concluding its litigation. Because SWIB had separate and distinct arguments from the principal shareholders of SCC, the Tax Court granted SWIB the opportunity to pursue its case with the Court. In 2018, SWIB's tax counsel and the IRS filed briefs with the Tax Court. In January 2020, SWIB was

informed that the Tax Court had ruled in favor of the IRS. While SWIB had the option to appeal, as well as the ability to negotiate the final payment amount with the IRS, the adverse ruling from the Tax Court made it more likely that SWIB's liability exposure would be higher than previously estimated.

SWIB accrued an additional loss of \$13.8 million as of December 31, 2020 from the SCC transaction based on the Tax Court's adverse opinions against the principal shareholders and SWIB. This additional estimated loss was based on a settlement strategy with the IRS. Since calendar year 2015, SWIB has accrued a total loss of \$43.8 million, which represented the estimated minimum amount of the possible loss to which SWIB believed it may be exposed as of December 31, 2020.

During April 2021, SWIB and the IRS resolved the case with SWIB making a payment in accordance with the settlement terms on May 11, 2021. The difference between the total accrued loss and final payment is not material to the financial statements.

In the ordinary course of operations, SWIB may be party to other various legal actions. SWIB's Chief Legal Counsel handles these matters either directly or with assistance of outside legal counsel. As of December 31, 2020, these matters are not anticipated to have a material financial impact on the Retirement Fund's financial position.



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