TUCSON SUPPLEMENTAL RETIREMENT SYSTEM
BOARD OF TRUSTEES
Notice of Regular Meeting / Agenda

DATE: **Thursday, March 28, 2019**
TIME: **8:30 a.m.**
PLACE: **Human Resource Conference Room, 3rd floor East**
City Hall, 255 West Alameda
Tucson, Arizona 85701

A. **Consent Agenda**
1. Retirement Ratifications for January 2019
2. Retirement Ratifications for February 2019
3. Retirement Ratifications for March 2019
4. February 2019 TSRS Budget Vs. Actual Expenses
5. February 2019 Board Meeting Minutes
6. TSRS February Investment Measurement Service Monthly Review

B. **Call to Audience**

C. **Asset/Liability Model Report**
1. Asset/Liability Education - Callan

D. **Administrative Discussions**
1. Post Retirement Benefit Increase Policy
2. Investment Policy Statement
3. Internal Cash Liquidation Process

E. **Articles & Readings for Board Member Education / Discussion**
1. After A Chaotic Week in Brexit Politics, Here's What You Need to Know
2. Atlanta City Pensions Stuck in Lackluster Investment
3. Considerations for Institutional Investors Around Divestment

F. **Future Agenda Items**
1. TSRS Rules and Regulations
2. Consideration to Hire External Legal Counsel
3. Internal Audit Update

G. **Adjournment**

Please Note: Legal Action may be taken on any agenda item

***Pursuant to A.R.S. 38-431.03(A)(3) and (4): the board may hold an executive session for the purposes of obtaining legal advice from an attorney or attorneys for the Board or to consider its position and instruct its attorney(s) in pending or contemplated litigation. The board may also hold an executive session pursuant to A.R.S. 38-431.03(A)(1) for the discussion or consideration of matters specific to an identified public officer, appointee, or employee or pursuant to A.R.S. 38-431.03(A)(2) for purposes of discussion or consideration of records, information or testimony exempt by law from public inspection.

MEMORANDUM

DATE: March 21, 2019

TO: The Board of Trustees
Tucson Supplemental Retirement System

FROM: Art Cuaron
Pension & Benefits Administrator

SUBJECT: **January and February Ratifications on Consent Agenda**

The January and February ratification reports are included on this month's agenda as documentation items only. The formal approval of the Consent Agenda was not clearly motioned during the past two meetings and the prior ratification reports are included now to formally adopt the reports. We have processed as per the Board's intent and those members who were listed on the report have received their benefits as scheduled.

Service & Disability Retirements, End of Service Entrants for TSRS Board of Trustees Ratification

12/11/18 - 01/10/19 - January 2019

Name of Applicant	Department	Type	Effective Date	Date of Birth	Age	Credited Service	Present Value	Member's Accumulated Contributions	AFC	Option	Pension
David P Hitt	Parks & Recreation	Normal Retirement	12/22/2018	1/20/1955	63.92	17.7189	129,115.47	39,414.03	2,649.93	Single Life	1,056.46
Jose R Ortiz	Water	Normal Retirement	12/14/2018	3/31/1964	54.71	25.7177	335,970.68	100,970.55	4,128.36	J&S 75	2,238.18
Victoria M Bode	Police	Normal Retirement	1/5/2019	9/13/1952	66.31	34.8510	**	474,668.36	8,010.70	J&S 100	5,385.38
Javier V Montante	Environmental Services	Early Retirement	1/4/2019	8/14/1963	55.39	24.1475	**	95,822.90	4,239.07	J&S 100	2,062.34
Richard E Prater	Police	Normal Retirement	1/5/2019	3/22/1958	60.79	19.4673	**	135,101.17	5,762.62	J&S 100	2,319.53
Manuel S Padilla	Planning & Development	Normal Retirement	1/5/2019	12/14/1952	66.06	20.5588	**	101,651.30	5,257.64	Single Life	2,432.04
James D Castro Jr.	Transportation	Normal Retirement	1/5/2019	8/26/1952	66.36	31.1146	**	136,550.88	4,152.21	Single Life	2,906.87
Ruben J Rodriguez	Water	Normal Retirement	1/6/2019	1/27/1959	59.94	29.9760	**	179,206.58	4,930.35	J&S 50	3,124.57
Eugene E Mueller	General Services	Normal Retirement	1/9/2019	5/5/1956	62.68	22.7625	**	91,115.87	4,351.76	J&S 75	2,012.12
Cindy Stein	Public Safety Communications	Normal Retirement	1/9/2019	5/1/1962	56.69	23.3477	**	98,362.03	4,387.58	J&S 50	2,096.97
Source Material: GRS/Payroll									47,870.22		25,634.46
** Present value not available as first payment was made based on an estimate				**Averages**	61.28	24.97	232,543.08	145,286.37	4,787.02		2,563.45

Service & Disability Retirements, End of Service Entrants for TSRS Board of Trustees Ratification

01/11/19 - 02/10/19 - February 2019

Name of Applicant	Department	Type	Effective Date	Date of Birth	Age	Credited Service	Present Value	Member's Accumulated Contributions	AFC	Option	Pension
Nancy L McKay Hills	Police	Normal Retirement	1/12/2019	9/6/1964	54.35	25.7967	515,402.45	148,249.16	6,063.58	Single Life	3,519.47
Adam Smith	General Services	Normal Retirement	1/12/2019	7/5/1956	62.52	20.0236	242,039.98	80,407.90	4,312.71	J&S 100	1,578.72
Larry Lancaster	Police	Normal Retirement	1/24/2019	1/19/1955	64.01	17.5154	**	45,718.30	3,225.19	Single Life	1,271.04
Phyllis L Gasparro	Police	Normal Retirement	2/2/2019	2/1/1964	55.00	30.8225	**	250,823.23	6,605.48	Single Life	4,580.94
Lisa A Cortese	Parks & Recreation	Normal Retirement	2/2/2019	12/14/1961	57.13	22.8978	**	76,077.44	3,476.54	Single Life	1,791.12
Marlin T Price III	Water	Normal Retirement	2/2/2019	3/12/1963	55.89	34.6580	**	202,829.39	5,113.05	J&S 50	3,859.63
David E Verner	Water	Deferred Retirement	2/6/2019	2/6/1957	62.00	16.7066	155,264.51	101,071.90	3,256.12	J&S 100	1,041.13
Kari J Price	General Services	Early Retirement	2/9/2019	10/25/1963	55.29	22.5869	**	73,343.67	3,500.51	Single Life	1,552.48
Stacy Stauffer	City Attorney	Normal Retirement	2/9/2019	3/21/1966	52.88	27.1434	**	231,360.81	7,004.46	Single Life	4,277.80
Source Material: GRS/Payroll									42,557.64		23,472.33
** Present value not available as first payment was made based on an estimate				**Averages**	57.68	24.24	304,235.65	134,431.31	4,728.63		2,608.04

Service & Disability Retirements, End of Service Entrants for TSRS Board of Trustees Ratification

02/11/19 - 03/10/19 - March 2019

Name of Applicant	Department	Type	Effective Date	Date of Birth	Age	Credited Service	Present Value	Member's Accumulated Contributions	AFC	Option	Pension
Virginia T Hernandez	Parks & Recreation	Normal Retirement	1/24/2019	7/5/1958	60.55	32.0145	294,725.48	82,082.21	3,044.18	J&S 100	1,983.83
Michael D Moffatt	Parks & Recreation	Deferred Retirement	2/21/2019	2/6/1957	62.04	8.3261	48,773.79	25,829.19	2,052.41	Single Life	384.49
Elizabeth J Lopez	Water	Normal Retirement	2/16/2019	12/7/1956	62.19	21.6923	213,484.77	64,701.92	3,304.63	J&S 100	1,476.80
Michael D Chacon	Housing & Community Development	Deferred Retirement	2/27/2019	3/21/1958	60.93	19.1080	175,012.49	143,913.74	3,154.07	J&S 100	1,130.87
Marc D Savalox	Parks & Recreation	Deferred Retirement	3/3/2019	3/3/1957	62.00	17.1330	134,870.32	48,543.39	2,758.04	Single Life	1,063.20
Shari R Williams	City Attorney	Normal Retirement	3/2/2019	6/25/1963	55.69	28.0675 **		159,291.63	4,039.24	J&S 50	2,445.27
Karen A Wood	Public Safety Communications	Normal Retirement	3/3/2019	6/22/1961	57.70	33.7598 **		186,968.52	5,184.52	Single Life	3,938.14
Richard Hollander	Environmental Services	Normal Retirement	3/5/2019	10/10/1956	62.40	18.9689 **		75,523.37	4,431.18	J&S 100	1,712.68
					0.00						
					0.00						
Source Material: GRS/Payroll									27,968.27		14,135.28
** Present value not available as first payment was made based on an estimate				**Averages**	48.35	22.38	173,373.37	98,356.75	3,496.03		1,766.91

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Run Time : 10:06 AM

City of Tucson
Budget vs Actual Expenses
Through: February, 2019
For Fiscal Year 2019

Parameter Page

Parameters and Prompts

Fiscal Year	2019
Accounting Period	8
Fund	072
Department	*
Unit	*
Object Code	*

Report Description

The Expenses vs. Actual Report shows expenditures and encumbrances for the selected accounting period and for the selected fiscal year compared against the current expense budget and the unobligated budget balance. The report is sectioned by Department, Fund and Unit and summarized by Object.

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City of Tucson
Budget vs Actual Expenses
Through: February, 2019
For Fiscal Year 2019

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9001 - Normal Retiree Benefit

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
105 - PAYROLL PENSION	0.00	5,675,324.26	5,675,324.26	0.00	45,083,578.85	45,083,578.85	72,000,000	26,916,421.15	37.38 %
Total for 100 - PAYROLL CHGS	**0.00**	**5,675,324.26**	**5,675,324.26**	**0.00**	**45,083,578.85**	**45,083,578.85**	**72,000,000**	**26,916,421.15**	**37.38 %**
Total for Unit 9001 - Normal Retiree Benefit	**0.00**	**5,675,324.26**	**5,675,324.26**	**0.00**	**45,083,578.85**	**45,083,578.85**	**72,000,000**	**26,916,421.15**	**37.38 %**

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City of Tucson
Budget vs Actual Expenses
Through: February, 2019
For Fiscal Year 2019

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9003 - Normal Retiree Beneficiary Benefit

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
105 - PAYROLL PENSION	0.00	364,460.47	364,460.47	0.00	2,876,058.91	2,876,058.91	3,900,000	1,023,941.09	26.25 %
Total for 100 - PAYROLL CHGS	**0.00**	**364,460.47**	**364,460.47**	**0.00**	**2,876,058.91**	**2,876,058.91**	**3,900,000**	**1,023,941.09**	**26.25 %**
Total for Unit 9003 - Normal Retiree Beneficiary Benefit	**0.00**	**364,460.47**	**364,460.47**	**0.00**	**2,876,058.91**	**2,876,058.91**	**3,900,000**	**1,023,941.09**	**26.25 %**

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City of Tucson
Budget vs Actual Expenses
Through: February, 2019
For Fiscal Year 2019

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9020 - Disability Retiree Benefit

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
105 - PAYROLL PENSION	0.00	166,366.63	166,366.63	0.00	1,331,909.05	1,331,909.05	2,100,000	768,090.95	36.58 %
Total for 100 - PAYROLL CHGS	**0.00**	**166,366.63**	**166,366.63**	**0.00**	**1,331,909.05**	**1,331,909.05**	**2,100,000**	**768,090.95**	**36.58 %**
Total for Unit 9020 - Disability Retiree Benefit	**0.00**	**166,366.63**	**166,366.63**	**0.00**	**1,331,909.05**	**1,331,909.05**	**2,100,000**	**768,090.95**	**36.58 %**

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City of Tucson
Budget vs Actual Expenses
Through: February, 2019
For Fiscal Year 2019

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9021 - Pension Fund Administration

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
101 - SALARIES & WAGES FOR PERMANENT EMPLOYEES	0.00	116,859.90	116,859.90	0.00	338,136.69	338,136.69	276,420	(61,716.69)	-22.33 %
102 - EXTRA TIME	0.00	0.00	0.00	0.00	2.17	2.17	0	(2.17)	0.00%
103 - OVERTIME WAGES	0.00	0.00	0.00	0.00	125.62	125.62	0	(125.62)	0.00%
105 - PAYROLL PENSION	0.00	0.00	0.00	0.00	3,971.22	3,971.22	0	(3,971.22)	0.00%
108 - DOWNTOWN ALLOWANCE & DISCOUNTED TRANSIT PASSES	0.00	92.32	92.32	0.00	721.25	721.25	2,310	1,588.75	68.78 %
113 - TSRS PENSION CONTRIBUTION	0.00	5,372.49	5,372.49	0.00	39,806.01	39,806.01	76,010	36,203.99	47.63 %
114 - FICA (SOCIAL SECURITY)	0.00	2,062.42	2,062.42	0.00	11,919.12	11,919.12	20,090	8,170.88	40.67 %
115 - WORKERS COMPENSATION INSURANCE	0.00	102.48	102.48	0.00	768.74	768.74	4,500	3,731.26	82.92 %
116 - GROUP PLAN INSURANCE	0.00	2,608.19	2,608.19	0.00	16,583.60	16,583.60	27,000	10,416.40	38.58 %
117 - STATE UNEMPLOYMENT	0.00	23.12	23.12	0.00	179.20	179.20	380	200.80	52.84 %
125 - ONE-TIME DISTRIBUTION	0.00	0.00	0.00	0.00	5,250.00	5,250.00	0	(5,250.00)	0.00%
196 - INTERDEPARTMENTAL LABOR	0.00	8,000.00	8,000.00	0.00	64,000.00	64,000.00	96,000	32,000.00	33.33 %
Total for 100 - PAYROLL CHGS	**0.00**	**135,120.92**	**135,120.92**	**0.00**	**481,463.62**	**481,463.62**	**502,710**	**21,246.38**	**4.23 %**
202 - TRAVEL	0.00	508.45	508.45	0.00	6,613.58	6,613.58	4,000	(2,613.58)	-65.34 %
204 - TRAINING	0.00	2,422.52	2,422.52	0.00	2,997.58	2,997.58	14,000	11,002.42	78.59 %
205 - PARKING SERVICE	0.00	56.00	56.00	0.00	327.00	327.00	500	173.00	34.60 %
212 - CONSULTANTS AND SURVEYS	0.00	6,700.00	6,700.00	0.00	148,137.25	148,137.25	50,000	(98,137.25)	#######
213 - LEGAL	0.00	0.00	0.00	0.00	12,286.50	12,286.50	50,000	37,713.50	75.43 %

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For Fiscal Year 2019

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9021 - Pension Fund Administration

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
215 - AUDITING AND BANK SERVICES	0.00	65,297.90	65,297.90	0.00	105,911.43	105,911.43	60,000	(45,911.43)	-76.52 %
219 - MISCELLANEOUS PROFESSIONAL SERVICES	0.00	20.00	20.00	0.00	95.00	95.00	9,900,000	9,899,905.00	100.00 %
221 - INSUR-PUBLIC LIABILITY	0.00	183.97	183.97	0.00	1,865.71	1,865.71	31,000	29,134.29	93.98 %
232 - R&M MACHINERY & EQUIPMENT	0.00	0.00	0.00	0.00	0.00	0.00	1,200	1,200.00	100.00 %
234 - COMPUTER HARDWARE MAINTENANCE	0.00	0.00	0.00	0.00	258.35	258.35	0	(258.35)	0.00%
245 - TELEPHONE	0.00	0.00	0.00	0.00	0.00	0.00	1,200	1,200.00	100.00 %
252 - RENTS EQUIPMENT	0.00	0.00	0.00	0.00	303.97	303.97	0	(303.97)	0.00%
260 - COMPUTER SOFTWARE MAINTENANCE AGREEMENTS	0.00	0.00	0.00	0.00	38,000.00	38,000.00	51,000	13,000.00	25.49 %
263 - PUBLIC RELATIONS	0.00	0.00	0.00	0.00	0.00	0.00	2,560	2,560.00	100.00 %
264 - INVESTMENT MGT FEES & COMMISSIONS	0.00	576,138.60	576,138.60	0.00	1,422,909.96	1,422,909.96	0	(1,422,909.96)	0.00%
265 - SECURITIES LENDING (STOCK FEES)	0.00	0.00	0.00	0.00	27,838.87	27,838.87	0	(27,838.87)	0.00%
277 - CARRIED INTEREST EXPENSE	0.00	105,938.10	105,938.10	0.00	242,554.81	242,554.81	0	(242,554.81)	0.00%
284 - MEMBERSHIPS AND SUBSCRIPTIONS	0.00	640.00	640.00	0.00	640.00	640.00	1,500	860.00	57.33 %
Total for 200 - PROF CHARGES	**0.00**	**757,905.54**	**757,905.54**	**0.00**	**2,010,740.01**	**2,010,740.01**	**10,166,960**	**8,156,219.99**	**80.22 %**
311 - OFFICE SUPPLIES	0.00	146.95	146.95	0.00	803.85	803.85	9,000	8,196.15	91.07 %
312 - PRINTING,PHOTOGRAPHY,REPRODUCTION	0.00	24.46	24.46	0.00	7,710.13	7,710.13	9,000	1,289.87	14.33 %
314 - POSTAGE	0.00	2,176.22	2,176.22	0.00	6,352.33	6,352.33	12,000	5,647.67	47.06 %
317 - COMPUTER SOFTWARE < $100,000	0.00	0.00	0.00	0.00	71.91	71.91	0	(71.91)	0.00%
341 - BOOK, PERIODICALS AND RECORDS	0.00	0.00	0.00	0.00	0.00	0.00	250	250.00	100.00 %

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City of Tucson
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Through: February, 2019
For Fiscal Year 2019

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9021 - Pension Fund Administration

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
345 - FURNISHINGS, EQUIPMENT AND TOOLS < $5,000	0.00	0.00	0.00	0.00	0.00	0.00	1,000	1,000.00	100.00 %
346 - COMPUTER EQUIPMENT < $5,000	0.00	0.00	0.00	0.00	1,764.33	1,764.33	1,000	(764.33)	-76.43 %
359 - NON OFFICE SUPPLIES	0.00	0.00	0.00	0.00	2,537.88	2,537.88	0	(2,537.88)	0.00%
Total for 300 - SUPPLIES	**0.00**	**2,347.63**	**2,347.63**	**0.00**	**19,240.43**	**19,240.43**	**32,250**	**13,009.57**	**40.34 %**
Total for Unit 9021 - Pension Fund Administration	**0.00**	**895,374.09**	**895,374.09**	**0.00**	**2,511,444.06**	**2,511,444.06**	**10,701,920**	**8,190,475.94**	**76.53 %**

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City of Tucson
Budget vs Actual Expenses
Through: February, 2019
For Fiscal Year 2019

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9022 - Disability Retiree Beneficiary Benefit

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
105 - PAYROLL PENSION	0.00	34,734.26	34,734.26	0.00	277,874.08	277,874.08	370,000	92,125.92	24.90 %
Total for 100 - PAYROLL CHGS	**0.00**	**34,734.26**	**34,734.26**	**0.00**	**277,874.08**	**277,874.08**	**370,000**	**92,125.92**	**24.90 %**
Total for Unit 9022 - Disability Retiree Beneficiary Bene	**0.00**	**34,734.26**	**34,734.26**	**0.00**	**277,874.08**	**277,874.08**	**370,000**	**92,125.92**	**24.90 %**

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City of Tucson
Budget vs Actual Expenses
Through: February, 2019
For Fiscal Year 2019

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9023 - ACTIVE MEMBER REFUNDS-CONTRBS

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
186 - TSRS REFUNDS	0.00	77,744.80	77,744.80	0.00	917,880.96	917,880.96	2,736,000	1,818,119.04	66.45 %
Total for 100 - PAYROLL CHGS	**0.00**	**77,744.80**	**77,744.80**	**0.00**	**917,880.96**	**917,880.96**	**2,736,000**	**1,818,119.04**	**66.45 %**
Total for Unit 9023 - ACTIVE MEMBER REFUNDS-CON	**0.00**	**77,744.80**	**77,744.80**	**0.00**	**917,880.96**	**917,880.96**	**2,736,000**	**1,818,119.04**	**66.45 %**

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City of Tucson
Budget vs Actual Expenses
Through: February, 2019
For Fiscal Year 2019

