

OPERS Speaks



Objectives

Funding/Investments

COLA changes

FAQ's/Survey Results

Value of the OPERS pension plan

Value of Health Care coverage



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Challenges

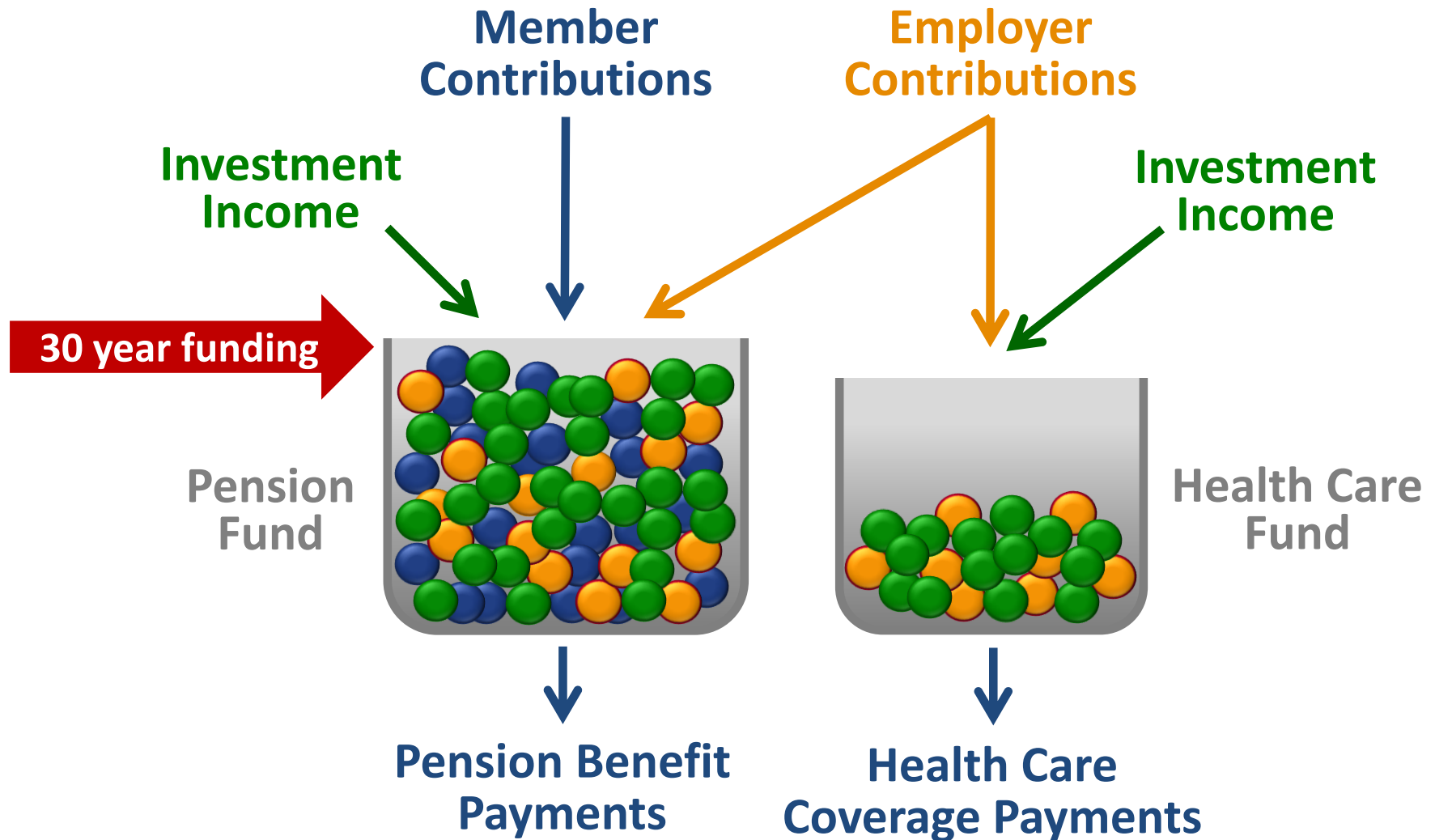
Market volatility

Unfunded liability

Changing demographics

Pension envy

Illustration of Funding



Keys to Changing Funding



Contribution Rates

- Increased to 10% in 2010
- Active members are paying 1.5% more than current retirees



Investment Earnings

- Little control over investment earnings



Plan Design

- Major legislative plan redesign in 2013 impacted active members only

State of OPERS

Funding as of 12/31/2016

\$ in Billions	Pension	Health Care*
AAL**	\$100,166	\$18,711
Assets	\$80,280	\$11,922
UAAL	\$19,886	\$6,789
Funded Ratio	80%	64%
Amortization/ Solvency	19 years	16 years

* Health care assets cannot be used for pension funding

** Roll-forward of 12/31/15 AAL

Why make changes now?

	Actuarial Accrued Liabilities (AAL)	Valuation Assets	Ratio of Assets to AAL	Amorit. Years	Total Defined Benefit Return	Unrealized Gain/(Loss)
2016	\$100,166	\$80,280	80%	19	8.31%	\$(2,766)
2015*	\$ 97,177	\$78,061	80%	20	0.33%	\$(3,501)
2015	\$ 91,832	\$78,061	85%	19	0.33%	\$(3,501)
2014	\$ 89,285	\$74,865	84%	21	6.96%	\$2,398

*OPERS is currently anticipated to fund health care at 0% in 2018 and beyond, so no additional levers would be available to offset any reduction in the assumed rate of return.

