Marin County
Employees' Retirement Association

Results of Actuarial Audit

June 30, 2011 Actuarial Valuation

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Purpose & Scope

- **Purpose**: Review EFI's actuarial work and confirm that the results of the valuation are reasonable.
- **Scope:**
  - Full independent replication of Actuarial Valuation (June 30, 2011)
  - Review of actuarial assumptions (2008 – 2011 Experience Study)

Bottom Line

- What you need to know
  - Overall results are good
    - Close match on liabilities and employer contribution rates
    - Package of assumptions is reasonable
  - Recommended changes
    - Revise member contribution rates (COLA portion only)
    - Revise calculation of liabilities for the active member death benefit to reflect the lump sum option (contributions with interest plus 6-month’s pay)
  - Considerations for future valuations and experience studies
    - UAAL amortization calculation (level active population in all future years)
    - Lower inflation assumption
    - Separate disabled mortality assumption for Safety and Miscellaneous members
    - Additional disclosures in the valuation report

Actuarial Valuation

- Independent parallel valuation performed
  - Components
    - ✓ Data
    - ✓ Assumptions & methods
    - ✓ Assets
    - ✓ Benefits

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Membership Data

- Reviewed data supplied by MCERA
  - Compared vs. CAFR
  - Confirmed that all necessary information was included
- Reviewed data used in EFI's valuation
  - Performed independent parallel data editing
    - Checked individually and in aggregate
  - Conclusion
    - Data used by EFI in valuation is reasonable

Membership Data (continued)

	EFI	Milliman	Ratio EFI/Milliman
Active Members			
Total Number	2,546	2,546	100.0%
Average Age	47.8	47.8	100.0%
Average Service	11.3	11.3	100.0%
Average Compensation	$ 86,735	$ 86,431	100.4%
Retirees and Survivors			
Number of Members in Payment			
Service Retired	1,842	1,844	99.9%
Disability Retired	353	353	100.0%
Beneficiaries	350	351	99.7%
Total Number	2,545	2,548	99.9%
Average Age	69.1	69.1	100.0%
Average Monthly Benefit	$ 3,024	$ 3,020	100.1%

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Actuarial Value of Assets

- Smoothing method
  - 5-year recognition of gains and losses
  - Corridor of 80% / 120%
  - Confirmed calculation of actuarial value
- Assets allocated to sub-groups within each employer group
  - Confirmed allocation
- Assets used in valuation are reasonable

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Actuarial Liabilities

- Replication valuation results
  - Close match in total
  - Good match by benefit type for actives except for death benefit
  - Also good match by Agency & Tier – see Appendix A
  - Actuarial Accrued Liability shown in millions of dollars

	AAL ($millions)		Ratio
	EFI	**Milliman**	**EFI/Milliman**
County of Marin	$ 1,436.0	$ 1,444.9	99.4%
Novato FPD	136.3	137.4	99.2%
City of San Rafael	412.7	414.6	99.5%
Total AAL	**$ 1,985.1**	**$ 1,996.9**	**99.4%**

Active Death Benefit

- If member dies while in active status with at least 5 years of service:
  - Eligible beneficiaries (spouse of domestic partner) may elect:
    1. Annuity Benefit
    2. Lump sum equal to refund of contributions with interest plus 6-month's pay
  - All other beneficiaries receive the lump sum
  - EFI only valued the active death benefit for eligible beneficiaries
  - Overall impact was small due to relative size of death benefit

	EFI	Milliman	Ratio EFI/Milliman
Service Retirement	$ 1,005.6	$ 1,004.7	100.1%
Vested Term & Refund	37.6	35.6	105.5%
Disability	85.8	83.9	102.3%
Death from Active Status	12.5	14.9	83.8%
Total Active PVB	**$ 1,141.5**	**$ 1,139.1**	**100.2%**

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Member Contribution Rates

- Independently calculated both basic and COLA rates
  - Additional cost-sharing supplied
- Basic rates based on formula
- COLA based on equal sharing by employers and members
- Milliman and EFI's calculated Basic rates are consistent, but some differences on COLA rate, particularly at younger ages
  - Example:
    - County and Courts Misc. Tier 3 member with an entry age of 25

	Member Rate		EFI / Milliman
Component	EFI	Milliman	Ratio
Basic	4.86%	4.85%	100%
COLA	0.81%	1.15%	70%
Cost Sharing	1.14%	1.14%	100%
Total	6.81%	7.14%	95%

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Member Contribution Rates (continued)

