

August 14, 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 June 30, 2020.

Total Cost of Management – 2nd Quarter 2020

SWIB Cost of Management Summary	3rd Quarter 2019 Cost	4th Quarter 2019 Cost	1st Quarter 2020 Cost	2nd Quarter 2020 Cost	One-year Ending 6/30/2020	% of Total Cost
Internal Operating Costs						
Agency Operating Expenses	\$ 9,064,132	\$ 9,413,515	\$ 11,532,252	\$ 28,318,149	\$ 58,328,048	11.6%
Custodial, Investment Operations & Banking Fees	1,523,536	1,567,121	1,659,192	1,624,806	6,374,655	1.3%
Legal Fees	411,955	845,239	79,653	602,480	1,939,327	0.4%
Investment Research & Consulting Fees	8,180,737	9,378,626	8,034,732	7,161,646	32,755,741	6.5%
Total Internal Operating Costs	\$ 19,180,360	\$ 21,204,501	\$ 21,305,829	\$ 37,707,081	\$ 99,397,771	19.8%
External Management Fees						
Real Estate Advisory/Asset Management	\$ 13,118,881	\$ 11,604,346	\$ 23,441,247	\$ 17,900,845	\$ 66,065,319	13.1%
Private Equity Management	40,390,972	37,309,760	42,876,509	40,715,035	161,292,276	32.0%
Public Market Separate Accounts	8,090,740	5,751,839	8,102,113	9,541,690	31,486,382	6.2%
Public Market Commingled Accounts	31,649,108	36,560,546	24,465,935	50,510,696	143,186,285	28.4%
Total External Management Fees	\$ 93,249,701	\$ 91,226,491	\$ 98,885,804	\$ 118,668,266	\$ 402,030,262	79.7%
Securities Lending Agent Fees	\$ 544,279	\$ 520,958	\$ 769,532	\$ 872,966	\$ 2,707,735	0.5%
Total Cost of Management	\$ 112,974,340	\$ 112,951,950	\$ 120,961,165	\$ 157,248,313	\$ 504,135,768	
Average Assets Under Management (in billions)	\$ 122.8	\$ 128.8	\$ 114.0	\$ 126.3	\$ 123.0	
Cost in Basis Points (all trust funds)					41.0	

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 June 30, 2020, SWIB's total cost of management approximated 41 basis points (0.41%), or 41 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.

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 June 30, 2020, external investment management fees, including securities lending agent fees, represented 80.2% of SWIB's total costs of management and 44.7% of assets under management, while SWIB's internal operating expenses represented 19.8% of costs and 55.3% of assets (see Attachment A). During the second quarter of 2020, no new positions were approved by the Board of Trustees.

Assets Under Management & FTE		
	3/31/2020	6/30/2020
Internal Management	53.0%	55.3%
External Management	47.0%	44.7%
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,

A handwritten signature in black ink, appearing to read "David Villa", written in a cursive style.

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)	9/30/2019		12/31/2019		3/31/2020		6/30/2020	
	Amount (in millions)	% of WRS Assets	Amount (in millions)	% of WRS Assets	Amount (in millions)	% of WRS Assets	Amount (in millions)	% of WRS Assets
Internally Managed	\$ 57,145	51.3%	\$ 58,597	50.3%	\$ 49,704	49.0%	\$ 58,015	51.6%
Externally Managed Dedicated Accounts	26,290	23.6%	34,514	29.6%	29,624	29.2%	31,466	28.0%
Externally Managed Commingled Accounts	28,049	25.2%	23,351	20.1%	22,072	21.8%	22,944	20.4%
1. Passive Index Funds	8,126	7.3%	2,498	2.1%	1,922	1.9%	2,325	2.1%
2. Enhanced Index Commingled Funds	-	0.0%	-	0.0%	-	0.0%	-	0.0%
3. Limited Partnerships	14,247	12.8%	14,717	12.6%	15,308	15.1%	14,812	13.2%
4. Actively Managed Commingled Accounts	5,676	5.1%	6,137	5.3%	4,842	4.8%	5,806	5.2%
TOTAL WRS Assets	\$ 111,485	100.0%	\$ 116,463	100.0%	\$ 101,401	100.0%	\$ 112,425	100.0%

