PERS Earnings Assumption and 2015 Crediting

A presentation to the

Joint Committee on Ways And Means General Government Subcommittee

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PERS Oregon Public Employees Retirement System

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HB 5034 (2015) Budget Note - Assumed Rate

PERS was directed to report back on any changes to the assumed rate; that report was provided separately. The assumed rate is used at least three ways:

1. As a discount rate for determining "the current and prospective assets and liabilities of the system" in the evaluation required under ORS 238.605;
2. As a component of the Actuarial Equivalency Factor ("AEF") tables required by ORS 238.607 to compute benefit payments; AEF tables are derived from life expectancy and investment return assumptions; and
3. As a guaranteed annual crediting rate for Tier One active member regular accounts, pursuant to ORS 238.255.

The PERS Board sets the assumed rate using investment return projections based on the asset allocations of the Oregon Investment Council (OIC) (who invests the PERS Fund) and the related capital market expectations, as well as independent analysis by PERS' actuary, Milliman.

Assumed Rate Change

The PERS Board decided at its July 31, 2015 meeting to reduce the assumed rate from 7.75% to 7.50%, effective January 1, 2016. The following investment return estimates from Milliman and OIC consultants were considered in reaching this decision:

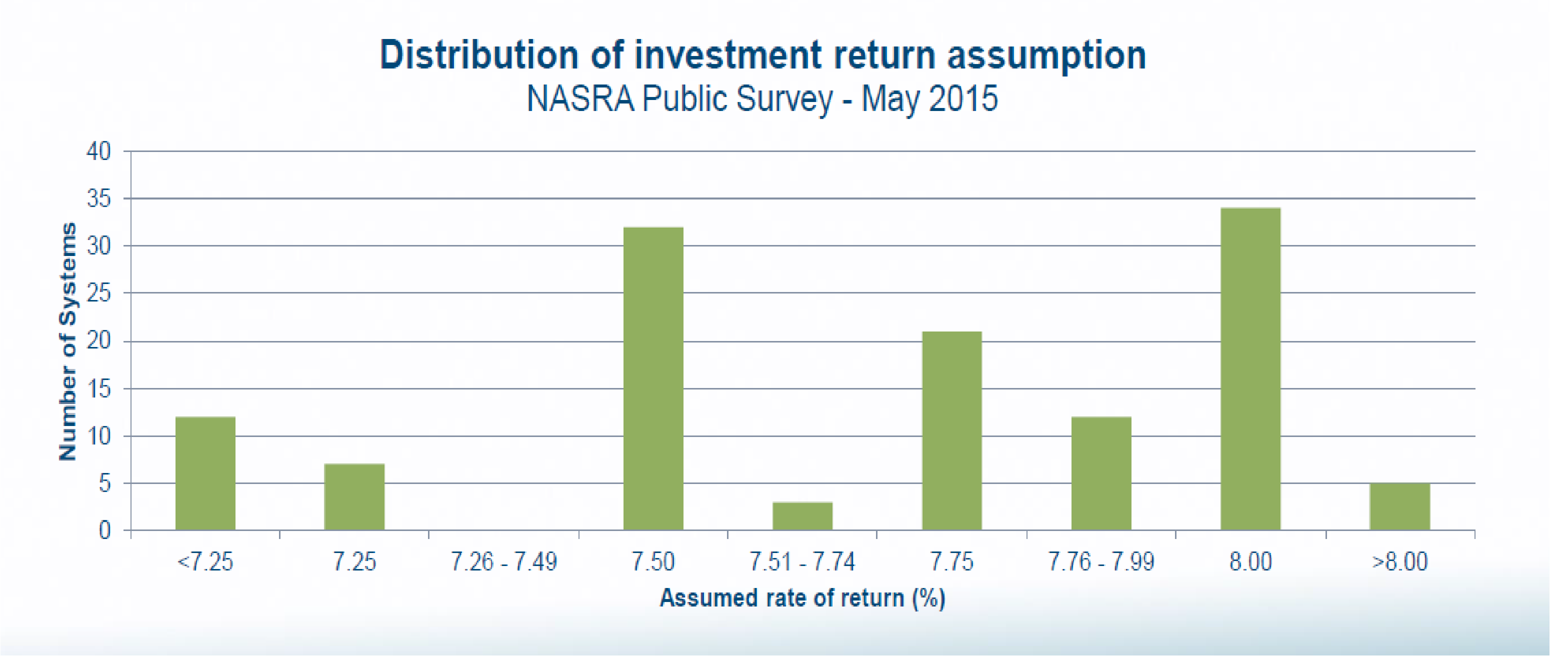
Investment Return Estimates	Milliman	Callan*	Horizon*
Median annualized rate of return	6.99%	7.51%	7.25%
Assumed rate of inflation	2.50%	2.25%	2.41%
Timeframe modeled (years)	20	10-20	10