Investment Returns (1972-2016)

9 Years of
Negative
Returns

9 Years of
0.00%-7.99%
Returns

27 Years of
8.00% +
Returns

Any year less than 8.0% return is an actuarial loss

Despite many years of positive returns, a \$19 billion unfunded liability still exists

OPERS cannot invest our way out of UAAL

Market volatility calls for cautious plan design

Challenges - Changing Demographics

Over the last 10 years, OPERS liability has increased by more than \$5 billion because of expanded life expectancy. Specifically, people are living longer in retirement than the years they worked.

At the beginning of OPERS, life expectancy was approximately age 59 for men and age 64 for women. In 2016 life expectancy increased to age 76 for men and age 81 for women.

OPERS Retiree Statistics

	Averages					
Current Age	Years of Service	Years in Retirement	Monthly Benefit	COLA	Accumulated Member Contribution	Pension Benefit Paid To Date
90+ (2%)	19	29	\$1,380	\$23	\$28,126	\$359,777
80-89 (11%)	20	20	\$1,735	\$33	\$47,279	\$359,710
70-79 (26%)	22	13	\$2,153	\$48	\$75,168	\$303,414
60-69 (36%)	24	7	\$2,676	\$66	\$99,758	\$251,487
50-59 (10%)	26	6	\$3,195	\$83	\$109,018	\$227,124
All (85%*)	22	12	\$2,260	\$53	\$79,337	\$278,167

** Remaining 15% is attributable to deaths and disability*

Goals

Reduce \$19 billion unfunded pension liability **Specific target not set**

- Maintain intergenerational equity
- Ability to react to market volatility and life expectancy of retirees
- Continue to provide health care
- Continue to be proactive

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Why not actives?

Member Levers

- ✓ Age & service eligibility increased
- ✓ Age & service calculation modified
- ✓ Five-year FAS
- ✓ CPI-based COLA
- ✓ Actuarial reduction factors
- ✓ Spiking (CBBC)
- ✓ Minimum earnable salary increased
- ✓ Disability program changes
- ✓ Liability cost service purchases
- ✓ Joint retirement/intersystem transfers
- ✓ Survivor benefit eligibility

Retiree & Member Levers

- ✓ Medicare-Eligible Health Care and HCPP 3.0

Remaining:

___ COLA

___ Non-Medicare Health Care

OPERS Pension Transition Plan

Sub. S.B. 343 introduced three separate retirement groups which are determined by attainment of age and service credit eligibility requirements prior to the legislation (*55/25, 60/5, any age/30*) by the dates stated for each group

Pre-APD Retiree
167,629

**Members
retired
prior to
Jan. 1, 2013.**

Group A
51,805

**Members
eligible
to retire
before
Jan. 7, 2018.**

Group B
12,951

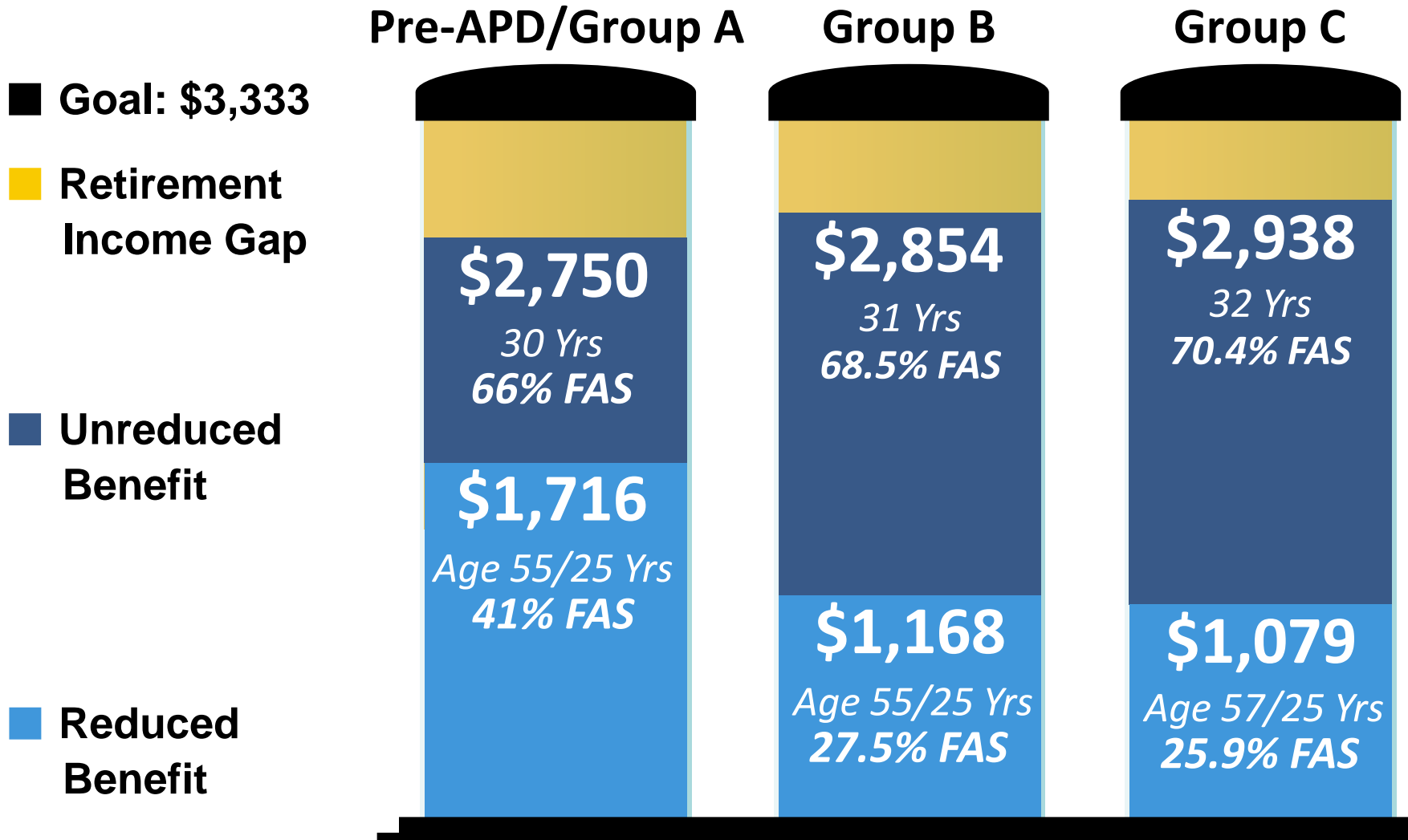
**Members with 20
years of service
credit on Jan. 7,
2013, or eligible to
retire after Jan. 7,
2018 but on or
before Jan. 7, 2023.**

