

VENUTI & ASSOCIATES

ACTUARIES AND BENEFITS CONSULTANTS

June 27, 2006

To: University of California Union Coalition

Re: UC Retirement Plan – Funding Issues

Ladies and Gentlemen:

The following is our opinion on the issues you have asked us to consider, presented in an executive summary, followed by background, our main findings, and our supplemental findings and recommendations:

Executive Summary

Introduction

In November 1990, the University of California (UC) Regents suspended employer and employee contributions to the UC Retirement Plan (UCRP) after confirming with actuaries and auditors that the UCRP was adequately funded to provide plan benefits for many years into the future. Prior to that, employees contributed 2% to 3% of covered payroll and employer contributions ranged from 4% to 16% of covered payroll.

In March 2006, the UC Regents voted to restart contributions effective as of July 2007, subject to funding and completion of the budget process. Written materials considered by the UC Regents said that the most recent report by the Segal Company, the current actuary to UCRP, “illustrated that the funded status of the UCRP is projected to decline well below 100% unless contributions are restarted or extraordinary market gains occur.”

The Regents’ materials included a chart of the UCRP’s projected funded ratio illustrating that if investment returns for the assets in the UCRP averaged 7.5% per year, the UCRP would become less than 100% funded in 2009.

We believe that the UC information regarding the need for contributions has been incomplete and does not give the UC the benefit of more robust projections and analyses that we would consider best practices under accepted actuarial guidelines.

In our opinion, best practices must be followed before making the important decisions about restarting UCRP contributions. **We believe that the Regents, as fiduciaries of the \$42 billion UCRP, have not had the benefit of projections and analyses that would constitute best practices for making this type of decision.**

Additional Information Needed

Examples of studies and areas of analysis that should be completed before consideration of a major plan policy shift but that have not been requested by UC include the following:

1. A robust funding analysis. Best practices would include modeling numerous “what if” scenarios involving plan assets and liabilities. This type of asset liability modeling is endorsed in Segal’s own newsletter dated 2004 and includes “deterministic” and “stochastic” studies. The last stochastic study of the UCRP was prepared in January 2003. This important analysis should be updated before major plan policy changes are considered.

Such a study would look at reasonable expectations of pension plan asset investment experience, which is typically the most important contribution factor in the plan’s funded status. Segal has used a “single-point” estimate of investment returns of 7.5% per year instead of considering the effect of using a range of potential returns.

Segal has not included a comprehensive analysis of potential higher UCRP investment returns and their impact on the projected plan funded status. For instance, our estimate of the return necessary to prevent a decline in the funded ratio is in the range of 10% to 11%. Market value annual returns have averaged 15.09% for the three-year period ended March 31, 2006, and averaged 12.31% for the 20 Plan Year period from July 1, 1985 to June 30, 2005.

2. A routine verification of the appropriateness of demographic and salary projections used in the plan funding projections. The last “experience study” on the appropriateness of underlying assumptions was completed four years ago, although the UCRP requires that such a study be completed every three years. Especially since some Los Alamos employees are leaving the UCRP, which could affect the demographics of the remaining group, a study should be completed before a major plan policy change is considered. Other underlying assumptions that seem high and should be reviewed are inflation and estimated future salary increases. A lower inflation and salary assumption would improve the projected UCRP funding.

3. Los Alamos. An additional area that warrants analysis and consideration before proceeding with a major plan policy change is the spin-off of Los Alamos workers from the UCRP in conjunction with the transfer of the lab management contract from UC to a new limited liability corporation. Segal and UC have acknowledged that there are many uncertainties about the pending Los Alamos laboratories spin-off from the UCRP and that potential effects of the spin-off are currently unknown and have not been considered in the plan funding projections.

These recommended analyses will provide the Regents, interested parties and the public at large a much better and more thorough understanding of the UCRP funding status.

Conclusion

UC has not justified the need to restart contributions at this time.

