

Actuarial Audit Report

The University of California

University of California Retiree Health Benefit Program Valuation

As of July 1, 2011



Introduction

We have completed our actuarial audit of the University of California ("UC" or "the University") Retiree Health Plan Benefit Program (the "Plan") Valuation as of July 1, 2011. This work entailed a review of the data, valuation processes, and results generated by the Plan's actuary as requested.

As demonstrated in the attached findings, we have matched actuarial calculations within an actuarially acceptable margin and have several related comments. None of the comments reflects a critical concern. Our actuarial audit finds that actuarial calculations and results were reasonable, consistent, and accurate and that the presentation of the results was compliant with the standards of GASB.

To our knowledge, no colleague of Aon Hewitt¹ providing services to The University of California has any material direct or indirect financial interest in The University of California. Thus, we believe there is no relationship existing that might affect our capacity to prepare and certify this actuarial report for The University of California.

We look forward to presenting these findings to the University.

A handwritten signature in black ink, appearing to read "Deborah L. Donaldson".

Deborah L. Donaldson, FSA, MAAA
Vice President
Aon Hewitt

November 17, 2011

¹ Aon Consulting, Inc. and Hewitt Associates LLC are operating as Aon Hewitt

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Section 1 – General Findings

The University of California contracted Aon Hewitt to perform an actuarial audit of the July 1, 2011 actuarial valuation of the University of California Retiree Health Benefit Program. This report contains the findings of our actuarial audit. The firm contracted to perform the valuation is Deloitte Consulting, LLP (Deloitte). We thank Deloitte for their time working with Aon Hewitt to clarify findings.

The overall findings of this actuarial audit concludes the July 1, 2011 valuation was performed in a way in that is in aggregate reasonable and consistent with generally accepted actuarial principles. The valuation presents a fair representation of the actuarial liabilities which are generally appropriate and comply with the GASB 43/45 accounting standards in aggregate. Aon Hewitt was in agreement with the calculations. We did not find any issues that rose to the level of serious concern.

Recognizing the results, assumptions, and methodologies are reasonable in aggregate and appropriate, we believe there is some room for improvement. We have made recommendations in this report which in our opinion may more accurately estimate the liabilities. We have also noted clarifications in the reporting that could be made to improve a reader's understanding of the actuarial work performed.

Generally, our actuarial audit comments will be one of the following:

- **Level of Serious Concern** - concluding that some part of the work may be incorrect, unreasonable, or inconsistent with generally accepted actuarial principles; or
- **Suggestions and Considerations** - suggesting changes or further analysis which might improve the actuarial estimates and add value and understanding to the actuarial work.

The following issues rise to the level of serious concern:

- There were no issues that rose to the level of serious concern.

The following are **suggestions and considerations**:

- We recommend further review in the future of the following assumptions:
 - Proportion of retirees covering a spouse or domestic partner
 - PPO Plan trend for Pre-Medicare retirees
 - Aging Factors

The remainder of this report provides details of our actuarial audit and recommendations.

Section 2 – Audit of Census

The University of California provided Aon Hewitt with the same raw census file provided to Deloitte, and Deloitte subsequently provided Aon Hewitt with the grouped census valuation file used to determine the liabilities. Upon conclusion, we found no substantial issues with the grouped census file. Details of the census audit follows.

Details of the Census Audit

It is our understanding Aon Hewitt and Deloitte were provided the same raw census to be used for the July 1, 2011 valuation. This data is as of March 1, 2011. Aon Hewitt believes the use of a March 1 census file is a reasonable representation of a July 1, 2011 census file assuming no major shifts in population during this four month period. Aon Hewitt understands there have been no major shifts in population during this time.