*Callan is the general investment consultant to the OIC;
Horizon is a survey of investment return analysts referenced by Milliman.

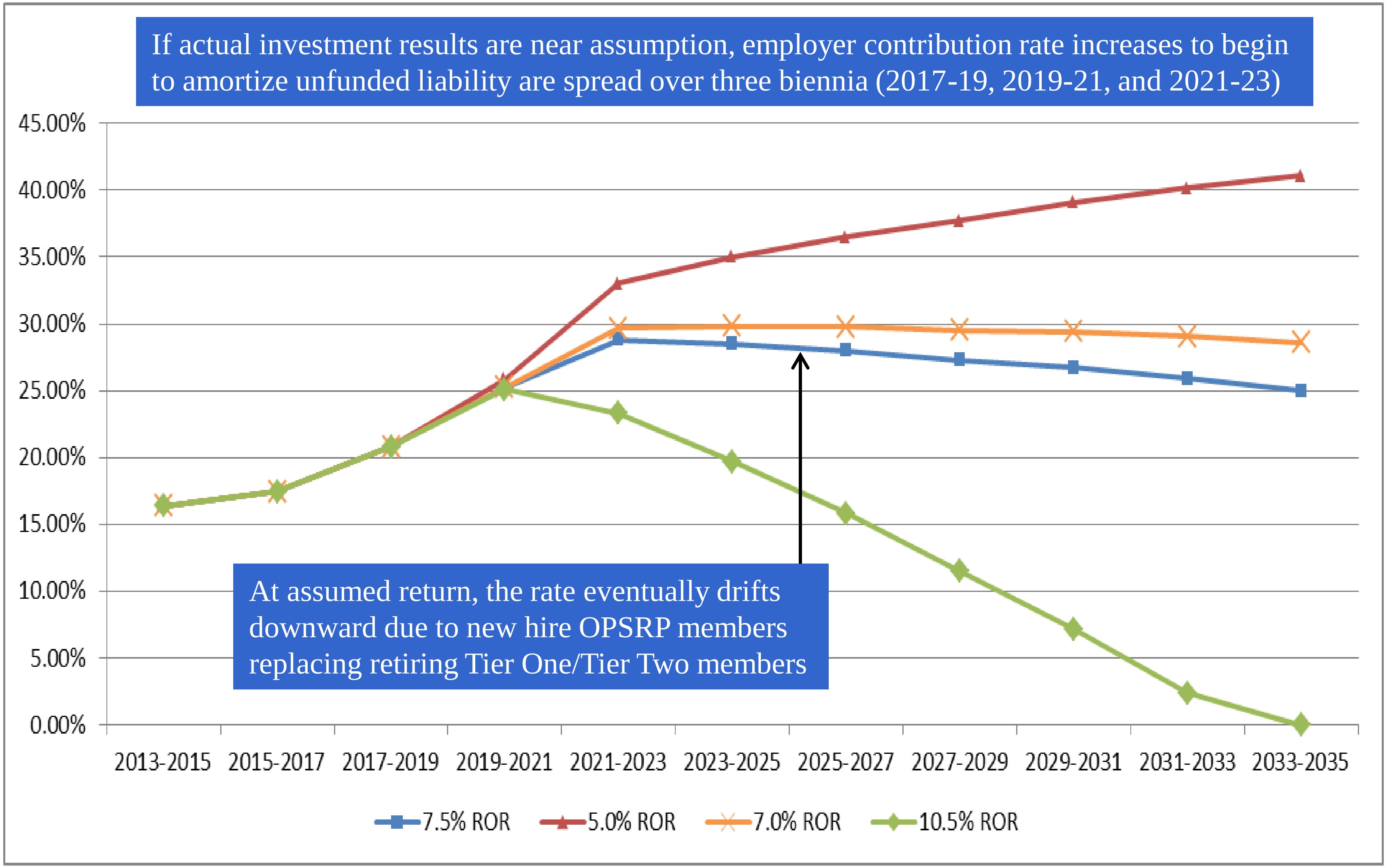
Decreasing the assumed rate added $1.7 billion to PERS' unfunded actuarial liability when the new rate was used on assessing the system's financial status for the actuarial valuation as of December 31, 2014. The assumed rate is reviewed by the PERS Board every two years in setting the methods and assumptions for the actuarial valuation, and will next be reviewed in 2017 for use in the actuarial valuation as of December 31, 2016.

