

August 31, 2015

Mr. Phillip J. Stoddard
Director, Office of Retirement Services
530 W. Allegan
Lansing, Michigan 48909

**Re: Separate Actuarial Valuation as of September 30, 2014 for
University Members of MPSERS (Pension Benefits Only)**

Dear Mr. Stoddard:

We have completed a separate actuarial valuation for current and former employees of the seven Michigan Universities that have withdrawn from the Michigan Public School Employees Retirement System (for their employees hired on or after January 1, 1996) due to the enactment of Act No. 272 of the Public Acts of 1995. This actuarial valuation was prepared as of September 30, 2014, and utilized the same actuarial assumptions and methods used for the 2014 valuation of MPSERS, except that the unfunded actuarial accrued liability for University members is expected to be completely amortized by September 30, 2036.

The purpose of the valuation is to provide the required contribution rates for the fiscal year beginning October 1, 2016 and to evaluate the liabilities and funded status of the System for the affected members in total. This report should not be relied upon for any other purpose.

Select valuation results are presented in the following tables:

Table 1 - Demographic Characteristics - Comparison of University and Non-University MPSERS Members as of September 30, 2014 and September 30, 2013

Table 2 - Contribution Rates for the Indicated Fiscal Years Expressed as a Percentage of Payroll

Table 3 - University Contribution Rates as of September 30, 2014 for the Fiscal Year Beginning October 1, 2016 – Expressed as a Percentage of Payroll and Estimated Dollars

Table 4 - Actuarial Valuation Results as of September 30, 2014

Table 5 - Active University MPSERS Members as of September 30, 2014 by Age and Years of Service

Table 6 - Active University MPSERS Member Statistics by Plan Type

Table 7 - University MPSERS Pensions in Force on September 30, 2014 by Type of Pension, Selected Option, and Pension Amount

Table 8 - Summary of MPSERS Liability Transfers Between Non-University and University from October 1, 2013 through September 30, 2014

Table 9 - Allocation of September 30, 2014 MPSERS Assets Between University and Non-University Members

Table 10 - Unfunded Actuarial Accrued Liability and Actuarial Gain (Loss)

Section 41a of Act 300 of the Public Acts of 1980, as amended, provides for “... the payment schedule for universities being based on and applied to the combined payrolls of the universities’ employees who are members and who were hired before January 1, 1996 and the universities’ employees who would have been members on or after January 1, 1996, but for the enactment of 1995 PA 272.” The total additional payroll for University employees hired since January 1, 1996 was reported to be \$96.5 million for the year ending September 30, 2014. Table 3 converts the employer percentage of payroll contribution rate that is based on payroll *only* for University MPSERS members with future benefit accruals in the defined benefit plan (62.08% for the fiscal year beginning October 1, 2016) into a contribution rate (21.98% for the fiscal year beginning October 1, 2016) based on that payroll plus a percentage (17.68% for the fiscal year beginning October 1, 2016) based on the combined payroll of University employees hired since January 1, 1996 who are not members of MPSERS and of University MPSERS members who elected not to continue future benefit accruals in the defined benefit plan. Therefore, the 2016/2017 employer contribution should be the sum of:

- a) 21.98% of University MPSERS member payroll for those continuing in the defined benefit plan, plus
- b) 17.68% of University non-MPSERS member payroll and University MPSERS member payroll for those who elected the defined contribution plan.

The valuation was based upon information furnished by the Office of Retirement Services, concerning Retirement System benefits, financial transactions, and active members, terminated members, retirees and beneficiaries. Data was checked for internal and year-to-year consistency, but was not otherwise audited by us. This report may be provided to parties other than the Office of Retirement Services only in its entirety and only with the permission of the Office of Retirement Services.

The valuation summarized in this report involves actuarial calculations that require making assumptions about future events. The assumptions and methods are disclosed fully in the September 30, 2014 actuarial valuation of MPSERS. We believe that the assumptions and methods used in this report are reasonable and appropriate. However, other assumptions and methods could also be reasonable and could result in materially different results. Some of the numbers in this report are rounded. There may be cases where schedules do not add, or where they do not exactly balance to other related schedules due to rounding. The use of rounded numbers for plan liabilities should not imply a lack of precision. In addition, because it is not possible or practical to consider every possible contingency, we may use summary information, estimates or simplifications of calculations to facilitate the modeling of future events. We may also exclude factors or data that we deem to be immaterial.