In our opinion, the Regents have not had the benefit of projections and analyses that we would consider best practices under accepted actuarial guidelines. It is surprising to us that those responsible for guiding a \$42 billion pension fund have not had the benefit of the best analysis tools, modeling and projection methodologies that are readily available and routinely provided by the actuarial profession.

Finally, due to the present over-funded status of the UCRP and the lack of an impending crisis that requires contributions to restart in July 2007, there is ample time to do additional studies and update the actuarial assumptions before moving forward with major plan policy changes such as restarting contributions.

Background

In April, 2006, the University of California Union Coalition retained Venuti & Associates (VA) to (a) review and analyze relevant UCRP documents; (b) request additional information when necessary; and (c) report on our opinion on issues related to current and future UCRP funding in general, and specifically the UC proposal to restart contributions to the Plan beginning July, 2007.

Our review included UCRP actuarial reports, funding projections and minutes of UC Regent meetings. We requested certain information from the UC Office of the President in a letter dated April 25, 2006 and received a response from Howard Pripas, Executive Director, UC Labor Relations in a letter dated May 26, 2006. Copies of the letters are attached. On June 14, 2006 we met with Director Pripas, UC Retirement Policy Director Gary Schlimgen, and Paul Angelo and John Monroe of the Segal Company, actuaries to the UCRP.

Findings

Based on our review of relevant plan documents, the information received from UC, and our meeting with UC officials and their actuaries, we are concerned about the following areas.

1. Investment Experience Analysis Is Limited

Pension plan investment performance is typically the most important contribution factor in a plan's funded status. Funding projections are extremely sensitive to the investment return assumed in the projections.

- (a) **Single-Point Estimate:** The Segal actuary has used a single point estimate of investment returns of 7.5% per year, however, market value annual returns have averaged 15.09% for the three-year period ended March 31, 2006, and averaged 12.31% for the 20 Plan Year period from July 1, 1985 to June 30, 2005. **A single-point estimate is of limited value and the effect of potential higher returns should be considered in the funding analysis.** The American Academy of Actuaries and the American Society of Pension Actuaries have warned against the danger of using a single-point estimate.¹

- (b) **Extraordinary Returns:** Segal reported to the Regents that “The funded ratio is expected to continue to decline unless contributions are restarted or extraordinary market gains were to occur.” In our meeting with UC and Segal, we asked what asset return was enough to prevent the decline in the funded ratio and Segal indicated that they did not have that information but that it was easy to calculate. When we asked what was meant by “extraordinary market gains” a UC representative indicated that 20% returns would be considered extraordinary but that 10% returns would not be considered extraordinary. We agree with that assessment. **Our estimate of the return necessary to prevent a decline in the funded ratio is 10% to 11%, which was acknowledged by UC to not be an extraordinary rate of return. Again, the decision to restart contributions should not be made until a more comprehensive and real-world based analysis is considered.**

¹ “Even the most professional and diligent actuary cannot predict a plan's investment income with absolute certainty. The Actuarial Standards Board has expressly recognized that investment income and other economic assumptions cannot be calculated to a single, indisputable point. ‘Because no one knows what the future holds with respect to economic and other contingencies, the best an actuary can do is to use professional judgment to estimate possible future economic outcomes based on past experience and future expectations, and to select assumptions based upon that application of professional judgment. Therefore, an actuary's best-estimate assumption is generally represented by a *range* rather than one specific assumption. The actuary should determine the best-estimate range for each economic assumption, and select a specific point from within that range. In some instances, the actuary may present alternative results by selecting different points within the range.’ *Actuarial Standard of Practice (ASOP) No. 27* at ¶ 3.1 (emphasis in original)” Brief of *Amici Curiae*, American Academy of Actuaries and The American Society of Pension Actuaries. Complete brief may be found at: <http://www.actuary.org/pdf/prof/brief5.pdf>