Group C
306,968

**Eligible to
retire after
Jan. 7, 2023
or members
hired on or
after
Jan. 7, 2013.**

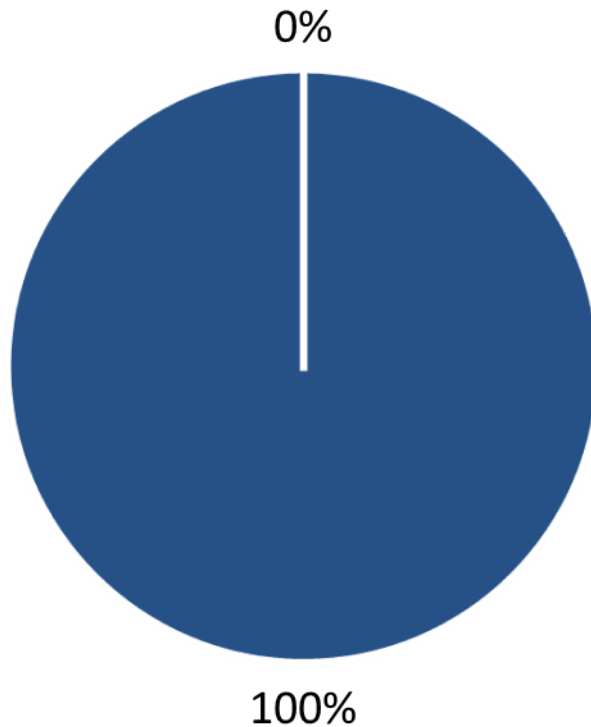
Retirement Income Example

Replace 80% of \$50,000 FAS or \$3,333 per month



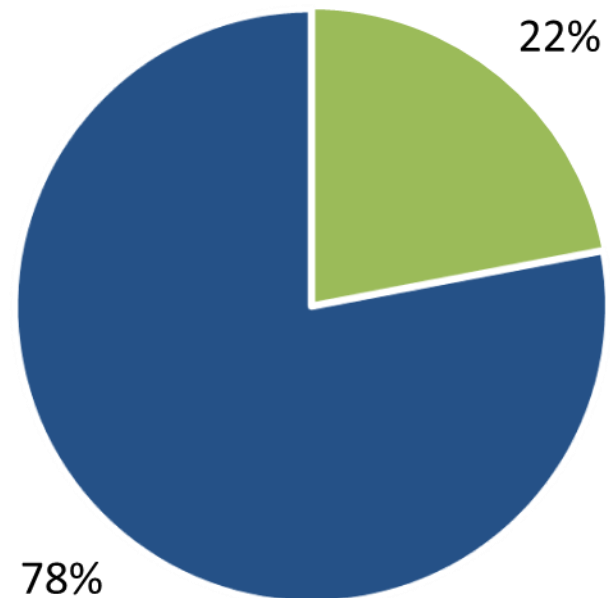
Impact of Prior Pension Changes

Pre-APD Retirees



■ Impact of APD
■ Remaining Pension

Future Retirees



■ Impact of APD
■ Remaining Pension

Why COLA?

Why COLA?

OPERS paid **\$5.3 billion** in pension, the COLA accounts for **\$1.3 billion** of that amount

OPERS paid **\$1.2 billion** in health care coverage

Why Don't Our COLA's Compound?

Changing from a simple to a compounding COLA would increase the payout to the OPERS retiree population by an additional **\$25 billion** over 30 years

