

May 14, 2019

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 submit a report on all expenses charged to the trust funds under management during the prior calendar quarter and on the number of full-time equivalent positions created or abolished during the quarter¹. The information contained in this report is for the quarter ending March 31, 2019.

Total Cost of Management – 1st Quarter 2019

SWIB Cost of Management Summary	2nd Quarter 2018 Cost	3rd Quarter 2018 Cost	4th Quarter 2018 Cost	1st Quarter 2019 Cost	One-year Ending 3/31/2019	% of Costs
Internal Operating Costs:						
Agency Operating Expenses	\$ 22,633,641	\$ 7,526,336	\$ 7,774,386	\$ 20,795,954	\$ 58,730,317	13.0%
Custodial, Investment Operations & Banking Fees	1,633,565	1,669,753	1,283,191	1,476,320	6,062,829	1.3%
Legal Fees	277,413	563,292	672,980	126,094	1,639,779	0.4%
Investment Research & Consulting Fees	8,061,514	6,495,458	8,533,239	6,972,181	30,062,392	6.7%
Total Internal Operating Costs	\$ 32,606,133	\$ 16,254,839	\$ 18,263,796	\$ 29,370,549	\$ 96,495,317	21.4%
External Management Fees:						
Real Estate Advisory/Asset Management	\$ 12,247,263	\$ 12,598,570	\$ 13,033,794	\$ 13,080,095	\$ 50,959,722	11.3%
Private Equity Management	35,991,714	33,854,190	37,166,487	36,978,609	143,991,000	32.0%
Public Market Separate Accounts	4,286,717	7,911,602	10,076,829	6,634,855	28,910,003	6.4%
Public Market Commingled Accounts	30,741,083	40,189,302	23,138,702	36,107,528	130,176,615	28.9%
Total External Management Fees	\$ 83,266,777	\$ 94,553,664	\$ 83,415,812	\$ 92,801,087	\$ 354,037,340	78.6%
Total Cost of Management	\$ 115,872,910	\$ 110,808,503	\$ 101,679,608	\$ 122,171,636	\$ 450,532,657	
Average Assets Under Management (in billions)	\$ 116.1	\$ 118.4	\$ 110.3	\$ 118.5	\$ 115.8	
Cost in Basis Points (all trust funds)						38.9

* The 4th quarter Average Assets Under Management was amended after release of the 4th quarter report.

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, UW Trust Fund and EdVest Fund.

SWIB's total costs, including both internal operating and external management costs, are charged to the trust funds under management. Over a one-year period ending March 31, 2019, SWIB's total cost of management was 38.9 basis points (0.39%) or 39 cents for every \$100 managed.

To reduce external asset management costs and increase net investment returns, SWIB continues to build internal resources to be able to manage assets internally where 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

For the year ending March 31, 2019, external investment management fees represented 78.6% of SWIB's total costs of management and 40.8% of assets under management, while SWIB's internal operating expenses represented 21.4% of costs and 59.2% of assets (see Attachment A).

Assets Under Management & FTE		
	12/31/2018	3/31/2019
Internal Management	58.8%	59.2%
External Management	41.2%	40.8%
SWIB Positions – FTE	203.00	208.00
Total SWIB Positions	203.00	208.00

Attachment B and C provides 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 public market, private market, and real estate asset management.

STATE OF WISCONSIN INVESTMENT BOARD

Page 3

As new investment strategies are implemented and as markets 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 the 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)	6/30/2018		9/30/2018		12/31/2018		3/31/2019	
	Amount (in millions)	Percent	Amount (in millions)	Percent	Amount (in millions)	Percent	Amount (in millions)	Percent
Internally Managed	\$63,067	58.9%	\$62,528	57.2%	\$56,876	56.5%	\$61,416	56.9%
Externally Managed Dedicated Accounts	17,268	16.1%	19,563	17.9%	18,004	17.9%	19,777	18.3%
Externally Managed Commingled Accounts	26,699	24.9%	27,238	24.9%	25,711	25.6%	26,717	24.8%
1. Passive Index Funds	7,744	7.2%	7,777	7.1%	6,600	6.6%	6,810	6.3%
2. Enhanced Index Commingled Funds	0	0.0%	0	0.0%	0	0.0%	0	0.0%
3. Limited Partnerships	12,974	12.1%	13,333	12.2%	13,591	13.5%	16,022	14.8%
4. Actively Managed Commingled Accounts	5,982	5.6%	6,128	5.6%	5,520	5.5%	3,885	3.6%
TOTAL WRS Assets	\$107,034	100.0%	\$109,329	100.0%	\$100,591	100.0%	\$107,910	100.0%