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9025 - INTEREST ON REFUNDS

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
186 - TSRS REFUNDS	0.00	287.52	287.52	0.00	5,730.15	5,730.15	50,000	44,269.85	88.54 %
Total for 100 - PAYROLL CHGS	**0.00**	**287.52**	**287.52**	**0.00**	**5,730.15**	**5,730.15**	**50,000**	**44,269.85**	**88.54 %**
Total for Unit 9025 - INTEREST ON REFUNDS	**0.00**	**287.52**	**287.52**	**0.00**	**5,730.15**	**5,730.15**	**50,000**	**44,269.85**	**88.54 %**

Report ID : FIN-COT-BA-0001
Run Date : 03/20/2019
Run Time : 10:06 AM

City of Tucson
Budget vs Actual Expenses
Through: February, 2019
For Fiscal Year 2019

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9026 - DWE SYSTEM BENEFIT PAYMENT

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
186 - TSRS REFUNDS	0.00	35,913.23	35,913.23	0.00	135,631.28	135,631.28	200,000	64,368.72	32.18 %
Total for 100 - PAYROLL CHGS	**0.00**	**35,913.23**	**35,913.23**	**0.00**	**135,631.28**	**135,631.28**	**200,000**	**64,368.72**	**32.18 %**
Total for Unit 9026 - DWE SYSTEM BENEFIT PAYMENT	**0.00**	**35,913.23**	**35,913.23**	**0.00**	**135,631.28**	**135,631.28**	**200,000**	**64,368.72**	**32.18 %**

Report ID : FIN-COT-BA-0001
Run Date : 03/20/2019
Run Time : 10:06 AM

City of Tucson
Budget vs Actual Expenses
Through: February, 2019
For Fiscal Year 2019

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM

Fund 072 - TUCSON SUPP RETIREMENT SYSTEM

Unit 9027 - CREDITABLE SERVICE TRANS(ASRS)

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
186 - TSRS REFUNDS	0.00	0.00	0.00	0.00	2,138.47	2,138.47	0	(2,138.47)	0.00%
Total for 100 - PAYROLL CHGS	**0.00**	**0.00**	**0.00**	**0.00**	**2,138.47**	**2,138.47**	**0**	(2,138.47)	**0.00%**
Total for Unit 9027 - CREDITABLE SERVICE TRANS(AS	**0.00**	**0.00**	**0.00**	**0.00**	**2,138.47**	**2,138.47**	**0**	(2,138.47)	**0.00%**
Total for Fund 072 - TUCSON SUPP RETIREMENT SYS	**0.00**	**7,250,205.26**	**7,250,205.26**	**0.00**	**53,142,245.81**	**53,142,245.81**	**92,057,920**	**38,915,674.19**	**42.27 %**
Total for Department 900 - TUCSON SUPPL RETIREME	**0.00**	**7,250,205.26**	**7,250,205.26**	**0.00**	**53,142,245.81**	**53,142,245.81**	**92,057,920**	**38,915,674.19**	**42.27 %**
Grand Totals	**0.00**	**7,250,205.26**	**7,250,205.26**	**0.00**	**53,142,245.81**	**53,142,245.81**	**92,057,920**	**38,915,674.19**	**42.27 %**

TUCSON SUPPLEMENTAL RETIREMENT SYSTEM
BOARD OF TRUSTEES
Meeting Minutes

DATE:	**Thursday, February 28, 2019**
TIME:	**8:30 a.m.**
PLACE:	**Human Resource Conference Room, 3rd floor East** **City Hall, 255 West Alameda** **Tucson, Arizona 85701**

Members Present:	Mark Rubin, Chairman Joyce Garland, Finance Director James Wysocki, Elected Retiree Representative Michael Coffey, Elected Representative Jorge Hernández, Elected Representative Kevin Larson, City Manager Appointee
Staff Present	Art Cuaron, Pension & Benefits Administrator Tina Gamez, Administrative Assistant
Guests Present	Catherine Langford, Yoder & Langford – TSRS Legal Counsel (via telephone) Dave Deibel, Deputy City Attorney Pete Saxton, Pension Manager John O'Hare, Constituent Paul Erlendson, Callan LLC
Absent/Excused:	Ana Urquijo, HR Director

Chairman Rubin called the meeting to order at 8:30am

A. **Consent Agenda (00:13 - 01:04)**
1. Retirement Ratifications for February 2019
2. January 2019 TSRS Budget Vs. Actual Expenses
3. January 2019 Board Meeting Minutes [Note 1]
4. TSRS January Investment Measurement Service Monthly Review

A motion to approve the Minutes was made by Jim Wysocki, 2nd by Jorge Hernandez, and passed by a vote of 5 to 0 (Ana Urquijo absent/excused).

B. **Call to Audience (01:05 - 01:14)**

None heard

C. **Investment Activity Report (01:34-03:33) (27:57 – 01:07:05)**

1. **TSRS Quarterly Performance Review for 12/30/18 - Callan LLC (27:57- 01:07:05)**

Paul Erlendson presented the TSRS quarterly performance review as of December 31, 2018. Paul explained to the Board that most of the managers in the portfolio have performed well over the last 3 and 5 year time horizons. The majority of the lag in the overall return was generated from the portfolios non-US equity managers. Paul touched on Causeway and their overall underperformance. Callan doesn't have any recommendation to change any managers in the non-US equity allocation but would like to present a deeper dive when they come back in May to present the Q1 2019 performance.

Paul noted that for the month of January the portfolio was up 5.4%. He also explained that 95% of how the fund performs is the mix of asset allocation. He indicated that active managers have added extra value to the overall fund performance. Paul went through the funds asset allocation and compared the performance to that of other public funds.

2. **Introduction to Asset/Liability Study Considerations (01:07:14 - 01:47:41)**

Paul Erlendson from Callan provided an overview of the forthcoming Asset/Liability study to the Board. He highlighted the formula the Board will look over the next 3 or 4 months and the decision points to consider as the asset/liability model unfolds. Paul pointed out that Callan will be looking to the Board to define its risk tolerance as that will guide future asset allocations.

Paul advise the Board that the ultimate goal of asset allocations is to deploy assets in a manner consistent which objectives, time horizon and liquidity requirements.

Art reminded the Board that a decision will need to be made with respect to its allocation to Infrastructure. Paul indicated that is something Callan will look at as part of the asset/liability study.

Paul asked the Board for a priority list in terms of risk that will aide in Callan's presentation of available asset mixes to choose from.

Kevin requested to see the information as soon as it's available to allow the Board time to review and digest the information. Art agreed to place this as a standing agenda item over the next 4 months. Callan committed to providing the information in accordance with the Board's request.

Presentation given by Paul Erlendson, discussion held. No formal action taken.

D. **Administrative Discussions**

1. **TSRS FY 2020 Budget Discussion (01:47:44 - 01:54:46)**

Art Cuaron presented the TSRS FY 2020 recommended budget to the Board. He explained that the budget is flat compared to FY 2019 with minor increases to adjust for salary increases that the City has provided to employees over the past 6-9 months and a requested increase of $14,000 to the travel budget as a result of increased desire from Board members to travel to various conferences. Art noted that the revenue budget was increased due to the value of the fund at the time of budget preparation.

Art also informed the Board of the changes made to the miscellaneous professional services line item. He noted that he worked with Budget and Accounting to create new budget line items specific to TSRS to account for carried interest expense, consultants and surveys and investment advisory expenses. He explained that these line items would more clearly reflect the expenses paid by the plan.

A motion was made by Jim Wysocki, 2nd by Kevin Larson to approve the TSRS FY2020 Recommended Budget, motion passes 6-0 (Ana Urquijo absent/excused).

2. **TSRS Rules and Regulations – Investment Policy Statement (01:54:47 - 02:22:04)**

Catherine Langford, Yoder & Langford- TSRS Legal Counsel (via telephone) informed the Board on the update on the Rules and Regulations and the draft of the Investment Policy Statement. Once the Board rules and the Board polices have been adopted they will be filled with the City Clerk's Office.

Catherine Langford informed the Board on the changes to Rules 7, 11 and 11 as well as the Governance Policy and Funding Policy.

Catherine briefed the Board that the Investment Policy Statement in its current version has been in place since March 2017. She commented that her edits were made to reflect the current TSRS structure. She also stated that the Investment Policy is the Boards and it should describe how they want to interact with Callan, Investment Consultants and the various investment managers. She noted to take caution in including the roles of staff within this document as well as the fact that the Investment Policy Statement is very lengthy and wants the Board to be comfortable with what's noted in the policy and that the policy reflect the actual process followed by the Board and staff.

Paul Erlendson commented that the Department of Labor and SEC is clear on having Investment Policy Statements. The policy is getting lengthy. Paul commented that there is a ways to shorten it, but as long as it reflects the view of the Boards expectations and responsibilities.

Catherine noted that Board has invested a lot of time over the past years on Rules and Policies and she could work with Paul on this and will bring back a shorter more specific version of the Investment Policy Statement. Catherine asked about the PRBI Policy. The Board provided direction to include the PRBI in the Board Rules and discuss the policies viability.
Art informed the Board that he will place the PRBI on next month's agenda and including the existing one as a reference.

Discussion held, no formal action taken.

3. **Board Member Term Limits (15:33 - 27:55)**

This item was taken out of order and discussed after item D4.

James Wysocki introduced his proposal to increase Board member term limits. James suggested that all Board members have the same terms. James would like to modify his proposal instead of removing term limits for elected Board members but to increase the number terms from 2 to 3 before the member is termed out.

Chairman Rubin commented that this would have to be a recommendation to the Mayor and Council.
Dave Deibel commented that term limits are in the City's chapter (10A) that generally governs all Boards and Commissions. Each at 4 year terms with 2 term limits. Michael Coffey commented that TSRS has 3 year terms for the Board members.

Chairman Rubin asked James if he would like to recommend a motion to modify his recommendation to Mayor and Council that the term limit not change but the elected Board members have 4 year terms instead of 3.
Joyce Garland asked Art Cuaron what the turnover has been as far as the term limits. Art Cuaron commented that there has been only one turnover, which was the elected retiree representative as the former representative had termed out.

Art Cuaron will be drafting a communication report before the end of the calendar year requesting the change to increase the existing terms of the elected Board representatives by one year.

A motion to recommend to Mayor and Council that the TSRS Board elected representatives term be modified from 3 to 4 year terms was made by James Wysocki, 2nd by Jorge Hernandez. Motion passed by a vote of 6-0 (Ana Urquijo absent/excused).

4. **Addition of Elected Retiree Board Member (03:36-15:32)**

This item was taken out of order and discussed after item B.

James Wysocki introduced his proposal and recommendation to add an additional elected retiree Board Member.

Chairman Rubin asked James is he making a motion to add an additional elected retiree board member. James agreed. Chairman Rubin asked for a second. Michael Coffey clarified that the motion would be to recommend to Mayor and Council that TSRS add an additional elected retiree Board Member. Michael Coffey 2nd the motion.

Chairman Rubin asked the Board if there was a discussion. Kevin Larson commented that he liked the odd number of Board member mainly due to when it comes to close votes with disability request from employees that become disabled prior to their pension.

James Wysocki commented that this would just require more of a debate. Joyce Garland agrees and prefers keeping the members as odd number for voting purposes. James Wysocki commented that when TSRS was created we had more active employees than retirees. Currently that has changed we have more retirees than

active employees. James would like to see more of an equal amount of representatives from active employees and from retirees. Cassie Langford commented and reminded the Board that Code sets up this structure. The Board has it set to have City appointed board members, elected board members and elected retirees. Once everyone is on the Board, the Board has the fiduciary role. Everyone on this Board is a trustee and has to carry out the best interest for all members both active and retirees.
Chairman Rubin indicated most governing boards have odd number members and having eight Board members could be problematic.

A motion to recommend to Mayor and Council that the TSRS Board add an additional board member and that member be elected from the Retiree population was made by James Wysocki, 2nd by Michael Coffey. The motion failed 2-3 (Kevin Larson, Joyce Garland and Jorge Hernandez dissented (Ana Urquijo absent/excused).

5. **Update on TSRS Internal Audit (02:22:05 - 02:39:58)**

Art Cuaron updated the Board on the TSRS Internal Audit. Art reminded the Board that the three areas identified in the audit report were: Wire Transfers/Authorization Process, Benefit Payment Process and the member data management from GRS.

Art commented with the hire of the Pension Manager it has been implemented and he reviews the capital Call needs and prepares the wire transfers and Art Cuaron signs off on the transfer and once completed the administrative assistance then sends it to BNY Mellon.

Art discussed the monthly bank reconciliation with accounting services and has agreed to do this on a monthly basis and stated that the CAFR is complete and will be filed with the GFOAZ.

The benefit payment process cannot be implemented due to payroll having the same opportunity to update the payee and records in the same manner as TSRS staff. Pete Saxton commented on the new electronic system. All checks are compared to the source documentation to ensure that it’s accurate and appropriate.

Kevin Larson asked who sees the modification to the payee or vendor. Pete commented that the Lead Pension Analyst reviews it, then Pete will review the entire packet prior to it going to AP. Art commented that this is pertaining to rollovers and transfer outs. Pete noted that nobody in the office has the ability to update payee information, only AP has that access.

Art informed the Board that he will engage the Internal Audit team to follow through and affirm that the changes described above have been made and recommendations implemented where appropriate and feasible.

Discussion held, no formal action taken

6. **Consideration for TSRS to Hire External Legal Counsel (02:40:00 - 03:03:23)**

Art informed the Board that this was a follow up item from the Retreat. Chief Deputy City Attorney Dave Deibel informed the Board that the Mayor and Council provide authority to the City Attorney to hire external legal counsel through section 28-19 of the City’s Procurement Code.

Discussion held, no formal action taken.

E. **Articles & Readings for Board Member Education / Discussion**
   1. The Epic Clash Between Bonds and Stocks is Coming Back
   2. LDI Strategies and Preparing DB Plans for Recessions
   3. These 10 Emerging Markets Will Dominate the Global Economy In the Next Decade

F. **Future Agenda Items**
   1. TSRS Rules and Regulations

G. **Adjournment**
   Adjourned 11:34 AM

Mark Rubin	Date	Art Cuaron	Date
Chairman of the Board		Pension & Benefits Administrator	

Callan

February 28, 2019

Tucson Supplemental Retirement System

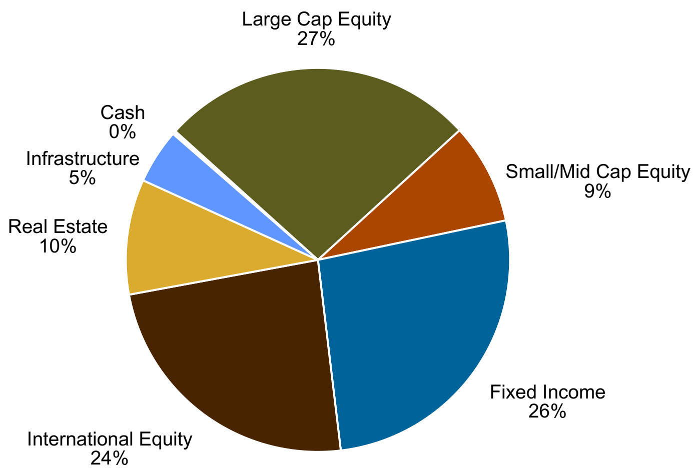
Investment Measurement Service Monthly Review

Table of Contents
Tucson Supplemental Retirement System
February 28, 2019

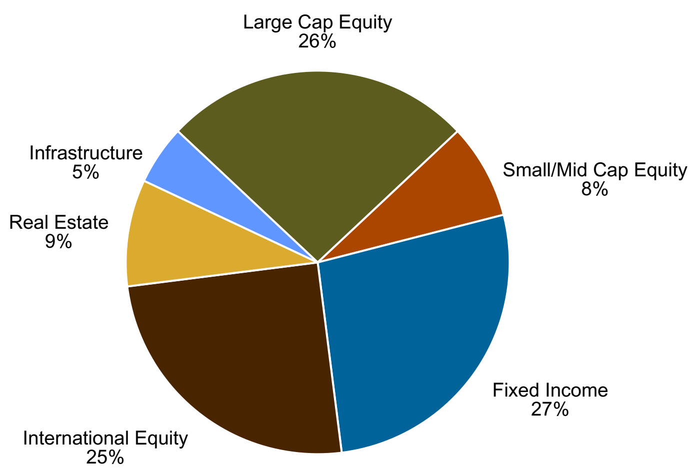
Actual vs Target Asset Allocation

The first chart below shows the Fund's asset allocation as of February 28, 2019. The second chart shows the Fund's target asset allocation as outlined in the investment policy statement.

Actual Asset Allocation



Target Asset Allocation



Asset Class	$000s Actual	Percent Actual	Percent Target	Percent Difference	$000s Difference
Large Cap Equity	215,750	26.5%	26.0%	0.5%	4,293
Small/Mid Cap Equity	69,529	8.5%	8.0%	0.5%	4,466
Fixed Income	215,008	26.4%	27.0%	(0.6%)	(4,582)
International Equity	195,351	24.0%	25.0%	(1.0%)	(7,972)
Real Estate	78,780	9.7%	9.0%	0.7%	5,584
Infrastructure	37,279	4.6%	5.0%	(0.4%)	(3,385)
Cash	1,597	0.2%	0.0%	0.2%	1,597
Total	813,294	100.0%	100.0%		

*Current Month Target Performance is calculated using monthly rebalancing.

Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of February 28, 2019, with the distribution as of January 31, 2019. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

Asset Distribution Across Investment Managers

	February 28, 2019				January 31, 2019	
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
Domestic Equity	**$285,278,689**	**35.08%**	**$(1,793,088)**	**$9,952,258**	**$277,119,518**	**34.55%**
Large Cap Equity	**$215,749,607**	**26.53%**	**$(1,813,650)**	**$6,433,278**	**$211,129,979**	**26.32%**
Alliance S&P Index	66,232,048	8.14%	(7,632)	2,050,785	64,188,895	8.00%
PIMCO StocksPLUS	31,974,807	3.93%	0	1,019,023	30,955,783	3.86%
BlackRock Russell 1000 Value	58,812,820	7.23%	0	1,827,986	56,984,834	7.10%
T. Rowe Price Large Cap Growth	58,729,933	7.22%	(1,806,018)	1,535,483	59,000,468	7.36%
Small/Mid Cap Equity	**$69,529,081**	**8.55%**	**$20,562**	**$3,518,980**	**$65,989,539**	**8.23%**
Champlain Mid Cap	34,847,344	4.28%	(2,815)	1,631,983	33,218,176	4.14%
Pyramis Small Cap	34,681,737	4.26%	23,377	1,886,997	32,771,362	4.09%
International Equity	**$195,351,323**	**24.02%**	**$(13,619)**	**$5,460,168**	**$189,904,775**	**23.67%**
Causeway International Opps	78,118,536	9.61%	(13,619)	2,661,355	75,470,800	9.41%
Aberdeen EAFE Plus	79,271,919	9.75%	0	1,835,819	77,436,100	9.65%
American Century Non-US SC	37,960,868	4.67%	0	962,994	36,997,874	4.61%
Fixed Income	**$215,007,757**	**26.44%**	**$(4,013,841)**	**$926,920**	**$218,094,679**	**27.19%**
BlackRock U.S. Debt Fund	106,327,644	13.07%	0	(46,690)	106,374,334	13.26%
PIMCO Fixed Income	108,680,113	13.36%	(4,013,841)	973,610	111,720,344	13.93%
Real Estate	**$78,780,282**	**9.69%**	**$0**	**$159,562**	**$78,620,719**	**9.80%**
JPM Strategic Property Fund	52,892,348	6.50%	0	159,562	52,732,786	6.57%
JPM Income and Growth Fund	25,887,933	3.18%	0	0	25,887,933	3.23%
Infrastructure	**$37,279,331**	**4.58%**	**$(395,450)**	**$(56,403)**	**$37,731,184**	**4.70%**
Macquarie European	9,358,675	1.15%	(395,450)	(56,403)	9,810,528	1.22%
SteelRiver Infrastructure	27,920,656	3.43%	0	0	27,920,656	3.48%
Total Cash	**$1,597,109**	**0.20%**	**$904,830**	**$2,300**	**$689,978**	**0.09%**
Cash	1,597,109	0.20%	904,830	2,300	689,978	0.09%
Total Fund	**$813,294,490**	**100.0%**	**$(5,311,168)**	**$16,444,804**	**$802,160,854**	**100.0%**

Investment Manager Returns

The table below details the rates of return for the fund's investment managers over various time periods ended February 28, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended February 28, 2019

	Last Month	Quarter to Date	Last 12 Months	Last 36 Months	Last 60 Months
Gross of Fees					
Domestic Equity	**3.60%**	**13.21%**	**7.09%**	**17.74%**	**11.23%**
Total Domestic Equity Target (1)	3.57%	12.74%	5.13%	15.45%	10.09%
Large Cap Equity	**3.06%**	**12.04%**	**5.57%**	**17.08%**	**11.00%**
S&P 500 Index	3.21%	11.48%	4.68%	15.28%	10.67%
Alliance S&P Index	3.19%	11.45%	4.70%	15.19%	10.63%
S&P 500 Index	3.21%	11.48%	4.68%	15.28%	10.67%
PIMCO StocksPLUS	3.29%	12.04%	4.05%	15.89%	10.52%
S&P 500 Index	3.21%	11.48%	4.68%	15.28%	10.67%
BlackRock Russell 1000 Value	3.21%	11.24%	3.30%	12.82%	8.17%
Russell 1000 Value Index	3.20%	11.23%	3.16%	12.80%	8.09%
T. Rowe Price Large Cap Growth	2.64%	13.49%	9.72%	24.06%	14.37%
Russell 1000 Growth Index	3.58%	12.89%	6.62%	17.99%	12.63%
Small/Mid Cap Equity	**5.33%**	**17.03%**	**12.22%**	**19.99%**	**11.99%**
Russell 2500 Index	4.72%	16.78%	6.36%	15.92%	7.89%
Champlain Mid Cap	4.92%	15.79%	16.68%	23.35%	14.47%
Russell MidCap Index	4.30%	15.55%	5.63%	14.46%	8.56%
Pyramis Small Cap	5.76%	18.31%	7.21%	16.30%	9.25%
Russell 2000 Index	5.20%	17.03%	5.58%	16.67%	7.36%
International Equity	**2.88%**	**10.45%**	**(8.23%)**	**10.52%**	**1.95%**
Total International Equity Target (2)	1.97%	9.72%	(7.05%)	10.59%	2.42%
Causeway International Opps	3.53%	11.74%	(7.59%)	10.33%	2.20%
MSCI ACWI ex US	1.95%	9.66%	(6.46%)	10.72%	2.50%
Aberdeen EAFE Plus	2.37%	8.21%	(5.96%)	10.23%	1.31%
MSCI ACWI x US (Net)	1.95%	9.66%	(6.46%)	10.72%	2.50%
American Century Non-US SC	2.68%	12.79%	(13.03%)	-	-
MSCI ACWI ex US Small Cap	2.10%	10.09%	(10.65%)	9.96%	3.26%
Fixed Income	**0.43%**	**2.45%**	**4.03%**	**4.91%**	**3.80%**
Blmbg Aggregate Index	(0.06%)	1.00%	3.17%	1.69%	2.32%
BlackRock U.S. Debt Fund	(0.04%)	1.04%	3.29%	1.80%	2.44%
Blmbg Aggregate Index	(0.06%)	1.00%	3.17%	1.69%	2.32%
PIMCO Fixed Income	0.89%	3.84%	4.76%	7.22%	4.85%
Custom Index (3)	0.41%	3.49%	3.30%	4.35%	3.74%

(1) The Total Domestic Equity target is currently composed of 76% S&P 500 and 24% Russell 2500 Index.