Additional strain
on the financial
resources of
the System



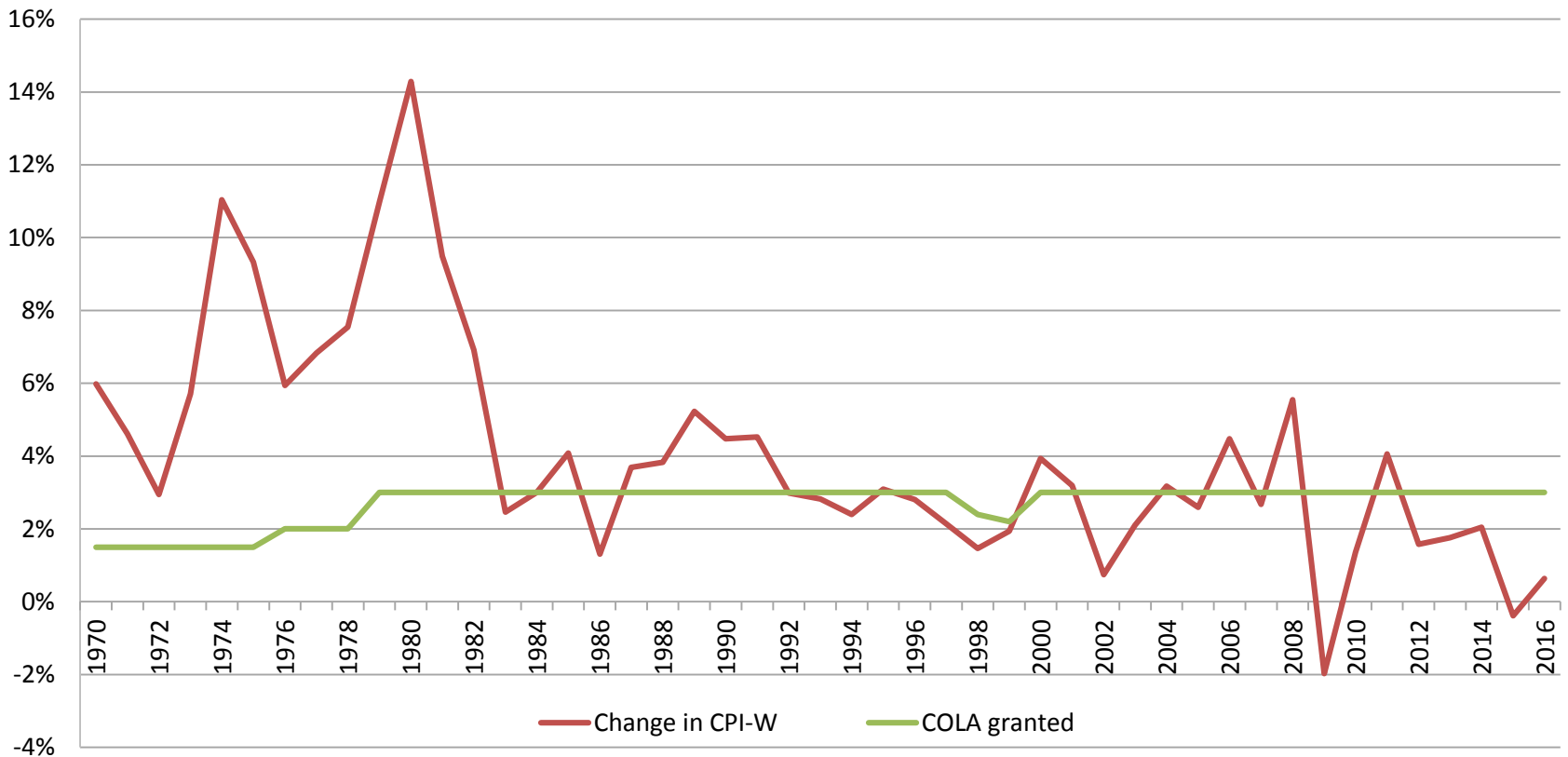
Why COLA?

- Active member benefits have already been addressed to account for increased life expectancy and elimination of subsidization of benefits and for contribution levels (fully funded by APD changes)
- Source of pension UAAL remains primarily attributable to retiree population; COLA is the only pension lever

Why COLA?

- Long-term, low inflation predicted to continue; current COLA outpaces inflation
- No additional levers remain to significantly reduce unfunded liability that do not constitute total benefit redesign

Historical Inflation



- Original COLA significantly lower than inflation = mitigated only 1.5% of 6.0% (1970)
- COLA predated health care – never intended to offset health care inflation
- In the last 30 years, COLA has tended to outpace inflation 60% of the time

COLAs at Ohio Retirement Systems

All Ohio COLAs are simple, not compounded

STRS

- Set by Board
- 0% beginning 7/1/17
- Previously 2% with 5-year delay after retirement

SERS

- Board authority to grant COLA based on CPI, capped at 2.5%, beginning 1/1/18
- Previously a flat 3%, regardless of CPI changes

OPERS

- 3% (pre-1/7/13)
- % increase in CPI, capped at 3%, starting in 2019 (2/1/13)

HPRS

- Set by Board annually currently 1.25%
- Capped at 3%
- Retire after 1/7/13, minimum age 60
- Pre-1/7/13, minimum age 53

OP&F

- 3% for those with 15 years on 7/1/13; minimum age 55
- 2013 new hires & lower service members = CPI, capped at 3%; eligible at age 60

CRS

- 3%
- Currently suspended
- Resume in 2019

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Survey Results

How Many COLA Surveys Were Sent?

Surveys Sent	194,125
Surveys Received	77,064 (40%)
Survey Comments	33,142

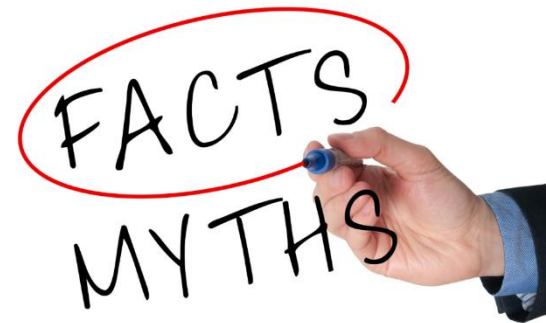
What Are We Hearing From Retirees?

Retirees feel COLA exceeding inflation is acceptable and would rather the COLA be compounding

Retirees express need for COLA to offset health care expenses

Windfall Elimination Program & Government Pension Offset

Established by the federal government in 1982



What Are We Hearing From Retirees?

Many people retired in anticipation of Senate Bill 343

Retirees recognize low inflation times but worry about possible future high inflation

Given the choice, the preference for all is no additional change

What Were the Results of the Survey?

