

Federated City Employees' Retirement System



Classic Values, Innovative Advice

Final Valuation Results

January 19, 2017

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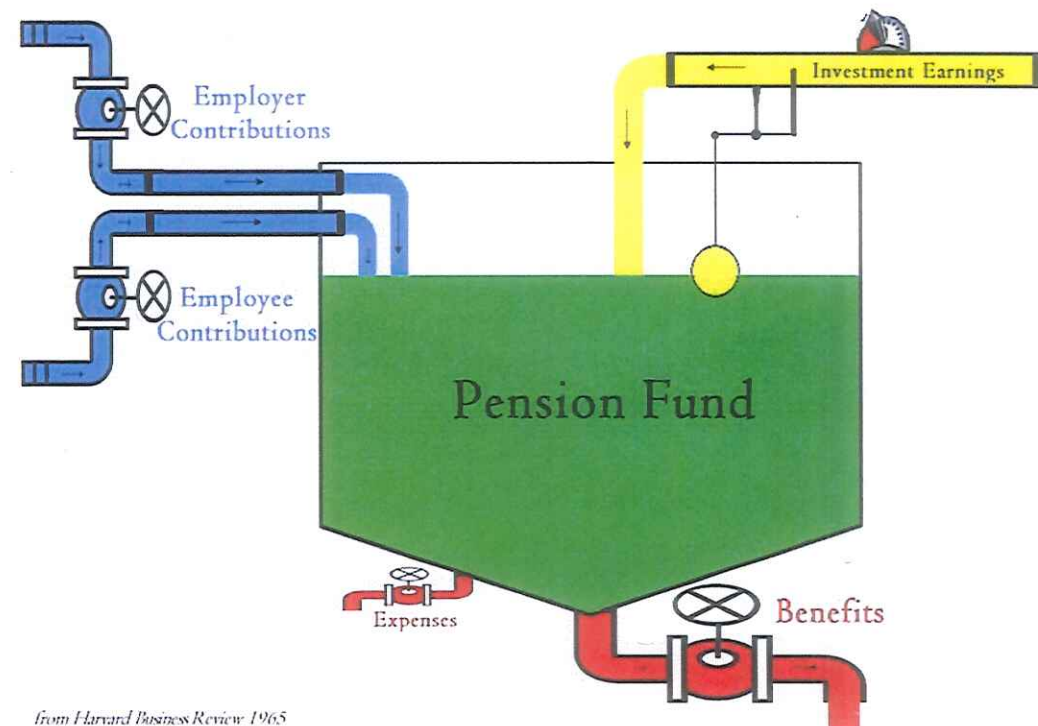


- Background
- Summary of Valuation Results
- Historical and Projected Trends
- Appendix

The Actuarial Valuation Process



1. Collect information
 - Member data
 - Plan provisions
 - Asset information
2. Apply assumptions
 - Demographic
 - Economic
3. Project all future benefit payments
4. Determine a present value of the benefits
5. Compare to assets
6. Calculate employer and employee contribution



from Harvard Business Review 1965

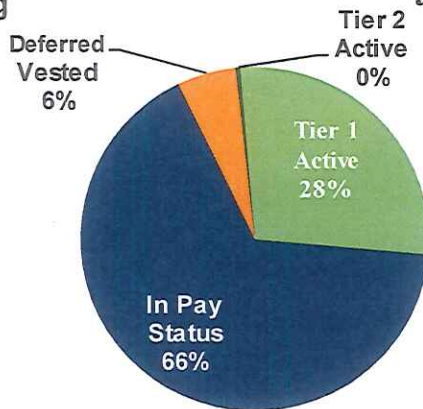
Summary of Key Results



Contributions

	Fiscal Year Ending	
	2018	2017
Member Rate	6.46%	6.33%
City Rate	58.33%	53.60%
City MOY Amount	\$ 160.1	\$ 138.6
Normal Cost Rate	20.45%	20.85%
Interest on MVA UAL	47.41%	43.63%
Additional UAL Rate	-3.06%	-4.55%
Total UAL Rate	44.34%	39.08%
Total Rate	64.79%	59.93%

Actuarial Liability



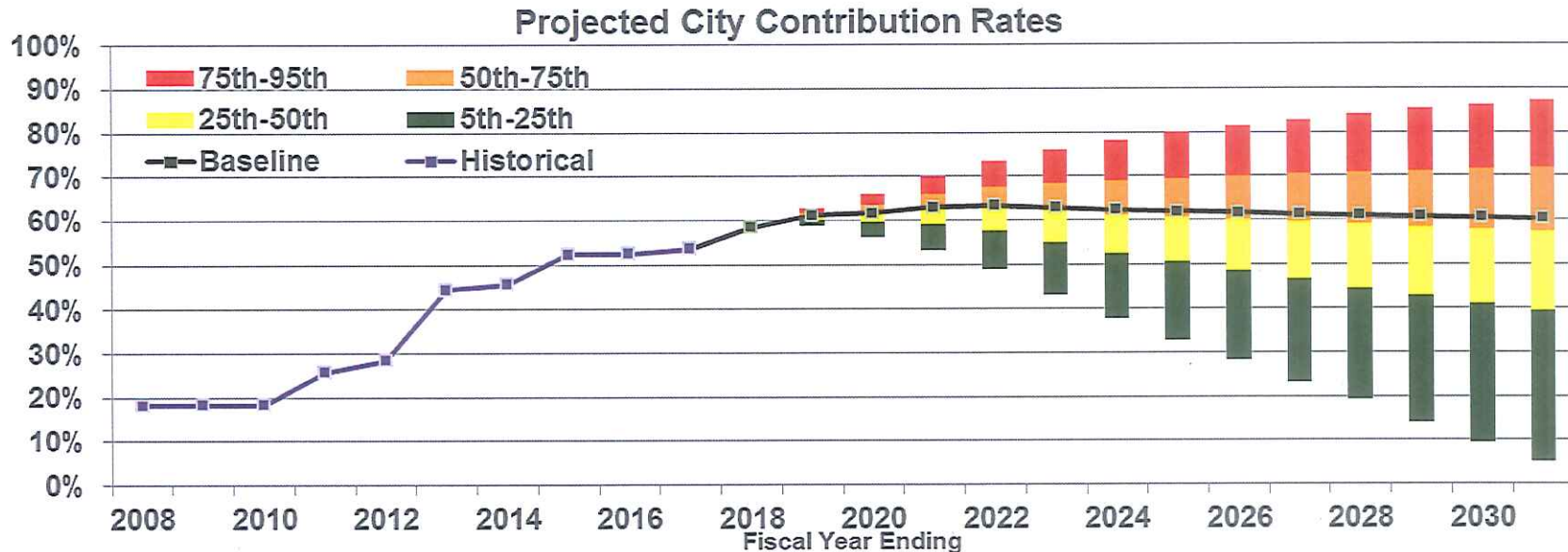
Funding Status

	Valuation Date	
	6/30/2016	6/30/2015
Actuarial Liability (AL)	\$ 3,787	\$ 3,570
Market Value of Assets (MVA)	1,859	1,926
Unfunded AL (UAL) - MVA	\$ 1,928	\$ 1,644
Funded Ratio - MVA	49.1%	53.9%
Actuarial Value of Assets (AVA)	2,035	2,004
UAL - AVA	\$ 1,752	\$ 1,565
Funded Ratio - AVA	53.7%	56.1%