In addition, Deloitte provided Aon Hewitt the valuation data created from the raw data which is used to determine the liabilities for the July 1, 2011 valuation. The valuation data files were grouped based on the following criteria provided by Deloitte:

- Rounded Service
- Rounded Age
- Gender
- Marital Status
- Retirement Status
- Job Code
- Affiliation
- Medicare Eligibility
- Retiree Graduation Eligibility Percentage

The raw data contained 117,683 actives and 37,553 inactives. The grouped valuation file resulted in 117,424 actives and 36,234 inactives. The difference between the raw and resulting grouped valuation census of 259 for actives and 1,319 for inactives were reconciled by Deloitte and agreed to by Aon Hewitt:

- Active records excluded from the valuation census: 126 records were also on the inactive file, 15 had duplicate Social Security Numbers (SSNs), 49 records had invalid SSNs, 13 records were not in this plan and 56 had inconsistent data formats.
- Inactive records excluded from the valuation census: 2 duplicate records, 995 opted out of coverage, 322 enrolled in the Tri-Care Plan.

Aon Hewitt ran a number of edits comparing the grouped valuation file to the raw data. As the results in the Appendix indicate, Aon Hewitt was able to reconcile the valuation census with raw data with differences less than 0.5% except for service. The service field is provided to Deloitte from The Regents' consulting actuary for The University of California Retirement System, the Segal Company ("Segal"). This service field is used to determine hire service for OPEB purposes. It is our understanding this service field reflects leave of absence, eligibility for plan participants and other factors impacting hire service. As a result, the difference in hire service when comparing service determined using hire date on the raw data and the service field provided on the group data of less than two months is completely reasonable. We concluded we were in agreement with the ultimate valuation file use to produce the liabilities.

Section 3 – Audit of Actuarial Assumptions, Methods and Substantive Plan

We reviewed the assumptions Deloitte incorporated into their July 1, 2011 valuation. Overall, we were in agreement with the results but suggest that the following should be reviewed in the next valuation cycle:

- Proportion of retirees covering a spouse or domestic partner
- Trend rate for Pre-Medicare PPO plan
- Aging Factors

We address each of the assumptions and methods below.

Mortality, Disability, Termination, Retirement

The Segal Company performed an experience study for the University of California Retirement Plan (UCRP) covering the period July 1, 2006 through June 30, 2010 that included recommendations for these demographic assumptions, which were approved by The Regents in July 2011. Our review indicates Deloitte is incorporating these assumptions into the valuation.

Medicare Eligible

For the Pre 65 retirees, it is assumed 85.5% of the group is Medicare eligible, and Deloitte noted in the valuation report this assumption is based upon observation. The census appears to indicate 91% of current Post-65 retirees are receiving Medicare. In conversations with Deloitte, they noted the 85.5% assumption is based upon historical University experience of the percentage of retirees electing Medicare upon reaching age 65. Aon Hewitt believes the use of the 85.5% assumptions is conservative, but reasonable.

Actuarial Cost Method

The actuarial cost method is Entry Age Normal. This is consistent with the UCRP pension valuation and is an acceptable method under GASB 43/45. It is our understanding the University chose the use of the Entry Age Normal Cost Method as a policy decision in 2007 in discussions with Deloitte.

Amortization of Unfunded Liabilities

There are varying years used for the different changes to the Unfunded Actuarial Accrued Liability (UAAL):

- Initial UAAL: 30 years, closed
- Experience gains/losses: 15 years, closed
- Assumption change: 30 years, closed
- Plan provision changes: 30 years, closed
- Contribution gains/losses: 30 years, closed



GASB permits an entity to use an amortization period up to thirty years on either an open or closed basis. Aon Hewitt understands the use of the varying amortization methods was a policy decision determined in 2007. Aon Hewitt has commented that this approach is not widely used in other GASB valuations and produces results more conservative than if a thirty year open basis amortization is incorporated. However, the current methodology falls within the guidance of GASB 43/45 and is appropriately applied.

Actuarial Value of Assets

Aon Hewitt agrees with this method.