As noted in the September 30, 2014 actuarial valuation report of MPSERS, we continue to include two service purchase loads in the accrued liability due to questions from the auditor as to how purchased service is reported. We included an \$110,000 load in the accrued liability for purchased service that has been paid for but not reported. We included a \$211,700 load in the accrued liability for amounts included in the plan's reported assets for purchased service that have not been paid for yet by the members.

This report also reflects a restatement of the asset values attributable to the University employees. The restatement reflects the inclusion of non-member employer contributions from fiscal year 1997 through fiscal year 2014 and a restatement of the member contributions from fiscal year 2010 through fiscal year 2013. At the direction of ORS staff, GRS has calculated the asset values used in this report. Since these asset values may be used for financial reporting purposes, we strongly recommend that the validity of these asset values be reviewed by ORS staff or the Office of the Auditor General (OAG), before finalizing and adopting this report.

To the best of our knowledge, this report is complete and accurate and the valuation was conducted in accordance with standards of practice prescribed by the Actuarial Standards Board and in compliance with the applicable state statutes. Mita Drazilov and Louise Gates are Members of the American Academy of Actuaries (MAAA), are independent of the plan sponsor, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. It is our opinion that the actuarial assumptions used for the valuation produce results which are reasonable.

Sincerely,



Mita D. Drazilov, ASA, MAAA



Louise M. Gates, ASA, MAAA

MDD:rmn

TABLE 1
DEMOGRAPHIC CHARACTERISTICS
COMPARISON OF UNIVERSITY AND NON-UNIVERSITY MPERS MEMBERS
AS OF SEPTEMBER 30, 2014 AND SEPTEMBER 30, 2013

2014	Total	University MPERS Members	Non-University MPERS Members
<u>Active Members</u>			
Number	199,674	1,664	198,010
Average age	46.1	55.5	46.0
Average service	12.7	24.9	12.6
Reported payroll	\$ 7,943,921,654	\$ 76,136,008	\$ 7,867,785,646
Average annual payroll	\$ 39,784	\$ 45,755	\$ 39,734
<u>Inactive Vested Members</u>			
Number	23,140	469	22,671
<u>Retirees & Beneficiaries</u>			
Number	204,512	5,008	199,504
Annual pension	\$ 4,431,065,169	\$ 78,551,991	\$ 4,352,513,178
Average annual pension	\$ 21,667	\$ 15,685	\$ 21,817
2013	Total	University MPERS Members	Non-University MPERS Members
<u>Active Members</u>			
Number	212,525	1,851	210,674
Average age	46.0	55.0	45.9
Average service	12.3	23.9	12.2
Reported payroll	\$ 8,225,139,551	\$ 79,932,165	\$ 8,145,207,386
Average annual payroll	\$ 38,702	\$ 43,183	\$ 38,663
<u>Inactive Vested Members</u>			
Number	16,235	413	15,822
<u>Retirees & Beneficiaries</u>			
Number	200,952	4,818	196,134
Annual pension	\$ 4,289,280,950	\$ 74,319,960	\$ 4,214,960,990
Average annual pension	\$ 21,345	\$ 15,425	\$ 21,490

The above statistics include only those members entitled to some type of defined benefit from the Retirement System. Active members hired after PA 300 of 2012 who elected the pure defined contribution plan are excluded from the statistics above.

The September 30, 2013 total active counts include 6,964 people (including 48 University people) who elected not to continue future accruals (after the transition date of February 1, 2013) in the defined benefit plan as a result of PA 300.

The September 30, 2014 inactive counts include 6,161 people (including 45 University people) who elected not to continue future accruals (after the transition date of February 1, 2013) in the defined benefit plan as a result of PA 300.