State Investment Fund - Internally Managed	\$ 9,313		\$ 10,217		\$ 10,531		\$ 11,649	
Separately Managed Funds - Internally Managed	121		120		123		129	
Separately Managed Funds - Externally Managed	\$ 1,962		\$ 2,004		\$ 1,920		\$ 2,068	

Total Assets Under Management	\$ 122,881		\$ 128,803		\$ 113,975		\$ 126,272	
Total Internal Management	\$ 66,580	54.2%	\$ 68,934	53.5%	\$ 60,359	53.0%	\$ 69,794	55.3%
Total External Management	\$ 56,301	45.8%	\$ 59,869	46.5%	\$ 53,617	47.0%	\$ 56,478	44.7%

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

EXPENSE CATEGORY	SERVICE PROVIDED	EXPENSES
<u>Internal Operating Expenses</u>		
Staff Compensation	Staff Compensation	\$ 22,861,040
Fringe Benefits	Fringe Benefits	3,993,146
Equipment, Supplies & Services	General Supplies & Services	1,463,963
Total Internal Operating Expenses ***		\$ 28,318,149
<u>Custodial, Investment Operations and Banking Fees</u>		
Bankers Bank	Custodial and Banking Fees	\$ 5,000
BNY Mellon Asset Servicing - Custody	Master Custody Services	525,587
BNY Mellon Asset Servicing - Investment Operations	Investment Operating Services	1,094,186
US Bank	Banking Fees	33
Total Custodial, Investment Operations and Banking Fees		\$ 1,624,806
<u>Legal Fees</u>		
Chapman & Cutler LLP	Legal Work for Investment Strategies	\$ 31,200
Cox Castle & Nicholson LLP	Legal Work for Investment Strategies	50,194
DLA Piper LLP (US)	Legal Work for Investment Strategies	99,174
Faeare Drinker Biddle & Reath LLP	Legal Work for Investment Strategies	11,948
Godfrey & Kahn SC	Legal Work for Investment Strategies	19,056
Latham & Watkins LLP	Legal Work for Investment Strategies	50,000
Mayer Brown LLP	Legal Work for Investment Strategies	6,531
Purrington Moody Weill LLP	Legal Work for Investment Strategies	104,905
Quarles & Brady	Legal Work for Investment Strategies	93,855
Reinhart Boerner Van Deuren SC	Legal Work for Investment Strategies	1,133
Shearman & Sterling LLP	Legal Work for Investment Strategies	127,284
Sidley Austin (Domestic)	Legal Work for Investment Strategies	7,200
Total Legal Fees		\$ 602,480
<u>Investment Counsel</u>		
Adeptyx Consulting	Investment Consulting Services	\$ 293,952
Advent Software Inc	Research Management System	44,341
Aksia LLC	Hedge Fund Investment Consulting	193,750
BCA Research Inc	Global & Domestic Fixed Income Strategy Research	28,250
Bloomberg Finance LP	Market, Company, Industry & Benchmark Information	1,152,861
Bright Young Ideas LLC	Investment Consulting Services	8,640
Callan Associates Inc	Investment Consulting & Performance Benchmarking	6,250
CFRA Research	Investment Research Services	22,000
Charles River System Inc	Portfolio Management Trading Software & Services	341,169
Citisoft Inc	Investment Consulting Services	184,874
CoStar Portfolio Strategy	Real Estate Consulting & Research Services	9,579
CreditSights	Credit Assessments	(35,000)
Cutter Associates	Investment Organization and Systems Consulting	79,583
Deutsche Bank	Tax Registration Fees	41,800
Dow Jones News Service	Company and Industry News Services	813
DTCC ITP LLC	Trade Settlement Service	9,298
EFront Financial Solutions Inc	Private Markets Portfolio Management Services	302,102
Elevation LLC	Research and Data Services	15,000
Ernst & Young LLP	Tax Compliance Services & Investment Consulting	44,360
Euromonitor International	Research and Data Services	16,108
FactSet Research Systems Inc	Financial & Economic Database	854,522
FTSE Fixed Income LLC	Real Time Index Data	35,370
FTSE International Inc	Real Time Index Data	8,675
Gcon4 Group	Integration Software	3,330
Gradient Analytics, LLC	Investment Research	7,500
Grandview Analytics LLC	Investment Information Technology Consulting Services	100,394
Green Street Advisor	Real Estate Analytics	(5,250)
Haver Analytics	Global Macroeconomic Research	18,200
Ice Data LP	Fixed Income Indices	6,875
Institutional Shareholder Services Inc	Proxy Voting Analysis	30,899
Keystone Consulting Inc	Investment Information Technology Consulting Services	207,330
LionPoint Group	Investment Consulting Services	1,000
Markit NA	Investment Data Management Software	167,017
Matrix IDM, LLC	Investment Consulting	109,500
Meketa Investment Group	Public Markets External Manager Consultant	63,087
Melius Research LLC	Research and Data Service	25,000

