IMRF

Annual Actuarial Valuation and
Gain (Loss) Analysis
GASB Statement No. 68 Valuation
December 31, 2014

May 29, 2015

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Gabriel Roeder Smith & Company
Consultants & Actuaries
www.gabrielroeder.com

Annual Actuarial Valuation

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Purpose

- Calculate employer rates for 3,298 rate groups for the 2016 calendar year
- Measure financial position and funding progress
- Explain changes in financial position that occurred during the year

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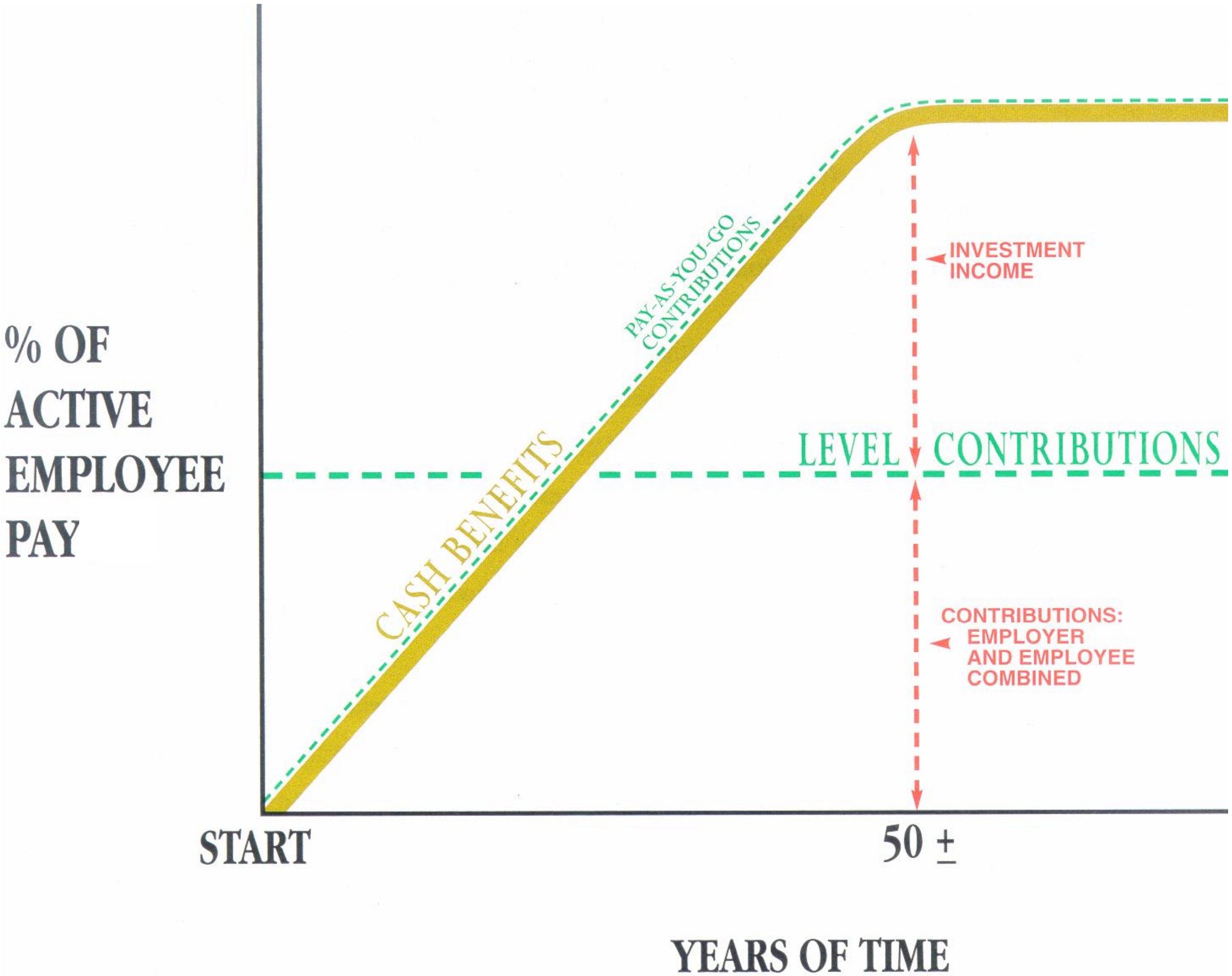
Basic Funding Objective

Establish and receive contributions which:

- Remain approximately level (as a % of payroll) from generation to generation
- When combined with present assets and future investment return are sufficient to pay benefits to current and future retirees

Financing Diagram



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Valuation Uses Data On

1) People
2) Plan Benefits
3) Employers
4) Assets

IMRF Population

	2014	2013
Active Members		
• Tier 1	133,884	142,892
• Tier 2	39,695	30,589
• Total	173,579	173,481
Retirees	111,989	106,997
Inactive Members	137,941	136,749
Total	423,509	417,227

IMRF Population

	2014	2013
Active Members		
• Regular	169,146	168,977
• SLEP	4,194	4,204
• ECO	239	300
Total	173,579	173,481
Inactive Members		
• Regular	136,621	135,447
• SLEP	1,122	1,121
• ECO	198	181
Total	137,941	136,749

IMRF Employers 12/31/2014

School Districts	855
Townships	494
Other	486
Villages	468
Cities	304
Counties (Regular, SLEP & ECO)	269
Library Districts	221
Park Districts	201
Total	3,298
Employers with no Active Members	576
Total	3,874