Discount Rate

Since the plan is essentially not funded (less than 5%), the analysis to determine an appropriate discount rate focuses on the University's overall asset return. Upon initial review, our analysis indicated the use of a discount rate lower than 5.5%, approximately twenty five to fifty basis points below this assumption.

One of the key differences in our analysis and primary driver is the use of a 3% inflation rate. Our model is currently incorporating a 2.2% inflation rate. For the Short Term Investment Pool (STIP), our results are consistent with the University's. However, our Total Return Investment Pool (TRIP) returns fall well below the University's range with a midpoint of 6.3% nominal return with a 4% real return compared to the 5.9% to 8.9% range of real return determined by the University.

When the discount rate analysis was performed, the current asset mix was approximately 82% funded in STIP and 18% funded in TRIP. In conversations with the University, the University noted the asset mix has shifted and as of July, 2011 the mix is approximately 70% STIP and 30% TRIP. In addition, the asset return analysis did not take into consideration assets held in the Endowment fund (GEP) which represents approximately 30% of the University's assets. The endowment is invested in approximately 60% stock and 40% bonds.

In considering the change in the asset mix from STIP to TRIP in which TRIP earns a higher average return than STIP in addition to considering the return in the endowment fund, Aon Hewitt is in agreement with the use of a 5.5% discount rate. We believe this rate falls in the mid to conservative range of acceptable rates.

Lump Sum Election Rate

These assumptions are the result of a recommendation from the latest experience study of the University of California Retirement Plan, approved by The Regents in July 2011. Our review indicates Deloitte is incorporating these assumptions into the valuation.

Proportion of Retirees Covering a Spouse or Eligible Domestic Partner

For actives, it is assumed their current marital enrollment status continues into retirement. For current retirees, 42% have elected spouse coverage. The active grouped data indicates 48.9% have elected spouse coverage. We are comfortable with the use of a 48.9% assumption as we believe it produces a conservative result and suggest a review of this assumption in future valuations.

Age of Spouse or Eligible Domestic Partner

For future retirees (current actives), the valuation incorporates the following assumption for the age of a spouse/domestic partner:

- Male retiree is three years older than covered member
- Female retiree is three years younger than covered member

This assumption is consistent with the UCRP assumption, which was analyzed in the latest experience study and determined to be appropriate for this purpose. Aon Hewitt believes this assumption is reasonable based upon results from the active census.

Aging Factors

Section 2 of the Appendix illustrates the aging factors used to develop the age-graded claims tables. Aon Hewitt noticed several large jumps in the age over age factors at certain ages as highlighted in yellow in the Appendix. Prior to the jump in rates, the age over age factors are decreasing. For example, the aging factors between 44 and 53 are decreasing. Then at age 54 there is a relative large increase in the rate. After that the rate again follows a decreasing pattern until age 59 where there is another jump in the aging factor. In discussions with Deloitte, they commented their current assumption is reasonable and that the impact of using flat interpolated year over year increases between each age band created approximately a 0.02% or a \$3 million increase in liability. Since Deloitte will be reviewing the aging factors for the 2012 valuation, and given the small change to liability, Aon Hewitt agrees that this does not warrant a change this year.

Trend Assumption

Aon Hewitt is in agreement with the assumed trend rates but suggests careful annual review of the PPO trend rates in future valuations. Aon Hewitt is in agreement with the initial and ultimate trend assumption for the PPO Plan. Our internal standards require a test of the five year weighted average of the current trend scale. If the five year weighted average is less than 7.0% the results must be reviewed on an annual basis. As noted in a conversation with Deloitte and UC, the pre-Medicare PPO trend table is not within Aon Hewitt acceptable guidelines due to the five year weighted average of the initial trends. However, rates outside of guidelines do not necessarily indicate they are not appropriate, but it does indicate that annual reviews are needed to ensure the experience supports the trend rates. In addition, these trend rates are less than the Medicare PPO trend rates which is not usually experienced. Please see the Pre-Medicare PPO rates below which were included in the July 1, 2011 OPEB valuation:

Fiscal Year Ending ⁽¹⁾		PPO Plans ⁽²⁾
From	To	
2012	2013	7.50
2013	2014	7.00
2014	2015	6.50
2015	2016	6.25
2016	2017	6.00
2017	2018	5.75
2018	2019	5.50
2019	2020	5.25
All Future Years		5.00



The weighted average of the first five years of trend is equal to 6.5% which is below Aon Hewitt's standard of at least 7%. Aon Hewitt trend guidelines are based upon reviewing current medical trends on a National basis and projecting a reasonable range of anticipated medical trend for the next five years for the variety of different plans offered by entities across the country. It is our understanding the initial trend rate is substantiated by actual historical experience of reviewing Pre-Medicare claims experience for this plan. While we can't substantiate this assumption, it appears reasonable assuming it is based on Pre-Medicare experience only. We are in agreement with the ultimate trend rate as a reasonable assumption.

Excise Tax

The impact of the Excise Tax, effective in 2018, which is part of the Patient Protection and Affordable Care Act (PPACA) has not yet clearly been defined. Deloitte is adjusting liabilities by 2.93% in last year's report and 4.14% in this year's valuation to account for the Excise Tax. These estimates are more conservative than estimates used frequently within Aon Hewitt. In discussions with Deloitte, it appears our methodology of estimating the Excise tax differs. However, the Deloitte-produced estimates are within the reasonable range of expectation, given there is no detailed guidance on how to determine this tax impact yet.

Section 4 – Audit of Actuarial Report Compilation

Proval Review

Aon Hewitt independently reproduced the results of the July 1, 2011 actuarial valuation as part of the actuarial audit process, including valuation system coding as per our understanding of the substantive plan. Deloitte provided us with several individual sample life calculations for both actives and inactives for use in understanding and reconciling any coding discrepancies. Overall the Actuarial Accrued Liability calculated by Aon Hewitt is within 0.230% of the liability calculated by Deloitte. Although deviations were larger on an individual basis when comparing sample lives, we agree with Deloitte's approach to the coding and feel it is reflective of the substantive plan. Assuming a deviation of up to 2.0% is acceptable; Aon Hewitt's deviation of 0.230% is well within an acceptable margin of error.

Although we do not feel it would result in a significant impact to liabilities overall, it appears that for Lawrence Berkeley National Laboratory (LBNL) Non-Medicare retirees, the enrollment rates for the Campus/Medical Center/Other (CMCO) group are being applied to the claims. This was reflected in Sample Life 3 provided on September 25th. The LBNL enrollment rates are correctly being applied to the participant flat rates and University Contributions, so it is only the age-graded claims where the CMCO enrollment rates are being applied. Again, we do not feel this significantly impacts results overall, but may have an impact on the LBNL portion of the liability.

Determination of Unfunded Actuarial Accrued Liability

It is our understanding the methodology for developing the Unfunded Actuarial Accrued Liability (UAAL) was a policy decision made by the University in 2007 in discussions with Deloitte. Although more involved calculations are used than necessary, we agree this methodology in unison with the amortization method meets generally accepted actuarial standards and complies with GASB 43/45.

Interest Component in Development of ARC

The Annual Required Contribution (ARC) is comprised of the Normal Cost and amortization of the UAAL, both as of the end of the year. In the ARC development, the University is adjusting the interest component by removing a half year's interest on benefit payments. In our experience, we have not seen this adjustment made in the ARC development. In conversations with Deloitte, it is our understanding this approach was requested by the University. However, there is no language within GASB 43/45 which indicates this method is not accepted.