(2) The Total International Equity Target reflects the MSCI ACWI ex-US (Net Div) through May 2016 and the MSCI ACWI ex-US IMI (Net Div) thereafter.

(3) The PIMCO custom index is composed of 25% Barclays Mortgage, 25% Barclays Credit, 25% Barclays High Yield, and 25% JP Morgan EMBI Global. Previously the index was composed of 70% Barclays Mortgage, 15% Barclays Credit, and 15% Barclays High Yield.

Investment Manager Returns

The table below details the rates of return for the fund's investment managers over various time periods ended February 28, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended February 28, 2019

	Last Month	Quarter to Date	Last 12 Months	Last 36 Months	Last 60 Months
Gross of Fees					
Real Estate	**0.20%**	**0.21%**	**6.34%**	**7.48%**	**9.63%**
NFI-ODCE Value Weight Gr*	0.58%	1.17%	8.03%	8.14%	10.30%
JPM Strategic Property Fund	0.30%	0.32%	6.15%	7.51%	9.66%
JPM Income and Growth Fund**	0.00%	0.00%	6.70%	7.44%	9.75%
NFI-ODCE Value Weight Gr*	0.58%	1.17%	8.03%	8.14%	10.30%
Infrastructure	**(0.15%)**	**(0.05%)**	**7.31%**	**16.62%**	**11.29%**
CPI + 4%	0.75%	1.22%	5.33%	6.16%	5.30%
Macquarie European Infrastructure Fund	(0.60%)	(0.20%)	6.14%	29.21%	14.95%
SteelRiver Infrastructure North Amer.**	0.00%	0.00%	7.76%	8.03%	9.79%
CPI + 4%	0.75%	1.22%	5.33%	6.16%	5.30%
Total Fund	**2.06%**	**7.54%**	**2.27%**	**11.58%**	**7.42%**
Total Fund Target	1.78%	7.14%	2.03%	9.42%	6.41%

* Current Month Target = 27.0% Blmbg Aggregate, 26.0% S&P 500 Index, 25.0% MSCI ACWI ex US IMI, 9.0% NCREIF NFI-ODCE Val Wt Gr, 8.0% Russell 2500 Index and 5.0% CPI-W+4.0%.

*The NFI-ODCE Value Weight benchmark current quarter return is preliminary.

**SteelRiver Infrastructure and JPM I&G performance reflect prior month's market values as current data is not yet available.

Investment Manager Returns

The table below details the rates of return for the fund's investment managers over various time periods ended February 28, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended February 28, 2019

Net of Fees	Last Month	Quarter to Date	Last 12 Months	Last 36 Months	Last 60 Months
Domestic Equity	**3.60%**	**13.21%**	**6.84%**	**17.41%**	**10.92%**
Total Domestic Equity Target (1)	3.57%	12.74%	5.13%	15.45%	10.09%
Large Cap Equity	**3.06%**	**12.04%**	**5.44%**	**16.92%**	**10.85%**
S&P 500 Index	3.21%	11.48%	4.68%	15.28%	10.67%
Alliance S&P Index	3.19%	11.45%	4.67%	15.15%	10.59%
S&P 500 Index	3.21%	11.48%	4.68%	15.28%	10.67%
PIMCO StocksPLUS	3.29%	12.04%	4.05%	15.89%	10.52%
S&P 500 Index	3.21%	11.48%	4.68%	15.28%	10.67%
BlackRock Russell 1000 Value	3.21%	11.23%	3.26%	12.77%	8.13%
Russell 1000 Value Index	3.20%	11.23%	3.16%	12.80%	8.09%
T. Rowe Price Large Cap Growth	2.64%	13.49%	9.29%	23.53%	13.88%
Russell 1000 Growth Index	3.58%	12.89%	6.62%	17.99%	12.63%
Small/Mid Cap Equity	**5.33%**	**17.03%**	**11.54%**	**19.08%**	**11.14%**
Russell 2500 Index	4.72%	16.78%	6.36%	15.92%	7.89%
Champlain Mid Cap	4.92%	15.79%	15.94%	22.37%	13.53%
Russell MidCap Index	4.30%	15.55%	5.63%	14.46%	8.56%
Pyramis Small Cap	5.76%	18.31%	6.60%	15.46%	8.50%
Russell 2000 Index	5.20%	17.03%	5.58%	16.67%	7.36%
International Equity	**2.88%**	**10.45%**	**(8.53%)**	**10.05%**	**1.40%**
Total International Equity Target (2)	1.97%	9.72%	(7.05%)	10.59%	2.42%
Causeway International Opps	3.53%	11.74%	(7.84%)	9.90%	1.69%
MSCI ACWI ex US	1.95%	9.66%	(6.46%)	10.72%	2.50%
Aberdeen EAFE Plus	2.37%	8.21%	(6.44%)	9.54%	0.60%
MSCI ACWI x US (Net)	1.95%	9.66%	(6.46%)	10.72%	2.50%
American Century Non-US SC	2.60%	12.63%	(13.87%)	-	-
MSCI ACWI ex US Small Cap	2.10%	10.09%	(10.65%)	9.96%	3.26%
Fixed Income	**0.43%**	**2.45%**	**3.83%**	**4.64%**	**3.51%**
Blmbg Aggregate Index	(0.06%)	1.00%	3.17%	1.69%	2.32%
BlackRock U.S. Debt Fund	(0.04%)	1.04%	3.26%	1.75%	2.39%
Blmbg Aggregate Index	(0.06%)	1.00%	3.17%	1.69%	2.32%
PIMCO Fixed Income	0.89%	3.84%	4.39%	6.75%	4.37%
Custom Index (3)	0.41%	3.49%	3.30%	4.35%	3.74%

(1) The Total Domestic Equity target is currently composed of 76% S&P 500 and 24% Russell 2500 Index.

(2) The Total International Equity Target reflects the MSCI ACWI ex-US (Net Div) through May 2016 and the MSCI ACWI ex-US IMI (Net Div) thereafter.

(3) The PIMCO custom index is currently composed of 25% Barclays Mortgage, 25% Barclays Credit, 25% Barclays High Yield, and 25% JP Morgan EMBI Global. Prior to 2/1/2012, the custom index was composed of 70% Barclays Mortgage, 15% Barclays Credit, and 15% Barclays High Yield.

Investment Manager Returns

The table below details the rates of return for the fund's investment managers over various time periods ended February 28, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended February 28, 2019

	Last Month	Quarter to Date	Last 12 Months	Last 36 Months	Last 60 Months
Net of Fees					
Real Estate	**0.20%**	**0.21%**	**5.45%**	**6.47%**	**8.54%**
NFI-ODCE Value Weight Gr*	0.58%	1.17%	8.03%	8.14%	10.30%
JPM Strategic Property Fund	0.30%	0.32%	5.37%	6.52%	8.63%
JPM Income and Growth Fund**	0.00%	0.00%	5.59%	6.36%	8.48%
NFI-ODCE Value Weight Gr*	0.58%	1.17%	8.03%	8.14%	10.30%
Infrastructure	**(0.21%)**	**(0.10%)**	**6.49%**	**12.16%**	**8.32%**
CPI + 4%	0.75%	1.22%	5.33%	6.16%	5.30%
Macquarie European Infrastructure Fund	(0.82%)	(0.42%)	3.98%	18.35%	8.70%
SteelRiver Infrastructure North Amer.**	0.00%	0.00%	7.43%	7.56%	9.05%
CPI + 4%	0.75%	1.22%	5.33%	6.16%	5.30%
Total Fund	**2.06%**	**7.48%**	**1.88%**	**10.91%**	**6.85%**
Total Fund Target	1.78%	7.14%	2.03%	9.42%	6.41%

* Current Month Target = 27.0% Blmbg Aggregate, 26.0% S&P 500 Index, 25.0% MSCI ACWI ex US IMI, 9.0% NCREIF NFI-ODCE Val Wt Gr, 8.0% Russell 2500 Index and 5.0% CPI-W+4.0%.

*The NFI-ODCE Value Weight benchmark current quarter return is preliminary.

**SteelRiver Infrastructure and JPM I&G performance reflect prior month's market values as current data is not yet available.

February 28, 2019

Tucson Supplemental Retirement System

Introduction to Asset/Liability Study Considerations

Paul Erlendson
Senior Vice President

Gordie Weightman, CFA
Senior Vice President

The Importance of Asset Allocation

The number one task

- Asset allocation is the primary determinant of investment return and asset volatility
- Asset allocation is the process of determining the optimal allocation of a portfolio among broad asset classes based upon, among other factors:
  - Investment goals
  - Time horizon
  - Liquidity needs
  - Capital market expectations
  - Liability characteristics
  - Risk tolerance
- Elements of an appropriate target asset allocation include:
  - Identifying asset classes for inclusion (avoid overlaps and minimize gaps)
  - Special considerations such as fees, size or capacity constraints, liquidity requirements
  - Rebalancing discipline

Focus on Broad Asset Classes

Equities

U.S. equities
- Large cap
- Small/mid cap

Non-U.S. equities
- Developed markets (ex U.S.)
- Emerging markets

Fixed Income

Short duration/cash

U.S. fixed income
- High yield
- Bank loans

Non-U.S. fixed income
- Emerging debt

Long Duration
- Long government
- Long credit

Other

Private real estate

Private equity

Hedge funds

Liquid real Assets
- Commodities
- TIPS
- REITs
- Listed infrastructure

- Strategic asset allocation typically focuses on broad asset classes (bolded)
- Breakdowns between investment styles within asset classes (growth vs. value, large cap vs. small cap) are best addressed in a manager structure analysis

Interaction of Three Key Policies

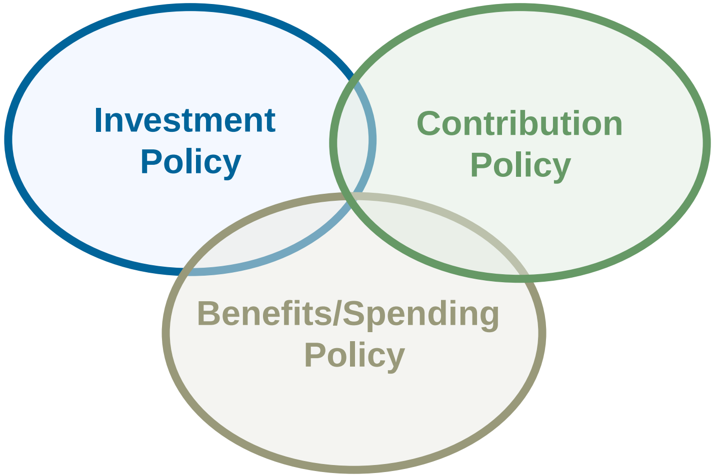
Three strategic policies govern any pool of assets whether it be a pension fund, endowment, or foundation

Investment Policy

- How will the assets supporting the benefits/spending be invested?
- What risk and return objectives?
- How to manage cash flows?

Benefits/Spending Policy

- Defined benefit plan design
  - Open, closed, or frozen?
  - Final-average, cash balance?
- What type of spending policy?
  - Smoothing method?



Contribution Policy

- What are expected inflows (contributions, fundraising, bequests, royalties)?
- Discount rate methodology for pensions
- Spending rate for endowments

Contributions + Investment Earnings = Benefits/Spending/Expenses

Why Conduct an Asset and Liability Study?

- The cornerstone of a prudent process for a pension plan and any individual investor is a careful and thorough examination of their long-term strategic plan
- Explicitly acknowledge change and uncertainty in the capital markets
- Establish reasonable rate-of-return and risk expectations
- Incorporate material changes in strategic policies
  - Pension plan: change in funding policy
  - Reflect changes in regulations e.g., GASB 67 and 68
  - Benefit improvements or new Tiers
- Project and evaluate impact on assets, liabilities, and funded status
- Confirm an investment policy to meet return and risk objectives
- If no material changes have occurred, an asset allocation review should still be conducted every 3 – 5 years

Modern Portfolio Theory

PORTFOLIO SELECTION*

HARRY MARKOWITZ
The Rand Corporation

THE PROCESS OF SELECTING a portfolio may be divided into two stages. The first stage starts with observation and experience and ends with beliefs about the future performances of available securities. The second stage starts with the relevant beliefs about future performances and ends with the choice of portfolio. This paper is concerned with the second stage. We first consider the rule that the investor does (or should) maximize discounted expected, or anticipated, returns. This rule is rejected both as a hypothesis to explain, and as a maximum to guide investment behavior. We next consider the rule that the investor does (or should) consider expected return a desirable thing *and* variance of return an undesirable thing. This rule has many sound points, both as a maxim for, and hypothesis about, investment behavior. We illustrate geometrically relations between beliefs and choice of portfolio according to the "expected returns—variance of returns" rule.

One type of rule concerning choice of portfolio is that the investor does (or should) maximize the discounted (or capitalized) value of future returns.[1] Since the future is not known with certainty, it must be "expected" or "anticipated" returns which we discount. Variations of this type of rule can be suggested. Following Hicks, we could let "anticipated" returns include an allowance for risk.[2] Or, we could let the rate at which we capitalize the returns from particular securities vary with risk.

The hypothesis (or maxim) that the investor does (or should) maximize discounted return must be rejected. If we ignore market imperfections the foregoing rule never implies that there is a diversified portfolio which is preferable to all non-diversified portfolios. Diversification is both observed and sensible; a rule of behavior which does not imply the superiority of diversification must be rejected both as a hypothesis and as a maxim.

* This paper is based on work done by the author while at the Cowles Commission for Research in Economics and with the financial assistance of the Social Science Research Council. It will be reprinted as Cowles Commission Paper, New Series, No. 60.

1. See, for example, J. B. Williams, *The Theory of Investment Value* (Cambridge, Mass.: Harvard University Press, 1938), pp. 55–75.

2. J. R. Hicks, *Value and Capital* (New York: Oxford University Press, 1939), p. 126. Hicks applies the rule to a firm rather than a portfolio.

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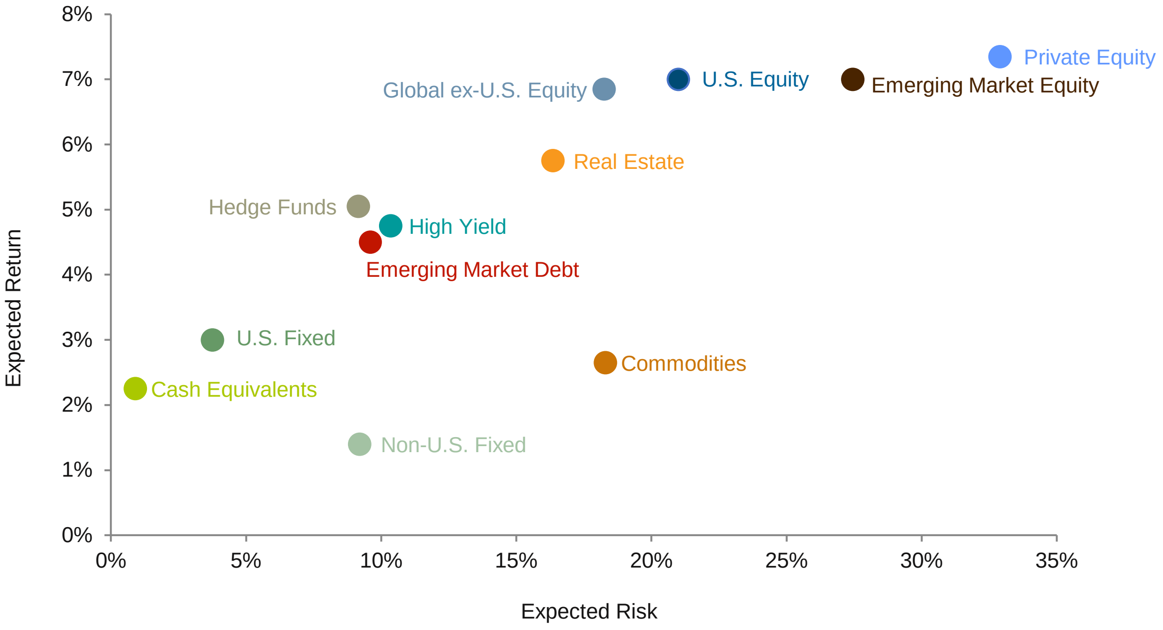
- Modern Portfolio Theory (MPT) provides investors with one of the most powerful quantitative tools for constructing "efficient portfolios" by considering three important capital market inputs:
  - Expected Returns
  - Standard Deviation (Risk)
  - Correlations
- MPT was published by Harry Markowitz in 1952
  - "Portfolio Selection", Journal of Finance, 1952
- MPT facilitates the quantification of portfolio diversification by incorporating correlations

Risk Aversion

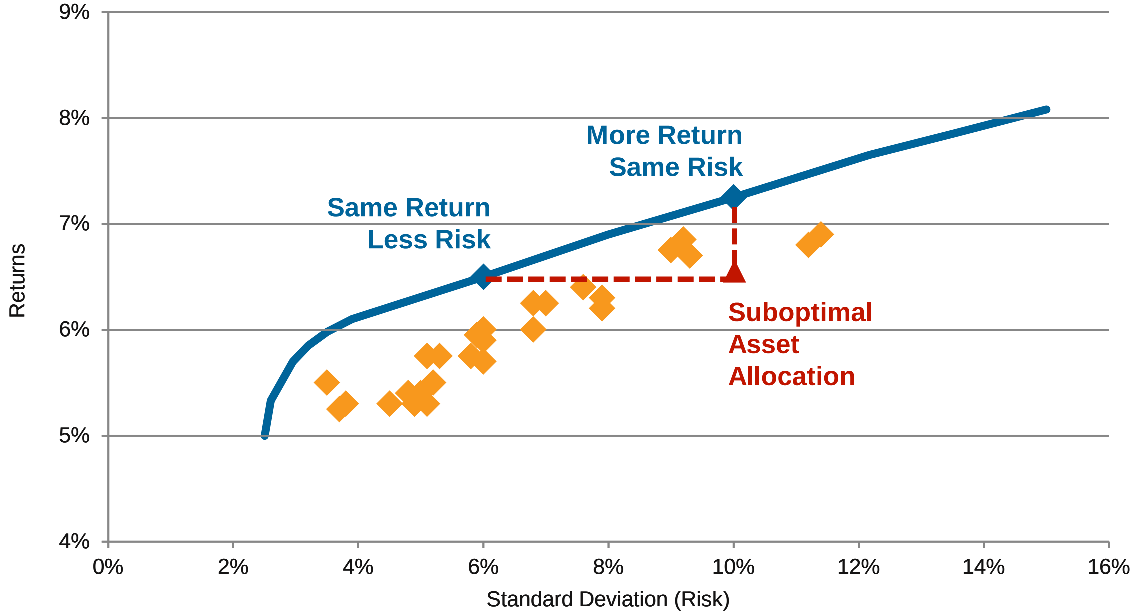


Modern portfolio theory assumes investors are risk averse - given a choice between two assets with the same level of return, an investor will select the asset with a lower level of risk.