Assumed Rate Outlook and Comparison

Milliman's Capital Market Outlook: Average Annualized Returns Over the Next 20 Years	
75th percentile	8.99%
60th percentile	7.74%
50th percentile	**6.99%**
40th percentile	6.25%
25th percentile	5.03%



Achieving the Assumed Rate



Milliman presentation; November 20, 2015 Board meeting

PERS System Assessment and Employer Rates: Understanding The Funding Equation

At the end of each calendar year, the PERS actuaries calculate the system's funded status using the following basic equation:

$$B = C + E$$

BENEFITS = CONTRIBUTIONS + EARNINGS

BENEFITS	CONTRIBUTIONS	EARNINGS
present value of earned benefits	employer funds to pay pension benefits	future returns on invested funds
Set by: Oregon Legislature	Set by: PERS Board	Managed by: Oregon Investment Council

Every two years, the PERS Board adjusts contributions so that, over time, those contributions will be sufficient to fund the benefits earned, if earnings follow assumptions.

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Employer Contribution Rate Setting Cycle

Actuarial valuations are conducted annually, but alternate between "advisory" and "rate setting" valuations: e.g., the December 31, 2014, valuation results project what employer rates might become, and the December 31, 2015, valuation will be used to set actual rates.

Once employer rates are adopted by the PERS Board (in the fall of the even-numbered year), they become effective the following July 1 of the odd-numbered year (18 months after the valuation date).

Valuation Date	Employer Contribution Rates
December 31, 2013 →	July 2015 - June 2017
December 31, 2015 →	July 2017 - June 2019
December 31, 2017 →	July 2019 - June 2021

Solving the Equation . . .

When setting employer contribution rates, the PERS Board has the following objectives:

- Transparent process and inputs
- Predictable and stable employer contribution rates
- Protect funded status to secure future benefit payments
- Equitable across generations of taxpayers funding the system
- Actuarially sound – fully fund the system if assumptions are met
- GASB compliant

Some of the objectives can conflict, particularly in periods with significant volatility in investment return or projected benefit levels. Overall system funding policies should seek an appropriate balance between conflicting objectives.