EXPENSE CATEGORY	SERVICE PROVIDED	EXPENSES
Moody's Analytics	Economic, Currency & Bond Analysis	17,150
MSCI ESG Research Inc	Corporate Governance Research	42,000
MSCI Inc - Risk Metrics Solutions	Research and Data Services	258,360
NEPC LLC	Investment Consulting Services	150,000
Novus Partners Inc	Profit & Loss Analytics System	47,025
Nuware Technology Corp	Investment Information Technology Consulting Services	161,408
NYSE Market Inc	New York Stock Exchange Data	6,642
Oliver James	Investment Consulting	10,912
Oppenheimer & Co Inc	Investment Research	54
Options Price Reporting Authority	Quote System for Options Market	1,922
Pacific Pension & Investment Institute	Access to Investment Research	12,000
Pac-invest	Research and Data Services	11,025
PRI Technology	Investment Consulting	32,000
RedLine Associates, Inc	Recruitment Consulting	112,500
Refinitiv	Research Pricing (Autex, Baseline, FirstCall)	11,647
Russell Investment Group	Index Data	17,428
S&P Global Market Intelligence	Investment Research and Data	144,173
Sagient Research	Investment Research	13,770
Seaport Global Securities LLC	Research and Data Services	2,400
Sharp Decisions Inc	Investment Information Technology Consulting Services	408,567
Sidoti & Company LLC	Investment Research	9,000
SPACInsider	Research and Data Services	1,925
StepStone Group	Private Equity Consulting Services	576,644
StepStone Group Real Estate	Real Estate Consulting Services	56,438
SystemsAccountants	Investment Information Technology Consulting Services	51,200
TD Securities (USA) LLC	Investment Research	6,100
Telsey Advisory Group	Consumer Sector Research	125,000
The Financial Times Limited	Investment Research	6,412
The Finlay Group	Investment Consulting Services	21,834
The Harry Walker Agency	Investment Consulting	15,000
Toronto Stock Exchange	Market Data	13,287
Trade Alert LLC	Market Data	900
TradeWeb	On-Line Fixed Income Trading Services	9,136
TradingView	Research and Data Services	647
Unit4 Business Software Inc	Financial & Administration Services System	53,930
Urban Land Institute	Investment Consulting Services	1,270
Verus Advisory Inc	Benchmarking Consulting Services	84,000
Virtu ITG Analytics LLC	Trading Transaction Cost Analysis	7,500
Visible Alpha LLC	Research and Data Services	51,765
Wall Street Journal	Investment Research & Information	39
Wedbush	Investment Research	28,000
Wolters Kluwer Law & Business	GDP Forecasting Services	10,469
Wolverine Execution Services LLC	Options Trading Platform	1,238
WorldBridge Partners Inc	Recruitment Consulting	175,750
Total Investment Counsel		\$ 7,161,646
<u>Real Estate Management Fees</u>		
Alcion Ventures	Real Estate Management Fees	\$ 126,863
AmCap Inc	Real Estate Management Fees	325,109
Beacon Capital Partners	Real Estate Management Fees	161,490
Black Chamber Partners	Real Estate Management Fees	797,655
Blackrock	Real Estate Management Fees	2,227
Blackstone Real Estate Advisors	Real Estate Management Fees	3,664,684
Blue Moon Capital Partners	Real Estate Management Fees	409,403
Blue Vista Capital Management	Real Estate Management Fees	185,930
Bristol Group	Real Estate Management Fees	379,904
Buchanan Street Capital Partners	Real Estate Management Fees	201,058
Callahan Capital Partners	Real Estate Management Fees	168,478
Carson Companies	Real Estate Management Fees	17,227
Casa Partners	Real Estate Management Fees	115,813
CBRE	Real Estate Management Fees	103,348
C-III Capital Partners	Real Estate Management Fees	6,973
Cornerstone Real Estate Advisers	Real Estate Management Fees	181,292
Crossings at Danada	Real Estate Management Fees	188,941
Essex Property Trust	Real Estate Management Fees	1,468,025
Four Seasons	Real Estate Management Fees	198,971
FPA Multifamily Core Plus	Real Estate Management Fees	287,166
Harbor Beach Capital, LLC	Real Estate Management Fees	218,218
Hawkeye Partners	Real Estate Management Fees	143,521
Heitman	Real Estate Management Fees	575,006
Henderson Global Investors	Real Estate Management Fees	342,473
High Street Realty Company LLC	Real Estate Management Fees	953,891