- The risk premium demanded by investors provides evidence of risk aversion
- For example, investors demand a greater return from equities over bonds for the increased risk they are assuming

Source: Callan 2018 – 2027 return-risk expectations

Mean-Variance Optimization



Capital Market Assumptions

Expected Returns
Risks
Correlations

Mean-Variance Optimization

Mathematically finds the highest returning portfolio for each level of risk – an "efficient portfolio"

Select Portfolio

An efficient portfolio is selected based on multiple factors

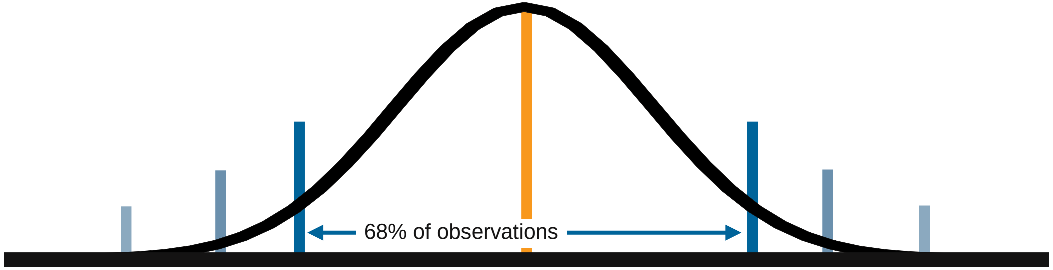
Normally Distributed Asset Class Returns

- Modern Portfolio Theory assumes that all asset class returns are normally distributed
- Capital market projections convey a range of outcomes
  - More volatile asset classes such as equities have a wide range of outcomes (risk)
- The 68–95–99.7 rule is shorthand for describing how many observations (returns) lie within one, two, and three standard deviations from the mean (expected return).
  - 68% of annual equity returns are within one standard deviation: anywhere from -11% to 25%

U.S. Broad Equity

Expected Return = 6.85%

Standard deviation = 18.25%



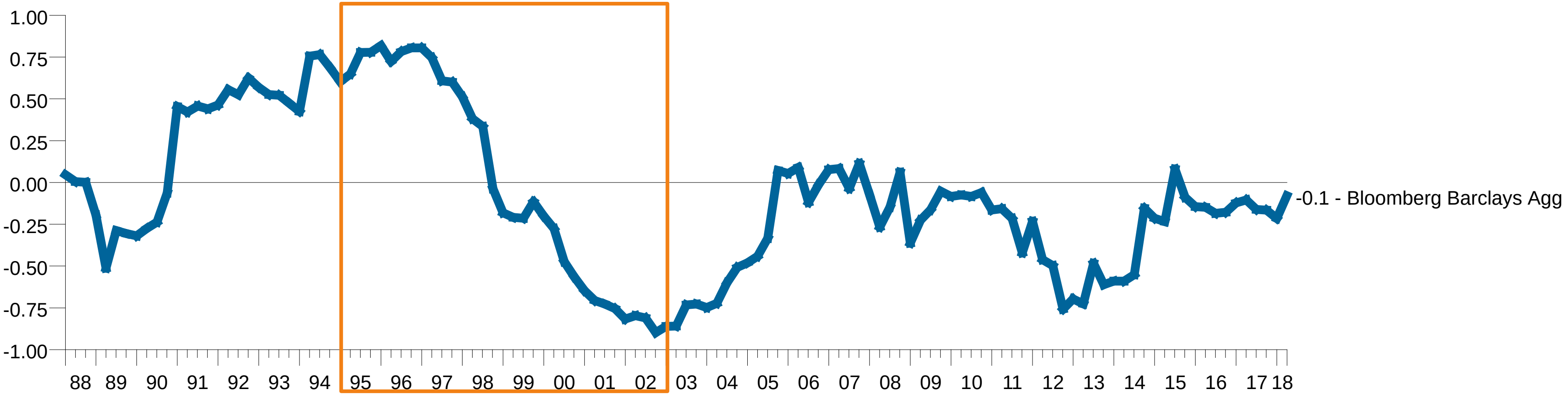
-3 SD	-2 SD	-1 SD	6.85% Expected Return	+1 SD	+2 SD	+3 SD
6.85%	6.85%	6.85%		6.85%	6.85%	6.85%
-54.75%	-36.5%	-18.25%		+18.25%	+36.5%	+54.75%
-47.9%	-29.65%	-11.4%		+25.1%	+43.35%	+61.6%

68% of annual equity returns range from -11% to 25%

Correlations are Time Varying

Historical correlation of the S&P 500 and the Bloomberg Barclays Aggregate

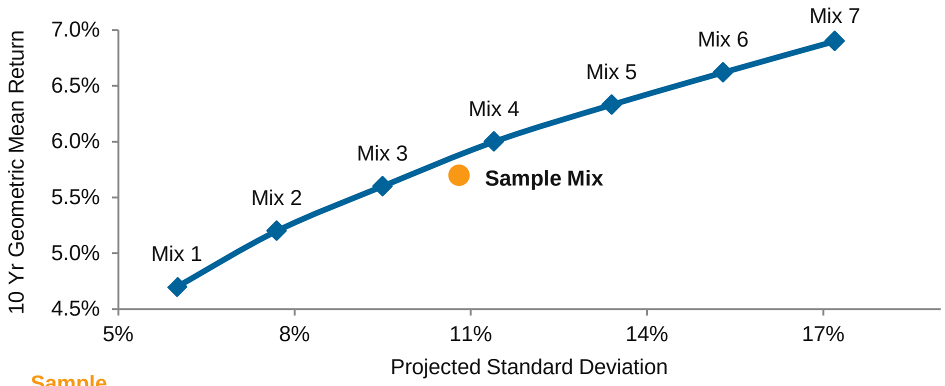
Rolling 12 Quarter Correlation relative to S&P 500 for 30 Years



- Correlations are not robust which makes point estimates difficult
- Fixed income correlation with equities went from positive during the Tech boom to negative during the Dot-Com Bubble (2000–2002)

Portfolio Mean-Variance Optimization Example

Efficient frontier



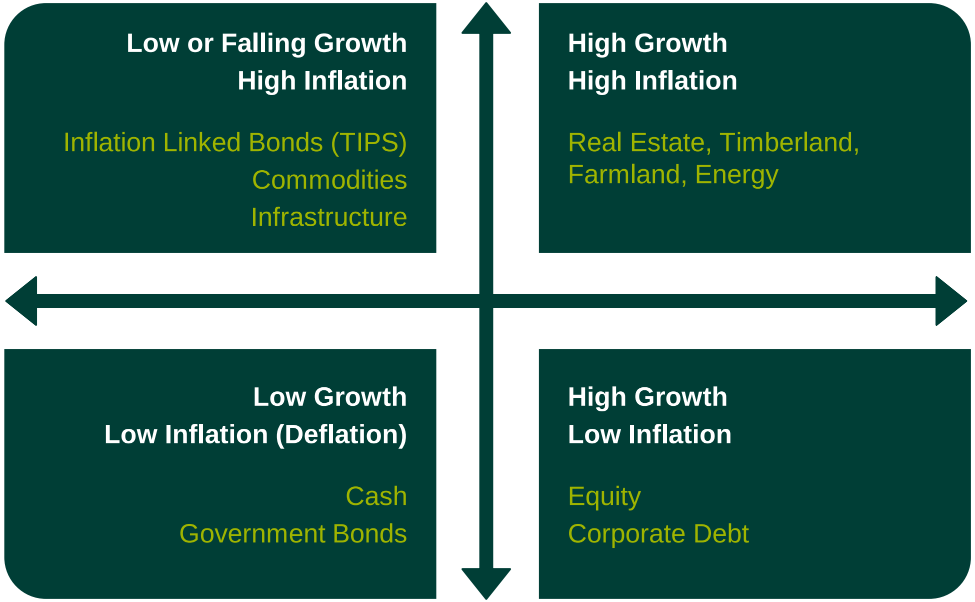
	Sample Mix	Mix 1	Mix 2	Mix 3	Mix 4	Mix 5	MIX 6	Mix 7
U.S. Broad Equity	60%	13%	17%	21%	25%	29%	34%	39%
Gl ex-U.S. Equity	0%	10%	13%	16%	20%	23%	26%	29%
U.S. Fixed	40%	70%	60%	50%	40%	30%	20%	10%
Real Estate	0%	4%	6%	8%	9%	11%	12%	13%
Private Equity	0%	3%	4%	5%	6%	7%	8%	9%
Totals	100%	100%	100%	100%	100%	100%	100%	100%
10 Yr Geometric Mean Return	5.7%	4.7%	5.3%	5.6%	6.0%	6.3%	6.6%	6.9%
Projected Std Deviation	10.8%	6.0%	7.7%	9.5%	11.4%	13.4%	15.3%	17.2%

The optimization model determines the portfolios with the highest expected return for any given risk level

The sample portfolio is below the efficient frontier because it is relatively undiversified

Determining the efficient frontier is the first step in developing asset allocation policy

Economic Diversification



- Mean-variance optimization employs capital market inputs that assumes a long-term normal market equilibrium (the cross hairs in the graph)
- Many asset classes are expected to outperform in certain economic regimes, although there is no guarantee due to other factors driving asset prices
- Economic regime scenarios (quadrants) are not equally likely and the graph does not imply 25% of assets should be dedicated to each bucket

Role of Asset Class

Growth

Equities
- Global equity
- Private equity
- Alternative beta
- Opportunistic real estate

Credit Sensitive
- High yield
- Emerging debt
- Bank loans
- Long credit
- Private debt

Risk Mitigation

Income Producing
- Short duration
- U.S. fixed income
- Non-U.S. fixed income

Rising Rate Protection
- Cash equivalents
- Short duration
- Floating rate securities

Liability Hedging
- Long Treasury
- Long credit

Real Assets

Short/Intermediate Hedge
- Inflation-linked debt
- Commodities

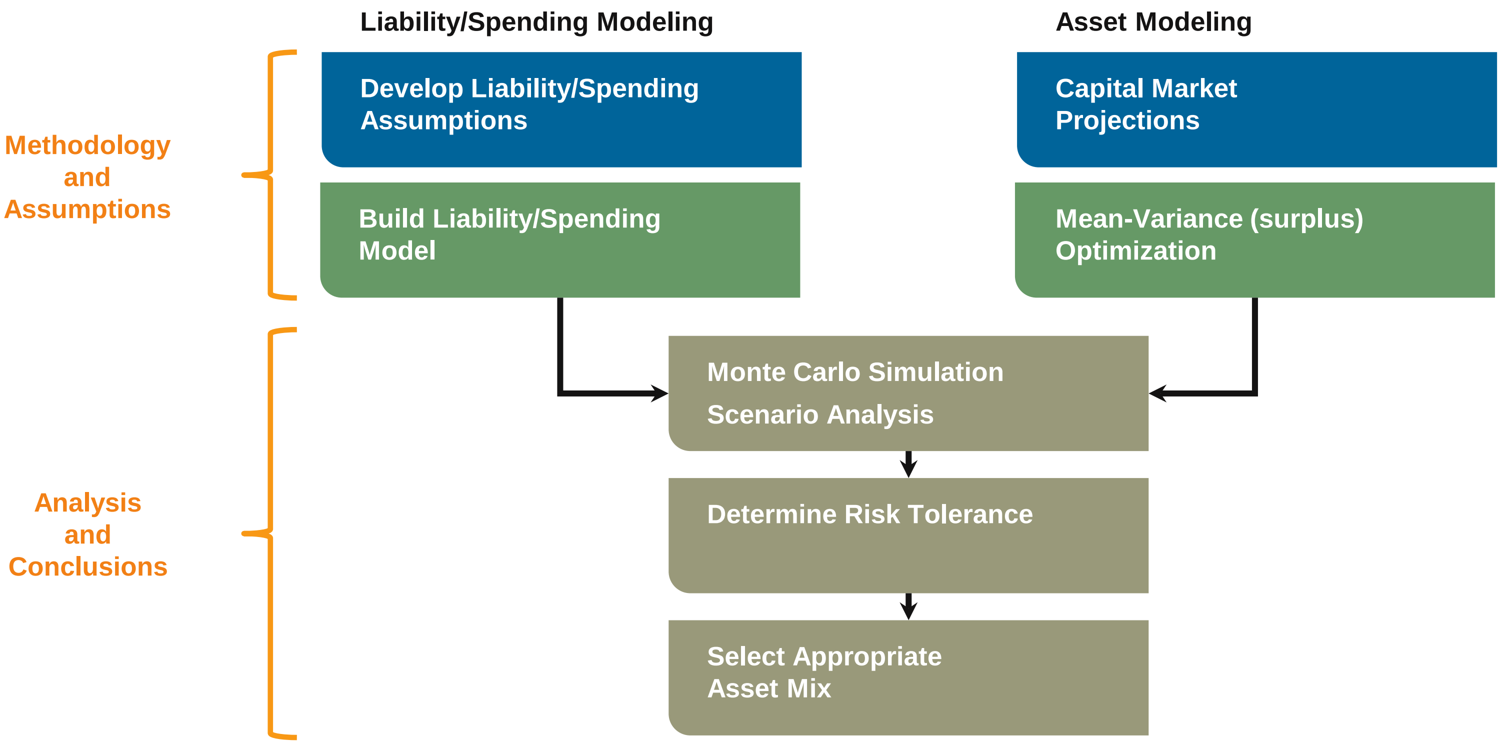
Growth-Oriented
- REITs
- MLPs
- Natural resource equity
- Core real estate
- Value-add real estate
- Infrastructure
- Timber
- Agriculture

Diversifying Assets

- Multi-asset class strategies
- Hedge funds
- Managed futures

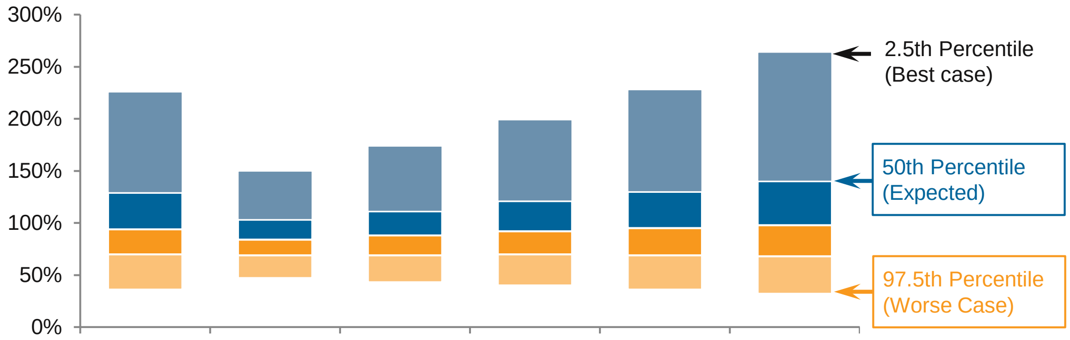
- Each asset class should play a role in the portfolio
- Long-term investors, insensitive to short-term volatility, may allocate 60–70% of the portfolio to growth assets

Callan Asset-Liability Process



Monte Carlo Simulation

10-year projected funded status



Percentile	Target	Mix 1	Mix 2	Mix 3	Mix 4	Mix 5
2.5th	226%	150%	174%	199%	228%	264%
25th	129%	103%	111%	121%	130%	140%
50th	94%	84%	88%	92%	95%	98%
75th	70%	69%	69%	70%	69%	68%
97.5th	36%	47%	43%	40%	36%	32%

2.5% chance that the 10-year projected funded status of the target mix will fall below 36% at the end of 10 years

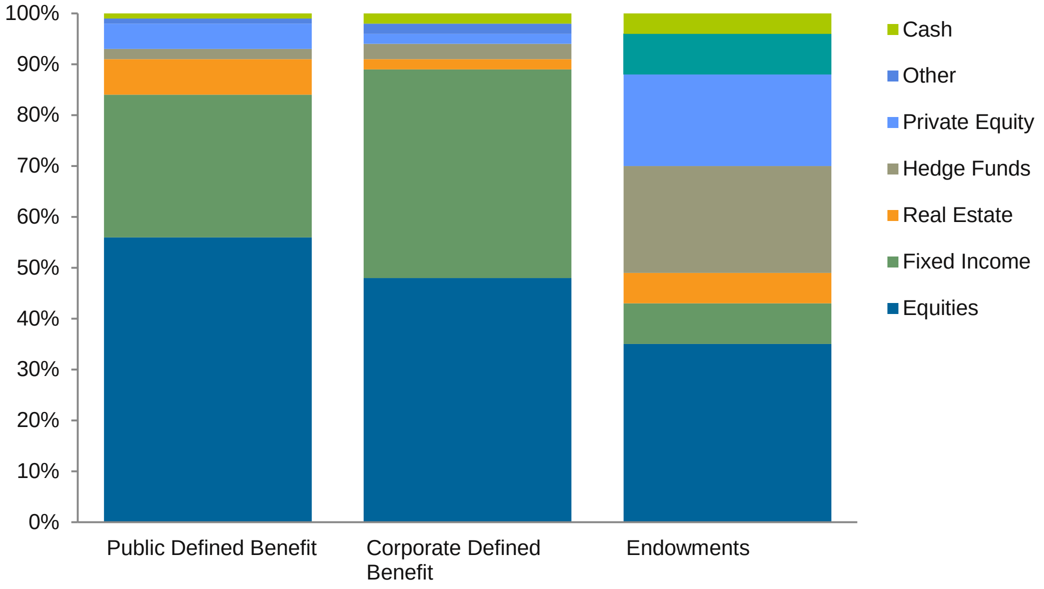
- Monte Carlo Simulation assists with quantifying capital market uncertainty
- Thousands of scenarios are generated in order to quantify probabilities and magnitude for different variables (e.g. funded status, contributions)

Determine Risk Tolerance

- Investment goal
  - Meet or exceed liability return
  - spending rate + inflation
- Funded status
- Risk tolerance
  - Financial ability to take risk
  - Willingness to take risk
- Liquidity needs
  - Cash flow analysis
  - Illiquid investments
- Time horizon
  - Typically long time horizon
  - Corporate defined benefit plans: closed, frozen
- Regulatory framework
- Peer group risk
  - What are other plans doing?
- Complexity
  - Time and effort to understand and monitor
  - Staffing resources
- Permissible investments
  - Statutory restrictions

Asset Allocation Policies Vary Widely by Plan Type

Average allocations

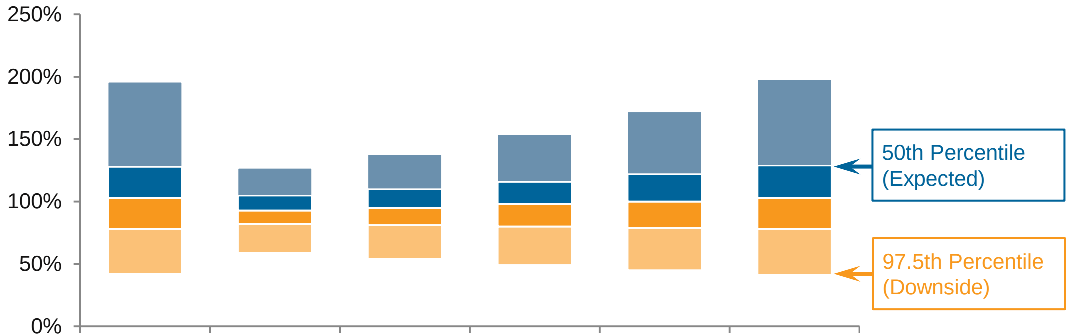


- Long-term investors (public pension funds, endowments/foundations) typically allocate 60–70% of the portfolio to growth assets (e.g., equities)
- Corporate defined benefit funds allocate more to fixed income to hedge liabilities (mark-to-market framework)
- Endowments more heavily invested in alternative investments

Sources: Callan, NACUBO, P&I, as of January 2017

Case Study

Evaluating funded status by policy mix



Percentile	Target	Mix 1	Mix 2	Mix 3	Mix 4	Mix 5
2.5th	196%	127%	138%	154%	172%	198%
25th	128%	105%	110%	116%	122%	129%
50th	103%	93%	95%	98%	100%	103%
75th	78%	82%	81%	80%	79%	78%
97.5th	42%	59%	54%	49%	45%	41%
Expected Return	6.7%	5.2%	5.7%	6.1%	6.4%	6.7%
Std Deviation	16.1%	8.0%	10.0%	12.0%	14.0%	16.1%

- In 50th percentile case, both mixes 4 and 5 result in fully funded plan on an actuarial basis
- More aggressive mixes are **expected** to have a higher funded status over time but will have a lower funded status in a worse case scenario (97.5th percentile)

Asset Allocation Factors

- Investment goal
  - *Reduce contributions over the long run or minimize contribution volatility*
- Return Objective
  - *Combination of beta and alpha to meet assumed investment return of 7.5%*
  - *Contributions + Earnings = Benefits*
- Time horizon
- Liquidity needs: Cash flows, level of illiquid investment
- Financial strength of Plan Sponsor
  - *Financial resources available relative to contribution requirements*
- Liability characteristics
  - *Plan demographics*
  - *Net growth rate*
  - *Normal cost rate*
  - *Inflation sensitivity*
- Peer Group Comparison
- Funded status
- Contribution risk
  - *Actuarial methodology (smoothing employed)*

MEMORANDUM

DATE: March 21, 2019

TO: The Board of Trustees
Tucson Supplemental Retirement System

FROM: Art Cuaron
Pension & Benefits Administrator

SUBJECT: Post Retirement Benefit Increase (PRBI)

This item is for informational purposes only, however, I am seeking Board direction per the outline below.

