

Employee Trust Funds Board

March 23, 2023

Meeting will begin at: 9:00 a.m.



WIFI

WI-GUEST

No Password is needed



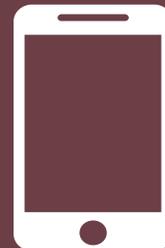
Please Sign In

- Who? All meeting attendees
- Sheet available at the door



Meeting Materials

- Available at etf.wi.gov



**Please Silence your
Cell Phone**

Announcements

Item 1 – No Memo



Recognition of Outgoing Board Members

Item 2

John Voelker, Secretary





Esther Ancel

Annuitant Teacher Seat
Teacher Retirement Board
Since 2018





Leilani Paul

Educational Support Personnel Seat
Employee Trust Funds Board
Since 2015





John David

Wisconsin Retirement Board
Since 2004 (18 years)
Employee Trust Funds Board
Since 2008 (15 years)



Consideration of Open and Closed Minutes of December 8, 2022



Item 3 – Memo Only



Election of Officers



Item 4 – Memo Only



Committee Reports

Item 5

Executive Committee – Bill Ford

Secretary's Evaluation & Timetable – Lisa Dally

Audit Committee – Leilani Paul

Budget and Operations Committee – Chris Heller



State of Wisconsin Investment Board – 2022 Wisconsin Retirement System Investment Performance and 2023 Outlook

Item 6A – No Memo

State of Wisconsin Investment Board (SWIB)

Edwin Denson, Executive Director/Chief Investment Officer

Rochelle Klaskin, Deputy Executive Director/Chief Administrative Officer



SWIB Update

Joint Meeting of Retirement Boards

March 23, 2023

Edwin Denson

Executive Director/Chief Investment Officer

Rochelle Klaskin

Deputy Executive Director/Chief Administrative Officer

Todd Mattina

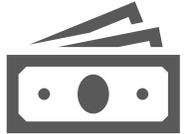
Head Economist & Asset and Risk Allocation Chief Investment Officer



Agenda



Performance



Cost Effectiveness



Asset Allocation



Economic Outlook



SWIB News



Questions

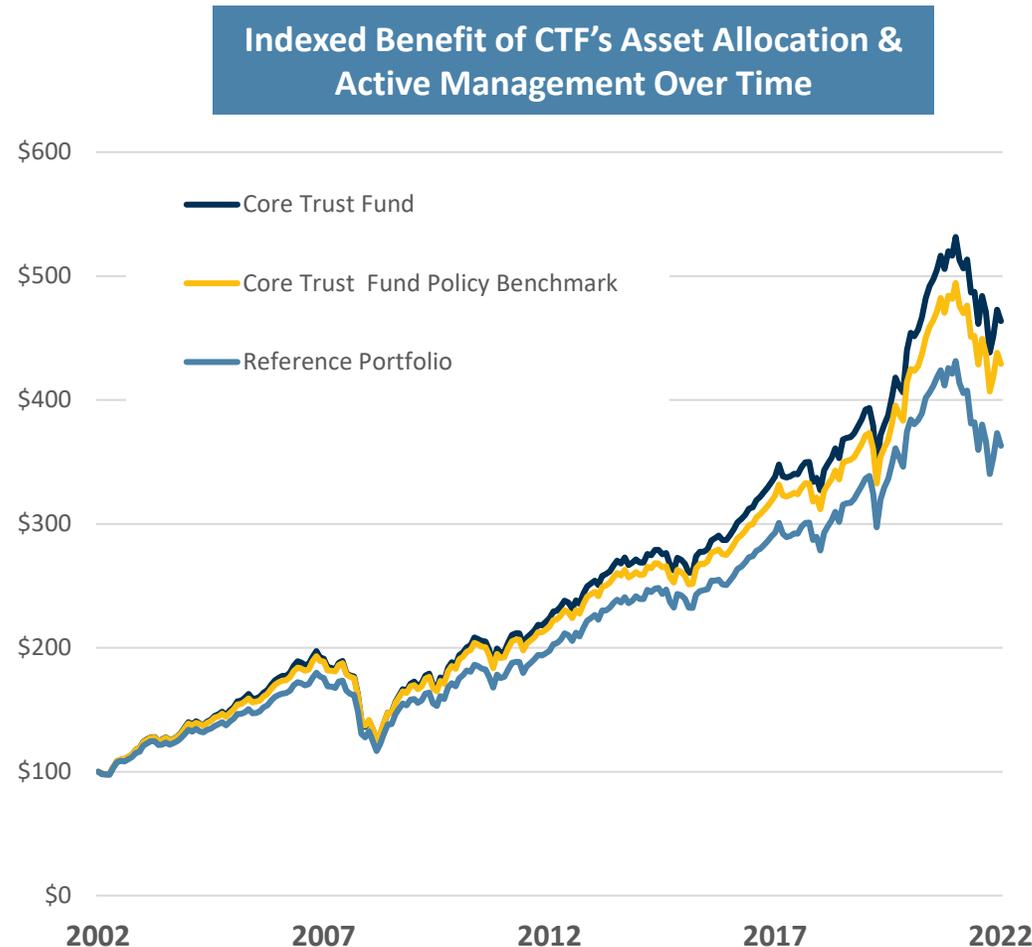


Performance



CTF Performance vs. 60/40 Reference Portfolio

20-year cumulative return¹: January 1, 2003, to December 31, 2022



Portfolio / Benchmark	Annualized Gross Return	Cumulative Gross Return	Cumulative \$ Value Added
Reference Portfolio ² (60% equity/40% bonds)	6.7%	263.2%	= Passive Market Return
Benefit of CTF Asset Allocation			
CTF Policy Benchmark	7.6%	329.1%	+\$22.9B
Benefit of CTF Active Management			
CTF Actual Results	8.0%	363.6%	+\$11.4B
CTF Excess Return vs. Reference Portfolio	+1.3%	+100.4%	+\$34.3B

¹ Core Trust Fund beginning market value, as of January 1, 2003, was \$46.3B and ending market value, as of December 31, 2022, was \$114.5B

² Reference Portfolio is composed of 60% MSCI World and 40% Bloomberg US Gov't / Credit (rebalanced monthly)

WRS Core Fund Long-Term Performance

As of December 31, 2022

5-Year

6.16%

Benchmark: 5.68%

10-Year

7.25%

Benchmark: 6.84%

20-Year

7.68%

Benchmark: 7.38%

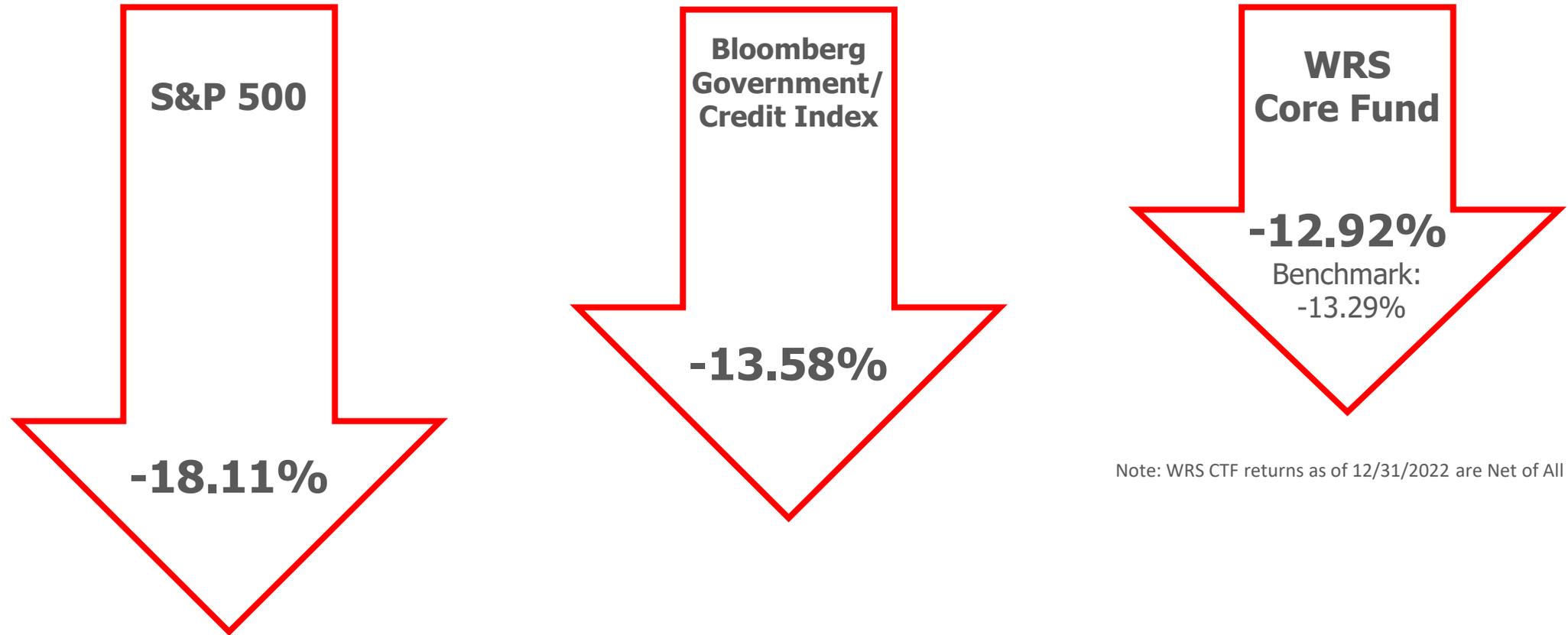
The investment objective of the Core Fund is to meet or exceed an average nominal return of **6.8% over the long-term.**

Note: Five-year returns are net of fees, and 10- and 20-year returns are net of external manager fees.



Performance – WRS Core Fund

Year-to-Date as of December 31, 2022



Note: WRS CTF returns as of 12/31/2022 are Net of All Fees



Net Performance – WRS Variable Fund

As of December 31, 2022

- The Variable Trust Fund is an optional all-stock fund.
- Approximately 7% of WRS assets are in the Variable Trust Fund.

Calendar Year-to-Date

-17.83%¹

Benchmark: -18.06%

5-Year

6.48%²

Benchmark: 6.55%

10-Year

9.82%²

Benchmark: 9.75%

¹ YTD returns are net of fees.

² Five-year performance is net of all fees and 10-year performance is net of external manager fees.



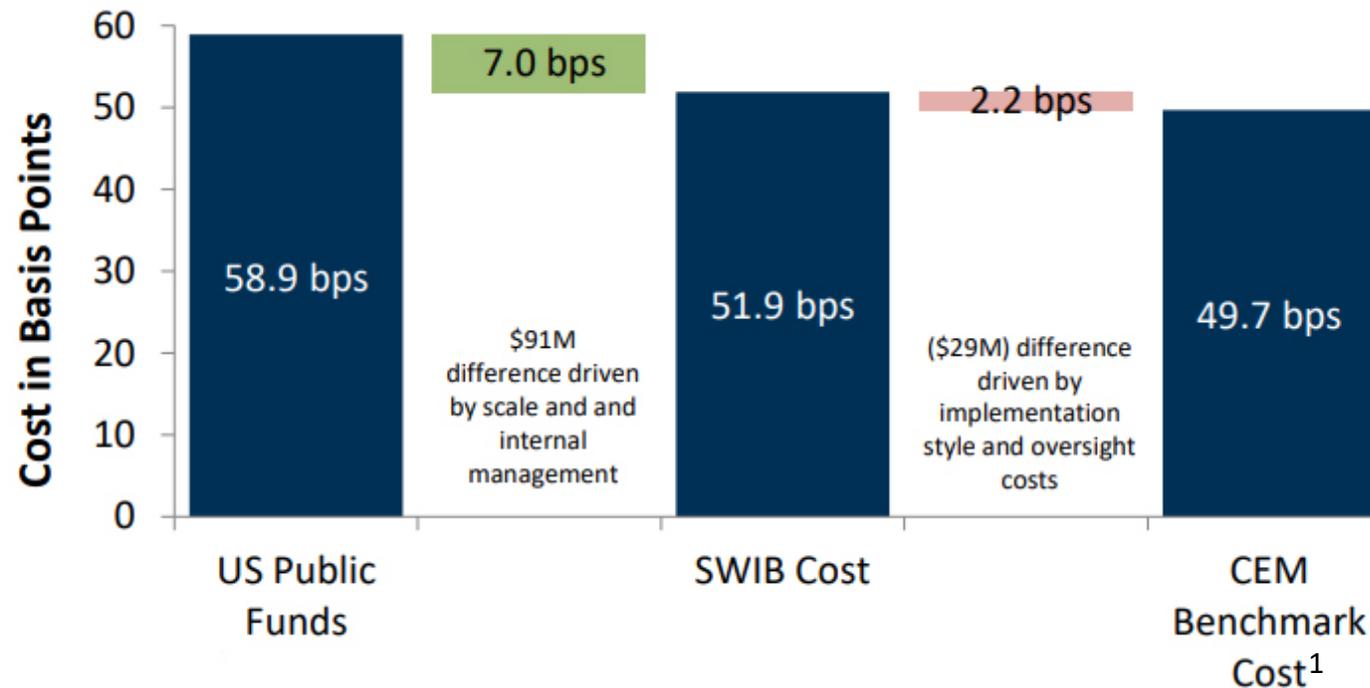


Cost Effectiveness



Total Costs Compared to U.S. Public Funds & CEM Benchmark

SWIB's costs are 7.0 bps (\$91 million) lower than U.S. public fund average and 2.2 bps (\$29 million) higher than the CEM Benchmark, which is adjusted for asset mix.

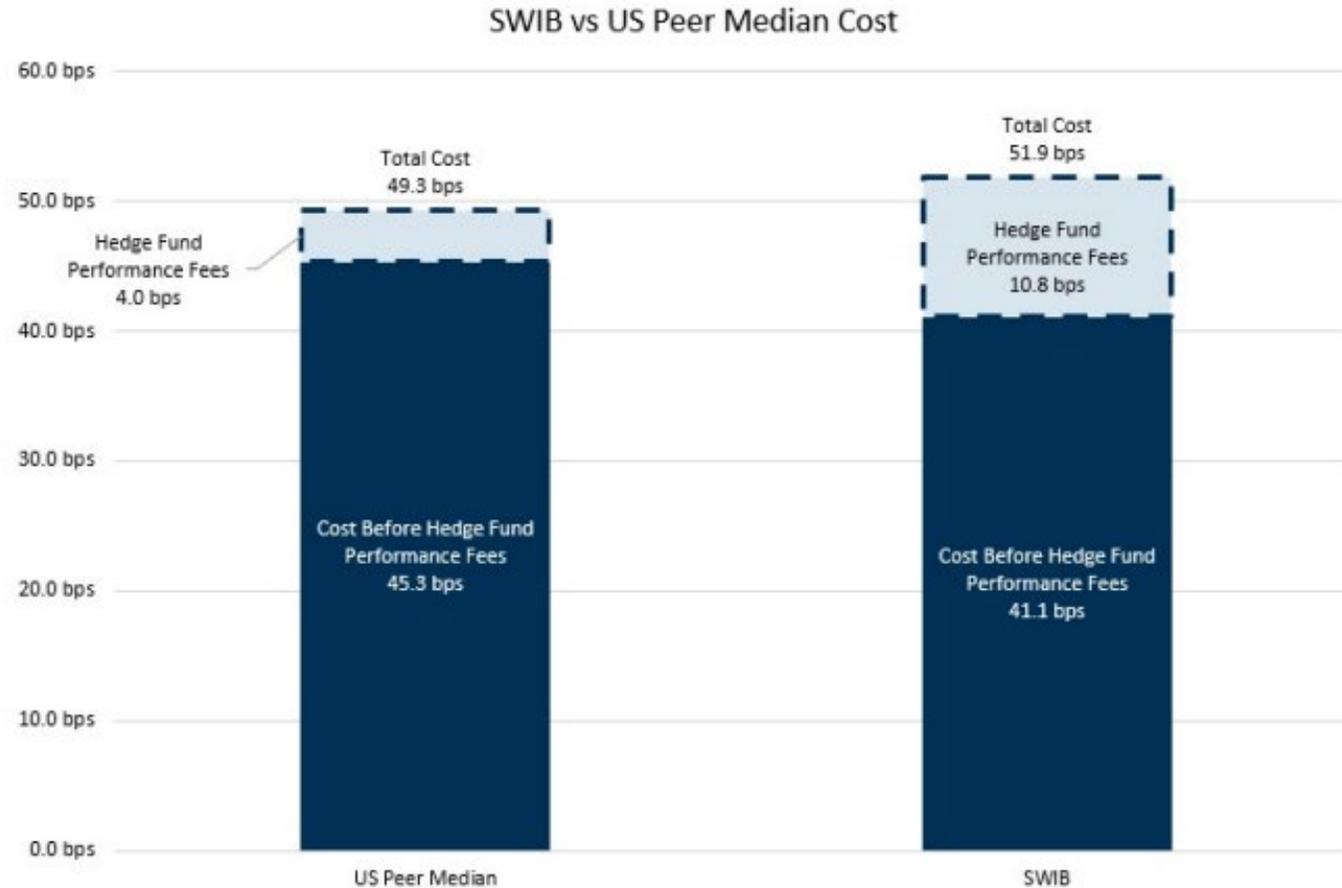


Data Source: CEM Benchmarking, Inc. 2022 Report

¹The CEM Benchmark is a hypothetical measure using peer group average costs by asset type to form an estimate of the average peer group cost to manage a portfolio with the same asset class mix as SWIB's. This measure does not consider how the exposures are achieved (e.g. active vs. passive, internal vs. external). Due to this, the costs from SWIB's relatively higher share of active investing outpace the benefits derived from a relatively higher mix of internal investment management.

2021 SWIB Cost Compared to U.S. Peer Median

SWIB's cost of 51.9 bps is higher than the peer median of 49.3 bps. However, when adjusted for performance fees, SWIB's costs are lower than the peer median by 4.2 bps.



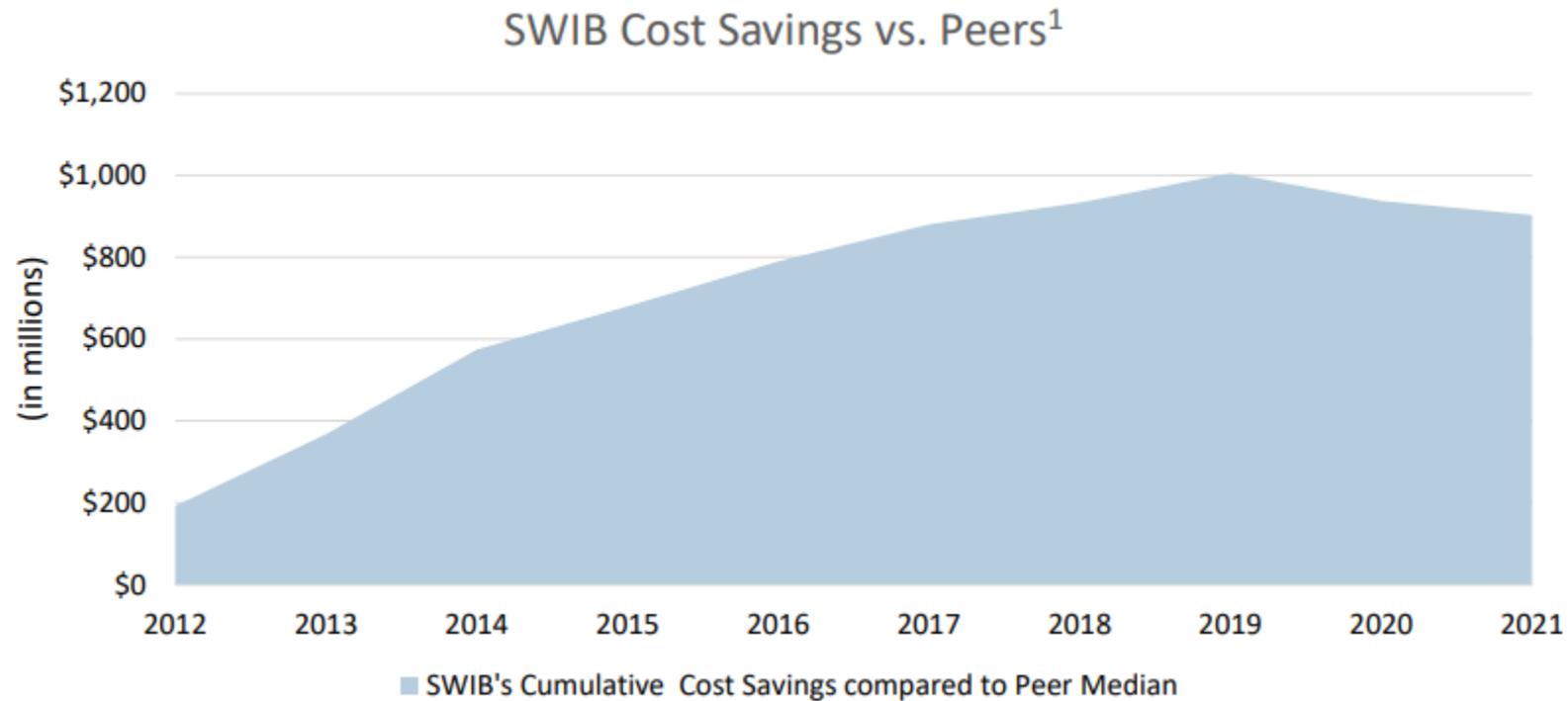
Internal Management Is More Cost Effective

SWIB's costs for internal active management remains considerably lower than the cost for external active management.

Public Market Asset Type (Active Strategies)	Internal Management Cost (bps)	External Management Cost (bps) ¹
Global Large Cap Equity	11.2	40.8
Small Cap Equity	13.5	66.5
Domestic Fixed Income	8.7	11.3
High Yield Fixed Income	7.4	31.3

¹External management costs represent the median cost for SWIB's CEM public fund peers for each asset class. SWIB engages external managers for Global Large Cap Equity at a cost of 34.1 bps and Domestic Fixed Income at a cost of 13.3 bps.

SWIB Saved \$903 Million vs. Peers from 2012-2021



¹This analysis compares SWIB's savings vs. the peer group median costs for every \$100 under management and multiplies that average savings by SWIB's median assets under management.



Asset Allocation

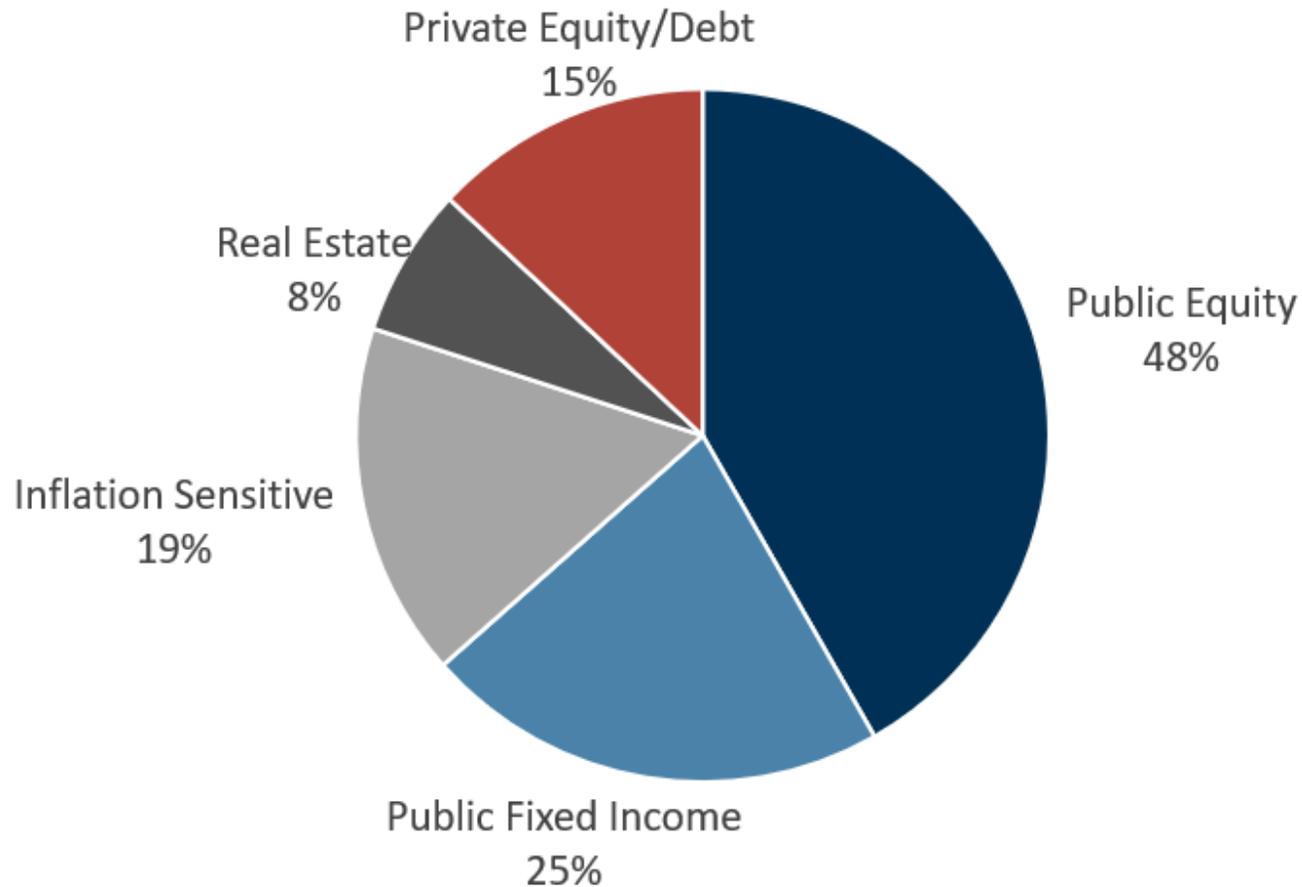


Summary of Asset Allocation Changes

- Increase in private markets to recognize part of the increase in actual exposures.
 - Private Equity/Debt from 12% to 15%
 - Real Estate from 7% to 8%
- Reduce public equity from 52% to 48% to fund private market increases.
- Expand the range around private markets given growth as well as liquidity and modeling analysis.
- No material changes to sub-asset class allocations.