Value of Assets ($ Millions)

	2014	2013
Funding Value (FV)	$32,700	$30,083
Market Value (MV)	$34,833	$33,203
Ratio	93.9%	90.6%
Difference between FV and MV	$ 2,133	$ 3,120
Market Value Rate of Return	6.1%	19.7%

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Development of Average Contribution Rates Applicable to Calendar Year 2016

(Results as of December 31, 2014)

	% of Active Member Pays		
	Regular	**SLEP**	**ECO**
Tier 1 Normal Cost	7.29 %	12.44 %	16.50 %
Tier 2 Normal Cost	4.41 %	8.47 %	13.49 %
Average Employer Contributions for			
Normal Cost*			
Retirement	6.77 %	11.77 %	16.15 %
$3,000 Lump Sum Death Benefit	0.03 %	0.02 %	0.06 %
Total & Permanent Disability Benefit	0.04 %	0.16 %	0.28 %
Total Normal Cost	6.84 %	11.95 %	16.49 %
Lump Sum Death-in-Service Benefits	0.15 %	0.15 %	0.15 %
Temporary Disability	0.14 %	0.14 %	0.14 %
13th Payments	0.62 %	0.62 %	0.62 %
Unfunded (Overfunded) Liabilities (27/10 years)	3.76 %	7.88 %	68.67 %
Early Retirement Incentive Liabilities	0.22 %	0.09 %	0.00 %
SLEP Supplemental Liabilities	0.00 %	1.88 %	0.00 %
Total Average Employer Rate	**11.73 %**	**22.71 %**	**86.07 %**
Prior Year Averages	11.69 %	22.33 %	70.37 %

** Average of Tier 1 and Tier 2 cost weighted on expected payroll.*

Dupage County, Peoria County and Union School District 46 subject to individual rating.

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History of Total Average Employer Contribution Rates

Rate Applies to Calendar Year	Rate Computed as of December 31	Employer Contribution Rate Expressed as % of Active Payroll					
		Regular Members		SLEP Members		ECO Members	
		Normal Cost	Average Total Rate	Normal Cost	Average Total Rate	Normal Cost	Average Total Rate
1999	1997	7.23%	9.03%	10.62%	14.65%	21.48%	36.14%
2000	1998	7.17%	8.16%	10.42%	14.28%	23.39%	41.38%
2001	1999	7.41%	6.64%	12.02%	14.86%	23.85%	42.58%
2002	2000	7.62%	5.87%	11.94%	14.13%	18.05%	38.46%
2003	2001	7.66%	6.22%	11.96%	14.04%	17.95%	40.37%
2004	2002	7.60%	7.82%	12.47%	16.29%	18.18%	44.90%
2005	2003	7.61%	9.25%	12.48%	17.15%	18.07%	42.66%
2006	2004	7.64%	10.04%	12.56%	18.25%	18.01%	44.90%
2007	2005	7.43%	9.72%	11.66%	18.42%	17.52%	41.30%
2008	2006	7.42%	9.47%	11.63%	19.33%	16.96%	41.80%
2009	2007	7.42%	9.27%	11.63%	18.42%	17.08%	42.77%
2010	2008	7.58%	11.89%	11.97%	21.63%	17.24%	43.57%
2011	2009	7.58%	12.14%	11.97%	21.76%	17.20%	42.72%
2012	2010	7.58%	12.42%	12.01%	22.48%	17.22%	47.15%
2013	2011	7.77%	12.85%	12.74%	23.40%	17.63%	46.85%
2014	2012	7.64%	12.58%	12.61%	23.20%	17.59%	74.52%
2015	2013	7.51%	11.69%	12.42%	22.33%	17.73%	70.37%
2016	**2014**	**6.84%**	**11.73%**	**11.95%**	**22.71%**	**16.49%**	**86.07%**

