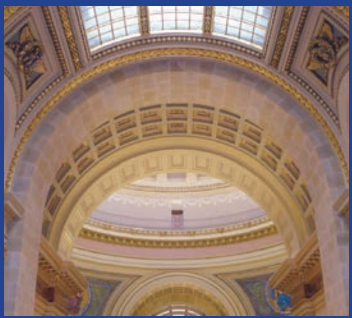
Report 20-23
November 2020

State of Wisconsin Investment Board

State of Wisconsin


Legislative Audit Bureau

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STATE OF WISCONSIN | Legislative Audit Bureau
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Joe Chrisman
State Auditor

November 24, 2020

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

Dear Senator Cowles and Representative Kerkman:

We have completed an evaluation of the State of Wisconsin Investment Board (SWIB), as required under s. 25.17 (51m), Wis. Stats. As of December 2019, SWIB managed $128.8 billion in assets, which included investments of the Wisconsin Retirement System (WRS), the State Investment Fund, and four other funds. As of December 2019, the WRS Core Fund and Variable Fund exceeded five-year benchmarks with average annual investment returns of 7.8 percent and 9.8 percent, respectively. However, the Core Fund's investment return did not meet the long-term expected rate-of-return assumption of 7.0 percent on a 20-year basis in 2018 or 2019.

SWIB is authorized to establish its own budget and to create or eliminate staff positions. From 2015 through 2019, SWIB's annual expenses increased by 48.3 percent. After considering the effect of increases in assets managed by SWIB, we found the increases in expenses were primarily attributable to increases in management fees paid to external investment managers for complex investment strategies. As of December 2019, SWIB had 235 full-time equivalent (FTE) positions, which was an increase of 47.0 FTE positions since 2017.

SWIB compensation to staff through salaries, bonuses, and fringe benefits was $44.1 million in 2019. Overall, compensation provided to SWIB investment management staff for 2019 performance was at 66.0 percent of its comparison group median, which decreased from 99.0 percent of its comparison group median in 2016. SWIB is currently considering changes to its compensation program to help address this decrease.

We recommend SWIB expand the manner in which it reports investment returns, improve its reporting to the Board of Trustees on carried interest information, continue to assess and reduce its contracted positions, and take steps to improve its overall data management. The Legislature could consider creating a statutory requirement for SWIB related to performing and reporting the results of stress tests of the WRS.

We appreciate the courtesy and cooperation extended to us by SWIB staff. A response from SWIB's executive director/chief investment officer follows the appendices.

Respectfully submitted,

Joe Chrisman
State Auditor

JC/CS/ss

Report Highlights ▪

Assets managed by SWIB totaled $128.8 billion as of December 2019.

Both WRS funds exceeded the one-year and five-year benchmarks as of December 2019.

The Core Fund's five-year investment return ranked fifth among ten large public pension plans that we reviewed.

In 2019, SWIB's annual expenses totaled $480.3 million, which was an increase of 48.3 percent since 2015.

SWIB had 235.0 authorized FTE positions as of December 2019, of which 36.6 percent were investment management staff.

SWIB awarded $13.9 million in bonuses to 172 staff for 2019 performance.

The State of Wisconsin Investment Board (SWIB) invests assets for the Wisconsin Retirement System (WRS), the State Investment Fund (SIF), and four other funds. Assets managed by SWIB totaled $128.8 billion as of December 2019. The WRS Core Fund and Variable Fund accounted for 90.5 percent of assets managed. The WRS is intended to provide retirement benefits for more than 648,000 current and former state and local government employee participants. The Department of Employee Trust Funds (ETF) is responsible for managing WRS operations that interact with employers and participants, including collecting contributions and paying benefits, and SWIB is responsible for managing WRS investments.

We have completed an evaluation of SWIB, as required under s. 25.17 (51m), Wis. Stats. In completing this evaluation, we:

- analyzed investment returns by comparing them to market-based benchmarks established by SWIB, the long-term expected rate-of-return assumption, and investment returns of other large public pension plans;

- assessed expenses, including expenses for management fees SWIB pays to external investment managers, carried interest costs, and internal operating expenses;

- examined staffing levels and trends in staffing, including the use of contracted staff;
- analyzed staff compensation, including salaries and bonuses; and
- reviewed specific aspects of hiring practices.

Investment Performance

The Board of Trustees establishes market-based benchmarks with the guidance of a consultant to evaluate SWIB investment performance. As shown in Table 1, as of December 2019, the investment return for the five-year period was 7.8 percent for the Core Fund and 9.8 percent for the Variable Fund. Both funds exceeded their one-year and five-year benchmarks as of December 2019.

Table 1

Wisconsin Retirement System
One-Year and Five-Year Investment
Performance Relative to Benchmarks
As of December 31, 2019

	Investment Benchmark	Investment Return
Core Fund		
One-Year	19.2%	19.9%
Five-Year	7.5	7.8
Variable Fund		
One-Year	28.3	28.6
Five-Year	9.7	9.8

We also analyzed trends in Core Fund 20- and 30-year investment returns relative to the long-term expected rate-of-return assumption (return assumption) approved by the ETF Board. The Core Fund's 20-year investment return has not met the return assumption since 2015. However, the Core Fund's 30-year investment return was 8.3 percent and remained above the return assumption as of December 2019.

The ETF Board approved a decrease in the return assumption from 7.2 percent to 7.0 percent beginning with the December 31, 2018 valuation. Based on investment returns from passive management in the Core Fund, SWIB anticipates investment returns of 6.2 percent over the next five to seven years. Therefore, to achieve returns of 7.0 percent, SWIB employs active strategies with Core Fund investments in investment classes such as public equity, private equity and debt, and real estate securities, as well as complex multi-asset and hedge fund strategies.

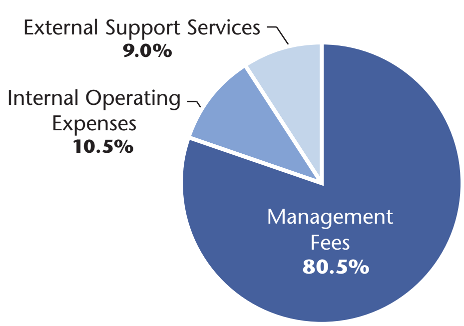
The Core Fund's five-year investment return ranked fifth among ten large public pension plans that we reviewed. Plan returns are affected by differences in plan structure, such as asset allocation, return assumptions, investment styles, funding levels, and risk tolerance levels.

Investment and Operating Expenses

2011 Wisconsin Act 32, the 2011-13 Biennial Budget Act, granted SWIB the authority to establish its own operating budget and to create staff positions outside of the legislative budget process. SWIB's annual expenses totaled $480.3 million in 2019, an increase of 48.3 percent since 2015. As shown in Figure 1, management fees for assets managed by external managers were 80.5 percent of SWIB expenses in 2019.

Figure 1

SWIB 2019 Expenses[1]



[1] Excludes certain management fees, also known as "carried interest." Because carried interest fees are charged directly to investment returns, they are not reported with other SWIB expenses.

In addition to expenses included in SWIB's total cost of management plan, some external private equity and real estate investments incur performance fees in the form of carried interest. Carried interest costs for SWIB were $217.4 million in 2019.

The percentage of assets managed externally increased to 46.5 percent in 2019. In part, this increase occurred as SWIB sought expertise to manage more complex active strategies. SWIB has indicated that it has a goal to increase the percentage of assets managed internally. In September 2020, SWIB estimated that for each $1 billion in WRS assets transitioned from external to internal management, the WRS will save $3 million in management fees. To do so, SWIB is improving its IT infrastructure and indicates plans to recruit investment staff with expertise to manage a portion of the assets currently managed by external managers.

When comparing SWIB costs to its cost benchmark, SWIB had savings of approximately $0.10 per $100 of assets managed in 2013, but the level of savings has been trending downward since that year and was approximately $0.05 per $100 of assets managed in 2018, the most recent year for which data were available.

The Board of Trustees authorized an additional 47.0 full-time equivalent (FTE) positions during 2018 and 2019. The increase in positions generally related to the conversion of contracted positions to FTE positions and efforts to address understaffing identified by SWIB's consultant. As a result, SWIB had 235.0 authorized FTE positions as of December 2019, which included 86.0 FTE positions for investment management staff, or 36.6 percent. In addition to authorized FTE positions, SWIB had 25 contracted staff positions as of August 2020.

In July 2020, SWIB placed itself between levels one and two (out of six) on its data management maturity assessment model. Insufficient data management can lead to the use of inaccurate data and delays in gathering accurate data for analysis. As an agency that may at times need to move swiftly to take advantage of investment opportunities, SWIB needs comprehensive and accurate data.

Compensation

SWIB is authorized to compensate staff through salaries, bonuses, and fringe benefits. Pursuant to the Board approved compensation plan and compensation policy, staff salaries are to be within range of an established comparison group median. Overall compensation provided to SWIB investment management staff for 2019 performance was at 66.0 percent of this median, which decreased from 99.0 percent of the median in 2016. SWIB is currently considering changes to its compensation program to help address this decrease.

SWIB paid $34.3 million in salaries and fringe benefits to staff in 2019. For 2019 performance, 172 staff were awarded bonuses totaling $13.9 million, the highest total bonuses awarded in the five-year period from 2015 through 2019.

Recommendations

We recommend the State of Wisconsin Investment Board report to the Joint Legislative Audit Committee by May 21, 2021, on its efforts to:

☑ expand the manner in which SWIB reports investment returns *(p. 28)*;

☑ obtain carried interest amounts in a timely manner and report them annually to the Board of Trustees *(p. 41)*;

☑ continue to assess its contracted positions and take steps to convert more to FTE positions *(p. 51)*; and

☑ review and assess the status of its overall data management, implement improvements, and develop a plan and timeline to improve its data management maturity *(p. 55)*.

Issue for Legislative Consideration

The Legislature could consider creating a statutory requirement for SWIB related to performing and reporting the results of stress tests of the Wisconsin Retirement System (*p. 33*).

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Introduction ■

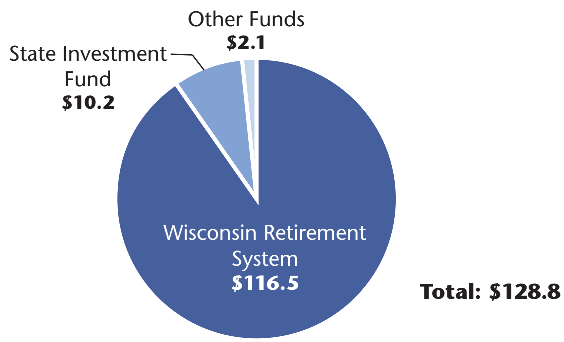
Statutes require SWIB to provide prudent and cost-effective management of the assets it holds in trust by investing the assets in a manner that is consistent with their intended purpose. Although SWIB is a state agency, it operates as an independent agency with a governing Board of Trustees that establishes the investment and staffing policies with which SWIB is required to comply.

SWIB managed $128.8 billion in assets as of December 2019.

As shown in Figure 2, SWIB managed $128.8 billion in assets as of December 2019. Of the total, $116.5 billion, or 90.5 percent, was in the WRS, which is intended to fund retirement benefits for more than 648,000 current and former employees of state and local governments. Although SWIB is responsible for managing WRS investments, ETF is responsible for managing WRS operations that interact with employers and participants, including collecting contributions and paying benefits.

Figure 2

Assets Managed
As of December 31, 2019
(in billions)



Section 25.17 (1), Wis. Stats., also requires that SWIB invest the available assets of 74 state funds, 60 of which participate in the State Investment Fund (SIF) for short-term investment and cash management. The 60 state funds invested in the SIF are shown in Appendix 1. One such fund is the Local Government Investment Pool, which includes the assets of more than 1,300 local units of government that have chosen to invest in the SIF rather than in other options available for the investment of cash balances.

In addition to the WRS and the SIF, SWIB invested assets for four other funds in 2018 and 2019:

- Historical Society Trust Fund, which is overseen by the Wisconsin Historical Society;
- Injured Patients and Families Compensation Fund, which is overseen by the Office of the Commissioner of Insurance (OCI);
- State Life Insurance Fund, which is overseen by OCI; and
- University of Wisconsin (UW) System Trust Fund, which is overseen by the UW System Board of Regents.

All four of these funds were managed, at least in part, by external investment managers. Under its investment authority, SWIB may choose to hire external investment managers to supplement its existing staff, when it requires additional investment expertise, or when it is cost effective to do so. Additional information about each of these funds is shown in Appendix 2. The EdVest Tuition Trust Fund and the Local Government Property Insurance Fund, which had previously been separately invested by SWIB, had all of their assets in the State Investment Fund in 2018 and 2019.

Board of Trustees

SWIB is governed by a nine-member Board of Trustees.

The SWIB Board of Trustees is made up of nine members. As shown in Appendix 3, Board members include the Secretary of the Department of Administration, two WRS participants, and six individuals appointed by the Governor and confirmed by the Senate to serve six-year terms. Four of the appointed members must have at least ten years of experience making investments, and one must have at least ten years of financial experience, including in local government.

Members of the Board of Trustees have a fiduciary responsibility to administer the assets of each fund solely for the purpose of the fund at a reasonable cost and to manage investments with care, skill, prudence, and diligence. The Board met six times in 2017, seven times in 2018, and five times in 2019. In April 2018, the Board approved a motion to reduce the number of meetings in 2019 from six to five, as it believed it could cover the same amount of material in five meetings. The Board was originally scheduled to have five meetings in 2020, but it now appears that it will have at least six, as a meeting was added in April 2020 to discuss the effects the public health emergency was having on investment performance. In these meetings, a variety of subjects were discussed, including asset allocation, budget proposals, comparison to other investment managers, investment performance, staff compensation, and staffing. All Board members serve on at least one of four committees. For many decisions that the Board makes, the responsible committee first reviews proposals and then makes recommendations to the full Board.

The Board of Trustees appoints the executive director/chief investment officer and the internal audit director. Although the Board establishes an overall investment plan for SWIB-managed funds, it delegates day-to-day investment management decisions to the executive director/chief investment officer and investment staff. Additionally, the Board has delegated certain investment decisions to a SWIB staff investment committee. The committee, which is currently chaired by the executive director/chief investment officer, meets regularly to make investment decisions, including changes to investment guidelines and strategies. SWIB senior management works with the executive director/chief investment officer to make organizational decisions to ensure that staff operate within the policies, objectives, and guidelines established by the Board of Trustees.

SWIB Operations

SWIB has been given more flexibility in managing its operations than most state agencies. For example, 2011 Wisconsin Act 32, the 2011-13 Biennial Budget Act, granted SWIB the authority to establish its operating budget and create staff positions outside of the legislative budget process. Additionally, the Board is authorized to establish SWIB staff compensation outside of the state compensation plan.

In 2018, the Board of Trustees approved combining the executive director and chief investment officer into one position.

In October 2018, the Board of Trustees approved combining the executive director and chief investment officer into one position. Under Wisconsin Statutes, the executive director and chief investment officer are separate positions in SWIB with specified responsibilities, and the chief investment officer is supervised by the executive director. However, statutes do not prohibit the same individual from holding both positions. The executive director/chief investment officer indicated that combining the two positions has improved efficiency through better alignment of goals, especially the goal to increase the percentage of funds managed internally. The Board is responsible for overseeing the performance of the executive director/chief investment officer.

The Board of Trustees also created the following three executive staff positions in October 2018:

- deputy executive director/chief administrative officer;
- chief technology and operations officer; and
- agency business director.

The Board of Trustees established the Management Council to assist the executive director/chief investment officer in leading SWIB.

To assist the executive director/chief investment officer in leading SWIB, the Board of Trustees established the Management Council in October 2018. The Council consists of the executive director/chief investment officer and at least four other senior leaders from investment management and administrative support staff. The membership is set by the executive director/chief investment officer, who must provide notice to the Board any time membership is changed. SWIB staff indicated the Management Council, which typically meets weekly, collaboratively considers strategic direction, prioritization of resources, organizational structure and personnel matters, and other issues that pertain to the daily management of the agency. The Management Council members as of October 2020 are listed in Appendix 4.

To evaluate the management of SWIB operations in 2018 and 2019, we:

- analyzed investment returns by comparing them to performance benchmarks established by SWIB, the long-term expected rate-of-return assumption, and investment returns of other large public pension plans;

- assessed expenses, including expenses for management fees SWIB pays to external investment managers and internal operating expenses;

- examined staffing levels and trends in staffing, including the use of contracted staff;

- analyzed staff compensation, including salaries and bonuses; and

- reviewed specific aspects of hiring practices.

▪ ▪ ▪ ▪

Investment Performance ▪

SWIB invests assets of the WRS among several asset classes to balance investment performance with risk and costs over the long term. To generate sufficient investment returns to meet the 7.0 percent long-term expected rate-of-return assumption for the WRS, SWIB employs complex strategies, leverages assets, and uses its flexibility to take advantage of investment opportunities when they arise. We found Core Fund investment returns ranked better compared to peers in 2019 than in 2017. Further, SWIB met its market-based benchmarks for the Core Fund for 2019. However, the Core Fund 20-year returns have not met the long-term expected rate-of-return assumption since 2015. We recommend that SWIB publicly report 20-year investment returns and investment returns that account for all of its expenses. The Legislature could consider creating a statutory requirement for SWIB related to performing and reporting the results of stress tests of the WRS.

WRS Structure and Asset Allocation

WRS assets totaled $116.5 billion as of December 2019.