Attached to this memo is the current Post Retirement Benefit Increase policy. The Board requested this document as a means to begin a discussion towards a meaningful revision of this policy. The purpose of this agenda item is to distribute the policy and begin said discussions as appropriate.

I am seeking Board direction on the manner in which we proceed with this document. Below are some options for consideration:

a) Update the policy with relevant and pertinent information related to the funded status of the plan and all current assumptions
b) Use elements contained in the policy as a framework for a complete re-write
c) Rescind the policy given the current time frame for 100% funded status

Attachment: Post Retirement Benefit Increase (PRBI) Policy

POST RETIREMENT BENEFIT INCREASE (PRBI) PAYMENTS

RULES AND PROCEDURE

BACKGROUND

The Tucson Supplemental Retirement System (TSRS) is a defined benefit retirement plan which creates post-retirement income benefits for City of Tucson Retirees. TSRS is a supplement to social security and other retirement benefit programs. Retirees on a defined benefit plan are susceptible to inflationary effects on the cost of living without any adjustment on their pension income; over extended periods of time, this significantly erodes the buying power of retirees' income. The Plan currently permits, but does not define the method for making, increases in the benefit amount; until now, any increases have been made on an *ad hoc* basis, in differing amounts for differing groups. Increases approved by the TSRS Board so far have been permanent increases, which increase all future years' payments and funding obligations.

PROCEDURE

This procedure defines how the Tucson Supplemental Retirement System will (1) assess the conditions under which the Plan will fund post retirement benefit increases; (2) determine the amount and accounting for these funds; and (3) calculate the amount and payment method by which any payments will be made. The procedure addresses several factors:

- **a)** creating a separate accounting Reserve to be used solely for Post Retirement Benefit Increase (PRBI) payments;
- **b)** not increasing current employee contribution rates;
- **c)** not increasing the prior year's employer required contribution rate (ARC);
- **d)** maintaining a progressively increased funding ratio of the entire plan;
- **e)** keeping the PRBI funding outside the actuarial calculation for the Plan's Funded Ratio; and
- **f)** prioritizing benefits increases for those people who have been retired the longest.

DEFINITIONS

- **Adjustment** means a transfer of funds to or from the Reserve, based on the annual rate of return on investment on the balance in the Reserve as calculated after Plan Year End.
- **Allocation** means a transfer of funds into the Reserve, made according to the conditions and steps outlined herein.
- **Annual Required Contributions (ARC**) means the funds paid by the City and active employees to the Plan, as determined by that current year's actuarial calculation. The ARC as used in calculations of an Allocation will be adjusted for any single year to compensate for any actions approved by the Board in that year which have an impact on the ARC.
- **Assumed Actuarial Return** means the rate of return on investments defined by the Board, in conjunction with consultation with the actuary, as the basis for actuarial funding for the plan.
- **Excess Returns** means the amount by which the Rolling Average of the actual return on investments in the Plan fund exceeds the Rolling Average of Assumed Actuarial Returns,

for that Plan year. This policy proposes using the term "excess returns" solely as a basis for funding the PRBI Reserve. Careful consideration has been made to define how a portion of the actual earnings can be utilized, because the investment return assumption for TSRS is actually an averaged long-term expected rate of return. In that sense, "excess earnings" do not actually exist because this expected rate of return is reviewed on a periodic basis and adjusted to reflect reasonable expectation. The portion of Excess Returns to be eligible for an Allocation to the PRBI Reserve will be calculated as the amount of the Actuarial Accrued Liability (AAL) designated in the annual actuarial report for retirants and beneficiaries, taken as a percentage of the amount of the AAL for the entire Plan.

- **Funded Ratio** means the percentage of the actuarial obligations which are currently funded by the Plan. The Reserve is not included in the calculation of the Funded Ratio. For purposes of determining eligibility to make Allocations to the Reserve in a Plan year, the Rolling Average of annual actual return rates must exceed the Rolling Average of Assumed Actuarial Returns. If the Rolling Average of the actual returns on investment in the Fund does not exceed the Rolling Average of the Assumed Actuarial Return, there are no Excess Returns for that year. In measuring the impact to the Funded Ratio, the comparison of the Funded Ratio post PRBI reserve Allocation is made based on the Funded Ratio of the prior year. Thus, there will be a positive increase in the Funded Ratio from the prior year to the current year, after excluding the assets to be allocated to the PRBI. For the first year, the Rolling Average period starts four years prior to the first date of its use.
- **Investment Earnings** means the amount realized based on the annual rate of return on investments for all Plan funds. There are no separate funds, and all amounts invested earn returns as a single entity. A proportionate share of these earnings (or losses) on the matching Rolling Average of the value of assets is allocated to the Reserves and other accounting pools as identified herein.
- **Plan** means the Tucson Supplemental Retirement System.
- **Plan Year End** means the end of the fiscal year for the Plan, after all accounting adjustments and actuarial valuation have been completed. The fiscal year runs from July 1 through June 30; final figures are usually available within 120 days.
- **Post Retirement Benefits Increase** (PRBI) means any increase in the amount paid to retirees above what was the permanent annual payment amount paid as of the last Plan Year End.
- **PRBI Recipients** mean the Retirees designated to receive PRBI payments (if any) for that year, as specified in Appendix A.
- **Reserve** means a specific portion of the TSRS funds, as identified solely by Plan accounting, which is designated for the exclusive use of making Post Retirement Benefit Increase payments.
- **Reserve Retention** means those funds which are kept in the Reserve for payments in future years. The Reserve cannot be depleted through PRBI payments by more than 50% of its value in any one year; further, PRBI payments will not be made when a payment of the minimum amounts (as defined in Appendix A) cannot be made. Reserve funds will be co-mingled with other plan assets for investment purposes; returns (either positive or negative) on the funds in the Reserve would be applied to the Reserve each year; disbursements to retirees (if any) would be removed from the Reserve each year. Reserve funds not disbursed as of the end of a plan year are retained in the Reserve to the following year. Reserve funds are excluded from the actuarial value of assets for purposes of the actuarial valuation.
- **Retirees** means the retired City of Tucson employees, or their beneficiaries, as defined under the Plan.
- **Retirement Date** means the date on which the retirement has been ratified by the Board of Trustees. This could be the date on which the member attained rule of 80 or age 62 for a normal or deferred retirement, the date on which the member elects to retire under Early retirement, or the date of retirement determined for a disability retirement.

- **Rolling Average** means a multi-year averaging of rates and/or values, with the intention of smoothing single year results which are significantly outside the average results over a period of years. The actuarial assumptions for the Plan use a four year averaging period. Any Rolling Average used for the PRBI calculations should match the averaging period then in use by the Plan.
- **Target Funded Ratio** means the ratio of current Plan assets to the actuarial funding requirements. This ratio one of the triggers for Allocations to the Reserve. The Target Funded Ratio is base-lined at 80% as of the plan year ending in June, 2007, and increases by an additional 1% for each successive Plan Year End. The Target Funded Ratio as used in calculations of Allocations will be adjusted for any single year to compensate for any actions approved by the Board in that year which have an actuarial impact on the plan. For the purposes of this procedure, the Target Funded Ratio cap will be 100%.
- **13th Check** means a one time annual payment which does not have an actuarial effect on future funding requirements. 13th check payments will be made only in those years when there are funds available in the Reserve, in the amounts and to retirees as specified herein.

FUNDING THE RESERVE

1. The calculation of the value of the Reserve, of Adjustments to the Reserve, and of Allocations to the Reserve (if any), will be done by the TSRS staff annually, after the Plan's results on investments are presented to the Board. These calculations will be completed in time to be presented at the Board meeting that falls sixty (60) days after initial receipt of the actuarial valuation report.

2. Adjustments to the Reserve and additional Allocations to the Reserve will be made by TSRS staff after the Board's review of the calculations of Adjustments and Allocations. Any corrections will be performed within a two week period. Upon satisfactory completion of the review, the Board will authorize the transactions.

3. The sole source of Allocations to the Reserve is from Excess Returns for the most recent plan year.

4. Annual Adjustments (increases or decreases) will be made to the PRBI Reserve balance based on the actual rate of return on investments for the Plan year. Adjustments will be calculated based on the value of the Reserve as of the end of Plan's year.

5. Allocations to the Reserve will not be made in years where any of the following conditions occurs:
   a. the Target Funded Ratio for that year is not achieved, or
   b. there are no Excess Returns (based on the Rolling Average), or
   c. the ARC would increase over the prior year ARC (as a direct result of Allocations made under this PRBI procedure)

6. Funds which remain in the Reserve after a year's distribution are eligible for distribution in subsequent years. Distribution may be made in subsequent years whether or not the Target Funded Ratio has been achieved in those Plan years, and whether or not there are Excess Earnings for those Plan years.

7. Allocations to the Reserve will be 50% of the respective year's Excess Returns (if any), calculated on the percentage of the Retiree reserve to the Actuarial Accrued Liability

applied to the Market Value of total Plan assets existing at the beginning of the Plan year.

8. Allocations to the Reserve will not take the Funded Ratio below the Target Funded Ratio, as calculated after the Allocation is made. The allocation of 50% of Excess Returns to the Reserve (see 7, above) will be reduced below 50% by the amount needed to maintain the Target Funded Ratio after the transfer is made. If only part of the 50% designated for the Reserve needs to be applied to achieve the Target Funded ratio, then the remaining balance of the Allocation of Excess Returns will be made.

9. This PRBI procedure will be reviewed concurrently with any consideration of a change in the economic assumptions, or at the time the actuarial experience study is completed, whichever comes first.

10. The Reserve for PRBI payments will be capped at ten times the amount of the maximum possible payment for that Plan year. The calculation of the funding cap will be performed yearly, prior to the calculation of Allocations to the PRBI. This limits the amount of Allocations in any plan year to the difference between ten times the maximum payment amount which could be made in the Plan year, and the Reserve amount after Adjustments for that Plan year have been made.

PAYMENTS OF PRBIS

1. There will be no permanent adjustments to monthly pension benefits made as PRBI payments, and no PRBI payments will be made other than as defined in this Procedure.

2. The 13th Check payment to PRBI Recipients will be calculated as a percentage of the retirees' current permanent monthly benefit. There are minimum and maximum PRBI payment amounts, as defined in Appendix A. The PRBI payment for any Plan year will be withheld if there are not sufficient funds in the Reserve to meet the minimum amounts; and in no case will the maximum amounts be exceeded. The process for the calculation of PRBI payments is defined in Appendix A.

3. The PRBI payment amounts will be the highest amount possible according to the defined maximums and other preconditions set forth herein.

4. No more than 50% of the amount in the Reserve may be distributed in any single year's PRBI payments.

5. The calculation of funds in the Reserve available for payment will be made after the allocation of earnings and the transfer of Excess Returns (if any) into the Reserve.

6. The PRBI is defined as a non-permanent benefit; it does not become a part of the recurring annual retirement base income benefit.

POST RETIREMENT BENEFIT INCREASE (PRBI) PAYMENTS

APPENDIX A

DETERMINING ELIGIBILITY FOR MINIMUM AND MAXIMUM PRBI PAYMENTS

1. PRBI payments will be made each year if the preconditions for making payments (below) are met; and in the amount determined solely by the process defined herein.

2. All payments are expressed as a percentage of the permanent amount paid to Retirees as of the Plan Year End. Payments of one-time or "13th Check" amounts are not included in the basis of future PRBI calculations of an amount to be paid to retirees.

3. Retirees' eligibility to receive PRBI payments will be calculated as of the Plan Year End, based on the number of full years since Retirement Date.
    a. Group A is Retirees who have been retired for at least eight full years,
    b. Group B is Retirees who have been retired for more than three, but less than eight, full years.
    c. Group C is Retirees who have been retired for less than three full years.

4. If the Reserve meets the preconditions for payments, the payments will be made in two tiers. The first tier of one-time payments is made to Retirees in Group A. These Retirees will be paid a minimum of 10% of a single month's permanent payment check, and a maximum of 50% of a single month's check.

5. If there are not enough funds in the Reserve to make a minimum payment for Group A, then all Retirees will not receive a PRBI payment.

6. If there are not enough funds in the Reserve to make a maximum payment for Group A, then the Retirees will receive the highest amount possible based on the Reserve funds available for distribution.

7. If there are enough funds in the Reserve for maximum payments to be made to Group A, then another calculation is done to determine whether the Reserve meets the preconditions for a second tier of payments. This calculation will be made net of the reduction in the Reserve for payments made in the first tier. If the Reserve meets the preconditions for additional payments, a second tier of payments will be made.

8. Payments in the second tier are made to Retirees in both Groups A and B. These payments will be a minimum of 10% of a single month's permanent payment check for both groups, and a maximum of 50% of a single month's check for both groups. For Retirees in Group A, payments made in this second tier are specifically meant to be additive to the payments made in the first tier.

9. If there are not enough funds in the Reserve to make a minimum payment for Group B, then the Retirees in Group B will not receive a PRBI payment.

10. If there are not enough funds in the Reserve to make a maximum payment for Group B, then the Retirees will receive the highest amount possible based on the Reserve funds available for distribution.

11. The total of the payments made in both tiers of payment cannot exceed 50% of the funds in the Reserve, as calculated after Allocations (if any) are made for the Plan Year End.

12. Group C (Retirees who have been retired less than three full years) will not receive a PRBI payment.

MEMORANDUM

DATE: March 21, 2019

TO: The Board of Trustees
Tucson Supplemental Retirement System

FROM: Art Cuaron
Pension & Benefits Administrator

AC

SUBJECT: Investment Policy Statement Review

Per Board direction at last month's meeting, I have included the investment policy statement for the Board's review and comment. I am seeking desired edits and revisions to provide to Cassie and Paul as they begin working on the update to the policy.

Attachment: Statement of Pension Investment Policy and Objectives

Statement of Pension Investment Policy and Objectives

Tucson Supplemental Retirement System

March 2017

TUCSON SUPPLEMENTAL
RETIREMENT SYSTEM
INVESTMENT POLICY STATEMENT

Table of Contents

I. BACKGROUND, PURPOSE & OBJECTIVES

The purpose of this Investment Policy Statement (the "IPS") is to assist the Board of Retirement ("BOARD") in effectively establishing, monitoring, evaluating, and revising the investment program established for the Tucson Supplemental Retirement System ("TSRS"), a defined benefit plan sponsored by the city of Tucson.

TSRS was established to provide retirement benefits to city employees. The Board is comprised of the Mayor, Finance Director, Human Resources Director, one City Manager Appointee, two elected employee representatives, two CTRA Representatives, one Elected Retiree Representative, and five staff members.

TSRS was organized in accordance with the provisions of the laws of the State of Arizona. This document provides a framework for the management of the assets of TSRS. The Board establishes this investment policy in accordance with applicable local, state, and federal laws. The Board members exercise authority and control over TSRS, by setting policy, which the Staff executes either internally or through the use of external prudent experts.

This IPS may be modified from time to time by action of the Board. The policy identifies a set of investment objectives, guidelines, and performance standards for the investment of the assets of TSRS. This policy represents the formal document governing the investment of TSRS assets and will be used as the basis for future investment performance measurement and evaluation.

Investments will be made for the sole interest of the participants and beneficiaries of TSRS and in accordance with the following objectives:

1. To ensure funds are available to meet current and future obligations of TSRS when due.

2. To ensure the assets of TSRS are invested with the care, skill, and diligence that a prudent person acting in a like capacity would undertake.

3. To ensure the assets of TSRS are invested in a manner that minimizes and controls the costs incurred in administering and managing the assets.

4. To earn a minimum rate of return net of investment management fees equal to or exceeding the expected rate of return (the actuarial rate). TSRS will be managed in perpetuity indicating a long time horizon in which to evaluate investments.

5. To earn the maximum rate of return that can be realistically achieved, given existing market conditions, at an acceptable and controlled level of risk, in order to minimize future contributions.

II. ROLES & RESPONSIBILITIES

A. DUTIES OF THE BOARD

The Board is generally responsible for developing, implementing, supervising and evaluating TSRS, hiring Service Providers, which include investment managers, custodians, consultants and transition managers and monitoring and evaluating their effectiveness in carrying out their respective duties. The Board's responsibilities include:

1. Delineating general investment policy for TSRS including:

   a. Asset allocation policy, which establishes and communicates the Board's return expectations and risk tolerance;

   b. Investment manager structure policy, which establishes and communicates the Board's decisions regarding the number and types of investment managers that are appropriate for TSRS under the then current circumstances; and

   c. Investment manager guidelines, which establish and communicate the risk parameters set by the Board for each individual manager consistent with the overall risk level set for TSRS.

2. Hiring a bank as Custodian and an Investment Consultant to assist the Board and the TSRS staff in implementing policy and managing TSRS.

3. Appointing investment managers to fulfill specific roles in TSRS defined by the manager structure.

4. Establishing effective communication and review procedures between the investment managers, the Investment Consultant, the Custodian and the Board.

5. Monitoring and evaluating each investment manager's success in achieving the objectives set for such manager by the Board and adhering to established guidelines.

6. Approving the termination and, if appropriate, replacement of an investment manager when the investment manager fails to achieve the objectives set for the manager by the Board or when the needs of TSRS change

7. Monitoring and controlling investment expenses, including investment manager fees, trustee and Custodian fees, and trading costs.

B. DUTIES OF THE TSRS STAFF

The TSRS staff members are responsible for certain ministerial nondiscretionary functions in connection with TSRS, for bringing relevant issues to the attention of the Board and for working with the Service Providers to implement the decisions made by the Board. The responsibilities of TSRS staff include:

1. Monitoring the actions of service providers including custodian and investment consultant

2. In conjunction with Investment Consultant, conducting on-going monitoring of the actions of investment managers and reporting to the Board regarding their findings.

3. In conjunction with the Investment Consultant, developing proposals to enhance TSRS for consideration by the Board.

4. Preparing the Board's meeting agenda in conjunction with the Investment Consultant and Board members.

5. Working with the custodian bank to rebalance in keeping with the decisions of the Board.

6. Working with TSRS's actuary and auditor.

7. Verifying TSRS's compliance with guidelines.

8. Monitoring and evaluating applicable governmental regulations and consulting with tax and legal counsel regarding TSRS matters.