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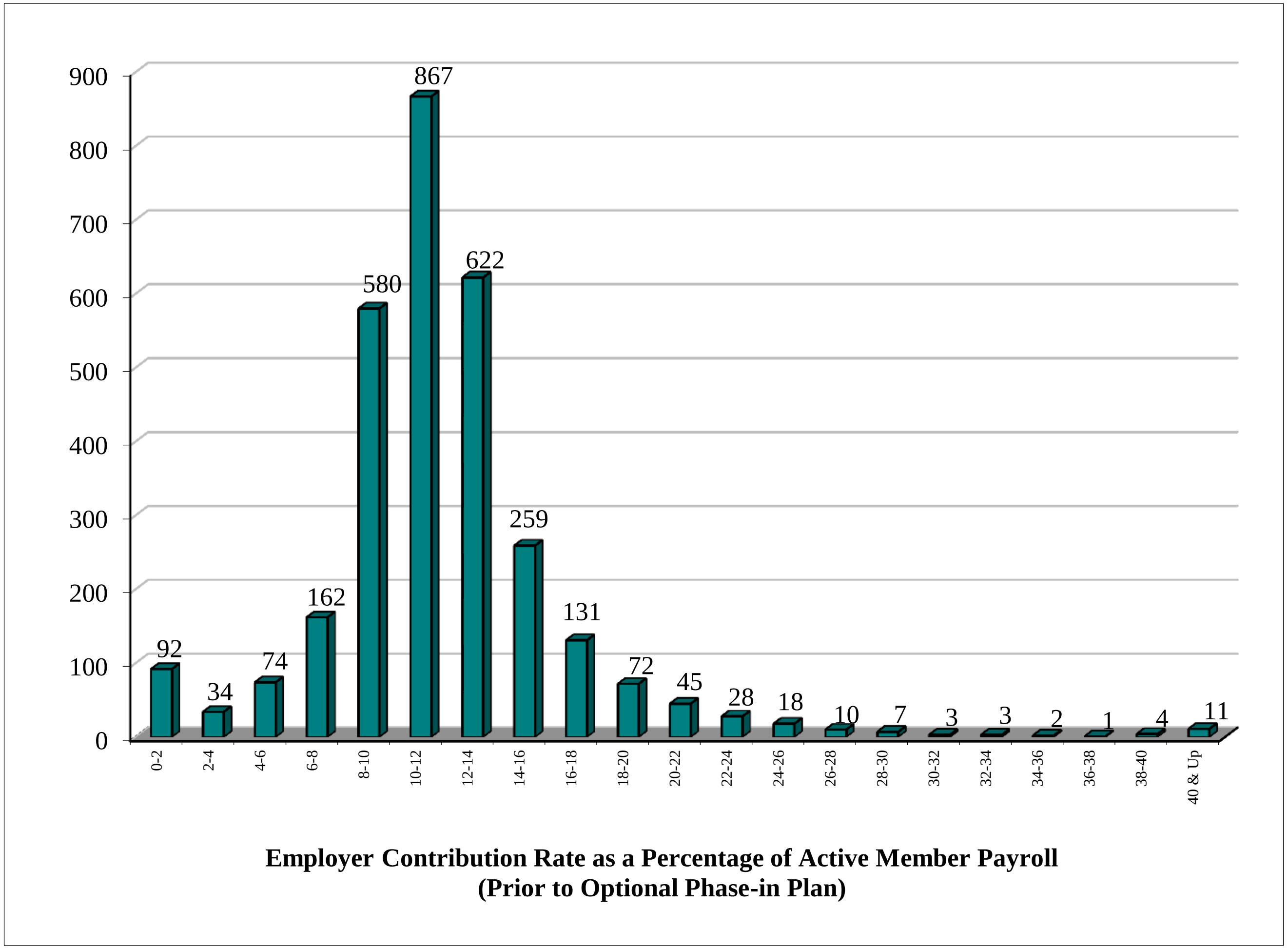
Contribution Rates for Employer Groups 2014 Actuarial Valuation

3,025 Regular Employers



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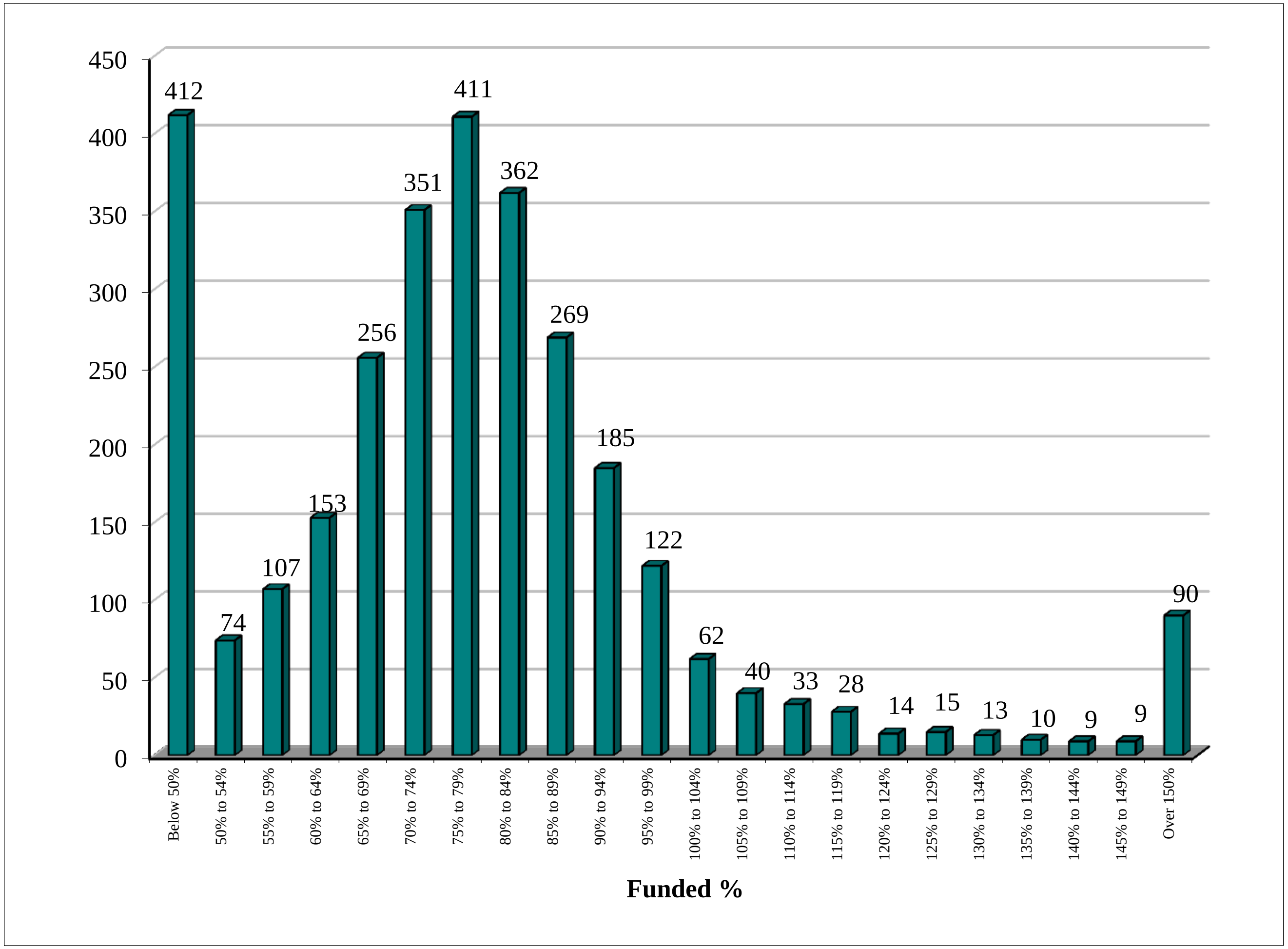
Funded Ratios for Employer Groups 2014 Actuarial Valuation

