

November 13, 2020

Senator Alberta Darling, Co-Chair
 Joint Committee on Finance
 P.O. Box 7882
 Madison WI 53707-7882

Representative John Nygren, Co-Chair
 Joint Committee on Finance
 P.O. Box 8953
 Madison WI 53708-8953

Senator Robert Cowles, Co-Chair
 Joint Legislative Audit Committee
 P.O. Box 7882
 Madison WI 53707-7882

Representative Samantha Kerkman, Co-Chair
 Joint Legislative Audit Committee
 P.O. Box 8952
 Madison WI 53708-8952

Secretary Joel Brennan
 Department of Administration
 101 East Wilson Street
 P.O. Box 7864
 Madison, WI 53707-7864

Dear Senator Darling, Senator Cowles, Representative Nygren, Representative Kerkman, and Secretary Brennan:

State statutes require the State of Wisconsin Investment Board (SWIB) to report all expenses charged to the trust funds under management during the prior quarter as well as the number of full-time equivalent positions created or abolished during the quarter¹. The information contained in this report is for the quarter ending September 30, 2020.

Total Cost of Management – 3rd Quarter 2020

SWIB Cost of Management Summary	4th Quarter 2019 Cost	1st Quarter 2020 Cost	2nd Quarter 2020 Cost	3rd Quarter 2020 Cost	One-year Ending 6/30/2020	% of Total Cost
Internal Operating Costs						
Agency Operating Expenses	\$ 9,413,515	\$ 11,532,252	\$ 28,318,149	\$ 10,778,834	\$ 60,042,750	12.8%
Custodial, Investment Operations & Banking Fees	1,567,121	1,659,192	1,624,806	878,460	5,729,579	1.2%
Legal Fees	845,239	79,653	602,480	734,351	2,261,723	0.5%
Investment Research & Consulting Fees	9,378,626	8,034,732	7,161,646	8,015,276	32,590,280	7.0%
Total Internal Operating Costs	\$ 21,204,501	\$ 21,305,829	\$ 37,707,081	\$ 20,406,921	\$ 100,624,332	21.6%
External Management Fees						
Real Estate Advisory/Asset Management	\$ 11,604,346	\$ 23,441,247	\$ 17,900,845	\$ (259,551)	\$ 52,686,887	11.3%
Private Equity Management	37,309,760	42,876,509	40,715,035	(5,834,168)	115,067,136	24.6%
Public Market Separate Accounts	5,751,839	8,102,113	9,541,690	7,700,650	31,096,292	6.7%
Public Market Commingled Accounts	36,560,546	24,465,935	50,510,696	53,579,103	165,116,280	35.3%
Total External Management Fees	\$ 91,226,491	\$ 98,885,804	\$ 118,668,266	\$ 55,186,034	\$ 363,966,595	77.9%
Securities Lending Agent Fees	\$ 520,958	\$ 769,532	\$ 872,966	\$ 519,933	\$ 2,683,389	0.5%
Total Cost of Management	\$ 112,951,950	\$ 120,961,165	\$ 157,248,313	\$ 76,112,888	\$ 467,274,316	
Average Assets Under Management (in billions)	\$ 128.8	\$ 114.0	\$ 126.3	\$ 132.1	\$ 125.3	
Cost in Basis Points (all trust funds)					37.3	

¹Wisconsin Statutes Section 25.17 (13m): All investment-related expenses for the WRS Trust Funds, State Investment Fund, State Life Insurance Fund, Historical Society Endowment Fund, Injured Patients and Families Compensation Fund and UW Trust Fund. Investment transaction expenses, such as trading commissions and interest expense, are included in gross investment returns, and therefore not included in this report.

SWIB's total costs, including both internal operating and external management costs, are charged to the trust funds under management. Over the one-year period ending September 30, 2020, SWIB's total cost of management approximated 37 basis points (0.37%), or 37 cents for every \$100 managed. It is important to consider this cost in the context of value-added investment returns. For example, over the five years ending 12/31/2019, SWIB earned \$560.4 million for the Wisconsin Retirement System over investment benchmarks after consideration of these costs.

During the quarter ended September 30, 2020, SWIB implemented an accounting methodology change to adjust the timing of when private market management fees are recorded. This change aligns SWIB's treatment with standard industry practices, matches the recognition timing of income with related expenses, increases the accuracy of recorded private markets management fees, and better matches SWIB's return measurement for these assets with their benchmarks. This one-time adjustment decreased real estate advisory and private equity asset management fees during the quarter and for the calendar year 2020.