State Investment Fund - Internally Managed	\$7,185		\$7,191		\$7,836		\$8,574	
Various Funds Internally Managed	\$117		\$115		\$116		\$121	
Various Funds Externally Managed	\$1,783		\$1,810		\$1,764		\$1,865	

Total Assets Under Management	\$116,119		\$118,446		\$110,308		\$118,470	
Total Internal Management	\$70,369	60.6%	\$69,834	59.0%	\$64,828	58.8%	\$70,111	59.2%
Total External Management	\$45,750	39.4%	\$48,611	41.0%	\$45,480	41.2%	\$48,359	40.8%

STATE OF WISCONSIN INVESTMENT BOARD
Expenses for All Funds Under Management
Quarter Ending March 31, 2019

EXPENSE CATEGORY	SERVICE PROVIDED	EXPENSES
<u>Internal Operating Expenses</u>		
Staff Compensation	Staff Compensation	16,369,245
Fringe Benefits	Fringe Benefits	2,980,954
Equipment, Supplies & Services	General Supplies & Services	1,445,755
Total Internal Operating Expenses ***		\$ 20,795,954
<u>Custodial, Investment Operations and Banking Fees</u>		
Bankers Bank	Custodial and Banking Fees	5,000
BNY Mellon Asset Servicing - Custody	Master Custody Services	473,382
BNY Mellon Asset Servicing - Investment Operations	Investment Operating Services	998,046
US Bank	Banking Fees	(108)
Total Custodial, Investment Operations and Banking Fees		\$ 1,476,320
<u>Legal Fees</u>		
Chapman & Cutler LLP	Legal Work for Investment Strategies	(14,069)
Cox Castle & Nicholson LLP	Legal Work for Investment Strategies	16,574
DLA Piper LLP (US)	Legal Work for Investment Strategies	37,175
Eversheds Sutherland (US) LLP	Legal Work for Investment Strategies	5,015
Faegre Baker Daniels LLP	Legal Work for Investment Strategies	34,676
Godfrey & Kahn SC	Legal Work for Investment Strategies	1,775
Proskauer Rose LLP	Legal Work for Investment Strategies	(226)
Purrington Moody Weill LLP	Legal Work for Investment Strategies	5,669
Quarles & Brady	Legal Work for Investment Strategies	18,964
Reinhart Boerner Van Deuren SC	Legal Work for Investment Strategies	11,870
Sidley Austin LLP (International)	Legal Work for Investment Strategies	8,671
Total Legal Fees		\$ 126,094
<u>Investment Counsel</u>		
Adeptyx Consulting	Investment Consulting Services	165,006
Advent Software Inc	Research Management System	58,431
Aksia LLC	Hedge Fund Investment Consulting	193,750
Ananth Seshadri	Economic Consulting Services	23,750
Aon Risk Services Central Inc	Fidelity Bond	53,234
BCA Research Inc	Global & Domestic Fixed Income Strategy Research	25,500
Bloomberg Finance LP	Market, Company, Industry & Benchmark Information	608,988