EXPENSE CATEGORY	SERVICE PROVIDED	EXPENSES
Hudson Advisors	Real Estate Management Fees	61,903
J.P. Morgan Asset Management	Real Estate Management Fees	208,301
Lone Star	Real Estate Management Fees	720,264
Lowe Enterprises Investors	Real Estate Management Fees	13,148
MetWest International	Real Estate Management Fees	432,502
Morgan Stanley	Real Estate Management Fees	42,825
Normandy Real Estate Partners	Real Estate Management Fees	194,375
Nuveen Institutional	Real Estate Management Fees	73,973
O'Connor Capital Partners	Real Estate Management Fees	513,811
Penwood	Real Estate Management Fees	376,016
Prologis	Real Estate Management Fees	263,544
Prudential Global Investment Management (PGIM)	Real Estate Management Fees	821,219
Realterm Global Asset Management	Real Estate Management Fees	509,261
Rockpoint Group	Real Estate Management Fees	24,849
RREEF	Real Estate Management Fees	343,372
Security Capital	Real Estate Management Fees	521,760
Teachers Insurance and Annuity Association of America	Real Estate Management Fees	298,155
Torchlight Investors	Real Estate Management Fees	311,688
UBS Realty Investors	Real Estate Management Fees	217,681
Wesco	Real Estate Management Fees	398,304
Westbrook Partners	Real Estate Management Fees	330,228
Total Real Estate Management*		\$ 17,900,845
Private Equity		
Abor Group	Private Equity Management Fees	\$ 300,000
Advent International	Private Equity Management Fees	984,506
Alchemy Partners	Private Equity Management Fees	91,182
Altaris Capital Partners	Private Equity Management Fees	356,483
American Securities	Private Equity Management Fees	658,343
Apollo Management	Private Equity Management Fees	204,281
Arbor Investments	Private Equity Management Fees	87,417
Ares Management	Private Equity Management Fees	446,211
Ascribe Capital LLC	Private Equity Management Fees	(105,871)
Atlas Holdings	Private Equity Management Fees	424,183
Benefit Street Partners	Private Equity Management Fees	222,719
Berkshire Property Advisors	Private Equity Management Fees	262,860
Blackstone Real Estate Advisors	Private Equity Management Fees	404,505
Bookend Capital Partners	Private Equity Management Fees	250,000
Bridgepoint Capital	Private Equity Management Fees	598,486
Caltius Mezzanine	Private Equity Management Fees	205,016
CapVest Private Equity	Private Equity Management Fees	124,202
Centerbridge Partners	Private Equity Management Fees	582,661
Charlesbank Capital Partners	Private Equity Management Fees	550,110
Chequers Capital	Private Equity Management Fees	351,412
Clearlake Capital Group	Private Equity Management Fees	763,507
Clearview Capital LLC	Private Equity Management Fees	404,806
Coller Capital	Private Equity Management Fees	186,575
Cortec Group	Private Equity Management Fees	357,705
Cressey & Company	Private Equity Management Fees	500,000
CVC Capital Partners	Private Equity Management Fees	159,208
ECM Equity Capital Management Gmbh	Private Equity Management Fees	82,062
EnCap Investments	Private Equity Management Fees	381,326
EQT Partners	Private Equity Management Fees	367,055
Excellere Capital Management	Private Equity Management Fees	628,810
Flexpoint Ford	Private Equity Management Fees	28,348
FountainVest Partners	Private Equity Management Fees	344,409
German Equity Partners	Private Equity Management Fees	236,419
Gilde	Private Equity Management Fees	380,721
Glendon Capital Management	Private Equity Management Fees	355,331
Gores Group	Private Equity Management Fees	52,385
Graphite Capital Management	Private Equity Management Fees	8,072
GSO Capital Partners	Private Equity Management Fees	100,202
GTCR	Private Equity Management Fees	1,023,662
Harvest Partners	Private Equity Management Fees	767,160
Hellman & Friedman Investors	Private Equity Management Fees	835,022
HgCapital	Private Equity Management Fees	305,607
Hudson Advisors	Private Equity Management Fees	25,858
Inflexion Private Equity Partners LLP	Private Equity Management Fees	470,359
Insight Equity	Private Equity Management Fees	46,893
InvestIndustrial	Private Equity Management Fees	341,667
JMI Equity	Private Equity Management Fees	618,236
KLH Capital	Private Equity Management Fees	136,370