TABLE 2
CONTRIBUTION RATES FOR THE INDICATED FISCAL YEARS
EXPRESSED AS A PERCENTAGE OF PAYROLL

Total - All MPERS Members			
Valuation Date	September 30, 2014	September 30, 2013	September 30, 2012
Fiscal Year Beginning	October 1, 2016	October 1, 2015	October 1, 2014
Total Normal Cost	8.28 %	8.79 %	8.76 %
Member Contributions	<u>4.63</u>	<u>4.59</u>	<u>4.61</u>
Employer Normal Cost	3.65 %	4.20 %	4.15 %
Amortization Payment	<u>22.30</u>	<u>21.18</u>	<u>18.76</u>
Total Employer Contribution	N/A	N/A	N/A
Projected Active Member Payroll			
For Fiscal Year (in millions)			
Normal Cost \$	\$8,797.9	\$8,948.9	\$9,395.1
Amortization \$	\$9,028.8	\$9,146.7	\$9,563.3
University MPERS Members			
Valuation Date	September 30, 2014	September 30, 2013	September 30, 2012
Fiscal Year Beginning	October 1, 2016	October 1, 2015	October 1, 2014
Total Normal Cost	7.40 %	7.98 %	7.99 %
Member Contributions	<u>3.10</u>	<u>3.11</u>	<u>3.19</u>
Employer Normal Cost	4.30 %	4.87 %	4.80
Amortization Payment	<u>57.78</u>	<u>60.13</u>	<u>51.93</u>
Total Employer Contribution	62.08 %	65.00 %	56.73 %
Projected Active Member Payroll ⁽¹⁾			
For Fiscal Year (in millions)			
Normal Cost \$	\$59.0	\$61.6	\$67.4
Amortization \$	\$59.0	\$61.6	\$67.4
Non-University MPERS Members			
Valuation Date	September 30, 2014	September 30, 2013	September 30, 2012
Fiscal Year Beginning	October 1, 2016	October 1, 2015	October 1, 2014
Total Normal Cost	8.29 %	8.80 %	8.77 %
Member Contributions	<u>4.64</u>	<u>4.60</u>	<u>4.62</u>
Employer Normal Cost	3.65 %	4.20 %	4.15 %
Amortization Payment	<u>22.07</u>	<u>20.92</u>	<u>18.52</u>
Total Employer Contribution	N/A	N/A	N/A
Projected Active Member Payroll ⁽²⁾			
For Fiscal Year (in millions)			
Normal Cost \$	\$8,738.9	\$8,887.3	\$9,327.7
Amortization \$	\$8,969.8	\$9,085.1	\$9,495.9

⁽¹⁾ Payroll for University members of MPERS with future defined benefit accruals.

⁽²⁾ Payroll for Non-University members of MPERS and University members of MPERS with future defined contribution accruals.

TABLE 3

**UNIVERSITY CONTRIBUTION RATES AS OF SEPTEMBER 30, 2014
FOR THE FISCAL YEAR BEGINNING OCTOBER 1, 2016
EXPRESSED AS A PERCENTAGE OF PAYROLL AND ESTIMATED DOLLARS**

	Using Only Payroll of University Members of MPSERS with Future Defined Benefit Accruals		Also Using Payroll of University Non-Members Hired Since January 1, 1996 and University Members of MPSERS with Future Defined Contribution Accruals For Amortization Payment	
	Percentage of Pay	Dollar Amount (In Millions)	Percentage of Pay	Dollar Amount (In Millions)
Normal Cost	7.40 %	\$ 4.367	7.40 %	\$ 4.367
Member Contributions	<u>3.10</u>	<u>1.829</u>	<u>3.10</u>	<u>1.829</u>
Employer Normal Cost	4.30 %	\$ 2.538	4.30 %	\$ 2.538
Amortization Payment	<u>57.78</u>	<u>34.096</u>	<u>17.68</u>	<u>34.096</u>
Total Employer Contribution	62.08 %	\$ 36.634	21.98 %	\$ 36.634
Projected Payroll				
For Normal Cost		\$ 59.007		\$ 59.007
For Amortization Payment		\$ 59.007		\$ 192.808