BMO CAPITAL MARKETS CORP.	Investment Research Services	38,277
BNY Mellon Asset Servicing - Eagle/Pace	Investment Consulting Services	19,500
Brainmaven Corp	Investment Consulting Services	22,500
C&A Consulting	Investment Consulting Services	49,129
Callan Associates Inc	Investment Consulting & Performance Benchmarking	6,250
CFRA Research	Investment Research Services	20,667
Charles River System Inc	Portfolio Management Trading Software & Services	413,529
Citisoft Inc	Enterprise Investment Management System Consulting	799,995
Consensus Economics Inc	Investment Research Services	745
CoStar Portfolio Strategy	Real Estate Consulting & Research Services	27,500
CreditSights	Credit Assessments	10,000
Cross Current Research LLC	Healthcare Sector Research	15,000
Cutter Associates	Investment Organization and Systems Consulting	61,778
Delta Strategy Group	Investment Research Services	5,250
Depository Trust and Clearing Corp	Research and Data Services	3,000
Dow Jones News Service	Company and Industry News Services	18,166
eFront Financial Solutions Inc	Real Estate Portfolio Management Services	333,613
ERA Forest Products Reserach	Investment Research Services	3,000
Ernst & Young LLP	Tax Compliance Services Required by Government of India	18,305
Euromonitor International	Research and Data Services	24,868
FactSet Research Systems Inc	Financial & Economic Database	761,471
Fitch Solutions Inc	Credit Rating Services	43,225
FTSE International Inc	Real Time Index Data	8,463
Fusion Trading	Research and Data Services	201
Gartner Inc	Technology Sector Research	55,200
Gcon4 Group	Integration Software	3,265
Green Street Advisor	Real Estate Analytics	16,250
Haver Analytics	Global Macroeconomic Research	18,200
IDC Financial Publishing Inc	Financial Institution Data	4,305
Institutional Investor	Investment Data and Research Services	5,000
Institutional Shareholder Services Inc	Proxy Voting Analysis	(62,148)
Kepler Capital Markets, Inc.	Investment Research Services	30,157
Keystone Consulting Inc	Investment Information Technology Consulting Services	189,808
Levr Technology Inc	Investment Information Technology Consulting Services	173,770
LionPoint Group	Investment Consulting Services	134,194
Lombard Street Research Ltd	Global Economic Analysis	30,000
London Stock Exchange	London Stock Exchange Data	36,704
Markit NA	MarkitEDM Software & Implementation Services	159,931
McLagan Partners Inc	Investment Compensation Data and Analysis	23,850