To reduce external asset management costs and increase net investment returns, SWIB continues to build internal resources to manage assets internally when it makes sense to do so. For example, as shown in the table below, the cost of external asset management is multiples higher than internal management for the same asset classes.

Internal vs External Investment Management

Portfolio	Cost of External Over Internal Management
Active Management	
Global Large Cap Equity	4.0x
US Small Cap Equity	3.8x
US Fixed Income	1.9x
Global Fixed Income	4.6x
Passive Management	
US Large Cap Equity	1.3x
International (EAFE) Equity	2.8x
Fixed Income - Inflation Indexed	2.8x

External management costs are 1.3 – 4.6 times the cost to manage these portfolios internally. Source: CEM Benchmarking, Inc.

For the year ending September 30, 2020, external investment management fees, including securities lending agent fees, represented 78.4% of SWIB's total costs of management and 46.5% of assets under management, while SWIB's internal operating expenses represented 21.6% of costs and 53.5% of assets (see Attachment A). During the third quarter of 2020, no new positions were approved by the Board of Trustees.

Assets Under Management & FTE		
	6/30/2020	9/30/2020
Internal Management	55.3%	53.5%
External Management	44.7%	46.5%
SWIB Positions – FTE	236	236
Total SWIB Positions	236	236

Attachments B and C provide details of services and related quarterly costs.

Internal operating costs include salary and fringe benefits for internal staff, technology, research and market data services, asset custody fees, legal services, and investment consulting. External management fees make up the largest component of the trust funds' costs. This category includes fees paid to asset managers for securities lending services, public market, private market, and real estate asset management.

As new investment strategies are implemented and markets continue to change, SWIB will continue to evaluate the most efficient means to manage the trust fund assets. We hope this report provides a comprehensive representation of the costs SWIB incurs to manage the assets of the trust funds including the Wisconsin Retirement System. Please contact me if you have any questions or comments about this report.

Sincerely,



David Villa
Executive Director/CIO

Attachments

cc: Members, Joint Committee on Finance
Members, Joint Committee on Audit
Robert Lang, Legislative Fiscal Bureau
Joe Chrisman, Legislative Audit Bureau

Total Assets Under Management

Wisconsin Retirement System (WRS)	12/31/2019		3/31/2020		6/30/2020		9/30/2020	
	Amount (in millions)	Percent	Amount (in millions)	Percent	Amount (in millions)	Percent	Amount (in millions)	Percent
Internally Managed	\$58,597	50.3%	\$49,704	49.0%	\$58,015	51.6%	\$58,773	49.8%
Externally Managed Dedicated Accounts	34,514	29.6%	29,624	29.2%	31,466	28.0%	35,417	30.0%
Externally Managed Commingled Accounts	23,351	20.1%	22,072	21.8%	22,944	20.4%	23,907	20.2%
1. Passive Index Funds	2,498	2.1%	1,922	1.9%	2,325	2.1%	2,417	2.0%
2. Limited Partnerships	14,717	12.6%	15,308	15.1%	14,812	13.2%	15,314	13.0%
3. Actively Managed Commingled Accounts	6,137	5.3%	4,842	4.8%	5,806	5.2%	6,176	5.2%
TOTAL WRS Assets	\$116,463	100.0%	\$101,401	100.0%	\$112,425	100.0%	\$118,097	100.0%

State Investment Fund - Internally Managed	\$10,217		\$10,531		\$11,649		\$11,778	
Various Funds Internally Managed	\$120		\$123		\$129		\$128	
Various Funds Externally Managed	\$2,004		\$1,920		\$2,068		\$2,065	

Total Assets Under Management	\$128,803		\$113,975		\$126,272		\$132,068	
Total Internal Management	\$68,934	53.5%	\$60,359	53.0%	\$69,794	55.3%	\$70,679	53.5%
Total External Management	\$59,869	46.5%	\$53,617	47.0%	\$56,478	44.7%	\$61,389	46.5%

STATE OF WISCONSIN INVESTMENT BOARD
Expenses for All Funds Under Management
Quarter Ending September 30, 2020