2023 Asset Allocation Targets



Asset allocation target totals exceed 100% due to SWIB's overall leverage of Core Fund assets.

Long Term Target Returns and Risk		
	2022 Policy Portfolio	2023 Policy Portfolio
10-Year Expected Return	6.7%	6.7%
30-Year Expected Return	7.3%	7.4%
Standard Deviation	12.8%	12.7%
Sharpe Ratio 10 Yr.	0.298	0.302
Target Active Risk	1.2%	1.2%



Economic Outlook



Welcome, Todd Mattina

Head Economist, Asset & Risk Allocation Chief Investment Officer



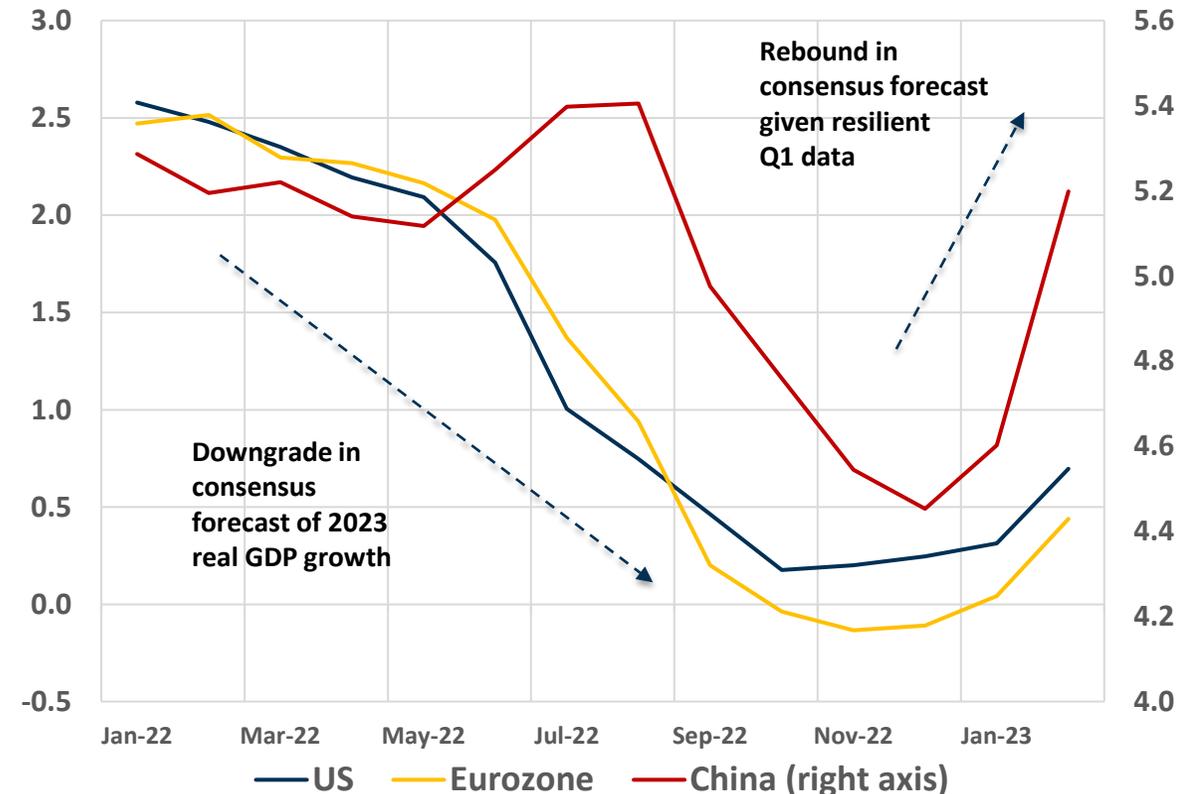
- Joined SWIB in January 2023.
- Responsible for taking a broad view of economic conditions in developing, recommending, and implementing SWIB's asset allocation and other policies for allocating investments.
- Will support the agency's investment decisions and determine how best to leverage economic policy to address opportunities, risks, and challenges.
- Has more than 20 years of experience in economic analysis and investments, including as senior vice president, chief economist, and co-lead of the multi-asset strategies team at Mackenzie Investments in Toronto and as the deputy division chief at the International Monetary Fund (IMF) in Washington D.C.
- PhD in Economics from Queen's University in Ontario.



2023 Economic Outlook: Global Growth

- Global economic growth has been more resilient this quarter than many economists had expected.
- Economists had downgraded the consensus forecast of global growth in 2023 given restrictive central bank rates, high inflation eroding purchasing power, and geopolitical uncertainty.
- Strong U.S. payrolls and consumer spending, lower natural gas prices in Europe, and China's exit from zero-COVID have sustained momentum this quarter.
- However, SWIB expects slower overall growth in 2023, including the potential for a contraction, as central banks keep interest rates in restrictive territory to bring down inflation.

Consensus Forecast of 2023 Real GDP Growth (%)

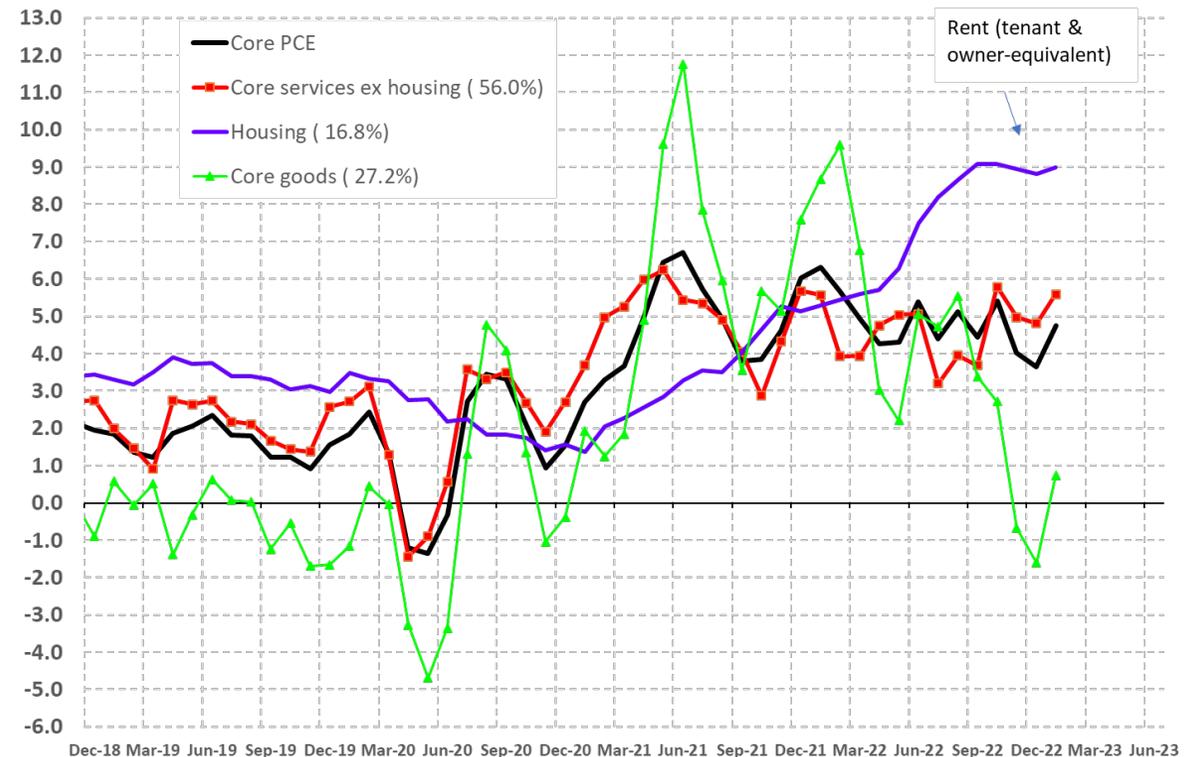


Source: Consensus Economics

2023 Economic Outlook: Inflation

- US inflation has likely peaked but remains well above the Fed's 2% target.
- Outlook is for moderating inflation in 2023, but at a slower pace than the consensus forecast.
- Supply chain pressures and goods price inflation have eased.
- Services inflation, particularly housing (rent), has yet to decelerate.

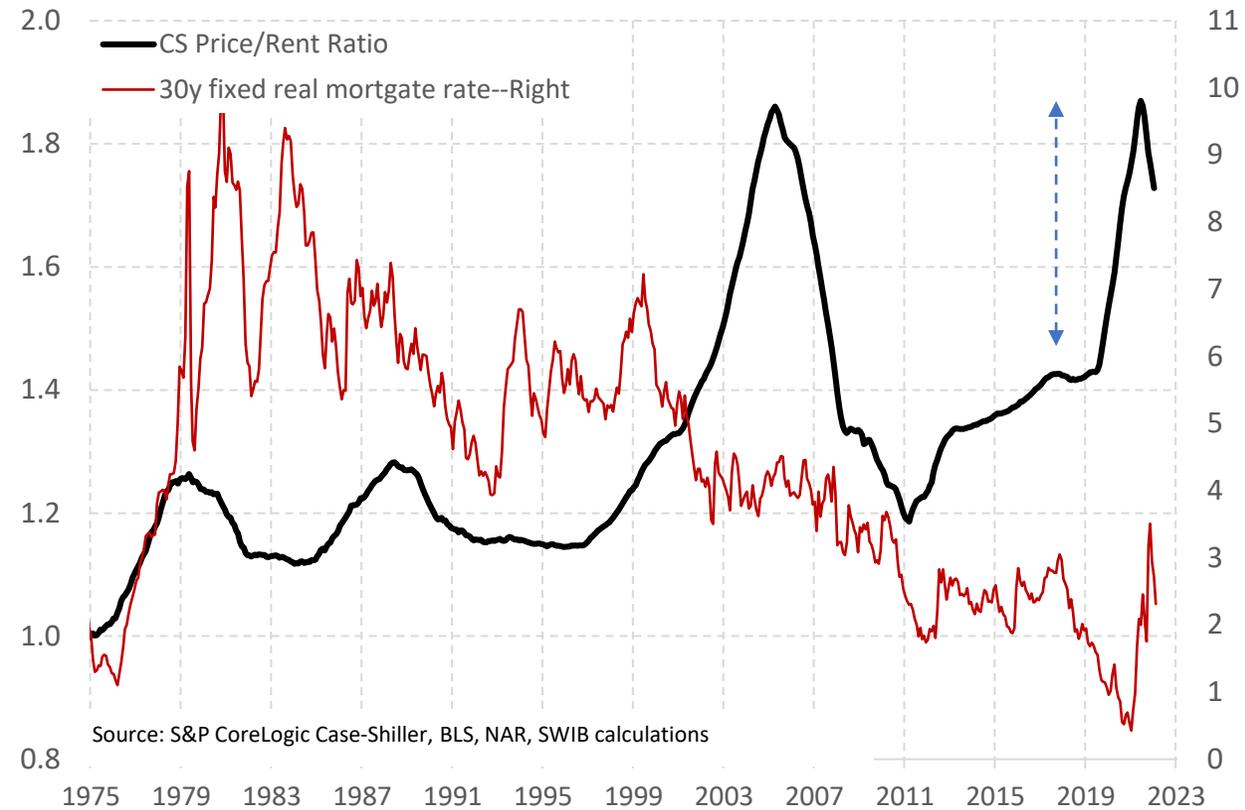
Core US Inflation Peaked and Moderating Gradually
(core PCE index, 3m/3m seasonally adjusted annual rate)



2023 Economic Outlook: Housing

- Recent housing overvaluation has matched 2006, driven by the COVID-related surge in second-home buying and low mortgage rates.
- Housing appreciation has slowed sharply, and a period of outright price declines has begun.
- Housing price adjustment is unlikely to look like the 2006-2011 boom-bust cycle:
 - Structural imbalance: Demand has exceeded supply for a decade; underlying shortage remains
 - Household balance sheets are in good shape: Debt service ratios are relatively low
 - Banks have a larger capital cushion than in 2008

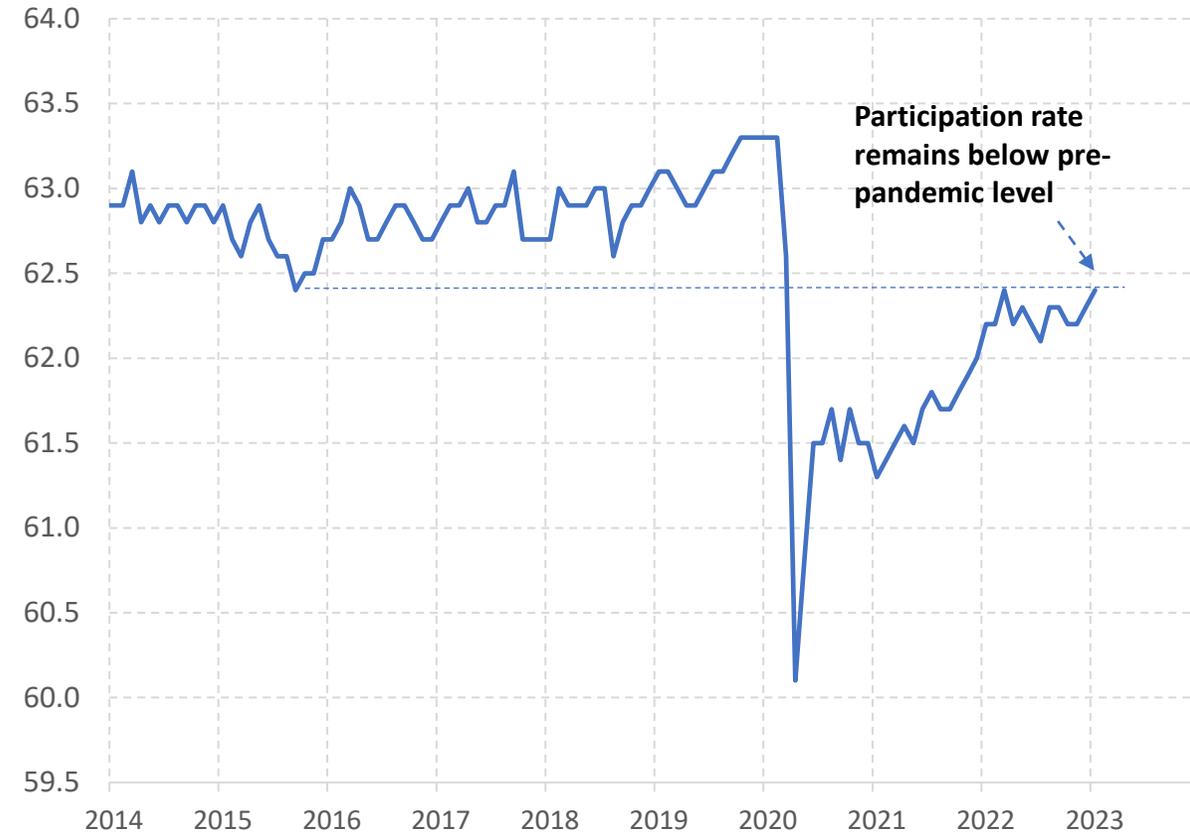
US House Price Valuations Matching 2006 Levels
(index of US house price/rent ratio, Jan. 1975=1.00)



2023 Economic Outlook: Labor

- Labor market remains tight with sizeable employment gains, a persistently low unemployment rate and a large excess of vacancies relative to unemployed workers.
- The recovery in labor force participation has stalled, remaining below pre-pandemic levels.
- Greater participation would help moderate wage gains and ease inflationary pressures.

Stalled Recovery in US Labor Force Participation Rate
(percentage of working age population in the labor force)





SWIB News



Board of Trustees Update



Barbara Nick



Clyde Tinnen



Jeff DeAngelis



David Stein

- Gov. Evers appointed Barbara Nick as Board chair and Clyde Tinnen as vice chair.
- Gov. Evers appointed Jeff DeAngelis to replace Tim Sheehy who stepped down due to another statewide appointment.
- Trustee David Stein's term will end in the second quarter of 2023.





www.swib.state.wi.us/podcasts

Some Recent Episodes:

Episode 14

Pensionomics: How the WRS Provides a Strong Economic Pillar for Wisconsin

Episode 16

An Inside Look at SWIB's Real Estate Portfolio

Episode 18

Peering into the Future to Keep the WRS Positioned for Success with GRS Actuaries

Episode 20

Navigating Volatile Financial Markets: A Look Back at 2022 and Ahead to 2023 with Edwin Denson



Need More Information?



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www.linkedin.com/company/the-state-of-wisconsin-investment-board



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? Questions



Wisconsin Retirement System 40th Annual Valuation of Retired Lives – December 31, 2022



Item 6B- Employee Trust Funds Board

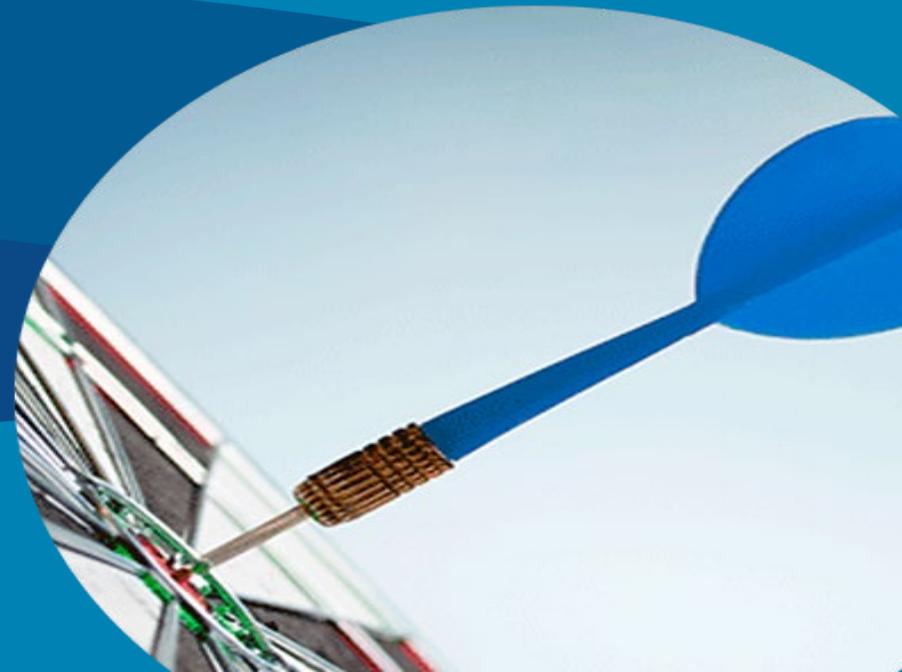
Gabriel Roeder Smith & Company
Brian Murphy, Senior Consultant
Jim Anderson, Senior Consultant
Mark Buis, Senior Consultant





Wisconsin Retirement System

40th Annual Actuarial Valuation of Retired Lives
December 31, 2022



Operation of the System (Simplified Description)

	Core Annuities	Variable Annuities
Investment Return Hurdle to Trigger Annuity Adjustment	Returns over/under 5%	Returns over/under 5%
Ratio of Assets to Liabilities	If > 0.5%, dividend may be granted If <-0.5%, prior dividends reduced	If > 2%, variable annuity increased If <-2%, variable annuity decreased
Increase/Decrease Rounding Conventions	Rounded to nearest 0.1%	Truncated, carried to next year
Adjustment Effective Date	April following 12/31 valuation	April following 12/31 valuation

Smoothing Mechanisms

Core

- Undesirable for retirees to experience wide swings in monthly benefits from year to year (especially downward swings)
- Mitigated in Core division by asset smoothing process and portfolio mix
- Asset smoothing has worked well historically, but could not prevent negative dividends in 2009-2013

Smoothing Mechanisms

Variable

- Variable fund is marked to market each year and subject to wide swings
- Dropping fractions of a percent from the adjustment is a form of smoothing
- Usually has very little effect due to the magnitude of the gains and losses

Summary of Results – December 31, 2022

\$ Millions

	Core	Variable
Number of Annuitants	233,804	43,007
Annual Amount of Annuities Paid	\$ 6,409.7	\$ 578.5
Fund Balance	72,108.4	4,403.0
Actuarial Reserve	70,987.2	5,586.5
Ratio	1.016	0.788

Core effective earnings rate = 6.5%, dividend adjustment = 1.6%.

Variable effective earnings rate = -18.0%, and the variable adjustment = -21.0%.