EXPENSE CATEGORY	SERVICE PROVIDED	EXPENSES
Meketa Investment Group	Public Markets External Manager Consultant	52,402
MKM Partners	Investment Research Services	545
Moodys Analytics	Economic, Currency & Bond Analysis	70,184
MSCI Inc - Risk Metrics Solutions	Research and Data Services	300,884
NAIOP Commercial Real Estate Development Association	Investment Consulting Services	790
National Council of Real Estate Investment Fiduciaries	Real Estate Performance Research	2,500
Ned Davis Research Inc	Investment Research Services	4,950
NEPC LLC	Investment Consulting Services	75,000
Novus Partners Inc	Profit & Loss Analytics System	62,700
Nuware Technology Corp	Investment Information Technology Consulting Services	233,908
NYSE Market Inc	New York Stock Exchange Data	7,074
Omgeo LLC	Post Trade Settlement Information	485
OptionMetrics	Investment Data Service	10,500
Options Price Reporting Authority	Quote System for Options Market	2,363
Pac-invest	Research and Data Services	10,500
Refinitiv	Research Pricing (Autex, Baseline, FirstCall)	4,716
Russell Investment Group	Index Data	8,151
Seaport Global Securities LLC	Research and Data Services	2,410
Sharp Decisions Inc	Investment Information Technology Consulting Services	177,494
Standard & Poors	Industry & Corporate Research	22,426
StepStone Group	Private Equity Consulting Services	557,328
StepStone Group Real Estate	Real Estate Consulting Services	53,750
STOXX Limited	Research and Data Services	15,329
SystemsAccountants	Investment Consulting Services	12,640
Telsey Advisory Group	Consumer Sector Research	37,500
The Bachrach Group	Investment Consulting Services	238,572
The Finlay Group	Investment Consulting Services	92,940
Toronto Stock Exchange	Market Data	8,273
Trade Alert LLC	Market Data	1,545
TradeWeb	On-Line Fixed Income Trading Services	9,000
Unit4 Business Software Inc	Financial & Administration Services System	54,880
Urban Land Institute	Investment Consulting Services	1,210
Vertical Research Partners	Industrial Sector Market Research & Analysis	15,582
Verus Advisory Inc	Benchmarking Consulting Services	38,750
V-Soft Consulting Group Inc	Investment Information Technology Consulting Services	66,284
Wells Fargo Securities, LLC	Investment Research Services	46,333
WIPFLI LLP	Income Tax Preparation Services	825
Wolfe Trahan	Transportation and Macro Economic Research	18,750
Wolverine Execution Services LLC	Options Trading Platform	1,131
Total Investment Counsel		\$ 6,972,181
<u>Real Estate Management Fees</u>		
AmCap Inc	Real Estate Management Fees	325,109
Beacon Capital Partners	Real Estate Management Fees	489,007
Blackrock	Real Estate Management Fees	2,355
Blackstone Real Estate Advisors	Real Estate Management Fees	1,762,512
Blue Moon Capital Partners	Real Estate Management Fees	105,592
Blue Vista Capital Management	Real Estate Management Fees	185,930
Bristol Group	Real Estate Management Fees	376,505
Buchanan Street Capital Partners	Real Estate Management Fees	152,007
Callahan Capital Partners	Real Estate Management Fees	237,991
Carson Companies	Real Estate Management Fees	16,597
Casa Partners	Real Estate Management Fees	68,766
CBRE	Real Estate Management Fees	298,525
Cornerstone Real Estate Advisers	Real Estate Management Fees	-
Crossings at Danada	Real Estate Management Fees	193,885
Essex Property Trust	Real Estate Management Fees	434,042
Fortress Investment Group	Real Estate Management Fees	242,101
Four Seasons	Real Estate Management Fees	141,082
FPA Multifamily Core Plus	Real Estate Management Fees	214,164
Hawkeye Partners	Real Estate Management Fees	143,521
Heitman	Real Estate Management Fees	577,802
Henderson Global Investors	Real Estate Management Fees	372,802
High Street Realty Company LLC	Real Estate Management Fees	190,764
Hudson Advisors	Real Estate Management Fees	437,688
J.P. Morgan Asset Management	Real Estate Management Fees	551,315
Lowe Enterprises Investors	Real Estate Management Fees	20,895
Morgan Stanley	Real Estate Management Fees	14,127
Normandy Real Estate Partners	Real Estate Management Fees	194,375
O'Connor Capital Partners	Real Estate Management Fees	327,380
Penwood	Real Estate Management Fees	531,960
Prologis	Real Estate Management Fees	233,021
Prudential Global Investment Management (PGIM)	Real Estate Management Fees	801,095
Realterm Global Asset Management	Real Estate Management Fees	342,245
Rockpoint Group	Real Estate Management Fees	30,993
Rockspring Property Investment Managers	Real Estate Management Fees	12,288
RREEF	Real Estate Management Fees	663,222
Security Capital	Real Estate Management Fees	507,511
Teachers Insurance and Annuity Association of America	Real Estate Management Fees	313,889
Torchlight Investors	Real Estate Management Fees	318,750
UBS Realty Investors	Real Estate Management Fees	641,525