EXPENSE CATEGORY	SERVICE PROVIDED	EXPENSES***
<u>Internal Operating Expenses</u>		
Staff Compensation	Staff Compensation	\$ 7,747,231
Fringe Benefits	Fringe Benefits	1,854,863
Equipment, Supplies & Services	General Supplies & Services	1,176,740
Total Internal Operating Expenses		\$ 10,778,834
<u>Custodial, Investment Operations and Banking Fees</u>		
Bankers Bank	Custodial and Banking Fees	\$ 2,500
BNY Mellon Asset Servicing - Custody	Master Custody Services	134,299
BNY Mellon Asset Servicing - Investment Operations	Investment Operating Services	741,589
US Bank	Banking Fees	72
Total Custodial, Investment Operations and Banking Fees		\$ 878,460
<u>Legal Fees</u>		
Cox Castle & Nicholson LLP	Legal Work for Investment Strategies	\$ 21,796
DLA Piper LLP (US)	Legal Work for Investment Strategies	186,588
Faeare Drinker Biddle & Reath LLP	Legal Work for Investment Strategies	14,156
Godfrey & Kahn SC	Legal Work for Investment Strategies	2,535
Mayer Brown LLP	Legal Work for Investment Strategies	28,993
Purrington Moody Weill LLP	Legal Work for Investment Strategies	132,901
Quarles & Brady	Legal Work for Investment Strategies	304,294
Reinhart Boerner Van Deuren SC	Legal Work for Investment Strategies	43,088
Total Legal Fees		\$ 734,351
<u>Investment Counsel</u>		
ABG Sundal Collier Inc	Investment Research	\$ 9,500
Adeptyx Consulting	Investment Consulting Services	149,870
Advent Software Inc	Research Management System	60,542
Aksia LLC	Hedge Fund Investment Consulting	322,228
Alembic Global Advisors	Market Research	1,500
Ananth Seshadri	Economic Consulting Services	30,000
Arb Journal	Regulatory Research & Analysis	22,000
B Riley FBR Inc	Investment Research	3,700
Bank of America Merrill Lynch	Investment Research	130,050
BCA Research Inc	Global & Domestic Fixed Income Strategy Research	21,500
Berenberg	Investment Research	80,300
Blackrock Institutional Trust Company NA	Public Market Management Fee	150,000
Bloomberg Finance LP	Market, Company, Industry & Benchmark Information	216,517
BMO Capital Markets Corp	Investment Research Services	25,450
Boenning & Scattergood Inc	Investment Research	3,200
BWG Strategy LLC	Investment Research	24,000
Callan Associates Inc	Investment Consulting & Performance Benchmarking	6,250
Canaccord Genuity	Investment Research	8,000
Cantor Fitzgerald Investment Advisors, L.P.	Investment Research	4,000
Capital Economics LTD	Market Research	48,668
CBOE Global Markets, Inc.	Research and Data Services	1,500
CFRA Research	Investment Research Services	22,000
Charles River System Inc	Portfolio Management Trading Software & Services	474,769
CIBC World Markets Inc	Investment Research	8,900
Citisoft Inc	Investment Consulting Services	124,960
CL King & Associates	Investment Research	1,150
Codrington Japan	Investment Research	750
Connect Search LLC	Investment Consulting	25,000
Consensus Economics Inc	Investment Research Services	32,707
Cornerstone Macro LLC	Macro Economic Research	29,650
CoStar Portfolio Strategy	Real Estate Consulting & Research Services	28,738
Cowen and Company LLC	Investment Research	51,300
Craig-Hallum Capital Group	Investment Research	8,500
Crane Data LLC	Research and Data Services	3,000
Credit Industriel Et Commercial	Investment Research	1,500