Amounts in Millions

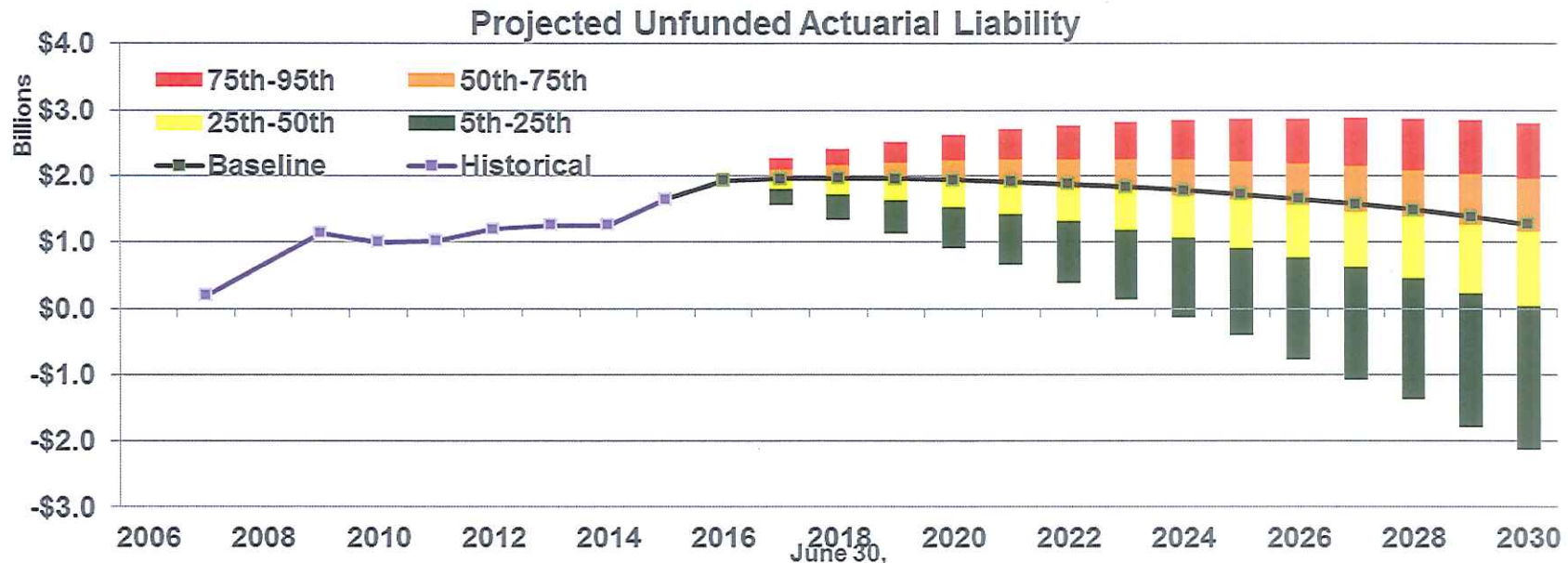
- Aggregate City contributions increased 4.73% of pay (about \$16.2 million)
 - Decrease in discount rate increased the contribution rate by 1.57%
- UAL based on market value of assets increased from \$1.64 billion to \$1.93 billion and funded ratio declined to 49%
- There is some temporary negative amortization of the UAL-MVA
 - Recent investment losses are not fully recognized in the UAL rate
 - Phase-in of amortization of assumption changes
- Over 70% of the actuarial liability is for members who are no longer working for San Jose
 - Tier 2 members make up about 1/3 of active employees, but the actuarial liability for Tier 2 is still negligible compared to the total

Summary of Key Results



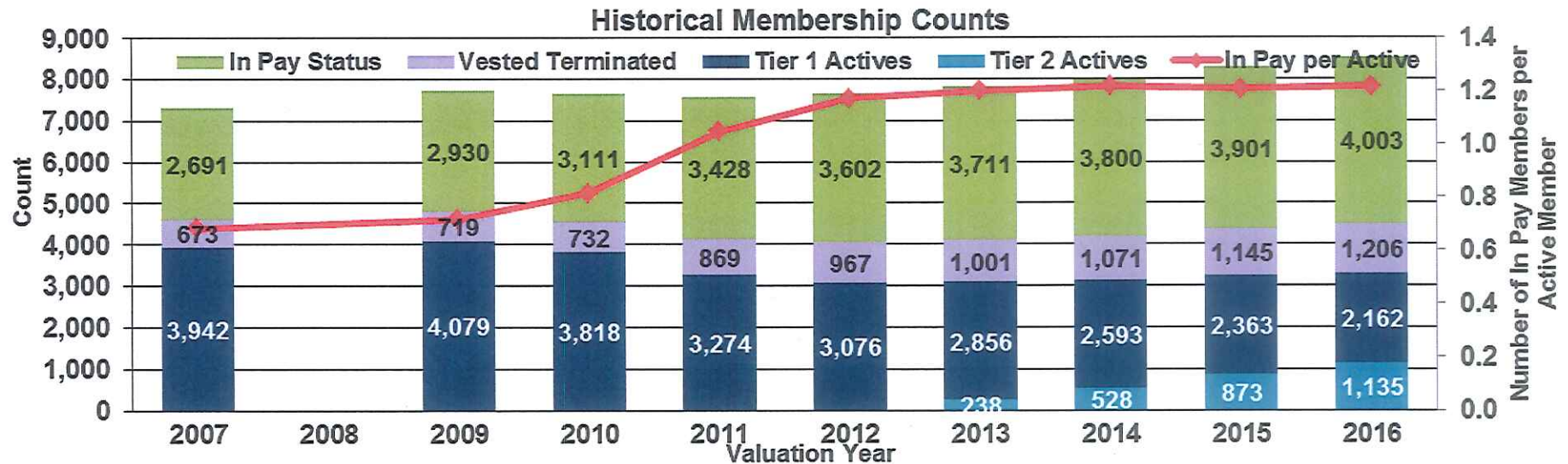
- City contribution rates have increased significantly since 2010 reflecting the impact of the great recession as well as significant assumption changes
- Expected trend is for contribution rates to decline gradually over the next 15 years as more Tier 2 members enter the System
- Wide variation in contribution rates due to investment volatility and size of plan compared to payroll
- *Stochastic projections are based on 7.21% expected return and 11.91% standard deviation*