EXPENSE CATEGORY	SERVICE PROVIDED	EXPENSES
Wesco	Real Estate Management Fees	199,649
Westbrook Partners	Real Estate Management Fees	407,108
Total Real Estate Management Fees*		\$ 13,080,095
<u>Private Equity</u>		
Abor Group	Private Equity Management Fees	300,000
Advent International	Private Equity Management Fees	613,970
Alchemy Partners	Private Equity Management Fees	111,800
Altaris Capital Partners	Private Equity Management Fees	384,189
American Securities	Private Equity Management Fees	834,880
Apollo Management	Private Equity Management Fees	403,083
Arbor Investments	Private Equity Management Fees	36,422
Ares Management	Private Equity Management Fees	569,407
Ascribe Capital LLC	Private Equity Management Fees	105,541
Atlas Holdings	Private Equity Management Fees	197,329
Benefit Street Partners	Private Equity Management Fees	342,958
Berkshire Property Advisors	Private Equity Management Fees	375,982
Blackstone Real Estate Advisors	Private Equity Management Fees	394,757
Bridgepoint Capital	Private Equity Management Fees	553,161
Caltius Mezzanine	Private Equity Management Fees	200,287
CapVest Private Equity	Private Equity Management Fees	192,945
Centerbridge Partners	Private Equity Management Fees	752,054
Charlesbank Capital Partners	Private Equity Management Fees	275,933
Chequers Capital	Private Equity Management Fees	353,785
Clearlake Capital Group	Private Equity Management Fees	603,507
Clearview Capital LLC	Private Equity Management Fees	19,382
Clessidra SGR SPA	Private Equity Management Fees	8,282
Coller Capital	Private Equity Management Fees	210,172
Cortec Group	Private Equity Management Fees	324,648
Cressey & Company	Private Equity Management Fees	499,999
CVC Capital Partners	Private Equity Management Fees	708,257
ECM Equity Capital Management Gmbh	Private Equity Management Fees	61,892
EnCap Investments	Private Equity Management Fees	501,614
EQT Partners	Private Equity Management Fees	434,054
Excellere Capital Management	Private Equity Management Fees	415,606
Flexpoint Ford	Private Equity Management Fees	136,620
Fortissimo Capital	Private Equity Management Fees	(2,837)
Fortress Investment Group	Private Equity Management Fees	67,596
FountainVest Partners	Private Equity Management Fees	368,901
German Equity Partners	Private Equity Management Fees	218,914
Gilde	Private Equity Management Fees	283,321
Glendon Capital Management	Private Equity Management Fees	248,188
Gores Group	Private Equity Management Fees	102,329
Graphite Capital Management	Private Equity Management Fees	(5,203)
GSO Capital Partners	Private Equity Management Fees	357,021
GTCR	Private Equity Management Fees	1,032,127
Harvest Partners	Private Equity Management Fees	403,215
Hellman & Friedman Investors	Private Equity Management Fees	998,603
HgCapital	Private Equity Management Fees	341,179
Hudson Advisors	Private Equity Management Fees	36,618
Inflexion Private Equity Partners LLP	Private Equity Management Fees	753,511
Insight Equity	Private Equity Management Fees	99,064
JMI Equity	Private Equity Management Fees	562,480
Kohlberg Kravis Roberts & Co	Private Equity Management Fees	285,162
KPS Capital Partners	Private Equity Management Fees	125,001
Leonard Green & Partners	Private Equity Management Fees	599,191
Lightbay Capital	Private Equity Management Fees	250,000
Lindsay, Goldberg & Bessemer	Private Equity Management Fees	336,798
Merit Capital Partners	Private Equity Management Fees	289,897
Montefiore Investment	Private Equity Management Fees	162,168
Morgan Stanley	Private Equity Management Fees	176,147
New Capital Partners	Private Equity Management Fees	125,000
Oaktree Capital Management	Private Equity Management Fees	182,392
Old Lane	Private Equity Management Fees	18,837
ParkerGale Capital	Private Equity Management Fees	157,500
Patria Invetimentos	Private Equity Management Fees	249,315
Peninsula Capital Partners LLC	Private Equity Management Fees	389,228
Platte River Equity	Private Equity Management Fees	182,499
Providence Equity Partners, Inc.	Private Equity Management Fees	1,069,567
Quantum Energy Partners	Private Equity Management Fees	218,750
Resource Capital Funds	Private Equity Management Fees	143,001
Ridgmont Partners	Private Equity Management Fees	305,235
Riverstone Holdings	Private Equity Management Fees	497,274
SAIF Partners	Private Equity Management Fees	135,700
Segulah	Private Equity Management Fees	11,843
Sentinel Real Estate Corporation	Private Equity Management Fees	125,000
Shamrock Capital Advisors	Private Equity Management Fees	500,000
Sheridan Production Partners	Private Equity Management Fees	354,000
StepStone Group	Private Equity Management Fees	43,875
Sterling Group	Private Equity Management Fees	497,330
Stone Point Capital LLC	Private Equity Management Fees	730,510