As of December 2019, $116.5 billion, or 90.5 percent of all assets managed by SWIB were WRS assets. The WRS is a defined-benefit plan that provides participants with lifelong monthly retirement benefits that are determined for each participant using a formula based on the number of years of service and highest three years of salary, or a separate money purchase option. The WRS is funded by employer contributions, current employee contributions, and investment earnings. A fundamental objective of the WRS is to invest these contributions so that investment income will be sufficient to pay projected future benefits. SWIB manages the investments of the WRS in two funds:

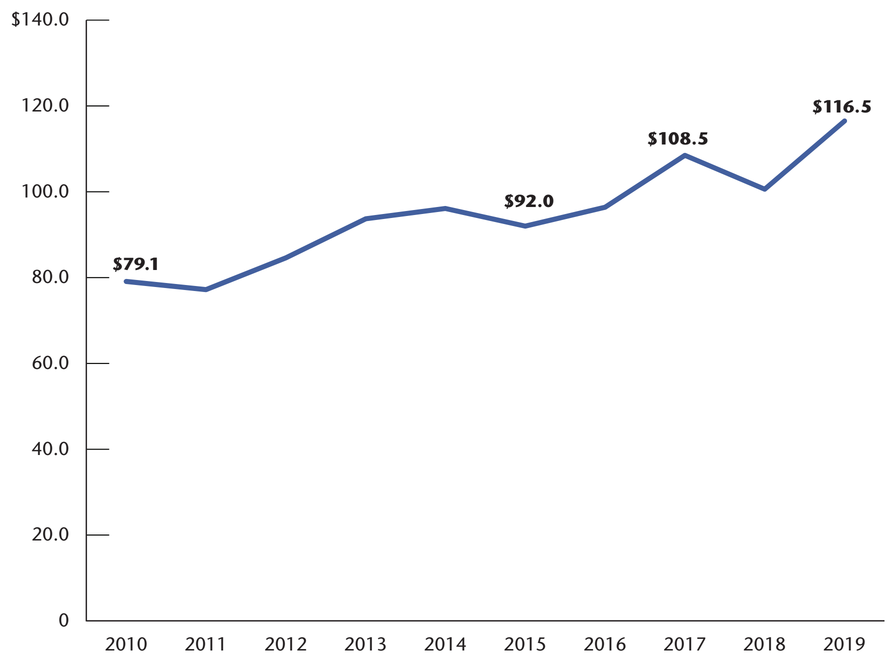
- The Core Retirement Investment Trust Fund (Core Fund) is a diversified fund that typically is invested for the long term in several types of investments and provides less volatile investment returns. The investments in the Core Fund totaled $107.8 billion as of December 2019.

- The Variable Retirement Investment Trust Fund (Variable Fund) is a public equity securities fund, or stock fund, that provides returns that are typically more volatile than the Core Fund. WRS participants currently have the option to have 50.0 percent of their retirement contributions in the Variable Fund. As of December 2019, 41,777 retired participants and 53,510 active or inactive participants were invested in the Variable Fund, which totaled nearly $8.7 billion.

As shown in Figure 3, WRS assets increased from $79.1 billion as of December 2010, to $116.5 billion as of December 2019, or by 47.3 percent. In 2018 and 2019, WRS assets increased by $8.0 billion, or by 7.4 percent. WRS assets have generally increased since 2010. Pension contributions, payments to retired participants, and investment returns can each affect asset amounts.

Figure 3

WRS Assets
As of December 31
(in billions)



SWIB considers itself to be a long-term investor and its investment philosophy is driven by generating strong five-year investment returns. An industry study found that substantially sized companies with good governance and long-term investment philosophies designed to create value three to ten years into the future are likely to experience future returns of 0.5 percent to 1.5 percent higher than investors with short-term philosophies, and are likely to experience less volatility. SWIB's investment philosophy aims to employ a relatively low level of risk to protect the long-term value of its portfolio during turbulent periods in the financial markets. As a result, SWIB indicated it has adopted specific investment strategies to protect WRS investments from significant market downturns such as a one-year loss of 10.0 percent.

SWIB works with a consultant each year to develop an asset allocation plan designating asset class allocation targets.

To meet benefit payments and manage risk and costs over the long term, SWIB staff work with a consultant each year to develop an asset allocation plan designating asset class allocation targets. Each target represents the percentage of investments allocated to a particular asset class and has a corresponding range that limits how much the asset class can exceed or fall short of the target. The plan is presented to the Board of Trustees annually for review and approval. The most recent asset allocation plan, which was for 2020, was approved in December 2019.

For the 2019 Core Fund asset allocation, SWIB expanded the range around the targets for public equity securities and fixed income securities.

In report 18-19, we found that SWIB had recommended to the Board a future asset allocation target plan for the Core Fund that SWIB expected would perform well in a low-return, high volatility environment by decreasing investments in public equity securities and proportionally increasing investments in other asset classes. Although it has specific asset allocation targets, SWIB indicated that it follows a strategy that grants greater flexibility to make investment decisions as opportunities arise. This is accomplished through flexibility in the target ranges within each asset class. For example, the target for public equity securities changed from 50.0 percent with a target range of 47.0 percent to 53.0 percent in 2017, to a target of 49.0 percent, with a target range of 43.0 percent to 55.0 percent in 2019, as shown in Table 2. SWIB indicates these expanded ranges will allow for more flexibility to shift funds to take advantage of investment opportunities when they arise. If a particular class of stock experienced a significant downturn, SWIB indicates the added flexibility would allow SWIB to invest additional assets in this class of stock to realize higher returns after a recovery.

Table 2

Core Fund Asset Allocation and Target Ranges

	2017 Target	2017 Target Range	2019 Target	2019 Target Range
Public Equity	50.0%	47.0% to 53.0%	49.0%	43.0% to 55.0%
Fixed Income	24.5	21.5% to 27.5%	24.5	18.5% to 30.5%
Inflation Protection	15.5	10.5% to 20.5%	15.5	10.5% to 20.5%
Private Equity and Debt	8.0	5.0% to 11.0%	9.0	6.0% to 12.0%
Real Estate	8.0	5.0% to 11.0%	8.0	5.0% to 11.0%
Multi-Asset	4.0	1.0% to 7.0%	4.0	1.0% to 7.0%
Total[1]	**110.0%**		**110.0%**	

[1] Exceeds 100.0 percent due to leverage of Core Fund assets. A range for SWIB's use of leverage was first approved by the Board of Trustees in June 2019.

Although the Board of Trustees establishes the asset allocation plan, specific investment decisions are made by SWIB staff. One decision made by SWIB staff is whether to adopt a passive or active strategy when selecting individual investments. A passive investment strategy attempts to match market investment returns and is expected to trend consistent with market-based benchmarks. Alternatively, SWIB may choose an active investment strategy, which includes conducting intensive investment research to select investments, in an attempt to earn returns greater than market-based benchmarks.

Statutes require Variable Fund assets to be primarily invested in public equity securities. The Board of Trustees has approved an asset allocation for the Variable Fund that requires 30.0 percent of its public equity investments to be invested in international markets. In 2018 and 2019, SWIB continued to employ a largely passive investment strategy for the Variable Fund, which it expects to result in investment returns that match the established benchmarks.

The percentage of total Core Fund assets invested in public equity securities and fixed income securities has decreased since 2015.

Although Variable Fund investment occurred primarily in public equity securities, Core Fund assets were allocated across a variety of asset classes in 2018 and 2019 to diversify investments. The allocation of assets significantly affects investment returns and risk exposure. Since 2015, the percentage of total Core Fund assets invested in public equity securities and fixed income securities has decreased while the investment in inflation protection securities, private equity and debt securities, and multi-asset securities has increased, as shown in Table 3.

Table 3

Core Fund Assets
As of December 31

Asset Class	2015	2016	2017	2018	2019
Public Equity	50.9%	51.1%	50.9%	49.1%	49.1%
Fixed Income	28.0	28.8	25.9	24.8	25.1
Inflation Protection	9.7	11.8	14.5	15.3	15.4
Private Equity and Debt	8.1	8.4	8.1	9.6	9.3
Real Estate	7.2	7.1	6.4	7.9	7.0
Multi-Asset[1]	2.5	0.8	2.6	2.6	3.4
Cash	0.2	0.8	0.5	0.5	0.6
Total[2]	**106.6%**	**108.8%**	**108.9%**	**109.8%**	**109.9%**

[1] Includes investments that span more than one traditional asset class within a collection of investment strategies intended to perform independently of the overall market.

[2] Exceeds 100.0 percent due to leverage of Core Fund assets.

As of December 2019:

- Public equity securities was the largest Core Fund asset class with $52.7 billion in investments. These investments consist of stocks and other publicly traded equity securities including domestic, international, and emerging market securities. Investments in public equity securities are highly susceptible to the overall market trends, and investment returns may fluctuate significantly from year to year.

- Fixed income securities was the second-largest asset class with $26.4 billion in investments. These investments consist of bonds, emerging market debt, government debt, and treasuries. Investments in fixed income securities are typically considered to have lower risk than other asset classes, but investment returns may also be lower.

- Inflation protection securities totaled $6.8 billion in investments. These investments consist of treasury inflation protected securities, which are frequently used to create leverage. Taking leverage into account, inflation protection securities assets were $16.6 billion. Treasury inflation protected securities are linked to inflation in order to protect investments from devaluation due to inflation.

- Private equity and debt securities totaled $10.1 billion in investments. These investments are made directly by SWIB or in conjunction with other investors through partnerships in which SWIB is a limited partner. SWIB largely invests in private equity as a limited partner in partnerships that buy out or invest in struggling companies or provide capital to emerging private companies. Because these investments typically cannot be sold or exchanged without a loss in value and often have investment cycles of more than five years, they are considered to be risky, but are expected to outperform public equity markets in the long term.

- Real estate securities totaled $7.6 billion in investments. These investments consist of various property types including commercial, industrial, and multifamily properties. Similar to private equity investments, real estate investments are largely in partnerships that acquire and manage a variety of properties.

- Multi-asset securities was the smallest asset class with $3.6 billion in investments. This asset class includes investments that span one or more traditional asset classes within a collection of investment strategies intended to perform independently of the overall market.

- An additional $0.6 billion was available as cash.

The use of leverage has positively contributed to Core Fund investment returns.

As of December 2019, SWIB used 9.9 percent leverage, or borrowed $10.7 billion against the Core Fund assets, in order to increase investments in other areas. According to SWIB performance data, the use of leverage has positively contributed to Core Fund investment returns. SWIB indicated that it has increased the use of leverage over time because increased investment diversification created through its use of leverage more efficiently increases investment returns while lowering the overall level of investment risk. SWIB has gradually increased its use of leverage since it was first introduced in 2012. Leverage of Core Fund assets provided an additional 2.1 percent to the one-year return and 0.7 percent to the five-year return as of December 2019. SWIB management indicated it plans to increase Core Fund leverage when market conditions are favorable with an eventual goal of 20.0 percent leverage, subject to discussion and approval from the Board of Trustees.

Active Strategies

SWIB uses active management strategies in an attempt to reach the 7.0 percent long-term expected rate-of-return assumption.

SWIB indicated that it has focused on increasingly complex investment strategies because it is difficult to achieve the 7.0 percent WRS return assumption in a continuing low-interest-rate environment. Based on investment returns from passive management in the Core Fund, SWIB expects a 6.2 percent return over the next five to seven years. Therefore, SWIB also uses active management strategies in an attempt to reach the 7.0 percent long-term expected rate-of-return assumption. SWIB anticipates these strategies will increase investment returns, diversify investments, and help protect against large sustained market downturns. SWIB employs active strategies with Core Fund investments in public equity, private equity and debt, and real estate securities along with more complex multi-asset and hedge fund strategies that are designed to be independent from market returns.

In 2019, the multi-asset class was composed of investments in public equity and fixed income securities across nine primary strategies. As noted, these strategies are intended to perform independently of the overall market, and, as a result, the collection of investments within the multi-asset class may underperform investments in public equity securities when the market is strong and outperform investments in public equity securities during a market downturn.

SWIB allows internal investment management staff to implement new investment strategies within the multi-asset class as pilot strategies. As additional funding is added to successful strategies, the multi-asset investment strategies change over time. Strategies currently represented in the multi-asset class reflect three new strategies added since 2017. SWIB indicated that the multi-asset class includes strategies that are intended to take advantage of market conditions and employ tools to automatically trade on certain investment factors.

SWIB also invests in an actively managed external hedge fund strategy intended to produce investment returns that are independent of investments in public equity securities. SWIB indicated that its hedge fund investment strategy differs from its peers because it invests in hedge funds that are more cost effective and are independent of market conditions, and because they provide lower risk returns. As of December 2019, SWIB had $5.5 billion in external hedge funds. SWIB indicated it plans to consolidate its external hedge fund investments into a smaller number of high-quality external managers in an effort to achieve higher net returns.

Performance Relative to Benchmarks

Benchmarks are established by the Board of Trustees with the guidance of a consultant.

SWIB generally uses market-based benchmarks to measure the performance of WRS investments. Benchmarks are established by the Board of Trustees with the guidance of a consultant. The consultant recommends industry-recognized standards for establishing market-based benchmarks to evaluate SWIB performance. Benchmarks may track a single market index or combine several indices. They typically include market indices such as Bloomberg Barclays Capital, Burgiss, Morgan Stanley World, and Russell indices. The selection of specific benchmarks changes as SWIB investments change. Benchmarks are intended to reflect market performance and are selected and weighted according to actual investments.

As of December 2019, 60.7 percent of WRS assets were managed actively.

In managing WRS investments, SWIB attempts to exceed these benchmarks. As noted, SWIB may choose to use either passive or active strategies. For a large portion of Core Fund investments, SWIB attempts to exceed Board-established, market-based benchmarks, or perform better than other investment managers, through active management. As of December 2019, 60.7 percent of WRS assets were managed actively.

In addition to investment returns, volatility is an indicator of market condition. Volatility is a measure of the variability of investment returns and can be used to measure the amount of risk present in the market. Different investment strategies may be chosen depending on the volatility within the market because high volatility can significantly affect the value of certain asset classes, such as public equity securities, that make up a significant portion of the WRS. However, volatility can also create opportunities for investment managers to gain higher investment returns through individual stock selection decisions. Overall, market volatility has been low from 2015 through 2019. In 2018, volatility of market returns increased from the previous year, but in 2019 it declined again and remained relatively low.

As noted, SWIB measures its investment performance relative to Board-established, market-based benchmarks. Each underlying asset class benchmark is used in determining overall composite market-based benchmarks for the Core Fund and the Variable Fund. Because benchmarks are meant to track underlying market-based investment returns, they differ over time and may be calculated monthly, annually, and over longer time periods. To assess the success of its WRS management strategies, SWIB focuses primarily on five-year investment returns.

The average annual investment return for the five-year period as of December 2019 was 7.8 percent for the Core Fund and 9.8 percent for the Variable Fund.

As shown in Table 4, average annual investment returns for the five-year period as of December 2019 was 7.8 percent for the Core Fund and 9.8 percent for the Variable Fund. Both funds met or exceeded their five-year benchmark as of December 2018 and December 2019, as well as their one-, three-, and ten-year benchmarks as of December 2019. Consistent with market returns, one-year performance was particularly high in 2019 for both the Core Fund and the Variable Fund. One-year investment returns since 1982 are shown in Appendix 5 for the Core Fund and the Variable Fund.

The investment markets declined as a result of the national health emergency in March 2020. The Board of Trustees held a special meeting in April 2020 to discuss investment performance year-to-date through March 2020. At that time, SWIB reported investment returns for the Core Fund, excluding management fees and other expenses, of a negative 11.4 percent year-to-date through March 2020. Subsequently, investment performance has improved. For year-to-date returns excluding management fees and other expenses through September 2020, SWIB reported the Core Fund returned 4.7 percent compared to its benchmark of 4.5 percent, and the Variable Fund returned 1.8 percent, compared to its benchmark of 2.2 percent. Total WRS assets invested by SWIB were $118.1 billion as of September 30, 2020.

Table 4

Investment Performance Relative to Benchmarks[1]
As of December 31

Period	Core Fund		Variable Fund	
	Investment Benchmark	Average Annual Investment Return[2]	Investment Benchmark	Average Annual Investment Return[2]
One-Year				
2018	(3.5)%	(3.3)%	(7.8)%	(7.9)%
2019	19.2	19.9	28.3	28.6
Three-Year				
2018	6.5	6.9	7.8	7.9
2019	10.0	10.5	13.3	13.4
Five-Year				
2018	4.9	5.2	5.9	5.9
2019	7.5	7.8	9.7	9.8
Ten-Year				
2018	8.2	8.8	11.3	11.6
2019	8.1	8.5	11.0	11.2

[1] Returns that did not meet benchmarks are in shaded cells.

[2] Except for select investments, return does not include management fees and other investment expenses.

Except for select investments, investment returns shown in Table 4 do not include management fees and other investment expenses. Including management fees and other investment expenses in the calculation of investment returns lowers those returns. SWIB calculates investment returns by including management fees and other investment expenses for one- and five-year investment returns, but not for three- and ten-year investment returns. When including these fees and expenses, Core Fund and Variable Fund investment returns continued to meet or exceed the one- and five-year benchmarks in 2019.

Public equity securities, which comprised nearly half of the Core Fund assets as of December 2019, contributed significantly to investment returns in 2019.

As previously noted, public equity securities comprised nearly half of the Core Fund assets as of December 2019. Consequently, performance of this asset class contributed significantly to overall Core Fund investment returns. The one-year public equity securities investment return exceeded the market-based benchmark in December 2019. Other asset class investment returns exceeded their benchmarks, including fixed income, private equity and debt, and real estate investments, which contributed to 2019 Core Fund investment returns in excess of the overall Core Fund benchmark.

SWIB's multi-asset class of investments did not meet its performance benchmarks as of December 2019.

Appendix 6 shows the investment performance of each WRS asset class in comparison to its benchmarks for one-, three-, five-, and ten-year periods as of December 2018 and 2019. The multi-asset class did not meet its one-, three-, five-, or ten-year benchmarks. SWIB attributed the lower performance in the multi-asset class within the last three years to short-term underperformance of two of its primary long-term strategies. As noted, the multi-asset class consists of different strategies that perform independent of one another. Further, SWIB has introduced three new pilot strategies since 2017. SWIB indicated that it does not expect these long-term strategies to continue to underperform because it believes their underlying assumptions remain valid. It will be important for SWIB to continue to evaluate how the strategies in this unique asset class can best contribute investment returns to the Core Fund while also managing risk and diversification.