Summary of Key Results



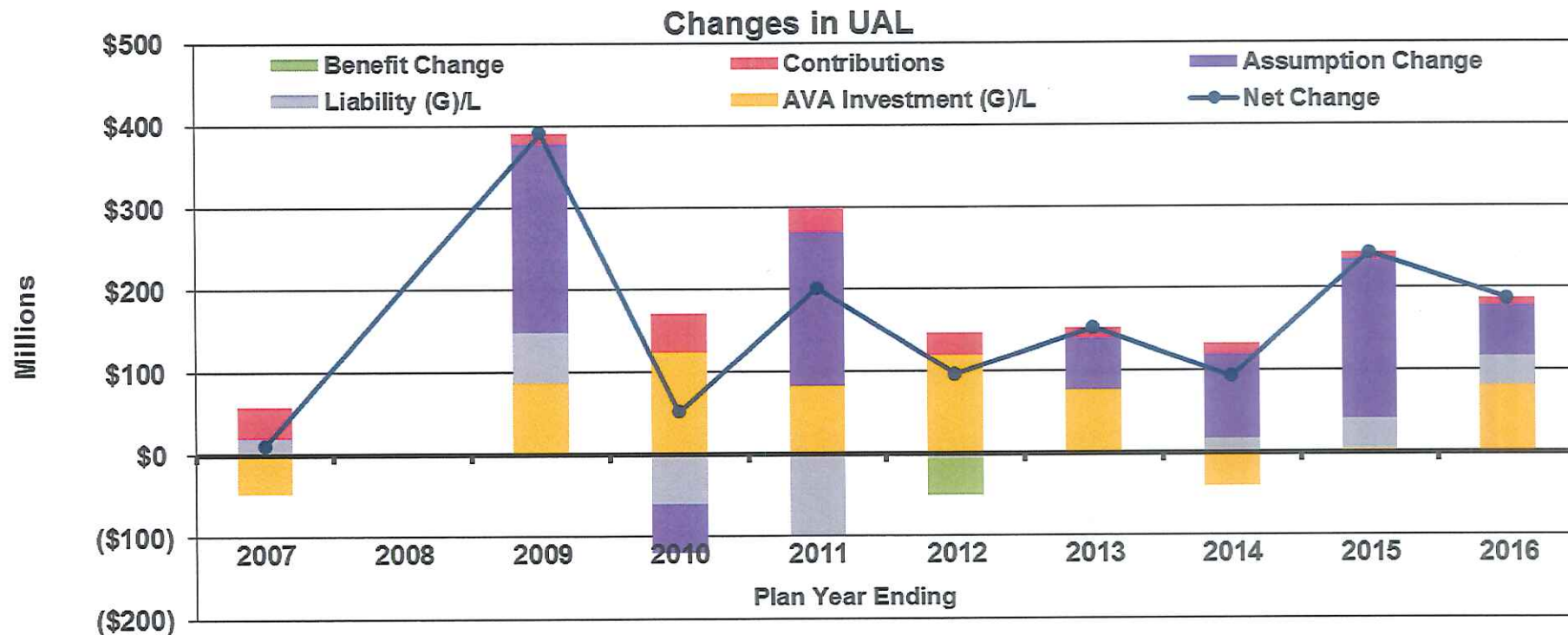
- The UAL has increased significantly since 2007 reflecting the impact of the great recession and assumption changes
- Based on the amortization methods, the UAL is expected to increase slightly in the short term before it gradually is paid off by 2041
- There is a 5% chance under Meketa's capital market assumptions that the UAL would be eliminated by 2024. There is also a 5% chance the UAL in 2024 would be about \$2.8 billion
- *Stochastic projections are based on 7.21% expected return and 11.91% standard deviation*

Membership Trends



- The number of active members has declined over 19% since 2009, but increased 1.9% in the last year
- The number of members receiving benefits has increased 37% since 2009, so there are now 1.2 members receiving benefits for each active member

Changes in UAL



- Over the last 9 valuations, changes have been weighted toward increases in the UAL
- Attribution of the current UAL, reflecting amortization payments through July 1, 2016
 - \$783 million – 2009 UAL
 - \$365 million – Experience losses
 - \$545 million – Assumption changes
 - (\$41) million – Benefit changes

January 19, 2017

Contribution Rates by Component



Contribution Rates and Amounts						
	Fiscal Year Ending 2018			Fiscal Year Ending 2017		
	Normal Cost	UAL	Total	Normal Cost	UAL	Total
Tier 1						
Member Rate	6.60%	0.00%	6.60%	6.47%	0.00%	6.47%
City Rate	<u>18.00%</u>	<u>76.04%</u>	<u>94.04%</u>	<u>17.70%</u>	<u>60.36%</u>	<u>78.06%</u>
Total	24.60%	76.04%	100.64%	24.17%	60.36%	84.53%
City Amount (Throughout Year)			\$ 153,109			\$ 133,325
Tier 2						
Member Rate	6.23%	0.02%	6.25%	6.02%	0.02%	6.04%
City Rate	<u>6.23%</u>	<u>0.02%</u>	<u>6.25%</u>	<u>6.02%</u>	<u>0.02%</u>	<u>6.04%</u>
Total	12.46%	0.04%	12.50%	12.04%	0.04%	12.08%
City Amount (Throughout Year)			\$ 6,976			\$ 5,303

Dollar amounts in thousands

- Tier 1 contribution rates are increasing due to a combination of experience, assumption changes and the decline in Tier 1 payroll as Tier 1 members retire and are replaced by Tier 2 members
 - The City's contribution amount increases about \$20 million
- Tier 2 contribution rates are relatively stable with the increase primarily attributable to the reduction in discount rate
 - The City's estimated contribution amount increases about \$1.7 million
 - Measure F is not reflected in these amounts



Historical and Projected Trends



What is Adequate Actuarial Reporting?