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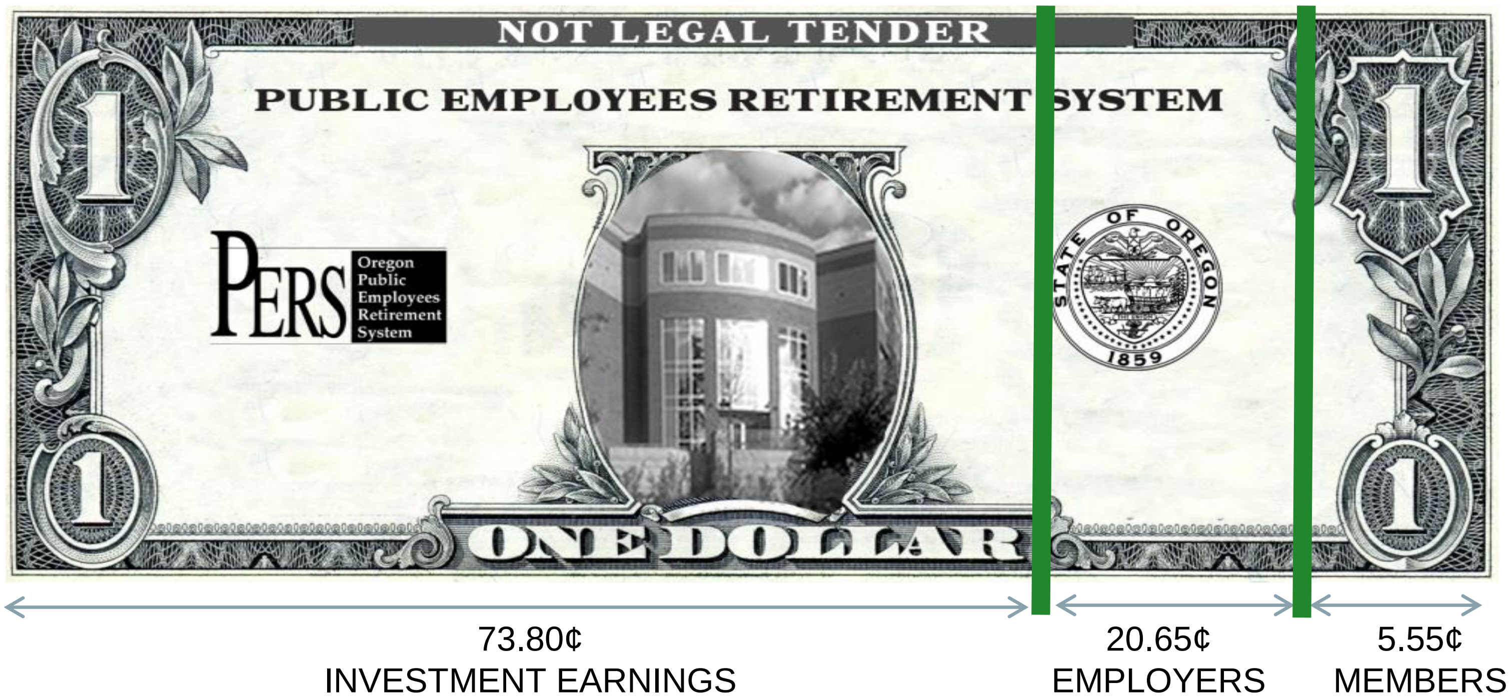
Balancing the "B", "C", and "E"

PENSION BENEFIT FUNDING SOURCES (1970-2014)