EXPENSE CATEGORY	SERVICE PROVIDED	EXPENSES
The Jordan Company LP	Private Equity Management Fees	763,927
Thomas Bravo Fund	Private Equity Management Fees	285,326
TowerBrook Investors	Private Equity Management Fees	327,972
TPG Capital	Private Equity Management Fees	1,423,347
Triton	Private Equity Management Fees	570,518
TSG Capital Partners	Private Equity Management Fees	750,000
TSG Consumer Partners LLC	Private Equity Management Fees	1,014,446
Update Partners	Private Equity Management Fees	140,625
Venture Capital	Private Equity Management Fees	3,304,295
Vista Equity Partners	Private Equity Management Fees	1,393,876
Warburg Pincus	Private Equity Management Fees	1,169,035
Waterland Private Equity	Private Equity Management Fees	511,716
Wayzata Investment Partners	Private Equity Management Fees	69,685
Wind Point Partners	Private Equity Management Fees	250,000
WP Global Partners Inc	Private Equity Management Fees	55,078
Total Private Equity Management**		\$ 36,978,609
<u>Commingled Account Public Market Management Fees</u>		
AQR Capital	Public Market Management Fees	253,870
Arrowgrass Capital	Public Market Management Fees	456,668
Benefit Street Partners	Public Market Management Fees	(685,589)
BFAM Asian Opportunities Fund	Public Market Management Fees	980,079
Blackrock	Public Market Management Fees	541,293
Blue Mountain Capital Management	Public Market Management Fees	(252,319)
Bridgewater Associates	Public Market Management Fees	1,240,502
Capula Investment Management	Public Market Management Fees	2,456,250
Davidson Kempner Capital Management	Public Market Management Fees	1,757,607
DE Shaw & Co	Public Market Management Fees	4,441,015
Dorsal Capital Partners	Public Market Management Fees	2,491,480
Dyal Capital Partners	Public Market Management Fees	517,808
Efficient	Public Market Management Fees	149,079
Exoduspoint Capital Management	Public Market Management Fees	636,307
Graham Capital Management	Public Market Management Fees	880,212
Graticule Asset Management Asia	Public Market Management Fees	878,338
Highbridge Capital Management	Public Market Management Fees	3,418,398
Holocene Advisors Fund LP	Public Market Management Fees	1,767,807
King Street Capital Management	Public Market Management Fees	1,331,608
Los Angeles Capital	Public Market Management Fees	68,234
Marshall Wace	Public Market Management Fees	1,778,453
Nephilia Capital Ltd	Public Market Management Fees	254,424
Pharo	Public Market Management Fees	2,048,040
PIMCO	Public Market Management Fees	645,858
PSquared Asset Management	Public Market Management Fees	632,909
Senator Global Opportunity	Public Market Management Fees	410,307
Standish Mellon	Cash Management	210,110
Stone Milliner Asset Management	Public Market Management Fees	771,744
TCW	Public Market Management Fees	376,705
Two Sigma	Public Market Management Fees	5,400,034
Wellington Trust Company	Public Market Management Fees	250,297
Total Commingled Account Public Market Management Fees		\$ 36,107,528
<u>Separate Account Public Market Management Fees</u>		
Acadian Asset Management	Public Market Management Fees	1,146,289
Alliance Bernstein	Public Market Management Fees	(863,225)
Blackrock	Public Market Management Fees	1,299,550
Dodge and Cox	Public Market Management Fees	482,137
Fidelity Investments	Public Market Management Fees	1,085,335
Loomis Sayles & Co	Public Market Management Fees	1,111,602
Parametric	Public Market Management Fees	363,628
Prudential Global Investment Management (PGIM)	Public Market Management Fees	679,905
Wellington Trust Company	Public Market Management Fees	1,329,634
Total Separate Account Public Market Management Fees		\$ 6,634,855
Total Quarterly Charges to Funds		\$ 122,171,636

*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 custody 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 custodial 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 has 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 typically are 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 a number of 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.