(Report- Cover Letter & Pages 6 and 16)



Summary of Results – Annuity Adjustments

- * 1.6% Core Dividend < 6.5% CPI Increase
- * -21% Variable Adjustment follows 15%/13% Adjustments in previous 2 years

- Positive core dividend despite volatile investment markets
 - Lags behind current CPI environment
 - However, was 7.4%/5.1% prior two years exceeded CPI
- Negative variable adjustment
 - Previous 3 years had double digit positive variable adjustments
 - Similar to previous periods with consecutive double digit variable adjustments, decreased variable adjustment reflects weaker subsequent market returns

Summary of Results – Core Assets

Due to smoothing via Market Recognition Account, as of December 31, 2022 there are approximately \$7.0 billion in unrecognized losses in the Core fund

- Last year was \$17.7 billion in unrecognized gains
- Will be recognized over the next four years
- Roughly ½ of gain applies to the annuitant reserve, the other half shared by active members and employers
- May decrease probability of future positive annuity adjustments

Operation of Market Recognition Account (MRA) – \$ Millions

2021 Valuation

	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>
Actual Investment Earnings	\$ 19,957				
Assumed Investment Earnings	7,482				
Gain/(Loss) to be phased-in	12,475				
Phased-in recognition					
• Current year	\$ 2,495	?	?	?	?
• First prior year	1,774	\$ 2,495	?	?	?
• Second prior year	2,204	1,774	\$ 2,495	?	?
• Third prior year	(2,049)	2,204	1,774	\$ 2,495	?
• Fourth prior year	<u>1,461</u>	<u>(2,049)</u>	<u>2,204</u>	<u>1,774</u>	<u>\$ 2,495</u>
Total recognized gain (loss)	\$ 5,885	\$ 4,424	\$ 6,473	\$ 4,269	\$ 2,495

2022-2025: Expect \$17.7 billion in deferred asset GAINS
-- Shared by annuitants, actives and employers

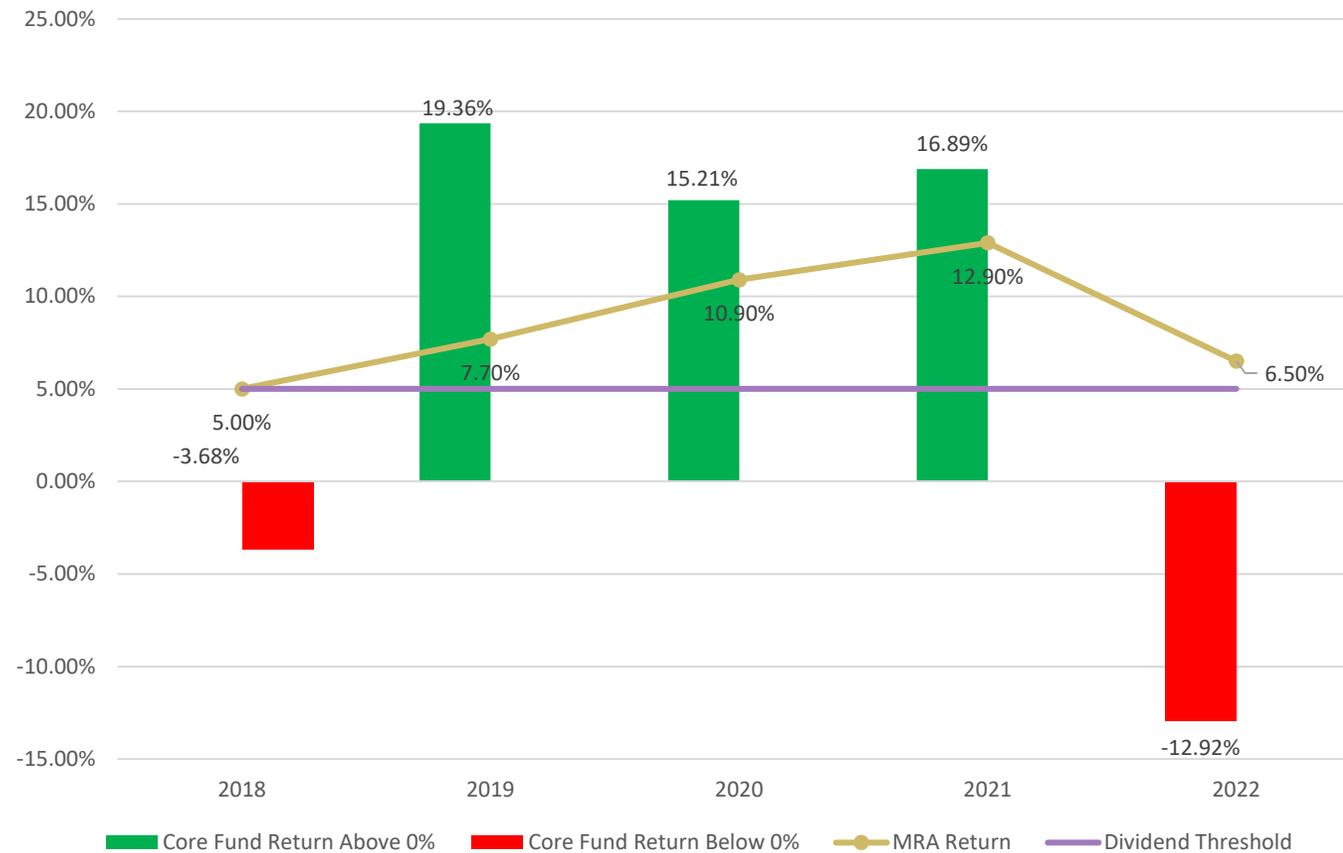
Operation of Market Recognition Account (MRA) – \$ Millions

2022 Valuation

	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>
Actual Investment Earnings	\$ (17,445)				
Assumed Investment Earnings	7,894				
Gain/(Loss) to be phased-in	(25,339)				
Phased-in recognition					
• Current year	\$ (5,068)	?	?	?	?
• First prior year	2,495	\$ (5,068)	?	?	?
• Second prior year	1,774	2,495	\$(5,068)	?	?
• Third prior year	2,204	1,774	2,495	\$ (5,068)	?
• Fourth prior year	<u>(2,049)</u>	<u>2,204</u>	<u>1,774</u>	<u>2,495</u>	<u>\$ (5,068)</u>
Total recognized gain (loss)	\$ (644)	\$ 1,405	\$ (799)	\$ (2,573)	\$ (5,068)

2023-2026: Expect \$7.0 billion in deferred asset LOSSES
-- Shared by annuitants, actives and employers

Core Fund Returns – Market Value vs. Market Recognition Account



Asset Rate of Return Calculation

$$\text{Rate of Return} = \frac{\text{Investment Earnings}}{\text{Asset Value}}$$

- Rate of Return will vary based on calculation inputs:
 - Asset value could be smoothed or unsmoothed
 - Asset value could be beginning, middle or end of year
 - Timing of Contributions and Benefit Payments will vary
- Result is different Rate of Return calculated by:
 - SWIB (investment manager)
 - ETF (calculations governed by statute)
 - GRS (actuaries)

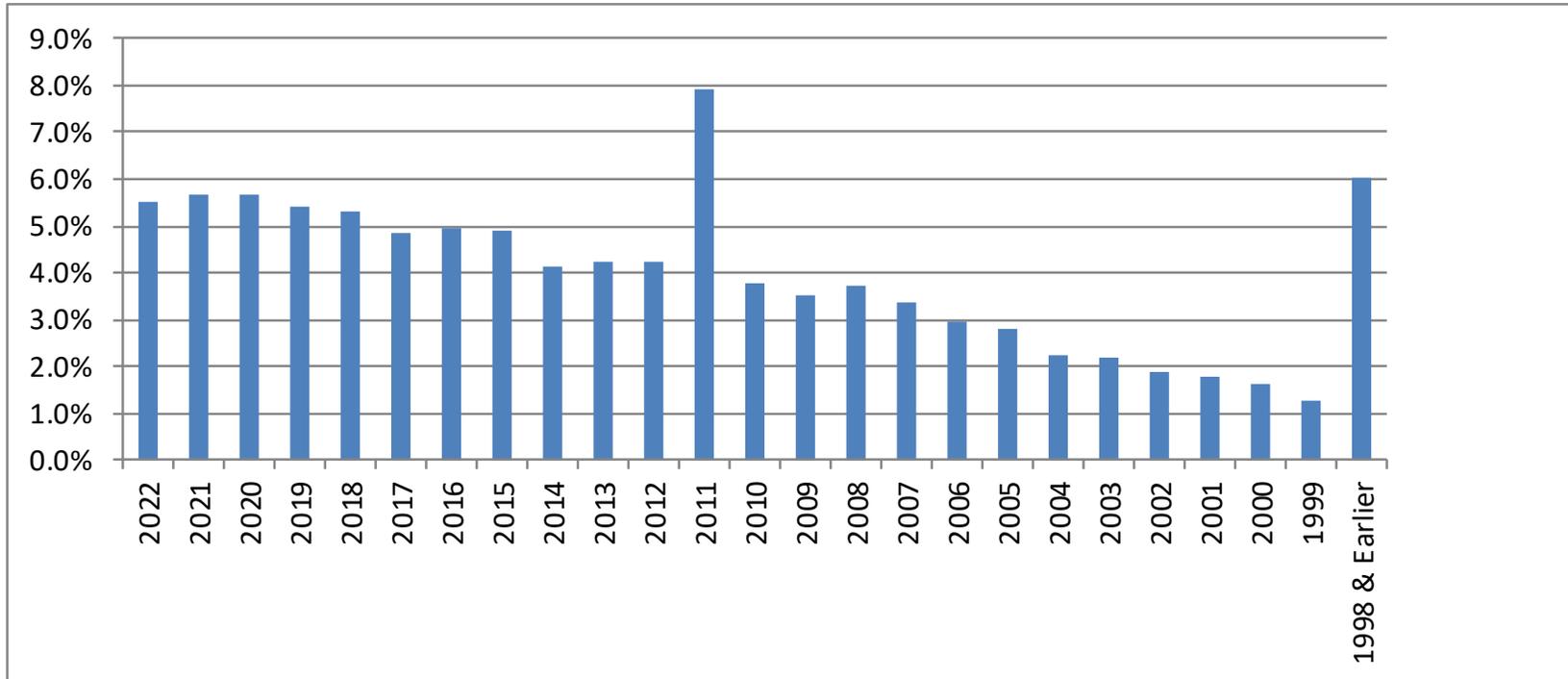
Primary Sources of Core Dividend

	<u>% of APV⁽¹⁾</u>
1. SWIB net of fee investment return	(12.92)%
2. MRA adjustment	<u>19.42%</u>
3. Published effective earnings rate	6.50%
4. Adjustment to relate earnings to average core annuity fund balance	<u>(0.30)%</u>
5. Earnings rate based on average balance	6.20%
6. Expected dividend before adjustments: 1.062/1.05-1	1.14%
7. Adjustment to relate average asset to ending liability	0.05%
8. Carryover from last year due to timing of dividend, accounting adjustments and rounding	0.34%
9. Experience study adjustment	0.00%
10. Experience and other effects	0.05%
11. Statutory adjustment to round to nearest one-tenth percent	<u>0.02%</u>
12. Computed average dividend rate: (6)+(7)+(8)+(9)+(10)+(11)	1.6%
13. Adjustment for members at or near the statutory floor	0.0%
14. Final computed dividend rate: (12)+(13), if greater than 0.5% (or less than -0.5%) of core annuities, otherwise 0%	1.6%

⁽¹⁾ Actuarial Present Value

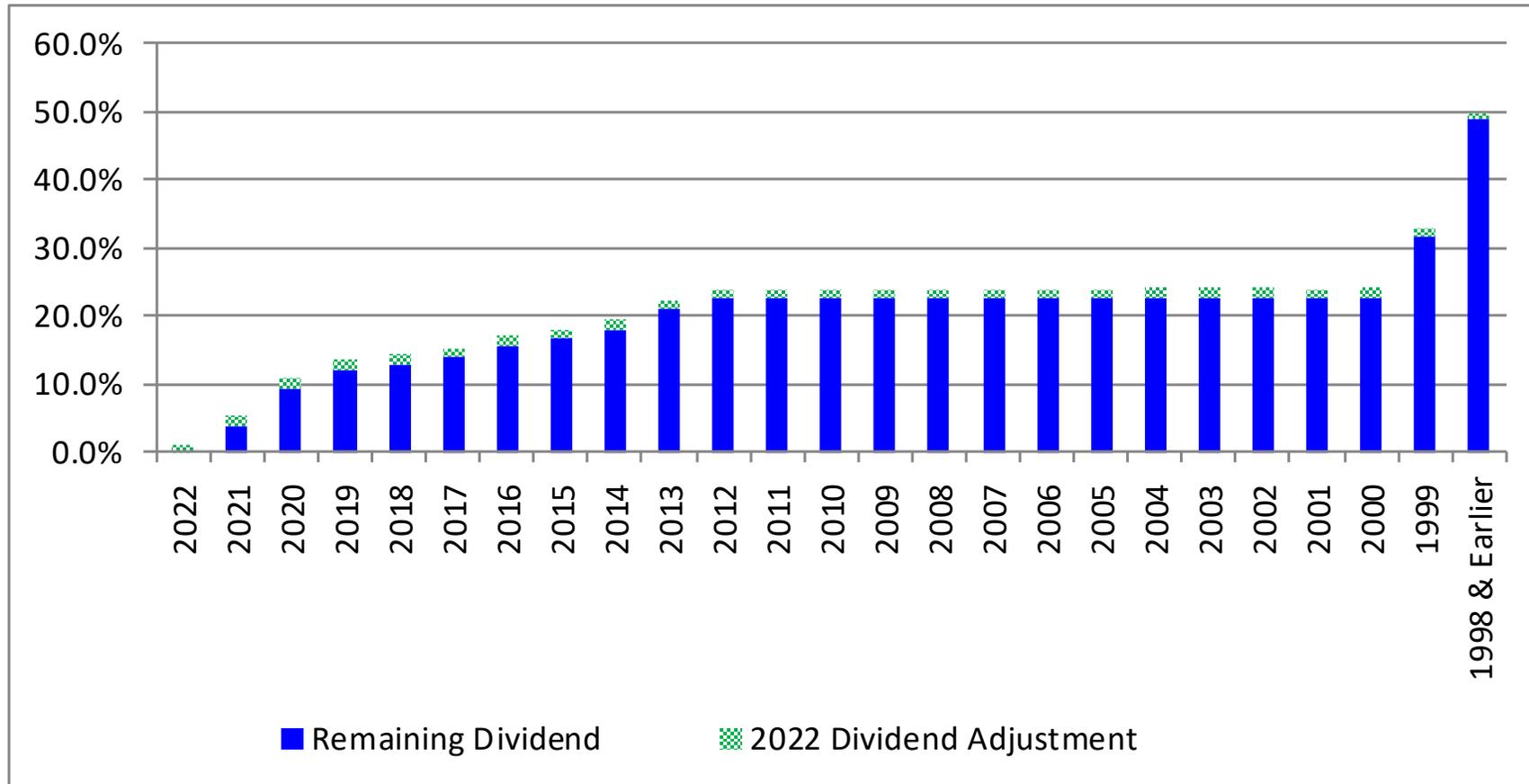


Liabilities (as a Percentage of Total) by Year of Retirement



(Report-7)

Dividend Remaining (as a Percentage of Total Benefit) by Year of Retirement



(Report-7)

Liability Attributable to Dividends – “Dividend Liability”

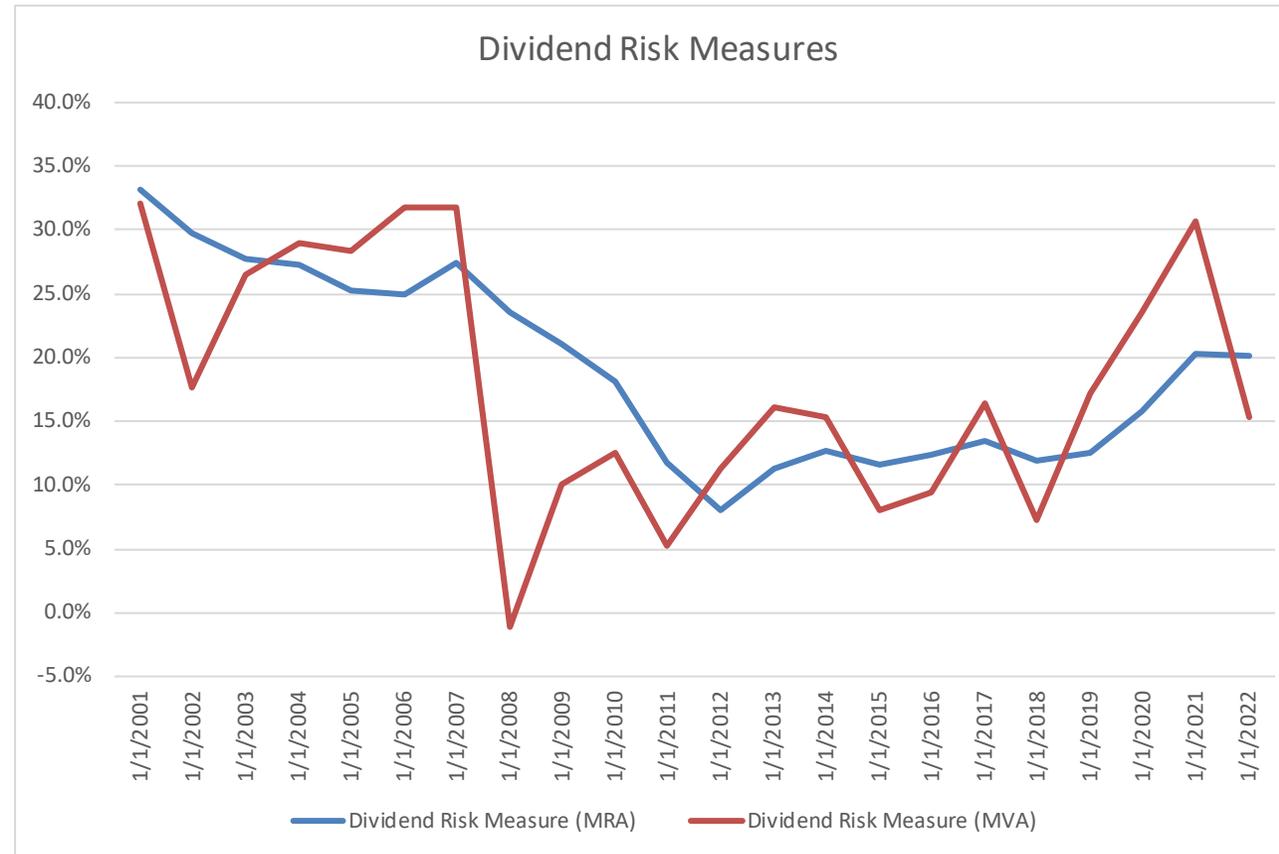
Valuation	Liability for Dividend Remaining (billions)	Liability for Dividend Adjustment (billions)	Liability after Dividend Adjustment (billions)
12/31/2013	\$3.0	\$2.0	\$5.0
12/31/2014	4.6	1.3	5.9
12/31/2015	5.5	0.2	5.7
12/31/2016	5.4	1.0	6.4
12/31/2017	6.1	1.3	7.4
12/31/2018	6.9	0.0	6.9
12/31/2019	6.5	1.0	7.5
12/31/2020	7.0	3.1	10.1
12/31/2021	9.4	4.8	14.2
12/31/2022	13.4	1.1	14.5

- “Liability for dividend remaining” = value of all previously granted dividends (=\$9.2B at 12/31/2008)
- 2023 “liability for dividend remaining” is >2008, BUT as a percentage of total liabilities, it is smaller
- Substantial asset losses could decrease the “liability for dividend remaining” to low levels

Dividend Risk Measure (MRA)

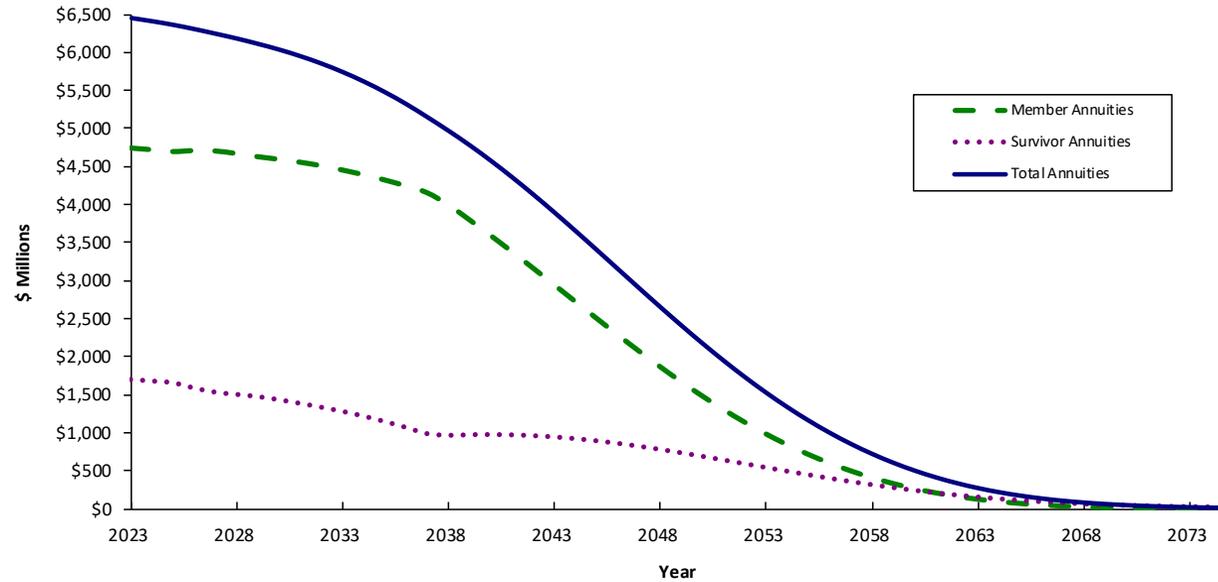
- Dividend Liability (after Dividend adjustment in April) / Total Core Retiree Assets
- Example (2022)
 - Dividend Liability = 14.5 billion
 - Total Retiree Assets (Core) = 72.1 billion
 - Dividend Risk Measure = $14.5/72.1 = 20.1\%$
- In other words, Retiree Assets (after MRA smoothing) would need to decrease by 20.1% to deplete the existing Dividend Liability by year end.
- Dividend Risk Measure was 20.3% last year.

Dividend Risk Measures History*



*Higher values are desirable

Projected Future Core Annuities



	\$ Billions	
	<u>With Expected Dividends</u>	<u>Without Expected Dividends</u>
Total Future Benefit Payments	\$149.6	\$118.8
Present Assets	72.1	72.1
Future Investment Return Needed	77.5	46.7

Based upon the assumptions used in the valuation, future dividends are expected to be approximately 1.7% per year. Of course actual dividends will be based upon actual future investment return and the operation of the Market Recognition Account.

(Report-13)



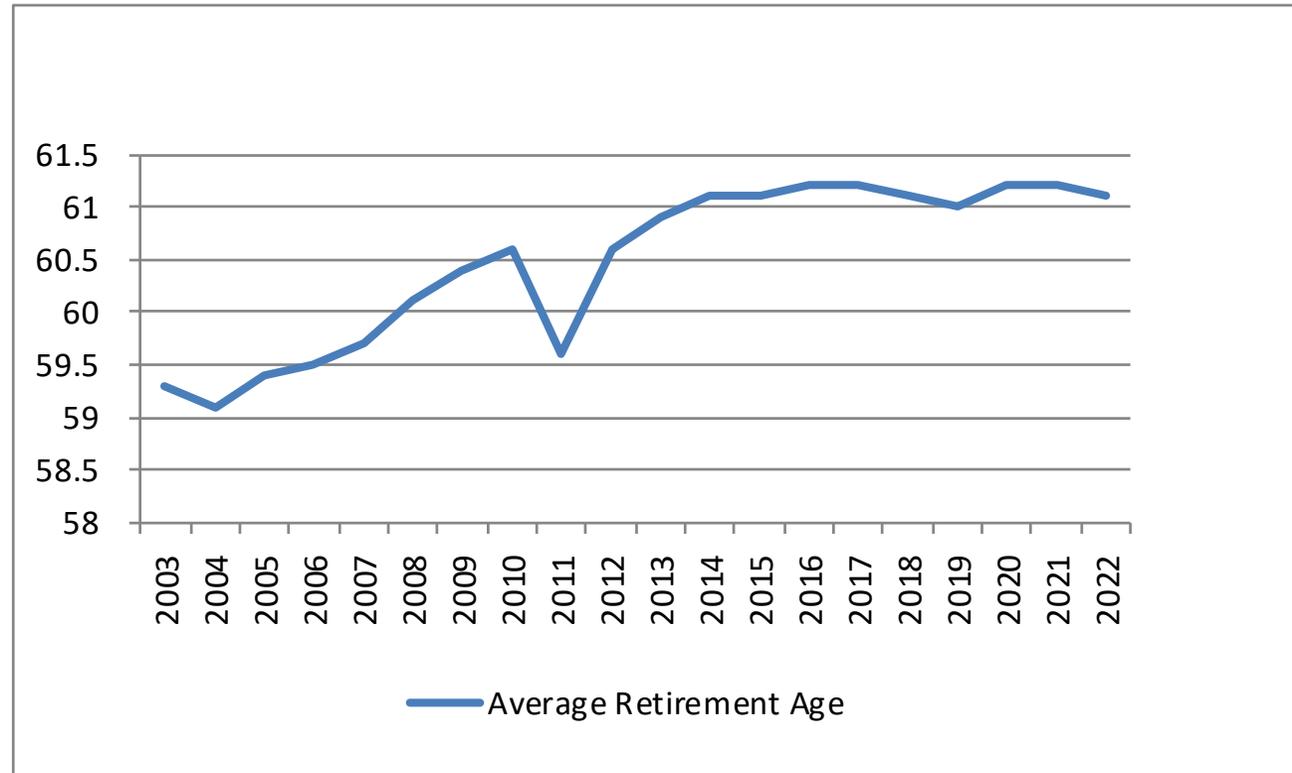
Primary Sources of Variable Adjustment

	<u>% of APV⁽¹⁾</u>
1. SWIB net of fee investment return	(17.8)%
2. Adjustment to published effective rate	<u>(0.2)%</u>
3. Published effective earnings rate	(18.0)%
4. Adjustment to relate earnings to average variable annuity fund balance	<u>0.3%</u>
5. Earnings rate based on average balance	(17.7)%
6. Expected change before adjustments: $(1-0.177)/1.05-1$	(21.6)%
7. Adjustment to relate average asset to ending liability	(0.6)%
8. Carryover from last year due to timing of distribution, accounting adjustments and truncation	0.6%
9. Experience study adjustment	0.0%
10. Experience and other effects	0.4%
11. Statutory adjustment: (truncate to whole percent)	<u>0.2%</u>
12. Variable annuity change: (6)+(7)+(8)+(9)+(10)+(11)	(21.0)%

⁽¹⁾ Actuarial Present Value



Average Retirement Age



Summary of Mortality Experience for WRS

<u>Valuation</u>	<u>Expected Deaths</u>	<u>Actual Deaths</u>	<u>Difference</u>	<u>Death Rate</u>
12/31/2018	4,937	5,032	95	0.0251
12/31/2019	5,147	5,147	0	0.0250
12/31/2020	5,384	5,788	404	0.0273
12/31/2021	5,837	5,996	159	0.0275
12/31/2022	6,060	6,204	144	0.0277

Although we cannot ascribe the increase in death rates directly to the pandemic, it is notable that the increase in death rate is appropriately coincident with the start of the COVID-19 pandemic.

Summary of Mortality Experience

- Average mortality rate remained elevated by a similar amount as prior two years, possibly due to the pandemic
- Overall impact on Core Dividend relatively small
- Only three years of experience at this point
- Is this the new normal? Or will mortality revert to pre-pandemic levels?