SWIB's hedge fund strategy had a positive one-year return of 1.4 percent.

SWIB's hedge fund investment strategy is designed to produce relatively stable returns that are not tied to the fluctuations of the market and uses leveraged assets in an attempt to generate additional low-risk return. The strategy had a positive one-year return of 1.4 percent and a positive five-year investment return of 0.6 percent as of December 2019. SWIB attributed the one- and five-year returns to overall low market volatility, which is not an optimal market condition for hedge fund investments. SWIB indicated that the purpose of hedge fund investments is to produce returns beyond its asset allocation that are lower risk than other types of investments, such as private equity securities, because they are independent of the market. Alternatively, investing in other types of assets that are not independent of the market under this strategy would increase risk in a less cost-effective manner.

SWIB is reducing the number of hedge fund managers in an effort to achieve higher net returns.

SWIB works with a consultant to conduct independent initial evaluations of external hedge fund managers and regularly assess their performance, investment philosophy, and structure. SWIB staff also conduct phone calls with external managers at least quarterly and on-site visits with managers annually, though these visits have been conducted virtually during the public health emergency. From 2018 through 2019, SWIB discontinued working with 11 hedge fund managers. SWIB indicated that in some cases the relationships were dissolved because of poor performance. In other cases, SWIB discontinued working with the external manager because of changes in SWIB's investment strategy and choosing other hedge fund managers that offered better alternatives. As noted, SWIB indicated that it is in the process of consolidating its hedge fund strategy under fewer external managers in an effort to achieve higher net returns.

Reporting on Investment Performance

Reporting on investment performance is important to allow key stakeholders to understand and assess performance. To meet the needs of key stakeholders, consideration needs to be given to how investment performance is reported, including whether returns are presented net of expenses and the appropriate time period to report.

For the reporting of investment performance of pension funds, investment returns are generally reported in three different ways:

- gross-of-fees, which does not account for any investment or management expenses;
- net-of-fees, which accounts for fees charged by external investment managers; and
- net-of-all-costs, which accounts for all investment expenses, including external manager fees and internal costs, such as salaries.

SWIB generally reports to the Board of Trustees investment performance gross-of-fees.

Historically, SWIB has generally reported investment performance gross-of-fees to the Board of Trustees. However, because some investment strategies, such as hedge funds, only report investment returns net-of-fees, the Board did not receive investment performance information consistently across all investment types. Since 2013, SWIB has calculated investment returns for the Core Fund net-of-all-costs for its one-year and five-year returns to use in determining staff bonus awards. We note that in response to our recommendation in report 18-19, SWIB more clearly indicates in its materials presented to the Board whether reported investment returns are gross-of-fees, net-of-fees, or net-of-all-costs.

SWIB does not report returns net-of-all-costs in public forums, such as its website, or in annual reports to the Legislature.

When SWIB reports investment returns in public forums such as its website, press releases, and in its annual report to the Legislature required by s. 25.17 (14m), Wis. Stats., it generally reports gross-of-fees investment returns. However, because the net-of-all-costs return more directly impacts SWIB stakeholders, SWIB should also report these results in the public forums. This information would allow SWIB stakeholders, such as employers and employees who participate in the WRS, to assess the impact of SWIB's expenses on investment returns and more accurately assess its performance in comparison to the long-term expected rate-of-return assumption. SWIB indicated that, beginning in December 2020, it plans to report additional information on net-of-fees returns on its website and to the Board of Trustees because it believes this type of reporting is consistent with the practices of other public pension plans. However, net-of-all-cost information is especially pertinent to SWIB and its stakeholders because of SWIB's significant internal management of investments and associated costs and the shared responsibility characteristics of the WRS. We note that the Florida State Board, which manages the investments for the Florida Retirement System Pension Plan, reports its returns net-of-all-costs.

In a 2016 report on investment transparency, Pew Charitable Trusts recommended that public pension plans report 20-year returns to provide stakeholders with information that is aligned with the long-term nature of pension funds. For example, the Minnesota State Board of Investment includes 20-year return information in its quarterly performance reports that are posted on its website and the Florida State Board includes 20-year return information in its monthly performance reports to its Board of Trustees. According to the National Association of State Retirement Administrators, actuaries focus primarily on long-term investment horizons, such as 20 years, when determining pension fund return assumptions.

SWIB does not report 20-year return information to the Board of Trustees or in its required annual report to the Legislature.

Although SWIB reports on 20-year investment return information in its annual report on retirement funds, it does not report 20-year return information in its quarterly investment performance reports to the Board of Trustees or in its required annual report to the Legislature. Providing this information would allow the Board and stakeholders to better assess the long-term viability of the WRS compared to the long-term expected rate-of-return assumption. Doing so also promotes transparency given SWIB's discretion to establishing its own operating budget and staff positions.

☑ Recommendation

We recommend the State of Wisconsin Investment Board:

- *include net-of-all-costs investment returns on its website, in its press releases, and in its annual report to the Legislature as required by s. 25.17 (14m), Wis. Stats.;*

- *include 20-year investment returns for the Core Fund and the Variable Fund in quarterly performance reports to the Board of Trustees and in its annual report to the Legislature as required by s. 25.17 (14m), Wis. Stats.; and*

- *report to the Joint Legislative Audit Committee by May 21, 2021, on the status of its efforts to implement these recommendations.*

Performance Relative to the Return Assumption

Investment earnings represented 79.8 percent of total funding for the WRS from 2010 through 2019.

WRS pension benefits are primarily funded by employer contributions, current employee contributions, and investment earnings. Investment earnings represented 79.8 percent of total funding for the WRS from 2010 through 2019. As a result, the investment returns earned by SWIB are important to the financial stability of the WRS, and SWIB focuses on meeting the long-term expected rate-of-return assumption recommended by the WRS actuary and approved by the ETF Board.

The ETF Board approved a decrease in the return assumption for the WRS to 7.0 percent for the December 31, 2018 valuation.

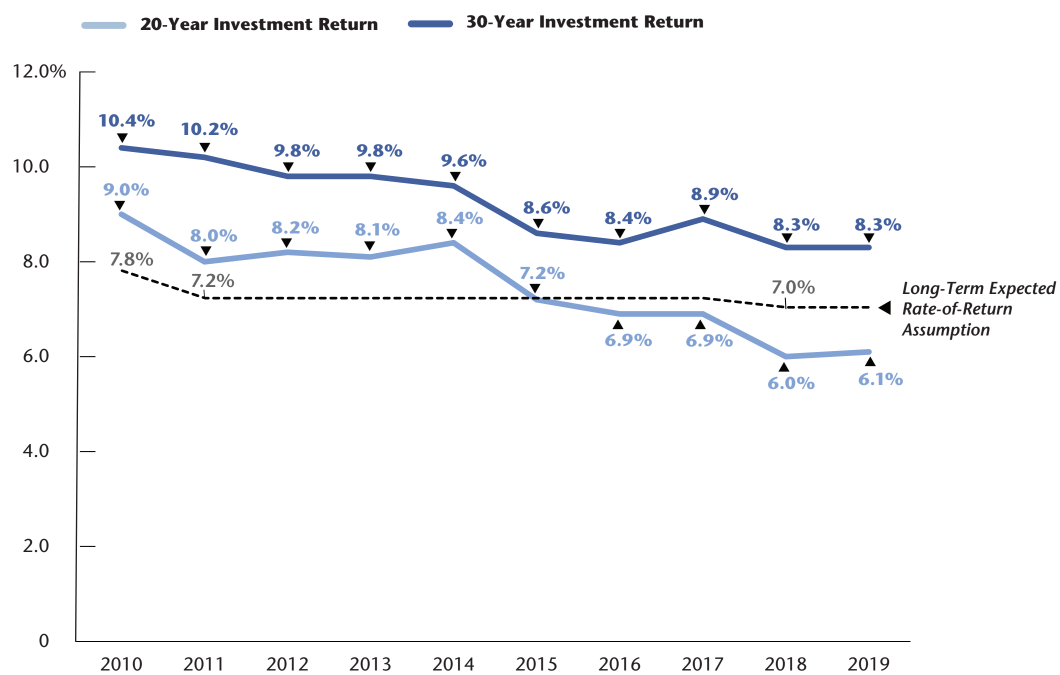
From 2011 through 2017, the long-term expected rate-of-return assumption was 7.2 percent. The ETF Board approved a decrease in the return assumption to 7.0 percent for the December 31, 2018 valuation. Because of the long-term nature of a pension plan and fluctuations in market performance from year to year, actual investment returns will not meet the return assumption every year. In order to reduce volatility in contributions and payments to retired participants due to investment return fluctuations, the Core Fund investment returns are smoothed over a five-year period. As was shown in Table 4, Core Fund average annual investment returns for the one-, three-, five- and ten-year periods as of December 2019 were above the return assumption.

The Core Fund 20-year average annual investment return has been below the return assumption since 2016.

Although SWIB typically focuses on five-year investment returns to evaluate investment performance, we also reviewed Core Fund 20- and 30-year average annual investment returns net-of-fees. We attempted to provide return information net-of-all-costs, but this information was not available for all years. As shown in Figure 4, the Core Fund 20-year average annual investment return has been below the return assumption since 2016. Although the Core Fund 30-year average annual investment return has generally declined since 2010, it remained above the return assumption and was 8.3 percent as of December 2019.

Figure 4

Core Fund 20-Year and 30-Year Investment Returns Relative to Return Assumption[1]
As of December 31



[1] Returns are shown net-of-fees.

Investment returns affect the benefit payment amounts received by retired WRS participants. Appendix 7 shows the annual benefit payment adjustments for retired participants for the Core Fund and the Variable Fund for the past 15 years. Retired participants received payment increases in four of the last five years that ranged from 0.5 percent to 2.4 percent from the Core Fund. Variable Fund retired participants received payment increases in three of the last five years that ranged from 4.0 percent to 21.0 percent.

Investment returns also have an effect on contribution rates paid by employers and current employees. Employee and employer contribution rates are calculated by ETF using a methodology that takes multiple factors into account. One of the most significant factors considered is investment performance smoothed over five years for the Core Fund. As shown in Table 5, the total WRS contribution rate for general employees has increased from 11.8 percent of wages in 2012 to 13.5 percent in 2021, or by 14.4 percent.

Table 5

Total Contribution Rates for General Employees in the WRS

Calendar Year	Total Contribution Rate
2012	11.8%
2013	13.3
2014	14.0
2015	13.6
2016	13.2
2017	13.6
2018	13.4
2019	13.1
2020	13.5
2021	13.5

Since 2017, 94 of 130 public pension plans have reduced their long-term expected rate-of-return assumption.

As noted, SWIB staff indicated that it has become more difficult and expensive to find investment opportunities that can generate investment returns to meet the long-term expected rate-of-return return assumption of 7.0 percent. In October 2019, SWIB's asset allocation consultant reported that, based on expected market conditions, it anticipates Core Fund investment returns between 6.5 percent and 7.0 percent for the next five to seven years using active management strategies. Citing market expectations in a persistent low-interest environment, SWIB staff believe that a 6.8 percent investment return assumption is more viable and realistic than 7.0 percent. The expectation of lower future investment returns is consistent with expectations of other public pension funds. According to the National Association of State Retirement Administrators, since 2017, 94 of 130 public pension plans have reduced their long-term expected rate-of-return assumption.

Since future market and other conditions may affect pension plan performance, it is important to understand how public pension plans will perform under different conditions. In May 2018, a research project conducted by Pew Charitable Trusts and published by Harvard University recommended that public pension plans complete "stress testing" to better understand the effect of various market and other conditions. For example, performing stress tests can assist SWIB and ETF, their respective boards, legislators, employers, and employees participating in the WRS in understanding the potential effects of sustained market downturns on contribution rates and annuitant payments.

Although adjustments to contribution rates and payments to annuitants are determined by ETF, SWIB contracts with the WRS actuary biennially to analyze the effects of varied investment returns on contribution rates and annuity payments. In addition, on a monthly basis SWIB analyzes how different market conditions are likely to affect the Core Fund. However, these monthly analyses generally focus only on short-term changes in the market to determine effects on investment returns, but not on contribution rates or annuity payments.

SWIB did not implement our prior recommendation for additional stress testing.

In report 18-19, we recommended SWIB conduct additional stress tests that focus on sustained market downturns. SWIB did not implement this recommendation. In our current audit, we continued to observe that SWIB did not perform stress testing that included an analysis of a large sustained market downturn over a sustained period such as three years.

In April 2020, the Pew Charitable Trusts recognized a Pennsylvania State Employees' Retirement System 2019 report "as a leading example of stress test analysis that provides policymakers and budget officials with accessible information about the impact of investment risk on government budgets and contribution risk on pension balance sheets." We note that the Pennsylvania report included an analysis of the effects of a large sustained market downturn over three years on contribution rates and annuity payments over a 20-year period.

A panel convened by Harvard University and the Pew Charitable Trusts recommended in 2019 that risk reporting for public pension plans assist budget officials and legislators in assessing the effect of investment risk on government budgets and pension solvency by including metrics that are accessible to all stakeholders. We found that the results of the stress testing SWIB performs are not easily accessible. For example, although the WRS actuary provided a presentation to the Board of Trustees on its stress testing results in 2019, it did not submit a written report.

Legislative Consideration

The Legislature could consider creating a statutory requirement for SWIB to conduct stress testing, report the results to the Legislature biennially, and make the report easily accessible on its website.

SWIB currently is not statutorily required to perform stress testing, generally, or any stress test, specifically. Further, the results of the stress tests performed by SWIB are not easily accessible to stakeholders, including the Legislature. Therefore, the Legislature could consider creating a statutory requirement for SWIB to biennially perform stress tests and include analyses that show the effects of a large sustained market downturn on contribution rates and annuity payments over a sustained period. The Legislature could also consider statutorily requiring SWIB to submit a written report to the Legislature that clearly reports the results of its stress tests. In addition, the Legislature could consider statutorily requiring SWIB to make its written report easily accessible on its website. We note that, as of October 2020, the National Conference of State Legislatures indicates that ten states have statutorily required their large public pension plans to conduct stress testing.

Performance Relative to Other Public Pension Funds

To assess the performance of SWIB investment strategies, we compared investment performance to a peer group of other large public pension plans.

To assess the relative performance of SWIB investment strategies and asset allocation decisions, we routinely compare the investment performance of the Core Fund to other large public pension plans. Comparisons among these other large public pension plans are affected by differences in plan structure, such as asset allocation, cash flow needs, investment styles, funding levels, return assumptions, risk tolerance levels, and statutory or other restrictions on allowable investments. SWIB asset allocation and investment strategies for the WRS are affected by the financial position of the WRS, which is stronger than that of other large public pension plans.

We selected nine large public pension plans to compare with the WRS. In 2019, return assumptions ranged from 6.75 percent to 7.5 percent among the peer group. The Core Fund had the second-lowest return assumption at 7.0 percent. More detailed information about the peer group is shown in Appendix 8.

In 2019, the WRS was the only pension plan in the peer group that was fully funded.

Whether a plan has sufficient assets to meet its estimated future pension obligations also affects the investment strategy of the plan. In 2019, the WRS was the only pension plan in the peer group that was fully funded, which means that its assets were equal to or exceeded the estimated amount needed to meet future pension obligations. Other peer group plans did not have sufficient assets to meet their estimated future pension obligations. Instead, these plans had assets ranging from 55.7 percent to 96.0 percent of what was expected to be needed to meet their future pension obligations.

The five-year investment return for the Core Fund ranked tied for fifth among the peer group.

Despite differences among public pension plans, comparing investment returns among the peer group provides another perspective on how to interpret Core Fund investment performance. Although each plan in the peer group is structured differently and faces different financial pressures, each plan ultimately faces the same market conditions. Table 6 shows average annual investment returns for the Core Fund and the nine other peer group plans for the one-, three-, five-, and ten-year periods as of December 2019. These returns are reported as net-of-fees, which, as noted, results in a lower reported investment return when compared to gross-of-fees returns. The five-year investment return for the Core Fund, which SWIB has identified as its primary performance measure, ranked tied for fifth among the peer group. With an average annual investment return of 8.2 percent, the Core Fund ranked ninth for the ten-year investment returns, which ranged from 8.1 percent to 9.8 percent among the peer group pension plans.

Table 6

Comparison of Average Annual Investment Returns[1] among Selected Public Pension Plans
As of December 31, 2019

	One-Year		Three-Year		Five-Year		Ten-Year	
Public Pension Plan	Return	Rank	Return	Rank	Return	Rank	Return	Rank
Washington State Investment Board	15.6%	7	11.1%	2	8.9%	1	9.6%	2
Minnesota State Board	20.1	1	11.3	1	8.2	2	9.8	1
Florida State Board[2]	17.8	3	10.2	3	7.8	3	8.8	3
Ohio Public Employees Retirement System	17.2	5	9.9	5	7.6	4	8.8	3
Teachers Retirement System of Texas	14.7	9	9.9	5	7.5	5	8.8	3
Wisconsin Retirement System Core Fund	**19.5**	**2**	**10.1**	**4**	**7.5**	**5**	**8.2**	**9**
Virginia Retirement System	15.3	8	9.2	9	7.4	7	8.5	6
New Jersey Division of Investments	16.4	6	9.5	7	7.2	8	8.3	8
California Public Employees Retirement System	17.3	4	9.4	8	7.1	9	8.4	7
Pennsylvania Public School Employees' Retirement System	12.9	10	8.4	10	6.8	10	8.1	10

[1] Unless noted, returns are presented as net-of-fees, which lowers the investment return when compared to gross-of-fees returns. For example, the WRS Core Fund gross-of-fees return in 2019 was 19.9 percent, as compared to net-of-fees return of 19.5 percent.

[2] Returns are presented as net-of-all-costs.