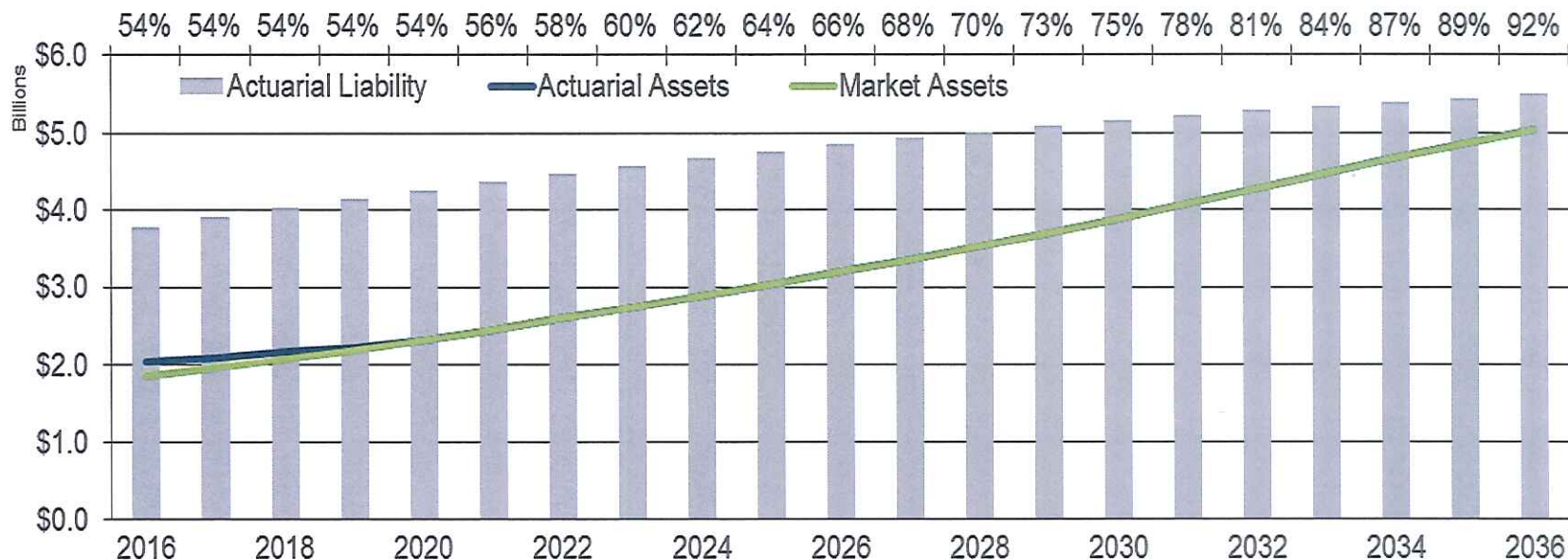


Table I-2 Summary of Principal System Results			
Valuation as of:	June 30, 2012	June 30, 2013	% Change
<u>Participant Counts – DBRP Only</u>			
Active Members	28,548	28,401	(0.5%)
Disabled Members*	200	185	(7.5%)
Retirees and Beneficiaries*	18,538	19,266	3.9%
Terminated Vested Members	2,560	2,686	4.9%
Terminated Non-Vested Members	6,164	6,712	8.9%
Total**	56,010	57,250	2.2%
Annual Salaries of Active Members	\$ 1,078,710,468	\$ 1,098,340,791	1.8%
Average Annual Salary	\$ 37,786	\$ 38,673	2.3%
Annual Retirement Allowances for Retired Members and Beneficiaries	\$ 258,468,971	\$ 281,465,581	8.9%
<u>Assets and Liabilities</u>			
Actuarial Liability (AL)	\$ 5,661,281,490	\$ 5,160,950,992	(8.8%)
Actuarial Value of Assets (AVA)	3,816,919,734	4,139,921,129	8.5%
Unfunded AL (AVA-AL)	\$ 1,844,361,756	\$ 1,021,029,863	(44.6%)
Less: PCR-UAL	11,053,147	8,749,140	(20.8%)
Net Unfunded AL	\$ 1,833,308,609	\$ 1,012,280,723	(44.8%)
Funded Ratio (AVA/AL)	67.4%	80.2%	
Present Value of Accrued Benefits (PVAB)	\$ 4,916,084,348	\$ 4,543,203,426	(7.6%)
Market Value of Assets	3,921,812,233	4,299,238,343	9.6%
Unfunded PVAB	\$ 994,272,115	\$ 243,965,083	(75.5%)
Accrued Benefit Funding Ratio	79.8%	94.6%	
Ratio of Actuarial Value to Market Value	97.3%	96.3%	
<u>Contributions as a Percentage of Payroll</u>			
Statutory Funding Rate	14.18%	18.78%	
Less: Transfer to DB Ed Fund	0.04%	0.04%	
Net Statutory Funding Rate	14.14%	18.74%	
Normal Cost Rate	11.80%	10.90%	
Available for Amortization of UAL	2.34%	7.84%	
Period to Amortize	Does not amortize	14.5 years	
Projected 30-year Level Funding Rate	20.71%	15.75%	
Projected Shortfall (Surplus)	6.53%	(3.03%)	

Why the Traditional Viewpoint Falls Short



- Focuses on what's already happened, not on what is projected to happen
- Having projected results is critical



Best Estimate Projections - Not Enough



Fiscal Yr Ending	S&P 500 Return
6/30/1932	-67.6%
6/30/2009	-26.4%
6/30/1931	-23.4%
6/30/1930	-22.9%
6/30/1970	-22.8%
6/30/1938	-20.0%
6/30/2002	-18.0%

Fiscal Yr Ending	S&P 500 Return
6/30/2001	-14.8%
6/30/1974	-14.5%
6/30/1947	-13.3%
6/30/2008	-13.1%
6/30/1962	-12.7%
6/30/1982	-11.4%
6/30/1949	-9.5%

Fiscal Yr Ending	S&P 500 Return
6/30/1942	-9.3%
6/30/1988	-6.9%
6/30/1934	-6.1%
6/30/1984	-4.6%
6/30/1940	-2.7%
6/30/1939	-1.9%
6/30/1958	-0.6%

