CHEIRON CLASSIC VALUES, INNOVATIVE ADVICE

Montana Public Employees' Retirement Board

Actuarial Valuations as of June 30, 2014

Presented By
Stephen McElhaney, FSA, FCA
Margaret Tempkin, FSA

October 9, 2014

Discussion Topics

- The Actuarial Valuation Process
- Changes Since Prior Valuations
- Historical Trends (PERS)
- 2014 Actuarial Valuations, Projections, and Stress Testing
- GASB 67 and 68
- PERS-DC Disability Plan

The Actuarial Valuation Process

The Actuarial Valuation Process In General

1. Collect data
   - Participants
   - Plan provisions
   - Financial

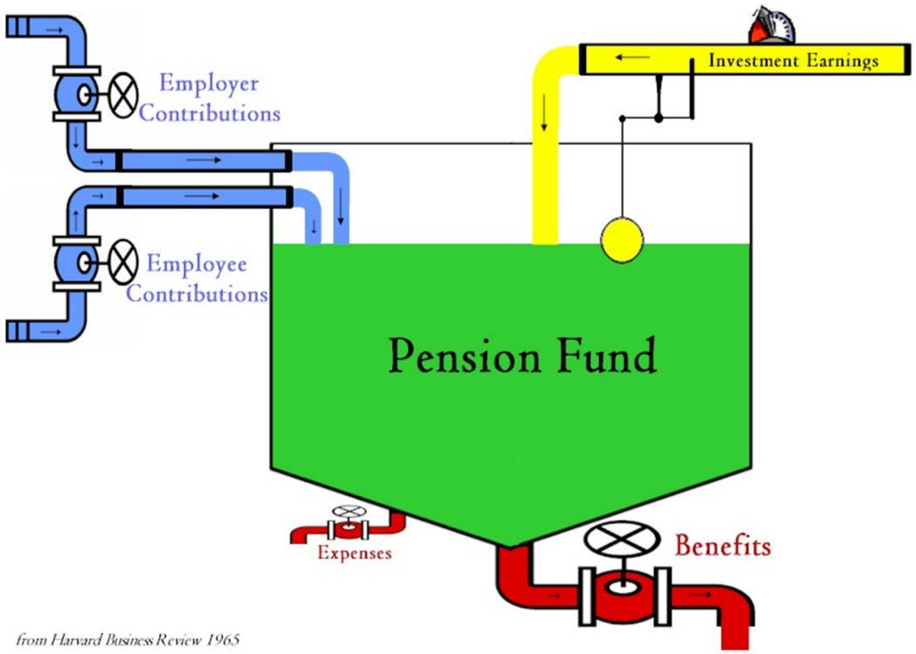
2. Make assumptions
   - Demographic
   - Economic

3. Project all future benefit payments

4. Determine a present value = tank

5. Compare to assets

6. Calculate employer contribution



from Harvard Business Review 1965

Changes Since Prior Valuations

Plan Changes

- PERS
  - GABA
    - Court injunction in December 2013 prevented GABA changes from HB 454 from taking effect
    - 2014 valuation reflects GABA provisions before HB 454
      - Pre-2007: 3%
      - Post-2007 1.5%
  - Employer Contributions
    - In accordance with statute, employer contribution rates were increased 0.1%

- HPORS
  - Member Contributions
    - In accordance with statute, member contribution rates were increased by 1%

Method Change

- Administrative Expense
  - Previously was considered covered by investment earnings
  - Effective in 2014, an explicit expense charge as a percentage of payroll is included in the actuarial contribution rate
  - Brings funding methodology in line with new GASB accounting requirements

Actuarial Contribution Rate

- Previously referred to as GASB rate, or GASB Annual Required Contribution (ARC)
  - Based upon "rolling" 30-year amortization of unfunded actuarial liability (UAL)
  - With new GASB 67, GASB no longer defines an ARC
- 2014 valuation reports still calculate the contribution the same as in prior years, but no longer reference GASB
- Recent guidance from GFOA and actuarial organizations recommend using closed amortization periods for the UAL
  - If 30-year amortization period was closed starting in 2014, we would use 29 years in 2015, 28 years in 2016, etc.
- The actuarially determined contribution is still disclosed for GASB purposes, but GASB no longer sets the parameters

