IPERS®

Investment Board Meeting Agenda

Thursday, December 1, 2022
8:30 a.m. – 11:15 a.m.
IPERS Board Room, 7401 Register Drive, Des Moines, IA
Conference Telephone Number: 312-626-6799
Meeting ID: 846-4961-6130#

8:30 a.m. **Call to Order**

8:30 a.m. **Approval of Minutes from Previous Board Meetings**
- September 21, 2022, Meeting
- September 22, 2022, Meeting

8:35 a.m. **CEO Report**
Greg Samorajski, *IPERS*

8:40 a.m. **Request to Issue an RFP for Actuarial Consulting Services**
Greg Samorajski, *IPERS*

8:45 a.m. **IPERS Investment Staff Reports**
- Beta Report – Sriram Lakshminarayanan
- Alpha Report – Investment Team
- Private Market Program – Investment Team
- Risk Report – Rich Wiggins
- CY2023 Private Markets Commitments – Pat Reinhardt
- FY2022 Investment Management Expenses – Sriram Lakshminarayanan
- CIO Updates – Sriram Lakshminarayanan

9:30 a.m. **Securities Lending Review**
Jina Bresson, *State Treasurer's Office*

9:40 a.m. **Break**

9:55 a.m. **2022 Actuarial Valuation Report**
Patrice Beckham, Brent Banister and Bryan Hoge, *Cavanaugh Macdonald Consulting, LLC*

10:55 a.m. **Contribution Rate Funding Policy**
Greg Samorajski, *IPERS*

11:05 a.m. **Public Comments**

11:10 a.m. **Other Business**
- Confirm Next Meeting – Friday, March 24, 2023
- Next BAC Meeting – Monday, January 23, 2023

11:15 a.m. **Adjourn**

INVESTMENT BOARD MEETING MINUTES
IPERS Board Room
7401 Register Drive, Des Moines, Iowa
September 21, 2022

The following people participated in the IPERS Investment Board Meeting held in the IPERS Board Room on Wednesday, September 21, 2021.

Members of the Board – Present
Justin Kirchhoff, Chair
Bill Bemis
Treasurer Michael Fitzgerald
Tami Loge
Kris Rowley
Lisa Stange
Representative Mary Mascher

Members of the Board – Absent
Representative Brian Lohse
Senator Tim Goodwin
Senator Pam Jochum

Administration and Staff
Greg Samorajski, CEO
Sriram Lakshminarayanan, CIO
Rich Wiggins, Risk and Operations Officer
Sheldon Lien, Senior Investment Officer
Pat Reinhardt, Senior Investment Officer
Keith Scholten, Senior Investment Officer
Marcus Dong, Retirement Investment Officer
John Fujiwara, Retirement Investment Officer
Kevin Terdal, Retirement Investment Officer
Melinda McElroy, Executive Assistant
Shawna Lode, Director of Communications
Elizabeth Hennessey, General Counsel
Tara Hagan, Chief Financial Officer

Wilshire
Rose Dean
Ali Kazemi
Marc Friedburg
Blake Curtis

Presenters
Dhvani Shah, JM Family Enterprises, Inc.
Jared Gross, JPMorgan Chase
Brad Bauer, Värde Partners

Proceedings

Chair Justin Kirchhoff called the meeting to order at 1:00 p.m.

Introduction to Asset Allocation

Rose Dean and Ali Kazemi of Wilshire provided an educational session on the role of asset allocation and capital markets assumptions.

Panel Discussion – Illiquidity and Inflation

Marc Friedberg of Wilshire moderated a panel discussion on IPERS' liquidity. Panelists included Dhvani Shah, Vice President and Chief Investment Officer of JM Family Enterprises; Jared Gross, Head of Institutional Portfolio Strategy of JPMorgan Chase; and Brad Bauer, Partner and Co-Chief Investment Officer at Värde Partners.

Adjournment

The meeting adjourned at 3:10 p.m.

INVESTMENT BOARD MEETING MINUTES

IPERS Headquarters
7401 Register Drive, Des Moines, Iowa
September 22, 2022

The following people participated in the IPERS Investment Board meeting held on Thursday, September 22, 2022.

Members of the Board – Present

Justin Kirchhoff, Chair
Bill Bemis
Treasurer Michael Fitzgerald
Tami Loge
Lisa Stange
Kris Rowley
Representative Mary Mascher

Members of the Board – Absent

Representative Brian Lohse
Senator Tim Goodwin
Senator Pam Jochum

Administration and Staff

Greg Samorajski, CEO
Sriram Lakshminarayanan, CIO
Rich Wiggins, Risk and Operations Officer
Sheldon Lien, Senior Investment Officer
Pat Reinhardt, Senior Investment Officer
Keith Scholten, Senior Investment Officer
Marcus Dong, Retirement Investment Officer
John Fujiwara, Retirement Investment Officer
Kevin Terdal, Retirement Investment Officer
Melinda McElroy, Executive Assistant
Elizabeth Hennessey, General Counsel
Shawna Lode, Communications Director
Tara Hagan, Chief Financial Officer
David Martin, Chief Benefits Officer
Rick Hindman, Chief Operations Officer

Consultant – Wilshire

Rose Dean
Ali Kazemi
Blake Curtis
Shawn Quinn

Presenter - CEM Benchmarking

Michael Reid

Proceedings

Chair Justin Kirchhoff called the meeting to order at 8:30 a.m.

Election of Chair and Vice Chair

Lisa Stange nominated Justin Kirchhoff for chair and Bill Bemis volunteered to serve as vice chair. Tami Loge seconded the nominations. The motion carried by unanimous roll call vote.

Ayes: Justin Kirchhoff, Bill Bemis, Treasurer Fitzgerald, Tami Loge, Lisa Stange and Kris Rowley
Nays: None

MOTION PASSED

Approval of Minutes

Kris Rowley moved to approve the meeting minutes from the June 16, 2022, Investment Board meeting. Lisa Stange seconded. The motion carried by unanimous voice vote.

CEO Report

Greg Samorajski introduced a guest to the Board meeting, Senator Dennis Guth. Senator Guth co-chairs the legislative Administration and Regulation Appropriations Subcommittee. Greg next introduced Tara Hagan, recently hired as IPERS' Chief Financial Officer.

IPERS FY2024 Budget

Greg Samorajski and Tara Hagan reviewed IPERS' proposed FY2024 budget noting that all IPERS expenditures are paid from the Trust Fund and no state general funds are appropriated to IPERS. IPERS' initial FY2024 appropriation request must be entered as a status quo budget. IPERS expects there will be a formal process to request budget enhancements. If approved by the Governor, IPERS will seek an increased budget appropriation of $4.545 million. IPERS also sought a budget increase in FY2023.

Lisa Stange moved that the Investment Board endorses IPERS' FY2024 budget enhancement request of $4.545 million. Tami Loge seconded. The motion carried by unanimous roll call vote.

Ayes: Justin Kirchhoff, Bill Bemis, Treasurer Fitzgerald, Tami Loge, Lisa Stange and Kris Rowley
Nays: None

MOTION PASSED

Investment Performance Review for FY2022

Rose Dean and Ali Kazemi of Wilshire presented IPERS' investment performance for the fiscal year ended June 30, 2022. The portfolio returned –3.90% (net of fees) for FY2022, slightly outperforming its policy benchmark return of –4.05% over the same period.

Annual Asset Allocation Review

Rose Dean and Ali Kazemi of Wilshire presented the annual asset allocation review, comparing IPERS' current policy targets to actual allocation. Two alternative portfolios were considered, both scenarios increased the target allocation to private equity to be more in line with actual allocation.

Lisa Stange moved to increase the long-term allocation to private equity from 13% to 17% and to increase the allocation to private real assets from 8.5% to 9.5%. Kris Rowley seconded. The motion carried by unanimous roll call vote.

Ayes: Justin Kirchhoff, Bill Bemis, Treasurer Fitzgerald, Tami Loge, Lisa Stange and Kris Rowley
Nays: None

MOTION PASSED

Annual Review of Investment Policy and Goal Statement

Sriram Lakshminarayanan noted the policy benchmark for domestic equity was changed to the Russell 3000 Index, effective April 1, 2022. To be consistent with the public markets policy, the Investment staff recommended changing the private equity return objective to the Russell 3000 Index + 300 basis points, effective October 1, 2022.

Lisa Stange moved to approve the recommendation. Bill Bemis seconded. The motion carried by unanimous roll call vote.

Ayes: Justin Kirchhoff, Bill Bemis, Treasurer Fitzgerald, Tami Loge, Lisa Stange and Kris Rowley
Nays: None

MOTION PASSED

CEM Investment Benchmarking Review for CY2021

Michael Reid of CEM Benchmarking reviewed IPERS' investment benchmarking results for the 5-year period ending December 31, 2021. IPERS once again ranked as a low-cost fund based on CEM's analysis for the calendar year and reported its 5-year net value added was 1.4%, exceeding the peer median of 0.5%.

IPERS Investment Staff Reports

Beta Report

Sriram Lakshminarayanan reported all asset classes were within acceptable policy ranges as of September 9, 2022, and the Total Fund market value estimate was $40.6 billion on that date.

Alpha Report

The Investment staff reviewed the alpha report. International equity manager Columbia was flagged for minor underperformance issues and LARS manager Fort was flagged for material underperformance concerns.

Private Markets Program

Pat Reinhardt reviewed the four private markets investment management firms currently being monitored: Clarion Partners, Forest Investment Associates and UBS Farmland for performance issues and RREEF for personnel turnover. Pat concluded by reporting on the recent private credit searches. Sixteen mandates were approved for investment; staff has finished operational due diligence reviews and contract negations with 10 firms. Three additional firms should be onboarded in the fourth quarter and the hiring of three firms was postponed due to operational concerns or contracting issues.

Risk Report

Sriram Lakshminarayan introduced Rich Wiggins, IPERS' Investment Risk and Operations Officer. Rich then presented IPERS' risk monitoring reports.

CIO Updates

Sriram Lakshminarayanan reported on recent staff travel for operational due diligence review meetings with several of IPERS' portable alpha managers prior to going live with the investments.

Public Comments

Former Senator Patrick Deluhery questioned the increased allocation to private equity noting IPERS' historically higher allocation to fixed income and bonds.

Representative Mary Mascher expressed her concerns on Iowa's teacher shortage and the possible impact to IPERS.

Confirm Next Meeting Date and Adjournment

The next regularly scheduled IPERS Investment Board meeting is Thursday, December 1, 2022. With no further business to come before the Board, the meeting adjourned at 12:15 p.m.

IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

Gregory S. Samorajski, CFA
Chief Executive Officer

Kim Reynolds
Governor

Adam Gregg
Lt. Governor

November 22, 2022

To: IPERS Investment Board

From: Gregory Samorajski, CEO

RE: Request to Issue an RFP for Actuarial Consulting Services

Reason for search
Iowa Code 97B.8A(3)(a) empowers the Investment Board to select IPERS' consulting actuary. IPERS' current contract with Cavanaugh Macdonald expires on June 30, 2023.

The actuarial consultant advises on technical actuarial procedures and assumptions, conducts the annual actuarial valuation, determines the contribution rates necessary to fund the System, conducts quadrennial experience investigations, calculates the impact of investment assumptions and conducts plan design cost studies. The maximum new contract period would run until June 30, 2029.

Process of the search
IPERS' staff requests the Board's approval to issue an RFP and to work with the Board chairperson to form a search committee comprised of members of the Investment Board, the Benefits Advisory Committee and staff. The search committee should present its recommendation at the March Board meeting. Staff recommends that the RFP specify the following qualifications for prospective consulting actuary firms:

- The firm must have been in existence as a business entity performing actuarial valuations, experience investigations and consulting services for a minimum of three years.
- The firm must have a minimum of five current multiple-employer public pension clients, each client with at least 100,000 members.
- The principal actuary performing the work must be a Fellow of the Society of Actuaries and an enrolled actuary and must have ten years of experience as a principal consulting actuary to a multiple-employer public retirement system with membership of at least 100,000 members.
- The supporting actuary assigned to the account must also be a Fellow of the Society of Actuaries and an enrolled actuary and must have five years of experience as a principal or supporting actuary to a multiple-employer public retirement system.
- The firm must accept a contract with no limitation of liability provision and must carry liability insurance.

Suggested motion: Approve issuance of an RFP for actuarial consulting services with the minimum qualifications listed above and authorize the Investment Board chairperson to form a search committee.

BETA REPORT

IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM PORTFOLIO

PRELIMINARY (Unreconciled) MARKET VALUES AT

11/18/2022

	Actual	Overlay	Total	Policy	Difference
PUBLIC MARKETS					
Domestic	$ 7,927,144,039	$ (13,203,856)	$ 7,913,940,183	$ 7,940,546,400	$ (26,606,218)
International	$ 6,298,222,427	$ (200,329,410)	$ 6,097,893,017	$ 6,239,285,330	$ (141,392,313)
Global Smart Beta	$ 1,949,321,799		$ 1,949,321,799	$ 1,888,519,315	$ 60,802,485
Total Equities	**$ 16,174,688,265**		**$ 15,961,154,999**	**$ 16,068,351,045**	$ (107,196,046)
Core Plus	$ 8,629,874,599	$ 89,290,882	$ 8,719,165,481	$ 8,697,547,813	$ 21,617,667
Public Credit	$ 1,130,610,985		$ 1,130,610,985	$ 1,135,502,119	$ (4,891,135)
Cash	**$ 714,294,752**	**$ 124,242,384**	$ 838,537,136	**$ 378,500,706**	$ 460,036,429
PRIVATE MARKETS	**$ 13,192,711,031**		$ 13,192,711,031	**$ 13,562,277,946**	$ (369,566,916)
Private Equity	$ 7,876,503,303		$ 7,876,503,303	$ 8,099,915,119	$ (223,411,816)
Private Credit	$ 1,816,118,615		$ 1,816,118,615	$ 1,852,661,353	$ (36,542,738)
Private Real Assets	$ 3,500,089,113		$ 3,500,089,113	$ 3,609,701,475	$ (109,612,362)
TOTAL FUND	**$ 39,842,179,631**			**$ 39,842,179,631**	**$ -**

	Actual	Overlay	Total	Policy	Difference
PUBLIC MARKETS					
Domestic	19.90%	-0.03%	19.86%	19.93%	-0.07%
International	15.81%	-0.50%	15.31%	15.66%	-0.35%
Global Smart Beta	4.89%		4.89%	4.74%	0.15%
Total Equities	**40.60%**		40.06%	**40.33%**	-0.27%
Core Plus	21.66%	0.22%	21.88%	21.83%	0.05%
Public Credit	2.84%		2.84%	2.85%	-0.01%
Cash	**1.79%**	0.31%	2.10%	**0.95%**	1.15%
PRIVATE MARKETS	**33.11%**		33.11%	**34.04%**	-0.93%
Private Equity	19.77%		19.77%	20.33%	-0.56%
Private Credit	4.56%		4.56%	4.65%	-0.09%
Private Real Assets	8.78%		8.78%	9.06%	-0.28%
TOTAL FUND	**100.00%**			**100.00%**	**0.00%**

BETA REPORT
IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM PORTFOLIO
PRELIMINARY (Unreconciled) MARKET VALUES AT
11/18/2022

PUBLIC PORTFOLIO	66.89%	$	26,649,468,600

Manager Name	Manager % of Asset Class		Total Market Value
Blackrock R2000 SAE	2.80%	$	222,311,629
Blackrock Russell 1000 Alpha Tilts	24.99%	$	1,981,067,729
DOMESTIC EQUITY - ACTIVE		**$**	**2,203,379,358**
Mellon - Russell 1000 Index	68.77%	$	5,451,214,241
Mellon - Russell 2000 Index	3.44%	$	272,550,441
Rhumbline Advisers	0.00%	$	-
NT Transition Manager	0.00%	$	-
DOMESTIC EQUITY - PASSIVE	**72.20%**	**$**	**5,723,764,681**
TOTAL DOMESTIC EQUITY	***19.90%***	**$**	**7,927,144,039**
Blackrock - Canada	8.13%	$	512,010,433
Passive - Blackrock EAFE	22.67%	$	1,428,117,347
Mellon Passive Emerging	14.25%	$	897,622,460
INTERNATIONAL EQUITY - PASSIVE	**45.06%**	**$**	**2,837,750,240**
Blackrock EAFE SAE	24.17%	$	1,522,178,330
Blackrock EM SAE	7.52%	$	473,556,992
Blackrock Europe Alpha Tilt	0.16%	$	10,050,710
BMO EAFE	0.04%	$	2,379,824
International Equity Transition	0.01%	$	318,674
Oechsle	0.01%	$	714,492
PanAgora Dynamic EAFE	8.74%	$	550,347,369
Columbia EAFE Equity	8.15%	$	513,533,125
Wellington EM	6.15%	$	387,392,669
INTERNATIONAL EQUITY - ACTIVE	***54.94%***	**$**	**3,460,472,186**
TOTAL INTERNATIONAL EQUITY	***15.81%***	**$**	**6,298,222,427**

Manager Name	Manager % of Asset Class		Total Market Value
Western	16.11%	$	1,390,555,114
Blackrock	6.68%	$	576,604,229
Principal Global Investors	12.91%	$	1,113,819,896
TCW	12.96%	$	1,118,861,958
Prudential	7.98%	$	688,254,655
BlackRock Universal Alpha	3.12%	$	268,857,707
BlackRock Universal Beta	3.80%	$	328,078,239
Mackay Shields	12.61%	$	1,088,220,642
PGIM GLRV Alpha	2.65%	$	228,710,273
PGIM GLRV Beta	2.86%	$	246,728,175
CORE PLUS - ACTIVE	**81.68%**	**$**	**7,048,690,888**
Mellon SLH Agg	18.32%	$	1,581,183,711
CORE PLUS - PASSIVE	**18.32%**	**$**	**1,581,183,711**
TOTAL CORE PLUS	**21.66%**	**$**	**8,629,874,599**
Oaktree Capital Management	0.43%	$	4,892,031
Aegon USA	33.29%	$	376,339,177
Prudential EMD	32.81%	$	370,931,627
PGIM High Yield	33.47%	$	378,448,150
TOTAL PUBLIC CREDIT	***2.84%***	**$**	**1,130,610,985**
UBS - US	57.27%	$	1,116,297,835
UBS - Developed ex US	33.41%	$	651,338,595
UBS - EM	9.32%	$	181,685,370
TOTAL GLOBAL SMART BETA EQUITIES	**4.89%**	**$**	**1,949,321,799**
Cash Account	33.91%	$	242,226,456
LARS Liquid Assets	34.28%	$	244,871,176
Parametric - Domestic Equity	7.92%	$	56,570,963
Parametric - Int'l Equity	10.85%	$	77,503,024
Parametric - Fixed Income	4.64%	$	33,123,132
Parametric - Directed Trades	0.00%	$	-
Parametric - Synthetic Cash	0.00%	$	-
Public Real Assets Cash	0.00%	$	-
Pending Cash	8.40%	$	60,000,000
CASH ACCOUNT	**1.79%**	**$**	**714,294,752**