EXPENSE CATEGORY	SERVICE PROVIDED	EXPENSES
Kohlberg Kravis Roberts & Co	Private Equity Management Fees	254,258
KPS Capital Partners	Private Equity Management Fees	375,000
Lake Pacific Partners	Private Equity Management Fees	621,509
Leonard Green & Partners	Private Equity Management Fees	466,879
Lightbay Capital	Private Equity Management Fees	250,000
Lindsay, Goldberg & Bessemer	Private Equity Management Fees	(69,598)
LivingBridge GP Company Limited	Private Equity Management Fees	494,240
Merit Capital Partners	Private Equity Management Fees	463,460
Montefiore Investment	Private Equity Management Fees	162,574
Morgan Stanley	Private Equity Management Fees	107,799
New Capital Partners	Private Equity Management Fees	125,000
Oaktree Capital Management	Private Equity Management Fees	211,852
Old Lane	Private Equity Management Fees	3,275
ParkerGale Capital	Private Equity Management Fees	157,500
Patria Investimentos	Private Equity Management Fees	191,275
Peninsula Capital Partners LLC	Private Equity Management Fees	338,980
Platte River Equity	Private Equity Management Fees	182,502
Private Equity Solutions	Private Equity Management Fees	95,652
Providence Equity Partners, Inc.	Private Equity Management Fees	1,794,176
Quantum Energy Partners	Private Equity Management Fees	218,750
Resource Capital Funds	Private Equity Management Fees	118,904
Ridgemont Partners	Private Equity Management Fees	644,894
Riverstone Holdings	Private Equity Management Fees	482,072
SAIF Partners	Private Equity Management Fees	115,438
Segulah	Private Equity Management Fees	3,131
Sentinel Real Estate Corporation	Private Equity Management Fees	375,000
Shamrock Capital Advisors	Private Equity Management Fees	492,672
Sheridan Production Partners	Private Equity Management Fees	125,000
StepStone Group	Private Equity Management Fees	70,933
Sterling Group	Private Equity Management Fees	572,879
Stone Point Capital LLC	Private Equity Management Fees	709,320
The Jordan Company LP	Private Equity Management Fees	562,467
Thomas Bravo Fund	Private Equity Management Fees	281,250
Tower Arch Capital	Private Equity Management Fees	100,000
TowerBrook Investors	Private Equity Management Fees	337,387
TPG Capital	Private Equity Management Fees	1,725,550
Triton	Private Equity Management Fees	293,419
TSG Capital Partners	Private Equity Management Fees	750,000
TSG Consumer Partners LLC	Private Equity Management Fees	1,004,622
Turn/River Capital	Private Equity Management Fees	312,500
Udata Partners	Private Equity Management Fees	468,764
Varsity Healthcare Partners	Private Equity Management Fees	332,876
Venture Capital****	Private Equity Management Fees	3,544,621
Vinci Partners	Private Equity Management Fees	101,452
Vista Equity Partners	Private Equity Management Fees	1,173,416
Warburg Pincus	Private Equity Management Fees	833,547
Warwick Partners	Private Equity Management Fees	249,323
Waterland Private Equity	Private Equity Management Fees	526,658
Wayzata Investment Partners	Private Equity Management Fees	52,292
Wind Point Partners	Private Equity Management Fees	842,993
WP Global Partners Inc	Private Equity Management Fees	39,049
Yellow Wood Capital Partners	Private Equity Management Fees	121,042
Total Private Equity Management**		\$ 40,715,035