C. DUTIES OF INVESTMENT MANAGERS

The duties and responsibilities of each investment manager include:

1. Managing those assets of TSRS that are under the supervision of the investment manager in accordance with the guidelines and objectives contained in this Investment Policy Statement, and consistent with each investment manager's stated investment philosophy and style as presented by the investment manager representatives to the Board.

2. Exercising investment discretion in regard to buying, managing and selling TSRS assets under the supervision of the investment manager, subject to any limitations contained in this Investment Policy Statement.

3. Promptly voting all proxies and taking all related actions in a manner consistent with the long-term interest and objectives of TSRS as described in this Investment Policy Statement. Each investment manager shall keep detailed records his or her voting of proxies and related actions and will comply with all regulatory obligations related thereto.

4. Communicating with the Board in writing regarding all significant changes pertaining to TSRS assets under the supervision of the investment manager or relating to the investment manager itself such as changes in ownership, organizational structure, financial condition, and professional staff of the investment manager. The Board must receive such communications in a timely manner after the change occurs.

5. Using at least the same care, skill, prudence, and due diligence under the circumstances then prevailing that experienced investment professionals acting in a like capacity and fully familiar with such matters would use in like activities for like retirement plans with like aims in accordance and compliance with all applicable laws, rules, and regulations

6. Managing the funds within the parameters of applicable laws and governmental rules and regulations.

7. To acknowledge and agree in writing as to the investment manager's fiduciary responsibility to fully comply with the objectives and guidelines set forth in this Investment Policy Statement or otherwise set out by the Board for such investment manager.

8. When possible, it is expected that active portfolio managers meet with the Board in person at least once per year. However, timing of meetings for all managers will be at the Board's discretion.

D. DUTIES OF THE GENERAL INVESTMENT CONSULTANT

The primary role of the Investment Consultant is to assist the Board in fulfilling its responsibilities by providing information and analysis required by the Board to carry out its duties. This includes assisting the Board in developing and implementing a prudent process for monitoring and evaluating TSRS. The responsibilities of the Investment Consultant include:

1. Assisting the Board in the development, implementation and evaluation of investment policy for TSRS that reflects the Board's tolerance for risk and the objectives for TSRS.

2. To assist the Board in the development, implementation and evaluation of an investment manager structure that provides appropriate diversification with respect to the number and types of investment managers retained by the Board.

3. Making recommendations to the Board regarding the identification of appropriate market benchmarks and peer groups against which each investment option should be evaluated.

4. Conducting a prudent investment manager search process, as needed, to identify appropriate candidates for review and selection by the Board.

5. Producing quarterly performance evaluation reports to assist the Board in evaluating investment policies and TSRS. Such reports will evaluate the performance and risk characteristics of each investment option then offered under TSRS and each investment manager relative to targets established in this Investment Policy Statement. The Investment Consultant will also evaluate the investment style of each manager to determine if the manager is fulfilling the role for which they were hired.

6. Monitoring the investment management firms and products employed by TSRS on an on-going basis and inform the Board of any developments that might impact performance or TSRS.

7. Educating the Board on investment issues that could impact TSRS.

E. DUTIES OF THE CUSTODIAN

The responsibilities of the trustee/custodian include:

1. Safekeeping of Assets – custody, valuation and accounting & reporting of assets owned by the TSRS;
2. Trade Processing – track and reconcile assets that are acquired and disposed; and,
3. Asset Servicing – maintain all economic benefits of ownership such as income collection, corporate actions, and proxy notification issues.

F. DUTIES OF THE TRANSITION MANAGER

Transition management is the cost effective and efficient portfolio restructuring of institutional assets from single or multiple investment managers/asset classes to a new investment allocation over a short-term investment horizon. During the transition process, the transition manager is looked upon as a discretionary caretaker of the portfolio(s) to be liquidated and as the conduit for the funding of the target portfolio(s). The Board established certain guidelines with a transition manager and should include the following responsibilities.

1. Transition management (portfolio transition) services from the legacy portfolio(s) to the target portfolio(s).

2. The transition manager will act as a fully-discretionary fiduciary and will perform the transition with utmost care and prudence. The fund sponsor realizes that markets fluctuate and risks are inherent during the transition period. However, market forces do not absolve the transition manager from negligence and applying the highest level of care and prudence inherent in a fiduciary.

3. Minimize tracking error and maintain asset class (benchmark) exposure. During the transition period, the preservation of capital must be taken into consideration through the expert use of all sources of liquidity, namely: in-kind transfers ("cherry picking" of the legacy portfolio for the target portfolio), internal and external crossing networks, primary exchanges, non-displayed liquidity, and principal trades. The strategic and tactical deployment of cash, futures, ETFs, and other hedging strategies are included in the tools required to accomplish a smooth transition.

4. Before the transition, the transition manager should provide the fund sponsor a written portfolio transition (liquidation) strategy, including the timeframe required, to achieve the desired objective of liquidating the legacy portfolio(s) and building (and/or funding) the target portfolio(s).

5. During the transition period, daily reporting of all trade activity from commencement of the liquidation to the completion and full funding of the target portfolios should be available to TSRS.

6. After the completion of the transition, the transition manager should provide TSRS with a report on the outcome and results of the transition. The report should include relevant statistics (i.e., tracking error, costs, VWAPs, t-standard, etc.) and full trading/transaction reports.

7. Coordination of the firm's trading activity with investment managers (both legacy and target portfolios) and the custodial bank.

8. The transition manager must carry the appropriate coverage for errors and omissions and professional liability insurance.

The Service Providers in providing services to the Board and TSRS, will use at least the same care, skill, prudence, and due diligence under the circumstances then prevailing that experienced investment and administrative professionals acting in a like capacity and fully familiar with such matters would use in like activities for like retirement plans with like aims in accordance and compliance with all applicable laws, rules, and regulations. The list of services provided above for each Service Provider may be revised from time to time by the Board.

III. POLICIES AND PROCEDURS

A. ASSET ALLOCATION GUIDELINES

The asset allocation policy established by the Board for TSRS is intended to reflect, and be consistent with, the Board's return objectives and risk tolerance. The asset allocation policy, developed by the Board and the Investment Consultant after examining the historical relationships of risk and return among the asset classes in which TSRS is invested and the relationship between the expected behavior of TSRS's assets and liabilities, is designed to provide the greatest probability of meeting or exceeding TSRS's objectives at the lowest possible risk.

In establishing the Board's risk tolerance for TSRS, the ability to withstand short and intermediate-term volatility in various market conditions was considered. The Board also reviewed the long-term characteristics of various asset classes, focusing on balancing risk with expected return. Accordingly, the Board selected the following asset allocation policy.

	Percent of Total Pension Fund		
	Minimum	Target	Maximum
Equities:			
Large Capitalization	21%	26%	31%
Small/Mid Capitalization	4%	8%	12%
International	20%	25%	30%
Equities	**54%**	**59%**	**64%**
Fixed Income	**22%**	**27%**	**32%**
Real Estate	**7%**	**9%**	**11%**
Infrastructure	**3%**	**5%**	**7%**

The asset allocation target will be reviewed annually for reasonableness in relation to significant economic and market changes or to changes in the Boards' long-term goals and objectives. A formal asset allocation study will be conducted periodically to verify or provide a basis for revising the targets.

B. INVESTMENT MANAGER STRUCTURE

The Board has developed an investment management structure that emphasizes simplicity and cost control. The Board has employed the number of managers believed to provide appropriate diversification within each asset class. The table below lists the roles to which individual investment managers are assigned, the target allocation of assets for each manager and the rebalancing ranges.

Investment Manager Structure Allocations

		Percent of Total Pension Fund		
Portfolio Style	**Investment Manager**	**Minimum**	**Target**	**Maximum**
U.S. Equity:				
Large Cap Equity (Index)	AllianceBernstein	6%	8%	10%
Large Cap Equity (Enhanced Index)	PIMCO	2%	4%	6%
Large Cap Growth Equity (Active)	T. Rowe Price	5%	7%	9%
Large Cap Value Equity (Index)	BlackRock	5%	7%	9%
Mid Cap Equity (Active)	Champlain Investment Partners	2%	4%	6%
Small Cap Equity (Active)	Pyramis Global Advisors	2%	4%	6%
International Equity:				
Core Style (Active)	Aberdeen Asset Management	8%	10%	12%
Value Style (Active)	Causeway Capital Management	8%	10%	12%
Small Cap (Active)	American Century Investment Management	3%	5%	7%
U.S. Fixed Income:				
U.S. Investment Grade Fixed Income (Index)	BlackRock	11.5%	13.5%	15.5%
Non-Government Fixed Income (Active)	PIMCO	10.5%	13.5%	16.5%
Real Estate:				
Open-end Core Properties Fund	J.P. Morgan Asset Management	4%	6%	8%
Open-end Value Added Real Estate	J.P. Morgan Asset Management	1%	3%	5%
Infrastructure:				
North American Infrastructure	SteelRiver Infrastructure Partners	1.5%	2.5%	3.5%
European Infrastructure	Macquarie Investment Management	1.5%	2.5%	3.5%

C. REBALANCING POLICY

One essential component of a strategic asset allocation policy is the development and use of rebalancing ranges for the target allocation. The Board believes that systematic rebalancing should reduce portfolio volatility and increase portfolio return over the long term. The ranges specified in the table above are a function of the expected volatility of each asset class and the proportion of the total fund allocated to the asset class.

If TSRS experiences positive cash flow (*i.e.*, contributions exceed disbursements), new contributions will be directed to the under-allocated assets. If TSRS experiences negative cash flow, funds to make distributions will be withdrawn from over-allocated assets. If the cash flow is not sufficient to keep an allocation within the defined ranges stated above, then purchase or sale transactions are required to rebalance TSRS assets. The Board, at its discretion, may rebalance TSRS assets to the target level or to some point within the target range based on the relative cost of such rebalancing and such other factors as the Board determines.

Rebalancing actions are the responsibility of the Staff and shall be reported to the Board on a periodic basis. When asset allocations exceed the ranges indicated above the TSRS staff will rebalance to the target level or to a point within the target range if the Board deems such action appropriate.

Staff is authorized and directed (in the normal course of events) to act in accordance with this policy. Where particular circumstances arise and Staff determines rebalancing is not prudent, because doing so may generate unnecessary costs or otherwise not be in the best interests of TSRS, a full report of the actions taken or not taken shall be made to the Board at the earliest opportunity.

TSRS' actual asset allocation shall be reviewed at the end of each month at a minimum and shall be based on current asset valuations. Estimated values may be used when current asset valuations are not available.

When asset allocations exceed the ranges indicated above the TSRS staff will rebalance to the target level or to a point within the target range if the Board deems such action appropriate.

IV. TOTAL FUND PERFORMANCE OBJECTIVES

The total fund has been designed to meet TSRS objectives as defined in the introduction of this document. The overall portfolio has been designed to provide the most appropriate structure and asset allocation from a risk and return perspective to meet this long term objective.

A. TIME HORIZON

The Board has adopted a time horizon of at least three to five-years for evaluating the TSRS Investment Program as a whole, each asset class and each investment manager relative to established benchmarks.

B. PERFORMANCE OBJECTIVES

Based on the analysis used by the Board to develop the asset allocation principles and investment manager structure policy set forth in this Investment Policy Statement, the Board has identified performance benchmarks and peer groups for each investment option and the separate mandates within each asset class.

Asset Class	Market Index[1]	Callan Style Group
Total Domestic Equity	Russell 3000 Index	Domestic Equity
Passive Large-Cap Equities	S&P 500 Index	Large Cap Style
Large Cap Value Equities	Russell 1000 Value Index	Large Cap Value Style
Large Cap Growth Equities	Russell 1000 Growth Index	Large Cap Growth Style
Mid Cap Core Equity	Russell Midcap Index	Mid Cap Style
Small Cap Core Equity	Russell 2000 Index	Small Cap Style
Total Non-U.S Equity	MSCI ACWI ex U.S. IMI	International Equity
Core Non-U.S. Equity	MSCI ACWI ex U.S.	Non-U.S. Equity Style
Non-U.S. Equity Small Cap	MSCI ACWI ex U.S. Small Cap	Non-U.S. Equity Small Cap
Fixed Income	BC Aggregate Bond Index	Domestic Fixed
Real Estate	NFI-ODCE	Open-End Real Estate
Infrastructure	CPI+4%	NA

[1] The Investment Consultant has advised the Board that broader indexes such as the Russell 1000 and Russell 2000 are the most appropriate measures of success over the long run and that style indexes such as the Russell 1000 Value or Russell 2000 Growth are appropriate for measuring performance in the nearer term when investment managers have distinct growth or value styles.

The primary benchmark for evaluating the performance of TSRS is a Target Index consisting of a market index for the asset class weighted in accordance with the allocation target. The Target Index is:

S&P 500 Index	26%
Russell 2500 Index	8%
MSCI ACWI ex U.S. IMI	25%
BC Aggregate Bond Index	27%
NFI-ODCE	9%
CPI + 4%	5%

Over a rolling five year time period the Board expects TSRS to generate returns, after payment of all fees and expenses, which exceed the returns of the Target Index.

V. INVESTMENT MANAGER GUIDELINES

TSRS's investment managers, unless otherwise noted in an addendum to this document or in a separate written agreement, are expected to adhere to the investment guidelines found in this document. Commingled investments, including but not limited to investments in mutual funds, trusts, limited liability partnerships, limited liability corporations, group trusts or other commonly used investment vehicles are expected to comply with the guidelines established in the governing documents or fund prospectus.

An investment manager should contact TSRS when it believes that deviation from the guidelines would be in the best interest of the pension fund. TSRS will consider the manager's request based upon the facts and circumstances at the time of the request. Approval must be obtained in writing before an investment manager deviates from the guidelines.

The Board and Staff will consider the comments and recommendations of consultants in conjunction with other available information in making informed, prudent decisions.

A. GENERAL GUIDELINES

The following broad guidelines reflect the parameters under which the Board desires to achieve its objectives:

1. The Investment Manager shall be given full discretion to manage the assets under its supervision subject to these Investment Guidelines and the laws of the State of Arizona.

2. Investments will be of a prudent nature and consistent with the best investment practices.

B. PROHIBITED/RESTRICTED TRANSACTIONS

The following transactions are prohibited or restricted unless specifically authorized by TSRS in a separate written agreement:

1. Borrowing of money.

2. Purchase of securities on margin or short sales unless used for the purpose of risk control.

3. Pledging, mortgaging, or hypothecating of any securities except for loans of securities that are fully collateralized.

4. Purchase of the securities of the investment managers, its parent, or its affiliates.

5. Purchase or sale of futures or options for speculation or leverage.

6. Purchase or sale of commodities, commodity contracts, or illiquid interests in real estate or mortgages.

7. Purchase of illiquid securities.

8. Use of various futures and options strategies for hedging or for taking limited risks with a portion of the portfolio's assets.

C. SECURITIES TRADING

In making investment decisions the investment manager(s) should concentrate on total fund returns. The emphasis for securities trading shall be on "best execution"; that is, the highest proceeds to the fund at the lowest cost, net of all transaction expenses.

Managers should report brokerage allocation to TSRS as part of the routine reporting process. Managers also should inform TSRS annually regarding any "soft dollar" arrangements between the manager and the brokers and describe the services that are purchased with the soft dollars, if any, generated by pension fund assets. The managers also should regularly inform TSRS of the turnover within their portfolio and be prepared to document the rationale for any significant increases in portfolio turnover.

D. SECURITIES LENDING

TSRS may enter into securities lending agreements with the pension fund's custodian bank. The securities lending agreements should include credit approval, collateral management investment policies, and indemnification provisions that minimize the risk of principal loss.

E. PROXY VOTING

The investment manager(s) are responsible for their portfolios and for making their own assessment of the issues to be voted upon. Managers are expected to vote all proxies received so as to enhance the economic interest of the pension plan. In addition, the managers should maintain records as to the voting of proxies so that TSRS can monitor both the general voting procedures and the specific actions taken. Each manager should submit quarterly reports to the TSRS that addresses proxy voting activity during the prior quarter. In addition, the Board may direct how proxies should be voted on certain issues.

F. DIVERSIFICATION

The investment manager(s) are responsible for achieving a level of diversification in their portfolio that is consistent with their investment approach and their role in TSRS's overall investment structure. Managers may be retained for portfolios that concentrate in specific market segments. General diversification guidelines may be waived (upon request) for these "special purpose" portfolios.

VI. GENERAL INVESTMENT OBJECTIVES AND GUIDELINES

A. EQUITY PORTFOLIOS

Each equity investment manager retained by TSRS will follow a specific investment style and will be evaluated against a specific market index that represents their investment style. In addition, in the case of active managers, investment results may also be compared to returns of a peer group of managers with similar styles.

This segment may include common and preferred stock, convertible securities, warrants, and cash equivalent securities. General equity guidelines for active managers include the following:

1. Holdings in any one economic sector (e.g., energy) should not exceed more than 4 times the weight of the sector in the benchmark index or 50% of the portfolio's market value, whichever is lower. If a sector has a greater than 50% weight in the index, the maximum exposure to that sector in the portfolio may be as high as its weight in the index. This restriction notwithstanding, the manager may invest up to 10% of the portfolio in a single sector.

2. It is expected that the portfolio will be invested primarily in stocks of companies headquartered in the United States. However, the manager also has discretion to invest up to 15% of the portfolio in securities of foreign issuers listed on a major U.S. exchange or traded on a major U.S. securities market (including ADRs and ADSs). In addition, the manager may invest in other depository receipts and shares as well as non-dollar denominated securities of foreign issuers traded on non-U.S. exchanges. Restriction of depository receipts does not apply to dual listed stocks.

3. Private placements and other restricted securities (including Rule 144A eligible securities) are eligible for purchase up to 10% of the market value for the total portfolio.

4. Equity managers are expected to run fully invested portfolios. In most situations, residual or transitional cash should be no more than 5% of the portfolio market value. If, in a manager's judgment, a higher level of cash is warranted for defensive purposes, the 5% limit may be exceeded, provided prior notification has been given to an authorized representative of the Board. Regardless of the level of cash in the portfolio, the manager's performance will be measured on the entire portfolio, not on only the equity

portion. Non-equity assets will be high-quality cash equivalent securities maturing within one year.

5. Larger capitalization portfolios should have a weighted average market capitalization in excess of the weighted average market capitalization of the Russell Midcap Index. Middle capitalization portfolio should have a weighted average market value similar to that of the Russell Midcap Index. Smaller capitalization portfolios should have a weighted average market capitalization less than the weighted average market capitalization of the Russell Midcap Index

B. NON-U.S. EQUITY MANAGER GUIDELINES

This segment may be invested in common and preferred stocks, convertibles, and warrants of companies headquartered outside of the United States.

1. Issues held in the portfolio should be traded on a recognized national stock exchange with adequate liquidity, trading volume, regulations, and breadth of securities. Investments in any single country market should not exceed more than 4 times the weight of the country in the benchmark index or 50% of portfolio assets, whichever is lower. If a country has a greater than 50% weight in the index, the maximum exposure to that country in the portfolio may be as high as its weight in the index.

2. No more than 35% of each manager's portfolio should be invested in "emerging markets" (i.e., markets that are not included in the Morgan Stanley Capital International Europe, Australia, and Far East index).

3. ADRs and other depository receipts are permitted in the portfolio.

4. Private placements and other restricted securities (including Rule 144A eligible securities) are eligible for purchase up to 10% of the market value of the total portfolio.

C. U.S. INVESTMENT GRADE FIXED INCOME MANAGER GUIDELINES

Permissible investments include marketable government, corporate, and mortgage-backed bonds and cash equivalent securities.

1. For passive investment strategies, it is expected that the portfolio will be managed to replicate the performance of the underlying index. Therefore, overall characteristics of the portfolio should be similar to that of the index (including, but not limited to quality, sector, and duration characteristics).

D. DIVERSIFIED FIXED INCOME MANAGER GUIDELINES

The manager will be allowed to invest in those securities listed in Appendix B of this document. The manager should adhere to the following sector limitations as they relate to the total portfolio:

Sector	**Ranges**
Mortgage	10% - 40%
Credit (Inv. Grade)	10% - 40%
High Yield	10% - 40%
Emerging Markets	10% - 40%
U.S. Treasury	0% - 30%
Non-US Dollar Denominated Fixed Income	0% - 30%
Foreign Currency Exposure	0% - 15%
Non-144A/Non-Reg S Private Placements	0% - 10%
Convertible Securities	0% - 5%

1. Duration of the total portfolio should be within 30% of the custom benchmark which is defined as 25% Barclays Mortgage, 25% Barclays Credit, 25% Barclays High Yield, 25% JPM EMBI Global.