PRIVATE PORTFOLIO	33.11%	$	13,192,711,031

Manager Name	Manager % of Asset Class		Total Market Value
Legacy Portfolio	15.46%	$	1,217,765,862
Pathway PE Fund XXV	84.54%	$	6,658,737,440
PRIVATE EQUITY	**19.77%**	**$**	**7,876,503,303**
Tennenbaum Capital	19.43%	$	352,838,207
BREDS II	0.00%	$	-
Principal RE Debt	0.00%	$	-
Monroe Capital	28.07%	$	509,737,183
Pathway XXV-B	3.87%	$	70,200,069
Principal RE Debt II	0.74%	$	13,486,643
PGIM RE Global Debt	9.19%	$	166,912,912
KKR Goldfinch	15.45%	$	280,654,613
Ares Private Credit Solutions II	3.20%	$	58,051,968
Audax Mezzanine Coinvest IA	0.54%	$	9,868,478
Audax Mezzanine Fund V	0.61%	$	11,091,345
Crestline Opps Credit IA	6.24%	$	113,371,711
Marathon SPS IA Fund, L.P.	4.10%	$	74,535,656
ArrowMark	4.56%	$	82,787,731
KARED IV	3.76%	$	68,207,100
Heitman Credit	0.24%	$	4,375,000
PRIVATE CREDIT	**4.56%**	**$**	**1,816,118,615**

Manager Name	Manager % of Asset Class		Total Market Value
Brookfield Super Core Infrastructure	8.53%	$	298,474,959
Clarion Partners	15.71%	$	549,946,308
Invesco	25.64%	$	897,530,258
RREEF	26.13%	$	914,603,575
UBS Realty	15.61%	$	546,536,967
Forest Invest	5.92%	$	207,314,067
UBS Farmland Investors	2.45%	$	85,682,979
PRIVATE REAL ASSETS	**8.78%**	**$**	**3,500,089,113**

GRAND TOTAL		**$**	**39,842,179,631**

	PERCENT		DOLLARS
PUBLIC MARKET	66.89%	$	26,649,468,600
PRIVATE MARKET	33.11%	$	13,192,711,031
TOTAL	**100.00%**	**$**	**39,842,179,631**

RECENT MARKET VALUES		
11/18/2022	$	39,842,179,631
11/11/2022	$	39,783,537,670
11/4/2022	$	38,573,028,836
10/28/2022	$	39,416,198,593
10/21/2022	$	38,686,876,731
10/14/2022	$	38,307,734,311
10/7/2022	$	38,733,179,347
9/30/2022	$	38,363,129,191
9/23/2022	$	38,965,091,886

IPERS Portfolio Structure and Allocations
Quarter End September 30, 2022
$37.9 Billion

Public Markets – 65% of Total Fund (Equities 39%)				
Domestic Equity $7.2 Billion 19.0%		**International Equity $5.7 Billion 14.9%**		**Global Smart Beta $1.9 Billion 5.1%**
Active $2.0 Billion 27.6%	**Passive $5.2 Billion 72.4%**	**Active $3.2 Billion 55.8%**	**Passive $2.5 Billion 44.2%**	**Passive $1.9 Billion 100.0%**
BlackRock (R1000 SAE) $1.8 billion	BNY Mellon (R1000) $4.9 billion	BlackRock (EAFE SAE) $1.3 billion	BlackRock (EAFE) $1.3 billion	UBS (U.S. Equity Smart Beta) $1.1 billion
BlackRock (R2000 SAE) $197.6 million	BNY Mellon (R2000) $244.8 million	Columbia (EAFE) $452.6 million	BlackRock (Canada) $458.0 million	UBS (Developed ex U.S. Smart Beta) $652.1 million
	Parametric (Synthetic) $49.8 million	Panagora (Dynamic EAFE) $477.5 million	BNY Mellon (Emerging) $710.6 million	UBS (Emerging Market Smart Beta) $197.6 million
		BlackRock (Emerging SAE) $437.9 million	Parametric (Synthetic) $50.6 million	
		Wellington (Emerging) $462.6 million		

Terminated managers with residual amounts in their accounts are not included.

IPERS Portfolio Structure and Allocations
Quarter End September 30, 2022
$37.9 Billion

Public Markets – 65% of Total Fund (Fixed Income and Cash 26%)				
Core-Plus Fixed Income $8.2 Billion 21.6%			**Public Credit $1.4 Billion 3.6%**	**Cash $333.6 Million 0.9%**
Active $6.8 Billion 83.5%		**Passive $1.3 Billion 16.5%**	**Active $1.4 Billion 100.0%**	
BlackRock (Core Plus) $567.9 million	Western Asset (Core Plus) $1.4 billion	BNY Mellon Agg (Core) $1.3 billion	Aegon USA (High Yield) $457.3 million	BNY Mellon (Cash) $90.0 million
Principal Global (Core Plus) $1.1 billion	MacKay Shields (Core Plus) $1.1 billion	Parametric (Synthetic) $32.5 million	PGIM (High Yield) $466.0 million	LARS Liquid Assets (Cash) $243.6 million
PGIM (Core Plus) $673.0 million	TCW (Core Plus) $1.1 billion		PGIM (Emerging Market Debt) $452.7 million	
BlackRock Universal (Relative Value) $490.3 million	PGIM Universal (Relative Value) $460.2 million			

Terminated managers with residual amounts in their accounts are not included.

IPERS Portfolio Structure and Allocations
Quarter End September 30, 2022
$37.9 Billion

Private Markets – 35% of Total Fund			
Private Equity **$7.9 Billion** **20.8%**	**Private Real Assets** **$3.6 Billion** **9.4%**	**Private Credit** **$1.8 Billion** **4.7%**	
Pathway Capital (Private Equity) $7.9 billion	Clarion Partners (RE Equity) $551.7 million	Tennenbaum Capital (Corporate Debt) $352.8 million	Monroe Capital (Corporate Debt) $509.7 million
	Invesco (RE Equity) $960.2 million	KKR Goldfinch (Corporate Debt) $297.2 million	Pathway Capital (Corporate Debt) $67.2 million
	RREEF (RE Equity) $914.6 million	Principal Global II (Real Assets Credit) $13.5 million	PGIM RE Global Debt (Real Assets Credit) $166.9 million
	UBS Realty (RE Equity) $548.0 million	Kayne Anderson IV (Real Assets Credit) $60.8 million	Crestline Opp Credit (Opportunistic Credit) $83.5 million
	Forest Investment (Timber) $207.3 million	Audax Mezz Coinvest (Opportunistic Credit) $9.9 million	Marathon SPS IA (Opportunistic Credit) $74.5 million
	UBS Farmland Investors (Farmland) $85.7 million	Audax Mezz V (Opportunistic Credit) $7.7 million	ARES PCS II (Opportunistic Credit) $46.9 million
	Brookfield (Infrastructure) $303.6 million	Arrowmark (Opportunistic Credit) $76.3 million	

Alpha Report

For periods ending September 30, 2022

α

IPERS' Active Manager Alpha Scorecard

Net of Fees as of 3Q22	3Q22	1 Year	3 Year	5 Year	SI	Perf	Org	People	Process
Domestic Equity									
BlackRock Russell 1000 SAE	-0.60%	NA	NA	NA	-0.37%				
BlackRock Russell 2000 SAE	0.16%	0.62%	0.94%	NA	1.68%				
International Equity									
BlackRock – EAFE SAE	1.30%	2.03%	1.01%	NA	0.95%				
Columbia EAFE	0.92%	-0.87%	-1.48%	NA	-1.55%				
PanAgora Dynamic EAFE	-0.14%	1.18%	0.83%	NA	0.15%				
Wellington EM	0.89%	-1.67%	1.57%	1.69%	0.16%				
BlackRock Emerging Markets SAE	-0.20%	-0.71%	-1.19%	NA	-0.84%				
Core Plus Fixed Income									
Western	-0.92%	-2.57%	-0.31%	-0.03%	0.81%				
BlackRock	-0.06%	-0.57%	0.13%	0.08%	0.26%				
Principal Global Investors	-0.28%	0.03%	0.91%	0.58%	0.11%				
TCW	-0.47%	0.10%	0.62%	0.61%	0.42%				
Prudential	-0.21%	-1.03%	-0.03%	0.30%	0.55%				
Mackay Shields	-0.38%	-0.73%	0.45%	0.37%	0.56%				
BlackRock Universal	0.98%	1.71%	NA	NA	1.58%				
Prudential Universal	-0.34%	-3.33%	NA	NA	-2.86%				
Public Credit									
Prudential High Yield	0.04%	1.61%	1.21%	NA	1.22%				
Aegon USA	-0.58%	0.79%	0.26%	0.04%	0.44%				
Prudential EMD	0.69%	-1.56%	-0.37%	-0.22%	0.49%				
LARS									
Aspect Capital	4.35%	NA	NA	NA	2.33%				
Graham Capital Management, L.P.	2.35%	26.72%	9.78%	0.59%	6.12%				
P/E Global LLC	9.66%	23.53%	7.90%	0.84%	6.11%				
PIMCO	-1.02%	NA	NA	NA	-1.23%				
Wadhwani Asset Management LLP	2.26%	22.78%	11.62%	0.91%	9.41%				
Welton Global	3.51%	16.36%	NA	NA	14.61%				

No Concerns Minor Concerns Material Concerns

IPERS' Active Manager Listing

MANAGER	INCEPTION DATE	MANDATE	BENCHMARK
Domestic Equity			
BlackRock Russell 1000 SAE	May 2022	Large Cap	Russell 1000
BlackRock Russell 2000 SAE	May 2019	Small Cap	Russell 2000
International Equity			
BlackRock – EAFE SAE	May 2019	Developed EAFE	MSCI EAFE Index (net)
Columbia EAFE	May 2019	Developed EAFE	MSCI EAFE Index (net)
PanAgora Dynamic EAFE	May 2019	Developed EAFE	MSCI EAFE Index (net)
Wellington EM	February 2009	Global Emerging Markets	MSCI Emerging Markets (net)
BlackRock Emerging Markets SAE	May 2019	Global Emerging Markets	MSCI Emerging Markets (net)
Core-Plus Fixed Income			
Western	October 1999	Core Plus	Bloomberg Barclays U.S. Universal
BlackRock	October 1999	Core Plus	Bloomberg Barclays U.S. Universal
Principal Global Investors	May 2005	Core Plus	Bloomberg Barclays U.S. Universal
TCW	July 2015	Core Plus	Bloomberg Barclays U.S. Universal
Prudential	July 2015	Core Plus	Bloomberg Barclays U.S. Universal
Mackay Shields	November 2011	Core Plus	Bloomberg Barclays U.S. Universal
BlackRock Universal	November 2020	Relative Value	Bloomberg Barclays U.S. Universal
Prudential Universal	March 2021	Relative Value	Bloomberg Barclays U.S. Universal
Public Credit			
Prudential High Yield	June 2019	High Yield	Bloomberg US HY 2% Capped Index
Aegon USA	February 2012	High Yield	High Yield Policy Index
Prudential EMD	April 2016	Emerging Market Debt	JP Morgan EMBI Global
LARS			
Aspect Capital	March 2022	Diversified Trend	Absolute Return
Graham Capital Management, L.P.	December 2016	Tactical Trend	Absolute Return
P/E Global LLC	December 2016	FX Strategy	Absolute Return
PIMCO	June 2022	Commodity Alpha	Absolute Return
Wadhwani Asset Management LLP	March 2017	Keynes Leveraged Quantitative Strategy	Absolute Return
Welton Global	June 2021	Welton Global	Absolute Return

Private Market Program Manager Updates

For periods ending September 30, 2022

IPERS' PMP Manager Scorecard

	1 Year	5 Year	10 Year	SI	Performance	Organization	People	Process
Private Equity								
Multi-Strategy								
Pathway Capital Management	3.0%	22.1%	18.6%	13.4%				
Private Credit								
Direct Lending								
BlackRock / TCP VIII	5.1%	7.0%	N/A	7.2%				
Monroe Capital Management	6.7%	6.9%	N/A	7.3%				
PPEF XXV - B	N/A	N/A	N/A	N/A				
Opportunistic								
Arrowmark	N/A	N/A	N/A	N/A				
Ares Private Credit Solutions II	1.3%	N/A	N/A	1.3%				
Audax Mezzanine Fund V	N/A	N/A	N/A	N/A				
Audax V Co-Investment Fund	N/A	N/A	N/A	N/A				
Crestline SMA	3.9%	N/A	N/A	3.9%				
KKR Goldfinch	6.1%	N/A	N/A	7.7%				
Marathon	N/A	N/A	N/A	N/A				
Real Assets								
PGIM Global Real Estate Debt	7.6%	N/A	N/A	6.5%				
Principal Real Estate Debt II	0.8%	7.1%	N/A	7.1%				
Kayne Anderson Real Estate Debt IV	N/A	N/A	N/A	N/A				
Private Real Assets								
Real Estate								
Clarion Partners	15.6%	5.5%	8.6%	7.3%				
Invesco	42.2%	19.5%	15.8%	11.6%				
RREEF	32.2%	14.4%	13.5%	10.7%				
UBS Realty	26.7%	16.9%	13.8%	11.0%				
Other Real Assets								
Brookfield	N/A	N/A	N/A	N/A				
Forest Investment Associates	15.5%	5.4%	5.7%	5.5%				
UBS Farmland	7.8%	4.4%	N/A	7.1%				

No Concerns Minor Concerns Material Concerns

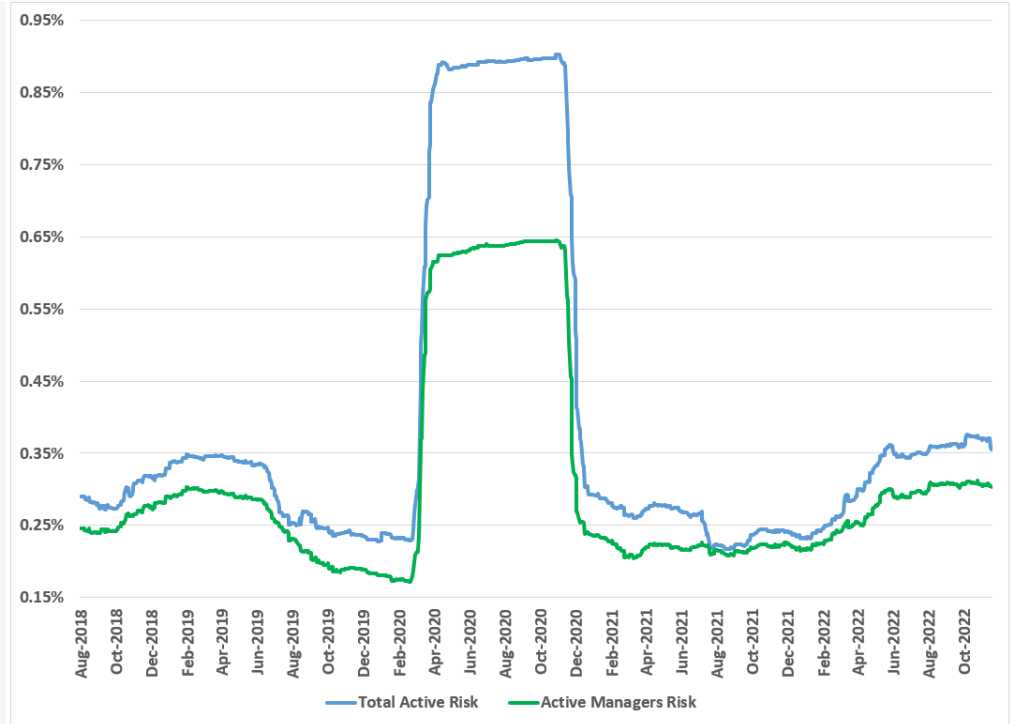
Active Risk –180 Days (Oct 2022)

	Active	Passive	Misfit	Total
Equities				
Domestic Equities	0.08%	0.05%	0.01%	0.10%
International Equities	0.16%	0.05%	0.00%	0.17%
Global Smart Beta Equities	-	0.01%	0.00%	0.01%
Fixed Income				
Core-Plus Fixed Income	0.23%	0.01%	0.00%	0.24%
Public Credit	0.04%	-	0.00%	0.04%
Cash/LARS	0.08%	-	-	0.08%
Asset Allocation	-	0.24%	-	0.24%
Total Public Markets	**0.31%**	**0.25%**	**0.01%**	**0.37%**

Target	1.50%
Upper Limit	3.00%

- Active Manager Risk is unchanged.
- Plan-level Total Risk increased one basis point from 0.36 to 0.37% remaining well below target (1.50%).

External Active Risk –180 Days (Oct 2022)



Private Market Program Commitment Plan

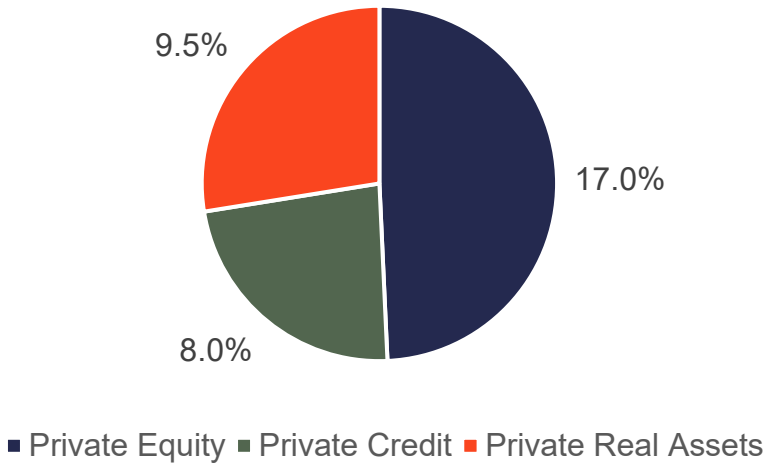
CY2023

Pat Reinhardt, SIO - Alternatives

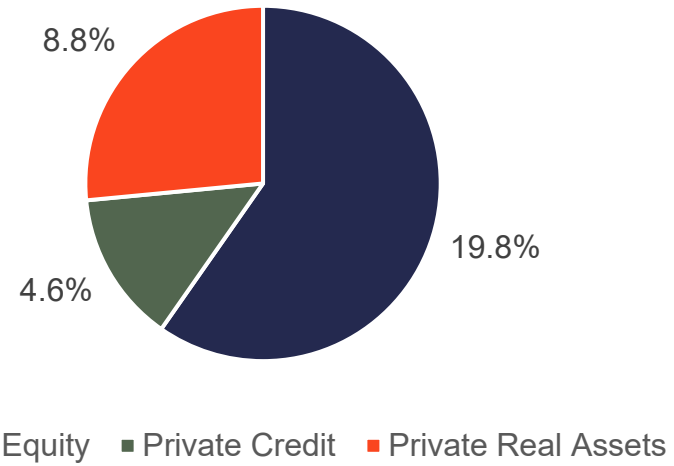
December 1, 2022

Private Market Program Snapshot (As of Nov. 2022)

Target Allocations



Current Allocations[1]



[1]Unaudited as of November 18, 2022

- Private equity target allocation was increased from 13% to 17% in September 2022. Over the past year, the growth of the private equity portfolio outpaced the total fund growth leading to the current allocation overweight versus the target allocation.
- Private credit target allocation was increased from 3% to 8% in September 2020. Significant progress has been made over the last year to on-board approved mandates from the opportunistic private credit and real assets private credit searches.
- Private real asset target allocation was increased from 8.5% to 9.5% in September 2022. A private real assets equity RFP was issued in November to address this increase in allocation.