- (c) **Active Management of UCRP Assets:** As a result of a policy decision by the UC Regents, UCRP assets are being reallocated to additional asset classes managed by outside professional investment managers. It is expected that this will generate higher returns on investment but no consideration have been given to these higher expected returns. **The decision to restart contributions should not be made without considering potential higher returns by outside active management.**

2. Funding Analysis Is Incomplete

Best practices would dictate that a robust and thorough multi-scenario analysis of projected UCRP funding be done before deciding on an immediate restart of contributions. **In our opinion, best practices have not been followed.**

- (a) **Asset-Liability Modeling:** The Segal Company, in its own newsletters, has advised plan sponsors about the usefulness of asset-liability modeling (ALM). In an article entitled, “Asset-Liability Modeling: A Powerful ‘Financial Engineering’ Tool for Pension Plan Sponsors,” Segal says, “ALM is particularly helpful in comparing the effects on plan funding of one or more sets of future ‘what if’ scenarios.”² ALM may be based on a simple “deterministic” approach or a more complex and robust “stochastic” approach. **Despite its endorsement by the Segal Company, ALM has not been part of the UCRP funding analysis nor considered in the decision to immediately restart contributions.**
- (b) **Limited Analysis:** Instead of presenting alternative scenarios to assist Regents with their decision, the Segal Company actuary indicated to us that he has presented only one asset return scenario: 7.5% per year. Funding projections are particularly sensitive to the rate of return on plan assets. A sensitivity analysis would be easy to perform, easy to understand and provide additional valuable information about UCRP funding. **A decision to restart contributions should not be made until a sensitivity analysis is performed by the actuary, reviewed by the Regents and provided to interested parties.**
- (c) **Stochastic Analysis:** Quoting again from the Segal newsletter: “Stochastic ALM provides both the amount and timing of expected costs, as well as the range of results – from best- to worst-case outcomes...” The last UCRP stochastic study was prepared as of January 2003, more than three years ago. We agree with the Segal Company’s assessment in the newsletter and believe that such a study would provide valuable additional information on projected

² See <http://www.segalco.com/publications/newsletters/nov2004.pdf>, and <http://www.segaladvisors.com/publications/spring06universe.pdf>.

UCRP funding. However, the Segal actuary for UCRP “feels that a stochastic study in this case would introduce many variables into the analysis that would unnecessarily complicate the picture” (May 26, 2006 response letter from Howard Pripas). We believe that better and more complete information enhances the decision-making process. **A decision to restart contributions should not be made until the stochastic analysis is updated.**

3. Demographic and Salary Assumptions Used in the Funding Projections May Not Be Appropriate

Pension plan funding projections must be based on actuarial assumptions that are reasonable and appropriate. Funding projections can be very sensitive to the underlying actuarial assumptions and can be misstated if the actuarial assumptions are off.

- (a) **Appropriateness of Assumptions:** The last “experience study” of the appropriateness of the actuarial assumptions was done as of June 30, 2002, four years ago. The UCRP Plan Document requires that such a study be done every three years. **A decision to restart contributions should not be made until the assumptions are reviewed and revised, as necessary.**
- (b) **Los Alamos:** Segal Company has acknowledged that the spin-off of some employees at the Los Alamos Laboratories into a separate retirement plan will change the composition of the covered group and could affect expected future experience of the covered group. They have also indicated that the effect of the spin-off on future reasonable assumptions for salary scale, etc. is currently unknown and has not been considered in the UCRP funding projections. **The decision to restart contributions should not be made until the effect of the spin-off on assumptions is considered.**
- (c) **Inflation:** The plan funding projections are based on a future inflation assumption of 4.00% per year. Inflation over the past 5-years and 10-years has been 2.55% and 2.51%, respectively. **It appears to us that this inflation assumption is unnecessarily high and should be reviewed. A lower inflation assumption would improve the projected plan funding.**
- (d) **Assumptions for Future Salary Increases:** Starting in July 2007, salaries for plan participants are assumed to increase between 4.9% to 6.5% per year, depending on age. Such increases are significantly higher than increases for the UC workforce have been in the past. The funding projections presented to and considered by the Regents also include future “catch-up” pay increases that are not set in stone and, in fact, will not be included in the next published actuarial report. **Especially given the State of California’s current economics, the assumed salary increases seem high, and should be**

reviewed. A lower salary increase assumption would improve the UCRP funding projection.