Recent Society of Actuaries Study

Table 3.1

EXCESS MORTALITY PERCENTAGES FOR THE 40 WEEKS MAR. 22, 2020, THROUGH DEC. 26, 2020

Age	Females			Males		
	Total A/E	COVID-19	Exc. COVID-19	Total A/E	COVID-19	Exc. COVID-19
15–24	119.3%	3.8%	115.5%	125.8%	2.2%	123.6%
25–34	119.3%	6.6%	112.7%	123.3%	4.9%	118.5%
35–44	124.7%	9.8%	114.9%	129.7%	10.5%	119.2%
45–54	123.7%	13.2%	110.5%	129.6%	16.5%	113.2%
55–64	117.1%	14.3%	102.8%	122.1%	16.5%	105.6%
65–74	121.5%	17.3%	104.1%	124.0%	20.1%	104.0%
75–84	122.2%	18.4%	103.8%	124.6%	21.8%	102.9%
85+	120.2%	17.7%	102.5%	120.3%	19.8%	100.5%
Ages 65+	121.1%	17.8%	103.2%	123.0%	20.6%	102.4%
All ages	120.6%	16.7%	103.9%	123.3%	18.3%	105.0%

Recent Society of Actuaries Study

Table 3.2

EXCESS MORTALITY PERCENTAGES FOR THE 52 WEEKS JAN. 3, 2021, THROUGH JAN. 1, 2022

Age	Females			Males		
	Total A/E	COVID-19	Exc. COVID-19	Total A/E	COVID-19	Exc. COVID-19
15–24	130.5%	8.7%	121.8%	130.4%	4.5%	126.0%
25–34	128.9%	14.5%	114.4%	131.8%	9.7%	122.1%
35–44	143.8%	22.4%	121.4%	146.9%	19.1%	127.8%
45–54	136.1%	24.4%	111.7%	141.8%	26.0%	115.8%
55–64	122.8%	20.5%	102.2%	125.3%	20.5%	104.8%
65–74	122.6%	18.6%	104.1%	123.0%	18.9%	104.1%
75–84	114.5%	13.8%	100.7%	115.5%	16.4%	99.0%
85+	104.1%	9.4%	94.7%	106.2%	12.1%	94.1%
Ages 65+	111.3%	12.8%	98.6%	114.8%	15.8%	99.0%
All ages	114.6%	14.2%	100.4%	119.8%	16.8%	103.1%

Recent Society of Actuaries Study

Table 3.3

EXCESS MORTALITY PERCENTAGES FOR THE 26 WEEKS JAN. 2, 2022, THROUGH JUL. 2, 2022

Age	Females			Males		
	Total A/E	COVID-19	Exc. COVID-19	Total A/E	COVID-19	Exc. COVID-19
15–24	122.8%	4.6%	118.2%	122.9%	2.6%	120.3%
25–34	119.2%	7.5%	111.7%	121.4%	4.8%	116.6%
35–44	129.8%	10.7%	119.0%	134.8%	8.4%	126.4%
45–54	121.6%	12.9%	108.6%	125.6%	12.3%	113.3%
55–64	111.8%	12.7%	99.2%	113.0%	12.1%	101.0%
65–74	114.0%	12.7%	101.3%	114.3%	13.1%	101.2%
75–84	111.8%	11.0%	100.8%	112.8%	13.3%	99.5%
85+	102.8%	8.5%	94.3%	104.0%	11.6%	92.4%
Ages 65+	108.0%	10.2%	97.8%	110.4%	12.7%	97.7%
All ages	109.6%	10.4%	99.2%	113.0%	12.0%	101.0%

Recent Society of Actuaries Study

- Reporting methods of 'COVID' deaths varies from state to state and may not be as reliable
- Reporting of Excess Deaths is more reliable and similar to what we have seen in pension data in WRS and other states
- Every age group experienced more deaths than expected over last 3 years
- Many secondary impacts (isolation, delayed medical care, mental health, etc.) make it difficult to determine the root cause of excess deaths

Comparative Statement – Core

Valuation Date	Number	\$ Millions			Ratio	Change in		
		Annual Annuities	Fund Balance	Actuarial Reserve		Annuities		CPI*
						Average	Maximum	
2013	180,056	\$ 3,800.7	\$ 44,273.2	\$ 42,300.5	1.047	4.7 %		1.5 %
2014	185,605	4,102.3	47,135.7	45,790.7	1.029	2.9 %		0.8 %
2015	191,795	4,364.9	49,147.0	48,897.5	1.005	0.5 %		0.7 %
2016	197,647	4,523.1	51,972.0	50,941.4	1.020	2.0 %		2.1 %
2017	203,202	4,747.0	54,900.0	53,590.0	1.024	2.4 %		2.1 %
2018	211,126	5,040.9	56,493.8	56,629.3	0.998	0.0 %		1.9 %
2019	216,944	5,183.7	59,138.4	58,157.0	1.017	1.7 %		2.3 %
2020	222,723	5,423.2	63,805.8	60,691.1	1.051	5.1 %		1.4 %
2021	228,161	5,842.6	69,910.7	65,085.4	1.074	7.4 %		7.0 %
2022	233,804	6,409.7	72,108.4	70,987.2	1.016	1.6%		6.5 %
35-Year Average						3.4 %		2.7 %
20-Year Average						1.5 %		2.5 %
10-Year Average						2.8 %		2.6 %
5-Year Average						3.1 %		3.8 %

*Based on December CPI-U67 index.

(Report-21)

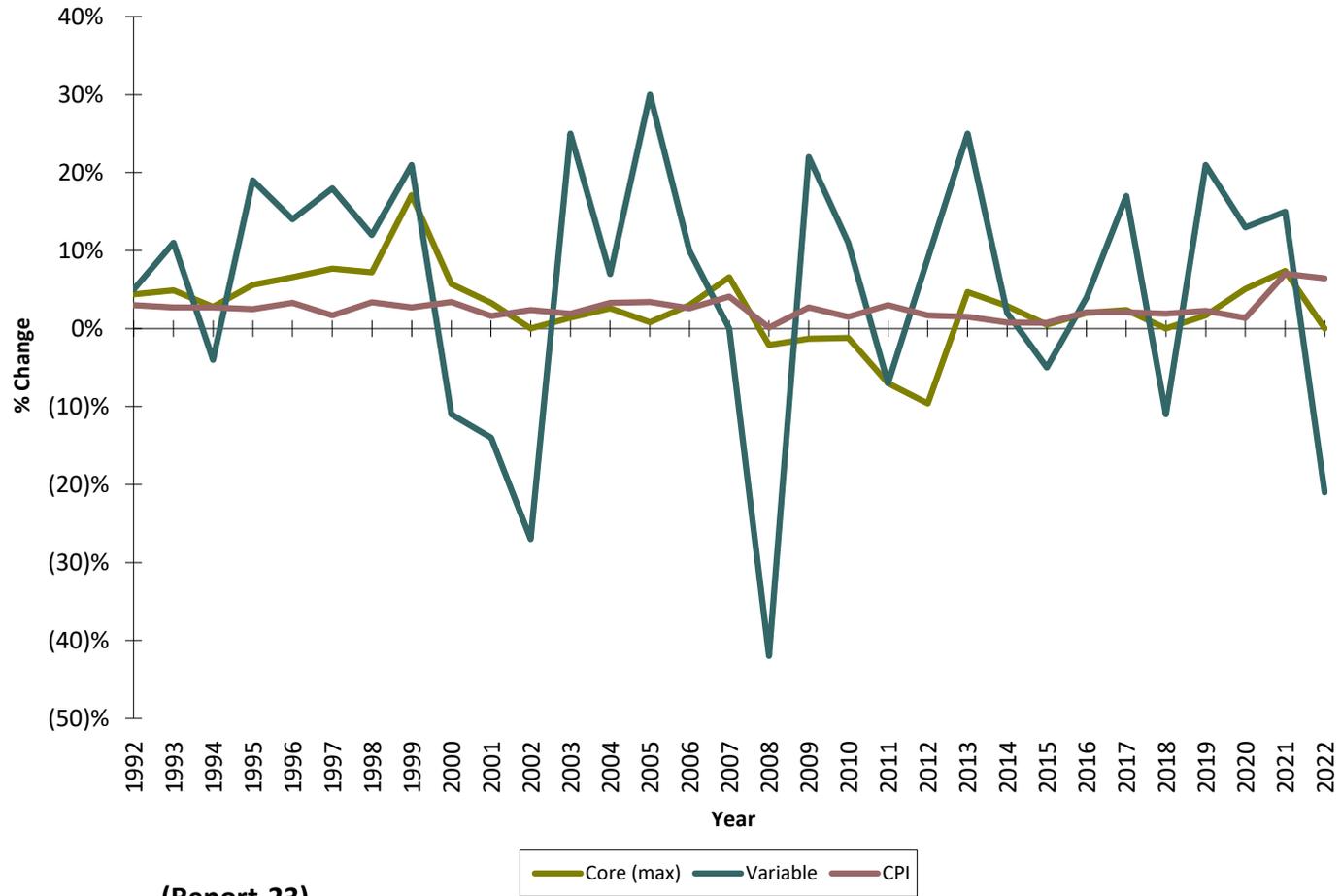
Comparative Statement – Variable

Valuation Date	Number	\$ Millions				Change in	
		Annual Annuities	Fund Balance	Actuarial Reserve	Ratio	Annuities	CPI*
2013	40,317	\$ 324.5	\$ 4,187.3	\$ 3,347.0	1.251	25.0 %	1.5 %
2014	39,420	386.5	3,995.4	3,917.1	1.020	2.0 %	0.8 %
2015	40,152	387.8	3,704.8	3,910.1	0.947	(5.0)%	0.7 %
2016	40,647	363.6	3,792.0	3,645.1	1.040	4.0 %	2.1 %
2017	40,877	369.9	4,324.9	3,682.1	1.175	17.0 %	2.1 %
2018	41,187	425.8	3,738.6	4,207.6	0.891	(10.0)%	1.9 %
2019	41,777	379.7	4,519.4	3,728.6	1.212	21.0 %	2.3 %
2020	41,753	449.7	4,954.0	4,383.0	1.130	13.0 %	1.4 %
2021	42,251	502.6	5,618.0	4,866.0	1.155	15.0 %	7.0 %
2022	43,007	578.5	4,403.0	5,586.5	0.788	(21.0)%	6.5 %
35-Year Average						3.7 %	2.7 %
20-Year Average						3.5 %	2.5 %
10-Year Average						5.1 %	2.6 %
5-Year Average						2.3 %	3.8 %

*Based on December CPI-U67 index.

(Report-22)

History of % Dividend Adjustments



(Report-23)



Looking Ahead

- As of the December 31, 2022 valuation, there are about \$7.0 billion in unrecognized asset losses in the Core fund
 - About half of this will be applied to annuitant reserve
 - Will be recognized over the next four years
 - May decrease probability of future positive annuity adjustments
- We will continue monitoring various plan risks, including dividend liability risk

INVESTMENT RETURN ASSUMPTION REVISITED

Process of Setting the Investment Return Assumption

- GRS conducts an Experience Study every 3 years
 - Last study conducted after the 2020 valuation (fall of 2021)
 - Next study will be conducted after the 2023 valuation (fall of 2024)
 - GRS must also assert that the assumptions are reasonable every year (informal review for consistency with current trends/expectations)
- GRS performs Stress Testing with SWIB every 2 years
 - Next Study will be conducted in fall of 2023
 - SWIB provides up to date target allocations and stress test scenarios
 - GRS provides stress tests and develops sweet-spot (Goldilocks zone)
 - Due to cost sharing structure, portfolios that are too conservative can also be risky (i.e., lead to dividend depletion)

Updating the Investment Return Assumption

- WRS Investment Return Assumption Changes:
 - 2010 valuation: from 7.8% to 7.2%
 - 2018 valuation: from 7.2% to 7.0%
 - 2021 valuation: from 7.0% to 6.8%
- Decreases consistent with:
 - Decreased expected forward-looking returns
 - Changes among Statewide PERS

Impact of Recent 20 Basis Point Decreases in the Investment Return Assumption

- Retirees/Dividends
 - Valued at 5% (per Statute) so does not directly impact valuation of liabilities
 - Change in expected return has minor impact on MRA
 - 20 basis point change spread over a 5 year period
 - Dividend paid ultimately based on actual returns, not expected returns
 - Smoothing of assets delays the impact of investment returns on dividend adjustments

Impact of Recent 20 Basis Point Decreases in the Investment Return Assumption

- Employer Contribution Rates
 - Updated assumptions increased rates in 2021 valuation

Assumption Changed	Impact General	Impact Prot. W/SS	Impact Prot. W/o SS
All	1.0%	2.6%	2.9%
Investment Return only	0.5%	0.6%	1.0%

- Increases shared equally by employers and employees
 - Often mitigated by other changes (wage inflation, etc.)
- Similar “investment return only” impact in 2018 valuation

Changes in Forward-Looking Geometric Returns -- WRS Portfolio

Period	GRS CMAM 2019 Survey	GRS CMAM 2020 Survey	GRS CMAM 2021 Survey	SWIB/NEPC 2021	SWIB/NEPC 6/30/2022 ⁽¹⁾
10 Years	7.04%	6.54%	6.19%	5.40%	6.70%
20-30 Years	8.11%	7.61%	7.26%	6.60%	7.30%

⁽¹⁾ Based on current policy portfolio

- Across the board, higher future expectations reported from surveyed Investment Consultants at 12/31/2022
- Volatility in year-to-year expectations demonstrate the need for a carefully measured approach to change in assumptions

Conclusions

- Current investment return assumption is reasonable
- Due to poor investment returns in 2022 (and rise in short term rates), most investment consultants have increased their 10 year forecasts (100 basis points or more in some cases)
- This brings forecasts more in line with current assumptions for many systems
- High Volatility continues to add risk that should be accounted for

Disclaimers

- This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- This presentation is intended to be used in conjunction with the actuarial valuation report for retired lives issued on February 21, 2023. This presentation should not be relied on for any purpose other than the purpose described in the valuation report.
- Readers are cautioned to examine original source materials and to consult with subject matter experts before making decisions related to the subject matter of this presentation.
- This presentation expresses the views of the authors and does not necessarily express the views of Gabriel, Roeder, Smith & Company.



Action Items

ETF requests the Employee Trust Funds (ETF) Board accept the actuary's report on the WRS 40th Annual Valuation of Retired Lives – December 31, 2022 and adopt their recommendation.

Core Fund Annuity Adjustments and Effective Rate Projections

Item 6C - Employee Trust Funds Board
March 23, 2023

Cindy Klimke-Armatoski, CPA
Chief Trust Financial Officer

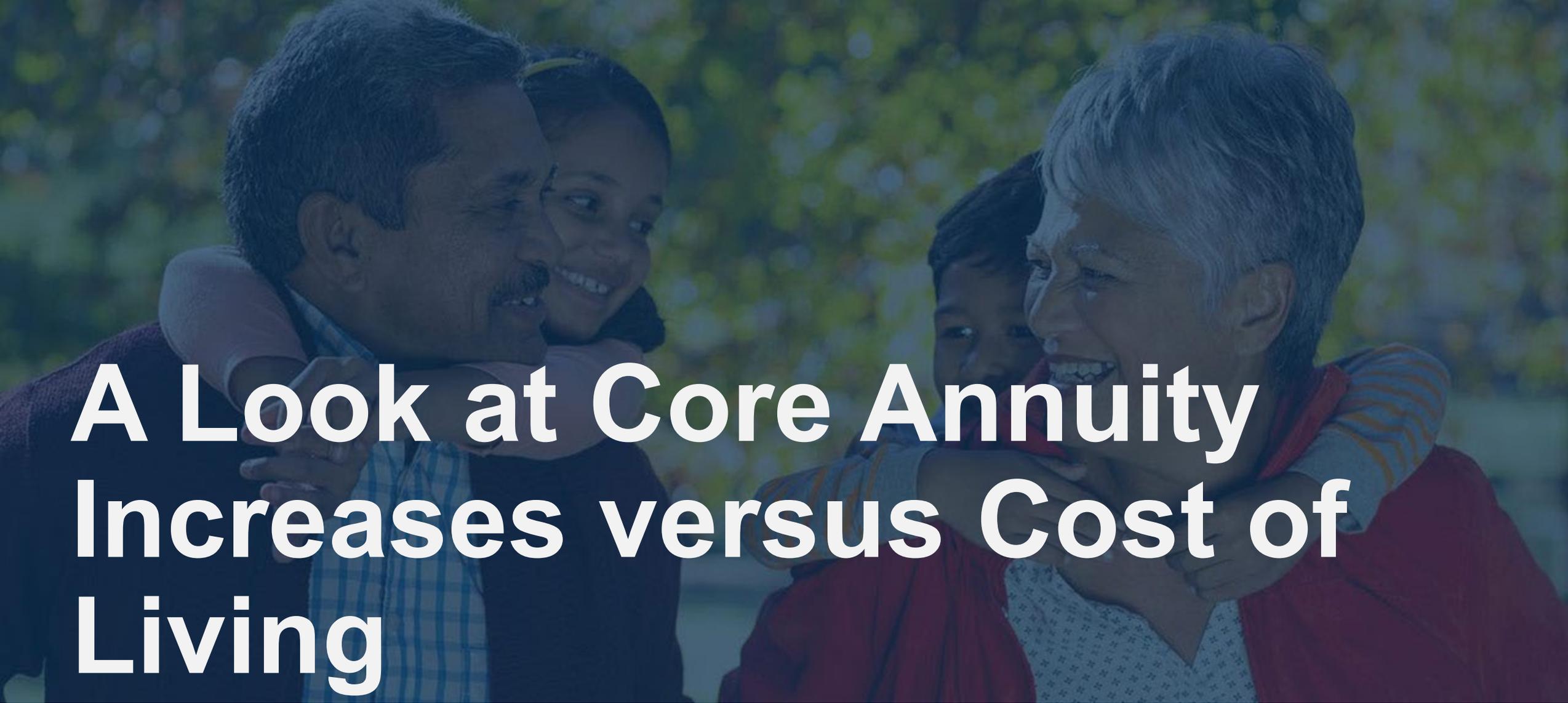
Division of Trust Finance



Current Value of Annuities*

If You Retired in	A \$1,000 Core Annuity is Receiving	The Annual Rate of Increase is	A \$1,000 Variable Annuity is Receiving	The Annual Rate of Increase is	The Annual Change in CPI is
2018	\$1,166	3.1%	\$1,118	2.3%	3.8%
2013	\$1,319	2.8%	\$1,648	5.1%	2.6%
2008	\$1,319	1.9%	\$1,312	1.8%	2.3%
2003	\$1,319	1.4%	\$1,988	3.5%	2.5%
1998	\$1,671	2.1%	\$1,505	1.6%	2.5%

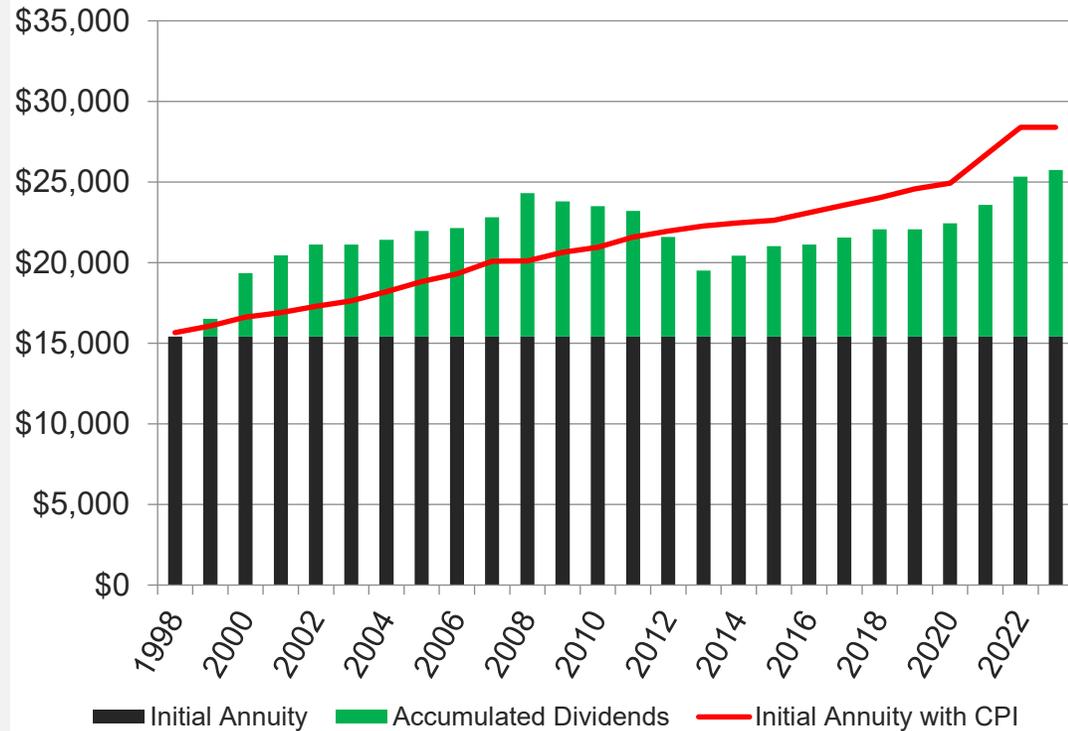
*Including annuity adjustments to be made effective April 1, 2023



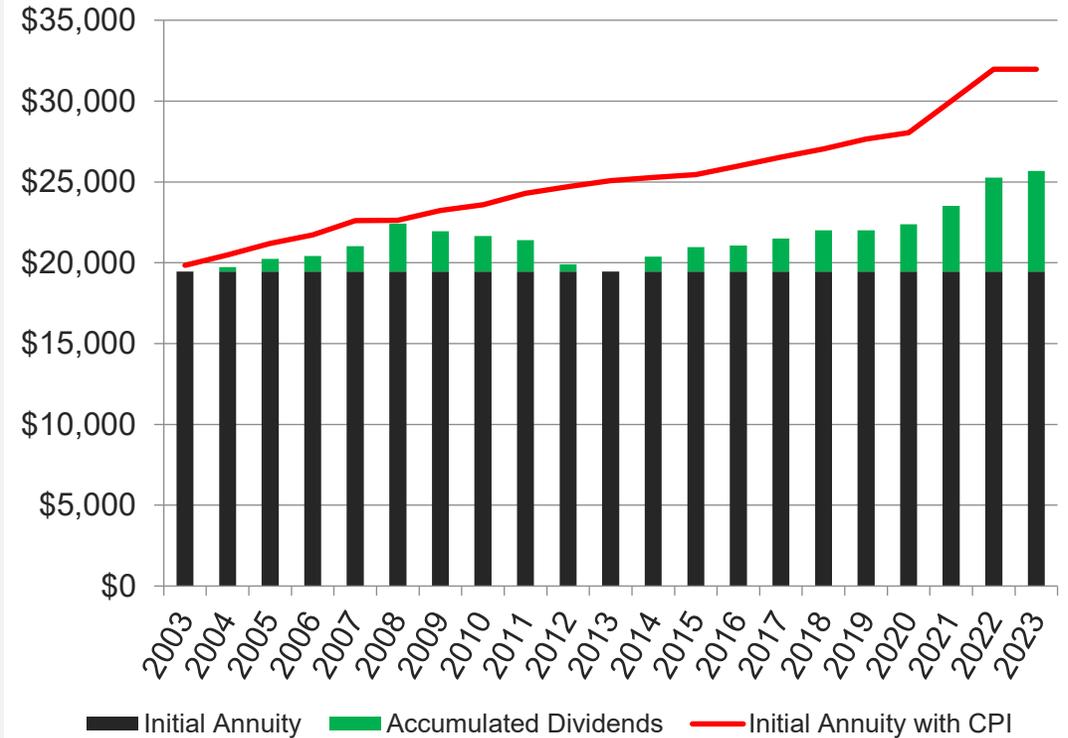
A Look at Core Annuity Increases versus Cost of Living