SWIB has adopted an asset allocation plan primarily to meet the 7.0 percent long-term expected rate-of-return assumption. Because the WRS is well-funded, SWIB does not experience the same pressure to achieve high returns as other plans in the peer group. Additionally, seven of the peer group plans, including the plans with the highest returns, attempt to achieve a higher return assumption. Investment returns of plans also reflect differences in asset allocation decisions. For example, during 2019 the Minnesota State Board allocated more assets to public equity securities than did the Core Fund, and the Washington State Investment Board allocated significantly more assets to private equity and real estate securities than did the Core Fund during 2019.

We further compared the 2019 ranking of Core Fund investment returns to return rankings that we completed for the same peer group in 2017. As shown in Table 7, the rankings of Core Fund investment returns improved for one-, three-, and five-year periods and declined for the ten-year period as of December 2019 compared to the rankings for periods as of December 2017.

Table 7

Investment Return Rankings of the WRS Core Fund among Selected Public Pension Plans
As of December 31

Period	2017	2019
One-Year	6	2
Three-Year	8	4
Five-Year	9	5
Ten-Year	7	9

SWIB also regularly assesses its performance compared to other investors. For example, it annually contracts with a consultant to compare Core Fund investment performance to the performance of other large public pension plans. The consultant found that the Core Fund one-, three-, five-, and ten-year investment returns as of December 2019 ranked at or above the comparison group median. When measured relative to its level of risk, the five-year investment return for the Core Fund ranked slightly below the comparison group median. The consultant also found that SWIB allocated a larger percentage of Core Fund assets to more conservative fixed income investments and a smaller percentage to alternative investments such as private equity securities.

Non-WRS Fund Investment and Performance

As of December 2019, the assets for the State Investment Fund (SIF), Historical Society Trust Fund, Injured Patients and Families Compensation Fund, State Life Insurance Fund, and UW System Long Term Fund were valued at $12.3 billion, or 9.5 percent of assets managed by SWIB.

All five non-WRS funds managed by SWIB exceeded their one-year benchmark as of December 2019.

Of these five funds, all exceeded their one-year benchmark as of December 2019. As of December 2019, the Historical Society Trust Fund, Injured Patients and Families Compensation Fund, State Life Insurance Fund, and UW System Long Term Fund all had one-year investment returns between 13.4 percent and 25.9 percent. The SIF returns were 2.3 percent, exceeding its benchmark of 2.1 percent. All four funds that have been operating for 5 years or more had five-year returns that met or exceeded their benchmarks as of December 2019. The UW System Long Term Fund was started as of April 1, 2018. These investment returns are reported gross-of-fees. Information about these funds is presented in Appendix 2.

■ ■ ■ ■

Investment and Operating Expenses ■

As part of its fiduciary responsibilities, the Board of Trustees is responsible for investing assets in a prudent and cost-effective manner. After we considered the effect of increased assets SWIB managed in 2018 and 2019, we found that increases in SWIB expenses were primarily attributable to an increase in management fees paid for external investment management expertise. The percentage of assets managed externally has increased since 2015, to 46.5 percent in 2019. We also found that, during 2018 and 2019, the Board authorized a total of 47 additional FTE positions, most of which were for administrative support staff. We provide recommendations for SWIB to ensure carried interest amounts are reported to the Board, to reduce its reliance on contracted staff, and to improve its data management.

SWIB Expenses

SWIB does not receive general purpose revenue from the State. Instead, as authorized by s. 25.187 (2), Wis. Stats., SWIB bills an allocated amount for its internal operating costs, including staff salaries, bonuses, and supplies, to the agencies that administer the funds for which SWIB invests available assets. SWIB is also authorized by s. 20.536 (1) (k), Wis. Stats., to expend the amounts it receives from these agencies. Since 2011, SWIB has had the authority to establish its own internal operating budget. Other expenses for SWIB investment activities, such as external investment managers and external support services, are charged directly to investment earnings. Expenses for external support services include fees for asset custody, consulting, external investment research, investment systems implementation, and legal services. Whether SWIB receives payments from agencies or charges its expenses directly to investment earnings, all SWIB expenses are incurred by the funds for which SWIB invests available assets.

SWIB staff prepare an annual total budget and present it to the Board of Trustees for consideration and approval.

SWIB staff prepare an annual total budget, which SWIB refers to as the total cost of management plan, each fiscal year and present it to the Board of Trustees for consideration and approval. Although statutes authorize SWIB to establish and monitor its internal operating budget, Board policy requires SWIB to provide a total budget, which is subject to Board approval. The total budget includes estimated management fees for external investment managers SWIB hires, costs for external support services, and the internal operating budget, including information about the number of authorized positions. SWIB staff estimate most total budget expenses, such as custodial fees and management fees, because they vary based on the amount of assets managed, investment performance, and SWIB needs.

SWIB expenses increased from $323.9 million in 2015 to $480.3 million in 2019, or by 48.3 percent.

As shown in Table 8, SWIB expenses increased from $323.9 million in 2015 to $480.3 million in 2019, or by 48.3 percent. Management fees, which are fees paid to external investment managers, increased each year during the audit period. Specifically, private equity manager fees increased in 2019 by $15.9 million, or 11.3 percent, due to an increase in this type of investment. Appendix 9 shows the highest-paid external investment managers in 2019. The remaining SWIB expenses include payments to vendors for a wide range of external support services, such as investment consultants, and internal operating costs, such as staff compensation.

Table 8

SWIB Expenses, by Calendar Year
(in millions)

	2015	2016	2017	2018	2019
Management Fees					
Public Equity[1]	$114.1	$113.1	$156.8	$174.5	$178.8
Private Equity[2]	92.0	122.5	133.1	141.3	157.2
Real Estate[2]	47.7	48.2	49.0	50.3	50.8
Subtotal	253.8	283.8	338.9	366.1	386.8
External Support Services[3]	26.9	34.8	40.0	37.7	43.2
Internal Operating Expenses					
Salaries and Fringe Benefits	26.3	27.1	29.4	30.3	34.3
Bonuses[4]	12.2	11.1	13.8	11.5	9.8
Supplies and Permanent Property[5]	4.7	5.0	5.3	5.2	6.2
Subtotal	43.2	43.2	48.5	47.0	50.3
Total	**$323.9**	**$361.8**	**$427.4**	**$450.8**	**$480.3**

[1] Includes fees for external management of publicly traded securities and base and performance fees for externally managed active strategies, including hedge funds.

[2] Excludes certain management fees, also known as "carried interest." Because carried interest fees are charged directly to investment returns, they are not reported with other SWIB expenses.

[3] Includes fees for asset custody, consulting, external investment research, investment systems implementation, and legal services. A list of the highest-paid vendors that provided these services in 2019 is Appendix 10.

[4] Bonus payments are for performance in the prior year and are shown prior to any withholding on these amounts. For example, 2018 performance bonuses of $9.8 million were paid in 2019.

[5] Includes expenses for office space, research, supplies, travel, and IT projects.

Historically, the largest SWIB expenses have been management fees paid to external investment managers.

Historically, the largest SWIB expenses have been management fees paid to external investment managers hired to invest assets for which SWIB seeks external expertise, such as private equity investments, real estate investments, and hedge funds. Management fees paid for these investments typically consist of two components: contractually determined base fees and conditional performance fees. Base fees are set fees calculated as a percentage of assets invested and are automatically incurred, whereas performance fees are fees that vary based on circumstances and are typically calculated based on investment returns. One such type of performance fee included in agreements related to some private equity and real estate investments is carried interest.

Carried Interest

Carried interest totaled $217.4 million in 2019.

Carried interest is paid when a private equity fund manager liquidates an investment and the rate-of-return exceeds an agreed-upon minimum rate, such as 8.0 percent. Because SWIB does not receive a bill for these fees, they are excluded from SWIB's total cost of management plan. As shown in Table 9, carried interest fluctuated from year to year, and was $217.4 million in 2019. The fluctuations are due to absolute performance in investments from year to year, with 2017 producing the highest returns over the five-year period.

Table 9

Carried Interest Cost, by Calendar Year[1]
(in millions)

Asset Class	2015	2016	2017	2018	2019
Private Equity[2]	$124.3	$157.6	$193.2	$142.0	$197.5
Real Estate	66.9	51.9	65.9	37.7	19.9
Total	**$191.2**	**$209.5**	**$259.1**	**$179.7**	**$217.4**

[1] Carried interest is an additional external management fee incurred for some private equity and real estate investments that is charged directly to investment returns. SWIB does not report it as an expense, and it is not included in Table 8.

[2] Includes venture capital investments.

In report 16-15, we recommended that SWIB report carried interest amounts annually to the Board of Trustees. Carried interest amounts for 2016 were reported to the Board in December 2017, and carried interest for 2017 was reported to the Board in December 2018. However, carried interest amounts for 2018 were not reported to the Board until September 2020. SWIB indicated that it did not receive the carried interest amounts for 2018 from its consultant until December 2019, and SWIB chose to wait until September 2020 to report this information to the Board.

SWIB management reported incorrect carried interest information to the Board of Trustees in September 2020.

Upon review of the carried interest information reported to the Board of Trustees for calendar year (CY) 2018 and CY 2019, we identified concerns with the amounts reported. After we asked SWIB for more information, SWIB indicated that the consultant it uses to report carried interest identified an error in the consultant's reporting for both CY 2018 and CY 2019, resulting in a $191.6 million underreporting of carried interest for the two-year period. SWIB indicated it now has a process in place for staff to review the reports from the consultant to ensure future carried interest reports are accurate before providing them to the Board. SWIB provided corrected carried interest information to us and to the Board of Trustees.

Carried interest can be a substantial cost related to private equity and real estate investments and there is growing interest in more transparency in reporting costs for these investments.

Carried interest can be a substantial cost related to private equity and real estate investments. Because carried interest is typically deducted from the value of the investment, without separate reporting, the Board of Trustees would not be made aware of these amounts. We note that the Governmental Accounting Standards Board (GASB) has begun a research project related to management fees associated with some state and local government investments. The GASB indicated that stakeholders have raised concerns with a lack of transparency with regard to the management fees associated with some investments, such as private equity and hedge funds. A key concern is the inability to identify the full costs of these investments. Although this research project is only in the beginning stages, it shows the wider interest by stakeholders in the availability of this information and its value in decision-making.

It is important that SWIB management is evaluating the total costs of these investments on a timely basis, and that the Board of Trustees is provided accurate information in a timely manner.

☑ Recommendation

We recommend the State of Wisconsin Investment Board:

- *obtain carried interest amounts in a timely manner and report annually to the Board of Trustees; and*

- *report to the Joint Legislative Audit Committee by May 21, 2021, on the status of its efforts to implement this recommendation.*

SWIB's total costs increased by $0.06 for each $100 of assets managed from 2015 to 2019.

In order to assess how the total cost of investment and changes in the amount of assets managed by SWIB are related, we analyzed the total cost of SWIB investments, including carried interest fees, per $100 of assets managed. As of December 2019, SWIB managed 21.1 percent more assets than it did as of December 2015. If the cost of SWIB investments increased only because of increases in the amount of assets managed, the cost per $100 of assets managed would remain consistent. However, SWIB's total costs, including carried interest amounts, increased by $0.06 for each $100 of assets managed from 2015 to 2019, totaling $0.57 for each $100 of assets managed in 2019 as shown in Table 10.

Table 10

Total Cost of Investment Per $100 of Assets Managed, by Calendar Year

	Expenses	Total Expenses including Carried Interest	Change in Total Expenses including Carried Interest
2015	$0.32	$0.51	$ –
2016	0.35	0.55	0.04
2017	0.38	0.61	0.06
2018	0.39	0.55	(0.06)
2019	0.39	0.57	0.02

After we considered the effect of increased assets SWIB managed, we found that increases in expenses from 2015 to 2019, were primarily attributable to proportionately higher management fees paid for external investment management expertise.

Management Fees

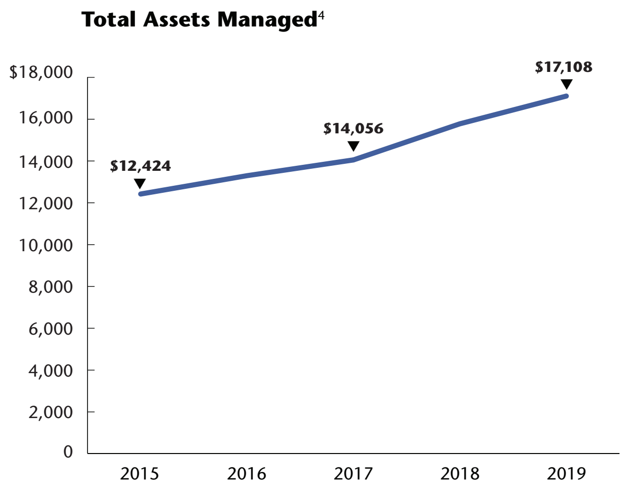
Management fees, excluding carried interest, paid to external managers accounted for 80.5 percent of reported SWIB expenses in 2019.

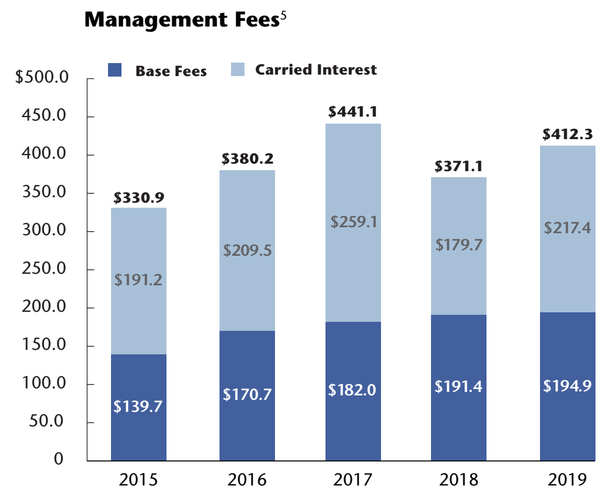
As noted, the allocation of Core Fund assets to more complex investment strategies for which SWIB has relied on external investment managers has increased. As the proportion of assets managed externally increased, management fees SWIB paid to external investment managers also increased. Excluding carried interest, management fees SWIB paid to external investment managers accounted for 80.5 percent of reported SWIB expenses in 2019.

As shown in Figure 5, private equity and real estate assets increased from $12.4 billion as of December 2015 to $17.1 billion as of December 2019, or by 37.9 percent. Management fees, including carried interest, SWIB paid to external private equity and real estate managers decreased from $441.1 million in 2017 to $412.3 million in 2019, or by 6.5 percent.

Figure 5

External Investment in Private Equity and Real Estate[1, 2, 3]
(in millions)





[1] Excludes private debt.

[2] Fees for private equity and real estate are comingled by portfolio, so we report these two asset categories together.

[3] Management fees include only base management fees. Table 8 includes other fees, such as legal fees. As noted, carried interest is not included by SWIB in its costs, but is included in this figure.

[4] As of December 31.

[5] By calendar year.

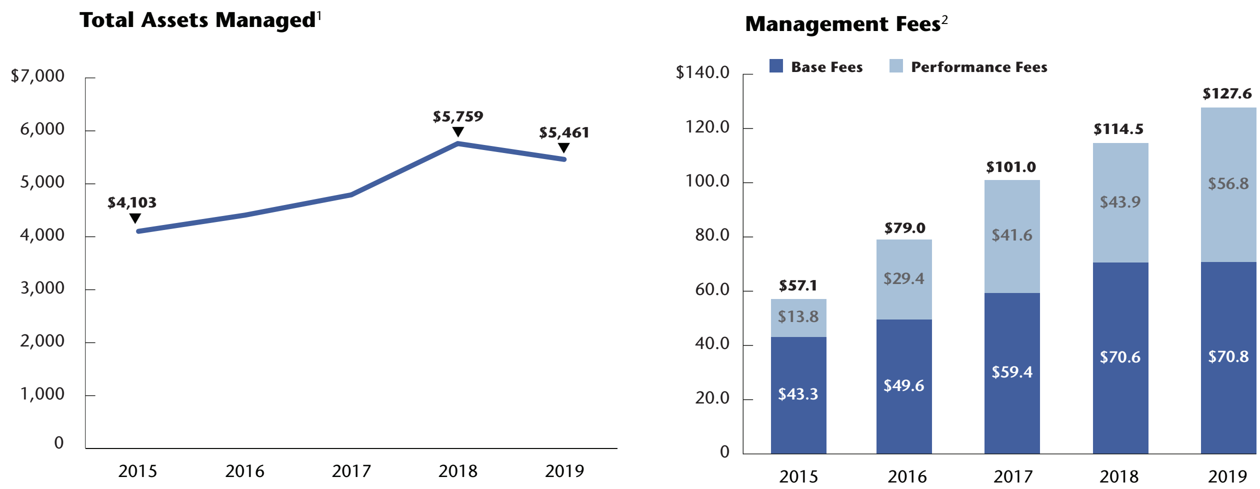
We found that as these investments increased, the total amount of management fees paid, including carried interest, for each $100 in combined private equity and real estate investments decreased from $2.66 in 2015 to $2.41 in 2019. Changes in yearly management fees per $100 are primarily determined by the performance of the investments during the year. Performance was lower in 2019 compared to 2015, resulting in the decline in the total amount of management fees paid for each $100 in combined private equity and real estate investments.

Fees paid to hedge fund managers increased to $127.7 million in 2019 due to increases in hedge fund investments and increases in external management fees.

As shown in Figure 6, as SWIB's investment in external hedge funds has increased, base and performance fees paid to these external managers has increased. Management fees SWIB paid to external hedge fund managers increased from $57.1 million in 2015 to $127.7 million in 2019, or by 123.6 percent. This increase is partly attributable to an increase in hedge fund investments, which increased from $4.1 billion as of December 2015 to $5.5 billion as of December 2019, or by 34.1 percent.

Figure 6

External Investment in Hedge Funds
(in millions)



[1] Assets as of December 31.

[2] By calendar year.