3,025 Regular Employers



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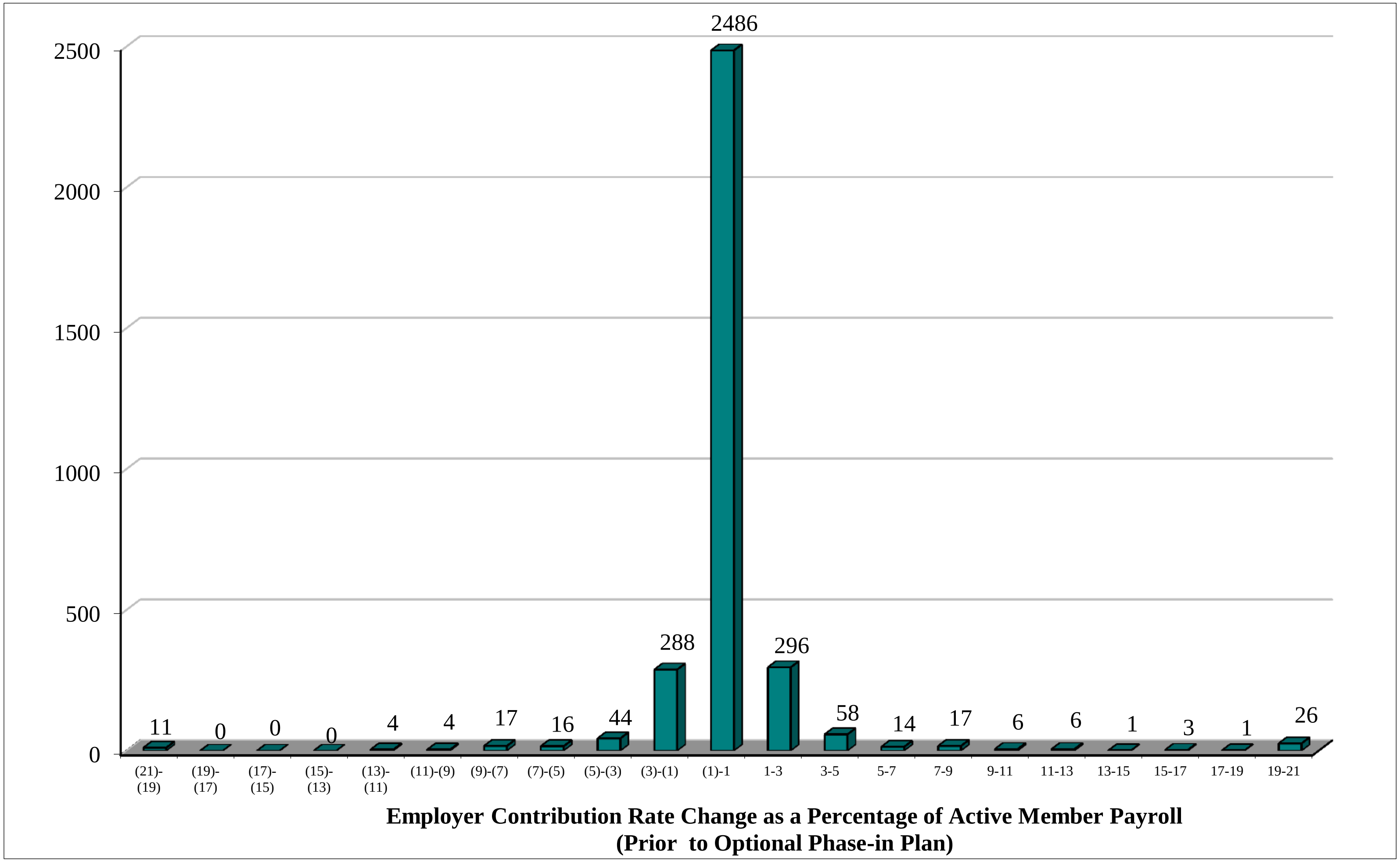
Contribution Rate Changes for Employer Groups - 2014 Actuarial Valuation

3,298 Employers



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Average Funding Ratios Comparative Statement

Valuation Date	Funded Ratio AVA Basis	Funded Ratio MV Basis	Unfunded/ Payroll	Accrued Liability Payroll
1994	87.1%	87.7%	35.6%	275.8%
2005*#	94.6%	95.1%	20.8%	387.3%
2006	95.3%	99.8%	18.8%	399.4%
2007	96.1%	100.0%	16.0%	408.4%
2008*	84.3%	70.3%	64.1%	409.2%
2009	83.2%	81.5%	71.0%	423.2%
2010	83.3%	86.3%	76.3%	455.8%
2011*#	83.0%	80.2%	81.7%	481.4%
2012	84.3%	85.9%	78.7%	501.9%
2013	87.6%	96.6%	64.7%	520.4%
2014*	87.3%	93.0%	70.8%	556.5%