CY2023 Commitment Plan

IPERS' plans to make commitments of up to **$1.95 billion** in CY2023 to the private markets program.

PRIVATE EQUITY

- Planned commitments of **$700 million** to private equity will be allocated across primary fund investments, in addition to secondaries (up to $70 million) and equity co-investments (up to $105 million).

($mm)	2014	2015	2016	2017	2018	2019	2020	2021	2022[1]	2023[2]
Commitments	$798	$799	$800	$808	$760	$704	$740	$960	$858	$700
Contributions	$615	$647	$674	$759	$848	$835	$842	$1,100	$735	$700 - $900

[1]Unaudited as of November 20, 2022
[2]Projected commitments and contributions

PRIVATE CREDIT

- Private credit commitments of up to **$850 million** will be allocated across the three sub-portfolios within private credit: opportunistic private credit, direct lending and real assets credit
  - Opportunistic private credit sub-portfolio (Up to $400 million):
    - Co-investment opportunities and a European special situations investment (previously approved by the Board)
    - Ares raising PCS III in CY2023. Staff will evaluate this re-up opportunity
    - Potential add-on commitment to specialty finance will be evaluated

CY2023 Commitment Plan (cont.)

PRIVATE CREDIT (cont.)

- Direct Lending Sub-Portfolio (Up to $200 million):
  - A $100 million commitment to direct credit mandate with Pathway Capital Management.
  - Evaluating Raven Capital Management and their latest fund offering, Asset-Based Credit Fund II. Anticipated commitment up to $100 million (previously approved by the Board).
  - Legacy direct lending mandates are providing quarterly income distributions and investing recycled capital.
- Real Assets Credit Sub-Portfolio (Up to $250 million):
  - Staff continues to evaluate HPS Investment Partners and their latest fund offering (previously approved by the Board).
  - Working to finalize a $150 million commitment to Oaktree Capital Management (previously approved by the Board).

PRIVATE REAL ASSETS

- Private real assets commitments of up to **$400 million** are anticipated in calendar year 2023, given the recent increase in the target allocation.
- Opportunities in non-core real asset mandates will be identified through the current search process. Any final commitment decisions will be contingent on the quality of responses to the RFP.
- Existing mandates within the private real assets portfolio will be recycling capital as opportunities present themselves.

Investment Management Expenses

FY2022

Sriram Lakshminarayanan – CIO

December 1, 2022

Investment Management Expenses

PRELIMINARY	FY22 Mgmt. Fee	FY22 Incentive Fee	FY22 Total Fees	FY22 Average Market Value	Cost as % of Avg. Assets
Investment Manager Fees					
Core Plus - *Passive*	$ 115,955	N.A.	$ 115,955	$ 2,093,264,500	0.006%
Core Plus - *Active*	$ 1,887,391	$ 3,120,592	$ 5,007,983	$ 7,935,816,750	0.063%
Public Credit	$ 644,857	$ 1,521,723	$ 2,166,580	$ 1,569,173,750	0.138%
Domestic Equity - *Passive*	$ 90,476	N.A.	$ 90,476	$ 7,026,442,750	0.001%
Domestic Equity - *Active*	$ 597,965	$ 387,096	$ 985,061	$ 1,854,752,250	0.053%
International Equity - *Passive*	$ 452,207	N.A.	$ 452,207	$ 2,772,736,750	0.016%
International Equity - *Active*	$ 2,641,770	$ 958,570	$ 3,600,340	$ 4,102,917,000	0.088%
Global Smart Beta	$ 786,607	N.A.	$ 786,607	$ 2,388,894,750	0.033%
Cash - STIF*	$ -	N.A.	$ -	$ 360,323,000	0.000%
Cash - LARS	$ 286,572	$ 16,216,813	$ 16,503,385	$ 191,134,500	8.634%
Private Equity**	$ 10,439,602		$ 10,439,602	$ 8,405,640,000	0.124%
Private Real Assets	$ 12,802,537		$ 12,802,537	$ 2,951,684,000	0.434%
Private Credit***	$ 7,023,253		$ 7,023,253	$ 1,445,471,750	0.486%
Total Manager Fees	**$ 37,769,191**	**$ 22,204,795**	**$ 59,973,986**	**$ 43,098,251,750**	**0.139%**
Investment Related Services Fees					
Investment Consultants	$ 441,800	N.A.	$ 441,800	$ 43,098,251,750	0.001%
Custody Services	$ 823,394	N.A.	$ 823,394	$ 43,098,251,750	0.002%
Total Services Fees	**$ 1,265,194**		**$ 1,265,194**	**$ 43,098,251,750**	**0.003%**
Administrative Costs					
Commission Expenses	$ 4,978,522	N.A.	$ 4,978,522	$ 43,098,251,750	0.012%
Investment Staff & Board Expenses	$ 2,247,923	N.A.	$ 2,247,923	$ 43,098,251,750	0.005%
Miscellaneous Expenses	$ 1,785,591	N.A.	$ 1,785,591	$ 43,098,251,750	0.004%
Total Administrative Costs	**$ 9,012,036**		**$ 9,012,036**	**$ 43,098,251,750**	**0.021%**
TOTAL	**$ 48,046,420**	**$ 22,204,795**	**$ 70,251,217**	**$ 43,098,251,750**	**0.163%**

* Short Term Investment Fund (STIF) is managed by BNY Mellon, the System's custodian bank. The STIF charges a management fee of 10 bps per annum, which is netted from the earnings credited to the STIF.

** Management fees and incentive fees paid to private equity partnerships are not recorded as an investment management expense, but are recorded as a reduction in the net appreciation in the fair value of private equity investments.

*** Incentive fees paid to private credit funds are not recorded as an investment management expense, but are recorded as a reduction in the net appreciation in the fair value of private credit investments.

Year-Over-Year Changes in Costs

Fee Category	FY22 Expenses	FY21 Expenses	Change in Dollars	Percentage Change
Investment Manager Fees				
Core Plus	$ 5,123,938	$ 11,935,550	$ (6,811,612)	-57.1%
Public Credit	$ 2,166,580	$ 3,755,322	$ (1,588,742)	-42.3%
Domestic Equity	$ 1,075,536	$ 2,278,438	$ (1,202,902)	-52.8%
International Equity	$ 4,052,547	$ 11,110,060	$ (7,057,513)	-63.5%
Global Smart Beta	$ 786,607	$ 756,300	$ 30,307	4.0%
Cash - LARS	$ 16,503,385	$ 5,944,227	$ 10,559,158	177.6%
Private Equity	$ 10,439,602	$ 9,341,044	$ 1,098,558	11.8%
Private Real Assets	$ 12,802,537	$ 10,702,628	$ 2,099,909	19.6%
Private Credit	$ 7,023,253	$ 4,423,586	$ 2,599,667	58.8%
Total Manager Fees	**$ 59,973,985**	**$ 60,247,155**	**$ (273,169)**	**-0.5%**
Investment Related Services Fees				
Investment Consultants	$ 441,800	$ 402,200	$ 39,600	9.8%
Custody Services	$ 823,394	$ 794,291	$ 29,103	3.7%
Total Services Fees	**$ 1,265,194**	**$ 1,196,491**	**$ 68,703**	**5.7%**
Administrative Costs				
Commission Expenses	$ 4,978,522	$ 3,416,470	$ 1,562,052	45.7%
Investment Staff & Board Expenses	$ 2,247,923	$ 2,277,757	$ (29,834)	-1.3%
Miscellaneous Expenses	$ 1,785,591	$ 968,381	$ 817,210	84.4%
Total Administrative Costs	**$ 9,012,036**	**$ 6,662,608**	**$ 2,349,428**	**35.3%**
TOTAL	**$ 70,251,216**	**$ 68,106,255**	**$ 2,144,961**	**3.1%**

Comments

- **Investment Management expenses were 0.163% (16.3 basis points) of the Fund's FY2022 average market value**
- **Total investment management expenses increased 3.1% from FY2021**
- **Investment manager fees remained stable mainly because**
  - Reduction in performance fees on all traditional public market asset classes
  - High levels of outperformance in LARS mandates
  - Base fees for private markets increased due to larger asset base
- **Consultant and Custody costs increased by 5.7%**
- **Administrative costs increased by 35.3%**
  - Increased commission expenses - public market transitions
  - Miscellaneous expenses increased mainly due to EM taxes

You only lose twice! - 2022

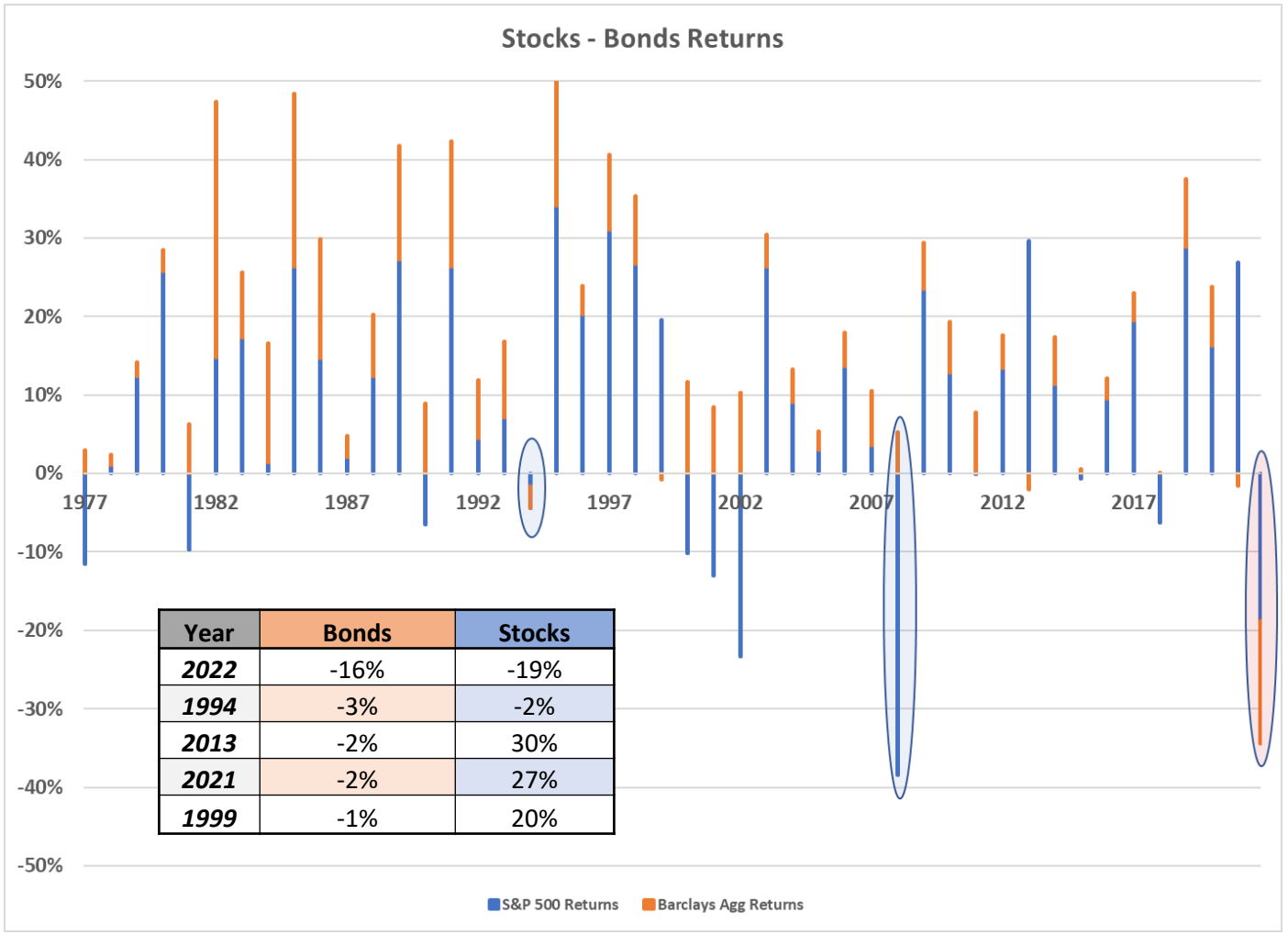
Sriram Lakshminarayanan, CIO

December 1, 2022

2022 – A Specter in Retrospect

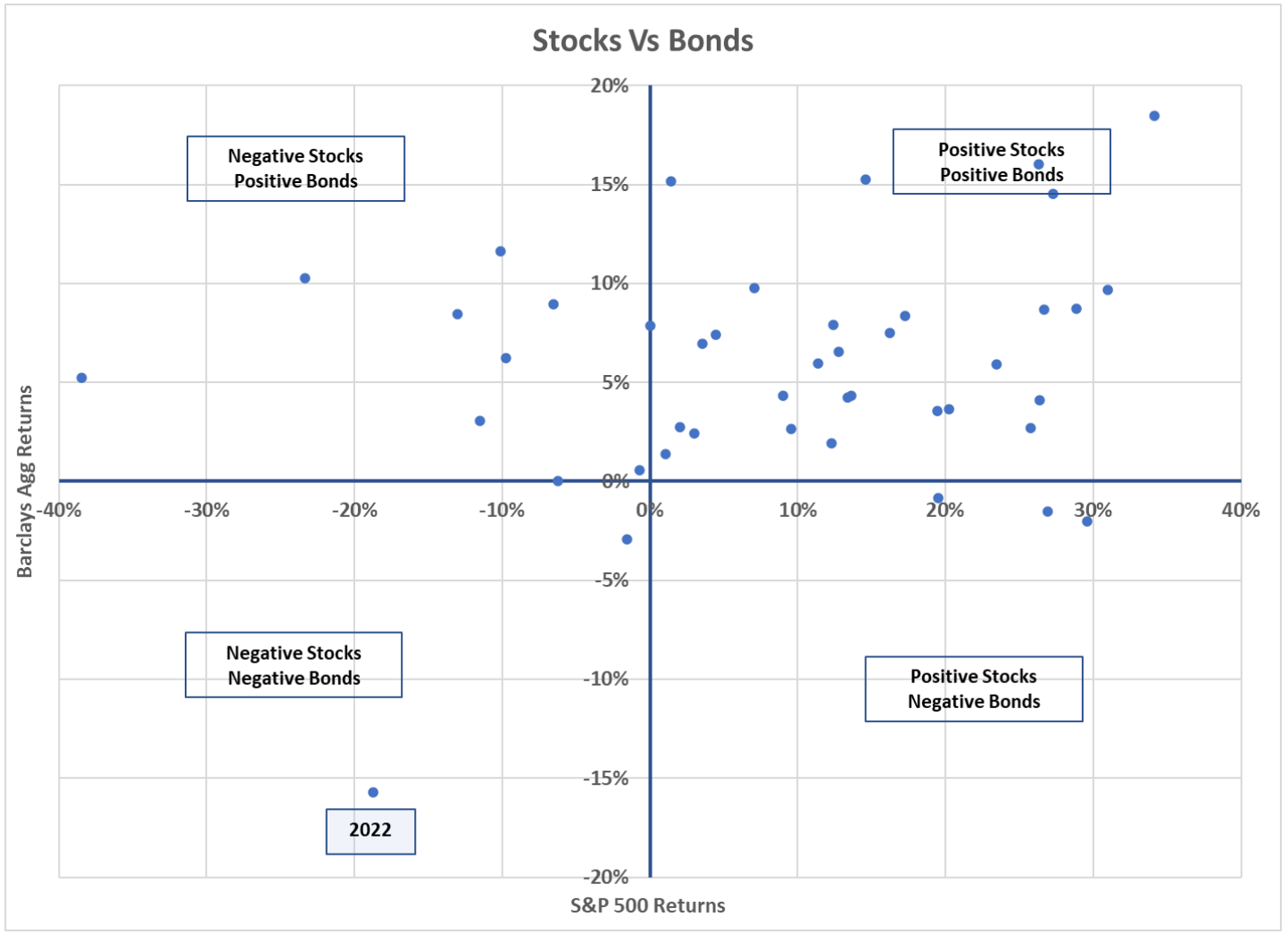
- As of October 2022, stocks (S&P 500) is at -18.8% and bonds (Barclays Aggregate) is at -15.7%
- The last time stocks and bonds were both negative on the year was 1994! (Stocks down -1.5% and bonds down -2.9%)
- The second worst down year for bonds (Barclays Aggregate) was -2.9% in 1994
- 60-40 Portfolio is down -18% for 2022. The worst 60-40 returns was in 2008, down -21% driven mostly by stocks

An Unlikely Villain - Bonds

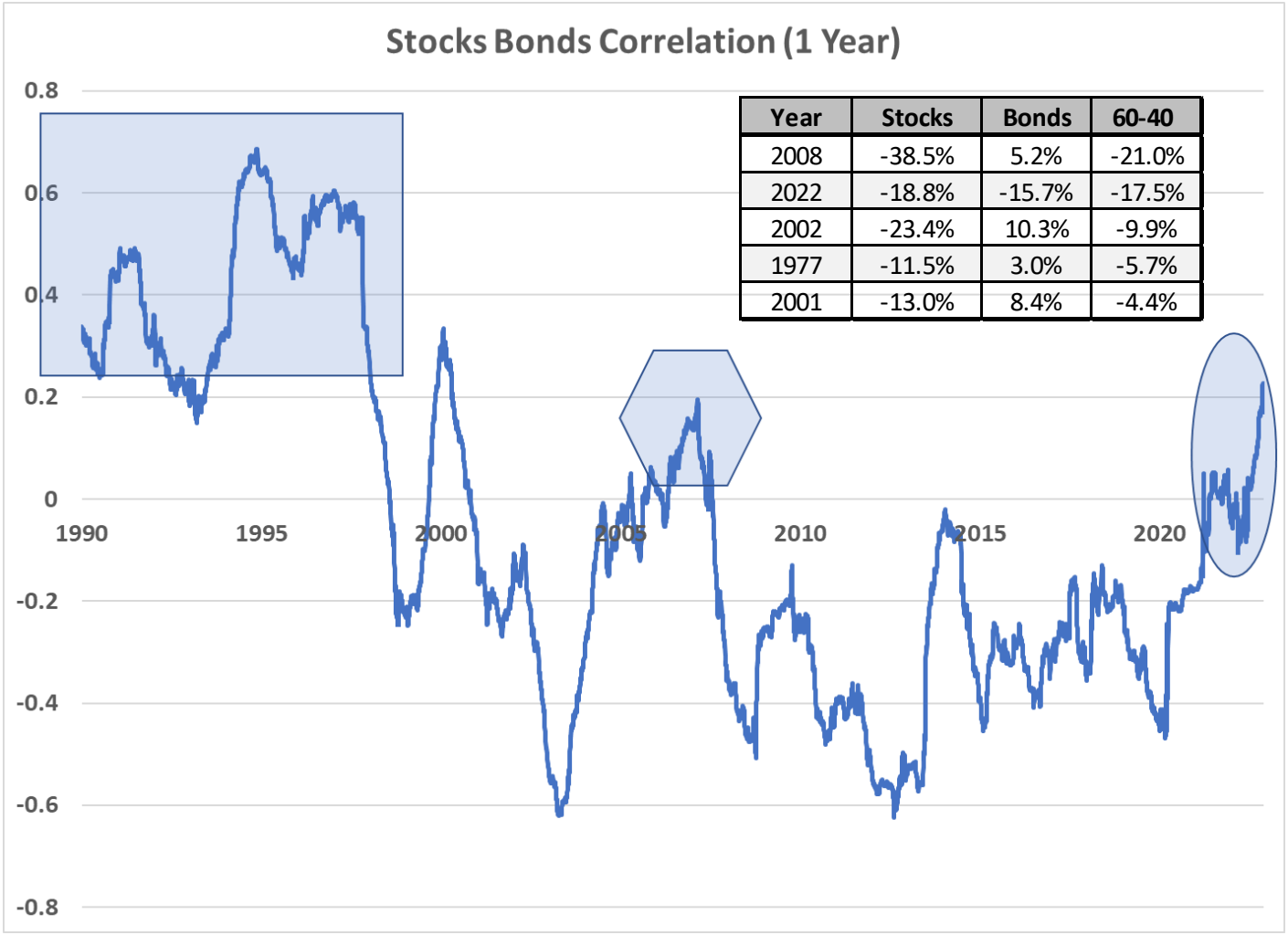


Year	Bonds	Stocks
2022	-16%	-19%
1994	-3%	-2%
2013	-2%	30%
2021	-2%	27%
1999	-1%	20%

The Year That 60-40 Died?