EXPENSE CATEGORY	SERVICE PROVIDED	EXPENSES***
CreditSights	Credit Assessments	15,000
Cross Current Research LLC	Healthcare Sector Research	10,000
Cutter Associates	Investment Organization and Systems Consulting	117,500
DA Davidson & Co	Investment Research	20,800
Dacheng Xiu	Investment Research	12,500
Daiwa Capital Markets America	Investment Research	24,050
Davy Securities Limited	Investment Research	9,000
DNB Bank ASA	Investment Research	10,500
Dougherty & Company LLC	Investment Research	11,500
Dow Jones News Service	Company and Industry News Services	14,469
DTCC ITP LLC	Trade Settlement Service	12,604
EFront Financial Solutions Inc	Private Markets Portfolio Management Services	331,752
Empirical Research Partners LLC	Investment Research	65,750
Ernst & Young LLP	Tax Compliance Services & Investment Consulting	88,809
Euromonitor International	Research and Data Services	48,325
Evercore Group LLC	Investment Research	55,100
Exane Inc	Investment Research	70,550
FactSet Research Systems Inc	Financial & Economic Database	840,474
Furey Research Partners LLC	Small Cap Research	16,000
Global Financial Data Inc	Research and Data Services	30,000
Goodbody	Investment Research	3,000
Grandview Analytics LLC	Investment Information Technology Consulting Services	96,530
Green Street Advisor	Real Estate Analytics	16,250
Guggenheim Securities LLC	Investment Research	7,000
Handelsbanken Markets Securities Inc.	Investment Research	4,500
Haver Analytics	Global Macroeconomic Research	19,500
Ice Data LP	Fixed Income Indices	6,875
InsiderScore LLC	Investment Research & Analytics	30,000
Institutional Investor	Investment Data and Research Services	19,500
Institutional Shareholder Services Inc	Proxy Voting Analysis	30,899
Investec Securities (US) LLC	Investment Research	2,000
IPC Systems Inc	Trading Telecommunication System	7,823
Jefferies Research Services LLC	Investment Research	53,800
Keefe Bruyette & Woods (KBW)	Investment Research	47,000
Kepler Capital Markets Inc	Investment Research Services	16,700
KeyBanc Capital Markets Inc	Investment Research	19,700
Keystone Consulting Inc	Investment Information Technology Consulting Services	282,270
KPMG Limited	Tax Representation Services	5,352
Kroll Bond Rating Agency, Inc.	Investment Research and Data Services	5,000
Liberum Capital Inc	Investment Research	37,450
Loop Capital Markets LLC	Investment Research	4,200
Mackey LLC	Research Management System	81,375
Macquarie Capital (USA) Inc	Investment Research	36,850
Mainfirst Securities US Inc	Investment Research	5,500
Markit NA	Investment Data Management Software	167,017
MarkLines Co Ltd	Investment Research	5,100
Matrix IDM, LLC	Investment Consulting	100,250
Meketa Investment Group	Public Markets External Manager Consultant	63,088
MKM Partners	Investment Research Services	1,000
Money-Media Inc	Research and Data Services	4,750
Moodys Analytics	Economic, Currency & Bond Analysis	48,665
Morningstar Inc	Industrial Sector Market Research & Analysis	20,250
MSCI Inc - Risk Metrics Solutions	Research and Data Services	261,521
MUFG Securities America	Investment Research	12,500
Needham & Company LLC	Investment Research	17,000
Noble Capital Markets Inc	Investment Research	1,000
Northland Securities	Investment Research	3,400
Novus Partners Inc	Profit & Loss Analytics System	47,025
Nuware Technology Corp	Investment Information Technology Consulting Services	238,492
NYSE Market Inc	New York Stock Exchange Data	6,692
Oliver James	Investment Consulting	104,456
Oppenheimer & Co Inc	Investment Research	16,250
Options Price Reporting Authority	Quote System for Options Market	2,174
Pac-invest	Research and Data Services	11,577
Pageant Media Limited	Investment Data and Research	3,500
Phil Erlanger Research Co Inc	Investment Research	2,000
Piper Sandler & Co	Investment Research	16,900