** Assumption change*
 # Benefit change

Gain (Loss) Analysis

Gain (Loss) Analysis

A Gain (Loss) Analysis measures differences between Actual and Assumed Experience in each Risk Area

IMRF Risk Areas

Demographic	**Economic**
Normal retirement	Salary increases
Early retirement	Investment return
Death-in-service	
Disability	
Other separations	

Change in Unfunded Accrued Liabilities During the Calendar Year 2014

	Unfunded Liability Development During	
	2014	**2013**
Unfunded Liability January 1	$4,273,532,925	$5,111,434,314
(Assumed Payments)	(253,703,224)	(304,110,359)
Assumed Interest	311,115,763	372,090,882
Expected Unfunded Liability December 31	4,330,945,464	5,179,414,837
Change Due to Experience Study	1,309,736,106	0
Change Due to Benefit Changes	0	0
Change Due to Data Changes	0	0
Change Due to Investment Experience	(767,567,271)	(811,460,409)
Change Due to Other Sources	(108,175,224)	(94,421,503)
Actual Unfunded Liability December 31	$4,764,939,075	$4,273,532,925
Gain (Loss) for the Year	**$ (433,993,611)**	**$ 905,881,912**

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Investment Gain (Loss) - $ Millions

1.	Beginning Funding Value	$30,083
2.	Net Cash Flow	(392)
3.	Assumed Return	2,242
4.	Expected Funding Value: 1+2+3	31,933
5.	Actual Funding Value	32,700
6.	Gain (Loss): 5-4	767

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How Does Asset Smoothing Impact Future Valuations

- Difference between Market Value and Funding Value ($2,133 million) phased-in over next four years

Valuation Date	Scheduled Asset Gain	Potential Contribution Decrease
12/31/2015	$767,567,271	0.6%
12/31/2016	$767,567,272	0.6%
12/31/2017	$641,697,418	0.5%
12/31/2018	$(43,893,140)	0.0%

- Assumes Market Value earns 7.5% in the next 4 years
- Actual results will likely be different

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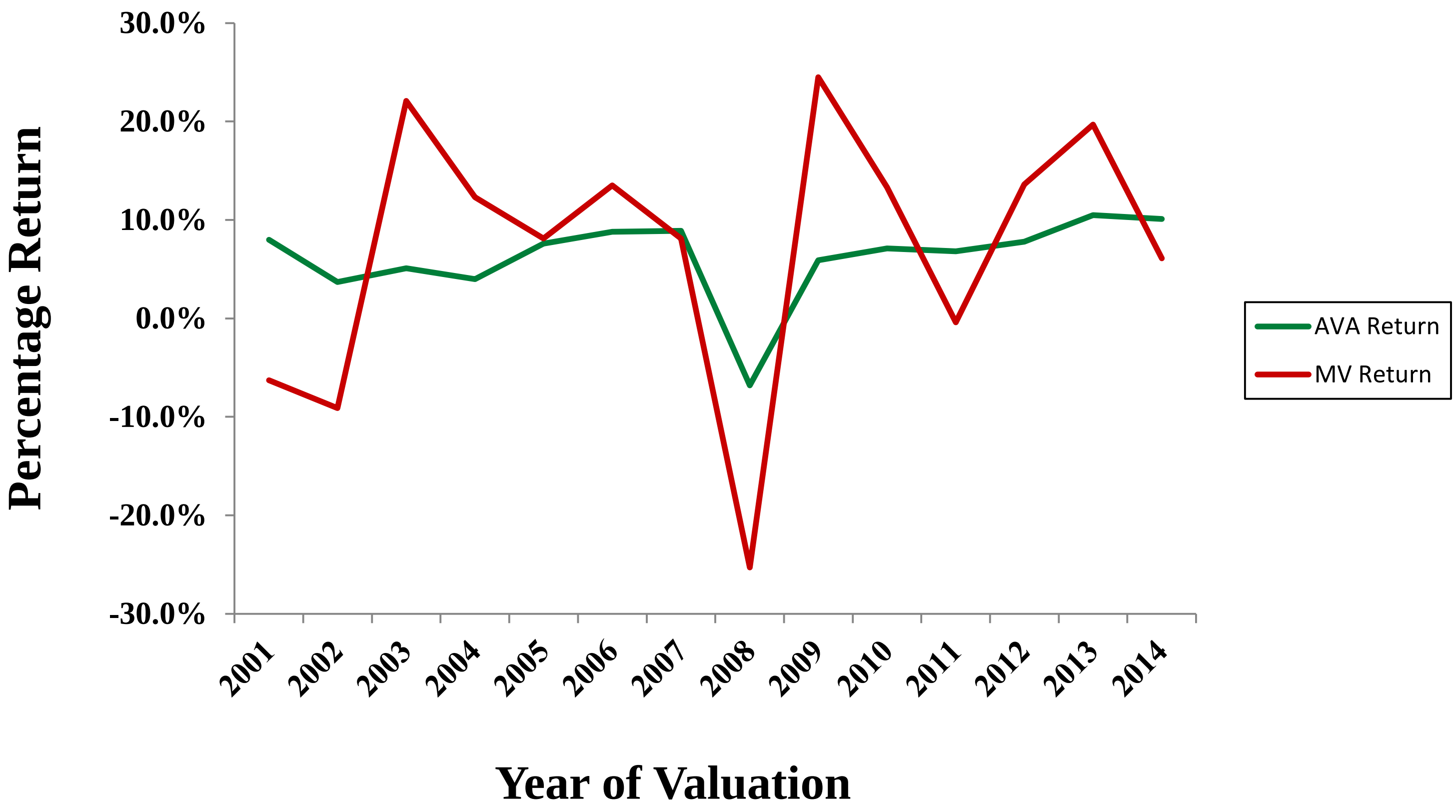
Market Value Return vs. Actuarial Value Return