We also found that as investment in hedge funds has increased, the amount of management fees SWIB paid for each $100 in hedge fund investments increased from $1.39 in 2015 to $2.34 in 2019, or by 68.3 percent. However, SWIB hedge fund management fees are still lower than some other public pension plans because SWIB staff, with the assistance of an external consultant, select the hedge fund investments rather than paying a hedge fund manager to select the investments. SWIB's consultant also notes that SWIB engages in lower-cost management strategies for hedge funds relative to its peers.

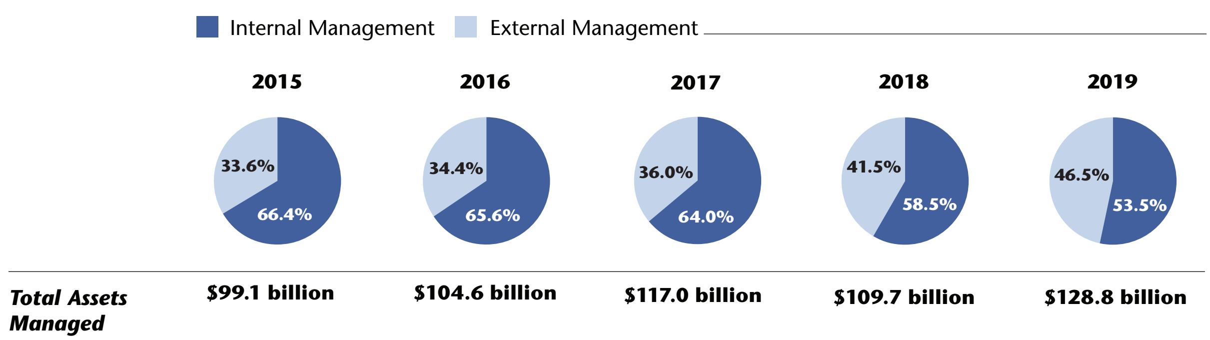
Due to the cost of external hedge fund management, SWIB evaluates hedge fund performance by assessing investment returns that include management fees paid. As hedge fund managers earn higher investment returns, they receive higher performance fees. For hedge fund investments, performance fees are typically calculated as a percentage of investment returns or investment performance in excess of a benchmark. Although the total amount of assets in hedge funds decreased from 2018 to 2019, hedge fund managers performed better in 2019, resulting in higher performance-based fees in 2019 compared to 2018.

The percentage of assets managed externally has increased since 2015, to 46.5 percent in 2019.

As shown in Figure 7, as the total assets invested by SWIB has increased, the percentage of assets managed externally has increased since 2015, to 46.5 percent in 2019. SWIB staff attributed this increase in external management to a shifting of funds to external managers that execute more complex active strategies that require investment management skills not available within SWIB. Further, SWIB noted this shift was required in its effort to achieve the 7.0 percent long-term expected rate-of-return assumption. The decline in internal management from 2017 to 2019 was associated, in part, with a temporary shift of funds in a public equities portfolio from internal to external managers while SWIB seeks to restructure the portfolio for future internal management capabilities.

Figure 7

Percentage of SWIB Assets Managed Internally and Externally
As of December 31



SWIB has indicated a goal to increase the percentage of assets managed internally because the cost to have assets managed externally is more expensive.

SWIB has indicated that it has a goal to increase the percentage of assets managed internally because the cost to have assets managed externally is more expensive. SWIB reported in 2019, and again in August 2020, that external management was between 1.3 and 4.6 times more expensive than internal management for numerous portfolios, including global large cap equities and global fixed income. Further, in September 2020, SWIB estimated that for each $1 billion in WRS assets transitioned from external to internal management, the WRS will save $3 million in management fees.

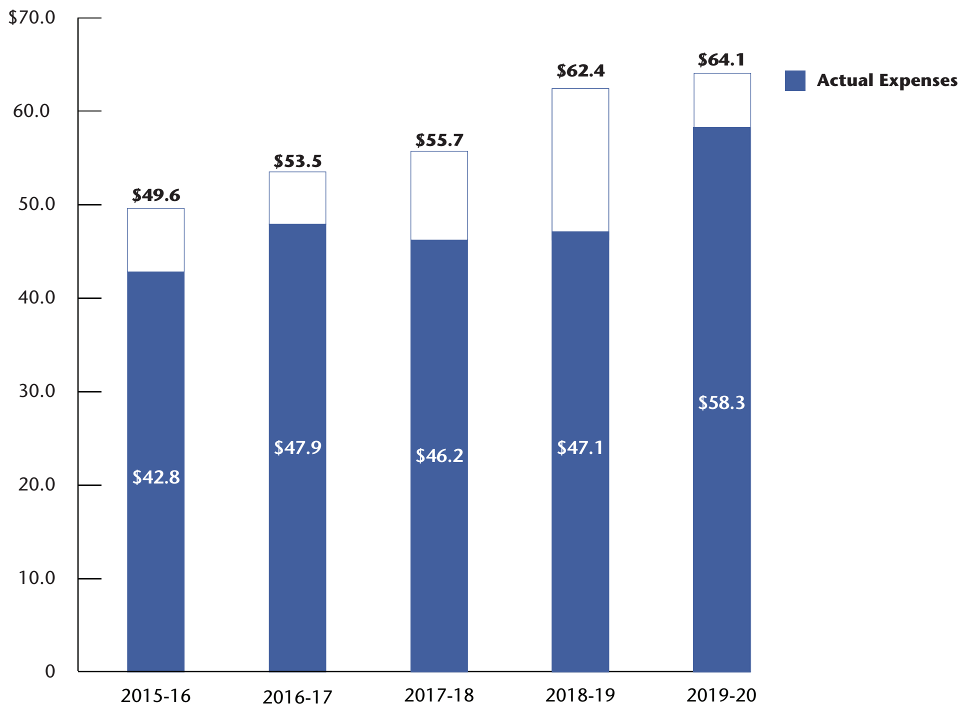
Internal Operating Budget Expenses

SWIB expended $58.3 million for internal operations during FY 2019-20, which was $15.5 million higher than expenses in FY 2015-16.

The internal operating budget largely includes expenses for staff compensation, including salaries, fringe benefits, and bonuses, as well as services, supplies, and IT projects. Since 2011, SWIB has had the authority to establish and monitor its own internal operating budget. The internal operating budget authorized by the Board of Trustees has increased over the past five years. Although SWIB focuses on the calendar year for certain operations, such as payment of bonuses on the basis of calendar year investment performance, it has reviewed its internal operating budget on a fiscal-year basis. However, beginning with calendar year 2021, SWIB intends to move to a calendar year basis for its budget of internal investment costs, but will continue to use a fiscal year basis for its budget of employee and overhead costs. As shown in Figure 8, SWIB expended $58.3 million for internal operations during fiscal year (FY) 2019-20, which was $15.5 million, or 36.2 percent more than expenses in FY 2015-16. SWIB reported to the Board in FY 2018-19 and FY 2019-20 that staff vacancy rates have contributed to spending less than anticipated on internal operations. SWIB also paid less in bonuses in FY 2018-19 than it had budgeted.

Figure 8

SWIB Internal Operating Budget and Actual Expenses, by Fiscal Year
(in millions)



Information Technology Projects

In June 2018, SWIB reported that it lacked sufficient staff capacity and expertise in centralized data reporting, integrated information systems, and operations.

In 2017, SWIB completed an information systems implementation project, the Agile Reliable Investment Enterprise System (ARIES) project, which was intended to update and expand the data management, investment management, and trade operation capabilities of SWIB in order to support additional internal investment management and increasingly complex investment strategies. Although the ARIES project has helped SWIB improve its investment support and operations activities, SWIB identified additional needs to support its current and future investment strategies. At a June 2018 meeting of the Board of Trustees, SWIB reported that it lacked sufficient staff capacity and expertise in centralized data reporting, integrated information systems, and operations. As a result, SWIB began a governance initiative called SWIB Foundations in FY 2018-19, and is currently in the initial stages of a substantial IT project called Project Centum.

SWIB Foundations, which began in August 2018, is a series of projects SWIB began to optimize existing IT systems and develop governance for system use, which included improved processes for performing oversight, making accounting processes more efficient, and improving operations for staff that manage risk, calculate profits, and manage IT. Some projects of SWIB Foundations included optimizing technical processing of SWIB's data warehouse, creating a central process for operational reporting and materials used in meetings of the Board of Trustees, and improving the quality and consistency of security through enhanced data sourcing and validation.

SWIB believes a new IT project called Project Centum will enable more internal management of assets, thus lowering its total costs.

Project Centum is an IT project intended to build on ARIES and SWIB Foundations and make SWIB's data more cohesive and centralized. The Board of Trustees approved SWIB expenditures on Project Centum beginning in FY 2019-20, and a contract with a vendor for the project was finalized in October 2020. SWIB believes that Project Centum will support more internal management of investments and make existing internal management more successful by providing improved data. For example, SWIB anticipates Project Centum will provide real-time data on its holdings, support for multi-strategy portfolios, improved support for internal reporting, and improved fund-level performance calculations. As noted, SWIB projects an increase in internal management will lower SWIB expenditures.

In report 18-19, we recommended SWIB develop a budget for each future technology project, centrally track expenditures for each future technology project, monitor actual expenses against the budget, and report to the Board of Trustees quarterly on actual technology project expenses compared to the established budget. We found that SWIB implemented all four of these recommendations. Most recently, in September 2020, at the request of the Board, SWIB presented budgeted and actual expenses for its IT projects, including Project Centum.

The budget for Project Centum is $6.9 million for FY 2020-21. Although SWIB is exempt from IT project oversight by the Department of Administration (DOA) that we evaluated, in part, in report 20-11, Project Centum would qualify as a large, high-risk project under statutes and DOA policies. Therefore, we believe it is important for the Board of Trustees to monitor the progress and expenditures associated with it. It is also important for Project Centum to stay on schedule as it has been identified as a primary tool to support SWIB in increasing its internal management of assets.

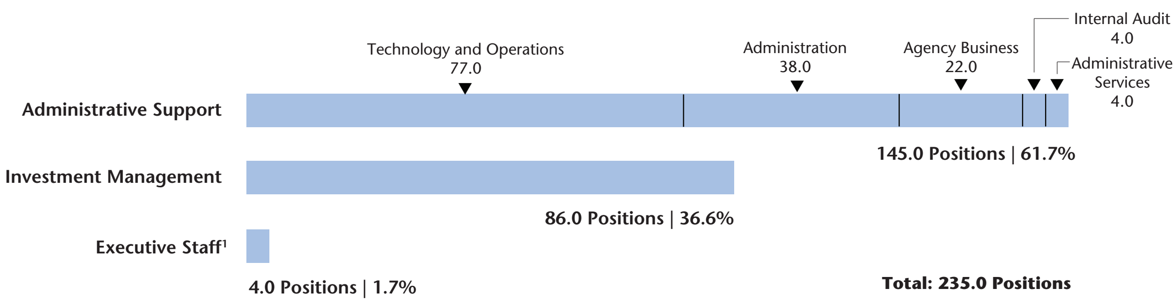
Staffing

SWIB had 235 authorized FTE positions as of December 2019.

SWIB staff are designated as unclassified civil service positions by Wisconsin Statutes. As shown in Figure 9, SWIB had 235 authorized FTE positions as of December 2019. Investment management staff responsible for researching, selecting, and trading investments according to policies established by the Board of Trustees accounted for 86.0 FTE positions (36.6 percent). Executive staff accounted for 4.0 FTE positions (1.7 percent). The remaining 145.0 FTE positions (61.7 percent), provided administrative support and were responsible for accounting and operations, information technology, finance and strategic planning, legal services, and other activities.

Figure 9

Authorized FTE Positions
As of December 31, 2019



[1] Includes executive director/chief investment officer, deputy executive director/chief administrative officer, chief technology and operations officer, and agency business director.

SWIB typically requests increases to its number of authorized FTE positions during the annual Board of Trustees budget approval process, but it may also seek Board approval for additional FTE positions throughout the year. Of the 235 authorized FTE, the Board of Trustees approved 15.0 FTE positions in 2018 and 32.0 FTE positions in 2019. The number of FTE positions increased 25.0 percent from 2017 to 2019 as a result of SWIB's conversion of contracted positions to FTE positions and SWIB's efforts to address its understaffed positions relative to peers, as identified by its consultant.

In March 2020, the Board of Trustees approved 1.0 additional FTE position. Although there was a request discussed at the June 2020 Board meeting, that included additional FTE positions, the Board did not approve additional FTE positions at this meeting. SWIB management has indicated goals to increase staffing levels to 300 FTE positions sometime between 2021 and 2023 as it seeks to increase internal management of assets.

As of March 2020, SWIB had 35.0 vacant FTE positions.

As of March 2020, SWIB had 35.0 vacant FTE positions. The number of vacant positions is, in part, the result of new positions authorized by the Board of Trustees in June 2018 and March 2019. Turnover in one executive staff position occurred since 2018, when the executive position of Chief Technology and Operations Officer became vacant in March 2020. As a result, the current Agency Business Director assumed responsibility for technology and operations in April 2020.

Contracted Staff Positions

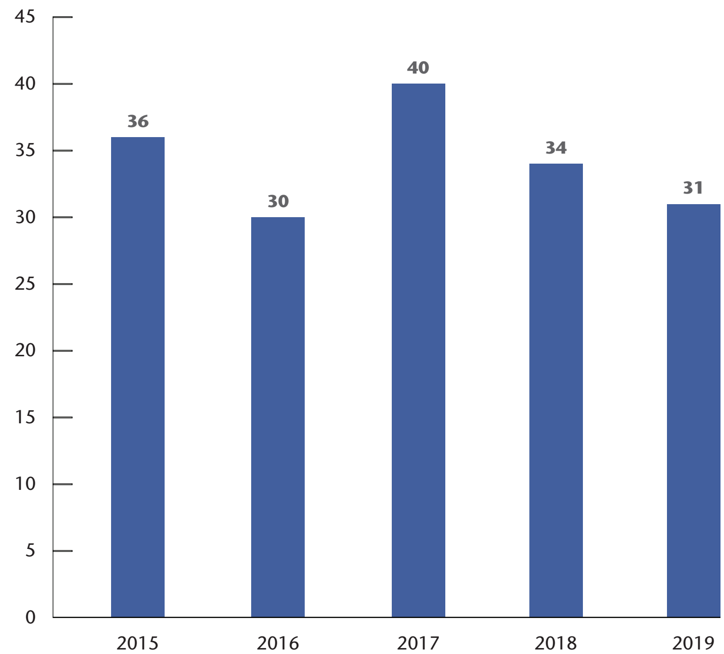
During the implementation of ARIES, SWIB began increasing its use of contracted positions, and the use of contracted staff continued after implementation. SWIB policies do not require approval by the Board of Trustees for contracted staff positions. As noted in report 18-19, SWIB indicated that it anticipated the completion of ARIES in 2017 would reduce staff needs. However, more staff were needed to continue typical business operations.

SWIB has decreased its reliance on contracted staff positions in recent years.

SWIB has decreased its reliance on contracted staff positions in recent years. As of December 2017, SWIB had 40 contracted staff positions, or 17.0 percent of SWIB's total staff resources. As shown in Figure 10, by December 2019, SWIB had reduced the number of contracted staff positions to 31 by converting those positions to FTE positions.

Figure 10

SWIB Contracted Staff
As of December 31



As of August 2020, SWIB further reduced its number of contracted staff to 25, of which 14 staff were performing activities typically performed by SWIB FTE staff. Based on a savings estimate from SWIB, converting these 14 contracted staff positions to FTE positions would produce annual savings of approximately $1.2 million.

☑ Recommendation

We recommend the State of Wisconsin Investment Board:

- *continue to assess its contracted positions and take steps to convert to FTE positions those positions that are performing duties typically performed by SWIB FTE staff; and*

- *report to the Joint Legislative Audit Committee by May 21, 2021, on the status of its efforts to implement this recommendation.*

Budget Oversight by the Board of Trustees

Statutes permit SWIB to establish its internal operating budget, which includes staff compensation, supplies and permanent property, and IT projects. Board of Trustee policies require SWIB to annually submit a total budget, including the budget amounts for internal operating expenses, management fees, and external support services. Additionally, Board policies provide that SWIB may not exceed the Board-approved internal operating budget amount without additional Board approval. Recently, the Board approved the total budget rather than only the internal operating budget. However, with the exception of the internal operating budget, the Board has not required SWIB to seek additional approval when actual expenses are projected to exceed budgeted amounts.

SWIB's actual expenses were lower than the total budgeted for FY 2018-19 and FY 2019-20.

As shown in Table 11, actual total SWIB expenses were higher than the total original budget by $6.8 million in FY 2017-18, but were lower than the total budget for FY 2018-19 and FY 2019-20. Expenses were below the budgeted amount in these two fiscal years because of a high staff vacancy rate, lower than expected internal expenses, including bonus payments in FY 2018-19, and reduced travel due to the public health emergency in FY 2019-20.

Table 11

Total Budget and Actual Expenses, by Fiscal Year
(in millions)

	Total Budget	Actual Expenses	Under Budget/ (Over Budget)
2017-18	$439.7[1]	$446.5	$(6.8)
2018-19	490.0	466.8	23.2
2019-20	549.6	504.1	45.5

[1] Includes a $4.0 million increase approved by the Board of Trustees in December 2017.

In response to a recommendation in report 18-19, in June 2019, the Board of Trustees updated its budget policy to require Board notification when SWIB exceeds portions of the budget.

In response to a recommendation in report 18-19, the Board of Trustees updated its budget policy in June 2019 to provide more detail on how SWIB should request or notify the Board when portions of the budget are exceeded. Generally, external management fees and fees related to managing investments do not require Board approval for excess costs, but the executive director/chief investment officer is now required to update the Board and provide a rationale for why external costs exceeded this portion of the budget. For costs associated with internal operations and projects, SWIB may not exceed budgeted amounts without approval from the Board.