EXPENSE CATEGORY	SERVICE PROVIDED	EXPENSES***
PRI Technology	Investment Consulting	37,500
Proxy Insight	Shareholder Voting Data	9,950
Redburn Europe Limited	Investment Research	44,650
RedLine Associates, Inc	Recruitment Consulting	27,500
Refinitiv	Research Pricing (Autex, Baseline, FirstCall)	11,679
Renaissance Macro Research	Macro Economic Research	34,700
Research Alliance	Investment Research	15,000
Robert W. Baird & Co.	Investment Research	69,950
Rosenblatt Securities Inc	Investment Research	10,000
Roth Capital Partners	Investment Research	1,300
Russell Investment Group	Index Data	4,042
S&P Dow Jones Indices	Research and Data Services	52,826
S&P Global Market Intelligence	Industry & Corporate Research	112,123
Sanford C Bernstein & Co LLC	Investment Research	134,150
Seaport Global Securities LLC	Research and Data Services	9,420
SEB Securities Inc	Investment Research	6,800
Sharp Decisions Inc	Investment Information Technology Consulting Services	461,104
Sidoti & Company LLC	Investment Research	12,000
SMBC Nikko Securities America, Inc.	Investment Research	16,200
Stephens Inc	Investment Research	16,500
StepStone Group	Private Equity Consulting Services	448,987
StepStone Group Real Estate	Real Estate Consulting Services	55,094
Stifel Nicolaus & Company Incorporated	Investment Research	37,000
SunTrust Robinson Humphrey Inc	Investment Research	27,500
SystemsAccountants	Investment Information Technology Consulting Services	82,560
TD Securities (USA) LLC	Investment Research	6,100
The Benchmark Company LLC	Investment Research	3,800
The Leuthold Group LLC	Broad Based Market Research	13,000
Toronto Stock Exchange	Market Data	13,711
TradeWeb	On-Line Fixed Income Trading Services	9,356
Tudor Pickering Holt & Co	Investment Research	14,850
Unit4 Business Software Inc	Financial & Administration Services System	53,930
Vertical Research Partners	Industrial Sector Market Research & Analysis	10,000
Verus Advisory Inc	Benchmarking Consulting Services	42,000
Virtu ITG Analytics LLC	Trading Transaction Cost Analysis	7,500
Wall Street Journal	Investment Research & Information	12
Wedbush	Investment Research	27,500
Wells Fargo Securities, LLC	Investment Research Services	59,600
William Blair & Company LLC	Investment Research	11,300
Wolfe Trahan	Transportation and Macro Economic Research	73,400
Wolverine Execution Services LLC	Options Trading Platform	619
Total Investment Counsel		\$ 8,015,276
<u>Real Estate Management Fees</u>		
Beacon Capital Partners	Real Estate Management Fees	\$ (148,140)
Black Chamber Partners	Real Estate Management Fees	10,351
Blackrock	Real Estate Management Fees	2,368
Blackstone Capital Partners	Real Estate Management Fees	33,544
Blue Moon Capital Partners	Real Estate Management Fees	(24,151)
Bristol Group	Real Estate Management Fees	81,630
Buchanan Street Capital Partners	Real Estate Management Fees	29,493
Callahan Capital Partners	Real Estate Management Fees	(584)
Carson Companies	Real Estate Management Fees	9
Casa Partners	Real Estate Management Fees	(2,487)
CBRE	Real Estate Management Fees	578
C-III Capital Partners	Real Estate Management Fees	(465)
Cornerstone Real Estate Advisers	Real Estate Management Fees	9,578
Four Seasons	Real Estate Management Fees	6,860
FPA Multifamily Core Plus	Real Estate Management Fees	(12,727)
Heitman	Real Estate Management Fees	72,613
Henderson Global Investors	Real Estate Management Fees	(3,581)
High Street Realty Company LLC	Real Estate Management Fees	(123,317)
Hudson Advisors	Real Estate Management Fees	(2,711)
J.P. Morgan Asset Management	Real Estate Management Fees	(8,671)
MetWest International	Real Estate Management Fees	(17,962)
Morgan Stanley	Real Estate Management Fees	(85,649)
Nuveen Institutional	Real Estate Management Fees	86,896