- Difference is less at older entry ages

Plan	Member Contribution Rate (Basic + COLA) EFI	Milliman	EFI / Milliman Ratio
General Plans			
County & Courts Misc. Tier 3, 3A & 4			
Entry Age 25	6.81%	7.14%	95%
Entry Age 35	7.91%	8.08%	98%
Entry Age 45	9.48%	9.47%	100%
San Rafael Misc.			
Entry Age 25	8.52%	8.94%	95%
Entry Age 35	10.67%	10.90%	98%
Entry Age 45	13.08%	13.25%	99%
Safety Plans			
County Tier 2			
Entry Age 25	13.59%	14.05%	97%
Entry Age 35	15.74%	16.09%	98%
Entry Age 45	17.79%	17.78%	100%
County Tier 2B with 2.6% Additional Cost Sharing			
Entry Age 25	16.38%	16.92%	97%
Entry Age 35	18.68%	18.73%	100%
Entry Age 45	20.39%	20.38%	100%

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Funding

- Individual Entry Age Actuarial Cost Method
  - Our preferred method
- Employer Contribution Rate
  - Normal Cost + 17-year rolling amortization of UAAL
    - Plus special 2009 asset loss base
  - Funding Adequacy
    - Compliant with current GASB financial reporting requirements
    - New GASB requirements sever funding and financial reporting
    - Slight negative amortization in short term
      - Negative Amortization = UAAL is expected to grow during year
    - We believe current method is reasonable
      - Slightly favors mitigation of employer contribution rate increases and volatility over stronger funding

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Employer Contribution Rates

- Independently calculated employer contribution rates
- Milliman and EFI rates are close
- Also confirmed impact of revised member rates on employer contribution rate
  - EFI calculated impact as 0.18% decrease (varies slightly by employer)

	Employer Contribution Rate		Ratio
	EFI	Milliman	EFI/Milliman
County of Marin	26.50%	26.68%	99.3%
Novato FPD	46.00%	46.01%	100.0%
City of San Rafael	54.16%	54.35%	99.7%

Experience Study

- Importance of reasonable assumptions
- Assumption types
  - Economic Assumptions
    - Set based on global forecasts
  - Demographic assumptions
    - Set based largely on MCERA's recent experience

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Inflation

- Current price inflation assumption (3.25%) relative to other sources
  - MCERA adopted 3.25% assumption (was 3.50%) effective with the June 30, 2011 valuation
  - Historical perspective
  - MCERA Investment Consultant: 2.5%
  - Inflation-linked bonds: 2.0% at time of analysis (30-year period)
    - Current rates about 2.6%
  - Social Security Estimate: 1.8% to 3.8%
  - Assumptions of Peer Systems
    - 3.0% and 3.5% are most common for public systems
    - Downward Trend
    - CalSTRS lowered to 3.0% and CalPERS lowered to 2.75%

General Wage Growth

- General wage inflation (3.25%)
  - Assumed to be equal to price inflation
  - Our typical recommendations and the assumptions of most systems include some “real” wage growth over price inflation
  - As EFI acknowledges on page 9 of Experience Study Report:
    - Historical wage growth of 0.7% for US over past 40 years
    - Social Security Administration (and other forecasters) anticipate continued trend
  - EFI points to increasing costs in other areas of compensation

Investment Return

- Milliman modeled expected return
  - Net of expenses (administrative and investment)
  - Used System's Target Asset Allocation and Milliman's Capital Market Assumptions
  - Adjusting for 3.25% inflation assumption, we match EFI's one-year and ten-year expected returns closely
- Bottom Line
  - The 7.50% assumption is reasonable
    - It the Board and actuary conclude that inflation will stay low and decrease the assumption for inflation, the discount rate in future valuations could be lower.

Demographic Assumptions

- Based on results of study, the current rates for termination, retirement, disability, mortality, reciprocity, probability of an eligible survivor and merit salary increases appear reasonable
- Adequate margin for mortality improvements for healthy retirees
- Disabled mortality shows only about half as many deaths as expected (i.e., people living longer than the assumptions predict)
  - Small sample size, so significance is unclear
    - If trend continues in next experience study, change may be warranted
  - Based on our experience, Safety disabled retirees have significantly lower mortality than Miscellaneous members
    - Consider reflecting this in the next experience

Report

- Suggestions for additional/revised disclosures
  - CAAP requirements
  - UAAL amortization description
  - Death benefit description
  - Other minor issues

Recommendations

- Recommended changes
  - Revise member contribution rates (COLA portion only)
  - Revise calculation of liabilities for the active member death benefit to reflect the lump sum death benefit
- Consider for the future
  - UAAL amortization calculation (level active population)
  - Lower inflation assumption
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Conclusion

- Summary
  - The valuation accurately represents the overall actuarial condition of the fund based on a package of assumptions and methods that are reasonable
  - EFI's recommended contribution rates are reasonable for funding MCERA
  - Two recommended changes

- Questions?

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Caveats and Disclaimers

This presentation is based on the data, methods, assumptions and plan provisions described in our actuarial audit report dated January 28, 2013. The statements of reliance and limitations on the use of this material is reflected in the actuarial report and still apply to this presentation.

These statements include reliance on data provided, on actuarial certification, and the purpose of the report.

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