2. The maximum position in a single issuer (excluding obligations of U.S. Government and its Agencies) should not exceed 5% of the portfolio's assets at current market value.

3. The portfolio should maintain an average quality of at least "BB+".

4. Money Market instruments must be rated in one of the two highest categories by a nationally recognized rating agency.

5. The minimum rating for individual issues should be CCC (based on market value) as rated by Moody's, S&P, or Fitch. Should an issue be downgraded below the minimum, the manager will determine the appropriate action to be taken.

E. ALTERNATIVE ASSET MANAGERS

The Board may employ funds, funds of funds, exchange traded funds, mutual funds or separate account management to pursue investments in "alternative assets" for the purpose of diversifying the market exposure of the Fund, to reduce correlations to equity and fixed income investments, and/or to enhance returns. These might include, without limitation, managers or partnerships investing in leveraged buyouts, distressed debt, venture capital, natural resources, hedge funds, private real estate, infrastructure, or other asset classes/strategies. These investments will not generally fall within the guidelines established for the more traditional asset classes that make up the majority of the Fund's investments.

The Board shall consider certain criteria, including, but not limited to, the following in evaluating alternative asset managers:

1. Tenure and track record of management as a team;
2. Expertise in targeted areas of investment;
3. Diversification relative to other investments;
4. Use of Leverage;
5. Liquidity of investments;
6. General Partner investment, fees and potential conflicts of interest; and
7. Unrelated Business Income Tax.

VII. INVESTMENT MANAGER SELECTION AND EVALUATION

A. INVESTMENT MANAGER SELECTION

The Board will utilize a process for investment manager selection that embodies the principles of procedural due diligence. Accordingly, when selecting investment managers, the Board will employ a competitive search process, including the following steps or such other steps as the Board determines in the situation:

1. Formulation of specific investment manager search criteria that reflect the requirements for the investment manager role under consideration.

2. Identification of qualified candidates from the manager search database maintained by the Investment Consultant and such other sources as determined by the Board.

3. Analysis of qualified candidates in terms of:

    a. Quantitative characteristics, such as CFA GIPS-compliant composite return data, risk-adjusted rates of return and relevant portfolio characteristics.

    b. Qualitative characteristics, such as key personnel, investment philosophy, investment strategy, research orientation, decision-making process, and risk controls.

    c. Organizational factors, such as type and size of firm, ownership structure, client-servicing capabilities, ability to obtain and retain clients, and fees.

4. Selection and interview of finalist candidates based on a due diligence report prepared for the Board by the Investment Consultant summarizing the analysis described above.

B. MANAGER COMMUNICATION GUIDELINES

TSRS will be in regular communication with their Investment Managers and will require informal and formal communication channels. There are four basic elements of the communications program: 1) on-site due-diligence meetings, 2) quarterly reporting requirements, 3) monthly reporting requirements, and 4) event-driven reporting requirements.

C. MANAGER EVALUATION AND REVIEW

With the assistance of the TSRS staff and the Investment Consultant, the Board will; evaluate each investment manager from a quantitative and qualitative standpoint on a quarterly basis. In evaluating all investment managers, the Board will consider qualitative factors likely to impact the future performance of the TSRS's assets managed by an investment manager in addition to current and historical rates of return.

The Board believes that it is appropriate to include "objective standards" designed to guide future decisions regarding investment managers.

1. Qualitative Review – The Board will evaluate qualitative factors relating to an investment manager, including:

   a. Ownership changes (e.g., key people "cash out")

   b. Key people leave firm

   c. Conflict of Interest

   d. Changes in investment strategy the investment manager was employed by the Board to implement

   e. Investment manager is involved in material litigation or fraud

   f. Material client-servicing problems

2. Quantitative Review

   Long-term performance standards used by the Board should measure an investment manager's performance from inception and on a rolling five-year returns basis in relation to a broad market index or indices that the investment manager previously agreed to be measured against. If an investment manager fails to generate a return premium in excess of the agreed-upon index or indices, then, upon completion of appropriate due diligence or such other steps as the Board determines, the Board may decide to further evaluate their relationship with the investment manager.

   Shorter-term performance will be measured in relation to an appropriate style index and "Peer Group". Each investment manager is to be measured against the median return of a previously agreed-upon peer group of investment managers with similar investment styles.

Managers are expected to maintain their stated investment style and philosophy. Quantitative measures of investment style and philosophy include style mapping, style attribution analysis, and tracking error relative to the benchmark. TSRS with the assistance of the Investment Consultant will monitor these factors on a quarterly basis.

Notwithstanding any other provision of this Investment Policy Statement or TSRS, the Board retains the right to terminate the contract with, and the services provided to the Board by, an investment manager at any time. The Board believes that the decision to retain or terminate an investment manager or other Service Provider should be based on reasoned judgment and confidence in the investment manager’s or other Service Provider’s ability to perform in the future.

D. WATCHLIST PROCEDURE AND CRITERIA

A number of factors may contribute to a manager’s over- or under-performance at any given time - market dynamics, investment skill, and/or pure chance. Given this uncertainty, it is unwise to terminate purely for lagging performance at any specific point. A Watch List will be utilized to identify managers whose performance and/ or organization changes are cause for concern.

At the discretion of the Board a manager may be included on the Watch List based on the qualitative and quantitative criteria described in the manager evaluation and review section. Once a manager is placed on a Watch List, performance will be closely monitored and scrutinized. Additional actions could include Staff meetings with the manager or a formal re-interview of the manager by the Board. An update on each manager as well as recommendation from Staff and Investment Consultant to terminate or retain the manager must be made to the Board at subsequent meetings after inclusion on the Watch List. If the manager is not terminated, the manager shall remain on the Watch List subject to a subsequent recommendation by Staff and Investment Consultant as to the manager’s ongoing relationship. Organizational issues that have been resolved in a satisfactory manner and improved performance relative to an index and or peers will be used as an indicator to remove a given manager from the watch list.

VIII. INVESTMENT POLICY REVIEW

The Board will review this Investment Policy Statement at least every year to ensure that it remains relevant and appropriate. The Investment Policy Statement may be amended at any time by majority vote.

APPENDIX A
Benchmarks

Investment Allocation		Benchmark Indexes
U.S. Equity		
Large Cap	Large Cap Core	S&P 500 Index, Russell 1000 Index
	Large Cap Styles	Russell 1000 Growth and Value Indexes
Mid Cap	Mid Cap Core	Russell Mid Cap Index
	Mid Cap Styles	Russell Mid Cap Growth and Value Indexes
Small Cap	Small Cap Core	Russell 2000 Index
	Small Cap Styles	Russell 2000 Growth and Value Indexes
International Equity		
Developed		MSCI EAFE Index
All Country ex-U.S.		MSCI All Country World Index ex-U.S. Index
Small Cap		MSCI All Country World Index ex-U.S. Small Cap Index
Emerging Markets		MSCI EM Index
Fixed Income		
U.S. Investment Grade		Barclays Aggregate Bond Index
Diversified		Custom benchmark:
		25% Barclays Mortgage Index
		25% Barclays Credit Index
		25% Barclays High Yield Index
		25% JP Morgan EMBI Global Index
Real Estate[2]		
Private Real Estate		NCREIF ODCE Index
Infrastructure[1]		
Private Infrastructure		CPI + 4%

[2] The Board recognizes that benchmarks for private investments are imperfect, particularly for illiquid investments. The Board will evaluate performance of each strategy, taking into consideration the market environment at the time of investment. The Board may also consider the performance of traditional equity and fixed income benchmarks as part of the evaluation process.

APPENDIX B

Diversified Fixed Income Manager Guidelines

The Manager will have discretion to invest in a broad array of public and private asset classes, instruments and investment vehicles including but not limited to:

- Money Market Instruments
- U.S. Treasury and Agency Notes and Bonds
- Municipal Bonds
- Corporate Securities
- Private Placements (Including 144As)
- Event-linked Bonds
- Bank Loans
- Yankee and Euro Bonds
- Mortgage-Backed Securities (including CMOs and REMICs)
- Mortgage Derivatives
- Asset-Backed Securities
- Preferred Stock
- Convertible Securities
- Non-U.S. Dollar-denominated Securities
- Emerging Market Securities
- Non-Leveraged Structure Notes
- Futures and Forwards (Including Exchange Traded Swaps Futures)
- Currencies
- Options, Caps and Floors
- Swaps
- Credit Default Swaps (Long and Short)
- PIMCO Pooled Funds

MEMORANDUM

DATE: March 21, 2019

TO: The Board of Trustees
Tucson Supplemental Retirement System

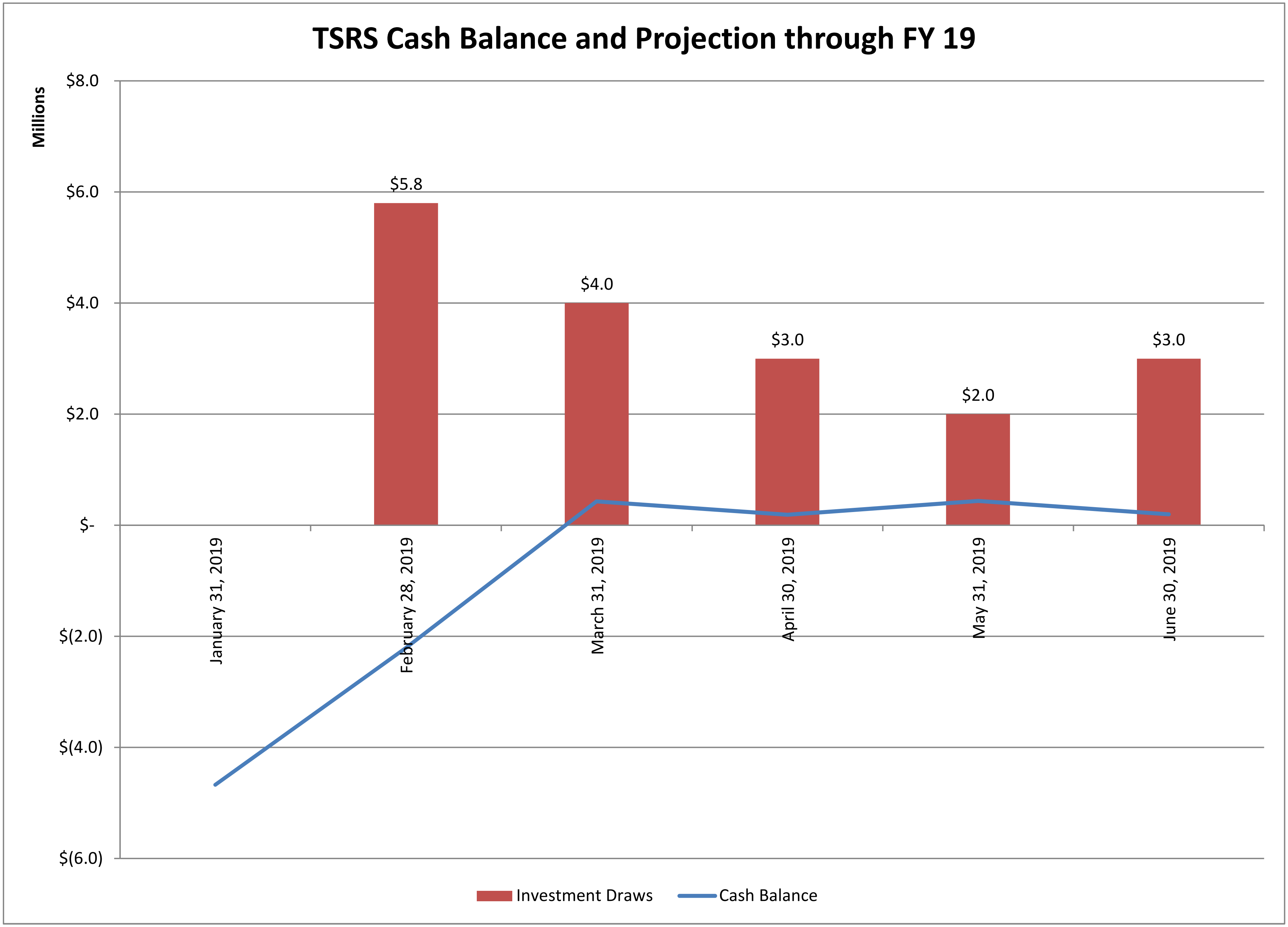
FROM: Art Cuaron
Pension & Benefits Administrator

SUBJECT: **Internal Cash Liquidation Process**

This item is for informational purposes only. No Board direction is required at this time.

In conjunction with the Asset/Liability study, I have asked Callan to model a scenario that includes an allocation to cash. The intent of this item is to provide the Board with an overview of the internal process used for cash draws as well as cash projection for the duration of 2019 fiscal year and have a discussion regarding the process and need for a cash allocation.

Attachment: FY 2019 Cash Flow Projection
03/20/2019 Daily Snapshot


TSRS Cash Balance and Projection through FY 19
Millions
$8.0
$6.0
$4.0
$2.0
$-
$(2.0)
$(4.0)
$(6.0)
$5.8
$4.0
$3.0
$2.0
$3.0
January 31, 2019
February 28, 2019
March 31, 2019
April 30, 2019
May 31, 2019
June 30, 2019
Investment Draws
Cash Balance

Manager Allocations Compared with Policy Levels
Daily Snapshot as of: 03/20/19

Managers and Asset Class	*Current (000)*	*%*	*Policy Target*	*%*	*% Diff to Target*	*$ Diff to Target*	*Min %*	*Max %*	*Outside Range*
T Rowe Price	$ 59,585	7.3%	$ 57,143	7.0%	**0.3%**	**2,443**	5.0%	9.0%	-
BlackRock - Russell Value Index	58,813	7.2%	57,143	7.0%	**0.2%**	**1,670**	5.0%	9.0%	-
Alliance (S&P 500)	67,247	8.2%	65,306	8.0%	**0.2%**	**1,941**	6.0%	10.0%	-
PIMCO Stocks Plus	31,975	3.9%	32,653	4.0%	**-0.1%**	**(678)**	2.0%	6.0%	-
Large US Stocks	217,620	26.7%	212,244	**26.0%**	**0.7%**	**5,376**	**21.0%**	**31.0%**	-
Pyramis (Fidelity)	34,319	4.2%	32,653	4.0%	**0.2%**	**1,666**	2.0%	6.0%	-
Champlain Investment Partners	34,719	4.3%	32,653	4.0%	**0.3%**	**2,066**	2.0%	6.0%	-
Small/Mid-Cap Stocks	69,038	8.5%	65,306	**8.0%**	**0.5%**	**3,732**	**4.0%**	**12.0%**	-
Causeway Capital Mgmt	79,145	9.7%	81,632	10.0%	**-0.3%**	**(2,488)**	8.0%	12.0%	-
Aberdeen Asset Management	79,272	9.7%	81,632	10.0%	**-0.3%**	**(2,361)**	8.0%	12.0%	-
American Century	37,961	4.7%	40,816	5.0%	**-0.3%**	**(2,855)**	3.0%	7.0%	-
International Stocks	196,378	24.1%	204,081	**25.0%**	**-0.9%**	**(7,703)**	**20.0%**	**30.0%**	-
Total Stocks	***483,036***	***59.2%***	***481,632***	***59.0%***	***0.2%***	***1,405***	***54.0%***	***64.0%***	**-**
									-
PIMCO	109,894	13.5%	110,204	13.5%	**0.0%**	**(310)**	10.5%	16.5%	-
BlackRock US Debt	106,328	13.0%	110,204	13.5%	**-0.5%**	**(3,876)**	11.5%	15.5%	-
US Bonds	216,222	26.5%	220,408	**27.0%**	**-0.5%**	**(4,186)**	**22.0%**	**32.0%**	-
Total Bonds	***216,222***	***26.5%***	***220,408***	***27.0%***	***-0.5%***	***(4,186)***	***22.0%***	***32.0%***	**-**
									-
JPM Strategic Prop (estimate)	52,892	6.5%	48,979	6.0%	0.5%	**3,913**	4.0%	8.0%	-
JPM RE - I&G Fund	27,984	3.4%	24,490	3.0%	0.4%	**3,494**	1.0%	5.0%	-
Total Real Estate (est)	***80,876***	***9.9%***	***73,469***	***9.0%***	***0.9%***	***7,407***	***7.0%***	***11.0%***	**-**
Macquarie	9,330	1.1%	20,408	2.5%	**-1.4%**	**(11,078)**	1.5%	3.5%	-0.4%
SteelRiver IFNA (BBIFNA)	25,261	3.1%	20,408	2.5%	**0.6%**	**4,853**	1.5%	3.5%	-
Total Infrastructure	***34,591***	***4.2%***	***40,816***	***5.0%***	***-0.8%***	***(6,225)***	***3.0%***	***7.0%***	**-**
Liquidity Account	***1,599***	***0.2%***		***0.0%***					
TOTAL	***816,325***	***100%***	***816,325***	***100%***		**-**			

After A Chaotic Week In Brexit Politics, Here's What You Need To Know

Frank Langfitt Twitter Facebook Instagram

Brexit supporters and opponents shout at each other outside Parliament in London on Thursday, the day that British lawmakers voted to delay Brexit. **Matt Dunham/AP hide caption**

toggle caption

Matt Dunham/AP

Brexit supporters and opponents shout at each other outside Parliament in London on Thursday, the day that British lawmakers voted to delay Brexit.

Matt Dunham/AP

Brexit has convulsed the United Kingdom like no other political event in decades, but it can be hard to follow the day-to-day machinations. At the end of a chaotic week, here's what to know.

How different are things now for the U.K. than they were on Monday?

Considerably. It is now clear that after two years of negotiating a Brexit withdrawal arrangement with the European Union, the United Kingdom is highly unlikely to leave on the planned exit date, March 29. Next week, Prime Minister Theresa May is almost certain to ask for an extension. How much time she requests will depend on whether she can get her deal through Parliament early next week.

How likely is it that the EU will approve an extension?

Likely. All 27 remaining EU countries must agree, and there are genuine divisions, but the EU is expected to say yes. That's because it's not seen in anyone's interest — except some hard-core "Brexiteers" in Britain's Parliament — for the United Kingdom to crash out of what is effectively the world's second-largest economy.

If the EU approves an extension now, will the U.K. call on it later to approve more extensions?

That's a major EU concern. It is already exasperated with the chaos in Britain's Parliament. Officials in Brussels have made it clear they want either a short delay — or a very long one. They don't want rolling cliff-edges.

May has outlined a plan. She wants to bring back her zombie-like Brexit deal — which Parliament has already twice voted down by staggering margins — for another vote before a meeting of EU leaders on Thursday, March 21. If it passes, she will ask for an extension until June 30, which is just before a new European Parliament will be seated. If her deal fails, she will ask for a longer extension — which she has hinted could kill Brexit.

If the longer extension is granted, what will happen during that extension period?

The U.K. government and Parliament will have to figure out a way to break the deadlock that has paralyzed politics in this country for months. It's hard to say what a solution might look like. Jeremy Corbyn, the leader of the opposition Labour Party, is talking of a much softer Brexit in which Britain would remain in a customs union with the EU. Some in Parliament want a second referendum.

There does not seem to be majority support for either of these options now, which is the problem. The EU might only grant a long extension on the condition the U.K. seeks a softer Brexit, holds a general election or a second Brexit vote.

Where do things stand for Prime Minister Theresa May after the past three days of votes?

She still has her job, which is remarkable: In normal times, which seemed to end in the U.K. after the 2016 Brexit referendum, a prime minister who had suffered such stunning defeats would've resigned long ago. But Brexit has turned U.K. politics upside-down and created a new normal. There is always the threat of another Parliament-wide no-confidence vote — she's already survived one — and the possibility of a general election. But May looks to stay in power for at least a while longer.

How meaningful is the official Brexit date of March 29 at this point?

Brexit is unpredictable, but the expectation is May will negotiate some kind of extension before the 29th. At that point, the date will cease to be relevant.

How much longer will all this drag out?

Probably for years. Right now, Brussels and London are only arguing over the Brexit "divorce" arrangement, unwinding more than 40 years of economic integration. After they sort out the terms of withdrawal, they will have to negotiate a new free-trade agreement, which typically takes years — and which analysts say will be even more difficult than what we've been witnessing.

It's easy to get bogged down in the details of political maneuvering and parliamentary arcana, but what are the overarching issues here?

The most compelling issues driving Brexit are national identity, immigration, economic globalization and anger toward the political class. These are also central issues in the new politics of the United States and many countries in Western Europe.