Number of negative July fiscal years by decade

1930's	6	1970's	2
1940's	4	1980's	3
1950's	1	1990's	0
1960's	1	2000-2009	4

Probabilities

Earning < -25% = 2.5%

Earning < -20% = 7.5%

Earning < -10% = 16.3%

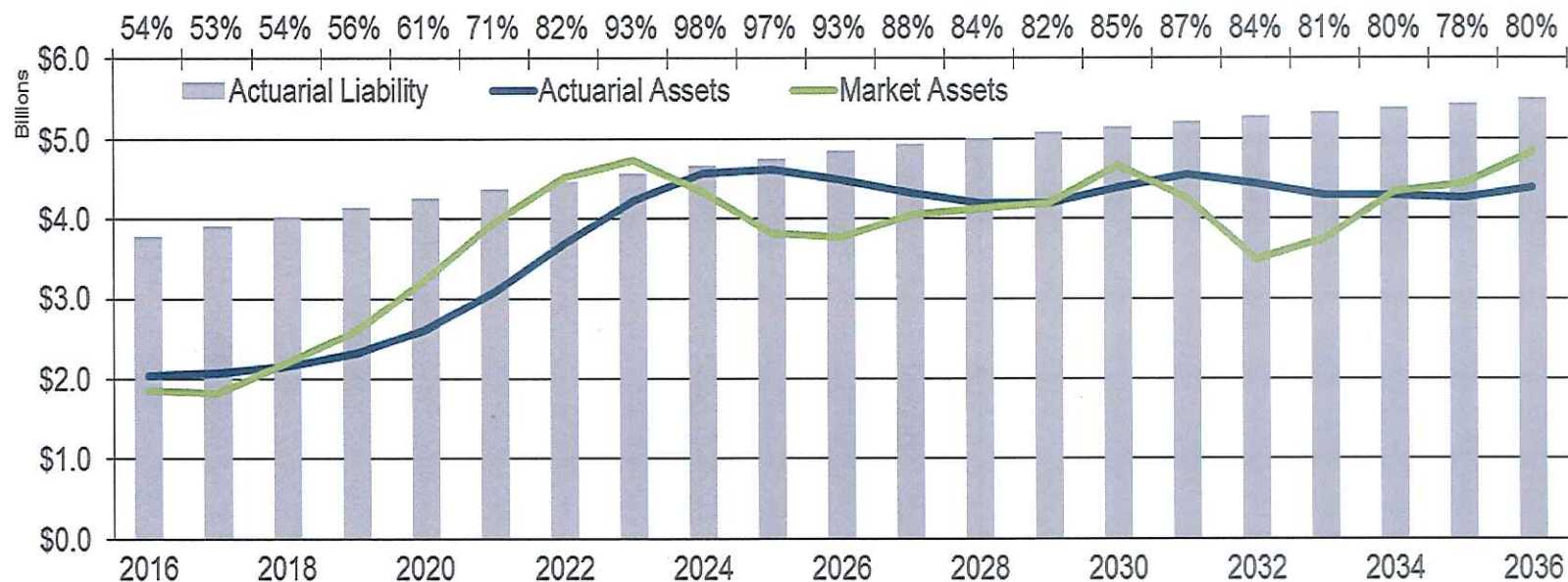
Earning < -0% = 26.3%

Dying at age 65 = 1.5%

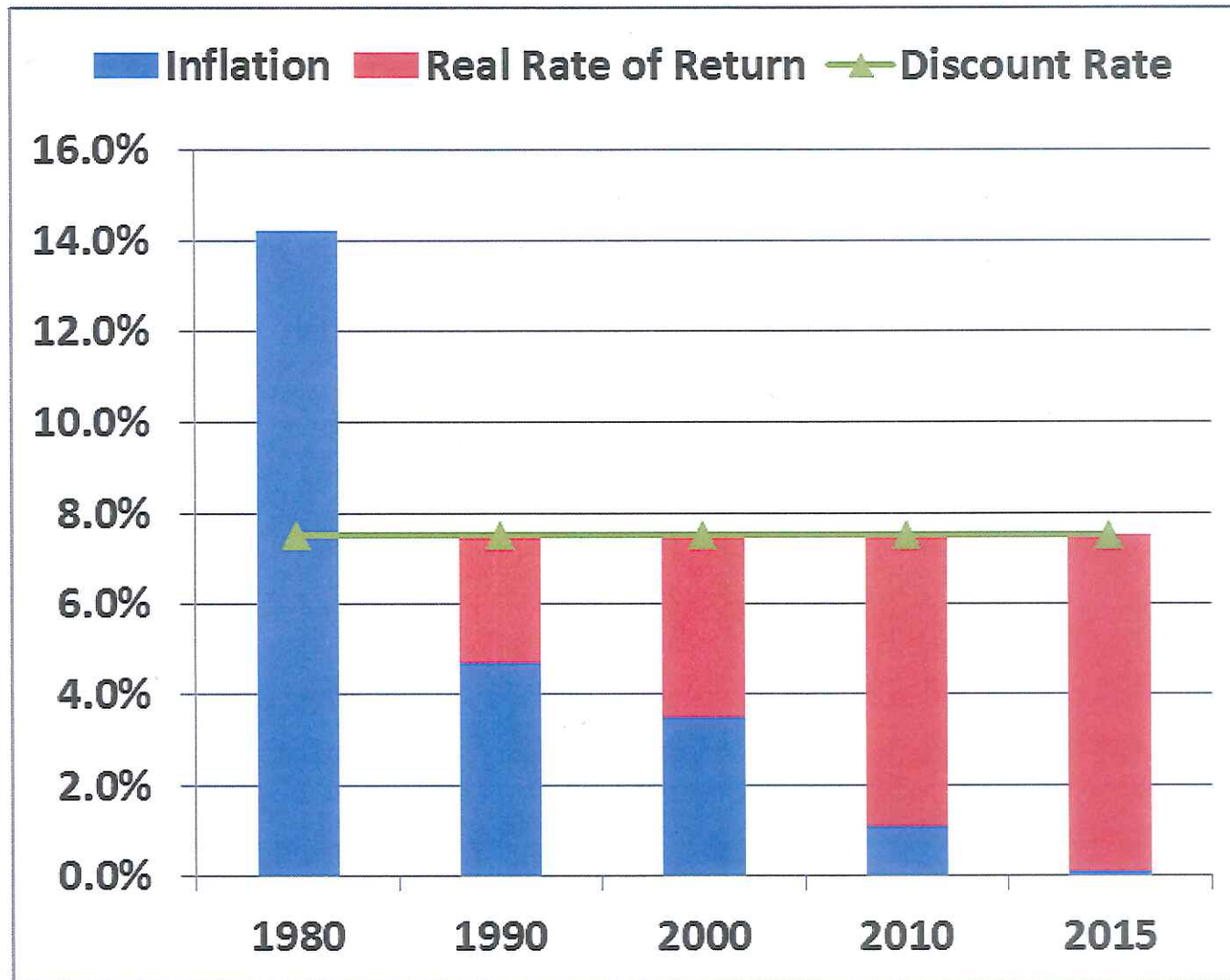
Best Estimate Projections - Not Enough



- Assumptions will never be achieved in each and every year
- So stress testing is even more critical, especially today