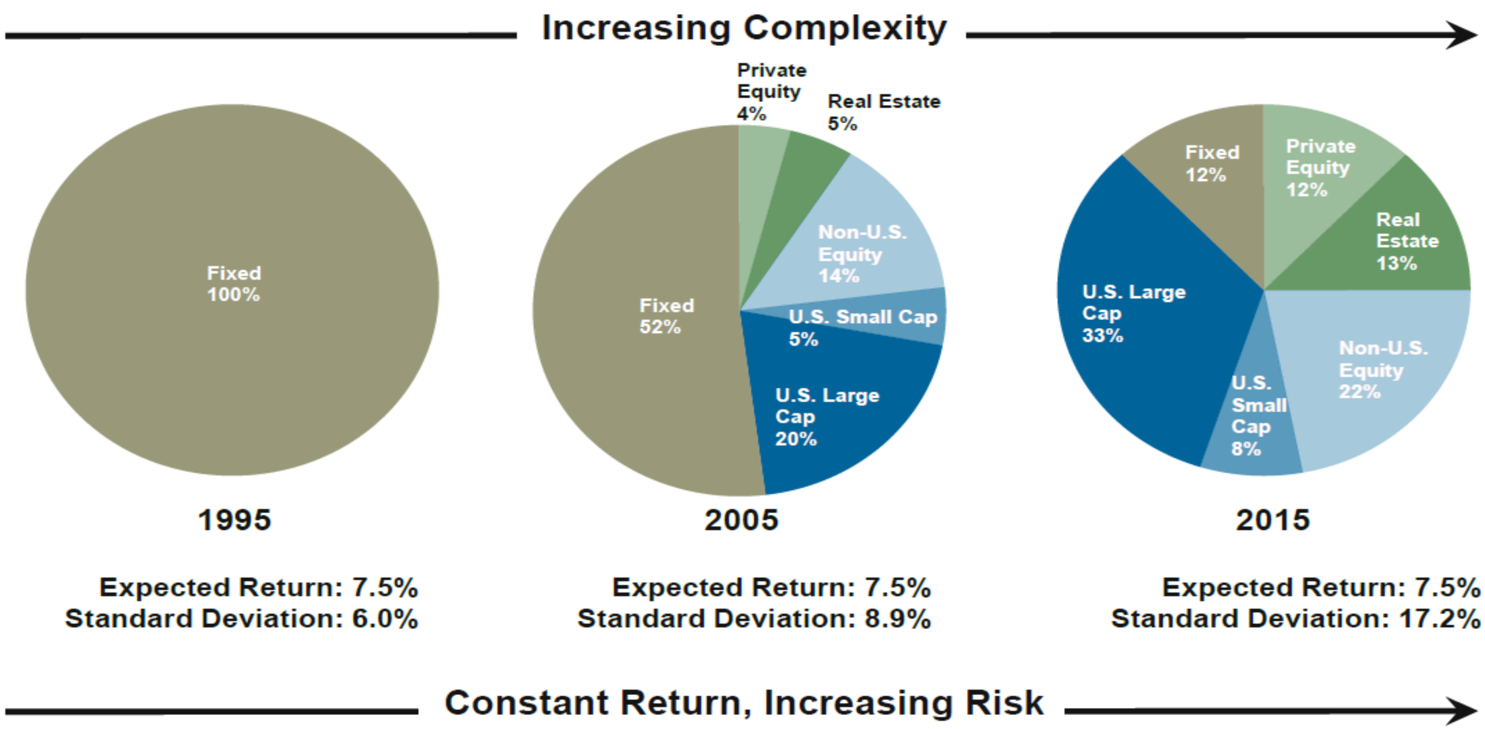


Since 1970, the total revenues into PERS to pay for Tier One and Tier Two benefits have come from these three sources. Member contributions were diverted to the Individual Account Program starting in 2004, so their share of revenue will diminish over time.

Oregon Investment Council Overview – Portfolio Complexity to Achieve 7.5% Return

Increasing Volatility and Complexity

Expected Portfolio Returns Over Past 20 Years



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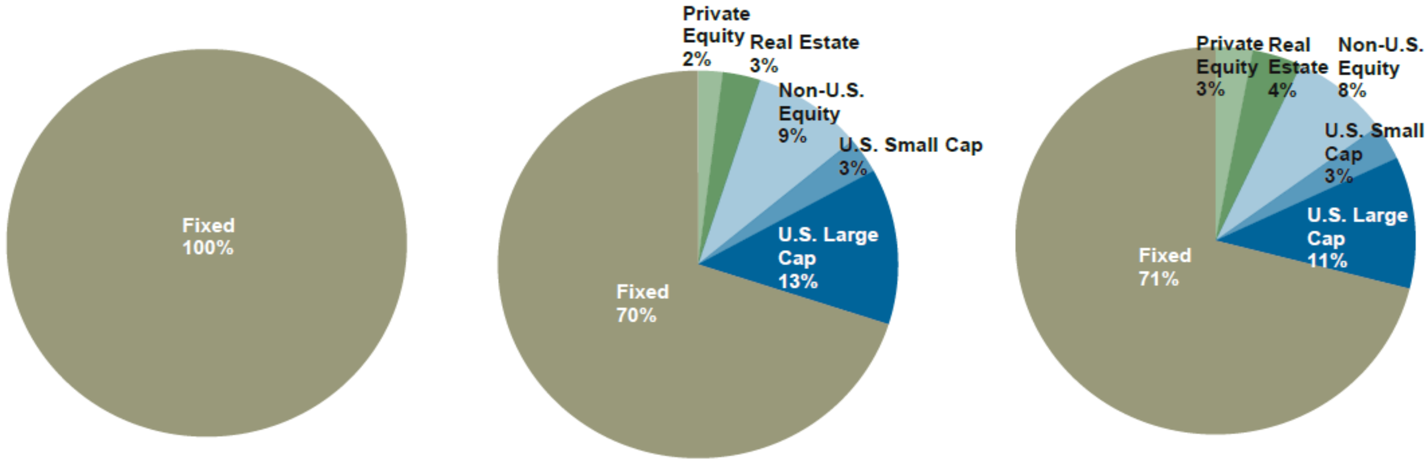
Portfolio Stability vs. Investment Return

Increasing Volatility and Complexity

Expected Portfolio Risk Over Past 20 Years

Increasing Complexity →



1995	2005	2015
Expected Return: 7.5% Standard Deviation: 6.0%	Expected Return: 6.5% Standard Deviation: 6.0%	Expected Return: 4.8% Standard Deviation: 6.0%