Correlations or Casino Royale?

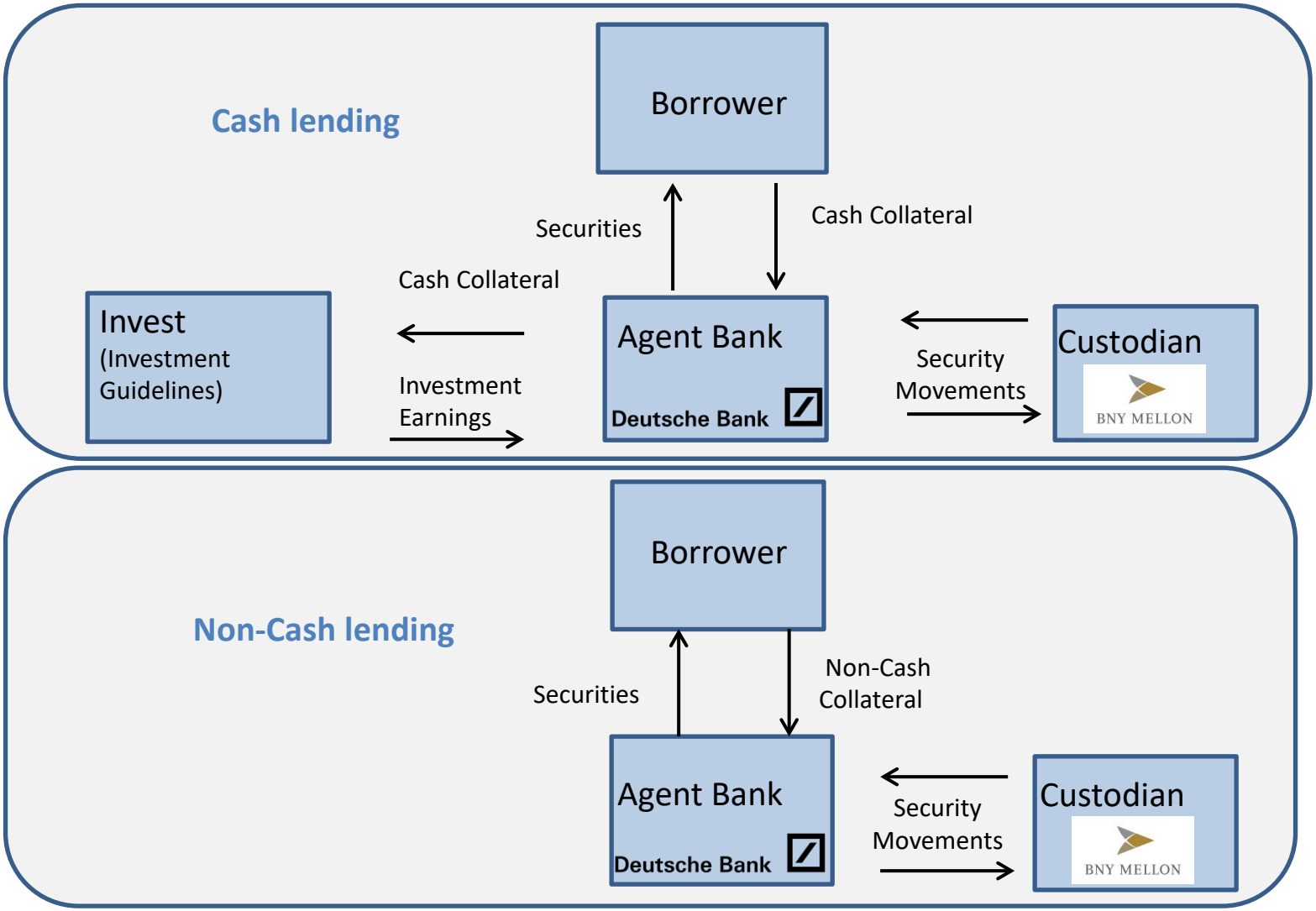


Year	Stocks	Bonds	60-40
2008	-38.5%	5.2%	-21.0%
2022	-18.8%	-15.7%	-17.5%
2002	-23.4%	10.3%	-9.9%
1977	-11.5%	3.0%	-5.7%
2001	-13.0%	8.4%	-4.4%

State Treasurer of Iowa Michael L. Fitzgerald

Presentation by Jina Bresson
December 2022

Securities Lending Annual Update July 2021 – June 2022


Cash lending
Borrower
Securities
Cash Collateral
Cash Collateral
Invest
(Investment
Guidelines)
Agent Bank
Deutsche Bank
Security
Movements
Custodian
BNY MELLON
Investment
Earnings
Non-Cash lending
Borrower
Securities
Non-Cash
Collateral
Agent Bank
Deutsche Bank
Security
Movements
Custodian
BNY MELLON

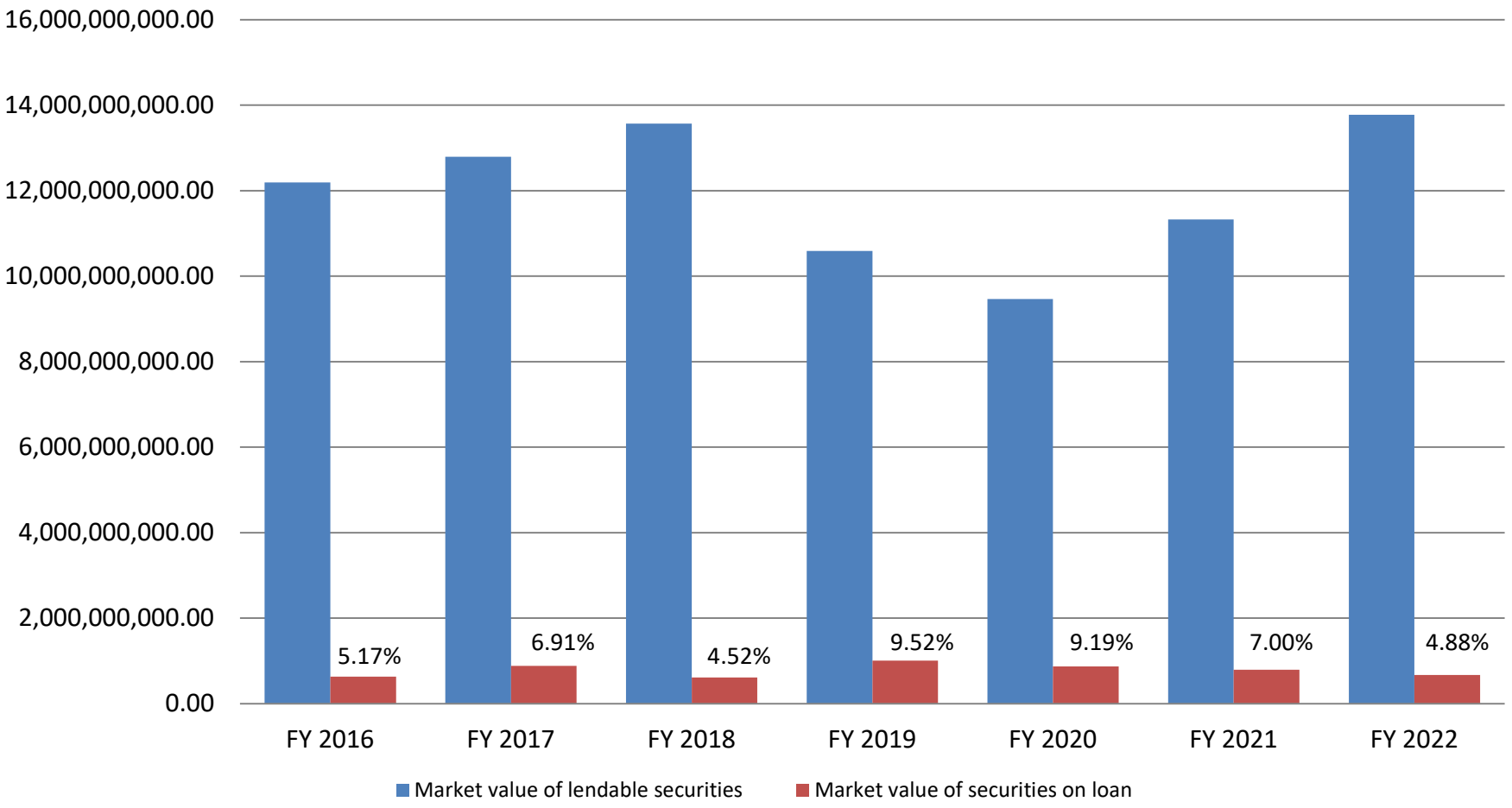
Overview

- Lend only securities in actively managed accounts
  - 19 active funds
  - Average lendable assets: $13.8B
  - Average loan balance: $672M
- Provide incremental income to the portfolio
- Maximize investment return on existing securities
- Increase earnings without interrupting trade activities
- Split is 90/10 with IPERS/Deutsche Bank

Investment Guidelines

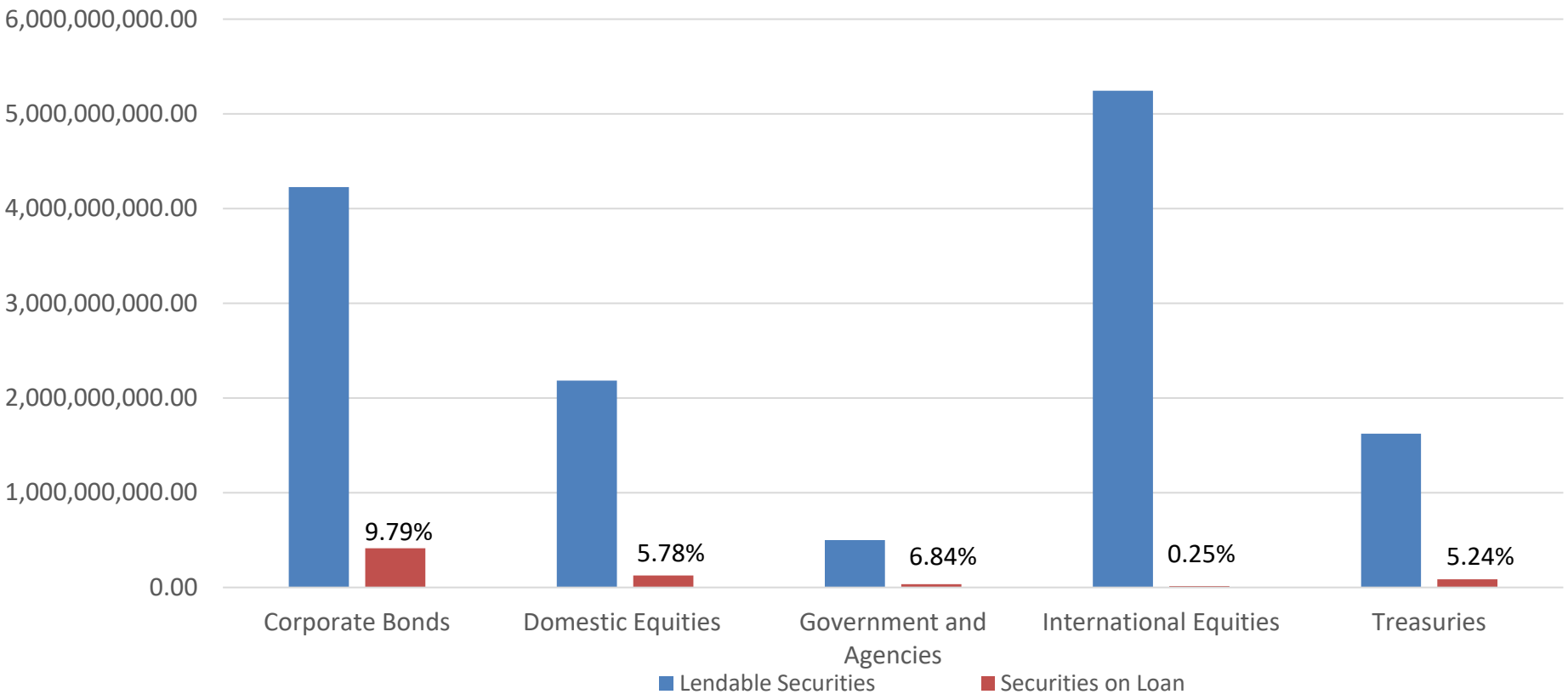
- Invest according to IPERS' current low-risk investment strategy.
- Cash collateral is invested in:
  - Government money market funds
  - Overnight repurchase agreements collateralized with obligations issued by the United States Treasury or obligations issued by agencies or government-sponsored entities of the United States government
- Non-cash collateral
  - Treasuries

Percent of Lendable Securities on Loan



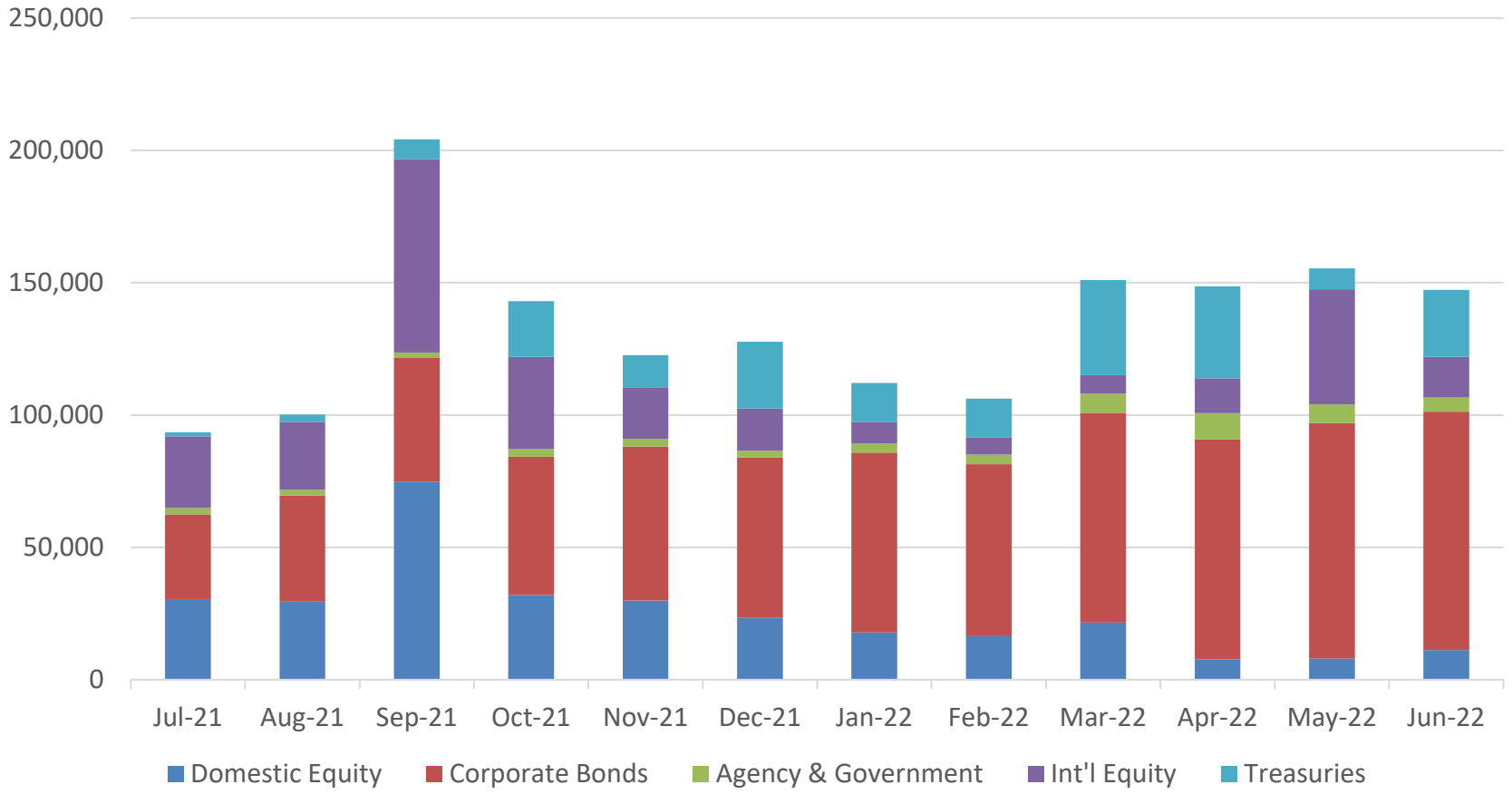
Percent of Lendable Securities on Loan by Category

July 2021 – June 2022 (FY 22)