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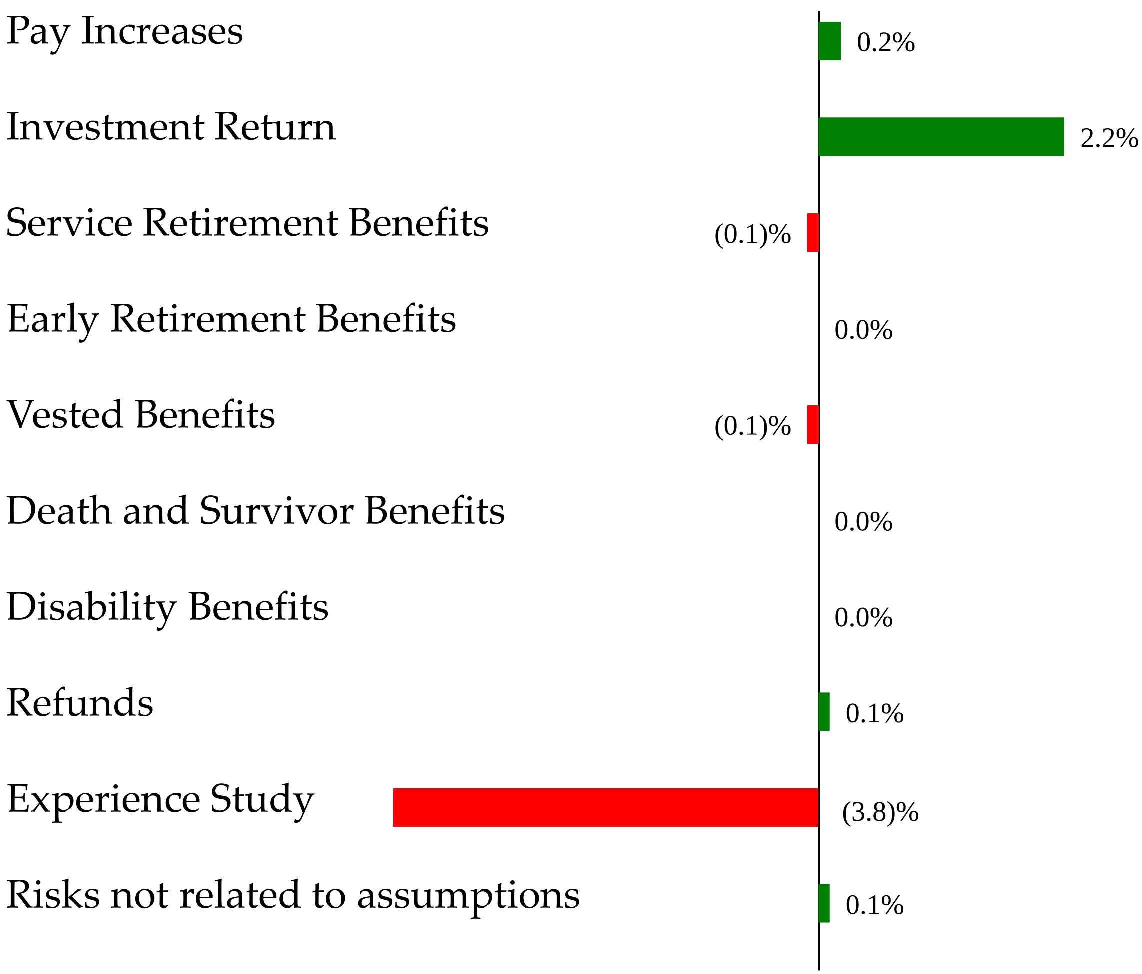
Gain (Loss) Experience