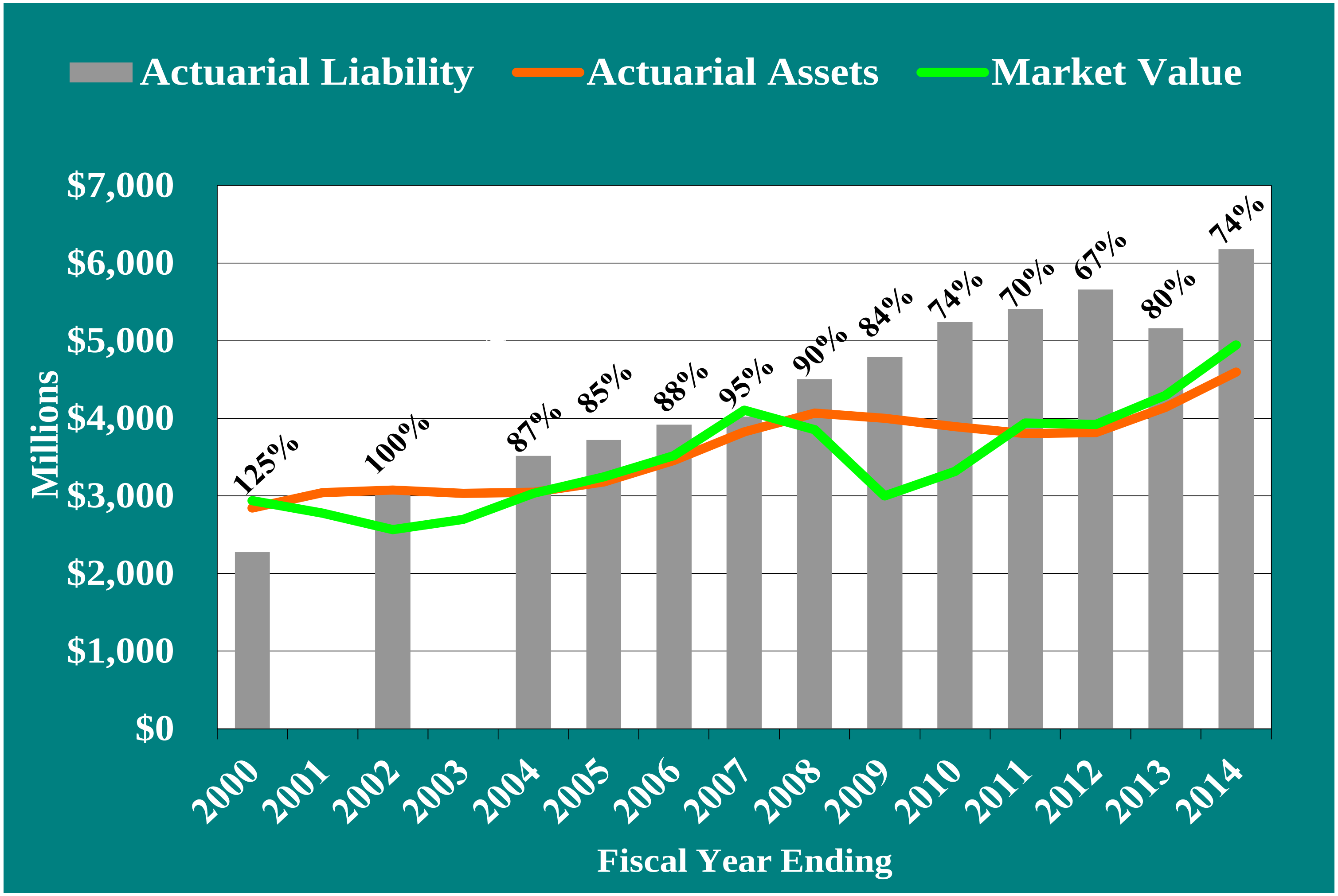
Review of Actuarial Experience

- Investment experience
  - Return on market value was from 16% to 17% for all systems
  - Due to asset smoothing gains, return on actuarial value was from about 12% to 13% for all systems, creating actuarial experience gains