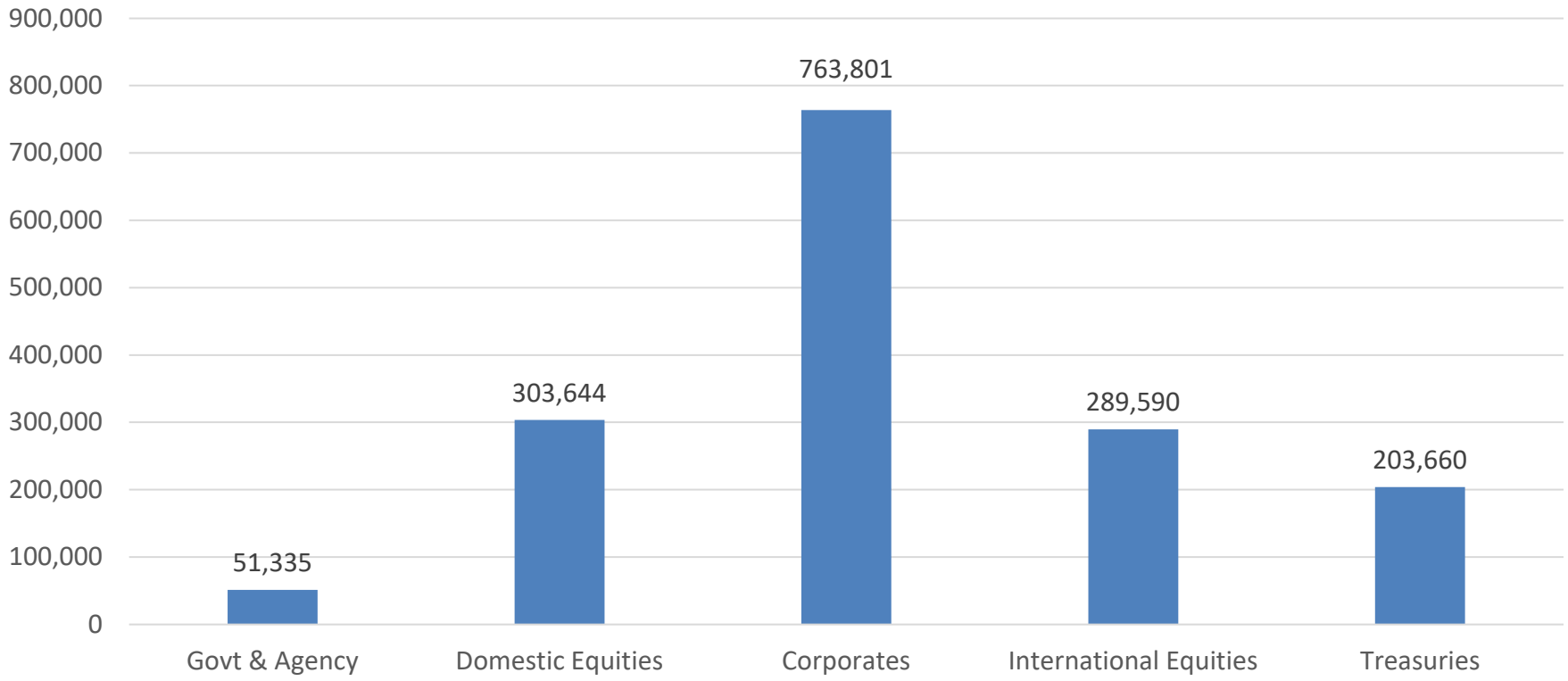
Monthly Earnings by Asset Class

July 2021 – June 2022 (FY 22)



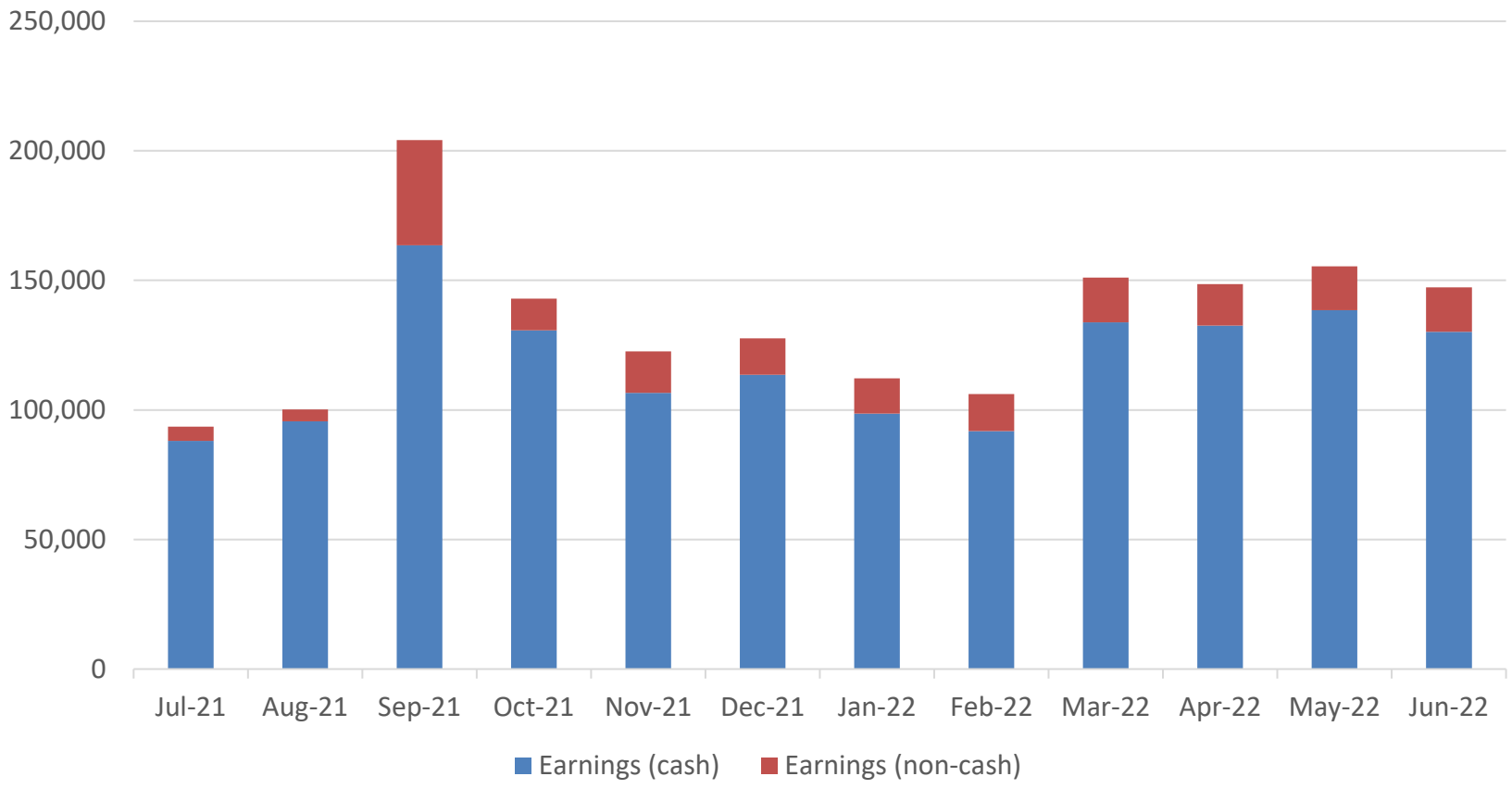
Earnings by Asset Class

July 2021 – June 2022 (FY 22)



Cash and Non-Cash Earnings

July 2021 – June 2022 (FY 22)



Top Earning Securities

July 2021 – June 2022 (FY 22)

Security	Asset Type	Client Earnings
Air France – KLM	Equity	$123,515
Ruby Pipeline	Bond	$96,677
American Airlines	Bond	$87,237
Diamond Sports 6 5/8 8/15/27	Bond	$59,610
Yara International	Equity	$44,509
Treasury 1.5 02/29/24	Govt	$39,421
Telenor Asa	Equity	$29,200
JWN 4.25 08/01/31	Bond	$28,893
XOS Inc	Equity	$24,247
Treasury 0.5 11/30/23	Govt	$23,098
Axl 6.5 04/01/27	Bond	$22,477
UAL 4 7/8 01/15/25	Bond	$22,476

Borrower Attribution

July 2021 – June 2022 (FY 22)

Borrower	Average On Loan	% of Total
Credit Suisse	$242,831,687	30%
Barclays	$142,150,168	18%
ING	$99,928,834	12%
Goldman Sachs	$59,683,495	7%
Pershing	$49,371,047	6%
JP Morgan	$29,257,785	4%
BNP Paribas	$26,995,479	3%
Citigroup	$25,091,674	3%
Merrill Lynch	$17,750,998	2%
RBC	$17,618,803	2%
Remaining Brokers	$101,025,373	12%

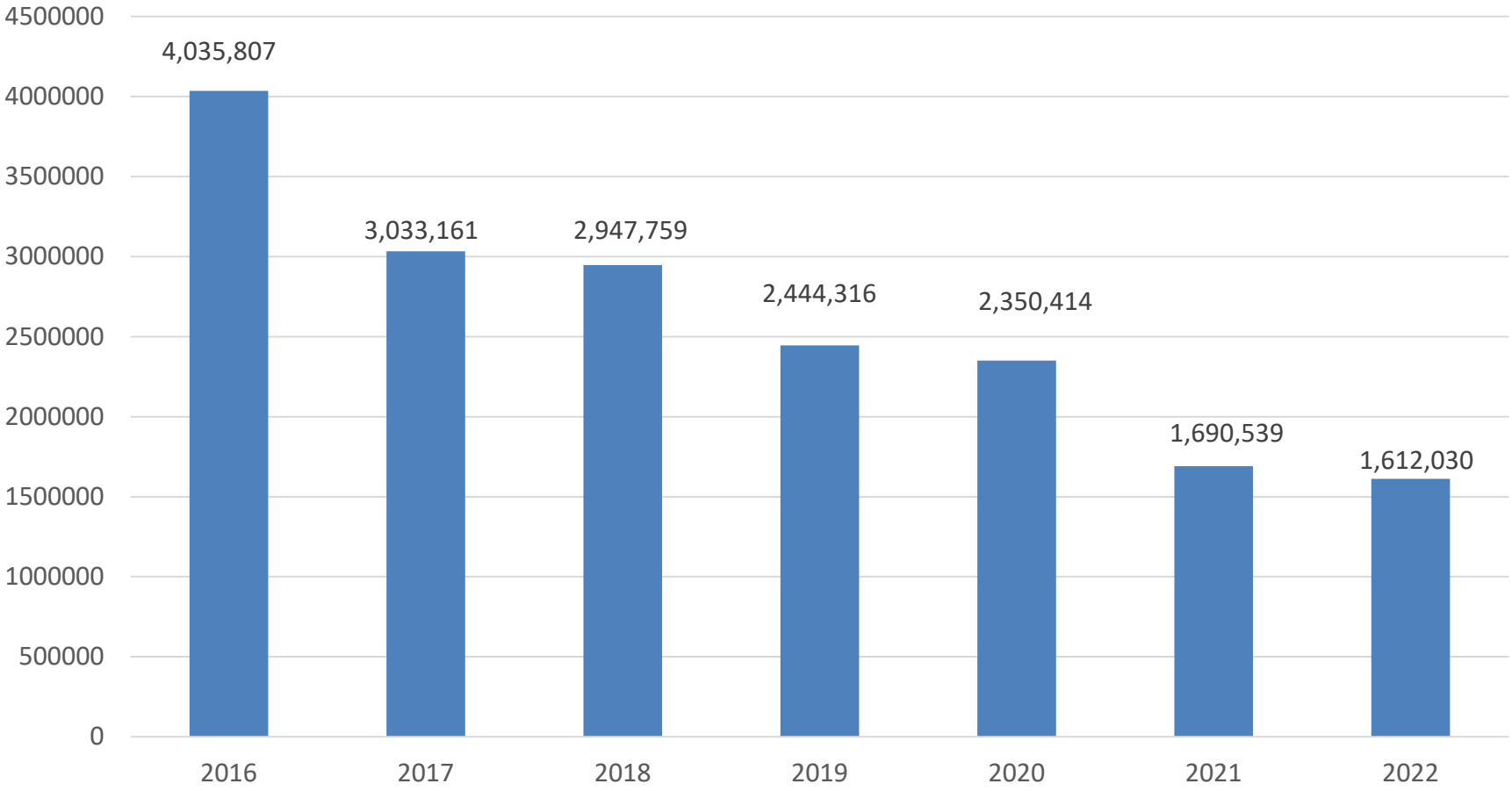
Earnings by Fund – update

July 2021 – June 2022 (FY 22)

Fund Name	Client Earnings
TCW Asset Mgmt	$299,453
Aegon	$213,541
PGIM	$175,816
Panagora	$163,290
Mackay Shields	$127,991
Janus Cap Mgmt	$86,575
Developed ExUS Smart Beta	$82,063
Rhumbline Advisors	$72,914
Western	$62,774

Fund Name	Client Earnings
US Smart Beta	$62,364
Principal	$44,690
Blackrock	$39,587
Wellington Emerg Mkt	$37,932
BMO EAFE	$37,692
Prudential EMD	$35,914
Pru Fixed Inc	$21,729
Columbia	$21,522
Emerg Mkt Smart Beta	$17,345
PGIM Glrv Beta	$8,837

Earnings by Fiscal Year



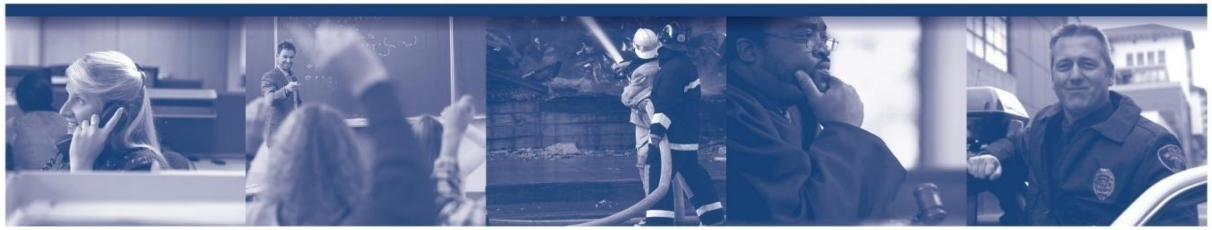
Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

IPERS®
Working Today for Your Tomorrow

Presentation of IPERS June 30, 2022 Valuation

Presented by:
Patrice A. Beckham, FSA
Brent A. Banister, FSA
Bryan K. Hoge, FSA

December 1, 2022



IPERS
Working Today for Your Tomorrow

Discussion Topics

- Actuarial Valuation Process
- June 30, 2022 Valuation Results
- FY 2022 GASB Results

Purpose of an Actuarial Valuation

- Develop a strategy to systematically fund the benefits of the system
- Measure assets and liabilities (future benefit payments)
- Determine actuarial contribution rates (6/30/22 valuation results are used to set the FY 2024 contribution rates)
- Analyze experience (actual vs. expected) in last year
- Report on trends and analyze actuarial risks

Actuarial Valuation

- Snapshot picture of the System as of a single date (June 30, 2022)
- Statistical projection of amount/timing of future benefits to be paid
  - Uses one set (best estimate) of assumptions out of many possible scenarios
  - Other reasonable sets of assumptions exist
  - Different assumptions would produce different results, potentially significant
- Actual experience determines the true costs of the System (actual benefit payments paid to members)

Impacts on the June 30, 2022 Valuation

- Changes to actuarial assumptions resulting from the Experience Study covering study period of June 30, 2017 to June 30, 2021
  - Economic assumptions: no change
  - Demographic assumptions:
    - Mortality assumption moved to Pub-2010 family of tables with generational improvements using MP-2021
    - Termination and retirement assumptions for all three groups were modified to better reflect actual experience
    - Disability rates were lowered for Regular members only
- No change to actuarial methods
- Cost impact was minor (see next slide)

Cost Impact of Assumption Changes

	Prior Assumptions	New Assumptions	Change
Unfunded Actuarial Liability			
• Regular	$4,745	$4,745	$ 0
• Sheriffs & Deputies	(30)	(40)	(10)
• Protection Occupation	(57)	(89)	(32)
Funded Ratio			
• Regular	88.5%	88.5%	0.0%
• Sheriffs & Deputies	103.5%	104.7%	1.2%
• Protection Occupation	102.8%	104.4%	1.6%
Actuarial Contribution Rate			
• Regular	13.84%	13.96%	0.12%
• Sheriffs & Deputies	16.93%	16.78%	(0.15%)
• Protection Occupation	15.32%	15.31%	(0.01%)

The assumption changes did not impact the Required Contribution Rate for any of the groups.

Impacts on the June 30, 2022 Valuation

- Actuarial experience: actual versus assumed
  - Return of -3.90% on the market value of assets for FY 2022. Due to asset smoothing method, the return on actuarial assets was 7.75% which resulted in actuarial gain of $277 million
  - Liability loss of $142 million, largely due to retirement and mortality experience
- June 30, 2022 Valuation Results:
  - Total system UAL decreased
  - Funded ratio increased
  - Required contribution rate decreased 0.50% for Sheriffs & Deputies and remained the same for Regular and Protection Occupation groups.
  - All three groups continue to have a contribution margin

Key Valuation Results for the Total System

	June 30, 2022	June 30, 2021
Actuarial Liability ($M)	$ 43,970	$ 42,545
Actuarial Assets ($M)	39,354	37,585
Unfunded Actuarial Liability	$ 4,615	$ 4,960
Funded Ratio – AVA	89.5%	88.3%
Funded Ratio – MVA	91.4%	100.8%
Actuarial Contribution Rate*	13.96%	14.14%
Required Contribution Rate*	(15.73%)	(15.73%)
Shortfall/(Margin)*	(1.77%)	(1.59%)

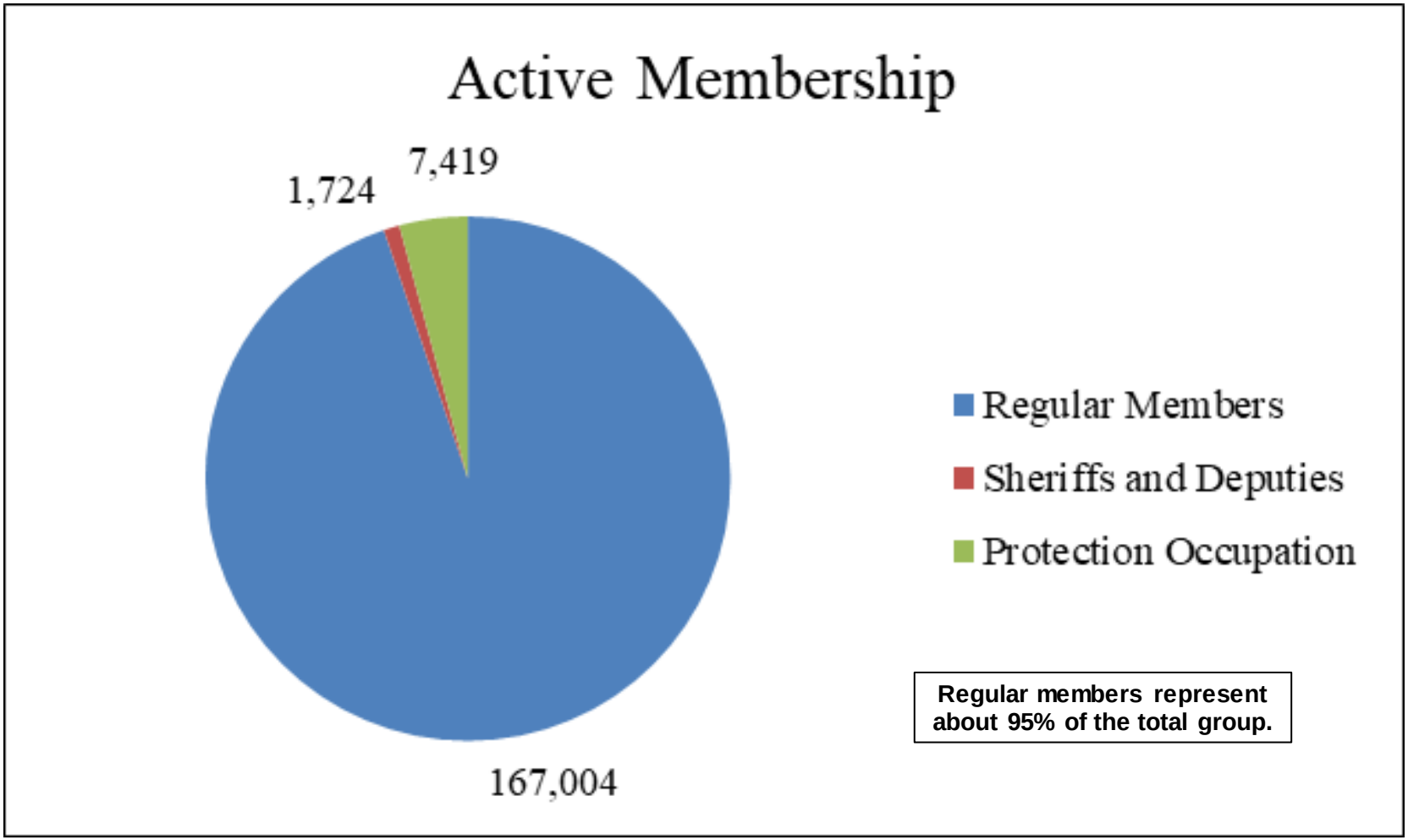
* Regular members only

Note: Numbers may not add due to rounding.