Change in Value of 1998 and 2003 Annuity

1998 Annuity
(4,412 annuitants)

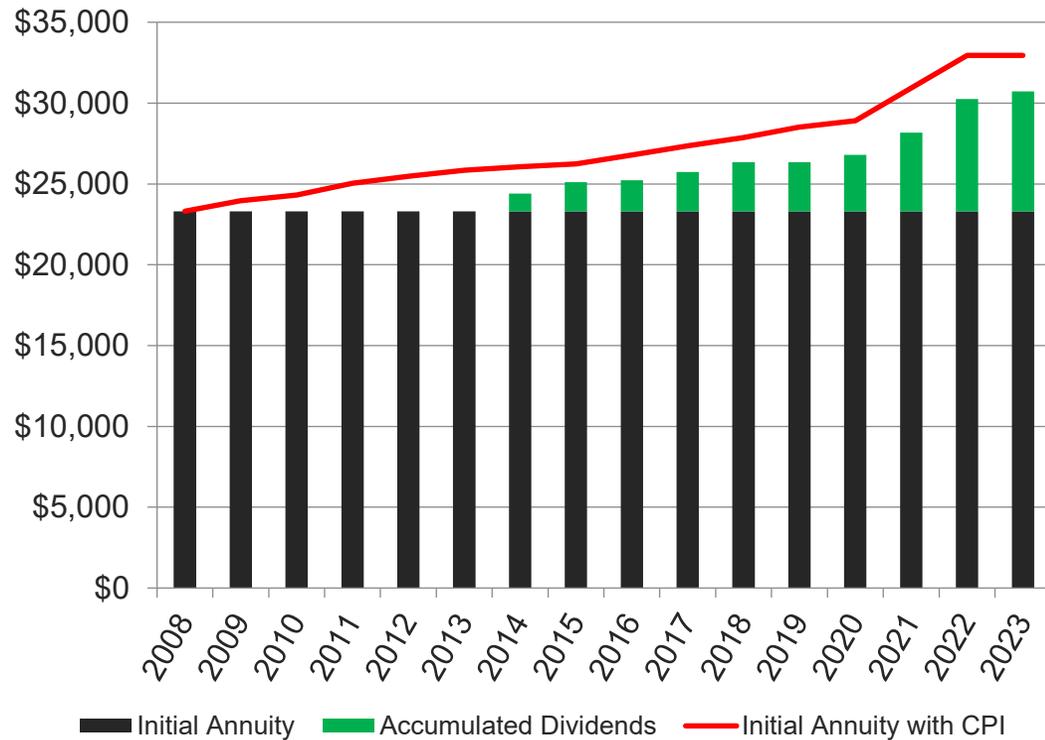


2003 Annuity
(6,409 annuitants)

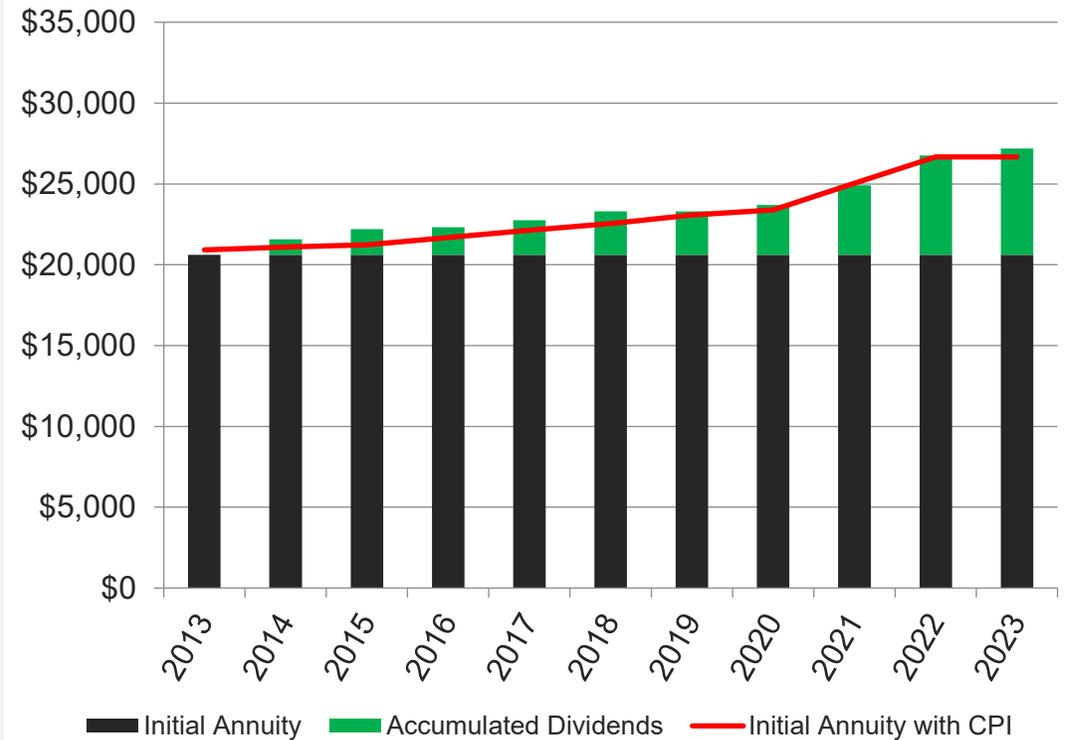


Change in Value of 2008 and 2013 Annuity

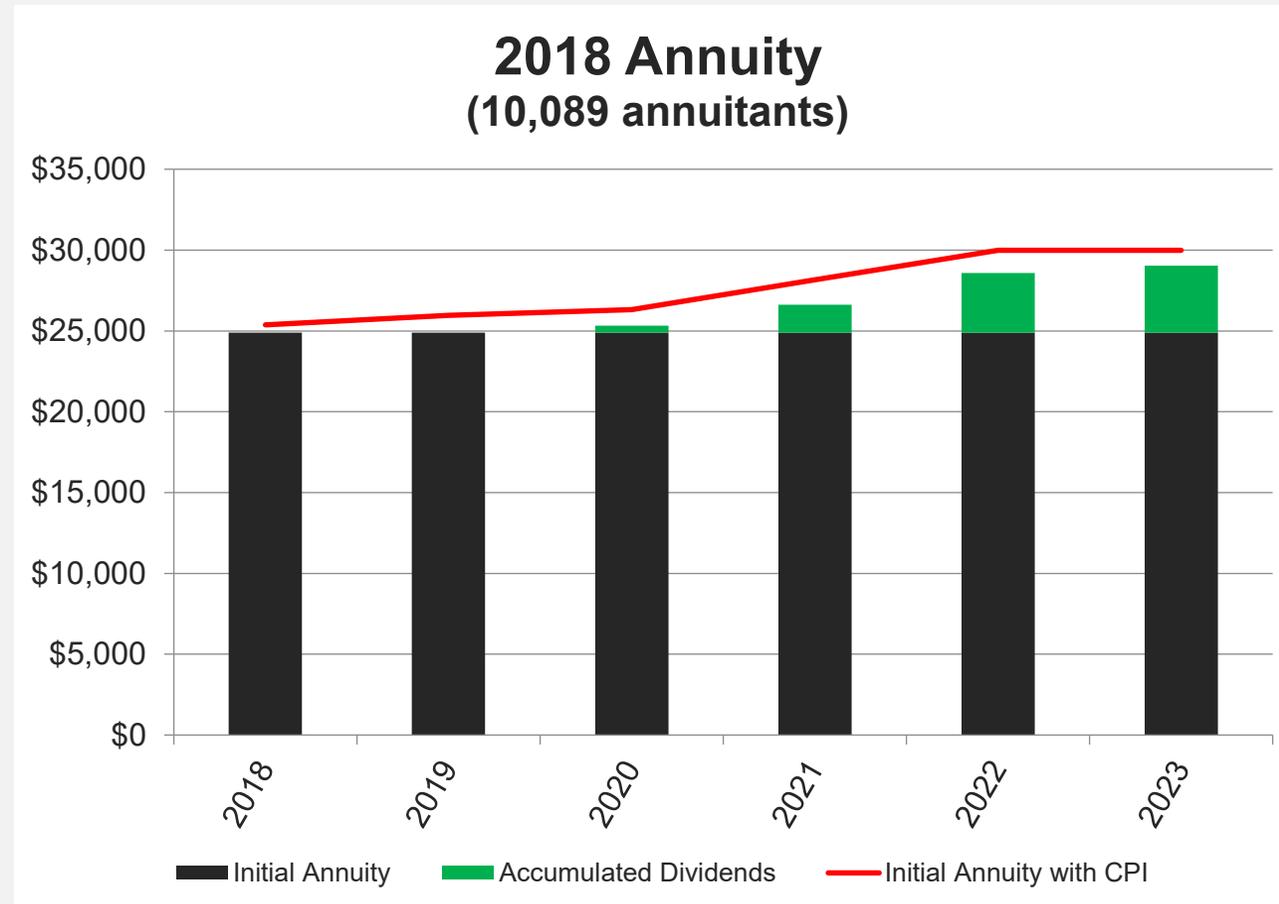
2008 Annuity
(8,138 annuitants)



2013 Annuity
(9,425 annuitants)



Change in Value of 2018 Annuity





Annuity Adjustment Projections

Disclaimers

- Projections only. Several assumptions and estimates used.
- Only an actuarial valuation can accurately calculate the annuity adjustments.
- Useful for anticipating the magnitude, not exact amount, of future adjustments.

The Basics

- Annuities will be increased if annuity reserve surplus provides at least a 0.5% increase. Annuities will be reduced if annuity reserve shortfall would require at least a -0.5% adjustment.
- Negative adjustments can only reduce increases granted in prior years. A core annuity cannot be reduced below the original value.
- In calculating annuity adjustments, a 5.0% assumed investment return is used to fund the original benefit. Thus, in a world where experience matched assumptions each year perfectly, annuitants would receive a 1.8% adjustment each year (6.8% less 5.0%). We don't live in that world.

Assumptions

- Based on preliminary 2022 Core Trust Fund net of fee investment return.
- Based on most recent WRS experience study (2018-2020 period), no longer reserving a percentage for mortality improvement.
- The projections include 2019 - 2022 investment gains and losses carried forward in the Market Recognition Account (MRA).

Market Recognition Account

- Investment gains / losses are “smoothed” through the Market Recognition Account (MRA):
 - The MRA is intended to give recognition to long-term changes in asset values while minimizing the impact of short-term fluctuations in the capital markets;
 - Investment gains equal to the assumed rate of 6.8%;
 - The difference between actual gains or losses and the assumed rate is spread equally over 5 years.

Investment Gain/Loss to be Recognized in Future Years

Year Earned	Year to Be Recognized (\$ millions)					Core Net of Fee Investment Return
	2022	2023	2024	2025	2026	
2023		?	?	?	?	?
2022	(5,068)	(5,068)	(5,068)	(5,068)	(5,068)	(12.92%)
2021	2,495	2,495	2,495	2,495		16.89%
2020	1,773	1,773	1,773			15.21%
2019	2,204	2,204				19.36%
2018	(2,048)					(3.68%)
Totals (may not add due to rounding)	(644)	1,404	(800)	(2,573)	(5,068)	

Result of 6.8% Investment Return in 2023 - 2026

	2022	2023	2024	2025	2026
SWIB Net Investment Return	(12.92%)	6.8%	6.8%	6.8%	6.8%
Effective Rate	6.5%	7.9% to 8.3%	5.9% to 6.3%	4.4% to 4.8%	2.3% to 2.7%
Average Annuity Adjustment	1.6%	2.6% to 3.0%	.7% to 1.1%	(.7%) to 0%	(2.7%) to (2.3%)
Dividend Liability*	~\$14.5b	~\$15.6b	~\$15.4b	~\$14.2b	~\$11.4b

* Dividend liability is the present value of previously granted post-retirement annuity adjustments. Some refer to this as the 'dividend reserve' although it is not a separate reserve. The funds are part of the annuity reserve.

Result of 0% Investment Return in 2023 and 6.8% in 2024 - 2026

	2022	2023	2024	2025	2026
SWIB Net Investment Return	(12.92%)	0%	6.8%	6.8%	6.8%
Effective Rate	6.5%	6.6% to 7.0%	4.6% to 5.0%	3.0% to 3.4%	.7% to 1.1%
Average Annuity Adjustment	1.6%	1.3% to 1.7%	0%	(2.4%) to (2.0%)	(4.3%) to (3.9%)
Dividend Liability*	~\$14.5b	~\$14.7b	~\$13.6b	~\$11.5b	~\$7.9b

* Dividend liability is the present value of previously granted post-retirement annuity adjustments. Some refer to this as the 'dividend reserve' although it is not a separate reserve. The funds are part of the annuity reserve.

Result of -11% Investment Return in 2023 and 6.8% in 2024 - 2026

	2022	2023	2024	2025	2026
SWIB Net Investment Return	(12.92%)	(11%)	6.8%	6.8%	6.8%
Effective Rate	6.5%	4.5% to 4.9%	2.3% to 2.7%	.4% to .8%	(2.3%) to (1.9%)
Average Annuity Adjustment	1.6%	0%	(3.1%) to (2.7%)	(4.6%) to (4.2%)	(7.1%) to (6.7%)
Dividend Liability*	~\$14.5b	~\$13.2b	~\$10.7b	~\$7.1b	~\$2.1b

* Dividend liability is the present value of previously granted post-retirement annuity adjustments. Some refer to this as the 'dividend reserve' although it is not a separate reserve. The funds are part of the annuity reserve.

Result of 17% Investment Return in 2023 and 6.8% in 2024 - 2026

	2022	2023	2024	2025	2026
SWIB Net Investment Return	(12.92%)	17%	6.8%	6.8%	6.8%
Effective Rate	6.5%	9.9% to 10.3%	7.9% to 8.3%	6.5% to 6.9%	4.6% to 5.0%
Average Annuity Adjustment	1.6%	4.4 to 4.8%	2.7% to 3.1%	1.2% to 1.6%	0
Dividend Liability*	~\$14.5b	~\$17.0b	~\$18.2b	~\$18.2b	~\$16.8b

* Dividend liability is the present value of previously granted post-retirement annuity adjustments. Some refer to this as the 'dividend reserve' although it is not a separate reserve. The funds are part of the annuity reserve.



Questions?

Thank you



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ETF E-mail Updates



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ETF 2021 Annual Comprehensive Financial Report (ACFR) Highlights

Item 6D - Employee Trust Funds Board

Amelia Slaney, CPA
Director of the Financial Compliance Bureau

Division of Trust Finance

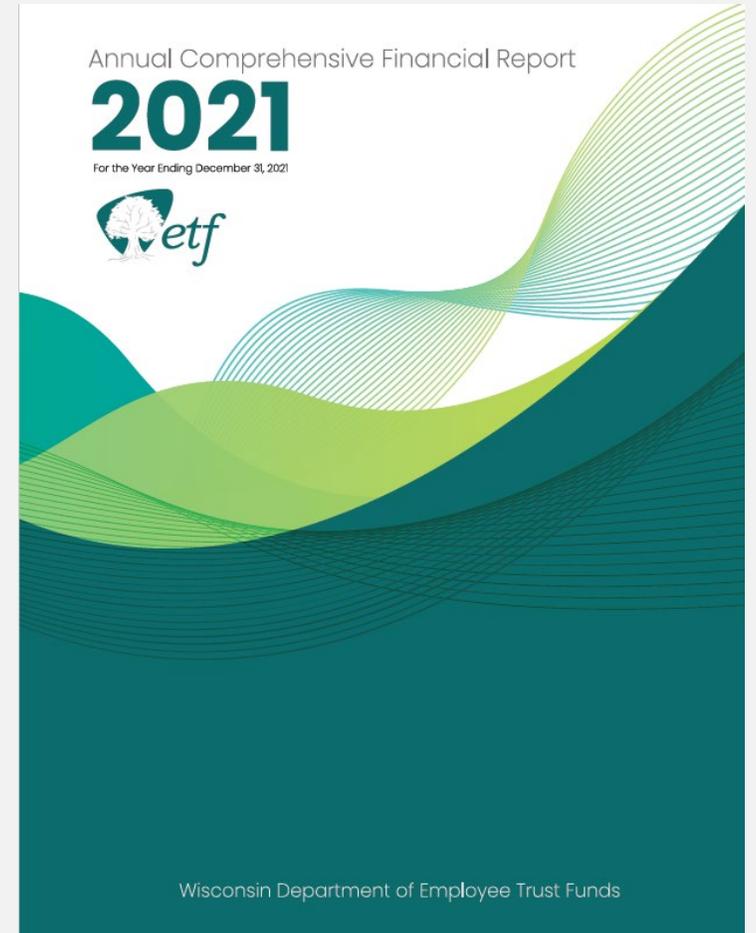


Agenda

- Calendar Year (CY) 2021 ACFR Overview
- What's in the ACFR?
- Audit Results
- Wisconsin Retirement System (WRS) Financial Statistics

CY 2021 ACFR Overview

- Limited changes in display and organization of report
- One accounting change



What's in the ACFR?

ACFR Section	Areas of Interest
Introduction	Letter of transmittal, professional awards, board and management members
Financial	Independent auditors' report, management's discussion & analysis, basic financial statements, summary of significant accounting policies, notes to the financial statements, required supplementary information, other supplementary information
Statistical	Financial trends, demographic and economic information, & operating information. This section also shows a summary of administrative fees for programs
Actuarial	Shows information used in WRS actuarial funding valuations, including the actuary's certification letter, valuation data, plan provisions, actuarial assumptions, contribution rates, and number of covered individuals
Investment	Written by State of Wisconsin Investment Board and includes report on investment activities, investment policies, schedule of investment results, asset allocation, list of portfolios largest holdings, and schedule of income and fees
Contribution and Unfunded Liabilities	This is primarily a reference of payroll, contributions, and WRS unfunded liabilities by employer

Net Position by Program



20 ANNUAL COMPREHENSIVE FINANCIAL REPORT 2021

FINANCIAL SECTION

» *Financial Highlights*

**Net Position By Program
As of December 31
(In Thousands)**

Program	2021	2020	\$ Change	% Change
Wisconsin Retirement System	\$ 141,847,701	\$ 124,966,394	\$ 16,881,307	14 %
Supplemental Health Insurance Conversion Credit	1,371,706	1,208,791	162,915	13
Employee Reimbursement Accounts/Commuter Benefits	1,950	1,325	625	47
State Retiree Life Insurance	319,606	333,752	(14,146)	(4)
Local Retiree Life Insurance	248,190	251,357	(3,167)	(1)
Milwaukee Retirement Systems	252,426	221,184	31,242	14
Local Retiree Health Insurance	0	0	0	0
Duty Disability Insurance	331,443	294,390	37,053	13
Health Insurance	227,516	220,697	6,819	3
Income Continuation Insurance	137,512	89,916	47,596	53
State Retiree Health Insurance	0	0	0	0
Accumulated Sick Leave Conversion Credit	(254,144)	(465,472)	211,328	45
Total	\$ 144,483,906	\$ 127,122,334	\$ 17,361,572	14 %

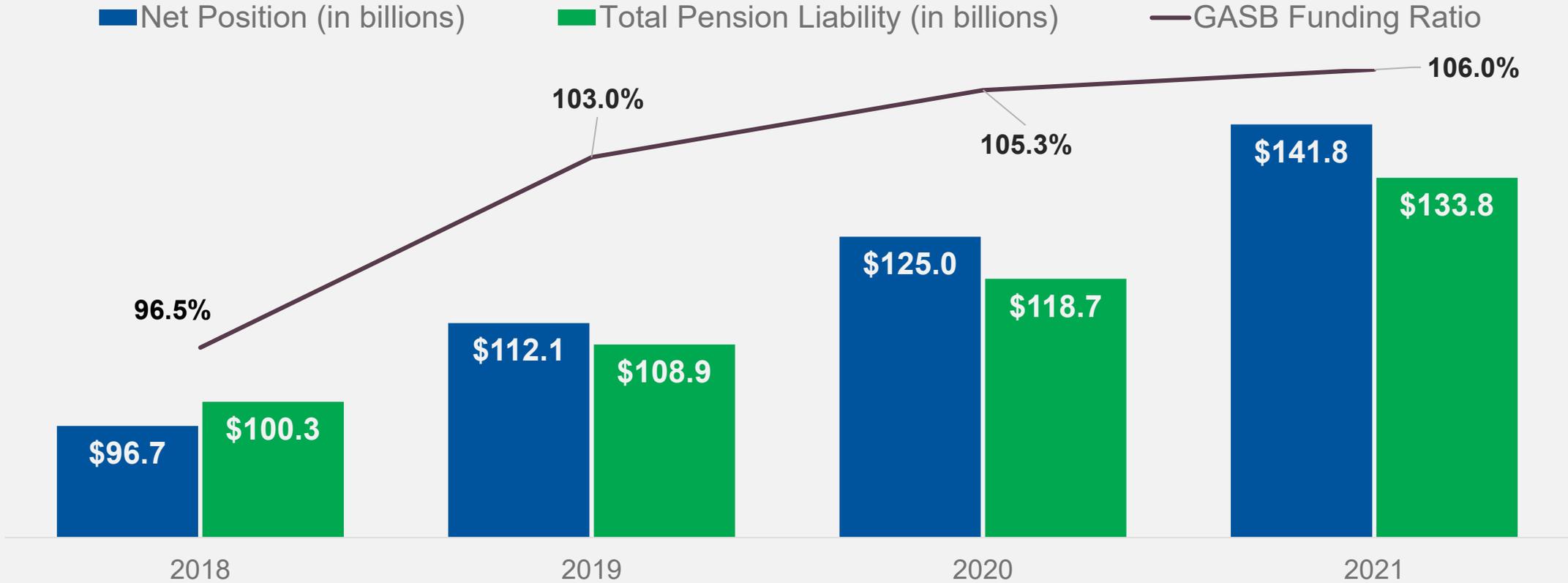


Audit Results

- Financial statements as of and for the year ending 12/31/2021
- Unmodified Opinion (clean) and no recommendations
- Standalone financial and employer schedule reports issued in September 2022
- Full ETF ACFR issued January 13, 2023

WRS Financially Strong

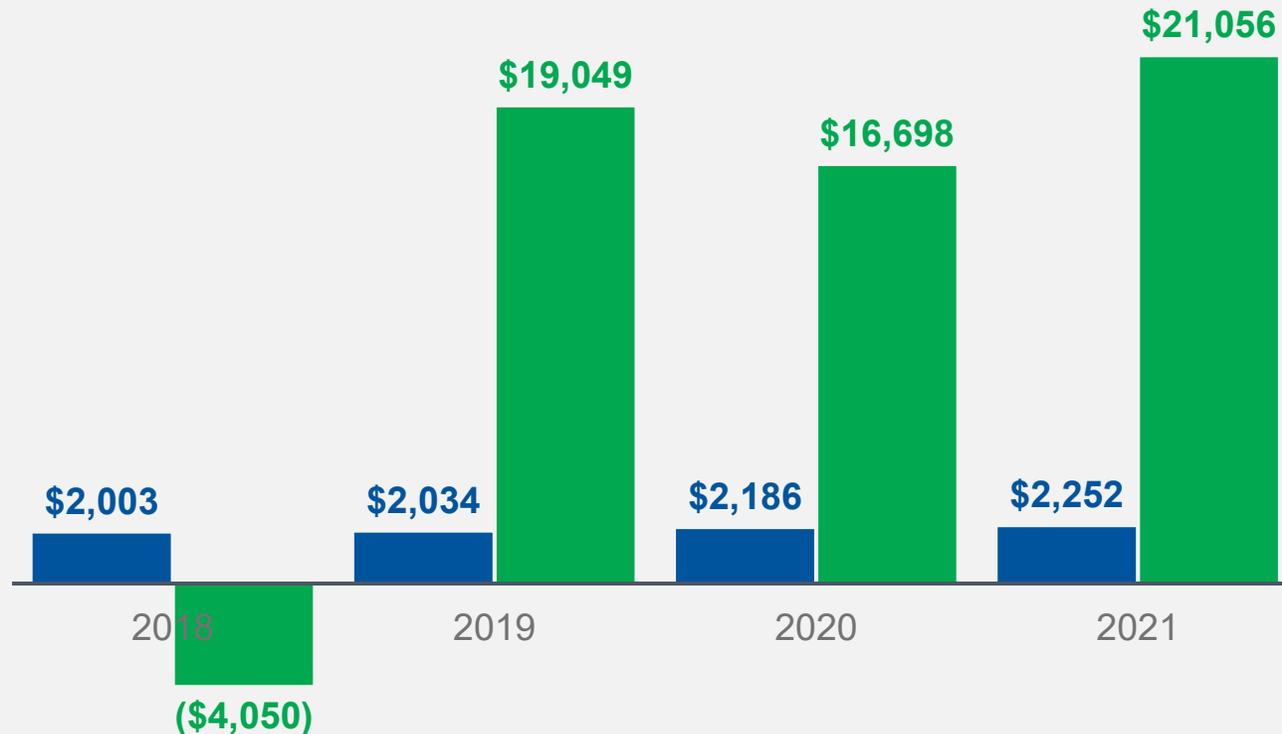
As of December 31



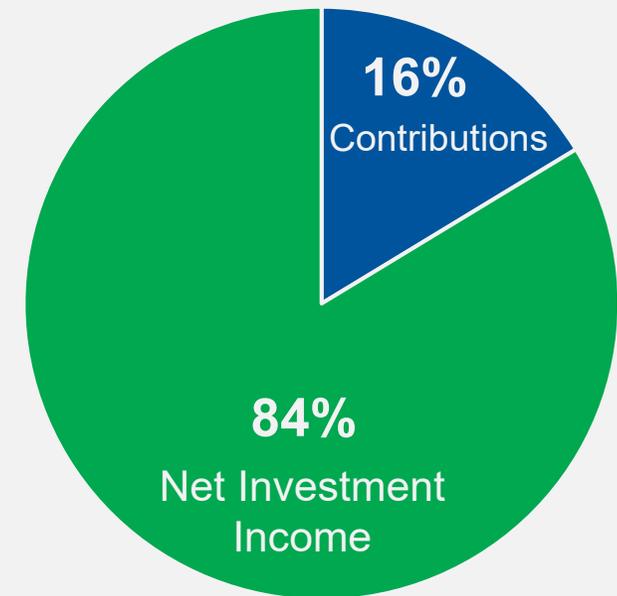
Investment Income 84% of WRS Revenue

WRS Revenues (in Millions) as of December 31

■ Contributions ■ Net Investment Income



WRS Funding Sources
2012 – 2021



Looking Ahead

- Already working on CY 2022 financial reporting
- LAB's audit will be starting soon
- Plan to issue Standalone Financial Reports in September 2023 and a full ETF ACFR after.
- Standalone reporting is necessary to support our employers' financial reporting requirements



Questions?