MPERS Annual Actuarial Valuation – University Supplement

TABLE 4
ACTUARIAL VALUATION RESULTS
AS OF SEPTEMBER 30, 2014

	Total All MPERS Members	University MPERS Members	Non-University MPERS Members
(1) Fiscal Year Ending September 30,	2017	2017	2017
(2) Total Normal Cost of Benefits (as a % of member pay)	8.28%	7.40%	8.29%
(3) Member Contribution % (weighted average)	<u>4.63%</u>	<u>3.10%</u>	<u>4.64%</u>
(4) Employer Normal Cost % = (2) - (3)	3.65%	4.30%	3.65%
(5) Projected Active Member Payroll for Fiscal Year - Normal Cost \$	\$8,797,936,997	\$59,007,171	\$8,738,929,826
(6) Employer Normal Cost \$ = (4) x (5) ¹	320,783,953	2,538,147	318,245,806
(7) Actuarial Accrued Liability - Total	66,104,591,279	1,038,673,384	65,065,917,895
Active employees	19,329,998,071	278,202,012	19,051,796,059
Inactive vested members	1,125,403,560	22,479,188	1,102,924,372
Other inactive members ²	103,708,905	2,576,775	101,132,130
Retirees and surviving beneficiaries	45,545,480,743	735,415,409	44,810,065,334
(8) Funding Value of Assets	39,625,615,493	578,054,268	39,047,561,225
(9) Unfunded Actuarial Accrued Liabilities (UAAL) = (7) - (8)	26,478,975,786	460,619,116	26,018,356,670
(10) Amortization Period (years)	Multiple Periods	20	Multiple Periods
(11) Amortization Factor (level percent of payroll payments)	N/A	13.23831401	N/A
(12) Amortization Payment %	22.30%	57.78%	22.07%
(13) Projected Active Member Payroll for Fiscal Year - Amortization \$	\$9,028,825,274	\$59,007,171	\$8,969,818,103
(14) Amortization Payment \$ = (12) x (13)	2,013,428,036	34,096,227	1,979,331,809
(15) Total Computed Employer Contribution % = (4) + (12)	N/A	62.08%	N/A
(16) Total Computed Employer Contribution \$ = (6) + (14)	\$ 2,334,211,989	\$ 36,634,374	\$ 2,297,577,615

¹ The formula in line (6) only applies to the University column. This is because of the effect of the Pension Plus provisions and the multiple amortization periods on the Total and Non-University columns.

² Liabilities for employees who transferred to the DC pension plan in connection with PA 300.

TABLE 5
ACTIVE UNIVERSITY MPSERS MEMBERS AS OF SEPTEMBER 30, 2014
BY AGE AND YEARS OF SERVICE

Age	Years of Service							Total Count	Total Pay	Average Pay
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 & up			
35 - 39		3	4	8				15	\$ 655,873	\$ 43,725
40 - 44	9	22	13	25	27	1		97	3,907,556	40,284
45 - 49	15	8	8	45	57	73	2	208	8,871,787	42,653
50 - 54	12	18	10	37	67	148	87	379	16,395,527	43,260
55 - 59	19	12	10	39	91	134	183	488	22,461,157	46,027
60 - 64	13	10	5	16	57	90	157	348	17,166,784	49,330
65 - 69	6	4	3	10	13	27	26	89	4,507,092	50,641
70 & Over	8	5	1	1	5	6	14	40	2,170,232	54,256
Total	82	82	54	181	317	479	469	1,664	\$ 76,136,008	\$ 45,755

The September 30, 2014 active statistics exclude 45 University people who elected not to continue future accruals (after the transition date of February 1, 2013) in the defined benefit plan as a result of PA 300.

As of September 30, 2014, the total University payroll (MPSERS members and Non-MPSERS members) was reported to be \$173.9 million.