% of Accrued Liabilities



Experience Gains & Losses by Risk Area - Comparative Statement

Experience Period	Pay Increases	Investment Return	Service Retirement	Early Retirement	Vested Deferred Retirement	Death and Survivor Benefits	Disability Benefits	Terminated with Refund	Other	Total Gain (Loss) $	Total Gain (Loss) Percent of Liabilities
1998	$ (69.9)	$ 515.7	$ 37.8	$(8.7)	$ 37.8	$7.7	$ 5.7	$(10.5)	$(197.0)	$ 318.6	2.9 %
1999 [1]	5.5	962.1	(6.8)	(5.1)	(14.6)	0.6	6.4	(21.1)	(168.1)	758.9	6.4 %
2000	12.2	642.5	0.8	(2.8)	(8.7)	1.8	9.8	(22.4)	(89.2)	544.0	4.2 %
2001	(29.5)	69.4	(4.9)	(1.0)	(20.3)	2.9	10.0	11.4	1.4	39.4	0.3 %
2002 [1]	19.5	(611.8)	(9.9)	(2.0)	(31.0)	4.3	6.9	2.3	(66.7)	(688.4)	(4.5)%
2003	36.8	(404.6)	(18.4)	(5.4)	(28.0)	2.3	5.9	10.0	(250.0)	(651.4)	(3.9)%
2004	(0.3)	(478.5)	(14.7)	(5.3)	(27.5)	3.4	7.3	15.8	(183.0)	(682.6)	(3.8)%
2005 [1]	130.0	23.8	(10.4)	(5.0)	(28.3)	1.9	12.0	19.3	(111.2)	32.1	0.2 %
2006	23.5	262.2	(8.6)	(3.4)	(32.7)	2.1	9.4	11.1	(211.7)	51.9	0.3 %
2007	(15.4)	305.8	(8.4)	(2.6)	(35.3)	4.1	10.2	23.2	(170.5)	111.1	0.6 %
2008 [1]	8.2	(3,331.5)	2.4	(2.1)	(40.8)	1.8	11.4	9.1	(40.5)	(3,382.0)	(12.6)%
2009	70.2	(343.2)	11.6	(0.5)	(38.3)	3.5	12.9	(11.8)	(53.5)	(349.1)	(1.4)%
2010	359.6	(90.5)	(0.2)	0.0	(32.3)	3.3	7.3	(0.3)	(442.1) [2]	(195.2)	(0.7)%
2011 [1]	238.9	(164.3)	(22.9)	(5.7)	(25.9)	7.3	8.2	19.9	(344.4) [3]	(288.9)	(1.0)%
2012	230.2	71.0	2.0	(3.0)	(24.7)	6.5	20.8	23.8	(89.0)	237.6	0.8 %
2013	141.5	811.5	(11.6)	(2.8)	(22.7)	3.2	15.7	45.1	(74.0)	905.9	2.8 %
2014 [1]	64.2	767.6	(19.3)	(4.9)	(19.7)	(2.2)	17.2	37.9	(1,274.8) [3]	(434.0)	(1.3)%

[1] *Includes changes in assumptions due to the Experience Study.*

[2] *Includes one-time data changes of approximately $250 million.*

[3] *Includes Experience Study changes.*

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Reconciliation of Employer Contribution

	Regular	SLEP	ECO	Total
Prior Year	**11.69 %**	**22.33 %**	**70.37 %**	**12.28 %**
Experience Study	0.85 %	1.21 %	2.54 %	0.87 %
Tier 2 Structure	(0.11)%	(0.14)%	0.00 %	(0.11)%
Investment Return	(0.65)%	(0.95)%	(4.49)%	(0.67)%
Pay Increases	(0.07)%	0.19 %	(0.81)%	(0.06)%
Demographic	(0.01)%	0.09 %	1.70 %	0.00 %
Population Change	(0.01)%	0.05 %	17.50 %	0.03 %
Other	0.04 %	(0.07)%	(0.74)%	0.00 %
Current Year	**11.73 %**	**22.71 %**	**86.07 %**	**12.34 %**

Conclusion

- Investment markets continue to be volatile – favorable investment performance in 2014 offset most of the cost of the experience study. Slight increase in contribution rates
- IMRF is still well-funded, (87% funding value basis, 93% market value basis) considering recent historic market volatility; national average is around 75%

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GASB Statement No. 68 Results

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GASB Changes - Overview

- New GASB Accounting Standards Statements No. 67 and No. 68 will create accounting results separate from funding results
  - Funding calculations **are not impacted**
  - GASB created a new Net Pension Liability (NPL) and Pension Expense that applies to employers
  - Statement No. 67 replaces Statement No. 25
  - Statement No. 68 replaces Statement No. 27

Summary of Key Changes

- Under the GASB's outgoing standards, there was a close link between the accounting and funding measures. Under the new statements, the two are disconnected:

	Funding Purposes	Accounting Purposes
Discount Rate	Long-term rate of investment return	Long-term investment return and potentially a municipal bond rate
Asset Valuation	May be smoothed	Fair (market) value
Amortization	Considerable flexibility	Strict requirements and likely shorter periods
Actuarial Cost Method	Considerable flexibility	Traditional entry age normal

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GASB Changes – Overview

- Key differences for *employer accounting*
  - New GASB rules do not allow smoothing of assets
  - New GASB rules may require lower (or blended) discount rate to value liabilities
- Key takeaways
  - New GASB rules do NOT change the funding contribution rate
  - New GASB rules do provide a second set of actuarial numbers (may lead to confusion)