Increasing Risk

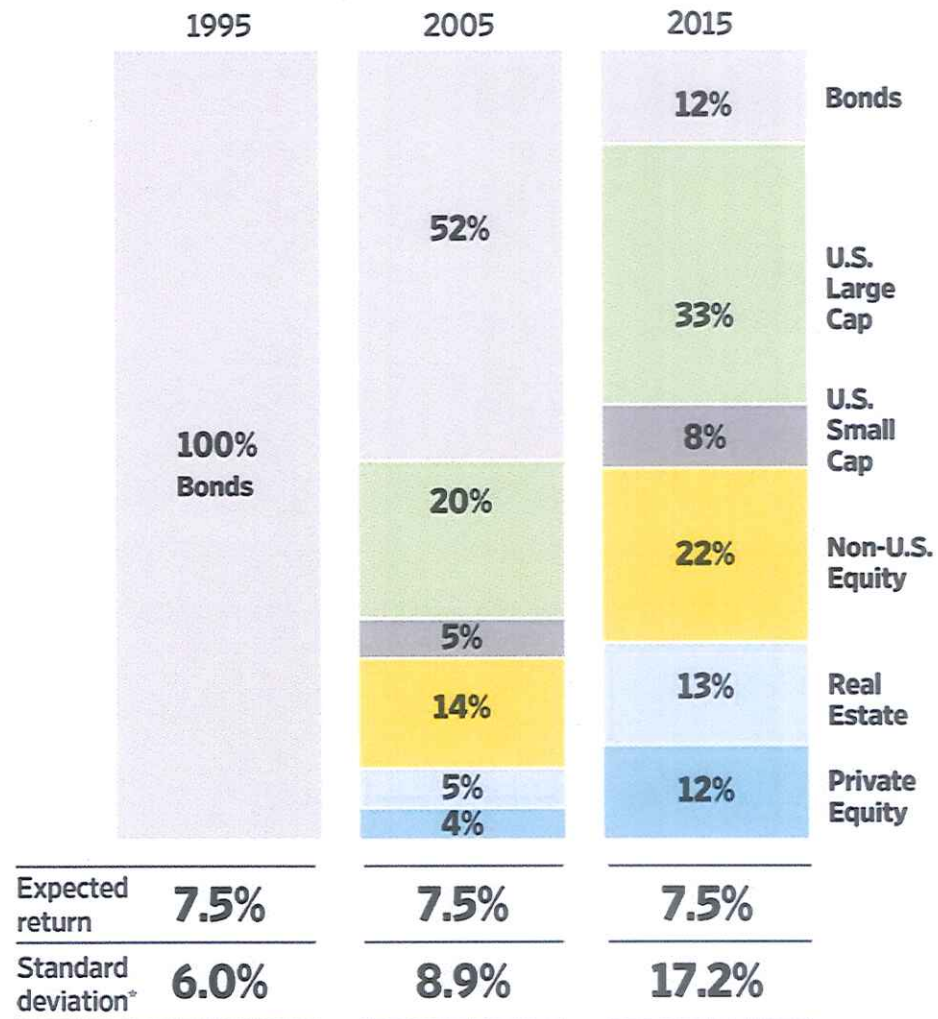


The Impact



- As interest rates steadily declined, pension plans had to take more and more risks to achieve the necessary returns
- Typical 60/40 allocation now 80/20
- Risk management still not effective

Estimates of what investors needed to earn 7.5%



*Likely amount by which returns could vary
Source: Callan Associates

THE WALL STREET JOURNAL.



- *January 2012*
 - *“Bank regulators on Tuesday voted to release a proposal for how banks with more than \$10 billion in assets should conduct stress tests annually to determine whether they can withstand a financial shock.”*
 - *“The tests are required by the 2010 Dodd-Frank financial oversight law, which has established stress tests as a key component of how regulators will gauge the health of the banking industry.”*