Section 5 – Appendix

Section 1: Data Edit Results

University of California 2011 OPEB Valuation Active Data Audit

	Raw Data	Deloitte Data	Difference
Total			
Male			
Count	48,842	48,842	0.00%
Average Age	45.78	45.77	-0.03%
Average Service	9.48	9.57	0.91%
Yes - Medicare	47,779	47,779	0.00%
Female			
Count	68,582	68,582	0.00%
Average Age	44.01	43.99	-0.06%
Average Service	8.37	8.51	1.68%
Yes - Medicare	67,757	67,757	0.00%
Total			
Count	117,424	117,424	0.00%
Average Age	44.75	44.73	-0.04%
Average Service	8.83	8.95	1.34%
Yes - Medicare	115,536	115,536	0.00%

CMCO			
Male			
Count	46,548	46,548	0.00%
Average Age	45.82	45.81	-0.03%
Average Service	9.50	9.57	0.74%
Yes - Medicare	45,588	45,588	0.00%
Female			
Count	67,350	67,350	0.00%
Average Age	44.00	43.98	-0.06%
Average Service	8.39	8.52	1.60%
Yes - Medicare	66,564	66,564	0.00%
Total			
Count	113,898	113,898	0.00%
Average Age	44.75	44.73	-0.05%
Average Service	8.84	8.95	1.22%
Yes - Medicare	112,152	112,152	0.00%

Hastings			
Male			
Count	111	111	0.00%
Average Age	48.32	48.32	0.00%
Average Service	10.38	10.20	-1.80%
Yes - Medicare	109	109	0.00%
Female			
Count	136	136	0.00%
Average Age	47.45	47.43	-0.03%
Average Service	7.99	7.99	-0.06%
Yes - Medicare	135	135	0.00%
Total			
Count	247	247	0.00%
Average Age	47.84	47.83	-0.02%
Average Service	9.07	8.98	-0.95%
Yes - Medicare	244	244	0.00%

LBNL			
Male			
Count	2,183	2,183	0.00%
Average Age	44.73	44.76	0.08%
Average Service	9.02	9.46	4.88%
Yes - Medicare	2,082	2,082	0.00%
Female			
Count	1,096	1,096	0.00%
Average Age	44.17	44.20	0.06%
Average Service	7.28	7.80	7.18%
Yes - Medicare	1,058	1,058	0.00%
Total			
Count	3,279	3,279	0.00%
Average Age	44.54	44.58	0.07%
Average Service	8.44	8.90	5.54%
Yes - Medicare	3,140	3,140	0.00%



University of California
2011 OPEB Valuation
Inactive Data Audit

Includes Retired and Disabled Participants

	Raw Data	Deloitte Data	Difference
Total			
Male			
Count	14,423	14,415	-0.06%
Average Age	72.30	72.30	0.00%
Status "M" Count	8,914	8,911	-0.03%
<65 Count	3,276	3,276	0.00%
65+ Yes - Medicare Count	10,336	10,330	-0.06%
Female			
Count	21,811	21,819	0.04%
Average Age	71.26	71.24	-0.02%
Status "M" Count	6,310	6,313	0.05%
<65 Count	6,444	6,445	0.02%
65+ Yes - Medicare Count	14,924	14,903	-0.14%
Total			
Count	36,234	36,234	0.00%
Average Age	71.67	71.67	-0.01%
Status "M" Count	15,224	15,224	0.00%
<65 Count	9,720	9,721	0.01%
65+ Yes - Medicare Count	25,260	25,233	-0.11%

CMCO			
Male			
Count	13,404	13,396	-0.06%
Average Age	72.21	72.21	0.00%
Status "M" Count	8,246	8,243	-0.04%
<65 Count	3,082	3,082	0.00%
65+ Yes - Medicare Count	9,595	9,589	-0.06%
Female			
Count	21,059	21,067	0.04%
Average Age	71.12	71.10	-0.02%
Status "M" Count	6,189	6,192	0.05%
<65 Count	6,308	6,309	0.02%
65+ Yes - Medicare Count	14,330	14,309	-0.15%
Total			
Count	34,463	34,463	0.00%
Average Age	71.54	71.53	-0.01%
Status "M" Count	14,435	14,435	0.00%
<65 Count	9,390	9,391	0.01%
65+ Yes - Medicare Count	23,925	23,898	-0.11%