EXPENSE CATEGORY	SERVICE PROVIDED	EXPENSES***
O'Connor Capital Partners	Real Estate Management Fees	(89,210)
Prologis	Real Estate Management Fees	1,838
Prudential Global Investment Management (PGIM)	Real Estate Management Fees	(28,343)
Realterm Global Asset Management	Real Estate Management Fees	5,220
RREEF	Real Estate Management Fees	(2,980)
Security Capital	Real Estate Management Fees	(39,571)
Teachers Insurance and Annuity Association of America	Real Estate Management Fees	(3,263)
UBS Realty Investors	Real Estate Management Fees	(6,717)
Total Real Estate Management* (3rd quarter accounting change - reversal of prior accruals)		\$ (259,551)
<u>Private Equity</u>		
Advent International	Private Equity Management Fees	\$ (757,452)
Alchemy Partners	Private Equity Management Fees	8,673
Altaris Capital Partners	Private Equity Management Fees	(4,924)
American Securities	Private Equity Management Fees	489,478
Apollo Management	Private Equity Management Fees	4,121
Arbor Investments	Private Equity Management Fees	(95,157)
Ares Management	Private Equity Management Fees	(8,517)
Atlas Holdings	Private Equity Management Fees	815
Benefit Street Partners	Private Equity Management Fees	(25,348)
Berkshire Property Advisors	Private Equity Management Fees	(363,289)
Blackstone Real Estate Advisors	Private Equity Management Fees	(124,988)
Bookend Capital Partners	Private Equity Management Fees	(250,000)
Bridgepoint Capital	Private Equity Management Fees	(190,085)
Brownstone Equity Partners	Private Equity Management Fees	748,378
Caltius Mezzanine	Private Equity Management Fees	(1)
CapVest Private Equity	Private Equity Management Fees	7,981
Centerbridge Partners	Private Equity Management Fees	(533,534)
Charlesbank Capital Partners	Private Equity Management Fees	64,350
Chequers Capital	Private Equity Management Fees	(75,724)
Clearlake Capital Group	Private Equity Management Fees	(90)
Clearview Capital LLC	Private Equity Management Fees	(449,383)
Cortec Group	Private Equity Management Fees	(290,540)
Cressey & Company	Private Equity Management Fees	(450,000)
CVC Capital Partners	Private Equity Management Fees	486,740
ECM Equity Capital Management Gmbh	Private Equity Management Fees	12,502
EnCap Investments	Private Equity Management Fees	(104,208)
EQT Partners	Private Equity Management Fees	26,995
Excellere Capital Management	Private Equity Management Fees	(535,873)
Flexpoint Ford	Private Equity Management Fees	637,616
FountainVest Partners	Private Equity Management Fees	(97,216)
Gemspring Capital	Private Equity Management Fees	150,000
German Equity Partners	Private Equity Management Fees	31,860
Gilde	Private Equity Management Fees	(396,269)
Glendon Capital Management	Private Equity Management Fees	78,623
Gores Group	Private Equity Management Fees	47,900
Graphite Capital Management	Private Equity Management Fees	(16,201)
GSO Capital Partners	Private Equity Management Fees	28,805
GTCR	Private Equity Management Fees	656,118
Harvest Partners	Private Equity Management Fees	(230,774)
Hellman & Friedman Investors	Private Equity Management Fees	(3,585)
HgCapital	Private Equity Management Fees	(315,924)
Hudson Advisors	Private Equity Management Fees	(2,108)
Inflexion Private Equity Partners LLP	Private Equity Management Fees	124,305
InvestIndustrial	Private Equity Management Fees	22,482
JMI Equity	Private Equity Management Fees	3
Kohlberg Kravis Roberts & Co	Private Equity Management Fees	861
KPS Capital Partners	Private Equity Management Fees	(250,000)
Lake Pacific Partners	Private Equity Management Fees	(237,506)
Leonard Green & Partners	Private Equity Management Fees	187,500
Lindsay, Goldberg & Bessemer	Private Equity Management Fees	(105,826)
LivingBridge GP Company Limited	Private Equity Management Fees	(247,120)
Merit Capital Partners	Private Equity Management Fees	(25,509)
Montefiore Investment	Private Equity Management Fees	60,532
Morgan Stanley	Private Equity Management Fees	(99,789)
Oaktree Capital Management	Private Equity Management Fees	7,112
ParkerGale Capital	Private Equity Management Fees	(157,500)

EXPENSE CATEGORY	SERVICE PROVIDED	EXPENSES***
Patria Investimentos	Private Equity Management Fees	(217,555)
Peninsula Capital Partners LLC	Private Equity Management Fees	(85,779)
Private Equity Solutions	Private Equity Management Fees	(5,857)
Providence Equity Partners, Inc.	Private Equity Management Fees	(21,885)
Providence Strategic Growth (PSG)	Private Equity Management Fees	320,033
Resource Capital Funds	Private Equity Management Fees	(3,156)
Ridgemont Partners	Private Equity Management Fees	(506,939)
Riverstone Holdings	Private Equity Management Fees	(192,606)
SAIF Partners	Private Equity Management Fees	(121,002)
Segulah	Private Equity Management Fees	247
Shamrock Capital Advisors	Private Equity Management Fees	(250,518)
StepStone Group	Private Equity Management Fees	44,477
Sterling Group	Private Equity Management Fees	(405,457)
Stone Point Capital LLC	Private Equity Management Fees	348,221
The Jordan Company LP	Private Equity Management Fees	(144,507)
TowerBrook Investors	Private Equity Management Fees	(7,258)
TPG Capital	Private Equity Management Fees	11,325
Triton	Private Equity Management Fees	26,599
TSG Capital Partners	Private Equity Management Fees	(249,159)
TSG Consumer Partners LLC	Private Equity Management Fees	(818,954)
Udata Partners	Private Equity Management Fees	(131,257)
Varsity Healthcare Partners	Private Equity Management Fees	(685)
Venture Capital****	Private Equity Management Fees	(70,682)
Vinci Partners	Private Equity Management Fees	(2,206)
Vista Equity Partners	Private Equity Management Fees	18,929
Warburg Pincus	Private Equity Management Fees	(221,451)
Waterland Private Equity	Private Equity Management Fees	5,650
Wayzata Investment Partners	Private Equity Management Fees	(3,731)
Wind Point Partners	Private Equity Management Fees	(546,497)
WP Global Partners Inc	Private Equity Management Fees	(41,818)
Total Private Equity Management** (3rd quarter accounting change - reversal of prior accruals)		\$ (5,834,168)