Assessing Expense Increases against Investment Performance

Core Fund expenses were less than those of the comparison group by approximately $0.05 per $100 of assets managed.

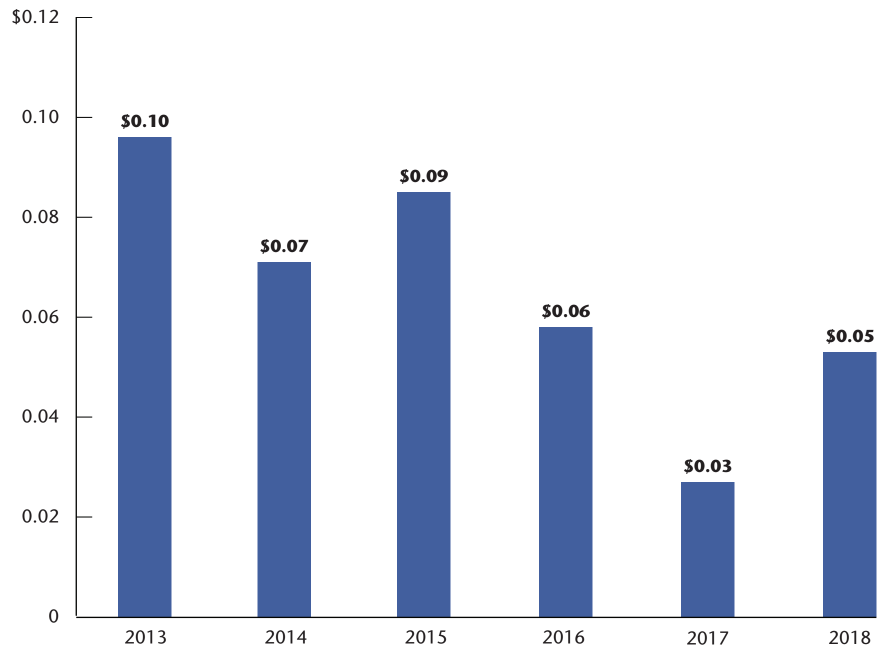
To assess the general cost effectiveness of investment management, SWIB annually compares Core Fund expenses to other pension plans. SWIB uses a consultant to compare its expenses to 14 other large public pension plans, five of which are included in the peer group listed in Table 6. According to the most recent comparison, which is based on 2018 information, Core Fund expenses were less than those of the comparison group by approximately $0.05 per $100 of assets managed. The consultant reported that SWIB had lower costs compared to its peers because it had a higher rate of internal management and a lower percentage of high-cost asset classes, such as private equity, real estate, and hedge funds. Overall, SWIB had 21.3 percent of its assets in high-cost asset classes compared to an average of 29.6 percent amongst its peers.

SWIB had savings of approximately $0.10 per $100 of assets managed in 2013, but the level of savings has been trending downward since that year.

Although SWIB had lower relative costs in 2018, its performance relative to its cost benchmark has declined since 2013. As shown in Figure 11, SWIB had savings of approximately $0.10 per $100 of assets managed in 2013, but the level of savings has been trending downward since that year. In October 2020, SWIB reported to the Board of Trustees that the decrease in savings was the result of other public pension plans included in the calculation of the cost benchmark moving from higher-cost external management to lower-cost internal management, which is similar to SWIB's cost-saving strategy, as well as increased SWIB costs for improving IT infrastructure.

Figure 11

SWIB Cost Savings per $100 Compared to the Benchmark, by Calendar Year[1]



[1] 2019 information is expected to be available at the December 2020 SWIB Board of Trustees meeting.

Data Management

Sufficient data management is needed to ensure the collection and use of comprehensive and accurate data.

Data management is the practice of collecting, maintaining, and using data securely, efficiently and cost-effectively. Sufficient data management is needed to ensure the collection and use of comprehensive and accurate data. A November 2017 internal audit conducted by SWIB, as well as a June 2018 consultant report, identified deficiencies in SWIB's management of data. For example, internal audit identified weaknesses and recommended SWIB consolidate data error reporting so that data errors can be more effectively managed. In response to the internal audit, SWIB initially reported to the Board of Trustees the recommendations would be completed by June 2018. However, the completion date for implementation of the recommendations has been delayed several times and is currently planned for December 2020.

Insufficient data management can lead to the use of inaccurate data, delays in gathering data, and inaccurate reporting.

In July 2020, SWIB provided us with its data management maturity assessment model. On a scale that is made up of six levels, SWIB placed itself between levels one and two. Insufficient data management can lead to the use of inaccurate data and delays in gathering accurate data for analysis. As an agency that may at times need to move swiftly to take advantage of investment opportunities, SWIB needs comprehensive and accurate data. SWIB staff also indicated that insufficient data management could lead to inappropriate spending or a leak of confidential information on investment strategies.

Further, insufficient data management can lead to errors in reporting of investment results. For example, we identified that SWIB provided incorrect carried interest information to the Board of Trustees for CY 2018 and CY 2019 as the result of data management errors made by its consultant. In addition, as part of our 2019 financial audit of the Retirement Funds investment activity (report 20-9), we identified that inaccurate and incomplete data was being used by SWIB staff to prepare the unfunded commitments note disclosures. Such data errors demonstrate the importance for SWIB to have sufficient data management processes in place to ensure data is collected and maintained in an accurate and secure manner.

☑ Recommendation

We recommend the State of Wisconsin Investment Board:

- *review and assess the status of its overall data management and implement improvements to ensure the collection and use of comprehensive and accurate data;*
- *develop a plan and timeline to improve its data governance maturity;*
- *report to the Board of Trustees on its progress in improving its data governance maturity; and*
- *report to the Joint Legislative Audit Committee by May 21, 2021, on the status of its efforts to implement these recommendations.*

▪ ▪ ▪ ▪

Compensation ■

The Board of Trustees approves compensation policies, including the amount of bonuses awarded to staff, and has established a comparison group to assist in developing these policies. The comparison group includes banks, insurance companies, and internally managed pension plans. The Board targets overall compensation for SWIB staff to approximate the median of this comparison group. In 2019, SWIB paid a total of $44.1 million in salaries, bonuses, and fringe benefits. Overall compensation for SWIB investment staff was 66.0 percent of the median comparison group compensation.

SWIB Compensation Structure

Bonuses are based on both qualitative and quantitative measures of performance and are intended to help attract and retain qualified staff.

SWIB is authorized under s. 25.16 (7), Wis. Stats., to compensate staff through salaries, bonuses, and fringe benefits. With the exception of the internal audit director and internal audit staff, the executive director/chief investment officer is authorized to set SWIB staff salaries and fringe benefits. Additionally, the Board of Trustees approves annual staff bonuses, which are based on both qualitative and quantitative measures of performance and are intended to help attract and retain qualified staff.

To assist in determining appropriate staff compensation levels, SWIB uses a consultant to make comparisons to other financial institutions. The identified comparison group includes banks, insurance companies, and internally managed pension plans, excluding east and west coast financial centers. The comparison group does not include other public pension plans and is not limited to organizations of a similar size. SWIB compensation policies identify a goal for staff salaries to approximate the median salaries of the comparison group. However, pursuant to the compensation plan and compensation philosophy approved by the Board of Trustees, individual staff salaries may be set up to 150.0 percent of the comparison group median.

In 2019, 214 staff received on average $189,600 in salaries and fringe benefits.

In 2019, SWIB paid $34.3 million in salaries and fringe benefits to staff. Excluding project staff and LTE staff, 214 staff received on average $189,600 in salaries and fringe benefits in 2019. The average salary and fringe benefits for senior management and investment management directors was $459,900, while the average salary and fringe benefits for all other FTE staff was $173,500.

Staff may receive salary increases through market adjustments, merit increases, and promotions. SWIB awarded 107 merit increases for performance in FY 2017-18 and 112 merit increases in FY 2018-19, totaling $513,900 and $480,700 respectively.

Bonuses

Statutes permit SWIB to provide bonuses based on performance.

Statutes permit SWIB to provide bonus compensation to staff with approval from the Board of Trustees. For the purpose of determining bonuses, which SWIB refers to as incentive compensation, staff are assigned a "maximum incentive opportunity," which varies by position and determines the maximum bonus award an employee may receive. Bonuses are allocated based on quantitative and qualitative performance measures. In general, the quantitative measures for bonuses are the relative one-year and five-year performance of the Core Fund and qualitative factors are based on other measures of work performance, such as demonstrating team work, meeting goals, and demonstrating positive behavior.

A new category for bonuses was created for performance year 2019 for executive staff.

An executive staff category for bonuses was implemented for 2019 bonuses. This category consists of the executive director/chief investment officer, the deputy executive director/chief administrative officer, the chief technology and operations officer, and the agency business director. SWIB staff stated the executive staff category for bonuses was created as part of SWIB's reorganization to better reflect the roles and responsibilities of these positions. The qualitative component of executive staff bonuses is based on employee performance relative to goals established by the executive director/chief investment officer with the employee. Due to the creation of new executive positions, we are unable to provide a comparison of executive staff bonuses before and after the implementation of this new category.

For 2018 performance, SWIB began using a scorecard for administrative support staff to determine the total amount of qualitative bonus money available to be awarded.

Although the bonus components for investment management staff remained unchanged for 2018 and 2019, SWIB introduced a scorecard to assess qualitative bonuses for administrative support staff beginning in 2018. The Board of Trustees approves a scorecard to assess overall qualitative performance each year. The executive director/chief investment officer scores performance on one comprehensive scorecard for all administrative support staff, which determines the total amount of qualitative bonus money available to be awarded to administrative support staff. SWIB indicated the scorecard was introduced in 2018 to more fairly reward performance for the administrative support staff, because these staff are not directly responsible for investment performance. Administrative support staff are eligible to receive bonuses of up to 17.5 percent of their salaries based on qualitative measures and up to 17.5 percent based on quantitative measures.

All bonuses are recommended to the Board of Trustees by the executive director/chief investment officer for approval. Bonuses for the executive director/chief investment officer are made by the Board based on information provided by the deputy executive director/chief administrative officer and the Board's compensation consultant.

For 2019 performance, 172 staff received $13.9 million in bonuses, the highest total bonuses awarded from 2015 through 2019.

Table 12 shows total bonus amounts paid to staff for performance from 2015 through 2019. For 2019 performance, 172 staff received $13.9 million in bonuses, the highest total bonuses awarded during this five-year period. For 2018 performance, 163 staff received $9.8 million in bonuses, which was the lowest amount for bonuses during the five-year period.

Table 12

Staff Bonuses, by Performance Year[1, 2]

	Total Awarded (in millions)	Staff Receiving Bonuses				
		Investment Management	Administrative Support	Executive Staff	Total	Percentage of Eligible Staff
2015	$11.1	75	75	NA	150	97.4%
2016	13.8	75	77	NA	152	98.7
2017	11.5	67	83	NA	150	97.4
2018	9.8	71	92	NA	163	98.2
2019	13.9	72	97	3	172	98.9

[1] Based on data provided by SWIB.

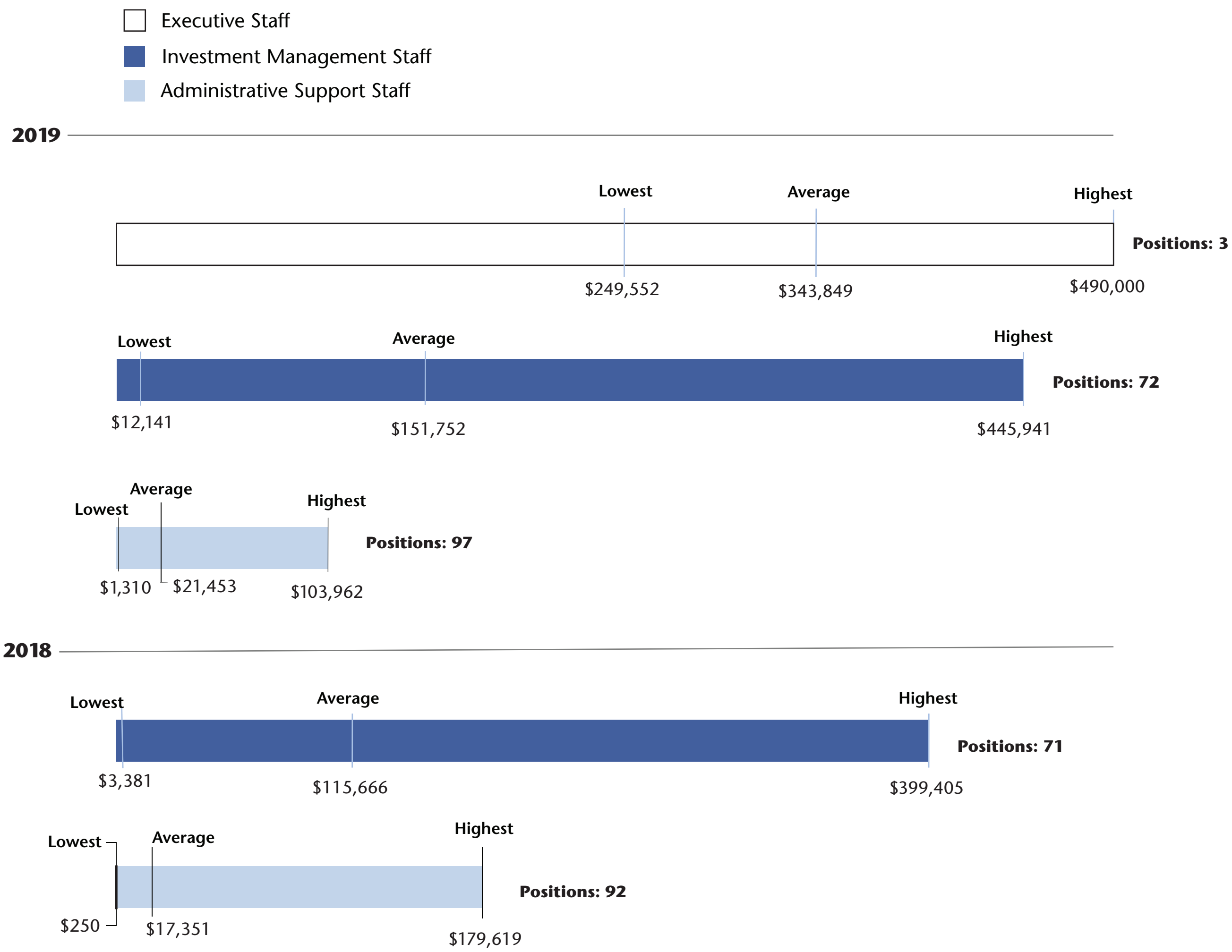
[2] Bonuses are paid to staff in the following calendar year.

Individual bonuses awarded to investment management staff ranged from $12,141 to $445,941 for 2019 performance.

As shown in Figure 12, individual bonuses awarded to investment management staff ranged from $3,381 to $399,405 for 2018 performance and from $12,141 to $445,941 for 2019 performance. Individual bonuses awarded to administrative support staff ranged from $250 to $179,619 for 2018 performance and from $1,310 to $103,962 for 2019 performance. Higher bonuses for administrative support staff in 2018 are due to staff positions that would become executive staff positions beginning in 2019. Individual bonuses awarded to executive staff ranged from $249,552 to $490,000 for 2019 performance.

Figure 12

Range of Individual Staff Bonus Awards, by Staff Type[1,2,3]



[1] Bonuses are paid to staff in the following calendar year.

[2] Based on data provided by SWIB.

[3] In 2018, the executive director was included in investment management staff, while the other three positions that would become executive staff were included in administrative staff.

SWIB calculates the amount of bonuses available for investment management staff based on several factors, including the compensation comparison group median, one- and five-year investment performance, and the number of eligible investment management staff. As noted, the number of investment management staff has increased in recent years.

Investment management staff were awarded $11.4 million, or 50.7 percent, of the amount available for bonus awards for 2019 performance.

As shown in Table 13, the amount of bonuses available to investment management staff decreased slightly in performance year 2017, but increased in subsequent performance years. However, the amount of bonuses awarded to investment management staff for performance year 2018 was only $8.2 million. Of the $22.5 million available for bonus awards for 2019 performance, investment management staff were awarded $11.4 million, or 50.7 percent.

Table 13

Investment Management Staff Bonuses, by Performance Year[1, 2, 3]

	Amount Available (in millions)	Amount Awarded (in millions)	Percentage
2015	$16.2	$ 9.6	59.3%
2016	18.6	12.0	64.5
2017	18.3	9.9	54.1
2018	21.0	8.2	39.0
2019	22.5	11.4	50.7

1 Includes the executive director in years 2015 through 2018 and the executive director/chief investment officer in 2019.