After the most recent vote in the House of Commons, Stephen Crabb, a member of Parliament in Theresa May's Conservative Party who supported remaining inside the European Union, described his country's identity crisis this way to NPR:

> We are a country which is very secure in its island identity, on the back of the history of the world wars and the British Empire. We're at a moment where we're trying to work out who we are and our place in the world — and the tension within Brexit is that a lot of the Brexiteers talk the language of Britain reaching out beyond Europe, being a global trading nation and reaching to all parts of the earth, but on the other hand, they also talk the language of pulling up the drawbridge and wanting to . . . separate ourselves from the immigration problems of Europe. Well, both things can't be true and we've got to work out as Britain what are we about in the 21st century.

Producer Samuel Alwyine-Mosely contributed to this report.

Atlanta city pensions stuck in lackluster investment

Atlanta's city retirement plans sunk tens of millions of dollars into improper investments when they were misled by Buckhead investment adviser Larry Gray, a federal agency found in late 2017.

Yet today, all three of the city's pension plans still have their money in the controversial investment pool, now run by another Buckhead consultant. And the investments have, so far, proven lackluster, carrying high fees and returning an average of only about 3.7 percent a year since 2013.

"It's just a huge under-performance," said Edmund J. Wall, a managing director of public finance investment banking at investment firm Piper Jaffray.

What's more, the investment pool still may not comply with Georgia law, raising questions about why the government pension plans haven't backed out, said Wall and other finance experts who reviewed the GrayCo Alternative Partners II LP pool at the request of The Atlanta Journal-Constitution.

Gray intentionally defrauded the pensions when he told them the investment pool he ran complied with state law, the Securities and Exchange Commission found. While the pension plans' contracts locked in the investments for a minimum of 10 years, the SEC's findings would have voided the contracts, experts say.

The complex situation has pushed the retirement systems into a bit of a corner, the AJC found: It may appear to be almost impossible to unwind the deal, even costlier to try.

Meanwhile, the company that bought the pool from Gray is being paid handsomely to keep it going. Consequent Capital Management now is paid the hundreds of thousands of dollars a year in management fees that are part of the agreements the pension plans signed. The fees, spread over the 10-year period that expires in 2022, will total millions.

John Robinson, CEO of Consequent, did not respond to requests for an interview. Gray could not be reached for comment.

Some former and current pension leaders told the AJC that they wanted to withdraw from the pool but were advised by legal experts to stay put. The costs associated with a withdrawal, they were told, would harm the plans.

Atlanta Councilman Howard Shook said it was viewed as risky to try to terminate the contracts. Shook oversees the city's finance committee, which makes recommendations to the pension boards.

"The issue with 'firing' the firm is the exposure of the city to breach of contract and potential legal action taken by the firm and investors,'' Shook wrote in a response to questions from the AJC.

State, federal violations

Gray was serving as the pension plans' investment adviser in 2012 when he began his investment pool. Shortly after starting it, Gray persuaded the Atlanta General Employees' Pension Plan, the Police Officers' Pension Plan and the Atlanta Firefighters' Pension Plan to invest.

It was the first year Georgia public pension systems were allowed to invest in alternatives, such as private equity, hedge funds, real estate and distressed businesses. But the law authorizing the investments carried certain restrictions meant to curb risks and discourage politically connected arrangements.

The law limits any one pension from holding more than a 20% stake in an alternative fund. It also requires that an alternative fund have at least four other investors and at least $100 million in assets before a government pension fund could buy in.

Gray's fund of funds violated all three state requirements, the SEC said in a 2015 complaint. He then violated federal law by making two specific material misrepresentations about the investment pool to the board of the general employees' plan, the agency said.

> **"Once you give these funds money, you can't get it in 10 years. It's a mess trying to get it undone." —Edmund J. Wall, chairman of the DeKalb County Employees Retirement Plan**

Gray claimed that the alternative investment "was consistent with the law." He also told the board members that four other pension plans already were invested when the deals had not been executed. Three of those, in New York, Chicago and Michigan, never invested in the plan, the SEC complaint said, and the other had not yet invested.

Today, despite the combined $64.5 million investment by the three city retirement plans, the investment pool still apparently does not meet the state criteria, experts said. The SEC's 2017 order showed the fund had not yet reached the $100 million requirement and that two of the city pension plans had more than 20 percent stakes.

"State law says it has to be $100 million for any of us to invest in,'' said Wall, who is also the chairman of the DeKalb County Employees Retirement Plan. "So, Atlanta may be violating state law by investing pension money in a fund that doesn't have $100 million."

Cannon Carr, chief investment officer at CornerCap Investment Counsel in Atlanta, said that points to lax oversight.

At a minimum, the pension systems should have taken steps to comply with state law after the SEC's findings were made public, he said. "Whatever the particulars, there should be someone who should be looking at those state parameters to make sure the fund is in compliance,'' Carr said. "It's pretty straightforward."

Falling through the cracks

But it can be a tricky business to get out of alternative investments.

The investments are loosely regulated, provide little transparency and can fall into areas that investors know little about. Often, their underlying assets can be hard to value and even more difficult to dump.

That's why many pension leaders avoid them in the first place.

Wall said he doesn't think Georgia public pensions should even be allowed to invest in these types of funds. "It's so expensive, the fees are so very high and they're very illiquid," Wall said. "Once you give these funds money, you can't get it in 10 years. It's a mess trying to get it undone."

Because of the complexity and high risk, a higher level of due diligence is demanded by those that do invest, the experts said.

“If you’re not up to the game, you just shouldn’t be investing in alternatives,” Carr said.

Atlanta may not have been up to the task. One month after the SEC suspended Gray, two of the three pension boards sued the city over an ordinance that replaced their pension leaders with a new governance board. The pension plans lost the suit, then it took several months for the new board to elect leaders.

It wasn’t until September that the new board had a fully-seated quorum. Two months later, the new board received its first update on the progress of investments.

The new board is still in the middle of evaluating a new consultant to oversee investments.

Gray’s role in question

Atlanta Journal-Constitution investigations in 2013 led to investment adviser Larry Gray resigning from his role as consultant to three Atlanta pension boards. In resigning, he cited media coverage raising questions about his firm’s dual roles advising the pensions on investments and touting investments in his own fund.

In 2015, the Securities and Exchange Commission filed a complaint against Gray, accusing him of misleading the pensions about the fund he created.

But his firm still managed the fund, GrayCo Alternative Partners II, through sometime in 2016.

Then, in a June 2016 letter to the pension boards, Gray said that his firm would become part of a newly created company, Consequent Capital Management. Gray wrote that he was a minority owner of the new company, but once the transaction was completed, the GrayCo fund would be managed by Consequent’s senior management team, not by anyone from Gray’s firm.

“Mr. Gray will not have rights to control Consequent related to this ownership interest,” the letter said.In early 2017, Consequent said it had acquired the assets of Gray Financial.

Then in November 2017, the federal Securities and Exchange Commission suspended Gray and his firm from associating with any broker-dealer, investment advisor or credit rating agency for two years. He will have to reapply to SEC before he can be reinstated.

It’s unclear if Gray still has an ownership interest in Consequent. Neither the company nor Gray could be reached for comment.

But he no longer has a role with the GrayCo fund, said Richard “Bud” Light, a former member of the Police Officers’ Pension Fund now a member on the City of Atlanta Pension Investment Board, which was established last year to oversee investments for police, firefighters and general employees. The firefighters plan now lists the fund as Consequent Alternative Partners II, L.P.

“He doesn’t have anything to do with the investment, nor is he allowed to,’’ Light said.

The SEC’s 2017 order also requires Gray and his firm to pay $476,298 in fines and disgorgement to harmed investors. Last month, the SEC said it needed more time to work out a plan to distribute the money to the investors.

Why it matters

The city of Atlanta's pension plans are short hundreds of millions of dollars needed to pay retirement obligations. The plans rely heavily on the performance of their investments to reduce the shortfalls, so the burden won't fall on taxpayers. According to reports the three pension plans submitted to the state auditor, investments are expected to earn average annual returns of 7.25 to 7.5 percent. An alternative investment fund so far has averaged about 3.7 percent.

Considerations for institutional investors around divestment

Martha Porado | March 15, 2019

In 2017, New Jersey's Police and Firemen's Retirement System took a closer look at its investment in Nike Inc. following an advertising campaign featuring former National Football League player Colin Kaepernick, who had ignited controversy in 2016 by taking a knee during a pre-game national anthem in protest of the police treatment and killings of black men.

Marty Barrett, a member of the pension fund's investment council, suggested Kaepernick's protest was disrespectful and constituted enough reason for the pension fund to divest from the company. However, the rest of the council decided unanimously to maintain its 312,000 shares, valued at US$23.6 million, in Nike as of September 2018.

Read: Will trend to carbon divestment pick up in 2018?

Pension funds often consider excluding certain companies, industries and even countries from their portfolios for a myriad of reasons, particularly as environmental, social and governance concerns flood into the mainstream. But should pension plans be looking to divest from these potentially problematic positions?

Fiduciary duty

When considering divestment, the traditional stumbling block for a pension plan is its fiduciary duty to members, says Andrew Sweeney, vice-president and portfolio manager at Phillips, Hager & North Investment Management Ltd. "Fiduciary duty . . . weighs so heavily on people's minds when it comes to the question of divestment. For a pension plan, more so than other clients, the first real question is, 'Can we divest? And is that consistent with our fiduciary duty or not?' That's the first fork in the road."

In Numbers

In 2018, nearly **1,000** global institutional investors with **US$6.4 trillion** in assets committed to divest from fossil fuels. This is up from **US$52 billion** four years ago, an increase of **11,900%**.

Pledges span **37** countries, with **66%** of divesting institutions and individuals based outside the U.S.

Fossil-free passive funds, mutual funds and exchange-traded funds are also growing rapidly. Currently, there are more than **150** low-carbon ETFs traded in the U.S.

Source: Arabella Advisors report, 2018

Norway's heavy exposure to fossil fuel investments is one scenario that exemplifies the argument for divestment from a fiduciary perspective. The issue came to light in 2017 when the country's central bank sent an analysis to its minister of finance recommending Norway's Government Pension Fund Global's benchmark index divest from oil stocks. The analysis showed the government's finances, including its pension investments, were twice as exposed to oil price risk than they would be in a broad, global index.

"People have made hay about Norway's sovereign wealth fund divesting from coal assets and from some, but not all, oil assets. But Norway is a unique situation," says Sweeney. "This is a country that has five million people that produce four million barrels of oil a day, and they have a trillion that they've saved. . . . So from a pure, rational thinking of the overall balance sheet, of course they're divesting from oil."

Read: Divesting from fossil fuels doesn't mean sacrificing returns: report

This type of logical risk assessment demonstrates where divestment, and ESG considerations more broadly, is headed, says Sweeney. He notes socially responsible investing used to openly include a moralistic element, but the risk aspect has started to dominate the conversation because it can hold water from a fiduciary perspective.

Certain institutional investors are looking to make a statement, an impact or both, by divesting from or decreasing their exposure to carbon intensive assets, says Sweeney. But the fiduciary issues loom large for pension plans, making many hesitant to openly divest from any given sector.

Butting out

However, there are those that dare. The OPSEU Pension Trust divested from the tobacco industry in 2017. At the time, Hugh O'Reilly, the trust's president and chief executive officer, noted corporate engagement is typically the best way to bring about positive change, but tobacco products were a special case. "They only cause harm," he said in a press release.

Since then, several other pension plans have either gone tobacco-free or announced their intention to do so, including the Ontario Teachers' Pension Plan and the Dutch pension fund ABP. The California Public Employees' Retirement System has restrictions on tobacco that date back to 2000 and have become more intensive over the years.

Read: Divesting from tobacco won't hurt investment returns: report

An analysis of tobacco divestment dating from that year demonstrates how little the conversation has changed in almost two decades. "Socially screened investments by pension funds and endowments, like other investments they make, are subject to fiduciary standards," wrote the analysis' authors, Washington D.C.-based attorneys Carol Calhoun and G. Daniel Miller. "All judgments about the prudence of fiduciary actions are to be made from the perspective of the time the fiduciaries made the decisions, not in hindsight.

"The relevant courts and agencies have long recognized that estimating risks and returns is imperfect. Provided that the fiduciaries exercise both the substantive and the procedural component of their fiduciary duties, a court is likely to give deference to their investment decisions, even if those decisions later prove to have been less than optimal."

In 2018, the CalPERS' investment consultant, Wilshire Associates Inc., penned its own report, which found the pension fund lost about US$3 billion in investment gains between 2001 and 2014 by divesting from tobacco.

But Calhoun and Miller's analysis also highlighted decades worth of red flags, such as gradually stricter public policy in the U.S. around tobacco use, which were arguably evidence of risk for the sector. And after examining its restrictions following the report, the CalPERS decided to enhance its tobacco restrictions.

Divestment movement in CAPs

While divestment has traditionally been a topic for defined benefit plans and similarly sized funds, there's something to be said for ESG customization in capital accumulation plans, says Jean-Daniel Côté, vice-president of retirement at BFL Canada.

Some of the growing plan sponsor interest can be traced back to the Financial Services Commission of Ontario's 2015 guidance requiring plans to include their stance on ESG in their statements of investment policies and procedures, he says. Adoption was slow at first, he notes, but the public nature of SIPPs encouraged plans to consider whether their members would notice and object if they didn't take a position. As a result, most plans made broad statements, saying they considered ESG in making investment decisions or when picking an investment manager, says Côté.

Read: Institutional investors increasingly see ESG as source of alpha: survey

The push for ESG options is actually coming from plan members, especially in the defined contribution space, he says, noting he rarely sees an employee information session without a member raising questions about responsible investments. "With no surprise, it's usually younger plan members. Millennials are very big on this.

"There's a lot of pressure . . . particularly if you're in an organization that deals with environmental issues," adds Côté. "Obviously, they'd like to have ESG-friendly funds available. But the offerings from the insurance companies is still limited. I'd love to see a [target-date fund] suite that would be ESG-friendly. We've talked about it a little bit, but at this point there is limited interest and also limited space on the providers' platforms . . . ."

Many investment options offered in DC pensions and other CAPs are index-based, which means ESG assessments aren't applicable, but insurers are working to increase the visibility of their socially responsible and ESG-friendly offerings, noted a spokesperson for the Canadian Life and Health Insurance Association in an email to *Benefits Canada*. Further, employers are choosing what's available to employees within CAPs and, where demand exists for these products, insurers are there to meet it.

Read: Governance coalition publishes guidebook on environmental, social issues

So will the CAP industry consider divestment like the bigger pension players? Côté says unless a true environmental catastrophe pushes the industry towards divestment, it's likely to be an evolution instead of a revolution.

"Folks don't look at their investments. The only time I hear about that is when we have an employee session. That's where we introduce the funds and the topic is on the table. They're there, so they raise their hands and they ask the question. But I'm not really seeing anyone say, 'I'm only going to participate in the plan if it meets the value that I have.'"

But a private sector pension plan may face divestment questions where an organization's primary business is centred on a sector that's problematic from an ESG perspective, says Côté. "That's actually a question I ask any manager coming in; they know that's one of my most frequently ask questions: 'What are you doing from an ESG perspective?'"

Also, it may be difficult for a larger investment firm to have conversations about divesting from, or lowering exposure to, oil with one client while another client is an oil company's pension plan, says Côté. "There are some issues there where they may want to get rid of some oil and gas [stock], but most of these [companies] are clients."

Love thy neighbour, but maybe don't invest in them

In December 2018, Denmark's Magustre & Psykolger pension plan announced it would be divesting from the following countries due to what it described as "systematic" human rights violations. The move represents about $62 million in divestment.

ESG risk

Another stumbling block for ESG is that framing it as a risk mitigation strategy leaves a key detail out of the narrative, according to Paul Bevin, general manager of investments at New Zealand's Government Superannuation Fund Authority. If the ESG risk factor associated with an asset is properly priced in, the asset's value will be under pressure, he notes. As a result, it will be attractively priced, making it logical for a long-term investor to own it rather than avoid it, as long as the potential risk-to-reward ratio is decently favourable.

Read: How ESG factors play into alternative investments

But this presents a challenge for a pension fund with a fiduciary duty to its members to justify divesting from an asset on the basis of any ESG consideration, says Bevin, noting if investors really want to do good in the world, they need to find a way to be upfront about it.

"You should avoid investing in companies that cause environmental damage, because they cause environmental damage, not because you think it will improve your performance," he says. "Just accept there might be a cost in doing that."

However, there's no guarantee a given ESG risk is actually priced into an asset, adds Bevin. "People are concerned about climate change, and I think they, maybe rightly, fear a lot of that risk is not priced into the market. We don't know that for sure, but there must be some pricing of climate risk going on. There must be some people who are attaching a risk to coal producers, fossil fuel producers, and that's why they're selling it. That implies that there would be some impact on the valuation of those businesses.

"So to say, 'We're going to reduce the carbon footprint of our portfolio and that'll make us money,' — I wouldn't be so sure about that. You might want to do it anyway, but the claim it will make you money is very spurious. We don't know about that. People are paying high prices to invest in alternative energy production, for example. Whether that's profitable or not is still an open question."

#MeToo on the proxy docket

Sexual harassment and assault are appearing on institutional investors' radars as a place to engage. As a group called Trustees United, several institutional funds, which represent combined assets of more than US$635 billion, are promoting a new set of principles to handle the issue when it comes to their investments. They include:

- Ensuring a work environment free of sexual harassment and violence;
- Acknowledging the use of non-disclosure agreements and forced arbitration policies reinforces the silence that perpetuates harassment;
- Prioritizing diversity at all levels in an effort to be more attuned to the risks associated with harassment, misconduct and discrimination; and
- Ensuring policies designed to protect workers' rights, such as collective bargaining agreements, provide mechanisms for risk mitigation by addressing power imbalances that often facilitate abuse, harassment and discrimination.

Ready, set, engage

On the other hand, some investors are far more satisfied they've found real, qualitative risks to factor into the broad universe of ESG concerns. For instance, coal is an area where Sweeney has seen the tangible effect of engagement. About two per cent of global mining company Rio Tinto Group's overall business was exposed to coal, both metallurgic and thermal, he says.

Read: Should proxy voting firms be more strictly regulated?

"One of our portfolio managers was meeting with [Rio Tinto's chief financial officer] in London. [He] basically said, 'Your thermal coal assets, in some ways, make your stock unownable for us, because not only do we value them at close to zero, but we think there's potentially a contingent liability there. And 98 per cent of what you're doing we like and this two per cent is quite problematic.

"The surprise was that the CFO seemed genuinely surprised to hear this comment. I think he was genuinely surprised because there had been protestors picketing outside of Rio Tinto, and I'm sure they've talked to their corporate relations people and the media and PR people, but it never actually got to the C-suite where they're running the business.

"When it came from someone who's a potential shareholder, it was very different. So during the conversation, you could see the CFO realizing this two per cent, this rounding error, non-core asset was potentially affecting his cost of capital for the whole business . . . . We were surprised they were surprised to hear it from shareholders.

A year later, the company divested its thermal coal assets and was considering doing the same for its metallurgical coal assets, says Sweeney. “It was an example of, as a shareholder, we had a seat at the table, that a protester doesn’t have. We’re not trying to put them out of business, we’re thinking about cost of capital, risk management, as well as profitability.”

Read: Developing ESG, infrastructure considerations for investors in Asia

Andrew Bascand, managing director and portfolio manager at New Zealand-based Harbour Asset Management, has also seen the positive results of his firm’s engagement efforts on social issues. “About five years ago, one of our largest listed companies had manufacturing plants in Asia,” he says. “They indicated to us they didn’t think their supply chain had underage labour in it, but they didn’t have a policy.”

Although Bascand isn’t certain his firm was the only investment manager to bring up the issue, following discussions, the company introduced a policy to ensure responsible labour practices across all jurisdictions.

Companies are expecting questions on sustainability from investors more than they have in the past, he says, noting his firm has been broadening its set of engagement questions, which now sits at 87. The questions are narrative in nature, so they add to the quantitative measurements that ratings agencies like Sustainalytics are already producing, notes Bascand.

As the number of questions increased, some of that initial surprise from the C-suite returned, he says. “We’re asking these questions and they often say, ’Why are you asking this question?’ And we say, ‘You realize you don’t have a policy on this when half the other companies in New Zealand are doing good stuff and you’re not?’”

While most companies are willing to engage with Harbour’s questionnaire, the outliers do exist, says Bascand. “Historically, we’ve had three companies that have elected not to respond to our corporate behaviour survey. Those companies have not been candidates for inclusion. So that is a complete red flag to us.”

Martha Porado is an associate editor at Benefits Canada.