4. Los Alamos Spin-Off Effects Unknown

The spin-off will have an unknown impact on the future funded status of the UCRP.

- (a) Segal and UC have acknowledged that there are many uncertainties about the pending Los Alamos laboratories spin-off from the UCRP and that potential effects of the spin-off are currently unknown and have not been considered in the funding projections. **The decision to restart contributions should not be made without considering the potential impact of the Los Alamos spin-off.**

Conclusion

UC has not justified the need to restart contributions at this time.

In our opinion, the Regents have not had the benefit of projections and analyses that we would consider best practices under accepted actuarial guidelines. It is surprising to us that those responsible for guiding a \$42 billion pension fund have not had the benefit of the best analysis tools, modeling and projection methodologies that are readily available and routinely provided by the actuarial profession.

These recommended analyses will provide the Regents, interested parties and the public at large a much better and more thorough understanding of the UCRP funding status.

We are available to answer any questions you might have about this report

Very truly yours,



David W. Venuti, FCA, MAAA, EA
President

SUPPLEMENTAL FINDINGS AND RECOMMENDATIONS

Our report focuses on the following issues:

- (1) Investment Experience – Recent investment history and recognition of management and investment policy changes in funding projections;
- (2) UCRP Funding Projections – Minimum required future investment returns to maintain full funding without the proposed 2007 contribution restart; and
- (3) Actuarial Experience – Appropriateness of current demographic/salary projection assumptions.

(1) Investment Experience

Issue: Pension plan investment performance is typically the most important contribution factor in a plan's funded status. Funding projections are extremely sensitive to the investment return assumed in the projections.

Findings:

- (a) The Segal Company reported UCRP net market value returns of 14.5% and 10.3% for Plan Years ended June 30, 2004 and 2005 respectively. Combined with the market value asset return history for the previous 18 Plan Years shown on page SI-4 of the Towers July 1, 2003 Actuarial Valuation, a 12.3% average annual return was realized by UCRP over the last 20 Plan Years ended June 30, 2005.
- (b) The web link provided in Item 3 of the UC response letter (<http://www.ucop.edu/treasurer/updates/IAC%20601%200306%20prelim.pdf>) showed a UCRP net market value return for the 9 month period July 1, 2005 through March 31, 2006 of 8.52%.
- (c) We requested the expected increase in investment returns resulting from the decisions changing UCRP's investment policy for asset allocation and active management (RFI – Item #4)
- (d) The UC response (Item #4) was an expected increase of 0.35% per annum due to asset allocation changes, and that the Treasurer's office does not make projections for changes due to active management.

Comments/Recommendations: The UCRP is likely to average an annual double-digit market value return for the three year period ended June 30, 2006 (and an even greater return over the last 21 Plan Years ended June 30, 2006). It is also clear that the recent investment policy changes have had and should continue to have positive effects on future returns as their phase-in is completed. These effects should be estimated and quantified; if not by the Treasurer's office, then by the UCRP's investment consultants – the people who designed, evaluated and implemented the policy changes, and received significant fees for their efforts. The quantified “value added” to the expected returns should then be incorporated into funding projections before considering significant decisions such as restarting UCRP contributions.

(2) UCRP Funding Projections

Issue: Funding decisions should be based on complete, comprehensive and thorough projection analysis.