- Liability experience showed relatively small actuarial gains and losses except:
  - JRS: Gain due to retirements
  - VFCA: Gains from terminations

CHEIRON

Historical Trends (PERS)

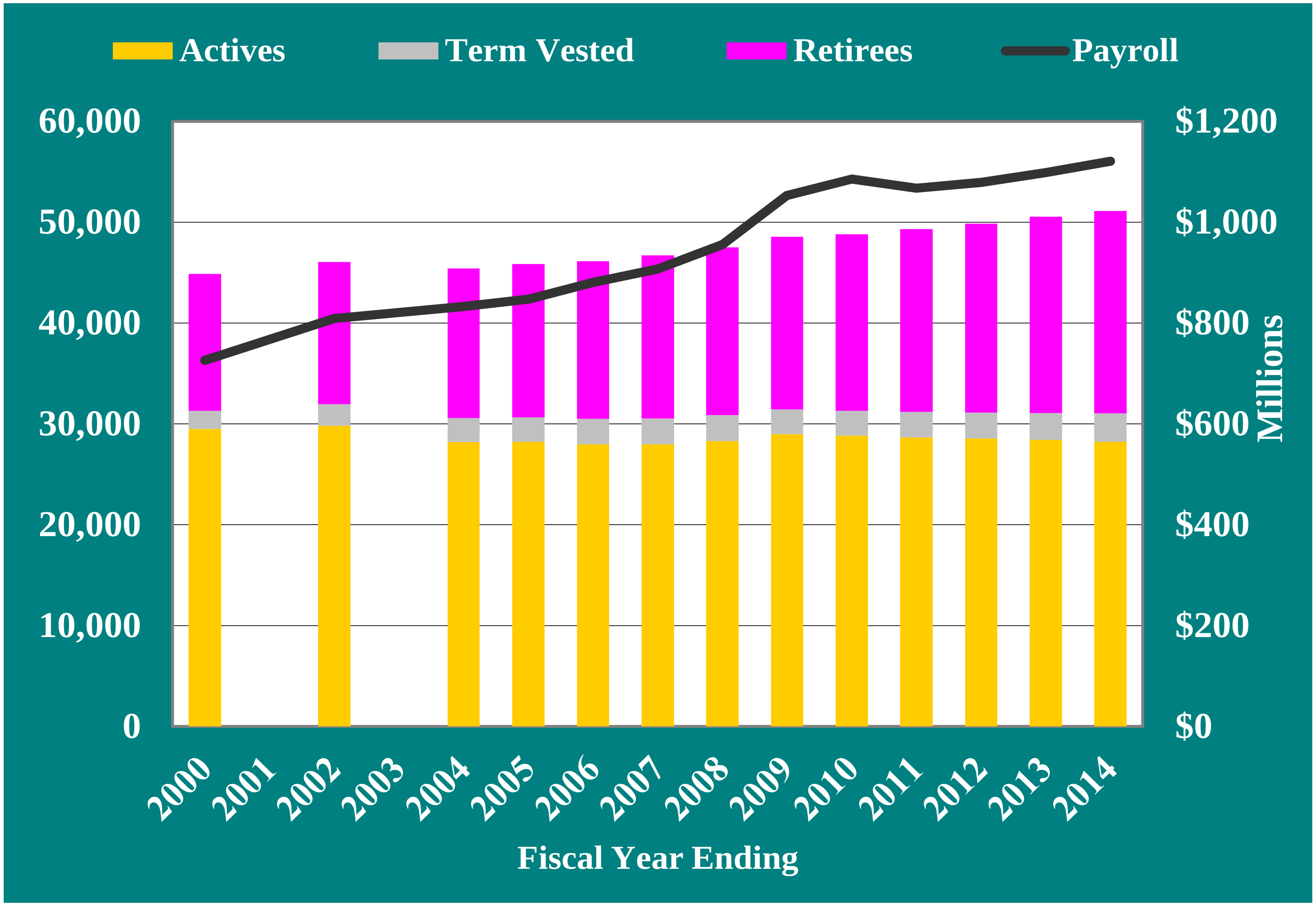
PERS Historical Trends
Assets and Liabilities