77,064 surveys received and entered

73%

think it is
reasonable
to align all
COLAs with
inflation

58%

think OPERS
should
provide
a COLA
every year
regardless of
the System's
financial
condition

56%

would prefer
the shortest
1-year freeze
(if a freeze
were
imposed)

46%

would prefer
a lower cap
of 2.5%
(if a cap were
imposed)

72%

would prefer
a lower cap
over a COLA
freeze

Board Approved

Reduction in Liabilities:
\$4 Billion

CPI-based COLA capped at 2.25%

85% purchasing power restored

2-year delayed implementation for 2010-2012 retirees

First COLA – delay for future retirees to second pension anniversary (24 months after retirement)

Triggers – 30 or more years amortization = freeze

Upward trigger to 3% subject to inflation and funding

HB 413 – As Introduced

Reduction in Liabilities:
\$3.14 Billion

CPI-based COLA capped at 2.5%

85% purchasing power restored

2-year delayed implementation for 2010-2012 retirees

First COLA – delay for future retirees to second pension anniversary (24 months after retirement)

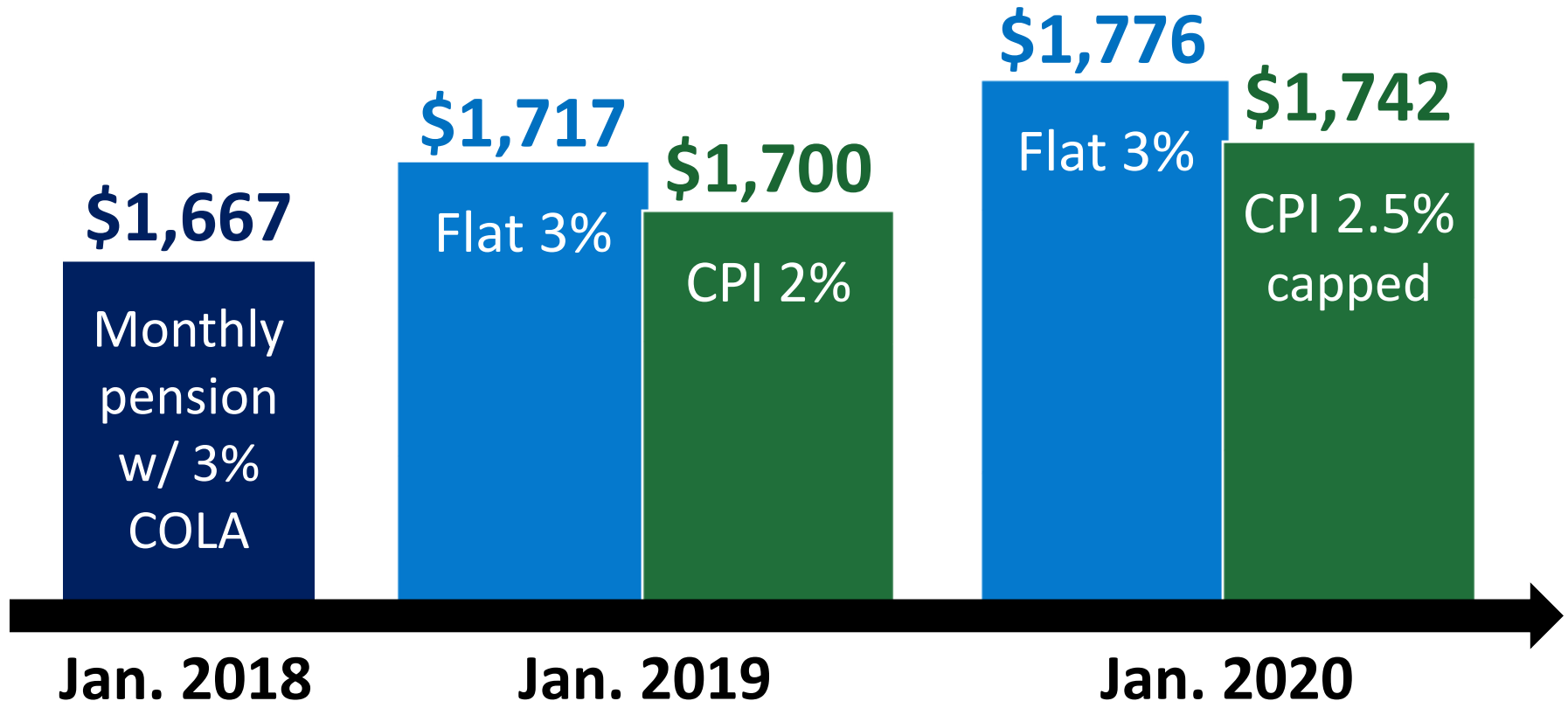
Triggers – 30 or more years amortization = freeze