TABLE 6
ACTIVE UNIVERSITY MPSERS MEMBER STATISTICS
BY PLAN TYPE

	September 30, 2013	September 30, 2014
Basic Members		
Number	842	760
Average Age	55.8 years	56.4 years
Average Service	27.4 years	28.3 years
Reported Payroll	\$ 38,774,288	\$ 36,678,266
Average Annual Pay	\$ 46,050	\$ 48,261
MIP Members		
Number	1,009	904
Average Age	54.4 years	54.8 years
Average Service	20.9 years	21.9 years
Reported Payroll	\$ 41,157,877	\$ 39,457,742
Average Annual Pay	\$ 40,791	\$ 43,648
Total		
Number	1,851	1,664
Average Age	55.0 years	55.5 years
Average Service	23.9 years	24.9 years
Reported Payroll	\$ 79,932,165	\$ 76,136,008
Average Annual Pay	\$ 43,183	\$ 45,755

The September 30, 2013 total active count includes 48 University people who elected not to continue future accruals (after the transition date of February 1, 2013) in the defined benefit plan as a result of PA 300.

The September 30, 2014 total active count excludes 45 University people who elected not to continue future accruals (after the transition date of February 1, 2013) in the defined benefit plan as a result of PA 300. Starting with the September 30, 2014 valuation, these members will be summarized with the inactive participants.

As of September 30, 2014, the total University payroll (MPSERS members and Non-MPSERS members) was reported to be \$173.9 million.

TABLE 7

**UNIVERSITY MPERS PENSIONS IN FORCE ON SEPTEMBER 30, 2014
BY TYPE OF PENSION, SELECTED OPTION, AND PENSION AMOUNT**

Amount of Monthly Benefit	Number of Retirees	Type of Retirement*						Selected Option**				Opt 1E 2E,3E,4E
		1	2	3	4	5	6	Opt. 1	Opt. 2	Opt. 3	Opt. 4	
\$ 1 - 200	381	314	64	0	2	0	1	171	118	61	7	24
201 - 400	585	464	69	6	37	0	9	299	148	88	8	42
401 - 600	605	473	70	5	41	0	16	294	163	85	11	52
601 - 800	533	424	46	5	38	0	20	251	124	87	22	49
801 - 1,000	472	402	37	2	25	0	6	232	91	86	18	45
1,001 - 1,200	403	340	33	2	21	0	7	168	91	81	26	37
1,201 - 1,400	341	294	32	1	8	0	6	124	95	69	25	28
1,401 - 1,600	262	232	19	0	6	0	5	102	55	57	23	25
1,601 - 1,800	239	213	23	0	1	0	2	87	57	47	20	28
1,801 - 2,000	191	169	14	0	3	0	5	83	37	37	18	16
Over 2,000	996	881	100	0	4	0	11	351	304	203	75	63
Totals	5,008	4,206	507	21	186	0	88	2,162	1,283	901	253	409

* Type of Retirement

- 1 – Normal retirement for age & service
- 2 – Survivor payment – normal retirement
- 3 – Duty disability retirement (including survivors)
- 4 – Non-duty disability retirement (including survivors)
- 5 – Survivor payment – duty death in service
- 6 – Survivor payment – non-duty death in service

** Selected Option

- Opt. 1 – Straight life allowance
- Opt. 2 – 100% survivor option
- Opt. 3 – 50% survivor option
- Opt. 4 – 75% survivor option
- Opt. 1E, 2E, 3E, 4E – Equated retirement options

TABLE 8
SUMMARY OF MPSERS LIABILITY TRANSFERS BETWEEN NON-UNIVERSITY &
UNIVERSITY
FROM OCTOBER 1, 2013 THROUGH SEPTEMBER 30, 2014