Note: 2013 Actuarial Liability reflects reduced GABA under HB 454.

CHEIRON

PERS Historical Trends
Participation



CHEIRON

2014 Actuarial Valuations, Projections, and Stress Testing

PERS Summary of Valuation Results

Valuation as of:	June 30, 2013	June 30, 2014	% Change
Participant Counts			
Active Members	28,401	28,229	-0.6%
Disabled Members	185	193	4.3%
Retirees and Beneficiaries	19,266	19,888	3.2%
Terminated Vested Members	2,686	2,825	5.2%
Terminated Non-Vested Members	6,712	7,666	14.2%
Total	57,250	58,801	2.7%
Annual Salaries of Active Members	1,098,340,791	1,120,939,764	2.1%
Average Annual Salary	38,673	39,709	2.7%
Annual Retirement Allowances for Retired Members and Beneficiaries	281,465,581	302,758,499	7.6%

CHEIRON

PERS Summary of Valuation Results

	Full Recognition HB454 June 30, 2013	Prior GABA Provisions June 30, 2013	Prior GABA Provisions June 30, 2014
Assets and Liabilities (000's)			
Actuarial Accrued Liability (AAL)	5,160,951	5,902,663	6,177,504
Actuarial Value of Assets (AVA)	4,139,921	4,139,921	4,595,805
Unfunded AAL (AVA/AAL)	1,021,030	1,762,742	1,581,699
Less: PCR-UAL	8,749	8,749	5,903
Net Unfunded AAL	1,012,281	1,753,993	1,575,796
Funded Ratio	80%	70%	74%
Market Value of Assets (MVA)	4,299,238	4,299,238	4,942,770
Ratio of Actuarial Value to Market Value	96%	96%	93%

PERS Summary of Valuation Results

	Full Recognition HB454 June 30, 2013	Prior GABA Provisions June 30, 2013	Prior GABA Provisions June 30, 2014
Contributions as a Percentage of Payroll			
Statutory Funding Rates			
Average Member Contribution Rate	7.90%	7.90%	7.90%
Employer Contribution Rate	8.07%	8.07%	8.17%
State Contribution Rate	0.10%	0.10%	0.10%
Coal Tax as Percen of Comp.	2.61%	2.61%	3.09%
DC/ORP Percent of Comp.	0.10%	0.10%	0.10%
Total Statutory Funding Rate	18.78%	18.78%	19.36%
Less: Transfer to DB Ed Fund	0.04%	0.04%	0.04%
Net Statutory Funding Rate	18.74%	18.74%	19.32%
Normal Cost Rate	10.90%	11.82%	11.63%
Administrative Expense Rate	N/A	N/A	0.27%
Available for Amortization of UAL	7.84%	6.92%	7.42%
Period to Amortize	14.5	43.7	29.3
Projected 30-year Level Funding Rate	15.75%	20.19%	19.27%
Projected Shortfall (Surplus)	-3.03%	1.41%	-0.09%