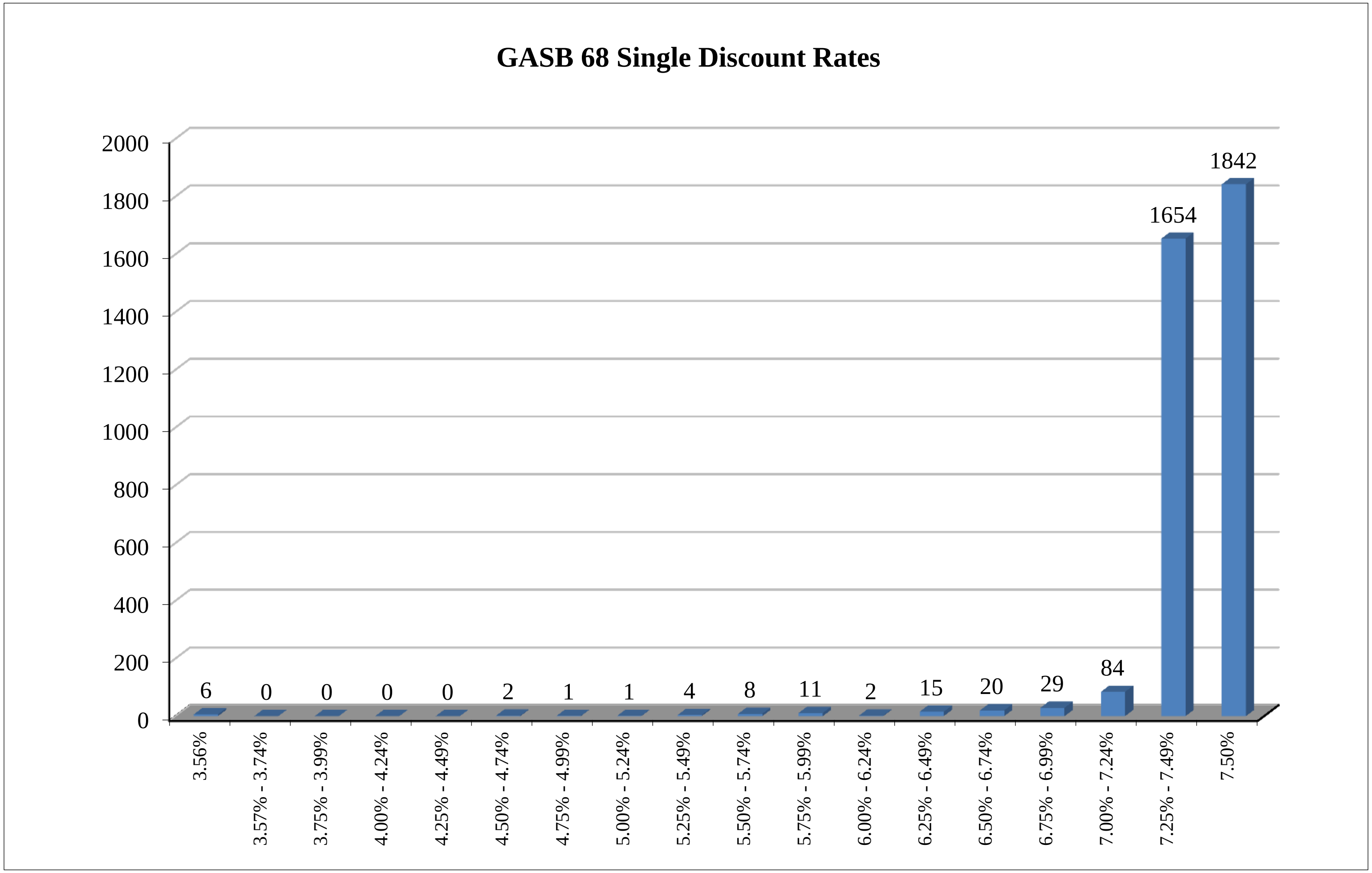
Single Discount Rate

- The NPL is similar to the Unfunded Actuarial Accrued Liability (UAAL) that many state and local governments use for funding purposes (based on Market Value of Assets)
- However, a key difference is the "Single Discount Rate" which is:
  - Based on the long-term expected investment return to the extent projected plan fiduciary net position (assets) is sufficient to pay future benefits; and
  - Based on a tax-exempt municipal bond index rate to the extent projected plan fiduciary net position (assets) is not sufficient to pay future benefits

Single Discount Rate

- Possible Reasons that assets may not be sufficient to pay benefits under GASB projection
  - System contributes based on statutory method
  - System contributes less than recommended contribution
  - The use of a ‘rolling’ amortization period (unfunded is not paid down, but rather re-amortized each year)
  - Differences in methods and/or assumptions between Funding and GASB valuations
    - Traditional Entry Age versus Aggregate Entry Age
    - Gain sharing features

Single Discount Rate - Illustration



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GASB 68 Results – In Total

Results as of December 31, 2014 (Millions)

	Funding	Accounting
Actuarial Liability/Total Pension Liability	37,465.1	37,794.9
Assets/Fiducuiary Net Position	32,700.2	34,833.1
Unfunded Liabilty/Net Pension Liability	4,764.9	2,961.8
Funded Percent	87.3%	92.2%

Total Pension Liability is the sum of the Total Pension Liability for all employers (with varying single discount rates).

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Employer Funding Levels

- Prior to GASB 68, funded levels for employers included only assets and liabilities for non-annuitants
- With GASB 68, funded levels will also include assets and liabilities for annuitants
- Annuitant reserve is funded at 100%
- Therefore, funded ratios by employer will typically be higher than prior years

Funded Percent Example

Sample Employer

	Old Method	New Method
1) Liabilities		
- a) Non-annuitants	108,175,728	108,175,728
- b) Annuitants	N/A	89,660,668
- c)Total	108,175,728	197,836,396
2) Assets		
- a) Non-annuitants	87,716,126	99,822,880
- b) Annuitants	N/A	89,660,668
- c)Total	87,716,126	189,483,548
Funded Percent (2c / 1c)	81.1%	95.8%

Old Method uses smoothed assets, new method uses market value of assets.

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GASB Overview

- GASB Statement No. 68 is effective for fiscal years beginning after June 15, 2014
  - Will depend on Employer's fiscal year
  - For fiscal years of June through December
    - Employers will use December 31, 2014 measurement date
  - For fiscal years of January through May
    - Employers will use December 31, 2015 measurement date
  - Reports were prepared for all employers for auditors to balance fiduciary net position (assets) as of December 31, 2014

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