Key Valuation Results By Member Group

Contribution Rate for FY 2024	Regular Membership	Sheriffs and Deputies	Protection Occupation
1. Normal Cost Rate	10.60%	16.78%	15.31%
2. Amortization of UAL	3.36%	0.00%	0.00%
3. Actuarial Contribution Rate	13.96%	16.78%	15.31%
4. Required Contribution Rate	15.73%	17.02%	15.52%
5. Shortfall/(Margin) (3) – (4)	(1.77%)	(0.24%)	(0.21%)
6. Employee Contribution Rate	6.29%	8.51%	6.21%
7. Employer Contribution Rate (4) - (6)	9.44%	8.51%	9.31%
8. Unfunded Actuarial Liability ($M)	$4,745	($40)	($89)
9. Funded Ratio	88.45%	104.70%	104.41%

Active Membership By Group



Regular members represent about 95% of the total group.

Actuarial Value of Assets

- Market value not used directly in funding valuation
- Asset valuation method used to smooth the effect of market fluctuations
- Actuarial value is expected value (based on the expected return of 7.0% and contributions and benefit payments) plus 25% of difference between actual and expected values
- Resulting value of actuarial assets must be within a corridor of 80-120% of pure market value (corridor did not apply this year).

IPERS
Working Today for Your Tomorrow

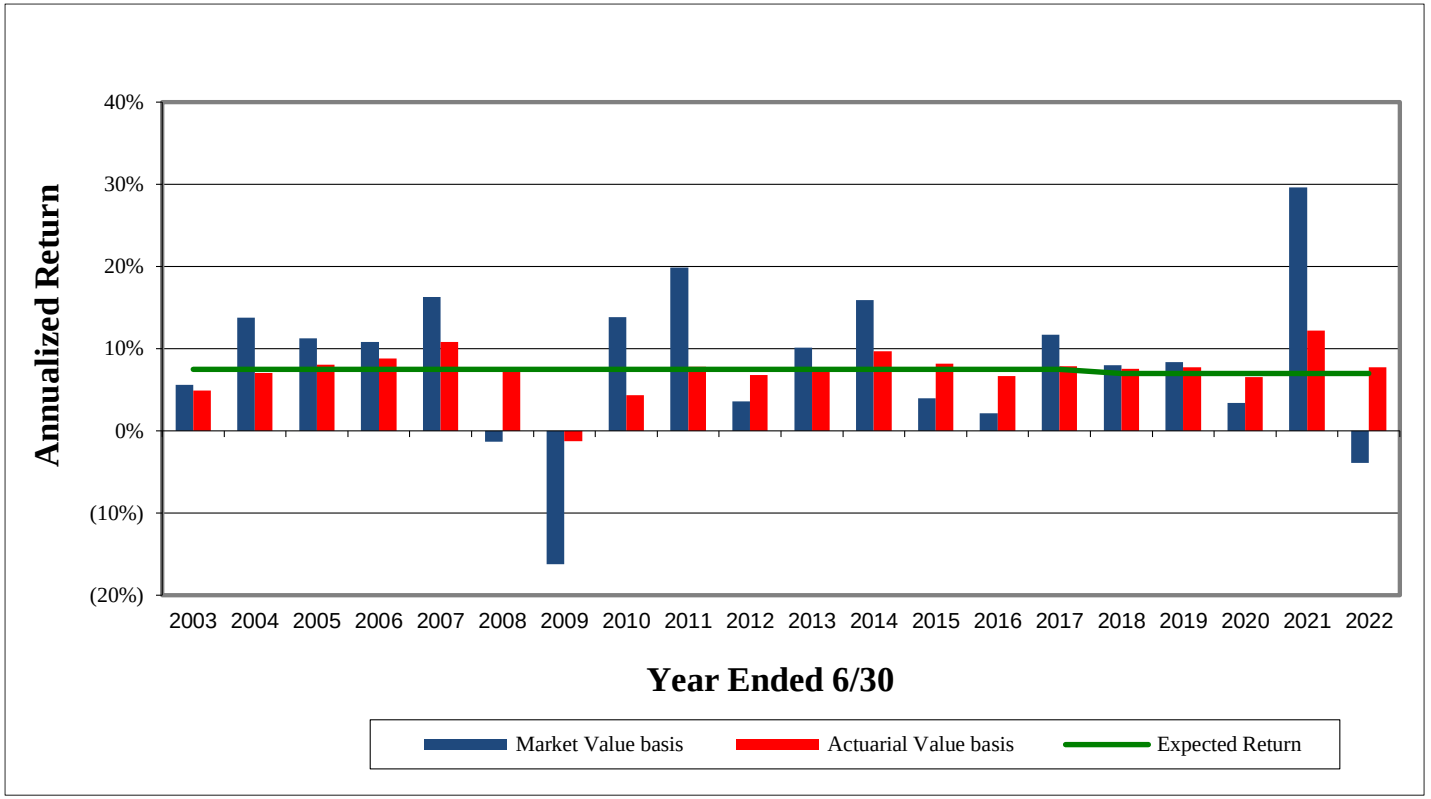
Asset Values ($M)
Total System

	Market Value	Actuarial Value
Assets, June 30, 2021	$ 42,890	$ 37,585
▪ Contributions	1,431	1,431
▪ Benefit Payments	(2,532)	(2,532)
▪ Investment Income	(1,603)	2,870
▪ FED Transfer	0	0
Assets, June 30, 2022	$ 40,186	$ 39,354
Estimated Rate of Return	-3.90%*	7.75%

*** As reported by IPERS**

The 7.75% return on actuarial value of assets resulted in a $277 million actuarial gain. Due to unrecognized investment gains, the market value of assets is currently 102% of actuarial value.

Historical Asset Returns



Expected return is 7.5% for all years through 2017 and 7.0% thereafter.

UAL by Group
($ in Millions as of 6/30/22)

	Regular	Sheriffs & Deputies	Protection Occupation	Total
Actuarial Liability	$41,091	$850	$2,029	$43,970
Actuarial Value of Assets	36,346	890	2,119	39,354
Unfunded Actuarial Liability (UAL)	$4,745	$(40)	$(89)	$4,615
Funded Ratio	88.5%	104.7%	104.4%	89.5%

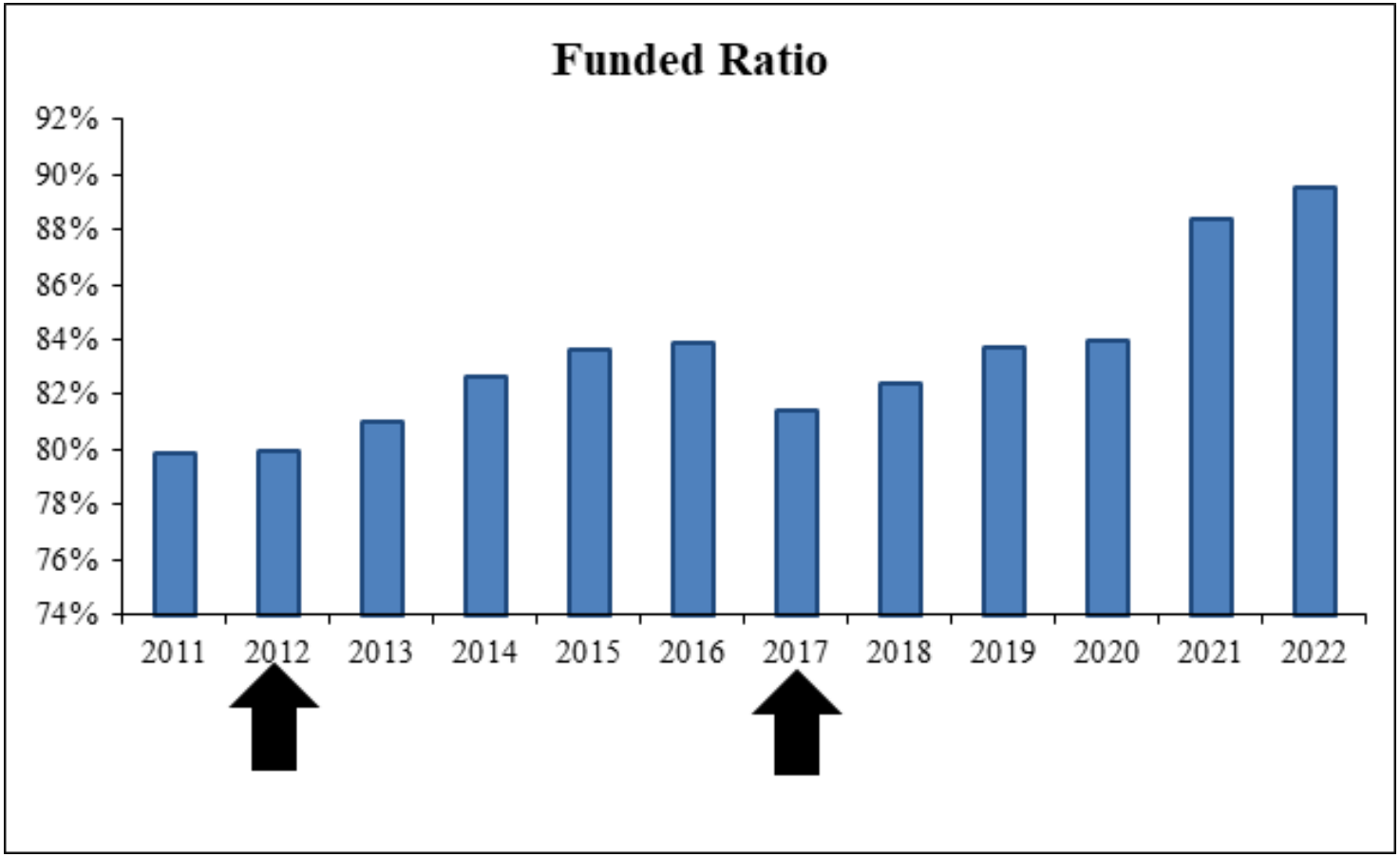
Note: Numbers may not add due to rounding.

Change in Unfunded Actuarial Liability (UAL $M)

	Regular Members	Sheriffs & Deputies	Protection Occupation	Total
UAL June 30, 2021	$5,043	$(22)	$(61)	$4,960
Contributions above actuarial rate	(18)	(1)	0	(20)
Expected decrease	(89)	(2)	(5)	(95)
Investment experience	(257)	(6)	(15)	(277)
Liability experience	115	2	24	142
Assumption changes	0	(10)	(32)	(43)
Other	(45)	(2)	(3)	(50)
UAL June 30, 2022	$4,745	$(40)	$(89)	$4,615

Note: Numbers may not add due to rounding.

Historical Funded Ratio (All Groups)



Pension Reform

Investment Return Lowered to 7.0%

Favorable Experience Dividend Reserve (FED)

- Final FED payment was made in January 2014.
- FED reserve account assets remain $0 as of June 30, 2022.
- No future transfers to FED reserve account are assumed in the valuation results.

Contribution Rates

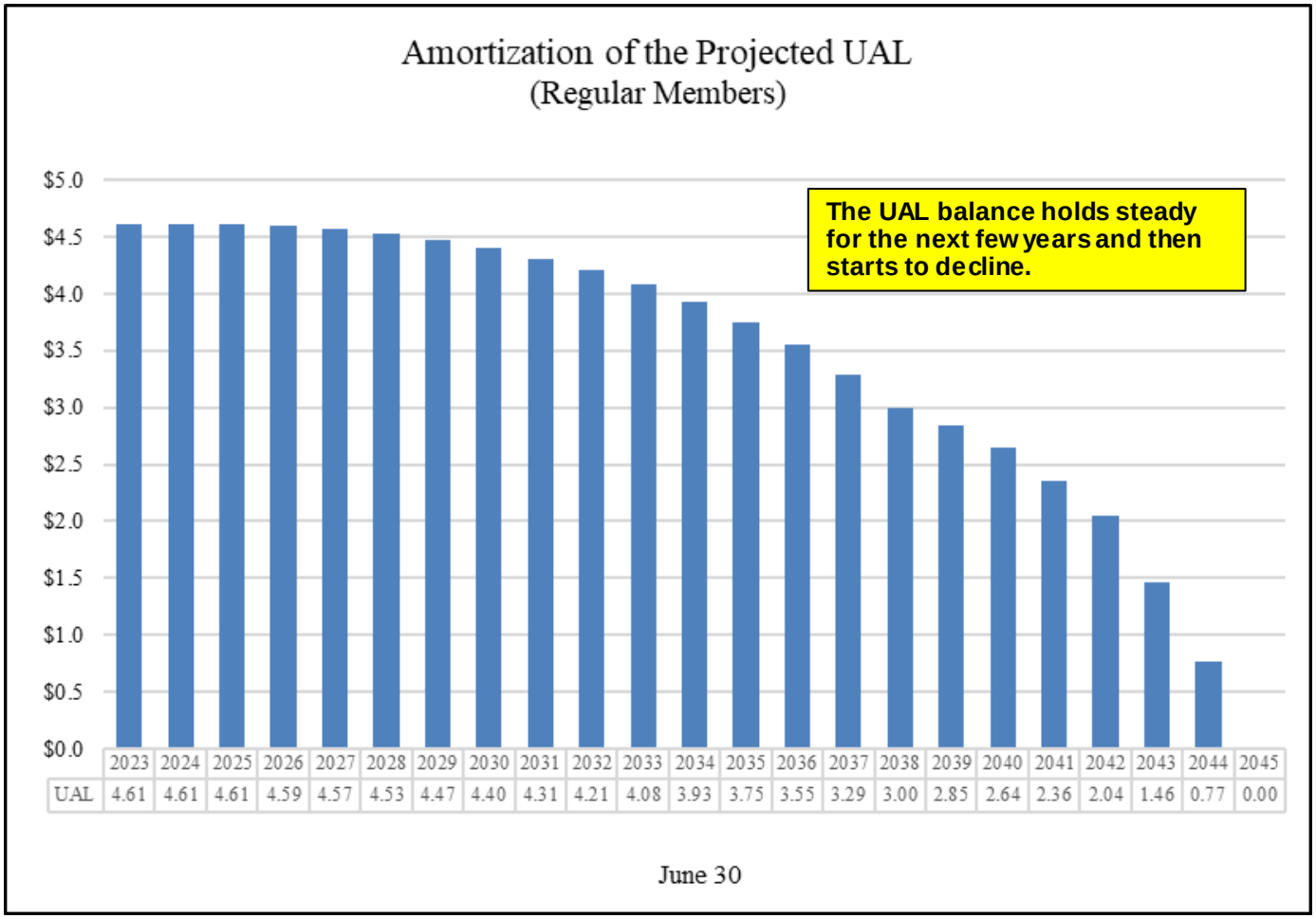
- Components:
  - Normal Cost (ongoing cost for actives)
  - Amortization payment on Unfunded Actuarial Liability (UAL)
- UAL Amortization Policy (Layered Amortization)
  - June 30, 2014 base (legacy base) is amortized over a closed 30-year period (22 years remaining).
  - In subsequent years, changes in the expected and actual UAL are established as a new base and amortized over a closed 20-year period.
  - Changes in UAL due to assumption changes in 2017, 2018 and 2022 valuations were amortized over separate closed 20-year periods.
  - Once a group becomes 100% funded, all outstanding bases are eliminated, and surplus is amortized over an open 30-year period.

UAL Amortization Bases (Regular Members)

Amortization Bases	Original Amount	Remaining Payments	Projected July 1, 2023 Balance	Annual Payment*
2014 Initial UAL	$ 5,592,056,086	22	$ 6,092,675,707	$ 406,156,983
2015 Experience	(193,648,198)	13	(178,445,264)	(17,432,256)
2016 Experience	21,763,596	14	20,449,770	1,885,731
2017 Experience	(158,062,524)	15	(150,685,262)	(13,181,983)
2017 Assumption Changes	1,435,708,789	15	1,368,699,870	119,734,198
2018 Experience	(310,129,854)	16	(300,529,837)	(25,049,864)
2018 Assumption Changes	75,130,979	16	72,805,312	6,068,493
2019 Experience	(384,733,612)	17	(377,530,325)	(30,097,600)
2020 Experience	67,832,112	18	67,176,074	5,139,454
2021 Experience	(1,670,503,783)	19	(1,664,627,021)	(122,585,491)
2022 Experience	(351,647,258)	20	(351,647,258)	(24,992,447)
2022 Assumption Changes	9,926,473	20	9,926,473	705,499
Total			**$ 4,608,268,239**	**$ 306,350,717**

*** Payment amounts reflect mid-year timing and increase 3.25% with the assumed increase in payroll growth.**

UAL Balance Under Amortization Schedule



Assumes the actuarial contribution rate is contributed each year, not the required contribution rate.

Contribution Rates

- Contribution Rate Funding Policy
  - Compares Required Contribution Rate (RCR) from prior year to Actuarial Contribution Rate (ACR) in current year
  - If ACR < previous RCR, then:
    - ✓ If difference is < 0.50%, RCR is unchanged
    - ✓ If difference is >= 0.50%, RCR is lowered by 0.50% provided funded ratio is 95% or higher
  - If ACR > previous RCR, then current RCR shall be:
    - ✓ Regular members: increased to ACR or 1% more than previous RCR, whichever is smaller
    - ✓ Sheriffs/Deputies: increased to ACR
    - ✓ Protection Occupation: increased to ACR

Contribution Rate (Regular Members)

	Valuation Date (Contribution Rates for FY 2024/FY 2023)	
	June 30, 2022	**June 30, 2021**
Normal Cost	10.60%	10.49%
UAL Payment	3.36%	3.65%
Total Actuarial Rate	13.96%	14.14%
Required Contribution*	15.73%	15.73%
Shortfall/(Margin)	**(1.77%)**	**(1.59%)**
*Employee Rate	6.29%	6.29%
*Employer Rate	9.44%	9.44%

Note: The Regular group is less than 95% funded so the Required Contribution Rate does not Change despite the reduction in the Actuarial Contribution Rate.