PERS Calculations With Reduced GABA under HB 454

	June 30, 2014
Assets and Liabilities (000's)	
Actuarial Accrued Liability	5,474,522
Actuarial Value of Assets	4,595,805
Unfunded AAL	878,717
Funded Ratio	84%
Determination of amortization periods	
Net Statutory Funding Rate	19.32%
Normal Cost Rate	10.78%
Administrative Expense Rate	0.27%
Available for Amortization of UAL	8.27%
Period to Amortize (years)	10.9
Net Statutory Funding Rate w/o temporary contributions	16.85%
Normal Cost Rate	10.78%
Administrative Expense Rate	0.27%
Available for Amortization of UAL	5.80%
Period to Amortize (years)*	17.3
GABA Determination next January 1	
Funding ratio to neaest whole percentage	84%
GABA based on funded ratio	1.2%
Is amortization period over 40 years?	No
Final GABA	1.2%

All calculations above assume all future GABAs at rate of 1.5% and no change in member contribution rate of 7.9%

**Since period is under 25 years, temporary contributions would have been eliminated at 1/1/15*

CHEIRON

Stress Testing the Future - PERS

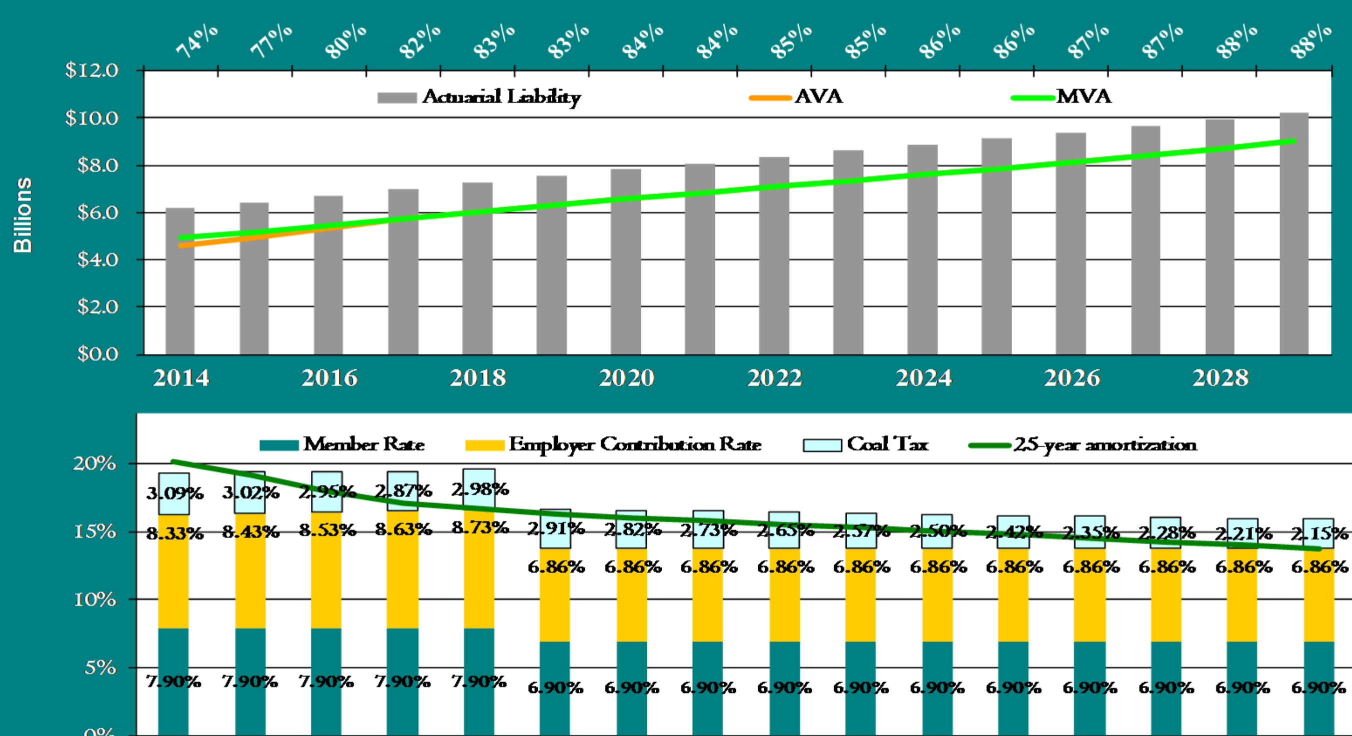
CHEIRON

STRESS TESTING

Use MV FR?n

Baseline	Amortization Period	25		*Plan->*	*PERS*
Historical	1 = Fixed, 2=Layers, 3= Rolling	3		*GABA>*	*1* *Old*
1975	Amortization Pay Growth	4.00%		Asset sm/mthd	4 / Curr
				Asset corridor	80% / 500%

2014	7.75%
2015	7.75%
2016	7.75%
2017	7.75%
2018	7.75%
2019	7.75%
2020	7.75%
2021	7.75%
2022	7.75%
2023	7.75%
2024	7.75%
2025	7.75%
2026	7.75%
2027	7.75%
2028	7.75%
2029	7.75%
2030	7.75%
2031	7.75%
2032	7.75%
2033	7.75%
Avg	7.75%