Upward trigger to 3% subject to inflation and funding

LEGISLATIVE ACTION IS REQUIRED

How it Will Work- Ex. \$20,000 Pension

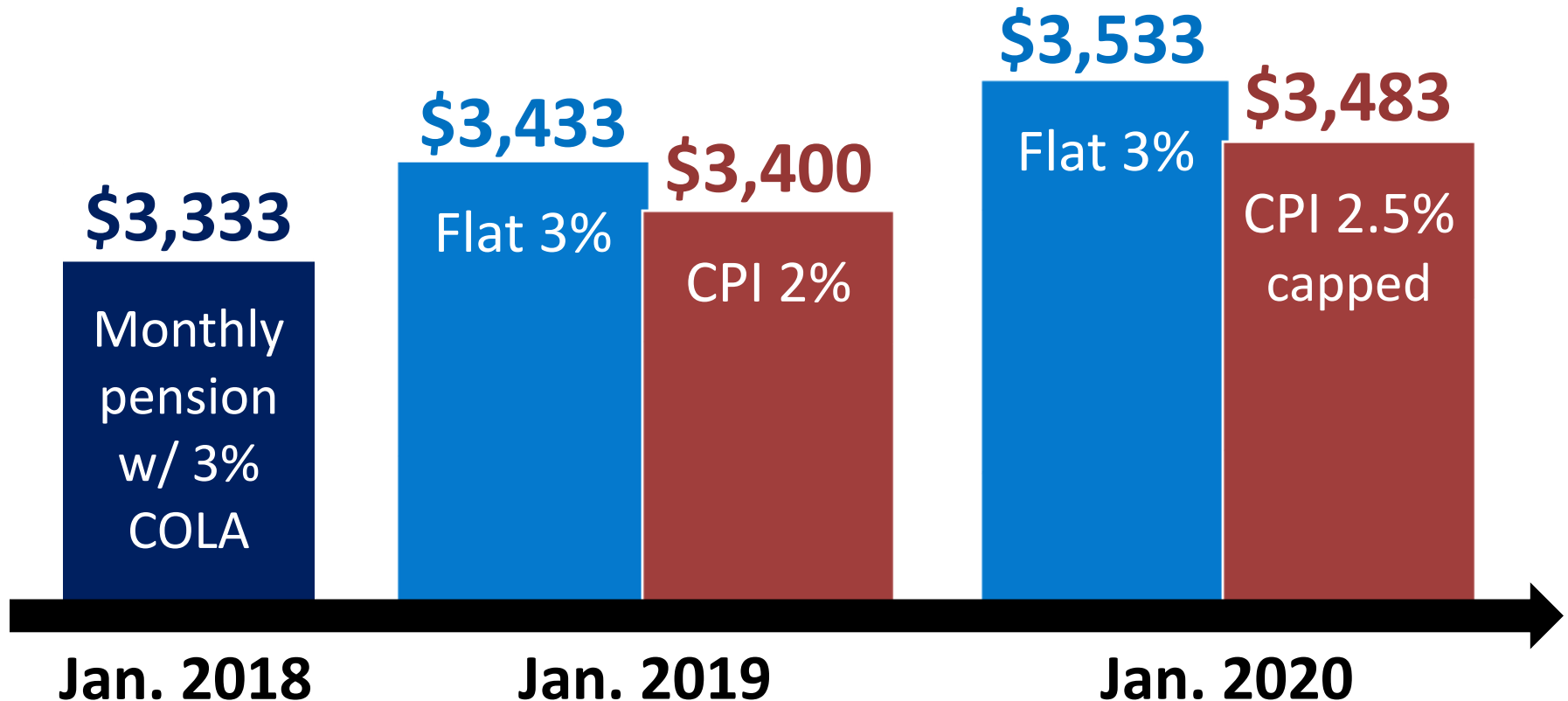
Flat 3% COLA vs. CPI-W Based Examples



The difference/savings will be used to pay down the \$19 billion unfunded liability.

How it Will Work- Ex. \$40,000 Pension

Flat 3% COLA vs. CPI-W Based Examples



The difference/savings will be used to pay down the \$19 billion unfunded liability.

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Pension Averages for Retirees

44,975

Retirees

\$46.94

Average Monthly COLA Paid

**Central
Ohio**

Retirement Age

58

Years in Retirement

12

Years of Service Credit

23

Final Average Salary

\$47,358

Pension Averages for Retirees

44,975

Retirees

\$46.94

Average Monthly COLA Paid

**Central
Ohio**

Account at Retirement

\$91,597

Starting Annual Benefit

\$24,164

Current Annual Benefit

\$30,924

Benefits for 12 Yr Period

\$330,528

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Health Care for Pre-Medicare Retirees

	Monthly HC Cost	OPERS Paid	You Paid	OPERS Paid for Central Ohio Retirees
2010				
Member	\$812.27	\$804.15	\$8.12	\$433,998,406
Spouse	\$812.27	\$722.92	\$89.35	
2016				
Member	\$968.54	\$832.94	\$135.60	\$449,539,967
Spouse	\$968.54	\$445.53	\$523.01	

Health Care Spending for 12 Yr Period

2005 through 2016

Aggregate Health Care Cost

\$17,682,054,914

Average Health Care Cost

\$1,473,503,576

Long-term Goals

1. Stable pension
2. Provide retiree health care
3. No drastic changes
4. React to market volatility
5. Intergenerational equity