Commingled Account Public Market Management Fees

Arrowgrass Capital	Public Market Management Fees	\$ 9,690
Avenue Capital Group	Public Market Management Fees	232,874
Avidity Partners	Public Market Management Fees	2,151,668
BFAM Asian Opportunities Fund	Public Market Management Fees	637,320
Blackrock	Public Market Management Fees	354,914
Bridgewater Associates	Public Market Management Fees	1
Capula Investment Management	Public Market Management Fees	1,539,595
Davidson Kempner Capital Management	Public Market Management Fees	3,832,055
DE Shaw & Co	Public Market Management Fees	10,334,362
Dorsal Capital Partners	Public Market Management Fees	3,372,978
Dyal Capital Partners	Public Market Management Fees	525,008
Elliott Management Corporation	Public Market Management Fees	574,993
Exoduspoint Capital Management	Public Market Management Fees	1,236,693
Graham Capital Management	Public Market Management Fees	806,889
Graticule Asset Management Asia	Public Market Management Fees	865,908
Holocene Advisors Fund LP	Public Market Management Fees	5,917,671
Hudson Structured Capital Management	Public Market Management Fees	599,871
King Street Capital Management	Public Market Management Fees	370,773
LibreMax Capital, LLC	Public Market Management Fees	625,033
Marshall Wace	Public Market Management Fees	7,347,663
Nephilia Capital Ltd	Public Market Management Fees	340,164
Pharo	Public Market Management Fees	2,455,970
PIMCO	Public Market Management Fees	1,744,568
PSquared Asset Management	Public Market Management Fees	1,817,359
Rokos Capital Management	Public Market Management Fees	5,108,083
Silver Point Capital, L.P.	Public Market Management Fees	153,594
Standish Mellon	Cash Management	117,195
TCW	Public Market Management Fees	508,881
Two Sigma	Public Market Management Fees	(707,929)
Voleon Capital Management	Public Market Management Fees	705,259
Total Commingled Account Public Market Management Fees		\$ 53,579,103

Separate Account Public Market Management Fees

Acadian Asset Management	Public Market Management Fees	\$ 1,174,791
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EXPENSE CATEGORY	SERVICE PROVIDED	EXPENSES***
Alliance Bernstein	Public Market Management Fees	93,073
Blackrock	Public Market Management Fees	586,775
Dodge and Cox	Public Market Management Fees	552,579
Fidelity Investments	Public Market Management Fees	1,199,811
Longview Partners	Public Market Management Fees	228,230
Loomis Sayles & Co	Public Market Management Fees	566,191
Parametric	Public Market Management Fees	430,483
Prudential Global Investment Management (PGIM)	Public Market Management Fees	134,820
Wellington Trust Company	Public Market Management Fees	2,733,897
Total Separate Account Public Market Management Fees		\$ 7,700,650
<u>Securities Lending Agent Fees</u>		
BNY Mellon Asset Servicing	Securities Lending Agent Fees	\$ 519,933
Total Securities Lending Agent Fees		\$ 519,933
Total Quarterly Charges to Funds		<u><u>\$ 76,112,888</u></u>

*Fees paid to fund managers are established as percentage of the capital committed. As assets in a fund are sold, the management fees paid are typically reimbursed from the profits of the fund.

**Expenses for private equity management fees are estimated and adjusted annually based upon committed capital or assets under management, determined by management contract terms. Total committed capital includes management fees. All capital contributions to the limited partnership must first be returned to the limited partners before any incentive fees are paid to the general partner.