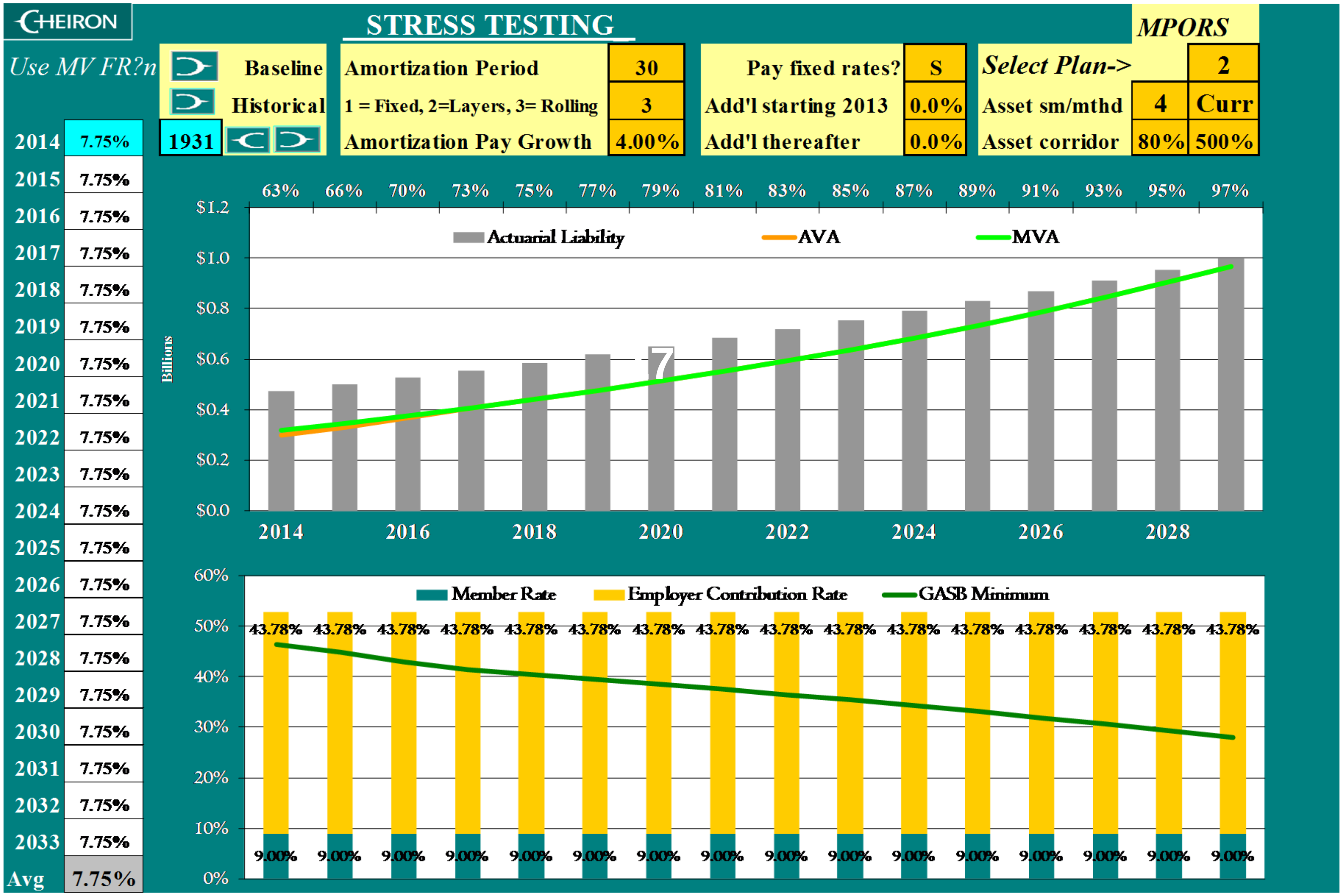


CHEIRON

Valuation Results – Other Plans

	Funded Ratio		Amortization Period	
	2013	2014	2013	2014
JRS	143%	155%	0.0	0.0
HPORS	60%	64%	44.6	30.3
SRS	77%	81%	Does not amortize	Does not amortize
GWPORS	80%	84%	Does not amortize	Does not amortize
MPORS	58%	63%	23.8	19.6
FURS	66%	72%	13.9	11.3
VFCA	75%	82%	8.5	5.1

Stress Testing the Future
Other Plans



CHEIRON

New GASB Statements No. 67 & 68

Background
Prior GASB Standards

- Statement 25 set financial reporting requirements for pension plans. This will be replaced by Statement 67.
- Statement 27 set pension accounting and financial reporting requirements for employers. This will be replaced by Statement 68.
- Both Statements defined an actuarially required contribution (ARC).
- If the Plan Sponsor did not pay the full ARC, the difference was translated into a "liability" called the Net Pension Obligation and placed on the financial statements of the Plan Sponsor.
- ARC became a de-facto funding standard.

Key Changes

- Replaces the ARC with "pension expense", that has shorter amortization periods:
  - Investment gains and losses over 5 years
  - Benefit enhancements immediate (1 year)
  - Other changes over the average expected working lifetime of all plan participants (counting zero for retirees and other inactive participants)
- Unfunded liability moves from financial statement notes to the employers' balance sheets
- Discount rate changes for some plans
- Entry age actuarial cost method for all plans
- Significant terminology changes

Basic Components and Terminology