2 Based on data provided by SWIB.

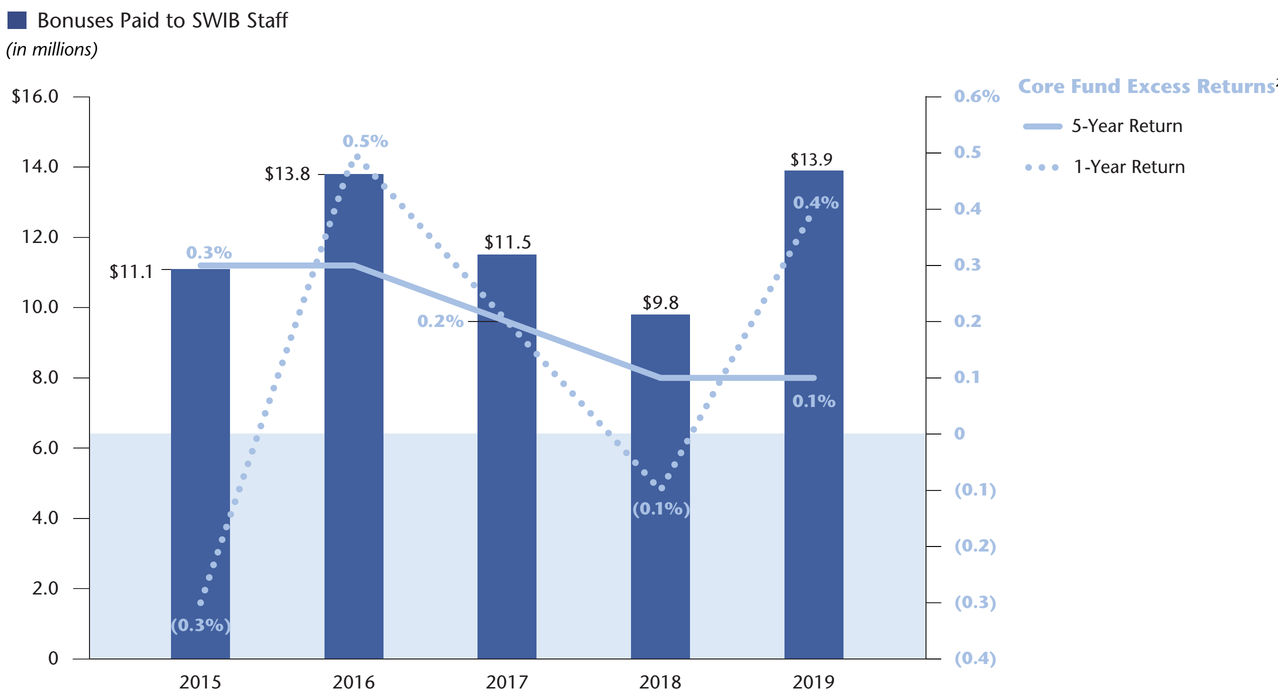
3 Bonuses are paid to staff in the following calendar year for performance in the listed year.

The total amount of bonuses awarded increased from $9.8 million for 2018 performance to $13.9 million for 2019 performance.

One way to quantitatively measure investment performance is through the calculation of excess returns, or the portion of investment returns greater than the market-based benchmarks. As shown in Figure 13, the total amount of bonuses awarded increased from $9.8 million for 2018 performance to $13.9 million for 2019 performance primarily because the one-year return relative to the benchmark improved from 2018 to 2019.

Figure 13

Total Bonuses Awarded Compared to Core Fund Returns, by Performance Year[1]



[1] Based on data provided by SWIB.

[2] Excess returns represent the portion of investment returns greater than the market-based benchmarks based on returns net-of-all-costs.

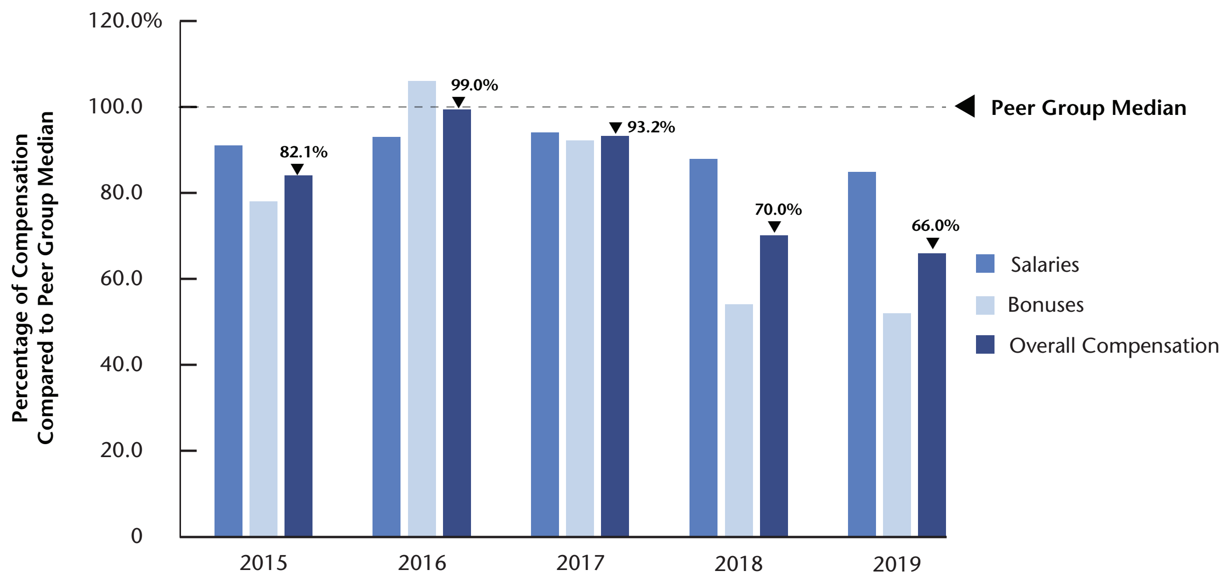
As noted, according to the SWIB compensation policy approved by the Board of Trustees, the objective of SWIB administrative support and investment management staff overall compensation is to approximate 100.0 percent of the median compensation of the comparison group for each group. Actual overall compensation levels may be above or below the median comparison group levels based on performance.

Overall compensation for 2019 performance decreased relative to the comparison group median, representing just 66.0 percent of the comparison group median.

As shown in Figure 14, overall compensation for investment management staff ranged from 66.0 percent to 99.0 percent of the comparison group median for performance from 2015 through 2019. For 2018 performance, overall compensation for investment management staff was 70.0 percent of the comparison group median, while bonus compensation was 54.0 percent of the comparison group median. SWIB staff compensation for 2019 performance decreased relative to the comparison group median, with overall compensation representing just 66.0 percent of the comparison group median, while the bonus compensation was only 52.0 percent of the comparison group median.

Figure 14

Investment Management Staff Compensation Relative to Comparison Group Median, by Performance Year[1, 2]



[1] Excludes the executive director or executive director/chief investment officer.

[2] Based on data provided by SWIB.

Further, a consultant's report in 2018 noted numerous structural challenges for SWIB, including the need to acquire and develop investment staff to provide experienced leadership and to perform the work required as investing becomes increasingly complex. The report also noted the increase in competition for staff as more firms in the investment industry build out their structures and organizations. The consultant also recommended that SWIB ensure that "business as usual" roles are held by full-time employees rather than contractors.

In December 2019, SWIB made changes to its bonus calculations to further incentivize collaborative work among its investment management staff.

In December 2019, SWIB made changes to its bonus policy to further incentivize collaborative work among its investment management staff. Beginning in 2020, an overall qualitative pool for bonuses will be established by a division scorecard for investment management staff. Similar to administrative support staff, qualitative performance will be assessed by the scorecard and the score determines the total dollar amount of qualitative bonus funds available. In addition, SWIB made changes to the allocation of bonuses such that 65.0 percent of bonuses will be allocated to investment management staff based on qualitative performance. In 2019, only 10.0 percent of investment management staff bonuses were allocated based on qualitative performance. SWIB indicated the purpose of these changes were to further reward qualitative performance in an effort to provide more connection between staff, increase manager flexibility to recognize valuable traits, and incentivize teamwork within teams across the agency.

SWIB indicated plans to provide recommendations to the Board of Trustees in December 2020 for additional changes in its compensation program.

SWIB is working with the Board of Trustees to change its current compensation approach because the current bonus and compensation structure has produced a lag against peer compensation. At its October 2020 meeting, SWIB provided preliminary compensation program recommendations to the Board. These recommendations included expanding the compensation peer group to include other public pension funds and implementing salary bands. The Board provided feedback on the recommendations but took no action. SWIB indicated plans to provide further recommendations to the Board in December 2020.

In addition to the annual bonuses approved by the Board of Trustees, SWIB compensation policies allow the executive director/chief investment officer to award other lump-sum bonus payments to staff, including signing bonuses and retention bonuses. SWIB paid 4 one-time, lump-sum payments to staff in 2018 for a total of $185,600, including $118,100 for a severance payment. In 2019, SWIB paid 9 one-time, lump-sum payments for a total of $414,500, including 8 signing bonuses, one of which was $180,000 for an executive position, one for $50,000 for an investment management staff person, and six others that ranged from $12,500 to $50,000 for administrative staff.

Bonus Deferral Policy

In 2009, the Board of Trustees established a deferral policy to defer bonus payments when the Core Fund has a negative return for a given year. This was in response to the negative returns for 2008, which were a negative 26.2 percent. The Core Fund has not seen negative returns to that extreme since 2008. When the Core Fund has a negative one-year investment return, Board policy requires that bonus awards be deferred for two years or until the Core Fund generates a positive absolute one-year return, whichever is later. However, the Board of Trustees may choose to waive the deferral of bonus awards. In 2018, the Core Fund had a one-year return of a negative 3.3 percent, which qualified the bonuses to be deferred. However, the Board decided to award bonuses for 2018 performance in early 2019, and not to defer them, because:

- SWIB exceeded the Core Fund benchmark on a gross basis in 2018 and in a negative return market environment, the Core Fund performed as expected and did not lose, on an absolute basis, as much as market indices;

- Core Fund annuity payments to retirees were expected to remain flat after five sequential years of increases;

- SWIB's concern that the deferral of bonuses would negatively impact its ability to recruit top talent; and

- SWIB staff added value on a long-term basis, even after accounting for bonuses paid.

The bonus deferral policy was changed to defer bonuses only as a result of significant negative returns in the Core Fund.

In December 2019, the Board of Trustees approved changing the deferral policy from any negative one-year investment return in the Core Fund to a negative 10 percent one-year investment return in the Core Fund. SWIB indicated the Board changed the deferral policy to be more aligned with the original intent of the policy, which was to defer bonuses only as a result of significant negative returns, which has occurred only once since 1990 in 2008.

Staff Application and Selection Process

As noted, all employees of SWIB hold positions in the unclassified service, which is defined as part of the civil service by Wisconsin Statutes. During our prior audit, and in response to concerns reported to the Bureau's Fraud, Waste, and Mismanagement Hotline about the hiring process used by SWIB, we reviewed the hiring process and made recommendations to SWIB in report 18-19. These recommendations included working with the Board of Trustees to improve the application and selection process by revising its policies to ensure equal consideration for all applicants, training staff on the appropriate implementation of the policy, and maintaining sufficient documentation to ensure the hiring policy is followed.

SWIB adopted a recruitment philosophy in October 2018.

SWIB adopted a recruitment philosophy in October 2018. The philosophy describes ideal characteristics of candidates for SWIB, such as sufficient industry expertise, embodiment of SWIB's values, and high performance. The policy generally outlines the following steps in SWIB's recruitment process, including:

- using industry organizations and networks to attract individuals to learn more about SWIB's culture and career opportunities;

- listing job postings on SWIB's website, on popular job search websites, and with relevant networks, such as broker networks or professional organizations;

- posting job opportunities for a minimum of 14 days;

- considering candidates by holding exploratory conversations with individuals who have expressed general interest in SWIB and reviewing submitted applications; and

- identifying an interview panel and ensuring hiring standards are met, such as by providing interview panelists with guidance on non-discrimination and reminders of SWIB's diversity goals.

We found that SWIB generally followed its updated recruitment and hiring steps and maintained sufficient documentation of the process.

SWIB's recruitment philosophy was amended in March 2019 to require job offers be made only after the completion of the application and selection process. The amendments also identified which SWIB staff would be responsible for the training and implementation of its recruitment philosophy and for maintaining documentation of the hiring process. In order to assess changes to the hiring process, we reviewed 19 recruitments that occurred from April 2019 through May 2020, and found that SWIB generally followed its updated recruitment and hiring steps and maintained sufficient documentation of the process.

In August 2020, SWIB implemented a new checklist that contains 21 discrete steps that are to be completed by SWIB staff during the hiring process, from approving and posting the job through documenting a final disposition of all candidates that applied. Consistent use of the new checklist may help SWIB ensure that documentation of each recruitment is maintained, that each of its hiring processes is consistent, and that SWIB is providing equal consideration for all applicants.

▪ ▪ ▪ ▪

Appendices ■

Appendices ■

Appendix 1

Funds Included in the State Investment Fund

As of December 31, 2019

Fund	Agency or Department	Market Value
Local Government Investment Pool	Administration	$4,170,615,000
General Fund	Administration	3,007,283,000
Budget Stabilization Fund	Administration	652,164,000
Transportation Fund	Transportation	557,848,000
Common School Fund	Board of Commissioners of Public Lands	330,984,000
Capital Improvement Fund	Building Commission	322,566,000
State Building Trust Fund	Building Commission	212,798,000
Lottery Fund	Revenue	159,228,000
University Trust Fund—Income	University of Wisconsin System	135,290,000
Hospital Assessment Fund	Health Services	126,017,000
Conservation Fund	Natural Resources	109,782,000
Petroleum Inspection Fund	Natural Resources	47,088,000
Environmental Fund	Natural Resources	46,177,000
Medical Assistance Trust Fund	Health Services	41,231,000
Common School Fund Income	Board of Commissioners of Public Lands	34,078,000
Universal Service Fund	Public Service Commission	31,417,000
Uninsured Employers Fund	Workforce Development	27,603,000
Work Injury Supplemental Benefit Fund	Workforce Development	27,178,000
Waste Management Fund	Natural Resources	23,499,000
Support Collections Trust Fund	Children and Families	17,553,000
Public Employee Trust Fund	Employee Trust Funds	13,030,000
Agricultural Producer Security Fund	Trade, Agriculture, and Consumer Protection	11,785,000
Unemployment Program Integrity Fund	Workforce Development	11,655,000
Agrichemical Management Fund	Trade, Agriculture, and Consumer Protection	11,141,000
Worker's Compensation Benefit Fund	Workforce Development	8,626,000
Environmental Improvement Fund	Administration	8,192,000
Bond Security and Redemption Fund	Building Commission	6,149,000
Agricultural Chemical Cleanup Fund	Trade, Agriculture, and Consumer Protection	6,131,000
Normal School Fund	Board of Commissioners of Public Lands	5,893,000
Election Administration Fund	Wisconsin Elections Commission	5,216,000
University Trust Fund—Principal	University of Wisconsin System	5,181,000
Veterans Trust Fund	Veterans Affairs	4,227,000

Fund	Agency or Department	Market Value
Land Information Fund	Administration	$ 3,535,000
Critical Access Hospital Assessment Fund	Health Services	2,081,000
Local Government Property Insurance Fund	Commissioner of Insurance	1,983,000
Economic Development Fund	Wisconsin Economic Development Corporation	1,982,000
Permanent Endowment Fund	Administration	1,847,000
Heritage State Parks and Forests Trust Fund	Natural Resources	1,302,000
Tuition Trust Fund	Financial Institutions	987,000
History Preservation Partnership Trust Fund	Wisconsin Historical Society	777,000
Dry Cleaner Environmental Response Fund	Revenue	323,000
Military Family Relief Fund	Revenue	316,000
Mediation Fund	Director of State Courts	218,000
Self-Insured Employers Liability Fund	Workforce Development	194,000
State Capitol Restoration Fund	State Capitol and Executive Residence Board	193,000
Transportation Infrastructure Loan Fund	Transportation	154,000
Working Lands Fund	Trade, Agriculture, and Consumer Protection	116,000
Investment and Local Impact Fund	Investment and Local Impact Fund Board	82,000
Historical Legacy Trust Fund	Wisconsin Sesquicentennial Commission	77,000
University Fund	Board of Commissioners of Public Lands	56,000
Agricultural College Fund	Natural Resources	21,000
Children's Trust Fund	Child Abuse and Neglect Prevention Board	14,000
Benevolent Fund	Administration	14,000
Unemployment Interest Payment Fund	Workforce Development	8,000
VendorNet Fund	Administration	–
Wireless 911 Fund	Public Service Commission	–
Industrial Building Construction Loan Fund[1]	–	(1,000)
Recycling and Renewable Energy Fund[1]	–	(1,000)
Utility Public Benefits Fund	Administration	(6,547,000)
Police and Fire Protection Fund	Public Service Commission	(13,442,000)

[1] This fund was discontinued when the Department of Commerce was eliminated by 2011 Wisconsin Act 32, the 2011-13 Biennial Budget Act.

Appendix 2

Funds Managed by the State of Wisconsin Investment Board

As of December 31, 2019

Fund	Agency or Department	Investment Manager[1]	Market Value (in millions)	One-Year Benchmark	One-Year Investment Return[2]
Wisconsin Retirement System Core Fund	Employee Trust Funds	State of Wisconsin Investment Board staff and various external managers	$107,772.5	19.2%	19.9%
Wisconsin Retirement System Variable Fund	Employee Trust Funds	State of Wisconsin Investment Board staff and various external managers	8,687.0	28.3	28.6
State Investment Fund	Administration	State of Wisconsin Investment Board staff	10,217.0	2.1	2.3
Injured Patients and Families Compensation Fund	Office of the Commissioner of Insurance	External managers: BlackRock, Inc.; Dodge & Cox	1,508.2	12.5	13.4
State Life Insurance Fund	Office of the Commissioner of Insurance	State of Wisconsin Investment Board staff and external manager: BlackRock, Inc.	120.3	13.9	14.6
Historical Society Trust Fund	Wisconsin Historical Society	External manager: BlackRock, Inc.	19.1	25.4	25.9
UW System Long Term Fund	University of Wisconsin System	External manager: BlackRock, Inc.	476.3	17.0	17.3

[1] External managers are hired by the State of Wisconsin Investment Board.

[2] Excludes management fees and other investment costs.