**We have
approximately
15 minutes for
Q & A:**

- Please wait for a microphone
- Please limit questions to one

Questions



Additional Slides

The Callan Periodic Table of Investment Returns

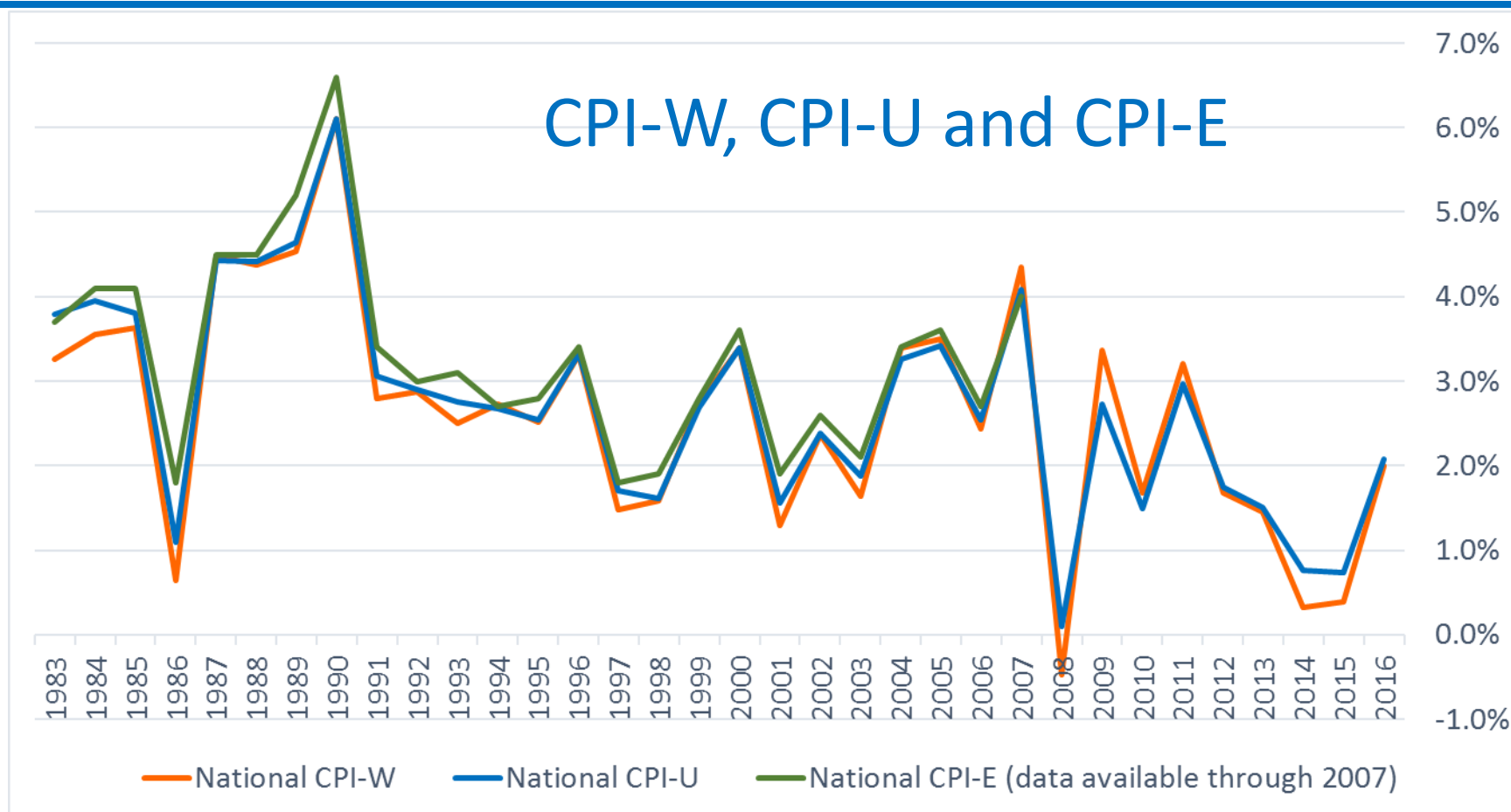
Annual Returns for Key Indices Ranked in Order of Performance (1997–2016)