Contribution Rate (Sheriffs & Deputies)

	Valuation Date (Contribution Rates for FY 2024/FY 2023)	
	June 30, 2022	June 30, 2021
UAL Payment	(1.66%)	(1.03%)
Funded Ratio	104.7%	102.7%
Normal Cost	16.78%	16.93%
Applicable UAL Rate*	0.00%	0.00%
Total Actuarial Contribution Rate	16.78%	16.93%
Employee Rate	8.51%	8.76%
Employer Rate	8.51%	8.76%
Required Contribution Rate	17.02%	17.52%
Shortfall/(Margin)	**(0.24%)**	**(0.59%)**

*The UAL Rate is allowed to be negative only if the funded ratio was at least 110% for the last three years.

Note: The ACR is less than the prior year's RCR by more than 0.50% and the funded ratio exceeds 95% so the RCR was decreased by 0.50%.

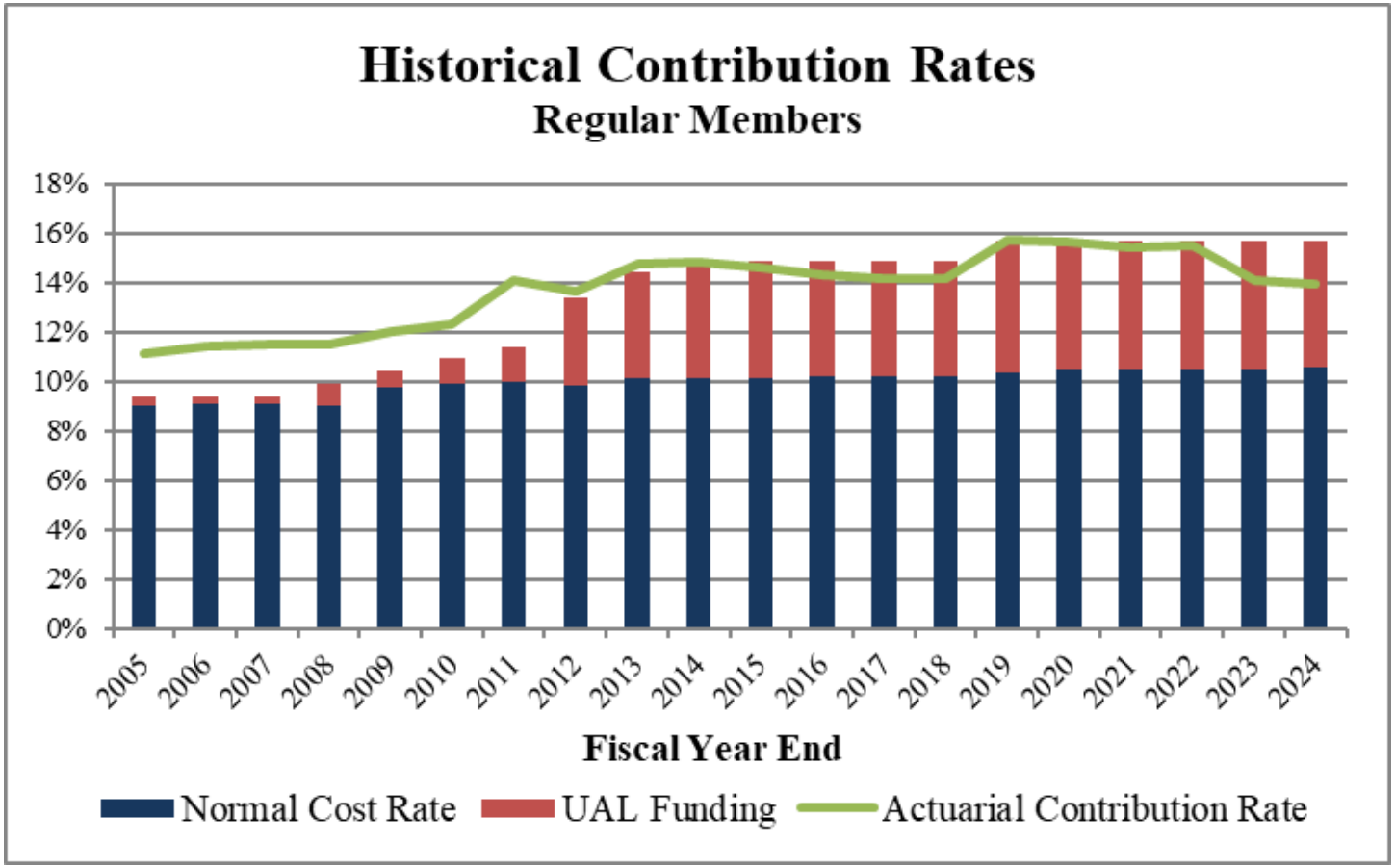
Contribution Rate (Protection Occupation)

	Valuation Date (Contribution Rates for FY 2024/FY 2023)	
	June 30, 2022	June 30, 2021
UAL Payment	(1.18%)	(0.84%)
Funded Ratio	104.4%	103.1%
Normal Cost	15.31%	15.30%
Applicable UAL Rate*	0.00%	0.00%
Total Actuarial Contribution Rate	15.31%	15.30%
Employee Rate	6.21%	6.21%
Employer Rate	9.31%	9.31%
Required Contribution Rate	15.52%	15.52%
Shortfall/(Margin)	**(0.21%)**	**(0.22%)**

*The UAL Rate is allowed to be negative only if the funded ratio was at least 110% for the last three years.

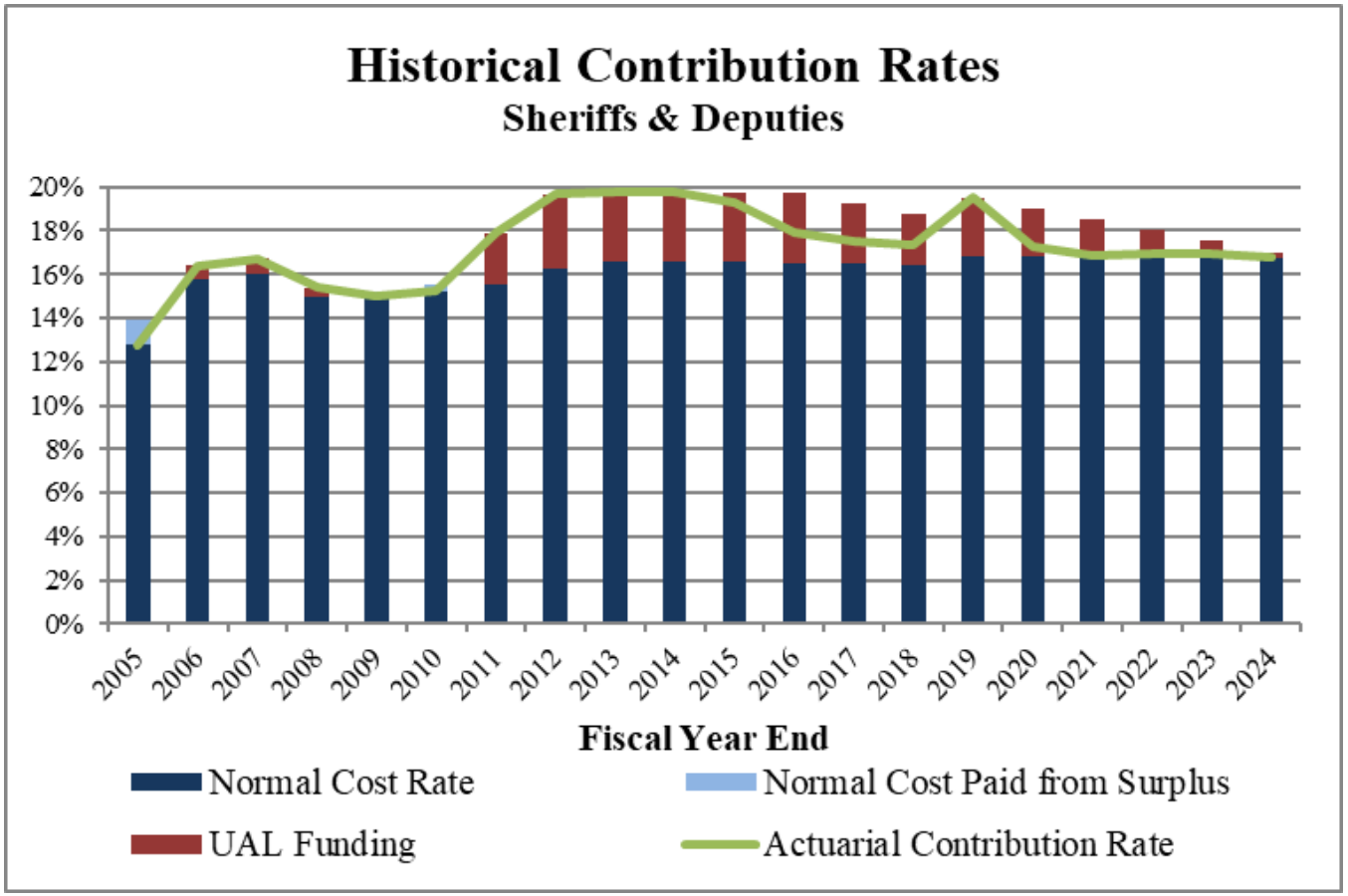
Note: The ACR is not less than the prior year's RCR by more than 0.50% so the RCR was not decreased by 0.50%.

Regular Membership



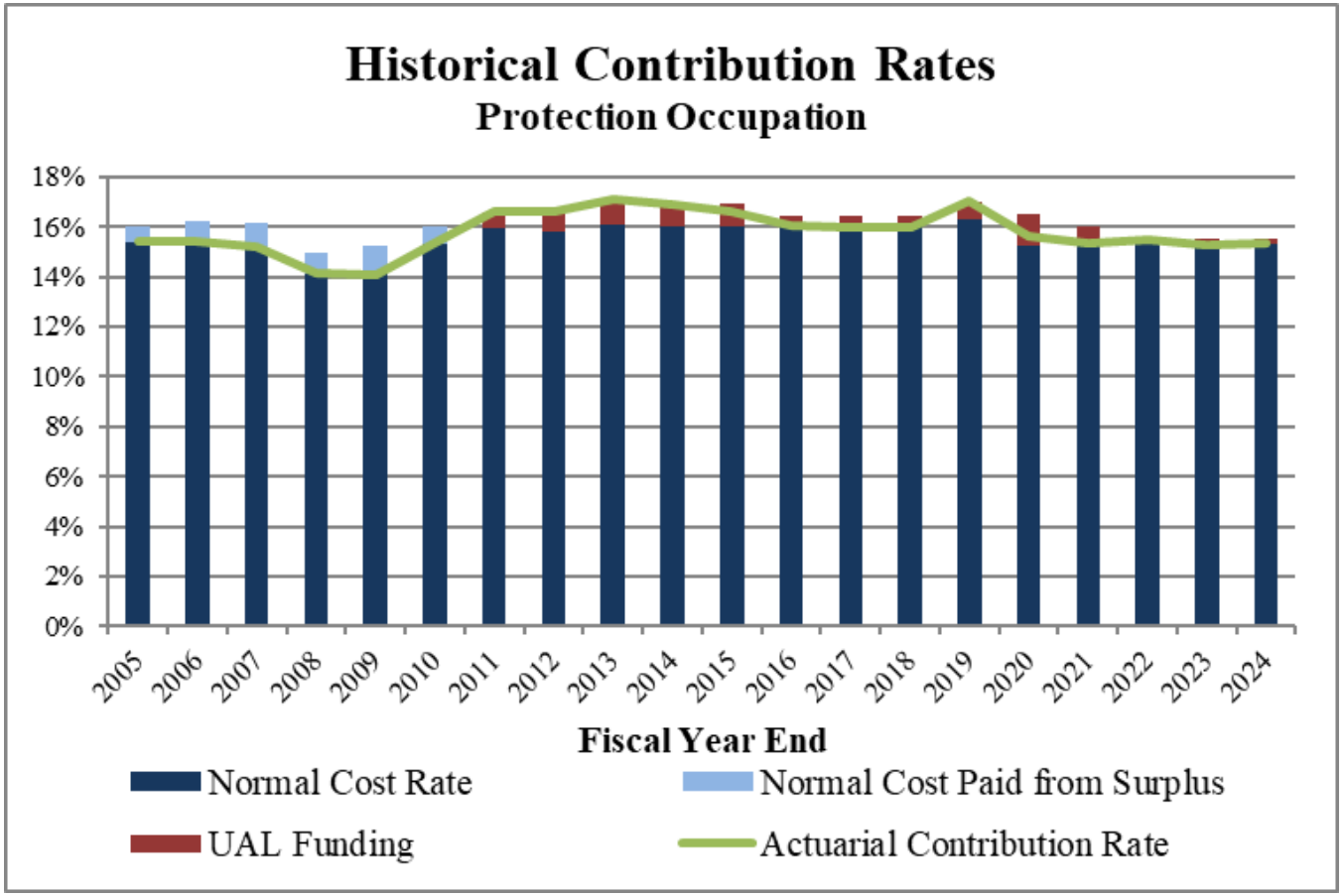
In the first part of this period, the contribution rates were fixed in statute. The ability for the IPERS Board to set the contribution rate beginning in 2013, within certain parameters, has resulted in an actual contribution rate equal to or above the actuarial contribution rate for the last nine years.

Sheriffs/Deputies



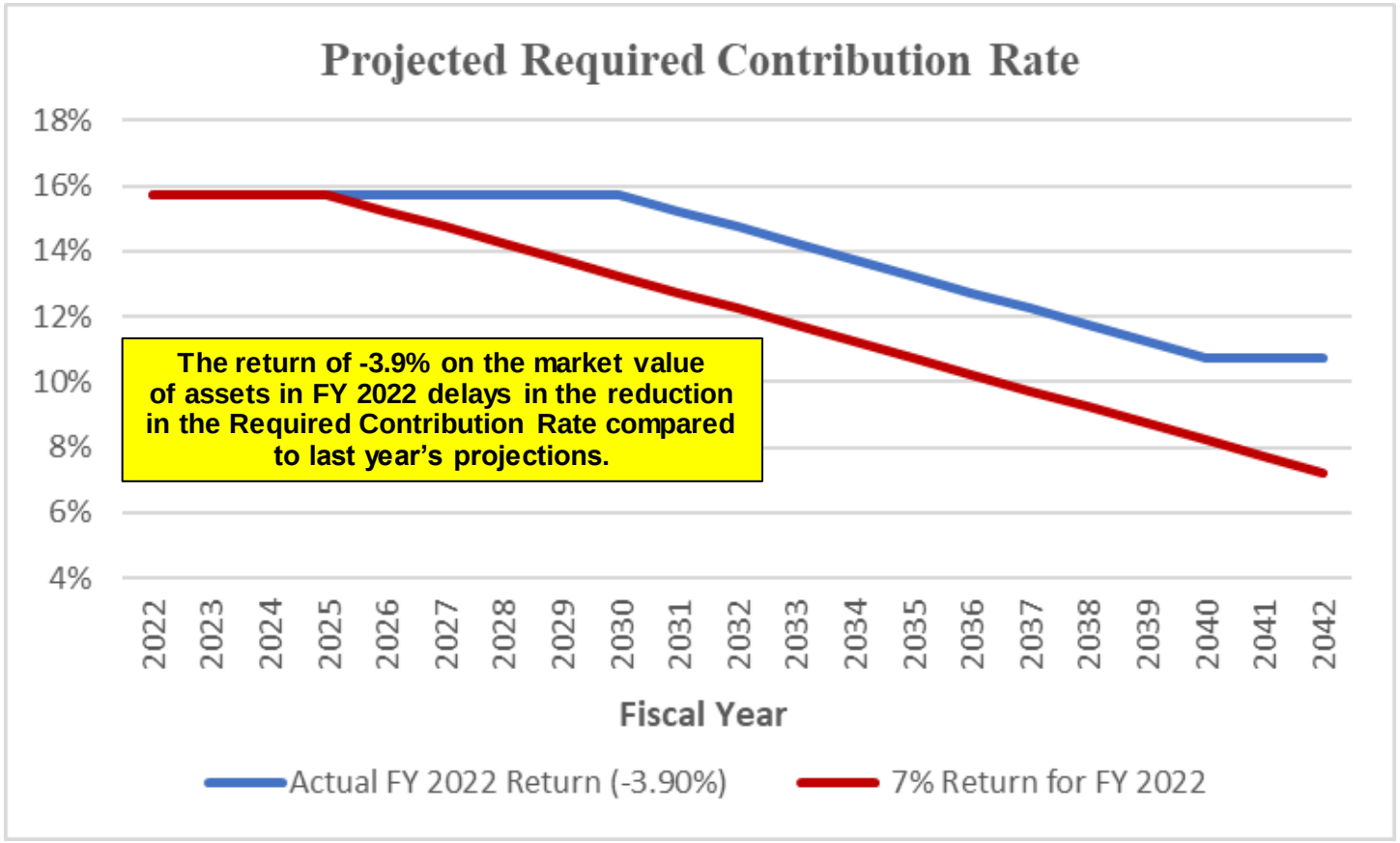
In contrast to the Regular membership, the actuarial contribution rate has always been contributed for this group. With the implementation of the Contribution Rate Funding Policy, the same criteria applies to setting the Required Contribution Rate.

Protection Occupation



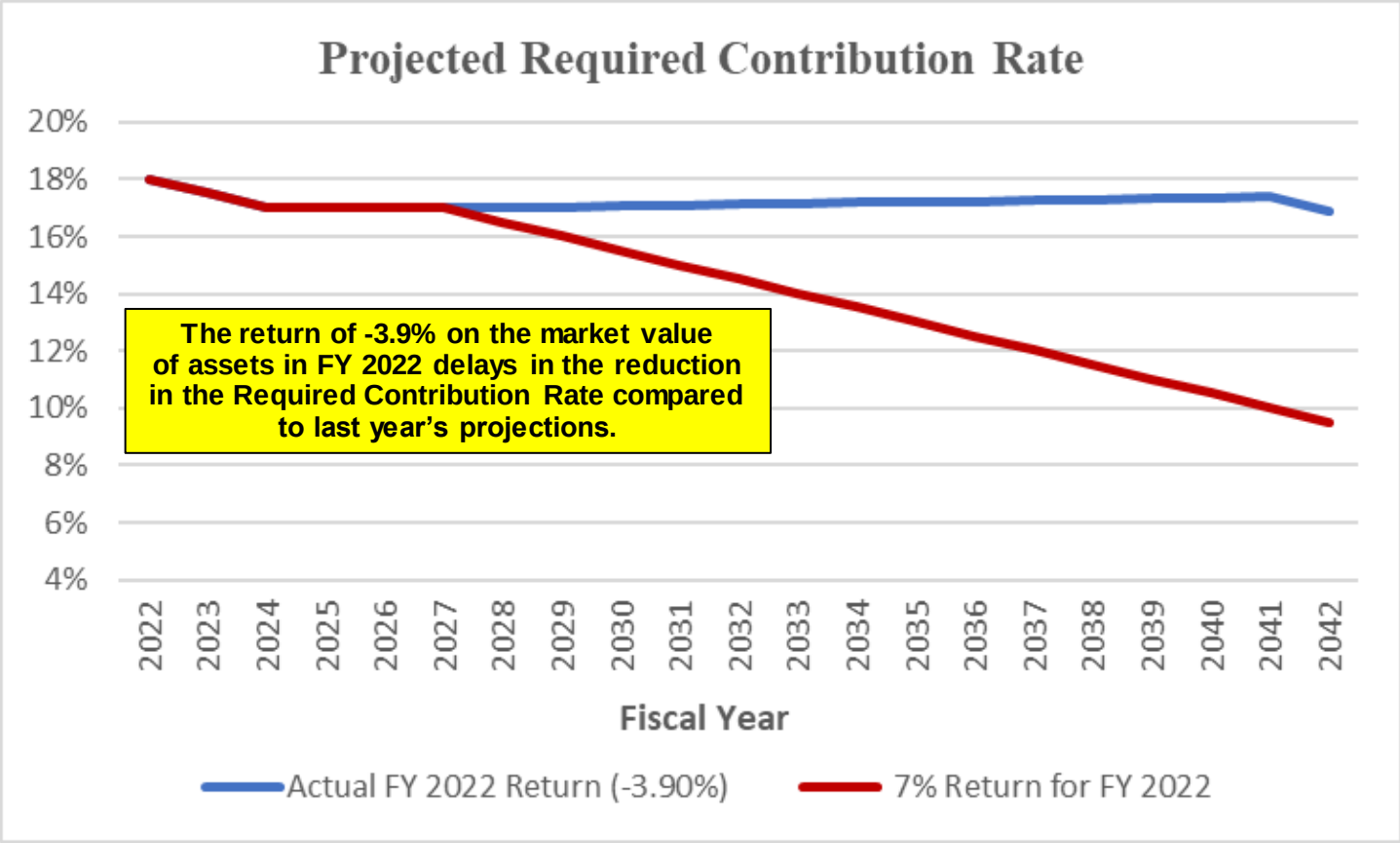
In contrast to the Regular membership, the actuarial contribution rate has always been contributed for this group. With the implementation of the Contribution Rate Funding Policy, the same criteria applies to setting the Required Contribution Rate.