Appendix 3

Members, Board of Trustees

October 2020

Department of Administration, Secretary

Joel Brennan

Experienced Investors

David Stein (Chair), term expires 2023
Associated Banc-Corp,
Executive Vice President and Head of Consumer and Business Banking

Barbara Nick (Vice-Chair), term expires 2021
Dairyland Power Cooperative,
President and Chief Executive Officer (Retired)

Esther Ancel, term expires 2021
Emeritus Professor of Finance,
University of Wisconsin-Milwaukee

Mark Doll, term expires 2021
Northwestern Mutual Life Insurance Company,
Executive Vice President and Chief Investment Officer (Retired)

Tim Sheehy, term expires 2023
Metropolitan Milwaukee Association of Commerce,
President

Local Government Representative

Kristi Palmer, term expires 2023
Marathon County, Finance Director

Wisconsin Retirement System Participants

Robert J. Conlin
Department of Employee Trust Funds, Secretary

Dave Schalow
University of Wisconsin-Stevens Point,
Professor of Business

Appendix 4

Members, Management Council

October 2020

Executive Director/Chief Investment Officer

David Villa

SWIB Management Staff

Rochelle Klaskin
Deputy Executive Director/Chief Administrative Officer

Mike Jacobs
Agency Business Director

Edwin Denson
Managing Director, Asset & Risk Allocation

Brian Hellmer
Managing Director, Global Public Market Strategies

Anne-Marie Fink
Managing Director, Private Markets & Funds Alpha

Appendix 5

Wisconsin Retirement System
One-Year Investment Performance

As of December 31

Year	Core Fund		Variable Fund	
	Investment Benchmark	Investment Return[1]	Investment Benchmark	Investment Return[1]
1982[2, 3]	27.7%	27.3%	–	22.2%
1983	13.3	12.5	23.1%	24.7
1984	12.3	12.8	6.3	5.8
1985	23.8	27.5	30.9	32.7
1986	14.0	14.5	17.1	11.5
1987	3.0	2.2	3.0	(1.1)
1988	13.6	14.4	18.4	21.7
1989	19.9	19.2	27.0	22.6
1990	(1.7)	(1.5)	(8.6)	(11.3)
1991	22.8	20.5	31.9	27.1
1992	5.9	9.7	7.1	10.7
1993	12.2	15.0	14.7	16.5
1994	(0.1)	(0.6)	1.7	0.8
1995	24.4	23.1	29.2	25.6
1996	12.7	14.4	18.6	19.8
1997	17.4	17.2	22.8	21.6
1998	15.5	14.6	17.4	17.5
1999	13.9	15.7	23.2	27.8
2000	(1.4)	(0.8)	(8.8)	(7.2)
2001	(4.5)	(2.3)	(12.9)	(8.3)
2002	(8.2)	(8.8)	(19.9)	(21.9)
2003	24.0	24.2	32.1	32.7
2004	12.1	12.8	13.4	12.7
2005	8.0	8.6	8.0	8.3
2006	14.6	15.8	17.6	17.6
2007	9.6	8.7	7.3	5.6
2008	(24.8)	(26.2)	(39.0)	(39.0)
2009	19.9	22.4	32.0	33.7
2010	12.2	12.4	15.3	15.6
2011	0.9	1.4	(3.6)	(3.0)

Year	Core Fund		Variable Fund	
	Investment Benchmark	Investment Return[1]	Investment Benchmark	Investment Return[1]
2012	12.8%	13.7%	16.7%	16.9%
2013	12.9	13.6	28.0	29.0
2014	5.6	5.7	7.5	7.3
2015	(0.3)	(0.4)	(1.3)	(1.2)
2016	7.9	8.6	10.4	10.6
2017	15.7	16.2	23.1	23.2
2018	(3.5)	(3.3)	(7.8)	(7.9)
2019	19.2	19.9	28.3	28.6

[1] Does not include management fees and other investment expenses. Returns that did not meet benchmarks are in shaded cells.

[2] The Wisconsin Retirement System was established in its current form, effective January 1, 1982.

[3] Benchmark returns for the Variable Fund are unavailable for calendar year 1982.

Appendix 6

Wisconsin Retirement System
Performance of Individual Asset Classes

As of December 31, 2019

Asset Class	Investment Benchmark	Average Annual Investment Return[1]
Public Equity Securities[2]		
One-Year	27.7%	28.0%
Three-Year	13.0	13.0
Five-Year	9.0	9.1
Ten-Year	9.9	10.0
Fixed Income[2]		
One-Year	10.1%	10.5%
Three-Year	4.7	5.0
Five-Year	3.4	3.6
Ten-Year	3.9	4.3
Inflation Protection[2]		
One-Year	8.4%	8.4%
Three-Year	3.5	3.6
Five-Year	1.9	2.0
Ten-Year	2.9	3.3
Real Estate[3]		
One-Year	4.6%	6.0%
Three-Year	6.3	7.6
Five-Year	8.3	9.5
Ten-Year	9.5	10.7
Private Equity and Debt[3]		
One-Year	8.8%	10.0%
Three-Year	11.3	13.8
Five-Year	10.0	12.1
Ten-Year	11.2	13.0
Multi-Asset[2]		
One-Year	20.9%	20.6%
Three-Year	10.2	8.9
Five-Year[4]	7.6	6.2
Ten-Year[4]	7.5	7.3

Asset Class	Investment Benchmark	Average Annual Investment Return[1]
Hedge Fund Strategy[3, 5, 6]		
One-Year	0.0%	1.4%
Three-Year	1.3	0.6
Five-Year	1.5	0.6

[1] Returns that did not meet benchmarks are in shaded cells.

[2] Does not include management fees and other investment expenses.

[3] Includes management fees but not other investment expenses.

[4] Includes hedge fund strategy.

[5] Performance of this strategy was reported separately beginning April 2015.

[6] Based on the recommendation of its benchmark consultant, the Board approved the elimination of a benchmark for SWIB's hedge fund investment strategy beginning in 2019. Previously, this strategy was benchmarked against the cost to finance it, but the benchmark was eliminated because the cost to run the strategy is included in the reported return.

As of December 31, 2018

Asset Class	Investment Benchmark	Average Annual Investment Return[1]
Public Equity Securities[2]		
One-Year	(8.8)%	(9.2)%
Three-Year	7.3	7.3
Five-Year	4.8	4.7
Ten-Year	10.4	10.6
Fixed Income[2]		
One-Year	(0.8)%	(0.8)%
Three-Year	2.7	3.0
Five-Year	2.3	2.5
Ten-Year	3.7	4.3
Inflation Protection[2]		
One-Year	(0.8)%	(0.5)%
Three-Year	2.8	3.0
Five-Year	0.7	0.8
Ten-Year	3.2	3.5
Real Estate[3]		
One-Year	7.7	8.0
Three-Year	7.8	8.9
Five-Year	9.6	11.0
Ten-Year	6.2	6.0
Private Equity and Debt[3]		
One-Year	11.2%	15.9%
Three-Year	11.1	13.8
Five-Year	10.7	13.1
Ten-Year	9.7	11.7
Multi-Asset[2]		
One-Year	(4.9)%	(6.6)%
Three-Year[4]	6.2	4.2
Five-Year[4]	4.3	3.7
Ten-Year[4]	7.5	8.7
Hedge Fund Strategy[3,5]		
One-Year	2.6%	(0.2)%
Three-Year	1.7	0.4

[1] Returns that did not meet benchmarks are in shaded cells.

[2] Does not include management fees and other investment expenses.

[3] Includes management fees but not other investment expenses.

[4] Includes hedge fund strategy.

[5] Performance of this strategy was reported separately beginning April 2015.

Appendix 7

Wisconsin Retirement System
Effective Rates and Annuity Adjustments[1]

As of December 31

Year	Core Fund			Variable Fund		
	Investment Returns	Effective Rate	Annuity Adjustment[2]	Investment Returns	Effective Rate	Annuity Adjustment
2005	8.6%	6.5%	0.8%	8.3%	9.0%	3.0%
2006	15.8	9.8	3.0	17.6	18.0	10.0
2007	8.8	13.1	6.6	5.6	6.0	0.0
2008	(26.2)	3.3	(2.1)	(39.0)	(40.0)	(42.0)
2009	22.4	4.2	(1.3)	33.7	33.0	22.0
2010	12.3	4.8	(1.2)	15.6	16.0	11.0
2011	1.4	1.5	(7.0)	(3.0)	(3.0)	(7.0)
2012	13.7	2.2	(9.6)	16.9	17.0	9.0
2013	13.6	10.9	4.7	29.0	31.0	25.0
2014	5.7	8.7	2.9	7.3	7.0	2.0
2015	(0.4)	6.4	0.5	(1.2)	0.0	(5.0)
2016	8.6	7.9	2.0	10.6	10.0	4.0
2017	16.2	8.5	2.4	23.2	24.0	17.0
2018	(3.3)	5.0	0.0	(7.9)	(7.0)	(10.0)
2019	19.9	7.7	1.7	28.6	29.0	21.0
10-Year Compounded Average	8.5	6.3	(0.5)	11.2	11.7	6.1
15-Year Compounded Average	7.1	6.7	0.1	8.0	8.3	2.5

[1] The effective rate and annuity adjustments for the Core Fund are initially based on the 7.0 percent actuarial assumed rate, although there is either an increase or decrease to this rate based on the actual investment returns earned during the prior five years, which smooth out large fluctuations in actual investments returns. Annuity adjustments take effect with the April annuities that are paid on May 1 based on the previous year's performance. Adjustments only occur if the amount changes the Core Fund annuity at least 0.5 percent or the Variable Fund annuity at least 2.0 percent. Annuity adjustments are generally 4.0 to 6.0 percent less than effective rate adjustments to account for the 5.0 percent investment return assumption factored into the annuities and other actuarial adjustments.

[2] Maximum adjustment that may be applied to a retired participant's benefit payment. Adjustments that would reduce a benefit payment are limited to increases a retired participant received in prior years because post-retirement adjustments may not result in benefit payments that are lower than the base benefit payment at the time of retirement. Consequently, not all retired participants experience the full amount of reductions determined for years with negative adjustments.

Appendix 8

Comparison of Plan Structure for Selected Public Pension Plans

	Assets Managed (in billions)[1]	Return Assumption[2]	Funded Rate[1]
California Public Employees Retirement System	$373.0	7.0%	71.0%
Florida State Board	163.1	7.2	82.6
Minnesota State Board	80.7	7.5	90.8
New Jersey Division of Investments	80.0	7.5	58.6
Ohio Public Employees Retirement System	106.3	7.2	82.4
Pennsylvania Public School Employees' Retirement System	59.1	7.25	55.7
Teachers Retirement System of Texas	158.0	7.25	76.4
Virginia Retirement System	84.4	6.75	75.2
Washington State Investment Board	110.0	7.5	96.0
Wisconsin Retirement System Core Fund	**107.8**	**7.0**	**103.0**

[1] As of June 30, 2019, for California, Florida, Minnesota, New Jersey, Pennsylvania, Virginia, and Washington. As of August 31, 2019, for Texas. As of December 31, 2019, for Ohio and Wisconsin.

[2] As of June 2020.

Appendix 9

External Investment Managers

2019

External Investment Manager	Investment Strategies Managed	Expenses[1] (in millions)	Assets Managed[2] (in millions)
D.E. Shaw & Co., L.P.	Hedge Funds and Public Markets	$ 19.9	$ 4,880.4
Marshall Wace, LL.P.	Hedge Funds	14.5	495.7
Holocene Advisors, L.P.	Hedge Funds	11.9	261.8
Pharo Management (UK), LL.P.	Hedge Funds	11.0	244.8
The Blackstone Group, L.P.	Private Equity and Real Estate	10.7	867.3
Capula Investment Management, LL.P.	Hedge Funds	9.2	270.8
Dorsal Capital Partners, Ltd.	Hedge Funds	8.4	250.0
Wellington Trust Company, NA	Public Markets	8.3	4,272.7
Providence Equity Partners, LLC	Private Equity	7.9	299.3
Davidson Kempner Capital Management, L.P.	Hedge Funds	6.6	235.3
Two Sigma Investments, L.P	Hedge Funds and Public Markets	6.5	943.8
Vista Equity Partners, LLC	Private Equity	6.1	392.7
TPG Capital, L.P.	Private Equity	5.8	212.5
Bridgewater Associates, L.P.	Hedge Funds	5.3	188.6
BlackRock, Inc.	Public Markets	5.2	9,530.9
PSquared Asset Management, AG	Hedge Funds	5.1	164.3
King Street Capital Management, L.P.	Hedge Funds	4.7	329.0
Warburg Pincus, LLC	Private Equity	4.7	352.9
Acadian Asset Management	Public Markets	4.7	1,399.9
Fidelity Investments	Public Markets	4.5	2,194.1
All Others	Various	225.8	32,082.2
Total		**$386.8**	**$59,869.0**

[1] Excludes some performance management fees for private equity and real estate investments known as carried interest.

[2] WRS assets.

Appendix 10

Top Ten External Support Services Vendors[1]
2019

External Support Services Vendor	Services Provided	Expenses (in millions)
Bank of New York Mellon Corporation	Asset Custody and Investment Operations Services	$7.2
FactSet Research Systems, Inc.	Financial and Economic Database	3.2
Bloomberg Finance, L.P.	Benchmark, Company, and Market Information	2.6
Citisoft, Inc.	Investment Consulting Services	2.4
StepStone Group, LLC	Private Equity and Real Estate Consulting	2.2
Adeptyx Consulting, Inc.	Investment Consulting Services	1.4
eFront Financial Solutions, Inc.	Portfolio Management Services	1.4
Sharp Decisions, Inc.	Investment Information Technology Consulting	1.3
MSCI Inc.- Risk Metrics Solutions	Research and Data Services	1.3
Charles River Systems, Inc.	Portfolio Management Trading Software	1.3

[1] Includes fees for all services other than investment management, including asset custody, investment and operations consulting, and legal services.

Response ■

SWIB STATE OF WISCONSIN INVESTMENT BOARD

November 23, 2020

Mr. Joe Chrisman
State Auditor
Legislative Audit Bureau
22 East Mifflin, Suite 500
Madison, WI 53703

Dear Mr. Chrisman,

We appreciate the opportunity to comment on the management audit of the State of Wisconsin Investment Board (SWIB). SWIB is pleased that no significant concerns were identified during the audit, and we would like to thank the LAB staff for their hard work. SWIB will work to ensure the recommendations made in the report are addressed.

In addition to managing the State Investment Fund and other, smaller trust funds, SWIB invests the assets of the Wisconsin Retirement System (WRS), one of the only fully funded public pension plans in the United States. Over the long term, SWIB has consistently exceeded the actuarial assumed rate for the WRS, beaten its benchmarks, and provided real value to the state, all at a cost that is less than our peers. There are several ways to measure SWIB's success:

Exceeding the Target Rate of Return
The Department of Employee Trust Funds Board has set an actuarial assumed rate of return of 7.0% for the WRS to remain fully funded over the long term. The WRS's Core Trust Fund (CTF) has cleared that hurdle. As of December 31, 2019, the CTF had 5-, 10-, and 30-year net returns of 7.48%, 8.20%, and 8.25%, respectively. These consistently strong returns help drive the fully funded WRS.

Returns Far Above Traditional "60/40" Passive Index Portfolio
From 2000 through 2019, SWIB's active management and diversified investments generated CTF gross returns that are a cumulative 70% (or $33.5 billion) above what SWIB would have earned by investing in a low cost passive portfolio of 60% global equities and 40% U.S. investment grade bonds. That 70% represents the benefit offered by employing a highly qualified staff in Madison.

Beating Benchmarks
SWIB evaluates its performance against industry benchmarks adopted by its Board of Trustees based on recommendations from an independent benchmark consultant. As of December 31, 2019, the five-year WRS investment performance beat its benchmarks and generated $560.4 million in added value above benchmark returns after all costs have been deducted.

Favorable Performance Compared to Peers
While SWIB is not in a competition with other state pension plans, it is natural to look at its performance relative to that of its peers. According to an independent performance consultant, among public pension plans greater than $10 billion, SWIB's 1-, 5-, and 10-year gross performance (adjusted

for asset mix) ranked in the top 22%, 31%, and 38%, respectively, as of December 31, 2019.

Cost Optimization
SWIB's costs are lower than our peers in part because SWIB attracts and retains qualified professionals to manage assets internally for multiples less than what it would cost to pay external managers. As of December 31, 2019, SWIB managed about 50% of the WRS's assets internally, compared to only 21% in 2007. In 2019 alone, those cost savings over peers translated to over $70 million for the WRS, and over the past ten years, the savings totaled approximately $1.3 billion. SWIB continues to expand its internal management capabilities in areas where it is prudent.

Spending on Public Pensions Is Much Less in Wisconsin Than Elsewhere
Another way to measure costs for taxpayers is to compare state and local spending on public pensions as a percentage of total government direct general spending. According to the National Association of State Retirement Administrators, average state and local government spending on pensions is 4.7% nationally. In Wisconsin, that figure is less than half, at 2.0%.

SWIB-Earned Returns Power the WRS
From 2009 through 2018, net investment income earned by SWIB represented more than 75% of the income needed to fund the WRS. The U.S. public pension average during that time was only 63%, meaning that taxpayers, public employers, and employees in Wisconsin bear less of the funding burden than those in most other states.

SWIB Benefits the State as a Whole, Not Just WRS Participants
One in five Wisconsin residents (or an immediate family member) is a member of the WRS. Approximately one third of the WRS's 652,000 participants are annuitants whose modest pension payments help them retire with dignity. The WRS pays over $5 billion in benefits annually, which are primarily spent in Wisconsin because about 85% of WRS retirees live in Wisconsin. Also, SWIB has billions of dollars invested in companies based in Wisconsin or with some level of employment or operations in the state. Finally, a strong WRS has been cited as a factor in Wisconsin's credit rating upgrades.

Skillfully Navigating Volatile Markets
Finally, I am extremely proud of how our talented and professional staff has navigated a volatile investment environment over the past few years. 2018 ended with markets suffering their worst yearly losses since 2008. Then, March 2020 saw one of the most dramatic and unexpected stock market crashes in history, but SWIB has weathered the storm and rebounded with a strong, positive year-to-date return. Without missing a beat, staff transitioned to working from home in March amid the COVID-19 pandemic and continued to apply SWIB's disciplined and diversified asset allocation and investment strategy to steer the WRS through a challenging market environment.

Thank you again for your time and consideration in completing this report. This audit and the LAB's recommendations are valuable to our continued efforts to serve the WRS and its beneficiaries.

Sincerely,

David Villa
Executive Director/Chief Investment Officer