Transfers between segments	
Transfers to University	
a) 14 Non-University actives as of 10/1/2013 who transferred to University actives by 10/1/2014	\$ 2,012,154
b) 3 Non-University terminated vested as of 10/1/2013 who transferred to University actives by 10/1/2014	121,478
c) 0 Non-University pensioners as of 10/1/2013 who transferred to University actives by 10/1/2014	0
d) 0 Non-University actives as of 10/1/2013 who transferred to University terminated vesteds by 10/1/2014	0
e) 0 Non-University terminated vesteds as of 10/1/2013 who transferred to University terminated vesteds by 10/1/2014	0
f) 0 Non-University pensioners as of 10/1/2013 who transferred to University terminated vesteds by 10/1/2014	0
g) 3 Non-University actives as of 10/1/2013 who transferred to University pensioners by 10/1/2014	757,799
h) 41 Non-University terminated vested as of 10/1/2013 who transferred to University pensioners by 10/1/2014	2,866,753
i) 3 Non-University pensioners as of 10/1/2013 who transferred to University pensioners by 10/1/2014	257,379
j) Total Transfers into University	\$ 6,015,563
Transfers from University	
k) 7 University actives as of 10/1/2013 who transferred to Non-University actives by 10/1/2014	\$ 1,117,710
l) 0 University terminated vesteds as of 10/1/2013 who transferred to Non-University actives by 10/1/2014	0
m) 0 University pensioners as of 10/1/2013 who transferred to Non-University actives by 10/1/2014	0
n) 1 University actives as of 10/1/2013 who transferred to Non-University terminated vesteds by 10/1/2014	172,896
o) 6 University terminated vested as of 10/1/2013 who transferred to Non-University terminated vesteds by 10/1/2014	319,799
p) 0 University pensioners as of 10/1/2013 who transferred to Non-University terminated vesteds by 10/1/2014	0
q) 1 University actives as of 10/1/2013 who transferred to Non-University pensioners by 10/1/2014	695,852
r) 0 University terminated vested as of 10/1/2013 who transferred to Non-University pensioners by 10/1/2014	0
s) 4 University pensioners as of 10/1/2013 who transferred to Non-University pensioners by 10/1/2014	236,026
t) Total Transfers from University	\$ 2,542,283
u) Total Net Transfers (j - t)	\$ 3,473,280

TABLE 9

ALLOCATION OF SEPTEMBER 30, 2014 MPSERS ASSETS BETWEEN UNIVERSITY AND NON-UNIVERSITY MEMBERS

	Total MPSERS Assets	MPSERS University Assets	MPSERS Non-University Assets
1. Beginning of Year Assets ³			
a) Market Value	\$ 40,015,539,616	\$ 587,853,544	\$ 39,427,686,072
b) Valuation Assets	38,043,503,534	559,161,626	37,484,341,908
2. End of Year Assets at Market Value	43,773,188,964	638,804,892	43,134,384,072
3. Net Additions to Market Value			
a) Member Contributions	405,443,772	2,762,370 ⁴	402,681,402
b) Employer Contributions	1,600,375,132	33,163,859 ⁵	1,567,211,273
c) Investment Income ¹	6,192,710,860	90,403,950	6,102,306,910
d) Benefit Payments	(4,388,328,518)	(78,505,964)	(4,309,822,554)
e) Contribution Refunds / Transfers	(28,840,649)	0	(28,840,649)
f) Administrative Expenses ¹	(23,711,249)	(346,147)	(23,365,102)
g) Transfers from (to) stabilization subaccount	0	0	0
h) Transfers in (out)	0	3,473,280	(3,473,280)
i) Audit Adjustment ¹	0	0	0
j) Total Additions to Market Value	3,757,649,348	50,951,348	3,706,698,000
4. Average Market Value of Assets = (1a) + .5 x [(5a) + (5c)] + (5e)	38,809,864,485	566,563,677	38,243,300,808
5. Summary of Net Additions to Market Value			
a) Net Contributions = (3a) + (3b) + (3e) + (3g)	1,976,978,255	35,926,229	1,941,052,026
b) Net Investment Income = (3c) + (3f)	6,168,999,611	90,057,803	6,078,941,808
c) Benefit Payments = (3d)	(4,388,328,518)	(78,505,964)	(4,309,822,554)
d) Transfers in (out) = (3h)	0	3,473,280	(3,473,280)
e) Audit Adjustment = (3i)	0	0	0
f) Total Additions to Market Value	3,757,649,348	50,951,348	3,706,698,000
6. Average Valuation Assets = (1b) + .5 x [(5a) + (5c)] + (5e)	36,837,828,402	537,871,759	36,299,956,643
7. Imputed Income at Valuation Rate = Discount Rate ² x (6)	2,946,104,224	43,029,741	2,903,074,483
8. Gain (Loss) from Investments = (5b) – (7)	3,222,895,387	47,028,062	3,175,867,325
9. Portion of Gains (Losses) recognized from prior years			
a) From this year = .2 x (8)	644,579,078	9,405,612	635,173,466
b) From one year ago	372,032,865	5,598,491	366,434,374
c) From two years ago	432,010,928	6,379,197	425,631,731
d) From three years ago	(410,863,290)	(6,425,688)	(404,437,602)
e) From four years ago	9,598,417	11,744	9,586,673
f) Total	1,047,357,998	14,969,356	1,032,388,642
10. Change in Valuation Assets = (5a) + (5c) + (5d) + (5e) + (7) + (9f)	1,582,111,959	18,892,642	1,563,219,317
11. End of Year Assets			
a) Market Value = (2)	43,773,188,964	638,804,892	43,134,384,072
b) Valuation Assets = (1b) + (10)	39,625,615,493	578,054,268	39,047,561,225
12a. Actuarial Rate of Return	10.84%	10.78%	10.84%
12b. Market Rate of Return	15.90%	15.90%	15.90%