	Raw Data	Deloitte Data	Difference
Hastings			
Male			
Count	47	47	0.00%
Average Age	71.30	71.30	0.00%
Status "M" Count	32	32	0.00%
<65 Count	13	13	0.00%
65+ Yes - Medicare Count	32	32	0.00%
Female			
Count	49	49	0.00%
Average Age	72.82	72.82	0.00%
Status "M" Count	10	10	0.00%
<65 Count	14	14	0.00%
65+ Yes - Medicare Count	37	37	0.00%
Total			
Count	96	96	0.00%
Average Age	72.07	72.07	0.00%
Status "M" Count	42	42	0.00%
<65 Count	27	27	0.00%
65+ Yes - Medicare Count	69	69	0.00%

LBNL			
Male			
Count	972	972	0.00%
Average Age	73.60	73.60	0.00%
Status "M" Count	636	636	0.00%
<65 Count	181	181	0.00%
65+ Yes - Medicare Count	709	709	0.00%
Female			
Count	703	703	0.00%
Average Age	75.36	75.36	0.00%
Status "M" Count	111	111	0.00%
<65 Count	122	122	0.00%
65+ Yes - Medicare Count	557	557	0.00%
Total			
Count	1,675	1,675	0.00%
Average Age	74.34	74.34	0.00%
Status "M" Count	747	747	0.00%
<65 Count	303	303	0.00%
65+ Yes - Medicare Count	1,266	1,266	0.00%



University of California 2011 OPEB Valuation

Inactive Data Audit

Eligibility Percentage

Includes Retired and Disabled Participants

	Raw Data	Deloitte Data	Difference
Total			
Total			
50	1,222	1,222	0
55	395	395	0
60	368	368	0
65	326	326	0
70	288	288	0
75	290	290	0
80	250	250	0
85	195	195	0
90	185	185	0
95	107	107	0
100	32,608	32,608	0

CMCO			
Total			
50	1,186	1,186	0
55	381	381	0
60	354	354	0
65	312	312	0
70	284	284	0
75	278	278	0
80	244	244	0
85	187	187	0
90	173	173	0
95	103	103	0
100	30,961	30,961	0

	Raw Data	Deloitte Data	Difference
Hastings			
Total			
50	4	4	0
55	3	3	0
60	1	1	0
65	2	2	0
70	0	0	0
75	2	2	0
80	1	1	0
85	0	0	0
90	2	2	0
95	0	0	0
100	81	81	0

LBNL			
Total			
50	32	32	0
55	11	11	0
60	13	13	0
65	12	12	0
70	4	4	0
75	10	10	0
80	5	5	0
85	8	8	0
90	10	10	0
95	4	4	0
100	1,566	1,566	0

Section 2: Aging Factors

Age	Agin Factor
25 and under	
26	1.006214
27	1.006175
28	1.006137
29	1.014460
30	1.014254
31	1.014054
32	1.013859
33	1.013670
34	1.008153
35	1.008087
36	1.008022
37	1.007959
38	1.007896
39	1.014624
40	1.014413
41	1.014208
42	1.014009
43	1.013816
44	1.044981
45	1.043044
46	1.041268
47	1.039633
48	1.038122
49	1.035251
50	1.034051
51	1.032929
52	1.031880
53	1.030895
54	1.038687
55	1.037246
56	1.035909
57	1.034664
58	1.033503
59	1.045679
60	1.043684
61	1.041855
62	1.040174
63	1.038622
64	1.031855
65	1.030871
66	1.029947
67	1.029076
68	1.028255
69	1.026282
70	1.025609
71	1.024969
72	1.024361
73	1.023782
74	1.020816
75	1.020392
76	1.019984
77	1.019593
78	1.019216
79	1.008502
80	1.008430