Thank you



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Delegation of Authority to Solicit Proposals from Qualified Firms to Assist with Procurement of Pension Administration System Consulting Services



Item 6E - Employee Trust Funds Board

Joanne Klaas, Contract Specialist

Bureau of Budget, Contract Administration & Procurement





Action Items

ETF requests the Employee Trust Funds (ETF) Board delegate its authority under Wis. Stat. 40.03 (1)(c) to the Secretary or designee or the Department of Employee Trust Funds to solicit proposals from qualified firms to be a strategic partner for the search, selection, and implementation, and oversight of a pension administration system.

BREAK

The Board is on a short break. Audio and visual feed will resume upon the Board's return.



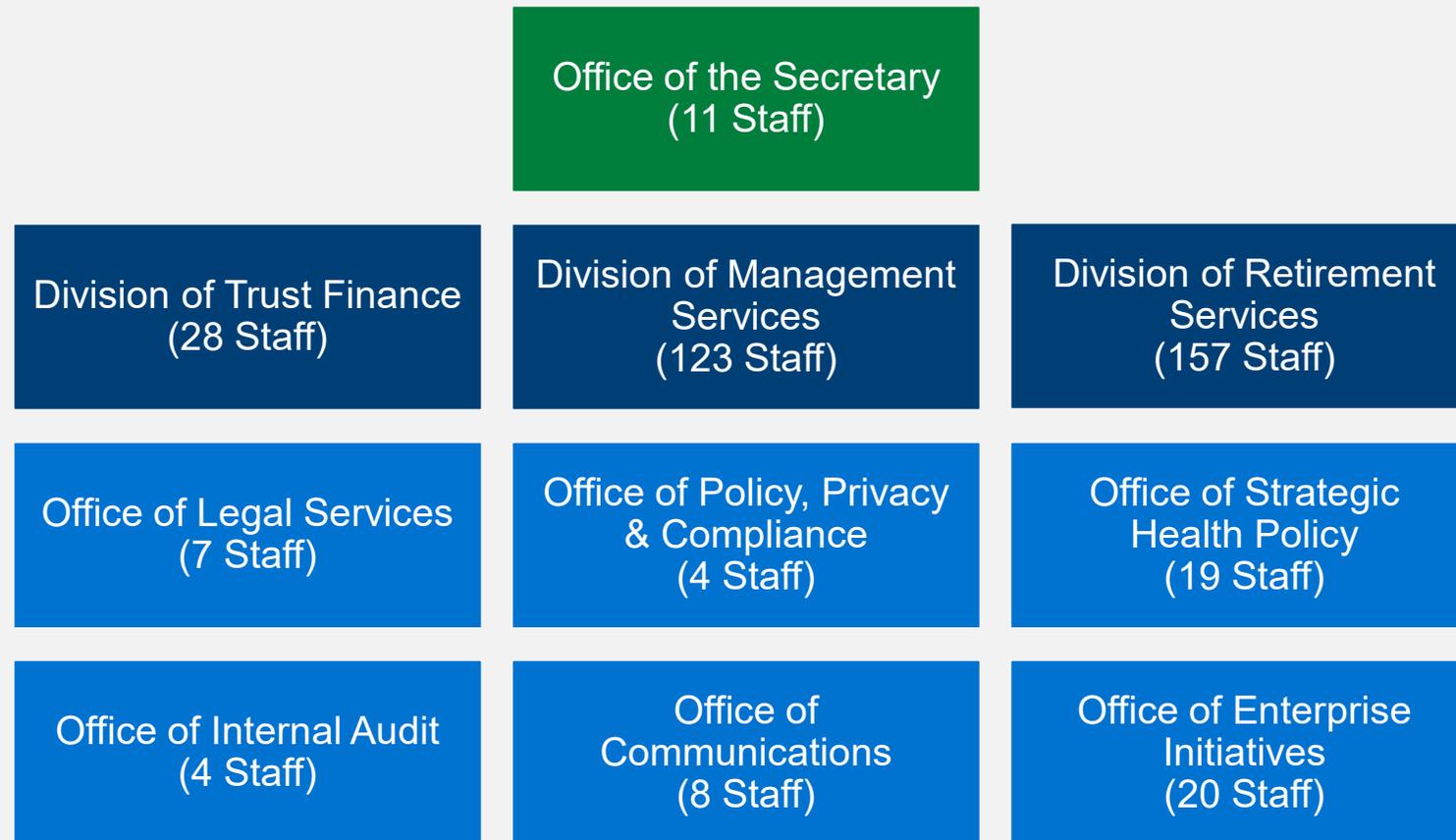
ETF Workforce Overview

Item 7A – Employee Trust Funds Board

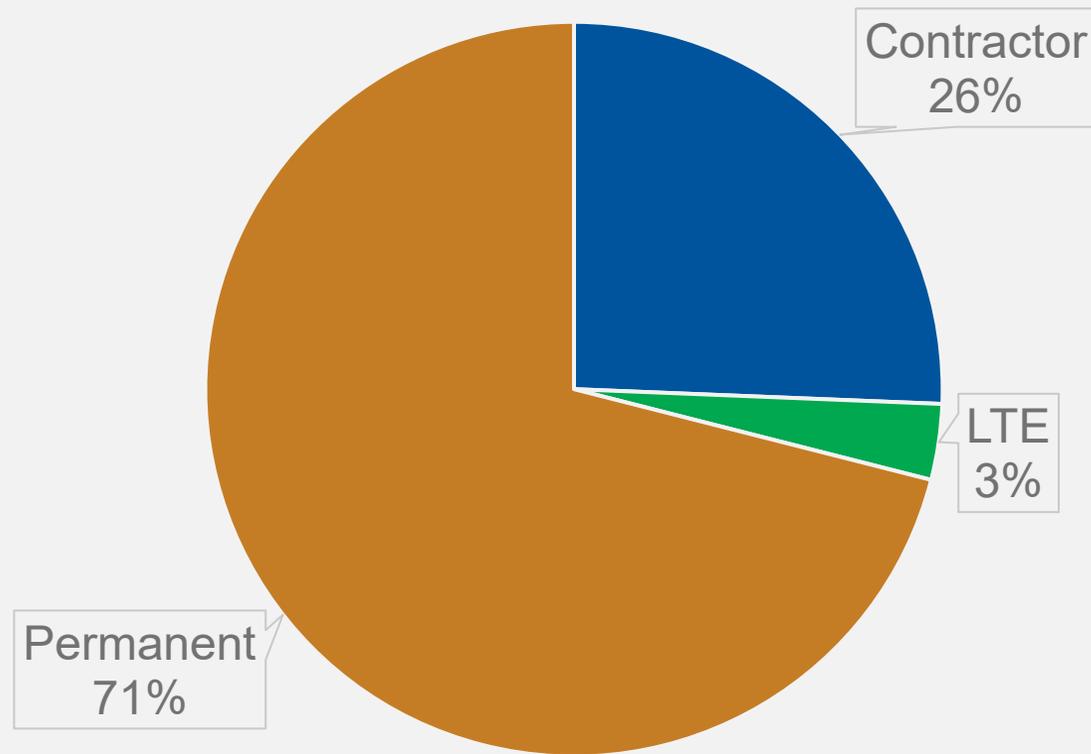
Lisa Dally, Human Resources Director



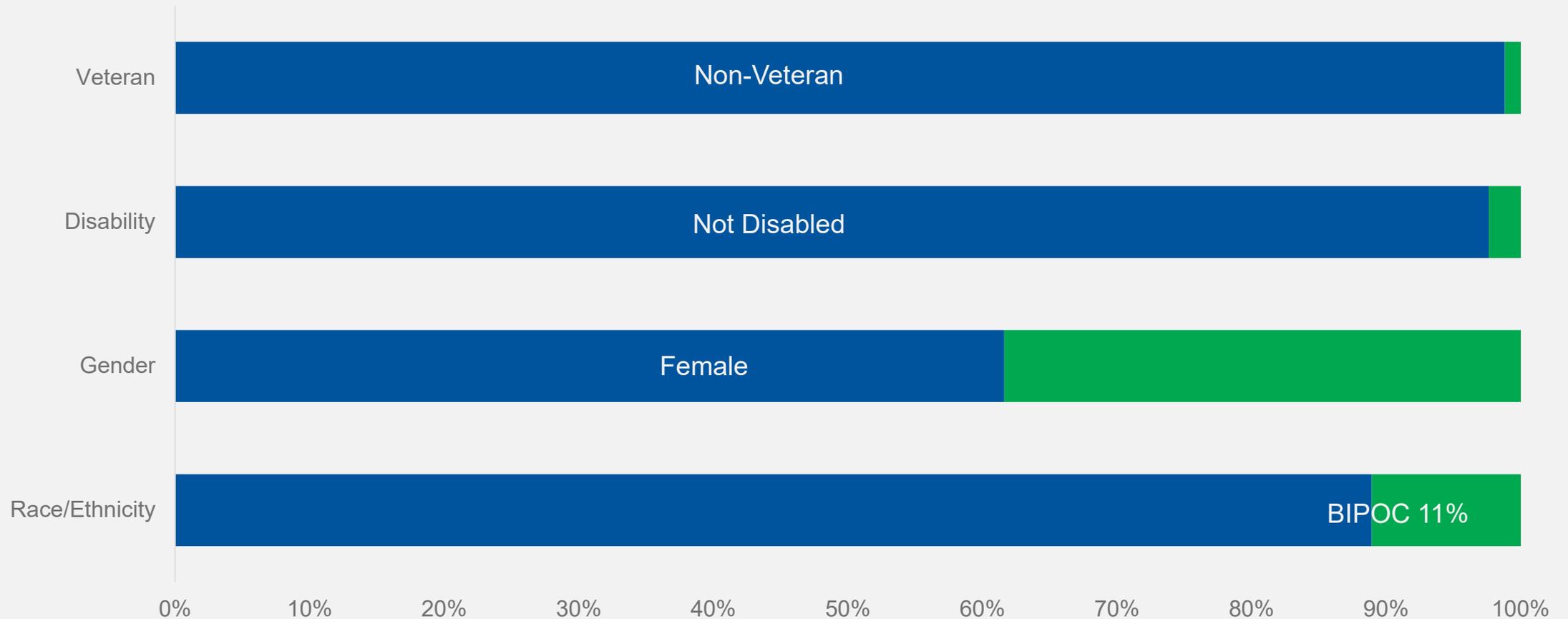
Organization Chart



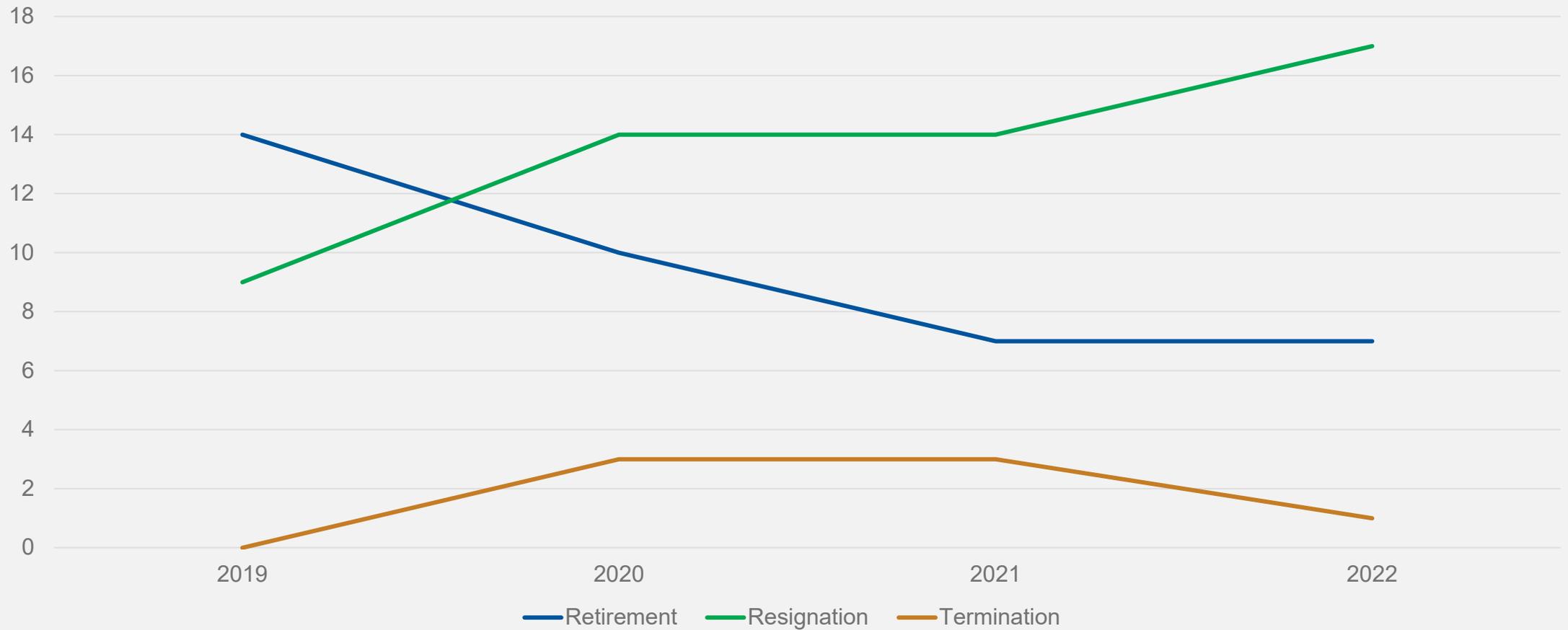
Types of Positions at ETF



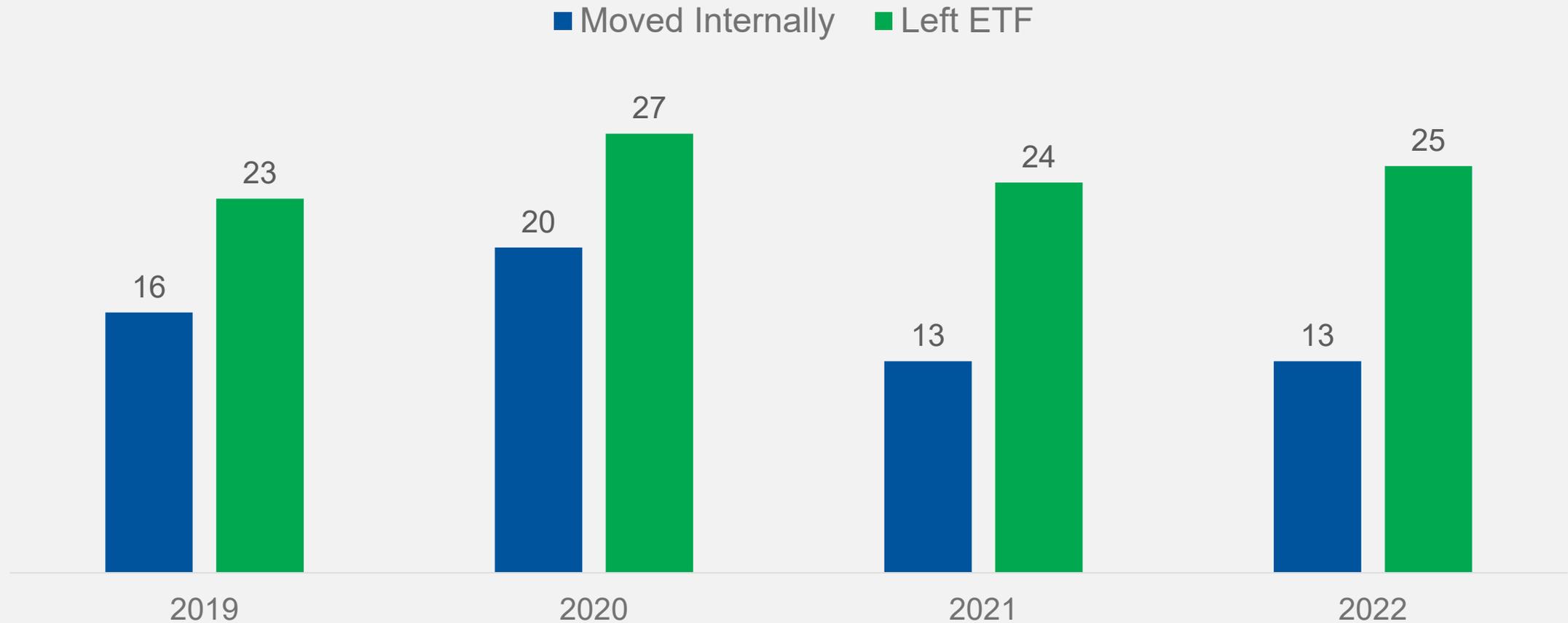
ETF Diversity



ETF Employee Departures



Comparison of Internal to External Movements 2019-2022



Future Workforce Expectations

Turnover will occur due to modernization

- Changing skillsets and competencies
- Staff will take on new responsibilities and use new technologies

Retirements

- 20% of employees currently eligible to retire today
- 37% of employees currently eligible to retire in 5 years

ETF Strategic Goal 3

Build a talented & agile workforce

- Attract, integrate and advance top talent.
- Advance employee development through meaningful and intentional performance management practices.
- Build the culture, recruitment and retention practices that will make ETF an equitable and inclusive organization.

Tools to Build & Retain Workforce

Employment Value Proposition

- Total Rewards Calculator shows compensation including employer paid benefits

Employee Development Opportunities

- Career paths for employees (Leadworker, Trainer)
- ETF Leadership Academy
- Continuing education and leadership programs (Certified Public Manager and Enterprise Management Development Academy)
- Support for job related certifications and higher education

Tools to Build & Retain Workforce

Employee Performance Management System

- Set employee goals
- Provide coaching and support
- Identify talent for development

Diversity, Equity and Inclusion

- Expanded recruitment activities
- Staff Network Groups (SNG)
- IDEA Committee efforts
- Peer Mental Health support

The background is a dark blue gradient with a bokeh effect of out-of-focus circles in shades of blue and purple. The text "Questions?" is centered in a large, white, sans-serif font.

Questions?