***Negative expense amounts are due to accrual adjustments and/or other miscellaneous adjustments.

****Pursuant to Wisconsin Statute Section 25.184 Venture Capital investments are recorded in aggregate.

Explanations of Expenses

Internal Operating Expenses

Internal operating expenses consist primarily of staff compensation and fringe benefits. SWIB employs a staff of professional investment and support staff to manage the trust fund assets. Other internal operating expenses consist of office equipment, supplies, business travel, information technology equipment and services, and general services.

Custodial & Banking Fees

Wisconsin Certificate of Deposit Program: Under a contract with SWIB, Bankers' Bank administers the program under which the State Investment Fund (SIF) purchases certificates of deposit from Wisconsin-based banks and thrifts. Most administrative costs are paid by the participating banks. SWIB's expenses help underwrite other administrative costs, such as insurance that SWIB requires to be purchased.

BNY Mellon: Provides master custodial and administrative services (safekeeping of assets, income collection, valuations and accounting) for public and private domestic and foreign securities in the Wisconsin Retirement System (WRS), the SIF, and the other separately managed trust funds. In addition, SWIB receives performance measurement and analytical services through its contract with BNY Mellon, which serves as the official book of record for SWIB's accounting and performance measurement functions. BNY Mellon provides data and analytical tools used by SWIB for compliance and risk management. These include global collateral management, data management, and hosting services. Fees for these services are established by contract.

US Bank: The State of Wisconsin contracted with US Bank to be the state's working bank. The fees paid to US Bank by the SIF reflect bank service charges that are not directly applicable to the fund participants. These fees are distributed to the fund participants through the monthly SIF earnings process.

Legal Fees, Services, and Expenses

Under authority delegated by the Attorney General, pursuant to s. 25.18 (1) (a) Statutes, SWIB may employ legal counsel for any matters arising out of the scope of its investment authority. This includes legal services relating to bankruptcies, class actions, private markets transactions, fiduciary advice, securities law, investment litigation, and other similar matters. The Attorney General annually reviews and approves a list of law firms to provide investment legal services for SWIB.

Investment Counsel

Current law gives SWIB the authority to employ investment counsel in any matters arising out of the scope of its investment authority. Investment research and services provided include global market, industry, economic and company information, financial and performance analytics, news information, pricing and exchange data, credit ratings, financial modeling, economic forecasting, trading services, and a variety of Board consultations. These services enable SWIB to perform due diligence on current and future holdings and assist in monitoring investments.

Private Equity & Real Estate Investment Management Services

SWIB hires private equity and real estate advisors to assist with sourcing analysis, due diligence, and management of investments. SWIB also invests in funds, typically limited partnerships. Each fund either has a general partner or, for real estate, engages a fund manager with delegated authority to make real estate investments for the fund. Fees paid to fund managers are typically established as a percentage of the capital committed or assets under management. As assets in a fund are sold, the management fees paid are typically reimbursed from the profits of the fund.

Separate Account Public Market Management Fees

External asset managers have been delegated authority within guidelines established by SWIB to determine investment strategy and purchase securities in SWIB's name under a separate and distinct account. Fees are typically assessed as a percentage of the market value of assets under management and in some cases, fees are based on investment performance. Standish Mellon invests cash in international and global portfolios that has yet to be invested in stocks or bonds. Due to settlement times around the globe, these funds cannot be effectively managed in the State Investment Fund. The fees are negotiated as part of the custodial contract.

Commingled Account Public Market Management Fees

SWIB has investments in several externally managed funds which seek to replicate the returns of a particular public market index or seek to enhance the return from a particular public market index through the use of quantitative models or other strategies. SWIB's investments are commingled with other investors' and the underlying securities are owned in the name of the fund manager. Fees are typically based on a percentage of assets under management and may include other factors, such as performance. Hedge funds are included in this category as the invested assets are also commingled. Costs incurred from hedge fund investments consist of base fees and performance fees.

Securities Lending Agent Fees

Securities lending programs generally earn income through the reinvestment of cash collateral posted by borrowers and through the collection of fees for loans where non-cash collateral is posted. SWIB's securities lending income is shared with the agent to pay the costs associated with the administration of the program. The securities lending agent fees are no longer netted with income and are reported as securities lending agent fee expenses starting on July 1, 2019.