Commingled Account Public Market Management Fees

Arrowgrass Capital	Public Market Management Fees	\$ 10,211
Avenue Capital Group	Public Market Management Fees	229,846
BFAM Asian Opportunities Fund	Public Market Management Fees	577,018
Blackrock	Public Market Management Fees	328,699
Blue Mountain Capital Management	Public Market Management Fees	34
Bridgewater Associates	Public Market Management Fees	369,541
Capula Investment Management	Public Market Management Fees	2,482,011
Davidson Kempner Capital Management	Public Market Management Fees	1,011,808
DE Shaw & Co	Public Market Management Fees	13,100,656
Dorsal Capital Partners	Public Market Management Fees	3,399,097
Dyal Capital Partners	Public Market Management Fees	523,562
Elliott Management Corporation	Public Market Management Fees	642,848
Exoduspoint Capital Management	Public Market Management Fees	3,984,555
Graham Capital Management	Public Market Management Fees	741,597
Graticule Asset Management Asia	Public Market Management Fees	840,203
Holocene Advisors Fund LP	Public Market Management Fees	1,996,958
Hudson Structured Capital Management	Public Market Management Fees	594,720

EXPENSE CATEGORY	SERVICE PROVIDED	EXPENSES
King Street Capital Management	Public Market Management Fees	431,608
LibreMax Capital, LLC	Public Market Management Fees	591,430
Marshall Wace	Public Market Management Fees	6,900,029
Nephilia Capital Ltd	Public Market Management Fees	386,623
Pharo	Public Market Management Fees	4,540,001
PIMCO	Public Market Management Fees	1,200,874
PSquared Asset Management	Public Market Management Fees	2,580,889
Silver Point Capital, L.P.	Public Market Management Fees	88,011
Standish Mellon	Cash Management	165,386
TCW	Public Market Management Fees	453,639
Two Sigma	Public Market Management Fees	1,649,090
Voleon Capital Management	Public Market Management Fees	689,752
Total Commingled Account Public Market Management Fees		\$ 50,510,696
 <u>Separate Account Public Market Management Fees</u>		
Acadian Asset Management	Public Market Management Fees	\$ 1,102,692
Alliance Bernstein	Public Market Management Fees	1,250,468
Blackrock	Public Market Management Fees	1,413,471
Dodge and Cox	Public Market Management Fees	545,969
Fidelity Investments	Public Market Management Fees	1,132,812
Longview Partners	Public Market Management Fees	263,253
Loomis Sayles & Co	Public Market Management Fees	727,736
Parametric	Public Market Management Fees	528,544
Prudential Global Investment Management (PGIM)	Public Market Management Fees	117,946
Wellington Trust Company	Public Market Management Fees	2,458,799
Total Separate Account Public Market Management Fees		\$ 9,541,690
 <u>Securities Lending Agent Fees</u>		
BNY Mellon Asset Servicing	Securities Lending Agent Fees	\$ 872,966
Total Securities Lending Agent Fees		\$ 872,966
 Total Quarterly Charges to Funds		
		\$ 157,248,313

*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.

***All costs reported are on an accrual basis except for internal operating costs which are on a cash basis of accounting. 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.