Regular Membership



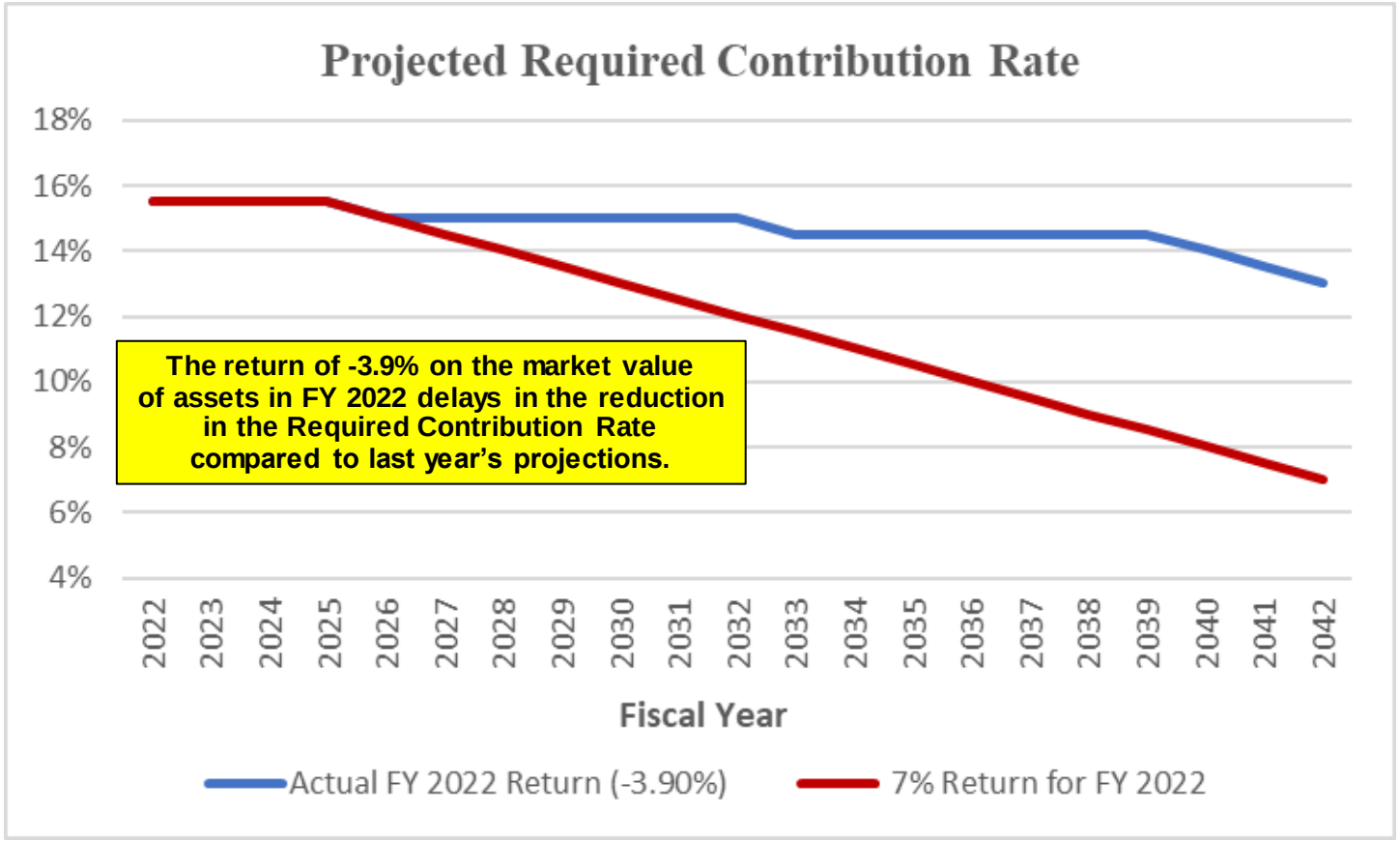
Projections are based on the 6/30/2021 valuation model.

Sheriffs/Deputies



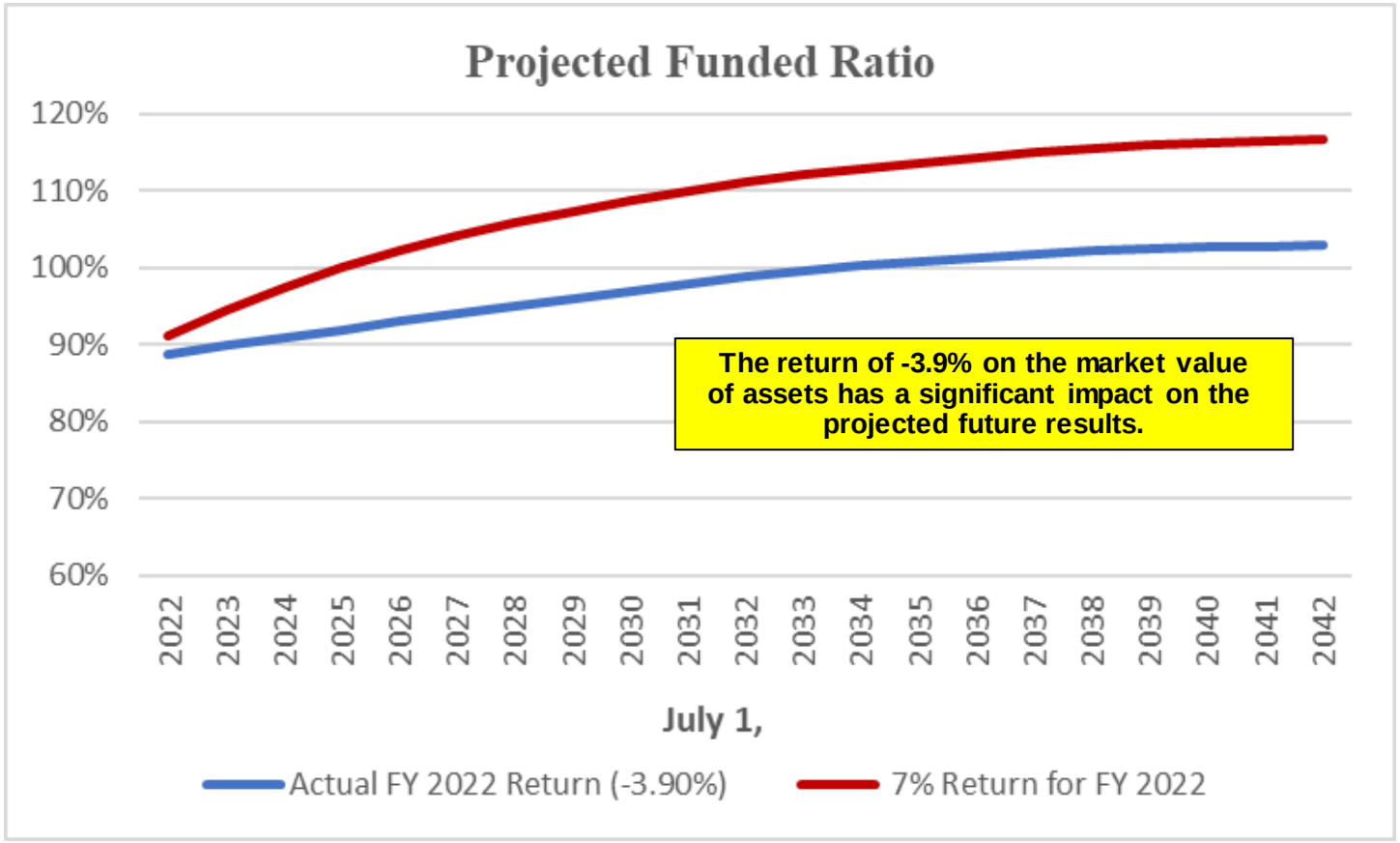
Projections are based on the 6/30/2021 valuation model.

Protection Occupation



Projections are based on the 6/30/2021 valuation model.

Regular Membership



Projections are based on the 6/30/2021 valuation model.

Summary and Comments

- Favorable actuarial experience (actual vs expected) for FY 2022
  - Despite a return of -3.9% on market value of assets, there was a gain on actuarial value of assets of $277 million
  - Market value of asset now exceeds actuarial value by $832 million, down from $5.3 billion last year
  - Net actuarial loss on liabilities of $142 million
  - Unfunded actuarial liability for entire System decreased from $4.96 billion last year to $4.62 billion in the 2022 valuation
- Contribution Rate Funding Policy
  - Required Contribution Rate decreased for Sheriffs and Deputies. Other groups are unchanged.
  - Required Contribution Rate for FY 2024 is greater than Actuarial Contribution Rate for all three groups

GASB 67 Reporting

- Effective since FY 2014
  - Applies to ACFR disclosures only
  - **Does <u>not</u> affect funding calculations**
- Requires some additional calculations
  - Projection to determine the Single Equivalent Interest Rate – using funding rate of 7.0% since fund is not depleted using GASB criteria
  - Liabilities are calculated using Entry Age Normal (the same as for funding)
  - Assets are on market value basis
  - Discount rate sensitivity must be disclosed (+/- 1%)

GASB 67 Terminology

- Total Pension Liability (TPL)
  - For IPERS, same as Actuarial Accrued Liability in funding valuation
- Fiduciary Net Position (FNP)
  - The market value of assets
- Net Pension Liability (NPL)
  - NPL = TPL – FNP
  - Essentially the UAL on market value basis

GASB 67 Results

	June 30, 2022	June 30, 2021
Total Pension Liability (TPL)	$ 43.970	$ 42.545
Fiduciary Net Position (FNP)	40.191	42.890
Net Pension Liability (NPL)	$ 3.779	$ (0.345)
Ratio of FNP to TPL	91.41%	100.81%

Dollar amounts shown are in billions. Numbers may not add due to rounding.

GASB 67 Sensitivity Analysis

	1% Decrease (6.00%)	Current Discount Rate (7.00%)	1% Increase (8.00%)
TPL	$ 47.645	$ 43.970	$ 40.732
FNP	40.191	40.191	40.191
NPL	$ 7.454	$ 3.779	$ 0.541
FNP/TPL	84.36%	91.41%	98.67%

Dollar amounts are shown in billions. Numbers may not add due to rounding.

Note: Because the TPL and the FNP are of similar magnitude, the NPL is significantly smaller than the TPL. When the TPL changes due to the discount rate change, the NPL changes by the same dollar amount, but it is a much larger proportionate amount.

IPERS
Working Today for Your Tomorrow

ASOP 4

- Effective for measurement dates on/after February 15, 2023 (June 30, 2023 valuation for IPERS)
- Changes Impacting Public Plans
  - Disclose Low-Default Risk Obligation Measure (LDROM)
  - Disclose Reasonable Actuarially Determined Contribution
    New guidance on amortization of the unfunded actuarial accrued liability
  - Assess implications of Contribution Allocation Procedure or Funding Policy
  - Other changes
    - Output Smoothing Methods
    - Addressing contribution lag
    - Gain/loss analysis
- Almost all of this is currently being done

Low Default Risk Obligation Measure

- Liability measure that must use a discount rate that reflects low default risk fixed income securities whose cash flows are reasonably consistent with the benefits expected to be paid
- Only the liability measure must be disclosed, not the funded status, unfunded portion of the liability or amortization period
- Can be interpreted that the difference in the LDROM and AAL measures the reduction in liability (savings) from investing in a diversified portfolio
- Communication of the measure may prove challenging
  - Some may call the LDROM the “true cost” of the plan
  - NASRA, NCTR working on help for systems

Actuarial Certification

We, Patrice A. Beckham, FSA, Brent A. Banister, FSA, and Bryan K Hoge are consulting actuaries with Cavanaugh Macdonald Consulting, LLC. We are members of the American Academy of Actuaries, Fellows of the Society of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. We are available to answer any questions or provide additional information as needed.

Sincerely,

Patrice A. Beckham, FSA, EA, FCA, MAAA
Principal and Consulting Actuary

Brent A. Banister, Ph.D., FSA, EA, FCA, MAAA
Chief Actuary

Bryan K. Hoge, FSA, EA, FCA, MAAA
Consulting Actuary

Contribution Rate Funding Policy

Background:

IPERS is charged with setting a "Required Contribution Rate" for each membership category within IPERS that will discharge its liabilities. Iowa Code §97B.11(3)(d) provides the basic framework for implementing this charge by stating:

> The Required Contribution Rate that is set by the system for a membership category shall be the contribution rate the system actuarially determines, based upon the most recent actuarial valuation of the system and using the actuarial methods, assumptions, and funding policy approved by the investment board, is the rate required by the system to discharge its liabilities as a percentage of the covered wages of members in that membership category. However, the Required Contribution Rate set by the system for members in regular service for a fiscal year shall not vary by more than one percentage point from the Required Contribution Rate for the prior fiscal year.

Goal:

To establish policy and procedures in setting contribution rates that combined with investment income will fund the benefits specified in Chapter 97B of the Iowa Code.

To move towards fully funding the benefits (100 percent or greater funded ratio) in as expeditious manner as is reasonable within the guidelines acknowledged herein.

Procedure:

The Investment Board shall retain a consulting actuary to conduct an annual actuarial valuation of assets and liabilities. The consulting actuary shall use the entry age normal cost method and all other actuarial assumptions and methods approved by the Investment Board.

In the annual valuation process, the consulting actuary shall calculate an Actuarial Contribution Rate and a Required Contribution Rate pursuant to this policy. Each shall be calculated as a level percent of pay.

There is a one-year lag between the completion of an annual actuarial valuation report and the fiscal year to which the contribution rates calculated therein are applied. Therefore, the Actuarial Contribution Rate and the Required Contribution Rate declared in the annual valuation process are applicable to the fiscal year immediately following the completion of the valuation report (for example the rates declared in the report presented to the Investment Board in December 2013 are applicable to the rates for the fiscal year beginning July 1, 2014).

Actuarial Contribution Rate (ACR):

1. ACR is the combined employer and employee contribution rate that is the minimum rate necessary to fund the benefits using the actuarial assumptions and methods approved by the Investment Board.

2. A separate ACR shall be determined for each membership group within IPERS according to this policy.

3. The ACR shall consist of:
    a. Normal cost and an amortization payment (not less than zero) of any unfunded actuarial liability.
    b. Normal cost may only be offset by a negative amortization payment after a membership group has attained a funded ratio of 110 percent or greater for 3 consecutive years.

Required Contribution Rate:

1. The Required Contribution Rate is the combined employer and employee rate payable pursuant to this policy and Iowa Code §97B.11(3)(d).

2. The Required Contribution Rate shall be determined by comparing the ACR determined in the annual valuation process to the Required Contribution Rate of the previous year.

a. If the ACR is less than the previous Required Contribution Rate by fewer than 50 basis points, then the Required Contribution Rate shall remain unchanged from the previous year.

b. If the ACR is less than the previous Required Contribution Rate by 50 basis points or more, then the Required Contribution Rate shall be lowered by 50 basis points provided the funded ratio of the membership group is 95 percent or higher.

c. If the ACR is greater than the Required Contribution Rate of the previous year, then the Required Contribution Rate shall be:

    i. Increased to be equal to ACR for Sheriffs and Deputies.

    ii. Increased to be equal to ACR for Protection Occupation Members.

    iii. Increased to be equal to ACR for Regular Members, or one percentage point greater than the prior year's Required Contribution Rate, whichever is smaller.

Favorable Experience Dividend ("FED") and Supplemental Account for Active Members ("SAAM") transfers.

For the purposes and only for the purposes of calculating potential transfers to the favorable experience dividend reserve account and to each member's supplemental account the term "fully funded" as specified in the relevant Iowa Code and Administrative Rules[1] shall mean:

The funding percentage, which shall not be less than 100 percent,[2] determined by the System's actuary at which calculated transfers to the favorable experience dividend reserve account and to the member's supplemental accounts will not result in a material probability that the System will fall below 100 percent funded.[3]

[1] §97B.49F(2)(c)(5); §97B.49H (3); IAC 495—15.2(1).
[2] §97B.1A(11A).
[3] As contemplated in §97B.4(4)(d) and §97B.65(2) the terms "fully funded" and "fully fund" shall reference a 100% funding ratio.

Policy Guidelines:

In adopting actuarial assumptions and methods to be used in setting contribution rates, the Investment Board shall strive to provide a balance among the following:

1. Stability in contribution rates (such as use of smoothing and amortization schedules that do not produce dramatic swings in the required contributions from year to year).

2. Disciplined funding approach (such as requiring full payment of normal cost and an amortization payment towards the unfunded actuarial liability and deferring decreases in contribution rates until strong funded ratios are attained).

3. Interperiod equity (such as shortening the amortization schedule when reasonable and amortization of retroactive benefit enhancements over a reasonable time period such as the average working lifetime for active members and the average life expectancy of retired members).

4. Support an affordable, sustainable plan (in consultation with the Benefits Advisory Committee review affordability of required contribution rates and/or the benefit provisions).

5. At a minimum, this policy will be reviewed in conjunction with the quadrennial experience study.

2023

Board Meetings

March 24, 2023

CY2022 Investment Performance

June 15, 2023

Private Markets Program Review

September 20-21, 2023

Continuing Education Session

FY2023 Investment Performance Review

Asset Allocation

Investment Policy and Goal Statement

December 7, 2023

Investment Board and BAC Meeting

Actuarial Valuation Presentation

JANUARY

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

FEBRUARY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28				

MARCH

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

APRIL

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

MAY

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

JUNE

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

JULY

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

AUGUST

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

SEPTEMBER

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	29	29	30

OCTOBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

NOVEMBER

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

DECEMBER

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						