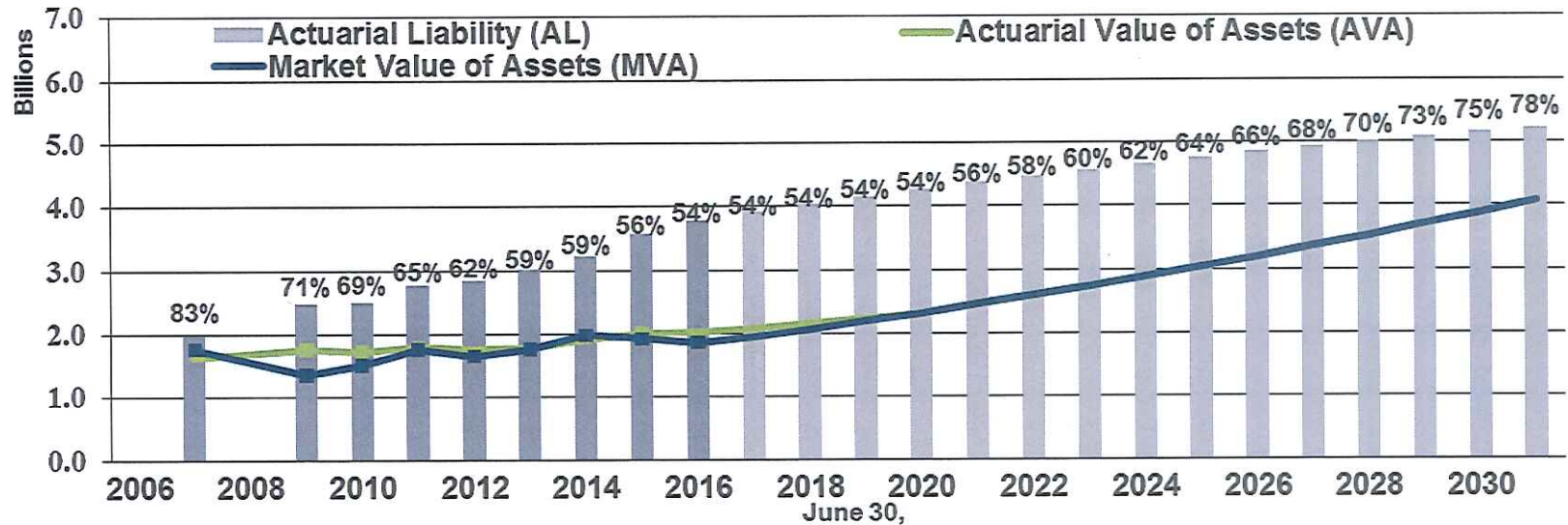


Solvency Testing Using *Dynamic Financial Analysis*

Dynamic Financial Analysis (DFA) models an insurance company's cash flow in order to forecast assets, liabilities, and ruin probabilities, as well as full balance sheets for different scenarios.

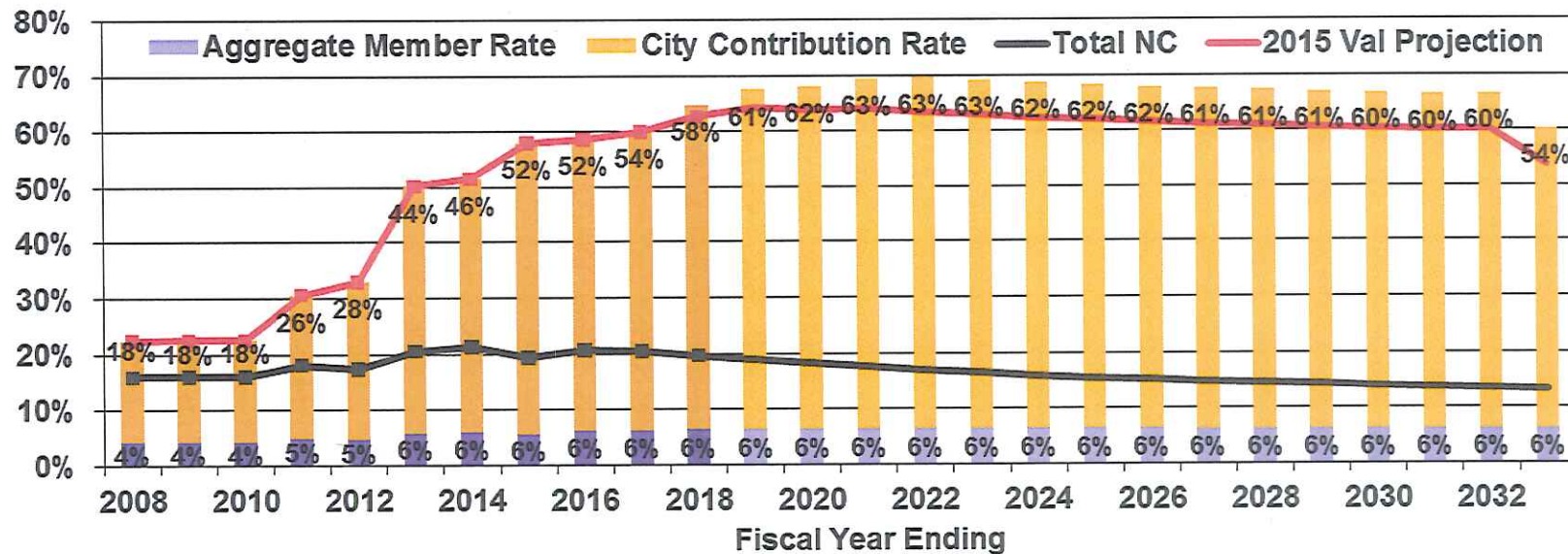
Since the 1980's DFA has become an important tool for the analysis of an insurance company's financial situation. Furthermore, it is a valuable instrument for solvency control; which is now becoming quite important as the dynamics of the insurance market increase.

Assets and Liabilities



- Over the last nine years, assets have increased from \$1.8 billion to nearly \$1.9 billion while the actuarial liability has increased from \$2.0 billion to about \$3.8 billion
- In the future, we expect the higher level of contributions to grow assets faster than the actuarial liability, increasing the funding ratio from 54% in 2016 to 78% by 2031

Contribution Rates



- Contribution rates are expected to increase the next couple of years as recent investment losses are recognized and the amortization of the 2015 assumption changes is fully phased in
- The long-term gradual decline in contribution rates is largely driven by the projected decline in normal cost as more Tier 2 members join the system
- Starting in FYE 2033, contribution rate is expected to decline more significantly as components of the UAL are paid off