Constant Risk, Decreasing Return →

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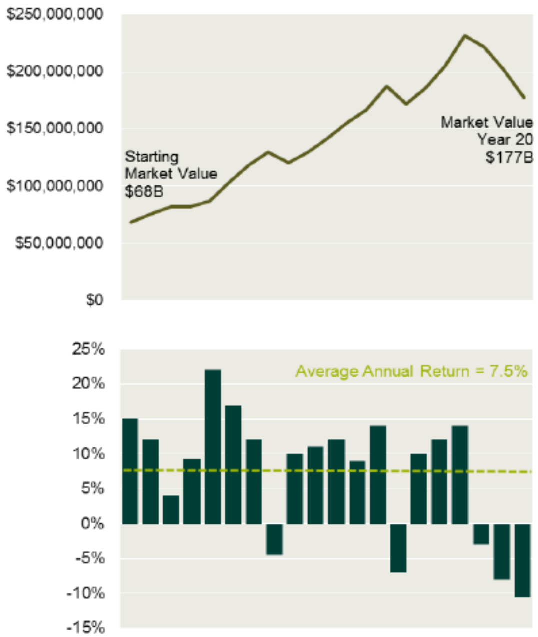
Impact of Varying Portfolio Return

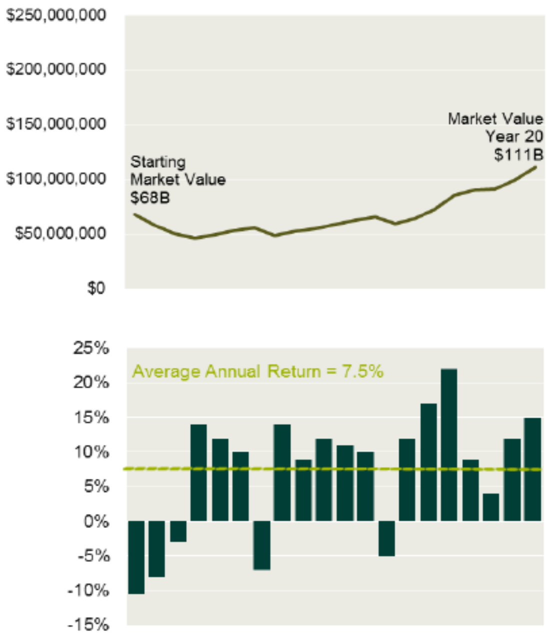
Sequence of Returns Matters (a lot!)

Terminal value 20 years hence depends on 1) beginning value, 2) average realized return, 3) net contributions/withdrawals and the precise sequence of actual, annual investment returns. In this hypothetical example, two funds with identical beginning values ($68B), average returns (7.5%) and net contributions/withdrawals (-$2.8B/year) have dramatically different 20-year terminal value outcomes due entirely to differences in the realized sequence of actual returns.

Fund A



Fund B



Source: W. Van Harlow, the Putnam Institute, New York Times.

2015 Preliminary Earnings Crediting

The PERS Board adopted preliminary crediting of earnings for calendar year 2015 at its January 29, 2016 meeting. Final adoption of earnings crediting is slated for the March 28, 2016 Board meeting.

Reserve/Account	Balance Before 2015 Crediting ($ millions)	2015 Crediting Amount ($ millions)	Reserves After Crediting ($ millions)	2015 Rates
Contingency Reserve	$588.6		$588.6	N/A
Tier One Member Regular Accts	4,932.6	382.3	5,314.9	7.75%
Tier One Rate Guarantee Reserve	448.8	(280.8)	168.0	N/A
Benefits-In-Force (BIF) Reserve	21,914.8	413.1	22,327.9	1.88%
Tier Two Member Regular Accts	839.6	15.8	855.4	1.88%
Employer Reserves	23,082.8	434.8	23,517.6	1.88%
OPSRP Pension Program	2,355.8	43.1	2,398.9	1.82%
UAL Lump-Sum Payment Side Accts	5,499.3	122.0	5,621.3	Various
IAP Accounts	6,745.9	122.7	6,868.6	1.87%
Total	**$66,408.2**	**$1,253.0**	**$67,661.2**	