- Total Pension Liability (TPL) = the actuarial liability under entry age cost method
- Fiduciary Net Position (FNP) = market value of assets
- Net Pension Liability (NPL) = TPL – FNP
- Actuarially Determined Employer Contribution (ADC) = Contribution amount calculated in accordance with Actuarial Standards of Practice and/or defined by statute or law

CHEIRON

GASB 67 – Pension Funds

- Effective for years ended June 30, 2014
- Measurement date must be year end
- Assets: Market value as of the measurement date
- Liability must be computed using entry age normal cost method
- Liability may either be:
  - Rolled forward from previous actuarial valuation, or
  - Based on current year end valuation results

CHEIRON

GASB 68 - Employers

- Will disclose under GASB 27 for the fiscal years ended June 30, 2014
- GASB 68 is effective for employer fiscal years ending June 30, 2015
- Measurement date based on plan measurement either for:
  – Current fiscal year end, or
  – Prior fiscal year end

CHEIRON

GASB Discount Rate Calculation

- Discount rate is blended rate based on:
  - Expected return on assets to the extent assets, including future contributions for current members, are sufficient to make projected benefit payments for current plan members
    - Calculation excludes employer normal cost contributions and employee contributions for future employees, but includes UAL amortization payments based on payroll of future employees
  - 20-year, tax-exempt general obligation bond rate with an average rating of AA/Aa to the extent assets are not sufficient
- At this point, only SRS is required to use the blended discount rate