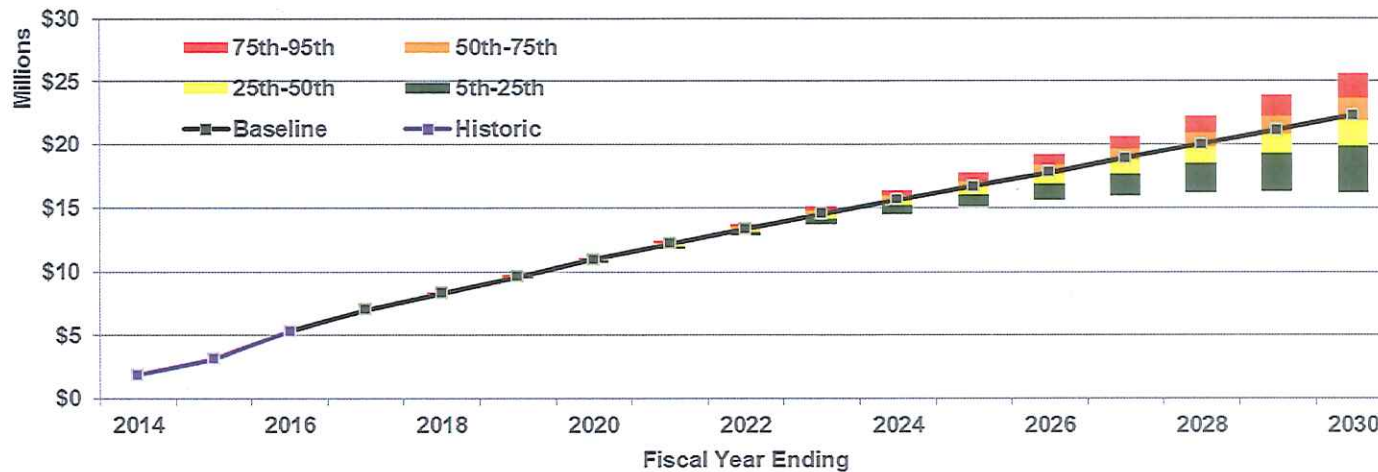
Contribution Amounts



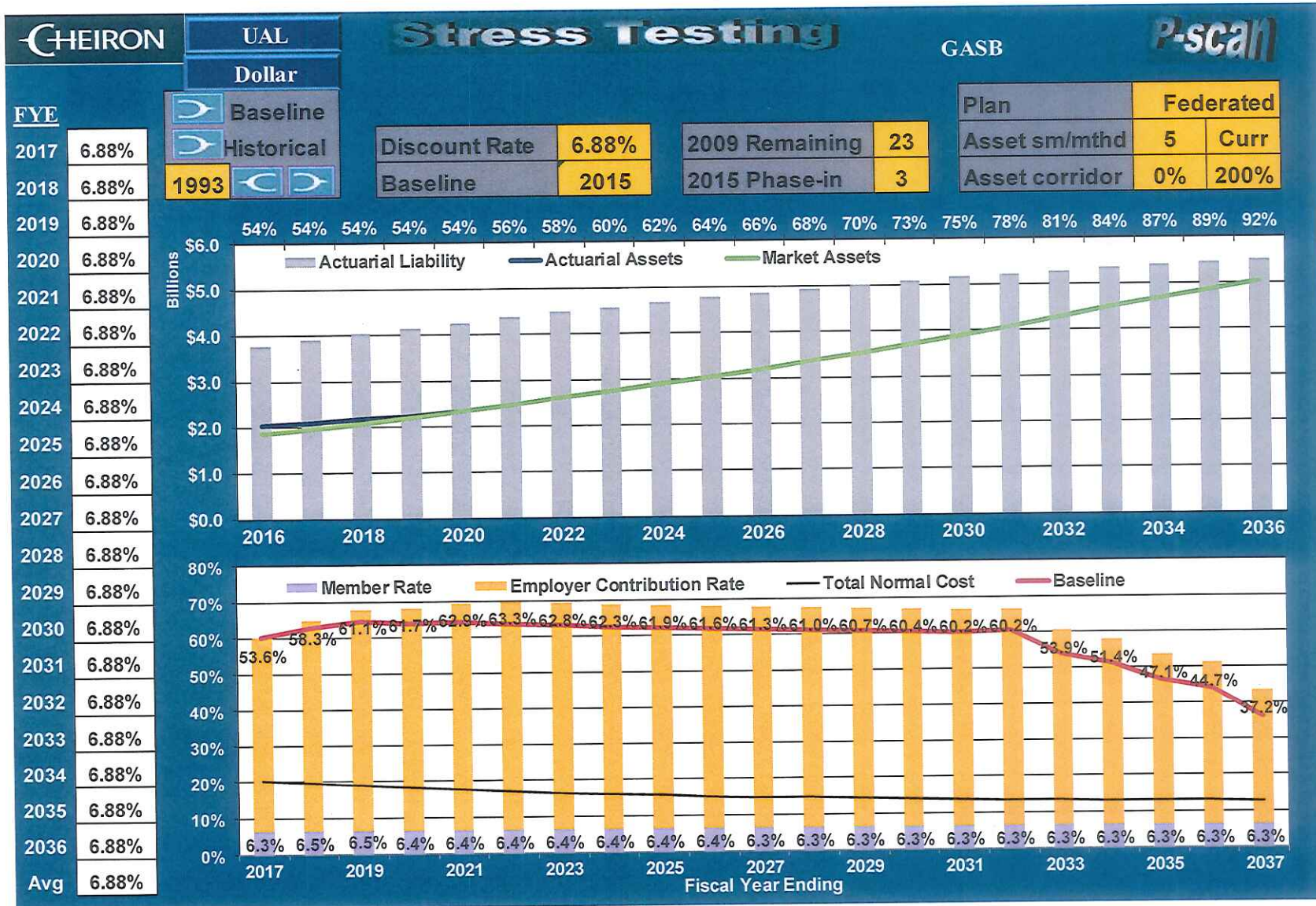
Tier 1 Historical and Projected Contribution Amounts



Tier 2 Historical and Projected Contribution Amounts



Stress Testing



Appendix - Certification



The purpose of this presentation is to present the results of the June 30, 2016 Actuarial Valuation for the City of San José Federated City Employees' Retirement System. This presentation is for the use of the City of San José Federated City Employees' Retirement System 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 City of San José Department of Retirement Services. 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 No. 23. A summary of the data, assumptions, methods, and plan provisions used to prepare the valuation results can be found in the June 30, 2016 Actuarial Valuation Report.

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 that 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 City of San José Federated City Employees' Retirement System for the purpose described herein. Other users of this presentation are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

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Consulting Actuary

Gene Kalwarski, FSA, FCA, MAAA, EA
Principal Consulting Actuary



Appendix – Tier 1 UAL Amortizations



Tier 1 UAL Amortization Schedule			
	Years	Remaining	
		Balance	Payment
2009 UAL	23	\$ 782,777	\$ 53,726
2010 (Gain) or Loss	14	47,716	4,619
2010 Assumption Change	14	(55,561)	(5,379)
2011 (Gain) or Loss	15	(2,847)	(262)
2011 Assumption Changes	15	177,881	16,355
2012 (Gain) or Loss	16	112,881	9,900
SRBR Elimination	16	(41,482)	(3,638)
2013 (Gain) or Loss	17	71,535	6,007
2013 Assumption Changes	17	61,923	5,200
2014 (Gain) or Loss	18	(25,080)	(2,023)
2014 Assumption Changes	18	101,801	8,213
2015 (Gain) or Loss	19	48,455	3,767
2015 Assumption Changes	19	199,667	10,347
2016 (Gain) or Loss	20	112,108	8,419
2016 Assumption Changes	20	59,760	4,488
Total		\$ 1,651,535	\$ 119,740

Dollar amounts in thousands

- Remaining Balance by Type:
 - \$783 million – 2009 UAL
 - \$365 million – Experience losses
 - \$545 million – Assumption changes
 - (\$41) million – Benefit changes