Thank you



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608-266-3285
1-877-533-5020

Customer Service Improvements and Trends

Item 7B – Employee Trust Funds Board

Anne Boudreau, Deputy Administrator
Division of Retirement Services



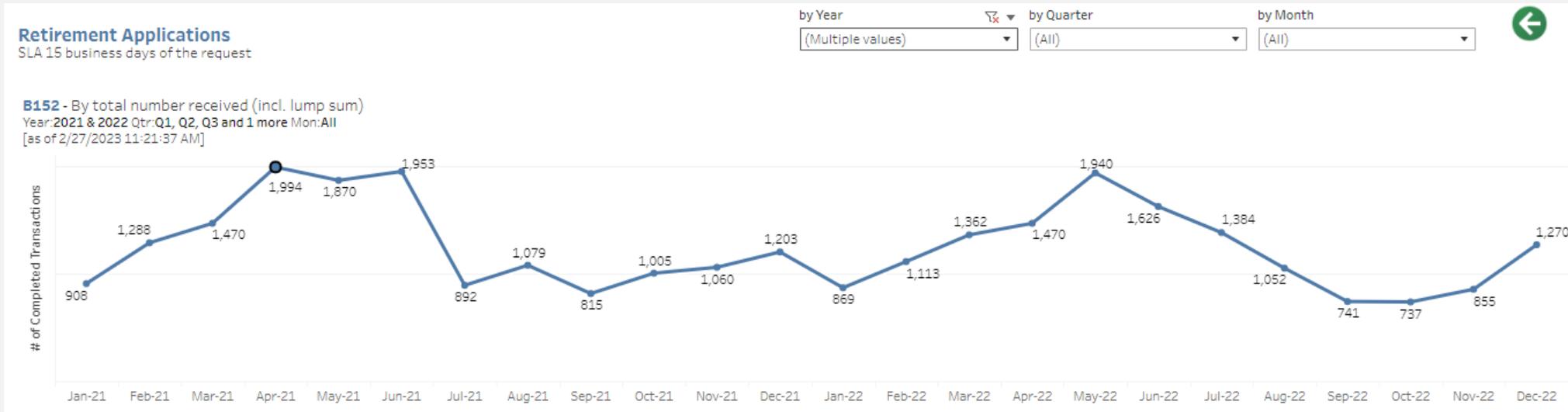


ETF Work Volume and Retirement Trends

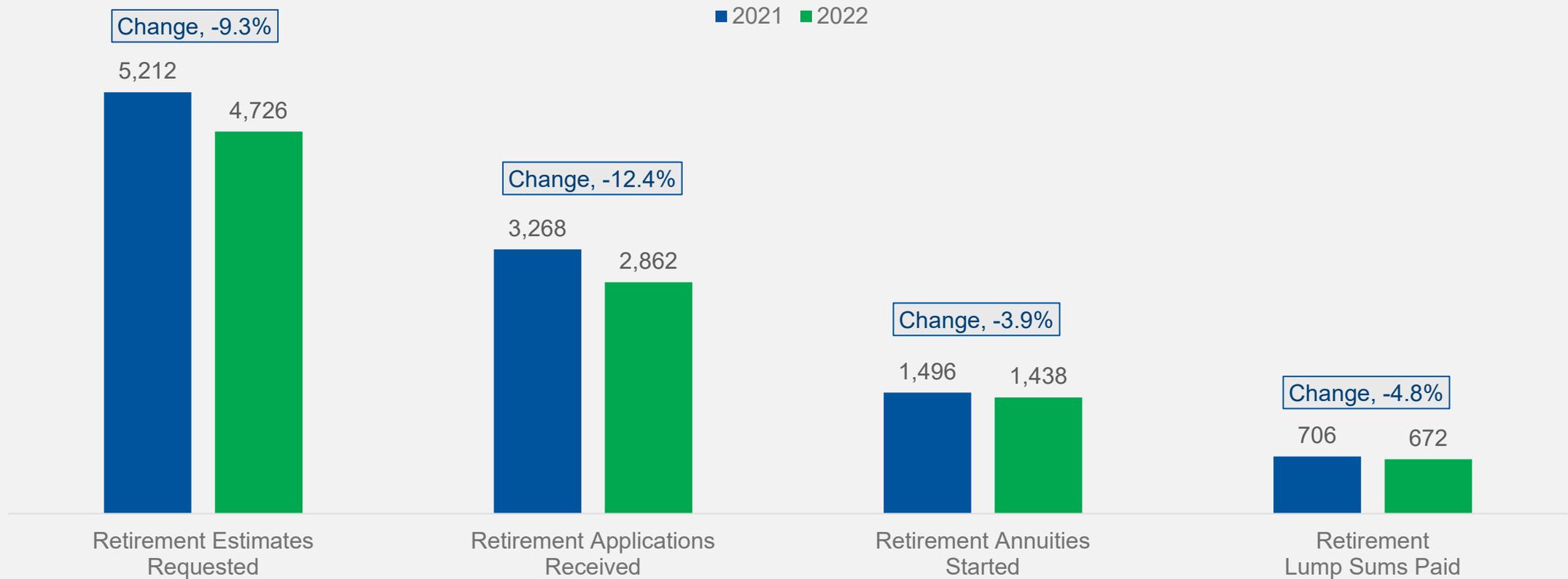
Retirement Estimates



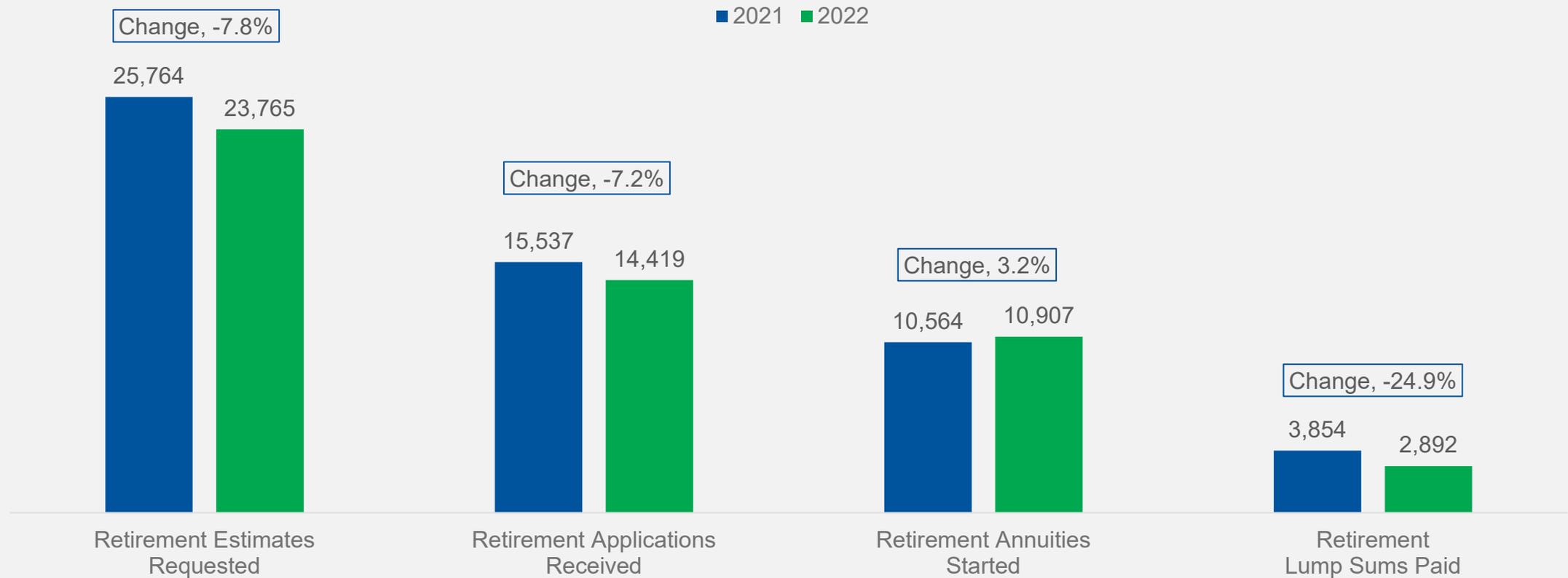
Retirement Applications



Retirement Data - Quarter 4

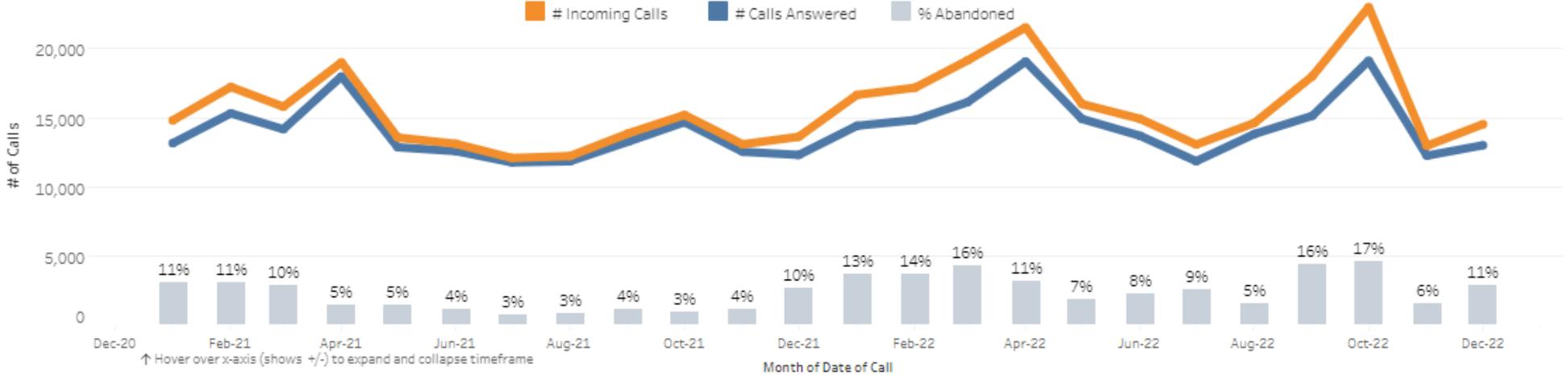


Retirement Data - Year

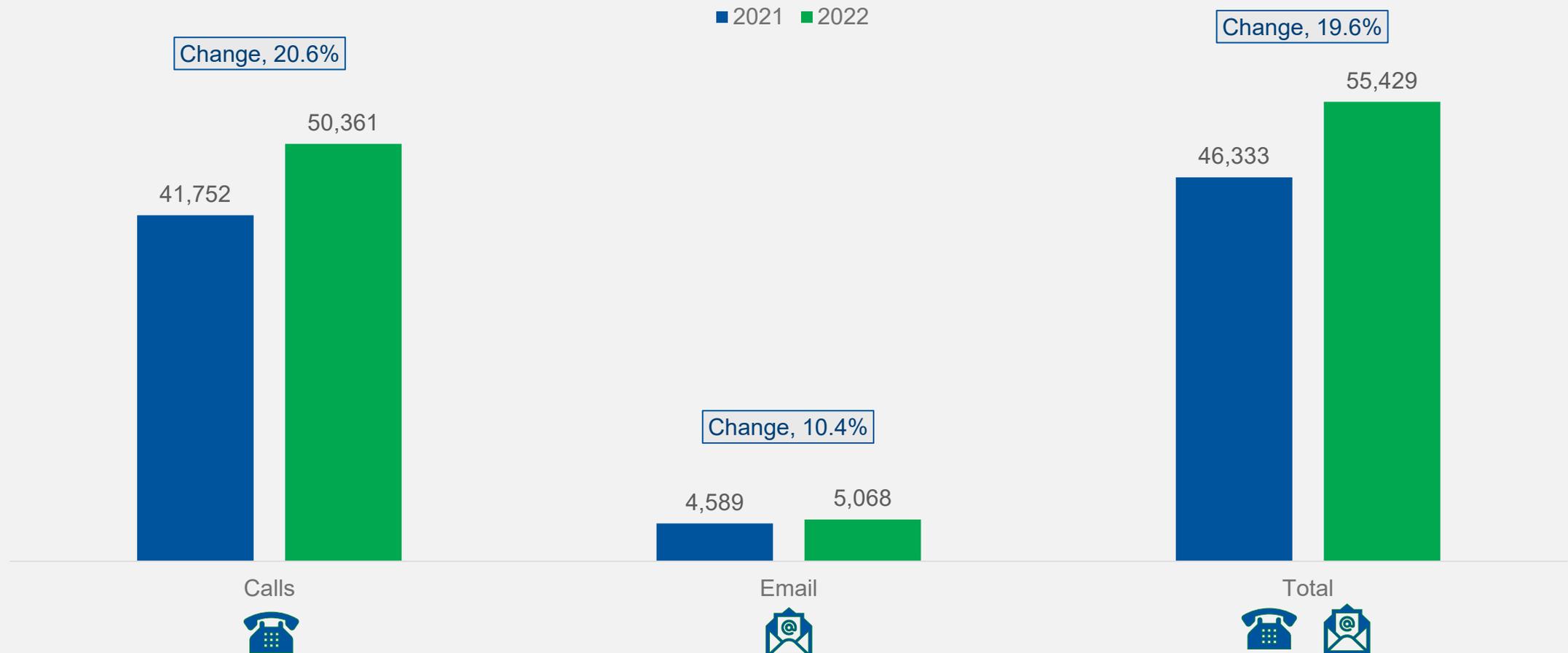


Member Calls

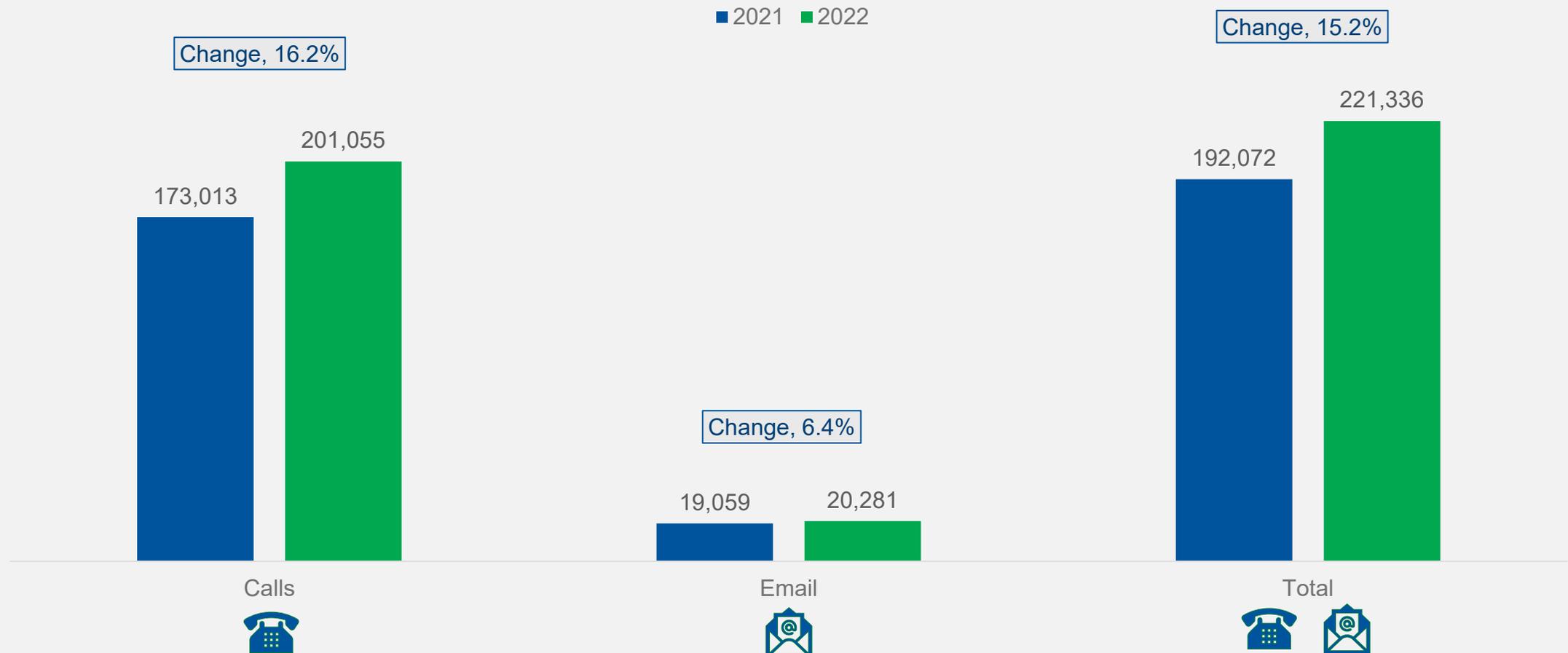
Member Call Center: **Total Calls** Compared to **Answered Calls** with Percentages (Click or highlight graph to update Member Call Center (Detail))
 [as of 2/27/2023 11:23:19 AM]



Customer Service - Quarter 4



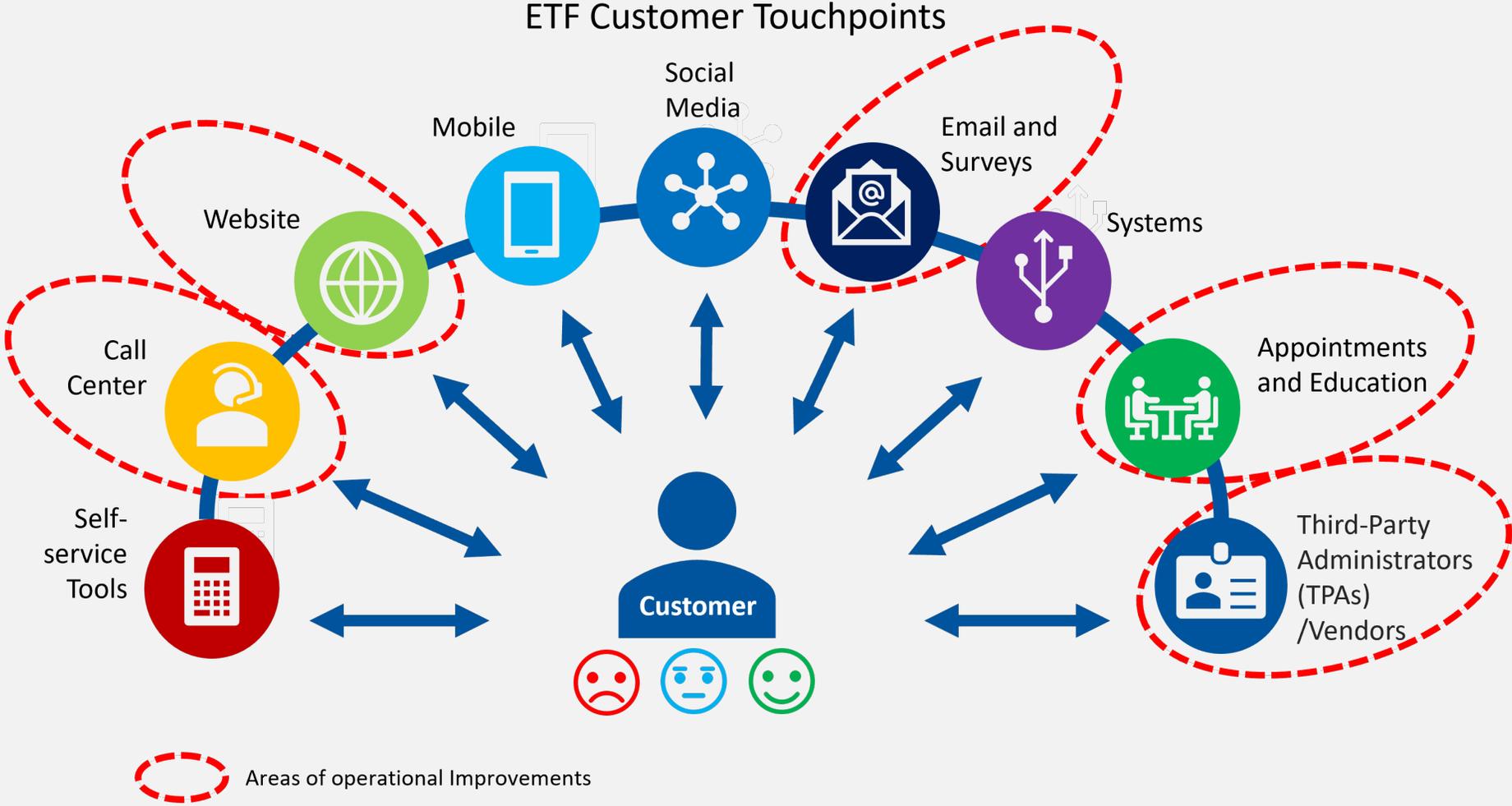
Customer Service - Year



A photograph of a family of three—a woman, a man, and a young girl—walking together on a dirt path through a lush, green forest. The woman is on the left, the man is on the right, and the girl is in the center, slightly in front of them. They are all smiling and appear to be enjoying their walk. The background is filled with tall trees and dense foliage. The entire image has a dark blue overlay.

ETF Operational Improvements

As we strategically build for the future, we make incremental operational improvements to better serve our customers



Customer Service Improvements

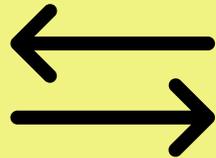


Improved Employer
Resource
Information



Return to
Outreach

Process Improvements



Direct and Automatic
Data Transmission to
Member Files



More Accurate Death
Information



Questions?

Thank you



[etf_wi](#)



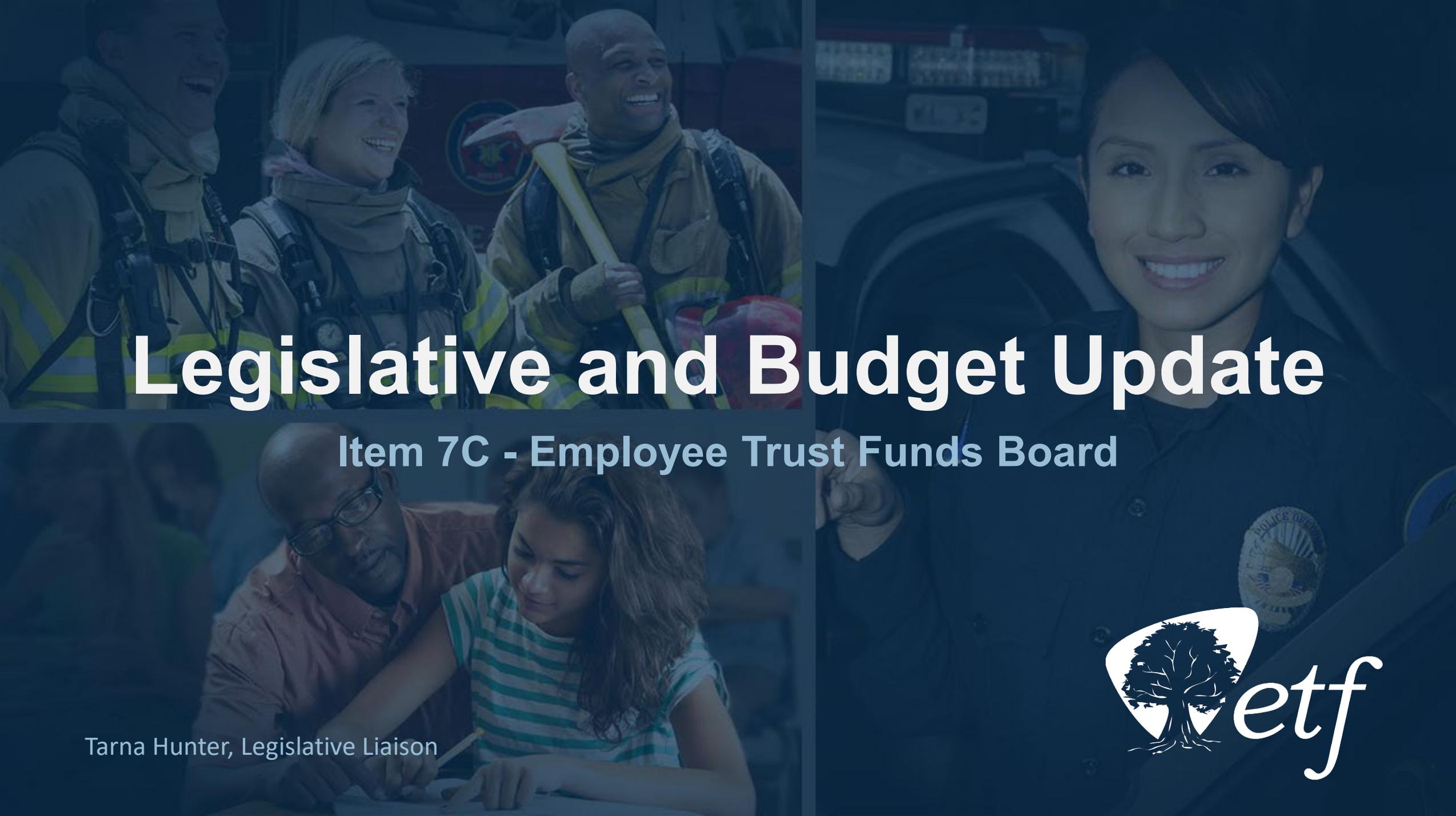
[etf.wi.gov](#)



ETF E-mail Updates



608-266-3285
1-877-533-5020



Legislative and Budget Update

Item 7C - Employee Trust Funds Board

Tarna Hunter, Legislative Liaison



2022 Annual Disability Statistics

Item 7D - Employee Trust Funds Board

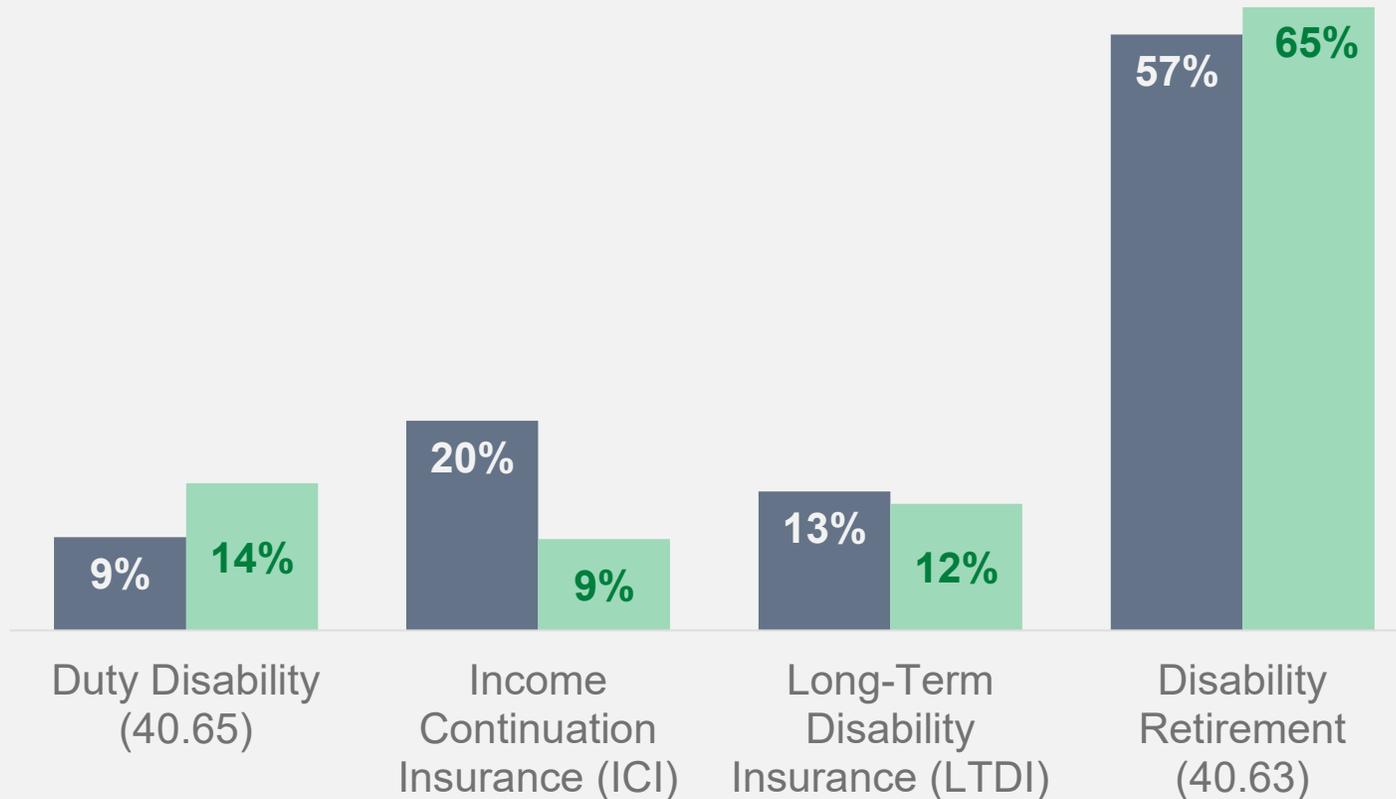
Jim Guidry, Director

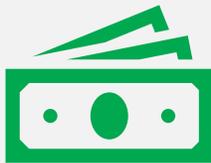
Benefit Services Bureau



Disability Programs

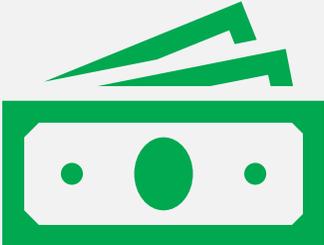
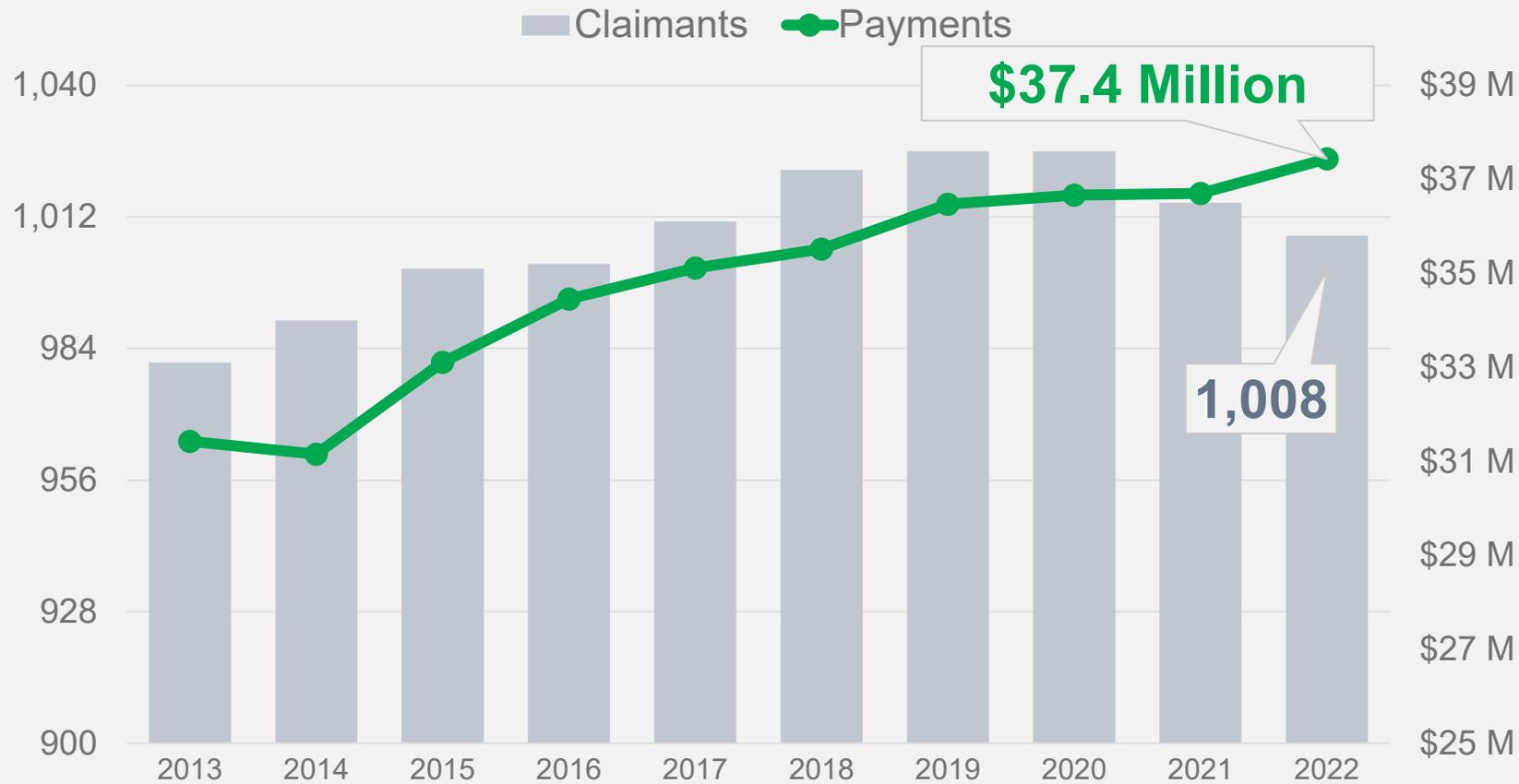
■ Share of benefit recipients ■ Share of benefit payments