¹ Allocated in proportion to average market value (i.e., item 4).

⁴ Excludes 3% member health contributions.

² Discount rate is 8% for Non-Hybrid groups and 7% for the Hybrid group.

⁵ Includes non-member employer contributions.

³ Beginning of year asset figures do not agree with the September 30, 2013 University valuation report due to restatement of historical University assets for the inclusion of non-member employer contributions and the exclusion of 3% member health contributions.

TABLE 10

UNFUNDED ACTUARIAL ACCRUED LIABILITY AND ACTUARIAL GAIN (LOSS)

	Unfunded Actuarial Accrued Liability as of September 30, 2014		
	All MPSERS Members	University MPSERS Members	Non-University MPSERS Members
1. Actuarial accrued liability	\$66,104,591,279	\$1,038,673,384	\$65,065,917,895
2. Valuation assets	<u>39,625,615,493</u>	<u>578,054,268</u>	<u>39,047,561,225</u>
3. Unfunded (overfunded) actuarial accrued liability = (1) - (2)	26,478,975,786	460,619,116	26,018,356,670
	Derivation of Actuarial Gain (Loss)		
	All MPSERS Members	University MPSERS Members	Non-University MPSERS Members
4. Unfunded Actuarial Accrued Liability (UAAL) - Previous Valuation	\$ 25,796,224,266	\$ 488,594,060	\$ 25,307,630,206
5. Total Normal Cost (employer plus member) for Year Ending 9/30/2014	705,965,042	6,075,653	699,889,389
6. Total Contributions (employer plus member) for Year Ending 9/30/2014	2,005,818,904	19,901,394 ²	1,985,917,510
7. Interest on:			
a. UAAL: Discount Rate ¹ x (4)	2,063,707,347	39,087,525	2,024,619,822
b. Normal Cost and Contributions: Discount Rate* / 2 x [(5) - (6)]	<u>(51,974,574)</u>	<u>(553,030)</u>	<u>(51,421,544)</u>
c. Net Total: (a) + (b)	2,011,732,773	38,534,495	1,973,198,278
8. Change in UAAL due to Asset Restatement	0	(78,267,998) ³	78,267,998
9. Change in UAAL due to Assumption Changes	1,054,507,639	29,915,919	1,024,591,720
10. Expected UAAL Current Year: (4) + (5) - (6) + (7c) + (8) + (9)	27,562,610,816	464,950,735	27,097,660,081
11. Actual UAAL Current Year	26,478,975,786	460,619,116	26,018,356,670
12. Experience Gain/(Loss): (10) - (11)	1,083,635,030	4,331,619	1,079,303,411
13. Actuarial accrued liability at start of year	63,839,727,800	980,227,806	62,859,499,994
14. Gain (loss) as percent of pension actuarial accrued liabilities at start of year	1.70%	0.44%	1.72%
15. Portion of gain (loss) due to investment performance	1,047,357,998	12,796,330	1,034,561,668

¹ Discount rate is 8% for Non-Hybrid groups and 7% for the Hybrid group.

² Total contributions for University MPSERS members exclude non-member contributions in this line due to row 8 being the cumulative impact of the asset restatement.

³ Cumulative impact of asset restatement.