[Note: for a plain language description of deterministic and stochastic asset liability models and their uses, please see the November, 2004 Segal Company (UCRP's actuary) Newsletter at: <http://www.segalco.com/publications/newsletters/nov2004.pdf>]

Findings:

- (a) We requested a copy of the stochastic projections referred to in Regents Item 505 from the meeting of November 17, 2005 (RFI – Item #1a) showing “a very high likelihood that UCRP will become less than fully funded within the next few years.”
- (b) The UCRP response (Item #1a) indicated that no stochastic study had been performed since January, 2003 and their actuary (Segal) believed that such an analysis would “complicate the picture.” They instead performed “a small number of deterministic projections to measure sensitivity to economic changes” (all showing that the UCRP will become underfunded in the next few years).
- (c) Item 505 also stated that “it is clear from an actuarial standpoint that the current ‘contribution holiday’ cannot be sustained. The funded ratio is expected to continue to decline unless contributions are restarted or extraordinary market gains were to occur.” We asked for (RFI – Items #1b and 1d) the quantitative definition of “extraordinary market gains” in this context.
- (d) The UCRP response (Item #1b(ii)) indicated “investment gains higher than the 7.5% assumed rate would be needed for many years in succession.”

Comments/Recommendations:

- (a) In coming to the conclusion that UCRP contributions need to be immediately restarted, the Regents and UC Office of the President have relied on the following:
 - a. A three-year-old stochastic projection performed by the previous actuary (Towers) and not incorporating investment policy and demographic/salary experience changes described above; and
 - b. A single deterministic projection reflecting three-year-old demographic/salary assumptions, investment performance to date, “catch-up” future pay increases that may not occur, and assuming a flat 7.5% annual rate of return on investments for future years. (Note: the Regents will instruct Segal not to include the “catch-up” pay increases in their 2006 Actuarial Valuation liabilities.)
- (b) Although described in the UC response, we have not seen any deterministic studies that would provide a sensitivity analysis of economic changes on the future funded status (such as using a 6.5% or 8.5% assumed annual rate of return for future years). We are awaiting further explanation on this matter from UCOP/Segal.
- (c) We requested a quantitative value for an “extraordinary” rate of return that would preclude any future underfunding, and received a paraphrased response of “something higher than 7.5% for many years.” Apparently testing of forward-going returns of 9%, 10%, 11% ... etc. was not included in these small number of deterministic studies. Such studies would have revealed a minimum annual future rate of return that would preclude the restart of contributions (with all other assumptions being met).
- (d) In their November, 2004 newsletter, the Segal Company recommends stochastic Asset Liability Modeling (ALM) as a powerful tool in plan sponsors’ evaluation of future “what-if” scenarios. We agree and recommend that stochastic UCRP forecasts be performed, incorporating newly developed assumption scenarios as described above, and be part of the decision-making process for future UCRP funding.

(3) Appropriateness of Demographic and Salary Assumptions Used in the Funding Projections

Issue: Pension plan funding projections must be based on actuarial assumptions that are reasonable and appropriate.

Findings:

- (a) We noted in our Request for Information (RFI – Item #2) that the most recent analysis of the appropriateness of the UCRP demographic actuarial assumptions (including salary projection scales) was prepared by Towers Perrin dated November 19, 2003 and included data through June, 2002.
- (b) The UC response (Item #2) confirmed that Section 12.01 of the UCRP Plan Document requires such a study every three years, but the next study isn't scheduled to begin until after the completion of the July 1, 2006 Actuarial Valuation.
- (c) The spin-off of the Los Alamos Laboratories into a separate plan will change the composition of the covered group and could affect expected future experience of the covered group. No study has been presented that addresses the anticipated effect of the spin-off on future plan experience or the appropriateness of the underlying actuarial assumptions.

Comments/Recommendations: The scheduled experience study is already one year late and should be completed no later than scheduled. Any recommended assumptions changes resulting from that study should be incorporated into funding projections before considering significant decisions such as restarting UCRP contributions. The anticipated effect of the Los Alamos spin-off on plan experience and actuarial assumptions should be considered. No decisions about contribution restart should be made until a full analysis of the effect of the spin-off is completed.