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
S&P 500 Growth	S&P 500 Growth	MSCI Emerging Markets	Russell 2000 Value	Russell 2000 Value	Bloomberg Barclays Agg	MSCI Emerging Markets	MSCI Emerging Markets	MSCI Emerging Markets	MSCI Emerging Markets	MSCI Emerging Markets	Bloomberg Barclays Agg	MSCI Emerging Markets	Russell 2000 Growth	Bloomberg Barclays Agg	MSCI Emerging Markets	Russell 2000 Growth	S&P 500 Growth	S&P 500 Growth	Russell 2000 Value
36.52%	42.16%	66.84%	22.83%	14.02%	10.26%	55.82%	25.55%	34.00%	32.17%	39.38%	5.24%	78.51%	29.09%	7.84%	18.23%	43.30%	14.89%	5.52%	31.74%
S&P 500	S&P 500	Russell 2000 Growth	Bloomberg Barclays Agg	Bloomberg Barclays Agg	Bloomberg Barclays High Yield	Russell 2000 Growth	Russell 2000 Value	MSCI EAFE	MSCI EAFE	MSCI EAFE	Bloomberg Barclays High Yield	Bloomberg Barclays High Yield	Russell 2000	Bloomberg Barclays High Yield	Russell 2000 Value	Russell 2000	S&P 500	S&P 500	Russell 2000
33.36%	28.58%	43.09%	11.63%	8.43%	-1.37%	48.54%	22.25%	13.54%	26.34%	11.17%	-26.16%	58.21%	26.85%	4.98%	18.05%	38.82%	13.69%	1.38%	21.31%
Russell 2000 Value	MSCI EAFE	S&P 500 Growth	S&P 500 Value	Bloomberg Barclays High Yield	MSCI Emerging Markets	Russell 2000	MSCI EAFE	S&P 500 Value	Russell 2000 Value	S&P 500 Growth	Russell 2000 Value	Russell 2000 Growth	Russell 2000 Value	S&P 500 Growth	S&P 500 Value	Russell 2000 Value	S&P 500 Value	Bloomberg Barclays Agg	S&P 500 Value
31.78%	20.00%	28.24%	6.08%	5.28%	-6.16%	47.25%	20.25%	5.82%	23.48%	9.13%	-28.92%	34.47%	24.50%	4.65%	17.68%	34.52%	12.36%	0.55%	17.40%
S&P 500 Value	S&P 500 Value	MSCI EAFE	Russell 2000	Russell 2000	Russell 2000 Value	Russell 2000 Value	Russell 2000	S&P 500	S&P 500 Value	Russell 2000 Growth	Russell 2000	MSCI EAFE	MSCI Emerging Markets	S&P 500	MSCI EAFE	S&P 500 Growth	Bloomberg Barclays Agg	MSCI EAFE	Bloomberg Barclays High Yield
29.98%	14.68%	26.96%	-3.02%	2.49%	-11.43%	46.03%	18.33%	4.91%	20.81%	7.05%	-33.79%	31.78%	18.88%	2.11%	17.32%	32.75%	5.97%	-0.81%	17.13%
Russell 2000	Bloomberg Barclays Agg	Russell 2000	Bloomberg Barclays High Yield	MSCI Emerging Markets	MSCI EAFE	MSCI EAFE	S&P 500 Value	Russell 2000 Value	Russell 2000	Bloomberg Barclays Agg	S&P 500 Growth	S&P 500 Growth	Bloomberg Barclays High Yield	S&P 500 Value	Russell 2000	S&P 500	Russell 2000	Russell 2000	S&P 500
22.36%	8.67%	21.26%	-5.86%	-2.61%	-15.94%	38.59%	15.71%	4.71%	18.37%	6.97%	-34.92%	31.57%	15.12%	-0.48%	16.35%	32.39%	5.60%	-1.38%	11.96%
Russell 2000 Growth	Bloomberg Barclays High Yield	S&P 500	S&P 500	Russell 2000 Growth	Russell 2000	S&P 500 Value	Russell 2000 Growth	Russell 2000	S&P 500	S&P 500	S&P 500	Russell 2000	S&P 500 Value	Russell 2000 Growth	S&P 500	S&P 500 Value	Russell 2000	S&P 500 Value	Russell 2000 Growth
12.95%	1.87%	21.04%	-9.11%	-9.23%	-20.48%	31.79%	14.31%	4.55%	15.79%	5.49%	-37.00%	27.17%	15.10%	-2.91%	16.00%	31.99%	4.89%	-3.13%	11.32%
Bloomberg Barclays High Yield	Russell 2000 Growth	S&P 500 Value	MSCI EAFE	S&P 500 Value	S&P 500 Value	Bloomberg Barclays High Yield	Bloomberg Barclays High Yield	Russell 2000 Growth	Russell 2000 Growth	S&P 500 Value	Russell 2000 Growth	S&P 500	S&P 500	Russell 2000	Bloomberg Barclays High Yield	MSCI EAFE	Russell 2000 Value	Russell 2000	MSCI Emerging Markets
12.76%	1.23%	12.73%	-14.17%	-11.71%	-20.85%	28.97%	11.13%	4.15%	13.35%	1.99%	-38.54%	26.47%	15.06%	-4.18%	15.81%	22.78%	4.22%	-4.41%	11.19%
Bloomberg Barclays Agg	Russell 2000	Bloomberg Barclays High Yield	S&P 500 Growth	S&P 500	S&P 500	S&P 500	S&P 500	S&P 500 Growth	Bloomberg Barclays High Yield	Bloomberg Barclays High Yield	S&P 500 Value	S&P 500 Value	S&P 500 Growth	Russell 2000 Value	S&P 500 Growth	Bloomberg Barclays High Yield	Bloomberg Barclays High Yield	Bloomberg Barclays High Yield	S&P 500 Growth
9.68%	-2.55%	2.39%	-22.08%	-11.89%	-22.10%	28.68%	10.88%	4.00%	11.85%	1.87%	-39.22%	21.17%	15.05%	-5.50%	14.61%	7.44%	2.45%	-4.47%	6.89%
MSCI EAFE	Russell 2000 Value	Bloomberg Barclays Agg	Russell 2000 Growth	S&P 500 Growth	S&P 500 Growth	S&P 500 Growth	S&P 500 Growth	Bloomberg Barclays High Yield	S&P 500 Growth	Russell 2000	MSCI EAFE	Russell 2000 Value	MSCI EAFE	MSCI EAFE	Russell 2000 Growth	Bloomberg Barclays Agg	MSCI Emerging Markets	Russell 2000 Value	Bloomberg Barclays Agg
1.78%	-6.45%	-0.83%	-22.43%	-12.73%	-23.59%	25.66%	6.13%	2.74%	11.01%	-1.57%	-43.38%	20.58%	7.75%	-12.14%	14.59%	-2.02%	-2.19%	-7.47%	2.65%
MSCI Emerging Markets	MSCI Emerging Markets	Russell 2000 Value	MSCI Emerging Markets	MSCI EAFE	Russell 2000 Growth	Bloomberg Barclays Agg	Bloomberg Barclays Agg	Bloomberg Barclays Agg	Bloomberg Barclays Agg	Russell 2000 Value	MSCI Emerging Markets	Bloomberg Barclays Agg	Bloomberg Barclays Agg	MSCI Emerging Markets	Bloomberg Barclays Agg	MSCI Emerging Markets	MSCI EAFE	MSCI Emerging Markets	MSCI EAFE
-11.59%	-25.34%	-1.49%	-30.71%	-21.44%	-30.26%	4.10%	4.34%	2.43%	4.33%	-9.78%	-53.33%	5.93%	6.54%	-18.42%	4.21%	-2.60%	-4.90%	-14.92%	1.00%

The Callan Periodic Table of Investment Returns conveys the strong **case for diversification** across asset classes (stocks vs. bonds), investment styles (growth vs. value), capitalizations (large vs. small), and equity markets (U.S. vs. non-U.S.). The Table highlights the uncertainty inherent in all capital markets. Rankings change every year. Also noteworthy is the difference between absolute and relative performance, as returns for the top-performing asset class span a wide range over the past 20 years.

A printable copy of *The Callan Periodic Table of Investment Returns* is available on our website at www.callan.com.

Consumer Price Inflation Indices



- The Bureau of Labor Statistics publishes regional CPI-W indices in addition to the national CPI-W index. Ohio is included in the Midwest region.
- Since 1969, the average annual change is 4.04% nationally versus 3.89% for the Midwest region.
- Since 2000, the average annual change is 2.05% versus 1.81%, respectively.