 **\$264.1 million**
annual benefit payments

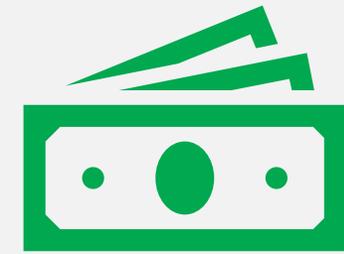
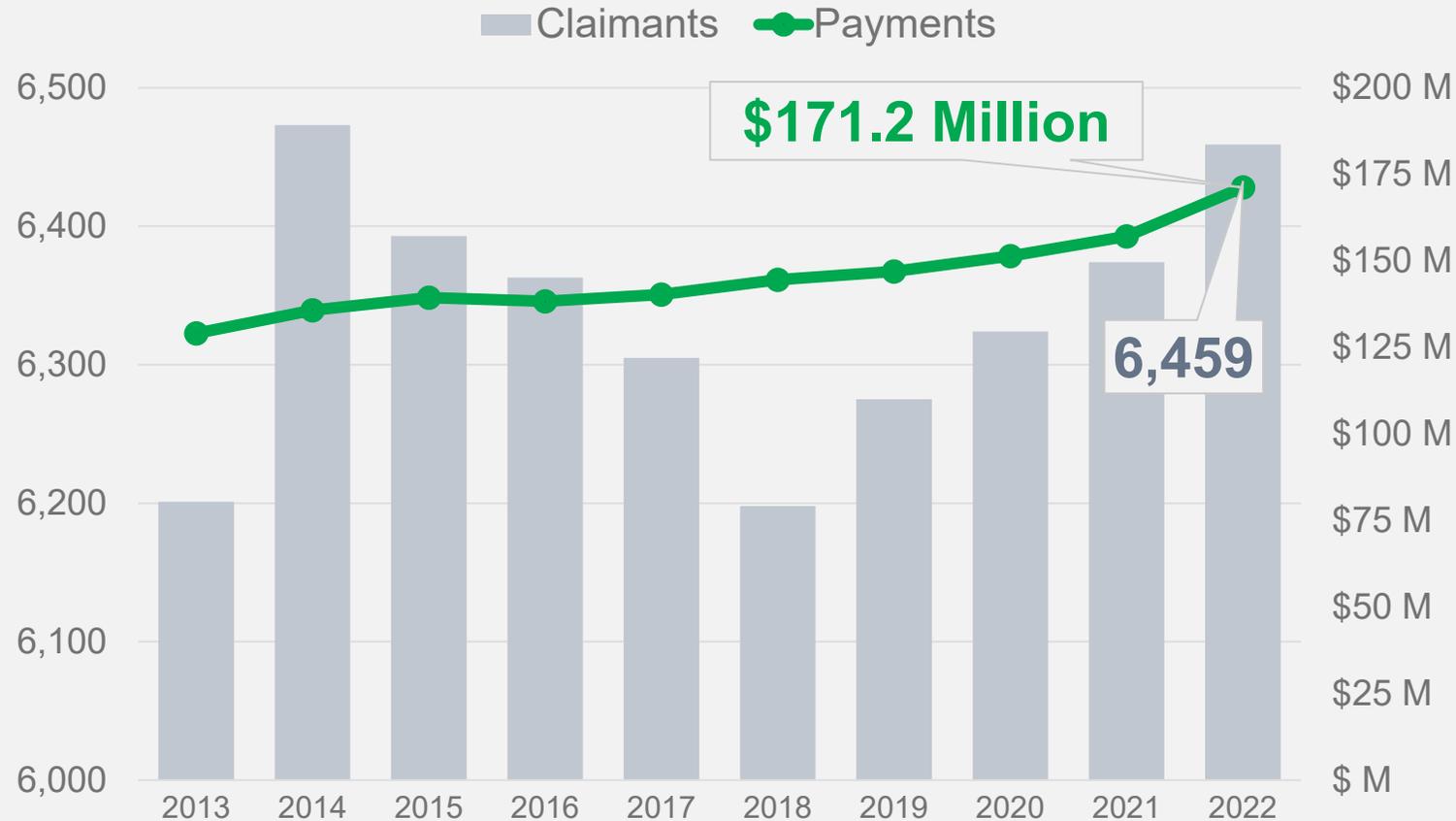
 **11,258**
separate claims

Duty Disability (40.65)



\$3,095/month
2022 average benefit

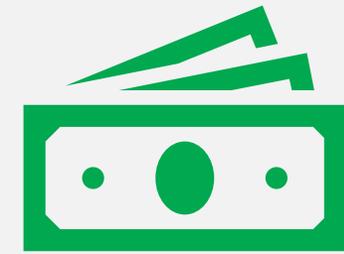
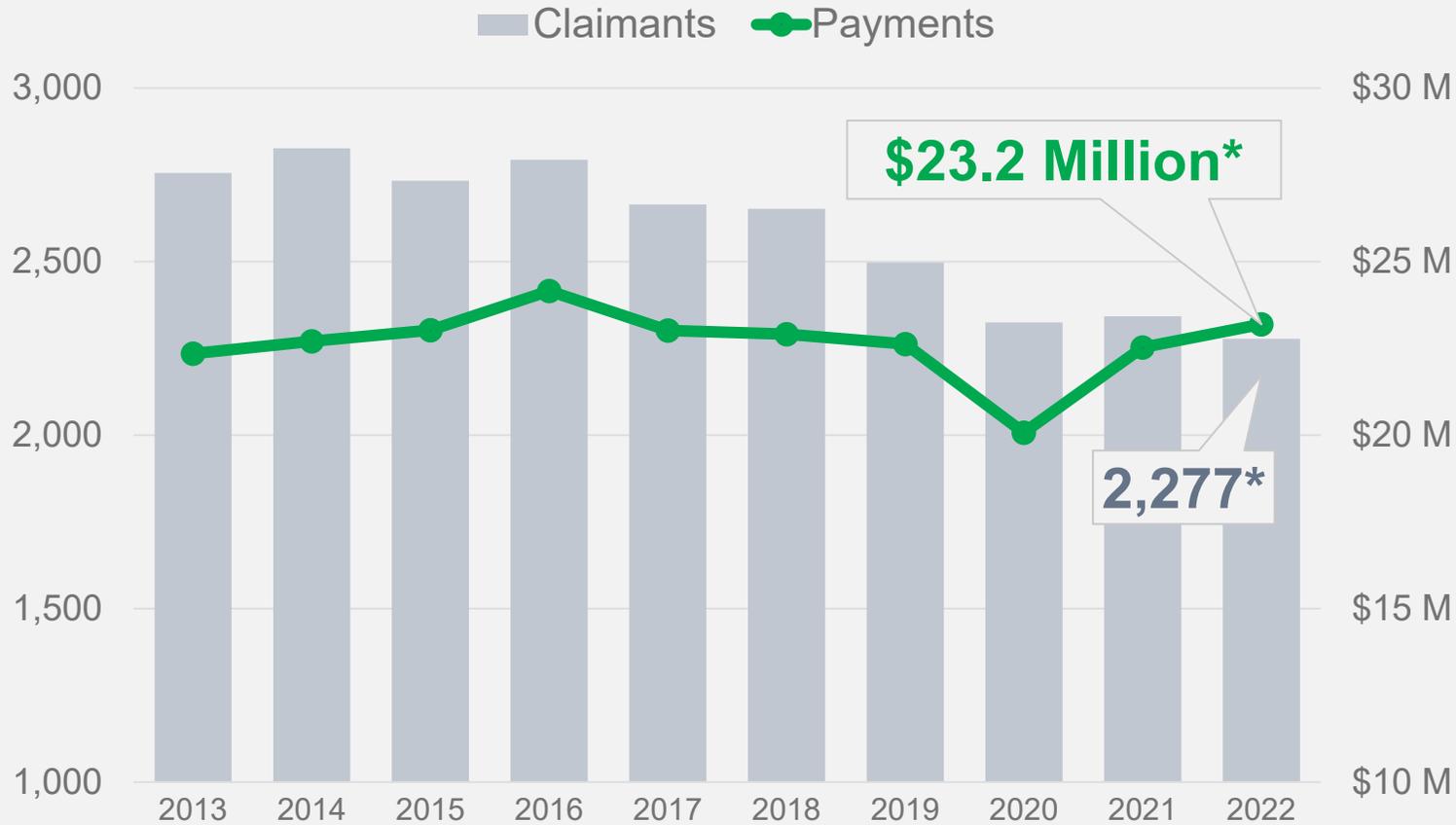
Disability Retirement (40.63)



\$2,209/month
2022 average benefit

Benefit payments and claim increases reflect re-opening of the program

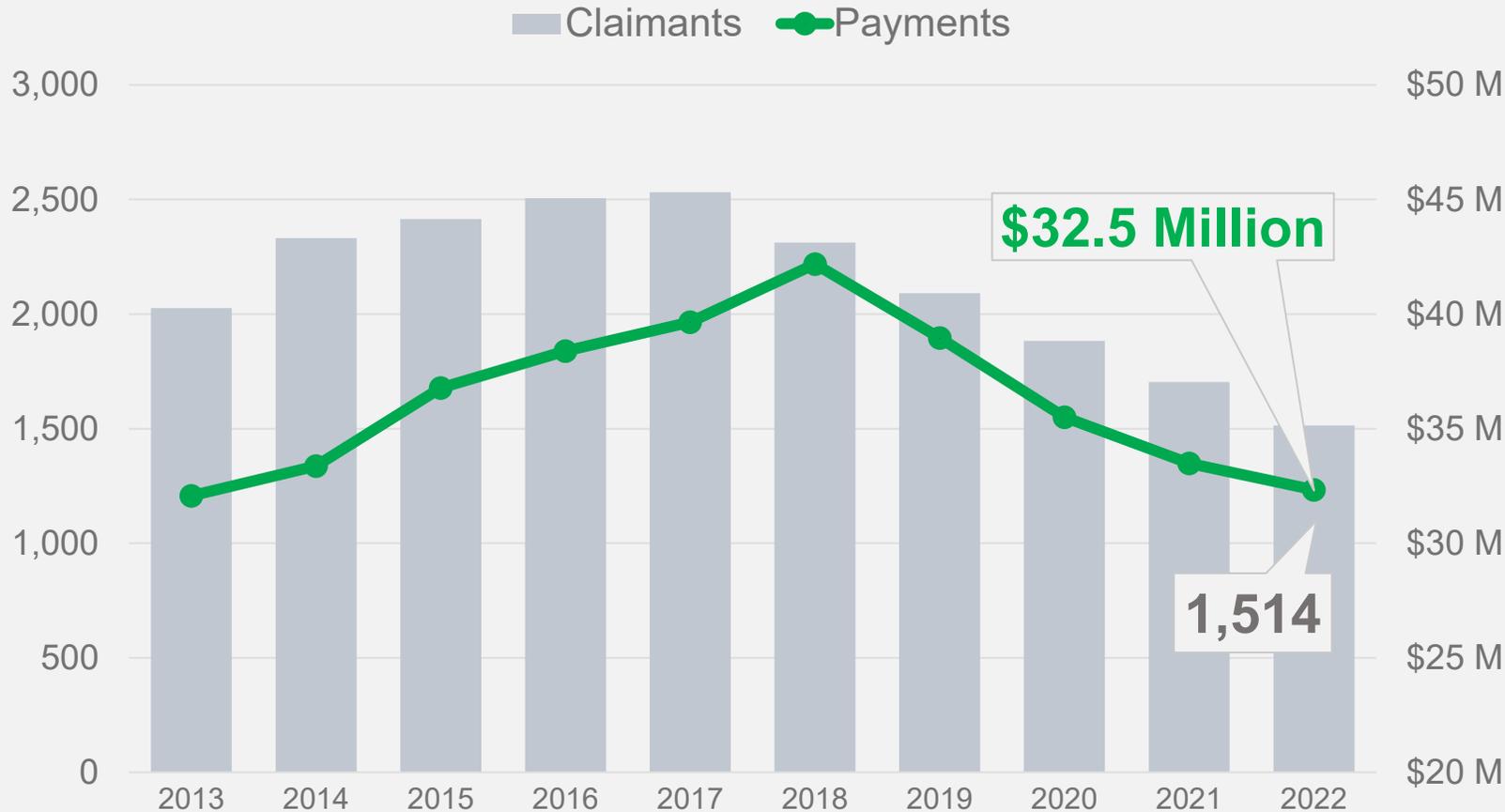
Income Continuation Insurance (ICI)



\$849/month*
2022 average benefit

*2022 data is preliminary

Long-Term Disability Insurance (LTDI)



29-year run-out



Most claims run out in 10 years or less

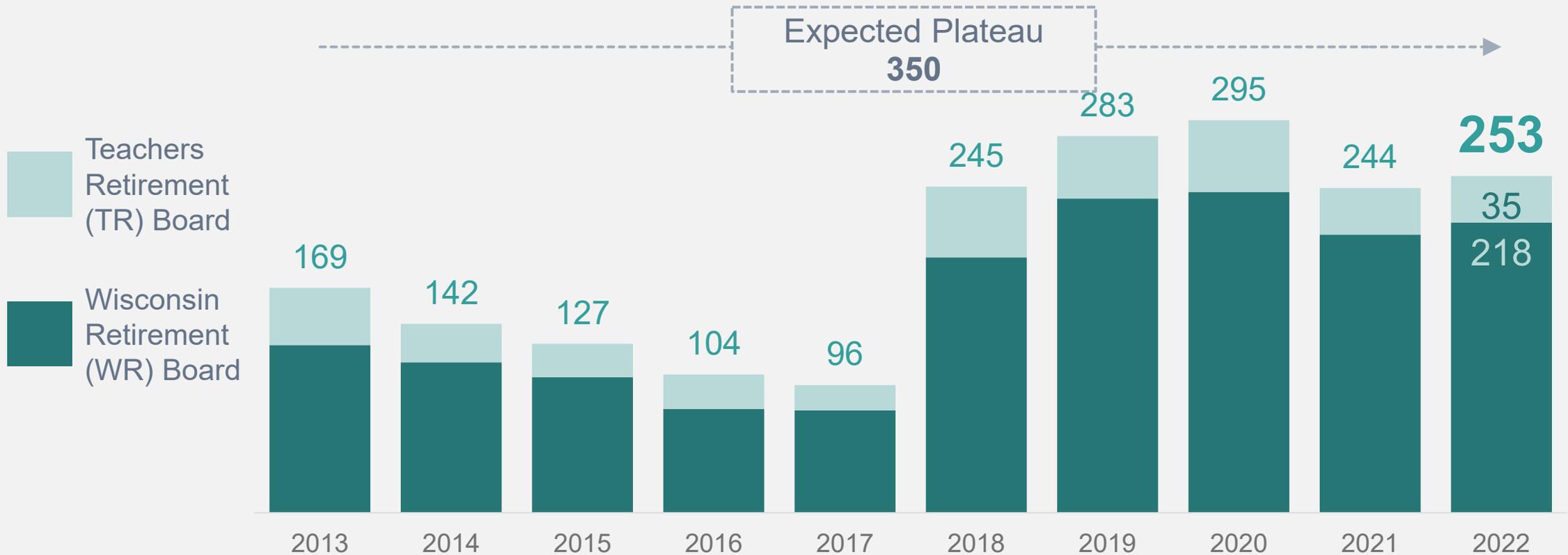


40%

Open claims since closure

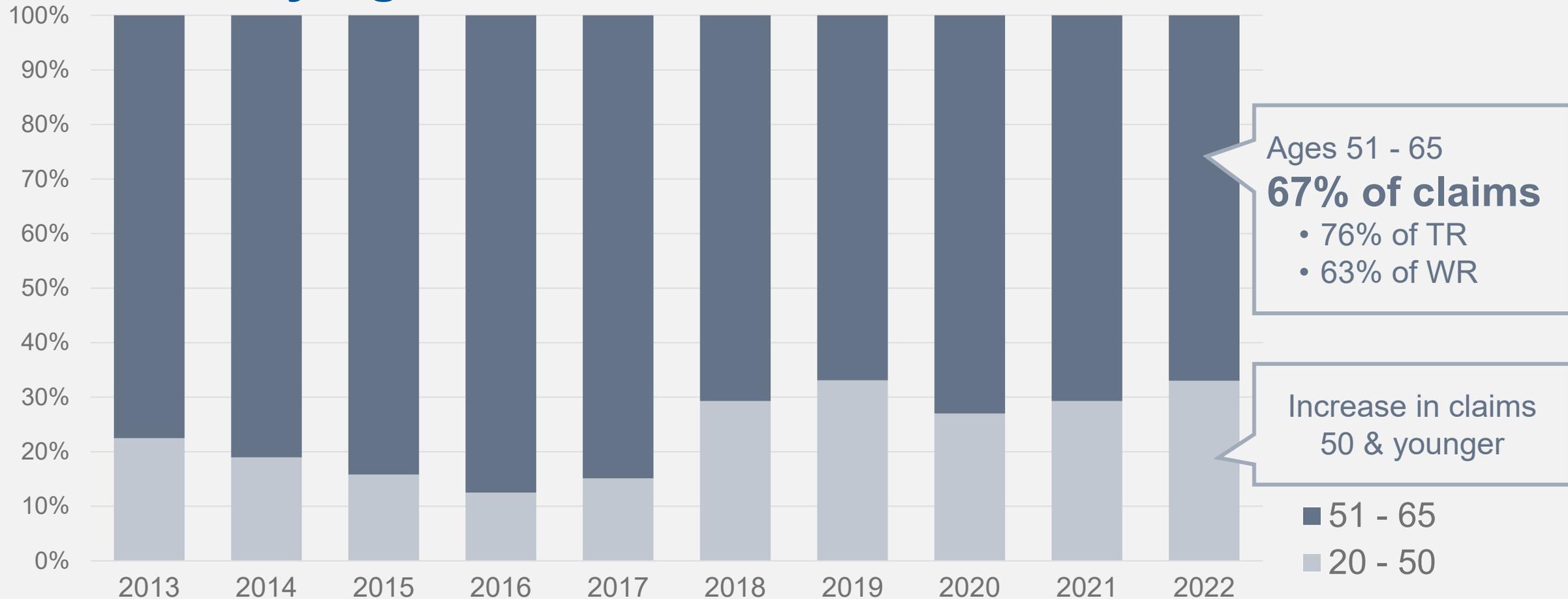
Disability Retirement (40.63)

Benefits Started

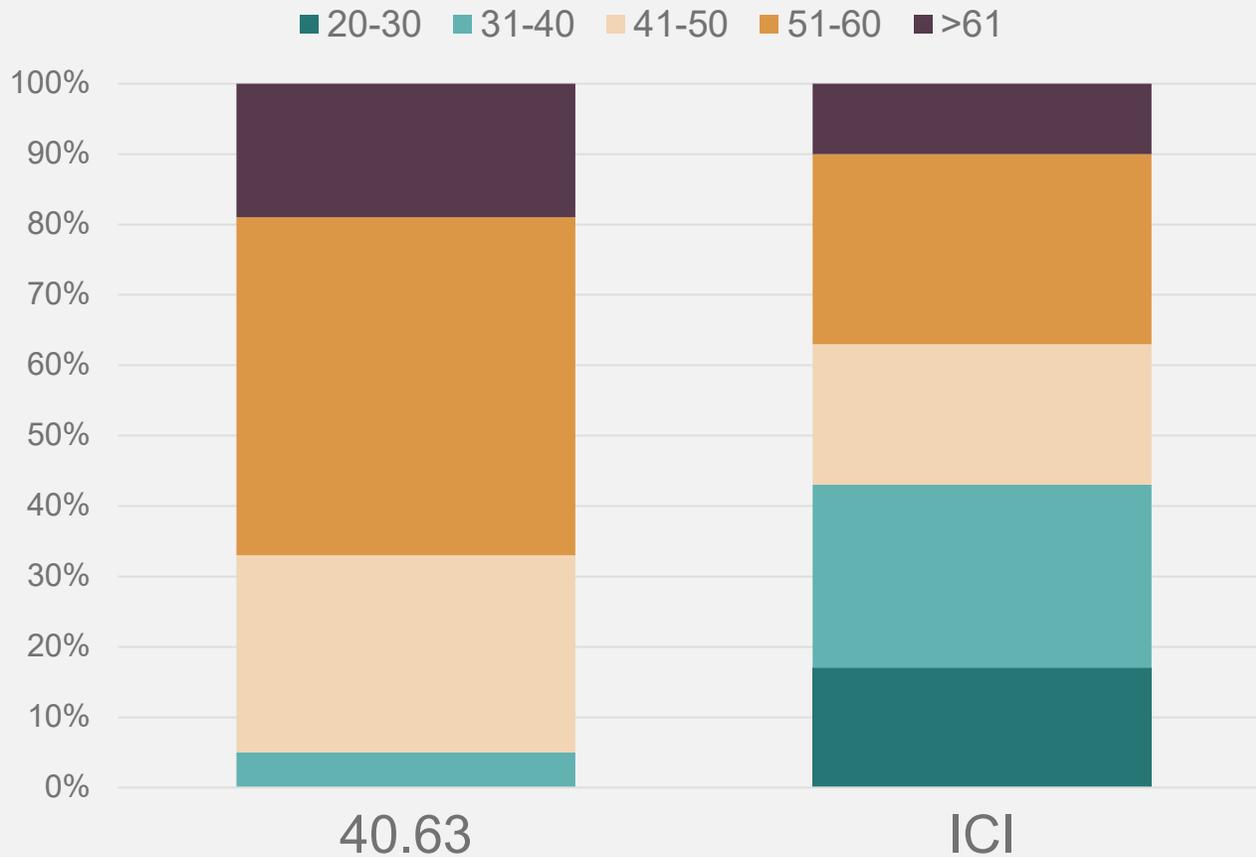


Disability Retirement (40.63)

Claims by Age



Age Distribution by Program



- ICI claims show broader age distribution than 40.63
- ICI includes short-term disabilities
 - Only 37% of claims for 51 & older

Disability Types

40.63 TR Board

- Multiple Medical
- Neurology
- Mental Illness

40.63 WR Board

- Multiple Medical
- Neurology
- Orthopedic
- Cancer

ICI

- Pregnancy
- Orthopedic
- Injury
- Mental Illness

Duty Disability

- Musculo-skeletal
- Mental Illness
- Cancer

Program Updates

- Income Continuation Insurance
 - Expanded ICI standard coverage to \$120,000
 - Obsoletes supplemental coverage
 - Effective January 1, 2024
 - State Budget
 - Decoupling sick leave
 - Moving Board authority to ETF Board
- Other Disability
 - Domestic Partner provisions in Budget
 - AB28/SB28 County Jailers

Stay Connected



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ETF E-mail Updates



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The background is a dark blue gradient with numerous out-of-focus light spots in shades of blue and purple, creating a bokeh effect.

Questions?



Secretary's Report

Item 7E - Employee Trust Funds Board

John Voelker, Secretary



ETF Organizational North Star Metrics

Item 7F – Employee Trust Funds Board

Pam Henning, Assistant Deputy Secretary



Written Reports Only

Items 7G – 7Q - Memo Only



Future Items for Discussion

Item 8A – Employee Trust Funds Board



Adjournment



Item 9 – No Memo