CHEIRON

Issues for Cost Sharing Plans

- Net pension liability is allocated to each employer in cost sharing plan
  – Recommended method of allocation is on covered plan payroll or employer contributions
- Each employer must disclose its share of the NPL and pension expense
- Also allocations of NPL and expense to the State where the State is a non-employer contributing entity

GASB 67 Disclosures as of June 30,2014

	Discount Rate	Total Penson Liability	Fiduciary Net Position	Net Pension Liability
PERS	7.75%	$6,189	$4,943	$1,246
JRS	7.75%	52	84	(32)
HPORS	7.75%	183	126	57
SRS	7.54%	335	285	50
GWPORS	7.75%	154	139	15
MPORS	7.75%	476	319	157
FURS	7.75%	419	322	97
VFCA	7.75%	38	33	5

Dollars in millions

CHEIRON

2013 Actuarial Valuation PERS-DC Disability Plan

Background

- PERS-DC Disability Plan provides disability coverage to members covered by PERS-DC
  - Funded by contributions of 0.3% of covered PERS-DC payroll
  - Actuarial valuation had never been performed since initial plan design
- GASB requires disclosure of liabilities for “stand-alone” disability plans under OPEB rules
  - GASB 43 applies, which is very similar to requirements for pension plans under superseded statement GASB 25

CHEIRON

Valuation Results

Table I-1 Montana PERS DCRP Long Term Disability Plan Summary of Principal Plan Results	
Valuation as of:	**June 30, 2013**
Participant Counts – DCRP Only	
Active Members	2,087
Disabled Members	4
Retirees and Beneficiaries	0
Terminated Vested Members	0
Terminated Non-Vested Members	0
Total	2,091
Annual Salaries of Active Members	$ 90,450,420
Average Annual Salary	$ 43,340
Annual Retirement Allowances for Disabled Members	$ 29,460
Assets and Liabilities	
Actuarial Liability (AL)	$ 2,715,033
Actuarial Value of Assets (AVA)	2,184,488
Unfunded AL (AVA-AL)	$ 530,545
Funded Ratio (AVA/AL)	80.5%
Ratio of Actuarial Value to Market Value	100.0%
Contributions as a Percentage of Payroll	
Statutory Funding Rate	0.30%
Normal Cost Rate	0.33%
Available for Amortization of UAL	(0.03%)
Period to Amortize	Does not amortize
Projected 30-year Level Funding Rate	0.35%
Projected Shortfall (Surplus)	0.05%

CHEIRON

Required Disclosures

- The purpose of this presentation is to present the annual actuarial valuation of the Montana Public Employee Retirement Administration. This presentation is for the use of the Montana Public Employees' Retirement Board and its auditors in preparing financial reports in accordance with applicable law and accounting requirements.

- In preparing our presentation, we relied on information (some oral and some written) supplied by the Montana Public Employee Retirement Administration. This information includes, but is not limited to, the plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice #23.

- We hereby certify that, to the best of our knowledge, this presentation and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this presentation. This presentation does not address any contractual or legal issues. We are not attorneys and our firm does not provide any legal services or advice.

- This presentation was prepared exclusively for the Montana Public Employees' Retirement Board for a for the purpose described herein. This presentation is not intended to benefit any third party, and Cheiron assumes no duty or liability to any such party.

- The actuarial assumptions, data and methods are those used in the preparation of the latest actuarial valuation report prepared for these plans as of June 30, 2014, (June 30, 2013 for PERS-DC Disability)

- The assumptions reflect our understanding of the likely future experience of the Plans and the assumptions as a whole represent our best estimate for the future experience of the Plans. The results of this presentation are dependent upon future experience conforming to these assumptions. To the extent that future experience deviates from the actuarial assumptions, the true cost of the plan could vary from our results.

Stephen McElhaney, FSA, FCA
Principal Consulting Actuary

Margaret Tempkin, FSA
Principal Consulting Actuary

CHEIRON